

Joint Application for Permit Harbor Brook CSO 018 Constructed Wetlands Pilot Treatment System

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Prepared jointly by



CH2MHILL

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Save the Rain

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Introduction & Overview

As part of Onondaga County's ongoing green infrastructure program, Onondaga County Department of Water Environment Protection (OCDWEP) is proposing to construct a 1.9 acre constructed wetlands pilot treatment system. The wetland system will serve dual purposes of (1) treating CSO 018 overflows currently discharged into Harbor Brook, and (2) acting as a demonstration project to test the effectiveness of three types of constructed treatment wetland systems.

The treatment wetlands to be constructed for pilot testing are: floating wetland island (FWI), vertical downflow (VDF) wetland, and surface flow (SF) wetland. Data collected from this pilot project will allow the project team to assess the performance of each wetland type individually and in series to determine the optimum treatment potential within the larger watershed. In addition to the wetland treatment, grit and floatables removal is included upstream of the wetland pilot system. A more detailed project description and design parameters are provided in the Design Report submitted with this application under separate cover. In addition, OCDWEP has begun communicating with community stakeholder groups regarding modifications to the site and the long-term benefits. Historically stakeholder groups have been receptive to the idea of expanded wetlands used for treatment at this location.

The project will require authorization from the U.S. Army Corps of Engineers (USACE) under Nationwide Permit (NWP) No. 43 - *Stormwater Management Facilities*, and by the New York State Department of Environmental Conservation (NYSDEC) for Section 401 Water Quality Certification and Article 15 Protection of Waters. A Joint Application for Permit Pre-Construction Notification (PCN) for wetland disturbances associated with the proposed construction of the wetland treatment pilot project is provided in Attachment 1. In addition, Combined Sewer Overflow (CSO) 018 will be modified and relocated requiring a modification of the existing State Pollutant Discharge Elimination System (SPDES) permit for this CSO. This is addressed further in Section 8 and Attachment 6 of this application.

The project site is located southeast of the intersection of Velasko Road and Grand Avenue in the City of Syracuse, NY. The approximate coordinates for the center of the site are Latitude 43° 2.163' N /Longitude 76° 11.012' W and is located on the Syracuse West USGS Quadrangle (Figure 1).

Project Description

The Harbor Brook CSO 018 Constructed Wetlands Pilot Treatment System is being conducted by Onondaga County to improve the quality of stormwater being discharged into Onondaga Lake. Building upon previous investigations by faculty at the State University of New York College of Environmental Science and Forestry (SUNY-ESF) over the past 30 years, the project serves dual purposes of (1) treating CSO 018 overflows currently discharged into Harbor Brook, and (2) acting as a demonstration project to test the effectiveness of three types of constructed treatment wetland systems. Based on the knowledge gained as a result of this demonstration project, these wetland systems may be integrated as part of a larger constructed wetland treatment system along Harbor Brook with additional water quality, natural habitat, recreational, educational, and other community benefits.

The project will be located within the ~34 contiguous acres of Onondaga County owned land which is bounded by Velasko Rd., Grand Ave., W. Onondaga St., and Holden St. on the West Side of the City of Syracuse. This property serves primarily as an engineered drainage basin, (Velasko Road Detention Basin) used for flood control purposes.

The proposed pilot treatment system will consist of a grit and floatables removal system, located upstream of a constructed wetlands pilot treatment system. The treatment system will operate as follows: When a rain event occurs, combined sewer flows will begin to surge in the grit and floatables removal system. This system will remove the majority of grit and floatables before conveyance to the wetlands treatment system. The constructed wetlands will consist of three (3) separate and distinct wetland cells of different types of wetlands (i.e., floating wetland island, vertical downflow wetland, and surface flow wetland) which can be operated in either series or parallel flow patterns. This will allow for flexibility to monitor the removal efficiency of key contaminants in each wetland cell. Once the storm event flows have passed through the constructed wetlands, it will be discharged to Harbor Brook. Storm event flows in excess of the 40 cfs peak flow from a 1 year 2 hour storm will discharge from the grit & floatables facility through an overflow weir back to the existing 48" Rowland Trunk Sewer for conveyance into the new Harbor Brook Interceptor Sewer or HBIS (if excess capacity exists) or routed around the treatment wetlands for direct discharge to Harbor Brook via the facility outlet pipe. Full size project plans are provided under separate cover.

At the preliminary design stage, components of the Harbor Brook CSO 018 Constructed Wetlands Pilot Treatment project are expected to include the following (see also Design Report provided under separate cover):

Grit and Floatables Removal

The project will include a grit and floatables removal system to be located in the southern portion of the project site. The proposed grit and floatables removal system is sized to treat flow rates up to 40 cfs, as produced by the 1 year, 2 hour storm event at CSO 018, and remove 95% of grit, 300 microns and greater in size. The design prototype uses vortex separation technology,

and consists of a circular vortex chamber, with an automatic discharge siphon, and sanitary sewer return piping. When the flow in the sanitary sewer system reaches the designed level, the water will overflow to the circular vortex chamber. Floatables and water will be collected on a conical screen and returned to the sanitary system through the return piping; grit will be removed through a separate return pipe off the bottom of the vortex chamber. As the water level continues to rise within the chamber, the treated water will be discharged through the automatic siphon to the constructed wetlands.

Demonstration Wetlands

Three (3) types of wetland cells have been selected for inclusion in this full scale pilot project to determine the optimal CSO treatment potential and configuration (in series, in parallel, and in series/parallel). These include Floating Wetland Island (FWI), Vertical Down Flow (VDF), and Surface Flow (SF) wetlands. Flow control structures will be configured to allow discharge from the Grit & Floatables Removal Facility to enter each wetland cell directly and then be discharged directly to Harbor Brook (parallel operation). In addition, the wetlands will be able to operate in series, flowing from the FWI to the VDF and then finally to the SF cell or in a combination of parallel and series with flow discharge from the FWI being split between the VDF and the SF wetlands before combining and discharging to Harbor Brook. A brief description of each follows.

Floating Wetland Island (FWI)

The FWI treatment wetland consists of man-made floating islands of emergent wetland vegetation with roots that extend downward into the water column. The FWI will be placed at the front end of the wetland system to provide storage as well as water quality improvement, attenuation, and equalization of the flow.

Vertical Downflow (VDF) Wetland

The VDF wetland cell will have water entering either directly from CSO 018 or from the overflow/orifice of the FWI cell. CSO water will flow across the top of the wetland and percolate down through the wetland gravel bed where the water will be collected in a header piping system and then overtop the outflow structure at a controlled rate. An orifice in the overflow control structure will allow this wetland cell to be partially drained thereby increasing the hydraulic retention time (HRT) of the system following the rain event and also to maximize the storage capacity of the entire wetland system for the next rain event. The drained level will be set to allow for root penetration to that depth so that the wetland plants stay hydrated.

Surface Flow (SF) Wetland

The SF wetland will most closely resemble a natural wetland. It will have a vegetated shelf that will be about one-half to one foot deep under dry weather water level conditions and several deep water areas, approximately 4 feet deep, perpendicular to the flow (deep zones) that will help to redistribute flow to reduce the potential for short circuiting, and will provide aeration. The SF cell will also have the potential for increased water depth for greater CSO water storage and treatment prior to overflowing to Harbor Brook. As with the other cells, the outflow structure will have an orifice that will allow the flow to slowly discharge thereby providing a longer retention time and improved water quality.

Vegetation

The wetland cells will be planted/seeded with a range of emergent vegetation that is suited for the anticipated water depths, and provides good nutrient uptake and pollutant filtration. The FWI cell will likely have greater diversity of vegetation since the depth of water over the root portion of the plants will be consistently low, with the roots themselves always submerged. The VDF wetland cell is expected to have less diversity and consist of hardy emergent species because this cell will be flooded and drained regularly. Cattail and bulrush are the most likely candidate species. The SF wetland with the constant standing water and regular flooding may include diversity similar to the floating wetland, but the overall goal is to establish plantings that can withstand the variable flooding and poor water quality.

Berms

Berms will be constructed to heights required to provide the required storage in the wetland cells and protect the wetlands from rising stormwater within the Velasko Road Detention Basin. The berms have been designed with emergency spillways to allow the free flow of flood waters into and out of the wetland cells. During storm events where the water storage required in the Velasko Road Detention Basin exceeds the spillway elevation of the lower wetland cells, the wetland cells will be flooded with stormwater. As the storage volume recedes, storm water will be released through the emergency spillway until it reaches the spillway elevation. Water in the cells below the spillway elevation will be stored until the Velasko Road Detention Basin recedes to an elevation which allows the remaining water in the cells to flow through the wetlands to the Harbor Brook outfall.

Compensatory Storage

Construction of the wetland treatment system will reduce the storage volume available in the Velasko Road Detention Basin. As such it will be necessary to make up that storage volume lost to the wetlands by constructing compensatory storage areas. Figure 10 in the Design Report identifies the areas within the Velasko Road Detention Basin where the required compensatory storage will be provided.

Wetland Level Control

Flow control through the constructed wetlands will consist of a series of flow diversion structures (FDS) combined with pressure transducers located in each wetland cell. Please refer to the Basis-of-Design drawings for the locations of the diversions structures within the constructed wetlands system.

Discharge to Harbor Brook

The proposed discharge location is to an existing (modified) drainage ditch that discharges to Harbor Brook just up gradient of the existing flow control structure (Velasko Road Detention Basin outlet) on the project site. Refer to the Basis of Design Drawings for specific design information.

Operation

Once the pilot system is constructed and operational, the data collected from this pilot system will allow the project team to assess the performance of each wetland type individually and in series to determine the optimum treatment potential within the larger watershed. A detailed maintenance and monitoring plan will be developed for the treatment wetland system;



operations and maintenance requirements are expected to include monitoring and cleaning inflow/outflow structures in each wetland cell, vegetation and wildlife monitoring, and water quality sampling and analysis. An adaptive management approach will be taken to build upon knowledge gained incrementally throughout the project, as well as recent information gained from other wetland systems in North America and Europe to achieve a pragmatic and practical final design.

The benefits of this project are expected to be significant. The system has been designed to treat flows from CSO 018 for the 1 year, 2 hour storm event. As a result, the wetlands should provide some immediate water quality benefit to Harbor Brook as well as a small, incremental benefit to Onondaga Lake. Additionally, the results of the pilot study will provide valuable information on the effectiveness of the three wetland systems. It is expected that additional treatment wetland systems can be implemented elsewhere in the Onondaga Lake Watershed to treat flows from other CSOs. This could become an important tool in the establishment of “green infrastructure” to improve water quality.

Existing Conditions

Various maps and other background data were reviewed for information pertaining to the environmental resources that occur at or near the project site. The following maps and websites were reviewed and are included in Attachment 2:

- United States Geological Survey (USGS) 7.5 minute topographic map (Syracuse West Quadrangle Attachment 2, Figure 1).
- U. S. Department of Agriculture, Natural Resources Conservation Service Soil Survey of Onondaga County, New York (USDA-NRCA Soil Data Mart dated February 18, 2010). Soils descriptions were taken from NRCS Web Soil Survey Version 5, dated Feb 18, 2010 (Attachment 2, Figure 2).
- FEMA Flood Insurance Rate Map Community Panel Number 360595-0003E (Attachment 2, Figure 3).
- New York State Department of Environmental Conservation (NYSDEC) Freshwater Wetland Map (Syracuse West Quadrangle Attachment 2, Figure 4).
- United States Department of the Interior, Fish and Wildlife Service (USFWS) National Wetland Inventory (NWI) map (Attachment 2, Figure 5)
- Sanborn Maps – Sanborn Online (Attachment 2, Figure 8).

Topography

According to Attachment 2, Figure 1, the site is in a relatively flat area bound by steep slopes. The site elevation is approximately 395 feet above mean sea level. No buildings or similar structures are located on the site. A topographic survey was also conducted for the site. This is shown on the project impact map provided in Attachment 4 and on the Design Drawings (under separate cover).

Soils

Soils within the project area consist of Teel silt loam (Te) and Wayland silt loam (WM). Of the soils that occur on the project site only the Wayland soil is considered hydric.

- TEEL - COARSE-SILTY, MIXED, ACTIVE, MESIC FLUVAQUENTIC EUTRUDEPTS. The Teel series consists of very deep, moderately well drained soils on floodplains. They formed in nearly level, silty alluvial deposits. Permeability is moderate throughout the solum.
- WAYLAND - FINE-SILTY, MIXED, ACTIVE, NONACID, MESIC FLUVAQUENTIC ENDOAQUEPTS. The Wayland series consists of very deep, poorly drained and very poorly drained, nearly level soils formed in recent alluvium. These soils are in low areas or slackwater areas on flood plains. Saturated hydraulic conductivity is moderately high or high in the mineral soil.

Vegetative Community Types

Five vegetative community types were identified within the project site. The vegetative communities identified on-site include: mowed lawn, unpaved road/path, reedgrass/purple loosestrife marsh (PEM1), ditch/artificial intermittent stream (R4UB1) and marsh headwater stream (R2UB1). These communities are identified on Figure 6.

Streams and Floodplains

Adjacent to the project site Harbor Brook is classified by the NYSDEC as a Class B, Standard B stream.

According to the Flood Insurance Rate Map (Attachment 2, Figure 3), the project site is located within a Floodzone with a designation of A5 which is an area of 100-year flood; base elevations and flood hazard factors have been determined. This mapping is old and more current mapping is being developed. However, the site is also located within a flood control basin with a controlled outlet (dam) in the stream. The history and characteristics of this basin are discussed in Section 2.1.3.4 of the Design Report.

Wetlands

The NYSDEC Freshwater Wetlands map (Attachment 2, Figure 4) illustrates that no mapped NYS-regulated wetlands occur within or in close proximity to the project site. The project site does not occur within the regulated 100-foot Adjacent Area of any NYS-regulated wetlands.

The NWI map illustrates the potential presence of one forested wetland (PFO1C) within the project site. No other mapped wetlands are illustrated within or abutting the project site. Field assessment revealed that the forested wetland does not exist on the site but other emergent wetland communities are present.

To determine the extent of federally jurisdictional wetlands within the limits of Onondaga County owned property, CHA conducted a wetland delineation on November 29, 2010, in accordance with procedures provided in the 1987 Corps Wetland Delineation Manual and the *Interim Regional Supplement to the Corps of Engineers Wetland Manual: Northcentral and Northeast Region* (October 2009)¹.

The wetland boundaries were determined in the field based on the three parameter approach, whereby an area is a wetland if it exhibits vegetation adapted to wet conditions (hydrophytes), hydric soils, and the presence or evidence of water at or near the soil surface during the growing season (hydrology).

A Wetland Delineation Report and request for boundary verification were submitted to the USACE on March 25, 2011.

Based on the methodology discussed above, three wetlands (designated A, B and C) were identified and delineated (Attachment 2, Figure 7), with only a small portion of Wetland A occurring within the proposed project area. Additionally, two streams (Harbor Brook and

¹ U.S. Army Corps of Engineers. 2009. *Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region*, ed. J. S. Wakley, R. W. Lichvar, and C. V. Noble. ERDC/EL TR-09-19. Vicksburg, MS: U.S. Army Engineer Research and Development Center.

Stream A) were also identified and delineated near the project site. The characteristics of these wetlands and streams are identified in Table 1 below.

**Table 1
Vegetative Communities and Species Compositions**

Wetland ID	Stream ID	Community Type	Dominant Vegetation & Characteristics
A	--	Reedgrass/Purple Loosestrife Marsh (PEM1)	Common reed and purple loosestrife are dominant and constitute greater than 90% of the vegetative cover of this wetland.
	Harbor Brook	Marsh Headwater Stream (R2UB1)	Bankfull width (BFW) = ~20'; bankfull depth (BFD) = 18"; muddy gravel substrate; swift water flow (~12" deep) at time of survey; perennial; 100% run; perennial; aquatic plants within stream channel; minnows and macroinvertebrates likely; receives some seasonal shading from surrounding tall herbaceous vegetation; occurs within an unconfined landscape so floodplain is broad.
	A	Ditch/Artificial Intermittent Stream (R4UB1)	BFW = 2.5'; BFD = 8"; cobble gravel substrate; gentle water flow (~2" deep) at time of survey; probably intermittent; 25% riffle/75% run; aquatic vegetation within stream in lower half of this stream near Harbor Brook but not in the upper half of this stream; small minnows may be present seasonally; macroinvertebrates likely; receives some seasonal shading from surrounding tall herbaceous vegetation; occurs within an unconfined landscape so its floodplain is broad.
B	--	Reedgrass/Purple Loosestrife Marsh (PEM1)	Poverty rush, common reed and redtop grass (<i>Agrostis alba</i>) are dominant. This area appears to be maintained by mowing.
C	--	Reedgrass/Purple Loosestrife Marsh (PEM1)	Common reed dominates some portions of this wetland and Japanese knotweed dominates other portions. The center line of this linear wetland has standing water. The standing water area had iron-stained algae and wind-blown trash within it.

Wetland/Stream A is the largest wetland/stream system of the project site and is composed of reedgrass/purple loosestrife marsh and a small segment of ditch/artificial intermittent stream and Harbor Brook. This entire wetland/stream system occurs within an engineered floodplain/detention basin created for the protection of neighborhoods downstream. The communities of this wetland/stream system are described as follows:

Wetland A consists of reedgrass/purple loosestrife marsh (PEM1) and ditch/artificial intermittent stream (R4UB1). Harbor Brook (R2UB1) flows through the main portion of this wetland. This thickly-vegetated wetland had saturated soils when it was delineated. Harbor Brook and the ditch/artificial intermittent stream both had flowing water when the site was delineated.

Common reed has become well established and is the dominant vegetative cover; forming monotypic stands in most areas. Purple loosestrife is also abundant, mostly occurring along the outer edges of the wetland. Drier portions of this wetland appear to have been mowed, which has suppressed the common reed and purple loosestrife in these areas allowing poverty rush and redtop grass to be dominant with lesser occurrences of sedges, asters (*Symphotrichum sp.*) and goldenrods (*Solidago sp.*).

This wetland appears to receive semi permanent hydrology from groundwater near the soil surface. Rainfall, runoff and seasonal flooding by Harbor Brook are likely secondary hydrology sources. Hydrology indicators observed include soil saturation (A3) within 12 inches of the soil surface, a high water table (A2), oxidized rhizospheres on living roots (C3) and sediment deposits (B2) in some areas.

Hydric soil indicators include a low chroma (1) soil matrix with distinct and prominent mottles within the upper 12 inches of the soil surface.

Stream A is a small ditch/artificial intermittent stream. This stream begins at a culvert outlet (at the coordinates shown on the wetland delineation map – Attachment 2, Figure 7) and flows a short distance to its confluence with Harbor Brook. This narrow, mostly unvegetated channel has cobble gravel substrate and 2-3 inches of flowing water under normal flow conditions. The lower portion of this stream contains some aquatic vegetation. It appears that this stream receives water from delineated Wetland C. Water flows from Wetland C through a culvert and the culvert outlet is the beginning of Stream A. It is also the outfall of CSO 018.

Harbor Brook is a mapped perennial stream which flows east through the central portion of the site. According to Sanborn Maps this stream was straightened sometime between 1911 and 1951 (Attachment 2, Figure 8) and may have been further manipulated since then. Harbor Brook enters the Velasko Road Detention Basin through a large concrete box culvert that serves to convey flows beneath Velasko Road. It flows east through the site within a muddy gravel channel. The stream bed contains aquatic vegetation and has +/-12 inches of flowing water under normal flow conditions. Near the eastern extent of the site Harbor Brook flows through a concrete control structure and is then contained within a concrete channel.

Wetland B is a small isolated patch of reedgrass/purple loosestrife marsh (PEM1) that occurs in a slight topographic depression near the western boundary of the project site. This wetland does not have a surface water connection to the nearby wetlands or streams. This wetland is either a remnant portion of wetland or a wetland that formed from soil compaction associated with the area's manipulated landscape for flood storage. Its soils were saturated at the time of



the delineation. Common reed dominates some portions of this wetland. Other areas that are dominated by sphagnum moss and poverty rush appear to have been mowed in the past.

Wetland B receives hydrology from groundwater, precipitation and runoff from surrounding lands. Hydrology indicators include soil saturation (A3) within the upper 12 inches, a high water table (A2) and oxidized rhizospheres on living roots (C3).

Hydric soil indicators of Wetland B include a low chroma soil matrix with distinct mottles within the upper 16 inches of the soil surface.

Wetland C is a linear wetland ditch composed of reedgrass/purple loosestrife marsh. This wetland is linear and the center ditch line was inundated with approximately 6 to 12 inches of water. The "banks" had saturated soils and were dominated by common reed (*Phragmites australis*) and Japanese knotweed (*Polygonum cuspidatum*). Open water with algae occurs in the lower, center portion of the wetland. This wetland occurs within a topographic depression and has a culverted inlet and a culverted outlet. Boxelder trees are present along the edges of the wetland.

This wetland receives hydrology from groundwater, precipitation and runoff. Hydrology indicators include surface water (A1), a high water table (A2) and soil saturation (A3) within the upper 12 inches of the soil surface.

Hydric soil indicators include a low chroma (2) soil matrix with prominent mottling.

Impacts

The proposed project will have limited adverse impacts on the aquatic resources within the project site. These impacts are discussed in this section. The project impact plan is provided in Attachment 4.

Wetland A

Construction of the treatment wetlands will require the relocation of an existing wetland ditch located in the eastern portion of the project site. This ditch was likely constructed to drain the larger wetland area located to the south of the project site that resulted from previous excavations within the Velasko Road Detention Basin. The ditch is approximately 290 feet long and on average 30 feet wide. It is a broad, flat gradient ditch with no definable scour channel and completely covered with vegetation, primarily *Phragmites*. Table 2 quantifies the impacts to aquatic resources within the project area.

In order to maintain the hydrologic connection between the larger portion of Wetland A to the south with Harbor Brook, the ditch will be relocated to the east, around the wetland treatment project and reconnect to Harbor Brook at the existing location. The portion of the wetland ditch that extends through the created wetlands will be filled or otherwise eliminated through grading for the constructed wetland cells.

Table 2
Wetland Impact Summary

Wetland	Community Type	Total Wetland Area/Stream Length Within JD Boundary	Impacts to Jurisdictional Wetlands
A	Emergent	9.2 acres	0.18± acres
	Marsh Headwater Stream	1622 linear feet	*
	Ditch/Artificial Intermittent Stream	140 linear feet	*
B	Emergent	0.09 acre	*
C	Emergent	0.37 acre	*
Total	*	9.66 acres 1762 linear feet	0.18± acres (± 7,735sq ft)

As a result of the ditch relocation, re-grading of the confluence of the existing wetland ditch and Harbor Brook will result in minor bed and bank disturbances to Harbor Brook in this immediate location. This impact is included in the area calculations provided in Table 2. This impact will trigger the need for an Article 15 Protection of Waters permit from NYSDEC. A discussion of the Standards for Permit Issuance is provided in Section 9 of this application.

Proposed Mitigation

Wetland Functions & Values

The functions and relative values of wetlands are typically determined by biological and physical characteristics, including the position of the wetland in the landscape, the geology and hydrology of the site, and the substrate and vegetation comprising the wetlands. In order to assess the contribution of the impacted wetlands to the overall watershed, the functional capacity of the impacted wetlands was assessed using the Highway Methodology approach to the functional assessment of wetlands.

This evaluation method uses a qualitative descriptive approach, designed by the Corps New England Division Regulatory Program, to determine the principal function and values of the wetlands, to provide guidance to permit applicants, consultants and USACE.

The method recognizes seven functions and six values of wetlands, provided in Table 3.

Table 3
Wetland Functions & Values

Functions	Description²
Groundwater Recharge / Discharge	Considers the potential for a wetland to serve as groundwater recharge and or discharge area. Recharge relates to the potential for the wetland to contribute water to an aquifer. Discharge relates to the potential for the wetland to serve as an area where ground water can be discharged to the surface.
Floodflow Alteration	Considers the effectiveness of the wetland in reducing flood damage by attenuation of floodwaters for prolonged periods following precipitation events.
Fish and Shellfish Habitat	Considers the effectiveness of seasonal or permanent waterbodies associated with the wetland for fish and shellfish habitat.
Sediment/Toxicant/ Pathogen Retention	Considers the effectiveness of the wetland as a trap for sediments, toxicants or pathogens to reduce degradation of water quality.
Nutrient Removal/Retention/ Transformation	Considers the effectiveness of the wetland to prevent adverse effects of excess nutrients entering aquifers or surface waters such as ponds, lakes, streams, rivers or estuaries.
Production Export (Nutrient)	Considers the effectiveness of the wetland to produce food or usable products for human or other living organisms.
Sediment/Shoreline Stabilization	Considers the effectiveness of the wetland to stabilize stream banks and shorelines against erosion.

² Source: Wetland Functions and Values – A Descriptive Approach²

Values	Description
Wildlife Habitat	Considers the effectiveness of the wetland to provide habitat for various types and populations of animals typically associated with wetlands and the wetland edge.
Recreation	Considers the effectiveness of the wetland and associated watercourses to provide recreational opportunities such as canoeing, boating, fishing, hunting, and other active or passive recreational activities.
Educational/ Scientific Value	Considers the effectiveness of the wetland as a site for an “outdoor classroom” or as a location for scientific study or research.
Uniqueness/ Heritage	Considers the effectiveness of the wetland or its associated waterbodies to produce certain special values. Special values may include such things as archaeological sites, unusual aesthetics quality, historical events, or unique plants, or animals.
Visual Quality/ Aesthetics	Considers the visual and aesthetic qualities of the wetland.
Threatened or Endangered Species Habitat	Considers the effectiveness of the wetland or associated bodies of water to support Threatened or Endangered species.

A wetland evaluation form was developed to record all pertinent information on each impacted wetland in order to determine the presence or absence of each listed function and value, as well as determine the principal function and value (Attachment 3).

A standard list of rationale factors was developed for each of the identified functions and values to aid the evaluator in determining the principal function and value. Each rationale that meets the impacted wetland for that given function or value is recorded. The functions and values are then evaluated separately, each given a percentage based on the number of rationale listed for that function or value the wetland meets over the total amount of rationale listed for that feature; the highest of each being the principal function and value. Since most wetlands contain each function and value to some degree, determining the principle function and value is important for evaluating projects with multiple wetlands.

Wetland A

Based on the results of the evaluation, the impacted portion of Wetland A primarily functions to provide stormwater storage/floodflow alteration. Due to its location within the watershed and the surrounding land use, this wetland also exhibits sediment retention and nutrient removal functions. Wetland A is located within a topographical depression and acts as a ditch providing a hydrological connection between a larger wetland located south of the project area and Harbor Brook. During spring runoff and normal rain events water from the larger wetland area drains through this ditched wetland into Harbor Brook. However during extreme rain events water from Harbor Brook floods into the entire surrounding area. Based on the topographical gradient within the site, it is evident this wetland secondarily receives runoff from the surrounding upland areas.

For mitigation purposes, at a minimum, replacement wetlands will need to replace the functions and values of the impacted wetlands. Wetland mitigation will consist of moving the wetland ditch to the east to provide enough area for the pilot wetland study area. The proposed relocated wetland ditch will resemble the existing wetland ditch. The new ditch

alignment will be enhanced through the establishment of an emergent wetland with some areas of scrub-shrub wetland, intended to provide bank stabilization. The ditch will also be longer than the existing ditch providing for more stormwater storage as well as enhancing water quality. A wetland mitigation maintenance and monitoring plan is provided in Attachment 4.

Wetland Mitigation Maintenance & Monitoring Plan

The intent of the proposed wetland ditch relocation is to replace and enhance the existing functions and values provided by the 0.18 acre of wetland ditch proposed to be impacted by the project. This will be achieved by planting native vegetative species and implementing an invasive species management plan.

Construction

The limits of the proposed Wetland Ditch Relocation are shown on the plan sheets in (Attachment 4). The boundary of this area will be defined by GPS coordinates upon acceptance of final design and will be survey delineated before the start of construction.

The construction of the project is scheduled to start in the summer/fall of 2011. Construction of the wetland ditch relocation will commence at the onset of the project construction.

Standard construction equipment, such as dump trucks, pick-up trucks, a track hoe, a small bulldozer, a skidsteer and a variety of hand tools will be used to construct the relocated ditch. The proposed work involves the excavation and stabilization of soil and the installation of plant materials in keeping with the wetland and terrestrial planting specifications shown on the plan sheets.

The proposed project will not involve pumping, fuming or diverting flowing or standing water except as necessitated by stormwater events. A Stormwater Pollution Prevention Plan (SWPPP) will be developed for the overall pilot treatment wetland project and will be submitted to Onondaga County for approval. A copy of the SWPPP will be maintained on-site during construction. A copy will also be provided to NYSDEC in support of issuing Water Quality Certification. A 5-acre waiver may be required from NYSDEC and will be sought, if necessary, upon approval of the Notice of Intent by the County in accordance with the Municipal Separate Storm Sewer Systems (MS4) program.

The planting and seeding will occur when the highest survival rates of plants can be achieved. Planting will occur either during the spring (April 1st to May 31st) or in the fall (September 1st to November 1st).

As-built plans will be provided with the first year's monitoring report.

Hydrology

Hydrology for the proposed wetland ditch relocation will be provided primarily by stormwater runoff from the wetlands to the south that currently drain to the existing wetland ditch.

Vegetation

Vegetation selected for the establishment of the wetland ditch relocation are native species that are beneficial to wildlife. A list of species to be planted is provided on the wetland ditch relocation plans.

The sources for live cuttings and seed mix shall be at the discretion of the contractor.

All seeded areas shall be hydro-mulched with a combination of wood fiber/wood cellulose fiber hydraulic mulch product to reduce potential contamination. Mulch shall be applied such that a minimum of 80% of the soil surface is covered with hydraulic mulch, or as much as necessary to ensure that the mulch is held securely in place, and that only minimal amounts of seed and/or soil may erode from the seeding site.

Due to the urban setting of the site, herbivory control is not expected to be a significant issue. Fencing will be used to protect the treatment wetlands primarily from muskrat that could move into the area, attracted by the diversity of native vegetation and the ponded areas. A management plan will be developed if signs of herbivory emerge. This would primarily involve fencing.

Soils

Topsoil found on the project site may not be suitable for use in the wetland ditch. The soils are primarily fill with varying amounts of construction debris. Additionally, the soils are likely to have both invasive seed bank and invasive rhizomes (from Phragmites) that will flourish in the new wetland ditch. It is recommended that the topsoil come from a reputable source. Topsoil specifications are provided in Table 1 below.

The topsoil shall be applied at a minimum of 8" in depth within the wetland ditch. The topsoil will be disked or rototilled and dragged to produce a fine seed bed. Check soil compaction after tilling and repeat process as necessary until 90% or more of the soil penetrometer readings are less than 5 pounds per square inch.

Table 1. Soil Specifications

The contractor will furnish and install a suitable silt loam, amended as necessary to meet the specifications in the table below. A soil analysis shall be performed by an independent testing lab employed by the contractor and must be provided to the site owner's site representative for approval prior to ordering the soil.

Common Parameters and Values of Mineral Hydric Soils	
Parameter	Value
Organic Content	≥10% - ≤20%
Organic Carbon	≥12% - ≤20%
pH	6.5-7.5
Bulk Density	High
Porosity	Low (45-55%)
Hydraulic Conductivity	High
Water Holding Capacity	High
Nutrient Availability	Generally high
Cation Exchange Capacity	Low, dominated by major cations

Soil shall be tested for acidity (pH), and the percentage of soluble salts, phosphorus, potassium, sulfur, and other nutrients available. Soluble salts in the soil intended for wetland seeding shall not exceed 300 parts per million (ppm) or 3.0 ms/cm at the time of seeding. Soil samples will be taken from the upper 4 inches of the seedbed prior to seeding. The project monitor shall perform field tests of soil pH to a depth of 4 inches and shall direct the contractor to apply lime as necessary prior to seedbed preparation. The monitor may declare the pH of the seeding site to be suitable for herbaceous seeding when the soil pH lies in the range of pH 6.5 to pH 7.5.

To promote the establishment of well rooted turf, nutrients may be added after seeding in accordance with testing results. Typically, herbaceous wetland plantings do not respond well to fertilization due to the excessive growth response of undesirable species in freshly graded soils.

Monitoring

The project proposes the establishment of a three-year monitoring period and submittal of a monitoring report each year. This monitoring period is commensurate with the expected quick establishment of the herbaceous species and similar response typically found with live stake willow plantings. Structural vegetative repairs and maintenance will be conducted in accordance with the recommendations of the annual monitoring reports.

Annual monitoring will be performed by a qualified wetland scientist/biologist.

As not all contingencies can be planned, the project monitor, in consultation with the project engineer and regulatory personnel as required, will have the authority to modify any aspect of the plan to accommodate unforeseen conditions. Potential modifications may involve grading elevations in response to observed groundwater elevations, plant distribution and planting technique.

A monitoring report will be submitted to the agencies on or before November 1 of each year of the three year monitoring period. The report shall include the results of vegetation and groundwater monitoring and recommendations for follow up remedial actions and analysis as necessary.

Annual monitoring will commence immediately following the first full growing season. The project monitor will observe and report the diversity and distribution of wetland vegetation and will employ the 50/20 rule and/or other quantitative analytical techniques (biotic index, species richness, etc.) to determine the presence or absence of a prevalence of hydrophytic vegetation within the wetland areas. The project monitor will also determine the percent survival of planted species with the intent to achieve an 85% survival rate.

Invasive Species Management Plan

Monitoring and maintenance of the wetland creation area will be required following completion of construction in order to ensure both proper function and adherence to permitted design features. The control of invasive species, such as purple loosestrife and common reed, will be difficult on this site. All the existing wetland areas on the site and in the vicinity are dominated by common reed. Colonization of the wetland creation area by invasive/monotypic species will

be dealt with aggressively during the monitoring period through mechanical control (hand removal of individual plants) and possibly chemical means.

Hydrology for the proposed wetland ditch relocation is provided by stormwater runoff from adjacent, up-gradient wetlands. These wetlands consist of monoculture stands of common reed and it is not anticipated that long term control of common reed is attainable. However, the project proposes planting with an aggressive seed mix and shrubs that we anticipate will slow the establishment of common reed.

Resource Documentation

Floodplain

The treatment wetlands will be constructed in a 100-year floodplain as well as within an area designed to detain the 25 year storm event to protect the downstream neighborhood from more frequent flood events. The City of Syracuse is responsible for floodplain impacts as part of their participation in the Federal Emergency Management Agency (FEMA) Flood Insurance Rate program. In order to protect the treatment wetlands from frequent flooding to allow for proper treatment of the CSO flows, it is necessary to separate and surround all the cells with berms. These design requirements will consume flood storage capacity at different storm events. Occasional flooding of the treatment wetlands from extreme storm events is expected and incorporated into the design to ensure the system does not fail.

In order to account for potential back to back storm events, compensatory storage will be required for the berm volumes plus the storage volume in the wetland cells. Based on the proposed wetland grading plan, the berm volume is 2.07 Acre-Feet (AF) and the cell volumes are 2.55 AF (Cell 1), 1.63 AF (Cell 2), and 0.63 AF (Cell 3). The total required compensatory storage is 6.88 AF.

Upland area within the basin is available to compensate for the loss of storage through additional excavation of the surface layer as shown on Figure 10 in the Design Report (under separate cover). Topsoil will be stripped, stockpiled, and reapplied after excavating required compensatory volume to reestablish the existing groundcover. This excavation will not involve impacts to wetlands or stream. Please refer to Section 3.3.5.5 of the Design Report for more information.

State Environmental Quality Review Act (SEQR)

Onondaga County is currently undergoing coordinated review with the State, County and local agencies likely to be involved with this project. It is assumed that the County Legislature will serve as Lead Agency and that a Negative Declaration will be issued due to the lack of significant impacts and the environmental benefits of the project.

Threatened & Endangered Species

File review request letters were sent to the NYSDEC and the United States Fish and Wildlife Service (USFWS) requesting information on threatened and endangered species or critical environmental areas that may be present within the project site. Additionally, the USFWS website was reviewed.

New York State Threatened and Endangered Species

According to a response letter from the NYSDEC Natural Heritage Program, dated December 29, 2010, no records of rare or state listed animals or plants, significant natural communities or

other significant habitats occur on or in the immediate vicinity of the project site (Refer to Attachment 5).

USFWS Listed Threatened and Endangered Species

The USFWS website indicated that the American hart's-tongue fern (*Asplenium scolopendrium*), a threatened species; bald eagle (*Haliaeetus leucocephalus*), delisted under the Endangered Species Act but protected under the Bald Eagle/Golden Eagle Act; the bog turtle (*Glyptemys muhlenbergii*), a threatened species; eastern massasauga (*Sistrurus catenatus*), a candidate species; eastern prairie fringed orchid (Historic) (*Plantanthera leucophea*), a threatened species; Indiana bat (*Myotis sodalists*), an endangered species; and small whorled pogonia (Historic) (*Isotria medeloides*), a threatened species; are listed for Onondaga County (Refer to Attachment 5). A letter from the USFWS acknowledges that there will be no effect on federally listed species as a result from the project (Attachment 5).

Cultural Resources

According to the New York State Office of Parks, Recreation and Historic Preservation (OPRHP) mapping program, the project site is not located within a designated archeologically sensitive area.

A letter has been submitted to OPRHP requesting concurrence of No Effect.

Erosion & Sediment Control

The proposed project disturbance area will be greater than 1 acre; therefore, a State SPDES General Construction Permit is required. A notice of intent along with a Stormwater Pollution Prevention (SWPPP) will be provided to Onondaga County for review under the MS4 program. The project does not involve the construction of impervious area and as a result, runoff from the project will not increase. A copy of the SWPPP will be provided to NYSDEC for review upon completion to facilitate the issuance of Water Quality Certification.

CSO 018 Modification

The project also involves the relocation and modification of CSO 018 that is governed by an existing point discharge State Pollutant Discharge Elimination System (SPDES) permit. This permit must be modified in order to address the proposed improvements. This process is handled through the NYSDEC Division of Water. A permit application form is submitted along with appropriate documentation, including the Design Report. The application form is provided in Attachment 6 for reference. The Design Report is provided under separate cover along with the project plans and an operations, maintenance and monitoring plan.

Article 15 Standards for Permit Issuance

Article 15 Protection of Waters (6 NYCRR Part 608)

Section 608.8 identifies the standards for issuing a permit and states: "The basis for issuance or modification of a permit will be a determination that the proposal is in the public interest, in that:

- the proposal is reasonable and necessary
 - This condition is met since the County is under order to address its CSO discharges that impact water quality within the Onondaga Lake watershed. The project will test the use of natural means of improving water quality which is expected to be expanded to other CSOs in the watershed where site conditions allow. Lastly, the impacts to Harbor Brook are reasonable and minimal. The quality of water entering Harbor Brook from CSO 018 is expected to substantially improve and the minor grading at the existing confluence of the wetland ditch and Harbor Brook will have little to no effect on the existing conditions of Harbor Brook.
- the proposal will not endanger health, safety and welfare of the people of the State of New York; and
 - The project is intended to improve water quality from CSO 018 which will have a beneficial impact on the health, safety and welfare of the people of the State of New York.
- the proposal will not cause unreasonable, uncontrolled or unnecessary damage to the natural resources of the State, including soil, forests, water, fish and aquatic and land-related environment."
 - Ultimately the project is expected to improve water quality from CSO 018 and the results of studies on this system are expected to lead to construction of additional green infrastructure to address other CSOs within the Onondaga Lake watershed. The project site is a previously manipulated landscape with significant grading and fill. The proposed project will have little impact on natural resources.

The proposed project will be achieved in a manner that will satisfy each of the standards as outlined above. The proposed activities are likely to have a beneficial impact on Harbor Brook.

Environmental Justice

The New York State Department of Environmental Conservation's environmental justice policy, *Commissioner's Policy (CP)-29 Environmental Justice and Permitting (Policy)*, March 19, 2003 applies to applications for major projects and major modifications for the permits authorized by the following sections of the Environmental Conservation Law: Titles 7 and 8 of Article 17, State Pollutant Discharge Elimination System (SPDES) (implemented by 6 NYCRR Part 750 et



seq.). The Harbor Brook CSO 018 Constructed Wetlands Pilot Treatment System requires a SPDES CSO Permit Modification and SPDES General Construction Permit from NYSDEC among other permits and approvals.

The Policy is meant to address environmental justice concerns and ensure community participation in the NYSDEC environmental permit review process and the NYSDEC application of the State Environmental Quality Review Act (SEQRA). The Policy is intended to encourage meaningful public participation by minority or low-income communities in the environmental review process, and to address any disproportionate adverse impacts on minority and low-income communities. A public participation plan was prepared and submitted to NYSDEC for approval.

An environmental justice evaluation has been prepared and is provided in Attachment 7 of this permit application. This evaluation identified that low income and minority dominated neighborhoods occur in the vicinity of the project site. As a result, potential impacts of the project on the neighborhoods were evaluated. These potential impacts include flood control, loss of open space and recreational space, increase in mosquito populations, and odors. In summary, based on the location of the project, current use, and mitigating components of the project, no significant impacts to the neighborhoods are anticipated. In fact, the project is expected to improve downstream water quality and should be an overall benefit to the neighborhoods.

ATTACHMENT 1
JOINT PERMIT APPLICATION



JOINT APPLICATION FORM

For Permits/Determinations to undertake activities affecting streams, waterways, waterbodies, wetlands, coastal areas and sources of water supply.



New York State

You must separately apply for and obtain separate Permits/Determinations from each involved agency prior to proceeding with work. Please read all instructions.

US Army Corps of Engineers (USACE)

<p>APPLICATIONS TO</p> <p>1. NYS Department of Environmental Conservation</p> <p>Check all permits that apply:</p> <table border="0"> <tr> <td><input checked="" type="checkbox"/> Stream Disturbance</td> <td><input type="checkbox"/> Coastal Erosion Management</td> </tr> <tr> <td><input type="checkbox"/> Excavation and Fill in Navigable Waters</td> <td><input type="checkbox"/> Wild, Scenic and Recreational Rivers</td> </tr> <tr> <td><input type="checkbox"/> Docks, Moorings or Platforms</td> <td><input type="checkbox"/> Water Supply</td> </tr> <tr> <td><input type="checkbox"/> Dams and Impoundment Structures</td> <td><input type="checkbox"/> Long Island Well</td> </tr> <tr> <td><input checked="" type="checkbox"/> 401 Water Quality Certification</td> <td><input type="checkbox"/> Aquatic Vegetation Control</td> </tr> <tr> <td><input type="checkbox"/> Freshwater Wetlands</td> <td><input type="checkbox"/> Aquatic Insect Control</td> </tr> <tr> <td><input type="checkbox"/> Tidal Wetlands</td> <td><input type="checkbox"/> Fish Control</td> </tr> <tr> <td></td> <td><input type="checkbox"/> Incidental Take of Endangered/Threatened Species</td> </tr> </table> <p><input checked="" type="checkbox"/> I am sending this application to this agency.</p>	<input checked="" type="checkbox"/> Stream Disturbance	<input type="checkbox"/> Coastal Erosion Management	<input type="checkbox"/> Excavation and Fill in Navigable Waters	<input type="checkbox"/> Wild, Scenic and Recreational Rivers	<input type="checkbox"/> Docks, Moorings or Platforms	<input type="checkbox"/> Water Supply	<input type="checkbox"/> Dams and Impoundment Structures	<input type="checkbox"/> Long Island Well	<input checked="" type="checkbox"/> 401 Water Quality Certification	<input type="checkbox"/> Aquatic Vegetation Control	<input type="checkbox"/> Freshwater Wetlands	<input type="checkbox"/> Aquatic Insect Control	<input type="checkbox"/> Tidal Wetlands	<input type="checkbox"/> Fish Control		<input type="checkbox"/> Incidental Take of Endangered/Threatened Species	<p>2. US Army Corps of Engineers</p> <p>Check all permits that apply:</p> <p><input type="checkbox"/> Section 404 Clean Water Act</p> <p><input type="checkbox"/> Section 10 Rivers and Harbors Act</p> <p><input checked="" type="checkbox"/> Nationwide Permit(s) - Identify Number(s): <u>43 - Stormwater</u></p> <p><u>Management Facilities</u></p> <p>Preconstruction Notification - <input checked="" type="checkbox"/> Y / <input type="checkbox"/> N</p> <p><input checked="" type="checkbox"/> I am sending this application to this agency.</p>	<p>3. NYS Office of General Services</p> <p>Check all permits that apply:</p> <p><input type="checkbox"/> State Owned Lands Under Water</p> <p><input type="checkbox"/> Utility Easement (pipelines, conduits, cables, etc.)</p> <p><input type="checkbox"/> Docks, Moorings or Platforms</p> <p><input type="checkbox"/> I am sending this application to this agency.</p>	<p>4. NYS Department of State</p> <p>Check if this applies:</p> <p><input type="checkbox"/> Coastal Consistency Concurrence</p> <p><input type="checkbox"/> I am sending this application to this agency.</p>
<input checked="" type="checkbox"/> Stream Disturbance	<input type="checkbox"/> Coastal Erosion Management																		
<input type="checkbox"/> Excavation and Fill in Navigable Waters	<input type="checkbox"/> Wild, Scenic and Recreational Rivers																		
<input type="checkbox"/> Docks, Moorings or Platforms	<input type="checkbox"/> Water Supply																		
<input type="checkbox"/> Dams and Impoundment Structures	<input type="checkbox"/> Long Island Well																		
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<input type="checkbox"/> Freshwater Wetlands	<input type="checkbox"/> Aquatic Insect Control																		
<input type="checkbox"/> Tidal Wetlands	<input type="checkbox"/> Fish Control																		
	<input type="checkbox"/> Incidental Take of Endangered/Threatened Species																		

<p>5. Name of Applicant (use full name)</p> <p>Onondaga County Dept. of Water Environment Protection - Michael Lannon, P.E.</p>	<p>Applicant must be:</p> <p><input checked="" type="checkbox"/> Owner</p> <p><input checked="" type="checkbox"/> Operator</p> <p><input type="checkbox"/> Lessee</p> <p>(check all that apply)</p>
<p>Mailing Address</p> <p>650 Hiawatha Boulevard West</p>	<p>Taxpayer ID (If applicant is NOT an individual):</p>
<p>Post Office City</p> <p>Syracuse</p>	<p>Telephone (daytime)</p> <p>(315) 435-6820</p>
<p>State</p> <p>NY</p> <p>Zip Code</p> <p>13204-1194</p>	<p>Email</p>

<p>6. Name of Facility or Property Owner (if different than Applicant)</p>	
<p>Mailing Address</p>	
<p>Post Office City</p>	
<p>State</p>	<p>Zip Code</p>
<p>Telephone (daytime)</p>	<p>Email</p>

<p>7. Contact/Agent Name</p> <p>Christopher Einstein</p>	
<p>Company Name</p> <p>CHA Consulting, Inc.</p>	
<p>Mailing Address</p> <p>3 Winners Circle</p>	
<p>Post Office City</p> <p>Albany</p>	
<p>State</p> <p>NY</p>	<p>Zip Code</p> <p>12205</p>
<p>Telephone (daytime)</p> <p>(518)453-4505</p>	
<p>Email</p> <p>ceinstein@chacompanies.com</p>	

<p>8. Project / Facility Name</p> <p>Harbor Brook CSO 018 Treatment Wetland Facility</p>		<p>Property Tax Map Section / Block / Lot Number</p>	
<p>Project Location - Provide directions and distances to roads, bridges and bodies of waters: Bounded by Velasko Rd, Grand Ave., W. Onondaga St., and Holden St. in the City of Syracuse, Onondaga County, NY</p>			
<p>Street Address, if applicable</p>		<p>Post Office City</p>	<p>State NY</p> <p>Zip Code</p>
<p>Town / Village / City</p> <p>Syracuse</p>		<p>County</p> <p>Onondaga</p>	
<p>Name of USGS Quadrangle Map</p> <p>Syracuse West</p>		<p>Stream/Water Body Name</p> <p>Harbor Brook</p>	
<p>Location Coordinates: Enter NYTMs in kilometers, OR Latitude/Longitude</p>			
<p>NYTM-E</p>	<p>NYTM-N</p>	<p>Latitude</p> <p>43degree 2.163</p>	<p>Longitude</p> <p>76degree 11.012</p>

<p>For Agency Use Only</p>	<p>DEC Application Number:</p>	<p>USACE Number:</p>
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JOINT APPLICATION FORM - PAGE 2 OF 2
Submit this completed page as part of your Application.

9. Project Description and Purpose: Provide a complete narrative description of the proposed work and its purpose. Attach additional page(s) if necessary. Include: description of current site conditions and how the site will be modified by the proposed project; structures and fill materials to be installed; type and quantity of materials to be used (i.e., square ft of coverage and cubic yds of fill material and/or structures below ordinary/mean high water) area of excavation or dredging, volumes of material to be removed and location of dredged material disposal or use; work methods and type of equipment to be used; pollution control methods and mitigation activities proposed to compensate for resource impacts; and where applicable, the phasing of activities. **ATTACH PLANS ON SEPARATE PAGES.**

See attached report

Proposed Use: <input type="checkbox"/> Private <input checked="" type="checkbox"/> Public <input type="checkbox"/> Commercial	Proposed Start Date: Fall 2011	Estimated Completion Date: Spring 2012
Has Work Begun on Project? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If Yes, explain.		
Will Project Occupy Federal, State or Municipal Land? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No If Yes, please specify. Onondaga County owned land		

10. List Previous Permit / Application Numbers (if any) and Dates:

11. Will this project require additional Federal, State, or Local Permits including zoning changes? Yes No If yes, please list:

12. Signatures. If applicant is not the owner, both must sign the application.
I hereby affirm that information provided on this form and all attachments submitted herewith is true to the best of my knowledge and belief. False statements made herein are punishable as a Class A misdemeanor pursuant to Section 210.45 of the Penal Law. Further, the applicant accepts full responsibility for all damage, direct or indirect, of whatever nature, and by whomever suffered, arising out of the project described herein and agrees to indemnify and save harmless the State from suits, actions, damages and costs of every name and description resulting from said project. In addition, Federal Law, 18 U.S.C., Section 1001 provides for a fine of not more than \$10,000 or imprisonment for not more than 5 years, or both where an applicant knowingly and willingly falsifies, conceals, or covers up a material fact; or knowingly makes or uses a false, fictitious or fraudulent statement.

Signature of Applicant	Printed Name	Title	Date
Signature of Owner	Printed Name	Title	Date
Signature of Agent	Printed Name	Title	Date

<u>For Agency Use Only</u>		DETERMINATION OF NO PERMIT REQUIRED	
1234567890123456789012345678901234567890		Agency Project Number _____	
(Agency Name)		has determined that No Permit is required from this Agency for the project described in this application.	
Agency Representative:	Name (printed) _____	Title _____	Date _____
	Signature _____		Date _____



PERMISSION TO INSPECT PROPERTY

By signing this permission form for submission with an application for a permit(s) to the Department of Environmental Conservation ("DEC"), the signer consents to inspection by DEC staff of the project site or facility for which a permit is sought and, to the extent necessary, areas adjacent to the project site or facility. This consent allows DEC staff to enter upon and pass through such property in order to inspect the project site or facility, without prior notice, between the hours of 7:00 a.m. and 7:00 p.m., Monday through Friday. If DEC staff should wish to conduct an inspection at any other times, DEC staff will so notify the applicant and will obtain a separate consent for such an inspection.

Inspections may take place as part of the application review prior to a decision to grant or deny the permit(s) sought. By signing this consent form, the signer agrees that this consent remains in effect as long as the application is pending, and is effective regardless of whether the signer, applicant or an agent is present at the time of the inspection. In the event that the project site or facility is posted with any form of "posted" or "keep out" notices, or fenced in with an unlocked gate, this permission authorizes DEC staff to disregard such notices or unlocked gates at the time of inspection.

The signer further agrees that during an inspection, DEC staff may, among other things, take measurements, may analyze physical characteristics of the site including, but not limited to, soils and vegetation (taking samples for analysis), and may make drawings and take photographs.

Failure to grant consent for an inspection is grounds for, and may result in, denial of the permit(s) sought by the application.

Permission is granted for inspection of property located at the following address(es):

*By signing this form, I affirm under penalty of perjury that I am authorized to give consent to entry by DEC staff as described above. I understand that false statements made herein are punishable as a Class A misdemeanor pursuant to Section 210.45 of the Penal Law.**

Print Name and Title

Signature

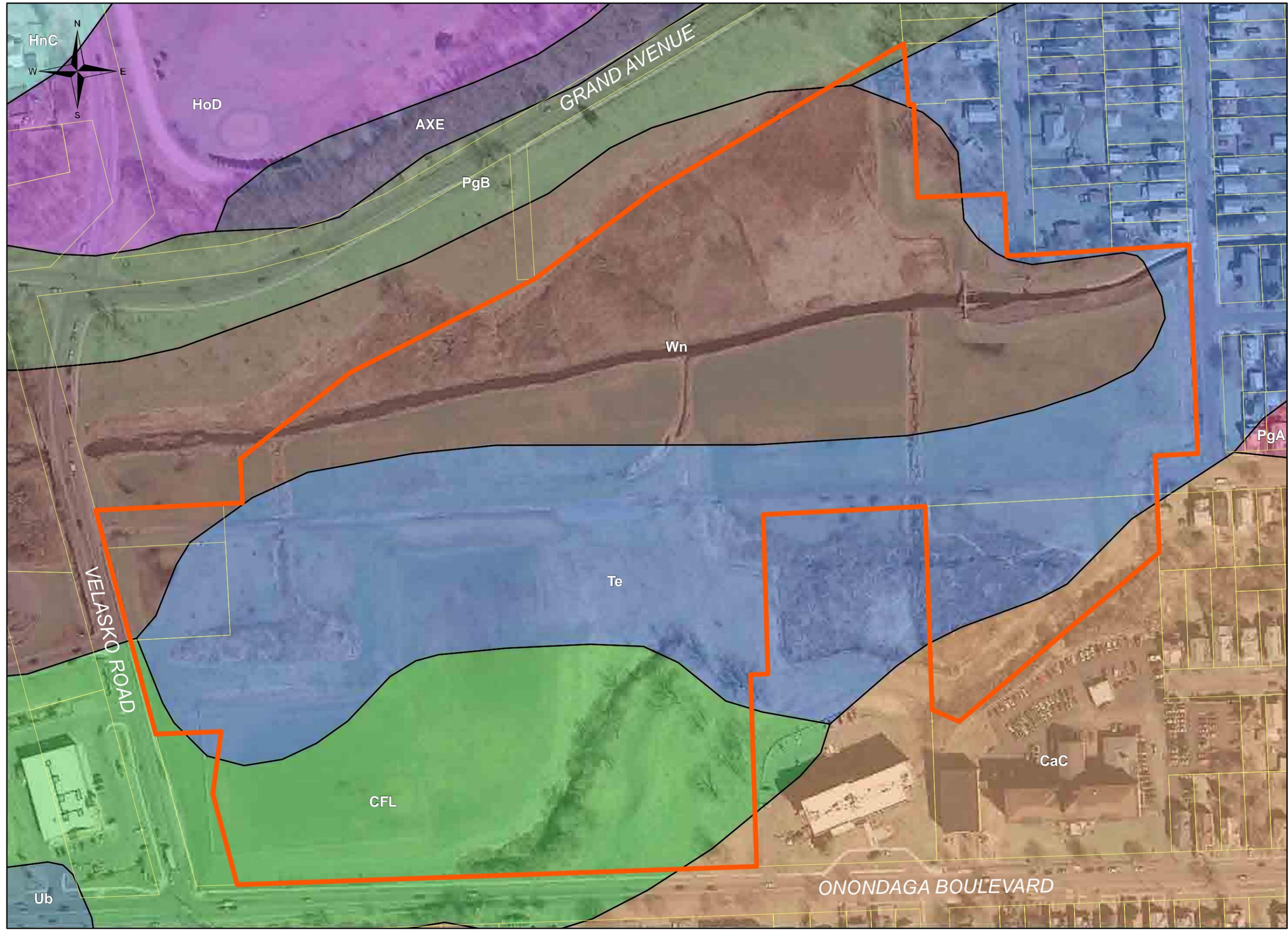
Date

*The signer of this form must be an individual or authorized representative of a legal entity that:

- owns fee title and is in possession of the property identified above;
- maintains possessory interest in the property through a lease, rental agreement or other legally binding agreement; or
- is provided permission to act on behalf of an individual or legal entity possessing fee title or other possessory interest in the property for the purpose of consenting to inspection of such property.

ATTACHMENT 2

FIGURES



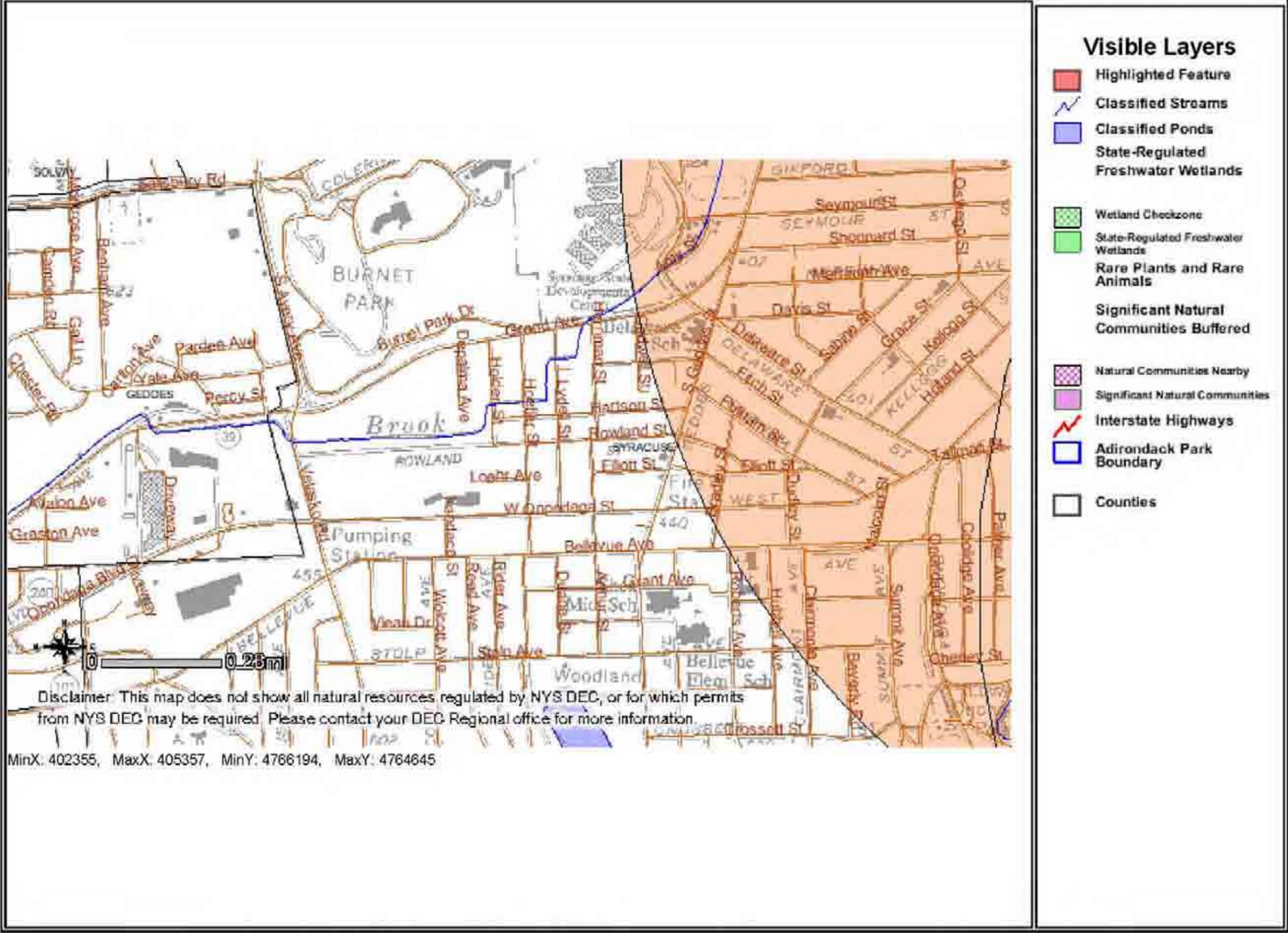
SOIL RESOURCES
Onondaga/Velasko/Grand Ave CSO Site
City of Syracuse, Onondaga County, NY

- Project Area
- Parcel Bounds (2008)
- Soils**
- AXE
- CFL
- CaC
- HnC
- HoD
- PgA
- PgB
- Te
- Ub
- Wn

Scale: 1 inch = 150 feet
 (at 11"x17")

FIGURE 2

Harbor Brook CSO 018 Treatment Wetland, City of Syracuse, Onondaga County, NY



DEC ENVIRONMENTAL MAPPER OUTPUT
 Onondaga/Velasko/Grand Ave CSO Site
 City of Syracuse, Onondaga County, NY

Disclaimer: This map was prepared by the New York State Department of Environmental Conservation using the most current data available. It is deemed accurate but is not guaranteed. NYS DEC is not responsible for any inaccuracies in the data and does not necessarily endorse any interpretations or products derived from the data.

FIGURE 4

EXISTING NWI WETLANDS
Harbor Brook CSO 018 Treatment Wetland
City of Syracuse, Onondaga County, NY



- Limits of Onondaga County Owned Property
- NWI Wetlands
- Parcel Bounds (2008)

Scale: 1 inch = 150 feet
(at 11"x17")

FIGURE 5



Vegetative Communities

- Mowed Lawn
- Unpaved Road/Path
- Reedgrass/Purple Loosestrife Marsh
- Ditch/Artificial Intermittent Stream
- Marsh Headwater Stream
- Wetland Boundary

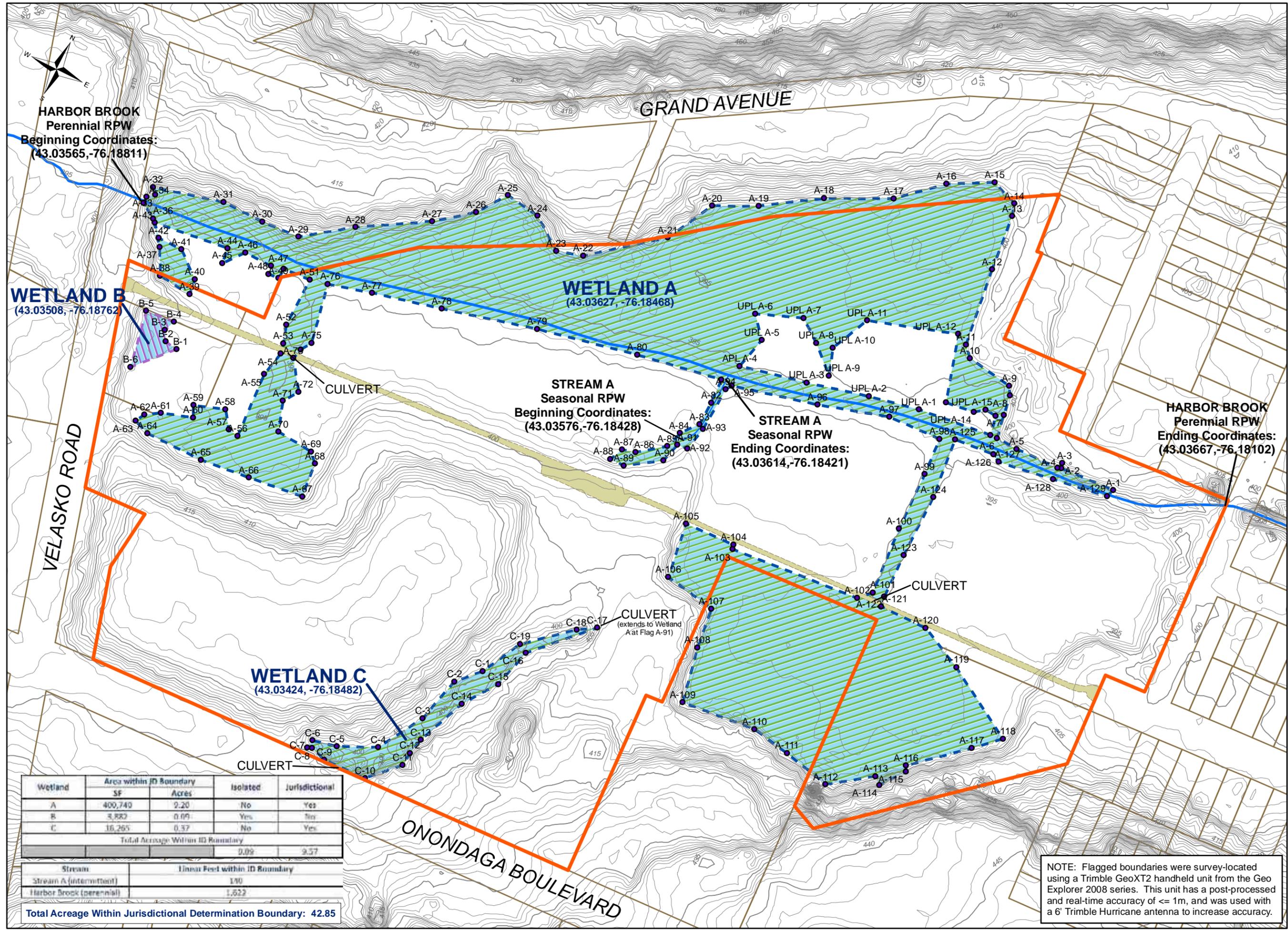
VEGETATIVE COMMUNITIES MAP
 Harbor Brook CSO 018 Treatment Wetland
 City of Syracuse, Onondaga County, NY

Scale: 1 inch = 150 feet
 (at 11"x17")

FIGURE 6

WETLAND DELINEATION MAP

Harbor Brook CSO 018 Treatment Wetland
City of Syracuse, Onondaga County, NY



HARBOR BROOK
Perennial RPW
Beginning Coordinates:
(43.03565,-76.18811)

WETLAND A
(43.03627,-76.18468)

WETLAND B
(43.03508,-76.18762)

STREAM A
Seasonal RPW
Beginning Coordinates:
(43.03576,-76.18428)

STREAM A
Seasonal RPW
Ending Coordinates:
(43.03614,-76.18421)

HARBOR BROOK
Perennial RPW
Ending Coordinates:
(43.03667,-76.18102)

WETLAND C
(43.03424,-76.18482)

Wetland	Area within JD Boundary		Isolated	Jurisdictional
	SF	Acres		
A	400,740	9.20	No	Yes
B	3,882	0.09	Yes	Yes
C	16,265	0.37	No	Yes
Total Acreage Within JD Boundary		0.09		9.37

Stream	Linear Feet within JD Boundary	
	Stream A (intermittent)	130
Harbor Brook (perennial)	1,623	

Total Acreage Within Jurisdictional Determination Boundary: 42.85

NOTE: Flagged boundaries were survey-located using a Trimble GeoXT2 handheld unit from the Geo Explorer 2008 series. This unit has a post-processed and real-time accuracy of <= 1m, and was used with a 6' Trimble Hurricane antenna to increase accuracy.

- Jurisdictional Determination Boundary
- Jurisdictional Wetland
- Isolated Wetland
- Wetland Flags
- Harbor Brook
- Stream A
- Existing Dirt Roadway
- Parcel Bounds (2008)

Scale: 1 inch = 150 feet
(at 11"x17")

FIGURE 7

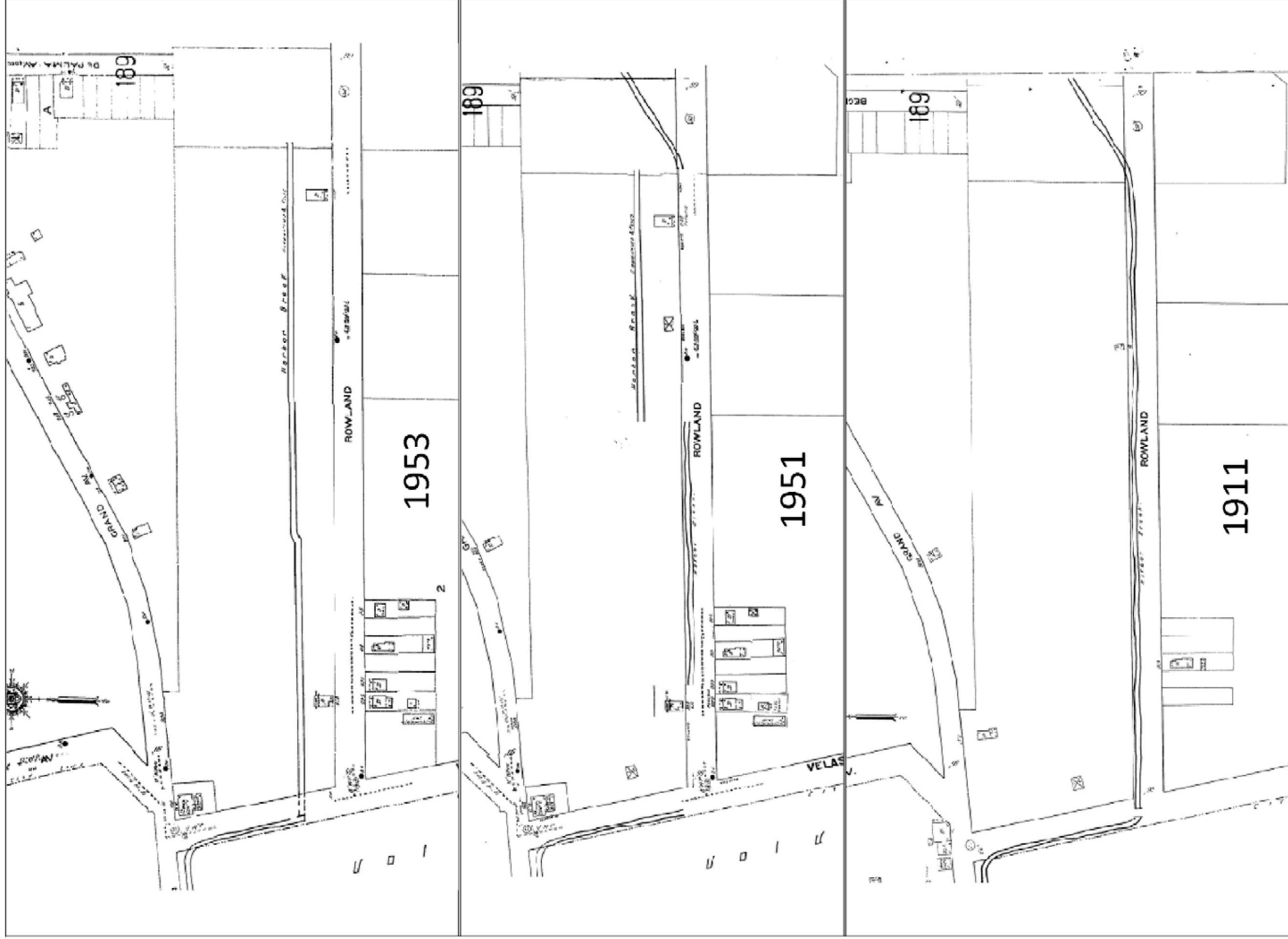


FIGURE 8

FIRE INSURANCE SANBORN MAPPING
 Onondaga/Velasko/Grand Ave CSO Site
 City of Syracuse, Onondaga County, NY

ATTACHMENT 3
FUNCTIONS AND VALUES ASSESSMENT

Wetland Function – Value Evaluation Form

Total area of wetland 9.2 ac. Human made? yes is wetland part of a wildlife corridor? Potential or a “habitat island”?
 Adjacent land use athletic fields, residential, commercial Distance to nearest roadway or other development Adjacent
 Dominant wetland systems present Emergent/Phragmites dominated Contiguous undeveloped buffer zone present Lawn area
 Is the wetland a separate hydraulic system? No If not, where does the wetland lie in the drainage basin? Mid-basin
 How many tributaries contribute to the wetland? 1 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. A
 Latitude 43.03627 Longitude -76.18468
 Prepared by: SJV Date 3/2/11
 Wetland Impact:
 Type Emergent ditch Area 0.18 ac.
 Evaluation based on:
 Office x Field x
 Corps manual wetland delineation
 Completed? Y x N

Function/Value	Occurence		Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
	Y	N			
Groundwater Recharge/Discharge	x		7, 15		
Floodflow Alteration	x		2,3,4,5,6,7,8,9,10,11,13,17,18		
Fish and Shellfish Habitat	x		8, 14, 17		No fish observed during survey but habitat in stream could support minnows & macroinvertebrates
Sediment/Toxicant Retention	x		1,2,8,10,13,14,16		
Nutrient Removal	x		3,4,5,8,9,11,12,15		
Production Export	x		2,7		
Sediment/Shoreline Stabilization		x			
Wildlife Habitat	x		6		Limited and degraded
Recreation		x	12		Project site is within a detention basin
Education Scientific Value		x			
Uniqueness/Heritage	x		1,2,9,11,13,14,17,22,31		
Visual Quality/Aesthetics	x		2,5		Wetland is poor quality and consists mostly of invasive species. Potential to provide aesthetic value with future restoration.
Endangered Species Habitat		x			
Other					

Notes:

* Refer to back up list of numbered considerations.



GROUNDWATER RECHARGE/DISCHARGE— This function considers the potential for a wetland to serve as a groundwater recharge and/or discharge area. It refers to the fundamental interaction between wetlands and aquifers, regardless of the size or importance of either.

CONSIDERATIONS/QUALIFIERS

1. Public or private wells occur downstream of the wetland.
2. Potential exists for public or private wells downstream of the wetland.
3. Wetland is underlain by stratified drift.
4. Gravel or sandy soils present in or adjacent to the wetland.
5. Fragipan does not occur in the wetland.
6. Fragipan, impervious soils, or bedrock does occur in the wetland.
7. Wetland is associated with a perennial or intermittent watercourse.
8. Signs of groundwater recharge are present or piezometer data demonstrates recharge.
9. Wetland is associated with a watercourse but lacks a defined outlet or contains a constricted outlet.
10. Wetland contains only an outlet, no inlet.
11. Groundwater quality of stratified drift aquifer within or downstream of wetland meets drinking water standards.
12. Quality of water associated with the wetland is high.
13. Signs of groundwater discharge are present (e.g., springs).
14. Water temperature suggests it is a discharge site.
15. Wetland shows signs of variable water levels.
16. Piezometer data demonstrates discharge.
17. Other



FLOODFLOW ALTERATION (Storage & Desynchronization) — This function considers the effectiveness of the wetland in reducing flood damage by water retention for prolonged periods following precipitation events and the gradual release of floodwaters. It adds to the stability of the wetland ecological system or its buffering characteristics and provides social or economic value relative to erosion and/or flood prone areas.

CONSIDERATIONS/QUALIFIERS

1. Area of this wetland is large relative to its watershed.
2. Wetland occurs in the upper portions of its watershed.
3. Effective flood storage is small or non-existent upslope of or above the wetland.
4. Wetland watershed contains a high percent of impervious surfaces.
5. Wetland contains hydric soils which are able to absorb and detain water.
6. Wetland exists in a relatively flat area that has flood storage potential.
7. Wetland has an intermittent outlet, ponded water, or signs are present of variable water level.
8. During flood events, this wetland can retain higher volumes of water than under normal or average rainfall conditions.
9. Wetland receives and retains overland or sheet flow runoff from surrounding uplands.
10. In the event of a large storm, this wetland may receive and detain excessive flood water from a nearby watercourse.
11. Valuable properties, structures, or resources are located in or near the floodplain downstream from the wetland.
12. The watershed has a history of economic loss due to flooding.
13. This wetland is associated with one or more watercourses.
14. This wetland watercourse is sinuous or diffuse.
15. This wetland outlet is constricted.
16. Channel flow velocity is affected by this wetland.
17. Land uses downstream are protected by this wetland.
18. This wetland contains a high density of vegetation.
19. Other

FISH AND SHELLFISH HABITAT (FRESHWATER) — This function considers the effectiveness of seasonal or permanent watercourses associated with the wetland in question for fish and shellfish habitat.



CONSIDERATIONS/QUALIFIERS

1. Forest land dominant in the watershed above this wetland.
2. Abundance of cover objects present.
- STOP HERE IF THIS WETLAND IS NOT ASSOCIATED WITH A WATERCOURSE**
3. Size of this wetland is able to support large fish/shellfish populations.
4. Wetland is part of a larger, contiguous watercourse.
5. Wetland has sufficient size and depth in open water areas so as not to freeze solid and retain some open water during winter.
6. Stream width (bank to bank) is more than 50 feet.
7. Quality of the watercourse associated with this wetland is able to support healthy fish/shellfish populations.
8. Streamside vegetation provides shade for the watercourse.
9. Spawning areas are present (submerged vegetation or gravel beds).
10. Food is available to fish/shellfish populations within this wetland.
11. Barrier(s) to anadromous fish (such as dams, including beaver dams, waterfalls, road crossing) are absent from the stream reach associated with this wetland.
12. Evidence of fish is present.
13. Wetland is stocked with fish.
14. The watercourse is persistent.
15. Man-made streams are absent.
16. Water velocities are not too excessive for fish usage.
17. Defined stream channel is present.
18. Other

7. Other



SEDIMENT/TOXICANT/PATHOGEN RETENTION — This function reduces or prevents degradation of water quality. It relates to the effectiveness of the wetland as a trap for sediments, toxicants, or pathogens in runoff water from surrounding uplands or upstream eroding wetland areas.

CONSIDERATIONS/QUALIFIERS

1. Potential sources of excess sediment are in the watershed above the wetland.
2. Potential or known sources of toxicants are in the watershed above the wetland.
3. Opportunity for sediment trapping by slow moving water or deepwater habitat are present in this wetland.
4. Fine grained mineral or organic soils are present.
5. Long duration water retention time is present in this wetland.
6. Public or private water sources occur downstream.
7. The wetland edge is broad and intermittently aerobic.
8. The wetland is known to have existed for more than 50 years.
9. Drainage ditches have not been constructed in the wetland.
- STOP HERE IF WETLAND IS NOT ASSOCIATED WITH A WATERCOURSE**
10. Wetland is associated with an intermittent or perennial stream or a lake.
11. Channelized flows have visible velocity decreases in the wetland.
12. Effective floodwater storage in wetland is occurring. Areas of impounded open water are present.
13. No indicators of erosive forces are present. No high water velocities are present.
14. Diffuse water flows are present in the wetland.
15. Wetland has a high degree of water and vegetation interspersion.
16. Dense vegetation provides opportunity for sediment trapping and/or signs of sediment accumulation by dense vegetation is present.
17. Other



NUTRIENT REMOVAL/RETENTION/TRANSFORMATION — This function considers the effectiveness of the wetland as a trap for nutrients in runoff water from surrounding uplands or contiguous wetlands and the ability of the wetland to process these nutrients into other forms or trophic levels. One aspect of this function is to prevent ill effects of nutrients entering aquifers or surface waters such as ponds, lakes, streams, rivers, or estuaries.

CONSIDERATIONS/QUALIFIERS

1. Wetland is large relative to the size of its watershed.
2. Deep water or open water habitat exists.
3. Overall potential for sediment trapping exists in the wetland.
4. Potential sources of excess nutrients are present in the watershed above the wetland.
5. Wetland saturated for most of the season. Pounded water is present in the wetland.
6. Deep organic/sediment deposits are present.
7. Slowly drained fine grained mineral or organic soils are present.
8. Dense vegetation is present.
9. Emergent vegetation and/or dense woody stems are dominant.
10. Opportunity for nutrient attenuation exists.
11. Vegetation diversity/abundance sufficient to utilize nutrients.

STOP HERE IF WETLAND IS NOT ASSOCIATED WITH A WATERCOURSE.

12. Waterflow through this wetland is diffuse.
13. Water retention/detention time in this wetland is increased by constricted outlet or thick vegetation.
14. Water moves slowly through this wetland.
15. Other

PRODUCTION EXPORT (Nutrient) — This function evaluates the effectiveness of the wetland to produce food or usable products for humans or other living organisms.



CONSIDERATIONS/QUALIFIERS

1. Wildlife food sources grow within this wetland.
2. Detritus development is present within this wetland.
3. Economically or commercially used products found in this wetland.
4. Evidence of wildlife use found within this wetland.
5. Higher trophic level consumers are utilizing this wetland.
6. Fish or shellfish develop or occur in this wetland.
7. High vegetation density is present.
8. Wetland exhibits high degree of plant community structure/species diversity.
9. High aquatic vegetative diversity/abundance is present.
10. Nutrients exported in wetland watercourses (permanent outlet present).
11. "Flushing" of relatively large amounts of organic plant material occurs from this wetland.
12. Wetland contains flowering plants that are used by nectar-gathering insects.
13. Indications of export are present.
14. High production levels occurring, however, no visible signs of export (assumes export is attenuated).
15. Other

SEDIMENT/ShORELINE STABILIZATION — This function considers the effectiveness of a wetland to stabilize streambanks and shorelines against erosion.



CONSIDERATIONS/QUALIFIERS

1. Indications of erosion or siltation are present.
2. Topographical gradient is present in wetland.
3. Potential sediment sources are present up-slope.
4. Potential sediment sources are present upstream.
5. No distinct shoreline or bank is evident between the waterbody and the wetland or upland.
6. A distinct step between the open waterbody or stream and the adjacent land exists (i.e., sharp bank) with dense roots throughout.
7. Wide wetland (>10') borders watercourse, lake, or pond.
8. High flow velocities in the wetland.
9. The watershed is of sufficient size to produce channelized flow.
10. Open water fetch is present.
11. Boating activity is present.
12. Dense vegetation is bordering watercourse, lake, or pond.
13. High percentage of energy-absorbing emergents and/or shrubs border a watercourse, lake, or pond.
14. Vegetation is comprised of large trees and shrubs that withstand major flood events or erosive incidents and stabilize the shoreline on a large scale (feet).
15. Vegetation is comprised of a dense resilient herbaceous layer that stabilizes sediments and the shoreline on a small scale (inches) during minor flood events or potentially erosive events.
16. Other

23



WILDLIFE HABITAT — This function considers the effectiveness of the wetland to provide habitat for various types and populations of animals typically associated with wetlands and the wetland edge. Both resident and/or migrating species must be considered. Species lists of observed and potential animals should be included in the wetland assessment report.¹

CONSIDERATIONS/QUALIFIERS

1. Wetland is not degraded by human activity.
2. Water quality of the watercourse, pond, or lake associated with this wetland meets or exceeds Class A or B standards.
3. Wetland is not fragmented by development.
4. Upland surrounding this wetland is undeveloped.
5. More than 40% of this wetland edge is bordered by upland wildlife habitat (e.g., brushland, woodland, active farmland, or idle land) at least 500 feet in width.
6. Wetland is contiguous with other wetland systems connected by a watercourse or lake.
7. Wildlife overland access to other wetlands is present.
8. Wildlife food sources are within this wetland or are nearby.
9. Wetland exhibits a high degree of interspersions of vegetation classes and/or open water.
10. Two or more islands or inclusions of upland within the wetland are present.
11. Dominant wetland class includes deep or shallow marsh or wooded swamp.
12. More than three acres of shallow permanent open water (less than 6.6 feet deep), including streams in or adjacent to wetland, are present.
13. Density of the wetland vegetation is high.
14. Wetland exhibits a high degree of plant species diversity.
15. Wetland exhibits a high degree of diversity in plant community structure (e.g., tree/shrub/vine/grasses/mosses)
16. Plant/animal indicator species are present. (List species for project)
17. Animal signs observed (tracks, scats, nesting areas, etc.)
18. Seasonal uses vary for wildlife and wetland appears to support varied population diversity/abundance during different seasons.
19. Wetland contains or has potential to contain a high population of insects.
20. Wetland contains or has potential to contain large amphibian populations.
21. Wetland has a high avian utilization or its potential.
22. Indications of less disturbance-tolerant species are present.
23. Signs of wildlife habitat enhancement are present (birdhouses, nesting boxes, food sources, etc.)
24. Other

RECREATION (Consumptive and Non-Consumptive) — This value considers the suitability of the wetland and associated watercourses to provide recreational opportunities such as hiking, canoeing, boating, fishing, hunting, and other active or passive recreational activities. Consumptive opportunities consume or diminish the plants, animals, or other resources that are intrinsic to the wetland. Non-consumptive opportunities do not consume or diminish these resources of the wetland.



CONSIDERATIONS/QUALIFIERS

1. Wetland is part of a recreation area, park, forest, or refuge.
2. Fishing is available within or from the wetland.
3. Hunting is permitted in the wetland.
4. Hiking occurs or has potential to occur within the wetland.
5. Wetland is a valuable wildlife habitat.
6. The watercourse, pond, or lake associated with the wetland is unpolluted.
7. High visual/aesthetic quality of this potential recreation site.
8. Access to water is available at this potential recreation site for boating, canoeing, or fishing.
9. The watercourse associated with this wetland is wide and deep enough to accommodate canoeing and/or non-powered boating.
10. Off-road public parking available at the potential recreation site.
11. Accessibility and travel ease is present at this site.
12. The wetland is within a short drive or safe walk from highly populated public and private areas.
13. Other

EDUCATIONAL/SCIENTIFIC VALUE — This value considers the suitability of the wetland as a site for an “outdoor classroom” or as a location for scientific study or research.



CONSIDERATIONS/QUALIFIERS

1. Wetland contains or is known to contain threatened, rare, or endangered species.
2. Little or no disturbance is occurring in this wetland.
3. Potential educational site contains a diversity of wetland classes which are accessible or potentially accessible.
4. Potential educational site is undisturbed and natural.
5. Wetland is considered to be a valuable wildlife habitat.
6. Wetland is located within a nature preserve or wildlife management area.
7. Signs of wildlife habitat enhancement present (bird houses, nesting boxes, food sources, etc.).
8. Off-road parking at potential educational site suitable for school bus access in or near wetland.
9. Potential educational site is within safe walking distance or a short drive to schools.
10. Potential educational site is within safe walking distance to other plant communities.
11. Direct access to perennial stream at potential educational site is available.
12. Direct access to pond or lake at potential educational site is available.
13. No known safety hazards exist within the potential educational site.
14. Public access to the potential educational site is controlled.
15. Handicap accessibility is available.
16. Site is currently used for educational or scientific purposes.
17. Other



UNIQUENESS/HERITAGE — This value considers the effectiveness of the wetland or its associated waterbodies to provide certain special values. These may include archaeological sites, critical habitat for endangered species, its overall health and appearance, its role in the ecological system of the area, its relative importance as a typical wetland class for this geographic location. These functions are clearly valuable wetland attributes relative to aspects of public health, recreation, and habitat diversity.

CONSIDERATIONS/QUALIFIERS

1. Upland surrounding wetland is primarily urban.
2. Upland surrounding wetland is developing rapidly.
3. More than 3 acres of shallow permanent open water (less than 6.6 feet deep), including streams, occur in wetlands.
4. Three or more wetland classes are present.
5. Deep and/or shallow marsh or wooded swamp dominate.
6. High degree of interspersed vegetation and/or open water occur in this wetland.
7. Well-vegetated stream corridor (15 feet on each side of the stream) occurs in this wetland.
8. Potential educational site is within a short drive or a safe walk from schools.
9. Off-road parking at potential educational site is suitable for school buses.
10. No known safety hazards exist within this potential educational site.
11. Direct access to perennial stream or lake exists at potential educational site.
12. Two or more wetland classes are visible from primary viewing locations.
13. Low-growing wetlands (marshes, scrub-shrub, bogs, open water) are visible from primary viewing locations.
14. Half an acre of open water or 200 feet of stream is visible from the primary viewing locations.
15. Large area of wetland is dominated by flowering plants or plants that turn vibrant colors in different seasons.
16. General appearance of the wetland visible from primary viewing locations is unpolluted and/or undisturbed.
17. Overall view of the wetland is available from the surrounding upland.
18. Quality of the water associated with the wetland is high.
19. Opportunities for wildlife observations are available.
20. Historical buildings are found within the wetland.
21. Presence of pond or pond site and remains of a dam occur within the wetland.
22. Wetland is within 50 yards of the nearest perennial watercourse.
23. Visible stone or earthen foundations, berms, dams, standing structures, or associated features occur within the wetland.
24. Wetland contains critical habitat for a state- or federally-listed threatened or endangered species.
25. Wetland is known to be a study site for scientific research.
26. Wetland is a natural landmark or recognized by the state natural heritage inventory authority as an exemplary natural community.
27. Wetland has local significance because it serves several functional values.
28. Wetland has local significance because it has biological, geological, or other features that are locally rare or unique.
29. Wetland is known to contain an important archaeological site.
30. Wetland is hydrologically connected to a state or federally designated scenic river.
31. Wetland is located in an area experiencing a high wetland loss rate.
32. Other

VISUAL QUALITY/AESTHETICS — This value considers the visual and aesthetic quality or usefulness of the wetland.



CONSIDERATIONS/QUALIFIERS

1. Multiple wetland classes are visible from primary viewing locations.
2. Emergent marsh and/or open water are visible from primary viewing locations.
3. A diversity of vegetative species is visible from primary viewing locations.
4. Wetland is dominated by flowering plants or plants that turn vibrant colors in different seasons.
5. Land use surrounding the wetland is undeveloped as seen from primary viewing locations.
6. Visible surrounding land use form contrasts with wetland.
7. Wetland views absent of trash, debris, and signs of disturbance.
8. Wetland is considered to be a valuable wildlife habitat.
9. Wetland is easily accessed.
10. Low noise level at primary viewing locations.
11. Unpleasant odors absent at primary viewing locations.
12. Relatively unobstructed sight line exists through wetland.
13. Other

ENDANGERED SPECIES HABITAT — This value considers the suitability of the wetland to support threatened or endangered species.

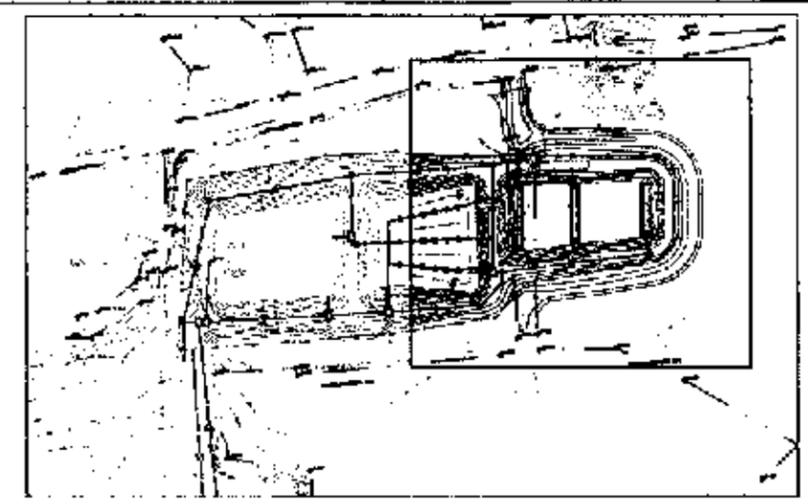
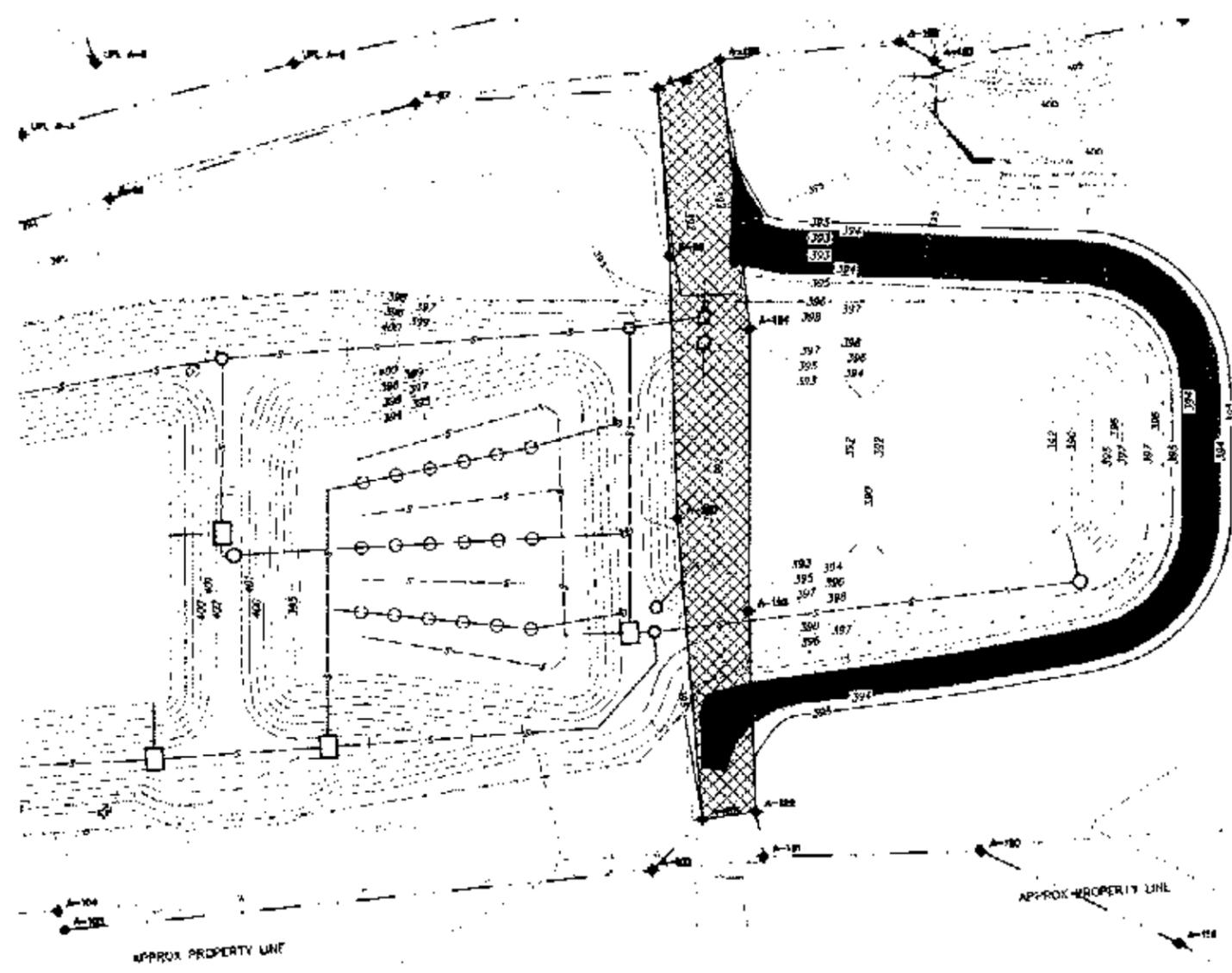
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CONSIDERATIONS/QUALIFIERS

1. Wetland contains or is known to contain threatened or endangered species.
2. Wetland contains critical habitat for a state or federally listed threatened or endangered species.

ATTACHMENT 4

PROJECT IMPACTS AND MITIGATION



LEGEND

EXISTING WETLAND DISTURBANCE AREA
(0.18 Ac - 7,735 Sq. Ft.)

PROPOSED WETLAND MITIGATION AREA
(0.18 Ac - 7,795 Sq. Ft.)

N

SCALE: 1" = 30'

PROGRESS PRINT

C20211

CH2MHILL CHA

486 CANISEE STREET, SUITE 400
SYRACUSE, NY 13202
TEL: 315-487-4100 FAX: 315-487-4101
E: 315-487-4102

HARBOR BROOK CSD 0418
CONSTRUCTED WETLANDS
CITY OF SYRACUSE
CHONDAGA COUNTY, NEW YORK

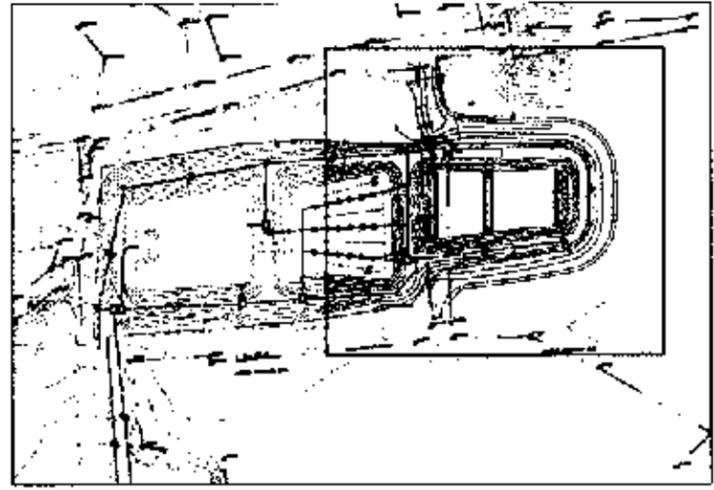
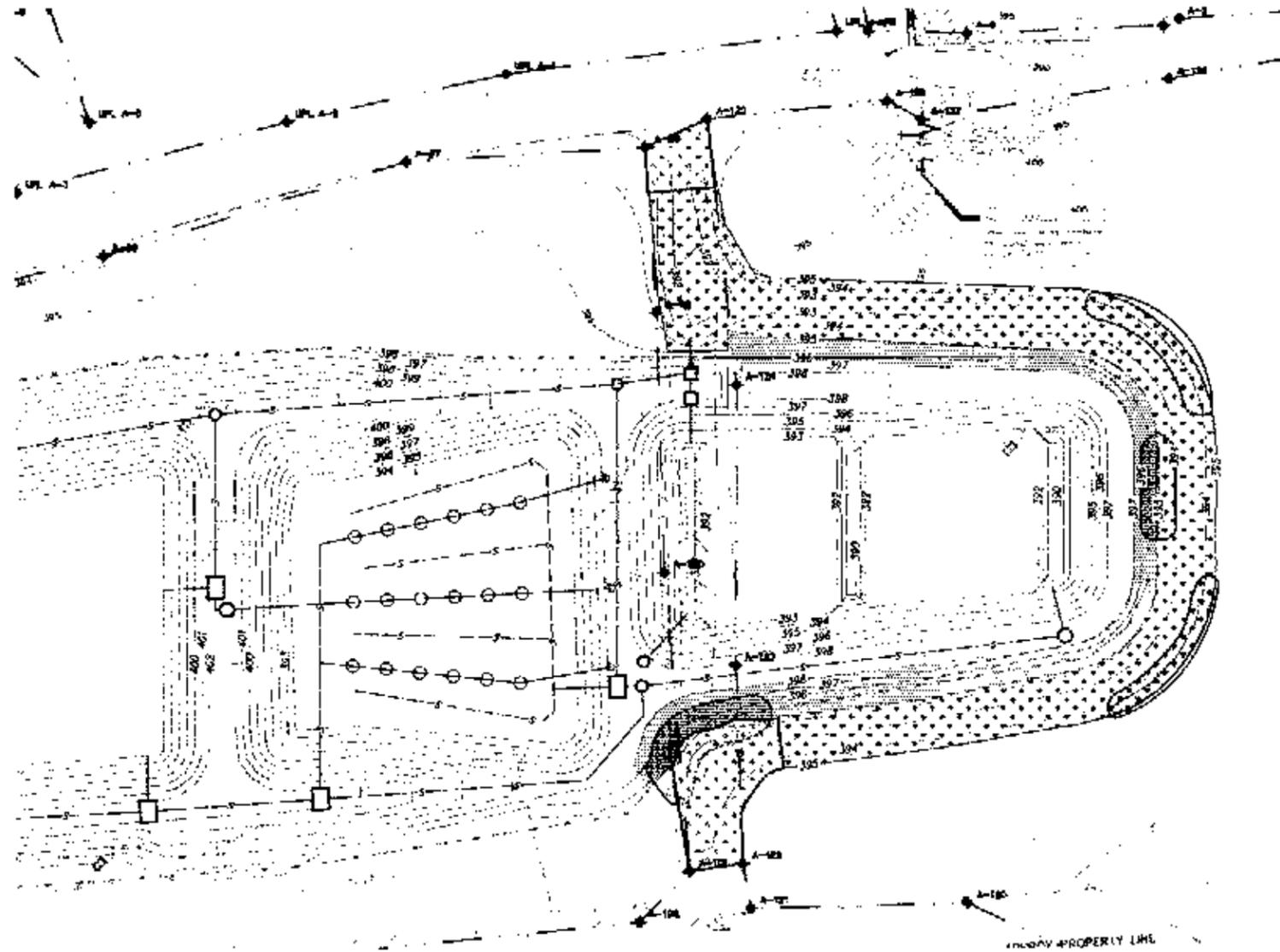
WETLAND IMPACT MAP

NO.	DATE	BY	CHKD	APP'D	MEM
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0096	5/27	XXX	XXX	XXX	XXX
0097	5/27	XXX	XXX	XXX	XXX
0098	5/27	XXX	XXX	XXX	XXX
0099	5/27	XXX	XXX	XXX	XXX
0100	5/27	XXX	XXX	XXX	XXX

DATE: MAY 02, 2001
 PROJ: 19211
 DWG: WM-2001
 SHEET: XXXX

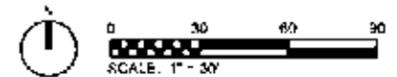
VERTICAL SCALE: 1" = 10'
 HORIZONTAL SCALE: 1" = 30'

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LEGEND:

-  LIVE STAKE PLANTINGS
-  UPLAND SEED MIX
(SEE MITIGATION NOTE 19 - SHEET M-2001)
-  WETLAND SEED MIX
(SEE MITIGATION NOTE 20 - SHEET M-2001)



PROGRESS PRINT 05/2011

432 E. SPANISH STREET, SUITE 400
 SYRACUSE, NEW YORK 13202
 TEL: (315) 487-1000 FAX: (315) 487-1001
 BB 000072 AP 00187

HARRIS BROOK SUDARIA
 CONSTRUCTED WETLANDS
 CITY OF SYRACUSE
 ONONDAGA COUNTY, NEW YORK

CH2MHILL **CH2**
 CONSULTANTS

WETLAND DITCH RELOCATION PLAN

VERIFY SCALE	
NYS ERM #21716 ORIGINAL DRAWING	
DATE	MAY 02 2011
PROJECT	'10217
OWNER	WAM 2000
SHEET	XXXX

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GENERAL NOTES:

- GENERAL NOTES:
 - IF NOT INCLUDED IN THESE CONTRACT DOCUMENTS PROVIDES WETLAND MITIGATION FOR THE HARBOR BROOK CSD DITCH TREATMENT WETLAND PROJECT.
 - THE CONTRACTOR SHALL VERIFY ALL EXISTING CONDITIONS AND DIMENSIONS AND BECOME THOROUGHLY FAMILIAR WITH THE PROJECT SITE PRIOR TO COMMENCING WORK. ANY DISCREPANCIES SHALL BE IMMEDIATELY REPORTED TO THE OWNER'S REPRESENTATIVE.
 - THE CONTRACTOR IS RESPONSIBLE FOR THE COORDINATION OF ALL INFORMATION ON THE DRAWINGS AND IN THE SPECIFICATIONS AND FOR THE CONSEQUENCES OF ANY UNAUTHORIZED SUBSTITUTIONS, OMISSIONS, DELETIONS AND ANY NON-COMPLIANCE WITH THE CONTRACT DOCUMENTS.
 - DO NOT SCALE THE DRAWINGS. WRITTEN DIMENSIONS SHALL HAVE PRECEDENCE OVER ANY SCALED DIMENSIONS.
 - THE INSTALLATION OF EROSION AND SEDIMENT CONTROL MEASURES SHALL OCCUR PRIOR TO ANY LAND DISTURBANCE.
 - NO BLASTING WILL BE ALLOWED ON SITE.
- QUALITY ASSURANCE:
 - CONTRACTOR SHALL HAVE SUCCESSFULLY COMPLETED AT LEAST THREE (3) SIMILAR SIZE WETLAND CREATION OR RESTORATION AREA PROJECTS WITHIN THE PAST FIVE (5) YEARS.
- SURVEY CONTROL NOTES:
 - THE CONTRACTOR SHALL VERIFY ALL COORDINATES, DISTANCES, ANGLETS AND BEARINGS SHOWN ON THESE PLANS PRIOR TO THEIR USE FOR ANY PURPOSE OR ANY OTHER CONSTRUCTION PURPOSES.
 - THE CONTRACTOR SHALL COORDINATE ALL CONSTRUCTION ACTIVITIES WITH THE OWNER'S REPRESENTATIVE.
 - THE CONTRACTOR SHALL USE ROW AND AVE FOR ACCESS TO THE MITIGATION AREA UNLESS OTHERWISE DIRECTED BY THE OWNER'S REPRESENTATIVE.
 - HORIZONTAL CONTROL DATUM IS UTM ZONE 18K, SURVEY FOOT, NAD 1983.
- SEEDING OR PLANTING:
 - PLACE SEDIMENTATION AND SWAMP POLLUTION CONTROL STRUCTURES AS REQUIRED BY THESE PLANS OR AS DIRECTED BY THE OWNER'S SITE REPRESENTATIVE TO PROTECT EXISTING WETLANDS AND STREAMS THROUGHOUT THE COURSE OF THE CONSTRUCTION. MAINTAIN, REPAIR, MODIFY AND EXPAND THESE CONTROLS AS NEEDED AND AS DIRECTED BY THE OWNER'S SITE REPRESENTATIVE.
 - IT WILL BE THE CONTRACTOR'S RESPONSIBILITY TO SECURE AN APPROPRIATE UPLAND STAGING AREA FOR THE PROJECT.
 - COMPLETE CLEARING AND GRUBBING AS WELL AS NEARBY EXCAVATION OF THE MITIGATION AREA. SEE NOTE 2 THIS SHEET. ANY EXCESS MATERIAL MUST BE REMOVED FROM THE MITIGATION AREA.
 - PLACE A MINIMUM OF 8" TOPSOIL WITHIN THE MITIGATION AREA TO PREPARE FINAL GRADE.
 - SEED MITIGATION AREA WITH SEED MIXES SPECIFIED ON PLANS. SEE NOTE 1 FOR SEED MIX.
- GENERAL EROSION CONTROL NOTES:
 - 1181 EROSION AND SEDIMENT CONTROL MEASURES WILL BE INCORPORATED INTO THE PROJECT CONSTRUCTION. THESE PRACTICES WILL BE IN ACCORDANCE WITH THOSE SET FORTH IN THE NEW YORK STATE STANDARDS AND SPECIFICATIONS FOR EROSION AND SEDIMENT CONTROL.
 - PRIOR TO ANY SITE DISTURBANCE, THE CONTRACTOR SHOULD THOROUGHLY REVIEW AND FAMILIARIZE THE APPROVED STORMWATER POLLUTION PREVENTION PLAN (SWPPP) TO BE MAINTAINED BY THE CONTRACTOR ON SITE.
 - ALL EROSION CONTROL MEASURES ARE TO BE INSPECTED DAILY FOR PROPER FUNCTIONING. ANY DAMAGE TO OR NON-FUNCTIONING DEVICES SHALL BE REPLACED IMMEDIATELY. NO EROSION AND SEDIMENT CONTROL DEVICES SHALL BE REMOVED WITHOUT APPROVAL OF THE OWNER'S SITE REPRESENTATIVE. THIS IS FOR EROSION CONTROL PURPOSES ONLY.
- DEMOLITION & EXCAVATION:
 - REMOVE ALL MATERIALS AS REQUIRED ACCORDING TO NEW MATERIALS AND ACHIEVING ELEVATIONS NOTED ON THE EXISTING AND GRADING PLANS.
 - EXCAVATE THE EXISTING SOIL MATERIAL FROM THE PROPOSED MITIGATION AREA TO A DEPTH OF 12" BELOW THE EXISTING GRADE.
 - CONTRACTOR SHALL GRUB AND DISPOSE OF ALL ROOTS LARGER THAN 2" DIAMETER, STUMPS, BURIED LOGS, WATTED ROOF, AND ORGANIC MATERIALS OFF SITE IN A LEGAL MANNER UNLESS OTHERWISE DIRECTED BY THE OWNER OR OWNER'S REPRESENTATIVE.
- SITE PROTECTION NOTES:
 - LIMITS OF DISTURBANCE SHALL BE STAKED OUT BY THE CONTRACTOR BEFORE THE CONTRACTOR MODIFICATION OCCURS.
- TOPSOIL NOTES:
 - THE CONTRACTOR WILL FURNISH AND INSTALL A DURABLE SALT FLAN, AUTHORED AS NECESSARY TO MEET THE SPECIFICATIONS IN THE TABLE BELOW. A SOIL ANALYSIS SHALL BE OBTAINED BY AN INDEPENDENT TESTING LAB EMPLOYED BY THE CONTRACTOR MUST BE PROVIDED TO THE SITE OWNER'S SITE REPRESENTATIVE FOR APPROVAL PRIOR TO ORDERING THE FLAN.
 - REGARDLESS OF SOURCE, THE EROSION SHALL BE APPLIED AT A MINIMUM OF 8" IN DEPTH WITHIN THE WETLAND MITIGATION AREAS.
 - DRY IT TO BULK DENSITY AND DRAG THE GRADED TOPSOIL TO PRODUCE A FINE SEED BED. CHECK SOIL COMPACTION AFTER DRIVING AND REPEAT PROCESS AS NECESSARY UNTIL 80% OR MORE OF THE SOIL PENETROMETER READINGS ARE LESS THAN 4 POUNDS PER SQUARE INCH.
- PLANTING NOTES:
 - THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING ALL CERTIFICATIONS FOR ALL MITIGATION LIVE CUTTINGS AND SEEDING TO THE OWNER'S SITE REPRESENTATIVE FOR APPROVAL PRIOR TO ORDERING MATERIALS.
 - ALL PLANTS SHALL BE DISEASE RESISTANT NATIVE PLANTS FROM CERTIFIED NURSERY.
 - LIVE CUTTINGS SHALL BE PLANTED DURING THE EARLY SEEDING ONLY AT THE FIRST OPPORTUNITY TO MEET SEASONAL REQUIREMENTS, UNLESS OTHERWISE APPROVED BY THE OWNER'S SITE REPRESENTATIVE.
 - ALL PLANTINGS SHALL BE Laid OUT IN ACCORDANCE WITH THE PLANTING PLAN SHEET. ANY FIELD MODIFICATIONS TO THE PLANS MUST BE APPROVED IN WRITING BY THE OWNER'S SITE REPRESENTATIVE.
 - PRIOR TO DELIVERY OF NURSERY STOCK, THE CONTRACTOR SHALL PROVIDE THE OWNER'S SITE REPRESENTATIVE WITH DOCUMENTATION INCLUDING THE QUALITY, SIZE, GRAIN, SPECIES AND VARIETY OF LIVE STAKES INDICATED ON THE PLANS, COMPLIANT WITH APPLICABLE REQUIREMENTS IN ANSI Z401.1, AMERICAN STANDARD FOR NURSERY STOCK. SUBSTITUTIONS WILL NOT BE PERMITTED WITHOUT THE APPROVAL OF THE OWNER'S SITE REPRESENTATIVE.
 - UPON ARRIVAL, ALL LIVE STAKES MUST SHOW APPEARANCE OF NORMAL HEALTH AND MOOR.
 - WHILE STORED ON THE PROJECT SITE, LIVE STAKES SHALL BE PROTECTED FROM HEAT, LIGHT AND WIND.
 - THE CONTRACTOR SHALL DO ANY WORK NECESSARY SUCH AS CULTIVATING, PRUNING, PROTECT FROM WEEDS TO MAINTAIN PLANTINGS FOR ONE FULL YEAR FOLLOWING PLANTING. MAINTENANCE IS CONSIDERED ESSENTIAL TO ESTABLISHING AND INSTALLING THE PLANTS. ANY DEAD OR DYING PLANT SHALL BE REPLACED BY KIND AT THE CONTRACTOR'S COST.
 - SEEDING SHALL OCCUR BETWEEN APRIL 1ST TO MAY 31ST OR SEPTEMBER 1ST TO OCTOBER 15TH. LIVE CUTTINGS MUST BE PLANTED IN EARLY SPRING ONLY (MARCH 15TH - 30 APRIL 15TH) DO NOT ALLOW THEM DRY OUT BETWEEN FORESTING AND PLANTING.
 - ONLY PLANT MATERIALS NATIVE OR NATURALIZED AND NON-INVASIVE TO THE REGION SHALL BE USED. SPECIES NOT SPECIFIED IN THE MITIGATION PLAN SHALL NOT BE USED WITHOUT WRITTEN APPROVAL FROM THE ENGINEER.
 - LIVE STAKES SHOULD BE 2 TO 4' LONG AND 3/8" TO 1-1/2" DIAMETER.
 - SOAK STAKES IN WATER FOR AT LEAST 24 HOURS BEFORE PLANTING.
 - ALL BRANCHES SHOULD BE TRIMMED FROM THE LIVE STAKES. DRIVE A PILOT HOLE INTO THE SOIL AND PLANT AT RIGHT ANGLES WITH BUDS ORIENTED UP AND AT LEAST TWO INCHES OF ITS LENGTH UNDERGROUND.
 - PLANT LIVE STAKES RANDOMLY OR ON A TRIANGULAR SPACING 3' APART.
 - TAMP THE SOIL AROUND THE LIVE STAKES, WATER AND COVER WITH MULCH.
 - ALL PLANTINGS AND SEEDING AREAS MUST BE WATERED AS NECESSARY TO ENSURE HEALTH AND SURVIVAL.
 - ALL AREAS SHALL BE HYDRO-MULCHED WITH A COMBINATION WOOD FIBER/WOOD CELLULOSE FIBER HYDRAULIC MULCH PRODUCT TO REDUCE POTENTIAL CONTAMINATION. IN COMBINATION WITH WOOD CELLULOSE FIBERS DERIVED FROM WOODCHIPS MATERIALS SHALL CONSIST OF WOOD CHIPS, NEWSPAPER, HEAVYWEIGHT MAGAZINES, OR OTHER PAPER IN A FINE COMBINATION, SUCH AS 70%-30%. THE WOOD FIBER AND WOOD CELLULOSE FIBER HYDRAULIC MULCH MAY BE DERIVED FROM RECYCLED MATERIALS OR BE NEWLY MANUFACTURED. BOTH THE WOOD FIBER AND THE WOOD CELLULOSE FIBER MATERIALS SHALL BE SPECIALLY PREPARED AND PROCESSED TO A FINISH FINISHING STATE, AND SHALL BE PACKAGED FOR SALE AS HYDRAULIC MULCH FOR USE WITH HYDRAULIC SEEDING EQUIPMENT.

19. THE WOOD FIBER AND WOOD CELLULOSE FIBERS SHALL BE DYED GREEN TO AID IN VERIFYING THAT THE MATERIAL HAS BEEN ADEQUATELY SPREAD OVER THE AREAS SEED. HYDRO-MULCH WILL BE APPLIED AT A RATE OF 1.5 TO 2.0 TONS/ACRE. WOOD FIBER, WOOD CELLULOSE FIBER, AND WOOD FIBER + WOOD CELLULOSE FIBER PRODUCTS SHALL BE APPLIED IN ACCORDANCE WITH MANUFACTURER LABELING. MULCH SHALL BE APPLIED SUCH THAT A MINIMUM OF 50% OF THE SOIL SURFACE IS COVERED WITH HYDRAULIC MULCH OR WITH AS MUCH AS IS NECESSARY TO ENSURE THAT THE MULCH IS HELD SECURELY IN PLACE AND THAT ONLY MINIMAL AMOUNTS OF IT GET AWAY OR RUN AWAY FROM THE SEEDING SITE.

19. ALL UPLAND DISTURBED AREAS ARE TO BE SEEDED WITH ERNAC-126 AVAILABLE FROM ERNST CONSERVATION SEEDS, OR EQUIVALENT, AT A SEED RATE OF 30 BULK POUNDS PER ACRE. ERNAC-126 IS MADE UP OF THE FOLLOWING SPECIES:

- AGROSTIS ALBA (BEECHTOP)
- ELYNUS VIRGINICUS (VIRGINIA WILD RYE)
- PUCCONELLA DISTANS (ALFALFA GRASS)
- CARTE VULPINOIDEA (FOX SEED)
- AGROSTIS STOLONIFERA (CREEPING BENTGRASS)
- POA PALUSTRIS (LOW GULLY GRASS)
- AGROSTIS PERENNANS (AUTUMN BENTGRASS)
- AGROSTIS SCABRA (ROUGH BENTGRASS)

THIS SEED MIX SHOULD BE SUPPLEMENTED WITH A CARRIER SEED IN THE FOLLOWING QUANTITIES IN ORDER TO PROMOTE QUICK TEMPORARY ESTABLISHMENT OF VEGETATION:

- CALL SEED TO SEED MIX**
- SECALIS CERVALIS (WINTER RYE) 75 LBS/AC
 - LOLIUM MULTIFLORUM (ANNUAL RYE GRASS) 30 LBS/AC
- SEED MIX**
- HORDEUM VULGARE (BARLEY) 75 LBS/AC
 - LOLIUM MULTIFLORUM (ANNUAL RYE GRASS) 30 LBS/AC

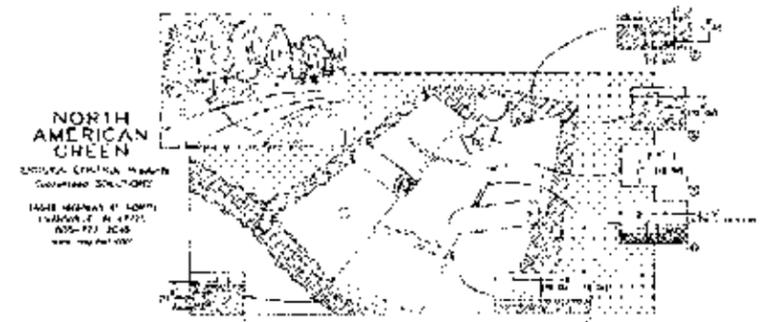
20. ALL WETLAND DISTURBED AREAS ARE TO BE SEEDED WITH ERNAC-176 AVAILABLE FROM ERNST CONSERVATION SEEDS, OR EQUIVALENT, AT A SEED RATE OF 30 BULK POUNDS PER ACRE. ERNAC-176 IS MADE UP OF THE FOLLOWING SPECIES:

- CARTE VULPINOIDEA (FOX SEED)
- PANICUM CLAUDESTRUM (DEER TONGUE)
- FESTUCA HYBRIDA (LITTLE BLUESTEM)
- CHAMAECRISTA FASCICULATA (PARTHOSIDE PEAN)
- ELYNUS VIRGINICUS (VIRGINIA WILD RYE)
- ELYNUS VIRGINICUS (VIRGINIA WILD RYE)
- VERNONIA HASTATA (BLUE MARYAM)
- ANDROPOGON CANADENSIS (DOG TONGUE)
- HELIOPSIS SCALARIS (OX-EYE DUNFLOPER)
- VERBENA HASTATA (ARROW WOOD)
- CORNUS AMOMIA (SOFT DOGWOOD)
- PANDANUS VIRGATUS (SWITCHGRASS)
- SORGHASTRUM MUTANS (INDIANGRASS)
- ASITLHAS SYRINCA (COMMON MILKWEED)
- DEBBACONIA CANADENSIS (SHOWY ROCK TROFOLI)
- EUPATORIUM FISTULOSUM (JOE PINE NEED)
- EUPATORIUM MACULATUM (SPOTTED JOE PINE NEED)
- EUPATORIUM PERFOLIATUM (BROMSLEY)
- JUNCUS EFFUSUS (SOFT RUSH)
- HOKANDA FIBRILLOSA (WILD BERGAMOT)
- PERSTEMON URINALIS (SALT WHITE FLAED HONOL)
- RHUS TYPHINA (STAGHORN SUMAC)
- RUBROCHINA HIRTA (BLACK-EYED SUSAN)
- LIPTAZIA ALSTRAIPIA (BULLY FALSE WOOD)
- EUTHAMIA GRAMMIFOLIA (GRASS LEAVED GOLDENPOD)
- VERNONIA HASTATA (GRASS FLOWERS)

LEHNDICOLLIA LONGI-CAULIS (HYBRID (STIFF) BARNYARD GRASS) SHALL BE USED AS AN ANNUAL CARNEL SPECIES AND APPLIED AT A SEED RATE OF 75 LBS/ACRE.

21. LIVE STAKES ARE TO CONSIST OF THE FOLLOWING SPECIES AND PLANTED AS INDICATED ABOVE:

- VERBENA HASTATA (ARROW WOOD)
- CORNUS AMOMIA (SOFT DOGWOOD)
- CORNUS SERICEA (RED OSAR DOGWOOD)
- SALIX DISCOLOR (Pussy WILLOW)
- SALIX LUCIDA (SHAWING WILLOW)



1. REMOVE ALL EXISTING MATERIALS AS REQUIRED ACCORDING TO NEW MATERIALS AND ACHIEVING ELEVATIONS NOTED ON THE EXISTING AND GRADING PLANS.

2. EXCAVATE THE EXISTING SOIL MATERIAL FROM THE PROPOSED MITIGATION AREA TO A DEPTH OF 12" BELOW THE EXISTING GRADE.

3. CONSTRUCTION SHALL GRUB AND DISPOSE OF ALL ROOTS LARGER THAN 2" DIAMETER, STUMPS, BURIED LOGS, WATTED ROOF, AND ORGANIC MATERIALS OFF SITE IN A LEGAL MANNER UNLESS OTHERWISE DIRECTED BY THE OWNER OR OWNER'S REPRESENTATIVE.

4. THE CONTRACTOR SHALL DO ANY WORK NECESSARY SUCH AS CULTIVATING, PRUNING, PROTECT FROM WEEDS TO MAINTAIN PLANTINGS FOR ONE FULL YEAR FOLLOWING PLANTING. MAINTENANCE IS CONSIDERED ESSENTIAL TO ESTABLISHING AND INSTALLING THE PLANTS. ANY DEAD OR DYING PLANT SHALL BE REPLACED BY KIND AT THE CONTRACTOR'S COST.

5. SEEDING SHALL OCCUR BETWEEN APRIL 1ST TO MAY 31ST OR SEPTEMBER 1ST TO OCTOBER 15TH. LIVE CUTTINGS MUST BE PLANTED IN EARLY SPRING ONLY (MARCH 15TH - 30 APRIL 15TH) DO NOT ALLOW THEM DRY OUT BETWEEN FORESTING AND PLANTING.

6. ONLY PLANT MATERIALS NATIVE OR NATURALIZED AND NON-INVASIVE TO THE REGION SHALL BE USED. SPECIES NOT SPECIFIED IN THE MITIGATION PLAN SHALL NOT BE USED WITHOUT WRITTEN APPROVAL FROM THE ENGINEER.

7. LIVE STAKES SHOULD BE 2 TO 4' LONG AND 3/8" TO 1-1/2" DIAMETER.

8. SOAK STAKES IN WATER FOR AT LEAST 24 HOURS BEFORE PLANTING.

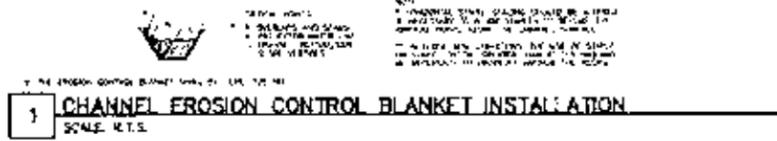
9. ALL BRANCHES SHOULD BE TRIMMED FROM THE LIVE STAKES. DRIVE A PILOT HOLE INTO THE SOIL AND PLANT AT RIGHT ANGLES WITH BUDS ORIENTED UP AND AT LEAST TWO INCHES OF ITS LENGTH UNDERGROUND.

10. PLANT LIVE STAKES RANDOMLY OR ON A TRIANGULAR SPACING 3' APART.

11. TAMP THE SOIL AROUND THE LIVE STAKES, WATER AND COVER WITH MULCH.

12. ALL PLANTINGS AND SEEDING AREAS MUST BE WATERED AS NECESSARY TO ENSURE HEALTH AND SURVIVAL.

13. ALL AREAS SHALL BE HYDRO-MULCHED WITH A COMBINATION WOOD FIBER/WOOD CELLULOSE FIBER HYDRAULIC MULCH PRODUCT TO REDUCE POTENTIAL CONTAMINATION. IN COMBINATION WITH WOOD CELLULOSE FIBERS DERIVED FROM WOODCHIPS MATERIALS SHALL CONSIST OF WOOD CHIPS, NEWSPAPER, HEAVYWEIGHT MAGAZINES, OR OTHER PAPER IN A FINE COMBINATION, SUCH AS 70%-30%. THE WOOD FIBER AND WOOD CELLULOSE FIBER HYDRAULIC MULCH MAY BE DERIVED FROM RECYCLED MATERIALS OR BE NEWLY MANUFACTURED. BOTH THE WOOD FIBER AND THE WOOD CELLULOSE FIBER MATERIALS SHALL BE SPECIALLY PREPARED AND PROCESSED TO A FINISH FINISHING STATE, AND SHALL BE PACKAGED FOR SALE AS HYDRAULIC MULCH FOR USE WITH HYDRAULIC SEEDING EQUIPMENT.



1. CHANNEL EROSION CONTROL BLANKET INSTALLATION SCALE: 1:10

CH2MHILL

HARBOR BROOK COOKING
CONSTRUCTED WETLANDS
CITY OF SYRACUSE
ONONDAGA COUNTY, NEW YORK

WETLAND DITCH RELOCATION
NOTES AND DETAILS

VERIFY SCALE
FOR ALL DIMENSIONS
ORIGINAL DRAWING

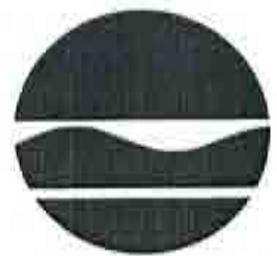
DATE	NOV 30 2011
FIG#	10217
DWG#	WM-5001
SHEET	XXXX

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ATTACHMENT 5
CORRESPONDENCE

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
Division of Fish, Wildlife & Marine Resources
New York Natural Heritage Program
625 Broadway, 5th Floor, Albany, New York 12233-4757
Phone: (518) 402-8935 • **Fax:** (518) 402-8925
Website: www.dec.ny.gov



Peter M. Iwanowicz
Acting Commissioner

December 29, 2010

RECEIVED

JAN 04 2011

Jeffrey Williams
Clough Harbour Associates
441 South Salina Street
Syracuse, NY 13202-4712

Dear Mr. Williams:

In response to your recent request, we have reviewed the New York Natural Heritage Program database with respect to an Environmental Assessment for the proposed Demonstration Project – 1.9 Site, # 19217 – Harbor Brook CSO 018 Treatment Wetland, site as indicated on the map you provided, located in Syracuse, Onondaga County.

We have no records of rare or state-listed animals or plants, significant natural communities or other significant habitats, on or in the immediate vicinity of your site.

The absence of data does not necessarily mean that rare or state-listed species, natural communities or other significant habitats do not exist on or adjacent to the proposed site. Rather, our files currently do not contain information which indicates their presence. For most sites, comprehensive field surveys have not been conducted. We cannot provide a definitive statement on the presence or absence of all rare or state-listed species or significant natural communities. This information should not be substituted for on-site surveys that may be required for environmental assessment.

Our databases are continually growing as records are added and updated. If this proposed project is still under development one year from now, we recommend that you contact us again so that we may update this response with the most current information.

This response applies only to known occurrences of rare or state-listed animals and plants, significant natural communities and other significant habitats maintained in the Natural Heritage Data bases. Your project may require additional review or permits; for information regarding other permits that may be required under state law for regulated areas or activities (e.g., regulated wetlands), please contact the appropriate NYS DEC Regional Office, Division of Environmental Permits, as listed at www.dec.ny.gov/about/39381.html.

Sincerely,
Tara Salerno *TS*
Tara Salerno, Information Services
New York Natural Heritage Program

Enc.
cc: Reg. 7

1339



March 02, 2011

Ms. Robyn Niver
United States Department of the Interior
Fish and Wildlife Service
3817 Laker Road
Cortland, New York 13054

**RE: Harbor Brook CSO 018 Treatment Wetland
Threatened & Endangered Species Impact Evaluation
City of Syracuse, Onondaga County, NY
CHA Project No.: 19217**

Dear Ms. Niver:

On behalf of the Onondaga County Department of Water Environment Protection (WEP), CHA Inc. (CHA) is submitting this threatened and endangered species impact evaluation relative to the proposed Harbor Brook CSO 018 Treatment Wetland located near the intersection of Velasko Road and Grand Avenue in the City of Syracuse, Onondaga County, New York (Attachment 1, Figure 1 - Project Location Map, Syracuse West Quadrangle). The approximate center-point coordinates of the project site are Latitude 43° 2.163' N; Longitude 76° 11.012' W.

The WEP is proposing the construction of a 1.9 acre demonstration-scale constructed treatment wetland system on an undeveloped site. The wetland system will serve multiple purposes of (1) treating CSO 018 overflows currently discharged into Harbor Brook, (2) acting as a demonstration project to test the effectiveness of three types of constructed treatment wetland systems and (3) creating wildlife habitat for public enjoyment. The habitats of those areas are discussed in detail below.

A December 29, 2010 response letter from the New York State Department of Environmental Conservation (NYSDEC) Natural Heritage Program (NHP) indicated that no records of rare or state listed animals or plants, significant natural communities or other significant habitats occur on or in the immediate vicinity of the project site (Attachment 2).

The USFWS website was reviewed for the list of federally-protected species known to occur in Onondaga County (Attachment 3). This list identified seven species:

- American hart's tongue Fern (*Asplenium scolopendrium* var. *americanum*) – threatened

- Bald eagle (*Haliaeetus leucocephalus*) – listed but protected under the Migratory Bird Treaty Act
- Bog turtle (*Emydoidea blandingii*) – threatened
- Eastern massasauga (*Sistrurus catenatus catenatus*) – candidate
- Eastern prairie fringed orchid (*Platanthera acuminata*) – threatened
- Indiana bat (Wis.) (*Myotis sodleyi*) – endangered
- Small whorled pogon (H stone) (*Desmognathus deloachii*) – threatened

The habitats of the project site were documented during a November 29, 2010 site visit. The following summarizes CEA's findings with regards to threatened, endangered and otherwise protected species.

Vegetative Community Impacts

The habitats that occur in the impact area include a mowed lawn like habitat adjacent to an unpaved road path and a stream corridor with fringe reedgrass purple loosestrife marsh. At the time of the field survey the mowed lawn like habitat consisted of various grasses and forbs. The unpaved road path is sparsely vegetated with forbs and grasses common to the area. Representative photographs of these community types are located in Attachment 4.

These vegetative communities have been compared to the known habitats of each species listed above and the potential of the project to impact each species has been assessed as follows:

Species Habitat Requirements and Potential Impacts

According to the New York Natural Heritage website, the **American hart's-tongue fern** is typically found in glacial plunge basins on dolomite and other calcareous rocks. The preferred habitats are often cool moist areas on unstable talus or rock crevices below basin cliffs, always in deep shade¹.

- The project area does not include any of the preferred habitats of the **American hart's-tongue fern**, so it is highly unlikely that this species will occur within the project area or will be impacted by project activities.

The **bald eagle** is a species that prefers undisturbed areas near large lakes and reservoirs, marshes and swamps, or stretches along rivers where they can find open water and their primary food, fish. Nests are usually located high in a tall, large white pine tree near water and their primary food, fish². This species will also nest in deciduous trees and tends to avoid areas with nearby human activity (boat traffic, pedestrians) and development (buildings). Non-breeding adults and wintering birds are known to have communal roost sites. During the winter, the roost sites may be further away from food sources. Feeding areas during the winter months usually have a high concentration of fish and waterfowl and open water (NatureServe 2006)³.

¹http://www.nynaturalheritage.org/Species/Detail.aspx?speciesid=104&parentid=103

²http://www.nynaturalheritage.org/Species/Detail.aspx?speciesid=104&parentid=103

³http://www.nynaturalheritage.org/Species/Detail.aspx?speciesid=104&parentid=103

- The project will not impact bald eagles because the project site does not contain trees; therefore no trees will be cut. For the bald eagle nesting in this area is unlikely because of the proximity to the active roadway and human development.

According to descriptions provided by the New York Natural Heritage Program and USFWS, **bog turtles** prefer open canopy wet meadows with soft, saturated soils such as sedge meadows, and fens fed by seeps and springs of cold groundwater that has been in contact with calcium-rich bedrock or soils. In New York, bog turtles are very often found in or near rivulets having deep mucky substrate, but where above-surface water depths are very shallow, usually only a few inches deep at most. In the Lake Placid region of the state, known habitat consists of large fens that include various species of sedges, bog buckbean (*Menyanthes trifoliata*), mosses (*Sphagnum* spp.), pitcher plants (*Sarracenia* spp.) and scattered trees and shrubs⁵.

- The project will not impact **bog turtles** because habitat suitable for this species does not occur on site. The soils of the wetlands present are a firm mineral soil and they are not mucky; therefore suitable substrate is not present. Additionally, groundwater-fed rivulets are not present and areas of standing water are limited to the stream channels. These habitats are not suitable for bog turtle inhabitation.

According to the NYSDDEC website the **eastern massasauga** is strongly associated with wetland. Its preferal habitat in the east consists of bogs and swamps⁶. Currently, there are only two known populations remaining in New York, both of which occur in boggy, forested wetlands with 'open rooms' of low vegetation.

- Since this type of habitat does not occur within the project limits it is not anticipated that the **eastern massasauga** would be impacted by the proposed project.

The **eastern prairie fringed orchid** occurs in a wide variety of habitats, from mesic prairie to wetlands such as sedge meadows, marsh edges, even bogs. It requires full sun for optimum growth and flowering and a grassy habitat with little or no woody encroachment. A symbiotic relationship between the seed and soil fungi, called mycorrhizae, is necessary for seedlings to become established. This fungi helps the seeds assimilate nutrients in the soil⁶.

- Based on the fact that the wetland of the project site has been significantly manipulated, has been overcome and is dominated by invasive species, and occurs in an active floodplain, we assume that the eastern prairie fringed orchid is not present and is therefore unlikely to be impacted by the proposed project.

⁵ Bog Turtle Fact Sheet, NYSDDEC website: http://www.dec.state.ny.us/da/doclib/bog_turtle.pdf, accessed 12/20/11.
Faded Massasauga Fact Sheet, NYSDDEC website: http://www.dec.state.ny.us/da/doclib/faded_massasauga.pdf, accessed 12/20/11.
Eastern Prairie Fringed Orchid Fact Sheet, NYSDDEC website: http://www.dec.state.ny.us/da/doclib/eastern_prairie_fringed_orchid.pdf, accessed 12/20/11.

The **Indiana bat** is a species that hibernates in caves during the winter months and emerges in spring and then migrates to stream habitats. Females form maternal broods and males make extraoral food deliveries and other suitable habitats.

- Impacts to **Indiana bats** will not occur because the project site does not contain caves; therefore tree removal will not occur.

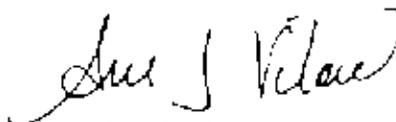
The **small whorled pogonia** orchid grows in older hardwood stands of beech, birch, maple, oak, and hickory that have an open understory. Sometimes it grows in stands of softwoods such as hemlock. It prefers acidic soils with a thick layer of dead leaves, often on slopes near small streams.

- The project will not impact the **small whorled pogonia** since there is no habitat to support this species present within the project site.

Summary

In summary, based on the review of each of the listed species habitats it is not anticipated that any of the listed species would be impacted as a result of the proposed project.

Sincerely,

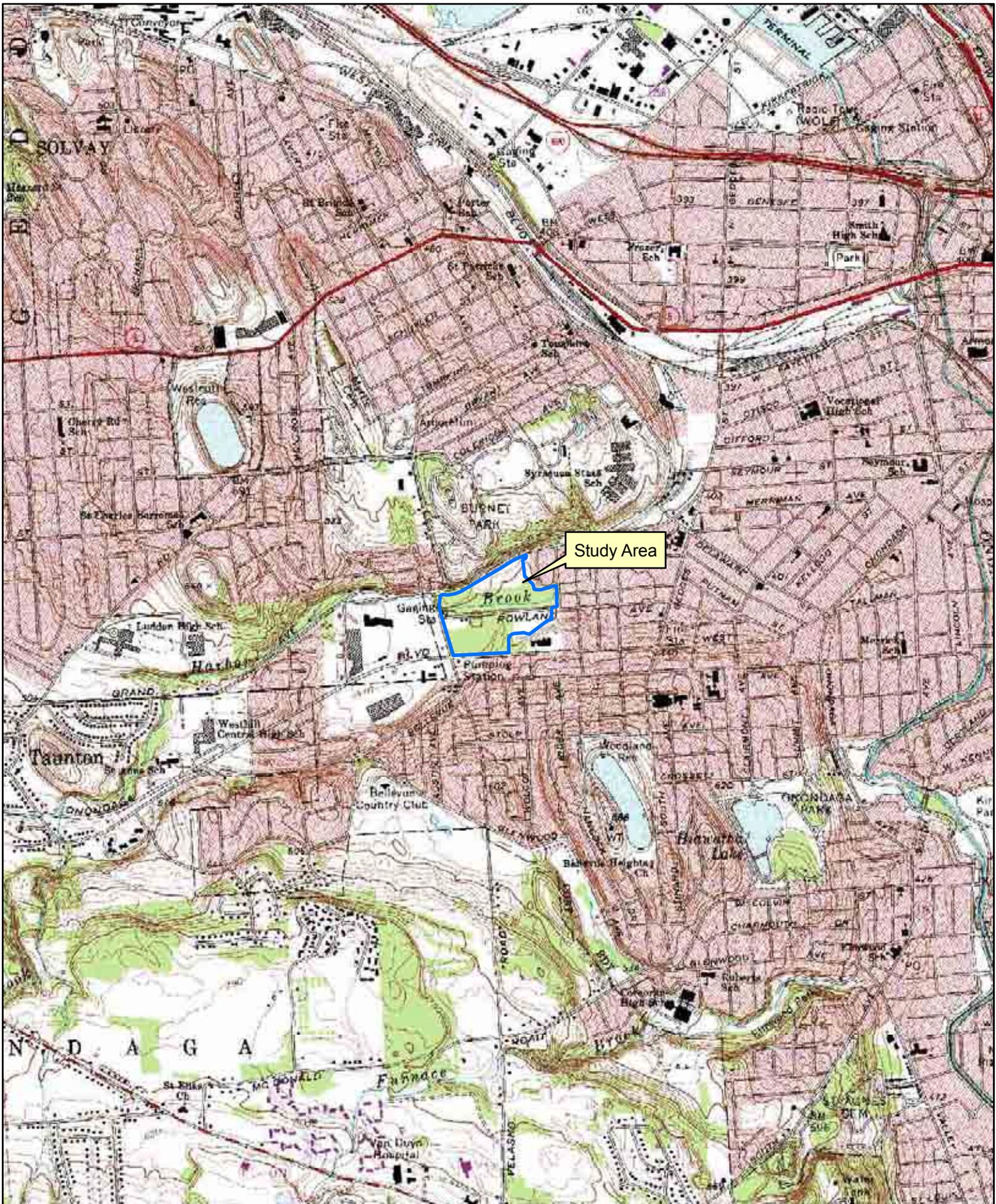


Sue J. Vilord
Senior Ecologist

Enclosures

1. Project NY-KMP-11 Funding Worksheet Assessment Letter etc.

Attachment 1
SITE LOCATION MAP



111 Winners Circle, P.O. Box 5269 • Albany, NY 12205-0269
Main: (518)453-4500 • www.cloughharbour.com

Project Location Map
Harbor Brook CSO 018 Treatment Wetland
City of Syracuse, Onondaga County, NY



1 inch = 2,000 feet

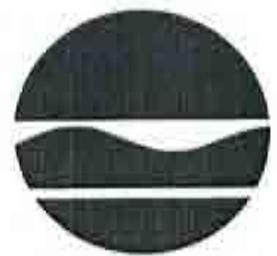
Project No.: 19217

Date: January 2011

Figure 1

Attachment 2
NYSDEC Correspondence

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
Division of Fish, Wildlife & Marine Resources
New York Natural Heritage Program
625 Broadway, 5th Floor, Albany, New York 12233-4757
Phone: (518) 402-8935 • **Fax:** (518) 402-8925
Website: www.dec.ny.gov



Peter M. Iwanowicz
Acting Commissioner

December 29, 2010

RECEIVED

JAN 04 2011

Jeffrey Williams
Clough Harbour Associates
441 South Salina Street
Syracuse, NY 13202-4712

Dear Mr. Williams:

In response to your recent request, we have reviewed the New York Natural Heritage Program database with respect to an Environmental Assessment for the proposed Demonstration Project – 1.9 Site, # 19217 – Harbor Brook CSO 018 Treatment Wetland, site as indicated on the map you provided, located in Syracuse, Onondaga County.

We have no records of rare or state-listed animals or plants, significant natural communities or other significant habitats, on or in the immediate vicinity of your site.

The absence of data does not necessarily mean that rare or state-listed species, natural communities or other significant habitats do not exist on or adjacent to the proposed site. Rather, our files currently do not contain information which indicates their presence. For most sites, comprehensive field surveys have not been conducted. We cannot provide a definitive statement on the presence or absence of all rare or state-listed species or significant natural communities. This information should not be substituted for on-site surveys that may be required for environmental assessment.

Our databases are continually growing as records are added and updated. If this proposed project is still under development one year from now, we recommend that you contact us again so that we may update this response with the most current information.

This response applies only to known occurrences of rare or state-listed animals and plants, significant natural communities and other significant habitats maintained in the Natural Heritage Data bases. Your project may require additional review or permits; for information regarding other permits that may be required under state law for regulated areas or activities (e.g., regulated wetlands), please contact the appropriate NYS DEC Regional Office, Division of Environmental Permits, as listed at www.dec.ny.gov/about/39381.html.

Sincerely,
Tara Salerno *TS*
Tara Salerno, Information Services
New York Natural Heritage Program

Enc.
cc: Reg. 7

1339

Attachment 3

ONONDAGA COUNTY THREATENED AND
ENDANGERED SPECIES LIST



Onondaga County

Federally Listed Endangered and Threatened Species and Candidate Species

This list represents the best available information regarding known or likely County occurrences of Federally-listed and candidate species and is subject to change as new information becomes available.

<u>Common Name</u>	<u>Scientific Name</u>	<u>Status</u>
American hart's-tongue fern	<i>Asplenium scolopendrium</i> var. <i>americanum</i>	T
Bald eagle ¹	<i>Haliaeetus leucocephalus</i>	D
Bog turtle	<i>Clemmys [=Glyptemys] muhlenbergii</i>	T
Eastern massasauga	<i>Sistrurus catenatus catenatus</i>	C
Eastern prairie fringed orchid (<i>Historic</i>)	<i>Platanthera leucophea</i>	T
Indiana bat (W/S)	<i>Myotis sodalis</i>	E
Small whorled pogonia (<i>Historic</i>)	<i>Isotria medeoloides</i>	T

Status Codes: E=Endangered, T=Threatened, P=Proposed, C=Candidate, D=Delisted.

W=Winter S=Summer

¹ The bald eagle was delisted on August 8, 2007. While there are no ESA requirements for bald eagles after this date, the eagles continue to receive protection under the Bald and Golden Eagle Protection Act (BGEPA). Please follow the Service's May 2007 Bald Eagle Management Guidelines to determine whether you can avoid impacts under the BGEPA for your projects. If you have any questions, please contact the endangered species branch in our office.

Information current as of: 1/27/2011

Attachment 4
SITE PHOTOGRAPHS



Photo 1 – Proposed Project Site



Photo 2 – Adjacent field; representative of site conditions



SITE PHOTOGRAPHS

**Harbor Brook CSO 018 Treatment Wetland
City of Syracuse, Onondaga Co., NY**



Photo 3 – Adjacent field. Project site contains very similar habitats.



SITE PHOTOGRAPHS

**Harbor Brook CSO 018 Treatment Wetland
City of Syracuse, Onondaga Co., NY**



United States Department of the Interior



FISH AND WILDLIFE SERVICE

New York Field Office

3817 Luxer Road

Cortland, NY 13045

Phone: (607) 753-9334 Fax: (607) 753-9699

http://www.fws.gov/northeast/nyfo

To: Sue Vford

Date: Mar 7, 2011

USFWS File No: 110236

Regarding your: Letter FAX Email

Dated: March 2, 2011

For project: Harbor Brook CSO 018 Treatment Wetland

Located: near Velasko Road and Grand Avenue

In Town/County: City of Syracuse / Onondaga County

Pursuant to the Endangered Species Act of 1973 (ESA) (87 Stat. 884, as amended; 16 U.S.C. 1531 et seq.), the U.S. Fish and Wildlife Service:

- Acknowledges receipt of your "no effect" and/or no impact determination. No further ESA coordination or consultation is required.
- Acknowledges receipt of your determination. Please provide a copy of your determination and supporting materials to any involved Federal agency for their final ESA determination.
- Is taking no action pursuant to ESA or any other legislation at this time but would like to be kept informed of project developments.

As a reminder, until the proposed project is complete, we recommend that you check our website (<http://www.fws.gov/northeast/nyfo/es/section7.htm>) every 90 days from the date of this letter to ensure that listed species presence/absence information for the proposed project area is current. Should project plans change or if additional information on listed or proposed species or critical habitat becomes available, this determination may be reconsidered.

USFWS Contact(s) Robyn Arner

Supervisor: D. A. S. [Signature]

Date: 3/10/2011

ATTACHMENT 6
SPDES APPLICATION

NEW YORK STATE
DEPARTMENT OF ENVIRONMENTAL CONSERVATION

Division Of Water



APPLICATION FORM NY-2A

This form must be completed by all persons applying for a new OR modification of an existing SPDES permit for the discharge of wastewater from a publically owned treatment works (POTW).

SEE GENERAL INSTRUCTIONS INSIDE COVER

STATE POLLUTANT DISCHARGE ELIMINATION SYSTEM (SPDES)

GENERAL INSTRUCTIONS

1. New Permits - Some of the items in this form associated with effluent data are not pertinent to new discharges. Substitute, where appropriate, design data for the facility or your best estimate.
2. If you are filing this application to obtain a new permit or modification of an existing permit, it must be filed with the Regional Permit Administrator for the DEC region in which the discharge is located. The correct address and phone number can be determined from the attached Filing Locations page.

If you are filing this application in response to an Information Request under the Environmental Benefit Permit Strategy, please follow the filing instructions contained within the request.

3. Federal and state laws require that you obtain a permit to discharge any of the Priority Pollutants listed in Table NY-2A. If you have any influent and/or effluent monitoring information or other knowledge indicating the presence of these parameters, you must submit test results (for each identified parameter) conducted on at least one 24 hour composite sample taken within the last 3 years.
4. All sampling and analysis results submitted as part of this application must comply with the MONITORING, RECORDING AND REPORTING requirements of attachment 1.
5. Applications for certain modifications of a SPDES permit do not require all sections of this application to be completed. Exceptions are determined on an individual basis related to the applicability of the information required by this form to the requested modification, or the Departments need to evaluate the current permit for deficiencies. All applications for a permit modification must include a letter or other document describing (as applicable) the changes or planned changes in the nature of the discharge, a description and justification for any requested permit modification, and the reason why an exemption should be granted from completing and filing any (or all) sections/tables in this application form. You will be informed of what (if any) additional information must be provided.
6. The authorization in section III and the certification in section IV must be signed by the principal or executive officer or a ranking elected official. Authority to sign the application certification cannot be delegated to another person.

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
State Pollutant Discharge Elimination System (SPDES)
MUNICIPAL APPLICATION FORM NY-2A
For New Permits & Permit Modifications

**I. PERMITTEE INFORMATION***Please type or print clearly*

SPDES Number: * NY	DEC Number: *	Current Permit Effective Date: *	Current Permit Expiration Date: *
Permittee Name:			
REFER ALL CORRESPONDENCE TO: ↓			
Name and Title:			Phone (area code & number): ()
Street or P.O. Box:			
City, Town or Village:		State:	Zip Code:

*** Leave Blank if application is for a new discharge.****II. FACILITY INFORMATION**

Facility Name:			
Contact Name & Title:			Phone (area code & number): ()
FACILITY LOCATION ↓			
City Town or village:	County:	Specific Identifier:	
FACILITY MAILING ADDRESS ↓			
Street, Route Number or Other Specific Identifier:			
City, Town or Village:		State:	Zip Code:

III. DISCHARGE MONITORING REPORT (DMR) INFORMATION

(The authorizing person must be either a principal or executive officer or a ranking elected official)

Name and/or Title of person Responsible for signing and Submitting DMRs:			Phone (area code & number): ()
Mailing Name:			
Mailing Address::	City:	State:	Zip Code:
Name & Title of Authorizing Person:			
Signature of Authorizing Person:			Date Signed:

IV. CERTIFICATION

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this application and all attachments and that, based on my inquiry of those persons immediately responsible for obtaining the information contained in this application, I believe that the information is true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

Name & Official Title:			Phone (area code & number): ()
Signature of Principal or Executive Officer or a Ranking Elected Official (only):			Date Signed:

V. TREATMENT PLANT INFORMATION:

Describe Treatment Process: *			
Plant Design Flow:	Year Plant Began Operation:	Year of Latest Plant Revisions:	
PLANT DESIGN INFORMATION	INFLUENT (mg/l)	EFFLUENT (mg/l)	PERCENT REMOVAL (%)
BOD ₅			
SUSPENDED SOLIDS			
TKN / AMMONIA	/	/	/
PHOSPHORUS (as P)			
Check Type of Discharge: Surface Water <input type="checkbox"/> Ground Water <input type="checkbox"/> Other			
Explain "Other":			
Name of Receiving Water or Nearest Surface Water Body:			
Give Location(s) Where Sludge is Disposed:			
Give Location(s) Where Grit is Disposed:			
Is part or all of your discharge into a municipal transport system under another responsible organization? <input type="checkbox"/> YES <input type="checkbox"/> NO (If yes, explain in an attachment. Give the names and address of the organization, the name of the plant receiving the flow, and the amount of flow)			
Have you applied for or received a State Revolving Fund (SRF) loan for construction or upgrade of the subject wastewater treatment facilities:			
COLLECTION SYSTEM INFORMATION			
CHECK Type of Collection System: <input type="checkbox"/> Separate <input type="checkbox"/> Combined <input type="checkbox"/> Both Separate & Combined			
NAMES OF MUNICIPALITIES SERVED	POPULATION SERVED	TOTAL COLLECTION SYSTEM LENGTH (MILES)	TOTAL COMBINED SYSTEM LENGTH (MILES)
TOTALS			

* Include a plant schematic diagram as an attachment to this application. Divide the schematic into wastewater treatment and sludge treatment.

VI. PLANT PERFORMANCE DATA: Provide effluent data for all items listed for which sampling has been conducted. This applies to parameters that may not be required to be measured by your permit, but samples were collected for other reasons and analyzed using 40CFR Part 136 techniques. (Effluent Values except where noted)

PARAMETER, UNITS	MONTHLY AVERAGES FOR THE LATEST 12 MONTH PERIOD												SAMPLING FREQUENCY	SAMPLE TYPE
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC		
Flow, MGD														
BOD ₅	Concentration, mg/l													
	Percent Removal													
S.S.	Concentration, mg/l													
	Percent Removal													
pH	Highest Day													
	Lowest Day													
Fecal Coliform, No./100ml														
Cl ₂ Residual, mg/l														
Settleable Solids, ml/l														
Ammonia, (as NH ₃), mg/l														
TKN, mg/l														
Dissolved Oxygen, mg/l														
Phosphorus (as P), mg/l														
Temperature, °C <i>or</i> °F <small>Circle One</small>														
Total Coliform, No./100 ml														
COD, mg/l														
TOC, mg/l														
Total Solids, mg/l														
Total Dissolved Solids, mg/l														
Nitrate, mg/l														
Nitrite, mg/l														

VII. OUTFALL, OVERFLOW AND BYPASS INFORMATION:

Complete a set of questions for each discharge. Include pump station overflows and frequently occurring sewer surcharges that either run overland to the stream or are relieved by pumping to a receiving stream. Use additional pages if necessary. Where the sewer system upstream of a discharge is a separate system, please note that the discharge is a bypass. Where the sewer system upstream of a discharge is a combined system, please note that the discharge is an overflow. Attach a map or maps showing the location of each outfall listed below. The maps must be on 8½ X 11 inch paper and must be clearly labeled with the outfall numbers.

OUTFALL NO.:	MAIN OUTFALL FROM TREATMENT PLANT					
Outfall Location ↓						
Street:		City:			County:	
Name of Receiving Waters:		Class:	Latitude: Deg. / Min. / Sec.		Longitude: Deg. / Min. / Sec.	
OUTFALL NO.:	Type: <input type="checkbox"/> Overflow (From combined sewers) <input type="checkbox"/> Bypass (From separate sewers)	Frequency of discharge: _____ Occurrences / month		Average Duration of Discharge: _____ Hours		
Outfall Location ↓						
Street:		City:			County:	
Name of Receiving Waters:		Class:	Latitude: Deg. / Min. / Sec.		Longitude: Deg. / Min. / Sec.	
Is Treatment Provided? <input type="checkbox"/> Yes <input type="checkbox"/> No; If Yes, describe:						
OUTFALL NO.:	Type: <input type="checkbox"/> Overflow (From combined sewers) <input type="checkbox"/> Bypass (From separate sewers)	Frequency of discharge: _____ Occurrences / month		Average Duration of Discharge: _____ Hours		
Outfall Location ↓						
Street:		City:			County:	
Name of Receiving Waters:		Class:	Latitude: Deg. / Min. / Sec.		Longitude: Deg. / Min. / Sec.	
Is Treatment Provided? <input type="checkbox"/> Yes <input type="checkbox"/> No; If Yes, describe:						
OUTFALL NO.:	Type: <input type="checkbox"/> Overflow (From combined sewers) <input type="checkbox"/> Bypass (From separate sewers)	Frequency of discharge: _____ Occurrences / month		Average Duration of Discharge: _____ Hours		
Outfall Location ↓						
Street:		City:			County:	
Name of Receiving Waters:		Class:	Latitude: Deg. / Min. / Sec.		Longitude: Deg. / Min. / Sec.	
Is Treatment Provided? <input type="checkbox"/> Yes <input type="checkbox"/> No; If Yes, describe:						
OUTFALL NO.:	Type: <input type="checkbox"/> Overflow (From combined sewers) <input type="checkbox"/> Bypass (From separate sewers)	Frequency of discharge: _____ Occurrences / month		Average Duration of Discharge: _____ Hours		
Outfall Location ↓						
Street:		City:			County:	
Name of Receiving Waters:		Class:	Latitude: Deg. / Min. / Sec.		Longitude: Deg. / Min. / Sec.	
Is Treatment Provided? <input type="checkbox"/> Yes <input type="checkbox"/> No; If Yes, describe:						

VIII. SIGNIFICANT INDUSTRIAL USER:

Fill in a separate item for each significant industrial user. Use as many pages as necessary. See attachment 2 for a definition of a significant industrial user.

Company Name:	Average Flow: _____ MGD	Phone No.: ()
Address:		SIC Code*:
Brief Description Of Industry:		
<hr/>		
Company Name:	Average Flow: _____ MGD	Phone No.: ()
Address:		SIC Code*:
Brief Description Of Industry:		
<hr/>		
Company Name:	Average Flow: _____ MGD	Phone No.: ()
Address:		SIC Code*:
Brief Description Of Industry:		
<hr/>		
Company Name:	Average Flow: _____ MGD	Phone No.: ()
Address:		SIC Code*:
Brief Description Of Industry:		
<hr/>		
Company Name:	Average Flow: _____ MGD	Phone No.: ()
Address:		SIC Code*:
Brief Description Of Industry:		

*Standard Industrial Classification Codes (SIC Code) may be obtained from the 1978 Edition of the Standard Industrial Classification Manual available from the Government Printing Office, Washington D.C. A copy will be available at many public libraries and a copy is available for inspection at the New York Department of Environmental Conservation Central Office, 50 Wolf Road, Albany, NY 12233-3505. Most industries will know the SIC code applicable to their facility.

TABLE NY-2A (Priority Pollutants)

INSTRUCTIONS

1. All data must be entered as both concentration and mass based on the effluent flow during the sampling period.
2. The priority pollutant scan data in Section 2 must be from the latest scan conducted during the last 3 years. If you have data from more than 1 scan during the last 3 years, enter the information under effluent data in Section 3. When tests for any of the parameters listed below fails to give a positive result, enter the detection level under the concentration column in Section 2. (For example: <2.)
3. If you conduct routine analysis for any of the parameters listed below, complete Section 3 using the last 3 years data.

1. POLLUTANT AND CAS NUMBER (if available)	2. PRIORITY POLLUTANT SCAN DATA		3. EFFLUENT DATA						4. UNITS		
			MAXIMUM DAILY VALUE		MAXIMUM 30 DAY VALUE		LONG TERM AVRG. VALUE		No. of Analyses	Concentration	Mass
	Concentration	Mass	Concentration	Mass	Concentration	Mass	Concentration	Mass			
METALS, CYANIDE, AND TOTAL PHENOLS											
1M. Antimony, Total (7440-36-0)											
2M. Arsenic, Total (7440-38-2)											
3M. Beryllium, Total (7440-41-7)											
4M. Cadmium, Total (7440-43-9)											
5M. Chromium, Total (7440-43-9)											
6M. Copper, Total (7440-50-8)											
7M. Lead, Total (7439-92-1)											
8M. Mercury, Total (7439-97-6)											
9M. Nickel, Total (7440-02-0)											
10M. Selenium, Total (7782-49-2)											
11M. Silver, Total (7440-22-0)											
12M. Thallium, Total (7440-28-0)											
13M. Zinc, Total (7440-66-6)											
14M. Cyanide, Total (57-12-5)											
15M. Phenols, Total											

1. POLLUTANT AND CAS NUMBER (if available)	2. PRIORITY POLLUTANT SCAN DATA		3. EFFLUENT DATA						4. UNITS	
			MAXIMUM DAILY VALUE		MAXIMUM 30 DAY VALUE		LONG TERM AVRG. VALUE		No. of Analyses	Concentration
	Concentration	Mass	Concentration	Mass	Concentration	Mass	Concentration	Mass		
DIOXIN										
2,3,7,8-Tetra-Chlorodibenzo-P-Dioxin (1764-01-6)										
GC/MS FRACTION - VOLATILE COMPOUNDS										
1V. Acrolein (107-02-8)										
2V. Acrylonitrile (107-13-1)										
3V. Benzene (71-43-2)										
4V. Bis (Chloromethyl) Ether (542-88-1)										
5V. Bromoform (75-25-2)										
6V. Carbon Tetrachloride (56-23-5)										
7V. Chlorobenzene (108-90-7)										
8V. Chlorodibromomethane (124-48-1)										
9V. Chloroethane (75-00-3)										
10V. 2-Chloroethylvinyl Ether (110-75-8)										
11V. Chloroform (67-66-3)										
12V. Dichlorobromomethane (75-27-4)										
13V. Dichlorodifluoromethane (75-71-8)										
14V. 1,1-Dichloroethane (75-34-3)										
15V. 1,2-Dichloroethane (107-06-2)										
16V. 1,1-Dichloroethylene (75-34-4)										
17V. 1,2-Dichloropropane (78-87-5)										

1. POLLUTANT AND CAS NUMBER (if available)	2. PRIORITY POLLUTANT SCAN DATA		3. EFFLUENT DATA						4. UNITS		
			MAXIMUM DAILY VALUE		MAXIMUM 30 DAY VALUE		LONG TERM AVRG. VALUE		No. of Analyses	Concentration	Mass
	Concentration	Mass	Concentration	Mass	Concentration	Mass	Concentration	Mass			
18V. 1,3-Dichloropropylene (542-75-6)											
19V. Ethylbenzene (100-41-4)											
20V. Methyl Bromide (74-83-9)											
21V. Methyl Chloride (74-87-3)											
22V. Methylene Chloride (75-09-2)											
23V. 1,1,2,2-Tetrachloroethane (79-34-5)											
25V. Toluene (108-88-3)											
26V. 1,2-Trans-Dichloroethylene (156-60-5)											
27V. 1,1,1-Trichloroethane (71-55-6)											
28V. 1,1,2-Trichloroethane (79-00-5)											
29.V Trichloroethylene (79-01-6)											
30V. Trichlorofluoromethane (75-69-4)											
31V. Vinyl Chloride (75-01-4)											
GC/MS FRACTION -- ACID COMPOUNDS											
1A. Chlorophenol (95-57-8)											
2A. 2,4-Dichlorophenol (120-83-2)											
3A. 2,4-Dimethylphenol (105-67-9)											
4A. 4,6-Dinitro-O-Cresol (534-52-1)											
5A. 2,4-Dinitrophenol (51-28-5)											
6A. 2-Nitrophenol (88-75-5)											

1. POLLUTANT AND CAS NUMBER (if available)	2. PRIORITY POLLUTANT SCAN DATA		3. EFFLUENT DATA						4. UNITS		
			MAXIMUM DAILY VALUE		MAXIMUM 30 DAY VALUE		LONG TERM AVRG. VALUE		No. of Analyses	Concentration	Mass
	Concentration	Mass	Concentration	Mass	Concentration	Mass	Concentration	Mass			
7A. 4-Nitrophenol (100-02-7)											
8A. P-Chloro-M-Cresol (59-50-7)											
9A. Pentachlorophenol (87-86-5)											
10A. Phenol (108-95-2)											
11A. 2,4,6-Trichlorophenol (88-06-2)											
GC/MS FRACTION - BASE/NEUTRAL COMPOUNDS											
1B. Acenaphthene (83-32-9)											
2B. Acenaphthylene (208-96-8)											
3B. Anthracene (120-12-7)											
4B. Benzidine (92-87-5)											
5B. Benzo (a) Anthracene (56-55-3)											
6B. Benzo (a) Pyrene (50-32-8)											
7B. 3,4-Benzofluoranthene (205-99-2)											
8B. Benzo (ghi) Perylene (191-24-2)											
9B. Benzo (k) Fluoranthene (207-08-9)											
10B. Bis (2-chloroethoxy) Methane (111-91-1)											
11B. Bis (2-Chloroethyl) Ether (111-44-4)											
12B. Bis (2-Chloroisopropyl) Ether (102-60-1)											
13B. Bis (2-Ethylhexyl) Phthalate (117-81-7)											
14B. 4-Bromophenyl Phenyl Ether (101-55-3)											

1. POLLUTANT AND CAS NUMBER (if available)	2. PRIORITY POLLUTANT SCAN DATA		3. EFFLUENT DATA						4. UNITS		
			MAXIMUM DAILY VALUE		MAXIMUM 30 DAY VALUE		LONG TERM AVRG. VALUE		No. of Analyses	Concentration	Mass
	Concentration	Mass	Concentration	Mass	Concentration	Mass	Concentration	Mass			
15B. Butyl Benzyl Phthalate (85-68-7)											
16B. 2-Chloronaphthalene (91-58-7)											
17B. 4-Chlorophenyl Phenyl Ether (7005-72-3)											
18B. Chrysene (218-01-9)											
19B. Dibenzo (a,h) Anthracene (53-70-3)											
20B. 1,2-Dichlorobenzene (95-50-1)											
21B. 1,3-Dichlorobenzene (541-73-1)											
22B. 1,4-Dichlorobenzene (106-46-7)											
23B. 3,3'-Dichlorobenzidine (91-94-1)											
24B. Diethyl Phthalate (84-66-2)											
25B. Dimethyl Phthalate (131-11-3)											
26B. Di-N-Butyl Phthalate (84-74-2)											
27B. 2,4-Dinitrotoluene (121-14-2)											
28B. 2,6-Dinitrotoluene (606-20-2)											
29B. Di-N-Octyl Phthalate (117-84-0)											
30B. 1,2-Diphenylhydrazine (as Azobenzene) (122-66-7)											
31B. Fluoranthene (206-44-0)											
32B. Fluorene (86-73-7)											
33B. Hexachlorobenzene (118-74-1)											

1. POLLUTANT AND CAS NUMBER (if available)	2. PRIORITY POLLUTANT SCAN DATA		3. EFFLUENT DATA						4. UNITS		
			MAXIMUM DAILY VALUE		MAXIMUM 30 DAY VALUE		LONG TERM AVRG. VALUE		No. of Analyses	Concentration	Mass
	Concentration	Mass	Concentration	Mass	Concentration	Mass	Concentration	Mass			
34B. Hexachlorobutadiene (87-68-3)											
35B. Hexachlorocyclopentadiene (77-47-4)											
36B. Hexachloroethane (67-72-1)											
37B. Indeno (1,2,3-cd) Pyrene (193-39-5)											
38B. Isophorone (78-59-1)											
39B. Naphthalene (91-20-3)											
40B. Nitrobenzene (98-95-3)											
41B. N-Nitrosodimethylamine (62-75-9)											
42B. N-Nitrosodi-N-Propylamine (621-64-7)											
43B. N-Nitrosodiphenylamine (86-30-6)											
44B. Phenanthrene (85-01-8)											
45B. Pyrene (120-00-0)											
46B. 1,2,4-Trichlorobenzene (120-82-1)											
GC/MS FRACTION - PESTICIDES											
1P. Aldrin (309-00-2)											
2P. α -BHC (319-84-6)											
3P. β -BHC (319-85-7)											
4P. γ -BHC (58-89-9)											
5P. δ -BHC (319-86-8)											
6P. Chlordane (57-74-9)											

1. POLLUTANT AND CAS NUMBER (if available)	2. PRIORITY POLLUTANT SCAN DATA		3. EFFLUENT DATA						4. UNITS		
			MAXIMUM DAILY VALUE		MAXIMUM 30 DAY VALUE		LONG TERM AVRG. VALUE		No. of Analyses	Concentration	Mass
	Concentration	Mass	Concentration	Mass	Concentration	Mass	Concentration	Mass			
7P. 4,4'-DDT (50-29-3)											
8P. 4,4'-DDE (72-55-9)											
9P. 4,4'-DDD (72-54-8)											
10P. Dieldrin (60-57-1)											
11P. α -Endosulfan (115-29-7)											
12P. β -Endosulfan (115-29-7)											
13P. Endosulfan Sulfate (1031-07-8)											
14P. Endrin (72-20-8)											
15P. Endrin Aldehyde (7421-93-4)											
16P. Heptachlor (76-44-8)											
17P. Heptachlor (1024-57-3)											
18P. PCB-1242 (53469-21-9)											
19P. PCB-1254 (11097-69-1)											
20P. PCB-1221 (11104-16-5)											
21P. PCB-1232 (11141-16-5)											
22P. PCB-1248 (12672-29-6)											
23P. PCB-1260 (11096-82-5)											
24P. PCB-1016 (12674-11-2)											
25P. Toxaphene (8001-35-2)											

MONITORING, RECORDING AND REPORTING

(From: SPDES General Conditions (Part II) dated 11/90)

10.1 GENERAL

- a. The permittee shall comply with all recording, reporting, monitoring and sampling requirements specified in this permit and such other additional terms, provisions, requirements or conditions that the Department may deem to be reasonably necessary to achieve the purposes of the Environmental Conservation Law, Article 17, the Act, or rules and regulations adopted pursuant thereto.
- b. Samples and measurements taken to meet the monitoring requirements specified in this permit shall be representative of the quantity and character of the monitored discharges. Composite samples shall be composed of a minimum of 8 grab samples, collected over the specified collection period, either at a constant sample volume for a constant flow interval or at a flow-proportioned sample volume for a constant time interval, unless otherwise specified in Part I of this permit. For GC/MS Volatile Organic Analysis (VOA), aliquots must be combined in the laboratory immediately before analysis. At least 4 (rather than 8) aliquots or grab samples should be collected over the specified collection period. Grab sample means a single sample, taken over a period not exceeding 15 minutes.
- c. Accessible sampling locations must be provided and maintained. New sampling locations shall be provided if existing locations are deemed unsuitable by the Department or its designated field agency.
- d. Actual measured values of all positive analytical results obtained above the Practical Quantitation Limit (PQL)¹ for all monitored parameters shall be recorded and reported, as required by this permit; except, where parameters are limited in this permit to values below the PQL, actual measured values for all positive analytical results above the Method Detection Limit (MDL)² shall be reported.
- e. The permittee shall periodically calibrate and perform manufacturer's recommended maintenance procedures on all monitoring and analytical instrumentation to insure accuracy of measurements. Verification of maintenance shall be logged into the daily record book(s) of the facility. The permittee shall notify the Department's regional office immediately if any required instrumentation becomes inoperable. In addition, the permittee shall verify the accuracy of their measuring equipment to the Department's Regional Office annually.
- f. The Clean Water Act provides that any person who falsifies, tampers with, or knowingly renders inaccurate any monitoring device or method required to be maintained under this permit, shall upon conviction, be punished by a fine of not more than \$10,000, or by imprisonment for not more than 2 years per violation or by both. If a conviction of such person is for a violation committed after a first conviction of such person under this paragraph, punishment shall be a fine of not more than \$20,000 per day of violation, or by imprisonment of not more than 4 years, or by both.

¹ Practical Quantitation Limit (PQL) is the lowest level that can be measured within specified limits of precision and accuracy during routine laboratory operations on most effluent matrices.

² Method Detection Limit (MDL) is the level at which the analytical procedure referenced is capable of determining with a 99% probability that the substance is present. This value is determined in distilled water with no interfering substances present. The precision at this level is +/- 100%.

ATTACHMENT 2

Selected SIC Codes - Primary Industries are italicized (See Section VIII. - Significant Industrial Users*)

SIC Code(s)	Industry	SIC Code(s)	Industry
201, 2077	Meat products	2911	Petroleum refining
202, 5143	Dairy Products	3011, 3021, 3031, 3041, 3069	Rubber products
2033, 2034, 2037, 2038	Canned and preserved fruit and vegetables	3081 to 3089, 3432	Plastics Molding & Forming
204	Grain mill products	3111	Leather tanning finishing
2061	Raw cane sugar	3211, 3231	Flat glass and glass products made from purchased glass.
2062	Cane sugar refining	3241	Hydraulic cement
2063	Beet sugar	327	Concrete, gypsum, and plaster products.
2077		3292	Asbestos products
2084	Wines, brandy, and brandy spirits	3312, 3315, 3316, 3317	Coke making Blast furnaces Steelworks Hot forming Rolling and finishing mills
2085	Distilled liquor, except brandy	332	Iron and steel foundries
2086	Bottled and canned soft drinks	3321, 3322, 3324, 3325, 3363 3364, 3365, 3366	Metal Molding & Casting
2091, 2092	Seafoods	333	Primary smelting and refining of nonferrous metals
2211 to 2299	Textiles	3331, 3334, 3339, 3341	Non-ferrous Metals Manu.
2421	Sawmills and planing mills	334	Secondary smelting and refining of nonferrous metals
2435, 2436	Veneer and plywood	3351, 3357, 3398	Copper Forming
2491	Wood preserving	3353, 3354, 3355, 3463	Aluminum Forming
2492	Particle board	3356, 3357, 3463, 3497	Non-ferrous Metals Forming
2611, 2621, 2631	Pulp & Paper	336	Non-ferrous foundries
2812, 2813, 2816, 2819	Inorganic chemicals	3411, 3479, 3497	Coil Coating
2821, 2823, 2824, 2891, 3079	Plastic materials and synthetics industry	3431, 3469, 3264	Porcelain Enameling
2822	Synthetic rubber (vulcanizable elastomers).	3465, 3711, 3714	Automobile manufacturing
283	Drugs and pharmaceuticals	3471, 3479, 3679, 3672	Metal Finishing
2833, 2834, 2835, 2836, 2844	Pharmaceuticals	3471, 3479, 3679, 3672	Electroplating
2841	Soap and detergents	3671, 3672, 3674, 3679	Electrical & Electronic Components
2824, 2865, 2869	Organic chemicals	3691, 3692	Battery Manufacturing
2873, 2874, 2875	Fertilizer industry	4911, 4931	Steam Electric
2879	Agricultural chemicals and pesticides	4961	Steam supply

*A Significant Industrial User is one that meets any of the following criteria:

- An industry that is subject to categorical pretreatment standards (25 primary industries - see below); or
- A manufacturing industry that uses priority pollutants (see TABLE NY-2A); or
- An industry that has substantial impact, either singly or in combination with other contributing industries, on the operation of the treatment works; or
- An industry discharging more than 25,000 gallons per day of process wastes.

Industries Subject to Categorical Pretreatment Standards

- Aluminum Forming
- Battery Manufacturing
- Coal Mining
- Coil Coating
- Copper Forming
- Electrical & Electronic Components I & II
- Electroplating
- Inorganic Chemicals
- Iron and Steel Manufacturing
- Leather Tanning and Finishing
- Metal Finishing
- Metal Molding & Casting
- Nonferrous Metals Forming
- Nonferrous Metals Manufacture I & II
- Ore Mining & Dressing
- Organic Chemicals, Plastics & Syn. Fibers
- Pesticide manufacturing (withdrawn)
- Petroleum Refining
- Pharmaceutical Manufacturing
- Plastics Processing
- Porcelain Enameling
- Pulp and Paper
- Steam Electric
- Textile Mills
- Timber Products Processing

FILING LOCATIONS FOR SPDES APPLICATIONS

RENEWALS ONLY: NYSDEC - Division of Environmental Permits, Bureau of Environmental Analysis, 50 Wolf Rd., Albany, NY 12233-1760 For questions, call: (518) 457-2224

MODIFICATIONS, NEW APPLICATIONS and other questions concerning your SPDES permit: Follow instructions below.

The Filing Location depends on the county in which the discharge is located. To determine the mailing address for the proper Filing Location, find the county in which the discharge is located in the table below. Use the letter in the "KEY" column to the right of the county name to find the proper mailing address in the list at the right. All applications for modification of SPDES permits under the Environmental Benefit Permit Strategy (EBPS) must be mailed to the appropriate New York State Department of Environmental Conservation (NYSDEC) Regional or Sub-Regional office.

Discharge Location- <u>County</u>	NYSDEC <u>Region</u>	<u>KEY</u>	Discharge Location- <u>County</u>	NYSDEC <u>Region</u>	<u>KEY</u>
Albany	4	D	Ontario	8	L
Allegany	9	M	Orange	3	C
Broome	7	K	Orleans	8	L
Cattaraugus	9	M	Oswego	7	J
Cayuga	7	J	Otsego	4	E
Chautauqua	9	M	Putnam	3	C
Chemung	8	L	Rensselaer	4	D
Chenango	7	K	Rockland	3	C
Clinton	5	F	St. Lawrence	6	H
Columbia	4	D	Saratoga	5	G
Cortland	7	K	Schenectady	4	D
Delaware	4	E	Schoharie	4	E
Dutchess	3	C	Schuyler	8	L
Erie	9	M	Seneca	8	L
Essex	5	F	Steuben	8	L
Franklin	5	F	Suffolk	1	A
Fulton	5	G	Sullivan	3	C
Genesee	8	L	Tioga	7	K
Greene	4	D	Tompkins	7	K
Hamilton	5	F	Ulster	3	C
Herkimer	6	I	Warren	5	G
Jefferson	6	H	Washington	5	G
Lewis	6	H	Wayne	8	L
Livingston	8	L	Westchester	3	C
Madison	7	J	Wyoming	9	M
Monroe	8	L	Yates	8	L
Montgomery	4	D	Bronx	2	B
Nassau	1	A	Kings	2	B
Niagara	9	M	New York	2	B
Oneida	6	I	Queens	2	B
Onondaga	7	J	Richmond	2	B

REGIONAL FILING ADDRESSESKEY

- A NYSDEC REGION 1*, Bldg. 40 SUNY Stony Brook, NY 11790-2356; Phone: (516) 444-0355
- B NYSDEC REGION 2*, One Hunters Point Plaza, 47-40 21st Street, Long Island City, NY 11101-5407; Phone: (718) 482-4997
- C NYSDEC REGION 3*, 21 South Putt Corners Rd., New Paltz, NY 12561-1696; Phone: (914) 256-3059
- D NYSDEC REGION 4*, 1150 North Westcott Road., Schenectady, NY 12306-2014; Phone: (518) 357-2069
- E NYSDEC REGION 4 SUB-OFFICE*, Route 10, Jefferson Road, Stamford, NY 12167-9503; Phone: (607) 652-7364
- F NYSDEC REGION 5*, Route 86, PO Box 296, Ray Brook, NY 12977-0296; Phone: (518) 897-1234
- G NYSDEC REGION 5 SUB-OFFICE*, Hudson St. Ext., P.O.Box 220, Warrensburg, NY 12885-0220; Phone: (518) 623-3671
- H NYSDEC REGION 6*, State Office Bldg., 317 Washington St., Watertown, NY 13601-2245; Phone: (315) 785-2245
- I NYSDEC REGION 6 SUB-OFFICE*, State Office Building., 207 Genesee St., Utica, NY 13501-2885; Phone: (315) 793-2555
- J NYSDEC REGION 7*, 615 Erie Boulevard West, Syracuse, NY 13204-2400; Phone: (315) 426-7438
- K NYSDEC REGION 7 SUB-OFFICE*, 1285 Fisher Ave, Cortland NY 13045-1090, Phone 607-753-3095
- L NYSDEC REGION 8*, 6274 East Avon-Lima Rd., Avon, NY 14414-9519; Phone: (716) 226-2466
- M NYSDEC REGION 9*, 270 Michigan Ave., Buffalo, NY 14203-2999; Phone: (716) 851-7165

* Mail Application to "Division of Environmental Permits"

CONTACT THE ABOVE OFFICES FOR QUESTIONS CONCERNING
APPLICATION SUBMITTAL

ATTACHMENT 7
ENVIRONMENTAL JUSTICE ANALYSIS

**ENVIRONMENTAL JUSTICE ANALYSIS
HARBOR BROOK CSO 018 CONSTRUCTED WETLANDS TREATMENT SYSTEM
DEMONSTRATION PROJECT
July 2011**

A. Introduction

This analysis has been prepared consistent with the New York State Department of Environmental Conservation's (NYSDEC's) environmental justice policy, *Commissioner's Policy (CP)-29 Environmental Justice and Permitting* (Policy), March 19, 2003. This policy applies to applications for major projects and major modifications for the permits authorized by the following sections of the Environmental Conservation Law: Titles 7 and 8 of Article 17, State Pollutant Discharge Elimination System (SPDES) (implemented by 6 NYCRR Part 750 et seq.). The Harbor Brook CSO 018 Constructed Wetlands Pilot Treatment System requires a SPDES CSO Permit Modification and SPDES General Construction Permit from NYSDEC among other permits and approvals.

The Policy is meant to address environmental justice concerns and ensure community participation in the NYSDEC environmental permit review process and the NYSDEC application of the State Environmental Quality Review Act (SEQRA). The Policy is intended to encourage meaningful public participation by minority or low-income communities in the environmental review process, and to address any disproportionate adverse impacts on minority and low-income communities.

Following NYSDEC guidance, this environmental justice analysis involves the following steps:

- Identify Potential Environmental Justice Areas located in the vicinity of the proposed project.
- Identify potential adverse environmental impacts of the proposed project.
- Determine whether potential adverse environmental impacts are likely to affect a potential environmental justice area (i.e. whether low-income or minority populations are present in the study area).

In addition to the environmental justice analysis, a Public Participation Plan has been prepared for this project consistent with NYSDEC environmental justice considerations.

B. Delineation of EJ Study Area and Identification of Potential Environmental Justice Areas

The proposed project involves the construction of an approximate 2 acre constructed wetlands pilot system, associated earthen berms, floodplain compensatory storage area, and a floatables/grit removal structure. For the purposes of this analysis, the EJ Study Area includes all Census 2000 block groups located within 0.5 mile of the project footprint (see Figure 1).

These block groups include the following:

- Census Tract 28/Block Group 2
- Census Tract 29/Block Group 2

- Census Tract 38/Block Group 1
- Census Tract 38/Block Group 2
- Census Tract 39/Block Group 4
- Census Tract 39/Block Group 5
- Census Tract 48/Block Group 1
- Census Tract 48/Block Group 2
- Census Tract 49/Block Group 1
- Census Tract 49/Block Group 2
- Census Tract 50/Block Group 1
- Census Tract 132/Block Group 3

Per the NYSDEC Policy, a Potential Environmental Justice Area is one which minority and/or low-income communities are present. These communities are defined as follows:

- *Minority communities* are present if a Census block group, or a continuous area with multiple Census block groups, has a minority resident population greater than or equal to 51.1% of the area's total population. Minority residents include Hispanic, African American or Black, Asian American, Pacific Islander, American Indian, and Alaskan Native persons, as well as persons who identify themselves as representing "some other race" or "two or more races".
- *Low-income communities* are present if a Census block group, or a continuous area with multiple Census block groups, has a population with more than 23.59% of its residents living below the poverty threshold.

Based on the above definitions, Census 2000 data were used to screen block groups within the EJ Study Area against the Potential Environmental Justice Area criteria. The following table summarizes the results of this screening; percentages exceeding a Potential Environmental Justice Area threshold are presented in *italics*.

Census Tract	Block Group	Total Population	Minority Population	Population Below Poverty Level	% Minority	% Poverty
28	2	582	35	193	6.0%	33.0%
29	2	0	0	0	N/A	N/A
38	1	1,175	508	423	43.2%	37.5%
38	2	1,180	481	458	40.8%	36.9%
39	4	898	606	471	67.5%	53.3%
39	5	1,194	837	496	70.1%	44.2%
48	1	796	67	10	8.4%	1.2%
48	2	802	65	21	8.1%	2.6%
49	1	841	307	132	36.5%	16.7%
49	2	661	43	24	6.5%	3.6%
50	1	1,431	405	350	28.3%	25.0%
132	3	1,408	52	49	3.7%	4.3%
ALL		10,968	3,406	2,627	31.1%	24.0%

Overall, 24.0% of residents living in the EJ Study Area live below the poverty line; this qualifies the EJ Study Area as a low-income community. Six of the twelve block groups composing the EJ Study Area exceed thresholds for percentage of minority residents and/or percentage of residents living below the poverty level. As a low-income community, the EJ Study Area represents a Potential Environmental Justice Area.

As shown in Figure 2, five Census blocks just east of the project site are considered Potential Environmental Justice Areas: Census Tract 38/Block Group 1, Census Tract 38/Block Group 2, Census Tract 39/Block Group 4, Census Tract 39/Block Group 5, and Census Tract 39/Block Group 4. Additionally, Census Tract 28/Block Group 2, located north of the project site, qualifies as a Potential Environmental Justice Area.

C. Potential Adverse Environmental Issues

Potential adverse environmental issues of the project are described as follows.

- **Flood control:** The existing Velasko Road Detention Basin (VRDB) was engineered to control stormwater flows in Harbor Brook, up to the 25 year storm event, downstream of the project site. The City of Syracuse is responsible for floodplain impacts as part of their participation in the Federal Emergency Management Agency (FEMA) Flood Insurance Rate program. In order for the constructed treatment wetlands to operate as intended, the first two cells will be slightly elevated above the existing grade to allow flow from one cell to another. It will also be necessary to protect this system from frequent flooding to allow for proper treatment of the CSO flows. Therefore, it is necessary to separate and surround all the cells with berms. These design requirements will consume flood storage capacity at different storm events.

In order to account for potential back to back storm events, compensatory storage will be required for the berm volumes plus the storage volume in the wetland cells. Based on the proposed wetland grading plan, the berm volume is 2.07 Acre-Feet (AF) and the cell volumes are 2.55 AF (Cell 1), 1.63 AF (Cell 2), and 0.63 AF (Cell 3). The total required compensatory storage is 6.88 AF.

Upland area within the basin is available to compensate for the loss of storage through additional excavation. This excavation will not involve impacts to wetlands or stream. Please refer to Section 3.3.4.5 of the Basis of Design report for more information.

- **Open Space and Recreation:** The existing site consists of an engineered stormwater basin which is covered by wetland and upland (grass) vegetation (Figure 2). Harbor Brook flows from west to east in the central portion of the site, and an unpaved roadway (former Rowland St.) roughly parallels the stream channel approximately 50-100 yards to the south. Two elevated athletic fields are located in the southwestern portion of the County-owned property. Nearly the entire Onondaga County-owned basin property can be considered open space.

The Syracuse Chargers Rugby Club and possibly other organizations use the site's athletic fields for practice and competitive events; these team activities represent the only formal recreational

use of the site. Residents of the Skunk City neighborhood directly east of the project site often use the unpaved former Rowland St. roadway for non-motorized (i.e. pedestrian/bicycle) travel to and from the shopping centers west of Velasko Road along Onondaga Boulevard. Aside from the athletic fields and unpaved roadway, much of the site consists of emergent wetlands and grasses, and provides no amenities to facilitate public recreation or similar uses. The site serves primarily as a stormwater basin, and Onondaga County manages it accordingly.

The proposed project will be situated in a manner that will not interfere with recreational usage of the athletic fields or non-motorized travel along the unpaved former Rowland St. roadway. The constructed wetlands will add a new open space feature to the stormwater basin but will not reduce the open space. Aside from the athletic fields, Onondaga County does not manage or promote use of the site for recreation or other public uses; its value as open space is incidental to its primary flood control purpose.

Therefore, the proposed project will have no adverse impact upon site's open space value or recreational uses.

- Mosquitoes:

Mosquitoes are often a concern of residents whenever aquatic resources or stormwater management facilities are constructed. The site currently serves as a stormwater management facility and as a result it periodically floods. As shown on the wetland delineation map attached to this report (Figure 3), the site is relatively flat, which promotes poor drainage and ponding in both upland and wetland areas. In its current condition, the wetlands in the basin constitute approximately 9.7 acres of the approximately 34 acre site, which is almost 30% of the total area. It should be noted that the wetland acreage calculated for the project site (County-owned land) excludes an adjacent wetland area (approximately 1.5 acres) in private ownership. As a result of these conditions, the site currently provides ample breeding ground for mosquitoes. Additionally, a large wetland area along Harbor Brook occurs immediately to the west of Velasko Road.

Further confounding the situation is the fact that the wetlands are comprised almost entirely of common reed (*Phragmites australis*), an aggressive invasive plant which out-competes native wetland species and converts wetlands to a monotypic stand. This condition significantly reduces wildlife value and depletes both the number and variety of wildlife species using the area. As a result, there are fewer mosquito predators than would be found in a healthy, diverse wetland system.

Many homes abut Harbor Brook as it makes its way through the neighborhoods to the east of the project site. Locations of standing water along the stream also provide good mosquito habitat.

The proposed project will add two wetland cells with permanent standing water supporting native emergent wetland plants. Each cell is approximately a quarter acre in size. The Floating Wetland Island will be maintained with a minimum depth of water to support the vegetation. The Surface Flow Wetland will have deep pools (4 feet) in various locations while other portions (shelves)

will drain down during dry periods. This will result in an approximately 8% increase in wetland area in the basin. This percentage drops even further when considering that other upland areas pond with water after storm events and the effect of the large wetland system immediately to the west of the site. The two wetland cells that will retain water will be deep enough to support aquatic insect predators that will help to reduce mosquito populations. Bird nesting boxes and bat roosting boxes can be placed within the project site to encourage use and foraging by insect-eating species such as tree swallows.

For many residents of the area, Harbor Brook is considered an amenity and is tolerated despite any negative impacts associated with its presence, including mosquitoes and its flooding potential. The Velasko Road Detention Basin (VRDB) offers protection to the downstream neighborhoods from frequent storm events and is therefore likely viewed as an essential resource to these neighborhoods.

The incremental increase in mosquito abundance resulting from the project is likely to be minimal. In recent years, concerns have shifted from the annoyance of mosquitoes to the potential for them to carry disease. These concerns are typically dealt with on a regional basis and involving monitoring by health agencies to determine risk. If the risk increases, recommendations may be made for the use of insecticides. Should this concern surface whereby widespread control of the region becomes necessary, the project site could be easily treated without significant concern about human exposure. Because the VRDB already consists of abundant wetland areas, the proposed constructed wetland cells are unlikely to make this area any more or less a target for spraying than under existing conditions.

- **Odors:**
Septic conditions in the sanitary sewer or the grit removal system that are not flushed during the initial storm event, and flows that are discharged to the first wetland cell, will remain there due to low CSO flow. The next storm event that is larger will move water through and flush this water. Therefore, the potential for odors would increase if there is a long period between storm events.

If a short term fix is required, water from Cell 3 can be pumped into the first wetland cell and this water moved through the treatment process (through the remaining cells) and then discharged, in order to flush the system. Cell 3 will be unlined and groundwater is expected to supplement the hydrology of this wetland, providing permanent flooding in the deep water zones. An alternative is to dose the cell with hydrogen peroxide to drive up the oxygen levels temporarily. If this becomes an ongoing problem, aerators can be installed to keep oxygen levels up.

D. Public Outreach

Meetings have been schedule for the affected neighborhoods in accordance with the Public Participation Plan previously submitted to NYSDEC for approval. The first public/neighborhood meeting was held June 30, 2011 (meeting notes attached). Several issues were raised during this meeting, all consistent with the issues identified in section C. above. The meeting provided the opportunity for the public to express issues and concerns and for response from the project team. In general, the residents appeared to be satisfied with the responses to their concerns and there does not appear to be any significant issues that would warrant project change. This conclusion is supported by the number of people who signed a statement of support for the project (attached). Additional meetings are planned and the public will have the opportunity to respond to the NYSDEC public notice required for the permit application.

E. Impacts to Potential Environmental Justice (EJ) Areas

No significant impacts to the EJ study area are anticipated as a result of this project. Flood storage capacity within the Velasko Road Detention Basin will not be compromised by the project and the facility will continue to provide flood protection to the downstream neighborhoods up to the maximum designed storm event.

The project site will continue to provide open space to the area but is not currently designated for recreational space. Therefore, use of the site for a pilot study will not reduce the existing recreational opportunities for the neighborhoods.

No significant increase in the mosquito population that would affect the neighborhoods is expected.

Under drought conditions, there is a potential for odors to occur. However, proper management of the system by flushing it with water from Harbor Brook or another source would quickly address this issue if odors became noticeable.



 Limits of Onondaga County Owned Property

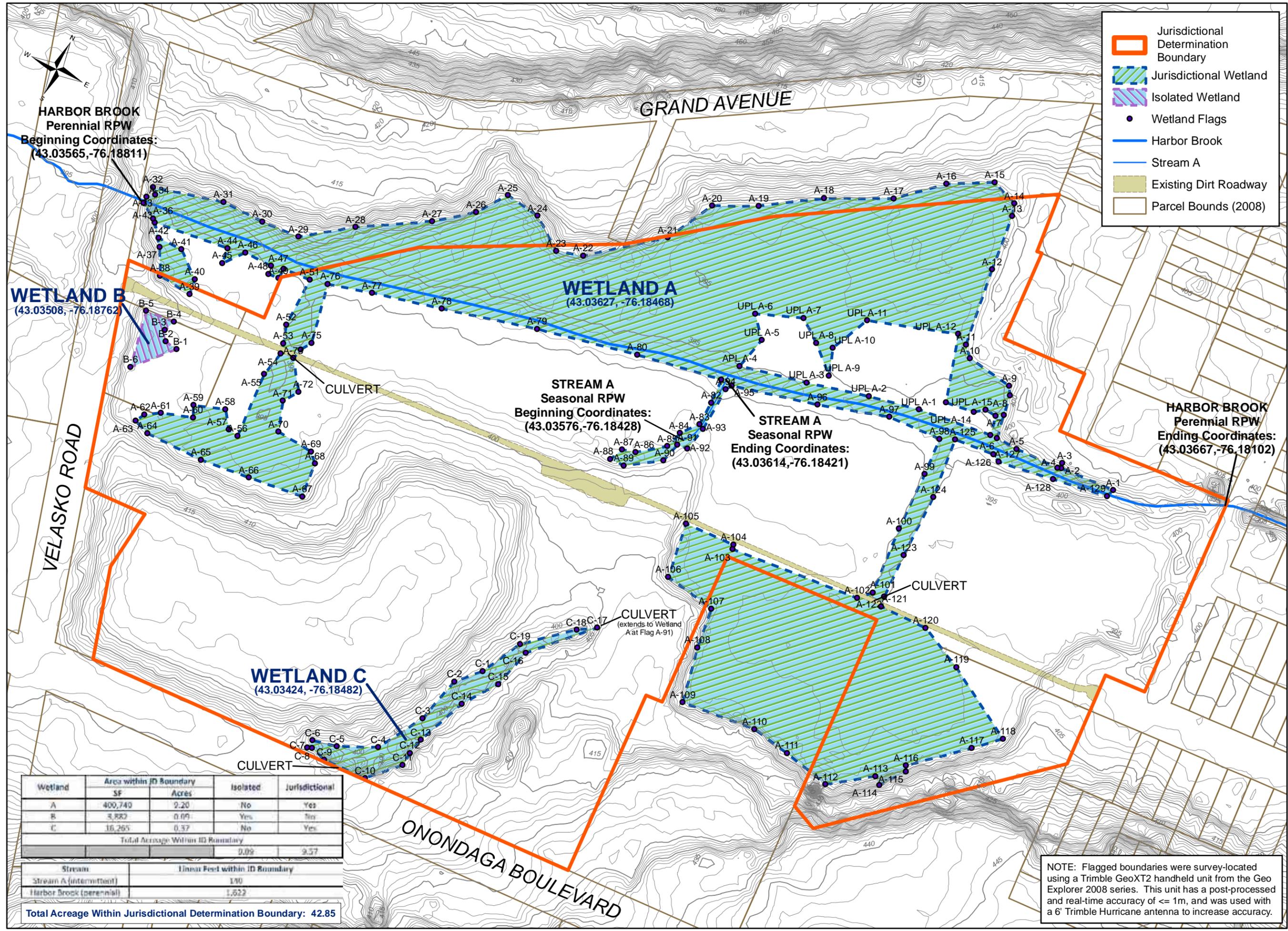
 Proposed Constructed Wetland Footprint

PROPOSED LOCATION OF CONSTRUCTED WETLANDS TREATMENT SYSTEM SITE

Harbor Brook CSO 018 Constructed Wetlands Pilot Treatment System
City of Syracuse, Onondaga County, NY

Scale: 1 inch = 150 feet
at 11 x 17"

FIGURE 2



WETLAND DELINEATION MAP
Harbor Brook CSO 018 Constructed Wetlands Pilot Treatment System
City of Syracuse, Onondaga County, NY

Scale: 1 inch = 150 feet
(at 11"x17")

FIGURE 3

NOTE: Flagged boundaries were survey-located using a Trimble GeoXT2 handheld unit from the Geo Explorer 2008 series. This unit has a post-processed and real-time accuracy of <= 1m, and was used with a 6' Trimble Hurricane antenna to increase accuracy.



OC Harbor Brook CSO 018 Constructed Treatment Wetlands – Stakeholder Meeting Summary – June 30, 2011

ATTENDEES:

Diane Carlton	Resident
Anne Jamison	Resident
Bob Oberst	Resident
Dawn Daggett	Resident
Jackie Elliott	Resident
Robert Korzuch	Resident
Cheryl Humble	Resident
Shirley Humble	Resident
Anna Dobkowski	Resident
Mike Behnke	Resident
John Allen	Resident
Fran Lawler	Resident
Kate Woodle	Resident
Daniel O’Leary	Resident
Kathleen Wargeleski	Tipp Hill Neighborhood Assoc.
Aggie Lane	Partnership for Onondaga Creek
Rich Puchalski	Syracuse United Neighbors
Yasmin Guevara	City of Syracuse
Aimee Clinkhammer	Center of Excellence
Anne Saltman	CNY Regional Planning Board
Ed Michalenko	Onondaga Environmental Institute
Khris Dodson	Environmental Finance Center
Hongbin Gao	Atlantic States Legal Foundation
Sam Sage	Atlantic States Legal Foundation
Aaron Lehman	Atlantic States Legal Foundation
Vivian Newman	Atlantic States Legal Foundation
Kathy McGrath	Atlantic States Legal Foundation
Bob Kukenberger	CDM
Chris Schmidt	CDM
Paul Legnetto	OCDWEP
Erin Mosley	CH2M HILL
BJ Adigun	CH2M HILL
John Pries	CH2M HILL
Rich DeGuida	CHA
Walt Kalina	CHA

LOCATION: Rosamond Gifford Zoo, One Conservation Place, Syracuse NY 13204

COPIES: CH2M HILL Rita Fordiani, Matt Marko
CHA Mike Hollowood, Mike Miller, Rich DeGuida, Chris Einstein

FROM: Walt Kalina CHA

DATE: July 1, 2011

PROJECT NUMBER: CH2M Hill: 381098
CHA: 19217

Project Discussion

The primary goal of the meeting was to inform local neighborhood residents and representatives of key stakeholder groups about the Harbor Brook constructed wetlands treatment system project and solicit comments and questions about the project.

The meeting began at approximately 6:40 pm with a brief summary by CDM of the proposed rain garden project slated for the intersection of Delaware Street and Grand Avenue in the Skunk City neighborhood. The project is not part of the Harbor Brook wetlands project, but is located in the same neighborhood. A July 12th workshop is scheduled to take place for that project.

This was followed by a PowerPoint slide presentation by BJ Adigun that summarized Onondaga County's current "Save the Rain" program to reduce the effects of CSO pollution to Onondaga Lake and its tributaries. The presentation summarized aspects of the 4th stipulation to the Amended Consent Judgment (ACJ) and the status of several gray and green infrastructure projects completed in 2010 including a number of green projects underway in 2011 under the County's Project 50 campaign. Attendees were encouraged to visit the Save the Rain website for project information, including the Harbor Brook project. Information has also been made available at the Mundy Library near the project site for those who may not have access to the website.

The presentation transitioned into a summary by Erin Mosley and John Pries of the Harbor Brook Treatment Wetland Pilot Project that is one of a few distinct Project 50 projects being designed; its goal is to reduce the impact of CSO 018 on the water quality of Harbor Brook. The project's major components were explained including the three different pilot treatment wetland types that will be constructed in the Harbor Brook Drainage Basin. The design of the project is at the 90% stage and presently scheduled for 2011-2012 construction.

In addition to its primary purpose to treat water quality entering Harbor Brook, the wetlands system will become an asset to the neighborhood and provide for a diversity of wildlife and vegetative species. Some of these will be avian and aquatic species that will help control mosquito populations. The system will be monitored and evaluated for a two year period once construction is complete to determine the most effective wetland types and measures in treating the CSO water quality before it enters the Brook. After that preliminary period the project may be modified and possibly expanded within the Velasko Road detention basin or this technology applied at other CSO discharges in the County.

A question and answer period followed the presentation by CH2M HILL.

- How much water volume can go through the system at one time?
 - The cells will be able to handle more than the 600,000 gallons of a 1 year, 2 hour storm, for which it is designed. Volumes will vary by storm event. During a heavy rain event, larger volumes of water will move through the system faster than would occur during less precipitation when the volume of water would move through the system more slowly, thereby enhancing water quality treatment of the stormwater.
- Have you made accommodations for snow melt in the system?

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- Yes, snow melt has been considered and included in the modeling process.
 - Has there been any analysis of odors with the process?
 - Yes and the wetland consultants have experience dealing with odor and in discussing this with other wetland scientists around the world know that of the many treatment wetland systems out there, odors are generally associated with systems that are poorly operated and/or poorly designed. This will not be the case with Harbor Brook, which will be monitored and maintained by the County.
 - Will the floodplain capacity that presently exists in the basin decrease? Originally the soccer fields that were built at the site diminished capacity.
 - Compensatory floodplain storage has been designed into the project to account for berms around the wetlands, as well as the storage volume of the wetland system, and there will be no net loss of flood storage in the Harbor Brook Drainage Basin.
 - Could you explain dredging and how you'll handle sediment?
 - A large portion of sediment in the stormwater will be taken out of the stormwater by the grit and floatables system. On average the wetlands may add about one-quarter inch of sediment per year from dying plant material. Constructed wetland systems usually last 40 to 50 years before something needs to be done. Remember this is a pilot system to determine what needs to be done and what works best to get the cleanest discharge to Harbor Brook.
 - Will you leave the creek unchanneled? Also, some materials like the asphalt placed at the end of Holden Ave on the dam looks terrible. We also need to make sure kids can have access to the facility for educational purposes.
 - The brook itself will not be altered at this time but future visioning suggests returning it to a meandering brook would enhance the aesthetics and help improve the water quality. Access to the wetlands will need to be controlled and fenced to protect the safety of kids in the neighborhood. There will be opportunities to walk through and view the site, possibly through pre-arranged, guided walking tours and by constructing viewing platforms outside the fenced area. You will be able to walk or bike through the remainder of the site as now, although access may be restricted during construction for safety reasons. After the pilot's two year monitoring period is over, consideration will be given to enhancing the site, possibly with trails, park benches, etc. The asphalt/concrete material sprayed on the dam is part of the dam's permit conditions. We'll be looking at what type of materials and vegetative cover could be put on the existing berm at the site as part of the compliance process for the existing dam permit.
 - Atlantic States Legal Foundation has been championing revitalization of Harbor Brook for many years and first suggested this site for wetlands. Later this fall ASLF will be holding meetings to discuss the master planning of the site, for example

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- putting meanders into the Harbor Brook channel or trails. ASLF and others welcome comments and ideas about longer term improvements at the site. ASLF had done some preliminary planning including a possible nature center type facility in the area to educate children from local schools.
- In terms of size how big is this wetland?
 - It will be comparable to a football field, although narrower or somewhat similar to the athletic fields.
 - Are you doing anything with the wetlands west of Velasko Road?
 - No, the project does not involve anything west of Velasko Road.
 - Will there be local jobs available for the project?
 - This has been raised with the County as a consideration and discussed at previous meetings. We're looking into local green training programs and opportunities for jobs and local contractors, but some of this work is specialized.
 - What about flood insurance? Will this project affect FEMA maps?
 - There will be no change in the FEMA maps and the project is offsetting the volume of flood storage lost from constructing the berms, so flood storage will not be adversely affected.
 - The site is not being maintained now and is looking like a dump with overgrown areas, trash, mosquitoes. We're getting complaints now, so what about the future? Who will monitor flows on a regular basis?
 - This facility will be controlled by the County and will be maintained and monitored by the County to assure that water quality is improving. The Health Department may also be involved. Mosquitoes have been a problem this year due to the wet spring. Something that residents can do is set up some bird/bat nesting boxes to further control mosquito populations in the area. Water levels will be maintained in order to protect natural predators such as fish and frogs that will help to control the mosquito population before they emerge as adults. In addition, swallow nesting boxes and bat roosting boxes could be installed at the site for the same purpose in controlling mosquitoes.
 - Will information be available to others on this project?
 - All project information is available for public review.
 - After the water passes through the three wetlands will there be overflow off site? This is a 100 year floodplain according to FEMA. Flood insurance is based on home value. Syracuse United Neighbors (SUN) fought for the original flood basin. The county should explain the history of the basin to residents. What about the channel downstream, no maintenance is being done? Explain to the public what the limitations are for this site and how the capacity of the basin has withstood storms

and flooding since the 1990's when the site was modified. Someone needs to say the neighborhood is protected.

- There are several studies that have been done or are being done now. One is about one-quarter complete. These are considering how future development may impact the capacity of the floodplain and basin. The County has gone out during recent storm events to look at the basin and it is functioning well and handling stormwater volumes.
- The 100 year floodplain and flood insurance rates are obstacles to new housing and new ownership in the neighborhood. People who can least afford it are paying for insurance. This is affecting the neighborhood and encouraging slum landlords, rather than home ownership. Are you putting more water into the basin? It seems we are dealing with issues in this area incrementally, rather than dealing with the flooding problems with a larger project.
 - The Harbor Brook wetlands project is not making the flood issue worse. The larger issue of flooding and flood insurance is beyond the scope or purpose of this project. It is not true that we are putting more water into the basin. This is already the stormwater that moves through the site and we are not adding to that volume and not reducing flood storage capacity. The ACJ requires something be done to treat the CSO problem and water quality, which is what the Harbor Brook wetlands project is doing.
- We need to see larger plans for this area like pathways, viewing platforms and how neighbors can walk or bike through the site from the west end of Rowland Street to the Western Lights shopping center. This basin has no recreational value. Can you make a basketball court? Compare it to Meadowbrook as a nice place to walk. Are there plans? The community would like to see this area made nicer.
 - The County will be looking at a larger master plan for the site. We have to identify what is allowed in the basin considering its primary purpose. Mature trees are not allowed in the bottom of the basin for flood control reasons. The City has a new tree planting program and there may be opportunities to add trees around the perimeter of the site above flood stage. Other opportunities for de-channelizing Harbor Brook and what can be done to enhance the site will need to be considered to make the site nicer for residents in the neighborhood.

The meeting ended at approximately 8:15 pm.

