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November 30, 2012

To: Diane Carlton, NYSDEC, Region 7 (1 CD)  
Holly Sammon, Onondaga County Public Library (1 bound)  
Samuel Sage, Atlantic States Legal Foundation (1 bound)  
Joseph J. Heath, Esq., Onondaga Nation (cover letter)  
Cara Burton, Solvay Public Library (1 bound)

**Re: Letter of Transmittal – Wastebeds 1-8 Site Repository Addition**

The below document has been approved by the New York State Department of Environmental Conservation (NYSDEC) and is enclosed for your document holdings:

- Cultural Resources Management Report Phase 1B Reconnaissance Survey: Wastebeds 1-8 Integrated Interim Remedial Measure Ninemile Creek Collection Trench dated October 9, 2012.

Sincerely,

*John P. McAuliffe* by CCC

John P. McAuliffe, P.E.  
Program Director, Syracuse

Enc.

cc: Tracy A. Smith- Project Manager

November 9, 2012

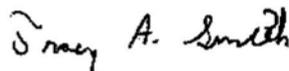
Mr. John P. McAuliffe, P.E.  
Honeywell International, Inc.  
301 Plainfield Road  
Suite 330  
Syracuse, NY 13212

**Re: Wastebeds 1-8 Integrated IRM: Cultural Resources Management Report Phase 1B  
Reconnaissance Survey  
Town of Geddes, Onondaga County, New York**

Dear Mr. McAuliffe:

The New York State Department of Environmental Conservation (NYSDEC) has reviewed the "Cultural Resources Management Report Phase 1B Reconnaissance Survey: Wastebeds 1-8 Integrated Interim Remedial Measure Ninemile Creek Collection Trench" (recon survey report) dated October 9, 2012. Based on this review the recon survey report is approved conditioned on the additional soil boring log sent to me via email from Ethan Shapiro of O'Brien & Gere on October 31, 2012 (attached) being inserted into all copies of the recon survey report that are distributed by Honeywell (including any copies distributed within Honeywell), to its agents, and to the public, if any. Please place this report in the document repositories. If you have any questions, please contact me at 518-402-9796.

Sincerely,



Tracy A. Smith  
Project Manager

ecc: J. Gregg, NYSDEC  
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C. Vandrei, NYSDEC  
D. Hesler, NYSDEC  
M. Sheen, Esq., NYSDEC

**Tracy Smith - WBs 1-8 Cultural Resources Management Rpt Phase 1B**

---

**From:** Ethan Shapiro <Ethan.Shapiro@obg.com>  
**To:** "txsmith@gw.dec.state.ny.us" <txsmith@gw.dec.state.ny.us>  
**Date:** 10/31/12 12:30 PM  
**Subject:** WBs 1-8 Cultural Resources Management Rpt Phase 1B  
**CC:** Brad Kubiak <Brad.Kubiak@obg.com>, Tom Conklin <Tom.Conklin@obg.com>  
**Attachments:** Soillogsb23sb262.pdf

---

Tracy,

As discussed, attached are the boring logs for WB18-SB-23 and WB18-SB-262. We will include the boring log in the repository document and will update the page numbers accordingly prior to sending to the repository.

Let me know should there be any additional questions.

Thanks!



**Ethan P. Shapiro, EIT, LEED AP**  
DESIGN ENGINEER

---

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October 5, 2012

Mr. Tracy A. Smith  
Project Manager  
NYSDEC Div. of Environmental Remediation  
Remedial Bureau D  
625 Broadway, 12th Floor  
Albany, NY 12233-7016

**RE: Wastebeds 1-8 Integrated IRM: Cultural Resources Management Report Phase 1B  
Reconnaissance Survey  
Town of Geddes, Onondaga County, New York  
Order on Consent: Index # D-7-0002-02-08**

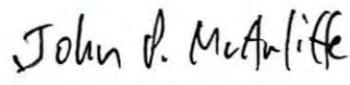
Dear Mr. Smith:

The purpose of this letter is to transmit the *Cultural Resource Management Report Phase 1B Reconnaissance Survey* for the Department's review. This supplemental report, prepared by Public Archaeology Facility at Binghamton University, focuses on the Ninemile Creek collection trench portion of the Integrated IRM at the Wastebeds 1-8 Site. This additional work was conducted as recommended in the September 30, 2011 *Cultural Resource Management Report Phase 1B Reconnaissance Survey, Onondaga Lake Upland Project, Wastebeds 1-8 Shoreline and Wastebeds 1-8 Supplemental Work*.

Detailed geomorphological analysis of soil borings and literature, review of project plans, and the archaeological testing described in this report have indicated that no cultural resources will be impacted by the construction of the Ninemile Creek collection trench. Thus, no further archaeological work is recommended for the Ninemile Creek collection trench.

Please contact Doug Crawford at O'Brien & Gere (315-956-6442; doug.crawford@obg.com) or me should you have any questions regarding the information presented herein.

Sincerely,

  
John P. McAuliffe, P.E. *by CCC*  
Program Director, Syracuse

Enc. (2 copies, 1 CD)

cc:	Robert Nunes	USEPA (2 copies, 1 CD)
	Harry Warner	NYSDEC Region 7 (1 copy, 1 CD)
	Steven Bates	NYSDOH (1 copy, 1 CD)
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Mr. Tracy A. Smith

October 5, 2012

Page 2

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Nina Versaggi, Ph.D	Public Archaeology Facility (ec ltr only)

**CULTURAL RESOURCE MANAGEMENT REPORT  
PHASE 1B RECONNAISSANCE SURVEY**

**WASTEBEDS 1-8 INTEGRATED INTERIM REMEDIAL MEASURE**

**NINEMILE CREEK COLLECTION TRENCH**

**TOWNS OF GEDDES  
ONONDAGA COUNTY  
NEW YORK  
MCD 06707**

*Prepared For:*

**HONEYWELL**

301 Plainfield Road  
Suite 370  
Syracuse, NY 13212

*Prepared by:*

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of  
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Syracuse, NY 13202-4873  
Phone: (315) 956-6100

**OCTOBER 9, 2012**

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## RECONNAISSANCE SURVEY MANAGEMENT SUMMARY

**PROJECT IDENTIFIER:** Wastebeds 1-8 Integrated Interim Remedial Measure, Ninemile Creek Collection Trench

**CULTURAL RESOURCE SURVEY TYPE:** Phase 1B Archaeological reconnaissance.

**LOCATION INFORMATION:**

Minor Civil Division: Town of Geddes (MCD 06707)

County: Onondaga

**SURVEY AREA:** Ninemile Creek Collection Trench adjacent to Ninemile Creek

Length: approximately 701 m (2300 ft)

Width: Approximately 3.5 m (12 ft)

Size of Area: Approximately .63 acres (.25 ha) of subsurface impact

**SENSITIVITY ASSESSMENT:**

Precontact: Moderate

Postcontact: Low

**ARCHAEOLOGICAL SURVEY METHODOLOGY:**

Number of STPs: 0

Number of units: 0

Surface survey: None, due to fill on surface

Trenches: 1

Soil Borings: 5

**RESULTS OF ARCHAEOLOGICAL SURVEY:**

Number of prehistoric sites identified: 0

Number of historic sites identified: 0

Number of sites recommended for investigation: 0

Number of listed/eligible or potentially eligible sites that may be impacted: 0

**RECOMMENDATIONS:** No further work within project limits of Ninemile Creek Collection Trench

**AUTHOR/INSTITUTION:** Christopher Hohman, Public Archaeology Facility, Binghamton University

**DATE OF REPORT:** October 9, 2012

**SPONSOR:** Honeywell

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## I. INTRODUCTION

This report presents the results of the Phase 1B reconnaissance survey for the Ninemile Creek Collection Trench portion of the Wastebeds 1-8 Integrated Interim Remedial Measure (IRM). The Ninemile Creek Collection Trench portion of the Wastebeds 1-8 Integrated IRM is located within the Town of Geddes, Onondaga County, New York. The survey follows the recommendations set forth in the addendum Phase 1B work plan (Hohman and Versaggi 2010), although at that time, impacts were believed to be limited to the structural stone along the channel of the creek. Within the Phase 1B work plan, Joseph Schuldenrein thought the soil sequences in the soil borings were not indicative of contexts which would preserve any intact prehistoric deposits or buried soils, and also thought that much of the stratigraphy reflected historically recent alluvium accumulating along the channel of Ninemile Creek. Following the submittal of the Phase 1B survey for work along Ninemile Creek (Hohman, in July 2011), it was determined that a collection trench was to be placed along the north side of Ninemile Creek and south of Wastebeds 1-8; this would require archaeological testing for cultural resources. The Wastebeds 1-8 Site is a sub-site to the Onondaga Lake National Priorities List Site and is the subject of an IRM. Honeywell is the sponsor for the project and O'Brien & Gere is conducting the remediation for the project. To date, potential sources of contamination and areas where soil and sediment removal are necessary have been identified. The Health and Safety Plan for Ninemile Creek was completed by O'Brien & Gere, as well as the Public Archaeology Facility. All personnel complied with the Health and Safety Plan during the on-site survey.

The research summarized in this document was performed under the supervision of Dr. Nina M. Versaggi, Director of the Public Archaeology Facility (PAF). Christopher D. Hohman served as project director and is the principal author of this report. Daniel Seib and Alex Nevgloski of the Public Archaeology Facility monitored the backhoe excavations and the boring pits and were observed by Tony Gonyea of the Onondaga Nation. All project maps were either drafted by O'Brien & Gere or were drafted by Hohman on maps supplied by O'Brien & Gere. Maria Pezutti and Annie Pisani performed all related administrative duties.

The cultural resource survey included in this report applies only to potential archaeological and architectural resources. PAF understands that the United States Environmental Protection Agency (USEPA) has initiated government-to-government consultations with the Onondaga Nation in compliance with 36 CFR Part 800.4(a)(b) regarding properties of religious and cultural significance. However, at this time, USEPA has not asked Honeywell, O'Brien & Gere, or PAF to address the task of identifying religious and cultural properties. Therefore, no analysis has been performed as to whether the remediation of the areas included in this report may have an effect on Properties of Cultural and Religious Significance.

### 1.1 Description

The Ninemile Creek collection trench is located between Ninemile Creek and Wastebeds 1-8 (Figure 1-2 and 15-16). Only a portion of the collection trench requires a Phase 1B reconnaissance survey due to the pre-1927 location of Ninemile Creek, the rechanneling of Ninemile Creek, and depths of Solvay waste, marl, or peat extending down below the depths of the proposed trench. This limits the testing area to approximately 198-228 m (650-750 ft) in length (Figures 12-13 and Figure 16).

## II. PROJECT AREA

Figure 1 places the project in New York State and Onondaga County. Figure 2 show the topographic context on the Syracuse West quadrangle.

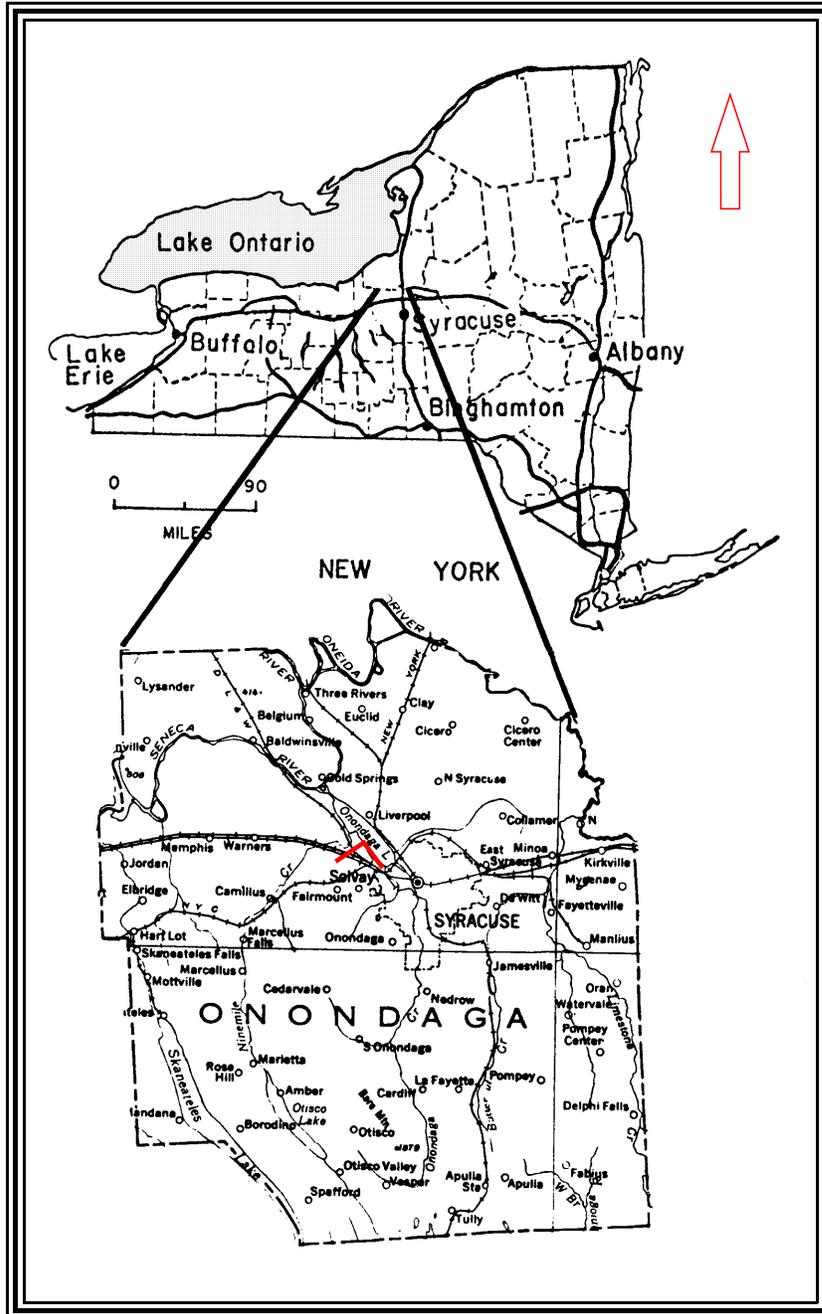


Figure 1. Approximate location of the Ninemile Creek Collection Trench of the Wastebeds 1-8 Integrated IRM in New York State and Onondaga County.

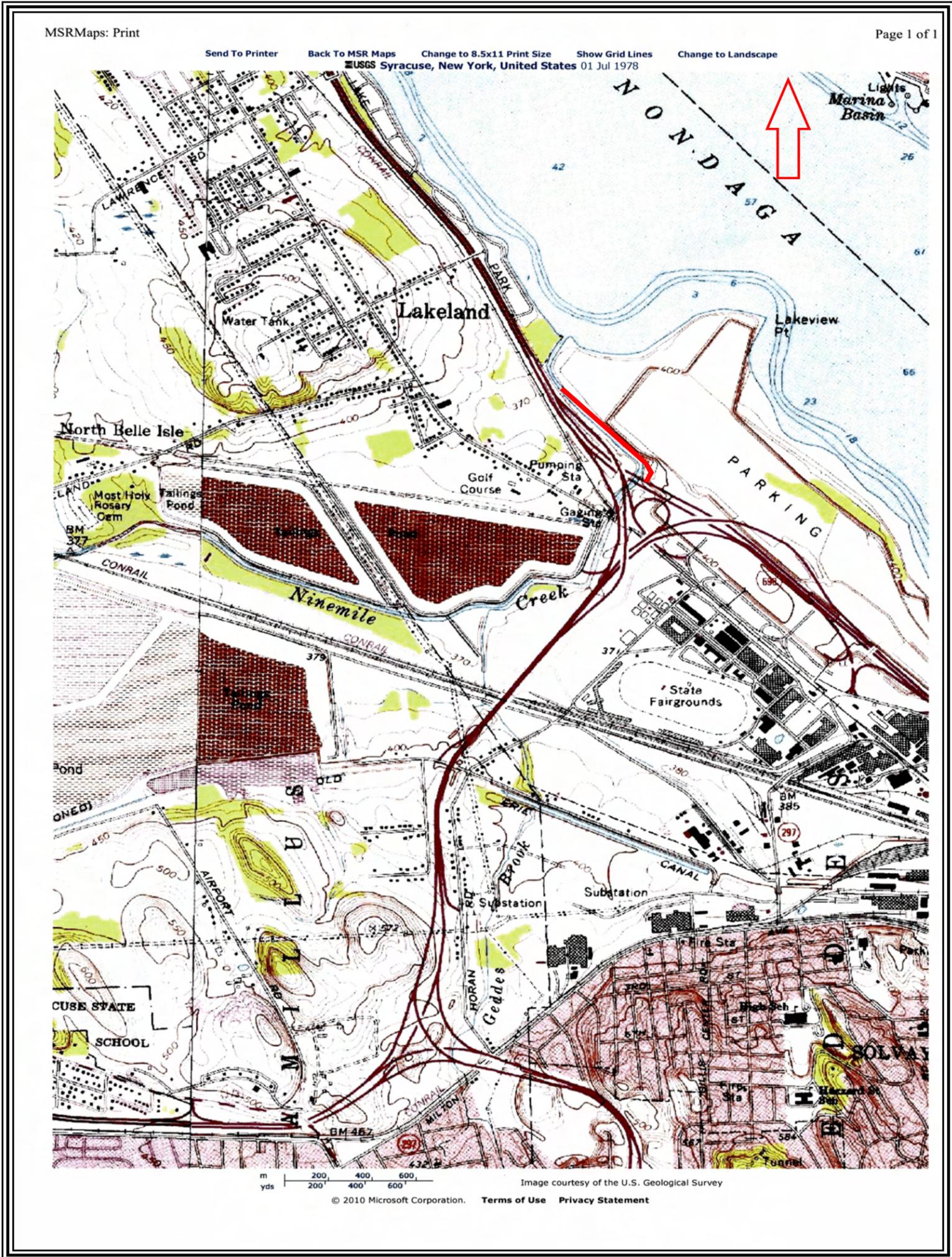


Figure 2. Approximate location of Ninemile Creek Collection Trench (in red) on 1973/1978 USGS quadrangle.

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### III. BACKGROUND RESEARCH

Background research was previously completed for the area of the Ninemile Creek collection trench as part of the Phase 1A survey and the Phase 1B addendum workplan (Hohman 2004; Hohman 2010; Hohman and Versaggi 2010), with supplemental information being added to this report. The background research was conducted on the environment, precontact and postcontact history of the project area. This research addressed the types of sites likely to be located in the project area based on the results of site file checks, historic maps, county histories, archival documents, and settlement patterns in and around the Onondaga Lake.

#### 3.1 Site Files Search

The site files search indicated that the area to the west and to the south of Onondaga Lake, as well as within 3.2 km (2 mi) radius of Ninemile Creek, has a long history of land use and settlement during the centuries and millennia prior to European contact. An extensive archaeological record exists from as early as the Late Archaic period (4000-1500 B.C.) and continuing through the Late Woodland period (A.D. 1000-1500) in the vicinity of Onondaga Lake. Arthur C. Parker (1920) noted “traces of occupation” and a number of projectile points along Ninemile Creek (Hohman 2004; Hohman and Versaggi 2010). The sites around the lake and the adjacent waterways also include campsites, hamlets or villages, burial mounds, and an earthwork (Hohman 2004). The area around Onondaga Lake was important not only for the resources (e.g. potable water, edible plants, medicinal plants, wood, bark, animals, fish, etc.) found within and adjacent to the lake, but also for advantageous locations of villages and special use areas. Ninemile Creek is labeled as “Ostisca River” (Figure 5, p. 10). References in Morgan (1962: 471) show the Onondaga word for Ninemile Creek as *Us-te'-ka*, translated as Butternut Hickory. Consultations with the Onondaga Nation suggest that the word, Ostisca, could also mean black or black mud (Anthony Gonyea and Wendy Gonyea, pers. comm., January 29, 2009).

#### 3.2 Environmental Setting

The project area lies in the Oneida Lake Plain subregion of the Erie-Ontario Lowlands (Thompson 1966). The Oneida Lake Plain is a relatively flat plain with wetlands created by remnants of glacial Lake Iroquois. Following the retreat of the glaciers and Lake Iroquois from 10,000 to 8,000 B.P., Onondaga Lake was formed.

Ninemile Creek flows from Otisco Lake to Onondaga Lake through a meandering stream bed. A portion of the downstream section is constrained within a man-made channel lined with rip-rap. The elevation of the creek ranges from approximately 110 to 111 m (360 to 365 ft) ASL (Figure 2), which is similar to the elevation of the creek in the late 19<sup>th</sup> century. The present-day confluence of the creek with Onondaga Lake was not the original juncture with the lake. In 1926, the creek was channelized and its confluence moved to accommodate Wastebeds 1-8 (NYSDEC 2008). The downstream section of Ninemile Creek in the vicinity of I-690 was slightly relocated in 1954 during the construction of the highway. This included the area from approximately 15 m (50 ft) north of the northbound lane to about 30 m (100 ft) south of the southbound lane. The creek was subject to other alterations when the banks were again straightened and moved approximately 2 to 3 m (6 to 10 ft) either east or west in several locations.

Much of the project area for the Ninemile Creek collection trench depicted on a late 18<sup>th</sup>/early 19<sup>th</sup> century map (Figure 5) shows this APE as being in an area of swamp with black ash. The 1938 soil survey suggests that much of the project area consisted of either Muck soils or Made land (Figure 3, p. 5). Muck deposits are deep, very poorly drained soils that formed in woody organic deposits. These soils were generally created over a mineral substratum of calcareous marl, or sand, silt, and clay combinations (USDA 1977). The made land within and adjacent to Wastebeds 1-8 suggests that the wastebeds had already been created by this time.

Schuldenrein (in Hohman 2010; Appendix II) noted that this segment of Ninemile Creek is an artificial channel created in 1927 after the placement of Wastebeds 1-8. Subsurface investigations have consisted of shallow groundwater test pits conducted by Parsons and geoprobe borings into the channel bottom conducted by Blasland, Bouck and Lee.

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### **3.3 Precontact Period History**

The area around Onondaga Lake was important for the resources (e.g. potable water, edible plants, medicinal plants, wood, bark, animals, fish, etc.) found within and adjacent to the lake, as well as for the locations of villages and special use areas. The site files identified at least five known precontact sites in the vicinity of where Ninemile Creek flows into Onondaga Lake. The sites included an unidentified precontact period village or possible hamlet about 320 m (1200 ft) west of Onondaga Lake, a campsite (or multiple campsites) with Native American artifacts around Pleasant Beach and east of Ninemile Creek, an unidentified earthwork adjacent to Ninemile Creek, an unidentified precontact period mound adjacent to Ninemile Creek, and an unidentified precontact period mound 305 m (1000 ft) north of Ninemile Creek. The sites identified as adjacent to Ninemile Creek may have been near its original confluence with Onondaga Lake, which was approximately 500 m (1640 ft) to the northeast of the current confluence (Figure 14). In addition, unidentified traces of occupation were found along Ninemile Creek, approximately 1.6 km (1 mi) to the west of the lake (Hohman 2004). Parker (1920) also noted that a number of projectile points had been recovered along Ninemile Creek.

The late 18<sup>th</sup>/early 19<sup>th</sup> century map (Figure 5, p. 10) suggests that swamp with black ash was located in the vicinity of the proposed Ninemile Creek collection trench. Black ash would have been a source of staves for basket making, since black ash is a preferred material for many baskets.

#### ***Precontact Sensitivity Assessment***

The area adjacent to Ninemile Creek would have been sensitive for a variety of long-term settlements, short-term camps, and resource procurement and processing stations related to the collection of black ash staves, as well as the expected array of other plant, animal, and fish resources common along the edge of a lake and along a major waterway flowing into the lake. This sensitivity is subject to change depending on the land modifications that have occurred through time that would have impacted the archaeological remains of these activities

The Phase 1B survey addresses only the identification of archaeological and architectural resources. PAF understands that USEPA has initiated government-to-government consultations with the Onondaga Nation in compliance with 36 CFR Part 800.4 (a)(b) regarding properties of religious and cultural significance. However, at this time, USEPA has not asked Honeywell, O'Brien & Gere, or PAF to address the task of identifying religious and cultural properties. Therefore, no analysis has been performed as to whether the remediation of the areas included in this report may have an effect on Properties of Cultural and Religious Significance. In the interim, the Onondaga Nation has provided the following statement.

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*Onondaga Nation's Spiritual and Cultural History of Onondaga Lake*

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*The region of Onondaga Lake and the Onondaga Lake watershed has been our homeland since the dawn of time. We have been a steward of Onondaga Lake since time immemorial and will continue to do so forever, as that is what has been mandated from the Gayanashagowa, the Great Law of Peace. In the 1794 Treaty of Canandaigua the United States government recognized Onondaga Lake as part of our aboriginal territory.*

*The Lake is the spiritual, cultural and historic center of the Haudenosaunee Confederacy. Over one thousand years ago, the Peacemaker brought the Mohawk, Oneida, Onondaga, Cayuga, and Seneca Nations together on the shores of Onondaga Lake. At the lakeshore, these Nations accepted the message of peace, laid down their arms, and formed the Haudenosaunee Confederacy. The Confederacy was the first representative democracy in the West.*

*To symbolize the Confederacy, the Peacemaker planted a white pine, the Tree of Peace, on the shore of Onondaga Lake. It is understood that the Peacemaker chose the white pine because the white pine's needles are clustered in groups of five, just as the five founding Nations of the Confederacy clustered together for strength. The boughs of the white pine represent the laws that protect all the people. An eagle was placed at the top of the tree to watch for danger from without and within. Four white roots of peace reach out in the four directions towards anyone or any Nation who wishes to come under this tree of peace.*

*As the birth place of the Confederacy and democracy, the Lake is sacred to the Haudenosaunee. The Onondaga Nation has resided on the Lake and throughout its watershed since time immemorial, building homes and communities, fishing, hunting, trapping, collecting plants and medicine, planting agricultural crops, performing ceremonies with the natural world dependent on the Lake, and burying our ancestors - the mothers, fathers and children of the Onondaga Nation. The Onondaga Nation views its relationship to this area as a place where we will forever come from and will return to.*

*It brings great sadness to the people of the Onondaga Nation that despite our long stewardship of the Lake and its watershed, it took only one hundred years of abuse to wreak havoc to the Lake, its tributaries and all the plants, animals and marine life that depend on the Lake and its watershed. Industry interfered with the Onondaga Nations's relationship to the land and disturbed the ancestors that were interred throughout the watershed - either by direct excavation or contamination, or indirect efforts such as construction on top of grave sites. We wish to bring about a healing between us and all others who live within our homelands around the lake. We must in order to protect the future generations "whose faces are looking up from the earth."*

*We are one with this land and this Lake. It is our duty to work for a healing of this land, and all of its waters and living things, to protect them, and to pass on a healthy environment to future generations - yours and ours.*

<sup>1</sup>The Onondaga Nation requested that the oral tradition concerning the significance of Onondaga Lake to the Onondaga and Haudenosaunee Confederacy be included in this report. The Onondaga Nation's statement may not necessarily reflect the views of the Public Archaeology Facility, O'Brien & Gere or Honeywell International Inc. Further, the inclusion of the Onondaga Nations's oral tradition shall not constitute an admission of any fact or law in any judicial or administrative proceeding. In addition, the statements and findings in this report by Honeywell, O'Brien & Gere, and the Public Archaeology Facility may not reflect the opinions and views of the Onondaga Nation, and do not constitute an admission by the Onondaga Nation of fact or law in any legal or other proceeding.

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### **3.4 Postcontact Period History**

Much of the Onondaga Nation settlement was situated to the southeast of Onondaga Lake after contact. The village of Kaneenda (located to the south of Onondaga Lake) was settled in the 17<sup>th</sup> century (Bradley 1987) and a number of Native American cabins were noted along the west bank of Onondaga Creek in Syracuse in 1793 (Bruce 1896). Although much of the long-term settlement was not around Onondaga Lake, the area within and adjacent to the lake continued to be used by the Onondaga for purposes of everyday life, including short-term settlement, the procurement of various resources, as well as for ceremonies.

Historic maps from the 19<sup>th</sup> and early 20<sup>th</sup> centuries (Figures 6-11) did not identify any structures within the project area for the Ninemile Creek collection trench.

#### ***Postcontact Sensitivity Assessment***

Much of the area adjacent around Ninemile Creek may have been used by Native Americans (specifically the Onondaga Nation) in the 17<sup>th</sup> century and beyond for a variety of purposes, including short-term camps, resource procurement/processing tasks, as well as for ceremonies. Historic structures from the 19<sup>th</sup> and 20<sup>th</sup> centuries were not located within the project area suggesting a low sensitivity for cultural material from that period.

#### **Potential Impacts**

The proposed work for the Wastebeds 1-8 Integrated IRM along Ninemile Creek involves the excavation of a collection trench (Figures 12-13). The excavation for the trench will reach 4.6 m (15 ft) in depth. It is proposed that the trenches will use a biopolymer slurry during excavation to prevent wall collapse.

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#### IV. ARCHAEOLOGICAL SURVEY METHODOLOGY

The archaeological survey that was originally recommended for the Ninemile Creek collection trench was to consist of a series of backhoe trenches. Following the excavation of a sample backhoe trench with the use of the biopolymer slurry, it was determined that the monitoring of the backhoe trenches with a biopolymer slurry was not conducive to the identification of any cultural resources by an archaeologist. It was recommended in February of 2012, that a series of soil borings be completed in the area where it had not been determined if there were intact soil horizons. In July of 2012, a series of soil borings were accomplished by Parratt-Wolff with Daniel Seib of PAF, Tony Gonyea of the Onondaga Nation, and Robert Trent of O'Brien & Gere overseeing the soil borings.

Soil borings were completed on July 31, 2012 along the proposed Ninemile Creek collection trench. The five soil borings used a split spoon hollow stem auger for boring purposes. The split spoon method is done primarily with a 6-8 inch diameter auger and is accomplished with continuous split spoon sampling ([www.pwinc.com/geoprobe-direct-push.html](http://www.pwinc.com/geoprobe-direct-push.html)) and [www.pwinc.com/drilling-and-sampling.html](http://www.pwinc.com/drilling-and-sampling.html)).

#### V. ARCHAEOLOGICAL SURVEY RESULTS

The initial backhoe trench was completed in January of 2012. This test trench was dug to determine if any intact soil horizons or cultural material were present along the Ninemile Creek collection trench, as well as to determine if the biopolymer slurry would be able to keep the walls of the backhoe trench from collapsing, since the whole collection trench would be excavated to 4.6 m (15 ft) below the surface. On January 17, 2012, a backhoe trench was excavated under the observation of Daniel Seib and Alex Nevgloski of PAF, Tony Gonyea of the Onondaga Nation, and Robert Trent of O'Brien & Gere. The trench was approximately 15 m (49 ft) in length and was excavated at the western end of the proposed collection trench (Figure 15). Based on earlier soil borings, it was expected that the area would have marl and Solvay waste, as well as some possible peat. The excavation consisted of the removal of soil down to several feet in depth in the trench, and then a biopolymer slurry was used to fill the trench. Excavation proceeded down in depth through the biopolymer slurry. An attempt was made to monitor the excavations through the slurry and to check for cultural material if an A horizon was encountered. Seib noted that trying to determine a soil differentiation was almost impossible with the slurry in the trench, thus making identification of any cultural material equally impossible.

After examining the previous soil borings completed in 2005, WB18-SB-20 to WB18-SB-23 (Appendix III, pp. 33-38), it was determined that there may be a gap of 198-228 m (650-750 ft) in length where soil borings had not been conducted previously and where there was the potential for intact soil horizons below fill. Initially, a series of backhoe trenches was proposed, but these were cancelled because of the slope adjacent to the channel of Ninemile Creek, as well as the potential wall collapse within the backhoe trenches. Therefore, a series of soil borings was proposed to further investigate the soil stratigraphy and the potential for any cultural resources.

On July 31, 2012, a series of five split spoon borings (WB18-SB-262 to WB18-SB-266) was completed by Parratt-Wolff with the Public Archaeology Facility and the Onondaga Nation examining the soil borings for cultural materials, with the Public Archaeology Facility and O'Brien & Gere examining the soil borings for soil composition and texture. The five borings were done between the sample biopolymer backhoe trench and the bend in Ninemile Creek, where the approximate extent of the pre-1927 Ninemile Creek sand and gravel deposits (Figure 16) was located.

The soil borings identified layers of marl underneath Solvay waste and a mixture of B horizon silts and marl, as well as layers of marl and peat on top of a solid layer of marl (Appendix III, pp. 39-43). All of the soil borings reached 6 m (20 ft) in depth, approximately 1.5 m (5 ft) below the anticipated impacts of the Ninemile Creek collection trench. The initial depths of SB-262 appear to contain bands of marl and wet silt horizons with shells, as well as a single band of Solvay waste. These upper soil horizons are suggestive of wetland and marshy lake edge periods underneath the Solvay waste. Between 2.4 and 4.9 m (8 and 16 ft) below the surface, peat was found in between marl horizons, with marl extending at least down to 18 ft below the surface. Again, these lower soil horizons are suggestive of a wetland or marshy

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lake edge environment. A slag fragment was recovered from 2.4 to 3 m (8 to 10 ft) below the surface, suggesting the presence of a land surface (either in wetlands or on the lake edge) during the post contact period and which concurs with the swamp area on the late 18<sup>th</sup> century map of the region (Figure 5, p. 10).

The stratigraphy within WB18-SB-263 contained a thin band of silt on top of 10 cm (4 in) of Solvay waste, which covered marl with fill (brick, coal) down to 1.8 m (6 ft) below the surface. Below the fill, marl was encountered from 1.8 to 6.1 m (6 ft to 20 ft) below the surface, with vegetation from 1.8 to 2.6 m (6 to 8 ft) below the surface. This would suggest that the area of SB-263 was on the marshy edge of the lake for most of its history. The vegetation from 6 to 8 ft below the surface suggests it was located in wetlands for at least a short period of time. The depth of the fill and the moist vegetation shows that the surface at the time of the construction of Wastebeds 1-8 was between 1.8 and 2.6 m (6 to 8 ft) below the present surface.

The soil borings within WB18-SB-264 and WB18-SB-265 both contained bands of marl and silt, with the silt being determined to be peat, as it contains roots and/or vegetation. Within SB-264, there is .6 m (2 ft) of Solvay waste on top of the peat and marl horizons, with a trace of coal being found within a soil horizon reaching 2.6 m (8 ft) below the surface. The alternating peat and marl horizons reach to a depth of 5.2 m (16 ft) below the surface in SB-264, and 3 m (10 ft) below the surface in SB-265. As with WB18-SB-262, the soil horizons suggest that the locations of SB-264 and 265 are located in a wetland or a marshy lake edge environment.

The last soil boring, WB18-SB-266, showed only 10 cm (4 in) of Solvay waste covering marl and peat horizons. Peat was found between approximately 1.8 to 2.7 m (6 to 9 ft) below the surface and covered marl down to 6.1 m (20 ft) below the surface. This would suggest that this location, to the west of the pre-1927 Ninemile Creek channel was located in wetlands or on a marshy lake's edge.

## **VI. RECOMMENDATIONS**

The vertical area of potential effect (APE) of the proposed Ninemile Creek collection trench is approximately 4.6 m (15 ft) below the surface. The Phase 1B survey for the collection trench included an initial geomorphological assessment of the area by Michael Aiuvalasit and Joseph Schuldenrein (in Hohman 2010) and which included analysis of 2005 soil borings, excavation of a biopolymer backhoe trench, and completion of five soil borings. These were conducted to determine if intact soils with cultural resources could be impacted by the excavation of the collection trench.

The initial geomorphological assessment suggested that the soil sequences were not indicative of contexts that would have preserved intact precontact deposits or buried soils. The analysis of the 2005 soil borings and the location of the pre-1927 channel of Ninemile Creek suggested that intact soil horizons could be present in a 198 to 229 m (650-750) ft stretch from 259 to 290 m (850-950 ft) west of the turn in Ninemile Creek to 60 m (200 ft) west of the turn in Ninemile Creek. At the western end of the Ninemile Creek collection trench, a 15 m (50 ft) backhoe trench was excavated down to 4.6 m (15 ft) in depth, but the use of a biopolymer slurry to keep the walls from collapsing did not allow for archaeologists to determine if an intact A horizon and/or cultural material was present. In July of 2012, a series of five split spoon coring samples were taken from the backhoe trench toward the turn in Ninemile Creek. The coring samples suggested that the area along the Ninemile Creek collection trench was either wetlands or marshy lake edge throughout much of its history. The land had been covered with between 1.8 to 3 m (6 to 10 ft) of fill during the last two centuries. No precontact material was found within any of the coring samples, while fragments of brick, coal and slag were encountered in the upper portions of the coring samples.

In conclusion, the Phase 1B test borings from 2005 and 2012 documented either a lack of intact soils, or wetland/marshy lake edge soils similar to those depicted on the late 18<sup>th</sup> century map (Figure 5, p. 10). This context offered no potential for cultural resources within the project limits (vertically and horizontally) of the Ninemile Creek collection trench. We conclude that no cultural resources will be impacted in the proposed area of potential effect (APE). No further archaeological work is recommended along the Ninemile Creek collection trench.