Appendix E

Construction Plan

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Construction Plan

Dewey Loeffel Landfill Superfund Site
Nassau, New York

February 13, 2013

Construction Plan

Dewey Loeffel Landfill
Superfund Site
Nassau, New York

Prepared by:

ARCADIS, U.S., Inc.
6723 Towpath Road
Syracuse
New York 13214-0066
Tel 315.446.9120
Fax 315.446.5807

Our Ref.:
B0031174

Date:
February 13, 2013

ARCADIS

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Attachment

1. Introduction

This Construction Plan has been prepared to describe the procedures to be followed during construction of the proposed treatment system at the Dewey Loeffel Landfill Superfund Site located in the Town of Nassau, Rensselaer County, New York (site). The work described herein is being completed pursuant to the Administrative Settlement Agreement and Order on Consent for a Removal Action (CERCLA Index No. 02-2012-2005) (Consent Order) executed by the United States Environmental Protection Agency (USEPA), General Electric Company (GE), and SI Group, Inc. (SI Group). (GE and SI Group are referred to herein as Respondents.)

This Construction Plan has been prepared to describe the following:

- Construction quality assurance/construction quality control (CQA/CQC) activities;
- Procedures for assessing and handling spoil materials during construction and equipment decontamination;
- Schedule for construction activities; and
- Construction notifications, inspections and reporting.

1.1 Location and Description

The Dewey Loeffel Landfill (landfill) is located along the south side at 350 Mead Road between Nassau-Averill Park Road and Central Nassau Road. A map showing the location of the landfill and surrounding area is presented on Figure 1. Key features are presented on Figure 2.

The capped area of the landfill is roughly triangular in shape and situated in a low-lying area between two wooded hills. The landfill is bound to the north by Mead Road, and to the south, west and east by undeveloped forested land. The rural area surrounding the landfill is sparsely populated and contains few residential properties and a bowhunter's club lodge.

Topography in the area generally slopes downward from east to west. Surface water at the landfill mostly drains to the west toward the Valatie Kill via Tributary T11A. The Valatie Kill flows in a southwesterly direction to Nassau Lake, located approximately three miles downstream. Surface water from a portion of the landfill flows to the south into a small unnamed tributary which discharges into Valley Stream and ultimately Nassau Lake.

The hydraulic gradient of groundwater in overburden soils in the vicinity of the landfill is generally to the west and/or southwest. The hydraulic gradient of groundwater in the bedrock is similar. However, based on the distribution of volatile organic compounds (VOCs) in a groundwater contaminant plume emanating from the landfill to the south, bedrock groundwater flows primarily to the south due to the influence of fractures within the bedrock.

1.2 History

As described in the Consent Order, from approximately 1952 to 1968, the landfill was owned and operated by several companies including the Loeffel Waste Oil and Removal Service Company (Loeffel Companies) as a waste disposal facility. During this time, the landfill consisted of two waste lagoons located in the western and central portions of the landfill, a 6-foot deep oil pit in the east central portion of the landfill, four 30,000 gallon aboveground storage tanks, and a drum disposal area located in the southeastern portion of the landfill.

Landfill disposal operations reportedly ceased in 1968 by order of the State of New York. Between 1970 and 1975, remedial actions undertaken by the Loeffel Companies included covering and grading the drum disposal area, oil pit and lagoons, and constructing a system of drainage ditches around the landfill. From 1974 to 1980, the Loeffel Companies reportedly also operated a waste oil transfer station utilizing the four 30,000 gallon aboveground storage tanks.

On September 23, 1980, GE entered into an agreement with the New York State Department of Environmental Conservation (NYSDEC) which required GE to perform field investigations, submit an engineering report which discussed the collected data, identify remedial alternatives, and recommend a remedial alternative. A remedy was subsequently selected by NYSDEC and involved the installation of soil-bentonite cutoff wall around the landfill, an overlying clay cap, and a landfill leachate collection system below the cap within the cutoff wall. The design of the remedy was performed by GE and approved by NYSDEC. The remedy was subsequently implemented by NYSDEC using funding provided by GE, Schenectady Chemicals, Inc. (now SI Group), and Bendix Corporation (now Honeywell International, Inc.). Beginning in 1983, NYSDEC and/or GE performed a variety of response actions at the site, some of which were performed in accordance with Records of Decision (RODs) issued by NYSDEC in January 2001 and January 2002. The response actions included, but were not limited to, the following:

- Installation and operation of a bedrock groundwater recovery well system involving three extraction wells located to the south of the landfill;

- Transportation of landfill leachate and groundwater for off-site treatment;

- Installation, operation, maintenance and monitoring of point-of-use treatment systems for five residential wells (located on four properties) to remove VOCs;
- Routine VOC monitoring of other residential wells located near the landfill; and
- Routine monitoring of many groundwater monitoring wells located outside the landfill's perimeter fence.

The current groundwater extraction system designed and constructed by NYSDEC is located along the approximate centerline of the VOC plume to the south of the landfill and includes three bedrock extraction wells (designated EW-1, EW-2 and EW-3, see Figure 2). Beginning in late March 2008 and through 2010, NYSDEC extracted groundwater from these three extraction wells on a seasonal basis, operating during the spring, summer, and fall months. Along with leachate from the landfill, extracted groundwater was transported for off-site treatment and disposal. NYSDEC transported landfill leachate for off-site treatment and disposal each year since 1991 with the exception of 1994. NYSDEC continued operation of the landfill leachate collection system through October 2011. Operation of the groundwater extraction system by NYSDEC did not resume after shutdown in the fall of 2010 until July 2011.

At the request of NYSDEC, USEPA proposed the site for inclusion on the National Priorities List (NPL) on March 4, 2010. The site was subsequently added to the NPL on March 10, 2011.

USEPA subsequently took over operation of the landfill leachate collection system and the groundwater extraction system to the south of the landfill on October 31, 2011. USEPA winterized the system, allowing groundwater extraction to continue during the winter months.

Pursuant to the Consent Order, GE and SI Group assumed responsibility from USEPA for continued operation and maintenance of the on-site leachate collection system and the off-site groundwater extraction system. The transition from USEPA to the Respondents occurred on August 1, 2012, and the first transportation of leachate and extracted groundwater by the Respondents occurred on August 2, 2012. The leachate and extracted groundwater will continue to be transported for off-site treatment and disposal until such time as an off-site treatment system is designed, constructed and approved for operation. Pursuant to the Consent Order, GE and SI Group will design and construct the treatment system to treat landfill leachate and extracted groundwater. Upon USEPA approval that the treatment system discharge meets the effluent discharge limits set under the Consent Order, routine transportation of leachate and extracted groundwater for off-site treatment will cease.

2. Construction Quality Assurance and Control

The CQA/CQC activities are described in the Construction Quality Assurance Plan (CQAP) provided as Attachment A. The CQAP covers the following:

- Site inspections/reviews and data management during construction;
- CQA/CQC requirements for major components of the proposed treatment system (i.e., trenches, concrete, process equipment, and electrical equipment and controls) including installation, inspections, and testing requirements;
- Documentation of construction activities; and
- Preparation of post-construction (aka as-built or record) drawings.

Construction monitoring will include submittal review, periodic project meetings, and site observation. Among the routine project meetings will be a pre-construction meeting and progress and coordination meetings, which depending on the nature of construction activities, may be weekly or biweekly and be conducted at the site or via conference call. Daily meetings will also be held at the site at the beginning of each work day to discuss planned activities, schedule, changed conditions, health and safety issues, coordination issues, and general project status.

Representative photographs of significant project features and progress will be taken during on-going site inspections. The installation, testing, and start-up of the proposed treatment system will be performed in accordance with the Contract Drawings and the Material and Performance Specifications included as Appendices C and D, respectively, of the Design Report/Implementation Plan (DR/IP). The materials used to construct the treatment building concrete slab (e.g., forms, steel reinforcement, concrete, etc.) will be visually examined to confirm conformance with the DR/IP. Testing of the concrete will be performed by an independent testing firm.

For individual process components, specifications are provided in the DR/IP and installation/start-up instructions will be provided by the manufacturers. Pressure testing will be completed on all pressure piping. Electrical and control equipment will be provided and installed in accordance with the configuration shown on the Contract Drawings and the Material and Performance Specifications included as Appendices C and D, respectively, of the DR/IP.

Prior to completion of construction, a pre-final inspection will be conducted by the Respondents' representative(s). The pre-final inspection will consist of a walk-through of the site to determine the completeness of the construction and its consistency with the design contained in the DR/IP.

Following the pre-final inspection, a punch list of items to be completed may be prepared or it may be determined that construction is complete. If a punch list is developed, a schedule to complete these items will be prepared. A final inspection will be conducted by the Respondents' representative(s) to confirm that the punch list items are completed.

Following final inspection, Respondents will notify USEPA that construction is complete. In accordance with Paragraph 54 of the Consent Order, USEPA representatives will conduct an on-site inspection of the system.

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3. Spoil Materials and Equipment Decontamination

The section covers sampling, analysis and potential disposal of spoil materials. Additionally, decontamination of equipment is discussed. A supporting document to this section is the Transportation and Disposal (T&D) Plan conditionally approved by USEPA.

3.1 Sampling of Excavated Spoil Material

The Preliminary Design Plan (PDP) conditionally approved by USEPA included two geotechnical borings that were performed in the treatment building area on September 27, 2012 to confirm the foundation design. In response to a July 3, 2012 comment from USEPA on the PDP, soil samples were collected and analyzed for USEPA Contract Laboratory Program (CLP) Target Compound List (TCL) and Target Analyte List (TAL) parameters. Based on a comment in USEPA's September 5, 2012 letter conditionally approving the revised PDP, no update to the USEPA approved Quality Assurance Project Plan (QAPP) was required. However, based upon discussions during a September 17, 2012 conference call, QAPP Addendum No. 2 was provided to USEPA on September 24, 2012.

At each geotechnical boring location, samples were collected from the 6- to 12-inch interval and analyzed for VOCs. Samples were also collected from the 0- to 24-inch interval, homogenized, placed into sample containers, and analyzed for semi-volatile organic compounds (SVOCs), polychlorinated biphenyls (PCBs), pesticides, TAL metals and mercury. At one of the two boring locations, a sample was collected from the 8- to 10-feet interval, homogenized, placed into a sample container, and analyzed for PCBs.

The results of the soil sampling were presented in the Preliminary Design Data Report (PDDR). In summary, the concentration of all VOCs, SVOCs, PCBs and pesticides were below method detection limits (MDLs) at one of the two geotechnical borings. Similarly, the concentrations of all VOCs and PCBs were below the MDLs at the second boring. All SVOC concentrations at the second boring were below MDLs except for a low detection of bis(2-chloroethyl) ether, and all pesticides were below MDLs except for low detections of P,P-DDE and beta-BHC.

On behalf of USEPA, split samples were also collected at one of the two geotechnical borings and provided to USEPA for its analysis. Notably, no PCBs were detected in the two split samples analyzed for PCBs. No VOCs were detected in one of the two split samples analyzed for VOCs. In the other split sample, the only VOCs detected were low concentrations of acetone, methyl acetate, and 2-butanone along with a non-standard analyte (furfurol). No VOCs were detected in the primary samples, and the detection of these four VOCs in one of the two split samples analyzed for VOCs is not attributed to the site. In addition, acetone and 2-butanone are recognized as common laboratory

artifacts. No SVOCs were detected in one of the two split samples analyzed for SVOCs. In the other split sample, the only SVOCs detected were seven non-standard analytes.

In summary, the analytical results from the soil borings in the treatment building area confirmed that spoils from this area can be used as backfill or general fill as needed. Any spoil material not used for backfill will be spread out, graded and vegetated in the immediate vicinity of the treatment building.

Prior to the initiation of trenching at the site, sampling and analysis of potential spoil material associated with that activity will be conducted in accordance QAPP Addendum No. 2. The specific procedures are outlined below.

- Five borings, approximately 250 feet apart, will be completed along the trench route closest to but outside the perimeter fence on the southwestern side of the landfill as shown on Figure 2. One boring will be completed near the new treatment building area with a second boring completed near new extraction well EW-4, which is by the southern end of the landfill. The three remaining borings will be spaced equidistantly along the trench route in between these two borings. Because these borings are closest to the landfill, they represent the potential worst-case conditions compared to the lateral trenches farther away from the landfill on dirt trails or in wooded areas.

- At each boring location, samples will be collected using a clean disposable stainless steel trowel/scoop from the 6- to 12-inch interval and analyzed for VOCs.

- At each boring location, samples will be collected from the 0- to 5-feet interval (but excluding any surface organic material), homogenized, placed into sample containers and analyzed for the following CLP TCL and TAL parameters: SVOCs; PCBs; pesticides; TAL metals including mercury.

- Samples from the borings will be collected using clean disposable equipment such as a stainless steel trowel/scoop, Macro-Core sampling device with liner, Lexan tubing or hand auger.

- One blind field duplicate sample for VOCs and PCBs along with a trip blank for VOCs will be analyzed for quality assurance/quality control (QA/QC) purposes.

- While not expected to be necessary because clean disposable equipment including liners will be used, portions of the sampling equipment that contact the soil will be decontaminated between sample locations using Alconox solution followed by de-ionized (DI) water. These will be applied using towels to eliminate water waste generation. If decontamination is

required prior to sample collection at a specific location, a field rinse blank will be collected for QA/QC purposes and analyzed for the same parameters planned for that sample location.

3.2 Disposition of Spoil from Trench Excavations

Trenches will be backfilled with spoil material when possible. Spoil will be inspected prior to use. Soil that is free of rock or gravel larger than 1.5 inches in any dimension will be allowable for trench backfill within 6 inches of a pipe or conduit. Spoil with rock or gravel larger than 1.5 inches will be allowable for use farther than 6 inches from all buried pipe or conduit. Excess spoil material will be used as general fill along the trench route or in the treatment building area. Any spoil material that cannot be used for the above-described purposes, either due to physical characteristics or the results of sampling described in Section 3.1, will be characterized as necessary for profile approval, and then transported off-site for disposal at a permitted facility in accordance with the T&D Plan conditionally approved by USEPA.

3.3 Equipment Decontamination

Equipment decontamination procedures will be used during excavation activities so that potential contaminants are not brought onto or off the site. Equipment which will come into contact with subsurface soil will undergo the initial cleaning process. All equipment which will come into contact with subsurface soil will again undergo the cleaning process prior to leaving the site. The cleaning process will involve the use of a high-pressure steam cleaner that utilizes clean water. The decontamination water generated during this cleaning will be collected and transported to the landfill where it will be transferred to one of the two on-site frac tanks located in the pole barn. This water, along with groundwater, will then be transferred into tanker trucks for off-site transport, treatment, and disposal in accordance with the T&D Plan conditionally approved by USEPA.

4. Construction Schedule

The construction schedule discussed in this section is based on the preliminary construction schedule provided in Appendix K of the DR/IP. With the goal of eliminating the ongoing trucking operations by October 31, 2013, in parallel with USEPA approval of the DR/IP, Respondents intend to conduct procurement activities associated with the long-lead equipment (i.e., treatment system building structure, fixed-film bioreactor, and air stripper) and key contractor(s)/subcontractor(s) in parallel with USEPA's review of the DR/IP. These procurement activities will include bid preparation, bid solicitation, bid review, and selection. Once key contractor(s)/subcontractor(s) are selected, Respondents will submit information on these firms to USEPA for approval in accordance with the Consent Order. Insurance certificates will also be submitted to USEPA for approval.

Additionally, Respondents will submit revised supporting documents to USEPA for use during implementation of the DR/IP. These include the Health and Safety Plan (HASP), QAPP, and T&D Plan. Respondents plan to submit the revised supporting documents to USEPA on or before April 17, 2013.

Respondents are proposing that USEPA review and approve the DR/IP in two phases, the first phase focusing on construction-related portions of the DR/IP and the second phase focusing on the remainder of the DR/IP and the revised supporting documents. For the purpose of this schedule, USEPA approval or conditional approval of the construction-related portions of the DR/IP is assumed to be April 15, 2013. All subsequent tasks are based on this assumed approval date. Respondents will begin construction within seven days of this approval, provided the necessary procurement activities have been completed and USEPA has also approved the key contractor(s)/subcontractor(s).

4.1 Treatment System Construction

As shown on the preliminary schedule in Appendix K of the DR/IP, construction is expected to last approximately five months from the beginning of construction through the initiation of start-up. Construction activities will begin with installation of the treatment building foundation and conveyance piping. Then, the building structure will be erected and mechanical installation for the three existing extraction wells EW-1, EW-2, and EW-3 will be completed as much as possible without interrupting their operation.

However, a vault with piping and valves, located just southwest of the southern tip of the landfill as shown on Figure 2, will need to be installed to allow pump and truck operations to continue in parallel with the remaining construction activities. This installation will require a relatively brief shutdown

(e.g., less than five days) of the three existing extraction wells. Leachate removal from the leachate collection tank will not be impacted by the installation of this vault and associated appurtenances.

Once the treatment building structure is in place, equipment delivery and installation will begin. Construction will be complete following installation of mechanical, electrical, and control systems in the treatment building and at the extraction wells.

Single-phase power is available from National Grid on Mead Road near the landfill. A new 480 volt transformer is required to supply a 400 ampere service to the treatment building. In order to power the well pumps and treatment equipment located in the treatment building, step-down transformers will be installed to provide 240 volt single-phase service. National Grid has two easements in place to install the three necessary utility poles and transformer for this project, and this will be performed by National Grid prior to or during construction of the treatment system.

4.2 Treatment System Start-Up

At the conclusion of construction, preliminary start-up activities will be conducted in accordance with the Start-Up Plan included as Appendix H of the DR/IP. The first step will be to prove the functionality of each component in the treatment system prior to the clean water start-up. Testing will be completed to verify that all instrumentation and associated inputs/outputs (I/O) at the extraction wells, leachate collection tank, and treatment system are functioning properly. Filtration media (e.g., pressure filters, vapor- and liquid-phase granular activated carbon [GAC], and vapor-phase potassium permanganate zeolite [PPZ]) will also be checked to verify that the appropriate vessels and the units have been properly prepared to receive water or vapor. The mechanical commissioning portion of the preliminary start-up activities will serve to verify that all tanks, treatment units, pumps, piping, valves, and instrumentation are installed at the appropriate locations in the proposed treatment system. This process will also verify that all valves are in the proper operating position to allow water to flow through the system as intended.

Following successful completion of the preliminary start-up activities, a clean water system start-up will occur at the treatment system. The main objectives of the clean water system start-up are to verify that major equipment is operating in accordance with manufacturers' specifications and control systems are working properly.

Prior to filling any tanks with clean water, the treatment system piping downstream of discharge pumps will be temporarily rerouted to the influent tank using flexible hose to ensure clean water is not discharged from the treatment building. All tanks in the treatment building will be filled with clean water prior to performing the clean water start-up. Clean water trucked in from off-site will be used to fill the tanks so that water from on-site sources is not used at any time during the clean water start-

up. It is not required that all tanks be filled at the same time so some of the water used to fill one tank may subsequently be used to fill another.

The clean water system start-up will consist of operating all equipment and systems in the treatment building. The clean water system start-up will be completed when proper operation of all pumps, control valves, instrumentation, and interlocks has been verified.

As much mechanical and electrical work as possible will be completed in order to minimize any other interruptions to the ongoing pump and truck operations. However, a shutdown of up to two weeks will be required to install and connect new pumps, piping, electrical service, and controls at the three existing extraction wells and the leachate collection tank. This transition work will be done after the clean water start-up is complete to ensure that the treatment system is ready to receive leachate and groundwater. Once the transition is complete, pump and truck operations using the existing frac tanks in the pole barn and leachate transfer station will be discontinued. Any further need for trucking will be performed from the treatment system area.

4.3 New Extraction Well Installation

Additional hydrogeologic investigation activities are planned during installation of the five new extraction wells (EW-4 through EW-8), as discussed in Appendix F of the DR/IP. Thus, the new extraction wells will not be operational and connected to the treatment system until after initial start-up.

5. Notification, Inspection and Reporting

Following successful completion of the clean water start-up, in accordance with Paragraph 54 of the Consent Order, USEPA representatives will be notified to conduct an on-site inspection of the system near the conclusion of system transition. Initial treatment system start-up will begin in accordance with the Start-Up Plan included as Appendix H of the DR/IP.

Oral reports to USEPA will be completed at the end each day of significant field work such as the start or completion of major construction elements (e.g., treatment system foundation and building, conveyance piping, equipment delivery). These oral reports will be made by telephone at the end of the day to USEPA's Remedial Project Manager (RPM [currently Mr. Benedetto Conetta]) and, if not available, a voice message will be left. A follow-up email to document the oral report will be sent no later than the following day.

Weekly and monthly written progress reports will have a similar format to the progress reports that have been and are currently being submitted to USEPA by Respondents. Weekly written progress reports will be prepared and submitted during periods when significant milestones are completed (e.g., treatment system foundation and building, conveyance piping, equipment delivery to the site). During other times monthly written progress reports will be submitted.

Pursuant to Paragraph 63 of the Consent Order, within 30 days of the conclusion of the shakedown period discussed in the Start-Up Plan included as Appendix H of the DR/IP, Respondents will submit to USEPA a Construction Completion Report. The report will include, but not be limited to, post-construction (aka record or as-built) drawings for the treatment system, data collected during the shakedown period, and a final Operation, Maintenance and Monitoring (OM&M) Plan for the system.

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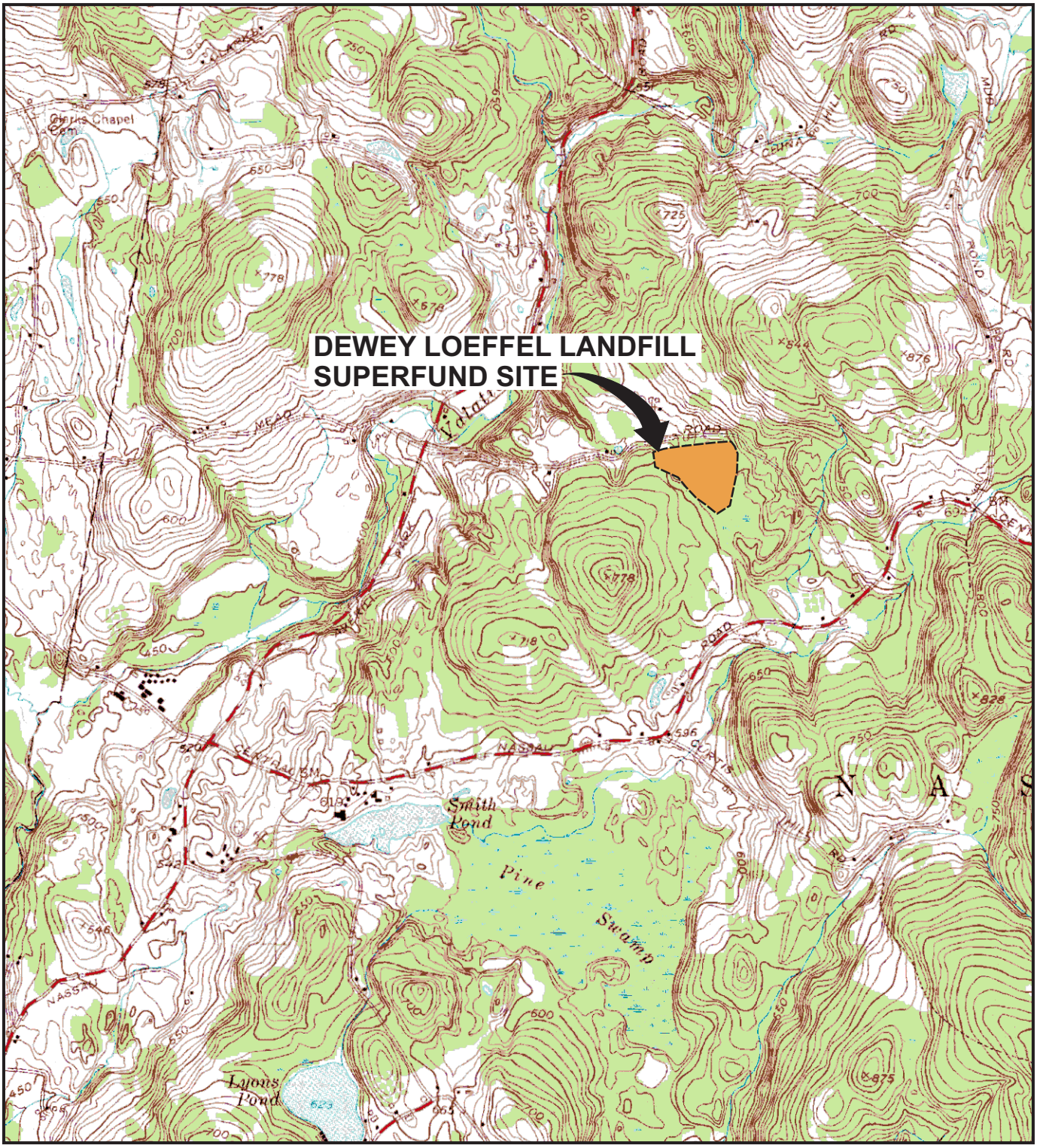
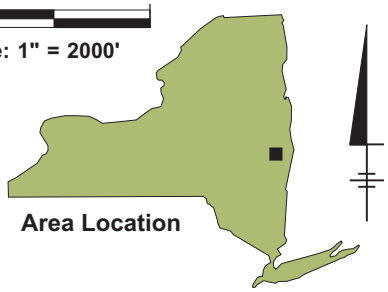
Figures



REFERENCE: BASE MAP USGS 7.5 MIN. QUAD., NASSAU, NY, 1953, PHOTOREVISED 1978.

2000' 0 2000'

Approximate Scale: 1" = 2000'



DEWEY LOEFFEL LANDFILL SUPERFUND SITE
NASSAU, NEW YORK

SITE LOCATION MAP

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FIGURE
1

04/116/2012 SYRACUSE, NY-ENV/CAD-141, DJHOWES
B0031174/0000/00001/CDR/31174N01.CDR

EXISTING UNDERGROUND GROUNDWATER TRANSFER PIPELINE AND CONTROL LINES (TO BE TAKEN OUT OF SERVICE AFTER TREATMENT SYSTEM START-UP)

EXISTING DOUBLE-WALLED FRAC TANKS WITHIN POLE BARN

NEW UNDERGROUND ELECTRICAL AND INSTRUMENTATION LINES

EXISTING ELECTRICAL SERVICE COMPOUND (TO BE TAKEN OUT OF SERVICE)

NEW VALVE VAULT – TIE IN NEW 2"ø SDR 11 X 4"ø SDR 17 DUAL-CONTAINED HDPE FORCEMAINS INTO EXISTING 2" SDR 11 X 4" SDR 17 DUAL-CONTAINED FORCEMAIN

EXISTING SLURRY WALL

EXISTING LEACHATE UNDERGROUND STORAGE TANK

NEW 2"ø SDR 11 X 4"ø SDR 17 DUAL-CONTAINED FORCEMAIN AND LATERALS FOR NEW EXTRACTION WELLS EW-4 THROUGH EW-8

NEW 2"ø SDR 11 X 4"ø SDR 17 DUAL-CONTAINED HDPE FORCEMAINS

NEW ELECTRICAL SERVICE POLE, UTILITY TRANSFORMER, AND METER (TO BE INSTALLED BY NATIONAL GRID)

NEW TREATMENT BUILDING

NEW GRAVEL PAD AND DRIVE

NEW 3"ø SDR 11 HDPE DISCHARGE LINE

TO VALATIE KILL

ROAD

MEAD

WOODED AREA

BRUSH

TRAIL

THE COUNTY OF RENSSELAER (REPUTED OWNER) L. 1372 P. 557 TM 191-5-16.1

ALLAN M. SMITH (REPUTED OWNER) L. 1267 P. 1025 TM 191-5-20

TRI-VILLAGE BOWHUNTERS L. 1696 P. 85 TM 191-5-16.2

ISIDORO MARRA AND GAIL A. MARRA (REPUTED OWNERS) L. 1259 P. 753 TM 191-5-21

OPZ-217, OPZ-104, OPZ-208, OPZ-207, OPZ-110, OPZ-109

OMW-103, OMW-210, OMW-205, OMW-204, OMW-211, OMW-220, OMW-108, OMW-107, OMW-105, OMW-206, OMW-106, OMW-101, OMW-102, OMW-202, OMW-215, OMW-219, OMW-213, OMW-218, OMW-212

GMW-12B, GMW-11B, GMW-11, GMW-11A, GMW-2B, GMW-1C, GMW-1D, GMW-1B, GMW-10B

OMW-209, OMW-214, OMW-215B

EW-1, EW-2, EW-3, EW-4, EW-5, EW-6, EW-7, EW-8

DB-1S, DB-1I, DB-2S, DB-2I, DB-3S, DB-3I, DB-4S, DB-4I, DB-5S, DB-5I, DB-6S, DB-6I, DB-7S, DB-7I, DB-8S, DB-8I, DB-9, DB-9A, DB-9B, DB-9C, DB-11A, DB-11B

OB-1, OB-2, OB-3, OB-4, OB-5, OB-6, PTW-1, PTW-2, PO-1, PO-2, PO-3, PO-4, PB-1, PB-2, PW-1, PW-2, PW-3, PW-4

WE 866.1, WE 641.5

100' 0 100' 200'
1"=100'

LEGEND

- PROPOSED UNDERGROUND PIPE
- PROPOSED UNDERGROUND ELECTRIC SERVICE
- PROPOSED CHAIN LINK FENCE
- PROPERTY LINES
- EXISTING ROADWAY
- EXISTING EXTRACTION WELL
- PROPOSED EXTRACTION WELL
- EXISTING MONITORING WELL
- TRENCH SOIL SAMPLING LOCATION

DEWEY LOEFFEL LANDFILL SUPERFUND SITE
NASSAU, NEW YORK

SITE PLAN

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FIGURE
2

Attachment A

Construction Quality Assurance Plan

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Imagine the result

Construction Quality Assurance Plan

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Nassau, New York

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Prepared by:
ARCADIS, U.S., Inc.
6723 Towpath Road
Syracuse
New York 13214-0066
Tel 315.446.9120
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Figures

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The hydraulic gradient of groundwater in overburden soils in the vicinity of the landfill is generally to the west and/or southwest. The hydraulic gradient of groundwater in the bedrock is similar. However, based on the distribution of volatile organic compounds (VOCs) in a groundwater contaminant plume emanating from the landfill to the south, bedrock groundwater flows primarily to the south due to the influence of fractures within the bedrock.

1.2 History

As described in the Consent Order, from approximately 1952 to 1968, the landfill was owned and operated by several companies including the Loeffel Waste Oil and Removal Service Company (Loeffel Companies) as a waste disposal facility. During this time, the landfill consisted of two waste lagoons located in the western and central portions of the landfill, a 6-foot deep oil pit in the east central portion of the landfill, four 30,000 gallon aboveground storage tanks, and a drum disposal area located in the southeastern portion of the landfill.

Landfill disposal operations reportedly ceased in 1968 by order of the State of New York. Between 1970 and 1975, remedial actions undertaken by the Loeffel Companies included covering and grading the drum disposal area, oil pit and lagoons, and constructing a system of drainage ditches around the landfill. From 1974 to 1980, the Loeffel Companies reportedly also operated a waste oil transfer station utilizing the four 30,000 gallon aboveground storage tanks.

On September 23, 1980, GE entered into an agreement with the New York State Department of Environmental Conservation (NYSDEC) which required GE to perform field investigations, submit an engineering report which discussed the collected data, identify remedial alternatives, and recommend a remedial alternative. A remedy was subsequently selected by NYSDEC and involved the installation of soil-bentonite cutoff wall around the landfill, an overlying clay cap, and a leachate collection system below the cap within the cutoff wall. The design of the remedy was performed by GE and approved by NYSDEC. The remedy was subsequently implemented by NYSDEC using funding provided by GE, Schenectady Chemicals, Inc. (now SI Group), and Bendix Corporation (now Honeywell International, Inc.). Beginning in 1983, NYSDEC and/or GE performed a variety of response actions at the site, some of which were performed in accordance with Records of Decision (RODs) issued by NYSDEC in January 2001 and January 2002. The response actions included, but were not limited to, the following:

- Installation and operation of a bedrock groundwater recovery well system involving three extraction wells located to the south of the landfill;

- Transportation of leachate and groundwater for off-site treatment;

- Installation, operation, maintenance and monitoring of point-of-use treatment systems for five residential wells (located on four properties) to remove VOCs;

- Routine VOC monitoring of other residential wells located near the landfill; and

- Routine monitoring of many groundwater monitoring wells located outside the landfill's perimeter fence.

The current off-site groundwater extraction system was designed and constructed by NYSDEC, and is located along the approximate centerline of the VOC plume to the south of the landfill and includes three bedrock extraction wells (designated EW-1, EW-2 and EW-3, see Figure 2). Beginning in late March 2008 and through 2010, NYSDEC extracted groundwater from these three extraction wells on a seasonal basis, operating during the spring, summer, and fall months. Along with leachate from the landfill, extracted groundwater was transported for off-site treatment and disposal. NYSDEC transported leachate for off-site treatment and disposal each year since 1991 with the exception of 1994. NYSDEC continued operation of the on-site leachate collection system through October 2011. Operation of the off-site groundwater extraction system by NYSDEC did not resume after shutdown in the fall of 2010 until July 2011.

At the request of NYSDEC, USEPA proposed the site for inclusion on the National Priorities List (NPL) on March 4, 2010. The site was subsequently added to the NPL on March 10, 2011.

USEPA subsequently took over operation of the on-site leachate collection system at the landfill and the off-site groundwater extraction system to the south of the landfill on October 31, 2011. USEPA winterized the system, allowing groundwater extraction to continue during the winter months.

Pursuant to the Consent Order, GE and SI Group assumed responsibility from USEPA for continued operation and maintenance of the on-site leachate collection system and the off-site groundwater extraction system. The transition from USEPA to the Respondents occurred on August 1, 2012, and the first transportation of leachate and extracted groundwater by the Respondents occurred on August 2, 2012. The leachate and extracted groundwater will continue to be transported for off-site treatment and disposal until such time as an off-site treatment system is designed, constructed and approved for operation. Pursuant to the Consent Order, GE and SI Group will design and construct the treatment system to treat landfill leachate and extracted groundwater. Upon USEPA approval that the treatment system discharge meets the effluent discharge limits set under the Consent Order, routine transportation of leachate and extracted groundwater for off-site treatment will cease.

2. CQA/CQC General Procedures

The performance of the proposed treatment system construction activities will be monitored throughout the duration of the project. Project monitoring will be performed based on review for general compliance with the following documents, as applicable:

- Design Report/Implementation Plan (DR/IP);
- Transportation and Disposal (T&D) Plan;
- Quality Assurance Project Plan (QAPP); and
- Health and Safety Plan (HASP).

Project monitoring will also include submittal review, periodic project meetings, and site observation. The design, as presented in the DR/IP, plays an important role in defining the CQA/CQC elements for activities occurring before, during, and after construction. The DR/IP may, depending on the given component of construction, specify any or all of the following:

- Manufacturer and model number for specific equipment;
- Performance standards or operating conditions to assist in the selection, purchase/rental, and operation of equipment;
- Required conformity with codes, standards, and specifications to govern material and workmanship quality;
- Field testing requirements;
- Workmanship/equipment warranties; and
- As-built (aka post-construction or record) drawings.

A discussion of the construction meetings, inspections and data management is presented below.

2.1 Pre-Construction Meeting

Prior to the start of construction activities, a pre-construction meeting will be held and the topics covered at this meeting will include, but may not be limited to, the following:

- Reviewing the responsibilities of each organization;
- Reviewing lines of authority and communication for each organization;
- Reviewing overall construction schedule;
- Reviewing methods of documenting and reporting data;
- Reviewing work area security and safety protocols;
- Discussing procedures for the location and protection of construction equipment and materials, and for the prevention of damage of equipment and materials from inclement weather or other adverse conditions;
- Conducting a site walk-through to review site conditions, including work areas and approximate limits of work, as well as staging and storage locations; and
- Procedures for documenting field changes (for inclusion in post-construction drawings).

2.2 Site Meetings and Inspections

Site meetings and inspections will be conducted during and at the completion of the proposed treatment system construction activities. Representative photographs of significant project features and progress will be taken during site inspections. A brief description of the site meetings and inspections to be conducted is provided below.

2.2.1 Daily Site Safety/Coordination Meetings

Daily meetings will be attended by those at the site at the beginning of each work day to discuss planned activities, schedule, changed conditions, health and safety issues, coordination issues, and general project status. As discussed in Section 7, a daily log will be completed to document field activities and inspections or testing.

2.2.2 Progress and Coordination Meetings

Progress and coordination meetings will be held throughout construction of the treatment system. Depending on the nature of construction activities, these meetings may be weekly or biweekly and be

conducted at the site or via conference call. At a minimum, representatives of the Respondents and contractors/subcontractors involved in active construction at the site will attend these meetings.

2.2.3 Pre-Final and Final Inspection

Prior to completion of construction, a pre-final inspection will be conducted. The pre-final inspection will consist of a walk-through of the site to determine the completeness of the construction and its consistency with the DR/IP.

Following the pre-final inspection, a punch list of items to be completed may be specified or it may be determined that construction is complete. If a punch list is developed, a schedule to complete these items will be prepared. A final inspection will be conducted to confirm that the punch list items are completed.

Following final inspection, Respondents will notify USEPA that construction is complete. In accordance with Paragraph 54 of the Consent Order, USEPA representatives will conduct an on-site inspection of the system.

2.3 Construction Data Management

The management of data generated throughout the construction activities will be the responsibility of the Respondents' Pump and Treat Design/Build Task Manager or his/her designee. These data will include, but may not be limited to, the following:

- Technical data sheets;
- Photographic logs;
- As-built (aka post-construction or record) drawings;
- Equipment "shop drawings";
- Field sampling and testing results;
- Laboratory analytical results;
- Health and safety monitoring results;
- Equipment calibration and testing results;

- Daily status updates; and
- Documentation of field changes.

Pertinent data will be presented in the Weekly Progress Reports (if any), Monthly Progress Reports and/or the Construction Completion Report submitted to USEPA, as appropriate.

3. Pipeline and Conduit Trenches

Pipeline and conduit trenches will be excavated at the site as shown the on the Contract Drawings. Trench depth will be excavated to provide a minimum cover of 54 inches over the top of pipe and 24 inches over the top of conduit. Standing water in all excavated areas will be limited while work is in progress. If possible, benchmarks and survey control points will be preserved and protected from disturbance during construction. Temporary erosion and sedimentation control measures will be put in place to limit soil erosion and soil-bearing water runoff as shown on the Contract Drawings.

Trenches will be backfilled with spoil material when possible. Spoil will be inspected prior to use. Soil that is free of rock or gravel larger than 1.5 inches in any dimension will be allowable for trench backfill within 6 inches of the pipe or conduit. If suitable spoil is not available, a naturally or artificially graded mixture of natural crushed gravel, crushed stone, and natural or crushed sand meeting American Society for Testing and Materials (ASTM) D 2940 that 100 percent passes a 1.5 inch sieve will be used. Spoil with rock or gravel larger than 1.5 inches will be allowable for use further than 6 inches from all buried pipe or conduit. Backfill material will be placed in 6-inch to 12-inch loose lifts and compacted using vibratory compaction equipment. Excess spoil material (including spoil that does not meet the above specifications), if any, will be used as general fill along the trench route.

4. Treatment Building Concrete Slab

The treatment building concrete slab will be constructed and tested in accordance with the procedures discussed in this section. Foundation subgrades will consist of undisturbed soil or compacted fill as shown on the Contract Drawings.

4.1 Installation

The treatment building concrete slab will be constructed to the dimensions shown on the Contract Drawings. The materials used to construct the building slab (e.g., forms, steel reinforcement, concrete, etc.) will be visually examined to confirm conformance with the DR/IP and this CQAP.

4.2 Field Quality Control

Testing of the concrete will be performed by an independent testing firm, qualified according to ASTM C 1077 and ASTM E 329 to conduct the testing indicated, as documented according to ASTM E 548. During concrete placement, field testing will consist of, at a minimum, the following:

- Testing Frequency – Obtain one composite sample for each day's pour of each concrete mix exceeding 5 cubic yards (cy), but less that 25 cy, plus one set for each additional 50 cy or fraction thereof;

- Slump (ASTM C 143) – Perform one test at point of placement for each composite sample but not less than one test for each day's pour of each concrete mix. Perform additional tests when concrete consistency appears to change;

- Air Content (ASTM C 231 or ASTM C 173) – Perform one test for each composite sample, but not less than one test for each day's pour of each concrete mix;

- Concrete Temperature (ASTM C 1064) – Perform one test hourly when air temperature is 40 degrees Fahrenheit (F) and below or when 80 degrees F and above, and one test for each concrete composite sample;

- Unit Weight (ASTM C 567) – Perform one test for each composite sample, but not less than one test for each day's pour of each concrete mix; and

- Compression Test Specimens (ASTM C31/C 31M) - Cast and laboratory cure one set of five standard cylinders at 7 days and two at 28 days. A compression test-strength test will be the average compression strength from two specimens obtained from the same composite sample and tested at the age indicated. Each cylinder will be properly labeled with an identifying mark.

Strength of each concrete mix will be satisfactory if every average of any three consecutive compression-strength tests equals or exceeds specified compressive strength and no compressive-strength test value falls below specified compressive strength by more than 500 pounds per square inch (psi).

Test results will be reported in writing by the testing firm within 48 hours of testing. Reports of compressive-strength tests will contain site identification name and number, date of concrete placement, name of concrete testing and inspecting agency, location of concrete batch in work, design compressive strength at 28 days, concrete mix proportions and materials, compressive breaking strength and type of break for both 7- and 28-day tests.

The testing firm will make additional tests of concrete when test results indicate that slump, air entrainment, compressive strengths or other requirements have not been met. The testing firm may conduct tests to determine adequacy of concrete by cored cylinders complying with ASTM C 42 or by other methods as directed by the Respondents or Respondents' designated engineer.

5. Process Equipment

The installation, testing, and start-up of the proposed treatment system will be performed in accordance with the Contract Drawings and the Material and Performance Specifications. For individual process components, specifications are provided in the DR/IP and installation/start-up instructions will be provided by the manufacturers. CQA testing of process piping will be in accordance with the procedures described in this section.

Pressure testing will be completed on all pressure piping. There will be two different procedures used to complete pressure testing, one for high density polyethylene (HDPE) and another for all other pressure piping. These tests are described below.

5.1 HDPE Pipe CQA Testing

A hydrostatic test of up to 1.5 times the working pressure, but less than the pressure rating, of the pipe will be carried out using the guidelines outlined in ASTM F 2164. Testing will take place following pipe embedment (minimum 6 inches of cover above the pipe) but may be performed before final backfill.

The hydrostatic test procedure for HDPE pipe includes two phases, the expansion phase and the test phase. First, the pipeline is filled with potable water and any trapped air is bled off. When the test section is completely filled and purged of air, the pressure is gradually increased up to 1.5 times the working pressure, but less than the pressure rating, of the pipe and checked for leaks. During the first four hours of the test, called the expansion phase, sufficient make-up water is added as necessary to maintain pressure. After four hours the test pressure is reduced by 10 psi and pressure is monitored for one hour; this is the test phase. Additional pressure or make-up water is not added during the test phase. If no visual leakage is observed and pressure during the test phase remains steady (within 5% of the test pressure), the test is passed. See ASTM F 2164-02 (*Standard Practice for Field Leak Testing of Polyethylene [PE] Pressure Piping Systems Using Hydrostatic Pressure*) for additional pressure test details.

5.2 Other Process Piping CQA Testing

Other process piping will not be buried and will therefore be accessible in well vaults or the treatment building. Hydrostatic testing on all other pipe material types will consist of pressurizing the pipe to a pressure of no more than the pressure rating of the pipe for a period of at least two hours. The rate of leakage will be determined at 15 minute intervals by means of volumetric measurement of the makeup water added to maintain the test pressure. The test will proceed until the rate of leakage has

stabilized or is decreasing to zero, for three consecutive 15 minute intervals. The test pressure must be maintained for a period of at least another 15 minutes. If the pressure test is failed, all piping will be examined and defective material or joints will be repaired or replaced before repeating the test.

6. Electrical Equipment and Controls

All electrical and control equipment will be provided and installed in accordance with the configuration shown on the Contract Drawings and the Material and Performance Specifications provided in the DR/IP. Testing/inspection to be completed that requires documentation for the treatment system will include, but may not be limited to, the following:

- Certification of Compliance with the National Electrical Code;
- Continuity testing of all wire and cable in place but before final connections are made;
- Inspection and approval of the incoming electrical service;
- Performance of the electrical grounding system testing;
- Testing to confirm interlocks and alarms conditions provide the required result;
- Coordination and calibration of instrumentation components; and
- Field tests of all miscellaneous electrical controls.

7. Documentation of Construction Activities

A daily log will be maintained documenting work performed and completed. The log will include, but may not be limited to, the following:

- Date, project name, location and other pertinent site information;
- Summary of the work activities;
- Summary of relevant communications (written and oral) with Contractors or Subcontractors ;
- Record of the workers, material and equipment deployed each work day;
- Equipment brought to the site;
- Summary of samples collected, if any;
- Summary of test results including failures and retests;
- Record of visitors to the site; and
- Record of unusual events/activities.

Communication with USEPA is covered in the Construction Plan, which is Appendix E of the DR/IP.

8. Start-Up Plan

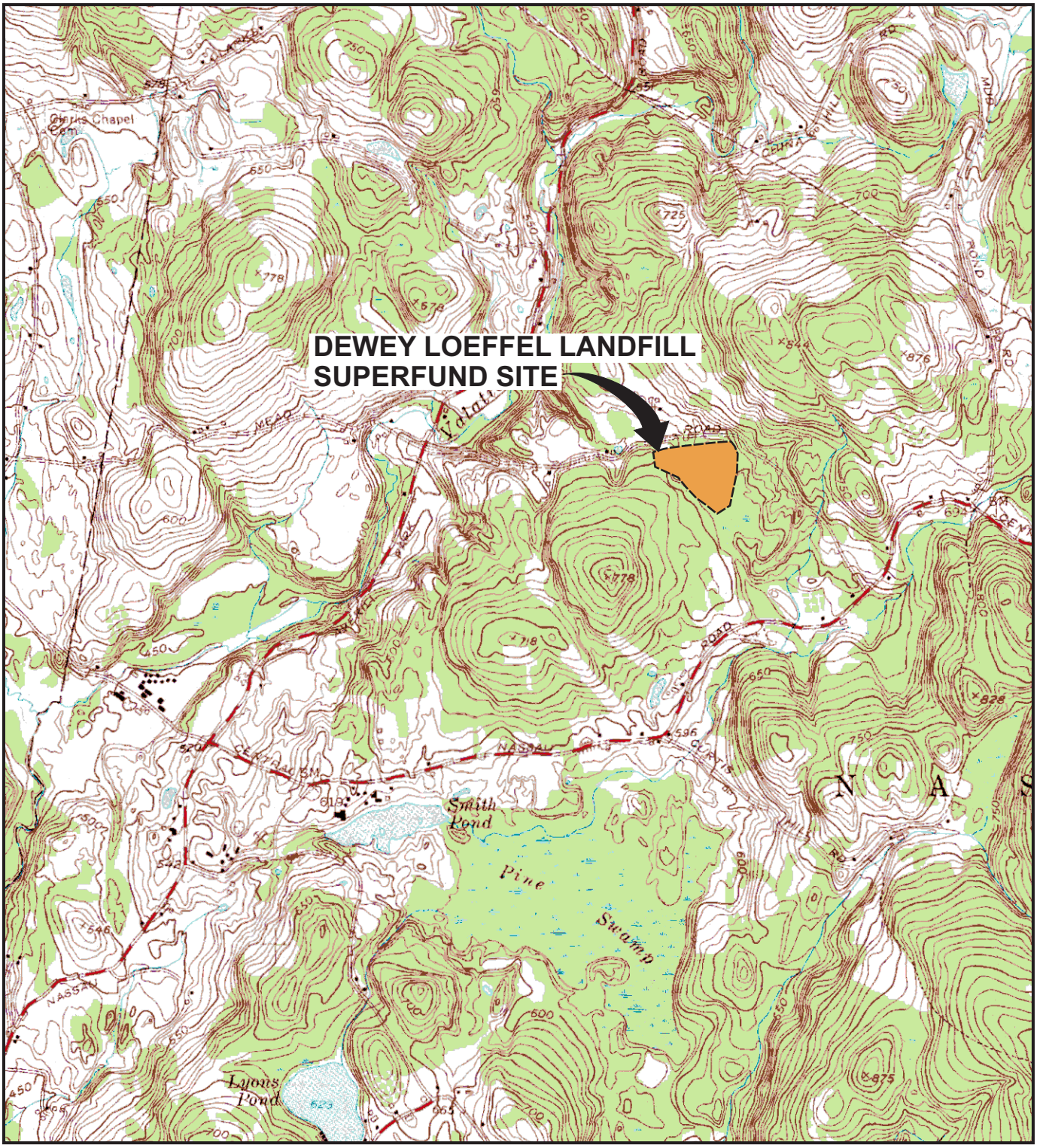
A Start-Up Plan for the proposed treatment system is provided in Appendix H of the DR/IP. This Start-Up Plan includes pre-start-up activity requirements, clean water system start-up procedures, and system start-up with leachate and extracted groundwater. Also included in the Start-Up Plan is treatment system sampling and analysis to confirm that the design specifications and substantive requirements provided by USEPA (see Appendix B of the DR/IP) have been attained.

9. Post-Construction Drawings

Within 30 days of when construction is complete (i.e., after the on-site inspection conducted by USEPA representatives), Respondents will prepare post-construction (aka record or as-built) drawings for the treatment system. The post-construction drawings will be included in the Construction Completion Report submitted to USEPA.

ARCADIS

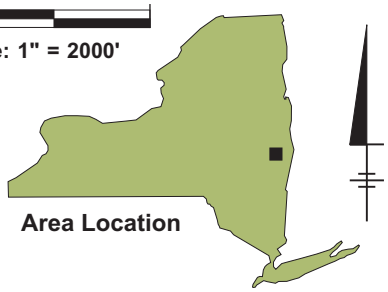
Figures



REFERENCE: BASE MAP USGS 7.5 MIN. QUAD., NASSAU, NY, 1953, PHOTOREVISED 1978.

2000' 0 2000'

Approximate Scale: 1" = 2000'



DEWEY LOEFFEL LANDFILL SUPERFUND SITE
NASSAU, NEW YORK

SITE LOCATION MAP

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FIGURE
1

04/116/2012 SYRACUSE, NY-ENV/CAD-141, DJHOWES
B0031174/0000/00001/CDR/31174N01.CDR

EXISTING UNDERGROUND GROUNDWATER TRANSFER PIPELINE AND CONTROL LINES (TO BE TAKEN OUT OF SERVICE AFTER TREATMENT SYSTEM START-UP)

EXISTING DOUBLE-WALLED FRAC TANKS WITHIN POLE BARN

NEW UNDERGROUND ELECTRICAL AND INSTRUMENTATION LINES

EXISTING ELECTRICAL SERVICE COMPOUND (TO BE TAKEN OUT OF SERVICE)

NEW VALVE VAULT – TIE IN NEW 2"ø SDR 11 X 4"ø SDR 17 DUAL-CONTAINED HDPE FORCEMAINS INTO EXISTING 2" SDR 11 X 4" SDR 17 DUAL-CONTAINED FORCEMAIN

EXISTING SLURRY WALL

EXISTING LEACHATE UNDERGROUND STORAGE TANK

NEW 2"ø SDR 11 X 4"ø SDR 17 DUAL-CONTAINED FORCEMAIN AND LATERALS FOR NEW EXTRACTION WELLS EW-4 THROUGH EW-8

NEW 2"ø SDR 11 X 4"ø SDR 17 DUAL-CONTAINED HDPE FORCEMAINS

NEW ELECTRICAL SERVICE POLE, UTILITY TRANSFORMER, AND METER (TO BE INSTALLED BY NATIONAL GRID)

NEW TREATMENT BUILDING

NEW GRAVEL PAD AND DRIVE

NEW 3"ø SDR 11 HDPE DISCHARGE LINE

TO VALATIE KILL

ALLAN M. SMITH (REPUTED OWNER) L. 1267 P. 1025 TM 191-5-20

THE COUNTY OF RENSSELAER (REPUTED OWNER) L. 1372 P. 557 TM 191-5-16.1

TRI-VILLAGE BOWHUNTERS L. 1696 P. 85 TM 191-5-16.2

ISIDORO MARRA AND GAIL A. MARRA (REPUTED OWNERS) L. 1259 P. 753 TM 191-5-21

MEAD ROAD

WOODED AREA

BRUSH

TRAIL

100' 0 100' 200'
1"=100'

LEGEND

- PROPOSED UNDERGROUND PIPE
- PROPOSED UNDERGROUND ELECTRIC SERVICE
- PROPOSED CHAIN LINK FENCE
- PROPERTY LINES
- EXISTING ROADWAY
- EXISTING EXTRACTION WELL
- PROPOSED EXTRACTION WELL
- EXISTING MONITORING WELL

DEWEY LOEFFEL LANDFILL SUPERFUND SITE
NASSAU, NEW YORK

SITE PLAN

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FIGURE 2

CITY:SYRACUSE-NY DIV/GROUP:ENVCAD DB:G.STEINBERGER LD:G.STEINBERGER PIC:P.FARR PM:D.SAUDA TM:S.BATTAGLIA LYR:ON=*;OFF=*REF*
G:\GE\ENVCAD\SYRACUSE\ACTIVE\B0031174\0003000002\DWG\REPORT\31174G02.dwg LAYOUT: 2 SAVED: 2/6/2013 5:52 PM ACADVER: 18.1S (LMS TECH) PAGESETUP: --- PLOTSTYLETABLE: PLTFULL.CTB PLOTTED: 2/6/2013 5:52 PM BY: DECLERCQ, BRIAN