Energy Park/Longe/New York State Canal Corporation Site
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2. Phase I Environmental Site Assessment

2.1 Site Location, Description, and Environmental Setting

The Energy Park/Longe/New York State Canal Corporation (NYSCC) Final Candidate Site (FCS) is located in the Hudson-Mohawk Lowland physiographic province. The topography of this province has been produced primarily by erosion along outcrop belts of sedimentary rocks that lie between the Catskills and the metamorphosed shale hills of the Taconics. The province generally has low relief and elevation and is underlain by Ordovician shales that have been exposed by the erosion of Silurian and Devonian limestones (University of the State of New York 1966). The site is composed of three parcels of different ownership. Site photos are found in Appendix A.

2.1.1 Energy Park

The Energy Park parcel is 50.9 acres located in Fort Edward, Washington County, New York (see Figure 2-1). The property is currently zoned agricultural and is leased to a farmer that uses the land as a cornfield for livestock feed. The parcel is part of a larger (300-acre) complex of relatively undeveloped land (including the adjacent Longe parcel described below). Land use within a 1-mile radius of the site includes light industrial, residential, farmland, and the Champlain Canal.

The topography across the property and surrounding area is relatively flat. The eastern edge of the property is wooded (approximately 225 to 375 feet wide) and abuts the NYSCC parcel. Access to the parcel is via Towpath Road, then a dirt access road through the Environmental Soil Management, Inc. of New York (ESMI) treated-soil stockpile yard, and then over the railroad. An active Canadian Pacific Railway rail line/rail yard is adjacent to the west side of the property. The Champlain Canal (which is approximately 100 to 150 feet wide) is located approximately 225 to 450 feet southeast of the Energy Park property and is separated from the property by NYSCC property. Key site features are presented on Figure 2-1.

2.1.2 Longe

The Longe parcel is 28.1 acres and is located in Fort Edward, Washington County, New York (see Figure 2-1). It is the location of a former sand mining operation and borders the west side of Energy Park. The property is currently owned by a private citizen who has leased it to a farmer that uses the land as a cornfield for livestock feed. The parcel is part of a larger (300-acre) complex of relatively undeveloped land (including the adjacent Energy Park parcel). Land use within a 1-mile radius of the property includes light industrial, residential, farmland, and the Champlain Canal.

Topography is relatively flat. The eastern edge of the property is wooded (approximately 30 to 150 feet wide). Access to the parcel is via Towpath Road, then through the ESMI treated-soil stockpile yard, across the railroad, and through the Energy Park parcel. An active rail line/rail yard is adjacent to the west side of the property. The Champlain Canal is located approximately 350 feet east of the site. Surface water flow within the

canal was observed to reverse during filling and emptying of Lock 8. A road located along the west side of the Champlain Canal leads to Lock 8. Key site features are presented on Figure 2-1.

2.1.3 New York State Canal Corporation

The NYSCC property is 24.9 acres and is located on the northwest side of the Champlain Canal in Fort Edward, Washington County, New York (see Figure 2-1). The Champlain Canal parallels the property to the east. The property contains two creeks (approximately 25 to 40 feet wide) that run north-south, parallel to one another and to the Champlain Canal. One of the creeks drains the old Champlain Canal, which is located about 1,000 feet northeast of the parcel. The easternmost creek is an overflow from Lock 8; it turns southeast and empties into the canal. A road located along the west side of the Champlain Canal leads to Lock 8. The parcel is predominantly forested, with maintained grassed areas. Examination of aerial photographs indicated a borrow pit in the northern portion of the property. Access to the property is via the canal or East Street. Key features are presented on Figure 2-1.

2.2 Historical Use Information

2.2.1 Energy Park

The property was previously a topsoil mine. The former topsoil mine areas are being reclaimed by filling in low areas and creating an organic soil zone by applying manure. Figure 2-1 shows the site before the filling activities. ESMI and Energy Park Associates have the same owner.

2.2.2 Longe

The property was previously a topsoil mine. The property is currently privately owned and leased to a farmer that uses part of the land for growing corn for livestock feed. Figure 2-1 shows the site before the filling activities.

2.2.3 New York State Canal Corporation

According to NYSCC, the only use of the property has been bulk material stockpiling (gravel and wood chips) in the northern portion of the property. It is unknown whether dredge spoils were historically placed on-site.

2.3 Summary of Previous Studies

NYSCC provided historic subsurface data that may be useful to the Remedial Design (RD) Team with further clarification from the NYSCC.

3. Phase II Investigation

3.1 Field Investigations

The initial phase of the environmental assessment consisted of collecting environmental and geotechnical samples. Results of the geotechnical sampling are provided in Section 4 of this report. Site photographs are found in Appendix A. Boring logs and supplemental geotechnical information are found in Appendix B. Environmental samples were

collected from surface soil, surface water, sediment, subsurface soil, and groundwater. Surface and subsurface soil samples were collected in historic fill areas and areas of the sites where construction operations would be expected to occur if the site is selected. Surface water samples were collected along present site runoff flow pathways such as the stream bordering the eastern boundary of the Energy Park parcel. Sediment samples were collected in the same areas as surface water samples. Upgradient and downgradient groundwater samples were collected to provide an indication of overall environmental conditions.

All environmental field investigations were performed in accordance with the August 2003 *Hudson River PCBs Superfund Site Facility Siting Work Plan* (Ecology and Environment, Inc.) and the September 2003 addenda to that plan, the *Site-Specific Field Investigations of the Final Candidate Sites* (Ecology and Environment, Inc.). Investigations at this site were performed in September and October 2003. A summary of investigation activities and dates is provided in Table 3.1-1.

Deviations from the Work Plan

The only deviation from the work plan was moving Geoprobe boring EPL-GP05 approximately 100 feet west of the planned location to accommodate rig access (i.e., uneven terrain and a dense wooded area).

3.2 Environmental Sampling Program

3.2.1 Temporary Well Installation and Groundwater Flow

Five temporary 1-inch polyvinyl chloride (PVC) wells were installed via direct push technologies (DPT). Well construction information is provided in Table 3.2-1. Before groundwater sampling, each temporary well was purged three times the volume of water standing in the casing or to dryness (whichever occurred first). Water quality parameters measured in the field during purging are presented in Table 3.2-2. Groundwater sample results are described below.

Groundwater elevations were measured from each temporary well upon well completion and at two separate times following completion of the sampling program. In addition, a surface water elevation was obtained from the creek along the eastern border of the Energy Park parcel via a stream gauge. The top of each temporary well and a reference mark on the stream gauge were surveyed so that an accurate elevation could be obtained. Table 3.2-3 summarizes the recorded elevations. Based on the limited information available from this study (five wells spaced more than 1,000 feet apart), groundwater flow beneath the Energy Park site appears to be to the southeast towards the Champlain Canal (see Figure 3-1). Localized flow in the surrounding area may vary in direction due to the proximity of the Hudson River to the south.

3.2.2 Field Sampling and Surveying

The environmental investigations at this site included collecting nine surface soil samples; three surface water/sediment samples; subsurface soil sampling via DPT at seven locations; groundwater sampling from five temporary monitoring wells; geotechnical soil testing at five locations; and installation of one stream gauge for

hydrologic monitoring purposes. Table 3.2-4 summarizes the total number of field and quality assurance/quality control (QA/QC) samples collected and the parameters for which they were analyzed; Figure 3-2 illustrates all environmental investigation locations. All sample locations and stream gauges were surveyed for both horizontal and vertical positions. Survey data is presented in Appendix C. All samples were collected in accordance with the project work plans. Field chemistry data recorded from surface water sample locations are presented in Table 3.2-2. Results from each sample medium are described below.

3.2.3 Data Usability

Soil, sediment, surface water, and groundwater samples were collected from various locations at each FCS (see Section 3.3). The samples were submitted to several environmental analytical laboratories for analytical testing as directed by EPA. Appendix D provides the complete analytical results, field quality control (QC) samples, and data qualification. The specific data usability concerns regarding each FCS are still under evaluation as part of a detailed review of the hard copy data assessment reports. The following is a summary of general information regarding data usability determined from the electronic data review.

Out of a total of 4,344 reported values, 499 values were qualified during the data validation process. The data points that were qualified as estimated, bias low, or non-detect are considered useable for the purposes of this project. A total of three values were flagged as unusable resulting in a completeness of more than 99.9%. Further evaluation of the data will include determining potential limitations of other qualified data and the impact of rejected data. In general, potential data limitations for the site are minor, as noted below:

- Low levels of several volatiles and pesticides were flagged "U" as non-detected. The results were generally below the reporting limit and, therefore, the data qualification has no impact on the data usability.

- Data qualified as unusable are for compounds that are generally highly reactive and not typically found during site investigations.

- Field blanks, including trip blanks, rinseates, and field duplicates, were collected to be applicable to all FCSs. The results are summarized in Appendix D. The results demonstrate good overall sampling and analysis precision and no significant field contamination.

- The laboratory reported tentatively identified compounds (TICs) for volatile and semivolatile compounds on the hard copy data package. TIC values are reported as "NJ" with presumptive evidence that the compounds are present and concentrations are considered highly estimated. The TICs are being reviewed to determine any indications of significant contamination not identified by the results for the known target compounds.

3.3 Environmental Sample Results and Evaluation

State and federal standards, criteria, and guidances were used for preliminary screening purposes during review of the analytical sample results for surface soil, subsurface soil, surface water, sediment, and groundwater. Exceedances of the criteria (with the exception of metals) are noted in Table 3.3-1 through 3.3-5 by shading the values that exceeded the criteria.

Metals cannot be directly compared to the criteria without additional evaluation (including evaluation of background levels) because metals occur naturally in the environment. Additionally, turbidity in surface water and groundwater samples can cause interference with metals analysis. These factors were considered in the evaluation of the significance of detected compounds.

The criteria were selected based on a review of available EPA and NYSDEC standards, criteria, and guidances for the various media sampled. The applicability of these preliminary screening criteria to the FCSs will be determined as part of further evaluation by EPA in consultation with NYSDEC and the New York State Department of Health (NYSDOH).

The following discussion identifies the samples, by medium, with compounds exceeding the screening criteria. Those compounds without appropriate screening criteria also are identified. Where available, pertinent information for comparison purposes is provided.

Soil (Surface and Subsurface)

New York State Department of Environmental Conservation (NYSDEC), *Technical and Administrative Guidance Memorandum #4046: Determination of Soil Cleanup Objectives and Cleanup Levels* (1994) and subsequent amendments (December 20, 2000) (TAGM 4046). The recommended soil cleanup objectives and typical eastern USA background concentrations for metals contained in TAGM 4046 were used as preliminary screening guidance for soil. Where specific guidance values were available for surface and subsurface soils (such as for polychlorinated biphenyls [PCBs]) they were applied based on the depth of the samples collected. TAGM 4046 assumes a total organic carbon (TOC) of 1%.

Surface Water

NYSDEC, *Technical and Operational Guidance Series (T.O.G.S. 1.1.1): Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations* (1998). These standards and guidance provide values for various water classes. Since the majority of the surface water samples were collected from unnamed ditches and ponded water areas at the site, the surface water samples collected are assumed to be Class D waters. Class D waters are best used for fishing. However, due to natural conditions such as intermittent flow, water conditions may not be conducive to fish propagation. Surface water standards and guidance values are calculated for some inorganics based on water hardness.

Sediment
NYSDEC, *Division of Fish, Wildlife and Marine Resources, Technical Guidance for Screening Contaminated Sediments* (1999). This guidance requires organic contaminants in sediments to be calculated based on sample TOC. TOC data were collected and used to calculate these screening values. Various criteria for bioaccumulation and acute and chronic toxicity are presented in this document for protection of human health, benthic aquatic life, and wildlife. The benthic aquatic life chronic toxicity protection level for sediment was selected as the preliminary screening value for all collected sediment samples.

Groundwater
NYSDEC, *Technical and Operational Guidance Series (T.O.G.S. 1.1.1): Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations* (1998) provides Class GA standards and guidance values. The *National Primary and Secondary Drinking Water Regulations, Current Drinking Water Standards* (2002) maximum contaminant levels (MCLs) were used for preliminary screening for groundwater samples collected from the temporary wells.

3.3.1 Surface Soil

Volatile Organic Compounds (VOCs)
No VOCs exceeding screening criteria were detected in surface soil samples (see Table 3.3-1).

A compound not having screening criteria that was detected was 1,1,2-trichloro-1,2,2-trifluoroethane (1 µg/kg [J]) (see Table 3.3-1). This constituent is a Freon compound that may be present in the sample as a laboratory artifact. Therefore, the presence of this constituent is not of concern.

Semivolatile Organic Compounds (SVOCs)
Exceedances of screening values (see Table 3.3-1) occurred in only one sample: EPL-SS01 (benzo(a)pyrene 180 µg/kg [J]).

Compounds not having screening criteria that were detected were acetophenone (110 µg/kg[J]), atrazine (91 µg/kg[J]), and benzaldehyde (180 µg/kg[J]).

Pesticides
No pesticides that exceed the screening criteria were detected.

Herbicides
No herbicides that exceed the screening criteria were detected.

Compounds detected without screening criteria include only atrazine, which was detected in the SVOC scan. This herbicide was detected only in EPL-SS07 (see Table 3.3-1). This sample is located in the farm field on the Energy Park parcel. Since atrazine is a common herbicide used in cornfields, it is not of concern at this site.

PCBs
No PCBs that exceed the screening criteria were detected.

Hexane Extractable Materials (Total Petroleum Hydrocarbons [TPHs])
TPHs were detected in sample EPL-SS01 (composite sample adjacent to the railroad) at a concentration of 1,540 mg/kg) (see Table 3.3-1). There are no screening criteria for TPHs.

Inorganics
Arsenic, beryllium, calcium, chromium, copper, iron, magnesium, mercury, nickel, vanadium, and zinc were detected above screening criteria (see Table 3.3-1). Metals are naturally occurring constituents of soil that often exceed criteria. Except for vanadium, the levels of these metals are within or very close to the eastern USA background range. Therefore, the presence of these metals is not of concern. Although vanadium was detected in EPL-SS08 (599 mg/kg) at twice the common range (1 to 300 mg/kg) and was an order of magnitude higher than most of the site samples, it was also noted in EPL-SS09 at 208 mg/kg. Both of these samples were in the undisturbed portions (wooded areas) of the site and are more indicative of site background, since the other samples were collected in fill areas. Therefore, the vanadium may also be naturally occurring.

Very low levels of cyanide were detected in six of the surface soil samples see (Table 3.3-1). There are no criteria for cyanide in surface soils. Since the levels are so low, it is not of concern for this site.

3.3.2 Subsurface Soil

VOCs
No VOCs exceeding screening criteria were detected in subsurface soil samples (see Table 3.3-1).

Compounds without screening criteria that were detected include methyl tert-butyl ether (1 µg/kg[J]) and trichlorofluoromethane (1 µg/kg [J]) in EPL-GP02 (see Table 3.3-1). Trichlorofluoromethane is a Freon compound that may be present in the sample as a laboratory artifact. Therefore, the presence of this constituent is not of concern.

SVOCs
No SVOCs exceeding screening criteria were detected in subsurface soil samples (see Table 3.3-1).

Acetophenone, a compound without screening criteria, was detected at 100 µg/kg (J) in EPL-GP02 (see Table 3.3-2).

Pesticides
No pesticides that exceed the screening criteria were detected..

Herbicides
Herbicides were not specifically tested, and no herbicides were detected under the SVOC scan.

PCBs
No PCBs were detected.

Hexane Extractable Materials (Total Petroleum Hydrocarbons [TPHs])
TPHs were not tested.

Inorganics
Beryllium, calcium, chromium, copper, iron, magnesium, nickel, and zinc were detected above screening criteria (see Table 3.3-2). Metals are naturally occurring constituents of soil that often exceed criteria. The levels of these metals are within or very close to the eastern USA background range. Therefore, the presence of these metals is not of concern.

3.3.3 Surface Water

VOCs
No VOCs exceeding screening criteria were detected in surface water samples (see Table 3.3-1).

The compound 1,1,2-trichloro-1,2,2-trifluoroethane , which has no screening criteria, was detected at 1 µg/kg (J) in EPL-SW01 (see Table 3.3-3). This constituent is a Freon compound that may be present in the sample as a laboratory artifact. Therefore, the presence of this constituent is not of concern.

SVOCs
No SVOCs exceeding screening criteria were detected in subsurface soil samples (see Table 3.3-1).

Bis(2-ethylhexyl)phthalate, a compound without screening criteria, was detected at 8 µg/L (J) in EPL-SW01 (see Table 3.3-3). This constituent is typically detected at low concentrations in environmental samples as an artifact from the use of protective gloves both in the field and laboratory. Therefore, the presence of this constituent is not of concern.

Pesticides
No pesticides were detected in the surface water.

PCBs
No PCBs were detected in the surface water.

Anions
Chloride, nitrate-N, and sulfate were detected in all surface water samples (see Table 3.3-3). Anion concentrations were relatively uniform in all the surface water samples.

Inorganics
Only iron was detected above screening criteria in EPL-SW01 (1,670 µg/L), EPL-SW02 (1,740 µg/L), and EPL-SW03 (2,470 µg/L) (see Table 3.3-3). Iron is a naturally occurring constituent of surface waters that often exceeds criteria. Therefore, the presence of iron is not of concern.

Cyanide was detected only in EPL-SW03 (8 µg/L) below its screening criteria (see Table 3.3-3). Therefore, the presence of cyanide is not of concern.

Hardness
Hardness concentrations are relatively uniform across the site and ranged between 270 and 285 mg/L (see Table 3.3-3).

3.3.4 Sediment

VOCs
No VOCs exceeding screening criteria were detected in sediment samples (see Table 3.3-4).

Trichlorofluoromethane, a compound without screening criteria, was detected at 3 µg/kg (J) in sediment sample EPL-SE03 (see Table 3.3-4). This constituent is a Freon compound that may be present in the sample as a laboratory artifact. Therefore, the presence of this constituent is not of concern.

SVOCs
No SVOCs exceeding screening criteria were detected in sediment samples (see Table 3.3-4).

Acetophenone, a compound without screening criteria, was detected in EPL-SE01 (120 µg/L [J]), EPL-SE02 (120 µg/L [J]), and EPL-SE03 (190 µg/L [J]) (see Table 3.3-4).

Pesticides
No pesticides exceeding screening criteria were detected in sediment samples (see Table 3.3-4).

Compounds without screening criteria that were detected include 4,4'-DDE in EPL-SE02 (2.7 µg/kg [J]) and EPL-SE03 (9 µg/kg [J]) (see Table 3.3-4).

PCBs
No PCBs exceeding screening criteria were detected in sediment samples (see Table 3.3-4).

Inorganics
Only iron (20,200 mg/kg) was detected at slightly above the lowest effect screening criteria (20,000 mg/kg), but it did not exceed the severe effect criteria (40,000 mg/kg) (see Table 3.3-4). Iron is a naturally occurring common constituent that often exceeds criteria. Therefore, the presence of iron is not of concern.

Cyanide was detected only in EPL-SE02 (0.35 mg/kg) at a very low level (see Table 3.3-4). Although there are no screening criteria for cyanide, its presence at this low level is not of concern.

Total Organic Carbon (TOC)
Total organic carbon concentrations ranged between 9,200 and 62,000 mg/kg (see Table 3.3-4).

3.3.5 Groundwater

VOCs
No VOCs were detected in groundwater samples.

SVOCs
No SVOCs were detected in groundwater samples.

Pesticides
No pesticides were detected in groundwater samples.

PCBs
No PCBs were detected in groundwater samples.

Inorganics
Aluminum, iron, manganese, and sodium were each detected in at least one well above screening criteria. These metals are naturally occurring constituents of groundwater that often exceed criteria. Therefore, the presence of these metals is not of concern.

4. Geotechnical Assessment

A subsurface field investigation was conducted at the Energy Park/Longe/New York State Canal Corporation site to obtain geotechnical information. The primary purpose of collecting this data was to determine if there are geotechnical limitations associated with the use of the site for a sediment processing/transfer facility. Data collection included:

- Review of available subsurface information from previous studies;
- Soil borings installation (which included logging the subsurface geology and obtaining standard penetration test [SPT]data); and
- Submitting soil samples for geotechnical testing.

Presented below is a summary of the site geologic and geotechnical data collected.

Subsurface soil investigation locations were selected to provide general coverage of the site. Additionally, locations were selected based on the possible presence of fill in areas that may be used to construct the sediment processing/transfer facility. Figure 3-1 shows the locations of five geotechnical boreholes (EPL-GT01 through EPL-GT05) installed during this study. At each geotechnical boring location a continuous vertical soil profile was developed from the ground surface to a depth of approximately 26 feet below ground surface (bgs) in 2-foot increments. A 2-inch outer diameter (OD) by 24-inch long split spoon sampler was advanced through 4.25-inch inner diameter (ID) hollow stem augers to collect the samples. Standard penetration tests using a split spoon sampler were conducted per ASTM Method D1586-99. Blow count data were recorded on boring logs and are presented in Appendix B. Granular soil density and cohesive soil consistency were classified using SPT n-values, which are the sums of the blows recorded over the second and third 6-inch penetration intervals of the tests.

One soil sample from each geotechnical boring was collected and submitted for Atterberg limits, particle size, and moisture content analysis. The overall goal of sample collection from geotechnical borings was to collect at least one soil sample from each soil horizon encountered within the top 25 feet of overburden. At two boreholes, one soil sample from each depth interval also was collected and submitted for moisture content testing, creating a continuous moisture profile from the ground surface to the bottom of the borehole. Particle size gradation curves and their respective summary sheets, which also list Atterberg limit data and moisture content data, are presented in Appendix B.

In addition to the geotechnical borings, subsurface geology was also recorded at seven other locations (EPL-GP01 through EPL-GP07) during subsurface investigation activities completed for environmental sampling. These soil investigation activities were conducted using direct-push technology (DPT); a 4-foot soil collection interval was used to collect a continuous soil profile from the ground surface to approximately 25 feet bgs. DPT soil boring logs are also presented in Appendix B.

The subsurface data indicates that site soils generally consist of silty sands underlain by sand with trace amounts of gravel starting at a depth of 10 feet bgs. Silt content decreased with depth starting at approximately 12 feet bgs, while the coarser fraction of unstratified sands correspondingly increases with depth. Site SPT n-values generally ranged from 4 to 11 in granular soils, indicating a soil density of loose to moderately dense. One exception is the 8.5- to 9.5-foot interval in the northwest area, where moderately dense sands yielded an n-value of 24. Clay was encountered along the west-central portion of the site at depths of approximately 18 and 21 feet bgs, indicating its consistency was very soft, based on recorded SPT n-values.

Auger refusal and/or weathered shale in the split spoon sampler (possible bedrock) were encountered at depths of approximately 23 to 25 feet bgs in the central and southwestern portions of the site. Adjacent to the west bank of the Champlain Canal, a thin (<1-foot

thick) peat layer located at a depth of approximately 14 feet bgs overlies a clay layer that extends to a depth greater than 26 feet bgs.

Farming of treated soils on much of this site has resulted in minimally consolidated soils containing mixtures of organic matter, silt, and very fine-grained sand. In the northern and eastern parts of the site, SPT n-values of 2 were recorded in at least one interval in the uppermost 10 feet of each geotechnical boring location. Based on these SPT n-values, the density of these granular soils is classified as very loose.

Malcolm Pirnie (1985) reports site soil borings installed by NYSDEC indicate that bedrock lies between 59 and 82 feet below grade in the central part of the site. A wet layer of peat was encountered from 6 to 9 feet bgs and is underlain by a wet clay that extends to the top of bedrock. Borings installed along the western side of the site indicated that an approximately 4-foot thick layer of fine silt and sand lies at the surface. Coarse sandy gravel underlies this medium sand down to a depth of 21 feet bgs, where clay is present. Clay was also found at the site's north end; it reportedly extends from 17 bgs feet down to 40 feet bgs.

5. Utility Assessment

5.1 Preliminary Assessment

A preliminary utility assessment was completed as part of the site-specific field investigation of the Final Candidate Sites. Major site utilities identified on-site are shown on Figure 2-1. The assessment included the following steps:

1) Observations of site surface utilities such as overhead power or telephone lines, electrical transformers, manholes, sewer outfalls, and water hydrants were made.

2) Dig Safely New York (Dig Safe) was contacted as part of the utility clearance process before subsurface/intrusive work activities, including direct communication with various utility operators, as needed. Operators of on-site utilities provided information.

3) Available site maps were reviewed. Maps were obtained from various sources, including property owners.

It is anticipated that further utility assessments will be completed at the Recommended Sites. Further assessment may include contacting local municipal offices for information, opening manholes to determine flow paths, and dye testing. Further assessment may be conducted as part of the design evaluation process or during other additional investigation of Recommended Sites.

5.2 Findings and Observations

Utilities identified at the Energy Park/Longe/NYSCC include one telecommunications line located in the railroad right-of-way that parallels the western site border of the site. It is operated by Level 3 Communications, Inc.

6. Survey of Terrestrial Archaeological and Architectural Resources (STAAR)

Section 106 of the National Historic Preservation Act requires federal agencies to take into account the effect that facility siting may have on cultural resources that are listed or are eligible for listing on the National Register of Historic Places (NRHP). Phase IB field investigations continued the cultural resources studies and are specifically designed to determine the presence and extent of cultural resources within the Energy Park/Longe/NYSCC site (see *Addenda to the Hudson River PCBs Superfund Site Facility Siting Work Plan: Site-Specific Field Investigations of the Final Candidate Sites*). Field activities involved archaeological, geomorphological, and architectural investigations.

6.1 Archaeological Investigation

Initial field reconnaissance and records investigations were conducted in July 2003 and field investigations were performed on-site between October 6 and October 13, 2003. A total of 271 shovel test pits were excavated within this 103.9-acre site (see Figure 6-1). No cultural features or artifacts were found.

6.2 Geomorphological Investigation

Fieldwork was conducted on October 13, 15, and 16, 2003. Six trenches excavated by backhoe totaled 54.5 meters in length. Trench dimensions varied slightly but were generally 1.3 meters in depth and ranged from 4 meters to 13 meters in length.

Because a considerable amount of rain had fallen the night before and the day of trenching, three of the trenches quickly filled with water.

Prehistoric Site Sensitivity

A relict stream channel was discovered in two of the trenches. Areas adjacent to stream channels are known to have been favored by Native Americans and have high archaeological potential. However, no artifacts or paleosols (i.e., prehistoric buried surfaces) were found. However, the presence of a relict stream channel is notable since Native Americans were known to have inhabited the banks of stream channels. It is possible that paleosols and artifacts were not found at this present-day location because the stream channel may have migrated over time. Because of the near-surface location of the stream channel, it is likely that this is a young stream channel. However, the age of the stream channel could not be readily determined.

6.3 Architectural Assessment

Fieldwork was conducted in July 2003 and on October 16, 2003. No structures are located within any of the three properties that comprise this site. No New York State Historic Resource Inventory (HRI) forms are being completed for this site. A train yard is visible adjacent to the northwest edge of the site. A small working farm is situated immediately south of the site. All structures associated with this farm, which include a residence and several agricultural outbuildings, appear to be less than 50 years old.

Structures located across the canal are shielded by vegetation. There are no architectural or viewshed concerns associated with this site.

7. Wetland Assessment

7.1 Determination and Delineation Methods

Wetland determinations and delineations of the Energy Park/Longe/NYSCC site on September 17-18, 2003 followed the routine approach noted in the U.S. Army Corps of Engineers (USACE) 1987 *Wetland Delineation Manual*, as outlined in Section 3.6.2.2 of the *Hudson River PCBs Superfund Site Facility Siting Work Plans* (Master Work Plans) (Ecology and Environment, Inc. August 2003). Applicable data (e.g., soil surveys, National Wetland Inventory [NWI] mapping, etc.) were reviewed beforehand to provide background information (see the Master Work Plans, Section 3.6.2.1). Determination and delineation activities were limited to those areas previously identified as potential wetlands through data review (i.e., NWI and NYSDEC mapping) and previous site reconnaissance efforts.

All three parcels have been disturbed as a result of fill placement or material stockpiling. The Energy Park parcel was previously used as a topsoil mine. The pits were recently filled by the site owner (Energy Park Associates) with thermally treated nonhazardous waste soils. Logging has also recently modified the Energy Park parcel. By comparing the forested area shown on the 2001 aerial with the field-delineated tree line it is evident that the tree line has been moved between 100 to 120 feet east. According to NYSCC, use of their property has been limited to bulk material stockpiling (gravel and wood chips) in the northern portion of the property. The field survey of this site indicated evidence of what appeared to be past fill storage, particularly in the northern portion where large amounts of shale fragments were noted at the surface.

The Longe property was also previously used as a topsoil mine and the pits recently filled with thermally treated nonhazardous waste soils. This parcel also has experienced some disturbance caused by logging activities along the eastern edge of the forested portion of the parcel.

7.2 Review of Existing Information

Review of NWI wetland mapping indicated the presence of approximately 28.4 acres of wetland on this site. Approximately 11.9 acres of PFO1/SS1Cd (palustrine, forested, scrub-shrub, broadleaved deciduous, seasonally flooded, partially drained/ditched) wetland were mapped on the Energy Park parcel (see Figure 7-1). An additional 12.2 acres of PFO1/SS1Cd and 4.3 acres of PEM1/SS1Cd (palustrine, emergent/scrub-shrub, broadleaved deciduous, seasonally flooded, partially drained/ditched) were mapped on the NYSCC parcel. Review of NYSDEC wetland mapping indicated no NYSDEC wetlands have been previously identified on these properties.

Although NWI wetland maps identify the Champlain Canal as a lacustrine wetland, sample plots and determinations along the shoreline were limited to areas that exhibited

wetland characteristics and occurred above the ordinary high water mark. Determination and delineation efforts did not extend into the canal.

The Washington County Soil Survey was reviewed to determine the soil types mapped on this site (U.S. Department of Agriculture 1974). The mapped soil types within the site boundaries are Claverack loamy fine sand, orthents and psamments, and Wallington silt loam, sandy substratum. The Claverack soil type is pervasive across the Longe parcel and the western and northern portion of the Energy Park site. This soil is deep and moderately well drained. However, the recent mining and filling activities likely have modified this preexisting soil type. The soil type mapped within the forested wetland on Energy Park is Wallington silt loam, sandy substratum. This soil type is prone to slow runoff and may contain poorly or somewhat poorly drained inclusions. In the spring and during wet periods, the water table within this soil type is typically perched on a slowly permeable sublayer. This condition may lead to a high seasonal water table. The NYSCC site is mapped as being entirely orthents and psamments. This soil type is dredge material from the Hudson River and Champlain Canal (U.S. Department of Agriculture 1974). It consists of fine gravel, sand, silt, and clay. Field observations noted high shale content on the surface layer along the western portion of the site.

7.3 Results of the Wetland Assessment

Field determination procedures resulted in the delineation of approximately 8.42 acres of wetland almost entirely on the Energy Park parcel (see Table 7-1 and Figure 7-1). A number of observation plots were completed, which led to the determination and delineation of one large wetland area representing three wetland community types (Figure 7-1). The presence of a PFO (palustrine, forested) wetland with a PEM (palustrine, emergent) component was confirmed along the eastern boundary of the Energy Park parcel. This area encompasses approximately 8.4 acres, which represents a reduction of 3.5 acres relative to the wetlands mapped by NWI. This discrepancy may have been caused by alterations to the landscape due to logging and filling activities. NWI mapping is primarily conducted using remote sensing techniques (i.e., photo interpretation) and therefore does not necessarily represent an accurate depiction of wetlands on a site but is, rather, a basis for further investigation.

Table 7-1 Wetland Delineation Summary

Wetland ID	Community Type	Acreage
EP/L/NYSCC (1)	PEM (drainage)	0.09
	PEM	1.31
	PFO	7.02
Total Acreage		**8.42**

Key:

PEM = Palustrine, emergent.
PFO = Palustrine, forested.

The PFO component of the delineated wetland comprises green ash (*Fraxinus pennsylvanica*), slippery elm (*Ulmus rubra*), northern cottonwood (*Populus deltoides*), and northern prickly ash (*Zanthoxylum americanum*). Predominant species within the

herbaceous layer included swamp jack-in-the-pulpit (*Arisaema triphyllum*), spotted jewelweed (*Impatiens capensis*), New England aster (*Aster novae-angliae*), giant goldenrod (*Solidago gigantea*), and false nettle (*Boehmeria cylindrica*). Common species within the emergent community included broadleaf cattail (*Typha latifolia*), wool grass (*Scirpus cyperinus*), joe-pye weed (*Eupatorium maculatum*), soft rush (*Juncus effusus*), and shallow sedge (*Carex lurida*). Species found along the stream channel included joe-pye weed, rice cutgrass (*Leersia oryzoides*), false nettle (*Boehmeria cylindrica*), arrow-leaf tearthumb (*Polygonum sagittatum*), broadleaf cattail (*Typha latifolia*), spotted jewelweed (*Impatiens capensis*), *Carex* spp., and sensitive fern (*Onoclea sensibilis*).

The common presence of upland indicator trees and shrubs (prickly ash, bitternut hickory (*Carya cordiformis*) in the northern portion of the forested wetland within an area dominated by an herbaceous layer indicative of wet conditions may be due to the nature of the soil composition in the area and an indication of changing hydrology in this area. The soils are composed of a shallow organic layer on top of a sandy loam substratum. The sand component in the soil increases with greater depth. This would allow relatively rapid percolation of any water input into the wetland, holding water long enough for the creation of wetland conditions yet being well drained enough to allow the establishment of an upland overstory. The fill activity west of the wetland raised the surrounding topography, possibly impounding any input from floodwater and increasing overland flow from the surrounding field. This altered drainage pattern may have increased the hydrological input into this low area, changing a predominantly upland area into a wetland over time.

A drainage channel that appears to be manmade separates the Energy Park and NYSCC parcels (see Figure 7-1). Review of an 1866 map of the parcel indicates that a stream used to flow through the middle of this parcel. The flow of the stream may have been altered when the Champlain Canal was constructed. Channel flow slows in the vicinity of the Energy Park-NYSCC property lines, becoming nearly stagnant at low water levels. Trees and debris have dammed portions of the channel, reducing the flow, which has allowed the formation of an emergent fringe in many areas along the banks of the channel.

NWI mapping showed approximately 16.3 acres of wetland on the NYSCC site, excluding the lacustrine wetland along the canal. However, during the field investigation no wetlands were located on this property, with the exception of the PEM wetland located in the drainage channel between the Energy Park and NYSCC parcels. Conditions on this site indicated that previous material stockpiling and disturbance might be the reason for this discrepancy. The resulting alteration of the site topography has resulted in increased elevations and altered drainage. The vegetation communities on the site were indicative of a historically disturbed area.

8. Floodplain Assessment

An initial floodplain assessment was conducted on the Energy Park/Longe/NYSCC site in order to determine the presence, extent, and orientation of Federal Emergency Management Agency (FEMA)-mapped floodplains within site boundaries. Flood magnitudes and historic river stages from gauging stations as close as available to the site also were examined to obtain an initial sense of the characteristics of on-site flooding. Appendix E describes the methodology and assumptions involved in this assessment.

8.1 Location and Orientation of the Floodplain

Figure 8-1 shows that the Energy Park/Longe/NYSCC site in not located within the 100-year and 500-year floodplains. The floodplain mapping was obtained from Flood Hazard Boundary Maps and the Town of Fort Edward Flood Insurance Study (June 1982) from FEMA's Federal Insurance Administration.

The site is located along the Champlain Canal, approximately 1.4 miles northeast of the Hudson River, in the Town of Fort Edward. The total approximate area of the site is 103.9 acres (see Table 8-1). The site is not located within the base floodplain, and the closest 100-year floodplain is approximately 0.65 mile away from the site. Canal frontage of the site is approximately 3,040 feet.

Table 8-1 Summary of Energy Park/Longe/NYSCC Site and Floodplain Characteristics

Is a portion of the site in the base (100-year) floodplain?	No
Total area of the site	103.9 acres (4,524,303 ft^2)
Area of the site within the base (100-year) floodplain	0 acres
Percentage of the site area within the base (100-year) floodplain	0%
Perimeter of the site (total length)	9,489 ft
Perimeter of the site bordering the Champlain Canal (canal frontage)	~3040 ft
Greatest width between the outer boundary of the base floodplain and the Champlain Canal boundary	0 ft

8.2 100-year Flood

The FEMA maps show the 100-year flood elevation in the closest 100-year floodplain (~0.65 mile southwest of the site) to be 131 feet National Geodetic Vertical Datum (NGVD). A brief examination of site topography and the FEMA mapping suggests that site elevation characteristics have not changed significantly since the FEMA floodplain modeling and mapping occurred.

The closest U.S. Geological Survey (USGS) gauge station is in Fort Edward, 0.4 mile upstream from the bridge over State Highway 197. The gauge station is approximately 1.1 miles upstream of the Champlain Canal/Hudson River boundary. Because of its proximity, values of the 100-year flood at the gauge station will be similar to those associated with the Energy Park/Longe/NYSCC site. The National Weather Service

flood stage at the Fort Edward gauge station is 127 feet. At 127 feet, water floods River Road in Northumberland, reaches camps in Lake Luzerne, and may result in flooding in Stillwater (National Weather Service Advanced Hydrologic Prediction Service, http://ahps.erh.noaa.gov/cgi-bin/ahps.cgi?aly&Hudson%20River).

Flood magnitudes were calculated using statistical methods from twenty-six years of modern flow data at the gauge station, after the Fort Edward dam was removed. Based on this data, the 100-year flood stream flow is 47,772 cubic feet per second (cfs). A flood of this magnitude has not occurred in the twenty-six years of modern data. In that time, there have been two flow events greater than 10-year floods (May 3, 1983 and January 10, 1998).

The Flood Insurance Study for the Town of Fort Edwards notes that "a flood occurring on April 2, 1976 was determined to have a recurrence interval of approximately 100 years. The flood resulted from heavy rains north of Fort Edward, compounded by snowmelt and higher than normal outflows from the Sacandaga Reservoir."

8.3 Site Flooding

Historic water level data (1916 to 2000) is available from NYSCC Lock 7, which is located approximately 1.4 miles southwest of the site boundary. The highest water level at the downstream side of Lock 7 was 131.37 feet NGVD on April 13, 1922. Spot elevations surveyed in the vicinity of the canal edge of the site boundary range from 131.0 to 132.9 feet NGVD. Therefore, the greatest water level at the downstream side of Lock 7 (131.37) exceeded the low end of the site elevation range. However, given that the site location is 1.4 miles upstream and the closest 100-year flood stage is 131 feet approximately 0.6 mile away, it is unlikely that this site experienced a 100-year flood for this event.

Given the location, the distance to the canal, site topographic characteristics, and the fact that the site is outside the 100-year floodplain, the site is not likely to experience major flooding. Based on the NYSCC water level data on the downstream side of Lock 7, there is also no evidence that flooding occurs on a smaller scale at this site with the exception of localized soil saturation and inundation within the identified wetland area. Only one of the peak annual water levels between 1916 and 2000 was above the ground elevation at this site, as noted above.

The 10-year flood profile for the site is not available from the Town of Fort Edward Flood Insurance Study because the modeled area concludes approximately 50 feet from the site boundary. The Flood Insurance Study indicates that "the flood of 1913 was the only recorded flood to cause significant damage in the community."

9. Coastal Management Area Assessment

The Energy Park/Longe/NYSCC site is not located in the state-designated coastal zone. Therefore, no direct impacts are expected as a result of the potential use of this site. EPA will prepare an additional phase of its coastal zone consistency assessment and

subsequent coastal zone consistency determination, covering potential indirect and cumulative impacts from the operation of sediment processing/transfer facilities, once the Phase 1 and Phase 2 dredging facility locations are selected.

10. Baseline Habitat and Threatened and Endangered Species Assessment

10.1 Site Habitat Description

The Energy Park/Longe/NYSCC site description is presented in the *Addenda to the Hudson River PCBs Superfund Site Facility Siting Work Plans: Site-Specific Field Investigations of the Final Candidate Sites* (Ecology and Environment, Inc. September 2003). In brief, the disturbance from historic and current land uses have greatly influenced the availability, extent, and diversity of on-site habitats. The site was formerly used as a sand mine. Over the past several years, the site has been the receptor of treated non-hazardous soils from a soil treatment facility adjacent to the site. Over the past two growing seasons, corn has been planted over most of the site, and non-forested locations of the site are still being filled in with treated waste soils. The site also appears to be disturbed from logging on portions of the site. Given the historic and current site uses, the majority of the site consists of cropland and successional northern hardwood community types. The vegetation within the non-agricultural areas are represented by early successional (less than 20 years) to mid-successional (20 to 60 years) communities.

Figure 10-1 shows the habitat community types, as defined by Edinger et al. (2002) that are present on the site. Field investigations were conducted on September 17 and 18, 2003 to determine habitat availability within the site and to provide descriptions of existing habitat structure, diversity, and condition. Twelve community types are found on this 104-acre site. No significant or unique habitats were among them. Cropland temporarily covers approximately 61% of the site. The predominant communities (relative to total cover across the site) are briefly described below. A description of the different community types from Edinger et al. is presented in Appendix F.

Successional Northern Hardwood

The successional northern hardwoods (SNH) and wetlands are the second and third most abundant communities types (16% and 8% of the site area, respectively). The majority of the riverfront (Champlain Canal) property (NYSCC parcel) is composed of mowed lawn and SNH types.

Predominant tree species in the SNH include burr oak, red maple, black cherry, box elder, cottonwood, quaking aspen, American basswood, and red oak. Other tree species located within this community type include black cherry, sumac, paper birch, American elm, shagbark hickory, red maple, butternut, Eastern white pine, and American beech. Some locations contain larger, older trees (diameter at breast height [dbh] of 12 to 27 inches) that are isolated amongst early to middle-aged stands. The shrub layers are dominated by honeysuckle, dogwoods, green ash, white ash, and prickly ash, depending upon location on the site. The SNH herb and vine layers are dominated by Virginia creeper, poison ivy, wild grape, goldenrods, white snakeroot, blackberries, sedges, and American bittersweet.

Other Communities
The dredge spoils/SNH community type contains successional species similar to the SNH community type. However, American elm and prickly ash are the dominant species. In addition, signs of dredge spoils are apparent throughout the community. The successional shrubland community, which is adjacent to this community, contained similar species but is dominated by early successional species (i.e., shrubs).

Aquatic communities occur on the site, including ditch/marsh headwater stream and canal (Figure 10-1). Wetland communities are described in further detail in Section 7 of this report. The shoreline community is characteristic of the channelized portions of the Champlain Canal, with boulder-lined riprap along the entire waterfront boundary. A portion of the shoreline contains an outfall from the upstream portion of Lock 8. This outfall originates from an open water area and canal that drains from the east. The ditch/marsh headwater stream community type separates the cropland community from the Champlain Canal and adjacent habitats. This stream community appears to have been channelized at one time and is heavily silted in with the emergent vegetation that is abundant in many locations.

Common vegetation species and community structure have an influence on wildlife occurrence on-site. The cropland provides food for ungulates (i.e., whitetail deer) and a variety of avian species. Forested and wetland communities occur adjacent to cropland areas. These communities provide cover, nesting, and additional feeding areas for wildlife species. Additional incidental wildlife observations included coyote, white-footed mouse, bull frog, green frog, raccoon tracks, turkey vulture, mallards, American crow, and other common songbirds.

10.2 Endangered Species Act Issues

Correspondence with the U.S. Fish and Wildlife Service and NYSDEC indicates that there are no threatened or endangered species issues associated with this site. Wintering bald eagles may migrate through the area but are not known to use the site. A biological assessment will be prepared that will examine the potential impacts associated with the construction and operation of a sediment processing/transfer facility for each of the Suitable Sites.

Table 3.1-1 Summary of Activities, Hudson River PCBs Superfund Site

		Energy Park/Longe/ NYS Canal Corporation Site	Old Moreau Dredge Spoils Area/NYS Canal Corporation Site	Georgia Pacific/ NYS Canal Corporation Site	NYS Canal Corporation/ Allco/Leyerle Site	Bruno/Brickyard Associates/ Alonzo Site	State of New York/First Rensselaer/ Marine Management Site	OG Real Estate Site
Environmental Investigation	Environmental Sampling	09/29/03 - 09/30/03	09/30/03 - 10/01/03	10/08/03 - 10/09/03	10/01/03 - 10/03/03	10/03/03 - 10/07/03	10/08/03	10/07/03
	Temporary Well Installation	09/29/03 - 10/01/03	10/02/03	10/08/03	10/09/03	10/09/03 - 10/10/03	10/03/03 - 10/06/03	10/07/03
	Temporary Well Sampling	10/16/03	10/14/03 - 10/16/03	10/13/03 - 10/14/03	10/15/03	10/15/03 - 10/16/03	10/10/03 - 10/15/03	10/15/03
Surveying		10/01/03 - 11/11/03	10/08/03 - 11/11/03	10/09/03 - 10/29/03	10/21/03 - 10/31/03	10/15/03 - 10/29/03	10/21/03 - 11/10/03	11/11/03 - 11/13/03
Geotechnical Investigation		09/29/03 - 10/01/03	NA	10/08/03	10/07/03 - 10/09/03	10/09/03 - 10/10/03	10/03/03 - 10/06/03	NA
Utilities Assessment		09/29/03 - 09/30/03	09/30/03 - 10/01/03	10/08/03 - 10/09/03	10/01/03 - 10/03/03	10/03/03 - 10/07/03	10/08/03	10/07/03
STAAR		10/06/03 - 10/16/03	10/13/03 - 10/30/03	10/11/03 - 10/28/03	10/23/03 - 11/13/03	10/17/03 - 11/05/03	10/25/03 - 11/14/03	11/15/03
Wetland Assessment		09/17/03 - 09/18/03	09/17/03 - 09/18/03	09/19/03 - 10/08/03	10/07/03 - 10/10/03	10/14/03 - 10/15/03	10/13/03	10/15/03
Floodplain Assessment		09/17/03 - 09/18/03	09/17/03 - 09/18/03	09/19/03 - 10/08/03	10/07/03 - 10/10/03	10/14/03 - 10/15/03	10/13/03	10/15/03
Coastal Management Areas		09/17/03 - 09/18/03	09/17/03 - 09/18/03	09/19/03 - 10/08/03	10/07/03 - 10/10/03	10/14/03 - 10/15/03	10/13/03	10/15/03
Baseline Habitat Assessment		09/17/03 - 09/18/03	09/17/03 - 09/18/03	09/19/03 - 10/08/03	10/07/03 - 10/10/03	10/14/03 - 10/15/03	10/13/03	10/15/03
Threatened and Endangered Species Assessment		09/17/03 - 09/18/03	09/17/03 - 09/18/03	09/19/03 - 10/08/03	10/07/03 - 10/10/03	10/14/03 - 10/15/03	10/13/03	10/15/03
IDW Disposal		TBD	TBD	TBD	TBD	TBD	TBD	TBD

Key:

IDW = Investigation-derived waste.
NYS = New York State.
PCBs = Polychlorinated biphenyls.
STAAR = Survey of Terrestrial Archaeological and Architectural Resources
TBD = To be determined.

Table 3.2-1 Summary of Temporary Well Construction, Hudson River PCBs Superfund Site

Site	Well/Piezometer No.	Date Started	Date Completed	Drilling Company	Date Sampled	Depth Drilled (Feet BGS)	Ground Elevation (Feet AMSL)	PVC Well Casing/ Screen I.D. (inches)	Total Depth (Feet TOIC)	TOIC Casing Elevation (Feet AMSL)	Screened (0.010 slot) Interval (Feet BGS)	Sand Interval (Feet BGS)	Seal Interval (Feet BGS)	Stick-up (Feet AGS)
EPL	EPL-GP01	9/29/03	9/29/03	N	10/16/03	25.4	135.11	1	27.4	137.2	15.4-25.4	5-25.4	2-5	2.0
	EPL-GP02	9/29/03	9/29/03	N	10/16/03	25	137.91	1	27.4	140.42	15-25	4-25	2-4	2.4
	EPL-GP03	9/29/03	9/29/03	N	10/16/03	25.1	135.52	1	27.51	137.99	15.1-25.1	4-25.1	0.6-4	2.41
	EPL-GP04	10/1/03	10/1/03	N	10/16/03	25	129.47	1	27.3	131.79	15-25	4-25	2-4	2.3
	EPL-GP05	10/1/03	10/1/03	N	10/16/03	25	132	1	27.5	134.53	15-25	4-25	2-4	2.5
OM	OM-GP01	10/2/03	10/2/03	N	10/16/03	25	157.67	1	27.4	160.19	15-25	4-25	2-4	2.4
	OM-GP02	10/2/03	10/2/03	N	10/16/03	25.4	141.79	1	27.62	144.2	15.3-25.3	4-25.3	2-4	2.32
	OM-GP03	10/2/03	10/2/03	N	10/15/03	25	155.84	1	27.3	158.37	10-25	4-25	2-4	2.3
	OM-GP04	10/2/03	10/2/03	N	10/15/03	25	143.5	1	22.5	146	10-20	4-25	0-4	2.5
	OM-GP05	10/2/03	10/2/03	N	10/14/03	25	133.43	1	27.5	135.93	15-25	4-25	0-4	2.5
GPS	GPS-GP01	10/9/03	10/9/03	N	10/13/03	25	108.4	1	28.15	111.60	15-25	4-25	2-4	3.15
	GPS-GP02	10/8/03	10/8/03	N	10/14/03	9.3	108.68	1	11.8	111.19	4.3-9.3	3-9.3	0.5-3	2.5
	GPS-GP03	10/8/03	10/8/03	N	10/14/03	25.5	102.76	1	27.55	104.76	15.5-25.5	4-25.5	2-4	2.05
	GPS-GP04	10/8/03	10/8/03	N	10/14/03	25.7	112.02	1	28.2	114.48	15.7-257	4-25.7	2-4	2.5
	GPS-GP05	10/8/03	10/8/03	N	10/13/03	25	100.71	1	27.45	103.31	14.85-24.85	4-25	2-4	2.6
	GPS-GP06	10/9/03	10/9/03	N	10/14/03	25	110.76	1	17.5	113.24	5-15	3-15 [A]	1-3	2.5
	GPS-GP07	10/9/03	10/9/03	N	10/14/03	25	112.98	1	22.4	115.38	10-20	3-20[B]	0.5-3	2.4
	GPS-GP08	10/8/03	10/8/03	N	10/13/03	18.5	113.36	1	19.7	114.74	8.5-18.5	3-18.5	1-3	1.2
NCC	NCC-GP01	10/9/03	10/9/03	N	10/15/03	25	48.53	1	25.5	51.02	13-23	4-23[C]	2-4	2.5
	NCC-GP02	10/7/03	10/7/03	N	-	6.9	52.5	Dry hole - no well constructed						
	NCC-GP03	10/9/03	10/9/03	N	10/15/03	22.9	43.56	1	23.65	46.2	11-21	4-22.9	2-4	2.65
	NCC-GP04	10/3/03	10/3/03	N	-	2	65.89	Not accessible by rig, boring was hand-augered						
	NCC-GP05	10/7/03	10/7/03	N	-	11	51.52	Dry hole - no well constructed (same as boring NCC-GT01)						
BBA	BBA-GP01	10/10/03	10/10/03	N	10/15/03	25	131.88	1	18.6	134.39	6-16	4-16 [D]	0.5-4	2.6
	BBA-GP02	10/10/03	10/10/03	N	10/16/03	25	144.41	1	18.55	146.87	6-16	4-18 [E]	0.5-4	2.55
	BBA-GP03	10/9/03	10/9/03	N	10/15/03	18.3	76.45	2	19.62	77.77	3.8-13.8	2.8-18.3	0-2.8	1.32
	BBA-GP04	10/10/03	10/10/03	N	10/15/03	14	77.57	1	16.8	80.38	3.5-13.5	2-14	0.5-2	2.8

Table 3.2-1 Summary of Temporary Well Construction, Hudson River PCBs Superfund Site

Site	Well/Piezometer No.	Date Started	Date Completed	Drilling Company	Date Sampled	Depth Drilled (Feet BGS)	Ground Elevation (Feet AMSL)	PVC Well Casing/	Total Depth (Feet TOIC)	TOIC Casing Elevation (Feet AMSL)	Screened (0.010 slot) Interval (Feet BGS)	Sand Interval (Feet BGS)	Seal Interval (Feet BGS)	Stick-up (Feet AGS)
MM	MM-GP01	10/6/03	10/6/03	N	10/10/03	25	18.73	1	27.4	20.52	15-25	4-25	2-4	2.4
	MM-GP02	10/3/03	10/3/03	N	10/10/03	25	5.87	1	27.6	7.75	15-25	4-25	2-4	2.6
	MM-GP04	10/6/03	10/6/03	N	10/15/03	25	15.50	1	27.4	17.22	14.5-24.5	4-24.5	2-4	2.9
OG	OG-GP01	10/7/03	10/7/03	N	10/15/03	25	10.28	1	17.70	12.94	5.35-15.35	3-16 [E]	1-3	2.35
	OG-GP02	10/7/03	10/7/03	N	10/15/03	25.1	14.26	1	27.35	16.46	15.1-25.1	4-25.1	2-4	2.25
	OG-GP03	10/7/03	10/7/03	N	10/15/03	25	17.95	1	27.45	20.4	15-25	4-25	2-4	2.45

[A] Hole was allowed to collapse to 10.15 feet BGS.
[B] Hole was allowed to collapse to 20 feet BGS.
[C] Hole was allowed to collapse to 23 feet BGS.
[D] Hole was allowed to collapse to 18 feet BGS.
[E] Hole was allowed to collapse to 16 feet BGS.

Key:

AGS = Above ground surface.
AMSL = Above mean sea level.
BBA = Bruno/Brickyard Associates/Alonzo Site.
BGS = Below ground surface.
EPL = Energy Park/Longe/NYS Canal Corporation Site.
GP = Geoprobe temporary well location.
GPS = Georgia Pacific/NYS Canal Corporation Site.
I.D. = Inner diameter.
MM = State of New York/First Rensselaer/Marine Management Site
N = Northstar Drilling.
NCC = NYS Canal Corporation/Allco/Leyerle Site.
NYS = New York State.
OG = OG Real Estate.
OM = Old Moreau Dredge Spoils Area / NYS Canal Corporation Site.
PVC = Polyvinyl chloride.
TOIC = Top of inner casing.

Table 3.2-2 Groundwater and Surface Water Field Measurements
Energy Park/Longe/NYS Canal Corporation Site

Sample ID	Date	pH (s.u.)	Temerature (°C)	Conductivity (µS/cm)	Turbidity (NTU)
Groundwater					
EPL-GP01-GW	10/16/03	6.79	10.9	453.4	30.0
EPL-GP02-GW	10/16/03	6.59	11.6	356.4	46.0
EPL-GP03-GW	10/16/03	6.26	11.3	393.4	70.0
EPL-GP04-GW	10/16/03	6.13	10.8	329.3	70.1
EPL-GP05-GW	10/16/03	6.63	11.5	332.7	31.8
Surface Water					
EPL-SW01	9/30/03	7.06	15.1	301.7	17.9
EPL-SW02	9/30/03	6.94	16.0	300.1	42.9
EPL-SW03	9/30/03	6.91	14.1	287.1	17.6

Key:

°C = Degrees Celsius.
EPL = Energy Park/Longe/NYS Canal Corporation Site.
GP = Boring location.
GW = Groundwater sample.
ID = Identification.
µS/cm = MicroSiemens per centimeter.
NTU = Nephelometric turbidity units.
NYS = New York State.
s.u. = Standard units.
SW = Surface water sample.

Table 3.2-3 Summary of Water Level Elevations Energy Park/Longe/NYS Canal Corporation Site

Well/ Stream Gauge ID	Ground Elevation (ft AMSL)	Reference Elevation (ft AMSL)[a]	10/16/2003		10/23/2003		11/6/2003	
			Water Level (ft TOIC)	Water Elevation (ft AMSL)	Water Level (ft TOIC)	Water Elevation (ft AMSL)	Water Level (ft TOIC)	Water Elevation (ft AMSL)
EPL-GP01	135.11	137.20	9.12	128.08	9.26	127.94	7.83	129.37
EPL-GP02	137.91	140.42	12.79	127.63	12.92	127.50	11.90	128.52
EPL-GP03	135.52	137.99	11.10	126.89	11.17	126.82	10.24	127.75
EPL-GP04	129.47	131.79	5.11	126.68	5.24	126.55	4.56	127.23
EPL-GP05	132.00	134.53	7.48	127.05	7.62	126.91	7.03	127.50
EPL-SG01	NA	127.84	NM	NM	3.26	125.63	3.13	125.76

[a] Reference elevation is TOIC for borings and 3-foot mark on gauge for stream gauges.

Key:

AMSL = Above mean sea level.
EPL = Energy Park/Longe/NYS Canal Corporation Site.
ft = Feet.
GP = Boring location.
NA = Not applicable.
NM = Not measured.
NYS = New York State.
SG = Stream gauge location.
TOIC = Top of inner casing.

Table 3.2-4 Energy Park/Longe/NYS Canal Corporation Site Sample Listing, Hudson River PCBs Superfund Site Facility Siting

							CLP										Non-CLP							Geotechnical Analyses			
							Organics			Inorganics																		
Media	Date	Sample Location	CLP Number	Matrix Code	Depth A	Type	TCL VOCs (OLM04.2)	TCL SVOCs (OLM04.2)	TCL Pesticides/PCBs (OLM04.2)	TAL Metals/Mercury (ILM04.1)	Cyanide (ILM04.1)	% Solids (ASTM_D2216)	Chlorinated Herbicides (8151A)	Anions (9056)	TOC (Lloyd Kahn)	Hardness (130.2)	Hexane Extractable Material (9071B)	TCLP VOCs	TCLP SVOCs	TCLP Metals/Mercury	Particle Size (ASTM_D422-63)	Atterberg Limits (ASTM_D4318-00)	Moisture Content (ASTM_D2216-98)	Area of Interest
Surface Soil	09/29/03	EPL-SS01	B14R0	SO	0-2 in	N	X	X	X	X	X	X	X				X							Composite sample of 3 locations (A, B, C) adjacent to railroad tracks (VOA portion was a discrete sample from aliquot B location)
	09/29/03	EPL-SS02	B14R1	SO	0-2 in	N		X	X	X	X	X												Fill in formerly disturbed area
	09/29/03	EPL-SS03	B14R2	SO	0-2 in	N		X	X	X	X	X												Coverage
	09/29/03	EPL-SS04	B14R3	SO	0-2 in	N		X	X	X	X	X												Filled sand pit
	09/29/03	EPL-SS05	B14R4	SO	0-2 in	N		X	X	X	X	X												Fill in formerly disturbed area
	09/29/03	EPL-SS06	B14R5	SO	0-2 in	N		X	X	X	X	X												Fill in former sand pit
	09/29/03	EPL-SS07	B14R6	SO	0-2 in	N		X	X	X	X	X												Fill/waste lime in former sand pi
	09/29/03	EPL-SS08	B14R7	SO	0-2 in	N		X	X	X	X	X												Coverage in wooded area
	09/29/03	EPL-SS09	B14R8	SO	0-2 in	N		X	X	X	X	X												Coverage in wooded area
Surface Water	09/30/03	EPL-SW01	B14R9	SW	-	M	X	X	X	X	X			X		X								Western creek-upstream
	09/30/03	EPL-SW02	B14S0	SW	-	N	X	X	X	X	X			X		X								Western creek-central
	09/30/03	EPL-SW03	B14S1	SW	-	N	X	X	X	X	X			X		X								Western creek-downstream
Sediment	09/30/03	EPL-SE01	B14Q7	SE	0-2 in	M	X	X	X	X	X	X			X									Western creek-upstream
	09/30/03	EPL-SE02	B14Q8	SE	0-2 in	N	X	X	X	X	X	X			X									Western creek-central
	09/30/03	EPL-SE03	B14Q9	SE	0-2 in	N	X	X	X	X	X	X			X									Western creek-downstream
Geoprobe Borehole Subsurface Soil	09/29/03	EPL-GP01-SB	B14S2	SO	10.2-12	N	X	X	X	X	X	X												Coverage
	09/30/03	EPL-GP02-SB	B14S3	SO	9-10.9	N	X	X	X	X	X	X												Sand pit
	09/30/03	EPL-GP03-SB	B14S4	SO	9.6-11	N	X	X	X	X	X	X												Coverage
	10/01/03	EPL-GP04-SB	B14S5	SO	4-6	N	X	X	X	X	X	X												Coverage
	10/01/03	EPL-GP05-SB	B14S6	SO	5-8	N	X	X	X	X	X	X												Wooded area
	10/01/03	EPL-GP05-SB/D	B1504	SO	5-8	FD	X	X	X	X	X	X												Wooded area
	10/01/03	EPL-GP06-SB	B14S7	SO	9.4-11	N	X	X	X	X	X	X												Sand pit
	10/01/03	EPL-GP07-SB	B14S8	SO	7-9	N	X	X	X	X	X	X												Sand pit/Lime waste disposal area
Geoprobe Temporary Well Groundwater	10/16/03	EPL-GP01-GW	B14S9	GW	15.4-25.4	N	X	X	X	X	X													Coverage
	10/16/03	EPL-GP02-GW	B14T0	GW	15-25	N	X	X	X	X	X													Sand pit
	10/16/03	EPL-GP03-GW	B14T1	GW	15.1-25.1	N	X	X	X	X	X													Coverage
	10/16/03	EPL-GP04-GW	B14T2	GW	15-25	M	X	X	X	X	X													Coverage
	10/16/03	EPL-GP05-GW	B14T3	GW	15-25	N	X	X	X	X	X													Fringe of wooded area

Key at the end of Table

							CLP														Geotechnical Analyses			
							Organics				Inorganics	Non-CLP													
Media	Date	Sample Location	CLP Number	Matrix Code	Depth A	Type	TCL VOCs (OLM04.2)	TCL SVOCs (OLM04.2)	TCL Pesticides/PCBs (OLM04.2)	TAL Metals/Mercury (ILM04.1)	Cyanide (ILM04.1)	% Solids (ASTM_D2216)	Chlorinated Herbicides (8151A)	Anions (9056)	TOC (Lloyd Kahn)	Hardness (130.2)	Hexane Extractable Material (9071B)	TCLP VOCs	TCLP SVOCs	TCLP Metals/Mercury	Particle Size (ASTM_D422-63)	Atterberg Limits (ASTM_D4318-00)	Moisture Content (ASTM_D2216-98)	Area of Interest
Geotechnical Boring Subsurface Soil	09/29/03	EPL-GT01-SB	-	SO	0-26 [B]	N															X	X	X	Facility
	09/30/03	EPL-GT02-SB	-	SO	22-24	N															X	X	X	Railyard
	09/30/03	EPL-GT03-SB	-	SO	11-12	N															X	X	X	Facility
	10/01/03	EPL-GT04-SB	-	SO	0-26 [B]	N															X	X	X	Railyard
	10/01/03	EPL-GT05-SB	-	SO	6-8	N															X	X	X	Near Canal
IDW (optional)	TBD	EPL-WA01	-	WA	-	N												X	X	X				General
	TBD	EPL-WW01	-	WS	-	N												X	X	X				General

[A] Depth in feet below ground surface unless otherwise specified.

[B] Continuous sampling for moisture content analysis. The 4-6 and 0-2 foot BGS depth intervals were used for the particle size and Atterberg Limits analyses for EPL-GT01 and EPL-GT04, respectively.

Key:

CLP = Contract Laboratory Protocol
/D = duplicate sample
EPL = Energy Park/Longe/NYS Canal Corporation Site
FD = field duplicate (Type)
GP = Geoprobe boring location
GT = geotechnical boring location
GW = groundwater sample
IDW = investigation-derived waste
in = inch
M = matrix spike/matrix spike duplicate (Type)
N = original sample (Type)
NYS = New York State
PCB = polychlorinated biphenyl
QA = quality assurance
QC = quality control
SB = subsurface soil
SE = sediment sample
SO = soil sample
SS = surface soil
SVOCs = semivolatile organic compounds
SW = surface water
TBD = to be determined
TCL = target compound list
TCLP = toxicity characteristic leachate procedure
TOC = total organic carbon
VOCs = volatile organic compounds
WA = IDW solid waste
WW = IDW waste water

Key at the end of Table

Table 3.3-1 Analytical Data Summary of Detected Analytes for Surface Soil Samples from the Energy Park/Longe/NYS Canal Corporation Site

Analyte	NYSDEC TAGM 4046 (1)	Eastern USA Background (2)	Sample ID: / Date: / Depth:	EPL-SS01 9/29/2003 0 - 2 in	EPL-SS02 9/29/2003 0 - 2 in	EPL-SS03 9/29/2003 0 - 2 in	EPL-SS04 9/29/2003 0 - 2 in	EPL-SS05 9/29/2003 0 - 2 in	EPL-SS06 9/29/2003 0 - 2 in	EPL-SS07 9/29/2003 0 - 2 in	EPL-SS08 9/29/2003 0 - 2 in	EPL-SS09 9/29/2003 0 - 2 in
TCL Volatile Organic Compounds (µg/Kg)												
1,1,2-Trichloro-1,2,2-Trifluoroethane	6000	NA		1 J	- -	- -	- -	- -	- -	- -	- -	- -
TCL Semivolatile Organic Compounds (µg/Kg)												
Acetophenone	NA	NA		110 J	390 U	400 U	380 U	400 U	400 U	410 U	630 U	550 U
Atrazine	NA	NA		490 U	390 U	400 U	380 U	400 U	400 U	91 J	630 U	550 U
Benzaldehyde	NA	NA		490 U	390 UJ	400 UJ	380 UJ	400 UJ	400 UJ	410 UJ	180 J	550 UJ
Benzo(a)anthracene	224 or MDL	NA		200 J	390 U	400 U	380 U	400 U	400 U	410 U	630 U	550 U
Benzo(a)pyrene	61 or MDL	NA		**180 J**	390 U	400 U	380 U	400 U	400 U	410 U	630 U	550 U
Benzo(b)fluoranthene	1100	NA		340 J	390 U	400 U	380 U	400 U	400 U	410 U	630 U	550 U
Benzo(g,h,i)perylene	50000	NA		130 J	390 U	400 U	380 U	400 U	400 U	410 U	630 U	550 U
Benzo(k)fluoranthene	1100	NA		320 J	390 U	400 U	380 U	400 U	400 U	410 U	630 U	550 U
Bis(2-Ethylhexyl)Phthalate	50000	NA		490 U	390 U	400 U	380 U	400 U	480	410 U	510 J	550 U
Chrysene	400	NA		300 J	390 U	400 U	380 U	400 U	400 U	410 U	630 U	550 U
Fluoranthene	50000	NA		220 J	390 U	400 U	380 U	400 U	400 U	410 U	630 U	550 U
Indeno(1,2,3-cd)pyrene	3200	NA		200 J	390 U	400 U	380 U	400 U	400 U	410 U	630 U	550 U
Pyrene	50000	NA		230 J	390 UJ	400 UJ	380 UJ	400 UJ	400 UJ	410 UJ	630 UJ	550 UJ
TCL Pesticide and PCBs (µg/Kg)												
4,4'-DDE	2100	NA		3.6 J	3.9 U	4 U	3.8 U	4 U	4 U	4.1 U	7.7	2.6 J
Aroclor-1254	1000	NA		93 J	39 U	40 U	38 U	40 U	40 U	41 U	150	57 J
Aroclor-1260	1000	NA		49 U	39 U	40 U	38 U	500	40 U	41 U	63 U	55 U
Dieldrin	44	NA		4.9 U	3.9 U	4 U	3.8 U	3.1 J	4 U	4.1 U	6.3 U	5.5 U

Source: Ecology and Environment, Inc., 2004

Table 3.3-1 Analytical Data Summary of Detected Analytes for Surface Soil Samples from the Energy Park/Longe/NYS Canal Corporation Site

Analyte	NYSDEC TAGM 4046 (1)	Eastern USA Background (2)	Sample ID: / Date: / Depth:	EPL-SS01 9/29/2003 0 - 2 in	EPL-SS02 9/29/2003 0 - 2 in	EPL-SS03 9/29/2003 0 - 2 in	EPL-SS04 9/29/2003 0 - 2 in	EPL-SS05 9/29/2003 0 - 2 in	EPL-SS06 9/29/2003 0 - 2 in	EPL-SS07 9/29/2003 0 - 2 in	EPL-SS08 9/29/2003 0 - 2 in	EPL-SS09 9/29/2003 0 - 2 in
TAL Metals and Mercury (mg/Kg)												
Aluminum	SB	NA		7220	8630	7630	11000	8340	8620	8600	12600	12400
Arsenic	7.5 or SB	3-12 (NYS BG)		1 U	1.3 B	1.2 B	4.9	2.1 B	2.7	2.8	13.1	9.7
Barium	300	15-600		47.7	44.4 B	33.5 B	75.5	28.8 B	61	66.5	88.6	83
Beryllium	0.16 or SB	0-1.75		0.33 B	0.4 B	0.28 B	0.48 B	0.49 B	0.42 B	0.41 B	3.1	1.6
Cadmium	1 or SB	0.1-1		0.18 B	0.12 U	0.12 U	0.11 U	0.12 U	0.11 U	0.69 B	0.17 U	0.15 U
Calcium	SB	130-35000 (NYS BG)		4300	9940	3740	49400	2970	33000	47200	4990	3130
Chromium	10 or SB	1.5-40 (NYS BG)		9.5 J	10 J	6.7 J	14.7 J	8.1 J	13.7 J	12.4 J	43.5 J	31.4 J
Cobalt	30 or SB	2.5-60 (NYS BG)		3.3 B	4.1 B	2.8 B	7.5 B	2.8 B	6.3 B	7.4 B	5.7 B	12.6 B
Copper	25 or SB	1-50		13.3	18.9	13.1	25	13.7	22.9	33.7	18.8	18.5
Iron	2000 or SB	2000-550000		7150	8980	6010	18100	10000	12900	13800	96800	99900
Lead	SB or 200-500	200-500		18.7	17.1	8.5	61.4	10.9	63.4	21	44.6	50.8
Magnesium	SB	100-5000		1360	2690	1880	5000	1510	4750	7070	1340 B	1550
Manganese	NA	50-5000		113	123	51.4	379	47.9	283	342	302	592
Nickel	13 or SB	0.5-25		6.8 B	7.3 B	5.3 B	14.8	5.9 B	13.8	13.4	17	17
Potassium	SB	8500-43000 (NYS BG)		360 B	830 B	347 B	2060 J	257 B	1750 J	1920 J	525 B	388 B
Selenium	2 or SB	0.1-3.9		0.43 U	0.44 U	0.45 U	0.53 BJ	0.7 BJ	0.43 U	0.77 BJ	1.6 BJ	0.56 U
Sodium	SB	6000-8000		185 B	278 B	160 B	376 B	188 B	345 B	334 B	183 U	161 U
Thallium	SB	NA		0.97 B	0.98 U	0.99 U	0.95 U	1 U	0.94 U	0.93 U	2 B	1.2 U
Vanadium	150 or SB	1-300		14.9	15	10.5 B	27.2	32.1	18.6	22.4	599	208
Zinc	20 or SB	9-50		43.7	45.4	36.8	92.6	33.1	87.5	74.4	37.5	58.7
Mercury	0.1	0.001-0.2		0.05 U	0.07 B	0.06 U	0.06 U	0.06 U	0.05 U	0.09 B	0.19	0.16
Total Cyanide (mg/Kg)												
Cyanide	NA	NA		0.17 U	0.14 U	0.15	0.2	0.23	0.33	0.14 U	0.94	1.2
Total Petroleum Hydrocarbons (mg/Kg)												
N-Hexane Extractable Material	NA	NA		1540	- -	- -	- -	- -	- -	- -	- -	- -

Source: Ecology and Environment, Inc., 2004

Table 3.3-1 Analytical Data Summary of Detected Analytes for Surface Soil Samples from the Energy Park/Longe/NYS Canal Corporation Site

(1) New York State Department of Environmental Conservation, Technical and Administrative Guidance Memorandum #4046: Determination of Soil Cleanup Objectives and Cleanup Levels, 1994.

(2) Eastern United States background values.

Key:

B = The reported value was less than the Contract Required Detection Limit but greater than or equal to the Instrument Detection Limit.
BG = Background.
/D = Duplicate sample.
EPL = Energy Park/Longe site/NYS Canal Corporation Site.
in = Inches.
J = The reported value is an estimated quantity.
JN = The presence of the analyte has been "tentatively identified". The associated numeric value represents the estimated concentration.
MDL = Method Detection Limit
mg/Kg = Milligrams per kilogram.
NA = Not applicable/available.
NYS = New York State.
NYSDEC = New York State Department of Environmental Conservation.
PCB = Polychlorinated biphenyl.
R = The data is unusable.
SB = Site background.
SS = Surface soil sample.
TAL = Target Analyte List.
TCL = Target Compound List.
U = The analyte was analyzed for but not detected at the value reported.
UJ = The analyte was analyzed for but not detected. The reported quantitation limit is approximate and may be inaccurate.
µg/Kg = Micrograms per kilogram.
- = Sample was not analyzed for this parameter.

Source: Ecology and Environment, Inc., 2004

Table 3.3-2 Analytical Data Summary of Detected Analytes for Subsurface Soil Samples from the Energy Park/Longe/NYS Canal Corporation Site

Analyte	NYSDEC TAGM 4046 (1)	Eastern USA Background (2)	Sample ID:	EPL-GP01-SB	EPL-GP02-SB	EPL-GP03-SB	EPL-GP04-SB	EPL-GP05-SB	EPL-GP05-SB/D	EPL-GP06-SB	EPL-GP07-SB
			Date:	09/29/03	09/30/03	09/30/03	10/01/03	10/01/03	10/01/03	10/01/03	10/01/03
			Depth:	10.2 - 12 ft	9 - 10.9 ft	9.6 - 11 ft	4 - 6 ft	5 - 8 ft	5 - 8 ft	9.4 - 11 ft	7 - 9 ft
TCL Volatile Organic Compounds (µg/Kg)											
1,1,2-Trichloro-1,2,2-Trifluoroethane	6000	NA		10 U	0.8 J	10 U	10 U	10 U	10 U	10 U	10 U
Methyl tert-Butyl Ether	NA	NA		10 U	10 U	10 U	10 U	10 U	10 U	10 U	0.6 J
Trichlorofluoromethane	NA	NA		10 U	1 J	10 U	10 U	10 U	10 U	10 U	10 U
TCL Semivolatile Organic Compounds (µg/Kg)											
Acetophenone	NA	NA		400 U	100 J	390 U	390 U	410 U	410 U	370 U	390 U
Bis(2-Ethylhexyl)Phthalate	50000	NA		400 U	420 U	86 J	390 U	410 U	410 U	370 U	390 U
Di-n-octylphthalate	50000	NA		400 U	420 U	390 U	390 U	100 J	410 U	370 U	390 U
TCL Pesticide and PCBs (µg/Kg)											
beta-BHC	200	NA		2 U	2.2 U	2 U	2 U	2.1 U	2.1 U	1.9 U	2.8
TAL Metals and Mercury (mg/Kg)											
Aluminum	SB	NA		3840	12500	5170	2110	3090	3570	2850	2450
Arsenic	7.5 or SB	3-12 (NYS BG)		1.1 U	5.2	0.99 U	1.1 U	1.1 U	1.1 U	1 U	1.1 U
Barium	300	15-600		20 B	94.7	33.1 B	7.4 B	17.2 B	20.8 B	11.3 B	10.8 B
Beryllium	0.16 or SB	0-1.75		0.12 B	0.59 B	0.25 B	0.12 B	0.18 B	0.2 B	0.13 B	0.16 B
Calcium	SB	130-35000 (NYS BG)		1500	36000	1550	1270	2150	9460	1320	1660
Chromium	10 or SB	1.5-40 (NYS BG)		3 J	17.1 J	5.7 J	2.3 B	3.3	7.1	6.7	2.2 B
Cobalt	30 or SB	2.5-60 (NYS BG)		2.1 B	9.2 B	3.5 B	2.1 B	2.8 B	2.9 B	2.4 B	2.5 B
Copper	25 or SB	1-50		5.3 B	28.3	8.5	3.6 B	7.2	8.5	4.2 B	4.4 B
Iron	2000 or SB	2000-550000		4260	18700	5620	3350	3810	5050	3810	3920
Lead	SB or 200 - 500	200-500		2.1 J	43.1	5	1.6 J	2.2 J	14.6	2.5 J	1.6 J
Magnesium	SB	100-5000		1430	5370	1820	1240 B	1260	2260	1280	1270
Manganese	NA	50-5000		25.7	409	33.3	22.3	25.2	57.3	23.1	21.6
Nickel	13 or SB	0.5-25		3.7 B	16.2	4.6 B	3 B	4 B	6.7 B	4.2 B	3 B
Potassium	SB	8500-43000 (NYS BG)		227 B	3020 J	592 B	141 B	185 B	339 B	237 B	104 B
Selenium	2 or SB	0.1-3.9		0.46 U	0.44 U	0.43 U	0.48 U	0.47 U	0.97 BJ	0.43 U	0.48 U
Sodium	SB	6000-8000		131 U	402 B	151 B	137 U	134 U	158 B	125 U	138 U
Vanadium	150 or SB	1-300		7.4 B	29.7	12.1	5.3 B	7.6 B	9.7 B	5.4 B	6.6 B
Zinc	20 or SB	9-50		32.9	90.3	34.5	21.7	28.3	35.3	20.9	21.9
Mercury	0.1	0.001-0.2		0.06 U	0.07 B	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U

Source: Ecology and Environment, Inc., 2004

Table 3.3-2 Analytical Data Summary of Detected Analytes for Subsurface Soil Samples from the Energy Park/Longe/NYS Canal Corporation Site

(1) New York State Department of Environmental Conservation, Technical and Administrative Guidance Memorandum #4046: Determination of Soil Cleanup Objectives and Cleanup Levels, 1994.

(2) Eastern United States background values.

Key:

B = The reported value was less than the Contract Required Detection Limit but greater than or equal to the Instrument Detection Limit.
BG = Background.
/D = Duplicate sample.
EPL = Energy Park/Longe site/NYS Canal Corporation Site.
ft = Feet.
J = The reported value is an estimated quantity.
JN = The presence of the analyte has been "tentatively identified". The associated numeric value represents the estimated concentration.
MDL = Method Detection Limit
mg/Kg = Milligrams per kilogram.
NA = Not applicable/available.
NYS = New York State.
NYSDEC = New York State Department of Environmental Conservation.
PCB = Polychlorinated biphenyl.
R = The data is unusable.
SB = Site background.
-SB = Subsurface soil sample.
TAL = Target Analyte List.
TCL = Target Compound List.
U = The analyte was analyzed for but not detected at the value reported.
UJ = The analyte was analyzed for but not detected. The reported quantitation limit is approximate and may be inaccurate.
µg/Kg = Micrograms per kilogram.

Source: Ecology and Environment, Inc., 2004

Table 3.3-3 Analytical Data Summary of Detected Analytes for Surface Water Samples from the Energy Park/Longe/NYS Canal Corporation Site

Analyte	NYSDEC CLASS D (1)	Sample ID: Date:	EPL-SW01 9/30/2003	EPL-SW02 9/30/2003	EPL-SW03 9/30/2003
TCL Volatile Organic Compounds µg/L)					
1,1,2-Trichloro-1,2,2-Trifluoroethane	NA		1 J	10 U	10 U
TCL Semivolatile Organic Compounds (µg/L)					
Bis(2-Ethylhexyl)Phthalate	NA		8 J	10 U	10 U
TAL Metals and Mercury (µg/L)					
Aluminum	NA		458	510	560
Barium	NA		25.2 B	22.1 B	28.8 B
Calcium	NA		30900	30800	30000
Chromium	CV		1.7 B	1.9 B	2.6 B
Cobalt	110 for A(A) (g)		1.7 B	1.4 U	3.1 B
Copper	CV		3.5 B	3.6 B	5.8 B
Iron	300		1670	1740	2470
Magnesium	NA		9130	9320	9100
Manganese	NA		78.8	107	163
Nickel	CV		3 B	3 B	4.1 B
Potassium	NA		3990 B	4040 B	3930 B
Selenium	NA		1.9 U	3.1 B	1.9 U
Sodium	NA		15700 J	14400 J	15200 J
Vanadium	190 for A(A)		1.8 B	2.1 B	4.2 B
Zinc	CV		26.4 J	24.4 J	35 J
Total Cyanide (µg/L)					
Cyanide Total	22 for A(A)		5 U	5 U	8
Anions (mg/L)					
Chloride	NA		26.6	26	23.2
Fluoride	CV		0.102	0.121	0.107
Nitrate-N	NA		0.396	0.388	0.726
Sulfate	NA		23	24.1	23.6
Hardness (mg/L)					
Hardness (As $CaCO_3$)	NA		275	270	285

Source: Ecology and Environment, Inc., 2004

Table 3.3-3 Analytical Data Summary of Detected Analytes for Surface Water Samples from the Energy Park/Longe/NYS Canal Corporation Site

(1) New York State Department of Environmental Conservation, Technical and Operational Guidance Series #1.1.1: Class D Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations, 1998.

(g) Guidance value used.

Key:

A(A) = Standard/guidance value is for the protection of fish survival (fresh waters).

B = The reported value was less than the Contract Required Detection Limit but greater than or equal to the Instrument Detection Limit.

CV = Value calculated based on hardness as per NYSDEC TOGS 1.1.1, 1998.

/D = Duplicate sample.

EPL = Energy Park/Longe site/NYS Canal Corporation Site.

H(FC) = Standard/guidance value is for the protection of human consumption of fish (fresh waters).

J = The reported value is an estimated quantity.

JN = The presence of the analyte has been "tentatively identified". The associated numeric value represents the estimated concentration.

mg/L = Milligrams per liter.

NA = Not applicable/available.

NYS = New York State.

NYSDEC = New York State Department of Environmental Conservation.

SW = Surface water sample.

TAL = Target Analyte List.

TCL = Target Compound List.

U = The analyte was analyzed for but not detected at the value reported.

UJ = The analyte was analyzed for but not detected. The reported quantitation limit is approximate and may be inaccurate.

µg/L = Micrograms per liter.

Source: Ecology and Environment, Inc., 2004

Table 3.3-4 Analytical Data Summary of Detected Analytes for Sediment Samples from the Energy Park/Longe/NYS Canal Corporation Site

Analyte	NYSDEC Screening Criteria (1), (2)		Sample ID: Date:	EPL-SE01 09/30/03	EPL-SE02 09/30/03	EPL-SE03 09/30/03
TCL Volatile Organic Compounds (µg/Kg)						
Trichlorofluoromethane	NA			10 U	17 U	3 J
TCL Semivolatile Organic Compounds (µg/Kg)						
Acetophenone	NA			120 J	120 J	190 J
TCL Pesticide and PCBs (µg/Kg)						
4,4'-DDE	NA			4.3 U	2.7 J	9 J
alpha-Chlordane	CV			2.2 U	3.1 U	1.7 J
Aroclor-1254	CV			43 U	77	75
Endosulfan I	CV			2.2 U	3.1 U	1.1 J
Analyte	**NYSDEC Screening Criteria (1) Lowest effect (2)**	**Severe effect (2)**	**Sample ID: Date:**	**EPL-SE01 09/30/03**	**EPL-SE02 09/30/03**	**EPL-SE03 09/30/03**
TAL Metals and Mercury (mg/Kg)						
Aluminum	NA	NA		4630	9330	9230
Arsenic	6.0	33		1.2 U	4.1	1.5 U
Barium	NA	NA		28.4 B	64	80.5
Beryllium	NA	NA		0.31 B	0.82 B	0.82 B
Calcium	NA	NA		2170	3740	4660
Chromium	26	110		6.9 J	16.3 J	16.4 J
Cobalt	NA	NA		3.6 B	7.5 B	5.5 B
Copper	16	110		7.1	11.5	13.3
Iron	20000	40000		7760	20200	13300
Lead	31	110		7.2	14	11.9
Magnesium	NA	NA		1930	2580	2280
Manganese	460	1100		47.6	195	108
Nickel	16	50		7.2 B	12.1	9.2 B
Potassium	NA	NA		335 B	455 B	414 B
Selenium	NA	NA		0.52 U	1 BJ	0.65 U
Sodium	NA	NA		149 U	212 B	327 B
Vanadium	NA	NA		17.7	76.8	80.8
Zinc	120	270		38.9	54.5	45.8
Total Cyanide (mg/Kg)						
Cyanide	NA	NA		0.18 U	0.35	0.23 U
Total Organic Carbon (mg/Kg)						
Total Organic Carbon	NA	NA		9200	33000	62000
Percent Solids (%)						
Percent Solids	NA	NA		66	54	51

Source: Ecology and Environment, Inc., 2004

Table 3.3-4 Analytical Data Summary of Detected Analytes for Sediment Samples from the Energy Park/Longe/NYS Canal Corporation Site

(1) New York State Department of Environmental Conservation, Division of Fish, Wildlife and Marine Resources, Technical Guidance for Screening Contaminated Sediments, 1999. The benthic aquatic life chronic toxicity protection level was used.
(2) As per the 1999 NYSDEC Guidance, the screening criteria for organic contaminants in sediments are calculated based on sample Total Organic Carbon concentration. However, two levels of risk are established for metals contamination in sediments (Lowest Effect Level and Severe Effect Level).

Key:

B = The reported value was less than the Contract Required Detection Limit but greater than or equal to the Instrument Detection Limit.
CV = Value calculated based on total organic carbon as per NYSDEC Guidance.
/D = Duplicate sample.
EPL = Energy Park/Longe site/NYS Canal Corporation Site.
J = The reported value is an estimated quantity.
JN = The presence of the analyte has been "tentatively identified." The associated numeric value represents the estimated concentration.
mg/Kg = Milligrams per kilogram.
NA = Not applicable/available.
NYS = New York State.
NYSDEC = New York State Department of Environmental Conservation.
PCB = Polychlorinated biphenyl.
R = The data is unusable.
SE = Sediment sample.
TAL = Target Analyte List.
TCL = Target Compound List.
U = The analyte was analyzed for but not detected at the value reported.
UJ = The analyte was analyzed for but not detected. The reported quantitation limit is approximate and may be inaccurate.
µg/Kg = Micrograms per kilogram.
% = Percent.

Source: Ecology and Environment, Inc., 2004

Table 3.3-5 Analytical Data Summary of Detected Analytes for Groundwater Samples from Temporary Wells at the Energy Park/Longe/NYS Canal Corporation Site

Analyte	NYSDEC Class GA (1)	Sample ID: Date: EPA MCLs (2)	EPL-GP01-GW 10/16/2003	EPL-GP02-GW 10/16/2003	EPL-GP03-GW 10/16/2003	EPL-GP04-GW 10/16/2003	EPL-GP05-GW 10/16/2003
TAL Metals and Mercury (µg/L)							
Aluminum	NA	50-200 (s)	244	324	275	149 B	182 B
Barium	1000	2000	36.3 B	39.2 B	68.3 B	19.3 B	25.3 B
Beryllium	3 (g)	4	0.1 U	0.1 U	0.1 B	0.1 U	0.12 B
Calcium	NA	NA	47000	42300	42500	35600	40200
Chromium	50	100 (4)	2.3 B	1 U	1 U	1 U	1.2 B
Cobalt	NA	NA	2.9 B	1.3 U	1.7 B	1.3 U	1.3 U
Copper	200	1300 (a)	2.1 B	1 U	1.3 B	1.5 B	1 U
Iron	300 (3)	300 (s)	4840	6550	2390	4060	3530
Lead	25	15 (a)	2.2 U	2.2 U	3.1	2.2 U	2.2 U
Magnesium	35000 (g)	NA	9680	9110	7900	8530	9300
Manganese	300 (3)	50 (s)	119	176	119	121	164
Nickel	100	NA	8.6 B	2.9 B	5 B	2.3 U	2.3 U
Potassium	NA	NA	4710 B	4480 B	12300 J	1310 B	1100 B
Selenium	10	50	3.8 U	3.8 U	3.8 U	5	3.8 U
Sodium	20000	NA	34700 J	9890 J	19300 J	12100 J	6900 J
Vanadium	NA	NA	1.3 B	3.8 B	0.9 U	1.7 B	2 B
Zinc	2000 (g)	5000 (s)	26.8	33.9	29.9	27.5	20.8

Source: Ecology and Environment, Inc., 2004

Table 3.3-5 Analytical Data Summary of Detected Analytes for Groundwater Samples from Temporary Wells at the Energy Park/Longe/NYS Canal Corporation Site

(1) New York State Department of Environmental Conservation, Technical and Operational Guidance Series #1.1.1: Class GA Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations, 1998.

(2) EPA National Primary and Secondary Drinking Water Standards, 2002.

(3) Screening value is for sum of Iron and Manganese is 500 µg/L.

(4) Screening value for total chromium.

(a) Action level is used in lieu of MCL.

(g) Guidance value used.

(s) Secondary standard used.

Key:

B = The reported value was was less than the Contract Required Detection Limit but greater than or equal to the Instrument Detection Limit.

/D = Duplicate sample.

EPA = Environmental Protection Agency.

EPL = Energy Park/Longe site/NYS Canal Corporation Site.

GP = Boring.

GW = Groundwater sample.

J = The reported value is an estimated quantity.

JN = The presence of the analyte has been "tentatively identified". The associated numeric value represents the estimated concentration.

MCL = Maximum Contaminant Level.

NA = Not applicable/available.

NYS = New York State.

NYSDEC = New York State Department of Environmental Conservation.

TAL = Target Analyte List.

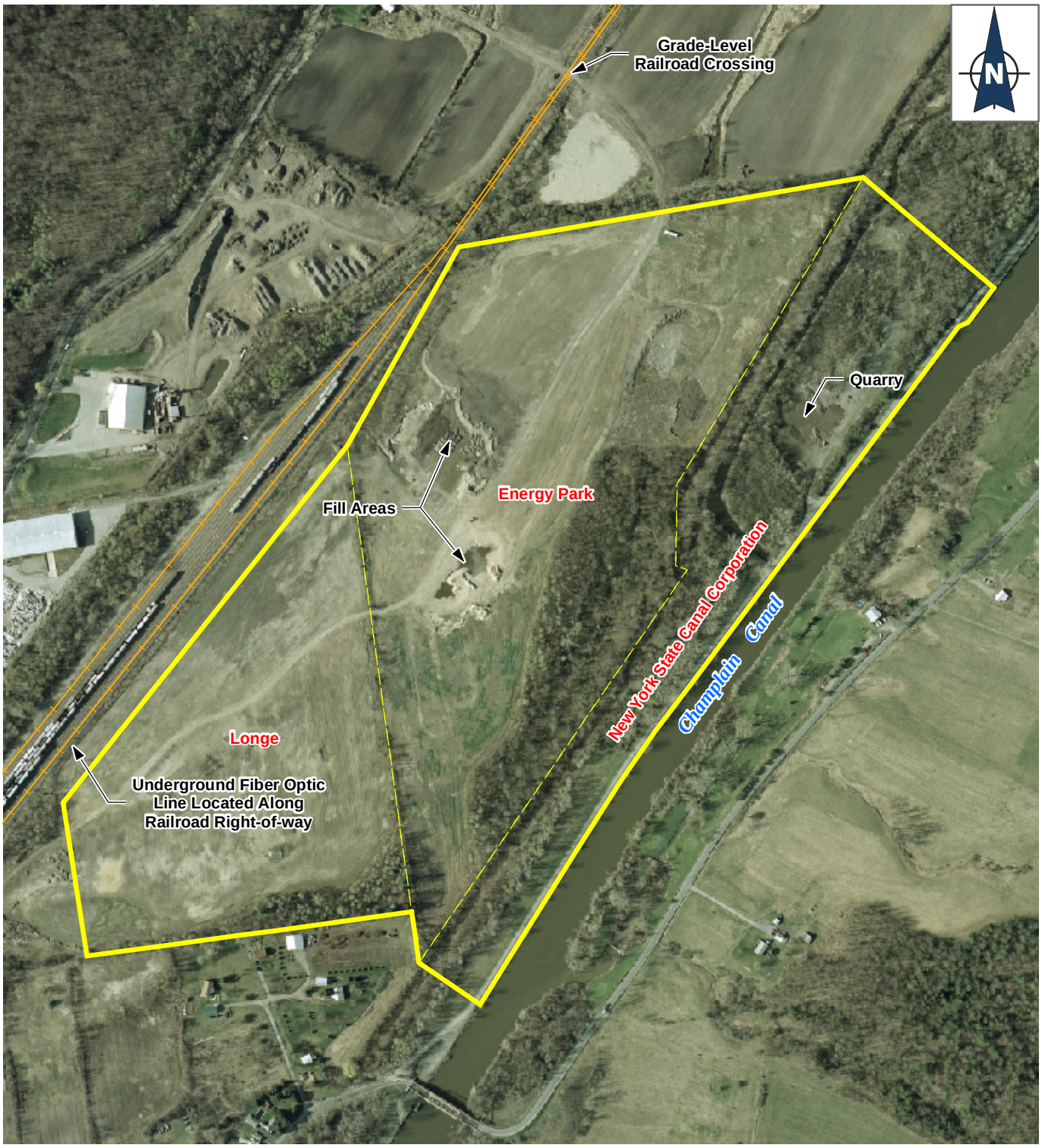
U = The analyte was analyzed for but not detected at the value reported.

UJ = The analyte was analyzed for but not detected. The reported quantitation limit is approximate and may be inaccurate.

µg/L = Micrograms per liter.

Source: Ecology and Environment, Inc., 2004

SOURCE; ECOLOGY & ENVIRONMENT, INC. 2003;



LEGEND

- Approximate Site Boundary
- Tax Parcel Boundary
- Active Railroad

Hudson River
PCBs SUPERFUND SITE

Figure 2-1
Key Site Features
Energy Park / Longe / New York State Canal Corporation

500 250 0 500 1,000
Feet

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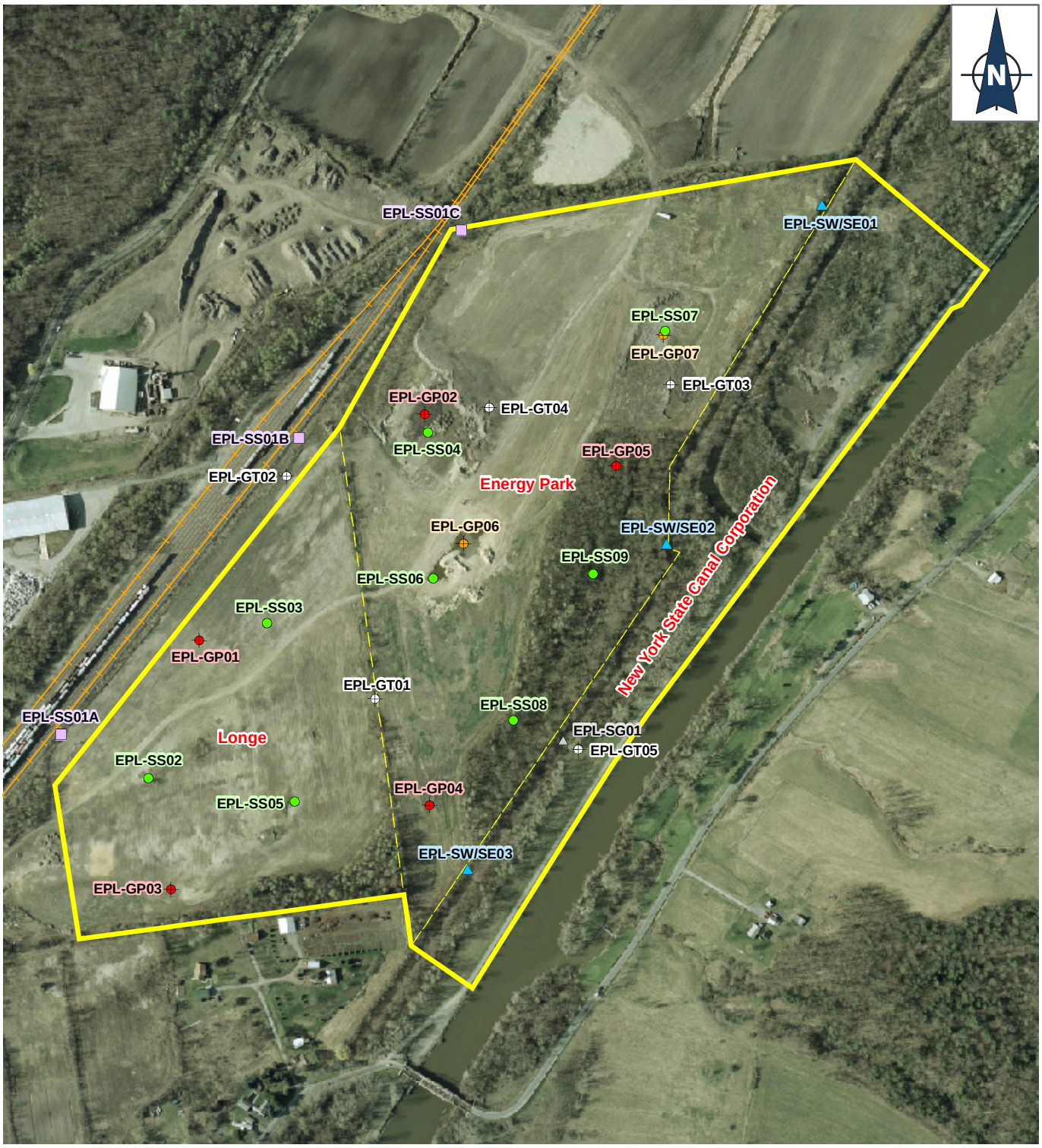
SOURCE; ECOLOGY & ENVIRONMENT, INC. 2003;



LEGEND

- Geoprobe Soil Boring
- Geoprobe Soil Boring & Temporary Well
- Geoprobe & Geotechnical Boring
- Geotechnical Boring
- Surface Soil
- Soil Sample Adjacent to Railroad
- Surface Water / Sediment
- Stream Gauge
- Railroad
- Potential Site Boundary

Hudson River
PCBs SUPERFUND SITE

Figure 3-1
Sample Locations
Energy Park / Longe / New York State Canal Corporation

500 250 0 500 1,000
Feet

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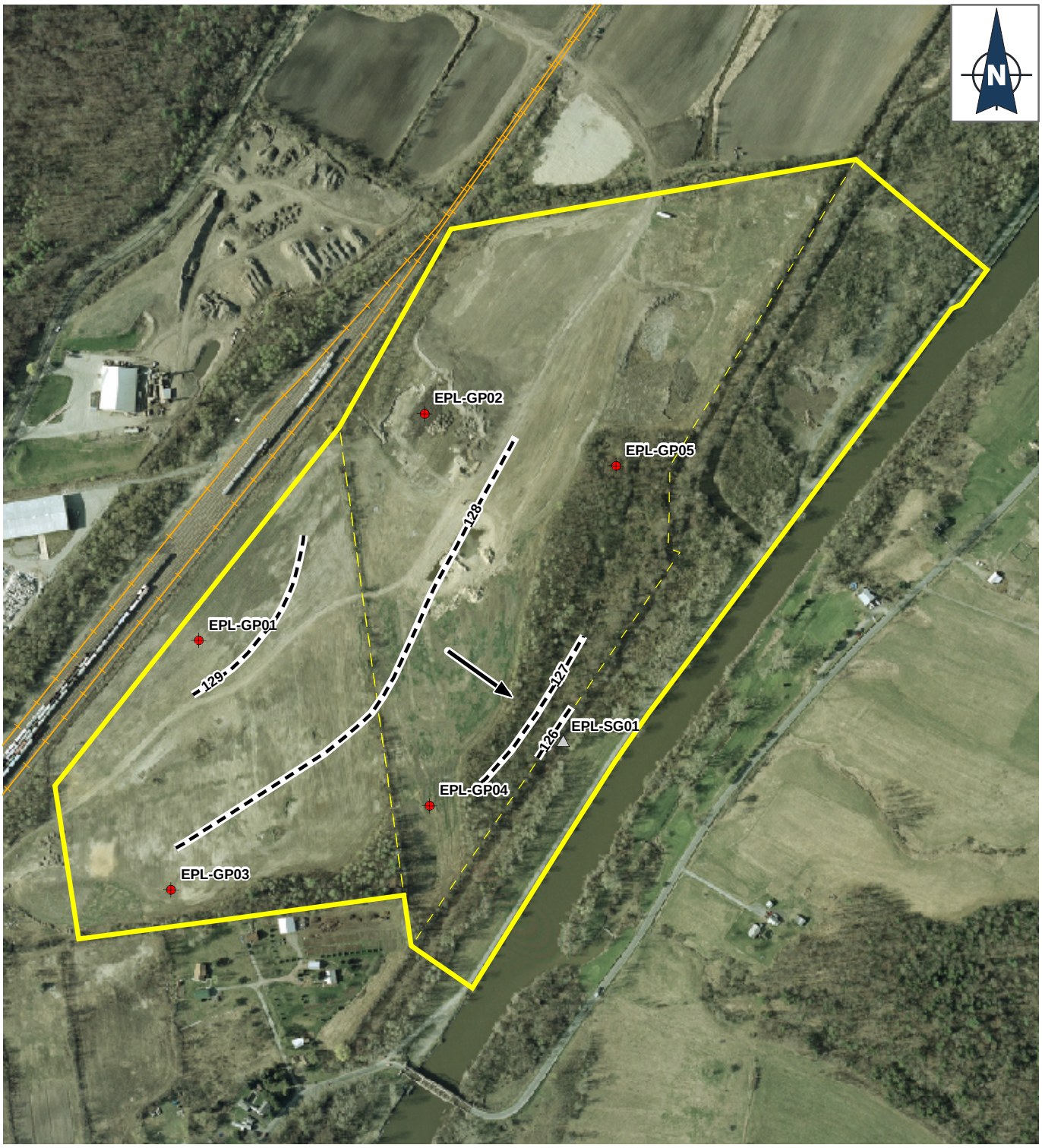

LEGEND

- Groundwater Contour
- Temporary Well
- Stream Gauge
- Railroad
- Potential Site Boundary
- Direction of Groundwater Flow

Water Level Elevations Measured on 11/6/2003
1 ft. Contour Interval

Hudson River
PCBs SUPERFUND SITE

Figure 3-2
Overburden Groundwater Contour Map
Energy Park / Longe / New York State Canal Corporation

500 250 0 500 1,000
Feet

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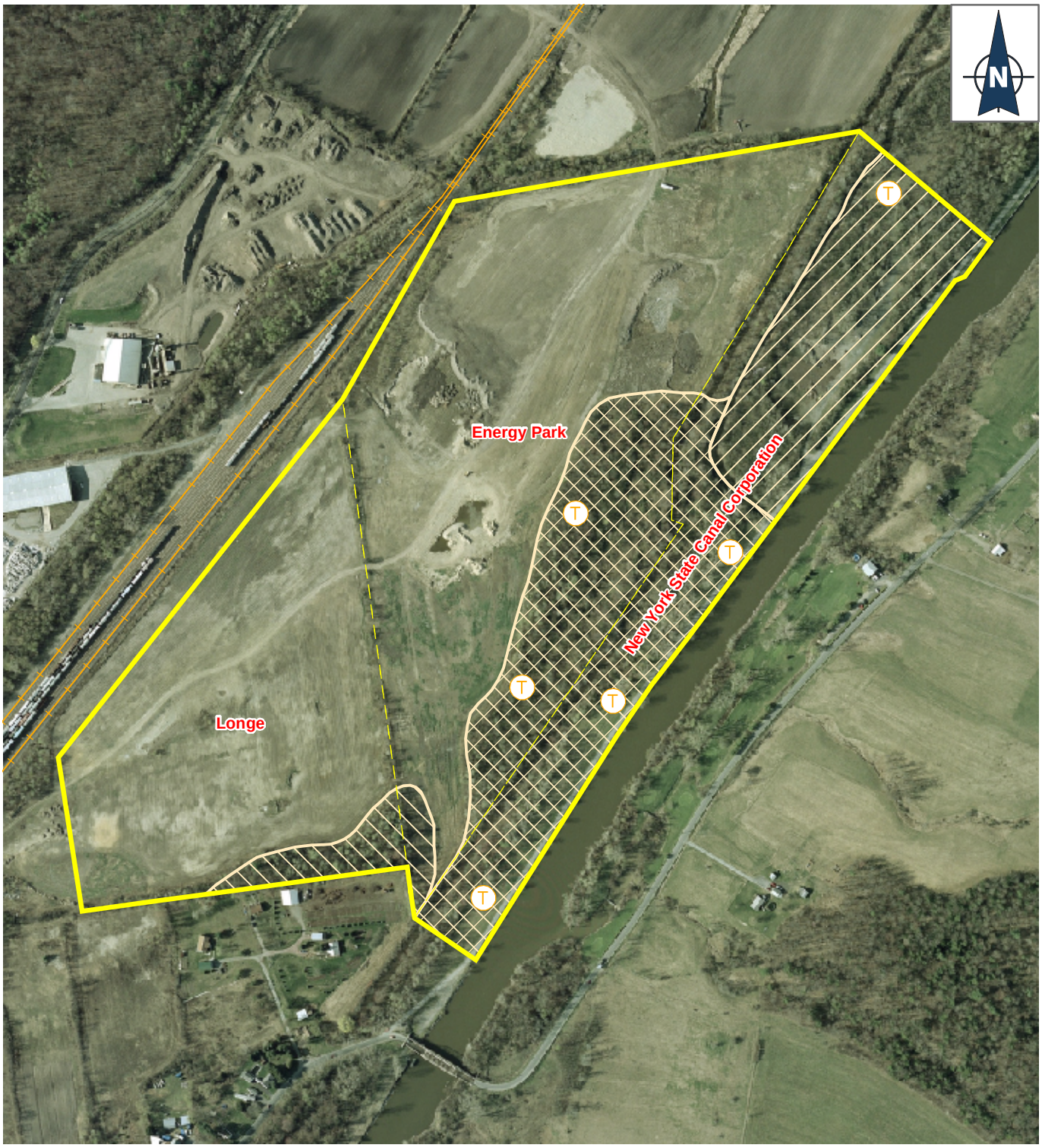

LEGEND

- Potential Site Boundary

Archaeological Testing Method

- Backhoe Test
- Shovel Test
- Backhoe & Shovel Test
- (T) Backhoe Trench Locations

Hudson River PCBs SUPERFUND SITE

Figure 6-1
Field Sampling Areas
Phase I B Cultural Resources Investigation
Energy Park / Longe / New York State Canal Corporation

500 250 0 500 1,000 Feet

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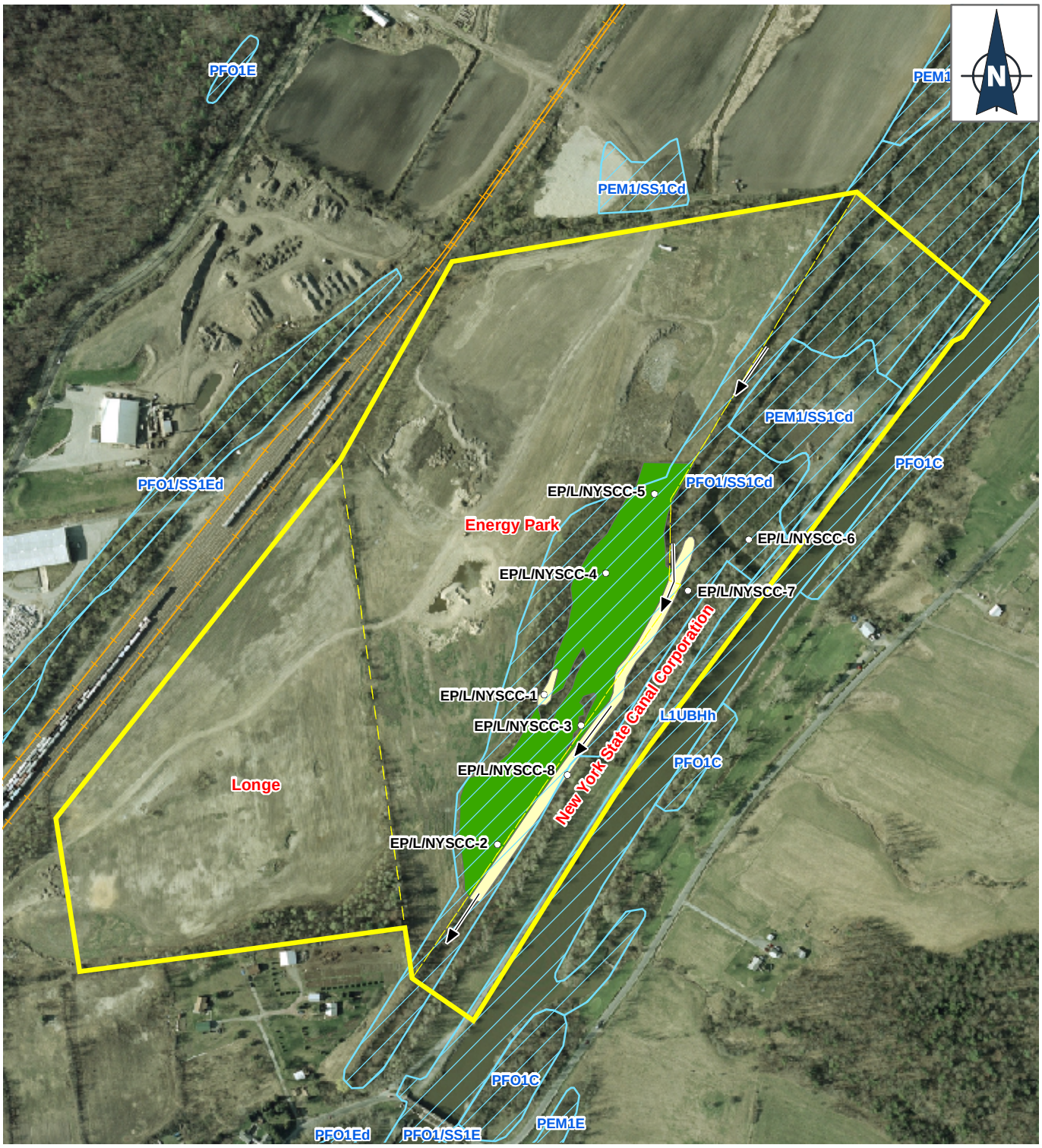

LEGEND

- NYS DEC Mapping
- National Wetland Inventory Mapping

Delineated Wetlands

- Emergent
- Forested
- Observation Plots
- Direction of Drainage Flow

Hudson River PCBs SUPERFUND SITE

Figure 7-1
Wetland Locations
Energy Park / Longe / New York State Canal Corporation

500 250 0 500 1,000 Feet

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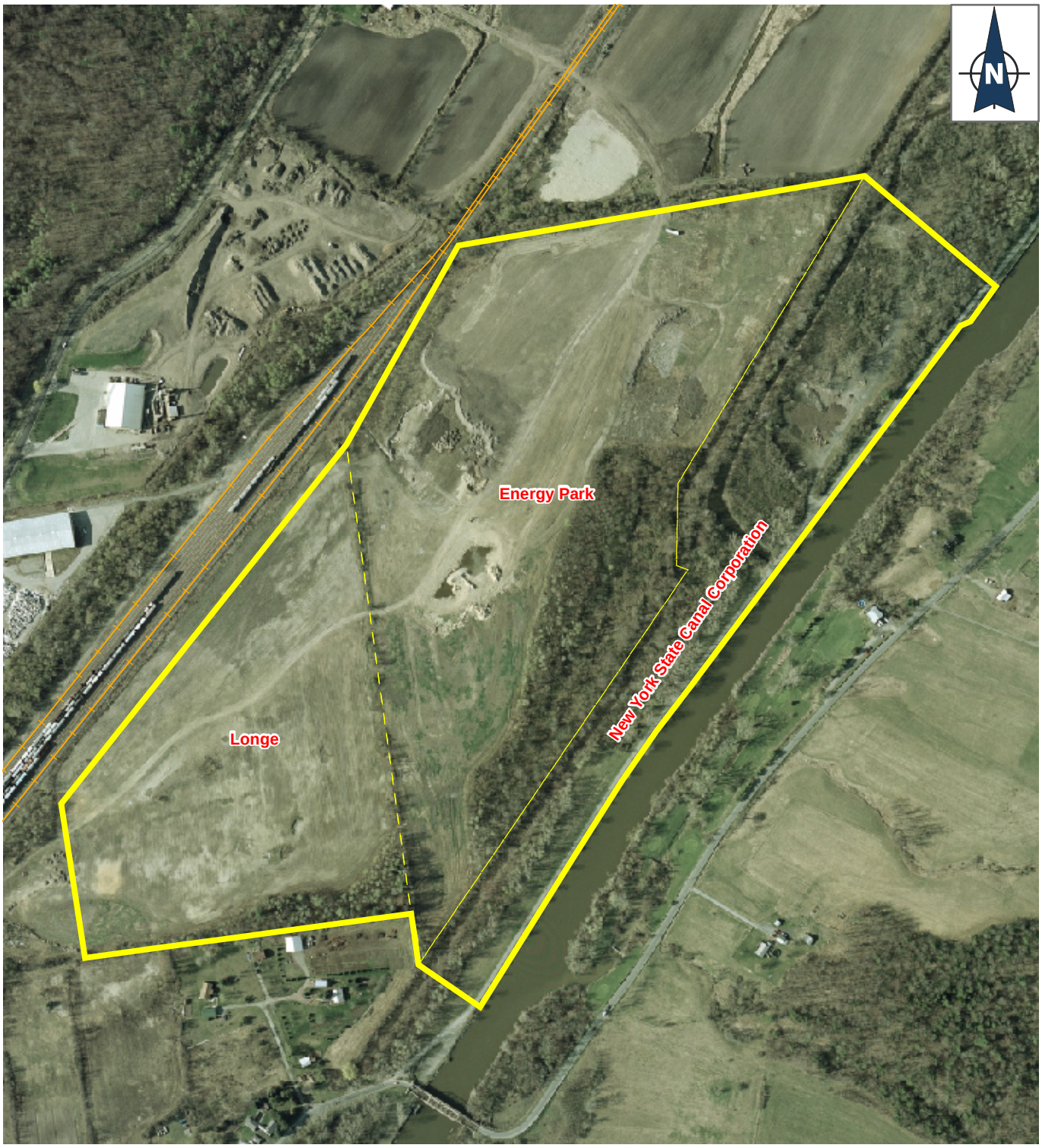

LEGEND

- Potential Site Boundary
- Tax Parcels

FEMA Floodplain

- 100 Year Floodplain
- 500 Year Floodplain

Hudson River PCBs SUPERFUND SITE

Figure 8-1
FEMA Floodplain Mapping
Energy Park / Longe / New York State Canal Corporation

500 250 0 500 1,000 Feet

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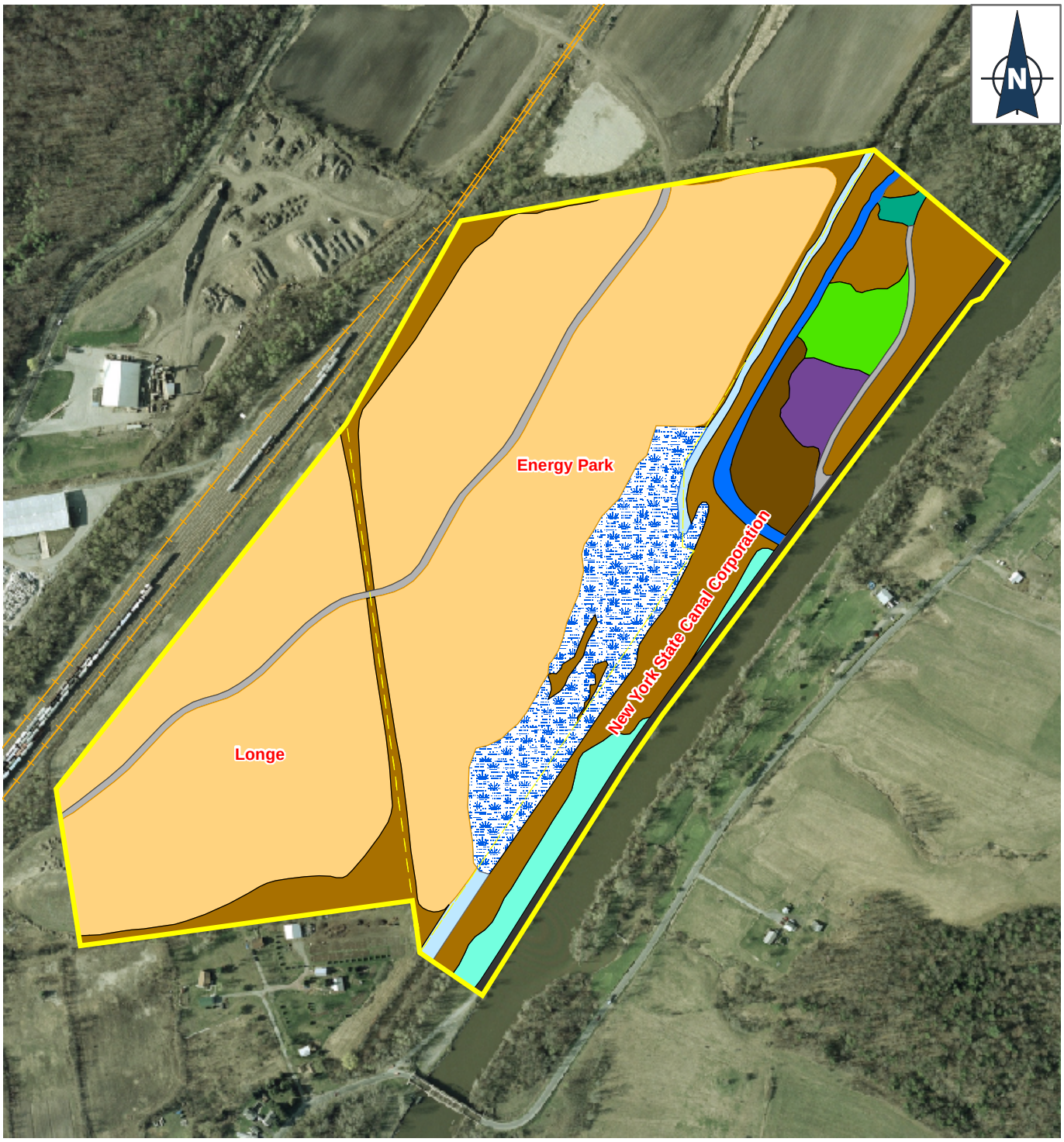

Ecological Communities

- Paved Road
- Unpaved Road
- Wetland
- Successional Northern Hardwoods (SNH)
- Dredge Spoils / SNH
- Successional Shrubland
- Ditch / Marsh Headwater Stream
- Canal
- Construction / Road Maintenance Spoils
- Cropland
- Mowed Pathway
- Mowed Roadside

Hudson River PCBs SUPERFUND SITE

Figure 10-1
Site Ecological Communities
Energy Park / Longe / New York State Canal Corporation

500 250 0 500 1,000 Feet

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