2014 OPERATION, MAINTENANCE AND MONITORING REPORT
LCP BRIDGE STREET SITE (OU-1)

TOWN OF SOLVAY
ONONDAGA COUNTY, NEW YORK

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LCP-OU1 2014

NYSDEC COMMENTS

1. Section 2.0 Groundwater Extraction and Pre-Treatment System Operation, paragraph 2. The volume of 2014 pretreated groundwater (cited as " 1,7100,000") should be revised.

   Response: The text has been revised as requested.

2. Section 4.1 Groundwater. Relative to the discussion of mercury in groundwater outside the cutoff wall, it would be helpful to cite the Class GA mercury standard (0.7 ppb) in the text. Likewise, the standard should be cited in Table 3 and exceedances highlighted.

   Response: The text as well as Table 3 has been revised as requested.

3. Section 4.2 Surface Water and Section 4.3 Sediment. While the mercury data is appropriately conveyed for 2014, no context is provided with respect to trends over time. A few sentences in this regard would be helpful in portraying the bigger picture.

   Response: The text has been revised to include discussion of trends over time.

TABLE OF CONTENTS

Page

ACRONYMS iii

1.0 INTRODUCTION 1

2.0 SYSTEM OPERATION 1

3.0 MAINTENANCE 1

4.0 MONITORING 2
- 4.1 Groundwater 2
- 4.2 Surface Water 2
- 4.3 Sediment 3
- 4.4 Biota 3
- 4.5 Wetlands Monitoring 3

5.0 MONITORING AND MAINTENANCE PROGRAM RECOMMENDATIONS FOR 2014 4

6.0 REFERENCES 5

LIST OF TABLES

Table 1 Monthly Pumping Summary

Table 2 Piezometer Static Water Elevations

Table 3 Piezometer Analytical Results

Table 4 Surface Water Analytical Results

Table 5 Sediment Analytical Results

TABLE OF CONTENTS
(CONTINUED)

LIST OF FIGURES

Figure 1 Piezometer/Monitoring Well Locations
Figure 2 Annual Surface Water/Sediment Sampling Locations
Figure 3 2014 Wetland A & C OM&M Monitoring and Sampling Locations

LIST OF APPENDICES

APPENDIX A WETLANDS MONITORING REPORT - YEAR 6 - 2014

ACRONYMS

GAC	granulated activated carbon
gpm	gallons per minute
LCP	Linden Chemicals and Plastics
LEL	lowest effect level
METRO	Metropolitan Wastewater Treatment Facility
mg/kg	milligrams per kilogram
ng/L	nanograms per liter
NYSDEC	New York State Department of Environmental Conservation
OM&M	Operation Maintenance & Monitoring
OU	Operating Unit
RI	Remedial Investigation
ug/L	micrograms per liter

2014 ANNUAL OPERATION, MAINTENANCE, AND MONITORING REPORT FOR LCP OU-1

1.0 INTRODUCTION

This report details the operation, maintenance, and monitoring (OM&M) activities conducted at the site in 2014. It has been prepared consistent with the Linden Chemicals and Plastics (LCP) OM&M Plan (Parsons, 2009a) and provides a summary of the collected data and status of OM&M activities.

Under direction of the New York State Department of Environmental Conservation (NYSDEC), the remediation of LCP involved a combination of sewer system closure, mercury removal from soil on the former plant property, excavation of impacted sediments in surrounding areas with relocation to the soil/sediment containment area, construction of an underground cut-off wall and low-permeability soil cover over the soil/sediment containment area, and installation of an on-site groundwater collection system. As part of the project, excavation areas were restored to provide habitats for wading birds, ducks, amphibians, fish, and mammals (Parsons, 2009b).

OM&M operations consist of site and equipment maintenance in addition to monitoring of groundwater, sediment, surface water, wetlands, and biota. Upgrades to the site systems are performed as needed, as detailed in the sections below.

2.0 GROUNDWATER EXTRACTION AND PRE-TREATMENT SYSTEM OPERATION

Groundwater extracted by the 15 pumping wells within the soil/sediment containment area was pumped to two 10,000-gallon tanks in the on-site extraction building (Figure 1). The pre-treatment system consists of a filter feed pump, two 5-micron bag filters, two fiberglass-reinforced plastic granular activated carbon vessels and a flow meter. The design pumping rate is approximately 5 to 25 gallons per minute (gpm). Pre-treated groundwater is discharged to the Onondaga County West Side Trunk Sewer from which it flows to the Onondaga County Metropolitan Wastewater Treatment Facility (METRO).

In 2014, approximately 17,100,000 gallons were pre-treated on-site and sent to METRO. Monthly summaries are provided in Table 1 of this report.

3.0 GROUNDWATER EXTRACTION AND PRE-TREATMENT SYSTEM MAINTENANCE

The OM&M contractor providing maintenance activities for the specified period was CH2M HILL OMI. Maintenance conducted included system equipment maintenance, mowing, and snow removal. Equipment maintenance activities included:

- Periodic replacement of granulated activated carbon (GAC) for the water collection system throughout the year as necessary

- Repaired or replaced three well pumps

Maintenance conducted to system equipment was described in the weekly inspection, operation, and monitoring reports generated by OMI and submitted to the NYSDEC and associated distribution list with the monthly reports for the LCP Operating Unit (OU)-1 site.

4.0 MONITORING

4.1 Groundwater

Containment of impacted sediments in the soil/sediment containment area is monitored both hydraulically and analytically using the piezometer and monitoring well network shown in Figure 1. The piezometer monitoring system will be updated during final closure of the site.

The static water level elevations presented in each monthly report for 2014 have been consolidated and provided in Table 2 of this report. During the time period covered by this report, water levels measured by the piezometers have remained generally consistent and below the elevation of the top of the cut-off wall. An inward gradient will be achieved when the interior shallow, intermediate, and deep piezometer readings are less than the corresponding exterior shallow, intermediate, and deep piezometer readings. It is anticipated that it will take several years after the final low-permeability cap is constructed to fully achieve an inward and upward gradient at the site.

The piezometers outside of the cut-off wall along the north side of the containment area (PZ 1B: shallow, intermediate and deep through PZ 4B: shallow, intermediate and deep) were sampled quarterly by CH2M HILL OMI and analyzed for total mercury by SW 846 Method 7470. The analytical results are provided in Table 3 of this report.

The analytical results for the exterior piezometer sampling are predominantly non-detect and generally within the same range or lower than the pre-remediation mercury results presented in the Remedial Investigation (RI) Report for the LCP OU-1 site. While there are some expected minor exceedances of the New York Code of Rules and Regulations Part 703 Class GA groundwater standard for mercury (0.7 µg/L) in the shallow zone outside of the cut-off wall (particularly PZ-2B-S), consistent with prior results, the outboard groundwater in the intermediate and deep zones are below the Class GA standard. The exterior shallow piezometer data ranges from non-detect to 1.8 micrograms per liter (µg/L). The exterior intermediate piezometer data ranges from non-detect to 0.076 µg/L. Results from all exterior deep piezometer were non-detect.

As part of OM&M monitoring, wells 34D, 35D, and 36D located within the containment area are sampled quarterly by CH2M HILL OMI and analyzed for total mercury by SW 846 Method 7470. During 2014, none of the wells were sampled due to ongoing construction activities.

4.2 Surface Water

Surface water monitoring locations (Figure 2) were modified for 2014. NYSDEC agreed that routine monitoring in Wetland B could be discontinued after several years of low mercury concentrations in both sediment and surface water. Three new monitoring locations were

established in Wetland C which was completed in 2012 to monitor remedial activities completed in 2012. No changes were made to the Wetland A or West Flume monitoring locations. Surface water samples were analyzed for total mercury, methylmercury, and dissolved mercury consistent with the OM&M Plan. In 2014, the data range for dissolved mercury was 0.09 nanograms per liter (ng/L) to 0.21 ng/L from the West Flume (including the upstream sample location (LCP1-SW-63)) , and 0.13 ng/L to 0.30 ng/L for Wetland C. Dissolved mercury was not detected in Wetland A. Individual sample results are provided in Table 4 of this report. The dissolved mercury values observed in 2014 were within or below the normal range of historical values for their respective areas. Dissolved mercury values are below the Wildlife Protection limit of 2.6 ng/L at all West Flume and Wetland A sample locations. In Wetland C, concentrations at location LCP1-SW-69 are below the Wildlife Protection standard with concentrations at LCP1-SW-70 (0.3 ng/L) and at LCP1-SW-71 (0.32/0.29 ng/L) just above the Wildlife Protection standard.

4.3 Sediment

Sediment monitoring was conducted at all locations where surface water sampling was conducted including the new locations in Wetland C. The total mercury data ranges were 0.42 milligrams per kilogram (mg/kg) to 0.97 mg/kg for the West Flume (excluding the upstream sample location (LCP1-SW-63)), 0.23 to 1.6 mg/kg for Wetland A, and 0.14 mg/kg to 0.31 mg/kg for Wetland C. Individual sample results are provided in Table 5 of this report.

Total mercury concentrations in the 2014 West Flume sediment samples are consistent with the range of total mercury values observed since 2008 (0.12 to 3.1 mg/kg, with an average concentration of 0.53 mg/kg). Similarly, 2014 total mercury concentrations in Wetland A remain consistent with concentration ranges observed since 2008 (0.23 to 4.2 mg/kg, average concentration of 1.14 mg/kg). Total mercury concentrations in Wetland C are generally below (LCP-SW-64 and LCP-SW-65) or slightly above (LCP1-SW-66) 0.2 mg/kg.

4.4 Biota

Baseline sampling was conducted in 2005 to establish body burden at the site prior to remediation. The OM&M Plan established a long-term monitoring program that analyzes mercury concentrations in forage fish, benthic macroinvertebrates, small mammals, and earthworms. The OM&M Plan specifies that monitoring should continue regularly (every two to three years) until results indicate that the remedy has been effective and the contaminant concentrations have stabilized. To date, five sampling events (post remediation) have been conducted since completion of initial remedial activities in 2007. As planned, no biota samples were collected in 2014 and the next biota sampling event is scheduled for 2015.

4.5 Wetlands Monitoring

The wetlands at LCP were originally dominated by a monoculture of the invasive grass common reed and had very limited habitat value. Following the removal of impacted sediments. Wetlands A and B were restored in 2007 using a diverse assemblage of wetland plant species. The restoration design placed an emphasis on the development of aquatic bed and deep emergent marsh habitat types in order to limit invasive species (EPA, 2009). The OM&M Plan indicates

that restored wetlands would be monitored for five consecutive years following restoration at which point the program would be evaluated (Parsons, 2009a). Restoration of these wetland habitats was highly successful and routine monitoring in the original restoration areas was ended after the fifth year of monitoring in 2012. However, new removals occurred in 2011 in a section of SYW-14 that contained dredge spoils (now called Wetland C) and in a small portion of previously restored Wetland A (Figure 3). Restoration of both areas occurred in 2012. Monitoring of these restored wetlands will be conducted for five consecutive years as indicated in the OM&M Plan at which point data will be evaluated to determine if restored conditions have been met and if they can be maintained in the future. The first year of monitoring for these newly restored areas was completed in 2013.

The parameters monitored include:

- Vegetation (type, percent cover, and frequency)
- Hydrology
- Encroachment of invasive species into restored areas will be monitored (species, location, and approximate size of patch)
- Wildlife usage

Wetland monitoring and control of invasive species is intended to facilitate restoration success by ensuring that newly created habitats are allowed to establish, mature, and diversify to a point that they can naturally defend against invasive species, disease, and weather extremes (Parsons 2009a). Habitat types in the newly restored wetlands were primarily emergent wetland, aquatic/open water, and wet meadow. A total of 122 plant species were documented, most of which were wetland species. Hydrologic conditions were maintained throughout the summer and are expected to be maintained indefinitely.

Wildlife usage of the restored wetlands was extensive. Green and Northern Leopard frogs (*Rana clamitans* and *Rana pipiens* respectively) were particularly abundant, with Bullfrogs (*Lithobates catesbeianus)* being noted as well. Numerous wetland birds were observed in the area during the year such as Great Blue Heron (*Ardea herodias*), Green Heron (*Butorides virescens*), and Red-Winged Blackbird (*Agelaius phoeniceus*). Mammals such as white tailed deer (*Odocoileus virginianus*) and Eastern coyote (*Canis latrans* var.) were identified at the site.

Overall, the newly restored areas were found to be very successful in 2014 and minimal maintenance was required. Common reed occurs in several locations around the restored areas. Control measures including herbicide application and hand pulling were implemented in late spring and again in fall 2014. Additional treatment will be conducted in 2015 as necessary.

5.0 MONITORING AND MAINTENANCE PROGRAM RECOMMENDATIONS FOR 2015

To date, the monitoring and maintenance program being implemented at the LCP site has been effective. A five-year monitoring review report entitled *2008-2013 Operation, Maintenance, and Monitoring Report LCP Bridge Street Site (OU-1)* was submitted in July 2014 (Parsons, 2014). This report recommended that:

- No changes are recommended for the containment area and cap.
- No changes are recommended for the sediment, surface water, and wetland monitoring and maintenance program. Completion of enhancement planting and seeding in areas of Wetland A where soil removals were completed in 2011. It is recommended that approximately 300 native herbaceous plantings be installed in Spring 2015 to further enhance native vegetation already present.
- Conduct sampling of forage fish in the West Flume for total mercury analysis in 2015.

6.0 REFERENCES

EPA. 2009. *First Five Year Review Report, LCP Bridge Street Subsite (OU5) Onondaga Lake Site Village of Solvay, Town of Geddes Onondaga County New York*. Prepared by the U.S. Environmental Protection Agency Region 2, October 2009.

Mozdzer, T.J., Hutto, C.J., Clarke, P.A., and Field, D.P. 2008. *Efficacy of Imazapyr and Glyphosate in the Control of Non-Native Phragmites Australis. Restoration Ecology* Vol. 16, No. 2, pp. 221–224.

Parsons. 2009a. *Operation, Maintenance, and Monitoring Plan for the LCP Bridge Street Site.* Prepared for Honeywell, Syracuse, New York. September 2009.

Parsons. 2009b. *Operation, Maintenance and, Monitoring Sampling Data Report and Supplemental Sampling Plan*. Prepared for Honeywell.

Parsons. 2014. *2008-2013 Operations, Maintenance, And Monitoring Report. LCP Bridge Street Site (OU-1).* Prepared for Honeywell, Syracuse, New York.

TABLES

TABLE 1: MONTHLY PUMPING SUMMARY		
Month	**Pre-Treatment System - METRO**	**Trucked to Willis Avenue Treatment Plant**
January	134,347	0
February	137,983	0
March	163,686	0
April	198,511	0
May	172,966	0
June	82,419	0
July	83,945	0
August	136,126	0
September	106,084	0
October	141,108	0
November	136,413	0
December	215,619	0
Sub-Totals	1,709,207	0
Total	**1,709,207**	
Average Pumping Rate	**3.25 gpm**	

TABLE 2
PIEZOMETER STATIC WATER ELEVATIONS

	PZ-1 Wall Top	PZ-1A-Shallow	PZ-1A-Mid	PZ-1A-Deep	PZ-1B-Shallow	PZ-1B-Mid	PZ-1B-Deep		PZ-2 Wall Top	PZ-2A-Shallow	PZ-2A-Mid	PZ-2A-Deep	PZ-2B-Shallow	PZ-2B-Mid	PZ-2B-Deep
1/10/14	393.3	389.10	374.68	374.69	384.39	374.40	374.45		392.5	383.81	374.78	374.28	378.10	374.22	374.31
1/20/14	393.3	389.47	374.79	374.81	384.47	374.49	374.56		392.5	383.54	374.87	374.38	378.04	374.24	374.41
2/3/14	393.3	388.96	374.37	374.40	384.33	374.14	374.21		392.5	382.93	374.45	374.00	377.69	373.86	374.03
2/17/14	393.3	388.87	374.13	374.13	384.18	373.82	373.88		392.5	382.84	374.22	373.70	377.48	373.62	373.76
3/3/14	393.3	388.95	374.47	374.54	384.38	374.25	374.28		392.5	383.18	374.60	374.07	377.97	373.95	374.11
3/21/14	393.3	389.32	374.96	374.94	384.45	374.64	374.75		392.5	383.24	375.03	374.55	378.36	374.44	374.62
4/1/14	393.3	389.52	375.58	374.64	384.56	375.34	375.41		392.5	383.76	375.70	375.13	378.74	375.06	375.22
4/16/14	393.3	389.27	375.40	375.43	384.60	375.12	375.18		392.5	383.50	375.46	374.98	378.66	374.86	375.04
4/28/14	393.3	389.52	375.11	375.12	384.48	374.82	374.94		392.5	383.31	375.16	374.70	378.21	374.56	374.76
5/12/14	393.3	389.40	375.04	375.10	384.34	374.77	374.88		392.5	383.35	375.12	374.67	378.37	374.56	374.71
5/28/14	393.3	389.40	375.03	375.08	384.30	374.77	374.82		392.5	383.62	375.16	374.66	378.39	374.51	374.68
6/13/14	393.3	389.12	374.56	374.58	384.07	374.26	374.35		392.5	382.94	374.60	374.04	377.79	373.91	374.09
6/23/14	393.3	389.14	374.20	374.18	384.11	373.99	374.33		392.5	382.92	374.42	373.94	377.52	373.86	371.35
7/9/14	393.3	388.92	374.11	374.18	384.24	373.84	373.96		392.5	382.82	374.25	373.44	377.65	373.63	371.45
7/23/14	393.3	389.13	373.99	374.03	384.27	373.72	373.83		392.5	382.90	374.07	373.63	377.50	373.49	373.66
8/11/14	393.3	388.98	374.08	373.96	384.32	373.69	373.78		392.5	382.99	373.97	373.59	377.65	373.46	373.64
8/26/14	393.3	388.95	373.98	374.03	384.30	373.73	373.87		392.5	382.60	374.04	373.67	377.80	373.52	373.70
9/2/14	393.3	389.02	373.85	373.88	384.26	373.66	374.34		392.5	382.60	373.91	373.54	377.60	373.43	373.58
9/15/14	393.3	388.90	373.77	373.78	384.31	373.53	373.67		392.5	382.53	373.81	373.45	377.42	373.38	373.52
10/9/14	393.3	388.86	373.65	373.73	384.38	373.42	373.55		392.5	382.39	373.70	373.39	377.36	373.24	373.39
10/21/14	393.3	389.11	373.79	373.83	384.38	373.57	373.68		392.5	382.57	373.86	373.48	377.71	373.38	373.49
11/10/14	393.3	388.95	373.85	373.90	384.37	373.60	373.72		392.5	382.80	373.97	373.49	377.89	373.40	373.54
11/24/14	393.3	389.68	374.00	374.06	384.48	373.80	373.85		392.5	382.92	374.15	373.64	378.07	373.61	373.69
12/3/14	393.3	389.55	373.92	374.01	384.45	373.66	373.88		392.5	382.65	374.08	373.69	378.12	373.58	373.74
12/15/14	393.3	389.35	374.02	374.12	384.74	373.89	373.93		392.5	382.77	374.16	373.74	379.04	373.67	373.79

TABLE 2
PIEZOMETER STATIC WATER ELEVATIONS

	PZ-3 Wall Top	PZ-3A-Shallow	PZ-3A-Mid	PZ-3A-Deep	PZ-3B-Shallow	PZ-3B-Mid	PZ-3B-Deep		PZ-4 Wall Top	PZ-4A-Shallow	PZ-4A-Mid	PZ-4A-Deep	PZ-4B-Shallow	PZ-4B-Mid	PZ-4B-Deep
1/10/14	393.0	389.04	374.78	374.31	386.36	374.14	374.28		393.5	389.21	374.96	376.27	384.27	374.70	376.26
1/20/14	393.0	389.28	374.91	374.39	386.83	374.20	374.38		393.5	389.51	375.10	376.41	384.46	374.80	376.39
2/3/14	393.0	388.84	374.47	374.02	387.13	373.80	373.99		393.5	389.00	374.69	376.03	383.70	374.42	376.01
2/17/14	393.0	388.74	374.33	373.74	385.89	373.54	373.71		393.5	388.82	374.52	375.70	383.48	374.13	375.67
3/3/14	393.0	388.95	374.68	374.06	389.86	373.85	374.02		393.5	389.18	374.82	376.06	383.98	374.44	376.05
3/21/14	393.0	389.30	375.09	374.60	389.86	374.41	374.57		393.5	389.65	375.34	376.55	384.13	375.01	376.56
4/1/14	393.0	389.44	375.71	375.20	389.59	375.01	375.18		393.5	389.68	375.93	377.19	384.58	375.58	377.16
4/16/14	393.0	389.04	375.56	375.02	389.22	374.81	374.98		393.5	389.07	375.72	377.00	384.24	375.37	376.97
4/28/14	393.0	389.21	375.21	374.70	387.29	374.54	374.66		393.5	389.35	375.25	376.84	384.33	375.09	376.77
5/12/14	393.0	389.26	375.16	374.64	387.93	374.46	374.63		393.5	389.35	375.20	376.79	384.25	375.02	376.72
5/28/14	393.0	389.29	375.24	374.62	387.51	374.41	374.61		393.5	389.42	375.24	376.83	384.34	375.03	376.75
6/13/14	393.0	388.94	374.68	374.10	385.33	373.91	374.08		393.5	387.05	374.72	376.21	383.84	374.46	376.18
6/23/14	393.0	388.91	374.50	373.99	385.31	373.67	373.88		393.5	389.00	374.57	375.97	383.87	374.31	375.94
7/9/14	393.0	388.67	374.32	373.76	387.96	373.54	373.74		393.5	388.71	374.37	375.77	383.68	374.12	375.71
7/23/14	393.0	388.89	374.14	373.57	385.95	373.37	373.54		393.5	388.99	374.20	375.53	383.95	373.91	375.51
8/11/14	393.0	387.79	374.03	373.62	383.80	373.41	373.58		393.5	388.86	374.07	375.59	384.05	373.99	375.57
8/26/14	393.0	388.78	374.05	373.68	386.38	373.22	373.65		393.5	388.86	374.14	375.62	383.58	374.06	375.59
9/2/14	393.0	388.77	373.90	373.52	387.50	373.32	373.53		393.5	388.83	373.98	375.45	384.12	373.85	373.42
9/15/14	393.0	388.79	373.86	373.49	387.77	373.29	373.45		393.5	388.81	373.95	375.39	383.94	373.86	375.34
10/9/14	393.0	388.62	373.72	373.39	387.96	373.19	373.33		393.5	388.64	373.78	375.25	384.41	373.75	375.24
10/21/14	393.0	388.83	373.88	373.53	389.30	373.32	373.48		393.5	388.85	373.92	375.38	384.05	373.89	375.35
11/10/14	393.0	389.02	374.03	373.55	389.15	373.34	373.48		393.5	388.92	374.03	375.38	383.99	373.94	375.35
11/24/14	393.0	389.22	374.13	373.75	390.61	373.52	373.66		393.5	389.51	374.19	375.49	384.55	374.07	375.49
12/3/14	393.0	389.30	374.08	373.66	389.71	373.47	373.66		393.5	389.31	374.19	375.51	384.42	374.15	375.49
12/15/14	393.0	389.15	374.20	373.81	389.92	373.62	373.78		393.5	389.27	374.24	375.55	384.25	374.17	375.54

TABLE 2
PIEZOMETER STATIC WATER ELEVATIONS

	PZ-5 Wall Top	PZ-5A-Shallow	PZ-5A-Mid	PZ-5A-Deep	PZ-5B-Shallow	PZ-5B-Mid	PZ-5B-Deep		PZ-6 Wall Top	PZ-6A-Shallow	PZ-6A-Mid	PZ-6A-Deep	PZ-6B-Shallow	PZ-6B-Mid	PZ-6B-Deep
1/10/14	394.8	389.03	375.10	383.12	388.65	378.23	381.03		393.4	389.61	375.42	383.55	390.51	378.00	391.79
1/20/14	394.8	389.76	375.21	383.09	388.74	378.28	381.01		393.4	389.76	375.61	383.59	390.79	378.09	391.52
2/3/14	394.8	388.99	374.84	382.50	388.61	377.87	380.75		393.4	389.38	375.20	382.92	390.79	377.69	390.50
2/17/14	394.8	388.75	374.62	382.19	388.55	377.54	380.43		393.4	389.38	374.93	382.66	390.52	377.39	390.01
3/3/14	394.8	389.53	374.98	382.96	388.77	378.02	380.63		393.4	389.54	375.31	383.60	390.63	377.80	391.47
3/21/14	394.8	391.12	375.40	383.07	389.30	378.36	380.77		393.4	389.77	375.79	384.05	390.89	378.27	392.72
4/1/14	394.8	390.40	376.06	384.68	389.73	378.98	381.42		393.4	389.88	376.42	384.97	391.00	378.94	393.92
4/16/14	394.8	389.53	375.80	384.41	389.66	378.82	382.27		393.4	389.44	376.22	384.76	390.92	378.71	393.02
4/28/14	394.8	389.08	375.39	383.88	388.87	378.47	381.89		393.4	389.74	375.92	375.36	390.65	378.44	391.94
5/12/14	394.8	389.31	375.35	383.63	388.82	378.46	381.58		393.4	389.73	375.87	384.50	385.61	378.41	392.38
5/28/14	394.8	389.24	375.46	383.84	388.60	378.42	381.63		393.4	389.75	375.90	384.78	390.43	378.40	392.32
6/13/14	394.8	388.76	374.82	383.18	388.47	377.87	381.16		393.4	389.45	375.30	383.86	390.31	377.84	391.08
6/23/14	394.8	388.58	374.64	382.73	388.25	377.67	380.68		393.4	389.42	375.08	383.64	390.05	377.54	390.77
7/9/14	394.8	388.54	374.53	382.48	389.18	377.53	380.50		393.4	389.27	374.98	383.48	390.05	377.42	391.04
7/23/14	394.8	388.46	374.42	382.51	388.24	377.36	380.31		393.4	389.33	374.87	383.08	389.98	377.24	390.44
8/11/14	394.8	391.58	374.27	382.37	388.43	377.40	380.25		393.4	389.28	374.72	383.24	390.11	377.27	390.91
8/26/14	394.8	388.63	374.34	382.24	388.71	377.50	380.20		393.4	389.29	374.78	383.19	390.26	377.33	391.05
9/2/14	394.8	388.53	374.16	382.02	388.48	377.36	380.11		393.4	389.25	374.61	382.73	390.08	377.15	390.42
9/15/14	394.8	388.38	374.17	382.21	389.33	377.24	380.00		393.4	389.23	374.57	382.56	389.18	377.04	390.19
10/9/14	394.8	388.19	373.99	381.47	389.33	377.12	379.62		393.4	389.16	374.43	382.29	390.57	377.79	390.21
10/21/14	394.8	388.58	374.13	381.72	389.37	377.35	379.64		393.4	389.20	374.56	382.86	390.64	377.09	390.85
11/10/14	394.8	388.88	374.21	381.78	389.20	377.42	379.78		393.4	389.24	374.68	382.89	390.48	376.13	390.77
11/24/14	394.8	389.48	374.82	381.84	389.46	377.52	379.77		393.4	389.51	374.72	382.90	390.75	377.29	390.84
12/3/14	394.8	389.53	374.27	381.74	389.68	377.43	379.80		393.4	389.30	374.66	382.94	390.75	377.29	390.87
12/15/14	394.8	390.37	374.34	382.87	390.24	377.61	379.90		393.4	389.46	374.87	383.84	390.98	377.36	391.07

TABLE 2
PIEZOMETER STATIC WATER ELEVATIONS

	PZ-7 Wall Top	PZ-7A-Shallow	PZ-7A-Mid	PZ-7A-Deep	PZ-7B-Shallow	PZ-7B-Mid	PZ-7B-Deep
1/10/14	394.4	389.85	374.97	378.52	388.28	374.82	378.42
1/20/14	394.4	390.20	375.05	378.67	388.35	374.94	378.56
2/3/14	394.4	389.48	374.68	378.39	387.60	374.56	378.29
2/17/14	394.4	389.26	374.44	378.11	387.36	374.26	378.09
3/3/14	394.4	389.70	374.81	378.51	388.26	374.66	378.46
3/21/14	394.4	390.07	375.24	378.81	389.00	375.07	378.79
4/1/14	394.4	390.37	375.90	379.46	389.38	375.78	379.42
4/16/14	394.4	389.97	375.69	379.42	389.25	375.67	379.34
4/28/14	394.4	390.26	375.41	379.37	388.78	375.31	379.35
5/12/14	394.4	390.31	375.35	379.39	388.87	375.25	379.44
5/28/14	394.4	390.13	375.37	379.38	388.45	375.26	379.44
6/13/14	394.4	389.63	374.83	378.86	387.54	374.73	378.95
6/23/14	394.4	389.72	374.58	378.50	388.06	374.44	378.58
7/9/14	394.4	389.69	374.44	378.21	388.50	374.28	378.24
7/23/14	394.4	389.59	374.32	378.05	387.94	374.14	378.16
8/11/14	394.4	389.52	374.31	377.89	388.14	374.11	377.99
8/26/14	394.4	389.49	374.25	377.84	388.63	374.25	377.94
9/2/14	394.4	389.55	374.12	377.78	387.88	373.99	377.79
9/15/14	394.4	389.53	374.07	377.61	388.88	373.98	377.69
10/9/14	394.4	389.45	373.95	377.44	389.46	373.86	377.52
10/21/14	394.4	389.71	374.07	377.49	389.41	373.98	377.64
11/10/14	394.4	389.86	374.07	377.47	388.57	373.99	377.62
11/24/14	394.4	390.29	374.17	377.61	389.48	374.16	377.74
12/3/14	394.4	390.06	374.22	377.59	389.45	374.13	376.65
12/15/14	394.4	389.90	374.29	377.67	389.75	374.18	377.78

TABLE 3: PIEZOMETER ANALYTICAL RESULTS								
	1st Quarter (March) 2014		2nd Quarter (April) 2014		3rd Quarter (September) 2014		4th Quarter (November) 2014	
	Mercury		Mercury		Mercury		Mercury	
	Result ug/L	Qualifier	Result ug/L	Qualifier	Result ug/L	Qualifier	Result ug/L	Qualifier
PZ-1B-S	Note 1		Note 1		ND (0.038)	U	0.038	J
PZ-1B-I	ND (0.038)	U	ND (0.038)	U	ND (0.038)	U	ND (0.038)	U
PZ-1B-D	ND (0.038/0.038)	U	ND (0.038/0.038)	U	ND (0.038/0.038)	U	ND (0.038/0.038)	U
PZ-2B-S	1.8		1.7		1.4		1.5	
PZ-2B-I	0.063	J	ND (0.038)	U	ND (0.038)	U	0.076	J
PZ-2B-D	ND (0.038)	U	ND (0.038)	U	ND (0.038)	U	ND (0.038)	U
PZ-3B-S	Note 1		ND (0.038)	U	ND (0.038)	U	ND (0.038)	U
PZ-3B-I	ND (0.038)	U	ND (0.038)	U	ND (0.038)	U	0.041	J
PZ-3B-D	ND (0.038)	U	ND (0.038)	U	ND (0.038)	U	ND (0.038)	U
PZ-4B-S	Note 1		Note 1		ND (0.038)	U	Note 1	
PZ-4B-I	ND (0.038)	U	0.043	J	ND (0.038)	U	ND (0.038)	U
PZ-4B-D	ND (0.038)	U	ND (0.038)	U	ND (0.038)	U	ND (0.038)	U

Table Notes:
ND: Non-Detect, method detection limit shown in paranthesis.
U: Not detected.
J: Result is considered an estimate.
Note 1: Not sampled due to low water level.
Highlighted cells indicate an exceedence of the NYCRR Part 703 Class GA groundwatre standard for mercury (0.7 ug/L)

TABLE 4: SURFACE WATER ANALYTICAL RESULTS						
	October 2014					
	Total Mercury		Methyl Mercury		Dissolved Mercury	
	Result ng/L	Qualifier	Result ng/L	Qualifier	Result ng/L	Qualifier
West Flume						
LCP1-SW-60	6.9		0.251	J	0.16	
LCP1-SW-61	3.1		3.2		0.09	J
LCP1-SW-62	3.5		1.90		0.21	
LCP1-SW-63	3.5		2		0.1	J
Wetland A						
LCP1-SW-67	1.2		0.56	J	ND (0.03)	U
LCP1-SW-68	2.8		1.40		ND (0.03)	U
Wetland C						
LCP1-SW-69	1.4		0.419	J	0.13	
LCP1-SW-70	6		1.5		0.3	
LCP1-SW-71	12.8/7.6	J	2.0/1.5		0.32/0.29	

Table Notes:
J: Result is considered an estimate.
U: Not dectected.
ND: Non-Detect, method dectection limit shown in paranthesis.

TABLE 5: SEDIMENT ANALYTICAL RESULTS				
Location ID	October 2014			
	Mercury		Methyl Mercury	
	Result mg/kg	Qualifier	Result ng/g	Qualifier
West Flume				
LCP1-SW-60	0.968	J	0.49	J
LCP1-SW-61	0.418		1.62	
LCP1-SW-62	0.424	J	1.46	J
LCP1-SW-63	0.116		0.36	J
Wetland A				
LCP1-SW-67	0.232		1.24	
LCP1-SW-68	1.6		1.75	
Wetland C				
LCP1-SW-64	0.117		1.3	
LCP1-SW-65	0.14		1.71	
LCP1-SW-66	0.257/0.309		0.87/1.16	

Table Notes:
J: Result is considered an estimate.

FIGURES

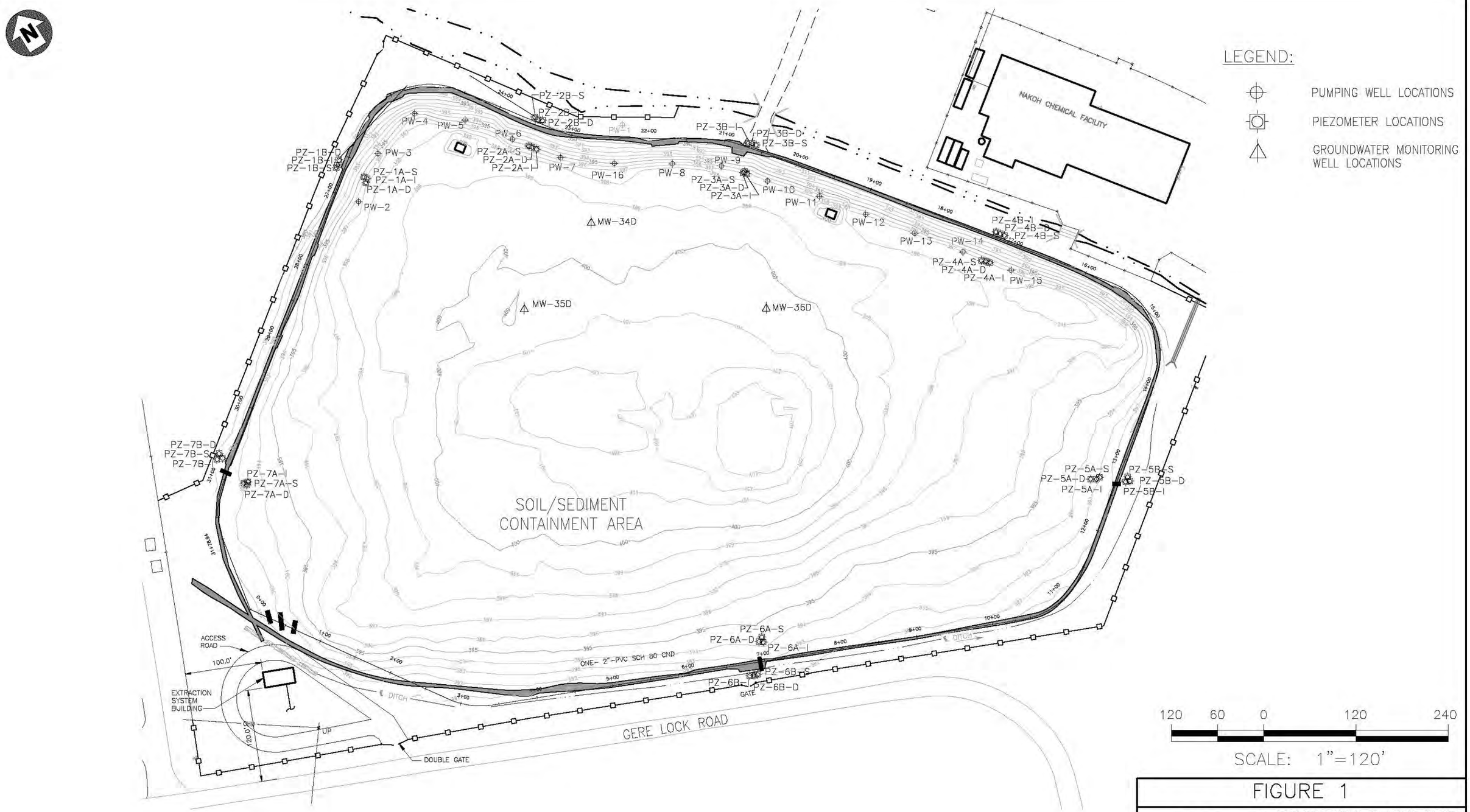
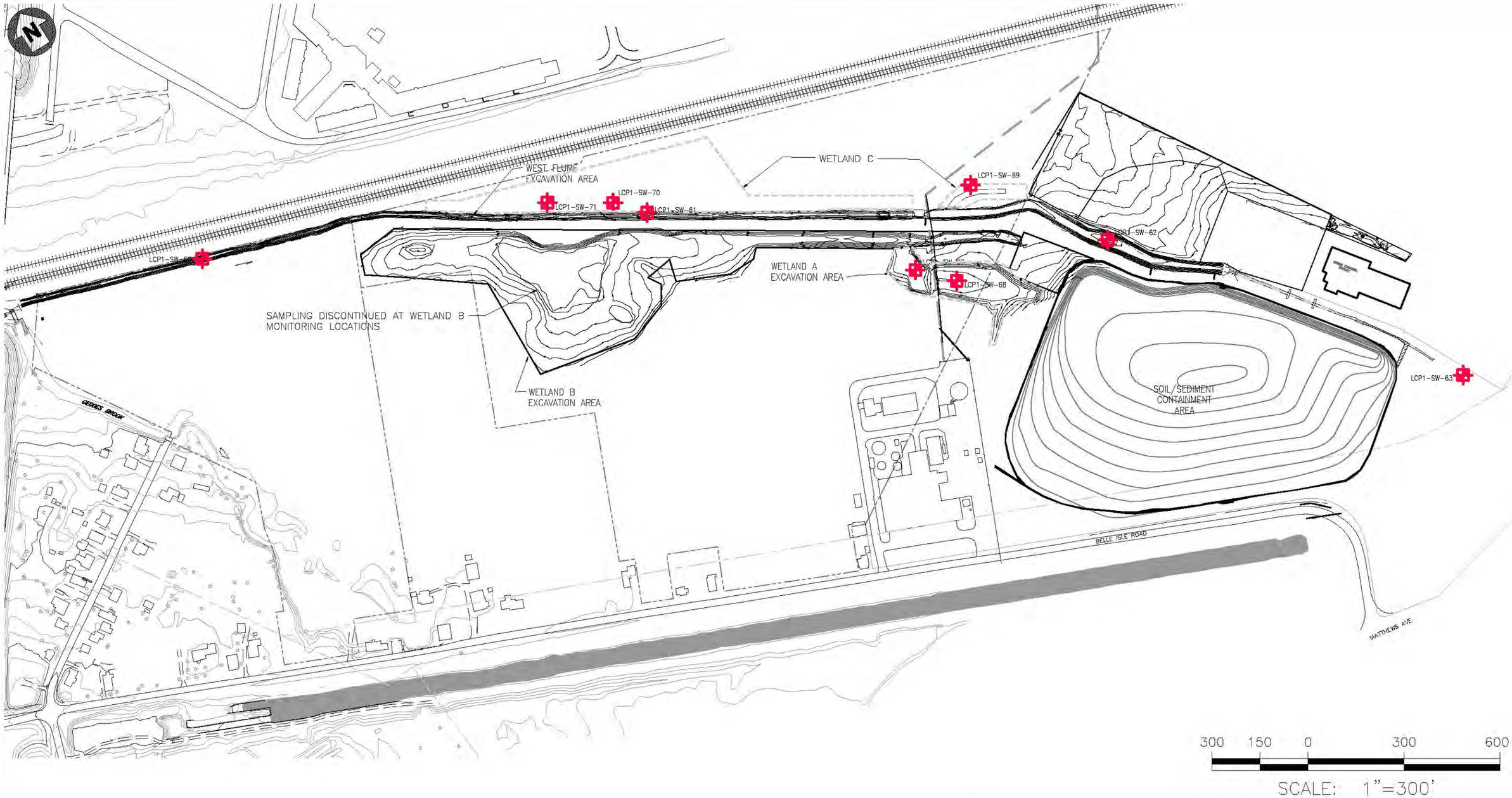


FIGURE 1

Honeywell FORMER LINDEN CHEMICAL PLANT
SOLVAY, NEW YORK

PIEZOMETER/MONITORING WELL LOCATIONS

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



LEGEND

RESTORATION AREA LIMIT

EXISTING CONTOURS

SURFACE WATER AND SEDIMENT SAMPLE LOCATIONS

FIGURE 2

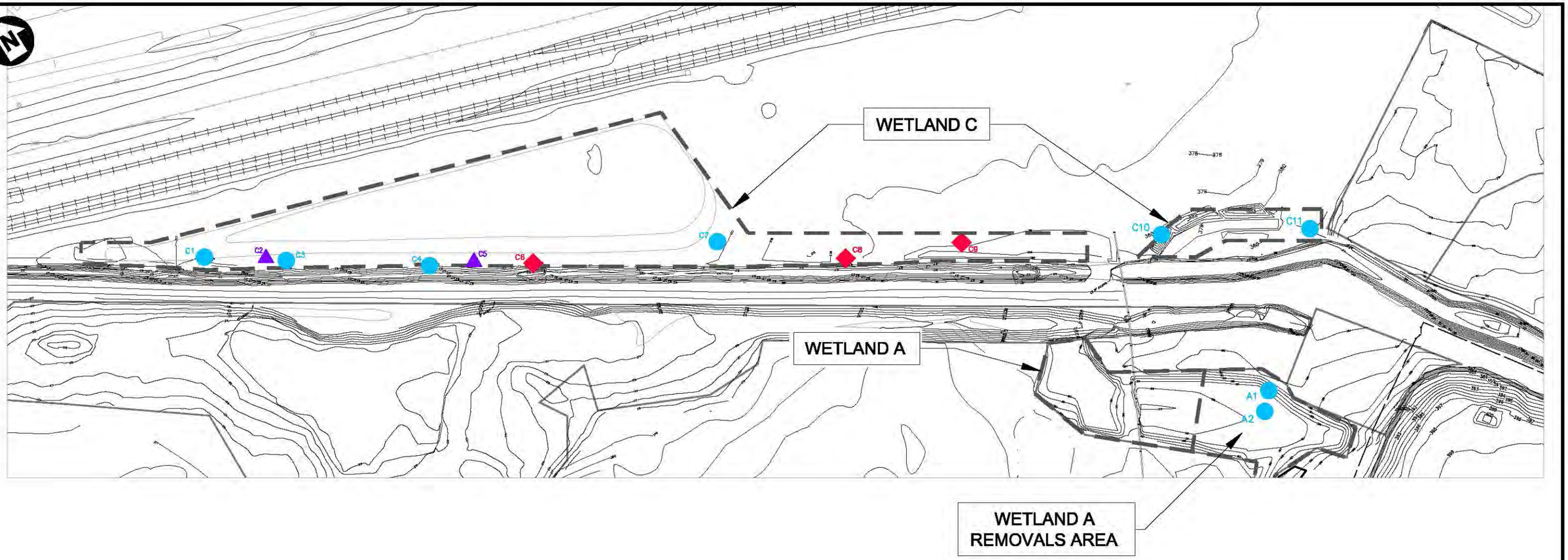
Honeywell FORMER LINDEN CHEMICAL PLANT SOLVAY, NEW YORK

2014 ANNUAL SURFACE WATER/SEDIMENT SAMPLING LOCATION

PARSONS

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

FILE NAME: P:\HONEYWELL -SYR\448308 - LCP OU1 2013\10.0 TECHNICAL CATEGORIES\10.2 CAD\FIGURES\2014\444224-RPT002.DWG
PLOT DATE: 3/3/2015 2:14 PM PLOTTED BY: CARIDE-FLMER NATALIA



LEGEND

- RESTORATION AREA LIMIT
- EXISTING CONTOURS
- C8 MONITORING LOCATIONS FOR WETLAND EDGE & SIDE SLOPE ZONES (3)
- C7 MONITORING LOCATIONS FOR SHALLOW EMERGENT ZONES (8)
- C2 MONITORING LOCATIONS FOR DEEP EMERGENT ZONES (2)

150 0 150 300

SCALE: 1"=150'

FIGURE 3

Honeywell

2014 WETLAND OM&M VEGETATION MONITORING LOCATIONS

PARSONS

310 PLAINFIELD ROAD * SUITE 350 * SYRACUSE, NY 13212 * 315/451-9560
OFFICES IN PRINCIPAL CITIES

FILE NAME: P:\HONEYWELL -SYR\448308 - LCP OU1 2013\10.0 TECHNICAL CATEGORIES\10.2 CAD\FIGURES\2014\448308-SK003.DWG
PLOT DATE: 2/23/2015 4:02 PM PLOTTED BY: PICKERING, KELLY

APPENDIX A

WETLANDS MONITORING REPORT YEAR 6 - 2014

2014 WETLAND MONITORING REPORT
LCP BRIDGE STREET SITE (OU-1)

TOWN OF SOLVAY
ONONDAGA COUNTY, NEW YORK

Prepared For:

Honeywell

301 Plainfield Road
Suite 330
Syracuse, NY 13212

Prepared By:

PARSONS

301 Plainfield Road
Suite 350
Syracuse, NY 13212

MARCH 2015

TABLE OF CONTENTS

PAGE

1.0 INTRODUCTION 1

2.0 MONITORING METHODS 1
2.1 Vegetation.....1
2.2 Hydrology.....2
2.3 Wildlife.....2

3.0 MONITORING RESULTS 2
3.1 Vegetation.....2
3.2 Hydrology.....3
3.3 Wildlife.....3

4.0 WETLAND RESTORATION SUCCESS AND MAINTENANCE 4
4.1 Invasive Species Control 4
4.2 Eroded Channel 5

5.0 SUMMARY.....6

6.0 REFERENCES.....6

LIST OF TABLES

Table 1 Plant Species Observed in 2014, LCP Bridge Street Restoration Area

Table 2 Vegetation Data Summary, Wetland A, Vegetation Cover Types in 2014. LCP Bridge Street Restoration Area

Table 3 Vegetation Data Summary, Wetland C, Vegetation Cover Types in 2014. LCP Bridge Street Restoration Area

Table 4 Relative Percent Cover of Different Wetland Indicator Status Vegetation Types in 2014, LCP Bridge Street Restoration Area

Table 5 Staff Gauge Readings taken in 2014, LCP Bridge Street Restoration Area

Table 6 Wildlife Observed in 2014, LCP Bridge Street Restoration Area

TABLE OF CONTENTS (CONTINUED)

LIST OF FIGURES

Figure 1 LCP Site Location Map
Figure 2 Aerial Photograph of LCP Wetlands, LCP Bridge Street Restoration Area
Figure 3 2014 Vegetation Monitoring Plot and Photo Locations, LCP Bridge Street Restoration Area
Figure 4 Vegetative Cover Types in 2014, LCP Bridge Street Restoration Area
Figure 5 2014 Invasive Species Control, LCP Bridge Street Restoration Area
Figure 6 LCP Focus Areas for 2014 Restoration Area, LCP Bridge Street Restoration Area

LIST OF ATTACHMENTS

ATTACHMENT 1 – MONITORING DATA SHEETS
ATTACHMENT 2 – REPRESENTATIVE PHOTOGRAPHS

WETLAND MONITORING REPORT (2014)
LCP OU-1 BRIDGE STREET SITE

1.0 INTRODUCTION

The wetland restoration sites are located in the Town of Geddes, Onondaga County, New York (Figure 1). Remediation at the LCP Bridge Street site required the excavation of portions of NYSDEC wetland SYW-14. The remediation design was presented in the *Final (100%) Design Report for the LCP Bridge Street (OU-1) Site* (Parsons 2004). Details about the wetland restoration plans and monitoring program can be found in the *Wetland Monitoring Reports – Years 1 through 5* (TES 2009, 2010, 2011, 2012, 2013). Restoration of wetland habitat was highly successful and routine monitoring in the original restoration areas was ended after 2012. However, new removals occurred in 2011 in a section of SYW-14 that contained dredge spoils from the West Flume and in a small portion of previously restored Wetland A (Figure 2). Restoration of both areas occurred in 2012; the portion of Wetland A where additional removals occurred was restored as shallow emergent wetland and the dredge spoil area, now referred to as Wetland C, was restored as deeper aquatic habitat surrounded by emergent wetland, wet meadow, and riparian edges. The OM&M Plan calls for monitoring of restored wetlands for five years after restoration at which point data are to be evaluated to determine if restored conditions have been met and if they can be maintained in the future (Parsons, 2009a). This report presents the findings of the 2014 monitoring effort that is the second of five years of monitoring at Wetland C and the portion of Wetland A where additional removals occurred.

2.0 MONITORING METHODS

Methods used to monitor the restored wetland areas are provided in Parsons (2009a). The parameters to be monitored included: vegetation, hydrology, wildlife usage, and invasive species.

2.1 Vegetation

Vegetation monitoring included field reconnaissance surveys, qualitative assessments, and quantitative sampling. Field reconnaissance surveys occurred several times from May to October, 2014 and tracked plant and wildlife species encountered. More detailed qualitative assessments were performed in August and September 2014, to more systematically identify plant species and finalize locations for invasive species control.

Quantitative vegetation sampling was conducted at 13 permanent stations throughout the portion of Wetland A, where additional removals occurred, and Wetland C. At each station, a 100 ft^2 sample plot was established to evaluate herbaceous vegetation and a 400 ft^2 sample plot was established to evaluate woody vegetation. Plot locations are shown on Figure 3.

Vegetation data collected in each sample plot consisted of the following:

1. Vegetation cover type present

2. Total percent areal cover of vegetation
3. Plant species observed
4. The percent areal cover of each species
5. Approximate water depth

The sample plot monitoring data sheets used are presented in Attachment 1. Photographs were taken at each of the vegetation monitoring plots (Photographs 1 to 13), and at permanent photograph locations (Photographs 14 to 18). The location and direction of the photograph locations are indicated in Figure 3, together with the location of the vegetation monitoring plots. All photographs are presented in Attachment 2.

2.2 Hydrology

Staff gauge readings were collected in the portion of Wetland A being monitored and in Wetland C. Both of these staff gauges were installed in the spring of 2014. Data from staff gauges are presented in Table 6.

2.3 Wildlife

During field reconnaissance visits, all observed wildlife species or their signs were documented and photographs taken when possible. In addition, a trail camera was deployed on a trial basis in December 2014 to document wildlife usage during periods when site visits are not occurring (night, winter etc.).

3.0 MONITORING RESULTS

3.1 Vegetation

Vegetation growth in newly restored areas of Wetlands A and C is generally dense and diverse with a total of 122 plant species recorded in 2014, the second year following restoration (Table 1). The total number of species documented since monitoring began in 2013 is 219.

Wetland A

Plant species observed in the recently restored section of Wetland A are presented in Table 1. Vegetation plot data for Wetland A are provided in Attachment 1, with a summary of the data presented in Table 2.

Wetland A contains a primarily emergent wetland cover type around the perimeter and a small section (~0.1 acre) in the center alternates between a sparsely vegetated shallow aquatic bed and a mudflat depending on water levels (Figure 4). The edges quickly transition into upland meadow habitat.

A total of 58 species were identified during all monitoring activities in 2014, up from 18 in 2013 (Table 1). Twelve species were identified during quantitative plot sampling, most of which were obligate wetland species (65 percent), and facultative wetland species at (19 percent) (Tables 2 and 4). Rice cutgrass (*Leersia oryzoides*) was the overall dominant species documented throughout the plots, accounting for about 30.8% of the overall relative cover (Table 2).

Wetland C

Plant species observed in Wetland C in 2014 are presented in Table 1. Vegetation plot data for Wetland C are provided in Attachment 1, with a summary of the data presented in Table 3.

Four vegetation cover types were identified in 2014; aquatic bed, emergent wetland, wet meadow, and wetland slopes (Figure 4). The deeper aquatic pool and associated perimeter emergent wetlands and wet meadow are the dominant habitat types in this area.

A total of 106 species were identified during all monitoring activities in 2014, up from 64 in 2013 (Table 1). During quantitative sampling, a total of 82 species were identified, most of which were obligate (49 percent) or facultative wetland species (16 percent) (Table 4). Cattails, both broad-leaf (*Typha latifolia*), and narrow-leaf (*Typha angustifolia*) were the dominant species in the quantitative sampling throughout Wetland C, accounting for a combined 26 percent of the overall relative cover (Table 3).

3.2 Hydrology

Hydrologic conditions were maintained throughout the monitoring period based on the water elevation data collected at monitored locations in 2014. All the data recorded during the bi-weekly monitoring are presented in Table 5.

3.3 Wildlife

Wildlife observations from the restoration areas are presented in Table 6. These observations were made at various times during the 2014 season, mostly during the vegetation reconnaissance and quantitative plot sampling. Additionally some observations where made with the use of a trail camera in December, and periodic site visits were made throughout the fall to identify migratory birds.

Birds

Table 6 lists the bird species seen or heard in the vicinity of the restoration areas. Species observed included several wetland species, such as Canada Goose (*Branta canadensis*), Mallard (*Anas platyrhynchos*), Great Blue Heron (*Ardea herodias*), Spotted Sandpiper (*Actitis macularius*), Green Heron (*Butorides virescens*), and Red-Winged Blackbird (*Agelaius phoeniceus*). The Red-Winged Blackbird is a common nesting species in the restored wetland areas. Canada Geese and Mallards were common in the open water habitat of Wetland C. Wild turkey (*Meleagris gallopavo)* were also documented on several occasions. Although Wetland B is no longer part of the monitoring program, observations made in this area during site visits to the other wetlands indicated that the State threatened Pied-billed Grebe was present for the eighth consecutive year in 2014.

Amphibians and Reptiles

Northern Leopard Frogs (*Lithobates pipiens*) were observed throughout both Wetlands A and C, whereas Bull Frogs (*Lithobates catebeianus)* and American Toad (*Anaxyrus americanus*) were only observed in Wetland C. Species identification was determined by both direct

observations and calls. Additionally, both the Water Snake (*Nerodia sipedon*) and Garter Snake (*Thamnophis sirtalis*) were observed in Wetland C.

Mammals

White-tailed deer (*Odocoileus virginianus*) and their signs were commonly observed in and around the wetlands. Eastern coyote (*Canis latrans* var.) and their signs were also observed on the road separating Wetland C and the West Flume from Wetlands A and B. Coyotes, eastern cottontail (*Sylvilagus floridanus)*, and white-tail deer were recorded on the trail camera in Wetland C. Finally, a large tree (present prior to restoration efforts) was found cut down by a North American beaver (*Castor canadensis*) on the bank of Wetland C.

Macroinvertebrates

Table 6 also lists the macroinvertebrates that were observed in both Wetlands A and C. Some of the noteworthy species observed were green darner (*Anax junius*), twelve spot skimmer (*Libellula pulchella*), and common whitetail (*Plathemis lydia*).

4.0 WETLAND RESTORATION SUCCESS AND MAINTENANCE

The second year of monitoring of the newly restored areas of Wetland A and Wetland C at the LCP OU-1 site indicates that restoration has been largely successful. Areas that were previously dominated by a monoculture of the invasive common reed with little aquatic habitat component, are now diverse wetlands, supporting a mix of plant and animal species and containing an interspersion of aquatic habitat. The improvement in habitat value of these areas is significant. While the restoration of the newly restored areas is considered successful based on the second year of monitoring, maintenance of the areas is considered necessary to maintain the habitat value through the five-year monitoring program. Two areas that were addressed in 2014 are:

1) The encroachment of common reed grass into the restored areas
2) Eroded channel between the West Flume and Wetland C.

4.1 Invasive Species Control

Common reed grass occurs in various locations around the site. Most of the common reed is in adjacent areas or along the fringes of wetlands. Measures were implemented during two periods in 2014, one in late June and early July, and the other in September to control common reed grass. These measures included hand pulling of young plants in sensitive areas and application of the herbicide glyphosate directly to common reed grass in and also adjacent to the restoration sites (Figure 5). Areas outside the wetland restoration footprint were treated to reduce the likelihood of them serving as colonization sources. Post-treatment inspections indicate that the application appears to have been highly successful. Use of herbicides over water is restricted; therefore, when individual plants and/or stolons (above ground rhizomes) of common reed grass were present in standing water, they were pulled by hand to the extent practical.

4.2 Eroded Channel

During periods of high water, the West Flume has occasionally flowed out of its channel and into the SE corner of Wetland C (Figure 6). Over time this has created a shallow channel between the West Flume and the Wetland C pool which has little vegetated cover. Phragmites were noted colonizing this area and after Phragmites control efforts were completed in the early fall of 2014, measures were implemented to stabilize the channel and establish native vegetation. The area was first seeded with a custom seed mix (see below), 100 percent natural fiber, biodegradable erosion control fabric was installed to keep the seed in place and stabilize the channel, and then a series of coir logs were installed across the channel to reduce flow velocity during plant establishment. Finally, five potted speckled alder (*Alnus incana*) and ten black willow (*Salix nigra*) were planted along the edges of the channel, and fifty peach-leaf willow (*Salix amygdaloides*) live stakes were installed within and along the same edges (Photo 19).

Seed mix used in Wetland C channel:

23.66% Indian grass (*Sorghastrum nutans*)
11.98% Switchgrass (*Panicum virgatum)*
11.12% Little bluestem (*Schizachyrium scoparium)*
4.81% Canada wild rye (*Elymus canadensis)*
4.00% Black eyed Susan (*Rudbeckia hirta)*
3.99% Autumn bentgrass (*Agrostis perennans)*
3.39% New England aster (*Symphyotrichum novae-angliae)*
2.82% Tall white beardtongue *(Penstemon digitalis)*
2.00% Carolina rose (*Rosa carolina)*
2.00% Common milkweed *(Asclepias syriaca)*
1.99% Purpletop (*Tridens flavus)*
1.97% Indian hemp (*Apocynum cannabinum)*
1.96% Wild bergamot (*Monarda fistulosa)*
1.95% Heath aster (*Symphyotrichum ericoides)*
1.93% Grass-leaved goldenrod (*Euthamia graminifolia)*
1.93% Monkey flower (*Mimulus ringens)*
1.91% Ticklegrass (*Agrostis scabra)*
1.79% Big bluestem *(Andropogon gerardii)*
1.64% Path rush (*Juncus tenuis)*
1.36% Early goldenrod (*Solidago juncea)*
1.00% Purple bergamot (*Monarda media)*
0.98% Fowl bluegrass (*Poa palustris)*
0.96% Large-leaved aster (*Eurybia macrophylla)*
0.64% Canada goldenrod (*Solidago canadensis)*
0.50% Ox-eye sunflower (*Heliopsis helianthoides)*
0.50% Cutleaf coneflower (*Rudbeckia laciniata)*
0.47% Wrinkled goldenrod (*Solidago rugosa)*

5.0 SUMMARY

The wetland areas at LCP were originally dominated by a monoculture of the invasive grass common reed and had limited aquatic habitat. Design for the restoration targeted a wetter wetland system to diversify the habitats, provide areas unsuitable for common reed, and increase the aquatic habitat component. Monitoring of the restored areas was required and is described in the Operation, Maintenance and Monitoring Plan (Parsons 2009). Monitoring that occurred from 2008 to 2012 in areas initially restored in 2007 was completed in 2012. Monitoring began in 2013 in areas restored in 2011 and 2012. Results of the second year of monitoring (2014) for these restored areas are presented in the current report.

Vegetation and wildlife usage were monitored during 2014 in the restored wetlands. A vegetation cover map of the restored areas is provided (Figure 4). Vegetation in the restored wetlands was primarily emergent and aquatic bed. A total of 122 plant species were observed in the area up from 67 in 2013, most of which were wetland species. Hydrologic conditions were maintained throughout the summer and are expected to be maintained indefinitely.

Wildlife usage of the restored wetlands was extensive. Northern Leopard Frogs were particularly abundant and Bull Frogs were noted as well. Numerous wetland birds were observed in the area during the year including the Red Winged Blackbird, which is commonly known for nesting in restored wetland areas and Pied-Billed Grebe (a state threatened species). White tailed deer were common and eastern coyote and beaver were noted.

Overall, the restored areas were found to be very successful during their second year of monitoring. An area between the West Flume and Wetland C developed a shallow eroded channel due to overland flows. This area was stabilized with RECP and coir logs, seeded, and planted with trees. Common reed occurred in several locations around the restored areas. Control measures of herbicide application and hand pulling were implemented in both early summer and early fall. Additional treatment is planned, as necessary, in 2015.

6.0 REFERENCES

Parsons. 2004. *Final (100%) Design Report for the LCP Bridge Street (OU-1) Site*. Prepared for Honeywell, Inc. Parsons, Liverpool, NY. \

Parsons. 2009. *Operation, Maintenance, and Monitoring Plan for the LCP Bridge Street Site, Solvay, New York*. Prepared for Honeywell. Parsons, Liverpool, NY. September 2009

Parsons. 2014. *2013 Annual Operation, Maintenance and Monitoring Report. LCP Bridge Street Site (OU-1).* Prepared for Honeywell, Syracuse, New York.

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TES. 2010. *Wetland Monitoring Report – Year 2 (2009) LCP Bridge Street Site*. Terrestrial Environmental Specialists, Inc., Phoenix, NY.

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TES. 2013. *Wetland Monitoring Report – Year 2 (2012) LCP Bridge Street Site*. Terrestrial Environmental Specialists, Inc., Phoenix, NY.

TABLES

TABLE 1
Plant Species Observed in 2014
LCP Bridge Street Restoration Area

TREES

Scientific Name[1]	Common Name	Wetland Indicator Status[2,3]	Wetland A	Wetland C
Acer negundo	Boxelder	FAC	✓	✓
Acer rubrum	Red maple	FAC		✓
Elaeagnus umbellata	Autumn olive	FACU	✓	
Fraxinus spp.	Ash	FACW		✓
Populus deltoides	Eastern cottonwood	FAC	✓	✓
Rhus typhina	Staghorn sumac	UPL	✓	✓
Salix discolor	Pussy willow	FACW		✓
Salix lucida	Shining willow	FACW		✓
Salix spp.	Willow	FACW	✓	✓
Sambucus canadensis	Elderberry	FACW		✓

SHRUBS

Scientific Name	Common Name	Wetland Indicator Status	Wetland A	Wetland C
Cornus amomum	Silky dogwood	FACW		✓
Cornus racemosa	Gray Stemmed dogwood	FAC	✓	✓
Cornus sericea	Red osier dogwood	FACW		✓
Cornus spp.	Dogwood	FAC	✓	
Lonicera canadensis	Honeysuckle	FACU		✓
Rhamnus cathartica	Common buckthorn	FACU		✓

[1] **Botanical nomenclature follows Mitchell and Tucker (1997)**
[2] **Wetland Indicator Status nomenclature:**
Obligate Wetland (OBL): occur almost always (estimated probability >99%) in wetlands.
Facultative Wetland (FACW): usually occur in wetlands (estimated probability 67%-99%), but occasionally found in non-wetlands.
Facultative (FAC): equally likely to occur in wetlands or non-wetlands (estimated probability 34%-66%). Facultative Upland (FACU): usually occur in non-wetlands (estimated probability 67%-99%), but occasionally found in wetlands (estimated probability 1%-33%).
Obligate Upland (UPL): occur almost always (estimated probability >99%) in non-wetlands.
[3] References for Wetland Statuses throughout document from the following:
http://plants.usda.gov
https://gobotany.newenglandwild.org
www.wiplants.org

TABLE 1 (CONTINUED)
Plant Species Observed in 2014
LCP Bridge Street Restoration Area

HERBACEOUS

Scientific Name	***Common Name***	***Wetland Indicator Status***	***Wetland A***	***Wetland C***
Agrostis alba	Redtop	FACW		✓
Agrostis capillaris	Colonial bentgrass	FAC		✓
Alisma subcordatum	American water plantain	OBL	✓	✓
Ambrosia artemisiifolia	Ragweed	FACU	✓	✓
Andropogon gerardii	Big blue stem	FACU	✓	
Anthoxanthum odoratum	Sweet vernal grass	FACU		✓
Apocynum cannabinum	Indian hemp	FAC	✓	✓
Arctium spp.	Burdock	FACU	✓	
Artemisia vulgaris	Mugwort	UPL	✓	✓
Asclepias incarnata	Swamp milkweed	OBL		✓
Asclepias syriaca	Common milkweed	UPL	✓	✓
Astragalus spp.	Milkvetch	FAC	✓	
Bidens connata	Purplestem beggartick	FACW		✓
Carex comosa	Longhair sedge	OBL	✓	✓
Carex scoparia	Broom sedge	FACW		✓
Carex vulpinoidea	Fox sedge	OBL		✓
Centaurea spp.	Knapweed	FACU	✓	✓
Cerastium arvense	Field chickweed	FACU		✓
Cerastium vulgatum	Mouse-ear chickweed	FACU		✓
Chenopodium album	Lambsquarters	FACU		✓
Chenopodium glaucum	Oakleaf goosefoot	FACW	✓	✓
Chichorium intybus	Chicory	FACU	✓	
Cirsium arvense	Canada thistle	FACU	✓	
Cirsium vulgare	Bull thistle	FACU	✓	
Convolvulus arvensis	Field bindweed	FAC		✓
Dactylis glomerata	Orchard grass	FACU		✓
Daucus carota	Queen Ann's lace	UPL	✓	✓
Dipsacus spp.	Teasel	FACU	✓	
Echinochloa spp.	Barnyard grass	FAC		✓
Eleocharis obtusa	Creeping spikerush	OBL		✓

TABLE 1 (CONTINUED)
Plant Species Observed in 2014
LCP Bridge Street Restoration Area

HERBACEOUS (CONTINUED)

Scientific Name	***Common Name***	***Wetland Indicator Status***	***Wetland A***	***Wetland C***
Elymus virginicus	Virginia wildrye	FACW		✓
Epilobium coloratum	Purple-leaf willowherb	OBL		✓
Equisetum arvense	Field horsetail	FAC		✓
Erigeron annuus	Daisy fleabane	FACU		✓
Erigeron philadelphicus	Philadelphia fleabane	FAC	✓	✓
Euthamia graminifolia	Flat-top goldenrod	FAC		✓
Fragaria virginiana	Common strawberry	FACU		✓
Galium palustre	Common marsh bedstraw	OBL	✓	
Galium spp.	Bedstraw	FAC	✓	✓
Geum spp.	Avens	FACU		✓
Hieracium spp.	Hawkweed	FACU		✓
Hieracium vulgatum	Common hawkweed	FACU		✓
Hypericum perforatum	Common St. John's wort	UPL	✓	✓
Impatiens capensis	Jewelweed	FACW		✓
Juncus gerardii	Blackgrass	OBL		✓
Juncus tenuis	Poverty rush	FAC		✓
Lathyrus latifolius	Everlasting pea	FACU	✓	
Lathyrus sylvestris	Flat pea	FACU	✓	
Leersia oryzoides	Rice cutgrass	OBL	✓	✓
Lemna minor	Common duckweed	OBL		✓
Lepidium campestre	Field peppergrass	FACU		✓
Lepidium virginicum	Virginia pepperweed	FACU	✓	
Leucanthemum vulgare	Ox-eye daisy	UPL	✓	✓
Lotus corniculatus	Bird's foot trefoil	FACU	✓	✓
Ludwigia palustris	Water purslane	OBL		✓
Lythrum salicaria	Purple loosestrife	OBL	✓	✓
Medicago lupulina	Black medic	FACU		✓
Melilotus indicus	Yellow sweet clover	FACU	✓	
Melilotus officinalis	White sweet clover	FACU	✓	✓
Nymphaea odorata	Water lilies	OBL		✓

TABLE 1 (CONTINUED)
Plant Species Observed in 2014
LCP Bridge Street Restoration Area

HERBACEOUS (CONTINUED)

Scientific Name	*Common Name*	*Wetland Indicator Status*	*Wetland A*	*Wetland C*
Oenothera biennis	Common evening primrose	FACU		✓
Onoclea sensibilis	Sensitive fern	FACW		✓
Oxalis stricta	Yellow wood sorrel	FACU		✓
Panicum capillare	Witchgrass	FAC	✓	✓
Panicum virgatum	Switchgrass	FAC	✓	✓
Parthenocissus quinquefolia	Virginia creeper	FACU		✓
Phalaris arundinacea	Reed canary grass	FACW	✓	✓
Phleum pretense	Timothy	FACU	✓	✓
Phragmites australis	Common reed	FACW	✓	✓
Plantago lanceolata	Narrow-leaf plantain	FACU		✓
Plantago major	Common plantain	FACU	✓	✓
Poa pratensis	Kentucky bluegrass	FACU	✓	
Polygonum spp.	Smartweed	FACW	✓	✓
Potamogeton spp.	Pondweed	OBL		✓
Potentilla canadensis	Canadian dwarf cinquefoil	FACU	✓	✓
Potentilla simplex	Common cinquefoil	FACU		✓
Prunella vulgaris	Common self-heal	FAC		✓
Rubus allegheniensis	Alleghany blackberry	FACU	✓	
Rubus spp.	Raspberry	FAC		✓
Rudbeckia hirta	Black eyed Susan	FACU		✓
Rumex crispus	Curly dock	FAC	✓	✓
Schoenoplectus acutus	Hardstem bulrush	OBL		✓
Schoenoplectus tabernaemontani	Softstem bulrush	OBL	✓	✓
Silene vulgaris	Bladder campion	FAC		✓
Solanum carolinense	Carolina nightshade	FACU	✓	✓
Solidago canadensis	Canada goldenrod	FACU	✓	✓
Sonchus arvensis	Field sow thistle	FACU		✓
Sonchus oleraceus	Common sow thistle	FACU		✓
Stuckenia pectinata	Sago pondweed	OBL	✓	✓
Symphyotrichum novae-angliae	New England aster	FACW		✓
Symphyotrichum novi-belgii	New York aster	FACW		✓

TABLE 1 (CONTINUED)
Plant Species Observed in 2014
LCP Bridge Street Restoration Area

HERBACEOUS (CONTINUED)

Scientific Name	***Common Name***	***Wetland Indicator Status***	***Wetland A***	***Wetland C***
Symphyotrichum puniceum	Purple-stemmed American aster	OBL		✓
Taraxacum officianale	Dandelion	FACU	✓	
Toxicodendron radicans	Poison ivy	FAC		✓
Trifolium campestre	Hop clover	FACU		✓
Trifolium hybridum	Alsike clover	FACU	✓	✓
Trifolium pratense	Red clover	FACU	✓	✓
Trifolium repens	White clover	FACU		✓
Tussilago farfara	Coltsfoot	FACU	✓	✓
Typha angustifolia	Narrowleaf cattail	OBL		✓
Typha latifolia	Broadleaf cattail	OBL	✓	✓
Typha spp.	Cattail	OBL	✓	✓
Utricularia vulgaris	Bladderwort	OBL		✓
Verbascum thapsus	Mullein	UPL		✓
Verbena hastata	Blue vervain	FACW		✓
Vicia cracca	Bird vetch	FACU	✓	✓
Vitis spp.	Grape	FACU		✓

TABLE 2
Vegetation Data Summary, Wetland A, Vegetation Cover Types in 2014
LCP Bridge Street Restoration Area

Scientific Name	***Common Name***	***Wetland Indicator Status***	***Relative Cover***
Alisma subcordatum	American water plantain	OBL	3.8
Chenopodium glaucum	Oakleaf goosefoot	FACW	3.8
Leersia oryzoides	Rice cutgrass	OBL	30.8
Panicum capillare	Witchgrass	FAC	3.8
Panicum virgatum	Switchgrass	FAC	3.8
Phalaris arundinacea	Reed canary grass	FACW	11.5
Phragmites australis	Common reed	OBL	7.7
Polygonum spp.	Smartweed	FACW	3.8
Populus deltoides	Eastern cottonwood	FAC	3.8
Stukenia pectinata	Sago pondweed	OBL	11.5
Trifolium hybridum	Alsike clover	FACU	3.8
Typha latifolia	Broadleaf cattail	OBL	11.5
		TOTAL:	**100%**

TABLE 3
Vegetation Data Summary, Wetland C, Cover Types in 2014
LCP Bridge Street Restoration Area

HERBACEOUS

Scientific Name	*Common Name*	*Wetland Indicator Status*	*Relative Cover*
Acer negundo	Boxelder	FAC	0.2
Acer rubrum	Red maple	FAC	0.1
Agrostis alba	Redtop	FACW	8.7
Agrostis capillaris	Colonial bentgrass	FAC	0.8
Alisma subcordatum	American water plantain	OBL	0.4
Ambrosia artemisiifolia	Ragweed	FACU	0.8
Apocynum cannabinum	Indian hemp	FAC	0.1
Artemesia vulgaris	Mugwort	UPL	1.4
Asclepias incarnata	Swamp milkweed	FACU	0.2
Asclepias syriaca	Common milkweed	UPL	0.5
Bidens connata	Purplestem beggartick	FACW	0.4
Carex comosa	Longhair sedge	OBL	0.6
Carex scoparia	Broom sedge	FACW	0.1
Carex vulpinoidea	Fox sedge	OBL	4.5
Cerastium vulgatum	Mouse-ear chickweed	FACU	0.2
Chenopodium album	Lambsquarters	FACU	0.2
Chenopodium glaucum	Oakleaf goosefoot	FACW	0.1
Cirsium vulgare	Bull thistle	FACU	0.2
Cornus racemosa	Grey stemmed dogwood	FAC	0.2
Daucus carota	Queen Ann's lace	FACU	4.3
Echinochloa spp.	Barnyard grass	FAC	2.3
Eleocharis obtusa	Creeping spikerush	FACW	1.2
Elymus virginicus	Virginia wildrye	FACW	0.2
Epiloium coloratum	Purple-leaf willowherb	OBL	0.4
Equisetum arvense	Field horsetail	FAC	0.9
Erigeron annuus	Daisy fleabane	FACU	1.8
Euthamia graminifolia	Flat-top goldenrod	FAC	0.9
Galium spp.	Bedstraw	FAC	0.4
Geum spp.	Avens	FACU	0.6
Hieracium vulgatum	Common hawkweed	FACU	0.8
Hypericum perforatum	Common St. John's wort	UPL	0.1
Impatiens capensis	Jewelweed	FACW	0.3

TABLE 3 (CONTINUED)
Vegetation Data Summary, Wetland C, Cover Types in 2014
LCP Bridge Street Restoration Area

Scientific Name	***Common Name***	***Wetland Indicator Status***	***Relative Cover***
Juncus gerardii	Blackgrass	OBL	0.4
Juncus tenuis	Poverty rush	FAC	0.5
Leersia oryzoides	Rice cutgrass	OBL	1.6
Lemna minor	Common duckweed	OBL	0.1
Lepidium campestre	Field peppergrass	FACU	0.2
Leucanthemum vulgare	Ox-eye daisy	UPL	0.5
Lotus corniculatus	Birds foot trefoil	FACU	3.1
Ludwigia palustris	Water purslane	OBL	0.1
Lythrum salicaria	Purple loosestrife	OBL	3.0
Melilotus spp.	Sweet clover	FACU	0.2
Oenothera biennis	Common evening primrose	FACU	1.8
Onoclea sensibilis	Sensitive fern	FACW	0.2
Oxalis stricta	Yellow wood sorrel	FACU	0.2
Panicum capillare	Witchgrass	FAC	0.1
Panicum virgatum	Switchgrass	FAC	0.2
Phalaris arundinacea	Reed canary grass	FACW	0.4
Phleum pratense	Timothy	FACU	0.1
Phragmites australis	Common reed	FACW	1.4
Plantago lanceolata	Narrow-leaf plantain	FACU	0.2
Plantago major	Plantain	FACU	0.4
Polygonum spp.	Smartweed	FACW	0.4
Populus deltoides	Eastern cottonwood	FAC	1.7
Potamogeton spp.	Pondweed	OBL	0.5
Potentilla simplex	Common cinquefoil	FACU	0.2
Prunella vulgaris	Common self-heal	FAC	0.1
Rudbeckia hirta	Black eyed Susan	FACU	0.2
Rumex crispus	Curly dock	FAC	0.3
Salix discolor	Pussy willow	FACW	0.3
Salix lucida	Shining willow	FACW	0.4
Schoenoplectus acutus	Hardstem bulrush	OBL	1.5
Schoenoplectus tabernaemontani	Softstem bulrush	OBL	1.8
Solanum carolinense	Carolina nightshade	FACU	0.1
Solidago canadensis	Canada goldenrod	FACU	4.0

TABLE 3 (CONTINUED)
Vegetation Data Summary, Wetland C, Cover Types in 2014
LCP Bridge Street Restoration Area

Scientific Name	***Common Name***	***Wetland Indicator Status***	***Relative Cover***
Sonchus arvensis	Field sow thistle	FACU	0.6
Sonchus oleraceus	Common sow thistle	FACU	1.3
Stukenia pectinata	Sago pondweed	OBL	0.4
Symphiotrichum novae-angliae	New England aster	FACW	0.2
Symphiotrichum puniceum	Purple-stemmed aster	OBL	0.2
Symphyotrichum novi-belgii	New York aster	FACW	0.2
Trifolium campestre	Hop clover	FACU	0.1
Trifolium hybridum	Alsike clover	FACU	0.4
Trifolium pratense	Red clover	FACU	0.2
Trifolium repens	White clover	FACU	0.1
Tussilago farfara	Colts foot	FACU	0.2
Typha angustifolia	Narrowleaf cattail	OBL	5.8
Typha latifolia	Broadleaf cattail	OBL	20.3
Utricularia vulgaris	Bladderwort	OBL	7.9
Verbascum thapsus	Mullein	UPL	0.2
Verbena hastate	Blue vervain	FACW	1.6
Viccia cracca	Bird vetch	FACU	1.0
		TOTAL:	**100%**

TABLE 4
Relative Percent Cover of Different Wetland Indicator Status Vegetation Types in 2014
LCP Bridge Street Restoration Area

Wetland Indicator Status	*Wetland A*	*Wetland C*
OBL	65.4%	49.4%
FACW	19.2%	16.0%
FAC	11.5%	8.6%
FACU	3.9%	23.5%
UPL	-	2.5%

TABLE 5
Staff Gauge Readings taken in 2014
LCP Bridge Street Restoration Area

WETLAND A

Date	Reading on Gauge (feet)	Water Elevation (feet)
6/17/2014	0	379.82
6/27/2014	1.3	381.12
7/9/2014	2.58	382.40
7/10/2014	0.86	380.68
7/22/2014	0.48	380.30
8/6/2014	1.38	381.20
8/19/2014	1.32	381.14
9/4/2014	0.88	380.70
9/23/2014	0.39	380.21
10/2/2014	0	379.82
10/16/2014	1.59	381.41
10/30/2014	1.3	381.12

WETLAND C

Date	Reading on Gauge (feet)	Water Elevation (feet)
8/6/2014	1.18	374.65
8/19/2014	1.06	374.53
9/4/2014	1.1	374.57
9/23/2014	0.92	374.39
10/2/2014	0.88	374.35
10/16/2014	1.56	375.03
10/30/2014	1.06	374.53

TABLE 6
Wildlife Observed in 2014
LCP Bridge Street Restoration Area

BIRDS

Scientific Name	*Common Name*	*Wetland A*	*Wetland C*
Actitis macularius	Spotted Sandpiper	✓	
Agelaius phoeniceus	Red Winged Blackbird		✓
Anas platyrhynchos	Mallard	✓	✓
Ardea herodias	Great Blue Heron		✓
Branta canadensis	Canada Goose		✓
Butorides virescens	Green Heron		✓
Calidris spp.	Sandpiper	✓	
Charadrius vociferus	Killdeer	✓	
Hirundo rustica	Barn Swallow		✓
Meleagris gallopavo	Wild Turkey		✓
Spinus tristis	Gold Finch	✓	
Zenaida macroura	Mourning Dove		✓

AMPHIBIANS AND REPTILES

Scientific Name	*Common Name*	*Wetland A*	*Wetland C*
Anaxyrus americanus	American toad		✓
Lithobates catesbeianus	Bull frog		✓
Nerodia sipedon	Water snake		✓
Rana pipiens	Northern leopard frog	✓	✓
Thamnophis sirtalis	Garter snake		✓

MAMMALS

Scientific Name	*Common Name*	*Wetland A*	*Wetland C*
Canis latrans var.	Eastern coyote	✓	✓
Castor canadensis	North American Beaver		✓
Odocoileus virginianus	White tailed deer	✓	
Sylvilagus floridanus	Eastern Cottontail		✓

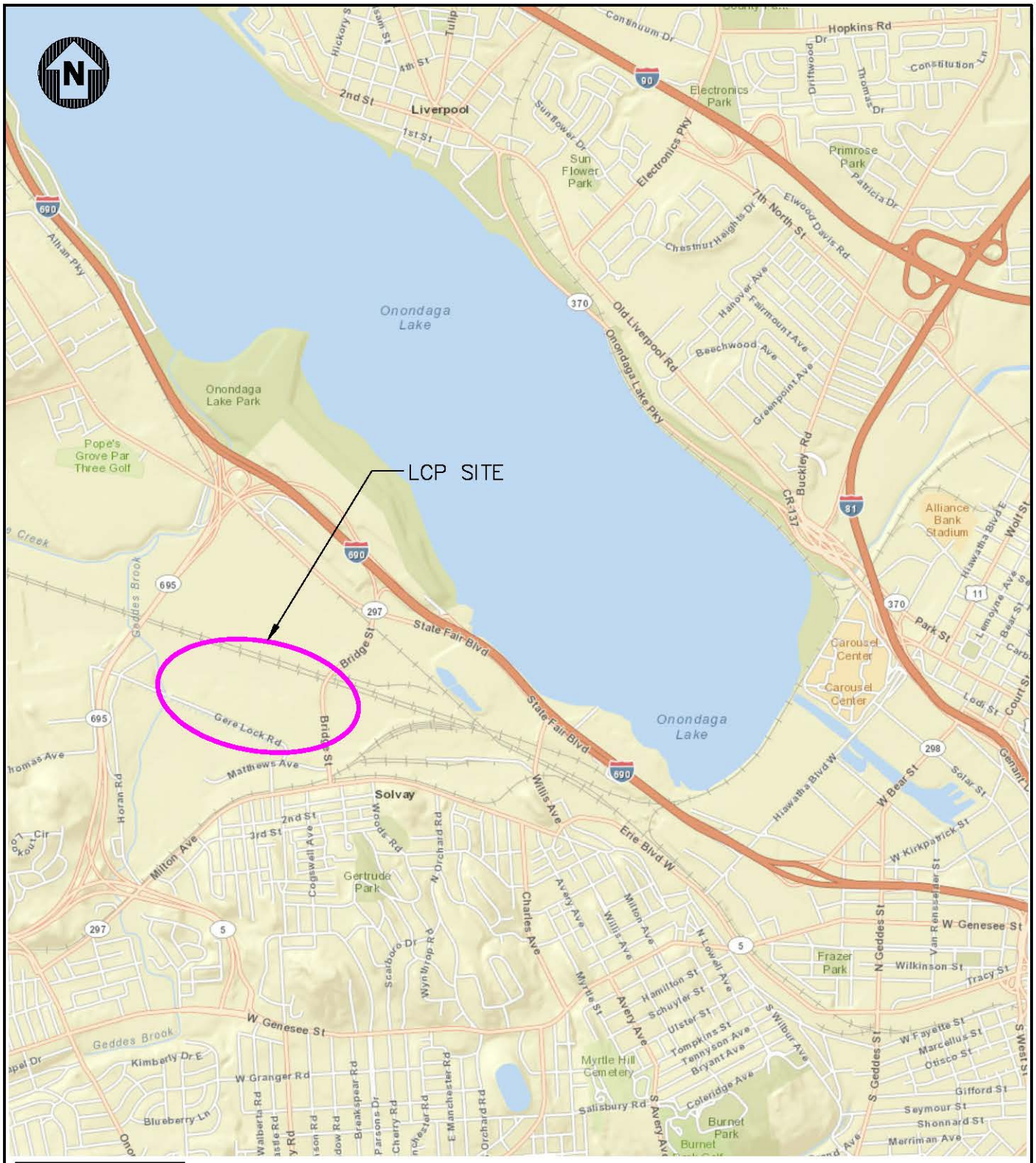
TABLE 6 (CONTINUED)
Wildlife Observed in 2014
LCP Bridge Street Restoration Area

MACROINVERTEBRATES

Scientific Name	***Common Name***	***Wetland A***	***Wetland C***
Anax junius	Green darner*		
Epiprocta (Sub Order)	Dragonfly	✓	✓
Libellula pulchella	Twelve spot skimmer		✓
Plathemis lydia	Common whitetail*		
Zygoptera (Sub Order)	Damselfly	✓	✓

*Location not specified

FIGURES



NEW YORK QUADRANGLE

LATITUDE: N43° 04' 30"
LONGITUDE: W76° 13' 56"

SOURCE ARCVIEW GIS– WORLD STREET MAP

FIGURE 1

Honeywell

LCP BRIDGE STREET
SOLVAY, NEW YORK

LCP SITE LOCATION MAP

PARSONS

301 PLAINFIELD ROAD * SUITE 350 * SYRACUSE, NY 13212 * 315/451-9560
OFFICES IN PRINCIPAL CITIES

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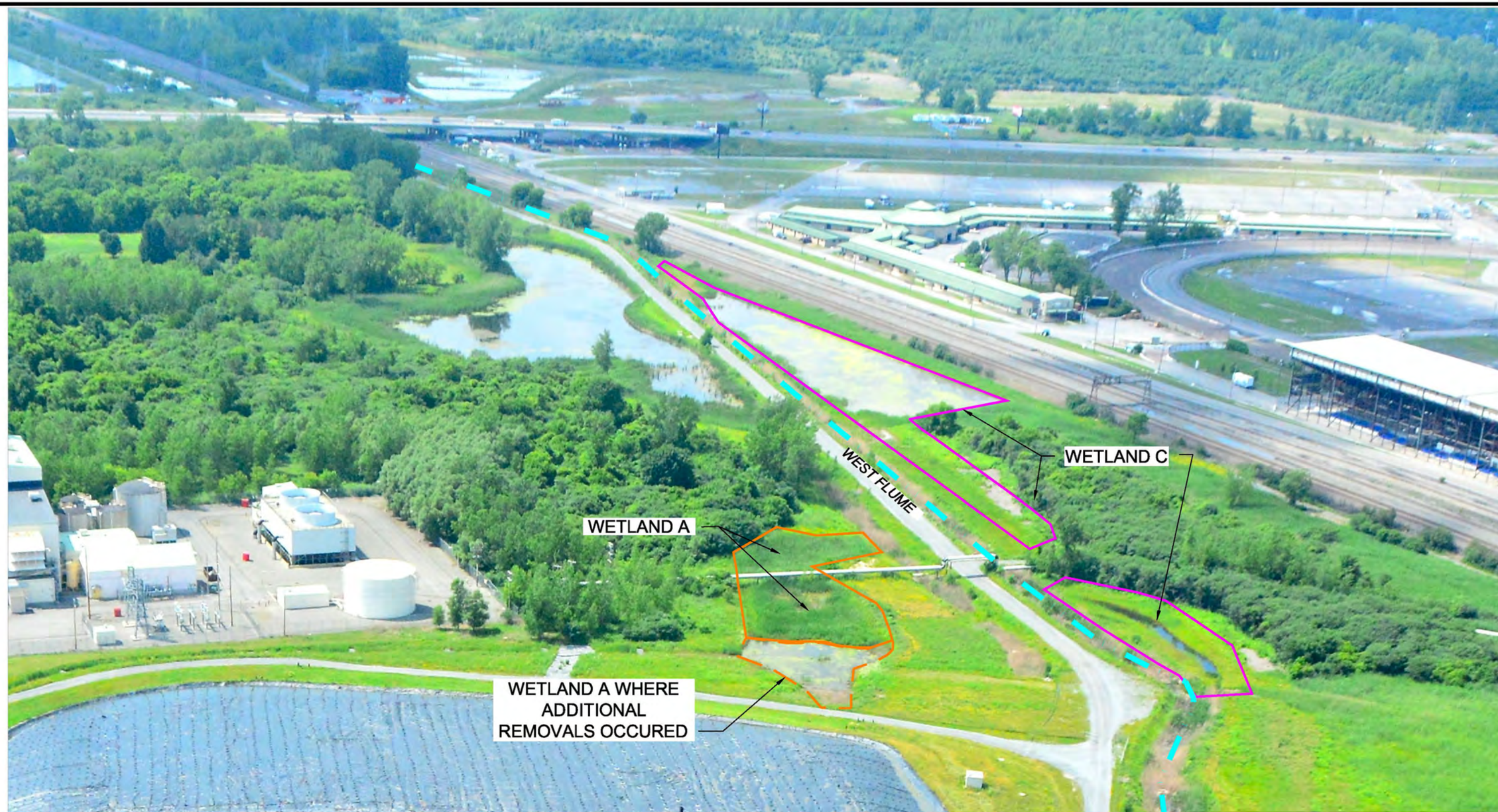

NOT TO SCALE
PHOTO DATED: 6/26/2013

FIGURE 2

Honeywell

LCP BRIDGE STREET RESTORATION AREA

AERIAL PHOTOGRAPH OF LCP WETLANDS

PARSONS

310 PLAINFIELD ROAD * SUITE 350 * SYRACUSE, NY 13212 * 315/451-9560
OFFICES IN PRINCIPAL CITIES

FILE NAME: P:\HONEYWELL -SYR\448308 - LCP OU1 2013\10.0 TECHNICAL CATEGORIES\10.2 CAD\FIGURES\2014\APPENDIX A FIGURES\448308-VEG-002.DWG
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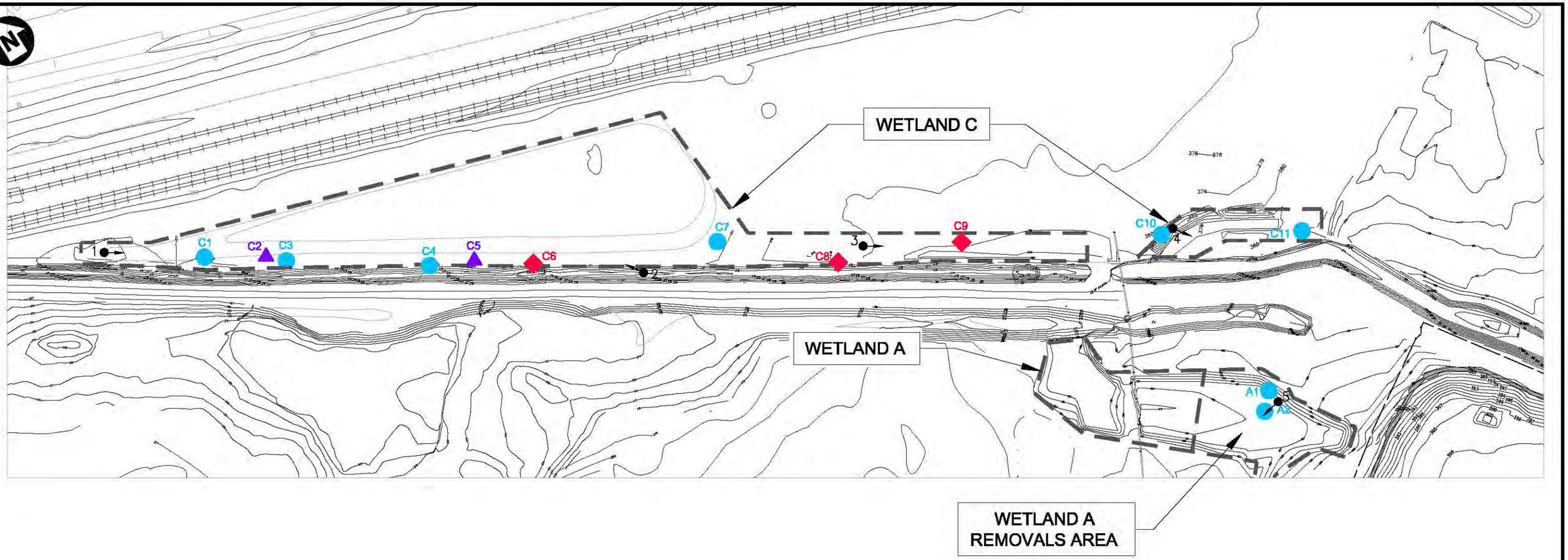


LEGEND

RESTORATION AREA LIMIT

EXISTING CONTOURS

C8 MONITORING PLOT LOCATIONS FOR WETLAND EDGE & SIDE SLOPE ZONES (3)

C7 MONITORING PLOT LOCATIONS FOR SHALLOW EMERGENT ZONES (8)

C2 MONITORING PLOT LOCATIONS FOR DEEP EMERGENT ZONES (2)

1 PHOTO LOCATION

150 0 150 300

SCALE: 1"=150'

FIGURE 3

Honeywell

LCP OM&M

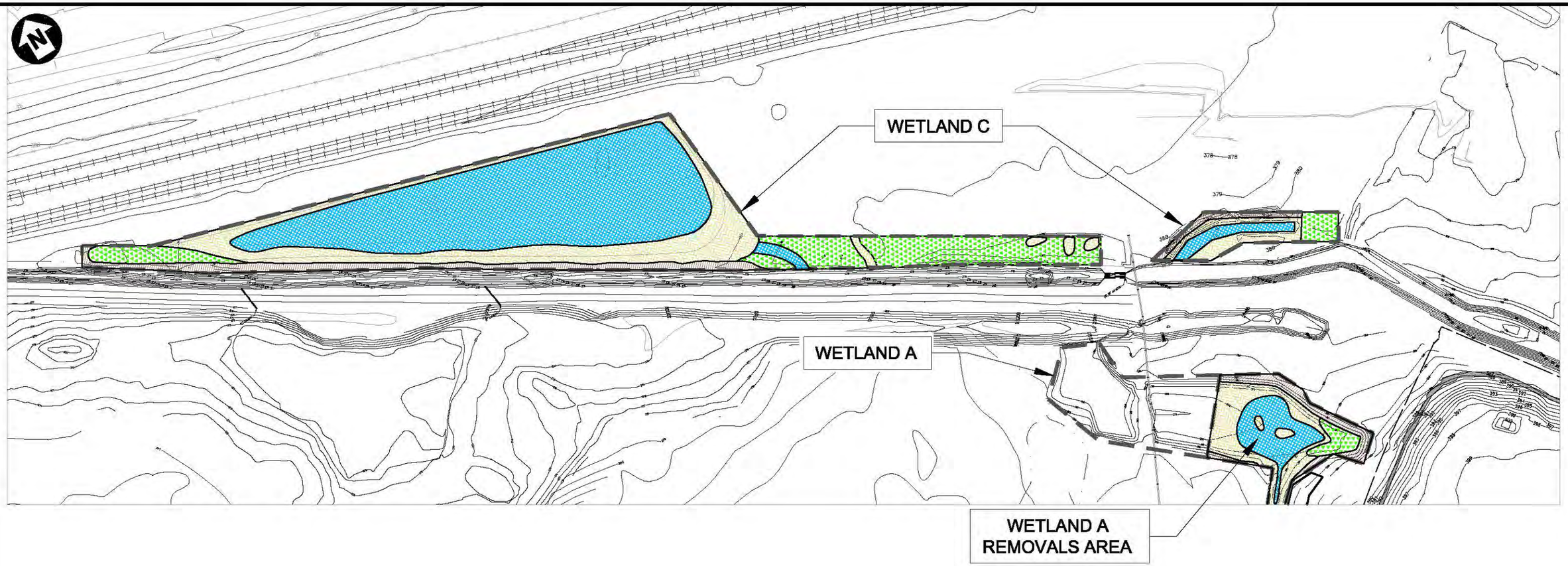
2014 VEGETATION MONITORING PLOT & PHOTO LOCATIONS

LCP BRIDGE STREET RESTORATION AREA

PARSONS

310 PLAINFIELD ROAD * SUITE 350 * SYRACUSE, NY 13212 * 315/451-9560
OFFICES IN PRINCIPAL CITIES

FILE NAME: P:\HONEYWELL -SYR\448308 - LCP OU1 2013\10.0 TECHNICAL CATEGORIES\10.2 CAD\FIGURES\2014\APPENDIX A FIGURES\448308-VEG-004.DWG
PLOT DATE: 2/24/2015 8:59 AM PLOTTED BY: PICKERING, KELLY



LEGEND

EXISTING CONTOURS

REMEDIATION AREA LIMITS

WETLAND MEADOW

EMERGENT WETLAND

AQUATIC BED

WETLAND SLOPES

150 0 150 300

SCALE: 1"=150'

FIGURE 4

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VEGETATIVE COVER TYPES IN 2014

LCP BRIDGE STREET RESTORATION AREA

PARSONS

310 PLAINFIELD ROAD * SUITE 350 * SYRACUSE, NY 13212 * 315/451-9560
OFFICES IN PRINCIPAL CITIES

FILE NAME: P:\HONEYWELL -SYR\448308 - LCP OU1 2013\10.0 TECHNICAL CATEGORIES\10.2 CAD\FIGURES\2014\APPENDIX A FIGURES\448308-VEG-001.DWG
PLOT DATE: 3/3/2015 4:16 PM PLOTTED BY: CAGIDE-ELMER, NATALIA

LEGEND

COMMON REED GRASS (*PHRAGMITES AUSTRALIS*) AREAS TREATED 6/23/14

COMMON REED GRASS (*PHRAGMITES AUSTRALIS*) AREAS TREATED 9/9/14

300 150 0 300 600

SCALE: 1"=300'

NOTE:

FIGURE ONLY DEPICTS AREAS WHERE INVASIVE SPECIES WERE PRESENT AND SHOULD NOT BE USED TO DETERMINE ABUNDANCE OR DENSITY OF INVASIVE SPECIES.

FIGURE 5

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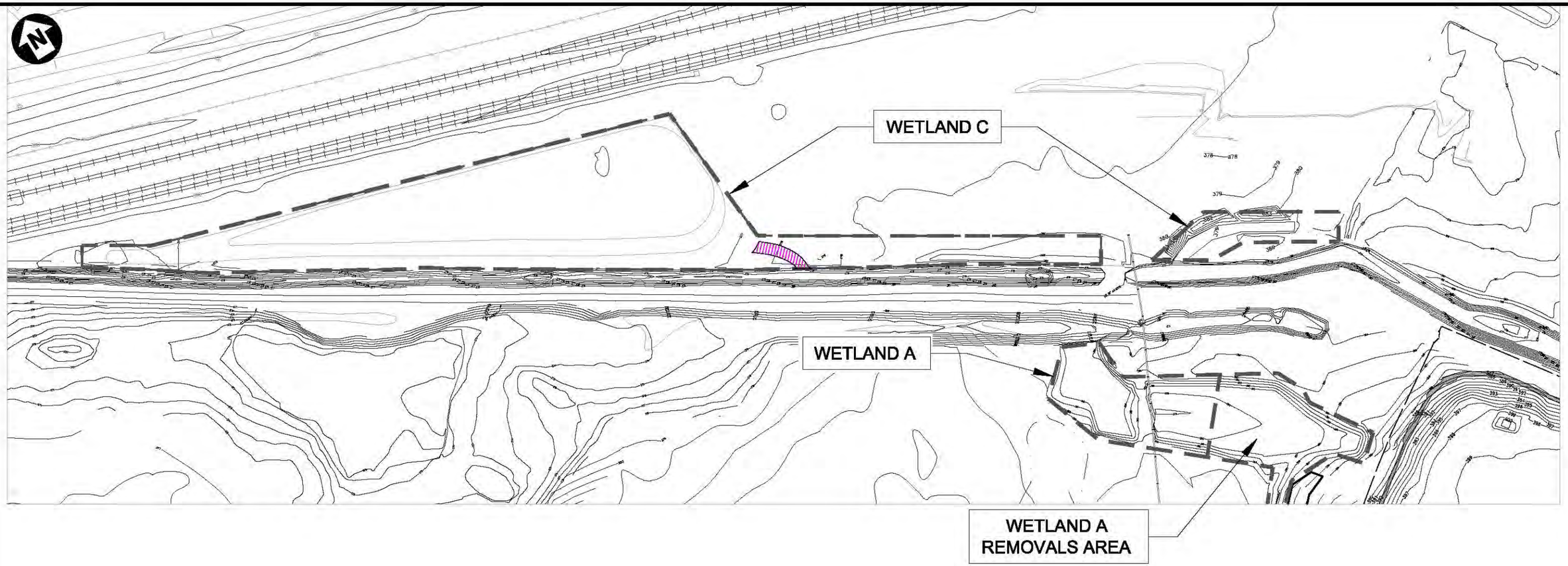
2014 INVASIVE SPECIES CONTROL

LCP BRIDGE STREET RESTORATION AREA

PARSONS

310 PLAINFIELD ROAD * SUITE 350 * SYRACUSE, NY 13212 * 315/451-9560
OFFICES IN PRINCIPAL CITIES

FILE NAME: P:\HONEYWELL -SYR\448308 - LCP OU1 2013\10.0 TECHNICAL CATEGORIES\10.2 CAD\FIGURES\2014\APPENDIX A FIGURES\448308-VEG-004.DWG
PLOT DATE: 2/25/2015 11:31 AM PLOTTED BY: PICKERING, KELLY



150 0 150 300

SCALE: 1"=150'

LEGEND

EROSION CONTROL MEASURES

FIGURE 6

Honeywell

LCP OM&M

LCP FOCUS AREAS FOR 2014 RESTORATION AREA

LCP BRIDGE STREET RESTORATION AREA

PARSONS

310 PLAINFIELD ROAD * SUITE 350 * SYRACUSE, NY 13212 * 315/451-9560
OFFICES IN PRINCIPAL CITIES

FILE NAME: P:\HONEYWELL -SYR\448308 - LCP OU1 2013\10.0 TECHNICAL CATEGORIES\10.2 CAD\FIGURES\2014\APPENDIX A FIGURES\448308-VEG-001.DWG
PLOT DATE: 3/3/2015 2:35 PM PLOTTED BY: CAGIDE-ELMER, NATALIA

ATTACHMENT 1

MONITORING DATA SHEETS

Vegetation Monitoring Data Sheet
LCP Wetland A, Town of Geddes, Onondaga County, New York

Date: 8/7/2014
Cover type: Emergent Wetland/Aquatic Bed
Water Depth: 3 inches

Photo no. & Direction: 1N
Plot number: A1
Data Sheet Number: 1 of 1

nº	SPECIES (Scientific & Common Name)	Indicator Status	Species Areal Cover (%)
1.	Rice cutgrass (*Leersia oryzoides*)	OBL	8
2.	Reed Canarygrass (*Phalaris arundinacea*)	FACW	3
3.	Smartweed (*Polygonum* sp.)	FACW	1
4.	Alsike clover (*Trifolium hybridum*)	FACU	1
5.	Witchgrass (*Panicum capillare*)	FAC	1
6.	Switchgrass (*Panicum virgatum*)	FAC	1
7.	American water plantain (*Alisma subcordatum*)	OBL	1
8.	Oakleaf goosefoot (*Chenopodium glaucum*)	FACW	1
9.	Eastern cottonwood (*Populus deltoides*) x1	FAC	1
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TOTAL PERCENT AREAL COVER: **18%**

COMMENTS - ADDITIONAL PLANT/WILDLIFE SPECIES:
Algae also present
A small portion of the plot was Wetland Slope.

INDICATOR STATUS NOTATIONS: *(Relative to New York, Region 1 - http://plants.usda.gov/java/)*
Obligate Wetland (OBL): occur almost always (estimated probability >99%) in wetlands.
Facultative Wetland (FACW): usually occur in wetlands (est. prob. 67%-99%), but occasionally found in non-wetlands.
Facultative (FAC): equally likely to occur in wetlands or non-wetlands (est. prob. 34%-66%).
Facultative Upland (FACU): usually occur in non-wetlands (est. prob. 67%-99%), occasionally in wetlands (prob. 1%-33%).
Obligate Upland (UPL): occur almost always (est. prob. >99%) in non-wetlands.

Vegetation Monitoring Data Sheet
LCP Wetland A, Town of Geddes, Onondaga County, New York

Date: 8/7/2014
Cover type: Emergent Wetland/Aquatic Bed
Water Depth: 1.3ft

Photo no. & Direction: 2S
Plot number: A2
Data Sheet Number: 1 of 1

nº	SPECIES (Scientific & Common Name)	Indicator Status	Species Areal Cover (%)
1.	Common reed (*Phragmites australis*)	OBL	2
2.	Broadleaf cattail (*Typha latifolia*)	OBL	3
3.	Sago pondweed (*Stuckenia pectinata*)	OBL	3
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TOTAL PERCENT AREAL COVER: **8%**

COMMENTS - ADDITIONAL PLANT/WILDLIFE SPECIES:
Algae also present

INDICATOR STATUS NOTATIONS: *(Relative to New York, Region 1 - http://plants.usda.gov/java/)*
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Facultative Wetland (FACW): usually occur in wetlands (est. prob. 67%-99%), but occasionally found in non-wetlands.
Facultative (FAC): equally likely to occur in wetlands or non-wetlands (est. prob. 34%-66%).
Facultative Upland (FACU): usually occur in non-wetlands (est. prob. 67%-99%), occasionally in wetlands (prob. 1%-33%).
Obligate Upland (UPL): occur almost always (est. prob. >99%) in non-wetlands.

Vegetation Monitoring Data Sheet
LCP Wetland C, Town of Geddes, Onondaga County, New York

Date: 8/6/2014
Cover type: Emergent Wetland
Water Depth: 1 inch

Photo no. & Direction: 4S
Plot number: C2
Data Sheet Number: 1 of 1

nº	SPECIES (Scientific & Common Name)	Indicator Status	Species Areal Cover (%)
1.	American water plantain (*Alisma subcordatum*)	OBL	3
2.	Broadleaf cattail (*Typha latifolia*)	OBL	55
3.	Creeping spikerush (*Eleocharis obtusa*)	FACW	15
4.	Rice cutgrass (*Leersia oryzoides*)	OBL	1
5.	Smartweed (*Polygonum* sp.)	FACW	1
6.	Common duckweed (*Lemna minor*)	OBL	1
7.	Purple loosestrife (*Lythrum salicaria*)	OBL	2
8.	Pondweed (*Potamogeton spp.*)	OBL	7
9.	Eastern cottonwood (*Populus deltoides*) x5	FAC	1
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TOTAL PERCENT AREAL COVER: **86%**

COMMENTS - ADDITIONAL PLANT/WILDLIFE SPECIES:

INDICATOR STATUS NOTATIONS: *(Relative to New York, Region 1 - http://plants.usda.gov/java/)*
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Obligate Upland (UPL): occur almost always (est. prob. >99%) in non-wetlands.

Vegetation Monitoring Data Sheet
LCP Wetland C, Town of Geddes, Onondaga County, New York

Date: 8/6/2014
Cover type: Emergent Wetland/Wetland Slope
Water Depth: 0 inches

Photo no. & Direction: 5N
Plot number: C3
Data Sheet Number: 1 of 2

nº	SPECIES (Scientific & Common Name)	Indicator Status	Species Areal Cover (%)
1.	Blue vervain (*Verbena hastata*)	FACW	5
2.	Redtop (*Agrostis alba*)	FACW	6
3.	Purple loosestrife (*Lythrum salicaria*)	OBL	15
4.	Broadleaf cattail (*Typha latifolia*)	OBL	15
5.	Narrowleaf cattail (*Typha angustifolia*)	OBL	5
6.	Daisy fleabane (*Erigeron annuus*)	FACU	2
7.	Flat-top goldenrod (*Euthamia graminifolia*)	FAC	1
8.	Mugwort (*Artemisia vulgaris*)	UPL	2
9.	Queen Anne's lace (*Daucus carota*)	FACU	1
10.	Plantain (*Plantago major*)	FACU	2
11.	Common self-heal (*Prunella vulgaris*)	FAC	1
12.	Ragweed (*Ambrosia artemisiifolia*)	FACU	1
13.	Canada goldenrod (*Solidago canadensis*)	FACU	1
14.	Broom sedge (*Carex scoparia*)	FACW	1
15.	Jewelweed (*Impatiens capensis*)	FACW	1
16.	Blackgrass (*Juncus gerardii*)	OBL	5
17.	Colts foot (*Tussilago farfara*)	FACU	1
18.	Red maple (*Acer rubrum*) seedlings x1	FAC	1
19.	Longhair sedge (*Carex comosa*)	OBL	8
20.	Swamp milkweed (*Asclepias incarnata*)	FACU	3

TOTAL PERCENT AREAL COVER: 96%

COMMENTS - ADDITIONAL PLANT/WILDLIFE SPECIES:
Total 78% with cover from page 2

INDICATOR STATUS NOTATIONS: *(Relative to New York, Region 1 - http://plants.usda.gov/java/)*
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Facultative Upland (FACU): usually occur in non-wetlands (est. prob. 67%-99%), occasionally in wetlands (prob. 1%-33%).
Obligate Upland (UPL): occur almost always (est. prob. >99%) in non-wetlands.

Vegetation Monitoring Data Sheet
LCP Wetland C, Town of Geddes, Onondaga County, New York

Date: 8/6/2014
Cover type: Emergent Wetland
Water Depth: 0 inches

Photo no. & Direction: 5N
Plot number: C3
Data Sheet Number: 2 of 2

nº	SPECIES (Scientific & Common Name)	Indicator Status	Species Areal Cover (%)
1.	Softstem bulrush (*Scirpus tabernaemontani*)	OBL	5
2.	White clover (*Trifolium repens*)	FACU	1
3.	Common sow thistle (*Sonchus oleraceus*)	FACU	1
4.	Rice cutgrass (*Leersia oryzoides*)	OBL	5
5.	Fox sedge (*Carex vulpinoidea*)	OBL	5
6.	Purplestem beggartick (*Bidens connata*)	FACW	2
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TOTAL PERCENT AREAL COVER: **96%**

COMMENTS - ADDITIONAL PLANT/WILDLIFE SPECIES:
Total 78% with cover from page 1

INDICATOR STATUS NOTATIONS: *(Relative to New York, Region 1 - http://plants.usda.gov/java/)*
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Obligate Upland (UPL): occur almost always (est. prob. >99%) in non-wetlands.

Vegetation Monitoring Data Sheet
LCP Wetland C, Town of Geddes, Onondaga County, New York

Date: 8/6/2014
Cover type: Emergent Wetland/Wetland Slope/Aqua
Water Depth: 0 inches

Photo no. & Direction: 6N
Plot number: C4
Data Sheet Number: 1 of 2

nº	SPECIES (Scientific & Common Name)	Indicator Status	Species Areal Cover (%)
1.	Field sow thistle (*Sonchus arvensis*)	FACU	8
2.	Common reed (*Phragmites australis*)	FACW	8
3.	Common milkweed (*Asclepias syriaca*)	UPL	6
4.	Ox-eye daisy (*Leucanthemum vulgare*)	UPL	2
5.	Queen Anne's lace (*Daucus carota*)	FACU	2
6.	Ragweed (*Ambrosia artemisiifolia*)	FACU	1
7.	Jewelweed (*Impatiens capensis*)	FACW	3
8.	Broadleaf cattail (*Typha latifolia*)	OBL	20
9.	Water purslane (*Ludwigia palustris*)	OBL	1
10.	Blue vervain (*Verbena hastata*)	FACW	1
11.	Mugwort (*Artemisia vulgaris*)	UPL	2
12.	Field horsetail (*Equisetum arvense*)	FAC	10
13.	Birds foot trefoil (*Lotus corniculatus*)	FACU	1
14.	Purple-leaf willowherb (*Epilobium coloratum*)	OBL	5
15.	Redtop (*Agrostis alba*)	FACW	1
16.	Purple loosestrife (*Lythrum salicaria*)	OBL	2
17.	Smartweed (*Polygonum* sp.)	FACW	2
18.	Curly dock (*Rumex crispus*)	FAC	2
19.	Avens (*Geum* spp.)	FACU	1
20.	Alsike clover (*Trifolium hybridum*)	FACU	1

TOTAL PERCENT AREAL COVER: 96%

COMMENTS - ADDITIONAL PLANT/WILDLIFE SPECIES:
Total 96% with cover from page 2

INDICATOR STATUS NOTATIONS: *(Relative to New York, Region 1 - http://plants.usda.gov/java/)*
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Facultative (FAC): equally likely to occur in wetlands or non-wetlands (est. prob. 34%-66%).
Facultative Upland (FACU): usually occur in non-wetlands (est. prob. 67%-99%), occasionally in wetlands (prob. 1%-33%).
Obligate Upland (UPL): occur almost always (est. prob. >99%) in non-wetlands.

Vegetation Monitoring Data Sheet
LCP Wetland C, Town of Geddes, Onondaga County, New York

Date: 8/6/2014
Cover type: Emergent Wetland/Wetland Slope
Water Depth: 0 inches

Photo no. & Direction: 6N
Plot number: C4
Data Sheet Number: 2 of 2

nº	SPECIES (Scientific & Common Name)	Indicator Status	Species Areal Cover (%)
1.	Canada goldenrod (*Solidago canadensis*)	FACU	2
2.	Common duckweed (*Lemna minor*)	OBL	0.2
3.	Bladderwort (*Utricularia vulgaris*)	OBL	20
4.	Eastern cottonwood (*Populus deltoides*) x1	FAC	5
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TOTAL PERCENT AREAL COVER: **96%**

COMMENTS - ADDITIONAL PLANT/WILDLIFE SPECIES:
Total 96% with cover from page 1
A small portion of the plot was Aquatic Bed.

INDICATOR STATUS NOTATIONS: *(Relative to New York, Region 1 - http://plants.usda.gov/java/)*
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Obligate Upland (UPL): occur almost always (est. prob. >99%) in non-wetlands.

Vegetation Monitoring Data Sheet
LCP Wetland C, Town of Geddes, Onondaga County, New York

Date: 8/7/2014
Cover type: Emergent Wetland/Wetland Slope
Water Depth: 5 inches

Photo no. & Direction: 7N
Plot number: C5
Data Sheet Number: 1 of 1

nº	SPECIES (Scientific & Common Name)	Indicator Status	Species Areal Cover (%)
1.	Broadleaf cattail (*Typha latifolia*)	OBL	30
2.	Narrowleaf cattail (*Typha angustifolia*)	OBL	10
3.	American water plantain (*Alisma subcordatum*)	OBL	1.0
4.	Bladderwort (*Utricularia vulgaris*)	OBL	80
5.	Common duckweed (*Lemna minor*)	OBL	0.2
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TOTAL PERCENT AREAL COVER: **100%**

COMMENTS - ADDITIONAL PLANT/WILDLIFE SPECIES:
A small portion of the plot was Aquatic Bed.

INDICATOR STATUS NOTATIONS: *(Relative to New York, Region 1 - http://plants.usda.gov/java/)*
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Vegetation Monitoring Data Sheet
LCP Wetland C, Town of Geddes, Onondaga County, New York

Date: 9/23/2014
Cover type: Emergent Wetland/Wetland Slope
Water Depth: 0-2 inches

Photo no. & Direction: 8N
Plot number: C6
Data Sheet Number: 1 of 1

nº	SPECIES (Scientific & Common Name)	Indicator Status	Species Areal Cover (%)
1.	Queen Anne's lace (*Daucus carota*)	FACU	5
2.	Ragweed (*Ambrosia artemisiifolia*)	FACU	3
3.	Field peppergrass (*Lepidium campestre*)	FACU	2
4.	Common evening primrose (*Oenothera biennis*)	FACU	14
5.	Mugwort (*Artemisia vulgaris*)	UPL	3
6.	Switchgrass (*Panicum virgatum*)	FAC	2
7.	Purple loosestrife (*Lythrum salicaria*)	OBL	7
8.	Common hawkweed (*Hieracium vulgatum*)	FACU	10
9.	Avens (Geum spp.)	FACU	7
10.	Bird vetch (*Vicia cracca*)	FACU	10
11.	Mullein (*Verbascum thapsus*)	UPL	2
12.	Bedstraw (*Galium spp.*)	FAC	5
13.	Yellow wood sorrel (*Oxalis stricta*)	FACU	2
14.	Mouse-ear chickweed (*Cerastium vulgatum*)	FACU	2
15.	Narrowleaf cattail (*Typha angustifolia*)	OBL	25
16.	Ox-eye daisy (*Leucanthemum vulgare*)	UPL	2
17.	Common reed (*Phragmites australis*)	FACW	10
18.	Canada goldenrod (*Solidago canadensis*)	FACU	2
19.	Lambsquarters (*Chenopodium album*)	FACU	2
20.	Broadleaf cattail (*Typha latifolia*)	OBL	7
21.	Sago pondweed (*Stuckenia pectinata*)	OBL	5

TOTAL PERCENT AREAL COVER: **100%**

COMMENTS - ADDITIONAL PLANT/WILDLIFE SPECIES:
A small portion of the plot was Aquatic Bed.

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Obligate Upland (UPL): occur almost always (est. prob. >99%) in non-wetlands.

Vegetation Monitoring Data Sheet
LCP Wetland C, Town of Geddes, Onondaga County, New York

Date: 8/7/2014
Cover type: Emergent Wetland
Water Depth: 0 inches

Photo no. & Direction: 9N
Plot number: C7
Data Sheet Number: 1 of 1

nº	SPECIES (Scientific & Common Name)	Indicator Status	Species Areal Cover (%)
1.	Broadleaf cattail (*Typha latifolia*)	OBL	65
2.	Purple loosestrife (*Lythrum salicaria*)	OBL	1
3.	Smartweed (*Polygonum* sp.)	FACW	1
4.	Carolina nightshade (*Solanum carolinense*)	FACU	1
5.	Plantain (*Plantago major*)	FACU	1
6.	Curly dock (*Rumex crispus*)	FAC	1
7.	Mugwort (*Artemisia vulgaris*)	UPL	1
8.	Alsike clover (*Trifolium hybridum*)	FACU	1
9.	American water plantain (*Alisma subcordatum*)	OBL	1
10.	Softstem bulrush (*Scirpus tabernaemontani*)	OBL	1
11.	Purplestem beggartick (*Bidens connata*)	FACW	1
12.	Queen Anne's lace (*Daucus carota*)	FACU	1
13.	Poverty rush (*Juncus tenuis*)	FAC	2
14.	Witchgrass (*Panicum capillare*)	FAC	1
15.	Oakleaf goosefoot (*Chenopodium glaucum*)	FACW	1
16.	Boxelder (*Acer negundo*) x10	FAC	1
17.	Eastern cottonwood (*Populus deltoides*) x5	FAC	1
18.	Narrowleaf cattail (*Typha angustifolia*)	OBL	20
19.			
20.			

TOTAL PERCENT AREAL COVER: **100%**

COMMENTS - ADDITIONAL PLANT/WILDLIFE SPECIES:

INDICATOR STATUS NOTATIONS: *(Relative to New York, Region 1 - http://plants.usda.gov/java/)*
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Obligate Upland (UPL): occur almost always (est. prob. >99%) in non-wetlands.

Vegetation Monitoring Data Sheet
LCP Wetland C, Town of Geddes, Onondaga County, New York

Date: 8/6/2014
Cover type: Wet Meadow
Water Depth: 0 inches

Photo no. & Direction: 10E
Plot number: C8
Data Sheet Number: 1 of 2

nº	SPECIES (Scientific & Common Name)	Indicator Status	Species Areal Cover (%)
1.	Birds foot trefoil (*Lotus corniculatus*)	FACU	15
2.	Purple loosestrife (*Lythrum salicaria*)	OBL	6
3.	Queen Anne's lace (*Daucus carota*)	FACU	15
4.	Daisy fleabane (*Erigeron annuus*)	FACU	14
5.	New York aster (*Symphyotrichum novi-belgii*)	FACW	3
6.	Canada goldenrod (*Solidago canadensis*)	FACU	12
7.	Virginia wildrye (*Elymus virginicus*)	FACW	1
8.	Redtop (*Agrostis alba*)	FACW	1
9.	Alsike clover (*Trifolium hybridum*)	FACU	2
10.	Poverty rush (*Juncus tenuis*)	FAC	1
11.	Red clover (*Trifolium pratense*)	FACU	1
12.	Purplestem beggartick (*Bidens connata*)	FACW	2
13.	Ragweed (*Ambrosia artemisiifolia*)	FACU	1
14.	Smartweed (*Polygonum* sp.)	FACW	1
15.	Narrow-leaf plantain (*Plantago lanceolata*)	FACU	1
16.	Plantain (*Plantago major*)	FACU	1
17.	Field peppergrass (*Lepidium campestre*)	FACU	1
18.	Indian hemp (*Apocynum cannabinum*)	FAC	1
19.	Eastern cottonwood (*Populus deltoides*) x1	FAC	5
20.	Curly dock (*Rumex crispus*)	FAC	1

TOTAL PERCENT AREAL COVER: 97%

COMMENTS - ADDITIONAL PLANT/WILDLIFE SPECIES:
75% including cover from page 2
Leopard Frog

INDICATOR STATUS NOTATIONS: *(Relative to New York, Region 1 - http://plants.usda.gov/java/)*
Obligate Wetland (OBL): occur almost always (estimated probability >99%) in wetlands.
Facultative Wetland (FACW): usually occur in wetlands (est. prob. 67%-99%), but occasionally found in non-wetlands.
Facultative (FAC): equally likely to occur in wetlands or non-wetlands (est. prob. 34%-66%).
Facultative Upland (FACU): usually occur in non-wetlands (est. prob. 67%-99%), occasionally in wetlands (prob. 1%-33%).
Obligate Upland (UPL): occur almost always (est. prob. >99%) in non-wetlands.

Vegetation Monitoring Data Sheet
LCP Wetland C, Town of Geddes, Onondaga County, New York

Date: 8/6/2014
Cover type: Wet Meadow
Water Depth: 0 inches

Photo no. & Direction: 10E
Plot number: C8
Data Sheet Number: 2 of 2

nº	SPECIES (Scientific & Common Name)	Indicator Status	Species Areal Cover (%)
1.	Flat-top goldenrod (*Euthamia graminifolia*)	FAC	5
2.	Mugwort (*Artemisia vulgaris*)	UPL	5
3.	Pussy willow (*Salix discolor*) x1	FACW	2
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TOTAL PERCENT AREAL COVER: **97%**

COMMENTS - ADDITIONAL PLANT/WILDLIFE SPECIES:
75% including cover from page 1

INDICATOR STATUS NOTATIONS: *(Relative to New York, Region 1 - http://plants.usda.gov/java/)*
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Facultative Upland (FACU): usually occur in non-wetlands (est. prob. 67%-99%), occasionally in wetlands (prob. 1%-33%).
Obligate Upland (UPL): occur almost always (est. prob. >99%) in non-wetlands.

Vegetation Monitoring Data Sheet
LCP Wetland C, Town of Geddes, Onondaga County, New York

Date: 8/7/2014
Cover type: Wet Meadow
Water Depth: 0 inches

Photo no. & Direction: 11E
Plot number: C9
Data Sheet Number: 1 of 1

nº	SPECIES (Scientific & Common Name)	Indicator Status	Species Areal Cover (%)
1.	Canada goldenrod (*Solidago canadensis*)	FACU	30
2.	Birds foot trefoil (*Lotus corniculatus*)	FACU	10
3.	Redtop (*Agrostis alba*)	FACW	35
4.	Ragweed (*Ambrosia artemisiifolia*)	FACU	2
5.	Mugwort (*Artemisia vulgaris*)	UPL	4
6.	Daisy fleabane (*Erigeron annuus*)	FACU	1
7.	Common cinquefoil (*Potentilla simplex*)	FACU	1
8.	Flat-top goldenrod (*Euthamia graminifolia*)	FAC	3
9.	Timothy (*Phleum pratense*)	FACU	1
10.	Queen Anne's lace (*Daucus carota*)	FACU	9
11.	Blackeyed Susan (*Rudbeckia hirta*)	FACU	1
12.	Virginia wildrye (*Elymus virginicus*)	FACW	1
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TOTAL PERCENT AREAL COVER: **62%**

COMMENTS - ADDITIONAL PLANT/WILDLIFE SPECIES:

INDICATOR STATUS NOTATIONS: *(Relative to New York, Region 1 - http://plants.usda.gov/java/)*
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Facultative (FAC): equally likely to occur in wetlands or non-wetlands (est. prob. 34%-66%).
Facultative Upland (FACU): usually occur in non-wetlands (est. prob. 67%-99%), occasionally in wetlands (prob. 1%-33%).
Obligate Upland (UPL): occur almost always (est. prob. >99%) in non-wetlands.

Vegetation Monitoring Data Sheet
LCP Wetland C, Town of Geddes, Onondaga County, New York

Date: 8/7/2014
Cover type: Emergent Wetland/Wetland Slope
Water Depth: 1 inch

Photo no. & Direction: 12E
Plot number: C10
Data Sheet Number: 1 of 2

nº	SPECIES (Scientific & Common Name)	Indicator Status	Species Areal Cover (%)
1.	Canada goldenrod (*Solidago canadensis*)	FACU	3
2.	Redtop (*Agrostis alba*)	FACW	35
3.	Daisy fleabane (*Erigeron annuus*)	FACU	1
4.	Purple-stemmed aster (*Symphiotrichum puniceum*)	OBL	1
5.	Sweet clover (*Melilotus* spp.)	FACU	1
6.	Birds foot trefoil (*Lotus corniculatus*)	FACU	4
7.	Blue vervain (*Verbena hastata*)	FACW	5
8.	Fox sedge (*Carex vulpinoidea*)	OBL	15
9.	Softstem bulrush (*Scirpus tabernaemontani*)	OBL	10
10.	Broadleaf cattail (*Typha latifolia*)	OBL	50
11.	Bird vetch (*Vicia cracca*)	FACU	1
12.	Blackeyed Susan (*Rudbeckia hirta*)	FACU	1
13.	Queen Anne's lace (*Daucus carota*)	FACU	3
14.	Common sow thistle (*Sonchus oleraceus*)	FACU	1
15.	Purple loosestrife (*Lythrum salicaria*)	OBL	1
16.	Flat-top goldenrod (*Euthamia graminifolia*)	FAC	2
17.	Ragweed (*Ambrosia artemisiifolia*)	FACU	1
18.	Narrow-leaf plantain (*Plantago lanceolata*)	FACU	1
19.	Colts foot (*Tussilago farfara*)	FACU	1
20.	Common duckweed (*Lemna minor*)	OBL	0.2

TOTAL PERCENT AREAL COVER: **100%**

COMMENTS - ADDITIONAL PLANT/WILDLIFE SPECIES:
Total 100% with cover from page 2

INDICATOR STATUS NOTATIONS: *(Relative to New York, Region 1 - http://plants.usda.gov/java/)*
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Facultative Upland (FACU): usually occur in non-wetlands (est. prob. 67%-99%), occasionally in wetlands (prob. 1%-33%).
Obligate Upland (UPL): occur almost always (est. prob. >99%) in non-wetlands.

Vegetation Monitoring Data Sheet
LCP Wetland C, Town of Geddes, Onondaga County, New York

Date: 8/7/2014
Cover type: Emergent Wetland/Wetland Slope
Water Depth: 1 inch

Photo no. & Direction: 12E
Plot number: C10
Data Sheet Number: 2 of 2

nº	SPECIES (Scientific & Common Name)	Indicator Status	Species Areal Cover (%)
1.	Eastern cottonwood (*Populus deltoides*) x5	FAC	10
2.	Grey stemmed dogwood (*Cornus racemosa*) x1	FAC	2
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TOTAL PERCENT AREAL COVER: **100%**

COMMENTS - ADDITIONAL PLANT/WILDLIFE SPECIES:
Total 100% with cover from page 1

INDICATOR STATUS NOTATIONS: *(Relative to New York, Region 1 - http://plants.usda.gov/java/)*
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Facultative Upland (FACU): usually occur in non-wetlands (est. prob. 67%-99%), occasionally in wetlands (prob. 1%-33%).
Obligate Upland (UPL): occur almost always (est. prob. >99%) in non-wetlands.

Vegetation Monitoring Data Sheet
LCP Wetland C, Town of Geddes, Onondaga County, New York

Date: 8/7/2014
Cover type: Emergent Wetland/Wet Meadow
Water Depth: 0 inches

Photo no. & Direction: 13W
Plot number: C11
Data Sheet Number: 1 of 2

nº	SPECIES (Scientific & Common Name)	Indicator Status	Species Areal Cover (%)
1.	Canada goldenrod (*Solidago canadensis*)	FACU	2
2.	Birds foot trefoil (*Lotus corniculatus*)	FACU	8
3.	Daisy fleabane (*Erigeron annuus*)	FACU	1
4.	Redtop (*Agrostis alba*)	FACW	20
5.	Narrow-leaf plantain (*Plantago lanceolata*)	FACU	1
6.	Barnyard grass (*Echinochloa* sp.)	FACU	30
7.	Ragweed (*Ambrosia artemisiifolia*)	FACU	1
8.	Queen Anne's lace (*Daucus carota*)	FACU	5
9.	Red clover (*Trifolium pratense*)	FACU	1
10.	Alsike clover (*Trifolium hybridum*)	FACU	1
11.	Colonial bentgrass (*Agrostis capillaris*)	FAC	10
12.	Hop clover (*Trifolium campestre*)	FACU	1
13.	Common cinquefoil (*Potentilla simplex*)	FACU	1
14.	Mugwort (*Artemisia vulgaris*)	UPL	1
15.	Plantain (*Plantago major*)	FACU	1
16.	Broadleaf cattail (*Typha latifolia*)	OBL	15
17.	Common St. John's wort (*Hypericum perforatum*)	UPL	1
18.	Poverty rush (*Juncus tenuis*)	FAC	3
19.	Sensitive fern (*Onoclea sensibilis*)	FACW	2
20.	Sweet clover (*Melilotus* spp.)	FACU	1.0

TOTAL PERCENT AREAL COVER: **100%**

COMMENTS - ADDITIONAL PLANT/WILDLIFE SPECIES:
Total 100% with cover from page 2

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Vegetation Monitoring Data Sheet
LCP Wetland C, Town of Geddes, Onondaga County, New York

Date: 8/7/2014
Cover type: Emergent Wetland/Wet Meadow
Water Depth: 0 inches

Photo no. & Direction: 13W
Plot number: C11
Data Sheet Number: 2 of 2

nº	SPECIES (Scientific & Common Name)	Indicator Status	Species Areal Cover (%)
1.	Field horsetail (*Equisetum arvense*)	FAC	2
2.	Purple-stemmed aster (*Symphiotrichum puniceum*)	OBL	1
3.	Softstem bulrush (*Scirpus tabernaemontani*)	OBL	8
4.	Flat-top goldenrod (*Euthamia graminifolia*)	FAC	1
5.	Fox sedge (*Carex vulpinoidea*)	OBL	5
6.	Pussy willow (*Salix discolor*) x1	FACW	2
7.	Shining willow (*Salix lucida*) x1	FACW	5
8.	Boxelder (*Acer negundo*) x1	FAC	1
9.	Bladderwort (*Utricularia vulgaris*)	OBL	2
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TOTAL PERCENT AREAL COVER: **100%**

COMMENTS - ADDITIONAL PLANT/WILDLIFE SPECIES:
Total 100% with cover from page 1

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ATTACHMENT 2

REPRESENTATIVE PHOTOGRAPHS

2014 LCP OMM PHOTO LOG

PARSONS

Photo Number	Photo ID.	Location	Description
1	DSCN3903.jpg	Wetland A - A-1	Plot central stake with surrounding vegetation
2	DSCN3892.jpg	Wetland A - A-2	Plot central stake with surrounding vegetation
3	DSCN6180.jpg	Wetland C - C-1	Plot central stake with surrounding vegetation
4	DSCN3248.jpg	Wetland C - C-2	Plot central stake with surrounding vegetation
5	DSCN3268.jpg	Wetland C - C-3	Plot central stake with surrounding vegetation
6	DSCN3348.jpg	Wetland C - C-4	Plot central stake with surrounding vegetation
7	DSCN3454.jpg	Wetland C - C-5	Plot central stake with surrounding vegetation
8	DSCN5173.jpg	Wetland C - C-6	Plot central stake with surrounding vegetation
9	DSCN3562.jpg	Wetland C - C-7	Plot central stake with surrounding vegetation
10	DSCN3617.jpg	Wetland C - C-8	Plot central stake with surrounding vegetation
11	DSCN3701.jpg	Wetland C - C-9	Plot central stake with surrounding vegetation
12	DSCN3740.jpg	Wetland C - C-10	Plot central stake with surrounding vegetation
13	DSCN3799.jpg	Wetland C - C-11	Plot central stake with surrounding vegetation
14	PhotoLoc1Pan_92314.jpg	Photo Location 1	View from Location 1 with the direction indicated in Figure 3
15	PhotoLoc2Pan_92314.jpg	Photo Location 2	View from Location 2 with the direction indicated in Figure 3
16	PhotoLoc3Pan_92314.jpg	Photo Location 3	View from Location 3 with the direction indicated in Figure 3
17	PhotoLoc4Pan_92314.jpg	Photo Location 4	View from Location 4 with the direction indicated in Figure 3
18	PhotoLoc5Pan_92314.jpg	Photo Location 5	View from Location 5 with the direction indicated in Figure 3
19	DSCN0345.jpg	Eroded channel maintenance	View of erosion control efforts in SE corner of Wetland C

Photo 1

Photo 2

Photo 3

Photo 4

Photo 5

Photo 6

Photo 7

Photo 8

Photo 9

Photo 10

Photo 11

Photo 12

Photo 13

Photo 14

Photo 15

Photo 16

Photo 16