DRAFT ENVIRONMENTAL IMPACT STATEMENT

WILLOW WOODS SUBDIVISION

6636 Taylor Road
Town of Hamburg, New York

Prepared for:
The Five Yovienes, LLC
Hamburg, New York

March 2013

File No. 10J5-0032

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EXHIBITS

EXHIBIT 1: **Environmental Report for the Historic Disposal Area**
Empire Geo Services, Inc.

EXHIBIT 2: **Environmental Subsurface Investigation**
Empire Geo Services, Inc.

EXHIBIT 3: **Limited and Focused Subsurface Soil & Groundwater Investigation Report**
LCS, Inc.

EXHIBIT 4: **Soil and Water Sampling Program**
Niagara Frontier Consulting Services, Inc.

EXHIBIT 5: **Engineer's Report for Willow Woods Subdivision**
Nussbaumer & Clarke, Inc.

EXHIBIT 6: **Storm Water Pollution Prevention Plan (SWPPP) /Storm Water Management Report for Willow Woods Subdivision**
Nussbaumer & Clarke, Inc.

EXHIBIT 7: **Phase 1 Cultural Resource Investigation for Willow Woods Subdivision**
Commonwealth Cultural Resources Group, Inc.

EXHIBIT 8: **Wetland Delineation Study for Willow Woods Subdivision**
Wilson Environmental Technologies, Inc.

DRAFT ENVIRONMENTAL IMPACT STATEMENT

WILLOW WOODS SUBDIVISION
6636 TAYLOR ROAD
TOWN OF HAMBURG, NEW YORK

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Date of Acceptance by Lead Agency: _____

Deadline for Written Comments: _____

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TABLE 1-1

ANTICIPATED PERMITS AND APPROVALS FOR THE WILLOW RIDGE SUBDIVISION

Agency	Description of Permit or Approval Required
Town	
• Town of Hamburg Planning Board	• Approval of EIS (as SEQRA Lead Agency) • Approval of subdivision plan
• Town of Hamburg Departments (Engineering, Highway, building, Police, Attorney)	• Approval of development infrastructure plans (public waterline extensions, road extensions, drainage facilities, sanitary sewer extensions) • Review of building plans for conformance with NYS Building Construction and Energy conservation Codes • Issuance of building and plumbing permits • Review and approval of street names and conformance to local and state law • Curb cut on Taylor Road
• Town Board of Hamburg	• Public improvement permit
Erie County	
• Erie County Departments (Health, Environment & Planning, Public Works, Highway)	• Review and approval of public water supply • Review and approval of public sanitary sewer extensions • Review and approval of Highway Work Permits • Curb cut.
State	
• Departmental of Environmental Conservation	• State Pollution Discharge Elimination System (SPDES) General Permit for Construction Activities Greater than 1 Acre
Federal	
• U.S. Army Corps of Engineers	• Section 404 Nationwide Permit for disturbance to federal wetlands

TABLE 1-2

DISTRIBUTION LIST FOR DRAFT EIS

Federal Agencies
U.S. Army Corps. of Engineers Buffalo District 1776 Niagara Street Buffalo, New York 14207-3199
State Agencies
New York State Department of Environmental Conservation Region 9 270 Michigan Avenue Buffalo, New York 14203
New York State Department of Parks, Recreation and Historic Preservation Peebles Island, P.O. Box 189 Waterford, New York 12188-0189
Erie County Agencies
Erie County Department of Environmental and Planning 95 Franklin Street Buffalo, New York 14202
Erie County Department of Health 503 Kensington Avenue Buffalo, New York 14214
Local Agencies
Town of Hamburg Planning Board S-6100 South Park Avenue Hamburg, New York 14075
Town of Hamburg Town Engineer S-6100 South Park Avenue Hamburg, New York 14075

EXECUTIVE SUMMARY

The proposed action involves an application by The Five Yovienes, LLC for approval of a single family residential subdivision on approximately 141.67± acres of land located on the south side of Taylor Road in the Town of Hamburg, Erie County, New York.

During the course of the subdivision review process, the Town of Hamburg Planning officials raised concern that an area of the site located at the southern end of the property previously had been used as a municipal landfill after 1952 to about 1963. Pursuant to Article 6 of the New York State Environmental Conservation Law (6 NYCRR, Part 617), it is incumbent upon the Town of Hamburg Planning Board, as the Lead Agency, to consider potentially significant environmental impacts in connection with this application. On September 5, 2012, the Town of Hamburg Planning Board issued a Positive Declaration pursuant to the New York State Environmental Quality Review Act (SEQRA) and identified that the landfill site may have a potentially significant adverse impact on public health, and, as a result required the applicant to prepare a Draft Environmental Impact Statement (DEIS). In addition, the Planning Board, during the scoping process required that the DEIS also examine the potential impacts of the proposed subdivision on water, transportation, aesthetic resources and land.

Copies of the reports, studies and documentation are included as exhibits of this DEIS to assist the Town of Hamburg, as well as involved and interested agencies in connection with the analysis of potential environmental impacts.

1.0 DESCRIPTION OF THE ACTION & ENVIRONMENTAL SETTING

The proposed action involves the subdivision of a 141.67-acre parcel of land into 49, one-half acre lots for the construction of single-family detached homes. The subject parcel is vacant and is located on the south side of Taylor Road in the Town of Hamburg. The action includes construction of approximately 2,800 lf of public roadway, water lines, sewer lines as well as other public utilities to serve the proposed dwellings. Two ponds are proposed on the project site for aesthetics and storm water attenuation. Figure 1, Existing Conditions Plan, show the physical characteristics of the site.

Willow Woods Subdivision, as proposed for development by The Five Yovienes, LLC ("Project Sponsor"), is located at 6636 Taylor Road in the Town of Hamburg, Erie County, New York. The Project Sponsor is proposing to use the Town of Hamburg's Cluster Development Law to develop the property. The result of the design is the preservation of approximately 102 acres (70% of the site) of land that will remain in its natural state.

1.1 Topography

The property to be developed is almost entirely meadow and brush and drains primarily from the east to the west with a portion flowing to the north. A gas line bisects the site from the northeast to the southwest. This can also be seen on the aerial photograph. A portion of New York State Freshwater Wetland HB-7 is located on the property as well as a 1.2± acre federal wetland. The state and federal wetlands are proposed to remain undeveloped.

1.2 Soils

The site is comprised entirely of silt loam classified as hydrologic soil group (HSG) D. Detailed information on these soils can be found in the Web Soil Survey summaries in the Storm Water Management Report found in Exhibit 6. Soils within the project area consist of those within the Niagara-Canandaigua-Cosad Series. In general, these soils are described as dominantly nearly level, deep, somewhat poorly drained to very poorly-drained and medium-textured (USDA 1986; NRCS 2012). These soils are found on lowland plains. Six specific soil types occur within on the site:

Canadice Silt Loam (0-3% slope)
CoA - Churchville Silt Loam (0-3% slope)
HrA - Hornell Silt Loam (0-3% slope)
HrB - Hornell Silt Loam (3-8% slope)
Pc - Patchin Silt Loam (0-3% slope)
RgA - Rhinebeck Silt Loam (0-3% slope)
Fu – Fluaquents and Udifluvents, frequently flooded
Dp - Dumps

1.3 Geology

Bedrock geology within the project area consists of the Angola Shale Member. This bedrock, within the Seneca Group, is medium light gray to light gray shale containing a little black shale, a few thin siltstones and many calcareous nodules of various sizes (Buehler and Tesmer 1963). There are no bedrock outcroppings exposed anywhere within the project area.

2.0 POTENTIALLY SIGNIFICANT ADVERSE IMPACTS

2.1 Impact on Public Health

There is a landfill site located on the southern end of the property which covers approximately 5.9 acres. The Town of Hamburg Planning Board has expressed concern about potential migration of contaminants from the landfill site to the proposed home sites. Three consulting firms have evaluated the landfill site and copies of their evaluations are included as exhibits to this document.

2.2 Impact on Water

2.2.1 Wetlands

Wilson Environmental Technologies, Inc. (WET) conducted a wetlands assessment (See Exhibit 8) of the project site and determined that the property contains both state and federal wetlands. New York State Freshwater wetland, HB-7 occupies about 22± acres; 4.3 acres of that total has been designated as federal wetland. No impacts are proposed to the state wetland, but a minor impact, filling of less than one-tenth of an acre, is proposed as a result of the construction of a new public road. The proposed cluster plan has been designed to minimize impacts to wetland areas.

2.2.2 Sanitary Sewers

The proposed development will have an impact existing sanitary sewers. The subdivision will generate 17,000 gal/day of sewage, which will be tributary to an existing sanitary sewer located on Taylor Road. Sanitary sewers are tributary to Erie County Sewer District 3 sewers. In accordance with New York State Department of Environmental Conservation requirements, the Project Sponsor retained Techsmith, Inc. to obtain existing flow measurements in the sanitary sewers, which are ultimately tributary to the Southtowns Wastewater Treatment Plant. The Southtown's wastewater treatment facility has the design capacity to handle an average daily flow rate of 16 million gallons per day [MGD]. The average daily flow is approximately 14 MGD. Based on the field data obtained by Techsmith and analyzed by Nussbaumer & Clarke, Inc. (Nussbaumer), there is capacity in the existing sewer system to support full development of this project.

2.2.3 Storm Drainage

The storm water drainage system has been designed to comply with the Town of Hamburg's guidelines. The intent is to design an effective Storm Water Management system for controlling runoff and pollutants from a site during and after construction.

To limit potential impacts to groundwater resources, storm water will be managed, as required in by the Town of Hamburg Storm Water Management and Erosion and Sediment Control Law. A Storm Water Pollution Prevention Plan (SWPPP) has been prepared. This Plan complies with the requirements of the New York State Pollution Discharge Elimination System (SPDES) General Permit for Storm Water Discharges from Construction Activity (GP-0-10-001) which requires water quantity controls for channel protection, overbank flooding and extreme storms, water quality treatment and a reduction in the volume of runoff generated from newly constructed impervious surfaces.

In general, all storm water runoff will be collected across the project site by means of sheet flow, drainage swales, yard drains, catch basins and storm water pipes. This flow will be conveyed to two detention basins. One is located on the west side of the property, the other on the east side of the site. The pond is designed to attenuate runoff to a pre-developed rate of discharge for town and state mandated storm events. Refer to the Storm Water Management Report for detailed calculations.

2.3 Impact on Transportation

The project will add a new entrance onto Taylor Road and add the resulting traffic from 49 single-family homes, which will be built and phased in over a five to seven year period. There will be an increase in traffic above present condition. Based on the Institute for Transportation Engineers (ITE), 8th edition; for a single-family detached residential development, vehicular trips are projected at 49 trips in the peak hour, occurring in the afternoon. Taylor Road, a local Town of Hamburg road has the capacity to handle the traffic from the new development.

2.4 Impact on Aesthetic Resources

The rural character of the area and significant environmental features may be adversely impacted by the development. The visual character of the site will change as a result of the development due to the development of 49 single-family homes. Using the Town of Hamburg's Cluster ordinance, development will occur on 66± acres of the site with roughly 76± acres remaining as open space, which will remain in its natural setting.

2.5 Impact on Land

The project will result in the construction of 49 single-family homes and other impervious surfaces including about 2,800 lf of new pavement will be constructed and other impervious surfaces on this site. The subject property is primarily meadow and brush. Twenty-two acres of the site is comprised of state and federal wetlands. Temporary impacts, such as erosion, dust, runoff and/or sedimentation may occur during construction, but measures will be put in place to minimize these impacts. Through the use of appropriate mitigation measures for future site development, no significant, long-term negative impacts to land or soils are anticipated.

2.6 Impact on Cultural Resources

According to the New York State Office of Parks, Recreation and Historic Preservation, the project site was identified for possible cultural resource sensitivity. A Phase 1 cultural resource investigation was recommended for the project area because of its proximity to previously recorded archaeological site(s). The Project Sponsor retained Commonwealth Cultural Resources Group, Inc. (CCRG) who conducted a Phase 1 Cultural Resource Investigation. CCRG determined that of the 142± acre site that 75.9± acres of the property was defined as the Area of Potential Effect (APE) were required to be examined. Phase IB field investigations failed to identify evidence of any prehistoric archaeological sites. However, the Phase I investigation identified that three Map Documented Structures (MDS) existed on the property and that a Phase II Archaeological Site Evaluation should be conducted at each of the three sites.

In August 2012, CCRG in accordance with procedures outlined in *Standards for Cultural Resource Investigations and the Curation of Archaeological Collections in New York State* as required by the Office of Parks, Recreation and Historic Preservation (OPRHP), CCRG conducted Phase II investigations at the site, a former residence, barn and livestock pen. Through combined Phase I and II archaeological field investigations, CCRG has concluded that research potential at the Friedman Historic site has been exhausted and no further archaeological investigations are necessary. Therefore, development of the Willow Ridge Subdivision will not have a significant adverse impact on Cultural Resources. The Cultural Resource Investigation can be found in Exhibit 7.

3.0 EXTENT AND QUALITY OF INFORMATION

3.1 Environmental Setting

The property to be developed is almost entirely meadow and brush and drains primarily from the east to the west with a portion flowing to the north. A gas line bisects the site from the northeast to the southwest. This can also be seen on the aerial photograph. A portion of New York State Freshwater Wetland HB-7 is located on the property as well as a 1.2± acre federal wetland. The state and federal wetlands are proposed to remain undeveloped.

3.2 History of Landfill site

When the Project Sponsor purchased the property in 1994, the seller's attorney disclosed that a portion of the property had been used as a municipal dumpsite during the late 1950's and early 1960's. Since there were no historical records available of activity at the landfill site, he was advised to have an environmental study conducted.

3.3 Landfill Area

The Project Sponsor has had three separate environmental studies conducted of the landfill site. In 1994, Niagara Frontier Consulting Services, Inc. (NFCS) conducted a site walkover of the property. In 2012, during the subdivision review process, the Town of Hamburg Planning Board requested that the Project Sponsor perform additional subsurface investigation of the landfill area. Lender Consulting Services, Inc. (LCS) was retained to conduct a subsequent study that performed a limited and focused subsurface soil and groundwater investigation. Subsequent to the LCS report, Hamburg planning officials wanted additional investigative work done. Hamburg Planning officials expressed concern that since this was an unsupervised landfill, that "night dumping" may have occurred. In July 2012, the Project Sponsor retained Empire Geo Services, Inc. to perform additional analysis of the landfill site to further define its limits and makeup.

1994 Study by Niagara Frontier Consulting Services, Inc., (NFCS)

The 1994 NFCS study (See Exhibit 4) named the area currently containing cars, tires, and other miscellaneous items on the ground surface a "dump area" and concluded: "the dump was historically used for municipal solid waste disposal for the years 1951-66 as evidenced in the aerial photographs." NFCS collected two soil samples and two surface water samples in this area and had them analyzed at a laboratory for leachable concentrations of volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), and metals, as well as corrosivity, reactivity and ignitability. All laboratory results were at or below the method detection limits except for the metal barium, which was within regulatory limits.

April 2012 - Study by Lender Consulting Services, Inc. (LCS)

In 2012 Lender Consulting Services, Inc. (LCS) completed a limited and focused soil and groundwater investigation (See Exhibit 3) at the site, which was summarized in their report of April 26, 2012. The LCS investigation included five soil borings with a groundwater monitoring well installed at one of the five locations. The five test borings were generally located to the north of the disposal area, along the north edge of the wooded area.

Drilling refusal was encountered at depths of 3.8 feet to 6.8 feet at four of the five boring locations, apparently indicating relatively shallow depth to bedrock. Drilling refusal was obtained at a depth of 12 feet at boring location BH1.

Five soil samples (one from each of the five test borings) and one groundwater sample were analyzed for Target Compound List (TCL) VOCs, TCL SVOCs, Target Analyte List (TAL) Metals, Cyanide, polychlorinated biphenyls (PCBs), Pesticides, and Herbicides. Concentrations of detected analytes in the soil samples were all below 6 NYCRR Part 375 soil cleanup objectives (SCOs) for Unrestricted and/or Residential site use with the exception of barium, which was detected at a concentration of 420 parts per million (ppm) in test boring BH2, as compared to the Residential SCO of 350 ppm. Concentrations of detected analytes in the groundwater sample were all less than the NYSDEC Class GA Groundwater Criteria with the exception of barium at a concentration of 1.8 ppm as compared to the limit of 1.0 ppm. Elevated concentrations of naturally occurring barium in soil, bedrock and groundwater are common and well documented in Western New York.

July, 2012 – Study by Empire Geo Services, Inc.

In July 2012, Empire completed nine test pit excavations in the vicinity of the abandoned cars since they were the only current evidence of disposal at that time. Empire summarized their findings in a report issued a report in August 3, 2012 (Exhibit 2). Native soils were encountered in each of the nine test pit excavations, with no evidence of buried waste.

Shale fragments were encountered at several test pit locations at depths of 1.2 to 3.2 feet, indicating a shallow depth to bedrock. Fill materials encountered in test pit TP-1 (located between the two abandoned cars) and test pit TP-3 (located approximately 50 feet southwest of the cars) contained minor traces of manmade materials including cinders and/or slag. Based on visual observations, the man-made components comprised less than 1% of the fill material.

Soil from test pit TP-1 was submitted for laboratory analysis and the results were compared to the New York State Department of Environmental Conservation (NYSDEC) Soil Cleanup Objectives (SCOs) for Unrestricted and Residential site use presented in the 6 New York Code, Rules and Regulations (6 NYCRR) Part 375 Environmental Remediation Programs, effective December 2006, and indicated the following:

- Cyanide, PCBs, and Target Compound List (TCL) Semi-Volatile Organic Compounds (SVOCs) were not detected;

- Volatile Organic Compounds – Acetone was detected at a concentration of 63.6 parts per billion (ppb), well below the NYSDEC SCO for Unrestricted site use of 100,000 ppb. Acetone is a common laboratory reagent and this detection may represent laboratory contamination.

- Metals – Several metals were detected in the soil sample. With the exceptions of lead and zinc, the concentrations of the detected metals were below their respective SCOs for Unrestricted site use.

- Lead was detected at a concentration of 410 ppm, exceeding the Unrestricted SCO of 63 ppm and very slightly above the Residential SCO of 400 ppm.

- Zinc was detected at a concentration of 172 ppm, exceeding the Unrestricted SCO of 109 ppm but well below the Residential SCO of 2,200 ppm.

3.3.1 Empire's expanded Environmental Work Scope - August through December, 2012

Three previous investigations had been conducted at the site; however, none had included any sample locations in the disturbed area. During the months of August to December of 2012, Empire performed additional field investigations to obtain information within its limits.

- Test pits were excavated to investigate the presence of garbage fill and to obtain initial information regarding physical characteristics of the disposal area. Submitted two soil/garbage samples for laboratory analysis.
- Approximate limits of the disposal area were staked in the field based on surface features.
- Excavated several test pits to define the lateral limits of the disposal area, as indicated on Figure 3.
- Collected subsurface soil/garbage samples using soil probes at eight additional locations within the disposal area for laboratory analysis.
- Collected three surface water samples near the north edge of the disposal area for laboratory analysis.

3.3.1.1 Initial Exploration in the Disposal Area – August, 2012

Since the abandoned cars are located near the northeast corner of the disturbed area seen in the 1958 aerial photograph, the purpose of Empire's subsurface investigation completed on August 27, 2012 was to look for evidence of subsurface garbage disposal near the central portion of the disturbed area. The center of the disturbed area was established and field survey locations staked.

Five test pits were completed on August 27, 2012 and were designated: TP-Center, TP-North TP-South, TP-East, TP-West (See Figure 3); each test pit set 100 ft. from the center. The test pits were excavated at each location and an Empire geologist visually classified the excavated soils and prepared individual test pit field logs indicating the test pit location, types and depths of subsurface materials, and other pertinent observations and information. The test pits were excavated to depths of approximately six to eight feet. Subsurface conditions encountered at the test pit locations consisted of fill materials comprising reworked (excavated and replaced) native clayey silts with varying amounts of sands and gravel. Beneath the soil fill, garbage fill was encountered that contained glass bottles, newspaper, tin cans, plastic, metal, and wood. The depth to the top of the garbage fill was 3.3-5.0 feet and the thickness of the garbage fill was approximately 2.0-2.9 feet. Beneath the fill, light grey weathered shale or shale bedrock was encountered. Test pit logs can be found in Exhibit 1.

Comparing the ground surface topography with subsurface conditions in the five test pits, it appears that garbage was placed in approximately 15-18 elongate trenches with a north-south direction. The trench locations can be seen as shallow depressions on the ground surface. The test pit excavations were generally situated perpendicular to a disposal trench and therefore the lateral trench limits were seen at some of the test pit locations. The composition of the garbage fill and the overlying soil fill was very similar at each of the five test pit locations.

Soil samples were collected of the garbage fill material from test pits TP-East and TP-West for laboratory analysis.

3.3.2 Estimate Limits of Disposal Area Using Surface Features

An Empire engineering geologist visited the disposal area and placed stakes to mark the approximate limits of the disposal area. The stake locations were based on ground surface features associated with the multiple shallow trenches comprising the disposal area.

3.3.3 Define Lateral Limits of the Disposal Area with Test Pits

Under the direction of an Empire engineering geologist, a total of 15 test pits were excavated around the perimeter of the site to define the lateral limits of the disposal area. Two additional test pits were excavated in localized ground surface depressions outside the disposal area on its east and west sides to verify that no garbage was present in the subsurface.

3.3.3.1 Collect Additional Subsurface Soil/Garbage Samples – December, 2012

Eight soil probes were completed within the disposal area, in addition to the five test pits. At each location, continuous samples of soil and/or garbage were collected from ground surface to sampler refusal in weathered shale or shale bedrock. Subsurface soil/garbage samples were collected at each of the eight locations for laboratory testing. All locations were surveyed by Nussbaumer and are indicated on Figure 3.

An Empire engineering geologist logged the soil probes in the field and screened recovered soil, garbage, and shale in the field for the presence of volatile organic compounds (VOCs) using a photoionization detector (PID). At each location, the geologist used the recovered subsurface samples to measure the thickness of the cover soil, the thickness of the garbage, and the thickness and depth of the underlying weathered shale or shale bedrock. The eight subsurface sampling locations were labeled as P-1 through P-8 and are indicated on Figure 3.

The subsurface conditions encountered at the eight soil probe locations were very similar to those encountered in the five test pits excavated on August 27, 2012: reworked native clayey silt / silty clay soils approximately three to six feet thick were encountered above the garbage layer, which was approximately one to two feet thick. Beneath the garbage, native silty clay soils or weathered shale was encountered.

One soil sample from each of the eight soil probes was submitted for laboratory analysis.

3.3.4 Groundwater

Subsurface conditions encountered at each of the eight soil probe locations included approximately 1.4 feet to 5.5 feet of native weathered shale or native silty clay and weathered shale beneath the garbage fill layer. The moisture content of these native materials was classified as moist or dry-moist in each case to the bottom depth of the soil probe, and groundwater was not encountered and, therefore, groundwater samples could not be collected.

3.3.5 Collect Surface Water Samples

Empire collected three surface water samples at the site on December 28, 2012. Two of the three samples were collected from water in the swale located adjacent to the north side of the disposal area (SW-2 and SW-3) and the third (SW-1) was collected in the wetland area located just northwest of the disposal area and just downstream of the swale. The three surface water sampling locations are indicated on Figure 3.

3.3.6 Laboratory Analysis of Soil and Water Samples

Selected soil and water samples were submitted for the following laboratory analyses:

- Target Compound List (TCL) volatile organic compounds (VOCs)
- TCL Semi-volatile organic compounds (SVOCs)
- Target Analyte List (TAL) Metals
- Cyanide
- Polychlorinated biphenyls (PCBs)

Following industry-standard sampling procedures, sample preservation practices, field documentation and chain of custody protocols, all samples for laboratory analysis were transported to a New York State Department of Health (NYSDOH) certified analytical testing laboratory.

3.3.6.1 Laboratory Results for Soil Samples

Ten subsurface samples of soil/garbage collected from test pit locations TP-East and TP-West and from soil probe locations P-1 through P-8 were submitted for laboratory testing for the parameters listed in the previous section. The soil/garbage material was selected to address the "worst case" scenario regarding potential contaminant concentrations. In the following laboratory data summary, lab results that were non-detect (not detected above the test method detection limit), that were less than the respective NYSDEC 6NYCRR Part 375 Soil Cleanup Objective (SCO) for Unrestricted site use, or that were less than the NYSDEC CP-51 Supplemental Soil Cleanup Objective (SSCO), as appropriate for the individual analyte, are discussed within the report text. Lab results that exceeded the respective Part 375 SCO for Unrestricted site use or the CP-51 SSCO for Residential site use are presented in a table that presents the detected concentration, the SCO for Unrestricted site use, and the SCO for Residential site use.

<u>VOCs</u>

Most of the lab results for individual VOCs were non-detect in the ten soil samples. Except for acetone as discussed below, a few VOCs were detected in some of the soil samples at very low concentrations, well-below the respective Part 375 SCOs for Unrestricted site use. Acetone was detected at a concentration of 242 parts per billion (ppb) in the soil sample from test pit TP-East, exceeding the Part 375 SCO of Unrestricted site use of 50 ppb, but well below the SCO for Residential site use of 100,000 ppb (100 parts per million (ppm)). The lab report indicates a "B" flag associated with this result, which means that acetone was also detected in the method blank, indicating that the detection in the soil sample was due, at least in part, to lab contamination. Acetone was detected at concentrations exceeding the SCO for Unrestricted site use in soil samples collected from three of the soil probe locations as summarized in Table 1. All three detected concentrations were well below the SCO for Residential site use.

SVOCs
Almost all of the lab results for individual SVOCs were non-detect in the ten soil samples. Except for 1, 4-Dichlorobenzene as discussed below, a few SVOCs were detected in some of the soil samples at very low concentrations, well-below the respective Part 375 SCO for Unrestricted site use or well-below the CP-51 SSCOs for Residential site use. The compound 1, 4-Dichlorobenzene was detected at a concentration exceeding the Part 375 SCO for Unrestricted site use in the soil sample collected from soil probe location P-8 as summarized in Table 2. The detected concentration was well-below the SCO for Residential site use.

Cyanide
Cyanide was present in one of the ten soil samples. The detected cyanide concentration in the soil sample from test pit TP-East was 0.60 ppm, well-below the Part 375 SCO of 27 ppm for Unrestricted site use.

PCBs
PCBs were not detected in the soil samples collected from test pits TP-East or TP-West or from soil probe locations P-2 and P-4. A few individual PCBs were detected in the soil samples collected from soil probes P-3, P-5, P-7, and P-8 at concentrations well-below the Part 375 SCO for Unrestricted site use. The total PCB concentrations detected in the soil samples collected from soil probe locations P-1 and P-6 exceeded the Part 375 SCO for Unrestricted site use, but were well-below the Part 375 SCO for Residential site use.

Metals
Most of the TAL metals were detected in each of the ten soil samples. This is typical because native soils and bedrock naturally contain measurable concentrations of many metals. Most of the detected metals concentrations in the ten soil samples were less than the respective Part 375 SCOs for Unrestricted site use or the CP-51 SSCOs for Residential site use (CP-51 does not include SSCOs for Unrestricted site use). Although NYSDEC CP-51 does not provide SSCOs for Residential site use for aluminum, antimony, calcium, or thallium, this policy caps the SSCOs for all metals at 10,000 ppm. The metals magnesium, potassium, and sodium are not addressed in this report because they are not included in Part 375 or CP-51. The metals data for the soil samples were as follows:

Aluminium, – nine of ten results exceeded the CP-51 SSCO cap of 10,000 ppm, but all results were well below the eastern USA background value
Antimony – all detections were well below the CP-51 SSCO for residential site use
Arsenic – nine of ten detections were less than the Part 375 SCO for Residential site use; concentration at soil probe P-3 exceeded this SCO
Barium – all detections were less than the Part 375 SCO for Unrestricted site use
Beryllium – all detections were well below the Part 375 SCO for Unrestricted site use
Cadmium – all detections were less than the Part 375 SCO for Unrestricted site use
Calcium – detections exceeded the CP-51 SSCO cap of 10,000 ppm in five of ten samples; average concentration was within the range of eastern USA background; concentration at soil probe P-6 exceeded eastern USA background
Chromium – detections were all less than the Part 375 SCO for Restricted Residential site use
Cobalt – all detections were less than the CP-51 SSCO for Residential site use
Copper – all detections were less than the Part 375 SCO for Residential site use
Iron – all detections exceeded the CP-51 SSCO for Residential site use, but were well within the range for eastern USA background values
Lead – all detections were less than the Part 375 SCO for Residential site use
Manganese – all detections were equal to or less than the Part 375 SCO for Unrestricted site use
Mercury – all detections were less than the Part 375 SCO for Residential site use

Nickel – all detections were less than the Part 375 SCO for Residential site use
Selenium – all detections were less than the Part 375 SCO for Unrestricted site use
Silver - all detections were less than the Part 375 SCO for Unrestricted site use
Thallium – all detections were well below the CP-51 SSCO cap of 10,000 ppm
Vanadium – all detections were less than the CP-51 SSCO for Residential site use
Zinc – all detections were well below the Part 375 SCO for Residential site use

Discussion of Exceedances

The detected arsenic concentration of 75 ppm in the soil sample collected at soil probe location P-3 exceeded the arsenic SCOs for all site uses included in Part 375. However, this lab result appears to be an outlier since each of the arsenic concentrations in the other nine soil samples were less than the Part 375 SCO for Residential site use of 16 ppm.

The detected concentrations of aluminum exceeded the CP-51 SSCO cap of 10,000 ppm in nine of the ten soil samples, but all results were well below the eastern USA background value.

The detected concentrations of calcium exceeded the CP-51 SSCO cap of 10,000 ppm in five of ten samples, but the average calcium concentration was well within the range of eastern USA background.

The detected concentrations of iron exceeded the CP-51 SSCO for Residential site use in all ten soil samples, but all iron concentrations were well within the range of eastern USA background values.

Empire does not consider any of the results or concentrations of arsenic, aluminum, calcium or iron to represent any significant environmental impairment.

3.3.6.2 Laboratory Results for Water Samples

Three surface water samples were collected and analyzed at the laboratory for the parameters listed earlier in Section III. Surface water samples SW-2 and SW-3 were collected from the swale that is located adjacent to the north end of the disposal area and sample SW-1 was collected from the wetland area located just northwest of the area. The laboratory results for the three surface water samples were compared to the standards presented in NYSDEC Part 703: Surface Water and Groundwater Quality Standards and Groundwater Effluent Limitations, Table 1 – Water Quality Standards Surface Waters and Groundwater. The laboratory results for VOCs, SVOCs, cyanide, and PCBs are discussed in the report text, while the metals results are summarized in Table 5 in Empire's Report.

VOCs

The VOC acetone was detected in surface water sample SW-2 at an estimated concentration of 1.0 ppb, below the principal organic contaminant standard for groundwater of 5 ppb. No other TAL VOCs were detected in any of the three groundwater samples above the laboratory method detection limit.

SVOCs

No TAL SVOCs were detected in any of the three groundwater samples above the laboratory method detection limit.

Cyanide
Cyanide was detected in surface water samples SW-1 and SW-2 at concentrations of 0.001 ppm and 0.002 ppm, respectively. Both of these detections were well below the Part 703 standard of 0.2 ppm.

PCBs
No PCBs were detected in any of the three groundwater samples above the laboratory method detection limit.

Metals
Most of the individual TAL metals were detected in each of the three surface water samples, as indicated in Table 5. The detected concentrations of iron, manganese, and zinc exceeded the respective Part 703 standards in all three samples, with the detected aluminum concentrations exceeding the standard in samples SW-1 and SW-2 and the lead concentration exceeding the standard in sample SW-1.

The laboratory data for the ten soil samples also indicated detected concentrations of iron, manganese, aluminum, and lead as discussed in Section III-A. Therefore the detected concentrations of these metals in the surface water samples may be due to soil particles suspended in the water rather than these metals being dissolved in the water, with the surface water flow simply serving to transport the soil particles from one location to another. Therefore Empire does not consider these metals concentrations in the surface water samples to represent significant environmental impairment.

3.3.7 Conclusions

As seen on Figure 3, the limits of the disposal area defined using physical evidence from the perimeter test pits are very similar to the limits of the disturbed area seen in the 1958 aerial photograph. Laboratory data for soil and water samples collected for this latest environmental investigation, as well as laboratory data for soil and water samples obtained for three previous environmental studies in this vicinity; do not indicate significant environmental impairment associated with the historic disposal area.

3.4 Depth to Bedrock

Bedrock geology within the project area consists of the Angola Shale Member and bedrock depths by soil type are as follows:

Canadice Silt Loam (0-3% slope) – more than 80 inches
CoA - Churchville Silt Loam (0-3% slope) – more than 80 inches
HrA - Hornell Silt Loam (0-3% slope) – 20 to 40 inches to paralithic bedrock
HrB - Hornell Silt Loam (3-8% slope) – 20 to 40 inches to paralithic bedrock
Pc - Patchin Silt Loam (0-3% slope) – 20 to 40 inches to paralithic bedrock
RgA - Rhinebeck Silt Loam (0-3% slope) – more than 80 inches
Fu – Fluaquents and Udifluvents, frequently flooded – more than 80 inches
Dp - Dumps

Bedrock was not exposed anywhere within the project area.

3.5 Preliminary Drainage Report

The storm water drainage system has been designed to comply with the Town of Hamburg's guidelines. The intent is to design an effective storm water management system for controlling runoff and pollutants from a site during and after construction.

Storm Water runoff will be collected across the project site by means of sheet flow, drainage swales, yard drains, catch basins and storm water pipes. This flow will be conveyed to a detention basin, which is located at the northwest end of the site. The pond is designed to attenuate runoff to a pre-developed rate of discharge for town and state mandated storm events. Refer to the Storm Water Pollution Prevention Plan (SWPPP)/Storm Water Management Report (Exhibit 6) for detailed calculations.

3.6 Traffic Analysis

The project will add a new entrance onto Taylor Road and the resulting traffic from 49 single-family homes, which will be built and phased in over a five to seven year period. There will be an increase in traffic above present conditions but Taylor Road has the capacity to handle the addition traffic from the new subdivision. Based on the Institute for Transportation Engineers (ITE), 8th edition; for a single family detached residential development, vehicular trips are projected as follows:

49 trips in the PM peak hour
37 trips in the AM peak hour

3.7 Visual Analysis

The proposed Willow Woods Subdivision project site consists of undeveloped open space. The site is almost entirely meadow and brush and drains primarily from the east to the west with a portion flowing to the north. There are no existing structures on the property. As a result of the implementation of the project, the visual character of the site will change from agricultural to residential. However, the development of the site for residential purposes is consistent with the zoning and is compatible with existing and proposed land uses nearby.

While the conversion of the site from meadow and brush land to a residential area will have minor long-term impacts to visual resources locally, the current vista is unique or rare either in the project vicinity or on a regional scale.

4.0 POTENTIAL MITIGATION MEASURES TO BE EVALUATED

The mitigation measures that are proposed for the Willow Woods Subdivision are discussed in this section. These measures are designed to address potential impacts that may result from the proposed action. One of the basic requirements of SEQRA is that the agencies ensure that potential adverse environmental impacts are minimized to the greatest extent practicable, or avoided.

4.1 Groundwater Monitoring Wells

Based on the results of the most recent study conducted by Empire and subsoil conditions present in the landfill area, no additional monitoring additional wells are proposed.

A permanent groundwater monitoring well was installed when the LCS Study was done. Barium was detected in the groundwater sample, which is likely due to higher levels of barium naturally occurring in soils in western New York.

It is suggested that a water sample be taken annually from the swale on the north side of the landfill for a period of five years.

4.2 Removal of any dangerous materials

As described in Section 3, based on three separate investigations by: Empire, LCS and NFCS conducted of the project site, no risks to health, safety, or the environment, as a result of the development of the Willow Woods Subdivision, have been identified. There are no dangerous materials to be removed.

The risks that would be associated with the construction and occupation of the project site are not special in any way, and are expected to be comparable to those typically associated with other subdivision developments in the Town of Hamburg or elsewhere in western New York.

4.3 Buffers to Landfill areas

The Project Sponsor is proposing an 825 ft. buffer between the landfill site and any adjoining homes and no development in the vicinity of the dump site. The proposed subdivision will be designed and landscaped in accordance with Town of Hamburg requirements. These measures, as well as the preservation of approximately 70% of the site preserved as open space, will mitigate to the extent practicable potential adverse impacts to visual resources in the project area.

4.4 Drainage Control Structures and "green" drainage solutions

The project includes the construction of a 49-lot residential cluster subdivision. The cluster concept was presented to the Town of Hamburg Planning Board in order to reduce the impact of the development and the overall footprint. Clustering is a green concept as it is a low impact development. A single entry road is proposed that will end in a cul-de-sac along with a small stub road that will also dead end. A number of storm water management practices, including "green" drainage solutions as bio-retention swales, dry swales are proposed that will both attenuate generated runoff and treat it, including two storm water detention basins which will treat runoff generated on site. A storm water detention basin has been designed which receives and treats storm water from offsite which enters the site from the east side. This upstream pond is not a necessity but provides a beneficial improvement for water not generated on this project site.

4.5 Location of new entrance

The Project Sponsor controls about 437± of frontage along Taylor Road. For public safety, the entrance has been strategically designed to maximize sight distance in an easterly direction as it falls in a gentle curve. No special traffic mitigation will be required for the project. A stop sign is recommended at the intersection of Taylor Road and the subdivision entrance road.

4.6 Preservation of important buffers

The proposed cluster design preserves a significant amount of green space and reduces the amount of infrastructure required for the project. The Project Sponsor is proposing an 825 ft. buffer between the landfill site and any adjoining homes and no development in the vicinity of the dump site. The proposed subdivision will be designed and landscaped in accordance with Town of Hamburg requirements. These measures, as well as the preservation of approximately 70% of the site preserved as open space, will mitigate to the extent practicable potential adverse impacts to visual resources in the project area.

5.0 ALTERNATIVES

5.1 Groundwater monitoring wells

Based on the results of three separate studies done by three separate consultants, no additional monitoring wells recommended in the dumpsite area. As an alternative to groundwater monitoring wells, it is recommended that a water sample be taken from the swale located on the north side of the landfill to determine if any contaminants and levels exit the site.

Removal of any dangerous materials

As seen on Figure 3, the limits of the disposal area defined using physical evidence from the perimeter test pits are very similar to the limits of the disturbed area seen in the 1958 aerial photograph. Laboratory data for soil and water samples collected for this latest environmental investigation, as well as laboratory data for soil and water samples obtained for three previous environmental studies in this vicinity; do not indicate significant environmental impairment associated with the historic disposal area. Based on the analysis performed, there are no dangerous materials to remove.

5.2 Buffers to landfill areas (adding of protective features around "landfill" area)

The Project Sponsor is proposing an 825 ft. buffer between the landfill site and any adjoining homes and no development in the vicinity of the dump site. Also, no additional disturbance is proposed in the landfill area.

5.3 Drainage control structures and "green" drainage solutions

The project includes the construction of a 49-lot residential cluster subdivision. The cluster concept was presented to the Town of Hamburg Planning Board in order to reduce the impact of the development and the overall footprint. A single entry road is proposed that will end in a cul-de-sac along with a small stub road that will also dead end. A number of storm water management practices, including "green" drainage solutions as bio-retention are proposed that will both attenuate generated runoff and treat it. Also included are dry swales.

5.4 Location of new entrance

The Project Sponsor controls about 437± of frontage along Taylor Road. The road entrance to the subdivision has been strategically designed to enter the existing highway to maximize sight distance in an easterly direction for public safety.

5.5 Preservation of important buffers (green space areas) and changes in layout of site

In an effort to minimize impacts to and preserve important buffers, for the proposed Willow Woods Subdivision alternative plans were considered for the proposed Willow Woods Subdivision whereby the proposed plan was selected.

5.5.1 Alternatives to the Proposed Action

Willow Woods Subdivision is proposed as a Cluster Development and is an allowable option permitted within the existing Residential Agricultural District (RA). The Project Sponsor owns the site and proposes to develop it in accordance with the specified zoning. As a result of these factors, no alternative sites were considered viable options to the current proposal.

Certain of these options were considered by the Yoviene's as part of the process whereby the proposed site design was selected. The alternatives considered were:

- No action option; and
- As-of-Right plan

5.5.2 No Action

The "no action" option would involve leaving the site in its current condition with no action taken by the project sponsor to develop the site. While there would be no environmental impacts resulting from this alternative, it would not be consistent with either the project sponsor's objectives of using the land for productive purposes, or with the zoning approved by the Town for the area, which envisioned residential use of the site. This alternative also would render useless the significant monetary and human resource expenditures previously committed to the project by the project sponsor, the Town of Hamburg, and others during project design and review.

5.5.3 As-of-Right Plan

The "As-of-Right" plan option (See Figure 4) would involve constructing 49 new residences on the site. This option would use all available space on the site for construction of new homes while remaining in compliance with current zoning regulations. The only open space would be the preservation of existing state and federal wetlands. A minimal amount of property would be dedicated to open space.

This option would result in greater environmental impacts, as there would be more than double the amount of infrastructure: sanitary sewers, drainage piping, waterlines and public roadways to be owned and maintained by the Town of Hamburg. Due to these factors, the "As-of Right" plan was abandoned in favor of the currently proposed preferred alternative.

5.5.4 Alternative Designs

As rezoning of the parcel was not contemplated, the only alternatives evaluated were the current RA Residential proposal and the build out of the site under the Cluster scenario.

Alternative designs would involve developing the site for uses other than single-family residential dwellings. Such uses could include other types of housing (e.g., multi-family residences, apartments/townhouses). However, these designs would not be consistent with the current RA zoning of the site, or with other land uses in the project vicinity (primarily single-family homes). As a result, this was not considered a viable option.

EXHIBIT 1

ENVIRONMENTAL REPORT FOR THE HISTORIC DISPOSAL AREA
JANUARY 17, 2013

By: Empire Geo Services, Inc.

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MEMBER
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January 17, 2013
Empire Project Number BEV-12-040

The Five Yoviene's, LLC
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Attention: Mr. Jim Yoviene

Reference: Environmental Report for the Historic Disposal Area
Proposed Willow Woods Subdivision
6636 Taylor Road
Hamburg, New York

Dear Jim:

Empire-Geo Services, Inc. (Empire) is pleased to present this Environmental Report for the historic disposal area located near the south-central portion of the site. A site location map is attached as Figure 1.

I. BACKGROUND

The 146-acre site is planned for development as a residential subdivision. Historic aerial photographs and information from neighbors indicated that a disposal area for local municipal garbage was located near the south-central portion of the site during the late 1950s and early 1960s. The attached aerial photograph from 1958 shows the disposal area.

Previous environmental studies of the property were completed in 1994 (one study) and in 2012 (two studies). Results of these studies are summarized below.

1994

In their 1994 report, NFCS named the disturbed area a "dump area" and concluded, "the dump was historically used for municipal solid waste disposal for the years 1951-66 as evidenced in aerial photographs." NFCS collected two soil samples and two surface water samples in this area and had them analyzed at a laboratory for leachable concentrations of volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), and

metals, as well as corrosivity, reactivity, and ignitability. All laboratory results were at or below the method detection limits except for the metal barium which was within regulatory limits.

April, 2012

Lender Consulting Services, Inc. (LCS) completed a limited and focused soil and groundwater investigation at the site, as summarized in their report of April 26, 2012. The LCS investigation included five soil borings with a groundwater monitoring well installed at one of the five locations. The five test borings were generally located to the north of the disposal area, along the north edge of the wooded area. Drilling refusal was encountered at depths of 3.8 feet to 6.8 feet at four of the five boring locations, apparently indicating relatively shallow depth to bedrock. Drilling refusal was obtained at a depth of 12 feet at boring location BH1.

Five soil samples (one from each of the five test borings) and one groundwater sample were analyzed for Target Compound List (TCL) VOCs, TCL SVOCs, Target Analyte List (TAL) Metals, Cyanide, polychlorinated biphenyls (PCBs), Pesticides, and Herbicides. Concentrations of detected analytes in the soil samples were all below 6 NYCRR Part 375 soil cleanup objectives (SCOs) for Unrestricted and/or Residential site use with the exception of barium, which was detected at a concentration of 420 parts per million (ppm) in test boring BH2, as compared to the Residential SCO of 350 ppm. Concentrations of detected analytes in the groundwater sample were all less than the NYSDEC Class GA Groundwater Criteria with the exception of barium at a concentration of 1.8 ppm as compared to the limit of 1.0 ppm. Elevated concentrations of naturally occurring barium in soil, bedrock, and groundwater are well-documented in western New York State.

July, 2012

Empire completed nine test pit excavations on July 25, 2012 in the vicinity of the abandoned cars since they were the only current evidence of disposal at that time, as summarized in our report of August 3, 2012. Native soils were encountered in each of the nine test pit excavations, with no evidence of buried waste. Shale fragments were encountered at several test pit locations at depths of 1.2 to 3.2 feet, indicating a shallow depth to bedrock. Fill materials encountered in test pit TP-1 (located between the two abandoned cars) and test pit TP-3 (located approximately 50 feet southwest of the cars) contained minor traces of man-made materials including cinders and/or slag. Based on visual observations, the man-made components comprised less than 1% of the fill material.

Soil from test pit TP-1 was submitted for laboratory analysis and the results were compared to the New York State Department of Environmental Conservation (NYSDEC) Soil Cleanup Objectives (SCOs) for Unrestricted and Residential site use presented in the 6 New York Code, Rules and Regulations (6NYCRR) Part 375 Environmental Remediation Programs, effective December 2006, and indicated the following:

- Cyanide, PCBs, and Target Compound List (TCL) Semi-Volatile Organic Compounds (SVOCs) were not detected;
- Volatile Organic Compounds – Acetone was detected at a concentration of 63.6 parts per billion (ppb), well below the NYSDEC SCO for Unrestricted site use of 100,000 ppb. Acetone is a common laboratory reagent and this detection may represent laboratory contamination.
- Metals – Several metals were detected in the soil sample. With the exceptions of lead and zinc, the concentrations of the detected metals were below their respective SCOs for Unrestricted site use.

Lead was detected at a concentration of 410 ppm, exceeding the Unrestricted SCO of 63 ppm and very slightly above the Residential SCO of 400 ppm.

Zinc was detected at a concentration of 172 ppm, exceeding the Unrestricted SCO of 109 ppm but well-below the Residential SCO of 2,200 ppm.

II. ENVIRONMENTAL WORK SCOPE

Since none of the three previous site investigations included sampling locations in the disturbed area, additional field work was completed between August 27 and December 28, 2012 to obtain information within its limits:

August 27, 2012	Test pits were excavated to investigate the presence of garbage fill and to obtain initial information regarding physical characteristics of the disposal area. Submitted two soil/garbage samples for laboratory analysis.
November 27, 2012	Approximate limits of the disposal area were staked in the field based on surface features.
December 19, 2012	Excavated several test pits to define the lateral limits of the disposal area, as indicated on Figure 3.
December 27-28, 2012	Collected subsurface soil/garbage samples using soil probes at eight additional locations within the disposal area for laboratory analysis.
December 28, 2012	Collected three surface water samples near the north edge of the disposal area for laboratory analysis.

Additional details of these field efforts and a discussion of the lab data are presented below.

A. Initial Exploration in the Disposal Area – August 27, 2012

Since the abandoned cars are located near the northeast corner of the disturbed area seen in the 1958 aerial photograph, the purpose of Empire's subsurface investigation completed on August 27, 2012 was to look for evidence of subsurface garbage disposal near the central portion of the disturbed area.

The geographic center of the disturbed area was marked with a stake placed by a survey crew from Nussbaumer & Clarke (N&C), consultants to Mr. James Yoviene. The five test pits completed on August 27, 2012 were designated

TP-North
TP-South
TP-East
TP-West
TP-Center

TP-Center was located at the center point of the disturbed area established in the field by the N&C survey crew and the others were located 100 feet from that point in each of the four compass directions.

The five test pits were excavated by Building Solutions, a contractor for Mr. James Yoviene. At each location, the Empire geologist visually classified the excavated soils and prepared individual test pit field logs indicating the test pit location, types and depths of subsurface materials, and other pertinent observations and information.

The test pits were excavated to depths of approximately six to eight feet. In general, the subsurface conditions encountered at the test pit locations consisted of fill materials comprising reworked (excavated and replaced) native clayey silts with varying amounts of sands and gravel. Beneath the soil fill, garbage fill was encountered that contained glass bottles, newspaper, tin cans, plastic, metal, and wood. The depth to the top of the garbage fill was 3.3-5.0 feet and the thickness of the garbage fill was approximately 2.0-2.9 feet. Beneath the fill, light grey weathered shale or shale bedrock was encountered. Test pit logs are attached.

Comparing the ground surface topography with subsurface conditions in the five test pits, it appears that garbage was placed in approximately 15-18 elongate trenches with a north-south orientation. The trench locations can be seen as slight, shallow depressions on the ground surface. The test pit excavations were generally situated perpendicular to a disposal trench and therefore the lateral trench limits were seen at some of the test pit locations.

The composition of the garbage fill and the overlying soil fill was very similar at each of the five test pit locations.

Soil samples were collected of the garbage fill material from test pits TP-East and TP-West for laboratory analysis. These locations were selected to look for variations, if any, in the composition of the garbage fill over time. The laboratory report is attached and the results are discussed later in this report.

B. Estimate Limits of Disposal Area Using Surface Features – November 27, 2012

An Empire engineering geologist visited the disposal area on November 27, 2012 and placed stakes to mark the approximate limits of the disposal area. The stake locations were based on ground surface features associated with the multiple shallow trenches comprising the disposal area.

C. Define Lateral Limits of the Disposal Area with Test Pits – December 19, 2012

Several test pits were excavated by Building Solutions, a contractor for Mr. James Yoviene, on December 19, 2012 under the direction of an Empire engineering geologist. Test pit excavations were oriented perpendicular to the axis of the disposal trench and the geologist placed a stake marking the outer limit of the buried garbage as observed in the subsurface. At the corners of the disposal area, two test pits were excavated in perpendicular directions to each other so that the outward extent of the garbage could be identified in two directions, thereby defining a corner. A total of 15 test pits were excavated in this manner to define the lateral limits of the disposal area. Two additional test pits were excavated in localized ground surface depressions outside the disposal area on its east and west sides to verify that no garbage was present in the subsurface.

The staked locations indicating the limits of the disposal area were surveyed by Nussbaumer & Clarke, Inc. (N&C) on January 9, 2013. N&C used the survey data to map the limits of the disposal area, as shown on Figure 3. The east, west, and south sides of the area generally are straight lines forming three sides of a rectangle, while the north side is somewhat irregular, with each disposal trench terminating just south of the swale. As such, five test pits were excavated between the northeast and northwest corners to define the area's north side. As seen on Figure 3, the limits of the disposal area defined using physical evidence from the perimeter test pits are very similar to the limits of the disturbed area seen in the 1958 aerial photograph.

D. Collect Additional Subsurface Soil/Garbage Samples – December 27-28, 2012

Empire mobilized a track-mounted Geoprobe direct-push soil sampling unit to the site and completed eight soil probes on December 27 & 28, 2012 within the disposal area, in addition to the five test pits completed on August 27, 2012. At each location, continuous samples of soil and/or garbage were collected from ground surface to sampler refusal in weathered shale or shale bedrock. Subsurface soil/garbage samples were collected at each of the eight locations for laboratory testing. All locations were surveyed by N&C and are indicated on Figure 3.

An Empire engineering geologist logged the direct push soil probes in the field and screened recovered soil, garbage, and shale in the field for the presence of volatile organic compounds (VOCs) using a photoionization detector (PID). At each location, the geologist used the recovered subsurface samples to measure the thickness of the cover soil, the thickness of the garbage, and the thickness and depth of the underlying weathered shale or shale bedrock. The eight subsurface sampling locations were labeled as P-1 through P-8 and are indicated on Figure 3.

The subsurface conditions encountered at the eight soil probe locations were very similar to those encountered in the five test pits excavated on August 27, 2012, as discussed in Section II-A above. Reworked native clayey silt / silty clay soils approximately three to six feet thick were encountered above the garbage layer, which was approximately one to two feet thick. Beneath the garbage, native silty clay soils or weathered shale was encountered.

One soil sample from each of the eight soil probes was submitted for laboratory analysis as discussed in Section III below.

E. Groundwater

Subsurface conditions encountered at each of the eight soil probe locations included approximately 1.4 feet to 5.5 feet of native weathered shale or native silty clay and weathered shale beneath the garbage fill layer. The moisture content of these native materials was classified as moist or dry-moist in each case to the bottom depth of the soil probe, and groundwater was not encountered. Therefore groundwater samples could not be collected.

F. Collect Surface Water Samples – December 28, 2012

Empire collected three surface water samples at the site on December 28, 2012. Two of the three samples were collected from water in the swale located adjacent to the north side of the disposal area (SW-2 and SW-3) and the third (SW-1) was collected in the wetland area located just northwest of the disposal area and just downstream of the swale. The three

surface water sampling locations are indicated on Figure 3. The three surface water samples were submitted for laboratory analysis as discussed in Section III below.

III. LABORATORY ANALYSIS OF SOIL AND WATER SAMPLES

As indicated in Section II above, selected soil and water samples were submitted for the following laboratory analyses:

- Target Compound List (TCL) volatile organic compounds (VOCs)
- TCL Semi-volatile organic compounds (SVOCs)
- Target Analyte List (TAL) Metals
- Cyanide
- Polychlorinated biphenyls (PCBs)

All samples for laboratory analysis were placed into pre-cleaned laboratory containers, labeled with the date, time and location of the project and placed in an iced cooler at approximately 4-degrees Celsius for transport to a New York State Department of Health (NYSDOH) certified analytical testing laboratory. Chain-of-custody documentation accompanied the samples.

Laboratory reports are attached and the results are discussed below.

A. Laboratory Results for Soil Samples

Ten subsurface samples of soil/garbage collected from test pit locations TP-East and TP-West and from soil probe locations P-1 through P-8 were submitted for laboratory testing for the parameters listed in the previous section. The soil/garbage material was selected to address the "worst case" scenario regarding potential contaminant concentrations.

In the following laboratory data summary, lab results that were non-detect (not detected above the test method detection limit), that were less than the respective NYSDEC 6NYCRR Part 375 Soil Cleanup Objective (SCO) for Unrestricted site use, or that were less than the NYSDEC CP-51 Supplemental Soil Cleanup Objective (SSCO), as appropriate for the individual analyte, are discussed within the report text. Lab results that exceeded the respective Part 375 SCO for Unrestricted site use or the CP-51 SSCO for Residential site use are presented in a table that presents the detected concentration, the SCO for Unrestricted site use, and the SCO for Residential site use.

VOCs

Most of the lab results for individual VOCs were non-detect in the ten soil samples. Except for acetone as discussed below, a few VOCs were detected in some of the soil samples at very low concentrations, well-below the respective Part 375 SCOs for Unrestricted site use.

Acetone was detected at a concentration of 242 parts per billion (ppb) in the soil sample from test pit TP-East, exceeding the Part 375 SCO of Unrestricted site use of 50 ppb, but well-below the SCO for Residential site use of 100,000 ppb (100 parts per million (ppm)). The lab report indicates a "B" flag associated with this result, which means that acetone was also detected in the method blank, indicating that the detection in the soil sample was due, at least in part, to lab contamination.

Acetone was detected at concentrations exceeding the SCO for Unrestricted site use in soil samples collected from three of the soil probe locations as summarized in Table 1. All three detected concentrations were well below the SCO for Residential site use.

Table 1

VOC	Test Pit TP-East 4.0'- 6.7' (ppb)	Soil Probe P-1 4.2'- 5.0' (ppb)	Soil Probe P-7 3.7'- 4.9' (ppb)	Soil Probe P-8 4.2'- 5.0' (ppb	Part 375 SCO- Unrestricted Site Use (ppb)	Part 375 SCO- Residential Site Use (ppb)
Acetone	242 B	130	110	65	50	100,000

SVOCs

Almost all of the lab results for individual SVOCs were non-detect in the ten soil samples. Except for 1,4-Dichlorobenzene as discussed below, a few SVOCs were detected in some of the soil samples at very low concentrations, well-below the respective Part 375 SCO for Unrestricted site use or well-below the CP-51 SSCOs for Residential site use.

The compound 1,4-Dichlorobenzene was detected at a concentration exceeding the Part 375 SCO for Unrestricted site use in the soil sample collected from soil probe location P-8 as summarized in Table 2. The detected concentration was well-below the SCO for Residential site use.

Table 1

SVOC	Soil Probe P-8 4.2'- 5.0' (ppb)	Part 375 SCO- Unrestricted Site Use (ppb)	Part 375 SCO- Residential Site Use (ppb)
1,4-Dichlorobenzene	1,900	1,800	9,800

Cyanide

Cyanide was detected in just one of the ten soil samples. The detected cyanide concentration in the soil sample from test pit TP-East was 0.60 ppm, well-below the Part 375 SCO of 27 ppm for Unrestricted site use.

PCBs

PCBs were not detected in the soil samples collected from test pits TP-East or TP-West or from soil probe locations P-2 and P-4. A few individual PCBs were detected in the soil samples collected from soil probes P-3, P-5, P-7, and P-8 at concentrations well-below the Part 375 SCO for Unrestricted site use. The total PCB concentrations detected in the soil samples collected from soil probe locations P-1 and P-6 exceeded the Part 375 SCO for Unrestricted site use, but were well-below the Part 375 SCO for Residential site use, as summarized in Table 3.

Table 3

PCBs	Soil Probe P-1 4.2'- 5.0' (ppb)	Soil Probe P-6 3.9'- 5.1' (ppb)	Part 375 SCO- Unrestricted Site Use (ppb)	Part 375 SCO- Residential Site Use (ppb)
Total PCBs	328	107.5	100	1,000

Metals

Most of the TAL metals were detected in each of the ten soil samples. This is typical because native soils and bedrock naturally contain measurable concentrations of many metals. Most of the detected metals concentrations in the ten soil samples were less than the respective Part 375 SCOs for Unrestricted site use or the CP-51 SSCOs for Residential site use (CP-51 does not include SSCOs for Unrestricted site use). Although NYSDEC CP-51 does not provide SSCOs for Residential site use for aluminum, antimony, calcium, or thallium, this policy caps the SSCOs for all metals at 10,000 ppm. The metals magnesium, potassium, and sodium are not addressed in this report because they are not included in Part 375 or CP-51.

The metals data for the soil samples are presented in Table 4 and the results are summarized below. Lab reports are attached.

Aluminum – nine of ten results exceeded the CP-51 SSCO cap of 10,000 ppm, but all results were well below the eastern USA background value
Antimony – all detections were well below the CP-51 SSCO for residential site use
Arsenic – nine of ten detections were less than the Part 375 SCO for Residential site use; concentration at soil probe P-3 exceeded this SCO
Barium – all detections were less than the Part 375 SCO for Unrestricted site use
Beryllium – all detections were well below the Part 375 SCO for Unrestricted site use
Cadmium – all detections were less than the Part 375 SCO for Unrestricted site use
Calcium – detections exceeded the CP-51 SSCO cap of 10,000 ppm in five of ten samples; average concentration was within the range of eastern USA background; concentration at soil probe P-6 exceeded eastern USA background
Chromium – detections were all less than the Part 375 SCO for Restricted Residential site use
Cobalt – all detections were less than the CP-51 SSCO for Residential site use
Copper – all detections were less than the Part 375 SCO for Residential site use
Iron – all detections exceeded the CP-51 SSCO for Residential site use, but were well within the range for eastern USA background values
Lead – all detections were less than the Part 375 SCO for Residential site use
Manganese – all detections were equal to or less than the Part 375 SCO for Unrestricted site use
Mercury – all detections were less than the Part 375 SCO for Residential site use
Nickel – all detections were less than the Part 375 SCO for Residential site use
Selenium – all detections were less than the Part 375 SCO for Unrestricted site use
Silver - all detections were less than the Part 375 SCO for Unrestricted site use
Thallium – all detections were well below the CP-51 SSCO cap of 10,000 ppm
Vanadium – all detections were less than the CP-51 SSCO for Residential site use
Zinc – all detections were well below the Part 375 SCO for Residential site use

Discussion of Exceedances

The detected arsenic concentration of 75 ppm in the soil sample collected at soil probe location P-3 exceeded the arsenic SCOs for all site uses included in Part 375. However this lab result appears to be an outlier since each of the arsenic concentrations in the other nine soil samples were less than the Part 375 SCO for Residential site use of 16 ppm. Therefore Empire does not consider this result to represent significant environmental impairment.

The detected concentrations of aluminum exceeded the CP-51 SSCO cap of 10,000 ppm in nine of the ten soil samples, but all results were well below the eastern USA background value. Therefore Empire does not consider the aluminum concentrations to represent environmental impairment.

The detected concentrations of calcium exceeded the CP-51 SSCO cap of 10,000 ppm in five of ten samples, but the average calcium concentration was well within the range of eastern USA background. Therefore Empire does not consider the calcium concentrations to represent environmental impairment.

The detected concentrations of iron exceeded the CP-51 SSCO for Residential site use in all ten soil samples, but all iron concentrations were well within the range of eastern USA background values. Therefore Empire does not consider the iron concentrations to represent environmental impairment.

Table 4
(All concentrations in ppm)

Metal	TP-East	TP-West	P-1	P-2	P-3	P-4	P-5	P-6	P-7	P-8	Eastern USA Background from TAGM 4046***	Part 375 SCO for Unrestricted Site Use	Part 375 SCO for Residential Site use or CP-51 SSCO*
Aluminum	**18,000**	**13,800**	**16,000**	**16,000**	**21,000**	**17,000**	**12,000**	10,000	**15,000**	**16,000**	33,000	NS	10,000
Antimony	ND	ND	10	3.2	8.3	3.4	4.5	32	10	8.0	NA	NS	10,000
Arsenic	9.35	13.0	13	7.1	**75**	14	10	13	9.1	9.8	3-12	13	16
Barium	131	141	140	100	170	110	97	150	220	180	15-600	350	350
Beryllium	0.836	ND	0.63	0.63	0.73	0.85	0.46	0.40	0.63	0.62	0-1.75	7.2	14
Cadmium	0.947	1.37	ND	0.34	ND	ND	1.0	ND	ND	0.78	0.1-1	2.5	2.5
Calcium	2,590	2,840	3,700	**12,000**	4,800	3,200	**30,000**	**50,000**	**12,000**	**12,000**	130-35,000	NS	10,000
Chromium	24.4	29.2	40	21	42	22	24	45	38	38	1.5-40	30	36 (180)**
Cobalt	11.7	16.2	21	13	26	16	15	29	18	18	2.5-60	NS	30
Copper	59.6	101	120	50	72	65	68	140	82	150	1-50	50	270
Iron	**32,600**	**49,800**	**94,000**	**31,000**	**88,000**	**34,000**	**47,000**	**88,000**	**110,000**	**68,000**	2,000-550,000	NS	2,000
Lead	180	110	120	20	95	31	30	130	160	76	4-61	63	400
Manganese	183	520	550	500	610	270	480	920	1,600	700	50-5,000	1,600	2,000
Mercury	0.0855	0.2063	0.27	ND	0.34	0.02	0.03	0.47	0.47	0.37	0.001-0.2	0.18	0.81
Nickel	40.5	51.6	76	41	52	54	54	52	50	72	0.5-25	30	140
Selenium	ND	ND	1.4	0.78	1.4	1.2	0.92	0.48	2.2	0.66	0.1-3.9	3.9	36
Silver	ND	ND	0.38	ND	1.2	ND	ND	0.61	0.54	0.29	NA	2	36
Thallium	ND	ND	2.8	1.0	2.7	1.2	2.2	3.3	4.5	3.2	NA	NS	10,000
Vanadium	35.1	30.5	23	19	25	25	17	17	26	20	1-300	NS	100
Zinc	312	390	200	150	250	130	180	470	530	190	9-50	109	2,200

* CP-51 SSCOs for all metals were capped at 10,000 ppm

** The Part 375 SCO for Restricted Residential site use is 180 ppm

*** Eastern USA Background concentrations taken from NYSDEC Technical and Administrative Guidance Memorandum (TAGM) #4046, January 1994

ND = not detected above the laboratory method detection limit

NS = SCO not specified for this metal in Part 375

Underlined concentrations exceeded the respective Part 375 SCO for Unrestricted site use or the CP-51 SSCO for Residential site use

Concentrations in **bold** font exceeded the CP-51 SCO for Residential site use

B. Laboratory Results for Water Samples

Three surface water samples were collected and analyzed at the laboratory for the parameters listed earlier in Section III. Surface water samples SW-2 and SW-3 were collected from the swale that is located adjacent to the north end of the disposal area and sample SW-1 was collected from the wetland area located just northwest of the area.

The laboratory results for the three surface water samples were compared to the standards presented in NYSDEC Part 703: Surface Water and Groundwater Quality Standards and Groundwater Effluent Limitations, Table 1 – Water Quality Standards Surface Waters and Groundwater. The laboratory results for VOCs, SVOCs, cyanide, and PCBs are discussed in the report text, while the metals results are summarized in Table 5.

VOCs

The VOC acetone was detected in surface water sample SW-2 at an estimated concentration of 1.0 ppb, below the principal organic contaminant standard for groundwater of 5 ppb. No other TAL VOCs were detected in any of the three groundwater samples above the laboratory method detection limit.

SVOCs

No TAL SVOCs were detected in any of the three groundwater samples above the laboratory method detection limit.

Cyanide

Cyanide was detected in surface water samples SW-1 and SW-2 at concentrations of 0.001 ppm and 0.002 ppm, respectively. Both of these detections were well below the Part 703 standard of 0.2 ppm.

PCBs

No PCBs were detected in any of the three groundwater samples above the laboratory method detection limit.

Metals

Most of the individual TAL metals were detected in each of the three surface water samples, as indicated in Table 5. The detected concentrations of iron, manganese, and zinc exceeded the respective Part 703 standards in all three samples, with the detected aluminum concentrations exceeding the standard in samples SW-1 and SW-2 and the lead concentration exceeding the standard in sample SW-1.

The laboratory data for the ten soil samples also indicated detected concentrations of iron, manganese, aluminum, and lead as discussed in Section III-A. Therefore the detected concentrations of these metals in the surface water samples may be due to soil particles suspended in the water rather than these metals being dissolved in the water, with the surface water flow simply serving to transport the soil particles from one location to another. Therefore Empire does not consider these metals concentrations in the surface water samples to represent significant environmental impairment.

Table 5

Metal	SW-1 (ppb)	SW-2 (ppb)	SW-3 (ppb)	NYSDEC Part 703 Standards (ppb)
Aluminum	5,260	772	79	100
Antimony	0.7	ND	0.7	3
Arsenic	3.1	1.7	ND	25
Barium	380	152.4	110	1,000
Beryllium	0.8	ND	ND	11
Cadmium	2.1	1.0	1.2	5
Calcium	122,000	120,000	98,000	NS
Chromium	5.9	ND	ND	50
Cobalt	7.3	4.8	2.3	5
Copper	24.5	15.1	8.6	200
Iron	17,800	18,500	2,780	300
Lead	60.1	5.6	2.0	25
Manganese	1,206	939	335.8	300
Mercury	0.2	ND	ND	0.7
Nickel	9.6	3.4	2.9	100
Selenium	ND	ND	ND	10
Silver	ND	ND	ND	50
Thallium	0.5	0.2	ND	8
Vanadium	11.5	0.6	ND	14
Zinc	112.8	120.2	106.6	95

NS = standard not specified
Underlined results exceeded the NYSDEC Part 703 standard

IV. CONCLUSIONS

As seen on Figure 3, the limits of the disposal area defined using physical evidence from the perimeter test pits are very similar to the limits of the disturbed area seen in the 1958 aerial photograph.

Laboratory data for soil and water samples collected for this latest environmental investigation, as well as laboratory data for soil and water samples obtained for three previous environmental studies in this vicinity, do not indicate significant environmental impairment associated with the historic disposal area.

V. CLOSING

This environmental study and report have been prepared for specific application to the referenced project site in accordance with generally accepted environmental practices. No other warranties, expressed or implied, are made.

Respectfully Submitted,
EMPIRE GEO SERVICES, INC.

David R. Steiner
Senior Engineering Geologist
Environmental Services Manager

Attachments:

Figure 1 – Site Location Map

Figure 2 – 1958 Aerial Photograph

Figure 3 – Survey Map of Historic Disposal Area and Soil & Water Sampling Points

Test Pit Logs for August 27, 2012 Investigation

Soil Probe Logs for December 27-28, 2012 Investigation

Laboratory Reports

Google

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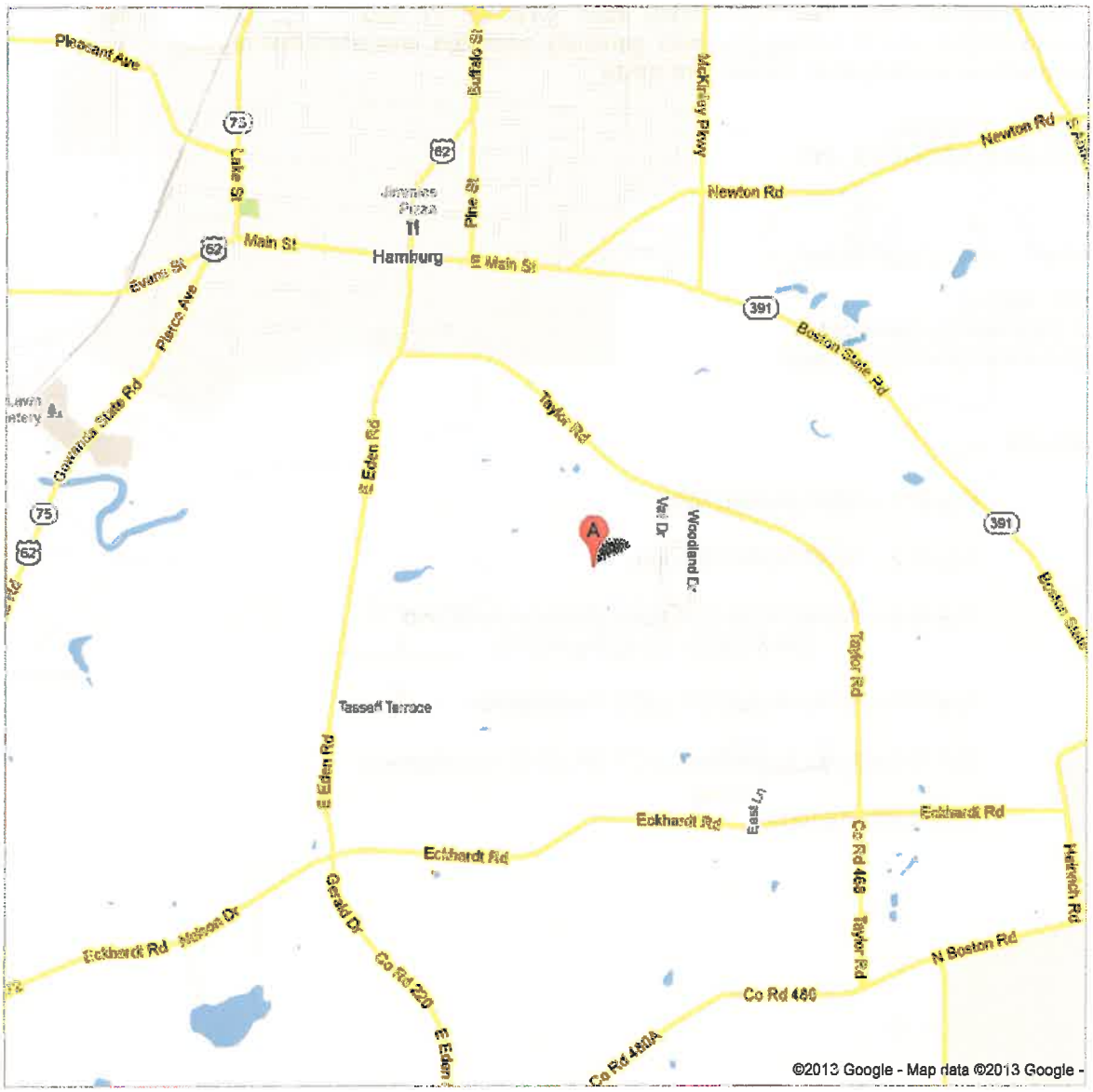

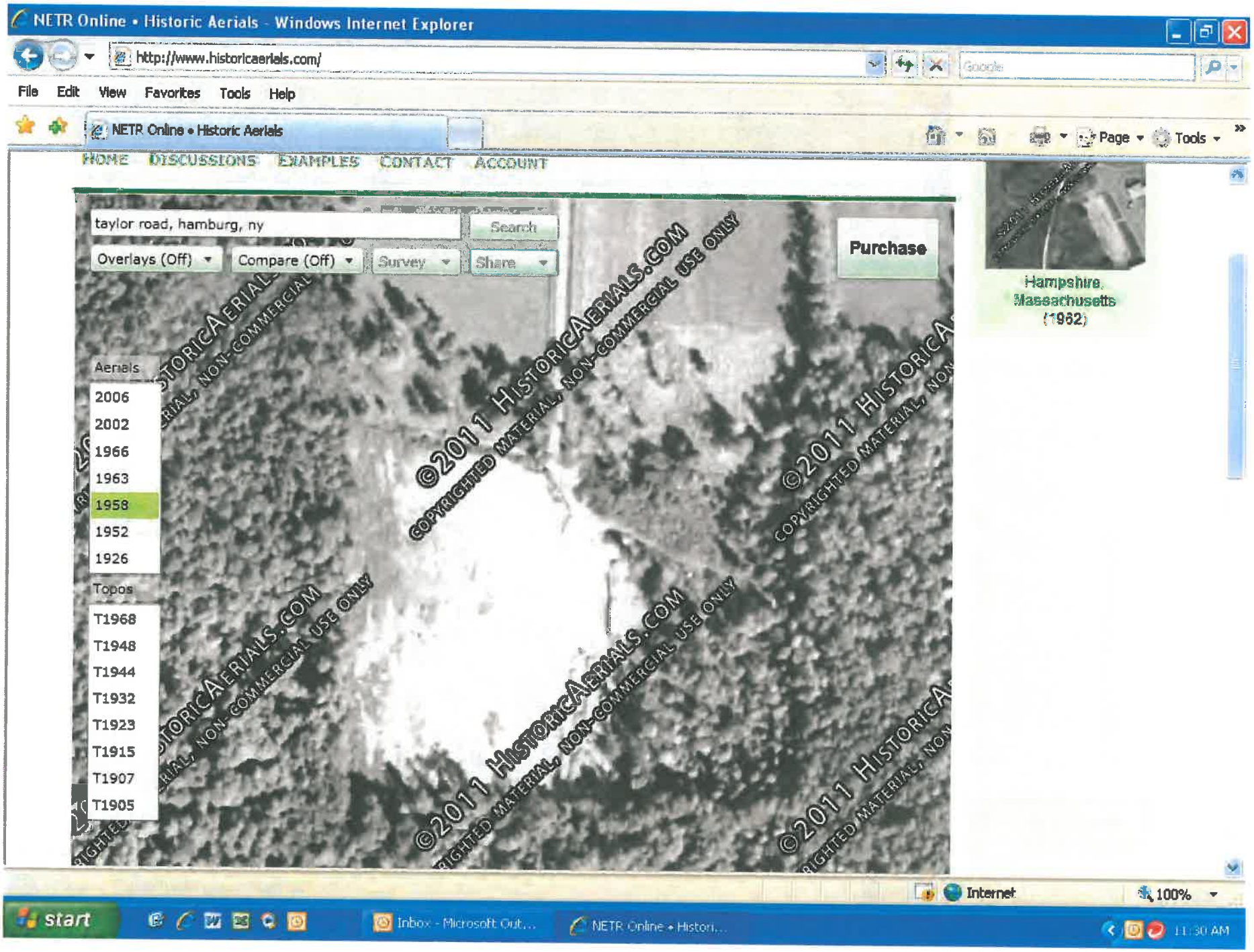
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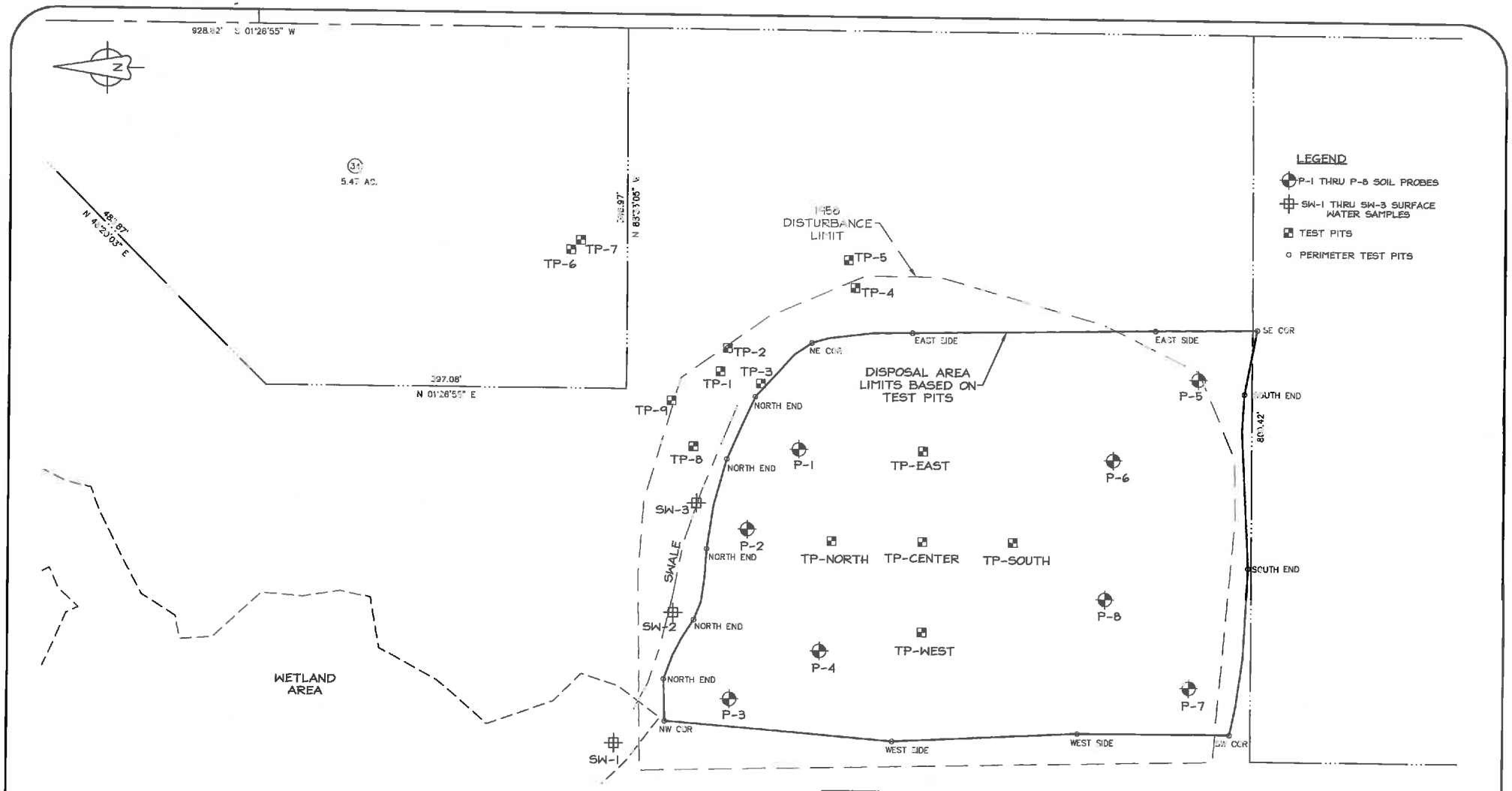

PART OF LOT(S) : 49	SECTION :	TOWNSHIP : 9	RANGE : 7
LOCATION : TOWN OF HAMBURG	COUNTY OF ERIE	STATE OF NEW YORK	SCALE: 1" = 100'

KIND	DATE	REQUESTED BY	JOB NO.
EXHIBIT MAP	01-09-15	THE FIVE YOVIENE'S, LLC	10J5-0032

Nussbaumer & Clarke, Inc.
Engineers and Surveyors
3556 Lake Shore Road
Buffalo, New York 14219-1494
(716) 827-6000

Unauthorized alterations or additions to any survey, drawing, design, specification, plan or report is a violation of section 7209, provision 2 of the New York State Education Law.

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Successors to the records of Graf Land Surveyors
Successors to the records of James L. Shisler, Land Surveyor

SJB SERVICES, INC.

Western New York Office
5167 South Park Avenue
Hamburg, NY 14075
Phone: (716) 649-8110
Fax: (716) 649-8051

TEST PIT FIELD LOG

PROJECT	Environmental Investigation	DATE	8/27/2012
CLIENT	Willow Woods / Jim Yoviene	LOCATION	6636 Taylor Road, Hamburg
CONTRACTOR	Building Solutions	TEST PIT NO.	TP-CENTER
FIELD REP	D. R. Steiner	PROJECT NO.	BEV-12-040
		WEATHER / TEMP	Overcast, 70's, Occasional Rain
EXCAVATION EQUIP	Rubber Track Excavator	OPERATOR	Jeff Jahn
GROUND ELEV		MAKE/ MODEL	KOMATSU 160
TIME STARTED	2:55	CAPACITY	0.5 CY
TIME FINISHED	3:20	REACH	12 FT

DEPTH	SOIL DESCRIPTION	EXCAV EFFORT	REMARK NO.
1'	Brown Clayey SILT, little f-c Sand, little gravel size SHALE fragments, tr.cobbles (moist, FILL)	E	
2'			
3'			
3.4' / 4'	Becomes Dark Grey and Red-Brown, contains glass bottles, tin cans, newspaper, wood, metal (garbage)		
5'			
6'			
6.3' / 7'	Light Grey SHALE Bedrock	↓	
8'		D	
9'	TEST PIT TERMINATED AT 7.4'		
10	Free standing water recorded at 7.1'		
11'			
12'			
13'			
14'			

Remarks:
Depth to Shale = 6.3' - 7.4'
Test Pit oriented Perp to "trench"

ABREVIATIONS		PROP USED	
F - FINE	F/M - FINE TO MEDIUM	TRACE (TR.)	0-10%
C - COARSE	F/C-FINE/COARSE	LITTLE (LI.)	10 - 20%
GR - GRAY	M - MEDIUM	SOME (SO.)	20 -35%
BN - BROWN	V-VERY	AND	35 - 50%
YEL-YELLOW			

SJB SERVICES, INC.

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Hamburg, NY 14075
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TEST PIT FIELD LOG

PROJECT	Environmental Investigation	DATE	8/27/2012
CLIENT	Willow Woods / Jim Yoviene	LOCATION	6636 Taylor Road, Hamburg
CONTRACTOR	Building Solutions	TEST PIT NO.	TP-NORTH
FIELD REP	D. R. Steiner	PROJECT NO.	BEV-12-040
		WEATHER / TEMP	Overcast, 70's, Occasional Rain
EXCAVATION EQUIP	Rubber Track Excavator	OPERATOR	Jeff Jahn
GROUND ELEV		MAKE/ MODEL	KOMATSU 160
TIME STARTED	10:45	CAPACITY	0.5 CY
TIME FINISHED	11:50	REACH	12 FT

DEPTH	SOIL DESCRIPTION	EXCAV EFFORT	REMARK NO.
1'	Brown Clayey SILT, little f-c Sand, little gravel size Shale fragments, tr.cobbles (moist, FILL)	E	
2'			
3'			
4'			
5'			
6'	Becomes Dark Grey and Red-Brown, contains glass bottles, plastic, metal, wood (garbage)		
7'			
8'	Light Grey SHALE Bedrock	D	
9'	TEST PIT TERMINATED AT 8.0' No free standing water encountered		
10			
11'			
12'			
13'			
14'			

Remarks:

Depth to Shale = 6.5' - 7.5'

Took Soil Sample 5' - 7' in garbage interval

Test Pit oriented Perp to "trench"

ABREVIATIONS	
F - FINE	F/M - FINE TO MEDIUM
C - COARSE	F/C-FINE/COARSE
GR - GRAY	M - MEDIUM
BN - BROWN	V-VERY
YEL-YELLOW	

PROP USED	
TRACE (TR.)	0-10%
LITTLE (LI.)	10 - 20%
SOME (SO.)	20 -35%
AND	35 - 50%

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TEST PIT FIELD LOG

PROJECT	Environmental Investigation	DATE	8/27/2012
CLIENT	Willow Woods / Jim Yoviene	LOCATION	6636 Taylor Road, Hamburg
CONTRACTOR	Building Solutions	TEST PIT NO.	TP-SOUTH
FIELD REP	D. R. Steiner	PROJECT NO.	BEV-12-040
		WEATHER / TEMP	Overcast, 70's, Occasional Rain
EXCAVATION EQUIP	Rubber Track Excavator	OPERATOR	Jeff Jahn
GROUND ELEV		MAKE/ MODEL	KOMATSU 160
TIME STARTED	12:50	CAPACITY	0.5 CY
TIME FINISHED	1:40	REACH	12 FT

DEPTH	SOIL DESCRIPTION	EXCAV EFFORT	REMARK NO.
1'	Brown Clayey SILT, little f-m Sand, little gravel size SHALE fragments, tr.cobbles	E	
2'			
3'			
4'			
5'			
6'	Becomes Dark Grey and Red-Brown, contains glass bottles, plastic, metal, wood (garbage)		
7'	Light Grey SHALE Bedrock	D	
8'			
9'	TEST PIT TERMINATED AT 7.3' No free standing water encountered		
10			
11'			
12'			
13'			
14'			

Remarks:

Depth to Shale = 5.5' - 7.5'

Garbage at 5.0' - 7.0'

Test Pit oriented Perp to "trench"

ABREVIATIONS		PROP USED	
F - FINE	F/M - FINE TO MEDIUM	TRACE (TR.)	0-10%
C - COARSE	F/C-FINE/COARSE	LITTLE (LI.)	10 - 20%
GR - GRAY	M - MEDIUM	SOME (SO.)	20 -35%
BN - BROWN	V-VERY	AND	35 - 50%
YEL-YELLOW			

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TEST PIT FIELD LOG

PROJECT	Environmental Investigation	DATE	8/27/2012
CLIENT	Willow Woods / Jim Yoviene	LOCATION	6636 Taylor Road, Hamburg
CONTRACTOR	Building Solutions	TEST PIT NO.	TP-EAST
FIELD REP	D. R. Steiner	PROJECT NO.	BEV-12-040
		WEATHER / TEMP	Overcast, 70's, Occasional Rain
EXCAVATION EQUIP	Rubber Track Excavator	OPERATOR	Jeff Jahn
GROUND ELEV		MAKE/ MODEL	KOMATSU 160
TIME STARTED	1:45	CAPACITY	0.5 CY
TIME FINISHED	2:15	REACH	12 FT

DEPTH	SOIL DESCRIPTION	EXCAV EFFORT	REMARK NO.
1'	Brown Clayey SILT, little f-c Sand, little gravel size SHALE fragments, tr.cobbles (moist, FILL)	E	
2'			
3'			
4'			
5'	Becomes Dark Grey, contains glass bottles, tin cans, newspaper, plastic, metal, wire (garbage)		
6'			
6.6'	Light Grey SHALE Bedrock	D	
7'	TEST PIT TERMINATED AT 6.9'		
8'	No free standing water encountered		
9'			
10			
11'			
12'			
13'			
14'			

Remarks:
Newspaper: July 11, 2057
Test Pit oriented Perp to "trench"

ABREVIATIONS		PROP USED	
F - FINE	F/M - FINE TO MEDIUM	TRACE (TR.)	0-10%
C - COARSE	F/C-FINE/COARSE	LITTLE (LI.)	10 - 20%
GR - GRAY	M - MEDIUM	SOME (SO.)	20 -35%
BN - BROWN	V-VERY	AND	35 - 50%
YEL-YELLOW			

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TEST PIT FIELD LOG

PROJECT	Environmental Investigation	DATE	8/27/2012
CLIENT	Willow Woods / Jim Yoviene	LOCATION	6636 Taylor Road, Hamburg
CONTRACTOR	Building Solutions	TEST PIT NO.	TP-WEST
FIELD REP	D. R. Steiner	PROJECT NO.	BEV-12-040
		WEATHER / TEMP	Overcast, 70's, Occasional Rain
EXCAVATION EQUIP	Rubber Track Excavator	OPERATOR	Jeff Jahn
GROUND ELEV		MAKE/ MODEL	KOMATSU 160
TIME STARTED	2:20	CAPACITY	0.5 CY
TIME FINISHED	2:50	REACH	12 FT

DEPTH	SOIL DESCRIPTION	EXCAV EFFORT	REMARK NO.
1'	Brown Clayey SILT, little f-c Sand, little gravel size SHALE fragments, tr.cobbles	E	
2'			
3'			
3.3' / 4'	Becomes Red-Brown, contains glass bottles, glove, rubber gasket, newspaper, metal, wood (garbage)		
5'			
5.8' / 6'	Light Grey SHALE Bedrock	D	
7'	TEST PIT TERMINATED AT 6.0' No free standing water encountered		
8'			
9'			
10			
11'			
12'			
13'			
14'			

Remarks:
Garbage thins to east
Test Pit oriented Perp to "trench"

ABREVIATIONS		PROP USED	
F - FINE	F/M - FINE TO MEDIUM	TRACE (TR.)	0-10%
C - COARSE	F/C-FINE/COARSE	LITTLE (LI.)	10 - 20%
GR - GRAY	M - MEDIUM	SOME (SO.)	20 -35%
BN - BROWN	V-VERY	AND	35 - 50%
YEL-YELLOW			

DATE:
STARTED 12/27/2012
FINISHED 12/27/2012
SHEET 1 OF 1

SJB SERVICES, INC.
DIRECT PUSH LOG

HOLE NO. P-1
SURF. ELEV
G.W. DEPTH See Notes

PROJECT: SUBSURFACE SOIL SAMPLING
PROJ. NO.: BEV-12-040
LOCATION: 6636 TAYLOR ROAD
HAMBURG, NEW YORK

DEPTH FT.	PID READING	SOIL OR ROCK CLASSIFICATION	NOTES
1	BG	Brown Silty CLAY, some Weathered Shale fragments, little Fine Sand (moist, CL-FILL)	PID = Photoionization Detector readings in parts per million (ppm)
2	BG		BG = Background PID reading
3			
4	BG		
5	BG	4.2' Brown and Black GARBAGE (moist-wet, FILL)	
6	BG	5.0' Grey Weathered SHALE (dry-moist)	
7	BG		
8		Probe Complete with Sampler Refusal at 7.0'	No free standing water encountered at probe completion.
9			
10			Lab sample taken 4.5' - 5.0' at 1150
11			
12			
13			
14			
15			
16			

DRILLER: R. STEINER
DRILL RIG TYPE: GEOPROBE 6620DT
CLASSIFIED BY: D. STEINER
METHOD OF INVESTIGATION: ASTM 6282 - DIRECT PUSH SAMPLING

DATE:
STARTED 12/27/2012
FINISHED 12/27/2012
SHEET 1 OF 1

SJB SERVICES, INC.
DIRECT PUSH LOG

HOLE NO. P-2
SURF. ELEV
G.W. DEPTH See Notes

PROJECT: SUBSURFACE SOIL SAMPLING
PROJ. NO.: BEV-12-040
LOCATION: 6636 TAYLOR ROAD
HAMBURG, NEW YORK

DEPTH FT.	PID READING	SOIL OR ROCK CLASSIFICATION	NOTES
1	BG	Brown Silty CLAY, little Weathered Shale fragments, little f-m Sand (moist, CL-FILL)	PID = Photoionization Detector readings in parts per million (ppm)
2	BG		BG = Background PID reading
3			
4	BG		
5	BG		
6	BG		
7	BG	6.4' Brown-Black GARBAGE (wet, FILL)	
		7.7' Grey Weathered SHALE (dry-moist)	
8		Probe Complete with Sampler Refusal at 7.9'	No free standing water encountered at probe completion.
9			
10			Lab sample taken 6.4' - 7.7' at 1230
11			
12			
13			
14			
15			
16			

DRILLER: R. STEINER DRILL RIG TYPE: GEOPROBE 6620DT CLASSIFIED BY: D. STEINER

METHOD OF INVESTIGATION: ASTM 6282 - DIRECT PUSH SAMPLING

DATE:
STARTED 12/27/2012
FINISHED 12/27/2012
SHEET 1 OF 1

SJB SERVICES, INC.
DIRECT PUSH LOG

HOLE NO. P-3
SURF. ELEV
G.W. DEPTH See Notes

PROJECT: SUBSURFACE SOIL SAMPLING
PROJ. NO.: BEV-12-040
LOCATION: 6636 TAYLOR ROAD
HAMBURG, NEW YORK

DEPTH FT.	PID READING	SOIL OR ROCK CLASSIFICATION	NOTES
1	BG	Brown Silty CLAY, little Weathered Shale fragments, little f-m Sand (moist, CL-FILL)	PID = Photoionization Detector readings in parts per million (ppm)
2	BG		BG = Background PID reading
3			
4	BG	3.6' Brown GARBAGE (wet, FILL)	
5	BG	4.8' Grey Weathered SHALE (dry-moist)	
6		Probe Complete with Sampler Refusal at 5.0'	No free standing water encountered at probe completion.
7			
8			Lab sample taken 3.6' - 4.8' at 1300
9			
10			
11			
12			
13			
14			
15			
16			

DRILLER: R. STEINER
DRILL RIG TYPE: GEOPROBE 6620DT
CLASSIFIED BY: D. STEINER
METHOD OF INVESTIGATION: ASTM 6282 - DIRECT PUSH SAMPLING

DATE:
STARTED 12/27/2012
FINISHED 12/27/2012
SHEET 1 OF 1

SJB SERVICES, INC.
DIRECT PUSH LOG

HOLE NO. P-4
SURF. ELEV
G.W. DEPTH See Notes

PROJECT: SUBSURFACE SOIL SAMPLING
PROJ. NO.: BEV-12-040
LOCATION: 6636 TAYLOR ROAD
HAMBURG, NEW YORK

DEPTH FT.	PID READING	SOIL OR ROCK CLASSIFICATION	NOTES
1	BG	Brown Silty CLAY, some Weathered Shale fragments, little f-m Sand, tr.gravel (moist, CL-FILL)	PID = Photoionization Detector readings in parts per million (ppm)
2	BG		BG = Background PID reading
3	BG		
4		3.8' Brown GARBAGE and Soil (wet, FILL)	
5	BG		
6	BG	5.1' Grey Weathered SHALE (dry-moist)	
7	BG		
8		Probe Complete with Sampler Refusal at 6.5'	No free standing water encountered at probe completion.
9			
10			Lab sample taken 3.8' - 5.1' at 1330
11			
12			
13			
14			
15			
16			

DRILLER: R. STEINER
DRILL RIG TYPE: GEOPROBE 6620DT
CLASSIFIED BY: D. STEINER

METHOD OF INVESTIGATION: ASTM 6282 - DIRECT PUSH SAMPLING

DATE:
STARTED 12/27/2012
FINISHED 12/27/2012
SHEET 1 OF 1

SJB SERVICES, INC.
DIRECT PUSH LOG

HOLE NO. P-5
SURF. ELEV
G.W. DEPTH See Notes

PROJECT: SUBSURFACE SOIL SAMPLING
PROJ. NO.: BEV-12-040
LOCATION: 6636 TAYLOR ROAD
HAMBURG, NEW YORK

DEPTH FT.	PID READING	SOIL OR ROCK CLASSIFICATION	NOTES
1	BG	Brown Silty CLAY, tr.weathered Shale, tr.sand (moist, CL-FILL)	PID = Photoionization Detector readings in parts per million (ppm) BG = Background PID reading
2	BG		
3	BG		
4	BG		
5	BG	4.1' Brown GARBAGE and Soil (wet, FILL)	
6	BG	5.2' Brown Weathered SHALE, little-some Silty Clay, tr.sand (dry-moist)	
7	BG	Becomes Grey	
8	BG		
9		Probe Complete with Sampler Refusal at 8.0'	No free standing water encountered at probe completion.
10			
11			Lab sample taken 4.1' - 5.2' at 1420
12			
13			
14			
15			
16			

DRILLER: R. STEINER DRILL RIG TYPE: GEOPROBE 6620DT CLASSIFIED BY: D. STEINER

METHOD OF INVESTIGATION: ASTM 6282 - DIRECT PUSH SAMPLING

DATE:
STARTED 12/28/2012
FINISHED 12/28/2012
SHEET 1 OF 1

SJB SERVICES, INC.
DIRECT PUSH LOG

HOLE NO. P-6
SURF. ELEV
G.W. DEPTH See Notes

PROJECT: SUBSURFACE SOIL SAMPLING
PROJ. NO.: BEV-12-040
LOCATION: 6636 TAYLOR ROAD
HAMBURG, NEW YORK

DEPTH FT.	PID READING	SOIL OR ROCK CLASSIFICATION	NOTES
1	BG	Brown Silty CLAY, little Weathered Shale fragments, little f-m Sand (moist, CL-FILL)	PID = Photoionization Detector readings in parts per million (ppm)
2	BG		BG = Background PID reading
3	BG		
4		3.9' Brown GARBAGE and Soil (wet, FILL)	
5	BG		
6	BG	5.1' Grey Silty CLAY, some Weathered Shale fragments, little f-c Sand (moist, CL)	
7	BG		
8	BG		
9	BG		
10			
11	BG	10.4' Grey Weathered SHALE, little Silty Clay (dry-moist)	
12		Probe Complete with Sampler Refusal at 10.6'	No free standing water encountered at probe completion.
13			
14			Lab sample taken 3.9' - 5.1' at 1010
15			
16			

DRILLER: R. STEINER DRILL RIG TYPE: GEOPROBE 6620DT CLASSIFIED BY: D. STEINER

METHOD OF INVESTIGATION: ASTM 6282 - DIRECT PUSH SAMPLING

DATE:
STARTED 12/28/2012
FINISHED 12/28/2012
SHEET 1 OF 1

SJB SERVICES, INC.
DIRECT PUSH LOG

HOLE NO. P-7
SURF. ELEV
G.W. DEPTH See Notes

PROJECT: SUBSURFACE SOIL SAMPLING
PROJ. NO.: BEV-12-040
LOCATION: 6636 TAYLOR ROAD
HAMBURG, NEW YORK

DEPTH FT.	PID READING	SOIL OR ROCK CLASSIFICATION	NOTES
1	BG	Brown Silty CLAY and Weathered Shale fragments, little f-c Sand (moist, CL-FILL)	PID = Photoionization Detector readings in parts per million (ppm)
2	BG		BG = Background PID reading
3	BG		
4		3.7' Brown GARBAGE and Soil (wet, FILL)	
5	BG	4.9' Grey Silty CLAY, little Weathered Shale fragments, little f-c Sand (moist, CL)	
6	BG	5.7' Grey Brown Weathered Shale, tr.little Silty Clay (dry-moist)	
7	BG		
8			
9		Probe Complete with Sampler Refusal at 8.0'	No free standing water encountered at probe completion.
10			
11			Lab sample taken 3.7' - 4.9' at 1110
12			
13			
14			
15			
16			

DRILLER: R. STEINER
DRILL RIG TYPE: GEOPROBE 6620DT
CLASSIFIED BY: D. STEINER
METHOD OF INVESTIGATION: ASTM 6282 - DIRECT PUSH SAMPLING

DATE:
STARTED 12/28/2012
FINISHED 12/28/2012
SHEET 1 OF 1

SJB SERVICES, INC.
DIRECT PUSH LOG

HOLE NO. P-8
SURF. ELEV
G.W. DEPTH See Notes

PROJECT: SUBSURFACE SOIL SAMPLING
PROJ. NO.: BEV-12-040
LOCATION: 6636 TAYLOR ROAD
HAMBURG, NEW YORK

DEPTH FT.	PID READING	SOIL OR ROCK CLASSIFICATION	NOTES
1	BG	Brown Silty CLAY, some Weathered Shale fragments, little f-m Sand (moist, CL-FILL)	PID = Photoionization Detector readings in parts per million (ppm)
2	BG		BG = Background PID reading
3		Contains Occasional Weathered Shale seams	
4	BG		
5	BG	4.2' Brown GARBAGE and Soil (wet, FILL)	
6	BG	5.0' Brown-Grey Silty CLAY, some Weathered Shale fragments, tr.sand (moist, CL)	
7	BG	6.0' Light Grey Weathered Shale, tr.little Silty Clay (dry-moist)	
8	BG	Becomes Brown	
9		Probe Complete with Sampler Refusal at 8.0'	No free standing water encountered at probe completion.
10			
11			Lab sample taken 4.2' - 5.0' at 1215
12			
13			
14			
15			
16			

DRILLER: R. STEINER DRILL RIG TYPE: GEOPROBE 6620DT CLASSIFIED BY: D. STEINER

METHOD OF INVESTIGATION: ASTM 6282 - DIRECT PUSH SAMPLING

PARADIGM

PARADIGM
ENVIRONMENTAL SERVICES, INC.

Analytical Report Cover Page

Empire Geo Services, Inc.

For Lab Project # 12:3583
Issued September 6, 2012
This report contains a total of 14 pages

The reported results relate only to the samples as they have been received by the laboratory.

Any noncompliant QC parameters having impact on the data are flagged or documented on the final report or are noted below.

All soil/sludge samples have been reported on a dry weight basis, unless qualified "reported as received". Other solids are reported as received.

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The Chain of Custody provides additional information, including compliance with sample condition requirements upon receipt. Sample condition requirements are defined under the 2003 NELAC Standard, sections 5.5.8.3.1 and 5.5.8.3.2. Aliquots separated for certain tests, such as TCLP, are indicated on the Chain of Custody and final reports with an "A" suffix.

NYSDOH ELAP does not certify for all parameters. Paradigm Environmental Services or the indicated subcontracted laboratory does hold certification for all analytes where certification is offered by ELAP unless otherwise specified.

Data qualifiers are used, when necessary, to provide additional information about the data. This information may be communicated as a flag or as text at the bottom of the report. Please refer to the following list of frequently used data flags and their meaning:

"<" = analyzed for but not detected at or above the reporting limit.
"E" = Result has been estimated, calibration limit exceeded.
"Z" = See case narrative.
"D" = Duplicate results outside QC limits. May indicate a non-homogenous matrix.
"M" = Matrix spike recoveries outside QC limits. Matrix bias indicated.
"B" = Method blank contained trace levels of analyte. Refer to included method blank report.

PARADIGM
ENVIRONMENTAL SERVICES, INC.
179 Lake Avenue Rochester, New York 14608 (585) 647-2530 FAX (585) 647-3311

LABORATORY REPORT FOR TOTAL CYANIDE

Client:	**Empire Geo Services, Inc.**	**Lab Project No.:**	12:3583
Client Job Site:	6636 Taylor Rd.	**Sample Type:**	Soil
Client Job No.:	BEV-12-040	**Date Sampled:**	8/27/2012
		Date Received:	8/29/2012
Method Reference:	EPA 9014	**Date Analyzed:**	9/6/2012

Lab Sample ID	Sample Location/Field ID	TCN (mg/kg)
12:3583-01	TP-East, 4-6.7'	0.60
12:3583-02	TP-West, 3.3-5.8'	<0.50

ELAP ID.No.: 11862

Comments:

Approved By: _____

Bruce Hoogesteger, Technical Director

This report is part of a multipage document and should only be evaluated in its entirety. The Chain of Custody provides additional sample information, including compliance with the sample condition requirements upon receipt

PARADIGM
ENVIRONMENTAL SERVICES, INC.
179 Lake Avenue, Rochester, NY 14608 Office: (585) 647-2530 Fax: (585) 647-3311

LAB REPORT FOR TAL METALS ANALYSIS IN SOLIDS

Client: Empire Geo Services, Inc.
Client Job Site: 6636 Taylor Rd.
Client Job No.: BEV-12-040
Field Location: TP-East, 4-6.7'
Field ID No.: N/A

Lab Project No.: 12:3583
Lab Sample No.: 12:3583-01
Sample Type: Soil
Date Sampled: 08/27/2012
Date Received: 08/29/2012

Parameter	Date Analyzed	Analytical Method	Result (mg/kg)
Aluminum	08/31/2012	SW846 3050/6010	18000
Antimony	08/31/2012	SW846 3050/6010	< 6.96
Arsenic	08/31/2012	SW846 3050/6010	9.35
Barium	08/31/2012	SW846 3050/6010	131
Beryllium	08/31/2012	SW846 3050/6010	0.836
Cadmium	08/31/2012	SW846 3050/6010	0.947
Calcium	08/31/2012	SW846 3050/6010	2590
Chromium	08/31/2012	SW846 3050/6010	24.4
Cobalt	08/31/2012	SW846 3050/6010	11.7
Copper	08/31/2012	SW846 3050/6010	59.6
Iron	08/31/2012	SW846 3050/6010	32600
Lead	08/31/2012	SW846 3050/6010	180
Magnesium	08/31/2012	SW846 3050/6010	4280
Manganese	08/31/2012	SW846 3050/6010	183
Mercury	09/04/2012	SW846 7471	0.0855
Nickel	08/31/2012	SW846 3050/6010	40.5
Potassium	08/31/2012	SW846 3050/6010	1980
Selenium	08/31/2012	SW846 3050/6010	< 1.16
Silver	08/31/2012	SW846 3050/6010	< 1.16
Sodium	08/31/2012	SW846 3050/6010	< 291
Thallium	08/31/2012	SW846 3050/6010	< 2.91
Vanadium	08/31/2012	SW846 3050/6010	35.1
Zinc	08/31/2012	SW846 3050/6010	312

ELAP ID No.:10958

Comments:

Approved By: _____
Bruce Hoogesteger, Technical Director

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File ID:12-3583.xls

PARADIGM
ENVIRONMENTAL SERVICES, INC.
179 Lake Avenue, Rochester, NY 14608 Office: (585) 647-2530 Fax: (585) 647-3311

LAB REPORT FOR TAL METALS ANALYSIS IN SOLIDS

Client: Empire Geo Services, Inc.

Client Job Site: 6636 Taylor Rd.

Client Job No.: BEV-12-040

Field Location: TP-West, 3.3-5.8'
Field ID No.: N/A

Lab Project No.: 12:3583
Lab Sample No.: 12:3583-02

Sample Type: Soil

Date Sampled: 08/27/2012
Date Received: 08/29/2012

Parameter	Date Analyzed	Analytical Method	Result (mg/kg)	
Aluminum	08/31/2012	SW846 3050/6010	13800	
Antimony	08/31/2012	SW846 3050/6010	< 8.77	
Arsenic	08/31/2012	SW846 3050/6010	13.0	
Barium	08/31/2012	SW846 3050/6010	141	
Beryllium	08/31/2012	SW846 3050/6010	< 0.731	
Cadmium	08/31/2012	SW846 3050/6010	1.37	
Calcium	08/31/2012	SW846 3050/6010	2840	
Chromium	08/31/2012	SW846 3050/6010	29.2	
Cobalt	08/31/2012	SW846 3050/6010	16.2	
Copper	08/31/2012	SW846 3050/6010	101	
Iron	08/31/2012	SW846 3050/6010	49800	
Lead	08/31/2012	SW846 3050/6010	110	
Magnesium	08/31/2012	SW846 3050/6010	3960	M
Manganese	08/31/2012	SW846 3050/6010	520	
Mercury	09/04/2012	SW846 7471	0.2063	DM
Nickel	08/31/2012	SW846 3050/6010	51.6	
Potassium	08/31/2012	SW846 3050/6010	1890	
Selenium	08/31/2012	SW846 3050/6010	< 1.46	
Silver	08/31/2012	SW846 3050/6010	< 1.46	
Sodium	08/31/2012	SW846 3050/6010	< 365	
Thallium	08/31/2012	SW846 3050/6010	< 3.65	
Vanadium	08/31/2012	SW846 3050/6010	30.5	
Zinc	08/31/2012	SW846 3050/6010	390	M

ELAP ID No.:10958

Comments:

Approved By: _____
Bruce Hoogesteger, Technical Director

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File ID:12-3583.xls

PARADIGM
ENVIRONMENTAL SERVICES, INC.
179 Lake Avenue Rochester, New York 14608 (585) 647 - 2530 FAX (585) 647 - 3311

PCB Analysis Report for Soils/Solids/Sludges

Client: Empire Geo Services, Inc.

Client Job Site:	6636 Taylor Rd.	**Lab Project Number:**	12:3583
		Lab Sample Number:	12:3583-01
Client Job Number:	BEV-12-040		
Field Location:	TP-EAST, 4-6.7'	**Date Sampled:**	08/27/2012
Field ID Number:	N/A	**Date Received:**	08/29/2012
Sample Type:	Soil	**Date Analyzed:**	08/30/2012

PCB Identification	Results in mg / Kg
Aroclor 1016	< 0.520
Aroclor 1221	< 0.520
Aroclor 1232	< 0.520
Aroclor 1242	< 0.520
Aroclor 1248	< 0.520
Aroclor 1254	< 0.520
Aroclor 1260	< 0.520

ELAP Number 10958

Analytical Method: EPA 8082A
Prep Method: EPA 3550C

Comments: mg / Kg = milligram per Kilogram

Signature: _____

Bruce Hoogesteger: Technical Director

This report is part of a multipage document and should only be evaluated in its entirety. Chain of Custody provides additional information, including compliance with sample condition requirements upon receipt.

PARADIGM
179 Lake Avenue Rochester, New York 14608 (585) 647 - 2530 FAX (585) 647 - 3311

PCB Analysis Report for Soils/Solids/Sludges

Client: Empire Geo Services, Inc.

Client Job Site:	6636 Taylor Rd.	**Lab Project Number:**	12:3583
		Lab Sample Number:	12:3583-02
Client Job Number:	BEV-12-040		
Field Location:	TP-WEST, 3.3-5.8'	**Date Sampled:**	08/27/2012
Field ID Number:	N/A	**Date Received:**	08/29/2012
Sample Type:	Soil	**Date Analyzed:**	08/30/2012

PCB Identification	Results in mg / Kg
Aroclor 1016	< 0.517
Aroclor 1221	< 0.517
Aroclor 1232	< 0.517
Aroclor 1242	< 0.517
Aroclor 1248	< 0.517
Aroclor 1254	< 0.517
Aroclor 1260	< 0.517

ELAP Number 10958

Analytical Method: EPA 8082A
Prep Method: EPA 3550C

Comments: mg / Kg = milligram per Kilogram

Signature: _____

Bruce Hoogesteger: Technical Director

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123583P2.XLS

PARADIGM
179 Lake Avenue Rochester, New York 14608 (585) 647 - 2530 FAX (585) 647 - 3311

Semi-Volatile Analysis Report for Soils/Solids/Sludges

Client: Empire Geo Services, Inc.

Client Job Site:	6636 Taylor Rd.	**Lab Project Number:**	12:3583
		Lab Sample Number:	12:3583-01
Client Job Number:	BEV-12-040		
Field Location:	TP-EAST, 4-6.7'	**Date Sampled:**	08/27/2012
Field ID Number:	N/A	**Date Received:**	08/29/2012
Sample Type:	Soil	**Date Analyzed:**	08/30/2012

Base / Neutrals	Results in ug / Kg	Base / Neutrals	Results in ug / Kg
Acenaphthene	< 388	Dibenz (a,h) anthracene	< 388
Anthracene	< 388	Fluoranthene	< 388
Benzo (a) anthracene	< 388	Fluorene	< 388
Benzo (a) pyrene	< 388	Indeno (1,2,3-cd) pyrene	< 388
Benzo (b) fluoranthene	< 388	Naphthalene	< 388
Benzo (g,h,i) perylene	< 388	Phenanthrene	< 388
Benzo (k) fluoranthene	< 388	Pyrene	< 388
Chrysene	< 388	Acenaphthylene	< 388
Diethyl phthalate	< 388	1,2-Dichlorobenzene	< 388
Dimethyl phthalate	< 969	1,3-Dichlorobenzene	< 388
Butylbenzylphthalate	< 388	1,4-Dichlorobenzene	< 388
Di-n-butyl phthalate	< 388	1,2,4-Trichlorobenzene	< 388
Di-n-octylphthalate	< 388	Nitrobenzene	< 388
Bis (2-ethylhexyl) phthalate	< 388	2,4-Dinitrotoluene	< 388
2-Chloronaphthalene	< 388	2,6-Dinitrotoluene	< 388
Hexachlorobenzene	< 388	Bis (2-chloroethyl) ether	< 388
Hexachloroethane	< 388	Bis (2-chloroisopropyl) ether	< 388
Hexachlorocyclopentadiene	< 388	Bis (2-chloroethoxy) methane	< 388
Hexachlorobutadiene	< 388	4-Bromophenyl phenyl ether	< 388
N-Nitroso-di-n-propylamine	< 388	4-Chlorophenyl phenyl ether	< 388
N-Nitrosodiphenylamine	< 388	Benzidine	< 969
N-Nitrosodimethylamine	< 388	3,3'-Dichlorobenzidine	< 388
Isophorone	< 388	4-Chloroaniline	< 388
Benzyl alcohol	< 969	2-Nitroaniline	< 969
Dibenzofuran	< 388	3-Nitroaniline	< 969
2-Methylnapthalene	< 388	4-Nitroaniline	< 969

Acids	Results in ug / Kg	Acids	Results in ug / Kg
Phenol	< 388	2-Methylphenol	< 388
2-Chlorophenol	< 388	3&4-Methylphenol	< 388
2,4-Dichlorophenol	< 388	2,4-Dimethylphenol	< 388
2,6-Dichlorophenol	< 388	2-Nitrophenol	< 388
2,4,5-Trichlorophenol	< 969	4-Nitrophenol	< 969
2,4,6-Trichlorophenol	< 388	2,4-Dinitrophenol	< 969
Pentachlorophenol	< 969	4,6-Dinitro-2-methylphenol	< 969
4-Chloro-3-methylphenol	< 388	Benzoic acid	< 969

ELAP Number 10958 | Analytical Method: EPA 8270C | Data File: S65034.D

Prep Method: EPA 3550C

Comments: ug / Kg = microgram per Kilogram

Signature:

Bruce Hoogesteger: Technical Director

This report is part of a multipage document and should only be evaluated in its entirety. Chain of Custody provides additional information, including compliance with sample condition requirements upon receipt.

PARADIGM
179 Lake Avenue Rochester, New York 14608 (585) 647 - 2530 FAX (585) 647 - 3311

Semi-Volatile Analysis Report for Soils/Solids/Sludges

Client: Empire Geo Services, Inc.

Client Job Site:	6636 Taylor Rd.	**Lab Project Number:**	12:3583
		Lab Sample Number:	12:3583-02
Client Job Number:	BEV-12-040		
Field Location:	TP-WEST, 3.3-5.8'	**Date Sampled:**	08/27/2012
Field ID Number:	N/A	**Date Received:**	08/29/2012
Sample Type:	Soil	**Date Analyzed:**	08/30/2012

Base / Neutrals	Results in ug / Kg	Base / Neutrals	Results in ug / Kg
Acenaphthene	< 373	Dibenz (a,h) anthracene	< 373
Anthracene	< 373	Fluoranthene	< 373
Benzo (a) anthracene	< 373	Fluorene	< 373
Benzo (a) pyrene	< 373	Indeno (1,2,3-cd) pyrene	< 373
Benzo (b) fluoranthene	< 373	Naphthalene	< 373
Benzo (g,h,i) perylene	< 373	Phenanthrene	< 373
Benzo (k) fluoranthene	< 373	Pyrene	< 373
Chrysene	< 373	Acenaphthylene	< 373
Diethyl phthalate	< 373	1,2-Dichlorobenzene	< 373
Dimethyl phthalate	< 931	1,3-Dichlorobenzene	< 373
Butylbenzylphthalate	< 373	1,4-Dichlorobenzene	< 373
Di-n-butyl phthalate	< 373	1,2,4-Trichlorobenzene	< 373
Di-n-octylphthalate	< 373	Nitrobenzene	< 373
Bis (2-ethylhexyl) phthalate	< 373	2,4-Dinitrotoluene	< 373
2-Chloronaphthalene	< 373	2,6-Dinitrotoluene	< 373
Hexachlorobenzene	< 373	Bis (2-chloroethyl) ether	< 373
Hexachloroethane	< 373	Bis (2-chloroisopropyl) ether	< 373
Hexachlorocyclopentadiene	< 373	Bis (2-chloroethoxy) methane	< 373
Hexachlorobutadiene	< 373	4-Bromophenyl phenyl ether	< 373
N-Nitroso-di-n-propylamine	< 373	4-Chlorophenyl phenyl ether	< 373
N-Nitrosodiphenylamine	< 373	Benzidine	< 931
N-Nitrosodimethylamine	< 373	3,3'-Dichlorobenzidine	< 373
Isophorone	< 373	4-Chloroaniline	< 373
Benzyl alcohol	< 931	2-Nitroaniline	< 931
Dibenzofuran	< 373	3-Nitroaniline	< 931
2-Methylnapthalene	< 373	4-Nitroaniline	< 931

Acids	Results in ug / Kg	Acids	Results in ug / Kg
Phenol	< 373	2-Methylphenol	< 373
2-Chlorophenol	< 373	3&4-Methylphenol	< 373
2,4-Dichlorophenol	< 373	2,4-Dimethylphenol	< 373
2,6-Dichlorophenol	< 373	2-Nitrophenol	< 373
2,4,5-Trichlorophenol	< 931	4-Nitrophenol	< 931
2,4,6-Trichlorophenol	< 373	2,4-Dinitrophenol	< 931
Pentachlorophenol	< 931	4,6-Dinitro-2-methylphenol	< 931
4-Chloro-3-methylphenol	< 373	Benzoic acid	< 931

ELAP Number 10958 | Analytical Method: EPA 8270C | Data File: S65035.D

Prep Method: EPA 3550C

Comments: ug / Kg = microgram per Kilogram

Signature: _____

Bruce Hoogesteger: Technical Director

This report is part of a multipage document and should only be evaluated in its entirety. Chain of Custody provides additional information, including compliance with sample condition requirements upon receipt.

PARADIGM
179 Lake Avenue Rochester, New York 14608 (585) 647 - 2530 FAX (585) 647 - 3311

Volatile Analysis Report for Soils/Solids/Sludges

Client: Empire Geo Services, Inc.

Client Job Site:	6636 Taylor Rd.	**Lab Project Number:**	12:3583
		Lab Sample Number:	12:3583-01
Client Job Number:	BEV-12-040		
Field Location:	TP-EAST, 4-6.7'	**Date Sampled:**	08/27/2012
Field ID Number:	N/A	**Date Received:**	08/29/2012
Sample Type:	Soil	**Date Analyzed:**	08/30/2012

Halocarbons	Results in ug / Kg
Bromodichloromethane	< 12.0
Bromomethane	< 12.0
Bromoform	< 29.9
Carbon Tetrachloride	< 12.0
Chloroethane	< 12.0
Chloromethane	< 12.0
2-Chloroethyl vinyl Ether	< 59.8
Chloroform	< 12.0
Dibromochloromethane	< 12.0
1,1-Dichloroethane	< 12.0
1,2-Dichloroethane	< 12.0
1,1-Dichloroethene	< 12.0
cis-1,2-Dichloroethene	< 12.0
trans-1,2-Dichloroethene	< 12.0
1,2-Dichloropropane	< 12.0
cis-1,3-Dichloropropene	< 12.0
trans-1,3-Dichloropropene	< 12.0
Methylene chloride	< 29.9
1,1,2,2-Tetrachloroethane	< 12.0
Tetrachloroethene	< 12.0
1,1,1-Trichloroethane	< 12.0
1,1,2-Trichloroethane	< 12.0
Trichloroethene	< 12.0
Trichlorofluoromethane	< 12.0
Vinyl chloride	< 12.0

Aromatics	Results in ug / Kg
Benzene	< 12.0
Chlorobenzene	< 12.0
Ethylbenzene	< 12.0
Toluene	< 12.0
m,p-Xylene	< 12.0
o-Xylene	< 12.0
Styrene	< 29.9
1,2-Dichlorobenzene	< 12.0
1,3-Dichlorobenzene	< 12.0
1,4-Dichlorobenzene	15.0

Ketones	Results in ug / Kg
Acetone	B 242
2-Butanone	70.6
2-Hexanone	< 29.9
4-Methyl-2-pentanone	< 29.9

Miscellaneous	Results in ug / Kg
Carbon disulfide	< 12.0
Vinyl acetate	< 29.9

ELAP Number 10958 Analytical Method: EPA 8260B Data File: X00030.D

Prep Method: EPA 5035A

Comments: ug / Kg = microgram per Kilogram

Signature: _____

Bruce Hoogesteger: Technical Director

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PARADIGM
179 Lake Avenue Rochester, New York 14608 (585) 647 - 2530 FAX (585) 647 - 3311

Volatile Analysis Report for Soils/Solids/Sludges

Client: Empire Geo Services, Inc.

Client Job Site:	6636 Taylor Rd.	**Lab Project Number:**	12:3583
		Lab Sample Number:	12:3583-02
Client Job Number:	BEV-12-040		
Field Location:	TP-WEST, 3.3-5.8'	**Date Sampled:**	08/27/2012
Field ID Number:	N/A	**Date Received:**	08/29/2012
Sample Type:	Soil	**Date Analyzed:**	08/30/2012

Halocarbons	Results in ug / Kg
Bromodichloromethane	< 10.3
Bromomethane	< 10.3
Bromoform	< 25.9
Carbon Tetrachloride	< 10.3
Chloroethane	< 10.3
Chloromethane	< 10.3
2-Chloroethyl vinyl Ether	< 51.7
Chloroform	< 10.3
Dibromochloromethane	< 10.3
1,1-Dichloroethane	< 10.3
1,2-Dichloroethane	< 10.3
1,1-Dichloroethene	< 10.3
cis-1,2-Dichloroethene	< 10.3
trans-1,2-Dichloroethene	< 10.3
1,2-Dichloropropane	< 10.3
cis-1,3-Dichloropropene	< 10.3
trans-1,3-Dichloropropene	< 10.3
Methylene chloride	< 25.9
1,1,2,2-Tetrachloroethane	< 10.3
Tetrachloroethene	< 10.3
1,1,1-Trichloroethane	< 10.3
1,1,2-Trichloroethane	< 10.3
Trichloroethene	< 10.3
Trichlorofluoromethane	< 10.3
Vinyl chloride	< 10.3

Aromatics	Results in ug / Kg
Benzene	< 10.3
Chlorobenzene	< 10.3
Ethylbenzene	< 10.3
Toluene	< 10.3
m,p-Xylene	< 10.3
o-Xylene	< 10.3
Styrene	< 25.9
1,2-Dichlorobenzene	< 10.3
1,3-Dichlorobenzene	< 10.3
1,4-Dichlorobenzene	< 10.3

Ketones	Results in ug / Kg
Acetone	< 51.7
2-Butanone	< 51.7
2-Hexanone	< 25.9
4-Methyl-2-pentanone	< 25.9

Miscellaneous	Results in ug / Kg
Carbon disulfide	< 10.3
Vinyl acetate	< 25.9

ELAP Number 10958 Analytical Method: EPA 8260B Data File: X00017.D

Prep Method: EPA 5035A

Comments: ug / Kg = microgram per Kilogram

Surrogate outliers indicate probable matrix interference

Signature: _____

Bruce Hoogesteger: Technical Director

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PARADIGM
ENVIRONMENTAL SERVICES, INC.
179 Lake Avenue Rochester, New York 14608 (585) 647 - 2530 FAX (585) 647 - 3311

Volatile Analysis Report for Soils/Solids/Sludges

Client: Empire Geo Services, Inc.

Client Job Site: 6636 Taylor Rd.
Client Job Number: BEV-12-040
Field Location: N/A
Field ID Number: N/A
Sample Type: Soil

Lab Project Number: 12:3583
Lab Sample Number: Blk 08/30

Date Sampled: N/A
Date Received: N/A
Date Analyzed: 08/30/2012

Halocarbons	Results in ug / Kg
Bromodichloromethane	< 10.0
Bromomethane	< 10.0
Bromoform	< 25.0
Carbon Tetrachloride	< 10.0
Chloroethane	< 10.0
Chloromethane	< 10.0
2-Chloroethyl vinyl Ether	< 50.0
Chloroform	< 10.0
Dibromochloromethane	< 10.0
1,1-Dichloroethane	< 10.0
1,2-Dichloroethane	< 10.0
1,1-Dichloroethene	< 10.0
cis-1,2-Dichloroethene	< 10.0
trans-1,2-Dichloroethene	< 10.0
1,2-Dichloropropane	< 10.0
cis-1,3-Dichloropropene	< 10.0
trans-1,3-Dichloropropene	< 10.0
Methylene chloride	< 25.0
1,1,2,2-Tetrachloroethane	< 10.0
Tetrachloroethene	< 10.0
1,1,1-Trichloroethane	< 10.0
1,1,2-Trichloroethane	< 10.0
Trichloroethene	< 10.0
Trichlorofluoromethane	< 10.0
Vinyl chloride	< 10.0

Aromatics	Results in ug / Kg
Benzene	< 10.0
Chlorobenzene	< 10.0
Ethylbenzene	< 10.0
Toluene	< 10.0
m,p-Xylene	< 10.0
o-Xylene	< 10.0
Styrene	< 25.0
1,2-Dichlorobenzene	< 10.0
1,3-Dichlorobenzene	< 10.0
1,4-Dichlorobenzene	< 10.0

Ketones	Results in ug / Kg
Acetone	80.6
2-Butanone	< 50.0
2-Hexanone	< 25.0
4-Methyl-2-pentanone	< 25.0

Miscellaneous	Results in ug / Kg
Carbon disulfide	< 10.0
Vinyl acetate	< 25.0

ELAP Number 10958 Analytical Method: EPA 8260B Data File: X00024.D
Prep Method: EPA 5035A

Comments: ug / Kg = microgram per Kilogram

Signature:
Bruce Hoogesteger: Technical Director

This report is part of a multipage document and should only be evaluated in its entirety. Chain of Custody provides additional information, including compliance with sample condition requirements upon receipt.

PARADIGM ENVIRONMENTAL SERVICES, INC.

179 Lake Avenue
Rochester, NY 14608
(585) 647-2530 • (800) 724-1997
FAX: (585) 647-3311

CHAIN OF CUSTODY

REPORT TO:	INVOICE TO:
COMPANY: EMPIRE GEO	COMPANY:
ADDRESS:	ADDRESS:
CITY: HAMBURG STATE: ZIP:	CITY: STATE: ZIP:
PHONE: FAX:	PHONE: FAX:
ATTN: DAVE STEINER	ATTN:
COMMENTS:	

LAB PROJECT #: 12: 3583
CLIENT PROJECT #: BEV-12-040
TURNAROUND TIME: (WORKING DAYS) *RUSH-3-DAY*
STD OTHER
[ ] 1 [ ] 2 [X] 3 [ ] 5 [ ]
QUOTE #:

PROJECT NAME/SITE NAME: 6636 TAYLOR RD.

3 day all other params. EAH 8/29
5 day TCN per JD/JH

REQUESTED ANALYSIS

DATE	TIME	COMPOSITE	GRAB	SAMPLE LOCATION/FIELD ID	MATRIX	NUMBER CONTAINERS	TCL VOCs	TCL SVOCs	TAL METALS	CYANIDE	PCB	REMARKS	PARADIGM LAB SAMPLE NUMBER
1 8-27-12	1315	X		TP-EAST, 4-6.7'	SOIL	2	X	X	X	X	X		01
2 "	1410	X		TP-WEST, 3.3-5.8'	SOIL	2	X	X	X	X	X		02
3													
4												TCN sent directly to IsleChem by JH. EAH 8/29	
5													
6													
7													
8													
9													
10													

LAB USE ONLY BELOW THIS LINE

Sample Condition: Per NELAC/ELAP 210/241/242/243/244

Receipt Parameter	NELAC Compliance	
Container Type: Comments:	Y [ ]	N [ ]
Preservation: Comments:	Y [ ]	N [ ]
Holding Time: Comments:	Y [ ]	N [ ]
Temperature: Comments: 2° iced temp blk	Y [ ]	N [ ]

David R. Steiner — Sampled By — 8-27-12 1410 — Date/Time

David R. Steiner — Relinquished By — Date/Time

Received By — 8-28-12 1500 — Date/Time

Molly Vail — Received @ Lab By — 8/29/12 1304 — Date/Time

Total Cost:

P.I.F.

2 of 2

PARADIGM

Chain of Custody Supplement

Client: Empire Geo

Lab Project ID: 12:3583

Completed by: M

Date: 8/29/12

Sample Condition Requirements

Per NELAC/ELAP 210/241/242/243/244

Condition	NELAC compliance with the sample condition requirements upon receipt: Yes	No	N/A
Container Type	X	X VOA	
Comments			
Transferred to method-compliant container	X VOA		
Headspace (<1 mL)			X
Comments			
Preservation			X
Comments			
Chlorine Absent (<0.10 ppm per test strip)			X
Comments			
Holding Time	X	X MW EG 8/31/12	
Comments			
Temperature	X		
Comments	2°C iced by Terry B/L		
Sufficient Sample Quantity	X		
Comments			

179 Lake Avenue, Rochester, NY 14608 Office (585) 647-2530 Fax (585) 647-3311

CHAIN OF CUSTODY

ISLE CHEM: ELAP ID: 11862

REPORT TO:		INVOICE TO:			
COMPANY:	Paradigm Environmental	COMPANY:	Same	LAB PROJECT #: NY.208189.	CLIENT PROJECT #: 30915
ADDRESS:		ADDRESS:			
CITY: STATE: ZIP:		CITY: STATE: ZIP:		TURNAROUND TIME: (WORKING DAYS) Needs results by Tmg. 9/6	
PHONE: FAX:		PHONE: FAX:		Results 9/4/12 STD OTHER	
ATTN:	Jane Daloia	ATTN:	Meridith Dillman	[ ] 1 [ ] 2 [X] 3 [ ] 5 [ ]	
COMMENTS:	Please email results to khansen@paradigmenv.com and jdaloia@paradigmenv.com			Date Due:	

PROJECT NAME/SITE NAME: 6636 Taylor Road

REQUESTED ANALYSIS

DATE	TIME	COMPOSITE	GRAB	SAMPLE LOCATION/FIELD ID	MATRIX	NUMBER CONTAINERS	T. Cyanide		REMARKS	PARADIGM LAB SAMPLE NUMBER
8/27/12	1:15 PM	X		TP-East, 4-6.7'	Soil	1	X	233059		
8/27/12	2:10 PM	X		TP-West, 3.3-5.8'	Soil	1	X	233060		

"LAB USE ONLY BELOW THIS LINE"

Sample Condition: Per NELAC/ELAP 210/241/242/243/244

Receipt Parameter	NELAC Compliance	
Container Type:	Y [X]	N [ ]
Comments:		
Preservation:	Y [X]	N [ ]
Comments:		
Holding Time:	Y [X]	N [ ]
Comments:		
Temperature: N/A	Y [ ]	N [ ]
Comments: per Isle Chem KRH 9/6/12		

Client

Sampled By: [signature] Date/Time: 8/29/12 11:00am

Relinquished By: [signature] Date/Time: 8/29/12 11:00am

Received By: Date/Time:

Received @ Lab By: Date/Time:

Total Cost:

P.I.F.

ALPHA ANALYTICAL

ANALYTICAL REPORT

Lab Number:	L1223487
Client:	SJB Services, Inc 5167 South Park Ave. Hamburg, NY 14705
ATTN:	Dave Steiner
Phone:	(716) 649-8110
Project Name:	YOVIENE
Project Number:	BEV-12-
Report Date:	01/04/13

The original project report/data package is held by Alpha Analytical. This report/data package is paginated and should be reproduced only in its entirety. Alpha Analytical holds no responsibility for results and/or data that are not consistent with the original.

Certifications & Approvals: MA (M-MA086), NY (11148), CT (PH-0574), NH (2003), NJ NELAP (MA935), RI (LAO00065), ME (MA00086), PA (68-03671), USDA (Permit #P-330-11-00240), NC (666), TX (T104704476), DOD (L2217), US Army Corps of Engineers.

Eight Walkup Drive, Westborough, MA 01581-1019
508-898-9220 (Fax) 508-898-9193 800-624-9220 - www.alphalab.com

Project Name: YOVIENE
Project Number: BEV-12-

Lab Number: L1223487
Report Date: 01/04/13

Alpha Sample ID	Client ID	Sample Location	Collection Date/Time
L1223487-01	P-1, 4.2-5.0'	HAMBURG, NY	12/27/12 11:50
L1223487-02	P-2, 6.4-7.7'	HAMBURG, NY	12/27/12 12:30
L1223487-03	P-3, 3.6-4.8'	HAMBURG, NY	12/27/12 13:00
L1223487-04	P-4, 3.8-5.1'	HAMBURG, NY	12/27/12 13:30
L1223487-05	P-5, 4.1-5.2'	HAMBURG, NY	12/27/12 14:20
L1223487-06	P-6, 3.9-5.1'	HAMBURG, NY	12/28/12 10:10
L1223487-07	P-7, 3.7-4.9'	HAMBURG, NY	12/28/12 11:10
L1223487-08	P-8, 4.2-5.0'	HAMBURG, NY	12/28/12 12:15

Project Name:	YOVIENE	**Lab Number:**	L1223487
Project Number:	BEV-12-	**Report Date:**	01/04/13

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet all of the requirements of NELAC, for all NELAC accredited parameters. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively. When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. Performance criteria for CAM and RCP methods allow for some LCS compound failures to occur and still be within method compliance. In these instances, the specific failures are not narrated but are noted in the associated QC table. This information is also incorporated in the Data Usability format for our Data Merger tool where it can be reviewed along with any associated usability implications. Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances the specific failure is not narrated but noted in the associated QC table. The information is also incorporated in the Data Usability format of our Data Merger tool where it can be reviewed along with any associated usability implications.

Please see the associated ADEx data file for a comparison of laboratory reporting limits that were achieved with the regulatory Numerical Standards requested on the Chain of Custody.

HOLD POLICY

For samples submitted on hold, Alpha's policy is to hold samples free of charge for 30 days from the date the project is completed. After 30 days, we will dispose of all samples submitted including those put on hold unless you have contacted your Client Service Representative and made arrangements for Alpha to continue to hold the samples.

Please contact Client Services at 800-624-9220 with any questions.

Project Name:	YOVIENE	**Lab Number:**	L1223487
Project Number:	BEV-12-	**Report Date:**	01/04/13

Case Narrative (continued)

Report Submission

All non-detect (ND) or estimated concentrations (J-qualified) have been quantitated to the limit noted in the MDL column.

Sample Receipt

L1223487-01 through -08: Volatile Organics was not received in the appropriate container. The analysis was performed at the client's request.

Semivolatile Organics

L1223487-01 has elevated detection limits due to the dilution required by the sample matrix.

Metals

L1223487-01 through -08 have elevated detection limits due to the dilutions required by the sample matrices.

The WG582513-4 MS recoveries, performed on L1223487-01, are outside the acceptance criteria for Antimony (40%), Potassium (126%) and Zinc (162%). A post digestion spike was performed with acceptable recoveries for Antimony (82%), Potassium (94%) and Zinc (82%).

The WG582513-4 MS recoveries for Aluminum (1350%), Copper (72%), Iron (0%), Magnesium (216%) and Manganese (54%), performed on L1223487-01, do not apply because the sample concentrations are greater than four times the spike amount added.

The WG582513-3 Laboratory Duplicate RPD, performed on L1223487-01, is outside the acceptance criteria for Calcium (47%). The elevated RPD has been attributed to the non-homogeneous nature of the sample utilized for the laboratory duplicate.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature: Michelle M. Morris

Title: Technical Director/Representative Date: 01/04/13

ORGANICS

VOLATILES

Project Name: YOVIENE
Project Number: BEV-12-

Lab Number: L1223487
Report Date: 01/04/13

SAMPLE RESULTS

Lab ID: L1223487-01
Client ID: P-1, 4.2-5.0'
Sample Location: HAMBURG, NY
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 01/02/13 18:31
Analyst: BN
Percent Solids: 69%

Date Collected: 12/27/12 11:50
Date Received: 12/29/12
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methylene chloride	2.9	J	ug/kg	14	2.9	1
1,1-Dichloroethane	ND		ug/kg	2.2	0.43	1
Chloroform	ND		ug/kg	2.2	0.47	1
Carbon tetrachloride	ND		ug/kg	1.4	0.31	1
1,2-Dichloropropane	ND		ug/kg	5.1	0.37	1
Dibromochloromethane	ND		ug/kg	1.4	0.45	1
1,1,2-Trichloroethane	ND		ug/kg	2.2	0.57	1
Tetrachloroethene	ND		ug/kg	1.4	0.44	1
Chlorobenzene	11		ug/kg	1.4	0.27	1
Trichlorofluoromethane	ND		ug/kg	7.2	0.57	1
1,2-Dichloroethane	ND		ug/kg	1.4	0.33	1
1,1,1-Trichloroethane	ND		ug/kg	1.4	0.39	1
Bromodichloromethane	ND		ug/kg	1.4	0.56	1
trans-1,3-Dichloropropene	ND		ug/kg	1.4	0.44	1
cis-1,3-Dichloropropene	ND		ug/kg	1.4	0.39	1
1,1-Dichloropropene	ND		ug/kg	7.2	0.66	1
Bromoform	ND		ug/kg	5.8	0.72	1
1,1,2,2-Tetrachloroethane	ND		ug/kg	1.4	0.35	1
Benzene	1.7		ug/kg	1.4	0.43	1
Toluene	ND		ug/kg	2.2	0.35	1
Ethylbenzene	ND		ug/kg	1.4	0.32	1
Chloromethane	ND		ug/kg	7.2	1.1	1
Bromomethane	ND		ug/kg	2.9	0.94	1
Vinyl chloride	ND		ug/kg	2.9	1.1	1
Chloroethane	ND		ug/kg	2.9	0.64	1
1,1-Dichloroethene	ND		ug/kg	1.4	0.38	1
trans-1,2-Dichloroethene	ND		ug/kg	2.2	0.57	1
Trichloroethene	ND		ug/kg	1.4	0.32	1
1,2-Dichlorobenzene	ND		ug/kg	7.2	0.53	1
1,3-Dichlorobenzene	ND		ug/kg	7.2	0.58	1
1,4-Dichlorobenzene	24		ug/kg	7.2	0.61	1

Project Name: YOVIENE **Lab Number:** L1223487

Project Number: BEV-12- **Report Date:** 01/04/13

SAMPLE RESULTS

Lab ID: L1223487-01 Date Collected: 12/27/12 11:50

Client ID: P-1, 4.2-5.0' Date Received: 12/29/12

Sample Location: HAMBURG, NY Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methyl tert butyl ether	ND		ug/kg	2.9	0.70	1
p/m-Xylene	ND		ug/kg	2.9	0.62	1
o-Xylene	ND		ug/kg	2.9	0.60	1
cis-1,2-Dichloroethene	ND		ug/kg	1.4	0.44	1
Dibromomethane	ND		ug/kg	14	0.63	1
Styrene	ND		ug/kg	2.9	1.0	1
Dichlorodifluoromethane	ND		ug/kg	14	0.56	1
Acetone	130		ug/kg	14	4.7	1
Carbon disulfide	4.8	J	ug/kg	14	2.9	1
2-Butanone	35		ug/kg	14	5.6	1
Vinyl acetate	ND		ug/kg	14	1.1	1
4-Methyl-2-pentanone	ND		ug/kg	14	1.2	1
1,2,3-Trichloropropane	ND		ug/kg	14	0.56	1
2-Hexanone	ND		ug/kg	14	0.57	1
Bromochloromethane	ND		ug/kg	7.2	0.44	1
2,2-Dichloropropane	ND		ug/kg	7.2	1.2	1
1,2-Dibromoethane	ND		ug/kg	5.8	0.59	1
1,3-Dichloropropane	ND		ug/kg	7.2	0.82	1
1,1,1,2-Tetrachloroethane	ND		ug/kg	1.4	0.48	1
Bromobenzene	ND		ug/kg	7.2	0.32	1
n-Butylbenzene	1.6		ug/kg	1.4	0.46	1
sec-Butylbenzene	7.5		ug/kg	1.4	0.40	1
tert-Butylbenzene	ND		ug/kg	7.2	0.87	1
o-Chlorotoluene	ND		ug/kg	7.2	0.45	1
p-Chlorotoluene	ND		ug/kg	7.2	0.52	1
1,2-Dibromo-3-chloropropane	ND		ug/kg	7.2	1.2	1
Hexachlorobutadiene	ND		ug/kg	7.2	0.66	1
Isopropylbenzene	1.1	J	ug/kg	1.4	0.26	1
p-Isopropyltoluene	ND		ug/kg	1.4	0.40	1
Naphthalene	2.7	J	ug/kg	7.2	1.1	1
Acrylonitrile	ND		ug/kg	14	0.54	1
n-Propylbenzene	ND		ug/kg	1.4	0.41	1
1,2,3-Trichlorobenzene	ND		ug/kg	7.2	0.58	1
1,2,4-Trichlorobenzene	ND		ug/kg	7.2	1.1	1
1,3,5-Trimethylbenzene	ND		ug/kg	7.2	0.87	1
1,2,4-Trimethylbenzene	ND		ug/kg	7.2	0.83	1
1,4-Dioxane	ND		ug/kg	140	25.	1
1,4-Diethylbenzene	3.0	J	ug/kg	5.8	0.29	1
4-Ethyltoluene	ND		ug/kg	5.8	0.14	1

Project Name: YOVIENE
Project Number: BEV-12-

Lab Number: L1223487
Report Date: 01/04/13

SAMPLE RESULTS

Lab ID: L1223487-01
Client ID: P-1, 4.2-5.0'
Sample Location: HAMBURG, NY

Date Collected: 12/27/12 11:50
Date Received: 12/29/12
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
1,2,4,5-Tetramethylbenzene	1.7	J	ug/kg	5.8	0.26	1
Ethyl ether	ND		ug/kg	7.2	0.55	1
trans-1,4-Dichloro-2-butene	ND		ug/kg	7.2	2.1	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	107		70-130
Toluene-d8	102		70-130
4-Bromofluorobenzene	110		70-130
Dibromofluoromethane	103		70-130

Project Name: YOVIENE
Project Number: BEV-12-

Lab Number: L1223487
Report Date: 01/04/13

SAMPLE RESULTS

Lab ID: L1223487-02
Client ID: P-2, 6.4-7.7'
Sample Location: HAMBURG, NY
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 01/03/13 08:53
Analyst: BN
Percent Solids: 85%

Date Collected: 12/27/12 12:30
Date Received: 12/29/12
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methylene chloride	ND		ug/kg	12	2.4	1
1,1-Dichloroethane	ND		ug/kg	1.8	0.35	1
Chloroform	ND		ug/kg	1.8	0.38	1
Carbon tetrachloride	ND		ug/kg	1.2	0.25	1
1,2-Dichloropropane	ND		ug/kg	4.1	0.30	1
Dibromochloromethane	ND		ug/kg	1.2	0.36	1
1,1,2-Trichloroethane	ND		ug/kg	1.8	0.46	1
Tetrachloroethene	ND		ug/kg	1.2	0.36	1
Chlorobenzene	ND		ug/kg	1.2	0.22	1
Trichlorofluoromethane	ND		ug/kg	5.9	0.46	1
1,2-Dichloroethane	ND		ug/kg	1.2	0.27	1
1,1,1-Trichloroethane	ND		ug/kg	1.2	0.32	1
Bromodichloromethane	ND		ug/kg	1.2	0.45	1
trans-1,3-Dichloropropene	ND		ug/kg	1.2	0.35	1
cis-1,3-Dichloropropene	ND		ug/kg	1.2	0.31	1
1,1-Dichloropropene	ND		ug/kg	5.9	0.54	1
Bromoform	ND		ug/kg	4.7	0.58	1
1,1,2,2-Tetrachloroethane	ND		ug/kg	1.2	0.28	1
Benzene	ND		ug/kg	1.2	0.35	1
Toluene	ND		ug/kg	1.8	0.28	1
Ethylbenzene	ND		ug/kg	1.2	0.26	1
Chloromethane	ND		ug/kg	5.9	0.92	1
Bromomethane	ND		ug/kg	2.4	0.76	1
Vinyl chloride	ND		ug/kg	2.4	0.89	1
Chloroethane	ND		ug/kg	2.4	0.52	1
1,1-Dichloroethene	ND		ug/kg	1.2	0.30	1
trans-1,2-Dichloroethene	ND		ug/kg	1.8	0.46	1
Trichloroethene	ND		ug/kg	1.2	0.26	1
1,2-Dichlorobenzene	ND		ug/kg	5.9	0.43	1
1,3-Dichlorobenzene	ND		ug/kg	5.9	0.47	1
1,4-Dichlorobenzene	ND		ug/kg	5.9	0.49	1

Project Name: YOVIENE
Project Number: BEV-12-

Lab Number: L1223487
Report Date: 01/04/13

SAMPLE RESULTS

Lab ID: L1223487-02
Client ID: P-2, 6.4-7.7'
Sample Location: HAMBURG, NY

Date Collected: 12/27/12 12:30
Date Received: 12/29/12
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methyl tert butyl ether	ND		ug/kg	2.4	0.57	1
p/m-Xylene	ND		ug/kg	2.4	0.50	1
o-Xylene	ND		ug/kg	2.4	0.49	1
cis-1,2-Dichloroethene	ND		ug/kg	1.2	0.35	1
Dibromomethane	ND		ug/kg	12	0.51	1
Styrene	ND		ug/kg	2.4	0.85	1
Dichlorodifluoromethane	ND		ug/kg	12	0.46	1
Acetone	37		ug/kg	12	3.8	1
Carbon disulfide	ND		ug/kg	12	2.4	1
2-Butanone	6.5	J	ug/kg	12	4.6	1
Vinyl acetate	ND		ug/kg	12	0.88	1
4-Methyl-2-pentanone	ND		ug/kg	12	0.96	1
1,2,3-Trichloropropane	ND		ug/kg	12	0.46	1
2-Hexanone	ND		ug/kg	12	0.47	1
Bromochloromethane	ND		ug/kg	5.9	0.36	1
2,2-Dichloropropane	ND		ug/kg	5.9	0.94	1
1,2-Dibromoethane	ND		ug/kg	4.7	0.48	1
1,3-Dichloropropane	ND		ug/kg	5.9	0.66	1
1,1,1,2-Tetrachloroethane	ND		ug/kg	1.2	0.39	1
Bromobenzene	ND		ug/kg	5.9	0.26	1
n-Butylbenzene	ND		ug/kg	1.2	0.37	1
sec-Butylbenzene	ND		ug/kg	1.2	0.32	1
tert-Butylbenzene	ND		ug/kg	5.9	0.71	1
o-Chlorotoluene	ND		ug/kg	5.9	0.37	1
p-Chlorotoluene	ND		ug/kg	5.9	0.42	1
1,2-Dibromo-3-chloropropane	ND		ug/kg	5.9	0.98	1
Hexachlorobutadiene	ND		ug/kg	5.9	0.54	1
Isopropylbenzene	ND		ug/kg	1.2	0.21	1
p-Isopropyltoluene	ND		ug/kg	1.2	0.32	1
Naphthalene	ND		ug/kg	5.9	0.90	1
Acrylonitrile	ND		ug/kg	12	0.44	1
n-Propylbenzene	ND		ug/kg	1.2	0.33	1
1,2,3-Trichlorobenzene	ND		ug/kg	5.9	0.47	1
1,2,4-Trichlorobenzene	ND		ug/kg	5.9	0.93	1
1,3,5-Trimethylbenzene	ND		ug/kg	5.9	0.71	1
1,2,4-Trimethylbenzene	ND		ug/kg	5.9	0.67	1
1,4-Dioxane	ND		ug/kg	120	20.	1
1,4-Diethylbenzene	ND		ug/kg	4.7	0.24	1
4-Ethyltoluene	ND		ug/kg	4.7	0.11	1

Project Name: YOVIENE
Project Number: BEV-12-

Lab Number: L1223487
Report Date: 01/04/13

SAMPLE RESULTS

Lab ID: L1223487-02
Client ID: P-2, 6.4-7.7'
Sample Location: HAMBURG, NY

Date Collected: 12/27/12 12:30
Date Received: 12/29/12
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
1,2,4,5-Tetramethylbenzene	ND		ug/kg	4.7	0.21	1
Ethyl ether	ND		ug/kg	5.9	0.45	1
trans-1,4-Dichloro-2-butene	ND		ug/kg	5.9	1.7	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	100		70-130
Toluene-d8	101		70-130
4-Bromofluorobenzene	101		70-130
Dibromofluoromethane	95		70-130

Project Name: YOVIENE
Project Number: BEV-12-

Lab Number: L1223487
Report Date: 01/04/13

SAMPLE RESULTS

Lab ID: L1223487-03
Client ID: P-3, 3.6-4.8'
Sample Location: HAMBURG, NY
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 01/03/13 09:21
Analyst: BN
Percent Solids: 69%

Date Collected: 12/27/12 13:00
Date Received: 12/29/12
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methylene chloride	ND		ug/kg	14	2.9	1
1,1-Dichloroethane	ND		ug/kg	2.2	0.43	1
Chloroform	ND		ug/kg	2.2	0.47	1
Carbon tetrachloride	ND		ug/kg	1.4	0.31	1
1,2-Dichloropropane	ND		ug/kg	5.1	0.37	1
Dibromochloromethane	ND		ug/kg	1.4	0.45	1
1,1,2-Trichloroethane	ND		ug/kg	2.2	0.57	1
Tetrachloroethene	ND		ug/kg	1.4	0.44	1
Chlorobenzene	ND		ug/kg	1.4	0.27	1
Trichlorofluoromethane	ND		ug/kg	7.2	0.57	1
1,2-Dichloroethane	ND		ug/kg	1.4	0.33	1
1,1,1-Trichloroethane	ND		ug/kg	1.4	0.39	1
Bromodichloromethane	ND		ug/kg	1.4	0.56	1
trans-1,3-Dichloropropene	ND		ug/kg	1.4	0.44	1
cis-1,3-Dichloropropene	ND		ug/kg	1.4	0.39	1
1,1-Dichloropropene	ND		ug/kg	7.2	0.66	1
Bromoform	ND		ug/kg	5.8	0.72	1
1,1,2,2-Tetrachloroethane	ND		ug/kg	1.4	0.35	1
Benzene	ND		ug/kg	1.4	0.43	1
Toluene	ND		ug/kg	2.2	0.35	1
Ethylbenzene	ND		ug/kg	1.4	0.32	1
Chloromethane	ND		ug/kg	7.2	1.1	1
Bromomethane	ND		ug/kg	2.9	0.94	1
Vinyl chloride	ND		ug/kg	2.9	1.1	1
Chloroethane	ND		ug/kg	2.9	0.64	1
1,1-Dichloroethene	ND		ug/kg	1.4	0.38	1
trans-1,2-Dichloroethene	ND		ug/kg	2.2	0.57	1
Trichloroethene	ND		ug/kg	1.4	0.32	1
1,2-Dichlorobenzene	ND		ug/kg	7.2	0.53	1
1,3-Dichlorobenzene	ND		ug/kg	7.2	0.58	1
1,4-Dichlorobenzene	ND		ug/kg	7.2	0.61	1

Project Name: YOVIENE
Project Number: BEV-12-
Lab Number: L1223487
Report Date: 01/04/13

SAMPLE RESULTS

Lab ID: L1223487-03
Client ID: P-3, 3.6-4.8'
Sample Location: HAMBURG, NY
Date Collected: 12/27/12 13:00
Date Received: 12/29/12
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methyl tert butyl ether	ND		ug/kg	2.9	0.70	1
p/m-Xylene	ND		ug/kg	2.9	0.62	1
o-Xylene	ND		ug/kg	2.9	0.60	1
cis-1,2-Dichloroethene	ND		ug/kg	1.4	0.44	1
Dibromomethane	ND		ug/kg	14	0.63	1
Styrene	ND		ug/kg	2.9	1.0	1
Dichlorodifluoromethane	ND		ug/kg	14	0.56	1
Acetone	12	J	ug/kg	14	4.7	1
Carbon disulfide	ND		ug/kg	14	2.9	1
2-Butanone	ND		ug/kg	14	5.6	1
Vinyl acetate	ND		ug/kg	14	1.1	1
4-Methyl-2-pentanone	ND		ug/kg	14	1.2	1
1,2,3-Trichloropropane	ND		ug/kg	14	0.56	1
2-Hexanone	ND		ug/kg	14	0.57	1
Bromochloromethane	ND		ug/kg	7.2	0.44	1
2,2-Dichloropropane	ND		ug/kg	7.2	1.2	1
1,2-Dibromoethane	ND		ug/kg	5.8	0.59	1
1,3-Dichloropropane	ND		ug/kg	7.2	0.82	1
1,1,1,2-Tetrachloroethane	ND		ug/kg	1.4	0.48	1
Bromobenzene	ND		ug/kg	7.2	0.32	1
n-Butylbenzene	ND		ug/kg	1.4	0.46	1
sec-Butylbenzene	ND		ug/kg	1.4	0.40	1
tert-Butylbenzene	ND		ug/kg	7.2	0.87	1
o-Chlorotoluene	ND		ug/kg	7.2	0.45	1
p-Chlorotoluene	ND		ug/kg	7.2	0.52	1
1,2-Dibromo-3-chloropropane	ND		ug/kg	7.2	1.2	1
Hexachlorobutadiene	ND		ug/kg	7.2	0.66	1
Isopropylbenzene	ND		ug/kg	1.4	0.26	1
p-Isopropyltoluene	ND		ug/kg	1.4	0.40	1
Naphthalene	2.0	J	ug/kg	7.2	1.1	1
Acrylonitrile	ND		ug/kg	14	0.54	1
n-Propylbenzene	ND		ug/kg	1.4	0.41	1
1,2,3-Trichlorobenzene	ND		ug/kg	7.2	0.58	1
1,2,4-Trichlorobenzene	ND		ug/kg	7.2	1.1	1
1,3,5-Trimethylbenzene	ND		ug/kg	7.2	0.87	1
1,2,4-Trimethylbenzene	ND		ug/kg	7.2	0.83	1
1,4-Dioxane	ND		ug/kg	140	25.	1
1,4-Diethylbenzene	ND		ug/kg	5.8	0.29	1
4-Ethyltoluene	ND		ug/kg	5.8	0.14	1

Project Name: YOVIENE
Project Number: BEV-12-

Lab Number: L1223487
Report Date: 01/04/13

SAMPLE RESULTS

Lab ID: L1223487-03
Client ID: P-3, 3.6-4.8'
Sample Location: HAMBURG, NY

Date Collected: 12/27/12 13:00
Date Received: 12/29/12
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
1,2,4,5-Tetramethylbenzene	ND		ug/kg	5.8	0.26	1
Ethyl ether	ND		ug/kg	7.2	0.55	1
trans-1,4-Dichloro-2-butene	ND		ug/kg	7.2	2.1	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	103		70-130
Toluene-d8	103		70-130
4-Bromofluorobenzene	102		70-130
Dibromofluoromethane	97		70-130

Project Name: YOVIENE
Project Number: BEV-12-

Lab Number: L1223487
Report Date: 01/04/13

SAMPLE RESULTS

Lab ID: L1223487-04
Client ID: P-4, 3.8-5.1'
Sample Location: HAMBURG, NY
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 01/03/13 09:49
Analyst: BN
Percent Solids: 80%

Date Collected: 12/27/12 13:30
Date Received: 12/29/12
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methylene chloride	ND		ug/kg	12	2.5	1
1,1-Dichloroethane	ND		ug/kg	1.9	0.37	1
Chloroform	ND		ug/kg	1.9	0.40	1
Carbon tetrachloride	ND		ug/kg	1.2	0.26	1
1,2-Dichloropropane	ND		ug/kg	4.4	0.32	1
Dibromochloromethane	ND		ug/kg	1.2	0.38	1
1,1,2-Trichloroethane	ND		ug/kg	1.9	0.49	1
Tetrachloroethene	ND		ug/kg	1.2	0.38	1
Chlorobenzene	ND		ug/kg	1.2	0.23	1
Trichlorofluoromethane	ND		ug/kg	6.2	0.49	1
1,2-Dichloroethane	ND		ug/kg	1.2	0.28	1
1,1,1-Trichloroethane	ND		ug/kg	1.2	0.34	1
Bromodichloromethane	ND		ug/kg	1.2	0.48	1
trans-1,3-Dichloropropene	ND		ug/kg	1.2	0.38	1
cis-1,3-Dichloropropene	ND		ug/kg	1.2	0.33	1
1,1-Dichloropropene	ND		ug/kg	6.2	0.57	1
Bromoform	ND		ug/kg	5.0	0.62	1
1,1,2,2-Tetrachloroethane	ND		ug/kg	1.2	0.30	1
Benzene	ND		ug/kg	1.2	0.37	1
Toluene	ND		ug/kg	1.9	0.30	1
Ethylbenzene	ND		ug/kg	1.2	0.28	1
Chloromethane	ND		ug/kg	6.2	0.98	1
Bromomethane	ND		ug/kg	2.5	0.81	1
Vinyl chloride	ND		ug/kg	2.5	0.94	1
Chloroethane	ND		ug/kg	2.5	0.55	1
1,1-Dichloroethene	ND		ug/kg	1.2	0.32	1
trans-1,2-Dichloroethene	ND		ug/kg	1.9	0.49	1
Trichloroethene	ND		ug/kg	1.2	0.28	1
1,2-Dichlorobenzene	ND		ug/kg	6.2	0.46	1
1,3-Dichlorobenzene	ND		ug/kg	6.2	0.50	1
1,4-Dichlorobenzene	ND		ug/kg	6.2	0.52	1

Project Name: YOVIENE
Project Number: BEV-12-

Lab Number: L1223487
Report Date: 01/04/13

SAMPLE RESULTS

Lab ID: L1223487-04
Client ID: P-4, 3.8-5.1'
Sample Location: HAMBURG, NY

Date Collected: 12/27/12 13:30
Date Received: 12/29/12
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methyl tert butyl ether	ND		ug/kg	2.5	0.61	1
p/m-Xylene	ND		ug/kg	2.5	0.54	1
o-Xylene	ND		ug/kg	2.5	0.52	1
cis-1,2-Dichloroethene	ND		ug/kg	1.2	0.38	1
Dibromomethane	ND		ug/kg	12	0.54	1
Styrene	ND		ug/kg	2.5	0.91	1
Dichlorodifluoromethane	ND		ug/kg	12	0.49	1
Acetone	10	J	ug/kg	12	4.0	1
Carbon disulfide	ND		ug/kg	12	2.5	1
2-Butanone	ND		ug/kg	12	4.8	1
Vinyl acetate	ND		ug/kg	12	0.94	1
4-Methyl-2-pentanone	ND		ug/kg	12	1.0	1
1,2,3-Trichloropropane	ND		ug/kg	12	0.48	1
2-Hexanone	ND		ug/kg	12	0.50	1
Bromochloromethane	ND		ug/kg	6.2	0.38	1
2,2-Dichloropropane	ND		ug/kg	6.2	0.99	1
1,2-Dibromoethane	ND		ug/kg	5.0	0.51	1
1,3-Dichloropropane	ND		ug/kg	6.2	0.71	1
1,1,1,2-Tetrachloroethane	ND		ug/kg	1.2	0.41	1
Bromobenzene	ND		ug/kg	6.2	0.28	1
n-Butylbenzene	ND		ug/kg	1.2	0.39	1
sec-Butylbenzene	ND		ug/kg	1.2	0.34	1
tert-Butylbenzene	ND		ug/kg	6.2	0.75	1
o-Chlorotoluene	ND		ug/kg	6.2	0.39	1
p-Chlorotoluene	ND		ug/kg	6.2	0.45	1
1,2-Dibromo-3-chloropropane	ND		ug/kg	6.2	1.0	1
Hexachlorobutadiene	ND		ug/kg	6.2	0.57	1
Isopropylbenzene	ND		ug/kg	1.2	0.22	1
p-Isopropyltoluene	ND		ug/kg	1.2	0.34	1
Naphthalene	ND		ug/kg	6.2	0.96	1
Acrylonitrile	ND		ug/kg	12	0.47	1
n-Propylbenzene	ND		ug/kg	1.2	0.36	1
1,2,3-Trichlorobenzene	ND		ug/kg	6.2	0.50	1
1,2,4-Trichlorobenzene	ND		ug/kg	6.2	0.99	1
1,3,5-Trimethylbenzene	ND		ug/kg	6.2	0.75	1
1,2,4-Trimethylbenzene	ND		ug/kg	6.2	0.72	1
1,4-Dioxane	ND		ug/kg	120	22.	1
1,4-Diethylbenzene	ND		ug/kg	5.0	0.25	1
4-Ethyltoluene	ND		ug/kg	5.0	0.12	1

Project Name: YOVIENE **Lab Number:** L1223487

Project Number: BEV-12- **Report Date:** 01/04/13

SAMPLE RESULTS

Lab ID: L1223487-04 Date Collected: 12/27/12 13:30

Client ID: P-4, 3.8-5.1' Date Received: 12/29/12

Sample Location: HAMBURG, NY Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
1,2,4,5-Tetramethylbenzene	ND		ug/kg	5.0	0.23	1
Ethyl ether	ND		ug/kg	6.2	0.47	1
trans-1,4-Dichloro-2-butene	ND		ug/kg	6.2	1.8	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	103		70-130
Toluene-d8	99		70-130
4-Bromofluorobenzene	107		70-130
Dibromofluoromethane	96		70-130

Project Name: YOVIENE
Project Number: BEV-12-

Lab Number: L1223487
Report Date: 01/04/13

SAMPLE RESULTS

Lab ID: L1223487-05
Client ID: P-5, 4.1-5.2'
Sample Location: HAMBURG, NY
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 01/03/13 10:17
Analyst: BN
Percent Solids: 82%

Date Collected: 12/27/12 14:20
Date Received: 12/29/12
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methylene chloride	ND		ug/kg	12	2.4	1
1,1-Dichloroethane	ND		ug/kg	1.8	0.36	1
Chloroform	ND		ug/kg	1.8	0.40	1
Carbon tetrachloride	ND		ug/kg	1.2	0.26	1
1,2-Dichloropropane	ND		ug/kg	4.3	0.31	1
Dibromochloromethane	ND		ug/kg	1.2	0.38	1
1,1,2-Trichloroethane	ND		ug/kg	1.8	0.48	1
Tetrachloroethene	ND		ug/kg	1.2	0.37	1
Chlorobenzene	ND		ug/kg	1.2	0.23	1
Trichlorofluoromethane	ND		ug/kg	6.1	0.48	1
1,2-Dichloroethane	ND		ug/kg	1.2	0.28	1
1,1,1-Trichloroethane	ND		ug/kg	1.2	0.33	1
Bromodichloromethane	ND		ug/kg	1.2	0.47	1
trans-1,3-Dichloropropene	ND		ug/kg	1.2	0.37	1
cis-1,3-Dichloropropene	ND		ug/kg	1.2	0.32	1
1,1-Dichloropropene	ND		ug/kg	6.1	0.56	1
Bromoform	ND		ug/kg	4.9	0.60	1
1,1,2,2-Tetrachloroethane	ND		ug/kg	1.2	0.29	1
Benzene	ND		ug/kg	1.2	0.36	1
Toluene	ND		ug/kg	1.8	0.29	1
Ethylbenzene	ND		ug/kg	1.2	0.27	1
Chloromethane	ND		ug/kg	6.1	0.96	1
Bromomethane	ND		ug/kg	2.4	0.79	1
Vinyl chloride	ND		ug/kg	2.4	0.92	1
Chloroethane	ND		ug/kg	2.4	0.53	1
1,1-Dichloroethene	ND		ug/kg	1.2	0.32	1
trans-1,2-Dichloroethene	ND		ug/kg	1.8	0.48	1
Trichloroethene	ND		ug/kg	1.2	0.27	1
1,2-Dichlorobenzene	ND		ug/kg	6.1	0.44	1
1,3-Dichlorobenzene	ND		ug/kg	6.1	0.49	1
1,4-Dichlorobenzene	ND		ug/kg	6.1	0.51	1

Project Name: YOVIENE
Project Number: BEV-12-

Lab Number: L1223487
Report Date: 01/04/13

SAMPLE RESULTS

Lab ID: L1223487-05
Client ID: P-5, 4.1-5.2'
Sample Location: HAMBURG, NY

Date Collected: 12/27/12 14:20
Date Received: 12/29/12
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methyl tert butyl ether	ND		ug/kg	2.4	0.59	1
p/m-Xylene	ND		ug/kg	2.4	0.52	1
o-Xylene	ND		ug/kg	2.4	0.51	1
cis-1,2-Dichloroethene	ND		ug/kg	1.2	0.37	1
Dibromomethane	ND		ug/kg	12	0.53	1
Styrene	ND		ug/kg	2.4	0.88	1
Dichlorodifluoromethane	1.5	J	ug/kg	12	0.47	1
Acetone	ND		ug/kg	12	3.9	1
Carbon disulfide	ND		ug/kg	12	2.4	1
2-Butanone	ND		ug/kg	12	4.7	1
Vinyl acetate	ND		ug/kg	12	0.92	1
4-Methyl-2-pentanone	ND		ug/kg	12	1.0	1
1,2,3-Trichloropropane	ND		ug/kg	12	0.47	1
2-Hexanone	ND		ug/kg	12	0.48	1
Bromochloromethane	ND		ug/kg	6.1	0.37	1
2,2-Dichloropropane	ND		ug/kg	6.1	0.97	1
1,2-Dibromoethane	ND		ug/kg	4.9	0.50	1
1,3-Dichloropropane	ND		ug/kg	6.1	0.69	1
1,1,1,2-Tetrachloroethane	ND		ug/kg	1.2	0.40	1
Bromobenzene	ND		ug/kg	6.1	0.27	1
n-Butylbenzene	ND		ug/kg	1.2	0.38	1
sec-Butylbenzene	ND		ug/kg	1.2	0.34	1
tert-Butylbenzene	ND		ug/kg	6.1	0.74	1
o-Chlorotoluene	ND		ug/kg	6.1	0.38	1
p-Chlorotoluene	ND		ug/kg	6.1	0.44	1
1,2-Dibromo-3-chloropropane	ND		ug/kg	6.1	1.0	1
Hexachlorobutadiene	ND		ug/kg	6.1	0.56	1
Isopropylbenzene	ND		ug/kg	1.2	0.22	1
p-Isopropyltoluene	ND		ug/kg	1.2	0.33	1
Naphthalene	ND		ug/kg	6.1	0.94	1
Acrylonitrile	ND		ug/kg	12	0.46	1
n-Propylbenzene	ND		ug/kg	1.2	0.35	1
1,2,3-Trichlorobenzene	ND		ug/kg	6.1	0.49	1
1,2,4-Trichlorobenzene	ND		ug/kg	6.1	0.96	1
1,3,5-Trimethylbenzene	ND		ug/kg	6.1	0.73	1
1,2,4-Trimethylbenzene	ND		ug/kg	6.1	0.70	1
1,4-Dioxane	ND		ug/kg	120	21.	1
1,4-Diethylbenzene	ND		ug/kg	4.9	0.24	1
4-Ethyltoluene	ND		ug/kg	4.9	0.12	1

Project Name: YOVIENE
Project Number: BEV-12-

Lab Number: L1223487
Report Date: 01/04/13

SAMPLE RESULTS

Lab ID: L1223487-05
Client ID: P-5, 4.1-5.2'
Sample Location: HAMBURG, NY

Date Collected: 12/27/12 14:20
Date Received: 12/29/12
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
1,2,4,5-Tetramethylbenzene	ND		ug/kg	4.9	0.22	1
Ethyl ether	ND		ug/kg	6.1	0.46	1
trans-1,4-Dichloro-2-butene	ND		ug/kg	6.1	1.8	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	102		70-130
Toluene-d8	102		70-130
4-Bromofluorobenzene	98		70-130
Dibromofluoromethane	96		70-130

Project Name: YOVIENE
Project Number: BEV-12-

Lab Number: L1223487
Report Date: 01/04/13

SAMPLE RESULTS

Lab ID: L1223487-06
Client ID: P-6, 3.9-5.1'
Sample Location: HAMBURG, NY
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 01/03/13 10:45
Analyst: BN
Percent Solids: 70%

Date Collected: 12/28/12 10:10
Date Received: 12/29/12
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methylene chloride	ND		ug/kg	14	2.8	1
1,1-Dichloroethane	ND		ug/kg	2.1	0.42	1
Chloroform	ND		ug/kg	2.1	0.46	1
Carbon tetrachloride	ND		ug/kg	1.4	0.30	1
1,2-Dichloropropane	ND		ug/kg	5.0	0.36	1
Dibromochloromethane	ND		ug/kg	1.4	0.44	1
1,1,2-Trichloroethane	ND		ug/kg	2.1	0.56	1
Tetrachloroethene	ND		ug/kg	1.4	0.44	1
Chlorobenzene	11		ug/kg	1.4	0.27	1
Trichlorofluoromethane	ND		ug/kg	7.1	0.56	1
1,2-Dichloroethane	ND		ug/kg	1.4	0.32	1
1,1,1-Trichloroethane	ND		ug/kg	1.4	0.38	1
Bromodichloromethane	ND		ug/kg	1.4	0.55	1
trans-1,3-Dichloropropene	ND		ug/kg	1.4	0.43	1
cis-1,3-Dichloropropene	ND		ug/kg	1.4	0.38	1
1,1-Dichloropropene	ND		ug/kg	7.1	0.65	1
Bromoform	ND		ug/kg	5.7	0.71	1
1,1,2,2-Tetrachloroethane	ND		ug/kg	1.4	0.34	1
Benzene	ND		ug/kg	1.4	0.42	1
Toluene	ND		ug/kg	2.1	0.34	1
Ethylbenzene	ND		ug/kg	1.4	0.32	1
Chloromethane	ND		ug/kg	7.1	1.1	1
Bromomethane	ND		ug/kg	2.8	0.92	1
Vinyl chloride	ND		ug/kg	2.8	1.1	1
Chloroethane	ND		ug/kg	2.8	0.63	1
1,1-Dichloroethene	ND		ug/kg	1.4	0.37	1
trans-1,2-Dichloroethene	ND		ug/kg	2.1	0.56	1
Trichloroethene	ND		ug/kg	1.4	0.32	1
1,2-Dichlorobenzene	ND		ug/kg	7.1	0.52	1
1,3-Dichlorobenzene	ND		ug/kg	7.1	0.57	1
1,4-Dichlorobenzene	ND		ug/kg	7.1	0.60	1

Project Name: YOVIENE
Project Number: BEV-12-

Lab Number: L1223487
Report Date: 01/04/13

SAMPLE RESULTS

Lab ID: L1223487-06
Client ID: P-6, 3.9-5.1'
Sample Location: HAMBURG, NY

Date Collected: 12/28/12 10:10
Date Received: 12/29/12
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methyl tert butyl ether	ND		ug/kg	2.8	0.70	1
p/m-Xylene	ND		ug/kg	2.8	0.61	1
o-Xylene	ND		ug/kg	2.8	0.60	1
cis-1,2-Dichloroethene	ND		ug/kg	1.4	0.43	1
Dibromomethane	ND		ug/kg	14	0.62	1
Styrene	ND		ug/kg	2.8	1.0	1
Dichlorodifluoromethane	ND		ug/kg	14	0.56	1
Acetone	18		ug/kg	14	4.6	1
Carbon disulfide	3.3	J	ug/kg	14	2.8	1
2-Butanone	ND		ug/kg	14	5.5	1
Vinyl acetate	ND		ug/kg	14	1.1	1
4-Methyl-2-pentanone	ND		ug/kg	14	1.2	1
1,2,3-Trichloropropane	ND		ug/kg	14	0.55	1
2-Hexanone	ND		ug/kg	14	0.57	1
Bromochloromethane	ND		ug/kg	7.1	0.43	1
2,2-Dichloropropane	ND		ug/kg	7.1	1.1	1
1,2-Dibromoethane	ND		ug/kg	5.7	0.58	1
1,3-Dichloropropane	ND		ug/kg	7.1	0.81	1
1,1,1,2-Tetrachloroethane	ND		ug/kg	1.4	0.47	1
Bromobenzene	ND		ug/kg	7.1	0.31	1
n-Butylbenzene	0.96	J	ug/kg	1.4	0.45	1
sec-Butylbenzene	1.3	J	ug/kg	1.4	0.39	1
tert-Butylbenzene	ND		ug/kg	7.1	0.86	1
o-Chlorotoluene	ND		ug/kg	7.1	0.45	1
p-Chlorotoluene	ND		ug/kg	7.1	0.52	1
1,2-Dibromo-3-chloropropane	ND		ug/kg	7.1	1.2	1
Hexachlorobutadiene	ND		ug/kg	7.1	0.65	1
Isopropylbenzene	1.1	J	ug/kg	1.4	0.25	1
p-Isopropyltoluene	ND		ug/kg	1.4	0.39	1
Naphthalene	7.0	J	ug/kg	7.1	1.1	1
Acrylonitrile	ND		ug/kg	14	0.54	1
n-Propylbenzene	1.4		ug/kg	1.4	0.40	1
1,2,3-Trichlorobenzene	ND		ug/kg	7.1	0.58	1
1,2,4-Trichlorobenzene	ND		ug/kg	7.1	1.1	1
1,3,5-Trimethylbenzene	ND		ug/kg	7.1	0.86	1
1,2,4-Trimethylbenzene	ND		ug/kg	7.1	0.82	1
1,4-Dioxane	ND		ug/kg	140	25.	1
1,4-Diethylbenzene	ND		ug/kg	5.7	0.28	1
4-Ethyltoluene	ND		ug/kg	5.7	0.14	1

Project Name: YOVIENE
Project Number: BEV-12-

Lab Number: L1223487
Report Date: 01/04/13

SAMPLE RESULTS

Lab ID: L1223487-06
Client ID: P-6, 3.9-5.1'
Sample Location: HAMBURG, NY

Date Collected: 12/28/12 10:10
Date Received: 12/29/12
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
1,2,4,5-Tetramethylbenzene	1.9	J	ug/kg	5.7	0.26	1
Ethyl ether	ND		ug/kg	7.1	0.54	1
trans-1,4-Dichloro-2-butene	ND		ug/kg	7.1	2.1	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	101		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	104		70-130
Dibromofluoromethane	96		70-130

Project Name: YOVIENE
Project Number: BEV-12-

Lab Number: L1223487
Report Date: 01/04/13

SAMPLE RESULTS

Lab ID: L1223487-07
Client ID: P-7, 3.7-4.9'
Sample Location: HAMBURG, NY
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 01/03/13 11:13
Analyst: BN
Percent Solids: 61%

Date Collected: 12/28/12 11:10
Date Received: 12/29/12
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methylene chloride	ND		ug/kg	16	3.3	1
1,1-Dichloroethane	ND		ug/kg	2.4	0.48	1
Chloroform	ND		ug/kg	2.4	0.53	1
Carbon tetrachloride	ND		ug/kg	1.6	0.35	1
1,2-Dichloropropane	ND		ug/kg	5.7	0.42	1
Dibromochloromethane	ND		ug/kg	1.6	0.50	1
1,1,2-Trichloroethane	ND		ug/kg	2.4	0.64	1
Tetrachloroethene	ND		ug/kg	1.6	0.50	1
Chlorobenzene	ND		ug/kg	1.6	0.30	1
Trichlorofluoromethane	ND		ug/kg	8.2	0.64	1
1,2-Dichloroethane	ND		ug/kg	1.6	0.37	1
1,1,1-Trichloroethane	ND		ug/kg	1.6	0.44	1
Bromodichloromethane	ND		ug/kg	1.6	0.63	1
trans-1,3-Dichloropropene	ND		ug/kg	1.6	0.49	1
cis-1,3-Dichloropropene	ND		ug/kg	1.6	0.44	1
1,1-Dichloropropene	ND		ug/kg	8.2	0.75	1
Bromoform	ND		ug/kg	6.6	0.81	1
1,1,2,2-Tetrachloroethane	ND		ug/kg	1.6	0.39	1
Benzene	ND		ug/kg	1.6	0.49	1
Toluene	ND		ug/kg	2.4	0.40	1
Ethylbenzene	ND		ug/kg	1.6	0.36	1
Chloromethane	ND		ug/kg	8.2	1.3	1
Bromomethane	ND		ug/kg	3.3	1.1	1
Vinyl chloride	ND		ug/kg	3.3	1.2	1
Chloroethane	ND		ug/kg	3.3	0.72	1
1,1-Dichloroethene	ND		ug/kg	1.6	0.42	1
trans-1,2-Dichloroethene	ND		ug/kg	2.4	0.64	1
Trichloroethene	ND		ug/kg	1.6	0.37	1
1,2-Dichlorobenzene	ND		ug/kg	8.2	0.60	1
1,3-Dichlorobenzene	ND		ug/kg	8.2	0.66	1
1,4-Dichlorobenzene	8.7		ug/kg	8.2	0.69	1

Project Name: YOVIENE **Lab Number:** L1223487

Project Number: BEV-12- **Report Date:** 01/04/13

SAMPLE RESULTS

Lab ID: L1223487-07 Date Collected: 12/28/12 11:10

Client ID: P-7, 3.7-4.9' Date Received: 12/29/12

Sample Location: HAMBURG, NY Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methyl tert butyl ether	ND		ug/kg	3.3	0.80	1
p/m-Xylene	ND		ug/kg	3.3	0.70	1
o-Xylene	ND		ug/kg	3.3	0.68	1
cis-1,2-Dichloroethene	ND		ug/kg	1.6	0.49	1
Dibromomethane	ND		ug/kg	16	0.71	1
Styrene	ND		ug/kg	3.3	1.2	1
Dichlorodifluoromethane	ND		ug/kg	16	0.64	1
Acetone	110		ug/kg	16	5.3	1
Carbon disulfide	ND		ug/kg	16	3.3	1
2-Butanone	29		ug/kg	16	6.4	1
Vinyl acetate	ND		ug/kg	16	1.2	1
4-Methyl-2-pentanone	ND		ug/kg	16	1.3	1
1,2,3-Trichloropropane	ND		ug/kg	16	0.63	1
2-Hexanone	ND		ug/kg	16	0.65	1
Bromochloromethane	ND		ug/kg	8.2	0.50	1
2,2-Dichloropropane	ND		ug/kg	8.2	1.3	1
1,2-Dibromoethane	ND		ug/kg	6.6	0.67	1
1,3-Dichloropropane	ND		ug/kg	8.2	0.93	1
1,1,1,2-Tetrachloroethane	ND		ug/kg	1.6	0.54	1
Bromobenzene	ND		ug/kg	8.2	0.36	1
n-Butylbenzene	1.5	J	ug/kg	1.6	0.52	1
sec-Butylbenzene	1.7		ug/kg	1.6	0.45	1
tert-Butylbenzene	ND		ug/kg	8.2	0.99	1
o-Chlorotoluene	ND		ug/kg	8.2	0.51	1
p-Chlorotoluene	ND		ug/kg	8.2	0.59	1
1,2-Dibromo-3-chloropropane	ND		ug/kg	8.2	1.4	1
Hexachlorobutadiene	ND		ug/kg	8.2	0.75	1
Isopropylbenzene	1.0	J	ug/kg	1.6	0.29	1
p-Isopropyltoluene	ND		ug/kg	1.6	0.45	1
Naphthalene	11		ug/kg	8.2	1.3	1
Acrylonitrile	ND		ug/kg	16	0.62	1
n-Propylbenzene	ND		ug/kg	1.6	0.46	1
1,2,3-Trichlorobenzene	ND		ug/kg	8.2	0.66	1
1,2,4-Trichlorobenzene	ND		ug/kg	8.2	1.3	1
1,3,5-Trimethylbenzene	ND		ug/kg	8.2	0.99	1
1,2,4-Trimethylbenzene	13		ug/kg	8.2	0.94	1
1,4-Dioxane	ND		ug/kg	160	28.	1
1,4-Diethylbenzene	1.1	J	ug/kg	6.6	0.33	1
4-Ethyltoluene	ND		ug/kg	6.6	0.16	1

Project Name: YOVIENE
Project Number: BEV-12-

Lab Number: L1223487
Report Date: 01/04/13

SAMPLE RESULTS

Lab ID: L1223487-07
Client ID: P-7, 3.7-4.9'
Sample Location: HAMBURG, NY

Date Collected: 12/28/12 11:10
Date Received: 12/29/12
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
1,2,4,5-Tetramethylbenzene	5.3	J	ug/kg	6.6	0.30	1
Ethyl ether	ND		ug/kg	8.2	0.62	1
trans-1,4-Dichloro-2-butene	ND		ug/kg	8.2	2.4	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	101		70-130
Toluene-d8	101		70-130
4-Bromofluorobenzene	103		70-130
Dibromofluoromethane	95		70-130

Project Name: YOVIENE
Project Number: BEV-12-

Lab Number: L1223487
Report Date: 01/04/13

SAMPLE RESULTS

Lab ID:	L1223487-08	Date Collected:	12/28/12 12:15
Client ID:	P-8, 4.2-5.0'	Date Received:	12/29/12
Sample Location:	HAMBURG, NY	Field Prep:	Not Specified
Matrix:	Soil		
Analytical Method:	1,8260C		
Analytical Date:	01/03/13 11:41		
Analyst:	BN		
Percent Solids:	82%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methylene chloride	ND		ug/kg	12	2.4	1
1,1-Dichloroethane	ND		ug/kg	1.8	0.36	1
Chloroform	ND		ug/kg	1.8	0.40	1
Carbon tetrachloride	ND		ug/kg	1.2	0.26	1
1,2-Dichloropropane	ND		ug/kg	4.3	0.31	1
Dibromochloromethane	ND		ug/kg	1.2	0.38	1
1,1,2-Trichloroethane	ND		ug/kg	1.8	0.48	1
Tetrachloroethene	ND		ug/kg	1.2	0.37	1
Chlorobenzene	ND		ug/kg	1.2	0.23	1
Trichlorofluoromethane	ND		ug/kg	6.1	0.48	1
1,2-Dichloroethane	ND		ug/kg	1.2	0.28	1
1,1,1-Trichloroethane	ND		ug/kg	1.2	0.33	1
Bromodichloromethane	ND		ug/kg	1.2	0.47	1
trans-1,3-Dichloropropene	ND		ug/kg	1.2	0.37	1
cis-1,3-Dichloropropene	ND		ug/kg	1.2	0.32	1
1,1-Dichloropropene	ND		ug/kg	6.1	0.56	1
Bromoform	ND		ug/kg	4.9	0.60	1
1,1,2,2-Tetrachloroethane	ND		ug/kg	1.2	0.29	1
Benzene	ND		ug/kg	1.2	0.36	1
Toluene	ND		ug/kg	1.8	0.29	1
Ethylbenzene	ND		ug/kg	1.2	0.27	1
Chloromethane	ND		ug/kg	6.1	0.96	1
Bromomethane	ND		ug/kg	2.4	0.79	1
Vinyl chloride	ND		ug/kg	2.4	0.92	1
Chloroethane	ND		ug/kg	2.4	0.53	1
1,1-Dichloroethene	ND		ug/kg	1.2	0.32	1
trans-1,2-Dichloroethene	ND		ug/kg	1.8	0.48	1
Trichloroethene	ND		ug/kg	1.2	0.27	1
1,2-Dichlorobenzene	ND		ug/kg	6.1	0.44	1
1,3-Dichlorobenzene	ND		ug/kg	6.1	0.49	1
1,4-Dichlorobenzene	ND		ug/kg	6.1	0.51	1

Project Name: YOVIENE
Project Number: BEV-12-

Lab Number: L1223487
Report Date: 01/04/13

SAMPLE RESULTS

Lab ID: L1223487-08
Client ID: P-8, 4.2-5.0'
Sample Location: HAMBURG, NY

Date Collected: 12/28/12 12:15
Date Received: 12/29/12
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methyl tert butyl ether	ND		ug/kg	2.4	0.59	1
p/m-Xylene	ND		ug/kg	2.4	0.52	1
o-Xylene	ND		ug/kg	2.4	0.51	1
cis-1,2-Dichloroethene	ND		ug/kg	1.2	0.37	1
Dibromomethane	ND		ug/kg	12	0.53	1
Styrene	ND		ug/kg	2.4	0.88	1
Dichlorodifluoromethane	ND		ug/kg	12	0.47	1
Acetone	65		ug/kg	12	3.9	1
Carbon disulfide	ND		ug/kg	12	2.4	1
2-Butanone	11	J	ug/kg	12	4.7	1
Vinyl acetate	ND		ug/kg	12	0.92	1
4-Methyl-2-pentanone	ND		ug/kg	12	1.0	1
1,2,3-Trichloropropane	ND		ug/kg	12	0.47	1
2-Hexanone	ND		ug/kg	12	0.48	1
Bromochloromethane	ND		ug/kg	6.1	0.37	1
2,2-Dichloropropane	ND		ug/kg	6.1	0.97	1
1,2-Dibromoethane	ND		ug/kg	4.9	0.50	1
1,3-Dichloropropane	ND		ug/kg	6.1	0.69	1
1,1,1,2-Tetrachloroethane	ND		ug/kg	1.2	0.40	1
Bromobenzene	ND		ug/kg	6.1	0.27	1
n-Butylbenzene	ND		ug/kg	1.2	0.38	1
sec-Butylbenzene	ND		ug/kg	1.2	0.34	1
tert-Butylbenzene	ND		ug/kg	6.1	0.74	1
o-Chlorotoluene	ND		ug/kg	6.1	0.38	1
p-Chlorotoluene	ND		ug/kg	6.1	0.44	1
1,2-Dibromo-3-chloropropane	ND		ug/kg	6.1	1.0	1
Hexachlorobutadiene	ND		ug/kg	6.1	0.56	1
Isopropylbenzene	ND		ug/kg	1.2	0.22	1
p-Isopropyltoluene	ND		ug/kg	1.2	0.33	1
Naphthalene	2.2	J	ug/kg	6.1	0.94	1
Acrylonitrile	ND		ug/kg	12	0.46	1
n-Propylbenzene	ND		ug/kg	1.2	0.35	1
1,2,3-Trichlorobenzene	ND		ug/kg	6.1	0.49	1
1,2,4-Trichlorobenzene	ND		ug/kg	6.1	0.96	1
1,3,5-Trimethylbenzene	ND		ug/kg	6.1	0.73	1
1,2,4-Trimethylbenzene	ND		ug/kg	6.1	0.70	1
1,4-Dioxane	ND		ug/kg	120	21.	1
1,4-Diethylbenzene	3.4	J	ug/kg	4.9	0.24	1
4-Ethyltoluene	ND		ug/kg	4.9	0.12	1

Project Name: YOVIENE
Project Number: BEV-12-

Lab Number: L1223487
Report Date: 01/04/13

SAMPLE RESULTS

Lab ID: L1223487-08
Client ID: P-8, 4.2-5.0'
Sample Location: HAMBURG, NY

Date Collected: 12/28/12 12:15
Date Received: 12/29/12
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
1,2,4,5-Tetramethylbenzene	ND		ug/kg	4.9	0.22	1
Ethyl ether	ND		ug/kg	6.1	0.46	1
trans-1,4-Dichloro-2-butene	ND		ug/kg	6.1	1.8	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	103		70-130
Toluene-d8	96		70-130
4-Bromofluorobenzene	116		70-130
Dibromofluoromethane	96		70-130

Project Name: YOVIENE
Project Number: BEV-12-

Lab Number: L1223487
Report Date: 01/04/13

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 01/02/13 08:06
Analyst: BN

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 01 Batch: WG582419-3					
Methylene chloride	ND		ug/kg	10	2.0
1,1-Dichloroethane	ND		ug/kg	1.5	0.30
Chloroform	ND		ug/kg	1.5	0.32
Carbon tetrachloride	ND		ug/kg	1.0	0.21
1,2-Dichloropropane	ND		ug/kg	3.5	0.26
Dibromochloromethane	ND		ug/kg	1.0	0.31
2-Chloroethylvinyl ether	ND		ug/kg	20	0.31
1,1,2-Trichloroethane	ND		ug/kg	1.5	0.39
Tetrachloroethene	ND		ug/kg	1.0	0.31
Chlorobenzene	ND		ug/kg	1.0	0.19
Trichlorofluoromethane	ND		ug/kg	5.0	0.39
1,2-Dichloroethane	ND		ug/kg	1.0	0.23
1,1,1-Trichloroethane	ND		ug/kg	1.0	0.27
Bromodichloromethane	ND		ug/kg	1.0	0.38
trans-1,3-Dichloropropene	ND		ug/kg	1.0	0.30
cis-1,3-Dichloropropene	ND		ug/kg	1.0	0.27
1,1-Dichloropropene	ND		ug/kg	5.0	0.46
Bromoform	ND		ug/kg	4.0	0.50
1,1,2,2-Tetrachloroethane	ND		ug/kg	1.0	0.24
Benzene	ND		ug/kg	1.0	0.30
Toluene	ND		ug/kg	1.5	0.24
Ethylbenzene	ND		ug/kg	1.0	0.22
Chloromethane	ND		ug/kg	5.0	0.78
Bromomethane	ND		ug/kg	2.0	0.65
Vinyl chloride	ND		ug/kg	2.0	0.75
Chloroethane	ND		ug/kg	2.0	0.44
1,1-Dichloroethene	ND		ug/kg	1.0	0.26
trans-1,2-Dichloroethene	ND		ug/kg	1.5	0.39
Trichloroethene	ND		ug/kg	1.0	0.22
1,2-Dichlorobenzene	ND		ug/kg	5.0	0.36
1,3-Dichlorobenzene	ND		ug/kg	5.0	0.40

Project Name: YOVIENE
Project Number: BEV-12-

Lab Number: L1223487
Report Date: 01/04/13

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 01/02/13 08:06
Analyst: BN

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 01 Batch: WG582419-3					
1,4-Dichlorobenzene	ND		ug/kg	5.0	0.42
Methyl tert butyl ether	ND		ug/kg	2.0	0.49
p/m-Xylene	ND		ug/kg	2.0	0.43
o-Xylene	ND		ug/kg	2.0	0.42
cis-1,2-Dichloroethene	ND		ug/kg	1.0	0.30
Dibromomethane	ND		ug/kg	10	0.43
Styrene	ND		ug/kg	2.0	0.73
Dichlorodifluoromethane	ND		ug/kg	10	0.39
Acetone	ND		ug/kg	10	3.2
Carbon disulfide	ND		ug/kg	10	2.0
2-Butanone	ND		ug/kg	10	3.9
Vinyl acetate	ND		ug/kg	10	0.75
4-Methyl-2-pentanone	ND		ug/kg	10	0.82
1,2,3-Trichloropropane	ND		ug/kg	10	0.39
2-Hexanone	ND		ug/kg	10	0.40
Bromochloromethane	ND		ug/kg	5.0	0.30
2,2-Dichloropropane	ND		ug/kg	5.0	0.80
1,2-Dibromoethane	ND		ug/kg	4.0	0.41
1,3-Dichloropropane	ND		ug/kg	5.0	0.56
1,1,1,2-Tetrachloroethane	ND		ug/kg	1.0	0.33
Bromobenzene	ND		ug/kg	5.0	0.22
n-Butylbenzene	ND		ug/kg	1.0	0.31
sec-Butylbenzene	ND		ug/kg	1.0	0.28
tert-Butylbenzene	ND		ug/kg	5.0	0.60
o-Chlorotoluene	ND		ug/kg	5.0	0.31
p-Chlorotoluene	ND		ug/kg	5.0	0.36
1,2-Dibromo-3-chloropropane	ND		ug/kg	5.0	0.84
Hexachlorobutadiene	ND		ug/kg	5.0	0.46
Isopropylbenzene	ND		ug/kg	1.0	0.18
p-Isopropyltoluene	ND		ug/kg	1.0	0.27
Naphthalene	ND		ug/kg	5.0	0.77

Project Name: YOVIENE
Project Number: BEV-12-

Lab Number: L1223487
Report Date: 01/04/13

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 01/02/13 08:06
Analyst: BN

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 01 Batch: WG582419-3					
Acrylonitrile	ND		ug/kg	10	0.38
Isopropyl Ether	ND		ug/kg	4.0	0.42
tert-Butyl Alcohol	ND		ug/kg	60	1.2
n-Propylbenzene	ND		ug/kg	1.0	0.28
1,2,3-Trichlorobenzene	ND		ug/kg	5.0	0.40
1,2,4-Trichlorobenzene	ND		ug/kg	5.0	0.79
1,3,5-Trimethylbenzene	ND		ug/kg	5.0	0.60
1,2,4-Trimethylbenzene	ND		ug/kg	5.0	0.57
Methyl Acetate	ND		ug/kg	20	0.47
Ethyl Acetate	ND		ug/kg	20	20.
Acrolein	ND		ug/kg	25	3.0
Cyclohexane	ND		ug/kg	20	0.12
1,4-Dioxane	ND		ug/kg	100	17.
1,1,2-Trichloro-1,2,2-Trifluoroethane	ND		ug/kg	20	0.40
1,4-Diethylbenzene	ND		ug/kg	4.0	0.20
4-Ethyltoluene	ND		ug/kg	4.0	0.10
1,2,4,5-Tetramethylbenzene	ND		ug/kg	4.0	0.18
Tetrahydrofuran	ND		ug/kg	20	1.1
Ethyl ether	ND		ug/kg	5.0	0.38
trans-1,4-Dichloro-2-butene	ND		ug/kg	5.0	1.5
Methyl cyclohexane	ND		ug/kg	4.0	0.70
Ethyl-Tert-Butyl-Ether	ND		ug/kg	4.0	0.88
Tertiary-Amyl Methyl Ether	ND		ug/kg	4.0	1.0

Project Name: YOVIENE
Project Number: BEV-12-

Lab Number: L1223487
Report Date: 01/04/13

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 01/02/13 08:06
Analyst: BN

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 01 Batch: WG582419-3					

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	98		70-130
Toluene-d8	99		70-130
4-Bromofluorobenzene	96		70-130
Dibromofluoromethane	99		70-130

Project Name: YOVIENE
Project Number: BEV-12-

Lab Number: L1223487
Report Date: 01/04/13

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 01/03/13 08:26
Analyst: BN

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 02-08 Batch: WG582584-3					
Methylene chloride	ND		ug/kg	10	2.0
1,1-Dichloroethane	ND		ug/kg	1.5	0.30
Chloroform	ND		ug/kg	1.5	0.32
Carbon tetrachloride	ND		ug/kg	1.0	0.21
1,2-Dichloropropane	ND		ug/kg	3.5	0.26
Dibromochloromethane	ND		ug/kg	1.0	0.31
2-Chloroethylvinyl ether	ND		ug/kg	20	0.31
1,1,2-Trichloroethane	ND		ug/kg	1.5	0.39
Tetrachloroethene	ND		ug/kg	1.0	0.31
Chlorobenzene	ND		ug/kg	1.0	0.19
Trichlorofluoromethane	ND		ug/kg	5.0	0.39
1,2-Dichloroethane	ND		ug/kg	1.0	0.23
1,1,1-Trichloroethane	ND		ug/kg	1.0	0.27
Bromodichloromethane	ND		ug/kg	1.0	0.38
trans-1,3-Dichloropropene	ND		ug/kg	1.0	0.30
cis-1,3-Dichloropropene	ND		ug/kg	1.0	0.27
1,1-Dichloropropene	ND		ug/kg	5.0	0.46
Bromoform	ND		ug/kg	4.0	0.50
1,1,2,2-Tetrachloroethane	ND		ug/kg	1.0	0.24
Benzene	ND		ug/kg	1.0	0.30
Toluene	ND		ug/kg	1.5	0.24
Ethylbenzene	ND		ug/kg	1.0	0.22
Chloromethane	ND		ug/kg	5.0	0.78
Bromomethane	ND		ug/kg	2.0	0.65
Vinyl chloride	ND		ug/kg	2.0	0.75
Chloroethane	ND		ug/kg	2.0	0.44
1,1-Dichloroethene	ND		ug/kg	1.0	0.26
trans-1,2-Dichloroethene	ND		ug/kg	1.5	0.39
Trichloroethene	ND		ug/kg	1.0	0.22
1,2-Dichlorobenzene	ND		ug/kg	5.0	0.36
1,3-Dichlorobenzene	ND		ug/kg	5.0	0.40

Project Name: YOVIENE
Project Number: BEV-12-

Lab Number: L1223487
Report Date: 01/04/13

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 01/03/13 08:26
Analyst: BN

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 02-08 Batch: WG582584-3					
1,4-Dichlorobenzene	ND		ug/kg	5.0	0.42
Methyl tert butyl ether	ND		ug/kg	2.0	0.49
p/m-Xylene	ND		ug/kg	2.0	0.43
o-Xylene	ND		ug/kg	2.0	0.42
cis-1,2-Dichloroethene	ND		ug/kg	1.0	0.30
Dibromomethane	ND		ug/kg	10	0.43
Styrene	ND		ug/kg	2.0	0.73
Dichlorodifluoromethane	ND		ug/kg	10	0.39
Acetone	ND		ug/kg	10	3.2
Carbon disulfide	ND		ug/kg	10	2.0
2-Butanone	ND		ug/kg	10	3.9
Vinyl acetate	ND		ug/kg	10	0.75
4-Methyl-2-pentanone	ND		ug/kg	10	0.82
1,2,3-Trichloropropane	ND		ug/kg	10	0.39
2-Hexanone	ND		ug/kg	10	0.40
Bromochloromethane	ND		ug/kg	5.0	0.30
2,2-Dichloropropane	ND		ug/kg	5.0	0.80
1,2-Dibromoethane	ND		ug/kg	4.0	0.41
1,3-Dichloropropane	ND		ug/kg	5.0	0.56
1,1,1,2-Tetrachloroethane	ND		ug/kg	1.0	0.33
Bromobenzene	ND		ug/kg	5.0	0.22
n-Butylbenzene	ND		ug/kg	1.0	0.31
sec-Butylbenzene	ND		ug/kg	1.0	0.28
tert-Butylbenzene	ND		ug/kg	5.0	0.60
o-Chlorotoluene	ND		ug/kg	5.0	0.31
p-Chlorotoluene	ND		ug/kg	5.0	0.36
1,2-Dibromo-3-chloropropane	ND		ug/kg	5.0	0.84
Hexachlorobutadiene	ND		ug/kg	5.0	0.46
Isopropylbenzene	ND		ug/kg	1.0	0.18
p-Isopropyltoluene	ND		ug/kg	1.0	0.27
Naphthalene	ND		ug/kg	5.0	0.77

Project Name: YOVIENE
Project Number: BEV-12-

Lab Number: L1223487
Report Date: 01/04/13

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 01/03/13 08:26
Analyst: BN

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 02-08 Batch: WG582584-3					
Acrylonitrile	ND		ug/kg	10	0.38
Isopropyl Ether	ND		ug/kg	4.0	0.42
tert-Butyl Alcohol	ND		ug/kg	60	1.2
n-Propylbenzene	ND		ug/kg	1.0	0.28
1,2,3-Trichlorobenzene	ND		ug/kg	5.0	0.40
1,2,4-Trichlorobenzene	ND		ug/kg	5.0	0.79
1,3,5-Trimethylbenzene	ND		ug/kg	5.0	0.60
1,2,4-Trimethylbenzene	ND		ug/kg	5.0	0.57
Methyl Acetate	ND		ug/kg	20	0.47
Ethyl Acetate	ND		ug/kg	20	20.
Acrolein	ND		ug/kg	25	3.0
Cyclohexane	ND		ug/kg	20	0.12
1,4-Dioxane	ND		ug/kg	100	17.
1,1,2-Trichloro-1,2,2-Trifluoroethane	ND		ug/kg	20	0.40
1,4-Diethylbenzene	ND		ug/kg	4.0	0.20
4-Ethyltoluene	ND		ug/kg	4.0	0.10
1,2,4,5-Tetramethylbenzene	ND		ug/kg	4.0	0.18
Tetrahydrofuran	ND		ug/kg	20	1.1
Ethyl ether	ND		ug/kg	5.0	0.38
trans-1,4-Dichloro-2-butene	ND		ug/kg	5.0	1.5
Methyl cyclohexane	ND		ug/kg	4.0	0.70
Ethyl-Tert-Butyl-Ether	ND		ug/kg	4.0	0.88
Tertiary-Amyl Methyl Ether	ND		ug/kg	4.0	1.0

Project Name: YOVIENE
Project Number: BEV-12-

Lab Number: L1223487
Report Date: 01/04/13

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 01/03/13 08:26
Analyst: BN

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 02-08 Batch: WG582584-3					

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	99		70-130
Toluene-d8	101		70-130
4-Bromofluorobenzene	101		70-130
Dibromofluoromethane	94		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: YOVIENE
Project Number: BEV-12-

Lab Number: L1223487
Report Date: 01/04/13

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01 Batch: WG582419-1 WG582419-2								
Methylene chloride	96		96		70-130	0		30
1,1-Dichloroethane	98		96		70-130	2		30
Chloroform	100		98		70-130	2		30
Carbon tetrachloride	103		98		70-130	5		30
1,2-Dichloropropane	97		96		70-130	1		30
Dibromochloromethane	98		99		70-130	1		30
2-Chloroethylvinyl ether	97		96			1		30
1,1,2-Trichloroethane	101		102		70-130	1		30
Tetrachloroethene	104		100		70-130	4		30
Chlorobenzene	98		96		70-130	2		30
Trichlorofluoromethane	107		102		70-139	5		30
1,2-Dichloroethane	95		95		70-130	0		30
1,1,1-Trichloroethane	101		96		70-130	5		30
Bromodichloromethane	97		98		70-130	1		30
trans-1,3-Dichloropropene	100		100		70-130	0		30
cis-1,3-Dichloropropene	100		99		70-130	1		30
1,1-Dichloropropene	104		96		70-130	6		30
Bromoform	95		97		70-130	2		30
1,1,2,2-Tetrachloroethane	96		98		70-130	2		30
Benzene	100		96		70-130	4		30
Toluene	98		97		70-130	1		30

Lab Control Sample Analysis
Batch Quality Control

Project Name: YOVIENE
Project Number: BEV-12-

Lab Number: L1223487
Report Date: 01/04/13

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01 Batch: WG582419-1 WG582419-2								
Ethylbenzene	99		96		70-130	3		30
Chloromethane	88		87		52-130	1		30
Bromomethane	133		123		57-147	8		30
Vinyl chloride	110		103		67-130	7		30
Chloroethane	114		109		50-151	4		30
1,1-Dichloroethene	110		102		65-135	8		30
trans-1,2-Dichloroethene	103		98		70-130	5		30
Trichloroethene	102		98		70-130	4		30
1,2-Dichlorobenzene	98		97		70-130	1		30
1,3-Dichlorobenzene	99		96		70-130	3		30
1,4-Dichlorobenzene	98		97		70-130	1		30
Methyl tert butyl ether	99		100		66-130	1		30
p/m-Xylene	100		98		70-130	2		30
o-Xylene	100		97		70-130	3		30
cis-1,2-Dichloroethene	102		99		70-130	3		30
Dibromomethane	101		102		70-130	1		30
Styrene	99		97		70-130	2		30
Dichlorodifluoromethane	103		96		30-146	7		30
Acetone	129		103		54-140	22		30
Carbon disulfide	107		100		59-130	7		30
2-Butanone	104		92		70-130	12		30

Lab Control Sample Analysis
Batch Quality Control

Project Name: YOVIENE
Project Number: BEV-12-

Lab Number: L1223487
Report Date: 01/04/13

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01 Batch: WG582419-1 WG582419-2								
Vinyl acetate	94		95		70-130	1		30
4-Methyl-2-pentanone	90		89		70-130	1		30
1,2,3-Trichloropropane	96		98		68-130	2		30
2-Hexanone	106		93		70-130	13		30
Bromochloromethane	104		104		70-130	0		30
2,2-Dichloropropane	102		98		70-130	4		30
1,2-Dibromoethane	98		98		70-130	0		30
1,3-Dichloropropane	98		97		69-130	1		30
1,1,1,2-Tetrachloroethane	100		99		70-130	1		30
Bromobenzene	100		99		70-130	1		30
n-Butylbenzene	102		96		70-130	6		30
sec-Butylbenzene	100		96		70-130	4		30
tert-Butylbenzene	101		96		70-130	5		30
o-Chlorotoluene	97		95		70-130	2		30
p-Chlorotoluene	98		96		70-130	2		30
1,2-Dibromo-3-chloropropane	90		89		68-130	1		30
Hexachlorobutadiene	103		96		67-130	7		30
Isopropylbenzene	101		96		70-130	5		30
p-Isopropyltoluene	102		97		70-130	5		30
Naphthalene	93		94		70-130	1		30
Acrylonitrile	99		98		70-130	1		30

Lab Control Sample Analysis
Batch Quality Control

Project Name: YOVIENE
Project Number: BEV-12-

Lab Number: L1223487
Report Date: 01/04/13

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01 Batch: WG582419-1 WG582419-2								
Isopropyl Ether	92		92		66-130	0		30
tert-Butyl Alcohol	96		98		70-130	2		30
n-Propylbenzene	99		96		70-130	3		30
1,2,3-Trichlorobenzene	96		95		70-130	1		30
1,2,4-Trichlorobenzene	98		97		70-130	1		30
1,3,5-Trimethylbenzene	100		97		70-130	3		30
1,2,4-Trimethylbenzene	100		97		70-130	3		30
Methyl Acetate	89		90		70-130	1		30
Ethyl Acetate	94		94		70-130	0		30
Acrolein	70		66	Q	70-130	6		30
Cyclohexane	103		97		70-130	6		30
1,4-Dioxane	100		100		65-136	0		30
1,1,2-Trichloro-1,2,2-Trifluoroethane	113		104		70-130	8		30
1,4-Diethylbenzene	102		97		70-130	5		30
4-Ethyltoluene	100		96		70-130	4		30
1,2,4,5-Tetramethylbenzene	102		97		70-130	5		30
Tetrahydrofuran	91		90		66-130	1		30
Ethyl ether	95		94		67-130	1		30
trans-1,4-Dichloro-2-butene	98		97		70-130	1		30
Methyl cyclohexane	107		102		70-130	5		30
Ethyl-Tert-Butyl-Ether	96		98		70-130	2		30

Lab Control Sample Analysis
Batch Quality Control

Project Name: YOVIENE
Project Number: BEV-12-

Lab Number: L1223487
Report Date: 01/04/13

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01 Batch: WG582419-1 WG582419-2								
Tertiary-Amyl Methyl Ether	98		99		70-130	1		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	94		95		70-130
Toluene-d8	100		102		70-130
4-Bromofluorobenzene	99		99		70-130
Dibromofluoromethane	98		100		70-130

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 02-08 Batch: WG582584-1 WG582584-2								
Methylene chloride	86		86		70-130	0		30
1,1-Dichloroethane	89		86		70-130	3		30
Chloroform	89		86		70-130	3		30
Carbon tetrachloride	90		84		70-130	7		30
1,2-Dichloropropane	87		87		70-130	0		30
Dibromochloromethane	88		90		70-130	2		30
2-Chloroethylvinyl ether	87		87			0		30
1,1,2-Trichloroethane	90		91		70-130	1		30
Tetrachloroethene	94		88		70-130	7		30

Lab Control Sample Analysis
Batch Quality Control

Project Name: YOVIENE
Project Number: BEV-12-

Lab Number: L1223487
Report Date: 01/04/13

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 02-08 Batch: WG582584-1 WG582584-2								
Chlorobenzene	92		90		70-130	2		30
Trichlorofluoromethane	96		88		70-139	9		30
1,2-Dichloroethane	87		88		70-130	1		30
1,1,1-Trichloroethane	89		83		70-130	7		30
Bromodichloromethane	86		86		70-130	0		30
trans-1,3-Dichloropropene	89		91		70-130	2		30
cis-1,3-Dichloropropene	86		87		70-130	1		30
1,1-Dichloropropene	92		85		70-130	8		30
Bromoform	90		92		70-130	2		30
1,1,2,2-Tetrachloroethane	92		94		70-130	2		30
Benzene	89		86		70-130	3		30
Toluene	90		85		70-130	6		30
Ethylbenzene	94		89		70-130	5		30
Chloromethane	99		90		52-130	10		30
Bromomethane	86		81		57-147	6		30
Vinyl chloride	93		85		67-130	9		30
Chloroethane	92		84		50-151	9		30
1,1-Dichloroethene	92		86		65-135	7		30
trans-1,2-Dichloroethene	90		86		70-130	5		30
Trichloroethene	90		85		70-130	6		30
1,2-Dichlorobenzene	96		97		70-130	1		30

Lab Control Sample Analysis
Batch Quality Control

Project Name: YOVIENE
Project Number: BEV-12-

Lab Number: L1223487
Report Date: 01/04/13

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 02-08 Batch: WG582584-1 WG582584-2								
1,3-Dichlorobenzene	98		96		70-130	2		30
1,4-Dichlorobenzene	96		95		70-130	1		30
Methyl tert butyl ether	84		87		66-130	4		30
p/m-Xylene	94		91		70-130	3		30
o-Xylene	95		93		70-130	2		30
cis-1,2-Dichloroethene	88		86		70-130	2		30
Dibromomethane	85		88		70-130	3		30
Styrene	96		94		70-130	2		30
Dichlorodifluoromethane	93		83		30-146	11		30
Acetone	136		119		54-140	13		30
Carbon disulfide	94		87		59-130	8		30
2-Butanone	119		109		70-130	9		30
Vinyl acetate	88		90		70-130	2		30
4-Methyl-2-pentanone	84		85		70-130	1		30
1,2,3-Trichloropropane	93		95		68-130	2		30
2-Hexanone	116		105		70-130	10		30
Bromochloromethane	90		90		70-130	0		30
2,2-Dichloropropane	91		85		70-130	7		30
1,2-Dibromoethane	87		89		70-130	2		30
1,3-Dichloropropane	89		91		69-130	2		30
1,1,1,2-Tetrachloroethane	91		90		70-130	1		30

Lab Control Sample Analysis
Batch Quality Control

Project Name: YOVIENE
Project Number: BEV-12-

Lab Number: L1223487
Report Date: 01/04/13

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 02-08 Batch: WG582584-1 WG582584-2								
Bromobenzene	94		95		70-130	1		30
n-Butylbenzene	102		95		70-130	7		30
sec-Butylbenzene	101		94		70-130	7		30
tert-Butylbenzene	100		94		70-130	6		30
o-Chlorotoluene	99		95		70-130	4		30
p-Chlorotoluene	98		94		70-130	4		30
1,2-Dibromo-3-chloropropane	88		94		68-130	7		30
Hexachlorobutadiene	98		92		67-130	6		30
Isopropylbenzene	99		93		70-130	6		30
p-Isopropyltoluene	101		95		70-130	6		30
Naphthalene	93		96		70-130	3		30
Acrylonitrile	84		89		70-130	6		30
Isopropyl Ether	88		88		66-130	0		30
tert-Butyl Alcohol	79		83		70-130	5		30
n-Propylbenzene	100		95		70-130	5		30
1,2,3-Trichlorobenzene	97		98		70-130	1		30
1,2,4-Trichlorobenzene	96		98		70-130	0		30
1,3,5-Trimethylbenzene	100		95		70-130	5		30
1,2,4-Trimethylbenzene	99		96		70-130	3		30
Methyl Acetate	82		86		70-130	5		30
Ethyl Acetate	82		86		70-130	5		30

Lab Control Sample Analysis
Batch Quality Control

Project Name: YOVIENE
Project Number: BEV-12-

Lab Number: L1223487
Report Date: 01/04/13

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 02-08 Batch: WG582584-1 WG582584-2								
Acrolein	84		86		70-130	2		30
Cyclohexane	98		88		70-130	11		30
1,4-Dioxane	87		92		65-136	6		30
1,1,2-Trichloro-1,2,2-Trifluoroethane	96		88		70-130	9		30
1,4-Diethylbenzene	101		96		70-130	5		30
4-Ethyltoluene	100		95		70-130	5		30
1,2,4,5-Tetramethylbenzene	101		100		70-130	1		30
Tetrahydrofuran	82		86		66-130	5		30
Ethyl ether	88		89		67-130	1		30
trans-1,4-Dichloro-2-butene	91		93		70-130	2		30
Methyl cyclohexane	96		87		70-130	10		30
Ethyl-Tert-Butyl-Ether	88		88		70-130	0		30
Tertiary-Amyl Methyl Ether	86		88		70-130	2		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	96		96		70-130
Toluene-d8	101		101		70-130
4-Bromofluorobenzene	100		100		70-130
Dibromofluoromethane	94		94		70-130

SEMIVOLATILES

Project Name: YOVIENE
Project Number: BEV-12-

Lab Number: L1223487
Report Date: 01/04/13

SAMPLE RESULTS

Lab ID: L1223487-01 D
Client ID: P-1, 4.2-5.0'
Sample Location: HAMBURG, NY
Matrix: Soil
Analytical Method: 1,8270D
Analytical Date: 12/31/12 16:26
Analyst: JB
Percent Solids: 69%

Date Collected: 12/27/12 11:50
Date Received: 12/29/12
Field Prep: Not Specified
Extraction Method: EPA 3546
Extraction Date: 12/29/12 08:31

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Acenaphthene	ND		ug/kg	940	250	5
1,2,4-Trichlorobenzene	ND		ug/kg	1200	340	5
Hexachlorobenzene	ND		ug/kg	700	180	5
Bis(2-chloroethyl)ether	ND		ug/kg	1000	220	5
2-Chloronaphthalene	ND		ug/kg	1200	350	5
1,2-Dichlorobenzene	ND		ug/kg	1200	340	5
1,3-Dichlorobenzene	ND		ug/kg	1200	360	5
1,4-Dichlorobenzene	1800		ug/kg	1200	330	5
3,3'-Dichlorobenzidine	ND		ug/kg	1200	420	5
2,4-Dinitrotoluene	ND		ug/kg	1200	350	5
2,6-Dinitrotoluene	ND		ug/kg	1200	380	5
Fluoranthene	ND		ug/kg	700	150	5
4-Chlorophenyl phenyl ether	ND		ug/kg	1200	210	5
4-Bromophenyl phenyl ether	ND		ug/kg	1200	240	5
Bis(2-chloroisopropyl)ether	ND		ug/kg	1400	330	5
Bis(2-chloroethoxy)methane	ND		ug/kg	1300	290	5
Hexachlorobutadiene	ND		ug/kg	1200	310	5
Hexachlorocyclopentadiene	ND		ug/kg	3400	930	5
Hexachloroethane	ND		ug/kg	940	170	5
Isophorone	ND		ug/kg	1000	280	5
Naphthalene	500	J	ug/kg	1200	370	5
Nitrobenzene	ND		ug/kg	1000	340	5
NitrosoDiPhenylAmine(NDPA)/DPA	ND		ug/kg	940	290	5
n-Nitrosodi-n-propylamine	ND		ug/kg	1200	330	5
Bis(2-Ethylhexyl)phthalate	ND		ug/kg	1200	240	5
Butyl benzyl phthalate	ND		ug/kg	1200	330	5
Di-n-butylphthalate	ND		ug/kg	1200	200	5
Di-n-octylphthalate	12000		ug/kg	1200	320	5
Diethyl phthalate	ND		ug/kg	1200	200	5
Dimethyl phthalate	ND		ug/kg	1200	190	5
Benzo(a)anthracene	ND		ug/kg	700	230	5

Project Name: YOVIENE **Lab Number:** L1223487

Project Number: BEV-12- **Report Date:** 01/04/13

SAMPLE RESULTS

Lab ID: L1223487-01 D Date Collected: 12/27/12 11:50

Client ID: P-1, 4.2-5.0' Date Received: 12/29/12

Sample Location: HAMBURG, NY Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Benzo(a)pyrene	ND		ug/kg	940	280	5
Benzo(b)fluoranthene	ND		ug/kg	700	210	5
Benzo(k)fluoranthene	ND		ug/kg	700	180	5
Chrysene	ND		ug/kg	700	180	5
Acenaphthylene	ND		ug/kg	940	300	5
Anthracene	ND		ug/kg	700	160	5
Benzo(ghi)perylene	ND		ug/kg	940	300	5
Fluorene	ND		ug/kg	1200	220	5
Phenanthrene	ND		ug/kg	700	200	5
Dibenzo(a,h)anthracene	ND		ug/kg	700	220	5
Indeno(1,2,3-cd)Pyrene	ND		ug/kg	940	290	5
Pyrene	ND		ug/kg	700	190	5
Biphenyl	ND		ug/kg	2700	820	5
4-Chloroaniline	ND		ug/kg	1200	390	5
2-Nitroaniline	ND		ug/kg	1200	220	5
3-Nitroaniline	ND		ug/kg	1200	130	5
4-Nitroaniline	5700		ug/kg	1200	710	5
Dibenzofuran	ND		ug/kg	1200	240	5
2-Methylnaphthalene	ND		ug/kg	1400	460	5
1,2,4,5-Tetrachlorobenzene	ND		ug/kg	1200	370	5
Acetophenone	ND		ug/kg	1200	380	5
2,4,6-Trichlorophenol	ND		ug/kg	700	210	5
P-Chloro-M-Cresol	ND		ug/kg	1200	240	5
2-Chlorophenol	ND		ug/kg	1200	370	5
2,4-Dichlorophenol	ND		ug/kg	1000	340	5
2,4-Dimethylphenol	ND		ug/kg	1200	480	5
2-Nitrophenol	ND		ug/kg	2500	850	5
4-Nitrophenol	ND		ug/kg	1600	500	5
2,4-Dinitrophenol	ND		ug/kg	5600	1800	5
4,6-Dinitro-o-cresol	ND		ug/kg	3000	1100	5
Pentachlorophenol	ND		ug/kg	940	280	5
Phenol	ND		ug/kg	1200	370	5
2-Methylphenol	ND		ug/kg	1200	290	5
3-Methylphenol/4-Methylphenol	ND		ug/kg	1700	510	5
2,4,5-Trichlorophenol	ND		ug/kg	1200	270	5
Benzoic Acid	ND		ug/kg	3800	990	5
Benzyl Alcohol	ND		ug/kg	1200	270	5
Carbazole	ND		ug/kg	1200	190	5

Project Name: YOVIENE
Project Number: BEV-12-

Lab Number: L1223487
Report Date: 01/04/13

SAMPLE RESULTS

Lab ID: L1223487-01 D
Client ID: P-1, 4.2-5.0'
Sample Location: HAMBURG, NY

Date Collected: 12/27/12 11:50
Date Received: 12/29/12
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor

Semivolatile Organics by GC/MS - Westborough Lab

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	94		25-120
Phenol-d6	96		10-120
Nitrobenzene-d5	87		23-120
2-Fluorobiphenyl	103		30-120
2,4,6-Tribromophenol	118		0-136
4-Terphenyl-d14	95		18-120

Project Name: YOVIENE
Project Number: BEV-12-

Lab Number: L1223487
Report Date: 01/04/13

SAMPLE RESULTS

Lab ID:	L1223487-02	Date Collected:	12/27/12 12:30
Client ID:	P-2, 6.4-7.7'	Date Received:	12/29/12
Sample Location:	HAMBURG, NY	Field Prep:	Not Specified
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	1,8270D	Extraction Date:	12/29/12 08:31
Analytical Date:	12/31/12 16:52		
Analyst:	JB		
Percent Solids:	85%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Acenaphthene	ND		ug/kg	150	41.	1
1,2,4-Trichlorobenzene	ND		ug/kg	190	56.	1
Hexachlorobenzene	ND		ug/kg	110	30.	1
Bis(2-chloroethyl)ether	ND		ug/kg	170	36.	1
2-Chloronaphthalene	ND		ug/kg	190	57.	1
1,2-Dichlorobenzene	ND		ug/kg	190	56.	1
1,3-Dichlorobenzene	ND		ug/kg	190	59.	1
1,4-Dichlorobenzene	ND		ug/kg	190	54.	1
3,3'-Dichlorobenzidine	ND		ug/kg	190	69.	1
2,4-Dinitrotoluene	ND		ug/kg	190	57.	1
2,6-Dinitrotoluene	ND		ug/kg	190	63.	1
Fluoranthene	ND		ug/kg	110	25.	1
4-Chlorophenyl phenyl ether	ND		ug/kg	190	34.	1
4-Bromophenyl phenyl ether	ND		ug/kg	190	40.	1
Bis(2-chloroisopropyl)ether	ND		ug/kg	230	54.	1
Bis(2-chloroethoxy)methane	ND		ug/kg	210	48.	1
Hexachlorobutadiene	ND		ug/kg	190	51.	1
Hexachlorocyclopentadiene	ND		ug/kg	550	150	1
Hexachloroethane	ND		ug/kg	150	28.	1
Isophorone	ND		ug/kg	170	46.	1
Naphthalene	ND		ug/kg	190	61.	1
Nitrobenzene	ND		ug/kg	170	56.	1
NitrosoDiPhenylAmine(NDPA)/DPA	ND		ug/kg	150	48.	1
n-Nitrosodi-n-propylamine	ND		ug/kg	190	53.	1
Bis(2-Ethylhexyl)phthalate	ND		ug/kg	190	40.	1
Butyl benzyl phthalate	ND		ug/kg	190	54.	1
Di-n-butylphthalate	ND		ug/kg	190	32.	1
Di-n-octylphthalate	67	J	ug/kg	190	52.	1
Diethyl phthalate	ND		ug/kg	190	33.	1
Dimethyl phthalate	ND		ug/kg	190	32.	1
Benzo(a)anthracene	ND		ug/kg	110	38.	1

Project Name: YOVIENE
Project Number: BEV-12-

Lab Number: L1223487
Report Date: 01/04/13

SAMPLE RESULTS

Lab ID: L1223487-02
Client ID: P-2, 6.4-7.7'
Sample Location: HAMBURG, NY

Date Collected: 12/27/12 12:30
Date Received: 12/29/12
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Benzo(a)pyrene	ND		ug/kg	150	46.	1
Benzo(b)fluoranthene	ND		ug/kg	110	34.	1
Benzo(k)fluoranthene	ND		ug/kg	110	29.	1
Chrysene	ND		ug/kg	110	30.	1
Acenaphthylene	ND		ug/kg	150	50.	1
Anthracene	ND		ug/kg	110	26.	1
Benzo(ghi)perylene	ND		ug/kg	150	48.	1
Fluorene	ND		ug/kg	190	35.	1
Phenanthrene	ND		ug/kg	110	32.	1
Dibenzo(a,h)anthracene	ND		ug/kg	110	35.	1
Indeno(1,2,3-cd)Pyrene	ND		ug/kg	150	47.	1
Pyrene	ND		ug/kg	110	31.	1
Biphenyl	ND		ug/kg	440	130	1
4-Chloroaniline	ND		ug/kg	190	64.	1
2-Nitroaniline	ND		ug/kg	190	35.	1
3-Nitroaniline	ND		ug/kg	190	21.	1
4-Nitroaniline	ND		ug/kg	190	120	1
Dibenzofuran	ND		ug/kg	190	39.	1
2-Methylnaphthalene	ND		ug/kg	230	75.	1
1,2,4,5-Tetrachlorobenzene	ND		ug/kg	190	61.	1
Acetophenone	ND		ug/kg	190	61.	1
2,4,6-Trichlorophenol	ND		ug/kg	110	35.	1
P-Chloro-M-Cresol	ND		ug/kg	190	39.	1
2-Chlorophenol	ND		ug/kg	190	60.	1
2,4-Dichlorophenol	ND		ug/kg	170	55.	1
2,4-Dimethylphenol	ND		ug/kg	190	79.	1
2-Nitrophenol	ND		ug/kg	410	140	1
4-Nitrophenol	ND		ug/kg	270	81.	1
2,4-Dinitrophenol	ND		ug/kg	920	300	1
4,6-Dinitro-o-cresol	ND		ug/kg	500	180	1
Pentachlorophenol	ND		ug/kg	150	45.	1
Phenol	ND		ug/kg	190	60.	1
2-Methylphenol	ND		ug/kg	190	47.	1
3-Methylphenol/4-Methylphenol	ND		ug/kg	270	82.	1
2,4,5-Trichlorophenol	ND		ug/kg	190	44.	1
Benzoic Acid	ND		ug/kg	620	160	1
Benzyl Alcohol	ND		ug/kg	190	44.	1
Carbazole	ND		ug/kg	190	31.	1

Project Name: YOVIENE
Project Number: BEV-12-

Lab Number: L1223487
Report Date: 01/04/13

SAMPLE RESULTS

Lab ID: L1223487-02
Client ID: P-2, 6.4-7.7'
Sample Location: HAMBURG, NY

Date Collected: 12/27/12 12:30
Date Received: 12/29/12
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor

Semivolatile Organics by GC/MS - Westborough Lab

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	81		25-120
Phenol-d6	81		10-120
Nitrobenzene-d5	80		23-120
2-Fluorobiphenyl	80		30-120
2,4,6-Tribromophenol	76		0-136
4-Terphenyl-d14	70		18-120

Project Name: YOVIENE
Project Number: BEV-12-

Lab Number: L1223487
Report Date: 01/04/13

SAMPLE RESULTS

Lab ID: L1223487-03
Client ID: P-3, 3.6-4.8'
Sample Location: HAMBURG, NY
Matrix: Soil
Analytical Method: 1,8270D
Analytical Date: 12/31/12 17:18
Analyst: JB
Percent Solids: 69%

Date Collected: 12/27/12 13:00
Date Received: 12/29/12
Field Prep: Not Specified
Extraction Method: EPA 3546
Extraction Date: 12/29/12 08:31

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Acenaphthene	ND		ug/kg	190	51.	1
1,2,4-Trichlorobenzene	ND		ug/kg	230	68.	1
Hexachlorobenzene	ND		ug/kg	140	37.	1
Bis(2-chloroethyl)ether	ND		ug/kg	210	44.	1
2-Chloronaphthalene	ND		ug/kg	230	70.	1
1,2-Dichlorobenzene	ND		ug/kg	230	69.	1
1,3-Dichlorobenzene	ND		ug/kg	230	73.	1
1,4-Dichlorobenzene	ND		ug/kg	230	67.	1
3,3'-Dichlorobenzidine	ND		ug/kg	230	85.	1
2,4-Dinitrotoluene	ND		ug/kg	230	70.	1
2,6-Dinitrotoluene	ND		ug/kg	230	77.	1
Fluoranthene	ND		ug/kg	140	31.	1
4-Chlorophenyl phenyl ether	ND		ug/kg	230	41.	1
4-Bromophenyl phenyl ether	ND		ug/kg	230	49.	1
Bis(2-chloroisopropyl)ether	ND		ug/kg	280	66.	1
Bis(2-chloroethoxy)methane	ND		ug/kg	250	59.	1
Hexachlorobutadiene	ND		ug/kg	230	63.	1
Hexachlorocyclopentadiene	ND		ug/kg	670	180	1
Hexachloroethane	ND		ug/kg	190	34.	1
Isophorone	ND		ug/kg	210	56.	1
Naphthalene	180	J	ug/kg	230	74.	1
Nitrobenzene	ND		ug/kg	210	68.	1
NitrosoDiPhenylAmine(NDPA)/DPA	ND		ug/kg	190	59.	1
n-Nitrosodi-n-propylamine	ND		ug/kg	230	66.	1
Bis(2-Ethylhexyl)phthalate	ND		ug/kg	230	49.	1
Butyl benzyl phthalate	ND		ug/kg	230	66.	1
Di-n-butylphthalate	ND		ug/kg	230	40.	1
Di-n-octylphthalate	240		ug/kg	230	63.	1
Diethyl phthalate	ND		ug/kg	230	41.	1
Dimethyl phthalate	ND		ug/kg	230	39.	1
Benzo(a)anthracene	ND		ug/kg	140	46.	1

Project Name: YOVIENE
Project Number: BEV-12-

Lab Number: L1223487
Report Date: 01/04/13

SAMPLE RESULTS

Lab ID: L1223487-03
Client ID: P-3, 3.6-4.8'
Sample Location: HAMBURG, NY

Date Collected: 12/27/12 13:00
Date Received: 12/29/12
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Benzo(a)pyrene	ND		ug/kg	190	56.	1
Benzo(b)fluoranthene	ND		ug/kg	140	42.	1
Benzo(k)fluoranthene	ND		ug/kg	140	36.	1
Chrysene	ND		ug/kg	140	36.	1
Acenaphthylene	ND		ug/kg	190	61.	1
Anthracene	ND		ug/kg	140	32.	1
Benzo(ghi)perylene	ND		ug/kg	190	59.	1
Fluorene	ND		ug/kg	230	43.	1
Phenanthrene	ND		ug/kg	140	39.	1
Dibenzo(a,h)anthracene	ND		ug/kg	140	44.	1
Indeno(1,2,3-cd)Pyrene	ND		ug/kg	190	57.	1
Pyrene	ND		ug/kg	140	39.	1
Biphenyl	ND		ug/kg	540	160	1
4-Chloroaniline	ND		ug/kg	230	79.	1
2-Nitroaniline	ND		ug/kg	230	43.	1
3-Nitroaniline	ND		ug/kg	230	26.	1
4-Nitroaniline	ND		ug/kg	230	140	1
Dibenzofuran	ND		ug/kg	230	48.	1
2-Methylnaphthalene	ND		ug/kg	280	92.	1
1,2,4,5-Tetrachlorobenzene	ND		ug/kg	230	75.	1
Acetophenone	ND		ug/kg	230	75.	1
2,4,6-Trichlorophenol	ND		ug/kg	140	43.	1
P-Chloro-M-Cresol	ND		ug/kg	230	48.	1
2-Chlorophenol	ND		ug/kg	230	73.	1
2,4-Dichlorophenol	ND		ug/kg	210	68.	1
2,4-Dimethylphenol	ND		ug/kg	230	97.	1
2-Nitrophenol	ND		ug/kg	510	170	1
4-Nitrophenol	ND		ug/kg	330	100	1
2,4-Dinitrophenol	ND		ug/kg	1100	360	1
4,6-Dinitro-o-cresol	ND		ug/kg	610	220	1
Pentachlorophenol	ND		ug/kg	190	56.	1
Phenol	ND		ug/kg	230	74.	1
2-Methylphenol	ND		ug/kg	230	58.	1
3-Methylphenol/4-Methylphenol	ND		ug/kg	340	100	1
2,4,5-Trichlorophenol	ND		ug/kg	230	55.	1
Benzoic Acid	ND		ug/kg	760	200	1
Benzyl Alcohol	ND		ug/kg	230	54.	1
Carbazole	ND		ug/kg	230	38.	1

Project Name: YOVIENE
Project Number: BEV-12-

Lab Number: L1223487
Report Date: 01/04/13

SAMPLE RESULTS

Lab ID: L1223487-03
Client ID: P-3, 3.6-4.8'
Sample Location: HAMBURG, NY

Date Collected: 12/27/12 13:00
Date Received: 12/29/12
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor

Semivolatile Organics by GC/MS - Westborough Lab

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	80		25-120
Phenol-d6	79		10-120
Nitrobenzene-d5	38		23-120
2-Fluorobiphenyl	79		30-120
2,4,6-Tribromophenol	88		0-136
4-Terphenyl-d14	77		18-120

Project Name: YOVIENE
Project Number: BEV-12-

Lab Number: L1223487
Report Date: 01/04/13

SAMPLE RESULTS

Lab ID: L1223487-04
Client ID: P-4, 3.8-5.1'
Sample Location: HAMBURG, NY
Matrix: Soil
Analytical Method: 1,8270D
Analytical Date: 12/31/12 17:43
Analyst: JB
Percent Solids: 80%

Date Collected: 12/27/12 13:30
Date Received: 12/29/12
Field Prep: Not Specified
Extraction Method: EPA 3546
Extraction Date: 12/29/12 08:31

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Acenaphthene	ND		ug/kg	160	44.	1
1,2,4-Trichlorobenzene	ND		ug/kg	200	59.	1
Hexachlorobenzene	ND		ug/kg	120	32.	1
Bis(2-chloroethyl)ether	ND		ug/kg	180	38.	1
2-Chloronaphthalene	ND		ug/kg	200	61.	1
1,2-Dichlorobenzene	ND		ug/kg	200	60.	1
1,3-Dichlorobenzene	ND		ug/kg	200	63.	1
1,4-Dichlorobenzene	ND		ug/kg	200	58.	1
3,3'-Dichlorobenzidine	ND		ug/kg	200	73.	1
2,4-Dinitrotoluene	ND		ug/kg	200	61.	1
2,6-Dinitrotoluene	ND		ug/kg	200	67.	1
Fluoranthene	ND		ug/kg	120	26.	1
4-Chlorophenyl phenyl ether	ND		ug/kg	200	36.	1
4-Bromophenyl phenyl ether	ND		ug/kg	200	42.	1
Bis(2-chloroisopropyl)ether	ND		ug/kg	240	57.	1
Bis(2-chloroethoxy)methane	ND		ug/kg	220	51.	1
Hexachlorobutadiene	ND		ug/kg	200	54.	1
Hexachlorocyclopentadiene	ND		ug/kg	580	160	1
Hexachloroethane	ND		ug/kg	160	29.	1
Isophorone	ND		ug/kg	180	48.	1
Naphthalene	ND		ug/kg	200	64.	1
Nitrobenzene	ND		ug/kg	180	59.	1
NitrosoDiPhenylAmine(NDPA)/DPA	ND		ug/kg	160	51.	1
n-Nitrosodi-n-propylamine	ND		ug/kg	200	57.	1
Bis(2-Ethylhexyl)phthalate	ND		ug/kg	200	42.	1
Butyl benzyl phthalate	ND		ug/kg	200	57.	1
Di-n-butylphthalate	ND		ug/kg	200	34.	1
Di-n-octylphthalate	340		ug/kg	200	55.	1
Diethyl phthalate	ND		ug/kg	200	35.	1
Dimethyl phthalate	ND		ug/kg	200	33.	1
Benzo(a)anthracene	ND		ug/kg	120	40.	1

Project Name: YOVIENE
Project Number: BEV-12-

Lab Number: L1223487
Report Date: 01/04/13

SAMPLE RESULTS

Lab ID: L1223487-04
Client ID: P-4, 3.8-5.1'
Sample Location: HAMBURG, NY

Date Collected: 12/27/12 13:30
Date Received: 12/29/12
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Benzo(a)pyrene	ND		ug/kg	160	48.	1
Benzo(b)fluoranthene	ND		ug/kg	120	36.	1
Benzo(k)fluoranthene	ND		ug/kg	120	31.	1
Chrysene	ND		ug/kg	120	32.	1
Acenaphthylene	ND		ug/kg	160	52.	1
Anthracene	ND		ug/kg	120	28.	1
Benzo(ghi)perylene	ND		ug/kg	160	51.	1
Fluorene	ND		ug/kg	200	37.	1
Phenanthrene	ND		ug/kg	120	34.	1
Dibenzo(a,h)anthracene	ND		ug/kg	120	38.	1
Indeno(1,2,3-cd)Pyrene	ND		ug/kg	160	50.	1
Pyrene	ND		ug/kg	120	33.	1
Biphenyl	ND		ug/kg	460	140	1
4-Chloroaniline	ND		ug/kg	200	68.	1
2-Nitroaniline	ND		ug/kg	200	37.	1
3-Nitroaniline	ND		ug/kg	200	23.	1
4-Nitroaniline	ND		ug/kg	200	120	1
Dibenzofuran	ND		ug/kg	200	42.	1
2-Methylnaphthalene	ND		ug/kg	240	80.	1
1,2,4,5-Tetrachlorobenzene	ND		ug/kg	200	64.	1
Acetophenone	ND		ug/kg	200	65.	1
2,4,6-Trichlorophenol	ND		ug/kg	120	37.	1
P-Chloro-M-Cresol	ND		ug/kg	200	41.	1
2-Chlorophenol	ND		ug/kg	200	63.	1
2,4-Dichlorophenol	ND		ug/kg	180	59.	1
2,4-Dimethylphenol	ND		ug/kg	200	84.	1
2-Nitrophenol	ND		ug/kg	440	150	1
4-Nitrophenol	ND		ug/kg	280	86.	1
2,4-Dinitrophenol	ND		ug/kg	970	310	1
4,6-Dinitro-o-cresol	ND		ug/kg	530	190	1
Pentachlorophenol	ND		ug/kg	160	48.	1
Phenol	ND		ug/kg	200	64.	1
2-Methylphenol	ND		ug/kg	200	50.	1
3-Methylphenol/4-Methylphenol	ND		ug/kg	290	88.	1
2,4,5-Trichlorophenol	ND		ug/kg	200	47.	1
Benzoic Acid	ND		ug/kg	660	170	1
Benzyl Alcohol	ND		ug/kg	200	47.	1
Carbazole	ND		ug/kg	200	33.	1

Project Name: YOVIENE
Project Number: BEV-12-

Lab Number: L1223487
Report Date: 01/04/13

SAMPLE RESULTS

Lab ID: L1223487-04
Client ID: P-4, 3.8-5.1'
Sample Location: HAMBURG, NY

Date Collected: 12/27/12 13:30
Date Received: 12/29/12
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor

Semivolatile Organics by GC/MS - Westborough Lab

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	77		25-120
Phenol-d6	78		10-120
Nitrobenzene-d5	71		23-120
2-Fluorobiphenyl	77		30-120
2,4,6-Tribromophenol	72		0-136
4-Terphenyl-d14	69		18-120

Project Name: YOVIENE
Project Number: BEV-12-

Lab Number: L1223487
Report Date: 01/04/13

SAMPLE RESULTS

Lab ID: L1223487-05
Client ID: P-5, 4.1-5.2'
Sample Location: HAMBURG, NY
Matrix: Soil
Analytical Method: 1,8270D
Analytical Date: 12/31/12 18:09
Analyst: JB
Percent Solids: 82%

Date Collected: 12/27/12 14:20
Date Received: 12/29/12
Field Prep: Not Specified
Extraction Method: EPA 3546
Extraction Date: 12/29/12 08:31

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Acenaphthene	ND		ug/kg	160	43.	1
1,2,4-Trichlorobenzene	ND		ug/kg	200	59.	1
Hexachlorobenzene	ND		ug/kg	120	31.	1
Bis(2-chloroethyl)ether	ND		ug/kg	180	38.	1
2-Chloronaphthalene	ND		ug/kg	200	60.	1
1,2-Dichlorobenzene	ND		ug/kg	200	59.	1
1,3-Dichlorobenzene	ND		ug/kg	200	62.	1
1,4-Dichlorobenzene	ND		ug/kg	200	57.	1
3,3'-Dichlorobenzidine	ND		ug/kg	200	72.	1
2,4-Dinitrotoluene	ND		ug/kg	200	60.	1
2,6-Dinitrotoluene	ND		ug/kg	200	66.	1
Fluoranthene	ND		ug/kg	120	26.	1
4-Chlorophenyl phenyl ether	ND		ug/kg	200	35.	1
4-Bromophenyl phenyl ether	ND		ug/kg	200	42.	1
Bis(2-chloroisopropyl)ether	ND		ug/kg	240	57.	1
Bis(2-chloroethoxy)methane	ND		ug/kg	220	50.	1
Hexachlorobutadiene	ND		ug/kg	200	54.	1
Hexachlorocyclopentadiene	ND		ug/kg	580	160	1
Hexachloroethane	ND		ug/kg	160	29.	1
Isophorone	ND		ug/kg	180	48.	1
Naphthalene	ND		ug/kg	200	64.	1
Nitrobenzene	ND		ug/kg	180	59.	1
NitrosoDiPhenylAmine(NDPA)/DPA	ND		ug/kg	160	50.	1
n-Nitrosodi-n-propylamine	ND		ug/kg	200	56.	1
Bis(2-Ethylhexyl)phthalate	ND		ug/kg	200	42.	1
Butyl benzyl phthalate	ND		ug/kg	200	56.	1
Di-n-butylphthalate	ND		ug/kg	200	34.	1
Di-n-octylphthalate	180	J	ug/kg	200	54.	1
Diethyl phthalate	ND		ug/kg	200	35.	1
Dimethyl phthalate	ND		ug/kg	200	33.	1
Benzo(a)anthracene	ND		ug/kg	120	40.	1

Project Name: YOVIENE **Lab Number:** L1223487

Project Number: BEV-12- **Report Date:** 01/04/13

SAMPLE RESULTS

Lab ID: L1223487-05 Date Collected: 12/27/12 14:20

Client ID: P-5, 4.1-5.2' Date Received: 12/29/12

Sample Location: HAMBURG, NY Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Benzo(a)pyrene	ND		ug/kg	160	48.	1
Benzo(b)fluoranthene	ND		ug/kg	120	36.	1
Benzo(k)fluoranthene	ND		ug/kg	120	31.	1
Chrysene	ND		ug/kg	120	31.	1
Acenaphthylene	ND		ug/kg	160	52.	1
Anthracene	ND		ug/kg	120	28.	1
Benzo(ghi)perylene	ND		ug/kg	160	51.	1
Fluorene	ND		ug/kg	200	37.	1
Phenanthrene	ND		ug/kg	120	34.	1
Dibenzo(a,h)anthracene	ND		ug/kg	120	37.	1
Indeno(1,2,3-cd)Pyrene	ND		ug/kg	160	49.	1
Pyrene	ND		ug/kg	120	33.	1
Biphenyl	ND		ug/kg	460	140	1
4-Chloroaniline	ND		ug/kg	200	68.	1
2-Nitroaniline	ND		ug/kg	200	37.	1
3-Nitroaniline	ND		ug/kg	200	22.	1
4-Nitroaniline	ND		ug/kg	200	120	1
Dibenzofuran	ND		ug/kg	200	41.	1
2-Methylnaphthalene	ND		ug/kg	240	79.	1
1,2,4,5-Tetrachlorobenzene	ND		ug/kg	200	64.	1
Acetophenone	ND		ug/kg	200	64.	1
2,4,6-Trichlorophenol	ND		ug/kg	120	37.	1
P-Chloro-M-Cresol	ND		ug/kg	200	41.	1
2-Chlorophenol	ND		ug/kg	200	63.	1
2,4-Dichlorophenol	ND		ug/kg	180	58.	1
2,4-Dimethylphenol	ND		ug/kg	200	83.	1
2-Nitrophenol	ND		ug/kg	430	150	1
4-Nitrophenol	ND		ug/kg	280	86.	1
2,4-Dinitrophenol	ND		ug/kg	960	310	1
4,6-Dinitro-o-cresol	ND		ug/kg	520	190	1
Pentachlorophenol	ND		ug/kg	160	48.	1
Phenol	ND		ug/kg	200	63.	1
2-Methylphenol	ND		ug/kg	200	50.	1
3-Methylphenol/4-Methylphenol	ND		ug/kg	290	87.	1
2,4,5-Trichlorophenol	ND		ug/kg	200	47.	1
Benzoic Acid	ND		ug/kg	650	170	1
Benzyl Alcohol	ND		ug/kg	200	47.	1
Carbazole	ND		ug/kg	200	32.	1

Project Name: YOVIENE
Project Number: BEV-12-

Lab Number: L1223487
Report Date: 01/04/13

SAMPLE RESULTS

Lab ID: L1223487-05
Client ID: P-5, 4.1-5.2'
Sample Location: HAMBURG, NY

Date Collected: 12/27/12 14:20
Date Received: 12/29/12
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor

Semivolatile Organics by GC/MS - Westborough Lab

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	87		25-120
Phenol-d6	90		10-120
Nitrobenzene-d5	71		23-120
2-Fluorobiphenyl	89		30-120
2,4,6-Tribromophenol	91		0-136
4-Terphenyl-d14	74		18-120

Project Name: YOVIENE
Project Number: BEV-12-

Lab Number: L1223487
Report Date: 01/04/13

SAMPLE RESULTS

Lab ID:	L1223487-06	Date Collected:	12/28/12 10:10
Client ID:	P-6, 3.9-5.1'	Date Received:	12/29/12
Sample Location:	HAMBURG, NY	Field Prep:	Not Specified
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	1,8270D	Extraction Date:	12/29/12 08:31
Analytical Date:	12/31/12 16:01		
Analyst:	JB		
Percent Solids:	70%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Acenaphthene	ND		ug/kg	180	50.	1
1,2,4-Trichlorobenzene	ND		ug/kg	230	67.	1
Hexachlorobenzene	ND		ug/kg	140	36.	1
Bis(2-chloroethyl)ether	ND		ug/kg	210	44.	1
2-Chloronaphthalene	ND		ug/kg	230	69.	1
1,2-Dichlorobenzene	ND		ug/kg	230	68.	1
1,3-Dichlorobenzene	ND		ug/kg	230	71.	1
1,4-Dichlorobenzene	85	J	ug/kg	230	66.	1
3,3'-Dichlorobenzidine	ND		ug/kg	230	83.	1
2,4-Dinitrotoluene	ND		ug/kg	230	69.	1
2,6-Dinitrotoluene	ND		ug/kg	230	76.	1
Fluoranthene	ND		ug/kg	140	30.	1
4-Chlorophenyl phenyl ether	ND		ug/kg	230	41.	1
4-Bromophenyl phenyl ether	ND		ug/kg	230	48.	1
Bis(2-chloroisopropyl)ether	ND		ug/kg	280	65.	1
Bis(2-chloroethoxy)methane	ND		ug/kg	250	58.	1
Hexachlorobutadiene	ND		ug/kg	230	61.	1
Hexachlorocyclopentadiene	ND		ug/kg	660	180	1
Hexachloroethane	ND		ug/kg	180	33.	1
Isophorone	ND		ug/kg	210	55.	1
Naphthalene	160	J	ug/kg	230	73.	1
Nitrobenzene	ND		ug/kg	210	67.	1
NitrosoDiPhenylAmine(NDPA)/DPA	ND		ug/kg	180	58.	1
n-Nitrosodi-n-propylamine	ND		ug/kg	230	64.	1
Bis(2-Ethylhexyl)phthalate	ND		ug/kg	230	48.	1
Butyl benzyl phthalate	ND		ug/kg	230	65.	1
Di-n-butylphthalate	ND		ug/kg	230	39.	1
Di-n-octylphthalate	ND		ug/kg	230	62.	1
Diethyl phthalate	ND		ug/kg	230	40.	1
Dimethyl phthalate	ND		ug/kg	230	38.	1
Benzo(a)anthracene	ND		ug/kg	140	46.	1

Project Name: YOVIENE
Project Number: BEV-12-

Lab Number: L1223487
Report Date: 01/04/13

SAMPLE RESULTS

Lab ID: L1223487-06
Client ID: P-6, 3.9-5.1'
Sample Location: HAMBURG, NY

Date Collected: 12/28/12 10:10
Date Received: 12/29/12
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Benzo(a)pyrene	ND		ug/kg	180	55.	1
Benzo(b)fluoranthene	ND		ug/kg	140	41.	1
Benzo(k)fluoranthene	ND		ug/kg	140	36.	1
Chrysene	ND		ug/kg	140	36.	1
Acenaphthylene	ND		ug/kg	180	60.	1
Anthracene	ND		ug/kg	140	32.	1
Benzo(ghi)perylene	ND		ug/kg	180	58.	1
Fluorene	ND		ug/kg	230	42.	1
Phenanthrene	ND		ug/kg	140	38.	1
Dibenzo(a,h)anthracene	ND		ug/kg	140	43.	1
Indeno(1,2,3-cd)Pyrene	ND		ug/kg	180	56.	1
Pyrene	ND		ug/kg	140	38.	1
Biphenyl	ND		ug/kg	520	160	1
4-Chloroaniline	ND		ug/kg	230	78.	1
2-Nitroaniline	ND		ug/kg	230	42.	1
3-Nitroaniline	ND		ug/kg	230	26.	1
4-Nitroaniline	ND		ug/kg	230	140	1
Dibenzofuran	ND		ug/kg	230	47.	1
2-Methylnaphthalene	ND		ug/kg	280	91.	1
1,2,4,5-Tetrachlorobenzene	ND		ug/kg	230	73.	1
Acetophenone	ND		ug/kg	230	74.	1
2,4,6-Trichlorophenol	ND		ug/kg	140	42.	1
P-Chloro-M-Cresol	ND		ug/kg	230	47.	1
2-Chlorophenol	ND		ug/kg	230	72.	1
2,4-Dichlorophenol	ND		ug/kg	210	67.	1
2,4-Dimethylphenol	ND		ug/kg	230	95.	1
2-Nitrophenol	ND		ug/kg	500	170	1
4-Nitrophenol	ND		ug/kg	320	98.	1
2,4-Dinitrophenol	ND		ug/kg	1100	360	1
4,6-Dinitro-o-cresol	ND		ug/kg	600	220	1
Pentachlorophenol	ND		ug/kg	180	55.	1
Phenol	ND		ug/kg	230	72.	1
2-Methylphenol	ND		ug/kg	230	57.	1
3-Methylphenol/4-Methylphenol	ND		ug/kg	330	100	1
2,4,5-Trichlorophenol	ND		ug/kg	230	54.	1
Benzoic Acid	ND		ug/kg	750	200	1
Benzyl Alcohol	ND		ug/kg	230	54.	1
Carbazole	ND		ug/kg	230	37.	1

Project Name: YOVIENE
Project Number: BEV-12-

Lab Number: L1223487
Report Date: 01/04/13

SAMPLE RESULTS

Lab ID: L1223487-06
Client ID: P-6, 3.9-5.1'
Sample Location: HAMBURG, NY

Date Collected: 12/28/12 10:10
Date Received: 12/29/12
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor

Semivolatile Organics by GC/MS - Westborough Lab

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	78		25-120
Phenol-d6	81		10-120
Nitrobenzene-d5	71		23-120
2-Fluorobiphenyl	88		30-120
2,4,6-Tribromophenol	94		0-136
4-Terphenyl-d14	86		18-120

Project Name: YOVIENE
Project Number: BEV-12-

Lab Number: L1223487
Report Date: 01/04/13

SAMPLE RESULTS

Lab ID: L1223487-07
Client ID: P-7, 3.7-4.9'
Sample Location: HAMBURG, NY
Matrix: Soil
Analytical Method: 1,8270D
Analytical Date: 12/31/12 16:24
Analyst: JB
Percent Solids: 61%

Date Collected: 12/28/12 11:10
Date Received: 12/29/12
Field Prep: Not Specified
Extraction Method: EPA 3546
Extraction Date: 12/29/12 08:31

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Acenaphthene	ND		ug/kg	220	58.	1
1,2,4-Trichlorobenzene	ND		ug/kg	270	79.	1
Hexachlorobenzene	ND		ug/kg	160	42.	1
Bis(2-chloroethyl)ether	ND		ug/kg	240	51.	1
2-Chloronaphthalene	ND		ug/kg	270	81.	1
1,2-Dichlorobenzene	ND		ug/kg	270	79.	1
1,3-Dichlorobenzene	ND		ug/kg	270	84.	1
1,4-Dichlorobenzene	280		ug/kg	270	77.	1
3,3'-Dichlorobenzidine	ND		ug/kg	270	98.	1
2,4-Dinitrotoluene	ND		ug/kg	270	81.	1
2,6-Dinitrotoluene	ND		ug/kg	270	89.	1
Fluoranthene	ND		ug/kg	160	35.	1
4-Chlorophenyl phenyl ether	ND		ug/kg	270	48.	1
4-Bromophenyl phenyl ether	ND		ug/kg	270	56.	1
Bis(2-chloroisopropyl)ether	ND		ug/kg	320	76.	1
Bis(2-chloroethoxy)methane	ND		ug/kg	290	68.	1
Hexachlorobutadiene	ND		ug/kg	270	72.	1
Hexachlorocyclopentadiene	ND		ug/kg	780	210	1
Hexachloroethane	ND		ug/kg	220	39.	1
Isophorone	ND		ug/kg	240	64.	1
Naphthalene	340		ug/kg	270	86.	1
Nitrobenzene	ND		ug/kg	240	79.	1
NitrosoDiPhenylAmine(NDPA)/DPA	ND		ug/kg	220	68.	1
n-Nitrosodi-n-propylamine	ND		ug/kg	270	76.	1
Bis(2-Ethylhexyl)phthalate	1000		ug/kg	270	56.	1
Butyl benzyl phthalate	ND		ug/kg	270	76.	1
Di-n-butylphthalate	ND		ug/kg	270	46.	1
Di-n-octylphthalate	ND		ug/kg	270	73.	1
Diethyl phthalate	ND		ug/kg	270	47.	1
Dimethyl phthalate	ND		ug/kg	270	44.	1
Benzo(a)anthracene	ND		ug/kg	160	54.	1

Project Name: YOVIENE
Project Number: BEV-12-

Lab Number: L1223487
Report Date: 01/04/13

SAMPLE RESULTS

Lab ID: L1223487-07
Client ID: P-7, 3.7-4.9'
Sample Location: HAMBURG, NY

Date Collected: 12/28/12 11:10
Date Received: 12/29/12
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Benzo(a)pyrene	ND		ug/kg	220	64.	1
Benzo(b)fluoranthene	ND		ug/kg	160	48.	1
Benzo(k)fluoranthene	ND		ug/kg	160	42.	1
Chrysene	ND		ug/kg	160	42.	1
Acenaphthylene	ND		ug/kg	220	70.	1
Anthracene	ND		ug/kg	160	37.	1
Benzo(ghi)perylene	ND		ug/kg	220	68.	1
Fluorene	ND		ug/kg	270	50.	1
Phenanthrene	110	J	ug/kg	160	45.	1
Dibenzo(a,h)anthracene	ND		ug/kg	160	50.	1
Indeno(1,2,3-cd)Pyrene	ND		ug/kg	220	66.	1
Pyrene	ND		ug/kg	160	44.	1
Biphenyl	ND		ug/kg	620	190	1
4-Chloroaniline	ND		ug/kg	270	91.	1
2-Nitroaniline	ND		ug/kg	270	50.	1
3-Nitroaniline	ND		ug/kg	270	30.	1
4-Nitroaniline	ND		ug/kg	270	160	1
Dibenzofuran	ND		ug/kg	270	56.	1
2-Methylnaphthalene	ND		ug/kg	320	110	1
1,2,4,5-Tetrachlorobenzene	ND		ug/kg	270	86.	1
Acetophenone	ND		ug/kg	270	87.	1
2,4,6-Trichlorophenol	ND		ug/kg	160	50.	1
P-Chloro-M-Cresol	ND		ug/kg	270	55.	1
2-Chlorophenol	ND		ug/kg	270	84.	1
2,4-Dichlorophenol	ND		ug/kg	240	78.	1
2,4-Dimethylphenol	ND		ug/kg	270	110	1
2-Nitrophenol	ND		ug/kg	580	200	1
4-Nitrophenol	ND		ug/kg	380	120	1
2,4-Dinitrophenol	ND		ug/kg	1300	420	1
4,6-Dinitro-o-cresol	ND		ug/kg	700	260	1
Pentachlorophenol	ND		ug/kg	220	64.	1
Phenol	ND		ug/kg	270	85.	1
2-Methylphenol	ND		ug/kg	270	66.	1
3-Methylphenol/4-Methylphenol	ND		ug/kg	390	120	1
2,4,5-Trichlorophenol	ND		ug/kg	270	63.	1
Benzoic Acid	ND		ug/kg	880	230	1
Benzyl Alcohol	ND		ug/kg	270	63.	1
Carbazole	ND		ug/kg	270	44.	1

Project Name: YOVIENE
Project Number: BEV-12-

Lab Number: L1223487
Report Date: 01/04/13

SAMPLE RESULTS

Lab ID: L1223487-07
Client ID: P-7, 3.7-4.9'
Sample Location: HAMBURG, NY

Date Collected: 12/28/12 11:10
Date Received: 12/29/12
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	73		25-120
Phenol-d6	76		10-120
Nitrobenzene-d5	72		23-120
2-Fluorobiphenyl	84		30-120
2,4,6-Tribromophenol	102		0-136
4-Terphenyl-d14	82		18-120

Project Name: YOVIENE
Project Number: BEV-12-

Lab Number: L1223487
Report Date: 01/04/13

SAMPLE RESULTS

Lab ID:	L1223487-08	Date Collected:	12/28/12 12:15
Client ID:	P-8, 4.2-5.0'	Date Received:	12/29/12
Sample Location:	HAMBURG, NY	Field Prep:	Not Specified
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	1,8270D	Extraction Date:	12/29/12 08:31
Analytical Date:	12/31/12 16:48		
Analyst:	JB		
Percent Solids:	82%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Acenaphthene	ND		ug/kg	160	43.	1
1,2,4-Trichlorobenzene	ND		ug/kg	200	58.	1
Hexachlorobenzene	ND		ug/kg	120	31.	1
Bis(2-chloroethyl)ether	ND		ug/kg	180	38.	1
2-Chloronaphthalene	ND		ug/kg	200	60.	1
1,2-Dichlorobenzene	ND		ug/kg	200	59.	1
1,3-Dichlorobenzene	ND		ug/kg	200	62.	1
1,4-Dichlorobenzene	1900		ug/kg	200	57.	1
3,3'-Dichlorobenzidine	ND		ug/kg	200	72.	1
2,4-Dinitrotoluene	ND		ug/kg	200	60.	1
2,6-Dinitrotoluene	ND		ug/kg	200	66.	1
Fluoranthene	ND		ug/kg	120	26.	1
4-Chlorophenyl phenyl ether	ND		ug/kg	200	35.	1
4-Bromophenyl phenyl ether	ND		ug/kg	200	41.	1
Bis(2-chloroisopropyl)ether	ND		ug/kg	240	56.	1
Bis(2-chloroethoxy)methane	ND		ug/kg	220	50.	1
Hexachlorobutadiene	ND		ug/kg	200	53.	1
Hexachlorocyclopentadiene	ND		ug/kg	570	160	1
Hexachloroethane	ND		ug/kg	160	29.	1
Isophorone	ND		ug/kg	180	48.	1
Naphthalene	460		ug/kg	200	63.	1
Nitrobenzene	ND		ug/kg	180	58.	1
NitrosoDiPhenylAmine(NDPA)/DPA	ND		ug/kg	160	50.	1
n-Nitrosodi-n-propylamine	ND		ug/kg	200	56.	1
Bis(2-Ethylhexyl)phthalate	1400		ug/kg	200	41.	1
Butyl benzyl phthalate	ND		ug/kg	200	56.	1
Di-n-butylphthalate	ND		ug/kg	200	34.	1
Di-n-octylphthalate	ND		ug/kg	200	54.	1
Diethyl phthalate	280		ug/kg	200	34.	1
Dimethyl phthalate	ND		ug/kg	200	33.	1
Benzo(a)anthracene	ND		ug/kg	120	39.	1

Project Name: YOVIENE
Project Number: BEV-12-

Lab Number: L1223487
Report Date: 01/04/13

SAMPLE RESULTS

Lab ID: L1223487-08
Client ID: P-8, 4.2-5.0'
Sample Location: HAMBURG, NY

Date Collected: 12/28/12 12:15
Date Received: 12/29/12
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Benzo(a)pyrene	ND		ug/kg	160	48.	1
Benzo(b)fluoranthene	ND		ug/kg	120	35.	1
Benzo(k)fluoranthene	ND		ug/kg	120	31.	1
Chrysene	ND		ug/kg	120	31.	1
Acenaphthylene	ND		ug/kg	160	52.	1
Anthracene	ND		ug/kg	120	28.	1
Benzo(ghi)perylene	ND		ug/kg	160	50.	1
Fluorene	46	J	ug/kg	200	37.	1
Phenanthrene	100	J	ug/kg	120	33.	1
Dibenzo(a,h)anthracene	ND		ug/kg	120	37.	1
Indeno(1,2,3-cd)Pyrene	ND		ug/kg	160	49.	1
Pyrene	ND		ug/kg	120	33.	1
Biphenyl	210	J	ug/kg	450	140	1
4-Chloroaniline	ND		ug/kg	200	67.	1
2-Nitroaniline	ND		ug/kg	200	37.	1
3-Nitroaniline	ND		ug/kg	200	22.	1
4-Nitroaniline	ND		ug/kg	200	120	1
Dibenzofuran	ND		ug/kg	200	41.	1
2-Methylnaphthalene	100	J	ug/kg	240	78.	1
1,2,4,5-Tetrachlorobenzene	ND		ug/kg	200	64.	1
Acetophenone	ND		ug/kg	200	64.	1
2,4,6-Trichlorophenol	ND		ug/kg	120	36.	1
P-Chloro-M-Cresol	ND		ug/kg	200	41.	1
2-Chlorophenol	ND		ug/kg	200	62.	1
2,4-Dichlorophenol	ND		ug/kg	180	58.	1
2,4-Dimethylphenol	ND		ug/kg	200	82.	1
2-Nitrophenol	ND		ug/kg	430	140	1
4-Nitrophenol	ND		ug/kg	280	85.	1
2,4-Dinitrophenol	ND		ug/kg	960	310	1
4,6-Dinitro-o-cresol	ND		ug/kg	520	190	1
Pentachlorophenol	ND		ug/kg	160	47.	1
Phenol	ND		ug/kg	200	63.	1
2-Methylphenol	ND		ug/kg	200	49.	1
3-Methylphenol/4-Methylphenol	260	J	ug/kg	290	86.	1
2,4,5-Trichlorophenol	ND		ug/kg	200	46.	1
Benzoic Acid	ND		ug/kg	650	170	1
Benzyl Alcohol	ND		ug/kg	200	46.	1
Carbazole	ND		ug/kg	200	32.	1

Project Name: YOVIENE
Project Number: BEV-12-

Lab Number: L1223487
Report Date: 01/04/13

SAMPLE RESULTS

Lab ID: L1223487-08
Client ID: P-8, 4.2-5.0'
Sample Location: HAMBURG, NY

Date Collected: 12/28/12 12:15
Date Received: 12/29/12
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor

Semivolatile Organics by GC/MS - Westborough Lab

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	82		25-120
Phenol-d6	85		10-120
Nitrobenzene-d5	68		23-120
2-Fluorobiphenyl	90		30-120
2,4,6-Tribromophenol	108		0-136
4-Terphenyl-d14	90		18-120

Project Name: YOVIENE
Project Number: BEV-12-

Lab Number: L1223487
Report Date: 01/04/13

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8270D
Analytical Date: 12/31/12 15:10
Analyst: JB

Extraction Method: EPA 3546
Extraction Date: 12/29/12 08:31

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS - Westborough Lab for sample(s): 01-08 Batch: WG581945-1					
Acenaphthene	ND		ug/kg	130	36.
1,2,4-Trichlorobenzene	ND		ug/kg	160	48.
Hexachlorobenzene	ND		ug/kg	99	26.
Bis(2-chloroethyl)ether	ND		ug/kg	150	31.
2-Chloronaphthalene	ND		ug/kg	160	50.
1,2-Dichlorobenzene	ND		ug/kg	160	48.
1,3-Dichlorobenzene	ND		ug/kg	160	51.
1,4-Dichlorobenzene	ND		ug/kg	160	47.
3,3'-Dichlorobenzidine	ND		ug/kg	160	60.
2,4-Dinitrotoluene	ND		ug/kg	160	50.
2,6-Dinitrotoluene	ND		ug/kg	160	54.
Fluoranthene	ND		ug/kg	99	22.
4-Chlorophenyl phenyl ether	ND		ug/kg	160	29.
4-Bromophenyl phenyl ether	ND		ug/kg	160	34.
Bis(2-chloroisopropyl)ether	ND		ug/kg	200	47.
Bis(2-chloroethoxy)methane	ND		ug/kg	180	41.
Hexachlorobutadiene	ND		ug/kg	160	44.
Hexachlorocyclopentadiene	ND		ug/kg	470	130
Hexachloroethane	ND		ug/kg	130	24.
Isophorone	ND		ug/kg	150	39.
Naphthalene	ND		ug/kg	160	52.
Nitrobenzene	ND		ug/kg	150	48.
NitrosoDiPhenylAmine(NDPA)/DPA	ND		ug/kg	130	41.
n-Nitrosodi-n-propylamine	ND		ug/kg	160	46.
Bis(2-Ethylhexyl)phthalate	ND		ug/kg	160	34.
Butyl benzyl phthalate	ND		ug/kg	160	46.
Di-n-butylphthalate	ND		ug/kg	160	28.
Di-n-octylphthalate	ND		ug/kg	160	45.
Diethyl phthalate	ND		ug/kg	160	29.
Dimethyl phthalate	ND		ug/kg	160	27.
Benzo(a)anthracene	ND		ug/kg	99	33.

Project Name: YOVIENE
Project Number: BEV-12-

Lab Number: L1223487
Report Date: 01/04/13

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8270D
Analytical Date: 12/31/12 15:10
Analyst: JB

Extraction Method: EPA 3546
Extraction Date: 12/29/12 08:31

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS - Westborough Lab for sample(s): 01-08 Batch: WG581945-1					
Benzo(a)pyrene	ND		ug/kg	130	39.
Benzo(b)fluoranthene	ND		ug/kg	99	29.
Benzo(k)fluoranthene	ND		ug/kg	99	25.
Chrysene	ND		ug/kg	99	26.
Acenaphthylene	ND		ug/kg	130	43.
Anthracene	ND		ug/kg	99	23.
Benzo(ghi)perylene	ND		ug/kg	130	42.
Fluorene	ND		ug/kg	160	30.
Phenanthrene	ND		ug/kg	99	28.
Dibenzo(a,h)anthracene	ND		ug/kg	99	31.
Indeno(1,2,3-cd)Pyrene	ND		ug/kg	130	40.
Pyrene	ND		ug/kg	99	27.
Biphenyl	ND		ug/kg	380	120
4-Chloroaniline	ND		ug/kg	160	56.
2-Nitroaniline	ND		ug/kg	160	30.
3-Nitroaniline	ND		ug/kg	160	18.
4-Nitroaniline	ND		ug/kg	160	100
Dibenzofuran	ND		ug/kg	160	34.
2-Methylnaphthalene	ND		ug/kg	200	65.
1,2,4,5-Tetrachlorobenzene	ND		ug/kg	160	52.
Acetophenone	ND		ug/kg	160	53.
2,4,6-Trichlorophenol	ND		ug/kg	99	30.
P-Chloro-M-Cresol	ND		ug/kg	160	34.
2-Chlorophenol	ND		ug/kg	160	52.
2,4-Dichlorophenol	ND		ug/kg	150	48.
2,4-Dimethylphenol	ND		ug/kg	160	68.
2-Nitrophenol	ND		ug/kg	360	120
4-Nitrophenol	ND		ug/kg	230	70.
2,4-Dinitrophenol	ND		ug/kg	790	260
4,6-Dinitro-o-cresol	ND		ug/kg	430	160
Pentachlorophenol	ND		ug/kg	130	39.

Project Name: YOVIENE
Project Number: BEV-12-

Lab Number: L1223487
Report Date: 01/04/13

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8270D
Analytical Date: 12/31/12 15:10
Analyst: JB

Extraction Method: EPA 3546
Extraction Date: 12/29/12 08:31

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS - Westborough Lab for sample(s): 01-08 Batch: WG581945-1					
Phenol	ND		ug/kg	160	52.
2-Methylphenol	ND		ug/kg	160	41.
3-Methylphenol/4-Methylphenol	ND		ug/kg	240	71.
2,4,5-Trichlorophenol	ND		ug/kg	160	38.
Benzoic Acid	ND		ug/kg	530	140
Benzyl Alcohol	ND		ug/kg	160	38.
Carbazole	ND		ug/kg	160	26.

Surrogate	%Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	60		25-120
Phenol-d6	59		10-120
Nitrobenzene-d5	58		23-120
2-Fluorobiphenyl	61		30-120
2,4,6-Tribromophenol	52		0-136
4-Terphenyl-d14	57		18-120

Lab Control Sample Analysis
Batch Quality Control

Project Name: YOVIENE
Project Number: BEV-12-

Lab Number: L1223487
Report Date: 01/04/13

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS - Westborough Lab Associated sample(s): 01-08 Batch: WG581945-2 WG581945-3								
Acenaphthene	92		95		31-137	3		50
1,2,4-Trichlorobenzene	90		90		38-107	0		50
Hexachlorobenzene	94		105		40-140	11		50
Bis(2-chloroethyl)ether	90		93		40-140	3		50
2-Chloronaphthalene	97		103		40-140	6		50
1,2-Dichlorobenzene	88		91		40-140	3		50
1,3-Dichlorobenzene	86		86		40-140	0		50
1,4-Dichlorobenzene	88		89		28-104	1		50
3,3'-Dichlorobenzidine	45		49		40-140	9		50
2,4-Dinitrotoluene	102	Q	110	Q	28-89	8		50
2,6-Dinitrotoluene	107		123		40-140	14		50
Fluoranthene	91		106		40-140	15		50
4-Chlorophenyl phenyl ether	95		100		40-140	5		50
4-Bromophenyl phenyl ether	95		107		40-140	12		50
Bis(2-chloroisopropyl)ether	93		96		40-140	3		50
Bis(2-chloroethoxy)methane	96		102		40-117	6		50
Hexachlorobutadiene	88		84		40-140	5		50
Hexachlorocyclopentadiene	89		90		40-140	1		50
Hexachloroethane	88		89		40-140	1		50
Isophorone	95		102		40-140	7		50
Naphthalene	90		90		40-140	0		50

Lab Control Sample Analysis
Batch Quality Control

Project Name: YOVIENE
Project Number: BEV-12-

Lab Number: L1223487
Report Date: 01/04/13

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS - Westborough Lab Associated sample(s): 01-08 Batch: WG581945-2 WG581945-3								
Nitrobenzene	87		88		40-140	1		50
NitrosoDiPhenylAmine(NDPA)/DPA	96		107			11		50
n-Nitrosodi-n-propylamine	92		96		32-121	4		50
Bis(2-Ethylhexyl)phthalate	114		113		40-140	1		50
Butyl benzyl phthalate	93		122		40-140	27		50
Di-n-butylphthalate	101		111		40-140	9		50
Di-n-octylphthalate	111		113		40-140	2		50
Diethyl phthalate	98		110		40-140	12		50
Dimethyl phthalate	98		104		40-140	6		50
Benzo(a)anthracene	97		98		40-140	1		50
Benzo(a)pyrene	98		103		40-140	5		50
Benzo(b)fluoranthene	99		106		40-140	7		50
Benzo(k)fluoranthene	98		107		40-140	9		50
Chrysene	95		96		40-140	1		50
Acenaphthylene	99		109		40-140	10		50
Anthracene	96		97		40-140	1		50
Benzo(ghi)perylene	91		86		40-140	6		50
Fluorene	95		102		40-140	7		50
Phenanthrene	92		93		40-140	1		50
Dibenzo(a,h)anthracene	93		90		40-140	3		50
Indeno(1,2,3-cd)Pyrene	92		89		40-140	3		50

Lab Control Sample Analysis
Batch Quality Control

Project Name: YOVIENE
Project Number: BEV-12-

Lab Number: L1223487
Report Date: 01/04/13

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS - Westborough Lab Associated sample(s): 01-08 Batch: WG581945-2 WG581945-3								
Pyrene	88		105		35-142	18		50
Biphenyl	94		93			1		50
4-Chloroaniline	68		77		40-140	12		50
2-Nitroaniline	105		120		47-134	13		50
3-Nitroaniline	43		57		26-129	28		50
4-Nitroaniline	87		107		41-125	21		50
Dibenzofuran	93		97		40-140	4		50
2-Methylnaphthalene	105		109		40-140	4		50
1,2,4,5-Tetrachlorobenzene	90		87		40-117	3		50
Acetophenone	98		103		14-144	5		50
2,4,6-Trichlorophenol	101		111		30-130	9		50
P-Chloro-M-Cresol	101		113	Q	26-103	11		50
2-Chlorophenol	98		102		25-102	4		50
2,4-Dichlorophenol	102		106		30-130	4		50
2,4-Dimethylphenol	102		110		30-130	8		50
2-Nitrophenol	99		106		30-130	7		50
4-Nitrophenol	95		118	Q	11-114	22		50
2,4-Dinitrophenol	55		71		4-130	25		50
4,6-Dinitro-o-cresol	99		120		10-130	19		50
Pentachlorophenol	83		92		17-109	10		50
Phenol	89		96	Q	26-90	8		50

Lab Control Sample Analysis
Batch Quality Control

Project Name: YOVIENE
Project Number: BEV-12-

Lab Number: L1223487
Report Date: 01/04/13

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS - Westborough Lab Associated sample(s): 01-08 Batch: WG581945-2 WG581945-3								
2-Methylphenol	68		77		30-130.	12		50
3-Methylphenol/4-Methylphenol	92		100		30-130	8		50
2,4,5-Trichlorophenol	105		114		30-130	8		50
Benzoic Acid	28		29			4		50
Benzyl Alcohol	94		102		40-140	8		50
Carbazole	92		101		54-128	9		50

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
2-Fluorophenol	93		98		25-120
Phenol-d6	97		104		10-120
Nitrobenzene-d5	90		95		23-120
2-Fluorobiphenyl	95		101		30-120
2,4,6-Tribromophenol	101		99		0-136
4-Terphenyl-d14	85		103		18-120

PCBS

Project Name: YOVIENE
Project Number: BEV-12-

Lab Number: L1223487
Report Date: 01/04/13

SAMPLE RESULTS

Lab ID:	L1223487-01
Client ID:	P-1, 4.2-5.0'
Sample Location:	HAMBURG, NY
Matrix:	Soil
Analytical Method:	1,8082A
Analytical Date:	01/02/13 21:39
Analyst:	SH
Percent Solids:	69%

Date Collected:	12/27/12 11:50
Date Received:	12/29/12
Field Prep:	Not Specified
Extraction Method:	EPA 3546
Extraction Date:	12/30/12 10:37
Cleanup Method1:	EPA 3665A
Cleanup Date1:	12/31/12
Cleanup Method2:	EPA 3660B
Cleanup Date2:	12/31/12

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Polychlorinated Biphenyls by GC - Westborough Lab						
Aroclor 1016	ND		ug/kg	47.9	9.46	1
Aroclor 1221	ND		ug/kg	47.9	14.4	1
Aroclor 1232	ND		ug/kg	47.9	10.2	1
Aroclor 1242	ND		ug/kg	47.9	9.10	1
Aroclor 1248	ND		ug/kg	47.9	5.80	1
Aroclor 1260	ND		ug/kg	47.9	8.32	1
Aroclor 1262	ND		ug/kg	47.9	3.54	1
Aroclor 1268	ND		ug/kg	47.9	6.95	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2,4,5,6-Tetrachloro-m-xylene	78		30-150
Decachlorobiphenyl	86		30-150
2,4,5,6-Tetrachloro-m-xylene	82		30-150
Decachlorobiphenyl	88		30-150

Project Name: YOVIENE
Project Number: BEV-12-

Lab Number: L1223487
Report Date: 01/04/13

SAMPLE RESULTS

Lab ID:	L1223487-01	Date Collected:	12/27/12 11:50
Client ID:	P-1, 4.2-5.0'	Date Received:	12/29/12
Sample Location:	HAMBURG, NY	Field Prep:	Not Specified
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	1,8082A	Extraction Date:	12/30/12 10:37
Analytical Date:	01/02/13 21:39	Cleanup Method1:	EPA 3665A
Analyst:	SH	Cleanup Date1:	12/31/12
Percent Solids:	69%	Cleanup Method2:	EPA 3660B
		Cleanup Date2:	12/31/12

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Polychlorinated Biphenyls by GC - Westborough Lab						
Aroclor 1254	328		ug/kg	47.9	7.56	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2,4,5,6-Tetrachloro-m-xylene	78		30-150
Decachlorobiphenyl	86		30-150
2,4,5,6-Tetrachloro-m-xylene	82		30-150
Decachlorobiphenyl	88		30-150

Project Name: YOVIENE
Project Number: BEV-12-

Lab Number: L1223487
Report Date: 01/04/13

SAMPLE RESULTS

Lab ID:	L1223487-02	Date Collected:	12/27/12 12:30
Client ID:	P-2, 6.4-7.7'	Date Received:	12/29/12
Sample Location:	HAMBURG, NY	Field Prep:	Not Specified
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	1,8082A	Extraction Date:	12/30/12 10:37
Analytical Date:	01/02/13 21:52	Cleanup Method1:	EPA 3665A
Analyst:	SH	Cleanup Date1:	12/31/12
Percent Solids:	85%	Cleanup Method2:	EPA 3660B
		Cleanup Date2:	12/31/12

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Polychlorinated Biphenyls by GC - Westborough Lab						
Aroclor 1016	ND		ug/kg	38.6	7.63	1
Aroclor 1221	ND		ug/kg	38.6	11.6	1
Aroclor 1232	ND		ug/kg	38.6	8.20	1
Aroclor 1242	ND		ug/kg	38.6	7.33	1
Aroclor 1248	ND		ug/kg	38.6	4.67	1
Aroclor 1254	ND		ug/kg	38.6	6.09	1
Aroclor 1260	ND		ug/kg	38.6	6.70	1
Aroclor 1262	ND		ug/kg	38.6	2.86	1
Aroclor 1268	ND		ug/kg	38.6	5.60	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2,4,5,6-Tetrachloro-m-xylene	38		30-150
Decachlorobiphenyl	46		30-150
2,4,5,6-Tetrachloro-m-xylene	39		30-150
Decachlorobiphenyl	50		30-150

Project Name: YOVIENE
Project Number: BEV-12-

Lab Number: L1223487
Report Date: 01/04/13

SAMPLE RESULTS

Lab ID:	L1223487-03	Date Collected:	12/27/12 13:00
Client ID:	P-3, 3.6-4.8'	Date Received:	12/29/12
Sample Location:	HAMBURG, NY	Field Prep:	Not Specified
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	1,8082A	Extraction Date:	01/04/13 02:51
Analytical Date:	01/04/13 13:02	Cleanup Method1:	EPA 3665A
Analyst:	SH	Cleanup Date1:	01/04/13
Percent Solids:	69%	Cleanup Method2:	EPA 3660B
		Cleanup Date2:	01/04/13

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Polychlorinated Biphenyls by GC - Westborough Lab						
Aroclor 1016	ND		ug/kg	46.8	9.25	1
Aroclor 1221	ND		ug/kg	46.8	14.1	1
Aroclor 1232	ND		ug/kg	46.8	9.95	1
Aroclor 1242	ND		ug/kg	46.8	8.89	1
Aroclor 1248	ND		ug/kg	46.8	5.67	1
Aroclor 1254	40.8	J	ug/kg	46.8	7.38	1
Aroclor 1260	9.94	J	ug/kg	46.8	8.13	1
Aroclor 1262	ND		ug/kg	46.8	3.46	1
Aroclor 1268	ND		ug/kg	46.8	6.79	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2,4,5,6-Tetrachloro-m-xylene	41		30-150
Decachlorobiphenyl	35		30-150
2,4,5,6-Tetrachloro-m-xylene	43		30-150
Decachlorobiphenyl	38		30-150

Project Name: YOVIENE
Project Number: BEV-12-

Lab Number: L1223487
Report Date: 01/04/13

SAMPLE RESULTS

Lab ID:	L1223487-04	Date Collected:	12/27/12 13:30
Client ID:	P-4, 3.8-5.1'	Date Received:	12/29/12
Sample Location:	HAMBURG, NY	Field Prep:	Not Specified
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	1,8082A	Extraction Date:	12/30/12 10:37
Analytical Date:	01/02/13 22:18	Cleanup Method1:	EPA 3665A
Analyst:	SH	Cleanup Date1:	12/31/12
Percent Solids:	80%	Cleanup Method2:	EPA 3660B
		Cleanup Date2:	12/31/12

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Polychlorinated Biphenyls by GC - Westborough Lab						
Aroclor 1016	ND		ug/kg	40.4	7.97	1
Aroclor 1221	ND		ug/kg	40.4	12.2	1
Aroclor 1232	ND		ug/kg	40.4	8.58	1
Aroclor 1242	ND		ug/kg	40.4	7.66	1
Aroclor 1248	ND		ug/kg	40.4	4.88	1
Aroclor 1254	ND		ug/kg	40.4	6.36	1
Aroclor 1260	ND		ug/kg	40.4	7.01	1
Aroclor 1262	ND		ug/kg	40.4	2.99	1
Aroclor 1268	ND		ug/kg	40.4	5.86	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2,4,5,6-Tetrachloro-m-xylene	61		30-150
Decachlorobiphenyl	63		30-150
2,4,5,6-Tetrachloro-m-xylene	65		30-150
Decachlorobiphenyl	69		30-150

Project Name: YOVIENE
Project Number: BEV-12-

Lab Number: L1223487
Report Date: 01/04/13

SAMPLE RESULTS

Lab ID:	L1223487-05	Date Collected:	12/27/12 14:20
Client ID:	P-5, 4.1-5.2'	Date Received:	12/29/12
Sample Location:	HAMBURG, NY	Field Prep:	Not Specified
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	1,8082A	Extraction Date:	12/30/12 10:37
Analytical Date:	01/02/13 22:31	Cleanup Method1:	EPA 3665A
Analyst:	SH	Cleanup Date1:	12/31/12
Percent Solids:	82%	Cleanup Method2:	EPA 3660B
		Cleanup Date2:	12/31/12

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Polychlorinated Biphenyls by GC - Westborough Lab						
Aroclor 1016	ND		ug/kg	38.6	7.63	1
Aroclor 1221	ND		ug/kg	38.6	11.6	1
Aroclor 1232	ND		ug/kg	38.6	8.21	1
Aroclor 1242	ND		ug/kg	38.6	7.33	1
Aroclor 1248	ND		ug/kg	38.6	4.67	1
Aroclor 1262	ND		ug/kg	38.6	2.86	1
Aroclor 1268	ND		ug/kg	38.6	5.60	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2,4,5,6-Tetrachloro-m-xylene	63		30-150
Decachlorobiphenyl	63		30-150
2,4,5,6-Tetrachloro-m-xylene	67		30-150
Decachlorobiphenyl	68		30-150

Project Name: YOVIENE
Project Number: BEV-12-

Lab Number: L1223487
Report Date: 01/04/13

SAMPLE RESULTS

Lab ID:	L1223487-05	Date Collected:	12/27/12 14:20
Client ID:	P-5, 4.1-5.2'	Date Received:	12/29/12
Sample Location:	HAMBURG, NY	Field Prep:	Not Specified
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	1,8082A	Extraction Date:	12/30/12 10:37
Analytical Date:	01/02/13 22:31	Cleanup Method1:	EPA 3665A
Analyst:	SH	Cleanup Date1:	12/31/12
Percent Solids:	82%	Cleanup Method2:	EPA 3660B
		Cleanup Date2:	12/31/12

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Polychlorinated Biphenyls by GC - Westborough Lab						
Aroclor 1254	17.9	J	ug/kg	38.6	6.09	1
Aroclor 1260	8.04	J	ug/kg	38.6	6.71	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2,4,5,6-Tetrachloro-m-xylene	63		30-150
Decachlorobiphenyl	63		30-150
2,4,5,6-Tetrachloro-m-xylene	67		30-150
Decachlorobiphenyl	68		30-150

Project Name: YOVIENE
Project Number: BEV-12-

Lab Number: L1223487
Report Date: 01/04/13

SAMPLE RESULTS

Lab ID:	L1223487-06	Date Collected:	12/28/12 10:10
Client ID:	P-6, 3.9-5.1'	Date Received:	12/29/12
Sample Location:	HAMBURG, NY	Field Prep:	Not Specified
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	1,8082A	Extraction Date:	12/30/12 10:37
Analytical Date:	01/02/13 22:45	Cleanup Method1:	EPA 3665A
Analyst:	SH	Cleanup Date1:	12/31/12
Percent Solids:	70%	Cleanup Method2:	EPA 3660B
		Cleanup Date2:	12/31/12

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Polychlorinated Biphenyls by GC - Westborough Lab						
Aroclor 1016	ND		ug/kg	46.2	9.13	1
Aroclor 1221	ND		ug/kg	46.2	13.9	1
Aroclor 1232	ND		ug/kg	46.2	9.82	1
Aroclor 1248	ND		ug/kg	46.2	5.59	1
Aroclor 1262	ND		ug/kg	46.2	3.42	1
Aroclor 1268	ND		ug/kg	46.2	6.71	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2,4,5,6-Tetrachloro-m-xylene	84		30-150
Decachlorobiphenyl	73		30-150
2,4,5,6-Tetrachloro-m-xylene	89		30-150
Decachlorobiphenyl	84		30-150

Project Name: YOVIENE
Project Number: BEV-12-

Lab Number: L1223487
Report Date: 01/04/13

SAMPLE RESULTS

Lab ID:	L1223487-06	Date Collected:	12/28/12 10:10
Client ID:	P-6, 3.9-5.1'	Date Received:	12/29/12
Sample Location:	HAMBURG, NY	Field Prep:	Not Specified
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	1,8082A	Extraction Date:	12/30/12 10:37
Analytical Date:	01/02/13 22:45	Cleanup Method1:	EPA 3665A
Analyst:	SH	Cleanup Date1:	12/31/12
Percent Solids:	70%	Cleanup Method2:	EPA 3660B
		Cleanup Date2:	12/31/12

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Polychlorinated Biphenyls by GC - Westborough Lab						
Aroclor 1242	16.6	J	ug/kg	46.2	8.77	1
Aroclor 1254	54.4		ug/kg	46.2	7.29	1
Aroclor 1260	36.5	J	ug/kg	46.2	8.02	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2,4,5,6-Tetrachloro-m-xylene	84		30-150
Decachlorobiphenyl	73		30-150
2,4,5,6-Tetrachloro-m-xylene	89		30-150
Decachlorobiphenyl	84		30-150

Project Name: YOVIENE
Project Number: BEV-12-

Lab Number: L1223487
Report Date: 01/04/13

SAMPLE RESULTS

Lab ID:	L1223487-07	Date Collected:	12/28/12 11:10
Client ID:	P-7, 3.7-4.9'	Date Received:	12/29/12
Sample Location:	HAMBURG, NY	Field Prep:	Not Specified
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	1,8082A	Extraction Date:	12/30/12 10:37
Analytical Date:	01/02/13 22:58	Cleanup Method1:	EPA 3665A
Analyst:	SH	Cleanup Date1:	12/31/12
Percent Solids:	61%	Cleanup Method2:	EPA 3660B
		Cleanup Date2:	12/31/12

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Polychlorinated Biphenyls by GC - Westborough Lab						
Aroclor 1016	ND		ug/kg	53.4	10.6	1
Aroclor 1221	ND		ug/kg	53.4	16.1	1
Aroclor 1232	ND		ug/kg	53.4	11.4	1
Aroclor 1242	ND		ug/kg	53.4	10.1	1
Aroclor 1248	ND		ug/kg	53.4	6.46	1
Aroclor 1260	ND		ug/kg	53.4	9.27	1
Aroclor 1262	ND		ug/kg	53.4	3.95	1
Aroclor 1268	ND		ug/kg	53.4	7.75	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2,4,5,6-Tetrachloro-m-xylene	75		30-150
Decachlorobiphenyl	81		30-150
2,4,5,6-Tetrachloro-m-xylene	86		30-150
Decachlorobiphenyl	93		30-150

Project Name: YOVIENE
Project Number: BEV-12-

Lab Number: L1223487
Report Date: 01/04/13

SAMPLE RESULTS

Lab ID:	L1223487-07
Client ID:	P-7, 3.7-4.9'
Sample Location:	HAMBURG, NY
Matrix:	Soil
Analytical Method:	1,8082A
Analytical Date:	01/02/13 22:58
Analyst:	SH
Percent Solids:	61%

Date Collected:	12/28/12 11:10
Date Received:	12/29/12
Field Prep:	Not Specified
Extraction Method:	EPA 3546
Extraction Date:	12/30/12 10:37
Cleanup Method1:	EPA 3665A
Cleanup Date1:	12/31/12
Cleanup Method2:	EPA 3660B
Cleanup Date2:	12/31/12

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Polychlorinated Biphenyls by GC - Westborough Lab						
Aroclor 1254	40.1	J	ug/kg	53.4	8.42	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2,4,5,6-Tetrachloro-m-xylene	75		30-150
Decachlorobiphenyl	81		30-150
2,4,5,6-Tetrachloro-m-xylene	86		30-150
Decachlorobiphenyl	93		30-150

Project Name: YOVIENE
Project Number: BEV-12-

Lab Number: L1223487
Report Date: 01/04/13

SAMPLE RESULTS

Lab ID:	L1223487-08	Date Collected:	12/28/12 12:15
Client ID:	P-8, 4.2-5.0'	Date Received:	12/29/12
Sample Location:	HAMBURG, NY	Field Prep:	Not Specified
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	1,8082A	Extraction Date:	12/30/12 10:37
Analytical Date:	01/02/13 23:11	Cleanup Method1:	EPA 3665A
Analyst:	SH	Cleanup Date1:	12/31/12
Percent Solids:	82%	Cleanup Method2:	EPA 3660B
		Cleanup Date2:	12/31/12

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Polychlorinated Biphenyls by GC - Westborough Lab						
Aroclor 1016	ND		ug/kg	39.9	7.89	1
Aroclor 1221	ND		ug/kg	39.9	12.0	1
Aroclor 1232	ND		ug/kg	39.9	8.48	1
Aroclor 1242	22.3	J	ug/kg	39.9	7.58	1
Aroclor 1248	ND		ug/kg	39.9	4.83	1
Aroclor 1260	ND		ug/kg	39.9	6.93	1
Aroclor 1262	ND		ug/kg	39.9	2.95	1
Aroclor 1268	ND		ug/kg	39.9	5.79	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2,4,5,6-Tetrachloro-m-xylene	85		30-150
Decachlorobiphenyl	80		30-150
2,4,5,6-Tetrachloro-m-xylene	87		30-150
Decachlorobiphenyl	89		30-150

Project Name: YOVIENE
Project Number: BEV-12-

Lab Number: L1223487
Report Date: 01/04/13

SAMPLE RESULTS

Lab ID:	L1223487-08
Client ID:	P-8, 4.2-5.0'
Sample Location:	HAMBURG, NY
Matrix:	Soil
Analytical Method:	1,8082A
Analytical Date:	01/02/13 23:11
Analyst:	SH
Percent Solids:	82%

Date Collected:	12/28/12 12:15
Date Received:	12/29/12
Field Prep:	Not Specified
Extraction Method:	EPA 3546
Extraction Date:	12/30/12 10:37
Cleanup Method1:	EPA 3665A
Cleanup Date1:	12/31/12
Cleanup Method2:	EPA 3660B
Cleanup Date2:	12/31/12

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Polychlorinated Biphenyls by GC - Westborough Lab						
Aroclor 1254	34.1	J	ug/kg	39.9	6.29	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2,4,5,6-Tetrachloro-m-xylene	85		30-150
Decachlorobiphenyl	80		30-150
2,4,5,6-Tetrachloro-m-xylene	87		30-150
Decachlorobiphenyl	89		30-150

Project Name: YOVIENE
Project Number: BEV-12-

Lab Number: L1223487
Report Date: 01/04/13

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8082A
Analytical Date: 01/02/13 20:59
Analyst: SH

Extraction Method: EPA 3546
Extraction Date: 12/30/12 10:37
Cleanup Method1: EPA 3665A
Cleanup Date1: 12/31/12
Cleanup Method2: EPA 3660B
Cleanup Date2: 12/31/12

Parameter	Result	Qualifier	Units	RL	MDL
Polychlorinated Biphenyls by GC - Westborough Lab for sample(s): 01-02,04-08 Batch: WG582008-1					
Aroclor 1016	ND		ug/kg	32.5	6.42
Aroclor 1221	ND		ug/kg	32.5	9.80
Aroclor 1232	ND		ug/kg	32.5	6.90
Aroclor 1242	ND		ug/kg	32.5	6.16
Aroclor 1248	ND		ug/kg	32.5	3.93
Aroclor 1254	ND		ug/kg	32.5	5.12
Aroclor 1260	ND		ug/kg	32.5	5.64
Aroclor 1262	ND		ug/kg	32.5	2.40
Aroclor 1268	ND		ug/kg	32.5	4.71

Surrogate	%Recovery	Qualifier	Acceptance Criteria
2,4,5,6-Tetrachloro-m-xylene	50		30-150
Decachlorobiphenyl	47		30-150
2,4,5,6-Tetrachloro-m-xylene	52		30-150
Decachlorobiphenyl	48		30-150

Project Name: YOVIENE
Project Number: BEV-12-

Lab Number: L1223487
Report Date: 01/04/13

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8082A
Analytical Date: 01/04/13 12:00
Analyst: SH

Extraction Method: EPA 3546
Extraction Date: 01/04/13 02:51
Cleanup Method1: EPA 3665A
Cleanup Date1: 01/04/13
Cleanup Method2: EPA 3660B
Cleanup Date2: 01/04/13

Parameter	Result	Qualifier	Units	RL	MDL
Polychlorinated Biphenyls by GC - Westborough Lab for sample(s): 03 Batch: WG582667-1					
Aroclor 1016	ND		ug/kg	33.3	6.57
Aroclor 1221	ND		ug/kg	33.3	10.0
Aroclor 1232	ND		ug/kg	33.3	7.07
Aroclor 1242	ND		ug/kg	33.3	6.32
Aroclor 1248	ND		ug/kg	33.3	4.03
Aroclor 1254	ND		ug/kg	33.3	5.25
Aroclor 1260	ND		ug/kg	33.3	5.78
Aroclor 1262	ND		ug/kg	33.3	2.46
Aroclor 1268	ND		ug/kg	33.3	4.83

Surrogate	%Recovery	Qualifier	Acceptance Criteria
2,4,5,6-Tetrachloro-m-xylene	89		30-150
Decachlorobiphenyl	83		30-150
2,4,5,6-Tetrachloro-m-xylene	95		30-150
Decachlorobiphenyl	86		30-150

Lab Control Sample Analysis
Batch Quality Control

Project Name: YOVIENE
Project Number: BEV-12-

Lab Number: L1223487
Report Date: 01/04/13

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Polychlorinated Biphenyls by GC - Westborough Lab Associated sample(s): 01-02,04-08 Batch: WG582008-2 WG582008-3								
Aroclor 1016	83		80		40-140	4		50
Aroclor 1260	93		87		40-140	7		50

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
2,4,5,6-Tetrachloro-m-xylene	89		84		30-150
Decachlorobiphenyl	86		85		30-150
2,4,5,6-Tetrachloro-m-xylene	93		88		30-150
Decachlorobiphenyl	89		87		30-150

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Polychlorinated Biphenyls by GC - Westborough Lab Associated sample(s): 03 Batch: WG582667-2 WG582667-3								
Aroclor 1016	104		98		40-140	6		50
Aroclor 1260	103		98		40-140	5		50

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
2,4,5,6-Tetrachloro-m-xylene	96		93		30-150
Decachlorobiphenyl	92		88		30-150
2,4,5,6-Tetrachloro-m-xylene	97		94		30-150
Decachlorobiphenyl	91		87		30-150

METALS

Project Name: YOVIENE
Project Number: BEV-12-

Lab Number: L1223487
Report Date: 01/04/13

SAMPLE RESULTS

Lab ID: L1223487-01
Client ID: P-1, 4.2-5.0'
Sample Location: HAMBURG, NY
Matrix: Soil
Percent Solids: 69%

Date Collected: 12/27/12 11:50
Date Received: 12/29/12
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Westborough Lab											
Aluminum, Total	16000		mg/kg	11	2.2	2	01/03/13 10:46	01/04/13 11:02	EPA 3050B	1,6010C	MG
Antimony, Total	10		mg/kg	5.5	1.1	2	01/03/13 10:46	01/04/13 11:02	EPA 3050B	1,6010C	MG
Arsenic, Total	13		mg/kg	1.1	0.33	2	01/03/13 10:46	01/04/13 11:02	EPA 3050B	1,6010C	MG
Barium, Total	140		mg/kg	1.1	0.33	2	01/03/13 10:46	01/04/13 11:02	EPA 3050B	1,6010C	MG
Beryllium, Total	0.63		mg/kg	0.55	0.04	2	01/03/13 10:46	01/04/13 11:02	EPA 3050B	1,6010C	MG
Cadmium, Total	ND		mg/kg	1.1	0.07	2	01/03/13 10:46	01/04/13 11:02	EPA 3050B	1,6010C	MG
Calcium, Total	3700		mg/kg	11	2.2	2	01/03/13 10:46	01/04/13 11:02	EPA 3050B	1,6010C	MG
Chromium, Total	40		mg/kg	1.1	0.22	2	01/03/13 10:46	01/04/13 11:02	EPA 3050B	1,6010C	MG
Cobalt, Total	21		mg/kg	2.2	0.55	2	01/03/13 10:46	01/04/13 11:02	EPA 3050B	1,6010C	MG
Copper, Total	120		mg/kg	1.1	0.55	2	01/03/13 10:46	01/04/13 11:02	EPA 3050B	1,6010C	MG
Iron, Total	94000		mg/kg	5.5	2.2	2	01/03/13 10:46	01/04/13 11:02	EPA 3050B	1,6010C	MG
Lead, Total	120		mg/kg	5.5	0.33	2	01/03/13 10:46	01/04/13 11:02	EPA 3050B	1,6010C	MG
Magnesium, Total	5100		mg/kg	11	4.4	2	01/03/13 10:46	01/04/13 11:02	EPA 3050B	1,6010C	MG
Manganese, Total	550		mg/kg	1.1	0.22	2	01/03/13 10:46	01/04/13 11:02	EPA 3050B	1,6010C	MG
Mercury, Total	0.27		mg/kg	0.12	0.02	1	01/02/13 14:01	01/02/13 19:24	EPA 7471B	1,7471B	MC
Nickel, Total	76		mg/kg	2.8	0.44	2	01/03/13 10:46	01/04/13 11:02	EPA 3050B	1,6010C	MG
Potassium, Total	1300		mg/kg	280	88.	2	01/03/13 10:46	01/04/13 11:02	EPA 3050B	1,6010C	MG
Selenium, Total	1.4	J	mg/kg	2.2	0.33	2	01/03/13 10:46	01/04/13 11:02	EPA 3050B	1,6010C	MG
Silver, Total	0.38	J	mg/kg	1.1	0.22	2	01/03/13 10:46	01/04/13 11:02	EPA 3050B	1,6010C	MG
Sodium, Total	430		mg/kg	220	88.	2	01/03/13 10:46	01/04/13 11:02	EPA 3050B	1,6010C	MG
Thallium, Total	2.8		mg/kg	2.2	0.66	2	01/03/13 10:46	01/04/13 11:02	EPA 3050B	1,6010C	MG
Vanadium, Total	23		mg/kg	1.1	0.22	2	01/03/13 10:46	01/04/13 11:02	EPA 3050B	1,6010C	MG
Zinc, Total	200		mg/kg	5.5	0.55	2	01/03/13 10:46	01/04/13 11:02	EPA 3050B	1,6010C	MG

Project Name: YOVIENE
Project Number: BEV-12-

Lab Number: L1223487
Report Date: 01/04/13

SAMPLE RESULTS

Lab ID: L1223487-02
Client ID: P-2, 6.4-7.7'
Sample Location: HAMBURG, NY
Matrix: Soil
Percent Solids: 85%

Date Collected: 12/27/12 12:30
Date Received: 12/29/12
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Westborough Lab											
Aluminum, Total	16000		mg/kg	9.2	1.8	2	01/03/13 10:46	01/04/13 11:13	EPA 3050B	1,6010C	MG
Antimony, Total	3.2	J	mg/kg	4.6	0.92	2	01/03/13 10:46	01/04/13 11:13	EPA 3050B	1,6010C	MG
Arsenic, Total	7.1		mg/kg	0.92	0.28	2	01/03/13 10:46	01/04/13 11:13	EPA 3050B	1,6010C	MG
Barium, Total	100		mg/kg	0.92	0.28	2	01/03/13 10:46	01/04/13 11:13	EPA 3050B	1,6010C	MG
Beryllium, Total	0.63		mg/kg	0.46	0.04	2	01/03/13 10:46	01/04/13 11:13	EPA 3050B	1,6010C	MG
Cadmium, Total	0.34	J	mg/kg	0.92	0.06	2	01/03/13 10:46	01/04/13 11:13	EPA 3050B	1,6010C	MG
Calcium, Total	12000		mg/kg	9.2	1.8	2	01/03/13 10:46	01/04/13 11:13	EPA 3050B	1,6010C	MG
Chromium, Total	21		mg/kg	0.92	0.18	2	01/03/13 10:46	01/04/13 11:13	EPA 3050B	1,6010C	MG
Cobalt, Total	13		mg/kg	1.8	0.46	2	01/03/13 10:46	01/04/13 11:13	EPA 3050B	1,6010C	MG
Copper, Total	50		mg/kg	0.92	0.46	2	01/03/13 10:46	01/04/13 11:13	EPA 3050B	1,6010C	MG
Iron, Total	31000		mg/kg	4.6	1.8	2	01/03/13 10:46	01/04/13 11:13	EPA 3050B	1,6010C	MG
Lead, Total	20		mg/kg	4.6	0.28	2	01/03/13 10:46	01/04/13 11:13	EPA 3050B	1,6010C	MG
Magnesium, Total	5300		mg/kg	9.2	3.7	2	01/03/13 10:46	01/04/13 11:13	EPA 3050B	1,6010C	MG
Manganese, Total	500		mg/kg	0.92	0.18	2	01/03/13 10:46	01/04/13 11:13	EPA 3050B	1,6010C	MG
Mercury, Total	ND		mg/kg	0.08	0.02	1	01/02/13 14:01	01/02/13 19:26	EPA 7471B	1,7471B	MC
Nickel, Total	41		mg/kg	2.3	0.37	2	01/03/13 10:46	01/04/13 11:13	EPA 3050B	1,6010C	MG
Potassium, Total	1400		mg/kg	230	73.	2	01/03/13 10:46	01/04/13 11:13	EPA 3050B	1,6010C	MG
Selenium, Total	0.78	J	mg/kg	1.8	0.28	2	01/03/13 10:46	01/04/13 11:13	EPA 3050B	1,6010C	MG
Silver, Total	ND		mg/kg	0.92	0.18	2	01/03/13 10:46	01/04/13 11:13	EPA 3050B	1,6010C	MG
Sodium, Total	160	J	mg/kg	180	73.	2	01/03/13 10:46	01/04/13 11:13	EPA 3050B	1,6010C	MG
Thallium, Total	1.0	J	mg/kg	1.8	0.55	2	01/03/13 10:46	01/04/13 11:13	EPA 3050B	1,6010C	MG
Vanadium, Total	19		mg/kg	0.92	0.18	2	01/03/13 10:46	01/04/13 11:13	EPA 3050B	1,6010C	MG
Zinc, Total	150		mg/kg	4.6	0.46	2	01/03/13 10:46	01/04/13 11:13	EPA 3050B	1,6010C	MG

Project Name: YOVIENE
Project Number: BEV-12-

Lab Number: L1223487
Report Date: 01/04/13

SAMPLE RESULTS

Lab ID: L1223487-03
Client ID: P-3, 3.6-4.8'
Sample Location: HAMBURG, NY
Matrix: Soil
Percent Solids: 69%

Date Collected: 12/27/12 13:00
Date Received: 12/29/12
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Westborough Lab											
Aluminum, Total	21000		mg/kg	11	2.2	2	01/03/13 10:46	01/04/13 11:16	EPA 3050B	1,6010C	MG
Antimony, Total	8.3		mg/kg	5.6	1.1	2	01/03/13 10:46	01/04/13 11:16	EPA 3050B	1,6010C	MG
Arsenic, Total	75		mg/kg	1.1	0.34	2	01/03/13 10:46	01/04/13 11:16	EPA 3050B	1,6010C	MG
Barium, Total	170		mg/kg	1.1	0.34	2	01/03/13 10:46	01/04/13 11:16	EPA 3050B	1,6010C	MG
Beryllium, Total	0.73		mg/kg	0.56	0.05	2	01/03/13 10:46	01/04/13 11:16	EPA 3050B	1,6010C	MG
Cadmium, Total	ND		mg/kg	1.1	0.07	2	01/03/13 10:46	01/04/13 11:16	EPA 3050B	1,6010C	MG
Calcium, Total	4800		mg/kg	11	2.2	2	01/03/13 10:46	01/04/13 11:16	EPA 3050B	1,6010C	MG
Chromium, Total	42		mg/kg	1.1	0.22	2	01/03/13 10:46	01/04/13 11:16	EPA 3050B	1,6010C	MG
Cobalt, Total	26		mg/kg	2.2	0.56	2	01/03/13 10:46	01/04/13 11:16	EPA 3050B	1,6010C	MG
Copper, Total	72		mg/kg	1.1	0.56	2	01/03/13 10:46	01/04/13 11:16	EPA 3050B	1,6010C	MG
Iron, Total	88000		mg/kg	5.6	2.2	2	01/03/13 10:46	01/04/13 11:16	EPA 3050B	1,6010C	MG
Lead, Total	95		mg/kg	5.6	0.34	2	01/03/13 10:46	01/04/13 11:16	EPA 3050B	1,6010C	MG
Magnesium, Total	6300		mg/kg	11	4.5	2	01/03/13 10:46	01/04/13 11:16	EPA 3050B	1,6010C	MG
Manganese, Total	610		mg/kg	1.1	0.22	2	01/03/13 10:46	01/04/13 11:16	EPA 3050B	1,6010C	MG
Mercury, Total	0.34		mg/kg	0.10	0.02	1	01/02/13 14:01	01/02/13 19:28	EPA 7471B	1,7471B	MC
Nickel, Total	52		mg/kg	2.8	0.45	2	01/03/13 10:46	01/04/13 11:16	EPA 3050B	1,6010C	MG
Potassium, Total	1600		mg/kg	280	90.	2	01/03/13 10:46	01/04/13 11:16	EPA 3050B	1,6010C	MG
Selenium, Total	1.4	J	mg/kg	2.2	0.34	2	01/03/13 10:46	01/04/13 11:16	EPA 3050B	1,6010C	MG
Silver, Total	1.2		mg/kg	1.1	0.22	2	01/03/13 10:46	01/04/13 11:16	EPA 3050B	1,6010C	MG
Sodium, Total	380		mg/kg	220	90.	2	01/03/13 10:46	01/04/13 11:16	EPA 3050B	1,6010C	MG
Thallium, Total	2.7		mg/kg	2.2	0.68	2	01/03/13 10:46	01/04/13 11:16	EPA 3050B	1,6010C	MG
Vanadium, Total	25		mg/kg	1.1	0.22	2	01/03/13 10:46	01/04/13 11:16	EPA 3050B	1,6010C	MG
Zinc, Total	250		mg/kg	5.6	0.56	2	01/03/13 10:46	01/04/13 11:16	EPA 3050B	1,6010C	MG

Project Name: YOVIENE
Project Number: BEV-12-

Lab Number: L1223487
Report Date: 01/04/13

SAMPLE RESULTS

Lab ID: L1223487-04
Client ID: P-4, 3.8-5.1'
Sample Location: HAMBURG, NY
Matrix: Soil
Percent Solids: 80%

Date Collected: 12/27/12 13:30
Date Received: 12/29/12
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Westborough Lab											
Aluminum, Total	17000		mg/kg	9.4	1.9	2	01/03/13 10:46	01/04/13 11:19	EPA 3050B	1,6010C	MG
Antimony, Total	3.4	J	mg/kg	4.7	0.94	2	01/03/13 10:46	01/04/13 11:19	EPA 3050B	1,6010C	MG
Arsenic, Total	14		mg/kg	0.94	0.28	2	01/03/13 10:46	01/04/13 11:19	EPA 3050B	1,6010C	MG
Barium, Total	110		mg/kg	0.94	0.28	2	01/03/13 10:46	01/04/13 11:19	EPA 3050B	1,6010C	MG
Beryllium, Total	0.85		mg/kg	0.47	0.04	2	01/03/13 10:46	01/04/13 11:19	EPA 3050B	1,6010C	MG
Cadmium, Total	ND		mg/kg	0.94	0.06	2	01/03/13 10:46	01/04/13 11:19	EPA 3050B	1,6010C	MG
Calcium, Total	3200		mg/kg	9.4	1.9	2	01/03/13 10:46	01/04/13 11:19	EPA 3050B	1,6010C	MG
Chromium, Total	22		mg/kg	0.94	0.19	2	01/03/13 10:46	01/04/13 11:19	EPA 3050B	1,6010C	MG
Cobalt, Total	16		mg/kg	1.9	0.47	2	01/03/13 10:46	01/04/13 11:19	EPA 3050B	1,6010C	MG
Copper, Total	65		mg/kg	0.94	0.47	2	01/03/13 10:46	01/04/13 11:19	EPA 3050B	1,6010C	MG
Iron, Total	34000		mg/kg	4.7	1.9	2	01/03/13 10:46	01/04/13 11:19	EPA 3050B	1,6010C	MG
Lead, Total	31		mg/kg	4.7	0.28	2	01/03/13 10:46	01/04/13 11:19	EPA 3050B	1,6010C	MG
Magnesium, Total	5500		mg/kg	9.4	3.7	2	01/03/13 10:46	01/04/13 11:19	EPA 3050B	1,6010C	MG
Manganese, Total	270		mg/kg	0.94	0.19	2	01/03/13 10:46	01/04/13 11:19	EPA 3050B	1,6010C	MG
Mercury, Total	0.02	J	mg/kg	0.09	0.02	1	01/02/13 14:01	01/02/13 19:33	EPA 7471B	1,7471B	MC
Nickel, Total	54		mg/kg	2.3	0.37	2	01/03/13 10:46	01/04/13 11:19	EPA 3050B	1,6010C	MG
Potassium, Total	1500		mg/kg	230	75.	2	01/03/13 10:46	01/04/13 11:19	EPA 3050B	1,6010C	MG
Selenium, Total	1.2	J	mg/kg	1.9	0.28	2	01/03/13 10:46	01/04/13 11:19	EPA 3050B	1,6010C	MG
Silver, Total	ND		mg/kg	0.94	0.19	2	01/03/13 10:46	01/04/13 11:19	EPA 3050B	1,6010C	MG
Sodium, Total	260		mg/kg	190	75.	2	01/03/13 10:46	01/04/13 11:19	EPA 3050B	1,6010C	MG
Thallium, Total	1.2	J	mg/kg	1.9	0.56	2	01/03/13 10:46	01/04/13 11:19	EPA 3050B	1,6010C	MG
Vanadium, Total	25		mg/kg	0.94	0.19	2	01/03/13 10:46	01/04/13 11:19	EPA 3050B	1,6010C	MG
Zinc, Total	130		mg/kg	4.7	0.47	2	01/03/13 10:46	01/04/13 11:19	EPA 3050B	1,6010C	MG

Project Name: YOVIENE
Project Number: BEV-12-
Lab Number: L1223487
Report Date: 01/04/13

SAMPLE RESULTS

Lab ID: L1223487-05
Client ID: P-5, 4.1-5.2'
Sample Location: HAMBURG, NY
Matrix: Soil
Percent Solids: 82%

Date Collected: 12/27/12 14:20
Date Received: 12/29/12
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Westborough Lab											
Aluminum, Total	12000		mg/kg	9.2	1.8	2	01/03/13 10:46	01/04/13 11:42	EPA 3050B	1,6010C	MG
Antimony, Total	4.5	J	mg/kg	4.6	0.92	2	01/03/13 10:46	01/04/13 11:42	EPA 3050B	1,6010C	MG
Arsenic, Total	10		mg/kg	0.92	0.28	2	01/03/13 10:46	01/04/13 11:42	EPA 3050B	1,6010C	MG
Barium, Total	97		mg/kg	0.92	0.28	2	01/03/13 10:46	01/04/13 11:42	EPA 3050B	1,6010C	MG
Beryllium, Total	0.46		mg/kg	0.46	0.04	2	01/03/13 10:46	01/04/13 11:42	EPA 3050B	1,6010C	MG
Cadmium, Total	1.0		mg/kg	0.92	0.06	2	01/03/13 10:46	01/04/13 11:42	EPA 3050B	1,6010C	MG
Calcium, Total	30000		mg/kg	9.2	1.8	2	01/03/13 10:46	01/04/13 11:42	EPA 3050B	1,6010C	MG
Chromium, Total	24		mg/kg	0.92	0.18	2	01/03/13 10:46	01/04/13 11:42	EPA 3050B	1,6010C	MG
Cobalt, Total	15		mg/kg	1.8	0.46	2	01/03/13 10:46	01/04/13 11:42	EPA 3050B	1,6010C	MG
Copper, Total	68		mg/kg	0.92	0.46	2	01/03/13 10:46	01/04/13 11:42	EPA 3050B	1,6010C	MG
Iron, Total	47000		mg/kg	4.6	1.8	2	01/03/13 10:46	01/04/13 11:42	EPA 3050B	1,6010C	MG
Lead, Total	30		mg/kg	4.6	0.28	2	01/03/13 10:46	01/04/13 11:42	EPA 3050B	1,6010C	MG
Magnesium, Total	7000		mg/kg	9.2	3.7	2	01/03/13 10:46	01/04/13 11:42	EPA 3050B	1,6010C	MG
Manganese, Total	480		mg/kg	0.92	0.18	2	01/03/13 10:46	01/04/13 11:42	EPA 3050B	1,6010C	MG
Mercury, Total	0.03	J	mg/kg	0.09	0.02	1	01/02/13 14:01	01/02/13 19:35	EPA 7471B	1,7471B	MC
Nickel, Total	54		mg/kg	2.3	0.37	2	01/03/13 10:46	01/04/13 11:42	EPA 3050B	1,6010C	MG
Potassium, Total	1600		mg/kg	230	74.	2	01/03/13 10:46	01/04/13 11:42	EPA 3050B	1,6010C	MG
Selenium, Total	0.92	J	mg/kg	1.8	0.28	2	01/03/13 10:46	01/04/13 11:42	EPA 3050B	1,6010C	MG
Silver, Total	ND		mg/kg	0.92	0.18	2	01/03/13 10:46	01/04/13 11:42	EPA 3050B	1,6010C	MG
Sodium, Total	270		mg/kg	180	74.	2	01/03/13 10:46	01/04/13 11:42	EPA 3050B	1,6010C	MG
Thallium, Total	2.2		mg/kg	1.8	0.55	2	01/03/13 10:46	01/04/13 11:42	EPA 3050B	1,6010C	MG
Vanadium, Total	17		mg/kg	0.92	0.18	2	01/03/13 10:46	01/04/13 11:42	EPA 3050B	1,6010C	MG
Zinc, Total	180		mg/kg	4.6	0.46	2	01/03/13 10:46	01/04/13 11:42	EPA 3050B	1,6010C	MG

Project Name: YOVIENE
Project Number: BEV-12-

Lab Number: L1223487
Report Date: 01/04/13

SAMPLE RESULTS

Lab ID: L1223487-06
Client ID: P-6, 3.9-5.1'
Sample Location: HAMBURG, NY
Matrix: Soil
Percent Solids: 70%

Date Collected: 12/28/12 10:10
Date Received: 12/29/12
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Westborough Lab											
Aluminum, Total	10000		mg/kg	11	2.1	2	01/03/13 10:46	01/04/13 11:46	EPA 3050B	1,6010C	MG
Antimony, Total	32		mg/kg	5.4	1.1	2	01/03/13 10:46	01/04/13 11:46	EPA 3050B	1,6010C	MG
Arsenic, Total	13		mg/kg	1.1	0.32	2	01/03/13 10:46	01/04/13 11:46	EPA 3050B	1,6010C	MG
Barium, Total	150		mg/kg	1.1	0.32	2	01/03/13 10:46	01/04/13 11:46	EPA 3050B	1,6010C	MG
Beryllium, Total	0.40	J	mg/kg	0.54	0.04	2	01/03/13 10:46	01/04/13 11:46	EPA 3050B	1,6010C	MG
Cadmium, Total	ND		mg/kg	1.1	0.06	2	01/03/13 10:46	01/04/13 11:46	EPA 3050B	1,6010C	MG
Calcium, Total	50000		mg/kg	11	2.1	2	01/03/13 10:46	01/04/13 11:46	EPA 3050B	1,6010C	MG
Chromium, Total	45		mg/kg	1.1	0.21	2	01/03/13 10:46	01/04/13 11:46	EPA 3050B	1,6010C	MG
Cobalt, Total	29		mg/kg	2.1	0.54	2	01/03/13 10:46	01/04/13 11:46	EPA 3050B	1,6010C	MG
Copper, Total	140		mg/kg	1.1	0.54	2	01/03/13 10:46	01/04/13 11:46	EPA 3050B	1,6010C	MG
Iron, Total	88000		mg/kg	5.4	2.1	2	01/03/13 10:46	01/04/13 11:46	EPA 3050B	1,6010C	MG
Lead, Total	130		mg/kg	5.4	0.32	2	01/03/13 10:46	01/04/13 11:46	EPA 3050B	1,6010C	MG
Magnesium, Total	10000		mg/kg	11	4.3	2	01/03/13 10:46	01/04/13 11:46	EPA 3050B	1,6010C	MG
Manganese, Total	920		mg/kg	1.1	0.21	2	01/03/13 10:46	01/04/13 11:46	EPA 3050B	1,6010C	MG
Mercury, Total	0.47		mg/kg	0.11	0.02	1	01/02/13 14:01	01/02/13 19:36	EPA 7471B	1,7471B	MC
Nickel, Total	52		mg/kg	2.7	0.43	2	01/03/13 10:46	01/04/13 11:46	EPA 3050B	1,6010C	MG
Potassium, Total	1200		mg/kg	270	86.	2	01/03/13 10:46	01/04/13 11:46	EPA 3050B	1,6010C	MG
Selenium, Total	0.48	J	mg/kg	2.1	0.32	2	01/03/13 10:46	01/04/13 11:46	EPA 3050B	1,6010C	MG
Silver, Total	0.61	J	mg/kg	1.1	0.21	2	01/03/13 10:46	01/04/13 11:46	EPA 3050B	1,6010C	MG
Sodium, Total	1400		mg/kg	210	86.	2	01/03/13 10:46	01/04/13 11:46	EPA 3050B	1,6010C	MG
Thallium, Total	3.3		mg/kg	2.1	0.64	2	01/03/13 10:46	01/04/13 11:46	EPA 3050B	1,6010C	MG
Vanadium, Total	17		mg/kg	1.1	0.21	2	01/03/13 10:46	01/04/13 11:46	EPA 3050B	1,6010C	MG
Zinc, Total	470		mg/kg	5.4	0.54	2	01/03/13 10:46	01/04/13 11:46	EPA 3050B	1,6010C	MG

Project Name: YOVIENE
Project Number: BEV-12-

Lab Number: L1223487
Report Date: 01/04/13

SAMPLE RESULTS

Lab ID: L1223487-07
Client ID: P-7, 3.7-4.9'
Sample Location: HAMBURG, NY
Matrix: Soil
Percent Solids: 61%

Date Collected: 12/28/12 11:10
Date Received: 12/29/12
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Westborough Lab											
Aluminum, Total	15000		mg/kg	13	2.5	2	01/03/13 10:46	01/04/13 11:49	EPA 3050B	1,6010C	MG
Antimony, Total	10		mg/kg	6.3	1.3	2	01/03/13 10:46	01/04/13 11:49	EPA 3050B	1,6010C	MG
Arsenic, Total	9.1		mg/kg	1.3	0.38	2	01/03/13 10:46	01/04/13 11:49	EPA 3050B	1,6010C	MG
Barium, Total	220		mg/kg	1.3	0.38	2	01/03/13 10:46	01/04/13 11:49	EPA 3050B	1,6010C	MG
Beryllium, Total	0.63		mg/kg	0.63	0.05	2	01/03/13 10:46	01/04/13 11:49	EPA 3050B	1,6010C	MG
Cadmium, Total	ND		mg/kg	1.3	0.08	2	01/03/13 10:46	01/04/13 11:49	EPA 3050B	1,6010C	MG
Calcium, Total	12000		mg/kg	13	2.5	2	01/03/13 10:46	01/04/13 11:49	EPA 3050B	1,6010C	MG
Chromium, Total	38		mg/kg	1.3	0.25	2	01/03/13 10:46	01/04/13 11:49	EPA 3050B	1,6010C	MG
Cobalt, Total	18		mg/kg	2.5	0.63	2	01/03/13 10:46	01/04/13 11:49	EPA 3050B	1,6010C	MG
Copper, Total	82		mg/kg	1.3	0.63	2	01/03/13 10:46	01/04/13 11:49	EPA 3050B	1,6010C	MG
Iron, Total	110000		mg/kg	6.3	2.5	2	01/03/13 10:46	01/04/13 11:49	EPA 3050B	1,6010C	MG
Lead, Total	160		mg/kg	6.3	0.38	2	01/03/13 10:46	01/04/13 11:49	EPA 3050B	1,6010C	MG
Magnesium, Total	2000		mg/kg	13	5.1	2	01/03/13 10:46	01/04/13 11:49	EPA 3050B	1,6010C	MG
Manganese, Total	1600		mg/kg	1.3	0.25	2	01/03/13 10:46	01/04/13 11:49	EPA 3050B	1,6010C	MG
Mercury, Total	0.47		mg/kg	0.13	0.03	1	01/02/13 14:01	01/02/13 19:38	EPA 7471B	1,7471B	MC
Nickel, Total	50		mg/kg	3.2	0.51	2	01/03/13 10:46	01/04/13 11:49	EPA 3050B	1,6010C	MG
Potassium, Total	1200		mg/kg	320	100	2	01/03/13 10:46	01/04/13 11:49	EPA 3050B	1,6010C	MG
Selenium, Total	2.2	J	mg/kg	2.5	0.38	2	01/03/13 10:46	01/04/13 11:49	EPA 3050B	1,6010C	MG
Silver, Total	0.54	J	mg/kg	1.3	0.25	2	01/03/13 10:46	01/04/13 11:49	EPA 3050B	1,6010C	MG
Sodium, Total	590		mg/kg	250	100	2	01/03/13 10:46	01/04/13 11:49	EPA 3050B	1,6010C	MG
Thallium, Total	4.5		mg/kg	2.5	0.76	2	01/03/13 10:46	01/04/13 11:49	EPA 3050B	1,6010C	MG
Vanadium, Total	26		mg/kg	1.3	0.25	2	01/03/13 10:46	01/04/13 11:49	EPA 3050B	1,6010C	MG
Zinc, Total	530		mg/kg	6.3	0.63	2	01/03/13 10:46	01/04/13 11:49	EPA 3050B	1,6010C	MG

Project Name: YOVIENE
Project Number: BEV-12-

Lab Number: L1223487
Report Date: 01/04/13

SAMPLE RESULTS

Lab ID: L1223487-08
Client ID: P-8, 4.2-5.0'
Sample Location: HAMBURG, NY
Matrix: Soil
Percent Solids: 82%

Date Collected: 12/28/12 12:15
Date Received: 12/29/12
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Westborough Lab											
Aluminum, Total	16000		mg/kg	9.2	1.8	2	01/03/13 10:46	01/04/13 11:52	EPA 3050B	1,6010C	MG
Antimony, Total	8.0		mg/kg	4.6	0.92	2	01/03/13 10:46	01/04/13 11:52	EPA 3050B	1,6010C	MG
Arsenic, Total	9.8		mg/kg	0.92	0.28	2	01/03/13 10:46	01/04/13 11:52	EPA 3050B	1,6010C	MG
Barium, Total	180		mg/kg	0.92	0.28	2	01/03/13 10:46	01/04/13 11:52	EPA 3050B	1,6010C	MG
Beryllium, Total	0.62		mg/kg	0.46	0.04	2	01/03/13 10:46	01/04/13 11:52	EPA 3050B	1,6010C	MG
Cadmium, Total	0.78	J	mg/kg	0.92	0.06	2	01/03/13 10:46	01/04/13 11:52	EPA 3050B	1,6010C	MG
Calcium, Total	12000		mg/kg	9.2	1.8	2	01/03/13 10:46	01/04/13 11:52	EPA 3050B	1,6010C	MG
Chromium, Total	38		mg/kg	0.92	0.18	2	01/03/13 10:46	01/04/13 11:52	EPA 3050B	1,6010C	MG
Cobalt, Total	18		mg/kg	1.8	0.46	2	01/03/13 10:46	01/04/13 11:52	EPA 3050B	1,6010C	MG
Copper, Total	150		mg/kg	0.92	0.46	2	01/03/13 10:46	01/04/13 11:52	EPA 3050B	1,6010C	MG
Iron, Total	68000		mg/kg	4.6	1.8	2	01/03/13 10:46	01/04/13 11:52	EPA 3050B	1,6010C	MG
Lead, Total	76		mg/kg	4.6	0.28	2	01/03/13 10:46	01/04/13 11:52	EPA 3050B	1,6010C	MG
Magnesium, Total	5600		mg/kg	9.2	3.7	2	01/03/13 10:46	01/04/13 11:52	EPA 3050B	1,6010C	MG
Manganese, Total	700		mg/kg	0.92	0.18	2	01/03/13 10:46	01/04/13 11:52	EPA 3050B	1,6010C	MG
Mercury, Total	0.37		mg/kg	0.09	0.02	1	01/02/13 14:01	01/02/13 19:40	EPA 7471B	1,7471B	MC
Nickel, Total	72		mg/kg	2.3	0.37	2	01/03/13 10:46	01/04/13 11:52	EPA 3050B	1,6010C	MG
Potassium, Total	1400		mg/kg	230	74.	2	01/03/13 10:46	01/04/13 11:52	EPA 3050B	1,6010C	MG
Selenium, Total	0.66	J	mg/kg	1.8	0.28	2	01/03/13 10:46	01/04/13 11:52	EPA 3050B	1,6010C	MG
Silver, Total	0.29	J	mg/kg	0.92	0.18	2	01/03/13 10:46	01/04/13 11:52	EPA 3050B	1,6010C	MG
Sodium, Total	350		mg/kg	180	74.	2	01/03/13 10:46	01/04/13 11:52	EPA 3050B	1,6010C	MG
Thallium, Total	3.2		mg/kg	1.8	0.55	2	01/03/13 10:46	01/04/13 11:52	EPA 3050B	1,6010C	MG
Vanadium, Total	20		mg/kg	0.92	0.18	2	01/03/13 10:46	01/04/13 11:52	EPA 3050B	1,6010C	MG
Zinc, Total	190		mg/kg	4.6	0.46	2	01/03/13 10:46	01/04/13 11:52	EPA 3050B	1,6010C	MG

Project Name: YOVIENE
Project Number: BEV-12-

Lab Number: L1223487
Report Date: 01/04/13

Method Blank Analysis
Batch Quality Control

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Westborough Lab for sample(s): 01-08 Batch: WG582294-1										
Mercury, Total	ND		mg/kg	0.08	0.02	1	01/02/13 14:01	01/02/13 18:55	1,7471B	MC

Prep Information

Digestion Method: EPA 7471B

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Westborough Lab for sample(s): 01-08 Batch: WG582513-1										
Aluminum, Total	0.80	J	mg/kg	4.0	0.80	1	01/03/13 10:46	01/04/13 10:56	1,6010C	MG
Antimony, Total	ND		mg/kg	2.0	0.40	1	01/03/13 10:46	01/04/13 10:56	1,6010C	MG
Arsenic, Total	ND		mg/kg	0.40	0.12	1	01/03/13 10:46	01/04/13 10:56	1,6010C	MG
Barium, Total	ND		mg/kg	0.40	0.12	1	01/03/13 10:46	01/04/13 10:56	1,6010C	MG
Beryllium, Total	ND		mg/kg	0.20	0.02	1	01/03/13 10:46	01/04/13 10:56	1,6010C	MG
Cadmium, Total	ND		mg/kg	0.40	0.02	1	01/03/13 10:46	01/04/13 10:56	1,6010C	MG
Calcium, Total	ND		mg/kg	4.0	0.80	1	01/03/13 10:46	01/04/13 10:56	1,6010C	MG
Chromium, Total	0.08	J	mg/kg	0.40	0.08	1	01/03/13 10:46	01/04/13 10:56	1,6010C	MG
Cobalt, Total	ND		mg/kg	0.80	0.20	1	01/03/13 10:46	01/04/13 10:56	1,6010C	MG
Copper, Total	ND		mg/kg	0.40	0.20	1	01/03/13 10:46	01/04/13 10:56	1,6010C	MG
Iron, Total	ND		mg/kg	2.0	0.80	1	01/03/13 10:46	01/04/13 10:56	1,6010C	MG
Lead, Total	ND		mg/kg	2.0	0.12	1	01/03/13 10:46	01/04/13 10:56	1,6010C	MG
Magnesium, Total	ND		mg/kg	4.0	1.6	1	01/03/13 10:46	01/04/13 10:56	1,6010C	MG
Manganese, Total	ND		mg/kg	0.40	0.08	1	01/03/13 10:46	01/04/13 10:56	1,6010C	MG
Nickel, Total	ND		mg/kg	1.0	0.16	1	01/03/13 10:46	01/04/13 10:56	1,6010C	MG
Potassium, Total	ND		mg/kg	100	32.	1	01/03/13 10:46	01/04/13 10:56	1,6010C	MG
Selenium, Total	ND		mg/kg	0.80	0.12	1	01/03/13 10:46	01/04/13 10:56	1,6010C	MG
Silver, Total	ND		mg/kg	0.40	0.08	1	01/03/13 10:46	01/04/13 10:56	1,6010C	MG
Sodium, Total	32	J	mg/kg	80	32.	1	01/03/13 10:46	01/04/13 10:56	1,6010C	MG
Thallium, Total	ND		mg/kg	0.80	0.24	1	01/03/13 10:46	01/04/13 10:56	1,6010C	MG
Vanadium, Total	ND		mg/kg	0.40	0.08	1	01/03/13 10:46	01/04/13 10:56	1,6010C	MG
Zinc, Total	0.23	J	mg/kg	2.0	0.20	1	01/03/13 10:46	01/04/13 10:56	1,6010C	MG

Project Name: YOVIENE
Project Number: BEV-12-

Lab Number: L1223487
Report Date: 01/04/13

Method Blank Analysis
Batch Quality Control

Prep Information

Digestion Method: EPA 3050B

Lab Control Sample Analysis

Batch Quality Control

Project Name: YOVIENE
Project Number: BEV-12-

Lab Number: L1223487
Report Date: 01/04/13

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Westborough Lab Associated sample(s): 01-08 Batch: WG582294-2 SRM Lot Number: 0518-10-02								
Mercury, Total	111		-		67-133	-		

Lab Control Sample Analysis
Batch Quality Control

Project Name: YOVIENE
Project Number: BEV-12-

Lab Number: L1223487
Report Date: 01/04/13

Parameter	LCS %Recovery	LCSD %Recovery	%Recovery Limits	RPD	RPD Limits
Total Metals - Westborough Lab Associated sample(s): 01-08 Batch: WG582513-2					
Aluminum, Total	106	-	75-125	-	
Antimony, Total	93	-	75-125	-	
Arsenic, Total	102	-	75-125	-	
Barium, Total	93	-	75-125	-	
Beryllium, Total	96	-	75-125	-	
Cadmium, Total	96	-	75-125	-	
Calcium, Total	93	-	75-125	-	
Chromium, Total	93	-	75-125	-	
Cobalt, Total	93	-	75-125	-	
Copper, Total	96	-	75-125	-	
Iron, Total	96	-	75-125	-	
Lead, Total	91	-	75-125	-	
Magnesium, Total	96	-	75-125	-	
Manganese, Total	93	-	75-125	-	
Nickel, Total	93	-	75-125	-	
Potassium, Total	96	-	75-125	-	
Selenium, Total	96	-	75-125	-	
Silver, Total	97	-	75-125	-	
Sodium, Total	106	-	75-125	-	
Thallium, Total	97	-	75-125	-	
Vanadium, Total	96	-	75-125	-	

Lab Control Sample Analysis
Batch Quality Control

Project Name: YOVIENE
Project Number: BEV-12-

Lab Number: L1223487
Report Date: 01/04/13

Parameter	LCS %Recovery	LCSD %Recovery	%Recovery Limits	RPD	RPD Limits
Total Metals - Westborough Lab Associated sample(s): 01-08 Batch: WG582513-2					
Zinc, Total	93	-	75-125	-	

Matrix Spike Analysis
Batch Quality Control

Project Name: YOVIENE
Project Number: BEV-12-

Lab Number: L1223487
Report Date: 01/04/13

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Westborough Lab Associated sample(s): 01-08 QC Batch ID: WG582294-4 QC Sample: L1222794-14 Client ID: MS Sample												
Mercury, Total	ND	0.182	0.19	105		-	-		70-130	-		35

Matrix Spike Analysis
Batch Quality Control

Project Name: YOVIENE
Project Number: BEV-12-

Lab Number: L1223487
Report Date: 01/04/13

Parameter	Native Sample	MS Added	MS Found	MS %Recovery		MSD Found	MSD %Recovery	Recovery Limits	RPD	RPD Limits
Total Metals - Westborough Lab Associated sample(s): 01-08 QC Batch ID: WG582513-4 QC Sample: L1223487-01 Client ID: P-1, 4.2-5.0'										
Aluminum, Total	16000	222	19000	**1350**	Q	-	-	75-125	-	35
Antimony, Total	10.	55.4	32	**40**	Q	-	-	75-125	-	35
Arsenic, Total	13.	13.3	27	105		-	-	75-125	-	35
Barium, Total	140	222	320	81		-	-	75-125	-	35
Beryllium, Total	0.63	5.54	5.9	95		-	-	75-125	-	35
Cadmium, Total	ND	5.66	4.8	85		-	-	75-125	-	35
Calcium, Total	3700	1110	4700	90		-	-	75-125	-	35
Chromium, Total	40.	22.2	58	81		-	-	75-125	-	35
Cobalt, Total	21.	55.4	77	101		-	-	75-125	-	35
Copper, Total	120	27.7	140	**72**	Q	-	-	75-125	-	35
Iron, Total	94000	111	83000	**0**	Q	-	-	75-125	-	35
Lead, Total	120	56.6	180	106		-	-	75-125	-	35
Magnesium, Total	5100	1110	7500	**216**	Q	-	-	75-125	-	35
Manganese, Total	550	55.4	580	**54**	Q	-	-	75-125	-	35
Nickel, Total	76.	55.4	130	97		-	-	75-125	-	35
Potassium, Total	1300	1110	2700	**126**	Q	-	-	75-125	-	35
Selenium, Total	1.4J	13.3	13	98		-	-	75-125	-	35
Silver, Total	0.38J	33.3	34	102		-	-	75-125	-	35
Sodium, Total	430	1110	1700	114		-	-	75-125	-	35
Thallium, Total	2.8	13.3	16	99		-	-	75-125	-	35
Vanadium, Total	23.	55.4	77	97		-	-	75-125	-	35

Matrix Spike Analysis
Batch Quality Control

Project Name: YOVIENE
Project Number: BEV-12-

Lab Number: L1223487
Report Date: 01/04/13

Parameter	Native Sample	MS Added	MS Found	MS %Recovery		MSD Found	MSD %Recovery	Recovery Limits	RPD	RPD Limits
Total Metals - Westborough Lab Associated sample(s): 01-08 QC Batch ID: WG582513-4 QC Sample: L1223487-01 Client ID: P-1, 4.2-5.0'										
Zinc, Total	200	55.4	290	162	Q	-	-	75-125	-	35

Lab Duplicate Analysis
Batch Quality Control

Project Name: YOVIENE
Project Number: BEV-12-

Lab Number: L1223487
Report Date: 01/04/13

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Total Metals - Westborough Lab Associated sample(s): 01-08 QC Batch ID: WG582294-3 QC Sample: L1222794-14 Client ID: DUP Sample						
Mercury, Total	ND	ND	mg/kg	NC		35

Project Name: YOVIENE
Project Number: BEV-12-

Lab Duplicate Analysis
Batch Quality Control

Lab Number: L1223487
Report Date: 01/04/13

Parameter	Native Sample	Duplicate Sample	Units	RPD		RPD Limits
Total Metals - Westborough Lab Associated sample(s): 01-08 QC Batch ID: WG582513-3 QC Sample: L1223487-01 Client ID: P-1, 4.2-5.0'						
Aluminum, Total	16000	18000	mg/kg	12		35
Antimony, Total	10.	8.3	mg/kg	19		35
Arsenic, Total	13.	12	mg/kg	8		35
Barium, Total	140	110	mg/kg	24		35
Beryllium, Total	0.63	0.76	mg/kg	19		35
Cadmium, Total	ND	ND	mg/kg	NC		35
Calcium, Total	3700	2300	mg/kg	47	Q	35
Chromium, Total	40.	37	mg/kg	8		35
Cobalt, Total	21.	20	mg/kg	5		35
Copper, Total	120	110	mg/kg	9		35
Iron, Total	94000	84000	mg/kg	11		35
Lead, Total	120	100	mg/kg	18		35
Magnesium, Total	5100	6600	mg/kg	26		35
Manganese, Total	550	470	mg/kg	16		35
Nickel, Total	76.	76	mg/kg	0		35
Potassium, Total	1300	1600	mg/kg	21		35
Selenium, Total	1.4J	1.4J	mg/kg	NC		35
Silver, Total	0.38J	0.29J	mg/kg	NC		35
Sodium, Total	430	380	mg/kg	12		35

Lab Duplicate Analysis
Batch Quality Control

Project Name: YOVIENE
Project Number: BEV-12-

Lab Number: L1223487
Report Date: 01/04/13

Parameter	Native Sample	Duplicate Sample	Units	RPD	RPD Limits
Total Metals - Westborough Lab Associated sample(s): 01-08 QC Batch ID: WG582513-3 QC Sample: L1223487-01 Client ID: P-1, 4.2-5.0'					
Thallium, Total	2.8	2.6	mg/kg	7	35
Vanadium, Total	23.	24	mg/kg	4	35
Zinc, Total	200	180	mg/kg	11	35

INORGANICS
&
MISCELLANEOUS

Project Name: YOVIENE
Project Number: BEV-12-

Lab Number: L1223487
Report Date: 01/04/13

SAMPLE RESULTS

Lab ID: L1223487-01
Client ID: P-1, 4.2-5.0'
Sample Location: HAMBURG, NY
Matrix: Soil

Date Collected: 12/27/12 11:50
Date Received: 12/29/12
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	69		%	0.10	NA	1	-	12/29/12 12:23	30,2540G	TA
Cyanide, Total	ND		mg/kg	1.4	0.33	1	12/31/12 10:17	01/02/13 14:42	1,9010C/9012A	JO

Project Name: YOVIENE
Project Number: BEV-12-

Lab Number: L1223487
Report Date: 01/04/13

SAMPLE RESULTS

Lab ID: L1223487-02
Client ID: P-2, 6.4-7.7'
Sample Location: HAMBURG, NY
Matrix: Soil

Date Collected: 12/27/12 12:30
Date Received: 12/29/12
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	85		%	0.10	NA	1	-	12/29/12 12:23	30,2540G	TA
Cyanide, Total	ND		mg/kg	1.1	0.25	1	12/31/12 10:17	01/02/13 14:43	1,9010C/9012A	JO

Project Name: YOVIENE
Project Number: BEV-12-

Lab Number: L1223487
Report Date: 01/04/13

SAMPLE RESULTS

Lab ID: L1223487-03
Client ID: P-3, 3.6-4.8'
Sample Location: HAMBURG, NY
Matrix: Soil

Date Collected: 12/27/12 13:00
Date Received: 12/29/12
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	69		%	0.10	NA	1	-	12/29/12 12:23	30,2540G	TA
Cyanide, Total	ND		mg/kg	1.4	0.34	1	12/31/12 10:17	01/02/13 14:39	1,9010C/9012A	JO

Project Name: YOVIENE
Project Number: BEV-12-

Lab Number: L1223487
Report Date: 01/04/13

SAMPLE RESULTS

Lab ID: L1223487-04
Client ID: P-4, 3.8-5.1'
Sample Location: HAMBURG, NY
Matrix: Soil

Date Collected: 12/27/12 13:30
Date Received: 12/29/12
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	80		%	0.10	NA	1	-	12/29/12 12:23	30,2540G	TA
Cyanide, Total	ND		mg/kg	1.2	0.27	1	12/31/12 10:17	01/02/13 14:46	1,9010C/9012A	JO

Project Name: YOVIENE
Project Number: BEV-12-

Lab Number: L1223487
Report Date: 01/04/13

SAMPLE RESULTS

Lab ID: L1223487-05
Client ID: P-5, 4.1-5.2'
Sample Location: HAMBURG, NY
Matrix: Soil

Date Collected: 12/27/12 14:20
Date Received: 12/29/12
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	82		%	0.10	NA	1	-	12/29/12 12:23	30,2540G	TA
Cyanide, Total	ND		mg/kg	1.2	0.27	1	12/31/12 10:17	01/02/13 14:48	1,9010C/9012A	JO

Project Name: YOVIENE
Project Number: BEV-12-

Lab Number: L1223487
Report Date: 01/04/13

SAMPLE RESULTS

Lab ID: L1223487-06
Client ID: P-6, 3.9-5.1'
Sample Location: HAMBURG, NY
Matrix: Soil

Date Collected: 12/28/12 10:10
Date Received: 12/29/12
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	70		%	0.10	NA	1	-	12/29/12 12:23	30,2540G	TA
Cyanide, Total	ND		mg/kg	1.4	0.32	1	12/31/12 10:17	01/02/13 14:49	1,9010C/9012A	JO

Project Name: YOVIENE
Project Number: BEV-12-

Lab Number: L1223487
Report Date: 01/04/13

SAMPLE RESULTS

Lab ID: L1223487-07
Client ID: P-7, 3.7-4.9'
Sample Location: HAMBURG, NY
Matrix: Soil

Date Collected: 12/28/12 11:10
Date Received: 12/29/12
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	61		%	0.10	NA	1	-	12/29/12 12:23	30,2540G	TA
Cyanide, Total	ND		mg/kg	1.5	0.36	1	12/31/12 10:17	01/02/13 14:50	1,9010C/9012A	JO

Project Name: YOVIENE
Project Number: BEV-12-

Lab Number: L1223487
Report Date: 01/04/13

SAMPLE RESULTS

Lab ID: L1223487-08
Client ID: P-8, 4.2-5.0'
Sample Location: HAMBURG, NY
Matrix: Soil

Date Collected: 12/28/12 12:15
Date Received: 12/29/12
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	82		%	0.10	NA	1	-	12/29/12 12:23	30,2540G	TA
Cyanide, Total	ND		mg/kg	1.2	0.27	1	12/31/12 10:17	01/02/13 14:51	1,9010C/9012A	JO

Project Name: YOVIENE
Project Number: BEV-12-

Lab Number: L1223487
Report Date: 01/04/13

Method Blank Analysis
Batch Quality Control

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab for sample(s): 01-08 Batch: WG582084-1										
Cyanide, Total	ND		mg/kg	0.93	0.22	1	12/31/12 10:17	01/02/13 14:32	1,9010C/9012A	JO

Lab Control Sample Analysis
Batch Quality Control

Project Name: YOVIENE
Project Number: BEV-12-

Lab Number: L1223487
Report Date: 01/04/13

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01-08 Batch: WG582084-2 WG582084-3								
Cyanide, Total	110		109		80-120	1		35

Matrix Spike Analysis
Batch Quality Control

Project Name: YOVIENE
Project Number: BEV-12-

Lab Number: L1223487
Report Date: 01/04/13

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01-08 QC Batch ID: WG582084-4 WG582084-5 QC Sample: L1223487-02 Client ID: P-2, 6.4-7.7'												
Cyanide, Total	ND	11	10	88		8.8	81		65-135	9		35

Project Name: YOVIENE
Project Number: BEV-12-

Lab Duplicate Analysis
Batch Quality Control

Lab Number: L1223487
Report Date: 01/04/13

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01-08 QC Batch ID: WG581965-1 QC Sample: L1223483-01 Client ID: DUP Sample						
Solids, Total	90.	90	%	0		20

Project Name: YOVIENE
Project Number: BEV-12-

Lab Number: L1223487
Report Date: 01/04/13

Sample Receipt and Container Information

Were project specific reporting limits specified? YES

Reagent H2O Preserved Vials Frozen on: NA

Cooler Information Custody Seal

Cooler	
A	Absent

Container Information

Container ID	Container Type	Cooler	pH	Temp deg C	Pres	Seal	Analysis(*)
L1223487-01A	Amber 120ml unpreserved	A	N/A	3.3	Y	Absent	NYTCL-8260(14)
L1223487-01B	Amber 250ml unpreserved	A	N/A	3.3	Y	Absent	BE-TI(180),NYTCL-8270(14),TCN-9010(14),AS-TI(180),BA-TI(180),AG-TI(180),AL-TI(180),CR-TI(180),NI-TI(180),TL-TI(180),TS(7),CU-TI(180),PB-TI(180),SB-TI(180),SE-TI(180),ZN-TI(180),CO-TI(180),V-TI(180),FE-TI(180),HG-T(28),MG-TI(180),MN-TI(180),NYTCL-8082(14),CA-TI(180),CD-TI(180),K-TI(180),NA-TI(180)
L1223487-02A	Amber 120ml unpreserved	A	N/A	3.3	Y	Absent	NYTCL-8260(14)
L1223487-02B	Amber 250ml unpreserved	A	N/A	3.3	Y	Absent	BE-TI(180),NYTCL-8270(14),TCN-9010(14),AS-TI(180),BA-TI(180),AG-TI(180),AL-TI(180),CR-TI(180),NI-TI(180),TL-TI(180),TS(7),CU-TI(180),PB-TI(180),SB-TI(180),SE-TI(180),ZN-TI(180),CO-TI(180),V-TI(180),FE-TI(180),HG-T(28),MG-TI(180),MN-TI(180),NYTCL-8082(14),CA-TI(180),CD-TI(180),K-TI(180),NA-TI(180)
L1223487-03A	Amber 120ml unpreserved	A	N/A	3.3	Y	Absent	NYTCL-8260(14)
L1223487-03B	Amber 250ml unpreserved	A	N/A	3.3	Y	Absent	BE-TI(180),NYTCL-8270(14),TCN-9010(14),AS-TI(180),BA-TI(180),AG-TI(180),AL-TI(180),CR-TI(180),NI-TI(180),TL-TI(180),TS(7),CU-TI(180),PB-TI(180),SB-TI(180),SE-TI(180),ZN-TI(180),CO-TI(180),V-TI(180),FE-TI(180),HG-T(28),MG-TI(180),MN-TI(180),NYTCL-8082(14),CA-TI(180),CD-TI(180),K-TI(180),NA-TI(180)
L1223487-04A	Amber 120ml unpreserved	A	N/A	3.3	Y	Absent	NYTCL-8260(14)

*Values in parentheses indicate holding time in days

Project Name: YOVIENE
Project Number: BEV-12-

Lab Number: L1223487
Report Date: 01/04/13

Container Information

Container ID	Container Type	Cooler	pH	Temp deg C	Pres	Seal	Analysis(*)
L1223487-04B	Amber 250ml unpreserved	A	N/A	3.3	Y	Absent	BE-TI(180),NYTCL-8270(14),TCN-9010(14),AS-TI(180),BA-TI(180),AG-TI(180),AL-TI(180),CR-TI(180),NI-TI(180),TL-TI(180),TS(7),CU-TI(180),PB-TI(180),SB-TI(180),SE-TI(180),ZN-TI(180),CO-TI(180),V-TI(180),FE-TI(180),HG-T(28),MG-TI(180),MN-TI(180),NYTCL-8082(14),CA-TI(180),CD-TI(180),K-TI(180),NA-TI(180)
L1223487-05A	Amber 120ml unpreserved	A	N/A	3.3	Y	Absent	NYTCL-8260(14)
L1223487-05B	Amber 250ml unpreserved	A	N/A	3.3	Y	Absent	BE-TI(180),NYTCL-8270(14),TCN-9010(14),AS-TI(180),BA-TI(180),AG-TI(180),AL-TI(180),CR-TI(180),NI-TI(180),TL-TI(180),TS(7),CU-TI(180),PB-TI(180),SB-TI(180),SE-TI(180),ZN-TI(180),CO-TI(180),V-TI(180),FE-TI(180),HG-T(28),MG-TI(180),MN-TI(180),NYTCL-8082(14),CA-TI(180),CD-TI(180),K-TI(180),NA-TI(180)
L1223487-06A	Amber 120ml unpreserved	A	N/A	3.3	Y	Absent	NYTCL-8260(14)
L1223487-06B	Amber 250ml unpreserved	A	N/A	3.3	Y	Absent	BE-TI(180),NYTCL-8270(14),TCN-9010(14),AS-TI(180),BA-TI(180),AG-TI(180),AL-TI(180),CR-TI(180),NI-TI(180),TL-TI(180),TS(7),CU-TI(180),PB-TI(180),SB-TI(180),SE-TI(180),ZN-TI(180),CO-TI(180),V-TI(180),FE-TI(180),HG-T(28),MG-TI(180),MN-TI(180),NYTCL-8082(14),CA-TI(180),CD-TI(180),K-TI(180),NA-TI(180)
L1223487-07A	Amber 120ml unpreserved	A	N/A	3.3	Y	Absent	NYTCL-8260(14)
L1223487-07B	Amber 250ml unpreserved	A	N/A	3.3	Y	Absent	BE-TI(180),NYTCL-8270(14),TCN-9010(14),AS-TI(180),BA-TI(180),AG-TI(180),AL-TI(180),CR-TI(180),NI-TI(180),TL-TI(180),TS(7),CU-TI(180),PB-TI(180),SB-TI(180),SE-TI(180),ZN-TI(180),CO-TI(180),V-TI(180),FE-TI(180),HG-T(28),MG-TI(180),MN-TI(180),NYTCL-8082(14),CA-TI(180),CD-TI(180),K-TI(180),NA-TI(180)
L1223487-08A	Amber 120ml unpreserved	A	N/A	3.3	Y	Absent	NYTCL-8260(14)

*Values in parentheses indicate holding time in days

Project Name: YOVIENE
Project Number: BEV-12-

Lab Number: L1223487
Report Date: 01/04/13

Container Information

Container ID	Container Type	Cooler	pH	Temp deg C	Pres	Seal	Analysis(*)
L1223487-08B	Amber 250ml unpreserved	A	N/A	3.3	Y	Absent	BE-TI(180),NYTCL-8270(14),TCN-9010(14),AS-TI(180),BA-TI(180),AG-TI(180),AL-TI(180),CR-TI(180),NI-TI(180),TL-TI(180),TS(7),CU-TI(180),PB-TI(180),SB-TI(180),SE-TI(180),ZN-TI(180),CO-TI(180),V-TI(180),FE-TI(180),HG-T(28),MG-TI(180),MN-TI(180),NYTCL-8082(14),CA-TI(180),CD-TI(180),K-TI(180),NA-TI(180)

*Values in parentheses indicate holding time in days

Project Name: YOVIENE **Lab Number:** L1223487

Project Number: BEV-12- **Report Date:** 01/04/13

GLOSSARY

Acronyms

EDL - Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).

EPA - Environmental Protection Agency.

LCS - Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.

LCSD - Laboratory Control Sample Duplicate: Refer to LCS.

LFB - Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.

MDL - Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.

MS - Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available.

MSD - Matrix Spike Sample Duplicate: Refer to MS.

NA - Not Applicable.

NC - Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.

NI - Not Ignitable.

RL - Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.

RPD - Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.

SRM - Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.

Footnotes

1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

Terms

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Data Qualifiers

A - Spectra identified as "Aldol Condensation Product".

B - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than five times (5x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit.

C - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.

D - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.

E - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.

G - The concentration may be biased high due to matrix interferences (i.e, co-elution) with non-target compound(s). The result should be considered estimated.

H - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.

I - The RPD between the results for the two columns exceeds the method-specified criteria; however, the lower value has been reported

Report Format: DU Report with "J" Qualifiers

Project Name:	YOVIENE	**Lab Number:**	L1223487
Project Number:	BEV-12-	**Report Date:**	01/04/13

Data Qualifiers

due to obvious interference.

M - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.

NJ - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.

P - The RPD between the results for the two columns exceeds the method-specified criteria.

Q - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)

R - Analytical results are from sample re-analysis.

RE - Analytical results are from sample re-extraction.

J - Estimated value. The Target analyte concentration is below the quantitation limit (RL), but above the Method Detection Limit (MDL) or Estimated Detection Limit (EDL) for SPME-related analyses. This represents an estimated concentration for Tentatively Identified Compounds (TICs).

ND - Not detected at the method detection limit (MDL) for the sample, or estimated detection limit (EDL) for SPME-related analyses.

Report Format: DU Report with "J" Qualifiers

Project Name: YOVIENE
Project Number: BEV-12-

Lab Number: L1223487
Report Date: 01/04/13

REFERENCES

1 Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. EPA SW-846. Third Edition. Updates I - IIIA, 1997.

30 Standard Methods for the Examination of Water and Wastewater. APHA-AWWA-WPCF. 18th Edition. 1992.

LIMITATION OF LIABILITIES

Alpha Analytical performs services with reasonable care and diligence normal to the analytical testing laboratory industry. In the event of an error, the sole and exclusive responsibility of Alpha Analytical shall be to re-perform the work at it's own expense. In no event shall Alpha Analytical be held liable for any incidental, consequential or special damages, including but not limited to, damages in any way connected with the use of, interpretation of, information or analysis provided by Alpha Analytical.

We strongly urge our clients to comply with EPA protocol regarding sample volume, preservation, cooling, containers, sampling procedures, holding time and splitting of samples in the field.

Certificate/Approval Program Summary

Last revised December 19, 2012 - Westboro Facility

The following list includes only those analytes/methods for which certification/approval is currently held.
For a complete listing of analytes for the referenced methods, please contact your Alpha Customer Service Representative.

Connecticut Department of Public Health Certificate/Lab ID: PH-0574. ***NELAP Accredited Solid Waste/Soil.***

Drinking Water (Inorganic Parameters: Color, pH, Turbidity, Conductivity, Alkalinity, Chloride, Free Residual Chlorine, Fluoride, Calcium Hardness, Sulfate, Nitrate, Nitrite, Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Copper, Iron, Lead, Magnesium, Manganese, Mercury, Nickel, Selenium, Silver, Sodium, Thallium, Zinc, Total Dissolved Solids, Total Organic Carbon, Total Cyanide, Perchlorate. Organic Parameters: Volatile Organics 524.2, Total Trihalomethanes 524.2, 1,2-Dibromo-3-chloropropane (DBCP) 504.1, Ethylene Dibromide (EDB) 504.1, 1,4-Dioxane (Mod 8270). Microbiology Parameters: Total Coliform-MF mEndo (SM9222B), Total Coliform – Colilert (SM9223, Enumeration and P/A), E. Coli. – Colilert (SM9223, Enumeration and P/A), HPC – Pour Plate (SM9215B), Fecal Coliform – MF m-FC (SM9222D), Fecal Coliform-EC Medium (SM 9221E).

Wastewater/Non-Potable Water (Inorganic Parameters: Color, pH, Conductivity, Acidity, Alkalinity, Chloride, Total Residual Chlorine, Fluoride, Total Hardness, Silica, Sulfate, Sulfide, Ammonia, Kjeldahl Nitrogen, Nitrate, Nitrite, O-Phosphate, Total Phosphorus, Aluminum, Antimony, Arsenic, Barium, Beryllium, Boron, Cadmium, Calcium, Chromium, Hexavalent Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Mercury, Molybdenum, Nickel, Potassium, Selenium, Silver, Sodium, Strontium, Thallium, Tin, Titanium, Vanadium, Zinc, Total Residue (Solids), Total Dissolved Solids, Total Suspended Solids (non-filterable), BOD, CBOD, COD, TOC, Total Cyanide, Phenolics, Foaming Agents (MBAS), Bromide, Oil and Grease. Organic Parameters: PCBs, Organochlorine Pesticides, Technical Chlordane, Toxaphene, Acid Extractables (Phenols), Benzidines, Phthalate Esters, Nitrosamines, Nitroaromatics & Isophorone, Polynuclear Aromatic Hydrocarbons, Haloethers, Chlorinated Hydrocarbons, Volatile Organics, TPH (HEM/SGT), CT-Extractable Petroleum Hydrocarbons (ETPH), MA-EPH, MA-VPH. Microbiology Parameters: Total Coliform – MF mEndo (SM9222B), Total Coliform – MTF (SM9221B), E. Coli – Colilert (SM9223 Enumeration), HPC – Pour Plate (SM9215B), Fecal Coliform – MF m-FC (SM9222D), Fecal Coliform – A-1 Broth (SM9221E), Enterococcus - Enterolert.

Solid Waste/Soil (Inorganic Parameters: pH, Sulfide, Aluminum, Antimony, Arsenic, Barium, Beryllium, Boron, Cadmium, Calcium, Chromium, Hexavalent Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Mercury, Molybdenum, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Tin, Vanadium, Zinc, Total Cyanide, Ignitability, Phenolics, Corrosivity, TCLP Leach (1311), SPLP Leach (1312 metals only), Reactivity. Organic Parameters: PCBs, PCBs in Oil, Organochlorine Pesticides, Technical Chlordane, Toxaphene, CT-Extractable Petroleum Hydrocarbons (ETPH), MA-EPH, MA-VPH, Dicamba, 2,4-D, 2,4,5-T, 2,4,5-TP(Silvex), Dalapon, Volatile Organics (SW 8260), Acid Extractables (Phenols) (SW 8270), Benzidines (SW 8270), Phthalates (SW 8270), Nitrosamines (SW 8270), Nitroaromatics & Cyclic Ketones (SW 8270), PAHs (SW 8270), Haloethers (SW 8270), Chlorinated Hydrocarbons (SW 8270).)

Maine Department of Human Services Certificate/Lab ID: 2009024.
Drinking Water (Inorganic Parameters: SM9215B, 9222D, 9223B, EPA 180.1, 353.2, SM2130B, 2320B, 2540C, 4500Cl-D, 4500CN-C, 4500CN-E, 4500F-C, 4500H+B, 4500NO3-F, EPA 200.7, EPA 200.8, 245.1, EPA 300.0. Organic Parameters: 504.1, 524.2.)

Wastewater/Non-Potable Water (Inorganic Parameters: EPA 120.1, 1664A, 350.1, 351.1, 353.2, 410.4, 420.1, SM2320B, 2510B, 2540C, 2540D, 426C, 4500Cl-D, 4500Cl-E, 4500CN-C, 4500CN-E, 4500F-B, 4500F-C, 4500H+B, 4500Norg-B, 4500Norg-C, 4500NH3-B, 4500NH3-G, 4500NO3-F, 4500P-B, 4500P-E, 5210B, 5220D, 5310C, 9010B, 9040B, 9030B, 7470A, 7196A, 2340B, EPA 200.7, 6010B, 6010C, 200.8, 6020, 245.1, 1311, 1312, 3005A, Enterolert, 9223B, 9222D. Organic Parameters: 608, 624, 625, 8081A, 8081B, 8082, 8082A, 8330, 8151A, 8260B, 8260C, 8270C, 8270D, 3510C, 3630C, 5030B, ME-DRO, ME-GRO, MA-EPH, MA-VPH.)

Solid Waste/Soil (Inorganic Parameters: 9010B, 9012A, 9014, 9030B, 9040B, 9045C, 6010B, 6010C, 6020, 6020A, 7471A, 7471B, 7196A, 9050A, 1010, 1030, 9065, 1311, 1312, 3005A, 3050B. Organic Parameters: ME-DRO, ME-GRO, MA-EPH, MA-VPH, 8260B, 8270C, 8270D, 8330, 8151A, 8081A, 8081B, 8082, 8082A, 3540C, 3546, 3580A, 3630C, 5030B, 5035.)

Massachusetts Department of Environmental Protection Certificate/Lab ID: M-MA086.
Drinking Water (Inorganic Parameters: (EPA 200.8 for: Sb,As,Ba,Be,Cd,Cr,Cu,Pb,Ni,Se,Tl) (EPA 200.7 for: Ba,Be,Ca,Cd,Cr,Cu,Na,Ni) 245.1, (300.0 for: Nitrate-N, Fluoride, Sulfate); (EPA 353.2 for: Nitrate-N, Nitrite-N); (SM4500NO3-F for: Nitrate-N and Nitrite-N); 4500F-C, 4500CN-CE, EPA 180.1, SM2130B, SM4500Cl-D, 2320B, SM2540C, SM4500H-B. Organic Parameters: (EPA 524.2 for: Trihalomethanes, Volatile Organics); (504.1 for: 1,2-Dibromoethane, 1,2-Dibromo-3-Chloropropane), EPA 332. Microbiology Parameters: SM9215B; ENZ. SUB. SM9223; ColilertQT SM9223B; MF-SM9222D.)

Non-Potable Water (Inorganic Parameters:, (EPA 200.8 for: Al,Sb,As,Be,Cd,Cr,Cu,Pb,Mn,Ni,Se,Ag,Tl,Zn); (EPA 200.7 for: Al,Sb,As,Be,Cd,Ca,Cr,Co,Cu,Fe,Pb,Mg,Mn,Mo,Ni,K,Se,Ag,Na,Sr,Ti,Tl,V,Zn); 245.1, SM4500H,B, EPA 120.1, SM2510B, 2540C, 2340B, 2320B, 4500CL-E, 4500F-BC, 426C, SM4500NH3-BH, (EPA 350.1 for: Ammonia-N), LACHAT 10-107-06-1-B for Ammonia-N, SM4500NO3-F, 353.2 for Nitrate-N, SM4500NH3-BC-NES, EPA 351.1, SM4500P-E, 4500P-B,E, 5220D, EPA 410.4, SM 5210B, 5310C, 4500CL-D, EPA 1664, SM14 510AC, EPA 420.1, SM4500-CN-CE, SM2540D.
Organic Parameters: (EPA 624 for Volatile Halocarbons, Volatile Aromatics),(608 for: Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT,Endosulfan I, Endosulfan II, Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs-Water), (EPA 625 for SVOC Acid Extractables and SVOC Base/Neutral Extractables), 600/4-81-045-PCB-Oil. Microbiology Parameters: (ColilertQT SM9223B; Enterolert-QT: SM9222D-MF.)

New Hampshire Department of Environmental Services Certificate/Lab ID: 200307. ***NELAP Accredited.***
Drinking Water (Inorganic Parameters: SM 9222B, 9223B, 9215B, EPA 200.7, 200.8, 300.0, SM4500CN-E, 4500H+B, 4500NO3-F, 2320B, 2510B, 2540C, 4500F-C, 5310C, 2120B, EPA 332.0. Organic Parameters: 504.1, 524.2.)

Non-Potable Water (Inorganic Parameters: SM9222D, 9221B, 9222B, 9221E-EC, EPA 3005A, 200.7, 200.8, 245.1, SW-846 6010C, 6020A, 7196A, 7470A, SM3500-CR-D, EPA 120.1, 300.0, 350.1, 350.2, 351.1, 353.2, 410.4, 420.1, 426C, 1664A, SW-846 9010B, 9010C, 9030, 9040B, 9040C, SM2120B, 2310B, 2320B, 2340B, 2540B, 2540D, 4500H+B, 4500CL-E, 4500CN-E, 4500NH3-H, 4500NO3-F, 4500NO2-B, 4500P-E, 4500-S2-D, 4500SO3-B, 5210B, 5220D, 2510B, 2540C, 4500F-C, 5310C, 5540C, LACHAT 10-204-00-1-A, LACHAT 10-107-06-2-D, 3060A. Organic Parameters: SW-846 3510C, 3630C, 5030B, 8260C, 8270D, 8330, EPA 624, 625, 608, SW-846 8082A, 8081B, 8015C, 8151A, 8330, 8270D-SIM.)

Solid & Chemical Materials (Inorganic Parameters: SW-846 6010C, 6020A, 7196A, 7471B, 1010, 1010A, 1030, 9010C, 9012B, 9014, 9030B, 9040C, 9045C, 9045D, 9050, 9065, 9251, 1311, 1312, 3005A, 3050B, 3060A. Organic Parameters: SW-846 3540C, 3546, 3050B, 3580A, 3620D, 3630C, 5030B, 5035, 8260C, 8270D, 8270D-SIM, 8330, 8151A, 8015B, 8015C, 8082A, 8081B.)

New Jersey Department of Environmental Protection Certificate/Lab ID: MA935. ***NELAP Accredited.***
Drinking Water (Inorganic Parameters: SM9222B, 9221E, 9223B, 9215B, 4500CN-CE, 4500NO3-F, 4500F-C, EPA 300.0, 200.7, 200.8, 245.1, 2540C, SM2120B, 2320B, 2510B, 5310C, SM4500H-B. Organic Parameters: EPA 332, 504.1, 524.2.)

Non-Potable Water (Inorganic Parameters: SM5210B, EPA 410.4, SM5220D, 4500Cl-E, EPA 300.0, SM2120B, 2340B, SM4500F-BC, EPA 200.7, 200.8, 351.1, LACHAT 10-107-06-2-D, EPA 353.2, SM4500NO3-F, 4500NO2-B, EPA 1664A, SM5310B, C or D, 4500-PE, EPA 420.1, SM510ABC, SM4500P-B5+E, 2540B, 2540C, 2540D, EPA 120.1, SM2510B, SM2520B, SM15 426C, 9222D, 9221B, 9221C, 9221E, 9222B, 9215B, 2310B, 2320B, 4500NH3-H, 4500-S D, EPA 350.1, 350.2, SW-846 1312, 7470A, 5540C, SM4500H-B, 4500SO3-B, SM3500Cr-D, 4500CN-CE, EPA 245.1, SW-846 9040B, 9040C, 3005A, 3015, EPA 6010B, 6010C, 6020, 6020A, 7196A, 3060A, SW-846 9010C, 9030B. Organic Parameters: SW-846 8260B, 8260C, 8270C, 8270D, 8270C-SIM, 8270D-SIM, 3510C, EPA 608, 624, 625, SW-846 3630C, 5030B, 8011, 8015C, 8081A, 8081B, 8082, 8082A, 8151A, 8330, 1,4-Dioxane by NJ Modified 8270, 8015B, NJ EPH.)

Solid & Chemical Materials (Inorganic Parameters: SW-846, 6010B, 6010C, 6020, 6020A, 7196A, 3060A, 9030B, 1010, 1010A, 1030, 1311, 1312, 3005A, 3050B, 7471A, 7471B, 9010C, 9012B, 9014, 9038, 9040B, 9040C, 9045C, 9045D, 9050A, 9065, 9251. Organic Parameters: SW-846 8015B, 8015C, 8081A. 8081B, 8082, 8082A, 8151A, 8330, 8260B, 8260C, 8270C, 8270D, 8270C-SIM, 8270D-SIM, 3540C, 3546, 3580A, 3620C, 3630C, 5030B, 5035L, 5035H, NJ EPH.)

New York Department of Health Certificate/Lab ID: 11148. ***NELAP Accredited.***
Drinking Water (Inorganic Parameters: SM9223B, 9222B, 9215B, EPA 200.8, 200.7, 245.2, SM5310C, EPA 332.0, SM2320B, EPA 300.0, SM2120B, 4500CN-E, 4500F-C, 4500NO3-F, 2540C, SM 2510B. Organic Parameters: EPA 524.2, 504.1.)

Non-Potable Water (Inorganic Parameters: SM9221E, 9222D, 9221B, 9222B, 9215B, 5210B, 5310C, EPA 410.4, SM5220D, 2310B-4a, 2320B, EPA 200.7, 300.0, SM4500CL-E, 4500F-C, SM15 426C, EPA 350.1, SM4500NH3-BH, EPA 351.1, LACHAT 10-107-06-2, EPA 353.2, SM4500-NO3-F, 4500-NO2-B, 4500P-E, 2540C, 2540B, 2540D, EPA 200.8, EPA 6010B, 6010C, 6020, 6020A, EPA 7196A, SM3500Cr-D, EPA 245.1, 7470A, SM2120B, LACHAT 10-204-00-1-A, 4500CN-CE, EPA 1664A, EPA 420.1, SM14 510C, EPA 120.1, SM2510B, SM4500S-D, SM5540C, EPA 3005A, 3015, 9010C, 9030B. Organic Parameters: EPA 624, 8260B, 8260C, 8270C, 8270D, 8270C-SIM, 8270D-SIM, 625, 608, 8081A, 8081B, 8151A, 8330, 8082, 8082A, EPA 3510C, 5030B.)

Solid & Hazardous Waste (Inorganic Parameters: EPA 1010A, 1030, EPA 6010B, 6010C, 7196A, 7471A, 7471B, 9012B, 9014, 9065, 9050A, EPA 1311, 1312, 3005A, 3050B, 9010C, 9030B, 9040C, 9045D. Organic Parameters: EPA 8260B, 8260C, 8270C, 8270D, 8270C-SIM, 8270D-SIM, 8015B, 8015C, 8081A, 8081B, 8151A, 8330, 8082 8082A, 3540C,

3546, 3580A, 5030B, 5035A-H, 5035A-L.)

North Carolina Department of the Environment and Natural Resources Certificate/Lab ID : 666. (Inorganic Parameters: SM2310B, 2320B, 4500Cl-E, 4500Cn-E, 9014, Lachat 10-204-00-1-X, 1010A, 1030, 4500NO3-F, 353.2, 4500P-E, 4500SO4-E, 300.0, 4500S-D, 5310B, 5310C, 6010C, 6020A, 200.7, 200.8, 3500Cr-B, 7196A, 245.1, 7470A, 7471B, 1311,1312. Organic Parameters: 608, 8081B, 8082A, 624, 8260B, 625, 8270D, 8151A, 8015C, 504.1, MA-EPH, MA-VPH.)

Drinking Water Program Certificate/Lab ID: 25700. (Inorganic Parameters: Chloride EPA 300.0. Organic Parameters: 524.2)

Pennsylvania Department of Environmental Protection Certificate/Lab ID : 68-03671. ***NELAP Accredited.***
Drinking Water (Inorganic Parameters: 200.7, 200.8, 300.0, 332.0, 2120B, 2320B, 2510B, 2540C, 4500-CN-CE, 4500F-C, 4500H+-B, 4500NO3-F, 5310C. Organic Parameters: EPA 524.2, 504.1)

Non-Potable Water (Inorganic Parameters: EPA 120.1, 1312, 3005A,3015, 3060A, 200.7, 200.8, 410.4, 1664A, SM2540D, 5210B, 5220D, 4500-P,BE, 245.1, 300.0, 350.1, 350.2, 351.1, 353.2, 420.1, 6010C, 6020A, 7196A, 7470A, 9030B, 2120B, 2310B, 2320B, 2510B, 2540B, 2540C, 3500Cr-D, 426C, 4500CN-CE, 4500Cl-E, 4500F-B, 4500F-C, 4500H+-B, 4500NH3-H, 4500NO2-B, 4500NO3-F, 4500S-D, 4500SO3-B, 5310BCD, 5540C, 9010C, 9040C. Organic Parameters: EPA 3510C, 3630C, 5030B, 625, 624, 608, 8081B, 8082A, 8151A, 8260C, 8270D, 8270D-SIM, 8330, 8015C, NJ-EPH.)

Solid & Hazardous Waste (Inorganic Parameters: EPA 350.1, 1010, 1030, 1311, 1312, 3005A, 3050B, 3060A, 6010C, 6020A, 7196A, 7471B, 9010C, 9012B, 9014, 9040B, 9045D, 9050A, 9065, SM 4500NH3-BH, 9030B, 9038, 9251. Organic Parameters: 3540C, 3546, 3580A, 3620C, 3630C, 5035, 8015C, 8081B, 8082A, 8151A, 8260C, 8270D, 8270D-SIM, 8330, NJ-EPH.)

Rhode Island Department of Health Certificate/Lab ID: LAO00065. ***NELAP Accredited via NJ-DEP.***
Refer to MA-DEP Certificate for Potable and Non-Potable Water.
Refer to NJ-DEP Certificate for Potable and Non-Potable Water.

Texas Commisson on Environmental Quality Certificate/Lab ID: T104704476. ***NELAP Accredited.***
Non-Potable Water (Inorganic Parameters: EPA 120.1, 1664, 200.7, 200.8, 245.1, 245.2, 300.0, 350.1, 351.1, 353.2, 410.4, 420.1, 6010, 6020, 7196, 7470, 9040, SM 2120B, 2310B, 2320B, 2510B, 2540B, 2540C, 2540D, 426C, 4500CL-E, 4500CN-E, 4500F-C, 4500H+B, 4500NH3-H, 4500NO2B, 4500P-E, 4500 $S2^-$D, 510C, 5210B, 5220D, 5310C, 5540C. Organic Parameters: EPA 608, 624, 625, 8081, 8082, 8151, 8260, 8270, 8330.)

Solid & Hazardous Waste (Inorganic Parameters: EPA 1311, 1312, 9012, 9014, 9040, 9045, 9050, 9065.)

Virginia Division of Consolidated Laboratory Services Certificate/Lab ID: 460195. ***NELAP Accredited.***
Drinking Water (Inorganic Parameters: EPA 200.7, 200.8, 300.0, 2510B, 2120B, 2540C, 4500CN-CE, 245.2, 2320B, 4500F-C, 4500NO3-F, 5310C. Organic Parameters: EPA 504.1, 524.2.)

Non-Potable Water (Inorganic Parameters: EPA 120.1, 1664A, 200.7, 200.8, 245.1, 300.0, 3005A, 3015, 1312, 6010B, 6010C, 3060A, 353.2, 420.1, 6020, 6020A, SM4500S-D, SM4500-CN-CE, Lachat 10-204-00-1-X, 7196A, 7470A, 9010B, 9040B, 2310B, 2320B, 2510B, 2540B, 2540C, 3500Cr-D, 426C, 4500Cl-E, 4500F-B, 4500F-C, 4500PE, 510AC, 5210B, 5310B 5310C, 5540C. Organic Parameters: EPA 3510C, 3630C, 5030B, 8260B, 608, 624, 625, 8081A, 8081B, 8082, 8082A, 8151A, 8270C, 8270D, 8270C-SIM, 8270D-SIM, 8330,)

Solid & Hazardous Waste (Inorganic Parameters: EPA 1010A, 1030, 3060A, 3050B, 1311, 1312, 6010B, 6010C, 6020, , 7196A, 7471A, 7471B, 6020A, 9030B, 9010B, 9012A, 9014 9040B, 9045C, 9050A, 9065. Organic Parameters: EPA 5030B, 5035, 3540C, 3546, 355B0, 3580A, 3630C, 6020A, 8260B, 8015B, 8015C, 8081A, 8081B, 8082, 8082A, 8151A, 8270C, 8270D, 8270C-SIM, 8270D-SIM, 8330.)

Department of Defense, L-A-B Certificate/Lab ID: L2217.
Drinking Water (Inorganic Parameters: SM 4500H-B. Organic Parameters: EPA 524.2, 504.1.)

Non-Potable Water (Inorganic Parameters: EPA 200.7, 200.8, 6010B, 6010C, 6020, 6020A, 245.1, 245.2, 7470A, 9040B, 9010B, 180.1. 300.0, 332.0, 6860, 353.2, 410.4, 9060, 1664A, SM 4500CN-E, 4500H-B, 4500NO3-F, 4500CL-D, 5220D, 5310C, 2130B, 2320B, 2540C, 3005A, 3015, 9010B, 9056, 7196A, 3500-Cr-D. Organic Parameters: EPA 8260B, 8260C, 8270C, 8270D, 8270C-SIM, 8270D-SIM, 8330A, 8082, 8082A, 8081A, 8081B, 3510C, 5030B, MassDEP EPH, MassDEP VPH.)

Solid & Hazardous Waste (Inorganic Parameters: EPA 200.7, 6010B, 6010C, 7471A, 6860, 1311, 1312, 3050B, 7196A, 9010B, 9012A, 9040B, 9045C, 3500-CR-D, 4500CN-CE, 2540G, Organic Parameters: EPA 8260B, 8260C, 8270C,

8270D, 8270C-SIM, 8270D-SIM, 8330A/B-prep, 8082, 8082A, 8081A, 8081B, 3540C, 3546, 3580A, 5035A, MassDEP EPH, MassDEP VPH.)

The following analytes are not included in our current NELAP/TNI Scope of Accreditation:
EPA 8260B: Freon-113, 1,2,4,5-Tetramethylbenzene, 4-Ethyltoluene. **EPA 8330A:** PETN, Picric Acid, Nitroglycerine, 2,6-DANT, 2,4-DANT. **EPA 8270C:** Methyl naphthalene, Dimethyl naphthalene, Total Methylnapthalenes, Total Dimethylnaphthalenes, 1,4-Diphenylhydrazine (Azobenzene). **EPA 625:** 4-Chloroaniline, 4-Methylphenol. Total Phosphorus in a soil matrix, Chloride in a soil matrix, TKN in a soil matrix, NO2 in a soil matrix, NO3 in a soil matrix. **EPA 9071:** Total Petroleum Hydrocarbons, Oil & Grease.

CHAIN OF CUSTODY

PAGE _____ OF _____

ALPHA
WESTBORO, MA TEL: 508-898-9220 FAX: 508-898-9193
MANSFIELD, MA TEL: 508-822-9300 FAX: 508-822-3288

Date Rec'd In Lab: 12/29/12

ALPHA Job #: L1223487

Client Information

Client: SJB
Address: 5167 South Park Ave
Hamburg, NY 14075
Phone: 716-649-8110
Fax: -8051
Email: dsteiner@sjbenpire.net
☐ These samples have been previously analyzed by Alpha

Project Information

Project Name: Yovene
Project Location: Hamburg, NY
Project #: BEV-12-
Project Manager: Dave Steiner
ALPHA Quote #:

Turn-Around Time

☐ Standard ☒ RUSH (only confirmed if pre-approved)
Date Due: 01/04/13 Time:

Report Information - Data Deliverables

☐ FAX ☒ EMAIL
☒ ADEx ☐ Add'l Deliverables

Billing Information

☒ Same as Client info PO #:

Regulatory Requirements/Report Limits

State /Fed Program: Criteria: DER-10

Other Project Specific Requirements/Comments/Detection Limits:
5 DAY

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	TCL VOCs	TCL SVOCs	TAL Metals	Cn	PCB	Total # Bottles	Sample Specific Comments
23487-01	P-1, 4.2-5.0'	12-27-12	1150	Soil	DRS	X	X	X	X	X	A A A A	
-02	P-2, 6.4-7.7'		1230									
-03	P-3, 3.6-4.8		1300									
-04	P-4, 3.8-5.1'		1330									
-05	P-5, 4.1-5.2'		1420									
-06	P-6, 3.9-5.1'	12-28-12	1010									
-07	P-7, 3.7-4.9'		1110									
-08	P-8, 4.2-5.0'		1215									

SAMPLE HANDLING
Filtration _____
☐ Done
☐ Not needed
☐ Lab to do
Preservation
☐ Lab to do
(Please specify below)

Container Type
Preservative

Relinquished By:	Date/Time	Received By:	Date/Time
David R. Steiner	12-28-12/1620		12/28/12/1620
Kyle Cunningham	12/28/12 1900	Kyle Cunningham	12/28/12 1900
Robert Perkins	12-28-12 2130	Robert Perkins	12-28-12 2130
	12-28-12 00:25		12/29/12 00:25

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Terms and Conditions. See reverse side.

FORM NO: 01-01 (rev. 14-OCT-07)

ANALYTICAL REPORT

Lab Number:	L1223485
Client:	SJB Services, Inc 5167 South Park Ave. Hamburg, NY 14705
ATTN:	Dave Steiner
Phone:	(716) 649-8110
Project Name:	YOVIENE
Project Number:	BEV-12-040
Report Date:	01/04/13

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Certifications & Approvals: MA (M-MA086), NY (11148), CT (PH-0574), NH (2003), NJ NELAP (MA935), RI (LAO00065), ME (MA00086), PA (68-03671), USDA (Permit #P-330-11-00240), NC (666), TX (T104704476), DOD (L2217), US Army Corps of Engineers.

Eight Walkup Drive, Westborough, MA 01581-1019
508-898-9220 (Fax) 508-898-9193 800-624-9220 - www.alphalab.com

Project Name: YOVIENE
Project Number: BEV-12-040

Lab Number: L1223485
Report Date: 01/04/13

Alpha Sample ID	Client ID	Sample Location	Collection Date/Time
L1223485-01	SW-1	HAMBURG, NY	12/28/12 14:20
L1223485-02	SW-2	HAMBURG, NY	12/28/12 13:50
L1223485-03	SW-3	HAMBURG, NY	12/28/12 14:10

Project Name: YOVIENE
Project Number: BEV-12-040

Lab Number: L1223485
Report Date: 01/04/13

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet all of the requirements of NELAC, for all NELAC accredited parameters. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively. When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. Performance criteria for CAM and RCP methods allow for some LCS compound failures to occur and still be within method compliance. In these instances, the specific failures are not narrated but are noted in the associated QC table. This information is also incorporated in the Data Usability format for our Data Merger tool where it can be reviewed along with any associated usability implications. Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances the specific failure is not narrated but noted in the associated QC table. The information is also incorporated in the Data Usability format of our Data Merger tool where it can be reviewed along with any associated usability implications.

Please see the associated ADEx data file for a comparison of laboratory reporting limits that were achieved with the regulatory Numerical Standards requested on the Chain of Custody.

HOLD POLICY
For samples submitted on hold, Alpha's policy is to hold samples free of charge for 30 days from the date the project is completed. After 30 days, we will dispose of all samples submitted including those put on hold unless you have contacted your Client Service Representative and made arrangements for Alpha to continue to hold the samples.

Please contact Client Services at 800-624-9220 with any questions.

Project Name:	YOVIENE	**Lab Number:**	L1223485
Project Number:	BEV-12-040	**Report Date:**	01/04/13

Case Narrative (continued)

Report Submission

All non-detect (ND) or estimated concentrations (J-qualified) have been quantitated to the limit noted in the MDL column.

Sample Receipt

L1223485-02 and -03 were received below the appropriate pH for the Cyanide analysis. The laboratory added additional NaOH to a pH >12.

Semivolatile Organics - SIM

The WG582029-2/-3 LCS/LCSD recoveries, associated with L1223485-01, -02, and -03, were above the acceptance criteria for Pentachlorophenol (129%/127%); however, the associated samples were non-detect for this target compound. The results of the original analysis are reported.

Metals

L1223485-01, -02, and -03 have elevated detection limits for all analytes, except Mercury, due to the dilutions required by matrix interferences encountered during the 6020 analysis.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature: Cynthia McQueen

Title: Technical Director/Representative Date: 01/04/13

ORGANICS

VOLATILES

Project Name: YOVIENE
Project Number: BEV-12-040

Lab Number: L1223485
Report Date: 01/04/13

SAMPLE RESULTS

Lab ID: L1223485-01
Client ID: SW-1
Sample Location: HAMBURG, NY
Matrix: Water
Analytical Method: 1,8260C
Analytical Date: 01/02/13 10:46
Analyst: PD

Date Collected: 12/28/12 14:20
Date Received: 12/29/12
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methylene chloride	ND		ug/l	2.5	0.70	1
1,1-Dichloroethane	ND		ug/l	2.5	0.70	1
Chloroform	ND		ug/l	2.5	0.70	1
Carbon tetrachloride	ND		ug/l	0.50	0.16	1
1,2-Dichloropropane	ND		ug/l	1.0	0.30	1
Dibromochloromethane	ND		ug/l	0.50	0.19	1
1,1,2-Trichloroethane	ND		ug/l	1.5	0.50	1
Tetrachloroethene	ND		ug/l	0.50	0.18	1
Chlorobenzene	ND		ug/l	2.5	0.70	1
Trichlorofluoromethane	ND		ug/l	2.5	0.70	1
1,2-Dichloroethane	ND		ug/l	0.50	0.16	1
1,1,1-Trichloroethane	ND		ug/l	2.5	0.70	1
Bromodichloromethane	ND		ug/l	0.50	0.19	1
trans-1,3-Dichloropropene	ND		ug/l	0.50	0.16	1
cis-1,3-Dichloropropene	ND		ug/l	0.50	0.14	1
1,1-Dichloropropene	ND		ug/l	2.5	0.70	1
Bromoform	ND		ug/l	2.0	0.65	1
1,1,2,2-Tetrachloroethane	ND		ug/l	0.50	0.19	1
Benzene	ND		ug/l	0.50	0.19	1
Toluene	ND		ug/l	2.5	0.70	1
Ethylbenzene	ND		ug/l	2.5	0.70	1
Chloromethane	ND		ug/l	2.5	0.70	1
Bromomethane	ND		ug/l	2.5	0.70	1
Vinyl chloride	ND		ug/l	1.0	0.33	1
Chloroethane	ND		ug/l	2.5	0.70	1
1,1-Dichloroethene	ND		ug/l	0.50	0.18	1
trans-1,2-Dichloroethene	ND		ug/l	2.5	0.70	1
Trichloroethene	ND		ug/l	0.50	0.17	1
1,2-Dichlorobenzene	ND		ug/l	2.5	0.70	1
1,3-Dichlorobenzene	ND		ug/l	2.5	0.70	1
1,4-Dichlorobenzene	ND		ug/l	2.5	0.70	1

Project Name: YOVIENE
Project Number: BEV-12-040
Lab Number: L1223485
Report Date: 01/04/13

SAMPLE RESULTS

Lab ID: L1223485-01
Client ID: SW-1
Sample Location: HAMBURG, NY
Date Collected: 12/28/12 14:20
Date Received: 12/29/12
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methyl tert butyl ether	ND		ug/l	2.5	0.70	1
p/m-Xylene	ND		ug/l	2.5	0.70	1
o-Xylene	ND		ug/l	2.5	0.70	1
cis-1,2-Dichloroethene	ND		ug/l	2.5	0.70	1
Dibromomethane	ND		ug/l	5.0	1.0	1
1,2,3-Trichloropropane	ND		ug/l	2.5	0.70	1
Acrylonitrile	ND		ug/l	5.0	1.5	1
Styrene	ND		ug/l	2.5	0.70	1
Dichlorodifluoromethane	ND		ug/l	5.0	1.0	1
Acetone	ND		ug/l	5.0	1.0	1
Carbon disulfide	ND		ug/l	5.0	1.0	1
2-Butanone	ND		ug/l	5.0	1.0	1
Vinyl acetate	ND		ug/l	5.0	1.0	1
4-Methyl-2-pentanone	ND		ug/l	5.0	1.0	1
2-Hexanone	ND		ug/l	5.0	1.0	1
Bromochloromethane	ND		ug/l	2.5	0.70	1
2,2-Dichloropropane	ND		ug/l	2.5	0.70	1
1,2-Dibromoethane	ND		ug/l	2.0	0.65	1
1,3-Dichloropropane	ND		ug/l	2.5	0.70	1
1,1,1,2-Tetrachloroethane	ND		ug/l	2.5	0.70	1
Bromobenzene	ND		ug/l	2.5	0.70	1
n-Butylbenzene	ND		ug/l	2.5	0.70	1
sec-Butylbenzene	ND		ug/l	2.5	0.70	1
tert-Butylbenzene	ND		ug/l	2.5	0.70	1
o-Chlorotoluene	ND		ug/l	2.5	0.70	1
p-Chlorotoluene	ND		ug/l	2.5	0.70	1
1,2-Dibromo-3-chloropropane	ND		ug/l	2.5	0.70	1
Hexachlorobutadiene	ND		ug/l	2.5	0.70	1
Isopropylbenzene	ND		ug/l	2.5	0.70	1
p-Isopropyltoluene	ND		ug/l	2.5	0.70	1
Naphthalene	ND		ug/l	2.5	0.70	1
n-Propylbenzene	ND		ug/l	2.5	0.70	1
1,2,3-Trichlorobenzene	ND		ug/l	2.5	0.70	1
1,2,4-Trichlorobenzene	ND		ug/l	2.5	0.70	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.70	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.70	1
1,4-Dioxane	ND		ug/l	250	76.	1
1,4-Diethylbenzene	ND		ug/l	2.0	0.70	1
4-Ethyltoluene	ND		ug/l	2.0	0.70	1

Project Name: YOVIENE
Project Number: BEV-12-040

Lab Number: L1223485
Report Date: 01/04/13

SAMPLE RESULTS

Lab ID: L1223485-01
Client ID: SW-1
Sample Location: HAMBURG, NY

Date Collected: 12/28/12 14:20
Date Received: 12/29/12
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
1,2,4,5-Tetramethylbenzene	ND		ug/l	2.0	0.65	1
Ethyl ether	ND		ug/l	2.5	0.70	1
trans-1,4-Dichloro-2-butene	ND		ug/l	2.5	0.70	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	97		70-130
Toluene-d8	97		70-130
4-Bromofluorobenzene	105		70-130
Dibromofluoromethane	99		70-130

Project Name: YOVIENE
Project Number: BEV-12-040

Lab Number: L1223485
Report Date: 01/04/13

SAMPLE RESULTS

Lab ID: L1223485-02
Client ID: SW-2
Sample Location: HAMBURG, NY
Matrix: Water
Analytical Method: 1,8260C
Analytical Date: 01/02/13 11:11
Analyst: PD

Date Collected: 12/28/12 13:50
Date Received: 12/29/12
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methylene chloride	ND		ug/l	2.5	0.70	1
1,1-Dichloroethane	ND		ug/l	2.5	0.70	1
Chloroform	ND		ug/l	2.5	0.70	1
Carbon tetrachloride	ND		ug/l	0.50	0.16	1
1,2-Dichloropropane	ND		ug/l	1.0	0.30	1
Dibromochloromethane	ND		ug/l	0.50	0.19	1
1,1,2-Trichloroethane	ND		ug/l	1.5	0.50	1
Tetrachloroethene	ND		ug/l	0.50	0.18	1
Chlorobenzene	ND		ug/l	2.5	0.70	1
Trichlorofluoromethane	ND		ug/l	2.5	0.70	1
1,2-Dichloroethane	ND		ug/l	0.50	0.16	1
1,1,1-Trichloroethane	ND		ug/l	2.5	0.70	1
Bromodichloromethane	ND		ug/l	0.50	0.19	1
trans-1,3-Dichloropropene	ND		ug/l	0.50	0.16	1
cis-1,3-Dichloropropene	ND		ug/l	0.50	0.14	1
1,1-Dichloropropene	ND		ug/l	2.5	0.70	1
Bromoform	ND		ug/l	2.0	0.65	1
1,1,2,2-Tetrachloroethane	ND		ug/l	0.50	0.19	1
Benzene	ND		ug/l	0.50	0.19	1
Toluene	ND		ug/l	2.5	0.70	1
Ethylbenzene	ND		ug/l	2.5	0.70	1
Chloromethane	ND		ug/l	2.5	0.70	1
Bromomethane	ND		ug/l	2.5	0.70	1
Vinyl chloride	ND		ug/l	1.0	0.33	1
Chloroethane	ND		ug/l	2.5	0.70	1
1,1-Dichloroethene	ND		ug/l	0.50	0.18	1
trans-1,2-Dichloroethene	ND		ug/l	2.5	0.70	1
Trichloroethene	ND		ug/l	0.50	0.17	1
1,2-Dichlorobenzene	ND		ug/l	2.5	0.70	1
1,3-Dichlorobenzene	ND		ug/l	2.5	0.70	1
1,4-Dichlorobenzene	ND		ug/l	2.5	0.70	1

Project Name: YOVIENE
Project Number: BEV-12-040

Lab Number: L1223485
Report Date: 01/04/13

SAMPLE RESULTS

Lab ID: L1223485-02
Client ID: SW-2
Sample Location: HAMBURG, NY

Date Collected: 12/28/12 13:50
Date Received: 12/29/12
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methyl tert butyl ether	ND		ug/l	2.5	0.70	1
p/m-Xylene	ND		ug/l	2.5	0.70	1
o-Xylene	ND		ug/l	2.5	0.70	1
cis-1,2-Dichloroethene	ND		ug/l	2.5	0.70	1
Dibromomethane	ND		ug/l	5.0	1.0	1
1,2,3-Trichloropropane	ND		ug/l	2.5	0.70	1
Acrylonitrile	ND		ug/l	5.0	1.5	1
Styrene	ND		ug/l	2.5	0.70	1
Dichlorodifluoromethane	ND		ug/l	5.0	1.0	1
Acetone	1.0	J	ug/l	5.0	1.0	1
Carbon disulfide	ND		ug/l	5.0	1.0	1
2-Butanone	ND		ug/l	5.0	1.0	1
Vinyl acetate	ND		ug/l	5.0	1.0	1
4-Methyl-2-pentanone	ND		ug/l	5.0	1.0	1
2-Hexanone	ND		ug/l	5.0	1.0	1
Bromochloromethane	ND		ug/l	2.5	0.70	1
2,2-Dichloropropane	ND		ug/l	2.5	0.70	1
1,2-Dibromoethane	ND		ug/l	2.0	0.65	1
1,3-Dichloropropane	ND		ug/l	2.5	0.70	1
1,1,1,2-Tetrachloroethane	ND		ug/l	2.5	0.70	1
Bromobenzene	ND		ug/l	2.5	0.70	1
n-Butylbenzene	ND		ug/l	2.5	0.70	1
sec-Butylbenzene	ND		ug/l	2.5	0.70	1
tert-Butylbenzene	ND		ug/l	2.5	0.70	1
o-Chlorotoluene	ND		ug/l	2.5	0.70	1
p-Chlorotoluene	ND		ug/l	2.5	0.70	1
1,2-Dibromo-3-chloropropane	ND		ug/l	2.5	0.70	1
Hexachlorobutadiene	ND		ug/l	2.5	0.70	1
Isopropylbenzene	ND		ug/l	2.5	0.70	1
p-Isopropyltoluene	ND		ug/l	2.5	0.70	1
Naphthalene	ND		ug/l	2.5	0.70	1
n-Propylbenzene	ND		ug/l	2.5	0.70	1
1,2,3-Trichlorobenzene	ND		ug/l	2.5	0.70	1
1,2,4-Trichlorobenzene	ND		ug/l	2.5	0.70	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.70	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.70	1
1,4-Dioxane	ND		ug/l	250	76.	1
1,4-Diethylbenzene	ND		ug/l	2.0	0.70	1
4-Ethyltoluene	ND		ug/l	2.0	0.70	1

Project Name: YOVIENE
Project Number: BEV-12-040
Lab Number: L1223485
Report Date: 01/04/13

SAMPLE RESULTS

Lab ID: L1223485-02
Client ID: SW-2
Sample Location: HAMBURG, NY
Date Collected: 12/28/12 13:50
Date Received: 12/29/12
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
1,2,4,5-Tetramethylbenzene	ND		ug/l	2.0	0.65	1
Ethyl ether	ND		ug/l	2.5	0.70	1
trans-1,4-Dichloro-2-butene	ND		ug/l	2.5	0.70	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	96		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	105		70-130
Dibromofluoromethane	99		70-130

Project Name: YOVIENE
Project Number: BEV-12-040

Lab Number: L1223485
Report Date: 01/04/13

SAMPLE RESULTS

Lab ID: L1223485-03
Client ID: SW-3
Sample Location: HAMBURG, NY
Matrix: Water
Analytical Method: 1,8260C
Analytical Date: 01/02/13 11:37
Analyst: PD

Date Collected: 12/28/12 14:10
Date Received: 12/29/12
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methylene chloride	ND		ug/l	2.5	0.70	1
1,1-Dichloroethane	ND		ug/l	2.5	0.70	1
Chloroform	ND		ug/l	2.5	0.70	1
Carbon tetrachloride	ND		ug/l	0.50	0.16	1
1,2-Dichloropropane	ND		ug/l	1.0	0.30	1
Dibromochloromethane	ND		ug/l	0.50	0.19	1
1,1,2-Trichloroethane	ND		ug/l	1.5	0.50	1
Tetrachloroethene	ND		ug/l	0.50	0.18	1
Chlorobenzene	ND		ug/l	2.5	0.70	1
Trichlorofluoromethane	ND		ug/l	2.5	0.70	1
1,2-Dichloroethane	ND		ug/l	0.50	0.16	1
1,1,1-Trichloroethane	ND		ug/l	2.5	0.70	1
Bromodichloromethane	ND		ug/l	0.50	0.19	1
trans-1,3-Dichloropropene	ND		ug/l	0.50	0.16	1
cis-1,3-Dichloropropene	ND		ug/l	0.50	0.14	1
1,1-Dichloropropene	ND		ug/l	2.5	0.70	1
Bromoform	ND		ug/l	2.0	0.65	1
1,1,2,2-Tetrachloroethane	ND		ug/l	0.50	0.19	1
Benzene	ND		ug/l	0.50	0.19	1
Toluene	ND		ug/l	2.5	0.70	1
Ethylbenzene	ND		ug/l	2.5	0.70	1
Chloromethane	ND		ug/l	2.5	0.70	1
Bromomethane	ND		ug/l	2.5	0.70	1
Vinyl chloride	ND		ug/l	1.0	0.33	1
Chloroethane	ND		ug/l	2.5	0.70	1
1,1-Dichloroethene	ND		ug/l	0.50	0.18	1
trans-1,2-Dichloroethene	ND		ug/l	2.5	0.70	1
Trichloroethene	ND		ug/l	0.50	0.17	1
1,2-Dichlorobenzene	ND		ug/l	2.5	0.70	1
1,3-Dichlorobenzene	ND		ug/l	2.5	0.70	1
1,4-Dichlorobenzene	ND		ug/l	2.5	0.70	1

Project Name: YOVIENE
Project Number: BEV-12-040

Lab Number: L1223485
Report Date: 01/04/13

SAMPLE RESULTS

Lab ID: L1223485-03
Client ID: SW-3
Sample Location: HAMBURG, NY

Date Collected: 12/28/12 14:10
Date Received: 12/29/12
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methyl tert butyl ether	ND		ug/l	2.5	0.70	1
p/m-Xylene	ND		ug/l	2.5	0.70	1
o-Xylene	ND		ug/l	2.5	0.70	1
cis-1,2-Dichloroethene	ND		ug/l	2.5	0.70	1
Dibromomethane	ND		ug/l	5.0	1.0	1
1,2,3-Trichloropropane	ND		ug/l	2.5	0.70	1
Acrylonitrile	ND		ug/l	5.0	1.5	1
Styrene	ND		ug/l	2.5	0.70	1
Dichlorodifluoromethane	ND		ug/l	5.0	1.0	1
Acetone	ND		ug/l	5.0	1.0	1
Carbon disulfide	ND		ug/l	5.0	1.0	1
2-Butanone	ND		ug/l	5.0	1.0	1
Vinyl acetate	ND		ug/l	5.0	1.0	1
4-Methyl-2-pentanone	ND		ug/l	5.0	1.0	1
2-Hexanone	ND		ug/l	5.0	1.0	1
Bromochloromethane	ND		ug/l	2.5	0.70	1
2,2-Dichloropropane	ND		ug/l	2.5	0.70	1
1,2-Dibromoethane	ND		ug/l	2.0	0.65	1
1,3-Dichloropropane	ND		ug/l	2.5	0.70	1
1,1,1,2-Tetrachloroethane	ND		ug/l	2.5	0.70	1
Bromobenzene	ND		ug/l	2.5	0.70	1
n-Butylbenzene	ND		ug/l	2.5	0.70	1
sec-Butylbenzene	ND		ug/l	2.5	0.70	1
tert-Butylbenzene	ND		ug/l	2.5	0.70	1
o-Chlorotoluene	ND		ug/l	2.5	0.70	1
p-Chlorotoluene	ND		ug/l	2.5	0.70	1
1,2-Dibromo-3-chloropropane	ND		ug/l	2.5	0.70	1
Hexachlorobutadiene	ND		ug/l	2.5	0.70	1
Isopropylbenzene	ND		ug/l	2.5	0.70	1
p-Isopropyltoluene	ND		ug/l	2.5	0.70	1
Naphthalene	ND		ug/l	2.5	0.70	1
n-Propylbenzene	ND		ug/l	2.5	0.70	1
1,2,3-Trichlorobenzene	ND		ug/l	2.5	0.70	1
1,2,4-Trichlorobenzene	ND		ug/l	2.5	0.70	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.70	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.70	1
1,4-Dioxane	ND		ug/l	250	76.	1
1,4-Diethylbenzene	ND		ug/l	2.0	0.70	1
4-Ethyltoluene	ND		ug/l	2.0	0.70	1

Project Name: YOVIENE
Project Number: BEV-12-040

Lab Number: L1223485
Report Date: 01/04/13

SAMPLE RESULTS

Lab ID: L1223485-03
Client ID: SW-3
Sample Location: HAMBURG, NY

Date Collected: 12/28/12 14:10
Date Received: 12/29/12
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
1,2,4,5-Tetramethylbenzene	ND		ug/l	2.0	0.65	1
Ethyl ether	ND		ug/l	2.5	0.70	1
trans-1,4-Dichloro-2-butene	ND		ug/l	2.5	0.70	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	97		70-130
Toluene-d8	97		70-130
4-Bromofluorobenzene	105		70-130
Dibromofluoromethane	101		70-130

Project Name: YOVIENE
Project Number: BEV-12-040

Lab Number: L1223485
Report Date: 01/04/13

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 01/02/13 08:40
Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 01-03 Batch: WG582265-3					
Methylene chloride	ND		ug/l	2.5	0.70
1,1-Dichloroethane	ND		ug/l	2.5	0.70
Chloroform	ND		ug/l	2.5	0.70
Carbon tetrachloride	ND		ug/l	0.50	0.16
1,2-Dichloropropane	ND		ug/l	1.0	0.30
Dibromochloromethane	ND		ug/l	0.50	0.19
1,1,2-Trichloroethane	ND		ug/l	1.5	0.50
Tetrachloroethene	ND		ug/l	0.50	0.18
Chlorobenzene	ND		ug/l	2.5	0.70
Trichlorofluoromethane	ND		ug/l	2.5	0.70
1,2-Dichloroethane	ND		ug/l	0.50	0.16
1,1,1-Trichloroethane	ND		ug/l	2.5	0.70
Bromodichloromethane	ND		ug/l	0.50	0.19
trans-1,3-Dichloropropene	ND		ug/l	0.50	0.16
cis-1,3-Dichloropropene	ND		ug/l	0.50	0.14
1,1-Dichloropropene	ND		ug/l	2.5	0.70
Bromoform	ND		ug/l	2.0	0.65
1,1,2,2-Tetrachloroethane	ND		ug/l	0.50	0.19
Benzene	ND		ug/l	0.50	0.19
Toluene	ND		ug/l	2.5	0.70
Ethylbenzene	ND		ug/l	2.5	0.70
Chloromethane	ND		ug/l	2.5	0.70
Bromomethane	ND		ug/l	2.5	0.70
Vinyl chloride	ND		ug/l	1.0	0.33
Chloroethane	ND		ug/l	2.5	0.70
1,1-Dichloroethene	ND		ug/l	0.50	0.18
trans-1,2-Dichloroethene	ND		ug/l	2.5	0.70
Trichloroethene	ND		ug/l	0.50	0.17
1,2-Dichlorobenzene	ND		ug/l	2.5	0.70
1,3-Dichlorobenzene	ND		ug/l	2.5	0.70
1,4-Dichlorobenzene	ND		ug/l	2.5	0.70

Project Name: YOVIENE
Project Number: BEV-12-040

Lab Number: L1223485
Report Date: 01/04/13

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 01/02/13 08:40
Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 01-03 Batch: WG582265-3					
Methyl tert butyl ether	ND		ug/l	2.5	0.70
p/m-Xylene	ND		ug/l	2.5	0.70
o-Xylene	ND		ug/l	2.5	0.70
cis-1,2-Dichloroethene	ND		ug/l	2.5	0.70
Dibromomethane	ND		ug/l	5.0	1.0
1,2,3-Trichloropropane	ND		ug/l	2.5	0.70
Acrylonitrile	ND		ug/l	5.0	1.5
Styrene	ND		ug/l	2.5	0.70
Dichlorodifluoromethane	ND		ug/l	5.0	1.0
Acetone	ND		ug/l	5.0	1.0
Carbon disulfide	ND		ug/l	5.0	1.0
2-Butanone	ND		ug/l	5.0	1.0
Vinyl acetate	ND		ug/l	5.0	1.0
4-Methyl-2-pentanone	ND		ug/l	5.0	1.0
2-Hexanone	ND		ug/l	5.0	1.0
Bromochloromethane	ND		ug/l	2.5	0.70
2,2-Dichloropropane	ND		ug/l	2.5	0.70
1,2-Dibromoethane	ND		ug/l	2.0	0.65
1,3-Dichloropropane	ND		ug/l	2.5	0.70
1,1,1,2-Tetrachloroethane	ND		ug/l	2.5	0.70
Bromobenzene	ND		ug/l	2.5	0.70
n-Butylbenzene	ND		ug/l	2.5	0.70
sec-Butylbenzene	ND		ug/l	2.5	0.70
tert-Butylbenzene	ND		ug/l	2.5	0.70
o-Chlorotoluene	ND		ug/l	2.5	0.70
p-Chlorotoluene	ND		ug/l	2.5	0.70
1,2-Dibromo-3-chloropropane	ND		ug/l	2.5	0.70
Hexachlorobutadiene	ND		ug/l	2.5	0.70
Isopropylbenzene	ND		ug/l	2.5	0.70
p-Isopropyltoluene	ND		ug/l	2.5	0.70
Naphthalene	ND		ug/l	2.5	0.70

Project Name: YOVIENE
Project Number: BEV-12-040

Lab Number: L1223485
Report Date: 01/04/13

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 01/02/13 08:40
Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 01-03 Batch: WG582265-3					
n-Propylbenzene	ND		ug/l	2.5	0.70
1,2,3-Trichlorobenzene	ND		ug/l	2.5	0.70
1,2,4-Trichlorobenzene	ND		ug/l	2.5	0.70
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.70
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.70
1,4-Dioxane	ND		ug/l	250	76.
1,4-Diethylbenzene	ND		ug/l	2.0	0.70
4-Ethyltoluene	ND		ug/l	2.0	0.70
1,2,4,5-Tetramethylbenzene	ND		ug/l	2.0	0.65
Ethyl ether	ND		ug/l	2.5	0.70
trans-1,4-Dichloro-2-butene	ND		ug/l	2.5	0.70

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	96		70-130
Toluene-d8	99		70-130
4-Bromofluorobenzene	105		70-130
Dibromofluoromethane	98		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: YOVIENE
Project Number: BEV-12-040

Lab Number: L1223485
Report Date: 01/04/13

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01-03 Batch: WG582265-1 WG582265-2								
Methylene chloride	93		93		70-130	0		20
1,1-Dichloroethane	92		91		70-130	1		20
Chloroform	92		92		70-130	0		20
Carbon tetrachloride	94		93		63-132	1		20
1,2-Dichloropropane	91		92		70-130	1		20
Dibromochloromethane	91		94		63-130	3		20
1,1,2-Trichloroethane	94		94		70-130	0		20
Tetrachloroethene	87		86		70-130	1		20
Chlorobenzene	92		91		75-130	1		20
Trichlorofluoromethane	95		93		62-150	2		20
1,2-Dichloroethane	89		91		70-130	2		20
1,1,1-Trichloroethane	92		92		67-130	0		20
Bromodichloromethane	90		91		67-130	1		20
trans-1,3-Dichloropropene	90		91		70-130	1		20
cis-1,3-Dichloropropene	89		90		70-130	1		20
1,1-Dichloropropene	92		90		70-130	2		20
Bromoform	94		98		54-136	4		20
1,1,2,2-Tetrachloroethane	101		104		67-130	3		20
Benzene	95		93		70-130	2		20
Toluene	93		92		70-130	1		20
Ethylbenzene	93		92		70-130	1		20

Lab Control Sample Analysis
Batch Quality Control

Project Name: YOVIENE
Project Number: BEV-12-040

Lab Number: L1223485
Report Date: 01/04/13

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01-03 Batch: WG582265-1 WG582265-2								
Chloromethane	69		73		64-130	6		20
Bromomethane	96		104		39-139	8		20
Vinyl chloride	99		101		55-140	2		20
Chloroethane	108		105		55-138	3		20
1,1-Dichloroethene	94		91		61-145	3		20
trans-1,2-Dichloroethene	92		93		70-130	1		20
Trichloroethene	94		94		70-130	0		20
1,2-Dichlorobenzene	96		98		70-130	2		20
1,3-Dichlorobenzene	95		95		70-130	0		20
1,4-Dichlorobenzene	97		96		70-130	1		20
Methyl tert butyl ether	87		90		63-130	3		20
p/m-Xylene	93		92		70-130	1		20
o-Xylene	94		93		70-130	1		20
cis-1,2-Dichloroethene	93		93		70-130	0		20
Dibromomethane	91		90		70-130	1		20
1,2,3-Trichloropropane	91		92		64-130	1		20
Acrylonitrile	92		94		70-130	2		20
Styrene	95		96		70-130	1		20
Dichlorodifluoromethane	82		80		36-147	2		20
Acetone	114		149	Q	58-148	27	Q	20
Carbon disulfide	87		88		51-130	1		20

Lab Control Sample Analysis
Batch Quality Control

Project Name: YOVIENE
Project Number: BEV-12-040

Lab Number: L1223485
Report Date: 01/04/13

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01-03 Batch: WG582265-1 WG582265-2								
2-Butanone	82		102		63-138	22	Q	20
Vinyl acetate	87		87		70-130	0		20
4-Methyl-2-pentanone	81		89		59-130	9		20
2-Hexanone	91		102		57-130	11		20
Bromochloromethane	95		95		70-130	0		20
2,2-Dichloropropane	91		89		63-133	2		20
1,2-Dibromoethane	89		91		70-130	2		20
1,3-Dichloropropane	92		93		70-130	1		20
1,1,1,2-Tetrachloroethane	92		93		64-130	1		20
Bromobenzene	96		96		70-130	0		20
n-Butylbenzene	103		100		53-136	3		20
sec-Butylbenzene	105		103		70-130	2		20
tert-Butylbenzene	100		99		70-130	1		20
o-Chlorotoluene	95		88		70-130	7		20
p-Chlorotoluene	102		100		70-130	2		20
1,2-Dibromo-3-chloropropane	94		96		41-144	2		20
Hexachlorobutadiene	82		83		63-130	1		20
Isopropylbenzene	102		100		70-130	2		20
p-Isopropyltoluene	102		101		70-130	1		20
Naphthalene	91		98		70-130	7		20
n-Propylbenzene	107		105		69-130	2		20

Lab Control Sample Analysis
Batch Quality Control

Project Name: YOVIENE
Project Number: BEV-12-040

Lab Number: L1223485
Report Date: 01/04/13

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01-03 Batch: WG582265-1 WG582265-2								
1,2,3-Trichlorobenzene	90		92		70-130	2		20
1,2,4-Trichlorobenzene	90		92		70-130	2		20
1,3,5-Trimethylbenzene	103		102		64-130	1		20
1,2,4-Trimethylbenzene	103		103		70-130	0		20
1,4-Dioxane	71		90		56-162	**24**	Q	20
1,4-Diethylbenzene	100		96		70-130	4		20
4-Ethyltoluene	104		103		70-130	1		20
1,2,4,5-Tetramethylbenzene	99		99		70-130	0		20
Ethyl ether	95		94		59-134	1		20
trans-1,4-Dichloro-2-butene	99		98		70-130	1		20

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	96		96		70-130
Toluene-d8	100		100		70-130
4-Bromofluorobenzene	109		109		70-130
Dibromofluoromethane	99		102		70-130

SEMIVOLATILES

Project Name: YOVIENE
Project Number: BEV-12-040

Lab Number: L1223485
Report Date: 01/04/13

SAMPLE RESULTS

Lab ID: L1223485-01
Client ID: SW-1
Sample Location: HAMBURG, NY
Matrix: Water
Analytical Method: 1,8270D
Analytical Date: 01/02/13 13:26
Analyst: JB

Date Collected: 12/28/12 14:20
Date Received: 12/29/12
Field Prep: Not Specified
Extraction Method: EPA 3510C
Extraction Date: 12/30/12 16:10

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
1,2,4-Trichlorobenzene	ND		ug/l	5.0	0.67	1
Bis(2-chloroethyl)ether	ND		ug/l	2.0	0.39	1
1,2-Dichlorobenzene	ND		ug/l	2.0	0.55	1
1,3-Dichlorobenzene	ND		ug/l	2.0	0.55	1
1,4-Dichlorobenzene	ND		ug/l	2.0	0.55	1
3,3'-Dichlorobenzidine	ND		ug/l	5.0	0.85	1
2,4-Dinitrotoluene	ND		ug/l	5.0	0.45	1
2,6-Dinitrotoluene	ND		ug/l	5.0	0.46	1
4-Chlorophenyl phenyl ether	ND		ug/l	2.0	0.61	1
4-Bromophenyl phenyl ether	ND		ug/l	2.0	0.67	1
Bis(2-chloroisopropyl)ether	ND		ug/l	2.0	0.50	1
Bis(2-chloroethoxy)methane	ND		ug/l	5.0	0.40	1
Hexachlorocyclopentadiene	ND		ug/l	20	2.1	1
Isophorone	ND		ug/l	5.0	0.35	1
Nitrobenzene	ND		ug/l	2.0	0.50	1
NitrosoDiPhenylAmine(NDPA)/DPA	ND		ug/l	2.0	0.70	1
n-Nitrosodi-n-propylamine	ND		ug/l	5.0	0.39	1
Bis(2-Ethylhexyl)phthalate	ND		ug/l	3.0	1.4	1
Butyl benzyl phthalate	ND		ug/l	5.0	0.46	1
Di-n-butylphthalate	ND		ug/l	5.0	0.54	1
Di-n-octylphthalate	ND		ug/l	5.0	0.53	1
Diethyl phthalate	ND		ug/l	5.0	0.45	1
Dimethyl phthalate	ND		ug/l	5.0	0.45	1
Biphenyl	ND		ug/l	2.0	0.50	1
4-Chloroaniline	ND		ug/l	5.0	0.83	1
2-Nitroaniline	ND		ug/l	5.0	0.40	1
3-Nitroaniline	ND		ug/l	5.0	0.59	1
4-Nitroaniline	ND		ug/l	5.0	0.55	1
Dibenzofuran	ND		ug/l	2.0	0.47	1
1,2,4,5-Tetrachlorobenzene	ND		ug/l	10	0.65	1
Acetophenone	ND		ug/l	5.0	0.55	1

Project Name: YOVIENE
Project Number: BEV-12-040
Lab Number: L1223485
Report Date: 01/04/13

SAMPLE RESULTS

Lab ID: L1223485-01
Client ID: SW-1
Sample Location: HAMBURG, NY
Date Collected: 12/28/12 14:20
Date Received: 12/29/12
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
2,4,6-Trichlorophenol	ND		ug/l	5.0	0.45	1
P-Chloro-M-Cresol	ND		ug/l	2.0	0.50	1
2-Chlorophenol	ND		ug/l	2.0	0.34	1
2,4-Dichlorophenol	ND		ug/l	5.0	0.43	1
2,4-Dimethylphenol	ND		ug/l	5.0	1.2	1
2-Nitrophenol	ND		ug/l	10	0.48	1
4-Nitrophenol	ND		ug/l	10	1.2	1
2,4-Dinitrophenol	ND		ug/l	20	1.4	1
4,6-Dinitro-o-cresol	ND		ug/l	10	0.59	1
Phenol	ND		ug/l	5.0	0.26	1
2-Methylphenol	ND		ug/l	5.0	0.53	1
3-Methylphenol/4-Methylphenol	ND		ug/l	5.0	0.47	1
2,4,5-Trichlorophenol	ND		ug/l	5.0	0.45	1
Benzoic Acid	ND		ug/l	50	1.0	1
Benzyl Alcohol	ND		ug/l	2.0	0.47	1
Carbazole	ND		ug/l	2.0	0.53	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	48		21-120
Phenol-d6	34		10-120
Nitrobenzene-d5	71		23-120
2-Fluorobiphenyl	79		15-120
2,4,6-Tribromophenol	85		10-120
4-Terphenyl-d14	90		41-149

Project Name: YOVIENE
Project Number: BEV-12-040
Lab Number: L1223485
Report Date: 01/04/13

SAMPLE RESULTS

Lab ID:	L1223485-01	Date Collected:	12/28/12 14:20
Client ID:	SW-1	Date Received:	12/29/12
Sample Location:	HAMBURG, NY	Field Prep:	Not Specified
Matrix:	Water	Extraction Method:	EPA 3510C
Analytical Method:	1,8270D-SIM	Extraction Date:	12/30/12 16:17
Analytical Date:	01/02/13 16:32		
Analyst:	AS		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Acenaphthene	ND		ug/l	0.20	0.06	1
2-Chloronaphthalene	ND		ug/l	0.20	0.07	1
Fluoranthene	ND		ug/l	0.20	0.04	1
Hexachlorobutadiene	ND		ug/l	0.50	0.07	1
Naphthalene	ND		ug/l	0.20	0.06	1
Benzo(a)anthracene	ND		ug/l	0.20	0.06	1
Benzo(a)pyrene	ND		ug/l	0.20	0.07	1
Benzo(b)fluoranthene	ND		ug/l	0.20	0.07	1
Benzo(k)fluoranthene	ND		ug/l	0.20	0.07	1
Chrysene	ND		ug/l	0.20	0.05	1
Acenaphthylene	ND		ug/l	0.20	0.05	1
Anthracene	ND		ug/l	0.20	0.06	1
Benzo(ghi)perylene	ND		ug/l	0.20	0.07	1
Fluorene	ND		ug/l	0.20	0.06	1
Phenanthrene	ND		ug/l	0.20	0.06	1
Dibenzo(a,h)anthracene	ND		ug/l	0.20	0.07	1
Indeno(1,2,3-cd)Pyrene	ND		ug/l	0.20	0.08	1
Pyrene	ND		ug/l	0.20	0.06	1
2-Methylnaphthalene	ND		ug/l	0.20	0.06	1
Pentachlorophenol	ND		ug/l	0.80	0.19	1
Hexachlorobenzene	ND		ug/l	0.80	0.01	1
Hexachloroethane	ND		ug/l	0.80	0.07	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	47		21-120
Phenol-d6	32		10-120
Nitrobenzene-d5	77		23-120
2-Fluorobiphenyl	79		15-120
2,4,6-Tribromophenol	85		10-120
4-Terphenyl-d14	91		41-149

Project Name: YOVIENE
Project Number: BEV-12-040

Lab Number: L1223485
Report Date: 01/04/13

SAMPLE RESULTS

Lab ID: L1223485-02
Client ID: SW-2
Sample Location: HAMBURG, NY
Matrix: Water
Analytical Method: 1,8270D
Analytical Date: 01/02/13 13:49
Analyst: JB

Date Collected: 12/28/12 13:50
Date Received: 12/29/12
Field Prep: Not Specified
Extraction Method: EPA 3510C
Extraction Date: 12/30/12 16:10

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
1,2,4-Trichlorobenzene	ND		ug/l	5.0	0.67	1
Bis(2-chloroethyl)ether	ND		ug/l	2.0	0.39	1
1,2-Dichlorobenzene	ND		ug/l	2.0	0.55	1
1,3-Dichlorobenzene	ND		ug/l	2.0	0.55	1
1,4-Dichlorobenzene	ND		ug/l	2.0	0.55	1
3,3'-Dichlorobenzidine	ND		ug/l	5.0	0.85	1
2,4-Dinitrotoluene	ND		ug/l	5.0	0.45	1
2,6-Dinitrotoluene	ND		ug/l	5.0	0.46	1
4-Chlorophenyl phenyl ether	ND		ug/l	2.0	0.61	1
4-Bromophenyl phenyl ether	ND		ug/l	2.0	0.67	1
Bis(2-chloroisopropyl)ether	ND		ug/l	2.0	0.50	1
Bis(2-chloroethoxy)methane	ND		ug/l	5.0	0.40	1
Hexachlorocyclopentadiene	ND		ug/l	20	2.1	1
Isophorone	ND		ug/l	5.0	0.35	1
Nitrobenzene	ND		ug/l	2.0	0.50	1
NitrosoDiPhenylAmine(NDPA)/DPA	ND		ug/l	2.0	0.70	1
n-Nitrosodi-n-propylamine	ND		ug/l	5.0	0.39	1
Bis(2-Ethylhexyl)phthalate	ND		ug/l	3.0	1.4	1
Butyl benzyl phthalate	ND		ug/l	5.0	0.46	1
Di-n-butylphthalate	ND		ug/l	5.0	0.54	1
Di-n-octylphthalate	ND		ug/l	5.0	0.53	1
Diethyl phthalate	ND		ug/l	5.0	0.45	1
Dimethyl phthalate	ND		ug/l	5.0	0.45	1
Biphenyl	ND		ug/l	2.0	0.50	1
4-Chloroaniline	ND		ug/l	5.0	0.83	1
2-Nitroaniline	ND		ug/l	5.0	0.40	1
3-Nitroaniline	ND		ug/l	5.0	0.59	1
4-Nitroaniline	ND		ug/l	5.0	0.55	1
Dibenzofuran	ND		ug/l	2.0	0.47	1
1,2,4,5-Tetrachlorobenzene	ND		ug/l	10	0.65	1
Acetophenone	ND		ug/l	5.0	0.55	1

Project Name: YOVIENE
Project Number: BEV-12-040
Lab Number: L1223485
Report Date: 01/04/13

SAMPLE RESULTS

Lab ID: L1223485-02
Client ID: SW-2
Sample Location: HAMBURG, NY
Date Collected: 12/28/12 13:50
Date Received: 12/29/12
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
2,4,6-Trichlorophenol	ND		ug/l	5.0	0.45	1
P-Chloro-M-Cresol	ND		ug/l	2.0	0.50	1
2-Chlorophenol	ND		ug/l	2.0	0.34	1
2,4-Dichlorophenol	ND		ug/l	5.0	0.43	1
2,4-Dimethylphenol	ND		ug/l	5.0	1.2	1
2-Nitrophenol	ND		ug/l	10	0.48	1
4-Nitrophenol	ND		ug/l	10	1.2	1
2,4-Dinitrophenol	ND		ug/l	20	1.4	1
4,6-Dinitro-o-cresol	ND		ug/l	10	0.59	1
Phenol	ND		ug/l	5.0	0.26	1
2-Methylphenol	ND		ug/l	5.0	0.53	1
3-Methylphenol/4-Methylphenol	ND		ug/l	5.0	0.47	1
2,4,5-Trichlorophenol	ND		ug/l	5.0	0.45	1
Benzoic Acid	ND		ug/l	50	1.0	1
Benzyl Alcohol	ND		ug/l	2.0	0.47	1
Carbazole	ND		ug/l	2.0	0.53	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	47		21-120
Phenol-d6	32		10-120
Nitrobenzene-d5	68		23-120
2-Fluorobiphenyl	76		15-120
2,4,6-Tribromophenol	91		10-120
4-Terphenyl-d14	93		41-149

Project Name: YOVIENE
Project Number: BEV-12-040

Lab Number: L1223485
Report Date: 01/04/13

SAMPLE RESULTS

Lab ID: L1223485-02
Client ID: SW-2
Sample Location: HAMBURG, NY
Matrix: Water
Analytical Method: 1,8270D-SIM
Analytical Date: 01/02/13 17:02
Analyst: AS

Date Collected: 12/28/12 13:50
Date Received: 12/29/12
Field Prep: Not Specified
Extraction Method: EPA 3510C
Extraction Date: 12/30/12 16:17

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Acenaphthene	ND		ug/l	0.20	0.06	1
2-Chloronaphthalene	ND		ug/l	0.20	0.07	1
Fluoranthene	ND		ug/l	0.20	0.04	1
Hexachlorobutadiene	ND		ug/l	0.50	0.07	1
Naphthalene	ND		ug/l	0.20	0.06	1
Benzo(a)anthracene	ND		ug/l	0.20	0.06	1
Benzo(a)pyrene	ND		ug/l	0.20	0.07	1
Benzo(b)fluoranthene	ND		ug/l	0.20	0.07	1
Benzo(k)fluoranthene	ND		ug/l	0.20	0.07	1
Chrysene	ND		ug/l	0.20	0.05	1
Acenaphthylene	ND		ug/l	0.20	0.05	1
Anthracene	ND		ug/l	0.20	0.06	1
Benzo(ghi)perylene	ND		ug/l	0.20	0.07	1
Fluorene	ND		ug/l	0.20	0.06	1
Phenanthrene	ND		ug/l	0.20	0.06	1
Dibenzo(a,h)anthracene	ND		ug/l	0.20	0.07	1
Indeno(1,2,3-cd)Pyrene	ND		ug/l	0.20	0.08	1
Pyrene	ND		ug/l	0.20	0.06	1
2-Methylnaphthalene	ND		ug/l	0.20	0.06	1
Pentachlorophenol	ND		ug/l	0.80	0.19	1
Hexachlorobenzene	ND		ug/l	0.80	0.01	1
Hexachloroethane	ND		ug/l	0.80	0.07	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	45		21-120
Phenol-d6	31		10-120
Nitrobenzene-d5	72		23-120
2-Fluorobiphenyl	74		15-120
2,4,6-Tribromophenol	90		10-120
4-Terphenyl-d14	93		41-149

Project Name: YOVIENE
Project Number: BEV-12-040

Lab Number: L1223485
Report Date: 01/04/13

SAMPLE RESULTS

Lab ID:	L1223485-03	Date Collected:	12/28/12 14:10
Client ID:	SW-3	Date Received:	12/29/12
Sample Location:	HAMBURG, NY	Field Prep:	Not Specified
Matrix:	Water	Extraction Method:	EPA 3510C
Analytical Method:	1,8270D	Extraction Date:	12/30/12 16:10
Analytical Date:	01/02/13 14:12		
Analyst:	JB		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
1,2,4-Trichlorobenzene	ND		ug/l	5.0	0.67	1
Bis(2-chloroethyl)ether	ND		ug/l	2.0	0.39	1
1,2-Dichlorobenzene	ND		ug/l	2.0	0.55	1
1,3-Dichlorobenzene	ND		ug/l	2.0	0.55	1
1,4-Dichlorobenzene	ND		ug/l	2.0	0.55	1
3,3'-Dichlorobenzidine	ND		ug/l	5.0	0.85	1
2,4-Dinitrotoluene	ND		ug/l	5.0	0.45	1
2,6-Dinitrotoluene	ND		ug/l	5.0	0.46	1
4-Chlorophenyl phenyl ether	ND		ug/l	2.0	0.61	1
4-Bromophenyl phenyl ether	ND		ug/l	2.0	0.67	1
Bis(2-chloroisopropyl)ether	ND		ug/l	2.0	0.50	1
Bis(2-chloroethoxy)methane	ND		ug/l	5.0	0.40	1
Hexachlorocyclopentadiene	ND		ug/l	20	2.1	1
Isophorone	ND		ug/l	5.0	0.35	1
Nitrobenzene	ND		ug/l	2.0	0.50	1
NitrosoDiPhenylAmine(NDPA)/DPA	ND		ug/l	2.0	0.70	1
n-Nitrosodi-n-propylamine	ND		ug/l	5.0	0.39	1
Bis(2-Ethylhexyl)phthalate	ND		ug/l	3.0	1.4	1
Butyl benzyl phthalate	ND		ug/l	5.0	0.46	1
Di-n-butylphthalate	ND		ug/l	5.0	0.54	1
Di-n-octylphthalate	ND		ug/l	5.0	0.53	1
Diethyl phthalate	ND		ug/l	5.0	0.45	1
Dimethyl phthalate	ND		ug/l	5.0	0.45	1
Biphenyl	ND		ug/l	2.0	0.50	1
4-Chloroaniline	ND		ug/l	5.0	0.83	1
2-Nitroaniline	ND		ug/l	5.0	0.40	1
3-Nitroaniline	ND		ug/l	5.0	0.59	1
4-Nitroaniline	ND		ug/l	5.0	0.55	1
Dibenzofuran	ND		ug/l	2.0	0.47	1
1,2,4,5-Tetrachlorobenzene	ND		ug/l	10	0.65	1
Acetophenone	ND		ug/l	5.0	0.55	1

Project Name: YOVIENE
Project Number: BEV-12-040
Lab Number: L1223485
Report Date: 01/04/13

SAMPLE RESULTS

Lab ID: L1223485-03
Client ID: SW-3
Sample Location: HAMBURG, NY
Date Collected: 12/28/12 14:10
Date Received: 12/29/12
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
2,4,6-Trichlorophenol	ND		ug/l	5.0	0.45	1
P-Chloro-M-Cresol	ND		ug/l	2.0	0.50	1
2-Chlorophenol	ND		ug/l	2.0	0.34	1
2,4-Dichlorophenol	ND		ug/l	5.0	0.43	1
2,4-Dimethylphenol	ND		ug/l	5.0	1.2	1
2-Nitrophenol	ND		ug/l	10	0.48	1
4-Nitrophenol	ND		ug/l	10	1.2	1
2,4-Dinitrophenol	ND		ug/l	20	1.4	1
4,6-Dinitro-o-cresol	ND		ug/l	10	0.59	1
Phenol	ND		ug/l	5.0	0.26	1
2-Methylphenol	ND		ug/l	5.0	0.53	1
3-Methylphenol/4-Methylphenol	ND		ug/l	5.0	0.47	1
2,4,5-Trichlorophenol	ND		ug/l	5.0	0.45	1
Benzoic Acid	ND		ug/l	50	1.0	1
Benzyl Alcohol	ND		ug/l	2.0	0.47	1
Carbazole	ND		ug/l	2.0	0.53	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	47		21-120
Phenol-d6	32		10-120
Nitrobenzene-d5	68		23-120
2-Fluorobiphenyl	74		15-120
2,4,6-Tribromophenol	84		10-120
4-Terphenyl-d14	96		41-149

Project Name: YOVIENE
Project Number: BEV-12-040
Lab Number: L1223485
Report Date: 01/04/13

SAMPLE RESULTS

Lab ID: L1223485-03
Client ID: SW-3
Sample Location: HAMBURG, NY
Matrix: Water
Analytical Method: 1,8270D-SIM
Analytical Date: 01/02/13 17:33
Analyst: AS

Date Collected: 12/28/12 14:10
Date Received: 12/29/12
Field Prep: Not Specified
Extraction Method: EPA 3510C
Extraction Date: 12/30/12 16:17

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Acenaphthene	ND		ug/l	0.20	0.06	1
2-Chloronaphthalene	ND		ug/l	0.20	0.07	1
Fluoranthene	ND		ug/l	0.20	0.04	1
Hexachlorobutadiene	ND		ug/l	0.50	0.07	1
Naphthalene	ND		ug/l	0.20	0.06	1
Benzo(a)anthracene	ND		ug/l	0.20	0.06	1
Benzo(a)pyrene	ND		ug/l	0.20	0.07	1
Benzo(b)fluoranthene	ND		ug/l	0.20	0.07	1
Benzo(k)fluoranthene	ND		ug/l	0.20	0.07	1
Chrysene	ND		ug/l	0.20	0.05	1
Acenaphthylene	ND		ug/l	0.20	0.05	1
Anthracene	ND		ug/l	0.20	0.06	1
Benzo(ghi)perylene	ND		ug/l	0.20	0.07	1
Fluorene	ND		ug/l	0.20	0.06	1
Phenanthrene	ND		ug/l	0.20	0.06	1
Dibenzo(a,h)anthracene	ND		ug/l	0.20	0.07	1
Indeno(1,2,3-cd)Pyrene	ND		ug/l	0.20	0.08	1
Pyrene	ND		ug/l	0.20	0.06	1
2-Methylnaphthalene	ND		ug/l	0.20	0.06	1
Pentachlorophenol	ND		ug/l	0.80	0.19	1
Hexachlorobenzene	ND		ug/l	0.80	0.01	1
Hexachloroethane	ND		ug/l	0.80	0.07	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	44		21-120
Phenol-d6	30		10-120
Nitrobenzene-d5	71		23-120
2-Fluorobiphenyl	71		15-120
2,4,6-Tribromophenol	84		10-120
4-Terphenyl-d14	92		41-149

Project Name: YOVIENE
Project Number: BEV-12-040

Lab Number: L1223485
Report Date: 01/04/13

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8270D
Analytical Date: 01/02/13 11:53
Analyst: JB

Extraction Method: EPA 3510C
Extraction Date: 12/30/12 16:10

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS - Westborough Lab for sample(s): 01-03 Batch: WG582028-1					
1,2,4-Trichlorobenzene	ND		ug/l	5.0	0.67
Bis(2-chloroethyl)ether	ND		ug/l	2.0	0.39
1,2-Dichlorobenzene	ND		ug/l	2.0	0.55
1,3-Dichlorobenzene	ND		ug/l	2.0	0.55
1,4-Dichlorobenzene	ND		ug/l	2.0	0.55
3,3'-Dichlorobenzidine	ND		ug/l	5.0	0.85
2,4-Dinitrotoluene	ND		ug/l	5.0	0.45
2,6-Dinitrotoluene	ND		ug/l	5.0	0.46
4-Chlorophenyl phenyl ether	ND		ug/l	2.0	0.61
4-Bromophenyl phenyl ether	ND		ug/l	2.0	0.67
Bis(2-chloroisopropyl)ether	ND		ug/l	2.0	0.50
Bis(2-chloroethoxy)methane	ND		ug/l	5.0	0.40
Hexachlorocyclopentadiene	ND		ug/l	20	2.1
Isophorone	ND		ug/l	5.0	0.35
Nitrobenzene	ND		ug/l	2.0	0.50
NitrosoDiPhenylAmine(NDPA)/DPA	ND		ug/l	2.0	0.70
n-Nitrosodi-n-propylamine	ND		ug/l	5.0	0.39
Bis(2-Ethylhexyl)phthalate	ND		ug/l	3.0	1.4
Butyl benzyl phthalate	ND		ug/l	5.0	0.46
Di-n-butylphthalate	ND		ug/l	5.0	0.54
Di-n-octylphthalate	ND		ug/l	5.0	0.53
Diethyl phthalate	ND		ug/l	5.0	0.45
Dimethyl phthalate	ND		ug/l	5.0	0.45
Biphenyl	ND		ug/l	2.0	0.50
4-Chloroaniline	ND		ug/l	5.0	0.83
2-Nitroaniline	ND		ug/l	5.0	0.40
3-Nitroaniline	ND		ug/l	5.0	0.59
4-Nitroaniline	ND		ug/l	5.0	0.55
Dibenzofuran	ND		ug/l	2.0	0.47
1,2,4,5-Tetrachlorobenzene	ND		ug/l	10	0.65
Acetophenone	ND		ug/l	5.0	0.55

Project Name: YOVIENE
Project Number: BEV-12-040

Lab Number: L1223485
Report Date: 01/04/13

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8270D
Analytical Date: 01/02/13 11:53
Analyst: JB

Extraction Method: EPA 3510C
Extraction Date: 12/30/12 16:10

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS - Westborough Lab for sample(s): 01-03 Batch: WG582028-1					
2,4,6-Trichlorophenol	ND		ug/l	5.0	0.45
P-Chloro-M-Cresol	ND		ug/l	2.0	0.50
2-Chlorophenol	ND		ug/l	2.0	0.34
2,4-Dichlorophenol	ND		ug/l	5.0	0.43
2,4-Dimethylphenol	ND		ug/l	5.0	1.2
2-Nitrophenol	ND		ug/l	10	0.48
4-Nitrophenol	ND		ug/l	10	1.2
2,4-Dinitrophenol	ND		ug/l	20	1.4
4,6-Dinitro-o-cresol	ND		ug/l	10	0.59
Phenol	ND		ug/l	5.0	0.26
2-Methylphenol	ND		ug/l	5.0	0.53
3-Methylphenol/4-Methylphenol	ND		ug/l	5.0	0.47
2,4,5-Trichlorophenol	ND		ug/l	5.0	0.45
Benzoic Acid	ND		ug/l	50	1.0
Benzyl Alcohol	ND		ug/l	2.0	0.47
Carbazole	ND		ug/l	2.0	0.53

Surrogate	%Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	59		21-120
Phenol-d6	40		10-120
Nitrobenzene-d5	89		23-120
2-Fluorobiphenyl	93		15-120
2,4,6-Tribromophenol	97		10-120
4-Terphenyl-d14	102		41-149

Project Name: YOVIENE
Project Number: BEV-12-040

Lab Number: L1223485
Report Date: 01/04/13

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8270D-SIM
Analytical Date: 01/02/13 15:00
Analyst: AS

Extraction Method: EPA 3510C
Extraction Date: 12/30/12 16:17

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS-SIM - Westborough Lab for sample(s): 01-03 Batch: WG582029-1					
Acenaphthene	ND		ug/l	0.20	0.06
2-Chloronaphthalene	ND		ug/l	0.20	0.07
Fluoranthene	ND		ug/l	0.20	0.04
Hexachlorobutadiene	ND		ug/l	0.50	0.07
Naphthalene	ND		ug/l	0.20	0.06
Benzo(a)anthracene	ND		ug/l	0.20	0.06
Benzo(a)pyrene	ND		ug/l	0.20	0.07
Benzo(b)fluoranthene	ND		ug/l	0.20	0.07
Benzo(k)fluoranthene	ND		ug/l	0.20	0.07
Chrysene	ND		ug/l	0.20	0.05
Acenaphthylene	ND		ug/l	0.20	0.05
Anthracene	ND		ug/l	0.20	0.06
Benzo(ghi)perylene	ND		ug/l	0.20	0.07
Fluorene	ND		ug/l	0.20	0.06
Phenanthrene	ND		ug/l	0.20	0.06
Dibenzo(a,h)anthracene	ND		ug/l	0.20	0.07
Indeno(1,2,3-cd)Pyrene	ND		ug/l	0.20	0.08
Pyrene	ND		ug/l	0.20	0.06
2-Methylnaphthalene	ND		ug/l	0.20	0.06
Pentachlorophenol	ND		ug/l	0.80	0.19
Hexachlorobenzene	ND		ug/l	0.80	0.01
Hexachloroethane	ND		ug/l	0.80	0.07

Project Name: YOVIENE
Project Number: BEV-12-040

Lab Number: L1223485
Report Date: 01/04/13

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8270D-SIM
Analytical Date: 01/02/13 15:00
Analyst: AS

Extraction Method: EPA 3510C
Extraction Date: 12/30/12 16:17

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS-SIM - Westborough Lab for sample(s): 01-03 Batch: WG582029-1					

Surrogate	%Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	61		21-120
Phenol-d6	40		10-120
Nitrobenzene-d5	95		23-120
2-Fluorobiphenyl	91		15-120
2,4,6-Tribromophenol	99		10-120
4-Terphenyl-d14	103		41-149

Lab Control Sample Analysis
Batch Quality Control

Project Name: YOVIENE
Project Number: BEV-12-040

Lab Number: L1223485
Report Date: 01/04/13

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS - Westborough Lab Associated sample(s): 01-03 Batch: WG582028-2 WG582028-3								
1,2,4-Trichlorobenzene	68		77		39-98	12		30
Bis(2-chloroethyl)ether	87		92		40-140	8		30
1,2-Dichlorobenzene	72		81		40-140	12		30
1,3-Dichlorobenzene	68		75		40-140	10		30
1,4-Dichlorobenzene	71		78		36-97	9		30
3,3'-Dichlorobenzidine	64		62		40-140	3		30
2,4-Dinitrotoluene	**107**	Q	**112**	Q	24-96	5		30
2,6-Dinitrotoluene	112		115		40-140	3		30
4-Chlorophenyl phenyl ether	94		98		40-140	4		30
4-Bromophenyl phenyl ether	99		104		40-140	5		30
Bis(2-chloroisopropyl)ether	74		80		40-140	8		30
Bis(2-chloroethoxy)methane	95		100		40-140	5		30
Hexachlorocyclopentadiene	**27**	Q	**36**	Q	40-140	29		30
Isophorone	95		98		40-140	3		30
Nitrobenzene	90		94		40-140	4		30
NitrosoDiPhenylAmine(NDPA)/DPA	97		102		40-140	5		30
n-Nitrosodi-n-propylamine	88		92		29-132	4		30
Bis(2-Ethylhexyl)phthalate	112		113		40-140	1		30
Butyl benzyl phthalate	96		100		40-140	4		30
Di-n-butylphthalate	106		107		40-140	1		30
Di-n-octylphthalate	107		109		40-140	2		30

Lab Control Sample Analysis
Batch Quality Control

Project Name: YOVIENE
Project Number: BEV-12-040

Lab Number: L1223485
Report Date: 01/04/13

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS - Westborough Lab Associated sample(s): 01-03 Batch: WG582028-2 WG582028-3								
Diethyl phthalate	100		103		40-140	3		30
Dimethyl phthalate	100		104		40-140	4		30
Biphenyl	80		92			14		30
4-Chloroaniline	40		36	Q	40-140	11		30
2-Nitroaniline	118		122		52-143	3		30
3-Nitroaniline	60		61		25-145	2		30
4-Nitroaniline	94		101		51-143	7		30
Dibenzofuran	91		99		40-140	8		30
1,2,4,5-Tetrachlorobenzene	72		84		2-134	15		30
Acetophenone	107		114		39-129	6		30
2,4,6-Trichlorophenol	104		108		30-130	4		30
P-Chloro-M-Cresol	109	Q	113	Q	23-97	4		30
2-Chlorophenol	98		103		27-123	5		30
2,4-Dichlorophenol	109		114		30-130	4		30
2,4-Dimethylphenol	106		113		30-130	6		30
2-Nitrophenol	110		112		30-130	2		30
4-Nitrophenol	79		85	Q	10-80	7		30
2,4-Dinitrophenol	94		98		20-130	4		30
4,6-Dinitro-o-cresol	98		105		20-164	7		30
Phenol	53		53		12-110	0		30
2-Methylphenol	94		99		30-130	5		30

Lab Control Sample Analysis
Batch Quality Control

Project Name: YOVIENE
Project Number: BEV-12-040

Lab Number: L1223485
Report Date: 01/04/13

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS - Westborough Lab Associated sample(s): 01-03 Batch: WG582028-2 WG582028-3								
3-Methylphenol/4-Methylphenol	92		97		30-130	5		30
2,4,5-Trichlorophenol	107		112		30-130	5		30
Benzoic Acid	50		51			2		30
Benzyl Alcohol	83		84			1		30
Carbazole	106		109		55-144	3		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
2-Fluorophenol	73		74		21-120
Phenol-d6	54		55		10-120
Nitrobenzene-d5	102		103		23-120
2-Fluorobiphenyl	102		103		15-120
2,4,6-Tribromophenol	**125**	Q	118		10-120
4-Terphenyl-d14	111		109		41-149

Lab Control Sample Analysis
Batch Quality Control

Project Name: YOVIENE
Project Number: BEV-12-040

Lab Number: L1223485
Report Date: 01/04/13

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS-SIM - Westborough Lab Associated sample(s): 01-03 Batch: WG582029-2 WG582029-3								
Acenaphthene	98		99		37-111	1		40
2-Chloronaphthalene	97		97		40-140	0		40
Fluoranthene	117		116		40-140	1		40
Hexachlorobutadiene	89		83		40-140	7		40
Naphthalene	96		93		40-140	3		40
Benzo(a)anthracene	117		116		40-140	1		40
Benzo(a)pyrene	111		110		40-140	1		40
Benzo(b)fluoranthene	118		118		40-140	0		40
Benzo(k)fluoranthene	121		120		40-140	1		40
Chrysene	110		108		40-140	2		40
Acenaphthylene	101		101		40-140	0		40
Anthracene	105		108		40-140	3		40
Benzo(ghi)perylene	115		116		40-140	1		40
Fluorene	105		104		40-140	1		40
Phenanthrene	113		110		40-140	3		40
Dibenzo(a,h)anthracene	114		114		40-140	0		40
Indeno(1,2,3-cd)Pyrene	118		119		40-140	1		40
Pyrene	110		110		26-127	0		40
2-Methylnaphthalene	97		96		40-140	1		40
Pentachlorophenol	129	Q	127	Q	9-103	2		40
Hexachlorobenzene	110		110		40-140	0		40

Lab Control Sample Analysis
Batch Quality Control

Project Name: YOVIENE
Project Number: BEV-12-040

Lab Number: L1223485
Report Date: 01/04/13

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS-SIM - Westborough Lab Associated sample(s): 01-03 Batch: WG582029-2 WG582029-3								
Hexachloroethane	92		83		40-140	10		40

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
2-Fluorophenol	65		62		21-120
Phenol-d6	47		45		10-120
Nitrobenzene-d5	100		96		23-120
2-Fluorobiphenyl	90		91		15-120
2,4,6-Tribromophenol	**128**	Q	**128**	Q	10-120
4-Terphenyl-d14	107		107		41-149

PCBS

Project Name: YOVIENE
Project Number: BEV-12-040

Lab Number: L1223485
Report Date: 01/04/13

SAMPLE RESULTS

Lab ID:	L1223485-01
Client ID:	SW-1
Sample Location:	HAMBURG, NY
Matrix:	Water
Analytical Method:	1,8082A
Analytical Date:	01/02/13 14:49
Analyst:	SH

Date Collected:	12/28/12 14:20
Date Received:	12/29/12
Field Prep:	Not Specified
Extraction Method:	EPA 3510C
Extraction Date:	12/30/12 12:25
Cleanup Method1:	EPA 3665A
Cleanup Date1:	12/31/12
Cleanup Method2:	EPA 3660B
Cleanup Date2:	12/31/12

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Polychlorinated Biphenyls by GC - Westborough Lab						
Aroclor 1016	ND		ug/l	0.083	0.055	1
Aroclor 1221	ND		ug/l	0.083	0.053	1
Aroclor 1232	ND		ug/l	0.083	0.031	1
Aroclor 1242	ND		ug/l	0.083	0.060	1
Aroclor 1248	ND		ug/l	0.083	0.051	1
Aroclor 1254	ND		ug/l	0.083	0.034	1
Aroclor 1260	ND		ug/l	0.083	0.032	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2,4,5,6-Tetrachloro-m-xylene	79		30-150
Decachlorobiphenyl	84		30-150
2,4,5,6-Tetrachloro-m-xylene	77		30-150
Decachlorobiphenyl	92		30-150

Project Name: YOVIENE
Project Number: BEV-12-040

Lab Number: L1223485
Report Date: 01/04/13

SAMPLE RESULTS

Lab ID:	L1223485-02	Date Collected:	12/28/12 13:50
Client ID:	SW-2	Date Received:	12/29/12
Sample Location:	HAMBURG, NY	Field Prep:	Not Specified
Matrix:	Water	Extraction Method:	EPA 3510C
Analytical Method:	1,8082A	Extraction Date:	12/30/12 12:25
Analytical Date:	01/02/13 15:02	Cleanup Method1:	EPA 3665A
Analyst:	SH	Cleanup Date1:	12/31/12
		Cleanup Method2:	EPA 3660B
		Cleanup Date2:	12/31/12

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Polychlorinated Biphenyls by GC - Westborough Lab						
Aroclor 1016	ND		ug/l	0.083	0.055	1
Aroclor 1221	ND		ug/l	0.083	0.053	1
Aroclor 1232	ND		ug/l	0.083	0.031	1
Aroclor 1242	ND		ug/l	0.083	0.060	1
Aroclor 1248	ND		ug/l	0.083	0.051	1
Aroclor 1254	ND		ug/l	0.083	0.034	1
Aroclor 1260	ND		ug/l	0.083	0.032	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2,4,5,6-Tetrachloro-m-xylene	84		30-150
Decachlorobiphenyl	88		30-150
2,4,5,6-Tetrachloro-m-xylene	82		30-150
Decachlorobiphenyl	98		30-150

Project Name: YOVIENE
Project Number: BEV-12-040

Lab Number: L1223485
Report Date: 01/04/13

SAMPLE RESULTS

Lab ID:	L1223485-03
Client ID:	SW-3
Sample Location:	HAMBURG, NY
Matrix:	Water
Analytical Method:	1,8082A
Analytical Date:	01/02/13 15:16
Analyst:	SH

Date Collected:	12/28/12 14:10
Date Received:	12/29/12
Field Prep:	Not Specified
Extraction Method:	EPA 3510C
Extraction Date:	12/30/12 12:25
Cleanup Method1:	EPA 3665A
Cleanup Date1:	12/31/12
Cleanup Method2:	EPA 3660B
Cleanup Date2:	12/31/12

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Polychlorinated Biphenyls by GC - Westborough Lab						
Aroclor 1016	ND		ug/l	0.083	0.055	1
Aroclor 1221	ND		ug/l	0.083	0.053	1
Aroclor 1232	ND		ug/l	0.083	0.031	1
Aroclor 1242	ND		ug/l	0.083	0.060	1
Aroclor 1248	ND		ug/l	0.083	0.051	1
Aroclor 1254	ND		ug/l	0.083	0.034	1
Aroclor 1260	ND		ug/l	0.083	0.032	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2,4,5,6-Tetrachloro-m-xylene	86		30-150
Decachlorobiphenyl	92		30-150
2,4,5,6-Tetrachloro-m-xylene	84		30-150
Decachlorobiphenyl	102		30-150

Project Name: YOVIENE
Project Number: BEV-12-040

Lab Number: L1223485
Report Date: 01/04/13

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8082A
Analytical Date: 01/02/13 14:08
Analyst: SH

Extraction Method: EPA 3510C
Extraction Date: 12/30/12 12:25
Cleanup Method1: EPA 3665A
Cleanup Date1: 12/31/12
Cleanup Method2: EPA 3660B
Cleanup Date2: 12/31/12

Parameter	Result	Qualifier	Units	RL	MDL
Polychlorinated Biphenyls by GC - Westborough Lab for sample(s): 01-03 Batch: WG582010-1					
Aroclor 1016	ND		ug/l	0.083	0.055
Aroclor 1221	ND		ug/l	0.083	0.053
Aroclor 1232	ND		ug/l	0.083	0.031
Aroclor 1242	ND		ug/l	0.083	0.060
Aroclor 1248	ND		ug/l	0.083	0.051
Aroclor 1254	ND		ug/l	0.083	0.034
Aroclor 1260	ND		ug/l	0.083	0.032

Surrogate	%Recovery	Qualifier	Acceptance Criteria
2,4,5,6-Tetrachloro-m-xylene	81		30-150
Decachlorobiphenyl	93		30-150
2,4,5,6-Tetrachloro-m-xylene	80		30-150
Decachlorobiphenyl	104		30-150

Lab Control Sample Analysis
Batch Quality Control

Project Name: YOVIENE
Project Number: BEV-12-040

Lab Number: L1223485
Report Date: 01/04/13

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Polychlorinated Biphenyls by GC - Westborough Lab Associated sample(s): 01-03 Batch: WG582010-2 WG582010-3								
Aroclor 1016	103		87		40-140	17		50
Aroclor 1260	99		86		40-140	14		50

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
2,4,5,6-Tetrachloro-m-xylene	91		76		30-150
Decachlorobiphenyl	115		96		30-150
2,4,5,6-Tetrachloro-m-xylene	89		73		30-150
Decachlorobiphenyl	128		108		30-150

METALS

Project Name: YOVIENE
Project Number: BEV-12-040

Lab Number: L1223485
Report Date: 01/04/13

SAMPLE RESULTS

Lab ID: L1223485-01
Client ID: SW-1
Sample Location: HAMBURG, NY
Matrix: Water

Date Collected: 12/28/12 14:20
Date Received: 12/29/12
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Westborough Lab											
Mercury, Total	0.0002		mg/l	0.0002	0.0001	1	01/02/13 16:53	01/03/13 16:06	EPA 7470A	1,7470A	JH

Project Name: YOVIENE
Project Number: BEV-12-040
Lab Number: L1223485
Report Date: 01/04/13

SAMPLE RESULTS

Lab ID: L1223485-01 D
Client ID: SW-1
Sample Location: HAMBURG, NY
Matrix: Water
Date Collected: 12/28/12 14:20
Date Received: 12/29/12
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Westborough Lab											
Aluminum, Total	5.26		mg/l	0.200	0.040	20	12/31/12 08:42	01/02/13 14:07	EPA 3005A	1,6020A	AK
Antimony, Total	0.0007	J	mg/l	0.0050	0.0005	5	12/31/12 08:42	01/02/13 12:10	EPA 3005A	1,6020A	AK
Arsenic, Total	0.0031		mg/l	0.0025	0.0010	5	12/31/12 08:42	01/02/13 12:10	EPA 3005A	1,6020A	AK
Barium, Total	0.3802		mg/l	0.0025	0.0005	5	12/31/12 08:42	01/02/13 12:10	EPA 3005A	1,6020A	AK
Beryllium, Total	0.0008	J	mg/l	0.0025	0.0005	5	12/31/12 08:42	01/02/13 12:10	EPA 3005A	1,6020A	AK
Cadmium, Total	0.0021	J	mg/l	0.0025	0.0003	5	12/31/12 08:42	01/02/13 12:10	EPA 3005A	1,6020A	AK
Calcium, Total	122		mg/l	0.500	0.160	5	12/31/12 08:42	01/02/13 12:10	EPA 3005A	1,6020A	AK
Chromium, Total	0.0059		mg/l	0.0050	0.0010	5	12/31/12 08:42	01/02/13 12:10	EPA 3005A	1,6020A	AK
Cobalt, Total	0.0073		mg/l	0.0025	0.0005	5	12/31/12 08:42	01/02/13 12:10	EPA 3005A	1,6020A	AK
Copper, Total	0.0245		mg/l	0.0050	0.0005	5	12/31/12 08:42	01/02/13 12:10	EPA 3005A	1,6020A	AK
Iron, Total	17.8		mg/l	0.250	0.065	5	12/31/12 08:42	01/02/13 12:10	EPA 3005A	1,6020A	AK
Lead, Total	0.0601		mg/l	0.0050	0.0010	5	12/31/12 08:42	01/02/13 12:10	EPA 3005A	1,6020A	AK
Magnesium, Total	11.6		mg/l	0.500	0.115	5	12/31/12 08:42	01/02/13 12:10	EPA 3005A	1,6020A	AK
Manganese, Total	1.206		mg/l	0.0025	0.0005	5	12/31/12 08:42	01/02/13 12:10	EPA 3005A	1,6020A	AK
Nickel, Total	0.0096		mg/l	0.0025	0.0005	5	12/31/12 08:42	01/02/13 12:10	EPA 3005A	1,6020A	AK
Potassium, Total	2.60		mg/l	0.500	0.135	5	12/31/12 08:42	01/02/13 12:10	EPA 3005A	1,6020A	AK
Selenium, Total	ND		mg/l	0.025	0.002	5	12/31/12 08:42	01/02/13 12:10	EPA 3005A	1,6020A	AK
Silver, Total	ND		mg/l	0.0025	0.0005	5	12/31/12 08:42	01/02/13 12:10	EPA 3005A	1,6020A	AK
Sodium, Total	2.15		mg/l	0.500	0.075	5	12/31/12 08:42	01/02/13 12:10	EPA 3005A	1,6020A	AK
Thallium, Total	0.0005	J	mg/l	0.0030	0.0002	5	12/31/12 08:42	01/02/13 12:10	EPA 3005A	1,6020A	AK
Vanadium, Total	0.0115	J	mg/l	0.0250	0.0005	5	12/31/12 08:42	01/02/13 12:10	EPA 3005A	1,6020A	AK
Zinc, Total	0.1128		mg/l	0.0500	0.0060	5	12/31/12 08:42	01/02/13 12:10	EPA 3005A	1,6020A	AK

Project Name: YOVIENE
Project Number: BEV-12-040

Lab Number: L1223485
Report Date: 01/04/13

SAMPLE RESULTS

Lab ID: L1223485-02
Client ID: SW-2
Sample Location: HAMBURG, NY
Matrix: Water

Date Collected: 12/28/12 13:50
Date Received: 12/29/12
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Westborough Lab											
Mercury, Total	ND		mg/l	0.0002	0.0001	1	01/02/13 16:53	01/03/13 16:11	EPA 7470A	1,7470A	JH

Project Name: YOVIENE
Project Number: BEV-12-040
Lab Number: L1223485
Report Date: 01/04/13

SAMPLE RESULTS

Lab ID: L1223485-02 D
Client ID: SW-2
Sample Location: HAMBURG, NY
Matrix: Water
Date Collected: 12/28/12 13:50
Date Received: 12/29/12
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Westborough Lab											
Aluminum, Total	0.772		mg/l	0.050	0.010	5	12/31/12 08:42	01/02/13 12:13	EPA 3005A	1,6020A	AK
Antimony, Total	ND		mg/l	0.0050	0.0005	5	12/31/12 08:42	01/02/13 12:13	EPA 3005A	1,6020A	AK
Arsenic, Total	0.0017	J	mg/l	0.0025	0.0010	5	12/31/12 08:42	01/02/13 12:13	EPA 3005A	1,6020A	AK
Barium, Total	0.1524		mg/l	0.0025	0.0005	5	12/31/12 08:42	01/02/13 12:13	EPA 3005A	1,6020A	AK
Beryllium, Total	ND		mg/l	0.0025	0.0005	5	12/31/12 08:42	01/02/13 12:13	EPA 3005A	1,6020A	AK
Cadmium, Total	0.0010	J	mg/l	0.0025	0.0003	5	12/31/12 08:42	01/02/13 12:13	EPA 3005A	1,6020A	AK
Calcium, Total	120		mg/l	0.500	0.160	5	12/31/12 08:42	01/02/13 12:13	EPA 3005A	1,6020A	AK
Chromium, Total	ND		mg/l	0.0050	0.0010	5	12/31/12 08:42	01/02/13 12:13	EPA 3005A	1,6020A	AK
Cobalt, Total	0.0048		mg/l	0.0025	0.0005	5	12/31/12 08:42	01/02/13 12:13	EPA 3005A	1,6020A	AK
Copper, Total	0.0151		mg/l	0.0050	0.0005	5	12/31/12 08:42	01/02/13 12:13	EPA 3005A	1,6020A	AK
Iron, Total	18.5		mg/l	0.250	0.065	5	12/31/12 08:42	01/02/13 12:13	EPA 3005A	1,6020A	AK
Lead, Total	0.0056		mg/l	0.0050	0.0010	5	12/31/12 08:42	01/02/13 12:13	EPA 3005A	1,6020A	AK
Magnesium, Total	11.6		mg/l	0.500	0.115	5	12/31/12 08:42	01/02/13 12:13	EPA 3005A	1,6020A	AK
Manganese, Total	0.9390		mg/l	0.0025	0.0005	5	12/31/12 08:42	01/02/13 12:13	EPA 3005A	1,6020A	AK
Nickel, Total	0.0034		mg/l	0.0025	0.0005	5	12/31/12 08:42	01/02/13 12:13	EPA 3005A	1,6020A	AK
Potassium, Total	2.59		mg/l	0.500	0.135	5	12/31/12 08:42	01/02/13 12:13	EPA 3005A	1,6020A	AK
Selenium, Total	ND		mg/l	0.025	0.002	5	12/31/12 08:42	01/02/13 12:13	EPA 3005A	1,6020A	AK
Silver, Total	ND		mg/l	0.0025	0.0005	5	12/31/12 08:42	01/02/13 12:13	EPA 3005A	1,6020A	AK
Sodium, Total	2.37		mg/l	0.500	0.075	5	12/31/12 08:42	01/02/13 12:13	EPA 3005A	1,6020A	AK
Thallium, Total	0.0002	J	mg/l	0.0030	0.0002	5	12/31/12 08:42	01/02/13 12:13	EPA 3005A	1,6020A	AK
Vanadium, Total	0.0006	J	mg/l	0.0250	0.0005	5	12/31/12 08:42	01/02/13 12:13	EPA 3005A	1,6020A	AK
Zinc, Total	0.1202		mg/l	0.0500	0.0060	5	12/31/12 08:42	01/02/13 12:13	EPA 3005A	1,6020A	AK

Project Name: YOVIENE
Project Number: BEV-12-040

Lab Number: L1223485
Report Date: 01/04/13

SAMPLE RESULTS

Lab ID: L1223485-03
Client ID: SW-3
Sample Location: HAMBURG, NY
Matrix: Water

Date Collected: 12/28/12 14:10
Date Received: 12/29/12
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Westborough Lab											
Mercury, Total	ND		mg/l	0.0002	0.0001	1	01/02/13 16:53	01/03/13 16:13	EPA 7470A	1,7470A	JH

Project Name: YOVIENE
Project Number: BEV-12-040
Lab Number: L1223485
Report Date: 01/04/13

SAMPLE RESULTS

Lab ID: L1223485-03 D
Client ID: SW-3
Sample Location: HAMBURG, NY
Matrix: Water
Date Collected: 12/28/12 14:10
Date Received: 12/29/12
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Westborough Lab											
Aluminum, Total	0.079		mg/l	0.050	0.010	5	12/31/12 08:42	01/02/13 12:16	EPA 3005A	1,6020A	AK
Antimony, Total	0.0007	J	mg/l	0.0050	0.0005	5	12/31/12 08:42	01/02/13 12:16	EPA 3005A	1,6020A	AK
Arsenic, Total	ND		mg/l	0.0025	0.0010	5	12/31/12 08:42	01/02/13 12:16	EPA 3005A	1,6020A	AK
Barium, Total	0.1100		mg/l	0.0025	0.0005	5	12/31/12 08:42	01/02/13 12:16	EPA 3005A	1,6020A	AK
Beryllium, Total	ND		mg/l	0.0025	0.0005	5	12/31/12 08:42	01/02/13 12:16	EPA 3005A	1,6020A	AK
Cadmium, Total	0.0012	J	mg/l	0.0025	0.0003	5	12/31/12 08:42	01/02/13 12:16	EPA 3005A	1,6020A	AK
Calcium, Total	98.0		mg/l	0.500	0.160	5	12/31/12 08:42	01/02/13 12:16	EPA 3005A	1,6020A	AK
Chromium, Total	ND		mg/l	0.0050	0.0010	5	12/31/12 08:42	01/02/13 12:16	EPA 3005A	1,6020A	AK
Cobalt, Total	0.0023	J	mg/l	0.0025	0.0005	5	12/31/12 08:42	01/02/13 12:16	EPA 3005A	1,6020A	AK
Copper, Total	0.0086		mg/l	0.0050	0.0005	5	12/31/12 08:42	01/02/13 12:16	EPA 3005A	1,6020A	AK
Iron, Total	2.78		mg/l	0.250	0.065	5	12/31/12 08:42	01/02/13 12:16	EPA 3005A	1,6020A	AK
Lead, Total	0.0020	J	mg/l	0.0050	0.0010	5	12/31/12 08:42	01/02/13 12:16	EPA 3005A	1,6020A	AK
Magnesium, Total	10.8		mg/l	0.500	0.115	5	12/31/12 08:42	01/02/13 12:16	EPA 3005A	1,6020A	AK
Manganese, Total	0.3358		mg/l	0.0025	0.0005	5	12/31/12 08:42	01/02/13 12:16	EPA 3005A	1,6020A	AK
Nickel, Total	0.0029		mg/l	0.0025	0.0005	5	12/31/12 08:42	01/02/13 12:16	EPA 3005A	1,6020A	AK
Potassium, Total	1.84		mg/l	0.500	0.135	5	12/31/12 08:42	01/02/13 12:16	EPA 3005A	1,6020A	AK
Selenium, Total	ND		mg/l	0.025	0.002	5	12/31/12 08:42	01/02/13 12:16	EPA 3005A	1,6020A	AK
Silver, Total	ND		mg/l	0.0025	0.0005	5	12/31/12 08:42	01/02/13 12:16	EPA 3005A	1,6020A	AK
Sodium, Total	1.82		mg/l	0.500	0.075	5	12/31/12 08:42	01/02/13 12:16	EPA 3005A	1,6020A	AK
Thallium, Total	ND		mg/l	0.0030	0.0002	5	12/31/12 08:42	01/02/13 12:16	EPA 3005A	1,6020A	AK
Vanadium, Total	ND		mg/l	0.0250	0.0005	5	12/31/12 08:42	01/02/13 12:16	EPA 3005A	1,6020A	AK
Zinc, Total	0.1066		mg/l	0.0500	0.0060	5	12/31/12 08:42	01/02/13 12:16	EPA 3005A	1,6020A	AK

Project Name: YOVIENE
Project Number: BEV-12-040

Lab Number: L1223485
Report Date: 01/04/13

Method Blank Analysis
Batch Quality Control

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Westborough Lab for sample(s): 01-03 Batch: WG582081-1										
Aluminum, Total	ND		mg/l	0.010	0.002	1	12/31/12 08:42	01/02/13 11:52	1,6020A	AK
Antimony, Total	0.0006	J	mg/l	0.0010	0.0001	1	12/31/12 08:42	01/02/13 11:52	1,6020A	AK
Arsenic, Total	0.0003	J	mg/l	0.0005	0.0002	1	12/31/12 08:42	01/02/13 11:52	1,6020A	AK
Barium, Total	ND		mg/l	0.0005	0.0001	1	12/31/12 08:42	01/02/13 11:52	1,6020A	AK
Beryllium, Total	ND		mg/l	0.0005	0.0001	1	12/31/12 08:42	01/02/13 11:52	1,6020A	AK
Cadmium, Total	ND		mg/l	0.0005	0.0001	1	12/31/12 08:42	01/02/13 11:52	1,6020A	AK
Calcium, Total	ND		mg/l	0.100	0.032	1	12/31/12 08:42	01/02/13 11:52	1,6020A	AK
Chromium, Total	ND		mg/l	0.0010	0.0002	1	12/31/12 08:42	01/02/13 11:52	1,6020A	AK
Cobalt, Total	ND		mg/l	0.0005	0.0001	1	12/31/12 08:42	01/02/13 11:52	1,6020A	AK
Copper, Total	ND		mg/l	0.0010	0.0001	1	12/31/12 08:42	01/02/13 11:52	1,6020A	AK
Iron, Total	ND		mg/l	0.050	0.013	1	12/31/12 08:42	01/02/13 11:52	1,6020A	AK
Lead, Total	ND		mg/l	0.0010	0.0002	1	12/31/12 08:42	01/02/13 11:52	1,6020A	AK
Magnesium, Total	ND		mg/l	0.100	0.023	1	12/31/12 08:42	01/02/13 11:52	1,6020A	AK
Manganese, Total	ND		mg/l	0.0005	0.0001	1	12/31/12 08:42	01/02/13 11:52	1,6020A	AK
Nickel, Total	ND		mg/l	0.0005	0.0001	1	12/31/12 08:42	01/02/13 11:52	1,6020A	AK
Potassium, Total	ND		mg/l	0.100	0.027	1	12/31/12 08:42	01/02/13 11:52	1,6020A	AK
Selenium, Total	ND		mg/l	0.005	0.0003	1	12/31/12 08:42	01/02/13 11:52	1,6020A	AK
Silver, Total	ND		mg/l	0.0005	0.0001	1	12/31/12 08:42	01/02/13 11:52	1,6020A	AK
Sodium, Total	ND		mg/l	0.100	0.015	1	12/31/12 08:42	01/02/13 11:52	1,6020A	AK
Thallium, Total	0.00003	J	mg/l	0.00060	0.00003	1	12/31/12 08:42	01/02/13 11:52	1,6020A	AK
Vanadium, Total	ND		mg/l	0.0050	0.0001	1	12/31/12 08:42	01/02/13 11:52	1,6020A	AK
Zinc, Total	ND		mg/l	0.0100	0.0012	1	12/31/12 08:42	01/02/13 11:52	1,6020A	AK

Prep Information

Digestion Method: EPA 3005A

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Westborough Lab for sample(s): 01-03 Batch: WG582363-1										
Mercury, Total	ND		mg/l	0.0002	0.0001	1	01/02/13 16:53	01/03/13 15:51	1,7470A	JH

Project Name: YOVIENE
Project Number: BEV-12-040

Lab Number: L1223485
Report Date: 01/04/13

Method Blank Analysis
Batch Quality Control

Prep Information

Digestion Method: EPA 7470A

Lab Control Sample Analysis
Batch Quality Control

Project Name: YOVIENE
Project Number: BEV-12-040

Lab Number: L1223485
Report Date: 01/04/13

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Westborough Lab Associated sample(s): 01-03 Batch: WG582081-2								
Aluminum, Total	99		-		80-120	-		
Antimony, Total	92		-		80-120	-		
Arsenic, Total	112		-		80-120	-		
Barium, Total	86		-		80-120	-		
Beryllium, Total	112		-		80-120	-		
Cadmium, Total	120		-		80-120	-		
Calcium, Total	100		-		80-120	-		
Chromium, Total	102		-		80-120	-		
Cobalt, Total	94		-		80-120	-		
Copper, Total	96		-		80-120	-		
Iron, Total	99		-		80-120	-		
Lead, Total	96		-		80-120	-		
Magnesium, Total	89		-		80-120	-		
Manganese, Total	90		-		80-120	-		
Nickel, Total	92		-		80-120	-		
Potassium, Total	101		-		80-120	-		
Selenium, Total	110		-		80-120	-		
Silver, Total	103		-		80-120	-		
Sodium, Total	84		-		80-120	-		
Thallium, Total	100		-		80-120	-		
Vanadium, Total	92		-		80-120	-		

Lab Control Sample Analysis

Batch Quality Control

Project Name: YOVIENE
Project Number: BEV-12-040

Lab Number: L1223485
Report Date: 01/04/13

Parameter	LCS %Recovery	LCSD %Recovery	%Recovery Limits	RPD	RPD Limits
Total Metals - Westborough Lab Associated sample(s): 01-03 Batch: WG582081-2					
Zinc, Total	105	-	80-120	-	
Total Metals - Westborough Lab Associated sample(s): 01-03 Batch: WG582363-2					
Mercury, Total	97	-	80-120	-	

Matrix Spike Analysis
Batch Quality Control

Project Name: YOVIENE
Project Number: BEV-12-040

Lab Number: L1223485
Report Date: 01/04/13

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Westborough Lab Associated sample(s): 01-03 QC Batch ID: WG582081-3 WG582081-4 QC Sample: L1223408-11 Client ID: MS Sample												
Aluminum, Total	0.205	2	2.21	100		2.10	95		80-120	5		20
Antimony, Total	0.0014	0.5	0.4942	98		0.4655	93		80-120	6		20
Arsenic, Total	0.0014	0.12	0.1272	105		0.1332	110		80-120	5		20
Barium, Total	0.1953	2	2.001	90		1.889	85		80-120	6		20
Beryllium, Total	ND	0.05	0.0527	105		0.0501	100		80-120	5		20
Cadmium, Total	0.0085	0.051	0.0615	104		0.0572	96		80-120	7		20
Calcium, Total	196.	10	174	0	Q	169	0	Q	80-120	3		20
Chromium, Total	0.0039	0.2	0.2156	106		0.1966	96		80-120	9		20
Cobalt, Total	0.0016	0.5	0.4820	96		0.4674	93		80-120	3		20
Copper, Total	0.0722	0.25	0.3064	94		0.2963	90		80-120	3		20
Iron, Total	69.1	1	63.9	0	Q	64.0	0	Q	80-120	0		20
Lead, Total	0.0093	0.51	0.5095	98		0.4851	93		80-120	5		20
Magnesium, Total	45.5	10	52.4	69	Q	52.2	67	Q	80-120	0		20
Manganese, Total	0.6614	0.5	1.053	78	Q	1.038	75	Q	80-120	1		20
Nickel, Total	0.0115	0.5	0.4815	94		0.4270	83		80-120	12		20
Potassium, Total	56.9	10	53.2	0	Q	52.3	0	Q	80-120	2		20
Selenium, Total	0.0003J	0.12	0.125	104		0.123	102		80-120	2		20
Silver, Total	ND	0.05	0.0503	100		0.0479	96		80-120	5		20
Sodium, Total	163.	10	163	0	Q	165	20	Q	80-120	1		20
Thallium, Total	ND	0.12	0.1260	105		0.1193	99		80-120	5		20
Vanadium, Total	0.0072	0.5	0.5461	108		0.4756	94		80-120	14		20

Matrix Spike Analysis
Batch Quality Control

Project Name: YOVIENE
Project Number: BEV-12-040

Lab Number: L1223485
Report Date: 01/04/13

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	MSD Found	MSD %Recovery	Recovery Limits	RPD	RPD Limits
Total Metals - Westborough Lab Associated sample(s): 01-03 QC Batch ID: WG582081-3 WG582081-4 QC Sample: L1223408-11 Client ID: MS Sample									
Zinc, Total	0.1934	0.5	0.7114	104	0.7226	106	80-120	2	20
Total Metals - Westborough Lab Associated sample(s): 01-03 QC Batch ID: WG582363-4 QC Sample: L1223485-01 Client ID: SW-1									
Mercury, Total	0.0002	0.001	0.0015	124	-	-	70-130	-	20

Project Name: YOVIENE
Project Number: BEV-12-040

Lab Duplicate Analysis
Batch Quality Control

Lab Number: L1223485
Report Date: 01/04/13

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Total Metals - Westborough Lab Associated sample(s): 01-03 QC Batch ID: WG582363-3 QC Sample: L1223485-01 Client ID: SW-1						
Mercury, Total	0.0002	0.0002	mg/l	1		20

INORGANICS
&
MISCELLANEOUS

Project Name: YOVIENE
Project Number: BEV-12-040

Lab Number: L1223485
Report Date: 01/04/13

SAMPLE RESULTS

Lab ID: L1223485-01
Client ID: SW-1
Sample Location: HAMBURG, NY
Matrix: Water

Date Collected: 12/28/12 14:20
Date Received: 12/29/12
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Cyanide, Total	0.001	J	mg/l	0.005	0.001	1	01/02/13 10:39	01/02/13 15:16	1,9010C/9012A	JO

Project Name: YOVIENE
Project Number: BEV-12-040

Lab Number: L1223485
Report Date: 01/04/13

SAMPLE RESULTS

Lab ID: L1223485-02
Client ID: SW-2
Sample Location: HAMBURG, NY
Matrix: Water

Date Collected: 12/28/12 13:50
Date Received: 12/29/12
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Cyanide, Total	0.002	J	mg/l	0.005	0.001	1	01/02/13 10:39	01/02/13 15:16	1,9010C/9012A	JO

Project Name: YOVIENE
Project Number: BEV-12-040

Lab Number: L1223485
Report Date: 01/04/13

SAMPLE RESULTS

Lab ID: L1223485-03
Client ID: SW-3
Sample Location: HAMBURG, NY
Matrix: Water

Date Collected: 12/28/12 14:10
Date Received: 12/29/12
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Cyanide, Total	ND		mg/l	0.005	0.001	1	01/02/13 10:39	01/02/13 15:17	1,9010C/9012A	JO

Project Name: YOVIENE
Project Number: BEV-12-040

Lab Number: L1223485
Report Date: 01/04/13

Method Blank Analysis
Batch Quality Control

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab for sample(s): 01-03 Batch: WG582262-1										
Cyanide, Total	ND		mg/l	0.005	0.001	1	01/02/13 10:39	01/02/13 15:03	1,9010C/9012A	JO

Lab Control Sample Analysis

Batch Quality Control

Project Name: YOVIENE
Project Number: BEV-12-040

Lab Number: L1223485
Report Date: 01/04/13

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01-03 Batch: WG582262-2 WG582262-3								
Cyanide, Total	100		98		80-120	2		20

Matrix Spike Analysis
Batch Quality Control

Project Name: YOVIENE
Project Number: BEV-12-040

Lab Number: L1223485
Report Date: 01/04/13

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01-03 QC Batch ID: WG582262-4 WG582262-5 QC Sample: L1223541-02 Client ID: MS Sample												
Cyanide, Total	0.005	0.2	0.168	81		0.157	76	Q	80-120	7		20

Project Name: YOVIENE
Project Number: BEV-12-040

Lab Number: L1223485
Report Date: 01/04/13

Sample Receipt and Container Information

Were project specific reporting limits specified? YES

Reagent H2O Preserved Vials Frozen on: NA

Cooler Information Custody Seal

Cooler	
A	Absent
B	Absent

Container Information

Container ID	Container Type	Cooler	pH	Temp deg C	Pres	Seal	Analysis(*)
L1223485-01A	Vial HCl preserved	B	N/A	3.4	Y	Absent	NYTCL-8260(14)
L1223485-01B	Vial HCl preserved	B	N/A	3.4	Y	Absent	NYTCL-8260(14)
L1223485-01C	Vial HCl preserved	B	N/A	3.4	Y	Absent	NYTCL-8260(14)
L1223485-01D	Amber 1000ml unpreserved	B	7	3.4	Y	Absent	NYTCL-8270(7),NYTCL-8270-SIM(7)
L1223485-01E	Amber 1000ml unpreserved	B	7	3.4	Y	Absent	NYTCL-8270(7),NYTCL-8270-SIM(7)
L1223485-01F	Plastic 500ml HNO3 preserved	B	<2	3.4	Y	Absent	BA-6020T(180),FE-6020T(180),SE-6020T(180),TL-6020T(180),CA-6020T(180),CR-6020T(180),K-6020T(180),NI-6020T(180),CU-6020T(180),NA-6020T(180),ZN-6020T(180),PB-6020T(180),BE-6020T(180),MN-6020T(180),AS-6020T(180),SB-6020T(180),V-6020T(180),AG-6020T(180),AL-6020T(180),CD-6020T(180),HG-T(28),MG-6020T(180),CO-6020T(180)
L1223485-01G	Amber 1000ml unpreserved	B	7	3.4	Y	Absent	NYTCL-8082-1200ML(7)
L1223485-01H	Amber 1000ml unpreserved	B	7	3.4	Y	Absent	NYTCL-8082-1200ML(7)
L1223485-01I	Plastic 250ml NaOH preserved	B	>12	3.4	Y	Absent	TCN-9010(14)
L1223485-02A	Vial HCl preserved	A	N/A	2.6	Y	Absent	NYTCL-8260(14)
L1223485-02B	Vial HCl preserved	A	N/A	2.6	Y	Absent	NYTCL-8260(14)
L1223485-02C	Vial HCl preserved	A	N/A	2.6	Y	Absent	NYTCL-8260(14)
L1223485-02D	Amber 1000ml unpreserved	A	7	2.6	Y	Absent	NYTCL-8270(7),NYTCL-8270-SIM(7)
L1223485-02E	Amber 1000ml unpreserved	A	7	2.6	Y	Absent	NYTCL-8270(7),NYTCL-8270-SIM(7)

*Values in parentheses indicate holding time in days

Project Name: YOVIENE
Project Number: BEV-12-040

Lab Number: L1223485
Report Date: 01/04/13

Container Information

Container ID	Container Type	Cooler	pH	Temp deg C	Pres	Seal	Analysis(*)
L1223485-02F	Plastic 500ml HNO3 preserved	A	<2	2.6	Y	Absent	BA-6020T(180),FE-6020T(180),SE-6020T(180),TL-6020T(180),CA-6020T(180),CR-6020T(180),K-6020T(180),NI-6020T(180),CU-6020T(180),NA-6020T(180),ZN-6020T(180),PB-6020T(180),BE-6020T(180),MN-6020T(180),AS-6020T(180),SB-6020T(180),V-6020T(180),AG-6020T(180),AL-6020T(180),CD-6020T(180),HG-T(28),MG-6020T(180),CO-6020T(180)
L1223485-02G	Amber 1000ml unpreserved	A	7	2.6	Y	Absent	NYTCL-8082-1200ML(7)
L1223485-02H	Amber 1000ml unpreserved	A	7	2.6	Y	Absent	NYTCL-8082-1200ML(7)
L1223485-02I	Plastic 250ml NaOH preserved	A	>12	2.6	Y	Absent	TCN-9010(14)
L1223485-03A	Vial HCl preserved	A	N/A	2.6	Y	Absent	NYTCL-8260(14)
L1223485-03B	Vial HCl preserved	A	N/A	2.6	Y	Absent	NYTCL-8260(14)
L1223485-03C	Vial HCl preserved	A	N/A	2.6	Y	Absent	NYTCL-8260(14)
L1223485-03D	Amber 1000ml unpreserved	A	7	2.6	Y	Absent	NYTCL-8270(7),NYTCL-8270-SIM(7)
L1223485-03E	Amber 1000ml unpreserved	A	7	2.6	Y	Absent	NYTCL-8270(7),NYTCL-8270-SIM(7)
L1223485-03F	Plastic 500ml HNO3 preserved	A	<2	2.6	Y	Absent	BA-6020T(180),FE-6020T(180),SE-6020T(180),TL-6020T(180),CA-6020T(180),CR-6020T(180),K-6020T(180),NI-6020T(180),CU-6020T(180),NA-6020T(180),ZN-6020T(180),PB-6020T(180),BE-6020T(180),MN-6020T(180),AS-6020T(180),SB-6020T(180),V-6020T(180),AG-6020T(180),AL-6020T(180),CD-6020T(180),HG-T(28),MG-6020T(180),CO-6020T(180)
L1223485-03G	Amber 1000ml unpreserved	A	7	2.6	Y	Absent	NYTCL-8082-1200ML(7)
L1223485-03H	Amber 1000ml unpreserved	A	7	2.6	Y	Absent	NYTCL-8082-1200ML(7)
L1223485-03I	Plastic 250ml NaOH preserved	A	>12	2.6	Y	Absent	TCN-9010(14)

Container Comments

L1223485-01F

L1223485-02F

L1223485-03F

*Values in parentheses indicate holding time in days

Project Name: YOVIENE **Lab Number:** L1223485

Project Number: BEV-12-040 **Report Date:** 01/04/13

GLOSSARY

Acronyms

EDL - Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).

EPA - Environmental Protection Agency.

LCS - Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.

LCSD - Laboratory Control Sample Duplicate: Refer to LCS.

LFB - Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.

MDL - Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.

MS - Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available.

MSD - Matrix Spike Sample Duplicate: Refer to MS.

NA - Not Applicable.

NC - Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.

NI - Not Ignitable.

RL - Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.

RPD - Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.

SRM - Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.

Footnotes

1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

Terms

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Data Qualifiers

A - Spectra identified as "Aldol Condensation Product".

B - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than five times (5x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit.

C - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.

D - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.

E - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.

G - The concentration may be biased high due to matrix interferences (i.e, co-elution) with non-target compound(s). The result should be considered estimated.

H - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.

I - The RPD between the results for the two columns exceeds the method-specified criteria; however, the lower value has been reported

Project Name:	YOVIENE	**Lab Number:**	L1223485
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Data Qualifiers

due to obvious interference.

M - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.

NJ - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.

P - The RPD between the results for the two columns exceeds the method-specified criteria.

Q - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)

R - Analytical results are from sample re-analysis.

RE - Analytical results are from sample re-extraction.

J - Estimated value. The Target analyte concentration is below the quantitation limit (RL), but above the Method Detection Limit (MDL) or Estimated Detection Limit (EDL) for SPME-related analyses. This represents an estimated concentration for Tentatively Identified Compounds (TICs).

ND - Not detected at the method detection limit (MDL) for the sample, or estimated detection limit (EDL) for SPME-related analyses.

Report Format: DU Report with "J" Qualifiers

Project Name: YOVIENE
Project Number: BEV-12-040
Lab Number: L1223485
Report Date: 01/04/13

REFERENCES

1 Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. EPA SW-846. Third Edition. Updates I - IIIA, 1997.

LIMITATION OF LIABILITIES

Alpha Analytical performs services with reasonable care and diligence normal to the analytical testing laboratory industry. In the event of an error, the sole and exclusive responsibility of Alpha Analytical shall be to re-perform the work at it's own expense. In no event shall Alpha Analytical be held liable for any incidental, consequential or special damages, including but not limited to, damages in any way connected with the use of, interpretation of, information or analysis provided by Alpha Analytical.

We strongly urge our clients to comply with EPA protocol regarding sample volume, preservation, cooling, containers, sampling procedures, holding time and splitting of samples in the field.

Certificate/Approval Program Summary

Last revised December 19, 2012 - Westboro Facility

The following list includes only those analytes/methods for which certification/approval is currently held.
For a complete listing of analytes for the referenced methods, please contact your Alpha Customer Service Representative.

Connecticut Department of Public Health Certificate/Lab ID: PH-0574. ***NELAP Accredited Solid Waste/Soil.***

Drinking Water (Inorganic Parameters: Color, pH, Turbidity, Conductivity, Alkalinity, Chloride, Free Residual Chlorine, Fluoride, Calcium Hardness, Sulfate, Nitrate, Nitrite, Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Copper, Iron, Lead, Magnesium, Manganese, Mercury, Nickel, Selenium, Silver, Sodium, Thallium, Zinc, Total Dissolved Solids, Total Organic Carbon, Total Cyanide, Perchlorate. Organic Parameters: Volatile Organics 524.2, Total Trihalomethanes 524.2, 1,2-Dibromo-3-chloropropane (DBCP) 504.1, Ethylene Dibromide (EDB) 504.1, 1,4-Dioxane (Mod 8270). Microbiology Parameters: Total Coliform-MF mEndo (SM9222B), Total Coliform – Colilert (SM9223, Enumeration and P/A), E. Coli. – Colilert (SM9223, Enumeration and P/A), HPC – Pour Plate (SM9215B), Fecal Coliform – MF m-FC (SM9222D), Fecal Coliform-EC Medium (SM 9221E).

Wastewater/Non-Potable Water (Inorganic Parameters: Color, pH, Conductivity, Acidity, Alkalinity, Chloride, Total Residual Chlorine, Fluoride, Total Hardness, Silica, Sulfate, Sulfide, Ammonia, Kjeldahl Nitrogen, Nitrate, Nitrite, O-Phosphate, Total Phosphorus, Aluminum, Antimony, Arsenic, Barium, Beryllium, Boron, Cadmium, Calcium, Chromium, Hexavalent Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Mercury, Molybdenum, Nickel, Potassium, Selenium, Silver, Sodium, Strontium, Thallium, Tin, Titanium, Vanadium, Zinc, Total Residue (Solids), Total Dissolved Solids, Total Suspended Solids (non-filterable), BOD, CBOD, COD, TOC, Total Cyanide, Phenolics, Foaming Agents (MBAS), Bromide, Oil and Grease. Organic Parameters: PCBs, Organochlorine Pesticides, Technical Chlordane, Toxaphene, Acid Extractables (Phenols), Benzidines, Phthalate Esters, Nitrosamines, Nitroaromatics & Isophorone, Polynuclear Aromatic Hydrocarbons, Haloethers, Chlorinated Hydrocarbons, Volatile Organics, TPH (HEM/SGT), CT-Extractable Petroleum Hydrocarbons (ETPH), MA-EPH, MA-VPH. Microbiology Parameters: Total Coliform – MF mEndo (SM9222B), Total Coliform – MTF (SM9221B), E. Coli – Colilert (SM9223 Enumeration), HPC – Pour Plate (SM9215B), Fecal Coliform – MF m-FC (SM9222D), Fecal Coliform – A-1 Broth (SM9221E), Enterococcus - Enterolert.

Solid Waste/Soil (Inorganic Parameters: pH, Sulfide, Aluminum, Antimony, Arsenic, Barium, Beryllium, Boron, Cadmium, Calcium, Chromium, Hexavalent Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Mercury, Molybdenum, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Tin, Vanadium, Zinc, Total Cyanide, Ignitability, Phenolics, Corrosivity, TCLP Leach (1311), SPLP Leach (1312 metals only), Reactivity. Organic Parameters: PCBs, PCBs in Oil, Organochlorine Pesticides, Technical Chlordane, Toxaphene, CT-Extractable Petroleum Hydrocarbons (ETPH), MA-EPH, MA-VPH, Dicamba, 2,4-D, 2,4,5-T, 2,4,5-TP(Silvex), Dalapon, Volatile Organics (SW 8260), Acid Extractables (Phenols) (SW 8270), Benzidines (SW 8270), Phthalates (SW 8270), Nitrosamines (SW 8270), Nitroaromatics & Cyclic Ketones (SW 8270), PAHs (SW 8270), Haloethers (SW 8270), Chlorinated Hydrocarbons (SW 8270).)

Maine Department of Human Services Certificate/Lab ID: 2009024.
Drinking Water (Inorganic Parameters: SM9215B, 9222D, 9223B, EPA 180.1, 353.2, SM2130B, 2320B, 2540C, 4500Cl-D, 4500CN-C, 4500CN-E, 4500F-C, 4500H+B, 4500NO3-F, EPA 200.7, EPA 200.8, 245.1, EPA 300.0. Organic Parameters: 504.1, 524.2.)

Wastewater/Non-Potable Water (Inorganic Parameters: EPA 120.1, 1664A, 350.1, 351.1, 353.2, 410.4, 420.1, SM2320B, 2510B, 2540C, 2540D, 426C, 4500Cl-D, 4500Cl-E, 4500CN-C, 4500CN-E, 4500F-B, 4500F-C, 4500H+B, 4500Norg-B, 4500Norg-C, 4500NH3-B, 4500NH3-G, 4500NO3-F, 4500P-B, 4500P-E, 5210B, 5220D, 5310C, 9010B, 9040B, 9030B, 7470A, 7196A, 2340B, EPA 200.7, 6010B, 6010C, 200.8, 6020, 245.1, 1311, 1312, 3005A, Enterolert, 9223B, 9222D. Organic Parameters: 608, 624, 625, 8081A, 8081B, 8082, 8082A, 8330, 8151A, 8260B, 8260C, 8270C, 8270D, 3510C, 3630C, 5030B, ME-DRO, ME-GRO, MA-EPH, MA-VPH.)

Solid Waste/Soil (Inorganic Parameters: 9010B, 9012A, 9014, 9030B, 9040B, 9045C, 6010B, 6010C, 6020, 6020A, 7471A, 7471B, 7196A, 9050A, 1010, 1030, 9065, 1311, 1312, 3005A, 3050B. Organic Parameters: ME-DRO, ME-GRO, MA-EPH, MA-VPH, 8260B, 8270C, 8270D, 8330, 8151A, 8081A, 8081B, 8082, 8082A, 3540C, 3546, 3580A, 3630C, 5030B, 5035.)

Massachusetts Department of Environmental Protection Certificate/Lab ID: M-MA086.
*Drinking Water (*Inorganic Parameters: (EPA 200.8 for: Sb,As,Ba,Be,Cd,Cr,Cu,Pb,Ni,Se,Tl) (EPA 200.7 for: Ba,Be,Ca,Cd,Cr,Cu,Na,Ni) 245.1, (300.0 for: Nitrate-N, Fluoride, Sulfate); (EPA 353.2 for: Nitrate-N, Nitrite-N); (SM4500NO3-F for: Nitrate-N and Nitrite-N); 4500F-C, 4500CN-CE, EPA 180.1, SM2130B, SM4500Cl-D, 2320B, SM2540C, SM4500H-B. Organic Parameters: (EPA 524.2 for: Trihalomethanes, Volatile Organics); (504.1 for: 1,2-Dibromoethane, 1,2-Dibromo-3-Chloropropane), EPA 332. Microbiology Parameters: SM9215B; ENZ. SUB. SM9223; ColilertQT SM9223B; MF-SM9222D.)

Non-Potable Water (Inorganic Parameters:, (EPA 200.8 for: Al,Sb,As,Be,Cd,Cr,Cu,Pb,Mn,Ni,Se,Ag,Tl,Zn); (EPA 200.7 for: Al,Sb,As,Be,Cd,Ca,Cr,Co,Cu,Fe,Pb,Mg,Mn,Mo,Ni,K,Se,Ag,Na,Sr,Ti,Tl,V,Zn); 245.1, SM4500H,B, EPA 120.1, SM2510B, 2540C, 2340B, 2320B, 4500CL-E, 4500F-BC, 426C, SM4500NH3-BH, (EPA 350.1 for: Ammonia-N), LACHAT 10-107-06-1-B for Ammonia-N, SM4500NO3-F, 353.2 for Nitrate-N, SM4500NH3-BC-NES, EPA 351.1, SM4500P-E, 4500P-B,E, 5220D, EPA 410.4, SM 5210B, 5310C, 4500CL-D, EPA 1664, SM14 510AC, EPA 420.1, SM4500-CN-CE, SM2540D.
Organic Parameters: (EPA 624 for Volatile Halocarbons, Volatile Aromatics),(608 for: Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT,Endosulfan I, Endosulfan II, Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs-Water), (EPA 625 for SVOC Acid Extractables and SVOC Base/Neutral Extractables), 600/4-81-045-PCB-Oil. Microbiology Parameters: (ColilertQT SM9223B; Enterolert-QT: SM9222D-MF.)

New Hampshire Department of Environmental Services Certificate/Lab ID: 200307. ***NELAP Accredited.***
Drinking Water (Inorganic Parameters: SM 9222B, 9223B, 9215B, EPA 200.7, 200.8, 300.0, SM4500CN-E, 4500H+B, 4500NO3-F, 2320B, 2510B, 2540C, 4500F-C, 5310C, 2120B, EPA 332.0. Organic Parameters: 504.1, 524.2.)

Non-Potable Water (Inorganic Parameters: SM9222D, 9221B, 9222B, 9221E-EC, EPA 3005A, 200.7, 200.8, 245.1, SW-846 6010C, 6020A, 7196A, 7470A, SM3500-CR-D, EPA 120.1, 300.0, 350.1, 350.2, 351.1, 353.2, 410.4, 420.1, 426C, 1664A, SW-846 9010B, 9010C, 9030, 9040B, 9040C, SM2120B, 2310B, 2320B, 2340B, 2540B, 2540D, 4500H+B, 4500CL-E, 4500CN-E, 4500NH3-H, 4500NO3-F, 4500NO2-B, 4500P-E, 4500-S2-D, 4500SO3-B, 5210B, 5220D, 2510B, 2540C, 4500F-C, 5310C, 5540C, LACHAT 10-204-00-1-A, LACHAT 10-107-06-2-D, 3060A. Organic Parameters: SW-846 3510C, 3630C, 5030B, 8260C, 8270D, 8330, EPA 624, 625, 608, SW-846 8082A, 8081B, 8015C, 8151A, 8330, 8270D-SIM.)

Solid & Chemical Materials (Inorganic Parameters: SW-846 6010C, 6020A, 7196A, 7471B, 1010, 1010A, 1030, 9010C, 9012B, 9014, 9030B, 9040C, 9045C, 9045D, 9050, 9065, 9251, 1311, 1312, 3005A, 3050B, 3060A. Organic Parameters: SW-846 3540C, 3546, 3050B, 3580A, 3620D, 3630C, 5030B, 5035, 8260C, 8270D, 8270D-SIM, 8330, 8151A, 8015B, 8015C, 8082A, 8081B.)

New Jersey Department of Environmental Protection Certificate/Lab ID: MA935. ***NELAP Accredited.***
Drinking Water (Inorganic Parameters: SM9222B, 9221E, 9223B, 9215B, 4500CN-CE, 4500NO3-F, 4500F-C, EPA 300.0, 200.7, 200.8, 245.1, 2540C, SM2120B, 2320B, 2510B, 5310C, SM4500H-B. Organic Parameters: EPA 332, 504.1, 524.2.)

Non-Potable Water (Inorganic Parameters: SM5210B, EPA 410.4, SM5220D, 4500Cl-E, EPA 300.0, SM2120B, 2340B, SM4500F-BC, EPA 200.7, 200.8, 351.1, LACHAT 10-107-06-2-D, EPA 353.2, SM4500NO3-F, 4500NO2-B, EPA 1664A, SM5310B, C or D, 4500-PE, EPA 420.1, SM510ABC, SM4500P-B5+E, 2540B, 2540C, 2540D, EPA 120.1, SM2510B, SM2520B, SM15 426C, 9222D, 9221B, 9221C, 9221E, 9222B, 9215B, 2310B, 2320B, 4500NH3-H, 4500-S D, EPA 350.1, 350.2, SW-846 1312, 7470A, 5540C, SM4500H-B, 4500SO3-B, SM3500Cr-D, 4500CN-CE, EPA 245.1, SW-846 9040B, 9040C, 3005A, 3015, EPA 6010B, 6010C, 6020, 6020A, 7196A, 3060A, SW-846 9010C, 9030B. Organic Parameters: SW-846 8260B, 8260C, 8270C, 8270D, 8270C-SIM, 8270D-SIM, 3510C, EPA 608, 624, 625, SW-846 3630C, 5030B, 8011, 8015C, 8081A, 8081B, 8082, 8082A, 8151A, 8330, 1,4-Dioxane by NJ Modified 8270, 8015B, NJ EPH.)

Solid & Chemical Materials (Inorganic Parameters: SW-846, 6010B, 6010C, 6020, 6020A, 7196A, 3060A, 9030B, 1010, 1010A, 1030, 1311, 1312, 3005A, 3050B, 7471A, 7471B, 9010C, 9012B, 9014, 9038, 9040B, 9040C, 9045C, 9045D, 9050A, 9065, 9251. Organic Parameters: SW-846 8015B, 8015C, 8081A, 8081B, 8082, 8082A, 8151A, 8330, 8260B, 8260C, 8270C, 8270D, 8270C-SIM, 8270D-SIM, 3540C, 3546, 3580A, 3620C, 3630C, 5030B, 5035L, 5035H, NJ EPH.)

New York Department of Health Certificate/Lab ID: 11148. ***NELAP Accredited.***
Drinking Water (Inorganic Parameters: SM9223B, 9222B, 9215B, EPA 200.8, 200.7, 245.2, SM5310C, EPA 332.0, SM2320B, EPA 300.0, SM2120B, 4500CN-E, 4500F-C, 4500NO3-F, 2540C, SM 2510B. Organic Parameters: EPA 524.2, 504.1.)

Non-Potable Water (Inorganic Parameters: SM9221E, 9222D, 9221B, 9222B, 9215B, 5210B, 5310C, EPA 410.4, SM5220D, 2310B-4a, 2320B, EPA 200.7, 300.0, SM4500CL-E, 4500F-C, SM15 426C, EPA 350.1, SM4500NH3-BH, EPA 351.1, LACHAT 10-107-06-2, EPA 353.2, SM4500-NO3-F, 4500-NO2-B, 4500P-E, 2540C, 2540B, 2540D, EPA 200.8, EPA 6010B, 6010C, 6020, 6020A, EPA 7196A, SM3500Cr-D, EPA 245.1, 7470A, SM2120B, LACHAT 10-204-00-1-A, 4500CN-CE, EPA 1664A, EPA 420.1, SM14 510C, EPA 120.1, SM2510B, SM4500S-D, SM5540C, EPA 3005A, 3015, 9010C, 9030B. Organic Parameters: EPA 624, 8260B, 8260C, 8270C, 8270D, 8270C-SIM, 8270D-SIM, 625, 608, 8081A, 8081B, 8151A, 8330, 8082, 8082A, EPA 3510C, 5030B.)

Solid & Hazardous Waste (Inorganic Parameters: EPA 1010A, 1030, EPA 6010B, 6010C, 7196A, 7471A, 7471B, 9012B, 9014, 9065, 9050A, EPA 1311, 1312, 3005A, 3050B, 9010C, 9030B, 9040C, 9045D. Organic Parameters: EPA 8260B, 8260C, 8270C, 8270D, 8270C-SIM, 8270D-SIM, 8015B, 8015C, 8081A, 8081B, 8151A, 8330, 8082 8082A, 3540C,

3546, 3580A, 5030B, 5035A-H, 5035A-L.)

North Carolina Department of the Environment and Natural Resources Certificate/Lab ID : 666. (Inorganic Parameters: SM2310B, 2320B, 4500Cl-E, 4500Cn-E, 9014, Lachat 10-204-00-1-X, 1010A, 1030, 4500NO3-F, 353.2, 4500P-E, 4500SO4-E, 300.0, 4500S-D, 5310B, 5310C, 6010C, 6020A, 200.7, 200.8, 3500Cr-B, 7196A, 245.1, 7470A, 7471B, 1311,1312. Organic Parameters: 608, 8081B, 8082A, 624, 8260B, 625, 8270D, 8151A, 8015C, 504.1, MA-EPH, MA-VPH.)

Drinking Water Program Certificate/Lab ID: 25700. (Inorganic Parameters: Chloride EPA 300.0. Organic Parameters: 524.2)

Pennsylvania Department of Environmental Protection Certificate/Lab ID : 68-03671. ***NELAP Accredited.***
Drinking Water (Inorganic Parameters: 200.7, 200.8, 300.0, 332.0, 2120B, 2320B, 2510B, 2540C, 4500-CN-CE, 4500F-C, 4500H+-B, 4500NO3-F, 5310C. Organic Parameters: EPA 524.2, 504.1)

Non-Potable Water (Inorganic Parameters: EPA 120.1, 1312, 3005A,3015, 3060A, 200.7, 200.8, 410.4, 1664A, SM2540D, 5210B, 5220D, 4500-P,BE, 245.1, 300.0, 350.1, 350.2, 351.1, 353.2, 420.1, 6010C, 6020A, 7196A, 7470A, 9030B, 2120B, 2310B, 2320B, 2510B, 2540B, 2540C, 3500Cr-D, 426C, 4500CN-CE, 4500Cl-E, 4500F-B, 4500F-C, 4500H+-B, 4500NH3-H, 4500NO2-B, 4500NO3-F, 4500S-D, 4500SO3-B, 5310BCD, 5540C, 9010C, 9040C. Organic Parameters: EPA 3510C, 3630C, 5030B, 625, 624, 608, 8081B, 8082A, 8151A, 8260C, 8270D, 8270D-SIM, 8330, 8015C, NJ-EPH.)

Solid & Hazardous Waste (Inorganic Parameters: EPA 350.1, 1010, 1030, 1311, 1312, 3005A, 3050B, 3060A, 6010C, 6020A, 7196A, 7471B, 9010C, 9012B, 9014, 9040B, 9045D, 9050A, 9065, SM 4500NH3-BH, 9030B, 9038, 9251. Organic Parameters: 3540C, 3546, 3580A, 3620C, 3630C, 5035, 8015C, 8081B, 8082A, 8151A, 8260C, 8270D, 8270D-SIM, 8330, NJ-EPH.)

Rhode Island Department of Health Certificate/Lab ID: LAO00065. ***NELAP Accredited via NJ-DEP.***
Refer to MA-DEP Certificate for Potable and Non-Potable Water.
Refer to NJ-DEP Certificate for Potable and Non-Potable Water.

Texas Commisson on Environmental Quality Certificate/Lab ID: T104704476. ***NELAP Accredited.***
Non-Potable Water (Inorganic Parameters: EPA 120.1, 1664, 200.7, 200.8, 245.1, 245.2, 300.0, 350.1, 351.1, 353.2, 410.4, 420.1, 6010, 6020, 7196, 7470, 9040, SM 2120B, 2310B, 2320B, 2510B, 2540B, 2540C, 2540D, 426C, 4500CL-E, 4500CN-E, 4500F-C, 4500H+B, 4500NH3-H, 4500NO2B, 4500P-E, 4500 $S2^-$D, 510C, 5210B, 5220D, 5310C, 5540C. Organic Parameters: EPA 608, 624, 625, 8081, 8082, 8151, 8260, 8270, 8330.)

Solid & Hazardous Waste (Inorganic Parameters: EPA 1311, 1312, 9012, 9014, 9040, 9045, 9050, 9065.)

Virginia Division of Consolidated Laboratory Services Certificate/Lab ID: 460195. ***NELAP Accredited.***
Drinking Water (Inorganic Parameters: EPA 200.7, 200.8, 300.0, 2510B, 2120B, 2540C, 4500CN-CE, 245.2, 2320B, 4500F-C, 4500NO3-F, 5310C. Organic Parameters: EPA 504.1, 524.2.)

Non-Potable Water (Inorganic Parameters: EPA 120.1, 1664A, 200.7, 200.8, 245.1, 300.0, 3005A, 3015, 1312, 6010B, 6010C, 3060A, 353.2, 420.1, 6020, 6020A, SM4500S-D, SM4500-CN-CE, Lachat 10-204-00-1-X, 7196A, 7470A, 9010B, 9040B, 2310B, 2320B, 2510B, 2540B, 2540C, 3500Cr-D, 426C, 4500Cl-E, 4500F-B, 4500F-C, 4500PE, 510AC, 5210B, 5310B 5310C, 5540C. Organic Parameters: EPA 3510C, 3630C, 5030B, 8260B, 608, 624, 625, 8081A, 8081B, 8082, 8082A, 8151A, 8270C, 8270D, 8270C-SIM, 8270D-SIM, 8330,)

Solid & Hazardous Waste (Inorganic Parameters: EPA 1010A, 1030, 3060A, 3050B, 1311, 1312, 6010B, 6010C, 6020, , 7196A, 7471A, 7471B, 6020A, 9030B, 9010B, 9012A, 9014 9040B, 9045C, 9050A, 9065. Organic Parameters: EPA 5030B, 5035, 3540C, 3546, 355B0, 3580A, 3630C, 6020A, 8260B, 8015B, 8015C, 8081A, 8081B, 8082, 8082A, 8151A, 8270C, 8270D, 8270C-SIM, 8270D-SIM, 8330.)

Department of Defense, L-A-B Certificate/Lab ID: L2217.
Drinking Water (Inorganic Parameters: SM 4500H-B. Organic Parameters: EPA 524.2, 504.1.)

Non-Potable Water (Inorganic Parameters: EPA 200.7, 200.8, 6010B, 6010C, 6020, 6020A, 245.1, 245.2, 7470A, 9040B, 9010B, 180.1. 300.0, 332.0, 6860, 353.2, 410.4, 9060, 1664A, SM 4500CN-E, 4500H-B, 4500NO3-F, 4500CL-D, 5220D, 5310C, 2130B, 2320B, 2540C, 3005A, 3015, 9010B, 9056, 7196A, 3500-Cr-D. Organic Parameters: EPA 8260B, 8260C, 8270C, 8270D, 8270C-SIM, 8270D-SIM, 8330A, 8082, 8082A, 8081A, 8081B, 3510C, 5030B, MassDEP EPH, MassDEP VPH.)

Solid & Hazardous Waste (Inorganic Parameters: EPA 200.7, 6010B, 6010C, 7471A, 6860, 1311, 1312, 3050B, 7196A, 9010B, 9012A, 9040B, 9045C, 3500-CR-D, 4500CN-CE, 2540G, Organic Parameters: EPA 8260B, 8260C, 8270C,

8270D, 8270C-SIM, 8270D-SIM, 8330A/B-prep, 8082, 8082A, 8081A, 8081B, 3540C, 3546, 3580A, 5035A, MassDEP EPH, MassDEP VPH.)

The following analytes are not included in our current NELAP/TNI Scope of Accreditation:
EPA 8260B: Freon-113, 1,2,4,5-Tetramethylbenzene, 4-Ethyltoluene. **EPA 8330A:** PETN, Picric Acid, Nitroglycerine, 2,6-DANT, 2,4-DANT. **EPA 8270C:** Methyl naphthalene, Dimethyl naphthalene, Total Methylnapthalenes, Total Dimethylnaphthalenes, 1,4-Diphenylhydrazine (Azobenzene). **EPA 625:** 4-Chloroaniline, 4-Methylphenol. Total Phosphorus in a soil matrix, Chloride in a soil matrix, TKN in a soil matrix, NO2 in a soil matrix, NO3 in a soil matrix. **EPA 9071:** Total Petroleum Hydrocarbons, Oil & Grease.

CHAIN OF CUSTODY

PAGE 1 OF 1

Date Rec'd in Lab: 12/29/12

ALPHA Job #: L1223485

ALPHA ANALYTICAL
WESTBORO, MA TEL: 508-898-9220 FAX: 508-898-9193
MANSFIELD, MA TEL: 508-822-9300 FAX: 508-822-3288

Client Information

Client: SJB
Address: HAMBURG, NY
Phone: 716-649-8110
Fax:
Email: dsteiner@sjbempire.net
☐ These samples have been previously analyzed by Alpha

Project Information

Project Name: YOVIENE
Project Location: HAMBURG, NY
Project #: BEV-12-040
Project Manager: D. R. STEINER
ALPHA Quote #:

Turn-Around Time

☐ Standard ☒ RUSH (only confirmed if pre-approved)
Date Due: 01/09/13 Time:

Report Information - Data Deliverables

☐ FAX ☒ EMAIL
☒ ADEx ☐ Add'l Deliverables

Billing Information

☒ Same as Client info PO #:

Regulatory Requirements/Report Limits

State /Fed Program Criteria DER-10

Other Project Specific Requirements/Comments/Detection Limits:

5DAY

SAMPLE HANDLING
Filtration
☐ Done
☐ Not needed
☐ Lab to do
Preservation
☐ Lab to do
(Please specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	TCL VOCs	TCL SVOCs	TAL METALS	Cn	PCB	Sample Specific Comments	TOTAL # BOTTLES
23485-01	SW-1	12-28-12	1420	W	DRS	X	X	X	X	X		
-02	SW-2	↓	1350	↓	↓	X	X	X	X	X		
-03	SW-3	↓	1410	↓	↓	X	X	X	X	X		

Container Type	V	A	P	P	A
Preservative	B	A	C	E	A

Relinquished By:	Date/Time	Received By:	Date/Time
David R. Steiner	12-28-12 1620	[signature]	12/28/12 1620
[signature]	12/28/12 1900	[signature]	12/28/12 1900
[signature]	12-28-12 2130	[signature]	12-28-12 2130
Rent Haim	12-28-12 00:25	[signature]	12/29/12 00:25

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Terms and Conditions. See reverse side.

FORM NO: 01-01 (rev. 14-OCT-07)

EXHIBIT 2

ENVIRONMENTAL SUBSURFACE INVESTIGATION
AUGUST 3, 2012

By: Empire Geo Services, Inc.

EMPIRE GEO SERVICES, INC.

EMPIRE GEO SERVICES, INC.
A SUBSIDIARY OF SJB SERVICES, INC.

CORPORATE/
BUFFALO OFFICE
5167 South Park Avenue
Hamburg, NY 14075
Phone: (716) 649-8110
Fax: (716) 649-8051

ALBANY OFFICE
PO Box 2199
Ballston Spa, NY 12020

5 Knabner Road
Mechanicville, NY 12118
Phone: (518) 899-7491
Fax: (518) 899-7496

CORTLAND OFFICE
60 Miller Street
Cortland, NY 13045
Phone: (607) 758-7182
Fax: (607) 758-7188

ROCHESTER OFFICE
535 Summit Point Drive
Henrietta, NY 14467
Phone: (585) 359-2730
Fax: (585) 359-9668

MEMBER
ACEC New York

August 3, 2012
Empire Project Number BEV-12-040

Five Yoviene Brothers
815 Smith Street
Buffalo, New York 14206

Phone: 716-854-1600, ext 100
Fax: 716-856-4509
Cell: 716-698-9734

Attention: Mr. Jim Yoviene

Reference: Environmental Subsurface Investigation
Vacant Property – 6636 Taylor Road
Hamburg, New York

Dear: Jim:

Empire-Geo Services, Inc. (Empire) recently completed an environmental subsurface investigation at the referenced project site in Hamburg, New York. The following report summarizes the subsurface conditions encountered, associated observations, and laboratory testing results.

I. BACKGROUND

The 146-acre site is planned for development as a residential subdivision. Previous environmental studies of the property were completed in 1994 and earlier in 2012.

1994

In their 1994 report, NFCS named the area currently containing the cars, tires, and other miscellaneous items on the ground surface a "dump area" and concluded, "the dump was historically used for municipal solid waste disposal for the years 1951-66 as evidenced in aerial photographs." NFCS collected two soil samples and two surface water samples in this area and had them analyzed at a laboratory for leachable concentrations of volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), and metals, as well as corrosivity, reactivity, and ignitability. All laboratory results were at or below the method detection limits except for the metal barium which was within regulatory limits.

2012

Lender Consulting Services, Inc. (LCS) completed a limited and focused soil and groundwater investigation at the site, as summarized in their report of April 26, 2012. The LCS investigation included five soil borings with a groundwater monitoring well installed at one of the five locations. The five test borings were generally located to the north of the disposal area, along the north edge of the wooded area. Drilling refusal was encountered at depths of 3.8 feet to 6.8 feet at four of the five boring locations, apparently indicating relatively shallow depth to bedrock. Drilling refusal was obtained at a depth of 12 feet at boring location BH1.

Five soil samples (one from each of the five test borings) and one groundwater sample were analyzed for Target Compound List (TCL) VOCs, TCL SVOCs, Target Analyte List (TAL) Metals, Cyanide, polychlorinated biphenyls (PCBs), Pesticides, and Herbicides. Concentrations of detected analytes in the soil samples were all below 6 NYCRR Part 375 soil cleanup objectives (SCOs) for Unrestricted and/or Residential site use with the exception of barium, which was detected at a concentration of 420 parts per million (ppm) in test boring BH2, as compared to the Residential SCO of 350 ppm. Concentrations of detected analytes in the groundwater sample were all less than the NYSDEC Class GA Groundwater Criteria with the exception of barium at a concentration of 1.8 ppm as compared to the limit of 1.0 ppm.

II. CURRENT SUBSURFACE INVESTIGATION

The purpose of Empire's subsurface investigation completed on July 25, 2012 was to look for evidence of buried trash or other materials in the area of the cars and other items abandoned on the surface, to characterize the native subsurface materials, and to collect a subsurface soil sample from this area for laboratory analysis. Empire's subsurface investigation was implemented by means of test pit excavations.

Nine test pits were excavated by a contractor hired by Mr. James Yoviene. The test pit locations were selected by the Empire geologist. At each location, the Empire geologist visually classified the excavated soils and prepared individual test pit field logs indicating the test pit location, soil and rock types and depths, indications of possible contamination, if any, and other pertinent observations and information. The test pit locations are indicated on the attached sketch.

The test pits were excavated to depths of approximately two to five feet. In general, the subsurface conditions encountered at the test pit locations consisted of native clayey silts with varying amounts of sands and gravel. Beneath the native soils, shale fragments were often encountered, indicating that competent shale bedrock is present within a few additional feet. Test pits TP-1, TP-3, TP-4, and TP-8 were located in mounded areas and encountered approximately 1.5 to 4.3 feet of fill materials that consisted of reworked native soils that may have been placed in mounds by previous site activities such as bulldozing. The fill materials encountered in test pit TP-1 (located between the two abandoned cars) and test pit TP-3 (located approximately 50 feet southwest of the cars) contained minor traces of man-made materials including cinders and/or slag. Based on visual observations, the man-made components comprised less than 1% of the fill material. Water was not encountered in any of the test pits. Test pit logs are attached.

III. ENVIRONMENTAL OBSERVATIONS AND SOIL SAMPLING

No visual evidence of environmental degradation such as staining, discoloration, or odors was observed on any of the fill materials or native soils excavated from any of the nine test pits.

One soil sample was collected of the fill material from test pit TP-1 for laboratory analysis. This sample was selected due to its proximity to the two cars and due to the presence of trace amounts of man-made materials in the fill.

IV. LABORATORY ANALYSIS

The composite sample of the fill/soil from test pit TP-1 was analyzed for:

- TCL VOCs
- TCL SVOCs
- TAL Metals
- Cyanide
- PCBs

The sample was placed into pre-cleaned glass containers, labeled with the date, time and location of the project and placed in an iced cooler at approximately 4-degrees Celsius for transport via courier to Paradigm Environmental Services, Inc. (Paradigm) in Rochester, New York. Paradigm is a New York State Department of Health (NYSDOH) certified analytical testing laboratory. Chain-of-custody documentation accompanied the samples. Paradigm's analytical report is attachment.

The analytical results for the soil samples were compared to the New York State Department of Environmental Conservation (NYSDEC) Soil Cleanup Objectives (SCOs) for Unrestricted and Residential site use presented in the NYSDEC 6 New York Code, Rules and Regulations (6NYCRR) Part 375 Environmental Remediation Programs, effective December 2006.

Volatile Organic Compounds – Acetone was detected at a concentration of 63.6 parts per billion (ppb), well below the NYSDEC SCO for Unrestricted site use of 100,000 ppb. Acetone is a common laboratory reagent and this detection may represent laboratory contamination.

Semi-Volatile Organic Compounds – SVOCs were not detected in the soil sample.

Polychlorinated Biphenyls – PCBs were not detected in the soil sample.

Metals – Several metals were detected in the soil sample. With the exceptions of lead and zinc, the concentrations of the detected metals were below their respective SCOs for Unrestricted site use.

- Lead was detected at a concentration of 410 ppm, exceeding the Unrestricted SCO of 63 ppm and very slightly above the Residential SCO of 400 ppm.

- Zinc was detected at a concentration of 172 ppm, exceeding the Unrestricted SCO of 109 ppm but well-below the Residential SCO of 2,200 ppm.

V. DISCUSSION

A. Historic Aerial Photos

In their 1994 report, NFCS named the area currently containing the cars, tires, and other miscellaneous items on the ground surface a "dump area" and concluded, "the dump was historically used for municipal solid waste disposal for the years 1951-66 as evidenced in aerial photographs." No other historical information is given to support the conclusion of routine solid waste disposal. Empire reviewed the attached aerial photographs for the years 1952, 1958, 1959, and 1963, as discussed below.

1952 - The area appears to be covered with brush, small trees, and grasses. No evidence of disturbance such as clearing or excavating is apparent.

1958 – A generally rectangular area that is larger than the current study area has been cleared of vegetation, but there is no evidence of excavations into the subsurface. An apparent access driveway enters the cleared area from the north and an apparent temporary building or trailer is seen along its eastern edge.

1959 – This photo ends in the center of the cleared area seen in the 1958 photo, but the apparent temporary building or trailer seen in the 1958 photo is gone, possibly indicating that the previous activity has ceased.

1963 – The previously cleared, rectangular area is visible, but the previous activity has ceased and vegetation has been reestablished on most of the area.

B. Surface and Subsurface Conditions

The ground surface in the area of the abandoned cars and other items is generally flat-lying with a few isolated soil mounds. Very minor trace amounts of man-made materials (cinders and slag) were found in just two of the mounded areas. Outside the mounded areas, shale fragments were encountered at depths of approximately 1.2 to 3.2 feet in several of the test pit excavations, with competent shale bedrock expected to be just a few feet deeper. These conditions are similar to those indicated by the nearby LCS test borings where drilling refusal was obtained at depths of 3.8 to 6.8 feet, likely due to encountering competent shale bedrock. No visual evidence of environmental degradation such as staining, discoloration, or odors was observed on any of the fill materials or native soils excavated from any of the nine test pits.

C. Laboratory Testing Results for Soil Samples – 1994, April 2012, July 2012

Barium

The NFCS 1994 soil data indicated leachable concentrations of barium at 1.62 and 1.48 ppm (average = 1.55 ppm), well-below the minimum hazardous concentration of 100 ppm.

The LCS March-April 2012 soil data indicated a barium concentration that exceeded the 6 NYCRR Part 375 SCO for Unrestricted and Residential site use of 350 ppm in one of five soil samples at a concentration of 420 ppm. Barium concentrations in the other four soil samples ranged from 57 ppm to 120 ppm (average of 161 ppm for the five soil samples).

The July 2012 soil data from the current Empire investigation indicated a barium concentration of 132 ppm, well-below the Part 375 Unrestricted SCO of 350 ppm.

Lead

The NFCS 1994 soil data indicated that leachable concentrations of lead were not detected in either of the two soil samples.

The LCS March-April 2012 soil data indicated a lead concentration that exceeded the 6 NYCRR Part 375 SCO for Unrestricted site use of 63 ppm in one of five soil samples at a concentration of 230 ppm. However, the lead concentration of 230 ppm is below the Residential SCO of 400 ppm. Lead concentrations in the other four soil samples ranged from 6.7 ppm to 36 ppm (average of 64.1 ppm for the five soil samples).

The July 2012 soil data for the current Empire investigation indicated that lead was detected at a concentration of 410 ppm, exceeding the Unrestricted SCO of 63 ppm and very slightly above the Residential SCO of 400 ppm.

VI. CONCLUSIONS

The following conclusions are based on information obtained from the 1994 NFCS report, the April, 2012 LCS report, and Empire's recent subsurface investigation.

It appears that the description of the study area in the 1994 NFCS report as a "dump (that) was historically used for municipal solid waste disposal for the years 1951-66" was based on very limited information, including the presence of abandoned cars, tires, metal, and other debris on the ground surface, and the presence of a cleared area as seen in one or more historic aerial photos taken between 1951 and 1966. Based on historic aerial photographs (attached) reviewed by Empire and the recent test pit excavations, it appears that the NFCS description of the study area was somewhat inaccurate:

- The test pit excavations did not encounter buried waste;
- The attached aerials show that the onsite activity began later than 1952 and had ceased before 1963;
- the type of onsite activity indicated on the 1958 aerial (attached) is unclear, but does not appear to indicate excavations that would typically be associated with waste disposal or landfilling; and
- the presence of shale bedrock at depths less than about six feet in the study area makes it very unlikely that this area would have been selected for landfilling due to extremely difficult and expensive excavating in the rock.

The detected barium concentration in just one of the six soil samples (420 ppm) collected as part of the LCS and Empire studies exceeded the 6 NYCRR Part 375 SCO for Unrestricted site use (350 ppm). In Empire's opinion, this does not represent an environmental concern because barium is a naturally-occurring element in local soils and because the average detected barium concentration in the six soil samples was 156 ppm, or less than one-half of the Unrestricted SCO.

The detected lead concentrations in just two of the six soil samples (230 ppm (LCS) and 410 ppm (Empire)) exceeded the SCO for Unrestricted site use (63 ppm). The lead concentration of 410 ppm detected in the Empire soil sample very slightly exceeded the SCO for Residential site use of 400 ppm. In Empire's opinion, this does not represent an environmental concern for the following reasons:

- The average detected lead concentration in the six soil samples was 122 ppm, or less than one-third of the Residential SCO;
- the relatively higher lead concentration of 410 ppm in the Empire soil sample is likely due to trace amounts of man-made components (cinders and slag) in the fill material. Therefore this lead concentration may represent a worst-case concentration in a very localized area of the site since the occurrence of the man-made materials was limited to two of the nine test pit locations; and
- Empire understands that this area of the site is not planned for residential development.

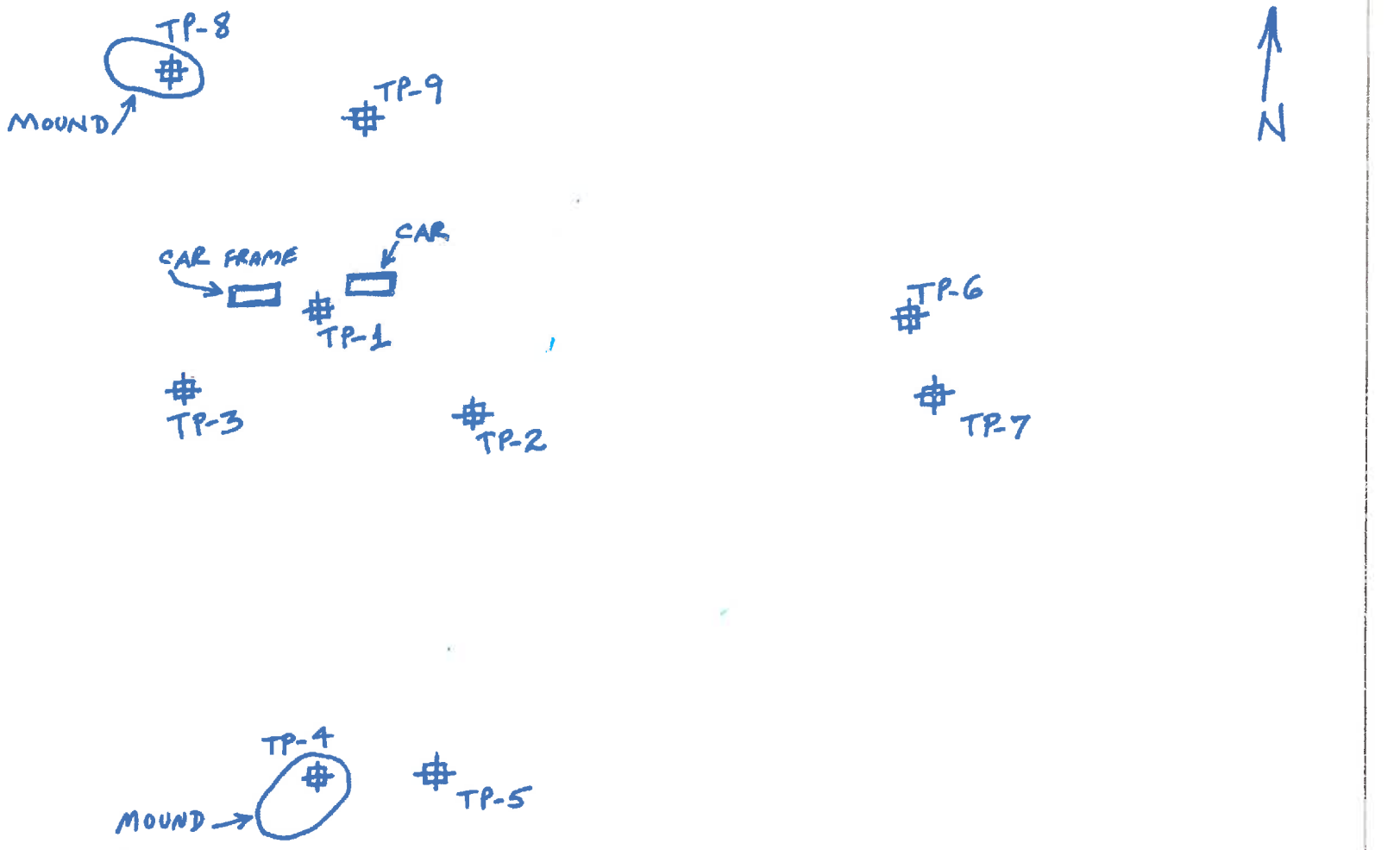
VII. CLOSING

This report has been prepared for the exclusive use of Empire's client for the specific application to the subject site in accordance with generally accepted environmental practices. If you have any questions or we can provide further assistance, please contact our office at (716) 649-8110.

Respectfully Submitted,
EMPIRE GEO SERVICES, INC.

David R. Steiner
Senior Engineering Geologist
Environmental Services Manager

Attachments



EMPIRE GEO SERVICES INC
a subsidiary of 320 Services, Inc

6636 TAYLOR ROAD
HAMBURG, NY

TEST PIT LOCATIONS

1"=50' ±

JULY 2012
DEV-12-040

SJB SERVICES, INC.

Western New York Office
5167 South Park Avenue
Hamburg, NY 14075
Phone: (716) 649-8110
Fax: (716) 649-8051

TEST PIT FIELD LOG

PROJECT	Environmental Investigation	DATE	7/25/2012
CLIENT	Willow Woods / Jim Yoviene	LOCATION	6636 Taylor Road, Hamburg
CONTRACTOR		TEST PIT NO.	TP-1
FIELD REP	D. R. Steiner	PROJECT NO.	BEV-12-040
		WEATHER / TEMP	SUNNY, 80's
EXCAVATION EQUIP	Rubber Track Excavator	OPERATOR	Matt
GROUND ELEV		MAKE/ MODEL	TAKEUCHI TB53FR
TIME STARTED	10:30	CAPACITY	0.5 CY
TIME FINISHED	11:00	REACH	12 FT

DEPTH	SOIL DESCRIPTION	EXCAV EFFORT	REMARK NO.
1'	Light Brown f-c SAND, some f-c Gravel, little Silt, tr.cinders (moist, FILL)	E	
2'			
2.3'			
3'	Brown Clayey SILT, little f-c Sand, tr.gravel (moist, ML-CL)		
3.2'	Brown and Black SHALE	M	
4'	Test Pit Terminated at 4.0'		
5'			
6'			
7'			
8'			
9'			
10			
11'			
12'			
13'			
14'			

Remarks:

No free standing water recorded at test pit completion.

Between the 2 auto carcasses

ABREVIATIONS		PROP USED	
F - FINE	F/M - FINE TO MEDIUM	TRACE (TR.)	0-10%
C - COARSE	F/C-FINE/COARSE	LITTLE (LI.)	10 - 20%
GR - GRAY	M - MEDIUM	SOME (SO.)	20 -35%
BN - BROWN	V-VERY	AND	35 - 50%
YEL-YELLOW			

SJB SERVICES, INC.

Western New York Office
5167 South Park Avenue
Hamburg, NY 14075
Phone: (716) 649-8110
Fax: (716) 649-8051

TEST PIT FIELD LOG

PROJECT	Environmental Investigation	DATE	7/25/2012
CLIENT	Willow Woods / Jim Yoviene	LOCATION	6636 Taylor Road, Hamburg
CONTRACTOR		TEST PIT NO.	TP-2
FIELD REP	D. R. Steiner	PROJECT NO.	BEV-12-040
		WEATHER / TEMP	SUNNY, 80's
EXCAVATION EQUIP	Rubber Track Excavator	OPERATOR	Matt
GROUND ELEV		MAKE/ MODEL	TAKEUCHI TB53FR
TIME STARTED	11:05	CAPACITY	0.5 CY
TIME FINISHED	11:25	REACH	12 FT

DEPTH	SOIL DESCRIPTION	EXCAV EFFORT	REMARK NO.
1'	Brown Clayey SILT, little f-c Sand, tr.gravel (moist, ML-CL)	E	
1.6' / 2'	Brown and Black SHALE	E	
	Test Pit Terminated at 2.0'		
3'			
4'			
5'			
6'			
7'			
8'			
9'			
10			
11'			
12'			
13'			
14'			

Remarks:

No free standing water recorded at test pit completion.

40' Southeast of car

ABREVIATIONS		PROP USED	
F - FINE	F/M - FINE TO MEDIUM	TRACE (TR.)	0-10%
C - COARSE	F/C-FINE/COARSE	LITTLE (LI.)	10 - 20%
GR - GRAY	M - MEDIUM	SOME (SO.)	20 -35%
BN - BROWN	V-VERY	AND	35 - 50%
YEL-YELLOW			

SJB SERVICES, INC.

Western New York Office
5167 South Park Avenue
Hamburg, NY 14075
Phone: (716) 649-8110
Fax: (716) 649-8051

TEST PIT FIELD LOG

PROJECT	Environmental Investigation	DATE	7/25/2012
CLIENT	Willow Woods / Jim Yoviene	LOCATION	6636 Taylor Road, Hamburg
CONTRACTOR		TEST PIT NO.	TP-3
FIELD REP	D. R. Steiner	PROJECT NO.	BEV-12-040
		WEATHER / TEMP	SUNNY, 80's
EXCAVATION EQUIP	Rubber Track Excavator	OPERATOR	Matt
GROUND ELEV		MAKE/ MODEL	TAKEUCHI TB53FR
TIME STARTED	11:30	CAPACITY	0.5 CY
TIME FINISHED	11:50	REACH	12 FT

DEPTH	SOIL DESCRIPTION	EXCAV EFFORT	REMARK NO.
1'	Brown f-c SAND, some f-c Gravel, little Silt, tr.cinders, tr.slag (moist, FILL)	E	
1.5' / 2'	Brown Clayey SILT, little f-c Sand, tr.gravel (moist, ML-CL)	E	
	Test Pit Terminated at 2.0'		
3'			
4'			
5'			
6'			
7'			
8'			
9'			
10			
11'			
12'			
13'			
14'			

Remarks:

No free standing water recorded at test pit completion.

50' Southwest of car

ABREVIATIONS		PROP USED	
F - FINE	F/M - FINE TO MEDIUM	TRACE (TR.)	0-10%
C - COARSE	F/C-FINE/COARSE	LITTLE (LI.)	10 - 20%
GR - GRAY	M - MEDIUM	SOME (SO.)	20 -35%
BN - BROWN	V-VERY	AND	35 - 50%
YEL-YELLOW			

Western New York Office
5167 South Park Avenue
Hamburg, NY 14075
Phone: (716) 649-8110
Fax: (716) 649-8051

TEST PIT FIELD LOG

PROJECT	Environmental Investigation	DATE	7/25/2012
CLIENT	Willow Woods / Jim Yoviene	LOCATION	6636 Taylor Road, Hamburg
CONTRACTOR		TEST PIT NO.	TP-4
FIELD REP	D. R. Steiner	PROJECT NO.	BEV-12-040
		WEATHER / TEMP	SUNNY, 80's
EXCAVATION EQUIP	Rubber Track Excavator	OPERATOR	Matt
GROUND ELEV		MAKE/ MODEL	TAKEUCHI TB53FR
TIME STARTED	12:00	CAPACITY	0.5 CY
TIME FINISHED	12:20	REACH	12 FT

DEPTH	SOIL DESCRIPTION	EXCAV EFFORT	REMARK NO.
1'	Brown f-c Clayey SILT, little f-c Sand, little f-c Gravel, occasional Boulders (moist, FILL - reworked native soils)	E	
2'	(Large Boulder in Southeast Wall of Test Pit at 2.0')	M	
3'		E	
4'	Test Pit Terminated at 3.0'		
5'			
6'			
7'			
8'			
9'			
10			
11'			
12'			
13'			
14'			

Remarks:

No free standing water recorded at test pit completion.

150' South of car in mounded area

ABREVIATIONS		PROP USED	
F - FINE	F/M - FINE TO MEDIUM	TRACE (TR.)	0-10%
C - COARSE	F/C-FINE/COARSE	LITTLE (LI.)	10 - 20%
GR - GRAY	M - MEDIUM	SOME (SO.)	20 -35%
BN - BROWN	V-VERY	AND	35 - 50%
YEL-YELLOW			

SJB SERVICES, INC.

Western New York Office
5167 South Park Avenue
Hamburg, NY 14075
Phone: (716) 649-8110
Fax: (716) 649-8051

TEST PIT FIELD LOG

PROJECT	Environmental Investigation	DATE	7/25/2012
CLIENT	Willow Woods / Jim Yoviene	LOCATION	6636 Taylor Road, Hamburg
CONTRACTOR		TEST PIT NO.	TP-5
FIELD REP	D. R. Steiner	PROJECT NO.	BEV-12-040
		WEATHER / TEMP	SUNNY, 80's
EXCAVATION EQUIP	Rubber Track Excavator	OPERATOR	Matt
GROUND ELEV		MAKE/ MODEL	TAKEUCHI TB53FR
TIME STARTED	1:15	CAPACITY	0.5 CY
TIME FINISHED	1:35	REACH	12 FT

DEPTH	SOIL DESCRIPTION	EXCAV EFFORT	REMARK NO.
1'	Brown Clayey SILT, little f-c Sand, tr.gravel (moist, ML-CL)	E	
2'		E	
3'		E	
4'	Test Pit Terminated at 3.0'		
5'			
6'			
7'			
8'			
9'			
10			
11'			
12'			
13'			
14'			

Remarks:

No free standing water recorded at test pit completion.

25' East of Test Pit #4, in low area east of mound

ABREVIATIONS		PROP USED	
F - FINE	F/M - FINE TO MEDIUM	TRACE (TR.)	0-10%
C - COARSE	F/C-FINE/COARSE	LITTLE (LI.)	10 - 20%
GR - GRAY	M - MEDIUM	SOME (SO.)	20 -35%
BN - BROWN	V-VERY	AND	35 - 50%
YEL-YELLOW			

SJB SERVICES, INC.

Western New York Office
5167 South Park Avenue
Hamburg, NY 14075
Phone: (716) 649-8110
Fax: (716) 649-8051

TEST PIT FIELD LOG

PROJECT	Environmental Investigation	DATE	7/25/2012
CLIENT	Willow Woods / Jim Yoviene	LOCATION	6636 Taylor Road, Hamburg
CONTRACTOR		TEST PIT NO.	TP-6
FIELD REP	D. R. Steiner	PROJECT NO.	BEV-12-040
		WEATHER / TEMP	SUNNY, 80's
EXCAVATION EQUIP	Rubber Track Excavator	OPERATOR	Matt
GROUND ELEV		MAKE/ MODEL	TAKEUCHI TB53FR
TIME STARTED	1:50	CAPACITY	0.5 CY
TIME FINISHED	2:10	REACH	12 FT

DEPTH	SOIL DESCRIPTION	EXCAV EFFORT	REMARK NO.
1'	Brown Clayey SILT, little f-c Sand, tr.gravel (moist, ML-CL)	E	
1.8'		E-M	
2'	Grey and Black SHALE		
3'	Test Pit Terminated at 2.2'		
4'			
5'			
6'			
7'			
8'			
9'			
10			
11'			
12'			
13'			
14'			

Remarks:

No free standing water recorded at test pit completion.

175' East of car, near wire mesh in slightly higher area.

ABREVIATIONS		PROP USED	
F - FINE	F/M - FINE TO MEDIUM	TRACE (TR.)	0-10%
C - COARSE	F/C-FINE/COARSE	LITTLE (LI.)	10 - 20%
GR - GRAY	M - MEDIUM	SOME (SO.)	20 -35%
BN - BROWN	V-VERY	AND	35 - 50%
YEL-YELLOW			

SJB SERVICES, INC.

Western New York Office
5167 South Park Avenue
Hamburg, NY 14075
Phone: (716) 649-8110
Fax: (716) 649-8051

TEST PIT FIELD LOG

PROJECT	Environmental Investigation	DATE	7/25/2012
CLIENT	Willow Woods / Jim Yoviene	LOCATION	6636 Taylor Road, Hamburg
CONTRACTOR		TEST PIT NO.	TP-7
FIELD REP	D. R. Steiner	PROJECT NO.	BEV-12-040
		WEATHER / TEMP	SUNNY, 80's
EXCAVATION EQUIP	Rubber Track Excavator	OPERATOR	Matt
GROUND ELEV		MAKE/ MODEL	TAKEUCHI TB53FR
TIME STARTED	2:20	CAPACITY	0.5 CY
TIME FINISHED	2:40	REACH	12 FT

DEPTH	SOIL DESCRIPTION	EXCAV EFFORT	REMARK NO.
1'	Brown Clayey SILT, little f-c Sand, tr.gravel (moist, ML-CL)	E	
1.2' / 2'	Grey and Black SHALE	E	
3'	Test Pit Terminated at 2.0'		
4'			
5'			
6'			
7'			
8'			
9'			
10			
11'			
12'			
13'			
14'			

Remarks:

No free standing water recorded at test pit completion.

175' East of car in slightly lower area.

ABREVIATIONS		PROP USED	
F - FINE	F/M - FINE TO MEDIUM	TRACE (TR.)	0-10%
C - COARSE	F/C-FINE/COARSE	LITTLE (LI.)	10 - 20%
GR - GRAY	M - MEDIUM	SOME (SO.)	20 -35%
BN - BROWN	V-VERY	AND	35 - 50%
YEL-YELLOW			

SJB SERVICES, INC.

Western New York Office
5167 South Park Avenue
Hamburg, NY 14075
Phone: (716) 649-8110
Fax: (716) 649-8051

TEST PIT FIELD LOG

PROJECT	Environmental Investigation	DATE	7/25/2012
CLIENT	Willow Woods / Jim Yoviene	LOCATION	6636 Taylor Road, Hamburg
CONTRACTOR		TEST PIT NO.	TP-8
FIELD REP	D. R. Steiner	PROJECT NO.	BEV-12-040
		WEATHER / TEMP	SUNNY, 80's
EXCAVATION EQUIP	Rubber Track Excavator	OPERATOR	Matt
GROUND ELEV		MAKE/ MODEL	TAKEUCHI TB53FR
TIME STARTED	2:50	CAPACITY	0.5 CY
TIME FINISHED	3:15	REACH	12 FT

DEPTH	SOIL DESCRIPTION	EXCAV EFFORT	REMARK NO.
1'	Brown Clayey SILT, little f-c Sand, tr.gravel, tr.cobbles, tr.boulders, tr.wood (moist, FILL - reworked native soils)	E	
2'		E	
3'		M	
4'		E	
4.3' / 5'	Brown Clayey SILT, little f-c Sand, tr.gravel (moist, ML-CL)	E	
6'			
7'	Test Pit Terminated at 5.5'		
8'			
9'			
10			
11'			
12'			
13'			
14'			

Remarks:

No free standing water recorded at test pit completion.

100 Northeast of car, 30' North of washing machine in North side of mound.

ABREVIATIONS		PROP USED	
F - FINE	F/M - FINE TO MEDIUM	TRACE (TR.)	0-10%
C - COARSE	F/C-FINE/COARSE	LITTLE (LI.)	10 - 20%
GR - GRAY	M - MEDIUM	SOME (SO.)	20 -35%
BN - BROWN	V-VERY	AND	35 - 50%
YEL-YELLOW			

SJB SERVICES, INC.

Western New York Office
5167 South Park Avenue
Hamburg, NY 14075
Phone: (716) 649-8110
Fax: (716) 649-8051

TEST PIT FIELD LOG

PROJECT	Environmental Investigation	DATE	7/25/2012
CLIENT	Willow Woods / Jim Yoviene	LOCATION	6636 Taylor Road, Hamburg
CONTRACTOR		TEST PIT NO.	TP-9
FIELD REP	D. R. Steiner	PROJECT NO.	BEV-12-040
		WEATHER / TEMP	SUNNY, 80's
EXCAVATION EQUIP	Rubber Track Excavator	OPERATOR	Matt
GROUND ELEV		MAKE/ MODEL	TAKEUCHI TB53FR
TIME STARTED	3:20	CAPACITY	0.5 CY
TIME FINISHED	3:40	REACH	12 FT

DEPTH	SOIL DESCRIPTION	EXCAV EFFORT	REMARK NO.
1'	Brown Clayey SILT, little f-c Sand, tr.-little f-c Gravel (moist, ML-CL)	E	
2'		E	
3'		E	
3.2'	Red-Brown and Black SHALE		
4'	Test Pit Terminated at 3.6'		
5'			
6'			
7'			
8'			
9'			
10			
11'			
12'			
13'			
14'			

Remarks:

No free standing water recorded at test pit completion.

50' East of Test Pit #8, in lower area and 45' North of car near railroad tie

ABREVIATIONS		PROP USED	
F - FINE	F/M - FINE TO MEDIUM	TRACE (TR.)	0-10%
C - COARSE	F/C-FINE/COARSE	LITTLE (LI.)	10 - 20%
GR - GRAY	M - MEDIUM	SOME (SO.)	20 -35%
BN - BROWN	V-VERY	AND	35 - 50%
YEL-YELLOW			

PARADIGM

PARADIGM
ENVIRONMENTAL SERVICES, INC.

Analytical Report Cover Page

SJB Services, Inc.

For Lab Project # 12:3139
Issued July 31, 2012
This report contains a total of 9 pages

The reported results relate only to the samples as they have been received by the laboratory.

Any noncompliant QC parameters having impact on the data are flagged or documented on the final report or are noted below.

All soil/sludge samples have been reported on a dry weight basis, unless qualified "reported as received". Other solids are reported as received.

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The Chain of Custody provides additional information, including compliance with sample condition requirements upon receipt. Sample condition requirements are defined under the 2003 NELAC Standard, sections 5.5.8.3.1 and 5.5.8.3.2. Aliquots separated for certain tests, such as TCLP, are indicated on the Chain of Custody and final reports with an "A" suffix.

NYSDOH ELAP does not certify for all parameters. Paradigm Environmental Services or the indicated subcontracted laboratory does hold certification for all analytes where certification is offered by ELAP unless otherwise specified.

Data qualifiers are used, when necessary, to provide additional information about the data. This information may be communicated as a flag or as text at the bottom of the report. Please refer to the following list of frequently used data flags and their meaning:

"<" = analyzed for but not detected at or above the reporting limit.
"E" = Result has been estimated, calibration limit exceeded.
"Z" = See case narrative.
"D" = Duplicate results outside QC limits. May indicate a non-homogenous matrix.
"M" = Matrix spike recoveries outside QC limits. Matrix bias indicated.
"B" = Method blank contained trace levels of analyte. Refer to included method blank report.

PARADIGM
ENVIRONMENTAL SERVICES, INC.
179 Lake Avenue Rochester, New York 14608 (585) 647-2530 FAX (585) 647-3311

LABORATORY REPORT FOR TOTAL CYANIDE

Client:	**SJB Services, Inc.**	**Lab Project No.:**	12:3139
Client Job Site:	6636 Taylor Road	**Sample Type:**	Soil
Client Job No.:	BEV-12-040	**Date Sampled:**	7/25/2012
		Date Received:	7/26/2012
Method Reference:	EPA 335.4 / SW 9012	**Date Analyzed:**	7/30/2012

Lab Sample ID	Sample Location/Field ID	TCN (mg/kg)
12:3139-01	TP-1, 0-2.3'	<0.57

ELAP ID.No.: 10709

Comments:

Approved By: _____

Bruce Hoogesteger, Technical Director

This report is part of a multipage document and should only be evaluated in its entirety. The Chain of Custody provides additional sample information, including compliance with the sample condition requirements upon receipt

File ID: SJB 12-3139

PARADIGM
ENVIRONMENTAL SERVICES, INC.
179 Lake Avenue, Rochester, NY 14608 Office: (585) 647-2530 Fax: (585) 647-3311

LAB REPORT FOR TAL METALS ANALYSIS IN SOLIDS

Client: SJB Services, Inc.
Client Job Site: 6636 Taylor Road
Client Job No.: BEV-12-040
Field Location: TP-1, 0-2.3'
Field ID No.: N/A

Lab Project No.: 12:3139
Lab Sample No.: 12:3139-01
Sample Type: Soil
Date Sampled: 07/25/2012
Date Received: 07/26/2012

Parameter	Date Analyzed	Analytical Method	Result (mg/kg)
Aluminum	07/31/2012	SW846 3050/6010	18800
Antimony	07/31/2012	SW846 3050/6010	< 6.31
Arsenic	07/31/2012	SW846 3050/6010	9.94
Barium	07/31/2012	SW846 3050/6010	132
Beryllium	07/31/2012	SW846 3050/6010	0.970
Cadmium	07/31/2012	SW846 3050/6010	< 0.526
Calcium	07/31/2012	SW846 3050/6010	2010
Chromium	07/31/2012	SW846 3050/6010	22.3
Cobalt	07/31/2012	SW846 3050/6010	8.86
Copper	07/31/2012	SW846 3050/6010	40.6
Iron	07/31/2012	SW846 3050/6010	25800
Lead	07/31/2012	SW846 3050/6010	410
Magnesium	07/31/2012	SW846 3050/6010	2100
Manganese	07/31/2012	SW846 3050/6010	161
Mercury	07/30/2012	SW846 7471	0.0872
Nickel	07/31/2012	SW846 3050/6010	24.4
Potassium	07/31/2012	SW846 3050/6010	1550
Selenium	07/31/2012	SW846 3050/6010	< 1.05
Silver	07/31/2012	SW846 3050/6010	< 1.05
Sodium	07/31/2012	SW846 3050/6010	< 263
Thallium	07/31/2012	SW846 3050/6010	< 2.63
Vanadium	07/31/2012	SW846 3050/6010	44.4
Zinc	07/31/2012	SW846 3050/6010	172

ELAP ID No.:10958

Comments: The laboratory control spike was outside QC limits for Ca.

Approved By: _____
Bruce Hoogesteger, Technical Director

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File ID:12-3139.xls

PARADIGM
179 Lake Avenue Rochester, New York 14608 (585) 647 - 2530 FAX (585) 647 - 3311

PCB Analysis Report for Soils/Solids/Sludges

Client: SJB Services, Inc.

Client Job Site:	6636 Taylor Road	**Lab Project Number:**	12:3139
		Lab Sample Number:	12:3139-01
Client Job Number:	BEV-12-040		
Field Location:	TP-1,0-2.3'	**Date Sampled:**	07/25/2012
Field ID Number:	N/A	**Date Received:**	07/26/2012
Sample Type:	Soil	**Date Analyzed:**	07/31/2012

PCB Identification	Results in mg / Kg
Aroclor 1016	< 0.421
Aroclor 1221	< 0.421
Aroclor 1232	< 0.421
Aroclor 1242	< 0.421
Aroclor 1248	< 0.421
Aroclor 1254	< 0.421
Aroclor 1260	< 0.421

ELAP Number 10958

Analytical Method: EPA 8082A
Prep Method: EPA 3550C

Comments: mg / Kg = milligram per Kilogram

Signature: _____

Bruce Hoogesteger: Technical Director

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PARADIGM ENVIRONMENTAL SERVICES, INC.
179 Lake Avenue Rochester, New York 14608 (585) 647 - 2530 FAX (585) 647 - 3311

Semi-Volatile Analysis Report for Soils/Solids/Sludges

Client: SJB Services, Inc.

Client Job Site:	6636 Taylor Road	**Lab Project Number:**	12:3139
		Lab Sample Number:	12:3139-01
Client Job Number:	BEV-12-040		
Field Location:	TP-1,0-2.3'	**Date Sampled:**	07/25/2012
Field ID Number:	N/A	**Date Received:**	07/26/2012
Sample Type:	Soil	**Date Analyzed:**	07/28/2012

Base / Neutrals	Results in ug / Kg	Base / Neutrals	Results in ug / Kg
Acenaphthene	< 319	Dibenz (a,h) anthracene	< 319
Anthracene	< 319	Fluoranthene	< 319
Benzo (a) anthracene	< 319	Fluorene	< 319
Benzo (a) pyrene	< 319	Indeno (1,2,3-cd) pyrene	< 319
Benzo (b) fluoranthene	< 319	Naphthalene	< 319
Benzo (g,h,i) perylene	< 319	Phenanthrene	< 319
Benzo (k) fluoranthene	< 319	Pyrene	< 319
Chrysene	< 319	Acenaphthylene	< 319
Diethyl phthalate	< 319	1,2-Dichlorobenzene	< 319
Dimethyl phthalate	< 798	1,3-Dichlorobenzene	< 319
Butylbenzylphthalate	< 319	1,4-Dichlorobenzene	< 319
Di-n-butyl phthalate	< 319	1,2,4-Trichlorobenzene	< 319
Di-n-octylphthalate	< 319	Nitrobenzene	< 319
Bis (2-ethylhexyl) phthalate	< 319	2,4-Dinitrotoluene	< 319
2-Chloronaphthalene	< 319	2,6-Dinitrotoluene	< 319
Hexachlorobenzene	< 319	Bis (2-chloroethyl) ether	< 319
Hexachloroethane	< 319	Bis (2-chloroisopropyl) ether	< 319
Hexachlorocyclopentadiene	< 319	Bis (2-chloroethoxy) methane	< 319
Hexachlorobutadiene	< 319	4-Bromophenyl phenyl ether	< 319
N-Nitroso-di-n-propylamine	< 319	4-Chlorophenyl phenyl ether	< 319
N-Nitrosodiphenylamine	< 319	Benzidine	< 798
N-Nitrosodimethylamine	< 319	3,3'-Dichlorobenzidine	< 319
Isophorone	< 319	4-Chloroaniline	< 319
Benzyl alcohol	< 798	2-Nitroaniline	< 798
Dibenzofuran	< 319	3-Nitroaniline	< 798
2-Methylnapthalene	< 319	4-Nitroaniline	< 798

Acids	Results in ug / Kg	Acids	Results in ug / Kg
Phenol	< 319	2-Methylphenol	< 319
2-Chlorophenol	< 319	3&4-Methylphenol	< 319
2,4-Dichlorophenol	< 319	2,4-Dimethylphenol	< 319
2,6-Dichlorophenol	< 319	2-Nitrophenol	< 319
2,4,5-Trichlorophenol	< 798	4-Nitrophenol	< 798
2,4,6-Trichlorophenol	< 319	2,4-Dinitrophenol	< 798
Pentachlorophenol	< 798	4,6-Dinitro-2-methylphenol	< 798
4-Chloro-3-methylphenol	< 319	Benzoic acid	< 798

ELAP Number 10958 | Analytical Method: EPA 8270C | Data File: S64326A.D

Prep Method: EPA 3550C

Comments: ug / Kg = microgram per Kilogram

Signature: _____

Bruce Hoogesteger: Technical Director

This report is part of a multipage document and should only be evaluated in its entirety. Chain of Custody provides additional information, including compliance with sample condition requirements upon receipt.

PARADIGM
179 Lake Avenue Rochester, New York 14608 (585) 647 - 2530 FAX (585) 647 - 3311

Volatile Analysis Report for Soils/Solids/Sludges

Client: SJB Services, Inc.

Client Job Site:	6636 Taylor Road	**Lab Project Number:**	12:3139
		Lab Sample Number:	12:3139-01
Client Job Number:	BEV-12-040		
Field Location:	TP-1,0-2.3'	**Date Sampled:**	07/25/2012
Field ID Number:	N/A	**Date Received:**	07/26/2012
Sample Type:	Soil	**Date Analyzed:**	07/30/2012

Halocarbons	Results in ug / Kg
Bromodichloromethane	< 9.27
Bromomethane	< 9.27
Bromoform	< 23.2
Carbon Tetrachloride	< 9.27
Chloroethane	< 9.27
Chloromethane	< 9.27
2-Chloroethyl vinyl Ether	< 46.3
Chloroform	< 9.27
Dibromochloromethane	< 9.27
1,1-Dichloroethane	< 9.27
1,2-Dichloroethane	< 9.27
1,1-Dichloroethene	< 9.27
cis-1,2-Dichloroethene	< 9.27
trans-1,2-Dichloroethene	< 9.27
1,2-Dichloropropane	< 9.27
cis-1,3-Dichloropropene	< 9.27
trans-1,3-Dichloropropene	< 9.27
Methylene chloride	< 23.2
1,1,2,2-Tetrachloroethane	< 9.27
Tetrachloroethene	< 9.27
1,1,1-Trichloroethane	< 9.27
1,1,2-Trichloroethane	< 9.27
Trichloroethene	< 9.27
Trichlorofluoromethane	< 9.27
Vinyl chloride	< 9.27

Aromatics	Results in ug / Kg
Benzene	< 9.27
Chlorobenzene	< 9.27
Ethylbenzene	< 9.27
Toluene	< 9.27
m,p-Xylene	< 9.27
o-Xylene	< 9.27
Styrene	< 23.2
1,2-Dichlorobenzene	< 9.27
1,3-Dichlorobenzene	< 9.27
1,4-Dichlorobenzene	< 9.27

Ketones	Results in ug / Kg
Acetone	63.6
2-Butanone	< 46.3
2-Hexanone	< 23.2
4-Methyl-2-pentanone	< 23.2

Miscellaneous	Results in ug / Kg
Carbon disulfide	< 9.27
Vinyl acetate	< 23.2

ELAP Number 10958 Method: EPA 8260B Data File: V99219.D

Comments: ug / Kg = microgram per Kilogram

Signature:

Bruce Hoogesteger: Technical Director

This report is part of a multipage document and should only be evaluated in its entirety. Chain of Custody provides additional information, including compliance with sample condition requirements upon receipt.

PARADIGM ENVIRONMENTAL SERVICES, INC.

179 Lake Avenue
Rochester, NY 14608
(585) 647-2530 • (800) 724-1997
FAX: (585) 647-3311

CHAIN OF CUSTODY

REPORT TO:	INVOICE TO:	
COMPANY: EMPIRE GEO	COMPANY: -SAME-	LAB PROJECT #: 12:3139 / CLIENT PROJECT #: BEV-12-040
ADDRESS:	ADDRESS:	
CITY: HAMBURG STATE: ZIP:	CITY: STATE: ZIP:	TURNAROUND TIME: (WORKING DAYS) * RUSH - 3 DAY * NEED BY JULY 31st, 2012 * OTHER
PHONE: 716-649-8110 FAX: 716-357-5613 CELL	PHONE: FAX:	1 2 X 3 5
ATTN: DAVE STEINER	ATTN:	QUOTE #:
COMMENTS:		
PROJECT NAME/SITE NAME: 6636 TAYLOR ROAD		

REQUESTED ANALYSIS

DATE	TIME	COMPOSITE	GRAB	SAMPLE LOCATION/FIELD ID	MATRIX	NUMBER CONTAINERS	TCL VOCs	TCL SVOCs	TAL METALS	CYANIDE	PCB	REMARKS	PARADIGM LAB SAMPLE NUMBER
7-25-12	1110	X		TP-1, 0-2.3'	SOIL	2	X	X	X	X	X		01
2													
3													
4													
5													
6													
7													
8													
9													
10													

LAB USE ONLY BELOW THIS LINE

Sample Condition: Per NELAC/ELAP 210/241/242/243/244

Receipt Parameter	NELAC Compliance	
Container Type: Comments:	Y	N
Preservation: Comments:	Y	N
Holding Time: Comments:	Y	N
Temperature: Comments: Iced	Y	N

Sampled By: David R. Stein	7-25-12/1110	Date/Time
Relinquished By: David R. Stein		Date/Time
Received By:	7-26-12 8:46	Date/Time
Received @ Lab By: Molly Weil	7/26/12 1410	Date/Time

Total Cost:

P.I.F.

PARADIGM

Chain of Custody Supplement

Client: Empire Geo Completed by: M

Lab Project ID: _____ Date: 7/26/12

Sample Condition Requirements

Per NELAC/ELAP 210/241/242/243/244

Condition	NELAC compliance with the sample condition requirements upon receipt: Yes	No	N/A
Container Type	X		
Comments			
Transferred to method-compliant container			X
Headspace (<1 mL)			X
Comments			
Preservation			X
Comments			
Chlorine Absent (<0.05 ppm per test strip)			X
Comments			
Holding Time	X		
Comments			
Temperature	X		
Comments	3°C iced temp		
Sufficient Sample Quantity	X		
Comments			

179 Lake Avenue, Rochester, NY 14608 Office (585) 647-2530 Fax (585) 647-3311

PARADIGM ENVIRONMENTAL SERVICES, INC.

120727027

CHAIN OF CUSTODY

AdK ELAP ID: 10478

REPORT TO:		INVOICE TO:			
COMPANY:	Paradigm Environmental	COMPANY:	Same	LAB PROJECT #:	CLIENT PROJECT #:
ADDRESS:		ADDRESS:			
CITY: STATE: ZIP:		CITY: STATE: ZIP:		TURNAROUND TIME: (WORKING DAYS)	
PHONE: FAX:		PHONE: FAX:		Rush	STD / OTHER
ATTN:	Jane Daloia	ATTN:	Meridith Dillman	1 / 2 / 3 / 5	
COMMENTS:	Please email results to khansen@paradigmenv.com and jdaloia@paradigmenv.com			Date Due: 7/31	

PROJECT NAME/SITE NAME:

REQUESTED ANALYSIS

DATE	TIME	COMPOSITE	GRAB	SAMPLE LOCATION/FIELD ID	MATRIX	NUMBER CONTAINERS	T. Cyanide									REMARKS	PARADIGM LAB SAMPLE NUMBER
1 7/25/12	1110			12:3139-01	Soil	1	X										01
2																	
3																	
4																	
5																	
6																	
7																	
8																	
9																	
10																	

LAB USE ONLY BELOW THIS LINE

Sample Condition: Per NELAC/ELAP 210/241/242/243/244

Receipt Parameter		NELAC Compliance	
Container Type:	not from AES	Y ☐	N ☐
Comments:			
Preservation:		Y ☑	N ☐
Comments:			
Holding Time:		Y ☑	N ☐
Comments:			
Temperature:	14°c	Y ☑	N ☐
Comments:			

Client

Sampled By: Molly Vail Date/Time: 7/26/12 1600

Relinquished By: Fedex Date/Time:

Received By: [signature] Date/Time: 7-27-12 11:00 AM

Received @ Lab By: Date/Time:

Total Cost:

P.I.F.

EXHIBIT 3

LIMITED AND FOCUSED SUBSURFACE SOIL & GROUNDWATER INVESTIGATION REPORT
APRIL 26, 2012

By: LCS, Inc.

LCS INC.
Environmental and Real Estate Consultants

Limited and Focused Subsurface Soil & Groundwater Investigation Report for the Property Identified as:

Fallow Land
6636 Taylor Road
Hamburg, New York

LCS PROJECT # 12B943.22

APRIL 26, 2012

LCS INC.
Environmental and Real Estate Consultants

Lender Consulting Services, Inc.
Corporate Headquarters
Waterfront Village
40 La Riviere Drive Suite 120
Buffalo, New York 14202

Tel: 800.474.6802
716.845.6145
Fax: 716.845.6164
www.lenderconsulting.com

April 26, 2012

Mr. Jim Yoviene
c/o Sellmore Industries
815 Smith Street
Buffalo, New York 14206

Re: Limited and Focused Subsurface Soil & Groundwater Investigation
Fallow Land
6636 Taylor Road
Hamburg, New York
LCS Project #12B943.22

Dear Mr. Yoviene:

Background
At your request, Lender Consulting Services, Inc. (LCS) performed a limited and focused subsurface soil and groundwater investigation, at the fallow land, located at 6636 Taylor Road, Hamburg, New York (See Figure 1). The subject property contemplated for residential development measures approximately 41.7 acres. The topography of the site generally slopes to the south-southwest.

According to a Soil and Water Sampling Program report, prepared by Niagara Frontier Consulting Services, Inc. (NFCS), dated December 6, 1994, the former landfill was observed to contain various metal parts, automotive parts, tires and miscellaneous municipal trash. According to NFCS, review of aerial photographs suggested the landfill was in operation from approximately 1951-1966.

In an effort to assess the potential for discharges from the landfill, NFCS performed the following services:

- Collection of two soil samples: one from within the landfill and a second sample from adjacent to the landfill. Soil samples were collected utilizing a hand auger to depths of 4-6 feet below the ground surface.
- Collection of two water samples: one from a drainage way adjacent to the landfill and a second sample from the west adjacent wetland area.
- Laboratory analysis of two soil and two water samples for volatile organic compounds (VOCs), Semi-0volatile organic compounds (SVOCs) metals, corrosivity, reactivity and ignitability. VOCs, SVOCs and metals were analyzed via Toxicity Characteristic Leaching Procedure (TCLP).

NFCS concluded that "All parameters analyzed for were detected at or below the laboratory detections limit within the exception of barium which was detected within regulatory limits."

Introduction
The purpose of this intrusive study was to better assess the environmental quality of on-site soils and groundwater (when encountered) in accessible locations of the subject property due to the former municipal landfill. Soil samples were collected for stratigraphic characterization and field monitoring. A permanent groundwater monitoring well (MW) was installed within a select test boring where groundwater was encountered. Select soil and groundwater samples were submitted for laboratory analysis to supplement field observations.

The work completed is generally consistent with LCS' March 7, 2012, proposal to Mr. Jim Yoviene, authorized on March 11, 2012 with the following exceptions. LCS had originally planned on installing four permanent groundwater monitoring wells proximate between the proposed residential development and the landfill; however, only one permanent groundwater monitoring wells was installed, as groundwater was not encountered in many of the test borings prior to encountering underlying bedrock which resulted in auger refusal. Additionally, the investigation was expanded to include one additional borehole.

The following is a summary of the methods and results of the investigation.

Methods of Investigation

Soil

Soil samples were collected on March 21 and March 22, 2012, with a CME all-terrain vehicle-mounted hollow stem auger drilling rig equipped with an approximate 4.25-inch inside-diameter, hollow stem augers. Soil samples were collected within each borehole continuously from the ground surface until equipment refusal was encountered, generally between a depth of approximately 3.8 and 12 feet below the ground surface (ft. bgs), using a 2-inch diameter 24 – inch long split-spoon sampler. Any downhole equipment was decontaminated with an Alconox and hot water high pressure tap water wash and tap water rinse between boreholes. The split – spoon samplers were decontaminated in a similar manner between collection of each sample.

The physical characteristics of all soil samples were classified using the Unified Soil Classification System (USCS) (Visual-Manual Method) as a guide and placed in separate sealable containers to allow any vapors to accumulate in the headspace. After several minutes, the container was opened slightly and total volatile organic compound (VOC) concentrations in air within the sample container were measured using a photoionization detector (PID). (The PID is designed to detect VOCs, such as those associated with petroleum and some solvents.) Based on the field observations and/or screening results, soils were selected for analysis (see below).

Groundwater

Permanent groundwater monitoring well MW1 was installed within borehole BH1. Generally, the bottom of the well was set to 12 ft. bgs. The well was constructed with two-inch diameter PVC screen and riser with a silica filter pack placed around the well screen. A bentonite seal was placed above the sand and the well was covered with a plastic cap, to prevent surface water from entering the well. Refer to the attached subsurface logs/well construction details for well specific well construction details.

The well was initially developed on March 30, 2012, in an effort to reestablish the hydraulic conductivity of the well with the surrounding soils. The monitoring well was then allowed to site for a few days prior to sampling. The groundwater sample from groundwater monitoring well MW1 was collected on April 3, 2012. Prior to sample collection, the well was again developed by removing three to five well volumes from the monitoring well while monitoring for pH, conductivity, turbidity, oxidation reduction potential (ORP), temperature, color and odor. A submersible pump was used for well development. A new disposable dedicated PVC bailer was used for sample collection activities. A peristaltic pump and new dedicated and disposable PVC and silicone tubing was used to collect samples for metals analysis only in an effort to minimize turbidity within the sample.

Sample Analysis

Following labeling of the laboratory-supplied sample containers, selected samples were placed on ice. The samples were then submitted, under standard chain-of-custody, to a New York State Department of Health (NYSDOH) approved laboratory for analysis in accordance with the United States Environmental Protection agency (USEPA) SW-846 Methods as summarized below.

The following table summarizes the specific analytical testing performed and their respective sample locations.

Sample Location	Analytical Testing Performed	Recognized Environmental Condition
Soil		
BH1 (10-11.25 ft. bgs)	TCL VOCs, TCL SVOCs, TAL Metals, Cyanide, PCBs, Pesticides and Herbicides	Historic municipal landfill
BH2 (4-6 ft. bgs)		
BH3 (2-4 ft. bgs)		
BH4 (2-4 ft. bgs)		
BH5 (2-4 ft. bgs)		
Water		
MW1	TCL VOCs, TCL SVOCs, TAL Metals, Cyanide, PCBs, Pesticides and Herbicides	Historic municipal landfill

ft. bgs = feet below ground surface
TCL VOCs = Target Compound List volatile organic compounds via USEPA Test Method 8260
TCL SVOCs = Target Compound List semi-volatile organic compounds via USEPA Test Method 8270
TAL Metals = Target Analyte List Metals via USEPA Test Method 6010/7470
Cyanide = Cyanide via USEPA Test Method 9012
PCBs = Polychlorinated biphenyls via USEPA Test Method 8082
Pesticides = Pesticides via USEPA Test Method 8081
Herbicides = Herbicides via USEPA Test Method 8151

Results of Field Investigation

Five boreholes (BH1 through BH5) were completed in accessible areas of the subject property proximate to the environmental concerns. (See Figure 2.) A total of 17 soil samples were collected for geologic description. Generally, the native soils encountered consisted of varying mixtures of gravel, sand, silt, and clay to the bottom of the test borings. Apparent groundwater was encountered in BH1 at approximately 9 ft. bgs. No evidence of groundwater was encountered within the remaining boreholes prior to encountering equipment refusal (bedrock).

Equipment refusal was encountered within all of the test borings between approximately 3.8 and 12 ft. bgs. The cause of the equipment refusal appears to be the results of shallow underlying shale bedrock. Based on surveying of the site, it appears that bedrock slopes to the west.

PID measurements were above total ambient air background VOC measurements (i.e., 0.0 parts per million, ppm) in 6 of the 17 soil samples collected. These elevated concentrations ranged from 0.4 parts per million (ppm) to 6.5 ppm (BH2, ~4-6.8 ft. bgs). No petroleum-type odors or staining were detected in any of the soil samples collected. In LCS' experience, the PID measurements and field observations do not suggest the obvious presence of chemical impact proximate to areas investigated.

Refer to the attached subsurface logs for soil classification for each sample interval, field observations and PID measurements.

Investigation Analytical Results

The soil and groundwater samples collected and analyzed detected the following analytes. The respective concentrations as well as applicable regulatory guidance values are also listed for comparison. Analytes not detected are not shown.

SOIL TESTING RESULTS

TCL VOCs by USEPA SW-846 Method 8260

Sample ID	BH1	BH2	BH3	BH4	BH5	Part 375 (Unrestricted) Soil Cleanup Objectives	Part 375 (Residential) Soil Cleanup Objectives
Date Sampled	3/21/2012	3/21/2012	3/21/2012	3/22/2012	3/22/2012		
Sample Depth	10-11.25 ft. bgs	4-6 ft. bgs	2-4 ft. bgs	2-4 ft. bgs	2-4 ft. bgs		
Units	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg
Methyl cyclohexane	<5.7	<5.8	<5.9	<5.9	5.9	NL	NL

µg/kg = micrograms per kilogram
ft. bgs = feet below ground surface
NL = Not Listed
Part 375 Unrestricted and Residential Soil Cleanup Objectives = New York State Department of Environmental Conservation 6 NYCRR Part 375 Environmental Remediation Programs, December 14, 2006 (375-6.8, Soil Cleanup Objective Tables)

TCL SVOCs by USEPA SW-846 Method 8270

Sample ID	BH1	BH2	BH3	BH4	BH5	Part 375 (Unrestricted) Soil Cleanup Objectives	Part 375 (Residential) Soil Cleanup Objectives
Date Sampled	3/21/2012	3/21/2012	3/21/2012	3/22/2012	3/22/2012		
Sample Depth	10-11.25 ft. bgs	4-6 ft. bgs	2-4 ft. bgs	2-4 ft. bgs	2-4 ft. bgs		
Units	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg
Acenaphthene	43	<38	<39	<39	<36	20,000	100,000
Phenanthrene	260	<38	<39	<39	<36	100,000	100,000
Fluoranthene	1,000	<38	<39	<39	<36	100,000	100,000
Pyrene	540	<38	<39	<39	<36	100,000	100,000
Chrysene	240	<38	<39	<39	<36	1,000	1,000
Benzo(b)fluoranthene	270	<38	<39	<39	<36	1,000	1,000
Benzo(k)fluoranthene	120	<38	<39	<39	<36	800	1,000
Benzo(a)pyrene	170	<38	<39	<39	<36	1,000	1,000
Indeno (1,2,3-cd) pyrene	74	<38	<39	<39	<36	500	500
Benzo(a)anthracene	220	<38	<39	<39	<36	1,000	1,000
Benzo(g,h,i)perylene	68	<38	<39	<39	<36	100,000	100,000

µg/kg = micrograms per kilogram
ft. bgs = feet below ground surface
Part 375 Unrestricted and Residential Soil Cleanup Objectives = New York State Department of Environmental Conservation 6 NYCRR Part 375 Environmental Remediation Programs, December 14, 2006 (375-6.8, Soil Cleanup Objective Tables)

TAL Metals by USEPA SW-846 Methods 6010/7470

Sample ID	BH1	BH2	BH3	BH4	BH5	Eastern USA Background Concentrations	Part 375 (Unrestricted) Soil Cleanup Objectives	Part 375 (Residential) Soil Cleanup Objectives
Date Sampled	3/21/2012	3/21/2012	3/21/2012	3/22/2012	3/22/2012			
Sample Depth	10-11.25 ft. bgs	4-6 ft. bgs	2-4 ft. bgs	2-4 ft. bgs	2-4 ft. bgs			
Units	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Mercury- Total	<0.023	0.055	<0.024	0.025	<0.022	0.001-0.2	0.18	0.81
Arsenic- Total	3.6	5.6	3	3	7.4	3-12*	13	16
Barium- Total	57	420	88	120	120	15-600	350	350
Cadmium- Total	0.44	0.64	0.35	<0.3	<0.28	0.1-1	2.5	2.5
Chromium- Total	23	22	22	29	26	1.5-40*	1/30[1]	22/36[1]
Lead- Total	6.7	230	36	26	22	**	63	400
Selenium- Total	<2.3 O	<2.3	<1.2	13	11	0.1-3.9	3.9	36
Aluminum	18,000	18,000	16,000	20,000	19,000	NL	NL	NL
Antimony	1.8	1.7	1.6	<5.9 O	<5.0 O	NL	NL	NL
Beryllium	0.72	0.95	0.9	1	0.95	NL	7.2	14
Calcium	18,000	1,300	2,400	1,600	1,800	NL	NL	NL
Cobalt	18	19	19	21	19	NL	NL	NL
Copper	34	62	70	60	53	NL	50	270
Iron	39,000 B	41,000 B	36,000 B	42,000	38,000	NL	NL	NL
Magnesium	700	240	240	7,800	6,800	NL	NL	NL
Nickel	39	51	65	69	53	NL	30	140
Potassium	2,500	2,300	1,700	2,600	2,300	NL	NL	NL
Sodium	180	100	70	75	59	NL	NL	NL
Vanadium	24	23	25	27	24	NL	NL	NL
Zinc	60	140	58	66	59	NL	109	2,200

mg/kg = milligrams per kilogram
ft. bgs = feet below ground surface
NL = Not Listed
O = Sample diluted due to matrix interference that impaired the ability to make an accurate analytical determination. The detection limit is elevated in order to reflect the necessary dilution.
B = The indicated compound was found in the associated method blank as well as the laboratory sample.
* = New York State Background
1 = Hexavalent Chromium/Trivalent Chromium
Part 375 Unrestricted and Residential Soil Cleanup Objectives = New York State Department of Environmental Conservation 6 NYCRR Part 375 Environmental Remediation Programs, December 14, 2006 (375-6.8, Soil Cleanup Objective Tables)
= Analyte that is detected above the Part 375 Unrestricted criteria, but below Residential criteria.

Cyanide by USEPA SW-846 Method 9012
No analytes were detected above the laboratory's method detection limits.

PCBs by USEPA SW-846 Method 8082
No analytes were detected above the laboratory's method detection limits.

Pesticides by USEPA SW-846 Method 8081
No analytes were detected above the laboratory's method detection limits.

Herbicides by USEPA SW-846 Method 8151
No analytes were detected above the laboratory's method detection limits.

GROUNDWATER TESTING RESULTS

TCL VOCs by USEPA SW-846 Method 8260
No analytes were detected above the laboratory's method detection limits.

TCL SVOCs by USEPA SW-846 Method 8270
No analytes were detected above the laboratory's method detection limits.

Metals by USEPA SW-846 Methods 6010/7471A

Sample ID	MW1	NYSDEC Groundwater
Date Sampled	4/3/2012	Criteria (Class GA)
Units	mg/L	mg/L
Arsenic- Total	0.0016	0.025
Barium- Total	1.8	1
Aluminum	0.4	NL
Calcium	96	NL
Iron	1.3	300
Magnesium	26	35,000
Manganese	0.13	300
Potassium	3.8	NL
Sodium	52	20,000
Zinc	0.033	2,000

mg/L = milligrams per liter
NL = Not Listed
NYSDEC Groundwater Criteria (Class GA) = 6 NYCRR Part 703 (June 1998 and April 2000 Addendum)
= Analyte detected above the NYSDEC Groundwater Criteria.

Cyanide by USEPA SW-846 Method 9012
No analytes were detected above the laboratory's method detection limits.

PCBs by USEPA SW-846 Method 8082
No analytes were detected above the laboratory's method detection limits.

Pesticides by USEPA SW-846 Method 8081
No analytes were detected above the laboratory's method detection limits.

Herbicides by USEPA SW-846 Method 8151
No analytes were detected above the laboratory's method detection limits.

Conclusions

The purpose of this intrusive study was to better assess the environmental quality of on-site soils and groundwater (when encountered) in accessible locations of the subject property due to the former municipal landfill. Soil samples were collected for stratigraphic characterization and field monitoring. A permanent groundwater monitoring well (MW) was installed within a select test boring where groundwater was encountered. Select soil and groundwater samples were submitted for laboratory analysis to supplement field observations.

Based on the field observations, no elevated PID readings, or petroleum or solvent-type odors or staining were observed in any of the soil samples collected.

Based on the laboratory results, barium was identified in the soil sample collected from BH2 (4-6 ft. bgs) and within the groundwater collected from monitoring well MW1 (installed in BH1) above NYSDEC commonly applied regulatory criteria. Such may be naturally occurring, and would not typically pose concern if presented to the New York State Department of Environmental Conservation.

Recommendations

LCS recommends the installation of bedrock monitoring wells so that groundwater can be accessed and sampled for chemical impact that could potentially migrate through fractures within the bedrock and toward the and toward the planned residential development. Depending upon the results of that investigation LCS will provide recommendations for further work, if necessary.

Thank you for allowing LCS to service your environmental needs. If you have any questions or require additional information, please do not hesitate to call our office.

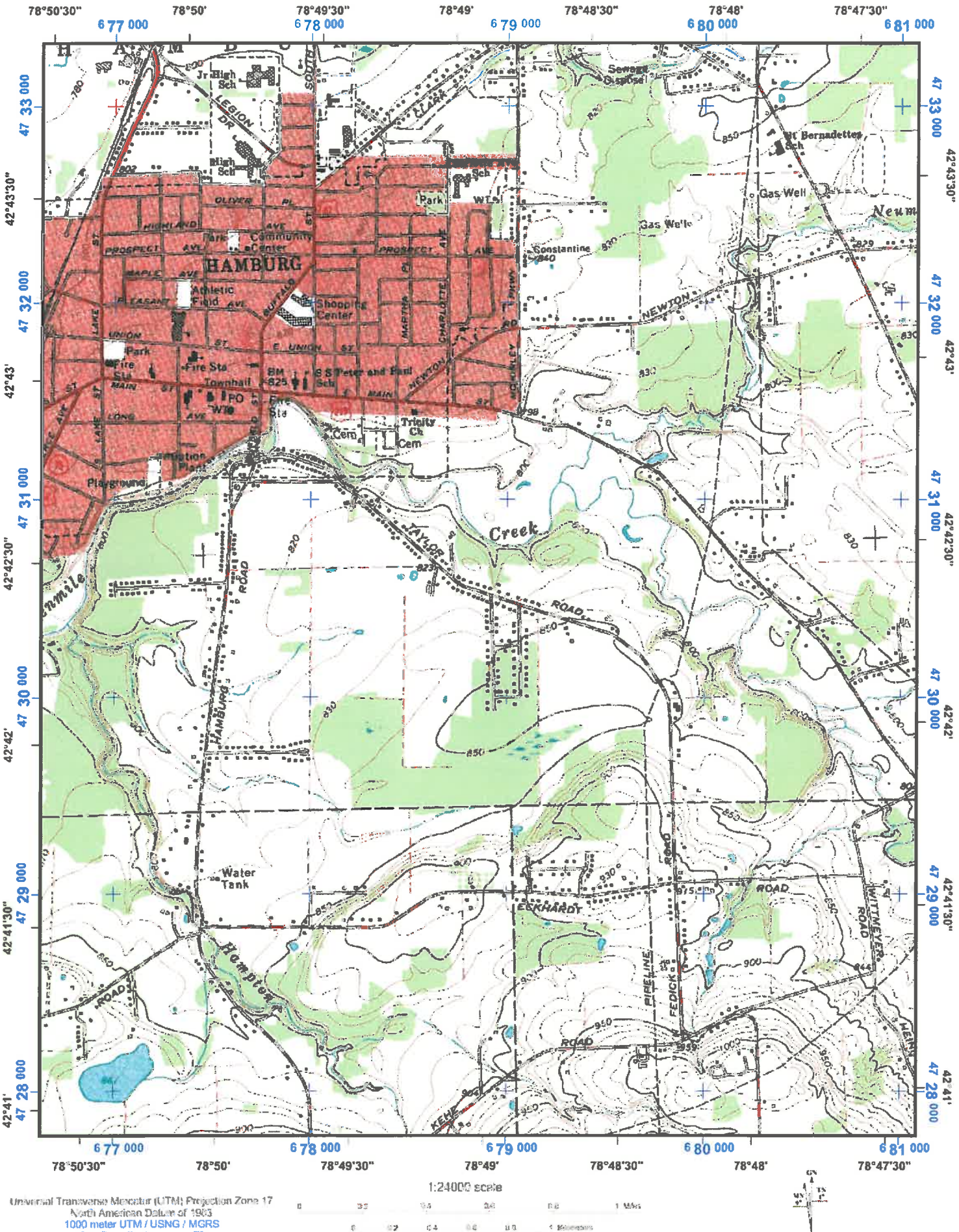
Sincerely,

Chris Kibler
Environmental Analyst/Technician

Reviewed by:

Douglas B. Reid
Sr. VP, Environmental Services
Sr. Environmental Scientist

SITE LOCATION MAP


78°50'30"
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HAMBURG
Jr High Sch
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Park
Community Center
Athletic Field
Shopping Center
Fire Sta
Townhall
PO
S S Peter and Paul Sch
Trinity Ch
Cem
Playground
Sewage Disposal
Gas Well
Constantine
Neum
Creek
TAYLOR
ROAD
HAMBURG
Water Tank
ECKHARDT
ROAD
PIPELINE
FEDICK
WITTMEYER
KEHE
Hampton
LEGION DR
SOUTH
CLARK
NEWTON
MAIN ST
E UNION ST
PROSPECT AVE
HIGHLAND AVE
OLIVER PL
MAPLE AVE
PLEASANT AVE
UNION ST
LONG AVE
LAKE ST
MARTHA
CHARLOTTE
MOCKLEY
BUFFALO
Sch
Cem
1:24000 scale
Universal Transverse Mercator (UTM) Projection Zone 17
North American Datum of 1983
1000 meter UTM / USNG / MGRS
Grid Zone Designation: 17T
100,000-m Squares:PH
Magnetic declination of 9W at center of map
on March 17, 2011

SUBSURFACE INVESTIGATION MAP

LCS INC.

FIGURE 2- SITE INVESTIGATION PLAN

6636 TAYLOR ROAD
HAMBURG, NEW YORK

Drawn by: DPT
Checked by: DBR
Not to Scale
LCS Project # 12B943.22

SUBSURFACE LOGS

LCS Inc. SUBSURFACE LOG

PROJECT/ LOCATION: 6636 Taylor Road, Hamburg, New York PROJECT No. 12B943.22

CLIENT: Jim Yoviene BORING/WELL No. BH1/MW-01

DATE STARTED: 3/21/0212 DATE COMPLETED: 3/21/2012 RECORDED BY: JR/CK

GROUNDWATER DEPTH WHILE DRILLING: ~9 ft. bgs AFTER COMPLETION: 1.8 ft. btoc

WEATHER: 82°F, Sunny DRILL RIG: CME ATV DRILLER: SJB Services, Inc.

DRILL SIZE/TYPE: 4.25 inch ID HSA SAMPLE HAMMER: WEIGHT 140 lbs. FALL 30 inches

Sample No.	PID/HNu Reading (ppm)	Depth (Feet)	Type *	Blows/6"	N	Recovery (Inches)	Material Classification and Description (Unified Soil Classification System-Visual Manual Method)
1	0.6	0-2	SS	WOH/1/3/4	4	12	0-3.5 ft: Dark brown silty clay (low plasticity, soft, moist)
2	0	2-4	SS	4/5/7/7	12	18	3.5-4 ft: Dark brown gravelly silty sand (medium, fine, medium dense, moist)
3	0	4-6	SS	6/9/12/12	21	23	4-6 ft: Dark brown silty clay (low plasticity, medium stiff, moist)
4	0	6-8	SS	12/14/15/15	29	20	6-9 ft: Blackish-grey silty clay (low plasticity, very stiff, moist)
5	0	8-10	SS	4/7/7/9	14	24	9-10 ft: Gray gravelly silt with shale fragments (no plasticity, wet)
6	0	10-11.3	SS	5/11/50-3	>50	12	10-11 ft: Gray silty gravel (fine, sub-angular, compact, wet)
7	0	11.3-12	SS	50-3	>50	6	11-12 ft: Grayish-black gravel (fine, angular, compact, wet)
							Equipment refusal encountered at 12 ft. bgs.

NOTES NA = Not Applicable

ft. bgs = feet below ground surface

No suspect odors detected

ft. btoc = feet below top of casing

WOH = Weight of hammer

*SS - SPLIT-SPOON SAMPLE U - UNDISTURBED TUBE P - PISTON TUBE C - CORE

LCS Inc. SUBSURFACE LOG

PROJECT/ LOCATION: 6636 Taylor Road, Hamburg, New York PROJECT No. 12B943.22

CLIENT: Jim Yoviene BORING/WELL No. BH2

DATE STARTED: 3/21/0212 DATE COMPLETED: 3/21/2012 RECORDED BY: JR/CK

GROUNDWATER DEPTH WHILE DRILLING: NA AFTER COMPLETION: NA

WEATHER: 82°F, Sunny DRILL RIG: CME ATV DRILLER: SJB Services, Inc.

DRILL SIZE/TYPE: 4.25 inch ID HSA SAMPLE HAMMER: WEIGHT 140 lbs. FALL 30 inches

Sample No.	PID/HNu Reading (ppm)	Depth (Feet)	Type *	Blows/6"	N	Recovery (Inches)	Material Classification and Description (Unified Soil Classification System-Visual Manual Method)
1	0	0-2	SS	WOH/1/2/4	3	14	0-2 ft: Brownish-gray clayey silt (no plasticity, moist)
2	0	2-4	SS	6/10/10/10	20	24	2-5 ft: Brown silty clay (low plasticity, very stiff, moist)
3	6.5	4-6	SS	5/8/48/4	56	18	5-6 ft: Brownish-gray clay with shale fragments (no plasticity, hard, moist)
4	-	6-6.8	SS	30/50-3	>50	0	6-6.8 ft: No recovery
							Equipment refusal encountered at 6.8 ft. bgs.

NOTES NA = Not Applicable WOH = Weight of hammer

ft. bgs = feet below ground surface No suspect odors detected

*SS - SPLIT-SPOON SAMPLE U - UNDISTURBED TUBE P - PISTON TUBE C - CORE

LCS Inc. SUBSURFACE LOG

PROJECT/ LOCATION: 6636 Taylor Road, Hamburg, New York PROJECT No. 12B943.22

CLIENT: Jim Yoviene BORING/WELL No. BH3

DATE STARTED: 3/21/0212 DATE COMPLETED: 3/21/2012 RECORDED BY: JR/CK

GROUNDWATER DEPTH WHILE DRILLING: NA AFTER COMPLETION: NA

WEATHER: 82°F, Sunny DRILL RIG: CME ATV DRILLER: SJB Services, Inc.

DRILL SIZE/TYPE: 4.25 inch ID HSA SAMPLE HAMMER: WEIGHT 140 lbs. FALL 30 inches

Sample No.	PID/HNu Reading (ppm)	Depth (Feet)	Type *	Blows/6"	N	Recovery (Inches)	Material Classification and Description (Unified Soil Classification System-Visual Manual Method)
1	0	0-2	SS	WOH/5/2	5	12	0-2 ft: Brown clayey silt (low plasticity, moist)
2	0.4	2-4	SS	11/16/18/52	34	24	2-4 ft: Brown clayey silt (no plasticity, moist)
3	-	4-4.8	SS	49/50-2	>50	-	4-4.8 ft: Grayish-black gravel with shale fragments (fine, angular, compact, moist) Equipment refusal encountered at 4.8 ft. bgs.

NOTES NA = Not Applicable WOH = Weight of hammer

ft. bgs = feet below ground surface No suspect odors detected

*SS - SPLIT-SPOON SAMPLE U - UNDISTURBED TUBE P - PISTON TUBE C - CORE

LCS Inc. SUBSURFACE LOG

PROJECT/ LOCATION: 6636 Taylor Road, Hamburg, New York PROJECT No. 12B943.22

CLIENT: Jim Yoviene BORING/WELL No. BH4

DATE STARTED: 3/22/0212 DATE COMPLETED: 3/22/2012 RECORDED BY: JR/CK

GROUNDWATER DEPTH WHILE DRILLING: NA AFTER COMPLETION: NA

WEATHER: 75°F, Cloudy DRILL RIG: CME ATV DRILLER: SJB Services, Inc.

DRILL SIZE/TYPE: 4.25 inch ID HSA SAMPLE HAMMER: WEIGHT 140 lbs. FALL 30 inches

Sample No.	PID/HNu Reading (ppm)	Depth (Feet)	Type*	Blows/6"	N	Recovery (Inches)	Material Classification and Description (Unified Soil Classification System-Visual Manual Method)
1	0	0-2	SS	WOH/WOH/1/3	1	14	0-3.75 ft: Brown clayey silt (low plasticity, moist)
2	1.9	2-4	SS	5/7/20/40	27	15	3.75-4.8 ft: Grayish-black gravel with shale fragments (fine, angular, compact, moist)
3	0.6	4-4.8	SS	42/50-3	>50	0.6	Equipment refusal encountered at 4.8 ft. bgs.

NOTES NA = Not Applicable WOH = Weight of hammer

ft. bgs = feet below ground surface No suspect odors detected

*SS - SPLIT-SPOON SAMPLE U - UNDISTURBED TUBE P - PISTON TUBE C - CORE

LCS Inc. SUBSURFACE LOG

PROJECT/ LOCATION: 6636 Taylor Road, Hamburg, New York PROJECT No. 12B943.22

CLIENT: Jim Yoviene BORING/WELL No. BH5

DATE STARTED: 3/22/0212 DATE COMPLETED: 3/22/2012 RECORDED BY: JR/CK

GROUNDWATER DEPTH WHILE DRILLING: NA AFTER COMPLETION: NA

WEATHER: 75°F, Cloudy DRILL RIG: CME ATV DRILLER: SJB Services, Inc.

DRILL SIZE/TYPE: 4.25 inch ID HSA SAMPLE HAMMER: WEIGHT 140 lbs. FALL 30 inches

Sample No.	PID/HNu Reading (ppm)	Depth (Feet)	Type *	Blows/6"	N	Recovery (Inches)	Material Classification and Description (Unified Soil Classification System-Visual Manual Method)
1	0.6	0-2	SS	WOH/WOH/4/10	4	15	0-3.5 ft: Brown silty clay (high plasticity, very soft, moist)
2	0	2-4	SS	10/15/35/50-3	50	15	3.5-3.8 ft: Grayish-black gravel with shale fragments (fine, angular, compact, moist) Equipment refusal encountered at 3.8 ft. bgs.

NOTES NA = Not Applicable WOH = Weight of hammer

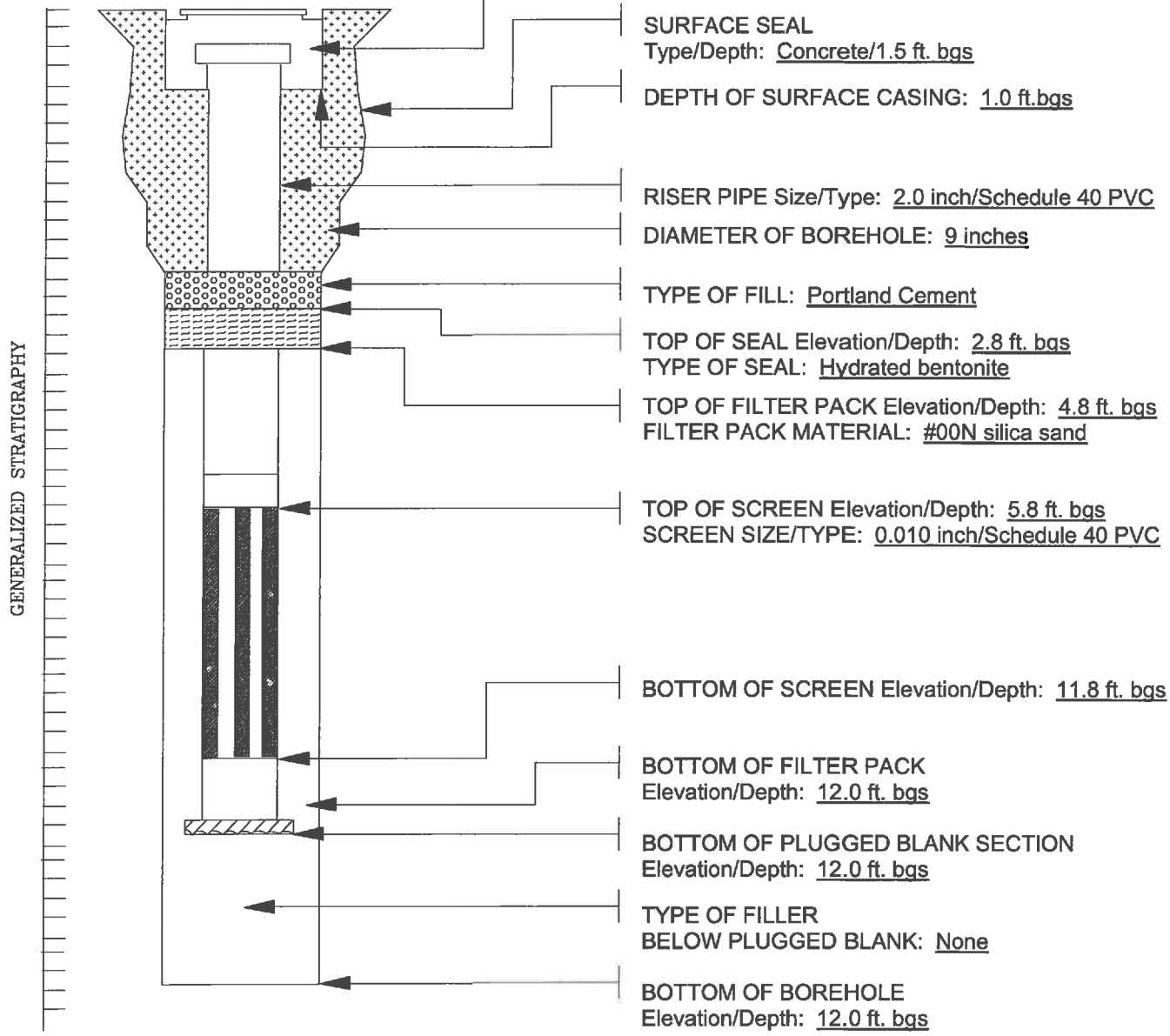
ft. bgs = feet below ground surface No suspect odors detected

*SS - SPLIT-SPOON SAMPLE U - UNDISTURBED TUBE P - PISTON TUBE C - CORE

WELL CONSTRUCTION DETAILS

LCS, Inc. WELL CONSTRUCTION DETAIL

PROJECT/LOCATION:	6636 Taylor Road, Hamburg, New York	PROJECT No.	12B943.22
CLIENT:	Jim Yoviene	WELL No.	MW-01
DATE COMPLETED:	3/21/2012	SUPERVISED BY:	JR/CK



NOTES

ANALYTICAL RESULTS

ESC
L·A·B S·C·I·E·N·C·E·S
YOUR LAB OF CHOICE

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Fax (615) 758-5859

Tax I.D. 62-0814289

Est. 1970

Mr. Doug Reid
Lender Consulting Services - NY
40 La Riviere Dr., Ste. 120
Buffalo, NY 14202

Report Summary

Thursday March 29, 2012

Report Number: L566305
Samples Received: 03/22/12
Client Project: 12B943.22

Description: Taylor Road, Hamburg, NY

The analytical results in this report are based upon information supplied by you, the client, and are for your exclusive use. If you have any questions regarding this data package, please do not hesitate to call.

Entire Report Reviewed By: Alan Harvill

T. Alan Harvill , ESC Representative

Laboratory Certification Numbers

A2LA - 1461-01, AIHA - 100789, AL - 40660, CA - 01157CA, CT - PH-0197, FL - E87487, GA - 923, IN - C-TN-01, KY - 90010, KYUST - 0016, NC - ENV375/DW21704/BIO041, ND - R-140. NJ - TN002, NJ NELAP - TN002, SC - 84004, TN - 2006, VA - 460132, WV - 233, AZ - 0612, MN - 047-999-395, NY - 11742, WI - 998093910, NV - TN000032011-1, TX - T104704245-11-3, OK - 9915, PA - 68-02979

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Tax I.D. 62-0814289

Est. 1970

REPORT OF ANALYSIS

Mr. Doug Reid
Lender Consulting Services - NY
40 La Riviere Dr., Ste. 120
Buffalo, NY 14202

March 29,2012

Date Received : March 22, 2012
Description : Taylor Road, Hamburg, NY

Sample ID : MW-01 10-11.25 FT

Collected By : JR/CK
Collection Date : 03/21/12 11:15

ESC Sample # : L566305-01

Site ID :

Project # : 12B943.22

Parameter	Dry Result	RDL	Units	Qualifier	Method	Date	Dil.
Cyanide	BDL	290	ug/kg		9012B	03/28/12	1
Total Solids	87.0		%		2540G	03/26/12	1
Mercury	BDL	23.	ug/kg		7471	03/23/12	1
Aluminum	18000000	5700	ug/kg		6010B	03/27/12	1
Antimony	1800	1100	ug/kg		6010B	03/27/12	1
Arsenic	3600	1100	ug/kg		6010B	03/27/12	1
Barium	57000	290	ug/kg		6010B	03/27/12	1
Beryllium	720	110	ug/kg		6010B	03/27/12	1
Cadmium	440	290	ug/kg		6010B	03/27/12	1
Calcium	18000000	29000	ug/kg		6010B	03/27/12	1
Chromium	23000	570	ug/kg		6010B	03/27/12	1
Cobalt	18000	570	ug/kg		6010B	03/27/12	1
Copper	34000	1100	ug/kg		6010B	03/27/12	1
Iron	39000000	5700	ug/kg	B	6010B	03/27/12	1
Lead	6700	280	ug/kg		6010B	03/27/12	1
Magnesium	9900000	5700	ug/kg		6010B	03/27/12	1
Manganese	700000	570	ug/kg		6010B	03/27/12	1
Nickel	39000	1100	ug/kg		6010B	03/27/12	1
Potassium	2500000	29000	ug/kg		6010B	03/27/12	1
Selenium	BDL	2300	ug/kg	O	6010B	03/27/12	2
Silver	BDL	570	ug/kg		6010B	03/27/12	1
Sodium	180000	29000	ug/kg		6010B	03/27/12	1
Thallium	BDL	1100	ug/kg		6010B	03/27/12	1
Vanadium	24000	570	ug/kg		6010B	03/27/12	1
Zinc	60000	1700	ug/kg		6010B	03/27/12	1
Volatile Organics							
Acetone	BDL	290	ug/kg		8260B	03/23/12	5
Benzene	BDL	5.7	ug/kg		8260B	03/23/12	5
Bromochloromethane	BDL	5.7	ug/kg		8260B	03/23/12	5
Bromodichloromethane	BDL	5.7	ug/kg		8260B	03/23/12	5
Bromoform	BDL	5.7	ug/kg		8260B	03/23/12	5
Bromomethane	BDL	29.	ug/kg		8260B	03/23/12	5
Carbon disulfide	BDL	5.7	ug/kg		8260B	03/23/12	5
Carbon tetrachloride	BDL	5.7	ug/kg		8260B	03/23/12	5
Chlorobenzene	BDL	5.7	ug/kg		8260B	03/23/12	5
Chlorodibromomethane	BDL	5.7	ug/kg		8260B	03/23/12	5
Chloroethane	BDL	29.	ug/kg		8260B	03/23/12	5

BDL - Below Detection Limit
Det. Limit - Practical Quantitation Limit(PQL)

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REPORT OF ANALYSIS

Mr. Doug Reid
Lender Consulting Services - NY
40 La Riviere Dr., Ste. 120
Buffalo, NY 14202

March 29,2012

ESC Sample # : L566305-01

Date Received : March 22, 2012
Description : Taylor Road, Hamburg, NY

Site ID :

Sample ID : MW-01 10-11.25 FT

Project # : 12B943.22

Collected By : JR/CK
Collection Date : 03/21/12 11:15

Parameter	Dry Result	RDL	Units	Qualifier	Method	Date	Dil.
Chloroform	BDL	29.	ug/kg		8260B	03/23/12	5
Chloromethane	BDL	14.	ug/kg		8260B	03/23/12	5
Cyclohexane	BDL	5.7	ug/kg		8260B	03/23/12	5
1,2-Dibromo-3-Chloropropane	BDL	29.	ug/kg		8260B	03/23/12	5
1,2-Dibromoethane	BDL	5.7	ug/kg		8260B	03/23/12	5
Dichlorodifluoromethane	BDL	29.	ug/kg		8260B	03/23/12	5
1,1-Dichloroethane	BDL	5.7	ug/kg		8260B	03/23/12	5
1,2-Dichloroethane	BDL	5.7	ug/kg		8260B	03/23/12	5
1,2-Dichlorobenzene	BDL	5.7	ug/kg		8260B	03/23/12	5
1,3-Dichlorobenzene	BDL	5.7	ug/kg		8260B	03/23/12	5
1,4-Dichlorobenzene	BDL	5.7	ug/kg		8260B	03/23/12	5
1,1-Dichloroethene	BDL	5.7	ug/kg		8260B	03/23/12	5
cis-1,2-Dichloroethene	BDL	5.7	ug/kg		8260B	03/23/12	5
trans-1,2-Dichloroethene	BDL	5.7	ug/kg		8260B	03/23/12	5
1,2-Dichloropropane	BDL	5.7	ug/kg		8260B	03/23/12	5
cis-1,3-Dichloropropene	BDL	5.7	ug/kg		8260B	03/23/12	5
trans-1,3-Dichloropropene	BDL	5.7	ug/kg		8260B	03/23/12	5
Ethylbenzene	BDL	5.7	ug/kg		8260B	03/23/12	5
2-Hexanone	BDL	57.	ug/kg		8260B	03/23/12	5
Isopropylbenzene	BDL	57.	ug/kg		8260B	03/23/12	5
2-Butanone (MEK)	BDL	57.	ug/kg		8260B	03/23/12	5
Methyl Acetate	BDL	110	ug/kg		8260B	03/23/12	5
Methyl Cyclohexane	BDL	5.7	ug/kg		8260B	03/23/12	5
Methylene Chloride	BDL	29.	ug/kg		8260B	03/23/12	5
4-Methyl-2-pentanone (MIBK)	BDL	57.	ug/kg		8260B	03/23/12	5
Methyl tert-butyl ether	BDL	5.7	ug/kg		8260B	03/23/12	5
Styrene	BDL	5.7	ug/kg		8260B	03/23/12	5
1,1,2,2-Tetrachloroethane	BDL	5.7	ug/kg		8260B	03/23/12	5
Tetrachloroethene	BDL	5.7	ug/kg		8260B	03/23/12	5
Toluene	BDL	29.	ug/kg		8260B	03/23/12	5
1,2,3-Trichlorobenzene	BDL	5.7	ug/kg		8260B	03/23/12	5
1,2,4-Trichlorobenzene	BDL	5.7	ug/kg		8260B	03/23/12	5
1,1,1-Trichloroethane	BDL	5.7	ug/kg		8260B	03/23/12	5
1,1,2-Trichloroethane	BDL	5.7	ug/kg		8260B	03/23/12	5
Trichloroethene	BDL	5.7	ug/kg		8260B	03/23/12	5
Trichlorofluoromethane	BDL	29.	ug/kg		8260B	03/23/12	5
1,1,2-Trichlorotrifluoroethane	BDL	5.7	ug/kg		8260B	03/23/12	5
Vinyl chloride	BDL	5.7	ug/kg		8260B	03/23/12	5
Xylenes, Total	BDL	17.	ug/kg		8260B	03/23/12	5
Surrogate Recovery							
Toluene-d8	104.		% Rec.		8260B	03/23/12	5

BDL - Below Detection Limit
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March 29,2012

Date Received : March 22, 2012
Description : Taylor Road, Hamburg, NY

Sample ID : MW-01 10-11.25 FT

Collected By : JR/CK
Collection Date : 03/21/12 11:15

ESC Sample # : L566305-01

Site ID :

Project # : 12B943.22

Parameter	Dry Result	RDL	Units	Qualifier	Method	Date	Dil.
Dibromofluoromethane	102.		% Rec.		8260B	03/23/12	5
4-Bromofluorobenzene	96.8		% Rec.		8260B	03/23/12	5
Pesticide/PCBs							
Aldrin	BDL	23.	ug/kg		8081/8082	03/29/12	1
Alpha BHC	BDL	23.	ug/kg		8081/8082	03/29/12	1
Beta BHC	BDL	23.	ug/kg		8081/8082	03/29/12	1
Delta BHC	BDL	23.	ug/kg		8081/8082	03/29/12	1
Gamma BHC	BDL	23.	ug/kg		8081/8082	03/29/12	1
Chlordane	BDL	230	ug/kg		8081/8082	03/29/12	1
4,4-DDD	BDL	23.	ug/kg		8081/8082	03/29/12	1
4,4-DDE	BDL	23.	ug/kg		8081/8082	03/29/12	1
4,4-DDT	BDL	23.	ug/kg		8081/8082	03/29/12	1
Dieldrin	BDL	23.	ug/kg		8081/8082	03/29/12	1
Endosulfan I	BDL	23.	ug/kg		8081/8082	03/29/12	1
Endosulfan II	BDL	23.	ug/kg		8081/8082	03/29/12	1
Endosulfan sulfate	BDL	23.	ug/kg		8081/8082	03/29/12	1
Endrin	BDL	23.	ug/kg		8081/8082	03/29/12	1
Endrin aldehyde	BDL	23.	ug/kg		8081/8082	03/29/12	1
Endrin ketone	BDL	23.	ug/kg		8081/8082	03/29/12	1
Heptachlor	BDL	23.	ug/kg		8081/8082	03/29/12	1
Heptachlor epoxide	BDL	23.	ug/kg		8081/8082	03/29/12	1
Hexachlorobenzene	BDL	23.	ug/kg		8081/8082	03/29/12	1
Methoxychlor	BDL	23.	ug/kg		8081/8082	03/29/12	1
Toxaphene	BDL	460	ug/kg		8081/8082	03/29/12	1
PCB 1016	BDL	20.	ug/kg		8081/8082	03/24/12	1
PCB 1221	BDL	20.	ug/kg		8081/8082	03/24/12	1
PCB 1232	BDL	20.	ug/kg		8081/8082	03/24/12	1
PCB 1242	BDL	20.	ug/kg		8081/8082	03/24/12	1
PCB 1248	BDL	20.	ug/kg		8081/8082	03/24/12	1
PCB 1254	BDL	20.	ug/kg		8081/8082	03/24/12	1
PCB 1260	BDL	20.	ug/kg		8081/8082	03/24/12	1
Pest/PCBs Surrogates							
Decachlorobiphenyl	29.3		% Rec.		8081/8082	03/24/12	1
Tetrachloro-m-xylene	29.6		% Rec.	J2	8081/8082	03/24/12	1
Herbicides							
2,4-D	BDL	80.	ug/kg		8151	03/27/12	1
Dalapon	BDL	920	ug/kg		8151	03/27/12	1
2,4-DB	BDL	80.	ug/kg		8151	03/27/12	1
Dicamba	BDL	80.	ug/kg		8151	03/27/12	1

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March 29,2012

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Description : Taylor Road, Hamburg, NY

Site ID :

Sample ID : MW-01 10-11.25 FT

Project # : 12B943.22

Collected By : JR/CK
Collection Date : 03/21/12 11:15

Parameter	Dry Result	RDL	Units	Qualifier	Method	Date	Dil.
Dichloroprop	BDL	80.	ug/kg		8151	03/27/12	1
Dinoseb	BDL	80.	ug/kg		8151	03/27/12	1
MCPA	BDL	7500	ug/kg		8151	03/27/12	1
MCPP	BDL	7500	ug/kg		8151	03/27/12	1
2,4,5-T	BDL	80.	ug/kg		8151	03/27/12	1
2,4,5-TP (Silvex)	BDL	80.	ug/kg		8151	03/27/12	1
Surrogate Recovery							
2,4-Dichlorophenyl Acetic Acid	69.8		% Rec.		8151	03/27/12	1
TCL Base/Neutral Extractables							
Acenaphthene	43.	38.	ug/kg		8270C	03/26/12	1
Acenaphthylene	BDL	38.	ug/kg		8270C	03/26/12	1
Acetophenone	BDL	380	ug/kg		8270C	03/26/12	1
Anthracene	BDL	38.	ug/kg		8270C	03/26/12	1
Atrazine	BDL	380	ug/kg		8270C	03/26/12	1
Benzaldehyde	BDL	380	ug/kg		8270C	03/26/12	1
Benzo(a)anthracene	220	38.	ug/kg		8270C	03/26/12	1
Benzo(b)fluoranthene	270	38.	ug/kg		8270C	03/26/12	1
Benzo(k)fluoranthene	120	38.	ug/kg		8270C	03/26/12	1
Benzo(g,h,i)perylene	68.	38.	ug/kg		8270C	03/26/12	1
Benzo(a)pyrene	170	38.	ug/kg		8270C	03/26/12	1
Biphenyl	BDL	380	ug/kg		8270C	03/26/12	1
Bis(2-chlorethoxy)methane	BDL	380	ug/kg		8270C	03/26/12	1
Bis(2-chloroethyl)ether	BDL	380	ug/kg		8270C	03/26/12	1
Bis(2-chloroisopropyl)ether	BDL	380	ug/kg		8270C	03/26/12	1
4-Bromophenyl-phenylether	BDL	380	ug/kg		8270C	03/26/12	1
Caprolactam	BDL	380	ug/kg		8270C	03/26/12	1
Carbazole	BDL	380	ug/kg		8270C	03/26/12	1
4-Chloroaniline	BDL	380	ug/kg		8270C	03/26/12	1
2-Chloronaphthalene	BDL	38.	ug/kg		8270C	03/26/12	1
4-Chlorophenyl-phenylether	BDL	380	ug/kg		8270C	03/26/12	1
Chrysene	240	38.	ug/kg		8270C	03/26/12	1
Dibenz(a,h)anthracene	BDL	38.	ug/kg		8270C	03/26/12	1
Dibenzofuran	BDL	380	ug/kg		8270C	03/26/12	1
3,3-Dichlorobenzidine	BDL	380	ug/kg		8270C	03/26/12	1
2,4-Dinitrotoluene	BDL	380	ug/kg		8270C	03/26/12	1
2,6-Dinitrotoluene	BDL	380	ug/kg		8270C	03/26/12	1
Fluoranthene	1000	38.	ug/kg		8270C	03/26/12	1
Fluorene	BDL	38.	ug/kg		8270C	03/26/12	1
Hexachlorobenzene	BDL	380	ug/kg		8270C	03/26/12	1
Hexachloro-1,3-butadiene	BDL	380	ug/kg		8270C	03/26/12	1

BDL - Below Detection Limit
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ESC Sample # : L566305-01

Site ID :

Project # : 12B943.22

Parameter	Dry Result	RDL	Units	Qualifier	Method	Date	Dil.
Hexachlorocyclopentadiene	BDL	380	ug/kg		8270C	03/26/12	1
Hexachloroethane	BDL	380	ug/kg		8270C	03/26/12	1
Indeno(1,2,3-cd)pyrene	74.	38.	ug/kg		8270C	03/26/12	1
Isophorone	BDL	380	ug/kg		8270C	03/26/12	1
2-Methylnaphthalene	BDL	38.	ug/kg		8270C	03/26/12	1
Naphthalene	BDL	38.	ug/kg		8270C	03/26/12	1
2-Nitroaniline	BDL	380	ug/kg		8270C	03/26/12	1
3-Nitroaniline	BDL	380	ug/kg		8270C	03/26/12	1
4-Nitroaniline	BDL	380	ug/kg		8270C	03/26/12	1
Nitrobenzene	BDL	380	ug/kg		8270C	03/26/12	1
n-Nitrosodiphenylamine	BDL	380	ug/kg		8270C	03/26/12	1
n-Nitrosodi-n-propylamine	BDL	380	ug/kg		8270C	03/26/12	1
Phenanthrene	260	38.	ug/kg		8270C	03/26/12	1
Benzylbutyl phthalate	BDL	380	ug/kg		8270C	03/26/12	1
Bis(2-ethylhexyl)phthalate	BDL	380	ug/kg		8270C	03/26/12	1
Di-n-butyl phthalate	BDL	380	ug/kg		8270C	03/26/12	1
Diethyl phthalate	BDL	380	ug/kg		8270C	03/26/12	1
Dimethyl phthalate	BDL	380	ug/kg		8270C	03/26/12	1
Di-n-octyl phthalate	BDL	380	ug/kg		8270C	03/26/12	1
Pyrene	540	38.	ug/kg		8270C	03/26/12	1
1,2,4,5-Tetrachlorobenzene	BDL	380	ug/kg		8270C	03/26/12	1
TCL Acid Extractables							
4-Chloro-3-methylphenol	BDL	380	ug/kg		8270C	03/26/12	1
2-Chlorophenol	BDL	380	ug/kg		8270C	03/26/12	1
2-Methylphenol	BDL	380	ug/kg		8270C	03/26/12	1
3&4-Methyl Phenol	BDL	380	ug/kg		8270C	03/26/12	1
2,4-Dichlorophenol	BDL	380	ug/kg		8270C	03/26/12	1
2,4-Dimethylphenol	BDL	380	ug/kg		8270C	03/26/12	1
4,6-Dinitro-2-methylphenol	BDL	380	ug/kg		8270C	03/26/12	1
2,4-Dinitrophenol	BDL	380	ug/kg		8270C	03/26/12	1
2-Nitrophenol	BDL	380	ug/kg		8270C	03/26/12	1
4-Nitrophenol	BDL	380	ug/kg		8270C	03/26/12	1
Pentachlorophenol	BDL	380	ug/kg		8270C	03/26/12	1
Phenol	BDL	380	ug/kg		8270C	03/26/12	1
2,4,5-Trichlorophenol	BDL	380	ug/kg		8270C	03/26/12	1
2,4,6-Trichlorophenol	BDL	380	ug/kg		8270C	03/26/12	1
Surrogate Recovery							
Nitrobenzene-d5	92.8		% Rec.		8270C	03/26/12	1
2-Fluorobiphenyl	111.		% Rec.		8270C	03/26/12	1
p-Terphenyl-d14	77.5		% Rec.		8270C	03/26/12	1
Phenol-d5	90.4		% Rec.		8270C	03/26/12	1

BDL - Below Detection Limit
Det. Limit - Practical Quantitation Limit(PQL)

Laboratory Certification Numbers:
AIHA - 100789, AL - 40660, CA - I-2327, CT- PH-0197, FL - E87487, GA - 923, IN - C-TN-01
KY - 90010, KYUST - 0016, NC - ENV375,DW21704, ND - R-140, SC - 84004, TN - 2006, VA - 00109, WV - 233
AZ -0612, MN - 047-999-395, NY - 11742, NJ - TN002, WI - 998093910

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Tax I.D. 62-0814289

Est. 1970

REPORT OF ANALYSIS

Mr. Doug Reid
Lender Consulting Services - NY
40 La Riviere Dr., Ste. 120
Buffalo, NY 14202

March 29,2012

ESC Sample # : L566305-01

Date Received : March 22, 2012
Description : Taylor Road, Hamburg, NY

Site ID :

Sample ID : MW-01 10-11.25 FT

Project # : 12B943.22

Collected By : JR/CK
Collection Date : 03/21/12 11:15

Parameter	Dry Result	RDL	Units	Qualifier	Method	Date	Dil.
2-Fluorophenol	91.0		% Rec.		8270C	03/26/12	1
2,4,6-Tribromophenol	104.		% Rec.		8270C	03/26/12	1

BDL - Below Detection Limit
Det. Limit - Practical Quantitation Limit(PQL)

Laboratory Certification Numbers:
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REPORT OF ANALYSIS

Mr. Doug Reid
Lender Consulting Services - NY
40 La Riviere Dr., Ste. 120
Buffalo, NY 14202

March 29,2012

Date Received : March 22, 2012
Description : Taylor Road, Hamburg, NY

Sample ID : BH-2 4-6 FT

Collected By : JR/CK
Collection Date : 03/21/12 13:30

ESC Sample # : L566305-02

Site ID :

Project # : 12B943.22

Parameter	Dry Result	RDL	Units	Qualifier	Method	Date	Dil.
Cyanide	BDL	290	ug/kg		9012B	03/28/12	1
Total Solids	86.0		%		2540G	03/26/12	1
Mercury	55.	23.	ug/kg		7471	03/23/12	1
Aluminum	18000000	5800	ug/kg		6010B	03/27/12	1
Antimony	1700	1200	ug/kg		6010B	03/27/12	1
Arsenic	5600	1200	ug/kg		6010B	03/27/12	1
Barium	420000	290	ug/kg		6010B	03/27/12	1
Beryllium	950	120	ug/kg		6010B	03/27/12	1
Cadmium	640	290	ug/kg		6010B	03/27/12	1
Calcium	1300000	29000	ug/kg		6010B	03/27/12	1
Chromium	22000	580	ug/kg		6010B	03/27/12	1
Cobalt	19000	580	ug/kg		6010B	03/27/12	1
Copper	62000	1200	ug/kg		6010B	03/27/12	1
Iron	41000000	5800	ug/kg	B	6010B	03/27/12	1
Lead	230000	290	ug/kg		6010B	03/27/12	1
Magnesium	7200000	5800	ug/kg		6010B	03/27/12	1
Manganese	240000	580	ug/kg		6010B	03/27/12	1
Nickel	51000	1200	ug/kg		6010B	03/27/12	1
Potassium	2300000	29000	ug/kg		6010B	03/27/12	1
Selenium	BDL	2300	ug/kg	O	6010B	03/27/12	2
Silver	BDL	580	ug/kg		6010B	03/27/12	1
Sodium	100000	29000	ug/kg		6010B	03/27/12	1
Thallium	BDL	1200	ug/kg		6010B	03/27/12	1
Vanadium	23000	580	ug/kg		6010B	03/27/12	1
Zinc	140000	1700	ug/kg		6010B	03/27/12	1
Volatile Organics							
Acetone	BDL	290	ug/kg		8260B	03/23/12	5
Benzene	BDL	5.8	ug/kg		8260B	03/23/12	5
Bromochloromethane	BDL	5.8	ug/kg		8260B	03/23/12	5
Bromodichloromethane	BDL	5.8	ug/kg		8260B	03/23/12	5
Bromoform	BDL	5.8	ug/kg		8260B	03/23/12	5
Bromomethane	BDL	29.	ug/kg		8260B	03/23/12	5
Carbon disulfide	BDL	5.8	ug/kg		8260B	03/23/12	5
Carbon tetrachloride	BDL	5.8	ug/kg		8260B	03/23/12	5
Chlorobenzene	BDL	5.8	ug/kg		8260B	03/23/12	5
Chlorodibromomethane	BDL	5.8	ug/kg		8260B	03/23/12	5
Chloroethane	BDL	29.	ug/kg		8260B	03/23/12	5

BDL - Below Detection Limit
Det. Limit - Practical Quantitation Limit(PQL)

Laboratory Certification Numbers:
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REPORT OF ANALYSIS

Mr. Doug Reid
Lender Consulting Services - NY
40 La Riviere Dr., Ste. 120
Buffalo, NY 14202

March 29,2012

ESC Sample # : L566305-02

Date Received : March 22, 2012
Description : Taylor Road, Hamburg, NY

Site ID :

Sample ID : BH-2 4-6 FT

Project # : 12B943.22

Collected By : JR/CK
Collection Date : 03/21/12 13:30

Parameter	Dry Result	RDL	Units	Qualifier	Method	Date	Dil.
Chloroform	BDL	29.	ug/kg		8260B	03/23/12	5
Chloromethane	BDL	14.	ug/kg		8260B	03/23/12	5
Cyclohexane	BDL	5.8	ug/kg		8260B	03/23/12	5
1,2-Dibromo-3-Chloropropane	BDL	29.	ug/kg		8260B	03/23/12	5
1,2-Dibromoethane	BDL	5.8	ug/kg		8260B	03/23/12	5
Dichlorodifluoromethane	BDL	29.	ug/kg		8260B	03/23/12	5
1,1-Dichloroethane	BDL	5.8	ug/kg		8260B	03/23/12	5
1,2-Dichloroethane	BDL	5.8	ug/kg		8260B	03/23/12	5
1,2-Dichlorobenzene	BDL	5.8	ug/kg		8260B	03/23/12	5
1,3-Dichlorobenzene	BDL	5.8	ug/kg		8260B	03/23/12	5
1,4-Dichlorobenzene	BDL	5.8	ug/kg		8260B	03/23/12	5
1,1-Dichloroethene	BDL	5.8	ug/kg		8260B	03/23/12	5
cis-1,2-Dichloroethene	BDL	5.8	ug/kg		8260B	03/23/12	5
trans-1,2-Dichloroethene	BDL	5.8	ug/kg		8260B	03/23/12	5
1,2-Dichloropropane	BDL	5.8	ug/kg		8260B	03/23/12	5
cis-1,3-Dichloropropene	BDL	5.8	ug/kg		8260B	03/23/12	5
trans-1,3-Dichloropropene	BDL	5.8	ug/kg		8260B	03/23/12	5
Ethylbenzene	BDL	5.8	ug/kg		8260B	03/23/12	5
2-Hexanone	BDL	58.	ug/kg		8260B	03/23/12	5
Isopropylbenzene	BDL	58.	ug/kg		8260B	03/23/12	5
2-Butanone (MEK)	BDL	58.	ug/kg		8260B	03/23/12	5
Methyl Acetate	BDL	120	ug/kg		8260B	03/23/12	5
Methyl Cyclohexane	BDL	5.8	ug/kg		8260B	03/23/12	5
Methylene Chloride	BDL	29.	ug/kg		8260B	03/23/12	5
4-Methyl-2-pentanone (MIBK)	BDL	58.	ug/kg		8260B	03/23/12	5
Methyl tert-butyl ether	BDL	5.8	ug/kg		8260B	03/23/12	5
Styrene	BDL	5.8	ug/kg		8260B	03/23/12	5
1,1,2,2-Tetrachloroethane	BDL	5.8	ug/kg		8260B	03/23/12	5
Tetrachloroethene	BDL	5.8	ug/kg		8260B	03/23/12	5
Toluene	BDL	29.	ug/kg		8260B	03/23/12	5
1,2,3-Trichlorobenzene	BDL	5.8	ug/kg		8260B	03/23/12	5
1,2,4-Trichlorobenzene	BDL	5.8	ug/kg		8260B	03/23/12	5
1,1,1-Trichloroethane	BDL	5.8	ug/kg		8260B	03/23/12	5
1,1,2-Trichloroethane	BDL	5.8	ug/kg		8260B	03/23/12	5
Trichloroethene	BDL	5.8	ug/kg		8260B	03/23/12	5
Trichlorofluoromethane	BDL	29.	ug/kg		8260B	03/23/12	5
1,1,2-Trichlorotrifluoroethane	BDL	5.8	ug/kg		8260B	03/23/12	5
Vinyl chloride	BDL	5.8	ug/kg		8260B	03/23/12	5
Xylenes, Total	BDL	17.	ug/kg		8260B	03/23/12	5
Surrogate Recovery							
Toluene-d8	103.		% Rec.		8260B	03/23/12	5

BDL - Below Detection Limit
Det. Limit - Practical Quantitation Limit(PQL)

Laboratory Certification Numbers:
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REPORT OF ANALYSIS

Mr. Doug Reid
Lender Consulting Services - NY
40 La Riviere Dr., Ste. 120
Buffalo, NY 14202

March 29,2012

Date Received : March 22, 2012
Description : Taylor Road, Hamburg, NY

ESC Sample # : L566305-02

Sample ID : BH-2 4-6 FT

Site ID :

Project # : 12B943.22

Collected By :
Collection Date : 03/21/12 13:30

Parameter	Dry Result	RDL	Units	Qualifier	Method	Date	Dil.
Dibromofluoromethane	104.		% Rec.		8260B	03/23/12	5
4-Bromofluorobenzene	93.7		% Rec.		8260B	03/23/12	5
Pesticide/PCBs							
Aldrin	BDL	23.	ug/kg		8081/8082	03/29/12	1
Alpha BHC	BDL	23.	ug/kg		8081/8082	03/29/12	1
Beta BHC	BDL	23.	ug/kg		8081/8082	03/29/12	1
Delta BHC	BDL	23.	ug/kg		8081/8082	03/29/12	1
Gamma BHC	BDL	23.	ug/kg		8081/8082	03/29/12	1
Chlordane	BDL	230	ug/kg		8081/8082	03/29/12	1
4,4-DDD	BDL	23.	ug/kg		8081/8082	03/29/12	1
4,4-DDE	BDL	23.	ug/kg		8081/8082	03/29/12	1
4,4-DDT	BDL	23.	ug/kg		8081/8082	03/29/12	1
Dieldrin	BDL	23.	ug/kg		8081/8082	03/29/12	1
Endosulfan I	BDL	23.	ug/kg		8081/8082	03/29/12	1
Endosulfan II	BDL	23.	ug/kg		8081/8082	03/29/12	1
Endosulfan sulfate	BDL	23.	ug/kg		8081/8082	03/29/12	1
Endrin	BDL	23.	ug/kg		8081/8082	03/29/12	1
Endrin aldehyde	BDL	23.	ug/kg		8081/8082	03/29/12	1
Endrin ketone	BDL	23.	ug/kg		8081/8082	03/29/12	1
Heptachlor	BDL	23.	ug/kg		8081/8082	03/29/12	1
Heptachlor epoxide	BDL	23.	ug/kg		8081/8082	03/29/12	1
Hexachlorobenzene	BDL	23.	ug/kg		8081/8082	03/29/12	1
Methoxychlor	BDL	23.	ug/kg		8081/8082	03/29/12	1
Toxaphene	BDL	460	ug/kg		8081/8082	03/29/12	1
PCB 1016	BDL	20.	ug/kg		8081/8082	03/24/12	1
PCB 1221	BDL	20.	ug/kg		8081/8082	03/24/12	1
PCB 1232	BDL	20.	ug/kg		8081/8082	03/24/12	1
PCB 1242	BDL	20.	ug/kg		8081/8082	03/24/12	1
PCB 1248	BDL	20.	ug/kg		8081/8082	03/24/12	1
PCB 1254	BDL	20.	ug/kg		8081/8082	03/24/12	1
PCB 1260	BDL	20.	ug/kg		8081/8082	03/24/12	1
Pest/PCBs Surrogates							
Decachlorobiphenyl	66.6		% Rec.		8081/8082	03/24/12	1
Tetrachloro-m-xylene	47.9		% Rec.		8081/8082	03/24/12	1
Herbicides							
2,4-D	BDL	81.	ug/kg		8151	03/28/12	1
Dalapon	BDL	930	ug/kg		8151	03/28/12	1
2,4-DB	BDL	81.	ug/kg		8151	03/28/12	1
Dicamba	BDL	81.	ug/kg		8151	03/28/12	1

BDL - Below Detection Limit
Det. Limit - Practical Quantitation Limit(PQL)

Laboratory Certification Numbers:
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REPORT OF ANALYSIS

Mr. Doug Reid
Lender Consulting Services - NY
40 La Riviere Dr., Ste. 120
Buffalo, NY 14202

March 29,2012

ESC Sample # : L566305-02

Site ID :

Project # : 12B943.22

Date Received : March 22, 2012
Description : Taylor Road, Hamburg, NY

Sample ID : BH-2 4-6 FT

Collected By : JR/CK
Collection Date : 03/21/12 13:30

Parameter	Dry Result	RDL	Units	Qualifier	Method	Date	Dil.
Dichloroprop	BDL	81.	ug/kg		8151	03/28/12	1
Dinoseb	BDL	81.	ug/kg		8151	03/28/12	1
MCPA	BDL	7600	ug/kg		8151	03/28/12	1
MCPP	BDL	7600	ug/kg		8151	03/28/12	1
2,4,5-T	BDL	81.	ug/kg		8151	03/28/12	1
2,4,5-TP (Silvex)	BDL	81.	ug/kg		8151	03/28/12	1
Surrogate Recovery							
2,4-Dichlorophenyl Acetic Acid	57.5		% Rec.		8151	03/28/12	1
TCL Base/Neutral Extractables							
Acenaphthene	BDL	38.	ug/kg		8270C	03/26/12	1
Acenaphthylene	BDL	38.	ug/kg		8270C	03/26/12	1
Acetophenone	BDL	390	ug/kg		8270C	03/26/12	1
Anthracene	BDL	38.	ug/kg		8270C	03/26/12	1
Atrazine	BDL	390	ug/kg		8270C	03/26/12	1
Benzaldehyde	BDL	390	ug/kg		8270C	03/26/12	1
Benzo(a)anthracene	BDL	38.	ug/kg		8270C	03/26/12	1
Benzo(b)fluoranthene	BDL	38.	ug/kg		8270C	03/26/12	1
Benzo(k)fluoranthene	BDL	38.	ug/kg		8270C	03/26/12	1
Benzo(g,h,i)perylene	BDL	38.	ug/kg		8270C	03/26/12	1
Benzo(a)pyrene	BDL	38.	ug/kg		8270C	03/26/12	1
Biphenyl	BDL	390	ug/kg		8270C	03/26/12	1
Bis(2-chlorethoxy)methane	BDL	390	ug/kg		8270C	03/26/12	1
Bis(2-chloroethyl)ether	BDL	390	ug/kg		8270C	03/26/12	1
Bis(2-chloroisopropyl)ether	BDL	390	ug/kg		8270C	03/26/12	1
4-Bromophenyl-phenylether	BDL	390	ug/kg		8270C	03/26/12	1
Caprolactam	BDL	390	ug/kg		8270C	03/26/12	1
Carbazole	BDL	390	ug/kg		8270C	03/26/12	1
4-Chloroaniline	BDL	390	ug/kg		8270C	03/26/12	1
2-Chloronaphthalene	BDL	38.	ug/kg		8270C	03/26/12	1
4-Chlorophenyl-phenylether	BDL	390	ug/kg		8270C	03/26/12	1
Chrysene	BDL	38.	ug/kg		8270C	03/26/12	1
Dibenz(a,h)anthracene	BDL	38.	ug/kg		8270C	03/26/12	1
Dibenzofuran	BDL	390	ug/kg		8270C	03/26/12	1
3,3-Dichlorobenzidine	BDL	390	ug/kg		8270C	03/26/12	1
2,4-Dinitrotoluene	BDL	390	ug/kg		8270C	03/26/12	1
2,6-Dinitrotoluene	BDL	390	ug/kg		8270C	03/26/12	1
Fluoranthene	BDL	38.	ug/kg		8270C	03/26/12	1
Fluorene	BDL	38.	ug/kg		8270C	03/26/12	1
Hexachlorobenzene	BDL	390	ug/kg		8270C	03/26/12	1
Hexachloro-1,3-butadiene	BDL	390	ug/kg		8270C	03/26/12	1

BDL - Below Detection Limit
Det. Limit - Practical Quantitation Limit(PQL)

Laboratory Certification Numbers:
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REPORT OF ANALYSIS

Mr. Doug Reid
Lender Consulting Services - NY
40 La Riviere Dr., Ste. 120
Buffalo, NY 14202

March 29,2012

Date Received : March 22, 2012
Description : Taylor Road, Hamburg, NY

Sample ID : BH-2 4-6 FT

Collected By : JR/CK
Collection Date : 03/21/12 13:30

ESC Sample # : L566305-02

Site ID :

Project # : 12B943.22

Parameter	Dry Result	RDL	Units	Qualifier	Method	Date	Dil.
Hexachlorocyclopentadiene	BDL	390	ug/kg		8270C	03/26/12	1
Hexachloroethane	BDL	390	ug/kg		8270C	03/26/12	1
Indeno(1,2,3-cd)pyrene	BDL	38.	ug/kg		8270C	03/26/12	1
Isophorone	BDL	390	ug/kg		8270C	03/26/12	1
2-Methylnaphthalene	BDL	38.	ug/kg		8270C	03/26/12	1
Naphthalene	BDL	38.	ug/kg		8270C	03/26/12	1
2-Nitroaniline	BDL	390	ug/kg		8270C	03/26/12	1
3-Nitroaniline	BDL	390	ug/kg		8270C	03/26/12	1
4-Nitroaniline	BDL	390	ug/kg		8270C	03/26/12	1
Nitrobenzene	BDL	390	ug/kg		8270C	03/26/12	1
n-Nitrosodiphenylamine	BDL	390	ug/kg		8270C	03/26/12	1
n-Nitrosodi-n-propylamine	BDL	390	ug/kg		8270C	03/26/12	1
Phenanthrene	BDL	38.	ug/kg		8270C	03/26/12	1
Benzylbutyl phthalate	BDL	390	ug/kg		8270C	03/26/12	1
Bis(2-ethylhexyl)phthalate	BDL	390	ug/kg		8270C	03/26/12	1
Di-n-butyl phthalate	BDL	390	ug/kg		8270C	03/26/12	1
Diethyl phthalate	BDL	390	ug/kg		8270C	03/26/12	1
Dimethyl phthalate	BDL	390	ug/kg		8270C	03/26/12	1
Di-n-octyl phthalate	BDL	390	ug/kg		8270C	03/26/12	1
Pyrene	BDL	38.	ug/kg		8270C	03/26/12	1
1,2,4,5-Tetrachlorobenzene	BDL	390	ug/kg		8270C	03/26/12	1
TCL Acid Extractables							
4-Chloro-3-methylphenol	BDL	390	ug/kg		8270C	03/26/12	1
2-Chlorophenol	BDL	390	ug/kg		8270C	03/26/12	1
2-Methylphenol	BDL	390	ug/kg		8270C	03/26/12	1
3&4-Methyl Phenol	BDL	390	ug/kg		8270C	03/26/12	1
2,4-Dichlorophenol	BDL	390	ug/kg		8270C	03/26/12	1
2,4-Dimethylphenol	BDL	390	ug/kg		8270C	03/26/12	1
4,6-Dinitro-2-methylphenol	BDL	390	ug/kg		8270C	03/26/12	1
2,4-Dinitrophenol	BDL	390	ug/kg		8270C	03/26/12	1
2-Nitrophenol	BDL	390	ug/kg		8270C	03/26/12	1
4-Nitrophenol	BDL	390	ug/kg		8270C	03/26/12	1
Pentachlorophenol	BDL	390	ug/kg		8270C	03/26/12	1
Phenol	BDL	390	ug/kg		8270C	03/26/12	1
2,4,5-Trichlorophenol	BDL	390	ug/kg		8270C	03/26/12	1
2,4,6-Trichlorophenol	BDL	390	ug/kg		8270C	03/26/12	1
Surrogate Recovery							
Nitrobenzene-d5	84.7		% Rec.		8270C	03/26/12	1
2-Fluorobiphenyl	82.1		% Rec.		8270C	03/26/12	1
p-Terphenyl-d14	56.8		% Rec.		8270C	03/26/12	1
Phenol-d5	69.6		% Rec.		8270C	03/26/12	1

BDL - Below Detection Limit
Det. Limit - Practical Quantitation Limit(PQL)

Laboratory Certification Numbers:
AIHA - 100789, AL - 40660, CA - I-2327, CT- PH-0197, FL - E87487, GA - 923, IN - C-TN-01
KY - 90010, KYUST - 0016, NC - ENV375,DW21704, ND - R-140, SC - 84004, TN - 2006, VA - 00109, WV - 233
AZ -0612, MN - 047-999-395, NY - 11742, NJ - TN002, WI - 998093910

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Tax I.D. 62-0814289

Est. 1970

REPORT OF ANALYSIS

Mr. Doug Reid
Lender Consulting Services - NY
40 La Riviere Dr., Ste. 120
Buffalo, NY 14202

March 29,2012

ESC Sample # : L566305-02

Site ID :

Project # : 12B943.22

Date Received : March 22, 2012
Description : Taylor Road, Hamburg, NY

Sample ID : BH-2 4-6 FT

Collected By : JR/CK
Collection Date : 03/21/12 13:30

Parameter	Dry Result	RDL	Units	Qualifier	Method	Date	Dil.
2-Fluorophenol	72.3		% Rec.		8270C	03/26/12	1
2,4,6-Tribromophenol	85.7		% Rec.		8270C	03/26/12	1

BDL - Below Detection Limit
Det. Limit - Practical Quantitation Limit(PQL)

Laboratory Certification Numbers:
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REPORT OF ANALYSIS

Mr. Doug Reid
Lender Consulting Services - NY
40 La Riviere Dr., Ste. 120
Buffalo, NY 14202

March 29,2012

Date Received : March 22, 2012
Description : Taylor Road, Hamburg, NY

Sample ID : BH-3 2-4 FT

Collected By : JR/CK
Collection Date : 03/21/12 15:30

ESC Sample # : L566305-03

Site ID :

Project # : 12B943.22

Parameter	Dry Result	RDL	Units	Qualifier	Method	Date	Dil.
Cyanide	BDL	290	ug/kg		9012B	03/28/12	1
Total Solids	85.0		%		2540G	03/26/12	1
Mercury	BDL	24.	ug/kg		7471	03/23/12	1
Aluminum	16000000	5900	ug/kg		6010B	03/27/12	1
Antimony	1600	1200	ug/kg		6010B	03/27/12	1
Arsenic	3000	1200	ug/kg		6010B	03/27/12	1
Barium	88000	290	ug/kg		6010B	03/27/12	1
Beryllium	900	120	ug/kg		6010B	03/27/12	1
Cadmium	350	290	ug/kg		6010B	03/27/12	1
Calcium	2400000	29000	ug/kg		6010B	03/27/12	1
Chromium	22000	590	ug/kg		6010B	03/27/12	1
Cobalt	19000	590	ug/kg		6010B	03/27/12	1
Copper	70000	1200	ug/kg		6010B	03/27/12	1
Iron	36000000	5900	ug/kg	B	6010B	03/27/12	1
Lead	36000	290	ug/kg		6010B	03/27/12	1
Magnesium	7000000	5900	ug/kg		6010B	03/27/12	1
Manganese	240000	590	ug/kg		6010B	03/27/12	1
Nickel	65000	1200	ug/kg		6010B	03/27/12	1
Potassium	1700000	29000	ug/kg		6010B	03/27/12	1
Selenium	BDL	1200	ug/kg		6010B	03/27/12	1
Silver	BDL	590	ug/kg		6010B	03/27/12	1
Sodium	70000	29000	ug/kg		6010B	03/27/12	1
Thallium	BDL	1200	ug/kg		6010B	03/27/12	1
Vanadium	25000	590	ug/kg		6010B	03/27/12	1
Zinc	58000	1800	ug/kg		6010B	03/27/12	1
Volatile Organics							
Acetone	BDL	290	ug/kg		8260B	03/23/12	5
Benzene	BDL	5.9	ug/kg		8260B	03/23/12	5
Bromochloromethane	BDL	5.9	ug/kg		8260B	03/23/12	5
Bromodichloromethane	BDL	5.9	ug/kg		8260B	03/23/12	5
Bromoform	BDL	5.9	ug/kg		8260B	03/23/12	5
Bromomethane	BDL	29.	ug/kg		8260B	03/23/12	5
Carbon disulfide	BDL	5.9	ug/kg		8260B	03/23/12	5
Carbon tetrachloride	BDL	5.9	ug/kg		8260B	03/23/12	5
Chlorobenzene	BDL	5.9	ug/kg		8260B	03/23/12	5
Chlorodibromomethane	BDL	5.9	ug/kg		8260B	03/23/12	5
Chloroethane	BDL	29.	ug/kg		8260B	03/23/12	5

BDL - Below Detection Limit
Det. Limit - Practical Quantitation Limit(PQL)

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REPORT OF ANALYSIS

Mr. Doug Reid
Lender Consulting Services - NY
40 La Riviere Dr., Ste. 120
Buffalo, NY 14202

March 29,2012

ESC Sample # : L566305-03

Date Received : March 22, 2012
Description : Taylor Road, Hamburg, NY

Site ID :

Sample ID : BH-3 2-4 FT

Project # : 12B943.22

Collected By : JR/CK
Collection Date : 03/21/12 15:30

Parameter	Dry Result	RDL	Units	Qualifier	Method	Date	Dil.
Chloroform	BDL	29.	ug/kg		8260B	03/23/12	5
Chloromethane	BDL	15.	ug/kg		8260B	03/23/12	5
Cyclohexane	BDL	5.9	ug/kg		8260B	03/23/12	5
1,2-Dibromo-3-Chloropropane	BDL	29.	ug/kg		8260B	03/23/12	5
1,2-Dibromoethane	BDL	5.9	ug/kg		8260B	03/23/12	5
Dichlorodifluoromethane	BDL	29.	ug/kg		8260B	03/23/12	5
1,1-Dichloroethane	BDL	5.9	ug/kg		8260B	03/23/12	5
1,2-Dichloroethane	BDL	5.9	ug/kg		8260B	03/23/12	5
1,2-Dichlorobenzene	BDL	5.9	ug/kg		8260B	03/23/12	5
1,3-Dichlorobenzene	BDL	5.9	ug/kg		8260B	03/23/12	5
1,4-Dichlorobenzene	BDL	5.9	ug/kg		8260B	03/23/12	5
1,1-Dichloroethene	BDL	5.9	ug/kg		8260B	03/23/12	5
cis-1,2-Dichloroethene	BDL	5.9	ug/kg		8260B	03/23/12	5
trans-1,2-Dichloroethene	BDL	5.9	ug/kg		8260B	03/23/12	5
1,2-Dichloropropane	BDL	5.9	ug/kg		8260B	03/23/12	5
cis-1,3-Dichloropropene	BDL	5.9	ug/kg		8260B	03/23/12	5
trans-1,3-Dichloropropene	BDL	5.9	ug/kg		8260B	03/23/12	5
Ethylbenzene	BDL	5.9	ug/kg		8260B	03/23/12	5
2-Hexanone	BDL	59.	ug/kg		8260B	03/23/12	5
Isopropylbenzene	BDL	59.	ug/kg		8260B	03/23/12	5
2-Butanone (MEK)	BDL	59.	ug/kg		8260B	03/23/12	5
Methyl Acetate	BDL	120	ug/kg		8260B	03/23/12	5
Methyl Cyclohexane	BDL	5.9	ug/kg		8260B	03/23/12	5
Methylene Chloride	BDL	29.	ug/kg		8260B	03/23/12	5
4-Methyl-2-pentanone (MIBK)	BDL	59.	ug/kg		8260B	03/23/12	5
Methyl tert-butyl ether	BDL	5.9	ug/kg		8260B	03/23/12	5
Styrene	BDL	5.9	ug/kg		8260B	03/23/12	5
1,1,2,2-Tetrachloroethane	BDL	5.9	ug/kg		8260B	03/23/12	5
Tetrachloroethene	BDL	5.9	ug/kg		8260B	03/23/12	5
Toluene	BDL	29.	ug/kg		8260B	03/23/12	5
1,2,3-Trichlorobenzene	BDL	5.9	ug/kg		8260B	03/23/12	5
1,2,4-Trichlorobenzene	BDL	5.9	ug/kg		8260B	03/23/12	5
1,1,1-Trichloroethane	BDL	5.9	ug/kg		8260B	03/23/12	5
1,1,2-Trichloroethane	BDL	5.9	ug/kg		8260B	03/23/12	5
Trichloroethene	BDL	5.9	ug/kg		8260B	03/23/12	5
Trichlorofluoromethane	BDL	29.	ug/kg		8260B	03/23/12	5
1,1,2-Trichlorotrifluoroethane	BDL	5.9	ug/kg		8260B	03/23/12	5
Vinyl chloride	BDL	5.9	ug/kg		8260B	03/23/12	5
Xylenes, Total	BDL	18.	ug/kg		8260B	03/23/12	5
Surrogate Recovery							
Toluene-d8	103.		% Rec.		8260B	03/23/12	5

BDL - Below Detection Limit
Det. Limit - Practical Quantitation Limit(PQL)

Laboratory Certification Numbers:
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REPORT OF ANALYSIS

Mr. Doug Reid
Lender Consulting Services - NY
40 La Riviere Dr., Ste. 120
Buffalo, NY 14202

March 29,2012

Date Received : March 22, 2012
Description : Taylor Road, Hamburg, NY

ESC Sample # : L566305-03

Sample ID : BH-3 2-4 FT

Site ID :

Project # : 12B943.22

Collected By : JR/CK
Collection Date : 03/21/12 15:30

Parameter	Dry Result	RDL	Units	Qualifier	Method	Date	Dil.
Dibromofluoromethane	103.		% Rec.		8260B	03/23/12	5
4-Bromofluorobenzene	98.3		% Rec.		8260B	03/23/12	5
Pesticide/PCBs							
Aldrin	BDL	24.	ug/kg		8081/8082	03/29/12	1
Alpha BHC	BDL	24.	ug/kg		8081/8082	03/29/12	1
Beta BHC	BDL	24.	ug/kg		8081/8082	03/29/12	1
Delta BHC	BDL	24.	ug/kg		8081/8082	03/29/12	1
Gamma BHC	BDL	24.	ug/kg		8081/8082	03/29/12	1
Chlordane	BDL	240	ug/kg		8081/8082	03/29/12	1
4,4-DDD	BDL	24.	ug/kg		8081/8082	03/29/12	1
4,4-DDE	BDL	24.	ug/kg		8081/8082	03/29/12	1
4,4-DDT	BDL	24.	ug/kg		8081/8082	03/29/12	1
Dieldrin	BDL	24.	ug/kg		8081/8082	03/29/12	1
Endosulfan I	BDL	24.	ug/kg		8081/8082	03/29/12	1
Endosulfan II	BDL	24.	ug/kg		8081/8082	03/29/12	1
Endosulfan sulfate	BDL	24.	ug/kg		8081/8082	03/29/12	1
Endrin	BDL	24.	ug/kg		8081/8082	03/29/12	1
Endrin aldehyde	BDL	24.	ug/kg		8081/8082	03/29/12	1
Endrin ketone	BDL	24.	ug/kg		8081/8082	03/29/12	1
Heptachlor	BDL	24.	ug/kg		8081/8082	03/29/12	1
Heptachlor epoxide	BDL	24.	ug/kg		8081/8082	03/29/12	1
Hexachlorobenzene	BDL	24.	ug/kg		8081/8082	03/29/12	1
Methoxychlor	BDL	24.	ug/kg		8081/8082	03/29/12	1
Toxaphene	BDL	470	ug/kg		8081/8082	03/29/12	1
PCB 1016	BDL	20.	ug/kg		8081/8082	03/24/12	1
PCB 1221	BDL	20.	ug/kg		8081/8082	03/24/12	1
PCB 1232	BDL	20.	ug/kg		8081/8082	03/24/12	1
PCB 1242	BDL	20.	ug/kg		8081/8082	03/24/12	1
PCB 1248	BDL	20.	ug/kg		8081/8082	03/24/12	1
PCB 1254	BDL	20.	ug/kg		8081/8082	03/24/12	1
PCB 1260	BDL	20.	ug/kg		8081/8082	03/24/12	1
Pest/PCBs Surrogates							
Decachlorobiphenyl	72.4		% Rec.		8081/8082	03/24/12	1
Tetrachloro-m-xylene	62.1		% Rec.		8081/8082	03/24/12	1
Herbicides							
2,4-D	BDL	82.	ug/kg		8151	03/28/12	1
Dalapon	BDL	940	ug/kg		8151	03/28/12	1
2,4-DB	BDL	82.	ug/kg		8151	03/28/12	1
Dicamba	BDL	82.	ug/kg		8151	03/28/12	1

BDL - Below Detection Limit
Det. Limit - Practical Quantitation Limit(PQL)

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REPORT OF ANALYSIS

Mr. Doug Reid
Lender Consulting Services - NY
40 La Riviere Dr., Ste. 120
Buffalo, NY 14202

March 29,2012

ESC Sample # : L566305-03

Date Received : March 22, 2012
Description : Taylor Road, Hamburg, NY

Site ID :

Sample ID : BH-3 2-4 FT

Project # : 12B943.22

Collected By : JR/CK
Collection Date : 03/21/12 15:30

Parameter	Dry Result	RDL	Units	Qualifier	Method	Date	Dil.
Dichloroprop	BDL	82.	ug/kg		8151	03/28/12	1
Dinoseb	BDL	82.	ug/kg		8151	03/28/12	1
MCPA	BDL	7600	ug/kg		8151	03/28/12	1
MCPP	BDL	7600	ug/kg		8151	03/28/12	1
2,4,5-T	BDL	82.	ug/kg		8151	03/28/12	1
2,4,5-TP (Silvex)	BDL	82.	ug/kg		8151	03/28/12	1
Surrogate Recovery							
2,4-Dichlorophenyl Acetic Acid	66.9		% Rec.		8151	03/28/12	1
TCL Base/Neutral Extractables							
Acenaphthene	BDL	39.	ug/kg		8270C	03/26/12	1
Acenaphthylene	BDL	39.	ug/kg		8270C	03/26/12	1
Acetophenone	BDL	390	ug/kg		8270C	03/26/12	1
Anthracene	BDL	39.	ug/kg		8270C	03/26/12	1
Atrazine	BDL	390	ug/kg		8270C	03/26/12	1
Benzaldehyde	BDL	390	ug/kg		8270C	03/26/12	1
Benzo(a)anthracene	BDL	39.	ug/kg		8270C	03/26/12	1
Benzo(b)fluoranthene	BDL	39.	ug/kg		8270C	03/26/12	1
Benzo(k)fluoranthene	BDL	39.	ug/kg		8270C	03/26/12	1
Benzo(g,h,i)perylene	BDL	39.	ug/kg		8270C	03/26/12	1
Benzo(a)pyrene	BDL	39.	ug/kg		8270C	03/26/12	1
Biphenyl	BDL	390	ug/kg		8270C	03/26/12	1
Bis(2-chlorethoxy)methane	BDL	390	ug/kg		8270C	03/26/12	1
Bis(2-chloroethyl)ether	BDL	390	ug/kg		8270C	03/26/12	1
Bis(2-chloroisopropyl)ether	BDL	390	ug/kg		8270C	03/26/12	1
4-Bromophenyl-phenylether	BDL	390	ug/kg		8270C	03/26/12	1
Caprolactam	BDL	390	ug/kg		8270C	03/26/12	1
Carbazole	BDL	390	ug/kg		8270C	03/26/12	1
4-Chloroaniline	BDL	390	ug/kg		8270C	03/26/12	1
2-Chloronaphthalene	BDL	39.	ug/kg		8270C	03/26/12	1
4-Chlorophenyl-phenylether	BDL	390	ug/kg		8270C	03/26/12	1
Chrysene	BDL	39.	ug/kg		8270C	03/26/12	1
Dibenz(a,h)anthracene	BDL	39.	ug/kg		8270C	03/26/12	1
Dibenzofuran	BDL	390	ug/kg		8270C	03/26/12	1
3,3-Dichlorobenzidine	BDL	390	ug/kg		8270C	03/26/12	1
2,4-Dinitrotoluene	BDL	390	ug/kg		8270C	03/26/12	1
2,6-Dinitrotoluene	BDL	390	ug/kg		8270C	03/26/12	1
Fluoranthene	BDL	39.	ug/kg		8270C	03/26/12	1
Fluorene	BDL	39.	ug/kg		8270C	03/26/12	1
Hexachlorobenzene	BDL	390	ug/kg		8270C	03/26/12	1
Hexachloro-1,3-butadiene	BDL	390	ug/kg		8270C	03/26/12	1

BDL - Below Detection Limit
Det. Limit - Practical Quantitation Limit(PQL)

Laboratory Certification Numbers:
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REPORT OF ANALYSIS

Mr. Doug Reid
Lender Consulting Services - NY
40 La Riviere Dr., Ste. 120
Buffalo, NY 14202

March 29,2012

Date Received : March 22, 2012
Description : Taylor Road, Hamburg, NY

ESC Sample # : L566305-03

Sample ID : BH-3 2-4 FT

Site ID :

Project # : 12B943.22

Collected By : JR/CK
Collection Date : 03/21/12 15:30

Parameter	Dry Result	RDL	Units	Qualifier	Method	Date	Dil.
Hexachlorocyclopentadiene	BDL	390	ug/kg		8270C	03/26/12	1
Hexachloroethane	BDL	390	ug/kg		8270C	03/26/12	1
Indeno(1,2,3-cd)pyrene	BDL	39.	ug/kg		8270C	03/26/12	1
Isophorone	BDL	390	ug/kg		8270C	03/26/12	1
2-Methylnaphthalene	BDL	39.	ug/kg		8270C	03/26/12	1
Naphthalene	BDL	39.	ug/kg		8270C	03/26/12	1
2-Nitroaniline	BDL	390	ug/kg		8270C	03/26/12	1
3-Nitroaniline	BDL	390	ug/kg		8270C	03/26/12	1
4-Nitroaniline	BDL	390	ug/kg		8270C	03/26/12	1
Nitrobenzene	BDL	390	ug/kg		8270C	03/26/12	1
n-Nitrosodiphenylamine	BDL	390	ug/kg		8270C	03/26/12	1
n-Nitrosodi-n-propylamine	BDL	390	ug/kg		8270C	03/26/12	1
Phenanthrene	BDL	39.	ug/kg		8270C	03/26/12	1
Benzylbutyl phthalate	BDL	390	ug/kg		8270C	03/26/12	1
Bis(2-ethylhexyl)phthalate	BDL	390	ug/kg		8270C	03/26/12	1
Di-n-butyl phthalate	BDL	390	ug/kg		8270C	03/26/12	1
Diethyl phthalate	BDL	390	ug/kg		8270C	03/26/12	1
Dimethyl phthalate	BDL	390	ug/kg		8270C	03/26/12	1
Di-n-octyl phthalate	BDL	390	ug/kg		8270C	03/26/12	1
Pyrene	BDL	39.	ug/kg		8270C	03/26/12	1
1,2,4,5-Tetrachlorobenzene	BDL	390	ug/kg		8270C	03/26/12	1
TCL Acid Extractables							
4-Chloro-3-methylphenol	BDL	390	ug/kg		8270C	03/26/12	1
2-Chlorophenol	BDL	390	ug/kg		8270C	03/26/12	1
2-Methylphenol	BDL	390	ug/kg		8270C	03/26/12	1
3&4-Methyl Phenol	BDL	390	ug/kg		8270C	03/26/12	1
2,4-Dichlorophenol	BDL	390	ug/kg		8270C	03/26/12	1
2,4-Dimethylphenol	BDL	390	ug/kg		8270C	03/26/12	1
4,6-Dinitro-2-methylphenol	BDL	390	ug/kg		8270C	03/26/12	1
2,4-Dinitrophenol	BDL	390	ug/kg		8270C	03/26/12	1
2-Nitrophenol	BDL	390	ug/kg		8270C	03/26/12	1
4-Nitrophenol	BDL	390	ug/kg		8270C	03/26/12	1
Pentachlorophenol	BDL	390	ug/kg		8270C	03/26/12	1
Phenol	BDL	390	ug/kg		8270C	03/26/12	1
2,4,5-Trichlorophenol	BDL	390	ug/kg		8270C	03/26/12	1
2,4,6-Trichlorophenol	BDL	390	ug/kg		8270C	03/26/12	1
Surrogate Recovery							
Nitrobenzene-d5	111.		% Rec.		8270C	03/26/12	1
2-Fluorobiphenyl	111.		% Rec.		8270C	03/26/12	1
p-Terphenyl-d14	76.2		% Rec.		8270C	03/26/12	1
Phenol-d5	89.0		% Rec.		8270C	03/26/12	1

BDL - Below Detection Limit
Det. Limit - Practical Quantitation Limit(PQL)

Laboratory Certification Numbers:
AIHA - 100789, AL - 40660, CA - I-2327, CT- PH-0197, FL - E87487, GA - 923, IN - C-TN-01
KY - 90010, KYUST - 0016, NC - ENV375,DW21704, ND - R-140, SC - 84004, TN - 2006, VA - 00109, WV - 233
AZ -0612, MN - 047-999-395, NY - 11742, NJ - TN002, WI - 998093910

Note:
The reported analytical results relate only to the sample submitted.
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Tax I.D. 62-0814289

Est. 1970

REPORT OF ANALYSIS

Mr. Doug Reid
Lender Consulting Services - NY
40 La Riviere Dr., Ste. 120
Buffalo, NY 14202

March 29,2012

ESC Sample # : L566305-03

Date Received : March 22, 2012
Description : Taylor Road, Hamburg, NY

Site ID :

Sample ID : BH-3 2-4 FT

Project # : 12B943.22

Collected By : JR/CK
Collection Date : 03/21/12 15:30

Parameter	Dry Result	RDL	Units	Qualifier	Method	Date	Dil.
2-Fluorophenol	91.0		% Rec.		8270C	03/26/12	1
2,4,6-Tribromophenol	109		% Rec.		8270C	03/26/12	1

BDL - Below Detection Limit
Det. Limit - Practical Quantitation Limit(PQL)

Laboratory Certification Numbers:
AIHA - 100789, AL - 40660, CA - I-2327, CT- PH-0197, FL - E87487, GA - 923, IN - C-TN-01
KY - 90010, KYUST - 0016, NC - ENV375,DW21704, ND - R-140, SC - 84004, TN - 2006, VA - 00109, WV - 233
AZ -0612, MN - 047-999-395, NY - 11742, NJ - TN002, WI - 998093910

Note:
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Attachment A
List of Analytes with QC Qualifiers

Sample Number	Work Group	Sample Type	Analyte	Run ID	Qualifier
L566305-01	WG584396	SAMP	Tetrachloro-m-xylene	R2088376	J2
	WG584606	SAMP	Iron	R2090794	B
	WG584606	SAMP	Selenium	R2090794	O
L566305-02	WG584606	SAMP	Iron	R2090794	B
	WG584606	SAMP	Selenium	R2090794	O
L566305-03	WG584606	SAMP	Iron	R2090794	B

Attachment B
Explanation of QC Qualifier Codes

Qualifier	Meaning
B	(EPA) - The indicated compound was found in the associated method blank as well as the laboratory sample.
J2	Surrogate recovery limits have been exceeded; values are outside lower control limits
O	(ESC) Sample diluted due to matrix interferences that impaired the ability to make an accurate analytical determination. The detection limit is elevated in order to reflect the necessary dilution.

Qualifier Report Information

ESC utilizes sample and result qualifiers as set forth by the EPA Contract Laboratory Program and as required by most certifying bodies including NELAC. In addition to the EPA qualifiers adopted by ESC, we have implemented ESC qualifiers to provide more information pertaining to our analytical results. Each qualifier is designated in the qualifier explanation as either EPA or ESC. Data qualifiers are intended to provide the ESC client with more detailed information concerning the potential bias of reported data. Because of the wide range of constituents and variety of matrices incorporated by most EPA methods,it is common for some compounds to fall outside of established ranges. These exceptions are evaluated and all reported data is valid and useable "unless qualified as 'R' (Rejected)."

Definitions

Accuracy - The relationship of the observed value of a known sample to the true value of a known sample. Represented by percent recovery and relevant to samples such as: control samples, matrix spike recoveries, surrogate recoveries, etc.

Precision - The agreement between a set of samples or between duplicate samples. Relates to how close together the results are and is represented by Relative Percent Differrence.

Surrogate - Organic compounds that are similar in chemical composition, extraction, and chromotography to analytes of interest. The surrogates are used to determine the probable response of the group of analytes that are chemically related to the surrogate compound. Surrogates are added to the sample and carried through all stages of preparation and analyses.

TIC - Tentatively Identified Compound: Compounds detected in samples that are not target compounds, internal standards, system monitoring compounds, or surrogates.

Summary of Remarks For Samples Printed
03/29/12 at 14:27:40

TSR Signing Reports: 364
RX - Priority Rush

Log all Standard TAT= RX with hard 5 day TAT, Log Terracore if Terracores are rec'd, Soils always in dryweight, PAHSIM for GW

Sample: L566305-01 Account: LCSBNY Received: 03/22/12 09:00 Due Date: 03/29/12 00:00 RPT Date: 03/29/12 14:26

Sample: L566305-02 Account: LCSBNY Received: 03/22/12 09:00 Due Date: 03/29/12 00:00 RPT Date: 03/29/12 14:26

Sample: L566305-03 Account: LCSBNY Received: 03/22/12 09:00 Due Date: 03/29/12 00:00 RPT Date: 03/29/12 14:26

D143

Chain of Custody
Page 1 of 1

ESC
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12065 Lebanon Road
Mt. Juliet, TN 37122
Phone: (800) 767-5859
Phone: (615) 758-5858
Fax: (615) 758-5859

L561305

Billing Information:
LCS, Inc.
40 La Riviere Drive, Suite 120
Buffalo, NY 14202

Report to: LCS, Inc.

Email to: dreid@lenderconsulting.com

Project Description: Taylor Road

City/State Collected: Hamburg, N.Y.

Phone: 716-845-6145
FAX: 716-845-6164

Client Project #: 12B943.22

ESC Key: LCSBNY060911B

Collected by: JR/CK

Site/Facility ID#:

P.O.#:

Collected by (signature):

Immediately Packed on Ice N (Y)

Rush? (Lab MUST Be Notified)
____ Same Day.....200%
____ Next Day.....100%
____ Two Day.....50%
____ Three Day.....25%

Date Results Needed: 5BD

Email? __No __Yes

FAX? __No __Yes

CoCode (lab use only)

Template/Prelogin

Shipped Via:

Sample ID	Comp/Grab	Matrix*	Depth	Date	Time	No. of Cntrs	8260 TCL VOC's	8270 TCL SVOC's	9021 Cyanide	8081 Herb/Pest	8082 PCB's	6010/7470 TAL Metals			Remarks/Contaminant	Sample # (lab only)
MW-01	Comp	SS	10-11.25	3-21-12	11:15	3	X	X	X	X	X	X			1,202 jars, 2,402 jars	01
BH-2		SS	4-6	3-21-12	13:30	4	X	X	X	X	X	X			2,202 jars, 2,402 jars	02
BH-3			2-4	3-21-12	15:30	4	X	X	X	X	X	X			2,202 jars, 2,402 jars	03

*Matrix: SS - Soil/Solid GW - Groundwater WW - WasteWater DW - Drinking Water OT - Other_____

pH _____ Temp _____

Remarks:

5040 0620 8719

Flow _____ Other _____

Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)
	03-21-12	17:00	
Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)
Relinquished by: (Signature)	Date:	Time:	Received for lab by: (Signature)

Samples returned via: ☐ UPS ☑ FedEx ☐ Courier ☐ _____

Temp: 3.2 | Bottles Received: 11

Date: 3/22/12 | Time: 0900

Condition: (lab use only) NA

CoC Seals Intact: ✓ Y ___ N ___ NA

pH Checked: | NCF:

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Est. 1970

Mr. Doug Reid
Lender Consulting Services - NY
40 La Riviere Dr., Ste. 120
Buffalo, NY 14202

Report Summary

Thursday April 12, 2012

Report Number: L568544
Samples Received: 04/05/12
Client Project: 12B943.22

Description: Taylor Road, Hamburg, NY

The analytical results in this report are based upon information supplied by you, the client, and are for your exclusive use. If you have any questions regarding this data package, please do not hesitate to call.

Entire Report Reviewed By: Alan Harvill

T. Alan Harvill , ESC Representative

Laboratory Certification Numbers

A2LA - 1461-01, AIHA - 100789, AL - 40660, CA - 01157CA, CT - PH-0197, FL - E87487, GA - 923, IN - C-TN-01, KY - 90010, KYUST - 0016, NC - ENV375/DW21704/BIO041, ND - R-140. NJ - TN002, NJ NELAP - TN002, SC - 84004, TN - 2006, VA - 460132, WV - 233, AZ - 0612, MN - 047-999-395, NY - 11742, WI - 998093910, NV - TN000032011-1, TX - T104704245-11-3, OK - 9915, PA - 68-02979

Accreditation is only applicable to the test methods specified on each scope of accreditation held by ESC Lab Sciences.
Note: The use of the preparatory EPA Method 3511 is not approved or endorsed by the CA ELAP.

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Where applicable, sampling conducted by ESC is performed per guidance provided in laboratory standard operating procedures: 060302, 060303, and 060304.

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REPORT OF ANALYSIS

Mr. Doug Reid
Lender Consulting Services - NY
40 La Riviere Dr., Ste. 120
Buffalo, NY 14202

April 12,2012

ESC Sample # : L568544-01

Site ID :

Project # : 12B943.22

Date Received : April 05, 2012
Description : Taylor Road

Sample ID : MW-1

Collected By : Chris Kibler
Collection Date : 04/03/12 16:00

Parameter	Result	Det. Limit	Units	Qualifier	Method	Date	Dil.
Cyanide	BDL	5.0	ug/l		9012B	04/10/12	1
Antimony	BDL	1.0	ug/l		6020	04/06/12	1
Arsenic	1.6	1.0	ug/l		6020	04/06/12	1
Lead	BDL	1.0	ug/l		6020	04/06/12	1
Thallium	BDL	1.0	ug/l		6020	04/06/12	1
Mercury	BDL	0.20	ug/l		7470A	04/09/12	1
Aluminum	400	100	ug/l		6010B	04/08/12	1
Barium	1800	5.0	ug/l		6010B	04/08/12	1
Beryllium	BDL	2.0	ug/l		6010B	04/08/12	1
Cadmium	BDL	5.0	ug/l		6010B	04/08/12	1
Calcium	96000	500	ug/l		6010B	04/08/12	1
Chromium	BDL	10.	ug/l		6010B	04/08/12	1
Cobalt	BDL	10.	ug/l		6010B	04/08/12	1
Copper	BDL	20.	ug/l		6010B	04/08/12	1
Iron	1300	100	ug/l		6010B	04/08/12	1
Magnesium	26000	100	ug/l		6010B	04/08/12	1
Manganese	130	10.	ug/l		6010B	04/08/12	1
Nickel	BDL	20.	ug/l		6010B	04/08/12	1
Potassium	3800	500	ug/l		6010B	04/08/12	1
Selenium	BDL	20.	ug/l		6010B	04/08/12	1
Silver	BDL	10.	ug/l		6010B	04/08/12	1
Sodium	52000	500	ug/l		6010B	04/08/12	1
Vanadium	BDL	10.	ug/l		6010B	04/08/12	1
Zinc	33.	30.	ug/l		6010B	04/08/12	1
Volatile Organics							
Acetone	BDL	50.	ug/l		8260B	04/06/12	1
Benzene	BDL	1.0	ug/l		8260B	04/06/12	1
Bromochloromethane	BDL	1.0	ug/l		8260B	04/06/12	1
Bromodichloromethane	BDL	1.0	ug/l		8260B	04/06/12	1
Bromoform	BDL	1.0	ug/l		8260B	04/06/12	1
Bromomethane	BDL	5.0	ug/l		8260B	04/06/12	1
Carbon disulfide	BDL	1.0	ug/l		8260B	04/06/12	1
Carbon tetrachloride	BDL	1.0	ug/l		8260B	04/06/12	1
Chlorobenzene	BDL	1.0	ug/l		8260B	04/06/12	1
Chlorodibromomethane	BDL	1.0	ug/l		8260B	04/06/12	1
Chloroethane	BDL	5.0	ug/l		8260B	04/06/12	1

BDL - Below Detection Limit
Det. Limit - Practical Quantitation Limit(PQL)

Laboratory Certification Numbers:
AIHA - 100789, AL - 40660, CA - I-2327, CT- PH-0197, FL - E87487, GA - 923, IN - C-TN-01
KY - 90010, KYUST - 0016, NC - ENV375,DW21704, ND - R-140, SC - 84004, TN - 2006, VA - 00109, WV - 233
AZ -0612, MN - 047-999-395, NY - 11742, NJ - TN002, WI - 998093910

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REPORT OF ANALYSIS

Mr. Doug Reid
Lender Consulting Services - NY
40 La Riviere Dr., Ste. 120
Buffalo, NY 14202

April 12,2012

Date Received : April 05, 2012
Description : Taylor Road

ESC Sample # : L568544-01

Site ID :

Sample ID : MW-1

Project # : 12B943.22

Collected By : Chris Kibler
Collection Date : 04/03/12 16:00

Parameter	Result	Det. Limit	Units	Qualifier	Method	Date	Dil.
Chloroform	BDL	5.0	ug/l		8260B	04/06/12	1
Chloromethane	BDL	2.5	ug/l		8260B	04/06/12	1
Cyclohexane	BDL	1.0	ug/l		8260B	04/06/12	1
1,2-Dibromo-3-Chloropropane	BDL	5.0	ug/l		8260B	04/06/12	1
1,2-Dibromoethane	BDL	1.0	ug/l		8260B	04/06/12	1
1,2-Dichlorobenzene	BDL	1.0	ug/l		8260B	04/06/12	1
1,3-Dichlorobenzene	BDL	1.0	ug/l		8260B	04/06/12	1
1,4-Dichlorobenzene	BDL	1.0	ug/l		8260B	04/06/12	1
Dichlorodifluoromethane	BDL	5.0	ug/l		8260B	04/06/12	1
1,1-Dichloroethane	BDL	1.0	ug/l		8260B	04/06/12	1
1,2-Dichloroethane	BDL	1.0	ug/l		8260B	04/06/12	1
1,1-Dichloroethene	BDL	1.0	ug/l		8260B	04/06/12	1
cis-1,2-Dichloroethene	BDL	1.0	ug/l		8260B	04/06/12	1
trans-1,2-Dichloroethene	BDL	1.0	ug/l		8260B	04/06/12	1
1,2-Dichloropropane	BDL	1.0	ug/l		8260B	04/06/12	1
cis-1,3-Dichloropropene	BDL	1.0	ug/l		8260B	04/06/12	1
trans-1,3-Dichloropropene	BDL	1.0	ug/l		8260B	04/06/12	1
Ethylbenzene	BDL	1.0	ug/l		8260B	04/06/12	1
2-Hexanone	BDL	10.	ug/l		8260B	04/06/12	1
Isopropylbenzene	BDL	1.0	ug/l		8260B	04/06/12	1
2-Butanone (MEK)	BDL	10.	ug/l		8260B	04/06/12	1
Methyl Acetate	BDL	20.	ug/l		8260B	04/06/12	1
Methyl Cyclohexane	BDL	1.0	ug/l		8260B	04/06/12	1
Methylene Chloride	BDL	5.0	ug/l		8260B	04/06/12	1
4-Methyl-2-pentanone (MIBK)	BDL	10.	ug/l		8260B	04/06/12	1
Methyl tert-butyl ether	BDL	1.0	ug/l		8260B	04/06/12	1
Styrene	BDL	1.0	ug/l		8260B	04/06/12	1
1,1,2,2-Tetrachloroethane	BDL	1.0	ug/l		8260B	04/06/12	1
Tetrachloroethene	BDL	1.0	ug/l		8260B	04/06/12	1
Toluene	BDL	5.0	ug/l		8260B	04/06/12	1
1,2,3-Trichlorobenzene	BDL	1.0	ug/l		8260B	04/06/12	1
1,2,4-Trichlorobenzene	BDL	1.0	ug/l		8260B	04/06/12	1
1,1,1-Trichloroethane	BDL	1.0	ug/l		8260B	04/06/12	1
1,1,2-Trichloroethane	BDL	1.0	ug/l		8260B	04/06/12	1
Trichloroethene	BDL	1.0	ug/l		8260B	04/06/12	1
Trichlorofluoromethane	BDL	5.0	ug/l		8260B	04/06/12	1
1,1,2-Trichlorotrifluoroethane	BDL	1.0	ug/l		8260B	04/06/12	1
Vinyl chloride	BDL	1.0	ug/l		8260B	04/06/12	1
Xylenes, Total	BDL	3.0	ug/l		8260B	04/06/12	1
Surrogate Recovery							

BDL - Below Detection Limit
Det. Limit - Practical Quantitation Limit(PQL)

Laboratory Certification Numbers:
AIHA - 100789, AL - 40660, CA - I-2327, CT- PH-0197, FL - E87487, GA - 923, IN - C-TN-01
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REPORT OF ANALYSIS

Mr. Doug Reid
Lender Consulting Services - NY
40 La Riviere Dr., Ste. 120
Buffalo, NY 14202

April 12,2012

ESC Sample # : L568544-01

Date Received : April 05, 2012
Description : Taylor Road

Site ID :

Sample ID : MW-1

Project # : 12B943.22

Collected By : Chris Kibler
Collection Date : 04/03/12 16:00

Parameter	Result	Det. Limit	Units	Qualifier	Method	Date	Dil.
Toluene-d8	101.		% Rec.		8260B	04/06/12	1
Dibromofluoromethane	106.		% Rec.		8260B	04/06/12	1
4-Bromofluorobenzene	96.2		% Rec.		8260B	04/06/12	1
Pesticide/PCBs							
Aldrin	BDL	0.050	ug/l		8081/8082	04/09/12	1
Alpha BHC	BDL	0.050	ug/l		8081/8082	04/09/12	1
Beta BHC	BDL	0.050	ug/l		8081/8082	04/09/12	1
Delta BHC	BDL	0.050	ug/l		8081/8082	04/09/12	1
Gamma BHC	BDL	0.050	ug/l		8081/8082	04/09/12	1
Chlordane	BDL	0.50	ug/l		8081/8082	04/09/12	1
4,4-DDD	BDL	0.050	ug/l		8081/8082	04/09/12	1
4,4-DDE	BDL	0.050	ug/l		8081/8082	04/09/12	1
4,4-DDT	BDL	0.050	ug/l		8081/8082	04/09/12	1
Dieldrin	BDL	0.050	ug/l		8081/8082	04/09/12	1
Endosulfan I	BDL	0.050	ug/l		8081/8082	04/09/12	1
Endosulfan II	BDL	0.050	ug/l		8081/8082	04/09/12	1
Endosulfan sulfate	BDL	0.050	ug/l		8081/8082	04/09/12	1
Endrin	BDL	0.050	ug/l		8081/8082	04/09/12	1
Endrin aldehyde	BDL	0.050	ug/l		8081/8082	04/09/12	1
Endrin ketone	BDL	0.050	ug/l		8081/8082	04/09/12	1
Heptachlor	BDL	0.050	ug/l	J3	8081/8082	04/09/12	1
Heptachlor epoxide	BDL	0.050	ug/l		8081/8082	04/09/12	1
Hexachlorobenzene	BDL	0.050	ug/l		8081/8082	04/09/12	1
Methoxychlor	BDL	0.050	ug/l		8081/8082	04/09/12	1
Toxaphene	BDL	0.50	ug/l		8081/8082	04/09/12	1
PCB 1016	BDL	0.50	ug/l		8081/8082	04/09/12	1
PCB 1221	BDL	0.50	ug/l		8081/8082	04/09/12	1
PCB 1232	BDL	0.50	ug/l		8081/8082	04/09/12	1
PCB 1242	BDL	0.50	ug/l		8081/8082	04/09/12	1
PCB 1248	BDL	0.50	ug/l		8081/8082	04/09/12	1
PCB 1254	BDL	0.50	ug/l		8081/8082	04/09/12	1
PCB 1260	BDL	0.50	ug/l		8081/8082	04/09/12	1
Pest/PCBs Surrogates							
Decachlorobiphenyl	76.6		% Rec.		8081/8082	04/09/12	1
Tetrachloro-m-xylene	80.9		% Rec.		8081/8082	04/09/12	1
Herbicides							
2,4-D	BDL	2.0	ug/l		8151	04/12/12	1
Dalapon	BDL	200	ug/l		8151	04/12/12	1

BDL - Below Detection Limit
Det. Limit - Practical Quantitation Limit(PQL)

Laboratory Certification Numbers:
AIHA - 100789, AL - 40660, CA - I-2327, CT- PH-0197, FL - E87487, GA - 923, IN - C-TN-01
KY - 90010, KYUST - 0016, NC - ENV375,DW21704, ND - R-140, SC - 84004, TN - 2006, VA - 00109, WV - 233
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Fax (615) 758-5859

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Est. 1970

REPORT OF ANALYSIS

Mr. Doug Reid
Lender Consulting Services - NY
40 La Riviere Dr., Ste. 120
Buffalo, NY 14202

April 12,2012

Date Received : April 05, 2012
Description : Taylor Road

ESC Sample # : L568544-01

Sample ID : MW-1

Site ID :

Project # : 12B943.22

Collected By : Chris Kibler
Collection Date : 04/03/12 16:00

Parameter	Result	Det. Limit	Units	Qualifier	Method	Date	Dil.
2,4-DB	BDL	2.0	ug/l		8151	04/12/12	1
Dicamba	BDL	2.0	ug/l		8151	04/12/12	1
Dichloroprop	BDL	2.0	ug/l		8151	04/12/12	1
Dinoseb	BDL	2.0	ug/l	L1	8151	04/12/12	1
MCPA	BDL	100	ug/l		8151	04/12/12	1
MCPP	BDL	100	ug/l		8151	04/12/12	1
2,4,5-T	BDL	2.0	ug/l		8151	04/12/12	1
2,4,5-TP (Silvex)	BDL	2.0	ug/l		8151	04/12/12	1
Surrogate Recovery							
2,4-Dichlorophenyl Acetic Acid	88.9		% Rec.		8151	04/12/12	1
TCL Base/Neutral Extractables							
Acenaphthene	BDL	1.0	ug/l		8270C	04/07/12	1
Acenaphthylene	BDL	1.0	ug/l		8270C	04/07/12	1
Acetophenone	BDL	10.	ug/l		8270C	04/07/12	1
Anthracene	BDL	1.0	ug/l		8270C	04/07/12	1
Atrazine	BDL	10.	ug/l		8270C	04/07/12	1
Benzaldehyde	BDL	10.	ug/l		8270C	04/07/12	1
Benzo(a)anthracene	BDL	1.0	ug/l		8270C	04/07/12	1
Benzo(b)fluoranthene	BDL	1.0	ug/l		8270C	04/07/12	1
Benzo(k)fluoranthene	BDL	1.0	ug/l		8270C	04/07/12	1
Benzo(g,h,i)perylene	BDL	1.0	ug/l		8270C	04/07/12	1
Benzo(a)pyrene	BDL	1.0	ug/l		8270C	04/07/12	1
Biphenyl	BDL	10.	ug/l		8270C	04/07/12	1
Bis(2-chlorethoxy)methane	BDL	10.	ug/l		8270C	04/07/12	1
Bis(2-chloroethyl)ether	BDL	10.	ug/l		8270C	04/07/12	1
Bis(2-chloroisopropyl)ether	BDL	10.	ug/l		8270C	04/07/12	1
4-Bromophenyl-phenylether	BDL	10.	ug/l		8270C	04/07/12	1
Caprolactam	BDL	10.	ug/l		8270C	04/07/12	1
Carbazole	BDL	10.	ug/l		8270C	04/07/12	1
4-Chloroaniline	BDL	10.	ug/l		8270C	04/07/12	1
2-Chloronaphthalene	BDL	1.0	ug/l		8270C	04/07/12	1
4-Chlorophenyl-phenylether	BDL	10.	ug/l		8270C	04/07/12	1
Chrysene	BDL	1.0	ug/l		8270C	04/07/12	1
Dibenz(a,h)anthracene	BDL	1.0	ug/l		8270C	04/07/12	1
Dibenzofuran	BDL	10.	ug/l		8270C	04/07/12	1
3,3-Dichlorobenzidine	BDL	10.	ug/l		8270C	04/07/12	1
2,4-Dinitrotoluene	BDL	10.	ug/l		8270C	04/07/12	1
2,6-Dinitrotoluene	BDL	10.	ug/l		8270C	04/07/12	1
Fluoranthene	BDL	1.0	ug/l		8270C	04/07/12	1

BDL - Below Detection Limit
Det. Limit - Practical Quantitation Limit(PQL)

Laboratory Certification Numbers:
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REPORT OF ANALYSIS

Mr. Doug Reid
Lender Consulting Services - NY
40 La Riviere Dr., Ste. 120
Buffalo, NY 14202

April 12,2012

ESC Sample # : L568544-01

Date Received : April 05, 2012
Description : Taylor Road

Site ID :

Sample ID : MW-1

Project # : 12B943.22

Collected By : Chris Kibler
Collection Date : 04/03/12 16:00

Parameter	Result	Det. Limit	Units	Qualifier	Method	Date	Dil.
Fluorene	BDL	1.0	ug/l		8270C	04/07/12	1
Hexachlorobenzene	BDL	1.0	ug/l		8270C	04/07/12	1
Hexachloro-1,3-butadiene	BDL	10.	ug/l		8270C	04/07/12	1
Hexachlorocyclopentadiene	BDL	10.	ug/l		8270C	04/07/12	1
Hexachloroethane	BDL	10.	ug/l		8270C	04/07/12	1
Indeno(1,2,3-cd)pyrene	BDL	1.0	ug/l		8270C	04/07/12	1
Isophorone	BDL	10.	ug/l		8270C	04/07/12	1
2-Methylnaphthalene	BDL	1.0	ug/l		8270C	04/07/12	1
Naphthalene	BDL	1.0	ug/l		8270C	04/07/12	1
2-Nitroaniline	BDL	10.	ug/l		8270C	04/07/12	1
3-Nitroaniline	BDL	10.	ug/l		8270C	04/07/12	1
4-Nitroaniline	BDL	10.	ug/l		8270C	04/07/12	1
Nitrobenzene	BDL	10.	ug/l		8270C	04/07/12	1
n-Nitrosodiphenylamine	BDL	10.	ug/l		8270C	04/07/12	1
n-Nitrosodi-n-propylamine	BDL	10.	ug/l		8270C	04/07/12	1
Phenanthrene	BDL	1.0	ug/l		8270C	04/07/12	1
Benzylbutyl phthalate	BDL	1.0	ug/l		8270C	04/07/12	1
Bis(2-ethylhexyl)phthalate	BDL	1.0	ug/l		8270C	04/07/12	1
Di-n-butyl phthalate	BDL	1.0	ug/l		8270C	04/07/12	1
Diethyl phthalate	BDL	1.0	ug/l		8270C	04/07/12	1
Dimethyl phthalate	BDL	1.0	ug/l		8270C	04/07/12	1
Di-n-octyl phthalate	BDL	1.0	ug/l		8270C	04/07/12	1
Pyrene	BDL	1.0	ug/l		8270C	04/07/12	1
1,2,4,5-Tetrachlorobenzene	BDL	10.	ug/l		8270C	04/07/12	1
TCL Acid Extractables							
4-Chloro-3-methylphenol	BDL	10.	ug/l		8270C	04/07/12	1
2-Chlorophenol	BDL	10.	ug/l		8270C	04/07/12	1
2-Methylphenol	BDL	10.	ug/l		8270C	04/07/12	1
3&4-methyl phenol	BDL	10.	ug/l		8270C	04/07/12	1
2,4-Dichlorophenol	BDL	10.	ug/l		8270C	04/07/12	1
2,4-Dimethylphenol	BDL	10.	ug/l		8270C	04/07/12	1
4,6-Dinitro-2-methylphenol	BDL	10.	ug/l		8270C	04/07/12	1
2,4-Dinitrophenol	BDL	10.	ug/l		8270C	04/07/12	1
2-Nitrophenol	BDL	10.	ug/l		8270C	04/07/12	1
4-Nitrophenol	BDL	10.	ug/l	J3	8270C	04/07/12	1
Pentachlorophenol	BDL	10.	ug/l		8270C	04/07/12	1
Phenol	BDL	10.	ug/l		8270C	04/07/12	1
2,4,5-Trichlorophenol	BDL	10.	ug/l		8270C	04/07/12	1
2,4,6-Trichlorophenol	BDL	10.	ug/l		8270C	04/07/12	1
Surrogate Recovery							

BDL - Below Detection Limit
Det. Limit - Practical Quantitation Limit(PQL)

Laboratory Certification Numbers:
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REPORT OF ANALYSIS

Mr. Doug Reid
Lender Consulting Services - NY
40 La Riviere Dr., Ste. 120
Buffalo, NY 14202

April 12,2012

Date Received : April 05, 2012
Description : Taylor Road

ESC Sample # : L568544-01

Site ID :

Sample ID : MW-1

Project # : 12B943.22

Collected By : Chris Kibler
Collection Date : 04/03/12 16:00

Parameter	Result	Det. Limit	Units	Qualifier	Method	Date	Dil.
Nitrobenzene-d5	87.0		% Rec.		8270C	04/07/12	1
2-Fluorobiphenyl	89.7		% Rec.		8270C	04/07/12	1
p-Terphenyl-d14	105.		% Rec.		8270C	04/07/12	1
Phenol-d5	15.1		% Rec.		8270C	04/07/12	1
2-Fluorophenol	27.6		% Rec.		8270C	04/07/12	1
2,4,6-Tribromophenol	90.5		% Rec.		8270C	04/07/12	1

BDL - Below Detection Limit
Det. Limit - Practical Quantitation Limit(PQL)

Laboratory Certification Numbers:
AIHA - 100789, AL - 40660, CA - I-2327, CT- PH-0197, FL - E87487, GA - 923, IN - C-TN-01
KY - 90010, KYUST - 0016, NC - ENV375,DW21704, ND - R-140, SC - 84004, TN - 2006, VA - 00109, WV - 233
AZ -0612, MN - 047-999-395, NY - 11742, NJ - TN002, WI - 998093910

Note:
The reported analytical results relate only to the sample submitted.
This report shall not be reproduced, except in full, without the written approval from ESC.

Reported: 04/12/12 17:30 Printed: 04/12/12 17:31

Attachment A
List of Analytes with QC Qualifiers

Sample Number	Work Group	Sample Type	Analyte	Run ID	Qualifier
L568544-01	WG586465	SAMP	4-Nitrophenol	R2109833	J3
	WG586542	SAMP	Heptachlor	R2111516	J3
	WG587038	SAMP	Dinoseb	R2118414	L1

Attachment B
Explanation of QC Qualifier Codes

Qualifier	Meaning
J3	The associated batch QC was outside the established quality control range for precision.
L1	(ESC) The associated batch LCS exceeded the upper control limit, which indicates a high bias; The sample analyte was "not detected" and is therefore unaffected.

Qualifier Report Information

ESC utilizes sample and result qualifiers as set forth by the EPA Contract Laboratory Program and as required by most certifying bodies including NELAC. In addition to the EPA qualifiers adopted by ESC, we have implemented ESC qualifiers to provide more information pertaining to our analytical results. Each qualifier is designated in the qualifier explanation as either EPA or ESC. Data qualifiers are intended to provide the ESC client with more detailed information concerning the potential bias of reported data. Because of the wide range of constituents and variety of matrices incorporated by most EPA methods, it is common for some compounds to fall outside of established ranges. These exceptions are evaluated and all reported data is valid and useable "unless qualified as 'R' (Rejected)."

Definitions

Accuracy - The relationship of the observed value of a known sample to the true value of a known sample. Represented by percent recovery and relevant to samples such as: control samples, matrix spike recoveries, surrogate recoveries, etc.

Precision - The agreement between a set of samples or between duplicate samples. Relates to how close together the results are and is represented by Relative Percent Differrence.

Surrogate - Organic compounds that are similar in chemical composition, extraction, and chromotography to analytes of interest. The surrogates are used to determine the probable response of the group of analytes that are chemically related to the surrogate compound. Surrogates are added to the sample and carried through all stages of preparation and analyses.

TIC - Tentatively Identified Compound: Compounds detected in samples that are not target compounds, internal standards, system monitoring compounds, or surrogates.

Summary of Remarks For Samples Printed
04/12/12 at 17:31:12

TSR Signing Reports: 364
RX - Priority Rush

Log all Standard TAT= RX with hard 5 day TAT, Log Terracore if Terracores are rec'd, Soils always in dryweight, PAHSIM for GW

Sample: L568544-01 Account: LCSBNY Received: 04/05/12 09:00 Due Date: 04/12/12 00:00 RPT Date: 04/12/12 17:30

Billing Information:
LCS, Inc.
40 La Riviere Drive, Suite 120
Buffalo, NY 14202

Report to: LCS, Inc.

Email to: dreid@lenderconsulting.com

Project Description: Taylor Road

City/State Collected: Hamburg, New York

Phone: 716-845-6145
FAX: 716-845-6164

Client Project #: 120943.22

ESC Key: LCSBNY060911B

Collected by: Chris Hibbs

Site/Facility ID#:

P.O.#:

Collected by (signature):

Immediately Packed on Ice N (Y)

Rush? (Lab MUST Be Notified)
____ Same Day.....200%
____ Next Day.....100%
____ Two Day.....50%
____ Three Day.....25%

Date Results Needed: 5130

Email? __No ✓Yes

FAX? __No__Yes

Sample ID	Comp/Grab	Matrix*	Depth	Date	Time	No. of Cntrs	TCL VOC's 8260	TCL SVOC's 8270	TAL Metals 6010/7470/7471	Cyanide 9012	PCB's 8082	Herbicides 8151	Pesticides 8081	Remarks/Contaminant	Sample # (lab only)
MW-1	Comp	GW	—	04-03-12	16:00	10	X	X	X	X	X	X	X		1568544-01

Analysis/Container/Preservative

Chain of Custody
Page 1 of 1

ESC
L-A-B S-C-I-E-N-C-E-S
12065 Lebanon Road
Mt. Juliet, TN 37122
Phone: (800) 767-5859
Phone: (615) 758-5858
Fax: (615) 758-5859
G085

CoCode (lab use only)

Template/Prelogin

Shipped Via:

*Matrix: SS - Soil/Solid GW - Groundwater WW - WasteWater DW - Drinking Water OT - Other_____

pH _____ Temp _____

Remarks: 5010 0620 8703

Flow _____ Other _____

Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Samples returned via: ☐ UPS ☑ FedEx ☐ Courier ☐	Condition: (lab use only)
Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Temp: 3.4 °C	Bottles Received: 10	CoC Seals Intact: ___Y ___N ✓NA
Relinquished by: (Signature)	Date:	Time:	Received for lab by: (Signature)	Date: 4-5-12	Time: 0900	pH Checked: C2 7/2	NCF:

LIMITATIONS

This environmental study is limited by the scope of services contained within this report and time frames specified within the contracts for services agreed to by you dated March 7, 2012.

This environmental study makes no warranties nor implies any liability regarding:

1. Any chemical analytes not included within the analytical test methods employed during this study.
2. Any impacted media present from off-site sources not assessed.
3. Any impact at locations and depths not assessed in this study.
4. Vapor Intrusion.

Conclusions and/or recommendations made within the study are based on the interpretation of data collected at individual sample locations and may change if additional data is collected during future study. Conditions between sampling locations are estimated based on available data. Intrusive studies serve to reduce, but not eliminate, the potential environmental risk associated with a property. No study is considered all-inclusive or representative of the entire subject property. Such would be cost prohibitive.

EXHIBIT 4

SOIL AND WATER SAMPLING PROGRAM
DECEMBER 6, 1994

By: Niagara Frontier Consulting Services, Inc.

ENVIRONMENTAL CONSULTANT'S REPORT

SOIL AND WATER SAMPLING PROGRAM

FOR

146.32 ACRES
6636 TAYLOR ROAD
TOWN OF HAMBURG, NEW YORK

Submitted by:

N.F.C.S. NIAGARA FRONTIER CONSULTING SERVICES, INC.

Gateway Trade Center • Suite 120 • 3556 Lake Shore Blvd. • Blasdell, NY 14219 716/822-7392 • FAX 822-7395

N.F.C.S. NIAGARA FRONTIER CONSULTING SERVICES, INC.

Gateway Trade Center • Suite 120 • 3556 Lake Shore Blvd. • Blasdell, NY 14219 716/822-7392 • FAX 822-7395

SOIL AND WATER SAMPLING PROGRAM

146.32 ACRES
6636 TAYLOR ROAD
TOWN OF HAMBURG, NEW YORK

PREPARED FOR:

Mr. James Yoviene
815 Smith Street
Buffalo, New York

PREPARED BY:

NIAGARA FRONTIER CONSULTING SERVICES, INC.

DECEMBER 6, 1994

1.0 EXECUTIVE SUMMARY

1.1 SUMMARY OF SIGNIFICANT FINDINGS

1. During the course of the NFCS site walk-over of the subject site, there was evidence observed that would indicate the presence or likely presence of a release of a hazardous or toxic substance of concern. The subject site dump area was noted to contain various metal parts, automotive parts, auto tires, and miscellaneous municipal trash. The dump area was also noted to have a drainageway traversing the site around the dump area. The dump was historically used for municipal solid waste disposal for the years 1951-66 as evidenced in aerial photographs. The dump area has since been covered and graded and mature species of woody trees and herbaceous vegetation cover the site.

2. Analytical results of the soil and water sampling program indicate no contamination of the subject site dump area, drainageway and adjacent wetland area by toxic or hazardous substances of concern. However, the sampling program was limited in scope and extent and included only four samples.

1.2 RECOMMENDATIONS

1. Additional sampling and analysis of the subject site soils and water is not warranted at this time based on the results of the herein stated soil and water sampling program.

2. Caution is recommended regarding disturbance of the dump area. In the event hazardous and/or toxic substances are encountered in the clearing and development of this site, a cease-work order should be imposed pending evaluation, sampling and analysis of suspect materials.

3. Methods to contain discharges of soils and debris into the onsite drainageway should be initiated prior to clearing and or development of the site. The drainageway is directly associated with an onsite wetland area and adjacent Federal and State mapped wetlands. Impacts of the site activity to these regulated wetland areas will require review and permitting with the appropriate regulatory agencies.

2.0 SCOPE OF SERVICES AND METHODOLOGY

NFCS was contracted by Mr. James Yoviene to conduct a limited soil and water sampling program at the referenced site. Representative samples of soil and water were to be obtained and submitted to an independent laboratory for analysis by EPA protocol for Toxicity Characteristic Leaching Procedure (TCLP), less herbicides and pesticides to ascertain contamination of the subject site as a result of historical usage of a portion of the subject site as a municipal dump site. This program is considered a preliminary screening program for hazardous and/or toxic substances potentially impacting the site and is not to be considered a complete environmental investigative sampling program intended to delineate an areal extent of contamination.

Two samples of soil were obtained: one from within the dump area and one from adjacent to the dump area. Two water samples were also obtained: one from the drainageway adjacent to the dump area and one from the westerly adjacent wetland area. Samples were obtained utilizing a hand-auger to depths of 4-6 feet below existing grade on November 14, 1994.

Samples were packed in appropriate containers prepared by the laboratory, labelled and a chain-of-custody record completed. Samples were hand-delivered to Waste Stream Technology Inc., 302 Grote Street, Buffalo, New York by NFCS personnel on November 14, 1994.

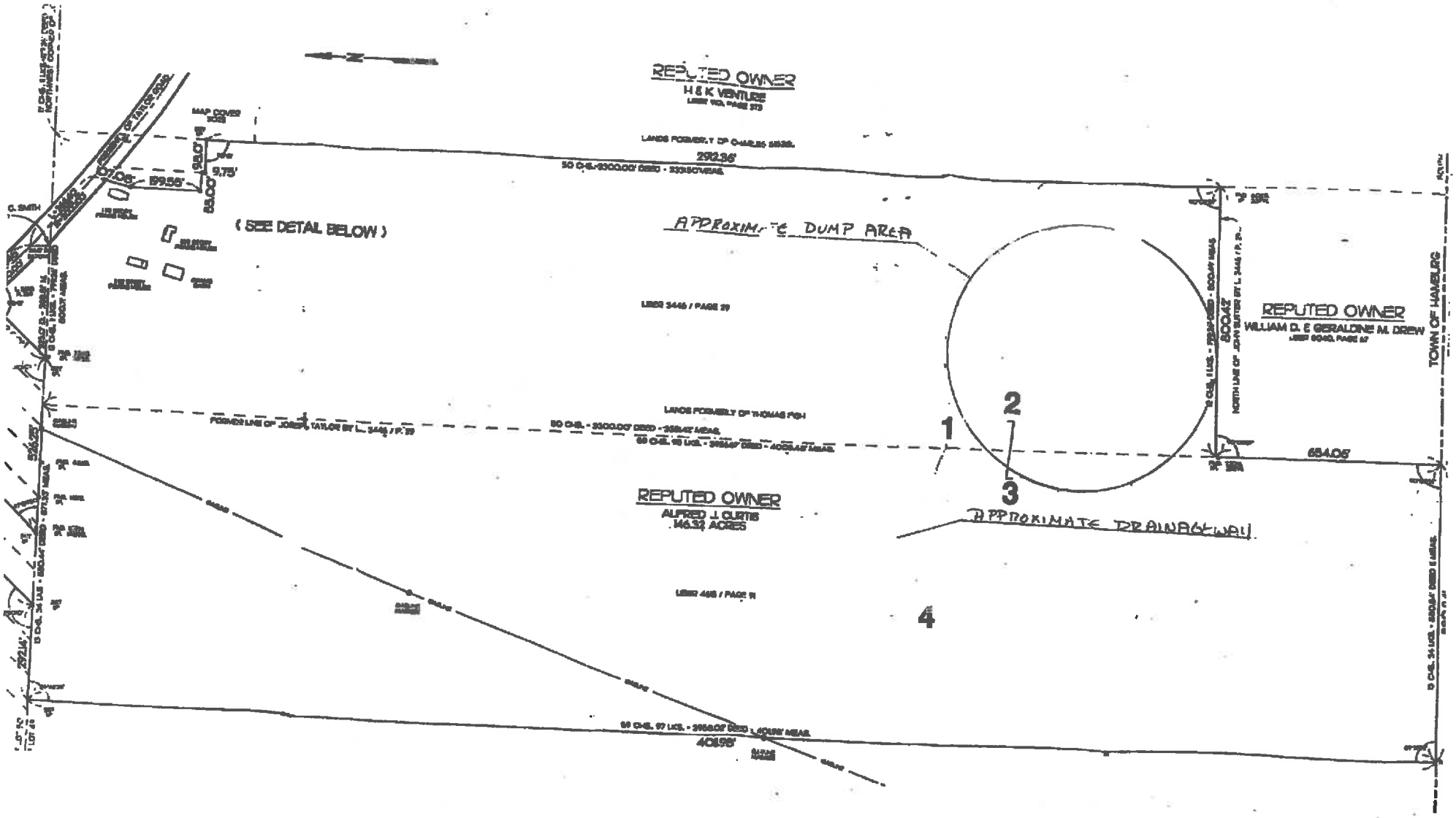
Sample results were evaluated in accordance with the US Environmental Protection Agency (EPA) Toxicity Characteristic (TC) Rule (40 CFR 261) and New York State regulations 6 NYCRR Part 371.

3.0 FINDINGS AND CONCLUSIONS

All parameters analyzed for were detected at or below the laboratory detection limit with the exception of barium which was detected within regulatory limits. Following is a summary table of sample results. Regulatory standards or limits are expressed in equivalent units within parentheses.

PARAMETER	SAMPLE #1 (LEACHATE)	SAMPLE #2 (ON DUMP)	SAMPLE #3 (OFF DUMP)	SAMPLE #4 (WETLAND)
VINYL CHLORIDE (ppm) (0.2)	0.1	0.1	0.1	0.1
1,1-DICHLORO-ETHENE (ppm) (0.7)	0.05	0.05	0.05	0.05
CHLORO-FORM (ppm) (6.0)	0.05	0.05	0.05	0.05
2-BUTANONE (ppm)	1.0	1.0	1.0	1.0
1,2-DICHLORO-ETHANE (ppm) (.05)	0.05	0.05	0.05	0.05
CARBON TETRACHLO-RIDE (ppm) (0.5)	0.05	0.05	0.05	0.05
TRICHLORO-ETHENE (ppm) (0.5)	0.05	0.05	0.05	0.05
BENZENE (ppm) (0.5)	0.05	0.05	0.05	0.05
TETRA-CHLORO-ETHENE (ppm) (0.7)	0.05	0.05	0.05	0.05

PARAMETER	SAMPLE #1 (LEACHATE)	SAMPLE #2 (ON DUMP)	SAMPLE #3 (OFF DUMP)	SAMPLE #4 (WETLAND)
PYRIDINE (ppm) (5.0)	0.01	0.01	0.01	0.01
1,4-DICHLORO-BENZENE (ppm) (7.5)	0.01	0.01	0.01	0.01
TOTAL CRESOLS (ppm) (200.0)	0.03	0.03	0.03	0.03
NITRO-BENZENE (ppm) (2.0)	0.01	0.01	0.01	0.01
HEXA-CHLORO-ETHANE (ppm) (3.0)	0.01	0.01	0.01	0.01
HEXA-CHLORO-BUTADIENE (ppm) (0.5)	0.01	0.01	0.01	0.01
2,4,6-TRICHLORO-PHENOL (ppm) (2.0)	0.01	0.01	0.01	0.01
2,4,5-TRICHLORO-PHENOL (ppm) (400.0)	0.01	0.01	0.01	0.01
2,4-DINITRO-TOLUENE (ppm) (0.13)	0.01	0.01	0.01	0.01


REPUTED OWNER
H & K VENTURE
292.36'
(SEE DETAL BELOW)
APPROXIMATE DUMP AREA
REPUTED OWNER
WILLIAM D. & GERALDINE M. DREW
TOWN OF HAMBURG
654.08'
REPUTED OWNER
ALFRED J. CURTIS
146.32 ACRES
1
2
3
4
APPROXIMATE DRAINAGE WAY

WASTE STREAM TECHNOLOGY
Laboratory Chronicle

Report Date : 12/3/94
Group Number : 9401-295

Prepared For :
Terry Paquin
Niagara Frontier Consultants
Gateway Trade Center
3556 Lake Shore Blvd. Suite 120
Blasdell, NY 14219

Site : Taylor

Field and Laboratory Information

Client Id	WST Lab #	Matrix	Date Sampled	Date Received	Time
DUMP	WS09839	Leachate	11/14/94	11/15/94	0800
ON DUMP	WS09840	Soil	11/14/94	11/15/94	0800
OFF DUMP	WS09841	Soil	11/14/94	11/15/94	0800
WETLAND	WS09842	Water	11/14/94	11/15/94	0800
Sample Status Upon Receipt : No irregularities.					

Analytical Services

Analytical Parameters	Number of Samples	Turnaround Time
TCLP VOC	4	Standard
TCLP BNA	4	Standard
TCLP Metals	4	Standard
Corrosivity	4	Standard
Reactivity	4	Standard
Ignitability	2	Standard

Report Released By : Daniel W. Voss

ENVIRONMENTAL LABORATORY ACCREDITATION
CERTIFICATION NUMBER (ELAP) 11179

METHODOLOGIES

The specific methodologies employed in obtaining the analytical data reported are indicated on each of the result forms. The method numbers shown refer to the following U.S. Environmental Protection Agency Reference:

U.S. Environmental Protection Agency, "Method for Chemical Analysis of Water and Wastes," EPA 600/4-79-020, March 1983 Revision.

U.S. Environmental Protection Agency, "Test Methods for Evaluating Solid Waste - Physical/Chemical Methods," Office of Solid Waste and Emergency Response, November 1986, SW-846, Third edition.

U.S. Environmental Protection Agency, Federal Register, 40 CFR Part 136, October 1984.

U.S. Environmental Protection Agency, Federal Register, 40 CFR Part 268, Appendix I, November 1986.

ORGANIC DATA COMMENT PAGE

Laboratory Name - Waste Stream Technology

USEPA Defined Organic Data Qualifiers:

U - Indicates compound was analyzed for but not detected.

J - Indicates an estimated value. This flag is used either when estimating a concentration for tentatively identified compounds where a 1:1 response is assumed, or when the mass spectral data indicates the presence of a compound that meets identification criteria, but the result is less than the sample quantitation limit but greater than zero.

C - This flag applies to pesticide results where the identification has been confirmed by GC/MS.

B - This flag is used when the analyte is found in the associated blank as well as the sample.

E - This flag identifies all compounds whose concentrations exceed the calibration range of the GC/MS instrument or that specific analysis.

D - This flag identifies all compounds identified in an analysis at a secondary dilution factor.

G - Matrix spike percent recovery is greater than expected upper limit of analytical performance.

L - Matrix spike percent recovery is less than the expected lower limit of analytical performance.

Waste Stream Technology

TCLP 8240 Results Report

Site : Taylor
Date Sampled : 11/14/94
Date Received : 11/15/94 @ 0800

Group Number : 9401-295
Sample Matrix : TCLP Extract
Report Units : PPM (mg/L)

Liquid

WST Lab ID		WS09839		WS09842		MB111594	
Client ID		#1 DUMP		#4 WETLAND		NA	
TCLP Extraction Date		11/15/94		11/15/94		11/15/94	
Analysis Date		11/23/94		11/23/94		11/23/94	
Compound		Result	Q	Result	Q	Result	Q
vinyl chloride		0.1	U	0.1	U	0.1	U
1,1-dichloroethene		0.05	U	0.05	U	0.05	U
chloroform		0.05	U	0.05	U	0.05	U
2-butanone		1.0	U	1.0	U	1.0	U
1,2-dichloroethane		0.05	U	0.05	U	0.05	U
carbon tetrachloride		0.05	U	0.05	U	0.05	U
trichloroethene		0.05	U	0.05	U	0.05	U
benzene		0.05	U	0.05	U	0.05	U
tetrachloroethene		0.05	U	0.05	U	0.05	U
chlorobenzene		0.05	U	0.05	U	0.05	U
1,4-dichlorobenzene		0.05	U	0.05	U	0.05	U
Detection Limit Multiplier		1		1		1	
Surrogate % Rec.	QC Limits						
1,2-dichloroethane-d4	70 - 121	102		99		98	
toluene-d8	81 - 117	102		99		102	
bromofluorobenzene	74 - 121	101		97		101	

MB denotes Method Blank.
NA denotes Not Applicable.

Waste Stream Technology

TCLP 8240 Results Report

Site : Taylor
Date Sampled : 11/14/94
Date Received : 11/15/94 @ 0800

Group Number : 9401-295
Sample Matrix : TCLP Extract
Report Units : PPM (mg/L)

		SOIL				BLANK	
WST Lab ID		WS09840		WS09841		MB111694	
Client ID		#2 ON DUMP		#3 OFF DUMP		NA	
TCLP Extraction Date		11/16/94		11/16/94		11/16/94	
Analysis Date		11/17/94		11/17/94		11/17/94	
Compound		Result	Q	Result	Q	Result	Q
vinyl chloride		0.1	U	0.1	U	0.1	U
1,1-dichloroethene		0.05	U	0.05	U	0.05	U
chloroform		0.05	U	0.05	U	0.05	U
2-butanone		1.0	U	1.0	U	1.0	U
1,2-dichloroethane		0.05	U	0.05	U	0.05	U
carbon tetrachloride		0.05	U	0.05	U	0.05	U
trichloroethene		0.05	U	0.05	U	0.05	U
benzene		0.05	U	0.05	U	0.05	U
tetrachloroethene		0.05	U	0.05	U	0.05	U
chlorobenzene		0.05	U	0.05	U	0.05	U
1,4-dichlorobenzene		0.05	U	0.05	U	0.05	U
Detection Limit Multiplier		1		1		1	
Surrogate % Rec.	QC Limits						
1,2-dichloroethane-d4	70 - 121	111		106		120	
toluene-d8	81 - 117	99		95		112	
bromofluorobenzene	74 - 121	92		90		107	

MB denotes Method Blank.
NA denotes Not Applicable.

WASTE STREAM TECHNOLOGY

TCLP(1311)/8270 Base, Neutral and Acid Extractables Report

Site : Taylor
Sample Date: 11/14/94
TCLP Extraction Date : 11/18/94
3510 Extraction Date : 11/20/94
Analysis Date :11/24/94

Group Number : 9401-295
Date Received : 11/15/94 @ 0800
Report Units : PPB (ug/L)
Sample Matrix : TCLP Extract

	WST Lab ID	WS09839		WS09842	
	Client ID	#1 DUMP		#4 WETLAND	
COMPOUNDS	Detection Limit	Result	Q	Result	Q
pyridine	10	10	U	10	U
1,4-dichlorobenzene	10	10	U	10	U
Total cresols (o,m & p)	30	30	U	30	U
nitrobenzene	10	10	U	10	U
hexachloroethane	10	10	U	10	U
hexachlorobutadiene	10	10	U	10	U
2,4,6-trichlorophenol	10	10	U	10	U
2,4,5-trichlorophenol	10	10	U	10	U
2,4-dinitrotoluene	10	10	U	10	U
hexachlorobenzene	10	10	U	10	U
pentachlorophenol	50	50	U	50	U
Surrogate %Recover	QC Limits				
2-fluorophenol	21-100	48		44	
phenol-d6	10-94	37		34	
nitrobenzene-d6	35-114	69		70	
2-fluorobiphenyl	43-116	77		69	
2,4,6-tribromophenol	10-123	82		77	
p-terphenyl-d14	33-141	63		59	

Waste Stream Technology Inc.

Site : Taylor :
Date Received : 11/15/94 @ 0800

Group Number : 9401-295
Units of Measure : PPM

Reactive Cyanide Result Report
SW 846 Section 7.3.3.2/Method 9010

WST Lab ID	Client ID	Sample Date	Analysis Date	Cyanide Result	Matrix
WS09839	#1 DUMP	11/14/94	11/23/94	< 7.6	Leachate
WS09840	#2 ON DUMP	11/14/94	11/23/94	< 7.6	Soil
WS09841	#3 OFF DUMP	11/14/94	12/1/94	< 7.6	Soil
WS09842	#4 WETLAND	11/14/94	12/1/94	< 7.6	Water

Cyanide Detection Limit : 7.6 PPM

Reactive Sulfide Result Report
SW 846 Section 7.3.4.2/Method 9030

WST Lab ID	Client ID	Sample Date	Analysis Date	Sulfide Result	Sulfide Result
WS09839	#1 DUMP	11/14/94	11/23/94	34.1	Leachate
WS09840	#2 ON DUMP	11/14/94	11/23/94	69.2	Soil
WS09841	#3 OFF DUMP	11/14/94	12/2/94	120	Soil
WS09842	#4 WETLAND	11/14/94	12/2/94	110	Water

Reactive Sulfide Detection Limit : 3.6 PPM

Waste Stream Technology Inc.

Corrosivity Report Form

Method 150.1

Site: Taylor
Date Sampled: 11/14/94
Date Received: 11/15/94 @ 0800

Group Number: 9401-295
Sample Matrix: Aqueous
Units of Measure: pH units

WST Lab ID	Client ID	Date Analyzed	pH Result	Corrosivity Limits
WS09839	#1 DUMP	11/21/94	7.24	< 4 or > 11
WS09842	#4 WETLAND	11/21/94	7.22	< 4 or > 11

Waste Stream Technology Inc.

Corrosivity Report Form

Method 9045

Site: Taylor
Date Sampled: 11/14/94
Date Received: 11/15/94 @ 0800

Group Number: 9401-295
Sample Matrix: Soil
Units of Measure: pH units

WST Lab ID	Client ID	Date Analyzed	pH Result	Corrosivity Limits
WS09840	#2 ON DUMP	11/21/94	6.81	< 4 or > 11
WS09841	#3 OFF DUMP	11/21/94	7.23	< 4 or > 11

CHAIN-OF-CUSTODY

Site: 6636 Taylor Rd., Hamburg, NY 34444.21A December 6, 1994

WASTE STREAM TECHNOLOGY

302 GROTE STREET
BUFFALO, NY 14207
(716) 876-5290

NFCS - TERRY
7556 Lakeshore Blvd
Bluedell 14219

CHAIN OF CUSTODY RECORD

PROJECT NO: 34444.21 SITE NAME: TAYLOR

SAMPLERS (SIGNATURE):

SAMPLE NO.	DATE	TIME	COMP	GRAB	MATRIX	SAMPLE LOCATION	SIZE & NO. OF CONTAINERS	TCLP							PRESERVATIVES	REMARKS
01	11/14	12:15 P		X	Sandstone	DUMP	4	X							NO	call if
02	11/14	12:30 P		X	SOIL	ON DUMP	4	X		5					NO	any
03	11/14	12:50 P		X	SOIL	OFF DUMP	4	X							NO	questions
04	11/14	1:15 P		X	WATER	WETLAND	4	X							NO	822-7392
																TERRY

RELINQUISHED BY (SIGNATURE)	DATE/TIME	RECEIVED BY (SIGNATURE)	RELINQUISHED BY (SIGNATURE)	DATE/TIME	RECEIVED BY (SIGNATURE)
	11/14 5:30P				
RELINQUISHED BY (SIGNATURE)	DATE/TIME	RECEIVED BY (SIGNATURE)	RELINQUISHED BY (SIGNATURE)	DATE/TIME	RECEIVED BY (SIGNATURE)
RELINQUISHED BY (SIGNATURE)	DATE/TIME	RECEIVED BY (SIGNATURE)	DATE/TIME	REMARKS	

Distribution Original accompanies shipment. Copy to coordinator field files

Waste Stream Technology Inc

TCLP Metals Analysis Result Report

Site : Taylor
Date Sampled : 11/14/94
Date Received : 11/15/94 @ 0800
TCLP Extraction Date: 11/15/94

Group Number : 9401-295
Report Units : mg/L
Matrix : TCLP Extract

	Lab ID Number	WS09840	WS09841	
	Client ID	#2 ON DUMP	#3 OFF DUMP	
	Date Digested	11/16 & 11/23/94	11/16 & 11/23/94	
	Date Analyzed	11/17 & 11/23/94	11/17 & 11/23/94	
Analyte	Detection Limit			Analysis Method
Lead	0.132	<0.132	<0.132	6010
Cadmium	0.016	<0.016	<0.016	6010
Barium	0.06	1.62	1.48	6010
Chromium	0.07	<0.07	<0.07	6010
Silver	0.05	<0.05	<0.05	6010
Arsenic	0.005	<0.005	<0.005	7060
Selenium	0.002	<0.002	<0.002	7740
Mercury	0.0012	<0.0012	<0.0012	7470

WASTE STREAM TECHNOLOGY

TCLP(1311)/8270 Base, Neutral and Acid Extractables Report

Site : Taylor
Sample Date: 11/14/94
TCLP Extraction Date : 11/16/94
3510 Extraction Date : 11/23/94
Analysis Date :11/29/94

Group Number : 9401-295
Date Received : 11/15/94 @ 0800
Report Units : PPB (ug/L)
Sample Matrix : TCLP Extract

	WST Lab ID	WS09840		WS09841	
	Client ID	#2 ON DUMP		#3 OFF DUMP	
COMPOUNDS	Detection Limit	Result	Q	Result	Q
pyridine	10	10	U	10	U
1,4-dichlorobenzene	10	10	U	10	U
Total cresols (o,m & p)	30	30	U	30	U
nitrobenzene	10	10	U	10	U
hexachloroethane	10	10	U	10	U
hexachlorobutadiene	10	10	U	10	U
2,4,6-trichlorophenol	10	10	U	10	U
2,4,5-trichlorophenol	10	10	U	10	U
2,4-dinitrotoluene	10	10	U	10	U
hexachlorobenzene	10	10	U	10	U
pentachlorophenol	50	50	U	50	U
Surrogate %Recover	QC Limits				
2-fluorophenol	21-100	52		54	
phenol-d6	10-94	45		50	
nitrobenzene-d6	35-114	75		74	
2-fluorobiphenyl	43-116	76		77	
2,4,6-tribromophenol	10-123	59		66	
p-terphenyl-d14	33-141	71		73	

MB denotes Method Blank.

NA denotes Not Applicable.

WASTE STREAM TECHNOLOGY

TCLP(1311)/8270 Base, Neutral and Acid Extractables Report

Site : Taylor
Sample Date: 11/14/94
TCLP Extraction Date : 11/18/94
3510 Extraction Date : 11/20/94
Analysis Date : 11/24/94

Group Number : 9401-295
Date Received : 11/15/94 @ 0800
Report Units : PPB (ug/L)
Sample Matrix : TCLP Extract

Blank

	WST Lab ID	MB112094			
	Client ID	NA			
COMPOUNDS	Detection Limit	Result	Q	Result	Q
pyridine	10	10	U		U
1,4-dichlorobenzene	10	10	U		U
Total cresols (o,m & p)	30	30	U		U
nitrobenzene	10	10	U		U
hexachloroethane	10	10	U		U
hexachlorobutadiene	10	10	U		U
2,4,6-trichlorophenol	10	10	U		U
2,4,5-trichlorophenol	10	10	U		U
2,4-dinitrotoluene	10	10	U		U
hexachlorobenzene	10	10	U		U
pentachlorophenol	50	50	U		U
Surrogate %Recover	QC Limits				
2-fluorophenol	21-100	44			
phenol-d6	10-94	31			
nitrobenzene-d6	35-114	68			
2-fluorobiphenyl	43-116	71			
2,4,6-tribromophenol	10-123	80			
p-terphenyl-d14	33-141	58			

MB denotes Method Blank.

NA denotes Not Applicable.

WASTE STREAM TECHNOLOGY

TCLP(1311)/8270 Base, Neutral and Acid Extractables Report

Site : Taylor
Sample Date: 11/14/94
TCLP Extraction Date : 11/16/94
3510 Extraction Date : 11/23/94
Analysis Date :11/29/94

Group Number : 9401-295
Date Received : 11/15/94 @ 0800
Report Units : PPB (ug/L)
Sample Matrix : TCLP Extract

Blank

	WST Lab ID	MB112394			
	Client ID	NA			
COMPOUNDS	Detection Limit	Result	Q	Result	Q
pyridine	10	10	U		U
1,4-dichlorobenzene	10	10	U		U
Total cresols (o,m & p)	30	30	U		U
nitrobenzene	10	10	U		U
hexachloroethane	10	10	U		U
hexachlorobutadiene	10	10	U		U
2,4,6-trichlorophenol	10	10	U		U
2,4,5-trichlorophenol	10	10	U		U
2,4-dinitrotoluene	10	10	U		U
hexachlorobenzene	10	10	U		U
pentachlorophenol	50	50	U		U
Surrogate %Recover	QC Limits				
2-fluorophenol	21-100	50			
phenol-d6	10-94	35			
nitrobenzene-d6	35-114	67			
2-fluorobiphenyl	43-116	71			
2,4,6-tribromophenol	10-123	73			
p-terphenyl-d14	33-141	68			

MB denotes Method Blank.

NA denotes Not Applicable.

Waste Stream Technology Inc.

Method 1010 - Ignitability Report

Site: Taylor
Date Received: 11/15/94 @ 0800

Group Number: 9401-295
Matrix: Soil

WST Lab ID	Client ID	Sample Date	Analysis Date	Sample Result
WS09840	#2 ON DUMP	11/14/94	11/17/94	Pass
WS09841	#3 OFF DUMP	11/14/94	11/17/94	Pass

Pass = No flash detected at a temperature up to 210 degrees Fahrenheit

Fail = Flash detected at the temperature noted in parentheses in degrees Fahrenheit

RECEIVED
DEC - 7 1994
NUSSBAUMER & CLARKE, INC.

EXHIBIT 5

ENGINEER'S REPORT FOR WILLOW WOODS SUBDIVISION
NOVEMBER, 2012

By: Nussbaumer & Clarke, Inc.

ENGINEER'S REPORT

FOR THE

WILLOW WOODS SUBDIVISION

TOWN OF HAMBURG, NEW YORK

NOVEMBER, 2012

Prepared for:

Mr. James Yoviene
The Five Yovienes, LLC
4464 Shady Ridge Drive
Hamburg, NY 14075

Prepared by:

Nussbaumer & Clarke, Inc.
Engineers and Surveyors
3556 Lake Shore Road
Buffalo, NY 14219-1494
(716) 827-8000 PHONE
(716) 826-7958 FAX

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5.0	SANITARY SEWER	2
6.0	STORM DRAINAGE	3
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Appendices

Appendix A *BMW 65 Review of Technical Plans and Specifications*
Appendix B *USGS Location Map*
Appendix C *Water Model – ECWA Flow Data*
Appendix D *Downstream Sewer Routing Map and Report*
Appendix E *Negative Declaration*

1.0 GENERAL DESCRIPTION

Nussbaumer & Clarke Inc. (Nussbaumer) has been retained by Mr. James Yoviene of the Five Yovienes, LLC, to provide engineering and surveying services for the development of the property located on the south side of Taylor Road in the Town of Hamburg, New York. Mr. James Yoviene proposes to develop the parcel into a 49 lot single family development. The parcel tax number is 196.00-3-14. There will be (3) proposed lots fronting the southeast side of existing Taylor Road. The two (2) proposed roads of the subdivision will be public roads.

The parcels total approximately 36.74 ± acres. The property is owned by Five Yovienes, LLC. and is currently vacant. The Parcel fronts along the south side of Taylor Road.

The site is in a primarily residential area of the Town of Hamburg. Land uses near the site consist of the existing Taylor Road Subdivision to the east and single family residences to the east, west and north.

1.1 General Information

Project Name:	***WILLOW WOODS SUBDIVISION***
Project Location:	Taylor Road Town of Hamburg, Erie County, New York
Owner:	Mr. James Yoviene The Five Yoviene's, LLC 4464 Shady Ridge Drive Hamburg, NY
Design Engineers:	Nussbaumer & Clarke, Inc. 3556 Lake Shore Rd. Buffalo, N.Y. 14219-1494 (716) 827-8000

2.0 SUBSOIL CONDITIONS

A. Soils within the site are primarily Canadice Silt Loam (Ca) (Group D), Churchville Silt Loam (CoA) (Group D), Dumps (Dp) (Group D), Fluvaquents and Udifluvents (Group D), Hornell Silt Loam (HrA) (Group D), Hornell Silt Loam (HrB) (Group D), Patchin Silt Loam (Pc) (Group D), Rhinebeck Silt Loam (RgA) (Group D), and Wayland Silt Loam (Wd) (Group C/D). The soil types Ca, Fu, Pa, and Wd are considered hydric based on the Erie County Listing.

B. From the information contained in the Soil Survey of Erie County, the soils are considered somewhat poorly drained, and are subject to seasonal wetness. Drains around foundations

are needed to reduce the seasonal high water table. Proper grading of building sites will help eliminate surface wetness.

C. Moisture and seepage from the ground water table will be collected in the subsurface footing drain systems for each dwelling unit (i.e., sump pumps).

D. Danger from flooding is not anticipated at this site. The site is not within the 100-year flood plain.

3.0 SITE GRADING

A. The topography of the undeveloped site is generally sloping from southeast to northwest.

4.0 LANDSCAPING

The proposed site will be landscaped as approved by the Town of Hamburg Planning Department, and shall comply with landscaping requirements of the Town of Hamburg Building Department.

Additional issues:

1. Grass Cover – All disturbed areas shall be topsoiled and seeded per Town of Hamburg specifications.

5.0 SANITARY SEWER

Located on the south side of Taylor Road and to the north of the proposed Yoviene Subdivision proposed entrance is an existing 8" diameter sanitary sewer located in the TD-8 Taylor Road Sewer District owned and maintained by the Erie County Sewer District (ECSD). The proposed public sanitary sewer extension for the Yoviene Subdivision will connect to the existing sanitary sewer (approx. 8' deep) located on Taylor Road. This project proposes the construction of total 2,922± lf sanitary sewer within the Erie County Sewer District No. 3. Eventually all sewage flows within the proposed project will be treated at the South Towns Treatment Facility in Hamburg, New York.

Wastewater flows from the proposed development were formulated as follows:

(49) three bedroom units @ 300 gpd per dwelling unit (based on 100 gal/cap/d per Recommended Standards for Wastewater Facilities, 2004 Edition).

Average Daily Demand
49 homes x 300 gpd = 14,700 gpd = 0.0147 mgd

Max Daily Demand
2 x 0.0147 mgd = 0.0294mgd

Peak Hourly Flow (per Figure 1 of Recommended Standards for Wastewater Facilities, 2004 Edition)
4.1 x 0.0147 mgd = 0.08617mgd or 42.9 gpm

The proposed sewer system will consist of approximately 2,922± LF 8-in. SDR-35 PVC pipe and 17 standard 4' diameter precast concrete manholes.

Sanitary sewer permits from ECDEP are required. The proposed sanitary sewer lines will be laid

at a minimum slope of 0.40% or greater. The sewers are designed in accordance with Recommended Standards for Wastewater Facilities, 2004 edition ("10 State Standards") and Design Standards for Wastewater Treatment Works, 1988 edition. The proposed sewer will convey projected flows considerably less than the theoretical pipe capacities.

The developer will be responsible to hire a qualified consultant to provide certification and inspection of the proposed private sanitary sewer.

TEC Smith, Inc. performed downstream sewer flow measurements at Taylor Road (15-inch sewer), Prospect Avenue (27-inch sewer), and Camp Road (30-inch sewer) from October 14, 2011 through November 14, 2011. During these flow measurements rainfall events of a least ½" occurred on multiple days. The location maps of the flow measurement sites as well as a summary of the results are attached.

All measured peak flow levels were less than the respective pipe diameters in all instances. Due to the small amount of additional projected sewer flows created from the proposed development at Willow Woods Subdivision we recommend approval of the sewer main extension for Willow Woods Subdivision. Please note that the developer will be required to replace 7 sewer laterals as per the Inflow Infiltration requirement and as directed by the Erie County District No. 3 personnel.

6.0 STORM DRAINAGE

The storm water drainage system has been designed to comply with the Town of Hamburg's guidelines. The intent is to design an effective Storm Water Management system for controlling runoff and pollutants from a site during and after construction.

In general, all storm water runoff will be collected across the project site by means of sheet flow, drainage swales, yard drains, catch basins and storm water pipes. This flow will be conveyed to a detention basin which is located at the northwest end of the site. The pond is designed to attenuate runoff to a pre-developed rate of discharge for a Town and State mandated storm events. Refer to the Storm Water Management Report for detailed calculations.

Additional Drainage Issues

1. Individual lot drainage will be established in accordance with the standard FHA grading methods.

2. In accordance with typical new construction, the new dwelling units will be equipped with sump pumps. They will be owned and maintained by the prospective property owners.

3. Detention pond maintained by the Homeowner's Association.

7.0 WATER SUPPLY

7.1 General

The available water source for the Yoviene Subdivision is an 8" diameter (P.V.C.) pipe water main located on the north side of Taylor Road. Facilities are owned by the ECWA and will require an ECWA BCD Agreement to be completed.

7.2 Water Service

District facilities are owned and maintained by the Erie County Water Authority. An application to the Erie County Health Department for Approval of Public Water Supply Improvement and obtaining the necessary permits will be required for the proposed water main extension.
The proposed water main extension for the new development is 3,286± lf total of 8-inch diameter (C-900) PVC waterline and ductile iron water main (100 lf) including 5 hydrant assembly's, and appurtenant facilities for the Proposed Road 1 and Proposed Road 2 of Yoviene Subdivision.

There are 49 copper services proposed for the residential building units along the two (2) proposed roads that will tap into the proposed 8" water main in the proposed Yoviene Subdivision.

The estimated average daily, max daily, and peak hourly demand for this project is calculated as follows:

Average Daily demand
49 homes x 150 gpcd x 4 persons/home = 29,400 gpd = 0.0294 mgd
Equivalent design population of 105 (based on 100 gpcd)

Average Daily Demand
49 homes x 300 gpd = 14,700 gpd = 0.0147 mgd

Max Daily Demand
2 x 0.0147 mgd = 0.0294 mgd

Peak Hourly Flow
4.2 x 0.0147 mgd = 0.0617 mgd or 42.9 gpm

Using the data from the hydrant flow test, the projected available fire flow is calculated at the highest and furthest proposed hydrant in the subdivision. The projected available fire flow is 1,169 gpm at a 20 psi minimum residual pressure at all points in the proposed water main extension (refer to Appendix C for the detailed calculations). For each lot, the minimum total width of both side yards is 25 feet; per Town of Hamburg Zoning for a R-2 Realty Subdivision, therefore, the minimum required fire flow is 1,000 gpm per *ISO's Guide for Determination of Needed Fire Flow* for single family dwellings not exceeding two (2) stories in height.

In accordance with the testing conducted by the Erie County Water Authority (ECWA) on November 5, 2010 (Refer to data in Appendix C), the representative static pressure at ground elevation at the proposed point of connection is estimated to be approximately 116 psi. Centerline elevation of the residual hydrant gauge is approximated to be 818.6±. Referring again to the ECWA test data, the Authority reported a measured hydrant flow of 1,255 gpm and a residual pressure of 68 psi. According to the ECWA, a calculated fire flow of 1,825 gpm± at a residual of 20 psi is available at the test hydrant.

Acceptance testing of the improvements shall be witnessed and attested to by a professional engineer, currently licensed to practice engineering in New York State.

8.0 MISCELLANEOUS ITEMS

Should there be a need for clarification on any issues outlined in this report, please direct questions to Andrew H. Gow, P.L.S., at (716) 827-8000.

Should you have any questions, please do not hesitate to contact us at your convenience.

Sincerely,

NUSSBAUMER & CLARKE, INC.

Marie Nowak, P.E.
Vice President Engineering

APPENDIX A

TECHNICAL REVIEW OF PLANS AND SPECIFICATIONS FOR SEWAGE AND WASTE TREATMENT SYSTEMS

ROJECT DATA

1. Type of facility ***Sanitary Sewer Extension***
   (Treatment plant, interceptor, pumping station, additions, etc.)

2. Location ***Willow Woods Subdivision Town of Hamburg***

3. Type of Sewer System ***Separate***
   (Separate or combined)

4. Population to be immediately served ***0***
   Design Population ***147***

5. Design Period ***2012***

6. Hydraulic Loading

	Present Flow (mgd)	Design Flow (mgd)
Sanitary Sewage	***0***	***0.0147 (ADF)***
Institutional Sewage	***0***	***0***
Industrial Waste	***0***	***0***
Infiltration	***0***	***0***
Total	***0***	***0.0147 (ADF)***
Minimum Flow	***0***	***0***
Maximum Flow	***0***	***0.0294 (max. day) mgd***

Engineer's Signature and Seal:

SEWER SYSTEM

* Ref.	Point Under Review	Standard	This Project	Remarks
31.	Is the proposed sewer system separate or combined?	Separate	Separate	
	Does sewage overflow from proposed intercepting sewers?	No	No	
32.	Is sewer system designed for estimated ultimate tributary population?	Yes	Yes	
33.	Are sewers sized to meet requirements of sections 32, 33.1, 33.2 and 33.3?	Yes	Yes	
11.24	What average unit sewage flow (gpcd) is proposed for design?	100 gpcd	100 gpcd	(See Engineers Report)
33.1	What is maximum diameter of sewers?	8"	8"	
33.2	Are sewers designed deep enough to drain all basements and to prevent freezing?	Yes	Yes	
33.4	Will all sewers be constructed at or greater than the specified minimum gradient?	Yes	Yes	
	Does the design comply with requirements stated in Subsections 33.4, 33.5, 33.6, 33.7, and 33.8?	Yes	Yes	
34.	Are manholes designed and specified according to Section 34?	Yes	Yes	
34.3	What is minimum manhole diameter?	48"	48"	
35.	Are inverted siphons, if any, designed in accordance with Section 35?	Yes	N/A	
38.	Where water lines are close to proposed sewers, does design protect water supplies according to Section 38?	Yes	Yes	

Remarks including explanation of departures from standard practice:

* Reference numbers refer to numbers of Sections and Paragraphs of Great Lakes - Upper Mississippi River Board of State and Provincial Public Health Engineers, and Environmental Managers 1997 Edition, Recommended Standards for Wastewater Facilities.

ENGINEERING REPORT _ SEWER SYSTEM

Ref.	Point Under Review	Standard	This Project	Remarks
11.	Does the engineering report include a tabular form giving depths and velocities of flow at minimum, average and maximum daily sewage flows for all sewers proposed?	Yes	Yes	
	If the project is for sewer extensions only, is the engineering report prepared in accordance with Section 11.1 and 11.2? The report should state:	Yes	Yes	
	(1) Name an exact location of the treatment plant to which the proposed sewer extensions will be tributary.	-	ECSD No. 3	Erie County Southtowns STP
	(2) Present average daily sewage flow received by the plant.	14.5	MGD	
	(3) Design flow and the design year for the plant.			
	(4) The date when the permit for the plant was issued.	-	16 MGD	

OUTFALL SEWERS

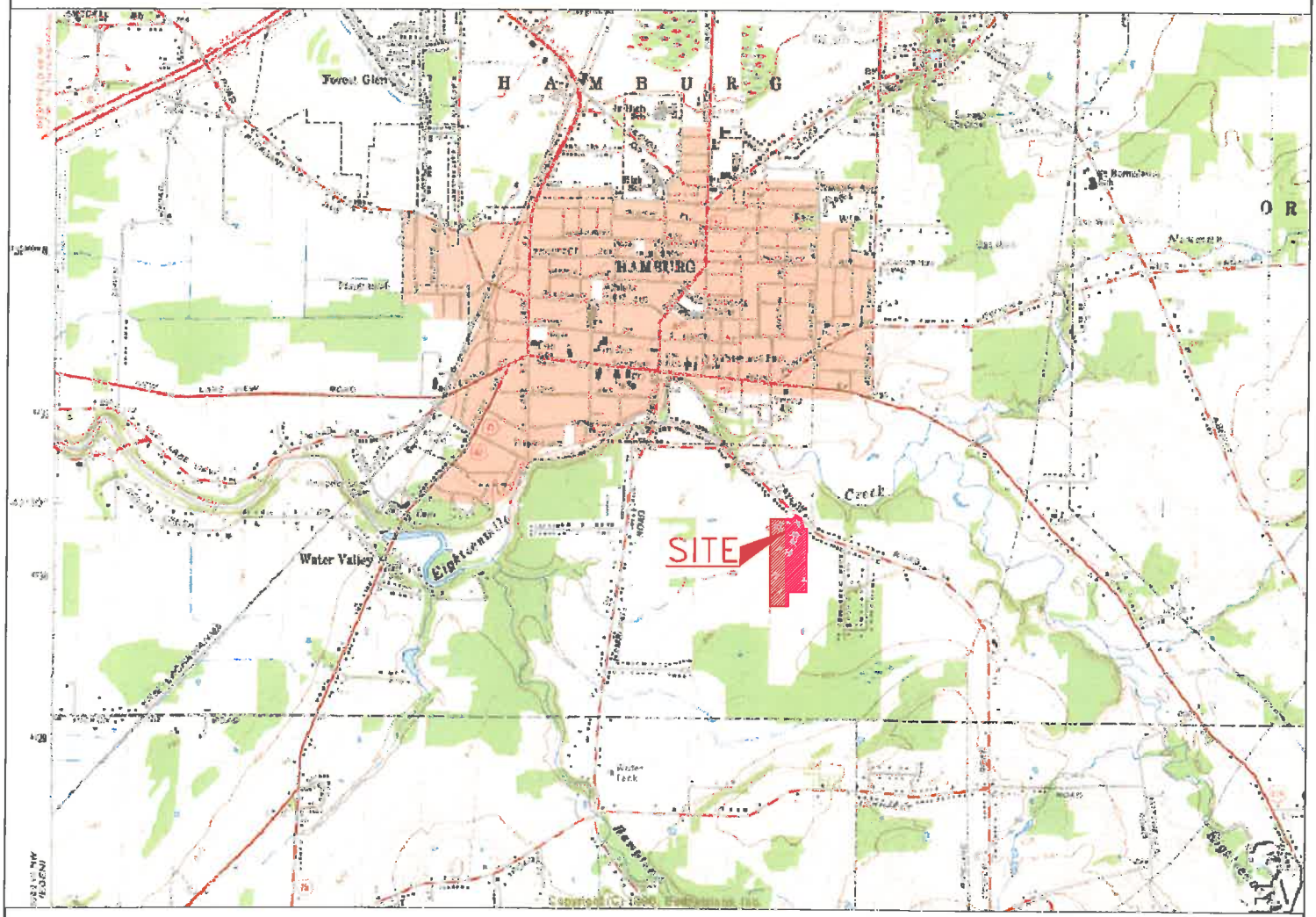
Ref.	Point Under Review	Standard	This Project	Remarks
55.	Is the outfall sewer submerged?	Yes	N/A	
	Is the discharge end of the outfall sewer extended into the middle of the receiving stream?	Yes	N/A	
	Are diffusion facilities provided?	Yes	N/A	

Remarks including explanation of departures from standard practice:

SEWER SYSTEM

Location of Sewer (Name of Street)	Total Length (Feet)	Diameter (In.) and Material	Min. & Max. Slope %	Min. & Max. Depth (feet)	Maximum Manhole Interval (feet)	Remarks
Proposed Road 1	2,030	8" SDR-35 PVC	0.40min. 0.40 max.	7.19'± min. 12.21'± max.	388	12 Manholes
Proposed Road 2	892	8" SDR-35 PVC	0.40 min. 2.30 max.	7.82'± min. 8.77'± max.	258	5 Manholes

APPENDIX B



Nussbaumer & Clarke, Inc.
Engineers and Surveyors
3556 Lake Shore Road
Buffalo, New York 14219-1494
(716) 827-8000

USGS
PROJECT LOCATION MAP

Yoviene Subdivision
Town of Hamburg
Erie County, New York

EXHIBIT
1

APPENDIX C

HYDRANT FLOW TEST PRINT ROUTINE RUN DATE 11/05/2010

MJP RESIDUAL HYDRANT: H19-C43 DATE: 11/04/2010 TIME: 12:00 PAGE 1

RESIDUAL HYDRANT
LOCATION.....: 6641 TAYLOR RD SIDE: NE
2ND HYD NW/O VAIL DR

TOWN OF HAMBURG
WATER DISTRICT: 846 SIZE OF MAIN: 8
FIRE DISTRICT.: 48020 SIZE BRANCH.: 6

PERFORMED BY: BM, ARM

COMMENTS....: HYDRANT FLOW TEST REQUESTED BY VALARIE SARCIONE
NUSSBAUMER & CLARKE, PHONE: 827-8000, FAX: 826-7958

DISCHRGE COEF: .90
PRESSURE RDGS: ELVTN USGS(FT): .0 STATIC(PSI): 116 RESIDUAL(PSI): 68
TOTAL FLOW(GPM): 1,255 GALLONS USED: 3,750
REQUIRED RESIDUAL PRESSURE...: 20 FLOW AT REQD RESIDUAL PRESSURE.: 1,825

HYD FL NO	LOCATION OF FLOW HYDRANTS
H19-C34	6611 TAYLOR RD 3RD HYD NW/O VAIL DR

TOWN OF HAMBURG SS: NE

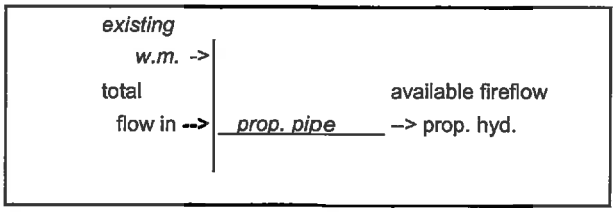
NZLE SIZE PITOT FLOW WATER DST: 846 FIRE: 48020 SIZE MAIN: 8 BRCH: 6
1. 2.50 56.0 1,255 COMMENTS:
2.
3. TOT FLOW: 1,255

Nussbaumer & Clarke, Inc.
Professional Engineers

Quick Fireflow - W.M. Extension

Project: Yovienne
Location: Taylor Rd Hamburg
Hydrant: Road 2 End

Step 1: Enter data in white boxes only.
Step 2: AFF is calculated below.



Hydrant Flow Test Data:

Residual hyd. static	116	psi
Test hyd. flow	1255	gpm
at residual hyd. pressure	68	psi

Flow data:

ISO needed fireflow	1000	gpm
Peak hrly. demand	61.3	gpm
Required sprinkler flow	0	gpm
	1061.3	gpm total

Existing pipe data:

Length- res. test hyd. to prop. pipe	210	ft
C-Coefficient	100	
Diameter	8	inches

Proposed pipe data:

Length- exist pipe to prop. hyd.	2000	ft
C-Coefficient	100	
Diameter	8	inches

Hydrant elevation data:

Flow test residual hydrant	818.6	ft
Proposed hydrant	839	ft

Fireflow Results:

Test hyd. AFF @ 20 psi residual	1,825	gpm
Exist pipe headloss	3.0	psi
Prop. Pipe headloss	28.1	psi
Static loss	8.8	psi
Test hyd. res. pressure @ total flow	80.8	psi
Prop. hyd. res. pressure @ total flow	40.9	psi

Available fireflow of prop. hyd. @ 20 psi residual*	**1,169**	**gpm**

**If result is "#NUM!" the AFF is zero.*

Assumptions:
1) Proposed piping is not looped.
2) Hydrant flow test taken during peak consumer usage and low water level in storage tank.
3) Headloss through existing pipe based on ISO NFF, peak hrly demand, and sprinkler flow of proposed project only.
4) Entire flow (ISO NFF, peak hrly, sprinkler) is directed to prop. hyd. for headloss calculations.
5) Minor losses and friction loss through leader pipe both negligible.
6) Available fireflow has both peak hrly and sprinkler flows subtracted from it.

AWWA FIREFLOW EQUATION:

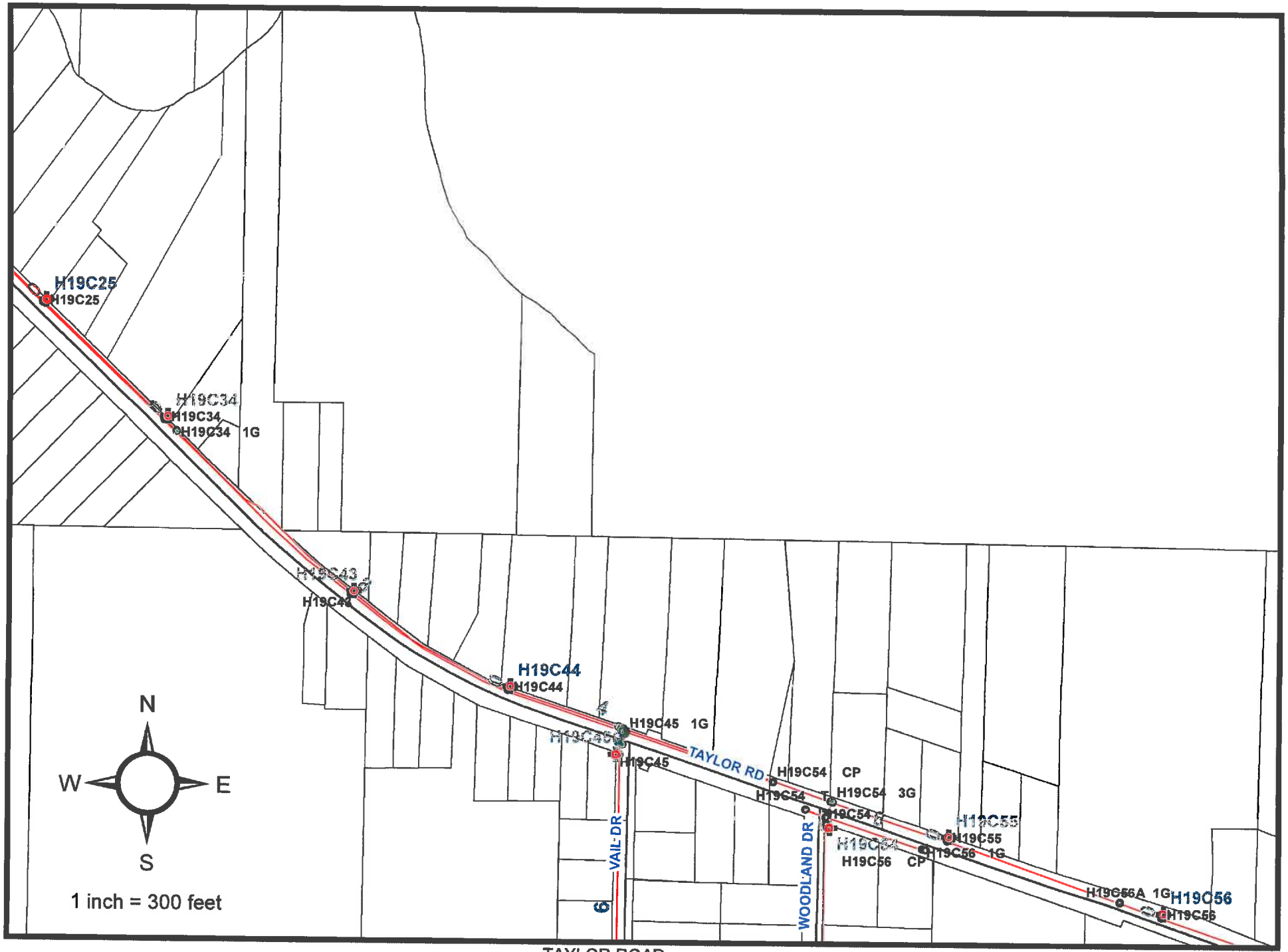
$Q_R = Q_F (h_r/h_f)^{0.54}$

where Q_R,Q_F = flows at desired and measured residual pressures, respectively,
hr = static - desired residual pressure, & h_f = static - measured residual pressure

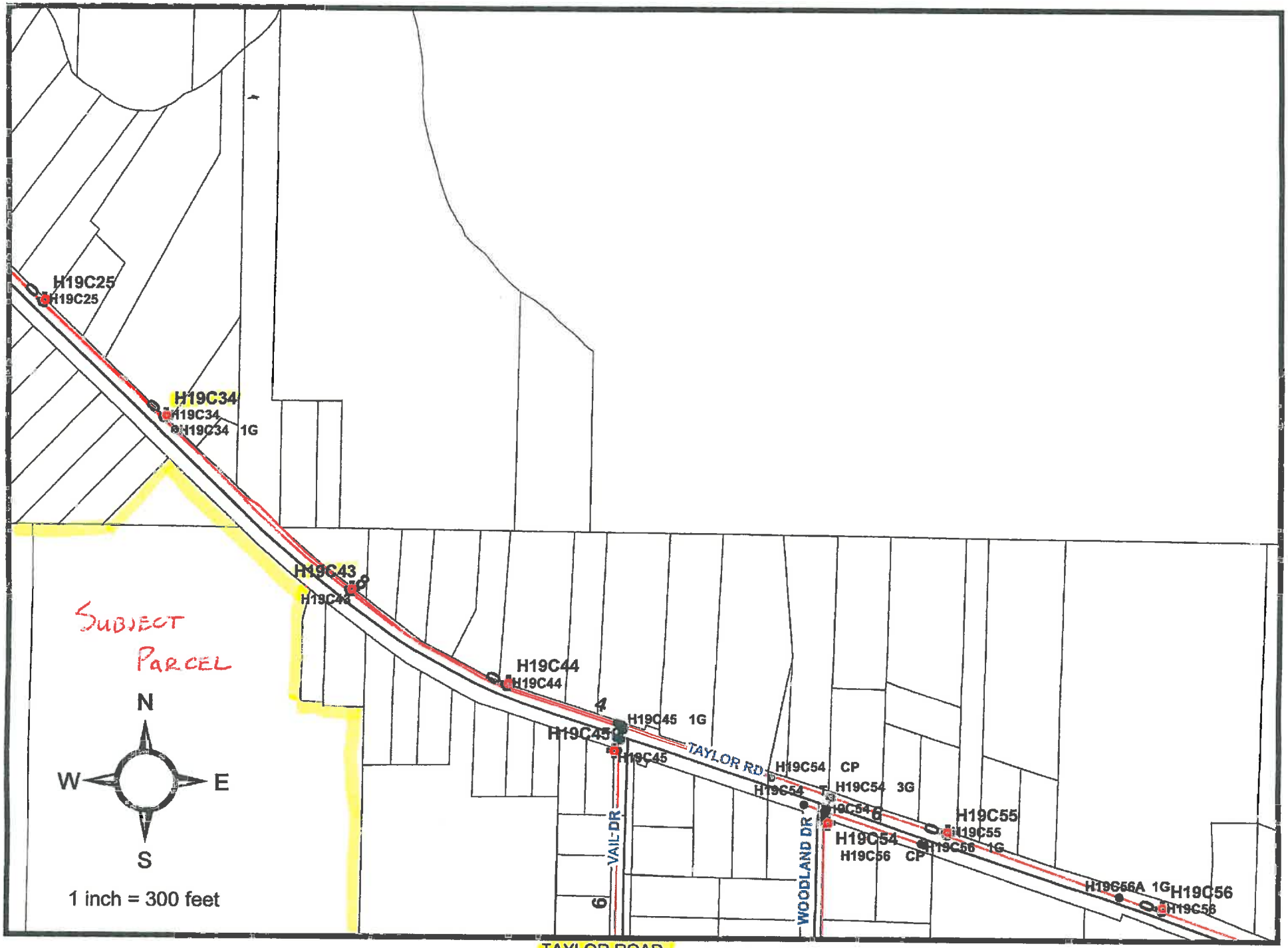
HAZEN-WILLIAMS EQUATION:

$h_f = L [Q/(0.285CD^{2.63})]^{1/0.54}$

where h_f = friction loss [ft], L = pipe length [ft]
C = C-Coefficient, & D = pipe diam. [in]



TAYLOR ROAD
TOWN OF HAMBURG, NEW YORK



TAYLOR ROAD
TOWN OF HAMBURG, NEW YORK

APPENDIX D

TECsmith

TECSMITH, Inc.
PO Box 383
Elma, New York 14059-0383
Tel: 716-687-1418
Fax: 716-655-3369

November 28, 2011

Andrew H. Gow
Nussbaumer & Clarke, Inc.
3556 Lake Shore Road, Suite 500
Buffalo, New York 14219-1494

FLOW DATA
TAYLOR ROAD SUBDIVISION

Dear Mr. Gow:

Enclosed is the data for the three flow monitoring sites along the Erie County interceptor sewer we monitored from October 14 – November 14, 2011, for your Taylor Road subdivision project.

Our monitoring program, which involved the calibration, installation, and data collection at those three flow-monitoring sites in the Town of Hamburg, included four weeks of flow data collection and at least one qualifying rain event. During that period, we downloaded the meters weekly, and compared the flow meter readings to actual field measurements and observations. We verified in-pipe level measurements during each service visit and cleaned the velocity probes when necessary. At the Prospect rd site on Nov 6 – 7th the level sensor became fouled and went to zero level causing now flow readings during that time period.

I have attached a flow summary report and the raw data files in excel format for all three sites, as well as our installation and calibration sheets.

Please call me if you have any questions.

Sincerely,
TECsmith

Jeromy P. Mosher
Environmental Technician

Attachments

NUS007

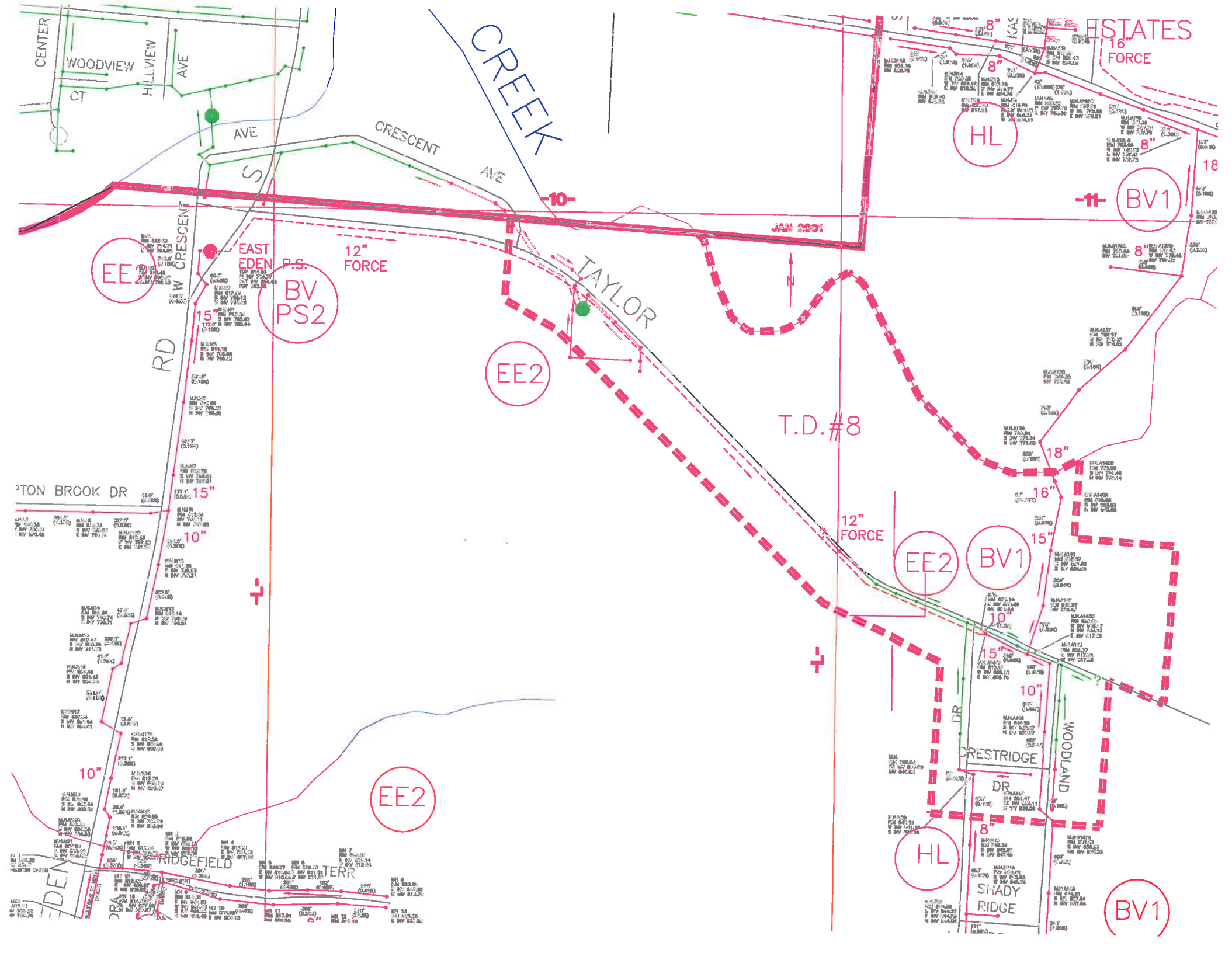
2011

TAYLOR RD SUBDIVISION - T.O. HAMBURG

FLOW STUDY

Date	NODE 1			NODE 2			NODE 3			Rain
	TAYLOR ROAD (15")			PROSPECT AVUENE (27")			CAMP ROAD (30")			
	FLOW (GAL x 1000)	PEAK FLOW (MGD)	PEAK LEVEL (IN)	FLOW (GAL x 1000)	PEAK FLOW (MGD)	PEAK LEVEL (IN)	FLOW (GAL x 1000)	PEAK FLOW (MGD)	PEAK LEVEL (IN)	(inches)
10/14/11	324.287	2.327	11.558	1048.364	3.826	8.834	2289.094	7.537	9.865	*0.48*
10/15/11	1344.805	2.727	13.155	3632.626	6.35	10.881	7094.829	11.43	13.115	*0.4*
10/16/11	694.788	1.54	10.622	2486.358	4.345	8.645	5471.031	7.875	9.875	*0.89*
10/17/11	483.986	1.245	9.685	1914.363	2.525	6.442	4668.776	5.545	7.822	*0*
10/18/11	331.521	1.197	9.093	1781.301	2.663	6.899	3938.442	4.692	7.12	*0.03*
10/19/11	303.592	1.178	9.26	1791.034	2.48	7.321	3829.806	4.517	7.135	*0.15*
10/20/11	500.003	1.424	10.294	2437.905	3.233	9.000	4784.988	6.222	8.502	*0.81*
10/21/11	899.47	2.338	14.306	4000.37	5.289	11.252	6519.413	8.231	10.291	*0.18*
10/22/11	504.082	1.194	9.994	2756.491	3.526	8.516	5200.264	6.516	8.551	*0*
10/23/11	382.365	1.165	9.313	2096.891	3.369	8.179	4655.443	5.546	7.878	*0*
10/24/11	315.221	1.193	9.463	1807.138	2.691	7.534	4360.421	5.23	7.984	*0.17*
10/25/11	299.48	1.144	9.431	1794.839	2.552	7.206	3946.666	5.423	8.14	*0.1*
10/26/11	406.844	1.201	9.79	2014.197	2.629	6.75	4583.125	6.24	8.745	*0.53*
10/27/11	624.017	1.442	10.33	2577.821	3.015	7.244	5341.829	6.586	9.065	*0.07*
10/28/11	471.294	1.296	9.867	2142.421	2.674	6.58	4670.672	5.811	8.26	*0*
10/29/11	382.91	1.214	9.553	1995.58	2.778	7.156	4302.254	5.565	7.725	*0.03*
10/30/11	329.679	1.174	9.506	1922.812	2.921	7.827	4048.044	5.372	7.848	*0*
10/31/11	284.747	1.128	9.12	1798.706	2.488	7.411	3622.637	4.797	7.386	*0.01*
11/01/11	258.237	1.128	9.231	1795.117	2.584	7.346	3436.65	4.47	7.305	*0*
11/02/11	231.947	1.083	9.105	1593.206	2.196	6.524	3417.966	4.439	7.546	*0*
11/03/11	228.419	1.186	9.189	1387.648	2.295	6.176	3368.625	4.498	7.283	*0*
11/04/11	215.215	1.076	9.044	1476.13	2.223	6.103	3159.471	4.013	7.045	*0*
11/05/11	223.632	1.051	8.992	456.584	1.804	5.482	3048.177	4.435	7.505	*0*
11/06/11	228.426	1.076	9.001	---	---	---	2987.511	4.582	7.688	*0*
11/07/11	206.175	1.095	9.604	---	---	---	2874.659	3.418	7.353	*0*
11/08/11	196.423	1.093	9.095	806.008	1.712	5.219	2820.68	3.579	7.332	*0.02*
11/09/11	197.049	1.104	9.069	1122.952	1.809	5.44	2925.095	3.685	8.072	*0.08*
11/10/11	268.133	1.249	9.889	1412.736	2.605	6.738	3537.76	6.699	9.615	*0.26*
11/11/11	361.034	1.209	9.448	1669.16	2.358	6.346	4493.211	6.506	9.187	*0*
11/12/11	290.988	1.132	9.228	1490.937	2.223	5.881	3300.784	4.897	8.233	*0*
11/13/11	262.402	1.143	9.177	1331.735	1.958	5.664	3012.752	3.808	8.099	*0*
11/14/11	104.827	1.09	9.222	484.894	1.568	5.063	1358.845	3.721	7.577	*0.53*
---	---	---	---	---	---	---	---	---	TTL	*4.74*

NOTE: RAIN DATA FROM NWS



CENTER
WOODVIEW
CT
HILLVIEW
AVE
CREEK
AVE
CRESCENT
AVE
ESTATES
16" FORCE
8"
HL
BV1
-10-
-11-
JAN 2001
EAST EDEN P.S.
12" FORCE
EE2
BV PS2
TAYLOR
N
RD
W CRESCENT
15"
EE2
T.D.#8
18"
16"
PTON BROOK DR
15"
10"
12" FORCE
EE2
BV1
15"
10"
CRESTRIDGE
DR
WOODLAND
10"
EE2
8"
HL
RIDGEFIELD
TERR
SHADY RIDGE
BV1

Erie County Sewer District #3, Yoviene Subdivision, (T) Hamburg

Legend:

Manhole
- Missing ecManhole
- ecManhole (GPS)
- ecManhole (RTK)
- Non ecManhole
- Non ecManhole (GPS)
- Relief
- Dummy Manhole
- Highpoint ecManhole
- Maintenance Manhole

Cleanout
- ecCleanout
- ecCleanout GPS
- Non ecCleanout

Grinder
- ecGrinder
- ec Grinder (GPS)
- ecGrinder (E1)
- ecGrinder Valve
- Non ecGrinder

Meters
- Meter
- Monument
- Parshallflume
- Tee

ForceChamber
- ForceChamber
- Other ForceChamber
- Drain Valve
- Air Release
- ForceMain Marker

Pumpstation
- Pumpstation
- Other Pumpstation
- Wet Well
- Comminutor
- Screens

DSMFacilities
- Treatment Plant
- Treatment Plant Structure
- DSM Facility

Outfall
- Outfall

Notes

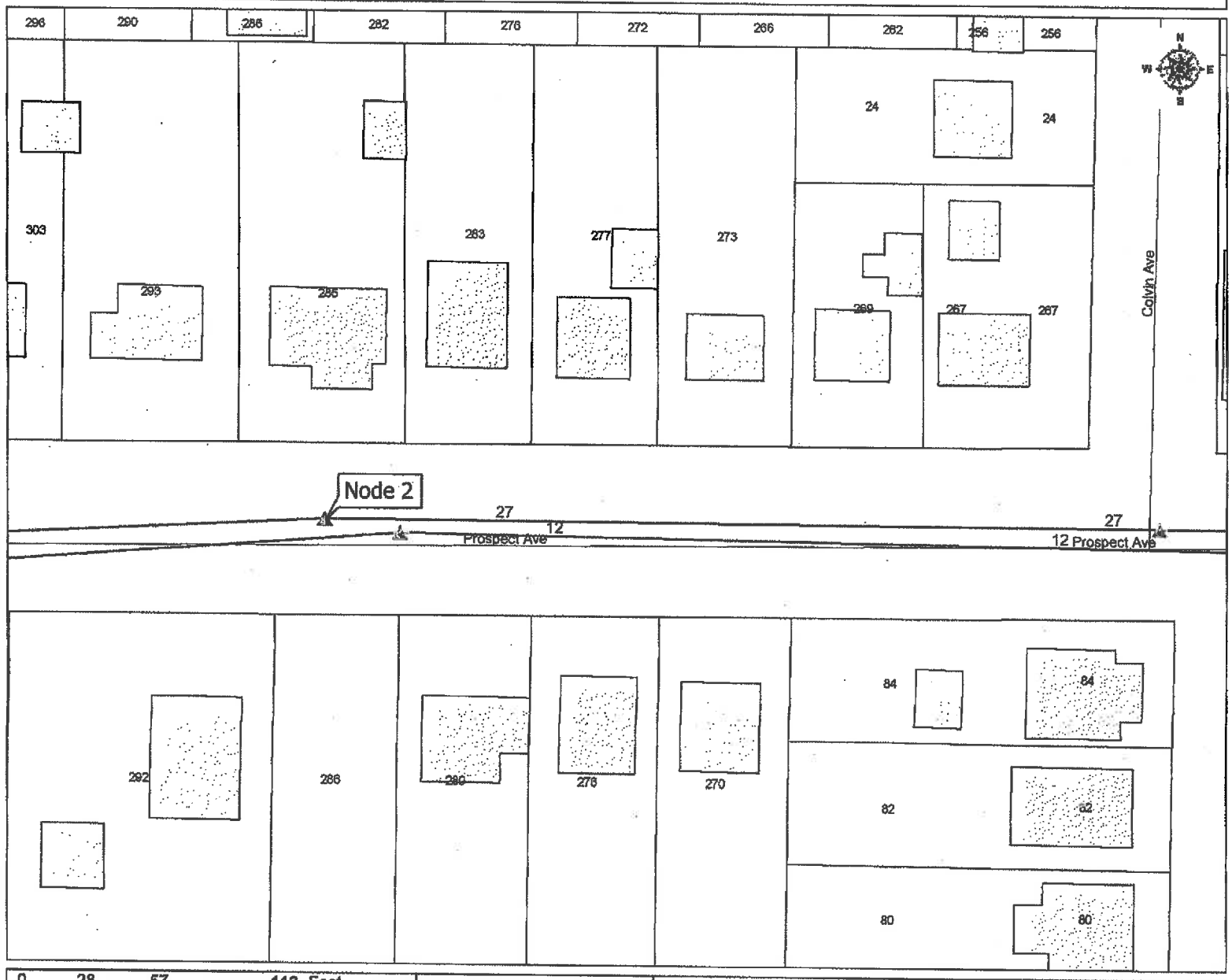
Node 1 of downstream analysis

THIS MAP IS NOT TO BE USED FOR NAVIGATION

Map is a user generated static output and is for reference only. Data layers that appear on this map may or may not be accurate, current, or otherwise reliable.

ERIE COUNTY
DEPARTMENT OF ENVIRONMENT & PLANNING
DIVISION OF SEWERAGE MANAGEMENT

Erie County Sewer District #3, Yoviene Subdivision, (T) Hamburg



Legend:

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- ecManhole (GPS)
- ecManhole (RTK)
- Non ecManhole
- Non ecManhole (GPS)
- Relief
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Cleanout
- ecCleanout
- ecCleanout GPS
- Non ecCleanout

Grinder
- ecGrinder
- ec Grinder (GPS)
- ecGrinder (E1)
- ecGrinder Valve
- Non ecGrinder

Meters
- Meter
- Monument
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ForceChamber
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- Pumpstation
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- Screens

DSMFacilities
- Treatment Plant
- Treatment Plant Structure
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Outfall
- Outfall

Notes

Node 2 of downstream analysis

0 28 57 113 Feet

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ERIE COUNTY
DEPARTMENT OF ENVIRONMENT & PLANNING
DIVISION OF SEWERAGE MANAGEMENT

Erie County Sewer District #3, Yoviene Subdivision, (T) Hamburg

Legend:

Manhole
- Missing ecManhole
- ecManhole (GPS)
- ecManhole (RTK)
- Non ecManhole
- Non ecManhole (GPS)
- Relief
- Dummy Manhole
- Highpoint ecManhole
- Maintenance Manhole

Cleanout
- ecCleanout
- ecCleanout GPS
- Non ecCleanout

Grinder
- ecGrinder
- ec Grinder (GPS)
- ecGrinder (E1)
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- Meter
- Monument
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- Tee

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- ForceMain Marker

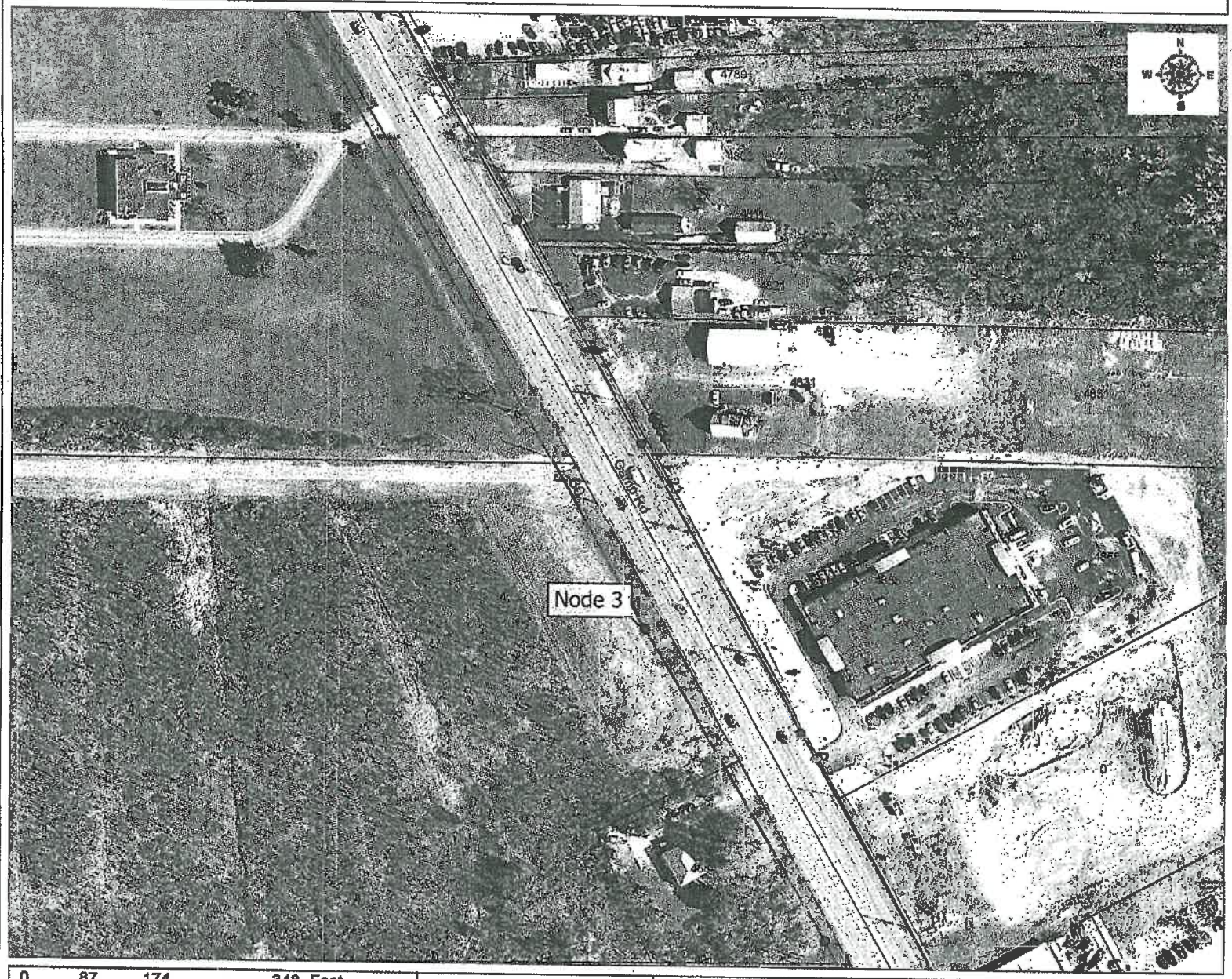
Pumpstation
- Pumpstation
- Other Pumpstation
- Wet Well
- Comminutor
- Screens

DSMFacilities
- Treatment Plant
- Treatment Plant Structure
- DSM Facility

Outfall
- Outfall

Notes

Node 3 of downstream analysis



0 87 174 348 Feet

THIS MAP IS NOT TO BE USED FOR NAVIGATION

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ERIE COUNTY
DEPARTMENT OF ENVIRONMENT & PLANNING
DIVISION OF SEWERAGE MANAGEMENT

APPENDIX E

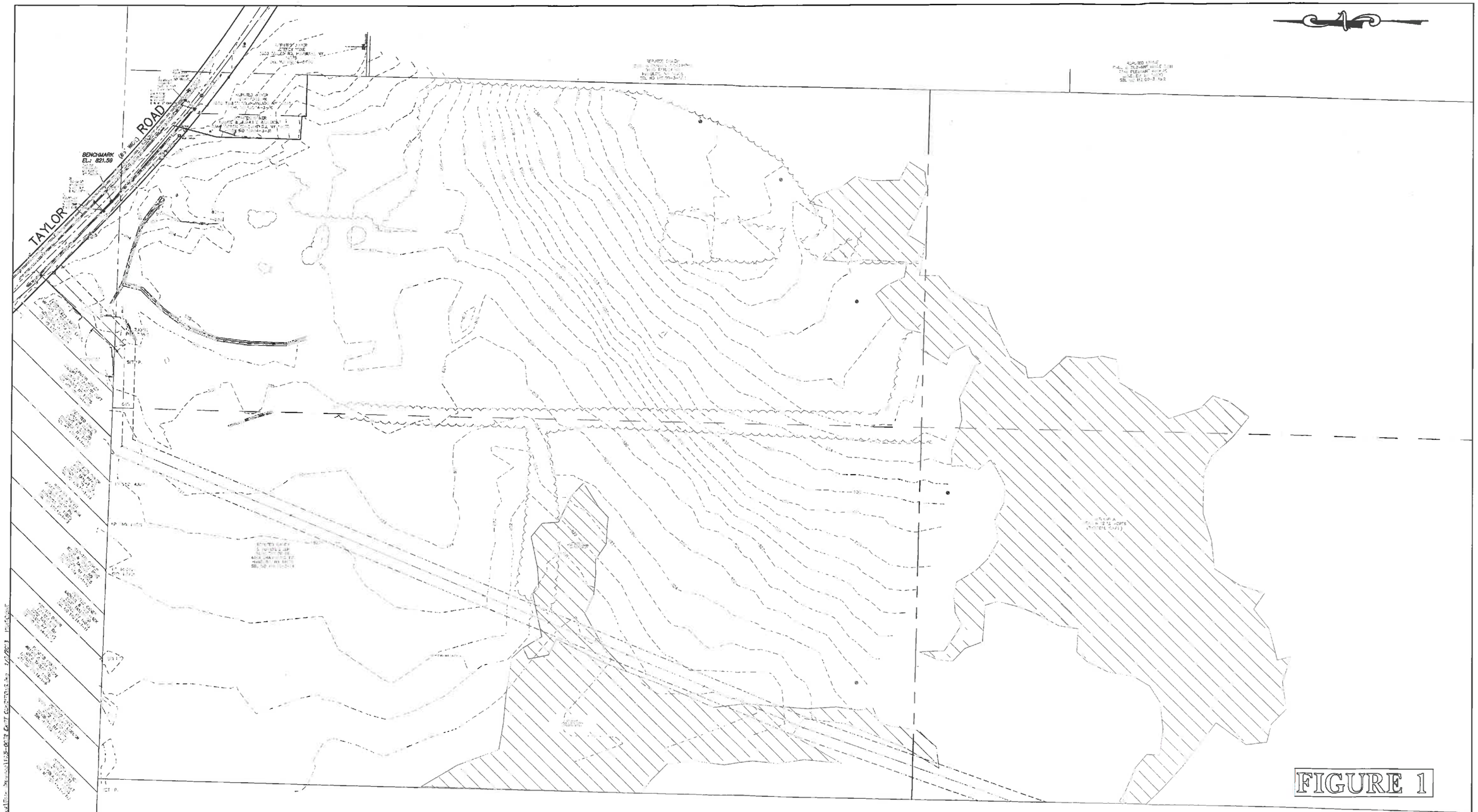


FIGURE 1

PLAN
SCALE: 1"=100'

~ LEGEND ~

- EXIST. CATCH BASIN (WITHIN GUTTER)
- EXIST. YARD CATCH BASIN
- EXISTING HYDRANT
- EXIST. SANITARY SEWER STRUCTURE
- EXIST. STORM SEWER STRUCTURE
- EXIST. WATERLINE – LINE VALVE
- EXIST. UTILITY POLE
- EXISTING CONTOUR LINE

NOTES:

1. BENCHMARK – EXIST. SANITARY MANHOLE LOCATED AT THE NORTHWEST CORNER OF NEW ROAD 1 THE SOUTH SIDE OF TAYLOR ROAD, R.M. 82.5.
2. CONTOURS SHOWN ARE AT 1 FT. INTERVALS AND REPRESENT EXISTING SITE CONDITIONS.

GRAPHIC SCALE

BEFORE YOU DIG, DRILL OR BLAST IN WESTERN OR CENTRAL NEW YORK, CALL DIG SAFELY NEW YORK 1-800-962-7962.

RE RECYCLE

UNAUTHORIZED ALTERATION OR ADDITION TO THIS ENGINEERING DRAWING IS A VIOLATION OF SECTION 7209, PROVISION 2 OF THE NEW YORK STATE EDUCATION LAW.

NUSSBAUMER & CLARKE, INC.
A CORPORATION REGISTERED TO PRACTICE PROFESSIONAL ENGINEERING & LAND SURVEYING IN THE STATE OF NEW YORK
CERTIFICATE NO. _____

REVISIONS			
NO.	BY	DATE	COMMENT

DESIGNED BY: RJP	CHECKED BY:
DRAWN BY: VBS	CHECKED BY: AG
DATE: 04/8/2011	SCALE: 1"=100'
JOB NO. 10J5-0032	
DRAWING NO. 10J5-0032	

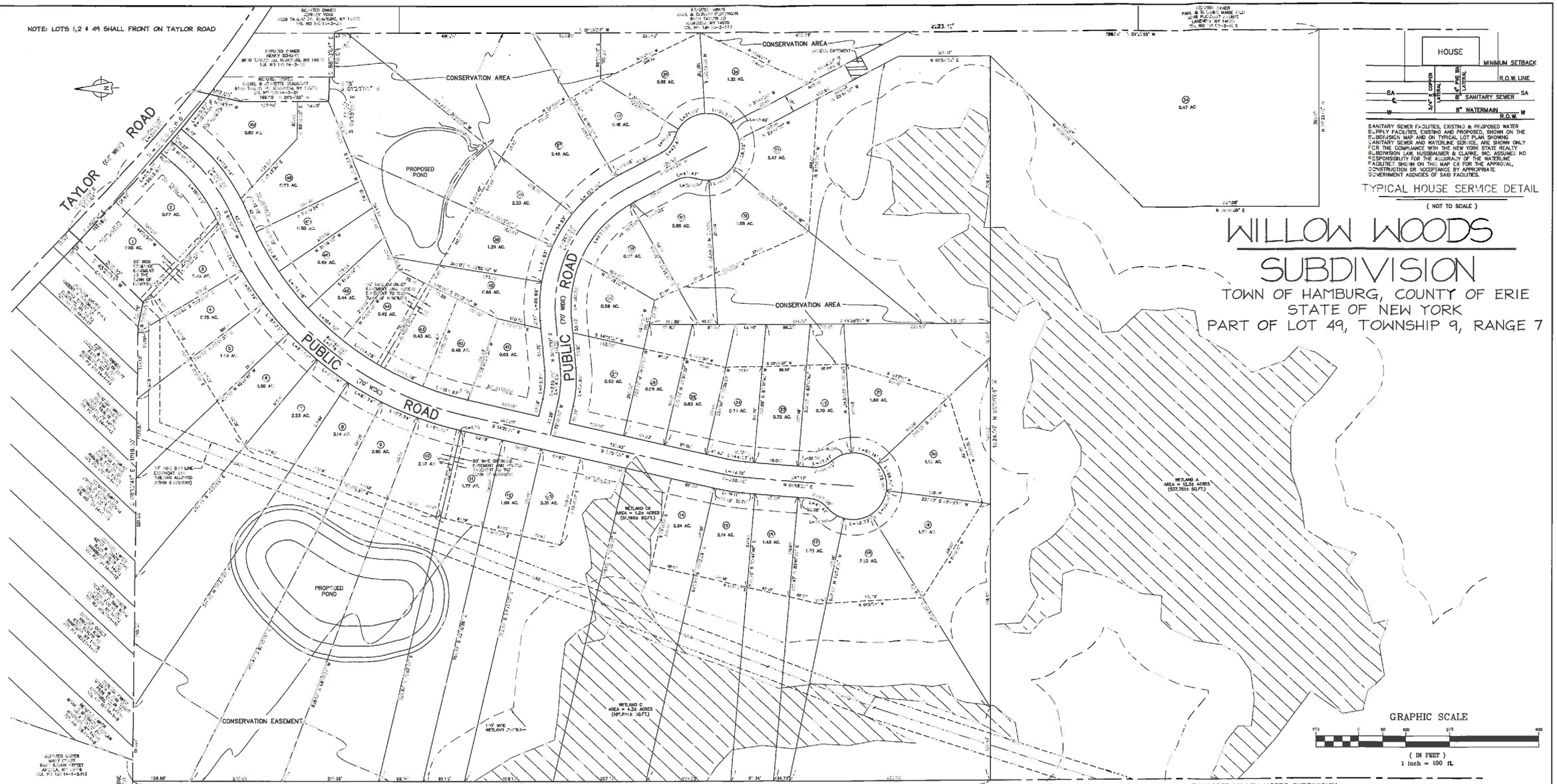
Nussbaumer & Clarke, Inc.
ENGINEERS AND SURVEYORS
BUFFALO, NY

WILLOW WOODS SUBDIVISION
THE FIVE YOVIENE'S, LLC
TOWN OF HAMBURG, ERIE COUNTY
STATE OF NEW YORK

EXISTING CONDITIONS PLAN

SHEET NO. 2 OF 24

NOTE: LOTS 1,2 & 49 SHALL FRONT ON TAYLOR ROAD



SANITARY SEWER FACILITIES, EXISTING & PROPOSED WATER SUPPLY FACILITIES, EXISTING AND PROPOSED, SHOWN ON THE SUBDIVISION MAP AND ON TYPICAL LOT PLAN SHOWING SANITARY SEWER AND WATERLINE SERVICE, ARE SHOWN ONLY FOR THE COMPLIANCE WITH THE NEW YORK STATE REALTY SUBDIVISION LAW. NUSSBAUMER & CLARKE, INC. ASSUMES NO RESPONSIBILITY FOR THE ACCURACY OF THE WATERLINE FACILITIES SHOWN ON THIS MAP OR FOR THE APPROVAL, CONSTRUCTION OR ACCEPTANCE BY APPROPRIATE GOVERNMENT AGENCIES OF SAID FACILITIES.

TYPICAL HOUSE SERVICE DETAIL

(NOT TO SCALE)

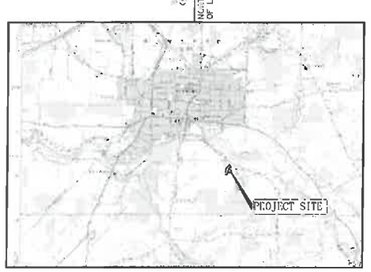
WILLOW WOODS

SUBDIVISION

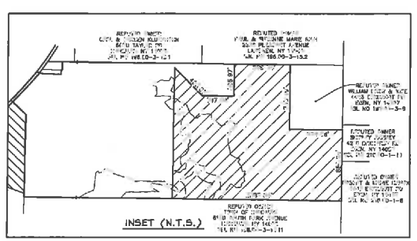
TOWN OF HAMBURG, COUNTY OF ERIE
STATE OF NEW YORK
PART OF LOT 49, TOWNSHIP 9, RANGE 7

GRAPHIC SCALE

(IN FEET)
1 inch = 100 ft.



LOCATION MAP



INSET (N.T.S.)

FIGURE 2

PROPOSED WILLOW WOODS SUBDIVISION

CLUSTER DESIGN

Applicant: THE FIVE YOVIENES, LLC
Mr. James Yoviene
Town of Hamburg, New York

CURRENT ZONING: RA (Residential Agricultural District)
(Southeastern Hamburg Overlay District)

CLUSTER CALCULATIONS:

GROSS AREA:	141.67 ACRES
SUBSECTION 1 DEDUCTION:	0.00 ACRES (UTILS. / EASEMENTS)
SUBSECTION 2 DEDUCTION:	3.43 ACRES (STORM DETENTION)
SUBSECTION 3 DEDUCTION:	20.91 ACRES (UNUSABLE AREA) (WETLANDS)
SUBSECTION 4 DEDUCTION:	4.70 ACRES (10% FOR PUBLIC ROADS)
ADJUSTED GROSS AREA:	107.61 ACRES
RECREATION SPACE:	-42.02 ACRES (after wetlands)
	65.59 ACRES

MINIMUM LOT SIZE WITHIN THE RA DISTRICT: 10,000 SQFT.
49 LOTS PROVIDED

65.59 AC. X 43,560 = 2,857,100 SQFT.

2,857,100 SQFT. / 10,000 SQFT. = 285 TOTAL LOTS ALLOWED

REQUIRED AREA TO BE MAINTAINED AS OPEN SPACE (FOS): 32.80 AC.
63.03 ACRES PROVIDED.

ADDITIONAL NOTES:

1) ALL LOTS SHOWN HEREON ARE A MINIMUM OF 7300 SQFT.
2) ALL LOTS HAVE MAINTAIN A 50' MINIMUM WIDTH AT THE BUILDING LINE.
3) THE ROADWAYS SHOWN HEREON WILL BE DESIGNED IN ACCORDANCE THE TOWN OF HAMBURG ENGINEERING STANDARDS AND WILL BE DEDICATED TO THE TOWN OF HAMBURG.
4) PROPOSED FRONT YARD BUILDING SETBACK IS 20'
5) CONSERVATION AREAS SHOWN HEREON WILL BE OWNED BY INDIVIDUAL LOT OWNERS. THESE AREAS SHALL REMAIN IN AN UNDISTURBED NATURAL STATE OTHER THAN FOR THE PURPOSE OF CONSTRUCTING STORM WATER DETENTION PONDS AND RELATED STORMWATER INFRASTRUCTURE AND/OR THE PERIODIC MAINTENANCE OF SAME.

DETENTION BASIN NOTE:

STORM WATER DETENTION PONDS:

MOWING, GRADING, DREDGING, SEEDING, OR OTHER WORK REQUIRED FOR THE MAINTENANCE PURPOSES OF THE STORM WATER DETENTION PONDS SHALL BE MAINTAINED BY THE HOMEOWNERS ASSOCIATION. THE TOWN SHALL MAINTAIN ONLY THE DRAINAGE PIPING AND ASSOCIATED STRUCTURES.

NOTES:

1. DRAINAGE AND ACCESS EASEMENT - AREA TO BE MAINTAINED BY THE PROPERTY OWNER. EASEMENT AREA NOT TO BE FENCED WITHOUT THE PERMISSION OF THE TOWN OF HAMBURG ENGINEERING DEPARTMENT.

BEFORE YOU DIG, DRILL OR BLAST IN WESTERN OR CENTRAL NEW YORK, CALL DIG SAFELY NEW YORK 1-800-962-7962.

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CERTIFICATE NO. _____

REVISIONS

NO.	BY	DATE	COMMENT
1	VBS	1-30-11	REVISED WETLANDS AND REVISED SUBDIVISION NAME
2	KRA	11-28-12	REVISED LOTS

DESIGNED BY: AHG	CHECKED BY:
DRAWN BY: AHG/KRA	CHECKED BY: AHG
DATE: 10/07/11	SCALE: 1"=100'
JOB NO. 10J5-0032	
DRAWING NO. 10J5-0032-PRELIMINARY PLAT 1	

Nussbaumer & Clarke, Inc.
Engineers and Surveyors
Buffalo, NY

WILLOW WOODS SUBDIVISION
MR. JAMES YOVIENE
THE FIVE YOVIENE'S, LLC

SHEET NO. 23

PRELIMINARY PLAT

OF 23

928.82' S 01°26'55" W

N

(34)
5.47 AC.

463.87'
N 46°20'03" E

397.03'
N 01°26'55" E

396.97'
N 88°33'05" W

WETLAND AREA

1958 DISTURBANCE LIMIT

DISPOSAL AREA LIMITS BASED ON TEST PITS

SWALE

TP-1
TP-2
TP-3
TP-4
TP-5
TP-6
TP-7
TP-8
TP-9
TP-EAST
TP-NORTH
TP-CENTER
TP-SOUTH
TP-WEST

P-1
P-2
P-3
P-4
P-5
P-6
P-7
P-8

SW-1
SW-2
SW-3

NE COR
EAST SIDE
EAST SIDE
SE COR
SOUTH END
NORTH END
NORTH END
NORTH END
NORTH END
NORTH END
NW COR
WEST SIDE
WEST SIDE
SW COR
SOUTH END

800.42'

LEGEND

- P-1 THRU P-8 SOIL PROBES
- SW-1 THRU SW-3 SURFACE WATER SAMPLES
- TEST PITS
- PERIMETER TEST PITS

FIGURE 3

PART OF LOT(S) : 49 SECTION : TOWNSHIP : 9 RANGE : 7

LOCATION : TOWN OF HAMBURG COUNTY OF ERIE STATE OF NEW YORK SCALE: 1" = 100'

KIND	DATE	REQUESTED BY	JOB NO.
EXHIBIT MAP	01-09-13	THE FIVE YOVIENE'S, LLC	10J5-0032

Nussbaumer & Clarke, Inc.
Engineers and Surveyors
3556 Lake Shore Road
Buffalo, New York 14219-1494
(716) 827-8000

Niagara Frontier Land Surveyors Association Inc. 1960

Unauthorized alterations or additions to any survey, drawing , design, specification, plan or report is a violation of section 7209, provision 2 of the New York State Education Law.

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Successors to the records of Graf Land Surveyors
Successors to the records of James L. Shisler, Land Surveyor

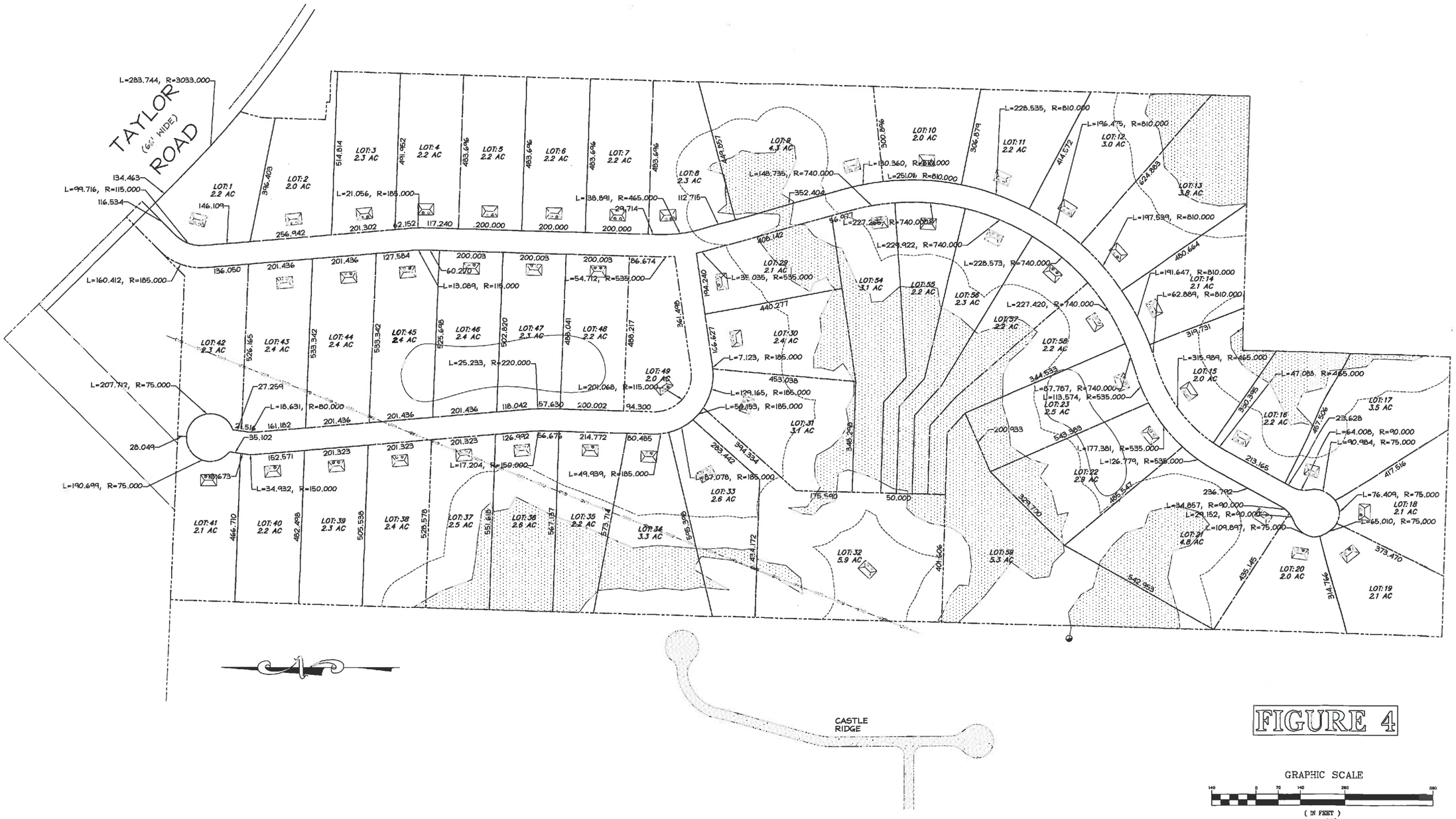

FIGURE 4

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CERTIFICATE NO. _____

REVISIONS			
NO.	BY	DATE	COMMENT

DESIGNED BY: AG	CHECKED BY:
DRAWN BY: AG	CHECKED BY: AG
DATE: 01/14/2010	SCALE:
JOB NO. 10J5-0032	
DRAWING NO. 10J5-0032	

Nussbaumer & Clarke, Inc.
ENGINEERS AND SURVEYORS
BUFFALO, NY

YOVIENE SUBDIVISION
FOR:
TOWN HAMBURG, ERIE COUNTY
STATE OF NEW YORK

AS-OF-RIGHT PLAN (RA)

SHEET NO. C1 OF C1

EXHIBIT 6

STORMWATER POLLUTION PREVENTION PLAN (SWPPP) FOR WILLOW WOODS SUBDIVISION
SEPTEMBER, 2011

By: Nussbaumer & Clarke, Inc.

Nussbaumer & Clarke, Inc.
ENGINEERS AND SURVEYORS

STORMWATER POLLUTION PREVENTION PLAN (SWPPP)

For the

YOVIENE SUBDIVISION

TOWN OF HAMBURG, NEW YORK

Prepared for:

The Five Yoviene's, LLC
4464 Shady Ridge Drive
Hamburg, NY

Prepared by:

Nussbaumer & Clarke, Inc.
Engineers and Surveyors
3556 Lake Shore Road
Buffalo, NY 14219-1494
(716) 827-8000 phone
(716) 826-7958 fax

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Appendix A	*USGS Location Map*
Appendix B	*Erosion Control Plan*
AppendixC	*Stormwater Management Report*

1.0 NARRATIVE REPORT

PROJECT NAME: Yoviene Subdivision

PROJECT LOCATION: Taylor Road, Hamburg, New York

PROPERTY OWNER: Mr. James Yoviene
The Five Yoviene's, LLC
4464 Shady Ridge Drive
Hamburg, NY

1.1 PROJECT DESCRIPTION:

The project includes the construction of a 49-lot residential cluster subdivision. The cluster concept was presented to the Town of Hamburg Planning Board in order to reduce the impact of the development and the overall footprint. A single entry road is proposed that will end in a cul-de-sac along with a small stub road that will also dead end. A number of stormwater management practices are proposed that will both attenuate generated runoff and treat it.

1.2 STORMWATER MANAGEMENT OBJECTIVES:

The Stormwater Management Objective is to protect the natural drainage features and quality of waters from degradation by uncontrolled stormwater runoff; both during and after construction. To accomplish this, the intent is to utilize wet extended detention basins. Calculations for the basin and the post-development runoff rates can be found in the Stormwater Management Report.

1.3 EXISTING SITE DESCRIPTION:

The site is almost entirely meadow and brush. The site drains primarily from the east to the west with a portion flowing to the north. A gas line bisects the site from the northeast to the southwest. This can also be seen on the aerial photograph. There is a considerably sized designated wetland to the south. This precludes any development in this area. A detailed description of the onsite soils is included in the Stormwater Management Report.

1.4 FUTURE SITE DESCRIPTION:

The site will be developed as a 49-lot residential cluster subdivision. Large portions of land will be reserved and not developed as housing.

2.0 POLLUTION PREVENTION MEASURES

2.1 WASTE DISPOSAL:

Waste Materials – will be collected and stored in a securely lidded metal dumpster(s) procured from a licensed solid waste disposal management company. All trash and construction debris from the site will be stored in the dumpster. The dumpster will be emptied regularly and the waste will be hauled to a solid waste management facility. No construction waste materials,

including building materials, stormwater pollutants, sediment, toxic chemicals, bacteria, nutrients, oxygen demand, oils/grease/hydro carbons, litter, and metals, will be discharged to any water of the United States.

Hazardous Waste – will be disposed of in the manner specified by local or state regulations or, in their absence, by the manufacturer.

Sanitary Waste – will be collected from the portable units, as needed, by a licensed sanitary waste management contractor as required by local, county, and state regulations.

Off-Site Vehicle Tracking - Sediment and the generation of dust will be minimized via dust control measures. Additionally, dump trucks hauling any material to or from the construction site shall have the load covered with a tarpaulin.

2.2 ON-SITE STORAGE OF MATERIALS – INVENTORY:

Miscellaneous utility materials (pipes, valves, and misc. hardware)
Miscellaneous building materials (steel, lumber, misc. hardware)
Miscellaneous fill material (stone, misc. fill material)
Excavated soil material
Petroleum based products
Landscape materials (trees, mulch, etc.)

2.3 GENERAL MATERIAL MANAGEMENT PRACTICES:

These practices will be used to reduce the risk of spills or other accidental exposure of materials and substances to stormwater runoff.

Best Management -

- Efforts will be made to store onsite only enough product to do the job.
- All materials onsite will be stored in a neat, orderly manner in their appropriate containers and, if possible, under a roof or other enclosure. Chemicals shall be apportioned within the designated storage area as much as practical.
- Products will be kept in their original containers with the original manufacturer's label.
- Substances will not be mixed with one another unless recommended by the manufacturer.
- Whenever possible, all of a product will be used up before disposing of the container.
- Manufacturer's recommendations for proper use and disposal will be followed.
- The site superintendent/contractor will inspect the site daily to ensure proper use and disposal of materials.

Hazardous Products -

- Products will be kept in original containers unless they are not re-sealable.
- Original labels and material safety data sheets (MSDS) will be retained.
- If surplus product must be disposed of, manufacturers' or local and New York State recommended methods for proper disposal will be followed.
- Keep dumpsters, construction related chemicals, and construction related washwaters away from environmentally sensitive areas and buffers, waterbodies, watercourses, areas of concentrated flow, flooded areas, and storm drain inlets.

2.4 PRODUCT SPECIFIC PRACTICES:

The following product specific practices will be followed onsite:

Petroleum Products –
All onsite vehicles will be monitored for leaks and receive regular preventive maintenance to reduce the chance of leakage. Petroleum products will be stored in tightly sealed containers that are clearly labeled.

Fertilizers –
Fertilizers will be applied only in the minimum amounts recommended by the manufacturer. Once applied, the fertilizer will be worked into the soil to limit exposure to stormwater. Storage will be in a covered shed or other appropriate enclosure. The contents of any partially used bags of fertilizer will be transferred to a sealable plastic bag to avoid spills.

Concrete Trucks –
Concrete trucks will not be allowed to wash out or discharge surplus concrete or drum wash water directly into active portions of the construction site; must be discharged into impervious wash out areas (wash basin) and be removed and disposed of once a day.

2.5 SPILL CONTROL PRACTICES:

- Manufacturer's recommended methods from spill cleanup, as well as materials and equipment necessary for spill cleanup will be clearly posted, and site personnel will be made aware of the procedures and the location of the information and cleanup supplies.
- All spills will be cleaned up immediately after discovery.
- Any spill area will be kept well ventilated and personnel will wear appropriate protective clothing to prevent injury from contact with a hazardous substance.
- Spills of toxic or hazardous materials will be reported immediately to the appropriate State and/or local government agency, and/or the local fire department regardless of the size of the spill.
- The spill prevention plan will be adjusted to include measures to prevent this type of spill from reoccurring and how to clean up the spill if there is another one.
- The site superintendent responsible for day-to-day operations will be the spill prevention and cleanup coordinator. He will designate other personnel who will receive spill prevention and cleanup training. These individuals will each become responsible for particular phase(s) of prevention cleanup.

3.0 CERTIFICATIONS:

3.1 POLLUTION PREVENTION PLAN CERTIFICATION:

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance to ensure that this SWPPP has been developed in a manner that is in compliance with water quality standards and with the substantive intent of this permit.

This Stormwater Pollution Prevention Plan complies with all requirements applicable to protecting surface and ground water resources in sediment and erosion site plans or site permits, Stormwater management site plans, site permits, or duly adopted regulations approved by local governing bodies or any authorized agency.

To assure compliance, this plan has been prepared in accordance with the *New York State Standards and Specifications for Erosion and Sediment Control.*

Signed: _____

Name / Title David H. Johnson, CPESC, CPSWQ

Erosion Control/Stormwater Water Quality Specialist

Date: _____

3.2 CONTRACTORS CERTIFICATION:

I certify under penalty of law that I understand and agree to comply with the terms and conditions of the pollution prevention plan for the construction site identified in such plan as a condition of authorization to discharge storm water. I also understand that the operator must comply with the terms and conditions of the New York State Pollutant Discharge Elimination System (SPDES) general permit for storm water discharges from construction activities and that it is unlawful for any person to cause or contribute to a violation of water quality standards.

Signature(s)

Name, Title	Date	Responsible for
Printed Name	Representing	
Name, Title	Date	Responsible for
Printed Name	Representing	
Name, Title	Date	Responsible for
Printed Name	Representing	
Name, Title	Date	Responsible for
Printed Name	Representing	
Name, Title	Date	Responsible for
Printed Name	Representing	
Name, Title	Date	Responsible for

4.0 MAPS

APPENDIX A **USGS LOCATION MAP**

APPENDIX B **EROSION AND SEDIMENT CONTROL PLAN**

5.0 PLAN COMPONENTS

The New York State Standards and Specifications for Erosion and Sediment Control (Latest Edition) is to be utilized where additional information is required with respect to any of the measures described below. In addition, the following measures are to be implemented in compliance with the standards and requirements of the NYSDEC and the Town

5.1 EROSION AND SEDIMENT CONTROLS:

The erosion and sediment component of this storm water pollution prevention plan will conform to and be implemented in a manner consistent with the "*New York State Standards and Specifications for Erosion and Sediment Control*". The erosion and sediment control measures and design specifications summarized below will be implemented at the construction site. Refer to **Appendix B** for drawings of the standard sediment and erosion details.

5.2 TEMPORARY STABILIZATION:

Piles of topsoil and overburden, along with disturbed portions of the project site where construction activity will cease either temporarily or permanently for at least 21 days will be stabilized with temporary seed and mulch as soon as practicable but not more than 14 days from the last construction activity in that area. Temporary or permanent stabilization shall also be completed immediately within 7 days on perimeter controls, dikes, swales, ditches, perimeter slopes and all slopes greater then 3:1.

The temporary seed shall be ryegrass applied at the rate of 30 pounds per acre (.7 lbs / 1000 sf) or equivalent. If temporary seed is planted during October/November, use winter rye in lieu of rye grass at 1000 lbs/acre. Prior to seeding, the site will be prepared. Site preparation (if necessary) will include application of lime to a pH of 6.0 and fertilizer (5-10-10 or equivalent) at the rate of 14 lbs. / 1000 sf (or in accordance with approved project specifications). If the soil is not seeded within 24-hours of construction or disturbance, the soil will be raked before planting. After seeding, each area shall be mulched with the appropriate type of mulch and applied in accordance with NYS Guidelines.

For additional Sediment and Erosion Control Details, (silt fence detail, stabilized construction entrance, etc.) refer to **Appendix B**.

5.3 PERMANENT STABILIZATION:

Disturbed portions of the site where construction activity ceases shall be stabilized with permanent seed not later than 14 days after the last construction activity in that area. The appropriate site preparation (amounts of lime and fertilizer), permanent seed mix, mulch application, and application rate shall be selected in accordance with the specifications in the

NYS Standards and Specifications for Erosion and Sediment Control or approved project specifications.

5.4 INSPECTION AND MAINTENANCE PRACTICES:

These inspection and maintenance practices will be used to maintain erosion and sediment controls.

- All control measures will be inspected by a ***Qualified Inspector*** at least once each week.
- Inspections can be reduced to once every 30 days if disturbed soils are temporarily stabilized.
- If soil disturbance is greater than five acres, the Operator must first receive written approval by the MS4 or the DEC. Once approved, the inspection frequency is two per week until the disturbance is brought under five acres.
- All measures will be maintained in good working order; if repair is necessary, it must be initiated within 24 hours of report.
- Built up sediment must be removed from silt fence(s) when it has reached one-third the height of the fence.
- Silt fence(s) will be inspected for depth of sediment, tears, to see if the fabric is securely attached to the fence posts, and to see that the fence posts are firmly in the ground, and that the fabric is buried.
- Temporary and permanent seeding and plantings will be inspected for bare spots, washouts, and healthy growth.
- An inspection report will be made after each inspection; a copy of the report completed by the inspector must be retained onsite.
- The contractors or site superintendent will be responsible for arranging for inspections and reports, maintenance, and repair activities as well as the completion of the maintenance reports. They must be trained in all the inspection and maintenance practices necessary for keeping the erosion and sediment controls onsite in good working order.
- The Town is to be copied on all inspection reports

5.5 MISCELLANEOUS EROSION AND SEDIMENT CONTROL PROVISIONS:

<u>Pre-Construction Actions</u>

- Resource Protection
  - Evaluate, mark and protect important trees and associated rooting zones, wetlands, on-site septic systems absorption fields, etc.
  - Protect existing vegetated areas suitable for filter strips, especially in perimeter areas.
- Surface Water Protection
  - Identify the drainage area in the plan. Divide the site into natural drainage areas.
  - Divert the off-site clean runoff from entering disturbed areas.
  - Identify bodies of water located either on site or in the vicinity of the site.
  - Plan appropriate practices to protect on-site or downstream surface water.
- Stabilized Construction Entrance
  - Establish a temporary construction entrance to capture mud and debris from construction vehicles before they enter the public highway.

- Stabilize bare areas (entrances, construction routes, equipment parking areas) immediately as work takes place. Top these areas with gravel or maintain vegetative cover.
- Sediment tracked onto public streets should be removed or cleaned on a daily basis.

- Perimeter Sediment Controls
  - Silt fence material and installation comply with the standard drawing and specifications.
  - Install silt fences based on appropriate spacing intervals. Decrease this interval as the slope increases. Silt fence should be placed on or parallel to contours where there is no concentration of water flowing to the silt fence and where erosion occurs in the form of sheet erosion. The area below the silt fence should be undisturbed ground.
  - Install principal basins after construction site is assessed.
  - Install additional sediment traps and barriers as needed during grading.

Runoff and Drainage Control

- Runoff Control
  - Install practices after sediment traps are installed and before land grading starts.
  - Control the runoff in each small drainage area before flow reaches runoff from entire site.
  - Divert offsite or clean runoff from disturbed areas.
  - Convey surface flows from highly erodible soil and steep slopes to more suitable stable areas.
  - Runoff from existing or proposed cut and fill slopes should be redirected to lower water velocity without causing erosion.
  - Final site drainage should be designed to prevent erosion, concentrated flows to adjacent properties, uncontrolled overflow, and ponding.
- Runoff Conveyance System
  - Stabilize conveyance system.
  - Channels and stream banks need to be seeded at the outlet points.
  - Install check dams to slow down the velocity of concentrated flow.
  - Protect existing natural drainage systems and streams by maintaining vegetative buffers and by implementing other appropriate practices.
- Groundwater Recharge
  - Install practices to infiltrate the runoff on the site as much as possible.
  - Provide groundwater recharge to maintain the hydrologic regime of the downstream water bodies and simulate predevelopment hydrology.
  - Use infiltration practices to prevent concentrated flows.
- Outlet stabilization
  - Install practices to prevent erosion at discharge points.

Grading

- Limit the initial clearing and earth disturbance to that necessary to install sediment control measures. Excavation for footings, clearing, or other earth disturbance may only take place after the sediment and erosion controls are installed.
- Stockpile the topsoil removed from the site. The topsoil should be protected, stabilized and sited in a location away from the storm drains and water bodies.

- Changes in grade or removal of vegetation should not disturb established buffers and should not be allowed within any regulated distance from wetlands, the high water line of a body of water affected by tidal action, or other such protected zones.
- Avoid disturbance of steep slopes.
- An undisturbed buffer should be maintained to control runoff from steep slopes within sensitive areas.
- Proposed grading should not impair existing surface drainage resulting in a potential erosion hazard impacting adjacent land or water bodies if possible.

Erosion Control (Stabilization)

- Implement erosion control practices to keep the soil in place.
- Stabilization should be completed immediately for the surface of all perimeter controls and perimeter slopes.
- When activities temporarily cease during construction, soil stockpiles and exposed soil shall be stabilized by seed and mulch or other appropriate measures as soon as possible, but in no case more than 14 days after construction activity has ceased.
- Following initial soil disturbance or re-disturbance, permanent or temporary, stabilization should be completed within 14 days or as soon as possible.
- Apply temporary or permanent stabilization measures immediately on all disturbed areas where work is delayed or completed.
- Consult the local Soil and Water Conservation District for proper timing and application rate of seed, fertilizer and mulch.

Sediment Control

- At any location where surface runoff from disturbed or graded areas may flow off the construction area, sediment control measures must be installed to prevent sediment from being transported off site. No grading, filling or other disturbance is allowed within existing drainage swales.
- Swales or other areas that transport concentrated flow shall be appropriately stabilized.
- Downspout or sump pump discharges must have acceptable outfalls that are protected by splash blocks, sod, or piping as required by site conditions (i.e., no concentrated flow directed over fill slopes). Sediment will be removed from behind sediment fences when it becomes 6" deep. Sediment basins will be cleaned out when 50% of the storage capacity has been reached. When permanent detention basins are being used as sediment basins during construction, they are to be dredged to the original design depth prior to being placed online.

Maintenance and Inspection

- Identify the type, number and frequency of maintenance actions required for stormwater management and erosion control during construction and for permanent practices that remain on the site once construction is finalized.
- Inspection must be indicated on the Construction Sequence Schedule. Inspection must be performed every 7 calendar days.
- Inspection, must verify that all practices are adequately operational, maintained properly and that sediment is removed from all control structures.
- Inspection, must look for evidence of the soil erosion on the site, potential of pollutants entering drainage systems, problems at discharge points (such as turbidity in receiving water), and signs of soil and mud transport from the site to the public road at the entrance.

- Routine maintenance must be identified on the schedule and performed on a regular basis and as soon as a problem is identified.
- Identify the person or entities responsible for conducting the maintenance actions during construction and post-construction.
- Retain a copy of the inspection reports on-site with the SWPPP.

Finalize Grading & Landscaping:

- Identify the final grading and stabilization plan once the construction is completed.
- All open areas, including borrow and spoil areas must be stabilized.
- Plan a permanent top soil, seed, sod, mulch, riprap or other stabilization practices in the remaining disturbed areas as appropriate.
- Stabilization must be undertaken no later than 14 days after construction activity has ceased except as noted in the GP-0-10-001.
- Remove the temporary control measures.

Post Construction Controls:

- Identify the permanent structural or non-structural practices that will remain on the site.
- Ensure that the permanent structural or non-structural practices utilized during construction are properly designed to suit the post-construction site conditions.
- In finalizing the plan, evaluate the post-construction runoff condition on the site.
- Minimize the risk of concentrated flow and erosion.
- On-site runoff controls help reduce the risk of increased runoff velocity, erosion and point source discharge. In addition to the standard runoff and erosion control practices identified in NY Standards and Specifications for Erosion and Sediment Control, some of the techniques discussed under on-site runoff control discussion may be applied.

6.0 WATER QUALITY AND QUANTITY CONTROLS

A detention basin will be utilized to treat the water quantity and quality. Refer to plan for location.

7.0 SCHEDULE – CONSTRUCTION SEQUENCE SCHEDULING

7.1 SEQUENCE OF MAJOR ACTIVITIES:

1. Hold pre-construction conference at least one (1) week prior to construction.
2. Notify sediment control inspector 24 hours prior to start of construction.
3. Survey and stakeout for clearing, stripping and erosion control activities.
4. Install erosion and sediment control measures. Sediment basin should be first installed.
5. Perform the necessary work to ensure proper surface drainage while maintaining erosion and sediment control as defined by Town specifications and design drawings.
6. Clear, grub, and rough grade at site, stockpile and topsoil.
7. When activities temporarily cease during construction, soil stockpiles and exposed soil should be stabilized by seed and mulch or other appropriate measures as soon as possible (see construction drawings for seeding information). But in no case more than 14 days after construction activity has ceased.
8. Notify sediment control inspector and obtain approval before proceeding further.

9. Site preparation and construction shall not adversely affect the free flow of storm runoff or water courses.
10. Install detention pond as shown on drawings. Install diversion swale along south property line to capture offsite runoff.
11. Upon completion of pavement and utility installation, restoration shall commence.
12. Complete final grading of grounds, topsoil critical areas, and permanently vegetate, landscape, and mulch.
13. Clean sediment basin and finish/restore to permanent Storm Water Management Practice.
14. The Town is to be copied on all inspection reports.
15. Disturbance will be limited to only the utility installation areas.
16. House construction to conform to the New York State Standards and Specifications for Erosion and Sediment Control.
17. Erosion and sediment controls are to be removed as their usefulness diminishes. At all instances, notify the sediment control inspector and obtain written approval before removal of any erosion and sediment control device or mechanism.
18. After the site is stabilized, remove all temporary measures and install permanent vegetation in disturbed areas.

7.2 EROSION AND SEDIMENT CONTROL ACTIVITIES:

Type	Activities	Control Measures	Start Date	End Date	Maintenance Actions
Pre-Construction	Resource Protection	Identify important resources (wetlands, drainage areas, etc.)	Summer 2013	Summer 2013	n/a
Runoff Control	Perimeter Sediment Controls	Silt Fence, etc.	Summer 2013	Summer 2013	See Plan
	Land Grading	Misc. grading and shaping of land	Summer 2013	Summer 2014	As Required
Stabilization	Permanent / Temporary Seeding	Permanent / Temporary Seeding	Fall 2014	Spring 2015	See Plan
	Additional Plantings	Additional Seeding as Needed	Spring 2015	Fall 2015	As Required

7.3 SITE INSPECTION REQUIREMENTS:

Following the commencement of construction, site inspections must be conducted by the ***Qualified Inspector*** (a person knowledgeable in the principles and practice of erosion and sediment controls, such as a licensed professional engineer (P.E.), Certified Professional in Erosion and Sediment Control (CPESC), or soil scientist) in accordance with the General Permit. Refer to Section 5.4 of this report and Part IV C of the SPDES General Permit GP-0-10-001.

1. On a site map, indicate the extent of all disturbed site areas and drainage pathways. Indicate site areas that are expected to undergo initial disturbance or significant site work within the next 14-day period;
2. Indicate on a site map all areas of the site that have undergone temporary or permanent stabilization;
3. Indicate all disturbed site areas that have not undergone active site work during the previous 14-day period;
4. Inspect all sediment control practices and record the approximate degree of sediment accumulation as a percentage of the sediment storage volume (for example, 10 percent, 20 percent, and 50 percent);
5. Inspect all erosion and sediment control practices and record all maintenance requirements such as verifying the integrity of barrier or diversion systems (earthen

berms or silt fencing) and containment systems (sediment basins and sediment traps). Identify any evidence of rill or gully erosion occurring on slopes and any loss of stabilizing vegetation or seeding/mulching. Document any excessive deposition of sediment or ponding water along barrier or diversion systems. Record the depth of sediment within containment structures, any erosion near outlet and overflow structures, and verify the ability of rock filters around perforated riser pipes to pass water; and

6. All deficiencies that are identified with the implementation of the SWPPP.
   - The operator shall maintain a record of all inspection reports in a site log book. The site log book shall be maintained on site and be made available to the permitting authority upon request. Copies of all inspection reports are to be submitted to the Town on a regular basis. It is the responsibility of the individual contractor / operator to provide the inspection logbook.
   - The Town is to be copied on all inspection reports.

8.0 POST CONSTRUCTION

The facilities owner shall on an annual or more frequent basis inspect the storm water management practices for proper operation, maintenance and management. Any unsatisfactory comments should be addressed as soon as possible and followed up by another inspection and completion of the checklist.

8.1 DETENTION PONDS

1. Sediment removal shall occur every five to six years or after 50% of total capacity has been lost. In areas where road sand is used, an inspection of the pond should be scheduled after the spring melt to determine if dredging is necessary.
2. Sediments excavated from stormwater ponds that do not receive runoff from designated hotspots are generally not considered toxic or hazardous material, and can be safely disposed by either land application or land filling.
3. Sediment removed from stormwater ponds should be disposed of according to an approved comprehensive operation and maintenance plan.
4. Care should be exercised during pond drawdowns to prevent rapid drawdown and minimize downstream discharge of sediments or anoxic water. The local review authority should be notified before draining a pond.
5. Do not drain ponds during the spring season. Due to temperature stratification and high chloride concentrations at the bottom, the water may become highly acidic and anoxic and may cause negative downstream effects.
6. Warning signs prohibiting swimming and skating should be posted.
7. Woody vegetation may not be planted or allowed to grow within 15 feet of the toe of the embankment and 25 feet from the principal spillway structure.
8. Annual mowing of the pond buffer is only required along maintenance rights-of-way and the embankment.

8.2 SWALES

1. Roll or culti-pack seeds and mulch seed bed. Anchor mulching as needed.
2. Water as needed
3. Fertilize and lime as needed to maintain dense vegetation.
4. Mow as required during the growing season to maintain grass heights at 4 inches to 6 inches.

5. Remove any sediment or debris buildup by hand if possible in the bottom of the channel when the depth reaches 2 inches.
6. Inspect for pools of standing water. Regrade to restore design grade and revegetate.
7. Repair rills in channel bottom with compacted topsoil, anchored with mesh or filter fabric. Seed and mulch.
8. Use of heavy equipment for mowing and removing plants/debris should be avoided to minimize soil compaction. Disturbed areas should be stabilized with seed and mulch, or revetment, as necessary.

8.3 ROCK OUTLET PROTECTION

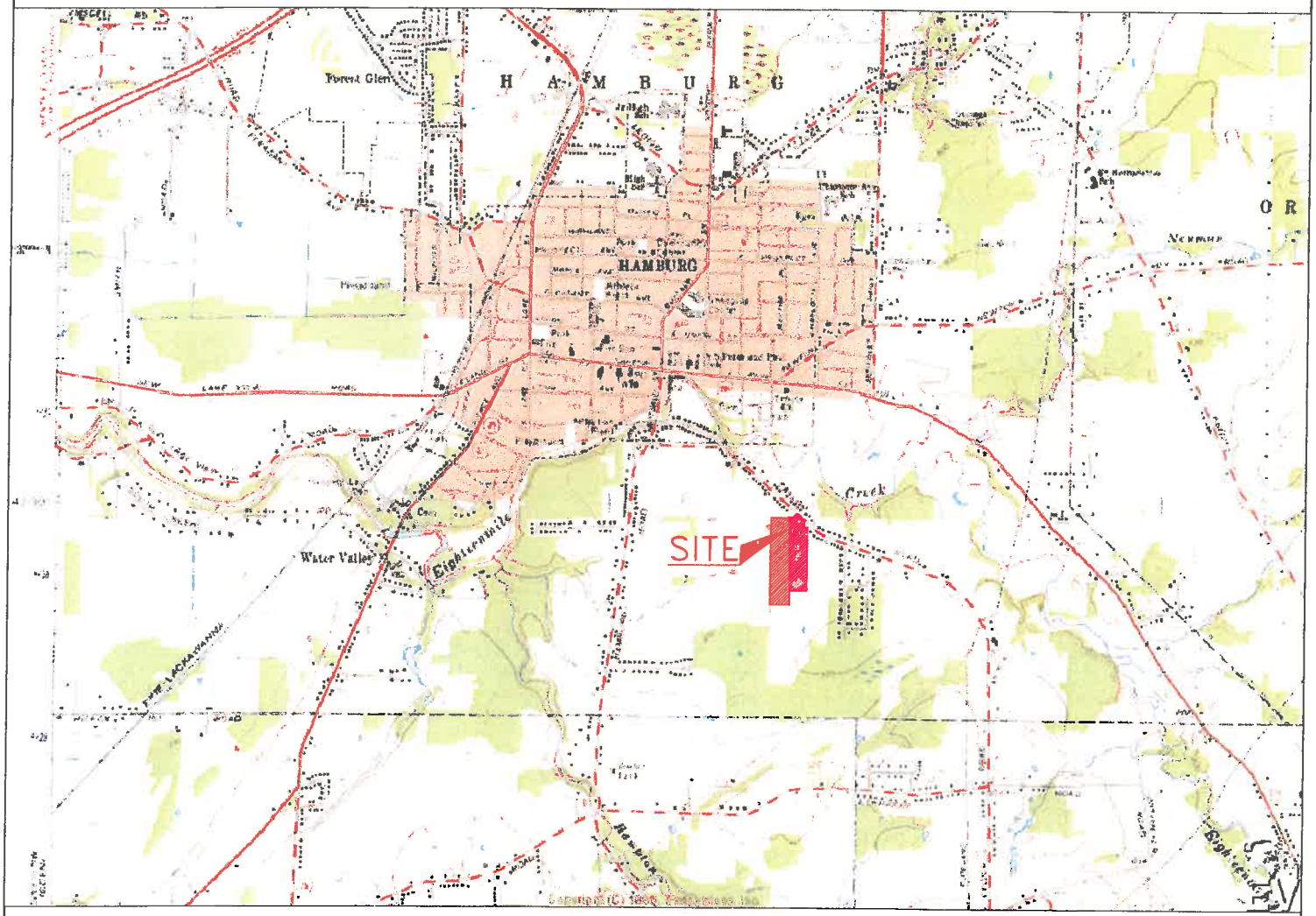
1. The riprap outlet should be inspected after high flows for evidence of scour beneath the riprap or for dislodged stones. Repairs should be made immediately.

8.4 BIOSWALES/BIORETENTION

1. Inspect and repair/replace treatment area components
2. Remulch annually

APPENDIX A

USGS Location Map



Nussbaumer & Clarke, Inc.
Engineers and Surveyors

3556 Lake Shore Road
Buffalo, New York 14219-1494
(716) 827-8000

USGS
PROJECT LOCATION MAP

Yoviene Subdivision
Town of Hamburg
Erie County, New York

EXHIBIT

1

APPENDIX B

Erosion Control Plan

PROP. 96± LF SWALE @ 0.27%

BENCHMARK
EL.: 821.59
SAN MH
RIM: 821.59
E&W 8" I.P.
INV.: 813.57

DI RIM: 821.67
INV: 817.97
S 15" CMP
E 12" CMP

DI RIM: 821.62
INV: 818.12
N 15" CMP
E 12" CMP

DI RIM: 818.79
INV: 814.09
N 15" CMP
E&W 12" CMP

PROP. CB NO. 1
4'x4' STRUCTURE
RIM: 821.25±
12" N & S INV.: 819.82±

PROP. Y.D. NO. 1
RIM: 822.62±
12" N INV.: 819.12±

PROP. 208 ± LF 12" HDPE @ 1.00%

PROP. 154' ± LF (2) 8"-HDPE @ 0.27%

PROP. 20' WIDE DRAINAGE EASMENT TO THE TOWN OF HAMBURG

PROP. 15' WIDE DRAINAGE EASMENT TO THE TOWN OF HAMBURG

PROP. 18' ± LF 12" HDPE @ 0.27% TO BE MAINTAINED BY THE TOWN OF HAMBURG

PROP. 30± LF 12"ø RCP @ 0.50%

PROP. 144± LF 12"ø HDPE @ 0.50%

PROP. 74± LF 12"ø HDPE @ 0.50%

PROP. Y.D. NO. 3
RIM: 824.30±
12" W INV.: 822.50

PROP. 20' WIDE DRAINAGE EASMENT TO THE TOWN OF HAMBURG

PROP. END SECTION WITH MEDIUM STONE RIP-RAP INV.: 822.13

PROP. 120' WIDE UTILITY CLEARING LIMIT

PROP. CB NO. 2
ROAD 1
STA. 2+34.35, 15' RT.
RIM: 825.09±
12" W INV.: 821.68

PROP. END SECTION
INV.: 818.41

PROP. END SECTION
INV.: 818.16

PROP. CB NO. 3
ROAD 1
STA. 2+22.86, 15' LT.
RIM: 824.84±
12" W INV.: 821.83

PROP. DETENTION POND BOTTOM EL.: 810.0

PROP. 10' WIDE DRAINAGE EASMENT TO THE TOWN OF HAMBURG

PROP. STRM. MH NO. 1
ROAD 1
STA. 2+36.21, 27.75' LT.
RIM: 827.31±
12" W INV.: 822.08
15" E INV.: 822.18
15" S INV.: 822.28

PROP. 125± LF 12"ø HDPE @ 0.80%

PROP. 231± LF 15" HDPE @ 0.80%

PROP. CB NO. 7
ROAD 1
STA. 9+58.31, 15' LT.
RIM: 824.81±
24" INV.: 821.12

PROP. 30± LF 12"ø RCP @ 0.50%

PROP. CB NO. 4
ROAD 1
STA. 7+36.21, 15' RT.
RIM: 825.83±
12" E INV.: 822.39

PROP. END SECTION WITH MEDIUM STONE RIP-RAP INV.: 818.10

PROP. 216± LF 12" HDPE @ 0.50%

PROP. END SECTION WITH MEDIUM STONE RIP-RAP INV.: 817.55

PROP. CB NO. 5
ROAD 1
STA. 7+36.21, 15' LT.
RIM: 825.83±
12" E, W
INV.: 822.24

PROP. CB NO. 6
ROAD 1
STA. 9+58.31, 15' RT.
RIM: 824.81±
24" INV.: 821.06

PROP. 20' WIDE DRAINAGE EASMENT TO THE TOWN OF HAMBURG

PROP. END SECTION WITH MEDIUM STONE RIP-RAP INV.: 817.20

PROP. END SECTION WITH MEDIUM STONE RIP-RAP INV.: 817.04

PROP. 31± LF 12"ø HDPE @ 0.50%

PROP. END SECTION
INV.: 824.14

PROP. 88± LF 15" HDPE @ 1.00%

PROP. STRM. MH NO. 7
ROAD 2
STA. 3+40.81, 27.75' LT.
RIM: 829.22±
15" W INV.: 824.90
15" E INV.: 825.00

PROP. Y.D. NO. 4
RIM: 825.50±
15" INV.: 823.30

PROP. CB NO. 16
ROAD 2
STA. 2+39.70 15' LT.
RIM: 826.75±
12" N INV.: 824.35

PROP. 13± LF 12"ø HDPE @ 0.85%

PROP. 20' WIDE DRAINAGE EASMENT TO THE TOWN OF HAMBURG

PROP. STRM. MH NO. 2
ROAD 1
STA. 9+58.31, 27.75' LT.
RIM: 826.29±
24" W INV.: 821.16
15" N INV.: 821.62
18" S INV.: 821.16

PROP. CB NO. 14
ROAD 2
STA. 0+93.50, 15' LT.
RIM: 825.40±
12" INV.: 822.25

PROP. 13± LF 12"ø HDPE @ 0.50%

PROP. 13± LF 12"ø HDPE @ 0.50%

PROP. 204± LF 15"ø HDPE @ 0.30%

PROP. 303± LF 24"ø RCP @ 0.20%

PROP. STRM. MH NO. 5
ROAD 2
STA. 0+93.47, 27.75 LT.
RIM: 826.16±
18" E INV.: 822.18
12" S INV.: 822.18
24" W INV.: 822.18

PROP. CB NO. 8
ROAD 1
STA. 11+44.96, 15' RT.
RIM: 825.69±
24" N S INV.: 821.80

PROP. CB NO. 9
ROAD 1
STA. 12+44.40, 15' RT.
RIM: 826.19±
12" S INV.: 822.67

PROP. 232± LF 24"ø HDPE @ 0.20%

PROP. 83± LF 15" HDPE @ 0.50%

PROP. STRM. MH NO. 8
ROAD 2
STA. 4+92.93, 27.75' LT.
RIM: 832.00±
15" NW INV.: 827.86
15" SE INV.: 827.96

PROP. CB NO. 18
ROAD 2
STA. 5+68.98, 15' LT.
RIM: 832.63±
15" NW INV.: 828.38
12" SW INV.: 828.48

PROP. 308± LF 12"ø RCP @ 0.50%

PROP. CB NO. 19
ROAD 2
STA. 5+68.98, 15' RT.
RIM: 832.63±
12" W INV.: 828.63

PROP. 30± LF
12"ø RCP @ 0.85%

PROP. CB NO. 17
ROAD 2
STA. 2+39.70, 15' RT.
RIM: 826.78±
12" N INV.: 824.61

PROP. 45± LF
12"ø HDPE @ 0.88%

PROP. END SECTION
INV.: 825.00 WITH
MEDIUM STONE RIP-RAP

PROP. 30± LF
12"ø HDPE @ 0.50%

PROP. 108± LF
24"ø HDPE @ 0.38%

PROP. CB NO. 15
ROAD 2
STA. 0+93.50, 15' RT.
RIM: 825.40±
12" INV.: 822.40

PROP. 232± LF 24"ø HDPE @ 0.20%

PROP. 303± LF 24"ø RCP @ 0.20%

PROP. 232± LF 24"ø HDPE @ 0.20%

PROP. 132± LF 24"ø HDPE @ 0.20%

PROP. 165± LF 15"ø HDPE @ 1.78%

STOCKPILE AREA

LOT 1 — F.G. EL. 826.5
LOT 2 — F.G. EL. 827.5
LOT 3 — F.G. EL. 829.2
LOT 4 — F.G. EL. 829.4
LOT 5 — F.G. EL. 829.4
LOT 6 — F.G. EL. 829.0
LOT 7 — F.G. EL. 828.6
LOT 8 — F.G. EL. 828.2
LOT 9 — F.G. EL. 827.8
LOT 10 — F.G. EL. 827.4
LOT 11 — F.G. EL. 827.4
LOT 12 — F.G. EL. 827.9
LOT 13 — F.G. EL. 827.3
LOT 30 — F.G. EL. 835.9
LOT 31 — F.G. EL. 841.3
LOT 32 — F.G. EL. 841.7
LOT 34 — F.G. EL. 841.7
LOT 35 — F.G. EL. 841.2
LOT 36 — F.G. EL. 840.6
LOT 37 — F.G. EL. 835.9
LOT 38 — F.G. EL. 832.7
LOT 39 — F.G. EL. 831.1
LOT 40 — F.G. EL. 829.9
LOT 41 — F.G. EL. 827.6
LOT 42 — F.G. EL. 827.0
LOT 43 — F.G. EL. 828.6
LOT 44 — F.G. EL. 829.1
LOT 45 — F.G. EL. 829.4
LOT 46 — F.G. EL. 829.5
LOT 47 — F.G. EL. 829.5
LOT 48 — F.G. EL. 828.5
LOT 49 — F.G. EL. 826.9

TAYLOR (66' WIDE)

PUBLIC ROAD

MATCHLINE STA. 12+50

NOTE: FOR SEDIMENT AND EROSION CONTROL SEQUENCE OF OPERATIONS SEE DETAIL SHEET NO.

1. ZONING – RA RESIDENTIAL AGRICULTURAL DISTRICT.
2. ALL PROPOSED STORMWATER FACILITIES SHALL MEET TOWN OF HAMBURG STANDARDS FOR CONSTRUCTION ACTIVITIES NECESSARY FOR COVERAGE UNDER THE GENERAL PERMIT.
3. THE PROPOSED WATER SERVICE WILL BE SUBJECT TO APPROVAL FROM THE TOWN OF HAMBURG ENGINEERING DEPARTMENT, THE ERIE COUNTY DEPARTMENT OF ENVIRONMENT & PLANNING, AND THE ERIE COUNTY WATER AUTHORITY.
4. ALL OTHER PROPOSED UTILITIES ARE SUBJECT TO APPROVAL FROM THE TOWN OF HAMBURG ENGINEERING DEPARTMENT AND THE APPROPRIATE REVIEWING AGENCY.
5. ALL EXISTING DRAINAGE FACILITIES ON R.O.W. TO BE REPAIRED/REPLACED AS ORDERED BY ENGINEER.
6. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH TOWN OF HAMBURG STANDARD CONSTRUCTION SPECIFICATIONS AND/OR SUBJECT TO THE LATEST REVISIONS AS APPROVED BY THE TOWN ENGINEER.

BENCHMARK – EXIST. SANITARY MANHOLE LOCATED AT THE NORTHWEST CORNER OF NEW ROAD 1 THE SOUTH SIDE OF TAYLOR ROAD, RIM: 821.59.

7. CONTOURS SHOWN ARE AT 1 FT. INTERVALS AND REPRESENT EXISTING SITE CONDITIONS.

PRELIMINARY

~ LEGEND ~

- CATCH BASIN (WITHIN GUTTER)
- YARD CATCH BASIN
- PROP. FIRE HYDRANT ASSEMBLY
- EXISTING HYDRANT
- PROP. SANITARY SEWER
- WATERLINE – LINE VALVE
- UTILITY POLE
- SWALE INSTALLED BY UTILITY CONTRACTOR UNDER RIP
- 800 EXISTING CONTOUR LINE
- 20 LOT NUMBER

EROSION CONTROL LEGEND:

- SF — SILT FENCE
- SCE — STABILIZED CONSTRUCTION ENTRANCE
- CL — CLEARING LIMITS
- FFIP — FILTER FABRIC INLET PROTECTION
- SIST — STORM INLET SEDIMENT TRAP
- SOST — SWALE OUTLET SEDIMENT TRAP

GRAPHIC SCALE

50 0 25 50 100 150

(IN FEET)
1 INCH = 50 FT.

BEFORE YOU DIG, DRILL OR BLAST IN WESTERN OR CENTRAL NEW YORK, CALL DIG SAFELY NEW YORK 1-800-962-7962.

WE RECYCLE

UNAUTHORIZED ALTERATION OR ADDITION TO THIS ENGINEERING DRAWING IS A VIOLATION OF SECTION 7209, PROVISION 2 OF THE NEW YORK STATE EDUCATION LAW.

NUSSBAUMER & CLARKE, INC.
A CORPORATION REGISTERED TO PRACTICE PROFESSIONAL ENGINEERING & LAND SURVEYING IN THE STATE OF NEW YORK
CERTIFICATE NO. _____

REVISIONS			
NO.	BY	DATE	COMMENT

DESIGNED BY: RJP	CHECKED BY:
DRAWN BY: VBS	CHECKED BY: AG
DATE: 04/8/2011	SCALE: 1"=50'
JOB NO. 10J5-0032	
DRAWING NO. 10J5-0032	

Nussbaumer & Clarke, Inc.
ENGINEERS AND SURVEYORS
BUFFALO, NY

WILLOW WOODS SUBDIVISION
THE FIVE YOVIENE'S, LLC
TOWN OF HAMBURG, ERIE COUNTY
STATE OF NEW YORK

DRAINAGE, SEDIMENT AND EROSION CONTROL PLAN

SHEET NO. 7 OF 24

H:\Land Development\10\10J5-0032 - Yovienne Subdivision\Drawings\Base Drawings\10J5-0032 DRAINAGE AND ECONT.dwg 11/16/2012 USAPIONE

APPENDIX C

Stormwater Management Report

STORMWATER MANAGEMENT REPORT

For the

YIOVENE SUBDIVISION

TOWN OF HAMBURG, NEW YORK

Prepared for:

The Five Yoviene's, LLC
4464 Shady Ridge Drive
Hamburg, NY

Prepared by:

Nussbaumer & Clarke, Inc.
Engineers and Surveyors
3556 Lake Shore Road
Buffalo, NY 14219-1494
(716) 827-8000 PHONE
(716) 826-7958 FAX

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3.0	PROPOSED SITE CONDITIONS	2
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5.0	PRE-DEVELOPMENT CALCULATIONS SUMMARY	3
6.0	POST-DEVELOPMENT CALCULATIONS SUMMARY	4
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	6.2 Phase 2 Stormwater Requirements	7
	6.3 Pipe/Swale Sizing	9
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Appendices

Appendix A *Soil Survey Information*
Appendix B *HydroCad Calculations*

1.0 INTRODUCTION

Nussbaumer & Clarke, Inc. has been retained by the developer to survey and perform site planning services for the proposed subdivision located on off of Taylor Road in the Town of Hamburg. The site is approximately 141.68 acres. Of the total acreage, only 36.74 acres will be developed. The total watershed analyzed is approximately 46 acres.

2.0 EXISTING SITE CONDITIONS

The site is almost entirely meadow and brush (as seen in the aerial photograph. The site drains primarily from the east to the west with a portion flowing to the north. A gas line bisects the site from the northeast to the southwest. This can also be seen on the aerial photograph. There is a considerably sized designated wetland to the south. This precludes any development in this area.

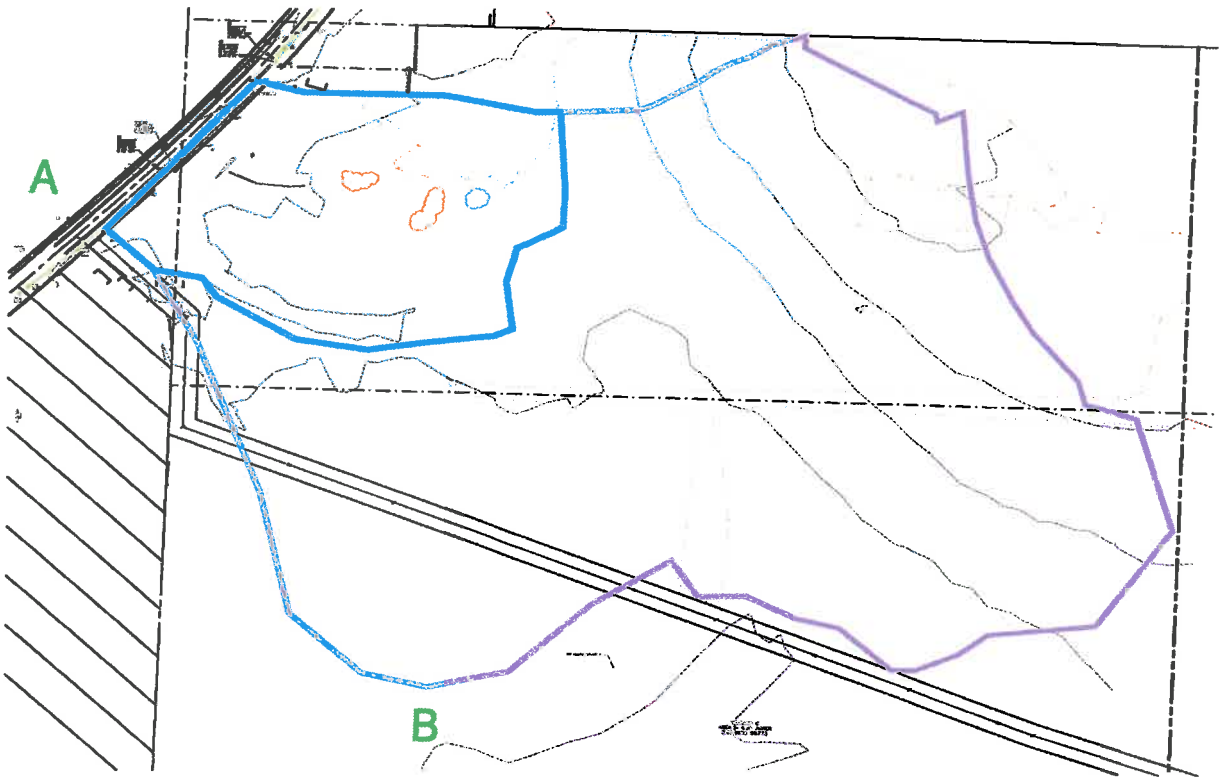
According to the Web Soil Survey, the site is comprised entirely of silt loam classified as hydrologic soil group (HSG) D. Detailed information on these soils can be found in the Web Soil Survey summaries in Appendix A.

3.0 PROPOSED SITE CONDITIONS

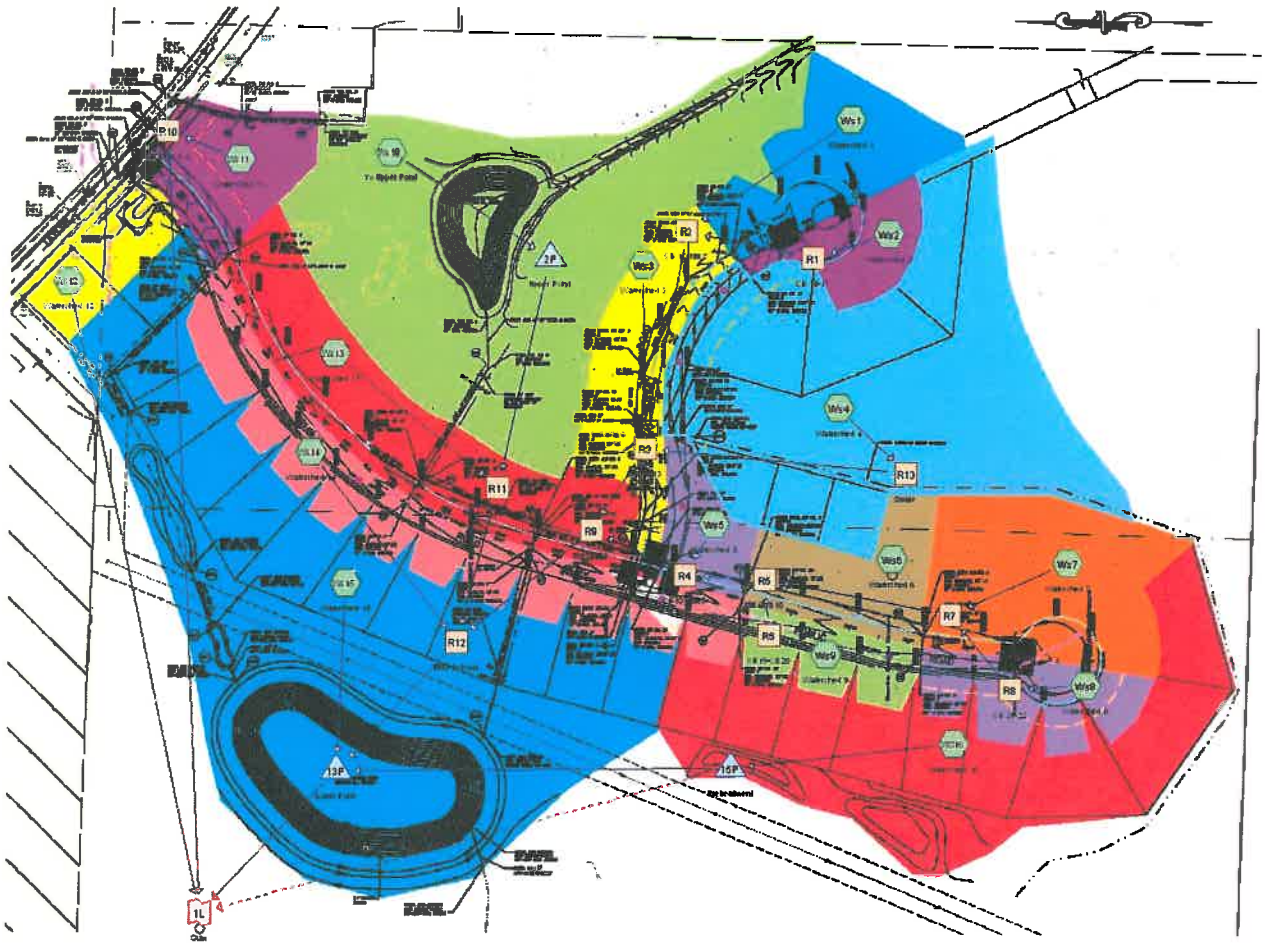
The project includes the construction of a 49-lot residential cluster subdivision. The cluster concept was presented to the Town of Hamburg Planning Board in order to reduce the impact of the development and the overall footprint. A single entry road is proposed that will end in a cul-de-sac along with a small stub road that will also dead end. A number of stormwater management practices are proposed that will both attenuate generated runoff and treat it.

4.0 APPROACH TO DRAINAGE ANALYSIS

The site generally drains from the southeast to the northwest. A portion of the existing runoff is directed toward Taylor Road via a small system of ditches that were constructed in the farm field. The remainder flows generally westward toward the existing wetland area. These areas were analyzed separately on the predevelopment map as Analysis Point A (Taylor Road) and Analysis Point B (existing wetland).



Post developed flows were broken down into subwatersheds (subcatchments) so that individual areas could be analyzed and their contributions to individual pipes and swales (reaches) could be calculated. The map generated for this is shown on the following page:



The above diagram depicts the routing of individual subcatchments (watersheds), reaches (pipes), and ponds. Links were utilized in the routing diagram to sum all site flows in both the pre and post development conditions. The upper pond was designed to be a homeowner amenity and not a stormwater treatment basin since there is no development proposed in this area. The majority of the developed site will directed via a series of swales and pipes to multiple stormwater treatment facilities and the large, lower detention pond located just before the wetlands. The treatment facilities are intended to provide both water quantity and quality treatment.

The 1-year, 2-year, 10-year, and 100-year storm events have been calculated for both the pre and post developed conditions using TR-20 via the HydroCad stormwater modeling software, Ver. 9.1. The aim of the proposed design is to attenuate the post developed flows to pre-development rates while mimicking natural processes. This design will meet all New York State Phase II Stormwater Regulations for water quality and quantity through the use of NYSDEC approved Stormwater Management Practices (SMP's) that are further discussed later in this Report.

5.0 PRE-DEVELOPMENT CALCULATIONS SUMMARY

The following information is a summary of the pre-development conditions of the site. Detailed calculations can be found in ***Appendix B***.

Pre-Development Runoff Summary

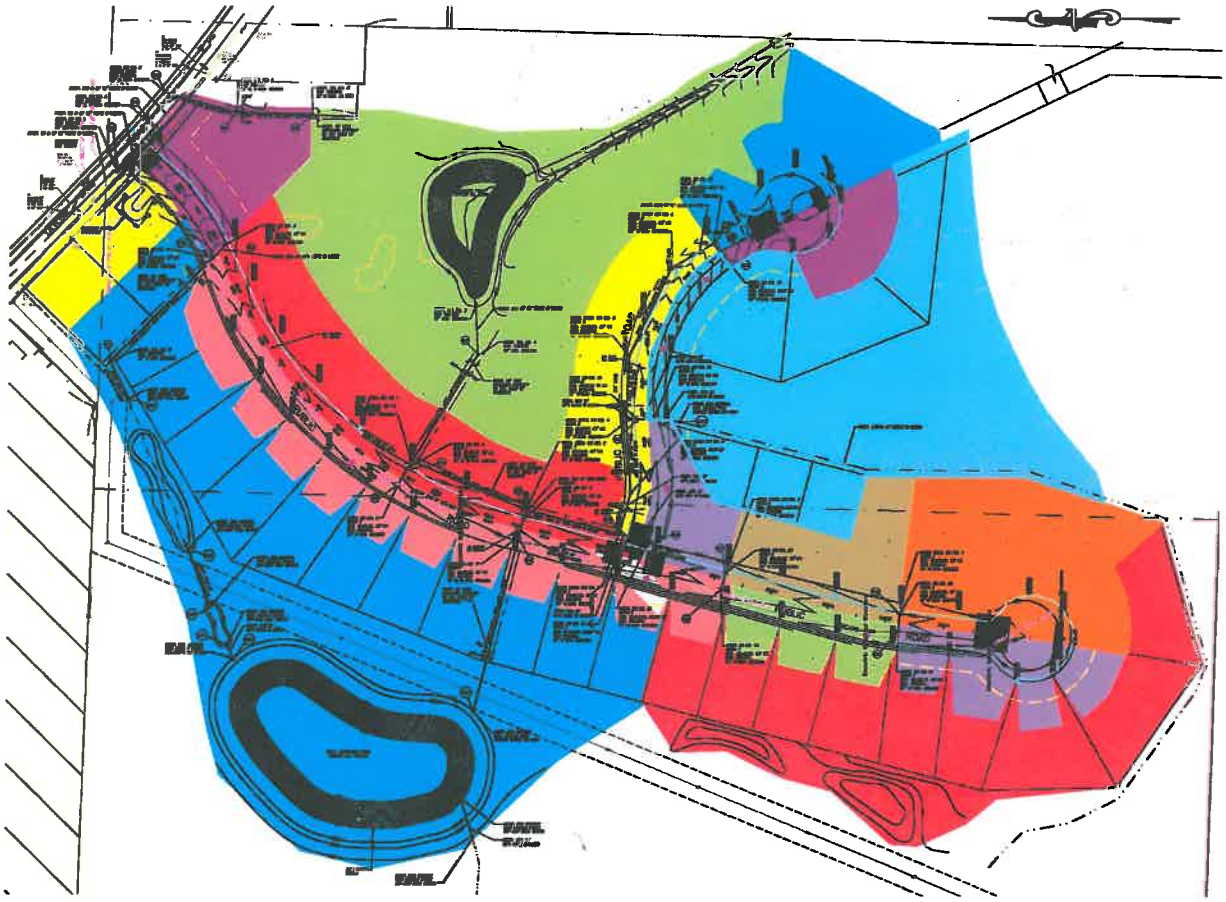
Events for Link 1L: Sum

Event	Inflow (cfs)	Primary (cfs)
1-YR STORM	28.05	28.05
10-YR STORM	82.72	82.72
100-YR STORM	**136.03**	**136.03**

6.0 POST-DEVELOPMENT CALCULATIONS SUMMARY

As a result of development, the drainage area (not the project site) will become approximately 22% impervious. Proposed are one visual amenity pond (upper pond), diversion swales, pretreatment basins, and a wet extended detention basin (lower pond) which will attenuate the 1-year, 10-year, and 100-year storm events to at or below their pre-developed rates. A Link was used to sum the hydrographs of all outflows to determine an overall site runoff rate. This includes pond outfall and uncollected areas.

The overall watershed is shown on the following page:



The Post Development Storm Summary is as follows:

Event	Inflow (cfs)	Primary (cfs)
1-YR STORM	2.04	2.04
10-YR STORM	5.13	5.13
100-YR STORM	**32.12**	**32.12**

The Pre and Post comparison is as follows:

Predevelopment			**Postdevelopment**		
Event	Inflow (cfs)	Primary (cfs)	Event	Inflow (cfs)	Primary (cfs)
1-YR STORM	28.05	28.05	1-YR STORM	2.04	2.04
10-YR STORM	82.72	82.72	10-YR STORM	5.13	5.13
100-YR STORM	**136.03**	**136.03**	100-YR STORM	**32.12**	**32.12**

As demonstrated by the chart above, the detention basins utilized for the proposed development reduces the runoff from the site to well below predevelopment levels. Much of the reason for the large reduction in runoff is the large surface area of the main (lower) detention basin and its slow discharge over time which causes the hydrograph peak to be spread out. Refer to the calculations for further detail.

6.1 Detention Basin Summary

Runoff is collected and treated throughout the site via various green infrastructure practices. After treatment, most are directed to the existing detention basin to the east. The existing basin has more than enough capacity to accept and attenuate flows from the new development. The basin's storage summary is as follows:

The summaries demonstrate that the proposed basin has sufficient capacity to capture and treat the required storm events.

Inflow Area = 42.994 ac, 21.21% Impervious, Inflow Depth > 2.75" for 100-YR STORM event
Inflow = 61.87 cfs @ 12.10 hrs, Volume= 9.866 af
Outflow = 22.63 cfs @ 13.22 hrs, Volume= 7.527 af, Atten= 63%, Lag= 67.4 min
Primary = 5.19 cfs @ 13.22 hrs, Volume= 4.793 af
Secondary = 17.44 cfs @ 13.22 hrs, Volume= 2.734 af

Routing by Stor-Ind method, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs / 3
Starting Elev= 820.00' Surf.Area= 109,467 sf Storage= 945,460 cf
Peak Elev= 821.55' @ 13.22 hrs Surf.Area= 128,332 sf Storage= 1,130,155 cf (184,695 cf above start)

Plug-Flow detention time= (not calculated: initial storage excedes outflow)
Center-of-Mass det. time= 191.0 min (1,060.0 - 869.0)

Volume	Invert	Avail.Storage	Storage Description
#1	804.00'	1,328,496 cf	**Custom Stage Data (Prismatic)** Listed below (**Recalc**)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
804.00	35,939	0	0
805.00	38,457	37,198	37,198
806.00	41,031	39,744	76,942
807.00	43,661	42,346	119,288
808.00	46,438	45,050	164,338
809.00	49,041	47,740	212,077
810.00	51,889	50,465	262,542
811.00	54,755	53,322	315,864
812.00	57,656	56,206	372,070
813.00	60,623	59,140	431,209
814.00	63,647	62,135	493,344
815.00	66,727	65,187	558,531
816.00	69,863	68,295	626,826
817.00	73,056	71,460	698,286
818.00	76,304	74,680	772,966
819.00	79,609	77,957	850,922
820.00	109,467	94,538	945,460
821.00	122,471	115,969	1,061,429
822.00	133,165	127,818	1,189,247
823.00	145,332	139,249	1,328,496

Device	Routing	Invert	Outlet Devices
#1	Primary	820.30'	**18.0" Round Culvert** L= 30.0' CPP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 820.30' / 820.00' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior
#2	Secondary	821.30'	**50.0' long x 20.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

Primary OutFlow Max=5.19 cfs @ 13.22 hrs HW=821.55' (Free Discharge)
↑—**1=Culvert** (Barrel Controls 5.19 cfs @ 4.48 fps)

Secondary OutFlow Max=16.55 cfs @ 13.22 hrs HW=821.55' (Free Discharge)
↑—**2=Broad-Crested Rectangular Weir** (Weir Controls 16.55 cfs @ 1.34 fps)

6.2 Phase 2 Stormwater Requirements

Runoff Reduction Volume (RRv)

The runoff reduction volume is a component of green infrastructure design that intends to reduce the required treatment volume by addressing it near the source. The RRv for this project can be calculated as follows:

Runoff Reduction Volume Sizing (RR_v)

i.e., capture and treat portion of 90% of avg. one-year storm event runoff.

INPUTS

Post-Developed Watershed	Hydrologic Soil Group	Total Impervious Area [acres]	90% Rainfall Event Number [in]
	Per NRCS Soil Survey	Includes both onsite and offsite drainage	NYS Stormwater Management Design Manual, Page 4-2, Figure 4.1
	A, B, C, or D	**Aic**	**P**
see water quality plan	D	10.102	0.85

OUTPUTS

Post-Developed Watershed	Impervious Cover	Runoff Coefficient	Specific Reduction Factor	Impervious Cover Targeted for RR_v [acre]
	Set at 100%	$R_{v*} = 0.05 + 0.009(I)$	NYS Stormwater Management Design Manual, Page 4-5	Ai = (S) (Aic)
	I	**R_{v*}**	**S**	**Ai**
see water quality plan	100%	0.95	0.20	**2.020**

As shown in the calculation, the Runoff Reduction Volume (RRv) is **2.020 acre feet**.

Water Quality Volume (WQv)

- The Water Quality Volume (denoted as the WQv) is designed to improve water quality sizing to capture and treat 90% of the average annual stormwater runoff volume. The WQv is directly related to the amount of impervious cover created at a site and is calculated as follows:

Water Quality Volume Sizing (WQ_v)

i.e., capture and treat 90% of avg. one-year storm event runoff.

INPUTS

Post-Developed Watershed	Watershed Area [acres]	90% Rainfall Event Number [in]	Imperviousness in Watershed [%]
	Includes both onsite and offsite drainage	NYS Stormwater Management Design Manual, Page 4-2, Figure 4.1	Includes both onsite and offsite drainage but not ultimate buildout conditions
	A	**P**	**I**
see water quality plan	46.029	0.85	22.0

OUTPUTS

Post-Developed Watershed	Runoff Coefficient (min. 0.20)	Water Quality Volume [acre-ft]
	$R_v = 0.05 + 0.009(I)$	$WQ_v = (P)(R_v)(A)/12$
	R_v	**WQ_v**
see water quality plan	0.25	**0.815**

As shown in the calculation above, the required Water Quality Volume (WQv) is **0.815 acre-feet.**

Stream Channel Protection Volume (C_{pv})

- C_{pv} is designed to protect stream channels from erosion. In New York State this goal is accomplished by providing 24-hour extended detention of the post-developed 1-year, 24-hour storm runoff volume. The existing detention pond to the east of the proposed development site is so large and has such a large amount of additional storage, neither the 1 year nor 10-year storm generates and significant release from the pond. In fact, even the 100-year storm is almost entirely captured. Therefore, the Channel Protection requirement is satisfied.

Overbank Flood Control

- The primary purpose of the overbank flood control sizing criterion is to prevent an increase in the frequency and magnitude of out-of-bank flooding generated by urban development. Overbank control requires storage to attenuate the post-development 10-year, 24-hour peak discharge rate (Qp) to the pre-development rate of 82.72 cfs. It is reduced to 5.13 cfs via the ponds and associated control structures

Extreme Flood Control

- The intent of the extreme flood criteria is to (a) prevent the increased risk of flood damage from large storm events, (b) maintain the boundaries of the predevelopment 100-year floodplain, and (c) protect the physical integrity of stormwater management practices. *100 Year Control* requires storage to attenuate the post development 100-year, 24-hour peak discharge rate (Qf) to pre-development rates. The system reduces the peak to 32.12 cfs which is well below the predeveloped rate of 136.03 cfs

6.3 Pipe/Swale Sizing

Pipes were sized for the 10-year storm event and modeled as reaches in the HydroCad software.

7.0 METHOD OF CALCULATIONS AND TERMINOLOGY USED IN APPENDIX A

Calculations contained in this Report were performed using HydroCad® 9.1. HydroCad uses the SCS unit hydrograph procedure also known as the TR-20 runoff method. The program uses dynamic routing which calculates all nodes (subcatchments, reaches, or ponds) at each time step (dynamically). This procedure allows each node to respond to upstream *and* downstream conditions, such as tailwater.

Subcatchment: A Subcatchment models the effect of rainfall on a specific section of the watershed, and produces a runoff hydrograph. Subcatchments are described by a number of parameters such as area, curve number, and time of concentration.

Reach: A Reach models the effect of a hydrograph being routed through a uniform stream, channel, or pipe under open-channel flow conditions. This results in attenuation and delay of the peak flow due to the storage and travel time of the Reach.

Link: A Link ties together multiple HydroCad files or can be used to sum hydrographs.

Note: The maximum flow as shown in the outflow summary is calculated directly from the discharge equations at the listed headwater and tailwater elevations. This value may be slightly less than the interpolated peak flow that appears at the top of the summaries in ***Appendix A***.

This report has been prepared to demonstrate compliance with all current local and state stormwater management regulations. Any questions or comments regarding any of the information enclosed in this report may be directed to the undersigned.

Respectfully Submitted,

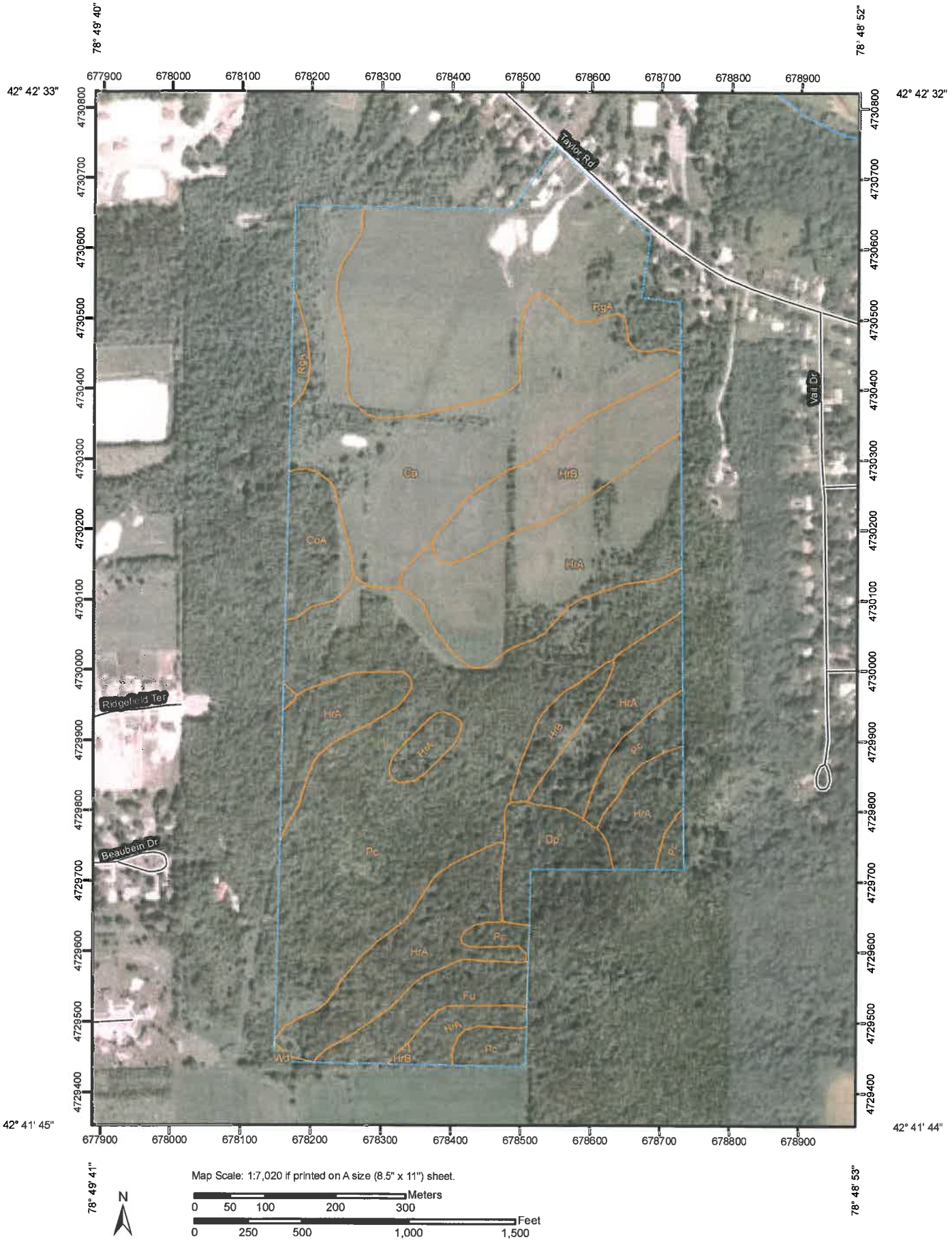
NUSSBAUMER & CLARKE, INC

David H. Johnson, CPESC, CPSWQ
Erosion Control/Stormwater Quality Specialist

APPENDIX A

Soil Survey Information

Soil Map—Erie County, New York
(Yiovene Subdivision)



MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Units

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

Special Line Features
- Gully
- Short Steep Slope
- Other

Political Features
- Cities

Water Features
- Oceans
- Streams and Canals

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

MAP INFORMATION

Map Scale: 1:7,020 if printed on A size (8.5" × 11") sheet.

The soil surveys that comprise your AOI were mapped at 1:15,840.

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

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL: http://websoilsurvey.nrcs.usda.gov
Coordinate System: UTM Zone 17N NAD83

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

Soil Survey Area: Erie County, New York
Survey Area Data: Version 10, Feb 8, 2010

Date(s) aerial images were photographed: 6/17/2006; 6/21/2006

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

Map Unit Legend

Erie County, New York (NY029)			
Map Unit Symbol	**Map Unit Name**	**Acres in AOI**	**Percent of AOI**
Ca	Canadice silt loam	25.3	16.2%
CoA	Churchville silt loam, 0 to 3 percent slopes	3.9	2.5%
Dp	Dumps	3.8	2.4%
Fu	Fluvaquents and Udifluvents, frequently flooded	4.3	2.8%
HrA	Hornell silt loam, 0 to 3 percent slopes	39.0	25.0%
HrB	Hornell silt loam, 3 to 8 percent slopes	10.7	6.8%
Pc	Patchin silt loam	41.5	26.6%
RgA	Rhinebeck silt loam, 0 to 3 percent slopes	27.3	17.5%
Wd	Wayland silt loam	0.1	0.1%
Totals for Area of Interest		**155.8**	**100.0%**

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Units

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

Special Line Features
- Gully
- Short Steep Slope
- Other

Political Features
- Cities

Water Features
- Oceans
- Streams and Canals

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

MAP INFORMATION

Map Scale: 1:6,960 if printed on A size (8.5" × 11") sheet.

The soil surveys that comprise your AOI were mapped at 1:15,840.

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

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL: http://websoilsurvey.nrcs.usda.gov
Coordinate System: UTM Zone 17N NAD83

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

Soil Survey Area: Erie County, New York
Survey Area Data: Version 10, Feb 8, 2010

Date(s) aerial images were photographed: 6/17/2006; 6/21/2006

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

Soil Map—Erie County, New York
(5 Yovienes Subdivision - Taylor Road, Hamburg NY)

Map Unit Legend

Erie County, New York (NY029)			
Map Unit Symbol	**Map Unit Name**	**Acres in AOI**	**Percent of AOI**
Ca	Canadice silt loam	23.6	16.0%
CoA	Churchville silt loam, 0 to 3 percent slopes	2.3	1.5%
Dp	Dumps	5.2	3.5%
Fu	Fluvaquents and Udifluvents, frequently flooded	4.3	2.9%
HrA	Hornell silt loam, 0 to 3 percent slopes	37.0	25.0%
HrB	Hornell silt loam, 3 to 8 percent slopes	10.7	7.2%
Pc	Patchin silt loam	37.7	25.6%
RgA	Rhinebeck silt loam, 0 to 3 percent slopes	26.8	18.2%
Wd	Wayland silt loam	0.0	0.0%
Totals for Area of Interest		**147.5**	**100.0%**

Erie County, New York

Wd—Wayland silt loam

Map Unit Setting

Elevation: 200 to 1,500 feet
Mean annual precipitation: 36 to 48 inches
Mean annual air temperature: 45 to 50 degrees F
Frost-free period: 115 to 195 days

Map Unit Composition

Wayland and similar soils: 75 percent

Description of Wayland

Setting

Landform: Flood plains
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Dip
Down-slope shape: Concave
Across-slope shape: Concave
Parent material: Silty and clayey alluvium washed from uplands that contain some calcareous drift

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Very poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: About 0 to 6 inches
Frequency of flooding: Frequent
Frequency of ponding: Frequent
Calcium carbonate, maximum content: 15 percent
Available water capacity: High (about 9.7 inches)

Interpretive groups

Land capability (nonirrigated): 5w

Typical profile

0 to 9 inches: Silt loam
9 to 28 inches: Silt loam
28 to 45 inches: Silt loam
45 to 60 inches: Stratified silt loam to very fine sand

Data Source Information

Soil Survey Area: Erie County, New York
Survey Area Data: Version 10, Feb 8, 2010

Erie County, New York

RgA—Rhinebeck silt loam, 0 to 3 percent slopes

Map Unit Setting

Elevation: 80 to 1,000 feet
Mean annual precipitation: 36 to 48 inches
Mean annual air temperature: 45 to 50 degrees F
Frost-free period: 115 to 195 days

Map Unit Composition

Rhinebeck and similar soils: 75 percent

Description of Rhinebeck

Setting

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

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: About 6 to 18 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 15 percent
Available water capacity: Moderate (about 8.3 inches)

Interpretive groups

Land capability (nonirrigated): 3w

Typical profile

0 to 9 inches: Silt loam
9 to 37 inches: Silty clay
37 to 70 inches: Silty clay

Data Source Information

Soil Survey Area: Erie County, New York
Survey Area Data: Version 10, Feb 8, 2010

Erie County, New York

Pc—Patchin silt loam

Map Unit Setting

Elevation: 800 to 1,400 feet
Mean annual precipitation: 36 to 48 inches
Mean annual air temperature: 45 to 50 degrees F
Frost-free period: 115 to 195 days

Map Unit Composition

Patchin and similar soils: 75 percent

Description of Patchin

Setting

Landform: Depressions
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave
Across-slope shape: Concave
Parent material: Loamy till

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: 20 to 40 inches to paralithic bedrock
Drainage class: Poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Very low (0.00 to 0.00 in/hr)
Depth to water table: About 0 to 6 inches
Frequency of flooding: None
Frequency of ponding: None
Available water capacity: Low (about 4.0 inches)

Interpretive groups

Land capability (nonirrigated): 4w

Typical profile

0 to 10 inches: Silt loam
10 to 23 inches: Silty clay loam
23 to 27 inches: Weathered bedrock

Data Source Information

Soil Survey Area: Erie County, New York
Survey Area Data: Version 10, Feb 8, 2010

Erie County, New York

HrB—Hornell silt loam, 3 to 8 percent slopes

Map Unit Setting

Elevation: 600 to 1,800 feet
Mean annual precipitation: 36 to 48 inches
Mean annual air temperature: 45 to 50 degrees F
Frost-free period: 115 to 195 days

Map Unit Composition

Hornell and similar soils: 75 percent

Description of Hornell

Setting

Landform: Benches, ridges, till plains
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave
Across-slope shape: Linear
Parent material: Clayey till, or till and residuum, derived from acid shale and siltstone

Properties and qualities

Slope: 3 to 8 percent
Depth to restrictive feature: 20 to 40 inches to paralithic bedrock
Drainage class: Somewhat poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Very low (0.00 to 0.00 in/hr)
Depth to water table: About 6 to 18 inches
Frequency of flooding: None
Frequency of ponding: None
Available water capacity: Low (about 4.1 inches)

Interpretive groups

Land capability (nonirrigated): 3w

Typical profile

0 to 7 inches: Silt loam
7 to 29 inches: Silty clay loam
29 to 40 inches: Channery silty clay
40 to 44 inches: Weathered bedrock

Data Source Information

Soil Survey Area: Erie County, New York
Survey Area Data: Version 10, Feb 8, 2010

Erie County, New York

HrA—Hornell silt loam, 0 to 3 percent slopes

Map Unit Setting

Elevation: 600 to 1,800 feet
Mean annual precipitation: 36 to 48 inches
Mean annual air temperature: 45 to 50 degrees F
Frost-free period: 115 to 195 days

Map Unit Composition

Hornell and similar soils: 75 percent

Description of Hornell

Setting

Landform: Benches, ridges, till plains
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave
Across-slope shape: Linear
Parent material: Clayey till, or till and residuum, derived from acid shale and siltstone

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: 20 to 40 inches to paralithic bedrock
Drainage class: Somewhat poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Very low (0.00 to 0.00 in/hr)
Depth to water table: About 6 to 18 inches
Frequency of flooding: None
Frequency of ponding: None
Available water capacity: Low (about 4.1 inches)

Interpretive groups

Land capability (nonirrigated): 3w

Typical profile

0 to 7 inches: Silt loam
7 to 29 inches: Silty clay loam
29 to 40 inches: Channery silty clay
40 to 44 inches: Weathered bedrock

Data Source Information

Soil Survey Area: Erie County, New York
Survey Area Data: Version 10, Feb 8, 2010

Erie County, New York

Fu—Fluvaquents and Udifluvents, frequently flooded

Map Unit Setting

Elevation: 100 to 3,000 feet
Mean annual precipitation: 36 to 48 inches
Mean annual air temperature: 45 to 50 degrees F
Frost-free period: 115 to 195 days

Map Unit Composition

Fluvaquents and similar soils: 45 percent
Udifluvents and similar soils: 30 percent

Description of Fluvaquents

Setting

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

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Very poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to very high (0.06 to 19.98 in/hr)
Depth to water table: About 0 to 12 inches
Frequency of flooding: Frequent
Frequency of ponding: None
Calcium carbonate, maximum content: 15 percent
Available water capacity: Moderate (about 6.1 inches)

Interpretive groups

Land capability (nonirrigated): 5w

Typical profile

0 to 5 inches: Gravelly silt loam
5 to 70 inches: Very gravelly sand

Description of Udifluvents

Setting

Landform: Flood plains
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Talf
Down-slope shape: Concave
Across-slope shape: Convex
Parent material: Alluvium with a wide range of texture

Properties and qualities

Slope: 0 to 8 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Moderately well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to very high (0.06 to 19.98 in/hr)
Depth to water table: About 24 to 48 inches
Frequency of flooding: Frequent
Frequency of ponding: None
Calcium carbonate, maximum content: 15 percent
Available water capacity: Low (about 5.9 inches)

Interpretive groups

Land capability (nonirrigated): 5w

Typical profile

0 to 4 inches: Very gravelly loam
4 to 70 inches: Very gravelly sand

Data Source Information

Soil Survey Area: Erie County, New York
Survey Area Data: Version 10, Feb 8, 2010

Erie County, New York

Dp—Dumps

Map Unit Setting
Elevation: 100 to 1,600 feet
Mean annual precipitation: 36 to 48 inches
Mean annual air temperature: 45 to 50 degrees F
Frost-free period: 115 to 195 days

Map Unit Composition
Dumps: 75 percent

Description of Dumps

Interpretive groups
Land capability (nonirrigated): 7s

Data Source Information

Soil Survey Area: Erie County, New York
Survey Area Data: Version 10, Feb 8, 2010

Erie County, New York

CoA—Churchville silt loam, 0 to 3 percent slopes

Map Unit Setting

Mean annual precipitation: 36 to 48 inches
Mean annual air temperature: 45 to 50 degrees F
Frost-free period: 115 to 195 days

Map Unit Composition

Churchville and similar soils: 75 percent

Description of Churchville

Setting

Landform: Lake plains, till plains
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Base slope, tread
Down-slope shape: Concave
Across-slope shape: Linear
Parent material: Clayey glaciolacustrine deposits over loamy till

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: About 6 to 18 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 15 percent
Available water capacity: Moderate (about 8.4 inches)

Interpretive groups

Land capability (nonirrigated): 3w

Typical profile

0 to 11 inches: Silt loam
11 to 26 inches: Silty clay
26 to 60 inches: Gravelly loam

Data Source Information

Soil Survey Area: Erie County, New York
Survey Area Data: Version 10, Feb 8, 2010

Erie County, New York

Ca—Canadice silt loam

Map Unit Setting

Mean annual precipitation: 36 to 48 inches
Mean annual air temperature: 45 to 50 degrees F
Frost-free period: 115 to 195 days

Map Unit Composition

Canadice and similar soils: 75 percent

Description of Canadice

Setting

Landform: Depressions
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Tread
Down-slope shape: Concave
Across-slope shape: Concave
Parent material: Clayey glaciolacustrine deposits

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Very low (0.00 in/hr)
Depth to water table: About 0 to 12 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 15 percent
Available water capacity: High (about 9.3 inches)

Interpretive groups

Land capability (nonirrigated): 4w

Typical profile

0 to 8 inches: Silt loam
8 to 53 inches: Silty clay
53 to 65 inches: Silty clay

Data Source Information

Soil Survey Area: Erie County, New York
Survey Area Data: Version 10, Feb 8, 2010

Hydrologic Soil Group—Erie County, New York
(Yiovene Subdivision)

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Units

Soil Ratings
- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Political Features
- Cities

Water Features
- Oceans
- Streams and Canals

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

MAP INFORMATION

Map Scale: 1:7,020 if printed on A size (8.5" × 11") sheet.

The soil surveys that comprise your AOI were mapped at 1:15,840.

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

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL: http://websoilsurvey.nrcs.usda.gov
Coordinate System: UTM Zone 17N NAD83

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

Soil Survey Area: Erie County, New York
Survey Area Data: Version 10, Feb 8, 2010

Date(s) aerial images were photographed: 6/17/2006; 6/21/2006

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

Hydrologic Soil Group

Hydrologic Soil Group— Summary by Map Unit — Erie County, New York				
Map unit symbol	**Map unit name**	**Rating**	**Acres in AOI**	**Percent of AOI**
Ca	Canadice silt loam	D	25.3	16.2%
CoA	Churchville silt loam, 0 to 3 percent slopes	D	3.9	2.5%
Dp	Dumps	D	3.8	2.4%
Fu	Fluvaquents and Udifluvents, frequently flooded	D	4.3	2.8%
HrA	Hornell silt loam, 0 to 3 percent slopes	D	39.0	25.0%
HrB	Hornell silt loam, 3 to 8 percent slopes	D	10.7	6.8%
Pc	Patchin silt loam	D	41.5	26.6%
RgA	Rhinebeck silt loam, 0 to 3 percent slopes	D	27.3	17.5%
Wd	Wayland silt loam	C/D	0.1	0.1%
Totals for Area of Interest			**155.8**	**100.0%**

Description

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The soils in the United States are assigned to four groups (A, B, C, and D) and three dual classes (A/D, B/D, and C/D). The groups are defined as follows:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. Only the soils that in their natural condition are in group D are assigned to dual classes.

Rating Options

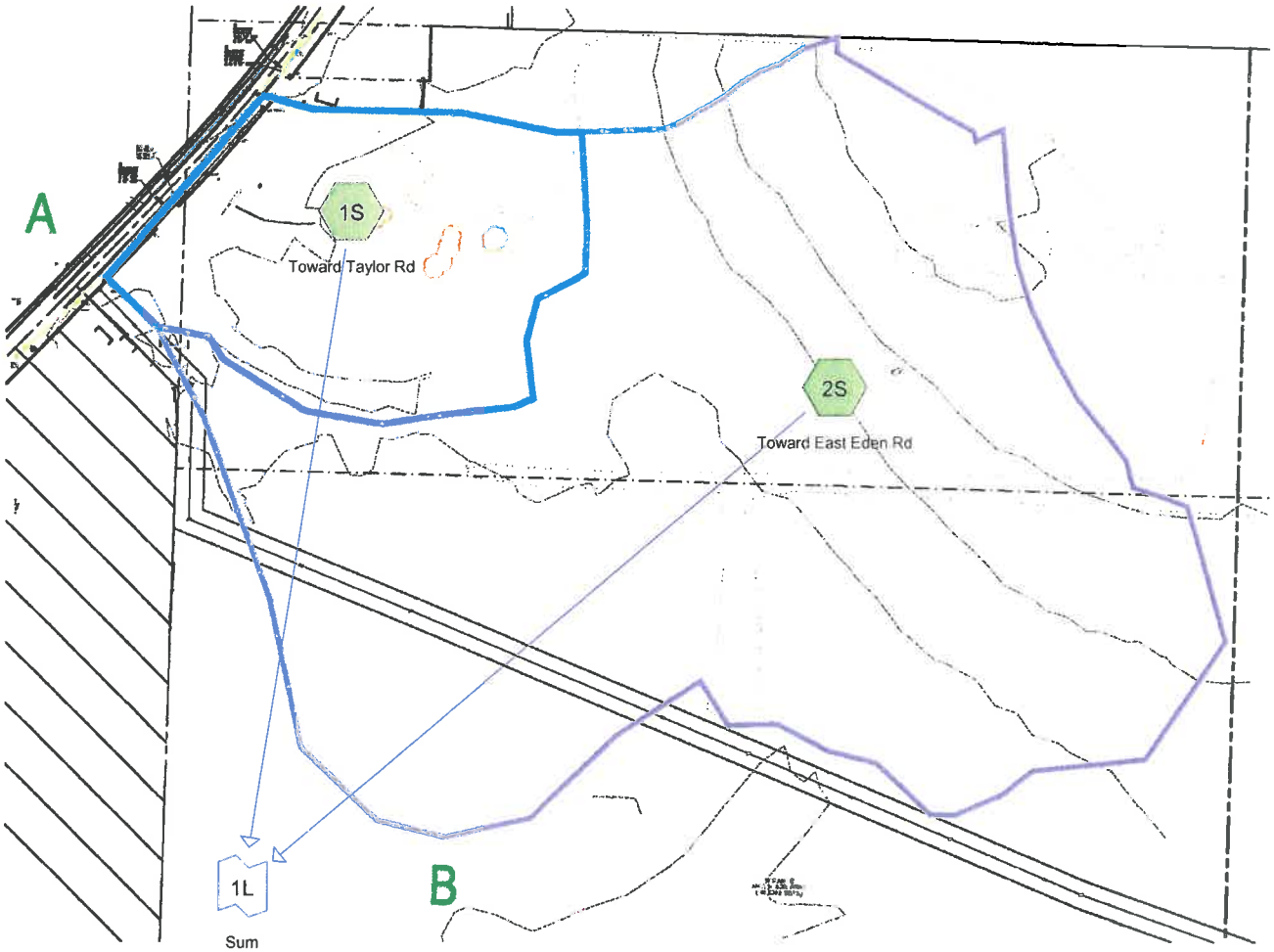
Aggregation Method: Dominant Condition

Component Percent Cutoff: *None Specified*

Tie-break Rule: Lower

APPENDIX B

HydroCad Calculations



Subcat Reach Pond Link

Drainage Diagram for Yiovene Pre Devel
Prepared by Nussbaumer & Clarke, Inc., Printed 9/29/2011
HydroCAD® 9.10 s/n 04121 © 2009 HydroCAD Software Solutions LLC

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
46.029	80	Pasture/grassland/range, Good, HSG D (1S, 2S)
46.029		**TOTAL AREA**

Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.000	HSG A	
0.000	HSG B	
0.000	HSG C	
46.029	HSG D	1S, 2S
0.000	Other	
46.029		**TOTAL AREA**

Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: Toward Taylor Rd Runoff Area=361,161 sf 0.00% Impervious Runoff Depth>0.56"
Flow Length=1,000' Tc=19.8 min CN=80 Runoff=5.36 cfs 0.385 af

Subcatchment 2S: Toward East Eden Rd Runoff Area=1,643,862 sf 0.00% Impervious Runoff Depth>0.56"
Flow Length=1,390' Tc=22.2 min CN=80 Runoff=22.77 cfs 1.750 af

Link 1L: Sum Inflow=28.05 cfs 2.135 af
Primary=28.05 cfs 2.135 af

Total Runoff Area = 46.029 ac Runoff Volume = 2.135 af Average Runoff Depth = 0.56"
100.00% Pervious = 46.029 ac 0.00% Impervious = 0.000 ac

Summary for Subcatchment 1S: Toward Taylor Rd

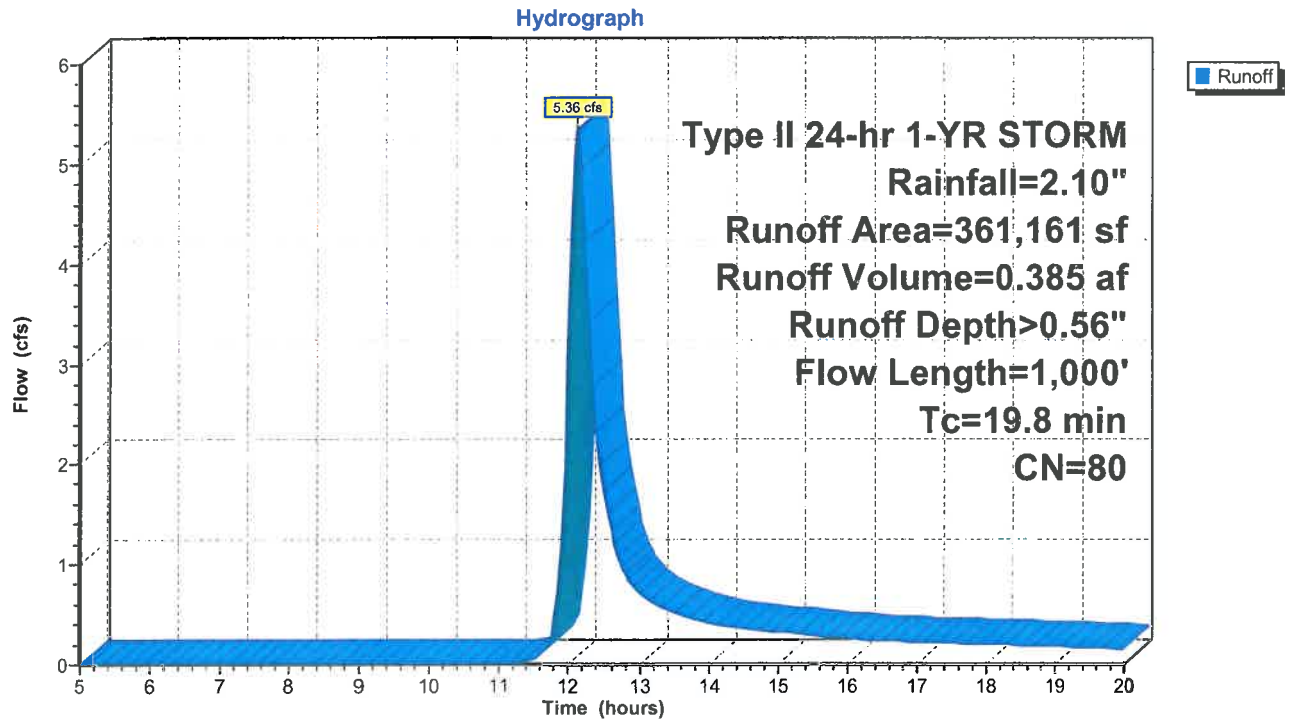
Runoff = 5.36 cfs @ 12.14 hrs, Volume= 0.385 af, Depth> 0.56"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 1-YR STORM Rainfall=2.10"

Area (sf)	CN	Description
361,161	80	Pasture/grassland/range, Good, HSG D
361,161		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.0	100	0.0100	0.13		**Sheet Flow, A-B** Range n= 0.130 P2= 2.50"
2.9	400	0.0200	2.28		**Shallow Concentrated Flow, B-C** Unpaved Kv= 16.1 fps
3.9	500	0.0200	2.12		**Shallow Concentrated Flow, C-D** Grassed Waterway Kv= 15.0 fps
19.8	1,000	Total			

Subcatchment 1S: Toward Taylor Rd



Summary for Subcatchment 2S: Toward East Eden Rd

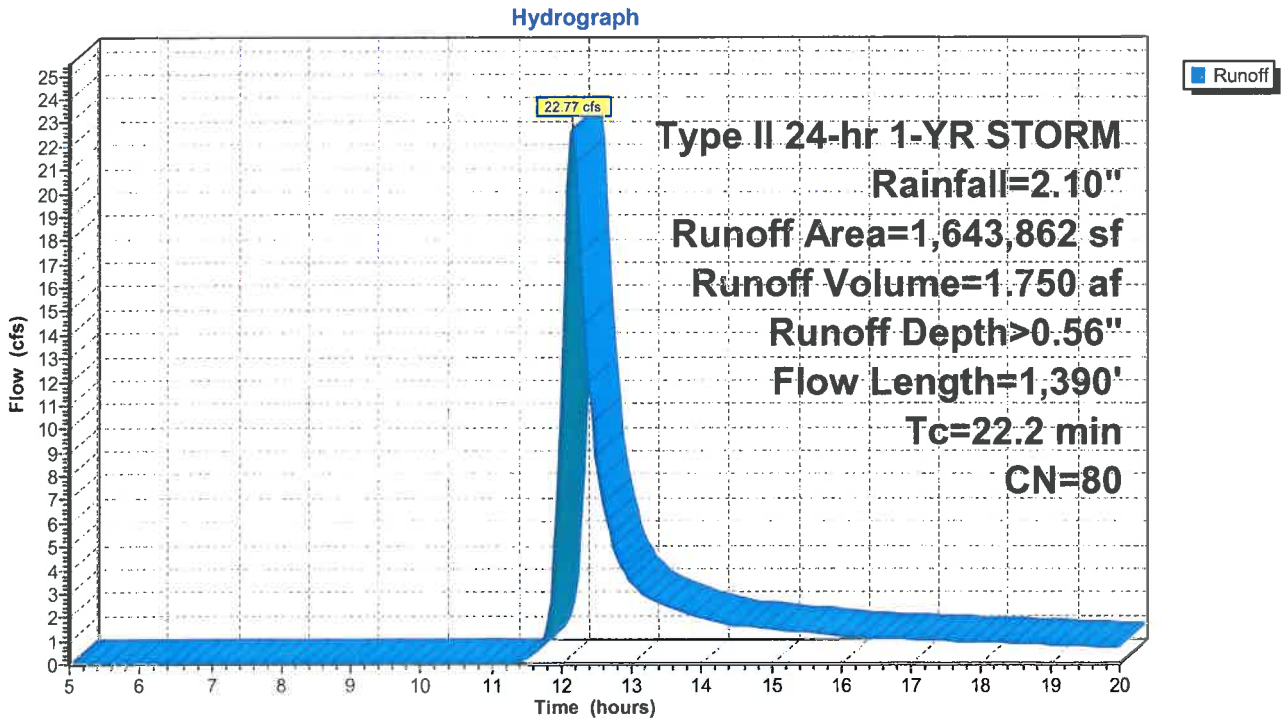
Runoff = 22.77 cfs @ 12.17 hrs, Volume= 1.750 af, Depth> 0.56"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 1-YR STORM Rainfall=2.10"

Area (sf)	CN	Description
1,643,862	80	Pasture/grassland/range, Good, HSG D
1,643,862		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.9	100	0.0200	0.17		**Sheet Flow, A-B** Range n= 0.130 P2= 2.50"
1.6	260	0.0300	2.79		**Shallow Concentrated Flow, B-C** Unpaved Kv= 16.1 fps
10.7	1,030	0.0100	1.61		**Shallow Concentrated Flow, C-D** Unpaved Kv= 16.1 fps
22.2	1,390	Total			

Subcatchment 2S: Toward East Eden Rd

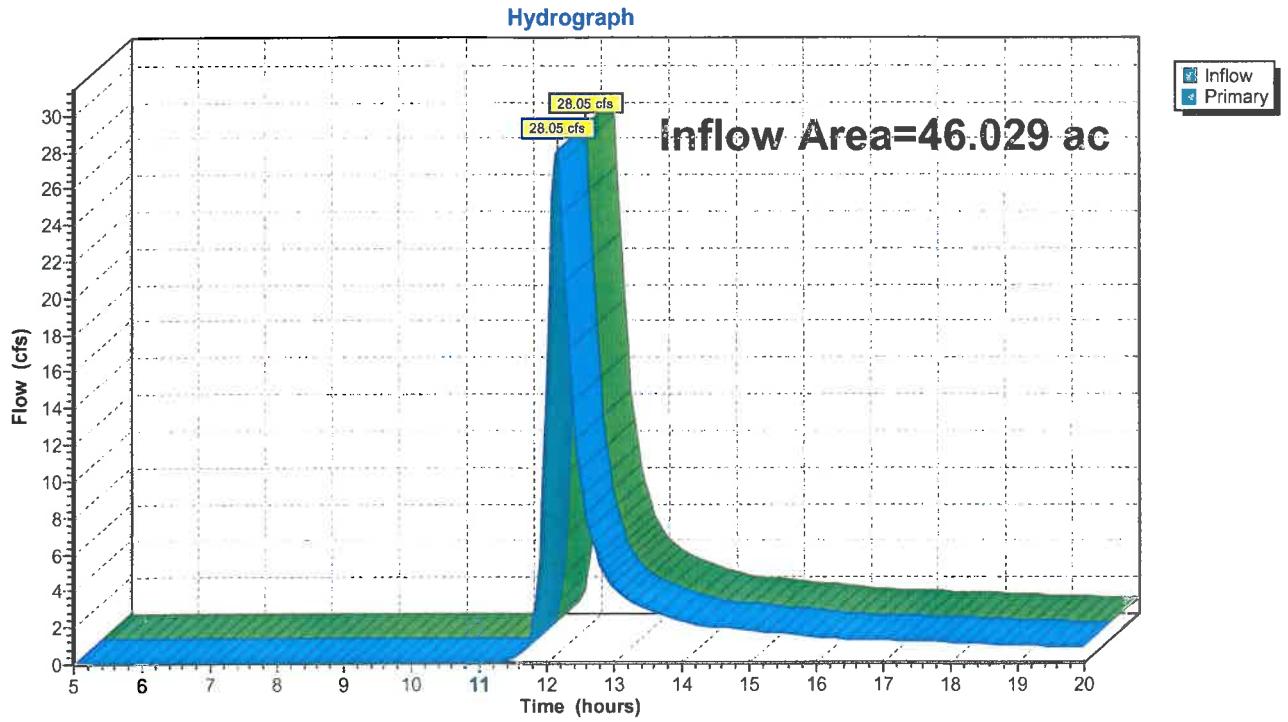


Summary for Link 1L: Sum

Inflow Area = 46.029 ac, 0.00% Impervious, Inflow Depth > 0.56" for 1-YR STORM event
Inflow = 28.05 cfs @ 12.17 hrs, Volume= 2.135 af
Primary = 28.05 cfs @ 12.17 hrs, Volume= 2.135 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Link 1L: Sum



Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: Toward Taylor Rd Runoff Area=361,161 sf 0.00% Impervious Runoff Depth>1.57"
Flow Length=1,000' Tc=19.8 min CN=80 Runoff=15.74 cfs 1.083 af

Subcatchment 2S: Toward East Eden Rd Runoff Area=1,643,862 sf 0.00% Impervious Runoff Depth>1.57"
Flow Length=1,390' Tc=22.2 min CN=80 Runoff=67.20 cfs 4.927 af

Link 1L: Sum Inflow=82.72 cfs 6.010 af
Primary=82.72 cfs 6.010 af

Total Runoff Area = 46.029 ac Runoff Volume = 6.010 af Average Runoff Depth = 1.57"
100.00% Pervious = 46.029 ac 0.00% Impervious = 0.000 ac

Summary for Subcatchment 1S: Toward Taylor Rd

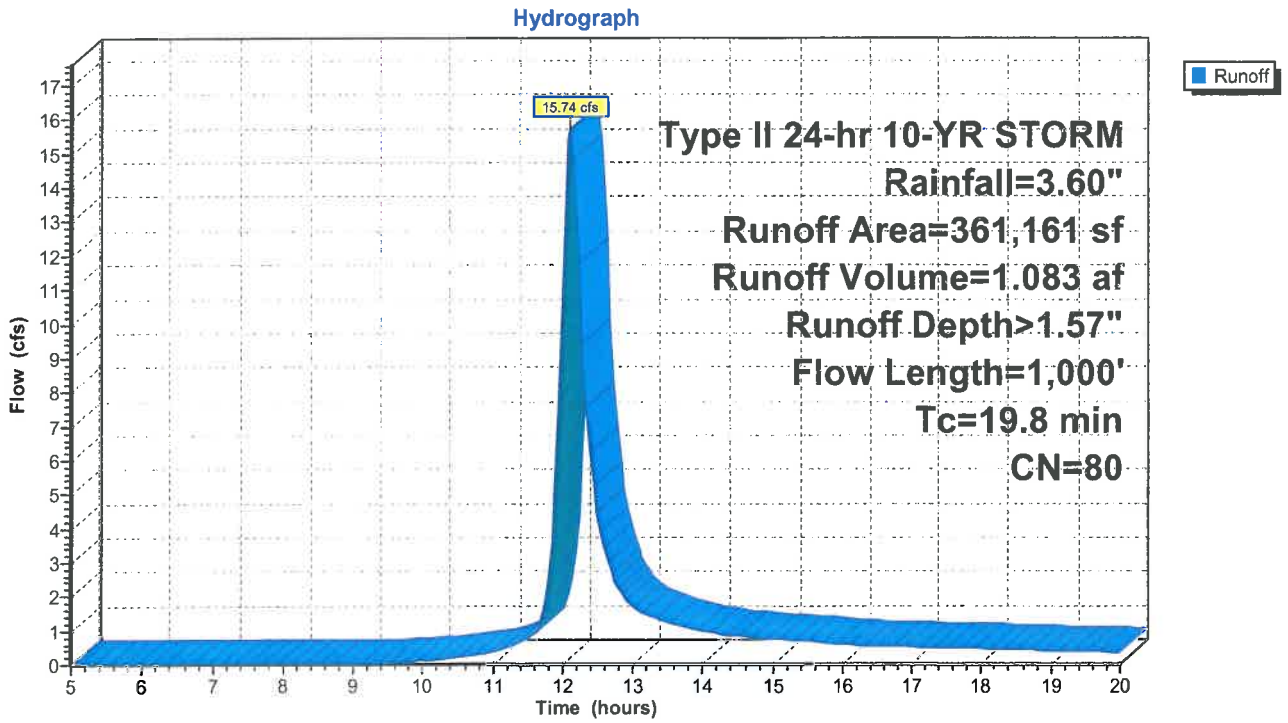
Runoff = 15.74 cfs @ 12.13 hrs, Volume= 1.083 af, Depth> 1.57"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-YR STORM Rainfall=3.60"

Area (sf)	CN	Description
361,161	80	Pasture/grassland/range, Good, HSG D
361,161		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.0	100	0.0100	0.13		**Sheet Flow, A-B** Range n= 0.130 P2= 2.50"
2.9	400	0.0200	2.28		**Shallow Concentrated Flow, B-C** Unpaved Kv= 16.1 fps
3.9	500	0.0200	2.12		**Shallow Concentrated Flow, C-D** Grassed Waterway Kv= 15.0 fps
19.8	1,000	Total			

Subcatchment 1S: Toward Taylor Rd



Summary for Subcatchment 2S: Toward East Eden Rd

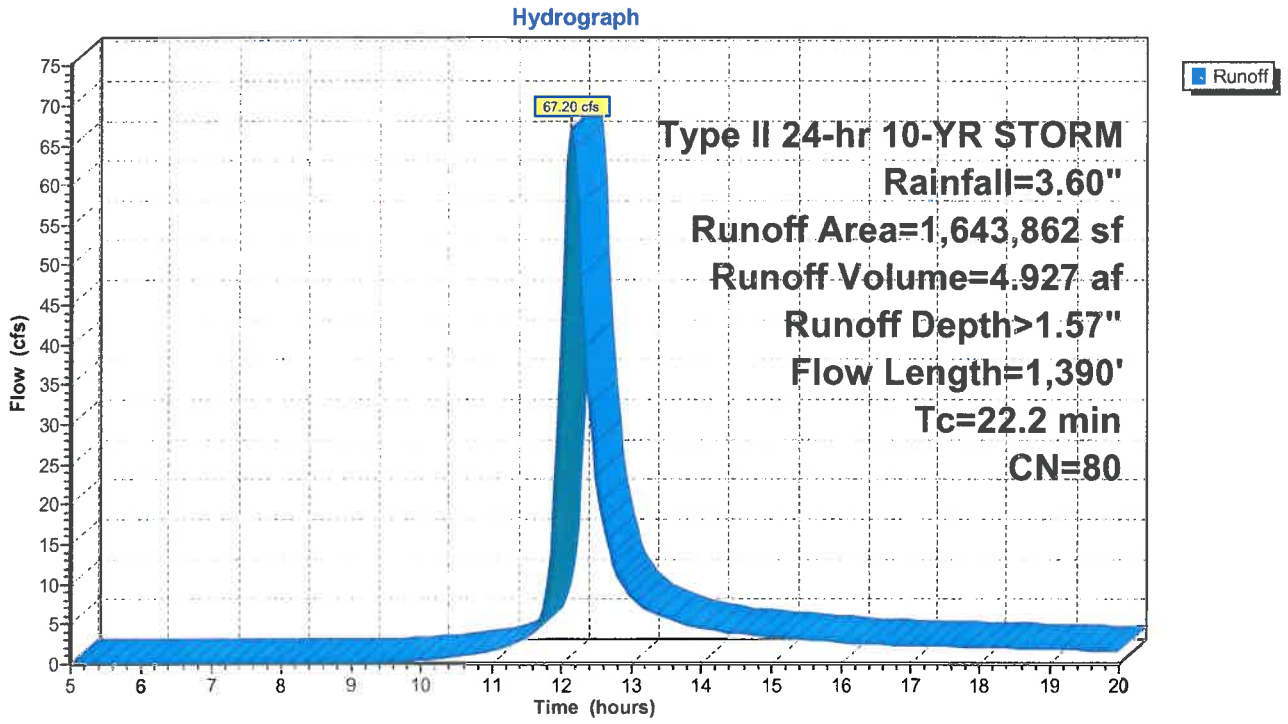
Runoff = 67.20 cfs @ 12.16 hrs, Volume= 4.927 af, Depth> 1.57"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-YR STORM Rainfall=3.60"

Area (sf)	CN	Description
1,643,862	80	Pasture/grassland/range, Good, HSG D
1,643,862		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.9	100	0.0200	0.17		**Sheet Flow, A-B** Range n= 0.130 P2= 2.50"
1.6	260	0.0300	2.79		**Shallow Concentrated Flow, B-C** Unpaved Kv= 16.1 fps
10.7	1,030	0.0100	1.61		**Shallow Concentrated Flow, C-D** Unpaved Kv= 16.1 fps
22.2	1,390	Total			

Subcatchment 2S: Toward East Eden Rd

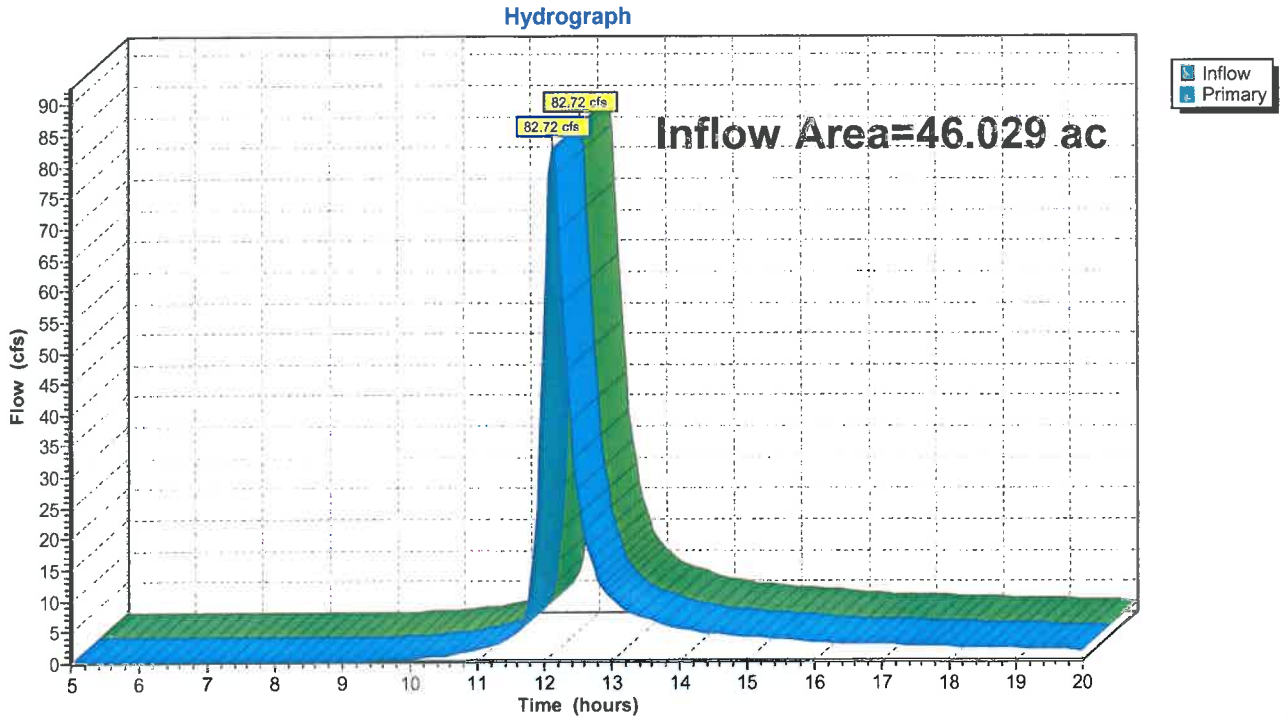


Summary for Link 1L: Sum

Inflow Area = 46.029 ac, 0.00% Impervious, Inflow Depth > 1.57" for 10-YR STORM event
Inflow = 82.72 cfs @ 12.15 hrs, Volume= 6.010 af
Primary = 82.72 cfs @ 12.15 hrs, Volume= 6.010 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Link 1L: Sum



Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: Toward Taylor Rd Runoff Area=361,161 sf 0.00% Impervious Runoff Depth>2.59"
Flow Length=1,000' Tc=19.8 min CN=80 Runoff=25.90 cfs 1.787 af

Subcatchment 2S: Toward East Eden Rd Runoff Area=1,643,862 sf 0.00% Impervious Runoff Depth>2.58"
Flow Length=1,390' Tc=22.2 min CN=80 Runoff=110.53 cfs 8.128 af

Link 1L: Sum Inflow=136.03 cfs 9.915 af
Primary=136.03 cfs 9.915 af

Total Runoff Area = 46.029 ac Runoff Volume = 9.915 af Average Runoff Depth = 2.58"
100.00% Pervious = 46.029 ac 0.00% Impervious = 0.000 ac

Summary for Subcatchment 1S: Toward Taylor Rd

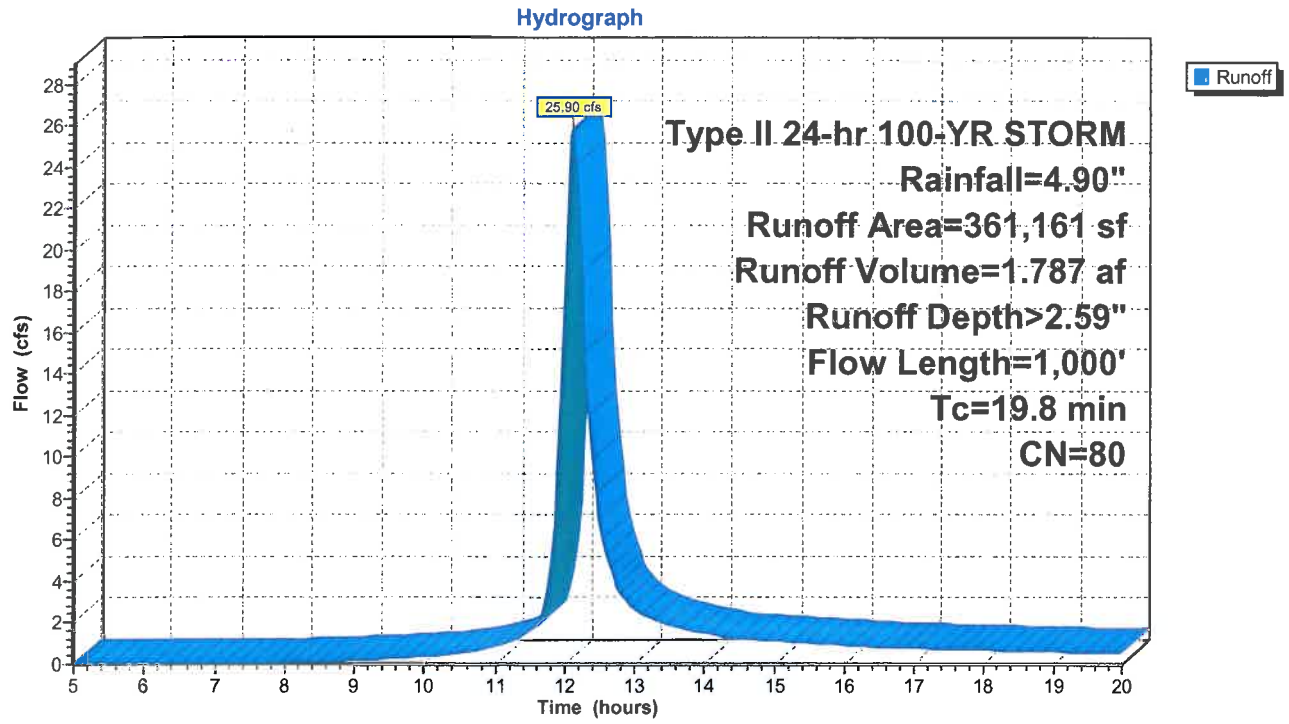
Runoff = 25.90 cfs @ 12.12 hrs, Volume= 1.787 af, Depth> 2.59"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 100-YR STORM Rainfall=4.90"

Area (sf)	CN	Description
361,161	80	Pasture/grassland/range, Good, HSG D
361,161		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.0	100	0.0100	0.13		**Sheet Flow, A-B** Range n= 0.130 P2= 2.50"
2.9	400	0.0200	2.28		**Shallow Concentrated Flow, B-C** Unpaved Kv= 16.1 fps
3.9	500	0.0200	2.12		**Shallow Concentrated Flow, C-D** Grassed Waterway Kv= 15.0 fps
19.8	1,000	Total			

Subcatchment 1S: Toward Taylor Rd



Summary for Subcatchment 2S: Toward East Eden Rd

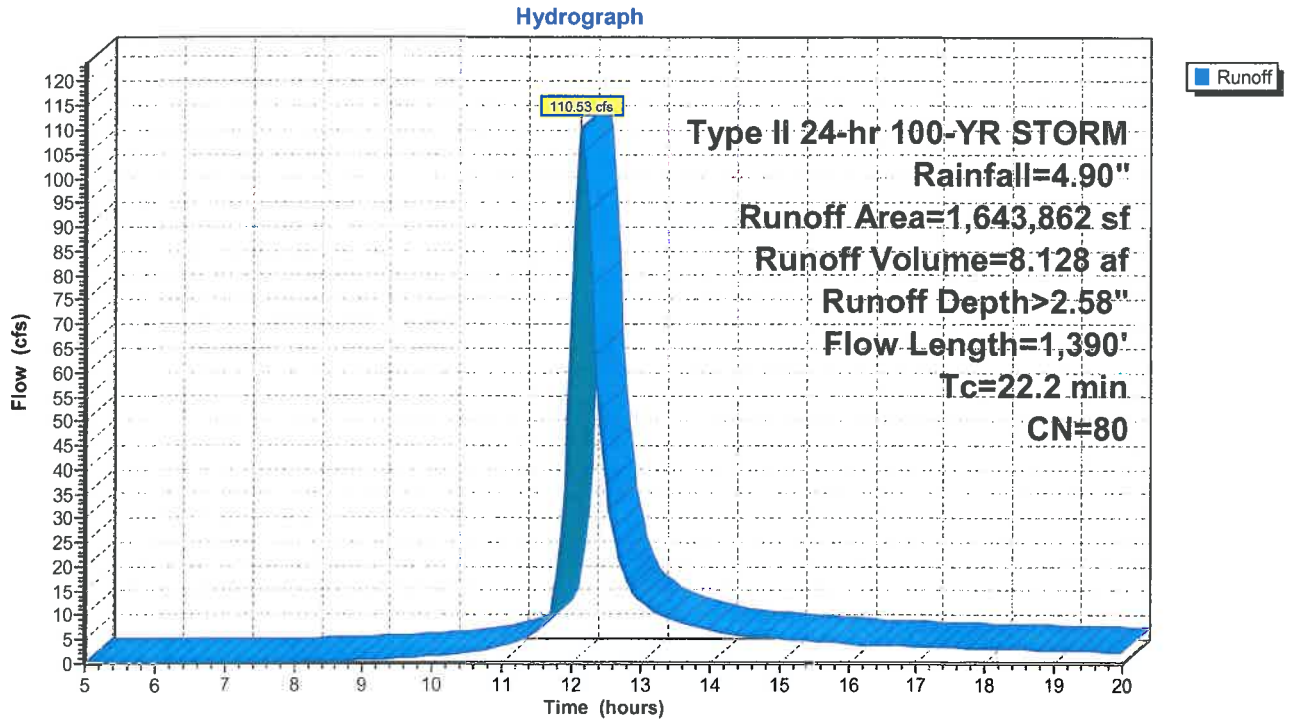
Runoff = 110.53 cfs @ 12.15 hrs, Volume= 8.128 af, Depth> 2.58"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 100-YR STORM Rainfall=4.90"

Area (sf)	CN	Description
1,643,862	80	Pasture/grassland/range, Good, HSG D
1,643,862		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.9	100	0.0200	0.17		**Sheet Flow, A-B** Range n= 0.130 P2= 2.50"
1.6	260	0.0300	2.79		**Shallow Concentrated Flow, B-C** Unpaved Kv= 16.1 fps
10.7	1,030	0.0100	1.61		**Shallow Concentrated Flow, C-D** Unpaved Kv= 16.1 fps
22.2	1,390	Total			

Subcatchment 2S: Toward East Eden Rd

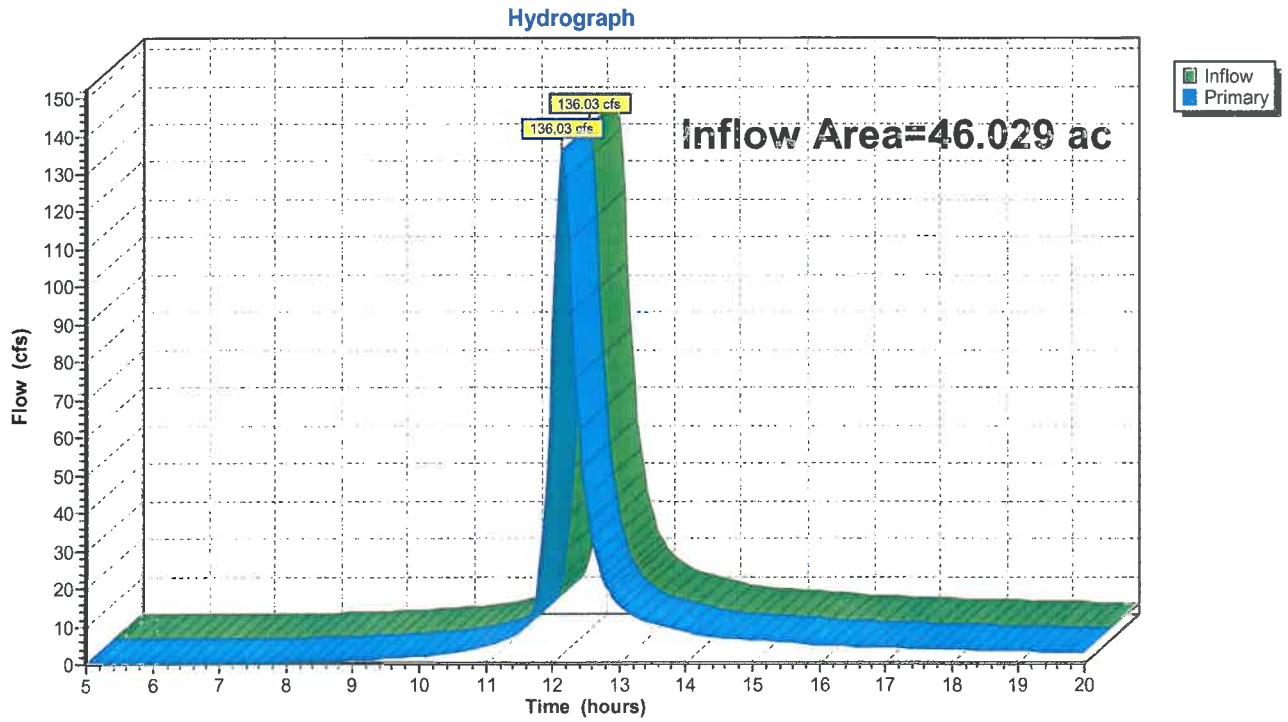


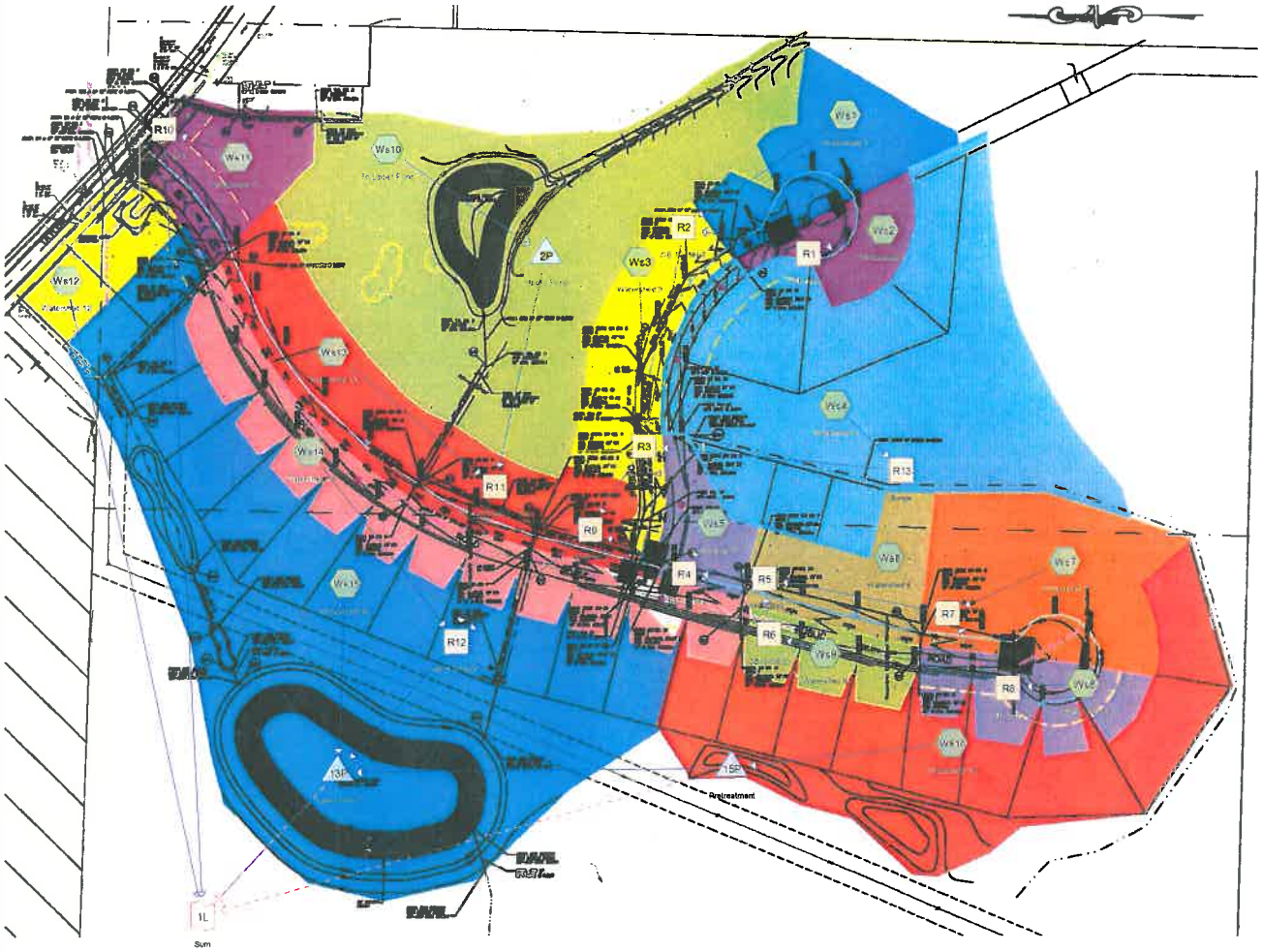
Summary for Link 1L: Sum

Inflow Area = 46.029 ac, 0.00% Impervious, Inflow Depth > 2.58" for 100-YR STORM event
Inflow = 136.03 cfs @ 12.15 hrs, Volume= 9.915 af
Primary = 136.03 cfs @ 12.15 hrs, Volume= 9.915 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Link 1L: Sum





Subcat Reach Pond Link

Drainage Diagram for Yiovene Post Development
Prepared by Nussbaumer & Clarke, Inc., Printed 9/29/2011
HydroCAD® 9.10 s/n 04121 © 2009 HydroCAD Software Solutions LLC

Yiovene Post Development
Prepared by Nussbaumer & Clarke, Inc. Printed 9/29/2011
HydroCAD® 9.10 s/n 04121 © 2009 HydroCAD Software Solutions LLC

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
1.418	73	Brush, Good, HSG D (Ws1, Ws7)
12.450	78	Meadow, non-grazed, HSG D (Ws15, WS16)
12.448	80	>75% Grass cover, Good, HSG D (Ws1, Ws11, Ws12, Ws13, Ws14, Ws2, Ws3, Ws4, Ws5, Ws6, Ws7, Ws8, Ws9)
9.611	80	Pasture/grassland/range, Good, HSG D (Ws10, Ws4)
6.205	98	Paved parking, HSG D (Ws1, Ws11, Ws12, Ws14, Ws2, Ws3, Ws4, Ws5, Ws6, Ws7, Ws8, Ws9)
3.897	98	Water Surface, HSG D (Ws10, Ws13, Ws15)
46.029		**TOTAL AREA**

Yiovene Post Development
Prepared by Nussbaumer & Clarke, Inc. Printed 9/29/2011
HydroCAD® 9.10 s/n 04121 © 2009 HydroCAD Software Solutions LLC

Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.000	HSG A	
0.000	HSG B	
0.000	HSG C	
46.029	HSG D	Ws1, Ws10, Ws11, Ws12, Ws13, Ws14, Ws15, WS16, Ws2, Ws3, Ws4, Ws5, Ws6, Ws7, Ws8, Ws9
0.000	Other	
46.029		**TOTAL AREA**

Yiovene Post Development
Prepared by Nussbaumer & Clarke, Inc.

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Pipe Listing (all nodes)

Line#	Node Number	In-Invert (feet)	Out-Invert (feet)	Length (feet)	Slope (ft/ft)	n	Diam/Width (inches)	Height (inches)	Fill (inches)
1	Ws10	0.00	0.00	95.0	0.0100	0.013	18.0	0.0	0.0
2	R1	831.62	828.07	30.0	0.1183	0.012	12.0	0.0	0.0
3	R10	817.93	816.73	96.0	0.0125	0.013	12.0	0.0	0.0
4	R11	823.72	821.26	435.0	0.0057	0.013	18.0	0.0	0.0
5	R12	821.06	820.50	359.0	0.0016	0.013	24.0	0.0	0.0
6	R2	827.97	822.57	276.0	0.0196	0.013	15.0	0.0	0.0
7	R3	822.47	821.65	124.0	0.0066	0.013	24.0	0.0	0.0
8	R4	821.92	821.21	52.0	0.0137	0.012	24.0	0.0	0.0
9	R5	822.81	821.92	142.0	0.0063	0.013	24.0	0.0	0.0
10	R6	823.05	822.90	30.0	0.0050	0.012	12.0	0.0	0.0
11	R7	824.25	822.73	303.0	0.0050	0.013	24.0	0.0	0.0
12	R8	824.59	824.44	30.0	0.0050	0.012	15.0	0.0	0.0
13	R9	821.31	821.16	182.0	0.0008	0.013	24.0	0.0	0.0
14	2P	824.14	823.30	58.0	0.0145	0.013	15.0	0.0	0.0
15	13P	820.30	820.00	30.0	0.0100	0.013	18.0	0.0	0.0
16	15P	821.00	820.30	380.0	0.0018	0.013	12.0	0.0	0.0

Time span=5.00-30.00 hrs, dt=0.05 hrs, 501 points
Runoff by SCS TR-20 method, UH=SCS
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment Ws1: Watershed 1 Runoff Area=61,775 sf 29.54% Impervious Runoff Depth=0.76"
Flow Length=360' Tc=10.6 min CN=83 Runoff=1.59 cfs 0.090 af

Subcatchment Ws10: To Upper Pond Runoff Area=291,049 sf 10.27% Impervious Runoff Depth=0.72"
Flow Length=965' Tc=13.4 min CN=82 Runoff=6.30 cfs 0.398 af

Subcatchment Ws11: Watershed 11 Runoff Area=49,965 sf 25.02% Impervious Runoff Depth=0.87"
Flow Length=460' Slope=0.0100 '/' Tc=17.8 min CN=85 Runoff=1.16 cfs 0.083 af

Subcatchment Ws12: Watershed 12 Runoff Area=34,854 sf 34.43% Impervious Runoff Depth=0.93"
Flow Length=320' Slope=0.0100 '/' Tc=16.9 min CN=86 Runoff=0.89 cfs 0.062 af

Subcatchment Ws13: Watershed 13 Runoff Area=171,199 sf 37.53% Impervious Runoff Depth=0.98"
Flow Length=620' Tc=31.6 min CN=87 Runoff=3.20 cfs 0.322 af

Subcatchment Ws14: Watershed 14 Runoff Area=159,952 sf 53.30% Impervious Runoff Depth=1.18"
Flow Length=1,050' Tc=20.1 min CN=90 Runoff=4.78 cfs 0.361 af

Subcatchment Ws15: Watershed 15 Runoff Area=432,874 sf 17.46% Impervious Runoff Depth=0.67"
Flow Length=1,470' Slope=0.0100 '/' Tc=17.9 min CN=81 Runoff=7.43 cfs 0.554 af

Subcatchment WS16: Watershed 16 Runoff Area=185,059 sf 0.00% Impervious Runoff Depth=0.54"
Flow Length=1,140' Tc=18.2 min CN=78 Runoff=2.41 cfs 0.192 af

Subcatchment Ws2: Watershed 2 Runoff Area=33,200 sf 54.97% Impervious Runoff Depth=1.18"
Flow Length=310' Tc=15.8 min CN=90 Runoff=1.12 cfs 0.075 af

Subcatchment Ws3: Watershed 3 Runoff Area=67,371 sf 47.13% Impervious Runoff Depth=1.05"
Flow Length=600' Tc=13.6 min CN=88 Runoff=2.18 cfs 0.135 af

Subcatchment Ws4: Watershed 4 Runoff Area=266,245 sf 3.91% Impervious Runoff Depth=0.67"
Flow Length=1,120' Tc=16.9 min CN=81 Runoff=4.72 cfs 0.341 af

Subcatchment Ws5: Watershed 5 Runoff Area=28,432 sf 29.19% Impervious Runoff Depth=0.87"
Flow Length=250' Slope=0.0200 '/' Tc=12.0 min CN=85 Runoff=0.80 cfs 0.047 af

Subcatchment Ws6: Watershed 6 Runoff Area=47,402 sf 38.50% Impervious Runoff Depth=0.98"
Flow Length=520' Tc=11.8 min CN=87 Runoff=1.53 cfs 0.089 af

Subcatchment Ws7: Watershed 7 Runoff Area=98,918 sf 18.45% Impervious Runoff Depth=0.62"
Flow Length=540' Slope=0.0200 '/' Tc=12.6 min CN=80 Runoff=1.88 cfs 0.118 af

Subcatchment Ws8: Watershed 8 Runoff Area=47,068 sf 51.52% Impervious Runoff Depth=1.11"
Flow Length=440' Tc=16.6 min CN=89 Runoff=1.47 cfs 0.100 af

Subcatchment Ws9: Watershed 9 Runoff Area=29,678 sf 43.26% Impervious Runoff Depth=1.05"
Flow Length=420' Tc=16.5 min CN=88 Runoff=0.87 cfs 0.059 af

Reach R1: CB 18-17 Avg. Flow Depth=0.20' Max Vel=10.27 fps Inflow=1.12 cfs 0.075 af
12.0" Round Pipe n=0.012 L=30.0' S=0.1183 '/' Capacity=13.28 cfs Outflow=1.12 cfs 0.075 af

Reach R10: CB1 to CB 2 Avg. Flow Depth=0.37' Max Vel=4.39 fps Inflow=1.16 cfs 0.083 af
12.0" Round Pipe n=0.013 L=96.0' S=0.0125 '/' Capacity=3.98 cfs Outflow=1.15 cfs 0.083 af

Reach R11: Upper Pond to MH2 Avg. Flow Depth=0.66' Max Vel=4.23 fps Inflow=3.20 cfs 0.322 af
18.0" Round Pipe n=0.013 L=435.0' S=0.0057 '/' Capacity=7.90 cfs Outflow=3.16 cfs 0.322 af

Reach R12: MH2 to Pond Avg. Flow Depth=1.17' Max Vel=3.03 fps Inflow=17.56 cfs 1.649 af
24.0" Round Pipe x 3.00 n=0.013 L=359.0' S=0.0016 '/' Capacity=26.80 cfs Outflow=17.20 cfs 1.649 af

Reach R13: Swale Avg. Flow Depth=0.57' Max Vel=2.27 fps Inflow=4.72 cfs 0.341 af
n=0.035 L=850.0' S=0.0100 '/' Capacity=136.87 cfs Outflow=4.07 cfs 0.341 af

Reach R2: CB 17- MH 7 Avg. Flow Depth=0.46' Max Vel=6.39 fps Inflow=2.65 cfs 0.165 af
15.0" Round Pipe n=0.013 L=276.0' S=0.0196 '/' Capacity=9.04 cfs Outflow=2.59 cfs 0.165 af

Reach R3: MH7-MH3 Avg. Flow Depth=0.80' Max Vel=5.27 fps Inflow=6.15 cfs 0.641 af
24.0" Round Pipe n=0.013 L=124.0' S=0.0066 '/' Capacity=18.40 cfs Outflow=6.15 cfs 0.641 af

Reach R4: CB10 - MH3 Avg. Flow Depth=0.55' Max Vel=6.71 fps Inflow=4.66 cfs 0.325 af
24.0" Round Pipe n=0.012 L=52.0' S=0.0137 '/' Capacity=28.64 cfs Outflow=4.64 cfs 0.325 af

Reach R5: MH4-CB10 Avg. Flow Depth=0.65' Max Vel=4.61 fps Inflow=4.07 cfs 0.278 af
24.0" Round Pipe n=0.013 L=142.0' S=0.0063 '/' Capacity=17.91 cfs Outflow=4.01 cfs 0.278 af

Reach R6: CB19-CB20 Avg. Flow Depth=0.39' Max Vel=3.09 fps Inflow=0.87 cfs 0.059 af
12.0" Round Pipe n=0.012 L=30.0' S=0.0050 '/' Capacity=2.73 cfs Outflow=0.87 cfs 0.059 af

Reach R7: MH5-MH4 Avg. Flow Depth=0.61' Max Vel=4.00 fps Inflow=3.30 cfs 0.218 af
24.0" Round Pipe n=0.013 L=303.0' S=0.0050 '/' Capacity=16.02 cfs Outflow=3.20 cfs 0.218 af

Reach R8: CB 21-22 Avg. Flow Depth=0.47' Max Vel=3.51 fps Inflow=1.47 cfs 0.100 af
15.0" Round Pipe n=0.012 L=30.0' S=0.0050 '/' Capacity=4.95 cfs Outflow=1.46 cfs 0.100 af

Reach R9: MH3-MH2 Avg. Flow Depth=1.38' Max Vel=2.31 fps Inflow=10.78 cfs 0.966 af
24.0" Round Pipe x 2.00 n=0.013 L=182.0' S=0.0008 '/' Capacity=12.99 cfs Outflow=10.59 cfs 0.966 af

Pond 2P: Upper Pond Peak Elev=824.08' Storage=201,403 cf Inflow=6.30 cfs 0.398 af
15.0" Round Culvert n=0.013 L=58.0' S=0.0145 '/' Outflow=0.00 cfs 0.000 af

Pond 13P: Lower Pond Peak Elev=820.65' Storage=1,019,591 cf Inflow=23.16 cfs 2.203 af
Primary=0.62 cfs 0.727 af Secondary=0.00 cfs 0.000 af Outflow=0.62 cfs 0.727 af

Pond 15P: Pretreatment Peak Elev=820.80' Storage=8,350 cf Inflow=2.41 cfs 0.192 af
Primary=0.00 cfs 0.000 af Secondary=0.00 cfs 0.000 af Outflow=0.00 cfs 0.000 af

Link 1L: Sum Inflow=2.04 cfs 0.872 af
Primary=2.04 cfs 0.872 af

Total Runoff Area = 46.029 ac Runoff Volume = 3.027 af Average Runoff Depth = 0.79"
78.05% Pervious = 35.927 ac 21.95% Impervious = 10.102 ac

Summary for Subcatchment Ws1: Watershed 1

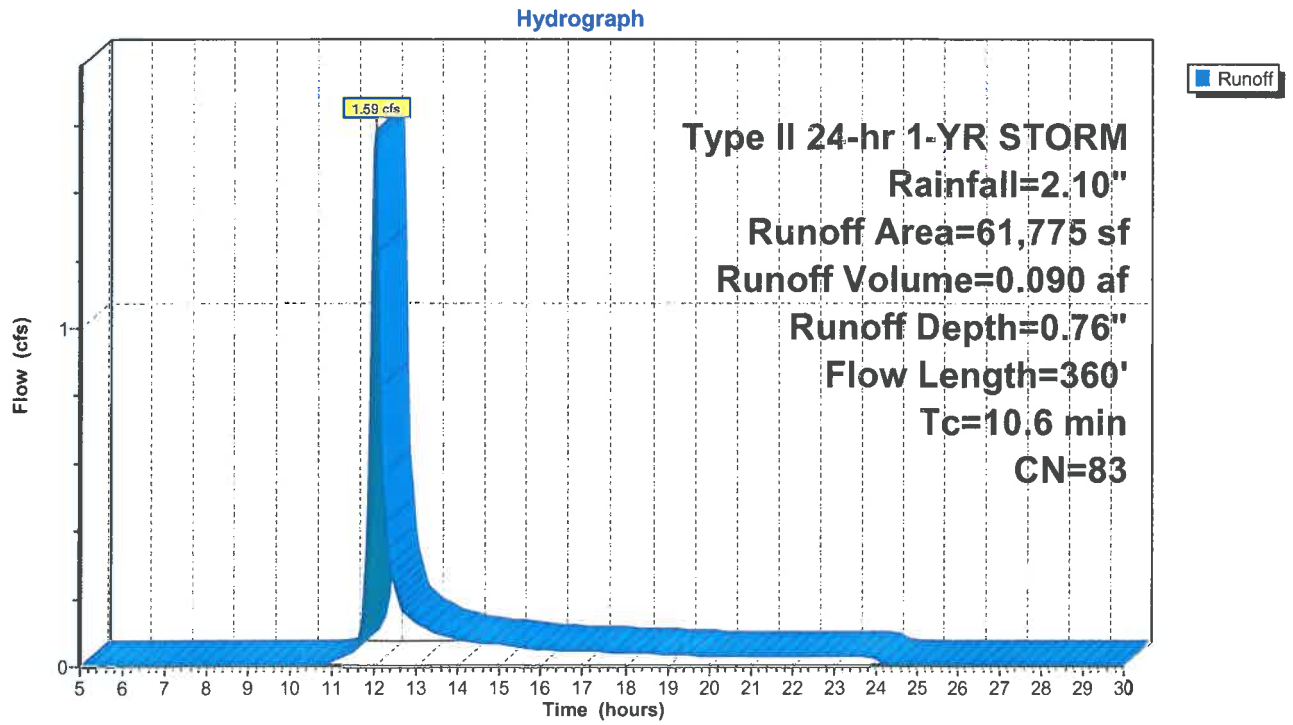
Runoff = 1.59 cfs @ 12.03 hrs, Volume= 0.090 af, Depth= 0.76"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type II 24-hr 1-YR STORM Rainfall=2.10"

Area (sf)	CN	Description
18,250	98	Paved parking, HSG D
21,763	80	>75% Grass cover, Good, HSG D
21,762	73	Brush, Good, HSG D
61,775	83	Weighted Average
43,525		70.46% Pervious Area
18,250		29.54% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.0	100	0.0250	0.18		**Sheet Flow, A-B** Range n= 0.130 P2= 2.50"
0.7	100	0.0200	2.28		**Shallow Concentrated Flow, B-C** Unpaved Kv= 16.1 fps
0.9	160	0.0200	2.87		**Shallow Concentrated Flow, C-D** Paved Kv= 20.3 fps
10.6	360	Total			

Subcatchment Ws1: Watershed 1



Summary for Subcatchment Ws10: To Upper Pond

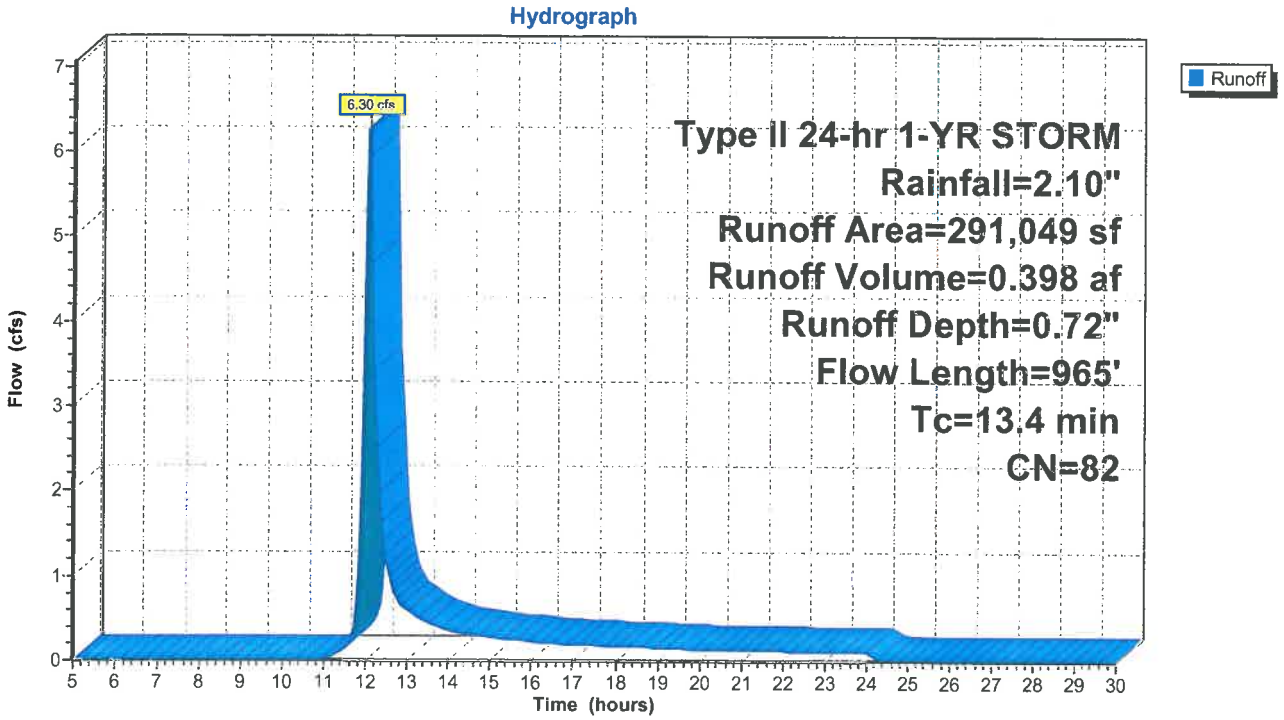
Runoff = 6.30 cfs @ 12.06 hrs, Volume= 0.398 af, Depth= 0.72"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type II 24-hr 1-YR STORM Rainfall=2.10"

Area (sf)	CN	Description
261,149	80	Pasture/grassland/range, Good, HSG D
29,900	98	Water Surface, HSG D
291,049	82	Weighted Average
261,149		89.73% Pervious Area
29,900		10.27% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.9	100	0.0200	0.17		**Sheet Flow, A-B** Range n= 0.130 P2= 2.50"
2.9	450	0.0300	2.60		**Shallow Concentrated Flow, B-C** Grassed Waterway Kv= 15.0 fps
0.3	320		16.05		**Lake or Reservoir, C-D** Mean Depth= 8.00'
0.3	95	0.0100	5.94	10.50	**Pipe Channel, D-E** 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.013
13.4	965	Total			

Subcatchment Ws10: To Upper Pond



Summary for Subcatchment Ws11: Watershed 11

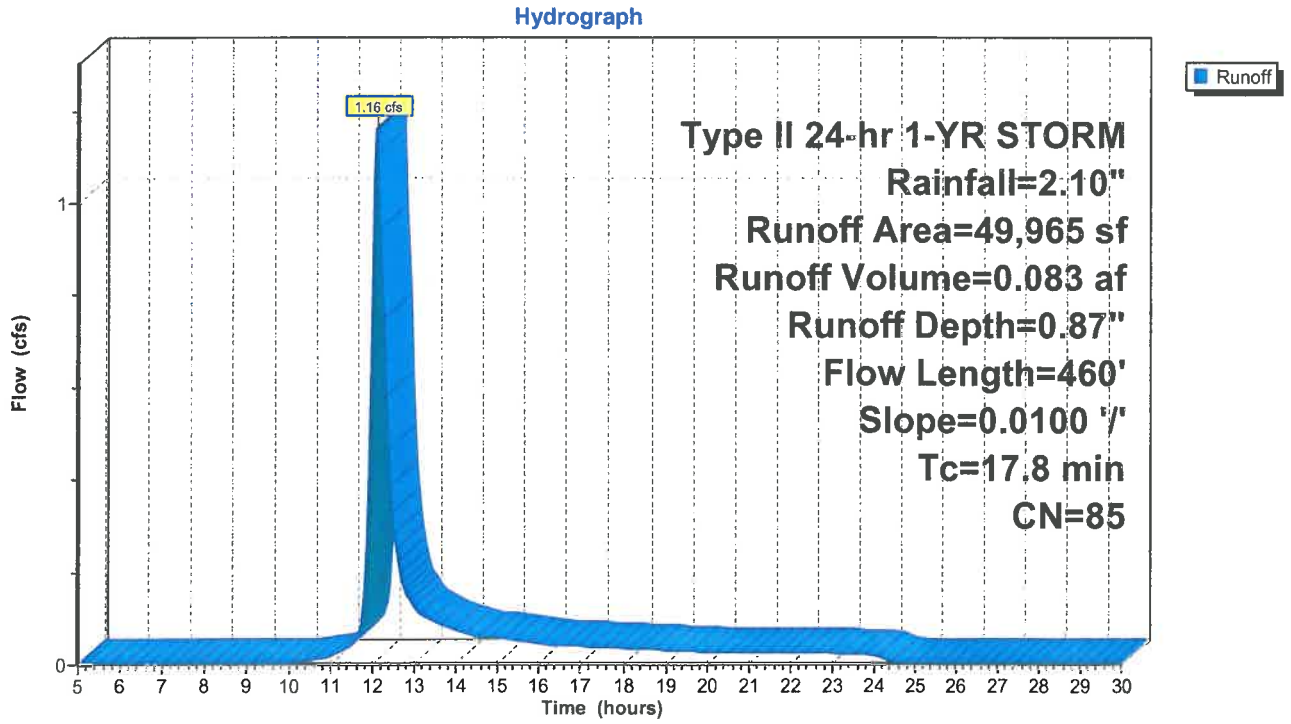
Runoff = 1.16 cfs @ 12.11 hrs, Volume= 0.083 af, Depth= 0.87"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type II 24-hr 1-YR STORM Rainfall=2.10"

Area (sf)	CN	Description
12,500	98	Paved parking, HSG D
37,465	80	>75% Grass cover, Good, HSG D
49,965	85	Weighted Average
37,465		74.98% Pervious Area
12,500		25.02% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.6	100	0.0100	0.11		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 2.50"
1.2	120	0.0100	1.61		**Shallow Concentrated Flow, B-C** Unpaved Kv= 16.1 fps
2.0	240	0.0100	2.03		**Shallow Concentrated Flow, C-D** Paved Kv= 20.3 fps
17.8	460	Total			

Subcatchment Ws11: Watershed 11



Summary for Subcatchment Ws12: Watershed 12

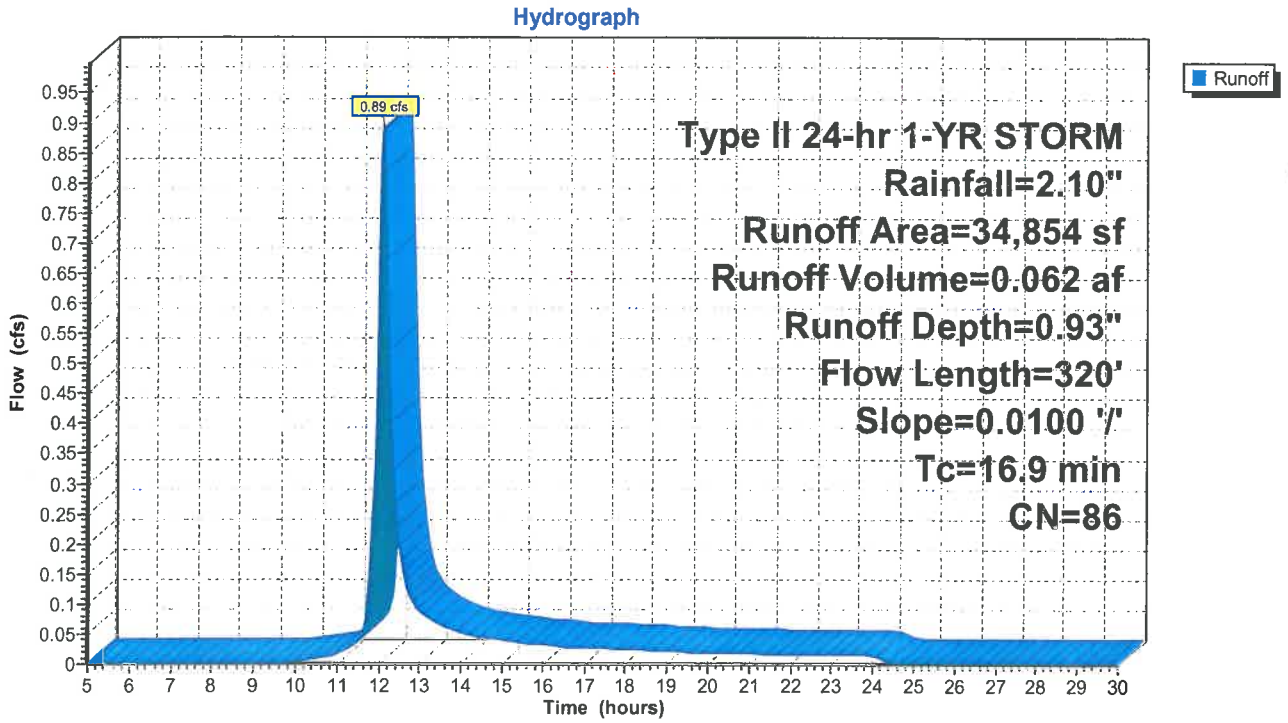
Runoff = 0.89 cfs @ 12.10 hrs, Volume= 0.062 af, Depth= 0.93"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type II 24-hr 1-YR STORM Rainfall=2.10"

Area (sf)	CN	Description
12,000	98	Paved parking, HSG D
22,854	80	>75% Grass cover, Good, HSG D
34,854	86	Weighted Average
22,854		65.57% Pervious Area
12,000		34.43% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.6	100	0.0100	0.11		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 2.50"
2.3	220	0.0100	1.61		**Shallow Concentrated Flow, B-C** Unpaved Kv= 16.1 fps
16.9	320	Total			

Subcatchment Ws12: Watershed 12



Summary for Subcatchment Ws13: Watershed 13

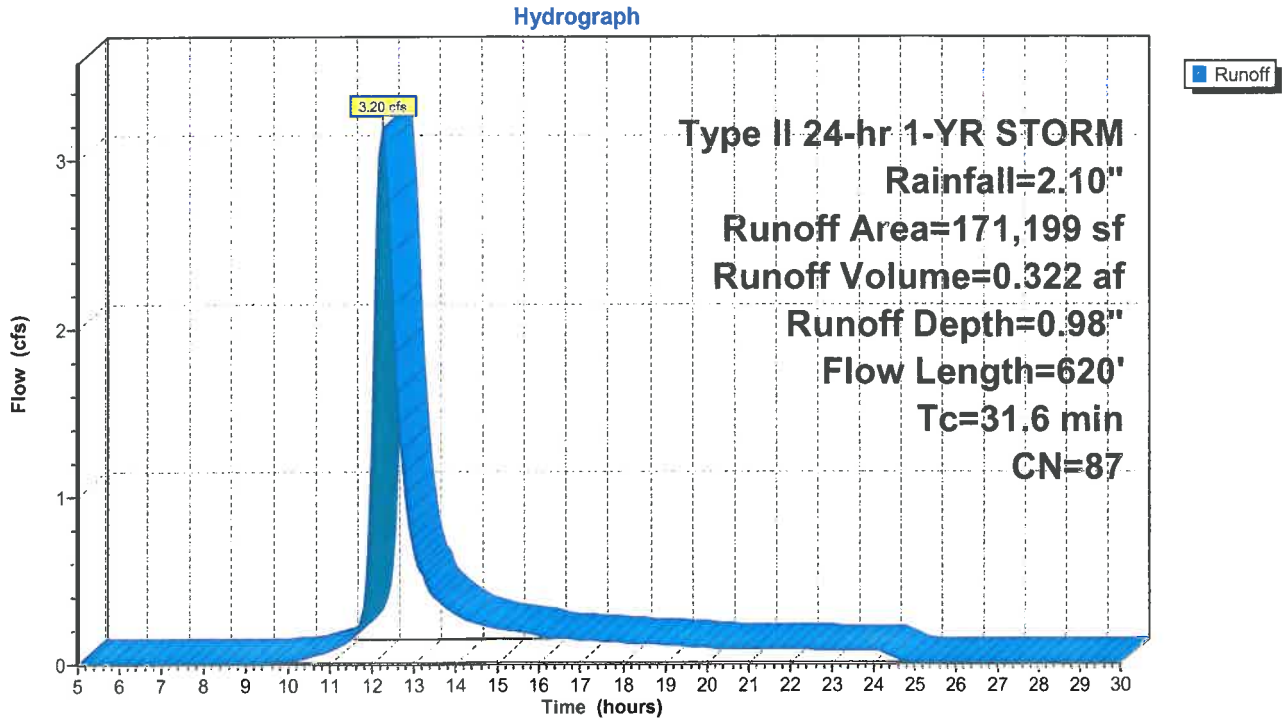
Runoff = 3.20 cfs @ 12.27 hrs, Volume= 0.322 af, Depth= 0.98"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type II 24-hr 1-YR STORM Rainfall=2.10"

Area (sf)	CN	Description
64,250	98	Water Surface, HSG D
106,949	80	>75% Grass cover, Good, HSG D
171,199	87	Weighted Average
106,949		62.47% Pervious Area
64,250		37.53% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.6	100	0.0100	0.11		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 2.50"
17.0	520	0.0010	0.51		**Shallow Concentrated Flow, B-C** Unpaved Kv= 16.1 fps
31.6	620	Total			

Subcatchment Ws13: Watershed 13



Summary for Subcatchment Ws14: Watershed 14

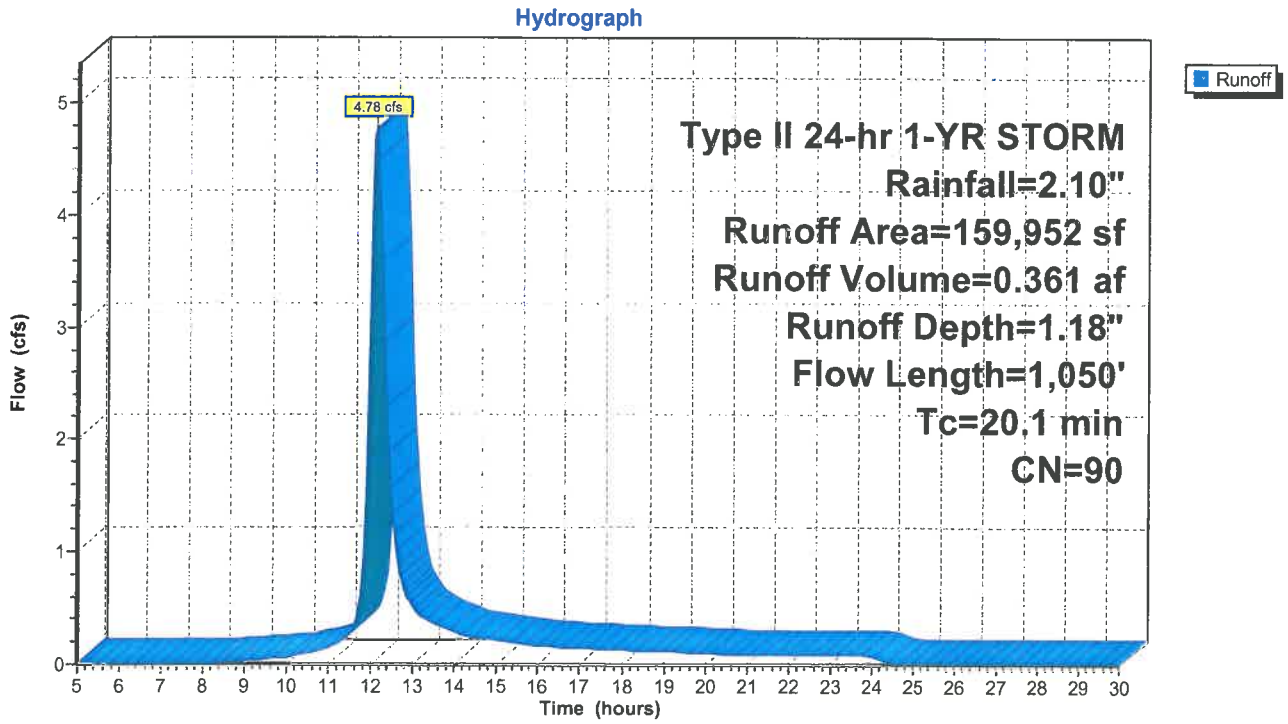
Runoff = 4.78 cfs @ 12.13 hrs, Volume= 0.361 af, Depth= 1.18"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type II 24-hr 1-YR STORM Rainfall=2.10"

Area (sf)	CN	Description
85,247	98	Paved parking, HSG D
74,705	80	>75% Grass cover, Good, HSG D
159,952	90	Weighted Average
74,705		46.70% Pervious Area
85,247		53.30% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.6	100	0.0100	0.11		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 2.50"
5.5	950	0.0200	2.87		**Shallow Concentrated Flow, B-C** Paved Kv= 20.3 fps
20.1	1,050	Total			

Subcatchment Ws14: Watershed 14



Summary for Subcatchment Ws15: Watershed 15

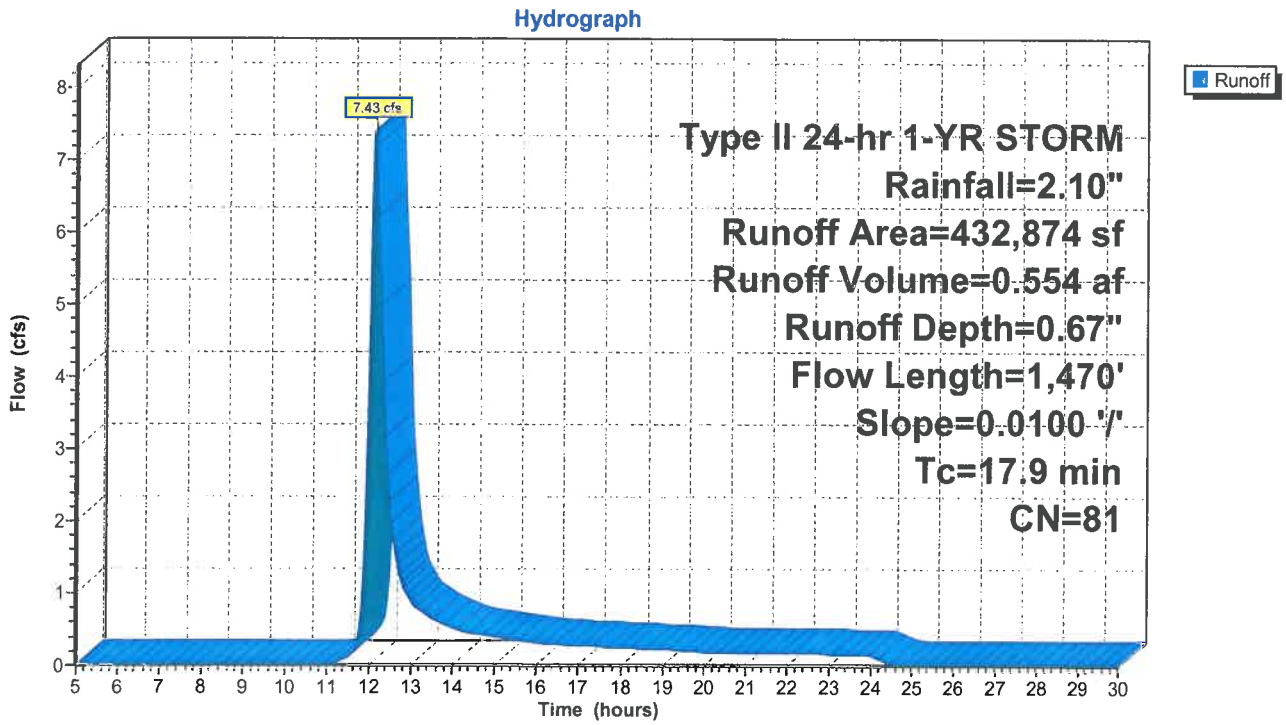
Runoff = 7.43 cfs @ 12.12 hrs, Volume= 0.554 af, Depth= 0.67"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type II 24-hr 1-YR STORM Rainfall=2.10"

Area (sf)	CN	Description
75,600	98	Water Surface, HSG D
357,274	78	Meadow, non-grazed, HSG D
432,874	81	Weighted Average
357,274		82.54% Pervious Area
75,600		17.46% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.0	100	0.0100	0.13		**Sheet Flow, A-B** Range n= 0.130 P2= 2.50"
3.2	310	0.0100	1.61		**Shallow Concentrated Flow, B-C** Unpaved Kv= 16.1 fps
1.3	650	0.0100	8.16	195.95	**Channel Flow, C-D** Area= 24.0 sf Perim= 9.0' r= 2.67' n= 0.035
0.4	410		17.94		**Lake or Reservoir, D-E** Mean Depth= 10.00'
17.9	1,470	Total			

Subcatchment Ws15: Watershed 15



Summary for Subcatchment WS16: Watershed 16

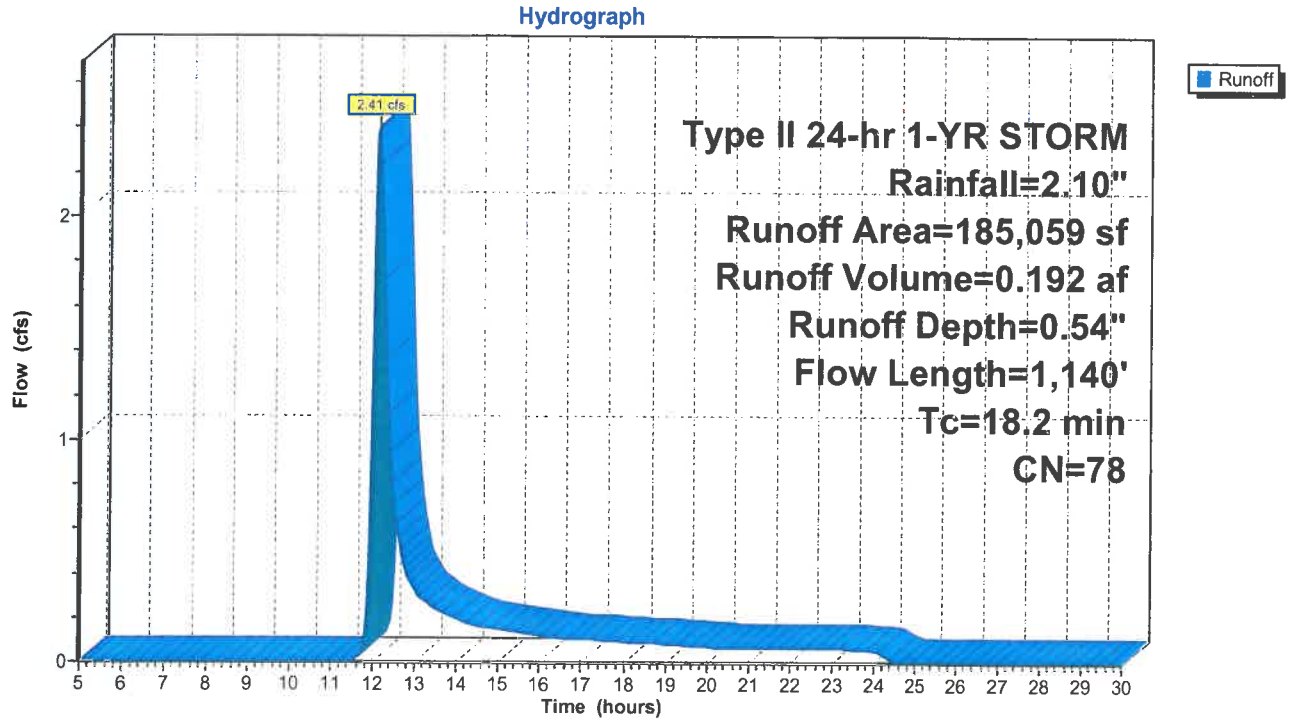
Runoff = 2.41 cfs @ 12.13 hrs, Volume= 0.192 af, Depth= 0.54"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type II 24-hr 1-YR STORM Rainfall=2.10"

Area (sf)	CN	Description
185,059	78	Meadow, non-grazed, HSG D
185,059		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.0	100	0.0100	0.13		**Sheet Flow, A-B** Range n= 0.130 P2= 2.50"
4.3	590	0.0200	2.28		**Shallow Concentrated Flow, B-C** Unpaved Kv= 16.1 fps
0.9	450		8.02		**Lake or Reservoir, C-D** Mean Depth= 2.00'
18.2	1,140	Total			

Subcatchment WS16: Watershed 16



Summary for Subcatchment Ws2: Watershed 2

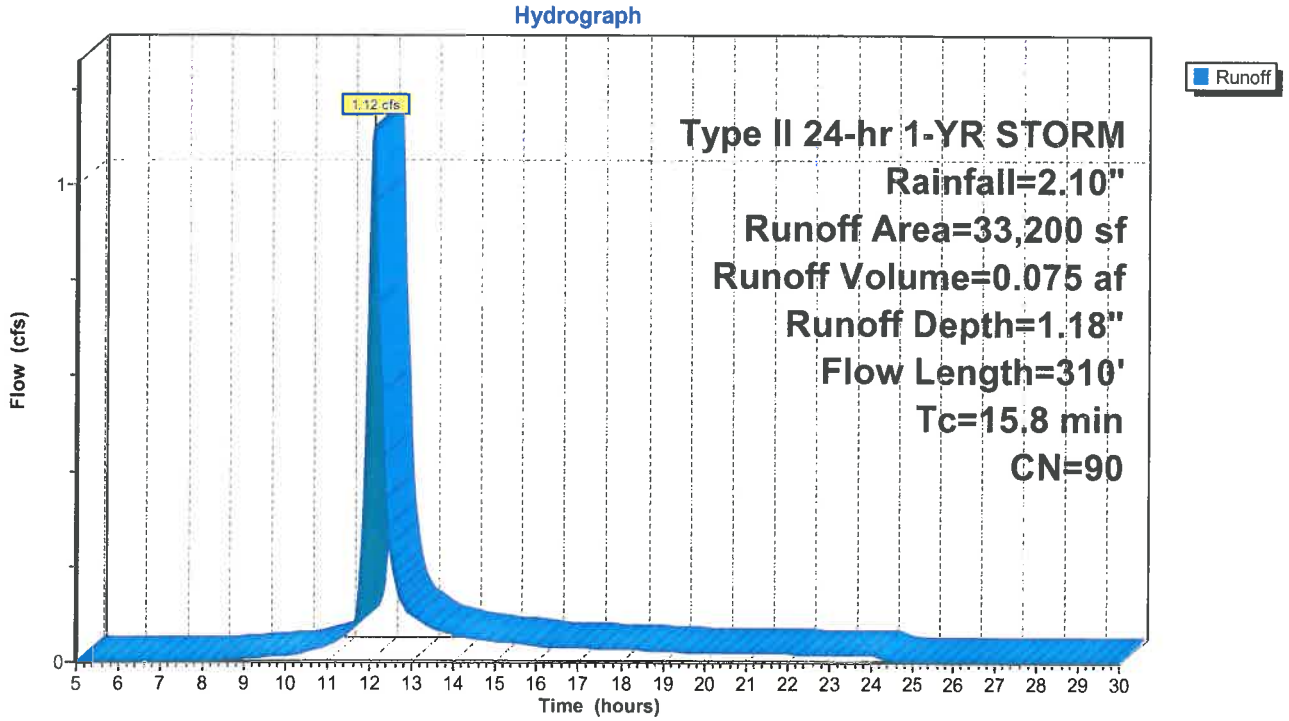
Runoff = 1.12 cfs @ 12.08 hrs, Volume= 0.075 af, Depth= 1.18"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type II 24-hr 1-YR STORM Rainfall=2.10"

Area (sf)	CN	Description
14,950	80	>75% Grass cover, Good, HSG D
18,250	98	Paved parking, HSG D
33,200	90	Weighted Average
14,950		45.03% Pervious Area
18,250		54.97% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.6	100	0.0100	0.11		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 2.50"
1.2	210	0.0200	2.87		**Shallow Concentrated Flow, B-C** Paved Kv= 20.3 fps
15.8	310	Total			

Subcatchment Ws2: Watershed 2



Summary for Subcatchment Ws3: Watershed 3

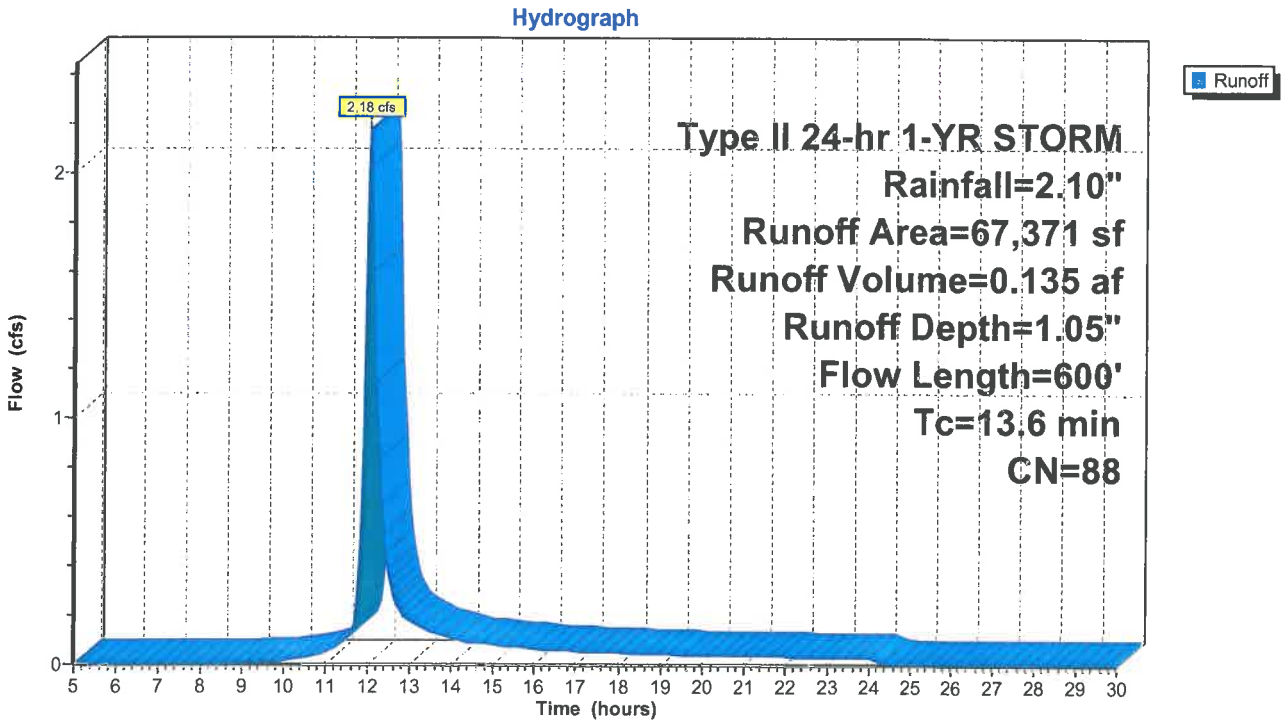
Runoff = 2.18 cfs @ 12.06 hrs, Volume= 0.135 af, Depth= 1.05"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type II 24-hr 1-YR STORM Rainfall=2.10"

Area (sf)	CN	Description
31,750	98	Paved parking, HSG D
35,621	80	>75% Grass cover, Good, HSG D
67,371	88	Weighted Average
35,621		52.87% Pervious Area
31,750		47.13% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.1	100	0.0200	0.15		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 2.50"
0.4	50	0.0200	2.28		**Shallow Concentrated Flow, B-C** Unpaved Kv= 16.1 fps
2.1	450	0.0300	3.52		**Shallow Concentrated Flow, C-D** Paved Kv= 20.3 fps
13.6	600	Total			

Subcatchment Ws3: Watershed 3



Summary for Subcatchment Ws4: Watershed 4

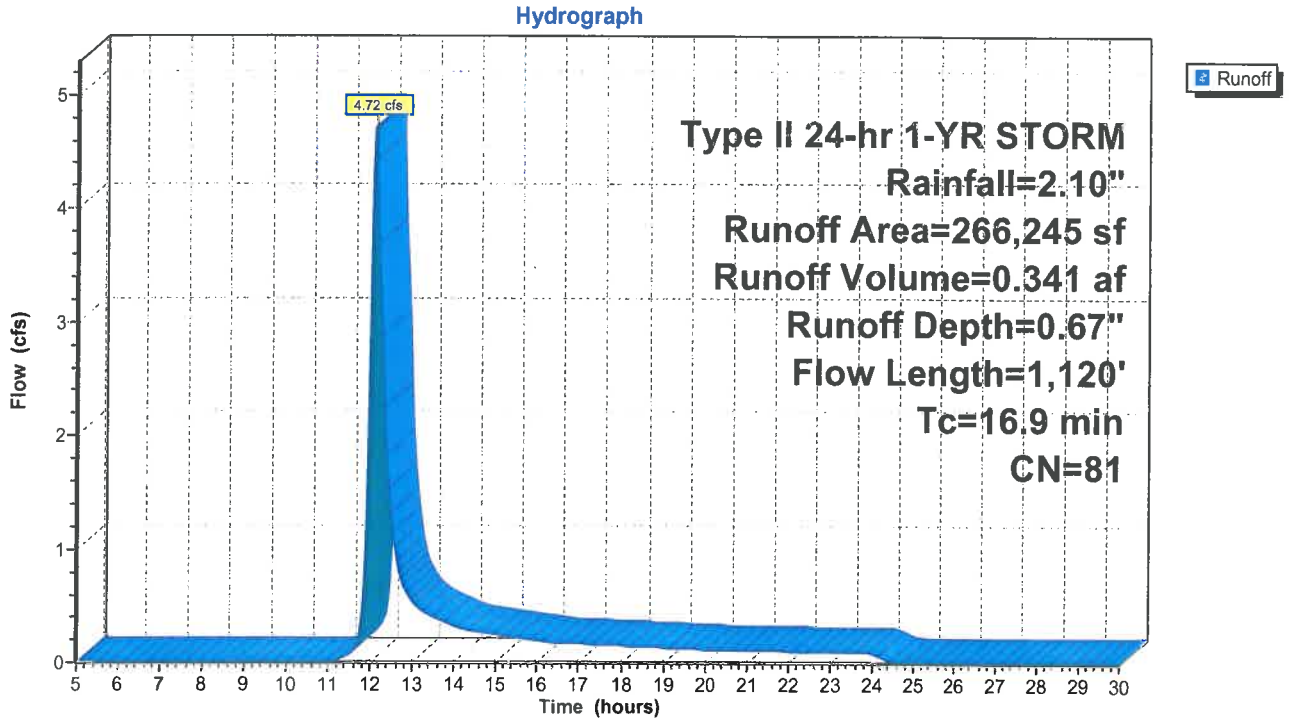
Runoff = 4.72 cfs @ 12.11 hrs, Volume= 0.341 af, Depth= 0.67"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type II 24-hr 1-YR STORM Rainfall=2.10"

Area (sf)	CN	Description
10,420	98	Paved parking, HSG D
157,500	80	Pasture/grassland/range, Good, HSG D
98,325	80	>75% Grass cover, Good, HSG D
266,245	81	Weighted Average
255,825		96.09% Pervious Area
10,420		3.91% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.9	100	0.0200	0.17		**Sheet Flow, A-B** Range n= 0.130 P2= 2.50"
3.2	530	0.0300	2.79		**Shallow Concentrated Flow, B-C** Unpaved Kv= 16.1 fps
3.8	490	0.0200	2.12		**Shallow Concentrated Flow, C-D** Grassed Waterway Kv= 15.0 fps
16.9	1,120	Total			

Subcatchment Ws4: Watershed 4



Summary for Subcatchment Ws5: Watershed 5

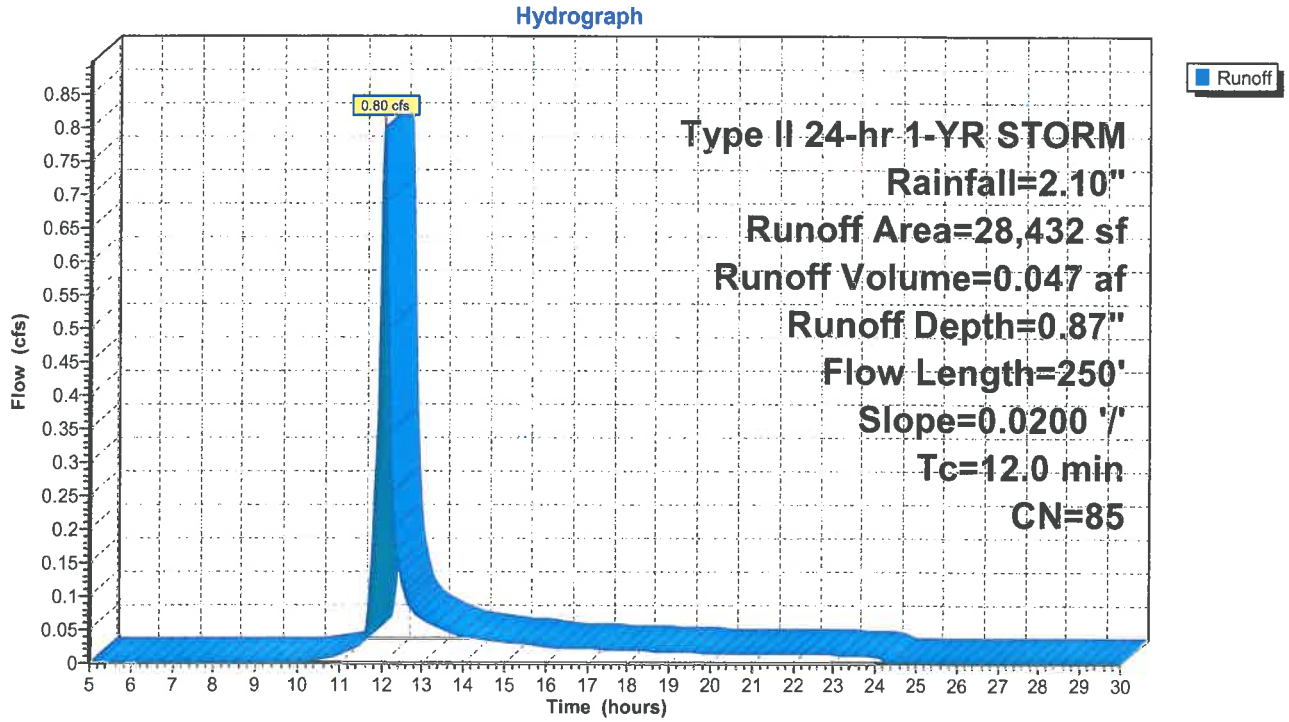
Runoff = 0.80 cfs @ 12.04 hrs, Volume= 0.047 af, Depth= 0.87"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type II 24-hr 1-YR STORM Rainfall=2.10"

Area (sf)	CN	Description
8,300	98	Paved parking, HSG D
20,132	80	>75% Grass cover, Good, HSG D
28,432	85	Weighted Average
20,132		70.81% Pervious Area
8,300		29.19% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.1	100	0.0200	0.15		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 2.50"
0.9	150	0.0200	2.87		**Shallow Concentrated Flow, B-C** Paved Kv= 20.3 fps
12.0	250	Total			

Subcatchment Ws5: Watershed 5



Summary for Subcatchment Ws6: Watershed 6

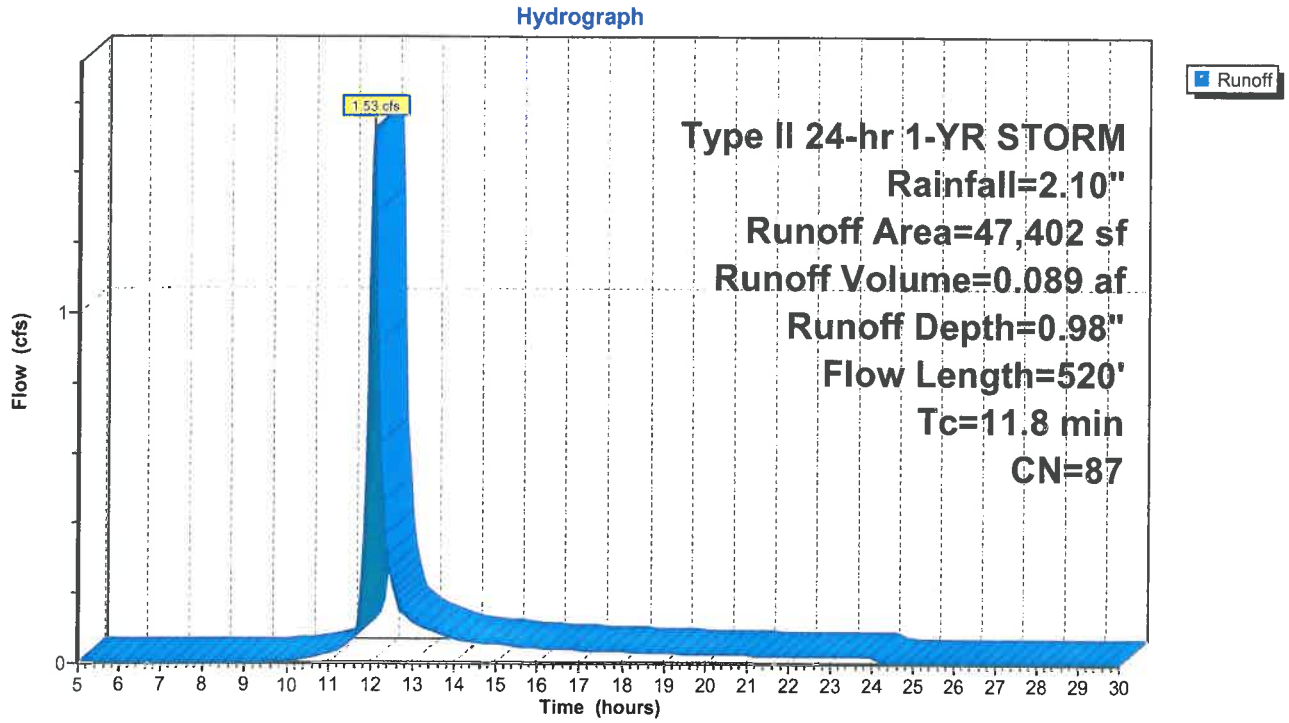
Runoff = 1.53 cfs @ 12.04 hrs, Volume= 0.089 af, Depth= 0.98"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type II 24-hr 1-YR STORM Rainfall=2.10"

Area (sf)	CN	Description
18,250	98	Paved parking, HSG D
29,152	80	>75% Grass cover, Good, HSG D
47,402	87	Weighted Average
29,152		61.50% Pervious Area
18,250		38.50% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.4	100	0.0300	0.18		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 2.50"
0.7	120	0.0300	2.79		**Shallow Concentrated Flow, B-C** Unpaved Kv= 16.1 fps
1.7	300	0.0200	2.87		**Shallow Concentrated Flow, C-D** Paved Kv= 20.3 fps
11.8	520	Total			

Subcatchment Ws6: Watershed 6



Summary for Subcatchment Ws7: Watershed 7

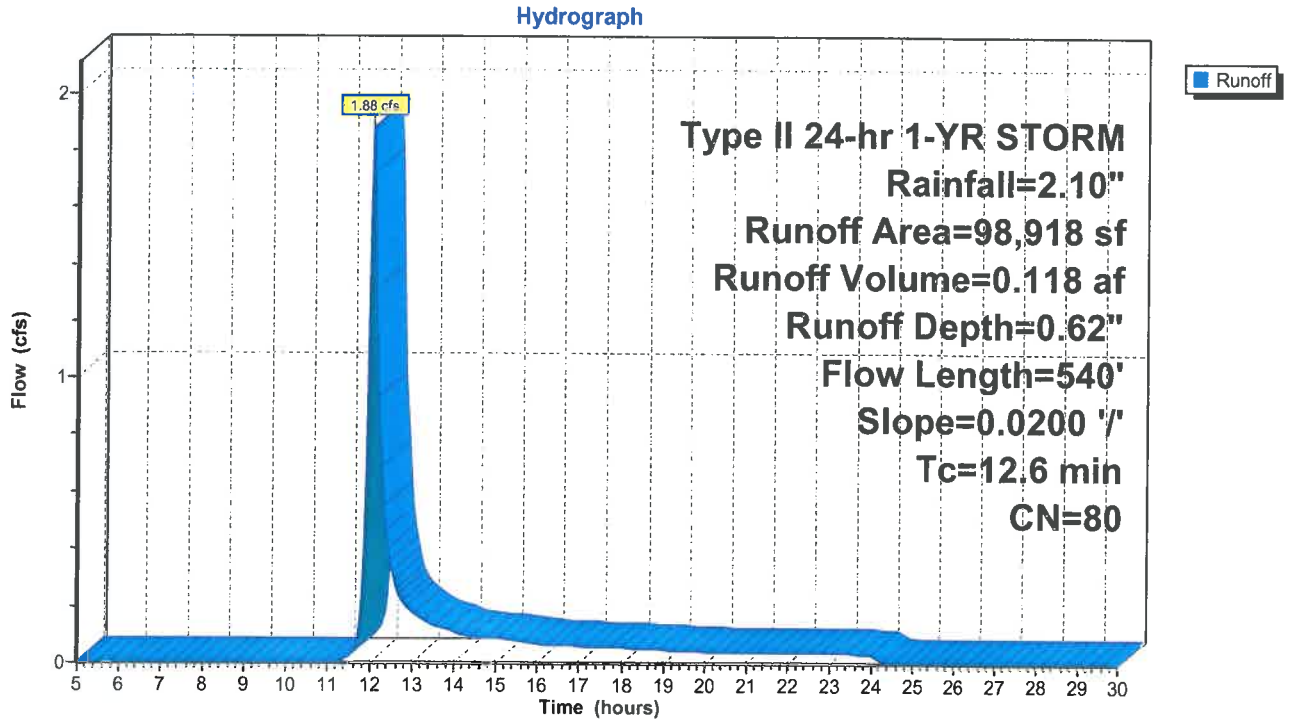
Runoff = 1.88 cfs @ 12.06 hrs, Volume= 0.118 af, Depth= 0.62"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type II 24-hr 1-YR STORM Rainfall=2.10"

Area (sf)	CN	Description
18,250	98	Paved parking, HSG D
40,668	80	>75% Grass cover, Good, HSG D
40,000	73	Brush, Good, HSG D
98,918	80	Weighted Average
80,668		81.55% Pervious Area
18,250		18.45% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.9	100	0.0200	0.17		**Sheet Flow, A-B** Range n= 0.130 P2= 2.50"
1.0	140	0.0200	2.28		**Shallow Concentrated Flow, B-C** Unpaved Kv= 16.1 fps
1.7	300	0.0200	2.87		**Shallow Concentrated Flow, C-D** Paved Kv= 20.3 fps
12.6	540	Total			

Subcatchment Ws7: Watershed 7



Erie County, New York

RgA—Rhinebeck silt loam, 0 to 3 percent slopes

Map Unit Setting

Elevation: 80 to 1,000 feet
Mean annual precipitation: 36 to 48 inches
Mean annual air temperature: 45 to 50 degrees F
Frost-free period: 115 to 195 days

Map Unit Composition

Rhinebeck and similar soils: 75 percent

Description of Rhinebeck

Setting

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

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: About 6 to 18 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 15 percent
Available water capacity: Moderate (about 8.3 inches)

Interpretive groups

Land capability (nonirrigated): 3w

Typical profile

0 to 9 inches: Silt loam
9 to 37 inches: Silty clay
37 to 70 inches: Silty clay

Data Source Information

Soil Survey Area: Erie County, New York
Survey Area Data: Version 10, Feb 8, 2010

Erie County, New York

Pc—Patchin silt loam

Map Unit Setting

Elevation: 800 to 1,400 feet
Mean annual precipitation: 36 to 48 inches
Mean annual air temperature: 45 to 50 degrees F
Frost-free period: 115 to 195 days

Map Unit Composition

Patchin and similar soils: 75 percent

Description of Patchin

Setting

Landform: Depressions
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave
Across-slope shape: Concave
Parent material: Loamy till

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: 20 to 40 inches to paralithic bedrock
Drainage class: Poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Very low (0.00 to 0.00 in/hr)
Depth to water table: About 0 to 6 inches
Frequency of flooding: None
Frequency of ponding: None
Available water capacity: Low (about 4.0 inches)

Interpretive groups

Land capability (nonirrigated): 4w

Typical profile

0 to 10 inches: Silt loam
10 to 23 inches: Silty clay loam
23 to 27 inches: Weathered bedrock

Data Source Information

Soil Survey Area: Erie County, New York
Survey Area Data: Version 10, Feb 8, 2010

Erie County, New York

HrA—Hornell silt loam, 0 to 3 percent slopes

Map Unit Setting

Elevation: 600 to 1,800 feet
Mean annual precipitation: 36 to 48 inches
Mean annual air temperature: 45 to 50 degrees F
Frost-free period: 115 to 195 days

Map Unit Composition

Hornell and similar soils: 75 percent

Description of Hornell

Setting

Landform: Benches, ridges, till plains
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave
Across-slope shape: Linear
Parent material: Clayey till, or till and residuum, derived from acid shale and siltstone

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: 20 to 40 inches to paralithic bedrock
Drainage class: Somewhat poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Very low (0.00 to 0.00 in/hr)
Depth to water table: About 6 to 18 inches
Frequency of flooding: None
Frequency of ponding: None
Available water capacity: Low (about 4.1 inches)

Interpretive groups

Land capability (nonirrigated): 3w

Typical profile

0 to 7 inches: Silt loam
7 to 29 inches: Silty clay loam
29 to 40 inches: Channery silty clay
40 to 44 inches: Weathered bedrock

Data Source Information

Soil Survey Area: Erie County, New York
Survey Area Data: Version 10, Feb 8, 2010

Erie County, New York

HrB—Hornell silt loam, 3 to 8 percent slopes

Map Unit Setting

Elevation: 600 to 1,800 feet
Mean annual precipitation: 36 to 48 inches
Mean annual air temperature: 45 to 50 degrees F
Frost-free period: 115 to 195 days

Map Unit Composition

Hornell and similar soils: 75 percent

Description of Hornell

Setting

Landform: Benches, ridges, till plains
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave
Across-slope shape: Linear
Parent material: Clayey till, or till and residuum, derived from acid shale and siltstone

Properties and qualities

Slope: 3 to 8 percent
Depth to restrictive feature: 20 to 40 inches to paralithic bedrock
Drainage class: Somewhat poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Very low (0.00 to 0.00 in/hr)
Depth to water table: About 6 to 18 inches
Frequency of flooding: None
Frequency of ponding: None
Available water capacity: Low (about 4.1 inches)

Interpretive groups

Land capability (nonirrigated): 3w

Typical profile

0 to 7 inches: Silt loam
7 to 29 inches: Silty clay loam
29 to 40 inches: Channery silty clay
40 to 44 inches: Weathered bedrock

Data Source Information

Soil Survey Area: Erie County, New York
Survey Area Data: Version 10, Feb 8, 2010

Erie County, New York

Fu—Fluvaquents and Udifluvents, frequently flooded

Map Unit Setting

Elevation: 100 to 3,000 feet
Mean annual precipitation: 36 to 48 inches
Mean annual air temperature: 45 to 50 degrees F
Frost-free period: 115 to 195 days

Map Unit Composition

Fluvaquents and similar soils: 45 percent
Udifluvents and similar soils: 30 percent

Description of Fluvaquents

Setting

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

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Very poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to very high (0.06 to 19.98 in/hr)
Depth to water table: About 0 to 12 inches
Frequency of flooding: Frequent
Frequency of ponding: None
Calcium carbonate, maximum content: 15 percent
Available water capacity: Moderate (about 6.1 inches)

Interpretive groups

Land capability (nonirrigated): 5w

Typical profile

0 to 5 inches: Gravelly silt loam
5 to 70 inches: Very gravelly sand

Description of Udifluvents

Setting

Landform: Flood plains
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Talf
Down-slope shape: Concave
Across-slope shape: Convex
Parent material: Alluvium with a wide range of texture

Properties and qualities

Slope: 0 to 8 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Moderately well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to very high (0.06 to 19.98 in/hr)
Depth to water table: About 24 to 48 inches
Frequency of flooding: Frequent
Frequency of ponding: None
Calcium carbonate, maximum content: 15 percent
Available water capacity: Low (about 5.9 inches)

Interpretive groups

Land capability (nonirrigated): 5w

Typical profile

0 to 4 inches: Very gravelly loam
4 to 70 inches: Very gravelly sand

Data Source Information

Soil Survey Area: Erie County, New York
Survey Area Data: Version 10, Feb 8, 2010

Erie County, New York

Dp—Dumps

Map Unit Setting

Elevation: 100 to 1,600 feet
Mean annual precipitation: 36 to 48 inches
Mean annual air temperature: 45 to 50 degrees F
Frost-free period: 115 to 195 days

Map Unit Composition

Dumps: 75 percent

Description of Dumps

Interpretive groups

Land capability (nonirrigated): 7s

Data Source Information

Soil Survey Area: Erie County, New York
Survey Area Data: Version 10, Feb 8, 2010

Erie County, New York

CoA—Churchville silt loam, 0 to 3 percent slopes

Map Unit Setting

Mean annual precipitation: 36 to 48 inches
Mean annual air temperature: 45 to 50 degrees F
Frost-free period: 115 to 195 days

Map Unit Composition

Churchville and similar soils: 75 percent

Description of Churchville

Setting

Landform: Lake plains, till plains
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Base slope, tread
Down-slope shape: Concave
Across-slope shape: Linear
Parent material: Clayey glaciolacustrine deposits over loamy till

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: About 6 to 18 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 15 percent
Available water capacity: Moderate (about 8.4 inches)

Interpretive groups

Land capability (nonirrigated): 3w

Typical profile

0 to 11 inches: Silt loam
11 to 26 inches: Silty clay
26 to 60 inches: Gravelly loam

Data Source Information

Soil Survey Area: Erie County, New York
Survey Area Data: Version 10, Feb 8, 2010

Erie County, New York

Ca—Canadice silt loam

Map Unit Setting

Mean annual precipitation: 36 to 48 inches
Mean annual air temperature: 45 to 50 degrees F
Frost-free period: 115 to 195 days

Map Unit Composition

Canadice and similar soils: 75 percent

Description of Canadice

Setting

Landform: Depressions
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Tread
Down-slope shape: Concave
Across-slope shape: Concave
Parent material: Clayey glaciolacustrine deposits

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Very low (0.00 in/hr)
Depth to water table: About 0 to 12 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 15 percent
Available water capacity: High (about 9.3 inches)

Interpretive groups

Land capability (nonirrigated): 4w

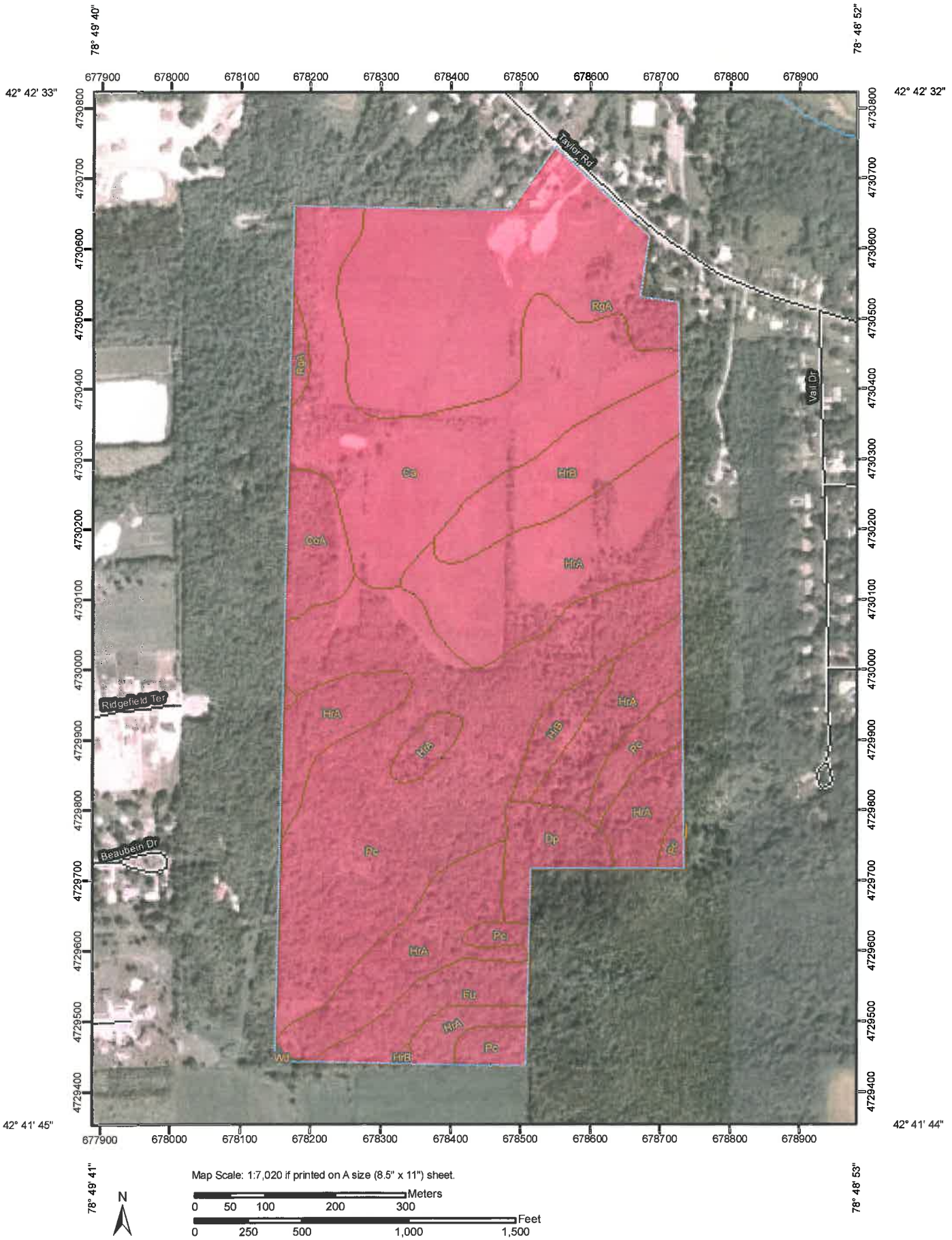
Typical profile

0 to 8 inches: Silt loam
8 to 53 inches: Silty clay
53 to 65 inches: Silty clay

Data Source Information

Soil Survey Area: Erie County, New York
Survey Area Data: Version 10, Feb 8, 2010

Hydrologic Soil Group—Erie County, New York
(Yiovene Subdivision)



MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Units

Soil Ratings
- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Political Features
- Cities

Water Features
- Oceans
- Streams and Canals

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

MAP INFORMATION

Map Scale: 1:7,020 if printed on A size (8.5" × 11") sheet.

The soil surveys that comprise your AOI were mapped at 1:15,840.

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

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL: http://websoilsurvey.nrcs.usda.gov
Coordinate System: UTM Zone 17N NAD83

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

Soil Survey Area: Erie County, New York
Survey Area Data: Version 10, Feb 8, 2010

Date(s) aerial images were photographed: 6/17/2006; 6/21/2006

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

Hydrologic Soil Group

Hydrologic Soil Group— Summary by Map Unit — Erie County, New York				
Map unit symbol	**Map unit name**	**Rating**	**Acres in AOI**	**Percent of AOI**
Ca	Canadice silt loam	D	25.3	16.2%
CoA	Churchville silt loam, 0 to 3 percent slopes	D	3.9	2.5%
Dp	Dumps	D	3.8	2.4%
Fu	Fluvaquents and Udifluvents, frequently flooded	D	4.3	2.8%
HrA	Hornell silt loam, 0 to 3 percent slopes	D	39.0	25.0%
HrB	Hornell silt loam, 3 to 8 percent slopes	D	10.7	6.8%
Pc	Patchin silt loam	D	41.5	26.6%
RgA	Rhinebeck silt loam, 0 to 3 percent slopes	D	27.3	17.5%
Wd	Wayland silt loam	C/D	0.1	0.1%
Totals for Area of Interest			**155.8**	**100.0%**

Description

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The soils in the United States are assigned to four groups (A, B, C, and D) and three dual classes (A/D, B/D, and C/D). The groups are defined as follows:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. Only the soils that in their natural condition are in group D are assigned to dual classes.

Rating Options

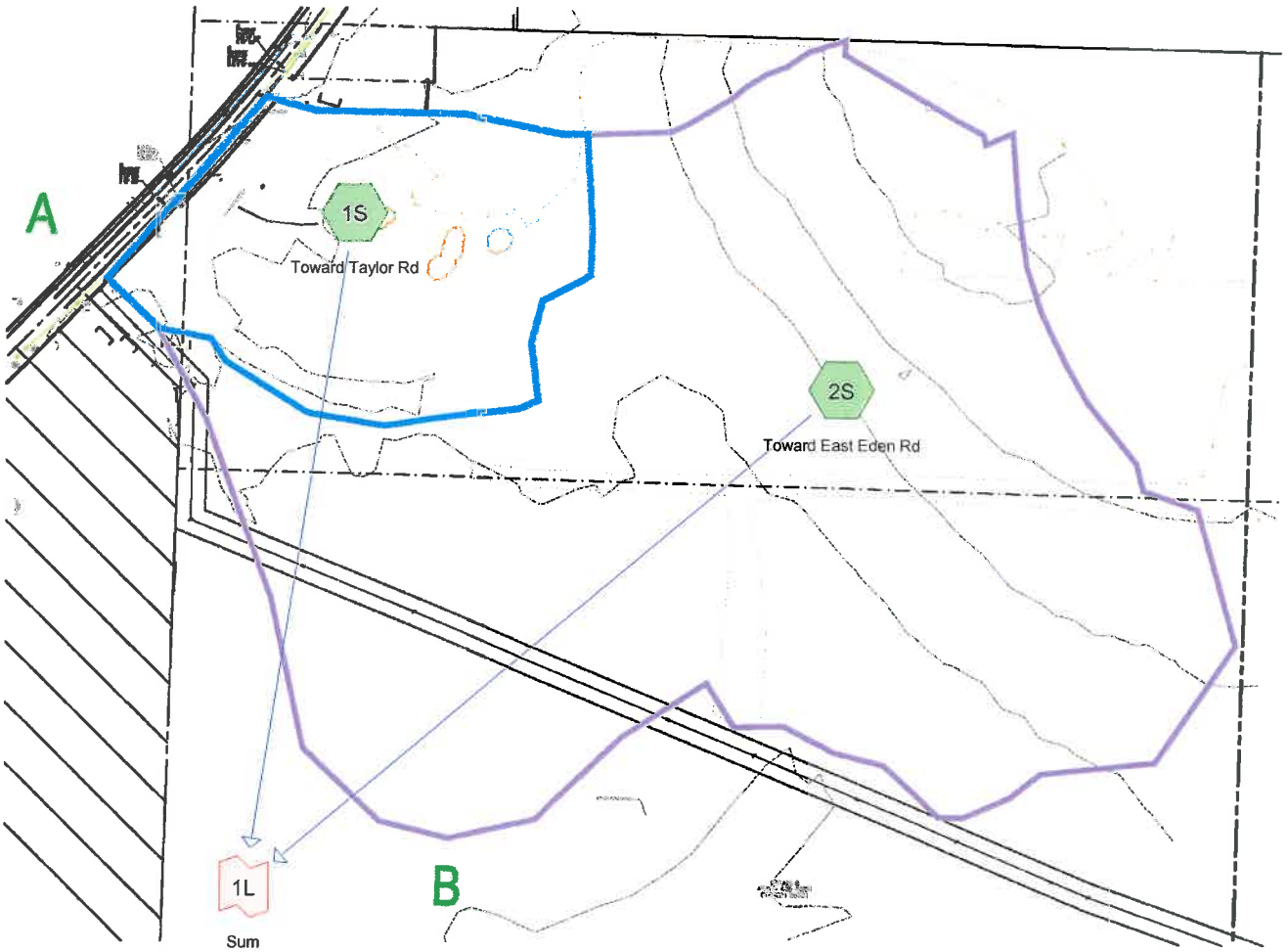
Aggregation Method: Dominant Condition

Component Percent Cutoff: *None Specified*

Tie-break Rule: Lower

APPENDIX B

HydroCad Calculations



Subcat Reach Pond Link

Drainage Diagram for Yiovene Pre Devel
Prepared by Nussbaumer & Clarke, Inc., Printed 9/29/2011
HydroCAD® 9.10 s/n 04121 © 2009 HydroCAD Software Solutions LLC

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
46.029	80	Pasture/grassland/range, Good, HSG D (1S, 2S)
46.029		**TOTAL AREA**

Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.000	HSG A	
0.000	HSG B	
0.000	HSG C	
46.029	HSG D	1S, 2S
0.000	Other	
46.029		**TOTAL AREA**

Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: Toward Taylor Rd Runoff Area=361,161 sf 0.00% Impervious Runoff Depth>0.56"
Flow Length=1,000' Tc=19.8 min CN=80 Runoff=5.36 cfs 0.385 af

Subcatchment 2S: Toward East Eden Rd Runoff Area=1,643,862 sf 0.00% Impervious Runoff Depth>0.56"
Flow Length=1,390' Tc=22.2 min CN=80 Runoff=22.77 cfs 1.750 af

Link 1L: Sum Inflow=28.05 cfs 2.135 af
Primary=28.05 cfs 2.135 af

Total Runoff Area = 46.029 ac Runoff Volume = 2.135 af Average Runoff Depth = 0.56"
100.00% Pervious = 46.029 ac 0.00% Impervious = 0.000 ac

Summary for Subcatchment 1S: Toward Taylor Rd

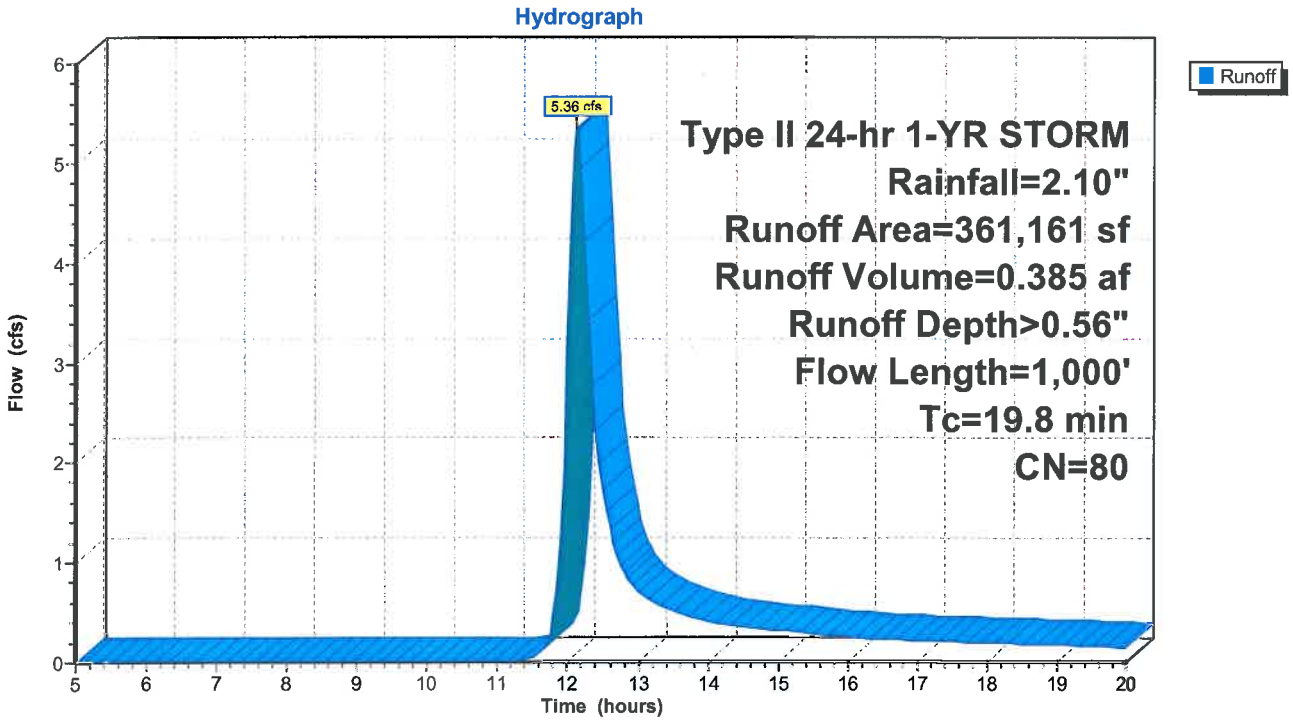
Runoff = 5.36 cfs @ 12.14 hrs, Volume= 0.385 af, Depth> 0.56"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 1-YR STORM Rainfall=2.10"

Area (sf)	CN	Description
361,161	80	Pasture/grassland/range, Good, HSG D
361,161		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.0	100	0.0100	0.13		**Sheet Flow, A-B** Range n= 0.130 P2= 2.50"
2.9	400	0.0200	2.28		**Shallow Concentrated Flow, B-C** Unpaved Kv= 16.1 fps
3.9	500	0.0200	2.12		**Shallow Concentrated Flow, C-D** Grassed Waterway Kv= 15.0 fps
19.8	1,000	Total			

Subcatchment 1S: Toward Taylor Rd



Summary for Subcatchment 2S: Toward East Eden Rd

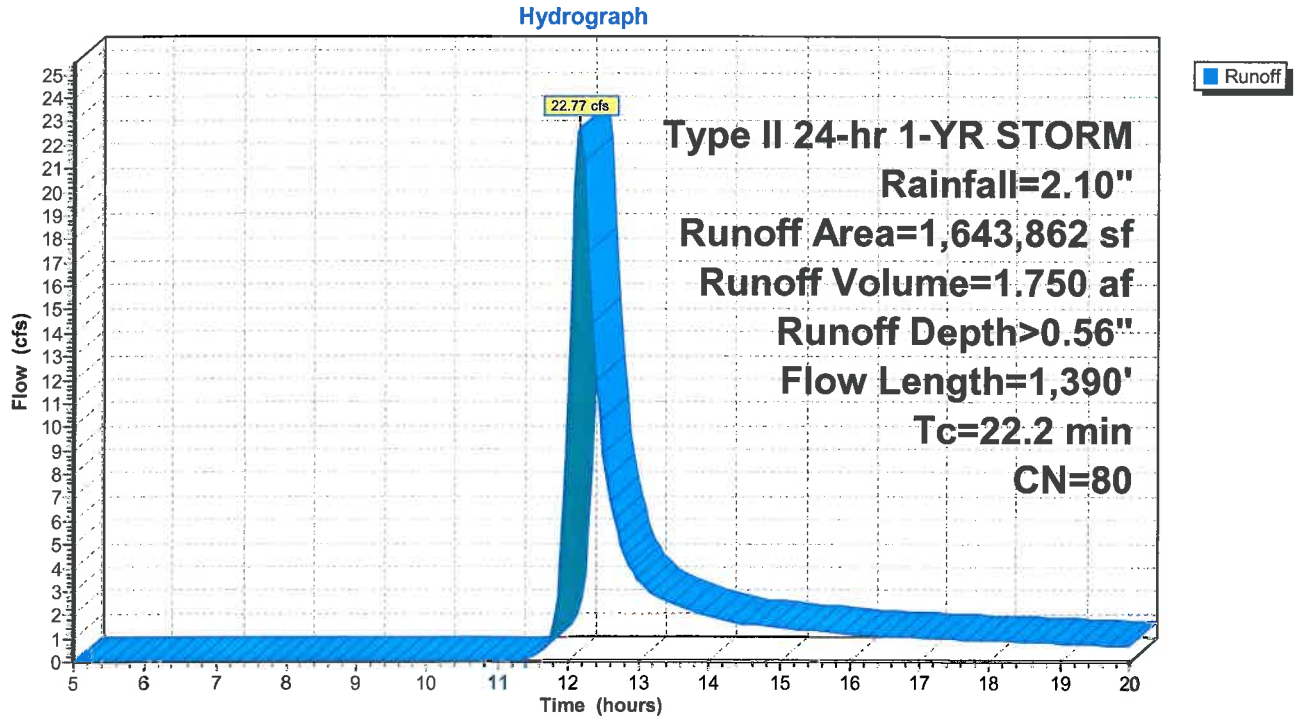
Runoff = 22.77 cfs @ 12.17 hrs, Volume= 1.750 af, Depth> 0.56"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 1-YR STORM Rainfall=2.10"

Area (sf)	CN	Description
1,643,862	80	Pasture/grassland/range, Good, HSG D
1,643,862		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.9	100	0.0200	0.17		**Sheet Flow, A-B** Range n= 0.130 P2= 2.50"
1.6	260	0.0300	2.79		**Shallow Concentrated Flow, B-C** Unpaved Kv= 16.1 fps
10.7	1,030	0.0100	1.61		**Shallow Concentrated Flow, C-D** Unpaved Kv= 16.1 fps
22.2	1,390	Total			

Subcatchment 2S: Toward East Eden Rd

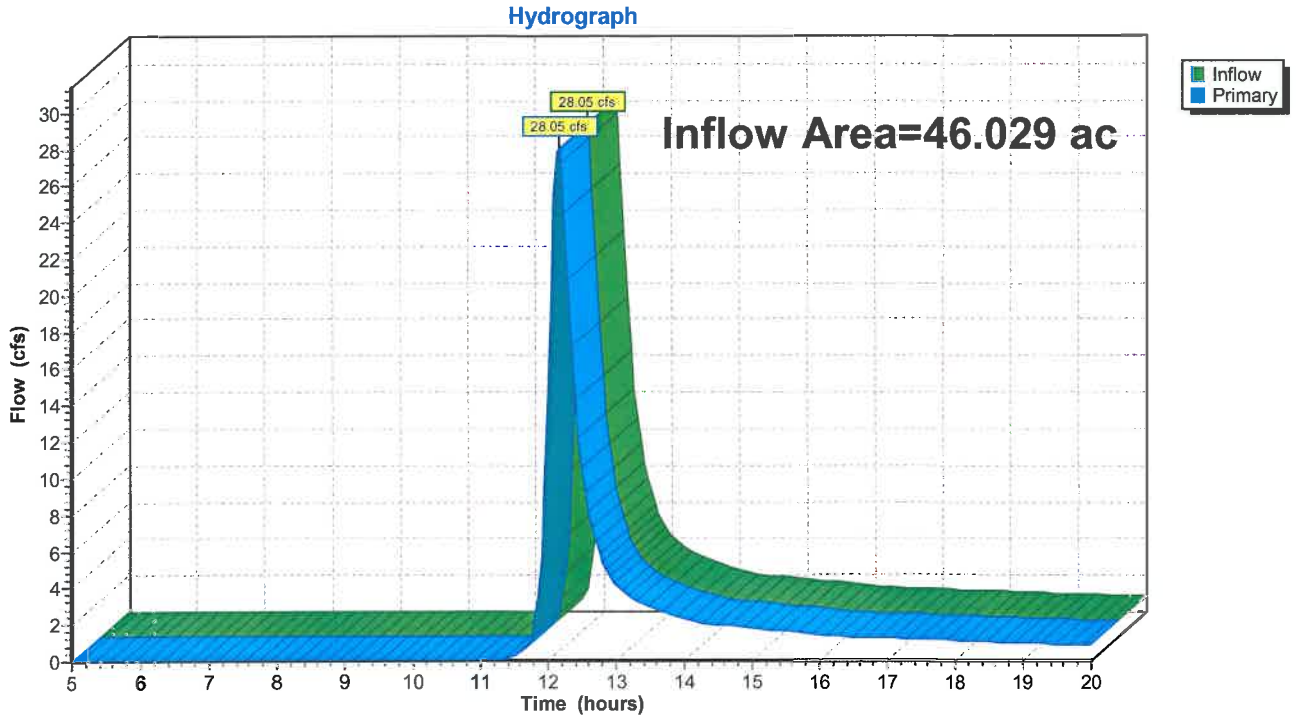


Summary for Link 1L: Sum

Inflow Area = 46.029 ac, 0.00% Impervious, Inflow Depth > 0.56" for 1-YR STORM event
Inflow = 28.05 cfs @ 12.17 hrs, Volume= 2.135 af
Primary = 28.05 cfs @ 12.17 hrs, Volume= 2.135 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Link 1L: Sum



Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: Toward Taylor Rd Runoff Area=361,161 sf 0.00% Impervious Runoff Depth>1.57"
Flow Length=1,000' Tc=19.8 min CN=80 Runoff=15.74 cfs 1.083 af

Subcatchment 2S: Toward East Eden Rd Runoff Area=1,643,862 sf 0.00% Impervious Runoff Depth>1.57"
Flow Length=1,390' Tc=22.2 min CN=80 Runoff=67.20 cfs 4.927 af

Link 1L: Sum Inflow=82.72 cfs 6.010 af
Primary=82.72 cfs 6.010 af

Total Runoff Area = 46.029 ac Runoff Volume = 6.010 af Average Runoff Depth = 1.57"
100.00% Pervious = 46.029 ac 0.00% Impervious = 0.000 ac

Summary for Subcatchment 1S: Toward Taylor Rd

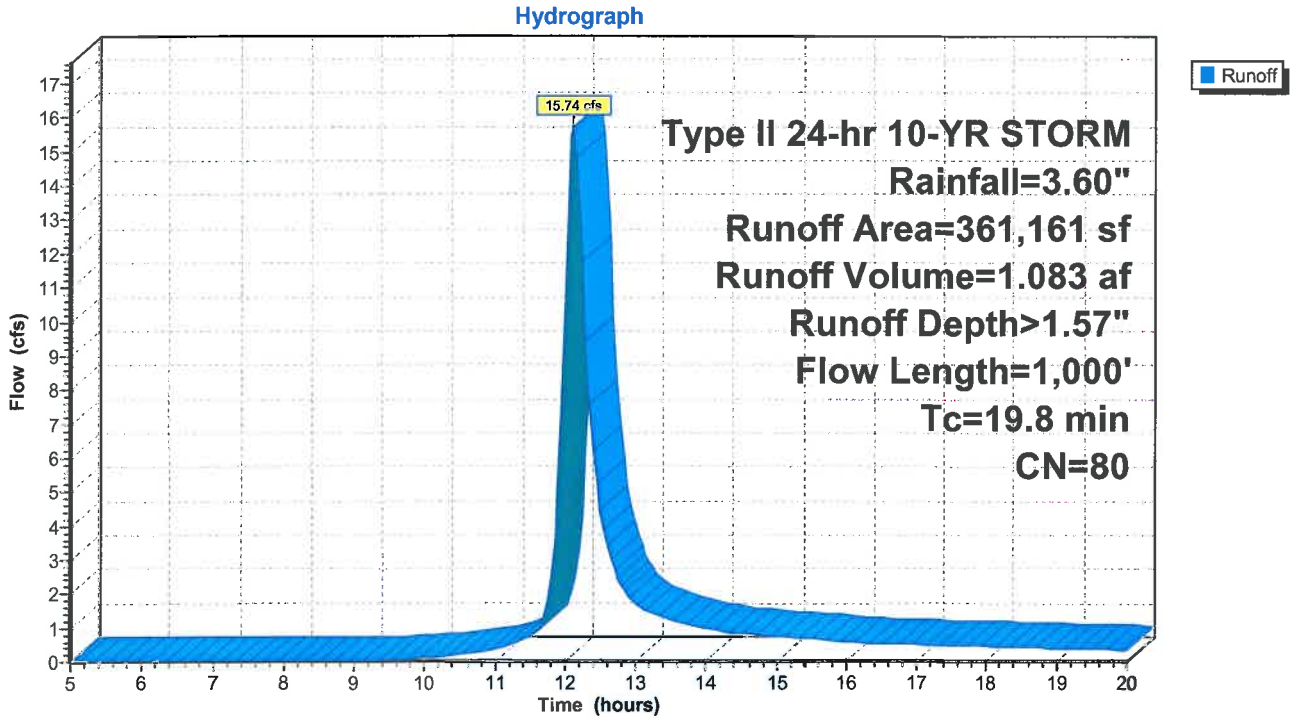
Runoff = 15.74 cfs @ 12.13 hrs, Volume= 1.083 af, Depth> 1.57"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-YR STORM Rainfall=3.60"

Area (sf)	CN	Description
361,161	80	Pasture/grassland/range, Good, HSG D
361,161		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.0	100	0.0100	0.13		**Sheet Flow, A-B** Range n= 0.130 P2= 2.50"
2.9	400	0.0200	2.28		**Shallow Concentrated Flow, B-C** Unpaved Kv= 16.1 fps
3.9	500	0.0200	2.12		**Shallow Concentrated Flow, C-D** Grassed Waterway Kv= 15.0 fps
19.8	1,000	Total			

Subcatchment 1S: Toward Taylor Rd



Summary for Subcatchment 2S: Toward East Eden Rd

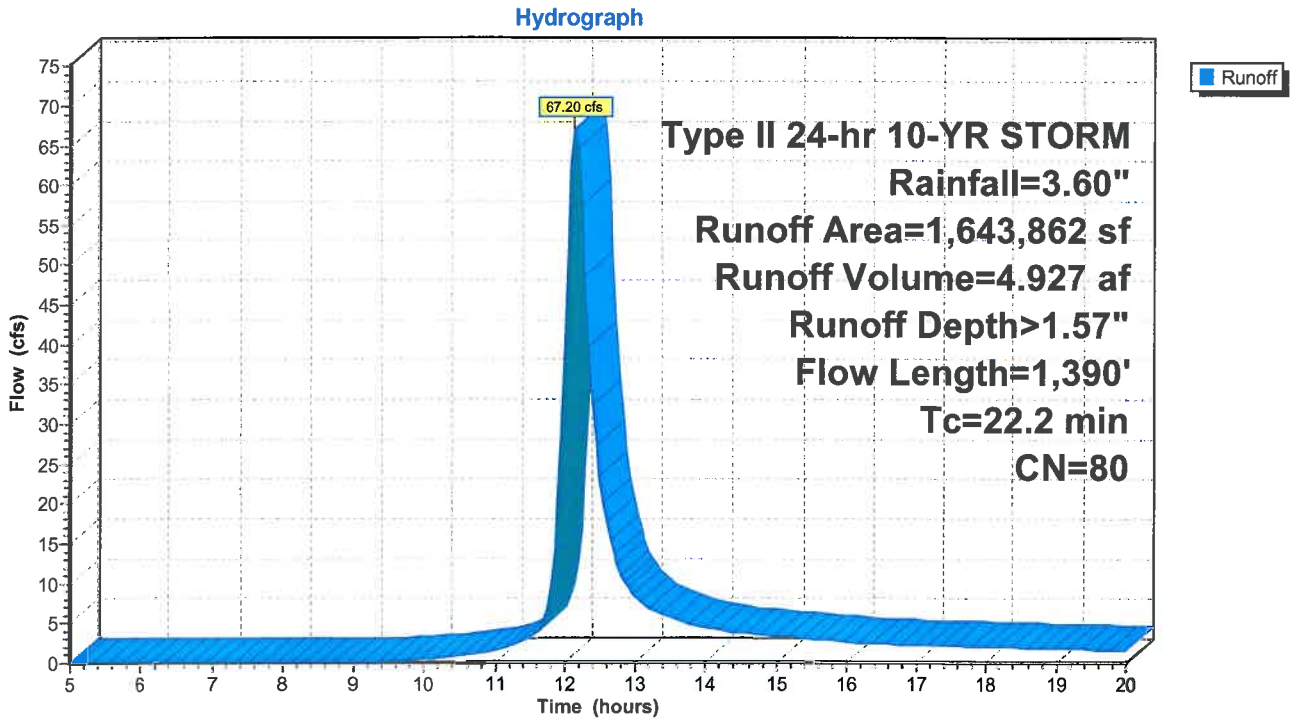
Runoff = 67.20 cfs @ 12.16 hrs, Volume= 4.927 af, Depth> 1.57"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-YR STORM Rainfall=3.60"

Area (sf)	CN	Description
1,643,862	80	Pasture/grassland/range, Good, HSG D
1,643,862		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.9	100	0.0200	0.17		**Sheet Flow, A-B** Range n= 0.130 P2= 2.50"
1.6	260	0.0300	2.79		**Shallow Concentrated Flow, B-C** Unpaved Kv= 16.1 fps
10.7	1,030	0.0100	1.61		**Shallow Concentrated Flow, C-D** Unpaved Kv= 16.1 fps
22.2	1,390	Total			

Subcatchment 2S: Toward East Eden Rd

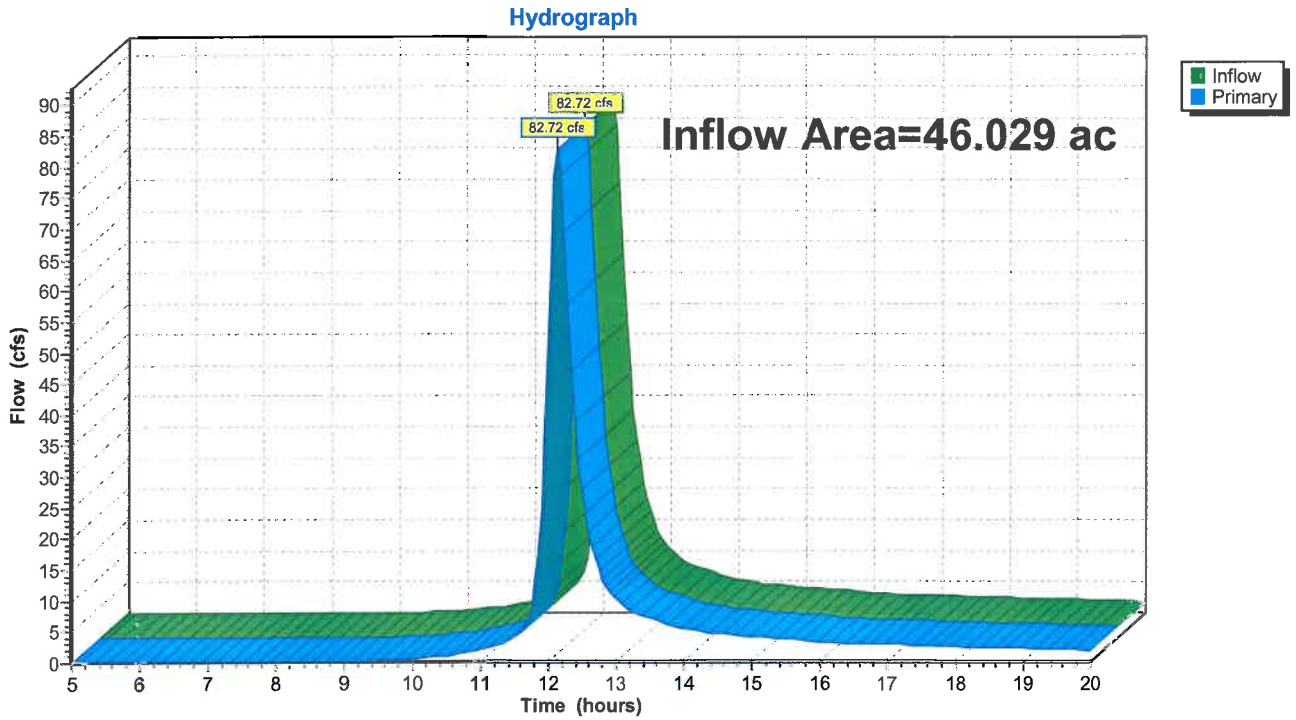


Summary for Link 1L: Sum

Inflow Area = 46.029 ac, 0.00% Impervious, Inflow Depth > 1.57" for 10-YR STORM event
Inflow = 82.72 cfs @ 12.15 hrs, Volume= 6.010 af
Primary = 82.72 cfs @ 12.15 hrs, Volume= 6.010 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Link 1L: Sum



Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: Toward Taylor Rd Runoff Area=361,161 sf 0.00% Impervious Runoff Depth>2.59"
Flow Length=1,000' Tc=19.8 min CN=80 Runoff=25.90 cfs 1.787 af

Subcatchment 2S: Toward East Eden Rd Runoff Area=1,643,862 sf 0.00% Impervious Runoff Depth>2.58"
Flow Length=1,390' Tc=22.2 min CN=80 Runoff=110.53 cfs 8.128 af

Link 1L: Sum Inflow=136.03 cfs 9.915 af
Primary=136.03 cfs 9.915 af

Total Runoff Area = 46.029 ac Runoff Volume = 9.915 af Average Runoff Depth = 2.58"
100.00% Pervious = 46.029 ac 0.00% Impervious = 0.000 ac

Summary for Subcatchment 1S: Toward Taylor Rd

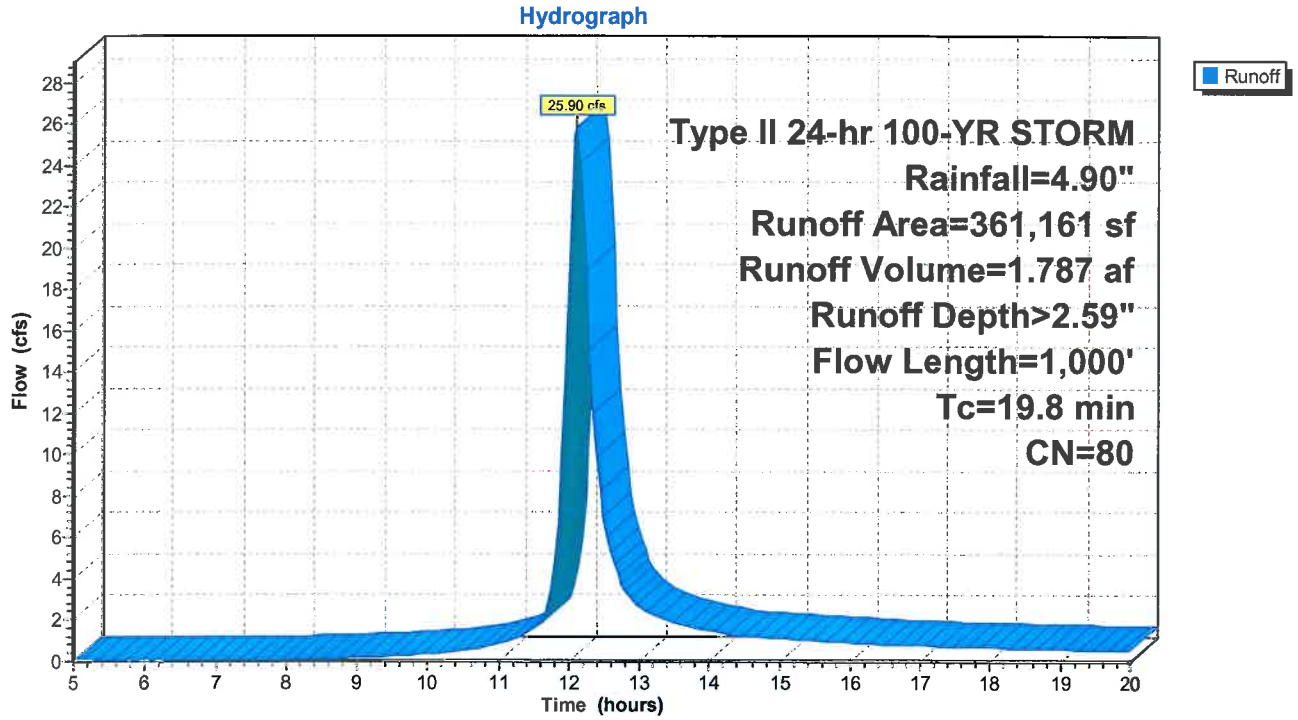
Runoff = 25.90 cfs @ 12.12 hrs, Volume= 1.787 af, Depth> 2.59"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 100-YR STORM Rainfall=4.90"

Area (sf)	CN	Description
361,161	80	Pasture/grassland/range, Good, HSG D
361,161		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.0	100	0.0100	0.13		**Sheet Flow, A-B** Range n= 0.130 P2= 2.50"
2.9	400	0.0200	2.28		**Shallow Concentrated Flow, B-C** Unpaved Kv= 16.1 fps
3.9	500	0.0200	2.12		**Shallow Concentrated Flow, C-D** Grassed Waterway Kv= 15.0 fps
19.8	1,000	Total			

Subcatchment 1S: Toward Taylor Rd



Summary for Subcatchment 2S: Toward East Eden Rd

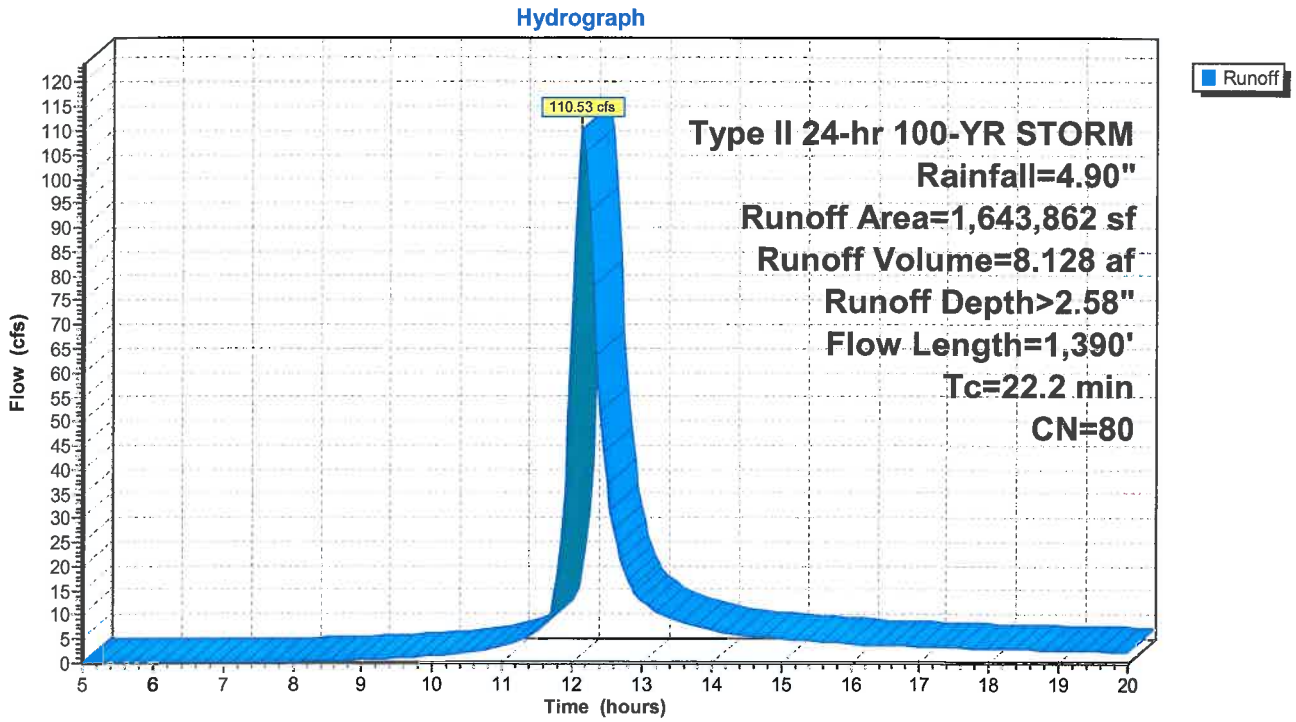
Runoff = 110.53 cfs @ 12.15 hrs, Volume= 8.128 af, Depth> 2.58"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 100-YR STORM Rainfall=4.90"

Area (sf)	CN	Description
1,643,862	80	Pasture/grassland/range, Good, HSG D
1,643,862		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.9	100	0.0200	0.17		**Sheet Flow, A-B** Range n= 0.130 P2= 2.50"
1.6	260	0.0300	2.79		**Shallow Concentrated Flow, B-C** Unpaved Kv= 16.1 fps
10.7	1,030	0.0100	1.61		**Shallow Concentrated Flow, C-D** Unpaved Kv= 16.1 fps
22.2	1,390	Total			

Subcatchment 2S: Toward East Eden Rd

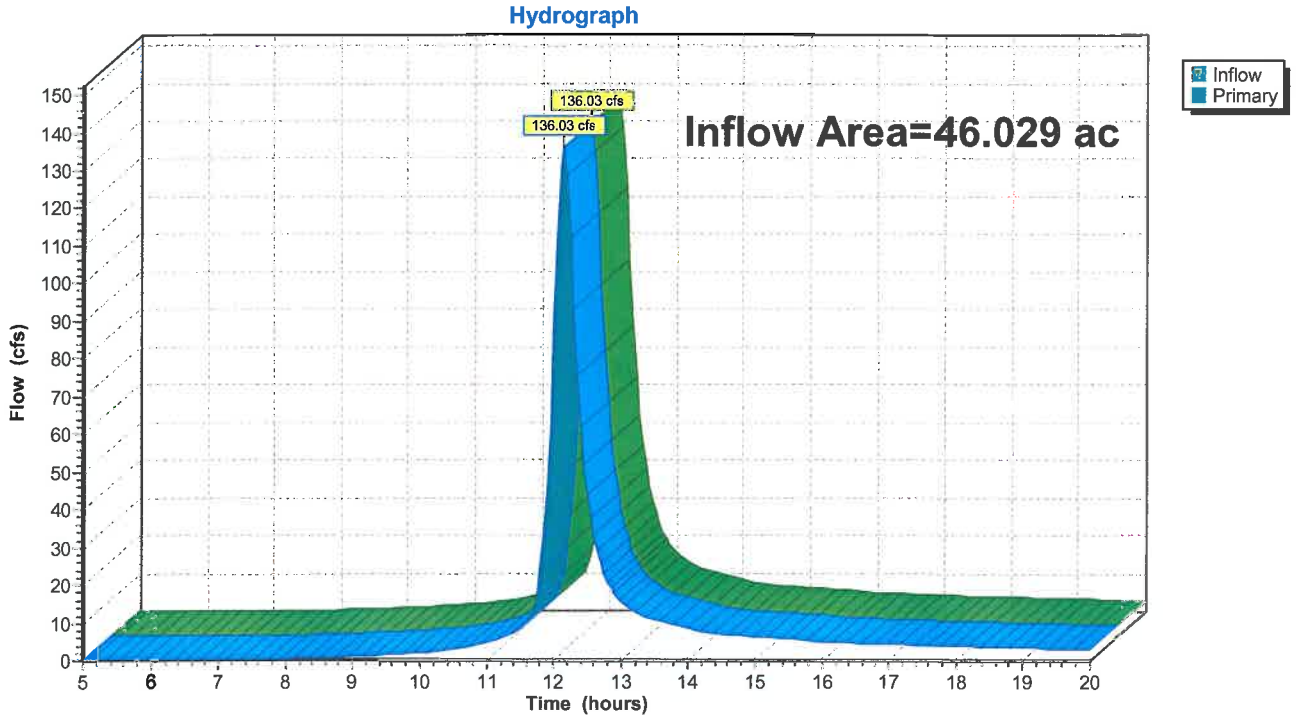


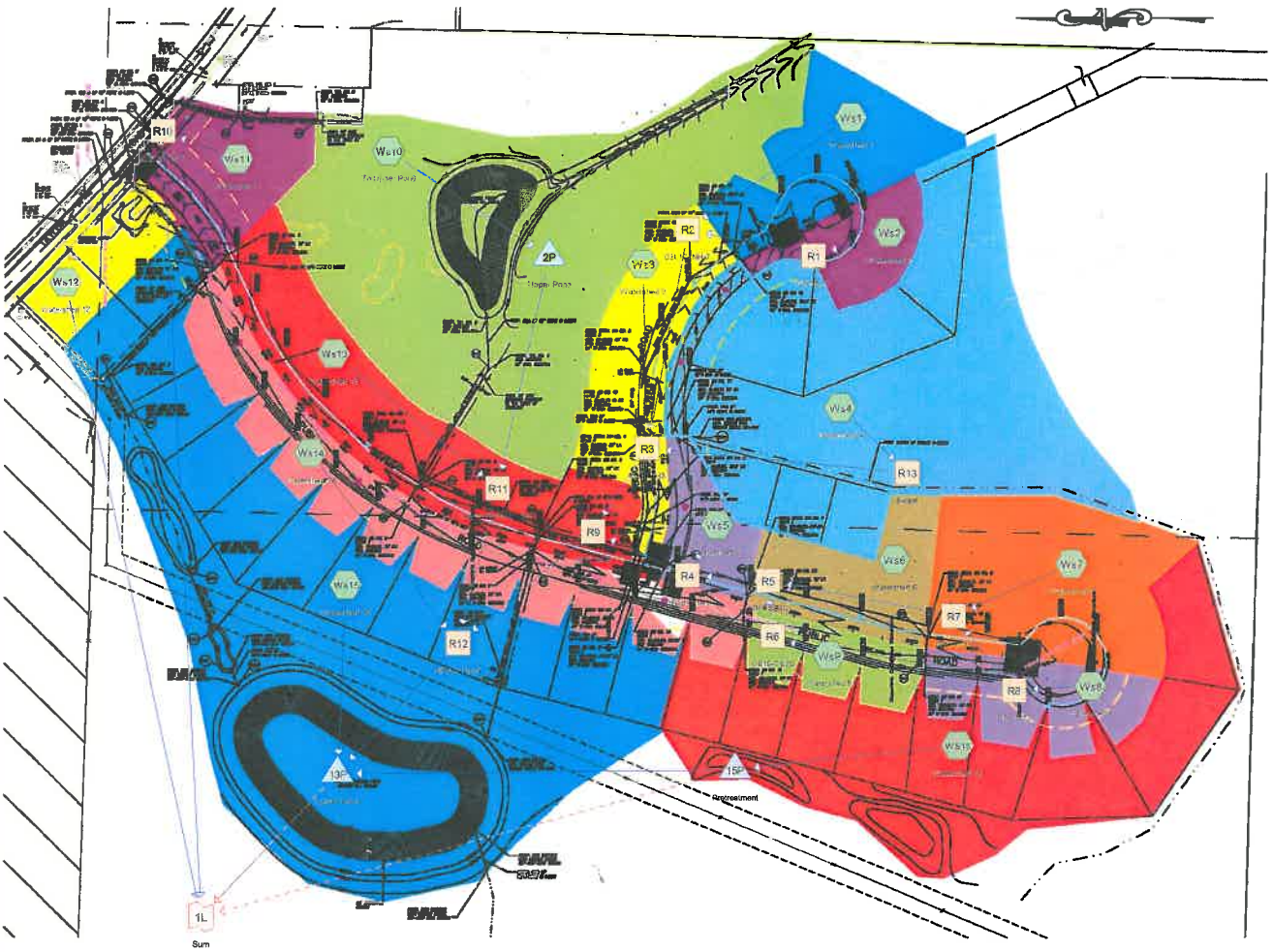
Summary for Link 1L: Sum

Inflow Area = 46.029 ac, 0.00% Impervious, Inflow Depth > 2.58" for 100-YR STORM event
Inflow = 136.03 cfs @ 12.15 hrs, Volume= 9.915 af
Primary = 136.03 cfs @ 12.15 hrs, Volume= 9.915 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Link 1L: Sum





Subcat Reach Pond Link

Drainage Diagram for Yiovene Post Development
Prepared by Nussbaumer & Clarke, Inc., Printed 9/29/2011
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Yiovene Post Development
Prepared by Nussbaumer & Clarke, Inc.

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Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
1.418	73	Brush, Good, HSG D (Ws1, Ws7)
12.450	78	Meadow, non-grazed, HSG D (Ws15, WS16)
12.448	80	>75% Grass cover, Good, HSG D (Ws1, Ws11, Ws12, Ws13, Ws14, Ws2, Ws3, Ws4, Ws5, Ws6, Ws7, Ws8, Ws9)
9.611	80	Pasture/grassland/range, Good, HSG D (Ws10, Ws4)
6.205	98	Paved parking, HSG D (Ws1, Ws11, Ws12, Ws14, Ws2, Ws3, Ws4, Ws5, Ws6, Ws7, Ws8, Ws9)
3.897	98	Water Surface, HSG D (Ws10, Ws13, Ws15)
46.029		**TOTAL AREA**

Yiovene Post Development
Prepared by Nussbaumer & Clarke, Inc.

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Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.000	HSG A	
0.000	HSG B	
0.000	HSG C	
46.029	HSG D	Ws1, Ws10, Ws11, Ws12, Ws13, Ws14, Ws15, WS16, Ws2, W**s3**, Ws4, Ws5, Ws6, Ws7, Ws8, Ws9
0.000	Other	
46.029		**TOTAL AREA**

Yiovene Post Development

Prepared by Nussbaumer & Clarke, Inc. Printed 9/29/2011

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Pipe Listing (all nodes)

Line#	Node Number	In-Invert (feet)	Out-Invert (feet)	Length (feet)	Slope (ft/ft)	n	Diam/Width (inches)	Height (inches)	Fill (inches)
1	Ws10	0.00	0.00	95.0	0.0100	0.013	18.0	0.0	0.0
2	R1	831.62	828.07	30.0	0.1183	0.012	12.0	0.0	0.0
3	R10	817.93	816.73	96.0	0.0125	0.013	12.0	0.0	0.0
4	R11	823.72	821.26	435.0	0.0057	0.013	18.0	0.0	0.0
5	R12	821.06	820.50	359.0	0.0016	0.013	24.0	0.0	0.0
6	R2	827.97	822.57	276.0	0.0196	0.013	15.0	0.0	0.0
7	R3	822.47	821.65	124.0	0.0066	0.013	24.0	0.0	0.0
8	R4	821.92	821.21	52.0	0.0137	0.012	24.0	0.0	0.0
9	R5	822.81	821.92	142.0	0.0063	0.013	24.0	0.0	0.0
10	R6	823.05	822.90	30.0	0.0050	0.012	12.0	0.0	0.0
11	R7	824.25	822.73	303.0	0.0050	0.013	24.0	0.0	0.0
12	R8	824.59	824.44	30.0	0.0050	0.012	15.0	0.0	0.0
13	R9	821.31	821.16	182.0	0.0008	0.013	24.0	0.0	0.0
14	2P	824.14	823.30	58.0	0.0145	0.013	15.0	0.0	0.0
15	13P	820.30	820.00	30.0	0.0100	0.013	18.0	0.0	0.0
16	15P	821.00	820.30	380.0	0.0018	0.013	12.0	0.0	0.0

Time span=5.00-30.00 hrs, dt=0.05 hrs, 501 points
Runoff by SCS TR-20 method, UH=SCS
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment Ws1: Watershed 1 Runoff Area=61,775 sf 29.54% Impervious Runoff Depth=0.76"
Flow Length=360' Tc=10.6 min CN=83 Runoff=1.59 cfs 0.090 af

Subcatchment Ws10: To Upper Pond Runoff Area=291,049 sf 10.27% Impervious Runoff Depth=0.72"
Flow Length=965' Tc=13.4 min CN=82 Runoff=6.30 cfs 0.398 af

Subcatchment Ws11: Watershed 11 Runoff Area=49,965 sf 25.02% Impervious Runoff Depth=0.87"
Flow Length=460' Slope=0.0100 '/' Tc=17.8 min CN=85 Runoff=1.16 cfs 0.083 af

Subcatchment Ws12: Watershed 12 Runoff Area=34,854 sf 34.43% Impervious Runoff Depth=0.93"
Flow Length=320' Slope=0.0100 '/' Tc=16.9 min CN=86 Runoff=0.89 cfs 0.062 af

Subcatchment Ws13: Watershed 13 Runoff Area=171,199 sf 37.53% Impervious Runoff Depth=0.98"
Flow Length=620' Tc=31.6 min CN=87 Runoff=3.20 cfs 0.322 af

Subcatchment Ws14: Watershed 14 Runoff Area=159,952 sf 53.30% Impervious Runoff Depth=1.18"
Flow Length=1,050' Tc=20.1 min CN=90 Runoff=4.78 cfs 0.361 af

Subcatchment Ws15: Watershed 15 Runoff Area=432,874 sf 17.46% Impervious Runoff Depth=0.67"
Flow Length=1,470' Slope=0.0100 '/' Tc=17.9 min CN=81 Runoff=7.43 cfs 0.554 af

Subcatchment WS16: Watershed 16 Runoff Area=185,059 sf 0.00% Impervious Runoff Depth=0.54"
Flow Length=1,140' Tc=18.2 min CN=78 Runoff=2.41 cfs 0.192 af

Subcatchment Ws2: Watershed 2 Runoff Area=33,200 sf 54.97% Impervious Runoff Depth=1.18"
Flow Length=310' Tc=15.8 min CN=90 Runoff=1.12 cfs 0.075 af

Subcatchment Ws3: Watershed 3 Runoff Area=67,371 sf 47.13% Impervious Runoff Depth=1.05"
Flow Length=600' Tc=13.6 min CN=88 Runoff=2.18 cfs 0.135 af

Subcatchment Ws4: Watershed 4 Runoff Area=266,245 sf 3.91% Impervious Runoff Depth=0.67"
Flow Length=1,120' Tc=16.9 min CN=81 Runoff=4.72 cfs 0.341 af

Subcatchment Ws5: Watershed 5 Runoff Area=28,432 sf 29.19% Impervious Runoff Depth=0.87"
Flow Length=250' Slope=0.0200 '/' Tc=12.0 min CN=85 Runoff=0.80 cfs 0.047 af

Subcatchment Ws6: Watershed 6 Runoff Area=47,402 sf 38.50% Impervious Runoff Depth=0.98"
Flow Length=520' Tc=11.8 min CN=87 Runoff=1.53 cfs 0.089 af

Subcatchment Ws7: Watershed 7 Runoff Area=98,918 sf 18.45% Impervious Runoff Depth=0.62"
Flow Length=540' Slope=0.0200 '/' Tc=12.6 min CN=80 Runoff=1.88 cfs 0.118 af

Subcatchment Ws8: Watershed 8 Runoff Area=47,068 sf 51.52% Impervious Runoff Depth=1.11"
Flow Length=440' Tc=16.6 min CN=89 Runoff=1.47 cfs 0.100 af

Subcatchment Ws9: Watershed 9 Runoff Area=29,678 sf 43.26% Impervious Runoff Depth=1.05"
Flow Length=420' Tc=16.5 min CN=88 Runoff=0.87 cfs 0.059 af

Reach R1: CB 18-17 Avg. Flow Depth=0.20' Max Vel=10.27 fps Inflow=1.12 cfs 0.075 af
12.0" Round Pipe n=0.012 L=30.0' S=0.1183 '/' Capacity=13.28 cfs Outflow=1.12 cfs 0.075 af

Reach R10: CB1 to CB 2 Avg. Flow Depth=0.37' Max Vel=4.39 fps Inflow=1.16 cfs 0.083 af
12.0" Round Pipe n=0.013 L=96.0' S=0.0125 '/' Capacity=3.98 cfs Outflow=1.15 cfs 0.083 af

Reach R11: Upper Pond to MH2 Avg. Flow Depth=0.66' Max Vel=4.23 fps Inflow=3.20 cfs 0.322 af
18.0" Round Pipe n=0.013 L=435.0' S=0.0057 '/' Capacity=7.90 cfs Outflow=3.16 cfs 0.322 af

Reach R12: MH2 to Pond Avg. Flow Depth=1.17' Max Vel=3.03 fps Inflow=17.56 cfs 1.649 af
24.0" Round Pipe x 3.00 n=0.013 L=359.0' S=0.0016 '/' Capacity=26.80 cfs Outflow=17.20 cfs 1.649 af

Reach R13: Swale Avg. Flow Depth=0.57' Max Vel=2.27 fps Inflow=4.72 cfs 0.341 af
n=0.035 L=850.0' S=0.0100 '/' Capacity=136.87 cfs Outflow=4.07 cfs 0.341 af

Reach R2: CB 17- MH 7 Avg. Flow Depth=0.46' Max Vel=6.39 fps Inflow=2.65 cfs 0.165 af
15.0" Round Pipe n=0.013 L=276.0' S=0.0196 '/' Capacity=9.04 cfs Outflow=2.59 cfs 0.165 af

Reach R3: MH7-MH3 Avg. Flow Depth=0.80' Max Vel=5.27 fps Inflow=6.15 cfs 0.641 af
24.0" Round Pipe n=0.013 L=124.0' S=0.0066 '/' Capacity=18.40 cfs Outflow=6.15 cfs 0.641 af

Reach R4: CB10 - MH3 Avg. Flow Depth=0.55' Max Vel=6.71 fps Inflow=4.66 cfs 0.325 af
24.0" Round Pipe n=0.012 L=52.0' S=0.0137 '/' Capacity=28.64 cfs Outflow=4.64 cfs 0.325 af

Reach R5: MH4-CB10 Avg. Flow Depth=0.65' Max Vel=4.61 fps Inflow=4.07 cfs 0.278 af
24.0" Round Pipe n=0.013 L=142.0' S=0.0063 '/' Capacity=17.91 cfs Outflow=4.01 cfs 0.278 af

Reach R6: CB19-CB20 Avg. Flow Depth=0.39' Max Vel=3.09 fps Inflow=0.87 cfs 0.059 af
12.0" Round Pipe n=0.012 L=30.0' S=0.0050 '/' Capacity=2.73 cfs Outflow=0.87 cfs 0.059 af

Reach R7: MH5-MH4 Avg. Flow Depth=0.61' Max Vel=4.00 fps Inflow=3.30 cfs 0.218 af
24.0" Round Pipe n=0.013 L=303.0' S=0.0050 '/' Capacity=16.02 cfs Outflow=3.20 cfs 0.218 af

Reach R8: CB 21-22 Avg. Flow Depth=0.47' Max Vel=3.51 fps Inflow=1.47 cfs 0.100 af
15.0" Round Pipe n=0.012 L=30.0' S=0.0050 '/' Capacity=4.95 cfs Outflow=1.46 cfs 0.100 af

Reach R9: MH3-MH2 Avg. Flow Depth=1.38' Max Vel=2.31 fps Inflow=10.78 cfs 0.966 af
24.0" Round Pipe x 2.00 n=0.013 L=182.0' S=0.0008 '/' Capacity=12.99 cfs Outflow=10.59 cfs 0.966 af

Pond 2P: Upper Pond Peak Elev=824.08' Storage=201,403 cf Inflow=6.30 cfs 0.398 af
15.0" Round Culvert n=0.013 L=58.0' S=0.0145 '/' Outflow=0.00 cfs 0.000 af

Pond 13P: Lower Pond Peak Elev=820.65' Storage=1,019,591 cf Inflow=23.16 cfs 2.203 af
Primary=0.62 cfs 0.727 af Secondary=0.00 cfs 0.000 af Outflow=0.62 cfs 0.727 af

Pond 15P: Pretreatment Peak Elev=820.80' Storage=8,350 cf Inflow=2.41 cfs 0.192 af
Primary=0.00 cfs 0.000 af Secondary=0.00 cfs 0.000 af Outflow=0.00 cfs 0.000 af

Link 1L: Sum Inflow=2.04 cfs 0.872 af
Primary=2.04 cfs 0.872 af

Total Runoff Area = 46.029 ac Runoff Volume = 3.027 af Average Runoff Depth = 0.79"
78.05% Pervious = 35.927 ac 21.95% Impervious = 10.102 ac

Summary for Subcatchment Ws1: Watershed 1

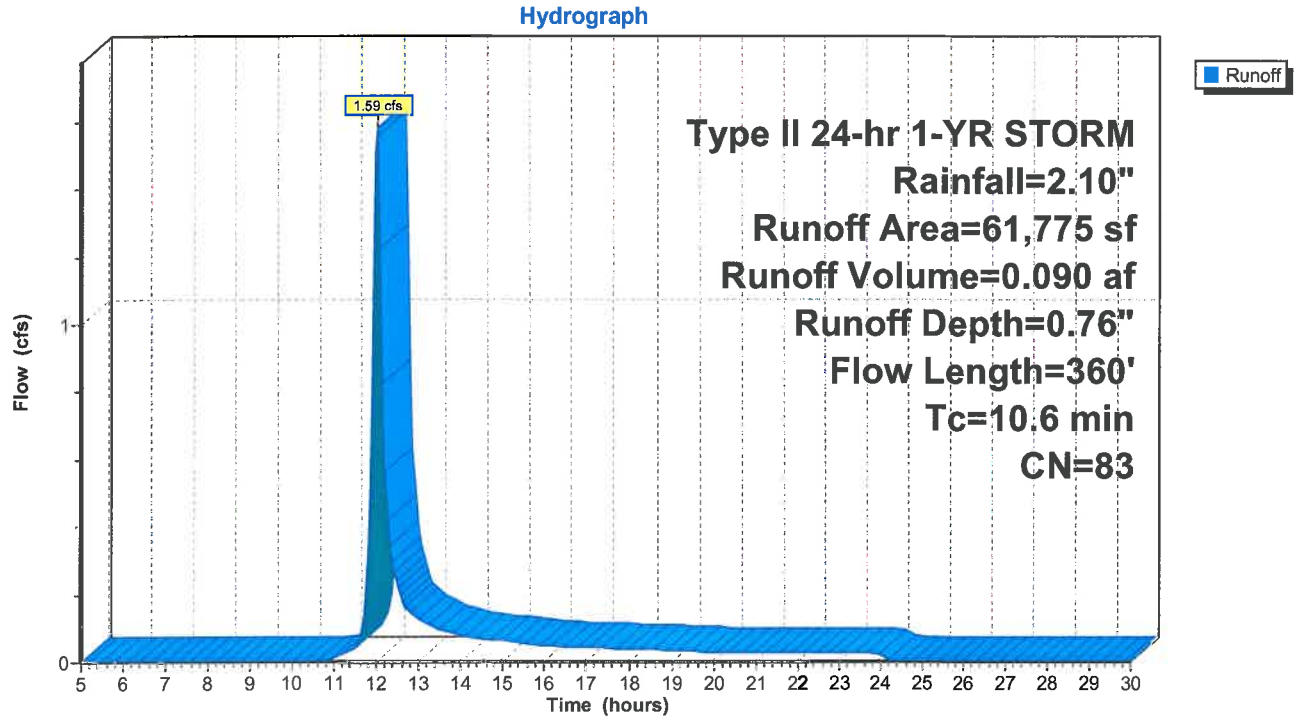
Runoff = 1.59 cfs @ 12.03 hrs, Volume= 0.090 af, Depth= 0.76"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type II 24-hr 1-YR STORM Rainfall=2.10"

Area (sf)	CN	Description
18,250	98	Paved parking, HSG D
21,763	80	>75% Grass cover, Good, HSG D
21,762	73	Brush, Good, HSG D
61,775	83	Weighted Average
43,525		70.46% Pervious Area
18,250		29.54% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.0	100	0.0250	0.18		**Sheet Flow, A-B** Range n= 0.130 P2= 2.50"
0.7	100	0.0200	2.28		**Shallow Concentrated Flow, B-C** Unpaved Kv= 16.1 fps
0.9	160	0.0200	2.87		**Shallow Concentrated Flow, C-D** Paved Kv= 20.3 fps
10.6	360	Total			

Subcatchment Ws1: Watershed 1



Summary for Subcatchment Ws10: To Upper Pond

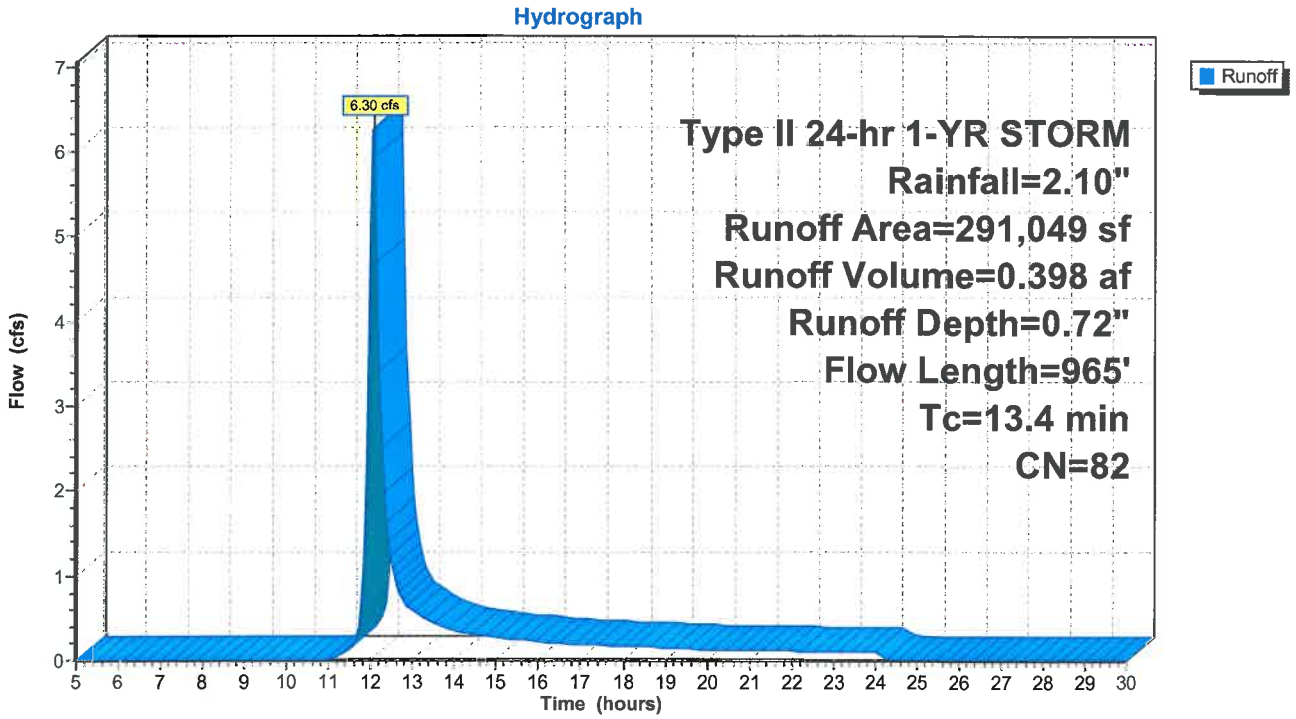
Runoff = 6.30 cfs @ 12.06 hrs, Volume= 0.398 af, Depth= 0.72"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type II 24-hr 1-YR STORM Rainfall=2.10"

Area (sf)	CN	Description
261,149	80	Pasture/grassland/range, Good, HSG D
29,900	98	Water Surface, HSG D
291,049	82	Weighted Average
261,149		89.73% Pervious Area
29,900		10.27% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.9	100	0.0200	0.17		**Sheet Flow, A-B** Range n= 0.130 P2= 2.50"
2.9	450	0.0300	2.60		**Shallow Concentrated Flow, B-C** Grassed Waterway Kv= 15.0 fps
0.3	320		16.05		**Lake or Reservoir, C-D** Mean Depth= 8.00'
0.3	95	0.0100	5.94	10.50	**Pipe Channel, D-E** 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.013
13.4	965	Total			

Subcatchment Ws10: To Upper Pond



Summary for Subcatchment Ws11: Watershed 11

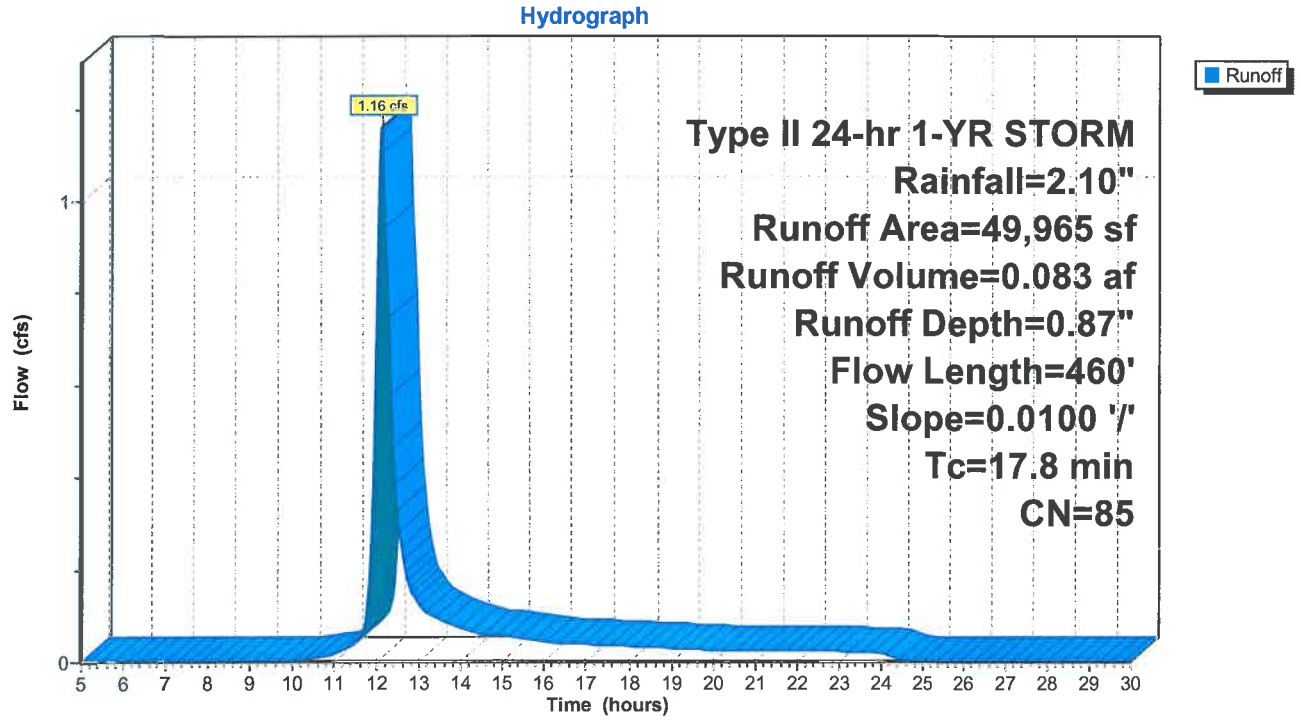
Runoff = 1.16 cfs @ 12.11 hrs, Volume= 0.083 af, Depth= 0.87"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type II 24-hr 1-YR STORM Rainfall=2.10"

Area (sf)	CN	Description
12,500	98	Paved parking, HSG D
37,465	80	>75% Grass cover, Good, HSG D
49,965	85	Weighted Average
37,465		74.98% Pervious Area
12,500		25.02% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.6	100	0.0100	0.11		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 2.50"
1.2	120	0.0100	1.61		**Shallow Concentrated Flow, B-C** Unpaved Kv= 16.1 fps
2.0	240	0.0100	2.03		**Shallow Concentrated Flow, C-D** Paved Kv= 20.3 fps
17.8	460	Total			

Subcatchment Ws11: Watershed 11



Summary for Subcatchment Ws12: Watershed 12

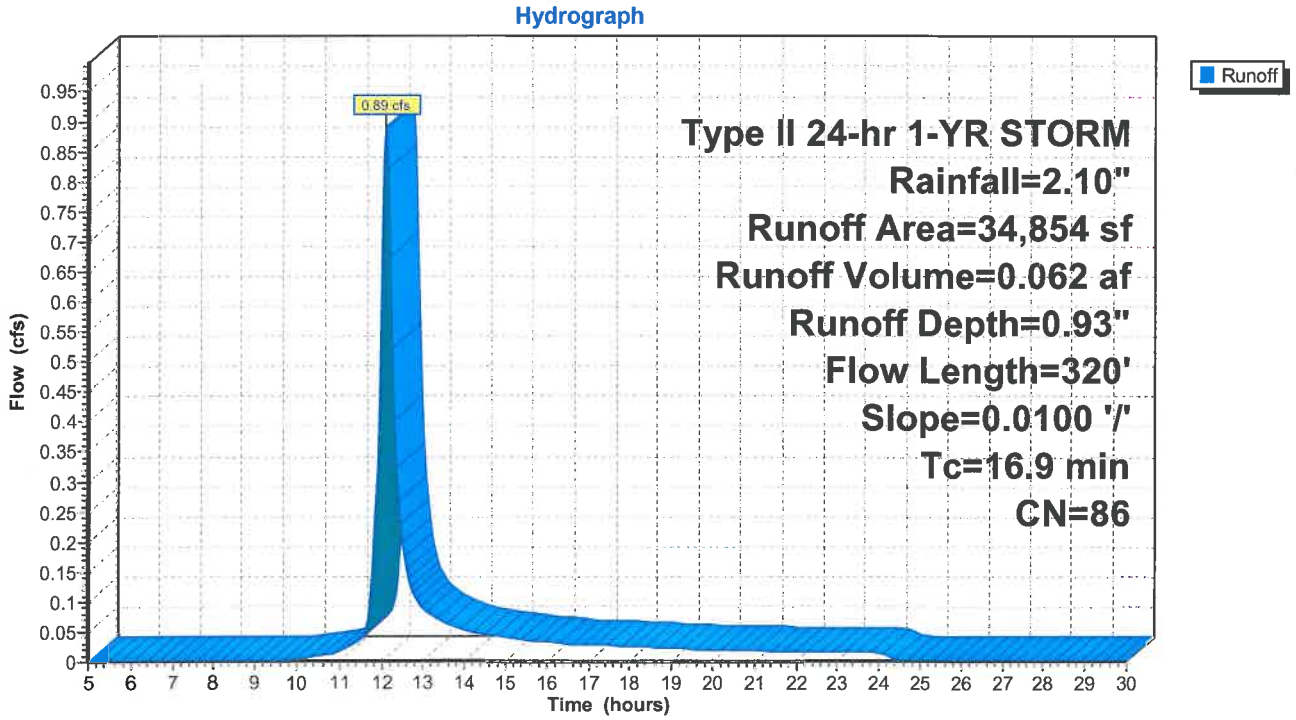
Runoff = 0.89 cfs @ 12.10 hrs, Volume= 0.062 af, Depth= 0.93"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type II 24-hr 1-YR STORM Rainfall=2.10"

Area (sf)	CN	Description
12,000	98	Paved parking, HSG D
22,854	80	>75% Grass cover, Good, HSG D
34,854	86	Weighted Average
22,854		65.57% Pervious Area
12,000		34.43% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.6	100	0.0100	0.11		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 2.50"
2.3	220	0.0100	1.61		**Shallow Concentrated Flow, B-C** Unpaved Kv= 16.1 fps
16.9	320	Total			

Subcatchment Ws12: Watershed 12



Summary for Subcatchment Ws13: Watershed 13

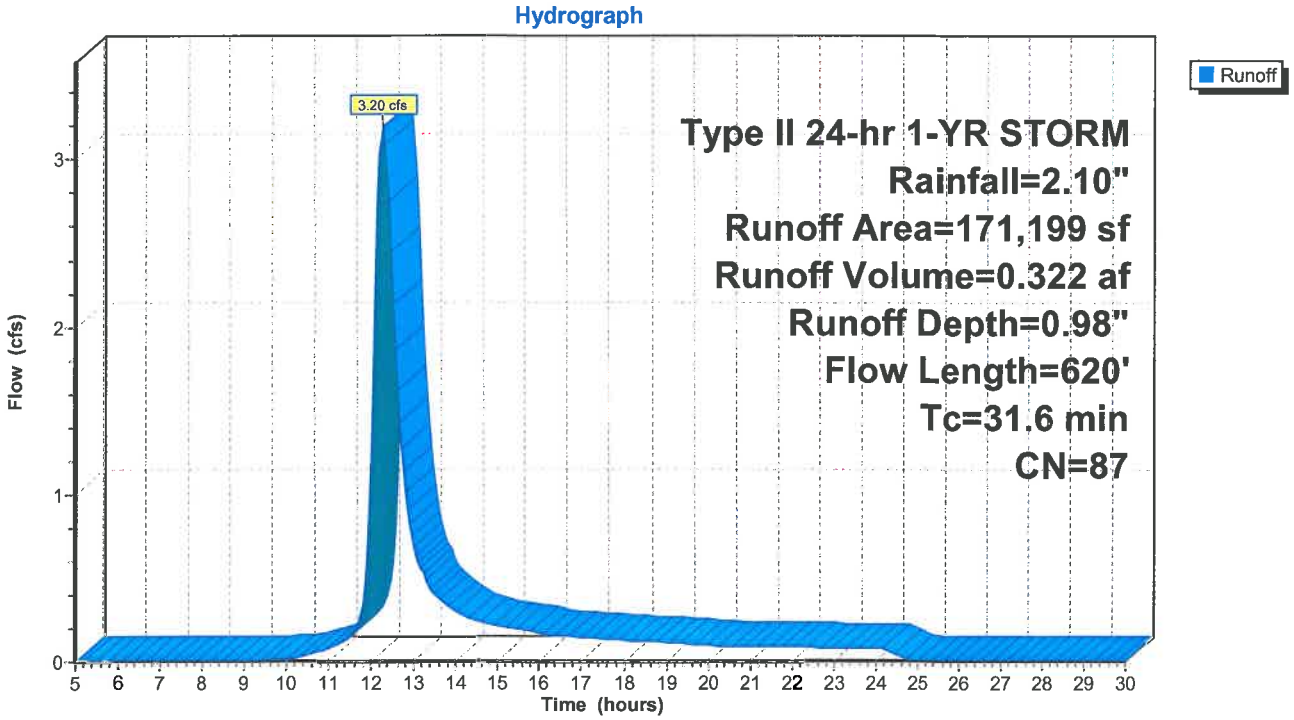
Runoff = 3.20 cfs @ 12.27 hrs, Volume= 0.322 af, Depth= 0.98"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type II 24-hr 1-YR STORM Rainfall=2.10"

Area (sf)	CN	Description
64,250	98	Water Surface, HSG D
106,949	80	>75% Grass cover, Good, HSG D
171,199	87	Weighted Average
106,949		62.47% Pervious Area
64,250		37.53% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.6	100	0.0100	0.11		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 2.50"
17.0	520	0.0010	0.51		**Shallow Concentrated Flow, B-C** Unpaved Kv= 16.1 fps
31.6	620	Total			

Subcatchment Ws13: Watershed 13



Summary for Subcatchment Ws14: Watershed 14

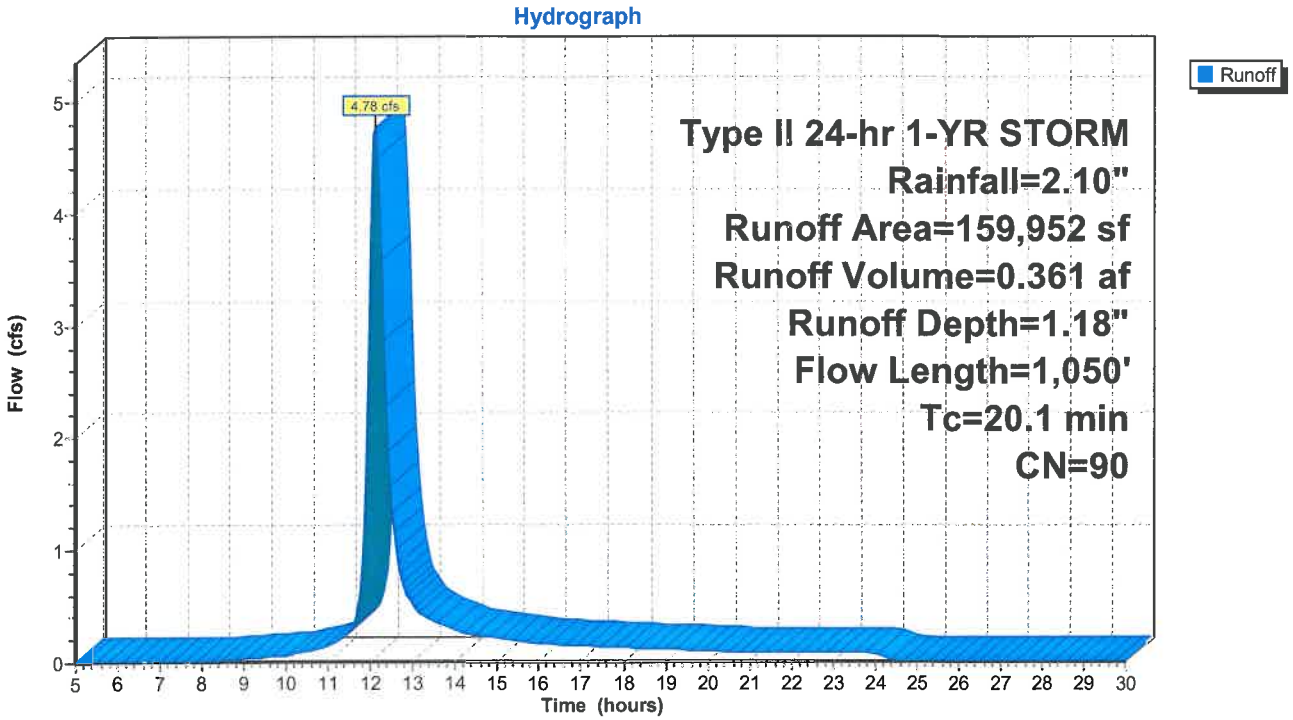
Runoff = 4.78 cfs @ 12.13 hrs, Volume= 0.361 af, Depth= 1.18"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type II 24-hr 1-YR STORM Rainfall=2.10"

Area (sf)	CN	Description
85,247	98	Paved parking, HSG D
74,705	80	>75% Grass cover, Good, HSG D
159,952	90	Weighted Average
74,705		46.70% Pervious Area
85,247		53.30% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.6	100	0.0100	0.11		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 2.50"
5.5	950	0.0200	2.87		**Shallow Concentrated Flow, B-C** Paved Kv= 20.3 fps
20.1	1,050	Total			

Subcatchment Ws14: Watershed 14



Summary for Subcatchment Ws15: Watershed 15

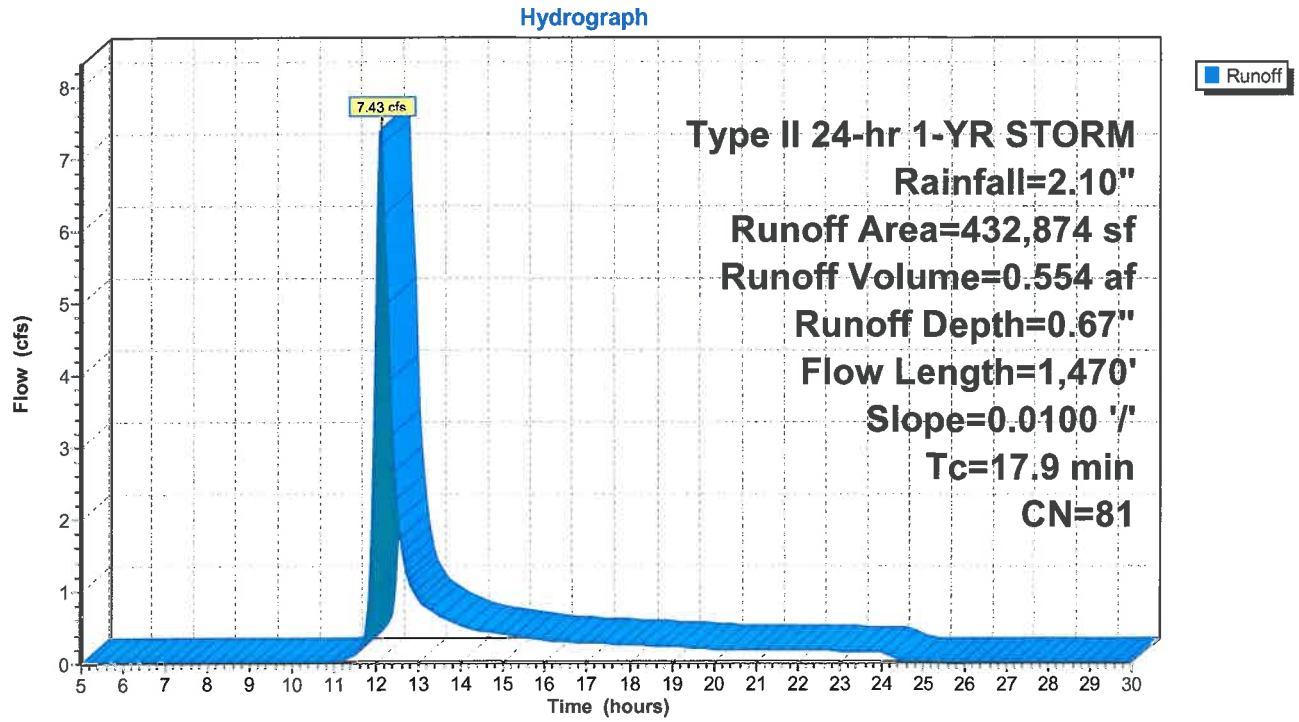
Runoff = 7.43 cfs @ 12.12 hrs, Volume= 0.554 af, Depth= 0.67"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type II 24-hr 1-YR STORM Rainfall=2.10"

Area (sf)	CN	Description
75,600	98	Water Surface, HSG D
357,274	78	Meadow, non-grazed, HSG D
432,874	81	Weighted Average
357,274		82.54% Pervious Area
75,600		17.46% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.0	100	0.0100	0.13		**Sheet Flow, A-B** Range n= 0.130 P2= 2.50"
3.2	310	0.0100	1.61		**Shallow Concentrated Flow, B-C** Unpaved Kv= 16.1 fps
1.3	650	0.0100	8.16	195.95	**Channel Flow, C-D** Area= 24.0 sf Perim= 9.0' r= 2.67' n= 0.035
0.4	410		17.94		**Lake or Reservoir, D-E** Mean Depth= 10.00'
17.9	1,470	Total			

Subcatchment Ws15: Watershed 15



Summary for Subcatchment WS16: Watershed 16

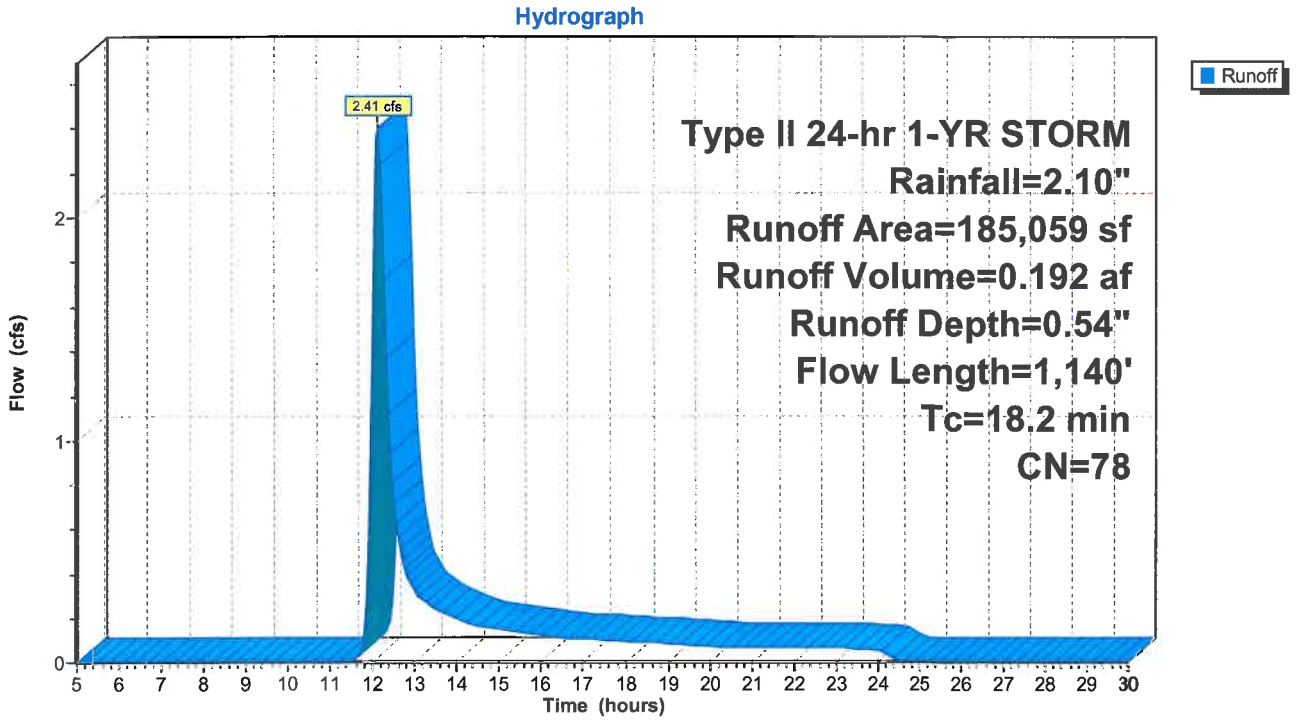
Runoff = 2.41 cfs @ 12.13 hrs, Volume= 0.192 af, Depth= 0.54"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type II 24-hr 1-YR STORM Rainfall=2.10"

Area (sf)	CN	Description
185,059	78	Meadow, non-grazed, HSG D
185,059		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.0	100	0.0100	0.13		**Sheet Flow, A-B** Range n= 0.130 P2= 2.50"
4.3	590	0.0200	2.28		**Shallow Concentrated Flow, B-C** Unpaved Kv= 16.1 fps
0.9	450		8.02		**Lake or Reservoir, C-D** Mean Depth= 2.00'
18.2	1,140	Total			

Subcatchment WS16: Watershed 16



Summary for Subcatchment Ws2: Watershed 2

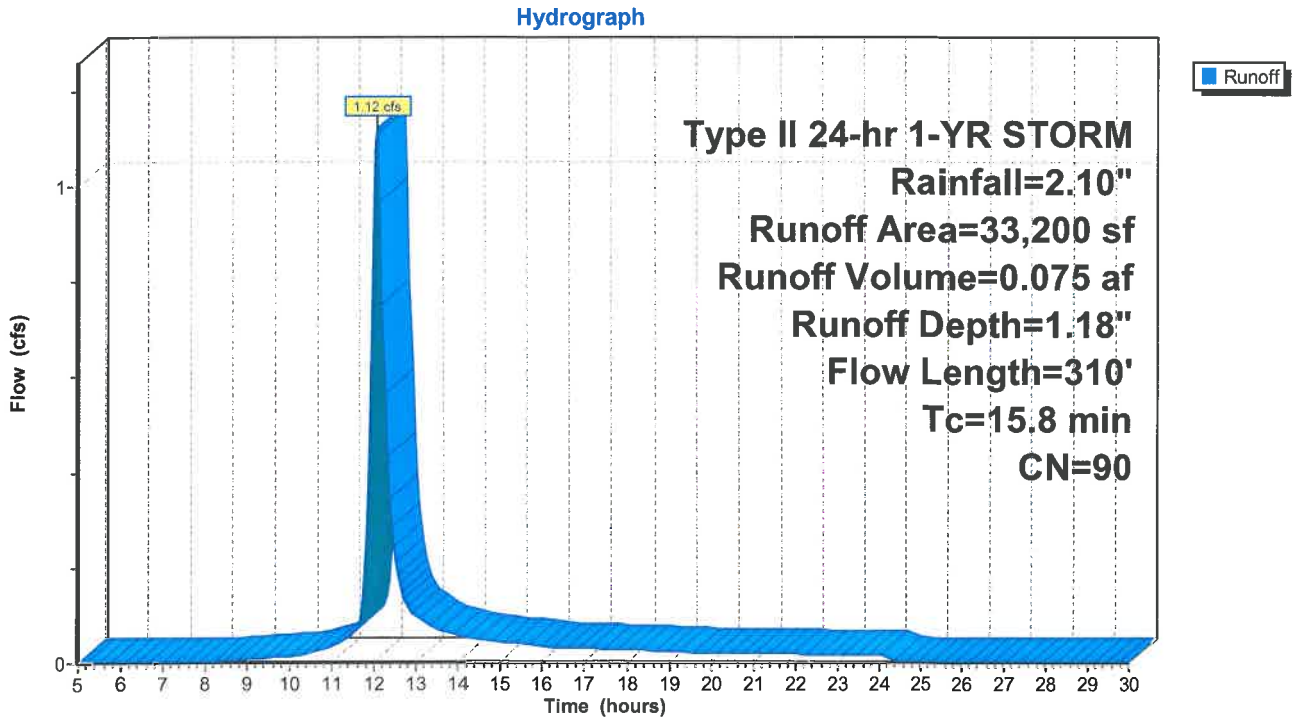
Runoff = 1.12 cfs @ 12.08 hrs, Volume= 0.075 af, Depth= 1.18"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type II 24-hr 1-YR STORM Rainfall=2.10"

Area (sf)	CN	Description
14,950	80	>75% Grass cover, Good, HSG D
18,250	98	Paved parking, HSG D
33,200	90	Weighted Average
14,950		45.03% Pervious Area
18,250		54.97% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.6	100	0.0100	0.11		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 2.50"
1.2	210	0.0200	2.87		**Shallow Concentrated Flow, B-C** Paved Kv= 20.3 fps
15.8	310	Total			

Subcatchment Ws2: Watershed 2



Summary for Subcatchment Ws3: Watershed 3

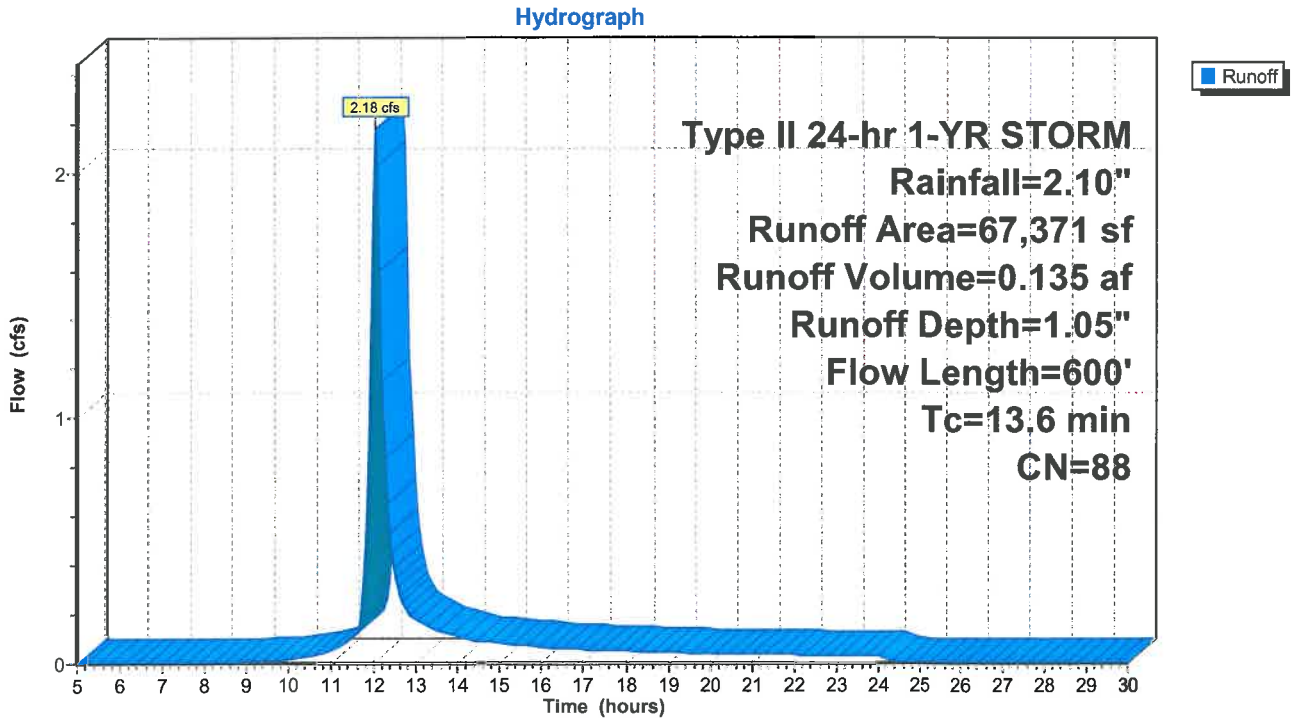
Runoff = 2.18 cfs @ 12.06 hrs, Volume= 0.135 af, Depth= 1.05"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type II 24-hr 1-YR STORM Rainfall=2.10"

Area (sf)	CN	Description
31,750	98	Paved parking, HSG D
35,621	80	>75% Grass cover, Good, HSG D
67,371	88	Weighted Average
35,621		52.87% Pervious Area
31,750		47.13% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.1	100	0.0200	0.15		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 2.50"
0.4	50	0.0200	2.28		**Shallow Concentrated Flow, B-C** Unpaved Kv= 16.1 fps
2.1	450	0.0300	3.52		**Shallow Concentrated Flow, C-D** Paved Kv= 20.3 fps
13.6	600	Total			

Subcatchment Ws3: Watershed 3



Summary for Subcatchment Ws4: Watershed 4

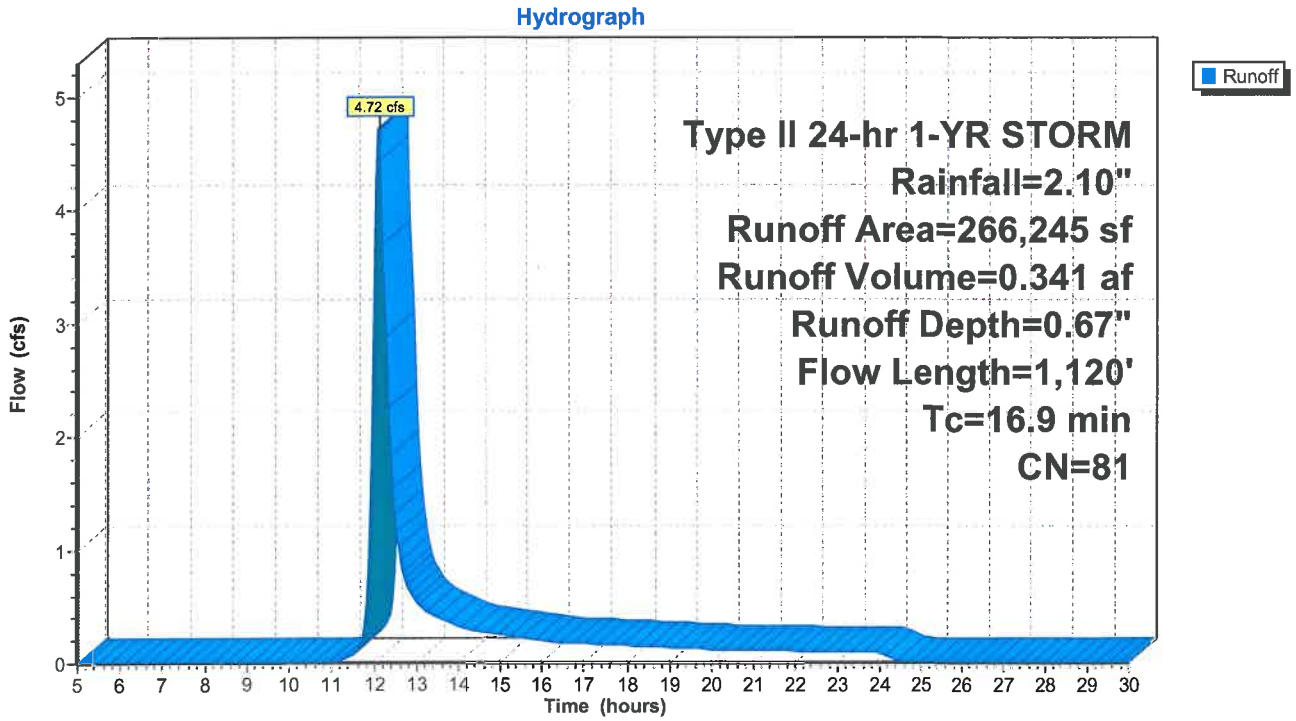
Runoff = 4.72 cfs @ 12.11 hrs, Volume= 0.341 af, Depth= 0.67"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type II 24-hr 1-YR STORM Rainfall=2.10"

Area (sf)	CN	Description
10,420	98	Paved parking, HSG D
157,500	80	Pasture/grassland/range, Good, HSG D
98,325	80	>75% Grass cover, Good, HSG D
266,245	81	Weighted Average
255,825		96.09% Pervious Area
10,420		3.91% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.9	100	0.0200	0.17		**Sheet Flow, A-B** Range n= 0.130 P2= 2.50"
3.2	530	0.0300	2.79		**Shallow Concentrated Flow, B-C** Unpaved Kv= 16.1 fps
3.8	490	0.0200	2.12		**Shallow Concentrated Flow, C-D** Grassed Waterway Kv= 15.0 fps
16.9	1,120	Total			

Subcatchment Ws4: Watershed 4



Summary for Subcatchment Ws5: Watershed 5

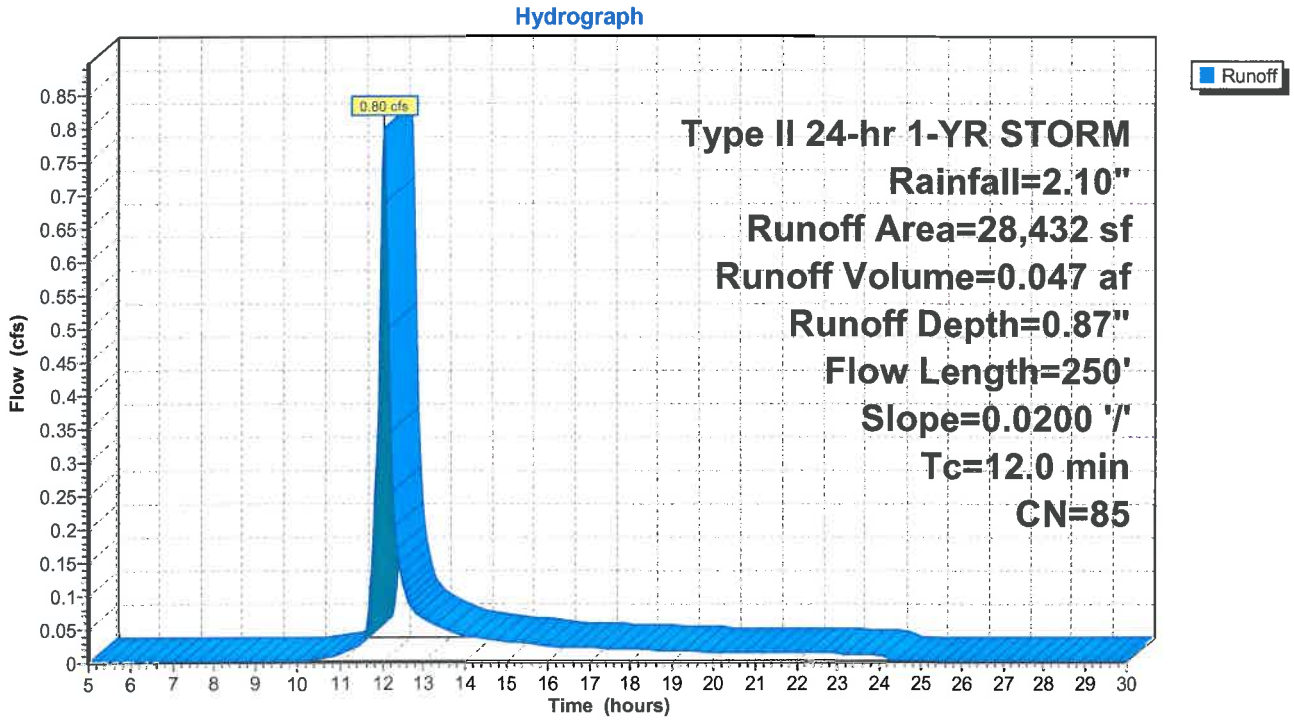
Runoff = 0.80 cfs @ 12.04 hrs, Volume= 0.047 af, Depth= 0.87"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type II 24-hr 1-YR STORM Rainfall=2.10"

Area (sf)	CN	Description
8,300	98	Paved parking, HSG D
20,132	80	>75% Grass cover, Good, HSG D
28,432	85	Weighted Average
20,132		70.81% Pervious Area
8,300		29.19% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.1	100	0.0200	0.15		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 2.50"
0.9	150	0.0200	2.87		**Shallow Concentrated Flow, B-C** Paved Kv= 20.3 fps
12.0	250	Total			

Subcatchment Ws5: Watershed 5



Summary for Subcatchment Ws6: Watershed 6

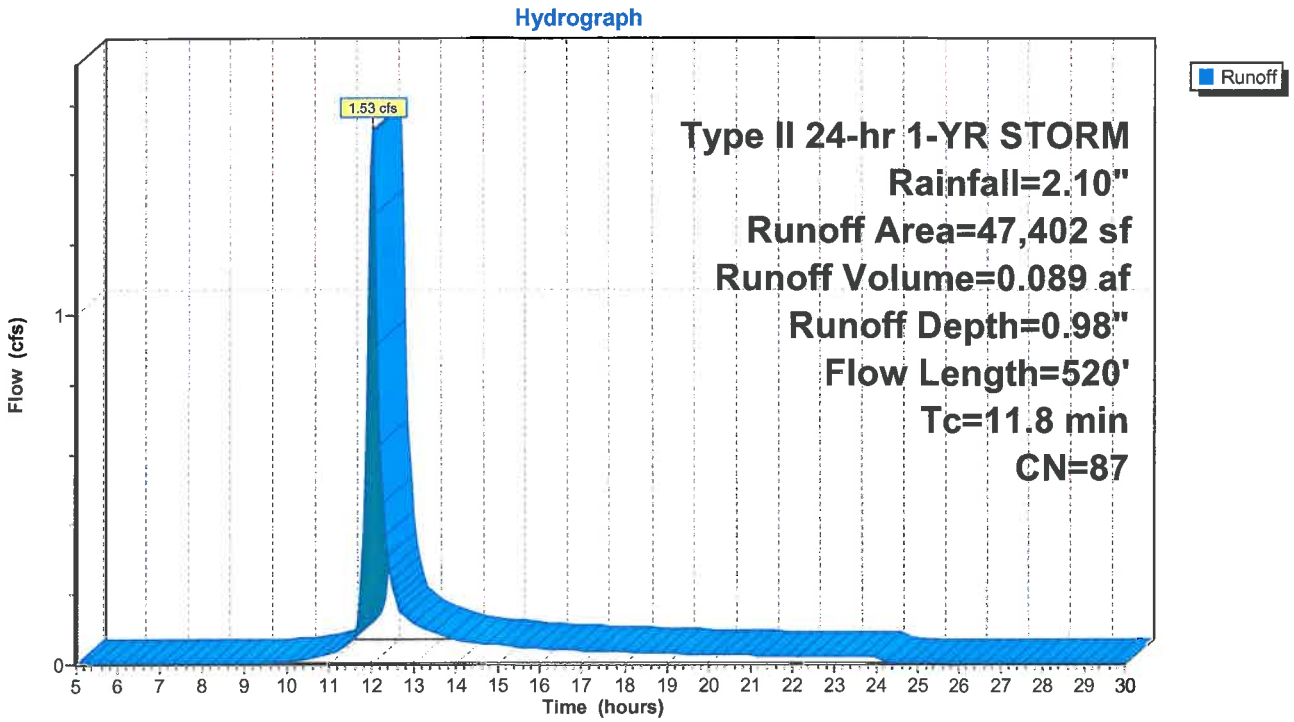
Runoff = 1.53 cfs @ 12.04 hrs, Volume= 0.089 af, Depth= 0.98"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type II 24-hr 1-YR STORM Rainfall=2.10"

Area (sf)	CN	Description
18,250	98	Paved parking, HSG D
29,152	80	>75% Grass cover, Good, HSG D
47,402	87	Weighted Average
29,152		61.50% Pervious Area
18,250		38.50% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.4	100	0.0300	0.18		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 2.50"
0.7	120	0.0300	2.79		**Shallow Concentrated Flow, B-C** Unpaved Kv= 16.1 fps
1.7	300	0.0200	2.87		**Shallow Concentrated Flow, C-D** Paved Kv= 20.3 fps
11.8	520	Total			

Subcatchment Ws6: Watershed 6



Summary for Subcatchment Ws7: Watershed 7

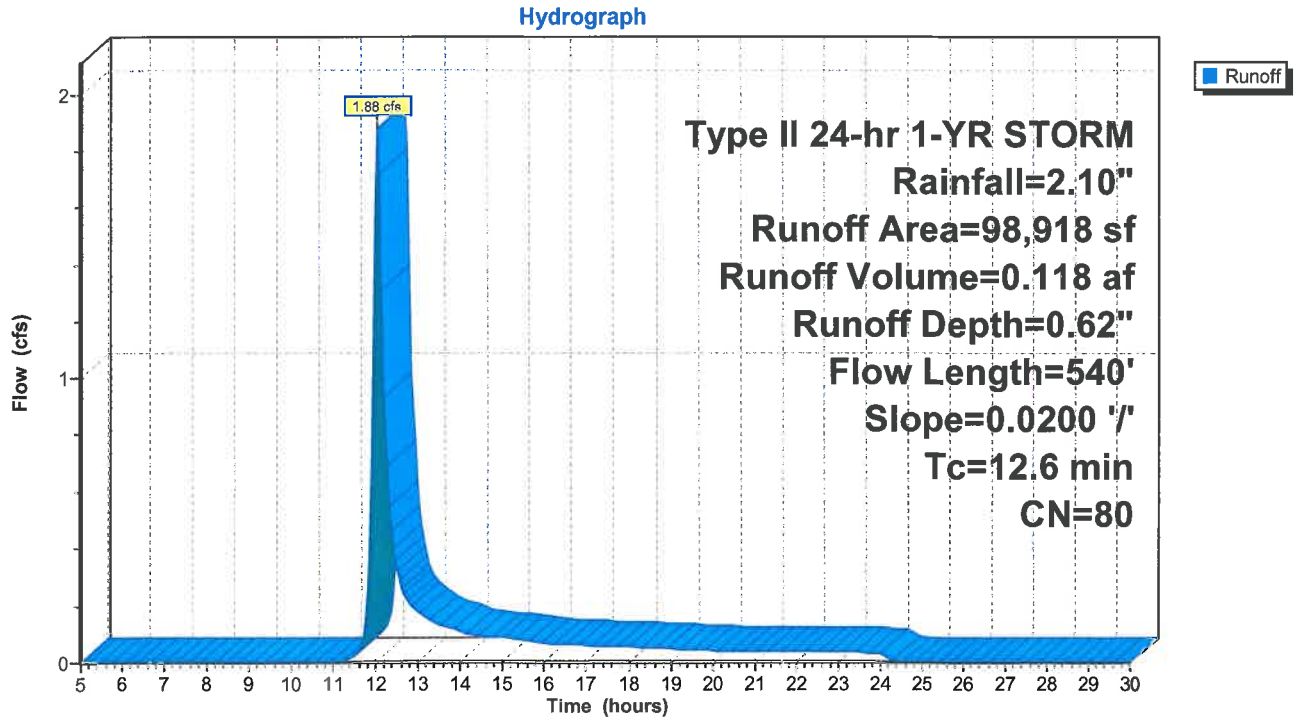
Runoff = 1.88 cfs @ 12.06 hrs, Volume= 0.118 af, Depth= 0.62"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type II 24-hr 1-YR STORM Rainfall=2.10"

Area (sf)	CN	Description
18,250	98	Paved parking, HSG D
40,668	80	>75% Grass cover, Good, HSG D
40,000	73	Brush, Good, HSG D
98,918	80	Weighted Average
80,668		81.55% Pervious Area
18,250		18.45% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.9	100	0.0200	0.17		**Sheet Flow, A-B** Range n= 0.130 P2= 2.50"
1.0	140	0.0200	2.28		**Shallow Concentrated Flow, B-C** Unpaved Kv= 16.1 fps
1.7	300	0.0200	2.87		**Shallow Concentrated Flow, C-D** Paved Kv= 20.3 fps
12.6	540	Total			

Subcatchment Ws7: Watershed 7



Summary for Subcatchment Ws8: Watershed 8

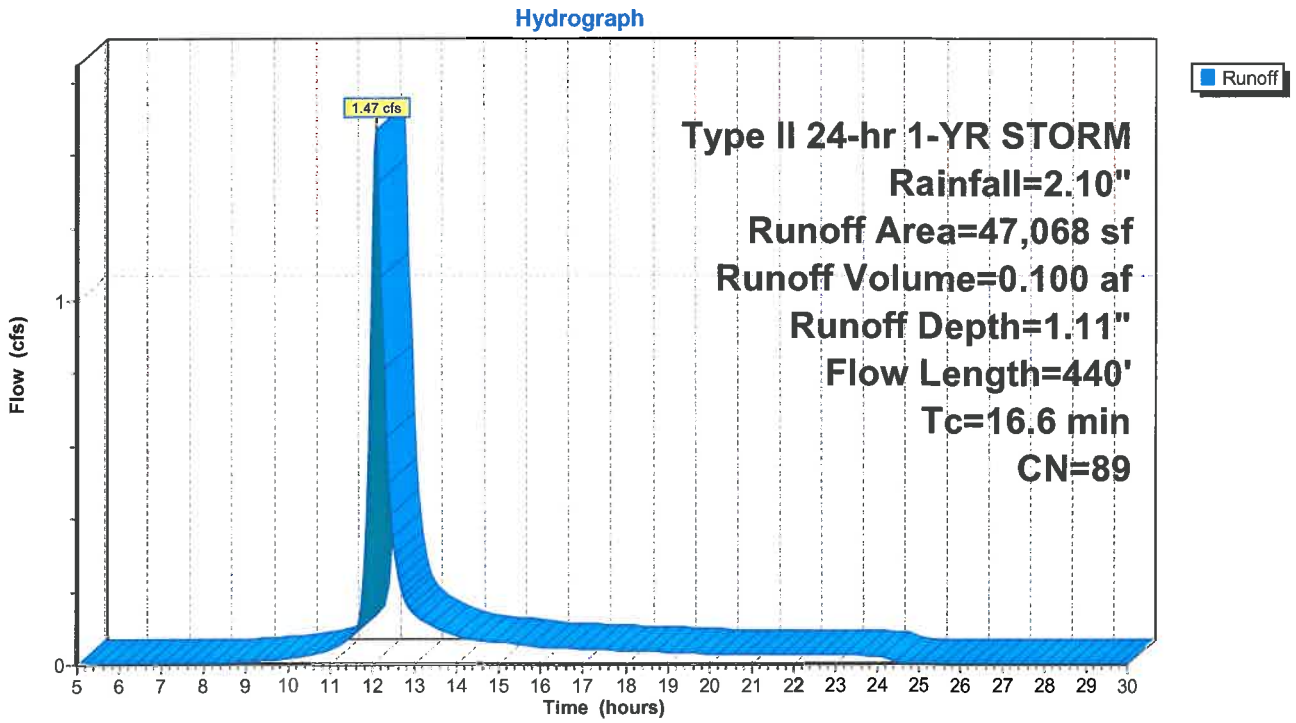
Runoff = 1.47 cfs @ 12.09 hrs, Volume= 0.100 af, Depth= 1.11"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type II 24-hr 1-YR STORM Rainfall=2.10"

Area (sf)	CN	Description
24,250	98	Paved parking, HSG D
22,818	80	>75% Grass cover, Good, HSG D
47,068	89	Weighted Average
22,818		48.48% Pervious Area
24,250		51.52% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.6	100	0.0100	0.11		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 2.50"
2.0	340	0.0200	2.87		**Shallow Concentrated Flow, B-C** Paved Kv= 20.3 fps
16.6	440	Total			

Subcatchment Ws8: Watershed 8



Summary for Subcatchment Ws9: Watershed 9

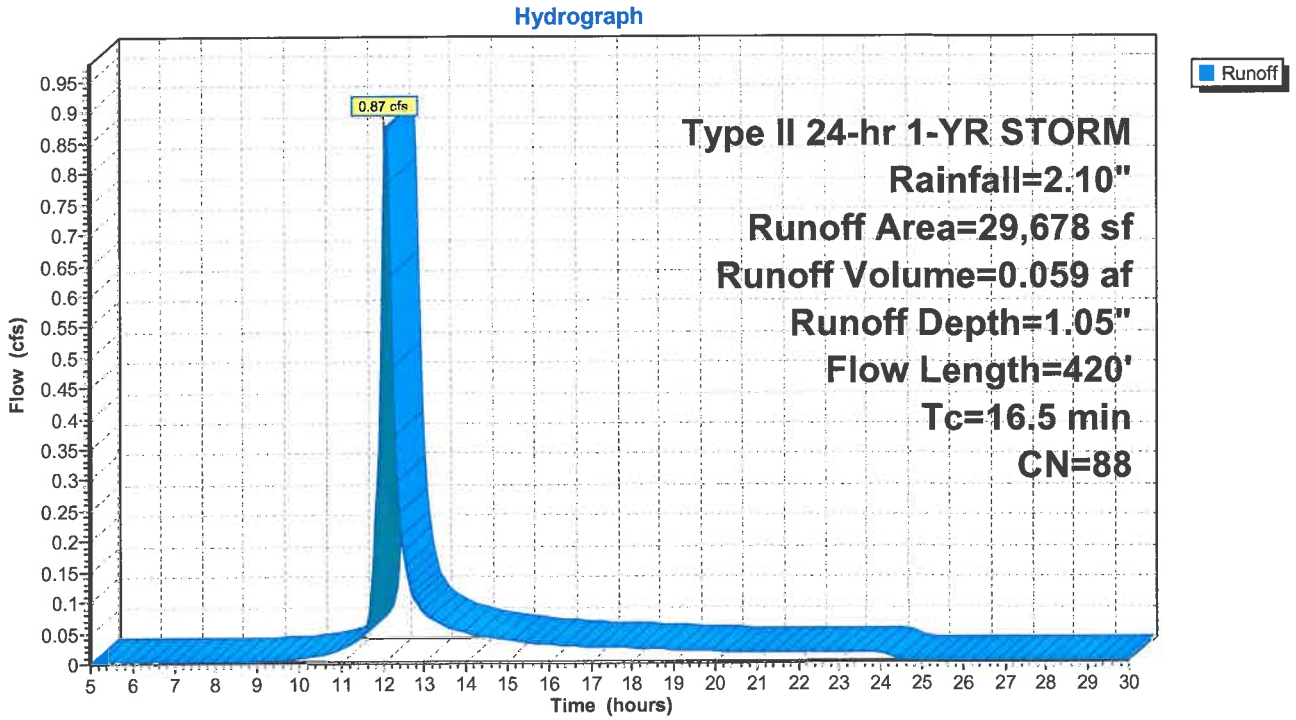
Runoff = 0.87 cfs @ 12.09 hrs, Volume= 0.059 af, Depth= 1.05"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type II 24-hr 1-YR STORM Rainfall=2.10"

Area (sf)	CN	Description
12,840	98	Paved parking, HSG D
16,838	80	>75% Grass cover, Good, HSG D
29,678	88	Weighted Average
16,838		56.74% Pervious Area
12,840		43.26% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.6	100	0.0100	0.11		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 2.50"
1.9	320	0.0200	2.87		**Shallow Concentrated Flow, B-C** Paved Kv= 20.3 fps
16.5	420	Total			

Subcatchment Ws9: Watershed 9



Summary for Reach R1: CB 18-17

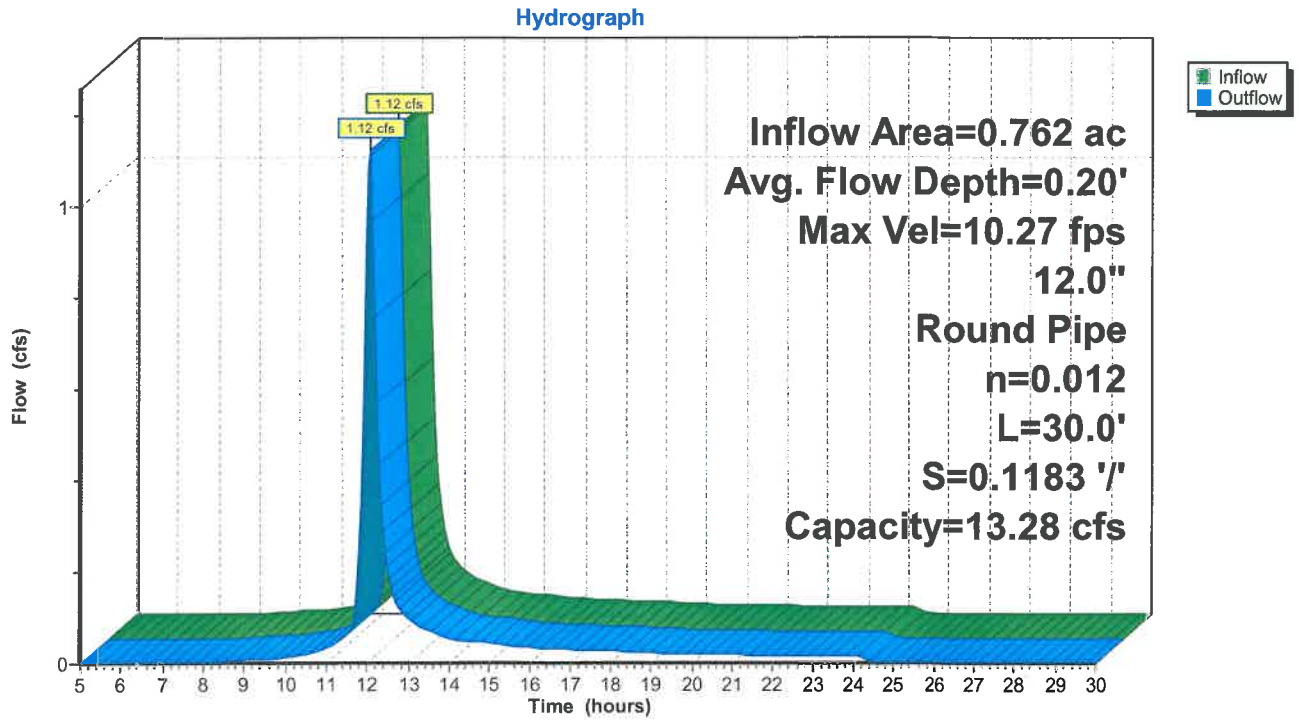
Inflow Area = 0.762 ac, 54.97% Impervious, Inflow Depth = 1.18" for 1-YR STORM event
Inflow = 1.12 cfs @ 12.08 hrs, Volume= 0.075 af
Outflow = 1.12 cfs @ 12.08 hrs, Volume= 0.075 af, Atten= 0%, Lag= 0.1 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 10.27 fps, Min. Travel Time= 0.0 min
Avg. Velocity = 3.42 fps, Avg. Travel Time= 0.1 min

Peak Storage= 3 cf @ 12.08 hrs
Average Depth at Peak Storage= 0.20'
Bank-Full Depth= 1.00', Capacity at Bank-Full= 13.28 cfs

12.0" Round Pipe
n= 0.012 Concrete pipe, finished
Length= 30.0' Slope= 0.1183 '/'
Inlet Invert= 831.62', Outlet Invert= 828.07'

Reach R1: CB 18-17



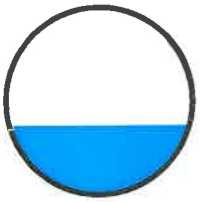
Summary for Reach R10: CB1 to CB 2

Inflow Area = 1.147 ac, 25.02% Impervious, Inflow Depth = 0.87" for 1-YR STORM event
Inflow = 1.16 cfs @ 12.11 hrs, Volume= 0.083 af
Outflow = 1.15 cfs @ 12.12 hrs, Volume= 0.083 af, Atten= 1%, Lag= 0.6 min

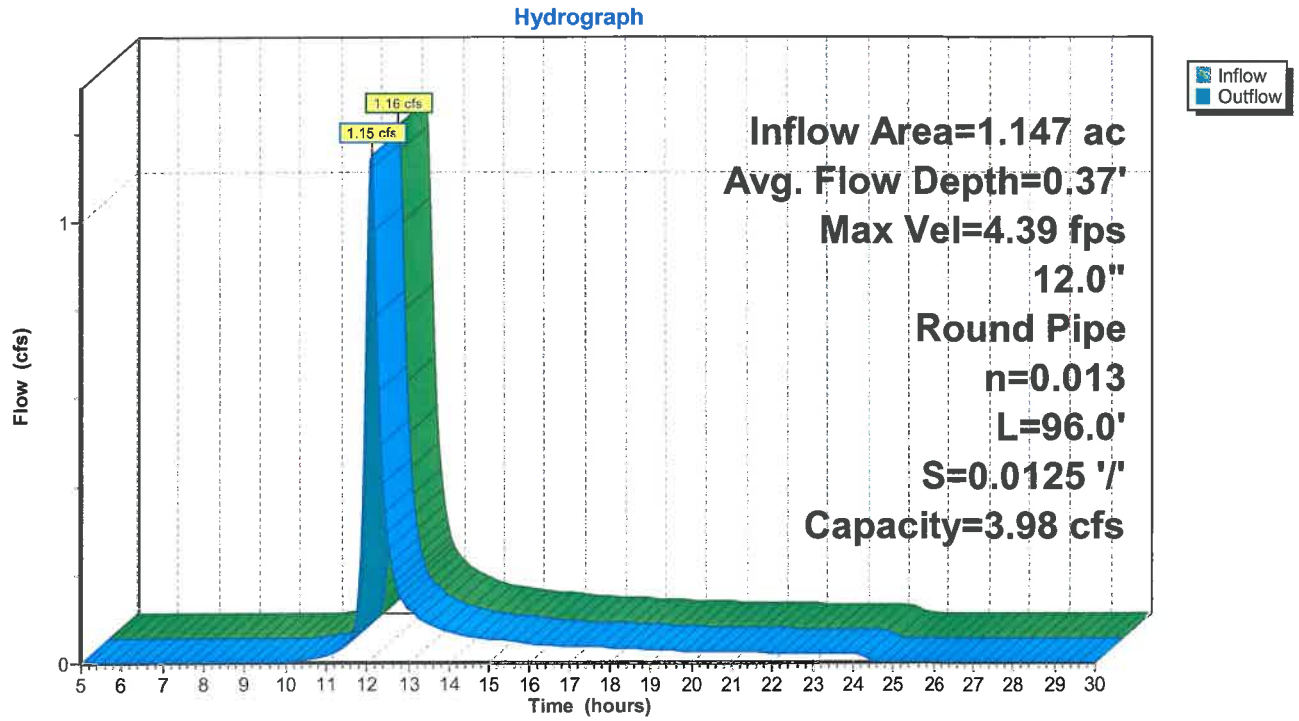
Routing by Stor-Ind+Trans method, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 4.39 fps, Min. Travel Time= 0.4 min
Avg. Velocity = 1.59 fps, Avg. Travel Time= 1.0 min

Peak Storage= 25 cf @ 12.11 hrs
Average Depth at Peak Storage= 0.37'
Bank-Full Depth= 1.00', Capacity at Bank-Full= 3.98 cfs

12.0" Round Pipe
n= 0.013 Corrugated PE, smooth interior
Length= 96.0' Slope= 0.0125 '/'
Inlet Invert= 817.93', Outlet Invert= 816.73'



Reach R10: CB1 to CB 2



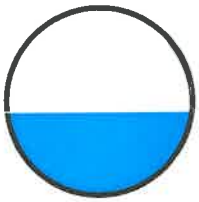
Summary for Reach R11: Upper Pond to MH2

Inflow Area = 10.612 ac, 20.37% Impervious, Inflow Depth = 0.36" for 1-YR STORM event
Inflow = 3.20 cfs @ 12.27 hrs, Volume= 0.322 af
Outflow = 3.16 cfs @ 12.32 hrs, Volume= 0.322 af, Atten= 1%, Lag= 3.2 min

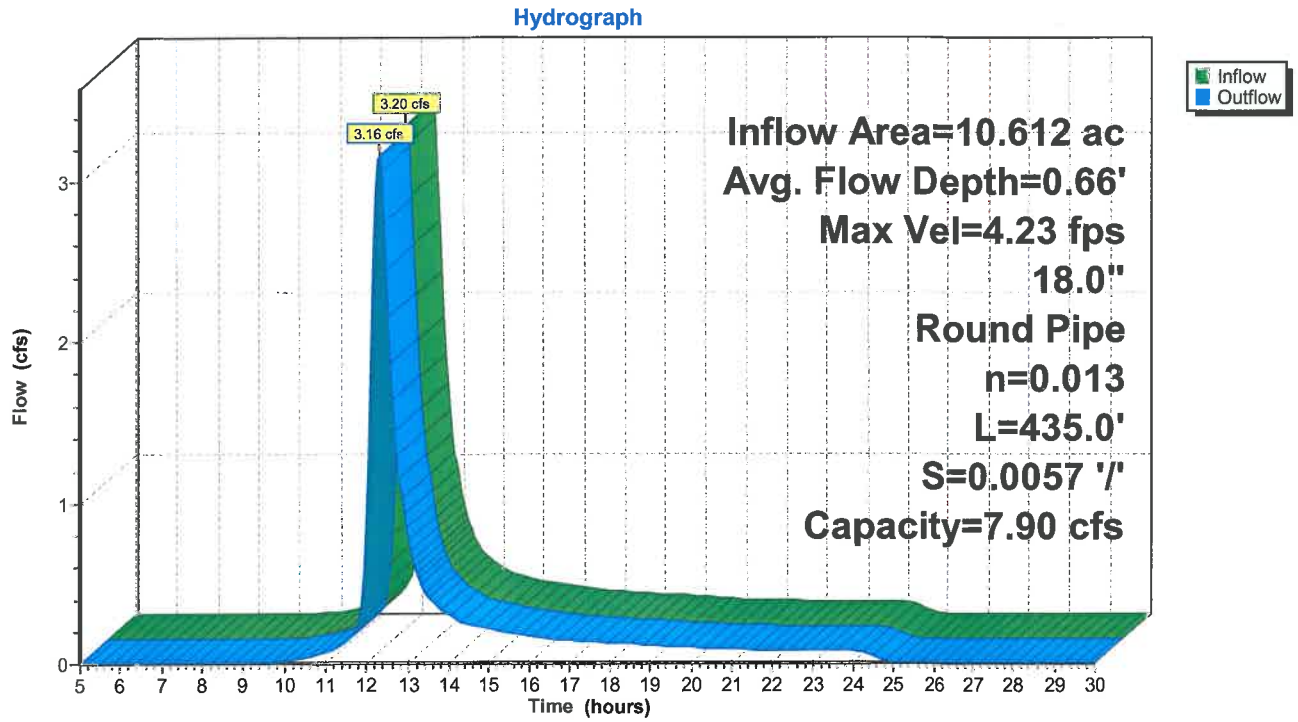
Routing by Stor-Ind+Trans method, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 4.23 fps, Min. Travel Time= 1.7 min
Avg. Velocity = 1.58 fps, Avg. Travel Time= 4.6 min

Peak Storage= 327 cf @ 12.29 hrs
Average Depth at Peak Storage= 0.66'
Bank-Full Depth= 1.50', Capacity at Bank-Full= 7.90 cfs

18.0" Round Pipe
n= 0.013 Corrugated PE, smooth interior
Length= 435.0' Slope= 0.0057 '/'
Inlet Invert= 823.72', Outlet Invert= 821.26'



Reach R11: Upper Pond to MH2



Summary for Reach R12: MH2 to Pond

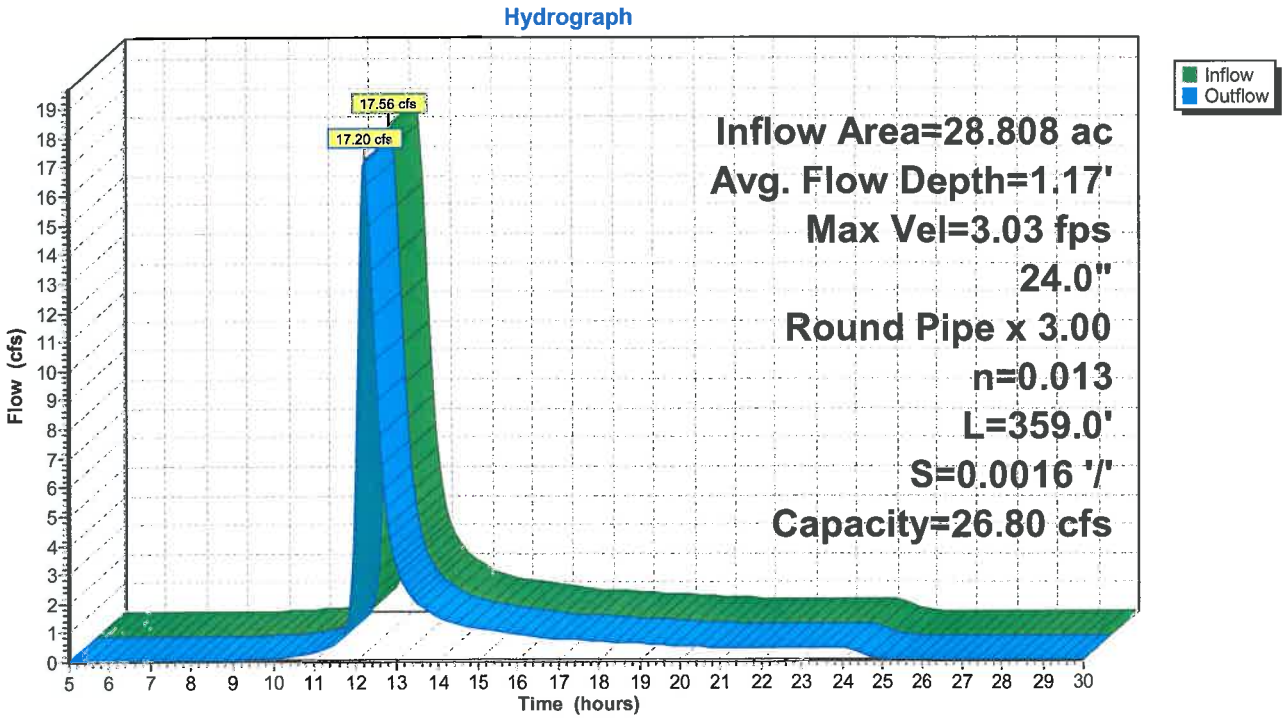
Inflow Area = 28.808 ac, 25.64% Impervious, Inflow Depth = 0.69" for 1-YR STORM event
Inflow = 17.56 cfs @ 12.17 hrs, Volume= 1.649 af
Outflow = 17.20 cfs @ 12.24 hrs, Volume= 1.649 af, Atten= 2%, Lag= 3.9 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 3.03 fps, Min. Travel Time= 2.0 min
Avg. Velocity = 0.96 fps, Avg. Travel Time= 6.3 min

Peak Storage= 2,060 cf @ 12.20 hrs
Average Depth at Peak Storage= 1.17'
Bank-Full Depth= 2.00', Capacity at Bank-Full= 26.80 cfs

A factor of 3.00 has been applied to the storage and discharge capacity
24.0" Round Pipe
n= 0.013 Corrugated PE, smooth interior
Length= 359.0' Slope= 0.0016 '/'
Inlet Invert= 821.06', Outlet Invert= 820.50'

Reach R12: MH2 to Pond



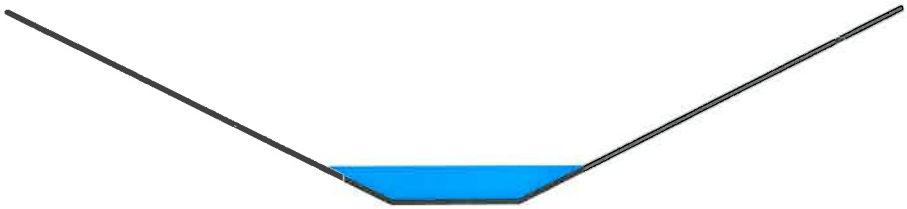
Summary for Reach R13: Swale

Inflow Area = 6.112 ac, 3.91% Impervious, Inflow Depth = 0.67" for 1-YR STORM event
Inflow = 4.72 cfs @ 12.11 hrs, Volume= 0.341 af
Outflow = 4.07 cfs @ 12.28 hrs, Volume= 0.341 af, Atten= 14%, Lag= 10.6 min

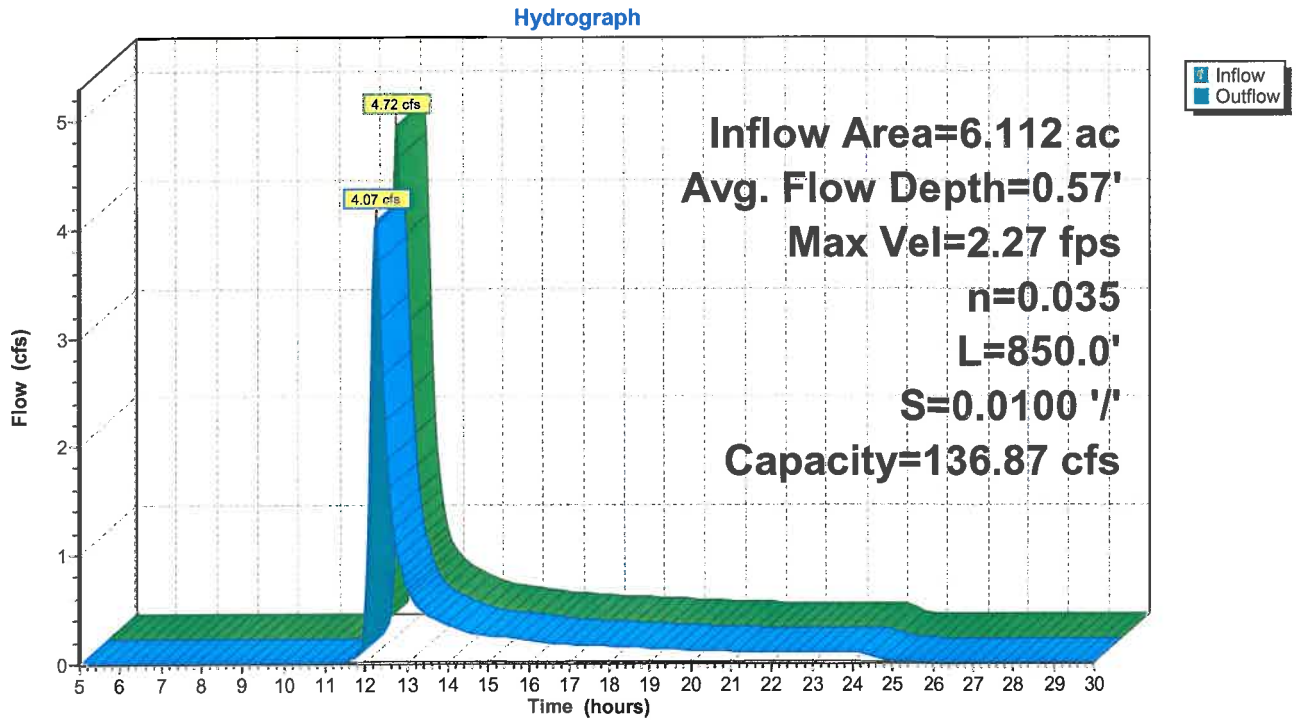
Routing by Stor-Ind+Trans method, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 2.27 fps, Min. Travel Time= 6.2 min
Avg. Velocity = 0.76 fps, Avg. Travel Time= 18.7 min

Peak Storage= 1,524 cf @ 12.18 hrs
Average Depth at Peak Storage= 0.57'
Bank-Full Depth= 3.00', Capacity at Bank-Full= 136.87 cfs

2.00' x 3.00' deep channel, n= 0.035 Earth, dense weeds
Side Slope Z-value= 2.0 '/' Top Width= 14.00'
Length= 850.0' Slope= 0.0100 '/'
Inlet Invert= 0.00', Outlet Invert= -8.50'



Reach R13: Swale



Summary for Reach R2: CB 17- MH 7

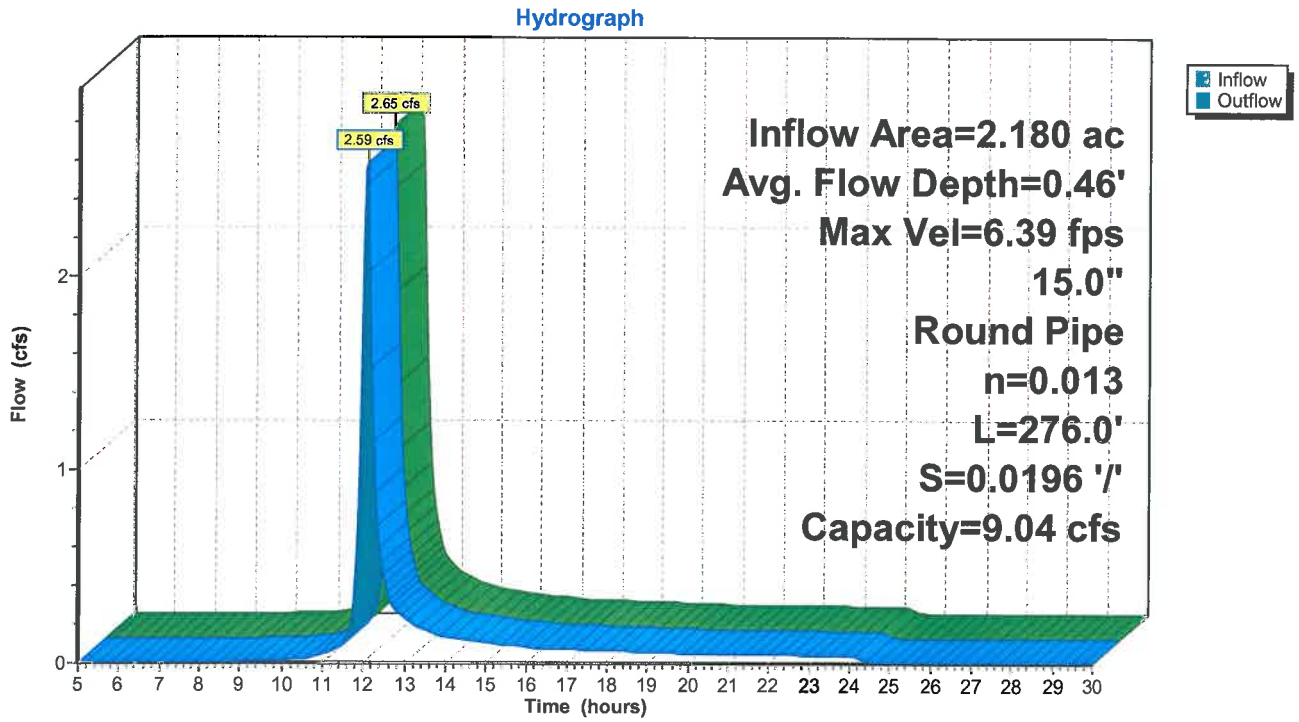
Inflow Area = 2.180 ac, 38.43% Impervious, Inflow Depth = 0.91" for 1-YR STORM event
Inflow = 2.65 cfs @ 12.05 hrs, Volume= 0.165 af
Outflow = 2.59 cfs @ 12.07 hrs, Volume= 0.165 af, Atten= 2%, Lag= 1.2 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 6.39 fps, Min. Travel Time= 0.7 min
Avg. Velocity = 2.06 fps, Avg. Travel Time= 2.2 min

Peak Storage= 114 cf @ 12.05 hrs
Average Depth at Peak Storage= 0.46'
Bank-Full Depth= 1.25', Capacity at Bank-Full= 9.04 cfs

15.0" Round Pipe
n= 0.013 Corrugated PE, smooth interior
Length= 276.0' Slope= 0.0196 '/'
Inlet Invert= 827.97', Outlet Invert= 822.57'

Reach R2: CB 17- MH 7



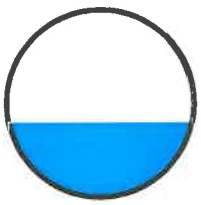
Summary for Reach R3: MH7-MH3

Inflow Area = 9.839 ac, 18.36% Impervious, Inflow Depth = 0.78" for 1-YR STORM event
Inflow = 6.15 cfs @ 12.14 hrs, Volume= 0.641 af
Outflow = 6.15 cfs @ 12.16 hrs, Volume= 0.641 af, Atten= 0%, Lag= 1.4 min

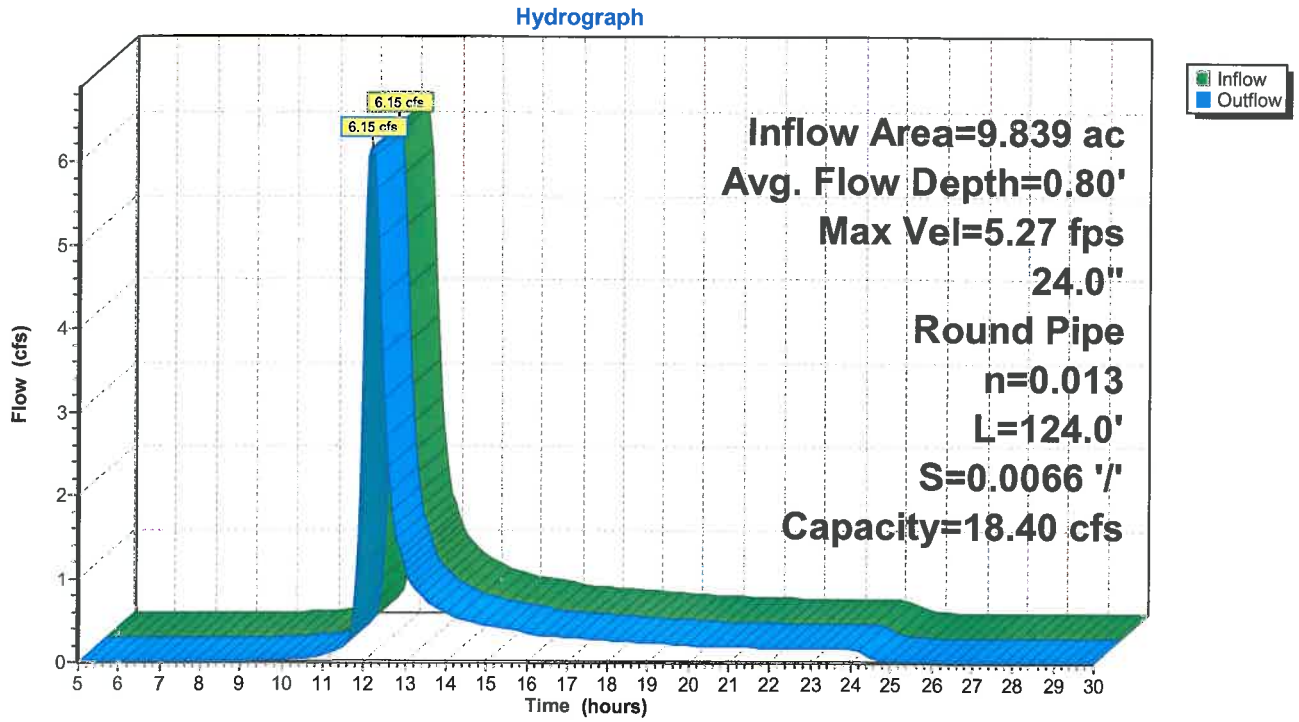
Routing by Stor-Ind+Trans method, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 5.27 fps, Min. Travel Time= 0.4 min
Avg. Velocity = 1.76 fps, Avg. Travel Time= 1.2 min

Peak Storage= 145 cf @ 12.15 hrs
Average Depth at Peak Storage= 0.80'
Bank-Full Depth= 2.00', Capacity at Bank-Full= 18.40 cfs

24.0" Round Pipe
n= 0.013 Corrugated PE, smooth interior
Length= 124.0' Slope= 0.0066 '/'
Inlet Invert= 822.47', Outlet Invert= 821.65'



Reach R3: MH7-MH3



Summary for Reach R4: CB10 - MH3

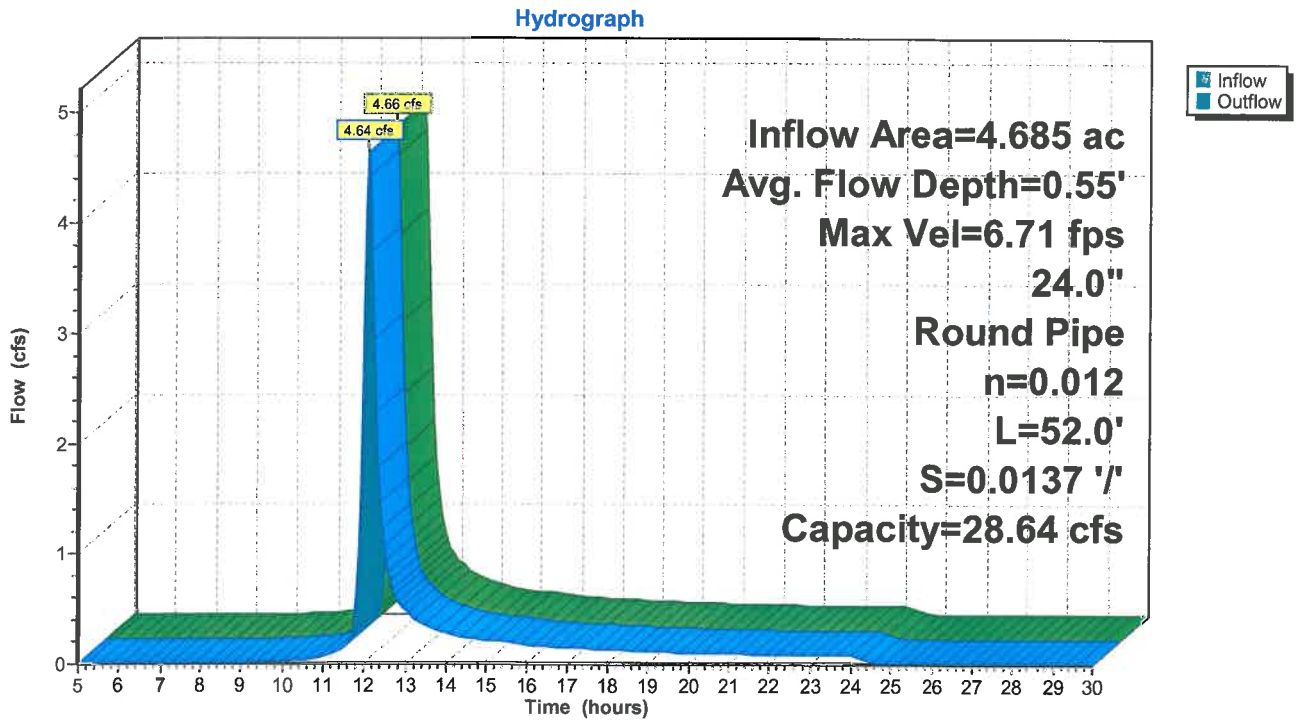
Inflow Area = 4.685 ac, 31.18% Impervious, Inflow Depth = 0.83" for 1-YR STORM event
Inflow = 4.66 cfs @ 12.11 hrs, Volume= 0.325 af
Outflow = 4.64 cfs @ 12.11 hrs, Volume= 0.325 af, Atten= 0%, Lag= 0.2 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 6.71 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 2.23 fps, Avg. Travel Time= 0.4 min

Peak Storage= 36 cf @ 12.11 hrs
Average Depth at Peak Storage= 0.55'
Bank-Full Depth= 2.00', Capacity at Bank-Full= 28.64 cfs

24.0" Round Pipe
n= 0.012 Concrete pipe, finished
Length= 52.0' Slope= 0.0137 '/'
Inlet Invert= 821.92', Outlet Invert= 821.21'

Reach R4: CB10 - MH3



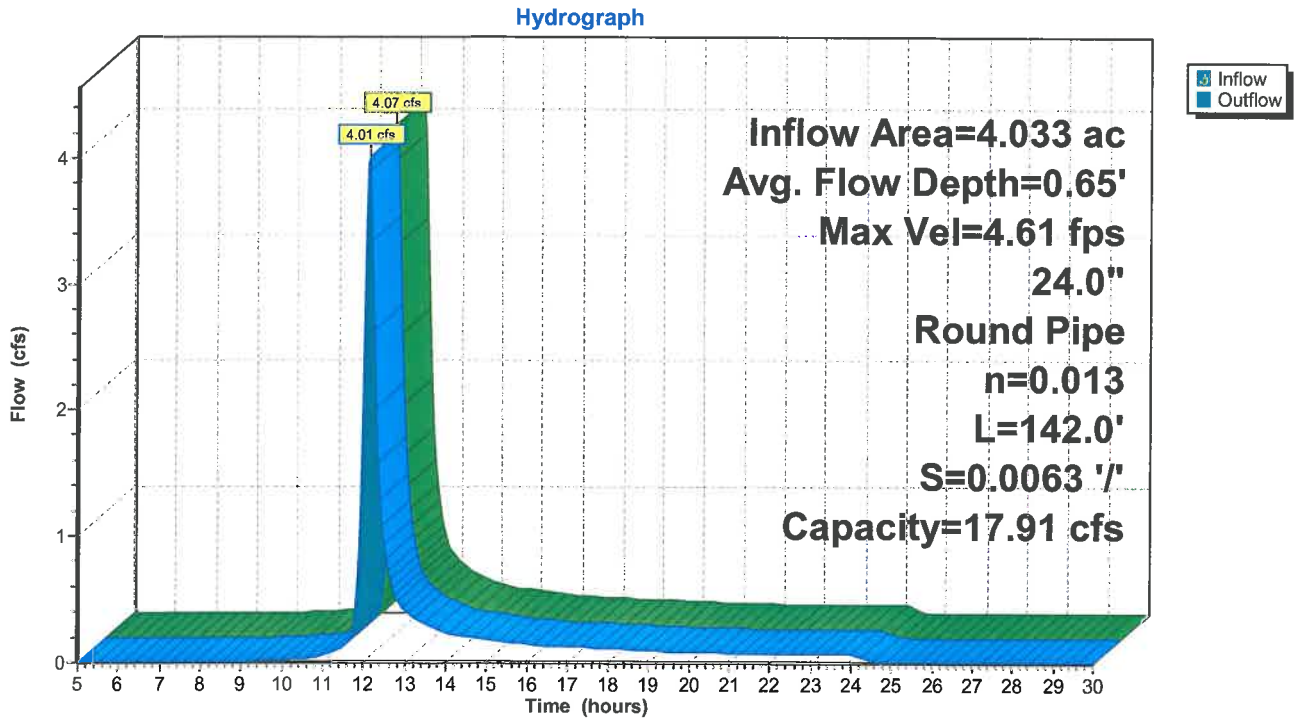
Summary for Reach R5: MH4-CB10

Inflow Area = 4.033 ac, 31.50% Impervious, Inflow Depth = 0.83" for 1-YR STORM event
Inflow = 4.07 cfs @ 12.11 hrs, Volume= 0.278 af
Outflow = 4.01 cfs @ 12.12 hrs, Volume= 0.278 af, Atten= 1%, Lag= 0.9 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 4.61 fps, Min. Travel Time= 0.5 min
Avg. Velocity = 1.53 fps, Avg. Travel Time= 1.6 min

Peak Storage= 125 cf @ 12.11 hrs
Average Depth at Peak Storage= 0.65'
Bank-Full Depth= 2.00', Capacity at Bank-Full= 17.91 cfs

24.0" Round Pipe
n= 0.013 Corrugated PE, smooth interior
Length= 142.0' Slope= 0.0063 '/'
Inlet Invert= 822.81', Outlet Invert= 821.92'



Summary for Reach R6: CB19-CB20

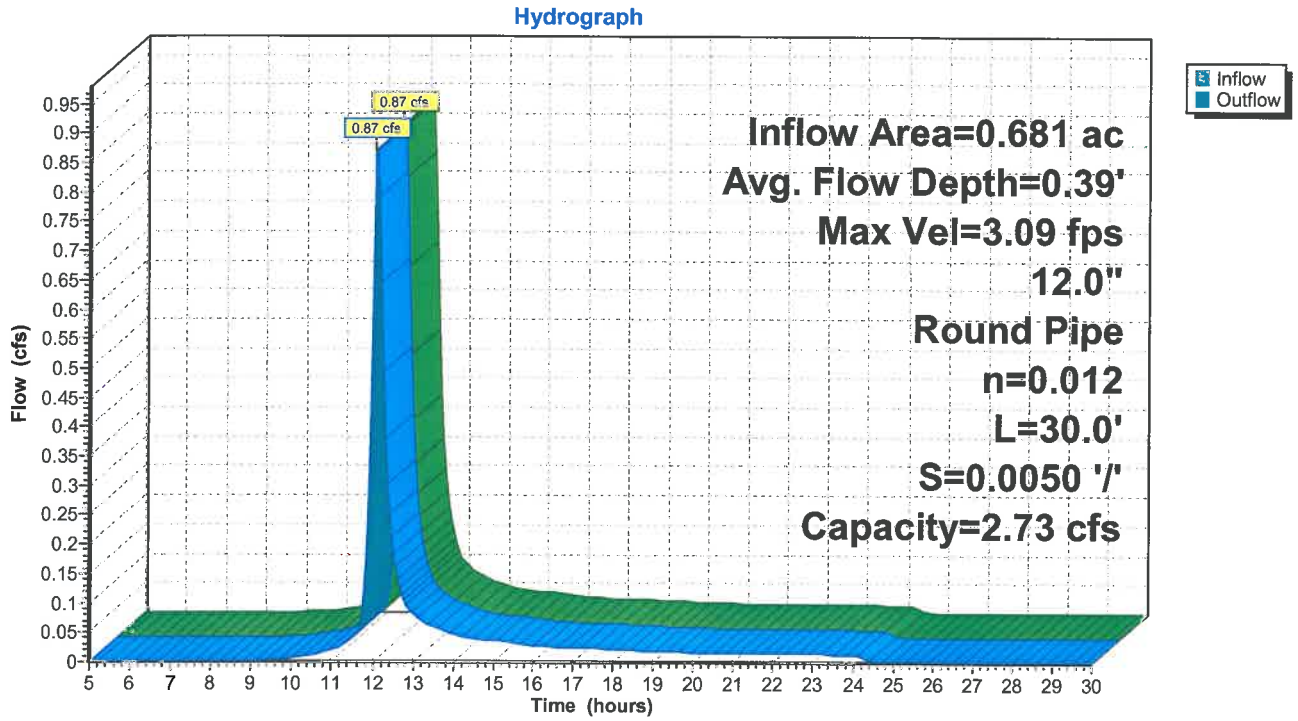
Inflow Area = 0.681 ac, 43.26% Impervious, Inflow Depth = 1.05" for 1-YR STORM event
Inflow = 0.87 cfs @ 12.09 hrs, Volume= 0.059 af
Outflow = 0.87 cfs @ 12.10 hrs, Volume= 0.059 af, Atten= 0%, Lag= 0.3 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 3.09 fps, Min. Travel Time= 0.2 min
Avg. Velocity = 1.07 fps, Avg. Travel Time= 0.5 min

Peak Storage= 8 cf @ 12.09 hrs
Average Depth at Peak Storage= 0.39'
Bank-Full Depth= 1.00', Capacity at Bank-Full= 2.73 cfs

12.0" Round Pipe
n= 0.012 Concrete pipe, finished
Length= 30.0' Slope= 0.0050 '/'
Inlet Invert= 823.05', Outlet Invert= 822.90'

Reach R6: CB19-CB20



Summary for Reach R7: MH5-MH4

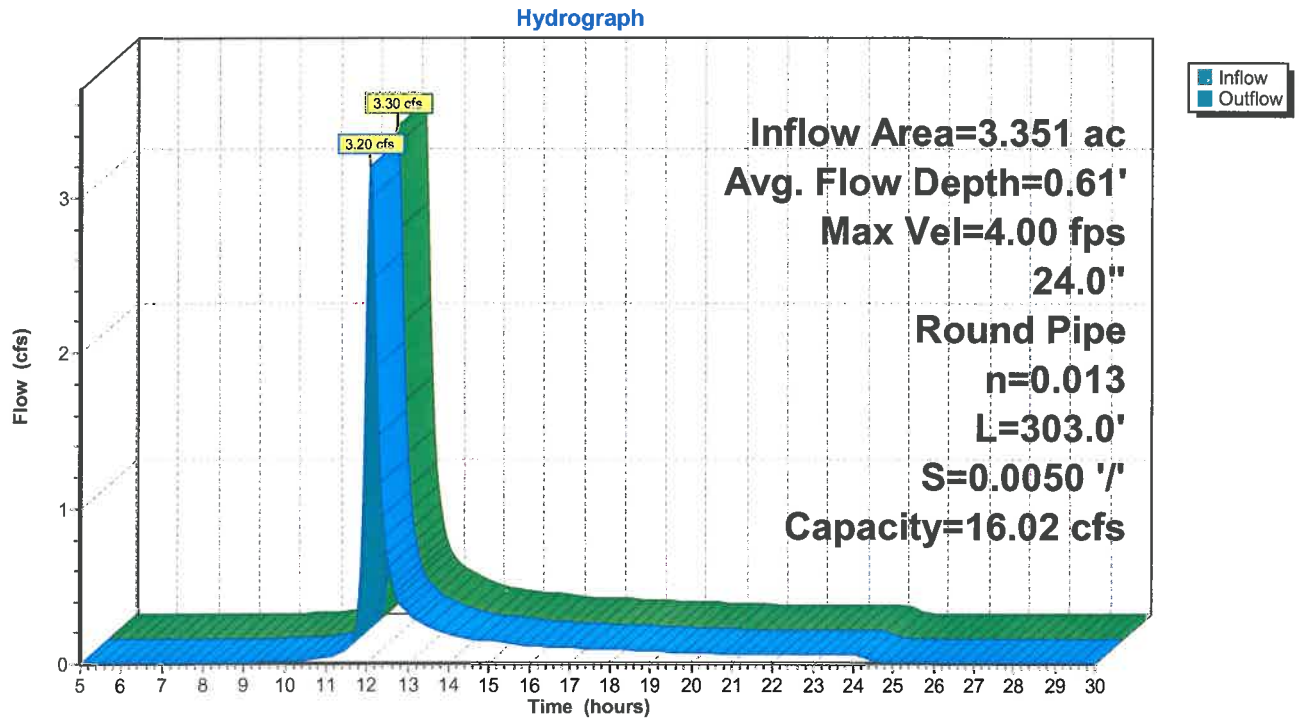
Inflow Area = 3.351 ac, 29.11% Impervious, Inflow Depth = 0.78" for 1-YR STORM event
Inflow = 3.30 cfs @ 12.07 hrs, Volume= 0.218 af
Outflow = 3.20 cfs @ 12.11 hrs, Volume= 0.218 af, Atten= 3%, Lag= 2.3 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 4.00 fps, Min. Travel Time= 1.3 min
Avg. Velocity = 1.31 fps, Avg. Travel Time= 3.8 min

Peak Storage= 247 cf @ 12.09 hrs
Average Depth at Peak Storage= 0.61'
Bank-Full Depth= 2.00', Capacity at Bank-Full= 16.02 cfs

24.0" Round Pipe
n= 0.013 Corrugated PE, smooth interior
Length= 303.0' Slope= 0.0050 '/'
Inlet Invert= 824.25', Outlet Invert= 822.73'

Reach R7: MH5-MH4



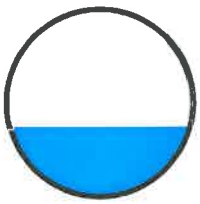
Summary for Reach R8: CB 21-22

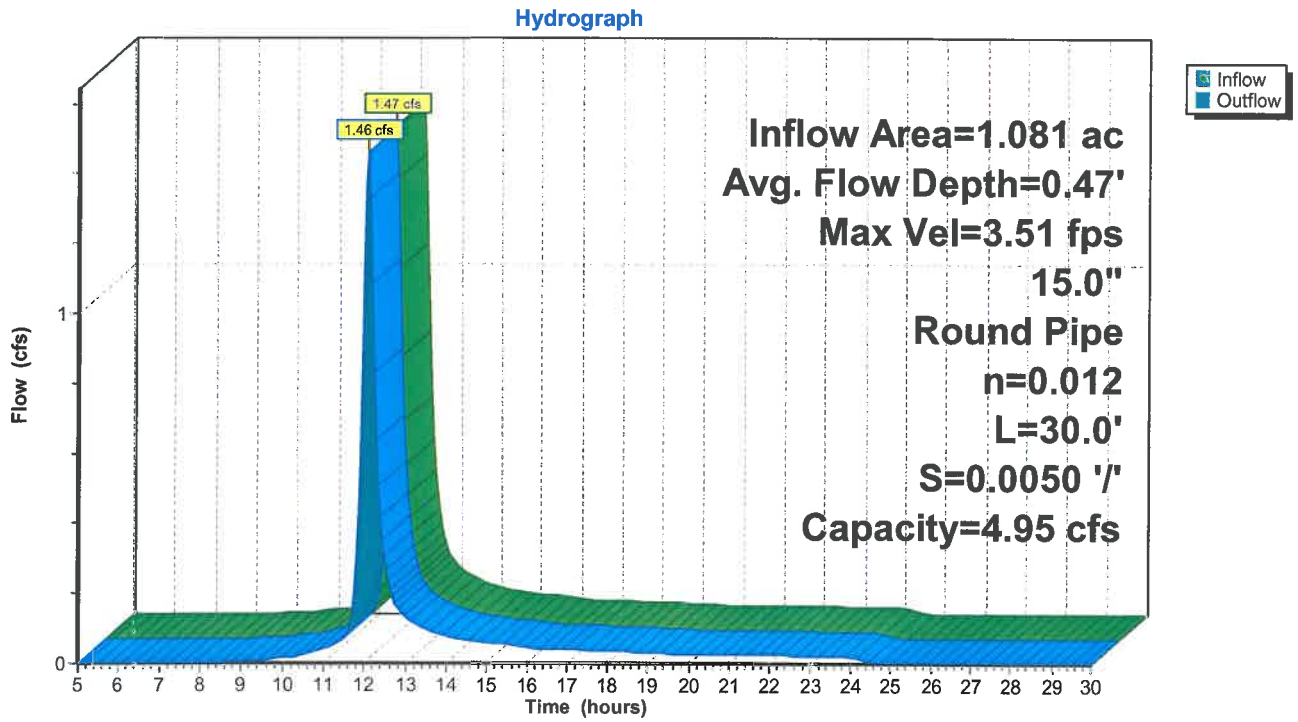
Inflow Area = 1.081 ac, 51.52% Impervious, Inflow Depth = 1.11" for 1-YR STORM event
Inflow = 1.47 cfs @ 12.09 hrs, Volume= 0.100 af
Outflow = 1.46 cfs @ 12.09 hrs, Volume= 0.100 af, Atten= 0%, Lag= 0.2 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 3.51 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 1.19 fps, Avg. Travel Time= 0.4 min

Peak Storage= 13 cf @ 12.09 hrs
Average Depth at Peak Storage= 0.47'
Bank-Full Depth= 1.25', Capacity at Bank-Full= 4.95 cfs

15.0" Round Pipe
n= 0.012 Concrete pipe, finished
Length= 30.0' Slope= 0.0050 '/'
Inlet Invert= 824.59', Outlet Invert= 824.44'





Summary for Reach R9: MH3-MH2

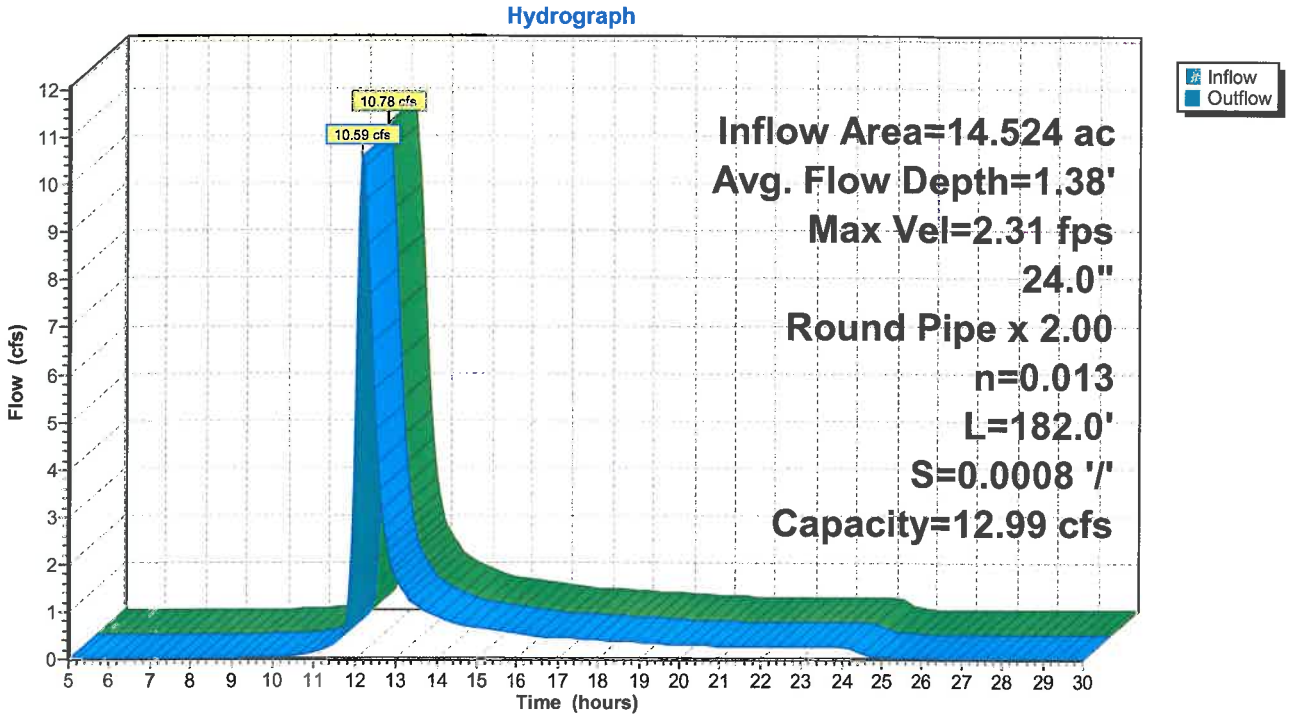
Inflow Area = 14.524 ac, 22.49% Impervious, Inflow Depth = 0.80" for 1-YR STORM event
Inflow = 10.78 cfs @ 12.12 hrs, Volume= 0.966 af
Outflow = 10.59 cfs @ 12.17 hrs, Volume= 0.966 af, Atten= 2%, Lag= 2.8 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 2.31 fps, Min. Travel Time= 1.3 min
Avg. Velocity = 0.74 fps, Avg. Travel Time= 4.1 min

Peak Storage= 842 cf @ 12.14 hrs
Average Depth at Peak Storage= 1.38'
Bank-Full Depth= 2.00', Capacity at Bank-Full= 12.99 cfs

A factor of 2.00 has been applied to the storage and discharge capacity
24.0" Round Pipe
n= 0.013 Corrugated PE, smooth interior
Length= 182.0' Slope= 0.0008 '/'
Inlet Invert= 821.31', Outlet Invert= 821.16'

Reach R9: MH3-MH2



Summary for Pond 2P: Upper Pond

Inflow Area = 6.682 ac, 10.27% Impervious, Inflow Depth = 0.72" for 1-YR STORM event
Inflow = 6.30 cfs @ 12.06 hrs, Volume= 0.398 af
Outflow = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min
Primary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Starting Elev= 823.50' Surf.Area= 28,882 sf Storage= 184,050 cf
Peak Elev= 824.08' @ 24.80 hrs Surf.Area= 30,535 sf Storage= 201,403 cf (17,352 cf above start)

Plug-Flow detention time= (not calculated: initial storage excedes outflow)
Center-of-Mass det. time= (not calculated: no outflow)

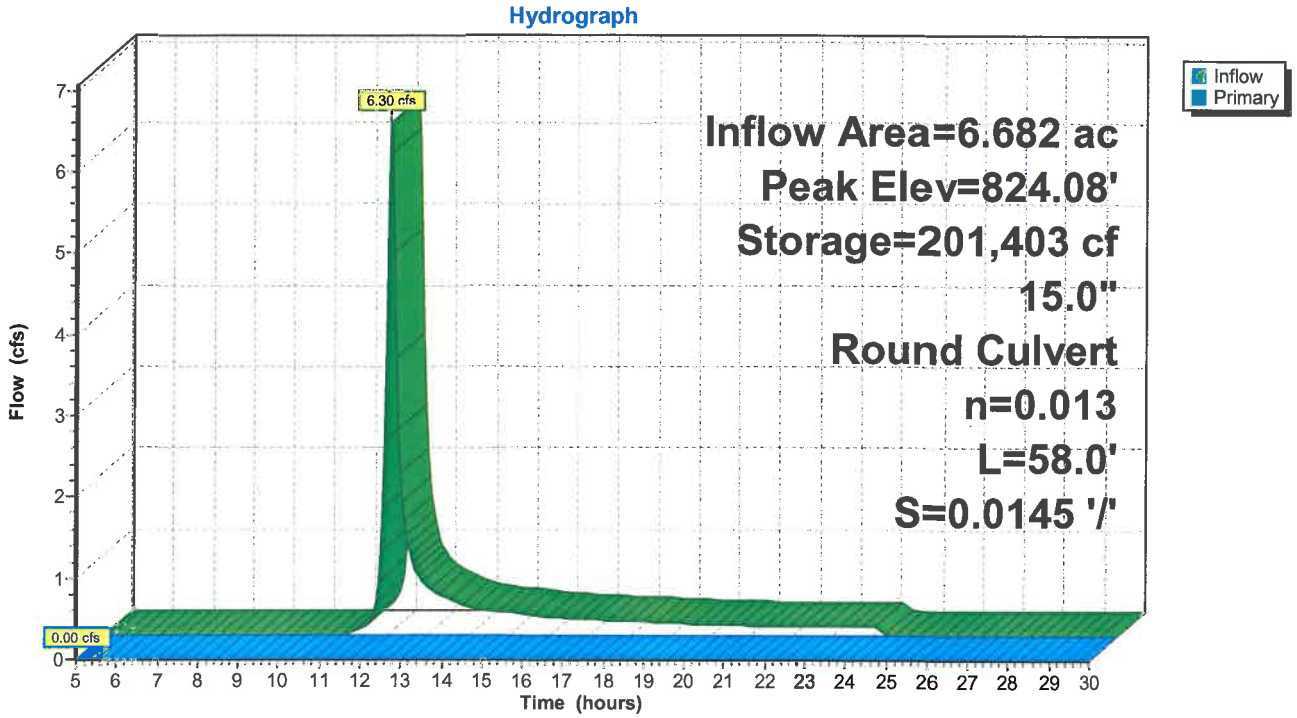
Volume	Invert	Avail.Storage	Storage Description
#1	810.00'	265,092 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
810.00	2,590	0	0
811.00	3,636	3,113	3,113
812.00	4,826	4,231	7,344
813.00	6,159	5,493	12,837
814.00	7,640	6,900	19,736
815.00	9,276	8,458	28,194
816.00	11,062	10,169	38,363
817.00	13,013	12,038	50,401
818.00	15,136	14,075	64,475
819.00	17,394	16,265	80,740
820.00	19,758	18,576	99,316
821.00	22,226	20,992	120,308
822.00	24,799	23,513	143,821
823.00	27,480	26,140	169,960
824.00	30,283	28,882	198,842
825.00	33,274	31,779	230,620
826.00	35,670	34,472	265,092

Device	Routing	Invert	Outlet Devices
#1	Primary	824.14'	**15.0" Round Culvert** L= 58.0' CPP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 824.14' / 823.30' S= 0.0145 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior

Primary OutFlow Max=0.00 cfs @ 5.00 hrs HW=823.50' (Free Discharge)
↑**1=Culvert** (Controls 0.00 cfs)

Pond 2P: Upper Pond



Summary for Pond 13P: Lower Pond

Inflow Area = 42.994 ac, 21.21% Impervious, Inflow Depth = 0.61" for 1-YR STORM event
Inflow = 23.16 cfs @ 12.20 hrs, Volume= 2.203 af
Outflow = 0.62 cfs @ 20.84 hrs, Volume= 0.727 af, Atten= 97%, Lag= 518.5 min
Primary = 0.62 cfs @ 20.84 hrs, Volume= 0.727 af
Secondary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs / 3
Starting Elev= 820.00' Surf.Area= 109,467 sf Storage= 945,460 cf
Peak Elev= 820.65' @ 20.84 hrs Surf.Area= 117,945 sf Storage= 1,019,591 cf (74,131 cf above start)

Plug-Flow detention time= (not calculated: initial storage excedes outflow)
Center-of-Mass det. time= 431.6 min (1,297.9 - 866.3)

Volume	Invert	Avail.Storage	Storage Description
#1	804.00'	1,328,496 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

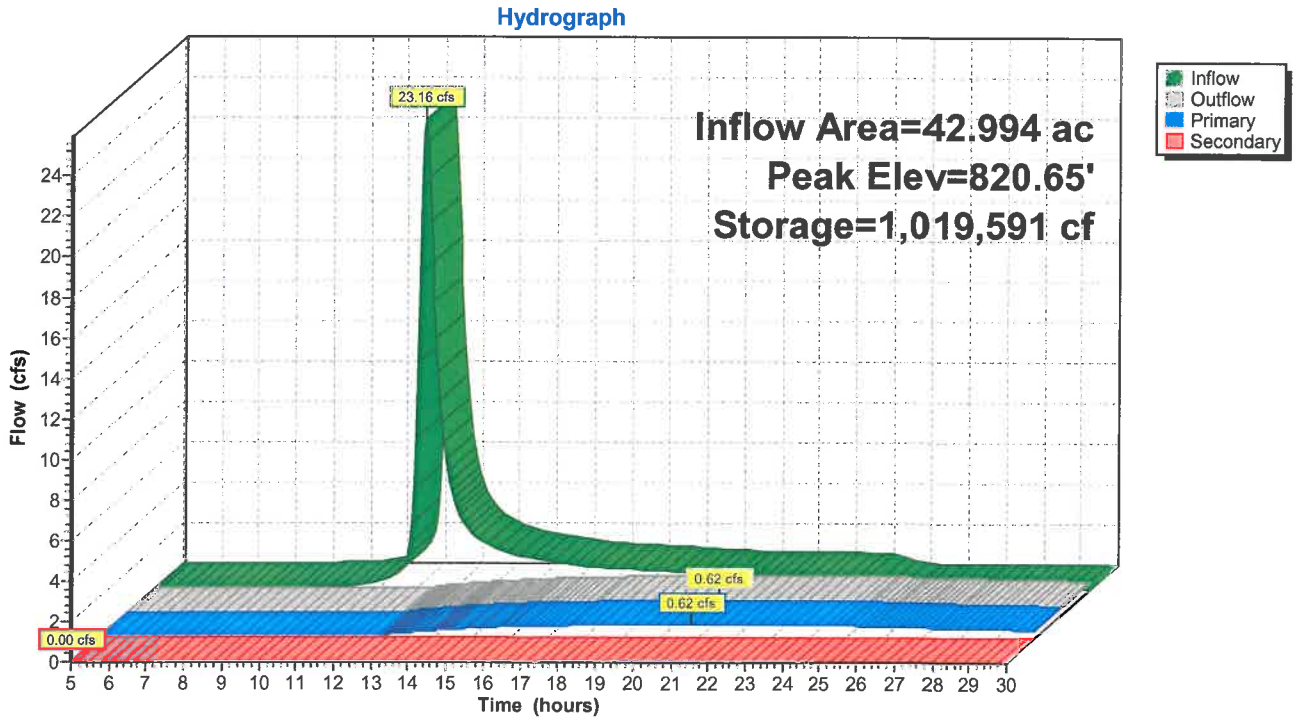
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
804.00	35,939	0	0
805.00	38,457	37,198	37,198
806.00	41,031	39,744	76,942
807.00	43,661	42,346	119,288
808.00	46,438	45,050	164,338
809.00	49,041	47,740	212,077
810.00	51,889	50,465	262,542
811.00	54,755	53,322	315,864
812.00	57,656	56,206	372,070
813.00	60,623	59,140	431,209
814.00	63,647	62,135	493,344
815.00	66,727	65,187	558,531
816.00	69,863	68,295	626,826
817.00	73,056	71,460	698,286
818.00	76,304	74,680	772,966
819.00	79,609	77,957	850,922
820.00	109,467	94,538	945,460
821.00	122,471	115,969	1,061,429
822.00	133,165	127,818	1,189,247
823.00	145,332	139,249	1,328,496

Device	Routing	Invert	Outlet Devices
#1	Primary	820.30'	**18.0" Round Culvert** L= 30.0' CPP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 820.30' / 820.00' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior
#2	Secondary	821.30'	**50.0' long x 20.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

Primary OutFlow Max=0.59 cfs @ 20.84 hrs HW=820.65' (Free Discharge)
└**1=Culvert** (Barrel Controls 0.59 cfs @ 2.80 fps)

Secondary OutFlow Max=0.00 cfs @ 5.00 hrs HW=820.00' (Free Discharge)
└**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 13P: Lower Pond



Summary for Pond 15P: Pretreatment

Inflow Area = 4.248 ac, 0.00% Impervious, Inflow Depth = 0.54" for 1-YR STORM event
Inflow = 2.41 cfs @ 12.13 hrs, Volume= 0.192 af
Outflow = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min
Primary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af
Secondary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Peak Elev= 820.80' @ 25.10 hrs Surf.Area= 14,294 sf Storage= 8,350 cf

Plug-Flow detention time= (not calculated: initial storage excedes outflow)
Center-of-Mass det. time= (not calculated: no outflow)

Volume	Invert	Avail.Storage	Storage Description
#1	820.00'	30,493 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

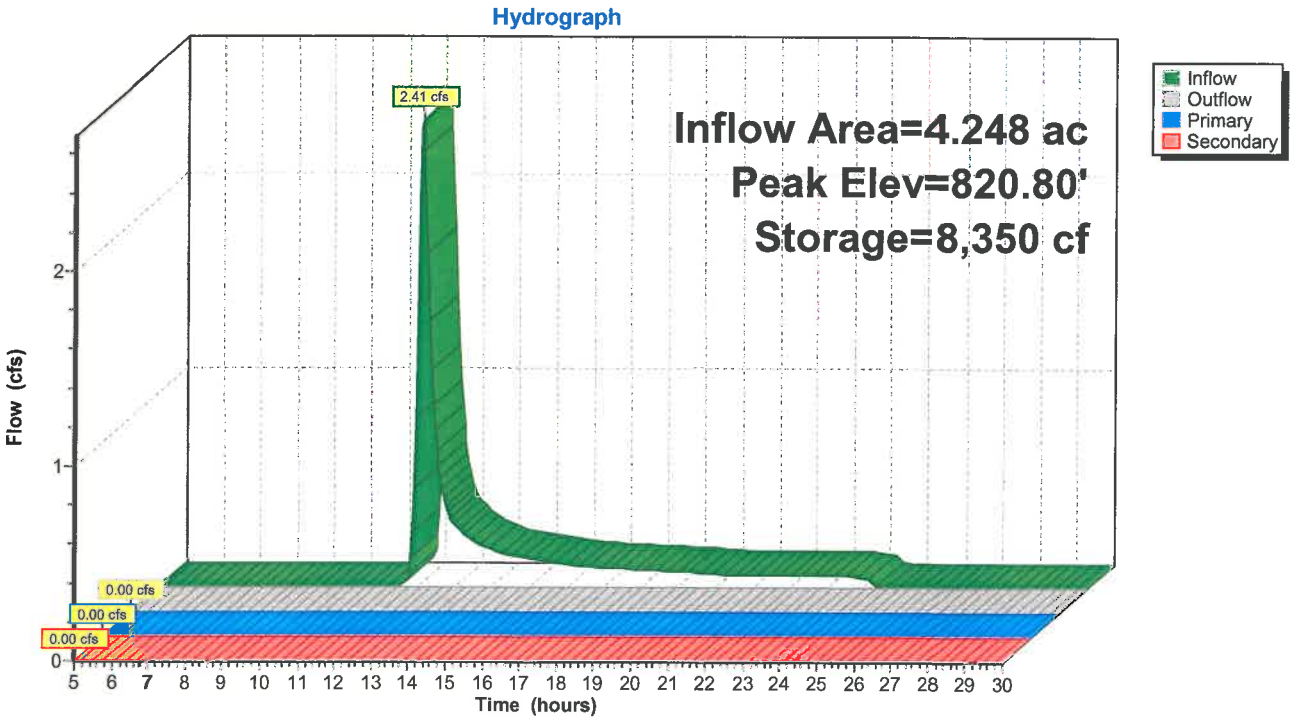
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
820.00	6,506	0	0
821.00	16,206	11,356	11,356
822.00	22,067	19,137	30,493

Device	Routing	Invert	Outlet Devices
#1	Secondary	821.30'	**15.0' long x 30.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63
#2	Primary	821.00'	**12.0" Round Culvert** L= 380.0' CPP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 821.00' / 820.30' S= 0.0018 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior

Primary OutFlow Max=0.00 cfs @ 5.00 hrs HW=820.00' (Free Discharge)
↑**2=Culvert** (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 5.00 hrs HW=820.00' (Free Discharge)
↑**1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 15P: Pretreatment

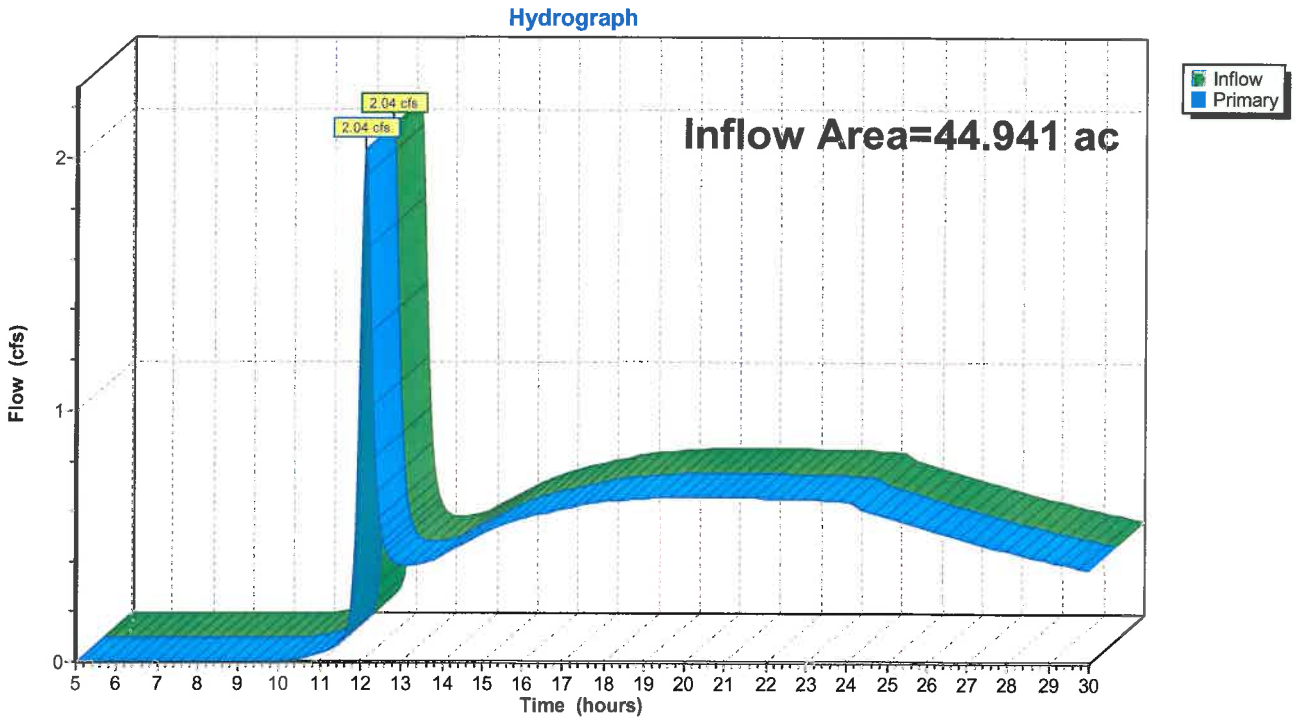


Summary for Link 1L: Sum

Inflow Area = 44.941 ac, 21.55% Impervious, Inflow Depth > 0.23" for 1-YR STORM event
Inflow = 2.04 cfs @ 12.11 hrs, Volume= 0.872 af
Primary = 2.04 cfs @ 12.11 hrs, Volume= 0.872 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs

Link 1L: Sum



Time span=5.00-30.00 hrs, dt=0.05 hrs, 501 points
Runoff by SCS TR-20 method, UH=SCS
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment Ws1: Watershed 1 Runoff Area=61,775 sf 29.54% Impervious Runoff Depth=1.94"
Flow Length=360' Tc=10.6 min CN=83 Runoff=4.07 cfs 0.230 af

Subcatchment Ws10: To Upper Pond Runoff Area=291,049 sf 10.27% Impervious Runoff Depth=1.87"
Flow Length=965' Tc=13.4 min CN=82 Runoff=16.90 cfs 1.039 af

Subcatchment Ws11: Watershed 11 Runoff Area=49,965 sf 25.02% Impervious Runoff Depth=2.10"
Flow Length=460' Slope=0.0100 '/' Tc=17.8 min CN=85 Runoff=2.85 cfs 0.201 af

Subcatchment Ws12: Watershed 12 Runoff Area=34,854 sf 34.43% Impervious Runoff Depth=2.19"
Flow Length=320' Slope=0.0100 '/' Tc=16.9 min CN=86 Runoff=2.11 cfs 0.146 af

Subcatchment Ws13: Watershed 13 Runoff Area=171,199 sf 37.53% Impervious Runoff Depth=2.27"
Flow Length=620' Tc=31.6 min CN=87 Runoff=7.47 cfs 0.744 af

Subcatchment Ws14: Watershed 14 Runoff Area=159,952 sf 53.30% Impervious Runoff Depth=2.54"
Flow Length=1,050' Tc=20.1 min CN=90 Runoff=10.16 cfs 0.778 af

Subcatchment Ws15: Watershed 15 Runoff Area=432,874 sf 17.46% Impervious Runoff Depth=1.79"
Flow Length=1,470' Slope=0.0100 '/' Tc=17.9 min CN=81 Runoff=20.90 cfs 1.482 af

Subcatchment WS16: Watershed 16 Runoff Area=185,059 sf 0.00% Impervious Runoff Depth=1.57"
Flow Length=1,140' Tc=18.2 min CN=78 Runoff=7.73 cfs 0.557 af

Subcatchment Ws2: Watershed 2 Runoff Area=33,200 sf 54.97% Impervious Runoff Depth=2.54"
Flow Length=310' Tc=15.8 min CN=90 Runoff=2.38 cfs 0.161 af

Subcatchment Ws3: Watershed 3 Runoff Area=67,371 sf 47.13% Impervious Runoff Depth=2.36"
Flow Length=600' Tc=13.6 min CN=88 Runoff=4.85 cfs 0.304 af

Subcatchment Ws4: Watershed 4 Runoff Area=266,245 sf 3.91% Impervious Runoff Depth=1.79"
Flow Length=1,120' Tc=16.9 min CN=81 Runoff=13.25 cfs 0.912 af

Subcatchment Ws5: Watershed 5 Runoff Area=28,432 sf 29.19% Impervious Runoff Depth=2.10"
Flow Length=250' Slope=0.0200 '/' Tc=12.0 min CN=85 Runoff=1.94 cfs 0.114 af

Subcatchment Ws6: Watershed 6 Runoff Area=47,402 sf 38.50% Impervious Runoff Depth=2.27"
Flow Length=520' Tc=11.8 min CN=87 Runoff=3.49 cfs 0.206 af

Subcatchment Ws7: Watershed 7 Runoff Area=98,918 sf 18.45% Impervious Runoff Depth=1.72"
Flow Length=540' Slope=0.0200 '/' Tc=12.6 min CN=80 Runoff=5.42 cfs 0.325 af

Subcatchment Ws8: Watershed 8 Runoff Area=47,068 sf 51.52% Impervious Runoff Depth=2.45"
Flow Length=440' Tc=16.6 min CN=89 Runoff=3.19 cfs 0.221 af

Subcatchment Ws9: Watershed 9 Runoff Area=29,678 sf 43.26% Impervious Runoff Depth=2.36"
Flow Length=420' Tc=16.5 min CN=88 Runoff=1.95 cfs 0.134 af

Reach R1: CB 18-17 Avg. Flow Depth=0.29' Max Vel=12.73 fps Inflow=2.38 cfs 0.161 af
12.0" Round Pipe n=0.012 L=30.0' S=0.1183 '/' Capacity=13.28 cfs Outflow=2.37 cfs 0.161 af

Reach R10: CB1 to CB 2 Avg. Flow Depth=0.63' Max Vel=5.51 fps Inflow=2.85 cfs 0.201 af
12.0" Round Pipe n=0.013 L=96.0' S=0.0125 '/' Capacity=3.98 cfs Outflow=2.83 cfs 0.201 af

Reach R11: Upper Pond to MH2 Avg. Flow Depth=1.16' Max Vel=5.08 fps Inflow=7.52 cfs 1.256 af
18.0" Round Pipe n=0.013 L=435.0' S=0.0057 '/' Capacity=7.90 cfs Outflow=7.44 cfs 1.255 af

Reach R12: MH2 to Pond Avg. Flow Depth=1.77' Max Vel=3.24 fps Inflow=28.65 cfs 4.433 af
24.0" Round Pipe x 3.00 n=0.013 L=359.0' S=0.0016 '/' Capacity=26.80 cfs Outflow=28.27 cfs 4.432 af

Reach R13: Swale Avg. Flow Depth=0.99' Max Vel=3.07 fps Inflow=13.25 cfs 0.912 af
n=0.035 L=850.0' S=0.0100 '/' Capacity=136.87 cfs Outflow=11.97 cfs 0.912 af

Reach R2: CB 17- MH 7 Avg. Flow Depth=0.77' Max Vel=7.96 fps Inflow=6.32 cfs 0.391 af
15.0" Round Pipe n=0.013 L=276.0' S=0.0196 '/' Capacity=9.04 cfs Outflow=6.21 cfs 0.391 af

Reach R3: MH7-MH3 Avg. Flow Depth=1.63' Max Vel=6.68 fps Inflow=18.33 cfs 1.607 af
24.0" Round Pipe n=0.013 L=124.0' S=0.0066 '/' Capacity=18.40 cfs Outflow=18.29 cfs 1.607 af

Reach R4: CB10 - MH3 Avg. Flow Depth=0.89' Max Vel=8.67 fps Inflow=11.78 cfs 0.794 af
24.0" Round Pipe n=0.012 L=52.0' S=0.0137 '/' Capacity=28.64 cfs Outflow=11.76 cfs 0.794 af

Reach R5: MH4-CB10 Avg. Flow Depth=1.08' Max Vel=5.89 fps Inflow=10.21 cfs 0.679 af
24.0" Round Pipe n=0.013 L=142.0' S=0.0063 '/' Capacity=17.91 cfs Outflow=10.12 cfs 0.679 af

Reach R6: CB19-CB20 Avg. Flow Depth=0.63' Max Vel=3.77 fps Inflow=1.95 cfs 0.134 af
12.0" Round Pipe n=0.012 L=30.0' S=0.0050 '/' Capacity=2.73 cfs Outflow=1.95 cfs 0.134 af

Reach R7: MH5-MH4 Avg. Flow Depth=1.03' Max Vel=5.14 fps Inflow=8.50 cfs 0.545 af
24.0" Round Pipe n=0.013 L=303.0' S=0.0050 '/' Capacity=16.02 cfs Outflow=8.26 cfs 0.545 af

Reach R8: CB 21-22 Avg. Flow Depth=0.73' Max Vel=4.28 fps Inflow=3.19 cfs 0.221 af
15.0" Round Pipe n=0.012 L=30.0' S=0.0050 '/' Capacity=4.95 cfs Outflow=3.19 cfs 0.221 af

Reach R9: MH3-MH2 Avg. Flow Depth=2.00' Max Vel=2.29 fps Inflow=29.76 cfs 2.401 af
24.0" Round Pipe x 2.00 n=0.013 L=182.0' S=0.0008 '/' Capacity=12.99 cfs Outflow=12.99 cfs 2.401 af

Pond 2P: Upper Pond Peak Elev=824.49' Storage=213,989 cf Inflow=16.90 cfs 1.039 af
15.0" Round Culvert n=0.013 L=58.0' S=0.0145 '/' Outflow=0.58 cfs 0.512 af

Pond 13P: Lower Pond Peak Elev=821.30' Storage=1,099,060 cf Inflow=46.74 cfs 6.117 af
Primary=3.69 cfs 3.924 af Secondary=0.18 cfs 0.013 af Outflow=3.88 cfs 3.936 af

Pond 15P: Pretreatment Peak Elev=821.32' Storage=16,822 cf Inflow=7.73 cfs 0.557 af
Primary=0.20 cfs 0.203 af Secondary=0.11 cfs 0.027 af Outflow=0.30 cfs 0.230 af

Link 1L: Sum Inflow=5.05 cfs 4.311 af
Primary=5.05 cfs 4.311 af

Total Runoff Area = 46.029 ac Runoff Volume = 7.554 af Average Runoff Depth = 1.97"
78.05% Pervious = 35.927 ac 21.95% Impervious = 10.102 ac

Summary for Subcatchment Ws1: Watershed 1

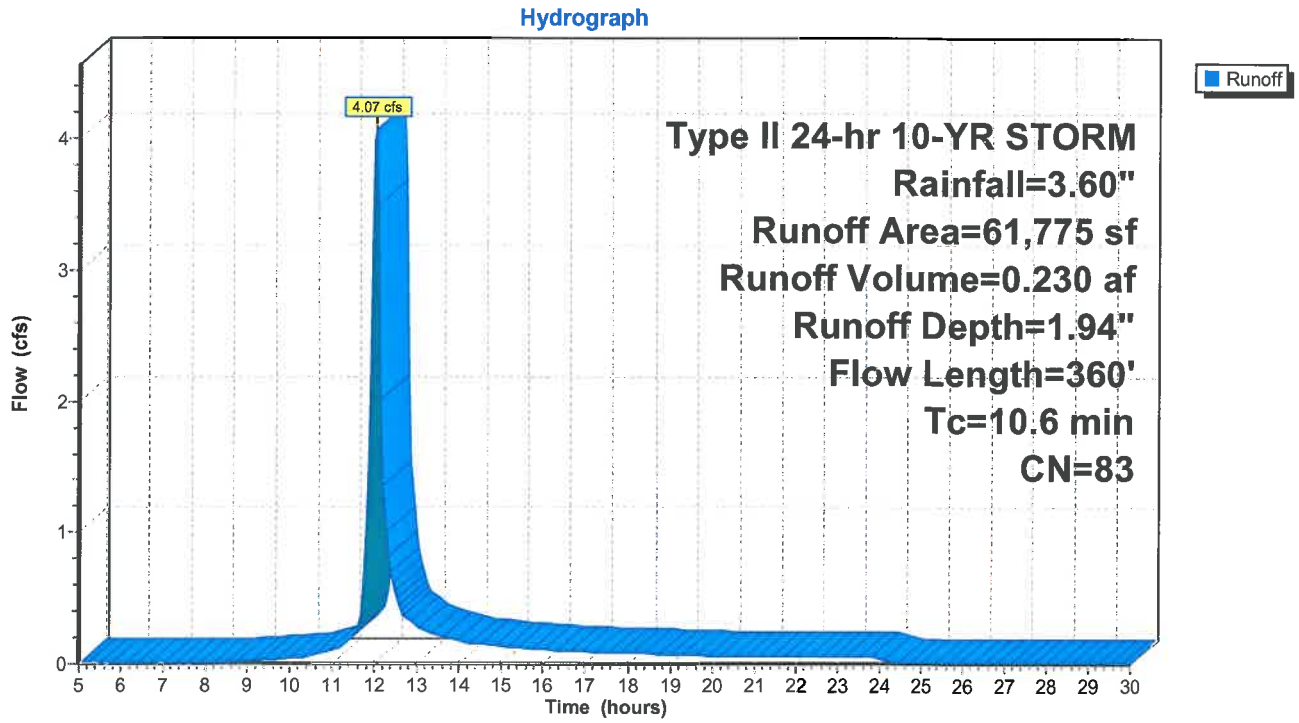
Runoff = 4.07 cfs @ 12.02 hrs, Volume= 0.230 af, Depth= 1.94"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-YR STORM Rainfall=3.60"

Area (sf)	CN	Description
18,250	98	Paved parking, HSG D
21,763	80	>75% Grass cover, Good, HSG D
21,762	73	Brush, Good, HSG D
61,775	83	Weighted Average
43,525		70.46% Pervious Area
18,250		29.54% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.0	100	0.0250	0.18		**Sheet Flow, A-B** Range n= 0.130 P2= 2.50"
0.7	100	0.0200	2.28		**Shallow Concentrated Flow, B-C** Unpaved Kv= 16.1 fps
0.9	160	0.0200	2.87		**Shallow Concentrated Flow, C-D** Paved Kv= 20.3 fps
10.6	360	Total			

Subcatchment Ws1: Watershed 1



Summary for Subcatchment Ws10: To Upper Pond

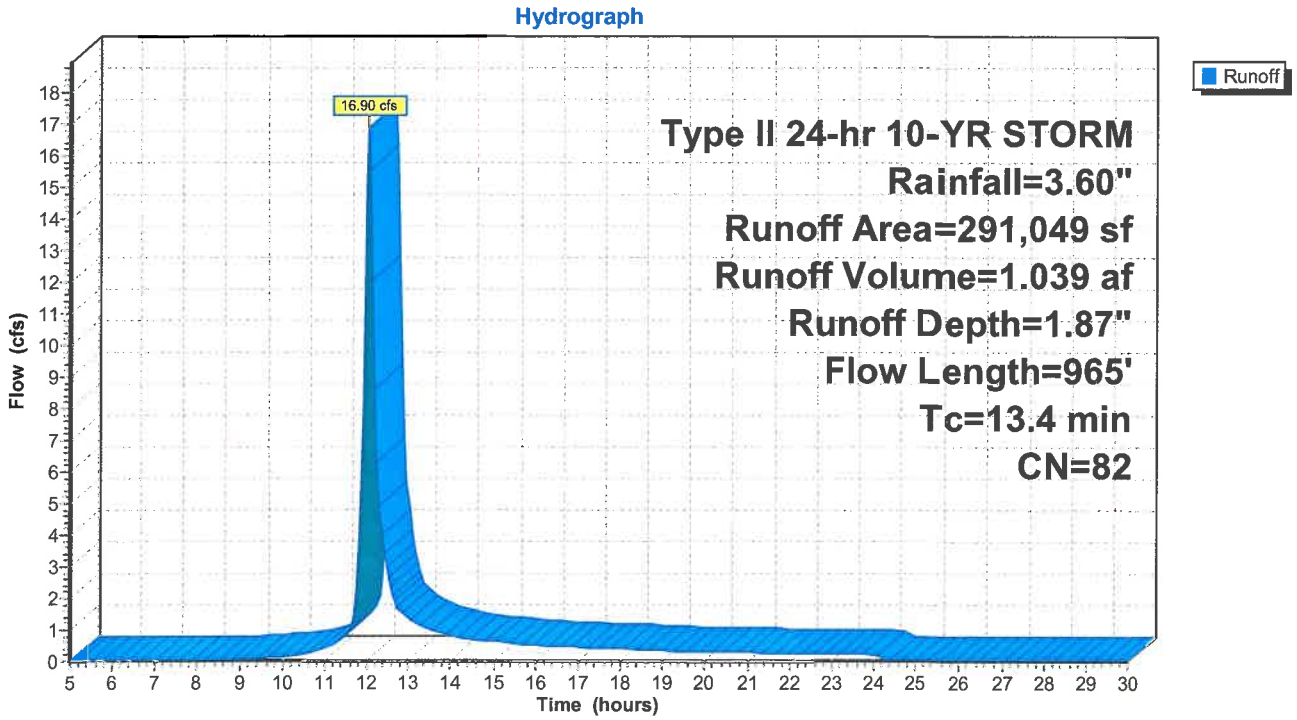
Runoff = 16.90 cfs @ 12.05 hrs, Volume= 1.039 af, Depth= 1.87"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-YR STORM Rainfall=3.60"

Area (sf)	CN	Description
261,149	80	Pasture/grassland/range, Good, HSG D
29,900	98	Water Surface, HSG D
291,049	82	Weighted Average
261,149		89.73% Pervious Area
29,900		10.27% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.9	100	0.0200	0.17		**Sheet Flow, A-B** Range n= 0.130 P2= 2.50"
2.9	450	0.0300	2.60		**Shallow Concentrated Flow, B-C** Grassed Waterway Kv= 15.0 fps
0.3	320		16.05		**Lake or Reservoir, C-D** Mean Depth= 8.00'
0.3	95	0.0100	5.94	10.50	**Pipe Channel, D-E** 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.013
13.4	965	Total			

Subcatchment Ws10: To Upper Pond



Summary for Subcatchment Ws11: Watershed 11

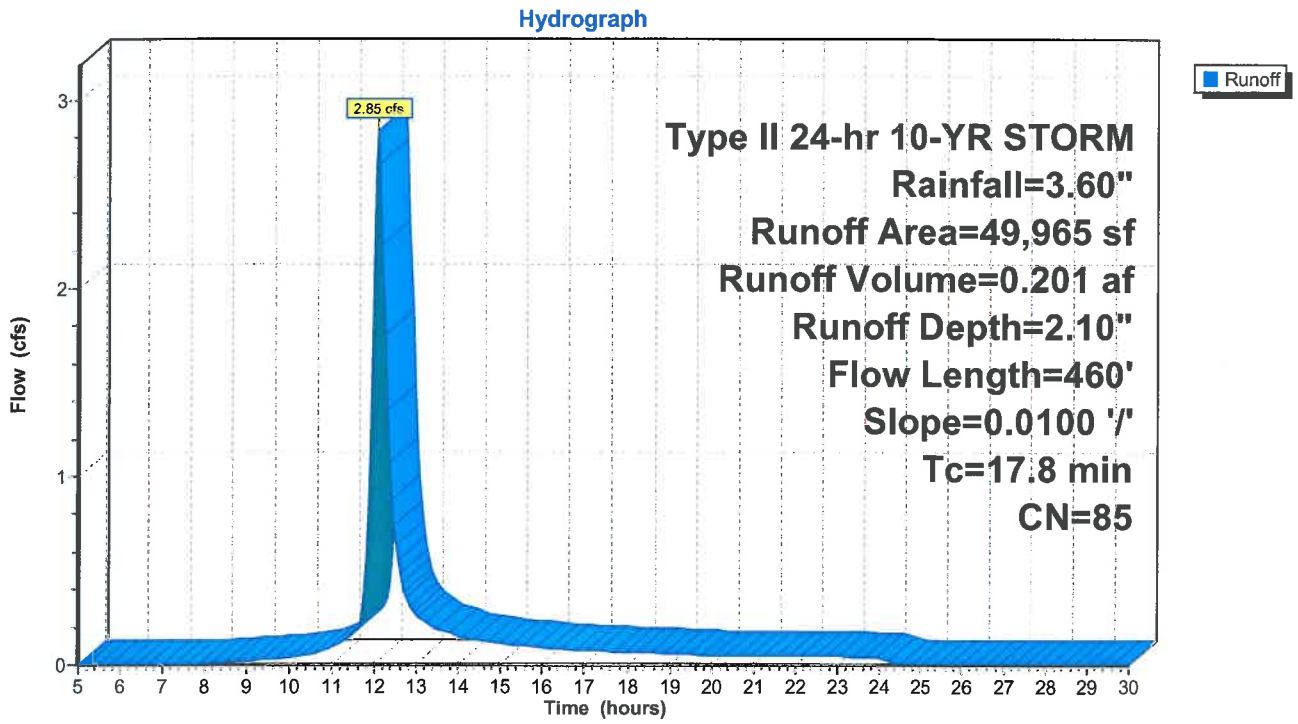
Runoff = 2.85 cfs @ 12.10 hrs, Volume= 0.201 af, Depth= 2.10"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-YR STORM Rainfall=3.60"

Area (sf)	CN	Description
12,500	98	Paved parking, HSG D
37,465	80	>75% Grass cover, Good, HSG D
49,965	85	Weighted Average
37,465		74.98% Pervious Area
12,500		25.02% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.6	100	0.0100	0.11		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 2.50"
1.2	120	0.0100	1.61		**Shallow Concentrated Flow, B-C** Unpaved Kv= 16.1 fps
2.0	240	0.0100	2.03		**Shallow Concentrated Flow, C-D** Paved Kv= 20.3 fps
17.8	460	Total			

Subcatchment Ws11: Watershed 11



Summary for Subcatchment Ws12: Watershed 12

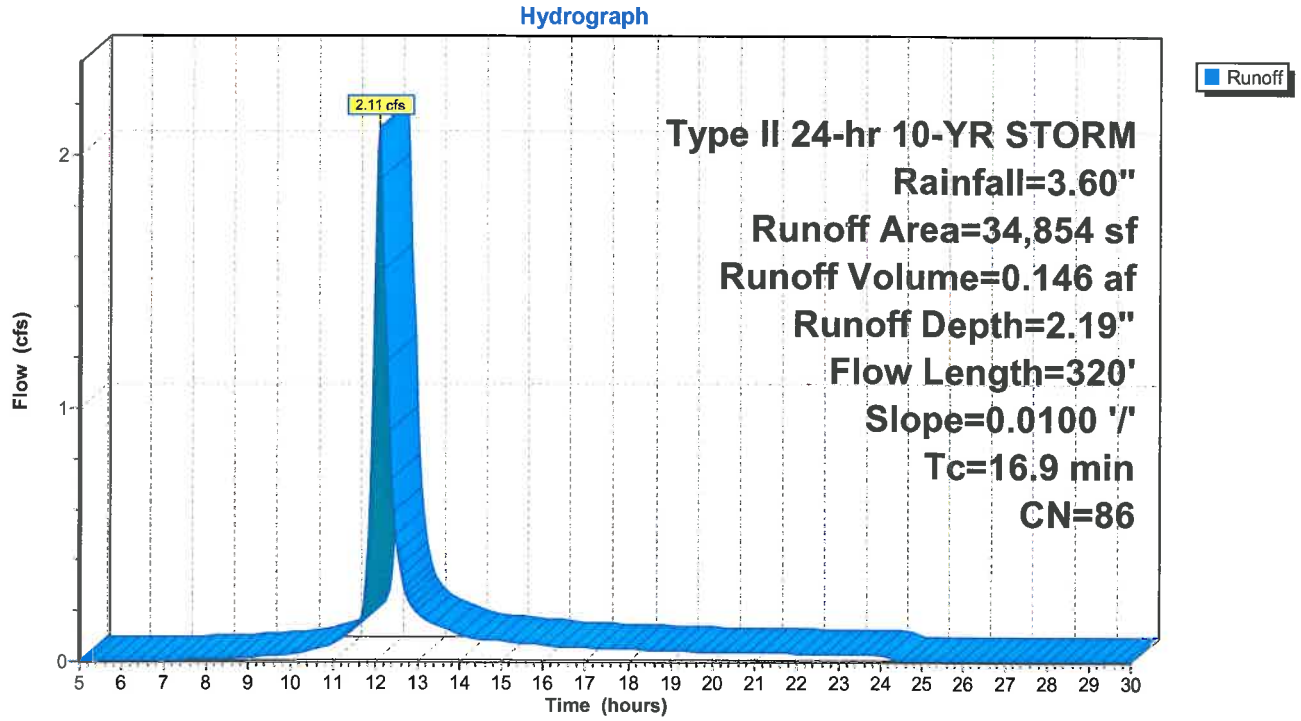
Runoff = 2.11 cfs @ 12.09 hrs, Volume= 0.146 af, Depth= 2.19"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-YR STORM Rainfall=3.60"

Area (sf)	CN	Description
12,000	98	Paved parking, HSG D
22,854	80	>75% Grass cover, Good, HSG D
34,854	86	Weighted Average
22,854		65.57% Pervious Area
12,000		34.43% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.6	100	0.0100	0.11		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 2.50"
2.3	220	0.0100	1.61		**Shallow Concentrated Flow, B-C** Unpaved Kv= 16.1 fps
16.9	320	Total			

Subcatchment Ws12: Watershed 12



Summary for Subcatchment Ws13: Watershed 13

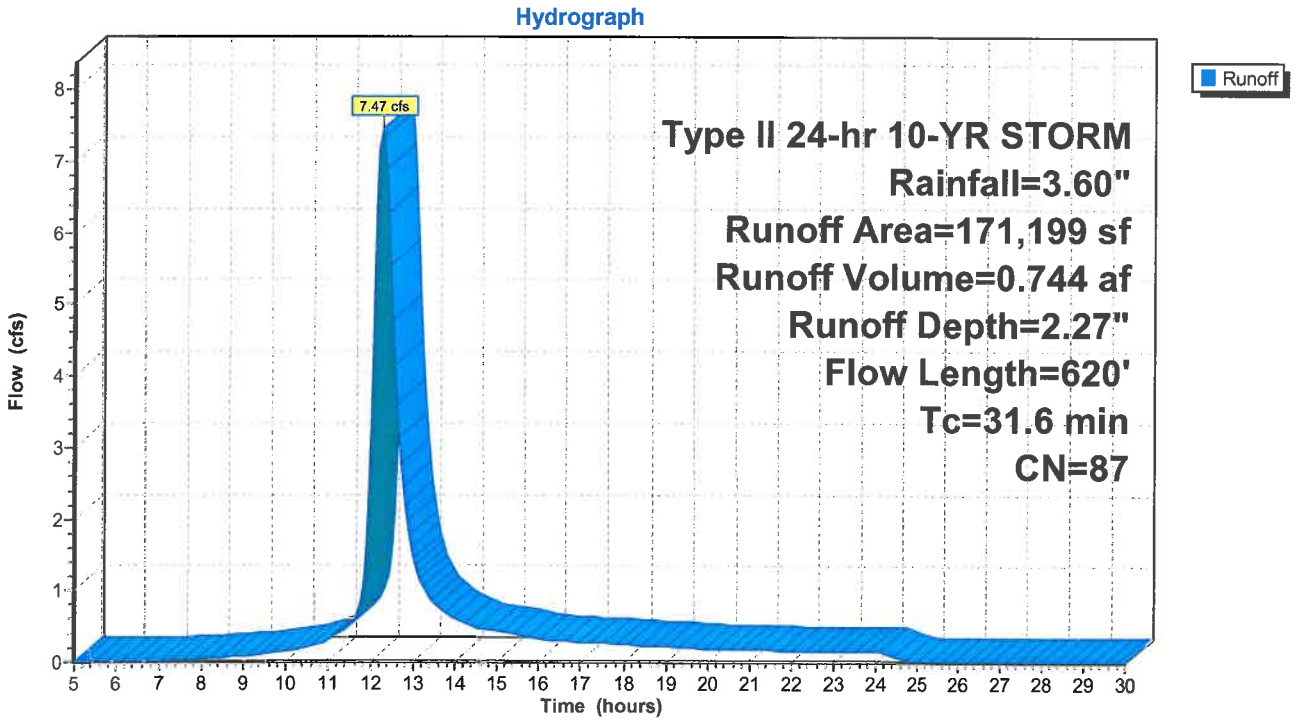
Runoff = 7.47 cfs @ 12.26 hrs, Volume= 0.744 af, Depth= 2.27"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-YR STORM Rainfall=3.60"

Area (sf)	CN	Description
64,250	98	Water Surface, HSG D
106,949	80	>75% Grass cover, Good, HSG D
171,199	87	Weighted Average
106,949		62.47% Pervious Area
64,250		37.53% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.6	100	0.0100	0.11		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 2.50"
17.0	520	0.0010	0.51		**Shallow Concentrated Flow, B-C** Unpaved Kv= 16.1 fps
31.6	620	Total			

Subcatchment Ws13: Watershed 13



Summary for Subcatchment Ws14: Watershed 14

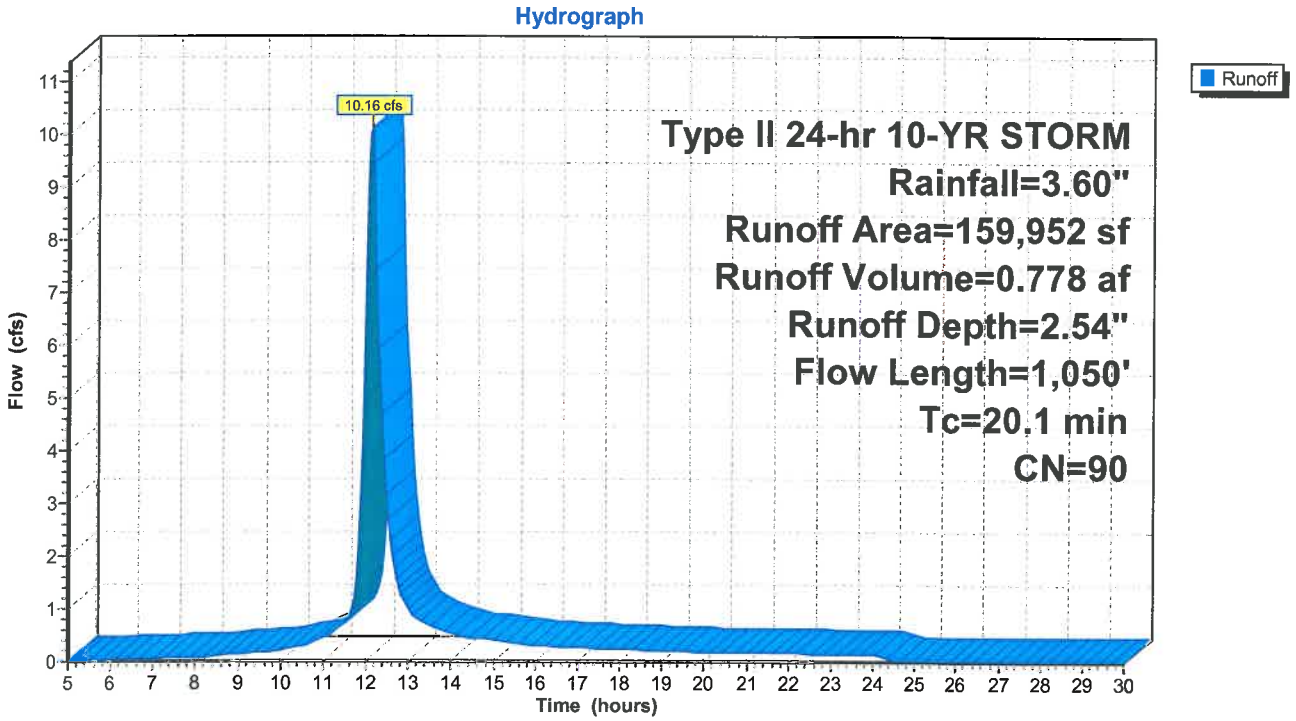
Runoff = 10.16 cfs @ 12.12 hrs, Volume= 0.778 af, Depth= 2.54"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-YR STORM Rainfall=3.60"

Area (sf)	CN	Description
85,247	98	Paved parking, HSG D
74,705	80	>75% Grass cover, Good, HSG D
159,952	90	Weighted Average
74,705		46.70% Pervious Area
85,247		53.30% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.6	100	0.0100	0.11		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 2.50"
5.5	950	0.0200	2.87		**Shallow Concentrated Flow, B-C** Paved Kv= 20.3 fps
20.1	1,050	Total			

Subcatchment Ws14: Watershed 14



Summary for Subcatchment Ws15: Watershed 15

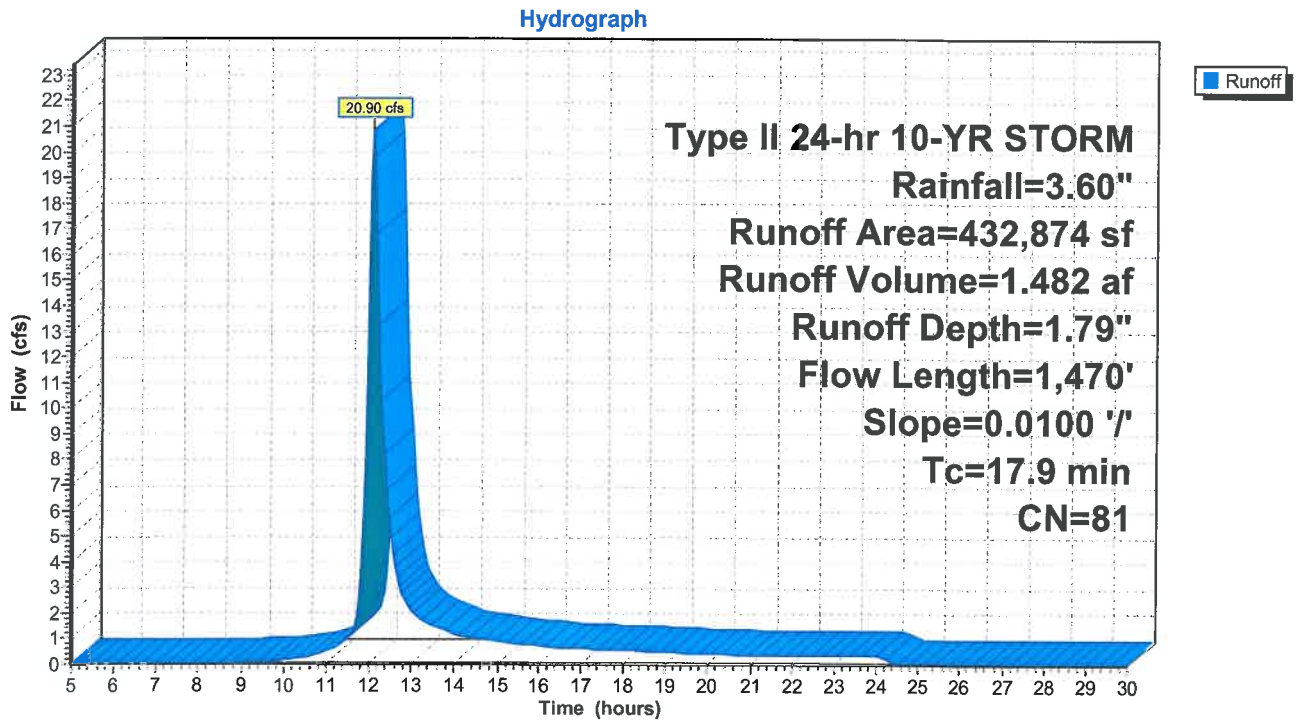
Runoff = 20.90 cfs @ 12.11 hrs, Volume= 1.482 af, Depth= 1.79"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-YR STORM Rainfall=3.60"

Area (sf)	CN	Description
75,600	98	Water Surface, HSG D
357,274	78	Meadow, non-grazed, HSG D
432,874	81	Weighted Average
357,274		82.54% Pervious Area
75,600		17.46% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.0	100	0.0100	0.13		**Sheet Flow, A-B** Range n= 0.130 P2= 2.50"
3.2	310	0.0100	1.61		**Shallow Concentrated Flow, B-C** Unpaved Kv= 16.1 fps
1.3	650	0.0100	8.16	195.95	**Channel Flow, C-D** Area= 24.0 sf Perim= 9.0' r= 2.67' n= 0.035
0.4	410		17.94		**Lake or Reservoir, D-E** Mean Depth= 10.00'
17.9	1,470	Total			

Subcatchment Ws15: Watershed 15



Summary for Subcatchment WS16: Watershed 16

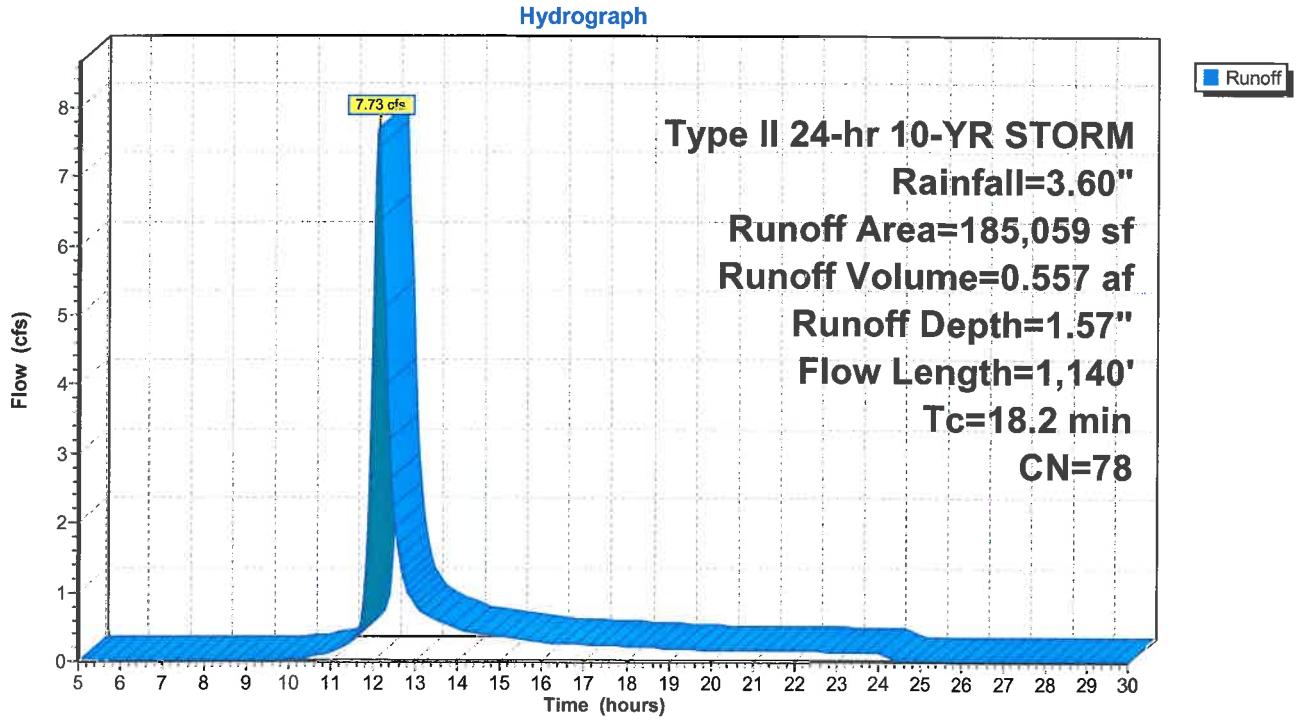
Runoff = 7.73 cfs @ 12.11 hrs, Volume= 0.557 af, Depth= 1.57"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-YR STORM Rainfall=3.60"

Area (sf)	CN	Description
185,059	78	Meadow, non-grazed, HSG D
185,059		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.0	100	0.0100	0.13		**Sheet Flow, A-B** Range n= 0.130 P2= 2.50"
4.3	590	0.0200	2.28		**Shallow Concentrated Flow, B-C** Unpaved Kv= 16.1 fps
0.9	450		8.02		**Lake or Reservoir, C-D** Mean Depth= 2.00'
18.2	1,140	Total			

Subcatchment WS16: Watershed 16



Summary for Subcatchment Ws2: Watershed 2

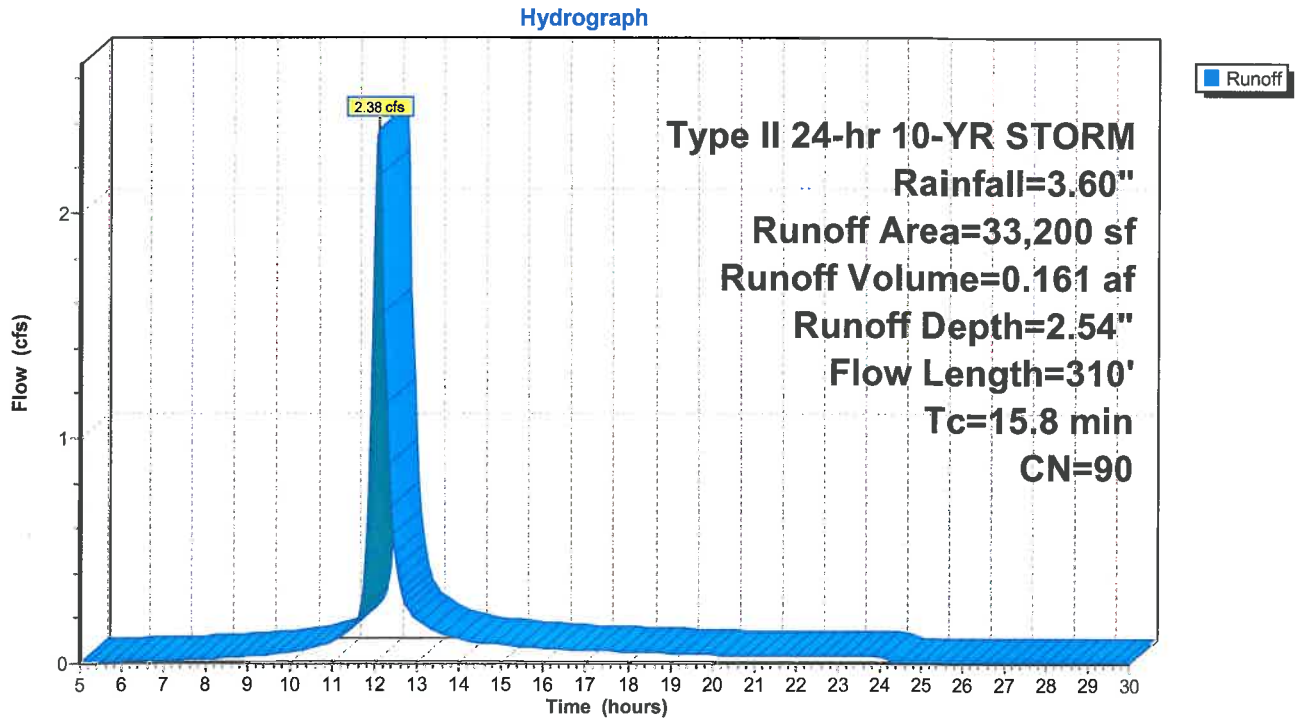
Runoff = 2.38 cfs @ 12.07 hrs, Volume= 0.161 af, Depth= 2.54"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-YR STORM Rainfall=3.60"

Area (sf)	CN	Description
14,950	80	>75% Grass cover, Good, HSG D
18,250	98	Paved parking, HSG D
33,200	90	Weighted Average
14,950		45.03% Pervious Area
18,250		54.97% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.6	100	0.0100	0.11		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 2.50"
1.2	210	0.0200	2.87		**Shallow Concentrated Flow, B-C** Paved Kv= 20.3 fps
15.8	310	Total			

Subcatchment Ws2: Watershed 2



Summary for Subcatchment Ws3: Watershed 3

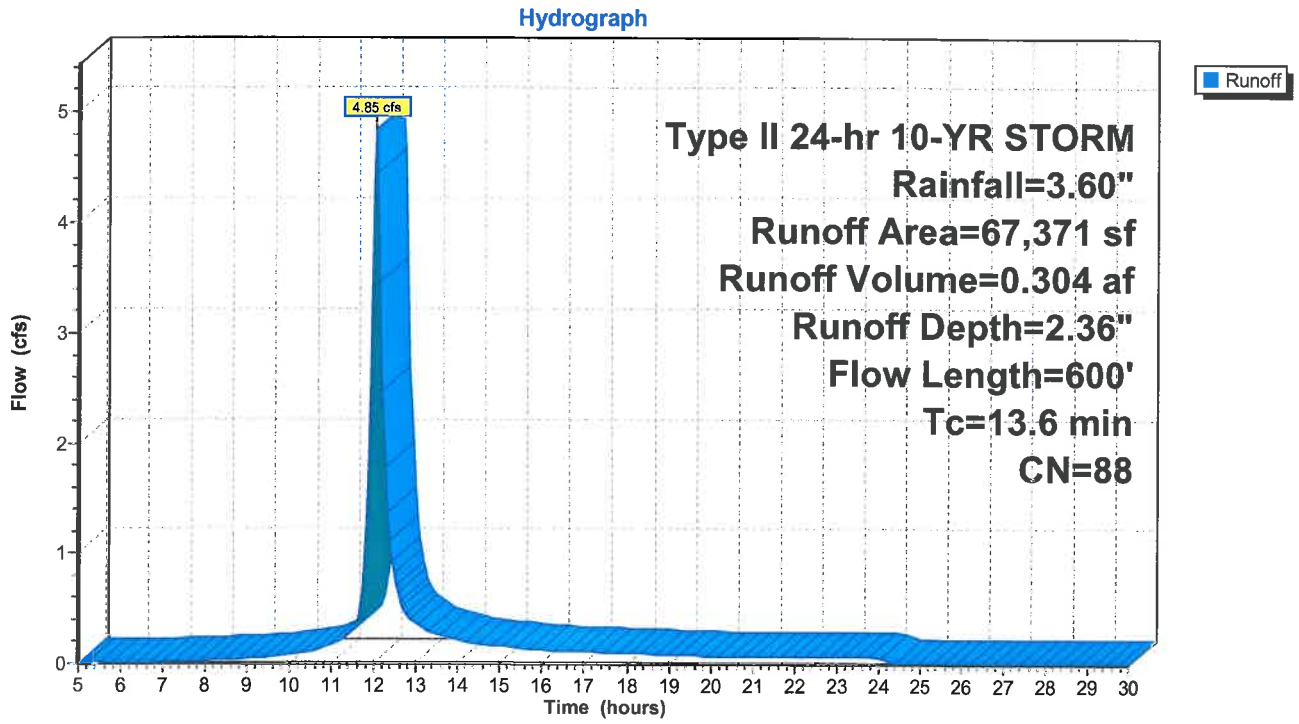
Runoff = 4.85 cfs @ 12.05 hrs, Volume= 0.304 af, Depth= 2.36"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-YR STORM Rainfall=3.60"

Area (sf)	CN	Description
31,750	98	Paved parking, HSG D
35,621	80	>75% Grass cover, Good, HSG D
67,371	88	Weighted Average
35,621		52.87% Pervious Area
31,750		47.13% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.1	100	0.0200	0.15		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 2.50"
0.4	50	0.0200	2.28		**Shallow Concentrated Flow, B-C** Unpaved Kv= 16.1 fps
2.1	450	0.0300	3.52		**Shallow Concentrated Flow, C-D** Paved Kv= 20.3 fps
13.6	600	Total			

Subcatchment Ws3: Watershed 3



Summary for Subcatchment Ws4: Watershed 4

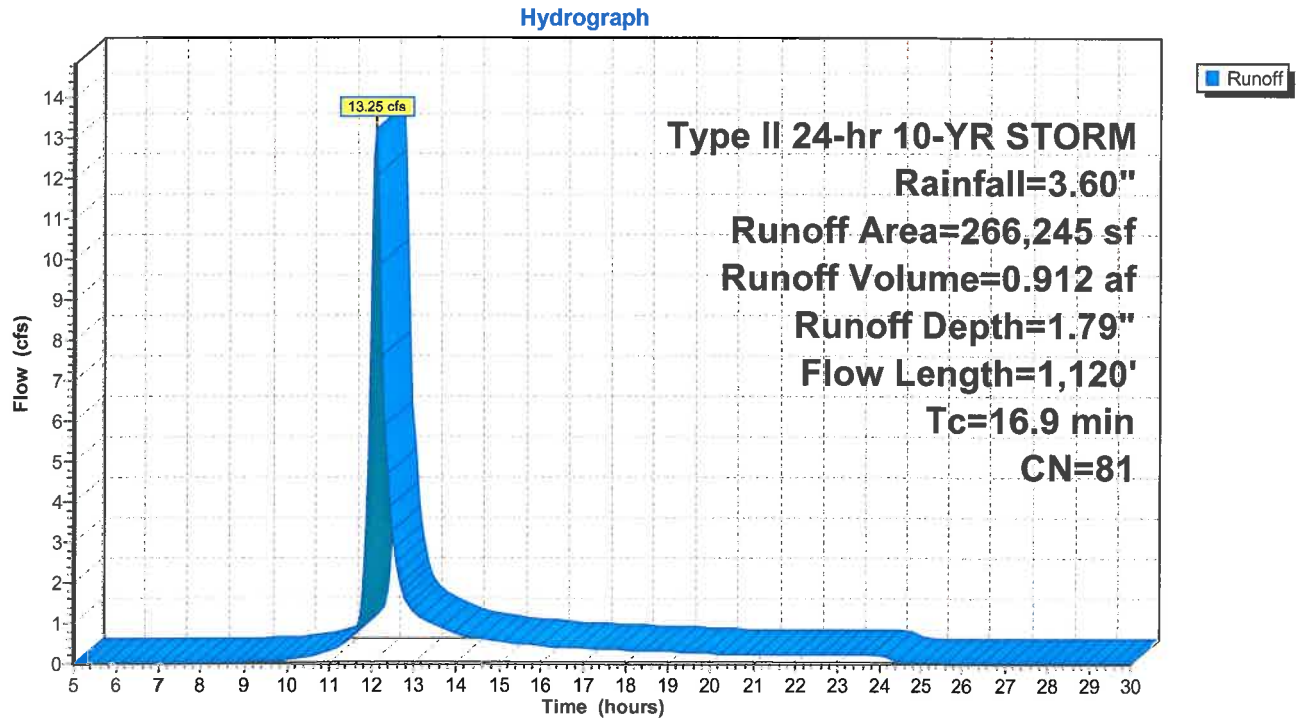
Runoff = 13.25 cfs @ 12.10 hrs, Volume= 0.912 af, Depth= 1.79"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-YR STORM Rainfall=3.60"

Area (sf)	CN	Description
10,420	98	Paved parking, HSG D
157,500	80	Pasture/grassland/range, Good, HSG D
98,325	80	>75% Grass cover, Good, HSG D
266,245	81	Weighted Average
255,825		96.09% Pervious Area
10,420		3.91% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.9	100	0.0200	0.17		**Sheet Flow, A-B** Range n= 0.130 P2= 2.50"
3.2	530	0.0300	2.79		**Shallow Concentrated Flow, B-C** Unpaved Kv= 16.1 fps
3.8	490	0.0200	2.12		**Shallow Concentrated Flow, C-D** Grassed Waterway Kv= 15.0 fps
16.9	1,120	Total			

Subcatchment Ws4: Watershed 4



Summary for Subcatchment Ws5: Watershed 5

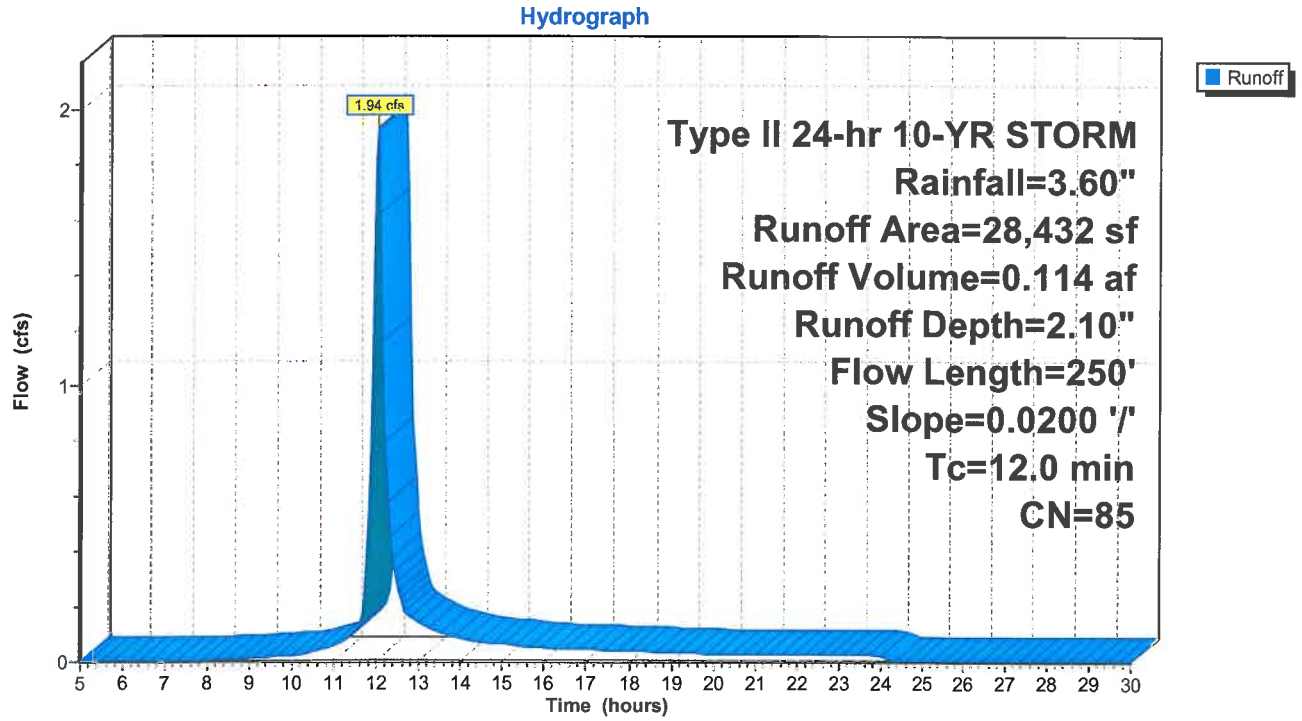
Runoff = 1.94 cfs @ 12.04 hrs, Volume= 0.114 af, Depth= 2.10"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-YR STORM Rainfall=3.60"

Area (sf)	CN	Description
8,300	98	Paved parking, HSG D
20,132	80	>75% Grass cover, Good, HSG D
28,432	85	Weighted Average
20,132		70.81% Pervious Area
8,300		29.19% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.1	100	0.0200	0.15		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 2.50"
0.9	150	0.0200	2.87		**Shallow Concentrated Flow, B-C** Paved Kv= 20.3 fps
12.0	250	Total			

Subcatchment Ws5: Watershed 5



Summary for Subcatchment Ws6: Watershed 6

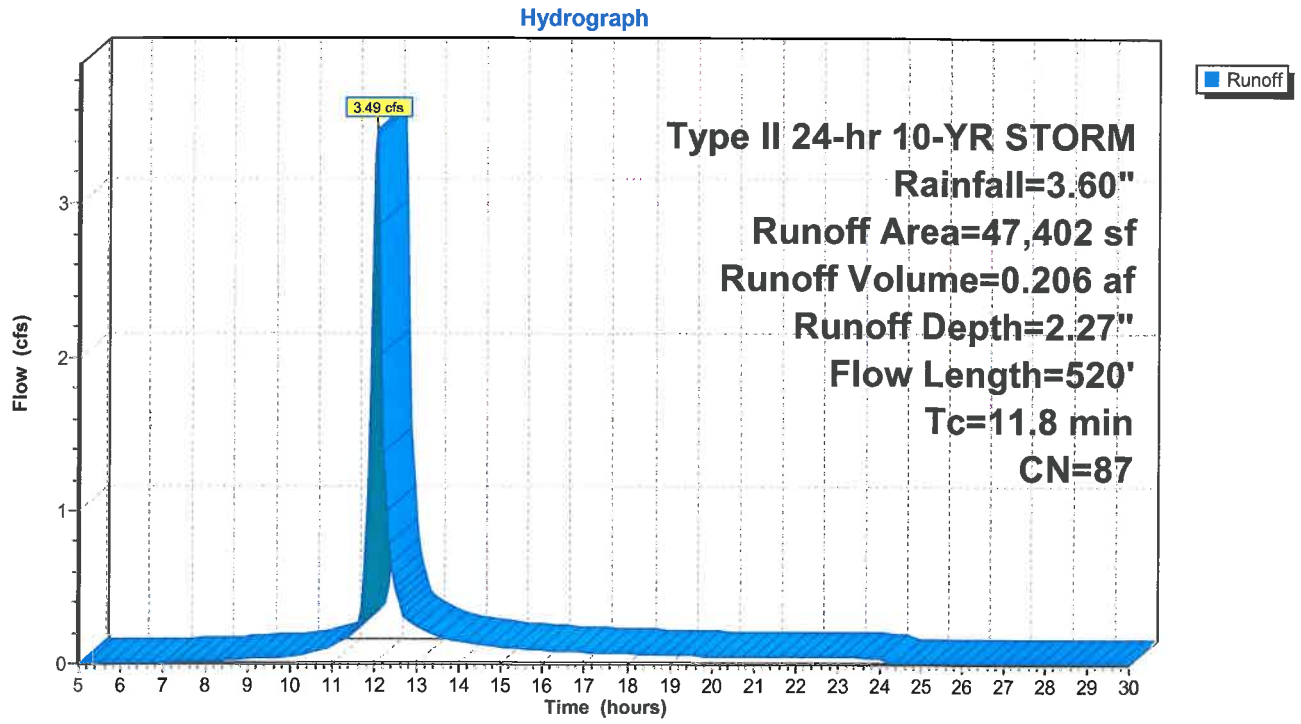
Runoff = 3.49 cfs @ 12.03 hrs, Volume= 0.206 af, Depth= 2.27"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-YR STORM Rainfall=3.60"

Area (sf)	CN	Description
18,250	98	Paved parking, HSG D
29,152	80	>75% Grass cover, Good, HSG D
47,402	87	Weighted Average
29,152		61.50% Pervious Area
18,250		38.50% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.4	100	0.0300	0.18		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 2.50"
0.7	120	0.0300	2.79		**Shallow Concentrated Flow, B-C** Unpaved Kv= 16.1 fps
1.7	300	0.0200	2.87		**Shallow Concentrated Flow, C-D** Paved Kv= 20.3 fps
11.8	520	Total			

Subcatchment Ws6: Watershed 6



Summary for Subcatchment Ws7: Watershed 7

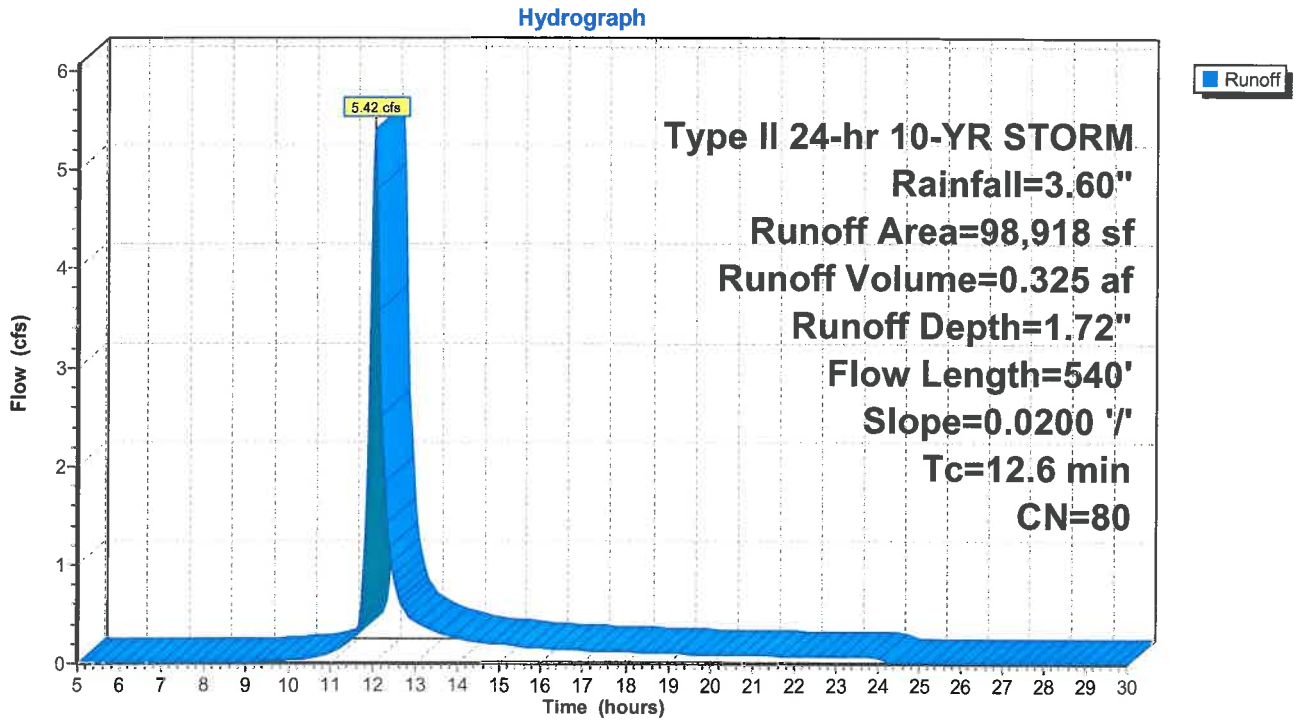
Runoff = 5.42 cfs @ 12.05 hrs, Volume= 0.325 af, Depth= 1.72"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-YR STORM Rainfall=3.60"

Area (sf)	CN	Description
18,250	98	Paved parking, HSG D
40,668	80	>75% Grass cover, Good, HSG D
40,000	73	Brush, Good, HSG D
98,918	80	Weighted Average
80,668		81.55% Pervious Area
18,250		18.45% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.9	100	0.0200	0.17		**Sheet Flow, A-B** Range n= 0.130 P2= 2.50"
1.0	140	0.0200	2.28		**Shallow Concentrated Flow, B-C** Unpaved Kv= 16.1 fps
1.7	300	0.0200	2.87		**Shallow Concentrated Flow, C-D** Paved Kv= 20.3 fps
12.6	540	Total			

Subcatchment Ws7: Watershed 7



Summary for Subcatchment Ws8: Watershed 8

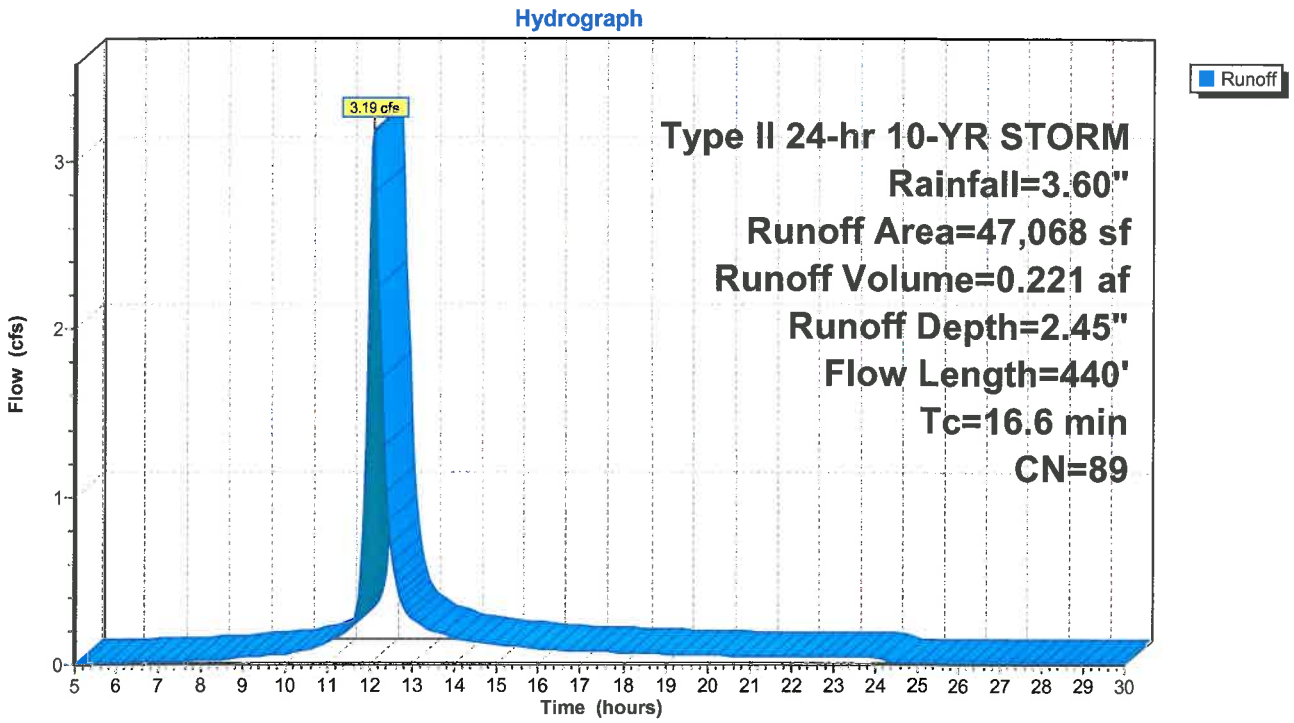
Runoff = 3.19 cfs @ 12.09 hrs, Volume= 0.221 af, Depth= 2.45"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-YR STORM Rainfall=3.60"

Area (sf)	CN	Description
24,250	98	Paved parking, HSG D
22,818	80	>75% Grass cover, Good, HSG D
47,068	89	Weighted Average
22,818		48.48% Pervious Area
24,250		51.52% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.6	100	0.0100	0.11		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 2.50"
2.0	340	0.0200	2.87		**Shallow Concentrated Flow, B-C** Paved Kv= 20.3 fps
16.6	440	Total			

Subcatchment Ws8: Watershed 8



Summary for Subcatchment Ws9: Watershed 9

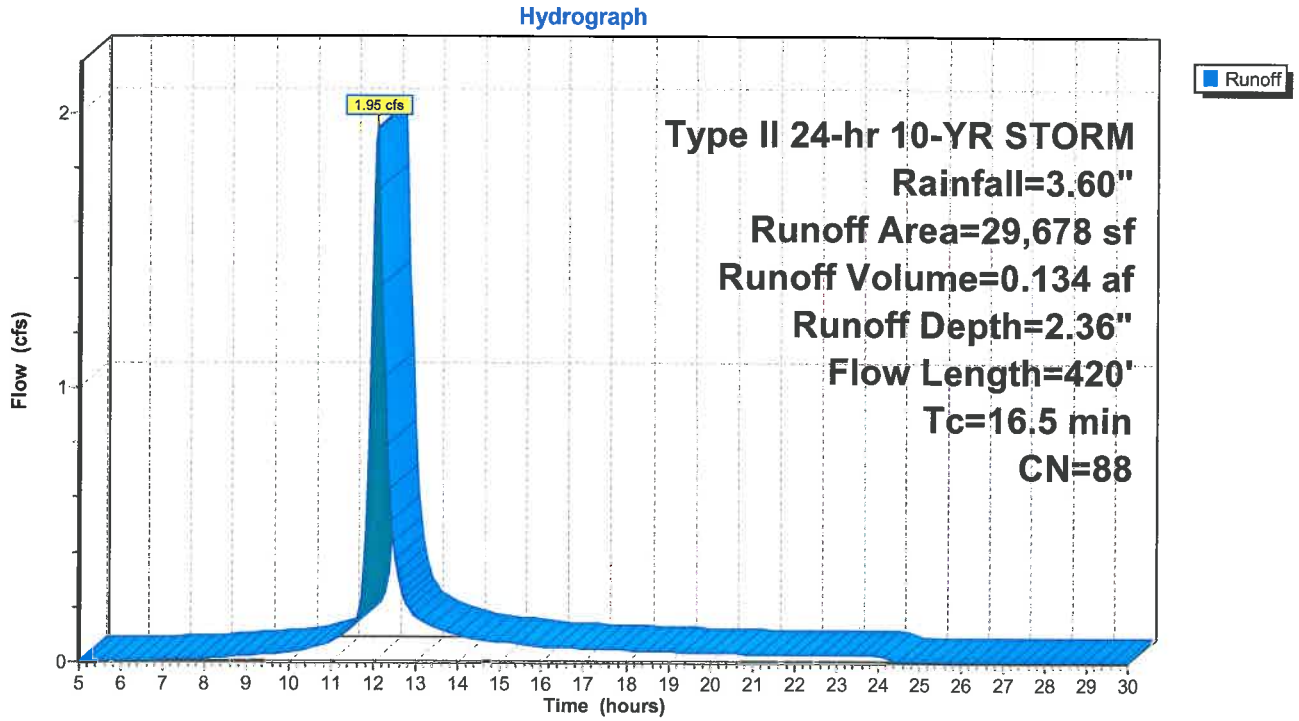
Runoff = 1.95 cfs @ 12.09 hrs, Volume= 0.134 af, Depth= 2.36"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-YR STORM Rainfall=3.60"

Area (sf)	CN	Description
12,840	98	Paved parking, HSG D
16,838	80	>75% Grass cover, Good, HSG D
29,678	88	Weighted Average
16,838		56.74% Pervious Area
12,840		43.26% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.6	100	0.0100	0.11		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 2.50"
1.9	320	0.0200	2.87		**Shallow Concentrated Flow, B-C** Paved Kv= 20.3 fps
16.5	420	Total			

Subcatchment Ws9: Watershed 9



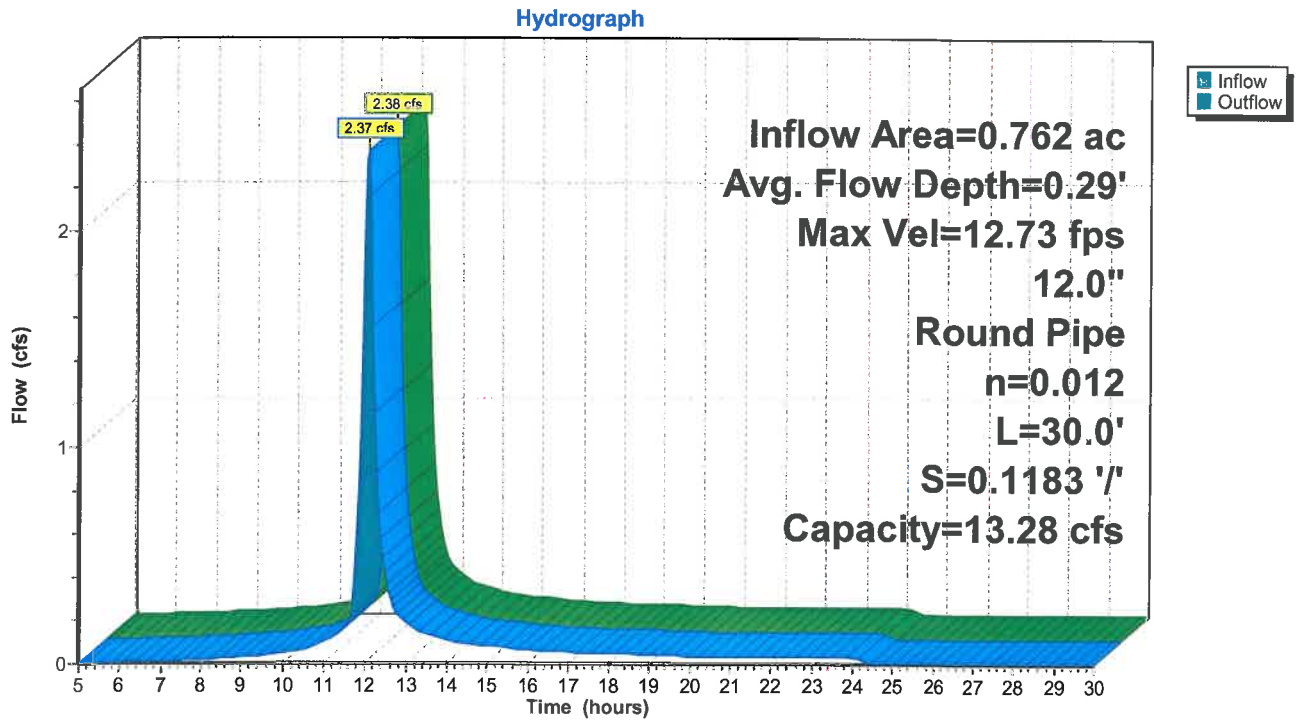
Summary for Reach R1: CB 18-17

Inflow Area = 0.762 ac, 54.97% Impervious, Inflow Depth = 2.54" for 10-YR STORM event
Inflow = 2.38 cfs @ 12.07 hrs, Volume= 0.161 af
Outflow = 2.37 cfs @ 12.08 hrs, Volume= 0.161 af, Atten= 0%, Lag= 0.1 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 12.73 fps, Min. Travel Time= 0.0 min
Avg. Velocity = 4.05 fps, Avg. Travel Time= 0.1 min

Peak Storage= 6 cf @ 12.08 hrs
Average Depth at Peak Storage= 0.29'
Bank-Full Depth= 1.00', Capacity at Bank-Full= 13.28 cfs

12.0" Round Pipe
n= 0.012 Concrete pipe, finished
Length= 30.0' Slope= 0.1183 '/'
Inlet Invert= 831.62', Outlet Invert= 828.07'



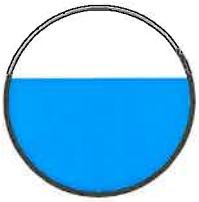
Summary for Reach R10: CB1 to CB 2

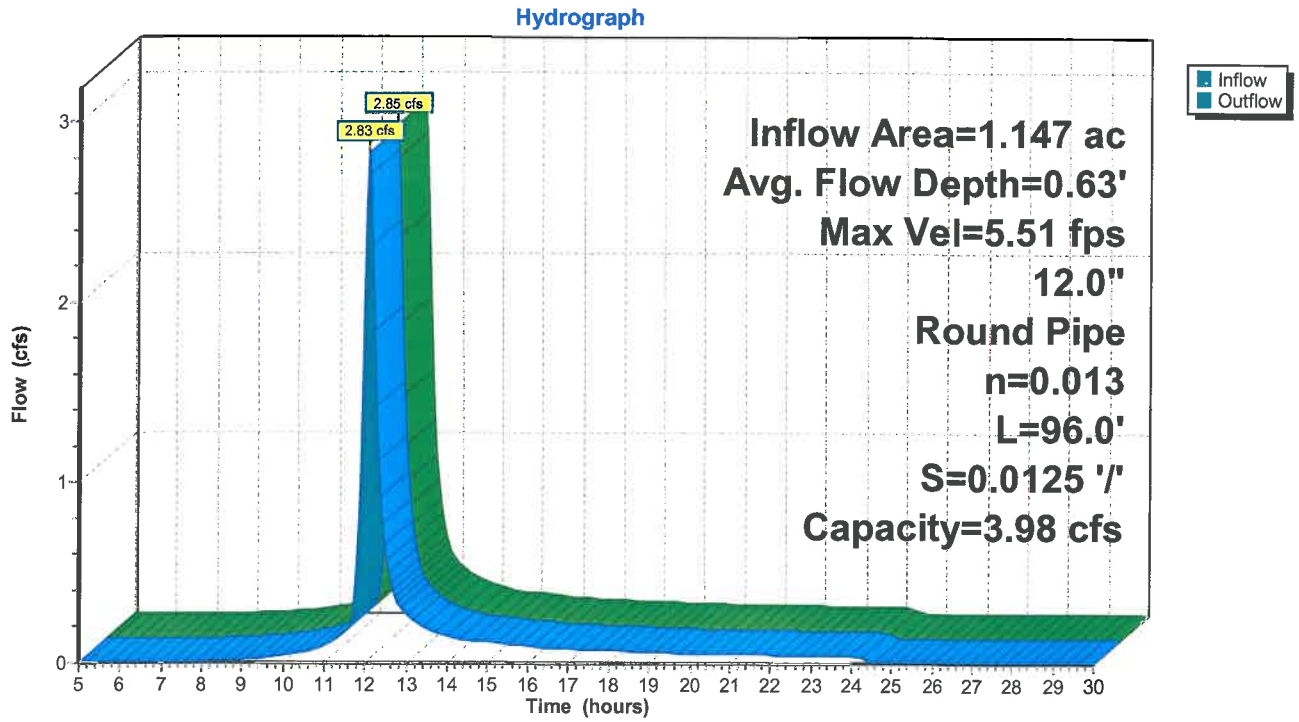
Inflow Area = 1.147 ac, 25.02% Impervious, Inflow Depth = 2.10" for 10-YR STORM event
Inflow = 2.85 cfs @ 12.10 hrs, Volume= 0.201 af
Outflow = 2.83 cfs @ 12.11 hrs, Volume= 0.201 af, Atten= 1%, Lag= 0.5 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 5.51 fps, Min. Travel Time= 0.3 min
Avg. Velocity = 1.91 fps, Avg. Travel Time= 0.8 min

Peak Storage= 50 cf @ 12.11 hrs
Average Depth at Peak Storage= 0.63'
Bank-Full Depth= 1.00', Capacity at Bank-Full= 3.98 cfs

12.0" Round Pipe
n= 0.013 Corrugated PE, smooth interior
Length= 96.0' Slope= 0.0125 '/'
Inlet Invert= 817.93', Outlet Invert= 816.73'





Summary for Reach R11: Upper Pond to MH2

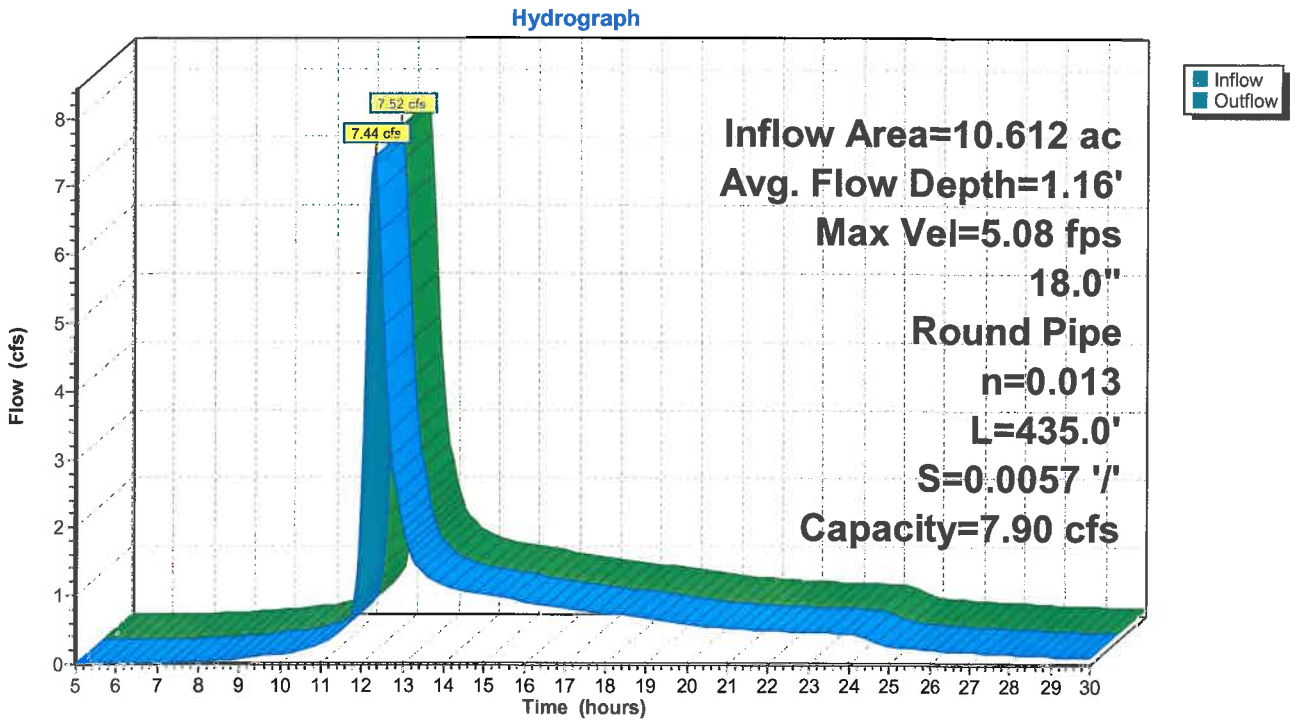
Inflow Area = 10.612 ac, 20.37% Impervious, Inflow Depth > 1.42" for 10-YR STORM event
Inflow = 7.52 cfs @ 12.26 hrs, Volume= 1.256 af
Outflow = 7.44 cfs @ 12.31 hrs, Volume= 1.255 af, Atten= 1%, Lag= 2.8 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 5.08 fps, Min. Travel Time= 1.4 min
Avg. Velocity = 2.32 fps, Avg. Travel Time= 3.1 min

Peak Storage= 640 cf @ 12.29 hrs
Average Depth at Peak Storage= 1.16'
Bank-Full Depth= 1.50', Capacity at Bank-Full= 7.90 cfs

18.0" Round Pipe
n= 0.013 Corrugated PE, smooth interior
Length= 435.0' Slope= 0.0057 '/'
Inlet Invert= 823.72', Outlet Invert= 821.26'

Reach R11: Upper Pond to MH2



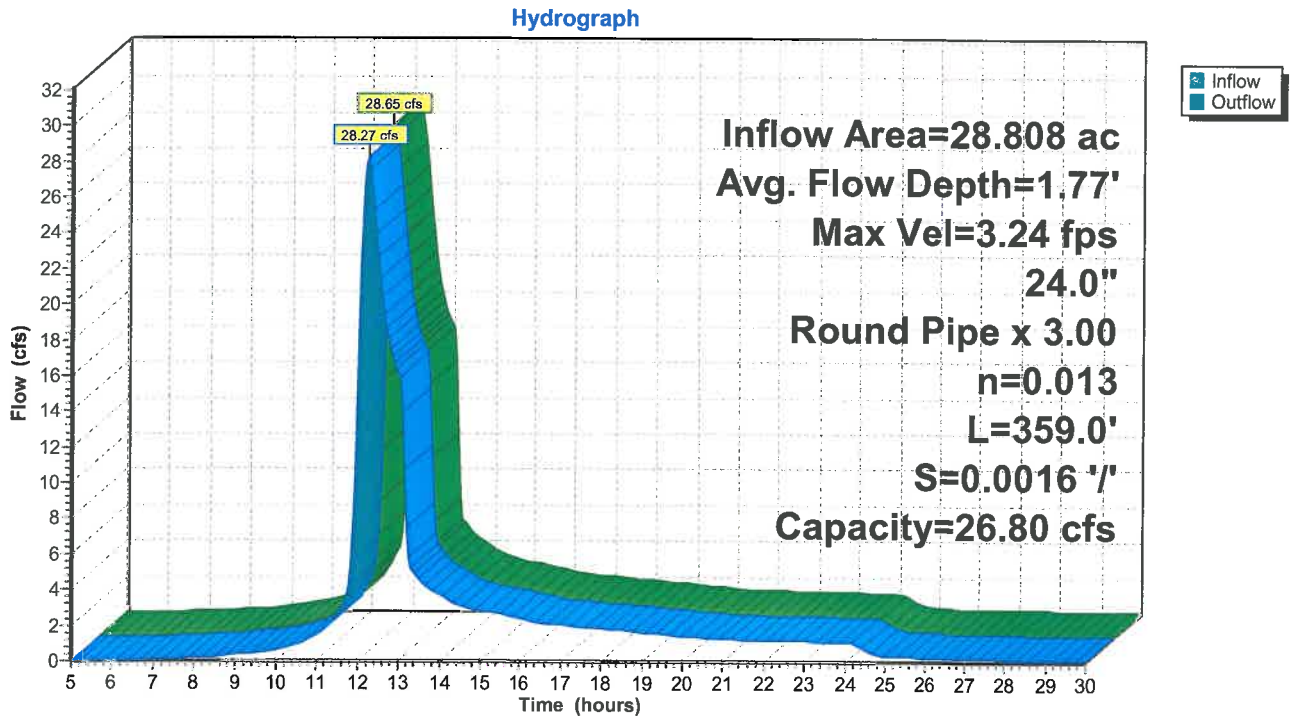
Summary for Reach R12: MH2 to Pond

Inflow Area = 28.808 ac, 25.64% Impervious, Inflow Depth > 1.85" for 10-YR STORM event
Inflow = 28.65 cfs @ 12.17 hrs, Volume= 4.433 af
Outflow = 28.27 cfs @ 12.24 hrs, Volume= 4.432 af, Atten= 1%, Lag= 4.2 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 3.24 fps, Min. Travel Time= 1.8 min
Avg. Velocity = 1.33 fps, Avg. Travel Time= 4.5 min

Peak Storage= 3,169 cf @ 12.21 hrs
Average Depth at Peak Storage= 1.77'
Bank-Full Depth= 2.00', Capacity at Bank-Full= 26.80 cfs

A factor of 3.00 has been applied to the storage and discharge capacity
24.0" Round Pipe
n= 0.013 Corrugated PE, smooth interior
Length= 359.0' Slope= 0.0016 '/'
Inlet Invert= 821.06', Outlet Invert= 820.50'



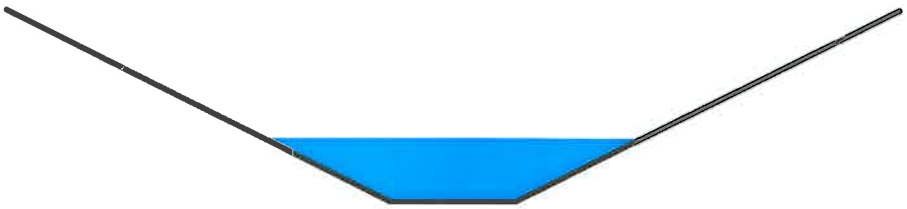
Summary for Reach R13: Swale

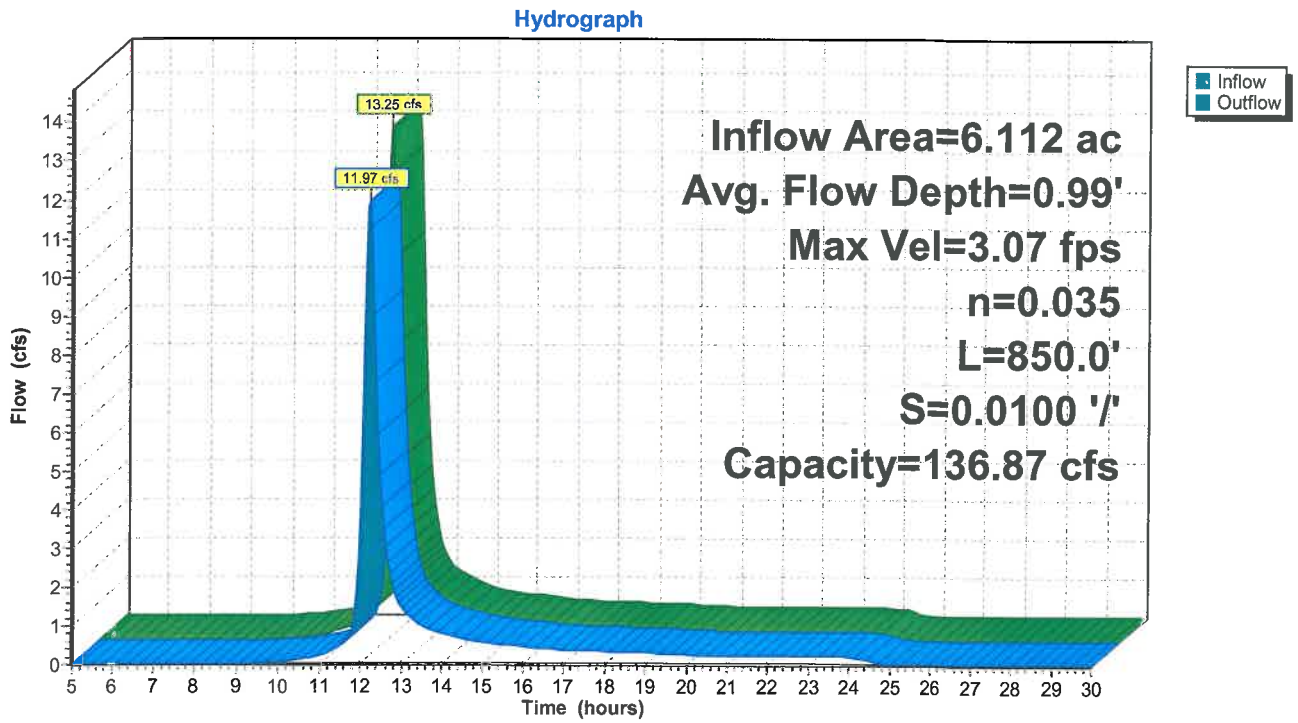
Inflow Area = 6.112 ac, 3.91% Impervious, Inflow Depth = 1.79" for 10-YR STORM event
Inflow = 13.25 cfs @ 12.10 hrs, Volume= 0.912 af
Outflow = 11.97 cfs @ 12.23 hrs, Volume= 0.912 af, Atten= 10%, Lag= 7.9 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 3.07 fps, Min. Travel Time= 4.6 min
Avg. Velocity = 0.95 fps, Avg. Travel Time= 15.0 min

Peak Storage= 3,373 cf @ 12.15 hrs
Average Depth at Peak Storage= 0.99'
Bank-Full Depth= 3.00', Capacity at Bank-Full= 136.87 cfs

2.00' x 3.00' deep channel, n= 0.035 Earth, dense weeds
Side Slope Z-value= 2.0 '/' Top Width= 14.00'
Length= 850.0' Slope= 0.0100 '/'
Inlet Invert= 0.00', Outlet Invert= -8.50'





Summary for Reach R2: CB 17- MH 7

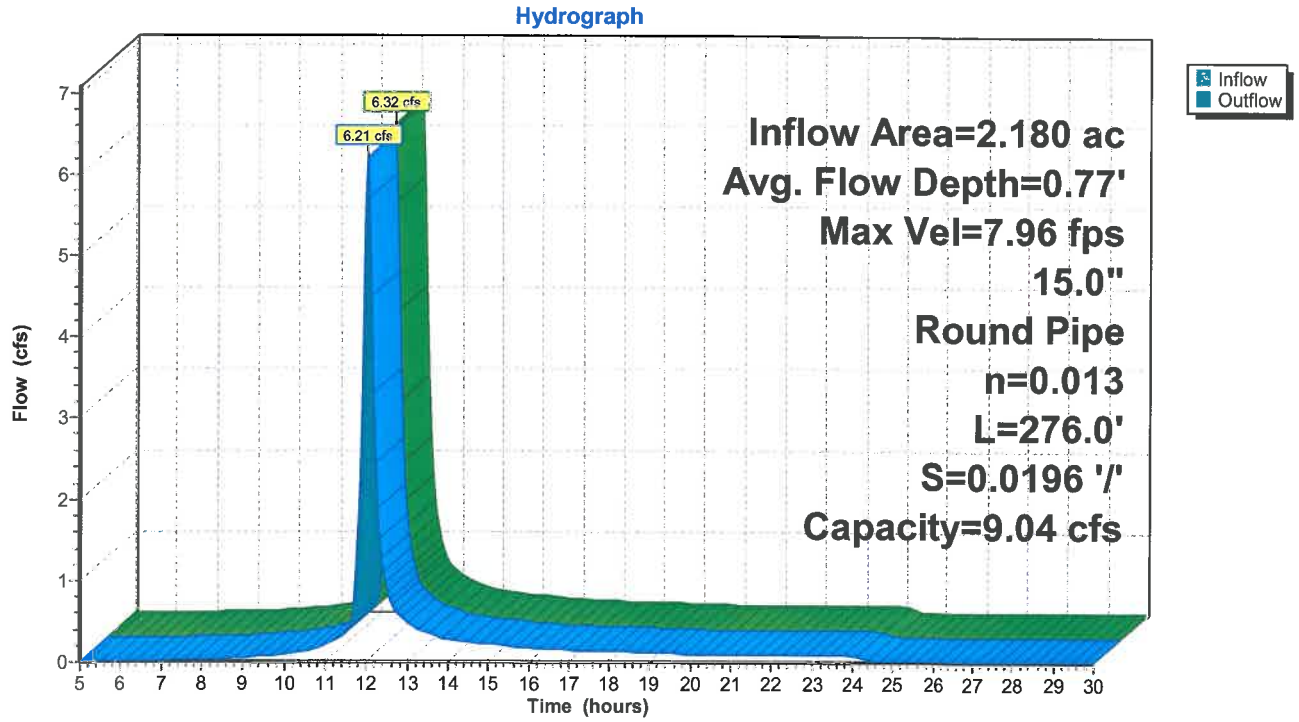
Inflow Area = 2.180 ac, 38.43% Impervious, Inflow Depth = 2.15" for 10-YR STORM event
Inflow = 6.32 cfs @ 12.04 hrs, Volume= 0.391 af
Outflow = 6.21 cfs @ 12.05 hrs, Volume= 0.391 af, Atten= 2%, Lag= 1.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 7.96 fps, Min. Travel Time= 0.6 min
Avg. Velocity = 2.49 fps, Avg. Travel Time= 1.8 min

Peak Storage= 219 cf @ 12.05 hrs
Average Depth at Peak Storage= 0.77'
Bank-Full Depth= 1.25', Capacity at Bank-Full= 9.04 cfs

15.0" Round Pipe
n= 0.013 Corrugated PE, smooth interior
Length= 276.0' Slope= 0.0196 '/'
Inlet Invert= 827.97', Outlet Invert= 822.57'

Reach R2: CB 17- MH 7



Summary for Reach R3: MH7-MH3

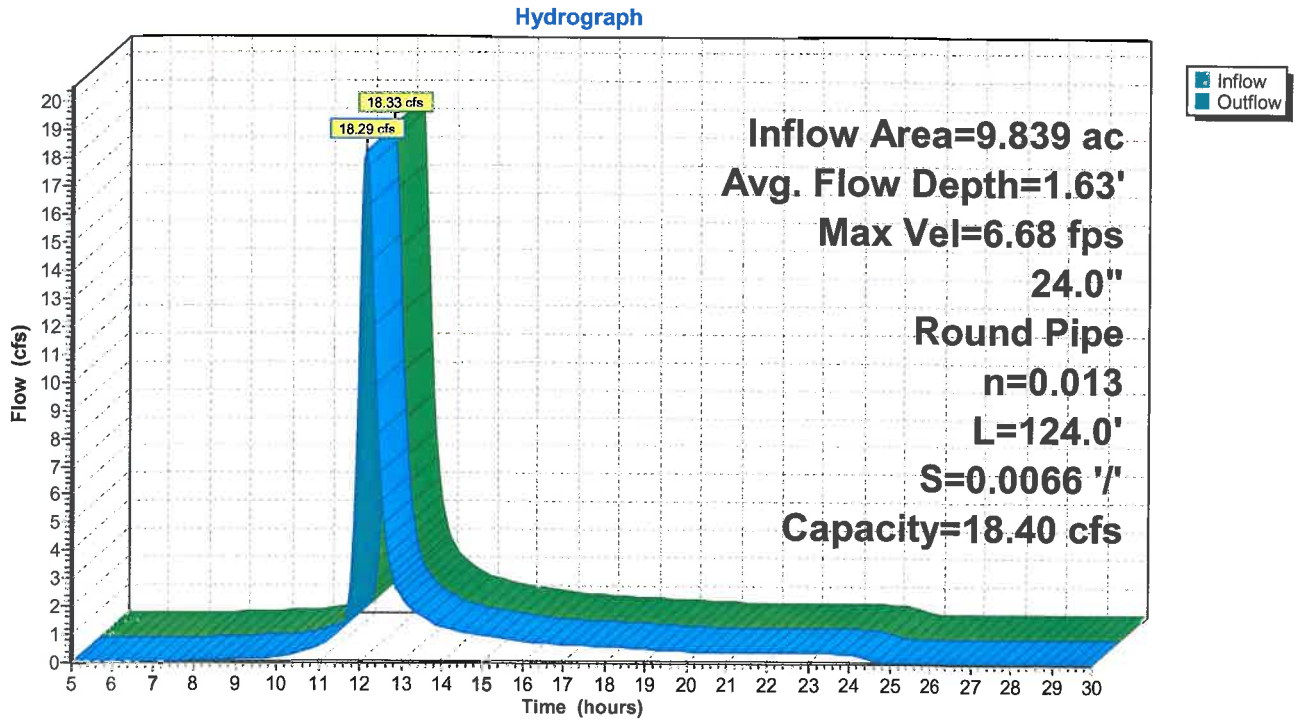
Inflow Area = 9.839 ac, 18.36% Impervious, Inflow Depth = 1.96" for 10-YR STORM event
Inflow = 18.33 cfs @ 12.13 hrs, Volume= 1.607 af
Outflow = 18.29 cfs @ 12.14 hrs, Volume= 1.607 af, Atten= 0%, Lag= 0.8 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 6.68 fps, Min. Travel Time= 0.3 min
Avg. Velocity = 2.14 fps, Avg. Travel Time= 1.0 min

Peak Storage= 341 cf @ 12.14 hrs
Average Depth at Peak Storage= 1.63'
Bank-Full Depth= 2.00', Capacity at Bank-Full= 18.40 cfs

24.0" Round Pipe
n= 0.013 Corrugated PE, smooth interior
Length= 124.0' Slope= 0.0066 '/'
Inlet Invert= 822.47', Outlet Invert= 821.65'

Reach R3: MH7-MH3



Summary for Reach R4: CB10 - MH3

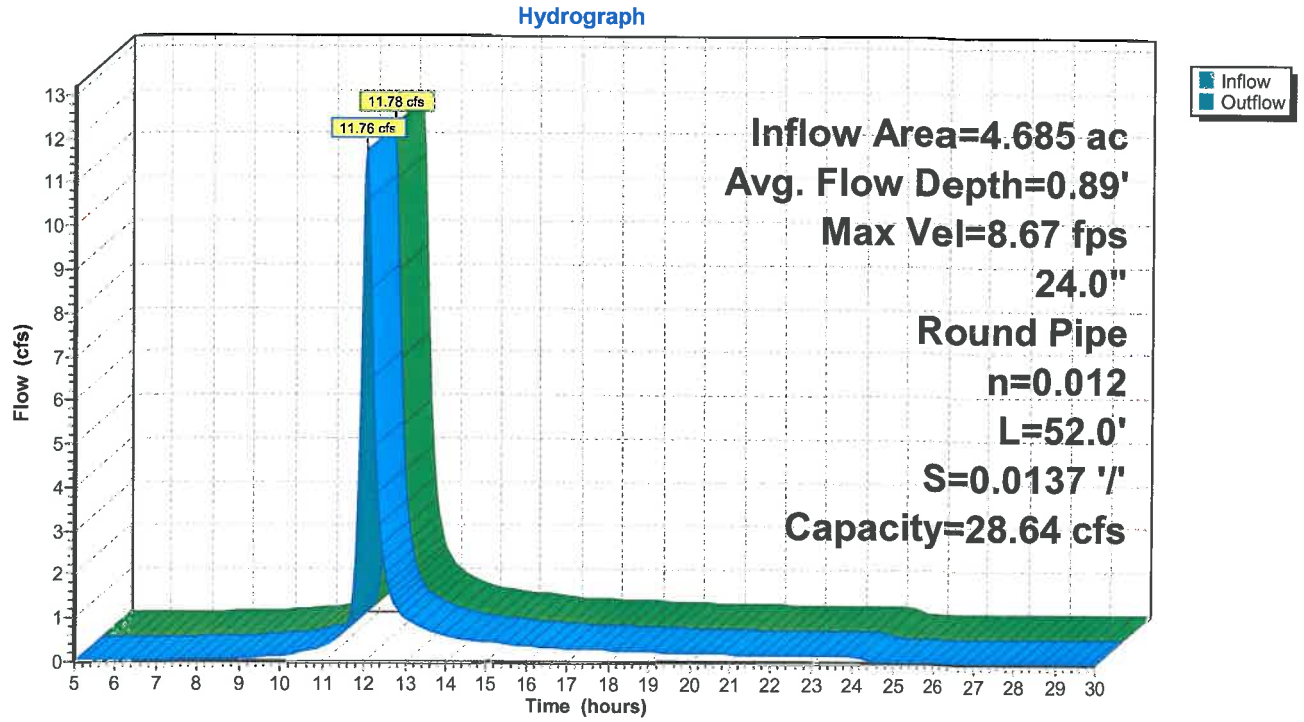
Inflow Area = 4.685 ac, 31.18% Impervious, Inflow Depth = 2.03" for 10-YR STORM event
Inflow = 11.78 cfs @ 12.09 hrs, Volume= 0.794 af
Outflow = 11.76 cfs @ 12.09 hrs, Volume= 0.794 af, Atten= 0%, Lag= 0.2 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 8.67 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 2.70 fps, Avg. Travel Time= 0.3 min

Peak Storage= 71 cf @ 12.09 hrs
Average Depth at Peak Storage= 0.89'
Bank-Full Depth= 2.00', Capacity at Bank-Full= 28.64 cfs

24.0" Round Pipe
n= 0.012 Concrete pipe, finished
Length= 52.0' Slope= 0.0137 '/'
Inlet Invert= 821.92', Outlet Invert= 821.21'

Reach R4: CB10 - MH3



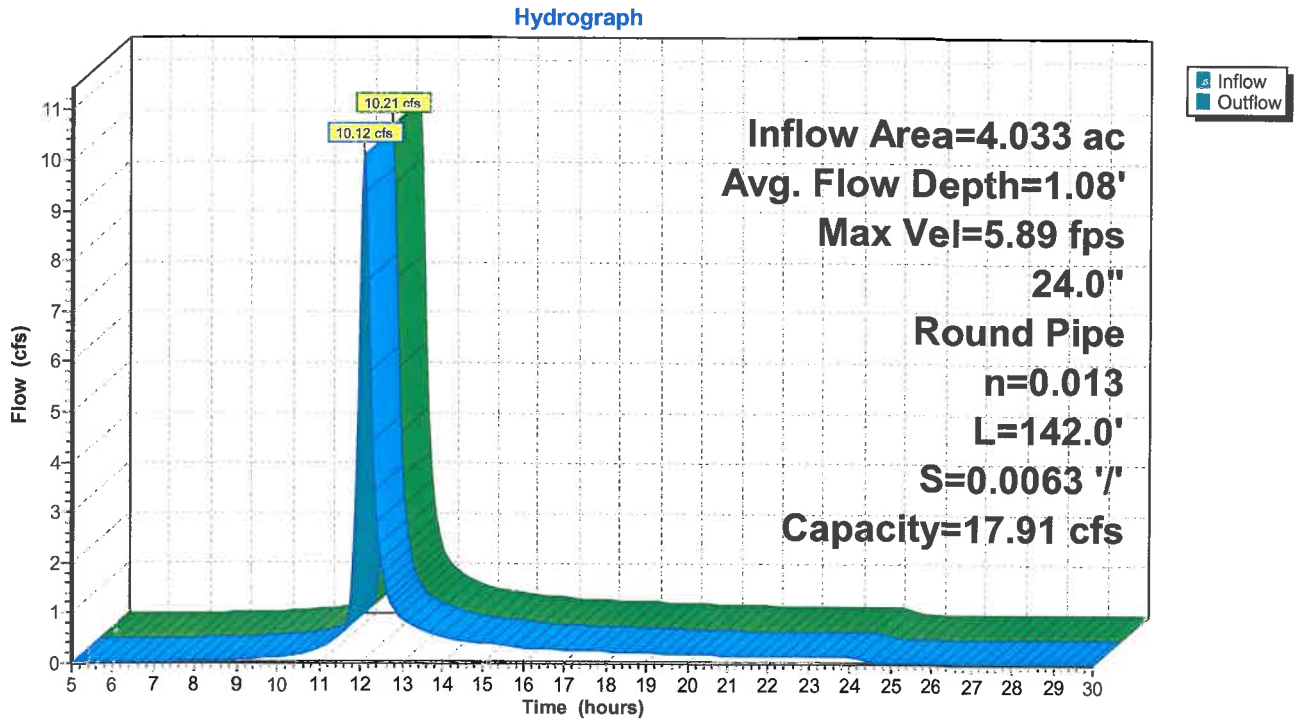
Summary for Reach R5: MH4-CB10

Inflow Area = 4.033 ac, 31.50% Impervious, Inflow Depth = 2.02" for 10-YR STORM event
Inflow = 10.21 cfs @ 12.09 hrs, Volume= 0.679 af
Outflow = 10.12 cfs @ 12.10 hrs, Volume= 0.679 af, Atten= 1%, Lag= 0.7 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 5.89 fps, Min. Travel Time= 0.4 min
Avg. Velocity = 1.85 fps, Avg. Travel Time= 1.3 min

Peak Storage= 246 cf @ 12.09 hrs
Average Depth at Peak Storage= 1.08'
Bank-Full Depth= 2.00', Capacity at Bank-Full= 17.91 cfs

24.0" Round Pipe
n= 0.013 Corrugated PE, smooth interior
Length= 142.0' Slope= 0.0063 '/'
Inlet Invert= 822.81', Outlet Invert= 821.92'



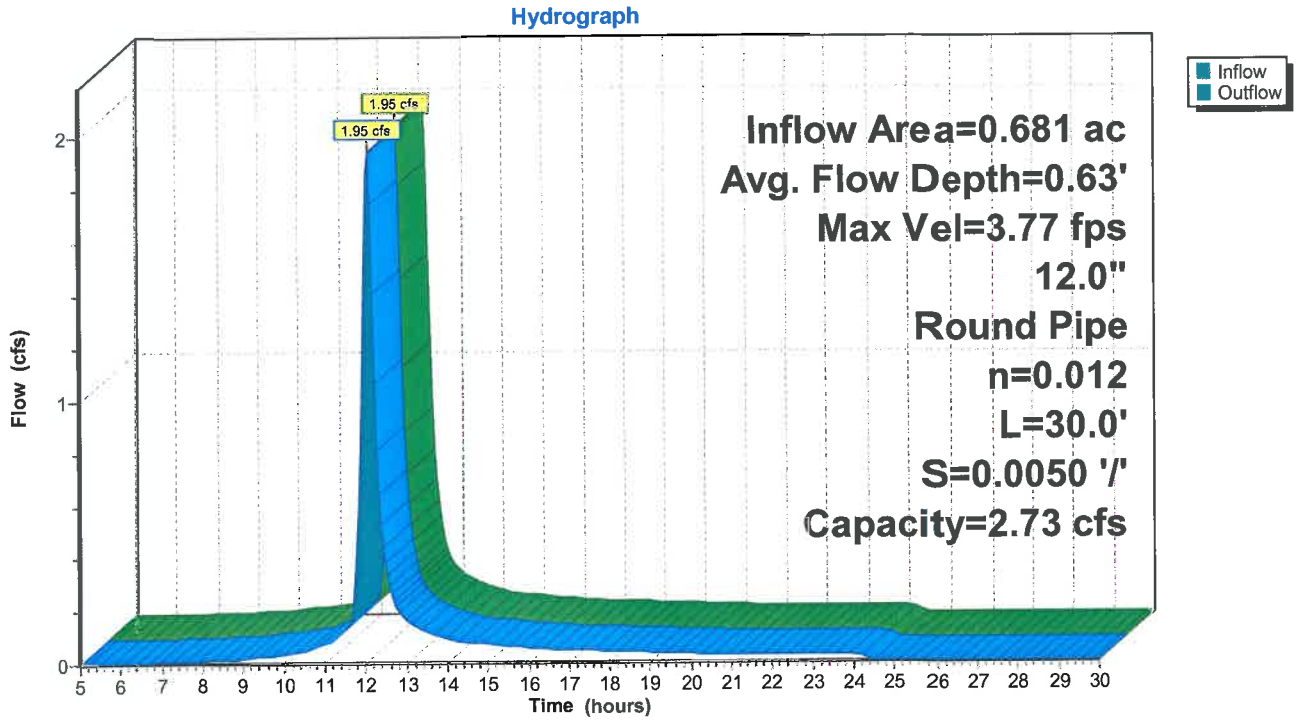
Summary for Reach R6: CB19-CB20

Inflow Area = 0.681 ac, 43.26% Impervious, Inflow Depth = 2.36" for 10-YR STORM event
Inflow = 1.95 cfs @ 12.09 hrs, Volume= 0.134 af
Outflow = 1.95 cfs @ 12.09 hrs, Volume= 0.134 af, Atten= 0%, Lag= 0.2 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 3.77 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 1.27 fps, Avg. Travel Time= 0.4 min

Peak Storage= 16 cf @ 12.09 hrs
Average Depth at Peak Storage= 0.63'
Bank-Full Depth= 1.00', Capacity at Bank-Full= 2.73 cfs

12.0" Round Pipe
n= 0.012 Concrete pipe, finished
Length= 30.0' Slope= 0.0050 '/'
Inlet Invert= 823.05', Outlet Invert= 822.90'



Summary for Reach R7: MH5-MH4

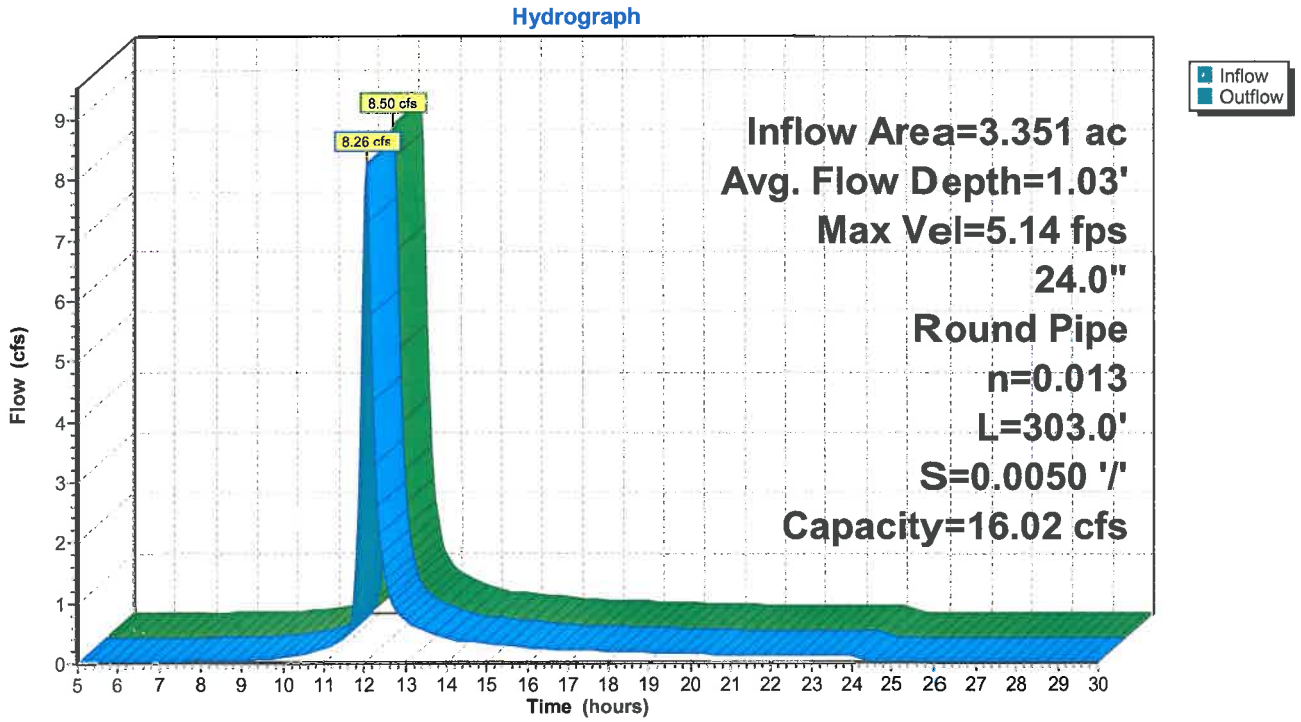
Inflow Area = 3.351 ac, 29.11% Impervious, Inflow Depth = 1.95" for 10-YR STORM event
Inflow = 8.50 cfs @ 12.06 hrs, Volume= 0.545 af
Outflow = 8.26 cfs @ 12.09 hrs, Volume= 0.545 af, Atten= 3%, Lag= 1.8 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 5.14 fps, Min. Travel Time= 1.0 min
Avg. Velocity = 1.59 fps, Avg. Travel Time= 3.2 min

Peak Storage= 494 cf @ 12.07 hrs
Average Depth at Peak Storage= 1.03'
Bank-Full Depth= 2.00', Capacity at Bank-Full= 16.02 cfs

24.0" Round Pipe
n= 0.013 Corrugated PE, smooth interior
Length= 303.0' Slope= 0.0050 '/'
Inlet Invert= 824.25', Outlet Invert= 822.73'

Reach R7: MH5-MH4



Summary for Reach R8: CB 21-22

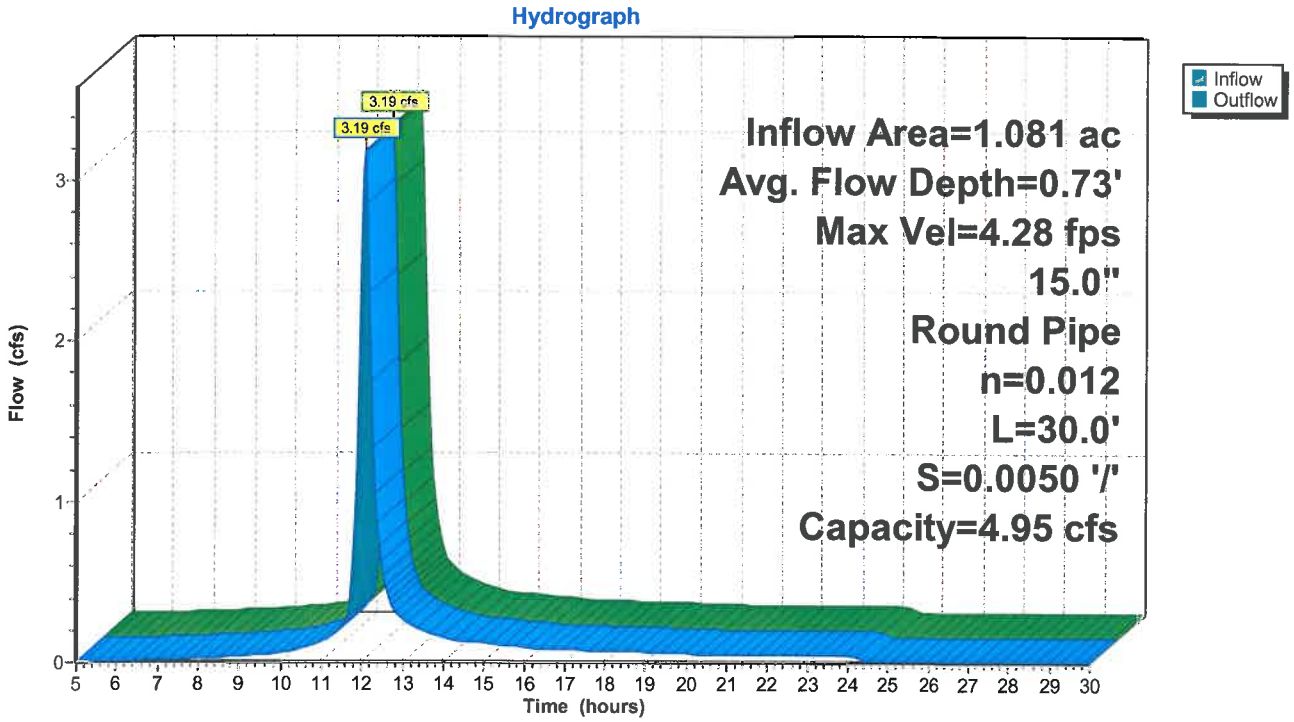
Inflow Area = 1.081 ac, 51.52% Impervious, Inflow Depth = 2.45" for 10-YR STORM event
Inflow = 3.19 cfs @ 12.09 hrs, Volume= 0.221 af
Outflow = 3.19 cfs @ 12.09 hrs, Volume= 0.221 af, Atten= 0%, Lag= 0.2 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 4.28 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 1.42 fps, Avg. Travel Time= 0.4 min

Peak Storage= 22 cf @ 12.09 hrs
Average Depth at Peak Storage= 0.73'
Bank-Full Depth= 1.25', Capacity at Bank-Full= 4.95 cfs

15.0" Round Pipe
n= 0.012 Concrete pipe, finished
Length= 30.0' Slope= 0.0050 '/'
Inlet Invert= 824.59', Outlet Invert= 824.44'

Reach R8: CB 21-22



Summary for Reach R9: MH3-MH2

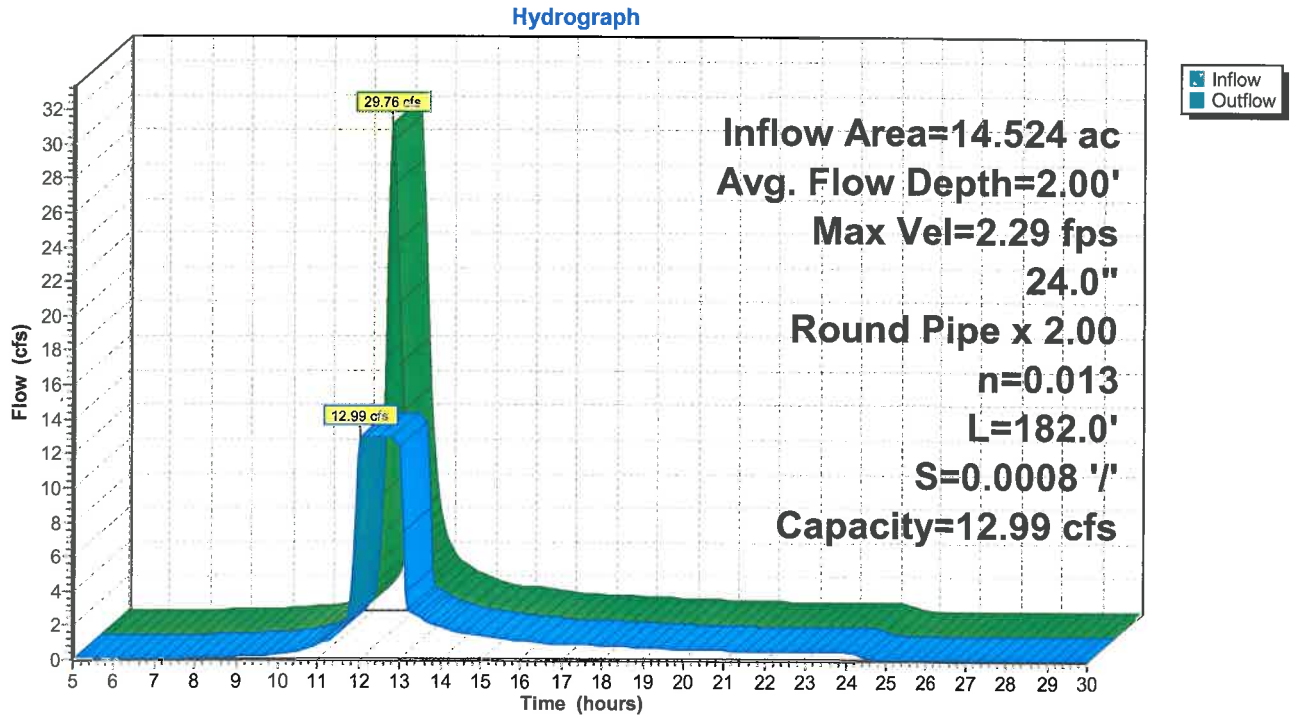
Inflow Area = 14.524 ac, 22.49% Impervious, Inflow Depth = 1.98" for 10-YR STORM event
Inflow = 29.76 cfs @ 12.11 hrs, Volume= 2.401 af
Outflow = 12.99 cfs @ 12.00 hrs, Volume= 2.401 af, Atten= 56%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 2.29 fps, Min. Travel Time= 1.3 min
Avg. Velocity = 0.90 fps, Avg. Travel Time= 3.4 min

Peak Storage= 1,144 cf @ 11.95 hrs
Average Depth at Peak Storage= 2.00'
Bank-Full Depth= 2.00', Capacity at Bank-Full= 12.99 cfs

A factor of 2.00 has been applied to the storage and discharge capacity
24.0" Round Pipe
n= 0.013 Corrugated PE, smooth interior
Length= 182.0' Slope= 0.0008 '/'
Inlet Invert= 821.31', Outlet Invert= 821.16'

Reach R9: MH3-MH2



Summary for Pond 2P: Upper Pond

Inflow Area = 6.682 ac, 10.27% Impervious, Inflow Depth = 1.87" for 10-YR STORM event
Inflow = 16.90 cfs @ 12.05 hrs, Volume= 1.039 af
Outflow = 0.58 cfs @ 15.15 hrs, Volume= 0.512 af, Atten= 97%, Lag= 185.5 min
Primary = 0.58 cfs @ 15.15 hrs, Volume= 0.512 af

Routing by Stor-Ind method, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Starting Elev= 823.50' Surf.Area= 28,882 sf Storage= 184,050 cf
Peak Elev= 824.49' @ 15.15 hrs Surf.Area= 31,744 sf Storage= 213,989 cf (29,939 cf above start)

Plug-Flow detention time= (not calculated: initial storage excedes outflow)
Center-of-Mass det. time= 318.4 min (1,152.8 - 834.4)

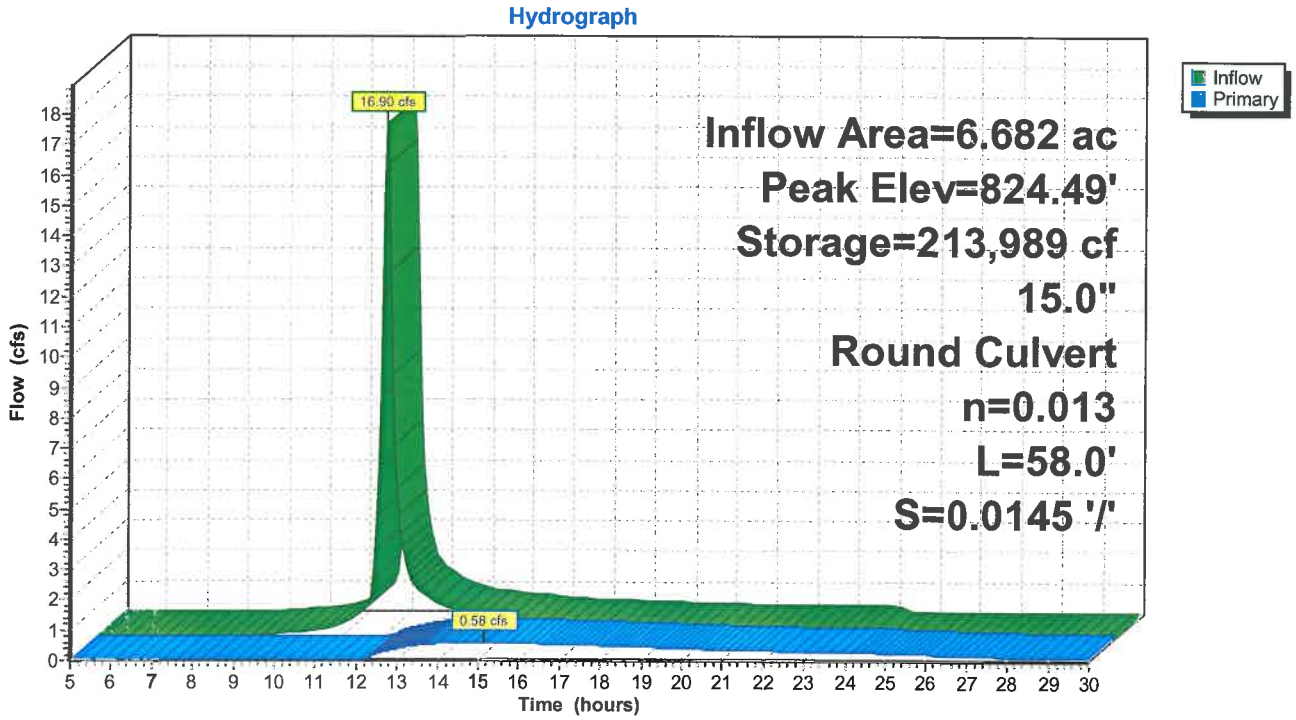
Volume	Invert	Avail.Storage	Storage Description
#1	810.00'	265,092 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
810.00	2,590	0	0
811.00	3,636	3,113	3,113
812.00	4,826	4,231	7,344
813.00	6,159	5,493	12,837
814.00	7,640	6,900	19,736
815.00	9,276	8,458	28,194
816.00	11,062	10,169	38,363
817.00	13,013	12,038	50,401
818.00	15,136	14,075	64,475
819.00	17,394	16,265	80,740
820.00	19,758	18,576	99,316
821.00	22,226	20,992	120,308
822.00	24,799	23,513	143,821
823.00	27,480	26,140	169,960
824.00	30,283	28,882	198,842
825.00	33,274	31,779	230,620
826.00	35,670	34,472	265,092

Device	Routing	Invert	Outlet Devices
#1	Primary	824.14'	**15.0" Round Culvert** L= 58.0' CPP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 824.14' / 823.30' S= 0.0145 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior

Primary OutFlow Max=0.56 cfs @ 15.15 hrs HW=824.49' (Free Discharge)
↑**1=Culvert** (Inlet Controls 0.56 cfs @ 2.01 fps)

Pond 2P: Upper Pond



Summary for Pond 13P: Lower Pond

Inflow Area = 42.994 ac, 21.21% Impervious, Inflow Depth > 1.71" for 10-YR STORM event
Inflow = 46.74 cfs @ 12.14 hrs, Volume= 6.117 af
Outflow = 3.88 cfs @ 15.06 hrs, Volume= 3.936 af, Atten= 92%, Lag= 174.9 min
Primary = 3.69 cfs @ 15.06 hrs, Volume= 3.924 af
Secondary = 0.18 cfs @ 15.06 hrs, Volume= 0.013 af

Routing by Stor-Ind method, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs / 3
Starting Elev= 820.00' Surf.Area= 109,467 sf Storage= 945,460 cf
Peak Elev= 821.30' @ 15.06 hrs Surf.Area= 125,714 sf Storage= 1,099,060 cf (153,600 cf above start)

Plug-Flow detention time= (not calculated: initial storage excedes outflow)
Center-of-Mass det. time= 312.8 min (1,194.0 - 881.2)

Volume	Invert	Avail.Storage	Storage Description
#1	804.00'	1,328,496 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

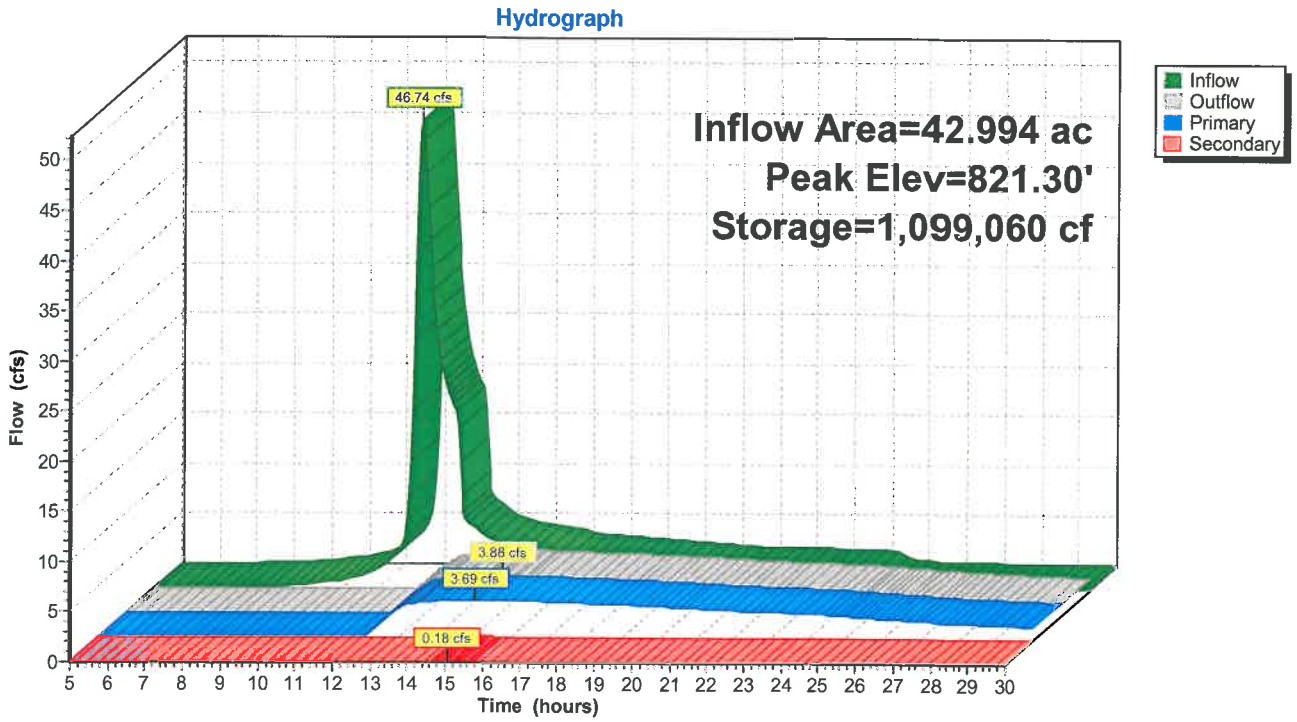
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
804.00	35,939	0	0
805.00	38,457	37,198	37,198
806.00	41,031	39,744	76,942
807.00	43,661	42,346	119,288
808.00	46,438	45,050	164,338
809.00	49,041	47,740	212,077
810.00	51,889	50,465	262,542
811.00	54,755	53,322	315,864
812.00	57,656	56,206	372,070
813.00	60,623	59,140	431,209
814.00	63,647	62,135	493,344
815.00	66,727	65,187	558,531
816.00	69,863	68,295	626,826
817.00	73,056	71,460	698,286
818.00	76,304	74,680	772,966
819.00	79,609	77,957	850,922
820.00	109,467	94,538	945,460
821.00	122,471	115,969	1,061,429
822.00	133,165	127,818	1,189,247
823.00	145,332	139,249	1,328,496

Device	Routing	Invert	Outlet Devices
#1	Primary	820.30'	**18.0" Round Culvert** L= 30.0' CPP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 820.30' / 820.00' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior
#2	Secondary	821.30'	**50.0' long x 20.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

Primary OutFlow Max=3.69 cfs @ 15.06 hrs HW=821.30' (Free Discharge)
└**1=Culvert** (Barrel Controls 3.69 cfs @ 4.16 fps)

Secondary OutFlow Max=0.02 cfs @ 15.06 hrs HW=821.30' (Free Discharge)
└**2=Broad-Crested Rectangular Weir** (Weir Controls 0.02 cfs @ 0.15 fps)

Pond 13P: Lower Pond



Summary for Pond 15P: Pretreatment

Inflow Area = 4.248 ac, 0.00% Impervious, Inflow Depth = 1.57" for 10-YR STORM event
Inflow = 7.73 cfs @ 12.11 hrs, Volume= 0.557 af
Outflow = 0.30 cfs @ 15.68 hrs, Volume= 0.230 af, Atten= 96%, Lag= 214.2 min
Primary = 0.20 cfs @ 15.68 hrs, Volume= 0.203 af
Secondary = 0.11 cfs @ 15.68 hrs, Volume= 0.027 af

Routing by Stor-Ind method, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Peak Elev= 821.32' @ 15.68 hrs Surf.Area= 18,075 sf Storage= 16,822 cf

Plug-Flow detention time= 474.8 min calculated for 0.230 af (41% of inflow)
Center-of-Mass det. time= 345.1 min (1,196.1 - 850.9)

Volume	Invert	Avail.Storage	Storage Description
#1	820.00'	30,493 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

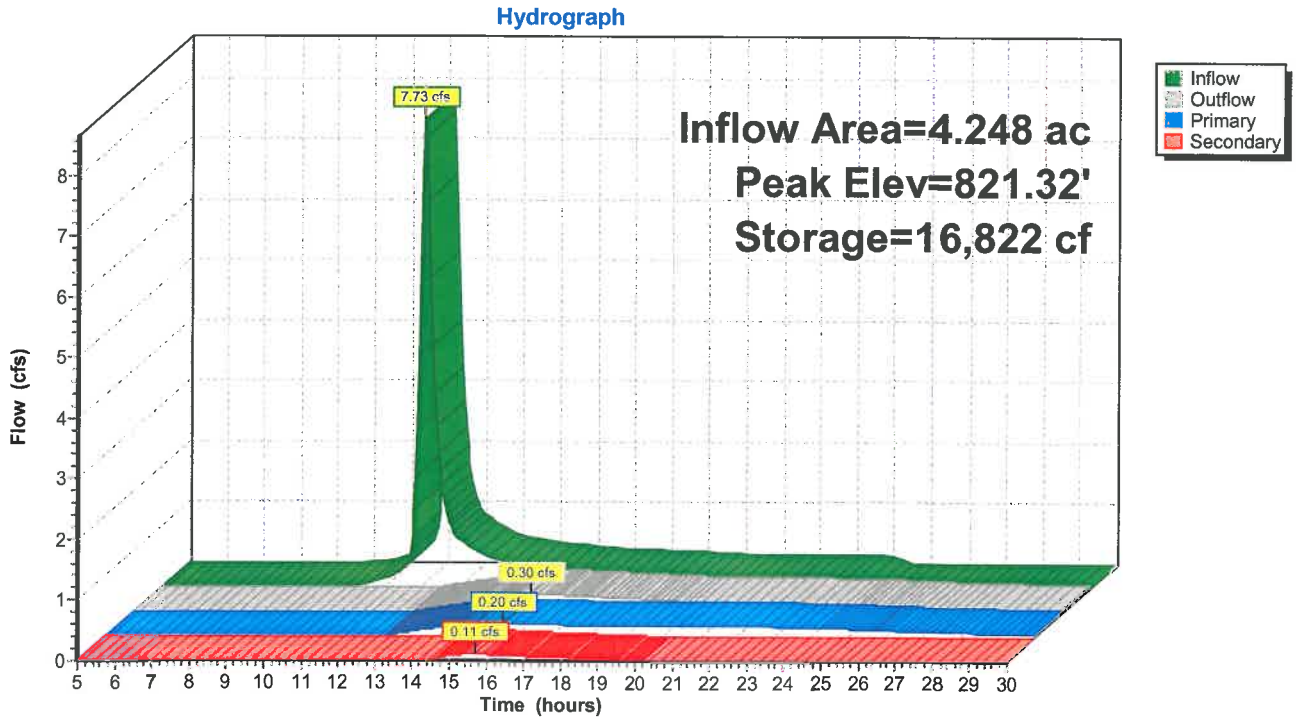
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
820.00	6,506	0	0
821.00	16,206	11,356	11,356
822.00	22,067	19,137	30,493

Device	Routing	Invert	Outlet Devices
#1	Secondary	821.30'	**15.0' long x 30.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63
#2	Primary	821.00'	**12.0" Round Culvert** L= 380.0' CPP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 821.00' / 820.30' S= 0.0018 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior

Primary OutFlow Max=0.20 cfs @ 15.68 hrs HW=821.32' (Free Discharge)
↑—**2=Culvert** (Barrel Controls 0.20 cfs @ 1.36 fps)

Secondary OutFlow Max=0.10 cfs @ 15.68 hrs HW=821.32' (Free Discharge)
↑—**1=Broad-Crested Rectangular Weir** (Weir Controls 0.10 cfs @ 0.37 fps)

Pond 15P: Pretreatment

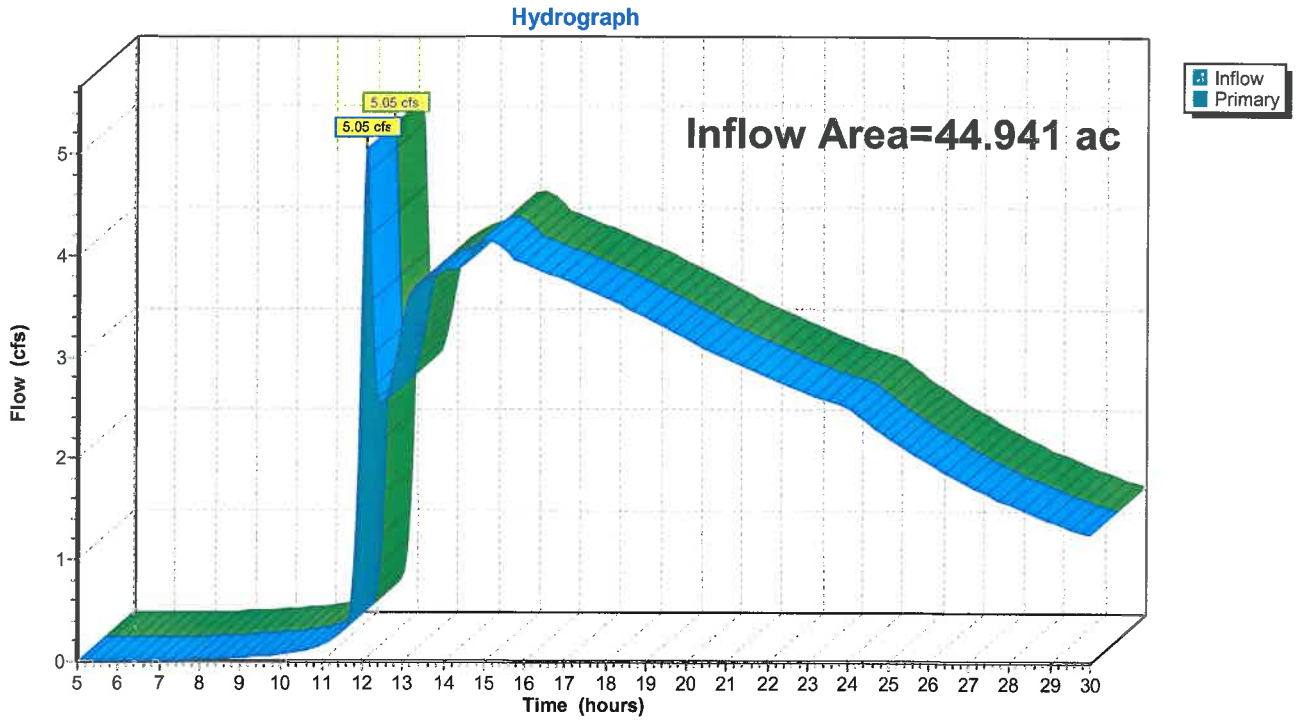


Summary for Link 1L: Sum

Inflow Area = 44.941 ac, 21.55% Impervious, Inflow Depth > 1.15" for 10-YR STORM event
Inflow = 5.05 cfs @ 12.11 hrs, Volume= 4.311 af
Primary = 5.05 cfs @ 12.11 hrs, Volume= 4.311 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs

Link 1L: Sum



Time span=5.00-30.00 hrs, dt=0.05 hrs, 501 points
Runoff by SCS TR-20 method, UH=SCS
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment Ws1: Watershed 1 Runoff Area=61,775 sf 29.54% Impervious Runoff Depth=3.08"
Flow Length=360' Tc=10.6 min CN=83 Runoff=6.40 cfs 0.364 af

Subcatchment Ws10: To Upper Pond Runoff Area=291,049 sf 10.27% Impervious Runoff Depth=2.99"
Flow Length=965' Tc=13.4 min CN=82 Runoff=26.92 cfs 1.665 af

Subcatchment Ws11: Watershed 11 Runoff Area=49,965 sf 25.02% Impervious Runoff Depth=3.28"
Flow Length=460' Slope=0.0100 '/' Tc=17.8 min CN=85 Runoff=4.39 cfs 0.313 af

Subcatchment Ws12: Watershed 12 Runoff Area=34,854 sf 34.43% Impervious Runoff Depth=3.37"
Flow Length=320' Slope=0.0100 '/' Tc=16.9 min CN=86 Runoff=3.22 cfs 0.225 af

Subcatchment Ws13: Watershed 13 Runoff Area=171,199 sf 37.53% Impervious Runoff Depth=3.47"
Flow Length=620' Tc=31.6 min CN=87 Runoff=11.34 cfs 1.138 af

Subcatchment Ws14: Watershed 14 Runoff Area=159,952 sf 53.30% Impervious Runoff Depth>3.78"
Flow Length=1,050' Tc=20.1 min CN=90 Runoff=14.86 cfs 1.156 af

Subcatchment Ws15: Watershed 15 Runoff Area=432,874 sf 17.46% Impervious Runoff Depth=2.90"
Flow Length=1,470' Slope=0.0100 '/' Tc=17.9 min CN=81 Runoff=33.83 cfs 2.399 af

Subcatchment WS16: Watershed 16 Runoff Area=185,059 sf 0.00% Impervious Runoff Depth=2.63"
Flow Length=1,140' Tc=18.2 min CN=78 Runoff=13.02 cfs 0.930 af

Subcatchment Ws2: Watershed 2 Runoff Area=33,200 sf 54.97% Impervious Runoff Depth>3.78"
Flow Length=310' Tc=15.8 min CN=90 Runoff=3.47 cfs 0.240 af

Subcatchment Ws3: Watershed 3 Runoff Area=67,371 sf 47.13% Impervious Runoff Depth>3.57"
Flow Length=600' Tc=13.6 min CN=88 Runoff=7.23 cfs 0.461 af

Subcatchment Ws4: Watershed 4 Runoff Area=266,245 sf 3.91% Impervious Runoff Depth=2.90"
Flow Length=1,120' Tc=16.9 min CN=81 Runoff=21.42 cfs 1.476 af

Subcatchment Ws5: Watershed 5 Runoff Area=28,432 sf 29.19% Impervious Runoff Depth=3.28"
Flow Length=250' Slope=0.0200 '/' Tc=12.0 min CN=85 Runoff=2.98 cfs 0.178 af

Subcatchment Ws6: Watershed 6 Runoff Area=47,402 sf 38.50% Impervious Runoff Depth>3.47"
Flow Length=520' Tc=11.8 min CN=87 Runoff=5.25 cfs 0.315 af

Subcatchment Ws7: Watershed 7 Runoff Area=98,918 sf 18.45% Impervious Runoff Depth=2.81"
Flow Length=540' Slope=0.0200 '/' Tc=12.6 min CN=80 Runoff=8.85 cfs 0.531 af

Subcatchment Ws8: Watershed 8 Runoff Area=47,068 sf 51.52% Impervious Runoff Depth>3.67"
Flow Length=440' Tc=16.6 min CN=89 Runoff=4.71 cfs 0.331 af

Subcatchment Ws9: Watershed 9 Runoff Area=29,678 sf 43.26% Impervious Runoff Depth>3.57"
Flow Length=420' Tc=16.5 min CN=88 Runoff=2.91 cfs 0.203 af

Reach R1: CB 18-17 Avg. Flow Depth=0.35' Max Vel=14.17 fps Inflow=3.47 cfs 0.240 af
12.0" Round Pipe n=0.012 L=30.0' S=0.1183 '/' Capacity=13.28 cfs Outflow=3.47 cfs 0.240 af

Reach R10: CB1 to CB 2 Avg. Flow Depth=1.00' Max Vel=5.78 fps Inflow=4.39 cfs 0.313 af
12.0" Round Pipe n=0.013 L=96.0' S=0.0125 '/' Capacity=3.98 cfs Outflow=3.99 cfs 0.313 af

Reach R11: Upper Pond to MH2 Avg. Flow Depth=1.50' Max Vel=5.09 fps Inflow=12.77 cfs 2.264 af
18.0" Round Pipe n=0.013 L=435.0' S=0.0057 '/' Capacity=7.90 cfs Outflow=7.97 cfs 2.263 af

Reach R12: MH2 to Pond Avg. Flow Depth=2.00' Max Vel=3.24 fps Inflow=35.59 cfs 7.202 af
24.0" Round Pipe x 3.00 n=0.013 L=359.0' S=0.0016 '/' Capacity=26.80 cfs Outflow=28.04 cfs 7.200 af

Reach R13: Swale Avg. Flow Depth=1.26' Max Vel=3.50 fps Inflow=21.42 cfs 1.476 af
n=0.035 L=850.0' S=0.0100 '/' Capacity=136.87 cfs Outflow=19.78 cfs 1.476 af

Reach R2: CB 17- MH 7 Avg. Flow Depth=1.12' Max Vel=8.39 fps Inflow=9.66 cfs 0.604 af
15.0" Round Pipe n=0.013 L=276.0' S=0.0196 '/' Capacity=9.04 cfs Outflow=9.47 cfs 0.604 af

Reach R3: MH7-MH3 Avg. Flow Depth=2.00' Max Vel=6.64 fps Inflow=30.38 cfs 2.541 af
24.0" Round Pipe n=0.013 L=124.0' S=0.0066 '/' Capacity=18.40 cfs Outflow=18.40 cfs 2.541 af

Reach R4: CB10 - MH3 Avg. Flow Depth=1.17' Max Vel=9.66 fps Inflow=18.39 cfs 1.243 af
24.0" Round Pipe n=0.012 L=52.0' S=0.0137 '/' Capacity=28.64 cfs Outflow=18.35 cfs 1.243 af

Reach R5: MH4-CB10 Avg. Flow Depth=1.47' Max Vel=6.44 fps Inflow=15.92 cfs 1.065 af
24.0" Round Pipe n=0.013 L=142.0' S=0.0063 '/' Capacity=17.91 cfs Outflow=15.79 cfs 1.065 af

Reach R6: CB19-CB20 Avg. Flow Depth=0.90' Max Vel=3.95 fps Inflow=2.91 cfs 0.203 af
12.0" Round Pipe n=0.012 L=30.0' S=0.0050 '/' Capacity=2.73 cfs Outflow=2.91 cfs 0.203 af

Reach R7: MH5-MH4 Avg. Flow Depth=1.39' Max Vel=5.69 fps Inflow=13.38 cfs 0.862 af
24.0" Round Pipe n=0.013 L=303.0' S=0.0050 '/' Capacity=16.02 cfs Outflow=13.02 cfs 0.862 af

Reach R8: CB 21-22 Avg. Flow Depth=0.97' Max Vel=4.59 fps Inflow=4.71 cfs 0.331 af
15.0" Round Pipe n=0.012 L=30.0' S=0.0050 '/' Capacity=4.95 cfs Outflow=4.70 cfs 0.331 af

Reach R9: MH3-MH2 Avg. Flow Depth=2.00' Max Vel=2.36 fps Inflow=36.75 cfs 3.783 af
24.0" Round Pipe x 2.00 n=0.013 L=182.0' S=0.0008 '/' Capacity=12.99 cfs Outflow=12.99 cfs 3.783 af

Pond 2P: Upper Pond Peak Elev=824.85' Storage=225,792 cf Inflow=26.92 cfs 1.665 af
15.0" Round Culvert n=0.013 L=58.0' S=0.0145 '/' Outflow=2.09 cfs 1.126 af

Pond 13P: Lower Pond Peak Elev=821.55' Storage=1,130,155 cf Inflow=61.87 cfs 9.866 af
Primary=5.19 cfs 4.793 af Secondary=17.44 cfs 2.734 af Outflow=22.63 cfs 7.527 af

Pond 15P: Pretreatment Peak Elev=821.47' Storage=19,626 cf Inflow=13.02 cfs 0.930 af
Primary=0.42 cfs 0.266 af Secondary=2.83 cfs 0.334 af Outflow=3.25 cfs 0.600 af

Link 1L: Sum Inflow=24.30 cfs 8.399 af
Primary=24.30 cfs 8.399 af

Total Runoff Area = 46.029 ac Runoff Volume = 11.924 af Average Runoff Depth = 3.11"
78.05% Pervious = 35.927 ac 21.95% Impervious = 10.102 ac

Summary for Subcatchment Ws1: Watershed 1

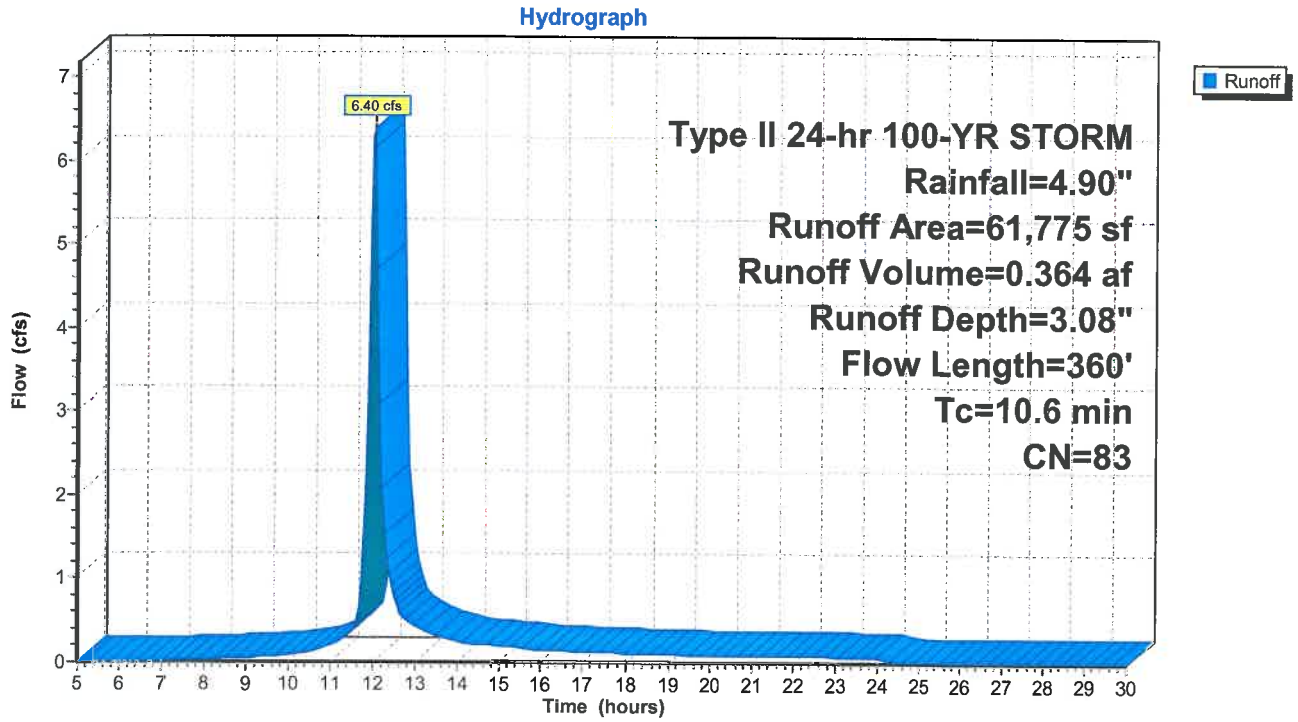
Runoff = 6.40 cfs @ 12.02 hrs, Volume= 0.364 af, Depth= 3.08"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type II 24-hr 100-YR STORM Rainfall=4.90"

Area (sf)	CN	Description
18,250	98	Paved parking, HSG D
21,763	80	>75% Grass cover, Good, HSG D
21,762	73	Brush, Good, HSG D
61,775	83	Weighted Average
43,525		70.46% Pervious Area
18,250		29.54% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.0	100	0.0250	0.18		**Sheet Flow, A-B** Range n= 0.130 P2= 2.50"
0.7	100	0.0200	2.28		**Shallow Concentrated Flow, B-C** Unpaved Kv= 16.1 fps
0.9	160	0.0200	2.87		**Shallow Concentrated Flow, C-D** Paved Kv= 20.3 fps
10.6	360	Total			

Subcatchment Ws1: Watershed 1



Summary for Subcatchment Ws10: To Upper Pond

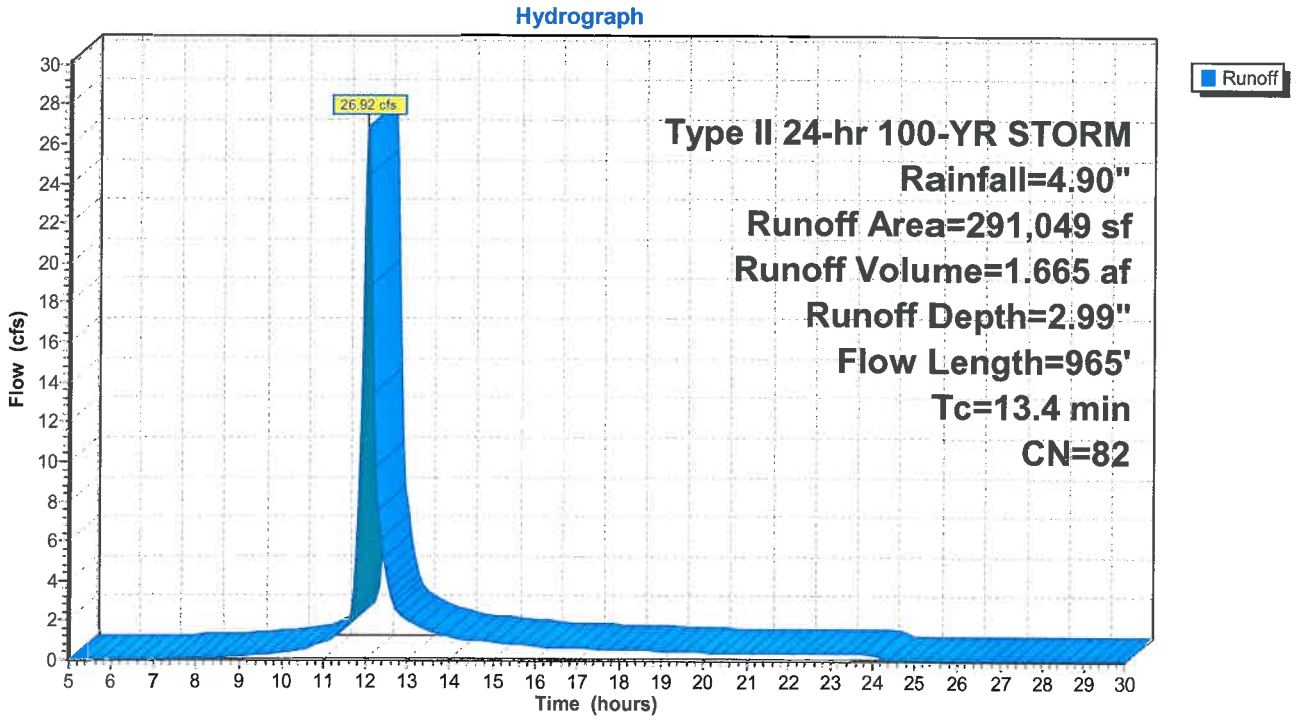
Runoff = 26.92 cfs @ 12.05 hrs, Volume= 1.665 af, Depth= 2.99"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type II 24-hr 100-YR STORM Rainfall=4.90"

Area (sf)	CN	Description
261,149	80	Pasture/grassland/range, Good, HSG D
29,900	98	Water Surface, HSG D
291,049	82	Weighted Average
261,149		89.73% Pervious Area
29,900		10.27% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.9	100	0.0200	0.17		**Sheet Flow, A-B** Range n= 0.130 P2= 2.50"
2.9	450	0.0300	2.60		**Shallow Concentrated Flow, B-C** Grassed Waterway Kv= 15.0 fps
0.3	320		16.05		**Lake or Reservoir, C-D** Mean Depth= 8.00'
0.3	95	0.0100	5.94	10.50	**Pipe Channel, D-E** 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.013
13.4	965	Total			

Subcatchment Ws10: To Upper Pond



Summary for Subcatchment Ws11: Watershed 11

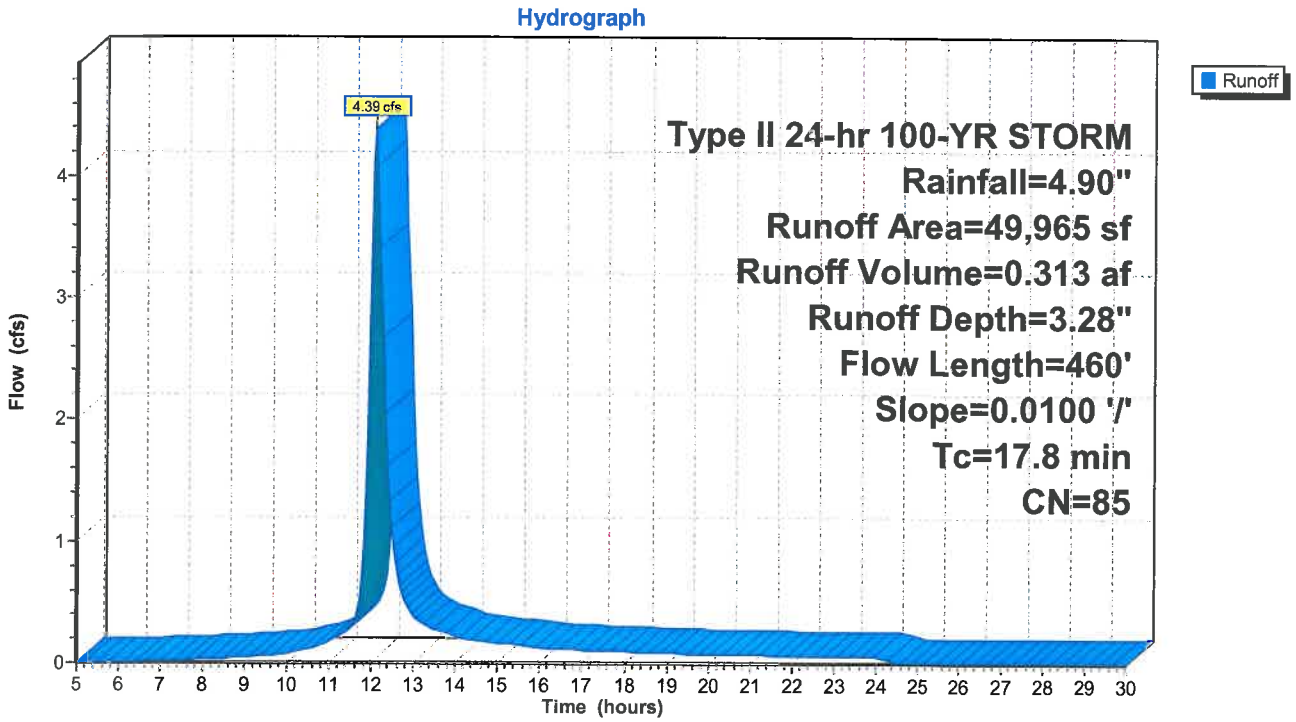
Runoff = 4.39 cfs @ 12.10 hrs, Volume= 0.313 af, Depth= 3.28"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type II 24-hr 100-YR STORM Rainfall=4.90"

Area (sf)	CN	Description
12,500	98	Paved parking, HSG D
37,465	80	>75% Grass cover, Good, HSG D
49,965	85	Weighted Average
37,465		74.98% Pervious Area
12,500		25.02% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.6	100	0.0100	0.11		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 2.50"
1.2	120	0.0100	1.61		**Shallow Concentrated Flow, B-C** Unpaved Kv= 16.1 fps
2.0	240	0.0100	2.03		**Shallow Concentrated Flow, C-D** Paved Kv= 20.3 fps
17.8	460	Total			

Subcatchment Ws11: Watershed 11



Summary for Subcatchment Ws12: Watershed 12

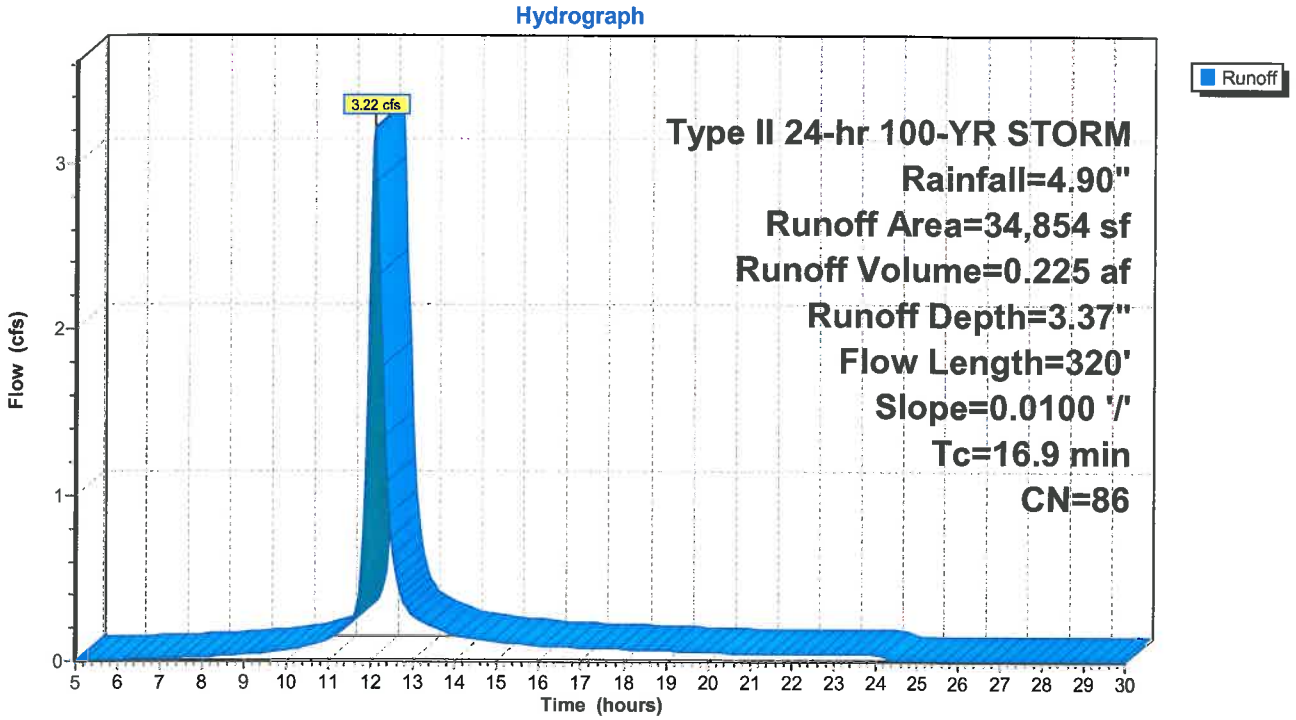
Runoff = 3.22 cfs @ 12.09 hrs, Volume= 0.225 af, Depth= 3.37"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type II 24-hr 100-YR STORM Rainfall=4.90"

Area (sf)	CN	Description
12,000	98	Paved parking, HSG D
22,854	80	>75% Grass cover, Good, HSG D
34,854	86	Weighted Average
22,854		65.57% Pervious Area
12,000		34.43% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.6	100	0.0100	0.11		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 2.50"
2.3	220	0.0100	1.61		**Shallow Concentrated Flow, B-C** Unpaved Kv= 16.1 fps
16.9	320	Total			

Subcatchment Ws12: Watershed 12



Summary for Subcatchment Ws13: Watershed 13

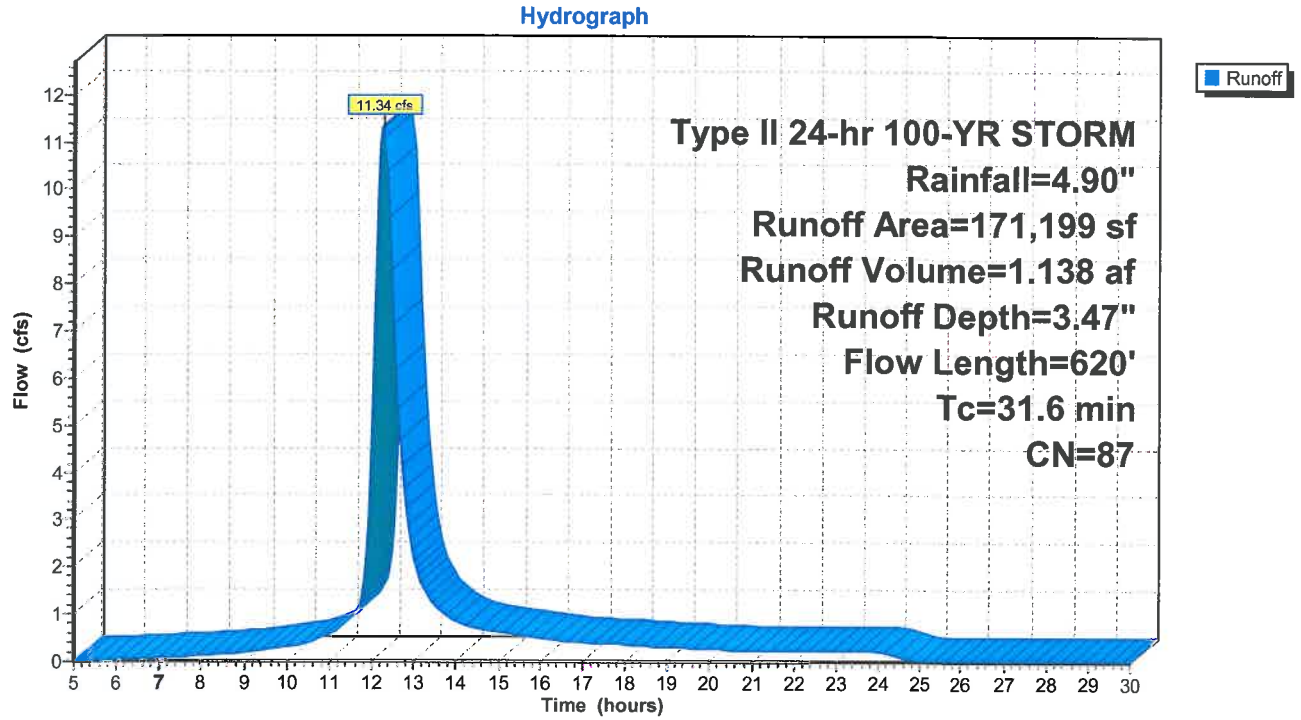
Runoff = 11.34 cfs @ 12.26 hrs, Volume= 1.138 af, Depth= 3.47"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type II 24-hr 100-YR STORM Rainfall=4.90"

Area (sf)	CN	Description
64,250	98	Water Surface, HSG D
106,949	80	>75% Grass cover, Good, HSG D
171,199	87	Weighted Average
106,949		62.47% Pervious Area
64,250		37.53% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.6	100	0.0100	0.11		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 2.50"
17.0	520	0.0010	0.51		**Shallow Concentrated Flow, B-C** Unpaved Kv= 16.1 fps
31.6	620	Total			

Subcatchment Ws13: Watershed 13



Summary for Subcatchment Ws14: Watershed 14

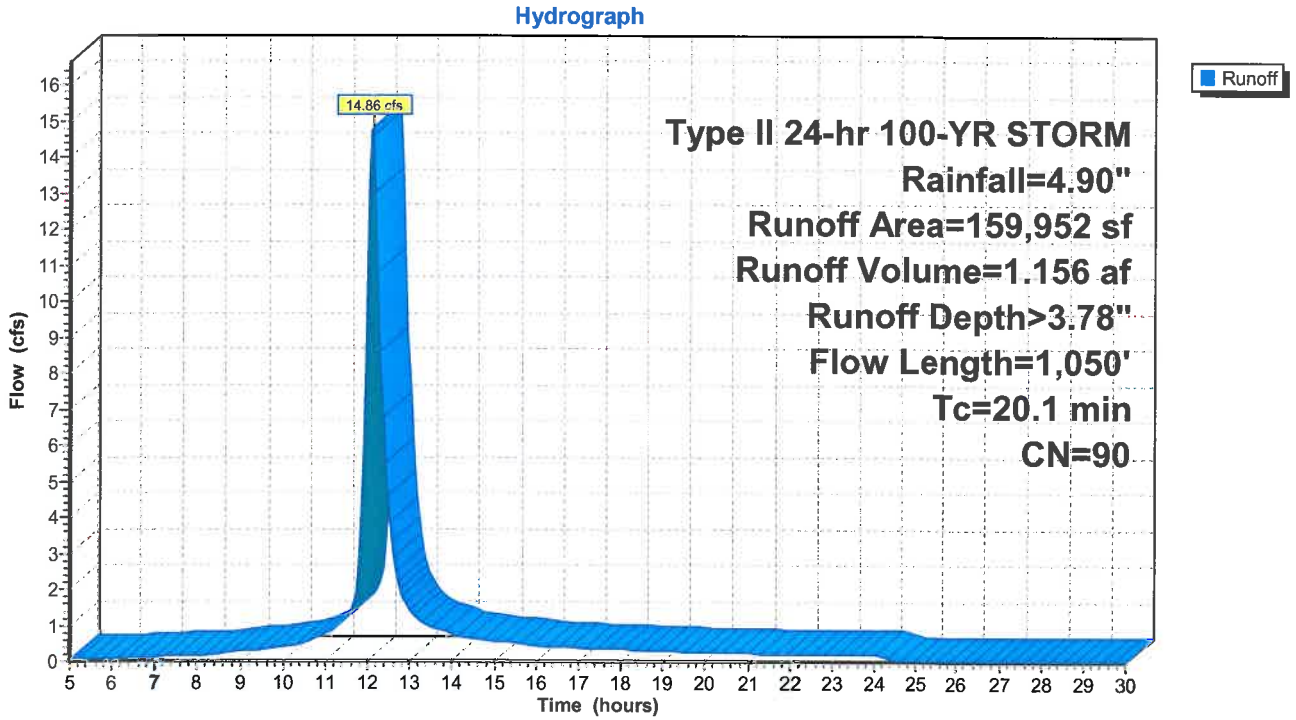
Runoff = 14.86 cfs @ 12.12 hrs, Volume= 1.156 af, Depth> 3.78"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type II 24-hr 100-YR STORM Rainfall=4.90"

Area (sf)	CN	Description
85,247	98	Paved parking, HSG D
74,705	80	>75% Grass cover, Good, HSG D
159,952	90	Weighted Average
74,705		46.70% Pervious Area
85,247		53.30% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.6	100	0.0100	0.11		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 2.50"
5.5	950	0.0200	2.87		**Shallow Concentrated Flow, B-C** Paved Kv= 20.3 fps
20.1	1,050	Total			

Subcatchment Ws14: Watershed 14



Summary for Subcatchment Ws15: Watershed 15

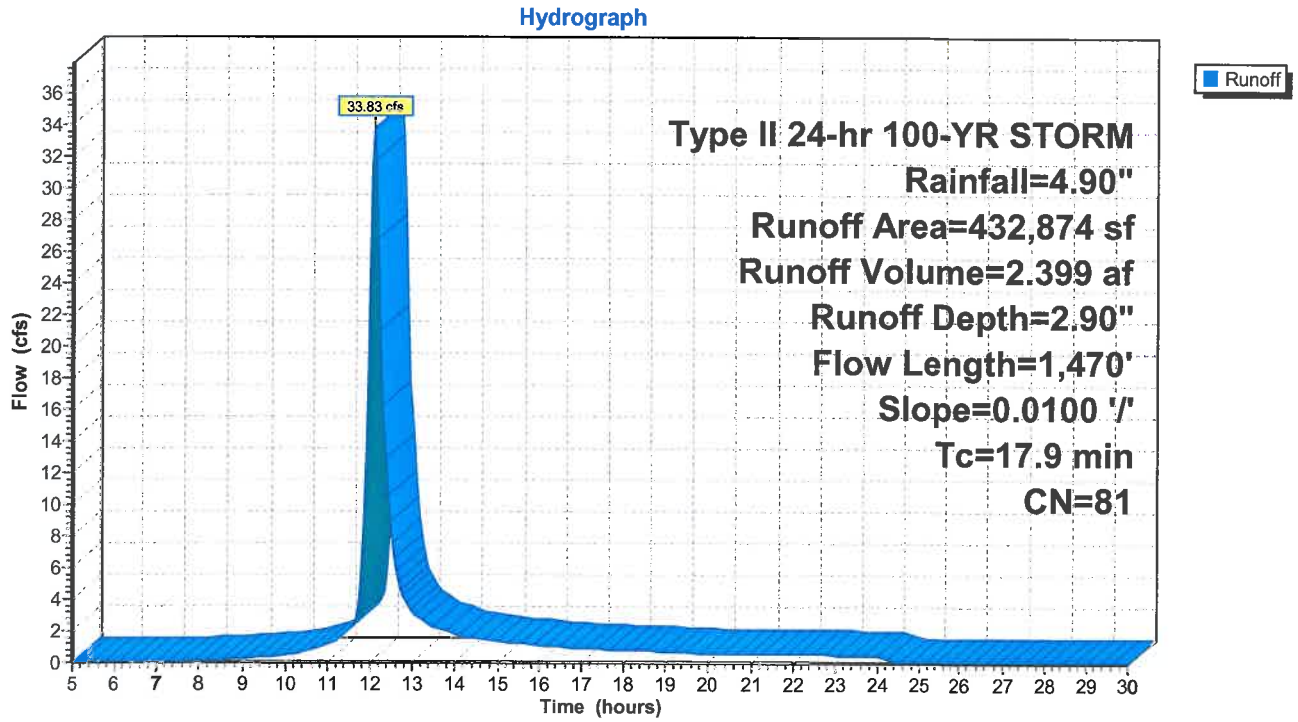
Runoff = 33.83 cfs @ 12.10 hrs, Volume= 2.399 af, Depth= 2.90"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type II 24-hr 100-YR STORM Rainfall=4.90"

Area (sf)	CN	Description
75,600	98	Water Surface, HSG D
357,274	78	Meadow, non-grazed, HSG D
432,874	81	Weighted Average
357,274		82.54% Pervious Area
75,600		17.46% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.0	100	0.0100	0.13		**Sheet Flow, A-B** Range n= 0.130 P2= 2.50"
3.2	310	0.0100	1.61		**Shallow Concentrated Flow, B-C** Unpaved Kv= 16.1 fps
1.3	650	0.0100	8.16	195.95	**Channel Flow, C-D** Area= 24.0 sf Perim= 9.0' r= 2.67' n= 0.035
0.4	410		17.94		**Lake or Reservoir, D-E** Mean Depth= 10.00'
17.9	1,470	Total			

Subcatchment Ws15: Watershed 15



Summary for Subcatchment WS16: Watershed 16

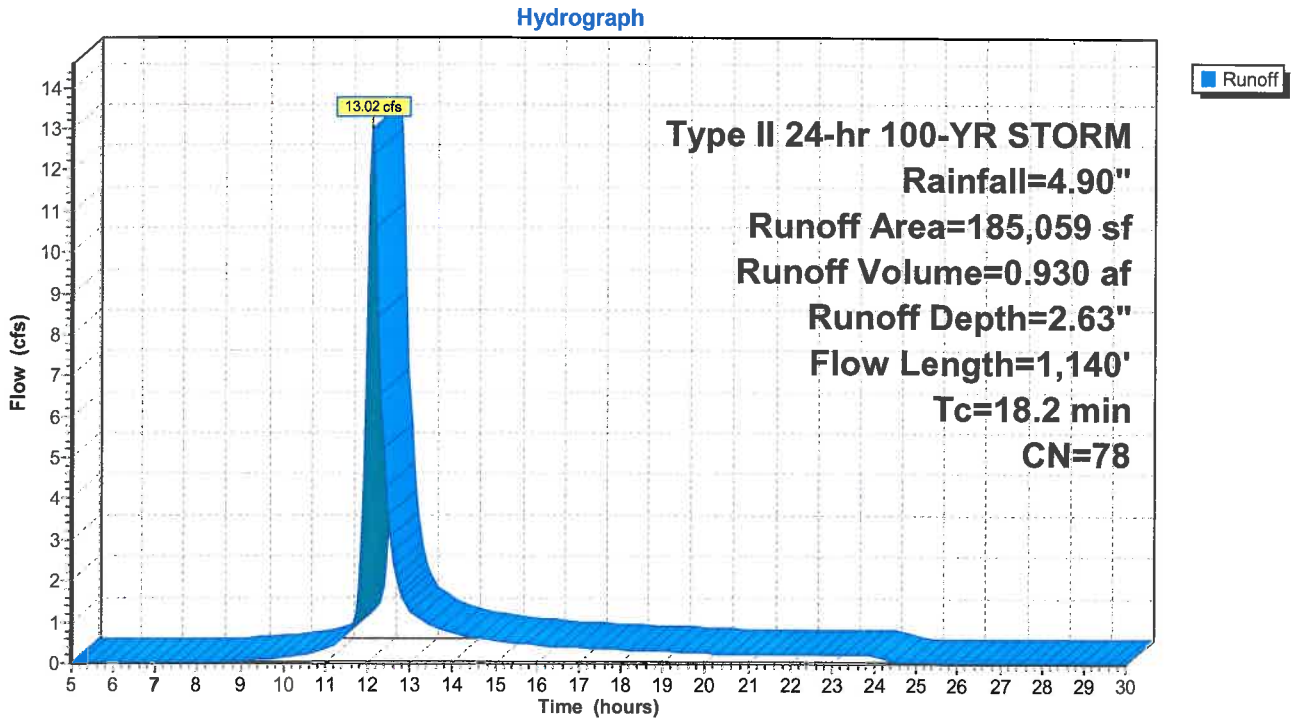
Runoff = 13.02 cfs @ 12.11 hrs, Volume= 0.930 af, Depth= 2.63"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type II 24-hr 100-YR STORM Rainfall=4.90"

Area (sf)	CN	Description
185,059	78	Meadow, non-grazed, HSG D
185,059		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.0	100	0.0100	0.13		**Sheet Flow, A-B** Range n= 0.130 P2= 2.50"
4.3	590	0.0200	2.28		**Shallow Concentrated Flow, B-C** Unpaved Kv= 16.1 fps
0.9	450		8.02		**Lake or Reservoir, C-D** Mean Depth= 2.00'
18.2	1,140	Total			

Subcatchment WS16: Watershed 16



Summary for Subcatchment Ws2: Watershed 2

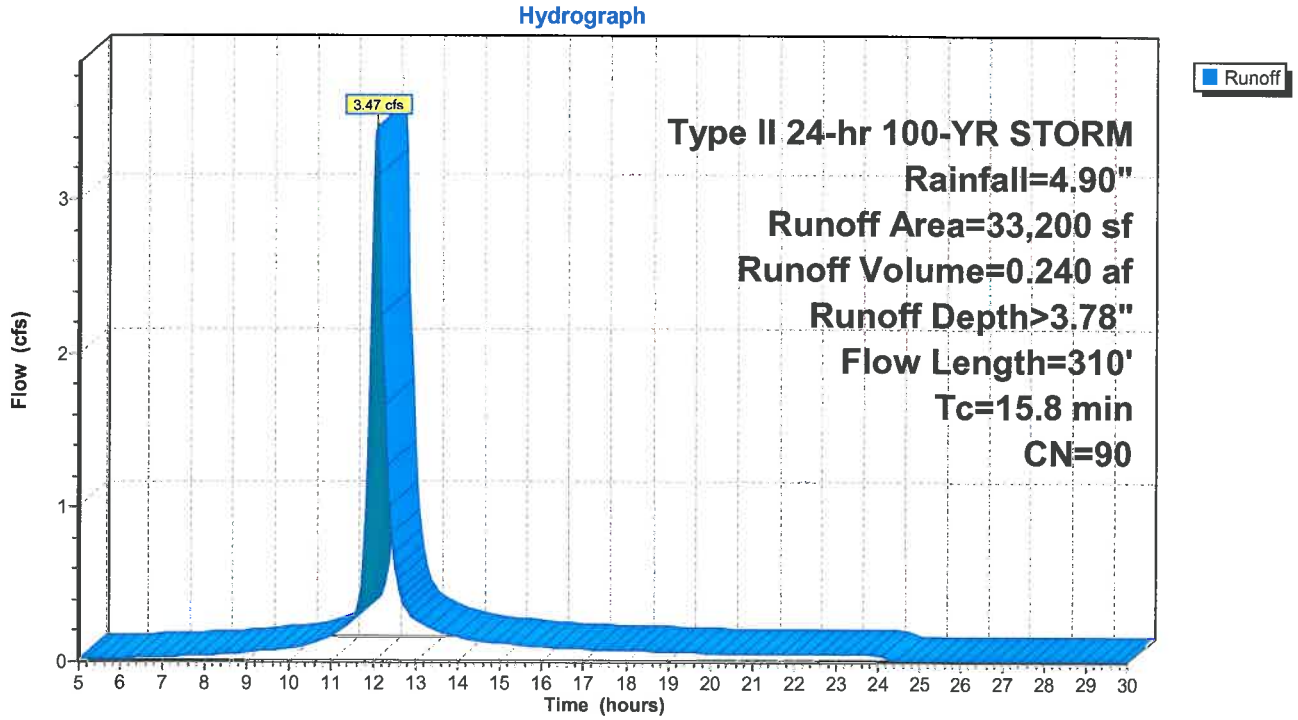
Runoff = 3.47 cfs @ 12.07 hrs, Volume= 0.240 af, Depth> 3.78"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type II 24-hr 100-YR STORM Rainfall=4.90"

Area (sf)	CN	Description
14,950	80	>75% Grass cover, Good, HSG D
18,250	98	Paved parking, HSG D
33,200	90	Weighted Average
14,950		45.03% Pervious Area
18,250		54.97% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.6	100	0.0100	0.11		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 2.50"
1.2	210	0.0200	2.87		**Shallow Concentrated Flow, B-C** Paved Kv= 20.3 fps
15.8	310	Total			

Subcatchment Ws2: Watershed 2



Summary for Subcatchment Ws3: Watershed 3

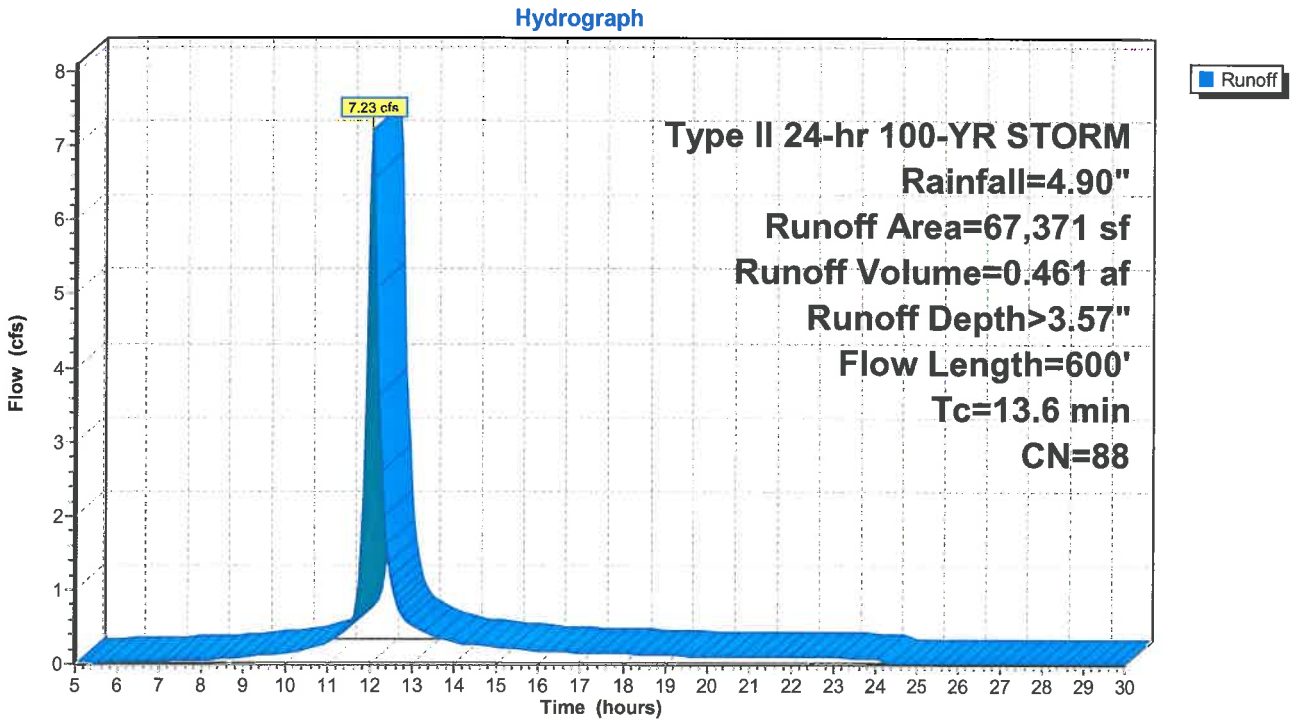
Runoff = 7.23 cfs @ 12.05 hrs, Volume= 0.461 af, Depth> 3.57"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type II 24-hr 100-YR STORM Rainfall=4.90"

Area (sf)	CN	Description
31,750	98	Paved parking, HSG D
35,621	80	>75% Grass cover, Good, HSG D
67,371	88	Weighted Average
35,621		52.87% Pervious Area
31,750		47.13% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.1	100	0.0200	0.15		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 2.50"
0.4	50	0.0200	2.28		**Shallow Concentrated Flow, B-C** Unpaved Kv= 16.1 fps
2.1	450	0.0300	3.52		**Shallow Concentrated Flow, C-D** Paved Kv= 20.3 fps
13.6	600	Total			

Subcatchment Ws3: Watershed 3



Summary for Subcatchment Ws4: Watershed 4

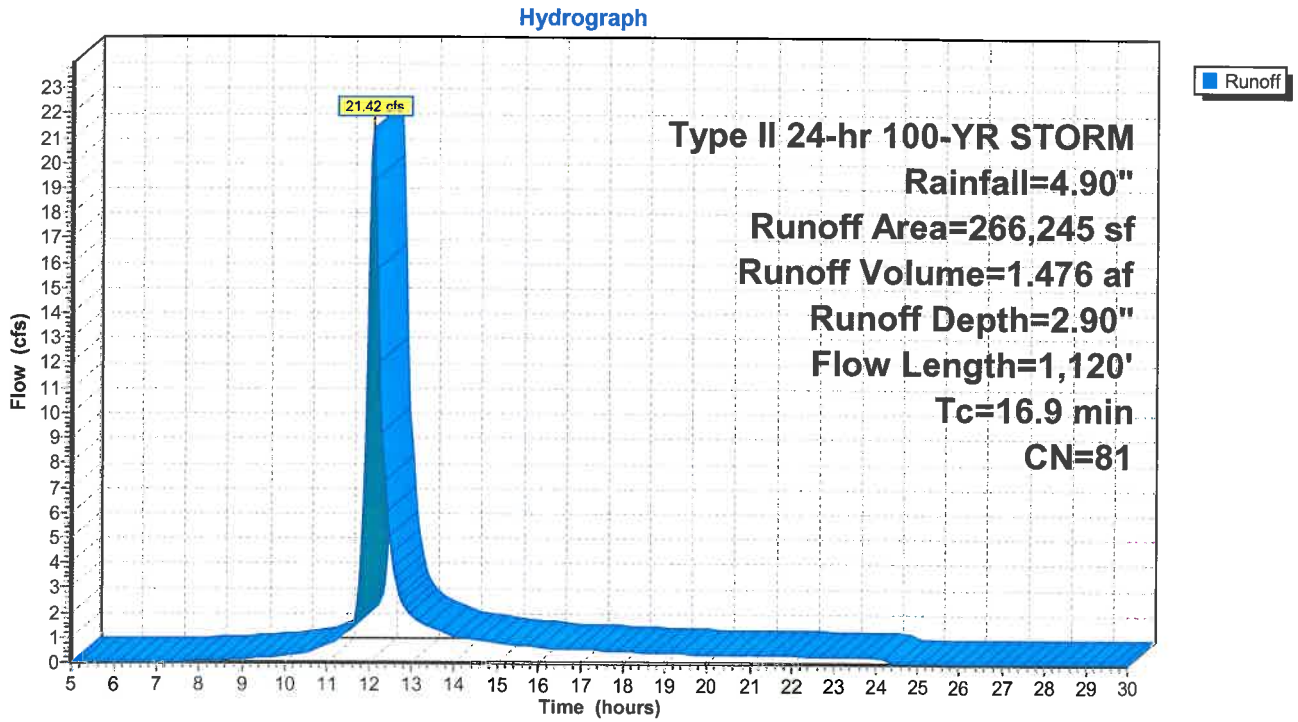
Runoff = 21.42 cfs @ 12.09 hrs, Volume= 1.476 af, Depth= 2.90"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type II 24-hr 100-YR STORM Rainfall=4.90"

Area (sf)	CN	Description
10,420	98	Paved parking, HSG D
157,500	80	Pasture/grassland/range, Good, HSG D
98,325	80	>75% Grass cover, Good, HSG D
266,245	81	Weighted Average
255,825		96.09% Pervious Area
10,420		3.91% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.9	100	0.0200	0.17		**Sheet Flow, A-B** Range n= 0.130 P2= 2.50"
3.2	530	0.0300	2.79		**Shallow Concentrated Flow, B-C** Unpaved Kv= 16.1 fps
3.8	490	0.0200	2.12		**Shallow Concentrated Flow, C-D** Grassed Waterway Kv= 15.0 fps
16.9	1,120	Total			

Subcatchment Ws4: Watershed 4



Summary for Subcatchment Ws5: Watershed 5

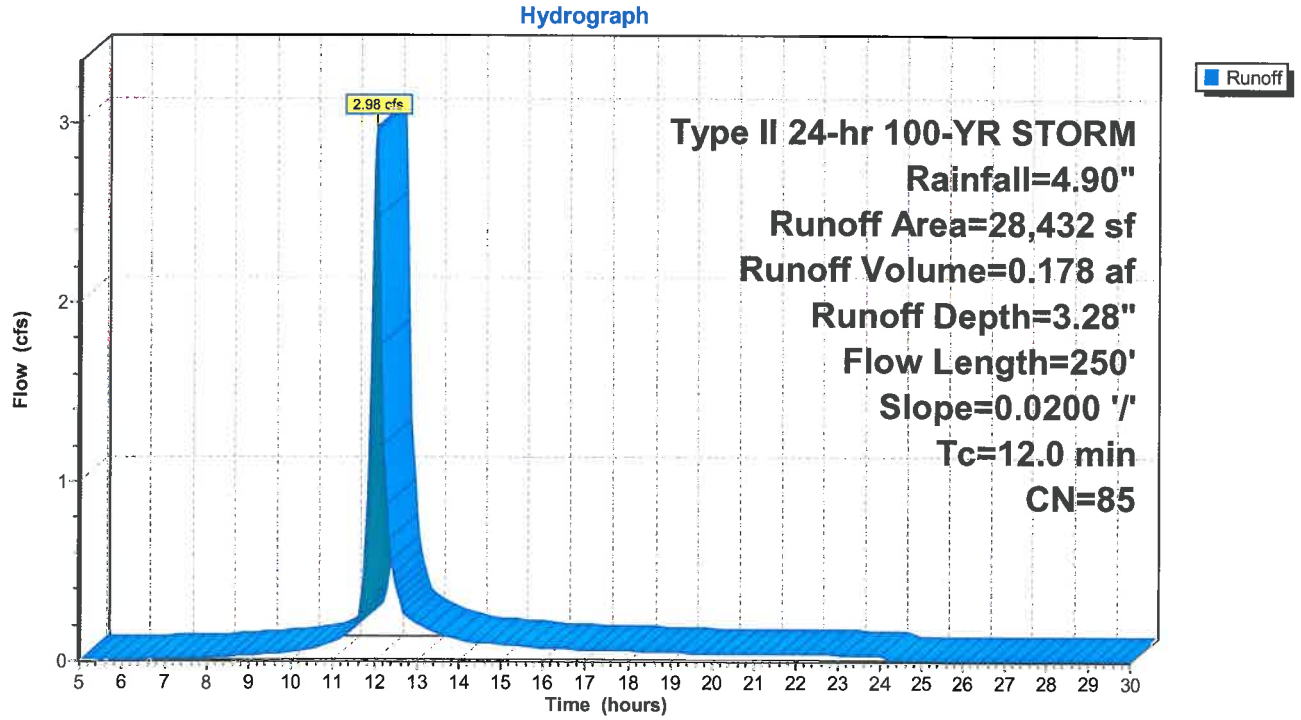
Runoff = 2.98 cfs @ 12.04 hrs, Volume= 0.178 af, Depth= 3.28"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type II 24-hr 100-YR STORM Rainfall=4.90"

Area (sf)	CN	Description
8,300	98	Paved parking, HSG D
20,132	80	>75% Grass cover, Good, HSG D
28,432	85	Weighted Average
20,132		70.81% Pervious Area
8,300		29.19% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.1	100	0.0200	0.15		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 2.50"
0.9	150	0.0200	2.87		**Shallow Concentrated Flow, B-C** Paved Kv= 20.3 fps
12.0	250	Total			

Subcatchment Ws5: Watershed 5



Summary for Subcatchment Ws6: Watershed 6

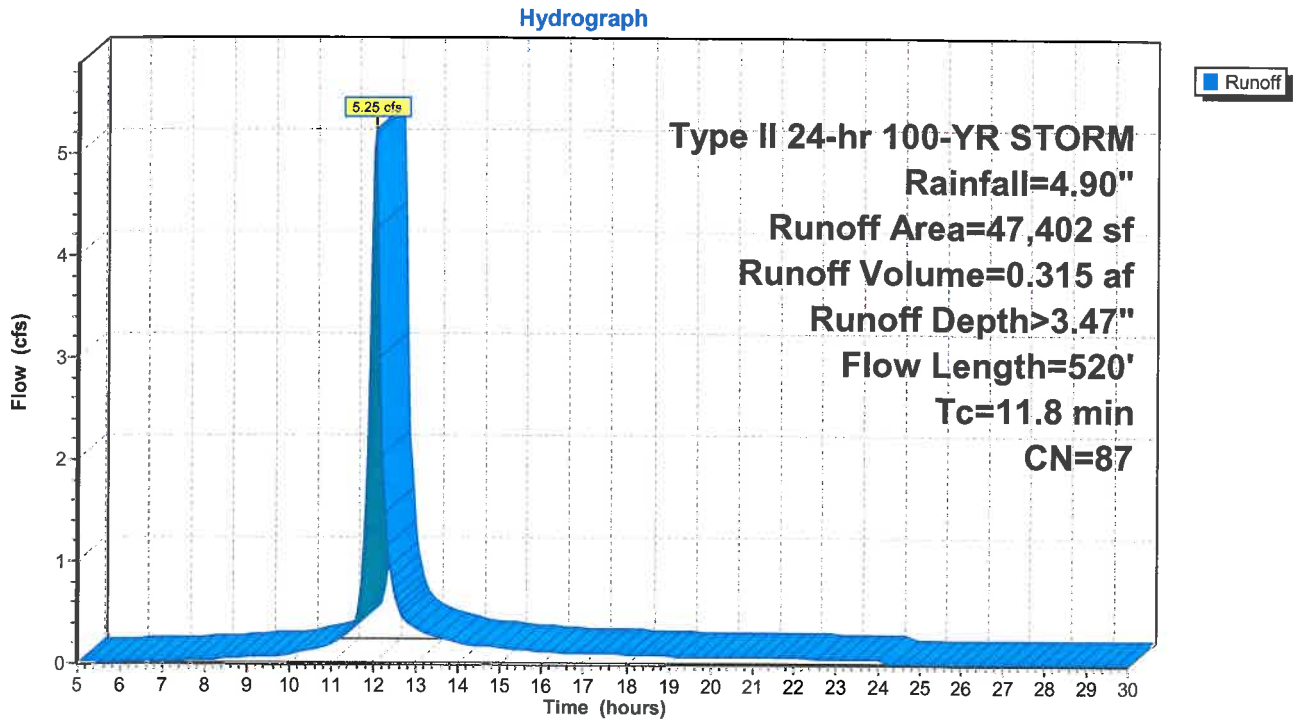
Runoff = 5.25 cfs @ 12.03 hrs, Volume= 0.315 af, Depth> 3.47"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type II 24-hr 100-YR STORM Rainfall=4.90"

Area (sf)	CN	Description
18,250	98	Paved parking, HSG D
29,152	80	>75% Grass cover, Good, HSG D
47,402	87	Weighted Average
29,152		61.50% Pervious Area
18,250		38.50% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.4	100	0.0300	0.18		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 2.50"
0.7	120	0.0300	2.79		**Shallow Concentrated Flow, B-C** Unpaved Kv= 16.1 fps
1.7	300	0.0200	2.87		**Shallow Concentrated Flow, C-D** Paved Kv= 20.3 fps
11.8	520	Total			

Subcatchment Ws6: Watershed 6



Summary for Subcatchment Ws7: Watershed 7

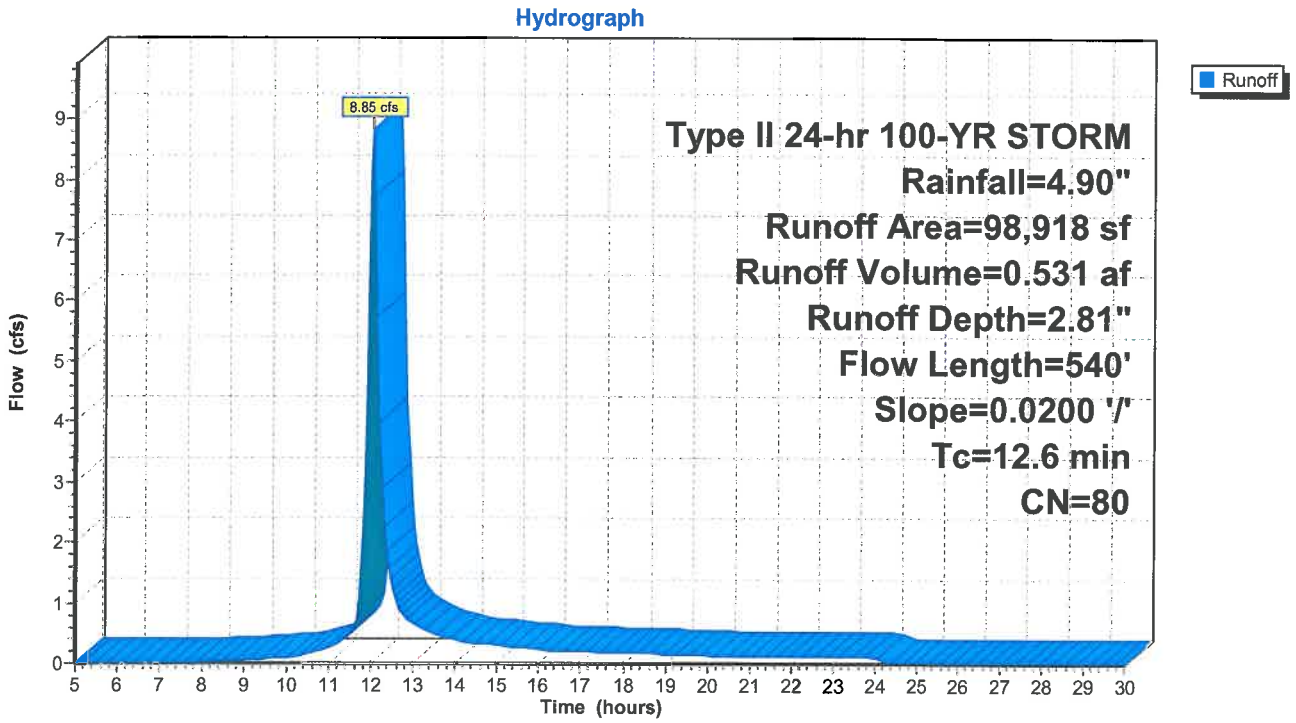
Runoff = 8.85 cfs @ 12.04 hrs, Volume= 0.531 af, Depth= 2.81"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type II 24-hr 100-YR STORM Rainfall=4.90"

Area (sf)	CN	Description
18,250	98	Paved parking, HSG D
40,668	80	>75% Grass cover, Good, HSG D
40,000	73	Brush, Good, HSG D
98,918	80	Weighted Average
80,668		81.55% Pervious Area
18,250		18.45% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.9	100	0.0200	0.17		**Sheet Flow, A-B** Range n= 0.130 P2= 2.50"
1.0	140	0.0200	2.28		**Shallow Concentrated Flow, B-C** Unpaved Kv= 16.1 fps
1.7	300	0.0200	2.87		**Shallow Concentrated Flow, C-D** Paved Kv= 20.3 fps
12.6	540	Total			

Subcatchment Ws7: Watershed 7



Summary for Subcatchment Ws8: Watershed 8

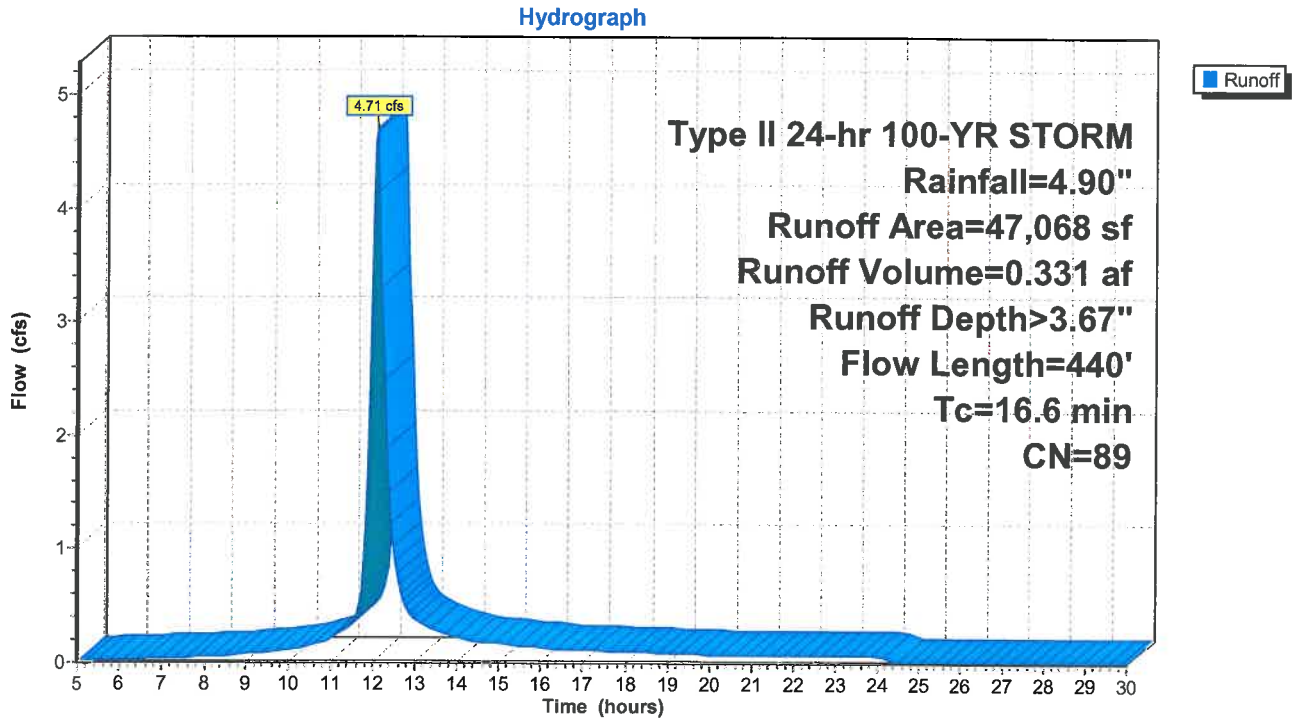
Runoff = 4.71 cfs @ 12.08 hrs, Volume= 0.331 af, Depth> 3.67"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type II 24-hr 100-YR STORM Rainfall=4.90"

Area (sf)	CN	Description
24,250	98	Paved parking, HSG D
22,818	80	>75% Grass cover, Good, HSG D
47,068	89	Weighted Average
22,818		48.48% Pervious Area
24,250		51.52% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.6	100	0.0100	0.11		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 2.50"
2.0	340	0.0200	2.87		**Shallow Concentrated Flow, B-C** Paved Kv= 20.3 fps
16.6	440	Total			

Subcatchment Ws8: Watershed 8



Summary for Subcatchment Ws9: Watershed 9

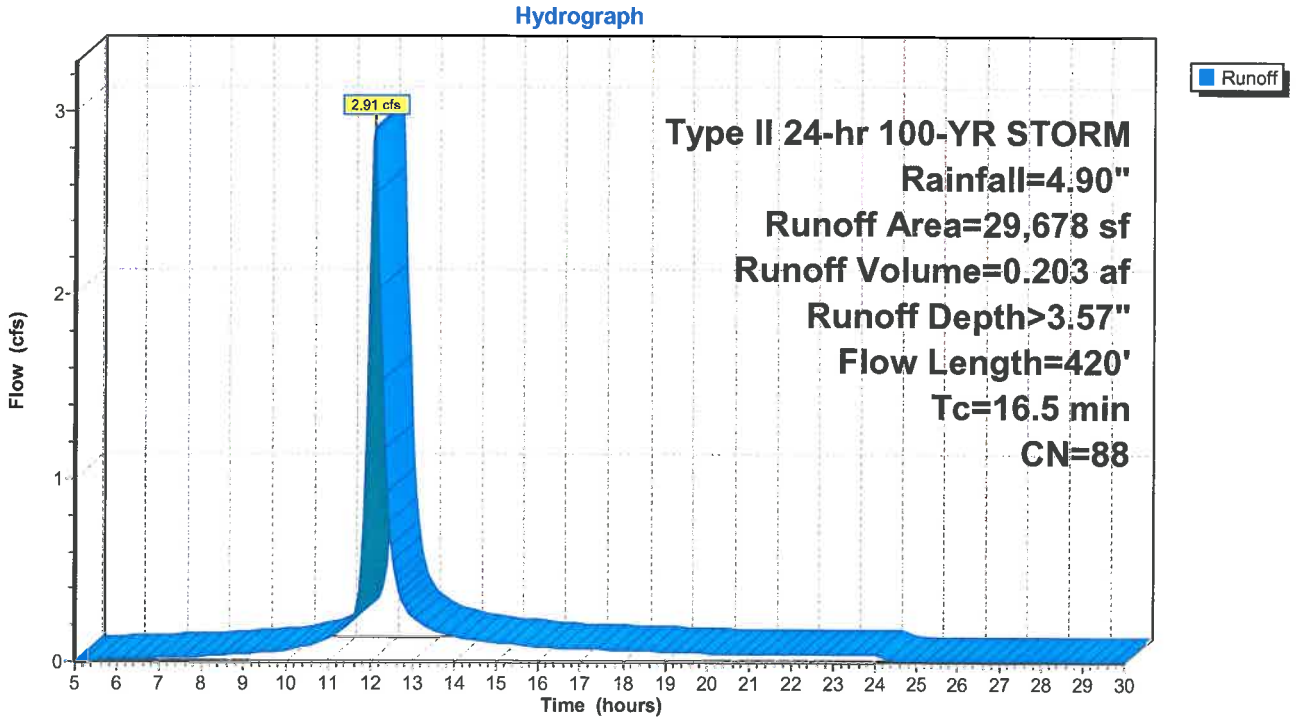
Runoff = 2.91 cfs @ 12.08 hrs, Volume= 0.203 af, Depth> 3.57"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Type II 24-hr 100-YR STORM Rainfall=4.90"

Area (sf)	CN	Description
12,840	98	Paved parking, HSG D
16,838	80	>75% Grass cover, Good, HSG D
29,678	88	Weighted Average
16,838		56.74% Pervious Area
12,840		43.26% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.6	100	0.0100	0.11		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 2.50"
1.9	320	0.0200	2.87		**Shallow Concentrated Flow, B-C** Paved Kv= 20.3 fps
16.5	420	Total			

Subcatchment Ws9: Watershed 9



Summary for Reach R1: CB 18-17

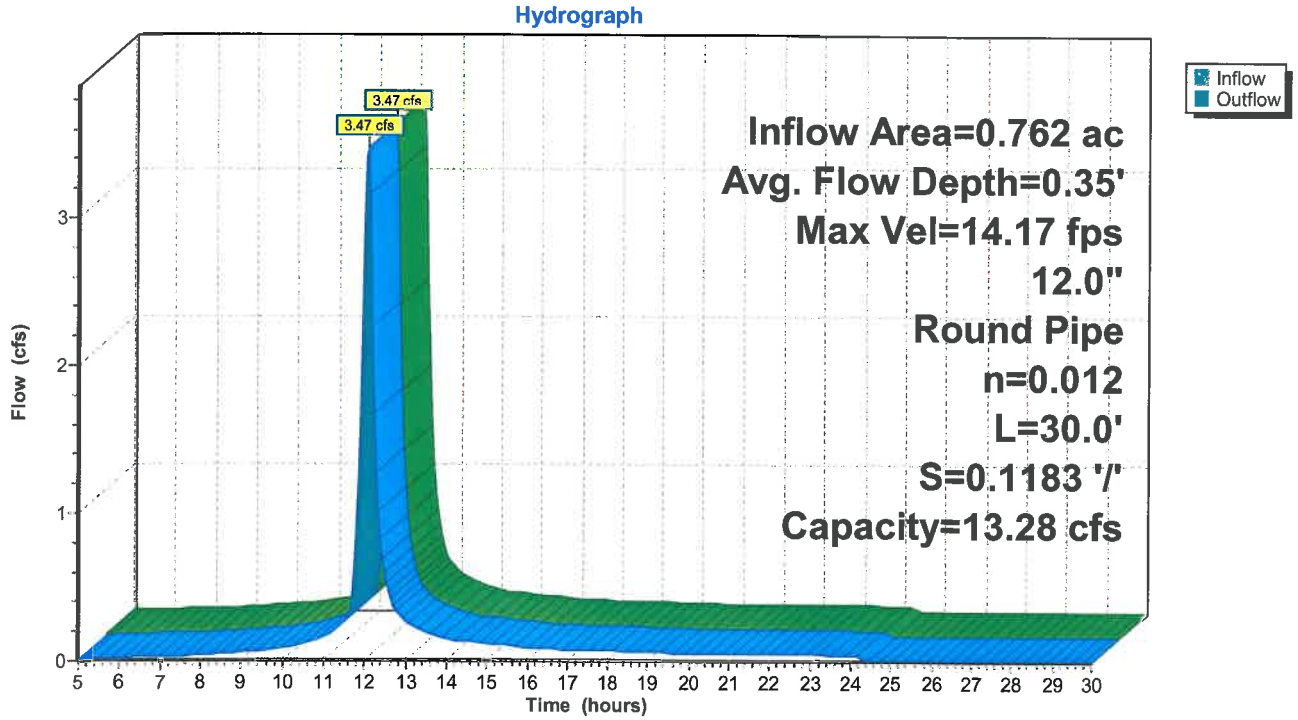
Inflow Area = 0.762 ac, 54.97% Impervious, Inflow Depth > 3.78" for 100-YR STORM event
Inflow = 3.47 cfs @ 12.07 hrs, Volume= 0.240 af
Outflow = 3.47 cfs @ 12.07 hrs, Volume= 0.240 af, Atten= 0%, Lag= 0.1 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 14.17 fps, Min. Travel Time= 0.0 min
Avg. Velocity = 4.62 fps, Avg. Travel Time= 0.1 min

Peak Storage= 7 cf @ 12.07 hrs
Average Depth at Peak Storage= 0.35'
Bank-Full Depth= 1.00', Capacity at Bank-Full= 13.28 cfs

12.0" Round Pipe
n= 0.012 Concrete pipe, finished
Length= 30.0' Slope= 0.1183 '/'
Inlet Invert= 831.62', Outlet Invert= 828.07'

Reach R1: CB 18-17



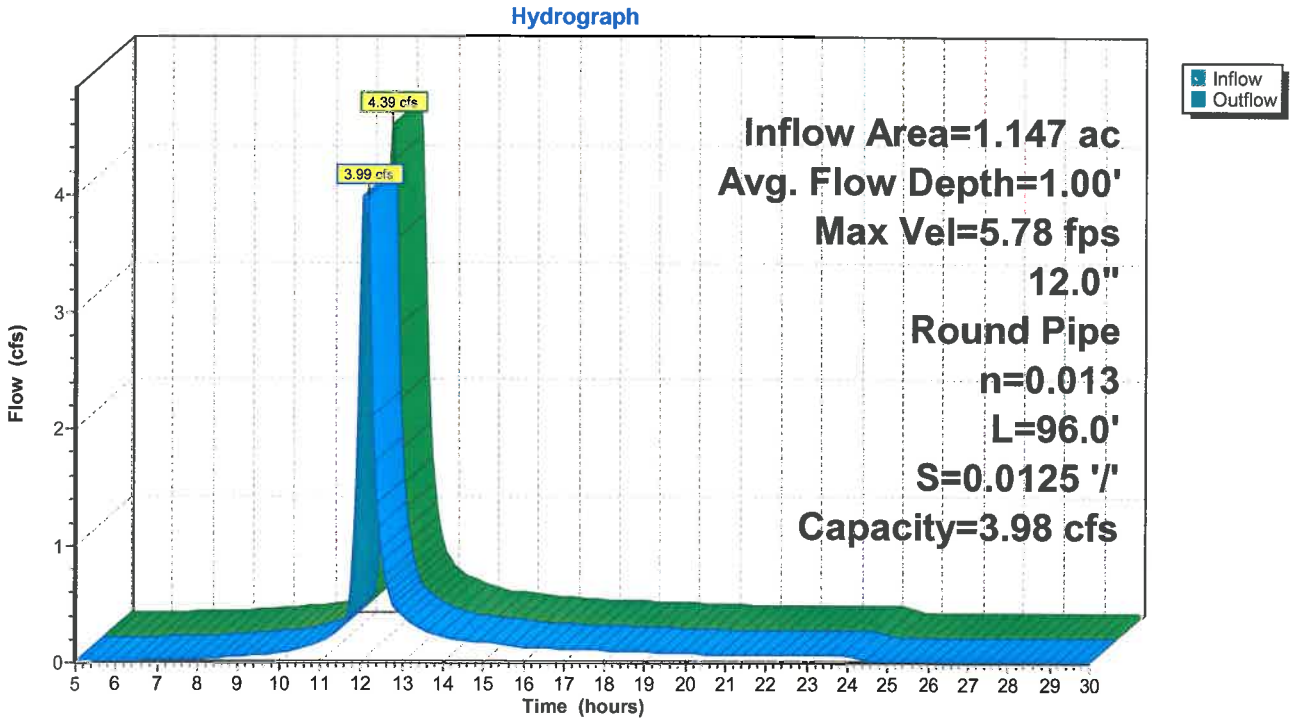
Summary for Reach R10: CB1 to CB 2

Inflow Area = 1.147 ac, 25.02% Impervious, Inflow Depth = 3.28" for 100-YR STORM event
Inflow = 4.39 cfs @ 12.10 hrs, Volume= 0.313 af
Outflow = 3.99 cfs @ 12.20 hrs, Volume= 0.313 af, Atten= 9%, Lag= 6.1 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 5.78 fps, Min. Travel Time= 0.3 min
Avg. Velocity = 2.10 fps, Avg. Travel Time= 0.8 min

Peak Storage= 76 cf @ 12.13 hrs
Average Depth at Peak Storage= 1.00'
Bank-Full Depth= 1.00', Capacity at Bank-Full= 3.98 cfs

12.0" Round Pipe
n= 0.013 Corrugated PE, smooth interior
Length= 96.0' Slope= 0.0125 '/'
Inlet Invert= 817.93', Outlet Invert= 816.73'



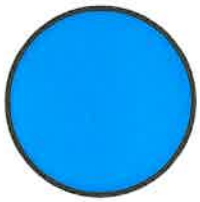
Summary for Reach R11: Upper Pond to MH2

Inflow Area = 10.612 ac, 20.37% Impervious, Inflow Depth > 2.56" for 100-YR STORM event
Inflow = 12.77 cfs @ 12.27 hrs, Volume= 2.264 af
Outflow = 7.97 cfs @ 12.15 hrs, Volume= 2.263 af, Atten= 38%, Lag= 0.0 min

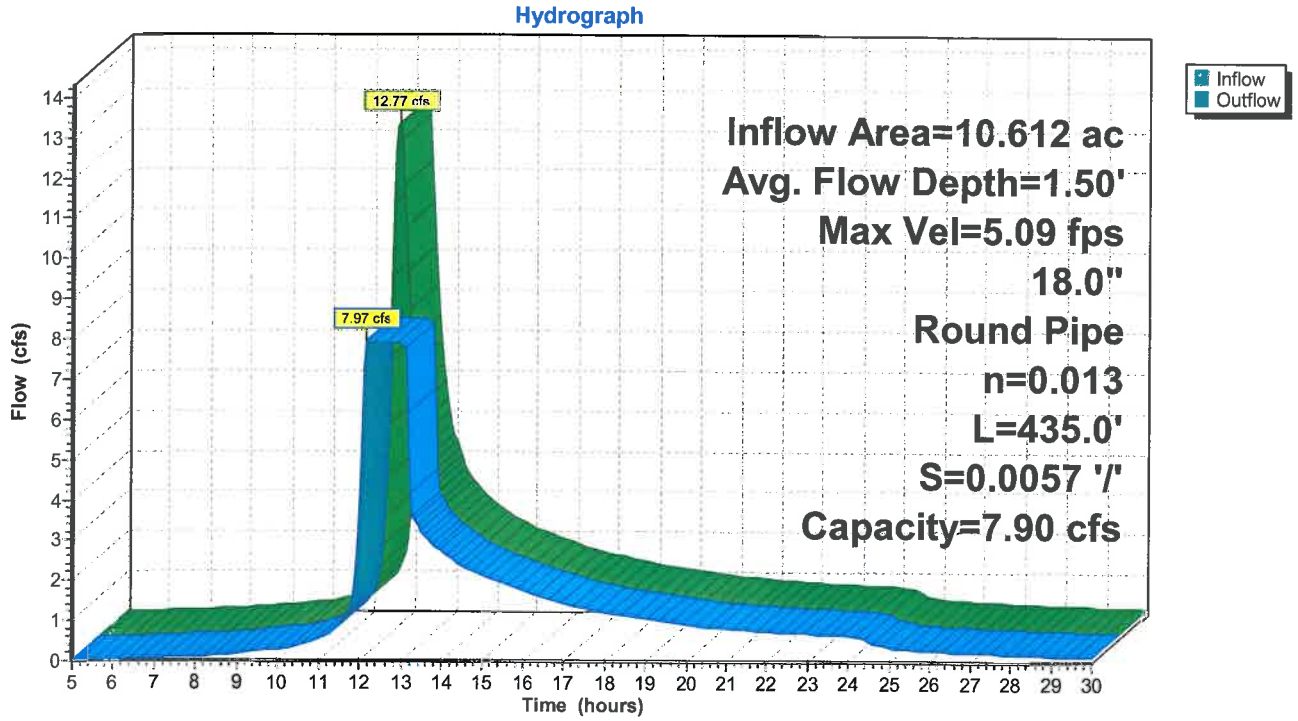
Routing by Stor-Ind+Trans method, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 5.09 fps, Min. Travel Time= 1.4 min
Avg. Velocity = 2.60 fps, Avg. Travel Time= 2.8 min

Peak Storage= 769 cf @ 12.15 hrs
Average Depth at Peak Storage= 1.50'
Bank-Full Depth= 1.50', Capacity at Bank-Full= 7.90 cfs

18.0" Round Pipe
n= 0.013 Corrugated PE, smooth interior
Length= 435.0' Slope= 0.0057 '/'
Inlet Invert= 823.72', Outlet Invert= 821.26'



Reach R11: Upper Pond to MH2



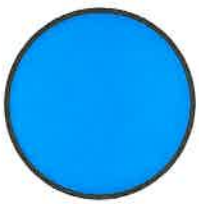
Summary for Reach R12: MH2 to Pond

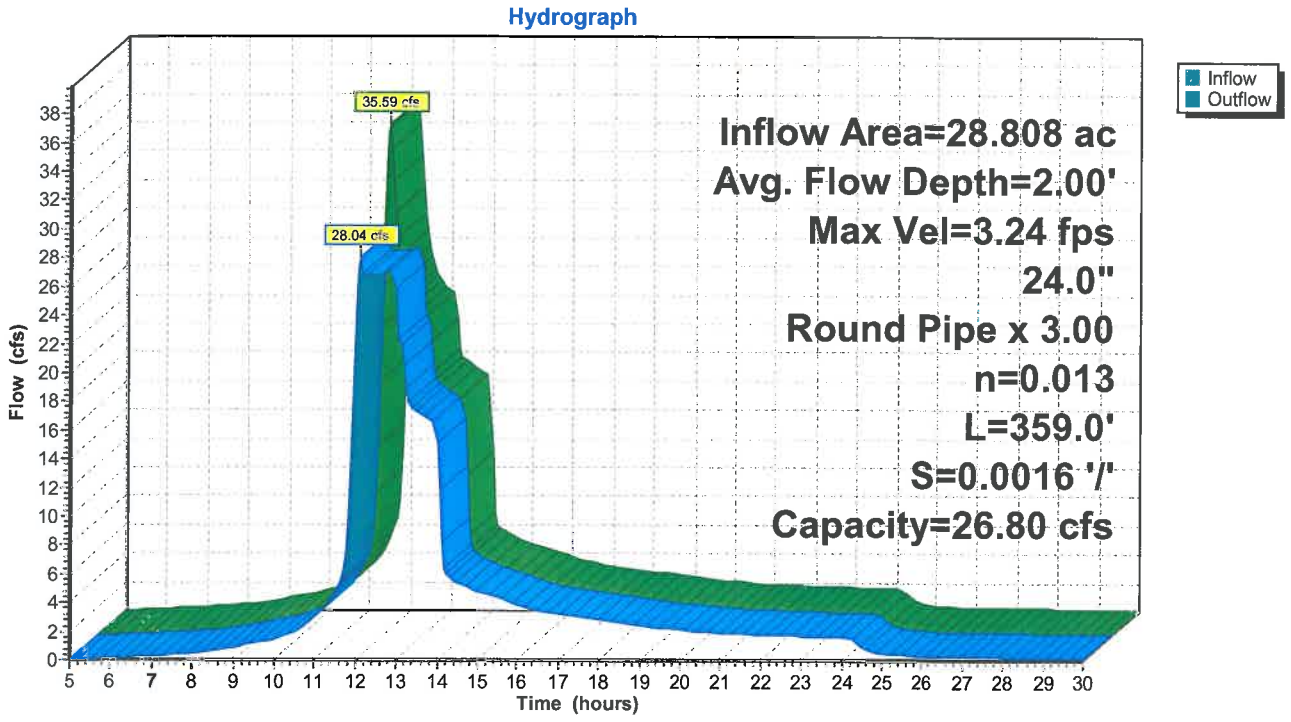
Inflow Area = 28.808 ac, 25.64% Impervious, Inflow Depth > 3.00" for 100-YR STORM event
Inflow = 35.59 cfs @ 12.14 hrs, Volume= 7.202 af
Outflow = 28.04 cfs @ 12.10 hrs, Volume= 7.200 af, Atten= 21%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 3.24 fps, Min. Travel Time= 1.8 min
Avg. Velocity = 1.54 fps, Avg. Travel Time= 3.9 min

Peak Storage= 3,383 cf @ 12.10 hrs
Average Depth at Peak Storage= 2.00'
Bank-Full Depth= 2.00', Capacity at Bank-Full= 26.80 cfs

A factor of 3.00 has been applied to the storage and discharge capacity
24.0" Round Pipe
n= 0.013 Corrugated PE, smooth interior
Length= 359.0' Slope= 0.0016 '/'
Inlet Invert= 821.06', Outlet Invert= 820.50'





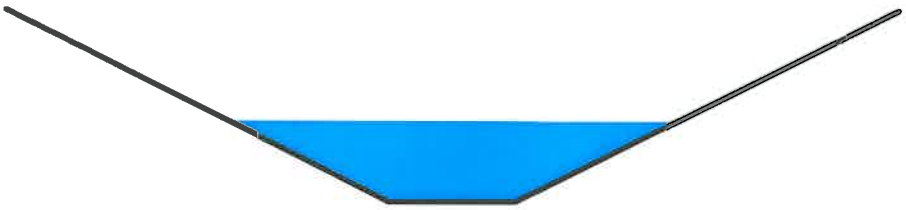
Summary for Reach R13: Swale

Inflow Area = 6.112 ac, 3.91% Impervious, Inflow Depth = 2.90" for 100-YR STORM event
Inflow = 21.42 cfs @ 12.09 hrs, Volume= 1.476 af
Outflow = 19.78 cfs @ 12.21 hrs, Volume= 1.476 af, Atten= 8%, Lag= 7.0 min

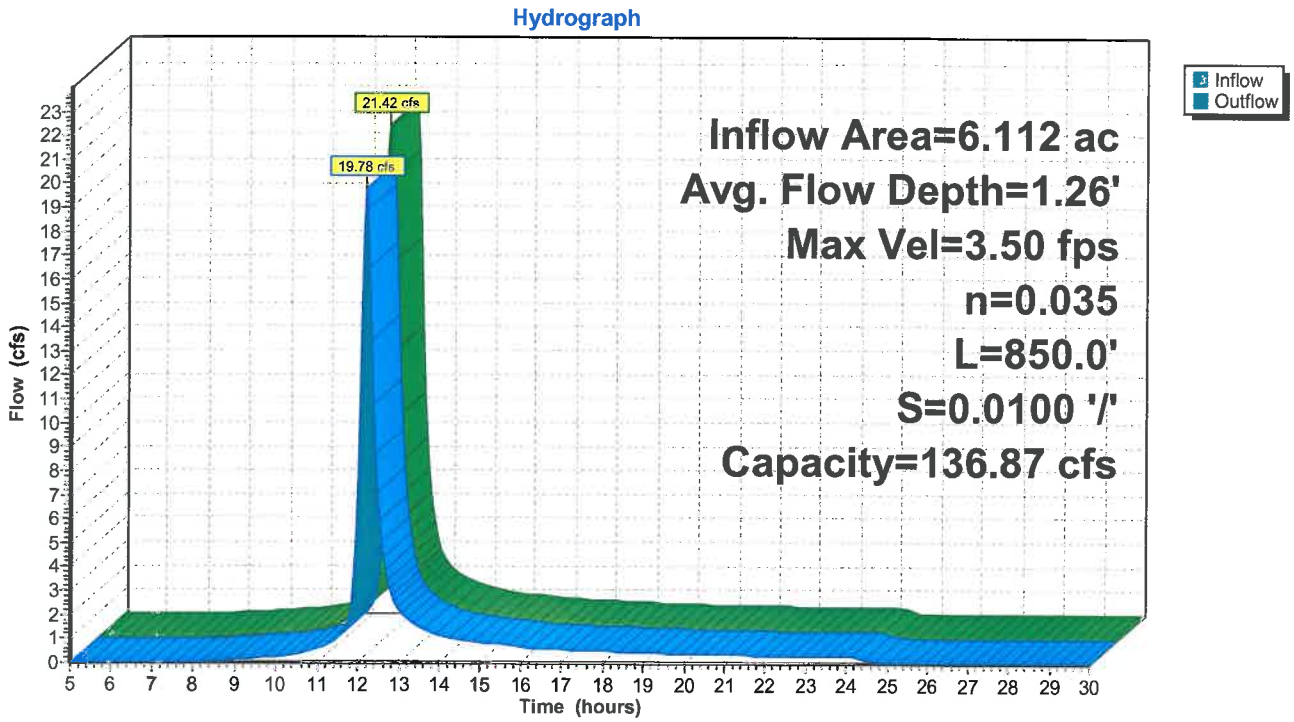
Routing by Stor-Ind+Trans method, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 3.50 fps, Min. Travel Time= 4.1 min
Avg. Velocity = 1.06 fps, Avg. Travel Time= 13.4 min

Peak Storage= 4,870 cf @ 12.14 hrs
Average Depth at Peak Storage= 1.26'
Bank-Full Depth= 3.00', Capacity at Bank-Full= 136.87 cfs

2.00' x 3.00' deep channel, n= 0.035 Earth, dense weeds
Side Slope Z-value= 2.0 '/' Top Width= 14.00'
Length= 850.0' Slope= 0.0100 '/'
Inlet Invert= 0.00', Outlet Invert= -8.50'



Reach R13: Swale



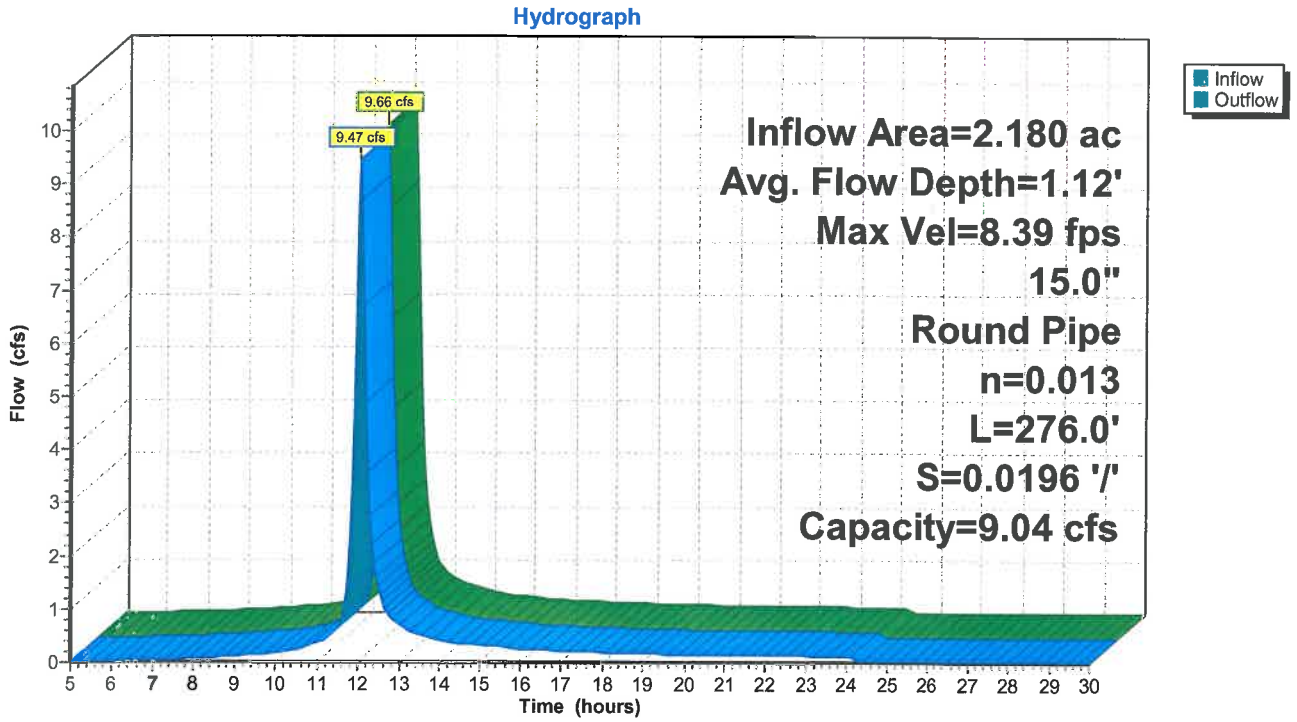
Summary for Reach R2: CB 17- MH 7

Inflow Area = 2.180 ac, 38.43% Impervious, Inflow Depth > 3.33" for 100-YR STORM event
Inflow = 9.66 cfs @ 12.03 hrs, Volume= 0.604 af
Outflow = 9.47 cfs @ 12.05 hrs, Volume= 0.604 af, Atten= 2%, Lag= 1.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 8.39 fps, Min. Travel Time= 0.5 min
Avg. Velocity = 2.87 fps, Avg. Travel Time= 1.6 min

Peak Storage= 319 cf @ 12.04 hrs
Average Depth at Peak Storage= 1.12'
Bank-Full Depth= 1.25', Capacity at Bank-Full= 9.04 cfs

15.0" Round Pipe
n= 0.013 Corrugated PE, smooth interior
Length= 276.0' Slope= 0.0196 '/'
Inlet Invert= 827.97', Outlet Invert= 822.57'



Summary for Reach R3: MH7-MH3

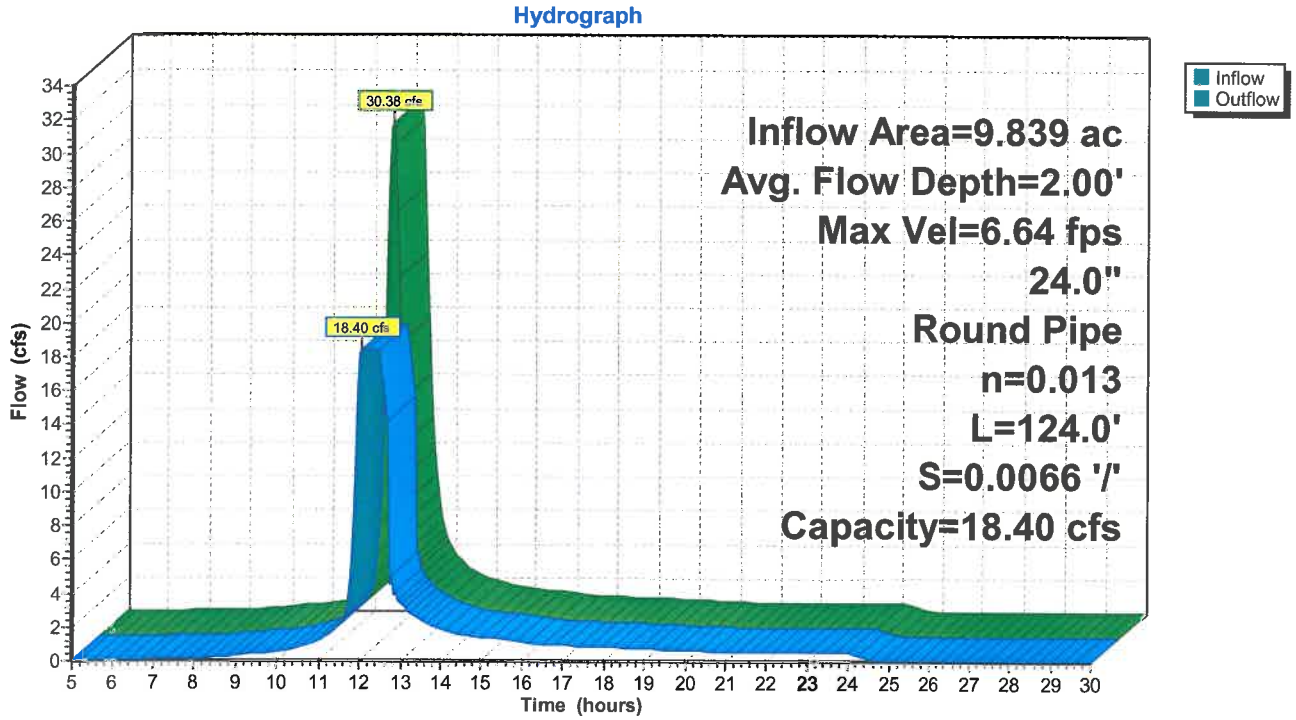
Inflow Area = 9.839 ac, 18.36% Impervious, Inflow Depth > 3.10" for 100-YR STORM event
Inflow = 30.38 cfs @ 12.12 hrs, Volume= 2.541 af
Outflow = 18.40 cfs @ 12.05 hrs, Volume= 2.541 af, Atten= 39%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 6.64 fps, Min. Travel Time= 0.3 min
Avg. Velocity = 2.45 fps, Avg. Travel Time= 0.8 min

Peak Storage= 390 cf @ 12.00 hrs
Average Depth at Peak Storage= 2.00'
Bank-Full Depth= 2.00', Capacity at Bank-Full= 18.40 cfs

24.0" Round Pipe
n= 0.013 Corrugated PE, smooth interior
Length= 124.0' Slope= 0.0066 '/'
Inlet Invert= 822.47', Outlet Invert= 821.65'

Reach R3: MH7-MH3



Summary for Reach R4: CB10 - MH3

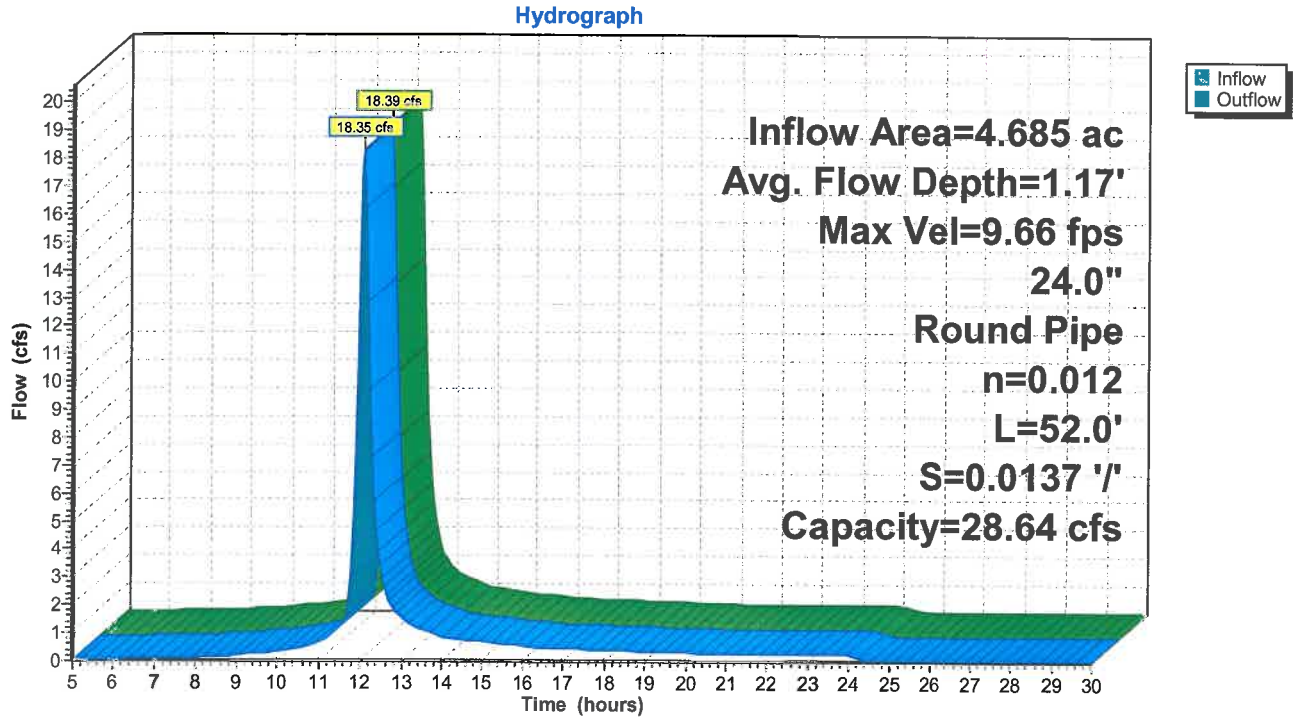
Inflow Area = 4.685 ac, 31.18% Impervious, Inflow Depth = 3.18" for 100-YR STORM event
Inflow = 18.39 cfs @ 12.08 hrs, Volume= 1.243 af
Outflow = 18.35 cfs @ 12.09 hrs, Volume= 1.243 af, Atten= 0%, Lag= 0.2 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 9.66 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 3.07 fps, Avg. Travel Time= 0.3 min

Peak Storage= 99 cf @ 12.09 hrs
Average Depth at Peak Storage= 1.17'
Bank-Full Depth= 2.00', Capacity at Bank-Full= 28.64 cfs

24.0" Round Pipe
n= 0.012 Concrete pipe, finished
Length= 52.0' Slope= 0.0137 '/'
Inlet Invert= 821.92', Outlet Invert= 821.21'

Reach R4: CB10 - MH3



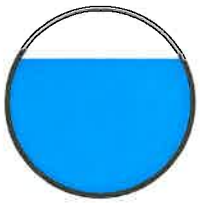
Summary for Reach R5: MH4-CB10

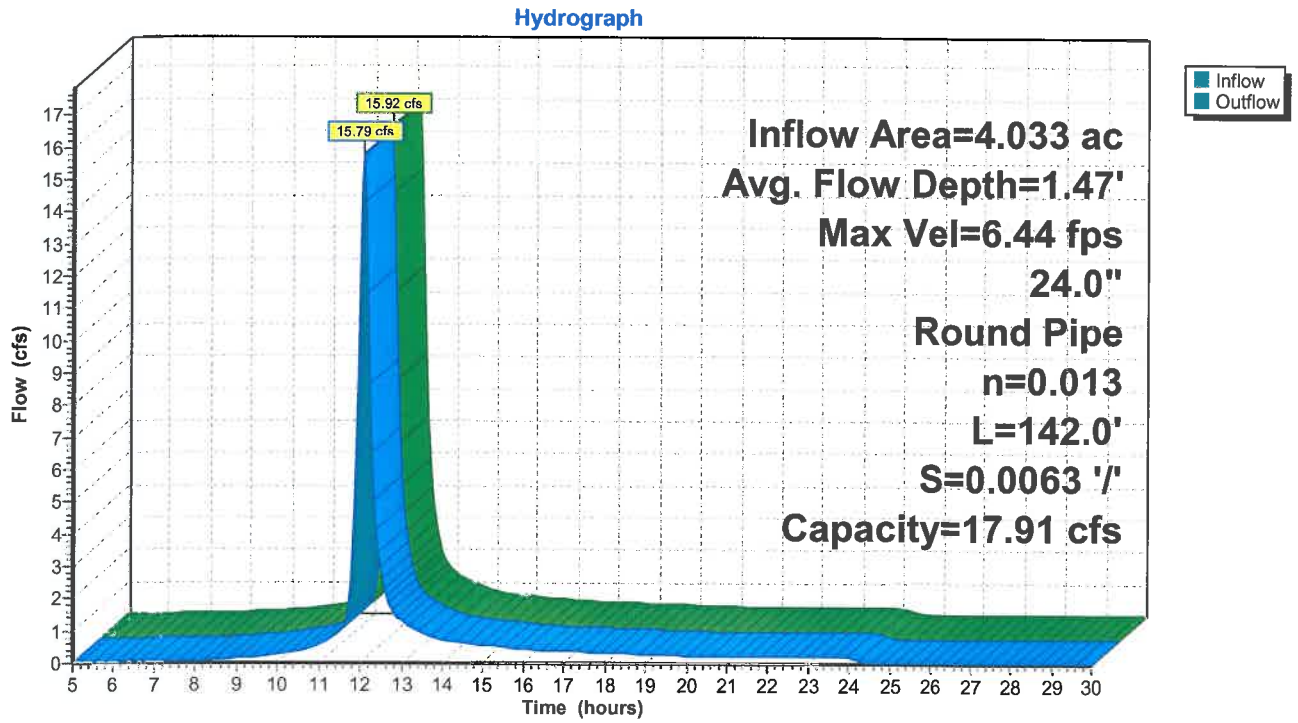
Inflow Area = 4.033 ac, 31.50% Impervious, Inflow Depth > 3.17" for 100-YR STORM event
Inflow = 15.92 cfs @ 12.08 hrs, Volume= 1.065 af
Outflow = 15.79 cfs @ 12.09 hrs, Volume= 1.065 af, Atten= 1%, Lag= 0.7 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 6.44 fps, Min. Travel Time= 0.4 min
Avg. Velocity = 2.10 fps, Avg. Travel Time= 1.1 min

Peak Storage= 351 cf @ 12.09 hrs
Average Depth at Peak Storage= 1.47'
Bank-Full Depth= 2.00', Capacity at Bank-Full= 17.91 cfs

24.0" Round Pipe
n= 0.013 Corrugated PE, smooth interior
Length= 142.0' Slope= 0.0063 '/'
Inlet Invert= 822.81', Outlet Invert= 821.92'





Summary for Reach R6: CB19-CB20

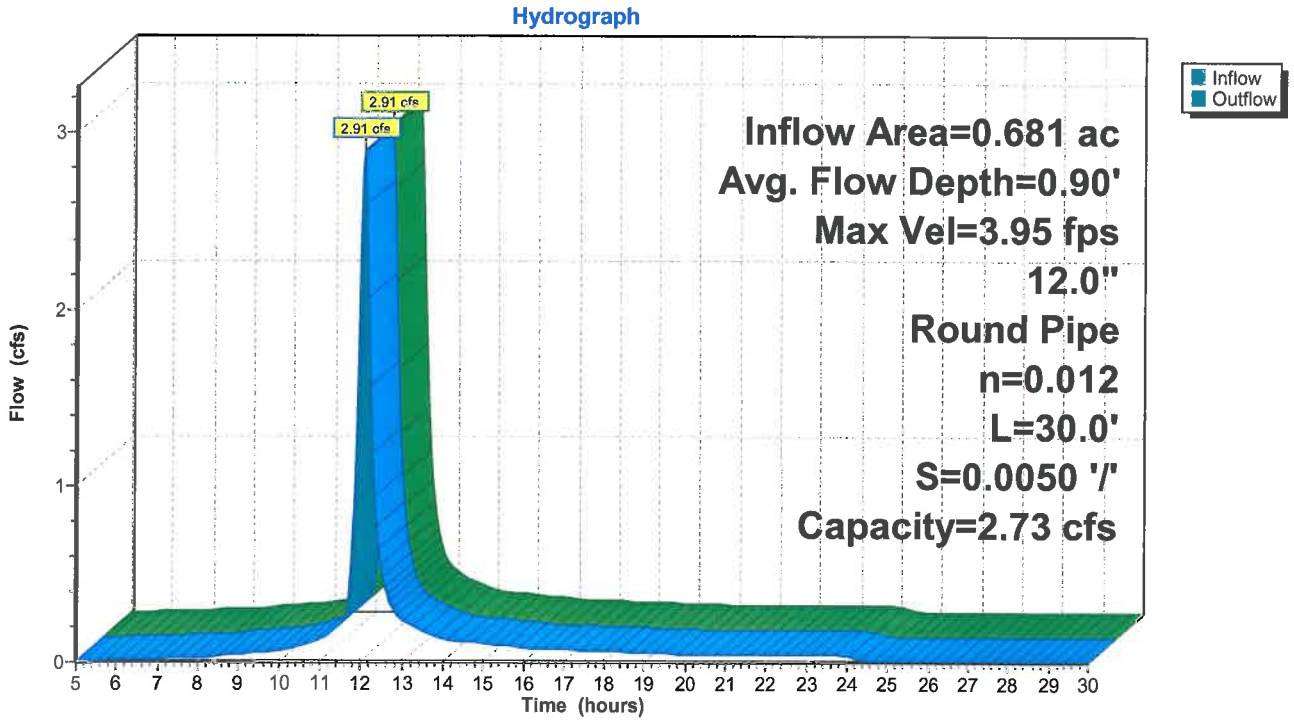
Inflow Area = 0.681 ac, 43.26% Impervious, Inflow Depth > 3.57" for 100-YR STORM event
Inflow = 2.91 cfs @ 12.08 hrs, Volume= 0.203 af
Outflow = 2.91 cfs @ 12.09 hrs, Volume= 0.203 af, Atten= 0%, Lag= 0.3 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 3.95 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 1.42 fps, Avg. Travel Time= 0.4 min

Peak Storage= 22 cf @ 12.09 hrs
Average Depth at Peak Storage= 0.90'
Bank-Full Depth= 1.00', Capacity at Bank-Full= 2.73 cfs

12.0" Round Pipe
n= 0.012 Concrete pipe, finished
Length= 30.0' Slope= 0.0050 '/'
Inlet Invert= 823.05', Outlet Invert= 822.90'

Reach R6: CB19-CB20



Summary for Reach R7: MH5-MH4

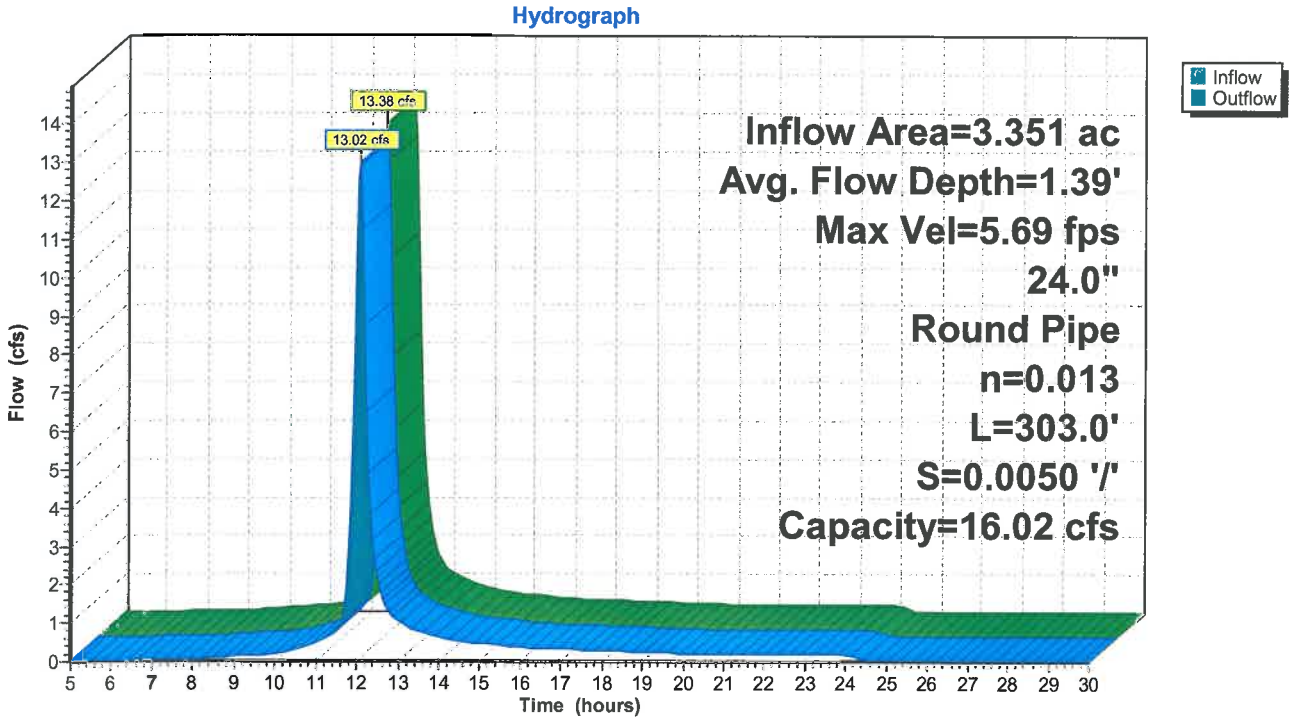
Inflow Area = 3.351 ac, 29.11% Impervious, Inflow Depth > 3.09" for 100-YR STORM event
Inflow = 13.38 cfs @ 12.06 hrs, Volume= 0.862 af
Outflow = 13.02 cfs @ 12.08 hrs, Volume= 0.862 af, Atten= 3%, Lag= 1.7 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 5.69 fps, Min. Travel Time= 0.9 min
Avg. Velocity = 1.82 fps, Avg. Travel Time= 2.8 min

Peak Storage= 705 cf @ 12.07 hrs
Average Depth at Peak Storage= 1.39'
Bank-Full Depth= 2.00', Capacity at Bank-Full= 16.02 cfs

24.0" Round Pipe
n= 0.013 Corrugated PE, smooth interior
Length= 303.0' Slope= 0.0050 '/'
Inlet Invert= 824.25', Outlet Invert= 822.73'

Reach R7: MH5-MH4



Summary for Reach R8: CB 21-22

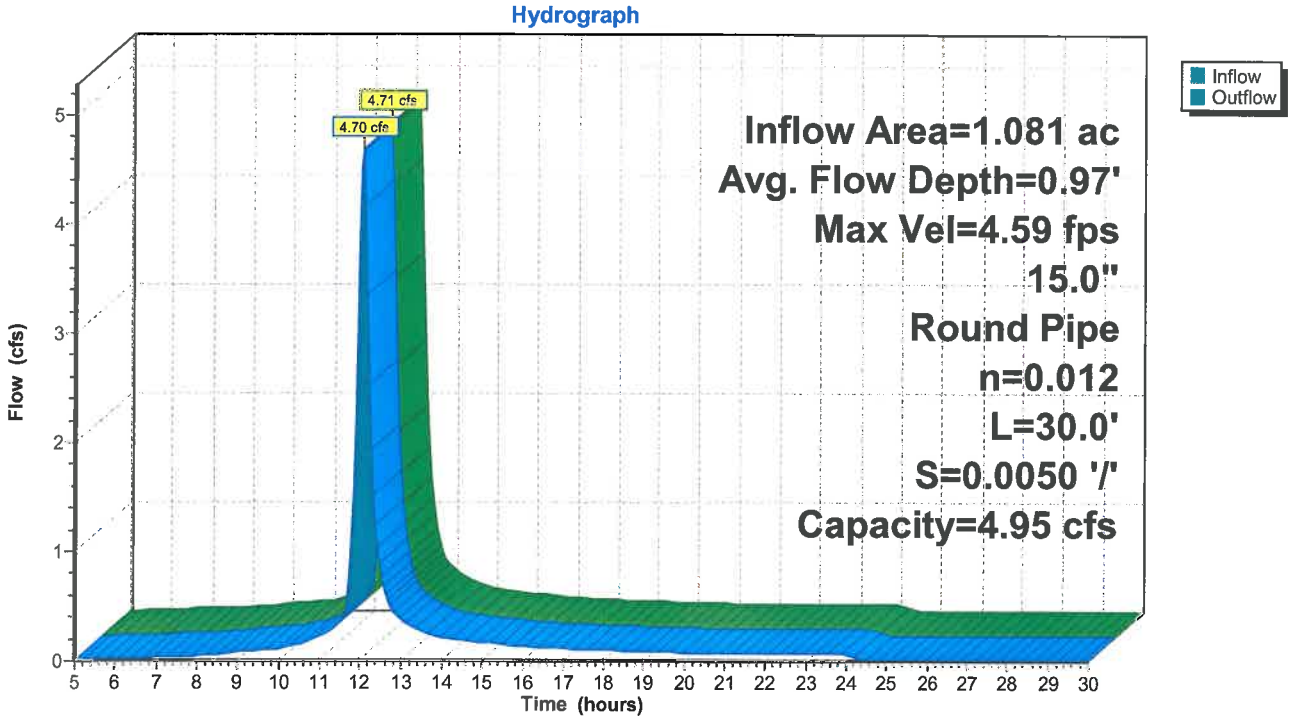
Inflow Area = 1.081 ac, 51.52% Impervious, Inflow Depth > 3.67" for 100-YR STORM event
Inflow = 4.71 cfs @ 12.08 hrs, Volume= 0.331 af
Outflow = 4.70 cfs @ 12.09 hrs, Volume= 0.331 af, Atten= 0%, Lag= 0.2 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 4.59 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 1.61 fps, Avg. Travel Time= 0.3 min

Peak Storage= 31 cf @ 12.09 hrs
Average Depth at Peak Storage= 0.97'
Bank-Full Depth= 1.25', Capacity at Bank-Full= 4.95 cfs

15.0" Round Pipe
n= 0.012 Concrete pipe, finished
Length= 30.0' Slope= 0.0050 '/'
Inlet Invert= 824.59', Outlet Invert= 824.44'

Reach R8: CB 21-22



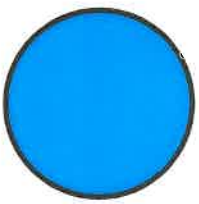
Summary for Reach R9: MH3-MH2

Inflow Area = 14.524 ac, 22.49% Impervious, Inflow Depth > 3.13" for 100-YR STORM event
Inflow = 36.75 cfs @ 12.09 hrs, Volume= 3.783 af
Outflow = 12.99 cfs @ 11.95 hrs, Volume= 3.783 af, Atten= 65%, Lag= 0.0 min

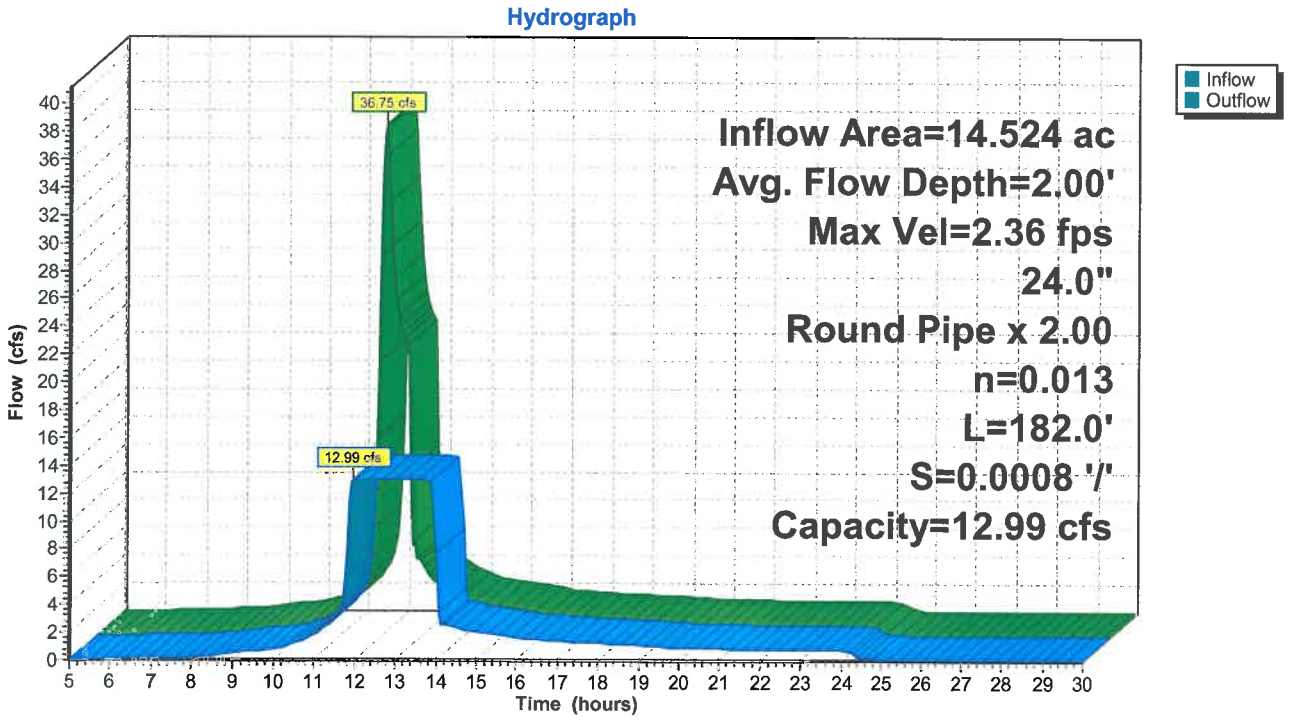
Routing by Stor-Ind+Trans method, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Max. Velocity= 2.36 fps, Min. Travel Time= 1.3 min
Avg. Velocity = 1.03 fps, Avg. Travel Time= 2.9 min

Peak Storage= 1,144 cf @ 11.90 hrs
Average Depth at Peak Storage= 2.00'
Bank-Full Depth= 2.00', Capacity at Bank-Full= 12.99 cfs

A factor of 2.00 has been applied to the storage and discharge capacity
24.0" Round Pipe
n= 0.013 Corrugated PE, smooth interior
Length= 182.0' Slope= 0.0008 '/'
Inlet Invert= 821.31', Outlet Invert= 821.16'



Reach R9: MH3-MH2



Summary for Pond 2P: Upper Pond

Inflow Area = 6.682 ac, 10.27% Impervious, Inflow Depth = 2.99" for 100-YR STORM event
Inflow = 26.92 cfs @ 12.05 hrs, Volume= 1.665 af
Outflow = 2.09 cfs @ 12.94 hrs, Volume= 1.126 af, Atten= 92%, Lag= 53.1 min
Primary = 2.09 cfs @ 12.94 hrs, Volume= 1.126 af

Routing by Stor-Ind method, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Starting Elev= 823.50' Surf.Area= 28,882 sf Storage= 184,050 cf
Peak Elev= 824.85' @ 12.94 hrs Surf.Area= 32,837 sf Storage= 225,792 cf (41,741 cf above start)

Plug-Flow detention time= (not calculated: initial storage excedes outflow)
Center-of-Mass det. time= 224.6 min (1,045.5 - 820.9)

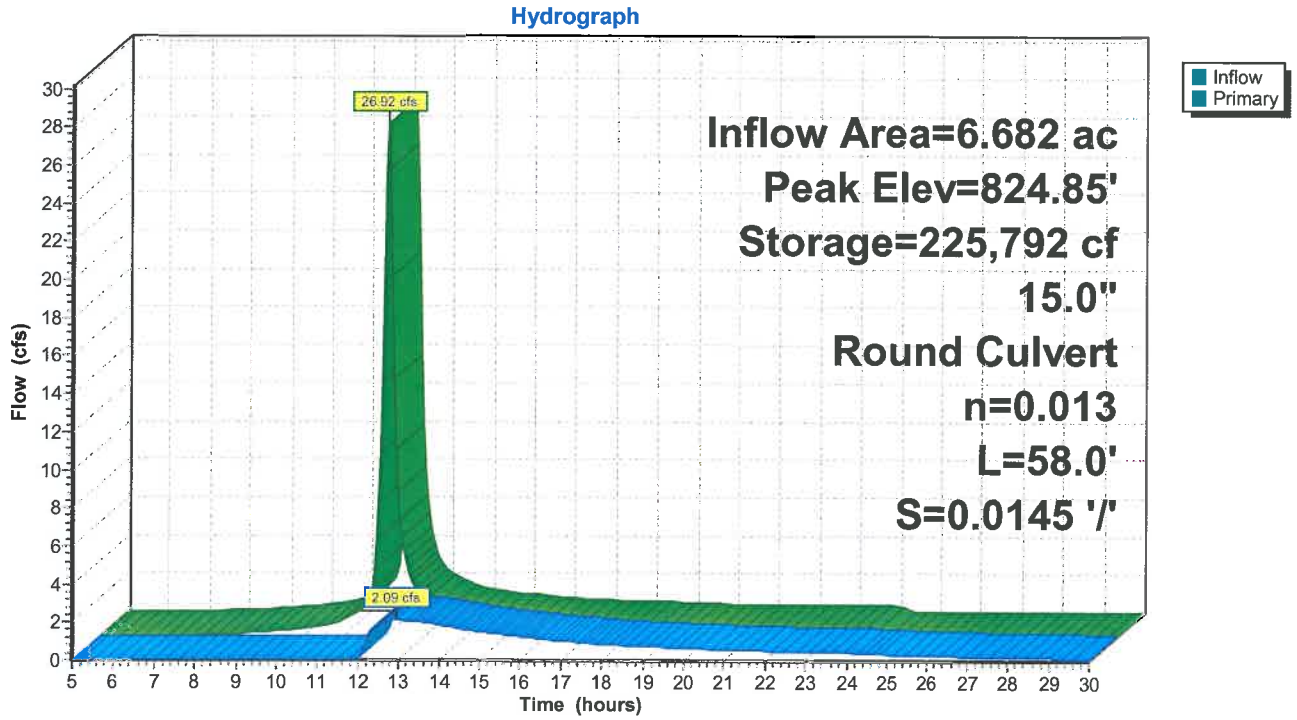
Volume	Invert	Avail.Storage	Storage Description
#1	810.00'	265,092 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
810.00	2,590	0	0
811.00	3,636	3,113	3,113
812.00	4,826	4,231	7,344
813.00	6,159	5,493	12,837
814.00	7,640	6,900	19,736
815.00	9,276	8,458	28,194
816.00	11,062	10,169	38,363
817.00	13,013	12,038	50,401
818.00	15,136	14,075	64,475
819.00	17,394	16,265	80,740
820.00	19,758	18,576	99,316
821.00	22,226	20,992	120,308
822.00	24,799	23,513	143,821
823.00	27,480	26,140	169,960
824.00	30,283	28,882	198,842
825.00	33,274	31,779	230,620
826.00	35,670	34,472	265,092

Device	Routing	Invert	Outlet Devices
#1	Primary	824.14'	**15.0" Round Culvert** L= 58.0' CPP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 824.14' / 823.30' S= 0.0145 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior

Primary OutFlow Max=2.08 cfs @ 12.94 hrs HW=824.85' (Free Discharge)
↑—**1=Culvert** (Inlet Controls 2.08 cfs @ 2.88 fps)

Pond 2P: Upper Pond



Summary for Pond 13P: Lower Pond

Inflow Area = 42.994 ac, 21.21% Impervious, Inflow Depth > 2.75" for 100-YR STORM event
Inflow = 61.87 cfs @ 12.10 hrs, Volume= 9.866 af
Outflow = 22.63 cfs @ 13.22 hrs, Volume= 7.527 af, Atten= 63%, Lag= 67.4 min
Primary = 5.19 cfs @ 13.22 hrs, Volume= 4.793 af
Secondary = 17.44 cfs @ 13.22 hrs, Volume= 2.734 af

Routing by Stor-Ind method, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs / 3
Starting Elev= 820.00' Surf.Area= 109,467 sf Storage= 945,460 cf
Peak Elev= 821.55' @ 13.22 hrs Surf.Area= 128,332 sf Storage= 1,130,155 cf (184,695 cf above start)

Plug-Flow detention time= (not calculated: initial storage excedes outflow)
Center-of-Mass det. time= 191.0 min (1,060.0 - 869.0)

Volume	Invert	Avail.Storage	Storage Description
#1	804.00'	1,328,496 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

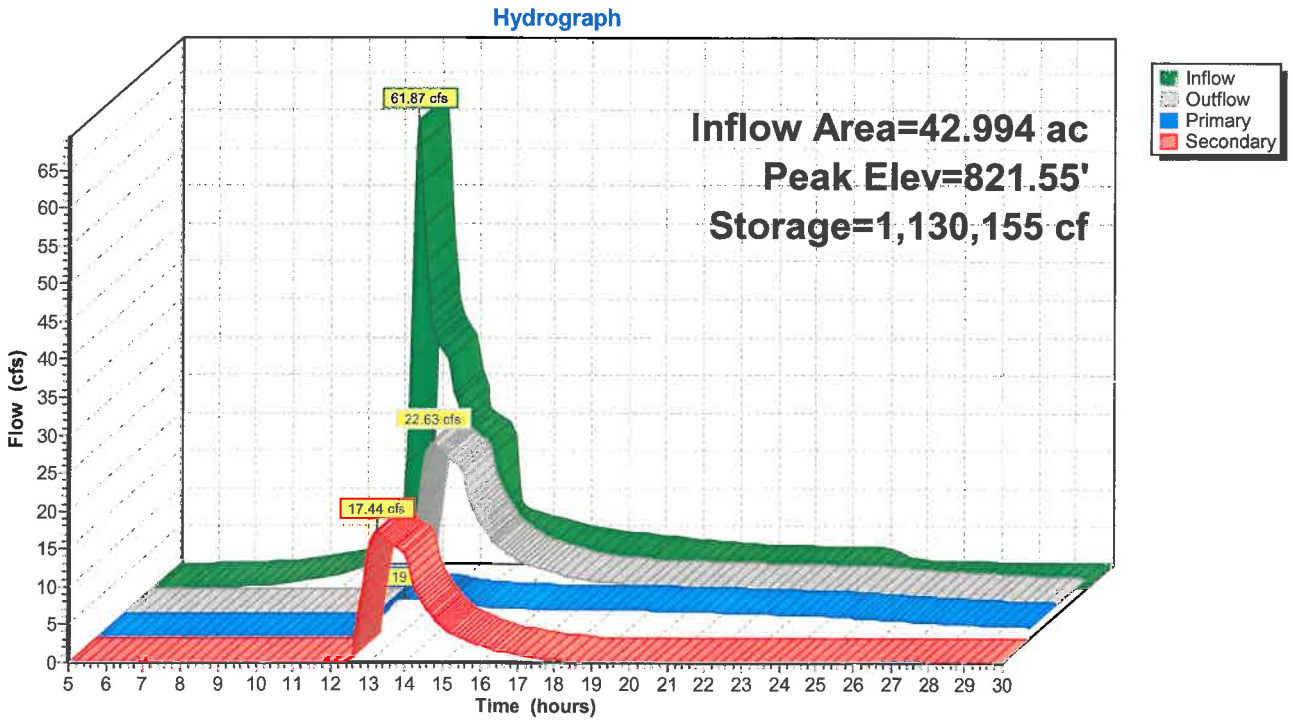
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
804.00	35,939	0	0
805.00	38,457	37,198	37,198
806.00	41,031	39,744	76,942
807.00	43,661	42,346	119,288
808.00	46,438	45,050	164,338
809.00	49,041	47,740	212,077
810.00	51,889	50,465	262,542
811.00	54,755	53,322	315,864
812.00	57,656	56,206	372,070
813.00	60,623	59,140	431,209
814.00	63,647	62,135	493,344
815.00	66,727	65,187	558,531
816.00	69,863	68,295	626,826
817.00	73,056	71,460	698,286
818.00	76,304	74,680	772,966
819.00	79,609	77,957	850,922
820.00	109,467	94,538	945,460
821.00	122,471	115,969	1,061,429
822.00	133,165	127,818	1,189,247
823.00	145,332	139,249	1,328,496

Device	Routing	Invert	Outlet Devices
#1	Primary	820.30'	**18.0" Round Culvert** L= 30.0' CPP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 820.30' / 820.00' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior
#2	Secondary	821.30'	**50.0' long x 20.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

Primary OutFlow Max=5.19 cfs @ 13.22 hrs HW=821.55' (Free Discharge)
└**1=Culvert** (Barrel Controls 5.19 cfs @ 4.48 fps)

Secondary OutFlow Max=16.55 cfs @ 13.22 hrs HW=821.55' (Free Discharge)
└**2=Broad-Crested Rectangular Weir** (Weir Controls 16.55 cfs @ 1.34 fps)

Pond 13P: Lower Pond



Summary for Pond 15P: Pretreatment

Inflow Area = 4.248 ac, 0.00% Impervious, Inflow Depth = 2.63" for 100-YR STORM event
Inflow = 13.02 cfs @ 12.11 hrs, Volume= 0.930 af
Outflow = 3.25 cfs @ 12.49 hrs, Volume= 0.600 af, Atten= 75%, Lag= 22.8 min
Primary = 0.42 cfs @ 12.49 hrs, Volume= 0.266 af
Secondary = 2.83 cfs @ 12.49 hrs, Volume= 0.334 af

Routing by Stor-Ind method, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs
Peak Elev= 821.47' @ 12.49 hrs Surf.Area= 18,963 sf Storage= 19,626 cf

Plug-Flow detention time= 265.1 min calculated for 0.599 af (64% of inflow)
Center-of-Mass det. time= 157.0 min (993.2 - 836.2)

Volume	Invert	Avail.Storage	Storage Description
#1	820.00'	30,493 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
820.00	6,506	0	0
821.00	16,206	11,356	11,356
822.00	22,067	19,137	30,493

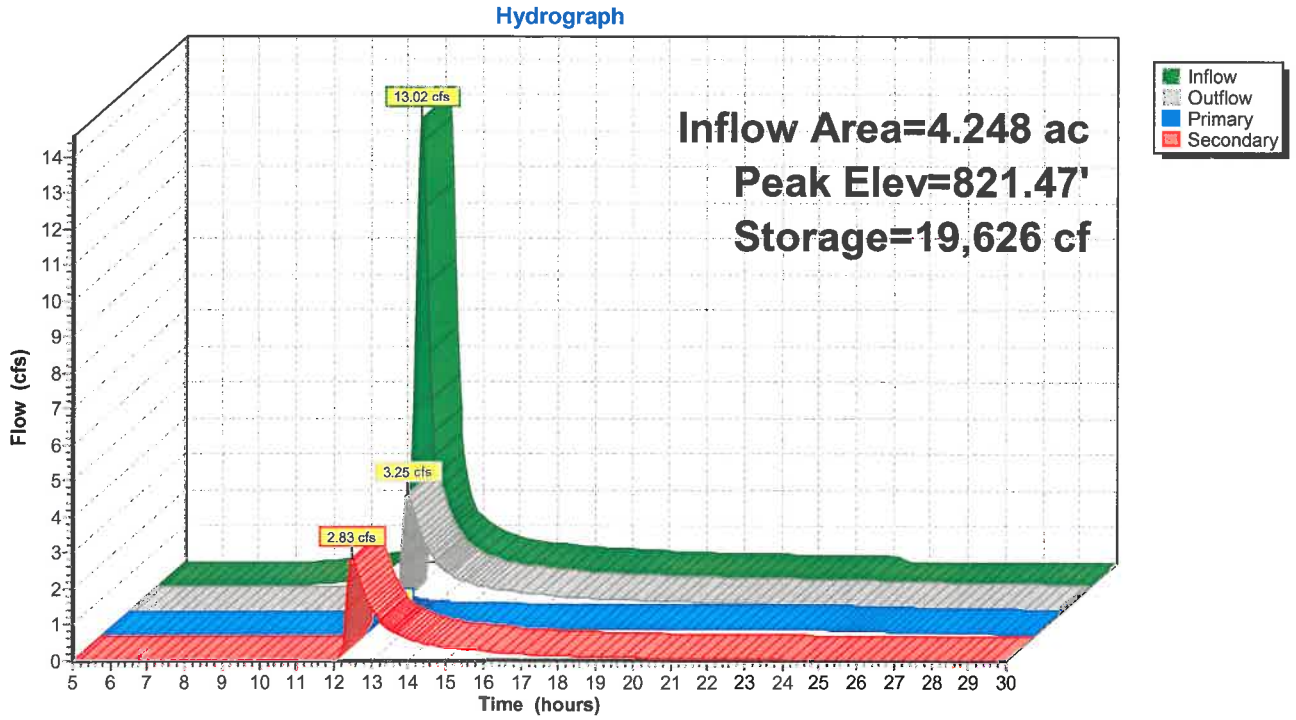
Device	Routing	Invert	Outlet Devices
#1	Secondary	821.30'	**15.0' long x 30.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63
#2	Primary	821.00'	**12.0" Round Culvert** L= 380.0' CPP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 821.00' / 820.30' S= 0.0018 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior

Primary OutFlow Max=0.42 cfs @ 12.49 hrs HW=821.47' (Free Discharge)
↑—**2=Culvert** (Barrel Controls 0.42 cfs @ 1.70 fps)

Secondary OutFlow Max=2.82 cfs @ 12.49 hrs HW=821.47' (Free Discharge)
↑—**1=Broad-Crested Rectangular Weir** (Weir Controls 2.82 cfs @ 1.10 fps)

Pond 15P: Pretreatment

Hydrograph

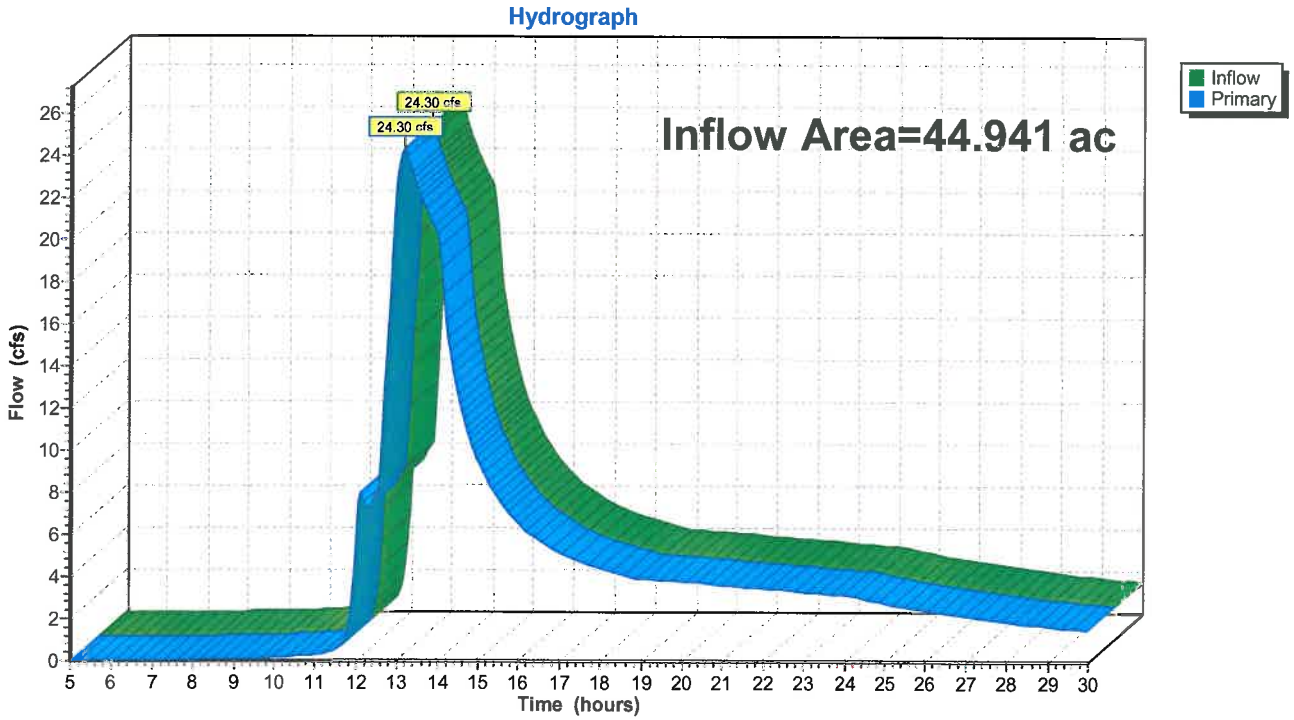


Summary for Link 1L: Sum

Inflow Area = 44.941 ac, 21.55% Impervious, Inflow Depth > 2.24" for 100-YR STORM event
Inflow = 24.30 cfs @ 13.21 hrs, Volume= 8.399 af
Primary = 24.30 cfs @ 13.21 hrs, Volume= 8.399 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-30.00 hrs, dt= 0.05 hrs

Link 1L: Sum



APPENDIX C

Pipe Sizing Summaries

COMMONWEALTH
CCRG
CULTURAL RESOURCES
GROUP, INC.

March 14, 2013

Robert J. Pidanick
Senior Project Engineer
Nussbaumer & Clarke, Inc.
3556 Lake Shore Road, Suite 500
Buffalo, New York 14219-1494

RE: Management Summary
Phase II Archaeological Site Evaluation
at the Friedman Historic Archaeological Site
(OPRHP No. 12PR00302; Site No. A02915.000459)
Yoviene Subdivision (6636 Taylor Road)
Town of Hamburg, Erie County, New York

Dear Mr. Pidanick:

Commonwealth Cultural Resources Group, Inc. (CCRG) has recently completed a Phase II archaeological site evaluation at the above referenced project area. In the spring of 2012, CCRG was contracted by Five Yovienes, LLC to conduct a Phase I Cultural Resource Investigation at the proposed Yoviene Subdivision, located at 6636 Taylor Road, Town of Hamburg, Erie County (Attachment A). Results of the study revealed the presence of three Map Documented Structures (MDS) within the project boundary. In a letter dated June 28, 2012, the Office of Parks Recreation and Historic Preservation (OPRHP) concurred with CCRG's recommendation that the three locations required additional archaeological testing in order to determine their potential eligibility for listing in the National Register of Historic Places (NRHP) (Attachment B). In general, Phase II investigations are geared toward obtaining information on the integrity, limits, structure, function, and cultural/historical context of a site in order to evaluate its potential eligibility for inclusion in the NRHP. The following summarizes the results of the Phase II archaeological investigation.

Phase I Cultural Resource Investigation

Phase I Cultural Resource Investigations carried out at the 75.9± acre Area of Potential Effect (APE) failed to produce any prehistoric cultural material and no significant historic material. However, three MDSs were identified, two within the APE's northeastern corner (MDS 1 and 2) and one (MDS 3) within the southeastern portion. Phase I archaeological investigations conducted within the vicinity of each MDS yielded only a small amount of historic material, although prior occupation and agricultural activity was evident. Historic maps and aerial photography reviewed for the project indicated occupation of the parcel as early as 1855. The former residence (MDS 1) appears on historic maps dating from 1855 through 1909. The residence and barn (MDS 1 and 2, respectively) are also evident on the 1909 New Century Atlas. An aerial photograph of the parcel taken in 1951 suggests that between 1926 and 1951 the third structure (MDS 3) was constructed. It is likely that agricultural activities at the site concentrated on dairying, with MDS 3 serving as a slaughterhouse and/or livestock pen. It was not uncommon for farmers, at the time, to have a portion of their livestock active in milk production and a portion for butchering. Furthermore, at the time of the Phase I study, a fairly large amount cut animal bone was observed on the surface within the vicinity of MDS 3. Attachment C includes a map indicating the results of the Phase I field investigation

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New York office 189 McKinley Avenue, Buffalo, NY 14217 (716) 510-9115
Wisconsin office 8669 North Deerwood Drive, Milwaukee, WI 53209 (414) 446-4121 • fax (414) 446-4325
ccrginc.com

As described above, results of the Phase I study revealed the presence of a very small amount of historic material, most of which can be dated to the twentieth-century. With such a modest artifact assemblage, CCRG was unable to determine the site's significance in terms of eligibility criteria for inclusion in the NRHP. Subsequently, Phase II archaeological site evaluations were recommended at each MDS area. MDS areas 1, 2, and 3 constitute the Friedman Historic Archaeological site.

Phase II Archaeological Site Evaluation

CCRG was once again contracted by Five Yovienes, LLC to conduct the recommended Phase II archaeological site evaluation at the Friedman Historic Archaeological site. Phase II archaeological investigations were carried out at the site between August 27th and 31st, 2012, by CCRG archaeologists Robert Peltier and Michael Kagelmacher. The study was carried out in accordance with the procedures outlined in the *Standards for Cultural Resource Investigations and the Curation of Archaeological Collections in New York State* as required by the OPRHP.

MDS 1 (Former Residence). Phase I archaeological investigations at MDS 1 included the excavation of shovel tests placed at a 50 ft (15 m) interval across the area of the former house location. Subsequent Phase II investigations included the excavation of a close-interval shovel test grid across the entire area. Shovel tests were placed at 20 ft (6 m) intervals along eight transects. Transects ran east from, and perpendicular to, a farm access road which served as a baseline. Transects ended as they approached the APE's eastern boundary. Background research indicated that the former residence was located along the east side of the access road. A total of 35 shovel tests were proposed for excavation across MDS 1. Of the 35 proposed tests, two (5.7%) were unexcavated due to the presence of a poured concrete pad/foundation (Attachment D). Located southeast of what is believed to be the former house location, measuring approximately 24 by 12 ft (7 by 4 m) in size, the concrete pad is likely associated with a former shed or garage.

MDS 2 (Former Barn Location). Phase I archaeological investigations at MDS 2 included the excavation of shovel tests placed at a 50 ft (15 m) interval across the area of the former barn location. Subsequent Phase II investigations included the excavation of a close-interval shovel test grid across the entire area. Shovel tests were placed at 20 ft (6 m) intervals along 15 transects. Transects ran west from, and perpendicular to, a farm access road which was utilized as a baseline. Transects ended as they approached an open, fallow agricultural field, west of the former barn location. Background research indicated that the barn was located along the west side of the access road. A total of 75 shovel tests were proposed for excavation across MDS 2. Of the 75 proposed tests, three (4%) were unexcavated due to the presence of several large felled trees (Attachment D).

MDS 3 (Former Livestock Pen). Located about 700 ft (213 m) south of MDS 1 and MDS 2 along the east side of the aforementioned access road, MDS 3 includes the remnants of what appears to be a livestock pen. Background research conducted for the Phase I study indicated that MDS 3 was constructed sometime between 1926 and 1951. Phase I archaeological investigations at MDS 3 included the excavation of shovel tests placed at a 50 ft (15 m) interval. Shovel testing in this location produced seven positive tests, largely containing brick fragments and/or mortar.

Initial Phase II investigations at MDS 3 included a thorough visual inspection of the area. Remnants of the livestock pen measure approximately 110 by 60 ft (34 by 18 m) in size and include broken sections of a poured concreted foundation. Several sections of the foundation still contain pieces of rusted metal fencing. Large amounts of discarded modern debris (i.e., large appliances, tires, building materials, etc.), several large burn piles, and a considerable amount of cut animal bone was noted on

the surface at MDS 3. Phase II close-interval shovel testing was attempted at MDS 3, however due to the poured concreted foundation and large amounts of modern debris subsurface testing proved to be impossible.

Shovel tests placed at MDS 1 and MDS 2 were excavated with shovels and hand trowels. Soils in all shovel tests were screened through ¼-inch mesh hardware cloth and examined for the presence or absence of cultural material. Pertinent information for each shovel test (i.e., depth, soil type, color [Munsell] and texture) was recorded in field notebooks. All shovel tests were back-filled upon completion.

Soils from shovel testing across MDS 1 and MDS 2 typically consisted of dark grayish brown (10YR 4/2) silt loam, excavated to an average depth of 10.2 inches (126 centimeters) below the surface. These overlay soils generally consisting of yellowish brown (10YR 5/4), occasionally mottled with light brownish gray (10YR 6/2) or brown (10YR 4/3) silt clay. Shovel tests were excavated to an average depth of 15 inches (38 centimeters) below the surface. Nearly all shovel tests exhibited disturbances within both stratums, including a considerable amount of gravel fill, rocks, ash, unidentifiable burned material, and modern trash/debris.

Summary and Recommendations

Combined Phase I and II archaeological investigations at the site produced a fairly small-sized assemblage of historic artifacts (n=135) and a considerable amount of discarded modern debris. The recovered historic artifact assemblage consists primarily of undecorated whiteware fragments, brick and glass fragments, unidentifiable burned objects, and unidentifiable rusted metal objects (Attachment E). However, the collected assemblage contains only a handful of artifacts that can be dated to the nineteenth-century. These artifacts consist of a few small ceramic fragments, including several pieces of decorated whiteware, one piece of glazed redware, and one piece of stoneware. In fact, of the 135 artifacts collected across the site, only 29 contain a range of dates that include the nineteenth-century. Furthermore, the most prevalent artifact type in this category includes undecorated whiteware which contains an extremely wide range of dates spanning well into the twentieth-century. In summary, nearly 78.5% (n=106) of the Friedman Historic site artifact assemblage contains either a twentieth-century date or no range of dates at all.

Archaeological investigations carried out at the Friedman Historic site failed to produce significant information regarding the site's historic occupation. Artifacts collected across the site were often mixed with modern debris, exhibiting fire damage, and offered no real meaningful spatial or temporal inferences. Additionally, close-interval shovel testing at the site failed to produce evidence of features typically associated with nineteenth-century domestic archaeological sites, such as discrete middens or sheet refuse deposits, priveys, house foundation remnants, or wells. While the Phase II archaeological site evaluation conducted at the Friedman Historic site (MDS 1, 2, and 3) increased the artifact assemblage to a certain degree, it did not, unfortunately, provide a more thorough and detailed characterization of the site.

In conclusion, it is CCRG's opinion that archaeological deposits, once associated with the mid- to late-nineteenth-century occupation of the Friedman Historic site, have been completely obliterated and are no longer present. Combined Phase I and Phase II archaeological field investigations strongly suggest that the site contains little, if any, integrity. Although the identification, recordation, and analysis of the site does contribute to our understanding of early-Euroamerican historic settlement and activity patterns within western New York, it does not however, strictly meet the eligibility criteria for cultural resources and archaeological sites set forth in the *Code of Federal Regulations* (35 CFR 60.6 and 800.1). CCRG has determined that the research potential at the Friedman Historic site has been exhausted and no further archaeological investigations are necessary.

If you have any questions regarding this study or the final Phase II report please call me at 716/510-9115. Or, if you prefer, email me at rpeltier@ccrginc.com.

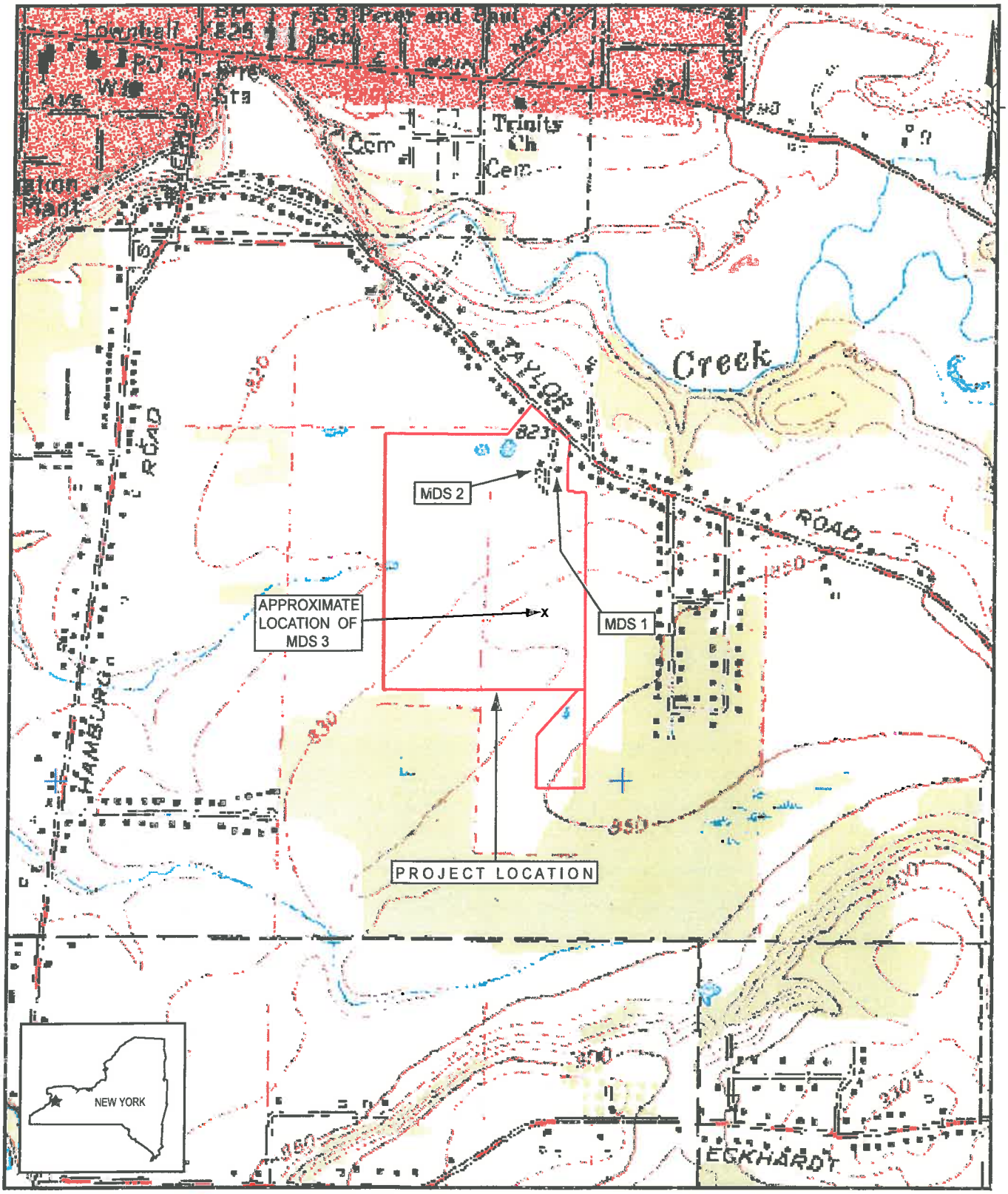
Sincerely yours,

CCRG, Inc.

Robert Peltier, M.A
Principal Archaeologist

ATTACHMENT A

Project Location on Hamburg, NY 7.5 Minute Series Quadrangle



ATTACHMENT A. Project Location on *Hamburg, NY* 7.5 Minute Series Quadrangle

KEY:

Area of Potential Effect

SCALE: 1 : 24,000

0 700 1400 Feet

0 213 427 Meters

N

COMMONWEALTH ccrg CULTURAL RESOURCES GROUP, INC.

ATTACHMENT B

Office of Parks, Recreation, and Historic Preservation Correspondence Regarding Cultural Concerns

Andrew M. Cuomo
Governor

Rose Harvey
Commissioner

New York State Office of Parks,
Recreation and Historic Preservation
Historic Preservation Field Services Bureau • Peebles Island, PO Box 189, Waterford, New York 12188-0189
518-237-8643
www.nysparks.com

June 28, 2012

Valerie Sarcione
Nussbaumer & Clark, Inc.
3556 Lake Shore Road
Suite 500
Buffalo, New York 14219

Re: DEC
Yoviene Subdivision
Town of Hamburg, Erie County
12PR00302

Dear Ms. Sarcione:

Thank you for requesting the comments of the Field Services Bureau of the Office of Parks, Recreation and Historic Preservation (OPRHP). We have reviewed the Phase I Cultural Resources Investigation Report, prepared by Commonwealth Cultural Resources Group (CCRG) and dated June 14, 2012, in accordance with the New York State Historic Preservation Act of 1980 (Section 14.09 of the New York Parks, Recreation and Historic Preservation Law). These comments are those of the Field Services Bureau and relate only to Historic/Cultural resources. They do not include potential environmental impacts to New York State Parkland that may be involved in or near your project. Such impacts must be considered as part of the environmental review of the project pursuant to the State Environmental Quality Review Act (New York Environmental Conservation Law Article 8) and its implementing regulations (6 NYCRR Part 617).

Based upon this review, the OPRHP recommends either a Phase II Site Evaluation or avoidance of the Friedman Historic Site (A02915.000459). Suggested avoidance measures are enclosed. We concur with the Phase II testing recommendations presented on page 29.

If the wetland areas, defined in Figure 18, are to be impacted by the proposed construction then Phase IB archaeological testing of this area will be necessary. Otherwise, please submit a letter indicating that this area will not be impacted by the proposed construction.

The OPRHP appreciates the opportunity to comment on this information and looks forward to receiving two copies of the Friedman Historic Site form. I can be reached at ext. 3280 with any questions you may have.

Sincerely,

Nancy Herter

Nancy Herter
Historic Preservation Program Analyst

cc. James Yoviene
Robert Peltier, CCRG

Andrew M. Cuomo
Governor

Rose Harvey
Commissioner

New York State Office of Parks,
Recreation and Historic Preservation
Historic Preservation Field Services Bureau • Peebles Island, PO Box 189, Waterford, New York 12188-0189
518-237-8643
www.nysparks.com

Office of Parks, Recreation and Historic Preservation (OPRHP) Avoidance Plan for the Protection of Archeological Sites

Short Term Site Avoidance/Protection

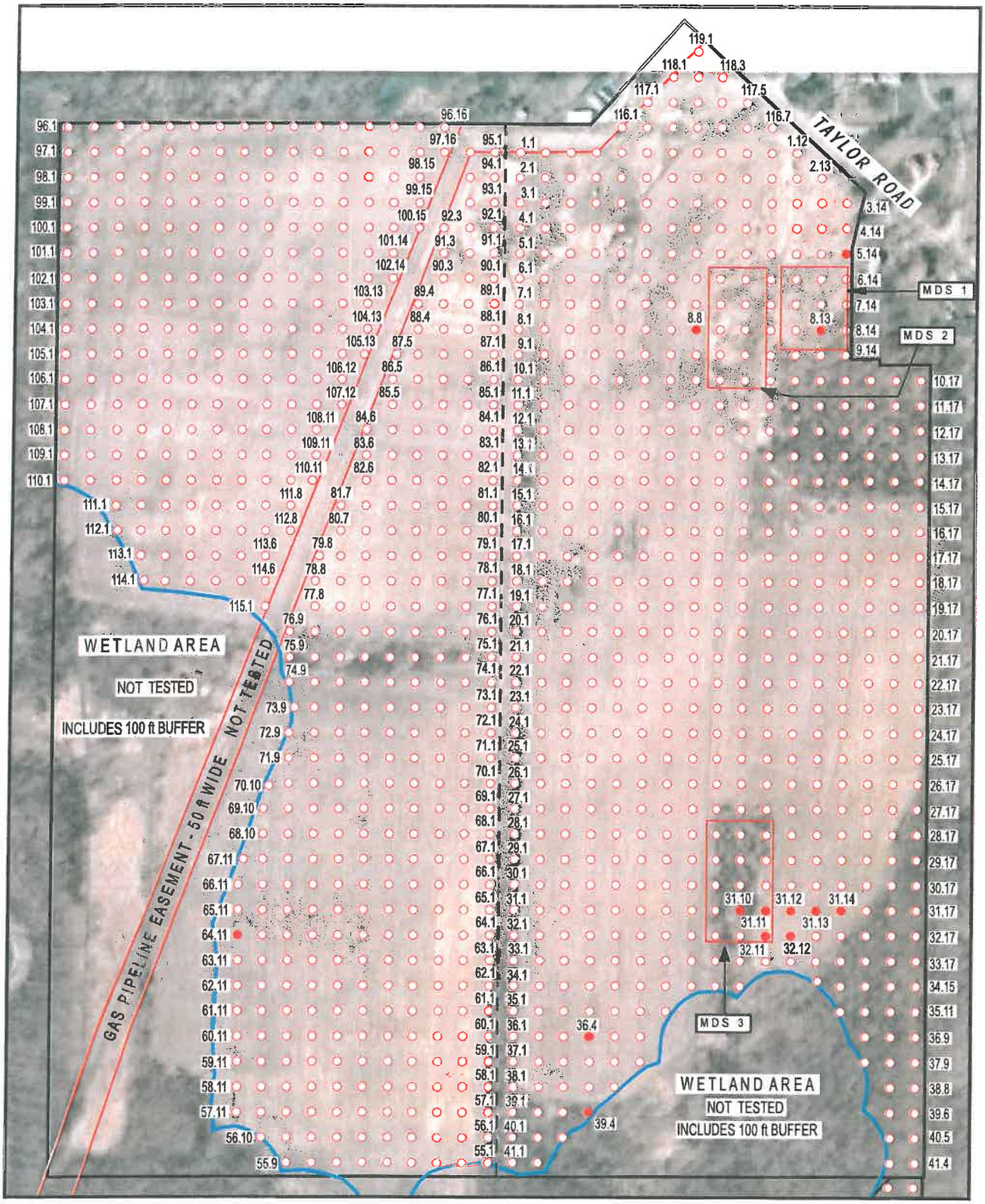
- The site(s) boundary (including buffer) will be clearly delineated on the final construction plans and identified as "No Access".
- Each site will be protected with temporary fencing during all construction activities and signage stating "No Access".
- A preconstruction meeting with the construction contractor(s) is required to notify those in charge of the requirements to avoid/protect the site(s).
- Existing landscape at the site(s) will be maintained. Any proposed modifications will require consultation with the OPRHP.

Long Term Site Avoidance/Protection

- An archeology covenant will be transferred with each property containing the avoided/protected site(s).
- State and federal regulations that include restrictions associated with this project will include provisions for site(s) avoidance/protection.
- Unauthorized activities within the site boundaries will require notification to the OPRHP at (518) 237-8643, ext 3280.

ATTACHMENT C

Map Showing Results of Phase I Shovel Testing



ATTACHMENT C. Results of Phase IB Shovel Testing Across Main Portion of APE (Source : Google Earth 2012)

KEY:

- Negative Shovel Test
- Unexcavated Shovel Test
- Positive Shovel Test (Historic Material)
- Wetland Boundary

SCALE:

0 100 200 400 Feet

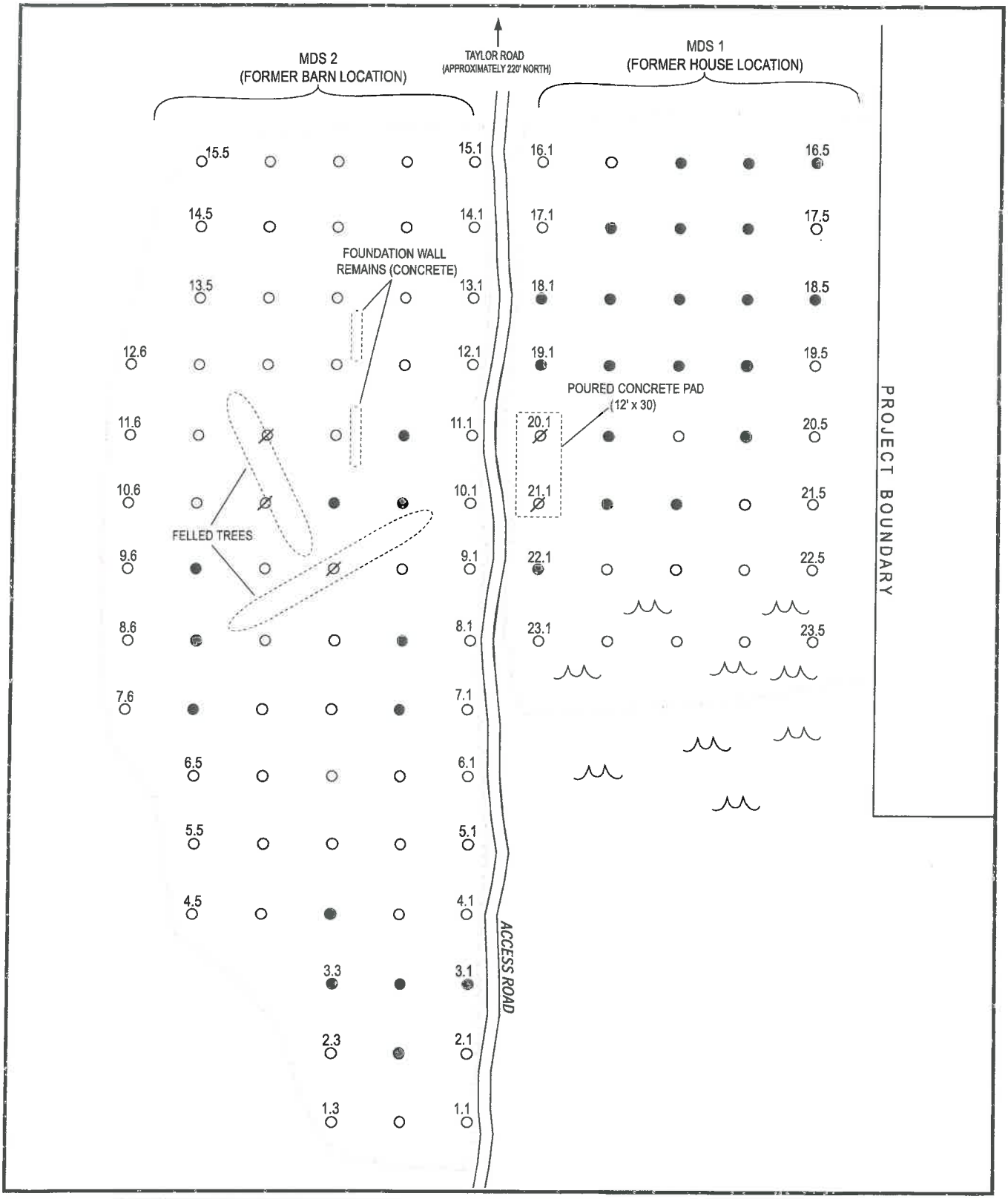
0 30 61 122 Meters

N

COMMONWEALTH CCRG CULTURAL RESOURCES GROUP, INC.

ATTACHMENT D

Map Showing Results of Phase II Shovel Testing at MDS 1 and MDS 2



ATTACHMENT D. Map Showing Results of Phase II Close-Interval Shovel Testing at MDS 1 and MDS 2

KEY:

- Negative Shovel Test
- Positive Shovel Test (Historic Material)
- Unexcavated Shovel Test
- Standing Water

SCALE:

0 20 40 80 Feet

0 6 12 24 Meters

N

COMMONWEALTH CRG CULTURAL RESOURCES GROUP, INC.

ATTACHMENT E

Historic Artifact Inventory

ATTACHMENT E. **Freidman Farmstead Historic Site (A02915.000459) - Historic Artifact Assemblage**

MDS 1 – FORMER HOUSE LOCATION

STP#	Strat/Level	Count	Cultural Material	Date Ranges
16.3	1/1	1	whiteware fragment, undecorated	1830-present
		1	decorated whiteware fragment	19th century
		1	glazed red clay ware	19th century
		3	clear flat glass fragments	1915-present
16.4	1/1	3	whiteware fragments, undecorated	1830-present
		1	clear flat glass fragment	1915-present
16.5	1/1	1	whiteware fragment	1830-present
		1	clear bottle glass fragment	1915-present
17.2	1/1	1	drain tile fragment	20th century
17.3	1/1	1	whiteware fragment, undecorated	1830-present
		1	white plastic fragment	modern
17.4	1/1	1	whiteware fragment, undecorated	1830-present
18.1	1/1	3	whiteware fragments, undecorated	1830-present
		4	clear flat glass fragments	1915-present
18.2	1/1	1	whiteware fragment, undecorated	1830-present
18.3	1/1	2	clear flat glass fragments	1915-present
18.4	1/1	1	whiteware fragment, undecorated	1830-present
		2	clear flat glass fragments	1915-present
18.5	1/1	1	whiteware fragment, undecorated	1830-present
		1	clear flat glass fragment	1915-present
19.1	1/1	5	clear bottle glass fragments	1915-present
		1	clear flat glass fragment	1915-present
		8	brown bottle glass fragments	modern
		3	bone fragments (cattle)	---
		5	wire nails	1890-present
		3	miscellaneous unidentifiable iron fragments	---
		2	plastic fence fragments	modern
19.2	1/1	6	whiteware fragments, undecorated	1830-present
		1	clear bottle glass fragment	1915-present
		1	blue bottle/jar glass fragment	20th century
		1	horseshoe tack	---
19.3	1/1	1	whiteware fragment, undecorated	1830-present
		1	decorated whiteware fragment	19th century
		1	brick fragment	---
		1	wire nail	1890-present
		3	clear bottle glass fragments	1915-present
		2	green bottle glass fragments	modern
		8	clear flat glass fragments	1915-present
		1	clear light bulb glass fragment	20th century
19.4	1/1	1	whiteware fragment, undecorated	1830-present
		1	whiteware with blue print	
		1	clear flat glass fragment	1915-present
		1	clear bottle glass fragment	1915-present
		1	green bottle glass fragment	modern
20.2	1/1	2	brick fragments	---
20.4	1/1	2	whiteware fragments, undecorated	1830-present
21.2	1/1	1	clear flat glass fragment	1915-present
21.3	1/1	1	whiteware fragment, undecorated	1830-present
		1	clear flat glass fragment	1915-present
22.1	1/1	1	clear flat glass fragment	1915-present
		1	stoneware fragment (Bristol slipped exterior, Albany-type slipped interior)	1885-1920
		1	shotgun shell	modern
TOTAL		100		

ATTACHMENT E. **Freidman Farmstead Historic Site (A02915.000459) - Historic Artifact Assemblage**

MDS 2 – FORMER BARN LOCATION

STP#	Strat/Level	Count	Cultural Material	Date Ranges
2.2	1/1	1	brick fragment	---
3.1	1/1	2	whiteware fragments with blue print	1841-1857
		1	brown bottle glass	modern
3.2	1/1	1	unidentifiable rusted metal fragment	---
3.3	1/1	1	metal wire fragment	---
4.3	1/1	1	whiteware fragment, undecorated	1830-present
		2	clear glass fragments from small bottle	1915-present
5.2	1/1	1	rusted pitchfork head	---
7.2	1/1	2	clear flat glass fragments	1915-present
7.5	1/1	1	clear flat glass fragment	1915-present
8.2	1/1	1	clear flat glass fragment	1915-present
8.5	1/1	1	clear flat glass fragment	1915-present
9.5	1/1	1	slate tile fragment	---
10.2	1/1	1	whiteware fragment with blue print	1841-1857
		1	clear glass cup fragment	1915-present
10.3	1/1	1	unidentifiable rusted metal fragment	---
		1	clear flat glass fragment	1915-present
11.2	1/1	1	small metal ring/snap	modern
TOTAL		21		

EXHIBIT 7

PHASE 1 CULTURAL RESOURCE INVESTIGATION FOR WILLOW WOODS SUBDIVISION JUNE 14, 2012

By: Commonwealth Cultural Resources Group, Inc.

COMMONWEALTH
CCRG
CULTURAL RESOURCES GROUP, INC.

PHASE I CULTURAL RESOURCE INVESTIGATION

FOR THE

YOVIENE SUBDIVISION

(6636 TAYLOR ROAD)

TOWN OF HAMBURG,

ERIE COUNTY, NEW YORK

(OPRHP No. 12PR00302)

•

June 14, 2012

•

Prepared For:

The Five Yovienes, LLC
4464 Shady Ridge Drive
Hamburg, New York 14075

ccrg COMMONWEALTH CULTURAL RESOURCES GROUP, INC.

N539

PHASE I CULTURAL RESOURCE INVESTIGATION

FOR THE

YOVIENE SUBDIVISION

(6636 TAYLOR ROAD)

TOWN OF HAMBURG,

ERIE COUNTY, NEW YORK

(OPRHP No. 12PR00302)

By

Robert J. Peltier, M.A.
Principal Investigator

and

Michael L. Kagelmacher, M.A.
Field Director

June 14, 2012

Prepared For:

The Five Yovienes, LLC
4464 Shady Ridge Drive
Hamburg, New York 14075

N-539

Commonwealth Cultural Resources Group, Inc. o 189 McKinley Avenue o Buffalo, New York 14217

MANAGEMENT SUMMARY

SHPO Project Review Number: 12 PR 00302

Involved Agencies: State Environmental Quality Review Act (SEQRA)

Phase of Survey: Phase I

Location: 6636 Taylor Road
Town of Hamburg
Erie County, New York 14057

Surveyed Area: Overall Project – 75.9± Acres
Length: N/A
Width: N/A
Depth: N/A
Acres Surveyed: 75.9± Acres

Archaeological Survey Overview:

No. and Interval of Shovel Tests:	1,251 (50 ft / 15 m)
No. and Size of Test Units:	N/A
Width of Plowed Strips:	N/A
No. of Acres Surface Surveyed	N/A

Results of Archeological Survey:

No. and Name of Prehistoric Sites Identified:	none
No. and Name of Historic Sites Identified:	Friedman Historic Site
No. and Name of Sites Recommended for Phase II:	Friedman Historic Site

Results of Architectural Survey:

No. of Structures in Project Area:	none
No. of Known NR Listed/Eligible Structures/Districts:	none
No. of Recommended Eligible Structures/Districts:	none
No. of Listed/Eligible Structures/Districts That May Be Impacted:	none

Report Author(s): Robert J. Peltier, M.A. and Michael L. Kagelmacher, M.A.

Date of Report: June 14, 2012

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PHOTO 19. Crew Working Within North-Central Portion of APE, Facing North

PHOTO 20. Overview of North-Western Portion of APE, Facing Southwest

ARCHAEOLOGICAL SITE FILE/LITERATURE SEARCH REPORT

PREPARED BY: Robert J. Peltier, M.A. and Michael L. Kagelmacher, M.A.

AFFILIATION: Commonwealth Cultural Resources Group, Inc.
189 McKinley Avenue
Buffalo, New York 14217
716.510.9115

DATE: June 14, 2012

1.0 PROJECT INFORMATION

Location of Proposed Action: The project parcel is located at 6636 Taylor Road, Town of Hamburg, Erie County, New York. It is further delineated as being part of Lot 49, Township 9, and Range 7 of the Holland Land Company survey (Figures 1 through 3).

Description of Undertaking: The proposed project calls for the development of the Yoviene Subdivision. The development consists of the construction of a forty-eight lot subdivision which will be located along two cul-de-sac roads (Figures 2 and 3, Attachment A, Photos 1 through 20)

Estimated Size of Impact Area (15± Acres): The Area of Potential Effect (APE) is comprised of two separate parts. The main portion is somewhat rectangular in shape and occupies an area measuring approximately 69.9 acres. The second portion of the APE is located directly southeast of the main portion and occupies and area measuring approximately 6 acres. Consisting of approximately 75.9 acres, the APE is bounded to the north by Taylor Road and residential properties fronting Taylor Road; to the west by the Ridgefield Terrace Subdivision; on the south by an undeveloped wooded area; and on the east by an undeveloped wooded area and residential properties fronting Taylor Road (Figures 1 through 3).

The immediate area surrounding the project parcel consists mainly of residential structures located along Taylor Road. Housing within the proposed residential subdivision will be of the same scale and character of its surroundings and includes only three lots to be located immediately adjacent to Taylor Road. Therefore, the APE for this project will be limited to the aforementioned 75.9± acres. The proposed development will not have a negative affect on any adjacent structures.

Description of Impact: Proposed development plans include the construction of forty-eight residential structures to be located along two cul-de-sac roads. Additional impacts include the excavation of two retention ponds - one within the APE's northwest corner, the other within the northeast corner. Approximately 41.7 acres of the 75.9± acre APE will be left undeveloped as greenspace. However since the greenspace is somewhat scattered throughout the parcel, it was included as part of the APE and also subjected to Phase IB shovel testing. Other impacts typically associated with such undertakings, include, but are not necessarily limited to, select clearing of vegetation, installation of subsurface utilities (e.g., gas, sewer, electric, water, storm water, telephone, fiber optic cable), possible grading and filling, and landscaping subsequent to subdivision development (Figure 3).

2.0 ENVIRONMENTAL INFORMATION

Topography: The project area is located within the area formed by the boundary of the Erie-Ontario Lake Plain as it rises to meet the uplands of the Allegheny Plateau. Topography within the general vicinity and within the project area itself is typical of that found across this "edge area" (Odum 1971) and is characterized, in general, by gently undulating terrain consisting of small knolls and intermittent swales, products of late Pleistocene events (Buehler and Tesmer 1963). The project area itself is located on somewhat level terrain with elevations ranging between 820 and 850 feet (ft) (250 and 259 meters [m]) above mean sea level (amsl). The only real area of noticeable relief within the APE is located in the southeast corner, where the topography rises to about 850 ft (259 m) amsl (Figure 1).

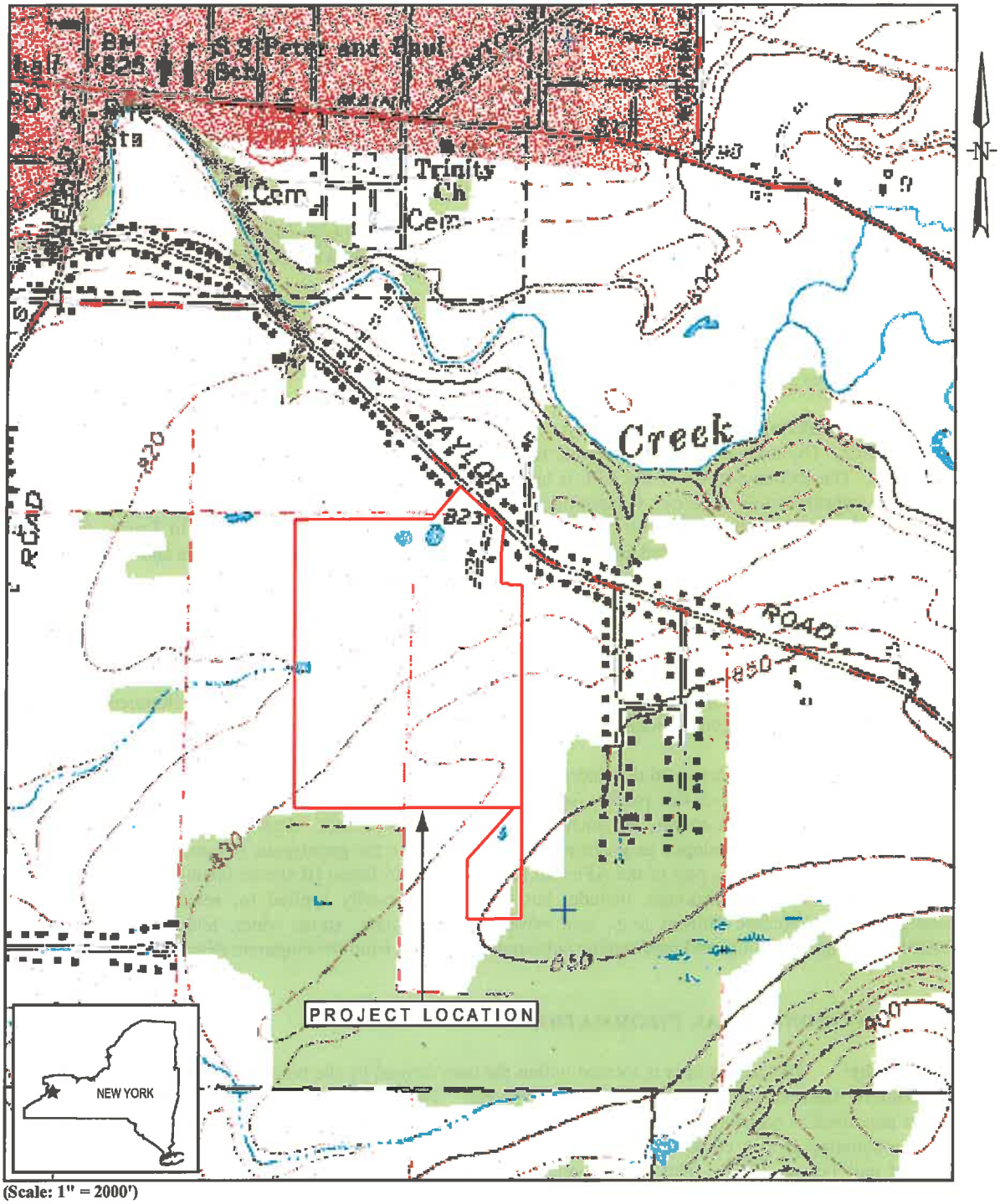


FIGURE 1. Project Location on *Hamburg, NY* 7.5 Minute Series Quadrangle

(Source: Google Earth 2012)

FIGURE 2. Aerial View of Project Area

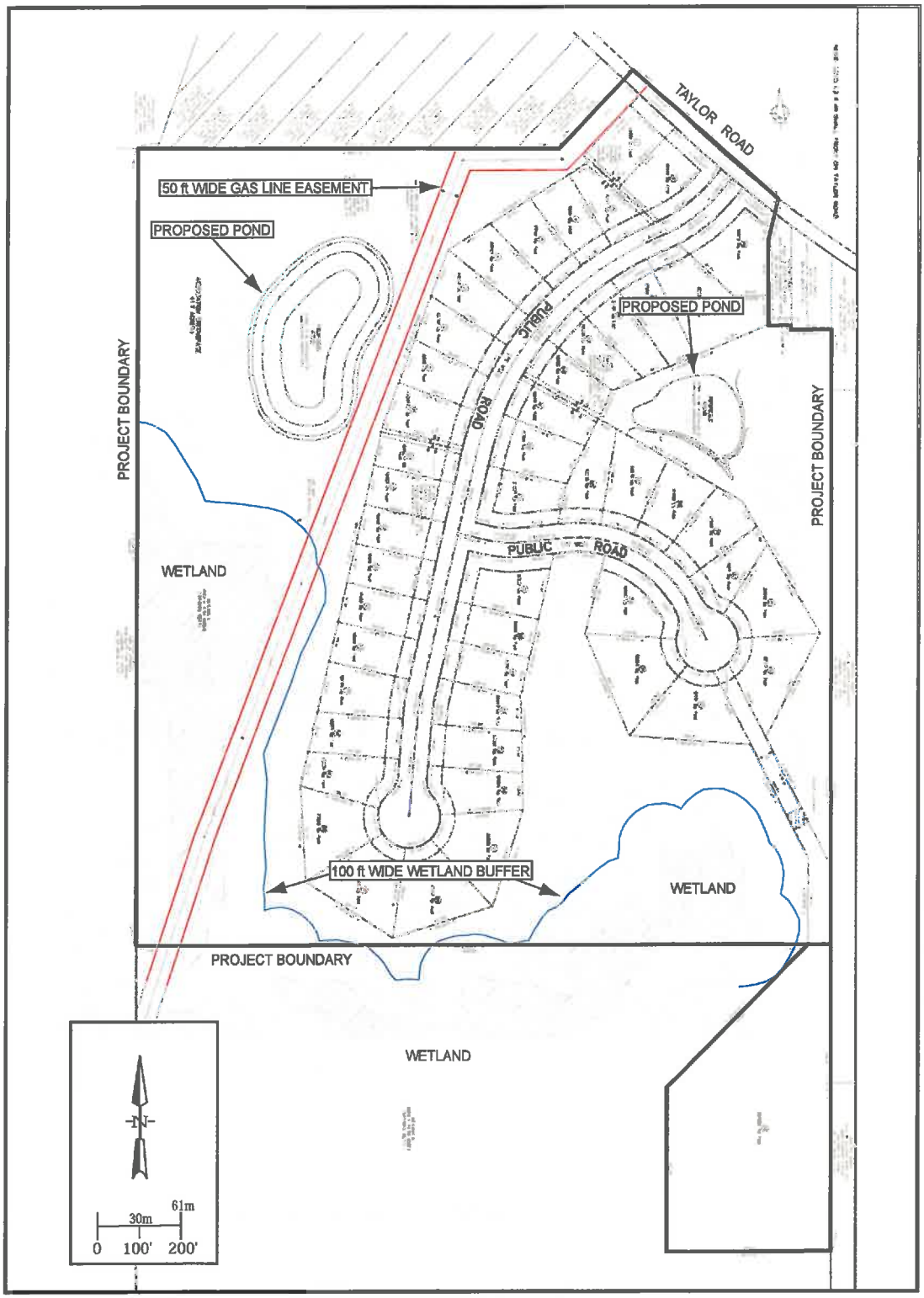
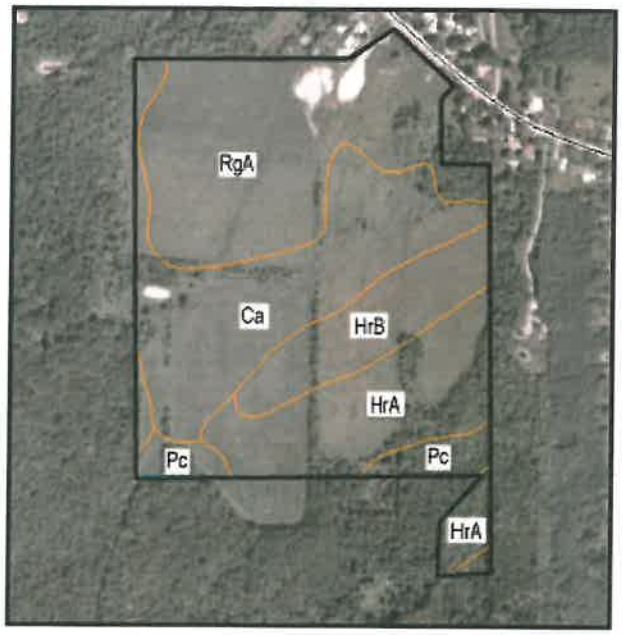


FIGURE 3. Proposed Yoviene Subdivision

Geology: Bedrock geology within the project area consists of the Angola Shale Member. This bedrock, within the Seneca Group, is medium light gray to light gray shale containing a little black shale, a few thin siltstones and many calcareous nodules of various sizes (Buehler and Tesmer 1963). Bedrock was not exposed anywhere within the project area.

Soils: Soils within the project area consist of those within the Niagara-Canandaigua-Cosad Series. In general, these soils are described as dominantly nearly level, deep, somewhat poorly-drained to very poorly-drained and medium-textured (USDA 1986; NRCS 2012). These soils are found on lowland plains. Six specific soil types occur within the APE: Canadice Silt Loam (0-3% slope) [Ca]; Churchville Silt Loam (0-3% slope) [CoA]; Hornell Silt Loam (0-3% slope) [HrA]; Hornell Silt Loam (3-8% slope) [HrB]; Patchin Silt Loam (0-3% slope) [Pc]; and Rhinebeck Silt Loam (0-3% slope) [RgA] (Figure 4; Table 1).

FIGURE 4. Mapped Soils within the Project Area (USDA 1986; NRCS 2012)



Drainage: The primary drainage within the vicinity of the project area is Eighteenmile Creek, which is located approximately 1,500 ft (545m) to the north. Eighteenmile Creek eventually drains into Lake Erie about eight miles to the west. Two unnamed tributaries of Eighteenmile Creek are located within a few hundred feet of the project's western and southern boundaries. In addition, Hampton Brook, another tributary of Eighteenmile Creek, can be found about 853 m (2,800 ft) to the southwest (Figure 1). Soil drainage throughout the project parcel is fairly poor, as indicated by the USDA (1986) (Table 1). In fact, several manmade ditches have been excavated across the parcel in order to help facilitate drainage (Attachment A, Photo 11). Although located outside the APE, the project also contains about 7 acres of delineated wetlands and wetland buffers (Figure 3).

Vegetation: Prior to Euroamerican settlement, this portion of New York State likely supported oak, chestnut, hickory, and conifer species (Miller 1973). The modern climate and soil conditions within the region favor a potential natural forest of beech, sugar maple, yellow birch, and hemlock, which may have existed within the region as early as 9,000 B.P. Currently the main body of the project parcel consists of fallow agricultural fields, containing a variety of wild grasses and weeds. The general vicinity around the former house and outbuildings contains overgrown wild grasses and weeds, grapevine, sumac, and a variety of deciduous and coniferous trees (Attachment A, Photos 4 through 9). In addition, wetland vegetation (i.e., cattails, reeds, rushes, swamp iris) is present within (and adjacent to) the project's several wetland areas (Attachment A, Photos 13 and 14).

Manmade Features and Alterations: A review of available historic maps, atlases, and aerial photography (Beers 1880; ECSCS n.d.; Geil 1855; *Hamburg, Park, NY* Quadrangle 1965; Hopkins 1893; New Century Atlas 1909; and Stone and Stewart 1866) indicated that the APE contained a residential structure (circa 1850) and at least two associated outbuildings or barns within its northeastern corner. In addition, historic aerial photographs of the APE indicate an additional outbuilding, no longer present, within the project's southeastern portion (Figures 13 through 15). The former structures once located within the northeastern corner will be referred to as Map Documented Structure (MDS) 1 (residence) and MDS 2 (barn). The former structure once located within the southeastern portion will be referred to as MDS 3.

The project contains numerous impacts associated with the construction of a former residence located at 6636 Taylor Road (MDS 1) and its two associated barns or outbuildings (MDS 2 and 3). Field reconnaissance in these locations indicated a large amount of discarded and scattered building debris and materials (i.e., chunks of concrete, glass, tires, farm equipment, miscellaneous metal, etc.) (Attachment A, Photos 7 through 9). Albeit somewhat minimal, other disturbances to the APE include the following: construction and maintenance of Taylor Road; excavation of several manmade drainage ditches across the parcel; excavation of two large manmade ponds (now filled in) within the north-central portion; and the placement of a southwest-northeast oriented subsurface gas pipeline, which bisects the parcel (Attachment A, Photos 10 through 12).

TABLE 1. Soil Descriptions for the Project Area (USDA 1986, NRCS 2012)

Soil Type	Depth (in/cm)	Color/Texture	Slope	Landform	Drainage
Ca	0-8/0-25	Silt Loam	0-3%	depressions	PD
	8-53/25-33	Silty Clay			
	53-65/33-61	Silty Clay			
CoA	0-11/0-25	Silt Loam	0-3%	lake & till plains	SPD
	11-26/25-33	Silty Clay			
	26-60/33-61	Silty Clay			
HrA	0-7/0-20	Silt Loam	0-3%	benches, ridges, till plains	SPD
	7-29/20-91	Silty Clay Loam			
	29-40/91-152	Channery Silty Clay			
	40-44/	Weathered Bedrock			
HrB	0-7/0-20	Silt Loam	3-8%	benches, ridges, till plains	SPD
	7-29/20-91	Silty Clay Loam			
	29-40/91-152	Channery Silty Clay			
	40-44/	Weathered Bedrock			
Pc	0-10/0-20	Silt Loam	0-3%	depressions	PD
	10-23/20-91	Silty Clay Loam			
	23-27/91-152	Weathered Bedrock			
RgA	0-9/0-20	Silt Loam	0-3%	Lake plains	SPD
	9-37/20-91	Silty Clay			
	37-70/91-152	Silty Clay			

Key: PD – poorly drained; SPD – somewhat poorly drained

3.0 DOCUMENTARY RESEARCH

Site Files: Site file and map research for the project area was conducted at the Archaeological Survey, State University of New York at Buffalo (SUNYAB) (Amherst, New York), the Office of Parks, Recreation, and Historic Preservation (OPRHP) (Waterford, New York), and the New York State Museum (NYSM) (Waterford, New York). Research included a review of the New York State Inventory and Register, the National Register of Historic Places (NRHP), and the NRHP-eligible and State/NRHP-proposed lists.

National Register of Historic Places: No cultural resources listed on or eligible for the State or NRHP or the State/NRHP-proposed lists were recorded within or immediately adjacent to the project area.

Prehistoric Archaeological Sites: The project area was considered to be in an archaeologically sensitive area because of its proximity to other known prehistoric sites, as well as its proximity to Eighteenmile Creek (and its several tributaries). At least twenty-one (n=21) prehistoric archaeological sites are located within an approximate 1.5 mi (2.4 km) radius of the project area (Table 2). Those nearest to the project area range in size from isolated finds and small camp sites to larger-occupied sites and represent a range of periods spanning Paleoindian to Late Woodland. Most are located adjacent to or within a one mile (1.6 km) radius of Eighteenmile Creek (to the north and east).

Historic Archaeological Sites: No historic archaeological sites were recorded within 1.5 mi (2.4 km) of the project area.

Table 2. Prehistoric Archaeological Sites Recorded Within 1.5 mi (2.4 km) of the Project Area

Site Name	Site Number	Site Type	Time Period	Distance From Project
Blackberry Site	---	lithic scatter	possible Paleoindian	5,280' (1,609 m)
Ben Ott Site	UB 239	camp	Archaic	2,000' (610 m)
Hogan Site	UB 1546	camp	Early to Late Woodland (Lamoka; Brewerton)	6,600' (2,012 m)
Water Valley Site	UB 242/266; NYSM 3225; ACP-Erie-22	camp	contact	4,000' (1,219 m)
Kleis Site	A02915.0013; UB 224; EDN 1-2; NYSM 2159	village	Historic Iroquois (1640 AD)	3,500' (1,067 m)
ACP-Erie-No #	NYSM 3226	camp	indeterminate prehistoric	5,280' (1,609 m)
ACP-Erie-56	NYSM 3225	camp	indeterminate prehistoric	5,280' (1,609 m)
ACP-Erie-59	NYSM 3228	camp	indeterminate prehistoric	3,000' (914 m)
Cattail Site	---	lithic scatter	indeterminate prehistoric	4,000' (1,219 m)
Manhole Site	---	lithic scatter	indeterminate prehistoric	4,400' (1,341 m)
ACP-Erie-No #	NYSM 6600	camp	indeterminate prehistoric	6,336' (1,931 m)
Boston Valley Site 5	UB 1548	isolated find	indeterminate prehistoric	5,000' (1,524 m)
Boston Valley Site 6	UB 1549	isolated find	indeterminate prehistoric	5,280' (1,609 m)
Boston Valley Site 8	UB 1560	isolated find	indeterminate prehistoric	8,500' (2,591 m)
Boston Valley Site 9	UB 1561	lithic scatter	indeterminate prehistoric	8,400' (2,560 m)
Robert Wheeler Site 1	UB 1543	camp	indeterminate prehistoric	7,300' (2,225 m)
Robert Wheeler Site 2	UB 1544	camp	indeterminate prehistoric	5,600' (1,707 m)
Robert Wheeler Site 3	UB 3039	isolated find	indeterminate prehistoric	6,500' (1,981 m)
Duggan Site	UB 1547	lithic workshop	indeterminate prehistoric	4,300' (1,311 m)
Clarence Richards Site	UB 1550	isolated find	indeterminate prehistoric	5,700' (1,737 m)
Ron Mathewson	UB 1545	camp	indeterminate prehistoric	5,000' (1,524 m)

Brief Summary of Project Parcel

The Town of Hamburg is located within Township 9, Ranges 7 and 8 of the Holland Land Company Purchase. The project occupies part of Lot 49, Township 9, Range 7. The first settler in Hamburg to acquire property from the Holland Land Company was John Cummings. In 1803 Cummings bought 361 acres on Eighteenmile Creek (north and east of the project) and in 1806 he built a grist mill, the first one south of Buffalo (Sipprell 1962, 1971; Smith 1884; White 1898).

Other early settlers lived along the shore of Lake Erie, several miles west of the project area. In many places, the beach provided a hard smooth roadway, facilitating travel and immigration west and became known as the Lake Shore or Erie Road. As early as 1803, settlers along the lake included Daniel Camp, Ebeneezer Goodrich, and the Van Name and Hicks families. In 1805 Abner Amsdell also bought property in that area. Taverns began to appear

along the Lake Shore Road. At one point in the early 1800s it was said that there were nearly as many taverns as private dwellings along Lake Shore Road. The first tavern was opened in 1805 by Nathaniel Titus (Sipprell 1962; Smith 1884; White 1898).

In March 1812, the three towns of Hamburg, Eden and Concord were established from the larger town of Willink. The Town of Hamburg included the present Town of Orchard Park (to the east) until 1850. The first town meeting was held at Wright's Corners (later known as Abbott's Corners and now Armor), which was the center of the settlement and business at the time (Sipprell 1962; Smith 1884; White 1898).

It is not known where the name Hamburg originated. The two most common explanations are that it was named for the German settlers in the area or that it was named after a popular hymn of that name. However, a former Hamburg historian believes that it was probably just taken off a map of Europe in the state land office, as the Germans did not settle in the area until the 1830s and the hymn was not yet written in 1812 (Sipprell 1962). Also, the spelling of Hamburg often has an "h" at the end and even in Joseph Ellicott's notes, Hamburg is spelled both ways.

The period following the close of the War of 1812 was one of rapid growth for the towns south of Buffalo and from 1815 to 1820, Hamburg grew faster than any other section of the county. Most of the immigration during this period was from eastern New York state and New England (Sipprell 1962). In 1815, a mail route was established through East Aurora and Hamburg; a Hamburg post office was established at what is now Orchard Park. In 1820, a new mail route was opened from Buffalo, out the Lake Shore Road to Camp Road, through Smithville (Village of Hamburg) where there was a new post office, and on to Olean. Another post office was opened in 1821 at Barker's Tavern (in Barkerville). By 1822, all three post offices were discontinued and a single one for the town was established at Abbot's Corners (Armor) (Sipprell 1962).

A second wave of settlement started in the 1830s and continued through the 1840s, as German immigrants entered the area. Many of them settled in and around the Village of Hamburg, which at that time was known as White's Corners. The current project area is located about a half a mile southeast of the village. As indicated by historic map, atlas, and literature research (Beers 1880; Edson 2010, 2003, and 2000; Erie County Planning Board 1937, 1948; Geil 1855; *Hamburg, Park, NY* Quadrangle 1965; Hopkins 1893; Johnson 1876; League of Women Voters 1968; New Century Atlas 1909; Sipprell 1971; Smith 1884; Smith 1942; Stone and Stewart 1866; TOHSC 1962; VOHCC 1974; and White 1898), several map documented structures (MDS) were located directly within the project area. Although the project currently contains no standing structures, historic or otherwise, the Geil 1855 atlas indicates a structure located within the northeast portion, it is attributed to 'J. Friedman' (Figure 5). As these early-to mid-nineteenth-century German settlers were primarily farmers and dairymen, it is likely that Friedman was part of this population and engaged in the industry. By the mid-nineteenth-century, the region became known for their brand of Hamburg cheese. The cheese was marketed locally and nationally and "gained a fame reaching from the eastern cities where it was consumed to the western prairies where it was imitated" (Smith 1884; Sipprell 1962).

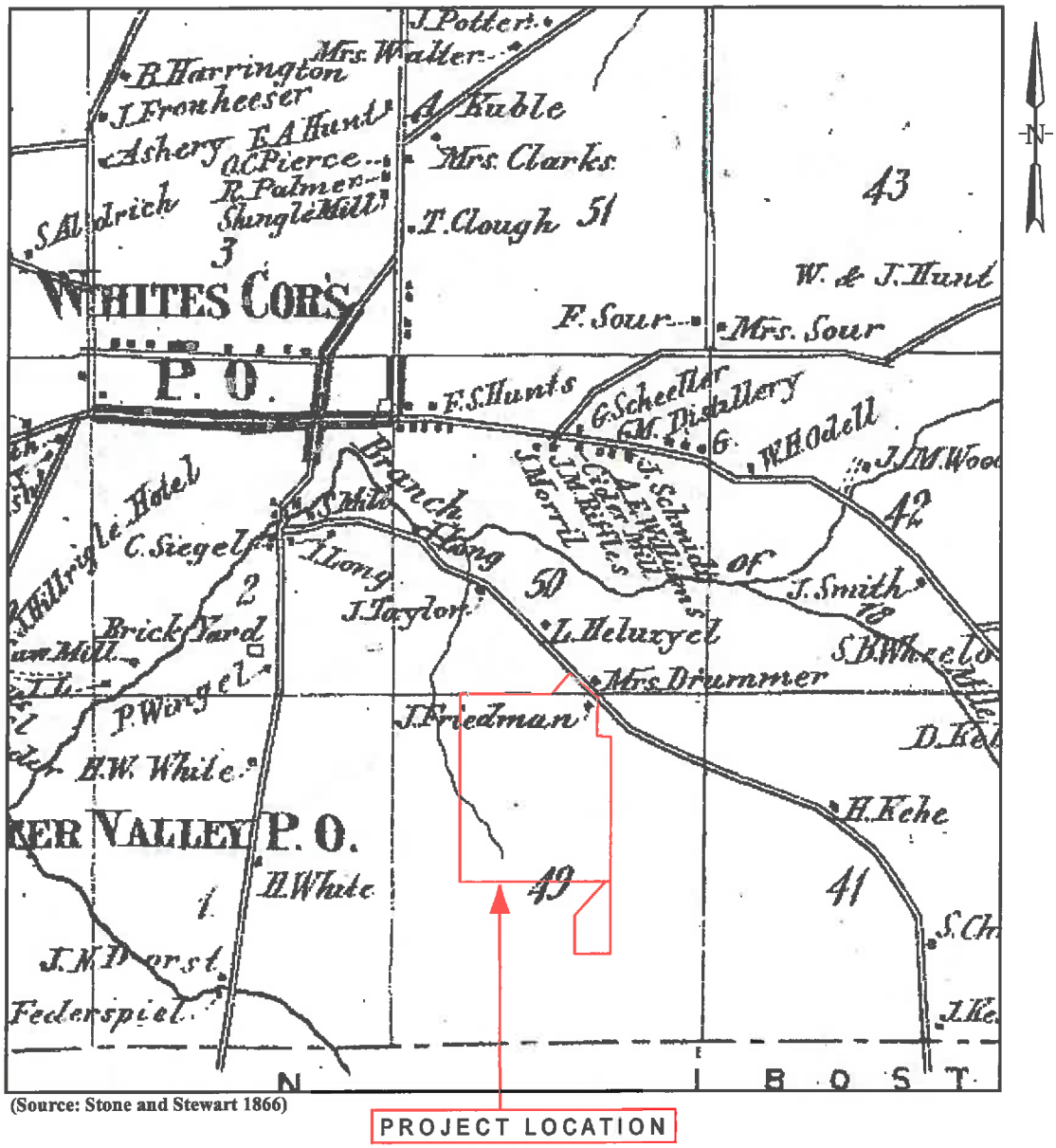
In 1850, the original Town of Hamburg, with a population of 5,219, was divided into two towns, Hamburg and East Hamburg (Orchard Park). The three large villages of the area now had a different relationship to the new town boundaries. White's Corners (Village of Hamburg) was now in the center of the new Town; Potter's Corners (Village of Orchard Park) was in East Hamburg; and Abbot's Corners (Armor) was located on the boundary line. The Hamburg post office was moved to the more central Village of White's Corners and it became the chief business center in the new town (Sipprell 1962; Johnson 1884).

By the beginning of the Civil war, population increased in the villages, new businesses opened and transportation expanded to provide new markets and new commuting possibilities between Hamburg and Buffalo (Sipprell 1962). The 1866 Stone and Stewart atlas, again, attributes the parcel to 'J. Friedman' (Figure 6).

The Village of Hamburg was incorporated in 1874 and the name officially changed from White's Corners to Hamburg. The 1880s brought an unprecedented growth to the Village and the outlying area, although the area in the vicinity of the project remained rural. The 1880 Beers atlas indicates that by this time the project parcel had been divided into two lots, with the eastern portion attributed to 'L. Friedman' and the western portion attributed to 'Jos. Taylor' (Figure 7). Although the Hopkins 1893 atlas shows further subdivision within the vicinity of the village, the area immediately surrounding the project remained rural.

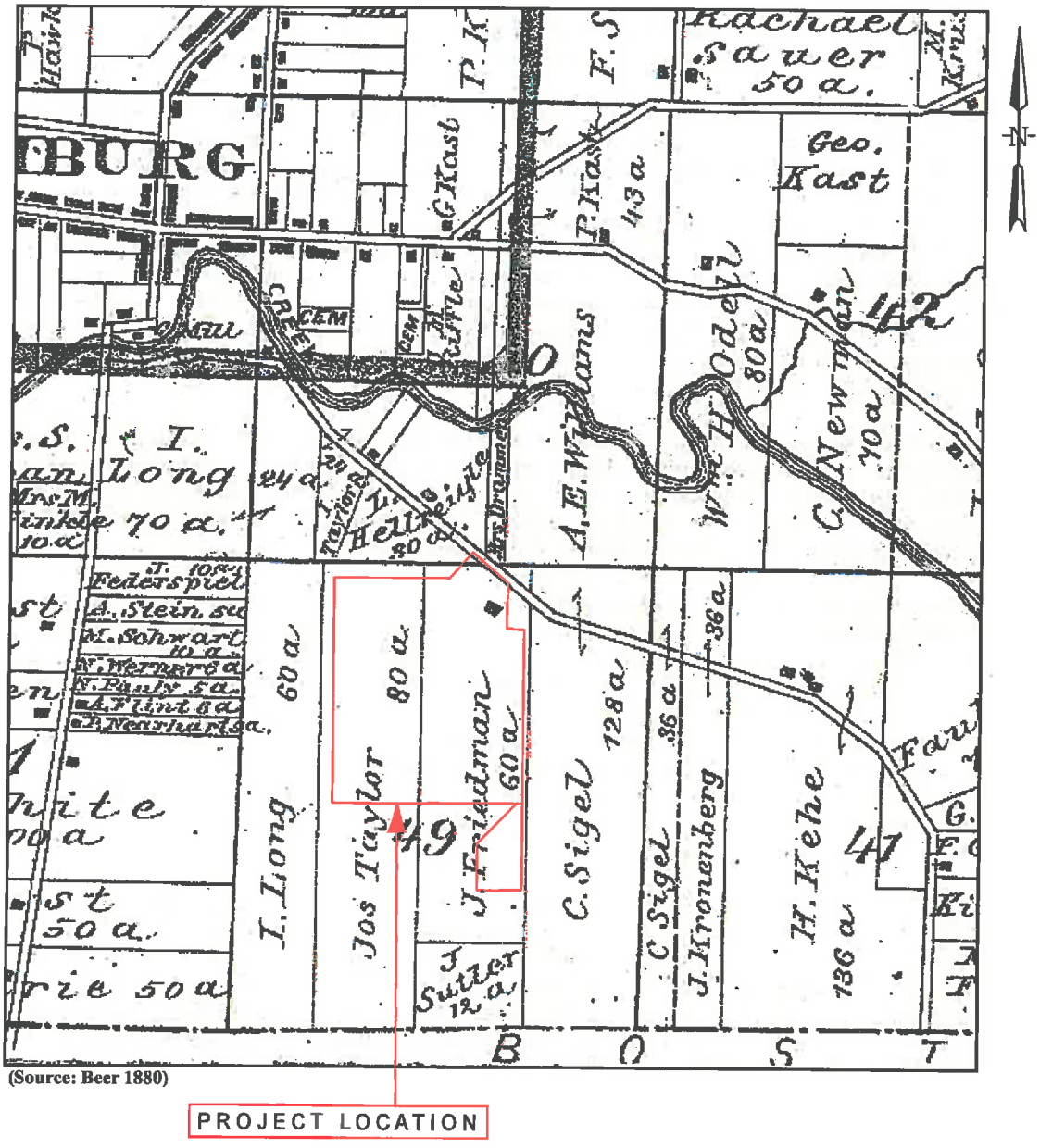
(Source: Geil 1855)

FIGURE 5. Project Location in 1855



(Source: Stone and Stewart 1866)

FIGURE 6. Project Location in 1866



(Source: Beer 1880)

FIGURE 7. Project Location in 1880

In 1893 the project parcel is attributed to 'Z. Taylor' (western portion) and 'C. Newman' (eastern portion) (Figure 8). Throughout the later part of the nineteenth-century many successful businesses were started, including the Hamburg Planing Mill Company (producing lumber and decorative millwork), the Hamburg Canning Company, and the Bank of Hamburg (Edson 2010).

George M. Pierce, who owned property near the project, was the president of the canning company and the bank as well as being active in town and village government (Sipprell 1962). In the early 1880s, several wealthy Buffalonians began to realize that the railroads afforded them a quick and easy method of visiting the "country".

In 1882 a group of these well-to-do businessmen organized the Idlewood Association and bought 14 acres of lakefront property in Eden and 42 acres in Hamburg at the mouth of Eighteenmile Creek and started a summer colony. Many prominent Buffalonians bought other farms along the lake shore and built summer homes (Sipprell 1962). The Idlewood Association property is located at the western end of Hamburg, about 8 miles west of the project. However, the properties between the railroad tracks and the lake became highly populated. By the late 1880s and early 1890s, some of the farms that had been acquired for summer homes and other large landholdings were subdivided and new communities were planned in those locations. Abner Amsdell's extensive property, for example, was divided up into the communities of Wanakah, Bay View, Athol Springs, Locksley Park, and Mt. Vernon, all of which connected along the lake (Sipprell 1962). Athol Springs was described as a summer resort with two hotels and the location of the Fresh Air Mission Hospital, established in 1894 and the Lakeside Cemetery, which opened in 1896 (White 1898).

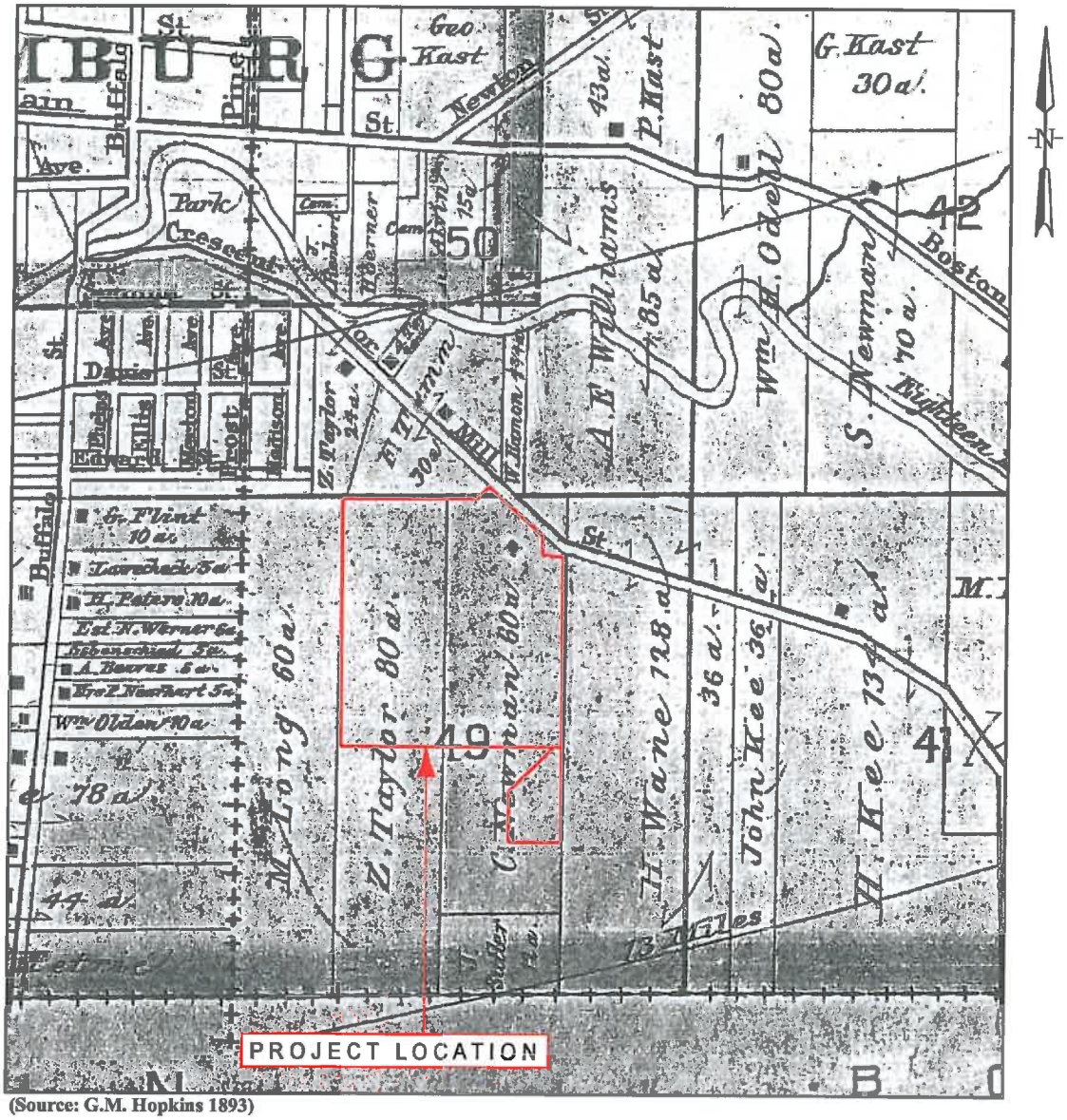
The twentieth-century was another era of business and residential expansion in the Town of Hamburg. A major contributing factor was the opening of the Lackawanna Steel Company plant in 1902, just north of the town. Shortly afterwards, other factories opened in the vicinity, some in Hamburg. As these companies hired employees, new residential areas such as Scranton and Steelton were developed and other villages and hamlets increased in population (Sipprell 1962). Scranton is northwest of the project.

Another contributing factor to rapid town growth in the early 1900s was the advent of electric railways. Three electric rail lines were constructed in Hamburg, one of which was just north of the project area. This line was the Buffalo and Lake Erie Traction Company which began operations in 1906 and completed its main line between Buffalo and Erie, Pennsylvania by 1910. The trolleys ran until 1932 (Sipprell 1961).

The 1909 New Century Atlas further demonstrates vigorous growth throughout the town with further subdivision and the construction of many new residential areas (described above). However, the southeast corner of the town, where the project is located, continued to maintain its rural character, with many farms located along Crescent or Mill Road (later renamed Taylor Road). In 1909, the project parcel is attributed to 'Z. Taylor' (western portion) and 'C. Newman' (eastern portion) (Figure 9).

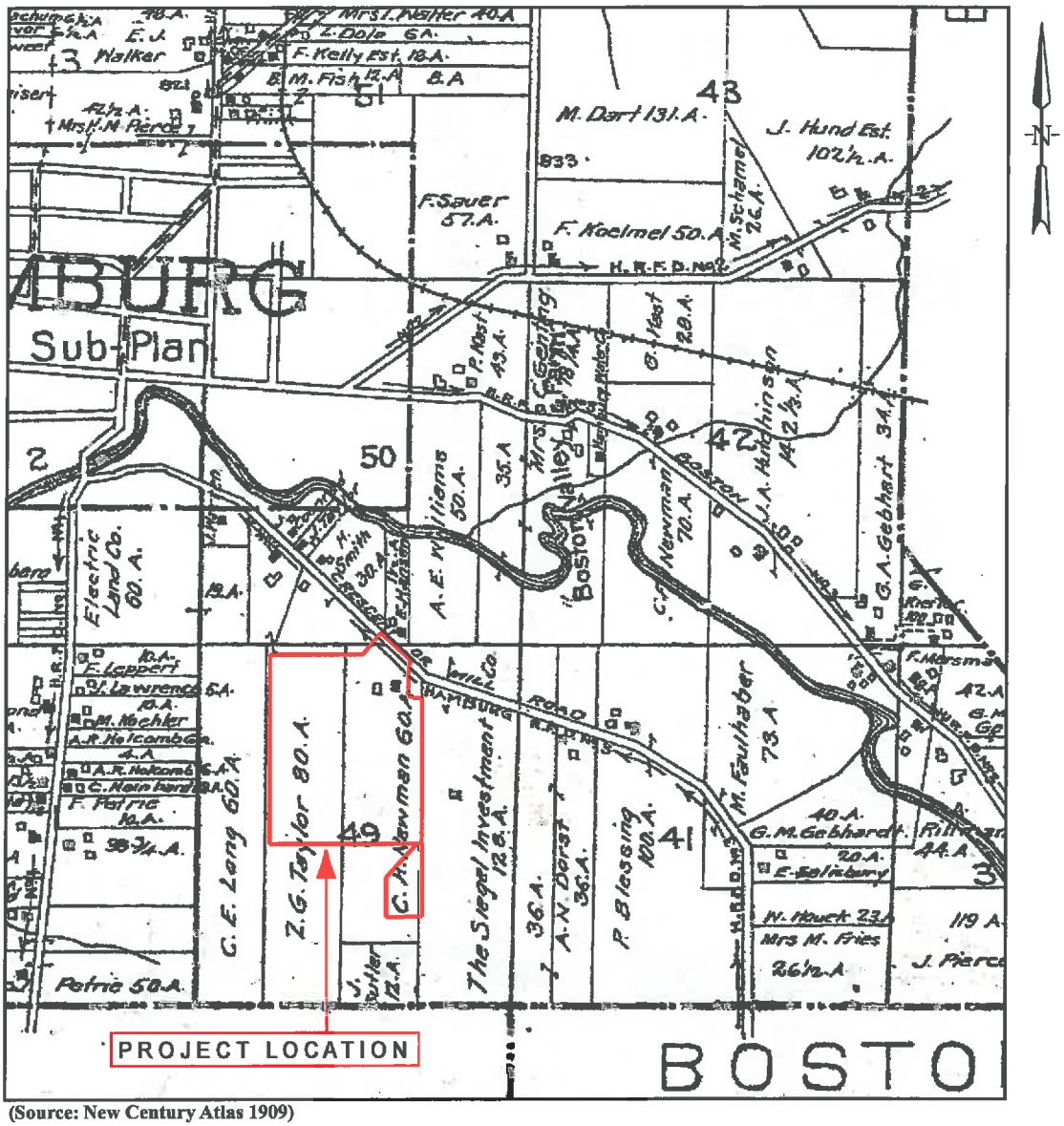
An early aerial photograph (1926) indicates that nearly the entire 75.9± acre parcel was being utilized for agricultural purposes. The farmhouse and several outbuildings are visible within the project's northeastern corner and a small orchard and pond can be seen within the north-central portion (Figure 10). Although the 1937 and 1948 tax maps are not structure sensitive, they do, however, demonstrate continued growth and the development of additional residential subdivisions throughout Hamburg. The 1937 tax map attributes the western portion of the project parcel to the 'Peoples Bank of Hamburg' and the eastern portion to 'John and Louise Schunk' (Figure 11). The 1948 tax map attributes the western portion of the project parcel to 'Ira M. Moore' and the eastern portion to 'Alfred Curtis' (Figure 12).

Another aerial photograph of the project taken in 1951 provides perhaps the most focused historical view of the parcel(s). This photograph clearly shows a farm road accessing the property from Traylor Road, with the farmhouse (MDS 1) and several smaller structures along the east side of the road and at least one large barn (MDS 2) along the west side. The 1951 photograph indicates that most of the orchard, visible in the 1926 aerial, has been greatly reduced. However, the pond is still present and quite visible. The image also reveals another barn (MDS 3) along the farm road, south of the aforementioned structures, within the southeastern portion of the project (Figure 13).



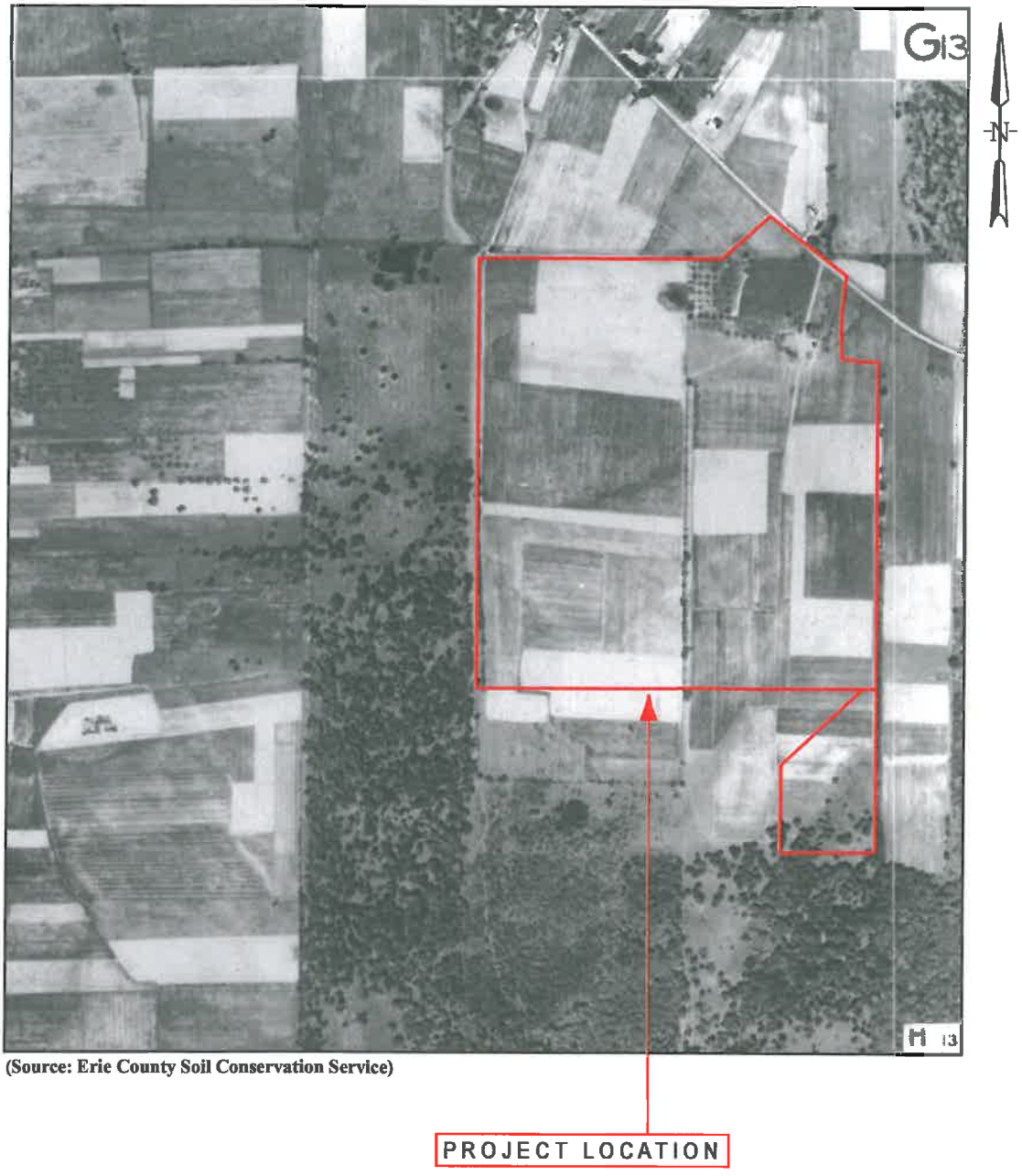
(Source: G.M. Hopkins 1893)

FIGURE 8. Project Location in 1893



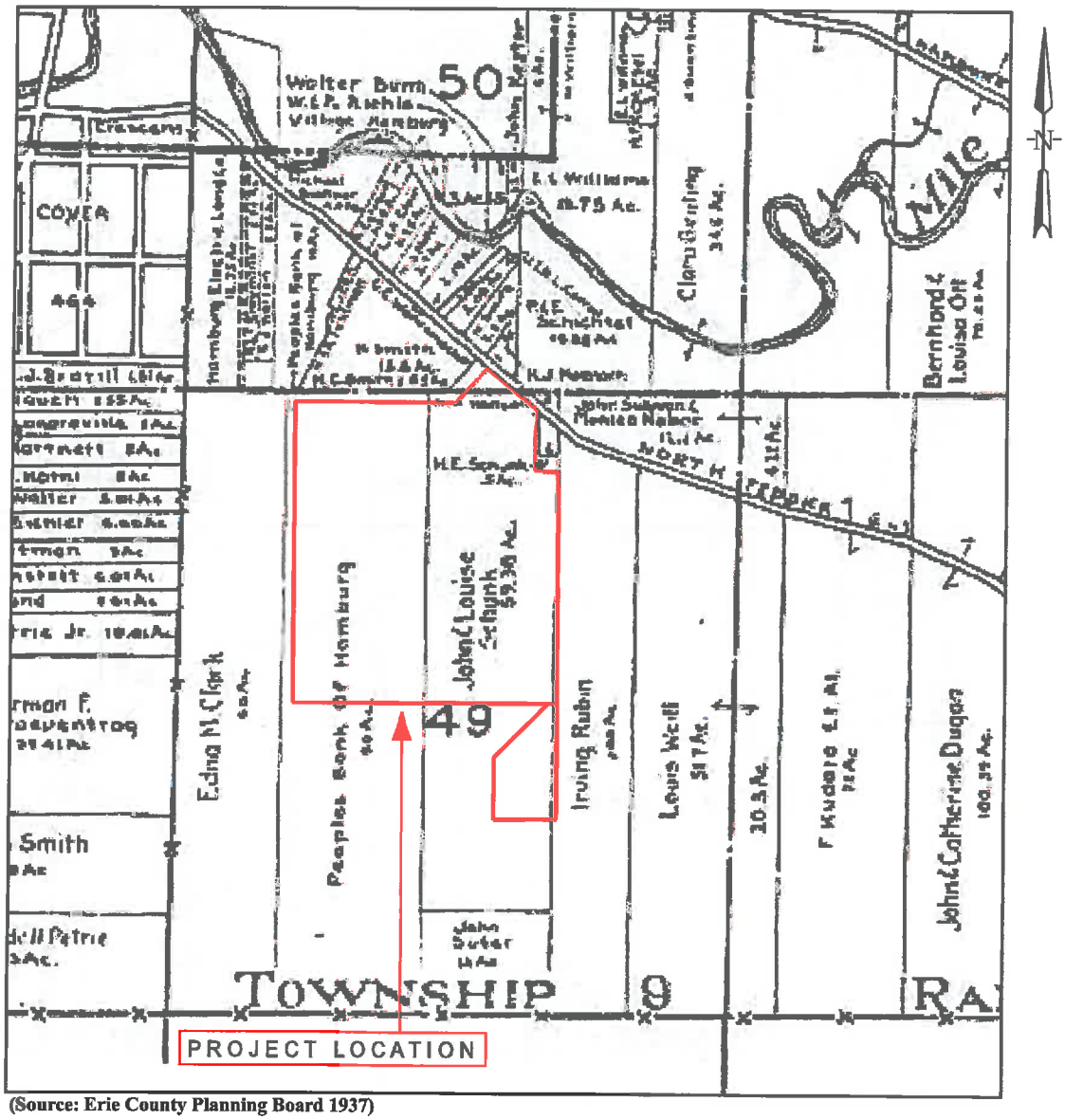
(Source: New Century Atlas 1909)

FIGURE 9. Project Location in 1909



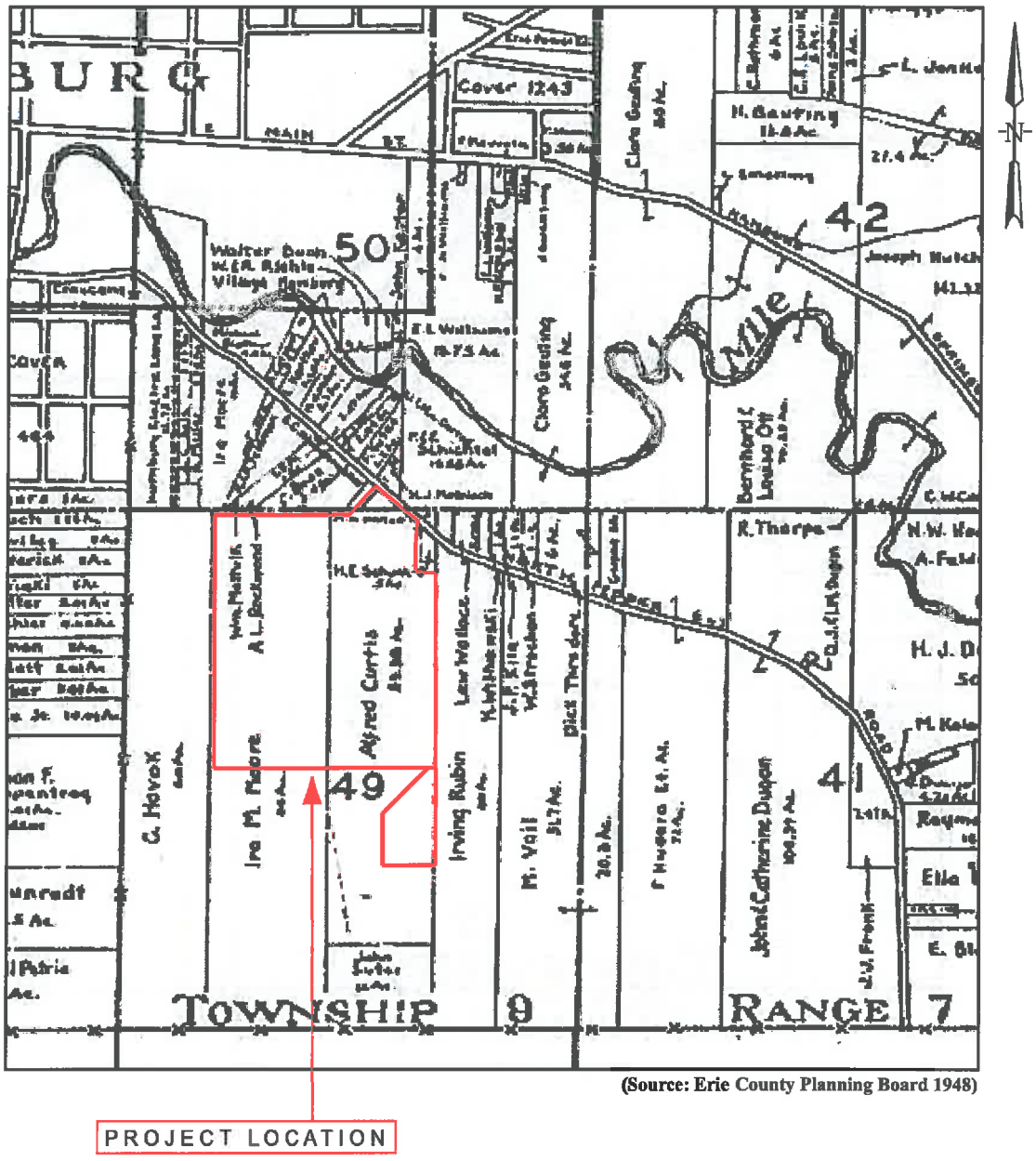
(Source: Erie County Soil Conservation Service)

FIGURE 10. Aerial View of Project Location in 1926



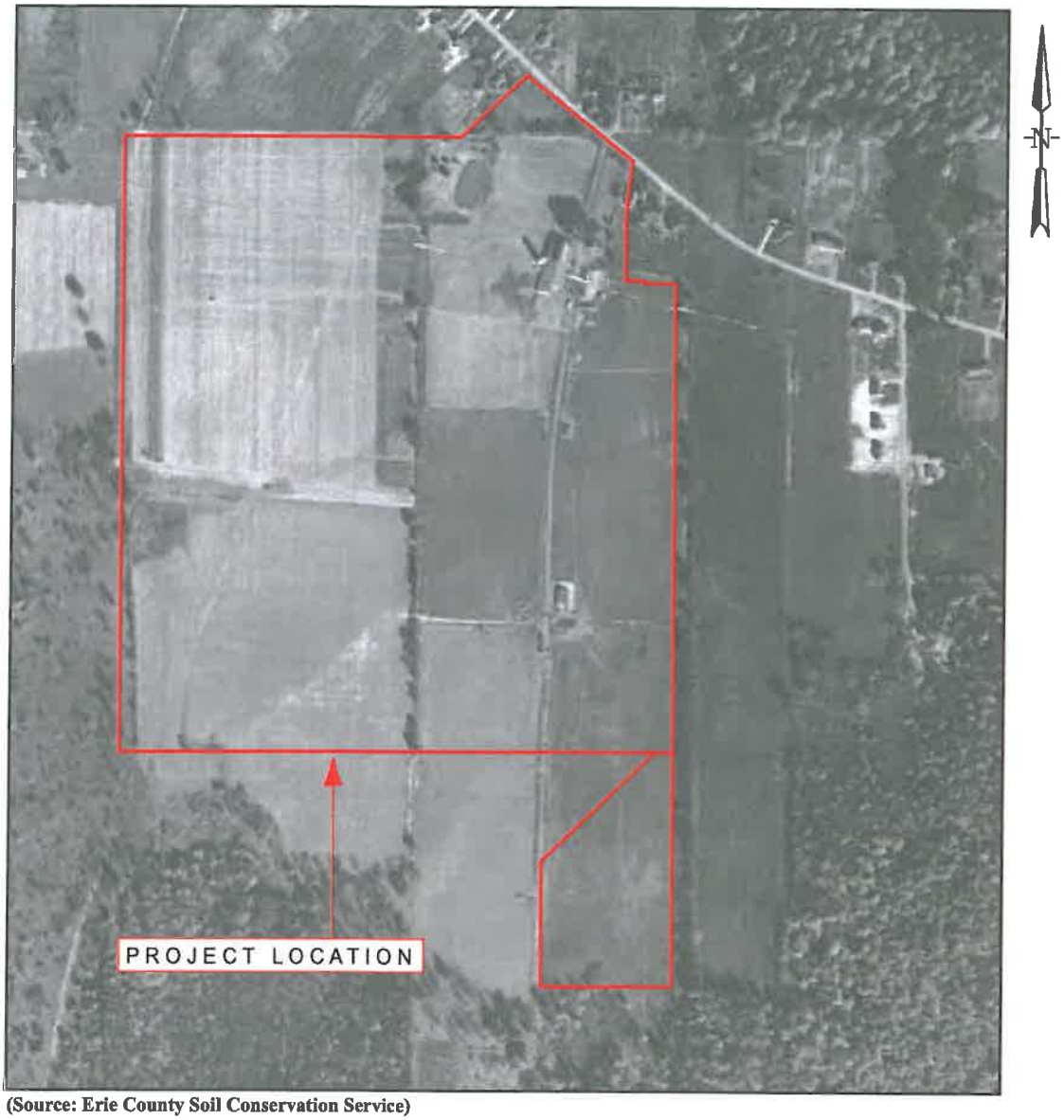
(Source: Erie County Planning Board 1937)

FIGURE 11. Project Location in 1937



(Source: Erie County Planning Board 1948)

FIGURE 12. Project Location in 1948

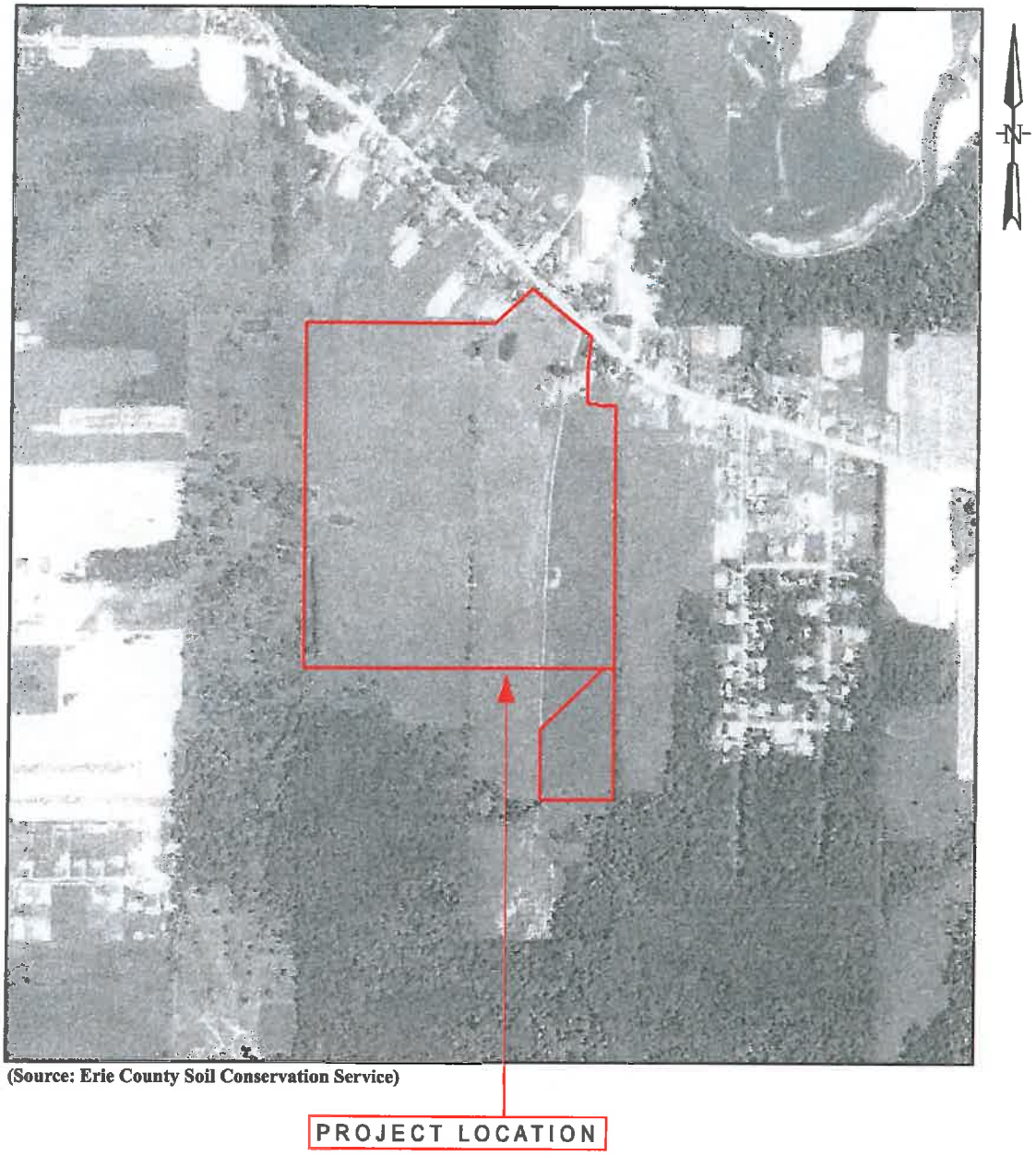


(Source: Erie County Soil Conservation Service)

FIGURE 13. Aerial View of Project Location in 1951

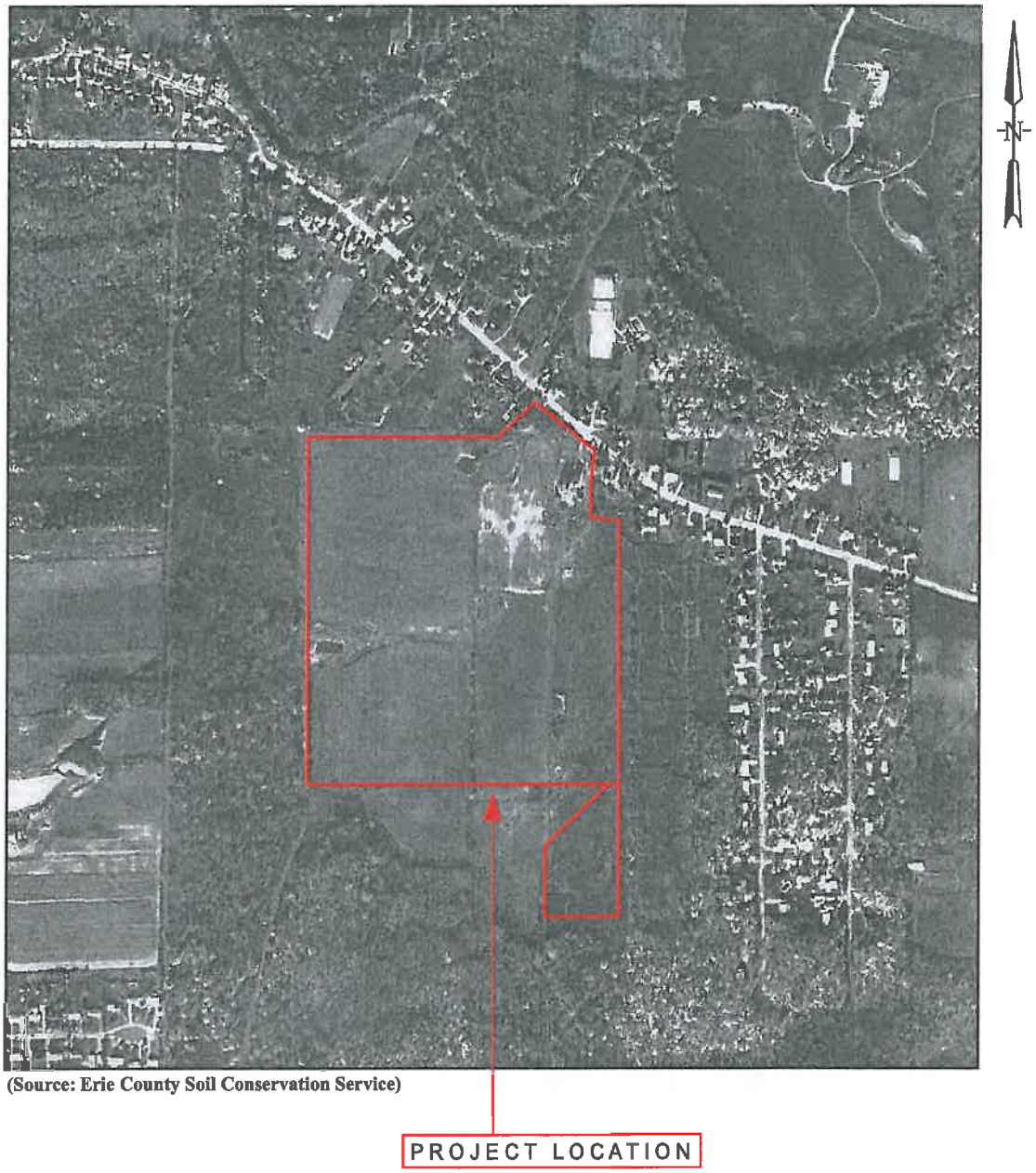
Other twentieth century spurts in economic and residential growth occurred in the 1920s and late 1940s and early 1950s. Between 1955 and 1957, the New York State Thruway was constructed through Hamburg, cutting diagonally through the town. Located about 5 miles west of the project, the Thruway connected Hamburg with a multitude of markets and populated areas throughout western New York and Pennsylvania. However, it also bisected many existing roads and displaced many neighborhoods.

The remaining aerial photographs collected and reviewed for the project include those taken in 1966, 1978, 1985, and 1990 (Figures 14 through 17). The 1966 and 1977 aerials show the farm much as it appeared in 1951, with few changes (Figures 14 and 15). However, it appears that by 1985 the structures (MDS 1, 2, and 3) are no longer present and by 1990 the area of the former residence and barn (MDS 1 and MDS 2, respectively) appears to be quite overgrown with brush (Figures 16 and 17). Additionally, the ponds once located within the northern portion have been filled in by 1990 (Figure 17).



(Source: Erie County Soil Conservation Service)

FIGURE 14. Aerial View of Project Location in 1966



(Source: Erie County Soil Conservation Service)

FIGURE 15. Aerial View of Project Location in 1978

(Source: Erie County Soil Conservation Service)

FIGURE 16. Aerial View of Project Location in 1985

(Source: Erie County Soil Conservation Service)

FIGURE 17. Aerial View of Project Location in 1990

Previous Surveys: The project area is within a region studied by several early archaeologists (e.g. Beauchamp 1900; Squier 1849, 1851; Benedict 1901; Houghton 1909; and Parker 1922) and later by regional researchers (Ritchie 1980; Ritchie and Funk 1973; and White 1960, 1961, 1963, 1967, 1972, 1978a, and 1978b; Reed n.d.). Within the past 25+ years, many cultural resource surveys have been conducted in the general vicinity. Background research conducted for the project indicated that many cultural resources studies have been completed throughout the Town of Hamburg, some within a 2.0-mile radius of the project. Cultural resource studies closest to the project area include those associated with such undertakings as infrastructure projects, including roadway construction and improvement, water, sewer and/or gas lines (cf. Butterbaugh and Spaulding 1983; Chestnut and Longiaru 1999; Ecology & Environment 1977a, 1977b, and 1977c; Fletcher, Prahl and Niemczycki 1976a, 1876b; Floyd et al. 1999; Hartner and Cowan 1994; Jackson and Herold 1993; Kieber and Nelson 1983; Miller and Dean 1977; Nagel and Aldenderfer 1981; Panamerican 2001; Pierce 1991c; Schieppati and Aldenderfer 1982; and Trubowitz 1978) and development projects (Butterbaugh and Miller 1989; Miller 1992; Pierce 2003, 1999, 1996, 1995, 1993a, 1993b, 1991a, 1991b, 1989; Pierce, Peltier, and Collura 2005; Pierce, Peltier, and D'Orazio 2005; Peltier 2009; and Peltier and Harrington 2009 and 2008). In particular, studies carried out within the vicinity of Eighteenmile Creek have generally proven to be prolific in the recovery of prehistoric cultural material.

Sensitivity Assessment/Prediction:

Prehistoric: Based on background literature and site file research, the project area is considered to have a moderate to high sensitivity for the location of previously unrecorded prehistoric archaeological sites. The project area, as well as the general vicinity, contains environmental and topographic features that would have been attractive to prehistoric populations (i.e., close proximity to Eighteenmile Creek, its several tributaries, and various wetland areas).

Historic: As described above, a review of available historic maps, atlases, and site file literature (Beers 1880; Edson 2010, 2003, and 2000; Erie County Planning Board 1937, 1948; ECSWCS n.d.; Geil 1855; *Hamburg, Park, NY* Quadrangle 1965; Hopkins 1893; Johnson 1876; League of Women Voters 1968; New Century Atlas 1909; Sipprell 1971; Smith 1884; Smith 1942; Stone and Stewart 1866; TOHSC 1962; VOHCC 1974; and White 1898) indicated that the APE contained a residential structure (circa 1850) (MDS 1) and a barn (MDS 2) within its northeastern corner. In addition, historic aerial photographs of the APE indicate another outbuilding (MDS 3), no longer present, within the project's southeastern portion. Accordingly, the APE for the project contains a high sensitivity for the location of historic archaeological features typically associated with such nineteenth-century archaeological sites (i.e., middens, sheet refuse deposits, priveys, foundation remains, or wells).

4.0 RECOMMENDATIONS

A Phase I cultural resource investigation was recommended for the project area because of its proximity to previously recorded archaeological site(s).

REPORT OF FIELD RECONNAISSANCE

PERMIT APPLICATION:	James Yoviene The Five Yovienes, LLC 4464 Shady Ridge Drive Hamburg, New York 14075
LOCATION:	Town of Hamburg Erie County, New York

REPORT PREPARED BY: Robert J. Peltier, M.A. and Michael L. Kagelmacher, M.A.

AFFILIATION: Commonwealth Cultural Resources Group, Inc.
189 McKinley Avenue
Buffalo, New York 14217
716/510-9115

DATE: June 14, 2012

5.0 FIELD INVESTIGATIONS/METHODOLOGY

Description of Structure of Survey Team: The survey team for the Phase IB cultural resource investigation for the project area was composed of Principal Investigator Robert Peltier, Field Director Michael Kagelmacher, and seven archaeological field technicians (Dana D'Orazio, Martin Boratin, Josh Marriott, Kyle Brock, Joseph Kline, Sigmund Antecki, and Tony Bonn).

Date of Survey and Description of General Surface and Subsurface Conditions: Pre-field reconnaissance was conducted on several occasions by Principal Investigator Robert Peltier and Field Director Michael Kagelmacher. The purpose of the walk-over inspection, in addition to determining whether favorable field conditions existed, was to look for surface indications of archaeological sites and standing structures within or directly adjacent to the project parcel. At this time, the project was visually inspected in order to identify areas of at least 75% ground surface visibility that would warrant a surface inspection (in addition to shovel testing) and areas of ground disturbance that would not be conducive to shovel testing. No surficial evidence of prehistoric archaeological sites was identified, however evidence of the three MDS (described above) was observed. Within the location of each MDS discarded building material was noted on the ground surface (i.e., chunks of concrete, glass, tires, farm equipment, miscellaneous metal, etc) (Attachment A, Photos 7 through 9).

Phase IB field investigations were conducted between the dates of March 6 and March 16, 2012. Weather conditions consisted of overcast to partly sunny skies with temperatures reaching the 70s by the afternoon. Soils were found to be somewhat poorly-drained, with a few areas of standing water in and around delineated wetland areas (Attachment A, Photos 13 and 14).

Description of Intensity of Coverage and Rationale for Excluding Areas From Survey: Phase IB shovel testing was conducted at 50 ft (15 m) intervals across the entire 75.9± acre APE. A total of 1,251 shovel tests was proposed for excavation. Figures 18 and 19 indicate the location of each test, while Attachment B summarizes the results of shovel testing across the APE.

Outline of Field Testing Strategy (Sampling Techniques, Surface Inspection Techniques, Subsurface Techniques, Remote Sensing Techniques): Zero ground surface visibility across the APE precluded the possibility of conducting a surface inspection. Shovel testing was the only field methodology employed. A total of 1,251 shovel tests was proposed for excavation across the APE. Of the 1,251 proposed tests, only 13 tests (1.03%) were not excavated, generally due to the presence of standing water. Numerous tests were placed in apparently disturbed locations in order to document the amount of disturbance or to located buried intact soils.

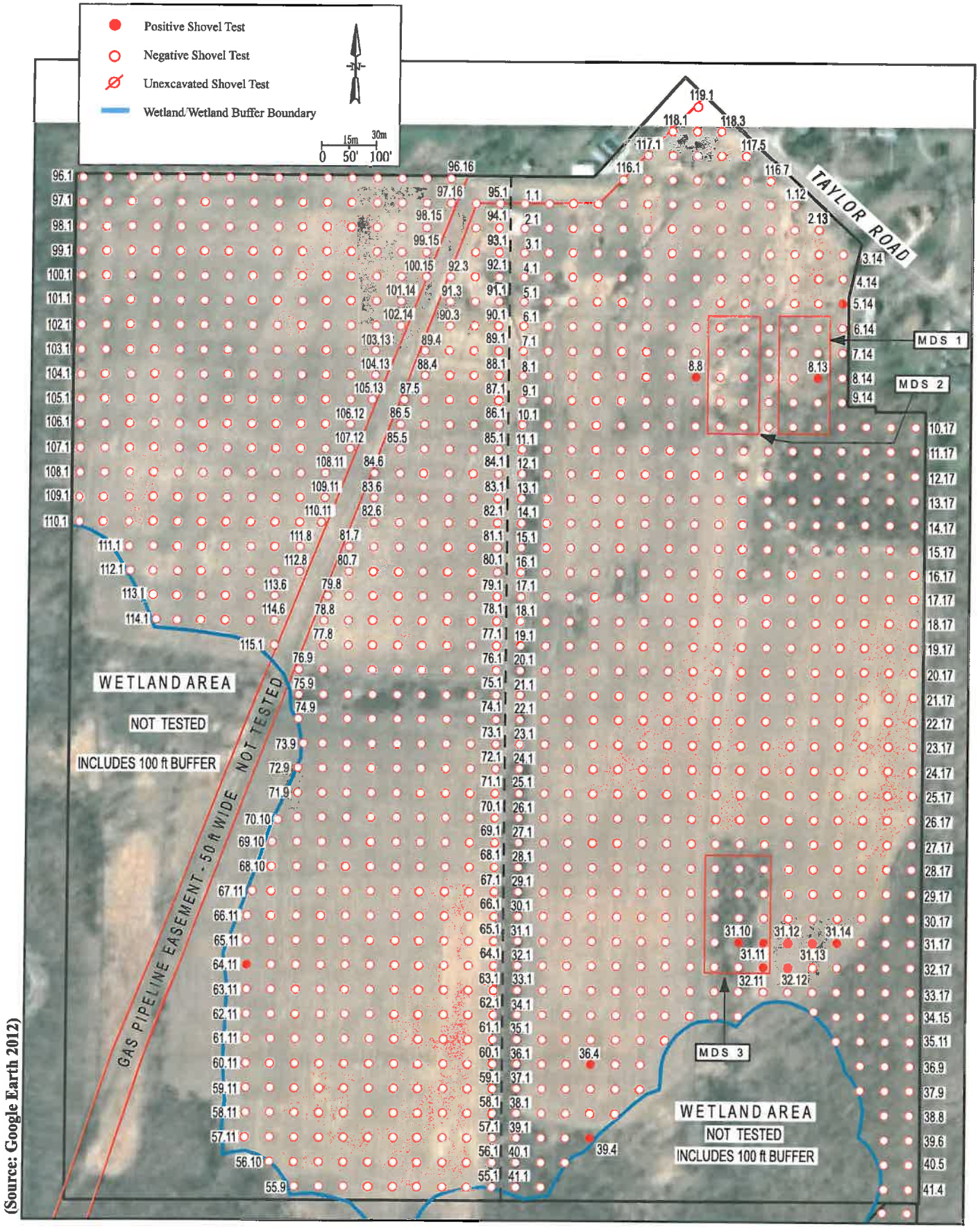
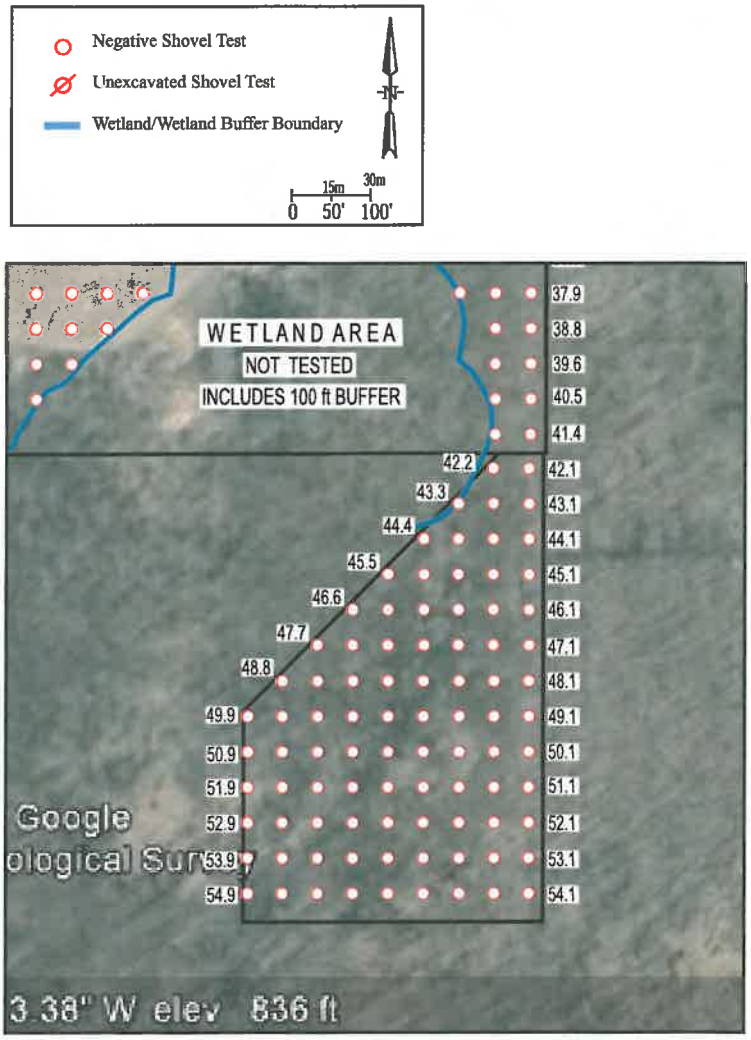


FIGURE 18. Results of Phase IB Shovel Testing Across Main Portion of APE



(Source: Google Earth 2012)

FIGURE 19. Results of Phase IB Shovel Testing Within Southeastern Corner of APE (Transects 42 through 54).

Shovel tests were placed at 50 ft (15m) intervals along 119 transects. Transects 1 through 41 ran east from, and perpendicular to, a baseline established along a tree line within the central portion of the APE, ending at the project's eastern boundary. Transects 42 through 54 were placed within the southeastern corner of the APE. These transects ran west from, and perpendicular to, a baseline established along the APE's eastern boundary, ending at the western boundary. Transects 55 through 95 ran west from, and perpendicular to, the same baseline established along a tree line within the central portion of the APE, ending either at the wetland buffer boundary or the gas pipeline easement. Transects 96 through 115 ran east from, and perpendicular to, the APE's western boundary, ending at the gas pipeline easement. In addition, transects 116 through 119 were excavated within a triangular-shaped section within the APE's northern portion, adjacent to Taylor Road. This location appeared to be highly disturbed, containing exposed and mottled soils and gravel fill on the surface. Despite apparent impacts, shovel testing was carried out in this location to either verify the extent of disturbance or to locate in situ soils (Figures 18 and 19).

Shovel tests were excavated with shovels and hand trowels. Soils in all shovel tests were screened through ¼-inch mesh hardware cloth and examined for the presence or absence of cultural material. Pertinent information for each shovel test (i.e., depth, soil type, color [Munsell] and texture) was recorded in field notebooks. All shovel tests were back-filled upon completion.

Description of General Soil Characteristics (Including Texture and Depth to Sterile Soil): With the exception of the highly disturbed northern portion (along Taylor Road and in the former location of manmade ponds), soils from testing across the project area were consistent with those expected for the vicinity (USDA 1986; NRCS 2012). In general, soils ranged from brown (10YR 4/1) to very dark grayish brown (10YR 3/2) silt loam to an average depth of 26 centimeters (cm) (10.2 inches [in]) below the surface. These overlaid mostly mottled subsoils consisting of gray (10YR 5/1), grayish brown (10YR 5/2), yellowish brown (10YR 5/4), pale brown (10YR 6/3), and brownish yellow (10YR 6/8) soils ranging from silt clay to clay loam. Shovel tests were excavated to an average depth of 38 cm (14.9 in) below the surface.

Not surprisingly, soils from testing in the northern potion of the project area, along Taylor Road and in the former location of the manmade ponds, were extremely disturbed, exhibiting large amounts of gravel fill and subsoils mottled with topsoils. In contrast, soils from testing within the main portion of the project area were relatively undisturbed. Attachment B summarizes the results of the Phase IB testing.

Description of Problems Encountered During Survey Which May Have Influenced Results: No problems were encountered during field investigations which would have influenced the results of the study.

6.0 RESULTS OF FIELD INVESTIGATION

One prehistoric artifact was recovered from shovel test 64.11. The test was located within the southwestern portion of the APE, along the edge of a delineated wetland area (Figure 18). The sole prehistoric artifact consisted of a simple (or un-faceted, referring to the lack of striking platform preparation) flat secondary chert flake. The specimen is considered to be a mid-stage reduction flake and was fashioned from tan-colored chert, likely of glacial origin. Such chert is relatively abundant in local gravel deposits, where it is found alongside the distinctive local gray Onondaga chert. Eight close-interval shovel tests were excavated around the original findspot; shovel tests were excavated at 1 m and 3 m (3.3 ft and 9.8 ft) intervals in each cardinal direction. No additional prehistoric material was recovered. CCRG determined the prehistoric artifact collected from shovel test 64.11 to be an isolated find. No further archaeological investigations are recommended at this location.

A total of 12 tests excavated across the APE produced historic material. As described above, the general vicinity of MDS 1, 2, and 3 each contained a good amount of scattered historic (and modern) artifacts across the surface, most of which was considered modern debris and not collected. CCRG archaeologists noted large amounts of discarded building debris and materials (chunks of concrete, glass, tires, farm equipment, miscellaneous metal, etc.) within these areas (Attachment A, Photos 7 through 9). Artifacts within shovel tests or on the surface of the shovel test were collected. Recovered material consisted of a mix of both domestic-related (ceramics, bottle glass) and

construction-related material (mortar, brick, flat glass), which, from the potential range of dates that could be assigned represent mostly the twentieth-century period of occupation of the parcel (Table 3).

Table 3. Artifact Inventory from Phase IB Shovel Testing

STP	Strat/Level	Count	Artifact Type	Date Ranges
5.14	1/1	1	whiteware, undecorated	1830-present
8.8	1/1	1	clear, flat glass	1915-present
8.13	1/1	1	whiteware, undecorated	1830-present
31.10	1/1	1	clear bottle glass	1915-present
	1/1	1	aluminum soda can	---
	1/1	3	plastic fragments	modern
31.11	1/1	1	clear bottle glass	1915-present
	1/1	3	brick fragments	---
31.12	1/1	---	Brick fragments	---
	1/1	---	mortar	---
31.13	1/1	---	mortar	---
	1/1	1	coal	---
31.14	1/1	---	mortar	---
32.11	1/1	1	redware, unglazed	19th century
32.12	1/1	---	mortar and slag fragments	---
36.4	1/1	1	clear bottle glass	1915-present
39.4	1/1	---	mortar	---
64.11	1/1	1	chert flake (flat, secondary)	indeterminate prehistoric

7.0 RECOMMENDATIONS AND RATIONALE

Phase IB field investigations at the proposed Yoviene Subdivision project area failed to identify evidence of any prehistoric archaeological sites. However, situated within the APE's northeastern corner and southeastern portion, three MDSs have been identified. Although archaeological investigations carried out within the vicinity of each MDS yielded only a small amount of historic artifacts, it did, nevertheless identify prior occupation and agricultural activities. Historic maps and aerial photographs reviewed for the project indicate occupation of the parcel as early as 1855. The former residence (MDS 1) appears on historic maps dating from 1855 through 1909. Moreover, the residence and barn (MDS 1 and 2, respectively) are shown on the 1909 New Century Atlas (Figures 9). The 1951 aerial photograph indicates that sometime between 1926 and 1951 another large barn (MDS 3) was constructed within the southeastern portion of the APE (Figure 13). It is likely that if agricultural activities at the site concentrated on dairying, MDS 3 could have served as a slaughterhouse. It was not uncommon for farmers, at the time, to have a portion of their livestock active in milk production and a portion for butchering (Grande 2000). Furthermore, at the time of the Phase IB survey, a fairly large amount cut animal bone was observed on the surface within the vicinity of MDS 3.

It is recommended that the locations of MDS 1, 2, and 3 be subjected to Phase II Archaeological Site Evaluations. Additional archaeological investigations at each site should, at a minimum, consist of a close-interval 6 m (20 ft) shovel test grid. Each MDS area measures approximately 30 m by 76 m (100 ft by 250 ft). Additional archaeological investigations at the site have the potential to produce information relating to the broad theme of nineteenth-century development and settlement throughout the region. Potential archaeological deposits associated with the former structures should be evaluated for possible inclusion in the State or National Register of Historic Places under Criteria D in that they may provide important information regarding local and regional history. The criteria for eligibility for cultural resources are set forth in the *Code of Federal Regulations* (35 CFR 60.6 and 800.1):

> "The quality of significance in American history, architecture, archaeology, and culture is present in districts, sites, buildings, and objects of state and local importance that possess integrity of location, design, setting, materials, workmanship, feeling, and association, and

a) that are associated with the events that have made a significant contribution to the broad patterns of our history, or

b) that are associated with the lives of persons significant in our past, or

c) that embody the distinctive characteristics of a type, period or method of construction, or that represent a significant and distinguishable entity whose components may lack individual distinction, or

d) that have yielded, or may be likely to yield, information important in prehistory or history." (36 CFR 800.16)

Due to its research potential, possible National or State register eligibility, and the fact that most of the site would be negatively affected by the proposed development, CCRG recommends a Phase II Archaeological Site Evaluation in the locations of MDS 1, 2, and 3.

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SUPPORTING DATA

ATTACHMENT A.	Photographs Showing Project Area (with Photo Angle Map)
ATTACHMENT B.	Phase IB Shovel Test Summary
ATTACHMENT C.	OPRHP Correspondence Regarding the Yoviene Subdivision

Certification: I certify that I directed the cultural resource investigation reported here, that my observations and methods are fully reported and that this report is complete and accurate to the best of my knowledge.

6/14/12

Date

Signature of Preparer

ATTACHMENT A

Photographs Showing Project Area (with Photograph Angle Map)

(Source: Google Earth 2012)

ATTACHMENT A. Photo Angle Map

PHOTO 1. View of Adjacent Residential Properties Along Taylor Road, Facing Northwest

PHOTO 2. View of Adjacent Residence (6619 Taylor Road), Facing Northeast.

PHOTO 3. View of Adjacent Residence (No. 6627 Taylor Road), Facing Northeast.

PHOTO 4. Location of Former Residence (MDS 1) and Barn (MDS 2), Facing South

PHOTO 5. View Within Area of Former Residence (MDS 1) and Barn (MDS 2), Facing South

PHOTO 6. View Within Area of Former Residence (MDS 1) and Barn (MDS 2), Facing North

PHOTO 7. Approximate Location of Former Barn (MDS 2), Facing Southwest

PHOTO 8. Approximate Location of Former Residence (MDS 1), Concrete on Surface, Facing NE

PHOTO 9. Location of Former Outbuilding (MDS 3), Facing Southwest

PHOTO 10. View of Disturbed Northern of APE (Gravel Fill on Surface), Facing Southwest.

PHOTO 11. View of Manmade Drainage Within Northern Portion of APE, Facing West

PHOTO 12. View of Gas Pipeline Easement Within Western Portion of APE, Facing Southwest

PHOTO 13. View of Delineated Wetland Area Within Western Portion, Facing Southwest

PHOTO 14. View of Delineated Wetland Area Within Southern Portion, Facing Southeast

PHOTO 15. Overview of APE From Southeastern Corner of APE, Facing Northwest

PHOTO 16. View Along Baseline Within Central Portion of APE, Facing North

PHOTO 17. Overview of Western Portion of APE From Baseline, Facing Northwest

PHOTO 18. Overview of Eastern Portion of APE, Facing North

PHOTO 19. Crew Working Within North-Central Portion of APE, Facing North

PHOTO 20. Overview of North-Western Portion of APE, Facing Southwest

ATTACHMENT B

Phase IB Shovel Test Summary

Shovel Test No.	Depth (cm)	Soil Description	Artifact Summary
1.1	0-20	Gray//Dark Gray Brown Silt Clay w/gravel fill	---
	20-40	Gray//Yellowish Brown Clay Loam w/ gravel fill	---
1.2	0-37	Gray//Dark Gray Brown Silt Clay w/gravel fill	---
	37-50	Gray//Yellowish Brown Clay Loam w/ gravel fill	---
1.3	0-38	Gray//Dark Gray Brown Silt Clay w/gravel fill	---
	38-49	Gray//Yellowish Brown Clay Loam w/ gravel fill	---
1.4		Not Excavated – Gas Pipeline ROW	
1.5	0-35	Gray//Dark Gray Brown Silt Clay w/gravel fill	---
	35-48	Gray//Yellowish Brown Clay Loam w/ gravel fill	---
1.6	0-44	Very Dark Grayish Brown Silt Loam	---
	44-55	Grayish Brown//Gray Silt Clay	---
1.7	0-45	Very Dark Grayish Brown Silt Loam	---
	45-55	Grayish Brown//Gray Silt Clay	---
1.8	0-30	Dark Grayish Brown Silt Loam	---
	30-48	Yellowish Brown//Pale Brown Silt Clay	---
1.9	0-28	Dark Grayish Brown Silt Loam	---
	28-40	Yellowish Brown Sandy Clay	---
1.10	0-33	Dark Grayish Brown Silt Loam	---
	33-45	Yellowish Brown Sandy Clay	---
1.11	0-29	Dark Grayish Brown Silt Loam	---
	29-40	Pale Brown//Yellowish Brown Silt Clay	---
1.12	0-30	Dark Grayish Brown Silt Loam	---
	30-42	Pale Brown//Yellowish Brown Silt Clay	---
2.1	0-30	Gray//Dark Gray Brown Silt Clay w/gravel fill	---
	30-42	Gray//Yellowish Brown Clay Loam w/ gravel fill	---
2.2	0-32	Gray//Dark Gray Brown Silt Clay w/gravel fill	---
	32-48	Gray//Yellowish Brown Clay Loam w/ gravel fill	---
2.3	0-34	Gray//Dark Gray Brown Silt Clay w/gravel fill	---
	34-48	Gray//Yellowish Brown Clay Loam w/ gravel fill	---
2.4	0-35	Gray//Dark Gray Brown Silt Clay w/gravel fill	---
	35-45	Gray//Yellowish Brown Clay Loam w/ gravel fill	---
2.5	0-30	Gray//Dark Gray Brown Silt Clay w/gravel fill	---
	30-50	Gray//Yellowish Brown Clay Loam w/ gravel fill	---
2.6	0-26	Brown Silt Loam	---
	26-39	Brown//Yellowish Brown Clay Loam	---
2.7	0-28	Brown Silt Loam	---
	28-40	Brown//Yellowish Brown Clay Loam	---

Shovel Test No.	Depth (cm)	Soil Description	Artifact Summary
2.8	0-29	Brown Silt Loam	---
	29-43	Yellowish Brown Sand Loam	---
2.9	0-35	Brown Silt Loam	---
	35-45	Yellowish Brown Sand Loam	---
2.10	0-23	Dark Grayish Brown Silt Loam	---
	23-35	Grayish Brown//Yellowish Brown Clay Loam	---
2.11	0-26	Brown Silt Loam	---
	26-38	Grayish Brown Silt Clay	---
2.12	0-28	Dark Grayish Brown Silt Loam	---
	28-40	Yellowish Brown Silt Clay	---
2.13	0-17	Dark Grayish Brown Silt Loam	---
	17-30	Yellowish Brown Silt Clay	---
3.1	0-31	Gray//Dark Gray Brown Silt Clay w/gravel fill	---
	31-45	Gray//Yellowish Brown Clay Loam w/ gravel fill	---
3.2	0-29	Gray//Dark Gray Brown Silt Clay w/gravel fill	---
	29-45	Gray//Yellowish Brown Clay Loam w/ gravel fill	---
3.3	0-30	Gray//Dark Gray Brown Silt Clay w/gravel fill	---
	30-40	Gray//Yellowish Brown Clay Loam w/ gravel fill	---
3.4	0-34	Gray//Dark Gray Brown Silt Clay w/gravel fill	---
	34-46	Gray//Yellowish Brown Clay Loam w/ gravel fill	---
3.5	0-36	Gray//Dark Gray Brown Silt Clay w/gravel fill	---
	36-50	Gray//Yellowish Brown Clay Loam w/ gravel fill	---
3.6	0-26	Dark Gray Loam	---
	26-36	Grayish Brown//Brownish Yellow Silt Clay	---
3.7	0-25	Dark Gray Loam	---
	25-37	Grayish Brown//Brownish Yellow Silt Clay	---
3.8	0-27	Dark Grayish Brown Silt Loam	---
	27-40	Yellowish Brown Silt Clay Loam	---
3.9	0-29	Grayish Brown Silt Loam	---
	29-40	Yellowish Brown Silt Clay Loam	---
3.10	0-27	Grayish Brown Silt Loam	---
	27-37	Yellowish Brown Silt Clay Loam	---
3.11	0-25	Dark Grayish Brown Silt Loam	---
	25-35	Gray Silt Clay	---
3.12	0-18	Grayish Brown Silt Loam	---
	18-29	Pale Brown//Brownish Yellow Sand Clay Loam	---
3.13	0-23	Grayish Brown Silt Loam	---
	23-35	Pale Brown//Brownish Yellow Sand Clay Loam	---

Shovel Test No.	Depth (cm)	Soil Description	Artifact Summary
3.14	0-28	Grayish Brown Silt Loam	---
	28-40	Pale Brown//Brownish Yellow Sand Clay Loam	---
4.1	0-30	Gray//Dark Gray Brown Silt Clay w/gravel fill	---
	30-44	Gray//Yellowish Brown Clay Loam w/ gravel fill	---
4.2	0-25	Gray//Dark Gray Brown Silt Clay w/gravel fill	---
	25-50	Gray//Yellowish Brown Clay Loam w/ gravel fill	---
4.3	0-8	Dark Gray Silt Clay	---
	8-30	Yellowish Brown Silt Clay	---
4.4	0-12	Dark Gray Silt Clay	---
	12-30	Gray//Yellowish Brown Silt Clay	---
4.5	0-28	Gray//Dark Gray Brown Silt Clay w/gravel fill	---
	28-52	Gray//Yellowish Brown Clay Loam w/ gravel fill	---
4.6	0-27	Gray//Dark Gray Brown Silt Clay w/gravel fill	---
	27-45	Gray//Yellowish Brown Clay Loam w/ gravel fill	---
4.7	0-27	Dark Grayish Brown Silt Loam	---
	27-41	Yellowish Brown Silt Clay	---
4.8	0-28	Dark Grayish Brown Silt Loam	---
	28-40	Yellowish Brown Silt Clay	---
4.9	0-28	Dark Grayish Brown Silt Loam	---
	28-38	Yellowish Brown Silt Clay	---
4.10	0-31	Dark Grayish Brown Silt Loam	---
	31-42	Yellowish Brown Silt Clay	---
4.11	0-26	Dark Grayish Brown Silt Loam	---
	26-39	Yellowish Brown Silt Clay	---
4.12	0-25	Dark Grayish Brown Silt Loam	---
	25-37	Yellowish Brown Silt Clay	---
4.13	0-27	Dark Grayish Brown Silt Loam	---
	27-37	Yellowish Brown Sand Clay Loam	---
4.14	0-28	Dark Grayish Brown Silt Loam	---
	28-40	Yellowish Brown Sand Clay Loam	---
5.1	0-36	Gray//Dark Gray Brown Silt Clay w/gravel fill	---
	36-49	Gray//Yellowish Brown Clay Loam w/ gravel fill	---
5.2	0-24	Gray//Dark Gray Brown Silt Clay w/gravel fill	---
	24-52	Gray//Yellowish Brown Clay Loam w/ gravel fill	---
5.3	0-19	Dark Grayish Brown Silt Loam	---
	19-31	Grayish Brown Clay Loam	---
5.4	0-28	Very Dark Grayish Brown Silt Loam	---
	28-40	Grayish Brown//Yellowish Brown Clay Loam	---

Shovel Test No.	Depth (cm)	Soil Description	Artifact Summary
5.5	0-17	Very Dark Grayish Brown Silt Loam	---
	17-32	Grayish Brown Clay Loam	---
5.6	0-24	Dark Grayish Brown Silt Loam	---
	24-36	Gray//Yellowish Brown Clay Loam	---
5.7	0-27	Dark Grayish Brown Silt Loam	---
	27-39	Gray//Yellowish Brown Clay Loam	---
5.8	0-28	Dark Grayish Brown Silt Loam	---
	28-40	Gray//Yellowish Brown Clay Loam	---
5.9	0-18	Dark Grayish Brown Silt Loam	---
	18-30	Gray//Yellowish Brown Clay Loam	---
5.10	0-36	Dark Grayish Brown Silt Loam	---
	36-48	Dark Grayish Brown //Gray//Yellowish Brown Clay Loam	---
5.11	0-14	Dark Gray Silt Loam	---
	14-28	Pale Brown Clay Loam	---
5.12	0-30	Dark Grayish Brown Silt Loam	---
	30-42	Yellowish Brown Sand Clay	---
5.13	0-22	Dark Grayish Brown Sand Loam	---
	22-33	Gray//Grayish Brown Clay Loam	---
5.14	0-37	Dark Grayish Brown Sand Loam	whiteware
	37-48	Light Gray//Grayish Brown Clay Loam	---
6.1	0-28	Dark Grayish Brown Silt Clay Loam	---
	28-38	Gray Silt Clay	---
6.2	0-31	Dark Grayish Brown Silt Clay Loam	---
	31-41	Grayish Brown Silt Clay	---
6.3	0-23	Dark Grayish Brown Silt Clay Loam	---
	23-33	Grayish Brown Silt Clay	---
6.4	0-27	Dark Grayish Brown Silt Clay Loam	---
	27-40	Grayish Brown Silt Clay	---
6.5	0-26	Dark Grayish Brown Silt Clay Loam	---
	26-38	Grayish Brown//Yellowish Brown Silt Clay	---
6.6	0-32	Dark Grayish Brown Silt Clay Loam	---
	32-42	Grayish Brown//Yellowish Brown Silt Clay	---
6.7	0-31	Dark Grayish Brown Silt Clay Loam	---
	31-43	Grayish Brown Silt Clay	---
6.8	0-26	Dark Grayish Brown Silt Clay Loam	---
	26-40	Grayish Brown//Yellowish Brown Silt Clay	---
6.9	0-31	Dark Grayish Brown Silt Clay Loam	---
	31-43	Grayish Brown Silt Clay	---

Shovel Test No.	Depth (cm)	Soil Description	Artifact Summary
6.10	0-27	Dark Grayish Brown Silt Clay Loam	---
	27-38	Grayish Brown Silt Clay	---
6.11	0-30	Dark Grayish Brown//Gray Silt Clay Loam	---
	30-43	Grayish Brown//Yellowish Brown Silt Clay	---
6.12	0-23	Very Dark Grayish Brown Silt Clay Loam	---
	23-35	Grayish Brown//Yellowish Brown Silt Clay	---
6.13	0-26	Dark Grayish Brown Silt Clay Loam	---
	26-38	Grayish Brown//Yellowish Brown Silt Clay	---
6.14	0-30	Very Dark Grayish Brown Silt Clay Loam	---
	30-42	Grayish Brown//Yellowish Brown Silt Clay	---
7.1	0-20	Dark Grayish Brown Silt Clay	---
	20+	Water Table	---
7.2	0-18	Dark Gray Silt Clay	---
	18-35	Gray//Yellowish Brown Silt Clay	---
7.3	0-25	Dark Gray Silt Clay	---
	25-38	Gray//Yellowish Brown Silt Clay	---
7.4	0-25	Dark Gray Silt Clay	---
	25-35	Gray//Yellowish Brown Silt Clay	---
7.5	0-25	Dark Grayish Brown Silt Clay	---
	25-38	Gray//Yellowish Brown Silt Clay	---
7.6	0-26	Dark Grayish Brown Silt Clay	---
	26-38	Gray//Yellowish Brown Silt Clay	---
7.7	0-30	Dark Grayish Brown Silt Clay	---
	30-42	Gray//Yellowish Brown Silt Clay	---
7.8	0-28	Dark Grayish Brown Silt Clay	---
	28-38	Gray//Yellowish Brown Silt Clay	---
7.9	0-31	Dark Grayish Brown Silt Clay	---
	31-44	Yellowish Brown Silt Clay	---
7.10	0-28	Very Dark Gray Silt Clay	---
	28-41	Yellowish Brown Silt Clay	---
7.11	0-18	Very Dark Gray Silt Clay	---
	18-40	Yellowish Brown Silt Clay	---
7.12	0-31	Dark Grayish Brown Silt Clay	---
	31-42	Yellowish Brown Silt Clay	---
7.13	0-27	Dark Grayish Brown Silt Clay	---
	27-38	Yellowish Brown Silt Clay	---
7.14	0-26	Dark Grayish Brown Silt Clay	---
	26-38	Yellowish Brown Silt Clay	---

Shovel Test No.	Depth (cm)	Soil Description	Artifact Summary
8.1	0-35	Dark Gray Silt Loam	---
	35-47	Lt Brown Gray//Brownish Gray Sand Clay Loam	---
8.2	0-26	Dark Gray Silt Loam	---
	26-37	Lt Brown Gray//Brownish Gray Sand Clay Loam	---
8.3	0-19	Dark Gray Silt Loam	---
	19-30	Lt Brown Gray//Brownish Gray Sand Clay Loam	---
8.4	0-19	Dark Gray Silt Loam	---
	19-35	Lt Brown Gray//Brownish Gray Sand Clay Loam	---
8.5	0-35	Grayish Brown Silt Loam	---
	35-47	Lt Brown Gray//Brownish Gray Silt Clay	---
8.6	0-19	Grayish Brown Silt Loam	---
	19-32	Lt Brown Gray//Brownish Gray Silt Clay	---
8.7	0-21	Grayish Brown Silt Loam	---
	21-40	Lt Brown Gray//Brownish Gray Silt Clay	---
8.8	0-24	Grayish Brown Silt Loam	flat clear glass
	24-40	Lt Brown Gray//Brownish Gray Silt Clay	---
8.9	0-30	Very Dark Gray Silt Loam	---
	30-40	Lt Brown Gray//Brownish Gray Sand Clay	---
8.10	0-30	Very Dark Gray Silt Loam w/ slag & gravel	---
	30-44	Lt Brown Gray//Brownish Gray Sand Clay	---
8.11	0-15	Dark Grayish Brown Silt Loam w/ slag & gravel	---
	15-42	Grayish Brown Silt Clay	---
8.12	0-15	Very Dark Gray Silt Loam	---
	15-30	Yellowish Brown Silt Clay	---
8.13	0-22	Very Dark Gray Silt Loam	whiteware
	22-43	Lt Brown Gray//Brownish Gray Sand Clay	---
8.14	0-20	Very Dark Gray Silt Loam	---
	20-40	Lt Brown Gray//Brownish Gray Sand Clay	---
9.1	0-29	Very Dark Grayish Brown Silt Clay Loam	---
	29-41	Grayish Brown Silt Clay	---
9.2	0-25	Very Dark Grayish Brown Silt Clay Loam	---
	25-35	Grayish Brown//Yellowish Brown Silt Clay	---
9.3	0-24	Very Dark Grayish Brown Silt Clay Loam	---
	24-38	Grayish Brown//Yellowish Brown Silt Clay	---
9.4	0-22	Very Dark Grayish Brown Silt Clay Loam	---
	22-35	Grayish Brown//Yellowish Brown Silt Clay	---
9.5	0-17	Very Dark Grayish Brown Silt Clay Loam	---
	17-32	Grayish Brown//Yellowish Brown Silt Clay	---

Shovel Test No.	Depth (cm)	Soil Description	Artifact Summary
9.6	0-21	Very Dark Grayish Brown Silt Clay Loam	---
	21-34	Grayish Brown//Yellowish Brown Silt Clay	---
9.7	0-19	Very Dark Grayish Brown Silt Clay Loam	---
	19-29	Grayish Brown//Yellowish Brown Silt Clay	---
9.8	0-27	Very Dark Grayish Brown Silt Clay Loam	---
	27-40	Grayish Brown//Yellowish Brown Silt Clay	---
9.9	0-30	Very Dark Grayish Brown Silt Clay Loam	---
	30-40	Grayish Brown//Yellowish Brown Silt Clay	---
9.10	0-30	Very Dark Grayish Brown Silt Clay Loam	---
	30-45	Grayish Brown//Yellowish Brown Silt Clay	---
9.11	0-30	Very Dark Grayish Brown Silt Clay Loam	---
	30-42	Grayish Brown//Yellowish Brown Silt Clay	---
9.12	0-25	Very Dark Grayish Brown Silt Clay Loam	---
	25-38	Grayish Brown//Yellowish Brown Silt Clay	---
9.13	0-28	Very Dark Gray Silt Loam	---
	28-42	Grayish Brown Silt Clay	---
9.14	0-21	Very Dark Gray Silt Loam	---
	21-34	Grayish Brown Silt Clay	---
10.1	0-26	Brown Silt Loam	---
	26-36	Grayish Brown Silt Clay	---
10.2	0-33	Brown Silt Loam	---
	33-46	Yellowish Brown Clay Loam	---
10.3	0-33	Brown Silt Loam	---
	33-46	Yellowish Brown Clay Loam	---
10.4	0-23	Brown Silt Loam	clear bottle glass
	23-36	Yellowish Brown//Light Brown Gray Silt Clay	---
10.5	0-30	Brown Silt Loam	---
	30-42	Yellowish Brown Silt Clay	---
10.6	0-21	Brown Silt Loam	---
	21-32	Brown//Yellowish Brown Silt Clay	---
10.7	0-22	Brown Silt Loam	---
	22-36	Brown//Yellowish Brown Silt Clay	---
10.8	0-19	Dark Brownish Gray Sand Loam	---
	19-36	Brown//Yellowish Brown Silt Clay	---
10.9	0-21	Dark Brownish Gray Sand Loam	---
	21-32	Gray Sand Loam	---
10.10	0-12	Dark Brownish Gray Sand Loam	---
	12-36	Brown//Yellowish Brown Silt Clay	---

Shovel Test No.	Depth (cm)	Soil Description	Artifact Summary
10.11	0-26	Dark Brownish Gray Silt Loam	---
	26-39	Brown//Yellowish Brown Sand Loam	---
10.12	0-30	Brown Silt Loam	---
	30-41	Yellowish Brown Sand Loam	---
10.13	0-28	Brown Silt Loam	---
	28-39	Yellowish Brown Sand Loam	---
10.14	0-23	Brown Silt Loam	---
	23-36	Yellowish Brown Sand Loam	---
10.15	0-28	Brown Silt Loam	---
	28-41	Dark Yellow Brown//Yellow Brown Sand Loam	---
10.16	0-32	Dark Grayish Brown Silt Loam	---
	32-42	Yellowish Brown Sand Loam	---
10.17	0-22	Dark Grayish Brown Silt Loam	---
	22-36	Yellowish Brown Sand Loam	---
11.1	0-22	Dark Grayish Brown Clay Loam	---
	22-34	Grayish Brown//Yellowish Brown Clay	---
11.2	0-25	Dark Grayish Brown Clay Loam	---
	25-38	Grayish Brown//Yellowish Brown Clay	---
11.3	0-15	Dark Grayish Brown Clay Loam	---
	15-32	Grayish Brown//Yellowish Brown Clay	---
11.4	0-26	Dark Grayish Brown Clay Loam	---
	26-38	Grayish Brown//Yellowish Brown Clay	---
11.5	0-21	Dark Grayish Brown Clay Loam	---
	21-34	Grayish Brown//Yellowish Brown Clay	---
11.6	0-24	Dark Grayish Brown Clay Loam	---
	24-36	Grayish Brown//Yellowish Brown Clay	---
11.7	0-25	Dark Grayish Brown Clay Loam	---
	25-38	Grayish Brown//Yellowish Brown Clay	---
11.8	0-27	Dark Grayish Brown Clay Loam	---
	27-39	Grayish Brown//Yellowish Brown Sand Clay	---
11.9	0-21	Dark Grayish Brown Clay Loam	---
	21-34	Grayish Brown//Yellowish Brown Clay	---
11.10	0-18	Dark Grayish Brown Clay Loam	---
	18-29	Grayish Brown//Yellowish Brown Clay Loam	---
11.11	0-18	Dark Grayish Brown Clay Loam	---
	18-31	Grayish Brown//Yellowish Brown Clay Loam	---
11.12	0-18	Dark Grayish Brown Clay Loam	---
	18-32	Grayish Brown//Yellowish Brown Clay Loam	---

Shovel Test No.	Depth (cm)	Soil Description	Artifact Summary
11.13	0-26	Dark Grayish Brown Clay Loam	---
	26-39	Grayish Brown//Yellowish Brown Clay Loam	---
11.14	0-27	Dark Grayish Brown Clay Loam	---
	27-38	Grayish Brown//Yellowish Brown Clay Loam	---
11.15	0-22	Dark Grayish Brown Clay Loam	---
	22-33	Grayish Brown//Yellowish Brown Clay Loam	---
11.16	0-21	Dark Grayish Brown Clay Loam	---
	21-33	Grayish Brown//Yellowish Brown Clay Loam	---
11.17	0-22	Dark Grayish Brown Clay Loam	---
	22-3	Grayish Brown//Yellowish Brown Clay Loam	---
12.1	0-25	Very Dark Grayish Brown Silt Loam	---
	25-38	Yellowish Brown Silt Clay	---
12.2	0-32	Dark Grayish Brown Clay Loam	---
	32-45	Grayish Brown//Yellowish Brown Silt Clay	---
12.3	0-30	Dark Grayish Brown Clay Loam	---
	30-40	Grayish Brown//Yellowish Brown Silt Clay	---
12.4	0-27	Dark Grayish Brown Clay Loam	---
	27-40	Grayish Brown//Yellowish Brown Silt Clay	---
12.5	0-28	Dark Grayish Brown Clay Loam	---
	28-40	Grayish Brown//Yellowish Brown Silt Clay	---
12.6	0-30	Dark Grayish Brown Clay Loam	---
	30-40	Grayish Brown//Yellowish Brown Silt Clay	---
12.7	0-20	Dark Grayish Brown Clay Loam	---
	20-32	Grayish Brown//Yellowish Brown Silt Clay	---
12.8	0-32	Dark Grayish Brown Clay Loam	---
	32-43	Grayish Brown//Yellowish Brown Silt Clay	---
12.9	0-33	Dark Grayish Brown Clay Loam	---
	33-47	Grayish Brown//Yellowish Brown Silt Clay	---
12.10	0-30	Dark Grayish Brown Clay Loam	---
	30-42	Grayish Brown//Yellowish Brown Silt Clay	---
12.11	0-19	Dark Grayish Brown Clay Loam	---
	19-30	Grayish Brown//Yellowish Brown Silt Clay	---
12.12	0-12	Dark Grayish Brown Clay Loam	---
	12-40	Grayish Brown//Yellowish Brown Silt Clay	---
12.13	0-30	Dark Grayish Brown Clay Loam	---
	30-42	Grayish Brown//Yellowish Brown Silt Clay	---
12.14	0-22	Dark Grayish Brown Clay Loam	---
	22-40	Grayish Brown//Yellowish Brown Silt Clay	---

Shovel Test No.	Depth (cm)	Soil Description	Artifact Summary
12.15	0-34	Dark Grayish Brown Clay Loam	---
	34-45	Grayish Brown//Yellowish Brown Silt Clay	---
12.16	0-33	Dark Grayish Brown Clay Loam	---
	33-45	Grayish Brown//Yellowish Brown Silt Clay	---
12.17	0-32	Dark Grayish Brown Clay Loam	---
	32-45	Grayish Brown//Yellowish Brown Silt Clay	---
13.1	0-30	Dark Grayish Brown Silt Clay Loam	---
	30-40	Grayish Brown//Yellowish Brown Silt Clay	---
13.2	0-24	Very Dark Grayish Brown Silt Clay Loam	---
	24-34	Grayish Brown//Yellowish Brown Silt Clay	---
13.3	0-26	Very Dark Grayish Brown Silt Clay Loam	---
	26-38	Grayish Brown//Yellowish Brown Silt Clay	---
13.4	0-25	Dark Grayish Brown Silt Clay Loam	---
	25-39	Grayish Brown//Yellowish Brown Silt Clay	---
13.5	0-21	Very Dark Grayish Brown Silt Clay Loam	---
	21-31	Grayish Brown//Yellowish Brown Silt Clay	---
13.6	0-27	Very Dark Grayish Brown Silt Clay Loam	---
	27-37	Grayish Brown//Yellowish Brown Silt Clay	---
13.7	0-29	Dark Gray Silt Clay Loam	---
	29-41	Light Brownish Gray//Brown Yellow Silt Clay	---
13.8	0-30	Dark Gray Silt Clay Loam	---
	30-41	Light Brownish Gray//Brown Yellow Silt Clay	---
13.9	0-19	Dark Gray Silt Clay Loam	---
	19-32	Light Brownish Gray//Brown Yellow Silt Clay	---
13.10	0-23	Dark Grayish Brown Silt Clay	---
	23-33	Light Brownish Gray//Brown Yellow Silt Clay	---
13.11	0-27	Brown Silt Loam	---
	27-40	Yellowish Brown//Pale Brown Silt Clay	---
13.12	0-23	Dark Grayish Brown Silt Loam	---
	23-33	Yellowish Brown//Pale Brown Silt Clay	---
13.13	0-26	Dark Brownish Gray Silt Loam	---
	26-36	Pale Brown//Brownish Yellow Silt Clay	---
13.14	0-30	Dark Brownish Gray Silt Loam	---
	30-40	Pale Brown//Brownish Yellow Silt Clay	---
13.15	0-23	Dark Brownish Gray Silt Loam	---
	23-33	Pale Brown//Brownish Yellow Silt Clay	---
13.16	0-20	Dark Brownish Gray Silt Loam	---
	20-32	Pale Brown//Brownish Yellow Silt Clay	---

Shovel Test No.	Depth (cm)	Soil Description	Artifact Summary
13.17	0-32	Dark Brownish Gray Silt Loam	---
	32-42	Pale Brown//Brownish Yellow Silt Clay	---
14.1	0-24	Dark Grayish Brown Silt Clay	---
	24-36	Gray//Yellowish Brown Silt Clay	---
14.2	0-28	Dark Grayish Brown Silt Clay	---
	28-40	Gray//Yellowish Brown Silt Clay	---
14.3	0-30	Dark Grayish Brown Silt Clay	---
	30-40	Gray//Yellowish Brown Silt Clay	---
14.4	0-28	Dark Grayish Brown Silt Clay	---
	30-40	Gray//Yellowish Brown Silt Clay	---
14.5	0-28	Dark Grayish Brown Silt Clay	---
	28-40	Gray//Yellowish Brown Silt Clay	---
14.6	0-30	Dark Grayish Brown Silt Clay	---
	30-40	Gray//Yellowish Brown Silt Clay	---
14.7	0-27	Dark Grayish Brown Silt Clay	---
	27-38	Gray//Yellowish Brown Silt Clay	---
14.8	0-27	Dark Grayish Brown Silt Clay	---
	27-40	Gray//Yellowish Brown Silt Clay	---
14.9	0-26	Dark Grayish Brown Silt Clay	---
	26-37	Gray//Yellowish Brown Silt Clay	---
14.10	0-25	Dark Grayish Brown Silt Clay	---
	25-37	Gray//Yellowish Brown Silt Clay	---
14.11	0-25	Dark Grayish Brown Silt Clay	---
	25-37	Gray//Yellowish Brown Silt Clay	---
14.12	0-26	Dark Grayish Brown Silt Clay	---
	26-36	Gray//Yellowish Brown Silt Clay	---
14.13	0-29	Dark Grayish Brown Silt Clay	---
	29-40	Gray//Yellowish Brown Silt Clay	---
14.14	0-32	Dark Grayish Brown Silt Clay	---
	32-42	Gray//Yellowish Brown Silt Clay	---
14.15	0-32	Dark Grayish Brown Silt Clay	---
	32-44	Gray//Yellowish Brown Silt Clay	---
14.16	0-31	Dark Grayish Brown Silt Clay	---
	31-41	Gray//Yellowish Brown Silt Clay	---
14.17	0-30	Dark Grayish Brown Silt Clay	---
	30-43	Gray//Yellowish Brown Silt Clay	---
15.1	0-32	Dark Grayish Brown Silt Loam	---
	32-43	Grayish Brown//Yellowish Brown Silt Clay	---

Shovel Test No.	Depth (cm)	Soil Description	Artifact Summary
15.2	0-37	Dark Grayish Brown Silt Loam	---
	37-45	Grayish Brown//Yellowish Brown Silt Clay	---
15.3	0-25	Dark Grayish Brown Silt Loam	---
	25-37	Grayish Brown//Yellowish Brown Silt Clay	---
15.4	0-32	Dark Grayish Brown Silt Loam	---
	32-45	Grayish Brown//Yellowish Brown Silt Clay	---
15.5	0-30	Dark Grayish Brown Silt Loam	---
	30-43	Dark Gray//Yellowish Brown Silt Clay	---
15.6	0-27	Dark Grayish Brown Silt Loam	---
	27-39	Dark Gray//Yellowish Brown Silt Clay	---
15.7	0-33	Dark Grayish Brown Silt Loam	---
	33-43	Dark Gray//Yellowish Brown Silt Clay	---
15.8	0-32	Dark Grayish Brown Silt Loam	---
	32-45	Dark Gray//Yellowish Brown Silt Clay	---
15.9	0-26	Dark Grayish Brown Silt Loam	---
	26-40	Dark Gray//Yellowish Brown Silt Clay	---
15.10	0-26	Dark Grayish Brown Silt Loam	---
	26-38	Dark Gray//Yellowish Brown Silt Clay	---
15.11		Not Excavated – Standing Water	---
15.12		Not Excavated – Standing Water	---
15.13	0-23	Dark Grayish Brown Silt Loam	---
	23-35	Dark Gray//Yellowish Brown Silt Clay	---
15.14	0-32	Dark Grayish Brown Silt Loam	---
	32-45	Dark Gray//Yellowish Brown Silt Clay	---
15.15	0-30	Dark Grayish Brown Silt Loam	---
	30-42	Dark Gray//Yellowish Brown Silt Clay	---
15.16	0-38	Dark Grayish Brown Silt Loam	---
	38-53	Dark Gray//Yellowish Brown Silt Clay	---
15.17	0-27	Dark Grayish Brown Silt Loam	---
	27-40	Dark Gray//Yellowish Brown Silt Clay	---
16.1	0-26	Dark Grayish Brown Silt Loam	---
	26-36	Pale Brown//Brownish Yellow Silt Clay	---
16.2	0-28	Dark Grayish Brown Silt Loam	---
	28-38	Pale Brown//Brownish Yellow Silt Clay	---
16.3	0-26	Dark Grayish Brown Silt Loam	---
	26-36	Pale Brown//Brownish Yellow Silt Clay	---
16.4	0-26	Dark Grayish Brown Silt Loam	---
	26-38	Pale Brown//Brownish Yellow Silt Clay	---

Shovel Test No.	Depth (cm)	Soil Description	Artifact Summary
16.5	0-29	Dark Grayish Brown Silt Loam	---
	29-42	Yellowish Brown Silt Clay	---
16.6	0-30	Dark Grayish Brown Silt Loam	---
	30-40	Pale Brown//Brownish Yellow Silt Clay	---
16.7	0-28	Dark Grayish Brown Silt Loam	---
	28-40	Pale Brown//Brownish Yellow Silt Clay	---
16.8	0-30	Dark Grayish Brown Silt Loam	---
	30-40	Pale Brown//Brownish Yellow Silt Clay	---
16.9	0-23	Dark Grayish Brown Silt Loam	---
	23-38	Pale Brown//Brownish Yellow Silt Clay	---
16.10	0-28	Dark Grayish Brown Silt Loam	---
	28-42	Pale Brown//Brownish Yellow Silt Clay	---
16.11	0-32	Dark Grayish Brown Silt Loam	---
	32-42	Pale Brown//Brownish Yellow Silt Clay	---
16.12	0-27	Dark Grayish Brown Silt Loam	---
	27-37	Pale Brown//Brownish Yellow Silt Clay	---
16.13	0-29	Dark Grayish Brown Silt Loam	---
	29-39	Pale Brown//Brownish Yellow Silt Clay	---
16.14	0-27	Dark Grayish Brown Silt Loam	---
	27-38	Pale Brown//Brownish Yellow Silt Clay	---
16.15	0-26	Dark Grayish Brown Silt Loam	---
	26-40	Pale Brown//Brownish Yellow Silt Clay	---
16.16	0-32	Dark Grayish Brown Silt Loam	---
	32-43	Pale Brown//Brownish Yellow Silt Clay	---
16.17	0-33	Dark Grayish Brown Silt Loam	---
	33-43	Pale Brown//Brownish Yellow Silt Clay	---
17.1	0-30	Brown Silt Loam	---
	30-42	Yellowish Brown Silt Clay	---
17.2	0-35	Brown Silt Loam	---
	35-46	Yellowish Brown Silt Clay	---
17.3	0-33	Brown Silt Loam	---
	33-44	Yellowish Brown Silt Clay	---
17.4	0-35	Brown Silt Loam	---
	35-48	Yellowish Brown Silt Clay	---
17.5	0-36	Brown Silt Loam	---
	36-48	Yellowish Brown Silt Clay	---
17.6	0-30	Brown Silt Loam	---
	30-41	Yellowish Brown Silt Clay	---

Shovel Test No.	Depth (cm)	Soil Description	Artifact Summary
17.7	0-27	Brown Silt Loam	---
	27-40	Yellowish Brown Silt Clay	---
17.8	0-28	Brown Silt Loam	---
	28-41	Yellowish Brown Silt Clay	---
17.9	0-23	Brown Silt Loam	---
	23-40	Yellowish Brown Silt Clay	---
17.10	0-22	Brown Silt Loam	---
	22-36	Yellowish Brown Silt Clay	---
17.11	0-23	Brown Silt Loam	---
	23-35	Yellowish Brown Silt Clay	---
17.12	0-26	Brown Silt Loam	---
	26-39	Yellowish Brown Silt Clay	---
17.13	0-27	Brown Silt Loam	---
	27-38	Yellowish Brown Silt Clay	---
17.14	0-29	Brown Silt Loam	---
	29-42	Yellowish Brown Silt Clay	---
17.15	0-26	Brown Silt Loam	---
	26-39	Yellowish Brown Silt Clay	---
17.16	0-30	Brown Silt Loam	---
	30-41	Yellowish Brown Silt Clay	---
17.17	0-31	Brown Silt Loam	---
	31-43	Yellowish Brown Silt Clay	---
18.1	0-26	Dark Grayish Brown Silt Loam	---
	26-40	Gray//Yellowish Brown Silt Clay	---
18.2	0-28	Dark Grayish Brown Silt Loam	---
	28-42	Gray//Yellowish Brown Silt Clay	---
18.3	0-24	Dark Grayish Brown Silt Loam	---
	24-38	Gray//Yellowish Brown Silt Clay	---
18.4	0-28	Dark Grayish Brown Silt Loam	---
	28-42	Gray//Yellowish Brown Silt Clay	---
18.5	0-25	Dark Grayish Brown Silt Loam	---
	25-35	Gray//Yellowish Brown Silt Clay	---
18.6	0-22	Dark Grayish Brown Silt Loam	---
	22-36	Gray//Yellowish Brown Silt Clay	---
18.7	0-28	Dark Grayish Brown Silt Loam	---
	28-41	Gray//Yellowish Brown Silt Clay	---
18.8	0-18	Dark Grayish Brown Silt Loam	---
	18-32	Gray//Yellowish Brown Silt Clay	---

Shovel Test No.	Depth (cm)	Soil Description	Artifact Summary
18.9	0-21	Dark Grayish Brown Silt Loam	---
	21-34	Gray//Yellowish Brown Silt Clay	---
18.10	0-22	Dark Grayish Brown Silt Loam	---
	22-38	Gray//Yellowish Brown Silt Clay	---
18.11	0-20	Dark Grayish Brown Silt Loam	---
	20-34	Gray//Yellowish Brown Silt Clay	---
18.12	0-24	Dark Grayish Brown Silt Loam	---
	24-40	Gray//Yellowish Brown Silt Clay	---
18.13	0-29	Dark Grayish Brown Silt Loam	---
	29-40	Gray//Yellowish Brown Silt Clay	---
18.14	0-18	Dark Grayish Brown Silt Loam	---
	18-30	Gray//Yellowish Brown Silt Clay	---
18.15	0-21	Dark Grayish Brown Silt Loam	---
	21-35	Gray//Yellowish Brown Silt Clay	---
18.16	0-21	Dark Grayish Brown Silt Loam	---
	21-35	Gray//Yellowish Brown Silt Clay	---
18.17	0-20	Dark Grayish Brown Silt Loam	---
	20-33	Gray//Yellowish Brown Silt Clay	---
19.1	0-26	Grayish Brown Silt Clay Loam	---
	26-36	Pale Brown//Brownish Yellow Silt Clay	---
19.2	0-25	Grayish Brown Silt Clay Loam	---
	25-35	Pale Brown//Brownish Yellow Silt Clay	---
19.3	0-22	Grayish Brown Silt Clay Loam	---
	22-35	Gray Silt Clay	---
19.4	0-22	Grayish Brown Silt Clay Loam	---
	22-40	Gray Silt Clay	---
19.5	0-28	Grayish Brown Silt Clay Loam	---
	28-40	Gray Silt Clay	---
19.6	0-23	Grayish Brown Silt Clay Loam	---
	23-35	Gray Silt Clay	---
19.7	0-30	Grayish Brown Silt Clay Loam	---
	30-42	Pale Brown//Brownish Yellow Silt Clay	---
19.8	0-26	Grayish Brown Silt Clay Loam	---
	26-39	Pale Brown//Brownish Yellow Silt Clay	---
19.9	0-25	Grayish Brown Silt Clay Loam	---
	25-38	Pale Brown//Brownish Yellow Silt Clay	---
19.10	0-26	Grayish Brown Silt Clay Loam	---
	26-38	Pale Brown//Brownish Yellow Silt Clay	---

Shovel Test No.	Depth (cm)	Soil Description	Artifact Summary
19.11	0-21	Grayish Brown Silt Clay Loam	---
	21-35	Pale Brown//Brownish Yellow Silt Clay	---
19.12	0-25	Grayish Brown Silt Clay Loam	---
	25-37	Pale Brown//Brownish Yellow Silt Clay	---
19.13	0-17	Grayish Brown Silt Clay Loam	---
	17-34	Pale Brown//Brownish Yellow Silt Clay	---
19.14	0-23	Grayish Brown Silt Clay Loam	---
	23-35	Pale Brown//Brownish Yellow Silt Clay	---
19.15	0-21	Grayish Brown Silt Clay Loam	---
	21-35	Pale Brown//Brownish Yellow Silt Clay	---
19.16	0-23	Grayish Brown Silt Clay Loam	---
	23-33	Pale Brown//Brownish Yellow Silt Clay	---
19.17	0-29	Grayish Brown Silt Clay Loam	---
	29-40	Pale Brown//Brownish Yellow Silt Clay	---
20.1	0-21	Dark Grayish Brown Silt Clay Loam	---
	21-34	Grayish Brown//Yellowish Brown Silt Clay	---
20.2	0-23	Dark Grayish Brown Silt Clay Loam	---
	23-35	Grayish Brown//Yellowish Brown Silt Clay	---
20.3	0-30	Dark Grayish Brown Silt Clay Loam	---
	30-40	Grayish Brown//Yellowish Brown Silt Clay	---
20.4	0-28	Dark Grayish Brown Silt Clay Loam	---
	28-42	Grayish Brown//Yellowish Brown Silt Clay	---
20.5	0-27	Dark Grayish Brown Silt Clay Loam	---
	27-40	Grayish Brown//Yellowish Brown Silt Clay	---
20.6	0-25	Dark Grayish Brown Silt Clay Loam	---
	25-36	Grayish Brown//Yellowish Brown Silt Clay	---
20.7	0-26	Dark Grayish Brown Silt Clay Loam	---
	26-40	Grayish Brown//Yellowish Brown Silt Clay	---
20.8	0-33	Dark Grayish Brown Silt Clay Loam	---
	33-45	Grayish Brown//Yellowish Brown Silt Clay	---
20.9	0-20	Dark Grayish Brown Silt Clay Loam	---
	20-40	Grayish Brown//Yellowish Brown Silt Clay	---
20.10	0-26	Dark Grayish Brown Silt Clay Loam	---
	26-38	Grayish Brown//Yellowish Brown Silt Clay	---
20.11	0-31	Dark Grayish Brown Silt Clay Loam	---
	31-43	Grayish Brown//Yellowish Brown Silt Clay	---
20.12	0-27	Dark Grayish Brown Silt Clay Loam	---
	27-39	Grayish Brown//Yellowish Brown Silt Clay	---

Shovel Test No.	Depth (cm)	Soil Description	Artifact Summary
20.13	0-29	Dark Grayish Brown Silt Clay Loam	---
	29-40	Grayish Brown//Yellowish Brown Silt Clay	---
20.14	0-30	Dark Grayish Brown Silt Clay Loam	---
	30-40	Grayish Brown//Yellowish Brown Silt Clay	---
20.15	0-28	Dark Grayish Brown Silt Clay Loam	---
	28-40	Grayish Brown//Yellowish Brown Silt Clay	---
20.16	0-30	Dark Grayish Brown Silt Clay Loam	---
	30-50	Grayish Brown//Yellowish Brown Silt Clay	---
20.17	0-10	Dark Grayish Brown Silt Clay Loam	---
	10-32	Grayish Brown//Yellowish Brown Silt Clay	---
21.1	0-30	Brown Silt Loam	---
	30-41	Yellowish Brown Clay Loam	---
21.2	0-36	Brown Silt Loam	---
	36-48	Yellowish Brown Clay Loam	---
21.3	0-31	Brown Silt Loam	---
	31-42	Yellowish Brown Clay Loam	---
21.4	0-35	Brown Silt Loam	---
	35-49	Yellowish Brown Clay Loam	---
21.5	0-27	Brown Silt Loam	---
	27-39	Yellowish Brown Clay Loam	---
21.6	0-28	Brown Silt Loam	---
	28-42	Pale Brown//Yellowish Brown Clay Loam	---
21.7	0-27	Dark Grayish Brown Silt Loam	---
	27-40	Brown//Yellowish Brown Clay Loam	---
21.8	0-29	Brown Silt Loam	---
	29-43	Yellowish Brown Clay Loam	---
21.9	0-32	Brown Silt Loam	---
	32-43	Yellowish Brown Clay Loam	---
21.10	0-24	Brown Silt Loam	---
	24-36	Yellowish Brown Clay Loam	---
21.11	0-30	Brown Silt Loam	---
	30-40	Yellowish Brown Clay Loam	---
21.12	0-36	Brown Silt Loam	---
	36-48	Yellowish Brown Clay Loam	---
21.13	0-30	Brown Silt Loam	---
	30-40	Yellowish Brown Clay Loam	---
21.14	0-31	Brown Silt Loam	---
	31-42	Yellowish Brown Clay Loam	---

Shovel Test No.	Depth (cm)	Soil Description	Artifact Summary
21.15	0-23	Brown Silt Loam	---
	23-35	Yellowish Brown Clay Loam	---
21.16	0-26	Brown Silt Loam	---
	26-38	Yellowish Brown Clay Loam	---
21.17	0-28	Brown Silt Loam	---
	28-42	Pale Brown/Yellowish Brown Clay Loam	---
22.1	0-28	Dark Grayish Brown Silt Loam	---
	28-40	Yellowish Brown Silt Clay	---
22.2	0-26	Dark Grayish Brown Silt Loam	---
	26-38	Yellowish Brown Silt Clay	---
22.3	0-31	Dark Grayish Brown Silt Loam	---
	31-41	Yellowish Brown Silt Clay	---
22.4	0-28	Dark Grayish Brown Silt Loam	---
	28-38	Yellowish Brown Silt Clay	---
22.5	0-29	Dark Grayish Brown Silt Loam	---
	29-40	Yellowish Brown Silt Clay	---
22.6	0-27	Dark Grayish Brown Silt Clay	---
	27-38	Yellowish Brown Silt Clay	---
22.7	0-27	Dark Grayish Brown Silt Clay	---
	27-37	Yellowish Brown Silt Clay	---
22.8	0-28	Dark Grayish Brown Silt Clay	---
	28-38	Yellowish Brown Silt Clay	---
22.9	0-26	Dark Grayish Brown Silt Clay	---
	26-38	Yellowish Brown Silt Clay	---
22.10	0-28	Dark Grayish Brown Silt Clay	---
	28-39	Yellowish Brown Silt Clay	---
22.11	0-30	Dark Grayish Brown Silt Clay	---
	30-43	Yellowish Brown Silt Clay	---
22.12	0-29	Dark Grayish Brown Silt Clay	---
	29-41	Yellowish Brown Silt Clay	---
22.13	0-30	Dark Grayish Brown Silt Clay	---
	30-42	Yellowish Brown Silt Clay	---
22.14	0-27	Dark Grayish Brown Silt Clay	---
	27-40	Yellowish Brown Silt Clay	---
22.15	0-30	Dark Grayish Brown Silt Clay	---
	30-45	Yellowish Brown Silt Clay	---
22.16	0-28	Dark Grayish Brown Silt Clay	---
	28-40	Yellowish Brown Silt Clay	---

Shovel Test No.	Depth (cm)	Soil Description	Artifact Summary
22.17	0-31	Dark Grayish Brown Silt Clay	---
	31-41	Yellowish Brown Silt Clay	---
23.1	0-27	Light Brownish Gray Silt Clay	---
	27-42	Yellowish Brown Clay Loam	---
23.2	0-25	Dark Grayish Brown Silt Clay	---
	25-38	Yellowish Brown Clay Loam	---
23.3	0-24	Dark Grayish Brown Silt Clay	---
	24-35	Yellowish Brown Clay Loam	---
23.4	0-24	Dark Grayish Brown Silt Clay	---
	24-40	Yellowish Brown Clay Loam	---
23.5	0-28	Dark Grayish Brown Silt Clay	---
	28-40	Yellowish Brown Clay Loam	---
23.6	0-25	Dark Grayish Brown Silt Clay	---
	25-37	Yellowish Brown Clay Loam	---
23.7	0-30	Dark Grayish Brown Silt Clay	---
	30-42	Yellowish Brown Clay Loam	---
23.8	0-32	Dark Grayish Brown Silt Clay	---
	32-48	Yellowish Brown Clay Loam	---
23.9	0-27	Dark Grayish Brown Silt Clay	---
	27-40	Yellowish Brown Silt Clay	---
23.10	0-29	Dark Grayish Brown Silt Clay	---
	29-43	Yellowish Brown Clay Loam	---
23.11	0-32	Dark Grayish Brown Silt Clay	---
	32-44	Yellowish Brown Clay Loam	---
23.12	0-38	Dark Grayish Brown Silt Clay	---
	38-50	Yellowish Brown Clay Loam	---
23.13	0-30	Dark Grayish Brown Silt Clay	---
	30-40	Yellowish Brown Clay Loam	---
23.14	0-32	Dark Grayish Brown Silt Clay	---
	32-45	Yellowish Brown Clay Loam	---
23.15	0-34	Dark Grayish Brown Silt Clay	---
	34-46	Yellowish Brown Clay Loam	---
23.16	0-30	Dark Grayish Brown Silt Clay	---
	30-40	Yellowish Brown Clay Loam	---
23.17	0-27	Dark Grayish Brown Silt Clay	---
	27-40	Yellowish Brown Clay Loam	---
24.1	0-28	Dark Grayish Brown Silt Clay	---
	28-40	Light Brown Gray//Yellowish Brown Silt Clay	---

Shovel Test No.	Depth (cm)	Soil Description	Artifact Summary
24.2	0-29	Dark Grayish Brown Silt Clay	---
	29-40	Light Brown Gray/Yellowish Brown Silt Clay	---
24.3	0-24	Dark Grayish Brown Silt Clay	---
	24-36	Light Brown Gray//Yellowish Brown Silt Clay	---
24.4	0-30	Dark Grayish Brown Silt Clay	---
	30-40	Light Brown Gray/Yellowish Brown Silt Clay	---
24.5	0-31	Dark Grayish Brown Silt Clay	---
	31-45	Light Brown Gray//Yellowish Brown Silt Clay	---
24.6	0-30	Dark Grayish Brown Silt Clay	---
	30-40	Light Brown Gray//Yellowish Brown Silt Clay	---
24.7	0-30	Dark Grayish Brown Silt Clay	---
	30-42	Light Brown Gray//Yellowish Brown Silt Clay	---
24.8	0-26	Dark Grayish Brown Silt Clay	---
	26-38	Light Brown Gray//Yellowish Brown Silt Clay	---
24.9	0-23	Dark Grayish Brown Silt Clay	---
	23-36	Light Brown Gray//Yellowish Brown Silt Clay	---
24.10	0-21	Dark Grayish Brown Silt Clay	---
	21-36	Light Brown Gray//Yellowish Brown Silt Clay	---
24.11	0-25	Dark Grayish Brown Silt Clay	---
	25-38	Light Brown Gray//Yellowish Brown Silt Clay	---
24.12	0-26	Dark Grayish Brown Silt Clay	---
	26-38	Light Brown Gray//Yellowish Brown Silt Clay	---
24.13	0-25	Dark Grayish Brown Silt Clay	---
	25-36	Light Brown Gray//Yellowish Brown Silt Clay	---
24.14	0-19	Dark Grayish Brown Silt Clay	---
	19-34	Light Brown Gray//Yellowish Brown Silt Clay	---
24.15	0-23	Dark Grayish Brown Silt Clay	---
	23-34	Light Brown Gray//Yellowish Brown Silt Clay	---
24.16	0-28	Dark Grayish Brown Silt Clay	---
	28-38	Light Brown Gray//Yellowish Brown Silt Clay	---
24.17	0-21	Dark Grayish Brown Silt Clay	---
	21-35	Light Brown Gray//Yellowish Brown Silt Clay	---
25.1	0-18	Dark Grayish Brown Silt Clay	---
	18-31	Gray//Yellowish Brown Clay Loam	---
25.2	0-19	Dark Grayish Brown Silt Clay	---
	19-37	Gray//Yellowish Brown Clay Loam	---
25.3	0-23	Dark Grayish Brown Silt Clay	---
	23-36	Gray//Yellowish Brown Clay Loam	---

Shovel Test No.	Depth (cm)	Soil Description	Artifact Summary
25.4	0-22	Dark Grayish Brown Silt Clay	---
	22-34	Gray//Brownish Yellow Clay Loam	---
25.5	0-24	Dark Grayish Brown Silt Clay	---
	24-38	Gray//Brownish Yellow Clay Loam	---
25.6	0-27	Dark Grayish Brown Silt Clay	---
	27-40	Gray//Brownish Yellow Clay Loam	---
25.7	0-25	Dark Grayish Brown Silt Clay	---
	25-38	Gray//Brownish Yellow Clay Loam	---
25.8	0-21	Dark Grayish Brown Silt Clay	---
	21-35	Gray//Brownish Yellow Clay Loam	---
25.9	0-18	Dark Grayish Brown Silt Clay	---
	18-36	Gray//Brownish Yellow Clay Loam	---
25.10	0-20	Dark Grayish Brown Silt Clay	---
	20-35	Gray//Brownish Yellow Clay Loam	---
25.11	0-23	Dark Grayish Brown Silt Clay	---
	23-35	Gray//Brownish Yellow Clay Loam	---
25.12	0-23	Dark Grayish Brown Silt Clay	---
	23-39	Gray//Brownish Yellow Clay Loam	---
25.13	0-27	Dark Grayish Brown Silt Clay	---
	27-40	Gray//Brownish Yellow Clay Loam	---
25.14	0-22	Dark Grayish Brown Silt Clay	---
	22-35	Gray//Yellowish Brown Clay Loam	---
25.15	0-19	Dark Grayish Brown Silt Clay	---
	19-34	Gray//Brownish Yellow Clay Loam	---
25.16	0-21	Dark Grayish Brown Silt Clay	---
	21-34	Gray//Brownish Yellow Clay Loam	---
25.17	0-26	Dark Grayish Brown Silt Clay	---
	26-39	Gray//Brownish Yellow Clay Loam	---
26.1	0-34	Dark Grayish Brown Silt Loam	---
	34-45	Gray//Brownish Yellow Clay Loam	---
26.2	0-38	Dark Grayish Brown Silt Loam	---
	38-50	Gray//Brownish Yellow Clay Loam	---
26.3	0-35	Dark Grayish Brown Silt Loam	---
	35-45	Gray//Brownish Yellow Clay Loam	---
26.4	0-32	Dark Grayish Brown Silt Loam	---
	32-42	Gray//Brownish Yellow Clay Loam	---
26.5	0-28	Dark Grayish Brown Silt Loam	---
	28-40	Gray//Brownish Yellow Clay Loam	---

Shovel Test No.	Depth (cm)	Soil Description	Artifact Summary
26.6	0-31	Dark Grayish Brown Silt Loam	---
	31-42	Gray//Brownish Yellow Clay Loam	---
26.7	0-30	Dark Grayish Brown Silt Loam	---
	30-42	Gray//Brownish Yellow Clay Loam	---
26.8	0-20	Dark Grayish Brown Silt Loam	---
	20-40	Gray//Brownish Yellow Clay Loam	---
26.9	0-31	Dark Grayish Brown Silt Loam	---
	31-42	Gray//Brownish Yellow Clay Loam	---
26.10	0-36	Dark Grayish Brown Silt Loam	---
	36-46	Gray//Brownish Yellow Clay Loam	---
26.11	0-12	Dark Grayish Brown Silt Loam	---
	12-35	Gray//Brownish Yellow Clay Loam	---
26.12	0-32	Dark Grayish Brown Silt Loam	---
	32-43	Gray//Brownish Yellow Clay Loam	---
26.13	0-35	Dark Grayish Brown Silt Loam	---
	35-47	Gray//Brownish Yellow Clay Loam	---
26.14	0-25	Dark Grayish Brown Silt Loam	---
	25-37	Gray//Brownish Yellow Clay Loam	---
26.15	0-34	Dark Grayish Brown Silt Loam	---
	34-47	Gray//Brownish Yellow Clay Loam	---
26.16	0-38	Dark Grayish Brown Silt Loam	---
	38-50	Gray//Brownish Yellow Clay Loam	---
26.17	0-12	Dark Grayish Brown Silt Loam	---
	12-30	Gray//Brownish Yellow Clay Loam	---
27.1	0-25	Grayish Brown Silt Loam	---
	25-37	Light Brown Gray//Brownish Yellow Silt Clay	---
27.2	0-31	Grayish Brown Silt Loam	---
	31-42	Light Brown Gray//Brownish Yellow Silt Clay	---
27.3	0-26	Grayish Brown Silt Loam	---
	26-40	Light Brown Gray//Brownish Yellow Silt Clay	---
27.4	0-28	Grayish Brown Silt Loam	---
	28-40	Light Brown Gray//Brownish Yellow Silt Clay	---
27.5	0-28	Grayish Brown Silt Loam	---
	28-40	Light Brown Gray//Brownish Yellow Silt Clay	---
27.6	0-26	Grayish Brown Silt Loam	---
	26-36	Light Brown Gray//Brownish Yellow Silt Clay	---
27.7	0-26	Grayish Brown Silt Loam	---
	26-37	Light Brown Gray//Brownish Yellow Silt Clay	---

Shovel Test No.	Depth (cm)	Soil Description	Artifact Summary
27.8	0-25	Grayish Brown Silt Loam	---
	25-35	Light Brown Gray//Brownish Yellow Silt Clay	---
27.9	0-25	Grayish Brown Silt Loam	---
	25-38	Light Brown Gray//Brownish Yellow Silt Clay	---
27.10	0-17	Grayish Brown Silt Loam	---
	17-29	Light Brown Gray//Brownish Yellow Silt Clay	---
27.11	0-24	Grayish Brown Silt Loam	---
	24-38	Light Brown Gray//Brownish Yellow Silt Clay	---
27.12	0-29	Grayish Brown Silt Loam	---
	29-40	Light Brown Gray//Brownish Yellow Silt Clay	---
27.13	0-28	Grayish Brown Silt Loam	---
	28-40	Yellowish Brown Silt Clay	---
27.14	0-26	Grayish Brown Silt Loam	---
	26-37	Yellowish Brown Silt Clay	---
27.15	0-22	Grayish Brown Silt Loam	---
	22-38	Pale Brown//Brownish Yellow Silt Clay	---
27.16	0-21	Grayish Brown Silt Loam	---
	21-31	Pale Brown//Brownish Yellow Silt Clay	---
27.17		Not Excavated – Standing Water	---
28.1	0-31	Dark Grayish Brown Silt Loam	---
	31-42	Grayish Brown//Yellowish Brown Silt Clay	---
28.2	0-27	Dark Grayish Brown Silt Loam	---
	27-37	Grayish Brown//Yellowish Brown Silt Clay	---
28.3	0-25	Dark Grayish Brown Silt Loam	---
	25-36	Grayish Brown//Yellowish Brown Silt Clay	---
28.4	0-22	Dark Grayish Brown Silt Loam	---
	22-34	Grayish Brown//Yellowish Brown Silt Clay	---
28.5	0-30	Dark Grayish Brown Silt Loam	---
	30-42	Grayish Brown//Yellowish Brown Silt Clay	---
28.6	0-31	Dark Grayish Brown Silt Loam	---
	31-42	Grayish Brown//Yellowish Brown Silt Clay	---
28.7	0-30	Dark Grayish Brown Silt Loam	---
	30-41	Grayish Brown//Yellowish Brown Silt Clay	---
28.8	0-14	Dark Grayish Brown Silt Loam	---
	14-40	Grayish Brown//Yellowish Brown Silt Clay	---
28.9	0-28	Dark Grayish Brown Silt Loam	---
	28-40	Grayish Brown//Yellowish Brown Silt Clay	---

Shovel Test No.	Depth (cm)	Soil Description	Artifact Summary
28.10	0-30	Dark Grayish Brown Silt Loam	---
	30-40	Grayish Brown//Yellowish Brown Silt Clay	---
28.11	0-25	Dark Grayish Brown Silt Loam	---
	25-40	Grayish Brown//Yellowish Brown Silt Clay	---
28.12	0-28	Dark Grayish Brown Silt Loam	---
	28-40	Grayish Brown//Yellowish Brown Silt Clay	---
28.13	0-28	Dark Grayish Brown Silt Loam	---
	28-40	Grayish Brown//Yellowish Brown Silt Clay	---
28.14	0-21	Dark Grayish Brown Silt Loam	---
	21-40	Grayish Brown//Yellowish Brown Silt Clay	---
28.15	0-25	Dark Grayish Brown Silt Loam	---
	25-36	Grayish Brown//Yellowish Brown Silt Clay	---
28.16	0-28	Dark Grayish Brown Silt Loam	---
	28-40	Grayish Brown//Yellowish Brown Silt Clay	---
28.17		Not Excavated – Standing Water	---
29.1	0-25	Dark Grayish Brown Silt Loam	---
	25-40	Grayish Brown//Yellowish Brown Silt Clay	---
29.2	0-28	Dark Grayish Brown Silt Loam	---
	28-38	Grayish Brown//Yellowish Brown Silt Clay	---
29.3	0-30	Dark Grayish Brown Silt Loam	---
	30-42	Grayish Brown//Yellowish Brown Silt Clay	---
29.4	0-26	Dark Grayish Brown Silt Loam	---
	26-40	Grayish Brown//Yellowish Brown Silt Clay	---
29.5	0-28	Dark Grayish Brown Silt Loam	---
	28-40	Grayish Brown//Yellowish Brown Silt Clay	---
29.6	0-31	Dark Grayish Brown Silt Loam	---
	31-42	Grayish Brown//Yellowish Brown Silt Clay	---
29.7	0-28	Dark Grayish Brown Silt Loam	---
	28-40	Grayish Brown//Yellowish Brown Silt Clay	---
29.8	0-25	Dark Grayish Brown Silt Loam	---
	25-38	Grayish Brown//Yellowish Brown Silt Clay	---
29.9	0-30	Dark Grayish Brown Silt Loam	---
	30-42	Grayish Brown//Yellowish Brown Silt Clay	---
29.10	0-25	Dark Grayish Brown Silt Loam	---
	25-45	Grayish Brown//Yellowish Brown Silt Clay	---
29.11	0-23	Dark Grayish Brown Silt Loam	---
	23-40	Grayish Brown//Yellowish Brown Silt Clay	---

Shovel Test No.	Depth (cm)	Soil Description	Artifact Summary
29.12	0-30	Dark Grayish Brown Silt Loam	---
	30-42	Grayish Brown//Yellowish Brown Silt Clay	---
29.13	0-25	Dark Grayish Brown Silt Loam	---
	25-36	Grayish Brown//Yellowish Brown Silt Clay	---
29.14	0-29	Dark Grayish Brown Silt Loam	---
	29-40	Grayish Brown//Yellowish Brown Silt Clay	---
29.15	0-27	Dark Grayish Brown Silt Loam	---
	27-40	Grayish Brown//Yellowish Brown Silt Clay	---
29.16		Not Excavated – Standing Water	
29.17		Not Excavated – Standing Water	
30.1	0-25	Dark Grayish Brown Silt Loam	---
	25-40	Yellowish Brown Silt Clay	---
30.2	0-29	Dark Grayish Brown Silt Loam	---
	29-43	Gray//Yellowish Brown Silt Clay	---
30.3	0-27	Dark Grayish Brown Silt Loam	---
	27-39	Gray//Yellowish Brown Silt Clay	---
30.4	0-30	Dark Grayish Brown Silt Loam	---
	30-42	Gray//Yellowish Brown Silt Clay	---
30.5	0-32	Dark Grayish Brown Silt Loam	---
	32-42	Grayish Brown//Yellowish Brown Silt Clay	---
30.6	0-29	Dark Grayish Brown Silt Loam	---
	29-41	Grayish Brown//Yellowish Brown Silt Clay	---
30.7	0-32	Dark Grayish Brown Silt Loam	---
	32-42	Grayish Brown//Yellowish Brown Silt Clay	---
30.8	0-32	Very Dark Gray Silt Loam	---
	32-42	Gray//Yellowish Brown Silt Clay	---
30.9	0-32	Dark Grayish Brown Silt Loam	---
	32-42	Gray//Yellowish Brown Silt Clay	---
30.10	0-30	Dark Grayish Brown Silt Loam	---
	30-43	Gray//Yellowish Brown Silt Clay	---
30.11	0-29	Dark Grayish Brown Silt Loam	---
	29-41	Gray//Yellowish Brown Silt Clay	---
30.12	0-20	Dark Grayish Brown Silt Loam	---
	20-40	Gray//Yellowish Brown Silt Clay	---
30.13	0-28	Dark Grayish Brown Silt Loam	---
	28-38	Gray//Yellowish Brown Silt Clay	---
30.14	0-26	Dark Grayish Brown Silt Loam	---
	26-38	Gray//Yellowish Brown Silt Clay	---

Shovel Test No.	Depth (cm)	Soil Description	Artifact Summary
30.15	0-28	Dark Grayish Brown Silt Loam	---
	28-38	Gray//Yellowish Brown Silt Clay	---
30.16	0-22	Dark Grayish Brown Silt Loam	---
	22-36	Gray//Yellowish Brown Silt Clay	---
30.17	0-26	Dark Grayish Brown Silt Loam	---
	26-40	Gray//Yellowish Brown Silt Clay	---
31.1	0-23	Brown Silt Loam	---
	23-45	Yellowish Brown Clay Loam	---
31.2	0-35	Brown Silt Loam	---
	35-46	Yellowish Brown Clay Loam	---
31.3	0-33	Brown Silt Loam	---
	33-44	Yellowish Brown Clay Loam	---
31.4	0-27	Brown Silt Loam	---
	27-39	Yellowish Brown Clay Loam	---
31.5	0-31	Brown Silt Loam	---
	31-41	Yellowish Brown Clay Loam	---
31.6	0-23	Brown Silt Loam	---
	23-35	Yellowish Brown Clay Loam	---
31.7	0-30	Brown Silt Loam	---
	30-40	Yellowish Brown Clay Loam	---
31.8	0-35	Dark Grayish Brown Silt Loam	---
	35-46	Yellowish Brown Clay Loam	---
31.9	0-30	Dark Grayish Brown Silt Loam	---
	30-45	Yellowish Brown Clay Loam	---
31.10	0-35	Dark Grayish Brown Silt Loam	clear bottle glass; soda cans; plastic; plastic bottles; modern debris
	35-46	Yellowish Brown Clay Loam	---
31.11	0-22	Brown Silt Loam	brick; clear bottle glass
	22-35	Yellowish Brown Clay Loam	---
31.12	0-23	Dark Grayish Brown Silt Loam	brick; mortar
	23-33	Yellowish Brown Clay Loam	---
31.13	0-37	Dark Grayish Brown Sand Loam	mortar; coal
	37-49	Yellowish Brown Sand Clay	---
31.14	0-35	Brown Silt Loam	mortar
	35-45	Yellowish Brown Clay Loam	---
31.15	0-30	Brown Silt Loam	---
	30-43	Yellowish Brown Clay Loam	---
31.16		Not Excavated – Standing Water	

Shovel Test No.	Depth (cm)	Soil Description	Artifact Summary
31.17		Not Excavated – Standing Water	
32.1	0-36	Dark Grayish Brown Silt Loam	---
	36-46	Grayish Brown//Yellowish Brown Silt Clay	---
32.2	0-28	Dark Grayish Brown Silt Loam	---
	28-40	Grayish Brown//Yellowish Brown Silt Clay	---
32.3	0-28	Dark Grayish Brown Silt Loam	---
	28-39	Grayish Brown//Yellowish Brown Silt Clay	---
32.4	0-29	Dark Grayish Brown Silt Loam	---
	29-40	Grayish Brown//Yellowish Brown Silt Clay	---
32.5	0-24	Dark Grayish Brown Silt Loam	---
	24-36	Grayish Brown//Yellowish Brown Silt Clay	---
32.6	0-25	Dark Grayish Brown Silt Loam	---
	25-40	Grayish Brown//Yellowish Brown Silt Clay	---
32.7	0-30	Dark Grayish Brown Silt Loam	---
	30-42	Grayish Brown//Yellowish Brown Silt Clay	---
32.8	0-26	Dark Grayish Brown Silt Loam	---
	26-38	Grayish Brown//Yellowish Brown Silt Clay	---
32.9	0-24	Dark Grayish Brown Silt Loam	---
	24-40	Grayish Brown//Yellowish Brown Silt Clay	---
32.10	0-22	Dark Grayish Brown Silt Loam	---
	22-38	Grayish Brown//Yellowish Brown Silt Clay	---
32.11	0-26	Dark Grayish Brown Silt Loam	Redware, unglazed
	26-37	Grayish Brown//Yellowish Brown Silt Clay	---
32.12	0-34	Dark Grayish Brown Silt Loam	slag, mortar
	34-46	Grayish Brown//Yellowish Brown Silt Clay	---
32.13	0-26	Dark Grayish Brown Silt Loam	---
	26-38	Grayish Brown//Yellowish Brown Silt Clay	---
32.14	0-22	Dark Grayish Brown Silt Loam	---
	22-34	Grayish Brown//Yellowish Brown Silt Clay	---
32.15	0-28	Dark Grayish Brown Silt Loam	---
	28-40	Yellowish Brown Silt Clay	---
32.16		Not Excavated – Standing Water	
32.17		Not Excavated – Standing Water	
33.1	0-29	Dark Grayish Brown Silt Clay Loam	---
	29-39	Light Brown Gray//Brownish Yellow Silt Clay	---
33.2	0-27	Dark Grayish Brown Silt Clay Loam	---
	27-39	Light Brown Gray//Brownish Yellow Silt Clay	---

Shovel Test No.	Depth (cm)	Soil Description	Artifact Summary
33.3	0-26	Dark Grayish Brown Silt Clay Loam	---
	26-38	Light Brown Gray//Brownish Yellow Silt Clay	---
33.4	0-28	Dark Grayish Brown Silt Clay Loam	---
	28-39	Light Brown Gray//Brownish Yellow Silt Clay	---
33.5	0-26	Dark Grayish Brown Silt Clay Loam	---
	26-38	Light Brown Gray//Brownish Yellow Silt Clay	---
33.6	0-25	Dark Grayish Brown Silt Clay Loam	---
	25-37	Light Brown Gray//Brownish Yellow Silt Clay	---
33.7	0-27	Dark Grayish Brown Silt Clay Loam	---
	27-40	Light Brown Gray//Brownish Yellow Silt Clay	---
33.8	0-26	Dark Grayish Brown Silt Clay Loam	---
	26-38	Light Brown Gray//Brownish Yellow Silt Clay	---
33.9	0-28	Dark Grayish Brown Silt Clay Loam	---
	28-40	Light Brown Gray//Brownish Yellow Silt Clay	---
33.10	0-34	Very Dark Grayish Brown Silt Clay Loam	---
	34-45	Light Brown Gray//Brownish Yellow Silt Clay	---
33.11	0-29	Very Dark Grayish Brown Silt Clay Loam	---
	29-43	Light Brown Gray//Brownish Yellow Silt Clay	---
33.12	0-27	Very Dark Grayish Brown Silt Clay Loam	---
	27-39	Light Brown Gray//Brownish Yellow Silt Clay	---
33.13	0-23	Very Dark Grayish Brown Silt Clay Loam	---
	23-36	Light Brown Gray//Brownish Yellow Silt Clay	---
33.14	0-23	Grayish Brown Silt Clay Loam	---
	23-43	Light Brown Gray//Brownish Yellow Silt Clay	---
33.15	0-32	Grayish Brown Silt Clay Loam	---
	32-43	Light Brown Gray//Brownish Yellow Silt Clay	---
33.16	0-30	Very Dark Grayish Brown Silt Clay Loam	---
	30-42	Light Brown Gray//Brownish Yellow Silt Clay	---
33.17	0-32	Grayish Brown Silt Clay Loam	---
	32-45	Yellowish Brown Silt Clay	---
34.1	0-25	Grayish Brown Silt Clay Loam	---
	25-38	Light Brown Gray//Brownish Yellow Silt Clay	---
34.2	0-26	Grayish Brown Silt Clay Loam	---
	26-37	Light Brown Gray//Brownish Yellow Silt Clay	---
34.3	0-27	Grayish Brown Silt Clay Loam	---
	27-37	Light Brown Gray//Brownish Yellow Silt Clay	---
34.4	0-26	Grayish Brown Silt Clay Loam	---
	26-38	Light Brown Gray//Brownish Yellow Silt Clay	---

Shovel Test No.	Depth (cm)	Soil Description	Artifact Summary
34.5	0-25	Grayish Brown Silt Clay Loam	---
	25-38	Light Brown Gray//Brownish Yellow Silt Clay	---
34.6	0-25	Grayish Brown Silt Clay Loam	---
	25-36	Light Brown Gray//Brownish Yellow Silt Clay	---
34.7	0-26	Grayish Brown Silt Clay Loam	---
	26-36	Light Brown Gray//Brownish Yellow Silt Clay	---
34.8	0-27	Grayish Brown Silt Clay Loam	---
	27-37	Light Brown Gray//Brownish Yellow Silt Clay	---
34.9	0-26	Grayish Brown Silt Clay Loam	---
	26-41	Light Brown Gray//Brownish Yellow Silt Clay	---
34.10	0-27	Grayish Brown Silt Clay Loam	---
	27-39	Light Brown Gray//Brownish Yellow Silt Clay	---
34.11	0-24	Grayish Brown Silt Clay Loam	---
	24-37	Light Brown Gray//Brownish Yellow Silt Clay	---
34.12	0-24	Grayish Brown Silt Clay Loam	---
	24-36	Light Brown Gray//Brownish Yellow Silt Clay	---
34.13	0-25	Grayish Brown Silt Clay Loam	---
	25-35	Light Brown Gray//Brownish Yellow Silt Clay	---
34.14	0-24	Grayish Brown Silt Clay Loam	---
	24-36	Light Brown Gray//Brownish Yellow Silt Clay	---
34.15	0-22	Grayish Brown Silt Clay Loam	---
	22-40	Light Brown Gray//Brownish Yellow Silt Clay	---
35.1	0-20	Grayish Brown Silt Clay Loam	---
	20-35	Light Brown Gray//Brownish Yellow Silt Clay	---
35.2	0-22	Grayish Brown Silt Clay Loam	---
	22-38	Light Brown Gray//Brownish Yellow Silt Clay	---
35.3	0-26	Grayish Brown Silt Clay Loam	---
	26-36	Light Brown Gray//Brownish Yellow Silt Clay	---
35.4	0-23	Grayish Brown Silt Clay Loam	---
	23-36	Light Brown Gray//Brownish Yellow Silt Clay	---
35.5	0-24	Grayish Brown Silt Clay Loam	---
	24-35	Light Brown Gray//Brownish Yellow Silt Clay	---
35.6	0-25	Grayish Brown Silt Clay Loam	---
	25-36	Light Brown Gray//Brownish Yellow Silt Clay	---
35.7	0-22	Grayish Brown Silt Clay Loam	---
	22-38	Light Brown Gray//Brownish Yellow Silt Clay	---
35.8	0-20	Grayish Brown Silt Clay Loam	---
	20-32	Light Brown Gray//Brownish Yellow Silt Clay	---

Shovel Test No.	Depth (cm)	Soil Description	Artifact Summary
35.9	0-26	Grayish Brown Silt Clay Loam	---
	26-36	Light Brown Gray//Brownish Yellow Silt Clay	---
35.10	0-26	Grayish Brown Silt Clay Loam	---
	26-38	Light Brown Gray//Brownish Yellow Silt Clay	---
35.11	0-24	Grayish Brown Silt Clay Loam	---
	24-35	Light Brown Gray//Brownish Yellow Silt Clay	---
36.1	0-36	Brown Silt Loam	---
	36-50	Yellowish Brown Clay Loam	---
36.2	0-23	Brown Silt Loam	---
	23-35	Yellowish Brown Clay Loam	---
36.3	0-20	Brown Silt Loam	---
	20-43	Yellowish Brown Clay Loam	---
36.4	0-26	Brown Silt Loam	clear bottle glass
	26-38	Yellowish Brown Clay Loam	---
36.5	0-28	Brown Silt Loam	---
	28-40	Yellowish Brown Clay Loam	---
36.6	0-35	Brown Silt Loam	---
	35-46	Yellowish Brown Clay Loam	---
36.7	0-22	Grayish Brown Silt Loam	---
	22-35	Light Brownish Gray//Brown Yellow Silt Clay	---
36.8	0-24	Grayish Brown Silt Loam	---
	24-38	Light Brownish Gray//Brown Yellow Silt Clay	---
36.9	0-24	Grayish Brown Silt Loam	---
	24-36	Light Brownish Gray//Brown Yellow Silt Clay	---
37.1	0-25	Dark Grayish Brown Silt Loam	---
	25-35	Gray//Yellowish Brown Silt Clay	---
37.2	0-21	Dark Grayish Brown Silt Loam	---
	21-36	Gray//Yellowish Brown Silt Clay	---
37.3	0-26	Dark Grayish Brown Silt Loam	---
	26-37	Gray//Yellowish Brown Silt Clay	---
37.4	0-19	Dark Grayish Brown Silt Loam	---
	19-34	Gray//Yellowish Brown Silt Clay	---
37.5	0-25	Dark Grayish Brown Silt Loam	---
	25-38	Gray//Yellowish Brown Silt Clay	---
37.6	0-21	Dark Grayish Brown Silt Loam	---
	21-33	Gray//Yellowish Brown Silt Clay	---
37.7	0-27	Grayish Brown Silt Loam	---
	27-37	Light Brownish Gray//Brown Yellow Silt Clay	---

Shovel Test No.	Depth (cm)	Soil Description	Artifact Summary
37.8	0-27	Grayish Brown Silt Loam	---
	27-38	Light Brownish Gray//Brown Yellow Silt Clay	---
37.9	0-27	Grayish Brown Silt Loam	---
	27-37	Light Brownish Gray//Brown Yellow Silt Clay	---
38.1	0-14	Dark Grayish Brown Silt Clay Loam	---
	14-35	Gray//Yellowish Brown Silt Clay	---
38.2	0-26	Grayish Brown Silt Clay Loam	---
	26-38	Light Brown Gray//Brownish Yellow Silt Clay	---
38.3	0-27	Grayish Brown Silt Clay Loam	---
	27-38	Light Brown Gray//Brownish Yellow Silt Clay	---
38.4	0-27	Grayish Brown Silt Clay Loam	---
	27-40	Light Brown Gray//Brownish Yellow Silt Clay	---
38.5	0-25	Grayish Brown Silt Clay Loam	---
	25-36	Light Brown Gray//Brownish Yellow Silt Clay	---
38.6	0-26	Very Dark Grayish Brown Silt Clay Loam	---
	26-38	Yellowish Brown Silt Clay	---
38.7	0-27	Very Dark Grayish Brown Silt Clay Loam	---
	27-37	Yellowish Brown Silt Clay	---
38.8	0-26	Very Dark Grayish Brown Silt Clay Loam	---
	26-38	Yellowish Brown Silt Clay	---
39.1	0-25	Dark Grayish Brown Silt Clay Loam	---
	25-37	Gray//Yellowish Brown Silt Clay	---
39.2	0-19	Dark Grayish Brown Silt Clay Loam	---
	19-30	Gray//Yellowish Brown Silt Clay	---
39.3	0-21	Dark Grayish Brown Silt Clay Loam	---
	21-31	Gray//Yellowish Brown Silt Clay	---
39.4	0-36	Dark Grayish Brown Silt Clay Loam	mortar
	36-46	Gray//Yellowish Brown Silt Clay	---
39.5	0-23	Grayish Brown Silt Loam	---
	23-36	Light Brownish Gray//Brown Yellow Silt Clay	---
39.6	0-24	Grayish Brown Silt Loam	---
	24-35	Light Brownish Gray//Brown Yellow Silt Clay	---
40.1	0-26	Grayish Brown Silt Clay Loam	---
	26-39	Light Brown Gray//Brownish Yellow Silt Clay	---
40.2	0-29	Grayish Brown Silt Clay Loam	---
	29-40	Light Brown Gray//Brownish Yellow Silt Clay	---
40.3	0-30	Grayish Brown Silt Clay Loam	---
	30-40	Light Brown Gray//Brownish Yellow Silt Clay	---

Shovel Test No.	Depth (cm)	Soil Description	Artifact Summary
40.4	0-23	Grayish Brown Silt Clay Loam	---
	23-36	Light Brown Gray//Brownish Yellow Silt Clay	---
40.5	0-24	Grayish Brown Silt Clay Loam	---
	24-36	Light Brown Gray//Brownish Yellow Silt Clay	---
41.1	0-23	Dark Grayish Brown Silt Loam	---
	23-38	Yellowish Brown Silt Clay	---
41.2	0-20	Dark Grayish Brown Silt Loam	---
	20-40	Yellowish Brown Silt Clay	---
41.3	0-24	Grayish Brown Silt Loam	---
	24-35	Light Brownish Gray//Brown Yellow Silt Clay	---
41.4	0-21	Grayish Brown Silt Loam	---
	21-38	Light Brownish Gray//Brown Yellow Silt Clay	---
42.1	0-25	Grayish Brown Silt Loam	---
	25-38	Light Brownish Gray//Brown Yellow Silt Clay	---
42.2	0-25	Grayish Brown Silt Loam	---
	25-38	Light Brownish Gray//Brown Yellow Silt Clay	---
43.1	0-26	Grayish Brown Silt Loam	---
	26-38	Light Brownish Gray//Brown Yellow Silt Clay	---
43.2	0-28	Grayish Brown Silt Loam	---
	28-40	Light Brownish Gray//Brown Yellow Silt Clay	---
43.3	0-29	Grayish Brown Silt Loam	---
	29-39	Light Brownish Gray//Brown Yellow Silt Clay	---
44.1	0-22	Grayish Brown Silt Loam	---
	22-32	Light Brownish Gray//Brown Yellow Silt Clay	---
44.2	0-26	Grayish Brown Silt Loam	---
	26-38	Light Brownish Gray//Brown Yellow Silt Clay	---
44.3	0-23	Grayish Brown Silt Loam	---
	23-35	Light Brownish Gray//Brown Yellow Silt Clay	---
44.4	0-26	Grayish Brown Silt Loam	---
	26-40	Light Brownish Gray//Brown Yellow Silt Clay	---
45.1	0-21	Grayish Brown Silt Loam	---
	21-35	Light Brownish Gray//Brown Yellow Silt Clay	---
45.2	0-28	Grayish Brown Silt Loam	---
	28-38	Light Brownish Gray//Brown Yellow Silt Clay	---
45.3	0-26	Grayish Brown Silt Loam	---
	26-37	Light Brownish Gray//Brown Yellow Silt Clay	---
45.4	0-25	Grayish Brown Silt Loam	---
	25-37	Light Brownish Gray//Brown Yellow Silt Clay	---

Shovel Test No.	Depth (cm)	Soil Description	Artifact Summary
45.5	0-26	Grayish Brown Silt Loam	---
	26-38	Light Brownish Gray//Brown Yellow Silt Clay	---
46.1	0-23	Grayish Brown Silt Loam	---
	23-35	Light Brownish Gray//Brown Yellow Silt Clay	---
46.2	0-26	Grayish Brown Silt Loam	---
	26-36	Light Brownish Gray//Brown Yellow Silt Clay	---
46.3	0-24	Grayish Brown Silt Loam	---
	24-38	Light Brownish Gray//Brown Yellow Silt Clay	---
46.4	0-24	Grayish Brown Silt Loam	---
	24-36	Light Brownish Gray//Brown Yellow Silt Clay	---
46.5	0-32	Grayish Brown Silt Loam	---
	32-44	Light Brownish Gray//Brown Yellow Silt Clay	---
46.6	0-30	Grayish Brown Silt Loam	---
	30-42	Light Brownish Gray//Brown Yellow Silt Clay	---
47.1	0-23	Grayish Brown Silt Loam	---
	23-36	Light Brownish Gray//Brown Yellow Silt Clay	---
47.2	0-26	Grayish Brown Silt Loam	---
	26-36	Light Brownish Gray//Brown Yellow Silt Clay	---
47.3	0-25	Grayish Brown Silt Loam	---
	25-36	Light Brownish Gray//Brown Yellow Silt Clay	---
47.4	0-26	Grayish Brown Silt Loam	---
	26-37	Light Brownish Gray//Brown Yellow Silt Clay	---
47.5	0-25	Grayish Brown Silt Loam	---
	25-40	Light Brownish Gray//Brown Yellow Silt Clay	---
47.6	0-28	Grayish Brown Silt Loam	---
	28-38	Light Brownish Gray//Brown Yellow Silt Clay	---
47.7	0-29	Grayish Brown Silt Loam	---
	29-45	Light Brownish Gray//Brown Yellow Silt Clay	---
48.1	0-24	Grayish Brown Silt Loam	---
	24-37	Light Brownish Gray//Brown Yellow Silt Clay	---
48.2	0-25	Grayish Brown Silt Loam	---
	25-43	Light Brownish Gray//Brown Yellow Silt Clay	---
48.3	0-22	Grayish Brown Silt Loam	---
	22-32	Light Brownish Gray//Brown Yellow Silt Clay	---
48.4	0-32	Grayish Brown Silt Loam	---
	32-46	Light Brownish Gray//Brown Yellow Silt Clay	---
48.5	0-28	Grayish Brown Silt Loam	---
	28-39	Light Brownish Gray//Brown Yellow Silt Clay	---

Shovel Test No.	Depth (cm)	Soil Description	Artifact Summary
48.6	0-25	Grayish Brown Silt Loam	---
	25-35	Light Brownish Gray//Brown Yellow Silt Clay	---
48.7	0-30	Grayish Brown Silt Loam	---
	30-42	Light Brownish Gray//Brown Yellow Silt Clay	---
48.8	0-29	Grayish Brown Silt Loam	---
	29-40	Light Brownish Gray//Brown Yellow Silt Clay	---
49.1	0-24	Grayish Brown Silt Loam	---
	24-35	Light Brownish Gray//Brown Yellow Silt Clay	---
49.2	0-20	Grayish Brown Silt Loam	---
	20-33	Light Brownish Gray//Brown Yellow Silt Clay	---
49.3	0-24	Grayish Brown Silt Loam	---
	24-37	Light Brownish Gray//Brown Yellow Silt Clay	---
49.4	0-28	Grayish Brown Silt Loam	---
	28-38	Light Brownish Gray//Brown Yellow Silt Clay	---
49.5	0-28	Grayish Brown Silt Loam	---
	28-40	Light Brownish Gray//Brown Yellow Silt Clay	---
49.6	0-29	Grayish Brown Silt Loam	---
	29-39	Light Brownish Gray//Brown Yellow Silt Clay	---
49.7	0-26	Grayish Brown Silt Loam	---
	26-39	Light Brownish Gray//Brown Yellow Silt Clay	---
49.8	0-25	Grayish Brown Silt Loam	---
	25-37	Light Brownish Gray//Brown Yellow Silt Clay	---
49.9	0-25	Grayish Brown Silt Loam	---
	25-42	Light Brownish Gray//Brown Yellow Silt Clay	---
50.1	0-24	Grayish Brown Silt Loam	---
	24-38	Light Brownish Gray//Brown Yellow Silt Clay	---
50.2	0-22	Grayish Brown Silt Loam	---
	22-40	Light Brownish Gray//Brown Yellow Silt Clay	---
50.3	0-26	Grayish Brown Silt Loam	---
	26-36	Light Brownish Gray//Brown Yellow Silt Clay	---
50.4	0-26	Grayish Brown Silt Loam	---
	26-37	Light Brownish Gray//Brown Yellow Silt Clay	---
50.5	0-25	Grayish Brown Silt Loam	---
	25-42	Light Brownish Gray//Brown Yellow Silt Clay	---
50.6	0-22	Grayish Brown Silt Loam	---
	22-35	Light Brownish Gray//Brown Yellow Silt Clay	---
50.7	0-24	Grayish Brown Silt Loam	---
	24-35	Light Brownish Gray//Brown Yellow Silt Clay	---

Shovel Test No.	Depth (cm)	Soil Description	Artifact Summary
50.8	0-26	Grayish Brown Silt Loam	---
	26-36	Light Brownish Gray//Brown Yellow Silt Clay	---
50.9	0-25	Grayish Brown Silt Loam	---
	25-41	Light Brownish Gray//Brown Yellow Silt Clay	---
51.1	0-23	Grayish Brown Silt Loam	---
	23-36	Light Brownish Gray//Brown Yellow Silt Clay	---
51.2	0-24	Grayish Brown Silt Loam	---
	24-36	Light Brownish Gray//Brown Yellow Silt Clay	---
51.3	0-28	Grayish Brown Silt Loam	---
	28-38	Light Brownish Gray//Brown Yellow Silt Clay	---
51.4	0-30	Grayish Brown Silt Loam	---
	30-42	Dark Yellowish Brown Sandy Clay	---
51.5	0-32	Grayish Brown Silt Loam	---
	32-42	Light Brownish Gray//Brown Yellow Silt Clay	---
51.6	0-32	Grayish Brown Silt Loam	---
	32-44	Light Brownish Gray//Brown Yellow Silt Clay	---
51.7	0-30	Grayish Brown Silt Loam	---
	30-43	Light Brownish Gray//Brown Yellow Silt Clay	---
51.8	0-28	Grayish Brown Silt Loam	---
	28-38	Light Brownish Gray//Brown Yellow Silt Clay	---
51.9	0-25	Grayish Brown Silt Loam	---
	25-38	Light Brownish Gray//Brown Yellow Silt Clay	---
52.1	0-24	Grayish Brown Silt Loam	---
	24-36	Light Brownish Gray//Brown Yellow Silt Clay	---
52.2	0-26	Dark Grayish Brown Silt Loam	---
	26-38	Light Brownish Gray//Brown Yellow Silt Clay	---
52.3	0-26	Dark Grayish Brown Silt Loam	---
	26-37	Light Brownish Gray//Brown Yellow Silt Clay	---
52.4	0-28	Dark Grayish Brown Silt Loam	---
	28-39	Light Brownish Gray//Brown Yellow Silt Clay	---
52.5	0-26	Dark Grayish Brown Silt Loam	---
	26-40	Light Brownish Gray//Brown Yellow Silt Clay	---
52.6	0-23	Dark Grayish Brown Silt Loam	---
	23-35	Light Brownish Gray//Brown Yellow Silt Clay	---
52.7	0-22	Dark Grayish Brown Silt Loam	---
	22-33	Light Brownish Gray//Brown Yellow Silt Clay	---
52.8	0-27	Dark Grayish Brown Silt Loam	---
	27-39	Light Brownish Gray//Brown Yellow Silt Clay	---

Shovel Test No.	Depth (cm)	Soil Description	Artifact Summary
52.9	0-25	Dark Grayish Brown Silt Loam	---
	25-38	Light Brownish Gray//Brown Yellow Silt Clay	---
53.1	0-26	Dark Grayish Brown Silt Loam	---
	26-43	Light Brownish Gray//Brown Yellow Silt Clay	---
53.2	0-27	Dark Grayish Brown Silt Loam	---
	27-38	Light Brownish Gray//Brown Yellow Silt Clay	---
53.3	0-24	Dark Grayish Brown Silt Loam	---
	24-38	Light Brownish Gray//Brown Yellow Silt Clay	---
53.4	0-22	Dark Grayish Brown Silt Loam	---
	22-37	Light Brownish Gray//Brown Yellow Silt Clay	---
53.5	0-28	Dark Grayish Brown Silt Loam	---
	28-38	Light Brownish Gray//Brown Yellow Silt Clay	---
53.6	0-26	Dark Grayish Brown Silt Loam	---
	26-40	Light Brownish Gray//Brown Yellow Silt Clay	---
53.7	0-21	Dark Grayish Brown Silt Loam	---
	21-35	Light Brownish Gray//Brown Yellow Silt Clay	---
53.8	0-26	Dark Grayish Brown Silt Loam	---
	26-38	Light Brownish Gray//Brown Yellow Silt Clay	---
53.9	0-29	Dark Grayish Brown Silt Loam	---
	29-42	Light Brownish Gray//Brown Yellow Silt Clay	---
54.1	0-26	Dark Grayish Brown Silt Loam	---
	26-40	Light Brownish Gray//Brown Yellow Silt Clay	---
54.2	0-28	Dark Grayish Brown Silt Loam	---
	28-44	Light Brownish Gray//Brown Yellow Silt Clay	---
54.3	0-28	Dark Grayish Brown Silt Loam	---
	28-40	Light Brownish Gray//Brown Yellow Silt Clay	---
54.4	0-27	Dark Grayish Brown Silt Loam	---
	27-42	Light Brownish Gray//Brown Yellow Silt Clay	---
54.5	0-31	Dark Grayish Brown Silt Loam	---
	31-44	Light Brownish Gray//Brown Yellow Silt Clay	---
54.6	0-30	Dark Grayish Brown Silt Loam	---
	30-40	Light Brownish Gray//Brown Yellow Silt Clay	---
54.7	0-32	Dark Grayish Brown Silt Loam	---
	32-43	Light Brownish Gray//Brown Yellow Silt Clay	---
54.8	0-28	Dark Grayish Brown Silt Loam	---
	28-40	Light Brownish Gray//Brown Yellow Silt Clay	---
54.9	0-23	Dark Grayish Brown Silt Loam	---
	23-38	Light Brownish Gray//Brown Yellow Silt Clay	---

Shovel Test No.	Depth (cm)	Soil Description	Artifact Summary
55.1	0-28	Dark Grayish Brown Silt Loam	---
	28-38	Yellowish Brown Silt Clay	---
55.2	0-30	Dark Grayish Brown Silt Loam	---
	30-45	Yellowish Brown Silt Clay	---
55.3	0-28	Dark Grayish Brown Silt Loam	---
	28-42	Yellowish Brown Silt Clay	---
55.4	0-30	Dark Grayish Brown Silt Loam	---
	30-42	Yellowish Brown Silt Clay	---
55.5	0-27	Dark Grayish Brown Silt Loam	---
	27-40	Yellowish Brown Silt Clay	---
55.6	0-29	Dark Grayish Brown Silt Loam	---
	29-39	Yellowish Brown Silt Clay	---
55.7	0-26	Dark Grayish Brown Silt Loam	---
	26-38	Yellowish Brown Silt Clay	---
55.8	0-26	Dark Grayish Brown Silt Loam	---
	26-40	Yellowish Brown Silt Clay	---
55.9	0-25	Dark Grayish Brown Silt Loam	---
	25-36	Yellowish Brown Silt Clay	---
56.1	0-28	Dark Grayish Brown Silt Loam	---
	28-38	Yellowish Brown Silt Clay	---
56.2	0-26	Dark Grayish Brown Silt Loam	---
	26-38	Yellowish Brown Silt Clay	---
56.3	0-27	Dark Grayish Brown Silt Loam	---
	27-38	Yellowish Brown Silt Clay	---
56.4	0-28	Dark Grayish Brown Silt Loam	---
	28-40	Gray//Yellowish Brown Silt Clay	---
56.5	0-23	Dark Grayish Brown Silt Loam	---
	23-36	Gray//Yellowish Brown Silt Clay	---
56.6	0-26	Dark Grayish Brown Silt Loam	---
	26-38	Yellowish Brown Silt Clay	---
56.7	0-24	Dark Grayish Brown Silt Loam	---
	24-35	Yellowish Brown Silt Clay	---
56.8	0-26	Dark Grayish Brown Silt Loam	---
	26-38	Gray//Yellowish Brown Silt Clay	---
56.9	0-27	Dark Grayish Brown Silt Loam	---
	27-39	Gray//Yellowish Brown Silt Clay	---
56.10	0-25	Dark Grayish Brown Silt Loam	---
	25-37	Gray//Yellowish Brown Silt Clay	---

Shovel Test No.	Depth (cm)	Soil Description	Artifact Summary
57.1	0-26	Brown Silt Loam	---
	26-39	Yellowish Brown Silt Clay	---
57.2	0-39	Brown Silt Loam	---
	39-52	Yellowish Brown Silt Clay	---
57.3	0-36	Brown Silt Loam	---
	36-47	Yellowish Brown Silt Clay	---
57.4	0-36	Brown Silt Loam	---
	36-48	Yellowish Brown Silt Clay	---
57.5	0-28	Brown Silt Loam	---
	28-41	Yellowish Brown Silt Clay	---
57.6	0-34	Brown Silt Loam	---
	34-45	Yellowish Brown Silt Clay	---
57.7	0-35	Dark Grayish Brown Silt Loam	---
	35-46	Yellowish Brown Silt Clay	---
57.8	0-30	Dark Grayish Brown Silt Loam	---
	30-41	Yellowish Brown Silt Clay	---
57.9	0-42	Dark Grayish Brown Silt Loam	---
	42-52	Yellowish Brown Silt Clay	---
57.10	0-20	Dark Grayish Brown Silt Loam	---
	20-31	Yellowish Brown Silt Clay	---
57.11	0-25	Dark Grayish Brown Silt Loam	---
	25-40	Yellowish Brown Silt Clay	---
58.1	0-29	Dark Grayish Brown Silt Loam	---
	29-40	Light Brown Gray//Brownish Yellow Silt Clay	---
58.2	0-27	Dark Grayish Brown Silt Loam	---
	27-37	Light Brown Gray//Brownish Yellow Silt Clay	---
58.3	0-31	Dark Grayish Brown Silt Loam	---
	31-42	Light Brown Gray//Brownish Yellow Silt Clay	---
58.4	0-28	Dark Grayish Brown Silt Loam	---
	28-42	Light Brown Gray//Brownish Yellow Silt Clay	---
58.5	0-25	Very Dark Grayish Brown Silt Loam	---
	25-37	Light Brown Gray//Brownish Yellow Silt Clay	---
58.6	0-24	Dark Grayish Brown Silt Loam	---
	24-38	Light Brown Gray//Brownish Yellow Silt Clay	---
58.7	0-23	Dark Grayish Brown Silt Loam	---
	23-35	Light Brown Gray//Brownish Yellow Silt Clay	---
58.8	0-18	Dark Grayish Brown Silt Loam	---
	18-38	Light Brown Gray//Brownish Yellow Silt Clay	---

Shovel Test No.	Depth (cm)	Soil Description	Artifact Summary
58.9	0-25	Dark Grayish Brown Silt Loam	---
	25-35	Light Brown Gray//Brownish Yellow Silt Clay	---
58.10	0-28	Dark Grayish Brown Silt Loam	---
	28-38	Light Brown Gray//Brownish Yellow Silt Clay	---
58.11	0-22	Dark Grayish Brown Silt Loam	---
	22-34	Light Brown Gray//Brownish Yellow Silt Clay	---
59.1	0-23	Dark Grayish Brown Silt Loam	---
	23-35	Grayish Brown//Yellowish Brown Silt Clay	---
59.2	0-19	Dark Grayish Brown Silt Loam	---
	19-40	Light Brown Gray//Brownish Yellow Silt Clay	---
59.3	0-24	Dark Grayish Brown Silt Loam	---
	24-38	Light Brown Gray//Brownish Yellow Silt Clay	---
59.4	0-21	Dark Grayish Brown Silt Loam	---
	21-35	Light Brown Gray//Brownish Yellow Silt Clay	---
59.5	0-18	Dark Grayish Brown Silt Loam	---
	18-35	Light Brown Gray//Brownish Yellow Silt Clay	---
59.6	0-28	Dark Grayish Brown Silt Loam	---
	28-40	Light Brown Gray//Brownish Yellow Silt Clay	---
59.7	0-22	Dark Grayish Brown Silt Loam	---
	22-37	Light Brown Gray//Brownish Yellow Silt Clay	---
59.8	0-27	Dark Grayish Brown Silt Loam	---
	27-37	Light Brown Gray//Brownish Yellow Silt Clay	---
59.9	0-24	Dark Grayish Brown Silt Loam	---
	24-40	Light Brown Gray//Brownish Yellow Silt Clay	---
59.10	0-32	Dark Grayish Brown Silt Loam	---
	32-43	Light Brown Gray//Brownish Yellow Silt Clay	---
59.11	0-23	Dark Grayish Brown Silt Loam	---
	23-35	Light Brown Gray//Brownish Yellow Silt Clay	---
60.1	0-29	Dark Grayish Brown Silt Loam	---
	29-40	Light Brown Gray//Brownish Yellow Silt Clay	---
60.2	0-30	Dark Grayish Brown Silt Loam	---
	30-40	Light Brown Gray//Brownish Yellow Silt Clay	---
60.3	0-31	Dark Grayish Brown Silt Loam	---
	31-44	Light Brown Gray//Brownish Yellow Silt Clay	---
60.4	0-27	Dark Grayish Brown Silt Loam	---
	27-38	Light Brown Gray//Brownish Yellow Silt Clay	---
60.5	0-22	Dark Grayish Brown Silt Loam	---
	22-40	Light Brown Gray//Brownish Yellow Silt Clay	---

Shovel Test No.	Depth (cm)	Soil Description	Artifact Summary
60.6	0-26	Dark Grayish Brown Silt Loam	---
	26-38	Light Brown Gray//Brownish Yellow Silt Clay	---
60.7	0-29	Dark Grayish Brown Silt Loam	---
	29-42	Light Brown Gray//Brownish Yellow Silt Clay	---
60.8	0-26	Dark Grayish Brown Silt Loam	---
	26-42	Light Brown Gray//Brownish Yellow Silt Clay	---
60.9	0-27	Dark Grayish Brown Silt Loam	---
	27-38	Light Brown Gray//Brownish Yellow Silt Clay	---
60.10	0-32	Dark Grayish Brown Silt Loam	---
	32-42	Light Brown Gray//Brownish Yellow Silt Clay	---
60.11	0-30	Dark Grayish Brown Silt Loam	---
	30-45	Light Brown Gray//Brownish Yellow Silt Clay	---
61.1	0-32	Dark Grayish Brown Silt Loam	---
	32-42	Gray//Yellowish Brown Silt Clay	---
61.2	0-23	Dark Grayish Brown Silt Loam	---
	23-36	Gray//Yellowish Brown Silt Clay	---
61.3	0-24	Dark Grayish Brown Silt Loam	---
	24-37	Gray//Yellowish Brown Silt Clay	---
61.4	0-25	Dark Grayish Brown Silt Loam	---
	25-36	Gray//Yellowish Brown Silt Clay	---
61.5	0-23	Dark Grayish Brown Silt Loam	---
	23-36	Gray//Yellowish Brown Silt Clay	---
61.6	0-24	Dark Grayish Brown Silt Loam	---
	24-36	Gray//Yellowish Brown Silt Clay	---
61.7	0-26	Dark Grayish Brown Silt Loam	---
	26-38	Gray//Yellowish Brown Silt Clay	---
61.8	0-27	Dark Grayish Brown Silt Loam	---
	27-39	Gray//Yellowish Brown Silt Clay	---
61.9	0-29	Dark Grayish Brown Silt Loam	---
	29-43	Gray//Yellowish Brown Silt Clay	---
61.10	0-28	Dark Grayish Brown Silt Loam	---
	28-40	Gray//Yellowish Brown Silt Clay	---
61.11	0-28	Dark Grayish Brown Silt Loam	---
	28-43	Gray//Yellowish Brown Silt Clay	---
62.1	0-29	Dark Grayish Brown Silt Loam	---
	29-40	Gray//Yellowish Brown Silt Clay	---
62.2	0-30	Dark Grayish Brown Silt Loam	---
	30-40	Gray//Yellowish Brown Silt Clay	---

Shovel Test No.	Depth (cm)	Soil Description	Artifact Summary
62.3	0-31	Dark Grayish Brown Silt Loam	---
	31-41	Gray//Yellowish Brown Silt Clay	---
62.4	0-27	Dark Grayish Brown Silt Loam	---
	27-42	Gray//Yellowish Brown Silt Clay	---
62.5	0-22	Dark Grayish Brown Silt Loam	---
	22-40	Gray//Yellowish Brown Silt Clay	---
62.6	0-26	Dark Grayish Brown Silt Loam	---
	26-42	Gray//Yellowish Brown Silt Clay	---
62.7	0-29	Dark Grayish Brown Silt Loam	---
	29-43	Gray//Yellowish Brown Silt Clay	---
62.8	0-26	Dark Grayish Brown Silt Loam	---
	26-38	Gray//Yellowish Brown Silt Clay	---
62.9	0-27	Dark Grayish Brown Silt Loam	---
	27-45	Gray//Yellowish Brown Silt Clay	---
62.10	0-32	Dark Grayish Brown Silt Loam	---
	32-45	Gray//Yellowish Brown Silt Clay	---
62.11	0-27	Dark Grayish Brown Silt Loam	---
	27-41	Gray//Yellowish Brown Silt Clay	---
63.1	0-27	Dark Grayish Brown Silt Loam	---
	27-40	Yellowish Brown Silt Clay	---
63.2	0-22	Dark Grayish Brown Silt Loam	---
	22-35	Yellowish Brown Silt Clay	---
63.3	0-24	Dark Grayish Brown Silt Loam	---
	24-36	Yellowish Brown Silt Clay	---
63.4	0-28	Dark Grayish Brown Silt Loam	---
	28-40	Yellowish Brown Silt Clay	---
63.5	0-30	Dark Grayish Brown Silt Loam	---
	30-40	Yellowish Brown Silt Clay	---
63.6	0-27	Dark Grayish Brown Silt Loam	---
	27-43	Yellowish Brown Silt Clay	---
63.7	0-25	Dark Grayish Brown Silt Loam	---
	25-37	Yellowish Brown Silt Clay	---
63.8	0-20	Dark Grayish Brown Silt Loam	---
	20-42	Yellowish Brown Silt Clay	---
63.9	0-22	Dark Grayish Brown Silt Loam	---
	22-36	Yellowish Brown Silt Clay	---
63.10	0-20	Dark Grayish Brown Silt Loam	---
	20-40	Yellowish Brown Silt Clay	---

Shovel Test No.	Depth (cm)	Soil Description	Artifact Summary
63.11	0-27	Dark Grayish Brown Silt Loam	---
	27-46	Yellowish Brown Silt Clay	---
64.1	0-28	Dark Grayish Brown Silt Loam	---
	28-44	Yellowish Brown Silt Clay	---
64.2	0-32	Dark Grayish Brown Silt Loam	---
	32-45	Yellowish Brown Silt Clay	---
64.3	0-26	Dark Grayish Brown Silt Loam	---
	26-40	Yellowish Brown Silt Clay	---
64.4	0-25	Dark Grayish Brown Silt Loam	---
	25-35	Yellowish Brown Silt Clay	---
64.5	0-25	Dark Grayish Brown Silt Loam	---
	25-40	Yellowish Brown Silt Clay	---
64.6	0-27	Dark Grayish Brown Silt Loam	---
	27-39	Yellowish Brown Silt Clay	---
64.7	0-26	Dark Grayish Brown Silt Loam	---
	26-42	Yellowish Brown Silt Clay	---
64.8	0-24	Dark Grayish Brown Silt Loam	---
	24-40	Yellowish Brown Silt Clay	---
64.9	0-23	Dark Grayish Brown Silt Loam	---
	23-38	Yellowish Brown Silt Clay	---
64.10	0-26	Dark Grayish Brown Silt Loam	---
	26-40	Yellowish Brown Silt Clay	---
64.11	0-30	Dark Grayish Brown Silt Loam	1 chert flake
	30-44	Yellowish Brown Silt Clay	---
65.1	0-32	Brown Silt Loam	---
	32-43	Yellowish Brown Silt Clay	---
65.2	0-35	Brown Silt Loam	---
	35-45	Yellowish Brown Silt Clay	---
65.3	0-35	Brown Silt Loam	---
	35-47	Yellowish Brown Silt Clay	---
65.4	0-37	Brown Silt Loam	---
	37-47	Yellowish Brown Silt Clay	---
65.5	0-29	Brown Silt Loam	---
	29-41	Yellowish Brown Silt Clay	---
65.6	0-32	Brown Silt Loam	---
	32-43	Yellowish Brown Clay Loam	---
65.7	0-25	Brown Silt Loam	---
	25-40	Yellowish Brown Clay Loam	---

Shovel Test No.	Depth (cm)	Soil Description	Artifact Summary
65.8	0-29	Brown Silt Loam	---
	29-41	Yellowish Brown Clay Loam	---
65.9	0-26	Brown Silt Loam	---
	26-42	Yellowish Brown Clay Loam	---
65.10	0-30	Brown Silt Loam	---
	30-43	Yellowish Brown Clay Loam	---
65.11	0-30	Brown Silt Loam	---
	30-41	Yellowish Brown Clay Loam	---
66.1	0-24	Brown Silt Loam	---
	24-40	Yellowish Brown Clay Loam	---
66.2	0-23	Brown Silt Loam	---
	23-40	Yellowish Brown Clay Loam	---
66.3	0-28	Brown Silt Loam	---
	28-41	Yellowish Brown Clay Loam	---
66.4	0-26	Brown Silt Loam	---
	26-44	Yellowish Brown Clay Loam	---
66.5	0-25	Brown Silt Loam	---
	25-38	Yellowish Brown Clay Loam	---
66.6	0-24	Brown Silt Loam	---
	24-40	Yellowish Brown Clay Loam	---
66.7	0-26	Brown Silt Loam	---
	26-43	Yellowish Brown Clay Loam	---
66.8	0-24	Brown Silt Loam	---
	24-44	Yellowish Brown Clay Loam	---
66.9	0-28	Brown Silt Loam	---
	28-40	Yellowish Brown Clay Loam	---
66.10	0-26	Brown Silt Loam	---
	26-43	Yellowish Brown Clay Loam	---
66.11	0-22	Brown Silt Loam	---
	22-40	Yellowish Brown Clay Loam	---
67.1	0-24	Dark Grayish Brown Silt Loam	---
	24-44	Yellowish Brown Clay Loam	---
67.2	0-28	Dark Grayish Brown Silt Loam	---
	28-40	Yellowish Brown Clay Loam	---
67.3	0-24	Dark Grayish Brown Silt Loam	---
	24-35	Yellowish Brown Silt Clay	---
67.4	0-26	Dark Grayish Brown Silt Loam	---
	26-36	Yellowish Brown Silt Clay	---

Shovel Test No.	Depth (cm)	Soil Description	Artifact Summary
67.5	0-21	Dark Grayish Brown Silt Loam	---
	21-35	Yellowish Brown Silt Clay	---
67.6	0-26	Dark Grayish Brown Silt Loam	---
	26-38	Yellowish Brown Silt Clay	---
67.7	0-25	Dark Grayish Brown Silt Loam	---
	25-35	Yellowish Brown Silt Clay	---
67.8	0-26	Dark Grayish Brown Silt Loam	---
	26-38	Yellowish Brown Silt Clay	---
67.9	0-32	Dark Grayish Brown Silt Loam	---
	32-42	Yellowish Brown Silt Clay	---
67.10	0-28	Dark Grayish Brown Silt Loam	---
	28-45	Yellowish Brown Silt Clay	---
67.11	0-30	Dark Grayish Brown Silt Loam	---
	30-42	Yellowish Brown Silt Clay	---
68.1	0-28	Dark Grayish Brown Silt Loam	---
	28-58	Gray//Brownish Yellow Silt Clay	---
68.2	0-27	Dark Grayish Brown Silt Loam	---
	27-38	Gray//Brownish Yellow Silt Clay	---
68.3	0-26	Dark Grayish Brown Silt Loam	---
	26-38	Gray//Brownish Yellow Silt Clay	---
68.4	0-28	Dark Grayish Brown Silt Loam	---
	28-38	Gray//Brownish Yellow Silt Clay	---
68.5	0-25	Dark Grayish Brown Silt Loam	---
	25-37	Gray//Brownish Yellow Silt Clay	---
68.6	0-28	Dark Grayish Brown Silt Loam	---
	28-40	Gray//Brownish Yellow Silt Clay	---
68.7	0-29	Dark Grayish Brown Silt Loam	---
	29-40	Gray//Brownish Yellow Silt Clay	---
68.8	0-28	Dark Grayish Brown Silt Loam	---
	28-40	Gray//Brownish Yellow Silt Clay	---
68.9	0-29	Dark Grayish Brown Silt Loam	---
	29-40	Gray//Brownish Yellow Silt Clay	---
68.10	0-31	Dark Grayish Brown Silt Loam	---
	31-43	Gray//Brownish Yellow Silt Clay	---
69.1	0-35	Dark Grayish Brown Silt Loam	---
	35-47	Gray//Brownish Yellow Silt Clay	---
69.2	0-27	Dark Grayish Brown Silt Loam	---
	27-51	Gray//Brownish Yellow Silt Clay	---

Shovel Test No.	Depth (cm)	Soil Description	Artifact Summary
69.3	0-29	Dark Grayish Brown Silt Loam	---
	29-40	Gray//Brownish Yellow Silt Clay	---
69.4	0-25	Dark Grayish Brown Silt Loam	---
	25-35	Gray//Brownish Yellow Silt Clay	---
69.5	0-27	Dark Grayish Brown Silt Loam	---
	27-50	Gray//Brownish Yellow Silt Clay	---
69.6	0-29	Dark Grayish Brown Silt Loam	---
	29-41	Gray//Brownish Yellow Silt Clay	---
69.7	0-27	Dark Grayish Brown Silt Loam	---
	27-39	Gray//Brownish Yellow Silt Clay	---
69.8	0-28	Dark Grayish Brown Silt Loam	---
	28-40	Gray//Brownish Yellow Silt Clay	---
69.9	0-20	Dark Grayish Brown Silt Loam	---
	20-34	Gray//Brownish Yellow Silt Clay	---
69.10	0-29	Dark Grayish Brown Silt Loam	---
	29-41	Gray//Brownish Yellow Silt Clay	---
70.1	0-35	Brown Silt Loam	---
	35-47	Yellowish Brown Silt Clay	---
70.2	0-23	Brown Silt Loam	---
	23-35	Yellowish Brown Silt Clay	---
70.3	0-26	Brown Silt Loam	---
	26-37	Yellowish Brown Silt Clay	---
70.4	0-35	Brown Silt Loam	---
	35-47	Yellowish Brown Silt Clay	---
70.5	0-32	Brown Silt Loam	---
	32-45	Yellowish Brown Silt Clay	---
70.6	0-35	Brown Silt Loam	---
	35-46	Yellowish Brown Silt Clay	---
70.7	0-29	Brown Silt Loam	---
	29-42	Yellowish Brown Silt Clay	---
70.8	0-30	Brown Silt Loam	---
	30-40	Yellowish Brown Silt Clay	---
70.9	0-30	Brown Silt Loam	---
	30-44	Yellowish Brown Silt Clay	---
70.10	0-37	Brown Silt Loam	---
	37-48	Yellowish Brown Silt Clay	---
71.1	0-23	Very Dark Grayish Brown Silt Loam	---
	23-33	Gray//Brownish Yellow Silt Clay	---

Shovel Test No.	Depth (cm)	Soil Description	Artifact Summary
71.2	0-24	Very Dark Grayish Brown Silt Loam	---
	24-35	Gray//Brownish Yellow Silt Clay	---
71.3	0-25	Very Dark Grayish Brown Silt Loam	---
	25-37	Gray//Brownish Yellow Silt Clay	---
71.4	0-29	Very Dark Grayish Brown Silt Loam	---
	29-39	Gray//Brownish Yellow Silt Clay	---
71.5	0-21	Very Dark Grayish Brown Silt Loam	---
	21-32	Gray//Brownish Yellow Silt Clay	---
71.6	0-28	Very Dark Grayish Brown Silt Loam	---
	28-39	Gray//Brownish Yellow Silt Clay	---
71.7	0-26	Very Dark Grayish Brown Silt Loam	---
	26-38	Gray//Brownish Yellow Silt Clay	---
71.8	0-28	Very Dark Grayish Brown Silt Loam	---
	28-38	Gray//Brownish Yellow Silt Clay	---
71.9	0-32	Very Dark Grayish Brown Silt Loam	---
	32-44	Gray//Brownish Yellow Silt Clay	---
72.1	0-28	Very Dark Grayish Brown Silt Loam	---
	28-43	Gray//Brownish Yellow Silt Clay	---
72.2	0-28	Very Dark Grayish Brown Silt Loam	---
	28-38	Gray//Brownish Yellow Silt Clay	---
72.3	0-25	Very Dark Grayish Brown Silt Loam	---
	25-37	Gray//Brownish Yellow Silt Clay	---
72.4	0-29	Very Dark Grayish Brown Silt Loam	---
	29-39	Gray//Brownish Yellow Silt Clay	---
72.5	0-26	Very Dark Grayish Brown Silt Loam	---
	26-37	Gray//Brownish Yellow Silt Clay	---
72.6	0-28	Very Dark Grayish Brown Silt Loam	---
	28-42	Gray//Brownish Yellow Silt Clay	---
72.7	0-30	Very Dark Grayish Brown Silt Loam	---
	30-42	Gray//Brownish Yellow Silt Clay	---
72.8	0-28	Very Dark Grayish Brown Silt Loam	---
	28-40	Gray//Brownish Yellow Silt Clay	---
72.9	0-31	Very Dark Grayish Brown Silt Loam	---
	31-46	Gray//Brownish Yellow Silt Clay	---
73.1	0-27	Very Dark Grayish Brown Silt Loam	---
	27-38	Gray//Brownish Yellow Silt Clay	---
73.2	0-28	Very Dark Grayish Brown Silt Loam	---
	28-40	Gray//Brownish Yellow Silt Clay	---

Shovel Test No.	Depth (cm)	Soil Description	Artifact Summary
73.3	0-25	Very Dark Grayish Brown Silt Loam	---
	25-37	Gray//Brownish Yellow Silt Clay	---
73.4	0-18	Very Dark Grayish Brown Silt Loam	---
	18-40	Gray//Brownish Yellow Silt Clay	---
73.5	0-34	Very Dark Grayish Brown Silt Loam	---
	34-45	Gray//Brownish Yellow Silt Clay	---
73.6	0-27	Very Dark Grayish Brown Silt Loam	---
	27-38	Gray//Brownish Yellow Silt Clay	---
73.7	0-30	Very Dark Grayish Brown Silt Loam	---
	30-40	Gray//Brownish Yellow Silt Clay	---
73.8	0-19	Very Dark Grayish Brown Silt Loam	---
	19-35	Gray//Brownish Yellow Silt Clay	---
73.9	0-29	Very Dark Grayish Brown Silt Loam	---
	29-41	Gray//Brownish Yellow Silt Clay	---
74.1	0-30	Dark Grayish Brown Silt Loam	---
	30-40	Grayish Brown//Brownish Yellow Silt Clay	---
74.2	0-30	Dark Grayish Brown Silt Loam	---
	30-40	Grayish Brown//Brownish Yellow Silt Clay	---
74.3	0-28	Dark Grayish Brown Silt Loam	---
	28-40	Grayish Brown//Brownish Yellow Silt Clay	---
74.4	0-33	Dark Grayish Brown Silt Loam	---
	33-45	Grayish Brown//Brownish Yellow Silt Clay	---
74.5	0-27	Dark Grayish Brown Silt Loam	---
	27-38	Grayish Brown//Brownish Yellow Silt Clay	---
74.6	0-32	Dark Grayish Brown Silt Loam	---
	32-42	Grayish Brown//Brownish Yellow Silt Clay	---
74.7	0-35	Dark Grayish Brown Silt Loam	---
	35-46	Grayish Brown//Brownish Yellow Silt Clay	---
74.8	0-26	Dark Grayish Brown Silt Loam	---
	26-40	Grayish Brown//Brownish Yellow Silt Clay	---
74.9	0-30	Dark Grayish Brown Silt Loam	---
	30-40	Grayish Brown//Brownish Yellow Silt Clay	---
75.1	0-32	Dark Grayish Brown Silt Loam	---
	32-46	Grayish Brown//Brownish Yellow Silt Clay	---
75.2	0-31	Dark Grayish Brown Silt Loam	---
	31-42	Grayish Brown//Brownish Yellow Silt Clay	---
75.3	0-28	Dark Grayish Brown Silt Loam	---
	28-44	Grayish Brown//Brownish Yellow Silt Clay	---

Shovel Test No.	Depth (cm)	Soil Description	Artifact Summary
75.4	0-30	Dark Grayish Brown Silt Loam	---
	30-42	Grayish Brown//Brownish Yellow Silt Clay	---
75.5	0-27	Dark Grayish Brown Silt Loam	---
	27-37	Grayish Brown//Brownish Yellow Silt Clay	---
75.6	0-32	Dark Grayish Brown Silt Loam	---
	32-45	Grayish Brown//Brownish Yellow Silt Clay	---
75.7	0-30	Dark Grayish Brown Silt Loam	---
	30-45	Grayish Brown//Brownish Yellow Silt Clay	---
75.8	0-28	Dark Grayish Brown Silt Loam	---
	28-41	Grayish Brown//Brownish Yellow Silt Clay	---
75.9	0-23	Dark Grayish Brown Silt Loam	---
	23-43	Grayish Brown//Brownish Yellow Silt Clay	---
76.1	0-32	Dark Grayish Brown Silt Loam	---
	33-47	Grayish Brown//Brownish Yellow Silt Clay	---
76.2	0-31	Dark Grayish Brown Silt Loam	---
	31-42	Grayish Brown//Brownish Yellow Silt Clay	---
76.3	0-28	Dark Grayish Brown Silt Loam	---
	28-39	Grayish Brown//Brownish Yellow Silt Clay	---
76.4	0-30	Dark Grayish Brown Silt Loam	---
	30-40	Grayish Brown//Brownish Yellow Silt Clay	---
76.5	0-26	Dark Grayish Brown Silt Loam	---
	26-38	Grayish Brown//Brownish Yellow Silt Clay	---
76.6	0-30	Dark Grayish Brown Silt Loam	---
	30-42	Grayish Brown//Brownish Yellow Silt Clay	---
76.7	0-35	Dark Grayish Brown Silt Loam	---
	35-45	Grayish Brown//Brownish Yellow Silt Clay	---
76.8	0-28	Dark Grayish Brown Silt Loam	---
	28-46	Grayish Brown//Brownish Yellow Silt Clay	---
76.9	0-32	Dark Grayish Brown Silt Loam	---
	32-42	Grayish Brown//Brownish Yellow Silt Clay	---
77.1	0-31	Dark Grayish Brown Silt Loam	---
	31-42	Grayish Brown//Brownish Yellow Silt Clay	---
77.2	0-31	Dark Grayish Brown Silt Loam	---
	31-45	Grayish Brown//Brownish Yellow Silt Clay	---
77.3	0-29	Dark Grayish Brown Silt Loam	---
	29-40	Grayish Brown//Brownish Yellow Silt Clay	---
77.4	0-32	Dark Grayish Brown Silt Loam	---
	32-45	Grayish Brown//Brownish Yellow Silt Clay	---

Shovel Test No.	Depth (cm)	Soil Description	Artifact Summary
77.5	0-24	Dark Grayish Brown Silt Loam	---
	24-36	Grayish Brown//Brownish Yellow Silt Clay	---
77.6	0-30	Dark Grayish Brown Silt Loam	---
	30-42	Grayish Brown//Brownish Yellow Silt Clay	---
77.7	0-36	Dark Grayish Brown Silt Loam	---
	36-46	Grayish Brown//Brownish Yellow Silt Clay	---
77.8	0-26	Dark Grayish Brown Silt Loam	---
	26-42	Grayish Brown//Brownish Yellow Silt Clay	---
78.1	0-31	Dark Grayish Brown Silt Loam	---
	31-46	Grayish Brown//Brownish Yellow Silt Clay	---
78.2	0-31	Dark Grayish Brown Silt Loam	---
	31-48	Grayish Brown//Brownish Yellow Silt Clay	---
78.3	0-30	Dark Grayish Brown Silt Loam	---
	30-40	Brownish Yellow Silt Clay	---
78.4	0-30	Dark Grayish Brown Silt Loam	---
	30-44	Brownish Yellow Silt Clay	---
78.5	0-28	Dark Grayish Brown Silt Loam	---
	28-39	Brownish Yellow Silt Clay	---
78.6	0-32	Dark Grayish Brown Silt Loam	---
	32-42	Grayish Brown//Brownish Yellow Silt Clay	---
78.7	0-32	Dark Grayish Brown Silt Loam	---
	32-46	Grayish Brown//Brownish Yellow Silt Clay	---
78.8	0-28	Dark Grayish Brown Silt Loam	---
	28-43	Grayish Brown//Brownish Yellow Silt Clay	---
79.1	0-31	Dark Grayish Brown Silt Loam	---
	31-44	Grayish Brown//Brownish Yellow Silt Clay	---
79.2	0-30	Dark Grayish Brown Silt Loam	---
	30-43	Grayish Brown//Brownish Yellow Silt Clay	---
79.3	0-26	Dark Grayish Brown Silt Loam	---
	26-46	Grayish Brown//Brownish Yellow Silt Clay	---
79.4	0-37	Dark Grayish Brown Silt Loam	---
	37-47	Grayish Brown//Brownish Yellow Silt Clay	---
79.5	0-24	Dark Grayish Brown Silt Loam	---
	24-35	Grayish Brown//Brownish Yellow Silt Clay	---
79.6	0-33	Dark Grayish Brown Silt Loam	---
	33-46	Grayish Brown//Brownish Yellow Silt Clay	---
79.7	0-36	Dark Grayish Brown Silt Loam	---
	36-48	Brownish Yellow Silt Clay	---

Shovel Test No.	Depth (cm)	Soil Description	Artifact Summary
79.8	0-25	Dark Grayish Brown Silt Loam	---
	25-45	Brownish Yellow Silt Clay	---
80.1	0-26	Dark Grayish Brown Silt Loam	---
	26-40	Grayish Brown//Brownish Yellow Silt Clay	---
80.2	0-32	Dark Grayish Brown Silt Loam	---
	32-49	Grayish Brown//Brownish Yellow Silt Clay	---
80.3	0-30	Dark Grayish Brown Silt Loam	---
	30-42	Grayish Brown//Brownish Yellow Silt Clay	---
80.4	0-32	Dark Grayish Brown Silt Loam	---
	32-48	Grayish Brown//Brownish Yellow Silt Clay	---
80.5	0-32	Dark Grayish Brown Silt Loam	---
	32-45	Grayish Brown//Brownish Yellow Silt Clay	---
80.6	0-32	Dark Grayish Brown Silt Loam	---
	32-42	Grayish Brown//Brownish Yellow Silt Clay	---
80.7	0-32	Dark Grayish Brown Silt Loam	---
	32-44	Grayish Brown//Brownish Yellow Silt Clay	---
81.1	0-30	Dark Grayish Brown Silt Loam	---
	30-41	Yellowish Brown Clay Loam	---
81.2	0-35	Dark Grayish Brown Silt Loam	---
	35-46	Yellowish Brown Clay Loam	---
81.3	0-31	Dark Grayish Brown Silt Loam	---
	31-44	Yellowish Brown Clay Loam	---
81.4	0-30	Dark Grayish Brown Silt Loam	---
	30-42	Yellowish Brown Clay Loam	---
81.5	0-35	Dark Grayish Brown Silt Loam	---
	35-46	Yellowish Brown Clay Loam	---
81.6	0-34	Dark Grayish Brown Silt Loam	---
	34-45	Yellowish Brown Clay Loam	---
81.7	0-32	Dark Grayish Brown Silt Loam	---
	32-42	Yellowish Brown Clay Loam	---
82.1	0-33	Dark Grayish Brown Silt Loam	---
	33-45	Yellowish Brown Clay Loam	---
82.2	0-34	Dark Grayish Brown Silt Loam	---
	34-44	Yellowish Brown Clay Loam	---
82.3	0-31	Dark Grayish Brown Silt Loam	---
	31-47	Yellowish Brown Clay Loam	---
82.4	0-28	Dark Grayish Brown Silt Loam	---
	28-40	Yellowish Brown Clay Loam	---

Shovel Test No.	Depth (cm)	Soil Description	Artifact Summary
82.5	0-35	Dark Grayish Brown Silt Loam	---
	35-49	Yellowish Brown Clay Loam	---
82.6	0-30	Dark Grayish Brown Silt Loam	---
	30-44	Yellowish Brown Clay Loam	---
83.1	0-34	Dark Grayish Brown Silt Loam	---
	34-45	Yellowish Brown Clay Loam	---
83.2	0-36	Dark Grayish Brown Silt Loam	---
	36-46	Yellowish Brown Clay Loam	---
83.3	0-30	Dark Grayish Brown Silt Loam	---
	30-42	Yellowish Brown Clay Loam	---
83.4	0-30	Dark Grayish Brown Silt Loam	---
	30-45	Yellowish Brown Clay Loam	---
83.5	0-29	Dark Grayish Brown Silt Loam	---
	29-45	Yellowish Brown Clay Loam	---
83.6	0-24	Dark Grayish Brown Silt Loam	---
	24-40	Yellowish Brown Clay Loam	---
84.1	0-31	Dark Grayish Brown Silt Loam	---
	31-42	Yellowish Brown Clay Loam	---
84.2	0-36	Dark Grayish Brown Silt Loam	---
	36-46	Yellowish Brown Clay Loam	---
84.3	0-32	Dark Grayish Brown Silt Loam	---
	32-44	Yellowish Brown Clay Loam	---
84.4	0-30	Dark Grayish Brown Silt Loam	---
	30-45	Yellowish Brown Clay Loam	---
84.5	0-32	Dark Grayish Brown Silt Loam	---
	32-43	Yellowish Brown Clay Loam	---
84.6	0-30	Dark Grayish Brown Silt Loam	---
	30-46	Yellowish Brown Clay Loam	---
85.1	0-28	Dark Grayish Brown Silt Loam	---
	28-43	Yellowish Brown Clay Loam	---
85.2	0-36	Dark Grayish Brown Silt Loam	---
	36-46	Yellowish Brown Clay Loam	---
85.3	0-30	Dark Grayish Brown Silt Loam	---
	30-44	Yellowish Brown Clay Loam	---
85.4	0-32	Dark Grayish Brown Silt Loam	---
	32-42	Yellowish Brown Clay Loam	---
85.5	0-36	Dark Grayish Brown Silt Loam	---
	36-46	Yellowish Brown Clay Loam	---

Shovel Test No.	Depth (cm)	Soil Description	Artifact Summary
86.1	0-30	Dark Grayish Brown Silt Loam	---
	30-44	Yellowish Brown Clay Loam	---
86.2	0-30	Dark Grayish Brown Silt Loam	---
	30-44	Yellowish Brown Clay Loam	---
86.3	0-36	Very Dark Grayish Brown Silt Loam	---
	36-49	Yellowish Brown Clay Loam	---
86.4	0-33	Very Dark Grayish Brown Silt Loam	---
	33-44	Yellowish Brown Clay Loam	---
86.5	0-26	Very Dark Grayish Brown Silt Loam	---
	26-40	Yellowish Brown Clay Loam	---
87.1	0-29	Dark Grayish Brown Silt Loam	---
	29-43	Yellowish Brown Clay Loam	---
87.2	0-31	Dark Grayish Brown Silt Loam	---
	31-41	Yellowish Brown Clay Loam	---
87.3	0-30	Very Dark Grayish Brown Silt Loam	---
	30-44	Yellowish Brown Clay Loam	---
87.4	0-30	Very Dark Grayish Brown Silt Loam	---
	30-42	Yellowish Brown Clay Loam	---
87.5	0-29	Very Dark Grayish Brown Silt Loam	---
	29-41	Yellowish Brown Clay Loam	---
88.1	0-26	Dark Grayish Brown Silt Loam	---
	26-42	Yellowish Brown Clay Loam	---
88.2	0-30	Dark Grayish Brown Silt Loam	---
	30-40	Yellowish Brown Clay Loam	---
88.3	0-32	Very Dark Grayish Brown Silt Loam	---
	32-45	Yellowish Brown Clay Loam	---
88.4	0-36	Very Dark Grayish Brown Silt Loam	---
	36-47	Yellowish Brown Clay Loam	---
89.1	0-29	Dark Grayish Brown Silt Loam	---
	29-40	Yellowish Brown Clay Loam	---
89.2	0-32	Dark Grayish Brown Silt Loam	---
	32-42	Yellowish Brown Clay Loam	---
89.3	0-30	Very Dark Grayish Brown Silt Loam	---
	30-42	Yellowish Brown Clay Loam	---
89.4	0-30	Very Dark Grayish Brown Silt Loam	---
	30-44	Yellowish Brown Clay Loam	---
90.1	0-27	Dark Grayish Brown Silt Loam	---
	27-38	Yellowish Brown Clay Loam	---

Shovel Test No.	Depth (cm)	Soil Description	Artifact Summary
90.2	0-30	Dark Grayish Brown Silt Loam	---
	30-43	Yellowish Brown Clay Loam	---
90.3	0-27	Very Dark Grayish Brown Silt Loam	---
	27-40	Yellowish Brown Clay Loam	---
91.1	0-26	Gray//Dark Gray Brown Silt Clay w/gravel fill	---
	26-50	Gray//Yellowish Brown Clay Loam w/ gravel fill	---
91.2	0-32	Dark Grayish Brown Silt Loam	---
	32-44	Yellowish Brown Clay Loam	---
91.3	0-28	Gray//Dark Gray Brown Silt Clay w/gravel fill	---
	28-40	Gray//Yellowish Brown Clay Loam w/ gravel fill	---
92.1		Not Excavated – Standing Water	
92.2	0-30	Dark Grayish Brown Silt Loam	---
	30-42	Yellowish Brown Clay Loam	---
92.3	0-30	Dark Grayish Brown Silt Loam	---
	30-40	Yellowish Brown Clay Loam	---
93.1	0-30	Gray//Dark Gray Brown Silt Clay w/gravel fill	---
	30-50	Gray//Yellowish Brown Clay Loam w/ gravel fill	---
93.2	0-32	Gray//Dark Gray Brown Silt Clay w/gravel fill	---
	32-49	Gray//Yellowish Brown Clay Loam w/ gravel fill	---
94.1	0-34	Gray//Dark Gray Brown Silt Clay w/gravel fill	---
	34-45	Gray//Yellowish Brown Clay Loam w/ gravel fill	---
94.2	0-24	Gray//Dark Gray Brown Silt Clay w/gravel fill	---
	24-43	Gray//Yellowish Brown Clay Loam w/ gravel fill	---
95.1	0-28	Gray//Dark Gray Brown Silt Clay w/gravel fill	---
	28-42	Gray//Yellowish Brown Clay Loam w/ gravel fill	---
95.2	0-24	Gray//Dark Gray Brown Silt Clay w/gravel fill	---
	24-45	Gray//Yellowish Brown Clay Loam w/ gravel fill	---
96.1		Not Excavated – Standing Water	
96.2	0-29	Dark Grayish Brown Silt Loam	---
	29-40	Pale Brown//Yellowish Brown Silt Clay	---
96.3	0-30	Dark Grayish Brown Silt Loam	---
	30-40	Pale Brown//Yellowish Brown Silt Clay	---
96.4	0-28	Dark Grayish Brown Silt Loam	---
	28-40	Pale Brown//Yellowish Brown Silt Clay	---
96.5	0-29	Dark Grayish Brown Silt Loam	---
	29-40	Yellowish Brown Silt Clay	---
96.6	0-26	Dark Grayish Brown Silt Loam	---
	26-40	Yellowish Brown Silt Clay	---

Shovel Test No.	Depth (cm)	Soil Description	Artifact Summary
96.7	0-30	Dark Grayish Brown Silt Loam	---
	30-40	Yellowish Brown Clay Loam	---
96.8	0-33	Very Dark Grayish Brown Silt Loam	---
	33-45	Yellowish Brown Clay Loam	---
96.9	0-31	Dark Grayish Brown Silt Loam	---
	31-42	Yellowish Brown Clay Loam	---
96.10	0-32	Very Dark Grayish Brown Silt Loam	---
	32-45	Yellowish Brown Clay Loam	---
96.11	0-27	Dark Grayish Brown Silt Loam	---
	27-40	Pale Brown//Yellowish Brown Silt Clay	---
96.12	0-30	Dark Grayish Brown Silt Loam	---
	30-42	Yellowish Brown Clay Loam	---
96.13	0-33	Very Dark Grayish Brown Silt Loam	---
	33-44	Yellowish Brown Clay Loam	---
96.14	0-30	Dark Grayish Brown Silt Loam	---
	30-42	Yellowish Brown Clay Loam	---
96.15	0-30	Very Dark Grayish Brown Silt Loam	---
	30-45	Yellowish Brown Clay Loam	---
96.16	0-27	Dark Grayish Brown Silt Loam	---
	27-40	Pale Brown//Yellowish Brown Silt Clay	---
97.1	0-27	Dark Grayish Brown Silt Loam	---
	27-40	Pale Brown//Yellowish Brown Silt Clay	---
97.2	0-26	Dark Grayish Brown Silt Loam	---
	26-40	Pale Brown//Yellowish Brown Silt Clay	---
97.3	0-30	Dark Grayish Brown Silt Loam	---
	30-42	Pale Brown//Yellowish Brown Silt Clay	---
97.4	0-26	Dark Grayish Brown Silt Loam	---
	26-38	Pale Brown//Yellowish Brown Silt Clay	---
97.5	0-29	Dark Grayish Brown Silt Loam	---
	29-42	Yellowish Brown Silt Clay	---
97.6	0-27	Dark Grayish Brown Silt Loam	---
	27-42	Yellowish Brown Silt Clay	---
97.7	0-31	Dark Grayish Brown Silt Loam	---
	31-43	Yellowish Brown Clay Loam	---
97.8	0-28	Very Dark Grayish Brown Silt Loam	---
	28-45	Yellowish Brown Clay Loam	---
97.9	0-28	Dark Grayish Brown Silt Loam	---
	28-42	Yellowish Brown Clay Loam	---

Shovel Test No.	Depth (cm)	Soil Description	Artifact Summary
97.10	0-30	Very Dark Grayish Brown Silt Loam	---
	30-44	Yellowish Brown Clay Loam	---
97.11	0-29	Dark Grayish Brown Silt Loam	---
	29-41	Pale Brown//Yellowish Brown Silt Clay	---
97.12	0-30	Dark Grayish Brown Silt Loam	---
	30-41	Yellowish Brown Clay Loam	---
97.13	0-30	Very Dark Grayish Brown Silt Loam	---
	30-42	Yellowish Brown Clay Loam	---
97.14	0-32	Dark Grayish Brown Silt Loam	---
	32-42	Yellowish Brown Clay Loam	---
97.15	0-30	Very Dark Grayish Brown Silt Loam	---
	30-41	Yellowish Brown Clay Loam	---
97.16	0-35	Very Dark Grayish Brown Silt Loam	---
	35-46	Yellowish Brown Clay Loam	---
98.1	0-29	Dark Grayish Brown Silt Loam	---
	29-40	Yellowish Brown Silt Clay	---
98.2		Not Excavated – Standing Water	
98.3	0-28	Dark Grayish Brown Silt Loam	---
	28-44	Yellowish Brown Silt Clay	---
98.4	0-29	Dark Grayish Brown Silt Loam	---
	20-41	Yellowish Brown Silt Clay	---
98.5	0-28	Dark Grayish Brown Silt Loam	---
	28-40	Yellowish Brown Silt Clay	---
98.6	0-30	Dark Grayish Brown Silt Loam	---
	30-42	Yellowish Brown Silt Clay	---
98.7	0-30	Dark Grayish Brown Silt Loam	---
	30-40	Yellowish Brown Silt Clay	---
98.8	0-30	Dark Grayish Brown Silt Loam	---
	30-40	Yellowish Brown Silt Clay	---
98.9	0-30	Dark Grayish Brown Silt Loam	---
	30-41	Yellowish Brown Silt Clay	---
98.10	0-27	Dark Grayish Brown Silt Loam	---
	27-40	Yellowish Brown Silt Clay	---
98.11	0-30	Dark Grayish Brown Silt Loam	---
	30-42	Yellowish Brown Silt Clay	---
98.12	0-32	Dark Grayish Brown Silt Loam	---
	32-43	Yellowish Brown Silt Clay	---

Shovel Test No.	Depth (cm)	Soil Description	Artifact Summary
98.13	0-31	Dark Grayish Brown Silt Loam	---
	31-43	Yellowish Brown Silt Clay	---
98.14	0-28	Dark Grayish Brown Silt Loam	---
	28-40	Yellowish Brown Silt Clay	---
98.15	0-32	Dark Grayish Brown Silt Loam	---
	32-42	Yellowish Brown Silt Clay	---
99.1	0-30	Dark Grayish Brown Silt Loam	---
	30-40	Yellowish Brown Silt Clay	---
99.2	0-32	Dark Grayish Brown Silt Loam	---
	32-42	Yellowish Brown Silt Clay	---
99.3	0-29	Dark Grayish Brown Silt Loam	---
	29-40	Yellowish Brown Silt Clay	---
99.4	0-30	Dark Grayish Brown Silt Loam	---
	30-42	Yellowish Brown Silt Clay	---
99.5	0-27	Dark Grayish Brown Silt Loam	---
	27-38	Yellowish Brown Silt Clay	---
99.6	0-32	Dark Grayish Brown Silt Loam	---
	32-42	Yellowish Brown Silt Clay	---
99.7	0-33	Dark Grayish Brown Silt Loam	---
	33-46	Yellowish Brown Silt Clay	---
99.8	0-30	Dark Grayish Brown Silt Loam	---
	30-41	Gray//Yellowish Brown Silt Clay	---
99.9	0-30	Dark Grayish Brown Silt Loam	---
	30-42	Gray//Yellowish Brown Silt Clay	---
99.10	0-29	Dark Grayish Brown Silt Loam	---
	29-42	Gray//Yellowish Brown Silt Clay	---
99.11	0-30	Dark Grayish Brown Silt Loam	---
	30-40	Gray//Yellowish Brown Silt Clay	---
99.12	0-32	Dark Grayish Brown Silt Loam	---
	32-42	Yellowish Brown Silt Clay	---
99.13	0-30	Dark Grayish Brown Silt Loam	---
	30-42	Yellowish Brown Silt Clay	---
99.14	0-29	Dark Grayish Brown Silt Loam	---
	29-44	Yellowish Brown Silt Clay	---
99.15	0-26	Dark Grayish Brown Silt Loam	---
	26-40	Yellowish Brown Silt Clay	---
100.1	0-26	Dark Grayish Brown Silt Loam	---
	26-41	Yellowish Brown Silt Clay	---

Shovel Test No.	Depth (cm)	Soil Description	Artifact Summary
100.2	0-27	Dark Grayish Brown Silt Loam	---
	27-40	Yellowish Brown Silt Clay	---
100.3	0-28	Dark Grayish Brown Silt Loam	---
	28-40	Yellowish Brown Silt Clay	---
100.4	0-25	Dark Grayish Brown Silt Loam	---
	25-38	Yellowish Brown Silt Clay	---
100.5	0-29	Dark Grayish Brown Silt Loam	---
	29-39	Yellowish Brown Silt Clay	---
100.6	0-30	Dark Grayish Brown Silt Loam	---
	30-42	Yellowish Brown Silt Clay	---
100.7	0-31	Dark Grayish Brown Silt Loam	---
	31-42	Yellowish Brown Silt Clay	---
100.8	0-30	Dark Grayish Brown Silt Loam	---
	30-40	Yellowish Brown Silt Clay	---
100.9	0-32	Dark Grayish Brown Silt Loam	---
	32-42	Gray//Yellowish Brown Silt Clay	---
100.10	0-30	Dark Grayish Brown Silt Loam	---
	30-45	Gray//Yellowish Brown Silt Clay	---
100.11	0-32	Dark Grayish Brown Silt Loam	---
	32-43	Pale Brown//Yellowish Brown Silt Clay	---
100.12	0-32	Dark Grayish Brown Silt Loam	---
	32-44	Pale Brown//Yellowish Brown Silt Clay	---
100.13	0-28	Dark Grayish Brown Silt Loam	---
	28-40	Yellowish Brown Silt Clay	---
100.14	0-29	Dark Grayish Brown Silt Loam	---
	29-46	Yellowish Brown Silt Clay	---
100.15	0-29	Dark Grayish Brown Silt Loam	---
	29-44	Yellowish Brown Silt Clay	---
101.1	0-32	Dark Grayish Brown Silt Loam	---
	32-43	Yellowish Brown Silt Clay	---
101.2	0-32	Dark Grayish Brown Silt Loam	---
	32-42	Yellowish Brown Silt Clay	---
101.3	0-30	Dark Grayish Brown Silt Loam	---
	30-40	Yellowish Brown Silt Clay	---
101.4	0-30	Dark Grayish Brown Silt Loam	---
	30-44	Yellowish Brown Silt Clay	---
101.5	0-28	Dark Grayish Brown Silt Loam	---
	28-39	Yellowish Brown Silt Clay	---

Shovel Test No.	Depth (cm)	Soil Description	Artifact Summary
101.6	0-32	Dark Grayish Brown Silt Loam	---
	32-45	Yellowish Brown Silt Clay	---
101.7	0-32	Dark Grayish Brown Silt Loam	---
	32-43	Yellowish Brown Silt Clay	---
101.8	0-26	Dark Grayish Brown Silt Loam	---
	26-40	Yellowish Brown Silt Clay	---
101.9	0-20	Dark Grayish Brown Silt Loam	---
	20-40	Gray//Yellowish Brown Silt Clay	---
101.10	0-28	Dark Grayish Brown Silt Loam	---
	28-43	Gray//Yellowish Brown Silt Clay	---
101.11	0-30	Dark Grayish Brown Silt Loam	---
	30-40	Gray//Yellowish Brown Silt Clay	---
101.12	0-32	Dark Grayish Brown Silt Loam	---
	32-42	Gray//Yellowish Brown Silt Clay	---
101.13	0-31	Very Dark Grayish Brown Silt Loam	---
	31-42	Yellowish Brown Silt Clay	---
101.14	0-30	Very Dark Grayish Brown Silt Loam	---
	30-42	Yellowish Brown Silt Clay	---
102.1	0-30	Dark Grayish Brown Silt Loam	---
	30-40	Yellowish Brown Silt Clay	---
102.2	0-29	Dark Grayish Brown Silt Loam	---
	29-40	Yellowish Brown Silt Clay	---
102.3	0-29	Dark Grayish Brown Silt Loam	---
	29-40	Yellowish Brown Silt Clay	---
102.4	0-30	Dark Grayish Brown Silt Loam	---
	30-42	Yellowish Brown Silt Clay	---
102.5	0-28	Dark Grayish Brown Silt Loam	---
	28-38	Yellowish Brown Silt Clay	---
102.6	0-30	Dark Grayish Brown Silt Loam	---
	30-42	Yellowish Brown Silt Clay	---
102.7	0-33	Dark Grayish Brown Silt Loam	---
	33-45	Yellowish Brown Silt Clay	---
102.8	0-31	Dark Grayish Brown Silt Loam	---
	31-41	Yellowish Brown Silt Clay	---
102.9	0-33	Dark Grayish Brown Silt Loam	---
	33-43	Yellowish Brown Silt Clay	---
102.10	0-30	Dark Grayish Brown Silt Loam	---
	30-42	Yellowish Brown Silt Clay	---

Shovel Test No.	Depth (cm)	Soil Description	Artifact Summary
102.11	0-30	Dark Grayish Brown Silt Loam	---
	30-46	Yellowish Brown Silt Clay	---
102.12	0-32	Dark Grayish Brown Silt Loam	---
	32-44	Yellowish Brown Silt Clay	---
102.13	0-30	Dark Grayish Brown Silt Loam	---
	30-44	Yellowish Brown Silt Clay	---
102.14	0-32	Dark Grayish Brown Silt Loam	---
	32-43	Yellowish Brown Silt Clay	---
103.1	0-32	Very Dark Grayish Brown Silt Loam	---
	32-42	Yellowish Brown Silt Clay	---
103.2	0-29	Very Dark Grayish Brown Silt Loam	---
	29-44	Yellowish Brown Silt Clay	---
103.3	0-27	Very Dark Grayish Brown Silt Loam	---
	27-39	Yellowish Brown Silt Clay	---
103.4	0-31	Very Dark Grayish Brown Silt Loam	---
	31-42	Yellowish Brown Silt Clay	---
103.5	0-29	Very Dark Grayish Brown Silt Loam	---
	29-39	Yellowish Brown Silt Clay	---
103.6	0-32	Dark Grayish Brown Silt Loam	---
	32-42	Yellowish Brown Silt Clay	---
103.7	0-33	Dark Grayish Brown Silt Loam	---
	33-49	Yellowish Brown Silt Clay	---
103.8	0-32	Dark Grayish Brown Silt Loam	---
	32-44	Yellowish Brown Silt Clay	---
103.9	0-32	Dark Grayish Brown Silt Loam	---
	32-45	Gray//Yellowish Brown Silt Clay	---
103.10	0-32	Dark Grayish Brown Silt Loam	---
	32-42	Gray//Yellowish Brown Silt Clay	---
103.11	0-35	Dark Grayish Brown Silt Loam	---
	35-45	Yellowish Brown Silt Clay	---
103.12	0-30	Dark Grayish Brown Silt Loam	---
	30-44	Yellowish Brown Silt Clay	---
103.13	0-30	Dark Grayish Brown Silt Loam	---
	30-42	Yellowish Brown Silt Clay	---
104.1	0-28	Very Dark Grayish Brown Silt Loam	---
	28-40	Yellowish Brown Silt Clay	---
104.2	0-28	Very Dark Grayish Brown Silt Loam	---
	28-40	Yellowish Brown Silt Clay	---

Shovel Test No.	Depth (cm)	Soil Description	Artifact Summary
104.3	0-28	Dark Grayish Brown Silt Loam	---
	28-41	Yellowish Brown Silt Clay	---
104.4	0-30	Dark Grayish Brown Silt Loam	---
	30-41	Yellowish Brown Silt Clay	---
104.5	0-29	Dark Grayish Brown Silt Loam	---
	29-42	Yellowish Brown Silt Clay	---
104.6	0-30	Dark Grayish Brown Silt Loam	---
	30-42	Yellowish Brown Silt Clay	---
104.7	0-30	Dark Grayish Brown Silt Loam	---
	30-45	Yellowish Brown Silt Clay	---
104.8	0-32	Dark Grayish Brown Silt Loam	---
	32-46	Yellowish Brown Silt Clay	---
104.9	0-32	Dark Grayish Brown Silt Loam	---
	33-43	Yellowish Brown Silt Clay	---
104.10	0-32	Dark Grayish Brown Silt Loam	---
	32-42	Yellowish Brown Silt Clay	---
104.11	0-33	Dark Grayish Brown Silt Loam	---
	33-45	Yellowish Brown Silt Clay	---
104.12	0-32	Dark Grayish Brown Silt Loam	---
	32-48	Yellowish Brown Silt Clay	---
104.13	0-26	Dark Grayish Brown Silt Loam	---
	26-40	Yellowish Brown Silt Clay	---
105.1	0-25	Very Dark Grayish Brown Silt Loam	---
	25-36	Yellowish Brown Silt Clay	---
105.2	0-27	Very Dark Grayish Brown Silt Loam	---
	27-38	Yellowish Brown Silt Clay	---
105.3	0-30	Dark Grayish Brown Silt Loam	---
	30-45	Yellowish Brown Silt Clay	---
105.4	0-30	Dark Grayish Brown Silt Loam	---
	30-42	Yellowish Brown Silt Clay	---
105.5	0-26	Dark Grayish Brown Silt Loam	---
	26-44	Yellowish Brown Silt Clay	---
105.6	0-30	Dark Grayish Brown Silt Loam	---
	30-43	Yellowish Brown Silt Clay	---
105.7	0-28	Dark Grayish Brown Silt Loam	---
	28-42	Yellowish Brown Silt Clay	---
105.8	0-29	Dark Grayish Brown Silt Loam	---
	29-44	Yellowish Brown Silt Clay	---

Shovel Test No.	Depth (cm)	Soil Description	Artifact Summary
105.9	0-30	Dark Grayish Brown Silt Loam	---
	30-40	Yellowish Brown Silt Clay	---
105.10	0-33	Dark Grayish Brown Silt Loam	---
	33-45	Yellowish Brown Silt Clay	---
105.11	0-32	Dark Grayish Brown Silt Loam	---
	32-42	Yellowish Brown Silt Clay	---
105.12	0-30	Dark Grayish Brown Silt Loam	---
	30-44	Yellowish Brown Silt Clay	---
105.13	0-30	Dark Grayish Brown Silt Loam	---
	30-44	Yellowish Brown Silt Clay	---
106.1	0-25	Very Dark Grayish Brown Silt Loam	---
	25-36	Yellowish Brown Silt Clay	---
106.2	0-27	Very Dark Grayish Brown Silt Loam	---
	27-38	Yellowish Brown Silt Clay	---
106.3	0-30	Dark Grayish Brown Silt Loam	---
	30-45	Yellowish Brown Silt Clay	---
106.4	0-30	Dark Grayish Brown Silt Loam	---
	30-42	Yellowish Brown Silt Clay	---
106.5	0-26	Dark Grayish Brown Silt Loam	---
	26-44	Yellowish Brown Silt Clay	---
106.6	0-30	Dark Grayish Brown Silt Loam	---
	30-43	Yellowish Brown Silt Clay	---
106.7	0-28	Dark Grayish Brown Silt Loam	---
	28-42	Yellowish Brown Silt Clay	---
106.8	0-29	Dark Grayish Brown Silt Loam	---
	29-44	Yellowish Brown Silt Clay	---
106.9	0-30	Dark Grayish Brown Silt Loam	---
	30-40	Yellowish Brown Silt Clay	---
106.10	0-33	Dark Grayish Brown Silt Loam	---
	33-45	Yellowish Brown Silt Clay	---
106.11	0-32	Dark Grayish Brown Silt Loam	---
	32-42	Yellowish Brown Silt Clay	---
106.12	0-30	Dark Grayish Brown Silt Loam	---
	30-44	Yellowish Brown Silt Clay	---
107.1	0-30	Very Dark Grayish Brown Silt Loam	---
	30-42	Yellowish Brown Silt Clay	---
107.2	0-28	Very Dark Grayish Brown Silt Loam	---
	28-38	Yellowish Brown Silt Clay	---

Shovel Test No.	Depth (cm)	Soil Description	Artifact Summary
107.3	0-30	Dark Grayish Brown Silt Loam	---
	30-43	Yellowish Brown Silt Clay	---
107.4	0-32	Dark Grayish Brown Silt Loam	---
	32-42	Yellowish Brown Silt Clay	---
107.5	0-29	Dark Grayish Brown Silt Loam	---
	29-45	Light Brown Gray//Yellowish Brown Silt Clay	---
107.6	0-32	Dark Grayish Brown Silt Loam	---
	32-43	Light Brown Gray//Yellowish Brown Silt Clay	---
107.7	0-29	Dark Grayish Brown Silt Loam	---
	29-40	Light Brown Gray//Yellowish Brown Silt Clay	---
107.8	0-31	Dark Grayish Brown Silt Loam	---
	31-44	Light Brown Gray//Yellowish Brown Silt Clay	---
107.9	0-30	Dark Grayish Brown Silt Loam	---
	30-43	Light Brown Gray//Yellowish Brown Silt Clay	---
107.10	0-33	Dark Grayish Brown Silt Loam	---
	33-46	Light Brown Gray//Yellowish Brown Silt Clay	---
107.11	0-32	Dark Grayish Brown Silt Loam	---
	32-45	Light Brown Gray//Yellowish Brown Silt Clay	---
107.12	0-31	Dark Grayish Brown Silt Loam	---
	31-41	Light Brown Gray//Yellowish Brown Silt Clay	---
108.1	0-31	Very Dark Grayish Brown Silt Loam	---
	31-42	Yellowish Brown Silt Clay	---
108.2	0-29	Very Dark Grayish Brown Silt Loam	---
	29-39	Yellowish Brown Silt Clay	---
108.3	0-32	Dark Grayish Brown Silt Loam	---
	32-44	Yellowish Brown Silt Clay	---
108.4	0-32	Dark Grayish Brown Silt Loam	---
	32-42	Yellowish Brown Silt Clay	---
108.5	0-34	Dark Grayish Brown Silt Loam	---
	34-48	Light Brown Gray//Yellowish Brown Silt Clay	---
108.6	0-36	Dark Grayish Brown Silt Loam	---
	36-49	Light Brown Gray//Yellowish Brown Silt Clay	---
108.7	0-32	Dark Grayish Brown Silt Loam	---
	32-44	Light Brown Gray//Yellowish Brown Silt Clay	---
108.8	0-30	Dark Grayish Brown Silt Loam	---
	30-43	Light Brown Gray//Yellowish Brown Silt Clay	---
108.9	0-30	Dark Grayish Brown Silt Loam	---
	30-40	Light Brown Gray//Yellowish Brown Silt Clay	---

Shovel Test No.	Depth (cm)	Soil Description	Artifact Summary
108.10	0-30	Dark Grayish Brown Silt Loam	---
	30-40	Light Brown Gray//Yellowish Brown Silt Clay	---
108.11	0-28	Dark Grayish Brown Silt Loam	---
	28-40	Light Brown Gray//Yellowish Brown Silt Clay	---
109.1	0-35	Very Dark Grayish Brown Silt Loam	---
	35-45	Yellowish Brown Silt Clay	---
109.2	0-30	Very Dark Grayish Brown Silt Loam	---
	30-46	Yellowish Brown Silt Clay	---
109.3	0-32	Very Dark Grayish Brown Silt Loam	---
	32-46	Yellowish Brown Silt Clay	---
109.4	0-30	Very Dark Grayish Brown Silt Loam	---
	30-45	Yellowish Brown Silt Clay	---
109.5	0-24	Very Dark Grayish Brown Silt Loam	---
	24-36	Light Brown Gray//Yellowish Brown Silt Clay	---
109.6	0-30	Very Dark Grayish Brown Silt Loam	---
	30-40	Light Brown Gray//Yellowish Brown Silt Clay	---
109.7	0-31	Very Dark Grayish Brown Silt Loam	---
	31-44	Light Brown Gray//Yellowish Brown Silt Clay	---
109.8	0-30	Very Dark Grayish Brown Silt Loam	---
	30-42	Light Brown Gray//Yellowish Brown Silt Clay	---
109.9	0-28	Very Dark Grayish Brown Silt Loam	---
	28-42	Light Brown Gray//Yellowish Brown Silt Clay	---
109.10	0-23	Dark Grayish Brown Silt Loam	---
	23-38	Light Brown Gray//Yellowish Brown Silt Clay	---
109.11	0-24	Dark Grayish Brown Silt Loam	---
	24-38	Light Brown Gray//Yellowish Brown Silt Clay	---
110.1	0-34	Very Dark Grayish Brown Silt Loam	---
	34-44	Yellowish Brown Silt Clay	---
110.2	0-30	Very Dark Grayish Brown Silt Loam	---
	30-44	Yellowish Brown Silt Clay	---
110.3	0-32	Very Dark Grayish Brown Silt Loam	---
	32-43	Yellowish Brown Silt Clay	---
110.4	0-33	Very Dark Grayish Brown Silt Loam	---
	33-43	Yellowish Brown Silt Clay	---
110.5	0-28	Very Dark Grayish Brown Silt Loam	---
	28-39	Light Brown Gray//Yellowish Brown Silt Clay	---
110.6	0-36	Very Dark Grayish Brown Silt Loam	---
	36-46	Light Brown Gray//Yellowish Brown Silt Clay	---

Shovel Test No.	Depth (cm)	Soil Description	Artifact Summary
110.7	0-30	Very Dark Grayish Brown Silt Loam	---
	30-42	Light Brown Gray//Yellowish Brown Silt Clay	---
110.8	0-30	Dark Grayish Brown Silt Loam	---
	30-40	Light Brown Gray//Yellowish Brown Silt Clay	---
110.9	0-32	Dark Grayish Brown Silt Loam	---
	32-42	Light Brown Gray//Yellowish Brown Silt Clay	---
110.10	0-30	Dark Grayish Brown Silt Loam	---
	30-43	Light Brown Gray//Yellowish Brown Silt Clay	---
110.11	0-29	Dark Grayish Brown Silt Loam	---
	29-45	Light Brown Gray//Yellowish Brown Silt Clay	---
111.1	0-32	Dark Grayish Brown Silt Loam	---
	32-44	Yellowish Brown Silt Clay	---
111.2	0-35	Dark Grayish Brown Silt Loam	---
	35-45	Yellowish Brown Silt Clay	---
111.3	0-30	Very Dark Grayish Brown Silt Loam	---
	30-42	Yellowish Brown Silt Clay	---
111.4	0-30	Very Dark Grayish Brown Silt Loam	---
	30-44	Yellowish Brown Silt Clay	---
111.5	0-29	Dark Grayish Brown Silt Loam	---
	29-39	Light Brown Gray//Yellowish Brown Silt Clay	---
111.6	0-33	Dark Grayish Brown Silt Loam	---
	33-43	Light Brown Gray//Yellowish Brown Silt Clay	---
111.7	0-30	Very Dark Grayish Brown Silt Loam	---
	30-45	Light Brown Gray//Yellowish Brown Silt Clay	---
111.8	0-31	Dark Grayish Brown Silt Loam	---
	31-42	Light Brown Gray//Yellowish Brown Silt Clay	---
112.1	0-30	Dark Grayish Brown Silt Loam	---
	30-47	Light Brown Gray//Yellowish Brown Silt Clay	---
112.2	0-35	Dark Grayish Brown Silt Loam	---
	35-48	Light Brown Gray//Yellowish Brown Silt Clay	---
112.3	0-34	Dark Grayish Brown Silt Loam	---
	34-47	Light Brown Gray//Yellowish Brown Silt Clay	---
112.4	0-30	Dark Grayish Brown Silt Loam	---
	30-47	Light Brown Gray//Yellowish Brown Silt Clay	---
112.5	0-34	Dark Grayish Brown Silt Loam	---
	34-45	Light Brown Gray//Yellowish Brown Silt Clay	---
112.6	0-34	Dark Grayish Brown Silt Loam	---
	34-45	Light Brown Gray//Yellowish Brown Silt Clay	---

Shovel Test No.	Depth (cm)	Soil Description	Artifact Summary
112.7	0-31	Dark Grayish Brown Silt Loam	---
	31-43	Light Brown Gray//Yellowish Brown Silt Clay	---
112.8	0-32	Dark Grayish Brown Silt Loam	---
	32-45	Light Brown Gray//Yellowish Brown Silt Clay	---
113.1	0-31	Very Dark Grayish Brown Silt Loam	---
	31-44	Light Brown Gray//Yellowish Brown Silt Clay	---
113.2	0-37	Dark Grayish Brown Silt Loam	---
	37-47	Light Brown Gray//Yellowish Brown Silt Clay	---
113.3	0-32	Dark Grayish Brown Silt Loam	---
	32-45	Light Brown Gray//Yellowish Brown Silt Clay	---
113.4	0-30	Dark Grayish Brown Silt Loam	---
	30-43	Light Brown Gray//Yellowish Brown Silt Clay	---
113.5	0-33	Dark Grayish Brown Silt Loam	---
	33-43	Light Brown Gray//Yellowish Brown Silt Clay	---
113.6	0-31	Dark Grayish Brown Silt Loam	---
	31-43	Light Brown Gray//Yellowish Brown Silt Clay	---
113.1	0-24	Dark Grayish Brown Silt Loam	---
	24-44	Light Brown Gray//Yellowish Brown Silt Clay	---
113.2	0-30	Dark Grayish Brown Silt Loam	---
	30-45	Light Brown Gray//Yellowish Brown Silt Clay	---
113.3	0-33	Dark Grayish Brown Silt Loam	---
	33-44	Light Brown Gray//Yellowish Brown Silt Clay	---
113.4	0-31	Dark Grayish Brown Silt Loam	---
	31-45	Light Brown Gray//Yellowish Brown Silt Clay	---
113.5	0-28	Dark Grayish Brown Silt Loam	---
	28-40	Light Brown Gray//Yellowish Brown Silt Clay	---
113.6	0-28	Dark Grayish Brown Silt Loam	---
	28-42	Light Brown Gray//Yellowish Brown Silt Clay	---
114.1	0-26	Very Dark Grayish Brown Silt Loam	---
	26-42	Light Brown Gray//Yellowish Brown Silt Clay	---
114.2	0-27	Dark Grayish Brown Silt Loam	---
	27-45	Light Brown Gray//Yellowish Brown Silt Clay	---
114.3	0-29	Dark Grayish Brown Silt Loam	---
	29-40	Light Brown Gray//Yellowish Brown Silt Clay	---
114.4	0-31	Dark Grayish Brown Silt Loam	---
	31-42	Light Brown Gray//Yellowish Brown Silt Clay	---
114.5	0-32	Dark Grayish Brown Silt Loam	---
	32-50	Yellowish Brown Silt Clay	---

Shovel Test No.	Depth (cm)	Soil Description	Artifact Summary
114.6	0-31	Dark Grayish Brown Silt Loam	---
	31-47	Yellowish Brown Silt Clay	---
115.1	0-30	Very Dark Grayish Brown Silt Loam	---
	30-40	Yellowish Brown Silt Clay	---
116.1	0-22	Gray//Dark Gray Brown Silt Clay w/gravel fill	---
	22-36	Gray//Yellowish Brown Clay Loam w/ gravel fill	---
116.2	0-21	Gray//Dark Gray Brown Silt Clay w/gravel fill	---
	21-46	Gray//Yellowish Brown Clay Loam w/ gravel fill	---
116.3	0-22	Gray//Dark Gray Brown Silt Clay w/gravel fill	---
	22-40	Gray//Yellowish Brown Clay Loam w/ gravel fill	---
116.4	0-16	Gray//Dark Gray Brown Silt Clay w/gravel fill	---
	16-50	Gray//Yellowish Brown Clay Loam w/ gravel fill	---
116.5	0-21	Gray//Dark Gray Brown Silt Clay w/gravel fill	---
	21-40	Gray//Yellowish Brown Clay Loam w/ gravel fill	---
116.6	0-20	Gray//Dark Gray Brown Silt Clay w/gravel fill	---
	20-42	Gray//Yellowish Brown Clay Loam w/ gravel fill	---
116.7	0-24	Gray//Dark Gray Brown Silt Clay w/gravel fill	---
	24-40	Gray//Yellowish Brown Clay Loam w/ gravel fill	---
117.1	0-21	Gray//Dark Gray Brown Silt Clay w/gravel fill	---
	21-43	Gray//Yellowish Brown Clay Loam w/ gravel fill	---
117.2	0-22	Gray//Dark Gray Brown Silt Clay w/gravel fill	---
	22-38	Gray//Yellowish Brown Clay Loam w/ gravel fill	---
117.3	0-19	Gray//Dark Gray Brown Silt Clay w/gravel fill	---
	19-42	Gray//Yellowish Brown Clay Loam w/ gravel fill	---
117.4	0-24	Gray//Dark Gray Brown Silt Clay w/gravel fill	---
	24-39	Gray//Yellowish Brown Clay Loam w/ gravel fill	---
117.5	0-26	Gray//Dark Gray Brown Silt Clay w/gravel fill	---
	26-36	Gray//Yellowish Brown Clay Loam w/ gravel fill	---
118.1	0-21	Gray//Dark Gray Brown Silt Clay w/gravel fill	---
	21-40	Gray//Yellowish Brown Clay Loam w/ gravel fill	---
118.2	0-28	Gray//Dark Gray Brown Silt Clay w/gravel fill	---
	28-38	Gray//Yellowish Brown Clay Loam w/ gravel fill	---
118.3	0-27	Gray//Dark Gray Brown Silt Clay w/gravel fill	---
	27-37	Gray//Yellowish Brown Clay Loam w/ gravel fill	---
119.1	0-20	Gray//Dark Gray Brown Silt Clay w/gravel fill	---
	20-42	Gray//Yellowish Brown Clay Loam w/ gravel fill	---

ATTACHMENT C

OPRHP Correspondence Regarding the Yoviene Subdivision

Andrew M. Cuomo
Governor

Rose Harvey
Commissioner

New York State Office of Parks, Recreation and Historic Preservation

Historic Preservation Field Services Bureau • Peebles Island, PO Box 189, Waterford, New York 12188-0189
518-237-8643
www.nysparks.com

February 16, 2012

Valerie Sarcione
Nussbaumer & Clark, Inc.
3556 Lake Shore Road
Suite 500
Buffalo, New York 14219

RECEIVED
FEB 23 2012
NUSSBAUMER & CLARKE, INC.

Re: DEC
Yovienne Subdivision - Taylor Rd west of Vail Rd (NCI File No. 10J-0032)
Town of Hamburg, Erie County
12PR00302

Dear Ms. Sarcione:

Thank you for requesting the comments of the Office of Parks, Recreation and Historic Preservation (OPRHP) concerning your project's potential impact/effect upon historic and/or prehistoric cultural resources. Our staff has reviewed the documentation that you provided on your project. Preliminary comments and/or requests for additional information are noted on separate enclosures accompanying this letter. A determination of impact/effect will be provided only after ALL documentation requirements noted on any enclosures have been met. Any questions concerning our preliminary comments and/or requests for additional information should be directed to the appropriate staff person identified on each enclosure.

In cases where a state agency is involved in this undertaking, it is appropriate for that agency to determine whether consultation should take place with OPRHP under Section 14.09 of the New York State Parks, Recreation and Historic Preservation Law. In addition, if there is any federal agency involvement, Advisory Council on Historic Preservation's regulations, "Protection of Historic and Cultural Properties" 36 CFR 800 requires that agency to initiate Section 106 consultation with the State Historic Preservation Officer (SHPO).

When responding, please be sure to refer to the OPRHP Project Review (PR) number noted above.

Sincerely,

Ruth L. Pierpont

Ruth L. Pierpont
Deputy Commissioner for Historic Preservation

Enclosure

ARCHEOLOGY COMMENTS
12PR00302

Based on reported resources, there is an archeological site in or adjacent to your project area. Therefore the Office of Parks, Recreation and Historic Preservation (OPRHP) recommends that a Phase 1 archeological survey is warranted for all portions of the project to involve ground disturbance, unless substantial prior ground disturbance can be documented. If you consider the project area to be disturbed, documentation of the disturbance will need to be reviewed by OPRHP. Examples of disturbance include mining activities and multiple episodes of building construction and demolition.

A Phase 1 survey is designed to determine the presence or absence of archeological sites or other cultural resources in the project's area of potential effect. The OPRHP can provide standards for conducting cultural resource investigations upon request. Cultural resource surveys and survey reports that meet these standards will be accepted and approved by the OPRHP.

Our office does not conduct cultural resources surveys. A 36 CFR 61 qualified archeologist should be retained to conduct the Phase 1 survey. Many archeological consulting firms advertise their availability in the yellow pages. The services of qualified archeologists can also be obtained by contacting local, regional, or statewide professional archeological organizations. Phase 1 surveys can be expected to vary in cost per mile of right-of-way or by the number of acres impacted. We encourage you to contact a number of consulting firms and compare examples of each firm's work to obtain the best product.

Documentation of ground disturbance should include a description of the disturbance with confirming evidence. Confirmation can include current photographs and/or older photographs of the project area which illustrate the disturbance (approximately keyed to a project area map), past maps or site plans that accurately record previous disturbances, or current soil borings that verify past disruptions to the land. Agricultural activity is not considered to be substantial ground disturbance and many sites have been identified in previously cultivated land.

Please also be aware that a Section 233 permit from the New York State Education Department (SED) may be necessary before any archeological survey activities are conducted on State-owned land.If any portion of the project includes the lands of New York State you should contact the SED before initiating survey activities.The SED contact is Christina B. Rieth and she can be reached at (518) 402-5975. Section 233 permits are not required for projects on private lands.

If you have any questions concerning archeology, please contact Nancy L.. Herter at (518) 237-8643. ext 3280

EXHIBIT 8

WETLAND DELINEATION STUDY FOR
WILLOW WOODS SUBDIVISION
NOVEMBER 23, 2010

By: Wilson Environmental Technologies, Inc.

WILSON
ENVIRONMENTAL
TECHNOLOGIES, INC.

WETLAND DELINEATION REPORT

TAYLOR ROAD
Town of Hamburg

prepared for
Mr. Jim Yoviene
Sellmore Industries, Inc.

CLIENT:
MR. JIM YOVIENE
SELLMORE INDUSTRIES, INC.
815 SMITH STREET
BUFFALO, NEW YORK 14240

PROJECT NAME:
TAYLOR ROAD

PROJECT LOCATION:
SOUTHWEST OF AND ADJACENT TO TAYLOR ROAD
TOWN OF HAMBURG
ERIE COUNTY, NEW YORK

ACTION:
SECTION 404 WETLAND DELINEATION REPORT

PREPARED BY:
WILSON ENVIRONMENTAL TECHNOLOGIES, INC.
2805 WHERLE DRIVE, SUITE 8
WILLIAMSVILLE, NEW YORK 14221
(716) 595-3000 FAX (716) 595-9994

DATE:
November 23, 2010

WET PROJECT NO.:
561.005

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APPENDIX C. WETLAND DELINEATION MAP

EXECUTIVE SUMMARY

Wilson Environmental Technologies, Inc. (WET) has been retained by Mr. Jim Yoviene, Sellmore Industries Inc. Buffalo, New York 14240, to evaluate and define wetlands subject to jurisdiction under Section 404 of the Clean Water Act on approximately 141.68 acre parcel in the Town of Hamburg, Erie County, New York.

WET conducted the Federal Wetlands Delineation of the site during several days in September 2010. The result of the wetland delineation shows five (5) wetlands totaling approximately 21.97 acres within the site; the largest wetland being an area of approximately 12.3± acres; the smallest totaling approximately 1.1± acre. The wetlands were flagged at the time of the field work and the location of the wetland surveyed by a licenced land surveying firm. The following technical report addresses the site wetland. The wetland delineation results were based on the presence of hydric soils, hydrophytic vegetation and wetland hydrology found within the site boundaries as depicted on the attached Wetlands Survey prepared by the firm of Nussbaumer & Clarke, Inc..

This report is intended for the use of the property owner(s), their agents and assigns as a planning aid in the development of this parcel. Results of the Federal Wetlands Delineation are subject to the review of the U.S. Army Corps of Engineers under Section 404 of the Clean Water Act, and the New York State Department of Environmental Conservation as the Regulatory Agencies, along with the Town of Hamburg. This Wetland Delineation Report is a representation of Federal Wetlands only, as the New York State Department of Environmental Conservation is solely responsible for the delineation of wetlands under Article 24 of the New York State Freshwater Wetlands Act. The review of this document by the U.S. Army Corps of Engineers could produce alterations to the delineated boundary as determined by WET. The wetlands, as delineated by WET, were completed to the best of our ability and in compliance with the guidelines presented in the Corps of Engineers Wetlands Delineation Manual Technical Report Y-87-1 (U.S. Army Corps Waterways Experiment Station, 1987), accepted as the current methodology.

1.0 INTRODUCTION

Wilson Environmental Technologies, Inc. (WET) has been retained by Mr. Jim Yoviene, Sellmore Industries, Inc. 815 Smith Street, Buffalo, New York, 14240, to evaluate and define wetlands subject to jurisdiction under Section 404 of the Clean Water Act on an approximately 141.68 acre parcel in the Town of Hamburg, Erie County, New York. (Figure 1). This report presents the results of the on-site field investigation which was conducted to determine if a United States Army Corps of Engineers (USACE) permit relative to Section 404 of the Clean Water Act would be required for any proposed development within the parcel. Based on the results of the investigation, WET determined that five (5) Federally jurisdictional wetland totaling approximately 12.3 acres is located within the site. The determination was based on the presence of hydric soils, hydrophytic vegetation and wetland hydrology.

The result of the wetlands delineation was surveyed by the firm of Nussbaumer & Clarke, Inc. 3556 Lake Shore Road, Buffalo, New York, 14219, and contained in Appendix D of this report.

1.1 Current Regulations

The Code of Federal Regulations defines a wetland as an area having hydric soils, wetland hydrology and supporting vegetation dominated by hydrophytes. All three of these criteria must be present for an area to qualify as a wetland. Hydrophytic vegetation has been defined as species which due to morphological, physiological, and/or reproductive adaptation(s), have the ability to grow, effectively compete, reproduce, and/or persist in anaerobic soil conditions. These species have been given an indicator status defining their probability of occurring in a wetland. These indicator statuses are defined as Obligate Wetland (OBL), Facultative Wetland (FACW) and Facultative (FAC). Non-hydrophytic species are assigned an indicator status of Facultative Upland (FACU) or Obligate Upland (UPL).

WET performed the wetland delineation in accordance with the Corps of Engineers Wetland Delineation Manual dated January 1987 and the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region, dated October, 2009. The development of this supplement follows the recommendations of the National Research Council to increase the regional sensitivity of wetland delineation method.

2.0 AGENCY RESOURCE INFORMATION

Prior to initiation of the on-site investigation, available environmental information was gathered and reviewed. The results of the review are summarized as follows:

2.1 USGS Quadrangle Map (Figure 1)

The U.S. Geological Service has produced geological maps for every county of the United States. These maps are useful in wetland delineation for the purposes of identifying areas of concern within a parcel. In addition to civil works and boundaries, indicators of marshes, swamps, perennial and intermittent streams, and contours are depicted. A tributary to Eighteen Mile Creek is shown south and west of the site. The Hamburg, New York (7.5 minute) quadrangle map were referenced for this parcel.

2.2 National Wetlands Inventory Map (Figure 2)

NWI maps were produced by the U.S. Department of the Interior, Fish and Wildlife Service in the years 1977 to present day. These maps provide the approximate configurations and community types of suspected Federal wetlands. Although they serve as useful guidelines, they are incomplete due to compilation methods primarily utilizing aerial photography which contain an inherent margin of error, only reflect conditions the year in which they were taken and some wetland areas too small or obscured by dense forest may not be depicted. The Hamburg, New York (1978) NWI map was referenced for this parcel. Updated mapping has been included into the Erie County GIS System. A Federal regulated wetland is indicated within the limits of the site. The Erie County GIS Web Viewer NWI 2008 aerial photograph with wetland is included as Figure 2.

2.3 NYSDEC Freshwater Wetlands Map (Figure 3)

The New York State Department of Environmental Conservation (DEC) has developed criterion for wetland identification based on vegetation cover with minimum acreage requirements. Identified wetlands have been promulgated with the production and distribution of Freshwater Wetlands Maps (FWW). The boundaries of identified wetlands are approximations and require surveying of a field delineation performed by a DEC representative to determine exact boundaries and acreage. Updated mapping has been included into the Erie County GIS System. The, Hamburg, New York (1978) FWW map was referenced for this parcel. State FWW designated as HB-7 is shown within the extreme southeast portion of the site. The Erie County GIS Web Viewer FWW 2008 aerial photograph is included as Figure 3.

2.4 NRCS Soils Map (Figure 4)

The Natural Resources Conservation Service (former U.S. Soil Conservation

Service) has performed a soils identification study on a county by county basis. Aerial photography plates have been utilized in conjunction with field testing to identify soil types and locations within various counties. The results have been compiled and published in County-Specific Soil Surveys. Also included in the surveys is information pertaining to the various soils identified within the county which includes, but is not limited to, texture, range of chroma colors, range of mottle colors, subgroup and drainage classification. Most counties in New York State have been completed and published though a few are still in progress. The NRCS Web Series - Soil Survey of Erie County, was referenced to determine the likelihood of encountering soils with hydric characteristics or which may contain hydric inclusions. The following soil series are mapped within the limits of delineation project:

SYMBOL	SERIES	SUBGROUP	DRAINAGE CLASS
HrA	Hornell silt loam	Aeric Haplaquepts	somewhat poorly
Pc	Patchin silt loam	Aeric Haplaquepts	poorly
RgA	Rhinebeck silt loam	Aeric Ochraqualfs	somewhat poorly

The site is located within the Niagara-Canandaigua-Cosad soil map unit. This soils unit is defined as dominantly nearly level, deep, somewhat poorly drained to very poorly drained, medium textured soils; on lowlands plains.

The soil symbols associated with the detailed soils map indicates the soil series and the slope associated with that mapped unit. For example, FbA identifies the soil series as Farnham. The last capital letter of any symbol (A) identifies the slope ranging for that soil unit, 0 to 3 percent slope. B represents 3 to 8 percent slope, C represents 8 to 15 percent, D - 15 to 25 percent and E represents a slope of 25 to 35 percent. No third letter designation indicates a nearly level landscape.

The Hornell series consists of moderately deep, somewhat poorly drained soils formed in till overlying shale or siltstone. They are nearly level to steep soils on bedrock-controlled uplands. Permeability is slow or very slow. Slope ranges from 0 to 50 percent. Soil coloration in the B Horizon are yellowish brown (10YR 5/4) silty clay loam. The B2 Horizon soil coloration is strong brown (7.5YR 5/6) silty clay loam. The A Horizon is dark grayish brown (10YR 4/2) silt loam. The Allis, Hornellsville and Kanona series are similar soils in related families.

The Patchin series consist of moderately deep, poorly drained and very poorly drained, nearly level soils on slightly concave parts of bedrock controlled till

plains that receive surface runoff from adjacent soils. These soils formed in glacial till deposits underlain with shale bedrock. Bedrock is at a depth of 20 to 40 inches. Slopes range from 0 to 3 percent. Soil colorations in the B Horizon are an dark grayish brown 10YR4/2, with many (as much as 45 percent) 7.5YR5/6 mottles and common coarse light brownish gray 2.5Y6/2 mottles with 10 percent coarse fragments. The B2 Horizon of these soils has a hue ranging from 10YR to 2.5Y, value of 4 through 6, and chroma of 2 or less. Texture is light silty clay loam. The Ap Horizon is a very dark grayish brown 10YR4/2 silt loam. Associated soils include Derb, Hornell, Orpark, Angola, and Lyons soils.

The Rhinebeck series consists of deep, somewhat poorly drained soils that occur throughout the county on the lowland lake-plain and in nearly level to sloping areas in valleys. These soils formed in lake laid sediments dominated by silt and clay. In some areas, they are thinly mantled with gravelly out-wash deposits. Slopes range from 0 to 15 percent but are more commonly 0 to 3 percent. . Soil colorations in the B Horizon are a light yellowish brown 2.5Y5/4 with many common distinct brownish yellow 10YR6/8 mottles. The B2 Horizon of these soils has a hue ranging from 7.5YR to 5Y value of 3 through 5, and chroma of 2 through 4. Texture is silt clay. The Ap Horizon is a very dark brown 10YR4/2 silt loam. Associated soils include Niagara, Odessa, Churchville, Darien and Remson soils.

2.5 Agency Resource Conclusions

The mapping of poorly drained soil, indicted the necessity to perform a field investigation at the site to ascertain the extent to which, if any, federally protected wetland exist on the parcel. The wetlands delineation was performed in accordance with the Corps of Engineers Wetlands Delineation Manual (January 1987). Procedures, results and conclusions of the wetlands delineation field study are presented in the remainder of this report.

3.0 SITE DESCRIPTION

The subject site consists of approximately 141.68 acres situated southwest of and adjacent to Taylor Road within the Town of Hamburg. The northern half of the site dominantly consists of active agriculture, sectioned off into four large fields. The southern half of the site is occupied by a mature woodlot, in which the majority of the delineated wetlands can be found. Also found in the southern woodlot is a historic dump site, located in the area between wetlands A, D & E; and a narrow, very sinuous creek that runs from the southwest corner of the property, offsite to the east. The creek is a result of drainage from the agricultural fields found bordering the property line to the south. A regularly mowed gas line runs across the northwest corner of the site. West of the gas-line is a developing residential area.

There are five (5) wetlands found on the property: wetland A, is the largest (12.3± acres) located immediately south of the agricultural fields, spanning nearly the entire width of the site; wetland B, is 2.2± acres and is located on the western property line, southwest of wetland A; Wetland C, is 4.3± acres and is located between the agricultural fields and the western property line; wetland D (2.1± acres) and wetland E (1.1± acres) are located in the extreme southeast of the site, and are presumed to be part the same wetland complex, but are separated by property boundaries. The area of the parcel as shown on the Wetlands Delineation Survey contained in Appendix D of this report.

3.1 SITE ECOLOGY

The ecology of the site consists of an upland woodlot and mixed emergent and scrub/shrub wetland community. The woodlot occupies the southern portion of the site. The wetland communities occupy balance in the central and southern regions.

The upland woodlot vegetation community is best defined as a successional vegetation community dominated by mature trees over moderately well drained and somewhat poorly drained soils. Dominant tree and sapling species include shagbark hickory (*Carya ovata*, FACU), sugar maple (*Acer saccharum*, FACU), beech (*Fagus grandifolia*, FACU), eastern hemlock (*Tsuga canadensis*, FAC) red maple (*Acer rubrum*, FAC), and eastern hop-hornbeam (*Ostrya virginiana*, FACU) with glossy buckthorn (*Rhamnus frangula*, FAC), tartarian honeysuckle (*Lonicera tatarica*, FACU), and multiflora rose (*Rosa multiflora*, UPL) in the shrub strata.

Five (5) wetlands were found on this parcel. The wetlands are best defined as a mixed shrub and emergent marsh wetland component. The wetlands occupy the areas of lower topography within the landscape. Every wetland continues off site for an undetermined distance; either to the west (Wetlands A, B & C), or to the south (Wetlands D & E). Species identified in these wetland would include green ash (*Fraxinus pennsylvanica*, FACW), red maple (*Acer rubrum*, FACW), and ironwood

(*Carpinus caroliniana*, FAC) in the tree strata with gray dogwood (*Cornus foemina*, FAC), and northern spicebush *(Lindera benzoin,* FACW) in the shrub strata. Herbaceous species were found to include spotted touch-me-not (*Impatiens capensis*, FACW), reed canary grass (*Phalaris arundinacea*, FACW), common boneset (*Eupatorium perfoliatum*, FACW), spotted Joe-pye-weed (*Eupatorium maculatum*, FACW), small white aster (*Aster vimineus*, FAC), woolgrass (*Scirpus cyperinus*, FACW) and others.

A complete list of all vegetation at this site is found in Table One of this report.

4.0 METHODS

The Code of Federal Regulations defines a wetland as an area having hydric soils, wetland hydrology and supporting vegetation dominated by hydrophytes. All three of these criteria must be present for an area to qualify as a wetland. The Routine On-site Method for areas greater than five acres in size described in Section D of Chapter IV in the USACE 1987 manual was determined appropriate to delineate jurisdictional wetlands on the site. The areal dominance method described in the USACE 1989 manual was used to generate vegetation data.

Prior to initiating sampling, a site walk-over was performed to identify the general site topography relative to drainage patterns, major plant communities, and potential areas of disturbance. Upland transects were established at roughly 200 hundred foot intervals. Transects were flagged in the field survey flags and labeled as 1A, 1B, 2A and 2B. Wetlands were marked in the field with survey flags and labeled as A1, A2 etc. for those flags demarcating "Wetland Area A" and shown on the Routine Wetlands Determination Forms as the Station ID number. Sampling points which support the location of the demarcation flags were marked in the field along the upland/wetland boundary with survey flags and labeled as W1U (W1U for Upland Sample and W1W for Wetland Sample, W2. etc.) along the wetland/upland perimeter and identified on the Routine Wetlands Determination Forms as Plot W1.

The Data Forms are contained in Appendix B of this report.

Vegetation units were sampled using standard quadrat analysis procedures. Herbaceous and bryophyte species were identified within a five foot radius of the soil boring. Trees, saplings, shrubs and woody vines, were sampled within a 30 foot radius of the soil boring. Vegetation data was recorded for all strata at each data point. Dominance was measured by visually estimating the per cent areal coverage occupied by each species. Each species was ranked in order by decreasing value of per cent areal cover.

The dominant species for each strata category are defined as those plants with the highest ranking which, when cumulatively totaled, immediately exceed 50 per cent of the total dominance measure for the category; plus any additional plant species comprising 20 per cent or more of the total dominance measure for the category. The Federal Indicator status of each species was determined by referencing the National List of Plant Species That Occur in Wetlands: Northeast (Region I) (Reed 1988). A data point was considered to have wetland vegetation if 50 per cent or more of all dominant species were assigned facultative (FAC), facultative wetland (FACW), or obligate (OBL) indicator status.

Soil samples and hydrology information were also collected at each data point. Soil samples were obtained through the use of a stainless steel drain spade.

The borings were examined to depths of at least 16 inches. The soil samples were inspected for the presence of hydric soil indicators; introduced in the Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region. The presence of one or more hydric soil indicator would identify the soil as hydric, while the absence of any indicators would conclude that the soil is non-hydric. Hydrology information was visually assessed during the soils investigation and included, but was not limited to, observations of inundation, soil saturation, water marks on trees, wetland drainage patterns, drift lines, water-stained leaves, and oxidized root channels within the Ap Horizon.

5.0 RESULTS

Field work for the Federal delineation was conducted during several days in September 2010. A total of 19 field data sample points were sampled and recorded which delineated the wetland/upland boundary. Based on the results of the sampling, five (5) federally jurisdictional wetlands were identified on the subject parcel.

Wetland A is depressional in nature and the hydrology appears to be derived from run-off from surrounding uplands and precipitation, due to poorly drained soils. Positive hydrology in this wetland was indicated by primary and secondary indicators such as oxidized root channels in the Ap Horizon of the soils, reduced soil conditions, obligate wetland vegetation and saturated and inundated soil conditions. The wetland continues off site to the west for an undetermined distance via a narrow meandering that crosses the property line in the central portion of the western boundary. Dominant vegetation includes green ash (*Fraxinus pennsylvanica*, FACW) and silky dogwood (*Cornus amomum*, FACW) in the tree and shrub strata; with spotted touch-me-not (*Impatiens capensis*, FACW), small white aster (*Aster vimineus*, FAC), and spotted joe-pye-weed (*Eupatorium maculatum*, FACW) in the herbaceous strata. Total acreage of the wetland is 12.3+/- acres.

Wetland B is very similar to wetland A; located along the western property boundary, just south of wetland A. Wetland hydrology indicators found in wetland B include saturated soil, water-stained leaves, and oxidized rhizospheres on living roots. Vegetation outstanding within wetland B consists of red maple (*Acer rubrum*, FAC) and silver maple (*Acer saccharinum*, FACW) in the tree strata; with uptight sedge (*Carex stricta*, OBL), bristly blackberry (*Rubus hispidus*, FACW), and sensitive fern (*Onoclea sensibilis*, FACW) in the herbaceous strata. Wetland B also continues off-site to the west for an undetermined distance, and totals approximately 2.2 acres.

Wetland C is located north of Wetland A between the agricultural fields and the western property boundary; totaling 4.3± acres. Wetland C was found to have saturated soils, as well as a seasonal pond located in its center. Green ash (*Fraxinus pennsylvanica*, FACW) and common buckthorn (*Rhamnus cathartica*, FAC) in the tree and shrub strata; with reed canary grass (*Phalaris arundinacea,* FACW) and fragrant goldenrod (*Euthamia graminifolia*, FACW) in the herbaceous strata make up the hydrophytic vegetation for wetland C.

Wetland D and E are thought to connect off site and become part of a much larger wetland complex. Located in the extreme south east of the project parcel, together both wetlands take up 3.2± acres. These wetlands are a result of a meandering creek that carries drainage from the agricultural fields located south

of and adjacent to the site; the creek runs from the southwest corner of the parcel in a northeast direction before traveling off-site to the east. Dominant vegetation within these wetlands includes red maple (*Acer rubrum*, FAC) and American elm (*Ulmus americana*, FACW) in the tree strata. Northern spicebush (*Lindera benzoin,* FACW) in the shrub strata, with a herbaceous strata consisting of poison ivy (*Toxicodendron radicans*, FAC), melic manna grass (*Glyceria melicaria*, OBL) and Canada clearweed (*Pilea pumila*, FACW).

Soil series which were identified on site corresponded well with those units mapped in the Soil Survey of Erie County. Soils sampled throughout the site are made up of sediment that is silt loam or finer. Said sediments generally result in poorly drained soils. Details regarding the Hornell, Patchin, and Rhinebeck soil series can be found in section 2.4 of this report.

6.0 CONCLUSIONS and RECOMMENDATIONS

6.1 Conclusions

Based on the results of the field investigation, five (5) Federally jurisdictional wetland has been identified on the parcel. The wetland areas are best defined as:

WETLAND AREA	SIZE (ACRES)	FEDERAL DESIGNATION
Wetland Area A	12.3±	PF01/SS1Bd
Wetland Area B	2.2±	PF01/SS1Bd
Wetland Area C	4.3±	PF01/SS1Bd
Wetland Area D	2.1±	PF01B
Wetland Area E	1.1±	PF01B

The total acreage of wetlands within the site is 22.0± acres. These wetlands are depressional in nature and the hydrology appears to be deprived from drainage received from adjacent agricultural fields and the surrounding uplands, as well as precipitation in combination with poorly drained soils. All wetlands continue off site for undetermined distances and are most likely part of larger wetland systems; either to the west (Wetlands A, B & C) or to the southeast (Wetlands D & E).

The wetlands on site total considerably more than the 12.4 acres required for the New York State Department of Environmental Conservation to regulate under Article 24 of the Freshwater Wetlands Act. In addition State Regulated Wetland HB-3 and HB-7 are likely to be expanded to include all site wetland. As a result a 100 Foot Adjacent Area would be incorporated onto these wetlands.

6.2 Recommendations

With the issuance of Federal Register Vol. 65, No. 47, pp. 12818-12899, the U.S. Army Corps of Engineers amended its Nationwide Permit program (NWP). The reason for the amendment was to reduce the impacts to wetlands as well as reduce the regulatory effort expended in governing the activities associated with minimal environmental impacts. These amendments went into effect on March 9, 2007 when the Corps of Engineers reissued the existing NWPs.

The NWP most often utilized by the public is the Nationwide permit (NWP 39) for the discharge of dredged or fill material waters of the United States including

wetlands. This permit allows for the placement of fill material into "waters of the United States including wetlands" as long as that discharge does not result in the loss (negative impact) of greater than ½ acre, nor cause the loss of waters of the United State for a distance of greater than 300 linear feet of stream bed. An application must be submitted to the USACE for approval prior to any disturbance of jurisdictional areas.

On January 9, 2001, the U.S. Supreme Court issued a ruling that affected the Corps of Engineers authority to regulate isolated, non-navigable, intrastate waters under the Clean Water Act (Solid Waste Agency of Northern Cook County vs. the U.S. Army Corps of Engineers, No.99-1178). Specifically, the case involved statutory and constitutional challenges to the assertion of the Clean Water Act jurisdiction over isolated, non-navigable, intrastate waters where use of the site by migratory birds alone is **not** sufficient to establish Federal jurisdiction over isolated wetlands, and that such areas are not waters of the United States and are **not** subject to regulation under Section 404 of the Clean Water Act. The site wetlands drain to tributaries of Eighteen Mile Creek, which then drains to Lake Erie; therefore it is our professional opinion that the wetland is likely jurisdictional. It is the U.S. Army Corps of Engineers (USACE) responsibility to make this jurisdictional determination.

Should you elect to submit this report to the U.S. Army Corps of Engineers (USACE) for review, a site visit may be scheduled to verify the report findings. If the USACE agrees with the results of the delineation, a letter of agreement will then be forwarded to you, which can then be use to satisfy a portion of the Federal wetland regulatory concerns of the Town of Hamburg. This release from USACE jurisdiction does not relieve you from the necessity of complying with other Federal, State or local regulations that may be applicable at the site.

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United States Geological Survey maps, Denver, Colorado.

TABLES

APPENDIX A

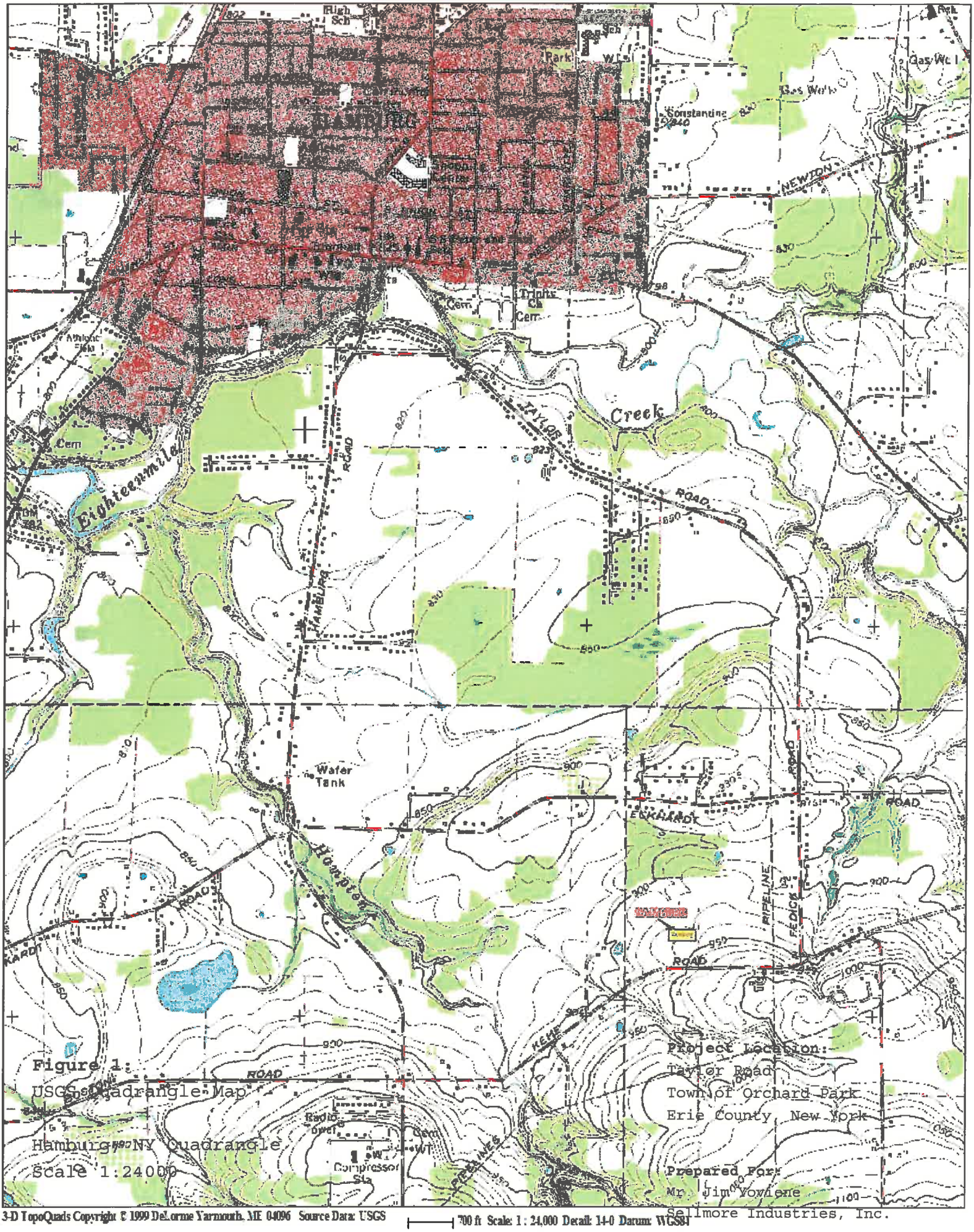


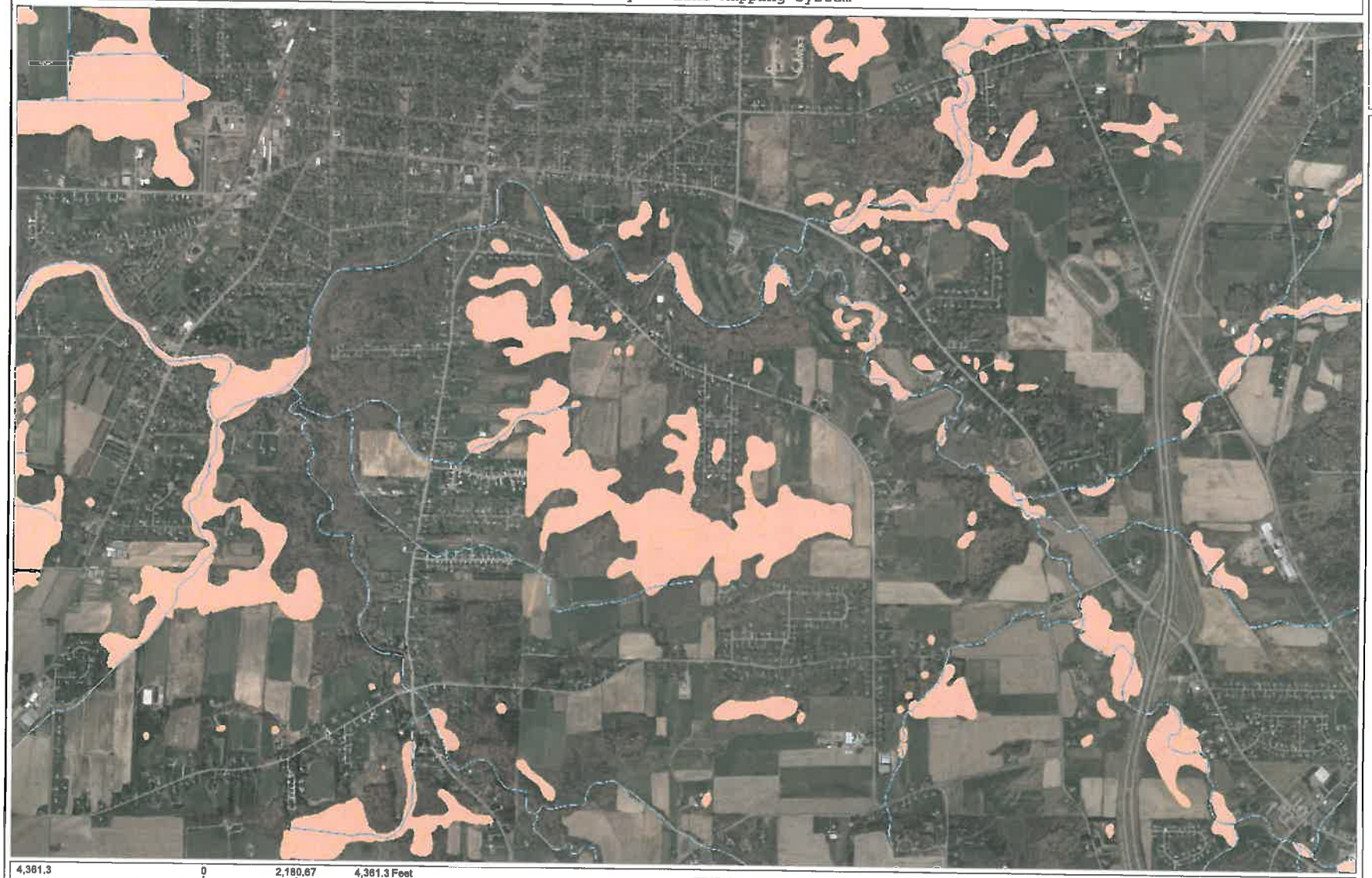
Figure 1:
USGS Quadrangle Map
Hamburg, NY Quadrangle
Scale 1:24000

3-D TopoQuads Copyright © 1999 DeLorme Yarmouth, ME 04096 Source Data: USGS

700 ft Scale: 1 : 24,000 Detail: 14-0 Datum: WGS84

Figure 2: National Wetland Inventory Map

Erie County On-Line Mapping System



Legend

- Streams
- National Wetlands Inventory
  - Wetlands
  - No Digital Data
- 2011_bdy

4,361.3 0 2,180.67 4,361.3 Feet

WGS_1984_Web_Mercator_Auxiliary_Sphere

THIS MAP IS NOT TO BE USED FOR NAVIGATION

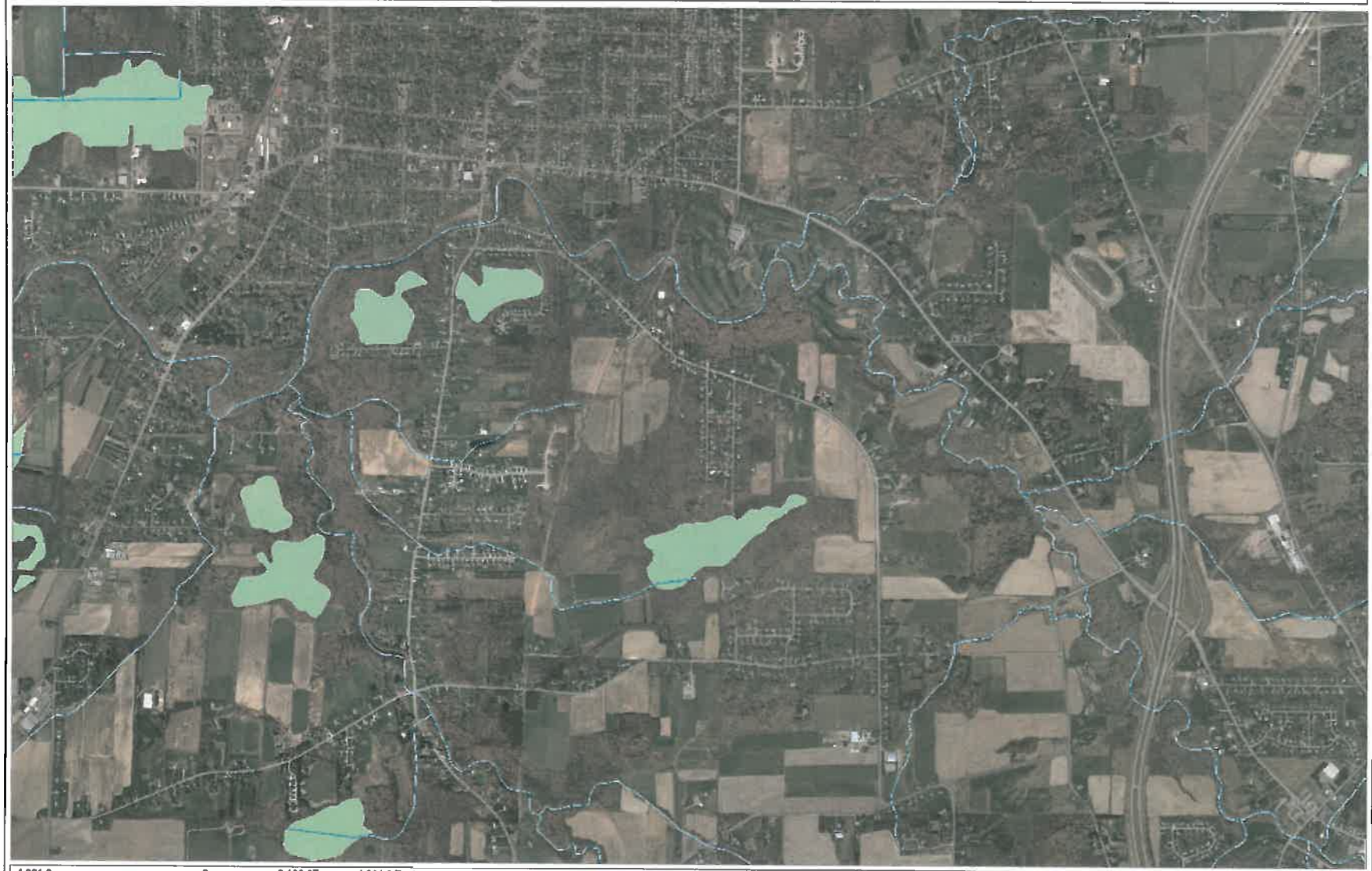
ERIE COUNTY
DEPARTMENT OF ENVIRONMENT & PLANNING
OFFICE OF GIS

This map is a user generated static output from an Internet mapping site and is for reference only. Data layers that appear on this map may or may not be accurate, current, or otherwise reliable.

1: 26,168

Figure 3: NYSDEC Freshwater Wetlands Map

Erie County On-Line Mapping System



Legend
- Streams
- DEC Wetlands
- 2011_bdy

4,361.3 0 2,180.67 4,361.3 Feet

WGS_1984_Web_Mercator_Auxiliary_Sphere

THIS MAP IS NOT TO BE USED FOR NAVIGATION

ERIE COUNTY
DEPARTMENT OF ENVIRONMENT & PLANNING
OFFICE OF GIS

This map is a user generated static output from an Internet mapping site and is for reference only. Data layers that appear on this map may or may not be accurate, current, or otherwise reliable.

1:26,168

78° 50' 17"
73° 47' 51"
42° 43' 24"
42° 40' 28"
42° 40' 25"
78° 50' 23"
78° 47' 57"
677000
677500
678000
678500
679000
679500
680000
4732000
4731500
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4730500
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62
Hamburg
Map Scale: 1:15,200 if printed on B size (11" x 17") sheet.
Meters
0 100 200 400 600
Feet
0 400 800 1,600 2,400
N

APPENDIX B

APPENDIX C

Photo Location 1 – North – Buckwheat Field

Photo Location 2 – Southeast - Wetland Area C

Photo Location 3 – South – Wetland C & Adjacent Buckwheat Field

Photo Location 4 – Northwest – Buckwheat Field

Photo Location 5 – South – Buckwheat Field

Photo Location 6 – West – Upland Woodlot

Photo Location 7 – West - Wetland C

Photo Location 8 – Southwest – Typical young growth upland

Photo Location 9 – South – Example of Wetland Area B

Photo Location 10 – North – Tributary to Eighteen Mile Creek - south portion of site

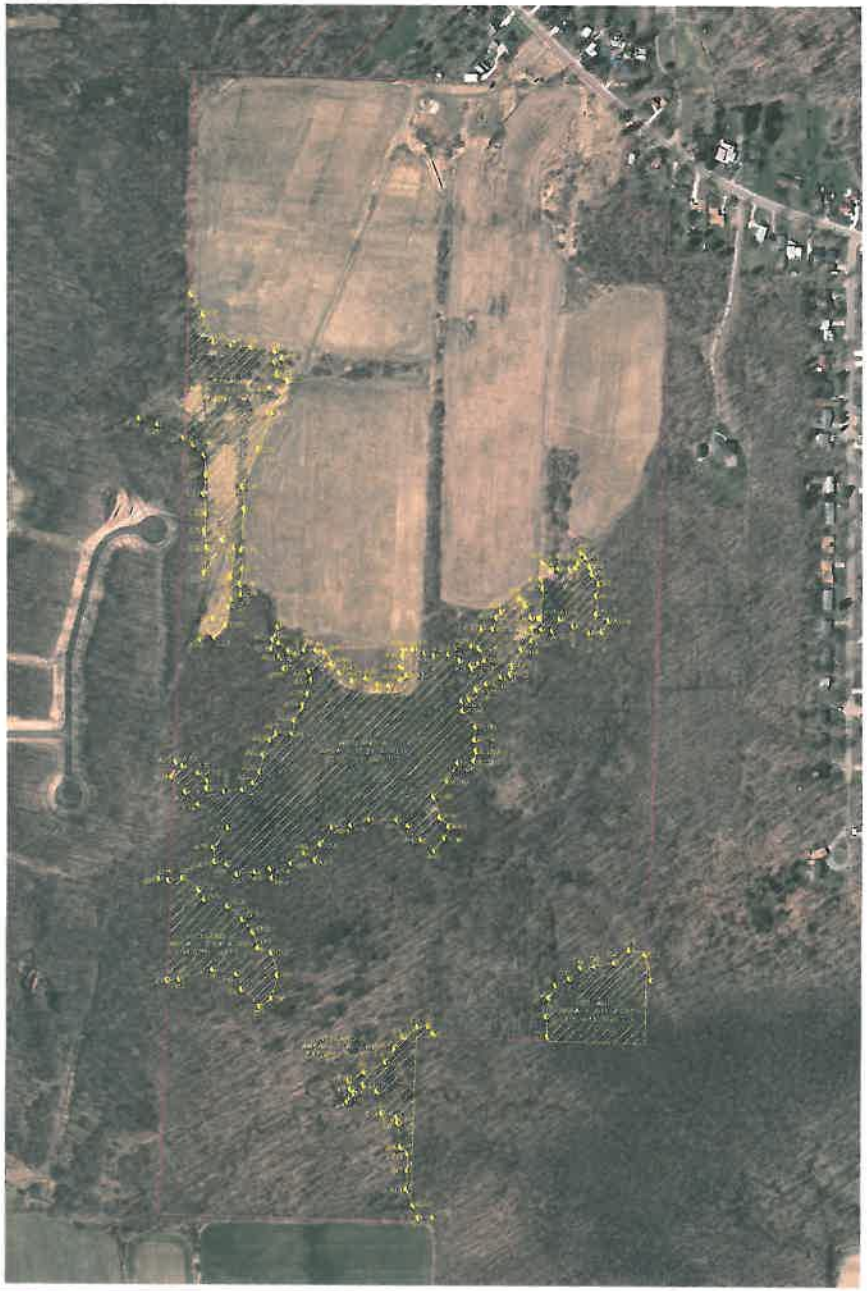
Photo Location 11 – West – Typical upland within southerly portion of site

Photo Location 12 – Southeast – Wetland D

Photo Location 13 – East – Typical Wetland A

Photo Location 14 – South – Typical Upland Woodlot

APPENDIX D



Sample Point

*Added By:

WETLANDS MAP
TAYLOR ROAD

Nussbaumer & Clarke, Inc.
3556 Lake Shore Road
Buffalo, New York 14219-1414
(716) 827-8021
www.nussclarke.com

DRAWN BY: MKB	REV.	SHEET NO
DATE: 09/27/10	JOB NO. 10J5-0082	
SCALE: 1"=200'	DWG. NO. SC-2184A	

Wilson Environmental Technologies, Inc.

2805 Wehrle Dr. Suite 8 - Williamsville, NY 14221

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Taylor Rd. City/County: Erie Sampling Date: 10/28/10

Applicant/Owner: Yoviene State: NY Sampling Point: D3W1

Investigator(s): Wilson / Feickert Section, Township, Range: Hamburg

Landform (hillslope, terrace, etc.): _____ Local relief (concave, convex, none): _____

Slope (%): 0-3 Lat: 42°42' N Long: 78°49 W Datum: _____

Soil Map Unit Name: Niagara-Canandaigua-Cosad NWI classification: _____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X No _____	**Is the Sampled Area within a Wetland?** Yes X No _____
Hydric Soil Present?	Yes X No _____	If yes, optional Wetland Site ID: _____
Wetland Hydrology Present?	Yes X No _____	

Remarks: (Explain alternative procedures here or in a separate report.)

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____	No X	Depth (inches): _____
Water Table Present?	Yes _____	No X	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes X	No _____	Depth (inches): 6

Wetland Hydrology Present? Yes X No _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION – Use scientific names of plants.

Sampling Point: D3W1

Tree Stratum (Plot size: 30 ft)	Absolute % Cover	Dominant Species?	Indicator Status
1. Acer rubrum	30	Y	FAC
2. Ulmus americana	10	Y	FACW
3. Carya ovata	2		FACU
4.			
5.			
6.			
7.			
	42	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15 ft)			
1. Ulmus americana	15	Y	FACW
2. Acer rubrum	10	Y	FAC
3. Lindera benzoin	5		FACW
4.			
5.			
6.			
7.			
	20	= Total Cover	
Herb Stratum (Plot size: 5 ft)			
1. Toxicondendron radicans	25	Y	FAC
2. Glyceria melicaria	10		OBL
3. Onoclea sensibilis	10		FACW
4. Carex scoparia	5		FACW
5. Eupatorium maculatum	5		FACW
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	55	= Total Cover	
Woody Vine Stratum (Plot size:)			
1.			
2.			
3.			
4.			
		= Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 5 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ___ Rapid Test for Hydrophytic Vegetation
- X Dominance Test is >50%
- ___ Prevalence Index is ≤3.0[1]
- ___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub – Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes X No ___

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: D3W1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0 - 6.5	10YR 3/2	99		15			Silt Loam	
6.5 - 14	2.5Y 8/2	80	7.5YR 6/8	15	RM	M	Silt Loam	
6.5 - 14			Gley2 5PB	5	C	PL		Compacted; tough to dig up.

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (**S5**)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) (**LRR R, MLRA 149B**)
- ___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
- ___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
- ___ Loamy Mucky Mineral (F1) (**LRR K, L**)
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes X No ___

Remarks:

Dry, despite rain the previous day.

Wilson Environmental Technologies, Inc.
2805 Wehrle Dr. Suite 12 - Williamsville, NY 14221

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Taylor Road City/County: Erie Sampling Date: 11/02/11
Applicant/Owner: Youviene State: NY Sampling Point: Cx18W1
Investigator(s): D. Wilson & R. Feickert Section, Township, Range: Hamburg
Landform (hillslope, terrace, etc.): _____ Local relief (concave, convex, none): _____
Slope (%): 0-3 Lat: 42°42' N Long: 78°49 W Datum: _____
Soil Map Unit Name: Niagara-Canandaigua-Cosad NWI classification: PEM1E
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)
Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____
Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No _____	**Is the Sampled Area within a Wetland?** Yes X No _____
Hydric Soil Present?	Yes X	No _____	
Wetland Hydrology Present?	Yes X	No _____	If yes, optional Wetland Site ID: Wetland C

Remarks: (Explain alternative procedures here or in a separate report.)

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- X Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____
Water Table Present? Yes _____ No X Depth (inches): _____
Saturation Present? (includes capillary fringe) Yes X No _____ Depth (inches): 2

Wetland Hydrology Present? Yes X No _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION – Use scientific names of plants.

Sampling Point: Cx18W1

Tree Stratum (Plot size: 30 ft)	Absolute % Cover	Dominant Species?	Indicator Status
1. Fraxinus pennsylvanica	5	Y	FACW
2.			
3.			
4.			
5.			
6.			
7.			
	5 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15 ft)			
1. Fraxinus pennsylvanica	5	Y	FACW
2.			
3.			
4.			
5.			
6.			
7.			
	5 = Total Cover		
Herb Stratum (Plot size: 5 ft)			
1. Phalaris arundinacea	60	Y	FACW
2. Aster simplex	20	Y	FACW
3. Verbena hastata	10		FACW
4. Agrostis alba	10		FACW
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	100 = Total Cover		
Woody Vine Stratum (Plot size: 30 ft)			
1.			
2.			
3.			
4.			
	0 = Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: _____ (A)

Total Number of Dominant Species Across All Strata: _____ (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species _____	x 2 = _____
FAC species _____	x 3 = _____
FACU species _____	x 4 = _____
UPL species _____	x 5 = _____
Column Totals: _____ (A)	_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

X Rapid Test for Hydrophytic Vegetation

__ Dominance Test is >50%

__ Prevalence Index is ≤3.0[1]

__ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

__ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

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Sapling/shrub – Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes X No _____

Remarks: (Include photo numbers here or on a separate sheet.)

Adjacent to gas pipeline.

SOIL

Sampling Point: Cx18W1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0 - 14	2.5 4/2	95	10YR 5/8	5	RM	M	Silt loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) **(LRR R, MLRA 149B)**
- ___ Polyvalue Below Surface (S8) **(LRR R, MLRA 149B)**
- ___ Thin Dark Surface (S9) **(LRR R, MLRA 149B)**
- ___ Loamy Mucky Mineral (F1) **(LRR K, L)**
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(LRR K, L, MLRA 149B)**
- ___ Coast Prairie Redox (A16) **(LRR K, L, R)**
- ___ 5 cm Mucky Peat or Peat (S3) **(LRR K, L, R)**
- ___ Dark Surface (S7) **(LRR K, L)**
- ___ Polyvalue Below Surface (S8) **(LRR K, L)**
- ___ Thin Dark Surface (S9) **(LRR K, L)**
- ___ Iron-Manganese Masses (F12) **(LRR K, L, R)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 149B)**
- ___ Mesic Spodic (TA6) **(MLRA 144A, 145, 149B)**
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes X No ___

Remarks:

TABLE 1
Vegetation Identified
During the Wetland Delineation

SCIENTIFIC NAME	COMMON NAME	FEDERAL STATUS
HERBACEOUS VEGETATION		
Agimonia striata	Woodland groovebur	FACU
Anthephora pubescens	Wool grass	FACW
Asclepias incarnate	Swamp milkweed	OBL
Aster simplex	Panicled aster	FACW
Aster viminus	Small white aster	FAC
Bidens frondosa	Devil's beggar-ticks	FACW
Carex lacustris	Common lake sedge	OBL
Carex laxiflora	Loose flowered sedge	FACU
Carex scoparia	Point broom sedge	FACW
Carex stricta	Uptight sedge	OBL
Epilobium angustifolium	Fireweed	FACU
Epilobium hirsutum	Great-hairy willow-herb	FACW
Eupatorium maculatum	Spotted joe-pye-weed	FACW
Eupatorium pertoliatum	Common boneset	FACW
Euthamia graninifolia	Fragrant goldenrod	FACW
Geum canadense	White avens	FAC
Geum laciniatum	Rough avens	FACU
Glyceria melicaria	Melic manna grass	FACW
Impatiens capensis	Spotted touch-me-not	FACW
Juncus effusus	Soft rush	FACW
Leerisa oryzoides	Rice cutgrass	FACW
Onoclea sensibilis	Sensitive fern	FACW
Phalaris arundinacea	Reed canary grass	FACW
Phleum pretense	Timothy grass	FACU
Pilea pumila	Canada clearweed	FACW
Poa compressa	Canada bluegrass	FACU
Potentilla simplex	Common cinquefoil	FACU
Ranunculus ambigens	Water-plantain spearwort	OBL
Rubus hispidus	Bristly blackberry	FACW
Rubus idaeus	American red raspberry	FAC
Rubus occidentalis	Black raspberry	UPL
Solidago gigantean	Late goldenrod	FACW
Solidago rugosa	Rough goldenrod	FAC
Toxicondendron radicans	Poison ivy	FAC
Typha angustifolia	Narrowleaf cattail	OBL
SHURBS		
Cornus amomum	Silky dogwood	FACW
Cornus racemosa	Gray dogwood	FAC
Crataegus spp.	Hawthorn	FACU
Lindera benzoin	Northern spicebush	FACW
Lonicera tatarica	Tartarian honeysuckle	FACU

Rhmanus catharitca	Common buckthorn	FAC
Rhamnus frangula	Glossy buckthorn	FAC
Rosa multiflora	Multiflora rose	FAC

TREE

Acer rubrum	Red maple	FAC
Acer saccharum	Sugar maple	FACU
Carpinus caroliniana	Ironwood	FAC
Carya ovata	Shagbark hickory	FACU
Fragus grandifolia	Beech	FACU
Fraxinus Americana	White ash	FACU
Fraxinus pennslyvanica	Green ash	FACW
Ostrya virginiana	Eastern hop-hornbeam	FACU
Populus deltoids	Eastern cotton-wood	FAC
Populus tremula	Quaking aspen	FACU
Prunus serotina	Black Cherry	FACU
Pyrus malus	Domestic apple	UPL
Quercus rubra	Red oak	FACU
Tsuga canadensis	Eastern hemlock	FAC
Ulmus americana	American elm	FACW