
**REMEDIAL DESIGN WORK PLAN
GEDDES BROOK/NINEMILE CREEK
OPERABLE UNITS 1 AND 2**

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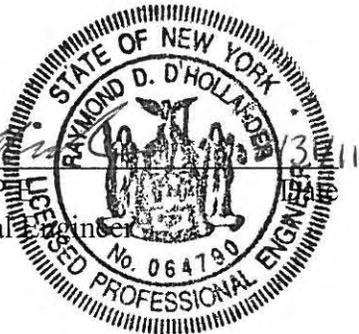
AUGUST 2011

CERTIFICATION STATEMENT

**REMEDIAL DESIGN WORK PLAN
GEDDES BROOK/NINEMILE CREEK
OPERABLE UNITS 1 AND 2**

I, Raymond D'Hollander, certify that I am currently a New York State registered professional engineer and that this Remedial Design Work Plan was prepared in accordance with all applicable statutes and regulations and in substantial conformance with the DER Technical Guidance for Site Investigation and Remediation (DER-10 dated May, 2010)


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Section 7209, Provision 2 of the New York State Education Law*

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LIST OF ACRONYMS

ARAR	Applicable or Relevant and Appropriate Requirements
CAMP	Community Air Monitoring Plan
CPOI	Chemical Parameter of Interest
CQAPP	Construction Quality Assurance Project Plan
CSAP	Construction Sampling and Analysis Plan
cy	cubic yards
FS	Feasibility Study
IRM	Interim Remedial Measure
LCP	Linden Chemical and Plastics
NPL	National Priorities List
NYSDEC	New York State Department of Environmental Conservation
OM&M	Operation, Maintenance, and Monitoring
OU	Operable Unit
PAF	Public Archeology Facility
PDI	Preliminary Design Investigation
RAO	Remedial Action Objective
RDWP	Remedial Design Work Plan
RG	Remedial Goal
ROD	Record of Decision
SCA	Sediment Consolidation Area
SOW	Statement of Work
TBC	To Be Considered
USEPA	United States Environmental Protection Agency

EXECUTIVE SUMMARY

Honeywell continues its progress toward achieving the goals of the Records of Decision (ROD)¹, and the community's vision for a restored Geddes Brook/ Ninemile Creek, with the development of this Remedial Design Work Plan (RDWP). The Geddes Brook/Ninemile Creek remediation plan, which was selected by the New York State Department of Environmental Conservation (NYSDEC) and the U.S. Environmental Protection Agency (USEPA), calls for a combination of removals and capping – environmental cleanup standard methods that will address the contamination in creek sediments and floodplain soils/sediments. The selected remedy also provides for the following community and ecological benefits:

- Increased sinuosity and length in Ninemile Creek
- Improved substrate for fish and macroinvertebrates
- Sufficient water depth for canoe access and fish passage
- Improved connectivity between Ninemile Creek and its floodplain
- Native emergent wetlands in the Ninemile Creek floodplain

This RDWP presents the activities and sequencing necessary to complete remedial design of the selected remedy.

NYSDEC and Honeywell have agreed to conditions under which Honeywell will design and implement the selected remedy, as set forth in the Consent Decree (United States District Court, Northern District of New York, (89-CV-815)). The selected remedy provides for:

- Removal and proper management of an estimated 117,000 cubic yards (CY) of contaminated soils and sediments²;
- Placement of clean materials throughout the site
- A focused study to evaluate what portions of the forested wetland at the mouth of Ninemile Creek will require remediation or may be preserved
- Re-establishment and enhancement of habitat impacted by implementation of the remedy as outlined above

¹ The site is organized into two Operable Units (OU-1 and OU-2), as shown on Figure 1-1. OU-1 consists of channel sediment and floodplain soil/sediment in and along lower Geddes Brook, as well as in Reaches BC and CD of lower Ninemile Creek. OU-2 consists of channel sediment and floodplain soil/sediment in and along Reach AB of lower Ninemile Creek. RODs were issued on April 29, 2009 (NYSDEC/USEPA 2009a) and October 1, 2009 (NYSDEC/USEPA 2009b) for OU-1 and OU-2, respectively.

² In order to expedite clean-up activities, the Geddes Brook portion of the Site is being remediated as an Interim Remedial Measure (IRM), as described in *Response Action Document, Geddes Brook IRM* (NYSDEC/USEPA, 2009). The IRM Response Action Document describes requirements for the removal of 67,000 cy of contaminated soil and sediment, which is not included in the 117,000 cy of Ninemile Creek material. The design prepared for the IRM (Parsons, 2011) is not included in this RDWP.



- Implementation of institutional controls
- Long-term operation, maintenance and monitoring

Given the role played by Geddes Brook/Ninemile Creek in the surrounding community, Honeywell is strongly committed to the timely implementation of the selected remedy. The overall goal for remedial design and construction is to achieve the remedial action objectives (RAOs) and remedial goals (RGs) developed as part of the Geddes Brook/Ninemile Creek feasibility study (FS) process and set forth in the RODs. RAOs are identifiable goals to protect human health and the environment. RGs are specific goals to achieve the RAOs and address the four primary affected media within the site: channel sediments, floodplain soils/sediments, biological tissue, and surface water.

Honeywell has conducted extensive pre-design activities to support design of the selected remedy and to supplement data collected during the Remedial Investigation (TAMS, 2003). Pre-design activities have included FS analyses, design-related investigation activities, cultural resource assessment, and wetlands and floodplain assessments. Design-related investigation activities have been conducted since 2007 to accelerate the design process and include topographic/bathymetric surveys, wetland/floodplain hydraulic connectivity surveys, channel and floodplain soil/sediment sampling, geotechnical and hydrogeological investigations, and channel sediment porewater investigations. These activities have provided more than 200 sediment cores, 30 groundwater monitoring piezometers, 10 deep borings, 500 geotechnical analyses, and 900 chemical analyses through 2009 to support design of the selected remedy. Additional pre-design activities will be conducted as necessary to complete the remedial design.

Honeywell will design and construct the Ninemile Creek remedy on an accelerated basis, to the extent possible, using expedited pre-design, design, and construction of critical path components. The remedial design for Ninemile Creek will include the preparation of three principal design submittals:

- 50% Design;
- Draft-Final (95%) Design; and
- Final (100%) Design.

Several organizations will be directly involved in the performance and review of the remedial design. Honeywell has retained professional consultants and subject matter experts to perform the technical, engineering, and analytical aspects of the remedial design, including preparation of the design submittals. NYSDEC and USEPA will review and approve plans, drawings, reports, and schedules submitted for the pre-design, remedial design, and remedial action. Honeywell will distribute documents approved or accepted by NYSDEC to the four public document repositories located in Syracuse, New York, and vicinity.

Honeywell is committed to informing and involving the public during the Geddes Brook/Ninemile Creek remediation program. NYSDEC will prepare a Citizen Participation Plan that provides a formal yet flexible plan for communication with the public during the Geddes

Brook/Ninemile Creek remediation program. The Citizen Participation Plan will be shared with the public prior to finalizing the document. The final document will be in place prior to the start of remedial construction at the site.

SECTION 1**INTRODUCTION**

This RDWP has been prepared on behalf of Honeywell International Inc. (Honeywell) and presents the process to design the remedies for Operable Units (OU) 1 and 2 of the Geddes Brook/Ninemile Creek site (the Site) shown on Figure 1-1. The Site is an Operable Unit of the Lake Bottom Site which is on the New York State Registry of Inactive Hazardous Waste Sites and is part of the Onondaga Lake National Priorities List (NPL) Site. Honeywell entered into a Consent Decree (United States District Court, Northern District of New York, 2011 (89-CV-815)) with NYSDEC to implement the selected remedy for OU-1 of Ninemile Creek as outlined in the ROD issued on April 29, 2009 (NYSDEC/USEPA 2009a), and for OU-2 as outlined in the ROD issued on October 1, 2009 (NYSDEC/USEPA 2009b). The following documents are appended to the Consent Decree: RODs, Statement of Work (SOW), and draft Environmental Easement forms.

The primary objective of this work plan is to provide the framework for implementing remedial design activities for the Geddes Brook/Ninemile Creek site that is consistent with the Consent Decree. The Consent Decree requires that this RDWP include the elements listed below:

- Summary of completed and planned pre-design investigation (PDI) field activities
- Description of the remedial design, including remedial goals, and the means for implementing each element of the remedy to achieve those goals
- Schedule for submitting remedial design documents
- Plan for physical security and posting of the site
- Health and Safety Plan to protect persons at and in the vicinity of the site during remedial design and construction

This RDWP has been developed consistent with applicable federal and state guidance documents for remedial design for hazardous waste sites (NYSDEC, 2010 (i.e., DER-10); USEPA, 1995a; USEPA, 1995b; and USEPA, 2005).

1.1 GEDDES BROOK / NINEMILE CREEK SITE DESCRIPTION

Ninemile Creek and its tributary, Geddes Brook, collectively referred to as Geddes Brook/Ninemile Creek, are located northwest of the City of Syracuse. Ninemile Creek, a primary tributary of Onondaga Lake, originates at Otisco Lake, approximately 16 miles southwest of Onondaga Lake. Geddes Brook originates in the town of Camillus and flows approximately 3.3 miles to its confluence with Ninemile Creek. Today, Geddes Brook/Ninemile Creek are impacted by past industrial pollution, relocated and channelized by road and bridge construction, and populated largely by non-native invasive plant species.

1.2 REMEDIATION OBJECTIVES AND GOALS

RAOs are identifiable goals to protect human health and the environment. The RODs present the following RAOs for the site:

- RAO 1: To eliminate or reduce, to the extent practicable, further transport of sediments and soils, containing mercury and other chemical parameters of interest (CPOIs), from the channel and floodplain of lower Geddes Brook and lower Ninemile Creek to Geddes Brook, Ninemile Creek, and ultimately Onondaga Lake.
- RAO 2: To eliminate or reduce, to the extent practicable, existing and potential future adverse ecological effects on fish and wildlife resources, as well as potential risks to humans.
- RAO 3: To eliminate or reduce, to the extent practicable, levels of mercury and other CPOIs in surface water in order to meet surface water quality standards.

To achieve the RAOs, RGs were developed to provide specific goals to address the four primary affected media within the site: channel sediments, floodplain soils/sediments, biological tissue, and surface water. The RODs present the following RGs for the site:

- RG 1: Reduce, contain, or control, to the extent practicable, mercury and other CPOI concentrations in erodible channel sediments and in erodible floodplain soils/sediments within the site.
- RG 2: Achieve CPOI concentrations, to the extent practicable, in channel sediments and floodplain soils/sediments that are protective of human health and fish and wildlife resources. This RG covers a range of risk levels for mercury and other CPOIs.
- RG 3: Achieve CPOI concentrations, to the extent practicable, in fish tissue that are protective of humans and wildlife that consume fish.
- RG 4: Achieve, to the extent practicable, aqueous CPOI concentrations to meet surface water quality standards.

RG 1 addresses RAOs 1 through 3. RG 2 addresses RAOs 1 and 2. RG 3 addresses RAO 2. RG 4 addresses RAO 3.

1.3 REMEDY OF RECORD

The RODs for OU-1 and OU-2 of the site present the remedy selected by NYSDEC and USEPA for addressing the RAOs and RGs presented in Section 1.2 above. The SOW, presented as Appendix C of the Consent Decree, further describes design-related elements for the implementation of the remedy.

Major components of the selected remedy, set forth in the RODs and SOW, are illustrated on Figure 1-2 and summarized as follows:

- Remove an estimated 59,000 cy of contaminated channel sediment and floodplain soil/sediment over approximately 15 acres in Reaches BC and CD of Ninemile Creek (Figure 1-1). For the remainder of OU-1, approximately 67,000 cy of contaminated sediment and floodplain soil/sediment will be removed over approximately 16 acres from lower Geddes Brook and its floodplain under an Interim Remedial Measure (IRM).
- Relocate a portion of Reach CD to facilitate remedial construction and to create a buffer between Ninemile Creek and Wastebeds 9 and 10.
- Remove an estimated 58,000 cy of contaminated channel sediment and floodplain soil/sediment over approximately 15.5 acres in Reach AB of Ninemile Creek. This volume estimate, however, is based on 2 ft of removal from approximately 4.3 acres of forested wetland in wetland SYW-10. As stated in the ROD, a focused study will take place during remedial design to evaluate criteria such as contaminant concentration, habitat value, size, location within SYW-10, and engineering considerations, to determine what portions of SYW-10 would require remediation.
- Place clean materials throughout the site. These materials will consist of one or more of the following layers, from the surface down: habitat layer, backfill, and where needed, an isolation cap. Within the engineering / feasibility constraints of required removals, eliminate or minimize the need for an isolation cap in the Reach CD and AB channels.
- Dispose contaminated sediment and soil removed from the channel and floodplains at the Linden Chemical and Plastics (LCP) Bridge Street subsite containment system, which was constructed pursuant to the requirements of a September 2000 ROD, or the Sediment Consolidation Area (SCA) that will be constructed at Wastebed 13 as part of the Onondaga Lake Bottom Site Remedy pursuant to the requirements of a July 2005 ROD.
- Treat construction water generated by remedial activities.
- Restore stream bed and banks, wetlands, and habitats following sediment and soil removal.

The environmental benefits of the remedy may be enhanced by consideration, during remedial design, of technologies and practices that are sustainable in accordance with EPA Region 2's Clean and Green policy. The selected remedy also includes the implementation of institutional controls, as well as the implementation of a long-term operation, maintenance, and monitoring (OM&M) program to monitor and maintain the effectiveness of the remedy.

1.4 OVERVIEW OF REMEDIAL DESIGN REQUIREMENTS

The primary objective of the remedial design is to develop plans and specifications for implementing the selected remedy consistent with the Consent Decree. Remedial design requirements presented in the Consent Decree are presented below.

- A detailed description of remedial goals for the site, as set forth in the RODs;
- A detailed description of each element of the remedy and the means by which each element will be implemented to achieve the remedial goals for the site;
- ‘Biddable Quality’ documents for the remedial design including, but not limited to, documents and specifications prepared, signed, and sealed by a professional engineer. These plans shall be consistent with all applicable local, state, and federal laws, rules, and regulations;
- A detailed time schedule to implement the remedial design;
- The parameters, conditions, procedures, and protocols to determine the effectiveness of the remedy as designed, including a schedule for periodic sampling of all relevant environmental media, on-site and off-site;
- A description of operations, maintenance, and monitoring (OM&M) activities to be undertaken at and in the vicinity of the site, which details the operation and maintenance procedures to be employed during system startup as well as on a long-term basis, and which describes the long-term OM&M strategy and schedule;
- A contingency plan to be implemented if any element of the remedy as designed, when implemented, fails to achieve any of its objectives or otherwise fails to protect human health or the environment, to ensure that such objectives and protections are achieved (Remedial Program Contingency Plans); and
- A citizen participation plan which incorporates appropriate activities outlined in the NYSDEC’s publication, *Citizen Participation in New York’s Hazardous Waste Site Remediation Program- A Guidebook*, dated June 1998, and any subsequent revisions thereto, and 6 NYCRR Part 375 (United States District Court, Northern District of New York, 2007, paragraph 29).

Specific activities to accomplish the remedial design requirements, thus achieving the primary remedial design objective, are described within this work plan.

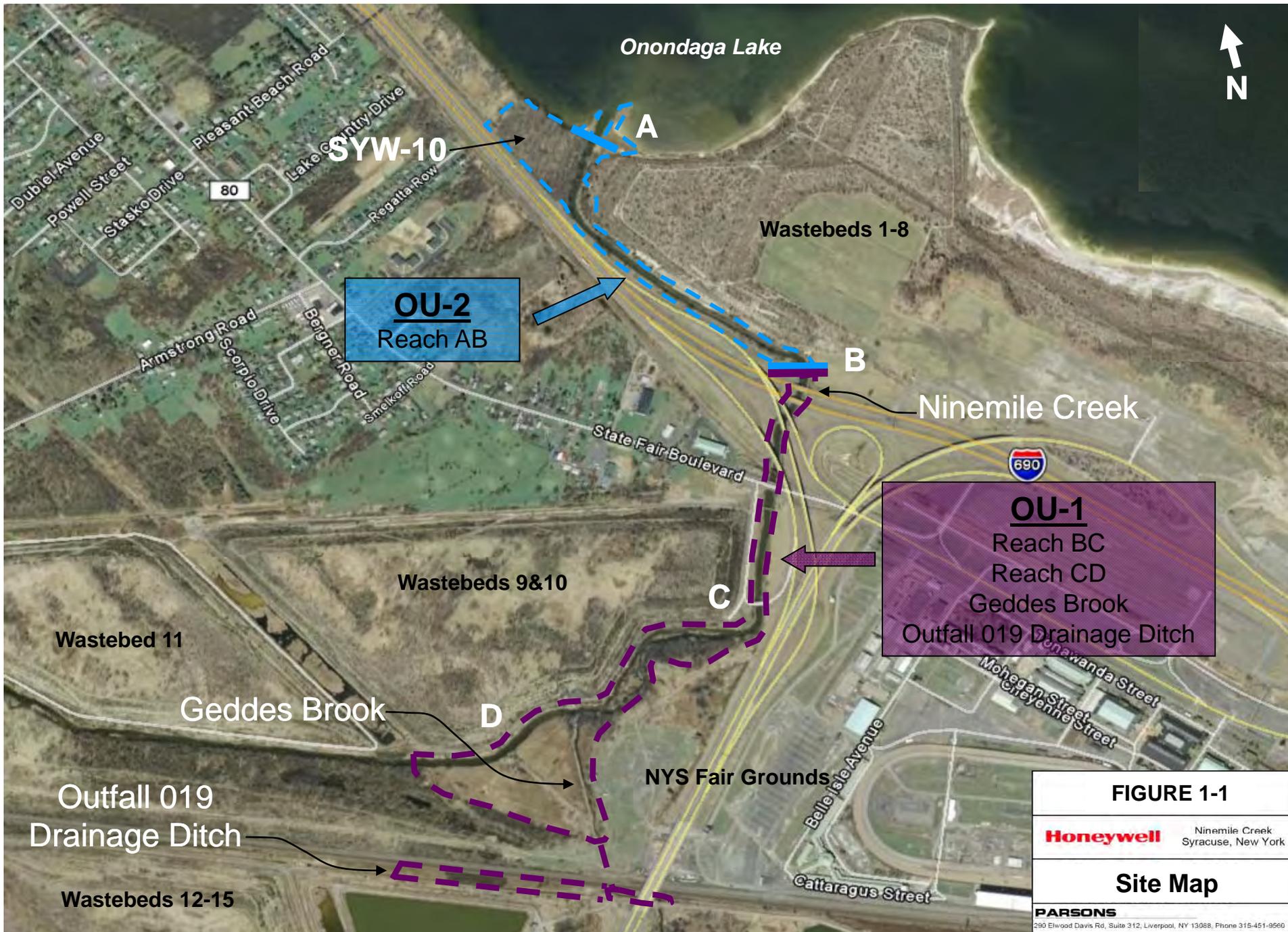
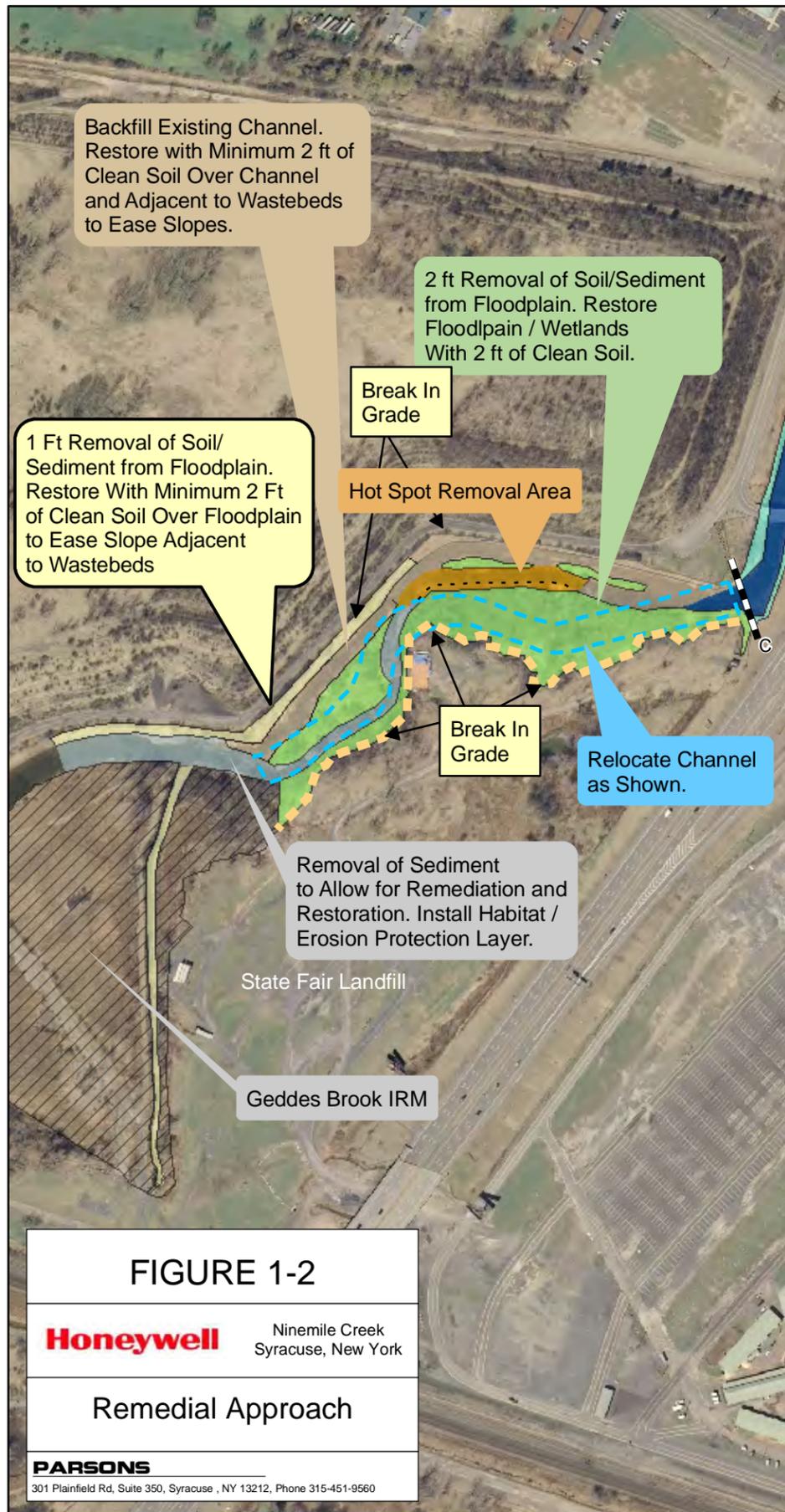


FIGURE 1-1

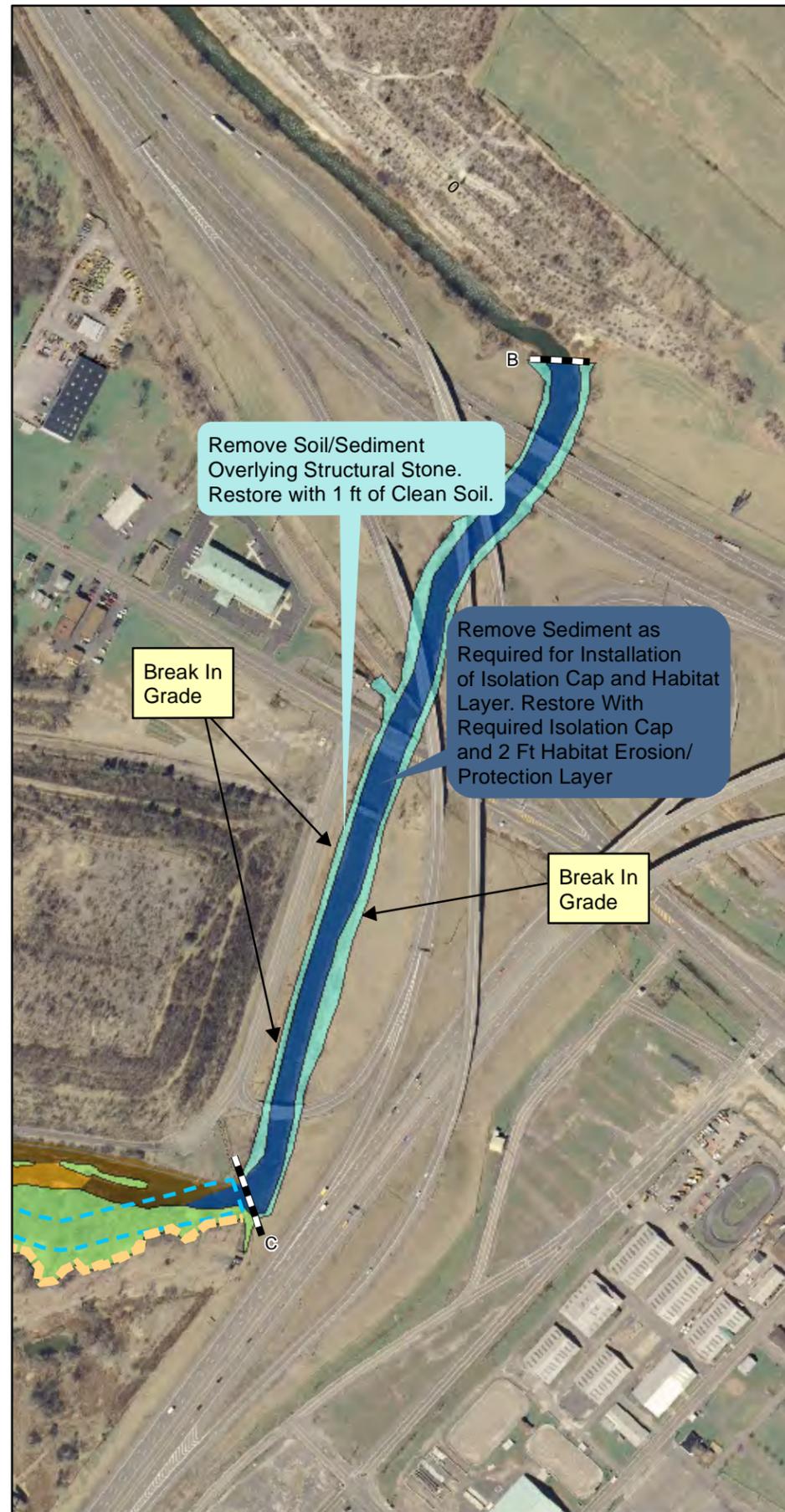
Honeywell Ninemile Creek
Syracuse, New York

Site Map

Upper & Lower Reach CD



Reach BC



Reach AB

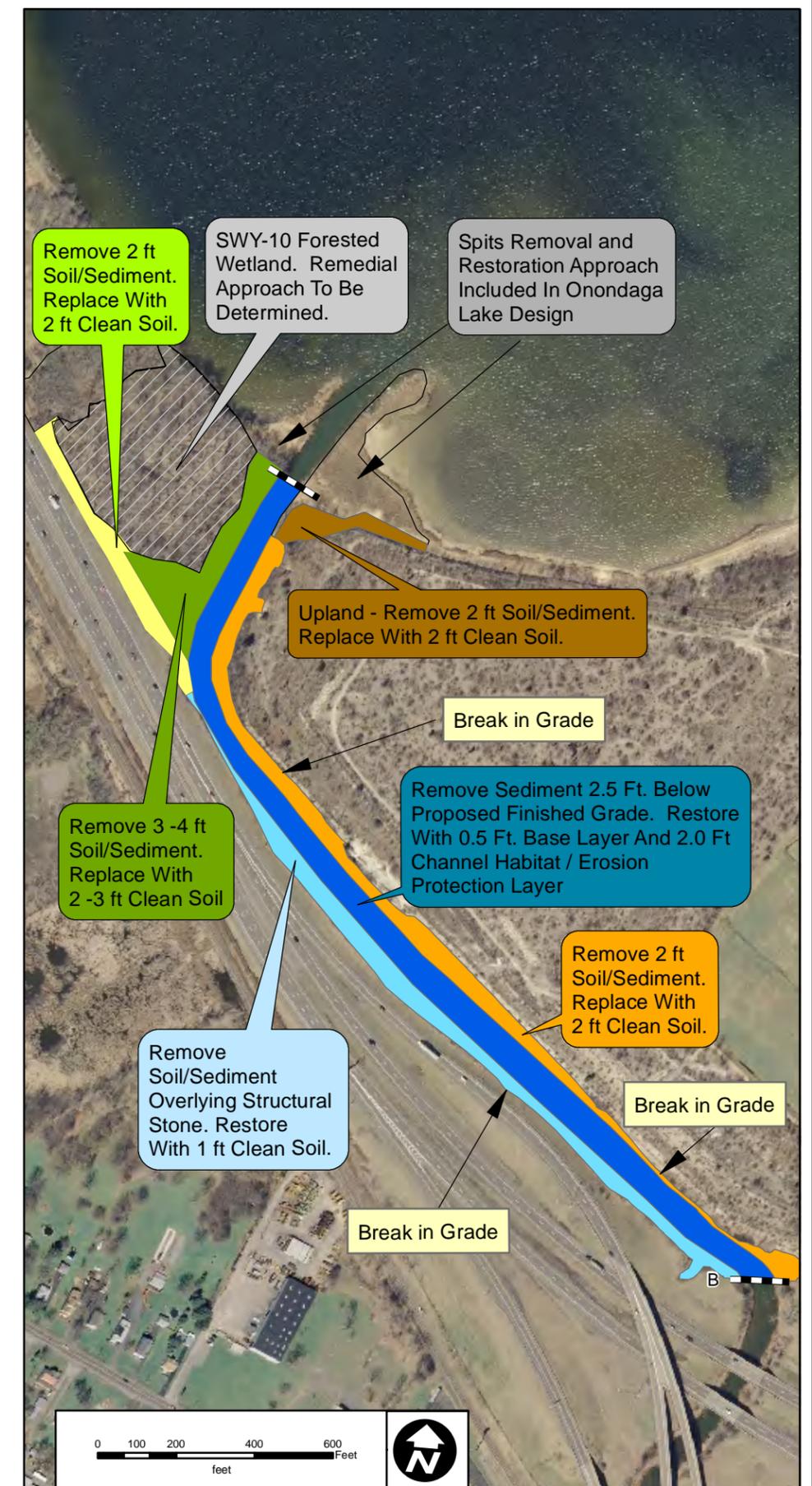


FIGURE 1-2

Honeywell Ninemile Creek
Syracuse, New York

Remedial Approach

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SECTION 2

PRE-DESIGN ACTIVITIES

This section provides a summary of pre-design and design-related activities conducted to date and planned to support the design of the selected remedy for the Site. Referenced documents are available at the public repositories listed in Section 5.3.

2.1 REMEDIAL INVESTIGATION / FEASIBILITY STUDY

The site was the subject of multiple investigations conducted from 1992 to 2002. Investigations conducted by Honeywell in 1992 and 1995 were part of the Onondaga Lake remedial investigation; site-specific remedial investigations were conducted in 1998. The results of these investigations and investigation by NYSDEC in 2002 are presented in the Geddes Brook/Ninemile Creek RI Report (TAMS, 2003).

In 2002, Honeywell and NYSDEC entered into an Order on Consent to conduct an IRM for Geddes Brook. Pursuant to the IRM Work Plan, pre-design investigation sampling was conducted in 2002. The results of this investigation, as well as the previous remedial investigations, are summarized in the Geddes Brook/Ninemile Creek Feasibility Study Report (Parsons, 2005a).

Following the submission of the feasibility study (FS) (Parsons, 2005a), and to support the development of a Supplemental FS for OU-1, field investigations were conducted at the site during the summer of 2007 that assessed physical site characteristics (i.e., depth to groundwater in floodplains, extent of existing bank armoring in Reaches AB and BC), as well as the nature and extent of contamination (i.e., soil/sediment sampling at floodplains associated with Geddes Brook, Reach CD, and Reach AB). Relevant work plans and results are provided in Appendix B of the Geddes Brook/Ninemile Creek Operable Unit 1 Supplemental Feasibility Study Report (Parsons, 2008a) (OU-1 Supplemental FS).

Similarly, field investigations were conducted at the site during the fall of 2008 to support the development of a Supplemental FS for OU-2. These investigations included a temperature / conductivity survey of Ninemile Creek Reaches AB, BC, and CD, and channel sediment sampling at Ninemile Creek Reach AB. Relevant work plans (Parsons, 2008b and Parsons, 2008f, respectively) and results are presented in Appendix B of the Geddes Brook/Ninemile Creek Operable Unit 2 Supplemental Feasibility Study Report (Parsons, 2009a) (OU-2 Supplemental FS).

Preliminary engineering evaluations conducted during the FS process are summarized below.

Estimates of Remedial Area, Volume, and Mass: The FS (Parsons, 2005a) presented estimates of remedial area, volume, and mass. Subsequent to the submittal of the FS, additional evaluations were conducted based on the 2007/2008 field investigation data

and the alternatives presented in the Supplemental FS. The updated area, volume, and mass results, as well as tabulations of existing site CPOI data, are presented in Appendix C of the OU-1 Supplemental FS (Parsons 2008a) and Appendix C of the OU-2 Supplemental FS (Parsons, 2009a).

Hydrodynamic/Geomorphic Analysis: The FS (Parsons, 2005a) presented a flood flow analysis and an evaluation of erosional and depositional areas of Geddes Brook and Ninemile Creek. Subsequent to the submittal of the FS, additional evaluations were conducted, including hydrodynamic modeling and geomorphologic analyses. The evaluations conducted are presented in Appendix D of the OU-1 Supplemental FS (Parsons 2008a) and Appendix D of the OU-2 Supplemental FS (Parsons, 2009a).

Chemical Isolation Layer Modeling: The FS (Parsons, 2005a) presented a sub-aqueous chemical isolation layer model and associated results. Subsequent to the submittal of the FS, additional chemical isolation layer modeling was conducted, incorporating refined estimates of groundwater upwelling rates based on field data collected since 2005. The results are presented in Appendix E of the OU-1 Supplemental FS (Parsons 2008a) and Appendix E of the OU-2 Supplemental FS (Parsons, 2009a).

The above preliminary engineering evaluations will be updated during the remedial design process, as appropriate.

2.2 PRE-DESIGN INVESTIGATIONS (COMPLETED OR UNDERWAY)

A number of pre-design investigations were initiated in 2008 using sequentially numbered NYSDEC-approved work plans, as summarized on Table 2.1. The results of two investigations were incorporated into the OU-2 Supplemental FS (Work Plans 1 and 5A). Several of the investigations pertain to the Geddes Brook IRM and are not further discussed (Work Plans 6, 6A, 9 and 11). The remaining investigations that pertain to the Ninemile Creek OU-1 and OU-2, including baseline monitoring, remedies are described below.

Topographic/Bathymetric Survey (Work Plan #2): A topographic/bathymetric survey was conducted at the site pursuant to work plan dated September 30, 2008 (Parsons, 2008c). Survey data and related drawings (1 ft contours for topography; 0.5 ft contours for bathymetry) were provided to NYSDEC electronically on May 4, 2009 and included in the *Ninemile Creek Pre-Design Investigation Data Summary Report* (Parsons, 2010a). The survey information will be used as a basis for design.

Wetland/Floodplain Hydraulic Connectivity Survey (Work Plan #3): Monitoring of water levels at creek staff gauges and wetland/floodplain piezometers was initiated in April 2009 pursuant to a work plan dated November 3, 2008 (Parsons, 2008d). The monitoring continued into November 2009. The water level data were summarized in the *Ninemile Creek Pre-Design Investigation Data Summary Report* (Parsons, 2010a). The water level data will be used to support the wetland/floodplain restoration design.

Wetlands/Floodplains Assessment (Work Plan #4): A wetlands/floodplain assessment was conducted at the site pursuant to a work plan dated October 1, 2008 (Parsons,

2008e). The field effort included wetland delineation, assessment of values and functions, and characterization of flora and fauna. The results of the wetland/floodplain assessment were summarized in the report entitled *Wetland/Floodplain Assessment Ninemile Creek and Lower Reach of Geddes Brook* (TES, 2009), which was utilized to develop the RODs for OU-1 and OU-2. Based on this assessment, wetlands and streams in the remedial project area are shown on Figure 2-1.

Reach CD Channel and Floodplain Soil/Sediment Sampling (Work Plan #5):

Channel and floodplain soil/sediment samples were collected from Reach CD in December 2008 and analyzed for mercury pursuant to a work plan dated November 3, 2008 (Parsons, 2008f). The results of the channel sediment sampling were summarized in the *Ninemile Creek Pre-Design Investigation Data Summary Report* (Parsons, 2010a). The collected data will be used to support the design of soil/sediment removals and potentially isolation capping.

Addendum 1 to the Reach CD Channel and Floodplain Soil/Sediment Sampling (Work Plan #5a):

Channel and floodplain soil/sediment samples were collected from Reach AB in December 2008 and analyzed for mercury pursuant to a work plan dated December 16, 2008 (Parsons, 2008f). The results of the channel sediment sampling were summarized in the *Ninemile Creek Pre-Design Investigation Data Summary Report* (Parsons, 2010a). The collected data will be used to support the design of soil/sediment removals and potentially isolation capping.

Channel Sediment Geotechnical Analyses (Work Plan #7):

Channel sediment samples collected from Reaches CD and AB in December 2008 were analyzed for geotechnical parameters pursuant to a work plan dated March 10, 2009 (Parsons, 2009c). The results of the analyses were summarized in the *Ninemile Creek Pre-Design Investigation Data Summary Report* (Parsons, 2010a). The collected data will be used to support the design of soil/sediment removals.

Geotechnical and Hydrogeological Investigations (Work Plan #8):

Geotechnical borings were completed and piezometers installed in August and September 2009 pursuant to a work plan dated July 13, 2009 (Parsons, 2009d). This work was conducted to collect geotechnical and hydrogeological data required for evaluation of bank stability, erosion resistance, groundwater gradients, isolation cap design, excavation dewatering, and material handling. The piezometers installed were monitored from September 2009 through November 2009, and will also be monitored from mid-March 2010 through June 2010. The water level data is being collected to support the chemical isolation layer design. The geotechnical and hydrogeological data were summarized in the *Ninemile Creek Pre-Design Investigation Data Summary Report* (Parsons, 2010a).

Channel Sediment and Porewater Investigation (Work Plan #10):

Sediment and porewater samples were collected from Reaches CD, BC, and AB of Ninemile Creek pursuant to a work plan dated September 10, 2009 (Parsons, 2009f). The sediment and porewater data were summarized in the *Ninemile Creek Pre-Design Investigation Data*

Summary Report (Parsons, 2010a). The collected data will be used to support the design of sediment removals and isolation capping.

Floodplain Soil/Sediment Investigation (Work Plan #12): Floodplain soil/sediment samples were collected from the floodplains adjacent to Reaches CD, BC, and AB of Ninemile Creek pursuant to a work plan dated October 16, 2009 (Parsons, 2009h). The floodplain soil/sediment data were summarized in the *Ninemile Creek Pre-Design Investigation Data Summary Report* (Parsons, 2010a). The collected data will be used to support the design of soil/sediment removals.

SYW-10 Investigation (Work Plan #13): Wetland soil/sediment, earthworm, terrestrial invertebrates, and small mammals were collected within wetland SYW-10 and within an off-site reference area wetland pursuant to a work plan dated July 16, 2010 (Parsons, 2010b). In addition, several wildlife surveys and a forest stand assessment were also completed to evaluate the SYW-10 wetland. The collected data will be used to support the remedial design of the SYW-10 area.

Baseline Monitoring (Work Plan #14): Soil/sediment, surface water, earthworm, terrestrial invertebrate, prey fish, adult sport fish, and benthic macroinvertebrate samples were collected pursuant to a work plan dated November 3, 2010 (Parsons, 2010c). The collected data will be used to support the post-construction evaluation of remedy effectiveness.

2.3 PRE-DESIGN INVESTIGATIONS (FUTURE)

The investigations described in Sections 2.1 through 2.2 should provide sufficient data to complete the 50% design for OU-1 and OU-2. Data gaps identified during or following completion of the 50% design will be addressed during future pre-design investigations. Work plans which describe the scope of these investigations will be prepared and submitted to NYSDEC for approval prior to initiation of the investigations.

2.4 ANALYTICAL QUALITY ASSURANCE

Standard quality assurance and quality control procedures will be applied during the remedial design process. Laboratory analyses conducted as part of pre-design investigations will follow procedures outlined in the following Quality Assurance Project Plans as appropriate and as described in the investigation-specific work plans:

- *Onondaga Lake Pre-Design Investigation: Phase I Work Plan – Appendix B Quality Assurance Project Plan* (Parsons, 2005b)
- *Remedial Investigation/Feasibility Study – Wastebeds 1 through 8 Quality Assurance Project Plan* (O'Brien & Gere, 2006)
- *Onondaga Lake Baseline Monitoring Book 2 Work Plan – Appendix A Quality Assurance Project Plan* (Parsons, 2008g)

The plans provide a standard for quality control to provide for data are scientifically sound, comparable, defensible, and of known quality. The Quality Assurance Project Plans define procedures required to meet the data quality objectives including, although not limited to, procedures for field sampling, laboratory analysis, data validation, and data management.

2.5 HEALTH AND SAFETY PLAN(S)

The health and safety of site personnel, visitors and members of the public are considered paramount. Written health and safety plan(s) will be developed for each phase of the remediation project. The *Geddes Brook/Ninemile Creek Site: Project Safety Plan* (Parsons, 2008h), included by reference in this RDWP, describes the anticipated hazards and control measures to be applied to ongoing investigation activities related to the remedial design. Project health and safety plans will be developed and updated as needed to address changing activities and site conditions.

2.6 CULTURAL RESOURCES

The New York Archeology Council has developed a step-wise process for assessing cultural resources within a project area. The process is based on the standard practices of archeology and is designed to identify potential cultural resources prior to construction that could impact historic sites. Honeywell has completed the first step of a cultural resource assessment (Hohman, 2004), which includes a literature review and field reconnaissance for Onondaga Lake. Additional assessments of Geddes Brook / Ninemile Creek were conducted by Public Archeology Facility (PAF) in 2004 and 2005. A summary of this research is presented in a Phase 1B Work Plan (PAF, 2009). The Phase 1B Work Plan also provides a description of the proposed archeological work in the areas of Geddes Brook and Ninemile Creek where potentially intact soil horizons may be impacted by remediation activities.

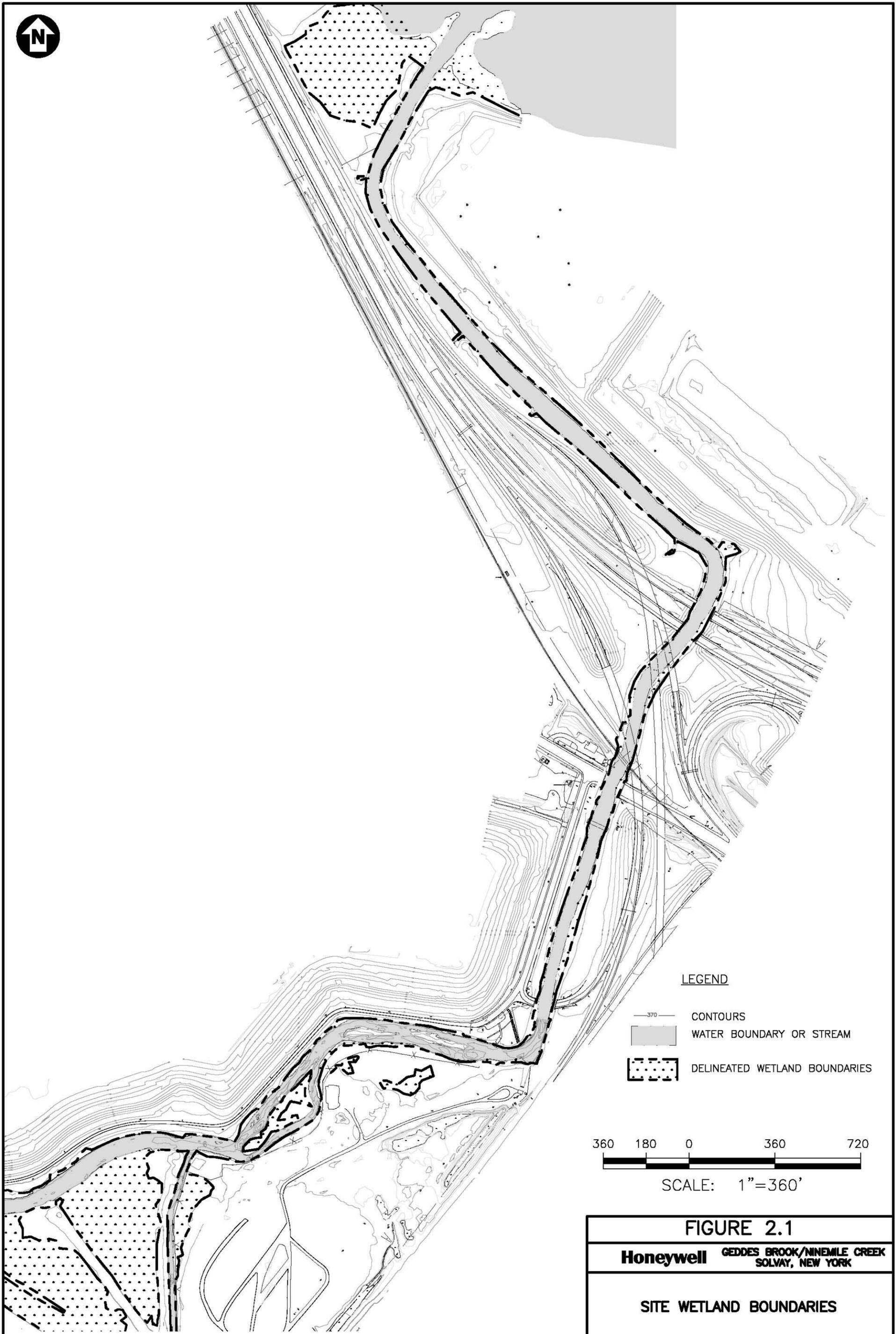
Final reports will be available at the public document repositories following NYSDEC's review and approval.

**TABLE 2-1
GEDDES BROOK/NINEMILE CREEK
PRE-DESIGN INVESTIGATION SUMMARY**

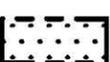
Work Plan	Title	Date of Final Work Plan⁽¹⁾
1	Conductivity/Temperature Survey	26-Aug-08
2	Site Topographic and Creek Bathymetric Survey	30-Sep-08
3	Wetland/Floodplain Hydraulic Connectivity Survey	3-Nov-08
4	Floodplain and Wetland Assessment	1-Oct-08
5	Ninemile Creek Sediment Sampling (Reach CD)	3-Nov-08
5A	Ninemile Creek Sediment Sampling (Reach AB)	16-Dec-08
6	Unnamed Tributary Soil/Sediment Sampling	1-May-09
6A	Unnamed Tributary Soil/Sediment Sampling	4-Aug-09
7	Ninemile Creek Soil/Sediment Geotechnical Analysis	10-Mar-09
8	Geotechnical and Hydrogeological Investigation	13-Jul-09
9	Geddes Brook Floodplain Investigation	12-Jun-09
10	Channel Sediment and Porewater Investigation	10-Sep-09
11	Geddes Brook Material Handling Investigation	2-Jul-09
12	Floodplain Soil/Sediment Investigation	16-Oct-09
13	SYW-10 Investigations	16-Jul-10
14	Baseline Monitoring	3-Nov-10

Notes:

1) Date of final work plan. Work plan sequence based on date of draft work plan.



LEGEND

-  370 CONTOURS
-  WATER BOUNDARY OR STREAM
-  DELINEATED WETLAND BOUNDARIES



SCALE: 1"=360'

FIGURE 2.1

Honeywell GEDDES BROOK/NINEMILE CREEK
SOLVAY, NEW YORK

SITE WETLAND BOUNDARIES

PARSONS

301 PLAINFIELD ROAD, SUITE 300, SYRACUSE, N.Y. 13212, PHONE: 315-481-9500

SECTION 3

REMEDIAL DESIGN PROCESS

This section describes the principal design submittals, primary design elements, and schedule for remedial design.

3.1 PRINCIPAL DESIGN SUBMITTALS AND DESIGN ELEMENTS

3.1.1 Principal Design Submittals

In order to expedite the project schedule, significant pre-design investigation activity has already been completed at the site, as described in Section 2. This pre-design investigation activity and related technical evaluations have allowed for the advancement of remedial design concepts. As a result, principal design submittals will consist of:

- a 50% Design, consisting of a report, key preliminary plan and cross-section drawings, and key preliminary material specifications;
- a Draft-Final (95%) Design, consisting of draft plans and specifications; and
- a Final (100%) Design Submittal, consisting of construction-ready final plans and specifications.

The pre-design investigation work and related technical evaluations completed to date serve as a technical basis for remedial design, and also to better define the scope of future design submittals. The remaining work to complete the remedial design is described below.

3.1.2 Principal Design Elements

The 50% Design will focus on the following remedy components, which recognizes that the design will be driven in large measure by the intended habitat endpoints.

- **Habitat Restoration:** Habitat restoration 50% design activities are described in Section 3.3.
- **Channel Design:** Fundamental to the long-term success of the project and a cornerstone of the remediation is the creation of a stable, ecologically improved and functional channel. Channel 50% design activities are described in Section 3.4.
- **Floodplain Design:** Similar to the channel design, a fundamental component of the floodplain remediation is the creation of an ecologically improved and functional riparian habitat (floodplains and wetlands). Floodplain 50% design activities are described in Section 3.5.
- **Removals Design:** Removals are required to support channel and floodplain remediation and restoration. Removal 50% design activities are described in Section 3.6.

- **Chemical Isolation Layer Design:** A chemical isolation layer may be required in portions of the Ninemile Creek channel. The design activity required for the chemical isolation layer is described in Section 3.7.
- **Material Handling:** The 50% design activity required for material handling is described in Section 3.8.
- **Support Activities:** The 50% design activity required for support activities such as erosion control and perimeter air monitoring is described in Section 3.9.

As described above, the 50% Design submittal will consist of a report which documents the design basis for these components, as well as key preliminary plan view drawings and key preliminary material specifications. The 95% and 100% Designs will consist of construction drawings and specifications, as well as supporting plans (e.g., Construction Quality Assurance Plan, Operations, Maintenance and Monitoring Plan, Contingency Plan).

3.2 DESIGN AND PERFORMANCE CRITERIA

Design and performance criteria will be developed as collaborative efforts with the agencies (e.g., NYSDEC, NYSDOH, USEPA) and Honeywell. The design and performance criteria will provide overall guidance for relevant design, construction, and operational criteria. The design criteria will be derived from the Consent Decree and appended documents, regulatory standards, engineering standards and guidelines, and performance criteria. Performance criteria will be developed using a performance-based approach, which describes the criteria (parameters) by which to measure performance, and will consider both environmental and community aspects. Examples of remedial elements that may require performance criteria include, but are not necessarily limited to, dredge area and depth established prior to dredging; sediment resuspended from dredging and capping; erosion protection/habitat layer; **material** placement verification; chemical and geotechnical requirements for cap materials; water surface elevations; and odor and noise management. Performance criteria will be established to guide remedial program activities toward successful completion of the remedial action while minimizing impacts to the community and the environment.

3.3 HABITAT RESTORATION

A habitat restoration plan will be developed and incorporated into the 50% design based on the understanding that wetlands are an important resource for Onondaga Lake and its tributaries, including Ninemile Creek. Goals of the habitat restoration will include providing connectivity of the stream with the surrounding floodplain, provision of appropriate water for the proposed habitats, the establishment of diverse habitats (e.g., emergent wetlands, forested floodplains), and no net loss of wetland areas following remediation.

Pre-design investigations and evaluations have been completed which provide a technical basis for the Habitat Restoration Plan. These include:

- Wetland/Floodplain Hydraulic Connectivity Survey – Work Plan #3 (Parsons, 2008d), which provides water level data to be used in support of the wetland/floodplain restoration design;
- Floodplain and Wetland Assessment – Work Plan #4 (Parsons, 2008e), which provides a baseline wetland delineation, assessment of values and functions, and characterization of flora and fauna;

The data from these field investigations, in conjunction with previously collected data, will be used to prepare the Habitat Restoration Plan. Specific details that will be addressed as part of habitat restoration include a determination of the final thickness and composition of the habitat layers (channel and floodplain), as well as the species composition of plantings and seed mixes. Because habitat restoration is a fundamental component of the overall channel and floodplain designs, the habitat restoration plan will be incorporated into the 50% Design, as described below.

3.4 CHANNEL DESIGN

3.4.1 Introduction

Pre-design investigations and evaluations have been completed which provide a technical basis for the channel design. These include:

- A topographic / bathymetric survey of the site, which was completed in May 2009. The survey was conducted pursuant to a work plan dated September 30, 2008 (Parsons, 2008c).
- An updated hydraulic model for Ninemile Creek and Geddes Brook. The model used is the U.S. Army Corps of Engineers HEC/RAS model (Hydrologic Engineering Center - River Analysis System). The hydraulic model has been periodically updated; the most recent model report (Anchor QEA, 2011) is provided with the *100% Design Report for the Geddes Brook Interim Remedial Measure* (Parsons, 2011).

Further detail regarding the channel design for Ninemile Creek is presented below.

3.4.2 Preliminary Channel Design Analysis

To support the development of the 50% Design, a preliminary channel design analysis was performed. The purpose of this analysis was to develop a model and preliminary basis for the channel design using the information described in Section 3.4.1. The preliminary channel design analysis was summarized in a technical memorandum (Anchor QEA, 2009) and included:

- drawings illustrating a preliminary plan and profile for Ninemile Creek;
- hydraulic analysis describing existing and proposed conditions;
 - particle sizes predicted to be stable during 50- and 100-year storm events.
 - bank and bed locations where high erosive forces are expected.

- water surface elevations for the 50- and 100-yr storms, and comparison to the lower chord elevations of infrastructure crossings.
- average water depths by reach under low and median flow conditions.
- a description of potential habitat/erosion protection layer materials, based on habitat and hydraulic requirements, and required thicknesses; and
- an identification of portions of the bank which may require stabilization.

The preliminary channel design analysis will be refined in the 50% Design to establish channel bed elevations, the location and geometry of pools and riffles, and to develop specifications for habitat and erosion protection material. The preliminary analysis will also provide hydrologic and hydraulic parameters which will be used in the development of the habitat restoration designs for the creek banks, floodplains, and wetland areas.

3.4.3 Ninemile Creek Channel 50% Design

The Ninemile Creek channel design will be coordinated with the habitat restoration design (Section 3.3), the floodplain design (Section 3.5), and the removals design (Section 3.6). As it pertains to the channel and banks, the Ninemile Creek 50% Design will include the following:

- preliminary excavation drawings (1" = 50') for Ninemile Creek channel sediments in Reaches AB, BC, and CD;
- preliminary finished grade drawings (1" = 50') showing the top of the habitat/erosion protection layer in the channel for Reaches AB, BC, and CD; and
- preliminary details for streambed restoration features.

Preliminary specifications for key materials will also be provided.

The limits of excavation within the channel will be determined based on hydraulic and habitat requirements (reflected in the finished grade drawings, described below), required layer thicknesses for the components of the channel reconstruction, and other requirements provided in the RODs. The thickness and composition of the habitat/erosion protection layer will be determined based on the analysis described in Section 3.4.2, updated as appropriate to reflect the overall advancement of the design.

The finished grade drawings for the creek channel presented in 50% Design will be based on the HEC-RAS modeling for the channel plan and profile described in Section 3.4.2, updated as appropriate. The finished grade drawings and preliminary material specifications will identify the locations and gradations of the materials proposed for the habitat/erosion protection layer in the channel, building from the analysis described in Section 3.4.2. The finished grade and detail drawings will also describe preliminary details for:

- bank treatments expected along the creek channel;
- pool locations, geometries, and forcing features; and

- habitat features in the creek channel and on the creek banks.

Natural stream restoration techniques will be used in designing the channel alignment and the habitat layer, with the goal of creating a diversity of stream and near stream habitats, and minimizing hardening of the channel and banks, to the extent feasible. To establish a stable and functioning channel, natural channel design techniques will need to be supplemented with bank stabilization techniques in areas where bed and bank materials are not competent to withstand expected hydraulic forces and where additional protection is needed to protect an area that cannot experience scour (e.g., roadways, bridges, infrastructure, environmental sensitive areas). In these areas, geotextile fabric, large woody debris, or rock may be used to stabilize the stream banks. Vegetated treatments may be incorporated into the supplemental bank stabilization measures to provide habitat and additional stabilization. For the purposes of designing the stable channel bed and banks, the amount and type of erosion protection will be selected based on location within the channel plan form, modeled water velocities, soil and sediment particle sizes and types, bank slope, and top of bank land use.

Natural channel design techniques incorporated into the approach may include the use of strategically located pools to dissipate energy, and a variety of channel and bank treatments adjacent to these pools as forcing features to maintain their depth over time. The specific geometry and location of the pools and riffles will be determined during design taking into consideration habitat requirements as well as constructability and channel/adjacent area stability.

3.5 FLOODPLAIN DESIGN

The Ninemile Creek floodplain design will be coordinated with habitat restoration design (Section 3.3), the channel design (Section 3.4), and removal design (Section 3.6), and will consider the potential for CPOI upwelling. Pre-design investigations and evaluations have been completed which provide a technical basis for the floodplain design. These include:

- Site Topographic Survey - Work Plan #2 (Parsons, 2008c), which provides the basis for the floodplain design;
- Reach CD Channel and Floodplain Soil/Sediment Sampling - Work Plan #5 (Parsons, 2008f), which provides data pertaining to the nature and extent of mercury in site soil/sediment; and
- Floodplain Soil/Sediment Investigation - Work Plan #12 (Parsons, 2009h), which provides data pertaining to the nature and extent of mercury and other CPOIs in site soil/sediment.

The data from these field investigations, in conjunction with previously collected data, will be used to prepare the 50% Design for the floodplain, which will consist of:

- excavation drawings (1" = 50') for Ninemile Creek wetlands and floodplain soils in Reaches AB, BC, and CD;

- finished grade drawings (1" = 50') showing the top of the habitat layer in the wetlands and floodplain for Reaches AB, BC, and CD; and
- preliminary restoration drawings (1" = 100') showing restored floodplain and wetland habitat types.

Preliminary specifications for soil and the species composition of plantings and seed mixes will be also provided.

3.6 REMOVAL DESIGN

3.6.1 Channel and Floodplain Removals

Channel and floodplain excavation plans will be developed based on the principles laid out in the remedy decision documents, the updated site topographic/bathymetric survey, pre-design site investigation chemical and stratigraphic data, the preliminary channel design analysis, and habitat restoration requirements. Excavation lines and grades will be provided on drawings as described in Sections 3.4 and 3.5. The constructability of these lines and grades, particularly stability of the adjacent banks, slopes, structures, and utilities will also be evaluated during the 50% design process. The removal areas and volumes for the channel will be estimated using AutoCAD Civil 3D.

3.6.2 Removal Methods

Floodplain soil/sediment removal is generally expected to be performed using backhoes; channel sediment removal is generally expected to be performed using backhoes or crane-mounted clamshell buckets, with limited use of sheet pile. Hydraulic dredging methods may also be used for the Ninemile Creek Reach AB channel and adjoining floodplains (e.g., spits) in OU-2. Potential removal methods will be further evaluated in the 50% Design.

3.6.3 Post-Removal Sampling

Post-removal sampling and analysis will be described in the Construction Sampling and Analysis Plan (CSAP) and Construction Quality Assurance Project Plan (CQAPP) to be provided with the Draft-Final (95%) and Final Designs.

3.7 CHEMICAL ISOLATION LAYER

As described in Section 2, a number of pre-design investigations have been initiated to provide data to support the design of the chemical isolation layer. These include:

- Geotechnical and Hydrogeological Investigations - Work Plan #8 (Parsons, 2009d), which provides data that will be used to estimate groundwater upwelling rates if required for the design;
- Reach CD Channel and Floodplain Soil/Sediment Sampling - Work Plan #5 (Parsons, 2008f), which provides data pertaining to the nature and extent of mercury in site sediment; and

- Channel Sediment and Porewater Investigation - Work Plan #10 (Parsons, 2009f), which provides data pertaining to the nature and extent of mercury and other CPOIs in site sediment.

The data from these field investigations, in conjunction with previously collected data, will be used to prepare the design for the chemical isolation layer, which will consist of:

- The basis for the chemical isolation layer design, including chemical isolation layer model if required;
- a description of the material proposed for the chemical isolation layer;
- an estimated required thickness of the chemical isolation layer, by reach or possibly by segment; and
- the estimated horizontal and vertical limits of the chemical isolation layer.

The design for the chemical isolation layer will be submitted as part of the 95% design.

3.8 MATERIAL HANDLING

As described in Section 2, a number of pre-design investigations have been completed to provide data to support the 50% Design for the management of residuals. Of particular focus is:

- Geotechnical and Hydrogeological Investigations - Work Plan #8 (Parsons, 2009d), which provides data regarding the ability of removed soil/sediment to dewater, as well as the chemical characteristics of soil/sediment and construction water.

Other investigation efforts that provide geotechnical and water analytical information (e.g., boring log descriptions, geotechnical index testing, porewater analyses, total organic carbon or organic content tests), will also provide data that will be considered in assessing dewatering, water treatment, and material handling/placement requirements. These investigations include, but are not limited to:

- Reach CD Channel and Floodplain Soil/Sediment Sampling – Work Plan #5 (Parsons, 2008f), which provides data pertaining to the nature of site sediment;
- Channel Sediment and Porewater Investigation - Work Plan #10 (Parsons, 2009f), which provides data pertaining to the nature of site sediment; and
- Floodplain Soil/Sediment Investigation – Work Plan #12 (Parsons, 2009h), which provides data related to the nature of site soils.

The collected data will be evaluated and the following will be presented in the 50% Design:

- a description of the expected characteristics of construction water;
- a description of the expected characteristics of site sediment and soil/sediment; and
- an evaluation of the ability of sediment and soil/sediment to gravity dewater.

The site decision documents state that the excavated sediments and soils will be placed in the LCP containment system or, if determined to be appropriate during remedial design, in the Sediment Consolidation Area (SCA). The 50% Design will evaluate the relative merits of these options and present the proposed approach. The 50% Design will also discuss the following:

- An evaluation of transportation requirements for taking soil/sediments to the consolidation/containment areas (i.e., LCP containment area and/or the SCA);
- Methods of managing the soil/sediments at the consolidation/containment areas;
- Sediment condition requirements for transportation and management at the consolidation/containment areas (e.g., extent of dewatering required) and the ability of site soil/sediment to meet these requirements; and
- Treatment requirements for construction water generated during remedial action. It is anticipated that effluent from an onsite water treatment system may be discharged to the surface waters of Geddes Brook and/or Ninemile Creek. Additional construction water management/treatment options may also be considered. For example, treatment of construction water at the SCA to established discharge criteria for that system.

If a portion of Ninemile Creek OU-2 is hydraulically dredged, pumping of the dredged slurry through the pipeline that will be constructed for the Onondaga Lake dredging will be the likely method of transporting the dredged material. The pipeline will be routed to the SCA so consolidation would be at the SCA. Dewatering water generated through this process will be managed at the SCA using the SCA water treatment plant.

3.9 SITE PREPARATION AND CONTROLS

3.9.1 Site Preparation

Temporary facilities, such as trailers, utilities, site access roads, decontamination pad(s), and staging areas will be required to implement the remediation. The preliminary location of these facilities will be discussed in the 50% Design.

Active utility lines will need to be terminated, re-routed, or protected during the remediation. Known utilities will be presented in the 50% Design.

The site will be cleared of trees, shrubs, and other vegetation as required. Material from the aboveground portion of clearing, with the exception of woody material, is generally expected to be managed with the soil and sediment. Woody material will be retained for use in habitat features, or chipped, if required, and potentially set aside on-site for use in remedial activities (e.g., the construction of temporary haul roads, drainage layers on dewatering pads, and for mixing in with wet soil/sediment prior to it being handled and placed at LCP or the SCA). Stumps, roots, and other materials from the below grade portion of clearing and grubbing will be chipped, if required, and handled with the soil and sediment. No stripping and re-use of topsoil within the remedial limits is planned, however, deeper soils (e.g., soils excavated from the new Ninemile Creek channel alignment) may be stockpiled for later use for backfill, if the material is

determined to be suitable by NYSDEC. The 95% and 100% Designs will include further detail regarding site clearing and management of materials.

3.9.2 Storm Water Pollution Prevention Plan

Storm water, erosion, and sediment controls to be used during construction will be identified in the 50% Design. Storm water, erosion, and sediment control is anticipated to consist of silt fencing and similar elements to prevent significant soil or sediment erosion from the site. Storm water from upgradient locations will be routed away from exposed materials and excavations. Storm water contact with exposed material will be minimized to the extent practical, to reduce the volume of construction water. In general, the most recent version of the *NY Standards and Specifications for Erosion and Sediment Control* will be used as guidance for developing storm water, erosion, and sediment control elements during the remedial action. A Storm Water Pollution Prevention Plan (SWPPP) will be prepared for submission as a draft concurrent with the 95% Design and final concurrent with the 100% Design.

3.9.3 Air Monitoring and Controls

Air monitoring will be required during intrusive construction activities to protect the health of site workers and the surrounding community. Air monitoring is expected to consist of real-time measurement of dust levels. A site-specific Community Air Monitoring Plan (CAMP) will be prepared during the remedial design phase for submission as a draft concurrent with the 95% Design and final concurrent with the 100% Design. The plan, which will be prepared pursuant to DER-10 Section 1.9(b), will specify monitoring procedures, action levels, and contingency measures

3.10 OPERATION, MAINTENANCE, AND MONITORING

A description of Operations, Maintenance and Monitoring (OM&M) requirements will be submitted concurrent with the 95% and 100% Designs. The OM&M requirements will be identified pursuant to DER-10 Sections 6.2.2 and 6.2.3, and USEPA guidance contained in *Considerations for Preparation of Operation and Maintenance Manuals, EPA 68-01-0341*. The operations and maintenance program will include inspection of various components of the remedy, and performance of any repairs that might be necessary to ensure effectiveness of the remediation. The monitoring program will assess achievement of RAOs and RGs, monitor habitat restoration success, and evaluate if the remedial technologies are performing as specified in the remedial design to meet RAOs and RGs. The description of the OM&M requirements will include required contingency planning in the event that any element of the remedial design fails to achieve RAOs or RGs.

3.11 REMEDIAL ACTION SCHEDULE

A schedule for the remedial action will be provided with the 100% Design.

SECTION 4**ARARs AND PERMITS**

The FS (Parsons, 2005a) identified potential ARARs and to-be-considered (TBC) guidance associated with the remedial action for the Site. These ARARs and TBCs were updated and presented in Appendix A of the OU-1 Supplemental FS (Parsons, 2008a). Final ARARs and TBCs for OU-1 and OU-2 are contained in the ROD for OU-1 (NYSDEC/USEPA 2009a) and OU-2 (NYSDEC/USEPA 2009b), respectively, and are further summarized in Appendix A. The permits anticipated to be required to comply with the ARARs are also summarized in Appendix A.

SECTION 5

REMEDIAL DESIGN MANAGEMENT

This section describes the management approach, including project organization, project communication, document management, physical security, and citizen participation for the Geddes Brook/Ninemile Creek remedial design.

5.1 REMEDIAL DESIGN ORGANIZATION

Several organizations will be directly involved in the performance and review of the remedial design (see Figure 5-1). The objective of this section is to describe the overall project organization and responsibility of various parties to aid in the exchange of information and to provide for efficient project operation.

5.1.1 New York State Department of Environmental Conservation

The NYSDEC is the lead agency for the site. This state agency will review and approve plans, drawings, reports, and schedules submitted for the pre-design, remedial design, and remedial action as documented in the Consent Decree. Mr. Timothy Larson, P.E. is NYSDEC's Project Manager for the Ninemile Creek site.

5.1.2 United States Environmental Protection Agency

The USEPA is the federal regulatory agency involved with the remedial action for the site. NYSDEC will coordinate with USEPA which will review submittals of plans, drawings, and reports to ensure compliance with USEPA regulatory criteria. Mr. Robert Nunes is USEPA's Project Manager for the Geddes Brook/Ninemile Creek site.

5.1.3 Honeywell

Honeywell is responsible for the design and implementation of the Geddes Brook/Ninemile Creek remedy. Mr. John McAuliffe, P.E., is the Honeywell Syracuse Program Director and primary contact for this project. Mr. William Hague is Honeywell's Director for Remediation and Construction for this project. Honeywell has retained Parsons Corporation (Parsons) of Syracuse, New York to manage and prepare the remedial design for the Geddes Brook/Ninemile Creek remedy.

5.1.4 Parsons

Parsons is Honeywell's primary consultant for the remedial design. The design organization for the project team is further described below.

5.1.4.1 Program Manager

Mr. Steve Warren is Parsons Program Manager for the Honeywell Syracuse Program. Mr. Warren is directly responsible to Honeywell and Parsons' management to ensure that the project objectives and project schedules are met.

5.1.4.2 Project Management

Project Manager

Mr. James O'Loughlin will serve as the Project Manager for the remedial design. The Project Manager will perform the functions listed below:

- provide overall direction and management for remedial design activities;
- perform administrative and decision-making activities, as well as provide necessary authorizations within Parsons related to the project;
- facilitate remedial design coordination between Parsons and external organizations;
- review all reports in the draft version prior to their final edition; and
- communicate with NYSDEC and other agencies on an ongoing basis regarding technical issues and project status.

Project Engineer

Mr. Raymond D'Hollander, P.E. will serve as Project Engineer for the remedial design. The Project Engineer will perform the functions listed below:

- Engineer-in-Responsible-Charge for the design;
- direct and coordinate the technical components of the project;
- integrate the individual project components into a functional system;
- manage remedial design coordination between the technical discipline leads;
- supervise preparation of calculations, design drawings, and specifications; and
- seal the Final Design Report, Drawing, and Specifications cover sheets after coordinating the sealing of individual components by the discipline leads.

5.1.4.3 Remedial Design and Construction Manager

Mr. Stephen Miller, P.E., will act as Honeywell's liaison serving as the Remedial Design and Construction Manager. Mr. Miller is responsible for the consistency and quality of remedial design and construction documents.

5.1.4.4 Analytical Quality Assurance Manager

Ms. Maryanne Kosciwicz is the Analytical Quality Assurance Manager. Ms. Kosciwicz will perform the functions listed below:

- provide quality assurance technical assistance to the project staff;
- direct the preparation and review of quality assurance plans for analytical work, as required;
- review and validate analytical data in accordance with approved quality assurance plans; and
- assess compliance with Region II data validation protocols.

5.1.4.5 Project Control Specialist

Mr. Douglas Mayer is the Project Control Specialist for the remedial design. Mr. Mayer will develop and maintain a working project schedule, including assessing project status against target milestones. He will maintain a liaison with the Project Manager so that relevant project control issues are managed effectively.

5.1.4.6 Document Coordinator

Ms. Michelle McDonald is the Document Coordinator for this project. Ms. McDonald will support communications and document control activities for Honeywell's Syracuse Program projects, including the Geddes Brook/Ninemile Creek remedial design.

5.1.4.7 Teaming Partners and Technical Experts

Parsons has partnered with several professional consultants and independent subject experts to provide technical direction and support for the remedial design. These firms or affiliations, as well as their area of expertise, are listed in Table 5-1. The use of such specialized expertise, including numerous nationally-recognized experts, will enhance the overall efficiency and effectiveness of the remedial design.

5.2 PROJECT COMMUNICATION

Honeywell will communicate with the NYSDEC and other agencies in order to complete the remedial design effectively and efficiently. Honeywell will submit monthly progress reports that describe actions from the prior month, provide raw and/or validated data not previously submitted, identify completed deliverables, describe actions anticipated for the next month, provide overall status of ongoing obligations, identify modifications to work plans, and describe citizen participation activities during the previous month as required by the Consent Decree. Each monthly progress report, data submittal, or other design deliverable will be submitted to the agencies and persons on the distribution list identified in the Consent Decree (paragraphs 96 and 98) for review and comment.

5.3 DOCUMENT MANAGEMENT

Honeywell will prepare and submit remedial design documents for review and approval in accordance with the Consent Decree. Honeywell will distribute documents approved by NYSDEC within 14 days to the five public document repositories identified in the Consent Decree: (1) the Onondaga County Public Library, (2) the Solvay Public Library, (3) Atlantic States Legal Foundation, (4) NYSDEC Regional Office in Syracuse, and (5) NYSDEC Central Office in Albany. In addition, the Onondaga Nation will receive a copy of all NYSDEC-approved documents. The Document Coordinator, Ms. Michelle McDonald, will manage document control activities for the remedial design.

5.4 PHYSICAL SECURITY AND POSTING OF THE SITE

Physical security for the site and physical security for off-site areas to be used to support the remedial action will be evaluated and controlled to reduce risks to persons, property, and the

environment. Physical security planning will include remedial design and remedial action activities at the Geddes Brook/Ninemile Creek site, at support areas, and at sediment management areas (i.e., LCP OU-1 and/or the SCA). A vulnerability assessment will be performed to identify potential security challenges, prioritize those challenges, and describe appropriate control measures. Security measures that may be used include fences, gates, signs, and lighting. In areas where work is ongoing, workers will post appropriate warning signs, barricades, and caution tape to protect members of the public from accidentally accessing the site. Periodic assessments will be made to assess the effectiveness of security measures and determine if changes are needed.

5.5 CITIZEN PARTICIPATION

Honeywell will assist the NYSDEC in its implementation of a citizen participation program and will continue to provide information regarding the Remedial Program to the public. A Citizen Participation Plan will be prepared which provides a formal yet flexible plan for communication with the public during the Geddes Brook/Ninemile Creek remediation program. The plan will briefly describe the site and remediation program and identify specific community outreach and participation activities.

5.6 REMEDIAL DESIGN SCHEDULE

Honeywell will make good faith efforts to design and construct the Ninemile Creek remedy on an accelerated basis utilizing, where appropriate, a design/build approach, expedited sampling and analysis, and pre-design and construction of critical path components. Honeywell has developed a remedial program schedule to promote acceleration of critical activities, to the extent practical. It is anticipated that the NYSDEC will make good faith efforts to review and approve submittals and provide required critical input on a priority basis. Major milestones and associated dates for the remedial program are listed in Table 5-2. The schedule is based on receipt of NYSDEC comments within the assumed review period durations shown.

TABLE 5-1

**PARSONS TEAMING PARTNERS AND KEY TECHNICAL EXPERTS
FOR THE NINEMILE CREEK REMEDIAL DESIGN**

Firm/Affiliation	Primary Contact	Area of Technical Expertise
<i>Environmental Consulting</i>		
AnchorQEA	John Verduin and Ryan Davis	Channel design, habitat restoration, baseline/long-term monitoring
Exponent	Betsy Henry, Ph.D.	Baseline/long-term monitoring
Michael Palermo Consulting	Michael Palermo, Ph.D.	Capping and dredging
S.S. Papadopulous & Associates	Charles Andrews, Ph.D.	Groundwater modeling
Terrestrial Environmental Specialists	Joseph McMullen	Habitat restoration
<i>Academic / Research</i>		
SUNY ESF	Neil Ringler, Ph.D.	Habitat restoration and fisheries
SUNY ESF	Donald Leopold, Ph.D.	Habitat restoration, native species
University of Louisiana at Lafayette	Donald Hayes, Ph.D.	Water quality monitoring and dredging
University of Texas	Danny Reible, Ph.D.	Sediment capping and cap bench tests / modeling

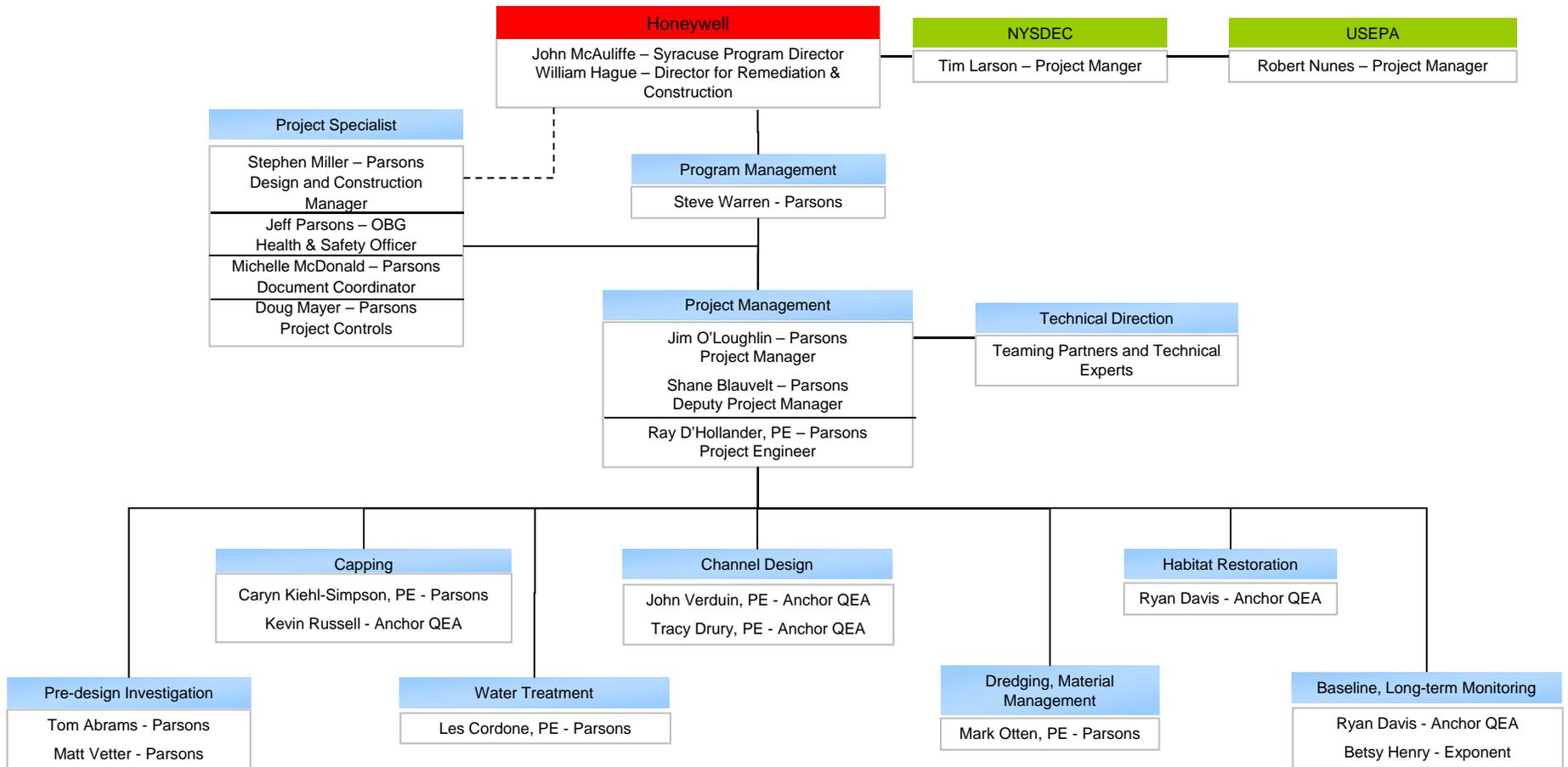
**TABLE 5-2
NINEMILE CREEK REMEDIAL DESIGN / REMEDIAL ACTION MILESTONES**

Milestone	Milestone Date	Assumed NYSDEC Review Period (Calendar Days)
Submit 50% Design to NYSDEC ¹	February 28, 2011	42
Submit Draft Data Gap PDI Workplan to NYSDEC (If required) ²	May 27, 2011	42
Submit 95% Design to NYSDEC ^{3,4}	October 31, 2011	42
Submit Final Design to NYSDEC ³	March 9, 2012	21
Target Remedial Action Mobilization Date ^{5,6}	April 4, 2012	

Notes:

1. Submitted.
2. PDI work is not anticipated to be required at this time to complete the design.
3. Submittal may be provided by separate area-specific deliverables on an alternate schedule, provided that area-specific mobilizations are not adversely delayed.
4. Honeywell will initiate procurement activities based on the 95% Design Submittal.
5. Target is to have Ninemile Creek Design completed to allow for an April 4, 2012 mobilization date. Actual mobilization date dependent on a variety of factors, including completion of Geddes Brook IRM.
6. A Remedial Action schedule will be provided with the 95% and 100% designs.

Figure 5-1 Ninemile Creek Remedial Design Organization Chart



SECTION 6

POST CONSTRUCTION PLANS

6.1 REMEDIAL CONSTRUCTION COMPLETION REPORT

The Consent Decree requires that a Remedial Construction Completion Report (CCR) be submitted to NYSDEC within 90 days after the State determines in writing that the remedial construction for the Site, or any approved module thereof, is complete. The CCR(s) will be completed pursuant to the requirements for Remedial Action Reports described in *Closeout Procedures for National Priority List Sites*, EPA 540-R-98-016, OSWER Directive 9320.2-09A-P, and DER-10 Section 5.8(b). The CCR(s) will include a description of the remedial action performed, tables and figures documenting the volumes and areas remediated, “as-built” drawings sealed and signed by a NYS professional engineer, and a certification following the form of DER-10 Section 1.5(b)3 signed by a NYS professional engineer.

6.2 SITE MANAGEMENT PLAN

A Site Management plan (SMP) will be prepared for the Site pursuant to the Consent Decree and DER-10 Section 6.2, and will be finalized following completion of the remedial construction for the entire site and approval of the CCR(s). The schedule for submission of the Site Management Plan will be identified in the schedule for Remedial Action described in Section 3.11. The SMP will include an Institutional and Engineering Control (IEC) Plan and an Operation, Maintenance, and Monitoring (OM&M) Plan, as described below:

Institutional and Engineering Control (IEC) Plan: The IEC Plan will be developed pursuant to the Consent Decree and DER-10 Sections 5.6 and 6.2.1. Specific IECs required will be identified based on the RODs, Remedial Designs, and the CCR(s).

Operations, Maintenance, and Monitoring (OMM) Plan: The description of OMM requirements prepared during the design will be updated if required to reflect as-built conditions and new information and incorporated into an OMM Plan. The OMM Plan will be prepared pursuant to DER-10 Sections 6.2.2 and 6.2.3, and USEPA guidance contained in *Considerations for Preparation of Operation and Maintenance Manuals*, EPA 68-01-0341.

6.3 ENVIRONMENTAL EASEMENTS AND DEED RESTRICTIONS

Environmental easements and deed restrictions to implement the IECs will be executed pursuant to the Consent Decree and DER-10 Section 5.6(b) and (c).

6.4 FINAL ENGINEERING REPORT

A Final Engineering Report (FER) will be prepared pursuant to DER-10 Section 5.8. The FER will incorporate the CCRs and the SMP, and include a copy of relevant environmental

easements or deed restrictions. The FER will have a certification following the form of DER-10 Section 1.5(b)4 signed by a NYS professional engineer.

SECTION 7**REFERENCES**

- Anchor QEA, 2009. *Ninemile Creek Preliminary Channel Design Analysis*. Prepared for Parsons / Honeywell, Inc. by Anchor QEA, LLC. December, 2009.
- Anchor QEA, 2011. *Geddes Brook and Floodplain Restoration Design 100% Design Report*. Prepared for Parsons / Honeywell, Inc. by Anchor QEA, LLC. March, 2011.
- New York State Department of Environmental Conservation. 1998. *Citizen Participation in New York's Hazardous Waste Site Remediation Program – A Guidebook*. June 1998.
- New York State Department of Environmental Conservation. 2010. DER-10. *Technical Guidance for Site Investigation and Remediation. Division of Environmental Remediation*. May 2010.
- New York State Department of Environmental Conservation and United States Environmental Protection Agency Region 2. 2005. Record of Decision. *Onondaga Lake Bottom Subsite of the Onondaga Lake Superfund Site*. July 2005.
- New York State Department of Environmental Conservation and United States Environmental Protection Agency Region 2. 2009a. Record of Decision. *Operable Unit 1 of the Geddes Brook/Ninemile Creek Site Operable Unit of the Onondaga Lake Bottom Subsite of the Onondaga Lake Superfund Site*. April 2009.
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- O'Brien & Gere. 2006. *Remedial Investigation / Feasibility Study – Wastebeds 1 through 8 Quality Assurance Project Plan*. Prepared for Honeywell, Inc. by O'Brien & Gere. November 2006.
- PAF. 2009. *Cultural Resource Management Report – Phase 1B Archaeological Work Plan – Onondaga Lake Project, Upland and Shoreline Area Settling Basins 12-15, Geddes Brook IRM, Ninemile Creek RI/FS and Harbor Brook IRM*. Prepared for Honeywell, Inc, by Public Archaeology Facility and Parsons. October 2009.
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- Parsons. 2005b. *Onondaga Lake Pre-Design Investigation: Phase I Work Plan*. Prepared for Honeywell, Inc. by Parsons. September, 2005.
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- Parsons. 2008a. *Geddes Brook/Ninemile Creek Operable Unit 1 Supplemental Feasibility Study Report*. Prepared for Honeywell, Inc. by Parsons. November 2008.
- Parsons. 2008b. *Geddes Brook/Ninemile Creek Site – Pre-Design Investigation Work Plan #1 – Conductivity/Temperature Survey*. Prepared for Honeywell, Inc. by Parsons. August 2008.
- Parsons. 2008c. *Geddes Brook/Ninemile Creek Site – Pre-Design Investigation Work Plan #2 – Site Topographic and Creek Bathymetric Survey*. Prepared for Honeywell, Inc. by Parsons. September 2008.
- Parsons. 2008d. *Geddes Brook/Ninemile Creek Site – Pre-Design Investigation Work Plan #3– Wetland / Floodplain Hydraulic Connectivity Evaluation*. Prepared for Honeywell, Inc. by Parsons. November 2008.
- Parsons. 2008e. *Geddes Brook/Ninemile Creek Site – Pre-Design Investigation Work Plan #4 – Floodplain and Wetland Assessment*. Prepared for Honeywell, Inc. by Parsons. October 2008.
- Parsons. 2008f. *Geddes Brook/Ninemile Creek Site – Pre-Design Investigation Work Plan #5 – Ninemile Creek Sediment Sampling*. Prepared for Honeywell, Inc. by Parsons. November 2008. Addendum 1 prepared for Honeywell, Inc. by Parsons. December 2008.
- Parsons, 2008g. *Onondaga Lake Baseline Monitoring Book 2 Work Plan – Appendix A Quality Assurance Project Plan*. Prepared for Honeywell, Inc. by Parsons. September 2008.
- Parsons. 2008h. *Project Safety Plan: Additional Field Evaluations at the Geddes Brook / Ninemile Creek Site*. Prepared for Honeywell, Morristown, New Jersey. Syracuse, New York. Updated June 2010.
- Parsons. 2009a. *Geddes Brook/Ninemile Creek Operable Unit 2 Supplemental Feasibility Study Report*. Prepared for Honeywell, Inc. by Parsons. May 2009.
- Parsons. 2009b. *Geddes Brook/Ninemile Creek Site – Pre-Design Investigation Work Plan #6 Un-named Tributary Soil/Sediment Sampling*. Prepared for Honeywell, Inc. by Parsons. May 2009. Addendum 1 prepared for Honeywell, Inc. by Parsons. August 2009.
- Parsons. 2009c. *Geddes Brook/Ninemile Creek Site – Pre-Design Investigation Work Plan #7– Ninemile Creek Soil/Sediment Geotechnical Analysis*. Prepared for Honeywell, Inc. by Parsons. March 2009.
- Parsons. 2009d. *Geddes Brook/Ninemile Creek Site – Pre-Design Investigation Work Plan #8 – Geotechnical and Hydrogeological Investigation*. Prepared for Honeywell, Inc. by Parsons. July 2009.
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- Parsons. 2009f. *Geddes Brook/Ninemile Creek Site – Pre-Design Investigation Work Plan #10 – Channel Sediment and Porewater Investigation*. Prepared for Honeywell, Inc. by Parsons. September 2009.

- Parsons. 2009g. *Geddes Brook/Ninemile Creek Site – Pre-Design Investigation Work Plan #11 – Geddes Brook Material Handling Investigation*. Prepared for Honeywell, Inc. by Parsons. July 2009.
- Parsons. 2009h. *Geddes Brook/Ninemile Creek Site – Pre-Design Investigation Work Plan #12 – Floodplain Soil/Sediment Investigation*. Prepared for Honeywell, Inc. by Parsons. October 2009.
- Parsons. 2010a. *Ninemile Creek Pre-Design Investigation Data Summary Report*. Prepared for Honeywell, Inc. by Parsons. October 2010.
- Parsons. 2010b. *Geddes Brook/Ninemile Creek Site – Pre-Design Investigation Work Plan #13 – SYW-10 Investigations*. Prepared for Honeywell, Inc. by Parsons. July 2010.
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- State of New York: Department of Environmental Conservation. 2005. Order On Consent. Honeywell International, Inc. Respondent. Filed August 22, 2005
- TAMS. 2003. *Geddes Brook/Ninemile Remedial Investigation Report*. Original document prepared for Honeywell by Exponent. Revision prepared for NYSDEC by TAMS/Earthtech. December 2003.
- TES. 2009. *Wetland/Floodplain Assessment Ninemile Creek and Lower Reach of Geddes Brook*. Prepared for Parsons / Honeywell, Inc, by Terrestrial Environmental Specialists, Inc. February 2009.
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- United States Environmental Protection Agency, 1995b. *Remedial Design/Remedial Action Handbook*. EPA 540/R-95/059. Office of Solid Waste and Emergency Response. June 1995.

APPENDIX A
REGULATORY REQUIREMENTS



APPENDIX A

REGULATORY REQUIREMENTS

This Appendix provides a preliminary guide for involvement of local, state and federal regulatory agencies with potential jurisdiction over implementing at least a portion of the selected remedy.

Table A-1 provides a listing of potentially applicable federal, state, and local requirements for the Geddes Brook/Ninemile Creek Remediation. In addition to these requirements, it will likely also be necessary to obtain access agreements from government and private entities where remedial activities will impact properties not under the control of Honeywell. Several of these agreements are included below although they are not ARARs.

As set forth in the Ninemile Consent Decree, the NYSDEC may exempt Honeywell from the requirement to obtain any Department issued permit if all substantive technical requirements applicable to like activity conducted pursuant to a permit are complied with. In addition, the NYSDEC may exempt Honeywell from the requirement to obtain any other State or local permit if, *inter alia*, there is a demonstration that obtaining such State or local permit will substantially delay the project or present a hardship. Finally, pursuant to CERCLA, Section 121(e), Honeywell is not required to obtain federally-issued permits, but will need to comply with the substantive requirements of applicable regulations.

**TABLE A-1
POTENTIALLY-APPLICABLE REGULATORY REQUIREMENTS**

Potential Requirement	Responsible Agency	Example Supporting Documentation	Comments
Nationwide 38 Permit (Sect. 404 Clean Water Act) Joint Application For Permit	U.S. Army Corps of Engineers and NYSDEC with input from U.S. Fish and Wildlife Service (USFWS) and USEPA, as appropriate, through federal Executive Order 11990.	<ul style="list-style-type: none"> • Preconstruction notification (PCN) • Remediation Project Scope of Work narrative. Indicate its an NPL/ CERCLA site. • Location Map (USGS Quad) • Site/Remediation/Grading Plan • Details (e.g., Erosion & Sediment Controls, cross-sections, treatment options) • Photographs of the Project Area • Statement of the status of Endangered/ Threatened Species Resources Archaeological Resources • Vegetative Community Species List • Wetlands Delineation Report • Wetlands Restoration Program/Plan 	<ul style="list-style-type: none"> • Activities undertaken entirely on a Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) site by authority of CERCLA as approved or required by USEPA (such as Onondaga Lake), are not required to obtain permits under Section 404 of the CWA or Section 10 of the Rivers and Harbors Act. (Sections 10 and 404). • Per discussions with local USACE staff, notification of USACE is not required on CERCLA Sites as USACE assumes USEPA will ensure compliance with appropriate regulations. • NYSDEC to determine compliance with substantive requirements of CWA as well as 6 NYCRR Parts 663 – 665.
401 Water Quality Certification	USEPA NYSDEC	<ul style="list-style-type: none"> • Notice of Intent • Complete copy of package to be submitted to the New York District Army Corps of Engineers and to the NYSDEC • Pursuant to Section 401 of the Clean Water Act and 6NYCRR Part 608.9, the New York State Department of Environmental Conservation has certified that activities authorized by NWP 38 will comply with the applicable provisions of the Clean Water Act and applicable New York State water quality standards. 	<ul style="list-style-type: none"> • Activities undertaken entirely on a Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) site by authority of CERCLA as approved or required by USEPA, are not required to obtain permits under Section 404 of the CWA or Section 10 of the Rivers and Harbors Act. (Sections 10 and 404) • NYSDEC to determine compliance with substantive requirements.
6 NYCRR Part 175 Special Licenses and Permits - Definitions and Uniform Procedures	NYSDEC	<ul style="list-style-type: none"> • Properly completed department application form. • Submitted to the appropriate department office as identified on the application or application instructions. • If the applicant is a corporation, firm, partnership, association, institution, or public or private agency, the application must be signed on behalf of such entity by the president or an appropriate principal officer. 	<ul style="list-style-type: none"> • New York State Fish and Wildlife License may be required to collect and possess fish and wildlife for investigative purposes.

**TABLE A-1 (Continued)
POTENTIALLY-APPLICABLE REGULATORY REQUIREMENTS**

Potential Requirement	Responsible Agency	Example Supporting Documentation	Comments
6 NYCRR Part 360 – Solid Waste Management Facilities	NYSDEC	<ul style="list-style-type: none"> • Engineering drawings that set forth the proposed consolidation area's location, property boundaries, adjacent land uses and detailed construction plans. • Operation drawings that prescribe how the consolidation area will fulfill the regulatory requirements. • Landscape plan. • Engineering report that comprehensively describes the existing site conditions and a full engineering analysis of the consolidation area and its containment components, including closure and post-closure plans and criteria. • Construction quality assurance/construction quality control plan. • Operation and maintenance manual. • Contingency plan. • Hydrogeologic report (Completed for SCA). • Siting report (Completed for SCA). • Leachate management plan • Mined land use plan. If the applicant plans to use on-site excavation of fill material. • The most recent closure cost estimate and a copy of the documentation required to demonstrate financial assurance. • Where applicable, the most recent post-closure care cost estimate for the landfill and a copy of the documentation required to demonstrate financial assurance. • Where applicable, the most recent corrective action cost estimate and a copy of the documentation required to demonstrate the financial assurance. • Where applicable, an engineering report demonstrating how the landfill will meet the landfill gas collection system requirements. 	<ul style="list-style-type: none"> • The LCP Containment Area and the SCA are the two proposed consolidation areas specified in the RODs for consolidation of excavated soils/sediments from the Geddes Brook/Ninemile Creek Site. • Substantive compliance with portions of Part 360–2.14 regulations are applicable to the LCP Containment Area and the SCA. Materials placed in those areas from the Geddes Brook/Ninemile Creek project will be managed in accordance with the requirements of the Consent Orders governing those facilities.

**TABLE A-1 (Continued)
POTENTIALLY-APPLICABLE REGULATORY REQUIREMENTS**

Potential Requirement	Responsible Agency	Example Supporting Documentation	Comments
6 NYCRR Part 420 – Part 425 Mining Regulations	NYSDEC	<ul style="list-style-type: none"> • Completed application forms. • A mined land-use plan which shall set forth in detail an outline of the mining property and the affected land, the mining plan (description of the mining operation, including maps, plans, written materials and other documents as required by NYSDEC, such as Erosion Control, etc.) and the reclamation plan (description of operations to be performed to reclaim the land to be mined over the life of the mine including maps, plans, the schedule for reclamation, written material and other documents as required by NYSDEC). • A reclamation bond or appropriate substitute which is conditioned upon conformance with the mined land-use plan. • A renewal application shall contain the following: (i) completed application forms; (ii) an updated mining plan map consistent with the provisions of title 27 and including an identification of the area to be mined during the proposed permit term; (iii) a description of any changes to the mined land-use plan; and (iv) an identification of reclamation accomplished during the existing permit term. 	<ul style="list-style-type: none"> • Mining means the extraction of overburden and minerals from the earth; the preparation and processing of minerals, including any activities or processes or parts thereof for the extraction or removal of minerals from their original location and the preparation, washing, cleaning, crushing, stockpiling or other processing of minerals at the mine location so as to make them suitable for commercial, industrial, or construction use; exclusive of manufacturing processes, at the mine location; the removal of such materials through sale or exchange, or for commercial, industrial or municipal use; and the disposition of overburden, tailings and waste at the mine location. Mining does not include the excavation, removal and disposition of minerals from construction projects, exclusive of the creation of water bodies, or excavations in aid of agricultural activities. • Mineral means any naturally formed, usually inorganic, solid material located on or below the surface of the earth • Performance of the Geddes Brook/Ninemile Creek soil/sediment removals and backfilling operation is outside the definition of mining, so a mining permit is not required. However restoration materials are considered minerals, so any operation supplying these materials to the project would be subject to the requirements of this part. • Excavation of on-site soils for use on other program projects for the Onondaga Lake Superfund Site may also be subject to the requirements of this part.

**TABLE A-1 (Continued)
POTENTIALLY-APPLICABLE REGULATORY REQUIREMENTS**

Potential Requirement	Responsible Agency	Example Supporting Documentation	Comments
6 NYCRR Part 500 Floodplain Management Regulations Development Permits	NYSDEC	<ul style="list-style-type: none"> • Application to the Region 7 Permit Administrator on application forms provided by the department. • Description of the location, type and extent of the proposed project 	<ul style="list-style-type: none"> • May be applicable for removal and restoration of the Geddes Brook and Ninemile Creek channels and floodplains. • Executive Order 11988 may apply.
Executive Order 11988	USEPA	<ul style="list-style-type: none"> • Other information or plans required or specified in 6 NYCRR Part 500, section 500.8 and 6 NYCRR Part 621. 	<ul style="list-style-type: none"> • Camillus Municipal Code Chapter 31 covers Flood Damage Prevention within the Town of Camillus, and Town of Geddes also has a Flood Protection Ordinance. Per discussions with NYSDEC, both Town ordinances would take the place of 6 NYCRR Part 500. As a result, any work in areas of special flood hazard would require a permit from the town where the area is located.
Camillus Municipal Code, Chapter 31: Flood Damage Prevention	Town of Camillus		<ul style="list-style-type: none"> • In the Town of Camillus, the Code Enforcement Officer reviews any permit applications. • May need to go through the Site Plan approval process for the Town of Geddes.
Geddes Flood Protection Ordinance	Town of Geddes		
6 NYCRR Part 608 Use and Protection of Waters.	NYSDEC	<ul style="list-style-type: none"> • Application to Region 7 Permit Administrator • Plan of Proposed Project • Location Map (USGS Quad) • Other as determined by NYSDEC 	<ul style="list-style-type: none"> • 6 NYCRR Part 608 and Section 404 of the Federal Clean Water Act together regulate alterations to protected waters such as dredging and filling. Approval would be governed by whether: (a) the proposal is reasonable and necessary; (b) the proposal would not endanger the health, safety or welfare of the people of the State of New York; and (c) the proposal would not cause unreasonable, uncontrolled or unnecessary damage to the natural resources of the state.

**TABLE A-1 (Continued)
POTENTIALLY-APPLICABLE REGULATORY REQUIREMENTS**

Potential Requirement	Responsible Agency	Example Supporting Documentation	Comments
6NYCRR Parts 200, 201, 211, 212, 255, 256, 257, and 291 Prevention and Control of Air Contamination and Air Pollution	NYSDEC	<ul style="list-style-type: none"> • Preconstruction deliverables to NYSDEC Division of Air include: <ul style="list-style-type: none"> • Emission estimates • Control technology description • Air dispersion modeling protocol and analysis. 	<ul style="list-style-type: none"> • Because the work will be performed under an Order on Consent, no permit is expected to be required for a temporary construction water treatment plant. However, pre-approval by the NYSDEC is expected to be required prior to construction. Honeywell may also need to perform compliance testing to obtain the equivalent of "Certificate to Operate". • The Site Remediation MACT (Subpart GGGGG) does not apply since the project will not emit pollutants above the "major source" thresholds.
Request for Authorization Letter National Historic Preservation Act 36 CFR Part 800	NYS Office of Parks, Recreation, & Historic Preservation (OPRHP) – State Historic Preservation Office (SHPO)	<ul style="list-style-type: none"> • Letter of Findings requesting SHPO to concur that no additional archeological work is necessary in the project area if Phase 1A determined no need for additional work. If a Phase 1B required, submit Phase 1B scope of work for comment. • Scope of Work - Brief remedy narrative • Location Map (USGS Quad w/site location) & results of Cultural Resource Survey work.. 	<ul style="list-style-type: none"> • A Phase 1A Cultural Resource Assessment has been conducted. A Phase1B Cultural Resources assessment will be performed during the RD. .
Request for Authorization Letter Federal Endangered Species Act and 50 CFR Parts 17 and 23 Fish and Wildlife Coordination Act (16 USC Section 662)	US Fish & Wildlife Service (USFWS)	<ul style="list-style-type: none"> • Letter of Intent requesting USFWS to identify any potential endangered or threatened species or critical habitats in the project area. • Scope of Work - Brief narrative of remedy • Location Map (USGS Quad with site location) 	<ul style="list-style-type: none"> • A letter from USFWS (2/4/03) was obtained and provided in Appendix C of the Geddes Brook / Ninemile Creek BERA (TAMS/Earth Tech, 2003)

**TABLE A-1 (Continued)
POTENTIALLY-APPLICABLE REGULATORY REQUIREMENTS**

<p>Request for Authorization Letter NYS Endangered Species Act and 6 NYCRR Part 182</p>	<p>NYS Natural Heritage Program (NYSNHP), NYSDEC Wildlife Resources Center</p>	<ul style="list-style-type: none"> • Letter of Intent requesting NYSNHP to identify any potential endangered or threatened species or critical habitats in the project area • Scope of Work - Brief narrative of remedy • Location Map (topographic map with site location) 	<ul style="list-style-type: none"> • A letter from NYSNHP (2/20/03) was obtained and provided in Appendix C of the Geddes Brook / Ninemile Creek BERA (TAMS/Earth Tech, 2003).
<p>Storm water Management & Erosion Control Plan - General Permit (Stormwater Pollution Prevention - SWPPP)</p>	<p>USEPA, NYSDEC Division of Water</p>	<ul style="list-style-type: none"> • Notice of Intent to Discharge • Stormwater management scope of work narrative. Indicate its an NPL/CERCLA site • Stormwater Pollution Prevention Plan 	<ul style="list-style-type: none"> • Disturbance of more than 1 acre requires preparation of an erosion control plan meeting the substantive requirements of the regulations.
<p>SPDES (6NYCRR Parts 750-757) Clean Water Act, Sections 318, 402, and 405(a) and 40 CFR Parts 122 and 123</p>	<p>NYSDEC Division of Water , USEPA</p>	<ul style="list-style-type: none"> • Notice of Intent to Discharge <u>for discharge directly to NYS Surface Waters.</u> • Wastewater management scope of work narrative. Indicate it's an NPL/CERCLA site. • Technical information including : <ol style="list-style-type: none"> 1) Site status & site number 2) DHWR Engineer contact 3) Treatment system description 4) Discharge rate and duration 5) Description of receiving stream 6) Wastewater monitoring data (e.g., if system is new, then provide soil/sediment, groundwater, and surface water sampling data as representative of projected influent constituents) • Request effluent discharge criteria (suggest that Best Available Technology/Best Available Practice (BAT/BAP) criteria be used, along with the applicable analytical methods) • Sampling & Analysis Plan - Implemented for the duration of the treatment system operation 	<ul style="list-style-type: none"> • Would receive a "Permit Equivalent" letter from the Division of Environmental Remediation in lieu of an actual SPDES permit from the Division of Water.

**TABLE A-1 (Continued)
POTENTIALLY-APPLICABLE REGULATORY REQUIREMENTS**

Potential Requirement	Responsible Agency	Example Supporting Documentation	Comments
CSX Access Agreement		<ul style="list-style-type: none"> Description of Work Site Narrative Plan of Proposed Project Location Map (USGS Quad) CSX Application Form Insurance Certificate 	<ul style="list-style-type: none"> Remediation of soil/sediment will occur on property owned by CSX. A truck crossing over the CSX rail line may be required. Changes in the elevation of water under normal conditions in the culverts below the CSX railroad may potentially be modified during design.
Local Building Permit (Bldg. Permit Application/Form)	Town of Geddes (Town of Geddes zoning ordinance) Town of Camillus (Municipal Code, Chapter 30 – Zoning Regulations of the Town of Camillus).	<ul style="list-style-type: none"> Potential for Building Permit, Site Development Permit, Site Plan Approval. Location Map of the site (USGS Quad & Local); Drawings of the structure (plan & profile) Truck access to LCP and/or SCA at Wastebed 13 – Frequency and Route (Town of Camillus). Truck access to LCP and/or SCA Containment Area – Frequency and Route (Town of Geddes). Placement of shoreline support facilities in the vicinity of the Site (e.g., at Wastebeds 1-8 and on State Fair property) (Town of Geddes). Building and stormwater designs for support facilities. Certificate of Occupancy for areas where workers will stay. 	<ul style="list-style-type: none"> Any work in the Town of Camillus may be subject to additional level of regulation and review if constructed in a “Stream Corridor Overlay District”, dependent on the horizontal distance from the high water mark
Onondaga County Agreements	Onondaga County	<ul style="list-style-type: none"> Access to Wastebeds 1-8 and SYW-10 Area as needed for removal and restoration access and support facilities. Ability to cross the proposed biketrail (if in place). 	<ul style="list-style-type: none"> Truck access to Wastebeds 1-8 will also need to be coordinated with New York State Department of Agriculture & Markets (NYS Fair).

TABLE A-1 (Continued)
POTENTIALLY-APPLICABLE REGULATORY REQUIREMENTS

Potential Requirement	Responsible Agency	Example Supporting Documentation	Comments
Highway work permit and occupancy permit. (Honeywell submit application and proof of adequate insurance)	NYSDOT, Onondaga County, and possibly local municipalities.	<ul style="list-style-type: none"> • <u>Perm 32</u> – Highway Work Permit Application for Utility Work. • <u>Perm 33</u> – Highway Work Permit Application for Non-Utility Work. • <u>Perm 44e</u> – Surety Bond (Performance). • <u>Perm 17</u> – Certificate of Insurance for Special Hauling, Divisible Load Overweight, and Highway Work Permit Insurance Requirements. • <u>17 NYCRR Part 131</u> – Accommodation of Utilities within State Highway Right-of-Way. 	<ul style="list-style-type: none"> • Applicable for excavation and restoration in NYSDOT right-of-way. • 17 NYCRR Part 131 may also apply to access improvements. • May also need “Temporary Access/Curb Cut” permits to construct a new site entrance.
Private Landowner Agreements	TBD	<ul style="list-style-type: none"> • Belle Isle property for access, support facilities, excavation, and restoration. • State Fair property for access, support facilities, excavation, and restoration. • Quarry locations for backfill and topsoil materials (Candidate locations not yet identified. May also be subject to 6 NYCRR Part 420 - Part 425) 	<ul style="list-style-type: none"> • Will need to review tax maps Parsons has tax data in GIS and can generate required information.
Canal System Work Permit Canal Law, Article 2 § 10.	NYS Canal Corporation	<ul style="list-style-type: none"> • Canal Permit Application • Certificate of Insurance • Maps, Plans and Specifications of the proposed work • Copies of USACE and/or NYSDEC Approval • Application Fee 	<ul style="list-style-type: none"> • May require permits and/or access agreements for: use of Barge Canal for material and equipment transfers;