

# WATKINS GLEN WASTEWATER TREATMENT PLANT RE-USE FEASIBILITY STUDY

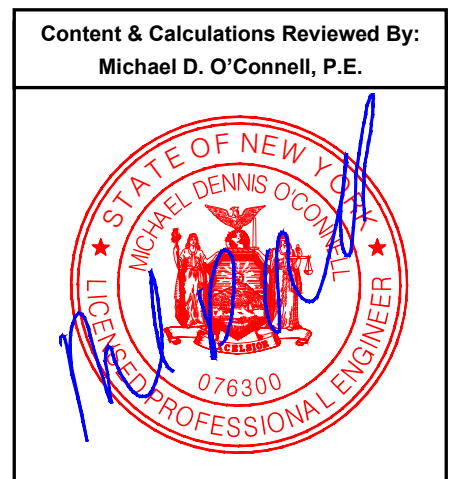
Village of Watkins Glen  
Schuyler County, New York

Prepared for:  
THE VILLAGE OF WATKINS GLEN & SCHUYLER COUNTY

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## SECTION 1.0 INTRODUCTION

### 1.1 BACKGROUND

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In 2012, a private sector effort was initiated that included the Schuyler County Partnership for Economic Development (SCOPED), Villages of Watkins Glen and Montour Falls, Schuyler County, and private entities. This public-private team developed a community revitalization plan known as Project Seneca (trademarked and registered). This waterfront redevelopment plan includes a series of public infrastructure improvements, commercial, recreational, and residential developments, aimed at strengthening the Schuyler County economy and elevating the quality of life in the Watkins Glen and Montour Falls communities.

Recognizing a need to replace aging wastewater infrastructure in the region, construction of the Catharine Valley Water Reclamation Facility (CVWRF) was identified the initial component of the Project Seneca scope. This consolidated facility will accept wastewater from collection systems in the Villages of Watkins Glen and Montour Falls, allowing the existing Village wastewater treatment plants (WWTPs) to be taken offline, decommissioned, and demolished. Once decommissioned, the WWTP sites will be available for demolition and redevelopment as identified in the Project Seneca plan.

### 1.2 STUDY AREA

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This study's area of interest includes the Watkins Glen WWTP, and an adjacent parcel situated at the end of North Porter Street on the south shore of Seneca Lake, identified in **Figure 1: Project Location Map**.

The project site is composed of three parcels on the Seneca Lake waterfront at the northern end of Porter Street in the Village of Watkins Glen. A map of these parcels has been included in **Figure 2: Tax Parcel Map**. The parcels consist of a 0.438-acre parcel owned by Schuyler County, currently leased to the Schuyler County Industrial Development Agency (IDA) and occupied by the Village Marina restaurant and large charter boat launch (Parcel ID 65.09-2-39.2), and two parcels with a total area of 1.274-acres owned by the Village of Watkins Glen, currently occupied by the Village wastewater treatment plant (Parcel ID 65.09-2-39.1 – 0.253 acres, and Parcel ID 65.09-2-38.2 – 1.021 acres).

### 1.3 PURPOSE AND SCOPE

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This study provides an assessment of redevelopment at the Watkins Glen WWTP site and adjacent Village Marina restaurant. The study includes a summary of the existing condition of the WWTP, environmental and historic information pertinent to the site, and analysis of several redevelopment alternatives including cost estimates and implementation feasibility.

## SECTION 2: METHODOLOGY

### 2.1 EXISTING SITE ANALYSIS

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#### 2.1.1 WWTP Site

The WWTP's existing condition was assessed by Larson Design Group staff during a site visit in April 2019. Photos were taken to document the condition of treatment plant buildings, tankage, and miscellaneous infrastructure. A photo log is included in **Appendix A-1**.

An existing basemap of the WWTP site was created using publicly available LiDAR elevation data, aerial photography for surface features, and record drawing information provided by the Village of Watkins Glen WWTP operations staff for buried tankage, process piping, and utilities. This basemap is included as **Figure 3**.

#### 2.1.2 Environmental Conditions

Due to the WWTP's location relative to Seneca Lake, FEMA floodplain mapping was obtained to assess floodplain hazard and exposure. The FEMA Flood Insurance Rate Mapping information is included in **Appendix A-2**. An analysis of the FEMA Flood Insurance Mapping can be found in Section 3.2.1.

Threatened and endangered species information for the project site was obtained from the New York State Department of Environmental Conservation (NYS DEC) Environmental Resource Mapper, and U.S Fish & Wildlife iPaC system. This information is included in **Appendices A-3 and A-4** respectively. An analysis of the threatened and endangered species on the site can be found in Section 3.2.3. This initial survey indicates the presence of several sensitive species in the project area; however, proposed development is unlikely to impact or disrupt these species or their habitats.

#### 2.1.3 Historic Resources

An assessment of historic resources at and near the WWTP site was conducted through the New York State Office of Historic Preservation (SHPO). A response from this office is included in **Appendix A-6**. This initial survey of the site determined that there were no historically significant structures or developed features present at the site.

### 2.2 SITE DEVELOPMENT CONSIDERATIONS

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#### 2.2.1 Economic Priorities

Understanding the large impact that tourism has on the economic health of the Village of Watkins Glen, development strategies that created year-round economic impact and highlight the Village as a premier Finger Lakes waterfront destination and enhance water dependent amenities available to visitors have

been made a priority. The community understands the significant role of tourism and values development strategies which encourage economic revitalization and sustainability in the Village. This is reflected in the Project Seneca initiative which focuses on economic revitalization of the waterfront in the Village of Watkins Glen. Taking this into consideration, SCOPED, the Villages of Watkins Glen and Montour Falls, and other stakeholders have identified redevelopment of the WWTP site as an opportunity to bolster the Watkins Glen year-round economy.

Stakeholders interviews identified a range of development opportunities that promote this priority, including specialty retail outlets, restaurants, culinary-focused venues, and increased pedestrian access to the waterfront as well as the potential for waterfront hotel development.

### 2.2.2 Public Comment & Involvement

Four public meetings, six focus groups, three individual meeting/interviews, high school student and seniors' engagement, and an online survey were conducted during the research and development phase of the Regional Strategic Plan. These engagement efforts directly informed this feasibility study. At these meetings, members of the Watkins Glen community were asked to voice thoughts and opinions related to the redevelopment of the WWTP site. During these meetings it was determined that the community views the Seneca Lake waterfront as one of the largest/most significant assets of the Village and that providing public waterfront access to the community is a priority of residents, visitors, and elected officials. Project alternatives consider options that continue to allow public access to the waterfront and provide waterfront dependent recreational spaces to the community, as well as visitors. The public meetings were held on the dates and locations listed below and discussed the topics indicated:

Public Meeting	May 30, 2019	6:30pm	Montour Falls Fire Station
Public Meeting	June 10, 2019	2:00pm	WG Community Center
Open House	June 20, 2019	4:00pm	SCOPED Office
Open House	July 22, 2019	4:00pm	SCOPED Office
Public Meeting	September 4, 2019	5:00pm	WG Community Center
WG Board Meeting	September 17, 2019	6:00pm	WG Village Hall
Public Meeting	November 18, 2019	6:00pm	WG Community Center
WG Board Meeting	December 3, 2019	6:00pm	WG Village Hall

### 2.2.3 Current Zoning Standards

The project site is located in the Lakefront Development (LD) zone, as defined by the 2016 Village of Watkins Glen Zoning Law. The intent of this district is to allow mixed use development in the interest of providing employment opportunities, enhancing the local tax base, and promoting water-dependent and water-enhanced land uses along the Seneca Lake waterfront. An excerpt of the 2016 Zoning Law is included in **Appendix B-1** to provide exact LD zone definitions, uses, density tables, and additional supporting information. Flexibility of development in the LD zone is controlled during the site plan review process administered by the Village of Watkins Glen Zoning and Planning Boards.

Additionally, the project site is located in an area governed by the 2016 Local Waterfront Revitalization Program (LWRP) set forth by the Project Seneca community redevelopment planning initiative. Proposed developments will be reviewed for compliance with LWRP standards.

## **SECTION 3: FINDINGS**

### **3.1 WWTP DEMOLITION & SITE PREPARATION**

#### **3.1.1 WWTP Demolition**

Through site visits and review of as-built drawings of the Watkins Glen WWTP, LDG has determined that none of the existing infrastructure is suitable for use in the redevelopment plan. Major infrastructure at the Watkins Glen WWTP includes a two story, 5,300-square-foot masonry control and process building, a 6,300-square-foot concrete tank housing clarifier, digester, and aeration equipment, a 1,780-square-foot concrete, primary settling tank, 580-square-foot concrete chlorine contact tank, and a 30-foot diameter sludge thickener tank. Prior to demolition of structures on site, all process equipment (pumps, motors, drives, clarifier skimmers and squeegees, aeration manifolds and piping) will be removed from the control building or tankage and salvaged or sold for scrap value.

As is part of typical treatment plant demolition practices, it is anticipated that all above grade structures will be demolished to 5-feet below prepared grade elevations at the site. Any treatment tankage deeper than that elevation will remain and be filled with crushed concrete material. Site process and utility piping not directly integral to WWTP structures will be grouted and abandoned in place. The wastewater treatment plant outfall, extending from the northeast corner of the parcel into the lake, will be cut, grouted and capped in accordance with the NYS DEC approved decommissioning plan developed as part of the Catharine Valley Water Reclamation Facility (CVWRF) permitting process.

#### **3.1.2 Site Preparation**

After the WWTP has been formally decommissioned and demolition has been completed, it will be necessary to prepare the site for future development. Demolition of above-grade WWTP treatment tankage and preliminary backfill of the deeper structures at the site will make the site suitable for rough grading and leveling required to accommodate future construction. Existing grade at the site is nearly flat and will require minimal grading and surface preparation.

The WWTP site's proximity to the waterfront makes work at the site highly visible to the public. It will be important to complete all site preparation and interim restoration work in a timely fashion to keep the site presentable. Delays in this process pose the potential to impact neighboring properties, detract from the aesthetic quality of the waterfront, and adversely affect members of the community.



It is anticipated that the WWTP demolition and site preparation process will be the responsibility of the developer selected by the Village of Watkins Glen and other project stakeholders. The nature of the demolition contract, contractor selection, and scope of third-party engineering services required to complete the demolition will be negotiated by the selected developer and project stakeholders. A cost estimate for the demolition work, including engineering fees, administrative costs, and contingency funds has been included in **Appendix C-1**.

### 3.2 SITE SUITABILITY & ENVIRONMENTAL CONSIDERATIONS

The WWTP's location on the waterfront places any future development near areas of environmental and regulatory sensitivity, including mapped floodplain areas and the Seneca Lake ecosystem. The impacts of the 100-year floodplain, presence of wetlands, and presence of threatened and endangered species on future development must be evaluated.

#### 3.2.1 100-Year Floodplain

The most current FEMA Flood Insurance Rate Mapping (FIRM) panel for the Village of Watkins Glen, included in **Appendix A-2**, indicates that the site is intersected by both Zone A – Areas of 100-year flood, and Zone B – Areas between the 100-year flood and 500-year flood with average depths of less than one foot. The FIRM panel also indicates the 100-year flood elevation at the site is 449.00' NGVD29, converting to NAVD88, included in **Appendix A-2.1**, this gives an elevation of 448.39'. Elevation data available through the New York State GIS Clearinghouse indicates that approximately 0.3 acres of the project site falls within the 100-year floodplain. A map showing the extent of this area is included in **Appendix A-2.2** and an excerpt has been included below in Figure 3.2.1.



**Figure 3.2.1:** Excerpt of Floodplain Mapping Analysis

During development of the treatment plant demolition plan, it is recommended that a detailed topographic survey is performed to accurately delineate the floodplain present on the site. This survey will serve as a planning and permitting tool for interested developers when considering construction alternatives at the project site. It is recommended that the design incorporate a minimum finished floor elevation of 449.39' to provide 1-foot of freeboard above the 100-year flood elevation. Freeboard will eliminate the need to incorporate floodproofing measures into the proposed development and avoid costly flood insurance requirements.

### 3.2.2 Wetland Resources

The project site was reviewed for the presence of NYS DEC delineated wetlands and wetland check zones, and US Fish & Wildlife National Wetland Inventory (NWI) wetlands in the DEC Environmental Resource Mapper (DEC ERM), included in **Appendix A-4**. The DEC ERM did not indicate any existing mapped wetlands on the project site, despite the proximity to Seneca Lake. The USDA Soil Resource Report included in **Appendix A-6** indicates that soils present on the site are not hydric in nature, and not likely to support wetland ecosystems. This, combined with the developed existing conditions at the site, makes the presence of wetlands on the site unlikely.

This desktop survey of wetland resources and evaluation of spatial data is not a substitute for a formal wetland delineation, performed according to the United States Army Corps of Engineers (USACE) Wetlands Delineation Manual. Depending on the extent of waterfront development pursued at the site, a formal delineation report may be required by DEC and USACE as an attachment to permit applications.

### 3.2.3 Threatened and Endangered Species

A threatened and endangered (T&E) species review was performed using the US Fish & Wildlife iPaC and DEC ERM spatial analysis tools. Results of these reviews are included in **Appendices A-4** and **A-5**. The review indicates that the site is within the range of several T&E species, including the Northern Long-eared Bat, Comely Shiner, Leedy's Roseroot, and Leiberg's Panic Grass; however, neither mapping tool indicated that critical habitats were present on the site.

Due to the presence of trees located at the treatment plant site, the demolition plan will be required to include provisions for tree clearing during approved timeframes set forth by US Fish & Wildlife and DEC when the Northern Long-eared Bat is less active, or a Section 4(e) clearance must be obtained from US Fish & Wildlife for the tree clearing work.

### 3.2.4 Contamination and Hazardous Materials

As part of this study, a Phase I Environmental Site Assessment was completed to evaluate the potential for contamination and the presence of known hazardous materials at the Village wastewater treatment

plant site. The assessment has revealed minimal evidence of recognized hazardous materials in connection with the property; however, the nature of future development activity or reuse of the property will determine the need for any additional environmental review or investigation. The Phase I ESA is available for review on the Village of Watkins Glen website [www.flxgateway.com](http://www.flxgateway.com).

**3.3 PROPOSED SITE DEVELOPMENT**

Through the information gathering process of the regional planning effort, a series of amenities were identified that align with the economic priorities of the Village, provide benefit to the residents of the Watkins Glen community, and are suitable for implementation at the site based environmental and spatial constraints. These amenities can be broken down into three categories: commercial/residential amenities, recreational amenities, and infrastructure improvements.

<b>Table 3.3.1: Commercial/Residential Amenity Analysis</b>		
<b>A. Specialty Retail</b>		
Specialty retail development will be limited to single-floor space, located at the ground-level of building construction at the project site.		
<b><u>Advantages:</u></b> Aligns with economic priorities of project stakeholders.	<b><u>Disadvantages:</u></b> Building construction obstructs views of the waterfront.	<b><u>Limitations:</u></b> Limited accessibility for delivery vehicles. Location is bounded by train tracks and marina facilities.
<b>B. Restaurant and Event Venue</b>		
A restaurant, event venue, or combination of the two will likely occupy the second floor of building construction at the project site. Elevating the restaurant or event space will maximize view of Seneca Lake and provide a unique dining experience for guests.		
<b><u>Advantages:</u></b> Aligns with economic priorities of project stakeholders. Limits horizontal sprawl at the site by encouraging vertical buildout.	<b><u>Disadvantages:</u></b> Building construction obstructs views of the waterfront.	<b><u>Limitations:</u></b> Limited accessibility for delivery vehicles. Location is bounded by train tracks and marina facilities. Potential parking constraints.

<b>Table 3.3.1 Continued</b>		
<b>C. Hotel</b>		
Hotel construction at the project site would consist of a significant, multi-story building footprint. The facility would provide additional lodging for tourists visiting Watkins Glen and the Seneca Lake area.		
<p style="text-align: center;"><b><u>Advantages:</u></b></p> <p>Aligns with economic and housing-creation priorities of project stakeholders. Ground floor space at the hotel has flexibility to integrate with specialty retail or restaurant/event venue amenities. Private waterfront access for hotel guests.</p>	<p style="text-align: center;"><b><u>Disadvantages:</u></b></p> <p>Building construction limits green space at the project site. Multi-story construction significantly obstructs views of the waterfront. Large increases in impervious area require more complex stormwater management systems. Limited public waterfront access.</p>	<p style="text-align: center;"><b><u>Limitations:</u></b></p> <p>Limited accessibility for delivery vehicles. Location is bounded by train tracks and marina facilities. Parking will be limited to existing County parking area, posing capacity issues when considering peak season hotel occupancy, public waterfront access, and restaurant patron parking needs. Hotel facilities may require utility service connections of increased capacity that are not readily available at the site.</p>
<b>D. Apartments</b>		
Apartments or other residential construction at the site will occupy the upper level of a mixed-use building, with the lower levels housing a combination of specialty retail and restaurant space.		
<p style="text-align: center;"><b><u>Advantages:</u></b></p> <p>Aligns with economic and housing development priorities of project stakeholders. Ground floor and second floor space in a multi-use building has flexibility to integrate with specialty retail or restaurant/event venue amenities. Limits horizontal sprawl at the site by encouraging vertical buildout.</p>	<p style="text-align: center;"><b><u>Disadvantages:</u></b></p> <p>Building construction limits green space at the project site. Multi-story construction significantly obstructs views of the waterfront. Large increases in impervious area require more complex stormwater management systems.</p>	<p style="text-align: center;"><b><u>Limitations:</u></b></p> <p>Location is bounded by train tracks and marina facilities. Parking will be limited to existing County parking area, posing capacity issues when considering public waterfront access, resident parking, and retail/restaurant patron parking needs.</p>

<b>Table 3.3.2: Recreational Amenity Analysis</b>		
<b>A. Waterfront Walkway</b>		
A waterfront walkway is integral to the 2012 Project Seneca Plan, providing public access to the lake, and connectivity to existing waterfront developments on the Village waterfront.		
<p><b><u>Advantages:</u></b></p> <p>Provides public and community access to the waterfront. Provides connectivity between developments at the project site and existing waterfront developments to the east.</p>	<p><b><u>Disadvantages:</u></b></p> <p>Waterfront construction permitting complexities.</p>	<p><b><u>Limitations:</u></b></p> <p>Existing large vessel boat launch access must be maintained for the foreseeable future.</p>
<b>B. Public Fire Circle</b>		
A public fire circle space will provide a community gathering space and integrate with proposed green space at the project site		
<p><b><u>Advantages:</u></b></p> <p>Provides community gathering space on the waterfront. Promotes community foot traffic to the proposed development.</p>	<p><b><u>Disadvantages:</u></b></p> <p>Operation and maintenance costs associated with the fire circle space.</p>	<p><b><u>Limitations:</u></b></p> <p>Building development at the site limits available space.</p>
<b>C. Public Art Exhibition Space</b>		
A public art exhibition area at the site provides additional community gathering space and offers an opportunity to showcase the work of local artists.		
<p><b><u>Advantages:</u></b></p> <p>Provides community gathering space on the waterfront. Promotes community foot traffic to the proposed development. Low cost of maintenance.</p>	<p><b><u>Disadvantages:</u></b></p> <p>Potential for vandalism.</p>	<p><b><u>Limitations:</u></b></p> <p>Building development at the site limits available space.</p>
<b>D. Boat Launch Access</b>		
The existing large vessel boat launch will need to be integrated into the proposed site development to allow larger vessels to be launched and removed from the south end of Seneca Lake for perioding maintenance and inspections.		
<p><b><u>Advantages:</u></b></p> <p>Provides large vessel access to the southern end of Seneca Lake, and a location to perform maintenance and inspections.</p>	<p><b><u>Disadvantages:</u></b></p> <p>Increases the complexity of waterfront walkway design. Occupies a significant amount of improvable waterfront space.</p>	<p><b><u>Limitations:</u></b></p> <p>Required to remain at its existing location. Parking lot design must accommodate vehicle turning movements and boat maintenance space.</p>

**Table 3.3.3: Site and Infrastructure Improvement Analysis**

<b>A. Landscaping</b>		
<p>Landscaped areas, planters, and benches will be required at the project site to improve the aesthetic quality of the waterfront and provide community access to the space.</p>		
<p><b><u>Advantages:</u></b> Improves the appearance of the existing treatment plant and Village Marina site. Provides public access, community gathering areas and green space along the waterfront.</p>	<p><b><u>Disadvantages:</u></b> Requires routine maintenance, irrigation. Potential for vandalism.</p>	<p><b><u>Limitations:</u></b> Building development at the site limits the amount of landscaping and green space integrated into the project.</p>
<b>B. Stormwater Management</b>		
<p>Existing stormwater at the site is managed by a separate storm sewer system that discharges to the lake without detention or treatment. Proposed increases in impervious area will require improved stormwater management infrastructure to meet water quality, quantity, and rate requirements set forth by NYS DEC, involving Green Infrastructure (GI) stormwater management practices including but not limited to bioswales, bio-infiltration features, and permeable pavers.</p>		
<p><b><u>Advantages:</u></b> Improved stormwater management practices improve water quality in Seneca Lake. Project will be treated as redevelopment, more lenient rate and volume management requirements. GI stormwater management practices are grant funding eligible, and easy to showcase.</p>	<p><b><u>Disadvantages:</u></b> GI stormwater management practices require large amounts of space to implement and more frequent maintenance than conventional stormwater management.</p>	<p><b><u>Limitations:</u></b> Building development at the site increases impervious area, requiring more significant stormwater management systems and limits space available for GI practices.</p>
<b>C. Parking</b>		
<p>Any development at the site will require parking areas to accommodate vehicles belonging to hotel guests, restaurant and retail patrons, community residents, boat launch users, and other visitors to the site. This area will be provided in part by the existing Schuyler County parking area.</p>		
<p><b><u>Limitations:</u></b></p>		
<p>Confined to the existing Schuyler County parking lot. Drive aisles and roadway tie-ins need to accommodate boat launch access for vehicles and large boat trailers.</p>		
<b>D. Utility Services</b>		
<p>Building development and fire circle development at the site will, at a minimum, require new electrical, water and sanitary sewer service connections. The size and location of these services will vary based upon the construction proposed at the site.</p>		
<p><b><u>Limitations:</u></b></p>		
<p>The WWTP is currently served by a Village of Watkins Glen electrical service, and a 4-inch water service. The site is not served by natural gas. Sanitary sewer service will need to be installed to the south,</p>		

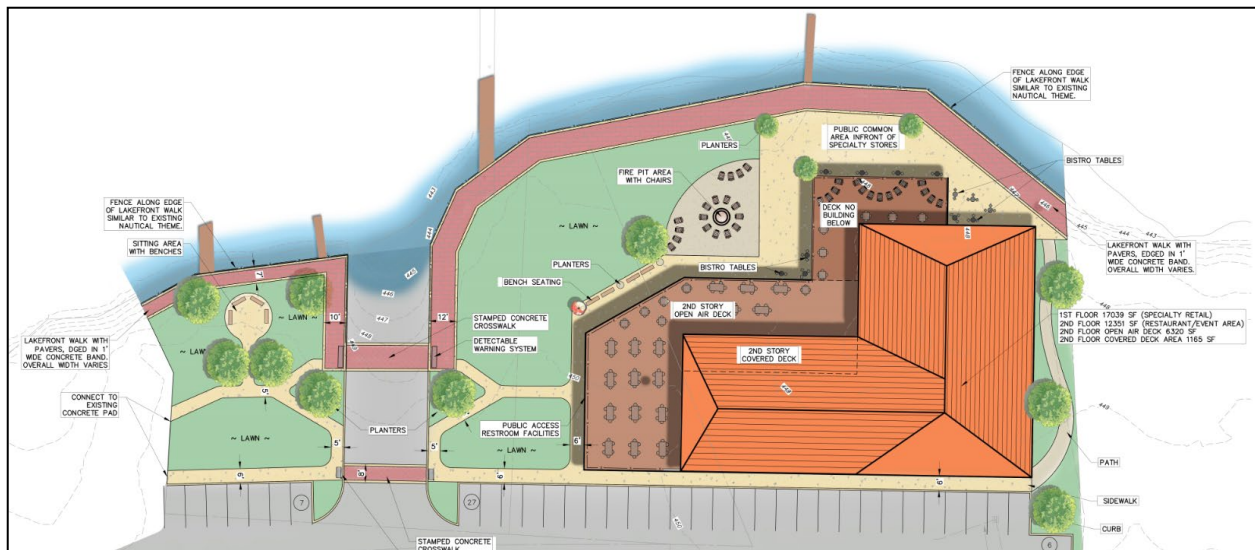
connecting to the newly constructed Watkins Glen pump station. Existing electrical and water service capacities at the site may not be adequate to serve large scale hotel facility construction. Extensions of larger services may be required.

## SECTION 4: ALTERNATIVE ANALYSIS

To better assess the feasibility and appearance of development at the project site, a series of alternatives have been developed based on proposed amenities and improvements identified in Section 3.2 and the priorities of the project's advisory group.

### 4.1 ALTERNATIVE 1 – WATERFRONT ACCESS & SPECIALTY RETAIL

Alternative 1 considers a combination of specialty retail development and waterfront access amenities at the project site. This alternative proposes the smallest building footprint of the three alternatives and the greatest amount of public green space. **Figure 4** illustrates a potential redevelopment scenario envisioned in Alternative 1. An excerpt of this concept site plan has been included below in **Figure 4.1.1**.



**Figure 4.1.1:** Alternative 1 Concept Plan

Alternative 1 building construction will consist of a two-story, 36,875 square-foot building (15,000 square-foot footprint area) providing space for specialty retail tenants on the ground floor, and a restaurant on the second floor. Restaurant space on the second floor will include an open-air deck that provides shade to bistro seating outside the specialty retail space below.

Waterfront access improvements proposed in Alternative 1 include a waterfront walkway and open lawn space on the shore of Seneca Lake. The proposed walkway runs along the entire site frontage, with a jog to accommodate the existing Village Marina boat launch and provides connectivity to the existing waterfront walkway to the west of the project site. The open lawn space is accessed by walkways that

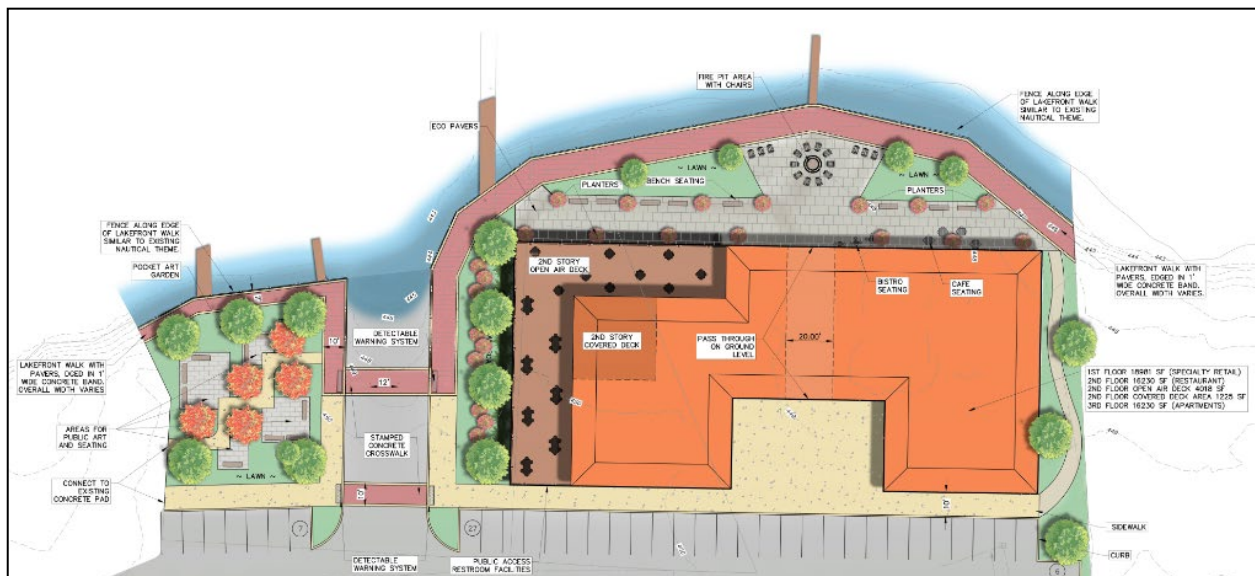
tie benched seating areas and a public fire circle access to the waterfront walkway, parking areas, and retail building. Stormwater management for this alternative involves bioswales and other green infrastructure practices to manage the entirety of runoff rates and volumes from the site.

The existing Village Marina parking area will be reconfigured in this alternative to provide approximately 164 parking spaces with landscaped islands. Landscaped islands provide locations for bioswales to manage stormwater runoff from the parking area. Drive aisles have been arranged to provide access to the existing boat launch.

Alternative 1 has been reviewed against the Lakefront Development (LD) district zoning requirements included in **Appendix B-1**, primarily requirements related to allowable coverage percentages and parking requirements. The concept plan shown in **Figure 4** results in a lot coverage of 72%, greater than the 70% lot coverage allowable in the LD district. The Alternative 1 concept requires 333 parking spaces, exceeding the 164 spaces possible in the existing parking area. Detailed parking calculations are included in **Appendix D-1**.

#### 4.2 ALTERNATIVE 2 – WATERFRONT ACCESS, SPECIALTY RETAIL & RESIDENTIAL

Alternative 2 considers a combination of specialty retail, restaurant, apartment housing, and public gathering spaces at the project site. This alternative proposes a larger, three-story, 56,648 square-foot building (19,000 square-foot footprint area), and a reduction to the amount of public green space. **Figure 5** illustrates a potential redevelopment scenario envisioned in Alternative 2. An excerpt of this concept site plan has been included below in **Figure 4.2.1**.



**Figure 4.2.1:** Alternative 2 Concept Plan

Alternative 2 building construction includes specialty retail space on the ground floor of the building, with breezeway access through the building to the waterfront. The second floor of the building houses a restaurant with open-air deck concept like Alternative 1. The third floor of the building provides space



for 16,230 square-feet of apartment space. Alternative 2 also includes ground-level bistro seating around the proposed building.

The waterfront walkway from Alternative 1 has been carried through to Alternative 2, including accommodations for the existing boat launch. In lieu of the green space proposed in Alternative 1, this alternative proposes an eco-paver promenade area between the building and waterfront walkway. This area serves dual purposes, managing stormwater runoff from the increased impervious area, and providing a community gathering space around a public fire circle. A public art exhibition and seating area has been included to the east of the boat launch ramp to provide additional public space adjacent to the lake frontage.

The parking proposed in Alternative 2 remains the same as Alternative 1, with 164 spaces provided including vehicle access to the boat ramp and landscaped parking islands to meet desired aesthetic and stormwater management requirements.

Alternative 2 has also been reviewed against the Lakefront Development (LD) district zoning requirements included in **Appendix B-1**. The concept plan shown in **Figure 5** results in a lot coverage of 79%, greater than the 70% maximum lot coverage. The Alternative 2 concept requires 406 parking spaces, exceeding the 164 spaces possible in the existing parking area. Parking calculations are included in **Appendix D-1**.

### **4.3 ALTERNATIVE 3 – HOTEL DEVELOPMENT**

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Alternative 3 includes hotel construction with the most aggressive building footprint of all three alternatives. This alternative proposes a four story, 89,800 square-foot building (22,540 square-foot footprint) that would house a hotel with approximately 140 rooms on the upper three floors, and a restaurant and lobby space on the ground floor. This alternative proposes the smallest amount of public green space of all three alternatives. **Figure 6** illustrates a potential redevelopment scenario envisioned in Alternative 3. An excerpt of this concept site plan has been included below in **Figure 4.3.1**.



**Figure 4.3.1:** Alternative 3 Concept Plan

The waterfront walkway proposed in the previous alternatives has been included in Alternative 3, complete with boat launch access. The area between the hotel building has been filled with a private hotel patio area, separated from two public patio areas with a landscaped border. All patio areas will be hardscaped with eco-pavers to provide aid with stormwater management for the large proposed impervious area. A public fire circle has been relocated to the west of the boat launch and includes lawn areas between the parking area and waterfront walkway.

Similar to Alternatives 1 and 2, the proposed parking provides 164 spaces in the existing Village Marina parking area, complete with landscaped parking islands and boat launch access provided by the parking lot drive aisles.

Due to the significant amount of impervious area proposed in Alternative 3, it is anticipated that stormwater management will require subgrade detention facilities to control discharge rates from the site. It is recommended that buried stormwater detention chambers be located beneath the parking area and release stormwater to the lake via the existing stormwater outfall.

Alternative 3 has been reviewed against the Lakefront Development (LD) district zoning requirements included in **Appendix B-1**. The concept plan shown in **Figure 6** results in a lot coverage of 78%, greater than the 70% maximum lot coverage. The Alternative 3 concept requires 222 parking spaces, exceeding the 164 spaces possible in the existing parking area. Parking calculations are included in **Appendix D-1**.

#### 4.4 PARKING

As identified in the previous section, parking is a serious constraint at the project site. A summary of the required parking, as calculated in **Appendix D-1**, available parking, and the resulting parking deficit have been summarized below in Table 4.4.1.

<b>Alternative</b>	<b>Required Spaces</b>	<b>Available Spaces</b>	<b>Parking Deficit</b>
1 – Waterfront Access & Specialty Retail	333	164	<b>169</b>
2 – Waterfront Access, Specialty Retail & Residential	406	164	<b>242</b>
3 – Hotel Development	222	164	<b>58</b>

Due to the site location, between Seneca Lake and an existing railroad right-of-way, there is very little space on the project site to accommodate additional parking. Any proposed development that fails to meet parking requirements set forth in the Village Zoning Law will be required to seek a variance from the Village Zoning Board. During development of this feasibility study and project alternatives, the Village, County, and regional economic development agencies have expressed commitment to collaborate with developers on potential parking study efforts and solutions to the identified parking deficits.

### SECTION 5: OPINION OF PROBABLE COST

#### 5.1 WWTP AND VILLAGE MARINA DEMOLITION COST ESTIMATE

As discussed in Section 3.1, it is currently anticipated that WWTP and Village Marina demolition and site preparation will be the responsibility of the developer selected by the Village and other project stakeholders. Based on the findings and assumptions discussed in Section 3.1, demolition and site preparation activities at the project site have been estimated and summarized below in Table 5.1.1. A complete demolition and site preparation cost estimate has been included in **Appendix B-1**.

WWTP & Village Marina Demolition	\$ 205,000
Site Preparation	\$ 67,000
Contingency (15%)	\$ 41,000
Engineering & Administration	\$ 47,000
<b>Total</b>	<b>\$ 360,000</b>

## 5.2 SITE REDEVELOPMENT COST ESTIMATES

Using the layouts and assumptions discussed in Section 4, cost estimates have been developed for each of the three redevelopment alternatives. These estimates have been summarized below in Table 5.2.1.

	<b>Alternative 1</b>		<b>Alternative 2</b>		<b>Alternative 3</b>	
Site Improvements	\$ 702,400		\$ 726,700		\$ 638,000	
Storm & Utility Improvements	\$ 44,000		\$ 110,500		\$ 170,000	
<b>Building Construction</b>						
<i>Average Amenities</i>	\$ 6,660,000	--	\$ 10,830,000	--	\$ 22,500,000	--
<i>High-End Amenities</i>	--	\$ 8,140,000	--	\$ 13,110,000	--	\$ 27,900,000
<b>Contingency (15%)</b>						
<i>Average Amenities</i>	\$ 1,111,000	--	\$ 1,750,000	--	\$ 3,496,000	--
<i>High-End Amenities</i>	--	\$ 1,333,000	--	\$ 2,092,000	--	\$ 4,306,000
<b>Design &amp; Administration</b>						
<i>Average Amenities</i>	\$ 1,278,000	--	\$ 2,013,000	--	\$ 4,021,000	--
<i>High-End Amenities</i>	--	\$ 1,533,000	--	\$ 2,406,000	--	\$ 4,952,000
<b>Total Average Amenities</b>	<b>\$ 9,795,000</b>	<b>-</b>	<b>\$ 15,430,000</b>	<b>-</b>	<b>\$ 30,825,000</b>	<b>-</b>
<b>Total High-End Amenities</b>	<b>-</b>	<b>\$11,752,000</b>	<b>-</b>	<b>\$ 18,445,000</b>	<b>-</b>	<b>\$ 37,966,000</b>

Building construction has been identified as the majority of the cost associated with redevelopment of the site. The cost of building construction is subject to vary significantly based on the fit and finish of the proposed building in each scenario. Because the selection of this fit and finish will ultimately be made by the selected developer, building construction costs have been presented as ranged estimates. Given the waterfront location and the fit and finish of the Watkins Glen Harbor Hotel and other buildings in the area, it is anticipated that building construction will have upper midscale to luxury finishes and appurtenances. Costs have been estimated accordingly. Detailed cost estimates for the alternatives discussed in Section 4 are included in **Appendix C-1**.

## SECTION 6: RECOMMENDATIONS

### 6.1 RECOMMENDED ALTERNATIVE

Based on the findings of this report, public engagement, and Project Seneca Economic Development Goals, Alternative 2 has been identified as the most attractive option for site redevelopment. It presents a balanced combination of publicly accessible space, recreational opportunities, year-round

operability, and economic opportunity. The two notable obstacles associated with this alternative, parking availability and lot coverage, will be subject to developer input on the final plans for the site and handled via zoning variance applications as required/appropriate.

## 6.2 STATE ENVIRONMENTAL QUALITY REVIEW STATUS

Any proposed development at the site will be subject to the rules and regulations of the New York State Environmental Quality Review (SEQR) process. This feasibility study does not replace a formal SEQR review, but the information documented and presented herein may be used to prepare SEQR documentation for the selected proposed development.

### SECTION 7: IMPLEMENTATION SCHEDULE

An implementation schedule has been presented in Table 7.1, identifying the responsibly party for each milestone based on input from project stakeholders and the team responsible for this feasibility study.

<b>Milestone</b>	<b>Duration (Months)</b>	<b>Estimated Completion Date</b>	<b>Responsible Party</b>
Prepare Request for Expression of Interest	1	October 2019	Larson Design Group
Advertise, Post REOI, Solicit Potential Developers	2.5	January 2020	Village/County
Select Developer, Negotiate & Secure Lease Agreement & Terms	4.5	April 2020	Village/County
Prepare Demolition Plans, Bid & Award Contract	5	November 2020	Developer
Administer Demolition Contract	4	March 2021	Developer/Engineer
Schematic Design of Proposed Development	4	August 2020	Developer
Review & Approval of Proposed Development	1	September 2020	Village/County
Design & Permitting of Proposed Development	4	January 2021	Developer
Construct Proposed Development	6 – 18*	April 2021 – July 2022	Developer
Leasing & Operation of New Facility	6	January 2022 – August 2022	Developer/Operator/Tenant

\*Subject to vary based on complexity of proposed development

## Figures

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**Figure 1:** Project Location Map

**Figure 2:** Tax Parcel Map

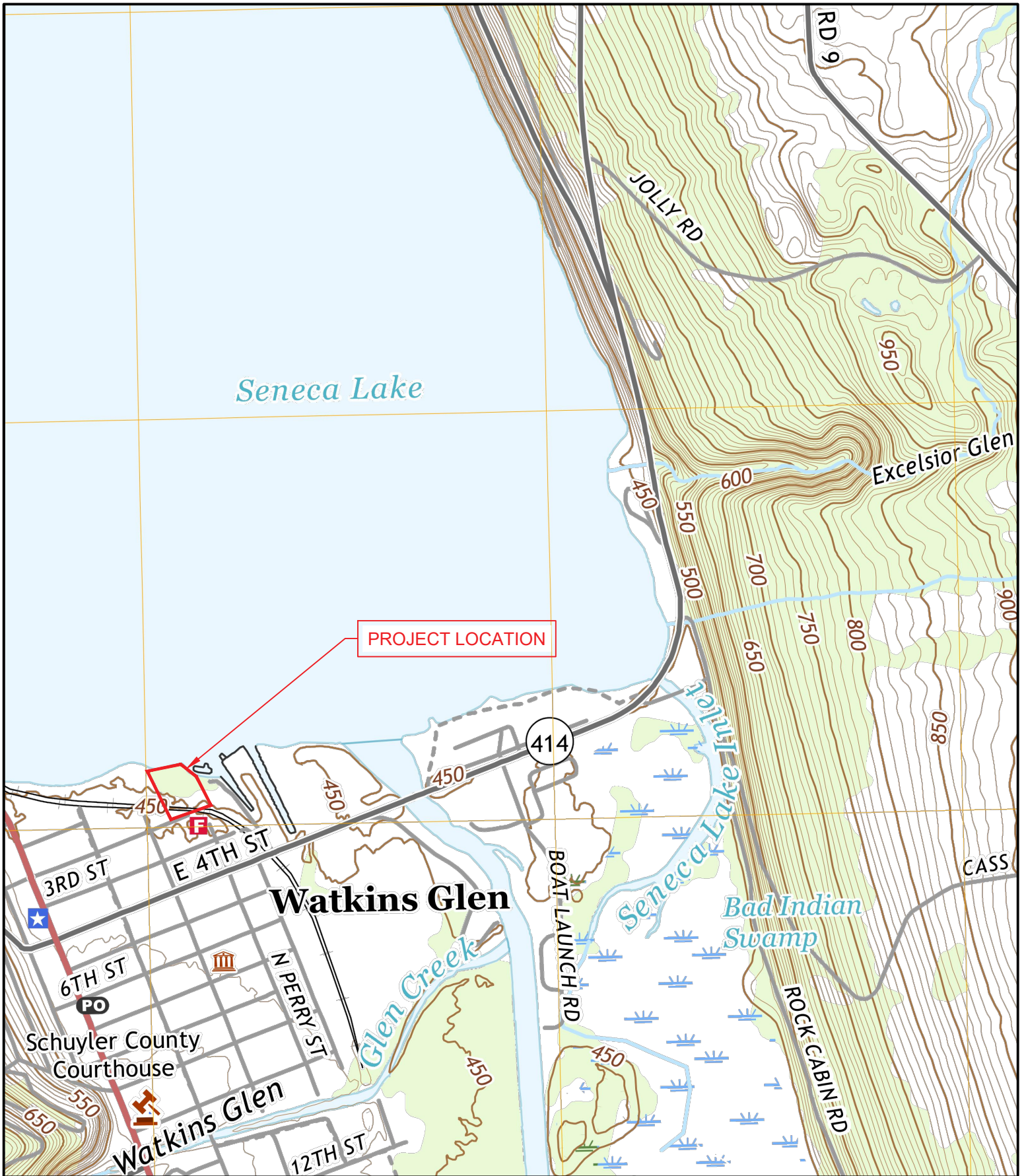
**Figure 3:** Existing Conditions

**Figure 4:** Alternative 1 – Site Concept Plan

**Figure 5:** Alternative 2 – Site Concept Plan

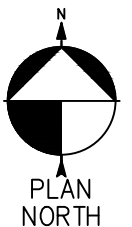
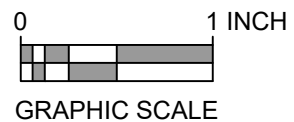
**Figure 6:** Alternative 3 – Site Concept Plan

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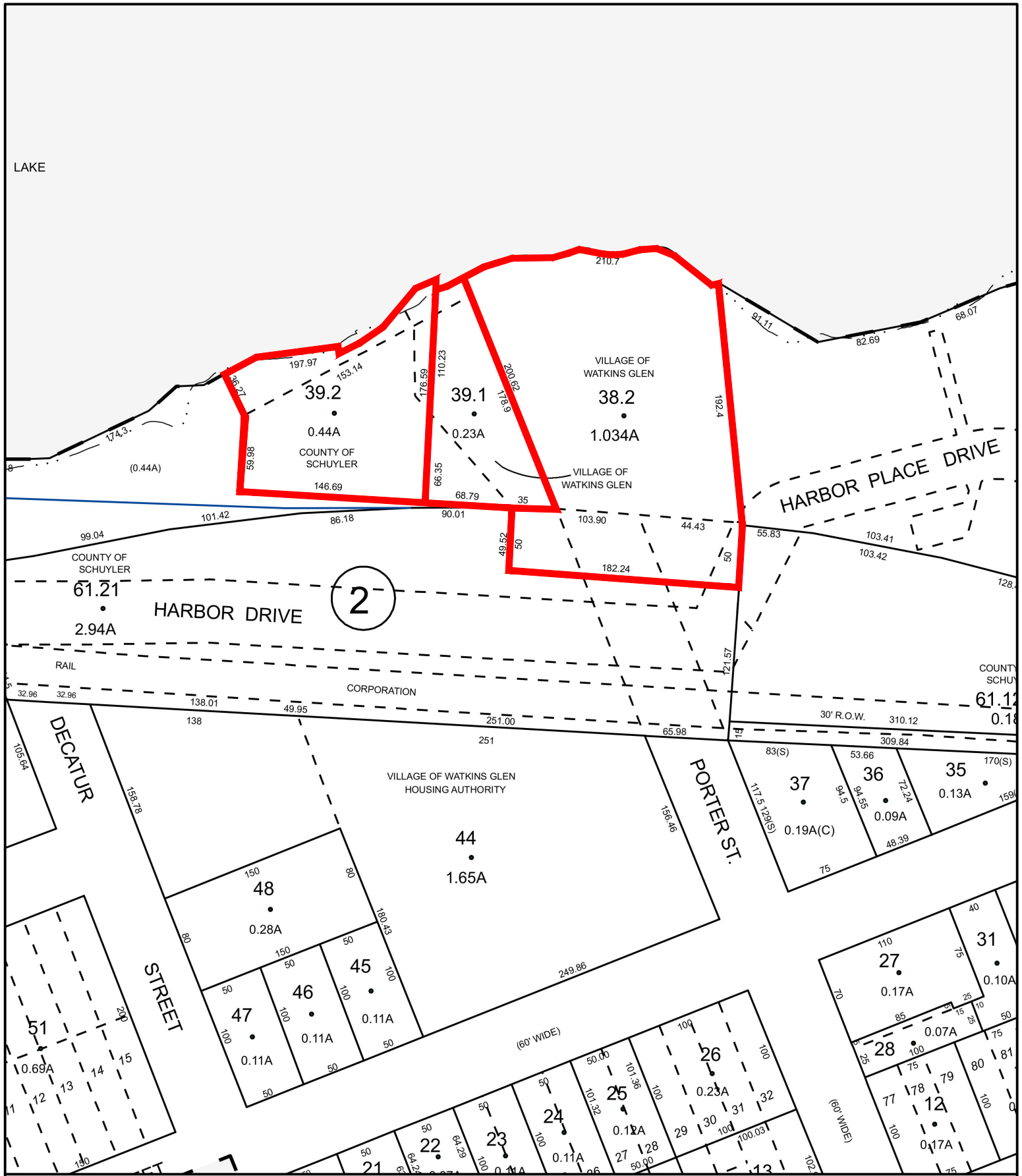


**FIGURE 1:  
PROJECT LOCATION MAP**

SCALE: 1" = 1000'

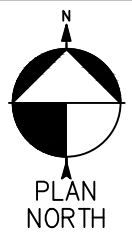
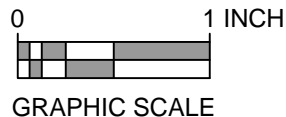






# FIGURE 2: TAX PARCEL MAP

SCALE: 1" = 100'

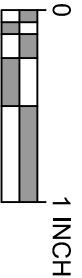


SOURCE: Schuyler County Tax Map 65.09, last revised 03/01/16

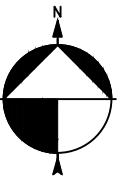


**FIGURE 3: EXISTING CONDITIONS**

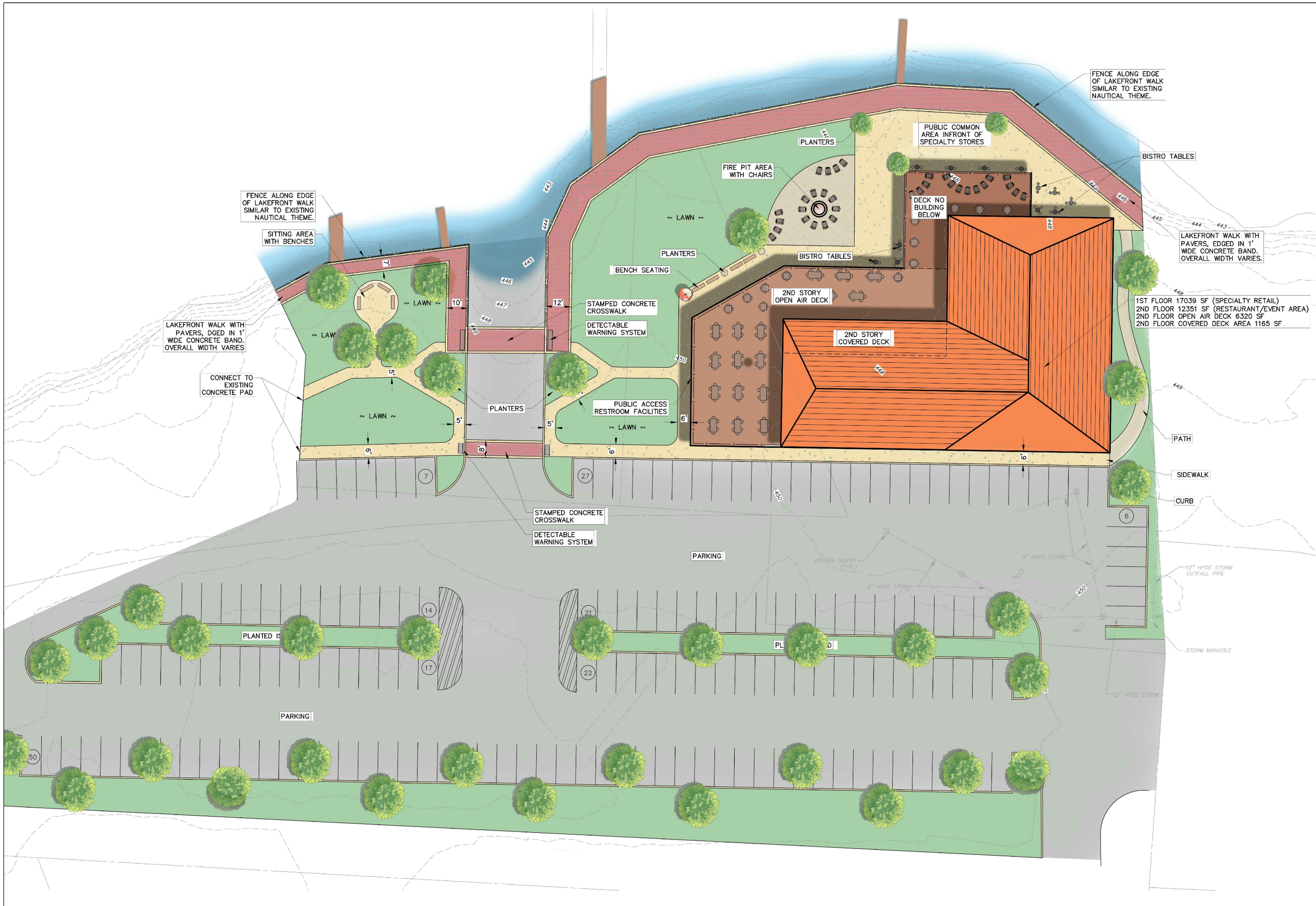
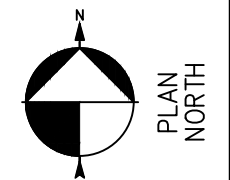
SCALE: 1" = 70'



GRAPHIC SCALE

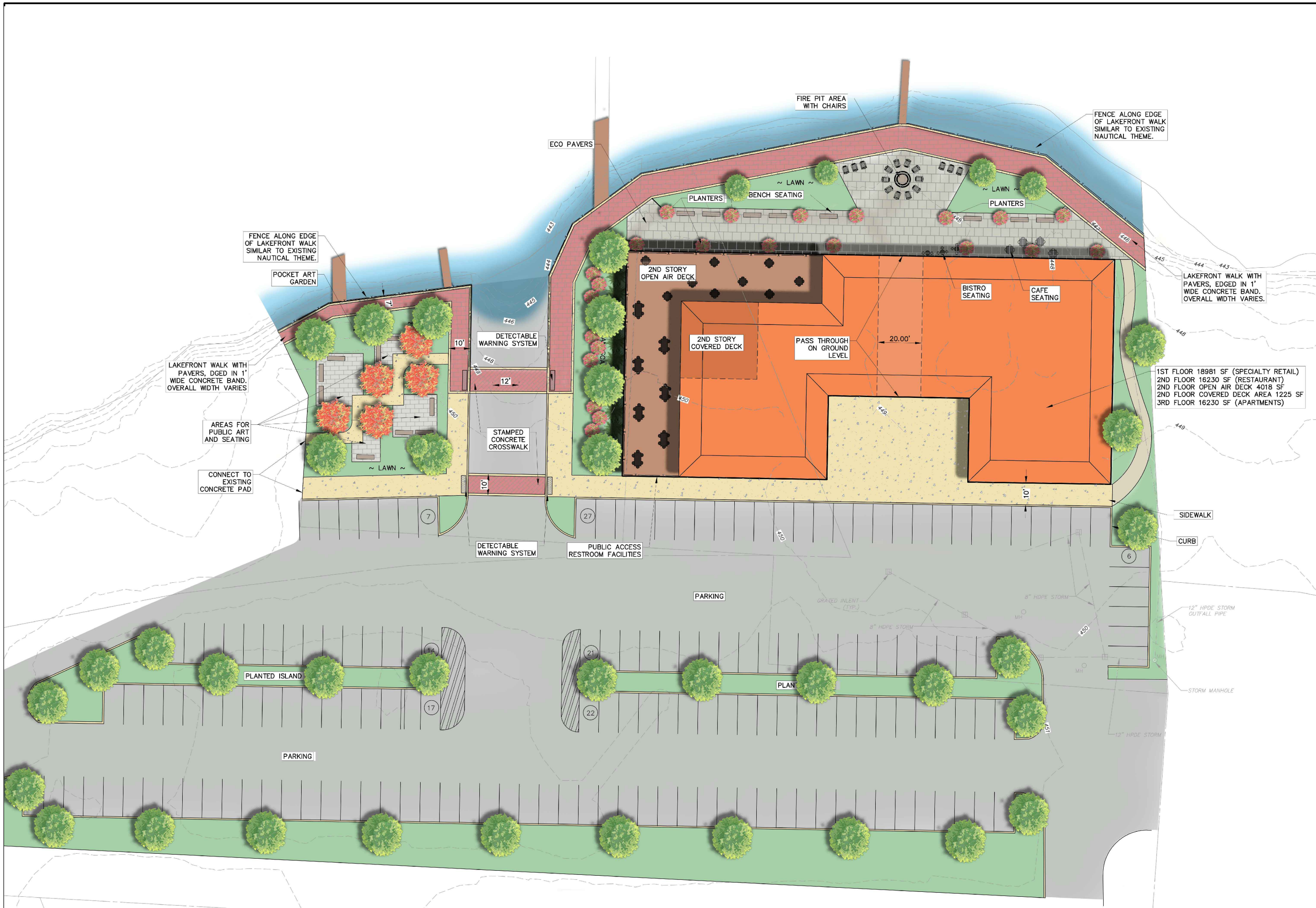
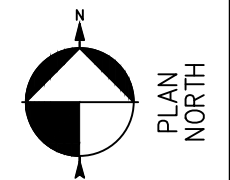


PLAN  
NORTH



1ST FLOOR 17039 SF (SPECIALTY RETAIL)  
2ND FLOOR 12351 SF (RESTAURANT/EVENT AREA)  
2ND FLOOR OPEN AIR DECK 6320 SF  
2ND FLOOR COVERED DECK AREA 1165 SF

**FIGURE 4: ALTERNATIVE 1 - CONCEPT SITE PLAN**  
SCALE: N.T.S.



FENCE ALONG EDGE OF LAKEFRONT WALK SIMILAR TO EXISTING NAUTICAL THEME.

POCKET ART GARDEN

LAKEFRONT WALK WITH PAVERS, DGED IN 1' WIDE CONCRETE BAND. OVERALL WIDTH VARIES

AREAS FOR PUBLIC ART AND SEATING

CONNECT TO EXISTING CONCRETE PAD

ECO PAVERS

FIRE PIT AREA WITH CHAIRS

FENCE ALONG EDGE OF LAKEFRONT WALK SIMILAR TO EXISTING NAUTICAL THEME.

PLANTERS

BENCH SEATING

PLANTERS

2ND STORY OPEN AIR DECK

2ND STORY COVERED DECK

PASS THROUGH ON GROUND LEVEL

BISTRO SEATING

CAFE SEATING

DETECTABLE WARNING SYSTEM

STAMPED CONCRETE CROSSWALK

DETECTABLE WARNING SYSTEM

PUBLIC ACCESS RESTROOM FACILITIES

PARKING

PLANTED ISLAND

PLAN

LAKEFRONT WALK WITH PAVERS, EDGED IN 1' WIDE CONCRETE BAND. OVERALL WIDTH VARIES.

1ST FLOOR 18981 SF (SPECIALTY RETAIL)  
2ND FLOOR 16230 SF (RESTAURANT)  
2ND FLOOR OPEN AIR DECK 4018 SF  
2ND FLOOR COVERED DECK AREA 1225 SF  
3RD FLOOR 16230 SF (APARTMENTS)

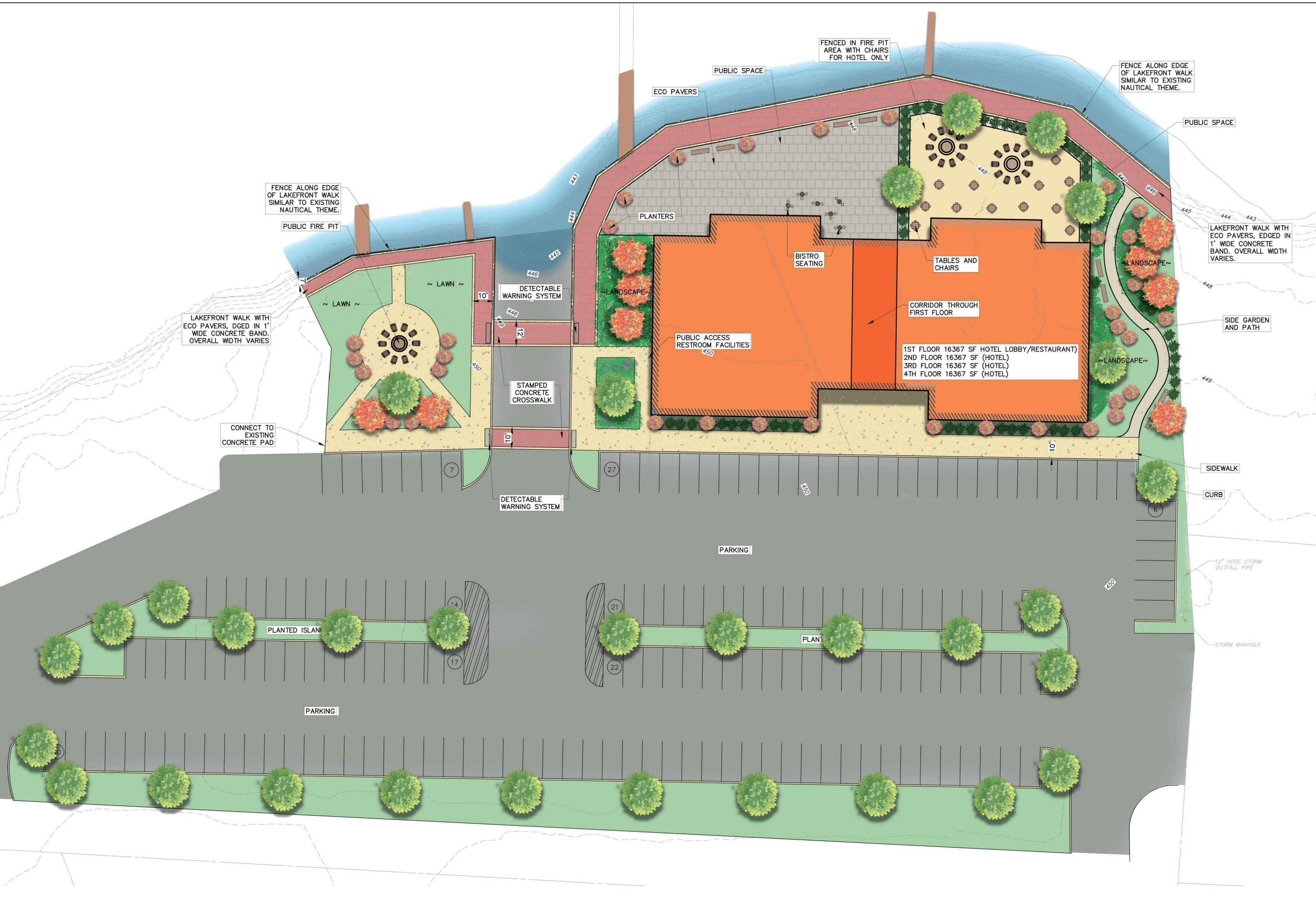
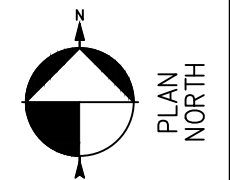
SIDEWALK

CURB

12" HPDE STORM OUTFALL PIPE

STORM MANHOLE

FIGURE 5: ALTERNATIVE 2 - CONCEPT SITE PLAN  
SCALE: N.T.S.



**FIGURE 6: ALTERNATIVE 3 - CONCEPT SITE PLAN**  
SCALE: N.T.S.

# Appendix A

## Background Information

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**Appendix A-1:** Photographic Log

**Appendix A-2:** FEMA FIRM

**Appendix A-2.1:** Vertcon Output

**Appendix A-2.2:** 100-Year Floodplain Area

**Appendix A-3:** NYS DEC Environmental Resource Mapper Output

**Appendix A-4:** US Fish & Wildlife iPaC Response

**Appendix A-5:** NYS SHPO No-Effect Letter

**Appendix A-6:** USDA Soils Report



Larson Design Group  
Your Vision. Made Real.

# PHOTOGRAPHIC LOG




	<b>PROJECT NAME</b> Village of Watkins Glen WWTP Redevelopment Feasibility Study	
	PROJECT NUMBER: 9007-002	PHASE: N/A
PHOTO #: 1		
DATE: 4/23/19		
DIRECTION: East		
PHOTO DESCRIPTION: Looking east towards the process/control building from the process tankage.		

PHOTO #: 2	
DATE: 4/23/19	
DIRECTION: North	
PHOTO DESCRIPTION: Looking north at the process tankage.	

# PHOTOGRAPHIC LOG

PHOTO #:  
3

DATE:  
4/23/19

DIRECTION:  
North

PHOTO DESCRIPTION:  
Looking North towards Seneca Lake along the process tankage catwalk.



PHOTO #:  
4

DATE:  
4/23/19

DIRECTION:  
Southwest

PHOTO DESCRIPTION:  
Looking down from the process catwalk towards the chlorine contact tank.





# PHOTOGRAPHIC LOG

PHOTO #:  
5

DATE:  
4/23/19

DIRECTION:  
Northeast

PHOTO DESCRIPTION:  
Looking northeast  
towards Seneca Lake  
from the northern side of  
the process tankage.



PHOTO #:  
6

DATE:  
4/23/19

DIRECTION:  
South

PHOTO DESCRIPTION:  
Looking south towards  
the process/control  
building.



# PHOTOGRAPHIC LOG

PHOTO #: 7
DATE: 5/16/19
DIRECTION: West
PHOTO DESCRIPTION: Looking west from the northern side of the site towards the Village Marina.



PHOTO #: 8
DATE: 5/16/19
DIRECTION: North
PHOTO DESCRIPTION: Looking north across Seneca Lake from the WWTP pier.



# PHOTOGRAPHIC LOG

PHOTO #:  
9

DATE:  
5/16/19

DIRECTION:  
East

PHOTO DESCRIPTION:  
Looking east from the northern side of the site towards the Cargill salt plant.



PHOTO #:  
10

DATE:  
5/16/19

DIRECTION:  
South

PHOTO DESCRIPTION:  
Looking south from the northern side of the site towards the process/control building across the primary sedimentation tank and sludge thickener.



# PHOTOGRAPHIC LOG

PHOTO #:  
11

DATE:  
4/23/19

DIRECTION:  
N/A

PHOTO DESCRIPTION:  
Typical view of lab/office space in the process/control building.



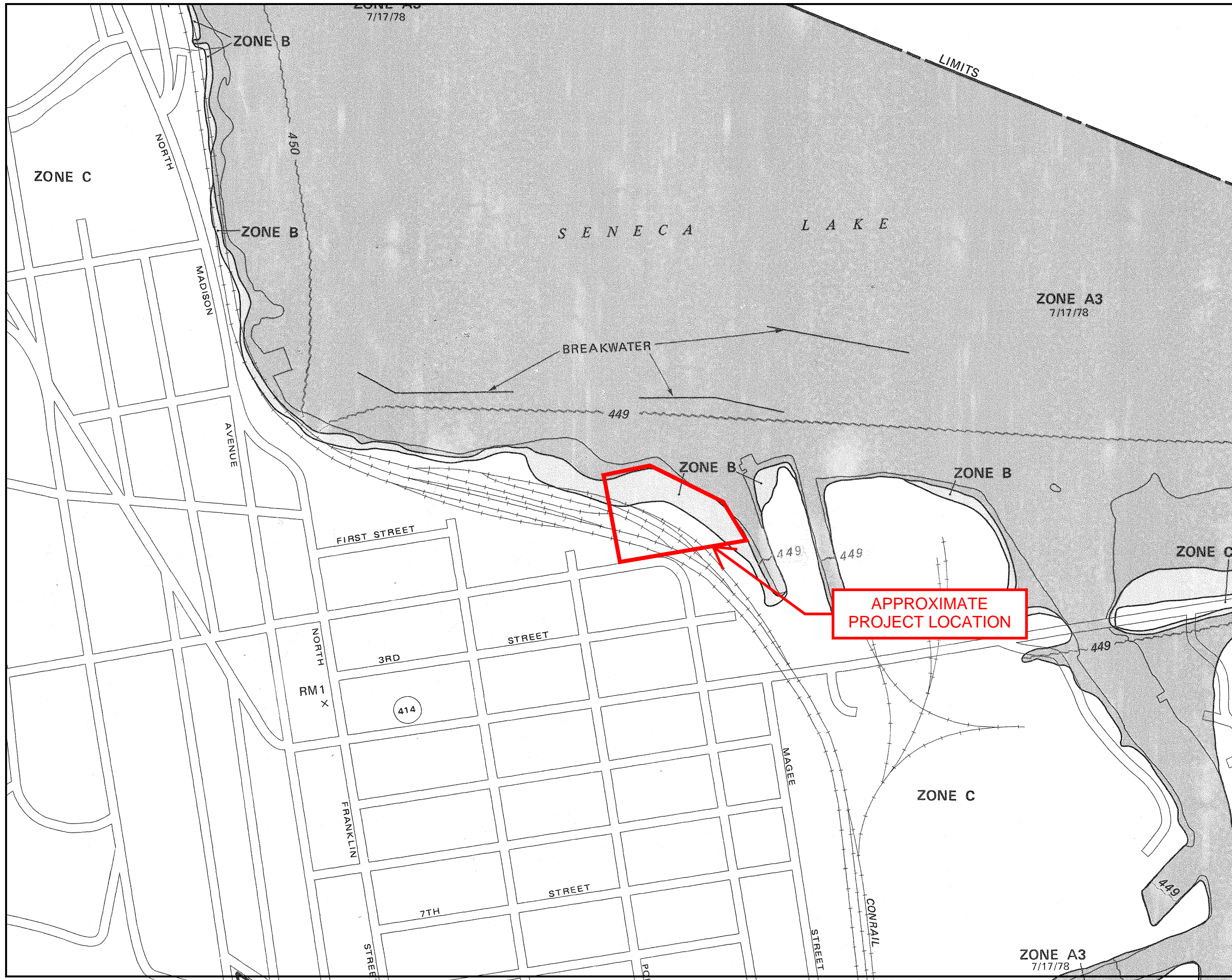
PHOTO #:  
12

DATE:  
4/23/19

DIRECTION:  
N/A

PHOTO DESCRIPTION:  
Typical view of process equipment space in the process/control building.





APPROXIMATE SCALE  
400 0 400 FEET

**NATIONAL FLOOD INSURANCE PROGRAM**

**FLOOD INSURANCE RATE MAP**

**VILLAGE OF  
WATKINS GLEN,  
NEW YORK  
SCHUYLER COUNTY**

**COMMUNITY-PANEL NUMBER  
360750 0001 B**

**PAGE 1 OF 1**

**EFFECTIVE  
JULY 17, 1978**



**U.S. DEPARTMENT OF HOUSING  
AND URBAN DEVELOPMENT  
FEDERAL INSURANCE ADMINISTRATION**

This is an official copy of a portion of the above referenced flood map. It was extracted using F-MIT On-Line. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For the latest product information about National Flood Insurance Program flood maps check the FEMA Flood Map Store at [www.msc.fema.gov](http://www.msc.fema.gov)

Questions concerning the VERTCON process may be mailed to [NGS](#)

---

Latitude: 42 23 03

Longitude: 076 52 15

NGVD 29 height: 449.00 FT

Datum shift(NAVD 88 minus NGVD 29): -0.607 feet

Converted to NAVD 88 height: 448.393 feet

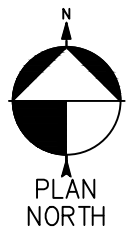
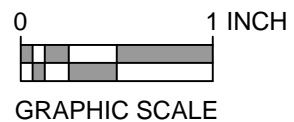
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AREA BELOW ELEV. 448.393'  
APPROXIMATELY 0.30 ACRES

# APPENDIX A-3.2: 100 YEAR FLOODPLAIN AREA

SCALE: 1" = 100'



## Environmental Resource Mapper



The coordinates of the point you clicked on are:

**UTM 18**

**Easting:** 345956.506

**Northing:** 4694118.945

**Longitude/Latitude**

**Longitude:** -76.871

**Latitude:** 42.384

The approximate address of the point you clicked on is:

Harbor Dr, Watkins Glen, New York, 14891

**County:** Schuyler

**Town:** Dix

**Village:** Watkins Glen

**USGS Quad:** BURDETT

**DEC Region**

**Region 8:**

(Western Finger Lakes) Chemung, Genesee, Livingston, Monroe, Ontario, Orleans, Schuyler, Seneca, Steuben, Wayne and Yates counties. For more information visit <http://www.dec.ny.gov/about/617.html>.

[Old or Potential Records \(Not displayed on the map\)](#)



**Common Name:** Leiberg's Panic Grass

**Scientific Name:** Dichanthelium leibergii

**Date Last Documented:** 1832

**Location:** Seneca Lake Head

**NYS Protected:** Endangered

### Rare Plants and Rare Animals

**This location is in the vicinity of** Comely Shiner – Not Listed by NYS

If your project or action is within or near an area with a rare animal, a permit may be required if the species is listed as endangered or threatened and the department determines the action may be harmful to the species or its habitat.

If your project or action is within or near an area with rare plants and/or significant natural communities, the environmental impacts may need to be addressed.

The presence of a unique geological feature or landform near a project, unto itself, does not trigger a requirement for a NYS DEC permit. Readers are advised, however, that there is the chance that a unique feature may also show in another data layer (ie. a wetland) and thus be subject to permit jurisdiction.

Please refer to the "Need a Permit?" tab for permit information or other authorizations regarding these natural resources.

**Disclaimer:** If you are considering a project or action in, or near, a wetland or a stream, a NYS DEC permit may be required. The Environmental Resources Mapper does not show all natural resources which are regulated by NYS DEC, and for which permits from NYS DEC are required. For example, Regulated Tidal Wetlands, and Wild, Scenic, and Recreational Rivers, are currently not included on the maps.



# United States Department of the Interior



FISH AND WILDLIFE SERVICE  
New York Ecological Services Field Office  
3817 Luker Road  
Cortland, NY 13045-9385

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

<http://www.fws.gov/northeast/nyfo/es/section7.htm>

In Reply Refer To:

May 09, 2019

Consultation Code: 05E1NY00-2019-SLI-1963

Event Code: 05E1NY00-2019-E-06114

Project Name: Watkins Glen WWTP Demolition

Subject: List of threatened and endangered species that may occur in your proposed project location, and/or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (ESA) of 1973, as amended (16 U.S.C. 1531 *et seq.*). This list can also be used to determine whether listed species may be present for projects without federal agency involvement. New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list.

Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the ESA, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC site at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list. If listed, proposed, or candidate species were identified as potentially occurring in the project area, coordination with our office is encouraged. Information on the steps involved with assessing potential impacts from projects can be found at: <http://www.fws.gov/northeast/nyfo/es/section7.htm>

Please be aware that bald and golden eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 *et seq.*), and projects affecting these species may require development of an eagle conservation plan (<http://www.fws.gov/windenergy/>)

[eagle\\_guidance.html](#)). Additionally, wind energy projects should follow the Services wind energy guidelines (<http://www.fws.gov/windenergy/>) for minimizing impacts to migratory birds and bats.

Guidance for minimizing impacts to migratory birds for projects including communications towers (e.g., cellular, digital television, radio, and emergency broadcast) can be found at: <http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/towers.htm>; <http://www.towerkill.com>; and <http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/comtow.html>.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the ESA. Please include the Consultation Tracking Number in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List

## Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

**New York Ecological Services Field Office**

3817 Luker Road

Cortland, NY 13045-9385

(607) 753-9334

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## Project Summary

Consultation Code: 05E1NY00-2019-SLI-1963

Event Code: 05E1NY00-2019-E-06114

Project Name: Watkins Glen WWTP Demolition

Project Type: DEVELOPMENT

Project Description: The project will involve the decommissioning and demolition of the existing Village of Watkins Glen Wastewater Treatment Plant, and site preparation for future development.

Project Location:

Approximate location of the project can be viewed in Google Maps: <https://www.google.com/maps/place/42.38414415328165N76.87121519882703W>



Counties: Schuyler, NY

---

## Endangered Species Act Species

There is a total of 2 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries<sup>1</sup>, as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

- 
1. [NOAA Fisheries](#), also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

### Mammals

NAME	STATUS
Northern Long-eared Bat <i>Myotis septentrionalis</i> No critical habitat has been designated for this species. Species profile: <a href="https://ecos.fws.gov/ecp/species/9045">https://ecos.fws.gov/ecp/species/9045</a>	Threatened

### Flowering Plants

NAME	STATUS
Leedy's Roseroot <i>Rhodiola integrifolia ssp. leedyi</i> No critical habitat has been designated for this species. Species profile: <a href="https://ecos.fws.gov/ecp/species/285">https://ecos.fws.gov/ecp/species/285</a> Species survey guidelines: <a href="https://ecos.fws.gov/ipac/guideline/survey/population/1150/office/52410.pdf">https://ecos.fws.gov/ipac/guideline/survey/population/1150/office/52410.pdf</a>	Threatened

### Critical habitats

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

---



# Parks, Recreation, and Historic Preservation

ANDREW M. CUOMO  
Governor

ERIK KULLESEID  
Commissioner

May 20, 2019

Mr. Andrew Kuzio  
Sr. Engineering Associate  
Larson Design Group, Inc.  
1 West Market Street  
Suite 301  
Corning, NY 14830

Re: DEC  
Watkins Glen WWTP: Demolition  
19PR03163

Dear Mr. Kuzio:

Thank you for requesting the comments of the Office of Parks, Recreation and Historic Preservation (OPRHP). We have reviewed the project 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 OPRHP 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, it is the New York State Office of Parks, Recreation and Historic Preservation's opinion that your project will have no impact on archaeological and/or historic resources listed in or eligible for the New York State and National Registers of Historic Places.

If further correspondence is required regarding this project, please be sure to refer to the OPRHP Project Review (PR) number noted above.

Sincerely,

Michael F. Lynch, P.E., AIA  
Director, Division for Historic Preservation

# Custom Soil Resource Report for **Schuyler County, New York**

## Watkins Glen WWTP Reuse Study





# Preface

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

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

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (<http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/>) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (<https://offices.sc.egov.usda.gov/locator/app?agency=nrcs>) or your NRCS State Soil Scientist ([http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2\\_053951](http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951)).

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

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

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

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# How Soil Surveys Are Made

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

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

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

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

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

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scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

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

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

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

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

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

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

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identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

# Soil Map

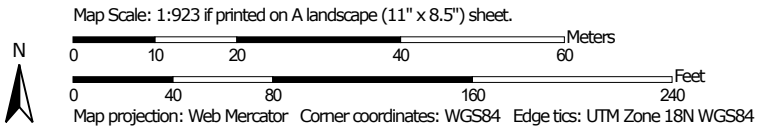
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The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce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

# Custom Soil Resource Report Soil Map




Soil Map may not be valid at this scale.







### MAP LEGEND


**Area of Interest (AOI)**

 Area of Interest (AOI)

**Soils**







 Soil Map Unit Polygons

 Soil Map Unit Lines


 Soil Map Unit Points

**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


**Water Features**

 Streams and Canals

**Transportation**

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

**Background**

 Aerial Photography

### MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:15,800.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

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

Source of Map: Natural Resources Conservation Service  
 Web Soil Survey URL:  
 Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

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

Soil Survey Area: Schuyler County, New York  
 Survey Area Data: Version 15, Sep 3, 2018

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jul 10, 2014—Oct 30, 2016

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

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
CnA	Chenango gravelly silt loam, 0 to 3 percent slopes	0.1	1.8%
Te	Teel silt loam	3.3	97.7%
W	Water	0.0	0.5%
<b>Totals for Area of Interest</b>		<b>3.4</b>	<b>100.0%</b>

## Map Unit Descriptions

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

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

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

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the

## Custom Soil Resource Report

development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

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

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

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

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

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

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

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

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

## Schuyler County, New York

### CnA—Chenango gravelly silt loam, 0 to 3 percent slopes

#### Map Unit Setting

*National map unit symbol:* 9wk1  
*Elevation:* 600 to 1,800 feet  
*Mean annual precipitation:* 32 to 40 inches  
*Mean annual air temperature:* 45 to 48 degrees F  
*Frost-free period:* 120 to 160 days  
*Farmland classification:* All areas are prime farmland

#### Map Unit Composition

*Chenango and similar soils:* 75 percent  
*Minor components:* 25 percent  
*Estimates are based on observations, descriptions, and transects of the mapunit.*

#### Description of Chenango

##### Setting

*Landform:* Terraces, valley trains  
*Landform position (two-dimensional):* Summit  
*Landform position (three-dimensional):* Tread  
*Down-slope shape:* Convex  
*Across-slope shape:* Convex  
*Parent material:* Gravelly loamy glaciofluvial deposits over sandy and gravelly glaciofluvial deposits, derived mainly from sandstone, shale, and siltstone

##### Typical profile

*H1 - 0 to 9 inches:* gravelly silt loam  
*H2 - 9 to 37 inches:* very gravelly loam  
*H3 - 37 to 50 inches:* very gravelly sand

##### Properties and qualities

*Slope:* 0 to 3 percent  
*Depth to restrictive feature:* More than 80 inches  
*Natural drainage class:* Well drained  
*Capacity of the most limiting layer to transmit water (Ksat):* Moderately high to high (0.57 to 5.95 in/hr)  
*Depth to water table:* More than 80 inches  
*Frequency of flooding:* None  
*Frequency of ponding:* None  
*Calcium carbonate, maximum in profile:* 1 percent  
*Available water storage in profile:* Low (about 4.6 inches)

##### Interpretive groups

*Land capability classification (irrigated):* None specified  
*Land capability classification (nonirrigated):* 2s  
*Hydrologic Soil Group:* A  
*Hydric soil rating:* No

#### Minor Components

##### Castile

*Percent of map unit:* 5 percent  
*Hydric soil rating:* No

**Philo**

*Percent of map unit: 5 percent*  
*Hydric soil rating: No*

**Unnamed soils**

*Percent of map unit: 5 percent*  
*Hydric soil rating: No*

**Valois**

*Percent of map unit: 5 percent*  
*Hydric soil rating: No*

**Howard**

*Percent of map unit: 5 percent*  
*Hydric soil rating: No*

**Te—Teel silt loam**

**Map Unit Setting**

*National map unit symbol: 9wm0*  
*Elevation: 600 to 1,800 feet*  
*Mean annual precipitation: 32 to 40 inches*  
*Mean annual air temperature: 45 to 48 degrees F*  
*Frost-free period: 120 to 160 days*  
*Farmland classification: All areas are prime farmland*

**Map Unit Composition**

*Teel and similar soils: 80 percent*  
*Minor components: 20 percent*  
*Estimates are based on observations, descriptions, and transects of the mapunit.*

**Description of Teel**

**Setting**

*Landform: Flood plains*  
*Landform position (two-dimensional): Summit*  
*Landform position (three-dimensional): Talf*  
*Down-slope shape: Concave*  
*Across-slope shape: Convex*  
*Parent material: Silty alluvium*

**Typical profile**

*H1 - 0 to 10 inches: silt loam*  
*H2 - 10 to 44 inches: silt loam*  
*H3 - 44 to 50 inches: loam*

**Properties and qualities**

*Slope: 0 to 3 percent*  
*Depth to restrictive feature: More than 80 inches*  
*Natural drainage class: Moderately well drained*

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*Capacity of the most limiting layer to transmit water (Ksat):* Moderately high to high (0.57 to 1.98 in/hr)

*Depth to water table:* About 18 to 24 inches

*Frequency of flooding:* Occasional

*Frequency of ponding:* None

*Calcium carbonate, maximum in profile:* 1 percent

*Available water storage in profile:* Moderate (about 8.8 inches)

### Interpretive groups

*Land capability classification (irrigated):* None specified

*Land capability classification (nonirrigated):* 2w

*Hydrologic Soil Group:* B/D

*Hydric soil rating:* No

### Minor Components

#### Howard

*Percent of map unit:* 5 percent

*Hydric soil rating:* No

#### Philo

*Percent of map unit:* 5 percent

*Hydric soil rating:* No

#### Udifluvents

*Percent of map unit:* 5 percent

*Hydric soil rating:* No

#### Wayland

*Percent of map unit:* 5 percent

*Landform:* Flood plains

*Hydric soil rating:* Yes

## W—Water

### Map Unit Setting

*National map unit symbol:* 9wmf

*Mean annual precipitation:* 32 to 40 inches

*Mean annual air temperature:* 45 to 48 degrees F

*Frost-free period:* 120 to 160 days

*Farmland classification:* Not prime farmland

### Map Unit Composition

*Water:* 100 percent

*Estimates are based on observations, descriptions, and transects of the mapunit.*

# **Soil Information for All Uses**

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## **Suitabilities and Limitations for Use**

The Suitabilities and Limitations for Use section includes various soil interpretations displayed as thematic maps with a summary table for the soil map units in the selected area of interest. A single value or rating for each map unit is generated by aggregating the interpretive ratings of individual map unit components. This aggregation process is defined for each interpretation.

## **Building Site Development**

Building site development interpretations are designed to be used as tools for evaluating soil suitability and identifying soil limitations for various construction purposes. As part of the interpretation process, the rating applies to each soil in its described condition and does not consider present land use. Example interpretations can include corrosion of concrete and steel, shallow excavations, dwellings with and without basements, small commercial buildings, local roads and streets, and lawns and landscaping.

## **Small Commercial Buildings**

Small commercial buildings are structures that are less than three stories high and do not have basements. The foundation is assumed to consist of spread footings of reinforced concrete built on undisturbed soil at a depth of 2 feet or at the depth of maximum frost penetration, whichever is deeper. The ratings are based on the soil properties that affect the capacity of the soil to support a load without movement and on the properties that affect excavation and construction costs. The properties that affect the load-supporting capacity include depth to a water table, ponding, flooding, subsidence, linear extensibility (shrink-swell potential), and compressibility (which is inferred from the Unified classification of the soil). The properties that affect the ease and amount of excavation include flooding, depth to a water table, ponding, slope, depth to bedrock or a cemented pan, hardness of bedrock or a cemented pan, and the amount and size of rock fragments.

The ratings are both verbal and numerical. Rating class terms indicate the extent to which the soils are limited by all of the soil features that affect the specified use. "Not limited" indicates that the soil has features that are very favorable for the specified use. Good performance and very low maintenance can be expected.

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"Somewhat limited" indicates that the soil has features that are moderately favorable for the specified use. The limitations can be overcome or minimized by special planning, design, or installation. Fair performance and moderate maintenance can be expected. "Very limited" indicates that the soil has one or more features that are unfavorable for the specified use. The limitations generally cannot be overcome without major soil reclamation, special design, or expensive installation procedures. Poor performance and high maintenance can be expected.

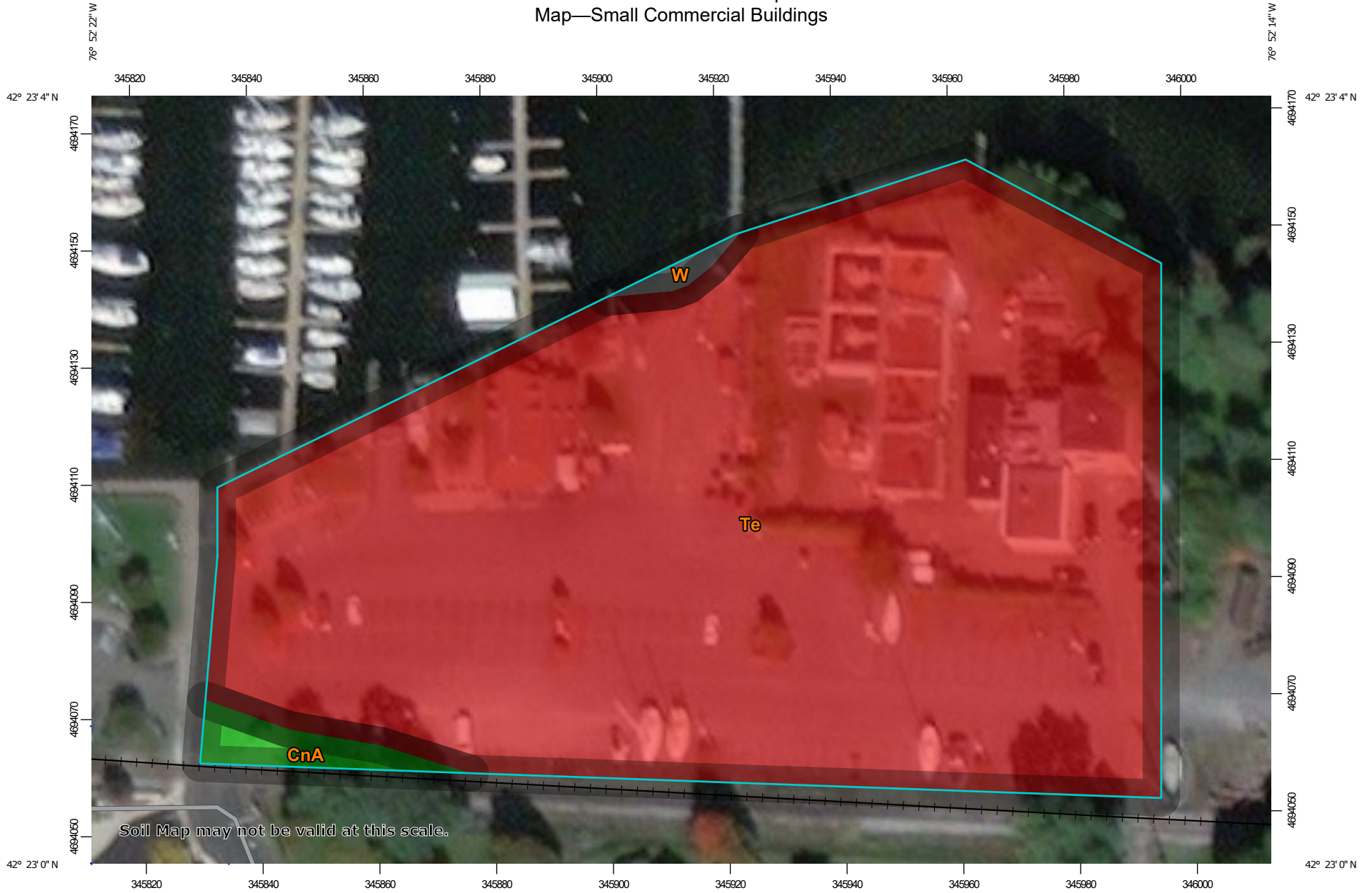
Numerical ratings indicate the severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.01 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the use (1.00) and the point at which the soil feature is not a limitation (0.00).

The map unit components listed for each map unit in the accompanying Summary by Map Unit table in Web Soil Survey or the Aggregation Report in Soil Data Viewer are determined by the aggregation method chosen. An aggregated rating class is shown for each map unit. The components listed for each map unit are only those that have the same rating class as listed for the map unit. The percent composition of each component in a particular map unit is presented to help the user better understand the percentage of each map unit that has the rating presented.

Other components with different ratings may be present in each map unit. The ratings for all components, regardless of the map unit aggregated rating, can be viewed by generating the equivalent report from the Soil Reports tab in Web Soil Survey or from the Soil Data Mart site. Onsite investigation may be needed to validate these interpretations and to confirm the identity of the soil on a given site.



# Custom Soil Resource Report Map—Small Commercial Buildings























Map Scale: 1:923 if printed on A landscape (11" x 8.5") sheet.

0 10 20 40 60 Meters

0 40 80 160 240 Feet

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 18N WGS84

### MAP LEGEND

- Area of Interest (AOI)**
  -  Area of Interest (AOI)
- Background**
  -  Aerial Photography
- Soils**
  - Soil Rating Polygons**
    -  Very limited
    -  Somewhat limited
    -  Not limited
    -  Not rated or not available
  - Soil Rating Lines**
    -  Very limited
    -  Somewhat limited
    -  Not limited
    -  Not rated or not available
  - Soil Rating Points**
    -  Very limited
    -  Somewhat limited
    -  Not limited
    -  Not rated or not available
- Water Features**
  -  Streams and Canals
- Transportation**
  -  Rails
  -  Interstate Highways
  -  US Routes
  -  Major Roads
  -  Local Roads

### MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:15,800.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

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

Source of Map: Natural Resources Conservation Service  
 Web Soil Survey URL:  
 Coordinate System: Web Mercator (EPSG:3857)

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

Soil Survey Area: Schuyler County, New York  
 Survey Area Data: Version 15, Sep 3, 2018

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jul 10, 2014—Oct 30, 2016

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.

### Tables—Small Commercial Buildings

Map unit symbol	Map unit name	Rating	Component name (percent)	Rating reasons (numeric values)	Acres in AOI	Percent of AOI
CnA	Chenango gravelly silt loam, 0 to 3 percent slopes	Not limited	Chenango (75%)		0.1	1.8%
Te	Teel silt loam	Very limited	Teel (80%)	Flooding (1.00)	3.3	97.7%
				Depth to saturated zone (0.77)		
W	Water	Not rated	Water (100%)		0.0	0.5%
<b>Totals for Area of Interest</b>					<b>3.4</b>	<b>100.0%</b>

Rating	Acres in AOI	Percent of AOI
Very limited	3.3	97.7%
Not limited	0.1	1.8%
Null or Not Rated	0.0	0.5%
<b>Totals for Area of Interest</b>	<b>3.4</b>	<b>100.0%</b>

### Rating Options—Small Commercial Buildings

*Aggregation Method:* Dominant Condition

*Component Percent Cutoff:* None Specified

*Tie-break Rule:* Higher

### Land Classifications

Land Classifications are specified land use and management groupings that are assigned to soil areas because combinations of soil have similar behavior for specified practices. Most are based on soil properties and other factors that directly influence the specific use of the soil. Example classifications include ecological site classification, farmland classification, irrigated and nonirrigated land capability classification, and hydric rating.

### Hydric Rating by Map Unit

This rating indicates the percentage of map units that meets the criteria for hydric soils. Map units are composed of one or more map unit components or soil types, each of which is rated as hydric soil or not hydric. Map units that are made up dominantly of hydric soils may have small areas of minor nonhydric components in

## Custom Soil Resource Report

the higher positions on the landform, and map units that are made up dominantly of nonhydryc soils may have small areas of minor hydryc components in the lower positions on the landform. Each map unit is rated based on its respective components and the percentage of each component within the map unit.

The thematic map is color coded based on the composition of hydryc components. The five color classes are separated as 100 percent hydryc components, 66 to 99 percent hydryc components, 33 to 65 percent hydryc components, 1 to 32 percent hydryc components, and less than one percent hydryc components.

In Web Soil Survey, the Summary by Map Unit table that is displayed below the map pane contains a column named 'Rating'. In this column the percentage of each map unit that is classified as hydryc is displayed.

Hydryc soils are defined by the National Technical Committee for Hydryc Soils (NTCHS) as soils that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part (Federal Register, 1994). Under natural conditions, these soils are either saturated or inundated long enough during the growing season to support the growth and reproduction of hydrophytic vegetation.

The NTCHS definition identifies general soil properties that are associated with wetness. In order to determine whether a specific soil is a hydryc soil or nonhydryc soil, however, more specific information, such as information about the depth and duration of the water table, is needed. Thus, criteria that identify those estimated soil properties unique to hydryc soils have been established (Federal Register, 2002). These criteria are used to identify map unit components that normally are associated with wetlands. The criteria used are selected estimated soil properties that are described in "Soil Taxonomy" (Soil Survey Staff, 1999) and "Keys to Soil Taxonomy" (Soil Survey Staff, 2006) and in the "Soil Survey Manual" (Soil Survey Division Staff, 1993).

If soils are wet enough for a long enough period of time to be considered hydryc, they should exhibit certain properties that can be easily observed in the field. These visible properties are indicators of hydryc soils. The indicators used to make onsite determinations of hydryc soils are specified in "Field Indicators of Hydryc Soils in the United States" (Hurt and Vasilas, 2006).

### References:

Federal Register. July 13, 1994. Changes in hydryc soils of the United States.

Federal Register. September 18, 2002. Hydryc soils of the United States.

Hurt, G.W., and L.M. Vasilas, editors. Version 6.0, 2006. Field indicators of hydryc soils in the United States.

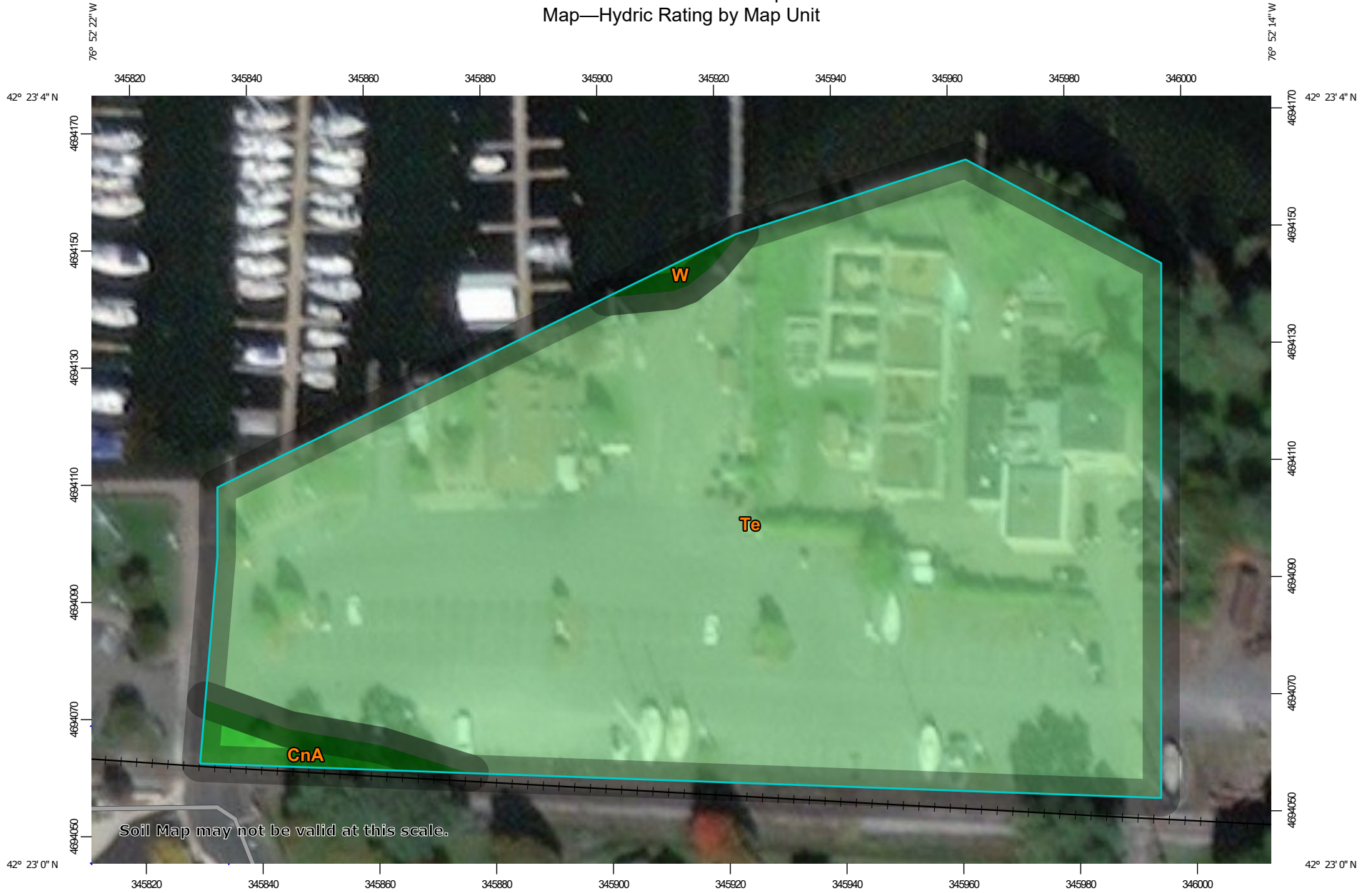
Soil Survey Division Staff. 1993. Soil survey manual. Soil Conservation Service. U.S. Department of Agriculture Handbook 18.

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Soil Survey Staff. 1999. Soil taxonomy: A basic system of soil classification for making and interpreting soil surveys. 2nd edition. Natural Resources Conservation Service. U.S. Department of Agriculture Handbook 436.

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# Custom Soil Resource Report Map—Hydric Rating by Map Unit



Map Scale: 1:923 if printed on A landscape (11" x 8.5") sheet.

0 10 20 40 60 Meters


0 40 80 160 240 Feet

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 18N WGS84









### MAP LEGEND

**Area of Interest (AOI)**







 Area of Interest (AOI)

**Soils**







**Soil Rating Polygons**

-  Hydric (100%)
-  Hydric (66 to 99%)
-  Hydric (33 to 65%)
-  Hydric (1 to 32%)
-  Not Hydric (0%)
-  Not rated or not available


**Soil Rating Lines**

-  Hydric (100%)
-  Hydric (66 to 99%)
-  Hydric (33 to 65%)
-  Hydric (1 to 32%)
-  Not Hydric (0%)
-  Not rated or not available






**Soil Rating Points**

-  Hydric (100%)
-  Hydric (66 to 99%)
-  Hydric (33 to 65%)
-  Hydric (1 to 32%)
-  Not Hydric (0%)
-  Not rated or not available


**Water Features**

 Streams and Canals

**Transportation**

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

**Background**

 Aerial Photography

### MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:15,800.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

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

Source of Map: Natural Resources Conservation Service  
 Web Soil Survey URL:  
 Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

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

Soil Survey Area: Schuyler County, New York  
 Survey Area Data: Version 15, Sep 3, 2018

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jul 10, 2014—Oct 30, 2016

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.

**Table—Hydric Rating by Map Unit**

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
CnA	Chenango gravelly silt loam, 0 to 3 percent slopes	0	0.1	1.8%
Te	Teel silt loam	5	3.3	97.7%
W	Water	0	0.0	0.5%
<b>Totals for Area of Interest</b>			<b>3.4</b>	<b>100.0%</b>

### Rating Options—Hydric Rating by Map Unit

*Aggregation Method: Percent Present*

*Component Percent Cutoff: None Specified*

*Tie-break Rule: Lower*

## Recreational Development

Recreational Development interpretations are tools designed to guide the user in identifying and evaluating the suitability of the soil for specific recreational uses. Example interpretations include camp areas, picnic areas, playgrounds, paths and trails, and off-road motorcycle trails.

### Picnic Areas

Picnic areas are natural or landscaped tracts used primarily for preparing meals and eating outdoors. These areas are subject to heavy foot traffic. Most vehicular traffic is confined to access roads and parking areas.

The ratings are based on the soil properties that affect the ease of developing picnic areas and that influence trafficability and the growth of vegetation after development. Slope and stoniness are the main concerns affecting the development of picnic areas. For good trafficability, the surface of picnic areas should absorb rainfall readily, remain firm under heavy foot traffic, and not be dusty when dry. The soil properties that influence trafficability are texture of the surface layer, depth to a water table, ponding, flooding, saturated hydraulic conductivity (Ksat), and large stones. The soil properties that affect the growth of plants are depth to bedrock or a cemented pan, saturated hydraulic conductivity (Ksat), and toxic substances in the soil.

The ratings are both verbal and numerical. Rating class terms indicate the extent to which the soils are limited by all of the soil features that affect the specified use. "Not limited" indicates that the soil has features that are very favorable for the specified use. Good performance and very low maintenance can be expected.



## Custom Soil Resource Report

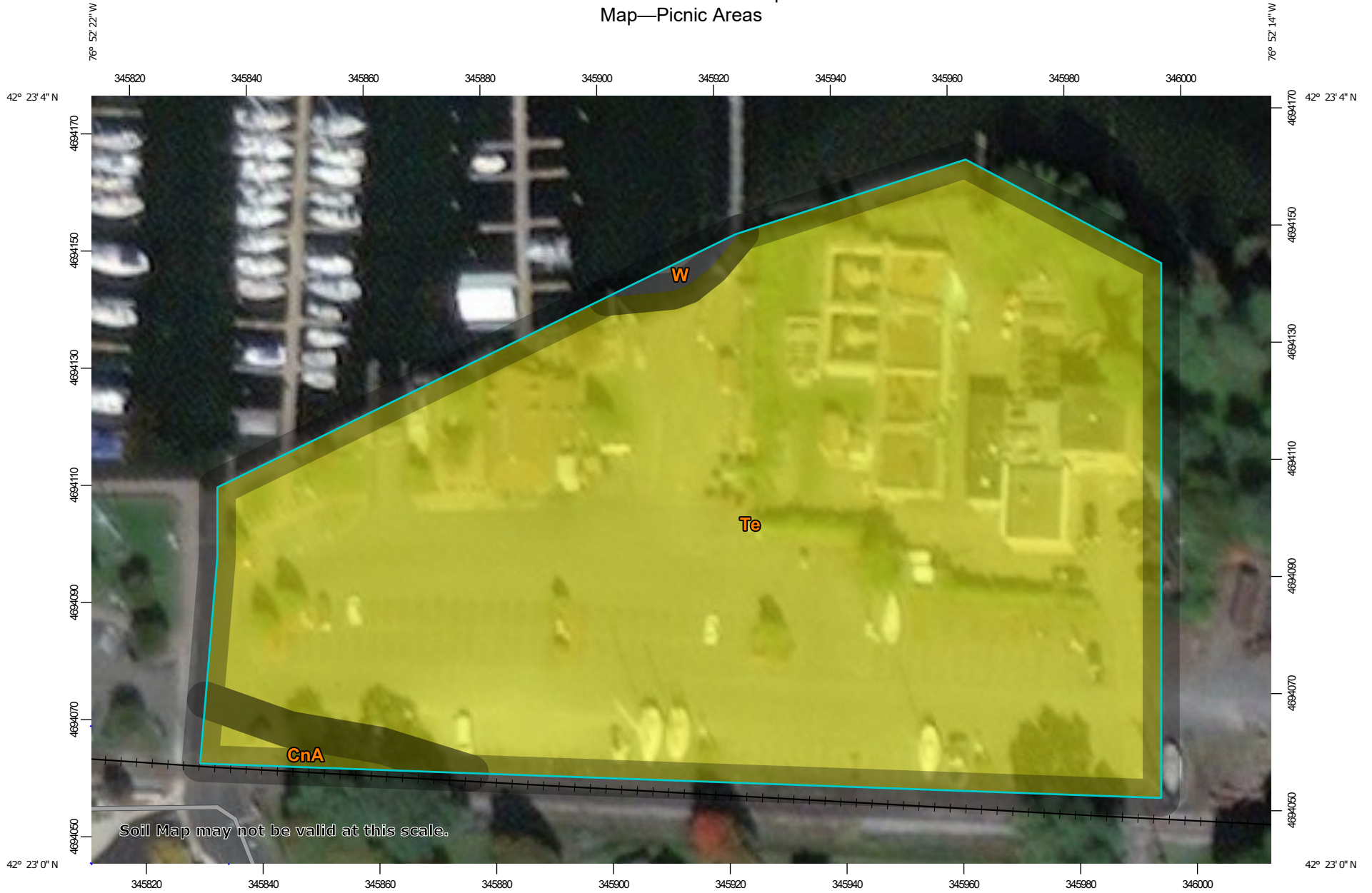
"Somewhat limited" indicates that the soil has features that are moderately favorable for the specified use. The limitations can be overcome or minimized by special planning, design, or installation. Fair performance and moderate maintenance can be expected. "Very limited" indicates that the soil has one or more features that are unfavorable for the specified use. The limitations generally cannot be overcome without major soil reclamation, special design, or expensive installation procedures. Poor performance and high maintenance can be expected.

Numerical ratings indicate the severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.01 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the use (1.00) and the point at which the soil feature is not a limitation (0.00).

The map unit components listed for each map unit in the accompanying Summary by Map Unit table in Web Soil Survey or the Aggregation Report in Soil Data Viewer are determined by the aggregation method chosen. An aggregated rating class is shown for each map unit. The components listed for each map unit are only those that have the same rating class as listed for the map unit. The percent composition of each component in a particular map unit is presented to help the user better understand the percentage of each map unit that has the rating presented.

Other components with different ratings may be present in each map unit. The ratings for all components, regardless of the map unit aggregated rating, can be viewed by generating the equivalent report from the Soil Reports tab in Web Soil Survey or from the Soil Data Mart site. Onsite investigation may be needed to validate these interpretations and to confirm the identity of the soil on a given site.

# Custom Soil Resource Report Map—Picnic Areas























Map Scale: 1:923 if printed on A landscape (11" x 8.5") sheet.



Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 18N WGS84



### MAP LEGEND

- Area of Interest (AOI)**
  -  Area of Interest (AOI)
- Background**
  -  Aerial Photography
- Soils**
  - Soil Rating Polygons**
    -  Very limited
    -  Somewhat limited
    -  Not limited
    -  Not rated or not available
  - Soil Rating Lines**
    -  Very limited
    -  Somewhat limited
    -  Not limited
    -  Not rated or not available
  - Soil Rating Points**
    -  Very limited
    -  Somewhat limited
    -  Not limited
    -  Not rated or not available
- Water Features**
  -  Streams and Canals
- Transportation**
  -  Rails
  -  Interstate Highways
  -  US Routes
  -  Major Roads
  -  Local Roads

### MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:15,800.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

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

Source of Map: Natural Resources Conservation Service  
 Web Soil Survey URL:  
 Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

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Soil Survey Area: Schuyler County, New York  
 Survey Area Data: Version 15, Sep 3, 2018

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jul 10, 2014—Oct 30, 2016

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.

Custom Soil Resource Report

**Tables—Picnic Areas**

Map unit symbol	Map unit name	Rating	Component name (percent)	Rating reasons (numeric values)	Acres in AOI	Percent of AOI
CnA	Chenango gravelly silt loam, 0 to 3 percent slopes	Somewhat limited	Chenango (75%)	Gravel content (0.06)	0.1	1.8%
				Dusty (0.02)		
Te	Teel silt loam	Somewhat limited	Teel (80%)	Depth to saturated zone (0.43)	3.3	97.7%
				Dusty (0.03)		
W	Water	Not rated	Water (100%)		0.0	0.5%
<b>Totals for Area of Interest</b>					<b>3.4</b>	<b>100.0%</b>

Rating	Acres in AOI	Percent of AOI
Somewhat limited	3.4	99.5%
Null or Not Rated	0.0	0.5%
<b>Totals for Area of Interest</b>	<b>3.4</b>	<b>100.0%</b>

**Rating Options—Picnic Areas**

*Aggregation Method: Dominant Condition*

*Component Percent Cutoff: None Specified*

*Tie-break Rule: Higher*

## Soil Properties and Qualities

The Soil Properties and Qualities section includes various soil properties and qualities displayed as thematic maps with a summary table for the soil map units in the selected area of interest. A single value or rating for each map unit is generated by aggregating the interpretive ratings of individual map unit components. This aggregation process is defined for each property or quality.

## Soil Qualities and Features

Soil qualities are behavior and performance attributes that are not directly measured, but are inferred from observations of dynamic conditions and from soil properties. Example soil qualities include natural drainage, and frost action. Soil features are attributes that are not directly part of the soil. Example soil features include slope and depth to restrictive layer. These features can greatly impact the use and management of the soil.

## Hydrologic Soil Group

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.

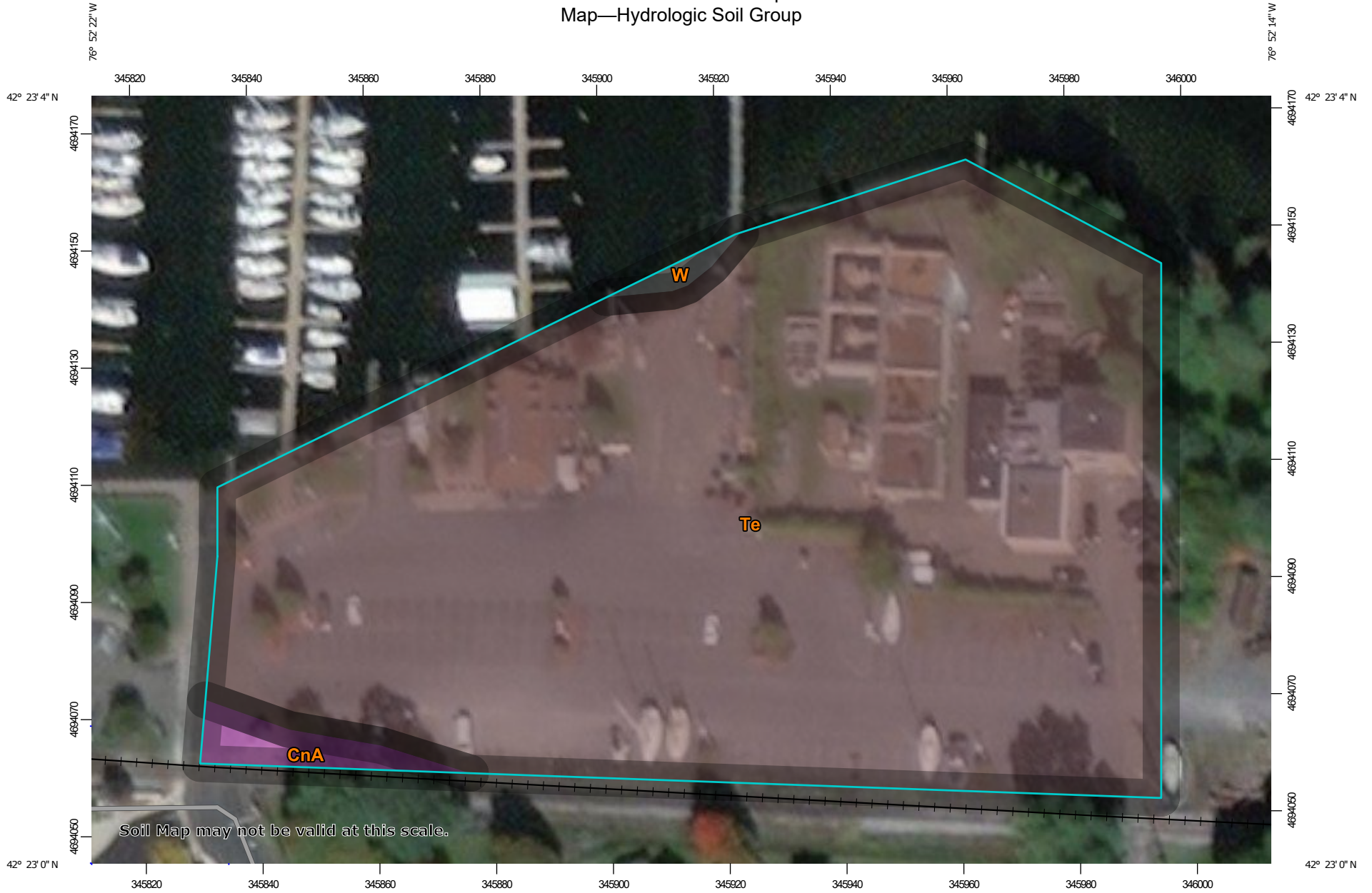
Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at

## Custom Soil Resource Report

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.

Custom Soil Resource Report  
Map—Hydrologic Soil Group



Map Scale: 1:923 if printed on A landscape (11" x 8.5") sheet.




Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 18N WGS84



### MAP LEGEND

**Area of Interest (AOI)**









 Area of Interest (AOI)

**Soils**

**Soil Rating Polygons**





-  A
-  A/D
-  B
-  B/D
-  C
-  C/D
-  D
-  Not rated or not available

**Soil Rating Lines**


-  A
-  A/D
-  B
-  B/D
-  C
-  C/D
-  D
-  Not rated or not available

**Soil Rating Points**






-  A
-  A/D
-  B
-  B/D

-  C
-  C/D
-  D
-  Not rated or not available


**Water Features**

 Streams and Canals

**Transportation**

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

**Background**

 Aerial Photography

### MAP INFORMATION

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**Table—Hydrologic Soil Group**

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
CnA	Chenango gravelly silt loam, 0 to 3 percent slopes	A	0.1	1.8%
Te	Teel silt loam	B/D	3.3	97.7%
W	Water		0.0	0.5%
<b>Totals for Area of Interest</b>			<b>3.4</b>	<b>100.0%</b>

**Rating Options—Hydrologic Soil Group**

*Aggregation Method:* Dominant Condition

*Component Percent Cutoff:* None Specified

*Tie-break Rule:* Higher

# References

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- American Association of State Highway and Transportation Officials (AASHTO). 2004. Standard specifications for transportation materials and methods of sampling and testing. 24th edition.
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- United States Department of Agriculture, Natural Resources Conservation Service. National range and pasture handbook. <http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/landuse/rangepasture/?cid=stelprdb1043084>

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United States Department of Agriculture, Natural Resources Conservation Service. National soil survey handbook, title 430-VI. [http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/scientists/?cid=nrcs142p2\\_054242](http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/scientists/?cid=nrcs142p2_054242)

United States Department of Agriculture, Natural Resources Conservation Service. 2006. Land resource regions and major land resource areas of the United States, the Caribbean, and the Pacific Basin. U.S. Department of Agriculture Handbook 296. [http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2\\_053624](http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053624)

United States Department of Agriculture, Soil Conservation Service. 1961. Land capability classification. U.S. Department of Agriculture Handbook 210. [http://www.nrcs.usda.gov/Internet/FSE\\_DOCUMENTS/nrcs142p2\\_052290.pdf](http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_052290.pdf)

**Appendix B**  
Excerpts from the 2016 Village of Watkins Glen Zoning Law

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#### **4.5 Central Business (CB) Intent**

This District delineates the area in the Village that comprises the older, central business district. This area has several features that are unique to business development in the Village, including an older urban style of development that is characterized by buildings extending to the street line, with parking and/or services being provided in and along alleys to the rear of the structures. Given the type of development, off-street parking typically cannot be accommodated on individual lots and has been addressed by the development of public parking facilities on side streets as well as on-street parking. In establishing this District, it is the Village's intent to protect and preserve the unique business and architectural character within this area of the Village; to ensure that all new development is consistent with and enhances this important existing character, in part by requiring new development to provide an urban edge similar to what is presently existing and to prohibit, to the greatest extent possible, the demolition of existing structures that would create a "gap" in the existing urban edge.

#### **4.6 Lakefront Development (LD) Intent**

The Village of Watkins Glen recognizes the importance of the Seneca Lake waterfront to past and future development and character in this area. The Village therefore establishes this District, which encompasses all of those lands that immediately adjoin Seneca Lake and/or are visually connected to the lake to promote uses that are water-dependent and/or enhanced by their location along the waterfront. The Village also recognizes the importance of the lands in this District to provide employment opportunities and enhance the tax base, therefore, a mix of certain business, commercial, service sector and residential development may be permitted. All uses and development shall be sensitive to the natural environment of the lakefront and the value that the lakefront provides to the Village as a whole. No new uses shall unduly restrict visual and/or direct access to the waterfront, or diminish the enjoyment of the waterfront by residents, employees, and/or visitors.

#### **4.7 Canal District (CD) Intent**

This District delineates the area in the Village which adjoins the canal to Seneca Lake. Given the District boundaries and delineation of areas located along a waterway, the Village intends to permit a variety of uses many of which are enhanced by, or dependent on, a waterfront location. The intent is also to promote and encourage greater flexibility in development to accommodate a variety of uses in a planned, controlled environment that blends functionally with the natural environment. The Village also recognizes the very sensitive nature of the natural environment in the District and the value of the waterfront for visual and direct access by residents, employees and visitors alike, and, therefore, establishes that all development must effectively protect and conserve:

- A. important fish spawning grounds;
- B. aquatic life, bird and other wildlife habitats;
- C. buildings and lands from flooding and accelerated erosion;
- D. archaeological resources;
- E. functions of the freshwater wetlands;

- F. natural beauty and open space; and
- G. provide for public access to waterfront areas.

**4.8 Commercial Light Industrial (CL) Intent**

This District delineates those areas of the Village that, by their location along and adjoining major primary roads and the existing types of uses, can support a range of regional business uses and certain compatible Industrial Uses that, by their nature, require direct access to and support of such road network and/or that may require essential services compatible with such uses. It is the Village's intent that all major regional business uses locate within this District.

**4.9 Conservation-I (C-I) Intent**

This District delineates those open, publicly-owned and/or environmentally sensitive land and water areas of the Village that because of their current use, critical relationship to the Canal and Queen Catherine Wetland, or extreme environmental sensitivity, should be preserved and utilized only for less intensive and carefully considered development that is compatible with the sensitive nature of such lands, and thereby ensuring that the existing character, nature and benefits derived from such lands are preserved and retained.

**4.10 Conservation-II (C-II) Intent**

This District delineates those open, State-owned parklands and/or environmentally sensitive/steep slope areas of the Village that because of the current use and environmental constraints are not appropriate for intensive private development. It is the Village's intent to protect the existing public use of these lands, as well as to ensure that any new development is compatible with these existing uses and/or the environmental limitations of the land.

**4.11 Use Regulation Table (see page 32 for a Legend)**

The Use Regulation Table for Uses permitted in each Zoning District is as follows:

USE	DISTRICT										
	R1	R2	R3	RT	BT	CB	LD	CD	CL	C-I	C-II
<b>RESIDENTIAL</b>											
SINGLE-UNIT DWELLING	P	P	P	P	P		X1				P
TWO-UNIT DWELLING		P	P	S	P						
MULTI-UNIT DWELLING		S	S	S	S		S	S			
BED & BREAKFAST	S	S	S	S	S		S	S			
INN		S	S	S	S		S	S			
BOARDING HOUSE					S						
DWELLINGS WITH A BUSINESS					S		S	S			
DWELLING ABOVE FIRST FLOOR BUSINESS					S	X	S	S			
<b>ACCESSORY USES</b>											
ACCESSORY USE/STRUCTURE	P/S	P/S	P/S	P/S	P/S	P/S	P/S	P/S	P/S	P/S	P/S
DAY CARE – FAMILY HOME	P	P	P	P	P						P
DAY CARE- GROUP FAMILY HOME	P	P	P	P	P						P
HOME OCCUPATION	P	P	P	P	P		S	P			P
COTTAGE INDUSTRY			S	S	S						S
<b>GENERAL USES</b>											
AGRICULTURE								P		P	
AGRI-BUSINESS								S		S	
ANTENNA (WTF), TOWER									S	S	S
CEMETERY		S	S								
CHURCHES		P	P	P	P						
CLUB-ROD & GUN										S	
CLUB, MEMBERSHIP					S						
DAY CARE CENTER/NURSERY SCHOOL			S		S				S		
GOLF COURSE, DRIVING RANGE								S		S	
KENNEL								S			S
NURSING, CONVALESCENT HOME					S						

USE	DISTRICT											
	R1	R2	R3	RT	BT	CB	LD	CD	CL	C-I	C-II	
<b>GENERAL USES</b>												
PRIVATE SCHOOL			S		S	S		S				
PUBLIC/GOV'T USE	P	P	P	P	P	P	P	P	P	P	P	P
PUBLIC RECREATION/PARK	P	P	P	P	P	P	P	P	P	P	P	P
PUBLIC UTILITY	P	P	P	P	P	P	P	P	P	P	P	P
ROADSIDE STAND								S		S		
SPA				S/X	S/X	S/X	S/X	S/X	S/X			
STABLE, COMMERCIAL												
STABLE, PRIVATE												
WIND ENERGY CONSERVATION SYSTEM										S		
WIRELESS TELECOMMUNICATION FACILITY, ON EXISTING STRUCTURE				S	S		S	S	S	S	S	S
<b>TOURISM RELATED USES</b>	R1	R2	R3	RT	BT	CB	LD	CD	CL	C-I	C-II	
ART GALLERIES	P	P	P	P	P	P	P	P	P	P	P	P
BOAT DOCKS, LAUNCHES							S	S		S		
CAMPGROUND								S		S	S	
CULTURAL USES				S	S	S	S	S		S		
HOTEL/MOTEL					S	S	S	S				
MARINA							S	S		S		
MICRO-BREWERY					S	S	S	S	S			
MUSEUMS					S	S	S	S	S	S		
OUTDOOR COMMERCIAL RECREATION							S	S	S	S	S	
RESTAURANT, FAST FOOD					S/X	S*/X	S*/X	S*/X	S/X			
RESTAURANT, STANDARD					S/X	S/X	S/X	S/X	S/X			
WINERY				S	S	S	S	S				
*MAXIMUM GROSS FOOTAGE NOT TO EXCEED 1,800												



USE	DISTRICT										
	R1	R2	R3	RT	BT	CB	LD	CD	CL	C-I	C-II
<b>BUSINESS USES</b>											
AMUSEMENT GAME CENTER					S	S	S	S	S		
ANTIQUE & CRAFT SHOP				S	S	S/X	S	S	S		
BANK, FINANCIAL INSTITUTIONS					S	S/X			S		
BAR & NIGHT CLUB						S	S	S	S		
CAR WASH									S		
CONVENIENCE FOOD MART									S		
CREMATORY					X1	X1					
DRIVE-THROUGH USES					X1	X1			S		
FITNESS CENTER/HEALTH CLUB					S	S	S	S	S		
FLEA MARKET											
FUNERAL HOME					S						
GENERAL BUSINESS OFFICE				S	S	S	S		S		
MEDICAL CLINIC					S	S			S		
MINI-STORAGE					S				S		
MODERATE RETAIL					S	S/X	S	S		S	S
MOTOR VEHICLE FILLING STATION									S		
NEWSPAPER PUBLISHING USE						S/X			S		
NURSERY, PLANTS					S					S	
PERSONAL SERVICE AND/OR REPAIR				S	S	S/X			S		
PHOTOGRAPHIC STUDIO				S	S	X			S		
PROFESSIONAL OFFICE				S	S	S	S	S	S		
RETAIL OTHER THAN LISTED					S	S	S	S	S		S
SELF-SERVICE LAUNDRY						X1			S		
SPECIALIZED REPAIR					S	S			S		
TATOO PARLOR									S		
THEATER – SINGLE & MULTIPLEX						S/X			S		
USES, ADULT ENTERTAINMENT									S		
VEHICLE REPAIR						X1			S		

USE	DISTRICT											
	R1	R2	R3	RT	BT	CB	LD	CD	CL	C-I	C-II	
<b>BUSINESS USES (CONTINUED)</b>												
VEHICLE SALES						X1			S			
VEHICLE SALES & REPAIR – HEAVY EQUIPMENT									S			
VETERINARY HOSPITAL					S							
<b>INDUSTRIAL USES</b>	R1	R2	R3	RT	BT	CB	LD	CD	CL	C-I	C-II	
CONTRATORS EQUIPMENT STORAGE/MAINTENANCE									S			
EXTRACTION, SOIL MINING												
FUEL STORAGE TERMINAL												
MANUFACTURE, FABRICATION, ASSEMBLY, AND OTHER MATERIALS HANDLING, INCLUDING OFFICES AND SHOW ROOMS							X1		S			
RESEARCH FACILITIES									S			
TRUCKING TERMINALS												
WAREHOUSING, WHOLESALE AND RETAIL DISTRIBUTION CENTERS, INCLUDING OFFICES									S			

**Legend**

R1 - Residential Low Density

R2 - Residential Moderate Density

R3 - Residential High Density

RT - Residential Transition

BT - Business Transition

CB - Central Business District

LD - Lakefront Development

CD - Canal District

CL - Commercial Light Industrial

C-I - Conservation I

C-II - Conservation II

P - Permitted As Of Right

S - Permitted Under Site Plan Approval by Planning Board

X - Permitted in Existing Structure, Site Plan for Demolition/Expansion of Existing Structure, or change to the façade of a the building.

X1 - Permitted In Structure Existing at the Time of Enactment of This Zoning Law. No New Construction Will Be, Permitted unless it is Compliant with Provisions of Article 10. Non-Conforming Structure, Use and Lot

P/S - Permitted if Principal Use is Permitted, Site Plan if Principal Use Requires Site Plan Approval

**BLANK NOT PERMITTED IN THAT DISTRICT**

#### **4.12 Activities Prohibited in All Districts**

- A. No effluent or matter of any kind shall be discharged into any stream or body of surface water which:
  - 1. Violates established stream requirements of the NYS Department of Environmental Conservation or otherwise causes odors or fumes or which is poisonous or injurious to human, plant or animal life; or
  - 2. Causes an increase in projected flood heights.
- B. The practice of soil stripping shall be limited to incidental filling of areas within the Village to bring them up to grade, except insofar as is necessary for typical agricultural practices or incidental to excavation for basement and other structures.
- C. Unless conducted under proper and adequate requirements, no use shall be permitted which will produce corrosive, toxic or noxious fumes, gas, materials, glare, fire, explosion, electromagnetic disturbance, radiation, smoke, odors, dust, waste, noise or vibration, or other objectionable features so as to be detrimental to the public health, public safety, or general welfare.
- D. Dumping or storage of material in a manner that facilitates the breeding of vermin or endangers health in any way shall be prohibited.
- E. All mining and excavation for commercial gain shall be prohibited.

#### **4.13 Exceptions in All Districts**

- A. Public Properties: Nothing in this law shall restrict construction or use in the exercise of Governmental Use of a Governmental Building or Lot.
- B. Public Utilities: Nothing in this law shall restrict the construction or use of underground or overhead distribution facilities of public utilities operating under the laws of the State of New York. Other facilities may be constructed subject to a Site Plan Approval.

### **ARTICLE 5 BULK AND DENSITY CONTROL REQUIREMENTS**

#### **5.0 Intent**

This Article is established in the interest of promoting public health, safety and welfare by providing open space for: the access of light and air circulation, preventing conflagration, facilitating firefighting, meeting current and future septic disposal needs, protecting water supplies and environmentally sensitive areas, providing non-congested traffic movements, and protecting views.

## 5.1 Bulk and Density Control Schedule

The Bulk and Density Control Schedule of requirements for each Zoning District is as follows:

ENSITY / BULK CONTROL SCHEDULE										
DISTRICT USE	MINIMUM LOT AREA PER PRINCIPAL USE SQFT		MIN. LOT WIDTH (FT.)	MINIMUM YARD REQUIREMENTS (SETBACKS)			MAXIMUM LOT COVERAGE (%)	MAXIMUM BUILDING HEIGHT		MINIMUM HABITABLE DWELLING AREA PER UNIT (SQ.FT.)
	RESIDENTIAL	OTHER USE		FRONT (FT.)	SIDE (FT.)	REAR (FT.)		FEET	STORIES	
<b>R1</b>										
SINGLE UNIT DWELLING	20,000		100	75	20	50	30	35	3	1,200
BED & BREAKFAST	30,000		125	75	20	50	30	35	3	2,000
GENERAL USE		35,000	150	75	25	65	30	35	2	
<b>R2</b>										
SINGLE UNIT DWELLING	5,000		50	25	6	30	60	35	2	1,200
TWO UNIT DWELLING	7,500		75	25	6	30	60	35	2	1,200
BED & BREAKFAST	7,500		75	25	10	30	60	35	2	1,200
INN	10,000		75	25	10	30	60	35	2	1,200
GENERAL USE		20,000	100	25	25	40	60	35	2	
<b>R3</b>										
SINGLE UNIT DWELLING	5,000		50	10	6	30	60	35	3	1,200
TWO UNIT DWELLING	7,500		75	10	6	30	60	35	3	1,200
MULTI-UNIT DWELLING	12,000		100	10	6	40	50	35	3	
	4,000 SF/DU									
BED & BREAKFAST	7,500		75	10	6	30	60	35	2	1,200
INN	10,000		75	10	6	30	60	35	2	1,200
GENERAL USE	7,500 SF/DU	20,000	100	25	25	40	50	*	*	
* AS ESTABLISHED IN THE SITE PLAN PROCESS										
** AS REQUIRED IN NYS UNIFORM FIRE PREVENTION building CODE										

DENSITY / BULK CONTROL SCHEDULE										
DISTRICT USE	MINIMUM LOT AREA PER PRINCIPAL USE SQFT		MIN. LOT WIDTH (FT.)	MINIMUM YARD REQUIREMENTS (SETBACKS)			MAXIMUM LOT COVERAGE (%)	MAXIMUM BUILDING HEIGHT		MINIMUM HABITABLE DWELLING AREA PER UNIT (SQ.FT.)
	RESIDENTIAL	OTHER USE		FRONT (FT.)	SIDE (FT.)	REAR (FT.)		FEET	STORIES	
RT										
SINGLE DWELLING UNIT	5,000		50	10	6	20	60	35	2	1,200
TWO DWELLING UNIT	7,500		75	10	10	20	60	35	2	1,200
TOURISM RELATED USE		7,500	100	10	10	30	60	35	3	
MIXED USE	7,500	2,500	100	10	25	30	60	35	3	**
	5,000 S.F/DU									
BT										
SINGLE UNIT DWELLING	5,000		50	25	10	30	60	35	2	1,200
TWO UNIT DWELLING	7,500		75	25	10	30	60	35	2	1,200
MULTI-UNIT DWELLING	12,000		100	25	25	40	60	35	2	**
BED & BREAKFAST	7,500		75	25	10	30	60	35	2	1,200
INN/ BOARDING HOUSE	10,000		75	25	10	30	60	35	2	1,200
INDIVIDUAL GENERAL AND BUSINESS USE		15,000	100	25	25	40	60	35	2	
MIXED USE	20,000	10,000	100	25	25	40	60	35	2	
	5,000 S.F/DU									
* AS ESTABLISHED IN THE SITE PLAN PROCESS										
** AS REQUIRED IN NYS UNIFORM FIRE PREVENTION building CODE										

**DENSITY / BULK CONTROL SCHEDULE**

DISTRICT USE	MINIMUM LOT AREA PER PRINCIPAL USE SQFT		MIN. LOT WIDTH	MINIMUM YARD REQUIREMENTS (SETBACKS)			MAXIMUM LOT COVERAGE	MAXIMUM BUILDING HEIGHT		MINIMUM HABITABLE DWELLING
	RESIDENTIAL	OTHER USE	(FT.)	FRONT (FT.)	SIDE (FT.)	REAR (FT.)	(%)	FEET	STORIES	AREA PER UNIT (SQ.FT.)
<b>CB</b>										
ALL PERMITTED USES	*	*	*	*	*	*	*	*	*	*
TWO DWELLING UNIT	20,000		150	30	20	40	60	8	*	**
	4,000 SF/DU									
INDIVIDUAL GENERAL, BUSINESS AND INDUSTRIAL USE	15,000	100	30	*	*	70	*	*		15,000
<b>CD/LD</b>										
MULTI-UNIT DWELLING	20,000		150	30	20	40	60	*	*	**
	4,000 SF/DU									
INDIVIDUAL GENERAL, BUSINESS AND INDUSTRIAL USE		20,000	100	30	*	*	70	*	*	
COMBINATION OF GENERAL, BUSINESS AND INDUSTRIAL USE		30,000	150	30	*	*	70	*	*	
SINGLE UNIT DWELLING		5,000								
<b>CL</b>										
INDIVIDUAL GENERAL, BUSINESS AND INDUSTRIAL USE		16,000	100	30	*	*	70	*	*	
COMBINATION OF GENERAL, BUSINESS AND INDUSTRIAL USE		20,000	150	30	*	*	70	*	*	
<b>C-I</b>										
ALL PERMITTED USES		40,000	*	*	*	*	40	35	2	
SINGLE-UNIT DWELLING	20,000		100	75	20	60	30	35	2	1,200
ALL OTHER PERMITTED USES		40,000	*	*	*	*	40	35	2	
* AS ESTABLISHED IN THE SITE PLAN PROCESS ** AS REQUIRED IN NYS UNIFORM FIRE PREVENTION building CODE										

## **Appendix C** Cost Estimates

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**Appendix C-1:** WWTP Demolition Cost Estimate

**Appendix C-2:** Redevelopment Cost Estimates



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**Project Opinion of Probable Cost**

Project Information		Report Information	
Name:	Watkins Glen WWTP Demolition	Date:	9-Jul-19
Number:	7269-001	Prepared By:	AWK
Location:	Watkins Glen, NY	Reviewed By:	MDO
Contact:			

**Project Description:** This estimate includes costs for work associated with the demolition of the exiting Village of Watkins Glen Wastewater Treatment Plant and preparation of the site for future development.

Item Number	Description	Quantity	Unit	Total Unit Cost	Total Cost
<u>General</u>					
0	Mobilization	LS	1	\$10,000	\$10,000
1	Erosion and Sediment Control	LS	1	\$7,000	\$7,000
2	Clearing and Grubbing	LS	1	\$2,000	\$2,000
<u>Hazardous Materials</u>					
3	Abatement of undiscovered conditions	LS	1	\$40,000	\$40,000
<u>Demolition</u>					
4	Outfall Structure Demolition and Plugging	LS	1	\$1,500	\$1,500
5	Control and Process Building Demolition	LS	1	\$60,000	\$60,000
6	Settling Tank / Sludge Thickener Demolition	LS	1	\$7,500	\$7,500
7	Clarifier/Aeration/Digester Tank Demolition	LS	1	\$37,500	\$37,500
8	Asphalt Pavement Demolition	SY	180	\$10	\$1,800
9	Disconnection of Utility Services	LS	1	\$10,000	\$10,000
10	Village Marina Building and Hardscape	LS	1	\$28,000	\$28,000
<u>Site Preparation</u>					
10	Bulk Earthwork & Leveling	CY	1500	\$25	\$37,500
11	Topsoil	CY	605	\$25	\$15,125
12	Seed/Mulch	SY	3630	\$4	\$14,520
<b>DEMOLITION SUBTOTAL</b>					<b>\$272,000</b>
<b>CONTINGENCY (15%)</b>					<b>\$41,000</b>
<b>ENGINEERING/ADMIN</b>					<b>\$47,000</b>
<b>Total - Opinion of Probable Cost</b>					<b>\$360,000</b>

**Please Note:**

Engineer's/Architect's opinion of probable Construction Cost are made on the basis of Engineer's/Architect's experience and qualifications and represent the Engineer's/Architect's judgment as an experienced and qualified professional generally familiar with the construction industry. However, since the Engineer/Architect has not control over the cost of labor, materials, equipment, or services furnished by others, or over contractors' methods of determining prices, or over competitive bidding or market conditions, Engineer/Architect cannot and does not guarantee that proposals, bids, or actual Construction Costs will not vary from opinions of probable Construction Cost prepared by the Engineer/Architect.





**Alternative 1 - Opinion of Probable Cost**

Project Information		Report Information	
Name:	Watkins Glen WWTP Site Redevelopment	Date:	19-Aug-19
Number:	9007-002	Prepared By:	AWK
Location:	Watkins Glen, NY	Reviewed By:	MDO
Contact:			

**Project Description:** This estimate includes cost of construction for a 37,000-square-foot mixed-use building housing specialty retail and restaurant facilities, as well as outdoor patio space, public fire circle, stormwater management, utility service connections, and other miscellaneous site hardscape and finish features.

Item Number	Description	Quantity	Unit	Total Unit Cost	Total Cost
<b>General</b>					
0	Mobilization	1	LS	\$25,000	\$25,000
1	Erosion and Sediment Control	1	LS	\$7,000	\$7,000
<b>Site Finishes</b>					
2	Lawn Restoration	1,600	SY	\$18	\$28,800
3	Asphalt Pavement	7,100	SY	\$50	\$355,000
4	Concrete Walkway	9,900	SF	\$8	\$79,200
5	Paver Walkway	4,500	SF	\$10	\$45,000
6	Curb	2,100	LF	\$20	\$42,000
<b>Site Appurtenances</b>					
7	Landscape Planters	8	EA	\$1,200	\$9,600
8	Benches	8	EA	\$1,100	\$8,800
9	Site Lighting	1	LS	\$25,000	\$25,000
10	Public Fire Circle	1	LS	\$20,000	\$20,000
11	Bistro Seating	1	LS	\$15,000	\$15,000
12	Waterfront Fencing	700	LF	\$60	\$42,000
<b>Stormwater Management</b>					
13	Bioinfiltration Features	1	LS	\$10,000	\$10,000
14	Drainage System	1	LS	\$25,000	\$25,000
<b>Utility Services</b>					
15	Water Service	1	LS	\$2,500	\$2,500
16	Electrical Service	1	LS	\$3,000	\$3,000
17	Sanitary Sewer Connection	1	LS	\$1,500	\$1,500
18	Natural Gas Service	1	LS	\$2,000	\$2,000
<b>Building Construction*</b>					
19	Two-Story Retail/Restaurant Building	37,000	SF	\$220	\$8,140,000
<b>REDEVELOPMENT CONSTRUCTION SUBTOTAL</b>					<b>\$8,886,000</b>
<b>CONTINGENCY (15%)</b>					<b>\$1,333,000</b>
<b>ENGINEERING/ADMIN (15%)</b>					<b>\$1,533,000</b>
<b>Total - Opinion of Probable Cost</b>					<b>\$11,752,000</b>

**Please Note:**

Engineer's/Architect's opinion of probable Construction Cost are made on the basis of Engineer's/Architect's experience and qualifications and represent the Engineer's/Architect's judgment as an experienced and qualified professional generally familiar with the construction industry. However, since the Engineer/Architect has not control over the cost of labor, materials, equipment, or services furnished by others, or over contractors' methods of determining prices, or over competitive bidding or market conditions, Engineer/Architect cannot and does not guarantee that proposals, bids, or actual Construction Costs will not vary from opinions of probable Construction Cost prepared by the Engineer/Architect.

Wastewater treatment plant demolition costs are anticipated to be administered as a separate contract by the Village of Watkins Glen and have not been included as a cost associated with this redevelopment alternative.



**Alternative 2 - Opinion of Probable Cost**

Project Information		Report Information	
Name:	Watkins Glen WWTP Site Redevelopment	Date:	19-Aug-19
Number:	9007-002	Prepared By:	AWK
Location:	Watkins Glen, NY	Reviewed By:	MDO
Contact:			

**Alternative Description:** This estimate includes cost of construction for a 57,000-square-foot mixed-use building housing specialty retail, restaurant, and apartments, outdoor patio space, public fire circle, stormwater management, utility service connections, and other miscellaneous site hardscape and finish features.

Item Number	Description	Quantity	Unit	Total Unit Cost	Total Cost
<b>General</b>					
0	Mobilization	1	LS	\$25,000	\$25,000
1	Erosion and Sediment Control	1	LS	\$7,000	\$7,000
<b>Site Finishes</b>					
2	Lawn Restoration	600	SY	\$18	\$10,800
3	Asphalt Pavement	7,100	SY	\$50	\$355,000
4	Concrete Walkway	13,050	SF	\$8	\$104,400
5	Paver Walkway	4,500	SF	\$10	\$45,000
6	Curb	2,100	LF	\$20	\$42,000
<b>Site Appurtenances</b>					
7	Landscape Planters	14	EA	\$1,200	\$16,800
8	Benches	17	EA	\$1,100	\$18,700
9	Site Lighting	1	LS	\$25,000	\$25,000
10	Public Fire Circle	1	LS	\$20,000	\$20,000
11	Bistro Seating	1	LS	\$15,000	\$15,000
12	Waterfront Fencing	700	LF	\$60	\$42,000
<b>Stormwater Management</b>					
13	Bioinfiltration Features	1	LS	\$3,000	\$3,000
14	Ecopaver Stormwater Management	5,700	SF	\$10	\$57,000
15	Drainage System	1	LS	\$35,000	\$35,000
<b>Utility Services</b>					
16	Water Service	1	LS	\$3,500	\$3,500
17	Electrical Service	1	LS	\$5,000	\$5,000
18	Sanitary Sewer Connection	1	LS	\$2,000	\$2,000
19	Natural Gas Service	1	LS	\$5,000	\$5,000
<b>Building Construction*</b>					
20	Three-Story Retail/Restaurant/Apartment Building	57,000	SF	\$230	\$13,110,000
<b>REDEVELOPMENT CONSTRUCTION SUBTOTAL</b>					<b>\$13,947,000</b>
<b>CONTINGENCY (15%)</b>					<b>\$2,092,000</b>
<b>ENGINEERING/ADMIN (15%)</b>					<b>\$2,406,000</b>
<b>Total - Opinion of Probable Cost</b>					<b>\$18,445,000</b>

**Please Note:**

Engineer's/Architect's opinion of probable Construction Cost are made on the basis of Engineer's/Architect's experience and qualifications and represent the Engineer's/Architect's judgment as an experienced and qualified professional generally familiar with the construction industry. However, since the Engineer/Architect has not control over the cost of labor, materials, equipment, or services furnished by others, or over contractors' methods of determining prices, or over competitive bidding or market conditions, Engineer/Architect cannot and does not guarantee that proposals, bids, or actual Construction Costs will not vary from opinions of probable Construction Cost prepared by the Engineer/Architect.

Wastewater treatment plant demolition costs are anticipated to be administered as a separate contract by the Village of Watkins Glen and have not been included as a cost associated with this redevelopment alternative.



**Alternative 3 - Opinion of Probable Cost**

Project Information		Report Information	
Name:	Watkins Glen WWTP Site Redevelopment	Date:	19-Aug-19
Number:	9007-002	Prepared By:	AWK
Location:	Watkins Glen, NY	Reviewed By:	MDO
Contact:			

**Alternative Description:** This estimate includes cost of construction for a 90,000-square-foot, upscale hotel and restaurant, outdoor patio space, public fire circle, stormwater management, utility service connections, and other miscellaneous site hardscape and finish features.

Item Number	Description	Quantity	Unit	Total Unit Cost	Total Cost
<b>General</b>					
0	Mobilization	1	LS	\$25,000	\$25,000
1	Erosion and Sediment Control	1	LS	\$7,000	\$7,000
<b>Site Finishes</b>					
2	Lawn Restoration	370	SY	\$18	\$6,660
3	Asphalt Pavement	7,100	SY	\$50	\$355,000
4	Concrete Walkway	5,600	SF	\$8	\$44,800
5	Paver Walkway	4,300	SF	\$10	\$43,000
6	Curb	2,100	LF	\$20	\$42,000
<b>Site Appurtenances</b>					
7	Landscape Planters	7	EA	\$1,200	\$8,400
8	Benches	4	EA	\$1,100	\$4,400
9	Site Lighting	1	LS	\$25,000	\$25,000
10	Public Fire Circle	1	LS	\$20,000	\$20,000
11	Bistro Seating	1	LS	\$15,000	\$15,000
12	Waterfront Fencing	700	LF	\$60	\$42,000
<b>Stormwater Management</b>					
13	Ecopaver Stormwater Management	9,400	SF	\$10	\$94,000
14	Drainage System	1	LS	\$45,000	\$45,000
<b>Utility Services</b>					
15	Water Service	1	LS	\$15,000	\$15,000
16	Electrical Service	1	LS	\$10,000	\$10,000
17	Sanitary Sewer Connection	1	LS	\$2,000	\$2,000
18	Natural Gas Service	1	LS	\$4,000	\$4,000
<b>Building Construction*</b>					
19	Four-Story Hotel / Restaurant Building	90,000	SF	\$310	\$27,900,000
<b>REDEVELOPMENT CONSTRUCTION SUBTOTAL</b>					<b>\$28,708,000</b>
<b>CONTINGENCY (15%)</b>					<b>\$4,306,000</b>
<b>ENGINEERING/ADMIN (15%)</b>					<b>\$4,952,000</b>
<b>Total - Opinion of Probable Cost</b>					<b>\$37,966,000</b>

**Please Note:**

Engineer's/Architect's opinion of probable Construction Cost are made on the basis of Engineer's/Architect's experience and qualifications and represent the Engineer's/Architect's judgment as an experienced and qualified professional generally familiar with the construction industry. However, since the Engineer/Architect has not control over the cost of labor, materials, equipment, or services furnished by others, or over contractors' methods of determining prices, or over competitive bidding or market conditions, Engineer/Architect cannot and does not guarantee that proposals, bids, or actual Construction Costs will not vary from opinions of probable Construction Cost prepared by the Engineer/Architect.

Wastewater treatment plant demolition costs are anticipated to be administered as a separate contract by the Village of Watkins Glen and have not been included as a cost associated with this redevelopment alternative.

# Appendix D

## Parking Requirement Calculations

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Parking Chart

Atl. 1				
<u>Floor</u>	<u>Use</u>	<u>Required</u>	<u>Sq. ft. of use calculation</u>	<u># spaces required</u>
1	Retail	3.5sp./1000SF	17039sf/1000sf =17.039 18 x3.5 = 63 spaces	63
2	Restaurant	1sp/60SF of customer floor area	14836sf (-5000sf kit. Area) /60 = 248 spaces	248
	Benches	1sp/18" of seating area	48" bench x 8 = 384" 384"/18" = 21.33	22
<b>TOTAL</b>				<b>333</b>

Atl. 2				
<u>Floor</u>	<u>Use</u>	<u>Required</u>	<u>Sq. ft. of use calculation</u>	<u># spaces required</u>
1	Retail	3.5sp./1000SF	17697sf (-1284 corridor) /1000sf =17.697 18 x3.5 = 63 spaces	63
2	Restaurant	1sp/60SF of customer floor area	16473sf (5000sf kit. Area) /60 = 274.55 spaces	275
3	Apt.	2 sp/dwelling	16230/1500(dwelling size)= 10 dwellings 10X2 = 22	22
	Benches	1sp/18" of seating area	48" bench x 17 = 816" 816"/18" = 45	46
<b>TOTAL</b>				<b>406</b>

Atl. 3				
<u>Floor</u>	<u>Use</u>	<u>Required</u>	<u>Sq. ft. of use calculation</u>	<u># spaces required</u>
1	Retail	3.5sp./1000SF	3000sf /1000sf =3 3 x3.5 = 10.5 spaces	11
2	Restaurant	1sp/150SF net area of restaurant	12000sf/150 = 80 spaces	80
3	Hotel	1sp/every room 1sp/4 employees	100 rooms = 100 spaces Appox 36 employees/4 =9	109
	Benches	1sp/18" of seating area	48" bench x 8 = 384" 384"/18" = 21.33	22
<b>TOTAL</b>				<b>222</b>