NINEMILE CREEK
STORMWATER POLLUTION PREVENTION PLAN

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cfs	cubic feet per second
CPESC	Certified Professional in Erosion and Sediment Control
CWTP	Construction Water Treatment Plant
cy	cubic yard
FHWA	Federal Highway Administration
fps	feet per second
HEC	Hydraulic Engineering Circular
HSG	Hydrologic Soil Groups
IRM	Interim Remedial Measure
LCP	Linden Chemical and Plastics
NOI	Notice of Intent
NYSDEC	New York State Department of Environmental Conservation
SCS	Soil Conservation Service
SPDES	State Pollutant Discharge Elimination System
SWPPP	Stormwater Pollution Prevention Plan
USDA	United States Department of Agriculture
USDOT	U.S. Department of Transportation
USGS	United States Geological Survey
WQMP	Water Quality Management Plan

SECTION 1

INTRODUCTION

1.1 BACKGROUND

The remediation of Ninemile Creek is part of Honeywell's continuing efforts to restore and clean up Onondaga Lake, adjacent plant properties, and tributaries. Ninemile Creek is one of the main tributaries to Onondaga Lake and is part of a complex system that provides habitat corridors to upstream wetlands and green areas. This system flows through the restored Linden Chemical and Plastics (LCP) wetlands, connects with the West Flume, flows into Geddes Brook and Ninemile Creek, and empties into Onondaga Lake.

This Stormwater Pollution Prevention Plan (SWPPP) covers on-land work to be performed at the Reach CD portion of Ninemile Creek, pursuant to the Record of Decision for Operable Unit 1 of the Geddes Brook / Ninemile Creek Site (NYSDEC and USEPA, 2009). The location of Reach CD relative to other portions of the Site is shown on Figure 1. Work for the remainder of Ninemile Creek will be addressed under an amendment to this SWPPP, as the construction progresses and design and planning for the remaining reaches is completed.

1.2 OBJECTIVES

This SWPPP was developed pursuant to the New York State Department of Environmental Conservation (NYSDEC) State Pollutant Discharge Elimination System (SPDES) General Permit for Stormwater Discharges from Construction Activities, Permit No. GP-0-10-001 (NYSDEC, 2010) and the NYSDEC New York State Standards and Specifications for Erosion and Sediment Control (NYSDEC, 2005), and includes the following objectives:

- The reduction or elimination of erosion and/or sediment loading to Ninemile Creek due to on-land remediation activities.
- The identification and control of potential sources of sediment from stormwater runoff that may affect water quantity and quality.
- The identification of stormwater/erosion control features and procedures for implementing these features.

This SWPPP will be amended if and when:

- The provisions of this SWPPP are proven inadequate in reducing sediments in stormwater discharges during the construction phase.
- There is a change in the design, construction or operation that could potentially affect stormwater discharge quality and quantity.
- Deficiencies are identified by a qualified inspector or regulatory agency.

If deficiencies are identified by NYSDEC, the SWPPP will be updated and written notification of such updates will be submitted to the Department within fourteen calendar days.

1.3 GENERAL PROJECT DESCRIPTION

The design for the planned remedial action for Ninemile Creek Reach CD is presented in the Draft Ninemile Creek 95% Design Report (Parsons, 2011a). The design includes:

- The removal of approximately 50,000 cubic yards of soil/sediment from Reach CD of the Ninemile Creek channel and adjoining floodplains.
- The construction of a habitat restoration approach that includes:
  - Increased sinuosity and length of Ninemile Creek;
  - Improved channel substrate for fish spawning and benthic macroinvertebrates;
  - Riparian, wetland and upland habitats with a diversity of native species;
  - Increased water depth under low flows to provide fish and canoe passage.

The area of work for Reach CD is illustrated on Figure 2. The area of disturbance is approximately 14.4 acres, including approximately 9 acres of remediation and restoration and the balance for site access and support facilities. Existing wetlands will be removed during remediation and will be re-configured as part of the remediation and restoration of the Site. Further information regarding the planned construction is described in Section 3.

As this is a NYSDEC Division of Environmental Remediation Project governed by a consent decree, Honeywell is responsible for completing a Notice of Intent (NOI) Form for Information Only. Filing of the NOI is not required. A copy of the completed NOI is provided in Appendix A.

1.4 COORDINATION WITH OTHER PLANS

This SWPPP addresses on-land activities in areas that will be disturbed and will receive precipitation with the potential for generating stormwater runoff. A surface water quality protection and monitoring program for in-stream activities is described in the *Draft Ninemile Creek Water Quality Management Plan* (WQMP) (Parsons, 2011b). Measures to provide for worker health and safety, as well as a Community Air Monitoring Plan, Site Security Plan, and Traffic Control Plan, are described in the *Draft Project Safety Plan* (PSP) (Parsons, 2011c).

The work in Ninemile Creek is being preceded by similar work in Geddes Brook being conducted as an Interim Remedial Measure (IRM). Infrastructure from that project will be used to support the Ninemile Creek construction. Related plans are as follows:

- Excavated soil and sediment will be transported to and placed at the LCP OU-1 Containment Area; activities at the LCP OU-1 Containment Area will be conducted pursuant to the Geddes Brook SWPPP, which is an appendix to the *Geddes Brook Interim Remedial Measure Work Plan* (Parsons, 2011d).
- Construction water will be treated at a Construction Water Treatment Plant (CWTP) located near the LCP OU-1 Containment Area; activities at the CWTP will be conducted pursuant to the *Stormwater Pollution Prevention Plan – CWTP at LCP Portion of the Geddes Brook IRM* (Parsons, 2010a, 2010b).

Figure 3 shows the location of Reach CD in relation to the LCP OU-1 Containment Area and the CWTP.

1.5 SITE CONTACT INFORMATION

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SECTION 2

EXISTING SITE CONDITIONS

2.1 TOPOGRAPHY

Ninemile Creek has a generally shallow slope in Reaches CD, BC, and AB. The channel bottom elevation is approximately 363 feet at the confluence of Ninemile Creek and Geddes Brook. This elevation gradually falls to approximately 356 feet where Ninemile Creek enters Onondaga Lake. The channel generally varies from 44 feet to 75 feet in width. The widest point is 181 feet which occurs in Reach CD where mid-channel islands are present. Depth of flow under normal conditions varies from 1.5 feet to 7.0 feet, generally increasing as the creek approaches Onondaga Lake. As shown on Figure 2 and the existing conditions drawings from the remedial design included in Appendix B, Reach CD is bordered to the north by Wastebeds 9 and 10, which slope steeply toward Ninemile Creek. A gravel service road creates a short plateau that forms the top of the bank of the creek in this area and coincides with the expected limit of disturbance for the Reach CD remediation activities on this side of the creek. The service road is generally level with an elevation of about 375 to 377 feet. The steep slopes of Wastebeds 9 and 10 rise above the service road to elevations higher than 450 feet.

The western end of the Reach CD south bank is the bank of the Geddes Brook floodplain, which is currently undergoing remediation and restoration. The eastern end of the Reach CD south bank is a short steep bank related to the State Fair Landfill. The top elevation of the State Fair landfill bank is relatively level, between elevations 372 to 376 feet; the elevation of the floodplain at the toe of the State Fair landfill is about 367 to 368 feet.

Reach CD includes a series of islands (a large upgradient island and two smaller islands located slightly downgradient). The surface elevations of the islands are about 365 to 368 feet.

2.2 SOILS

The United States Department of Agriculture (USDA) Soil Conservation Service (SCS) Web Site Soil Survey Map for Onondaga County identifies the Reach CD area as primarily Made and/or Cut Fill lands on the north bank and Odessa silty clay loam (2%-6% slopes) on the south bank. Both soil types are rated as somewhat poorly drained to poorly drained with a Hydrologic Soil Group D classification. A soil survey map describing the soil types is provided in Appendix B.

2.3 RECEIVING WATERS AND WATERSHED BOUNDARIES

Stormwater at the Site currently infiltrates the substrate or flows into Ninemile Creek. Ninemile Creek flows into Onondaga Lake, which is part of the Seneca Watershed, United States Geological Survey (USGS) Hydrologic Unit 04140201. Along Reach CD, storm flow from the north generally originates from the top of Wastebeds 9 and 10. Runoff is conveyed down the steep slopes of the wastebeds (generally slopes are 3 feet horizontal to 1 foot vertical and steeper), over the existing gravel service road and discharges into Ninemile Creek. Flow from the

south generally originates from a variety of upland areas (i.e., Fairgrounds, I-695, State Fair Landfill) and discharges into Reach CD through an adjoining floodplain.

2.4 DRAINAGE STRUCTURES

As shown on Figure 2, a stormwater structure exists at the down gradient end of Reach CD; this structure has two 18-inch pipes discharging to Ninemile Creek. A 36-inch RCP line exists adjacent to the stormwater structure; a 42-inch RCP line and a 30-inch RCP line are also present just downstream.

SECTION 3

PROPOSED SITE WORK

3.1 REACH CD SITE WORK

The following summarizes the major construction activities planned and the anticipated sequence of operation. Mobilization, remediation and restoration may be occurring concurrently. Maintenance and inspection of erosion and sediment control elements will be ongoing during these phases; refer to Section 4 and Appendix C for anticipated erosion and sediment control measures for on-land activities. The surface water quality protection and monitoring program for in-stream activities is described in the *Draft Ninemile Creek Water Quality Management Plan* (WQMP) (Parsons, 2011b).

Mobilization and Site Preparation

- Community air monitoring set-up
- Installation of temporary stormwater runoff and erosion and sediment control measures
- Site security
- Survey
- Site clearing
- Road upgrades and maintenance along the travel path from Reach CD to LCP, including stabilized construction entrances

Remediation Phase

- Construction of temporary channel diversions, channel and floodplain soil/sediment removal, and creek re-alignment
- Removal of approximately 50,000 cubic yards (cy) of soil/sediment from the channels and surrounding floodplains
- Conveyance and treatment of construction water at the temporary CWTP
- Solidification of excavated material prior to transportation, if required
- Post-excavation sampling
- Consolidation of excavated material at the LCP Containment Area
- Subgrade shaping of the floodplain, new channel and adjoining wetlands
- Backfill to finished grade

Restoration Phase

- Construction of upgradient drainage swales to intercept flow from the adjoining waste beds and provide controlled flow discharge pathways to Ninemile Creek
- Seeding and mulch

- Planting of various restoration zones, according to the restoration design.

Demobilization

- Removal of temporary facilities
- Removal of stormwater, erosion and sediment controls

As described in the WQMP (Parsons, 2011b), an existing island and a re-route of the channel through the existing floodplain has been incorporated into the anticipated construction sequencing for the work in Reach CD to allow for diversion of stream flow. Diverting flow will facilitate increased production rates, allow work to progress in more than one area at once, and will mitigate in-stream water quality impacts.

Diversion design details (e.g., dimensions, materials of construction), details related to the water quality monitoring program, and a description of in stream construction methods are included in the WQMP (Parsons, 2011b). In overview, a series of earthen berms will be used to direct flow and separate work areas from the rest of the site. It is anticipated that the earthen berms will be constructed in four phases to facilitate excavation and backfilling activities, where practical, as shown on the figures provided in Appendix D. The anticipated sequencing of removals is described below; actual sequencing may vary based on constructability as determined in the field.

Phase 1: The following activities are anticipated as shown on Figure 4 in Appendix D:

- Remove channel and floodplain soils/sediments upstream of the Large Island.
- Remove soils/sediments underlying the footprint of Berms 1, 2a, 2b, and 4 as well as channel sediments adjacent to Berms 2a and 2b. Restore the channel and floodplain upstream of the Large Island.
- Construct Berms 1, 2a, 2b and 4 and divert flow north of the Large Island.

Phase 2: The following activities are anticipated as shown in Figure 5 of Appendix D:

- Remove floodplain soils underlying the footprint of Berms 2 and 3.
- Construct Berms 2 and 3.
- Remove channel and floodplain soils/sediments southeast of the area bound by Berms 1, 2 and 2a and restore the widened channel south of the Large Island and adjacent riparian uplands.
- Remove channel and floodplain soils/sediments south of the area bound by Berms 2b, 3 and 4 and restore the new channel south of Small Islands and adjacent wetland and riparian upland areas.
- Remove Berms 1, 2a, 2b and 4 to allow flow in the new channel alignment.

Phase 3: The following activities are anticipated as shown on Figure 6 of Appendix D:

- Construct Berms 5 and 6 to divert creek flow south of the former Large Island.
- Remove channel and floodplain soils/sediments northwest of the area bound by Berms 2, 5 and 6 and restore as wetland and riparian uplands (north of the Large Island).

- Restore the riparian upland area northeast of Berm 6 (between Large Island and upstream Small Island).
- Remove Berms 2, 5, and 6.

Phase 4: The following activities are anticipated as shown in Figure 7 of Appendix D:

- Construct Berm 7.
- Remove channel and floodplain soils/sediments north/northwest of Berms 3 and 7 and restore as wetland and riparian uplands (Small Islands and north of Small Islands).
- Remove Berms 3 and 7.

The restoration approach and finished condition details are described in the Draft Ninemile Creek 95% Design Report (Parsons, 2011a). Drawings from the remedial design indicating finished conditions are included in Appendix B.

3.2 MANAGEMENT OF MATERIALS

To the extent practicable, excavated soil/sediment and dredged sediment will be direct loaded onto trucks for transport to the LCP OU-1 Containment Area. Consistent with the WQMP (Parsons, 2011b), gravity draining of dredged materials may occur adjacent to Reach CD allowing dredge water to free drain into the active removal area.

Solidification of excavated material may be performed if the material cannot be securely transported in highway trucks due to excessive free liquid or to enhance material handling properties. Excavated materials temporarily staged adjacent to the haul roads or stream, or on dewatering pads, may be mixed with a stabilization material (e.g., Portland Cement, fly ash, quick lime) if necessary. Water will be used to suppress dust created when delivering stabilization materials and during mixing activities, as necessary. Conventional excavators will mix the material into the staged soil/sediment until the material has solidified to the point where it will be suitable for transportation and consolidation at LCP. The ratio of stabilization material to excavated material will be determined based on field conditions. Specialty excavator mixing attachments (e.g., rakes, high speed rotary blender) may be used in the event that the conventional bucket does not properly solidify material. After a sufficient set up period, the material will be loaded onto trucks and hauled to the LCP containment area. Alternative methods may be used to stabilize materials based on observed field conditions.

If temporary staging areas or dewatering pads for contaminated materials are required outside the remediation areas, they will incorporate a reinforced 10-mm bottom poly liner with a separation geotextile to protect the poly liner from punctures, and will be bermed around the perimeter. The liner will extend over the berm to contain water draining from the soil. Asphalt pads with perimeter berms may also be used in place of the 10-mil polyliner and geotextile. The associated stockpiles will be covered with a reinforced 10-mil poly liner as required to reduce construction water generation during periods of precipitation. The cover will be weighed down with sand bags or rubber tires to help prevent wind from shifting it.

Temporary staging areas for imported borrow materials will be bermed around the perimeter. If the stabilization material is procured as loose material, temporary staging similar to

that for contaminated materials described above will be incorporated, to minimize contact with stormwater.

3.3 ADDITIONAL STORMWATER CONTROLS

Erosion and sediment control measures are described in Section 4 and Appendix C. Additional controls and measures that will be implemented at the site include the following:

- Precautions will be taken to prevent spills onto public thoroughfares (e.g., leaking hydraulic lines, fuel leaks) so that they do not enter surface and subsurface drainage systems.
- Dust control measures will be provided to reduce the potential for dust migration. Measures may include water application or mulching, but will not include the use of chemical additives.
- Solid waste disposal dumpsters and containers will be covered and emptied regularly. Solid waste will be disposed of properly in accordance with local, state, and/or federal regulations.
- Portable toilets will be installed, secured in place and cleaned regularly, with proper disposal of waste.
- Building materials will be properly stored and contained on-site with fuels in appropriate secondary containment.

3.4 GENERAL CONSTRUCTION SCHEDULE

The anticipated schedule for the Reach CD construction activities is noted below.

April 2012	Mobilization
April-November 2012	LCP Containment Area Preparation and Management, Operation of CWTP
May-June 2012	NMC Upstream of the Large Island Removals, Subgrade Shaping, Backfilling and Seeding
June 2012	Divert flow to north channel
June-September 2012	NMC South of the Large Island Removals, Subgrade Shaping, Backfilling and Seeding
June-September 2012	NMC South of the Small Island/New Channel Removals, Subgrade Shaping, Backfilling and Seeding
September 2012	Divert flow to south channel
September-November 2012	NMC former north channel Removals, Subgrade Shaping, Backfilling and Seeding
November 2012	LCP Containment Area Temporary Closure
Fall 2012 – Spring 2013	Plant Installation

SECTION 4

EROSION AND SEDIMENT CONTROL MEASURES

4.1 GENERAL

The erosion and sediment control measures described in this plan conform to the latest version of the New York State Standards and Specifications for Erosion and Sediment Control (the Blue Book).

A qualified inspector will inspect the erosion and sediment control measures and disturbed areas of the site for compliance with this SWPPP. A typical Construction Log and Inspection Report Form are included in Appendix E.

4.2 TEMPORARY EROSION AND SEDIMENTATION CONTROL

Temporary erosion and sedimentation controls will be installed prior to disturbance of areas to mitigate the potential for offsite erosion and sedimentation. These controls are a dynamic project element, requiring modification as the construction needs alter over time.

Locations for initial erosion and sedimentation control features are indicated on Drawings D001 and D002 in Appendix C. The initial locations will be adapted as necessary, depending on actual field conditions. Design details for each erosion and sediment control features are included in Drawings D003 thru D005 in Appendix C.

4.2.1 Stabilization Practices

Temporary soil stabilization using seed, mulch, straw, erosion control blankets, and/or other approved methods will be implemented for bare soil areas left in rough grade condition if exposure over extended periods of time is anticipated. For portions of the site where soil disturbance activities have temporarily or permanently ceased, stabilization measures will be implemented within 14 days of the conclusion of activities. This requirement does not apply if the installation of stabilization measures is precluded by snow cover or frozen ground conditions; however, measures will be implemented as soon as practicable.

Since firm low plasticity to high plasticity clay soils and granular soils with a D50 greater than 2 mm (USDA Fine Gravel) are generally resistant to erosion, these soils may be left in a temporarily unstabilized state for an extended period of time where slope lengths are less than 50 feet or the work area is contained by berms or silt fences.

4.2.2 Control of Surface Runoff from Disturbed Areas

Silt fence will be installed to intercept sediment-laden runoff along the down-slope perimeter of disturbed site areas during construction. Conventional silt fencing will also be installed along the downstream side of temporary roadways and staging areas as depicted in Drawings D001 and D002 in Appendix C.

The geotextile filter fabric fence requires periodic maintenance and will be checked for tears or clogging with silt or debris as part of weekly site inspections. Silt will be removed from the woven filter cloth with a stiff brush if clogging occurs. Strawbale sediment barriers will only be used when the lengths of the protected slope do not exceed the limits described in Specification 02370 (Erosion Control) from the remedial design, included in Appendix B. Strawbales will be repaired and/or replaced as necessary.

Silt fence and/or strawbale sediment barriers will remain in place until permanent vegetation is established over disturbed areas. Following establishment of vegetation, silt fence and strawbales will be removed.

4.2.3 Diversion of Runoff to Disturbed Areas

Perimeter dike and swale elements will be installed as required to prevent run-on into disturbed areas. Grades will promote positive drainage and runoff will discharge to a stabilized outlet. If necessary, check dams will be incorporated within the swales. Weekly inspection and maintenance of the dike/swale will occur, and after each rain event at a minimum.

4.2.4 Stabilized Construction Entrances

Stabilized construction entrances areas will be maintained to help prevent mud, dirt, and rocks from being tracked onto roadways. Mud or sediment deposited on paved roadways will be removed as necessary. Stabilized construction entrances will be present where site traffic enters public roads. Preliminary locations are indicated on Figure 3, but are dependent on field conditions. Construction entrances will be constructed as shown on Drawing D-004 in Appendix C, and will include stabilization geotextile below a minimum of 6 in. matrix of 1-in. to 4-in. stone. Periodic top dressing with additional aggregate may be required. Staging/laydown areas for vehicles and construction equipment will also be located on stabilized portions of the site.

The stabilized construction entrances shall be monitored as part of the periodic inspection.

4.2.5 Temporary Haul Roads and Decontamination Pads

Temporary haul roads and stabilization of existing access roads will be constructed pursuant to applicable requirements in the NYSDEC State Standards and Specifications for Erosion and Sediment Control.

Decontamination pads will be constructed and the subgrade of the pads will be sloped towards a collection sump. Collected construction water will be directed to the temporary CWTP for treatment. The design detail for decontamination pads is included in Drawing D-005 in Appendix C. Decontamination pads that exceed the current road footprint shall be re-graded following the completion of remediation. These areas shall be topsoiled and seeded. Tire washes may be provided for use during periods of wet weather when mud may be present on tires.

Locations of existing and proposed haul roads, and related SWPPP features, are shown on Figure 3. SWPPP features local to Reach CD are shown on Figure 3 and Drawings D-001 and D-002 in Appendix C**.** Final locations may be modified based on site conditions.

4.3 PERMANENT EROSION CONTROL

Temporary erosion and sediment controls will remain in place until vegetation is established over the restored areas.

Permanent erosion controls will be installed above the Reach CD embankments, associated floodplain and other disturbed areas resulting from the Reach CD activities as follows:

- Installation of new riparian areas with limited drainage lengths per the Reach CD design to reduce runoff and erosion
- Installation of a drainage swale and downchutes along the wastebed service road to permanently manage runoff from the wastebed slopes
- Seeding and planting of finished surfaces including top and outer berm of the swales
- Placement of biodegradable rolled erosion control product on the slopes of the outer swale berm embankments as shown on Drawing D-002 in Appendix C
- Placement of riprap or rounded stone in areas susceptible to erosion (e.g., used as downswales and dissipater apron armoring)

4.4 INSPECTION AND MAINTENANCE REQUIREMENTS

4.4.1 Owner Requirements

Erosion and sediment control and stormwater management practices identified in the SWPPP will be inspected and maintained in effective operating condition. Inspections will be carried out by a qualified inspector.

If soil disturbance activities are temporarily suspended and temporary stabilization measures have been applied to disturbed areas, the inspections may be stopped and begin once soil disturbance activities resume.

If soil disturbance activities have been shut down with partial project completion, maintenance inspections may be stopped if areas disturbed as of the project shutdown date have achieved final stabilization and post-construction stormwater management practices required for the completed portion of the project have been constructed in conformance with the SWPPP and are operational.

4.4.2 Qualified Inspector Requirements

A qualified inspector is a person who is knowledgeable in the principles and practices of erosion and sediment control, such as a licensed Professional Engineer, a Certified Professional in Erosion and Sediment Control (CPESC), a Registered Landscape Architect or other NYSDEC endorsed individual.

The qualified inspector will conduct site inspections at least once every seven calendar days. At a minimum, the qualified inspector will inspect:

- Erosion and sediment control practices to ascertain integrity and effectiveness
- Stormwater management practices to ensure that they are constructed in conformance with the design

- Areas of disturbance that have not achieved final stabilization
- Points of discharge to natural surface water bodies located within, or immediately adjacent to, the property boundaries of the construction site, and points of discharge from the construction site

The qualified inspector will also:

- Prepare an inspection report subsequent to each and every inspection. At a minimum, the inspection report shall include and/or address the following:
  a. Date and time of inspection
  b. Name and title of person(s) performing inspection
  c. A description of the weather and soil conditions (e.g., dry, wet, saturated) at the time of the inspection
  d. A description of the condition of the runoff at points of discharge from the construction site. This shall include identification of any discharges of sediment from the construction site. Include discharges from conveyance systems (i.e., pipes, culverts, ditches) and overland flow.
  e. A description of the condition of natural surface water bodies located within, or immediately adjacent to, the property boundaries of the construction site which receive runoff from disturbed areas. This shall include identification of any discharges of sediment to the surface water body.
  f. Identification of erosion and sediment control practices in need of repair or maintenance
  g. Identification of erosion and sediment control practices that were not installed properly or are not functioning as designed and need to be reinstalled or replaced
  h. Description and sketch of areas that are disturbed at the time of the inspection and areas that have been stabilized (temporary and/or final) since the last inspection
  i. Current phase of construction of post-construction stormwater management practices and identification of construction that is not in conformance with the SWPPP and technical standards
  j. Corrective action(s) that must be taken to install, repair, replace or maintain erosion and sediment control practices and to correct deficiencies identified with the construction of the post-construction stormwater management practice(s).
  k. Digital photographs, with date stamp, that clearly show the condition of practices that have been identified as needing corrective actions. The qualified inspector shall attach paper color copies of the digital photographs to the inspection report being maintained onsite within seven calendar days of the date of the inspection. The qualified inspector shall also take digital photographs, with date stamp, that clearly show the condition of the practice(s) after the corrective action has been completed. The qualified inspector shall attach paper color copies of the digital photographs to the inspection report that documents the completion of the corrective action work within seven calendar days of that inspection.

- Notify Honeywell or an appropriate subcontractor of any corrective actions that need to be taken within one business day. The corrective actions will be initiated within one business day of this notification and be completed in a reasonable time frame.
- Sign all inspection reports.

The inspection reports will be maintained on site with the SWPPP. The site log book will be maintained on site and will be made available to the permitting authority upon request. A summary of the site inspection activities will be posted at the site on a monthly basis. A typical Construction Log and Inspection Report Form are included in Appendix E.

A site sketch map will be maintained on the project site indicating the extent of disturbed onsite areas and drainage ways throughout the duration of construction. The site sketch map will identify areas expected to undergo initial disturbance or significant site work within every 14-day period. The sketch will indicate areas of the site that have undergone temporary or permanent stabilization. Disturbed areas that have not undergone active site work during the previous 14-day inspection period will be noted.

Sediment control measures will be inspected and the degree of accumulation as a percentage of the sediment storage volume will be recorded. Maintenance required for installed erosion and sediment control structures will be noted, and documentation of areas where adjustments are needed to those measures will be provided. Deficiencies identified with the implementation of the SWPPP will be recorded.

SECTION 5

HYDROLOGIC ANALYSIS

5.1 WATER QUALITY VOLUME

NYSDEC has developed stormwater management regulations for the purposes of pollutant removal. The water quality volume criteria is designed to capture and treat 90% of the average annual stormwater runoff volume from impervious paved surfaces. The water quality volume is a function of the amount of permanent impervious cover created at a site. Since the subject project is not a development project and the improvement of water quality is inherent in the Ninemile Creek remediation, the water quality volume criteria is not required.

5.2 HYDROLOGIC ANALYSIS OF FLOWS

The pre- and post-construction area of the remediation site is identical. The pre-and post-construction areas of open water and riparian upland are approximately equal and the pre-and post-conditions of the vegetated banks and floodplains is equivalent, so the total runoff is expected to be unchanged when construction is complete. The post-construction runoff has been designed to be sheet flow to the creek equivalent to the pre-construction condition. Since the remediation is limited to the creek banks and the floodplain immediately adjacent to the creek, the times of concentration for both pre- and post-construction will be shorter than the 6 min (0.1 hr) used as a minimum value in USDA Technical Release 55 (TR-55). Therefore, pre- and post-construction quantitative hydrologic analyses has not been performed because the qualitative inspection of the pre- and post-construction conditions shows that the differences would be negligible.

The run-on from off-site into the limits of remediation is unchanged from the pre-construction to the post-construction condition. The locations and type of run-on flows are also unchanged, with the exception of the proposed construction of drainage swale along the Wastebed 9 and 10 service road to collect and convey run-on stormwater flows in a controlled manner. A hydrologic analysis was performed for the sizing of the swale and associated discharge swales, dissipation pads, and armoring. The swale is designed to intercept flows near the toe of the waste beds, which is located on the north bank of Reach CD. The swale is designed with (rip-rap stone) outlets which will discharge storm flows along the reach at various points; see Drawings D-001 and D-002 in Appendix C for locations.

Peak storm flow for the catchment areas associated with the collection swale and discharge swale was estimated using the TR-55 method. The curve number of 76 was used for all catchment areas based on the “Brush – Fair Condition” cover description in Table 2-2c of the TR-55 manual. The peak discharge was calculated based on a type II, 100-year, 24-hour storm with a time of concentration of 15 minutes. A hydrologic analysis of the runoff originating from the upgradient waste beds to the existing gravel road was performed to assess peak flows to the swale. The swale design is intended to receive and evenly distribute (to the extent practical) flows through designated sloped discharges. Calculations are provided in Appendix F. Peak

flows were analyzed for each of the catchment areas, and were found to range from 1.95 cubic feet per second (cfs) to 7.58 cfs

5.3 ARMOR STONE ANALYSIS

Mannings n-values and minimum armor stone size were calculated for the collection swale and discharge swales to assess peak flow rates. The calculations, provided in Appendix F, show that a 1-1/2 inch average diameter stone (D_{50} = 1-1/2 inches) would be adequate for collection swales conveying a maximum of 7.6 cfs. A 12-inch average diameter stone (D_{50} = 12 inches) would be adequate for discharge swales conveying a maximum of 7.6 cfs.

The project intends to use rounded, river stone in the swales. As a result, calculated stone diameters will be increased by 50% in order to account for the loss in stability. The following conclusions apply to this analysis:

- Analysis of collection swale indicates that an average stone sizing (D_{50}) of 1.5 inches will be necessary for angular stone. A 2-inch average, rounded stone will be used to line the collection swales.
- Analysis of the discharge swales indicate that an average stone sizing (D_{50}) of 8 inches will be necessary for angular stone. A 12-inch average, rounded stone will be used to line the discharge swales.

5.4 OUTLET PROTECTION SIZING

Outlet protection was calculated in accordance with the NYSDEC “New York State Standards and Specifications for Erosion and Sediment Control” manual section of Standard Specifications for Rock Outlet Protection. Certain swales will discharge into the floodplain (where no tailwater is expected to occur), while others will discharge into waterways (where the tailwater is anticipated to be greater than one half the depth of flow in the discharge). For the design of each condition, a trapezoidal channel 3 feet wide with 2:1 side slopes flowing at 7.6 cfs was used. Calculation of the discharge swales showed that the depth of flow in the channel would be 0.36 feet and the flow velocity would be 5.6 feet per second (fps). Calculations are provided in Appendix F.

The proposed dimensions of the dissipation pads are a length of 14 feet, an upstream width of 9 feet, a downstream width of 13 feet, an average stone size (rounded stone) of 12 inches (to coincide with the discharge swale stone size). This shape takes the largest dimensions calculated for each dimension and utilizes a larger stone.

In accordance with the NYDEC guidance, the thickness of the pad must be 1.5 times the maximum stone diameter. For the apron design proposed, the minimum thickness would be 18 inches.

SECTION 6

CONTRACTOR CERTIFICATION

All Contractors and Sub-Contractors agree to the following certification statement referenced from SPDES General Permit GP-0-10-001:

Certification Statement

"I hereby certify that I understand and agree to comply with the terms and conditions of the SWPPP and agree to implement any corrective actions identified by the qualified inspector during a site inspection. I also understand that the owner or operator must comply with the terms and conditions of the most current version of the New York State Pollutant Discharge Elimination System ("SPDES") general permit for stormwater discharges from construction activities and that it is unlawful for any person to cause or contribute to a violation of water quality standards. Furthermore, I understand that certifying false, incorrect or inaccurate information is a violation of the referenced permit and the laws of the State of New York and could subject me to criminal, civil and/or administrative proceedings."

Contractor:_____

Contact Person (Print):_____

Contact Person (Signature):_____ Date:_____

Address: _____

_____

_____

Phone: _____

Fax: _____

Sub Contractor:_____

Contact Person (Print):_____

Contact Person (Signature):_____ Date:_____

Address: _____

_____

_____

Phone: _____

Fax: _____

Sub Contractor:_____

Contact Person (Print):_____

Contact Person (Signature):_____ Date:_____

Address: _____

_____

_____

Phone: _____

Fax: _____

Sub Contractor:_____

Contact Person (Print):_____

Contact Person (Signature):_____ Date:_____

Address: _____

_____

_____

Phone: _____

Fax: _____

SECTION 7

REFERENCES

NYSDEC, 2005. *New York State Standards and Specifications for Erosion and Sediment Control*. August 2005.

NYSDEC, 2010. *SPDES General Permit for Stormwater Discharges from Construction Activity – Permit No. GP-0-10-001*. January 2010.

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Parsons, 2011a. *Draft Ninemile Creek 95% Design Report. Prepared for Honeywell, Inc. by Parsons.* October, 2011.

Parsons, 2011b. *Draft Ninemile Creek Water Quality Management Plan*. Prepared for Honeywell, Inc. by Parsons. December, 2011.

Parsons, 2011c. *Draft Project Safety Plan*. Prepared for Honeywell, Inc. by Parsons. December, 2011.

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USDA, *Urban Hydrology for Small Watersheds - TR-55*, June 1986.

FIGURES

SETTLEMENT CONFIDENTIAL - PRELIMINARY DRAFT FOR DISCUSSION PURPOSES ONLY

File Number

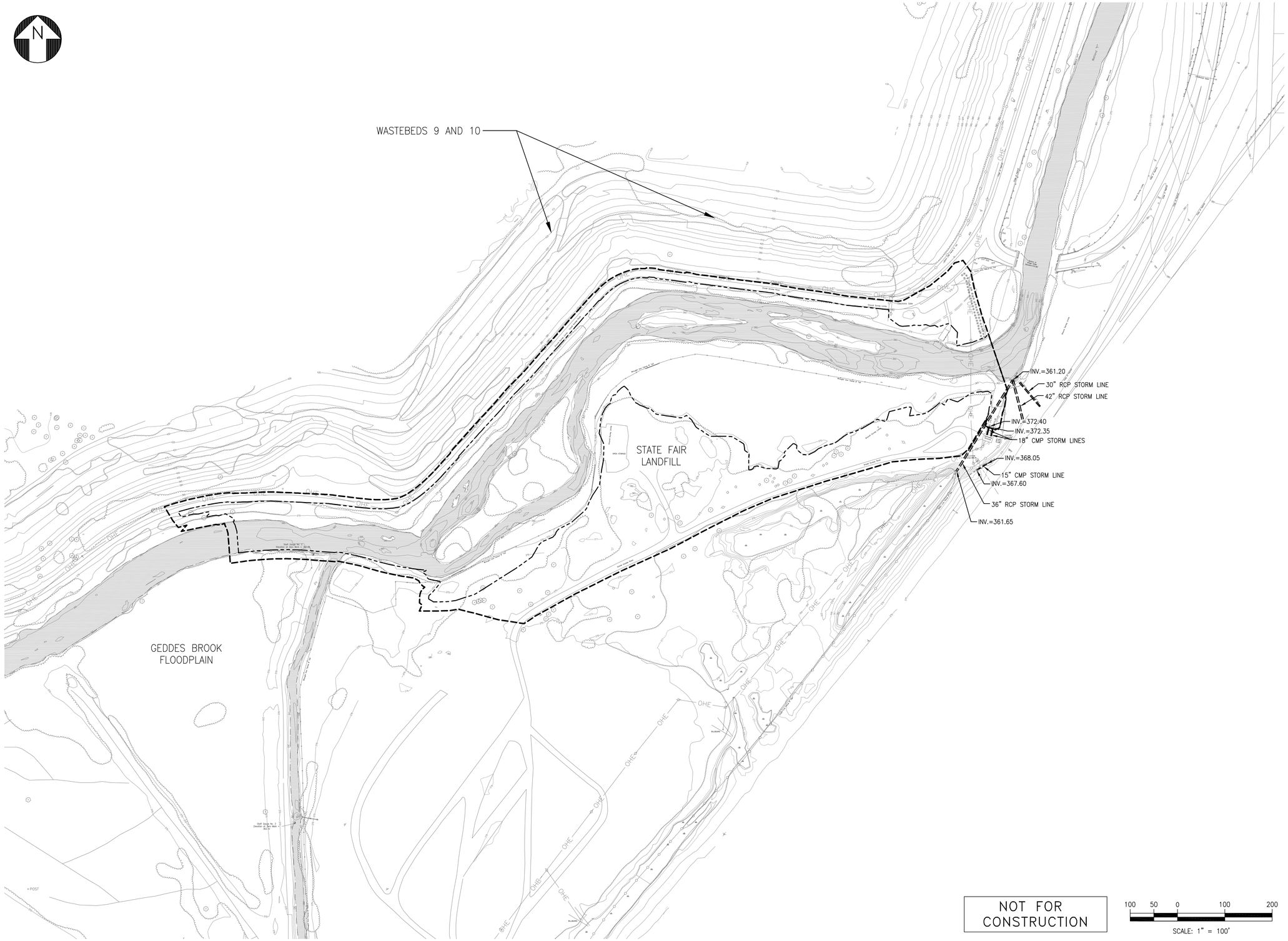
NOTES:

1. UTILITY LOCATIONS AND DESCRIPTIONS ARE APPROXIMATE AND BASED ON FIELD OBSERVATIONS, SURVEY BY HAND, NYSDOT DRAWINGS, AND PHOTOGRAMMETRY.

LEGEND:

- APPROXIMATE LIMITS OF DISTURBANCE
- LIMITS OF REMEDIATION
- E — UNDERGROUND ELECTRIC LINE
- OHE — OVERHEAD ELECTRIC LINE
- STORMWATER LINE
- UTILITY POLE
- UTILITY POLE WITH GUY WIRE
- FIRE HYDRANT
- LIGHT POLE

PRELIMINARY



NOT FOR CONSTRUCTION

100 50 0 100 200

SCALE: 1" = 100'

FIGURE 2

Honeywell — NINEMILE CREEK, SOLVAY, NEW YORK

EXISTING CONDITIONS PLAN
NINEMILE CREEK
REACH CD

PARSONS
301 PLANFIELD ROAD, SUITE 350, SYRACUSE, N.Y. 13212, PHONE: 315-451-9560

FILE NAME: P:\PT\PROJECTS\HONEYWELL\NINE MILE CREEK\CAD\SWPPP\FIGURE 2.DWG
PLOT DATE: 12/13/2011 10:30 AM PLOTTED BY: RABUFFETTI, RICHARD

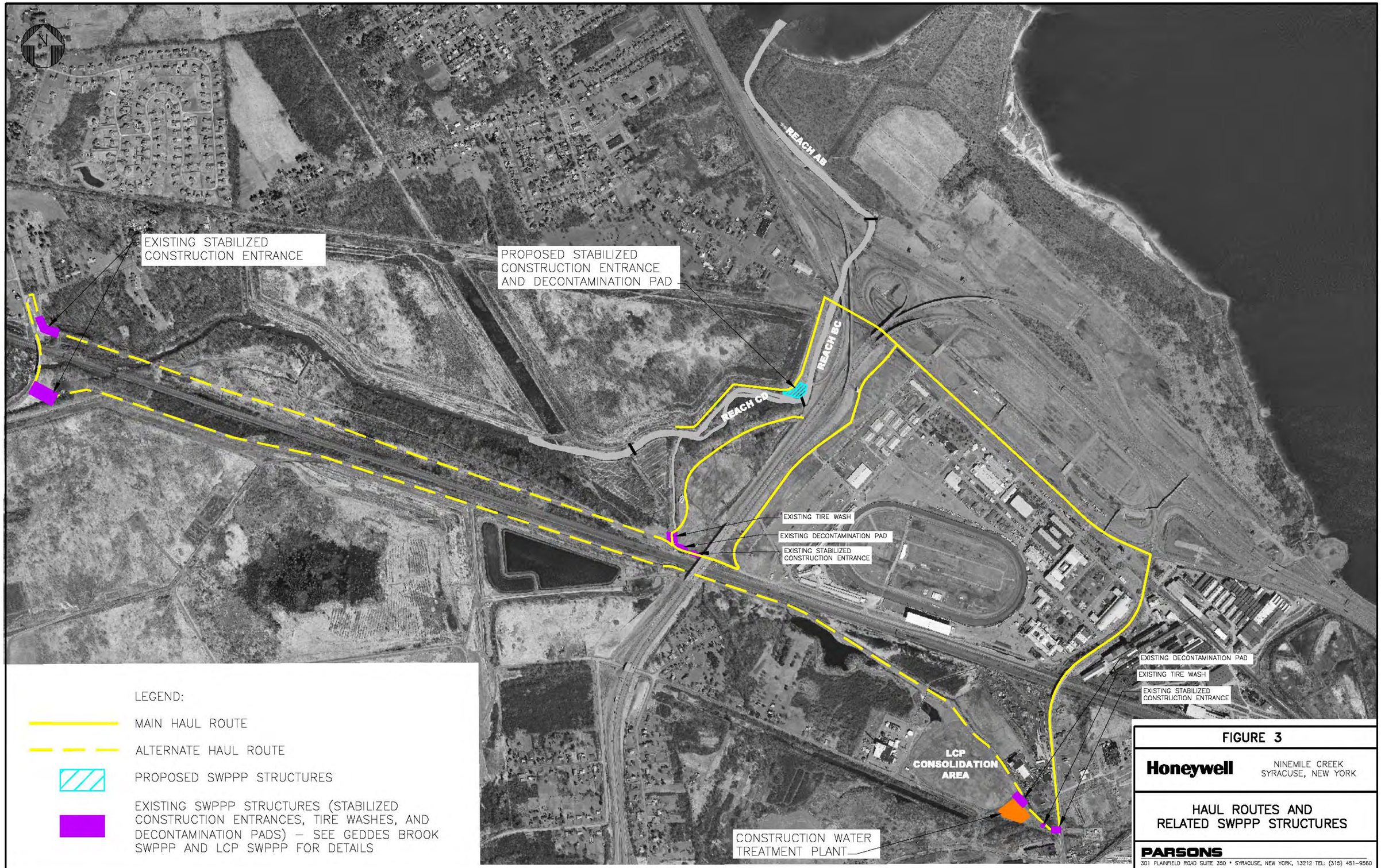


FIGURE 3

Honeywell

NINEMILE CREEK
SYRACUSE, NEW YORK

HAUL ROUTES AND RELATED SWPPP STRUCTURES

PARSONS

301 PLAINFIELD ROAD SUITE 350 • SYRACUSE, NEW YORK, 13212 TEL: (315) 451-9560

FILE NAME: P:\HONEYWELL –SYR\446794 – NMC FINAL DESIGN PRE–CONST\10.0 TECHNICAL CATEGORIES\10.1 CAD\FIGURES\SWPPP\446794–SWPPP–01.DWG
PLOT DATE: 12/14/2011 11:07 AM PLOTTED BY: RUSSO, JILL

ATTACHMENT B-2

HYDROLOGIC SOIL MAPS

United States Department of Agriculture

Natural Resources Conservation Service

A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

Custom Soil Resource Report for

Onondaga County, New York

June 7, 2011

Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (http://soils.usda.gov/sqi/) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (http://offices.sc.egov.usda.gov/locator/app?agency=nrcs) or your NRCS State Soil Scientist (http://soils.usda.gov/contact/state_offices/).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Soil Data Mart Web site or the NRCS Web Soil Survey. The Soil Data Mart is the data storage site for the official soil survey information.

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, age, disability, and where applicable, sex, marital status, familial status, parental status, religion, sexual orientation, genetic information, political beliefs, reprisal, or because all or a part of an individual's income is derived from any public assistance program. (Not all prohibited bases apply to all programs.) Persons with disabilities who require alternative means

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How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil scientists classified and named the soils in the survey area, they compared the

individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

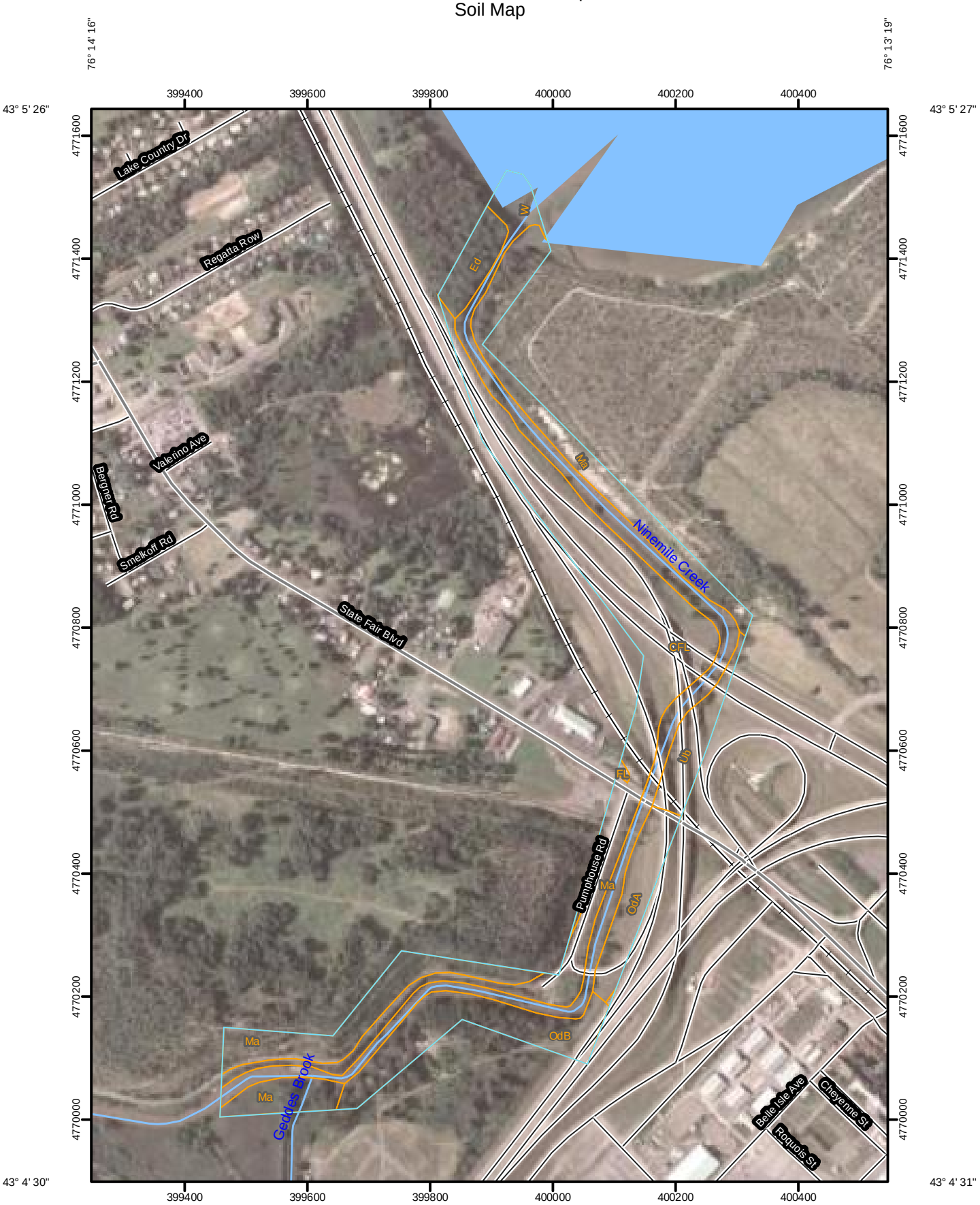
Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Custom Soil Resource Report
Soil Map



Map Scale: 1:8,330 if printed on A size (8.5" x 11") sheet.

N

Meters
0 50 100 200 300

Feet
0 300 600 1,200 1,800

MAP LEGEND

Area of Interest (AOI)

- Area of Interest (AOI)

Soils

- Soil Map Units

Special Point Features

- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other

Special Line Features

- Gully
- Short Steep Slope
- Other

Political Features

- Cities

Water Features

- Oceans
- Streams and Canals

Transportation

- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

MAP INFORMATION

Map Scale: 1:8,330 if printed on A size (8.5" × 11") sheet.

The soil surveys that comprise your AOI were mapped at 1:20,000.

Please rely on the bar scale on each map sheet for accurate map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL: http://websoilsurvey.nrcs.usda.gov
Coordinate System: UTM Zone 18N NAD83

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Onondaga County, New York
Survey Area Data: Version 5, Feb 18, 2010

Date(s) aerial images were photographed: 7/16/2006

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Onondaga County, New York (NY067)			
Map Unit Symbol	**Map Unit Name**	**Acres in AOI**	**Percent of AOI**
CFL	Cut and fill land	20.7	31.9%
Ed	Edwards muck	2.2	3.4%
FL	Fluvaquents, frequently flooded	0.1	0.2%
Ma	Made land, chemical waste	15.5	24.0%
OdA	Odessa silty clay loam, 0 to 2 percent slopes	3.7	5.8%
OdB	Odessa silty clay loam, 2 to 6 percent slopes	6.7	10.4%
Ub	Urban land	3.0	4.6%
W	Water	12.8	19.8%
Totals for Area of Interest		**64.8**	**100.0%**

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Onondaga County, New York

CFL—Cut and fill land

Map Unit Setting

Mean annual precipitation: 38 to 42 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 110 to 190 days

Map Unit Composition

Udorthents and similar soils: 70 percent

Description of Udorthents

Properties and qualities

Slope: 0 to 8 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat excessively drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to high (0.06 to 5.95 in/hr)
Depth to water table: About 36 to 72 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 15 percent
Available water capacity: Low (about 5.4 inches)

Interpretive groups

Land capability (nonirrigated): 6s

Typical profile

0 to 4 inches: Gravelly sandy loam
4 to 70 inches: Very gravelly sandy loam

Ed—Edwards muck

Map Unit Setting

Elevation: 600 to 1,000 feet
Mean annual precipitation: 38 to 42 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 110 to 190 days

Map Unit Composition

Edwards and similar soils: 75 percent

Description of Edwards

Setting

Landform: Swamps, marshes
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Talf
Down-slope shape: Concave

Across-slope shape: Concave
Parent material: Organic material over marl

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Very poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.06 in/hr)
Depth to water table: About 0 inches
Frequency of flooding: None
Frequency of ponding: Frequent
Calcium carbonate, maximum content: 90 percent
Available water capacity: High (about 9.6 inches)

Interpretive groups

Land capability (nonirrigated): 5w

Typical profile

0 to 24 inches: Muck
24 to 60 inches: Marl

FL—Fluvaquents, frequently flooded

Map Unit Setting

Elevation: 300 to 1,800 feet
Mean annual precipitation: 38 to 42 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 110 to 190 days

Map Unit Composition

Fluvaquents and similar soils: 75 percent

Description of Fluvaquents

Setting

Landform: Flood plains
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Dip
Down-slope shape: Concave
Across-slope shape: Concave
Parent material: Alluvium with highly variable texture

Properties and qualities

Slope: 0 to 5 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to high (0.06 to 5.95 in/hr)
Depth to water table: About 0 inches
Frequency of flooding: Frequent
Frequency of ponding: Frequent
Calcium carbonate, maximum content: 15 percent

Available water capacity: Moderate (about 6.5 inches)

Interpretive groups

Land capability (nonirrigated): 5w

Typical profile

0 to 5 inches: Mucky silt loam
5 to 70 inches: Very gravelly silt loam

Ma—Made land, chemical waste

Map Unit Setting

Mean annual precipitation: 38 to 42 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 110 to 190 days

Map Unit Composition

Made land, chemical waste: 70 percent

Description of Made Land, Chemical Waste

Interpretive groups

Land capability (nonirrigated): 7s

OdA—Odessa silty clay loam, 0 to 2 percent slopes

Map Unit Setting

Mean annual precipitation: 38 to 42 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 110 to 190 days

Map Unit Composition

Odessa and similar soils: 80 percent

Description of Odessa

Setting

Landform: Lake plains
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Tread
Down-slope shape: Concave
Across-slope shape: Linear
Parent material: Reddish clayey and silty glaciolacustrine deposits

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat poorly drained

Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: About 6 to 18 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 15 percent
Available water capacity: Moderate (about 8.6 inches)

Interpretive groups
Land capability (nonirrigated): 3w

Typical profile
0 to 7 inches: Silty clay loam
7 to 28 inches: Silty clay
28 to 60 inches: Silty clay

OdB—Odessa silty clay loam, 2 to 6 percent slopes

Map Unit Setting
Mean annual precipitation: 38 to 42 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 110 to 190 days

Map Unit Composition
Odessa and similar soils: 80 percent

Description of Odessa

Setting
Landform: Lake plains
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Tread
Down-slope shape: Concave
Across-slope shape: Linear
Parent material: Reddish clayey and silty glaciolacustrine deposits

Properties and qualities
Slope: 2 to 6 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: About 6 to 18 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 15 percent
Available water capacity: Moderate (about 8.6 inches)

Interpretive groups
Land capability (nonirrigated): 3w

Typical profile
0 to 7 inches: Silty clay loam

7 to 28 inches: Silty clay
28 to 60 inches: Silty clay

Ub—Urban land

Map Unit Setting

Mean annual precipitation: 38 to 42 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 110 to 190 days

Map Unit Composition

Urban land: 70 percent

W—Water

Map Unit Setting

Mean annual precipitation: 38 to 42 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 110 to 190 days

Map Unit Composition

Water: 100 percent

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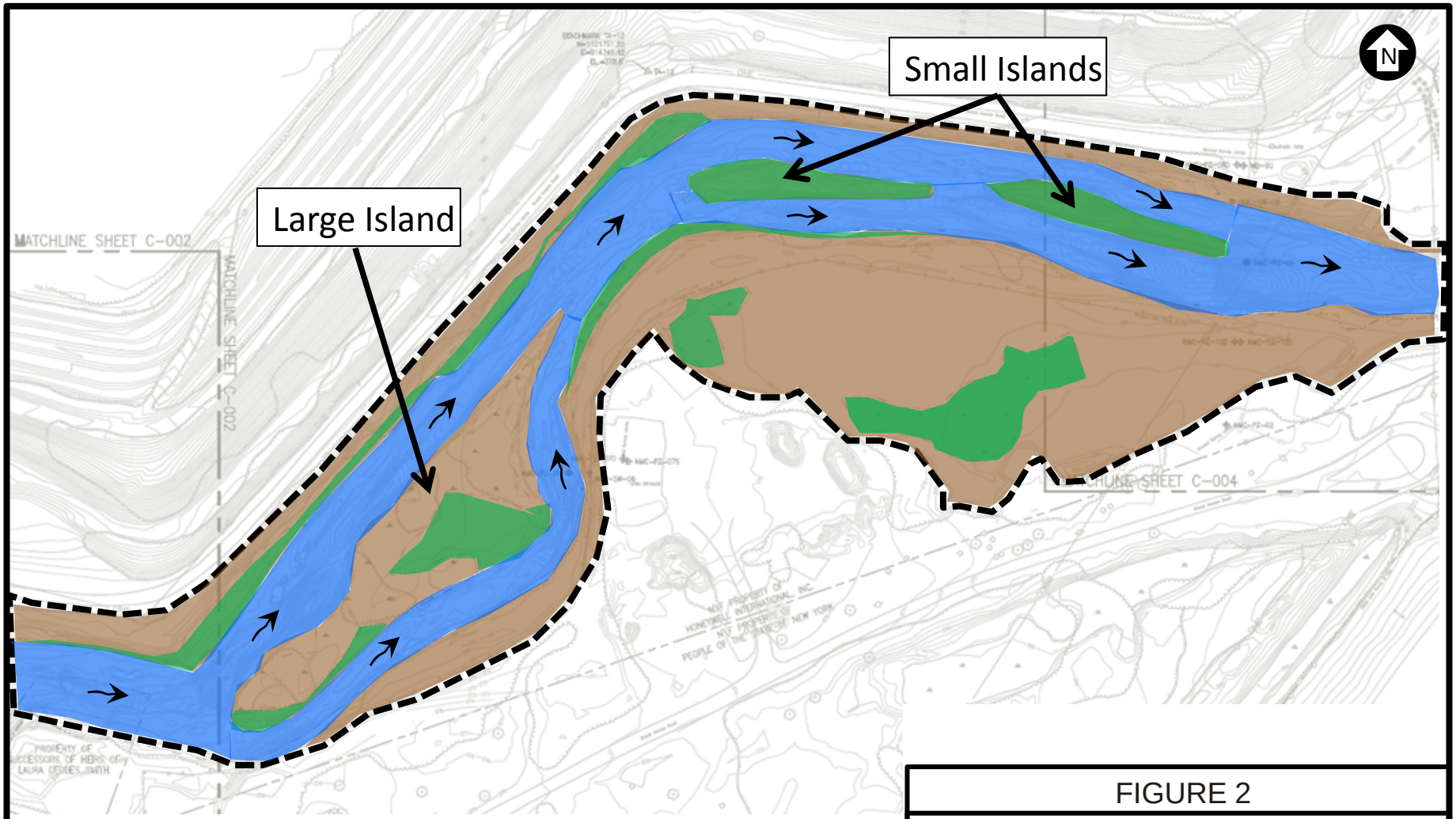
APPENDIX D

CONSTRUCTION SEQUENCING FIGURES



= Channel Area

= Wetland Area

= Upland Area

=Remedial Boundaries

PRELIMINARY

FIGURE 2

Honeywell

NINEMILE CREEK
SYRACUSE, NEW YORK

CONSTRUCTION SEQUENCE
EXISTING CONDITIONS

PARSONS

301 PLAINFIELD ROAD SUITE 350, SYRACUSE, NY 13212 PHONE: (315) 451-9560

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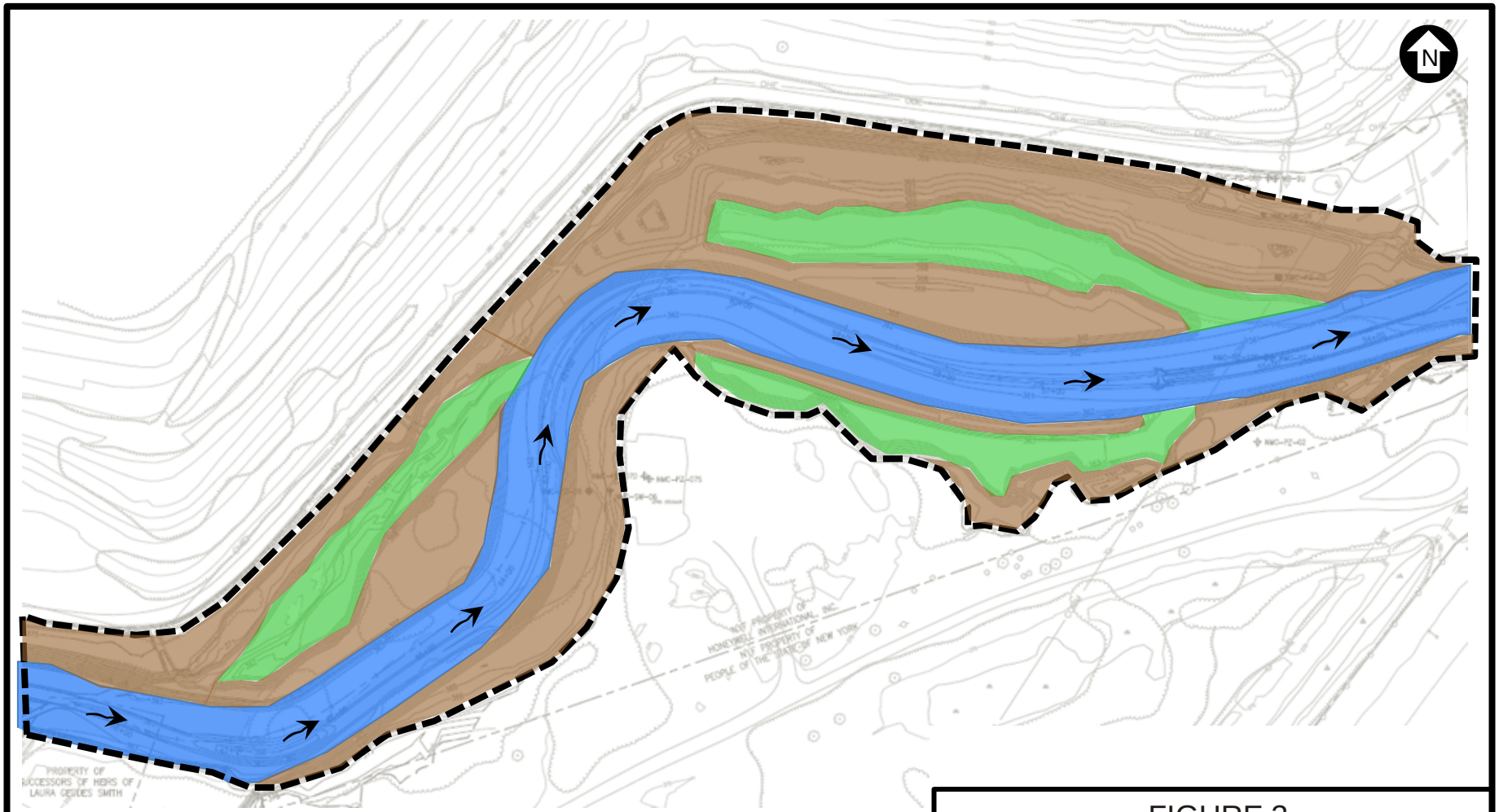

= Channel Area

= Wetland Area

= Upland Area

=Remedial Boundaries

PRELIMINARY

FIGURE 3

Honeywell

NINEMILE CREEK
SYRACUSE, NEW YORK

CONSTRUCTION SEQUENCE
FINISHED CONDITIONS

PARSONS

301 PLAINFIELD ROAD SUITE 350, SYRACUSE, NY 13212 PHONE: (315) 451-9560

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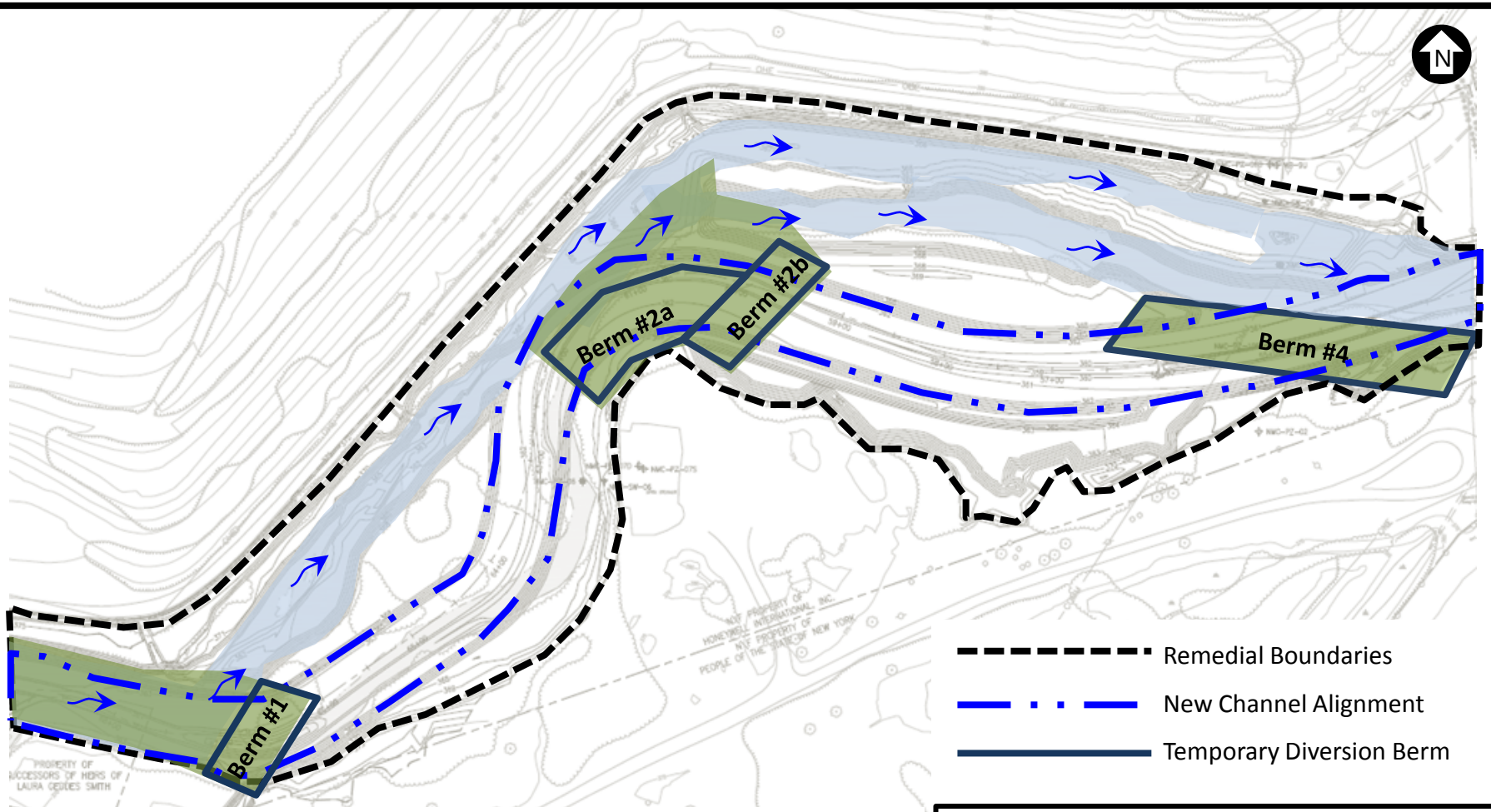

1- Remove material in green shaded areas. (removal through flowing water)

2- Restore channel upstream of large island.

3- Restore under the footprints of Berms #1, #2a, #2b, and #4.

4- Build Berms #1, #2a, #2b, and #4.

5- Water flow will now be diverted north of berms.

PRELIMINARY

Note:
Actual sequence of construction may vary based on field conditions and constructability as determined in the field.

FIGURE 4

Honeywell

NINEMILE CREEK
SYRACUSE, NEW YORK

CONSTRUCTION SEQUENCE
PHASE 1

PARSONS

301 PLAINFIELD ROAD SUITE 350, SYRACUSE, NY 13212 PHONE: (315) 451-9560

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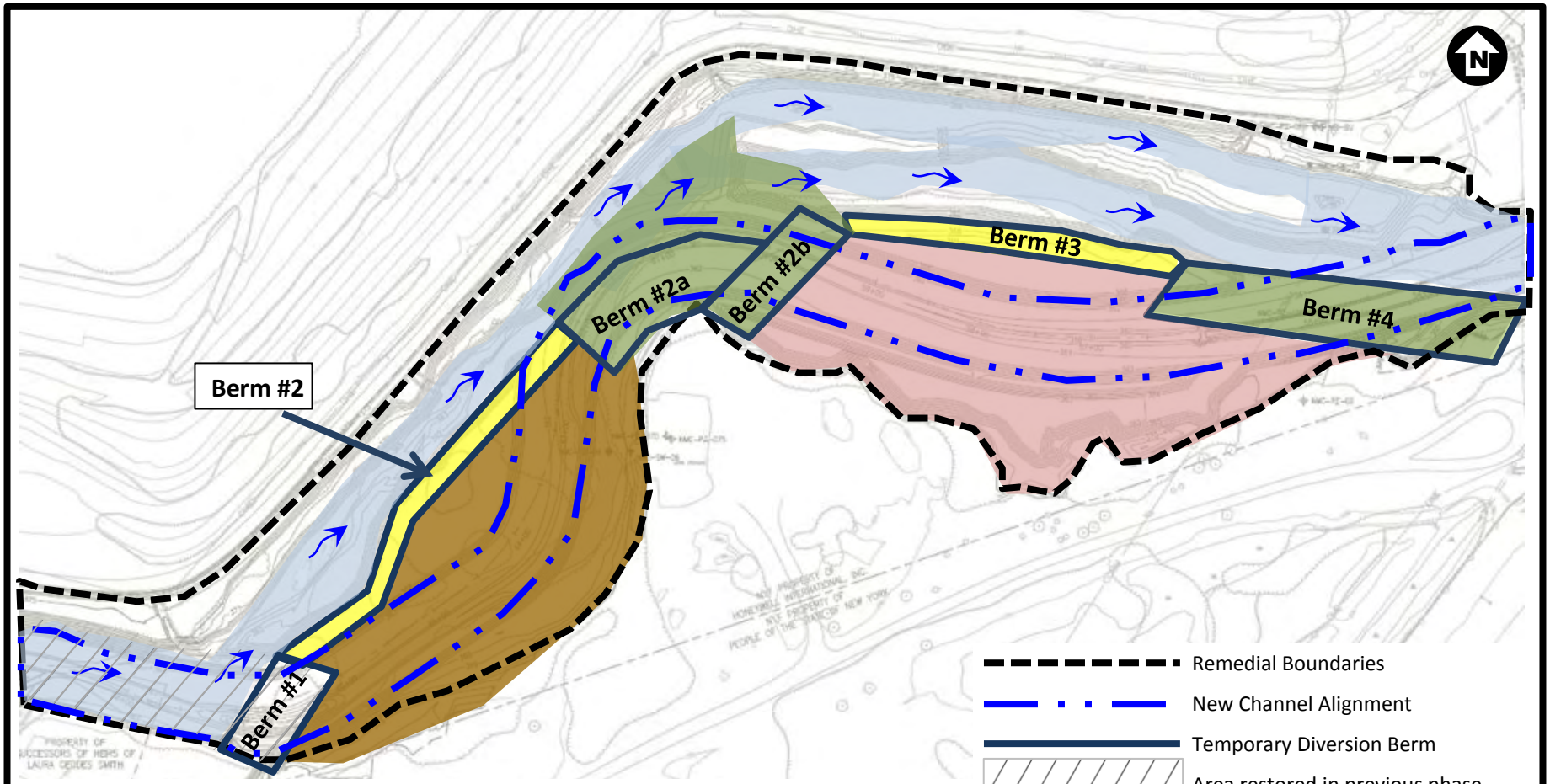

1-Perform removals and restoration beneath the footprints of Berms #2 and #3 (Yellow area).

2a-Build Berm #2; Perform removals and restoration in southern channel, large island (Brown area). (removals and restoration through still water)

2b-Build Berm #3; Perform removals and restoration in southern floodplain, small island (Pink area). (shallow excavation and restoration to be dry, with deeper work through still water)

3-Remove Berms #1, #2a, #2b, and #4.

PRELIMINARY

Note:
Actual sequence of construction may vary based on field conditions and constructability as determined in the field.

FIGURE 5

Honeywell

NINEMILE CREEK
SYRACUSE, NEW YORK

CONSTRUCTION SEQUENCE
PHASE 2

PARSONS

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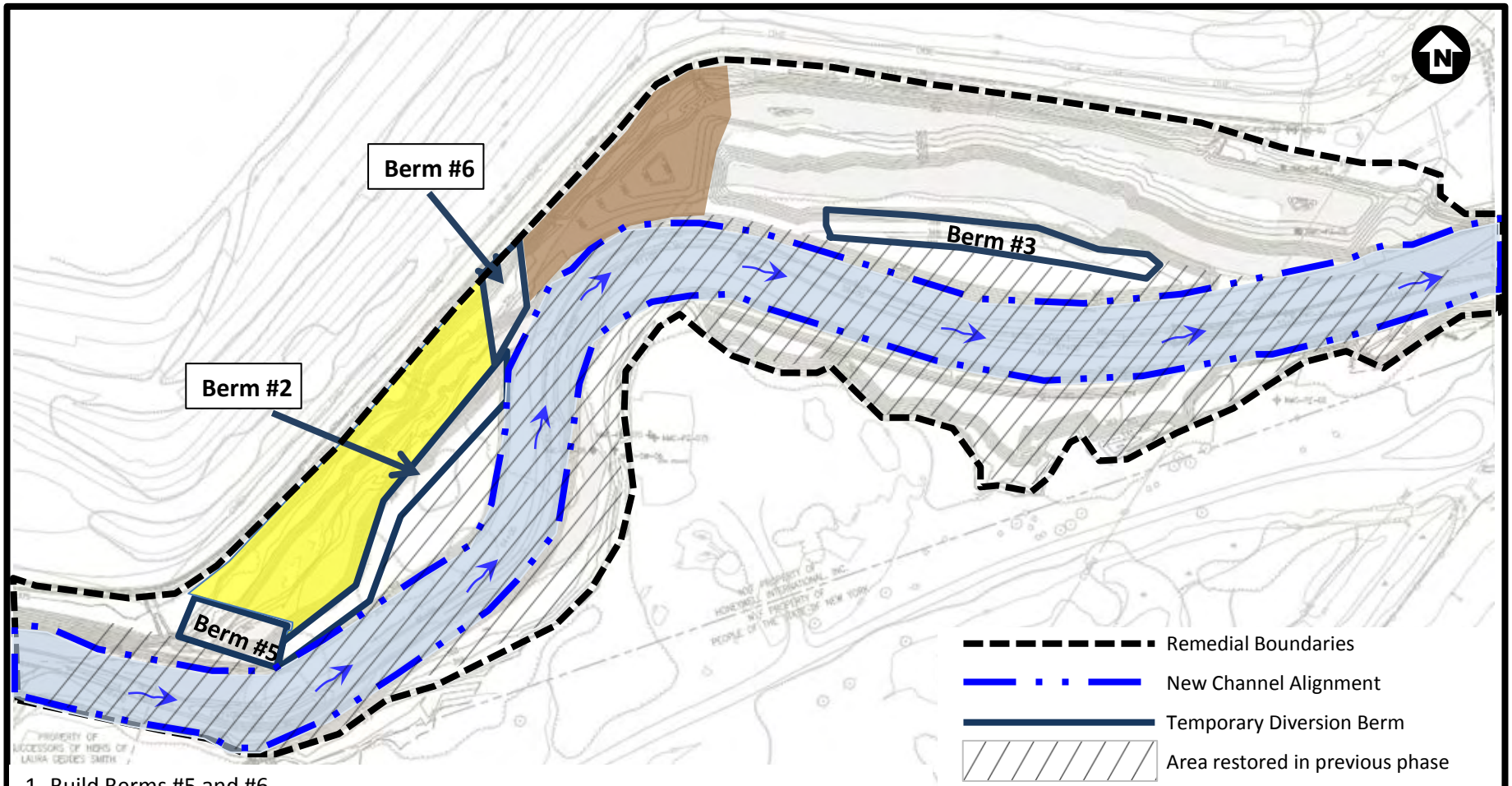

1- Build Berms #5 and #6.

2- Water flow will be diverted south of large island.

3- Perform Removals and restoration north of large island yellow area). (work in the former channel will be through still water, work in floodplain areas will be dry)

4- Place fill in brown area through flowing water to establish finished grade while directing flow to new channel south of Berm #3.

5- Remove Berms #5, #2, and #6.

PRELIMINARY

Note:
Actual sequence of construction may vary based on field conditions and constructability as determined in the field.

FIGURE 6

Honeywell

NINEMILE CREEK
SYRACUSE, NEW YORK

CONSTRUCTION SEQUENCE
PHASE 3

PARSONS

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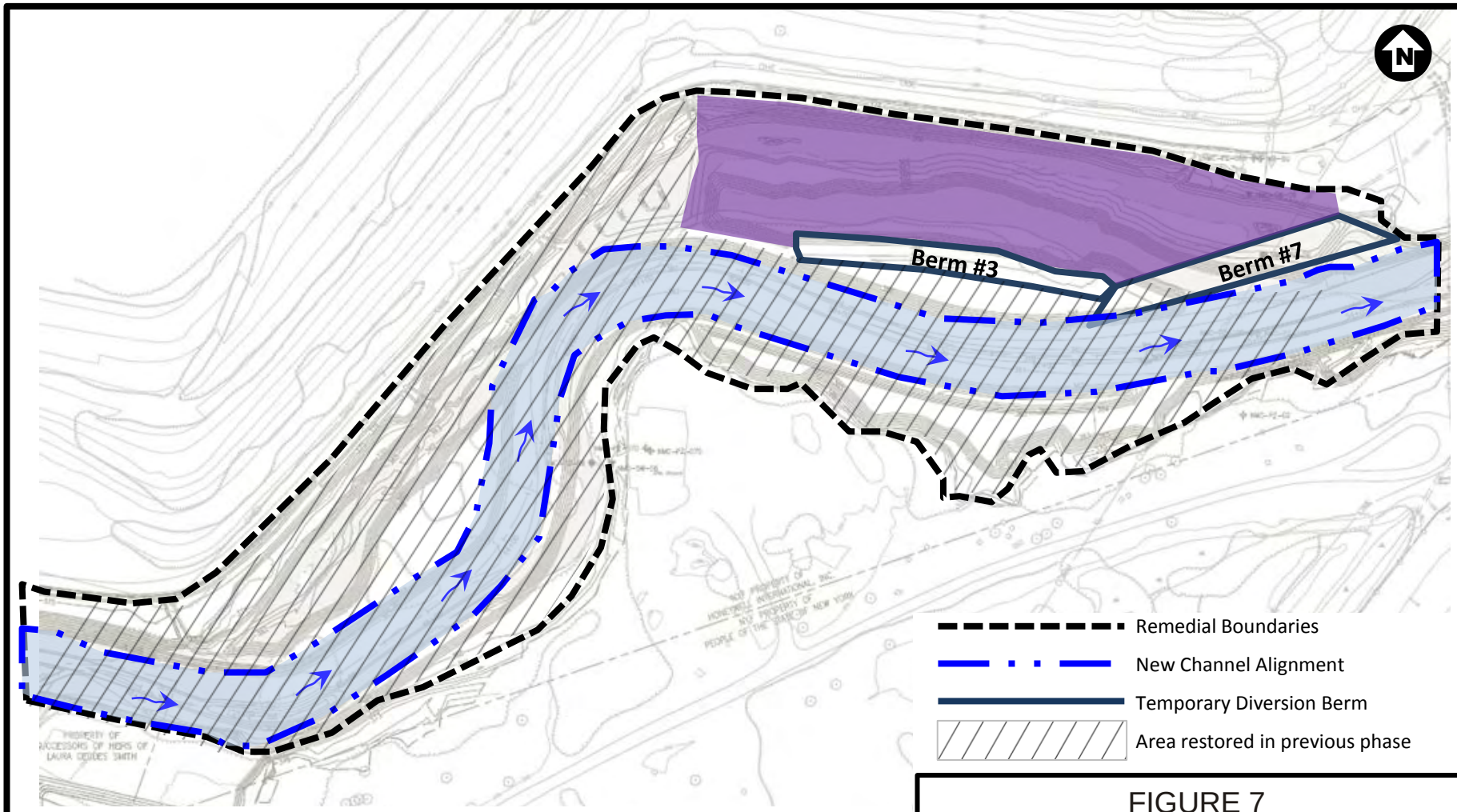

1-Build Berm #7.

2-Perform removals and restoration (Purple area). (removals and restoration through still water)

3-Remove Berm #3 and #7.

PRELIMINARY

Note:
Actual sequence of construction may vary based on field conditions and constructability as determined in the field.

FIGURE 7

Honeywell

NINEMILE CREEK
SYRACUSE, NEW YORK

CONSTRUCTION SEQUENCE
PHASE 4

PARSONS

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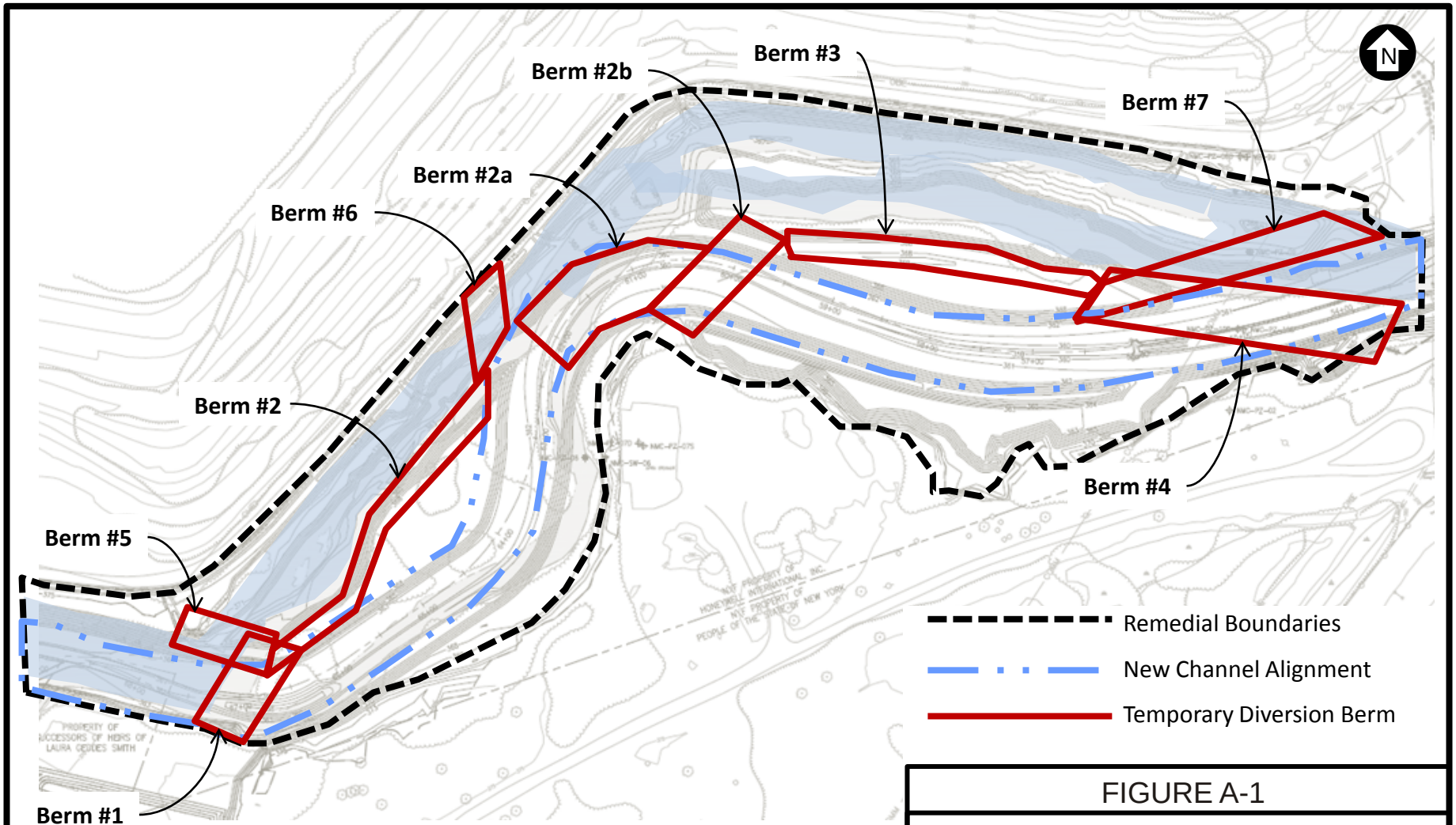

FIGURE A-1

Honeywell

NINEMILE CREEK
SYRACUSE, NEW YORK

DIVERSION BERM SITE PLAN

PARSONS

301 PLAINFIELD ROAD SUITE 350, SYRACUSE, NY 13212 PHONE: (315) 451-9560

PRELIMINARY

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