GZA
GeoEnvironmental, Inc.

Engineers and
Scientists

January 21, 2007
File No. 05.0043654.00-C

Mr. Joseph Martella
Rhode Island Department of Environmental Management
Office of Waste Management
235 Promenade Street
Providence, Rhode Island 02908

Re: *Short-Term Response Action Plan*
Former Tidewater Facility
Pawtucket, Rhode Island

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Providence
Rhode Island
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Dear Mr. Martella:

On behalf of National Grid, GZA GeoEnvironmental, Inc. (GZA) is pleased to present to the Department this *Short-Term Response Action Plan* for the former Tidewater Facility located in Pawtucket, Rhode Island (herein referred to as the "Site").

PROJECT OBJECTIVE

This plan has been prepared to address two specific areas of concern at the Site. The first is the relatively large sinkhole located on the south fill portion of the property, identified on previous report figures as the "South Washout Area". The second issue to be addressed by this *Short-Term Response Action Plan* is MGP residuals (i.e., blue-stained soils) present in near surface materials in certain portions of the roadways/access ways and parking areas in the vicinity of the substation. Photographs of these areas of concern are attached in Appendix A. The sinkhole presents a potential risk to Site trespassers and the stained surficial soils represent a nuisance condition. These two areas warrant initial response actions (i.e., prior to completion of the *Site Investigation Report* and preparation of the *Remedial Action Work Plan*).

BACKGROUND

This Site was the location of the former Tidewater Manufactured Gas Plant (MGP) and the Pawtucket No. 1 Power Station. The majority of the Site is currently vacant with the exception of an active natural gas regulating station, and active switching and electrical substations, both owned and operated by National Grid. Narragansett Electric d/b/a National Grid (National Grid) acquired the electrical side of the Site in May 2000. More recently, in August 2006, National Grid acquired the majority of the assets of New England Gas Company which included the gas side of the Site. National Grid is currently completing the *Site Investigation Report* for the entire Site (both the electric and gas portions) and anticipates submitting the report to the Department in the first quarter of 2007.

The Site consists of approximately 28 acres located on the western bank of the Seekonk River in Pawtucket, Rhode Island. It consists of four principal areas, based on historical use and operation:

- The Former Gas Plant Area – Plat 65B, Lot 662 (6 acres);
- The Former Power Plant Area – Plat 65B, Lot 645 (9.5 acres);
- The South Fill Area – Plat 65B, Lots 649 (1.0 acre), 647 (1.5 acres), 648 (2.5 acres) and Plat 67B, Lot 11 (1.1 acres); and
- The North Fill Area – Plat 54B, Lot 826 (6 acres).

A *Locus Plan* is provided as Figure 1. Figure 2, *Short Term Response Action Plan*, presents existing features, configuration, approximate property boundaries, locations of explorations performed at the Site, and the locations of the two areas of concern that are the subject of this *Short-Term Response Action Plan.*

Subsurface soils at the Site consist primarily of fill, which was historically deposited to create land along the Seekonk River and to dispose of process residuals from the former MGP and Power Plant. The fill consists of sand, coal, slag, ash and building debris.

Previous investigations performed at the Site indicate that soil and groundwater have been impacted by the historical operations which took place at the property. Based on the findings of the investigations performed at the Site by VHB and others, Method 1 soil exceedances due to the presence of total petroleum hydrocarbons (TPH), polynuclear aromatic hydrocarbons (PAHs), volatile organic compounds (VOCs) and certain inorganic compounds (primarily arsenic and lead) exist at the Site. In addition, exceedances of the Method 1 GB Groundwater Objective and Upper Concentration Limit (UCL) were noted at the Site. Specifically, the presence of light and dense non-aqueous phase liquid (NAPL) was observed in several Site monitoring wells. Naphthalene and benzene were detected at concentrations above the GB Groundwater Objective in two Site wells.

As described above, the following two specific areas of concern have been noted by National Grid and are the subject of this *Short-Term Response Action Plan*:

- South Washout Area. Within the South Fill Area of the Site, two surface water discharge pipes are located within a relatively large washout area which extends approximately 60 feet inward from the bank of the Seekonk River. This area, identified as the "South Washout Area" on Figure 2, appears to have resulted from the erosion of materials (surficial fills and potentially impacted MGP residuals). This erosion is apparently the result of surface water flow from the two currently visible storm drain lines located on the southwest side of the sinkhole. The remnants of a storm drain structure appear to be located in the sinkhole below the discharge of these drain lines, suggesting that the two pipes were once connected to a manhole structure.

The origin of the two surface water drain pipes is currently unknown, although from GZA field observations, it appears that they likely originate from the Max Reed Field owned by the City of Pawtucket to the west, and are likely associated with surface water runoff from the athletic fields.

Figure 2 presents the configuration of the washout area based on a field survey performed by GZA on December 11, 2006. Based on the field information gathered by GZA, the South Washout Area covers an area, oriented in an approximate southwest-northeast direction, which extends approximately 60 feet to the bank of the Seekonk River. The area ranges in width between approximately 10 to 38 feet and is approximately 13 feet deep at its deepest point. Photos of the South Washout Area are included in Appendix A.

- MGP Residuals Located in Roadways/Access Ways. On the Former Power Plant Area of the Site, certain portions of the unpaved access road and parking areas located to the south and southeast of the substation were noted to consist of blue surface staining. This observed staining is typically characteristic of potentially cyanide-impacted material. This access road and parking areas are utilized by National Grid service trucks, and as such, the surface soils are prone to disturbance and possible vehicular transport. The approximate area exhibiting this surface staining is depicted on the attached Figure 2.

The following *Short Term Response Action Plan* has been prepared to address these two areas of concern.

PROPOSED RESPONSE ACTIONS

The intent of the proposed plan will be to address the potential risks that may be posed by unauthorized access to the South Washout Area (i.e., continued erosion/slope stability issues) and company vehicle contact with stained surface soils. This plan is being submitted by National Grid as a proactive measure to address their concerns regarding current Site conditions.

It should be noted that the ultimate remedial goal for the entire Site has not been formalized. Given the current and foreseeable continued use of the Former Power Plant Area by National Grid as an active substation, it is likely that the remedial alternative for the Power Plant Area as well as the South Fill Area of the property will include some level of engineered soil controls (e.g., soil capping, fencing) and deed restrictions. However, given the more immediate concerns posed by these two specific Site conditions, the following interim response actions are proposed.

National Grid currently anticipates submittal of the final *Site Investigation Report* (SIR) for the entire Site in the first quarter of 2007. The *Remedial Action Work Plan* (RAWP) for the entire Site is anticipated to be submitted to RIDEM by the end of 2007, depending on when National Grid receives approval of the SIR.

South Washout Area

- GZA will perform a records review of available documentation at the City of Pawtucket Engineering Department to find information related to the source and installation of the drain pipes in question. In addition, we will contact officials at the Frances J. Varieur School for available as-built documents related to the school's drainage system.
- Depending on the available information obtained from the records review, if necessary, GZA will perform a dye test to assess the source of the two drain pipes. The dye test will consist of injection of a small amount of inert tracer (e.g., fluorosene) mixed with water into catch basins which are suspected to be connected to the drain pipes in question. In addition, an elevation survey of the inverts of suspect drain pipes will be performed to supplement the dye test and identify possible storm drain pathways and/or connections. Prior to performing any off-Site field work associated with tracking the drain pipes, GZA will contact the appropriate property owners for access and approval of proposed work.
- Once the source of the drain pipes is identified and the owners have been contacted, work will be performed to repair the drain outfall and stabilize the river bank area within the washout. Currently, it is anticipated that a new concrete manhole will be installed into which the two existing drain pipes will be routed. A new drain line will then be installed, extending from the manhole to the river's edge. To install the new manhole and associated discharge line, the washout void will be filled with trap rock and/or clean fill to bring the area up to the necessary elevation for installation of a new drain line. The washout area will be lined with a geotextile demarcation layer prior to placement of any fill material over the existing soil grades. The outfall of this drain line will be specifically designed to limit future erosion and sediment migration to the Seekonk River.
- After completing the repair of the drainage structure and drain line, the sinkhole void will be backfilled with clean, imported fill material. The washout will be backfilled to match surrounding Site grades. The underlying drain line will be specifically designed to withstand the load from these fill materials. Based on our recently completed survey work, it is estimated that approximately 400 to 500 cubic yards of fill material will be required to backfill this sinkhole. Hydroseed and degradable hay mats will be used to stabilize the backfilled area and limit the potential for erosion.

MGP Residuals Located in PPA Roadways/Access Ways

- Blue stained surface soils along certain portions of the unpaved access road and parking area located south and southeast of the substation will be excavated to a depth of approximately 1 foot below existing grade. Based on existing data, it is estimated that approximately 600 tons (400 cubic yards) of material will be excavated over approximately 350 linear feet of roadway, with an average width of approximately 30 feet. The approximate area to be addressed is depicted on Figure 2. As the intent of the removal effort is to address the immediate concerns posed by the stained soil, with the assumption that engineered controls will be implemented at the Site in the future, no confirmatory samples will be collected from the sidewalls and floor of the excavation area. The excavated areas will be temporarily capped with a 20 mil polyethylene liner overlain by 1 foot of clean trap rock. The access road and paving area will be brought back to the approximate pre-excavation grade.
- Prior to excavating, roadway soils will be sampled in place for characterization purposes. Shallow samples will be collected from the upper 1 foot of soil along the portion of the roadway exhibiting blue staining at intervals of approximately 75-100 feet (i.e., total of approximately 4 samples). All of the samples will be analyzed for total and free cyanide[1], total petroleum hydrocarbons (TPH) via EPA Method 8100M and polynuclear aromatic hydrocarbons (PAHs) via EPA Method 8270C. In addition, two of the samples will be submitted for typical receiving facility disposal acceptance, including volatile organic compounds (VOCs) via EPA Method 8260, semi-volatile organic compounds (SVOCs) (rest of list) via EPA Method 8270C, polychlorinated biphenyls (PCBs) via EPA Method 8082, RCRA-8 metals, TCLP lead, flashpoint/ignitability, reactivity and corrosivity. If detected contaminant concentrations are less than the RIDEM Method 1 Industrial/Commercial Direct Exposure Criteria (I/C DEC), they will be placed in the low-lying area located south of the roadway (refer to Figure 2). These materials will be graded to match existing Site grades and limit the potential for erosion. As described previously, the final remedial alternative for the Site is currently anticipated to include engineered soil controls (e.g., soil capping, fencing) and deed restrictions. The area these materials are placed is expected to be capped as part of the final Site remediation plan. If soil contaminant concentrations exceed the Method I I/C DEC, they will be disposed of off-site at a permitted facility approved by National Grid.

All necessary permits will be obtained prior to the start of work. Based on the proximity of the proposed work areas to the Seekonk River (both areas located within 200 feet of river bank), it is expected that an application will be submitted to the Rhode Island Coastal Resource Management Council for review and approval. We have assumed that no

[1] Free cyanide, which represents cyanide that is available, will be analyzed via Standard Method 4500CN-E.

discharge permits are required for the drain line, as it is assumed to be associated with surface water and that, if required, the necessary permits were obtained by the owners of the pipes prior to the initial installation. If it is determined that permits are required, the owner of the drain pipes is assumed to be responsible for obtaining the necessary permitting for these existing lines.

Once the two areas of concern have been addressed at the Site, a *Short Term Response Action Report* will be prepared in accordance with Rule 6.09 of the RIDEM Remediation Regulations. The report will summarize field activities for each area of concern.

We trust the information presented in this letter report meets your current needs. If you have any questions or need additional information, please contact the undersigned or Michele Leone from National Grid at 508-389-4296.

Very truly yours,

GZA GEOENVIRONMENTAL, INC.

Margaret S. Kilpatrick, P.E.
Senior Project Manager

John P. Hartley
Project Reviewer

James J. Clark, P.E.
Associate Principal

Attachments: Figures
Appendix A - Photographs

cc. Michele Leone, National Grid

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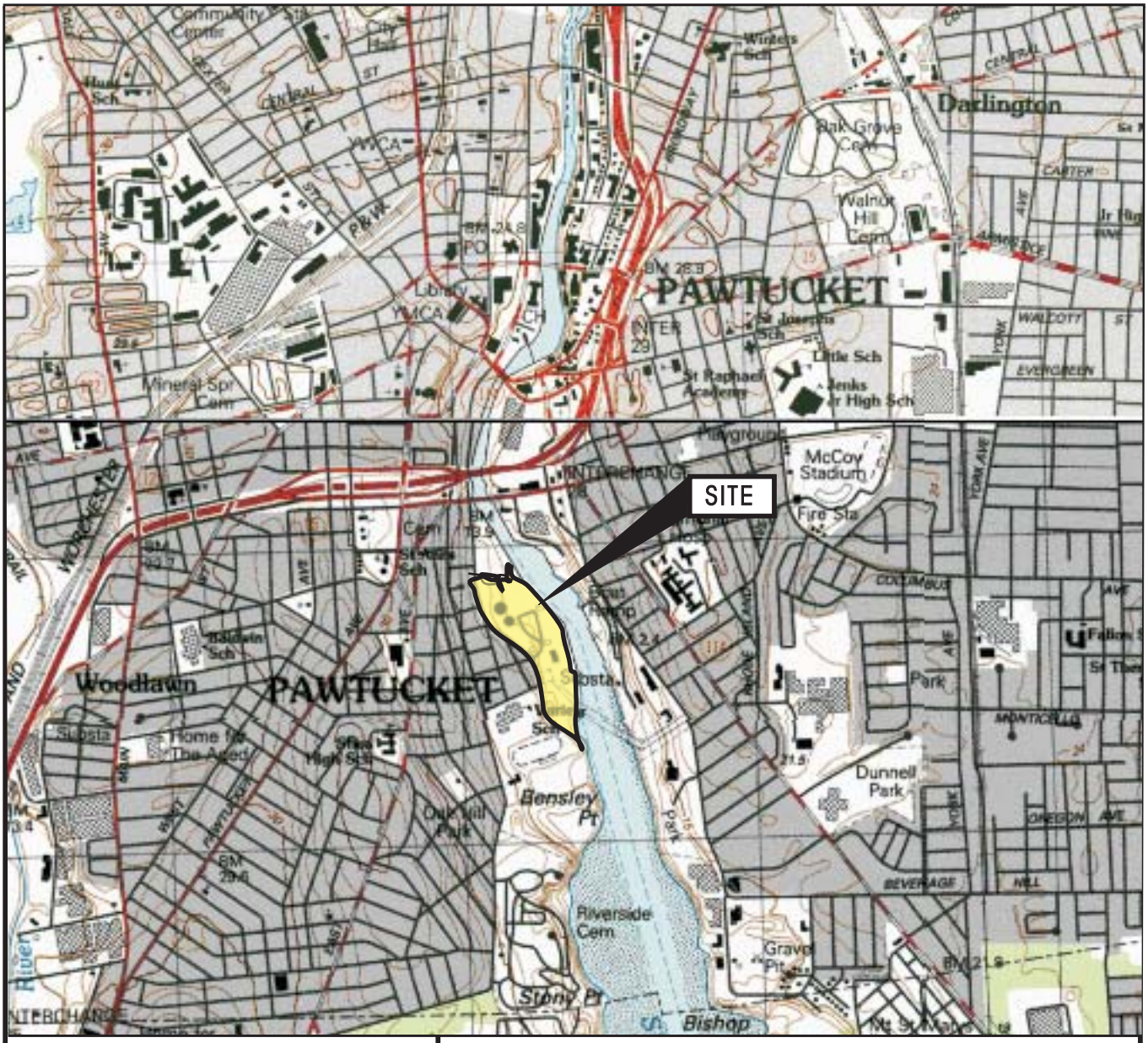
FIGURES



FROM USGS PROVIDENCE, RI QUADRANGLE MAP

(DIGITAL TOPOGRAPHIC MAPS PROVIDED BY MAPTECH, INC.)

(CONTOUR ELEVATIONS ARE IN METERS ABOVE NGVD, AT 3 METER INTERVALS)

APPROXIMATE SCALE IN FEET

0' 1200' 2400' 4800'

TIDEWATER FACILITY

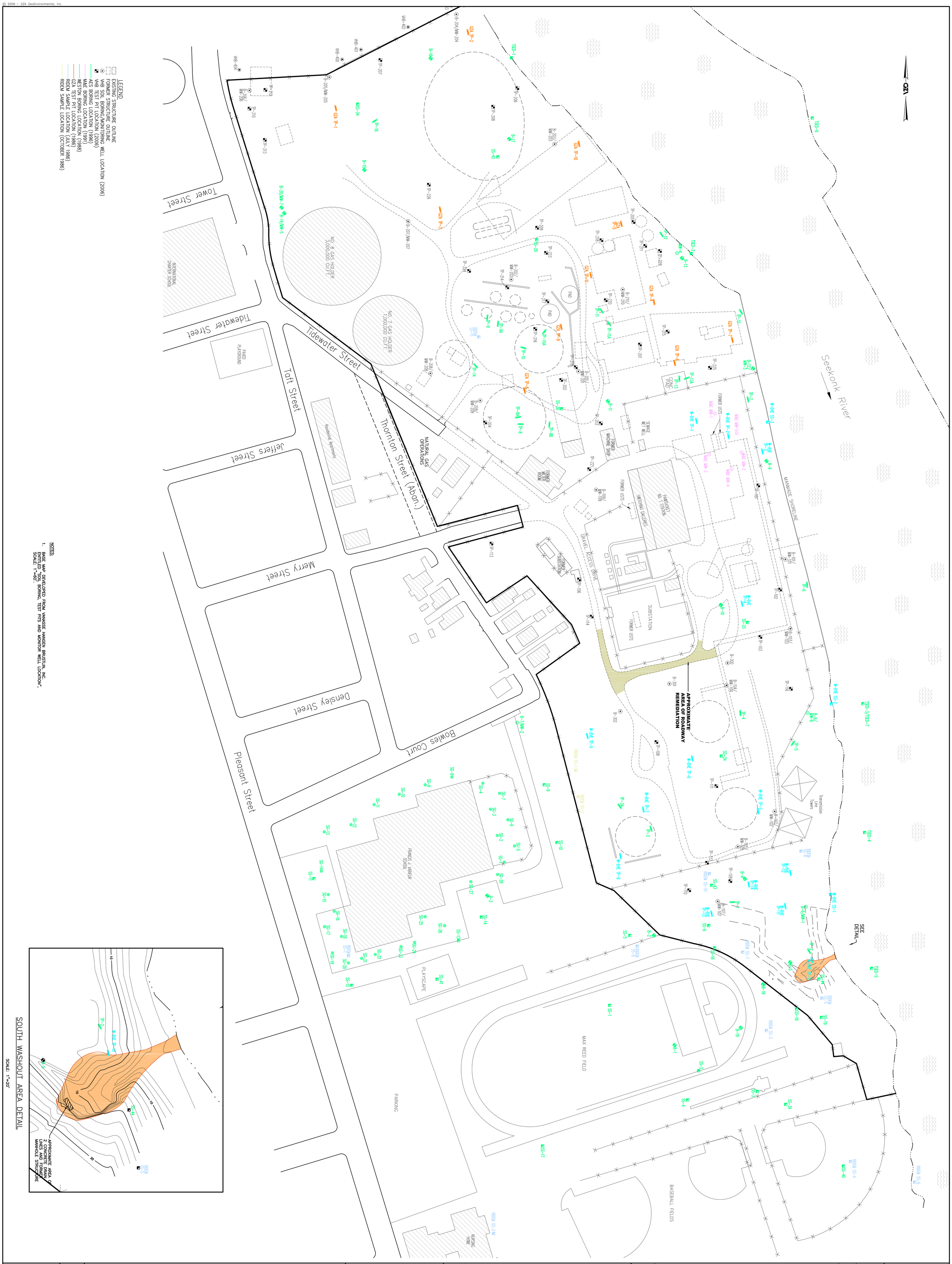
PAWTUCKET
RHODE ISLAND

LOCUS PLAN

JANUARY 2007

FIGURE NO. 1

FILE NO. 43654.00



NOTES:

1. BASE MAP DEVELOPED FROM VANASSE HANGEN BRUSTLIN, INC. ENTITLED "SOIL BORING, TEST PITS AND MONITOR WELL LOCATION". SCALE: 1"=60'.

FIGURE NO. 2

JOB NO. 43603

FORMER TIDEWATER FACILITY

PAWTUCKET, RHODE ISLAND

SHORT TERM RESPONSE ACTION PLAN

Project Mgr: JJC
Designed By: JJC
Reviewed By:
Drawn By: MJS

Date: 12/19/06

1"=60'
0 30' 60' 120'

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REV. NO.	DESCRIPTION	BY	DATE

ATTACHMENT A

PHOTOS

Photo 1 View of South Washout Area. Two drain lines visible in distance.

Photo 2 View of southern sidewall of South Washout Area.

Photo 3 View looking southwest of washout area from bottom of riverbank.

Photo 4 View of roadway located southeast of Substation. Blue and yellow surface soils noted.