Department of Environmental Conservation

Division of Environmental Remediation

Record of Decision

NIAGARA MOHAWK ONEIDA (SCONONDOA STREET) FORMER MANUFACTURED GAS PLANT SITE

Oneida, Madison County

June 2000

New York State Department of Environmental Conservation
GEORGE E. PATAKI, *Governor* JOHN P. CAHILL, *Commissioner*

DECLARATION STATEMENT - RECORD OF DECISION

Niagara Mohawk Oneida (Sconondoa Street) Former Manufactured Gas Plant Site Oneida, Madison County

Statement of Purpose and Basis

The Record of Decision (ROD) presents the selected remedy for the Niagara Mohawk Oneida (Sconondoa Street) Former Manufactured Gas Plant Site which was chosen in accordance with the New York State Environmental Conservation Law. The remedial program selected is not inconsistent with the National Oil and Hazardous Substances Pollution Contingency Plan of March 8, 1990 (40CFR300).

This decision is based on the Administrative Record of the New York State Department of Environmental Conservation (NYSDEC) for the Niagara Mohawk Oneida (Sconondoa Street) Former Manufactured Gas Plant Site and upon public input to the Proposed Remedial Action Plan (PRAP) presented by the NYSDEC. A listing of the documents included as a part of the Administrative Record is included in Appendix B of the ROD.

Assessment of the Site

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

Description of Selected Remedy

Based on the results of the Remedial Investigation/Feasibility Study (RI/FS) for the Niagara Mohawk Oneida (Sconondoa Street) Former Manufactured Gas Plant Site and the criteria identified for evaluation of alternatives, the NYSDEC has selected excavation and off-site treatment or disposal of contaminated soils, including dredge spoils and sediment. A monitored natural attenuation program will be established for groundwater. The components of the remedy are as follows:

For the Tailrace:

- Removal of approximately 1,780 cubic yards of sediments and 2,960 cubic yards of spoils exceeding the remediation level (see Table 2) along the entire length of the Tailrace. The final depth will be based upon confirmation sampling and analysis.

- Restoration of the Tailrace and banks to their original grade using non-contaminated fill and revegetation of the banks.

For the Soil/Groundwater:

- Excavation of approximately 7,150 cubic yards of soil from the following areas based on contaminant concentration values above the remediation levels (see Table 2):
  a) former large and small gas holders
  b) between the Tailrace and large gas holder and in the area of the purifier slab
  c) an area of contaminated soil directly north of the site

- Management of excavated material off-site, which could include on-site processing prior to off-site treatment and/or disposal.

- Replacement of excavated material with non-contaminated fill to the existing grade. Re-vegetate disturbed areas and provide an asphalt cover on Niagara Mohawk property.

- Monitor the concentration of hazardous substances in the groundwater attenuating through naturally occurring biological processes. If monitoring demonstrates that the attenuation rate does not meet established performance goals, then enhancement methods such as air sparging, and/or addition of oxygen and/or addition of another electron acceptor such as sulfate, will be implemented at the site.

- Establish deed restrictions which will prohibit the installation of water supply wells in areas where the groundwater quality does not comply with standards and guidance.

New York State Department of Health Acceptance

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

Declaration

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

_____ _____

Date

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

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RECORD OF DECISION

Niagara Mohawk Oneida (Sconondoa Street)
Former Manufactured Gas Plant Site
Oneida, Madison County
June, 2000

SECTION 1: SUMMARY OF THE RECORD OF DECISION

The New York State Department of Environmental Conservation (NYSDEC) in consultation with the New York State Department of Health has selected this remedy to address the significant threat to human health or the environment created by the presence of hazardous substances at the Niagara Mohawk Oneida (Sconondoa Street) Former Manufactured Gas Plant Site. As more fully described in Sections 3 and 4 of this document, past operations of the former gas plant have resulted in the disposal of hazardous substances, including volatile organic compounds and polycyclic aromatic hydrocarbons at the site, some of which were released or have migrated from the site to soil, groundwater, and a small stream on nearby properties. These disposal activities have resulted in the following significant threats to the public health or the environment:

- a significant threat to human health associated with exposure to benzene, polycyclic aromatic hydrocarbons (PAHs) and other substances in soil and sediment, based upon risk assessment modeling;

- a significant environmental threat associated with the impacts of hazardous substances in soil, groundwater, and sediments.

In order to eliminate or mitigate the significant threats to the public health or the environment that the hazardous substances disposed at the site have caused, the following remedy was selected:

- Excavation and off-site treatment or disposal at a permitted facility of contaminated soil, including Tailrace Creek dredge spoils and sediment. The thresholds at which the soil and sediment are considered contaminated are established in Table 2. For groundwater, a monitored natural attenuation program will be established. The monitored natural attenuation program will have performance goals; a threshold of groundwater quality will be set at predetermined milestones following the soil and sediment remediation. If the groundwater quality does not meet the performance goals, methods to accelerate the reduction of hazardous substances in the groundwater will be implemented. The performance goals will include compliance with New York State groundwater quality standards and guidance (see Table 2).

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

SECTION 2: SITE LOCATION AND DESCRIPTION

The Niagara Mohawk Oneida (Sconondoa Street) Former Manufactured Gas Plant (MGP) Site (hereafter referred to as the Oneida MGP Site) is located on Sconondoa Street in the City of Oneida, Madison County, New York. The triangular site is bordered on the west by Tailrace Creek (a tributary to Oneida Creek), to the east by a gravel road which was the former route of the New York Ontario and Western Railroad, and to the south by Sconondoa Street (see Figures 1A and 1B). The site is presently owned by Niagara Mohawk Power Corporation (Niagara Mohawk) which operates a service center on the property for gas and transmission line service.

The 1.8 acre site is secured by a fence at the property perimeter which is locked after working hours. The site is generally flat with a gentle slope to the north. Gravel covers the site except on the south end where there is a small lawn. Tailrace Creek (Tailrace) is situated at the base of a five-foot embankment along the west and north sides of the site. North of the Tailrace is an abandoned elevated New York Central Railroad right of way. The site is located in an area characterized by industrial and commercial land use. However, a residence is located approximately 400 feet east of the site between the Tailrace and Sconondoa Street. This residence's drinking water is supplied by a municipal drinking water system.

The Tailrace has been dredged periodically to maintain storm water flow. Average flow in the Tailrace was estimated at 0.5 cubic feet per second. Dredged material (referred to as "dredge spoils") has been placed adjacent to the Tailrace bank.

SECTION 3: SITE HISTORY

3.1: Operational/Disposal History

The Oneida Gas Light Company purchased the current Niagara Mohawk property in 1896. Manufactured gas was produced from approximately 1899-1930. In the first half of the 20th century, a series of consolidations of utility companies ultimately resulted in Niagara Mohawk's acquisition of the site in 1950. Final demolition of MGP structures took place in 1963. The current site has remained essentially unchanged since the construction of a service center addition in 1974.

Records of waste disposal are not available. It is not likely that waste disposal occurred at predetermined periods, but as operations required, wastes were removed from the system.

Unrecovered by-products may have been released to the environment through breaks in plant containment structures or piping.

3.2: Remedial History

The Oneida MGP Site is a former MGP site owned by Niagara Mohawk Power Corporation. In December 1992 Niagara Mohawk consented to a NYSDEC administrative order requiring an environmental preliminary site assessment of 21 Niagara Mohawk owned sites.

Consistent with Environmental Conservation Law Section 27-1305 and 6 NYCRR Part 375, the Department must maintain a registry of all sites known to the Department at which a consequential amount of hazardous waste has been confirmed to have been disposed. At the Oneida MGP Site, the NYSDEC has not confirmed the disposal of hazardous waste. Therefore, the site is not listed in the Registry of Inactive Hazardous Waste Disposal Sites (registry). However, hazardous substances found at the site were determined to constitute a significant threat to the environment.

The Order on Consent with Niagara Mohawk obligates the NYSDEC to prepare a proposed remedial action plan in accordance with CERCLA, the NCP, and other guidance documents. Niagara Mohawk is obligated to implement a NYSDEC-approved remedial design reflective of the Record of Decision. If the Department determines that hazardous substances found at a site constitute a significant threat to the environment and that response actions are needed, Niagara Mohawk must undertake the response actions in accordance with the NCP and other appropriate guidance. These actions are required regardless of whether the site is listed on the registry.

A Preliminary Site Assessment was initiated on February 26, 1993 for the Oneida MGP Site. A Preliminary Site Assessment/Interim Remedial Measure Report was submitted to the NYSDEC on May 9, 1994 and approved by the NYSDEC on September 19, 1994. Niagara Mohawk conducted a remedial investigation (RI) between January 1995 and June 1997.

SECTION 4: SITE CONTAMINATION

To evaluate the contamination present at the site and to evaluate alternatives to address the significant threat to public health or the environment posed by the presence of hazardous substances, Niagara Mohawk has recently completed a Remedial Investigation/Feasibility Study (RI/FS).

In the discussion below, please note that references to on-site refer to property owned by Niagara Mohawk. Off-site refers to other parcels investigated, most of which are adjacent to the Niagara Mohawk property.

4.1: Summary of the Remedial Investigation

The purpose of the RI was to define the nature and extent of any contamination resulting from previous activities at the site. A report entitled "Remedial Investigation Report, Sconondoa Street Site, Oneida, New York, June 1997", has been prepared describing the field activities and findings of the RI in detail.

The RI included the following activities:

Collection of 20 surface soil samples.

Installation of 23 soil borings and 10 additional monitoring wells for analysis of soils and groundwater as well as the physical properties of soil and hydrogeologic conditions. The borings and monitoring wells supplemented wells and borings provided during the 1993 preliminary site assessment.

Collection of surface water samples.

Collection of sediment samples from seventeen locations.

Hand auger boring and analysis in 25 locations along the Tailrace in areas where dredge spoils were deposited.

Analysis of groundwater from 16 monitoring well locations, including paired wells.

Analysis of tissue from fish collected in Oneida Creek.

The following information was obtained as a result of the RI:

The site is covered with up to 15 feet of fill. A peat unit generally lies below the fill; the peat is underlain by a glacial lacustrine sediment sequence of silt and fine sand alternating with sand and gravel. The lowest unit observed during the investigation was a stiff brown-red clay containing little silt and occasional fine sand partings. The clay has low permeability and was observed at the base of every boring drilled with the objective of reaching the clay layer. The clay layer dips southerly across the site, from approximately eighteen feet in depth to forty-five feet. Only unconsolidated deposits were found during the investigation of this site, implying a bedrock depth of greater than 50 feet.

Groundwater was encountered at depths between five and eleven feet below the ground surface. Groundwater flow is toward the northeast, with flow components toward the Tailrace and eastern ditch.

To determine which media, (soil, groundwater, surface water, sediment), contain contamination at levels of concern, the RI analytical data were compared to environmental Standards, Criteria, and

Guidance values (SCGs). Groundwater, drinking water and surface water SCGs identified for the Oneida MGP Site were based on NYSDEC Ambient Water Quality Standards and Guidance Values and Part 5 of the New York State Sanitary Code. For soils, a comparison to NYSDEC TAGM 4046 provides soil guidelines for the protection of groundwater, background conditions and health-based exposure scenarios. Guidance values for evaluating contamination in sediments are provided by the NYSDEC's "Technical Guidance for Screening Contaminated Sediments".

Based upon the results of the remedial investigation in comparison to the SCGs and potential public health and environmental exposure routes, certain areas and media of the site require remediation. These are summarized below. More complete information can be found in the RI Report.

4.1.1 Nature of Contamination:

As described in the RI report, many soil, surface water, groundwater, sediment and fish tissue samples were collected at the Oneida MGP Site to characterize the nature and extent of contamination. The main categories of hazardous substance contaminants which exceed their SCGs are volatile organic compounds and semivolatile organic compounds. Specific volatile organic compounds of concern in soil, groundwater and sediment are:

benzene
toluene
ethylbenzene
xylenes

The summation of these compounds is referred to as BTEX. Specific semivolatile organic compounds of concern in soil, groundwater and sediment, are the polycyclic aromatic hydrocarbons (PAHs):

acenaphthlene
acenaphthylene
anthracene
benzo(a)anthracene
benzo(a)pyrene
benzo(b)fluoranthene
benzo(g,h,i)perylene
benzo(k)fluoranthene
dibenzo(a,h)anthracene
chrysene
fluoranthene
fluorene
indeno(1,2,3-cd) pyrene

2-methylnaphthalene
naphthalene
phenanthrene
pyrene

PAH concentrations referred to in this plan are the summation of the individual PAHs listed above. Benzene is a confirmed human carcinogen. The italicized PAHs are probable human carcinogens.

Cyanide was also found above background levels in soil, surface water, groundwater and sediment at or in the vicinity of monitoring well ES-2S. This is also an area of high BTEX and PAH contamination. The proposed remedy would reduce the cyanide level in all media to non-detect or background levels.

4.1.2 Extent of Contamination

Tables 1A thru 1D summarize the extent of hazardous substances contamination in groundwater, soil (at greater than six inches depth), surface soil (depths from zero to six inches) and sediment and compares the data with the standards, criteria and guidance (SCGs) for the Oneida MGP Site. The following are the media which were investigated and a summary of the findings of the investigation.

Soil

1. Subsurface Soil

Subsurface soil was sampled both on-site and off-site from the ground surface to the bottom of each boring. Soil samples which were visibly contaminated within the core or had relatively high photoionization detector readings were selected for laboratory analysis.

BTEX concentrations ranged from not detected (in 19 samples) to 789 parts per million (ppm or milligrams per kilogram) in sample ES-2SD (see Figures 2A and 2B), at 6-8 feet below the ground surface (bgs). The three highest concentrations of BTEX (789 ppm, 181 ppm, 169 ppm) were detected near the northern corner of the Niagara Mohawk property. BTEX concentrations of up to 82 ppm (sample B-10RE, 8-10 feet bgs) were noted along the west side of the service center building. The maximum BTEX concentrations were generally found at depths less than 16 feet below grade. Below 16 feet, concentrations ranged from not detected (10 locations) to 0.14 ppm (sample B-6RK, 20-22 feet bgs) in 15 samples.

PAH concentrations ranged from not detected (in 8 samples) to 2,017 ppm. Similar to BTEX, the three highest concentrations of PAHs were detected near the northern corner of the Niagara Mohawk property and along the west side of the service center building. These areas are near former MGP structures, including gas distribution and relief holders, and purifiers (see Figures 2A

and 2B).

Cyanide concentrations ranged from not detected (in 34 samples) to 4 ppm (sample B27D, 6-8 feet bgs). Four metals, (barium, magnesium, silver and sodium) were detected above the background in subsurface soils collected from the vicinity of the site. These elevated levels were found in five borings, all on Niagara Mohawk property. None of these metals are typically associated with manufactured gas plant wastes. Magnesium and sodium are common constituents in background, non-contaminated soils.

2. Dredge Spoils

Shallow (less than 5 feet) subsurface soil samples were collected along the banks of the Tailrace from areas where spoils had been deposited after dredging.

PAHs were detected in all nine dredge spoil samples at concentrations ranging from 0.096 ppm to 22,995 ppm. The two highest concentrations of PAHs were detected approximately 150 to 250 feet east of the intersection of the Tailrace and the eastern ditch.

BTEX concentrations ranged from not detected (in five samples) to 278 ppm (sample SB-2). The pattern of BTEX distribution is similar to PAHs.

Cyanide was detected in only one dredge spoil sample, SB-18, at a concentration of 117 ppm. The sample was located between the Tailrace and the northwest corner of the Service Center fence.

3. Surface Soil

Surface soils were collected both on-site and off-site from 0-6 inches in depth below ground surface.

The maximum concentration of BTEX found in surface soil samples was 0.054 ppm. This is below the NYSDEC's guidance for the clean-up objective of benzene in soil of 0.06 ppm for a soil organic carbon content of 1%.

Background total PAH concentrations ranged from 3 ppm to 253 ppm. On-site PAH concentrations ranged from 1 ppm to 2,030 ppm. The highest concentration of PAHs was at sample SS-2, near the northwest side of the site.

Cyanide was detected in certain background surface soil samples up to 1.7 ppm. Cyanide was found in one on-site surface soil sample at a concentration of 1 ppm. The highest off-site concentration of cyanide was 2.2 ppm found along the Tailrace.

Eight metals were detected at slightly elevated levels at one off-site sample location (SS-5) adjacent

to the Tailrace.

Sediments

BTEX was found at concentrations ranging from non-detect (6 locations) to 171 ppm (sample SED-20D). The area containing the highest BTEX concentrations is in the Tailrace from west of the center of the Niagara Mohawk property to approximately 150 feet east of the intersection with the eastern ditch. BTEX compounds were not detected in the Tailrace upstream of the site. BTEX was detected in two Oneida Creek sediment samples; the highest concentration of 1 ppm was found in SED-12, upstream of the confluence with the Tailrace.

PAHs were detected in all 30 sediment samples (see Figures 3A and 3B). Total PAH concentrations ranged from 2 to 46,694 ppm. The highest PAH concentrations were found in the same area as the elevated BTEX compounds. Also, the highest PAH concentrations were found at the sample SED-21 location, at depths of 0.5 to 1.0 foot and 3.0 to 3.5 feet. PAH concentrations ranged from 7 to 32 ppm in the eastern ditch and from 2 to 11 ppm in the drainage swale. In Oneida Creek sediments, PAH concentrations were below 2 ppm in seven of eight samples. The highest PAH concentration in Oneida Creek sediment was 17 ppm, found in sample SED-12, upstream of the confluence with the Tailrace.

Cyanide was detected in certain sediment samples in concentrations up to 1.6 ppm.

Metals concentrations in sediments were generally similar at locations upstream and downstream of the site. However, one sample adjacent to the site, (SED-2), contained five metals at slightly elevated concentrations.

Groundwater

PAH (primarily naphthalene and 2-methylnaphthalene) concentrations in groundwater ranged from not detected (11 samples) to 144,621 ppb. The highest concentrations were detected in well ES-2S, located at the northern corner of the facility downgradient of a former gas holder. Lower concentrations of PAHs were found in wells ES-7, ES-5 and ES-3, each downgradient of former holders (see Figure 4).

BTEX compounds were detected at concentrations ranging from non-detect to 13,400 ppb. BTEX detections generally correlated with PAH detections.

Five groundwater samples contained chlorinated VOCs. The highest concentration of any chlorinated VOCs was 66 ppb of 1,1,2 trichloroethane in well ES-2S.

Cyanide was detected above the SCG at monitoring well ES-2S. Cyanide was not detected in 10 monitoring wells.

Metals concentrations in on-site groundwater are comparable to background groundwater samples.. An exception was lead in well ES-2S at 301 ppb, one order of magnitude above the average background value of 30 ppb. NYSDEC has concluded that the metals are naturally occurring.

Non-aqueous phase liquid (NAPL) was observed in samples from 20 soil borings, three dredge spoil samples and 12 sediment samples. Areas of NAPL generally coincided with areas of elevated PAH and BTEX concentrations. Also, a light NAPL was found in monitoring well ES-4S after the remedial investigation had been completed.

NAPL and elevated concentrations of hazardous substances were not found in the confining silty clay unit. NYSDEC has concluded that this unit has prevented the migration of NAPL because of its low permeability. However, groundwater was not characterized below the silty clay unit.

Surface Water

Benzene was detected in the Tailrace and eastern ditch surface water. However, the compound was found in concentrations below the SCG (see Table 1E).

Total cyanide was detected in seven surface water samples collected from the Tailrace and eastern ditch at concentrations between non-detect and 90 ppb. Total cyanide was also detected in surface water upstream of the site. The highest surface water concentration of cyanide was found at the location of the highest concentration of cyanide in sediment. The sediment would be removed under the proposed remedy.

Up to 20 metals were detected in surface water samples collected from the Tailrace. These metals were also detected in sediment samples collected in the same vicinity.

Three surface water samples from Oneida Creek, a class C stream, were collected and analyzed. None of the target analytes were detected.

Air

The air quality was measured during soil disturbing investigation activities, when volatilization and wind-borne dust might generate unfavorable environmental conditions. Air monitoring with a photoionization detector and colorimetric tubes during all aspects of the field work did not indicate the presence of volatile organic compounds in the breathing zone above the action levels specified in the project health and safety plan.

Fish Tissue

The RI report includes tissue analyses from fish collected in Oneida Creek. The majority of PAHs analyzed for were not detected in the fish tissue. Four PAH compounds were present in some of

the tissue samples; the concentrations were comparable to levels in the tissue from fish upstream of the site. The NYSDEC concludes that fish in Oneida Creek are not adversely impacted by the Oneida former MGP Site, therefore fish tissue data are not included in this PRAP.

Significant Threat

In light of the magnitude of hazardous substances, both in terms of concentrations in soil, sediment and groundwater above state guidance levels, and the volume of the material in contact with an aquifer capable of supplying local residents, the NYSDEC determined the site to be a significant threat to the environment on July 26, 1994.

4.2 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 health risks can be found in Section 6 of the RI Report.

A completed exposure pathway is how an individual comes into contact with a contaminant. The five elements of an exposure pathway are 1) the source of contamination; 2) the environmental media and transport mechanisms; 3) the point of exposure; 4) the route of exposure; and 5) the population exposed. These elements of an exposure pathway may be based on past, present, or future events.

Completed pathways which are known to or suspected to exist at the Oneida MGP Site include:

- ingestion of surface water (because of potentially suspended sediment within the water, i.e., turbidity), groundwater, soil and sediment; and

- dermal contact with surface water (because of potentially suspended sediment within the water, i.e., turbidity), groundwater, soil and sediment.

The risk assessment results indicate that there are health threats to both current and future residents who may have contact with soil, sediment and groundwater.

4.3 Summary of Environmental Exposure Pathways:

This section summarizes the types of environmental exposures which may be presented by the site. The Fish and Wildlife Impact Assessment included in the RI presents a more detailed discussion of the potential impacts from the site to fish and wildlife resources. The following pathways for environmental exposure have been identified:

- animal contact, such as through traversing, wading or burrowing in Tailrace sediment;
- animal ingestion of surface water, soil and sediment of contaminated areas; and
- plant roots in contact with contaminated soil and sediment.

The "Technical Guidance for Screening Contaminated Sediments" was consulted for application to the Tailrace and its tributaries, however, site characteristics limit the utility of the guidance. The Tailrace and Eastern Ditch are surface waters that have highly compromised benthic communities because of the maintenance of the drainage channels for floodways.

SECTION 5: ENFORCEMENT STATUS

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

The Potentially Responsible Party for the site, documented to date, is Niagara Mohawk Power Corporation.

The NYSDEC and the Niagara Mohawk Power Corporation entered into a Consent Order (Index #D0-0001-9210) on December 7, 1992. The Order obligates the responsible party to implement a full remedial program.

SECTION 6: SUMMARY OF THE REMEDIATION GOALS

Goals for the remedial program have been established through the remedy selection process stated in 40 CFR 300.430. Also, although the Oneida MGP Site is not an inactive hazardous waste disposal site, 6 NYCRR Part 375-1.10 is used as a guidance since there are hazardous substances present in consequential quantity which pose a significant threat to public health or the environment. The overall remedial goal is to meet all SCGs and be protective of public health and the environment.

At a minimum, the remedy selected should eliminate or mitigate all significant threats to the public health and to the environment presented by the hazardous substances disposed at the site through the proper application of scientific and engineering principles.

The goals selected for this site are:

Eliminate to the extent practicable the contamination present within the soils on-site and

off-site.

Eliminate to the extent practicable the contamination present in Tailrace sediment.

Eliminate, to the extent practicable, off-site migration of groundwater that exceeds NYSDEC Class GA Ambient Water Quality Criteria.

Eliminate the potential for direct human or animal contact with contaminated soils, sediments, and groundwater.

Eliminate, to the extent practicable, migration of NAPL through removal or hydraulic containment.

To achieve these goals, remediation levels for groundwater, soil and sediment are established in Table 2.

SECTION 7: SUMMARY OF THE EVALUATION OF ALTERNATIVES

The selected remedy should be protective of public health and the environment, be cost effective, comply with other statutory laws and utilize permanent solutions, alternative technologies or resource recovery technologies to the maximum extent practicable. Potential remedial alternatives for the Oneida MGP Site were identified, screened and evaluated in the report entitled "Feasibility Study Submittal for the Oneida (Sconondoa Street) Site", August 1998.

A summary of the detailed analysis follows. As used in the following text, the time to implement reflects only the time required to construct or execute the remedy, and does not include the time required to design the remedy and procure contracts for design, design the remedy and procure contracts for construction.

7.1: Description of Alternatives

The following potential remedies are intended to address the contaminated soil, sediments, surface water and groundwater at the Oneida MGP Site. Two types of remedies are considered, dealing with: 1) contaminated sediments in and near the Tailrace, and 2) contaminated soils and groundwater at the Oneida MGP Site itself. Since the concentrations of PAHs in Oneida Creek sediment were higher upstream of the Oneida MGP Site than downstream, the NYSDEC concluded that Oneida Creek is not impacted by the site. No remediation is planned for Oneida Creek. The present worth cost for each alternative was estimated assuming a project life of thirty years and a 4% discount rate.

Alternative 1
No Action

Present Worth:	$ 98,100
Capital Cost:	$ 13,200
Annual O&M:	$ 11,000
Time to Implement	3 weeks

The no action alternative is evaluated as a procedural requirement and as a basis for comparison. It requires continued monitoring only, allowing the site to remain in an unremediated state. Capital costs include the estimated cost of obtaining a deed restriction. Annual operation and maintenance costs include groundwater monitoring and maintenance of the security fence. This alternative would leave the site in its present condition and would not provide any additional protection to human health or the environment.

Tailrace (T) Alternatives
Note: The City of Oneida would maintain the Tailrace upon completion of the remedy.

Tailrace Alternative 2T
Culvert Tailrace and Cover Dredge Spoils

Present Worth:	$ 390,000
Capital Cost:	$ 390,000
Annual O&M:	$ 0
Time to Implement	6 weeks

This alternative would replace the existing open ditch Tailrace with a culvert and cover the dredge spoils with clean fill. The major components of Tailrace Alternative 2T are as follows:

- Temporary bypass of Tailrace.
- Excavate sediment to a depth of 2.5 feet, approximately 1,220 cubic yards, and transport from the remedial area for appropriate treatment or disposal.
- Provide 48-inch diameter culvert along entire length of the Tailrace.
- Cover culvert and dredge spoils with 1.5 feet of clean fill and 0.5 feet of topsoil. Revegetate.

Tailrace Alternative 3T
Excavation of Sediments with Off-Site Treatment/Disposal and Covering of Spoil Areas

Present Worth:	$ 369,000
Capital Cost:	$ 369,000

Annual O&M:	$ 0
Time to Implement	6 weeks

This alternative would remove and treat or dispose of approximately 1,780 cubic yards of contaminated sediments and cover the remaining spoils. The major components of Tailrace Alternative 3T are as follows:

- Temporary bypass of Tailrace.
- Excavate sediment having compound concentrations exceeding the remediation level for sediment (see Table 2). (For volume estimates, the depth was assumed to be four feet.) Final depths would be based on confirmation sampling and analysis. Provide backfill.
- Transport and appropriately treat or dispose of excavated sediment.
- Cover dredge spoils with 1.5 feet of non-contaminated fill and 0.5 feet of topsoil. Revegetate.
- Restore the Tailrace according to the City of Oneida's specifications for improved drainage.

Tailrace Alternative 4T
Excavation of Sediments and Spoils with Off-Site Treatment/Disposal.

Present Worth:	$ 798,000
Capital Cost:	$ 798,000
Annual O&M:	$ 0
Time to Implement	8 weeks

This alternative is similar to Tailrace Alternative 3T but includes removal of approximately 2,960 cubic yards of contaminated dredge spoils (see Figure 5). The major components of Tailrace Alternative 4T are as follows:

- Temporary bypass of Tailrace.
- Excavate sediment having compound concentrations exceeding the remediation level for sediment (see Table 2). (For volume estimates, the depth was assumed to be four feet.) Final depths would be based on confirmation sampling and analysis. Provide backfill.
- Transport and appropriately treat or dispose of excavated sediment.
- Excavate dredge spoils having compound concentrations exceeding the remediation level for soils (see Table 2). Final depths and horizontal limits would be based on confirmation

sampling and analysis.

- Backfill with clean fill to the original grade or in satisfaction of the City of Oneida's specifications for improved drainage.

Soil/Groundwater (SG) Alternatives

Soil/Groundwater Alternative 2SG
Provide Barrier Wall

Present Worth:	$ 3,160,000
Capital Cost:	$ 1,770,000
Annual O&M:	$ 87,000
Time to Implement	4 months

This alternative would provide a fully-encircling barrier wall and cover to contain and treat groundwater within the site (see Figure 6). Groundwater modeling predicted that a partial barrier wall would not be effective. The modeling showed that a partial barrier wall would result in groundwater mounding within and upgradient of the site and would be ineffective in maintaining hydraulic control. The major components of Soil/Groundwater Alternative 2SG are as follows:

- Install a fully-encircling bentonite slurry wall three feet thick near the perimeter of Niagara Mohawk property. Key the wall a minimum of five feet into the clay layer, which averages 38 feet below the ground surface.

- Provide asphalt cover on-site.

- Extract groundwater from within the wall at a sufficient rate and treat groundwater.

- Monitor groundwater quality outside of the barrier wall for as long as needed to confirm compliance with groundwater quality standards and guidance (see Table 2). Groundwater would be monitored for a minimum of five years.

- Establish deed restrictions which would prohibit the installation of water supply wells in areas where the groundwater quality does not comply with standards and guidance.

Soil/Groundwater Alternative 3SG
Excavate Source of Groundwater Contamination for Off-Site Treatment/Disposal. Monitor Natural Attenuation of Groundwater.

Present Worth:	$ 1,634,000
Capital Cost:	$ 1,576,000

Annual O&M: $ 13,000
Time to Implement 3 months

This alternative would remove contaminated soil both on-site and off-site. The major components of Soil/Groundwater Alternative 3SG are as follows:

- Excavate approximately 7,150 cubic yards of soil containing concentrations of hazardous substances greater than the remediation levels presented in Table 2. Final depths and horizontal limits would be based on confirmation sampling and analysis. Since areas of NAPL generally coincided with areas of elevated PAH and BTEX concentrations, NAPL would also be excavated. Remove groundwater from the excavation as needed and appropriately treat or dispose. Excavation would occur at the following areas (see also Figure 7):

  c) former large and small gas holders, estimated depths of 8 and 16 feet respectively;

  d) between Niagara Mohawk property boundary and Tailrace, estimated depth of 8 feet.

  e) former purifying area, estimated depth 10 feet.

  f) an approximately 110-foot by 20-foot off-site area directly north of Niagara Mohawk property, estimated depth 14 feet.

- Backfill excavated areas with non-contaminated fill.

- Provide asphalt cover on-site. Revegetate off-site areas.

- Monitor groundwater quality for compliance with performance goals. The performance goals would be established during the remedial design. If the performance goals are not achieved, methods to enhance the removal of hazardous substances from the groundwater through naturally occurring biological processes would be established. Air sparging, and/or addition of oxygen, and/or addition of another electron acceptor such as sulfate, would be implemented at the Oneida MGP Site. The performance goals would include compliance with groundwater quality standards and guidance (see Table 2).

- Establish deed restrictions which would prohibit the installation of water supply wells in areas where the groundwater quality does not comply with standards and guidance.

Soil/Groundwater Alternative 4SG
Excavate Source of Groundwater Contamination. Collect and Treat Off-site Groundwater

Present Worth:	$ 3,564,000
Capital Cost:	$ 1,776,000
Annual O&M:	$ 231,000
Time to Implement	3 months

This alternative would remove contaminated soil both on-site and off-site. In addition, the contaminated groundwater plume which currently extends beyond the Niagara Mohawk property would be collected and treated. The major components of Soil/Groundwater Alternative 4SG are as follows:

- Excavate approximately 7,150 cubic yards of soil containing concentrations of hazardous substances greater than the remediation levels presented in Table 2. Final depths and horizontal limits would be based on confirmation sampling and analysis. Since areas of NAPL generally coincided with areas of elevated PAH and BTEX concentrations, NAPL would also be excavated. Remove groundwater from the excavation as needed and appropriately treat or dispose. Excavation would occur at the following areas (see also Figure 7):

  a) former large and small gas holders, estimated depths of 8 and 16 feet respectively;

  b) between Niagara Mohawk property boundary and Tailrace, estimated depth of 8 feet.

  c) former purifying area, estimated depth 10 feet.

  d) an approximately 110-foot by 20-foot off-site area directly north of Niagara Mohawk property, estimated depth 14 feet.

- Backfill excavated areas with non-contaminated fill.

- Provide asphalt cover on-site. Revegetate off-site areas.

- Provide for a groundwater extraction well(s) in the vicinity of monitoring well ES-5. The number of wells would be determined during remedial design.

- Provide two additional off-site monitoring wells.

- Provide an activated carbon groundwater treatment system. Discharge treated water to the Tailrace or to the sanitary sewer in accordance with NYSDEC effluent limits or City of Oneida publicly owned treatment works (POTW) pretreatment requirements.

- Establish deed restrictions which would prohibit the installation of water supply wells in

areas where the groundwater quality does not comply with standards and guidance.

7.2 Evaluation of Remedial Alternatives

The criteria used to compare the potential remedial alternatives are defined in the National Oil and Hazardous Substances Contingency Plan (NCP). For each of the criteria, a brief description is provided followed by an evaluation of the alternatives against that criterion. A detailed discussion of the evaluation criteria and comparative analysis is included in the Feasibility Study.

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

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

While there are many SCGs that would apply to the remedy of this site, the most significant SCGs are:
* New York State Ambient Water Quality Standards and Guidance Values
* Determination of Soil Cleanup Objectives and Cleanup Levels (Technical and Administrative Guidance Memorandum HWR-94-4046, hereafter referred to as TAGM.

The Tailrace alternatives would be implemented in conjunction with a soil/groundwater alternative. Tailrace Alternatives 2T and 3T would not meet the soil cleanup objectives since soil exceeding these objectives would be left in place in and near the Tailrace, specifically under the culvert and adjacent to the culvert backfill. Tailrace Alternative 4T would meet the soil cleanup objectives (TAGM) for off-site soil contamination.

The no action alternative, Alternative 1, would not satisfy SCGs since no measures would be taken to correct the current site groundwater condition which exceeds groundwater quality standards. Soil exceeding the TAGM objectives would not be addressed. Soil/Groundwater Alternative 2SG would not satisfy groundwater standards within the barrier wall, however, groundwater standards would be met beyond the wall (off-site) over time, as the off-site groundwater plume would be cut-off from the majority of the source of groundwater contamination, thus allowing dilution and microbial forces to improve groundwater quality over time. Soil/Groundwater Alternative 2SG would not meet the soil cleanup guidance since hazardous substance concentration levels exceeding the TAGM would be left in place both on-site and off-site. Soil/Groundwater Alternatives 3SG and 4SG would meet the soil cleanup guidance objectives. By excavating and removing the contaminated soil that exceeds the guidance objectives, the NYSDEC expects that the groundwater quality would meet standards through time after the remedy was completed. A groundwater monitoring program would remain in place for as long as needed to confirm compliance with groundwater quality standards and guidance. Groundwater would be monitored for a minimum of

five years.

2. **Protection of Human Health and the Environment**. This criterion is an overall evaluation of the health and environmental impacts to assess whether each alternative is protective.

Tailrace Alternative 2T would afford some protection to human health and the environment. By providing a culvert, direct contact by persons, animals and plant life with contaminated sediment would be eliminated. The culvert would act as a barrier to the contaminated sediment, thus storm waters would be conveyed through the culvert, eliminating resuspension and transport of contaminated sediment. Exposure to contaminated spoils would be reduced with the placement of a permeable cover. Tailrace Alternative 3T would provide greater protection to human health and the environment since the contaminated sediment would be removed from the Tailrace, eliminating direct contact, eliminating the opportunity for transport, and eliminating the contaminated sediments as a source of groundwater contamination. Exposure to contaminated spoils would be reduced with the placement of a permeable cover. Tailrace Alternative 4T provides those protections offered by Tailrace Alternative 3T plus the removal of contaminated dredge spoils.

Alternative 1 would provide some protection of human health by maintaining a site fence, thus preventing accidental direct contact with on-site contaminated soils. Also, a deed restriction would alert potential developers to the risks associated with using the aquifer as a drinking water source. However, by not removing contaminated soil and by not removing nor controlling contaminated groundwater, the environment would remain unprotected. Through site security and deed restrictions, protection of public health would be similar for Soil/Groundwater Alternative 2SG. Soil/ Groundwater Alternative 2SG would provide greater protection to the environment by containing contaminated groundwater on-site. Soil/Groundwater Alternatives 3SG and 4SG would provide overall protection of public health and the environment by eliminating the source of groundwater contamination. After the source material is removed, direct exposure pathways would be eliminated and the leaching of hazardous substances into the groundwater from contaminated soils would also be eliminated. Also, the construction of an asphalt cover subsequent to the source material removal, in addition to the existing site security fencing, would eliminate the potential for the remaining (below TAGM) on-site contamination to be a direct contact exposure threat to the public.

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.

Except for Alternative 1, each of the alternatives requires some excavation of contaminated

sediment and soil, ranging from approximately 1,200 cubic yards to 10,000 cubic yards.

If not designed and monitored correctly, the excavation of soil and sediment could have a short term negative environmental impact: The sediment could dry and become transported as contaminated dust, and any excavation cuts could erode during a storm. Some truck traffic could be expected, hauling fill to the site and contaminated material from the site and noise could be generated from construction equipment. These impacts would be mitigated through conventional and remedial construction practices approved by the NYSDEC and the New York State Department of Health such as erosion and dust control, equipment and truck decontamination, air monitoring, approved haul routes, permitted transporters and approved work hours.

The NYSDEC expects that Tailrace remediation would be concurrent with soil/groundwater remediation and would be completed in one construction season. Both barrier wall construction (Soil/Groundwater Alternative 2SG) and source removal (Soil/Groundwater Alternatives 3SG and 4SG) would be of comparable construction time, with the barrier wall taking slightly longer to complete. Similarly, each of the Tailrace alternatives has been estimated to take about the same length of time to construct, with Tailrace Alternative 4T expected to take about two weeks longer as compared to the other Tailrace 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 controls intended to limit the risk, and 3) the reliability of these controls.

Tailrace Alternative 4T and Soil/Groundwater Alternatives 3SG and 4SG would remove all sediment and soil containing hazardous constituents above TAGM recommended soil cleanup objective levels. Wastes or treated residues would not remain on-site or off-site after implementation of the remedy. In contrast, by leaving the most contaminated sediment in place, Tailrace Alternative 2T would have the greatest magnitude of long-term risk. A soil cover and culvert backfill would be reliable but would require continual inspection to ensure their integrity. Contaminated dredge spoils would remain under Tailrace Alternative 3T; the permeable cover would reduce environmental transport and exposure risks, however the cover would need to be continually monitored and maintained. Alternative 1 would have the least long term effectiveness and permanence. By not removing any contaminated material nor providing any groundwater controls, the environmental risk remains comparable to the existing site conditions. Deed restrictions would be expected to provide some public health protection, yet the risk would remain for trespassers and those who do not abide by the restriction. By providing groundwater control by means of a barrier wall, Soil/Groundwater Alternative 2SG offers some long term effectiveness. However, the pumping of groundwater and the treatment of groundwater must be constantly maintained. The effectiveness of the wall must be continually evaluated through a groundwater

monitoring program.

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.

Tailrace Alternative 2T would significantly reduce the volume of contaminated sediment by removing approximately one-half of the sediment volume exceeding the remediation level. Also, the culvert would prevent the remaining sediment from becoming re-suspended, thus reducing its mobility. By removing all of the contaminated sediment above the remediation level, Tailrace Alternative 3T offers a greater reduction in volume than Tailrace Alternative 2T. Tailrace Alternative 4T would provide the greatest reduction in volume by removing all of the sediment proposed in Tailrace Alternative 3T in addition to removing all of the contaminated spoils above the remediation levels.

By not removing any contaminated soil nor providing containment, Alternative 1 would not reduce the toxicity, mobility or the volume of hazardous substances at the Oneida MGP Site. Soil/Groundwater Alternative 2SG, a containment option, would limit the mobility of contaminated groundwater to the confines of the barrier wall. There would be a slight decrease in the toxicity of the groundwater inside the barrier wall due to extraction, although this decrease has not been quantified. Outside the wall groundwater contamination would be expected to decrease following completion of the wall. Soil/Groundwater Alternatives 3SG and 4SG provide the greatest reduction in volume by removing all soil above the remediation levels. Thus, these alternatives would also be expected to significantly reduce the toxicity of both on-site and off-site groundwater.

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

All of the proposed alternatives are implementable. Providing a culvert, excavation and earthwork in unconsolidated material in flat topography as proposed in the Tailrace alternatives are conventional construction techniques that would be expected to be relatively straightforward. Soil/Groundwater Alternative 2SG would be expected to be the most difficult to implement in comparison to the other soil/groundwater alternatives as the barrier wall must be continuously keyed into the clay layer, the wall must be uniformly constructed of low permeability materials and the groundwater extraction system must be maintained. The NYSDEC concludes through its own experience, that qualified contractors with the necessary personnel and material would be available for each of the alternatives presented.

7. **Cost**. Capital and operation and maintenance costs are estimated for each alternative and compared on a present worth basis. Although cost is the last balancing criterion evaluated, where

two or more alternatives have met the requirements of the remaining criteria, cost effectiveness can be used as the basis for the final decision. The costs for each alternative are presented in Table 3.

Excavation of the Tailrace sediment (Tailrace Alternative 3T) is relatively close in cost to the provision of a culvert (Tailrace Alternative 2T). Each of these alternatives would be less costly than Tailrace Alternative 4T, which proposes excavation of sediment and dredge spoils. Although barrier walls (Soil/Groundwater Alternative 2SG) are often a cost savings over contaminated soil and waste material removal, at the Oneida MGP Site engineering estimates indicate a barrier wall would be more costly than excavating the contaminated soil (Soil/Groundwater Alternative 3SG). Annual operation and maintenance of the groundwater extraction and treatment system presented in Soil/Groundwater Alternative 4SG would cost approximately $218,000 greater than the monitored natural attenuation program presented in Soil/Groundwater Alternative 3SG.

8. **Community Acceptance**. The concerns of the community regarding the RI/FS reports and the Proposed Remedial Action Plan have been evaluated. The "Responsiveness Summary" included as Appendix A presents the public comments received and the Department's response to the concerns raised. In general, the public comments received were supportive of the selected remedy.

SECTION 8: SUMMARY OF THE SELECTED REMEDY

Based on the results of the RI/FS, and the evaluation presented in Section 7, the NYSDEC is selecting Tailrace Alternative 4T, Excavation of Sediments and Spoils with Off-Site Treatment/Disposal (see Figure 5) and Soil/Groundwater Alternative 3SG, Excavate Source of Groundwater Contamination for Off-Site Treatment/Disposal, Monitor Natural Attenuation of Groundwater (see Figure 7) as the remedy for this site. This preferred remedy meets the threshold criteria and is the superior remedy when evaluated with the other alternatives in the balancing criteria.

The selected remedy will be protective of public health and the environment. Enough contaminated soil will be removed so that the concentrations of hazardous substances remaining in the soil would not be expected to contribute to significant groundwater contamination. Since areas of NAPL generally coincided with areas of elevated PAH and BTEX concentrations, NAPL would also be removed. A deed restriction would be established which would prohibit the installation of water supply wells in areas where the groundwater quality does not comply with standards and guidance. Also, an asphalt cover will minimize future exposure. The selected remedy removes the most contamination from the Niagara Mohawk property and affected off-site areas, as compared to the other alternatives. This site was determined to be a significant threat because of the magnitude of hazardous substances, both in terms of concentrations in soil, sediment and groundwater above state guidance levels, and the volume of the material in contact with an aquifer capable of supplying local residents. Removal of the mass of contaminated soil contributing to hazardous substances in the groundwater contravening groundwater standards and removal of sediments

containing hazardous substances above guidance levels will eliminate the significant threat to public health and the environment.

The selected remedy will, in time, meet SCGs. Currently, the groundwater standards are exceeded both on-site and off-site. The groundwater quality will be monitored for attenuation of hazardous substances to acceptable regulatory standards and guidance. If monitoring demonstrates that the attenuation rate is not sufficient, air sparging, and/or addition of oxygen and/or addition of another electron acceptor such as sulfate, will be implemented.

The other remedies were not selected since:

* The No Action Alternative was not chosen because it will not protect the environment. The gas plant has not operated in over 60 years, yet the amounts and concentrations of hazardous substances in the media remain at levels which today significantly threaten the environment. Therefore, the NYSDEC concludes that, without source removal, naturally occurring dilution and biodegradation of the contamination will not be sufficient to rectify the public health and environmental threat.

* Tailrace Alternative 2T was not selected because contaminated sediment (below the culvert) and contaminated spoils would remain, thus providing a continuing source for groundwater contamination and the possibility for direct exposure if the cover was breached.

* Tailrace Alternative 3T was not selected as the remedy because contaminated dredge spoils would remain. Although the spoils would be covered with permeable material, the spoils would still provide a source of groundwater contamination. Also, the spoils area is not controlled by Niagara Mohawk, so any breech of the cap would allow direct exposure of the public to the contaminated spoils.

* Although groundwater barrier and collection systems (Soil/Groundwater Alternative 2SG) have merit in some remedial applications, a remedy which prevents the cause of the groundwater contamination is superior. The wastes at the Oneida MGP Site which cause, or are the source of, the groundwater contamination can be readily removed. Thus, the Department recommends this removal, which is Soil/Groundwater Alternative 3SG. Also, removal will be more cost effective than a groundwater barrier wall.

* Soil/Groundwater Alternative 4SG was not selected as the remedy since: 1) the contaminated groundwater plume is relatively small in areal extent (150 feet wide by 60 feet long), is not being used for public consumption and is not affecting environmentally sensitive habitats; 2) The present worth cost of Soil/Groundwater Alternative 4SG is more than double the present worth cost of the selected remedy with a predicted marginal benefit over the selected remedy; and 3) the selected remedy will have contingencies that will require active groundwater remedial measures, if needed.

The estimated present worth cost to implement the remedy is $2.4 million ($798,000+$1,634,000).

The estimated cost to construct the remedy is also $2.4 million, ($798,000+$1,576,000), and the estimated annual operation and maintenance cost for 5 years is $13,000.

The elements of the selected remedy are as follows:

1. A remedial design program to verify the components of the conceptual design and provide the details necessary for the construction, operation and maintenance, and monitoring of the remedial program. The design will include a health and safety plan for the protection of persons at and in the vicinity of the site during construction and after completion of construction. Also, the design will establish performance goals for the monitored natural attenuation program. The performance goals will have groundwater quality thresholds which will trigger enhancing the natural biological processes in the groundwater which are reducing the concentrations of hazardous substances. Any uncertainties identified during the RI/FS will be resolved. These uncertainties include:

    a. the maximum depth of hazardous substances contamination greater than the remediation levels in the Tailrace;
    b. the extent of dredge spoils deposition along the Tailrace banks;
    c. the extent of values above the remediation levels in off-site soil west of boring B-1;
    d. the source of sheens in sediments in the eastern ditch adjacent to the site;
    e. the recent finding of light nonaqueous phase liquid in well ES-4S; and
    f. the determination of a background total PAH concentration level.

2. For the Tailrace:

* Temporary rerouting of surface water flowing into the Tailrace using dams and flexible hose.

* Removal of approximately 1,780 cubic yards of sediments exceeding the remediation level along the entire length of the Tailrace (from the Sconondoa Street culvert to Oneida Creek) to an approximate depth of four feet. The final depth will be based upon confirmation sampling and analysis. Backfill excavated areas; backfill material and final grades will be determined in the remedial design.

* Removal of approximately 2,960 cubic yards of spoils exceeding the remediation levels along the entire length of the Tailrace to an approximate depth of five feet. Since the contaminated spoils were sediments dredged by mechanical equipment, the spoils are anticipated to be localized to the banks of the Tailrace. However, the final depth and horizontal limits will be based upon confirmation sampling and analysis.

* Restoration of the Tailrace and banks to their original grade using non-contaminated fill and revegetation of the banks.

3. For the Soil/Groundwater:

* Temporary relocation of some vehicle parking and equipment storage area.

* Excavation of approximately 2,610 cubic yards of soil in the former large and small gas holder areas to depths of 8 feet and 16 feet, respectively, based on values above the remediation levels.

* Excavation of approximately 3,400 cubic yards of soil between the Tailrace and large gas holder and in the area of the purifier slab, based on values above the remediation levels, to depths of 8 to 14 feet.

* Excavation of approximately 1,140 cubic yards of soil directly north of the site based on values above the remediation levels to a depth of 14 feet.

* Management of excavated material off-site, which could include on-site processing prior to off-site treatment and/or disposal.

* Replacement of excavated material with noncontaminated fill to the existing grade.

* Revegetation, and provide asphalt cover on Niagara Mohawk property.

* Monitor the concentration of hazardous substances in the groundwater attenuating through naturally occurring biological processes. If monitoring demonstrates that the attenuation rate is not sufficient, air sparging, and/or addition of oxygen and/or addition of another electron acceptor such as sulfate, will be implemented. The performance goals will include compliance with groundwater quality standards and guidance (see Table 2). Establish deed restrictions which will prohibit the installation of water supply wells in areas where the groundwater quality does not comply with standards and guidance.

SECTION 9: HIGHLIGHTS OF COMMUNITY PARTICIPATION

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

A repository for documents pertaining to the site was established.

A site mailing list was established which included nearby property owners, local political officials, local media and other interested parties.

In December 1992, the NYSDEC issued a press release announcing the investigation and remediation, if necessary, of certain former MGP sites, including the Oneida MGP Site.

In July 1993, Niagara Mohawk issued a fact sheet discussing the proposed preliminary site assessment work for the site.

On May 22, 1995, Niagara Mohawk held a public information meeting announcing the findings of the preliminary site assessment and the proposed RI.

In May 1997, Niagara Mohawk issued a fact sheet on the site discussing the RI findings.

On June 4, 1997, Niagara Mohawk held a public meeting discussing the RI findings.

In October 1999, the NYSDEC issued a fact sheet announcing the proposed remedy for the site.

On November 15, 1999, the NYSDEC held a public meeting to solicit comments on the proposed remedy.

As part of this Record of Decision a Responsiveness Summary was prepared which addresses the comments received from the public during the public comment period for the PRAP.

Figures

Figure 1a:	File size: 1.347 MB
Figure 1b:	File size: 1.353 MB
Figure 2a:	File size: 2.029 MB
Figure 2b:	File size: 1.040 MB
Figure 3a:	File size: 2.303 MB
Figure 3b:	File size: 1.874 MB
Figure 4:	File size: 1.181 MB
Figure 5:	File size: 2.102 MB

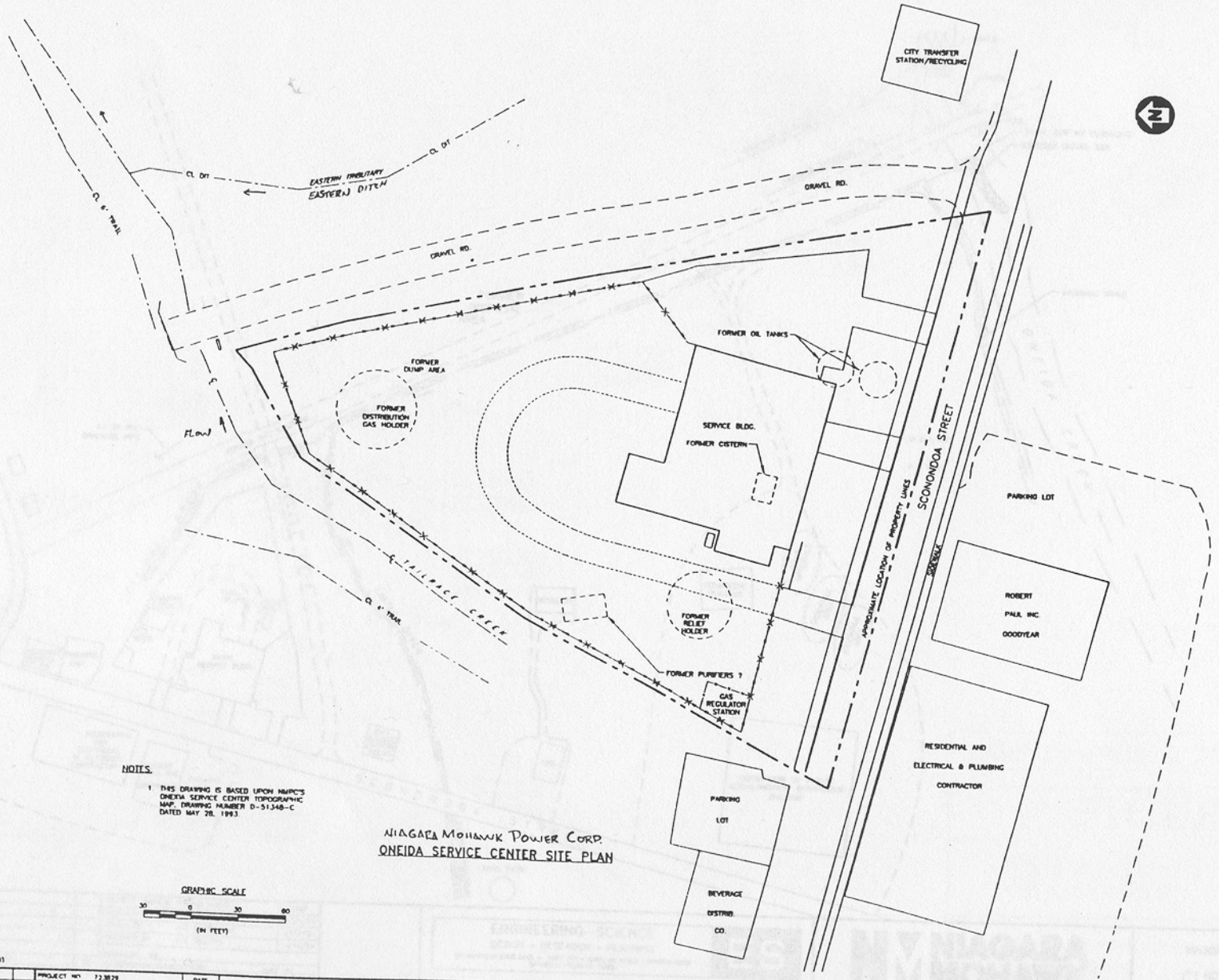

FIGURE 1A

PROJECT NO. 723829	DATE	ENGINEERING–SCIENCE DESIGN • RESEARCH • PLANNING 290 ELWOOD DAVIS ROAD • SUITE 312 • LIVERPOOL, NEW YORK 13088 • 315/451-9560 OFFICES IN PRINCIPAL CITIES	NIAGARA MOHAWK POWER COMPANY SYRACUSE, NEW YORK	ONEIDA SERVICE CENTER · CITY OF ONEIDA MADISON COUNTY NEW YORK SITE PLAN	SCALE AS SHOWN FILE NO. 723829
DESIGNED BY -	-				
DRAWN BY JTS, JHC	-				
CHECKED BY -	-				
ENGINEER -					
REVISIONS BY REGISTRATION NO. - DATE -					

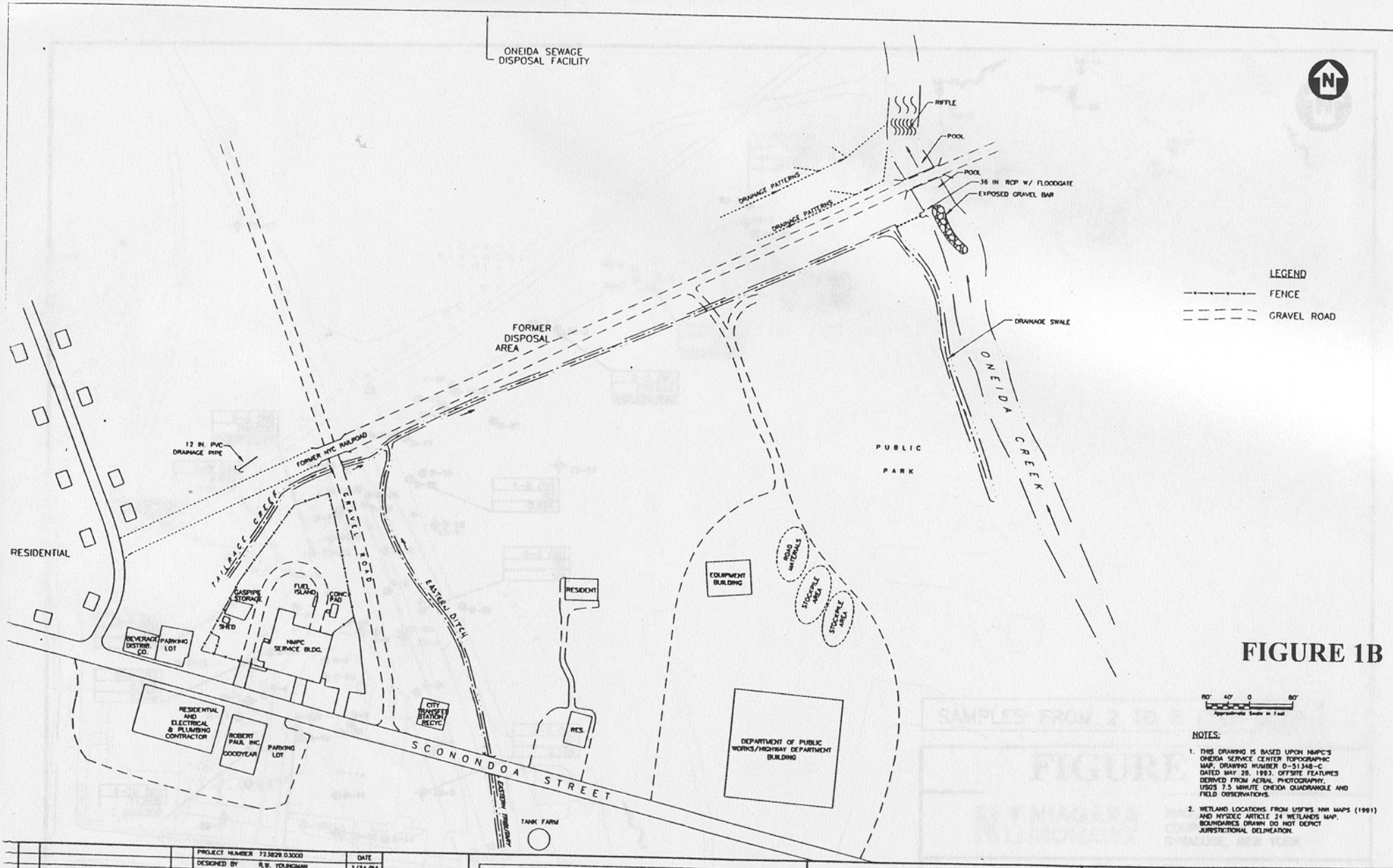

FIGURE 1B

NO.	DATE	REVISION	BY

PROJECT NUMBER 723829.03000

	DATE
DESIGNED BY R.W. YOUNGMAN	3/24/94
DRAWN BY J.M. GOLDTHWAIT	4/13/94
CHECKED BY S.B. DILLMAN	4/14/94

ENGINEER NA
REGISTRATION NUMBER NA DATE NA

ENGINEERING-SCIENCE
DESIGN • RESEARCH • PLANNING
401 HARRISON OAKS BLVD. • SUITE 210 • CARY, NC 27513 • 919/677-0080
OFFICES OF PRINCIPAL CITIES

ES

NIAGARA MOHAWK

CITY OF ONEIDA
MADISON COUNTY, NEW YORK STATE

CURRENT LAND USAGE

SCALE AS SHOWN

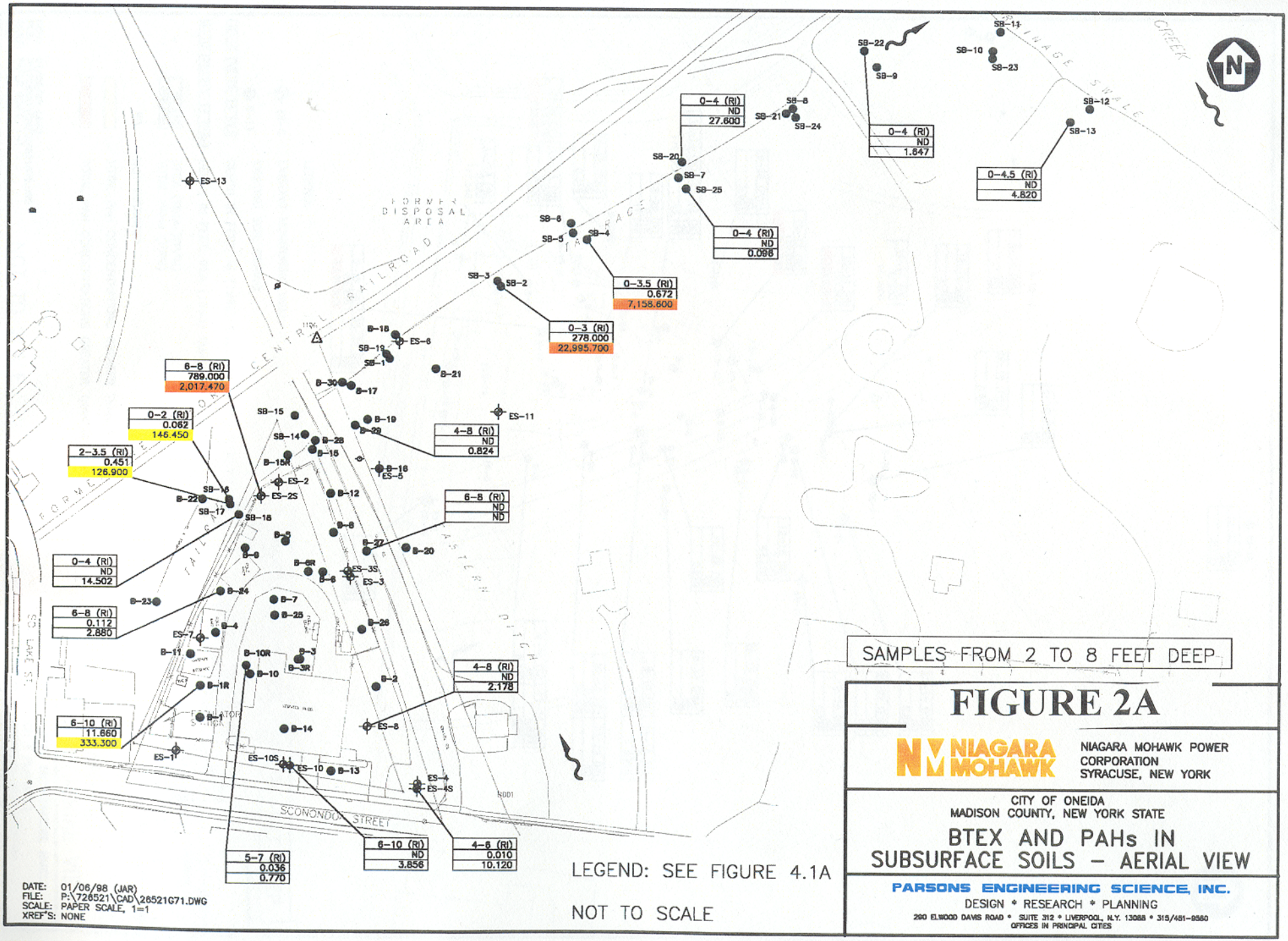

FIGURE 2A

NIAGARA MOHAWK POWER CORPORATION
SYRACUSE, NEW YORK

CITY OF ONEIDA
MADISON COUNTY, NEW YORK STATE

BTEX AND PAHs IN SUBSURFACE SOILS – AERIAL VIEW

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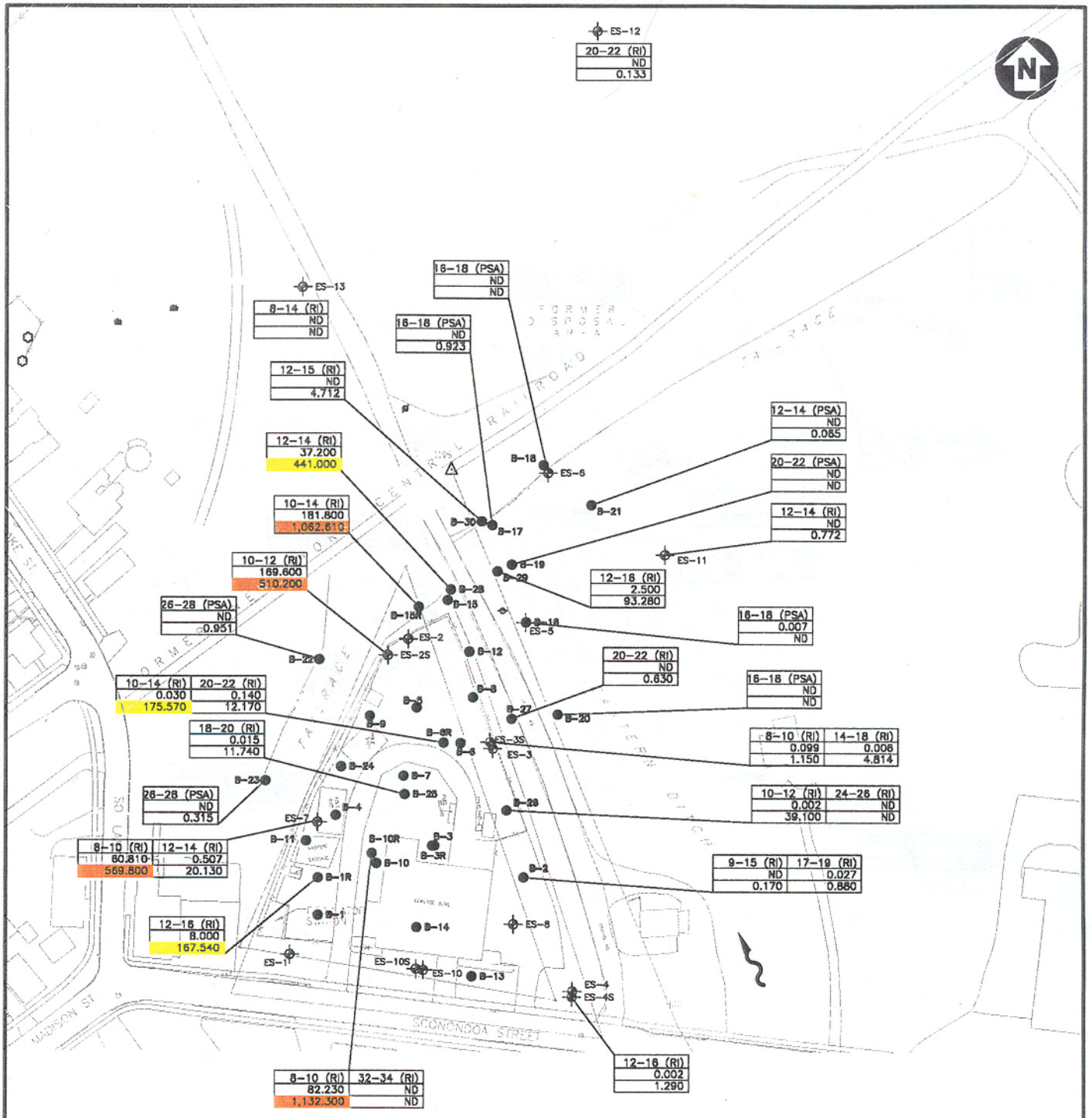

LEGEND:

ES-8	EXISTING MONITORING WELL
B-13	EXISTING SOIL BORING
8-10 (RI) 12-14 (RI)	DEPTH IN FEET, RI (1995) SUBSURFACE SOIL SAMPLE
8-10 (PSA) 12-14 (PSA)	DEPTH IN FEET, PSA (1993) SUBSURFACE SOIL SAMPLE
60.810 / 569.800	BTEX (TOTAL)(PPM) / TOTAL PAHs (PPM)
ND	NOT DETECTED
	TOTAL PAH CONCENTRATIONS GREATER THAN 100 PPM
	TOTAL PAH CONCENTRATIONS GREATER THAN 500 PPM

SAMPLES GREATER THAN 8 FEET DEEP

DATE: 01/06/98 (JAR)
FILE: P:\726521\CAD\26521G70.DWG
SCALE: PAPER SCALE, 1=1
XREF'S: NONE

NOT TO SCALE

FIGURE 2B

NIAGARA MOHAWK POWER CORPORATION
SYRACUSE, NEW YORK

CITY OF ONEIDA
MADISON COUNTY, NEW YORK STATE

BTEX AND PAHs IN SUBSURFACE SOILS – AERIAL VIEW

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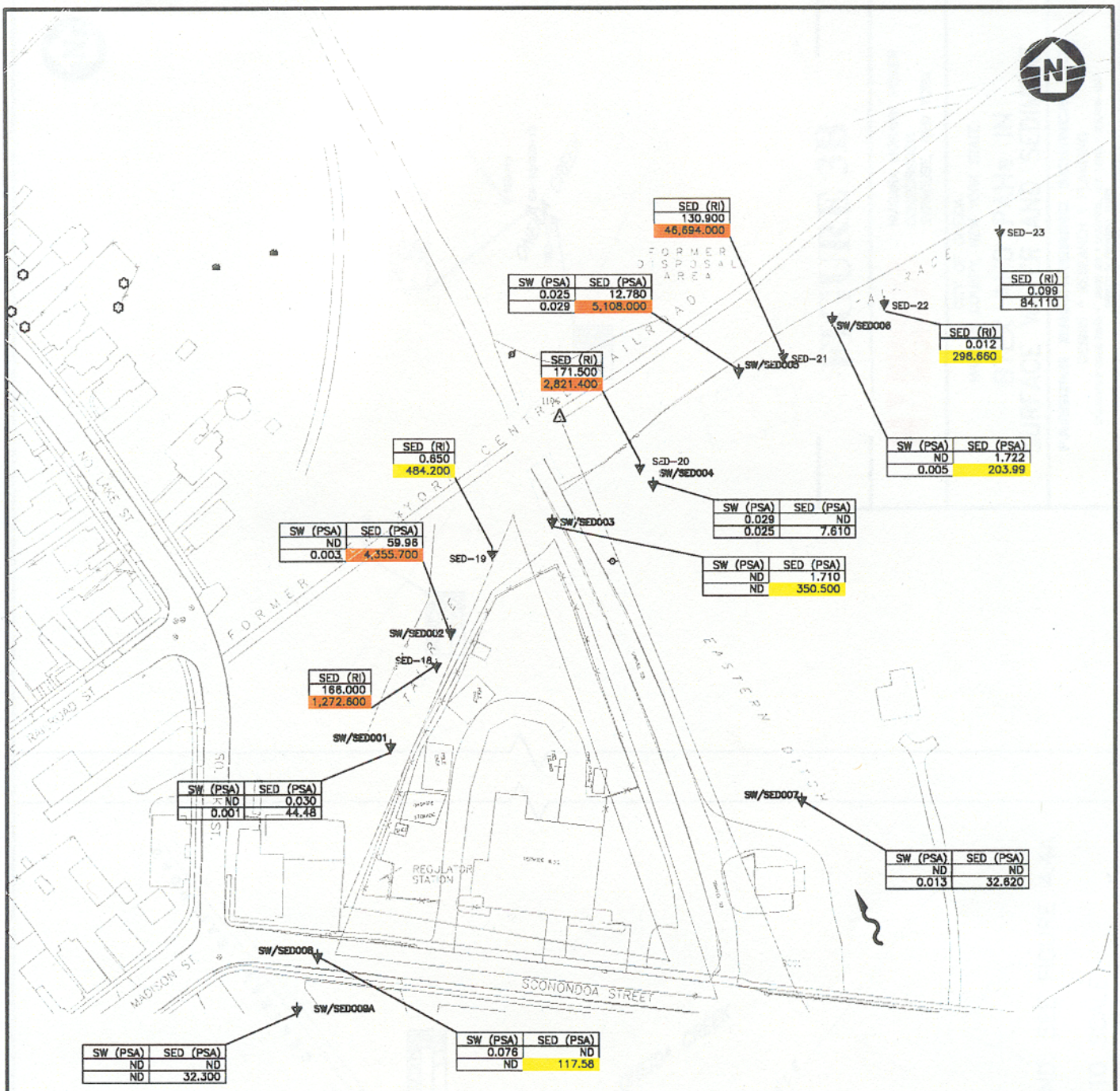

LEGEND:

- SW-1 — SURFACE WATER SAMPLE LOCATION
- SW-SD004 — SURFACE WATER/ SEDIMENT SAMPLE LOCATION
- SED-18 — SEDIMENT SAMPLE LOCATION
- SW (RI) | SED (RI) — RI (1995) SURFACE WATER AND SEDIMENT SAMPLE
- SW (PSA) | SED (PSA) — PSA (1993) SURFACE WATER AND SEDIMENT SAMPLE
- 60.810 / 589.800 — TOTAL BTEX (PPM) / TOTAL PAHs (PPM)
- ND — NOT DETECTED
- TOTAL PAH CONCENTRATIONS GREATER THAN 100 PPM
- TOTAL PAH CONCENTRATIONS GREATER THAN 500 PPM

DATE: 01/06/98 (JAR)
FILE: P:\726521\CAD\26521G73.DWG
SCALE: PAPER SCALE, 1=1
XREF'S: NONE

NOT TO SCALE

FIGURE 3A

NIAGARA MOHAWK POWER CORPORATION
SYRACUSE, NEW YORK

CITY OF ONEIDA
MADISON COUNTY, NEW YORK STATE

BTEX AND PAHs IN SURFACE WATER AND SEDIMENT

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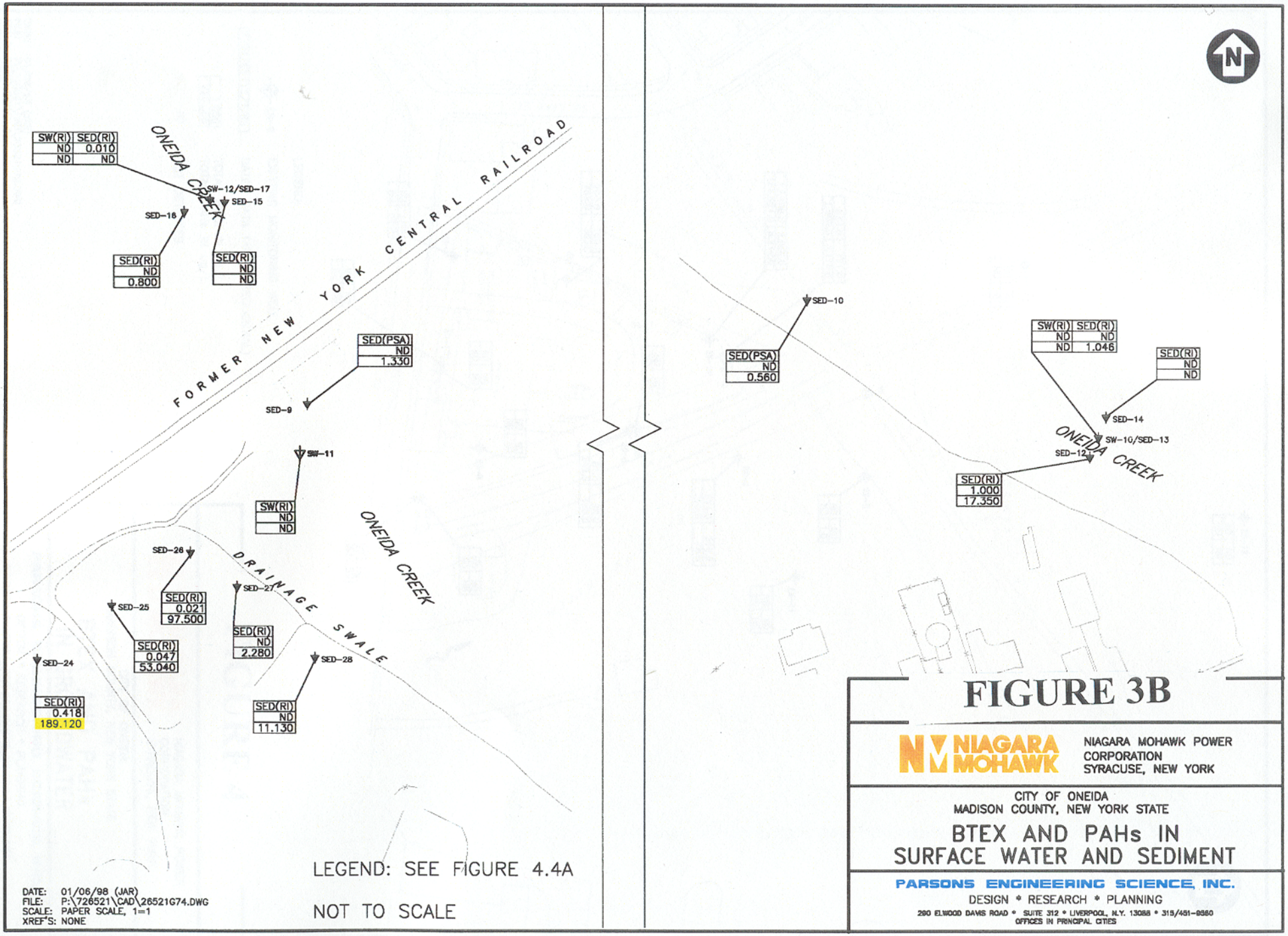

LEGEND: SEE FIGURE 4.4A

NOT TO SCALE

DATE: 01/06/98 (JAR)
FILE: P:\726521\CAD\26521G74.DWG
SCALE: PAPER SCALE, 1=1
XREF'S: NONE

FIGURE 3B

NIAGARA MOHAWK POWER CORPORATION
SYRACUSE, NEW YORK

CITY OF ONEIDA
MADISON COUNTY, NEW YORK STATE

BTEX AND PAHs IN SURFACE WATER AND SEDIMENT

PARSONS ENGINEERING SCIENCE, INC.
DESIGN * RESEARCH * PLANNING
290 ELWOOD DAVIS ROAD * SUITE 312 * LIVERPOOL, N.Y. 13088 * 315/451-9560
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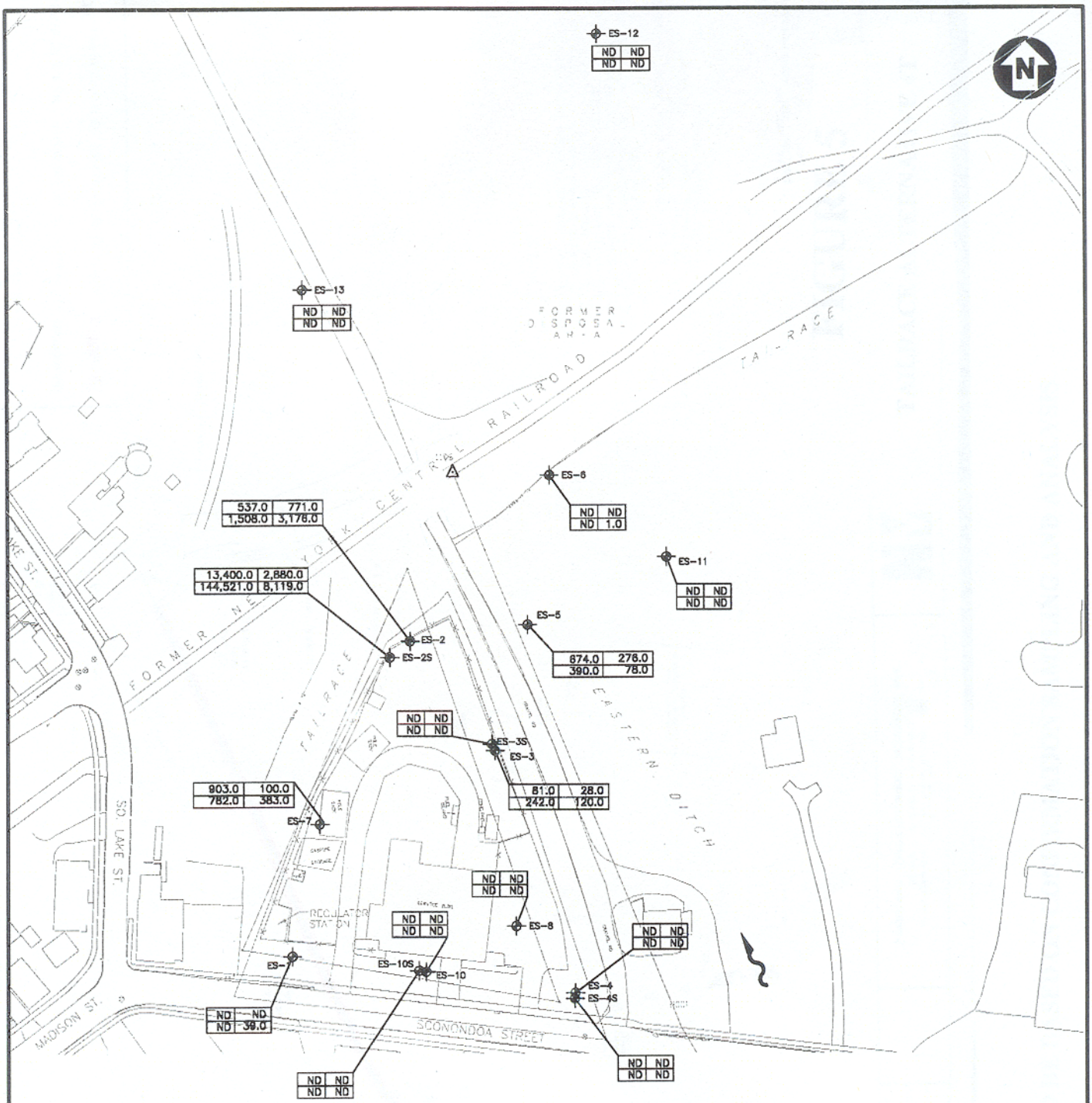

LEGEND:

ES-8 EXISTING MONITORING WELL

7/26/95 | 12/7/95 DATES DATA TAKEN (SEQUENTIAL)

1.600
220.000 TOTAL BTEX IN ug/L
TOTAL PAHs IN ug/L

ND NOT DETECTED

FIGURE 4

NIAGARA MOHAWK

NIAGARA MOHAWK POWER CORPORATION
SYRACUSE, NEW YORK

CITY OF ONEIDA
MADISON COUNTY, NEW YORK STATE

BTEX AND PAHs IN GROUNDWATER

PARSONS ENGINEERING SCIENCE, INC.
DESIGN * RESEARCH * PLANNING
290 ELWOOD DAVIS ROAD * SUITE 312 * LIVERPOOL, N.Y. 13088 * 315/451-9560
OFFICES IN PRINCIPAL CITIES

DATE: 01/06/98 (JAR)
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XREF'S: NONE

Tables 0.647 MB

Table 1A Nature and Extent of Contamination - Subsurface Soil

Table 1B Nature and Extent of Contamination - Surface Soil

Table 1C Nature and Extent of Contamination - Sediment

Table 1D Nature and Extent of Contamination - Groundwater

Table 1E Nature and Extent of Contamination - Surface Water

Table 2 Remediation Levels for the Oneida MGP Site

Table 3 Remediation Alternative Costs - Oneida MGP Site

TABLE 1A
NATURE AND EXTENT OF CONTAMINATION - SUBSURFACE SOIL
(INCLUDES DREDGE SPOILS)

CONTAMINANT OF CONCERN	CONCENTRATION RANGE (ppm)	FREQUENCY of EXCEEDING SCGs	SCG (ppm)
Benzene	ND (0.010) - 49	7 of 50	0.28
Ethylbenzene	ND (0.010) - 240	5 of 50	25
Toluene	ND (0.010) - 160	4 of 50	6.9
Xylenes	ND (0.010) - 340	8 of 50	5.5
Benzo (a) anthracene	ND (0.33) - 350	28 of 50	ND
Benzo (a) pyrene	ND (0.33) - 310	24 of 50	ND
Benzo (b) fluoranthene	ND (0.33) - 150	9 of 50	5
Benzo (k) fluoranthene	ND (0.33) - 200	5 of 50	5
Chrysene	ND (0.33) - 370	17 of 50	1.8
Dibenz (a,h) anthracene	ND (0.33) - 120	9 of 50	ND
Indeno (1,2,3-cd) pyrene	ND (0.33) - 120	3 of 50	15
Acenaphthene	ND (0.33) - 2700	4 of 50	50
Acenaphthylene	ND (0.33) - 150	4 of 50	50
Anthracene	ND (0.33) - 1300	4 of 50	50
Benzo (g,h,i) perylene	ND (0.33) - 140	2 of 50	50
Fluoranthene	ND (0.33) - 950	5 of 50	50
Fluorene	ND (0.33) - 1200	4 of 50	50
2 - Methylnaphthalene	ND (0.33) - 4300	7 of 42	50
Naphthalene	ND (0.33) - 5800	9 of 50	50
Phenanthrene	ND (0.33) - 3900	9 of 50	50
Pyrene	ND (0.33) - 1100	5 of 50	50
Cyanide	ND (0.5) - 117		see note

Notes for Table 1A

ND = Not Detected
( ) = Detection Limit
SCG from TAGM 4046 recommended soil cleanup objectives adjusted for total organic carbon (4.6%). If individual adjusted SVOC values were greater than 50 mg/kg, then the 50 mg/kg guidance was used.
ppm = parts per million or milligrams per kilogram

The Department of Environmental Conservation has not established a recommended soil clean-up objective for cyanide. This is because of the wide range of toxicity exhibited by different cyanide compounds. Reports have indicated the cyanide at former MGP sites is "a ferri-ferrocyanide compound of low toxicity". In addition, "hydrogen cyanide is typically not present in purifier waste". Risk-based levels for cyanide in soil at MGP sites have been offered by the utilities, but not accepted by the DEC or DOH, at a concentration of approximately 7,000 mg/kg. Also, the higher concentrations of cyanide at the Oneida MGP Site are co-located with the higher levels of BTEX and PAHs and would be remediated under the proposed plan. The proposed remedy would reduce the cyanide level in all media to non-detect or background levels.

TABLE 1B
NATURE AND EXTENT OF CONTAMINATION - SURFACE SOIL

CONTAMINANT OF CONCERN	CONCENTRATION RANGE (ppm)	FREQUENCY of EXCEEDING SCGs	SCG (ppm)
Benzene	ND (0.010) - 0.011	0 of 21	0.28
Ethylbenzene	ND (0.010) - 0.007	0 of 21	25
Toluene	ND (0.010) - 0.007	0 of 21	6.9
Xylenes	ND (0.010) - 0.029	0 of 21	5.5
Benzo (a) anthracene	0.13 - 150	20 of 20	ND
Benzo (a) pyrene	0.11 - 210	20 of 20	ND
Benzo (b) fluoranthene	ND (0.33) - 150	4 of 20	5
Benzo (k) fluoranthene	ND (0.33) - 130	3 of 20	5
Chrysene	ND (0.33) - 210	6 of 20	1.8
Dibenz (a,h) anthracene	ND (0.33) - 30	7 of 20	ND
Indeno (1,2,3-cd) pyrene	ND (0.33) - 140	2 of 20	15
Acenaphthene	ND (0.33) - 4.3	0 of 20	50
Acenaphthylene	ND (0.33) - 73	1 of 20	50
Anthracene	ND (0.33) - 55	1 of 20	50
Benzo (g,h,i) perylene	0.056 - 180	1 of 20	50
Fluoranthene	0.61 - 300	2 of 20	50
Fluorene	ND (0.33) - 16	0 of 20	50
2 - Methylnaphalene	ND (0.33) - 0.35	0 of 20	50
Naphthalene	ND (0.33) - 21	0 of 20	50
Phenanthrene	0.14 - 73	1 of 20	50
Pyrene	0.21 - 330	1 of 20	50
Cyanide	ND (0.5) - 2.2		see note

ND = Not Detected
( ) = Detection Limit

SCG from TAGM 4046 recommended soil cleanup objectives adjusted for total organic carbon (4.6%). If individual adjusted SVOC values were greater than 50 mg/kg, then the 50 mg/kg guidance was used.
ppm = parts per million or milligrams per kilogram
note: the Department of Environmental Conservation does not have a soil guidance value for cyanide. This is because of the wide range of toxicity exhibited by different cyanide compounds. Reports have indicated the cyanide at former MGP sites is "a ferri-ferrocyanide compound of low toxicity". In addition, "hydrogen cyanide is typically not present in purifier waste". Risk-based levels for cyanide in soil at MGP sites have been offered by the utilities, but not accepted by the DEC or DOH, at a concentration of approximately 7,000 mg/kg. Also, the higher concentrations of cyanide at the Oneida MGP Site are co-located with the higher levels of BTEX and PAHs and would be remediated under the proposed plan. The proposed remedy would reduce the cyanide level in all media to non-detect or background levels.

TABLE 1C
NATURE AND EXTENT OF CONTAMINATION - SEDIMENT

CONTAMINANT OF CONCERN	CONCENTRATION RANGE (ppm)
Benzo (a) anthracene	ND (0.33) - 1800
Benzo (a) pyrene	ND (0.33) - 1500
Benzo (b) fluoranthene	ND (0.33) - 1300
Benzo (k) fluoranthene	ND (0.33) - 1000
Chrysene	ND (0.33) - 1600
Dibenz (a,h) anthracene	ND (0.33) - 58
Indeno (1,2,3-cd) pyrene	ND (0.33) - 730
Acenaphthene	ND (0.33) - 2800
Acenaphthylene	ND (0.33) - 500
Anthracene	ND (0.33) - 3100
Benzo (g,h,i) perylene	ND (0.33) - 200
Fluoranthene	ND (0.33) - 5200
Fluorene	ND (0.33) - 2200
2 - Methylnaphthalene	ND (0.33) - 2700
Naphthalene	ND (0.33) - 9600
Phenanthrene	ND (0.33) - 9900
Pyrene	ND (0.33) - 3000
Cyanide	ND (0.5) - 1.6

ND = Not Detected
( ) = Detection Limit

SCG:
Total PAHs: 4 mg/kg ER-L; Long and Morgan (1990)
ppm = parts per million; milligrams per kilogram

TABLE 1D
NATURE AND EXTENT OF CONTAMINATION - GROUNDWATER

CONTAMINANT OF CONCERN	CONCENTRATION RANGE (ppb)	FREQUENCY of EXCEEDING SCGs	SCG (ppb)
Benzene	ND (10) - 2000	10 of 32	1
Ethylbenzene	ND (10) - 3000	9 of 32	5
Toluene	ND (10) - 3200	4 of 32	5
Xylenes	ND (10) - 5200	9 of 32	5
Benzo (a) anthracene	ND (10) - 8J	4 of 34	0.002
Benzo (a) pyrene	ND (10) - 6J	3 of 34	ND
Benzo (b) fluoranthene	ND (10) - 5J	3 of 34	0.002
Benzo (k) fluoranthene	ND (10) - 7J	3 of 34	0.002
Chrysene	ND (10) - 3J	3 of 34	0.002
Indeno (1,2,3-cd) pyrene	ND (10) - 3J	3 of 34	0.002
Acenaphthene	ND (10) - 140	9 of 34	20
Anthracene	ND (10) - 23J	0 of 34	50
Fluoranthene	ND (10) - 17J	0 of 34	50
Fluorene	ND (10) - 97	3 of 34	50
Naphthalene	ND (10) - 1300000J	5 of 34	10
Phenanthrene	ND (10) - 74	3 of 34	50
Pyrene	ND (10) - 21J	0 of 34	50
Phenol	ND (10) - 51	2 of 16	1
Cyanide	ND (10) - 470	1 of 34	200

ND = Not Detected
( ) = Detection Limit
J = Estimated Value

SCG from T.O.G.S. 1.1.1

ppb = parts per billion or micrograms per liter

[redacted]

TABLE 1E
NATURE AND EXTENT OF CONTAMINATION - SURFACE WATER

CONTAMINANT OF CONCERN	CONCENTRATION RANGE (ppb)	FREQUENCY of EXCEEDING SCGs	SCG (ppb)
Benzene	ND (1) - 4J	0 of 12	6
Benzo(a)pyrene	ND (1)	note 1	0.0012
Phenol	ND (1)	0 of 12	5
Cyanide (total)	ND (1) - 90	note 2	5.2

ND = Not Detected
( ) = Detection Limit
J = Estimated Value

SCG from T.O.G.S. 1.1.1, Class C

ppb = parts per billion or micrograms per liter

note 1: Benzo (a) pyrene was not detected in the surface water. The detection limit exceeded the guidance value, therefore a comparison to the SCG cannot be made.

Note 2: The guidance value for cyanide in surface water is the sum of HCN and CN(-) expressed as CN. A comparison to the SCG cannot be made. Cyanide was also detected in surface water upstream of the site.

TABLE 2

REMEDIATION LEVELS FOR THE ONEIDA MGP SITE

GROUNDWATER:

Compound	Remediation Level (ppb)	SCG	Compound	Remediation Level (ppb)	SCG
Benzene	1	1	Acenaphthene	20	20
Ethylbenzene	5	5	Anthracene	50	50
Toluene	5	5	Benzo(a)anthracene	0.002	0.002
Total Xylenes	5	5	Fluorene	50	50
Benzo(a)pyrene	ND	ND	Indeno(1,2,3-c,d)pyrene	0.002	0.002
Benzo(b)fluoranthene	0.002	0.002	Naphthalene	10	10
Benzo(k)fluoranthene	0.002	0.002	Phenanthrene	50	50
Chrysene	0.002	0.002	Pyrene	50	50
Fluoranthene	50	50	Cyanide	200	200

ON-SITE SOIL, ALL DEPTHS:

Compound	Remediation Level (ppm)	SCG
Benzene	0.28	0.28
Ethylbenzene	25	25
Toluene	6.9	6.9
Total Xylenes	5.5	5.5
Total PAHs	500	

OFF-SITE SOIL AND SEDIMENT:

0 TO 2' BELOW GRADE:

Compound	Remediation Level (ppm)
Benzene	0.28
Ethylbenzene	25
Toluene	6.9
Total Xylenes	5.5
Total PAHs (note 1)	Background

GREATER THAN 2' BELOW GRADE:

Compound	Remediation Level (ppm)
Benzene	0.28
Ethylbenzene	25
Toluene	6.9
Total Xylenes	5.5
Total CPAHs (note 2)	10

Note 1 = Total PAHs is the summation of concentrations of the 17 individual PAHs listed in Section 4.1.1.
Note 2 = Total CPAHs is the summation of concentrations of the 7 individual italicized (carcinogenic) PAHs listed in Section 4.1.1. Background level to be determined during remedial design.
On-Site means land under the control of Niagara Mohawk Power Corporation
ppm=parts per million, milligrams per kilogram
ppb=parts per billion, micrograms per liter
ND=not detected

TABLE 3
Remedial Alternative Costs
Oneida MGP Site

Remedial Alternative	Capital Cost	Annual O&M	Total Present Worth
Alt. 1: No Action	$ 13,200.	$ 11,000.	$ 98,000.
Alt. 2T: Culvert	390,000.	0.	390,000.
Alt. 3T: Sediment Removal	369,000.	0.	369,000.
Alt. 4T: Sediment and Spoil Removal	798,000.	0.	798,000.
Alt. 2SG: Barrier Wall	1,770.000.	87,000.	3,160.000.
Alt. 3SG: Source Removal, Monitored Natural Attenuation	1,576,000.	13,000.	1,634,000.
Alt. 4SG: Source Removal, Off-Site Groundwater Pump and Treat System	1,776,000.	231,000.	3,564,000.

APPENDIX A

Responsiveness Summary

RESPONSIVENESS SUMMARY

Niagara Mohawk Oneida (Sconondoa Street)
Former Manufactured Gas Plant Site
Proposed Remedial Action Plan
Oneida, Madison County, New York

The Proposed Remedial Action Plan (PRAP) for the Oneida MGP Site was prepared by the New York State Department of Environmental Conservation (NYSDEC) and issued to the local document repository on October 20, 1999. This Plan outlined the preferred remedial measure proposed for the remediation of the contaminated soil, groundwater and sediment at the site. The preferred remedy is excavation and off-site treatment or disposal at a permitted facility of contaminated soil, including Tailrace Creek dredge spoils and sediment. For groundwater, a monitored natural attenuation program will be established.

The release of the PRAP was announced via a notice to the mailing list, informing the public of the PRAP's availability.

A public meeting was held on November 15, 1999 which included a presentation of the Remedial Investigation (RI) and the Feasibility Study (FS) as well as a discussion of the proposed remedy. The meeting provided an opportunity for citizens to discuss their concerns, ask questions and comment on the proposed remedy. These comments have become part of the Administrative Record for this site. Written comments were received from Niagara Mohawk Power Corporation. The public comment period for the PRAP ended on December 17, 1999.

This Responsiveness Summary responds to all questions and comments raised at the November 15, 1999 public meeting and to the written comments received.

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

COMMENT 1: A) Any contaminants found on the Sweet Property? B) Can the [monitoring] well be relocated if building is proposed over it? C) Are there any restrictions on the use of this property? D) Does the owner of the Sweet property have any liability?

RESPONSE 1: A) The NYSDEC does not have a detailed survey indicating the location of the Sweet property. However the NYSDEC understands the land bounded by the gravel road, the Tailrace, the Department of Public Works staging area and Sconondoa Street (see Figure R-1, following) includes the Sweet property. From the information presented to the NYSDEC from Niagara Mohawk, the NYSDEC has found the following locations within that

specific area to have contaminants of concern in concentrations above state standards or guidance values:

1. Soil:
@ boring B-29, 12-16 foot depth:
Benzo(a)anthracene
Benzo(a)pyrene
Chrysene
Dibenz(a,h)anthracene
Also, the boring log reported "freephase" at a depth of 12-15 feet, indicating visual signs of contamination.

@ sample SS-17, 0-6 inch depth:
Benzo(a)pyrene

@ boring B-19, the boring log reported "tar-like material" at a depth of 12-18 feet, however, no chemical analysis was taken at this interval

2. Sediment in eastern ditch:
@ sample SED-4
Benzo(a)pyrene
@ sample SED-7
Benzo(a)pyrene
Benzo(a)anthracene
Chrysene
Dibenz(a,h)anthracene

3. Groundwater
@ monitoring well ES-5
benzene
ethylbenzene
toluene
xylene (total)
acenaphthene
naphthalene

The Tailrace sediments are not included here as they will be removed via the selected remedy.

B) The monitoring well(s) may be relocated. The NYSDEC requests that the existing well(s) be properly decommissioned and the NYSDEC informed of the proposed new location(s) prior to constructing a new monitoring well(s).

C) The selected remedy will have a deed restriction prohibiting the installation of water supply wells in areas where the groundwater quality does not comply with standards and guidance. Since monitoring well ES-5 indicates noncompliance, a restriction prohibiting the installation of a water supply well(s) in the area of this well will be required.

D) This Record of Decision is not intended to define liability. Any questions germane to liability should be directed to an attorney at law or other qualified individual or firm.

COMMENT 2: Will wells be monitored after remediation? For how long? What will be done if natural attenuation is not successful?

RESPONSE 2: Groundwater will be monitored for a minimum of five years following remediation and will continue until the groundwater quality in all areas satisfies the remediation levels indicated in Table 2. If the goals are not achieved, a program intended to accelerate the natural biological breakdown of the hazardous substances will be required through this Record of Decision. Such programs could include the pumping of air or oxygen into the ground.

COMMENT 3: Can the remediation level of 10 ppm total CPAH for off-site soils greater than two feet in depth be achieved?

RESPONSE 3: Results of surface soil data from samples collected at locations expected to be beyond the influence of site contamination indicated all but one sample contained less than 8 ppm total CPAH. The exception was a sample taken adjacent to the Department of Public Works building, containing a concentration of 98 ppm total CPAH. The State believes the high value of the exception sample represents a localized anomaly existing beyond the expected areal limits of remedial construction. Results of subsurface soil data from samples collected at locations expected to be beyond the influence of site contamination indicated all samples were below 3 ppm total CPAH. It is reasonable, therefore, to expect that a remediation level of 10 ppm can be achieved.

COMMENT 4: What will be done in the Eastern Tributary?

RESPONSE 4: An objective of the remedial design will be to identify the source of sheens that have been observed in the tributary (also called the Eastern Ditch). The design will include a field investigation program consisting of sediment sampling and analysis. Data currently available regarding the tributary

indicates no remediation is necessary. However, a final determination will be made by the State during the design phase, once the additional data is evaluated.

COMMENT 5: How will remediation affect flooding since this is a water retention area?

RESPONSE 5: The topography following remediation is expected to be approximately the same as the topography prior to construction. An asphalt cover is required on Niagara Mohawk property, which could raise the elevation of the property. The remedial design will consider a slope for the Tailrace which satisfies the City of Oneida's specifications for drainage. The design will confirm that these minor changes in topography will not adversely impact the drainage hydraulics.

While remedial construction is occurring, storm drainage will be temporarily re-routed. In addition, excavation and backfilling of soils will occur concurrently to the extent practicable, thus minimizing the size of the excavation and its effect on storm events.

COMMENT 6: What is the estimated construction start and end [date]? Will there be designated truck routes and where?

RESPONSE 6: According to Niagara Mohawk's project manager, Steven Stucker, Niagara Mohawk anticipates construction will begin in September, 2000 and end in December, 2000. Truck routes will be designated in the remedial design. The truck routes, however, must comply with highway requirements (eg. there may be maximum weight restrictions on certain roads). The local public will be notified prior to construction.

COMMENT 7: Is groundwater compliance measured at the Niagara Mohawk property boundary or across the site?

RESPONSE 7: Monitored natural attenuation of the groundwater, with active measures if the performance goals are not achieved, is required until groundwater monitoring has sufficiently demonstrated that the remediation levels presented in Table 2 have been accomplished for both on-site and off-site. Thus, groundwater compliance is required throughout the site, not just at Niagara Mohawk's property line.

The following is a summary of a written comment received via letter dated December 16, 1999 from Steven P. Stucker, C.P.G. of Niagara Mohawk. A copy of the letter is provided in Appendix C.

COMMENT 8: "NMPC suggests that the use of TAGM #4046 objectives for all of the BTEX constituents are not necessary to achieve the soil, sediment and groundwater remedial goals presented in the PRAP .... NMPC believes that each of [the] remedial goals can be successfully and efficiently achieved without a specific remediation level for benzene in soil and sediment..." "NMPC believes that a remediation level for benzene in soil and sediment is not required for this site."

RESPONSE 8: A remediation level for benzene in soil and sediment, as well as groundwater, is a necessary component of the selected remedy. The Oneida MGP Site has a documented benzene plume (among other compounds) which extends off-site in the groundwater. A remedy designed to rectify the plume must include a clean-up level in the soil sufficient enough so that any residual contamination remaining in the soil upon remediation will not leach to groundwater in concentrations above standards. The recommended soil cleanup objectives presented in the TAGM were developed to be protective of groundwater while remediating the soil. Thus, the remediation of benzene in soil at the site to the TAGM recommended soil cleanup objective is necessary to mitigate the groundwater plume.

The NYSDEC understands Niagara Mohawk's primary reason for requesting omission of benzene from among the parameters needed to achieve the remedial goal is that the "analytical results demonstrate that benzene in soils and sediments is co-located with other organic compounds for which the NYSDEC has established remediation levels, including toluene ethylbenzene, total xylenes, total polycyclic aromatic hydrocarbons (PAHs), and total carcinogenic PAHs..." The NYSDEC confirms Niagara Mohawk's finding regarding the co-location of benzene with other PAHs. Similarly, the NYSDEC has confirmed that the concentrations of benzene in soils and sediment are below the remediation level beyond those areas where other parameters are above the remediation level. The NYSDEC therefore expects that confirmation sampling for benzene during remedial construction will be successful in delineating the extent of excavation.

APPENDIX B

Administrative Record

In the Matter of the Development and Implementation of a Former Manufactured Gas Plant (MGP) Sites Investigation and Remediation Program by Niagara Mohawk Power Corporation, Order on Consent Index #DO-0001-9210, NYSDEC, December 7, 1992

Draft Preliminary Historical Profile of the Oneida (Sconondoa Street) MGP Site, Niagara Mohawk Power Corporation, December 18, 1992

Letter, Charles N. Goddard, NYSDEC to William R. Jones, Niagara Mohawk Power Corporation, July 26, 1994

Report for PSA/IRM Study, Oneida (Sconondoa Street) Former MGP Site, Engineering Science, Inc., September 1994

Letter, Christine J. Canavan, New York State Department of Health to John Spellman, NYSDEC, February 19, 1997

Remedial Investigation Report, Sconondoa Street Site, Parsons Engineering Science, Inc., June 1997

Letter, Steven P. Stucker, Niagara Mohawk Power Corporation to John Spellman, NYSDEC, April 30, 1998

Letter, John Spellman, NYSDEC to Steven P. Stucker, Niagara Mohawk Power Corporation, July 17, 1998

Final Feasibility Study Report for the Oneida (Sconondoa Street) Site, Parsons Engineering Science, Inc., August 1998

Letter, Steven P. Stucker, Niagara Mohawk Power Corporation to John Spellman, NYSDEC, December 29, 1998

Facsimile, George Moreau, Parsons Engineering Science to John Spellman, NYSDEC, January 18, 1999

Letter, G. Anders Carlson, New York State Department of Health to Michael J. O'Toole, NYSDEC, September 30, 1999

Niagara Mohawk Oneida (Sconondoa Street) Former Manufactured Gas Plant Site, Proposed Remedial Action Plan, NYSDEC, October 1999

Letter, G. Anders Carlson, New York State Department of Health to Michael J. O'Toole, NYSDEC, February 28, 2000

Appendix C
1.58 MB
5 Pages

Niagara Mohawk

Steven P. Stucker
Environmental Analyst

Phone: 315-428-5652
FAX: 315-460-9670
E-mail: stuckers@nimo.com

December 16, 1999

2

Mr. John Spellman, P.E.
Project Manager
Central Field Services Section
Bureau of Construction Services
Division of Environmental Remediation
New York State Department of Environmental Conservation
50 Wolf Road
Albany, New York 12233-7010

Re: Proposed Remedial Action Plan
Niagara Mohawk Power Corporation Oneida (Sconondoa Street) Site, Oneida, New York

Dear John:

This letter presents Niagara Mohawk Power Corporation's (NMPC's) comment on the New York State Department of Environmental Conservation's (NYSDEC's) Proposed Remedial Action Plan (PRAP) dated October 1999, for the NMPC Oneida (Sconondoa Street) Former Manufactured Gas Plant (MGP) Site.

Comment: The remediation levels for benzene, ethylbenzene, toluene, and total xylenes (BTEX), as presented in Table 2 of the PRAP, for soil and sediment are the recommended soil cleanup objectives presented in the NYSDEC's Technical and Administrative Guidance Memorandum (TAGM) #4046, "Determination of Soil Cleanup Objectives and Cleanup Levels" (January 1994), based on the site specific carbon content of 4.6%. As stated in TAGM #4046, attainment of these generic soil cleanup objectives will, at a minimum, eliminate all significant threats to human health and/or the environment; and that if these objectives prove to be unattainable or unnecessary, then institutional controls or alternative remedial actions may be necessary.

NMPC suggests that the use of TAGM #4046 objectives for all of the BTEX constituents are not necessary to achieve the soil, sediment, and ground-water remedial goals presented in the PRAP and summarized below.

Eliminate, to the extent practicable, the contamination present within the soils on-site and off-site.

Eliminate, to the extent practicable, the contamination present in the Tailrace sediments.

Eliminate, to the extent practicable, off-site migration and presence of ground water contaminants that exceed NYSDEC Class GA Ambient Water Quality Criteria (Ground-Water Criteria).

Eliminate the potential for direct human or animal contact with contaminated soils, sediments, and ground water.

NMPC believes that each of these remedial goals can be successfully and efficiently achieved without a specific remediation level and for benzene in soil and sediment. This is based on the factors presented below.

The NYSDEC recognizes the following in the PRAP: 1) that the elevated concentrations of cyanide in soil will be addressed because the elevated cyanide concentrations are co-located with the elevated organic concentrations that would be removed (remediated) under the proposed remedy; and 2) that a cyanide soil remediation level is not required to achieve the identified remedial goals. Accordingly, the NYSDEC did not establish a remediation level for cyanide.

- In a similar manner, a remediation level for benzene in soil and sediment is not necessary because the soil and sediment analytical results presented in the *Preliminary Site Assessment/Interim Remedial Measures (PSA/IRM) Report* (Engineering-Science, Inc., September 1994) and *Remedial Investigation (RI) Report* [Parsons Engineering Science, Inc. (Parsons), June 1997] demonstrate that benzene in soils and sediments is co-located with other organic compounds for which the NYSDEC has established remediation levels, including toluene, ethylbenzene, total xylenes, total polycyclic aromatic hydrocarbons (PAHs), and total carcinogenic PAHs. Out of the approximately 130 soil and sediment samples collected during the PSA/IRM and RI, benzene was detected in only one sample at a concentration greater than the TAGM #4046 cleanup objective of 0.28 ppm and not co-located with other organic compounds for which the NYSDEC has established remediation levels. That one isolated detection of benzene was only 1.2 ppm, and was detected in the soil sample collected from soil boring B-1R at 12 to 16 feet below ground surface (bgs).

  The highest concentrations of benzene detected in the ground-water samples collected during the PSA and the RI were in those samples collected from monitoring well ES-2S (2 ppm detected in a ground-water sample collected on July 27, 1995 and 0.35 ppm detected in a ground-water sample collected on December 7, 1995). Lower concentrations of benzene were detected in the ground-water samples collected from monitoring wells ES-2, ES-3, ES-5, and ES-7 (approximately an order of magnitude lower than the 0.35 ppm detected in the ground-water sample collected from ES-2S on December 7, 1995, with the

exception of benzene detected at 0.12 ppm in a ground-water sample collected from monitoring well ES-2 on February 24, 1994). The proposed remedy includes removing significant amounts of soil in the areas where monitoring wells ES-2S and ES-7 are located. For example, in the vicinity of monitoring well ES-2S, where the highest concentrations of benzene were detected in ground water, the proposed soil excavation limits presented in the PRAP encompass both the location and the screened interval of monitoring well ES-2S (5 to 15 feet bgs).

All of the detections of benzene at concentrations in excess of Ground-Water Criteria were in ground-water samples collected from on-site monitoring wells, except for the ground-water samples collected from monitoring well ES-5. This well is located approximately 90 feet east of the proposed soil excavation limits in the vicinity of monitoring well ES-2S and, based on ground-water elevation contour maps presented in the *PSA/IRM Report,* is located downgradient of this proposed soil excavation area. The benzene concentrations detected in this off-site well ranged from 0.35 ppm to 0.086 ppm. As identified in the NYSDEC-approved *Feasibility Study Report* (Parsons, August 1998), removal of the MGP source material present in the on-site soils will eliminate, to the extent practicable, the potential for future impacts to ground water (including those in the vicinity of monitoring well ES-5).

There were no detections of benzene at concentrations in excess of the NYSDEC-identified standards in any of the surface water samples collected during the PSA and RI from the Tailrace or the eastern ditch.

Based on the above factors, NMPC believes that each of the soil, sediment, and ground-water remedial goals presented in the PRAP will be effectively met without a soil and sediment remediation level for benzene. Even without that benzene remediation level, the proposed remedy will remove the MGP source material present in the soils and sediments and provide the required protection of ground water. Additionally, the other components of the proposed remedy, including monitored natural attenuation and placement of an asphalt cover on the NMPC property, would collectively serve to meet the NYSDEC-established remedial goals. As such, NMPC believes that a remediation level for benzene in soil and sediment is not required for this site.

Please feel free to contact me if you have any questions.

Sincerely,

Steven P. Stucker, C.P.G.

cc: M. W. Sherman
J. T. Parkinson
W. C. Weiss
G. M. Thomas-BBL
M. Cathy Geraci (BBL)

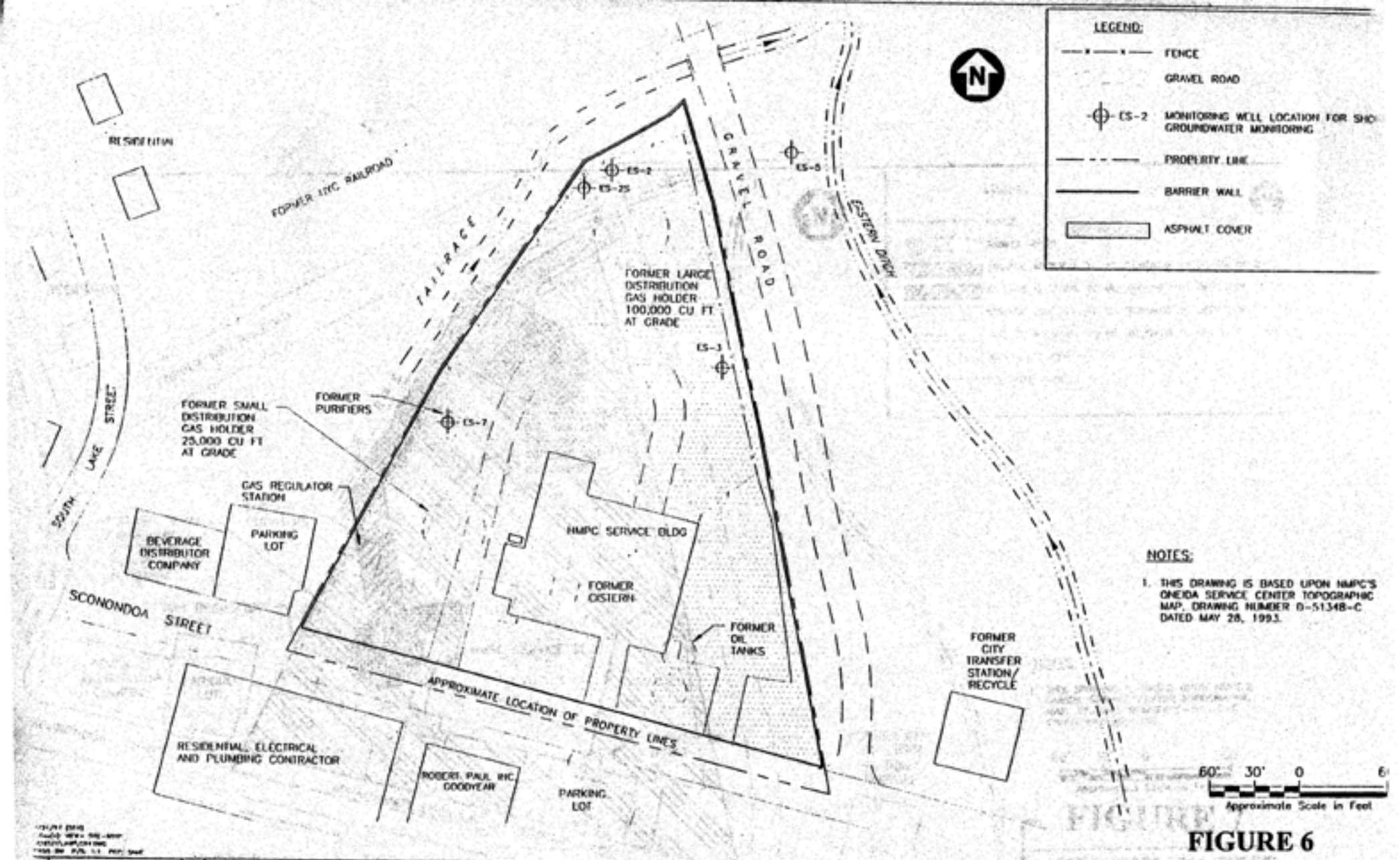


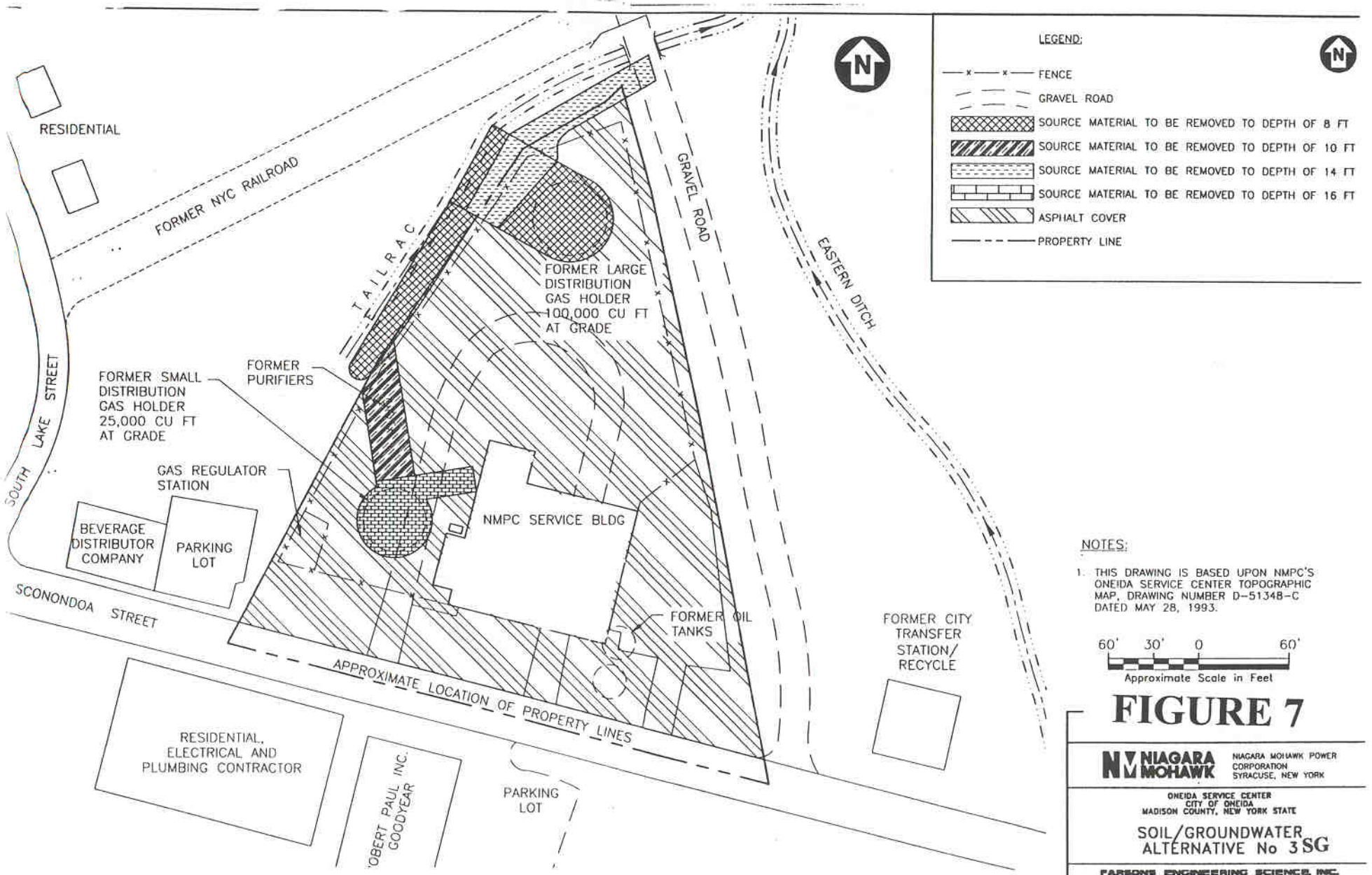
FIGURE 6

PARSONS ENGINEERING SCIENCE, INC.
DESIGN • RESEARCH • PLANNING

NIAGARA MOHAWK

ONEIDA SERVICE CENTER
CITY OF ONEIDA
MADISON COUNTY, NEW YORK STATE

SOIL/GROUNDWATER ALTERNATIVE No 2



NOTES:

1. THIS DRAWING IS BASED UPON NMPC'S ONEIDA SERVICE CENTER TOPOGRAPHIC MAP, DRAWING NUMBER D-51348-C DATED MAY 28, 1993.

60' 30' 0 60'
Approximate Scale in Feet

FIGURE 7

NIAGARA MOHAWK
NIAGARA MOHAWK POWER CORPORATION
SYRACUSE, NEW YORK

ONEIDA SERVICE CENTER
CITY OF ONEIDA
MADISON COUNTY, NEW YORK STATE

SOIL/GROUNDWATER ALTERNATIVE No 3 SG

PARSONS ENGINEERING SCIENCE, INC.
DESIGN • RESEARCH • PLANNING

14/21/98 (JAR)
5521\CAD\JHP\C05.DWG (MODEL/PAPER SPACE)