WASTEBED B / HARBOR BROOK SITE IRM - EAST WALL AND GROUNDWATER COLLECTION SYSTEM

INTERIM REMEDIAL MEASURE WORK PLAN

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<th>Definition</th>
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<tr>
<td>CAMP</td>
<td>Community Air Monitoring Plan</td>
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<tr>
<td>FRP</td>
<td>fiberglass reinforced plastic</td>
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<tr>
<td>GWTP</td>
<td>groundwater treatment plant</td>
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<tr>
<td>IRMWP</td>
<td>Interim Remedial Measure Work Plan</td>
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<tr>
<td>NAPL</td>
<td>non-aqueous phase liquid</td>
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<tr>
<td>NYSDEC</td>
<td>New York State Department of Conservation</td>
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<tr>
<td>OBG</td>
<td>O’Brien and Gere</td>
</tr>
<tr>
<td>OSHA</td>
<td>Occupational Health and Safety Administration</td>
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<tr>
<td>PID</td>
<td>photo-ionization detector</td>
</tr>
<tr>
<td>ppm</td>
<td>parts per million</td>
</tr>
<tr>
<td>RCCP</td>
<td>Reinforced Concrete Cylinder Pipe</td>
</tr>
<tr>
<td>SES</td>
<td>Sevenson Environmental Services</td>
</tr>
<tr>
<td>SWPPP</td>
<td>Stormwater Pollution Prevention Plan</td>
</tr>
<tr>
<td>µg/m³</td>
<td>micrograms per cubic meter</td>
</tr>
<tr>
<td>VOC</td>
<td>volatile organic compound</td>
</tr>
<tr>
<td>WBB/HB IRM</td>
<td>Wastebed B/Harbor Brook IRM</td>
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<tr>
<td>WWTP</td>
<td>wastewater treatment plant</td>
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SECTION 1

INTRODUCTION

1.1 INTRODUCTION

This Interim Remedial Measure Work Plan (IRMWP) has been prepared in accordance with the requirements of the Order on Consent entered into by Honeywell International, Inc. (Honeywell) and the New York State Department of Environmental Conservation (NYSDEC), effective December 16, 2003 for the Wastedbed B/ Harbor Brook IRM (WBB/HB IRM). The IRMWP includes plans, methodologies and schedule for implementing the East Wall portion of the WBB/HB IRM.

This IRMWP is organized into four sections and two appendices, as described below:

Section 1 – Introduction
Section 2 – Project Organization
Section 3 – Remedial Activities
Section 4 - Schedule
Appendix A - Subcontractor Work Plan
Appendix B - Community Air Monitoring Plan

A detailed site description and history are available in the *Wastebed B/ Harbor Brook IRM Work Plan* (OBG, 2004).

1.2 PURPOSE

This work plan presents the proposed remediation strategies for the East Wall portion of the barrier wall and groundwater collection system of the WBB/HB IRM. The East Wall is a continuation of the work being performed under the WBB/HB IRM Order on Consent (Index #D7-0008-01-09). The East Wall design was prepared for Honeywell by a team led by Parsons and includes O’Brien & Gere Engineers (OBG) and Geosyntec Consultants (Geosyntec) (Parsons, 2011a).
1.3 IRM OBJECTIVES

The IRM objectives, as presented in the Order on Consent, are as follows:

- Eliminate, to the extent practicable, within the scope of this IRM, the discharge of contaminated groundwater and non-aqueous phase liquid (NAPL) into Harbor Brook and Onondaga Lake (and collect NAPLs, as feasible).\(^1\)
- Eliminate, to the extent practicable, within the scope of this IRM, the potential human health and ecological impacts associated with site constituents of concern.
- Eliminate, to the extent practicable, within the scope of this IRM, potential impacts to fish and wildlife resources associated with on-going discharges of contaminants of concern from the site.

1.4 CONSTRUCTION SCOPE OVERVIEW

Sevenson Environmental Services (SES) has been contracted for construction services under this project. The following components will be implemented during the East Wall construction project:

- Replacement of the downstream culvert located in Harbor Brook
- Temporary re-routing of a section of lower Harbor Brook
- Installation of a barrier wall from the eastern terminus of the West Wall, to the downstream Harbor Brook culvert and extending to the eastern portion of AOS #1
- Installation of a groundwater collection system inboard of the barrier wall to achieve hydraulic control
- Grading and backfilling of portions of Wastebed B
- Site restoration of areas disturbed by construction

This work plan presents an overview of project elements based on the design report and Stormwater Pollution Prevention Plan (SWPPP) prepared for this project (Parsons, 2011a; Parsons, 2011b). Additional details are presented in the SES work plan included as Appendix A.

1.5 SUSTAINABILITY

Honeywell is committed to minimizing the carbon footprint of construction activities under this project, and has incorporated sustainability concepts, including those presented in the Clean and Green Policy (USEPA, 2009) and the NYSDEC’s DER-31/Green Remediation program policy. Key sustainability elements of this project include:

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\(^{1}\) As discussed in more detail in the East Wall Design Report, given the immobility of the NAPL at WBB/HB and the anticipated limited effectiveness of recovery methods, NAPL collection has not been included in the IRM design. The presence of NAPL at WBB/HB is being addressed as part of the WBB/HB Feasibility Study.
• A solar-powered instrumentation system
• Use of an onsite water source for dust control
• A directive to subcontractors to minimize equipment and vehicle idling
• A recycling program for the field support area complex
• Use of low sulfur fuel for equipment
• Use of a loader with a Tier 3 compliant engine
SECTION 2

PROJECT ORGANIZATION

This section presents the overall project organization and the function and responsibility of various team members to ensure efficient project execution. The key team members and their responsibilities are provided below. A project organization chart is provided as Figure 2.1. Contact information for key team members is provided in Table 2.1.

2.1 NYSDEC

NYSDEC is the lead regulatory agency for this project. Mr. Tracy Smith has been designated by NYSDEC as the project manager.

2.2 HONEYWELL

Honeywell is responsible for the implementation specified in the Order on Consent. Honeywell has designated Mr. Al Labuz as the project manager and primary contact for this project. Honeywell has retained Parsons as its primary design and construction contractor on this project. Geosyntec has been retained as the geotechnical designer as a subcontractor to Parsons.

2.3 PARSONS

Parsons will serve as the prime contractor for both design and construction for the IRM. Parsons will manage the design, schedule, and execution of the project. The responsibilities of the key Parsons personnel are described below.

2.3.1 Project Manager

Tom Abrams is Parsons’ project manager for this project. Mr. Abrams is responsible to Honeywell and Parsons’ management to ensure the project objectives are met. Mr. Abrams is responsible for managing subcontractors, maintaining the project schedule, managing the project budget, and ensuring the technical adequacy of the work performed. He will also be the primary point-of-contact for Honeywell on all technical, schedule, and contractual issues.

2.3.2 Design Manager

Michael Broschart is the design manager for this project. Mr. Broschart is responsible for managing all design issues that arise during construction and communicating and/or resolving these issues with Honeywell and NYSDEC.

2.3.3 Certifying Engineer

William Salomone, P.E. is Parsons’ certifying engineer for this project. Mr. Salomone will be responsible for managing design issues during construction, including the review of submittals for compliance with the design, approving all changes to the design, periodically
making site inspections to assess compliance of construction with the design, and preparing the certification report.

2.3.4 Construction Manager

Bill Long is Parsons’ construction manager for the project. Mr. Long will be responsible for completion of the construction work and will monitor subcontractor construction activities and coordinate construction quality assurance, safety monitoring, and construction documentation.

2.3.5 Site Health and Safety Officer

The site health and safety officer for this project is Dale Dolph. Mr. Dolph will ensure that the Project Safety Plan is properly prepared and implemented and that all Parsons and subcontractor site personnel are trained according to the site-specific health and safety requirements. Mr. Dolph will be onsite during construction and will conduct periodic health and safety audits of the project including a review of personnel training records to verify personnel are trained in accordance with the site-specific health and safety plan. Mr. Dolph will coordinate with subcontractors, site personnel, and project management to ensure that safe and compliant site work practices are implemented.

2.4 SEVENSON ENVIRONMENTAL SERVICES (SES)

SES is the subcontractor responsible for conducting construction activities and quality control in accordance with the contract documents. A contractor’s work plan prepared by SES is included as Appendix A.
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<th>Title/Function</th>
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FIGURE 2.1
PROJECT ORGANIZATION CHART

WBB/HB IRM East Wall Construction Project Organization

Honeywell

Syracuse Program Director
John McAlliffe, P.E.
Director of Remedial Design & Construction
William Hague, P.E.
Project Manager
Ali Ebrahizi

PARSONS

Program Manager
Steve Warren
Project Manager
Tom Abrams

Health & Safety Manager
Bill Moon
Technical Director
Alan Steinhoff
Contracts Manager
Tamarra Cooper
Project Controls
Doug Mayer

Construction Manager
Bill Long
Certifying Engineer
Bill Salomone, P.E.
QA/QC
Dan Douglass
On-Site H&S Officer
Dale Dolch
Civil Subcontractor
Sevensen Environmental Services

Design Manager
Mike Broschart
Barrier Wall Design Engineer
Geosyntec
SECTION 3

REMEDIAL ACTIVITIES

This section presents an overview of construction activities as presented in the Design Report. Additional construction details are presented in the SES’s Subcontractor’s Work Plan presented in Appendix A.

3.1 STORMWATER POLLUTION PREVENTION

3.1.1 Erosion and Sediment Control Plan

The remedial activities to be conducted at the site will require the implementation of stormwater controls, erosion prevention measures, and sediment control measures. Temporary stormwater/erosion and sediment controls will consist of placement of temporary construction roads to stabilize work areas, installation of a temporary equipment decontamination pad, installation and maintenance of silt fence to prevent soil or sediment erosion from the disturbed areas and material stockpiles.

3.1.2 Stormwater Pollution Prevention Plan

Construction will be completed in accordance with the NYSDEC-approved SWPPP, prepared by Parsons and issued under separate cover (Parsons, 2011a). Stormwater from upgradient locations will be routed away from exposed materials and excavation areas and stockpiled materials will be covered in accordance with the SWPPP requirements to minimize stormwater contact. Groundwater collected within excavated areas will be treated as construction water and will be directed to the Willis Groundwater Treatment Plant. No new impervious areas are created under the East Wall IRM. Disturbed areas will be restored with topsoil and seed and mulch to establish vegetation following completion of the final site closure construction.

3.2 COMMUNITY AIR MONITORING

3.2.1 Particulate Monitoring

Dust will be monitored in accordance with the Community Air Monitoring Plan (CAMP) to document (Appendix B) that concentrations at the work zone perimeter remain below site-specific action levels established for this stage of the project. The New York State Department of Health (NYSDOH) has established action levels for particulates at 150 micrograms per cubic meter (µg/m³) above background levels. To provide additional assurance, the equipment at the WBB site perimeter will be set at a lower site-specific action level (100 µg/m³ above background levels). If the site-specific action level is exceeded for a 15-minute period, additional dust suppression measures (such as increasing the use of water or reducing equipment speeds) will be implemented. If the NYSDOH action level is exceeded, the work generating the dust will be stopped and there will be a re-evaluation of the activities.
The dust monitoring will use real-time monitors capable of measuring dust less than 10 micrometers (PM-10) and capable of integrating PM-10 concentrations over a period of 15 minutes. Equipment will alert technicians immediately if dust exceeds the action level.

3.2.2 VOC Monitoring

Air monitoring for volatile organic compounds (VOCs) will also be conducted in accordance with the CAMP to document total VOC concentrations at the work zone perimeter do not exceed site-specific action levels established for this stage of the project.

VOC monitoring equipment will consist of photo-ionization detectors (PIDs) that will measure total VOC concentrations continually during all construction activities. The equipment will log data real time and send alarms to alert the technician if action levels are reached.

The NYSDOH has established action levels for VOCs at 5 parts per million (ppm) above background levels. To provide additional assurance, the equipment will be set at a lower site-specific notification level of 2 ppm. If the air monitors detect VOC concentrations exceeding the site-specific level for a 15-minute period, the source of the emissions will be investigated and evaluated. If a reading of 5 ppm is reached or exceeded for a continuous 15 minute period, work will be stopped until corrective measures are implemented.

3.3 MOBILIZATION AND SITE PREPARATION

3.3.1 Site Preparation

Prior to mobilization, SES will contact Dig-Safe New York, to identify and mark all public utilities near the work area. Stormwater and erosion control structures, as described above, will be erected prior to start of work at the site. Pre-construction photographs will be taken in order to document pre-existing conditions at the site and adjoining public facilities and roads.

3.3.2 Site Security

Ordinary precautions will be observed in order to protect materials, equipment and completed work from damage by theft, vandalism and/or sabotage. Each day, portable equipment shall be secured in designated areas, heavy equipment will be relocated to a safe location, and excavations will be properly barricaded.

An existing chain link fence that separates the work area from I-690 to the southwest, the CSX rail to the east, and site access gates will be used to assist in site security. Additional temporary fencing and security gates will be installed as required.

3.3.3 Dust Control

Particulate monitoring will be conducted in accordance with the air monitoring procedures described in Section 3.2 and the CAMP presented in Appendix B. Standard dust control practices will be employed to minimize dust generated on site and prevent fugitive dust emission.
3.3.4 Clearing and Grubbing

A majority of the site is vegetated with phragmites, trees, shrubs, and grasses. Clearing and grubbing will be performed in accordance with the design documents as indicated on Drawing 444184-100-C-002. Non-salvageable woody material will be chipped, if needed, and stockpiled onsite for reuse (e.g., mulch). Salvageable woody material will be cut into manageable pieces and stockpiled onsite for general use or chipped along with the non-salvageable woody material.

3.4 MATERIAL HANDLING

3.4.1 Solids Handling

Approximately 10,000 CY of soil will be generated from excavating the groundwater collection trench, Harbor Brook diversion, and culvert replacement. This material will be stockpiled on site and stabilized with topsoil, mulch, fertilizer, and seeding to establish vegetation in order to minimize contact with stormwater runoff in accordance with the SWPPP. Sediment and erosion control measures will be maintained until completion of the project. In the event that visually contaminated soil (e.g., NAPL saturated soils) is observed during the excavation/site grading activities, this material will be segregated. Temporary staging, characterization, and disposal of this material will be coordinated with by Honeywell in consultation with the NYSDEC.

3.4.2 Construction Water Management

During construction, groundwater or surface water that comes in contact with excavated material including NAPL soils will be treated as construction water. Accumulated groundwater and stormwater will be pumped from excavations and bermed areas to a tank(s) for temporary storage and pumped to the existing Willis/Semet Groundwater Treatment Plant (GWTP) for treatment. If necessary, construction water will be pretreated prior to pumping to the GWTP.

During the construction of the culvert replacement, Parsons will perform daily visual inspection of water pumped as part of the diversion process for oil sheen or changes in turbidity. Upstream (background) and downstream turbidity and pH monitoring will also be conducted using a YSI Sonde 6920 or equivalent.

3.5 BARRIER WALL

3.5.1 Sheetpile Preparation

A fabricator has completed seal-welding of the interlock joint of each sheet pile pair, as well as coal tar epoxy coating of the upper 13 ft. of each sheet pile pair in accordance with the design drawings. The sheet pile pairs are stockpiled onsite. Sealant (Swellseal WA, Gungrade Polyurethane Waterstop, manufactured by De Neef Construction Chemicals, Inc.) will be applied in the field to interlock of each welded pair in accordance with the drawings during installation. The sheetpiles will be handled to minimize damage to epoxy coating. The sequence of barrier wall construction is expected to start with the installation of sheet piles at the Harbor Brook crossing, with the remaining sections of the wall to follow.
3.5.2 Sheetpile Installation

Sheet pile welded pairs will be installed using a vibratory hammer. The contractor will provide a template, or frame, for aligning, supporting, and maintaining sheet piling in the proper position during setting and driving. Once set, sheet piles will be driven to the elevations shown on the drawings. A pile driving record will be maintained for each welded pair. The record will include driving information, as specified on the drawings.

3.5.3 Cathodic Protection

One hundred seven (107) zinc anodes, weighing 150 pounds each, will be installed for galvanic protection of the sheet piling in the webs both inboard and outboard of the sheetpile wall. Anodes will conform to federal specification MIL-A-18001H, or approved equal. Anodes will be spaced at 15-ft. intervals, alternating on each face of the sheet piling.

3.5.4 Safety Berm

A safety berm is required along the wall at sections where the top of wall is above the existing grade. Following installation of the barrier wall and the ground water collection and conveyance system from Station 00+00 to 03+30.9 and from Station 8+35.1 to 14+46, a safety berm will be constructed as shown on the drawings. The purpose of the safety berm is to mitigate risk to site workers, end users, and wildlife present at the site. The safety berm will consist of engineered fill material and will span both the inboard and outboard portions of the wall.

3.5.5 Structural Vibration Monitoring

The stability of the nearby CSX railroad and Onondaga County-owned pipelines will be monitored during the sheetpile wall installation, culvert replacement, and groundwater collection trench construction. Baseline values will be established and measurements will be taken during construction activities. The applicable monitoring data will be reviewed daily by Parsons’ design engineer. The design engineer will notify Honeywell, the Contractor, CSX, and the County immediately if instrument measurements are not within the range of acceptable values as defined in the Geotechnical and Instrumentation Plan (Appendix J of the Design Report). Corrective actions may include:

- Suspension of work activities
- Visual inspection of the ground for any signs of cracks or bulges in the vicinity of the CSX railroad or pipelines
- Ensuring that all monitoring equipment is working properly
- Increasing the frequency of readings to monitor and provide data to further evaluate the situation
- Follow the emergency procedures in the Project Safety Plan and contact the County (i.e., the pipeline owner), if damage to the pipelines (e.g., cracks and leaks) is noticed
- Implementation of additional measures as needed
3.6 REROUTING OF LOWER HARBOR BROOK

The installation of the East Wall requires the rerouting of a portion of Lower Harbor Brook. The work includes creation of a new section of the brook, backfill of an existing section, and replacement of the downstream culvert.

3.6.1 Harbor Brook Channel Section

The section of Harbor Brook to be relocated is located approximately 300 ft. upstream from the lake and is approximately 700 ft. long including the culvert. The existing channel section will be backfilled with structural fill material specified for stabilization of the wall and the area will be restored with topsoil, seeding and mulch to establish permanent vegetation. The existing Harbor Brook channel will be backfilled before barrier wall installation.

The rerouted section of the Lower Harbor Brook channel will have a top width of 48 to 55 ft., a bottom width of 24 ft., and an average height of 4 ft. The channel side slopes will be between 2:1 and 4:1 (H:V) and the channel lining will consist of a 6 inch layer of granular fill consisting of a 50/50 mixture of sand and type 1 aggregate for erosion protection. The new channel will be periodically inspected for noticeable signs of erosion of the channel lining materials. Eroded areas will be repaired, as necessary.

During demolition of the existing culvert and construction of the new culvert, Harbor Brook will be temporarily diverted around the work area using temporary cofferdams and pumps.

3.6.2 Existing Culvert

A gravel access road and two utilities cross over the existing culvert. The parallel utilities are installed above-grade over a structural support and include a 36-inch RCCP) sanitary force main and a 12-inch abandoned sanitary pipeline. The structural support is a steel beam and truss structure and is supported on concrete footings. Before replacement of the culvert takes place, the 36-inch force main will require a supplemental support system to prevent disturbance during culvert construction. A plan for this support system will be provided as a submittal by SES. Considering the condition and operational constraints associated with the 36-inch sanitary force main, it was determined that the removal and replacement of any portion of the pipeline would be too costly and time constritive. Therefore, it is most desirable to relocate the culvert without disturbing the force main. The existing culvert will be demolished in place and disposed offsite.

General construction sequence of the culvert and channel section including installation of the temporary pump diversion of Harbor Brook around the work area excavation is shown in the design drawings (Drawing 444184-100-C-023) (Parsons, 2011a). Additional details are presented in SES’s work plan included as Appendix A.

3.6.3 New Culvert

The new culvert will consist of a precast concrete box culvert section at the farthest upstream portion and a precast concrete open channel section downstream from the box culvert. The culvert will be capable of meeting HS-25 loading and will be watertight. Backfill over the
culvert will consist of a 1-ft. thick layer of granular material with 6 inches of topsoil at the surface in most areas. Backfill over the area of the culvert under the road will be composed of a 1.5- to 2-ft. layer of gravel material with a maximum grain size of 4 inches.

3.7 GROUNDWATER COLLECTION AND CONVEYANCE SYSTEM

A groundwater collection system will be constructed in conjunction with the sheet pile barrier wall system.

3.7.1 Collection Trench Excavation

The work includes, but is not limited to the following:

- Survey trench layout
- Excavation of the trench and sump pits with appropriate trench support as per U.S. Occupational Health and Safety Administration’s (OSHA’s) Excavation Standard, 29 CFR 1926 (Subpart P)
- Materials handling as per Section 3.4
- Construction water management in accordance with Section 3.4

3.7.2 System Components (Mechanical)

The work includes the provision and installation of the following:

- Approximately 1,600 ft. of 6-inch diameter 0.015-inch slotted fiberglass reinforced plastic (FRP) groundwater collection pipe
- Approximately 1,600 ft. of 4-inch diameter single-walled FRP pipe force main
- A total of 16 cleanout assemblies as per Drawing 444184-100-C026
- One (1) groundwater collection sump assembly as per Drawing 444184-100-C027
- One (1) magnetic flow meter, header and associated pipe/fittings

Work within the groundwater collection sump shall be performed under OSHA’s Confined Space Standard 29 CFR.1910.146.

3.7.3 Monitoring System

The work includes the provision and installation of four piezometers as per the schedule and detail 1 on Drawing 444184-10-C-029. The piezometers will have a 10-ft. screen across the marl/Solvay waste interface and include a vibrating wire type pressure transducer (Geokon 4500AL – 170KPa). A 6-inch layer of drainage stone will be placed at the top of the riser with a quazite handhole installed to ground surface. The handhole box and cover shall be surrounded by a concrete collar as per detail 4 on Drawing 444184-10-C-029. Conduit, cable hangers and cable for monitoring shall also be supplied and installed.
3.7.4 Electrical System Components

The work includes the provision and installation of the electrical equipment described in the schedule on Drawing 444184-10-E-001 and the wiring diagrams on Drawing 444184-E002 and E-003) for the collection pumps, piezometer monitoring system and the pump station controls. Nine electrical pull-boxes and associated conduit shall be installed for system wiring. Electrical work completed in the collection sump pits shall meet the requirements for Class 1, Division 2 Hazardous Space as per OSHA’s Confined Space Standard 29 CFR.1910.146.

3.7.5 Installation of Wick Drains

Following trench backfill, prefabricated (AmerDrain 607) wick drains will be installed along the groundwater collection trench at a 3-ft. horizontal spacing. Wick drains will terminate at the top of the silt/clay layer. If a location is unable to be penetrated, the rig will be shifted to a nearby location to re-attempt installation. A wick drain depth chart for the alignment will be provided to SES. SES will maintain a running log of each installed wick drain. Consistent with procedures for the West Wall work, locations where individual wick drains are not able to be installed to required depth will be marked and evaluated by Parsons for alternative means of installation.

3.8 SITE RESTORATION AND DEMOBILIZATION

3.8.1 Site Restoration

Areas inboard of the work platform disturbed during construction activities will be temporarily restored. This includes the decontamination pad, access/haul roads, and stockpile areas. Restoration activities will include re-grading, and applying seed, fertilizer and mulch. Final site restoration outboard of the barrier wall will be completed as part of lake remediation restoration activities in accordance with the lake-wide plan for habitat restoration. Restoration inboard of the wall will be performed as part of the final remedy for the WBB/HB site.

3.8.2 Demobilization

Work for this item includes, but is not limited to the following:

- All equipment and excess materials used during construction activities must be decontaminated before removal from site.
- Sediments and fluids collected during the decontamination process shall be managed as per Section 3.4.
- All temporary facilities, equipment, PPE, garbage and anything brought to the site that is not incorporated into the work shall be removed.
3.9 PROJECT DOCUMENTATION

Upon completion of the project, a completion report will be prepared and will include the following:

- As-built drawings
- As-built survey
- Copies of all documentation and reports
- Photographic log

When the field activities on the project are complete, the contractor shall generate a project closure assessment in consultation with Parsons.
SECTION 4

SCHEDULE

A project schedule is presented in Figure 4.1.
<table>
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SECTION 5

REFERENCES


APPENDIX A

SEVENSON WORK PLAN
Summary Work Plan

Prepared for

PARSONS

Honeywell

Wastebed B/ Harbor Brook East Wall Construction
Syranacue, New York

Prepared by:

Sevenson Environmental Services, Inc.
2749 Lockport Road
Niagara Falls, New York
14305

Submitted: June 21, 2011
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1. INTRODUCTION

In accordance with the requirements of RFP No. 446352.30002.00 for the WASTEBED B/HARBOR BROOK EAST WALL CONSTRUCTION, located adjacent to Onondaga Lake, northwest of Syracuse, New York, Sevenson Environmental Services, Inc (Sevenson) submits this ‘SUMMARY WORK PLAN’ describing, in general terms, the means and methods by which Sevenson will implement the specified corrective measures.

The East Wall is a continuation of the work being performed under the Wastebed B/Harbor Brook (WBB/HB) Interim Remedial Measure (IRM) Order on Consent. The primary purpose of the WBB IRM is to contain site contaminants in the shallow and intermediate groundwater by way of a sheet pile barrier wall and groundwater collection system.

In addition to the wall installation, the work also involves the supply, installation, and startup of a groundwater collection pipe system, complete with valve vaults, mechanicals, and electrical components.

An additional component that is necessary in order to install the above is the bypassing and subsequent relocation of Harbor Brook, including installation of a new box culvert.

Additional work on the project involves installation of wick drains along the route of the collection trench, construction water management, and restoration and demobilization at project completion. Miscellaneous ancillary items that will be performed include installation and maintenance of erosion controls; piezometer installations; necessary decontamination of all equipment utilized in the contaminated zones; fencing installation; surveying, etc.

It is Sevenson’s intent to work 10-hour days, 5 days per week while performing the work. Permission for additional work hours (i.e. - Saturdays, etc.) will be requested from Parsons. Local union as well as non-union personnel will be employed during the performance of the work. All such work will be performed under the existing Labor Harmony Agreement. All workers will be paid the minimum wage rates specified for their particular trade.

As concerns equipment, the majority of it is owned by Sevenson, and will be transported to the site in a timely and efficient manner. All equipment anticipated to be utilized on the project is new or in fairly new condition, is well maintained, and is serviced on a regular, routine basis. Major items of maintenance on the equipment are anticipated to be performed on a non-workday in order to not impede the schedule. Parsons will be notified by Sevenson should this situation occur. A listing of anticipated equipment, which Sevenson intends to utilize on this project, has been included in the Section 3.2 of this response.

Sevenson anticipates that the fieldwork will require approximately 18 (+/-) weeks to complete and that all Contract Documentation, etc. may require another month to compile, review, and submit to Parsons.

2. SUBMITTALS AND PRE-MOBILIZATION ITEMS

2.1 PROJECT PLANS

Prior to the start of any on-site work, Sevenson will prepare and submit to Parsons all required site plans, drawings, cut sheets, and other specified and required plans necessary in order to perform the work in a safe and proper manner. These plans will include, but are not limited to, the following:

- Site-specific Health and Safety Plan
- Contingency plan for potential damage to the sanitary force main
• Work Platform Evaluation Submittal
• Sheet piling layout
• Quality Control Plan
• Harbor Brook Culvert/Channel Design shop drawings
• Harbor Brook temporary pump around design (cofferdams, wet-well pump layout)

In addition, Sevenson will prepare and submit to Parsons for approval a ‘Submittal Schedule’ which will encompass all of the anticipated materials, plans, drawings, etc. and the dates by which they, as well as their associated backup data, will be submitted. The dates on this Submittal Schedule will be tied to the dates shown on the Construction Schedule.

2.2 BONDS

Upon receipt of the Notice of Award, Sevenson will supply the required 100% Payment and Performance Bonds. These bonds will be issued by a company fully approved of by the Owner and Parsons.

2.3 INSURANCE

Along with submission of the above noted Bonds, Sevenson will also supply and submit an insurance certificate from their approved Insurance Carrier indicating that all required insurances specified within the Contract Specifications have been obtained by Sevenson and are in effect and will remain in effect until project completion.

3. TEMPORARY CONSTRUCTION FACILITIES

3.1 MOBILIZATION

Upon receipt of the ‘Notice to Proceed’ Sevenson will begin the process of delivering men and equipment to the site. All men actively working within the exclusion zones will be given their 40-Hour OSHA training and receive their pre-construction physicals that include drug and alcohol testing.

A Break trailer will be mobilized to the site and be supported with the appropriate utilities.

Mobilization of Sevenson’s earth moving equipment, including mobilization of a 150-ton crane for the sheet piling installation, will commence.

In addition to the crane, a mobile ram, several track excavators, loaders, bulldozers, a forklift, a cherry picker, off-road haulers, etc. will be delivered and utilized at the site during the course of the work. Items such as pumps, hoses, filters, etc. will also be mobilized along with welding machines, compressors, generators and miscellaneous small tools.
Initial supplies of required Health and Safety items, such as Personnel Protective Equipment (PPE),
hard hats, goggles, gloves, first aid kits, etc. will be assembled, delivered and stored for use during the
work.

3.2 TEMPORARY FACILITIES

During initial stages of work, a break trailer will be delivered and set up in a location to be determined
prior to beginning any intrusive work. The lunchroom trailer will be blocked and leveled. In addition,
the trailer will be cabled down in the event of high winds, etc. The trailer will be equipped with stairs
for access and egress. In addition, portable generator power will be hooked up and made operable.
Portable toilets will be utilized rather than supplying water and sewer hookups. Separate facilities
will be made available for men and women. Dumpsters will be provided at convenient locations
around the site for the collection of trash. Sevenson will maintain these containers and police the site
grounds throughout the course of the project.

An equipment decontamination pad will be provided and installed in the manner and location
identified in Contract Drawing C-002. Plumbing and piping in order to collect decontamination water
will be provided as specified in Contract Drawings. In addition, stoned staging areas will be installed
according to the same Contract Drawing C-002. These will be utilized to store items such as piping,
valve vaults, stone, etc. as these items are delivered to the site.

All required erosion controls will also be installed at this time in accordance with the East Wall
Stormwater Pollution Prevention Plan (SWPPP) (Parsons 2011). These will include silt fence (both
rigid as well as fabric only) and placement of hay bales as appropriate to aid in limiting any siltation
Survey control points will be checked and re-established if required.

Sevenson’s Health and Safety Officer will delineate the various work zones by use of flags and
installation of orange safety fencing. These zones include the Exclusion Zone, the Contaminant
Reduction Zone, and the Clean Zone. All workers will wear all specified safety gear at all times when
working on the site. This will include, at a minimum, hard hats, steel-toed work boots, safety glasses
and a safety vest.

The area an individual is working in, as well as what his particular job entails, will dictate what other
required safety equipment and PPE he will be required to employ.

4. BARRIER WALL INSTALLATION

4.1 WORK PLATFORM CONSTRUCTION

One of the initial items of work that Sevenson will construct involves preparation and installation of
the 60-foot (ft) wide working platform upon which all equipment involved in installing the steel sheet
pile wall, etc. will be situated. Since this wall will be installed upon an area that consists of extremely
soft soil material, it is necessary that this temporary platform be designed and constructed in such a
manner that it is able to support all of the required equipment, materials, and supplies that will be
placed upon it.

A review of the platform construction, as shown on Contract Drawing No. C-002 will be conducted by
a New York State Licensed Professional Engineer hired by Sevenson. The Contract Plans presently
call for the placement of geotextile over the existing grade, followed by the placement of 2 ft of
densely graded aggregate. Sevenson’s Professional Engineer may determine that additional support is
required in order to allow for a stable platform from which to work. If so, these revisions will be incorporated into a revised platform design and forwarded to Parsons for final review and approval.

Whatever final design of the platform is ultimately selected, the area upon which it will be built will be cleared of shrubs, trees, and any other items that may be detrimental to its construction. This operation will be performed by the placement of wooden mats upon which the equipment performing this operation will sit. In addition, Low Ground Pressure equipment will be utilized while performing this work and installing the platform.

Once the alignment has been cleared, the selected geotextile will be installed. The type and weight of this fabric will be determined during the Engineer’s review and design phase. In addition, it may also be determined that a geogrid (i.e. Tensar, etc.) will have to be incorporated into the work. If so, this product will be installed in conjunction with the geotextile.

After the geogrid and geotextile are in place, the 2-ft thick platform base material will be installed in appropriate lifts and compacted. A surface course, if different from the sub-base course, will then be installed and compacted, and the temporary platform will be ready for use. This platform material will be end dumped from the delivery trucks as low ground pressure (LGP) bulldozers push the material into place. Compacting the material by use of a static steel-wheeled roller will follow.

Sevenson will maintain this work platform throughout the course of time its use is required.

Upon completion of the project, the platform will be removed. It is anticipated that this material, once removed, will remain on-site for incorporation into the project at some future time.

4.2 INSTALL SHEET PILE

After the work platform has been satisfactorily installed, work will commence on installation of the sheet pile wall. Sevenson will utilize two methods for installing and driving the sheets.

1. 150-ton Crane and a vibratory hammer and a Mobile Ram for sheets longer than approximately 62’ in conjunction with the Mobile Ram (if necessary) to meet the specification for deflection.

2. Mobile Ram for sheets shorter than approximately 62’

The first method will involve the use of a 150-ton crane and vibratory hammer. This crane will be a track mounted machine that will travel on the platform on top of wooden mats which will be placed in front of it as it tracks forward, as well as under the outriggers after they have been engaged.

A pair of sheets will be picked up by the crane, installed, and partially driven. The next pair of sheets will be picked up by the crane, laced with the previously placed pair of sheets, and that pair will be driven. A manlift will assist in the installation by lacing the sheet piles prior to being driven.

Sevenson will then utilize a Mobile Ram in order to drive the sheets to final toe elevation.

This unit also has the ability to pick the sheets up, hold and raise them by extending its vertical mast, then lace the sheets with the previously placed sheets and drive it in with the hammer unit attached to the mast. The machine will sit approximately 2 to 5 ft away from the sheet being driven and track parallel to the alignment of the sheeting line.

Use of the Mobile Ram generally provides a quicker means of installing the sheet piling, while at the same time utilizes a smaller workforce in a more efficient manner. However, the Mobile Ram is somewhat limited by virtue of the fact that the maximum length of sheet piling which it can reasonably be expected to pick up and drive is approximately 62 ft in length. This is shorter than the longest sheets on the project, which range up to 77 ft in length. Approximately 30% of the sheets
exceed this 60 to 62-ft length. Therefore, Sevenson intends to utilize both the crane and the Mobile Ram in order to install and drive the sheet-piling wall.

All sheets have already been fabricated, delivered to the site, offloaded and stored on dunnage by Parsons in the order of their installation. After installation of the sheet piles begins and as needed, Sevenson will use a 90-ton crane to load 5-7 pairs of sheet piles onto a flatbed trailer and transport them to the site of installation in the order in which they will be driven.

Because the sheets will be delivered in welded pairs, the trailing interlock of the pair being driven will be cleaned and the specified De neef sealant will be installed within it. The precise sealant preparation and installation procedures will be established in conjunction with Parsons. After the De neef sealant has been applied, the sheet piling will be driven to final grade within the required 8-hour time frame required for the sealant. This method of installation will continue until all sheets have been satisfactorily installed.

Several points common to all of the sheets being installed, which will require special attention from Sevenson, include the possibility, due to the extreme softness of the soils that driving a pair of sheets may tend to drag the adjacent previously placed sheets as the piling installation progresses. This situation will be addressed by driving the sheet pile pairs to partial depth, and, after a sufficient linear footage of sheet piling has been partially driven, the mobile ram will then start back at the beginning of the sheeting line and complete the driving in a staged (panel) fashion.

Horizontal alignment of the sheet piling will be maintained by the use of a driving template. This template will consist of a pair of 6-ft high frameworks of steel beams placed along both sides of the sheet pile wall. The paired sheet piles will then be positioned between these templates and driven. This will ensure that the wall will be driven in a straight line. Vertical alignment will be maintained by driving the piling within this template with the leading edge of the sheet piling positioned against two horizontal beams placed perpendicular to the direction of driving the sheets. These horizontal beams will be attached to the longitudinal template steel at a 90-degree angle. This will then allow for both vertical as well as horizontal positioning and installation of the sheet pile wall.

Additionally, this template will provide support to the previously driven sheets in order to prevent these sheets from being ‘dragged down’ during the installation of the next pair of sheet piles. This will be accomplished by tack welding the previously driven pair of sheets below the epoxy coating to the template until a sufficient footage of sheets has been installed. The weld would then be removed and the panel of sheets, as a group, can be cut from the template and driven down to grade. If grade is below the surface, a trench will be cut so there is room for the driving head of the hammer of whichever machine is used. The template moved forward, and the next series of sheets installed in the same manner.

It is possible that the ‘zero blow count’ material that the wall will be driven into may allow the sheets to be simply ‘driven’ by placing the weight of the hammer on it and pressing the sheet into place, especially after the sheet piling is ‘driven’ through the stone platform. This may be especially true in the portion of the work where the sheet piling is driven off the alignment of the working platform, directly into the marshy material. In this case, the piling template may have to be adjusted by adding additional steel to the outside edges of the template in order to allow for a longer and wider template base in order to provide both horizontal and vertical alignment.

Sevenson anticipates that the sheeting will encounter a range of various driving conditions. As such, this factor has been taken into account while calculating and estimating the anticipated daily production of sheet pile installation. Sevenson anticipates that this daily production will be in the range of 75 linear feet (lf) per day. A reasonable amount of weather and wind conditions, which could prevent work from being performed on this item, has also been incorporated into the driving schedule.
Sevenson will repair any area of coating damaged during the driving and handling of the sheets. Hand holes at the top of the sheets will be covered with steel plating and coated.

Because a portion of the sheet pile wall will be required to be installed during the relocation of the box culvert, it is important that these particular sheets be installed first. This will allow for the installation of the remaining sheets, as well as work on the box culvert and the Harbor Brook by-pass to be ongoing simultaneously.

Care will be taken to ensure that the new East Wall sheet piles will be positioned so that connection to the existing West Wall sheet piling will be made without the need for any special section of sheet-piling.

An additional component of the work associated with the sheet pile wall involves the installation of sacrificial anodes. One anode will be installed every 15 ft on alternating sides of the wall. The anodes will be attached to the sheet piling by a steel angle that will be welded to the sheet piling. Additionally, the anode will be installed in an enclosure attached to the sheeting.

In the unlikely event that any sheet piling has to be spliced, care will be taken to ensure that the interlocks, as well as the flutes, line up perfectly, and all welding will be performed by certified welders. Alignment will be maintained by welding ‘ears’ onto the driven portion of the pile in which the additional portion of the sheets will be positioned. In this case, the additional portion of sheet piling will be held and supported by the crane until all welding has been completed and accepted.

The placement of monitoring locations along the installed wall will be designated and clearly marked every 30 ft along the wall. These points will be surveyed by Sevenson and monitored periodically as required.

Maintenance of the QCP will be the responsibility of Sevenson’s Project Engineer. The Project Engineer will be responsible for ensuring that all materials and work comply with the contract specifications. Sevenson will maintain driving logs as required by the contract documents.

4.3 TRENCH EXCAVATION AND PIPE INSTALLATION

Installation of the 6-in diameter FRP collection pipe and the 4-inch (in) diameter FRP force main will be done concurrently and take place upon completion of the sheet pile wall installation.

This pipe will be installed approximately 10 ft away from the piling in a trench excavated by a track backhoe. Care will be taken during excavation for this piping to ensure that no damage or movement of the wall takes place.

The trench will be dug according to Drawing C-028. All open trenches will be shored or trench-boxed at all times until backfilled. Because of soil conditions and stability concerns with the CSX tracks, trenching in the vicinity of the CSX tracks will be limited as follows:

a. No open trenching.

b. Shoring or trench boxes are to extend to grade (no sloping of side walls).

c. Gaps between shoring or trench boxes and trench side walls are to be backfilled by end of work day.

d. Trench is to be backfilled, as the trench box or shoring is removed, to grade.

After excavating this trench for the collection pipe to the lines and grades specified, 12 in of washed stone will be placed in the bottom of the trench. Eight inches of type 1B course aggregate will then be installed as pipe bedding and the 6-in-diameter fiberglass reinforced collection pipe will be installed.
The trench will then continue to be backfilled with the 1B aggregate up to the level of the FRP force main pipe. This will then be positioned and installed as required. Backfill will continue up to the elevation below the 8-in low-permeable soil layer to be installed, and then covered by the finish course, which may be topsoil and/or stone.

Metallic warning tape will be installed over the force main as a means to warn anyone excavating in the area of the presence of this underground piping.

All required testing of the pipes, pump stations, clean-outs, etc. will be performed and any repairs and/or adjustments made.

During the course of pipeline installation, the backfill will be compacted as required. It is anticipated that the piping may be installed within trench boxes, depending upon the actual depth from the surface of the existing ground to the bottom of the 6 in FRP collection pipe and bedding stone.

4.4 COLLECTION SUMP AND VALVE VAULT INSTALLATION

See Item 4.6 (below), which details a complete description of the installation of this collection sump and valve vault.

4.5 ELECTRICAL CONDUIT INSTALLATION AND WIRING

PVC Schedule 80 conduit will be installed where noted on the Contract Plans. This conduit varies in diameter and will be utilized to carry power as well as control wiring to the various inclinometers, piezometers and collection sump CS-7. Sevenson will excavate for the installation of all conduits, including all handholes, pull boxes, etc. All wiring will be supplied and installed by Sevenson’s electrical subcontractor, who will be appropriately licensed to perform such work and will have been previously approved by Parsons, as will all of Sevenson’s proposed subcontractors.

Electrical conduit that is to be installed in conjunction with the culvert crossing will be a 2 ft wide, 1 ft high, 3 wire concrete encased duct. Sevenson will install this duct during construction and installation of the box culvert. Sevenson’s licensed electrical subcontractor will install all wiring, controls, etc. associated with this installation.

4.6 INSTALL SUMP 7, VALVE VAULT (2 EA) & MECHANICALS, CONNECTIONS, AND TESTING

Sevenson will excavate for and install collection sump CS-7, including the associated valve vault, the additional (spare) vault and all specified interconnected piping, etc. This excavation will be performed by the use of a track excavator. The sides of the excavation for these structures will be laid back on an acceptable slope in order to provide for a safe working condition for the men installing this chamber and vault. Excavations in the vicinity of CSX tracks will be limited as discussed under Section 4.3 above.

The collection sump will consist of pre-cast, 4-ft-diameter manhole sections, a pre-cast base section complete with boot seals, and the flat-top section. All interior piping, high level / low level alarms, pumps, butterfly valves, operators, etc. will be supplied and installed by Sevenson’s approved mechanical subcontractor.

The sump will be installed upon 2 ft of 4-in washed stone. A PC 300 backhoe will perform the excavation for the sump and valve vaults. The vaults, which will also be pre-cast units, will be 4 ft wide by 5 ft long and 4.5 ft high.
The sump and valve vault will be connected by a 6-in diameter flex coupling through which the 2 in diameter discharge hose from the specified 60 gpm pump will pass in order to be connected to the vaults interior plumbing. Both the vault and the sumps are to be equipped with aluminum hatches. Pump controls will be supplied and installed by Sevenson’s electrical subcontractor, as will the rest of the electrical work.

All components of the system will be thoroughly tested and checked to be sure it operates within all specified Parameters.

4.7 PIEZOMETER INSTALLATION

Four (4) piezometers are to be installed under this Contract. A well driller licensed and certified in New York State will perform the installation of these piezometers.

The completed piezometers will be outfitted with protective concrete rings and the specified covers.

Additional piezometers, as well as inclinometers, are also to be installed within the work limits. However, these are designated to be installed by Parsons.

4.8 PHASE I, II, AND III – HARBOR BROOK DIVERSION

Relocation of a portion of Harbor Brook Creek is required as part of the Contract work.

This operation will be divided into three separate Phases of Work.

Phase 1:

The First Phase involves the removal of a section of roadway, over the existing culvert, during construction prior to the preparation of newly lined channel into which the diverted creek will ultimately flow and the installation of sheet piles from station 3+50 to 5+25. Vehicle traffic will not be allowed to pass through the work zone. All traffic will be instructed to enter the site in a manner as not to enter the work zone when coming on site.

Prior to beginning any intrusive work, a Sevenson surveyor will layout locations of the center line of the new Harbor Brook channel, the laydown area, sheet piles from STA 3+50 to 5+25 and the new Box Culvert.

The new channel will be excavated along the alignment and to design grade as identified in the Construction Drawings C-024. An excavator will remove material, in the channel. The excavator will either load material directly into an off road dump truck or create a stockpile behind itself where a loader will place the material into the off road truck for disposal. Crane mats will be used as a platform for the excavator as it digs the new channel. An earthen coffer dam will be built, in the new channel, to the elevation and location identified in Contact Drawing C-023. Sevenson will install fabric, channel lining gravel and rip-rap aprons as shown in Contract Drawing C-024. After the new channel has been completed, sheet piles will be installed from approximate station 3+50 to 5+25. The top of wall shall be installed to final design elevations.

Sevenson will contact the local Dig-Safe office to identify any utilities that may be in the work zones. These utility locations will be marked and protected prior to beginning any work.

Clearing & Grubbing

This will be done in and around the Laydown Area, Decon Pad and along the proposed path of the new Harbor Brook channel. Sevenson will utilize a shear attachment to a PC300 for any tree removal
within the work zone and a tub grinder to pulverize the wood debris into a manageable size for disposal.

Phase 2:

After completion of the initial phase, the Second Phase will commence. This phase includes the supply, installation, and operation of the by-pass pumping system, which includes coffer dams, wet-well, pumps, piping, manifolds, pump support pads, etc. The pumps which Sevenson anticipates supplying and utilizing consists of three up to 12-in diameter diesel powered dry-prime pumps, as manufactured by Godwin Pumps or equivalent.

By-Pass Pumping

One of these pumps will be the primary pump that will be capable of pumping and discharging the specified 3500 to 4000 GPM of bypassed waters. The second pump will be provided in order to supply additional pumping capacity in the event of an unusually heavy precipitation event. The third pump will act as a spare pump in the event of a breakdown of either the primary or secondary pump.

All pumps will be connected by a manifold system that will automatically control the startup of each pump, as well as the transfer of pumping capacity to the secondary or spare pumps as conditions dictate.

Discharge of the by-passed waters will be conducted by use of HDPE piping or rigid hose which will direct the pumped water to the new creek location. The water will be diverted to an energy dissipater, which will consist of geotextile fabric and appropriately sized riprap. The discharge will be monitored for sheen and turbidity.

An Earthen coffer dam designed to block flow back, to the old Harbor Brook channel, and turbidity curtain will be installed in locations identified in the contract drawing C-023. This will be done in conjunction with removing the earthen coffer dam that will be blocking flow back to the new Harbor Brook channel.

A separate plan will be submitted for the diversion of Harbor Brook; including the proposed installation methods for the culvert, the wet well, phasing of construction, methods of controls, design of coffer dams, sumps and sizing of pumps.

Contingency Plan

Based on data collected that identified potential storm conditions that may cause flow from Harbor Brook to exceed the combined pumping capacity of the three 12” pumps; the contingency plan includes removing all loose material and equipment from the path of the water flowing from Harbor Creek into Onondaga Lake and allow the water to pass without causing any major damage to the work zones. As part of a utility shoring submittal, a contingency plan will identify methods and means to address possible damage to any pipelines.

Demolition

Also included within this second phase of creek relocation is the demolition and removal of the existing box culvert through which the original location of the creek flowed. This culvert will be replaced with a new 20 ft by 8 ft pre-cast concrete box-culvert and pre-cast wing walls.

The new culvert will be installed under existing utilities. Therefore, extreme caution will be required in working around and under these utilities. Sevenson will make use of one excavator and one dozer during the demolition of the existing culvert and installation of the new one. Crane mats will be used in a manner to provide additional support to the steel structure that is supporting the 36” and 12” pipelines crossing Harbor Brook. These mats will be placed underneath the steel structure as close to
the existing concrete footer as possible and will remain in place while working under the structure to support the pipelines in the event that the concrete footings that support them become undermined during demolition and excavation of the existing culvert. Some minor soil removal may be necessary to provide the clearance beneath the steel structure. A review of the proposed crane mat support detail will be conducted by a New York State Licensed Professional Engineer hired by Sevenson. A figure that identifies the shoring plan and calculations will be submitted under a separate work plan for review by the Engineer (Parsons) before removal of the existing box culvert begins.

A 150-ton crane will be used to install the sheet piles. An excavator with several different attachments may be used. These would include a Hoe Ram, Pulverizer, Grapple and a bucket will be to demolish and remove the existing culvert. A spotter will be assigned to the activity to insure that the steel structure is not damaged during demolition and removal of existing culvert. The work plan will also illustrate how Sevenson will maximize the effort to minimize the vibration in the vicinity of the utilities.

Phase 3:

The final Third Phase of the relocation involves restoring flow to the new creek alignment through the new box culvert. Also included is backfilling and removal of all bypass equipment and off-site disposal of the stone pads, stone energy disperser, and stone materials associated with the wet-well.

The flow diversion earthen coffers, turbidity curtains, etc. will also be removed and disposed off-site or decontaminated as appropriate. Flow shall not be directed through the new culvert or channel until final approval is given by Parsons Design Engineer.

The former Harbor Brook channel will be backfilled in accordance with the construction drawings and specified under “Specifications for Earthwork”. Equipment to be used for this activity may include, but not limited to a PC300, WA380 loader, LGP Dozer and an Off-Road Dump Truck. The backfilling operation will be done in the reverse manner to the excavation of the new Harbor Brook channel. A truck will dump material in a spot that the excavator can reach and place in front of itself backfilling the old channel. A loader may needed to feed the excavator in the event that the dump truck cannot deliver material to the excavator. The excavator will use the backfill material as a platform and work its way out to the intersection of the new channel. Crane mats may be used to as additional support for the equipment during the backfilling operation. The upper 6” of the former channel will be finished with topsoil, seed, fertilizer and mulch.

4.9 Wick Drain Installation

A subcontractor to Sevenson will supply and install the wick drains, as well as all equipment required to place and install them.

The layout of the area and the grid intersection locations at which the wicks will be installed will be performed by Sevenson personnel. It is anticipated that the wicks will be installed by a backhoe-mounted unit that will drive the wick to its final depth at the bottom of the MARL layer/top of the silt and clay stratum which ranges from 40 to 70 ft below grade.

The wicks will be installed approximately 2 ft from the alignment of the collection pipe and force main locations. They will be spaced every 3 ft along the alignment of the sheet piling wall. The tops of each wick will terminate in the low permeable soil cover that will be placed immediately under the final cover of the collection trench.
4.10 FINISH GRADE OF TRENCHES & INSTALL SAFETY BERM

Upon completion of installation and backfill of the collection piping, sumps, vaults, force mains, etc., the surfaces of the trenches and excavations, which were made for installing these appurtenances, will be finished graded. The surface course specified for each location, whether it be stone or 4 in of topsoil will be placed and either compacted or seeded as appropriate.

Also incorporated under this item is the installation of a ‘safety berm’. This is an engineered fill material that will be placed, graded, and hand compacted in 12-inch lifts over two exposed portions of the sheet pile wall. There are 2 areas of the wall totaling approximately 1,000 lf where this safety berm is specified to be installed. The slope and width of the berm is premised upon the height of the sheeting, which will be the apex of the top of the safety berm and from which the bermed material will transition, on a 3 H: 1V slope to the existing grade.

4.11 CONSTRUCTION WATER MANAGEMENT

Water management will consist of the collection of potentially contaminated waters that have accumulated in the excavations.

These waters will be pumped from the excavation by use of vac trucks or dedicated pumps with hoses and / or piping. The water will be pumped to a mod-u-tank or a series of storage tanks in which sediment within the water will be allowed to settle out.

The water will then be pumped (from 12 in above the bottom of the tank) and discharged through a series of bag filters and immediately directed to the Willis wastewater treatment plant.

Sediments that have accumulated in the bottom of the tank(s) will be collected, stabilized if required, and disposed of on-site.

An attempt will be made by Sevenson to limit the amount of water that enters the excavations. This may be accomplished by installing earthen berms or clay check dams around the excavations if possible, as well as attempting to grade the surrounding areas to promote flow away from the excavation. Mobile storage tanks, with a 20,000 gallon capacity may be utilized to store construction water that collects in the open trenches. Potential pumping scenarios may include early morning start or continuous pumping. A determination as to the proper method of pumping will be done as the need presents itself during excavation.

DEMOBILIZATION AND CLEANUP

Upon satisfactory completion of all specified work, Sevenson will commence with the demobilization / cleanup of the project site.

All Sevenson equipment will be decontaminated, certified clean by the Health and Safety Officer and then released from the project. This equipment will be placed on low-boys and transported either back to Sevenson’s main yard in Niagara Falls or to its next location of work.

All personnel, upon completion of the need for their services, will be given their exit physicals.

All trailers, storage vans, etc. that Sevenson had installed will be removed from the site.

At this point, the site of the work will again be policed of all materials, trash, etc. and returned to its original or better condition than when the project commenced.
5. CLOSE-OUT

5.1 PROJECT DOCUMENTATION

Upon completion of the project, and acceptance by the Parsons, Sevenson will package and turn over to Parsons all paperwork, drawings, daily reports, survey notes, as-built data, etc. that is specified to be collected by Sevenson and transmitted to Parsons at the completion of the project.

Some of these items will have been forwarded to Parsons during the course of the project, such as the daily reports, test results, etc.

Sevenson will work with Parsons to ensure that all required data has been collected and transmitted to them in a timely and appropriate manner.
APPENDIX B

COMMUNITY AIR MONITORING PLAN
New York State Department of Health
Generic Community Air Monitoring Plan

A Community Air Monitoring Plan (CAMP) requires real-time monitoring for volatile organic compounds (VOCs) and particulates (i.e., dust) at the downwind perimeter of each designated work area when certain activities are in progress at contaminated sites. The CAMP is not intended for use in establishing action levels for worker respiratory protection. Rather, its intent is to provide a measure of protection for the downwind community (i.e., off-site receptors including residences and businesses and on-site workers not directly involved with the subject work activities) from potential airborne contaminant releases as a direct result of investigative and remedial work activities. The action levels specified herein require increased monitoring, corrective actions to abate emissions, and/or work shutdown. Additionally, the CAMP helps to confirm that work activities did not spread contamination off-site through the air.

The generic CAMP presented below will be sufficient to cover many, if not most, sites. Specific requirements should be reviewed for each situation in consultation with NYSDOH to ensure proper applicability. In some cases, a separate site-specific CAMP or supplement may be required. Depending upon the nature of contamination, chemical-specific monitoring with appropriately-sensitive methods may be required. Depending upon the proximity of potentially exposed individuals, more stringent monitoring or response levels than those presented below may be required. Special requirements will be necessary for work within 20 feet of potentially exposed individuals or structures and for indoor work with co-located residences or facilities. These requirements should be determined in consultation with NYSDOH.

Reliance on the CAMP should not preclude simple, common-sense measures to keep VOCs, dust, and odors at a minimum around the work areas.

Community Air Monitoring Plan

Depending upon the nature of known or potential contaminants at each site, real-time air monitoring for volatile organic compounds (VOCs) and/or particulate levels at the perimeter of the exclusion zone or work area will be necessary. Most sites will involve VOC and particulate monitoring; sites known to be contaminated with heavy metals alone may only require particulate monitoring. If radiological contamination is a concern, additional monitoring requirements may be necessary per consultation with appropriate NYSDEC/NYSDOH staff.

Continuous monitoring will be required for all ground intrusive activities and during the demolition of contaminated or potentially contaminated structures. Ground intrusive activities include, but are not limited to, soil/waste excavation and handling, test pitting or trenching, and the installation of soil borings or monitoring wells.
Periodic monitoring for VOCs will be required during non-intrusive activities such as the collection of soil and sediment samples or the collection of groundwater samples from existing monitoring wells. “Periodic” monitoring during sample collection might reasonably consist of taking a reading upon arrival at a sample location, monitoring while opening a well cap or overturning soil, monitoring during well baling/purging, and taking a reading prior to leaving a sample location. In some instances, depending upon the proximity of potentially exposed individuals, continuous monitoring may be required during sampling activities. Examples of such situations include groundwater sampling at wells on the curb of a busy urban street, in the midst of a public park, or adjacent to a school or residence.

VOC Monitoring, Response Levels, and Actions

Volatile organic compounds (VOCs) must be monitored at the downwind perimeter of the immediate work area (i.e., the exclusion zone) on a continuous basis or as otherwise specified. Upwind concentrations should be measured at the start of each workday and periodically thereafter to establish background conditions. The monitoring work should be performed using equipment appropriate to measure the types of contaminants known or suspected to be present. The equipment should be calibrated at least daily for the contaminant(s) of concern or for an appropriate surrogate. The equipment should be capable of calculating 15-minute running average concentrations, which will be compared to the levels specified below.

- If the ambient air concentration of total organic vapors at the downwind perimeter of the work area or exclusion zone exceeds 5 parts per million (ppm) above background for the 15-minute average, work activities must be temporarily halted and monitoring continued. If the total organic vapor level readily decreases (per instantaneous readings) below 5 ppm over background, work activities can resume with continued monitoring.

- If total organic vapor levels at the downwind perimeter of the work area or exclusion zone persist at levels in excess of 5 ppm over background but less than 25 ppm, work activities must be halted, the source of vapors identified, corrective actions taken to abate emissions, and monitoring continued. After these steps, work activities can resume provided that the total organic vapor level 200 feet downwind of the exclusion zone or half the distance to the nearest potential receptor or residential/commercial structure, whichever is less - but in no case less than 20 feet, is below 5 ppm over background for the 15-minute average.

- If the organic vapor level is above 25 ppm at the perimeter of the work area, activities must be shutdown.

All 15-minute readings must be recorded and be available for State (DEC and DOH) personnel to review. Instantaneous readings, if any, used for decision purposes should also be recorded.
Particulate Monitoring, Response Levels, and Actions

Particulate concentrations should be monitored continuously at the upwind and downwind perimeters of the exclusion zone at temporary particulate monitoring stations. The particulate monitoring should be performed using real-time monitoring equipment capable of measuring particulate matter less than 10 micrometers in size (PM-10) and capable of integrating over a period of 15 minutes (or less) for comparison to the airborne particulate action level. The equipment must be equipped with an audible alarm to indicate exceedance of the action level. In addition, fugitive dust migration should be visually assessed during all work activities.

- If the downwind PM-10 particulate level is 100 micrograms per cubic meter (mcg/m$^3$) greater than background (upwind perimeter) for the 15-minute period or if airborne dust is observed leaving the work area, then dust suppression techniques must be employed. Work may continue with dust suppression techniques provided that downwind PM-10 particulate levels do not exceed 150 mcg/m$^3$ above the upwind level and provided that no visible dust is migrating from the work area.

- If, after implementation of dust suppression techniques, downwind PM-10 particulate levels are greater than 150 mcg/m$^3$ above the upwind level, work must be stopped and a re-evaluation of activities initiated. Work can resume provided that dust suppression measures and other controls are successful in reducing the downwind PM-10 particulate concentration to within 150 mcg/m$^3$ of the upwind level and in preventing visible dust migration.

All readings must be recorded and be available for State (DEC and DOH) personnel to review.

June 20, 2000

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