NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

Division of Environmental Remediation, Remedial Bureau E
625 Broadway, 12th Floor, Albany, NY 12233-7017
P: (518) 402-9813 I F: (518) 402-9819
www.dec.ny.gov

July 20, 2016

Mr. Matthew R. DeVinney, P.E.
Senior Associate
D&B Engineers and Architects, P.C.
330 Crossways Park Drive
Woodbury, New York 11797

RE: Glenwood Landing Site, V00351, Periodic Review Report

Dear Mr. DeVinney:

The Periodic Review Report dated June 13, 2016 prepared by Dvirka and Bartilucci Engineers and Architects has been reviewed and meets the requirements specified in the May 2012 Site Management Plan for the site. The PRR is approved as submitted.

The Department approves of the continuation of site management per the May 2012 Site Management Plan. Next year's 2017 site inspection will mark five (5) years of required annual monitoring. At that time, the Site Management Plan shall be reviewed to determine any changes in frequency moving forward.

If you have any questions, please call me at 518-402-9813 or email me at zachary.russo@dec.ny.gov.

Sincerely,

Zachary P. Russo, P.E.
Project Manager
Remedial Section C, Remedial Bureau E
Division of Environmental Remediation

Enclosure: 2016 Periodic Review Report

ec: T. Fox, D&B
M. Reindl/P.J. Van Rossem, NationalGrid
B. Putzig, NYSDEC

nationalgrid

Periodic Review Report
Site No. V00351

Glenwood Landing Former Gas Plant Site

June 2016

D&B Engineers and Architects, P.C. 50 YEARS est. 1965

PERIODIC REVIEW REPORT (MAY 2015 – APRIL 2016)
FOR
NATIONAL GRID GLENWOOD LANDING FORMER GAS PLANT SITE
GLENWOOD LANDING, NEW YORK

VOLUNTARY CLEANUP AGREEMENT NO. R1-0001-01-01

Prepared for:

NATIONAL GRID
HICKSVILLE, NEW YORK

Prepared by:

D&B ENGINEERS AND ARCHITECTS, P.C.
WOODBURY, NEW YORK

JUNE 2016

PERIODIC REVIEW REPORT (MAY 2015 – APRIL 2016)
NATIONAL GRID GLENWOOD LANDING FORMER GAS PLANT SITE

TABLE OF CONTENTS

List of Appendices

List of Figures

List of Tables

EXECUTIVE SUMMARY

The former National Grid Glenwood Landing Gas Plant Site (Site No. V00351) located in Glenwood Landing, Nassau County, New York, was remediated in accordance with the New York State Department of Environmental Conservation (NYSDEC) Voluntary Cleanup Agreement (VCA) No. R1-0001-01-01, executed in March 2001. Remediation was completed in September 2002 and included excavation and off-site disposal of approximately 10,880 tons of non-hazardous contaminated soil, and demolition and removal of several on-site buildings and structures. In accordance with the VCA, a limited amount of soil contamination was left in place after completion of the remedy.

A Site Management Plan (SMP) was developed in May 2012 as required under the NYSDEC Voluntary Cleanup Program. The SMP documented procedures to be implemented in the monitoring and management of any residual contamination remaining at the Site. In accordance with the VCA, engineering and institutional controls were implemented at the Site as specified in the SMP. Also specified in the SMP were requirements for monitoring, performance of periodic inspections and submittal of an annual Periodic Review Report (PRR) in accordance with NYSDEC DER-10 "Technical Guidance for Site Investigation and Remediation" requirements.

This Periodic Review Report summarizes and evaluates the performance, effectiveness and protectiveness of the Engineering Controls (ECs) and Institutional Controls (ICs) established for the Site for the twelve month period including May 2015 – April 2016. The annual institutional and engineering control inspection was performed on May 4, 2016 in accordance with the requirements outlined in the May 2012 SMP. Based upon the results of the inspection, all institutional and engineering controls appear to remain in place as specified in the May 2012 Site Management Plan for the Site.

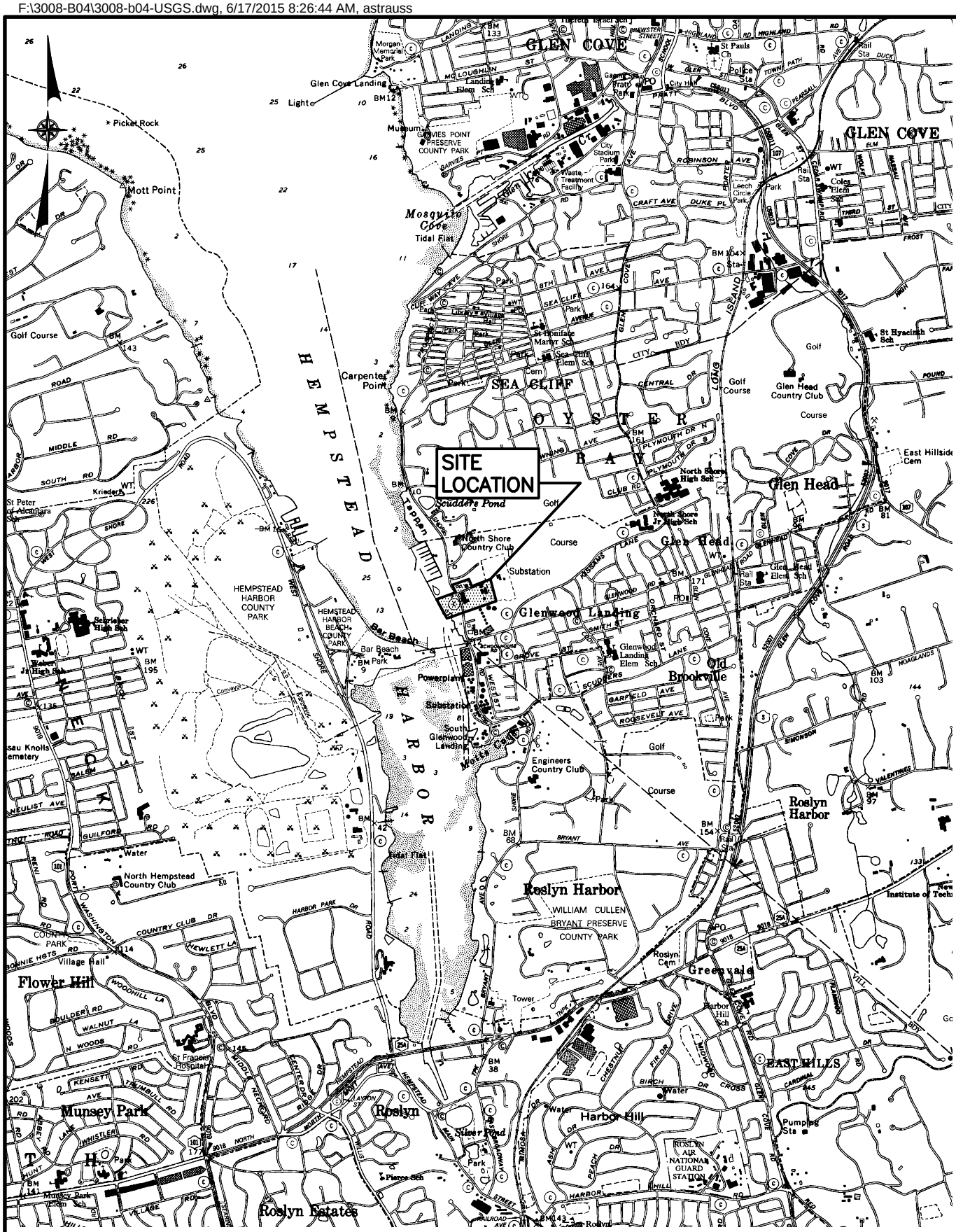
1.0 INTRODUCTION

The purpose of this Periodic Review Report (PRR) is to summarize and evaluate the remedies implemented at the Site relative to the requirements of the Site Management Plan (SMP) dated May 2012. The Site is located on Shore Road in Glenwood Landing, Nassau County, New York (see Figure 1-1). The information provided in this report covers the period from May 2015 to April 2016; however, portions of this report incorporate pertinent historical background information and monitoring data, as appropriate.

National Grid was responsible for the site operation, monitoring and maintenance throughout this reporting period, while all institutional and engineering controls inspection, reporting and engineering services were completed by D&B Engineers and Architects, P.C. (D&B). The objectives of this PRR include:

- Presenting relevant background information;
- Presenting a description of the site remedy, residual contamination and any associated remedial components, including applicable Institutional and Engineering Controls;
- Identifying the remedial goals established for the Site, as identified in the May 2012 SMP;
- Identifying, reviewing and evaluating:
  - Site monitoring protocols, procedures and documentation;
  - Condition of the remedy;
  - Compliance with the SMP;
  - Current institutional and engineering controls;
  - Site management costs; and
  - Remedy performance, effectiveness and protectiveness.
- Supporting decisions/providing justification to modify or end site management activities or reclassify the Site;
- Determining the frequency and type of subsequent periodic reviews; and
- Providing an institutional control and engineering control (IC/EC) certification.

F:\3008-B04\3008-b04-USGS.dwg, 6/17/2015 8:26:44 AM, astrauss



D&B ENGINEERS AND ARCHITECTS, P.C.

GLENWOOD LANDING FORMER GAS PLANT SITE
GLENWOOD LANDING, NEW YORK

SCALE: 1"=3000'

SITE LOCATION MAP

FIGURE 1-1

2.0 SITE OVERVIEW

2.1 Site Location

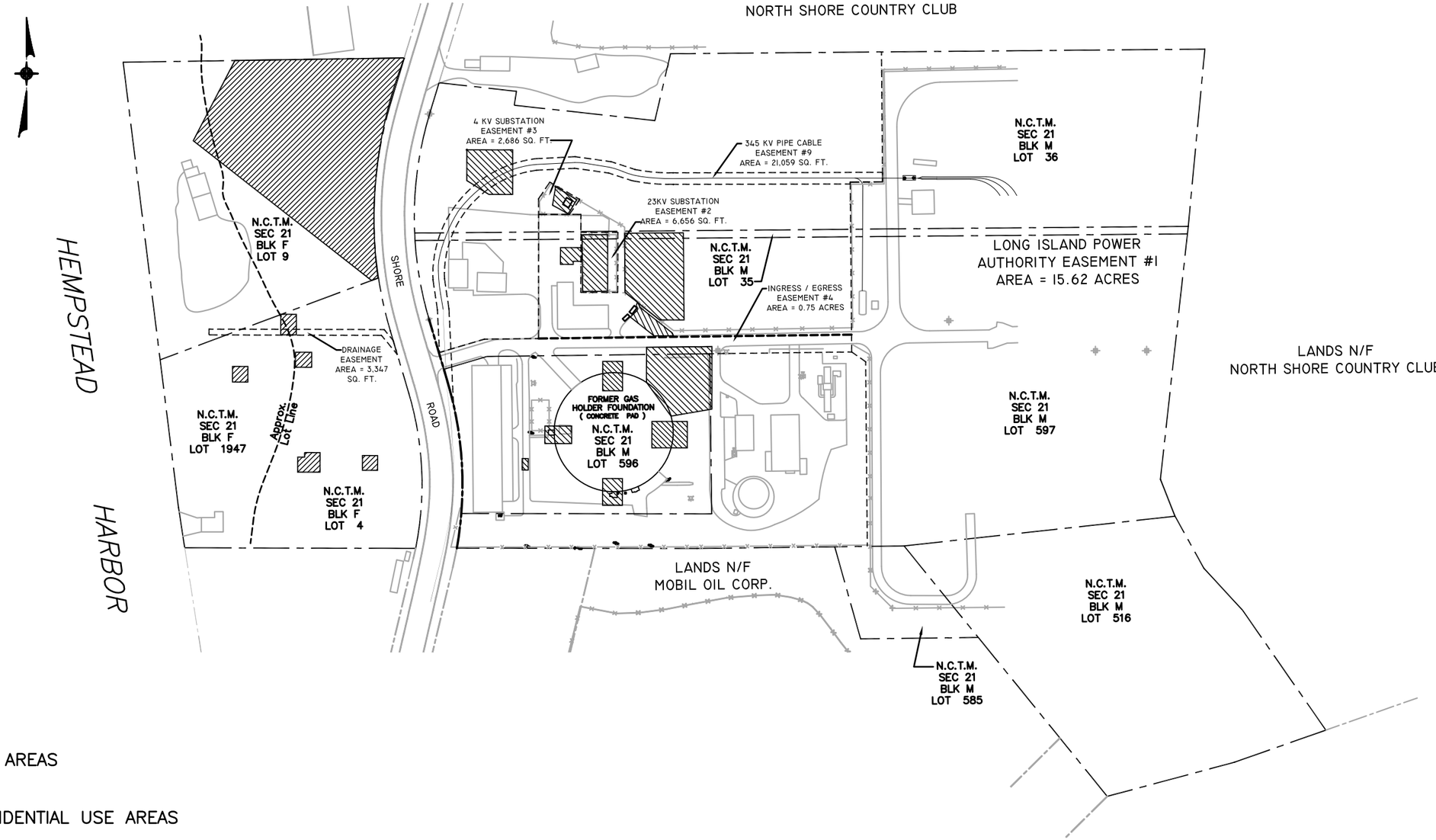
The Site is located on Shore Road in Glenwood Landing, County of Nassau, New York, and is identified as Section 21, Block F, P/O Lots 4, 9 and 1947, and Section 21, Block M, P/O Lots 35, 36, 596 and 597 on Nassau County Tax maps. The approximately 3-acre property is located on approximately 800 feet of waterfront on the east shore of Hempstead Harbor, and extends east across Shore Road. The property is bounded on the south by a Mobil Oil/Storage Terminal, to the west by Hempstead Harbor, and on the north and east by the North Shore Country Club (see Figure 2-1).

The Site is currently classified as a Class C site, indicating that the NYSDEC has determined that remediation has been satisfactorily completed under the Voluntary Cleanup Program.

2.2 Site Description and Remedial History

Prior to 1951, a hotel was operated at the Site. In 1951, the Site was developed as a natural gas reforming plant. Subsequent development included a natural gas regulating station (compressor station), laboratory, and propane storage field. The gas facilities, propane storage tank field and compressor station were eventually decommissioned and demolished. Laboratory services were also terminated and a portion of the Site was redeveloped for electric power generation.

National Grid's corporate predecessor, KeySpan Corporation, entered into a VCA with the NYSDEC that was fully executed on March 27, 2001 to investigate and remediate contaminated media at the Site. A map showing the Site location and boundaries of the Site is provided as Figure 2-1. Initial investigations conducted at the Site included:



LEGEND

- INDUSTRIAL USE AREAS
- RESTRICTED RESIDENTIAL USE AREAS
- NASSAU COUNTY TAX MAP LOT BOUNDARY
- EASEMENT BOUNDARY

D&B ENGINEERS AND ARCHITECTS, P.C.

NATIONAL GRID GLENWOOD LANDING

SITE PLAN

SCALE: 1"=200'

FIGURE 2-1

F:\3008-B04\3008-B04-PLO1.dwg, FIG-1-1, 6/17/2015 6:31:32 PM, DBCadd

- A Phase I Environmental Site Assessment (ESA) was performed by Fluor Daniel GTI, Inc. and reported in January 1999;

- A Phase II ESA was performed by Fluor Daniel GTI, Inc. and reported in May 1999;

- A Supplemental ESA was performed by IT Corporation and reported in June 1999;

- A Supplemental ESA of Area-1, including a Human Health and Ecological Risk Analysis, was performed by Vanasse Hangen Brustlin, Inc. (VHB) and reported in December 1999;

- An upgradient Shallow Groundwater Investigation was performed by VHB in March 2000 and reported in September 2001; and

- A VCA Investigation was performed in two phases by VHB in November of 2000 and April of 2001 and reported in September 2001.

Subsequent to the initial investigations, the Site was remediated in accordance with the Conceptual Remedial Action Plan provided in the NYSDEC-approved Supplemental Environmental Assessment Report dated September 2001. The remedial work was documented in the Remedial Action Summary Report – Surface and Shallow Subsurface Soil, dated August 2003 and included the following Remedial Actions performed at the Site:

- Area-1A: Hot spot removal (excavation and off-site disposal) of surface soils (designated discrete areas 1A-5a through 1A-5e) with concentrations of carcinogenic polycyclic aromatic hydrocarbons (CPAHs) above the site cleanup objectives.

- Area-1B: The fill area of 1B was consolidated and covered with a clean fill cover to isolate detected levels of inorganics with concentrations above the site cleanup objectives.

- Area-2: Hot spot removal (excavation and off-site disposal) of surface and subsurface soils with concentrations of PCBs, CPAHs, and inorganics above the site cleanup objectives was completed down to the water table.

- Area-3: Hot spot removal (excavation and off-site disposal) of surface and subsurface soils with concentrations of polychlorinated biphenyls (PCBs), CPAHs, and inorganics above the site cleanup objectives was completed down to the water table.

- Demolition and removal of four Drip Pits located on the north, south, east, and west sides of the former gas holder foundation. Contaminated soil above the site cleanup objectives was also excavated from the Drip Pit footprints.

- Demolition and removal of the holder pad, compressor building, and ancillary facilities, utilizing proper environmental controls and techniques.

- Execution and recording of a Deed Restriction to restrict land use and prevent future exposure to any contamination remaining at the Site.

- Development and implementation of a Site Management Plan for long-term management of remaining contamination as required by the Deed Restriction, which includes plans for: (1) Institutional and Engineering Controls, (2) monitoring and (3) reporting.

Remedial activities were conducted at the Site from October 2001 through January 2002, and completed in September 2002. An as-built drawing detailing the completed remedial activities and location of engineering controls is provided in Appendix A.

Additional investigations were completed following the completion of these remedial activities due to the presence of volatile organic compounds (VOCs) in groundwater at the Site, including the following:

- A Geophysical Investigation and Supplemental Environmental Sampling was performed by VHB in March 2003 and reported in October 2003;

- Upgradient Groundwater Contamination Sources Investigation Findings Report, prepared by D&B in August 2006;

- Groundwater Investigation Findings Report, prepared by D&B in June 2008; and

- Groundwater Modeling Report, prepared by D&B in September 2009.

The groundwater investigations and modeling report prepared by D&B demonstrated that the Site was not the source of groundwater contamination found under the Site. As a result, it was determined that the Site could be transitioned into site management.

It should be noted that, after completion of the remedial work described in the September 2001 Supplemental Environmental Site Assessment Report in accordance with the VCA, a limited amount of soil contamination was left in the subsurface at the Site, which is hereafter

referred to as "remaining contamination." Provided below is a brief description of remaining contamination at the Site.

2.2.1 Remaining Soil Contamination

The property east of Shore Road was remediated to site-specific residential use soil cleanup objectives (SCOs) established under the Department-approved conceptual Remedial Action Plan (RAP), dated September 2001. Excavations were limited to surface and shallow subsurface soil and did not extend below the water table in accordance with the conceptual RAP. At three locations, the site-specific residential use SCOs were not achieved because the excavations reached the water table. A summary of the excavation endpoint sample results from each area of the Site is provided in the August 2003 document: "Remedial Action Summary Report – Surface and Shallow Subsurface Soil" (VHB, 2003).

It should be noted that since the time the remedial excavation activities were completed, the NYSDEC has adopted new soil cleanup standards, which are presented in 6 NYCRR Part 375-6. As per this standard, different SCOs have been defined based on the intended future use of the property. Therefore, based on this new standard, the soil sample results collected from the area located to the west of Shore Road, which is intended to be used as open space, were compared to the restricted-residential use soil cleanup criteria and the soil sample results collected from the area located to the east of Shore Road, which is intended to be used as an electric generating station, were compared to the industrial use soil cleanup criteria. Although the endpoint soil samples collected in the areas located to the east of Shore Road are compared to the industrial use soil cleanup criteria, it should be noted that 94% of the VCA related property located to the east of Shore Road meets the restricted-residential criteria. Several excavation endpoint samples were detected above the applicable 6 NYCRR Part 375 SCOs, as follows:

- Sample GLA1-2, collected from excavation Area 3-1, exhibited concentrations of benzo(a)pyrene and total PCBs above their applicable industrial use SCO;
- Samples GLDPW-02 and GLDPW-04S, collected from the drip pits west area, exhibited concentrations of arsenic above its applicable industrial use SCO; and

- Lastly, four soil samples collected from Area 2-2 had concentrations of PCBs above the site-specific cleanup goal of 2 mg/kg. However, the PCB concentrations were below the industrial use SCO for total PCBs of 25 mg/kg.

Excavation endpoint samples were not collected from Area 1B as part of the remedial activities; however, samples collected during previous investigations throughout Area 1B exhibited concentrations of arsenic, chromium, copper, mercury and nickel, above their applicable restricted-residential use SCOs. Vanadium was also detected at elevated concentrations above the site-specific SCOs, however, 6 NYCRR Part 375 does not contain an applicable soil cleanup objective for vanadium.

The location of the areas with residual contamination above the applicable SCOs, as discussed above, is provided on the as-built drawing provided in Appendix A.

2.2.2 Remaining Groundwater Contamination

A groundwater investigation was completed in three separate phases between March 2006 and December 2007 by National Grid to determine the likelihood that the chlorinated VOCs previously detected in groundwater at the Area 1A Parcel are actually associated with upgradient sources and do not originate from the Glenwood Landing Site. The completed groundwater investigation identified contamination in groundwater consistent with suspected upgradient sources extending well to the north and south of the Site. The identified contamination consists predominantly of tetrachloroethyelene (PCE) (a dry cleaning solvent) and, to a lesser degree, related contaminants such as trichloroethylene (TCE) and 1,2-dichloroethene (1,2-DCE). Total chlorinated VOC concentrations were detected up to 1,347 ug/l along Shore Road, a minimum of 600 feet north and sidegradient of the Site. The investigation data clearly indicates that the Glen Head groundwater plume, or other groundwater contaminant sources located upgradient of the Site, is impacting groundwater quality over a relatively large area, including the Site.

A Site Management Plan (SMP) was prepared and finalized in May 2012 that was subsequently approved by NYSDEC to manage remaining contamination at the Site in perpetuity

or until extinguishment of the Deed Restriction in accordance with ECL Article 71, Title 36. It should be noted that while contaminated groundwater exists beneath the Site, it is due to an updgradient source. However, the SMP includes provisions to protect human health and the environment from this groundwater contamination in addition to managing the remaining soil contamination.

2.3 Remedial Goals and Site Closure Criteria

Remedial activities completed at the Site were conducted in accordance with the NYSDEC-approved VCA Work Plan for the Site (September 2001) and the NYSDEC-approved Supplemental Environmental Assessment Report for the Site (September 2001). The remedial goals included attainment of site-specific SCOs for on-site soils for residential use. However, the portion of the Site to the east of Shore Road was ultimately developed as an electric power generating station following remedial actions, thus some contamination above the site-specific SCOs for residential use, but less than the SCOs for industrial use, was left in place. Approximately 94% of the VCA-related property located to the east of Shore Road meets restricted-residential use standards. The initial site-specific SCOs and all changes to the site-specific SCOs were approved by the NYSDEC and are listed in Table 2-1.

2.4 Remedial System

As the remedy for this Site involved excavation and removal of contaminated soil followed by the implementation of institutional and engineering controls, there are no remedial systems currently operating at the Site. Therefore, this section is not applicable.

2.5 Current Remedy Status

As the remedy for this Site involved excavation and removal of contaminated soil followed by the implementation of institutional and engineering controls, no modifications to the remedy were made during the current reporting period.

Table 2-1

SITE-SPECIFIC SOIL CLEANUP OBJECTIVES

Contaminant	Soil Cleanup Objective (mg/kg)
Arsenic	20
Lead	400
Vanadium	500
Benzo(a)anthracene	1.0
Benzo(b)fluoranthene	1.0
Benzo(a)pyrene	0.1
Indeno(1,2,3-cd)pyrene	1.0
Benzo(g,h,i)perylene	310
Dibenzo(a,h)anthracene	0.1
PCBs	2.0

3.0 INSTITUTIONAL CONTROL/ENGINEERING CONTROL (IC/EC) CERTIFICATION PLAN COMPLIANCE

Since remaining contaminated soil and groundwater exists at the Site, Institutional Controls and Engineering Controls (IC/ECs) are required to protect human health and the environment. It should be noted that while contaminated groundwater exists beneath the Site, it is due to an updgradient source. However, the SMP includes provisions to protect human health and the environment from this groundwater contamination in addition to managing the remaining soil contamination. The intent of this section is to provide a description of the IC/ECs in place for the Site, the objective and status of each IC/EC, as well as to provide a mechanism used to monitor and enforce each IC/EC.

The IC/EC Certification form completed for the Site for this reporting period was prepared in accordance with Section 6.3(c) of NYSDEC's DER-10 document and is provided in Appendix B.

3.1 Institutional Controls

By definition, an IC is any non-physical means for enforcing restriction on the use of real property that limits human health and environmental exposure, restricts the use of groundwater, provides notice to potential owners, operators, or member of the public, or prevents action that would interfere with the effectiveness and/or integrity of operation, maintenance and monitoring activities at or pertaining to a remedial site.

The Site has a series of ICs in the form of site restrictions. Adherence to these Institutional Controls is required by the Deed Restriction. Site restrictions that apply to the Site are:

- Use of groundwater underlying the Site property is prohibited without testing and/or treatment to ensure it is safe for the intended use;
- All future activities on the property that will disturb contaminated material are prohibited unless they are conducted in accordance with the May 2012 SMP;

- The portion of the property located to the east of Shore Road may be used for industrial use, provided that the long-term Institutional and Engineering Controls remain in use as described in the May 2012 SMP.

- The portion of the property located to the west of Shore Road may be used for restricted residential use, provided that the long-term Institutional and Engineering Controls, in particular the Area 1B soil cover system, remain in use as described in the May 2012 SMP.

- The two portions of the property may not be used for a higher level of use, without NYSDEC approval, and amendment and approval of the Deed Restriction.

- The Site owner or remedial party will submit to NYSDEC a written statement that certifies, under penalty of perjury, that: (1) controls employed at the Controlled Property are unchanged from the previous certification or that any changes to the controls were approved by the NYSDEC; and, (2) nothing has occurred that impairs the ability of the controls to protect public health and environment or that constitute a violation or failure to comply with the May 2012 SMP. NYSDEC retains the right to access such Controlled Property at any time in order to evaluate the continued maintenance of any and all controls. This certification shall be submitted annually, or an alternate period of time that NYSDEC may allow and will be made by an expert that the NYSDEC finds acceptable.

3.2 Engineering Controls

By definition, an EC is any physical barrier or method employed to actively or passively contain, stabilize or monitor contamination, restrict the movement of contamination to ensure long-term effectiveness of a remedial program or eliminate potential exposure pathways to contamination.

Per the requirements of the May 2012 SMP, the ECs currently in-place at the Site include:

- Two soil cover systems
  - A soil cover system was placed in Area 1B, which is comprised of a 10 oz./square yard geotextile, 1 foot of clean clay/soil cover and 6 inches of topsoil and seed.

- A second soil cover system was placed in Area 3, which is comprised of clean fill from the bottom of the excavation area to approximately 6 inches below grade and 6 inches of topsoil and seed.

- A perimeter drainage swale consisting of vegetated waterways and riprap, which was installed along the north, east, and portions of the south side of the Area 1B soil cover system area to accommodate runoff.

3.3 IC/EC Plan Evaluation

The following Plans are applicable at the Site, as outlined in the May 2012 SMP:

- Excavation Work Plan

  The Site has been fully remediated for industrial use to the east of Shore Road and restricted-residential use to the west of Shore Road. Any future intrusive work that will penetrate, encounter or disturb the remaining contamination, and any modifications or repairs to the existing soil cover system, will be performed in compliance with the Excavation Work Plan (EWP) which was provided as an Appendix to the May 2012 SMP. Intrusive construction work must also be conducted in accordance with a Health and Safety Plan (HASP) and Community Air Monitoring Plan (CAMP) prepared for the Site, which shall be prepared by the contractor performing the excavation work in accordance with DER-10, 29 CFR 1910, 29 CFR 1926, and all other applicable Federal, State and local regulations.

  No excavation work was conducted at the Site during the reporting period. As a result, the EWP did not require implementation or modification. However, a limited soil sampling program was completed at the Site on February 23, 2016 to characterize fill material existing in Areas 1A and 1B. All work was completed in accordance with a Department-approved Work Plan with National Grid oversight. One soil sample was collected in Area 1A and four soil samples were collected in Area 1B. The soil samples were collected utilizing a hand auger to a depth of five feet below grade. The hand auger was decontaminated between sampling locations. Following the collection of the soil samples, the borehole in Area 1A was backfilled with soil generated during the boring process, while the four boreholes in Area 1B were backfilled with bentonite.

- Soil Vapor Intrusion Evaluation

  Prior to the construction of any new enclosed structures on the Area 1 part of the Site property, a soil vapor intrusion (SVI) evaluation will be performed to determine whether any mitigation measures are necessary to eliminate potential exposure to vapors in the proposed structure. The requirements for the SVI evaluation are specified in the May 2012 SMP.

No construction of enclosed structures on the Area 1 part of the Site were completed or planned for completion during the reporting period. As a result, a SVI evaluation was not required during the reporting period.

- Contingency Plan

  The May 2012 SMP includes a Contingency Plan to respond to emergencies including injury to personnel, fire or explosion, environmental release, or serious weather conditions. In the event of any emergency, the procedures detailed in the Contingency Plan Section of the SMP will be followed.

  No emergencies occurred during the reporting period that required implementation or modification of the Contingency Plan.

- Corrective Measures Plan

  If any component of the remedy is found to be compromised, or if the periodic certification cannot be provided due to an issue with an institutional or engineering control, a Corrective Measures Plan will be submitted to the NYSDEC for approval. This plan will explain the failure and provide the details and schedule for performing work necessary to correct the failure. Unless an emergency condition exists, no work will be performed pursuant to the Corrective Measures Plan until it is approved by the NYSDEC.

  As no component of the remedy was found to be compromised during the reporting period, a Corrective Measures Plan was not required.

3.4 Change of Use Compliance

Relative to areas of the Site covered by the SMP, notifications will be submitted by the property owner to the NYSDEC as needed for the following reasons:

- 60-day advance notice of any proposed changes in Site use that are required under the terms of the Voluntary Cleanup Agreement (VCA), 6 NYCRR Part 375, and/or Environmental Conservation Law.

- 15-day advance notice of any proposed ground-intrusive activities pursuant to the Excavation Work Plan.

- Notice within 2 business days (48 hours) of any damage or defect to the foundations structures that reduces or has the potential to reduce the effectiveness of other Engineering Controls and likewise any action to be taken to mitigate the damage or defect.

- Notice within 2 business days (48 hours) of any emergency, such as a fire, flood, or earthquake that reduces or has the potential to reduce the effectiveness of Engineering Controls in place at the Site, including a summary of actions taken, or to be taken, and the potential impact to the environment and the public.

- Follow-up status reports on actions taken to respond to any emergency event requiring ongoing responsive action shall be submitted to the NYSDEC within 45 days and shall describe and document actions taken to restore the effectiveness of the ECs.

Any change in the ownership of the Site or the responsibility for implementing the May 2012 SMP will include the following notifications:

- At least 60 days prior to the change, the NYSDEC will be notified in writing of the proposed change. This will include a certification that the prospective purchaser has been provided with a copy of the VCA, and all approved work plans, reports, and the SMP.

- Within 15 days after the transfer of all or part of the Site, the new owner's name, contact representative, and contact information will be confirmed in writing.

4.0 MONITORING PLAN COMPLIANCE

This section of the PRR provides a summary of the components of the monitoring plan specified in the May 2012 SMP and includes a statement regarding compliance with the components of the monitoring plan.

4.1 Monitoring Requirements

The monitoring plan included in the May 2012 SMP requires the soil cover systems to be visually observed on an annual basis to ensure they remain in place and have not been disturbed. Disturbances monitored for must include non-backfilled excavations, areas which do not show a uniform stand of vegetative cover or areas which appear to be eroding. When required, repair to soil cover systems will be conducted in accordance with the May 2012 SMP Repair Schedule.

In addition, a site-wide inspection must be performed on an annual basis to compile sufficient information to assess the following:

- Compliance with all ICs, including site usage;
- An evaluation of the condition and continued effectiveness of ECs;
- General site conditions at the time of the inspection;
- The site management activities being conducted including, where appropriate, confirmation sampling and a health and safety inspection;
- Confirm that site records are up to date.

Annual monitoring of the performance of the remedy will be conducted for the first 5 years, unless a less frequent schedule is otherwise approved by the NYSDEC. After 5 years, the monitoring frequency will be reviewed with the NYSDEC to determine any change in frequency. The Monitoring Plan may only be revised with the approval of NYSDEC.

4.2 Monitoring Compliance Status

D&B completed the required site-wide annual inspection, which included visual observation of the soil cover systems, on May 4, 2016. During the May 4, 2016 annual inspection, the soil cover in Area 1B was noted to be in place and no disturbance of the soil cover was observed at the time of inspection. Inspection of Area 1B also included visual observation of the soil cover system perimeter drainage system to ensure nothing is impeding the system and it has not been disturbed. An active generating station is located in Area 3. The surface of the area is covered with blue stone and asphalt roadways. No disturbance of the cover in Area 3 was observed at the time of inspection.

Based on the findings of the IC/EC inspection conducted on May 4, 2016, all institutional and engineering controls appear to remain in-place as specified in the May 2012 SMP for the Site. The Institution Control and Engineering Control (ICEC) inspection form completed during this reporting period is provided in Appendix B.

5.0 OPERATION AND MAINTENANCE (O&M) PLAN COMPLIANCE

As the remedy for this Site involved excavation and removal of contaminated soil followed by the implementation of institutional and engineering controls, there are no remedial systems currently operating at the Site. Therefore, there is no O&M Plan for the Site and this section is not applicable.

6.0 GREEN REMEDIATION/CLIMATE CHANGE RESILIENCE

The remedy for this Site involved excavation and removal of contaminated soil followed by the implementation of institutional and engineering controls. The Site is currently in the Site Management phase, during which the only activities completed at the Site related to the remedy involve inspections to verify compliance with the IC/ECs specified in the May 2012 SMP. As a result, there were no environmental impacts that could affect the "environmental footprint" of the Site during this reporting period. In addition, there are no planned remedial activities that could negatively impact the environment. The remedial system at the Site does not consume energy, water or materials and produces no "greenhouse" gasses or wastes.

7.0 COST EVALUATION

As the remedy for this Site involved excavation and removal of contaminated soil followed by the implementation of institutional and engineering controls, routine on-going costs associated with implementation of the remedy include engineering support to complete the required site-wide annual inspection, which includes visual observation of the soil cover systems in place at the Site, and preparation of this PRR. If the site-wide annual inspection determines that a component of the remedy (i.e., soil cover) has been compromised, or if National Grid elects to make material changes to the facility that will affect the Deed Restriction or remaining contamination, costs beyond this engineering support will be incurred. Neither of these events occurred during the reporting period.

As a result, the total cost of site management for the reporting period, which included the above referenced engineering support, was approximately $11,000.

8.0 SITE CLOSEOUT

The remedy for the Site involved excavation and removal of contaminated soil followed by the implementation of institutional and engineering controls. In accordance with the May 2012 SMP, annual monitoring of the performance of the remedy will be conducted for the first 5 years, unless a less frequent schedule is otherwise approved by the NYSDEC. The reporting period for this PRR covers the fourth of the required 5 years of monitoring. After the first 5 years, the monitoring frequency will be reviewed with the NYSDEC to determine any change in frequency.

9.0 CONCLUSIONS AND RECOMMENDATIONS

The remedy for the Site involved excavation and removal of contaminated soil followed by the implementation of institutional and engineering controls. The Site is currently in the site management phase of the overall remedial process. Site management activities involve routine inspections to confirm that all institutional and engineering controls implemented for the Site remain in place and are effective. Based on the evaluation of the performance, effectiveness and protectiveness of the remedy during the current reporting period, and as detailed in the preceding sections, all institutional and engineering controls appear to be in place as specified in the May 2012 Site Management Plan for the Site.

It is recommended that site management continue per the May 2012 Site Management Plan. After the next site inspection in May 2017, the monitoring frequency can be reviewed to determine if any changes in frequency are warranted.

10.0 CERTIFICATION

For each institutional or engineering control identified for the site, I certify that all of the following statements are true:

a) The institutional control and/or engineering control employed at this site is unchanged from the date the control was put in place, or last approved by DER;

b) Nothing has occurred that would impair the ability of such control to protect public health and the environment;

c) Nothing has occurred that would constitute a violation or failure to comply with any Site Management Plan of this control; and

d) Access to the site will continue to be provided to DER to evaluate the remedy, including access to evaluate the continued maintenance of this control.

Independent Professional Engineer

Signature: Brian Veith

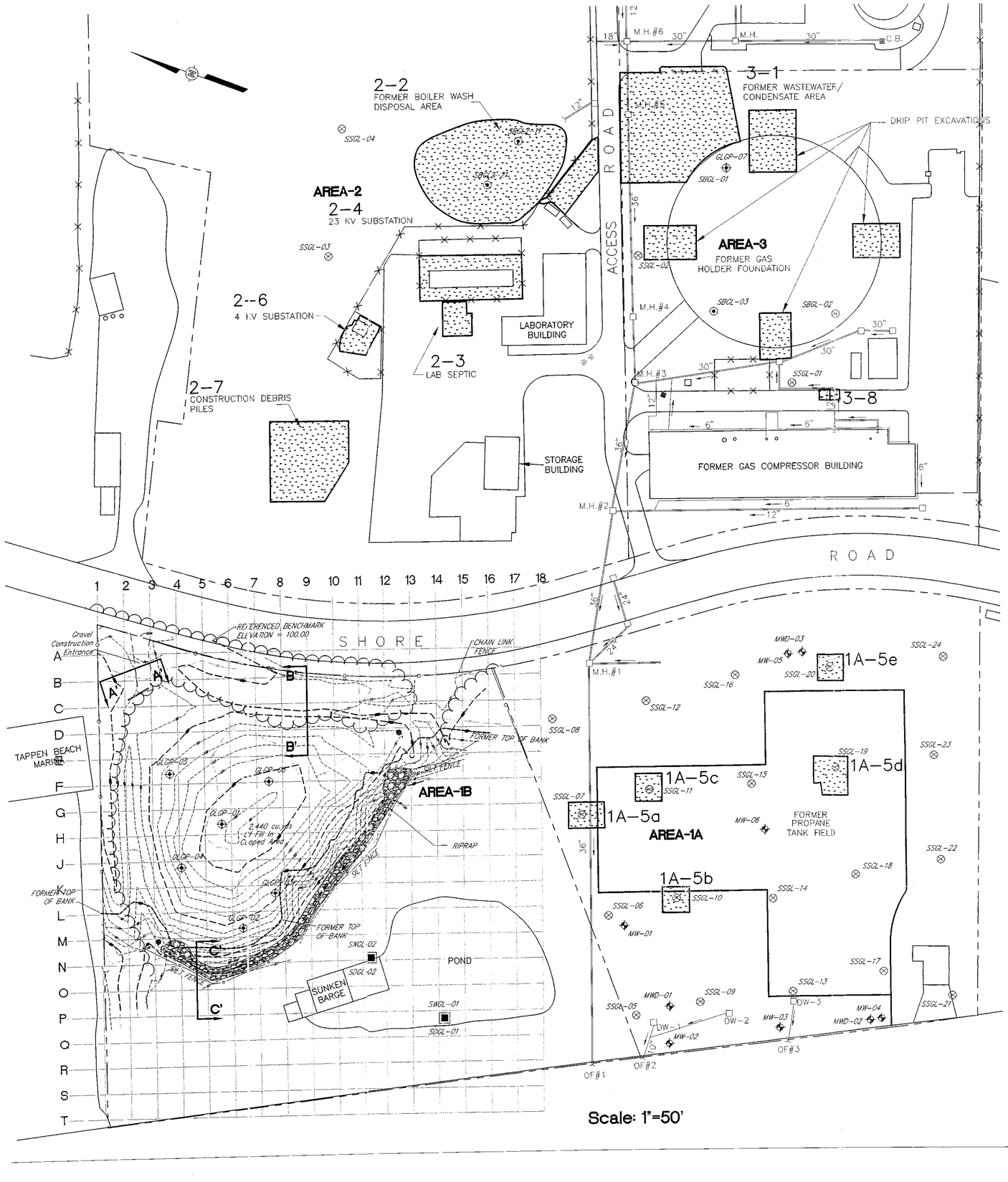
Name: Brian M. Veith

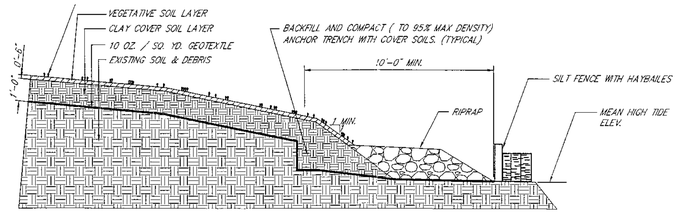
Title: Senior Vice President

Date: June 13, 2016

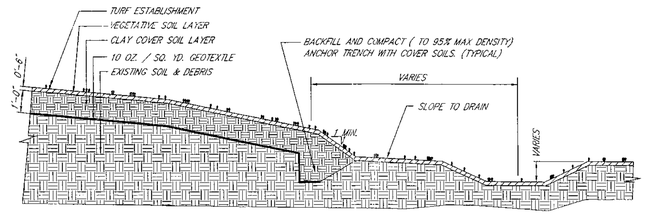
APPENDIX A

AS-BUILT DRAWING

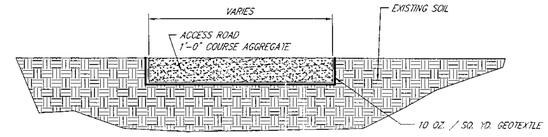




TYPICAL COVER AND TRENCH DETAIL SECTION 'C-C' (Not To Scale)



TYPICAL COVER AND TRENCH DETAIL SECTION 'B-B' (Not To Scale)



TYPICAL GRAVEL ACCESS ROAD DETAIL SECTION 'A-A' (Not To Scale)

PROPOSED EXCAVATION VOLUMES				ACTUAL EXCAVATION VOLUMES		
AREA	AREA(FT.)	DEPTH (FT)	VOL.(C.Y.)	AREA(FT.)	DEPTH (FT)	VOL.(C.Y.)
AREA 1A-5 HOT SPOTS	25'x25' (5)	1'	120	25'x25' (3) 35'x35' (2)	1' 1'	161
AREA 2-2 FORMER BOILER WASH DISPOSAL AREA	90'x 100'	8'	2670	90'x 145'	8'	3867
AREA 2-3 LAB SEPTIC	30'x 20'	8'	180	34'x 20'	8'	180
AREA 2-4 23 KV SUBSTATION	25'x 70'	2'	105	200'x 12' 15'x 18'	2' 2'	198
AREA 2-6 4 KV SUBSTATION	35'x 25'	2'	65	35'x 25'	2'	65
AREA 2-7 CONSTRUCTION DEBRIS PILES	100'x 40'	5'	740	100'x 40'	5'	740
AREA 3-1 FORMER WASTEWATER/ CONDENSATE AREA	100'x90'	8'	2670	100'x90'	8'	2670
AREA 3-8 COMP. BLDG./GAS HOLDER	10'x 10'	2'	8	20'x 10'	2'	15

EXCAVATION AREAS

Proposed Remedial Action Objectives For Soils in Areas 1, 2, and 3 (mg/kg)	
Analyte	Objective
Benzo(a)anthracene	1
Benzo(b)fluoranthene	1
Benzo(a)pyrene	0.1
Indeno (1,2,3-cd)pyrene	1
Benzo(g,h,i)perylene	310
Dibenzo(a,h)anthracene	0.1
Arsenic	20
Lead	400
Vanadium	500
PCBs	2

Response actions should meet the designated values to the Groundwater Interface.

VHB
Vanasse Hangen Brustlin, Inc.
Transportation
Land Development
Environmental Services
54 Tuttle Place
Middletown, Connecticut 06457
860 632 1500 • FAX 860 632 7879

LEGEND

- MONITORING WELL
- SOIL BORING
- SURFACE SOIL SAMPLE
- GEOPROBE SAMPLE
- SURFACE WATER/SEDIMENT SAMPLE
- M.H. MANHOLE
- DW DRYWELL
- OF OUTFALL
- C.B. CATCH BASIN
- AS-BUILT MINOR CONTOUR
- AS-BUILT MAJOR CONTOUR
- FORMER MINOR CONTOUR
- FORMER MAJOR CONTOUR
- FORMER TOP OF BANK
- TREE/BRUSH LINE
- RIPRAP

	Revision	Date	Appvd.
1	Add Notes	8/19/03	MJW

Designed by DKH | Drawn by RCA | Checked by DKH
CAD checked by RCA | Approved by MJW
Scale As Noted | Date March, 2003
Project Title

Glenwood Landing
Gas Plant Site
Glenwood Landing, New York
Issued for

KEYSPAN ENERGY

Drawing Title

SITE PLAN

Drawing Number
1-2
Sheet 1 of 1
Project Number
06392-26

J:\06392\cad\xrf\Glenwood\GW_remedial_action_plan.dwg 09/30/2003 11:52:16 AM EDT

GW_REMEDIAL_ACTION_PLAN.dwg

APPENDIX B

INSTITUTIONAL AND ENGINEERING CONTROL INSPECTION FORM

INSTITUTIONAL AND ENGINEERING CONTROL INSPECTION FORM

I. Site Background Information

A. Site Name and Location:

Site name as it appears on the Environmental Easement: Glenwood Gas Plant -Parcel 177

Name of the current property owner(s): National Grid

Site Street Address: Glenwood Landing,Nassau County, New York

Municipality (-ies): Town of Oyster Bay County (-ies): Nassau

Blocks: F and M

Lots: F: 4, 9 and 1947. M: 35, 36, 516, 585, 596 and 597.

Source information obtained from: National Grid Engineering & Survey, Inc.

B. Person responsible for preparing Institutional and Engineering Control Evaluation Form:

Person's Name: Matthew DeVinney, P.E.

Person's Title: Senior Associate

Company Name: D&B Engineers and Architects, P.C.

Relationship to the Site (check as appropriate): Owner _____ Operator_____

Lessee _____ Person Who Conducted the Cleanup _____
Other (describe) Environmental Consultant

Street Address: 330 Crossways Park Drive

City: Woodbury State: New York

Telephone Number: (516) 3649890

Fax Number: (516) 3649045

E-mail Address: mdevinney@db-eng.com

C. Case Specific Information (**Complete all that apply**)

- Site Name: Glenwood Landing Former Gas Plant Site
- Site Registry Number: VCA No. R1-0001-01-01, V00351
- Date of final Remediation Report and/or Certificate of Completion: May 15, 2012
- Name and program of assigned Project Manager at issuance of Environmental Easement:
  Zachary Russo, Division of Environmental Remediation

D. Existing Site Conditions

- Describe the physical characteristics of the site (features, topography, drainage, vegetation, access, etc.). If necessary, attach additional sheets.

Area 1A: Vacant lot with locking gate, sparsely vegetated area, west of generating station across Shore Road. **Area 1B**: Vacant lot with locking gate, overgrown vegetated area, west of generating station across Shore Road. **Area 2-2**: Overgrown vegetated area, fenced in within generating station property that has locking gates and security. **Area 2-3**: Gravel parking area, within generating station property that has locking gates and security. **Area 2-4**: 23 KV Substation with blue stone covering the surface, fenced in within generating station property that has locking gates and security. **Area 2-6**: 4 KV Substation with blue stone covering the surface, fenced in within generating station property that has locking gates and security. **Area 2-7**: Overgrown vegetated area, fenced in within generating station property that has locking gates and security. **Area 3**: Active generating station with blue stone covering the surface and asphalt roadways, within generating station property that has locking gates and security. See attached photographic log.

- Describe the current site operations/use. If necessary, attach additional sheets.

The site is currently used as an active generating station. Two substations, support and administrative buildings are also located at the Site, which is completely fenced with locking gates and manned security. The two areas west of Shore Road are vacant and are provided with locking gates.

- Describe visual integrity/condition engineering control. If necessary, attach additional sheets.

Engineering controls consist of soil covers in Area 1B and Area 3. In Area 1B the soil cover was noted to be in place, which consists of geotextile, clay/soil cover, topsoil and seed. The area was overgrown with vegetation. No disturbance of the soil cover was observed at the time of inspection. An active generating station is located in Area 3. The surface of the area is covered with blue stone and asphalt roadways. No disturbance of the cover was observed at the time of inspection.

It should be noted that the lock on the access gate for Area 1B was not able to be opened at the time of D&B's inspection. However, this area could be observed through the chain-link security fence surrounding the area.

II. Protectiveness Evaluation

A. Environmental Easement and Engineering Control Information (Complete below)

- Provide the following information for the recorded Environmental Easement:

  Book Number: Liber D 12804

  Page Number: 723 through 737 and 738 through 758

  Date the date the Environmental Easement was filed in the office of the county recording officer: February 24, 2012

- Have any amendments and/or additional filings been recorded that may modify or supersede the Environmental Easement?

Yes ____ No __X__

If "Yes", provide an explanation. If necessary, attach additional sheets.

_____

_____

_____

_____

_____

B. Evaluation of Institutional and Engineering Controls

1. Zoning or Land Use Changes (Complete below)

a. Land use at the time the Environmental Easement was filed (check all that apply):

Non-Residential __X__ Residential _____ Agricultural _____ Other __X__

b. Current land use (check all that apply):

Non-Residential __X__ Residential _____ Agricultural _____ Other __X__

c. Has there been an actual or pending zoning or land-use change?

Yes ____ No __X__

2. Inspections (Complete below)

Have periodic inspections of the site identified any excavation or other disturbance activities that have taken place within the restricted areas?

Yes____No__X__

Date(s) of Disturbance: _____

Duration of Disturbance: Years ____ Months ____ Days ____

Date the NYSDEC was notified: _____

Date Work Plan Approved: _____

Description of the disturbance and methods to address the disturbance. If necessary, attach additional sheets.

_____

_____

_____

Name of Contact Person Relative to the Disturbance:

_____

Title: _____

Street Address: _____

City: _____ State: _____ Zip Code: _____

Telephone Number: _____

Email Address: _____

3. Changes to Laws and Regulations (Complete below)

a. Are there any subsequently promulgated or modified environmental laws or regulations, which apply to the site?

Yes ____No __X__

b. If "Yes", has the evaluation also determined that the Environmental Easement and engineering control, as applicable, meets the requirements of the new laws and regulations?

Yes____No_____

c. The Environmental Easement and engineering control, as applicable that did not meet the requirements of the new laws and regulations has been addressed in the following manner to bring them into compliance. If necessary, attach additional sheets.

N/A

_____

_____

_____

View of Areas 2-3 and 2-4 from the west.

View of Area 1A looking south.

View of Area 3 looking south.

View of Area 1B looking west.

View of Area 3 looking east.

View of Area 2-6 looking north.