STORMWATER POLLUTION PREVENTION PLAN

Water Treatment Plant and Sediment Consolidation Area Towns of Camillus and Geddes Onondaga County, New York

Honeywell

April 2011

O'BRIEN & GERE

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Water Treatment Plant and Sediment Consolidation Area Towns of Camillus and Geddes Onondaga County, New York

Geddes, New York

Prepared for:

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1. REGULATORY INFORMATION

This *Stormwater Pollution Prevention Plan* (SWPPP) discusses and describes actions to be taken as part of the New York State Department of Environmental Conservation (NYSDEC) State Pollutant Discharge Elimination System (SPDES) General Permit (GP) for Stormwater Discharges from Construction Activities, Permit No. GP-0-10-001. This SWPPP, an update of the 2010 SWPPP that was approved by the NYSDEC on August 2, 2010, supports the activities that will be conducted on Wastebed (WB)-12, 13, 14, and 15, the southwest shore of Onondaga Lake, and properties in between beginning in 2011 as part of Honeywell's remediation program for Onondaga Lake.

This SWPPP supports the construction and operation activities associated with Honeywell's lake remediation plan that was selected by the NYSDEC and the United States Environmental Protection Agency (USEPA) and was noted in the January 2007 Consent Decree for Onondaga Lake. The lake remediation plan has been presented in design submittals that have been submitted to the NYSDEC, including:

- Onondaga Lake Draft Sediment Management Final Design (Parsons 2011)
- Design Package #3 for the Water Treatment Plant (WTP) (O'Brien & Gere 2010)

The Notice of Intent (NOI) for the General Permit for the project is included as **Appendix A**. Other forms referenced in this SWPPP are also included within their respective appendices. This SWPPP and the NOI have been prepared to meet the substantive requirements of Permit No. GP-0-10-001.

1.1 SWPPP DEVELOPMENT

This SWPPP was developed in accordance with Permit No. GP-0-10-001 and accepted engineering practices. It describes the erosion and sediment control practices that will be used to minimize sediment in stormwater discharges during construction and operation activities, offers protective measures to minimize sediment transport, and identifies potential sources of sediment that may affect the quality of stormwater discharges.

1.2 SWPPP REVIEW

The NOI has been updated to reflect current design based on the results of continuing discussions with the NYSDEC and is included in **Appendix A**. Five business days from the date NYSDEC approves the NOI, stormwater will be authorized to discharge from the construction site. Subsequently, the NYSDEC will issue a NOI Acknowledgement letter that will be included in **Appendix B**. The NOI Acknowledgement letter received for the 2010 SWPPP has been included in **Appendix B** for informational purposes.

Throughout the project, the SWPPP will be kept current and made available at the site for review by regulatory agencies and the Honeywell team. Applicable federal, State and local regulatory agencies that have jurisdiction may choose to review this SWPPP and if necessary may notify Honeywell that the SWPPP requires modification or if certain site conditions do not meet the requirements of the regulations.

1.3 SWPPP UPDATE

The 2010 SWPPP addressed construction activities associated with preparation of the project area on WB-12 and 13 for operations of the Sediment Consolidation Area (SCA) and WTP. This SWPPP update addresses activities associated with construction and operation of the SCA, WTP, slurry pipeline, effluent pipeline, booster stations, and associated lakeshore facilities between 2011 and completion of operations. As discussed with the NYSDEC, the SWPPP will again be updated to address closure activities.

Honeywell will also amend this SWPPP throughout operations if there is a change in any of the following project components that has an effect on the potential for discharge of sediment from stormwater runoff associated with construction activities:

- design
- construction

- operation
- maintenance.

Honeywell will update or amend the SWPPP if any of the following conditions occur:

- field conditions require additional erosion and sediment control measures
- identification of new contractors that will implement or construct any of the stormwater management and/or erosion and sediment control facilities
- changed site conditions observed by Honeywell and/or NYSDEC.

The Contractor's work practices shall be conducted in accordance with the SWPPP. If unforeseen site conditions are encountered which are not addressed in the SWPPP, the Contractor shall notify Honeywell so that the SWPPP can be modified and submitted to the NYSDEC within 14 days of notification. Modifications will be reviewed, approved and accepted by Honeywell and the NYSDEC prior to implementation.

2. PROJECT DESCRIPTION

2.1 OVERVIEW

The lake remediation plan, which was selected by the NYSDEC and the USEPA and noted in the January 2007 Consent Decree for Onondaga Lake, calls for a combination of dredging and capping – standard environmental cleanup methods that will address the contamination in lake sediments. The sediment dredged from Onondaga Lake will be hydraulically pumped via pipeline to the SCA located on WB-13. The sediments will be dewatered and the effluent will receive initial treatment at an on-site WTP prior to being sent to Metro for final treatment via an effluent pipeline. The following text describes the overall project that began in 2010 and will continue in stages as shown on the attached Figures and on the Contract Drawings presented in the design submittals.

2.1.1 Slurry Conveyance

Sediment will be hydraulically dredged from the lake remediation areas and will be pumped through a pipe to an on-shore support area. Upon reaching shore, this wet sediment mix ("dredged slurry") will be routed into a double-contained slurry pipeline, where it will be conveyed to the SCA on WB-13 utilizing multiple booster stations (see **Figure 1** for locations). From the lake to the SCA, the dredged material is not exposed to the air. A leak detection system has been incorporated into the design of the pipeline.

2.1.2 SCA

Water and sediments collected during dredging operations will be dewatered in the SCA via geotextile tubes. The SCA portion of the project consists of the following components, all of which will be constructed on Honeywell property:

- slurry processing areas, consisting primarily of dredge screens and SCA support facilities
- SCA with geotextile tubes
- temporary SCA basins
- office trailer and parking area
- debris management area

Locations of SCA project elements are illustrated on the attached Figures.

2.1.3 SCA WTP

The SCA WTP will receive the geotube effluent for initial treatment. The SCA WTP will remove suspended solids with multiple parallel treatment trains. The treatment system will consist of the following major unit processes:

- pH adjustment system
- metals precipitation
- total suspended solids (TSS) removal
- polishing filtration system
- volatile organic compound (VOC) and semi-volatile organic compound (SVOC) removal system
- treated water discharge system
- chemical storage/feed systems

The SCA WTP consists of the following project elements:

- an approximately 53,000-square foot (sf), 30-foot high, pre-fabricated building to house the treatment train. Reduced water flows captured during winter shutdowns (*e.g.*, precipitation and passive flows from the SCA) will be treated using a portion of the treatment system
- a laboratory area is planned within the building to facilitate analyses and optimization of treatment plant operations

- three chemical bulk storage tanks (with secondary containment) and a tanker truck unloading area
- installation of a 24-inch pipe to convey effluent from the SCA WTP to the 30-inch line adjacent to the Camillus Pump Station, which then flows to Metro for ammonia treatment.

2.1.4 Power Line Installation

Electrical service lines currently extend to the perimeter of the WB-12 through 15 site, near the Gerelock Road entrance. New poles and service lines will be installed from this location to the proposed SCA and WTP facilities on WB-13 (**Figure 12**). Honeywell has coordinated with National Grid to extend the necessary electrical service up to the site.

Existing infrastructure along the lakeshore will be extended to provide the 480-volt 3-phase power service that will be required for the temporary office facilities and booster stations. Existing service lines owned by Solvay Electric and National Grid will be upgraded and additional infrastructure constructed to bring the power to the proposed facilities. Locations of project elements are illustrated on **Figures 1** through **12** and the Contract Drawings presented in the Design Submittals.

2.1.5 Electrical Substation

The SCA and supporting areas will be served by a new 13,200-volt primary metered service distributed to the site by the installation of a new National Grid service drop. After the 13,200-volt has been distributed to the site, reduced voltage will be accomplished through installation of an electrical substation to transform the power to 480-volt 3-phase for use within the SCA and WTP (**Figure 12**).

2.2 PROPOSED FACILITIES

This SWPPP was developed in accordance with Permit No. GP-0-10-001 to address stormwater runoff associated with the following facilities:

2.2.1 Temporary

2011

Figure 1

- Slurry Pipeline from Onondaga Lake to WB-13
- Booster Station No. 1 on a barge in Onondaga Lake
- 1.3-acre Temporary Office Facilities and 0.192-acre Booster Station No. 2 on the existing New York State Department of Transportation (NYSDOT)-owned State Fair Boulevard turnaround
- 0.399-acre Booster Station No. 3 adjacent to the Ninemile Creek Ponded Area
- 0.243-acre Booster Station No. 4 east of the existing Retention Pond

Figure 3

- 1-acre gravel WTP/SCA Staging Area on WB-13
- 1.7-acre paved Slurry Process Area on WB-13
- 1-acre lined Slurry Process Area on WB-13
- 4.0-acre and 2.3-acre lined temporary SCA Basins on WB-13
- 2-acre lined Debris Management Area on WB-13.

2012 (see Figure 4)

- no new temporary facilities constructed; SCA filling operations continue.

2013 (see Figure 5)

- no new temporary facilities constructed; SCA filling operations continue.

2014-2016 (see Figure 6)

- no new temporary facilities constructed; SCA filling operations continue.

2.2.2 Permanent

2011 (see Figure 3)

- 2.1-acre Gravel Access Roads on WB-13
- 3.2-acre WTP Building and Parking Area on WB-13
- 25-acre lined Phase 1 SCA on WB-13.

2012 (see Figure 4)

- 24-acre lined Phase 2 SCA on WB-13.

2013 (see Figure 5)

- no new permanent facilities constructed; SCA filling operations continue.

2014-2016 (see Figure 6)

- 16-acre lined Phase 3 SCA on WB-13.

2.3 SITE DESCRIPTION

2.3.1 Slurry Pipeline Alignment

The slurry pipeline alignment was selected based on several factors, including minimization of both visibility and accessibility of the pipeline to the public and to minimize the impact on adjacent natural areas. **Figure 1** includes aerial imagery of the project area that includes the following existing covertypes:

- existing road, railroad, and utility right-of-way (ROW)
- gravel road/parking area
- mowed lawn
- Wastebed
- meadow
- scrub-shrub
- deciduous forest
- emergent and scrub-shrub wetland.

The pipeline and booster stations will be located away from areas of heavy public use to the extent practicable. When dredging in Remediation Areas D or E, the pipeline will transition from water to land near WB-B, close to the dredging that will occur in the southern end of the lake. From WB-B, the pipeline will run along the western shore of the lake, along the western side of the WB-1 through 8 site adjacent to the Interstate 690 (I-690) corridor, to an intersection point with Ninemile Creek. The pipeline will then follow the Ninemile Creek corridor to WB-13. The total length of the pipeline from WB-B to the SCA is approximately 20,600-feet (3.75-miles).

During dredging in Remediation Area A, the pipeline will parallel Ninemile Creek from its discharge point to Onondaga Lake. No additional on-land booster stations will be required, and the slurry pipeline will tie into Booster Station No. 3.

During dredging in Remediation Areas B and C, the pipeline will transition from water to land near the southern portion of the WB-1 through 8 site. No additional on-land booster stations will be required, and the slurry pipeline will tie into Booster Station No. 2.

2.3.2 Booster Stations

The locations for the four booster stations, shown on **Figure 1**, are as follows:

Booster Station No. 1 – This station will be located on a barge, just off-shore from the shoreline support area located on the northwest corner of the WB-B site. The booster will be situated on a barge, to limit the amount of head that the pump must overcome when drawing water from the lake.

Booster Station No. 2 – This station will be located on the southeast corner of the WB-1 through 8 site, adjacent to the entrance ramp to the fairgrounds parking area. This station will be located on property owned by NYSDOT, adjacent to the NYSDOT turnaround area and the Onondaga County West Side Pump Station. This area consists of a mix of meadow and scrub-shrub vegetation.

Booster Station No. 3 – This station will be located adjacent to I-690 West and the exit from the fairgrounds parking area, near an existing I-690 billboard. This station will be located on land owned by Onondaga County. This area consists of meadow vegetation.

Booster Station No. 4 – This station will be located on the WB-12 through 15 site, east of the Camillus Pump Station. This area consists of a mix of meadow and scrub-shrub vegetation.

2.3.3 SCA and SCA WTP

WB-12 and 13 have historically been used primarily for the disposal of Solvay waste, a by-product of sodium carbonate (soda ash) production via the Solvay process. Solvay waste is a combination of process residuals, unreacted material, and mineral salts that were deposited as a slurry, dried, and is now approximately 55-feet deep. WB-13 consists of approximately 163-acres that were used from 1973 to 1985. WB-12 consists of approximately 129-acres that were used from approximately 1951 to 1972.

The site is covered with a mix of old field and shrubland vegetation, and willow trees have been planted in portions of WB-13 to promote evapotranspiration and for biofuel production[1].

2.3.4 Electrical Facilities

The proposed electrical substation will be built adjacent to the southeast corner of WB-15. The proposed power line will be installed adjacent to existing gravel roads between WB-12, 13, 14, and 15 (see **Figure 12**).

2.4 SITE LOCATION

The proposed project facilities will be located in the Towns of Geddes and Camillus, Onondaga County, New York. The project area is generally bordered to the north by Onondaga Lake; to the west by an Onondaga County municipal garage and a former gravel excavation area owned by Honeywell; and to the south and east by the State Fairgrounds and WB-12 and 14.

2.5 SITE OWNER

Contact information for Honeywell is below:

Owner	Contact
Honeywell International, Inc. **301 Plainfield Road** **Suite 330** **Syracuse, NY 13212**	Al J. Labuz, Remediation Manager phone: 315-552-9781 fax: 315-552-9780 email: al.labuz@honeywell.com

[1] The Shrub Willow Sustainable Remedy project was authorized by the NYSDEC under GP-0-08-001 (permit identification number NYR10S027).

2.6 CONTRACT DOCUMENTS

The applicable Contract Documents presented in the Design Submittals include:

- overall site plan
- grading with existing and proposed contours that indicate drainage patterns and slopes prior to and after grading activities
- areas of disturbance
- proposed locations of erosion and sediment control facilities.

2.7 RECEIVING WATER

Stormwater on the Wastebeds infiltrates the substrate and co-mingles with groundwater or is collected and treated in Honeywell's site-wide leachate collection and conveyance system (LCCS). The LCCS then discharges to Metro and ultimately to Onondaga Lake. Onondaga Lake is part of the Seneca Watershed, United States Geological Survey (USGS) Hydrologic Unit 04140201 (http://cfpub.epa.gov/surf/) and includes the Ninemile Creek and Onondaga Lake sub-watersheds.

Surface water resources located along the slurry pipeline route include Ninemile Creek, Geddes Brook, the SPDES Outfall No. 19 drainage ditch, Iron Brook, and delineated wetlands. Since the pipeline is being installed above grade (except for the trenching locations shown on **Figure 1**) with no permanent facilities, impacts to the drainage patterns or stormwater runoff associated with these resources are not anticipated. Stormwater runoff from lakeshore facilities will continue to discharge directly to Onondaga Lake.

During construction and operation of the SCA and WTP, stormwater from lined areas that have not received dredged sediments within the project footprint will be managed and discharged to existing SPDES Outfall No. 18. The outfall discharges to Ninemile Creek which is also part of the Seneca Watershed. The August 12, 2010 approval from the NYSDEC to modify existing NYSDEC SPDES Permit No. NY 0002275 is included herein as **Appendix C**.

2.8 SOILS

The Soil Survey of Onondaga County (see **Appendix D**) identifies the Wastebed-portion of the site as a mix of gravel pit and made land. The substrate that exists generally consists of a mix of weathered Solvay waste and organic soil (*i.e.,* decomposing vegetative matter), which can be characterized as hydrologic soil group D.

The soil series mapped within the remainder of the project area along the slurry and effluent pipelines include:

- Collamer silt loam - hydrologic soil group C
- Cut and fill land – hydrologic soil group A/D
- Galen very fine sandy loam - hydrologic soil group B
- Lairdsville silt loam - hydrologic soil group D
- Lakemont silty clay loam - hydrologic soil group D
- Lockport and Brockport silty clay loams - hydrologic soil group D
- Niagara silt loam - hydrologic soil group C
- Made land, chemical waste - hydrologic soil group D
- Odessa silty clay loam - hydrologic soil group D
- Odessa silty clay loam - hydrologic soil group D
- Wayland silt loam - hydrologic soil group C/D.

Cut and fill land and Made land, the most common soils of the survey area, are mapped in the central and western portions of the project area which includes the retention ponds, CSX railroad track area, and WB-12. Odessa and Lakemont soils are mapped in the northeastern portion of the project area along Interstate 695 (I-695) and Ninemile Creek.

2.9 RESOURCE PROTECTION AREAS

2.9.1 Surface Waters

No streams, lakes, or ponds have been identified on WB-12 or WB-13. The following NYSDEC-classified waters exist along or adjacent to the slurry and effluent pipeline routes and lakeshore facilities:

- Onondaga Lake is a Class C water body southeast of the mouth of Tributary 5A as well as within a 0.25-mile radius of the mouth of Ninemile Creek. The remainder of the Lake, generally the northwestern portion, is considered a Class B water body
- Ninemile Creek is a Class C stream from the point where existing SPDES Outfall No. 18 enters downstream to its confluence with Onondaga Lake
- the section of Geddes Brook in the vicinity of the slurry pipeline crossing is a Class C stream.
- Iron Brook, which is located north of the existing retention ponds, is not regulated by the NYSDEC.

Placement of the pipeline within or alongside Ninemile Creek will be minimized to the extent practicable, to protect the natural habitats contained within these areas.

2.9.2 Wetlands and Resource Areas

O'Brien & Gere conducted a wetland delineation and resource area identification along the proposed slurry and effluent pipeline routes to evaluate potential impacts to wetlands and heritage elements associated with the construction of the pipelines . Information, including correspondence from the New York Natural Heritage Program (NYNHP) and U.S. Fish & Wildlife Service (USFWS) was summarized in a Technical Memorandum (TM) that was included in the *Draft Onondaga Lake Sediment Management Final Design* (Parsons 2011).

For the purposes of this project, resource areas were identified based on the presence of rare, threatened, endangered, or special concern species (heritage elements) or resource areas identified by the NYNHP, USFWS, or field biologists. O'Brien & Gere identified four wetland habitats, best characterized as emergent marsh habitat, totaling approximately 7-acres, and five resource areas totaling approximately 1.5-acres. The wetland and resource areas that may be temporarily disturbed as part of the installation and operation of the slurry and effluent pipelines, and details pertaining to the restoration of these areas, are presented on **Drawings 200-C-102** through **121**.

The information presented within the TM will be used by the project team to minimize potential impacts to wetlands and heritage elements to the extent practicable during construction of the pipelines and to develop appropriate restoration specifications. Post-construction surface restoration techniques and vegetative seed mixtures that differ from those that will be utilized in other portions of the pipeline routes will be specified for use where these conditions exist. Seed from the heritage element species will be applied in resource areas where they were observed.

2.9.3 Other Resources

There are no identified drinking water well or septic system setbacks within the project area.

3. PROJECT IMPLEMENTATION

3.1 PRE-CONSTRUCTION REQUIREMENTS

Honeywell will follow the requirements described in **Appendix E** to minimize erosion and sedimentation during construction activities.

3.2 PROJECT REQUIREMENTS DURING CONSTRUCTION

Honeywell will follow the requirements described in **Appendix E** and the general construction sequence provided in **Table 3.1**. The Figures indicate the proposed construction stages beginning in 2010 and continuing from 2011 through 2016. These figures also indicate which facilities will be permanent or temporary facilities to be removed upon completion of construction or operations.

Table 3.1 provides a general sequence of construction activities that are proposed from March 2011 through the end of operations. The stormwater management strategies proposed for each activity, discussed further in Section 4, are provided as well. The activities in **Table 3.1** will be completed in conjunction with the following general site considerations:

- install stabilized construction entrances as shown or as directed
- mobilize, clear, and mow additional area
- install temporary stormwater management facilities as required to convey stormwater to the Camillus Pump Station
- install temporary stormwater management facilities to convey clean runoff to SPDES Outfall No. 18
- as areas are completed through these milestones, they will be restored as required in the Contract Documents
- after site activities are complete and the site is stabilized, remove temporary erosion and sediment control facilities.

Since the SCA project requires land disturbance in an area larger than 5-acres during construction, a letter request has been included in **Appendix K**. Once Honeywell receives approval from the NYSDEC, Honeywell will be required to perform the following tasks:

- conduct at least two site inspections every seven calendar days by a Qualified Inspector[2] (separated by a minimum of two calendar days)
- provide for temporary or permanent soil stabilization measures in areas where soil disturbance activity has been temporarily or permanently ceased within seven days from the date the soil disturbance activity ceased. Exposed berm surfaces shall be seeded with conservation mix and rye grass seeds.

[2] Qualified Inspector includes persons knowledgeable in the principles and practices of erosion and sediment controls, such as a licensed professional engineer, certified professional in erosion and sediment control (CPESC), licensed landscape architect or other NYSDEC-endorsed professional. It also means someone working under the direct supervision of the licensed professional engineer or licensed landscape architect, provided that person has training in the principles and practices of erosion and sediment control.

Table 3.1. ***Construction Sequence***

Construction Activity Description	Currently Projected Start Date:	Currently Projected Completion Date:	Proposed SW Treatment Strategies		
			Construction Phase	Post-Construction/ Pre-Construction Operation	Operation
WTP Construction			As detailed below	2	6
Remove WTP Preload Material	1/11	3/11	1	---	---
Site Civil	3/11	8/11	2	---	---
Concrete/Structural	4/11	9/11	2	---	---
Effluent Line Installation	5/11	6/11	3	---	---
Building Architectural	9/11	1/12	2	---	---
Process & Building Mechanical	10/11	5/12	2	---	---
Process & Building Electrical & I&C	11/11	6/12	2	---	---
Startup & Commissioning	5/12	7/12	2	---	---
Electrical Pole Line Installation	12/10	4/11	3	3	3
Slurry Process Area			As detailed below	2	6
Place Preload Material	1/11	3/11	1		
Preload Settlement Period	2/11	5/11	1		
Remove Preload Material	5/11	6/11	1	---	---
Process Stockpile Area(s)	7/11	8/11	2	---	---
Process Area Civil	6/11	7/11	2		
Process Area Paving	7/11	7/11	2	---	---
Screen Installation	9/11	10/11	2	---	---
Geotube Feed Pump Installation	12/11	1/12	2	---	---
Process Area Piping, Elec. and I&C	7/11	1/12	2		
Electrical Substation Installation	4/11	7/11	3	3	3
Booster Station and Pipeline Civil	4/11	7/11	3	3	3
Booster Station Installation	7/11	12/11	3	3	5
Slurry Pipeline Installation	7/11	5/12	3	3	3
SCA			As detailed below	4	6
SCA Phase 1 + E & W Basins	4/11	7/12	2	---	---
SCA - Phase 2 Installation	4/12	12/12	2	---	---
SCA – Phase 3 Installation	TBD	TBD	2	---	---

Stormwater Management Strategies:

1. Erosion and sediment control facilities (*e.g.,* silt fence, stabilized construction entrances, *etc.*) will be installed to minimize off-site sediment migration throughout construction until the site is stabilized pursuant to GP-0-10-001. Consistent with the 2010 SWPPP, stormwater that falls on pre-load areas will not be collected.
2. Erosion and sediment control facilities will be installed to minimize off-site sediment migration throughout construction until the site is stabilized pursuant to GP-0-10-001. Consistent with the 2010 SWPPP, temporary gravel areas will be bermed to detain the stormwater volume associated with the 100-year storm

event. Stormwater from these areas will be routed via above-grade piping to temporary tankage, then to the wet well of the booster station located adjacent to the existing retention ponds (see calculations in **Appendix L**).

Stormwater runoff volume from the WTP building will be routed via roof drains and stormwater piping to a pump station located in the adjacent paved Slurry Process Area. The non-building portions of the WTP site will be graded to collect stormwater in catch basins and route it to the same pump station. This pump station will discharge to the SCA and will subsequently be directed to the WTP for treatment. During large storm events (i.e., the 100-year storm), the stormwater system will surcharge such that a portion of the volume will flow overland to the paved Slurry Process Area (note that this overland flow will only contact improved areas). The 100-year storm volume will be detained within the two areas (i.e., WTP area and Slurry Process Area) before being routed through the pump station, SCA, and WTP. Under this approach, off-site discharge of stormwater associated with the 100-year storm event will not occur.

3. Erosion and sediment control facilities will be installed to minimize off-site sediment migration throughout construction until the site is stabilized pursuant to GP-0-10-001. No permanent stormwater management facilities are proposed.
4. Consistent with the 2010 SWPPP, stormwater associated with the 100-year storm event that falls on the lined SCA and associated SCA basins prior to receiving material will be detained within the lined area prior to discharge via existing SPDES Outfall No. 18.
5. Temporary booster stations 2 through 4 will be constructed to provide secondary containment of stormwater associated with the 100-year storm event (note that station 1 will be located on a barge on Onondaga Lake without stormwater containment). These stations will be equipped with sumps that will discharge collected stormwater to the slurry pipeline for routing to the SCA and subsequently to the WTP for treatment.
6. Stormwater associated with the SCA operations will be routed to the SCA and WTP for treatment.

3.3 INSPECTION DURING CONSTRUCTION

General

Honeywell will be responsible for providing a Qualified Inspector to inspect the proposed erosion and sediment control measures and disturbed areas of the construction site for compliance with the SWPPP. The Qualified Inspector will evaluate whether site-generated sediment is entering natural surface water bodies located within, or immediately adjacent to, the site boundaries. Digital photographs, with date stamp, will be taken that show the conditions of erosion and sediment control facilities and stormwater management practices that have been identified as needing corrective actions. Additional photographs will be taken after implementation of corrective actions showing the condition of the facilities and practices. These photographs will be attached to the inspection form within seven calendar days of the respective inspection.

These inspections will be completed at least once every seven calendar days. For sites where Honeywell has received authorization from the NYSDEC to disturb greater than 5-acres of soil at one time, the Qualified Inspector will conduct at least two site inspections every seven calendar days, with a minimum of two full calendar days between inspections. A typical Inspection Report Form is included in **Appendix F**.

Prior to construction, Honeywell will identify at least one Trained Contractor[3] from their respective companies who will be responsible for implementation of the SWPPP and inspection of the erosion and sediment controls in accordance with the New York State *Standards and Specifications for Erosion and Sediment Control* (NYSDEC

[3] Trained Contractor means an employee from a contracting (construction) firm that has received four hours of training that has been endorsed by the NYSDEC (*i.e.*, Soil and Water Conservation District, CPESC, Inc., or other NYSDEC endorsed entity), in proper erosion and sediment control principles no more than two years before the date the general permit was issued. After receiving the initial training, the trained contractor will receive four hours of training every three years. This individual will be responsible for implementation of the SWPPP.

2005). Honeywell will provide for at least one Trained Contractor on site daily while soil disturbance activities are being performed.

If corrective action is required based on the results of inspection, the Contractor will implement the corrective action within one business day and complete it within seven calendar days following the date of the inspection. Additional mitigation measures will be implemented by the Contractor if warranted to minimize sediment transport or discharge of sediment-laden runoff off-site. Each inspection report will remain on file at the site as part of the SWPPP.

Temporary Construction Shutdown (Winter Conditions)

When soil-disturbing activities have been temporarily suspended (*e.g.,* winter shutdown) and temporary stabilization measures have been applied to disturbed areas, Honeywell may cease the periodic inspections by the Trained Contractor. However, the Qualified Inspector must perform a site inspection at least once every 30 calendar days. Honeywell will notify the NYSDEC in writing prior to reducing the inspection frequency. Honeywell will resume inspections by the Trained Contractor and Qualified Inspector in accordance with this Section as soon as soil disturbance activities resume.

Final Site Inspection

The Qualified Inspector will perform a final inspection of the site to certify the following:

- construction is complete and disturbed areas have been stabilized
- temporary erosion and sediment control facilities have been removed
- permanent stormwater management practices in accordance with the design have been installed and are operational and on-line
- upon satisfactory completion of the final site inspection, the Qualified Inspector will sign the appropriate sections of the Notice of Termination (NOT) form included herein as **Appendix G**.

3.4 STORMWATER CONTROLS

The Contract Drawings illustrate the anticipated locations for erosion and sediment control facilities. Details of these facilities are illustrated on **Sheet MD-4**. These facilities will be installed and maintained in accordance with the New York State *Standards and Specifications for Erosion and Sediment Control* (NYSDEC 2005).

Honeywell will provide a construction stabilization schedule when construction activities are anticipated to start and be stabilized. This record will become part of this SWPPP within **Appendix E**.

3.4.1 Erosion and Sediment Controls – Structural Practices

Proposed erosion and sediment control measures were designed in accordance with the latest versions of the following documents:

- New York State *Standards and Specifications for Erosion and Sediment Control* (NYSDEC 2005)
- NYSDEC SPDES GP for Stormwater Discharges from Construction Activity (Permit No. GP-0-10-001) (effective date January 29, 2010).

The control measures and best management practices (BMP) noted below will be implemented as required to abate and control potential sediment transport in stormwater discharges from the construction site. Details of the erosion and sediment control facilities are provided on **Sheet MD-4**.

1. A stabilized construction entrance will be located at each construction entrance and exit location(s). If deemed necessary by the Qualified Inspector, construction vehicles will be washed down in stabilized areas prior to leaving the site.

2. Staging/laydown areas for vehicles and construction equipment will be located on stabilized portions of the site. If deemed necessary by a Trained Contractor or Qualified Inspector, vehicles and equipment will be washed down in stabilized areas prior to exiting site.

3. Silt fence will be installed downgradient of earthwork activities outside of the Wastebeds (*i.e.,* slurry pipeline, lakeshore facilities) to prevent stormwater runoff from transporting sediment to adjacent surface water resources. Silt fence will be installed along contours to the extent practicable.

4. Temporary stone check dams to be placed in swales to prevent erosion, reduce flow velocities, and promote sedimentation as required. The check dams will be installed, as required, at intervals such that the crest of the downstream dam is at the elevation of the toe of the upstream dam. Maintenance will include inspection, cleaning, and/or replacement of stone, as required.

3.4.2 Stabilization Practices

Honeywell will initiate stabilization measures in accordance with the New York State *Standards and Specifications for Erosion and Sediment Control* (NYSDEC 2005) as soon as practicable. For portions of the site where soil disturbance activities have temporarily or permanently ceased, stabilization measures must be implemented within 14 days of the conclusion of activities or within 7 days if authorized to exceed 5-acres of disturbance at one time. 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.

3.4.3 Additional Stormwater Controls

Listed below is a description of additional controls and measures that will be implemented at the site to minimize sediment transport:

- proper precautions will be taken so materials do not spill onto public thoroughfares (*i.e.,* leaking hydraulic lines, fuel leaks). If materials are dropped onto these areas they will be swept clear or removed as soon as practicable so that they do not enter surface and subsurface drainage systems
- Honeywell will provide dust control measures before dust migrates off-site. 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. Waste will be disposed of properly in accordance with local, State, and/or federal regulations
- portable toilets will be installed and cleaned regularly with their contents properly disposed of. They will be secured in place so they will not be knocked over by construction activities
- building materials will be properly stored and contained on-site
- oil and fuel containers will have appropriate secondary containment.

3.5 HISTORIC AND ARCHAEOLOGICAL RESOURCES

Based on the results of the Phase 1A Cultural Resource Assessment performed by the Public Archaeological Facility of Binghamton University in October 2004, the SCA and WTP components of the proposed project will not impact cultural resources. The NYSDEC indicated in its September 12, 2007 letter that "due to disturbances from mining activities, no archaeological testing is recommended for Wastebed 13." In addition, the NYSDEC approved the *Cultural Resource Management Report Phase 1B Archaeological Work Plan Addendum for Onondaga Lake Project, Upland and Shoreline Area* on June 15, 2010, thereby agreeing with the recommendation that no additional archaeological testing of WB-12 is required. A copy of the September 12, 2007 letter is included in **Appendix H**.

The Phase 1B field work recommended in the Work Plan Addendum for the remaining project areas was completed between June and November 2010. The reports summarizing results of these activities will be

submitted to the NYSDEC for review upon completion. The results of the investigations and subsequent response from the NYSDEC will be added to **Appendix H** upon receipt.

3.6 OPERATIONS AND MAINTENANCE

The following sub-sections describe the minimum requirements for operations and maintenance during and after construction activities.

3.6.1 Construction Period Operations and Maintenance

The procedures that will be used to maintain the effectiveness of the erosion and sediment control measures during construction are described as follows:

- inspection of the facilities in accordance with Section 3.3, *Inspection During Construction*. An Inspection Form is included within **Appendix F**, a copy of which will be completed and inserted in **Appendix F** after each inspection
- cleaning, repairing, and/or replacing silt fences, construction entrances, swales, temporary sediment tanks, stormwater basins, and rip-rap aprons as necessary
- removal of accumulated sediment from stormwater management facilities as necessary to maintain proper function
- inspection and/or cleaning of roadways daily, or more frequently if otherwise required by Honeywell or a Qualified Inspector
- removing debris and litter monthly or more frequently if necessary
- observation of equipment/vehicles within the work area, particularly for identification of vehicles leaking petroleum products that could enter stormwater drainage facilities.

3.6.2 Post-Construction Operation and Maintenance

Honeywell is responsible for operation and maintenance of stormwater and site facilities. These operation and maintenance activities will include the following:

- clean or sweep public roadways to remove accumulated soil, if necessary
- inspect the swales and rip-rap aprons annually. Remove and dispose of trees, brush, obstructions, and other foreign objects to prevent interference with proper facility function
- maintain seeded areas and reseed or stabilize as necessary to protect against erosion
- repair sloughing or erosion of embankments
- inspect and clean stormwater facilities as necessary to maintain flow capacity to existing SPDES Outfall No. 18 at the prescribed peak discharge rates.

3.7 NON-STORMWATER DISCHARGES

Possible sources of non-stormwater discharges associated with the construction activity that may be combined with stormwater are identified below. Preventive measures identified in this SWPPP will minimize potential impacts to stormwater from these sources.

- water from operation of the SCA will be contained within the SCA and routed through the WTP for treatment
- cleaning water for construction vehicles and equipment and groundwater encountered within excavations will be directed into the SCA WTP or temporary stormwater conveyance piping.
- Honeywell is responsible for identifying areas on-site for construction vehicle transit (*i.e.,* haul roads, trailers and parking areas, *etc*.) or equipment staging, which will be visually inspected
- water used for dust control measures will be applied using proper quantities and equipment

- water main flushings, hydrostatic test water, fire test water, and chlorination test water will not be discharged directly to storm drains. Turbid water will be detained to allow sufficient sedimentation time
- concrete trucks will only be washed out in approved areas. Surplus concrete or drum wash water will not be discharged directly to storm drains.

3.8 INVENTORY FOR POLLUTION PREVENTION PLAN

The materials or substances listed below are expected to be present on-site during construction:

- concrete and concrete products
- paints
- bituminous concrete products
- wood
- roofing materials
- asphalt
- plastics
- diesel and gasoline fuels
- sheet metal
- insulation
- water treatment chemicals
- glass
- silicone (sealants)
- steel
- high density polyethylene (HDPE) liner.

3.9 SPILL PREVENTION

Honeywell will contact the NYSDEC Spills Hotline (1-800-457-7362) if a spill (*e.g.*, hydraulic fluid, gas or oil) occurs on-site during construction. The following are material management practices that will be used by Honeywell to minimize the risk of spills or other accidental exposure of materials and substances to stormwater runoff during construction:

- materials with potential for spillage, stored on-site, will be stored in a neat, orderly manner in their appropriate containers and, if possible, under a roof or other enclosure
- products will be kept in their original containers with the original manufacturer's label
- substances are not to be mixed with one another unless recommended by the manufacturer
- whenever possible, product will be used up or packages resealed before proper disposal of contents and containers off-site
- manufacturers' recommendations for proper use and disposal will be followed
- inspection will be made for proper use and disposal of materials during periodic inspections and recorded on the Inspection Report Forms (**Appendix F**)
- on-site vehicles will be monitored for leaks and receive regular preventative maintenance to minimize the chance of leakage of petroleum products. Petroleum products will be stored in closed containers that are clearly labeled. Used oils will be disposed of properly
- materials will be brought on-site in quantities that limit or minimize the amount of on-site storage

- paint containers will be tightly sealed and properly stored when not required for use. Excess paint, solvents, *etc*. will not be discharged to the storm sewer facilities but will be properly disposed of according to manufacturers' instructions, or State and local regulations.

3.9.1 Spill Control Practices

In addition to the material management practices discussed in the previous section of this SWPPP, the following practices will be followed by Honeywell for spill prevention and cleanup:

- spills of petroleum or other regulated material will be reported to the appropriate State or local government agencies immediately, regardless of size
- manufacturers' recommended methods for spill cleanup will be clearly posted and site personnel will be made aware of the procedures and the location of the information and cleanup supplies
- materials and equipment necessary for spill cleanup will be kept in designated material storage areas on-site. Equipment and materials will include but not be limited to brooms, dust pans, mops, rags, gloves, goggles, spill control materials, sand, sawdust, and trash containers specifically for this purpose
- spills will be cleaned up immediately after discovery
- the spill area will be kept well ventilated and personnel will wear appropriate protective clothing to prevent injury from contact with a hazardous substance
- a spill report will be completed and filed in this SWPPP and will include a description of the spill, what caused it, and the corrective actions taken.

3.10 NOTICE OF TERMINATION

Following final stabilization of the project site as defined in Permit No. GP-0-10-001 (*i.e.,* completion of SCA filling and capping, completion of SCA WTP, decommissioning of temporary facilities), Honeywell will file a SPDES NOT with the NYSDEC. Individual NOTs will not be submitted after completion of each project stage. A blank copy of the NOT Form is included as **Appendix G**.

3.11 RETENTION OF RECORDS

The following records will be retained by Honeywell at the site and for a period of five years from the date the site is finally stabilized:

- SWPPP (including NOI and NOI Acknowledgement letter)
- Contract Documents including Contract Drawings and Technical Specifications
- Inspection Reports
- Contractor Certification(s)
- Correspondence regarding stormwater practices
- NOT.

4. STORMWATER ANALYSES

Stormwater runoff was calculated using Hydraflow Hydrograph Extension for AutoCAD Civil 3D 2008 software which utilizes U.S. Department of Agriculture Natural Resource Conservation Service (USDA NRCS) TR-55 and TR-20 methodologies to perform the hydraulic analysis for each area and the associated discharges. TR-55 methodology was utilized to estimate the peak runoff volumes based on associated cover and soil conditions. Peak discharge rates and volumes were calculated for existing conditions and for each stage of construction through 2016. These calculations are included in **Appendix I** and summarized in this Section.

This Section focuses on stormwater runoff from construction activities proposed for 2011 through 2016. As requested by the NYSDEC, stormwater analyses for the project area after completion of construction and operations (*i.e.,* closure operations) will be provided in a future SWPPP update as needed.

Project related construction stormwater runoff will be managed in accordance with the strategies presented in **Table 3.1**.

4.1 DOWNSTREAM ANALYSIS

O'Brien & Gere performed an analysis of the potential downstream impact of the project on Ninemile Creek in accordance with Section 4.8 of the New York State *Stormwater Management Design Manual* (NYSDEC 2010). Section 4.8 provides an alternate means to manage the flood protection volumes (overbank and extreme flood requirements or 10-year and 100-year 24-hour storms) in accordance with Permit No. GP-0-10-001.

The SCA project area tributary to Ninemile Creek is approximately 114-acres[4]. The Ninemile Creek Watershed upstream of the project area is approximately 100-square miles (mi^2)or 64,000-acres. This equates to about 0.2% of the watershed at that location, significantly less than the 10% referenced in Section 4.8 of the New York State *Stormwater Management Design Manual* (NYSDEC 2010)as the area of study.

Based on the May 1999 Federal Emergency Management Agency (FEMA) Flood Insurance Study for the Town of Camillus, the following data is available from the USGS stations in the vicinity of the project area:

- upstream of Unnamed Tributary (approximately 1.35-miles upstream of the project area)
  - watershed area = 95-mi^2
  - 10-year peak discharge rate = 3,079-cubic feet per second (cfs)
  - 100-year peak discharge rate = 4,179-cfs
- upstream of Geddes Brook (approximately 1.26-miles downstream of the project area)
  - watershed area = 103-mi^2
  - 10-year peak discharge rate = 3,662-cfs
  - 100-year peak discharge rate = 4,969-cfs.

Based on the above information and the stormwater modeling results, the basis of design for this project will be to mitigate peak flow rates to existing SPDES Outfall No. 18 at the following prescribed rates to mitigate potential downstream impacts to Ninemile Creek:

- 4.8-cfs for the 1-year 24-hour storm
- 15.3-cfs for the 10-year 24-hour storm
- 25.9-cfs for the 100-year 24-hour storm.

[4] The slurry pipeline portion of the project area is also contributing runoff to Ninemile Creek but is not expected to significantly increase runoff volumes.

4.2 STORMWATER MODELING

As presented in Section 2, construction of the project facilities will continue to occur in stages defined by calendar year between 2011 and 2016. Facilities associated with construction and operation between 2011 and 2016 have been designed and modeling performed for each yearly stage. The following surface covertypes were utilized in the TR-55 modeling as representative of existing and proposed covertypes within the project area:

- Undeveloped Areas (with existing vegetation)
- Gravel Areas
- Building/Parking Areas
- Geomembrane Lined/Paved Areas
- Operational Areas

The information presented below summarizes the results of the TR-55 calculations.

4.2.1 Existing Conditions (Post - 2010 Construction (Figure 2))

Existing conditions at the Wastebeds preclude off-site stormwater runoff. Therefore, **Table 4.1** presents the peak stormwater volumes for WB-12 and 13 that are either infiltrating into the Wastebeds or being directed to the Camillus Pump Station.

The conditions modeled for existing conditions after completion of facilities described in the 2010 SWPPP are as follows:

WB-13 Model Components

- Undeveloped Area
  - 150.5-acre Undeveloped Area
- Gravel Area
  - 2.3-acre WTP Area on WB-13
  - 1.7-acre Process Area on WB-13
  - 12.5 acre SCA berms
- WB-13 Drainage Area Total = 167-acres

WB-12 Model Components

- Undeveloped Area
  - 103.7-acre Undeveloped Area
- Gravel Area
  - 0.33-acre Trailer Area on WB-12
- WB-12 Drainage Area Total = 104.03-acres

Table 4.1. ***Peak Discharge Rates and Volumes in 2010 (Wastebed Existing Conditions)***

Drainage Area	Storm Event					
	1-year		10-Year		100-year	
	Rate (cfs)	Peak Volume (cf)	Rate (cfs)	Peak Volume (cf)	Rate (cfs)	Peak volume (cf)
WTP preload/staging/ process/gravel areas (HYD 2)	45.7	99,306	82.9	187,659	115.1	265,674
Undeveloped portion of WB-13 (HYD 25)	NA	395,219	NA	1,051,073	NA	1,700,840
WB-12 trailer area (HYD 22)	1.0	2,215	1.7	4,004	2.3	5,573
Undeveloped portion of WB-12 (HYD 26)	NA	278,804	NA	741,472	NA	1,199,843

Lakeshore/Slurry Pipeline/Effluent Pipeline Facilities

The slurry and effluent pipelines will be installed above grade except where subsurface installation is noted on **Figure 1**. Areas disturbed during installation will be restored to existing grade and covertype. Booster Station No. 1 will be installed on a barge on Onondaga Lake. Associated equipment will be placed on the adjacent existing gravel staging area associated with the current West Barrier Wall construction. The temporary office facilities located east of Booster Station No. 2 (see **Figure 1**) will be placed on the existing NYSDOT-owned State Fair Boulevard turnaround. Therefore, since no change in surface covertype is proposed for these project components, stormwater runoff modeling was not performed for these areas.

Existing conditions for the remaining facilities where surface covertype will change consist of:

Booster Station No. 2 (see Figure 9)

- Undeveloped Area
  - 0.096-acre meadow
  - 0.096-acre shrubs

Booster Station No. 3 (see Figure 10)

- Undeveloped Area
  - 0.399-acre meadow

Booster Station No. 4(see Figure 11)

- Undeveloped Area
  - 0.243-acre shrubs

Results of model runs for existing conditions at the Lakeshore/Slurry Pipeline Facilities Area are summarized in **Table 4.2**.

Table 4.2. ***Peak Discharge Rates and Volumes in 2010 (Booster Stations Existing Conditions)***

Drainage Area	Storm Event					
	1-year		10-Year		100-year	
	Rate (cfs)	Peak Volume (cf)	Rate (cfs)	Peak Volume (cf)	Rate (cfs)	Peak volume (cf)
Booster Station No. 2 (HYD 30)	0.2	494	0.5	1,314	0.8	2,127
Booster Station No. 3 (HYD 31)	0.3	899	1.0	2,589	1.7	4,316
Booster Station No. 4 (HYD 32)	0.3	718	0.6	1,818	1.0	2,886

4.2.2 Construction Stages

Results of model runs for the proposed construction stages are presented in **Tables 4.3** through **4.11**. The "Rate" columns represent the rate at which stormwater will run off of the Staging Areas and Building/Parking Areas and the rate at which stormwater will accumulate in the Lined Areas. This column does not represent a discharge rate from the Lined Areas because the stormwater will be retained and pumped to SPDES Outfall No. 18 at or below the prescribed peak discharge rate to Ninemile Creek to mitigate potential downstream impacts.

2011 Construction (Figure 3)

The conditions modeled for the 2011 Construction Stage are as follows. Results of model runs for proposed conditions associated with the 2011 Construction Stage are summarized in **Tables 4.3** and **4.4.**

WB-13 Model Components

- Undeveloped Area
  - 124.7-acre Undeveloped Area
- Gravel Area
  - 1-acre WTP/SCA Staging Area on WB-13
  - 2.1-acre Gravel Access Roads on WB-13
- Building/Parking Area
  - 3.2-acre WTP Building and Parking Area on WB-13
- Geomembrane Lined/Paved Areas
  - 25-acre Phase 1 SCA on WB-13
  - 2.3-acre SCA basin on WB-13
  - 4-acre SCA basin on WB-13
  - 1.7-acre paved Slurry Process Area (SPA) on WB-13
  - 1-acre lined SPA on WB-13
  - 2-acre lined Debris Management Area (DMA) on WB-13
- WB-13 Drainage Area Total = 167-acres

WB-12 Model Components

- Undeveloped Area
  - 103.7-acre Undeveloped Area
- Gravel Area
  - 0.33-acre Trailer Area on WB-12
- WB-12 Drainage Area Total = 104.03-acres

Table 4.3. ***Peak Discharge Rates and Volumes in 2011 (Wastebed Area)***

Drainage Area	Storm Event					
	1-year		10-Year		100-year	
	Rate(cfs)	Peak Volume (cf)	Rate (cfs)	Peak Volume (cf)	Rate (cfs)	Peak volume (cf)
WTP/SPA (HYD 6)	17.3	39,609	30.4	71,592	41.7	99,647
Phase 1 SCA/SCA Basins/DMA (HYD 5)	64.9	242,719	114.2	438,704	157.0	610,619
Staging Area/Gravel Roads (HYD 3)	9.1	20,812	16.0	37,616	21.9	52,357
Undeveloped portion of WB-13 (HYD 27)	NA	327,467	NA	870,891	NA	1,409,266
WB-12 trailer area (HYD 22)	1.0	2,215	1.7	4,004	2.3	5,573
Undeveloped portion of WB-12 (HYD 26)	NA	278,804	NA	741,472	NA	1,199,843

Booster Stations

Booster Station No. 2 (see Figure 9)

- Gravel Area
  - 0.12-acre Gravel Pad
- Paved Area
  - 0.072-acre Booster Station Containment Area

Booster Station No. 3 (see Figure 10)

- Gravel Area
  - 0.32-acre Gravel Road and Pad
- Paved Area
  - 0.079-acre Booster Station Containment Area

Booster Station No. 4 (see Figure 11)

- Gravel Area
  - 0.17-acre Gravel Pad
- Paved Area
  - 0.073-acre Booster Station Containment Area

Table 4.4. ***Peak Discharge Rates and Volumes in 2011 (Booster Stations)***

Drainage Area	Storm Event					
	1-year		10-Year		100-year	
	Rate (cfs)	Peak Volume (cf)	Rate (cfs)	Peak Volume (cf)	Rate (cfs)	Peak volume (cf)
Booster Station No. 2 (HYD 33)	0.6	1,289	1.0	2,330	1.4	3,243
Booster Station No. 3 (HYD 34)	1.2	2,679	2.1	4,842	2.8	6,739
Booster Station No. 4 (HYD 35)	0.7	1,631	1.3	2,949	1.7	4,104

2012 Construction (Figure 4)

The conditions modeled for the 2012 Construction Stage are as follows. Results of model runs for proposed conditions associated with the 2012 Construction Stage are summarized in **Tables 4.5** and **4.6.**

WB-13 Model Components

- Undeveloped Area
  - 102.7-acre Undeveloped Area
- Gravel Area
  - 2.1-acre Gravel Access Roads on WB-13
  - 1-acre SCA Staging Area on WB-13
- Building/Parking Area
  - 3.2-acre WTP Building and Parking Area on WB-13
- Geomembrane Lined/Paved Areas
  - 22-acre Phase 2 SCA on WB-13
- Operational Area
  - 25-acre Phase 1 SCA on WB-13
  - 2-acre DMA on WB-13
  - 2.3-acre SCA basin on WB-13
  - 4-acre SCA basin on WB-13
  - 1-acre lined SPA on WB-13
  - 1.7-acre paved SPA on WB-13
- WB-13 Drainage Area Total = 167-acres

WB-12 Model Components

- Undeveloped Area
  - 103.7-acre Undeveloped Area
- Gravel Area
  - 0.33-acre Trailer Area on WB-12
- WB-12 Drainage Area Total = 104.03-acres

Table 4.5. ***Peak Discharge Rates and Volumes in 2012 (Wastebed Area)***

Drainage Area	Storm Event					
	1-year		10-Year		100-year	
	Rate (cfs)	Peak Volume (cf)	Rate (cfs)	Peak Volume (cf)	Rate (cfs)	Peak volume (cf)
WTP/SPA (HYD 6)	17.3	39,609	30.4	71,592	41.7	99,647
Operational Area (HYD 5)	64.9	242,719	114.2	438,704	157.0	610,619
Phase 2 SCA (HYD 7)	42.9	160,355	75.4	289,834	103.7	403,412
Staging Area/Gravel Roads (HYD 3)	9.1	20,812	16.0	37,616	21.9	52,357
Undeveloped portion of WB-13 (HYD 28)	NA	269,694	NA	717,245	NA	1,160,640
WB-12 trailer area (HYD 22)	1.0	2,215	1.7	4,004	2.3	5,573
Undeveloped portion of WB-12 (HYD 26)	NA	278,804	NA	741,472	NA	1,199,843

Booster Stations

Booster Station No. 2 (see Figure 9)

- Gravel Area
  - 0.12-acre Gravel Pad
- Paved Area
  - 0.072-acre Booster Station Containment Area

Booster Station No. 3 (see Figure 10)

- Gravel Area
  - 0.32-acre Gravel Road and Pad
- Paved Area
  - 0.079-acre Booster Station Containment Area

Booster Station No. 4 (see Figure 11)

- Gravel Area
  - 0.17-acre Gravel Pad
- Paved Area
  - 0.073-acre Booster Station Containment Area

Table 4.6. ***Peak Discharge Rates and Volumes in 2012 (Booster Stations)***

Drainage Area	Storm Event					
	1-year		10-Year		100-year	
	Rate (cfs)	Peak Volume (cf)	Rate (cfs)	Peak Volume (cf)	Rate (cfs)	Peak volume (cf)
Booster Station No. 2 (HYD 33)	0.6	1,289	1.0	2,330	1.4	3,243
Booster Station No. 3 (HYD 34)	1.2	2,679	2.1	4,842	2.8	6,739
Booster Station No. 4 (HYD 35)	0.7	1,631	1.3	2,949	1.7	4,104

2013 Construction (Figure 5)

The conditions modeled for the 2013 Construction Stage are as follows. Results of model runs for proposed conditions associated with the 2013 Construction Stage are summarized in **Tables 4.7** and **4.8.**

WB-13 Model Components

- Undeveloped Area
  - 86.7-acre Undeveloped Area
- Gravel Area
  - 2.1-acre Gravel Access Roads on WB-13
  - 1-acre SCA Staging Area on WB-13
- Building/Parking Area
  - 3.2-acre WTP Building and Parking Area on WB-13
- Geomembrane Lined/Paved Areas
  - 16-acre Phase 3 SCA area, to be built if needed
- Operational Area
  - 25-acre Phase 1 SCA on WB-13
  - 22-acre Phase 2 SCA on WB-13
  - 2.3-acre SCA basin on WB-13
  - 4-acre SCA basin on WB-13
  - 1-acre lined SPA on WB-13
  - 1.7-acre paved SPA on WB-13
  - 2-acre DMA on WB-13
- WB-13 Drainage Area Total = 167-acres

WB-12 Model Components

- Undeveloped Area
  - 103.7-acre Undeveloped Area
- Gravel Area
  - 0.33-acre Trailer Area on WB-12
- WB-12 Drainage Area Total = 104.03-acres

Table 4.7. ***Peak Discharge Rates and Volumes in 2013 (Wastebed Area)***

Drainage Area	Storm Event					
	1-year		10-Year		100-year	
	Rate (cfs)	Peak Volume (cf)	Rate (cfs)	Peak Volume (cf)	Rate (cfs)	Peak volume (cf)
WTP/SPA (HYD 6)	17.3	39,609	30.4	71,592	41.7	99,647
Operational (HYD 14)	125.1	386,103	219.8	697,863	302.1	971,335
Stage 3 SCA (HYD 10)	31.2	116,622	54.9	210,789	75.4	293,391
Staging Area/Gravel Roads (HYD 3)	9.1	20,812	16.0	37,616	21.9	52,357
Undeveloped portion of WB-13 (HYD 29)	NA	227,678	NA	605,503	NA	979,819
WB-12 trailer area (HYD 22)	1.0	2,215	1.7	4,004	2.3	5,573
Undeveloped portion of WB-12 (HYD 26)	NA	278,804	NA	741,472	NA	1,199,843

Booster Stations

Booster Station No. 2 (see Figure 9)

- Gravel Area
  - 0.12-acre Gravel Pad
- Paved Area
  - 0.072-acre Booster Station Containment Area

Booster Station No. 3 (see Figure 10)

- Gravel Area
  - 0.32-acre Gravel Road and Pad
- Paved Area
  - 0.079-acre Booster Station Containment Area

Booster Station No. 4 (see Figure 11)

- Gravel Area
  - 0.17-acre Gravel Pad
- Paved Area
  - 0.073-acre Booster Station Containment Area

Table 4.8. ***Peak Discharge Rates and Volumes in 2013 (Booster Stations)***

Drainage Area	Storm Event					
	1-year		10-Year		100-year	
	Rate (cfs)	Peak Volume (cf)	Rate (cfs)	Peak Volume (cf)	Rate (cfs)	Peak volume (cf)
Booster Station No. 2 (HYD 33)	0.6	1,289	1.0	2,330	1.4	3,243
Booster Station No. 3 (HYD 34)	1.2	2,679	2.1	4,842	2.8	6,739
Booster Station No. 4 (HYD 35)	0.7	1,631	1.3	2,949	1.7	4,104

2014 through 2016 Construction (Figure 6)

The conditions modeled for the 2014 through 2016 Construction Stage are as follows. Results of model runs for proposed conditions associated with the 2014 through 2016 Construction Stage are summarized in **Tables 4.9**. and **4.10.**

WB-13 Model Components

- Undeveloped Area
  - 86.7-acre Undeveloped Area
- Gravel Area
  - 2.1-acre Gravel Access Roads on WB-13
  - 1-acre SCA Staging Area on WB-13
- Building/Parking Area
  - 3.2-acre WTP Building and Parking Area on WB-13
- Geomembrane Lined/Paved Areas
  - none
- Operational Area
  - 25-acre Phase 1 SCA on WB-13
  - 24-acre Phase 2 SCA on WB-13
  - 16-acre Phase 3 SCA area, to be built if needed
  - 2.3-acre SCA basin on WB-13
  - 4-acre SCA basin on WB-13
  - 1-acre lined SPA on WB-13
  - 1.7-acre paved SPA on WB-13
- WB-13 Drainage Area Total = 167-acres

WB-12 Model Components

- Undeveloped Area
  - 103.7-acre Undeveloped Area

- Gravel Area
  - 0.33-acre Trailer Area on WB-12
- WB-12 Drainage Area Total = 104.03-acre

Table 4.9. ***Peak Discharge Rates and Volumes from 2014-2016 (Wastebed Area)***

Drainage Area	Storm Event					
	1-year		10-Year		100-year	
	Rate (cfs)	Peak Volume (cf)	Rate (cfs)	Peak Volume (cf)	Rate (cfs)	Peak volume (cf)
WTP/SPA (HYD 6)	17.3	39,609	30.4	71,592	41.7	99,647
Operational (HYD 15)	161.3	497,815	283.4	899,776	389.5	1,252,372
Staging Area/Gravel Roads (HYD 3)	9.1	20,812	16.0	37,616	21.9	52,357
Undeveloped portion of WB-13 (HYD 29)	NA	227,678	NA	605,503	NA	979,819
WB-12 trailer area (HYD 22)	1.0	2,215	1.7	4,004	2.3	5,573
Undeveloped portion of WB-12 (HYD 26)	NA	278,804	NA	741,472	NA	1,199,843

Booster Stations

Booster Station No. 2 (see Figure 9)

- Gravel Area
  - 0.12-acre Gravel Pad
- Paved Area
  - 0.072-acre Booster Station Containment Area

Booster Station No. 3 (see Figure 10)

- Gravel Area
  - 0.32-acre Gravel Road and Pad
- Paved Area
  - 0.079-acre Booster Station Containment Area

Booster Station No. 4 (see Figure 11)

- Gravel Area
  - 0.17-acre Gravel Pad
- Paved Area
  - 0.073-acre Booster Station Containment Area

Table 4.10. ***Peak Discharge Rates and Volumes in 2014 – 2016 (Lakeshore/Slurry Pipeline Facilities Construction Stage)***

Drainage Area	Storm Event					
	1-year		10-Year		100-year	
	Rate (cfs)	Peak Volume (cf)	Rate (cfs)	Peak Volume (cf)	Rate (cfs)	Peak volume (cf)
Booster Station No. 2 (HYD 33)	0.6	1,289	1.0	2,330	1.4	3,243
Booster Station No. 3 (HYD 34)	1.2	2,679	2.1	4,842	2.8	6,739
Booster Station No. 4 (HYD 35)	0.7	1,631	1.3	2,949	1.7	4,104

FIGURES

Legend

- Booster Pump
- Slurry Pipeline
- WTP Effluent Pipeline
- Subsurface Pipeline Location [Open Pit Method(s)]
- Subsurface Pipeline Location [Trenchless Method(s)]
- Electrical Pole Line
- Electrical Substation
- Wheel Wash Station

0 750 1,500 3,000

Feet

Figure 1

Overall Site Plan

Water Treatment Plant & Sediment Consolidation Area SWPPP

PARSONS
301 Plainfield Road, Suite 350, Syracuse, NY 13212

Legend

- Stormwater Management Strategy No.3
- Electrical Pole Line
- Electrical Substation

0 280 560 1,120

Feet

Figure 2

SCA and WTP Existing Conditions (Post 2010 Construction)

Water Treatment Plant & Sediment Consolidation Area SWPPP

PARSONS

301 Plainfield Road, Suite 350, Syracuse, NY 13212

Legend

- Stormwater Management Strategy No.2
- Stormwater Management Strategy No.3
- Stormwater Management Strategy No.4
- Slurry Pipeline: Above Grade
- WTP Effluent Pipeline
- Electrical Pole Line
- Gravel Road(s) & Parking

0 195 390 780

Feet

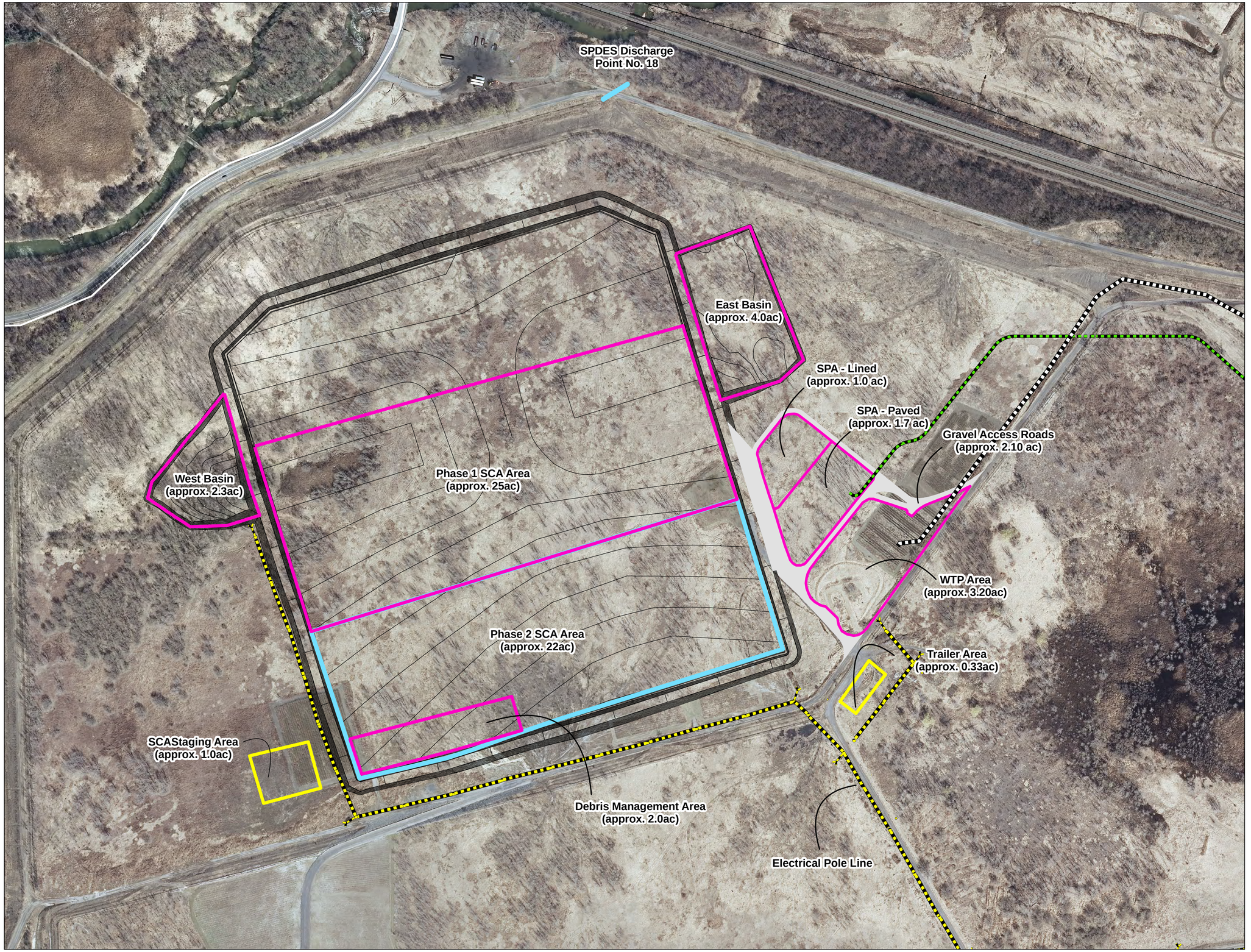
Figure 3

SCA and WTP 2011 Construction

Water Treatment Plant & Sediment Consolidation Area SWPPP

PARSONS

301 Plainfield Road, Suite 350, Syracuse, NY 13212



Legend

- Stormwater Management Strategy No.3
- Stormwater Management Strategy No.4
- Stormwater Management Strategy No.6
- Slurry Pipeline: Above Grade
- WTP Effluent Pipeline
- Electrical Pole Line
- Gravel Road(s) & Parking

0 195 390 780

Feet

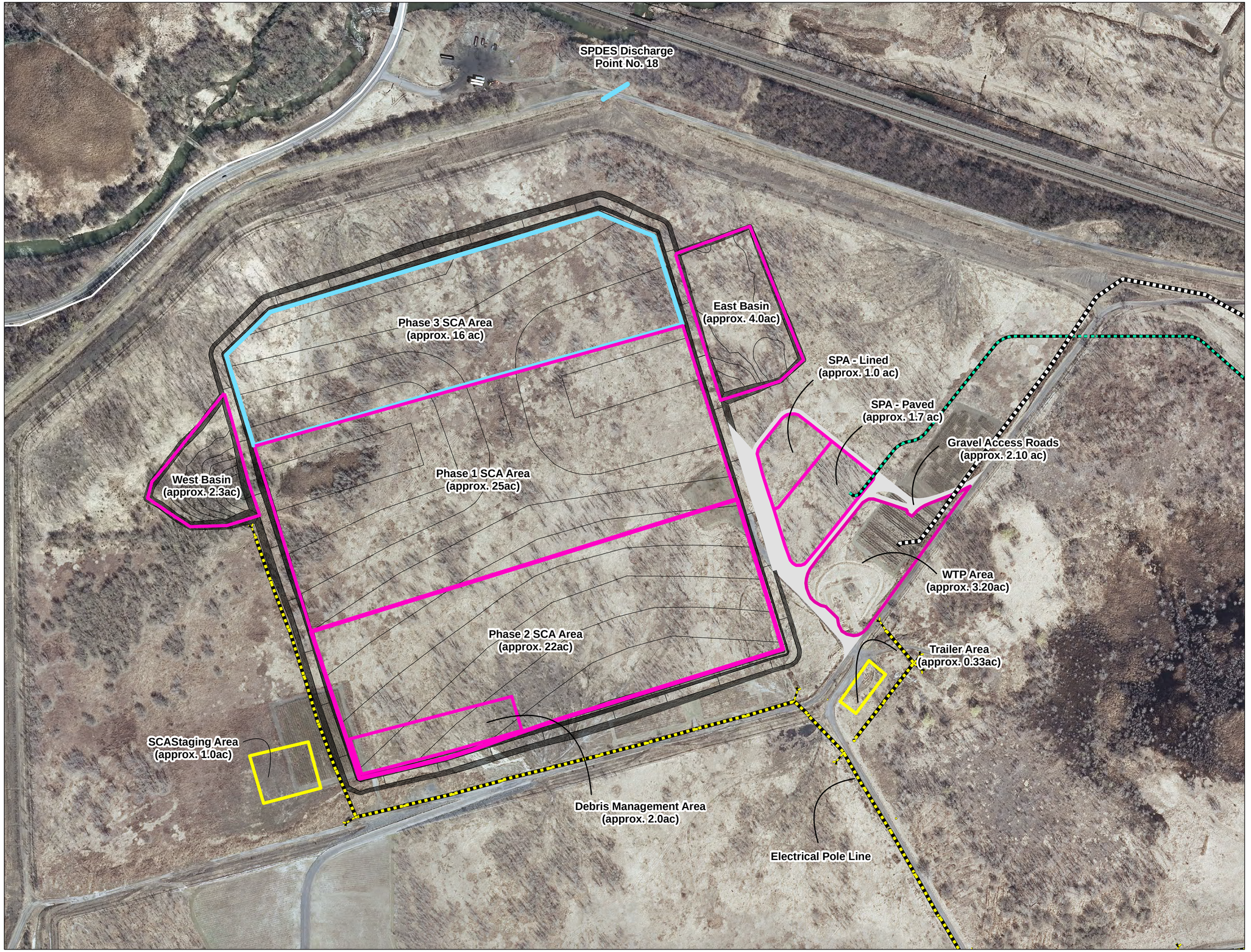
Figure 4

SCA and WTP 2012 Construction

Water Treatment Plant & Sediment Consolidation Area SWPPP

PARSONS

301 Plainfield Road, Suite 350, Syracuse, NY 13212



Legend

- Stormwater Management Strategy No.3
- Stormwater Management Strategy No.4
- Stormwater Management Strategy No.6
- Slurry Pipeline: Above Grade
- WTP Effluent Pipeline
- Electrical Pole Line
- Gravel Road(s) & Parking

0 200 400 800

Feet

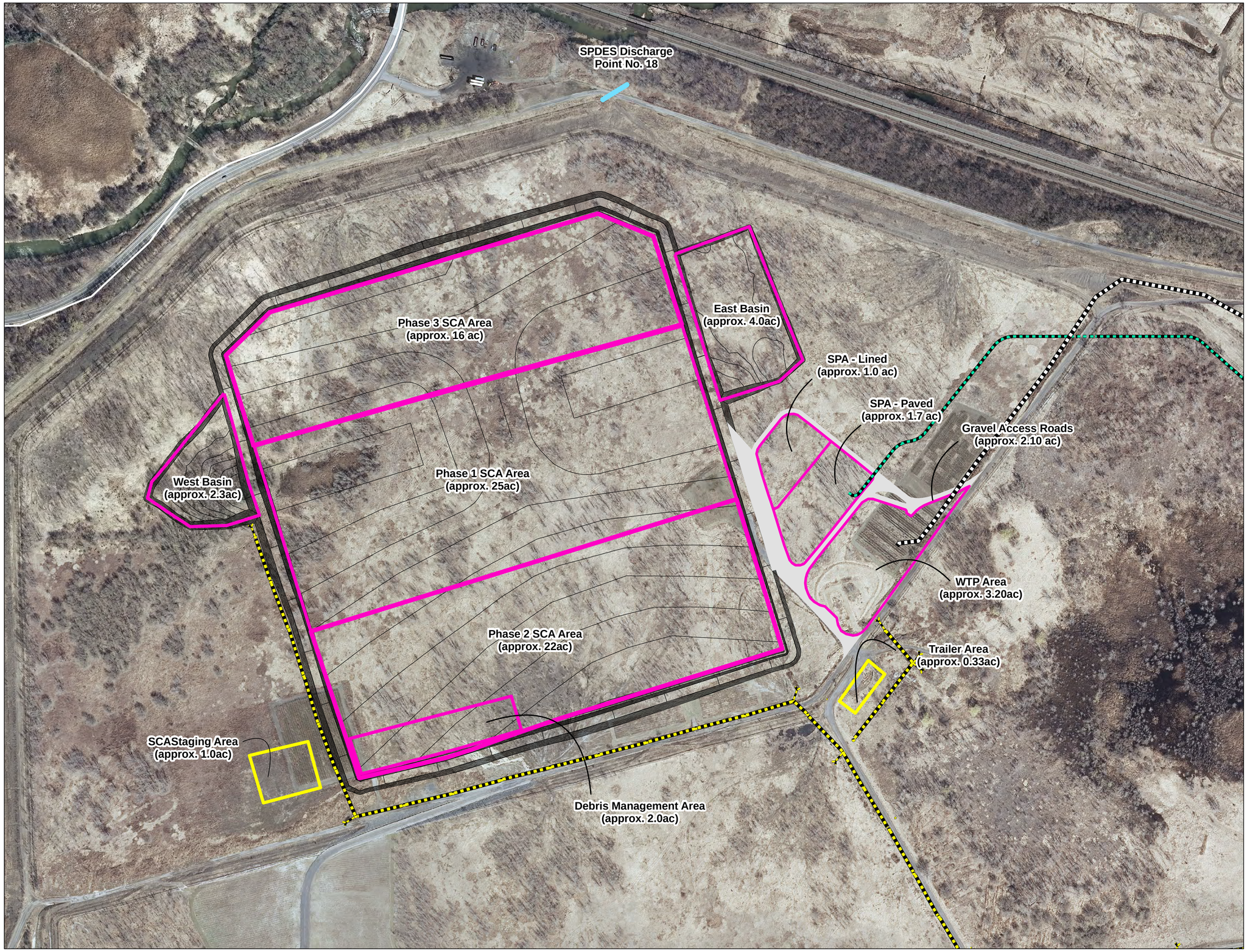
Figure 5

SCA and WTP 2013 Construction

Water Treatment Plant & Sediment Consolidation Area SWPPP

PARSONS

301 Plainfield Road, Suite 350, Syracuse, NY 13212



Legend

- Stormwater Management Strategy No.3
- Stormwater Management Strategy No.6
- Slurry Pipeline: Above Grade
- WTP Effluent Pipeline
- Electrical Pole Line
- Gravel Road(s) & Parking

0 200 400 800

Feet

Figure 6

WTP and SCA 2014 - 2016 Operation

Water Treatment Plant & Sediment Consolidation Area SWPPP

PARSONS

301 Plainfield Road, Suite 350, Syracuse, NY 13212

N

Legend

- Stormwater Management Strategy No.3
- Stormwater Management Strategy No.5
- Booster Pump
- Slurry Pipeline: Above Grade
- Subsurface Slurry Pipeline: Open Trench

0 275 550 1,100

Feet

Figure 7

Lakeshore Facilities

Water Treatment Plant & Sediment Consolidation Area SWPPP

PARSONS

301 Plainfield Road, Suite 350, Syracuse, NY 13212

Legend

- Slurry Pipeline: Above Grade
- Booster Pump

0 30 60 120

Feet

Figure 8

Booster Station No. 1 Layout

Water Treatment Plant & Sediment Consolidation Area SWPPP

PARSONS

301 Plainfield Road, Suite 350, Syracuse, NY 13212

Legend

- Stormwater Management Strategy No.3
- Stormwater Management Strategy No.5
- Booster Pump
- Slurry Pipeline: Above Grade
- Subsurface Slurry Pipeline: Open Trench

0 30 60 120

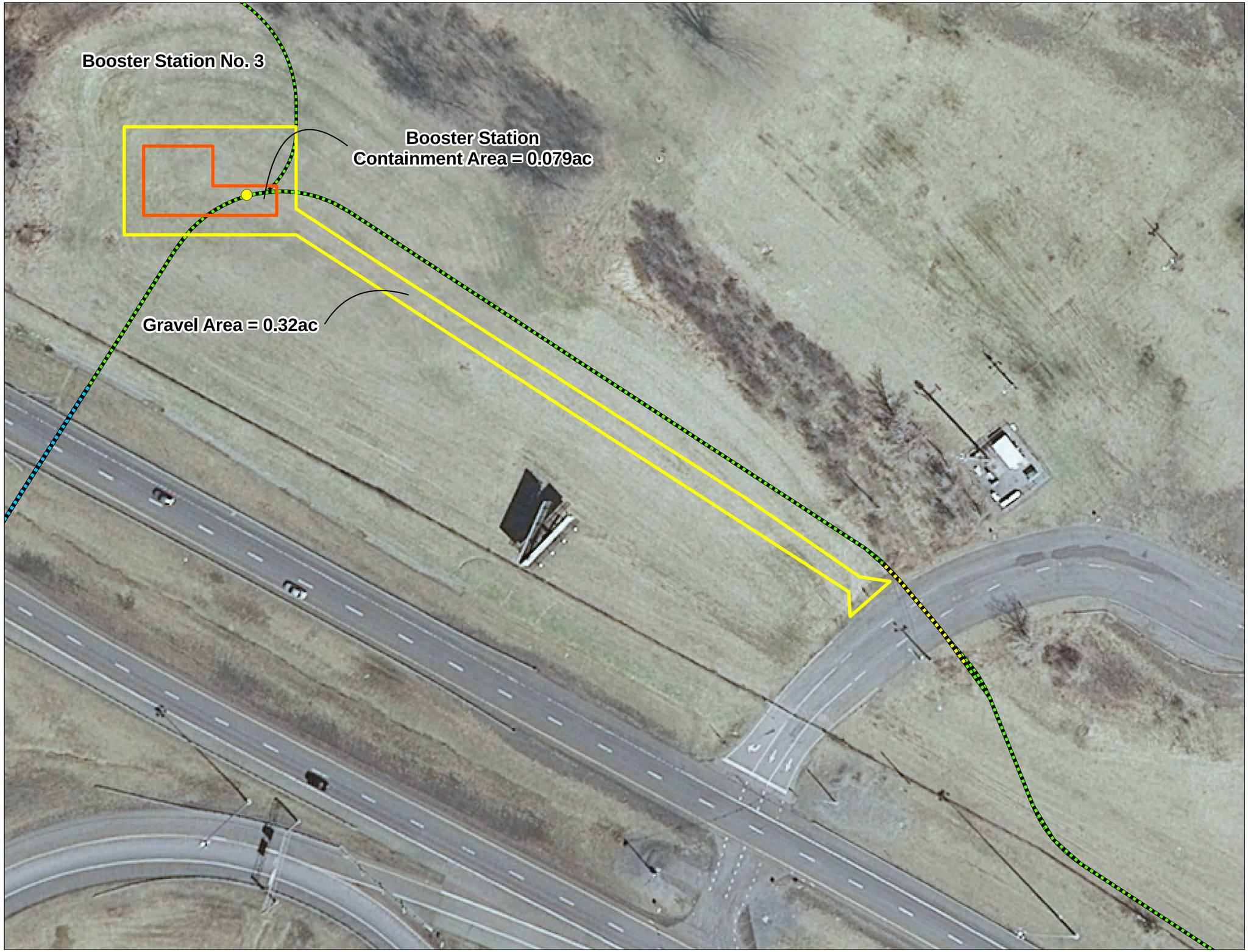
Feet

Figure 9

Booster Station No. 2 Layout

Water Treatment Plant & Sediment Consolidation Area SWPPP

PARSONS
301 Plainfield Road, Suite 350, Syracuse, NY 13212



Legend

- Stormwater Management Strategy No.3
- Stormwater Management Strategy No.5
- Booster Pump
- Slurry Pipeline: Above Grade
- Subsurface Slurry Pipeline: Open Trench
- Subsurface Slurry Pipeline: Trenchless Bore

0 40 80 160

Feet

Figure 10

Booster Station No. 3 Layout

Water Treatment Plant & Sediment Consolidation Area SWPPP

PARSONS
301 Plainfield Road, Suite 350, Syracuse, NY 13212

Legend

- Stormwater Management Strategy No.3
- Stormwater Management Strategy No.5
- Booster Pump
- Slurry Pipeline: Above Grade
- Subsurface Slurry Pipeline: Open Trench
- Subsurface Slurry Pipeline: Trenchless Bore

0 37.5 75 150

Feet

Figure 11

Booster Station No. 4 Layout

Water Treatment Plant & Sediment Consolidation Area SWPPP

PARSONS
301 Plainfield Road, Suite 350, Syracuse, NY 13212

Legend

- Slurry Pipeline
- WTP Effluent Pipeline
- Subsurface Pipeline Location [Open Pit Method(s)]
- Electrical Pole Line
- Electrical Substation

0 250 500 1,000

Feet

Figure 12

Electrical Pole Line and Substation

Water Treatment Plant & Sediment Consolidation Area SWPPP

PARSONS

301 Plainfield Road, Suite 350, Syracuse, NY 13212