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**Subject:** NMC Reach AB/BC Construction Completion Report - Approval Letter  
**Date:** Thursday, September 29, 2016 2:08:00 PM  
**Attachments:** [09\\_29\\_2016\\_NMC\\_Reach\\_AB\\_BC\\_CCR\\_Approval\\_Ltr.pdf](#)

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John,

Attached is a copy of my approval letter for the NMC Reach AB/BC Construction Completion Report, dated September 2016.

Thank you,

Tim

# NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

Division of Environmental Remediation, Remedial Bureau D

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September 29, 2016

Mr. John P. McAuliffe, P.E.  
Program Director, Syracuse  
Honeywell  
301 Plainfield Road, Suite 330  
Syracuse, NY 13212

Re: NMC Reach AB/BC Construction Completion Report, Dated September 2016

Dear Mr. McAuliffe:

We have received and reviewed the above-referenced report, a copy of which was hand delivered to me earlier today, and the revised version of the report appropriately addresses our previous comments. Therefore, the NMC Reach AB/BC Construction Completion Report, dated September 2016, is hereby approved. Please see that copies of the approved report, including this approval letter, are sent to the distribution list selected for this site as well as the document repositories selected for this site.

Sincerely,



Timothy J. Larson, P.E.  
Project Manager

ec: B. Israel, Esq, - Arnold & Porter  
J. Davis - NYSDOL, Albany  
M. Schuck - NYSDOH, Albany  
M. McDonald - Honeywell

R. Nunes - USEPA, NYC  
M. Sergott - NYSDOH, Albany  
S. Blauvelt - Parsons



Department of  
Environmental  
Conservation

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**CONSTRUCTION COMPLETION REPORT  
FOR THE  
NINEMILE CREEK REACHES BC AND AB  
REMEDIAL ACTION**

**Site Number NYD986913580**

**ONONDAGA COUNTY, NEW YORK**

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*Prepared For:*

**Honeywell**

301 Plainfield Road, Suite 330  
Syracuse, New York 13212

*Prepared By:*

**PARSONS**

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*In Association with:*



290 Elwood Davis Road  
Liverpool, NY 13088

**September 2016**

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**PARSONS**

## CERTIFICATION STATEMENT

### NINEMILE CREEK REACHES BC and AB REMEDIAL ACTION CONSTRUCTION CLOSURE REPORT

I, Raymond D'Hollander, certify that I am currently a New York State registered professional engineer, I had primary direct responsibility for the implementation of the subject construction program, and I certify that the Remedial Design was implemented and that all construction activities were completed in substantial conformance with the DER-approved Remedial Design.



Raymond D. D'Hollander  
New York State Professional Engineer  
License No. 064790

9/29/16  
Date

## PARSONS

301 Plainfield Road  
Suite 350  
Syracuse, NY 13212

*Unauthorized alteration or addition to this engineering document is a violation of  
Section 7209, Provision 2 of the New York State Education Law*

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## ACRONYMS

CAMP	Community Air Monitoring Plan
CCR	Construction Completion Report
CHEP	Channel Habitat/Erosion Protection
CPOI	Chemical parameter of interest
CQAP	Construction Quality Assurance Plan
CWTP	Construction Water Treatment Plant
DOT	Department of Transportation
ESD	Explanation of Significant Differences
FCF	Field change form
GPS	Global positioning system
GWTP	Groundwater Treatment Plant
HDPE	High-density polyethylene
LCP	Linden Chemical and Plastics
NYCRR	New York Code Rules and Regulation
NYSDEC	New York State Department of Environmental Conservation
NYSDOH	New York State Department of Health
O&M	Operations and maintenance
OBG	O'Brien & Gere
OU-1	Operating Unit 1
PSP	Project Safety Plan
QA/QC	Quality Assurance/Quality Control
RAO	Remedial Action Objective
RECP	Rolled Erosion Control Products
RG	remedial goals
ROD	Record of Decision
SHSO	Site Health and Safety Officer
SWPPP	Stormwater Pollution Protection Plan
USEPA	United States Environmental Protection Agency
VOC	Volatile Organic Compound
WQMP	Water Quality Management Plan

## **SECTION 1**

### **INTRODUCTION**

This Construction Completion Report (CCR) documents the work performed during the Ninemile Creek Reaches BC and AB remedial action that began on June 6, 2013, and was substantially complete in October 2014. The CCR was completed pursuant to the NYSDEC and USEPA requirements (i.e., DER-10 Section 5.8(b), and OSWER Directives 9320.2-09AP and 9320.2-22).

#### **1.1 BACKGROUND**

The New York State Department of Environmental Conservation (NYSDEC) and Honeywell agreed to conditions under which Honeywell would design and implement a selected remedy, as set forth in a Consent Decree (United States District Court, Northern District of New York, 89-CV-815, 2010). The Consent Decree included two Records of Decision (RODs). The Operable Unit 1 (OU1) ROD (NYSDEC and United States Environmental Protection Agency [USEPA], April 2009) of the Geddes Brook/Ninemile Creek Site that addresses Reaches BC and CD and the Operable Unit 2 (OU2) ROD (NYSDEC and USEPA, October 2009) that addresses Reach AB. The designs and remedial actions for the Geddes Brook/Ninemile Creek site were separated into two phases, Reach CD in 2012 and Reaches AB/BC in 2013-2015, in order to expedite the overall construction schedule. The Reach AB/BC remedial construction work conducted in 2013 through 2015 is the subject of this CCR. A separate CCR for the Reach CD remedial construction work conducted in 2012 has been prepared. Upon completion of the Geddes Brook/Ninemile Creek remedy, a Final Engineering Report (FER) will be prepared pursuant to DER-10 Section 5.8(b). The FER will include discussion of the ROD required institutional controls. These institutional controls will include notification requirements, implementation of a long-term operation, maintenance, and monitoring (OM&M) program to monitor and maintain the effectiveness of the remedy, and annual certifications that the institutional controls are in place and that remedy-related OM&M is being performed.

An electronic copy of this CCR with all supporting documentation is included as Appendix A.

#### **1.2 SITE DESCRIPTION**

Ninemile Creek is located west of the City of Syracuse, New York. Ninemile Creek, which is a primary tributary of Onondaga Lake, originates at Otisco Lake, approximately 16 miles southwest of Onondaga Lake.

The area subject to the Reach BC and AB remedial action (Figure 1) starts approximately 1,300 feet downstream of Ninemile Creek's confluence with Geddes Brook, extends to its outlet into Onondaga Lake, and includes the adjacent floodplains. The site is identified as portions of Tax Parcel No. 26-1-2.1 in the Town of Geddes as shown in area tax maps (Appendix B). Property boundaries are provided on Land Title Survey Drawings in Appendix B.

## SECTION 2

### SUMMARY OF SITE REMEDY

#### 2.1 REMEDIAL ACTION OBJECTIVES AND SELECTED RESPONSE ACTION

Remedial action objectives (RAOs) are identifiable goals to protect human health and the environment. The two RODs associated with this project present the following RAOs for the site:

- RAO 1: 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: 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: eliminate or reduce, to the extent practicable, levels of mercury and other CPOIs in surface water in order to meet surface water quality standards

Remedial goals (RGs) were developed to achieve the RAOs. The RGs 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 presented the following RGs specific to this 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: to the extent practicable, achieve CPOI concentrations (covering a range of risk levels for mercury and other CPOIs), in channel sediments and floodplain soils/sediments that are protective of human health and fish and wildlife resources
- 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 that 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.

The ROD provided assurance that these RAOs and RGs would be met by requiring that the upper 2 feet of the site soils and sediments would be clean as outlined in this excerpt from the OU2 ROD (similar language is included in the OU1 ROD):

*“The selected remedy for this Site is Alternative 3. This alternative addresses the RAOs and cleanup levels for mercury and other CPOIs and will result in a long-term reduction in the toxicity, mobility, and volume of the key contaminants, namely, mercury, arsenic, lead, hexachlorobenzene, phenol, PAHs, PCBs, and dioxins/furans.*”

*The selected remedy addresses all areas of this Site, as described in this ROD, such that the top 2 ft (60 cm) of sediments and soils will be replaced with clean material. The goal for the concentrations of this clean material for mercury, other CPOIs, and other constituents will be NYSDEC's sediment criteria (including the LEL of 0.15 mg/kg for mercury) in sediments and 6 NYCRR Part 375 unrestricted use soil cleanup objectives (including the objective of 0.18 mg/kg for mercury) in soils. Clean soil will include imported fill materials from off-Site sources. The selected remedy will also attain a 0.8 mg/kg Site-specific BSQV for mercury in sediments for protection of wildlife consumption of fish and 0.6 mg/kg Site-specific BSQV for mercury in floodplain soils for protection of wildlife consumption of terrestrial invertebrates. The selected remedy is also intended to achieve fish tissue mercury concentrations ranging from 0.1 mg/kg, which is for protection of ecological receptors, to 0.3 mg/kg, which is based on EPA's methylmercury National Recommended Water Quality criterion for the protection of human health from elevated risks due to consumption of organisms."*

The selected remedy for addressing the RAOs and RGs listed above, as presented in the April 2009 and October 2009 RODs (NYSDEC and USEPA, 2009a and b), is further described below in Section 2.2 while the implementation of the selected remedy is described in Section 3.

## 2.2 DESCRIPTION OF SELECTED REMEDY

The site was remediated in accordance with the NYSDEC-approved remedy, as described in the April 2009 and October 2009 RODs and further defined in the Ninemile Creek 100% Design Report for Reaches BC and AB (Parsons, 2013). The factors considered during the selection of the remedy include those listed in 6 New York Codes Rules and Regulations (6 NYCRR) 375-1.8. The remedy is summarized below and illustrated on Figure 2:

- Remove contaminated channel sediment and floodplain soil/sediment in Reach BC of Ninemile Creek.
- Remove contaminated channel sediment and floodplain soil/sediment in Reach AB of Ninemile Creek.
- The lower 300 feet of the Ninemile Creek channel as well as the adjacent SYW-10 wetland spits, which were included in the selected remedy in the OU2 ROD, were incorporated in the remedial design for the Onondaga Lake site and will be addressed in the Construction Completion Report for the lake.
- Remove contaminated floodplain soil/sediment in defined portions of forested wetland SYW-10. To retain several mature trees and preserve valuable forested wetland function, a buffer zone was established within the remedial area where no removal activities occurred. Keeping a portion of the SYW-10 forest wetland intact preserves important wetland functions of a mature forest which can take decades to produce, including potential roosting or maternity trees for the endangered Indiana Bat.
- Place clean materials as part of the restoration. These materials will consist of one or more of the following layers, from the surface down: habitat layer, backfill and, within Reach BC, an isolation layer.

- Transport and manage soil/sediment at Linden Chemical and Plastics (LCP) Operating Unit 1 (OU 1) Final Cover Area sub-site containment system.
- Treat construction water generated by remedial activities at a temporary construction water treatment plant (CWTP).
- Restore stream bed and banks, wetlands, and habitats following sediment and soil removal, including planting and seeding with a diversity of native species, such that the remedy does not result in a net loss of wetlands following remediation.

Without alteration, the RGs would have required removal of channel/floodplain sediment in a 240-foot stretch of Reach BC (Station 41+00 to Station 38+60). There were, however, safety and access concerns due to its proximity to the CSX railroad tracks and the State Fair Boulevard bridge. Because of the noted physical hazards in combination with the low levels of contaminants in this area, NYSDEC and EPA issued an Explanation of Significant Differences (ESD) which modified the remedy in this area so that there would be no removal or backfilling of the channel, and so that material would only be removed from a portion of the bank and floodplain that is accessible (Figure 2). The ESD document, including figures showing the ESD location, can be found on the NYSDEC website at the following link:

[http://www.dec.ny.gov/docs/regions\\_pdf/gednmreach.pdf](http://www.dec.ny.gov/docs/regions_pdf/gednmreach.pdf)

### 2.2.1 Remediation Performance Criteria

Detailed remediation performance criteria provided in the Ninemile Creek 100% Design Report for Reaches BC and AB (Parsons, 2013) are summarized below:

- Remove channel sediment to the lines and grades shown on the remedial excavation drawings, generally 3.25 ft below finished grade in Reach BC and 2.5' below finished grade in Reach AB..
- Remove overlying soil and sediment from surface of structural stone where encountered.
- Remove 2 feet of floodplain soil/sediment from the areas defined on the remedial excavation drawings.
- Remove approximately 3 to 4 ft of soil/sediment from the forested floodplain between Ninemile Creek and SYW-10.
- Remove 2 to 3 feet of floodplain soil/sediment from portions of the SYW-10 forested wetland. The SYW-10 remedial approach included the establishment of a buffer zone with the remedial extents to retain mature trees and preserve valuable forested wetland function.
- Conduct additional removals as indicated on the design drawings to facilitate site restoration.
- Backfill the Ninemile Creek channel and wetland benches with 1.25 feet of isolation/mixing layer material in Reach BC and 0.5 feet of base layer material in Reach AB. Install 2 feet of channel habitat and erosion protection material throughout the

Ninemile Creek channel. No backfill will be installed in areas where structural stone is encountered.

- Backfill the Ninemile Creek floodplain with 2 feet of habitat subgrade and topsoil material. In wetland bench areas, backfill with 2 feet of channel habitat and erosion protection material and a sand topsoil mix at a 1:1 ratio.
- Backfill SYW-10 forested wetland with 2 feet of fine-grained material and topsoil.
- Restore the Ninemile Creek channel, banks, floodplains, wetlands, and habitats to provide the following ecological benefits:
  - Improved channel substrate for fish spawning and benthic macroinvertebrates
  - Riparian, wetland and upland habitats with a diversity of native species
  - Water depth under low flows to provide fish and canoe passage
  - Improved channel habitat including pools, rock features, and woody debris
  - Improved connectivity between the Ninemile Creek channel and the SYW-10 forested wetland

## **SECTION 3**

### **DESCRIPTION OF REMEDIAL ACTIONS PERFORMED**

The Ninemile Creek Reaches BC and AB remedial action was designed to fulfill the regulatory and legal requirements in the documents discussed above for this portion of the site. Construction of the remedial action began on June 6, 2013, following NYSDEC approval of the 100% Design Report (Parsons, 2013), which included the ESD area, on September 13, 2013. Subsequent modifications to the design are documented in the Field Change Forms in Appendix C.

#### **3.1 GOVERNING DOCUMENTS**

##### **3.1.1 100% Design Report**

The 100% Design Report (Parsons 2013) presented the plans and specifications required to complete the Ninemile Creek Reaches BC and AB remedial action and restoration. Several submittals were provided in accordance with the design and are included in Appendix D. The Construction Quality Assurance Plan (CQAP) was included as an appendix to the 100% Design Report.

##### **3.1.2 Construction Quality Assurance Plan**

The remedial action tasks were managed in accordance with the CQAP through designed and documented quality assurance/quality control (QA/QC) methodologies applied in the field. The CQAP described the observation and testing activities that were used to monitor construction quality and to confirm that remedial construction conformed to the RAOs and specifications.

The CQAP also outlined the project organization. The functions and responsibilities of the various team members involved in the Ninemile Creek Reaches BC and AB remedial action are described below. A contact list for the various team members is provided in Section 4.

#### ***NYSDEC***

The NYSDEC was the lead regulatory agency for the site, and Mr. Tim Larson was the NYSDEC Project Manager for the Ninemile Creek Reaches BC and AB remedial action. The NYSDEC reviewed and approved plans, drawings, reports, schedules and Field Change Forms.

#### ***USEPA***

The USEPA was the federal regulatory agency overseeing the remedial action for the site. Mr. Robert Nunes was the USEPA Project Manager for the Ninemile Creek Reaches BC and AB activities. NYSDEC coordinated with USEPA, which reviewed submitted plans, drawings, and reports to assess compliance with USEPA regulatory criteria.

#### ***HONEYWELL***

Honeywell was responsible for the design and implementation of the Ninemile Creek Reaches BC and AB remedial action. Mr. John McAuliffe, P.E., is the Honeywell Syracuse Program

Director and was the primary Honeywell contact for this project. Mr. William Hague was Honeywell's Director for Remediation Design and Construction, and reviewed and provided input on project approaches and deliverables. Mr. Michael Savage was Honeywell's site representative with whom activities and decisions could be reviewed during the remedial action.

## **PARSONS**

Parsons was the prime contractor for the design-build construction of the remedy and managed the schedule and execution of the remedial action. The responsibilities of key Parsons' personnel are described below.

### **Project Manager**

Mr. Matt Warren was the Parsons Project Manager responsible for the overall execution of the remedial action and for meeting the project objectives. The Project Manager was accountable to the Parsons Program Managers (Mr. Steve Warren and Mr. Paul Blue), the Honeywell Design/Construction Manager (Mr. Michael Savage), the Honeywell Syracuse Program Director (Mr. John McAuliffe), and Honeywell's Director of Remediation Design and Construction (Mr. William Hague). Mr. Warren was responsible for managing subcontractors, maintaining the project schedule, managing the project budget, and ensuring the technical adequacy of the work performed. He was also the primary point-of-contact for Honeywell on technical, schedule, and contractual issues. Mr. Warren was assisted by Ms. Rebecca (Absolom) Serven, the Deputy Project Manager.

### **Design/Certifying Engineer**

Mr. Ray D'Hollander, P.E., was the Design/Certifying Engineer for this project. Mr. D'Hollander was responsible for managing design issues during construction, including reviewing submittals for compliance with the design, approving all changes to the design, periodically inspecting the site to assess whether construction and restoration were being conducted in compliance with the design, and preparing this CCR.

### **Construction Manager**

The Construction Manager for the project was Mr. Darren Fuller. Mr. Fuller was responsible for implementing on-site construction activities and directing on-site construction personnel, including subcontractors. He also submitted documentation to the design/certifying engineer as required in the contract documents and maintained construction quality and safety standards.

Mr. Fuller supervised the following activities:

- Subcontractor scope of work
- Excavation and restoration activities
- Water treatment
- Materials management
- Operations at the LCP Final Cover Area

## **Site Health and Safety Officer**

The Site Health and Safety Officer (SHSO) for this project was Mr. Dale Dolph. Mr. Dolph reviewed and implemented the Project Safety Plan (PSP) and was responsible for implementation of the Community Air Monitoring Plan (CAMP). Mr. Dolph conducted periodic health and safety audits of the project, which included a review of personnel training records to verify that personnel had been trained in accordance with the site-specific health and safety plan. He also coordinated with site personnel and project management so that safe and compliant site work practices were implemented.

## **Remedial Contractor**

Honeywell selected Parsons as the Remedial Contractor to carry out the remedial construction. Additional project personnel for Parsons included:

- Sam Carrico (Construction Superintendent)
- Ben Monohon (Project Engineer)
- Jesse Carr (QA/QC)
- Jeffrey Nassimos (Survey QC)
- Leonard Hamilton (SHSO technician)
- Nancy Giocondo (Document Control/Administration)

## **Sub-Consultants**

Under subcontract to Parsons, Anchor QEA, LLC of Seattle, WA, assisted the Certifying Engineer with technical issues related to the Ninemile Creek Reaches BC and AB channel design and the floodplain hydrology and restoration.

## **Subcontractors**

The following companies performed as subcontractors to Parsons:

- Nubble Site Solutions, Inc., of Portland, ME, performed global positioning system (GPS) services.
- Sun Environmental Corp. of Liverpool, NY, performed Vac-Truck services at the CWTP.
- Burns Bros Contractors Inc. of Syracuse, NY, performed operations and maintenance (O&M) services at the CWTP.
- O'Connell Electric Co. of Victor, NY, performed O&M services at the CWTP.
- Thew Associates of Marcy, NY, installed survey control points.
- Atlantic Testing Laboratories of Syracuse, NY, performed geotechnical testing services.
- CME Associates, Inc. of Syracuse, NY, performed geotechnical testing services.
- Severson Environmental Services, Inc. of Niagara Falls, NY, installed and maintained silt curtains.

- New York Leak Detection, Inc. of Jamesville, NY, performed ground penetrating radar services.
- Anchor QEA of Syracuse, NY, monitored water quality.
- Cardno JFNew of Walkerton, IN, performed site restoration services.
- Parratt–Wolff of East Syracuse, NY, abandoned piezometers.
- Riccelli Enterprises of North Syracuse, NY, provided earthen materials and trucking.
- Saunders Concrete of Syracuse, NY, performed trucking services.
- RH Law, Inc., of East Syracuse, NY, performed trucking services.
- Test America of Pittsburgh, PA, analyzed collected samples.
- ALS Life Sciences of Rochester, NY, analyzed collected samples.
- Atlas Fence, Inc., of East Syracuse, NY, installed fences.
- Seaway Diving & Salvage Co., Inc., of Waterford, NY, performed underwater inspection services.
- EMI Guiderail, LLC, of Schenectady, NY, removed and replaced guiderails.
- Clark Rigging and Rental Corp. of Lockport, NY, performed crane services.
- Chenango Contracting, Inc., of Johnson City, NY, installed and removed temporary liners.

### **3.1.3 Community Air Monitoring Plan (CAMP)**

A CAMP was developed for the Ninemile Creek Reaches BC and AB remedial action and was based on the New York State Department of Health’s (NYSDOH) Generic Community Air Monitoring Plan (2000). The CAMP was implemented to protect the downwind community from potential airborne contaminant releases directly resulting from remedial activities. The downwind community included off-site receptors such as residences and businesses and on-site workers not directly involved with the subject work activities. Air monitoring took place at the upwind and downwind perimeter of work zones. Wind direction was assessed twice a day based on field observations, and monitoring locations were adjusted accordingly. The work zones included excavation areas associated with the Ninemile Creek Reaches BC and AB and the LCP Final Cover Area. No exceedances of volatile organic compounds (VOCs) or particulate action levels occurred during construction.

### **3.1.4 Project Safety Plan (PSP)**

Remedial work at the Site was performed in full compliance with regulatory requirements, including site and worker safety requirements mandated by the Occupational Safety and Health Administration. The PSP described monitoring for worker protection in excavation areas and was complied with during remedial and invasive work performed at the Site.

### **3.1.5 Stormwater Pollution Prevention Plan (SWPPP)**

The erosion and sediment controls for remedial construction were performed in conformance with requirements presented in the New York State Guidelines for Urban Erosion and Sediment Control and the site-specific SWPPP.

### **3.1.6 Water Quality Management Plan (WQMP)**

A WQMP was developed in consultation with NYSDEC to protect areas downstream of the active remediation from resuspension of material. This plan outlined monitoring locations from which samples were collected for comparison with sample results from an upstream baseline sampling location. Action levels and possible solutions to exceedances were identified for each of the monitoring locations. No exceedances of the surface water quality standards or the turbidity action limit were recorded as a result of the remedial construction activities in Ninemile Creek.

## **3.2 REMEDIAL PROGRAM ELEMENTS**

A tabular summary of significant RA milestones and dates is provided below.

- Record of Decision for OU-1 Signed – April 29, 2009
- Record of Decision for OU-2 Signed – October 1, 2009
- Remedial Design Submittal – May 8, 2013
- Remedial Design Approval (not including ESD area) – May 10, 2013; Remedial Design Approval (including ESD area) – September 13, 2013
- Remedial Construction Start – June 6, 2013
- Explanation of Significant Difference Signed – September 12, 2013
- Remedial Construction Substantial Completion – August 15, 2014
- Restoration Completion – November 12, 2015
- Final Inspection – July 18, 2016
- Significant Operational Events
  - CWTP Start-up – April 18, 2013 and April 21, 2014
  - Commencement of Excavation – June 20, 2013
  - Commencement of Backfilling – July 22, 2013
  - Completion of Excavation – August 8, 2014
  - Completion of Backfilling – October 15, 2014
  - Monitoring and Sampling Events – water quality monitoring performed by Parsons (local) and Anchor QEA (conformance and performance) with dates summarized in Appendix G – Turbidity Monitoring Data
  - System Modifications – N/A
  - Operational Down Times – Shut down for the winter on December 15, 2013 and October 31, 2014

- Variances or Non-Compliance Situations – Field Change Forms approved on the following dates:
  - FCF-01 – October 10, 2013
  - FCF-02 – May 29, 2014
  - FCF-03 – July 24, 2014
  - FCF-04 – September 4, 2014
  - FCF-05 – December 15, 2014
  - FCF-06 – May 12, 2015
- Final Sampling –
  - All excavation and backfill completed to lines and grades presented in Ninemile Creek 100% Design Report and documented in As-Built Drawings and Figures located in Appendix B – Survey Drawings and Tax Map – October 22, 2012
  - Required Inspections – SWPPP Inspections performed per the Ninemile Creek SWPPP and are included in Appendix D – Submittals and Submittal Log (RCD-02370-003)
  - OM&M Start-up – January 1, 2015

The remedial construction activities are described below.

### **3.2.1 Site Preparation**

Parsons mobilized to the site on February 2, 2013 and began site preparation activities on February 25, 2013. Site preparation activities included clearing and grubbing of vegetated areas in the uplands and clearing of large trees within the floodplains. In SYW-10, large trees within the forested wetland had to be felled, were felled within a specific timeframe to protect the Indiana Bat. Trees that were saved in SYW-10 were evaluated by an arborist, and offsets for equipment traffic and removal extents were established in an effort to minimize damage to the root system.

Existing fencing was removed, and permanent and temporary fencing was erected as required. New haul roads were constructed, and existing haul roads were graded for drainage before placement of crushed limestone and clean #2 limestone gravel. Silt fencing and other erosion and stormwater controls were placed as per the SWPPP requirements.

A temporary 6-inch-diameter, high-density polyethylene (HDPE) conveyance pipe was installed to convey construction water to the CWTP from the local sedimentation tanks that were placed near the excavations.

Sediment dewatering pads were constructed and used during construction to prepare wet soil/sediment for transportation to the LCP OU-1 Final Cover Area.

Temporary facilities from the Geddes Brook Interim Remedial Measure construction were reused and included trailers, utilities, and storage areas.

A pre-construction meeting was held with NYSDEC and all contractors on May 16, 2013.

Agency approvals required by the remedial design and/or other pre-construction work plans are documented in Appendices C and D. Other permits related to the remediation project are provided in Appendix E.

### **3.2.2 General Site Controls**

The following site control activities were completed:

- Site security – Parsons and its subcontractors coordinated locking site trailers and perimeter gates daily during nonworking hours.
- Job site record keeping – Parsons maintained records of personnel present at the site on the trailer daily sign-in sheets.
- Erosion and sedimentation controls – Parsons inspected the erosion and sediment control features per the approved SWPPP and made repairs when needed.
- Equipment decontamination and residual waste management – subcontractors coordinated with Parsons to decontaminate equipment prior to its leaving the site and to remove residual waste material for disposal at the LCP OU-1 Final Cover Area.

### **3.2.3 Nuisance Controls**

Parsons controlled construction haul road dust as needed during dry periods. Dust control consisted of applying water using a water truck. Subcontractors limited construction traffic to temporary access roads stabilized with gravel to reduce the potential erosion of soil outside of road areas.

No nuisance dust or other complaints associated with the construction were received.

### **3.2.4 Survey**

A licensed surveyor provided temporary survey benchmarks around the perimeter of the LCP OU-1 Final Cover Area and Ninemile Creek Reaches BC and AB. The benchmark locations are provided as a submittal in Appendix D.

Surveying was conducted in accordance with Specification 01720 – Project Surveying. As-built surveys were generated by field staff under the direction and supervision of a Professional Engineer. As-built surveys were developed using topographic data obtained using either a portable rover Trimble R8 unit and SCS 900 software or a Leica Power Digger 3D excavator system.

In general, the portable rover unit (Trimble R8) could only be used in the floodplain (i.e., above the water and SYW-10). The Leica system was mounted on an excavator and was used to record survey data both above and below water. The Leica system consisted of antennas on the back of the excavator, a computer in the cab of the excavator, and sensors on the boom, stick and bucket that recorded real-time GPS coordinates for the bucket.

Design surfaces were built into each survey system. When the design surface was achieved, the operator would record as-built coordinates. Survey data were collected on approximately 8-foot by 8-foot grids and used to generate as-built drawings. Control checks were performed daily to confirm survey system accuracy.

### **3.2.5 CAMP Results**

The CAMP monitoring data are summarized in Appendix F, which also includes raw CAMP data in electronic format on a compact disk. There were no VOC or particulate action level exceedances during construction.

### **3.2.6 Turbidity Results**

Turbidity levels were monitored at an upstream location in NMC and at compliance and performance monitoring locations near the mouth of NMC in Onondaga Lake during the 2013 and 2014 construction seasons. Complete results from the monitoring locations are presented in the Reaches AB/BC Water Quality Monitoring Summary Report, prepared by Anchor QEA (Anchor QEA 2014) and attached in Appendix G. As indicated in the report, the turbidity alert level (25 NTU above background) was only exceeded once during the 2013 and 2014 construction seasons and it was determined by Anchor QEA not to be a result of remedial construction activities in Ninemile Creek.

### **3.2.7 Water Quality Analytical Monitoring Results**

In addition to turbidity, grab samples were taken at the background and compliance monitoring locations and analyzed for the compounds discussed in the WQMP including total mercury, dissolved mercury, total phosphorus, total dissolved phosphorus, soluble reactive phosphorus and total suspended solids. No exceedances of the dissolved mercury water quality criteria (1.4 micrograms per liter) established for Onondaga Lake were recorded. Complete results from the compliance monitoring locations are presented in the Reaches AB/BC Water Quality Monitoring Summary Report, prepared by Anchor QEA (Anchor QEA 2014) and attached in Appendix G.

### **3.2.8 Meeting and Reporting**

In general, weekly project coordination meetings were conducted every Thursday during the construction period. Meeting attendees included representatives from Honeywell, NYSDEC, Parsons (Construction Manager, Certifying Engineer, Construction Quality Assurance personnel, and SHSO), and subcontractor representatives. Weekly meeting minutes are provided in Appendix H.

Parsons prepared construction reports that described the operations conducted for the day, including equipment and personnel on-site, weather conditions, and monitoring results. Parsons also maintained a separate photographic log of the daily construction activities. Daily field reports and the photographic logs are included in Appendix I.

### **3.2.9 Green Remediation Practices**

A list of the green remediation practices/technologies employed throughout the remedial program is provided below.

- Design allowed for placement of uncompacted backfill, which minimized the number of lifts and eliminated the need to operate compaction equipment.
- Design required a minimal number of layers of different material types.

- Used unprocessed, directly loaded pit-run materials, which reduced fuel usage and emissions at borrow pit.
- Utilized LCP OU-1 Final Cover Area for impacted sediment containment reducing long-distance trucking.
- As material was placed at the LCP OU-1 Final Cover Area, it was shaped to meet final closure requirements which minimized future equipment operations.
- Hardwood crane mats used in the Ninemile Creek excavation areas were re-used at the LCP OU-1 Final Cover Area.
- Concrete decking from the former causeway at the lakeshore site was used to protect the geomembrane liner in the bottom of the mixing bays.
- Re-used previously built haul roads for site access.
- Re-used on site materials for woody debris and rock habitat features.
- Used 20% Bio-diesel fuel mixture in heavy construction equipment.
- Used meticulous planning and execution to minimize inefficient equipment use (i.e., utilizing existing haul roads, shutting down construction activities during adverse weather conditions, adjusting haul routes during State Fair activities, utilizing quarries directly adjacent to interstate highways for imported material, installing stream crossings to minimize lengthy haul routes).
- Built berms from clean imported material to segregate and dewater creek sections instead of installing sheet piling. The imported material was re-used as part of the backfill.
- Utilized machine-control GPS equipment to minimize regrading and rework.
- RECP (Rolled Erosion Control Products) and/or seed were installed on exposed slopes outside of remedial extents to minimize stormwater erosion.
- Used native plant material for site restoration.

### **3.3 CONTAMINATED MATERIAL REMOVAL**

Excavation/dredging of the mercury-contaminated soil/sediment began on June 6, 2013, near station 54+00 in Ninemile Creek. The station is approximately 1,300 linear feet downstream of the creek's confluence with Geddes Brook. Excavation/dredging proceeded downstream to the Ninemile Creek outlet at Onondaga Lake (~station 3+00). Work for this phase of construction was completed on August 15, 2014. Removals were conducted in accordance with the approved design. As-built excavation drawings are provided in Appendix B.2, and design and as-built volumes removed are summarized in Table 1. A total of 78,750 cubic yards of soil/sediment were removed and transported via dump truck to the LCP OU-1 Final Cover Area. This total does not include the volume of the solidification agent.

Consistent with Ninemile Creek Reach CD removal practices, dredging in the channel was conducted with standard buckets mounted on an excavator, in accordance with the WQMP and approved by NYSDEC. Water quality monitoring data were collected during all dredging activities

in accordance with the WQMP. No exceedances of the turbidity action limit occurred during construction activities at either the performance or compliance locations.

If the excavated material was unsuitable for transport upon removal, pelletized quicklime was added as a solidification agent prior to hauling it to the LCP OU-1 Final Cover Area. The quicklime was delivered to one of three on-site mixing pads consisting of three independent bays. Excavated material was hauled to the mixing pad using off-road end dumps, where it was mixed with the quicklime and allowed to set for a period of time. This practice resulted in a material that would pass the paint filter test. It was then loaded into over-the-road trucks and hauled to the LCP OU-1 Final Cover Area. A total of approximately 2,664 tons of quicklime was used for solidification purposes during the project.

Bills of lading associated with the transportation of the removed material over public roads are included in Appendix J. Table 1 summarizes both the design and removed volume.

Areas within the project where excavation occurred are further described in the subsections below.

### **3.3.1 Reach BC and AB (~Station 54+00 to 3+00)**

To facilitate access in to the required removal areas in Reaches BC and AB, access was built on the creek bank and into the creek. Channel habitat and erosion protection material were added at strategic locations. The surface elevation of the access areas was targeted to allow equipment to sit above the water surface, thus minimizing turbidity when accessing the creek. In addition, 36-inch corrugated HDPE pipes were installed perpendicular to creek flow in the center of the height of the access areas in the channel to normalize creek elevations on both sides and to allow for safe fish passage to both sides of the creek.

Reach BC (Station 54+00 to 29+00) removals began on June 6, 2013. From Station 54+00 to 41+00, channel removals were conducted from the access areas, and floodplain removals were conducted from each creek bank. Existing DOT-installed tabular structural stone was encountered in this section on both sides of the creek from approximately Stations 52+50 to 49+50 and 43+00 to 41+00. Structural stone areas were verified both visually and by radio communication between the operator and on-site survey technician. Actual structural stone locations are shown on the As-Built Figures (Appendix B-3).

All creek and floodplain removals from Stations 38+50 to 29+00 were conducted from in-creek access areas. Existing structural stone was also encountered on both creek banks from Stations 38+50 to 31+00. Remnant bridge pier structures and loose concrete debris were encountered in the channel footprint while conducting removals from Stations 36+25 to 35+75 and 31+90 to 31+40. A field change form (FCF-01) was issued on October 9, 2013, to alter the removal design in these areas to account for the presence of these structures. In summary, all loose concrete debris was removed, and the undemolished bridge pier structure remnants were left in place. The backfill design in this area was also altered to eliminate net loss of creek cross-sectional area, provide efficient creek flow, and allow for safe boat passage. Removals in Reach BC (Stations 54+00 to 29+00) were completed and approved by NYSDEC on September 26, 2013. Channel and floodplain removals in this area were conducted to the lines and grades in the design report

(Parsons 2013) and approved field change forms and were approved by NYSDEC prior to backfilling.

Reach AB (Stations 29+00 to 3+00) began on September 30, 2013. Channel and floodplain excavation in this area was performed similar to Reach BC. Removal activities were shut down for the winter at Station 21+00 on November 19, 2013, and commenced the following spring on May 5, 2014. All access and removal sequencing remained the same as the previous year. Channel and floodplain removals from Stations 21+00 to 3+00 were completed on August 15, 2014. Channel and floodplain removals in this area were conducted to the lines and grades in the design report and approved field change forms and were approved by NYSDEC prior to backfilling.

O'Brien & Gere (OBG) installed an access road and collection trench system along Wastebeds 1-8 from Stations 29+00 to 14+00 prior to Parsons removal activities in the same area. Parsons and OBG coordinated activities as necessary throughout this interface. As part of this work, OBG performed a 2-foot removal of floodplain material in the area from Stations 25+00 to 16+50 where their access road footprint overlapped the Parsons' removal limits. These removals were conducted on October 3, 2012, and Parsons performed a visual QA inspection of the area on October 5, 2012. Photographs and a report from this inspection are included in Appendix I. OBG As-Built survey data in this area is included in Appendix B-2.

The only removal measure that differed from the design lines and grades was described above. The NYSDEC approved FCF-01 (Appendix C) to accommodate the remnant bridge pier structures encountered within the channel footprint from Stations 35+75 to 36+25 and Stations 31+40 to 31+90.

### **3.3.2 SYW-10**

Removals in SYW-10 began on October 29, 2012, in the southern corner where the Bike Trail footprint overlapped the SYW-10 removal limits. Removals in this area were conducted at this time due to sequencing coordination with construction of the Bike Trail, which commenced in this area in spring 2013. This area was investigated prior to the removals, as summarized in Appendix M. A lane of 690W was closed at a location directly adjacent to the removal area to provide access. Removals and backfill in the Bike Trail footprint and accompanying 10-foot buffer zone were completed on November 12, 2012.

Removals in the remainder of SYW-10 began on October 15, 2013. A temporary FlexiFloat bridge was installed at approximately Station 6+50 to allow for access across Ninemile Creek into SYW-10. Access roads were constructed as needed in SYW-10 using 8-foot x 16-foot, 3-ply laminated crane mats. Removals were conducted by excavators and off-road haul trucks operating on the mat roads. The mat roads were repositioned as new areas of removals and backfill were completed throughout this area. SYW-10 removals were completed on November 19, 2013. Floodplain removals in this area were conducted to the lines and grades in the design report and approved by NYSDEC.

### **3.3.3 Consolidation of Excavated Material at LCP**

Excavated channel sediment and floodplain soil/sediment were consolidated at the LCP OU-1 Final Cover Area in accordance with the 100% Remedial Design Report (Parsons, 2013).

### **3.3.4 Construction Water Treatment Plant**

Construction water generated during the Ninemile Creek Reaches BC and AB remedial action was treated at a temporary CWTP. The temporary CWTP was constructed in early 2011 immediately east of the LCP Final Cover Area in accordance with the Geddes Brook and Ninemile Creek Construction Water Treatment Plant Report (Parsons, 2011).

In 2013 and 2014, the temporary CWTP treated approximately 7,607,000 gallons of construction water associated with both the Ninemile Creek Reaches BC and AB remedial action and LCP OU-1 Final Cover Area management. Effluent was sampled in accordance with Specification 02140 – Construction Water Management - and discharged to the METRO treatment plant. No exceedances of the effluent analytical action limit occurred during construction. Discharge Monitoring Reports and Self-Monitoring Reports summarizing the effluent sample results are included as a submittal in Appendix D.

The temporary CWTP received maintenance on an as-needed basis. As part of these maintenance activities, used bag filters and sludge from tanks and clarifiers were handled as summarized below.

- Used bag filters – 809 bags were taken to the Willis Avenue GWTP for disposal.
- Sludge - 132,000 gallons were hauled to the Willis Avenue GWTP for processing.

Documentation associated with the waste streams summarized above is included as a submittal in Appendix D.

## **3.4 REMEDIAL PERFORMANCE DOCUMENTATION**

The Ninemile Creek Reaches BC and AB Final Design and CQAP do not require post-excavation sampling. Instead the excavation achieved the pre-approved lines and grades shown in the Remedial Design Report (Parsons 2013) and those in approved field change forms. A detailed real-time survey was performed during the removals to demonstrate compliance with the design excavation and backfill elevation. Survey results are provided in Appendices B-2 and B-3.

NYSDEC and their representatives were on-site periodically to observe the remediation, assess conformance with project documents, and attend weekly project meetings. They also reviewed and accepted or approved submittal packages, including laboratory testing results of imported backfill material. All analytical data can be found in Appendix K – DUSR and Raw Lab Data.

## **3.5 BACKFILL**

Following NYSDEC approval of the removals, backfilling activities were conducted as appropriate. The following backfilling measures differed from the design lines and grades provided in the approved design:

- As shown in the NYSDEC approved FCF-01 (Appendix C), remnant bridge pier structures were encountered within the channel footprint during excavation from Stations 35+75 to 36+25 and Stations 31+40 to 31+90. Through analysis of the design and existing conditions, modifications were made to the backfill in this area to accommodate the presence of the structures.
- The presence of the bridge pier structures increased the threat of higher flow velocities and shear stresses in their vicinity. Therefore, a section of the wetland bench from Stations 36+30 to 35+55 was eliminated from the design as shown in the NYSDEC approved FCF-04 (Appendix C). As compensation, a new wetland bench was designed and installed between Stations 6+60 and 4+60 on the east side of the creek. The added benefits of installing a wetland bench in this location are outlined in FCF-04.
- As shown in the NYSDEC approved FCF-05, Channel Habitat/Erosion Protection (CHEP) and Habitat Subgrade Backfill Material were modified from Stations 6+75 to 3+00 to minimize the generation of excess CHEP material that would have otherwise been disposed of at the LCP Containment Area. The modification consisted of blending the two aforementioned materials at a 3:1 ratio and using this new material as backfill in both the CHEP and Habitat Subgrade Material footprints.
- As shown in the NYSDEC approved FCF-06, the stormwater collection and discharge design was modified. The stormwater downchutes in the approved design (located on the north and east creek bank at Stations 8+40, 6+30, and 5+10) were eliminated because current site conditions did not allow for a proper installation at these locations. As compensation, two stormwater downchutes were installed on the north creek bank at Stations 9+00 and 8+60.

Appendix B-3 contains as-built figures that show point-by-point comparisons of field survey shots against the lines and grades on the design drawings. Backfill was installed per the NYSDEC approved design and field change forms. The as-built geometry fulfills the intent of the design and is protective as documented on Table 1 in Appendix B-3. The breakdown of truck tickets for imported material can be found in Appendix L.

Analytical and geotechnical testing on imported backfill material was performed and approved prior to placement on-site. The total quantity of each backfill type used on-site and the corresponding number of approved analytical and geotechnical tests meeting the design goals are listed in Table 2. Analytical results for backfill are provided as submittals in Appendix D.

Limestone borrow materials brought to the site were from the Saunders Marcellus quarry, which is a NYS Department of Transportation approved source. These materials were generally placed outside the site restoration limits and used as road material. Where they were placed within the restoration limits (e.g., access roads), the materials were generally excavated back out during the site remediation and placed in the LCP OU-1 Final Cover Area. The areas from which they were excavated were then restored. See Table 3 for the volumes of borrow materials imported for non-restoration purposes.

### 3.6 RESTORATION

Site restoration features included the gabion baskets, downed trees, stone with joint plantings, woody debris, large flat stone piles and rock lunger structures and are shown on the as-built restoration feature drawings in appendix B-2. These were installed consistent with the design during backfilling operations. Cardno JFNew (Cardno) was awarded a subcontract to perform site restoration activities for Ninemile Creek Reaches BC and AB.

Cardno first mobilized to the site on November 7, 2013. Woody species (trees, shrubs, live stakes) and seed were installed in SYW-10 and along Reach BC in the A-1a, A-1c1, A-1c2 (structural stone), and A-2 Zones during this initial mobilization. Work was suspended on December 7, 2013, due to inclement weather conditions. Cardno returned to the site on May 6, 2014, to complete woody species (including Large Tree) and seed installation in the A-1a, A-1c1, A-1c2, and A-2 Zones up to Station 23+00 in Reach AB. Over the winter of 2013/2014, the Dredge Slurry Pipeline had been relocated to float along the Ninemile Creek east bank from Booster Pump Station #3 upstream to approximately Station 52+00. The presence of the pipeline in the creek restricted access to a few A-1c2 areas between Station 33+00 and 31+00. Cardno did not install any plantings in these areas during this mobilization, which concluded on May 19, 2014.

Cardno again returned to the site on June 11, 2014, to complete herbaceous plug installation in the B-1e Zone from Stations 52+00 through 23+00 and in SYW-10 B-1f Zone. This mobilization was concluded on August 6, 2014. Once again, the Dredge Slurry Pipeline restricted access to B-1e Zone wetland benches along the east side of the creek in Reach BC. Cardno again mobilized to the site on November 6, 2014, to complete woody species and seed installation from Stations 23+00 through 3+00. Joint plantings in the light stone fill and gabion basket areas were also installed during this mobilization. These tasks were completed on November 25, 2014. Due to delays caused by the Dredge Slurry Pipeline, two tasks were postponed in 2014 to be completed in 2015. The postponed plantings were herbaceous plug and seed installation in the B-1e zone wetland bench and large tree (eight in total) installation. These plantings were between Stations 50+00 to 43+00, on the east creek bank. Cardno returned to the site on May 14, 2015 and installed 7 trees on the east creek bank. The remaining large tree location (Station 47+50) was inside the drip line of an existing large willow, which was saved during construction. Upon approval by NYSDEC on May 14, 2015, the new tree was installed at approximately Station 44+00 on the west creek bank. Cardno returned in July, 2015 and installed the remaining herbaceous plugs and seed in the B-1e zone. Cardno installed the final live stakes on November 12, 2015 along the wetland bench from Stations 50+00 to 43+00, completing the restoration activities for the project.

Table 4 provides a detailed list of site restoration activity completion dates. Table 5 compares the pre-construction wetland and habitat zone acreages to the as-built acreages.

Variations from the design are summarized below:

- As shown in the NYSDEC approved FCF-02 (Appendix C), three large trees were relocated due to steep slopes and expected sliver fills along the bank, which compromised their survivability. The three trees (located on the north creek bank at Stations 24+70, 23+75, and 23+00) were relocated upstream to an area with a flatter

slope between Stations 29+00 and 30+00. Six live stakes were also installed in the original tree locations as compensation for the relocation.

- As shown in the NYSDEC approved FCF-03 (Appendix C), B-1e zone emergent species in Reach BC were shifted up the creek bank due to high creek flows resulting from downstream construction activities. This shift provided an increased chance of survival for the emergent species, while allowing them to migrate back down to their original design location after the creek elevations lower in the next growing season.

A final site inspection of the site was performed on July 18, 2016 with Parsons and NYSDEC representatives. No issues were identified that would preclude finalizing the construction completion report for Ninemile Creek Reaches BC and AB.

It is anticipated that Operation, Monitoring, and Maintenance of the NMC Reaches BC, AB and SYW-10 site will include monitoring of vegetation, hydrology, and wildlife usage of the wetland and upland areas, monitoring of the channel bank and bed, sampling of surface water and biota, and maintenance on an as needed basis. Details will be provided in the Operation and Maintenance Plan.

## SECTION 4

### COMPANY/AGENCY CONTACT LIST

Company/Agency	Address	Phone Number
ALS Life Sciences	1565 Jefferson Road Building 300 Suite 360, Rochester, New York 14623	(585)-672-7472
Anchor QEA	290 Elwood Davis Road Suite 340, Liverpool, New York 13088	(315)-453-9009
Atlantic Testing Laboratories	6085 Court Street Road Suite A, Syracuse, New York 13206	(315)-699-5281
Atlas Fence, Inc.	6852 Manlius Center Road, East Syracuse, New York 13057	(315)-463-9207
Burns Bros Contractors Inc	400 Leavenworth Ave, Syracuse, New York 13204	(315) 422-0261
Cardno JFNew	6605 Steger Road, Unit A Monee, Illinois 60449	(708) 932-9306
Chenango Contracting, Inc.	29 Arbutus Road, Johnson City, New York 13790	(607)-729-8500
Clark Rigging and Rental Corp.	500 Ohio Street, Lockport, New York 14094	(315)-472-5205
CME Associates, Inc.	6035 Corporate Drive, East Syracuse, New York 13057	(315)-701-0522
EMI Guiderail, LLC	693 River Road, Schenectady, New York 12306	(518)-887-2030
Honeywell (William Hague, John McAuliffe, Michael Savage)	301 Plainfield Road Suite 330, Syracuse, New York 13212	(315)-552-9782
New York Leak Detection, Inc.	P.O. Box 269, Jamesville, New York 13078	(800)-928-4350
Nubble Site Solutions, Inc.	1 Cat Mountain Road, Cape Neddick, Maine 03902	(207)-831-1387
NYSDEC (Tim Larson)	625 Broadway, Albany, New York 12233	(518)-402-8013
O'Connell Electric Co	301 Stoutenger Street, East Syracuse, New York 13057	(315)-437-1453
Parratt-Wolff	PO Box 56, 5879 Fisher Road, East Syracuse, New York 13057	(315) 437-1429
Parsons (Matt Warren, Steve Warren, Paul Blue, Rebecca Serven, Ray D'Hollander, Darren Fuller, Dale Dolph, Sam Carrico, Ben Monohon, Jesse Carr, Jeffrey Nassimos, Leonard Hamilton, Nancy Giocondo)	301 Plainfield Road Suite 350, Syracuse, New York 13212	(315)-451-9570
RH Law, Inc.	6883 Schuyler Road, East Syracuse, New York 13057	(315)-437-5906
Riccelli Enterprises of North Syracuse	P O Box 6418, Syracuse, New York 13217	(315)-433-5115
Saunders Concrete	5126 South Onondaga Road P.O. Box A, Nedrow, New York 13120	(315)-469-3217
Seaway Diving & Salvage Co., Inc.	461 Hudson River Road, Waterford, New York 12188	(315)-386-2776

<b>Company/Agency</b>	<b>Address</b>	<b>Phone Number</b>
Sevenson Environmental Services	2749 Lockport Road, Niagara Falls, New York 14305	(716) 284-0431
Sun Environmental Corp	4655 Crossroads Park Dr, Liverpool, New York 13212	(315)-218-6995
Test America	301 Alpha Drive RIDC Park, Pittsburgh, Pennsylvania 15238	(908)-459-4155
Thew Associates	PO Box 463 6431 US Highway 11, Canton, New York 13617	(315)-386-2776
USEPA (Robert Nunes)	290 Broadway 20th Floor, New York, New York 10007-1866	(212)-637-3966

## SECTION 5

### REFERENCES

- Anchor QEA, 2014. *Water Quality Monitoring 2013 and 2014 Annual Report Ninemile Creek*. Prepared for Honeywell Inc. and Parsons by Anchor QEA. December 2014.
- NYSDEC and USEPA, 2009a. *Record of Decision for Operable Unit 1 of the Geddes Brook/Ninemile Creek Site*. New York State Department of Environmental Conservation, Albany, NY and United States Environmental Protection Agency Region 2, New York, NY. April 2009.
- NYSDEC and USEPA, 2009b. *Record of Decision for Operable Unit 2 of the Geddes Brook/Ninemile Creek Site*. New York State Department of Environmental Conservation, Albany, NY and United States Environmental Protection Agency Region 2, New York, NY. October 2009.
- NYSDEC, 2010. *Consent Decree between the State of New York and Honeywell International Inc. Concerning Remediation of the Geddes Brook/Ninemile Creek Subsite*. New York State Department of Environmental Conservation, December 30, 2010.
- NYSDOH, 2000. Generic Community Action Plan.
- Parsons, 2011. *Geddes Brook and Ninemile Creek Construction Water Treatment Plant Report*. Prepared for Honeywell, Inc, by Parsons. February 2011.
- Parsons, 2013. *Ninemile Creek 100% Design Report for Reaches BC and AB*. Prepared for Honeywell, Inc. by Parsons. September 2013.

## TABLES

**Table 1**  
**Summary of Design and As-Built Removal Areas and Volumes**

**Excavation:**

<b>LOCATION</b>	<b>DESIGN AREA (sf)</b>	<b>AS-BUILT AREA (sf)</b>	<b>DESIGN VOLUME (cy)</b>	<b>AS-BUILT SURVEY VOLUME (cy)</b>
<b>NMC Reach BC/AB<sup>(1)</sup></b>	710,000	710,000	77,300	78,750

## Notes:

1. Includes the SYW-10 wetland.

**Table 2  
Imported Materials Testing and Quantities Tracking**

<b>Material</b>	<b>Source</b>	<b>Quantity (cy)</b>	<b>Sample Date</b>	<b>Tests Needed</b>	<b>Total # Approved Tests</b>	<b>COC</b>	<b>Submittal</b>
Habitat Subgrade Fill	Elbridge	8421	3/6/2013	4	7	RBC-0001	RBC-02200-001
Channel Habitat and Erosion Protection	Granby	21386	N/A <sup>1</sup>	9	N/A <sup>1</sup>	N/A <sup>1</sup>	RBC-02200-003, 007
	Hannibal	9573	3/2/2013	4	5	RBC-0002	RBC-02200-004
Sand	Granby	4725	N/A <sup>1</sup>	2	N/A <sup>1</sup>	N/A <sup>1</sup>	RBC-02200-006
Fine Grained Material	Brickyard	6061	5/9/2013	3	4	RBC-0008	RBC-02200-005
Topsoil	Camillus	9968	3/29/2013, 5/9/13	4	4	RBC-0007, 0009	RBC-02990-001

## Notes:

1. Granby source approved by NYSDEC during separate analytical testing program for use at various sites within the Onondaga Lake remedial program.

**Table 3**  
**Non-Restoration Imported Material Quantities**

<b>MATERIAL</b>	<b>SOURCE</b>	<b>QUANTITY USED (TONS)</b>	<b>TOTAL (TONS)</b>
Limestone Crusher Run	Saunders	27,595	45,021
#1 and #2 Limestone	Saunders	11,229	
#4 Limestone	Saunders	6,164	
1.5 to 4" Drainage Gravel	Granby	33	

**Table 4  
Site Restoration Activity Completion Dates**

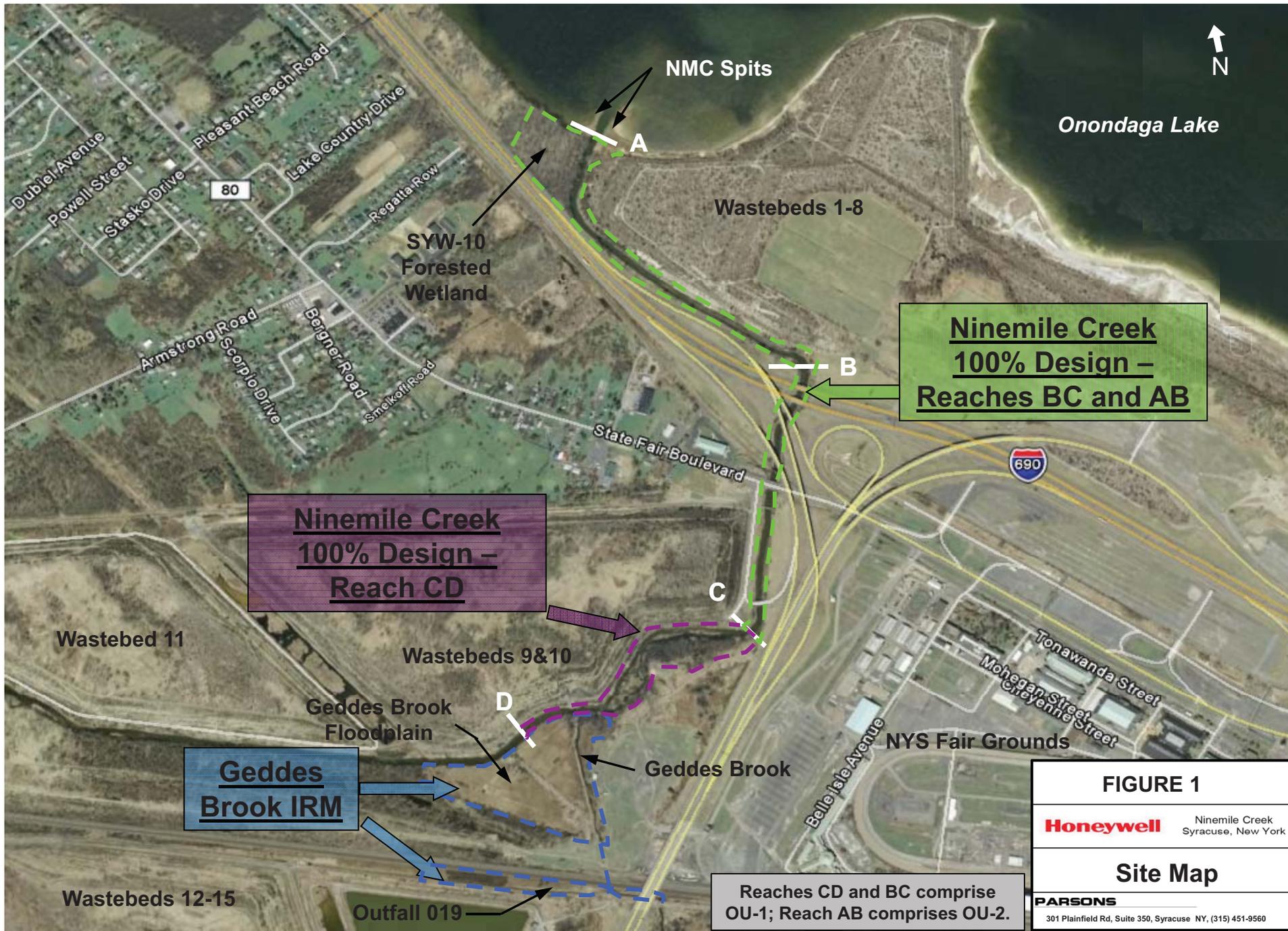
	NMC Reach BC/AB
Herbaceous Plugs	August 2015
Live Stakes	11/12/2015
Small Trees/Shrubs	11/25/2014
Large Trees	May 2015
RECP	11/1/2014
Seed	June 2015
Predation Fencing	N/A
Mulch	May 2015

**Table 5  
As-Built Wetland Acreage**

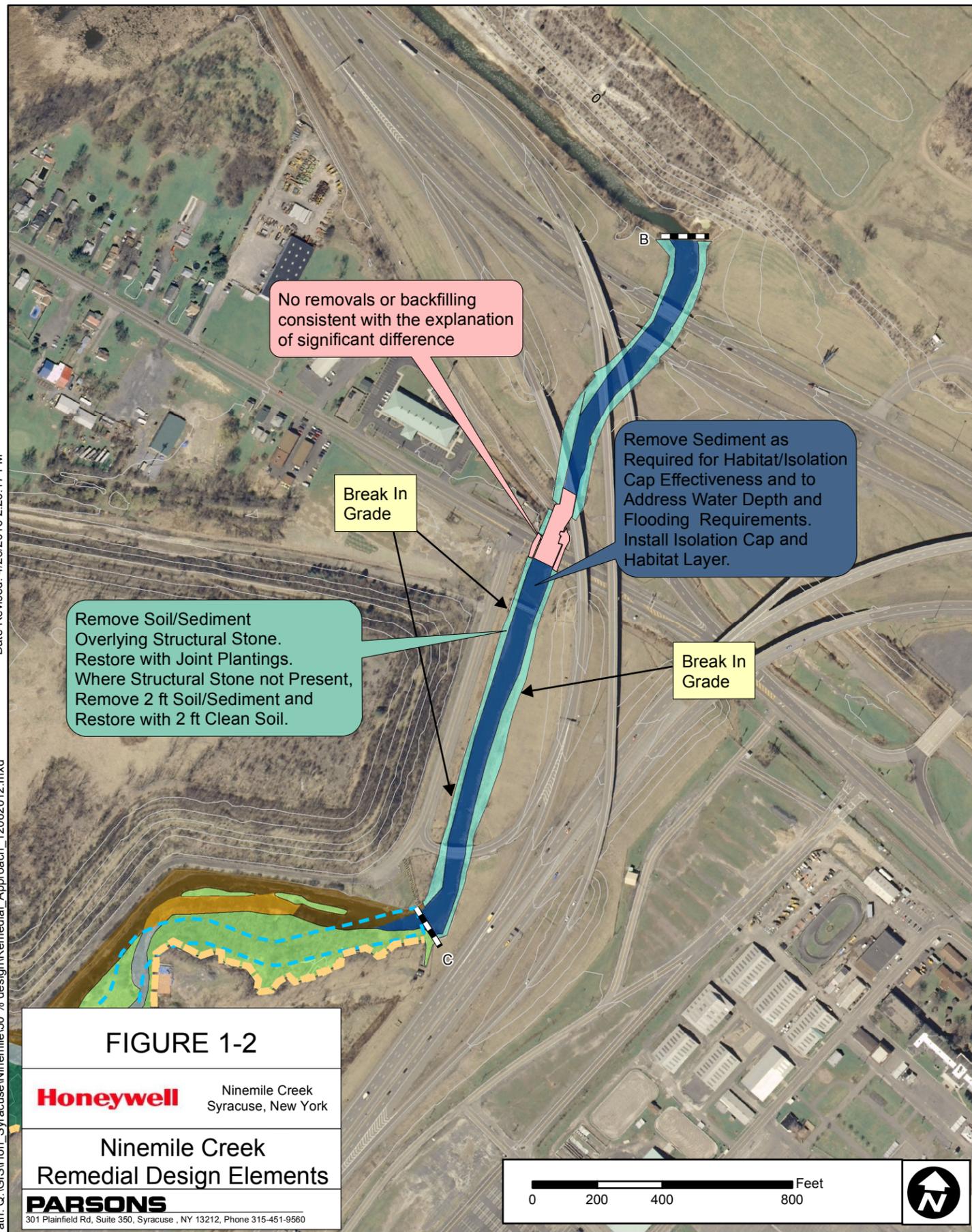
HABITAT ZONE / "COVER TYPE"	REACH AB		REACH BC		SYW-10	
	DESIGN WETLAND AREA (acre)	AS-BUILT WETLAND AREA (acre)	DESIGN WETLAND AREA (acre)	AS-BUILT WETLAND AREA (acre)	DESIGN WETLAND AREA (acre)	AS-BUILT WETLAND AREA (acre)
Emergent Wetland (B1e)	0.44	0.44	0.24	0.24	-	-
Forested Wetland (B1f)	-	-	-	-	2.9 (3.34) <sup>1</sup>	2.9
Riverine Fringing Wetland (A2)	1.3 (1.32) <sup>1</sup>	1.3	0.32	0.32	-	-
Open Water (C)	3.7	3.7	3.00	3.0	-	-
<b>Total Areas</b>	<b>5.4</b>	<b>5.4</b>	<b>3.6</b>	<b>3.6</b>	<b>2.9</b>	<b>2.9</b>

<sup>1</sup>The acreages shown in parentheses are the planned wetland acreages envisioned in the Record of Decision and Statement of Work, a portion of which was covered by the Bike Trail Bridge and its approaches.

**FIGURES**



Reach BC



Reach AB

