Preliminary Engineering Report/Map, Plan and Report

Town of Constantia Northshore Sewer

Prepared for

Town of Constantia

14 Frederick Street, P.O. Box 167
Constantia, New York

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Barton&Loguidice

Town of Constantia Northshore Sewer
Town of Constantia, Oswego County

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EXECUTIVE SUMMARY

The Town of Constantia has spent a significant amount of capital, time, and effort pursuing a Sewer District along the North Shore of Oneida Lake to mitigate the negative impacts on the Lake by those residents who have failing or inadequate private on-site septic systems. These efforts include several feasibility studies and Preliminary Engineering Reports (PER) to identify alternatives to treat the proposed flow from the Town of Constantia Sewer District. The development of the most recent iteration of this project dates back to a PER authored in 2019, which was amended several times, the latest being Addendum No. 4 in April 2024. The last iteration considered a Town of Constantia low-pressure sewer collection system with wastewater treatment by way of the Village of Cleveland wastewater treatment plant (WWTP). The scope of the Town project included significant upgrades to the Village's WWTP to enable the Village plant to accept the new Town flows. The Town and Village entered into an Intermunicipal Agreement (IMA) in August 2019 which resolved, among other things, that both communities would participate to complete the proposed project. The Town project (EFC Project No. C7-6356-01-00) received over $45 million in total grant and low/zero interest financing for the initiative. The Town elected to move forward with the project and incurred engineering, legal and administrative fees necessary to progress design documents to a level of completion befitting funding and regulatory agency review. Delays due to the Covid-19 pandemic resulted in significant construction cost escalation. Upon submitting the design package for review, the Town paused progression to address the COVID-19 driven grant shortfall.

In April 2024 during the aforementioned project pause, the Village of Cleveland notified the Town of Constantia that they no longer had interest in partnering with the Town to complete the improvements to their WWTP nor accept flows from the Town. This announcement made the recommended alternative from the 2019 PER (Revised April 2024) no longer a feasible approach for the Town. This left the Town with over $2.5 million in project costs incurred without a feasible treatment alternative. The Town made the difficult decision to collapse their short term financing with NYSFEC and return unused grant funds for the project.

The Town currently carries debt for the project from these past efforts with a strong desire to continue pursuing municipal sewers. The need for public sewer in the Town of Constantia has not changed so a new wastewater treatment approach is necessary to satisfy the public sewer need. This report serves as a continuation of past efforts and reimagines the project with an emphasis on retaining the effort expended in pursuing previous alternatives as much as practicable. This report maintains the Town collection system recommendation from the 2019 PER (Revised April 2024) and does not modify the current Sewer District as formed. This report considers new alternatives for the treatment of Town sanitary waste generated by the proposed collection system, and ultimately makes a conditional recommendation for the Town to connect to the proposed Southern Oswego County Regional Intercepting System (SOCRIS).

The opinion of probable cost for the recommended alternatives is $61,800,000. This report assumes a preliminary plan of finance which would result in a first year user charge and maximum amount to be expended of $1,200. This project has abundant support and need, as will be evident herein.

ABBREVIATIONS

ADD	Average Daily Demand
BMP	Best Management Practice
BOD5	Biochemical Oxygen Demand (5-day)
C	Celsius
CCI	Construction Cost Index (ENR)
cfs	Cubic feet per second
CT	Concentration x time
CWSRF	Clean Water State Revolving Fund
DEC	New York State Department of Environmental Conservation
DMR	Discharge Monitoring Report
DO	Dissolved oxygen
DOT	New York State Department of Transportation
ECL	Environmental Conservation Law
EDU	Equivalent Dwelling Unit
EFC	New York State Environmental Facilities Corporation
ENR	Engineering News-Record
EPA	United States Environmental Protection Agency
F	Fahrenheit
fps	Feet per second
FEMA	Federal Emergency Management Agency
FIRM	Flood Insurance Rate Map
gpd	Gallons per day
GML	General Municipal Law
gpm	Gallons per minute
HGL	Hydraulic Grade Line
hp	Horsepower
HPGN	High Precision Geodetic Network (1998)
IUP	Intended Use Plan
ISO	Insurance Services Office
LF	Linear feet
MHI	Median Household Income
MGD	Million gallons per day
NAD83	North American Datum (1983)
NAVD88	North American Vertical Datum (1988)
NPSHa	Net positive suction head available
NPSHr	Net positive suction head required

ABBREVIATIONS (cont'd)

NYSDOH	New York State Department of Health
NYSOPRHP	New York State Office of Parks, Recreation, and Historic Preservation
OMB	Office of Management and Budget
PAC	Powdered activated carbon
PACl	Polyaluminum chloride
PER	Preliminary Engineering Report
PHF	Peak Hourly Flow
ppm	Parts per million
psig	Pounds per square inch (gauge)
Q	Volumetric flow rate (gpm, MGD)
scfm	Standard cubic feet per minute (68 degrees F and 1 atmosphere)
SEQR	State Environmental Quality Review
SPDES	State Pollutant Discharge Elimination System
SWPPP	Storm Water Pollution Prevention Plan
TDH	Total dynamic head
TSS	Total suspended solids
USACE	United States Army Corps of Engineers
USFWS	United States Fish and Wildlife Service
WWTP	Wastewater Treatment Plant

1.0 INTRODUCTION

1.1. Authorization

The Town of Constantia has retained the services of Barton & Loguidice, D.P.C. (B&L) to prepare a Preliminary Engineering Report/Map, Plan, and Report (MPR) to evaluate alternatives for a Town of Constantia Collection System and wastewater treatment and recommend a Capital Improvements Plan (CIP). This report serves as a continuation of previous efforts and as the technical report for agency review and funding applications as well as the district formation documentation necessary to amend the Town of Constantia Sewer District No. 1 (aka Constantia-Bernhards Bay Sewer District).

1.2. Background

In December 2012 the Town of Constantia was awarded a Wastewater Infrastructure Planning Grant for preliminary engineering services related to the investigation and planning for a municipal sewer district in the Constantia Hamlet and North Shore Area. The grant required that the Town of Constantia investigate the feasibility of three alternatives; new decentralized systems, new sewers with a connection to a regional wastewater treatment facility and new sewers with a new Town wastewater treatment facility. The Town authorized Barton & Loguidice (B&L) to prepare the original 2013 Preliminary Engineering Report (PER) for the Proposed Constantia Sewer District evaluating the feasibility of each. The original 2013 PER recommended that the Town of Constantia further pursue the Village of Cleveland disposal alternative.

In December 2014, the Village of Cleveland was awarded a Wastewater Infrastructure Planning Grant for preliminary engineering services related to the investigation and planning for improvements to their wastewater treatment plant and to more closely evaluate the potential of the Village of Cleveland WWTP serving the proposed Constantia Sewer District. In keeping with the Village's stated desire at the time to not expand the footprint of their current WWTP, only expansion improvements that would not significantly increase the physical size of the Village's plant were considered. As presented in B&L's March 2015 Preliminary Engineering Report for the Village of Cleveland WWTP and Collection System, it was determined that the Village's WWTP is limited to 509,000 gpd in peak hourly flow capacity and therefore would only have remaining capacity to accept up to 31.3% of the proposed Constantia Sewer District service area.

In May 2015, the Town of Constantia authorized B&L to update and re-evaluate the alternatives proposed in the original 2013 Preliminary Engineering Report and to investigate additional transmission and treatment options. With the understanding that the Village of Cleveland was not interested in significantly expanding the scale of their wastewater treatment plant, and the Town of Constantia is not interested in constructing and operating their own WWTP at the time, B&L re-assessed treatment by the Town of Hastings treatment plant and began to investigate treatment by the Village of Central Square.

The Village of Central Square was awarded an Engineering Planning Grant to investigate the expansion of their treatment plant in December 2015. At the Village's February 23, 2015 board meeting, the option of using the planning grant to investigate serving portions of Constantia and West Monroe was discussed; however, the board ultimately elected to utilize the grant to begin the preliminary design of filter replacements and similar "in-kind" improvements necessary to continue providing reliable treatment to the Village residents only.

In March 2016, B&L prepared Addendum No. 1 to the PER. This amendment focused on transmission to and treatment by the Fort Brewerton Wastewater Treatment Plant in the Town of Hastings as Town of Hastings officials had expressed their willingness to accept these flows and undertake necessary plant expansion. The project scope was also revised to reflect changes to the NYS CWSRF Intended Use Plan. In 2013 NYSEFC offered hardship funding for projects at a 0% interest rate up to $18 million and at a subsidized rate thereafter up to $25 million. As of 2015 the program has changed and only offers hardship financing at a rate of 0% for projects up to $20 million. Project costs over $20 million are not eligible for hardship financing through EFC.

In May 2016, NYSDEC expressed support in pursuing an alternative where the Cleveland WWTP would take all of the flow from the proposed Constantia Sewer District. NYSDEC also confirmed that because Cleveland's outfall is located out approximately 1,000-feet from shore and designed to promote dilution that the effluent phosphorus concentration limit (0.5 mg/L) would not change with the expansion. NYSDEC also recommended that the project include sewer lateral connections to the grinder pumps and decommissioning of septic tanks to make it more feasible for users.

In June 2018, the Town authorized B&L to prepare a Preliminary Engineering Report considering the Village of Cleveland WWTP treatment alternative and to prepare a Map, Plan, and Report for the proposed Constantia-Bernhards Bay Sewer District. In June 2019 the PER was submitted to NYSEFC and listed on the Federal Fiscal Year 2020 CWSRF Final IUP (C7-6356-01-00) with an estimated project cost of $39.015 million. The Town pursued WIIA and WQIP grants that year and were only successful with a $5 million WIIA grant awarded in December of 2019. Shortly after, the COVID-19 Pandemic hit, disrupting funding opportunities previously offered by NYSEFC. The Town, however, was awarded $20 million in NYSEFC hardship financing, a $3 million USDA RD grant, and USDA RD loan up to $11 million, leaving a $4.6 million gap needed to meet the original district formation first year user charge.

In July 2021, the Town had to modify the district formation proceedings to increase the first year user cost in order to maintain the previously awarded WIIA grant and EFC Financing. Following the pandemic, funding opportunities evolved, increasing maximum awards for numerous programs including the WIIA program which had previously awarded the project $5 million. Unfortunately, because the Town was forced to close in order to maintain funding, they were precluded from leveraging an additional $20 million in WIIA grant opportunity. In January 2022, the Town was finally successful with their WQIP grant application and were awarded $4.6 million. The project was then fully funded considering the original $39.015 million project cost estimate and the Town authorized B&L to begin design on the proposed project upon award of the WQIP grant.

After taking nearly three years to fully fund the project, U.S. inflation hit 9.1% which forced the Town to reevaluate project costs in June 2022. The project cost grew to over $49 million and left the Town with a $6.2 million grant shortfall to reach their new increased target user charge. Design progressed through the next year as the Town continued to pursue additional funding, however design was suspended in Fall 2023 following regulatory agency review submissions.

In April 2024, following an unsuccessful funding round, the Village of Cleveland notified the Town of Constantia that they no longer had interest in partnering with the Town to complete the improvements to their WWTP and accept flows from the Town. This announcement made the recommended alternative from the 2019 PER no longer a feasible approach for the Town. The need for public sewer in the Town of Constantia has not changed so a new wastewater treatment approach was necessary to satisfy the public sewer need.

In 2024, Oswego County began developing the concept and preliminary design for the Southern Oswego County Regional Sewer Interceptor System (SOCRIS). This interceptor would collect wastewater from communities across Southern Oswego County and convey it to a wastewater treatment plant for treatment. The initial plan is to leverage the County owned railroad trail which spans approximately 28 miles across the Southern portion of Oswego County. This County right-of-way is a valuable asset which makes the County uniquely able to pursue a regional solution for wastewater collection. The primary driver for the project is the need to protect and improve environmental resources which had been degraded over time due to the presence of failing and inadequate private septic systems present across Southern Oswego County. Under the proposed County plan, the Town of Constantia would have the opportunity to connect to SOCRIS. This solution is evaluated in this report.

1.3. **Scope of Work**

The scope of services for this Preliminary Engineering Report/Map, Plan, and Report are outlined below. Each component is discussed in further detail in the remainder of the report.

- Existing Mapping/Plan Review
- Proposed Sewer District Boundary Mapping and Review
- Refining the collection system Service Area
- WWTP Assessment and Effluent Disinfection Evaluation
- Analysis of two (2) treatment alternatives
- Preparation of PER in accordance with NYSEFC Engineering Report Outline for New York State Wastewater Infrastructure Projects, Effective October 1, 2023

2.0 PROJECT BACKGROUND AND HISTORY

2.1. Site Information

2.1.1. Location

The Town of Constantia is located along the north shore of Oneida Lake in Oswego County, New York. Oneida Lake is listed on the NYSDEC Waterbody Inventory/Priority Waterbodies List (PI/PWL) as stressed for public bathing, aquatic life, and recreation, with on-site/septic systems being listed as a known source of pollutants. The collection system focus areas include parcels along the State Route 49 corridor from the Constantia-West Monroe Town line to the Village of Cleveland; including the Hamlet of Constantia, Lower Road, Doris Park Area and Bernhards Bay. Nearby communities consist of the Village of Cleveland to the East and the Town of West Monroe to the West. The total project location can be seen in Figure 2-1.

2.1.2. Geologic Conditions

A review of available data was conducted to determine the onsite soil conditions using the United States Department of Agriculture's (USDA) Web Soil Survey. The complete Web Soil Survey has been included in Appendix A. Available information indicates that both the proposed WWTP site and the collection system area consist mainly of loamy soils classified in Groups C and D of the Hydrologic soils grouping. These soils are restrictive and present high amounts of runoff and low infiltration, increasing potential pollution of Oneida Lake by on-site/septic systems. The restrictive soils spread prominently throughout the project area can be seen in Figure 2-2.

2.1.3. Environmental Resources

Preliminary screening through the New York State Department of Environmental Conservation Environmental Resource Mapper has identified that the project is located within the vicinity of natural communities, rare plants or animals, and state regulated wetlands. The project will require permitting from the DEC should the species identified be endangered or threatened and the Department finds the project could potentially be harmful to those species. A copy of the Environmental Resource Map is included in Appendix B.

2.1.4. Floodplain Considerations

Much of the proposed sewer collection system area is located in low lying areas along the shore of Oneida Lake consisting of primarily small lots lacking adequate septic separation as per requirements by NYSDEC Appendix 75-A. Many of these areas are located in the FEMA designated 100 year flood zone. The 100 year flood zone for the project location can be seen in Figure 2-3.

2.1.5. Agricultural Districts

Land use along the proposed project corridor is primarily rural residential, light commercial, and agricultural. County Agricultural Districts and their overlay with the project area are shown in Figure 2-4. The Town recognizes that this project could potentially have adverse temporary impacts on the agricultural community and will make efforts to minimize these impacts. Coordination with the NYS Department of Agricultural and Markets (NYSDAM) during project design will ensure that impacts to agricultural lands are minimized or mitigated to the extent possible. The proposed facilities will comply with NYSDAM guideline entitled “Guidelines/Special Conditions for Water/Sewer Transmission Mains Located Wholly or partially in an Agricultural District”.

2.1.6. Environmental Justice Areas

NYSDEC defines an environmental justice area as a group of 250 to 500 households that meet or exceed at least one (1) of the following thresholds:

1. At least 51.1% of the population in an urban area reported themselves to be members of minority groups; or
2. At least 33.8% of the population in a rural area reported themselves to be members of minority groups; or
3. At least 23.59% of the population in an urban or rural area had household incomes below the federal poverty level.

Screening through the DEC Webmap of Potential EJ Areas has identified that the proposed project is not located in and does not serve a potential environmental justice area.

2.1.7. Disadvantaged Communities

Under the Climate Leadership and Community Protection Act, New York’s Climate Justice Working Group identified 35% of New York as disadvantaged communities (DACs). DACs were identified using 45 indicators, which “represent the environmental burdens or climate change risks within a community, or population characteristics and health vulnerabilities that can contribute to more severe adverse effects of climate change.” Screening through the NYSDEC Webmap of Disadvantaged Communities (DAC) has identified that this project does not serve a disadvantaged community.

2.1.8. Cultural and Historic Resources

The Town has confirmed from SHPO that portions of the project area are within archeologically sensitive areas and have required that a Phase 1A and 1B archaeological survey be complete. The Town hired a firm and completed the Phase 1A report in 2022, which is attached as Appendix C. The firm commenced the Phase 1B survey in 2023 which continued throughout much of 2024 as part of efforts tied to past report and scope. These efforts will continue in order to clear the project area and obtain SHPO approval for construction. The efforts completed previously was for the proposed collection system and grinder pumps which remains unchanged, making past efforts relevant and applicable to the recommendation herein. Any potential impacts to cultural and historic resources will be minimized and mitigated throughout ongoing cultural investigations.

2.2. Ownership and Service Area

2.2.1. Facility Ownership

Currently there are no existing municipal sanitary sewer collection systems or wastewater treatment plants within the proposed service area in the Town of Constantia. The Town collection system and SOCRIS regional transmission main proposed herein will be owned by the Town and Oswego County, respectively.

2.2.2. Management

The Town of Constantia will be required to develop a sewer department either as part of the existing Town DPW, or as a standalone department. The sewer department personnel will be responsible to operate and maintain the sewer system to ensure reliable system operation. Similarly, Oswego County is expected to form a sewer department to operate and maintain their proposed SOCRIS regional interceptor, however the specific arrangement of that department will be the responsibility of the County and has not been established to date. In lieu of a Town Sewer Department, the Town may contract with Oswego County or an independent Contract Operations Company to manage the system. For the purposes of this report, it is assumed that the Town will utilize a Town Sewer Department.

2.2.3. Outside Users

The Town of Constantia collection system proposed herein will not include any outside users. If a wastewater collection system and regional transmission line connection were to be constructed to serve the southern portion of the Town of Constantia, it is possible that additional sewer districts would be formed to serve residents and businesses in northern Constantia.

2.2.3.1 Required Agreements

The Town of Constantia would need an executed agreement with Oswego County to convey wastewater flows to the County owned regional transmission main, should that alternative be pursued. This agreement would capture O&M costs and treatment costs associated with connection to the County owned transmission main.

2.2.4. Agricultural or Industrial Users

The Town of Constantia does not anticipate accepting waste from any agricultural or industrial users. The proposed area consist of primarily residential properties with some light commercial properties consisting of restaurants, convenience stores, gas stations, and marinas.

2.2.5. Population Trends and Projected Growth

Census data indicates that the Town of Constantia saw a 3.3% population decline between 2000 and 2010 and a 3.9% population decline between 2010 and 2020. Census data is summarized in Table 2-1. As described below, it is reasonable to expect a 30.0% population growth over the next 30 years (2050).

Table 2-1: Population Data Taken from U.S. Census

Town	2000 Population	2010 Population	2020 Population	30-Year Projected Growth
Constantia	5,141	4,973	4,778	6,211
		-3.3%	-3.9%	+30.0%

2.2.5.1 <u>Anticipated Development</u>

Micron Technology, a large microchip manufacturer, has announced plans to begin construction of their manufacturing plant in 2025. The site for this federally funded plant will be in the nearby Town of Clay, Onondaga County. With direct job creation from this development and the resulting parallel industry development nearby, local communities will be the home to residential and commercial growth. The Town of Constantia is located approximately 12 miles from the proposed Micron site with an estimated drive time of 15 minutes. The Town of Constantia is positioned well to support this regional growth and reasonably expects a 30.0% population growth over the next 30 years. This potential future growth is captured in the design basis for sizing the proposed Town of Constantia WWTP discussed herein. The preliminary design of the WWTP and site layout can accommodate expansions to accept future growth beyond the 30% growth identified above. Similarly, SOCRIS is sized to accept current flows as well as significant excess capacity which the area has the potential to see rapidly with the development of the Micron site.

2.2.6. Equivalent Dwelling Unit

An equivalent dwelling unit (EDU) is a unit of measure used to compare wastewater generated by sewer system users of different types and sizes. One (1) EDU represents the amount of wastewater produced by an average single-family residence. A large industrial or commercial property may generate several times this amount of wastewater and would therefore be assigned a higher EDU total. Quantifying the number of EDUs within a sanitary sewer collection system allows for more accurate projections of flows, and a more equitable distribution of sewer use charges. A summary of the Equivalent Dwelling Unit assessment for multiple tax property class codes is attached in Appendix D.

2018 Oswego County parcel data was originally utilized for the proposed Constantia-Bernhards Bay Sewer District service area, and was summarized to show; parcel ID, primary owner and local street address, property classification code with brief description, and the estimated EDU assessment. The parcel data was updated by the Town throughout the duration of the original efforts to reflect modifications to Town properties. The revisions to the data were utilized to prepare the following estimate. There are approximately 943.0 residential EDUs, 113.0 commercial EDUs, 37.3 recreation and entertainment EDUs, 25.5 community services EDUs, 4.0 public service/public park EDUs, and 107.5 vacant EDUs within the Sewer District area (1230.30 EDUs in all). An expanded table of EDU assessments for each parcel is shown in Table 5-1. All non-exempt EDUs in the Constantia-Bernhards Bay Sewer District are required to pay the annual debt service on the project. Connection costs are included in the estimated project cost and are proposed to be included in the project. All occupied property owners within the project area will be provided a connection as long as they provide the necessary easement to allow the Town to complete the installation. Additionally, the Town intends to not allow any new on-site treatment systems within the service area upon completion of the project.

2.2.7. Local Sewer Use Laws and Ordinances

The Town of Constantia along with an appointed Town Sewer Advisory Committee have reviewed the NYS DEC Model Sewer Use Law to use as a template for the future Town of Constantia Sewer Use Law. The Town has identified minimal changes to the Model Use Law for the Town's use and intends to pass the law in the future.

2.2.8. Nearby Public Sewer Systems

Currently there are no existing public serving sewer facilities within the service area however there are two permitted discharge facilities within and in close proximity to the service area. These facilities are listed in the table below.

Table 2-2: Permitted Discharge Facilities Near Project Area

SPDES ID	Facility Name	Address	Permit Issued Date	Permit Expired Date
NY0216348	Oneida Fish Hatchery	3 Hatchery Road, Constantia, NY 13044	06/01/2023	05/31/2028
NY0214370	Cleveland – V STP	20 Sand Street, Cleveland, NY 13042	10/01/2021	09/30/2026

2.2.8.1 <u>Oneida Fish Hatchery</u>

The Oneida Fish Hatchery is located on Hatchery Road within the proposed service area. This is a NYSDEC facility that carries a SPDES permit to discharge to Scriba Creek. The facility treats sanitary wastewater from the hatchery and one (1) residence as well as wastewater from tank vacuuming and cleaning. This facility does not have available capacity to treat wastewater from the Constantia-Bernhards Bay Sewer District and does not have room for the necessary expansion to so. This is not a feasible option to consider for treatment.

2.2.8.2 <u>(V) Cleveland Wastewater Treatment Facility</u>

The Village of Cleveland Wastewater Treatment Facility is located on Sand Street in the Village of Cleveland and is approximately 1-mile from the proposed service area. As indicated in the alternative analysis of the 2019 PER, conveying flows from the proposed service area to the Village of Cleveland WWTP to then be treated was the recommended treatment alternative. The Village of Cleveland has since rescinded their willingness to accept and treat flows from the Town of Constantia leaving the previous recommended alternative no longer feasible.

2.2.9. Public Sewer Interest Survey

The Town of Constantia has held several public information meetings and has performed extensive interest surveys throughout the proposed collection area. Based on estimated project size, interest survey results and review of evaluations and alternatives considered in the past, the Town of Constantia has established the service area for the new sewer collection system. The most recent interest survey was completed in 2021 and had a response rate of 48% and a favorability of 67%.

2.2.10. Community Engagement

Community engagement will continue to be a project priority. The Town plans to host additional public information meetings to share information on the project and solicit public comment from the community.

2.3. **Financial Status**

The Town of Constantia has a 2023 American Community Survey (ACS) median household income (MHI) of $72,295 and an estimated families below poverty rate of 4.3 percent. The Town was of the opinion that the ACS MHI reported did not accurately reflect the actual MHI of the users in the Constantia-Bernhard's Bay Sewer District and conducted an agency compliant interest survey in July 2021. The MHI was identified as being $45,000. The MHI report is attached as Appendix E.

2.3.1. Source of Income

The Town of Constantia will collect revenue from sewer district users to cover costs associated with operation and maintenance of the proposed sanitary sewer facilities.

2.3.2. Current Rate Schedules

In 2024, the Town charged users a fee of $303.74 per EDU to cover ongoing efforts for planning and development of the district sewer facilities. In 2025, the sewer charge will increase to $304.40 per EDU.

2.3.3. Other Capital Improvements

Other capital improvements projects currently underway within the Town of Constantia include renovation of the Town Hall which is being completed with allocated reserve funds.

2.3.4. Status of Existing Debt

The Town of Constantia has existing debt from the design and project development efforts beginning in 2022 which continued through 2024 as part of the most recent project iteration. The Town incurred costs to design the collection system and improvements to the Village of Cleveland WWTP which served as the treatment location of the past recommendation. Unfortunately for the Town in 2024 the Village of Cleveland decided they no longer wished to be included in the project, leaving the Town with no viable treatment location. This debt was incurred for design of district facilities and would be recaptured in future financing agreements for the project.

3.0 EXISTING CONDITIONS

3.1. Description and History

The Town of Constantia does not own or operate any public sewer facilities currently. There are currently eight (8) properties situated within the Town of Constantia which receive sewer collection services from the neighboring Village of Cleveland as outside users to their system. The outside users connected to the Village system include; seven (7) townhouses, five (5) single family residences and one (1) restaurant, commonly referred to as the "Constantia 13". These parcels are included in the Town of Constantia Sewer District and will be provided municipal sewer from the Town upon completion of the project.

4.0 NEED FOR THE PROJECT

4.1. Health, Sanitation, and Security

Residents in the Town, along and near the northern shoreline of the Lake, treat their wastewater flows using private onsite septic systems as there is currently no centralized collection or treatment facility available to serve the area. As seasonal residences along the lakeshore have recently become full-time residences, many of the private septic systems are either inadequate or are failing and have been identified in a 2004 Watershed Management Strategy for Oneida Lake to directly impact Lake water quality. The Central New York Regional Planning & Development Board is currently preparing the Oneida Lake Watershed 9 Element Plan which will build on past watershed planning efforts, including the 2004 Management Strategy for Oneida Lake and its Watershed. Oneida Lake has historically been vulnerable to algal blooms which has limited opportunities for growth in the region as concerns over water quality persist. Failing and inadequate septic systems directly contribute to this environmental health hazard and is why residents have vocalized support for decades to develop a sewer system. This need is further documented in the DOH endorsed sanitary survey which is attached to this report in Appendix F.

4.2. Capital Improvement Plan and Asset Management Plan

The Town of Constantia Strategic Plan has included the development of public sewer in the proposed service area for decades. This project has been a priority for the Town and would serve as a catalyst for the Town to enhance the community, protect the vital Oneida Lake ecosystem, and promote economic development.

4.3. Aging Infrastructure

Many of the septic systems installed in the service area are aging, and in many cases do not meet modern building codes for proper installation of an on-site septic system. The need to replace the aged and filing systems is evident by the continued water quality issues experienced by Oneida Lake water quality.

4.4. Reasonable Growth

Growth in the Town has been substantially limited by the lack of municipal sewers. Many lots are small in size which are not physically large enough to support agency compliant on-site septic systems. These lots in turn cannot be developed which limits growth in the Town. Growth hindrance is of particular concern given the ongoing progress of the Micron Development. Micron is planned to occur in Clay, NY which is approximately 18 miles, or a 22 minute drive, from the Town of Constantia. This positions the Town of Constantia for potentially substantial growth resulting from the new jobs, and workforce expected in the region.

4.5. County-Wide or Regional Planning Efforts

This project will directly support the initiatives outlined in the NYS DEC Great Lakes Action Agenda (priority goal 2) which is to "Control Sediment, Nutrient, and Pathogen Loadings so that drinking water quality, aquatic life, recreational uses, and people are protected". Goal 2 of the action agenda also specifically identifies phosphorus as being a nutrient of concern. The failing onsite septic systems are in some instances improperly leeching elevated levels of phosphorus into Oneida Lake which ultimate discharges to Lake Ontario. The construction of municipal sewers will help control nutrient loading by reducing phosphorus discharge from failing systems.

Additionally, this project is a collaboration with Towns and Villages along Southern Oswego County and Oswego County for the SOCRIS initiative. Collectively, providing municipal sewer collection across the Southern portion of the County will provide a significant environmental relief to Oneida Lake, Oneida River and Oswego River and support the various benefits of a regional approach to sewer needs.

4.6. Water, Energy, and/or Waste Considerations

Failing onsite septic systems result in many cases of uncontrolled and unmonitored systems improperly leeching into Oneida Lake which is a significant concern.

4.7. Sustainability for Continued Use

The proposed project will improve sustainability by replacing failing onsite septic systems with a reliable municipal sewer system which will either remove the sanitary discharge to Oneida Lake entirely by conveying to a regional facility, or will provide a monitored and controlled point discharge from the new Town WWTP.

4.8. Storm and Flood Resiliency

Many residents in the sewer district are in low lying areas of the Town which are within the 100-year and 500-year floodplain(s). Many of these systems are unprotected and are further impaired during flood events resulting in additional negative impact to Oneida Lake. The proposed project will be designed for storm and flood resiliency to ensure safe and reliable operation of the system occurs during future flood events.

4.9. Physical Risk Due to Climate Change

Existing onsite septic systems are often in low lying areas which increases the risk of damage caused by effects of climate change. Removing these systems and replacing them with a robust and reliable municipal sewer system will help mitigate future risks associated with climate change.

4.10. Use Compliance with Accepted Standards

Oneida Lake has historically been vulnerable to algal blooms which has limited opportunities for growth in the region as concerns over water quality persist. Failing and inadequate septic systems directly contribute to this environmental health hazard and is why residents have vocalized support for decades to develop a sewer system. This need is further documented in the DOH endorsed sanitary survey which is attached to this report in Appendix F.

5.0 DESIGN FLOW AND ORGANIC LOADING

5.1. Basis for Design Flow and Loading

Design parameters for the proposed Town of Constantia WWTP were calculated by considering; service area EDU's, average household size, and Ten States Standards typical loading coefficients. According to the 2021 5-Year ACS, the average household size in the Town of Constantia is 2.50. The influent flow was calculated assuming the average person would produce approximately 100 gpd of sanitary wastewater flow, in accordance with 10 State Standards. The table below summarizes the design flow and load conditions. Expanded flow calculations are included as Appendix G.

Table 5-1: Design Maximum Monthly Flows and Loading

	Flow			BOD_5		TSS		Phosphorus	
	ADF (MGD)	MDF (MGD)	PHF (MGD)	Concentration (mg/L)	Loading (ppd)	Concentration (mg/L)	Loading (ppd)	Concentration (mg/L)	Loading (ppd)
Design	0.4	0.8	1.31	264	880	300	1,000	6.0	20

Notes:
1. ADF is based on 10 States Standard flow estimate of 100 gpd/capita plus 30% growth for future development.
2. MDF is calculated be multiplying ADF by 2.
3. PHF is calculated using a 10 States Standards peaking factor of 3.26.
4. BOD and TSS concentrations calculated using 10 States Standards for loading per capita: BOD: 0.22 lb/day, TSS: 0.25 lb/day

5.2. Project Permit Conditions and Effluent Discharge Limits

Considering preliminary discussions with the NYS DEC, condition of the receiving body, and future management plans, the anticipated SPDES Effluent concentration limits for the proposed Town of Constantia WWTP are generally as shown below in the table below.

Table 5-2: Projected WWTP SPDES Permit Limit Summary

Parameter	Effluent Limit				
	Type	Limit	Units	Limit	Units
Flow	Monthly Avg.	**Monitor**		**0.40**	**MGD**
BOD_5	Monthly Avg.	**30**	**mg/l**	**100**	**ppd**
BOD_5	7-day Avg.	**45**	**mg/l**	**150**	**ppd**
TSS	Monthly Avg.	**30**	**mg/l**	**100**	**ppd**
TSS	7-day Avg.	**45**	**mg/l**	**150**	**ppd**
Solids, Settleable	Daily Max.	**0.3**	**mg/l**		
pH	Range	**6.5-8.5**			
Nitrogen, Ammonia (as N)	Monthly Avg.	**16.2**	**mg/l**	**54**	**ppd**
Temperature	Daily Max.	**Monitor**			
Phosphorus (as P)	Monthly Avg.	**0.5**	**mg/l**	**1.7**	**ppd**
Seasonal Disinfection from May 1 to September 30					
Coliform, fecal	30-day Geom. Mean				
Coliform, fecal	7-Day Geom. Mean				

Notes:
1. Effluent shall not exceed 15% and 15% of influent concentration values for BOD5 and TSS respectively.

6.0 SANITARY SEWER COLLECTION SYSTEM ALTERNATIVE ANALYSIS

Alternatives evaluated in this section explore potential sanitary sewer collection systems to replace existing failing and inadequate onsite private septic systems. The alternatives evaluated for the collection system include:

1. No Action
2. Alternative 1 – Low Pressure Sewer Collection System

Based on past investigations and the alternative analysis in the 2013 and 2018 PER(s), the only collection system alternative to be considered for the Constantia-Bernhards Bay Sewer District is a low pressure sewer system. The service area is not well suited for a gravity collection system and therefor only low pressure sewer will be considered. The Town has completed preliminary engineering design for the low pressure system based on previous recommendations.

6.1. No Action

This alternative provides a baseline comparison for the other alternatives to be compared to and consists of the "do-nothing" alternative. This alternative provides the lowest initial cost; however, taking the no action alternative will keep the existing failing and inadequate onsite private septic systems in service which will continue to degrade water quality within Oneida Lake. The No Action alternative is not feasible, nor does it meet the long-term needs and goals of the Town as it will not address the ongoing water quality deficiencies of Oneida Lake. It has therefore been omitted from further consideration in this report.

6.2. Low Pressure Sewer Collection System

6.2.1. Proposed Preliminary Design

The Constantia-Bernhard's Bay Sewer District service area includes parcels along NYS Route 49 from the Constantia – West Monroe Town line to the Village of Cleveland, including the Hamlet of Constantia, Lower Road, Doris Park area, the County Route 23 loop, Bernhards Bay, and all roads branching off State Route 49 going to the north shoreline of Oneida Lake. The Town originally formed the Constantia-Bernhard's Bay Sewer District in June 2019. The district formation proceeding was revised to increase the maximum amount to be expended in July 2021. The Town further revised the existing district formation proceedings in February 2025 to increase the new maximum amount to be expended to $1,200. The district boundary will remain as originally identified. The EDU assignments described in Section 2.2.6 are further broken down in the table below. The Constantia-Bernhards Bay Sewer District Petition Plan labeling all parcels within the proposed Sewer District is attached as Figure 6-1, and a written legal description of the proposed district boundary has been prepared and is included as Appendix H.

Table 6-1: Constantia-Bernhards Bay Sewer District EDU Assessment

Property Description	No. Parcels	Proposed EDU Assessment	Total EDUs
Single-family Residential	705	1.0(1)	733.0
Two-family residential	13	2.0	26.0
Three-family Residential	1	3.0	3.00
Rural Residence with Acreage	32	1.0	39.0
Seasonal Residential	56	1.0	57.0
Mobile Home	30	1.0	33.0
Multiple Purpose	25	2.0(1)	52.0
Vacant Land	150	Varies(2)(3)	107.5
Commercial	39	Varies(1)(2)(4)(5)	113.0
Recreation and Entertainment	8	Varies(2)(4)	37.3
Community Services	13	Varies(2)	25.5
Public Services and Public Parks	10	Varies(2)	4.0
Total EDUs	**1,082**	**-**	**1230.3**

Notes:
(1) Includes existing Town users currently served by the Village assessed an EDU Charge of 0.63.
(2) Estimated EDUs are based on the Town of Constantia water district estimates for EDUs. All non-vacant parcels that are connected to sewer will be assessed a minimum of one (1) EDU.
(3) Vacant Parcels 1 acre and less than 10 acres are assessed a minimum of 0.5 EDU. Vacant parcels larger than 10 acres are assessed 1 EDU.
(4) Manufactured home parks are assessed 0.5 EDU per mobile home. Recreational vehicle parks or campgrounds are assessed 0.10 per RV or campsite.
(5) Commercial businesses are assessed 1 EDU per 60,000 gallons per year or part thereof (minimum of 1 EDU).

To develop the low-pressure alternative, B&L used the design assistant software developed by Environment One Corporation. The design assistant software uses the theory of simultaneous operation of grinder pumps as the basis for the preliminary design of the low-pressure system. This method optimizes the velocity within the low-pressure mains while keeping total dynamic head within the operating range of the Environment One grinder pump. The low-pressure model was developed assuming the installation of a grinder pump at each parcel in the proposed Sewer District, including vacant parcels to be conservative. This assumption takes into consideration future growth in the District and appropriately sizes the low-pressure system to handle increased flows when development occurs throughout the 30-year design life of the system. The model was developed for the entirety of the Constantia-Bernhards Bay Sewer District. The full hydraulic model results are attached in Appendix I.

The sanitary sewer collection alternative generally includes the installation of a low-pressure collection system consisting of 2-inch, 3-inch, 4-inch, 6-inch, 8-inch, and 10-inch HDPE low-pressure main, and two duplex submersible pump stations. The low-pressure sewer system would collect wastewater within the proposed Constantia-Bernhards Bay Sewer District Boundary and would convey flows to either the Southern Oswego County Regional Interceptor Sewer line at the intersection of State Route 49 and the Oswego County Rail trail, or a new Town owned and operated WWTP. For occupied properties within the Sewer District, the project would include installation of a grinder pump and a discharge force main (typically 1-1/4" HDPE), connecting the grinder pump to the low-pressure collection system, and installation of the electrical improvements and grinder pump control panel required to power each grinder pump. The existing sewer service lateral will be cut and connected to with new sewer piping (typically 4-inch PVC) to the grinder pump. Upon connection to the new sewer collection system, existing septic tanks will be decommissioned. The proposed sewer collection system with a Southern Oswego County Regional Interceptor Sewer connection and with a Town owned WWTP connection are shown in Figures 6-2 and 6-3 respectively.

6.3. Alternative Capital Cost

The estimated capital costs of the alternatives considered are detailed in Appendix J and are summarized in the table below. The estimated project cost includes a 10% contingency because the collection system has been designed to an agency review submission level through previous Town efforts.

Table 6-2: Summary of Estimated Probably Project Capital Costs

Line Item	Alternative 2
Construction Total (2025 Dollars)	$41,936,000
Inflation to 2028 (3% per Year)	$45,800,000
Contingency (10%)	4,580,000
Engineering, Legal, Administrative (18%)	$9,100,000
Total Estimated Project Capital Cost (2028 Dollars)	**$59,500,000**

Notes:
1. Total Estimated Project Capital Cost is rounded to the nearest hundred thousand dollar.

6.4. Anticipated O&M Cost(s)

The estimated O&M for the Constantia-Bernhards Bay Sewer District collection system is summarized in the table below. The annual collection system O&M will be split amongst the non-vacant users in the Sewer District with each parcel paying an amount based on their EDU assessment. The Town collection system O&M is independent of the regional transmission line O&M which will be discussed in subsequent sections.

Table 6-3: Collection System Anticipated O&M

Line Item	Associated Cost
Sewer Administration	
Personal Services	$10,000
Sanitary Sewer Collection	
Personal Services	$100,000
Equipment	$10,000
Training	$2,000
Contractual	$15,000
Power/Heat	$9,000
Chemicals	$7,000
Lab Tests/Reporting	$1,000
Total Annual Collection O&M	**$154,000**

6.5. Short-Lived Asset Costs

Short-lived assets (SLA) are items that are likely to fail and need replacement within the typical 30-year design life of a capital improvement project. These items are typically smaller assets or ancillary system assets that are more prone to heavy wear due to frequent operation. In a typical water treatment and distribution system, the pumps, blowers, generator, flow meters, and other components are all considered to be short-lived assets. Municipalities typically budget through their billing collections to create a financial reserve account to replace these short-lived assets when they fail or begin to consistently incur annual maintenance costs. The estimated short-lived asset costs for the alternatives are summarized in the table below.

Table 6-4: Collection System Short-Lived Assets

Equipment	Quantity	Unit	Unit Cost	Total Cost	Useful Life (yr)	SLA Reserve Contribution
Grinder Pump Core Replacement	1,080	EA	$2,000	$2,160,000	20	$108,000
Taft Bay Pump Station	2	EA	$22,500	$45,000	15	$3,000
Total Annual SLA Reserve Account						**$111,000**

6.6. Life-Cycle Cost Analysis

Life-cycle costs inclusive of the project capital costs, the estimated annual O&M costs, and the short-lived asset costs as discussed in previously have been extrapolated to cover an estimated 30-year operational life of the project. Life Cycle Costs are detailed in Appendix X and summarized in the following table.

Table 6-5: Summary of Alternative Capital and Net Present Value Costs

Net Present Value (NPV) Analysis	Alternative 2:
Estimated Project Capital Cost	$59,500,000
30-Year O&M + SLA NPV	$4,523,773
Total Net Present Value	**$64,023,773**
Difference	-

6.7. Non-Monetary Factors

The following table summarizes non-monetary factors for the low-pressure sewer alternative:

Table 6-6: Non-Monetary Factors

Factor	Alternative No. 2:
Impact on Existing Facility	There is currently no existing sewer collection system in the Town of Constantia.
Compliance with Standards and SPDES Permit	This alternative will eliminate existing onsite septic systems, many of which are aged and do not need current building codes.
Operator Requirements	This alternative will require the Town of Constantia to develop a sewer department to operate and maintain the new collection system.
Schedule and Constructability	The sewer collection system will be constructed offline while home owners remain on their private septic systems. Final residential connections to new installed grinder pumps will occur after the proposed Southern Oswego County Regional Interceptor Sewer is installed, or once the Town WWTP is constructed and commissioned for service.
Land Requirements	The Constantia Sewer District will be constructed within State, County, and Town Right-Of-Way (ROW) as much as practicable. In locations where the ROW is unfit for construction, easements will be required to construct the collection system on privately owned property.
Environmental Impacts and Mitigation	The project includes the decommissioning of private septic systems, many of which are not constructed to meet current codes. The collection system will eliminate improper leaching of septic systems into the lake, thus improving water quality.

Wetlands and Waterbodies	Wetlands and waterbodies are present throughout the sewer district. Horizontal directional drilling and other trenchless techniques will be used as necessary to cross these sensitive areas and limit impact.
Storm & Flood Resiliency	Grinder pumps installed within the flood plain will be furnished with water tight lids and vent extensions to ensure the vents are properly protected above the base flood elevation (BFE).
Seasonal Limits, Challenges, & Requirements	There will be tree clearing seasonal limits to protect the native bat species local to the service area. Clearing will occur outside of the protected windows to ensure native species are not impacted.
Reduction of Carbon Footprint	Opportunities for the reduction of carbon footprint will be limited for this alternative.
Opportunities for Green Infrastructure	Using energy efficient equipment and eliminating private septic systems provides a great benefit to the quality of life of the users in the new District, and improves water quality of Oneida Lake for recreation and the ecosystems which inhibit it.
Water & Energy Efficiency Measures	New grinder pumps will be installed with premium efficiency motors to reduce energy consumption. Additionally, the pumps at the pump stations will be installed with premium energy efficiency motors and lighting at the pump stations will be LED to reduce energy consumption.
Local Employment Opportunities	This alternative will require the Town hire additional staff to operate and maintain the system. Additionally, employment opportunities will be increase during the construction of the project.
Recreational Impact	This alternative will help improve and protect the water quality of Oneida Lake which is used for recreation by locals and tourists alike.
Aesthetics Impact	There will be temporary aesthetic impacts associated with this alternative during construction. All impacts will be temporary and limited to the construction duration.
Security and Cyber security	There are no security or cybersecurity concerns associated with this alternative.
Community Objections	Public hearings will be held discussing project to allow for community input

7.0 TREATMENT ALTERNATIVE ANALYSIS

The following treatment alternatives for the Constantia-Bernhards Bay Sewer District are evaluated in the subsequent sections:

- Alternative 1: Connection to SOCRIS
- Alternative 2: Town of Constantia Wastewater Treatment Plant

7.1. Alternative 1: Connection to SOCRIS

The proposed County initiative, known as the Southern Oswego County Regional Interceptor System (SOCRIS), will aim to convey wastewater flows from the Town of Constantia on the eastern project limits to the City of Fulton on the western project limits. In addition to the Town of Constantia wastewater flows, the regional interceptor intends to provide the capacity to convey flows from the Towns of West Monroe, Hastings, Schroeppel, and Volney through individual Town collection points along the interceptor. The proposed transmission main would be a combined gravity and force main sewer with pump stations constructed along the Oswego County Rail Trail. Approximately 22.4 miles in length, the regional interceptor would bridge wastewater collection infrastructure from State Route 49 in the Town of Constantia to the City of Fulton WPCF located on the western bank of the Oswego River in the City of Fulton. Further information on the County SOCRIS project is available in the Oswego County SOCRIS PER.

Through extensive discussions with interested parties, the City of Fulton WPCF has expressed their willingness to accept and treat wastewater flows conveyed through SOCRIS following their WPCF capital improvements project which is set to begin in 2025. Originally sized for local industry in the City of Fulton, which has since vacated, the upcoming improvements will leave the WPCF with approximately 1.0 MGD in excess capacity. This available capacity leaves an opportunity for the above mentioned Towns to treat wastewater without the burden of constructing, expanding, improving, or maintaining individual wastewater treatment facilities.

7.1.1. Proposed Preliminary Design

Alternative 1 considers pumping the collected wastewater flows from the Constantia-Bernhards Bay Sewer District to the proposed Oswego County owned and operated SOCRIS initiative. The Town of Constantia connection point to SOCRIS would be at the intersection of the Oswego County Rail Trail and State Route 49 approximately 0.75 miles northwest of the Hamlet of Constantia. This alternative would require the Town to construct an additional Town owned and operated submersible duplex pump station. This pump station would be in addition to the Town collection infrastructure identified in Section 6 and would collect wastewater flow from the Constantia-Bernhards Bay Sewer District and convey it to the connection point of the proposed SOCRIS transmission line. This pump station would serve as a control point for the system for potential chemical addition if necessary, future expansion, and would provide system metering. In addition, without a Town owned WWTP, this alternative would require the construction of a dedicated sewer maintenance facility which would be used to house, maintain, and rebuild grinder pump cores as necessary to support the continued operation of this low pressure collection system.

7.2. Alternative 2: Town of Constantia Wastewater Treatment Plant

7.2.1. Proposed Preliminary Design

The Town of Constantia Wastewater Treatment Plant would be a newly constructed plant with significant capacity to handle influent flows from the Constantia-Bernhards Bay Sewer District and have the ability to achieve low effluent limits needed to discharge to Oneida Lake. The treatment technologies evaluated in the subsequent sections generally include; primary filtration, secondary treatment, tertiary treatment, sludge handling, and effluent disinfection.

7.2.2. Primary Treatment Alternatives

Primary treatment is crucial to the success of any treatment process because it gathers and removes foreign objects which may be introduced throughout the collection system. The removal of debris helps protect the treatment process equipment downstream and provides more effective treatment. The two (2) primary treatment alternatives considered include a new grit removal system and a mechanical bar screen with washer and compactor.

7.2.2.1 Grit Removal System

When preliminary settling tanks are not present in a wastewater treatment plant, protective measures are installed which remove grit from the influent before reaching the secondary treatment equipment. One common grit removal practice is a vortex grit removal chamber. Grit introduction is not typical in a low pressure sewer system and therefore will not be anticipated in the Town of Constantia low pressure collection system. The construction of a grit removal system has been deemed unnecessary and will not be investigated further.

7.2.2.2 Mechanical Bar-Screen

Foreign debris such as wipes, rags, and hair are detrimental to the successful and efficient operation of treatment equipment downstream. The flows generated by the Town of Constantia collection system leave the potential for debris to reach the treatment plant, therefore an influent screen is recommended. Mechanical bar racks/perorated plate screens are the preferred method of preliminary treatment. A proposal for a Hydro Dyne 6mm center flow screen with a washer and compactor is included in Appendix K.

7.2.3. Secondary Treatment Alternatives

Secondary treatment uses biological treatment to remove organic matter and remaining suspended solids that pass through primary treatment. Three (3) secondary treatment alternatives are evaluated in the subsequent sections including; Sequencing Batch

Reactor (SBR), Membrane Bioreactor (MBR), and Integrated Fixed Film Activated Sludge (IFAS).

7.2.3.1 Sequencing Batch Reactor (SBR)

The SBR process is a variation of the activated sludge process that minimizes space requirements by performing multiple treatment steps in a single tank. The SBR utilizes fill-and-draw reactor with fill, react (aeration), settle (clarification) and decant (removal of clarified water) steps occurring sequentially in a timer-based sequence. The SBR flow through technology minimizes operation and maintenance labor and costs as PLC controls aid in a semi-automated treatment process. The programming for SBRs will automatically adjust cycles depending on influent flow rate to the WWTP. Plunging decanters, flow through technology, and pre and post equalization of the SBR all provide flexibility in operation, when compared to the other alternatives. If the project budget allows, the SBR will be covered to provide improved weather protection. A proposal for a Sanitaire ICEAS SBR is included in Appendix K.

7.2.3.2 Membrane Bioreactor (MBR)

The MBR process combines conventional biological treatment with a membrane filtration system to provide enhanced organic and suspended solids removal. The membranes replace sedimentation and form separating biomass from the treated water and allow the treatment process to operate at a higher mixed liquor concentration. The MBR tank footprint is smaller than that of the SBR, however the operation and maintenance on the MBR process is typically more labor intensive than that of the SBR due to the SBRs semi-automated treatment process and automatic cycle adjustments based on influent flow rate.

7.2.3.3 Integrated Fixed Film Activated Sludge (IFAS)

The IFAS process consists of adding either suspended or fixed synthetic packing materials to an aeration tank. The packing provides a greater biomass concentration in the aeration tank which reduces the required aeration tank size requirements. Supplemental RAS/WAS pumping facilities would be required to provide for separation, return pumping and wasting of biomass from the treated water. The IFAS system is generally a more complex treatment technology and operation and maintenance is more intensive. This is due to the traditional inclusion of an anaerobic, aerobic, pre-anoxic, carbon removal, IFAS and activated sludge zones. Balancing and maintaining the many treatment zones and processes generally results in more operator input when compared to an SBR or MBR. The proposed grinder pump collection system will introduce fine inorganic/ non-degradable particles; some of which will inevitably pass through primary treatment. These fine particles can accumulate on the media, resulting in more frequent media fouling when compared to IFAS treatment of a conventional gravity collection system. When the media becomes fouled, the tanks must be emptied and cleaned, or potentially replaced resulting in additional cost and operation expense. IFAS systems are particular sensitive to the distribution of the media throughout the basin and rely on mixing systems to distribute the media. Media distribution must be monitored and kept uniform as unbalanced distribution leads to additional maintenance of the system.

A summary outlining the more heavily weighted pros and cons of the three (3) secondary treatment technologies being considered is in the table below. A more detailed analysis is attached as Figure 7-1.

Table 7-1: WWTP Technology – Comparison of Pros and Cons Summary

	SBR	MBR	IFAS
Pros	Increased Automation Energy Conservation Flow Equalization Versatility O&M Cost	Constructability Automated Operation Versatility	Versatility
Cons	Constructability	O&M Cost Flow Equalization	Complexity Tankage O&M Cost

Based on the review of evaluated technologies, the SBR treatment process offers the highest number of advantages, or "pros". Therefore the SBR process is the recommended technology for the Town of Constantia WWTP Alternative and is analyzed in the subsequent sections.

7.2.4. Tertiary Treatment Alternatives

The nearby Village of Cleveland WWTP, whose discharge is to Oneida Lake, has a SPDES phosphorus effluent limit of 0.5 mg/l. Without having the DEC NY-2A process complete, the Town is expecting a similar effluent phosphorus concentration limit to that of their neighbors based on each community having a similar user base and collection system. Final effluent limits will be established by NYS DEC through the NY-2A process to be completed should this alternative be pursued. It's not economical to add the required alum to the secondary process to reduce effluent phosphorus to 0.5 mg/l due to chemical costs and additional sludge resulting from the chemical addition therefore tertiary treatment (filtration) is recommended to consistently and efficiently meet effluent limits. Two (2) filtration methods are being considered in this analysis.

7.2.4.1 Particle Media Filtration

The particle media filtration process removes remaining suspended solids from the secondary treatment by passing the fluid stream through a particle media bed. The media, typically sand, is a porous material that captures solids while allowing through flow of the treated wastewater stream. Multiple sand beds would be needed to handle the tertiary treatment of the expected flows from the Town of Constantia collection system. Additional redundant sand filters would be required to successfully treat the effluent flow and would require a filtration building to be constructed. Additionally, the O&M of the sand filters requires backwashing which can result in additional water consumption without the presence of an effluent water system and loss of media which then must be replaced. For these reasons, particle media filtration is not preferred.

7.2.4.2 Cloth Media Filtration

Cloth media filtration is an efficient and effective tertiary treatment technology which utilizes cloth disk membranes to further treat processed effluent. The cloths are engineered to have opening sizes which allow effluent to pass while preventing particles from discharging to the receiving body. The cloth filtration system proposed is semi-automated, self-backwashing, and is designed to effectively treat the increased flow while maintaining a compact footprint. These effluent filters are packaged gravity driven filters controlled by a locally mounted PLC which automates filtration and backwash cycles under normal operation of the system. Furthermore the filters use treated effluent as part of their self-backwashing system and come packaged with integrated actuated valves and wasting pump to control operation cycles, making the day-to-day operation of the system autonomous. The cloth filter system is fully capable of meeting target effluent limits with minimal chemical addition. The system will require the construction of a new multipurpose building. Cloth media filtration is the recommended tertiary treatment technology. A proposal for a packaged cloth media filter system by Aqua Aerobics is included in Appendix K.

7.2.5. Effluent Disinfection Alternatives

Oneida Lake would be the receiving body of the effluent associated with this alternative. Oneida Lake is a recreational destination for the greater area historically susceptible to harmful e-coli outbreaks on its beaches. Two (2) disinfection methods are being considered in this analysis.

7.2.5.1 Chlorine and De-Chlorination

Chlorination of the effluent flow prior to discharge is an effective way to disinfect treated wastewater prior to reaching the discharge waterbody. Typically after chlorine injection, the effluent solution is pumped to a contact storage/mixing tank for adequate disinfection contact time prior to discharge. This approach along with the necessary chlorine storage building makes for a costly and labor intensive process. Chlorination systems require a separate room due to the potentially dangerous and corrosive chlorine gas which can significantly shorten the lives of mechanical equipment and the space where chlorination equipment is located. De-chlorination methods would also need to be installed as to comply with standard practice. Chlorine disinfection is not preferred.

7.2.5.2 Ultraviolet (UV) Disinfection

The recommended effluent disinfection technology is by ultraviolet (UV) light. The UV system proposed is a packaged system with banks of UV light bulbs. The light disinfects the effluent without the addition of chemicals, making it very user friendly. Eliminating the need for chlorine and de-chlorination processes reduces O&M costs and improves the working environment for the treatment plant staff. The UV system would be installed in a multipurpose building protected from the weather. UV disinfection is the preferred treatment technology. A design proposal for a packaged UV system by Trojan UV is attached in Appendix K.

7.2.6. Sludge Dewatering Alternatives

Removing water from sludge waste following secondary treatment can make handling and disposal of waste easier for treatment plant staff. It reduces both the mass and volume of material to be hauled off-site. Two (2) dewatering processes are being considered in this analysis.

7.2.6.1 Sludge Drying Beds

Sludge drying beds are large porous surfaces that use gravity and evaporation to remove water from activated sludge once spread. It is a simple and effective way to dewater sludge however, with the expected flows from the Town of Constantia collection system, a large drying area would be needed to accommodate the significant volume of sludge. Due to spatial limitations on the site this alternative has been deemed unfeasible.

7.2.6.2 Sludge Screw Press

Sludge dewatering by pressing is an effective way to improve solids percentage in activated sludge ultimately reducing sludge hauling costs. A screw press would be installed within a multipurpose building with a conveyor to sludge hauling bin. The screw press has been sized according to estimated sludge production. A proposal for an 18 inch BDP Screw Press is attached in Appendix K.

7.2.7. Recommended Town of Constantia WWTP

The proposed treatment process would be designed to treat the estimated flows and loads from the proposed service area. Additionally, the WWTP system and site would be designed to allow for future expansions to treat increased flows from the possible future expansions in northern Constantia. The proposed treatment system would generally include the following:

1. Influent fine screen
2. Influent aeration/EQ chamber
3. Two (2) basin, flow-through SBR system
4. Sludge press, storage and haul-out area
5. UV effluent disinfection
6. Stand-by generator
7. Site fencing
8. Paving & associated site improvements
9. Control building/maintenance facility including:
    a. Blowers
    b. Electrical/control room
    c. Laboratory/work room
    d. Bathroom
    e. Chemical room

Preliminary site layout for the proposed Town WWTP is shown in Figure 7-2 attached at the end of the report.

8.0 TREATMENT SUMMARY AND ALTERNATIVE COMPARISON

8.1. Feasible Alternatives Summary

8.1.1. Alternative 1 – Connection to SOCRIS

This is a feasible and cost effective alternative for a 30-year planning period. It would effectively achieve the goal of treating wastewater flows from the Constantia-Bernhards Bay Sewer District in the Town of Constantia by discharge to a regional interceptor.

8.1.2. Alternative 2 – Town of Constantia WWTP

This is a feasible and cost effective alternative for a 30-year planning period. It would effectively achieve the goal of treating wastewater flows from the Constantia-Bernhards Bay Sewer District in the Town of Constantia by constructing a Town WWTP and discharging to Oneida Lake.

8.2. Alternative Capital Costs

The estimated capital cost estimates of each alternative are detailed in Appendix L and summarized in the table below.

Table 8-1: Summary of Estimated Probable Project Capital Costs

Line Item	Alternative 1 - SOCRIS	Alternative 2 – Town WWTP
Construction Total (2025 Dollars)	$1,612,000	$18,782,000
Inflation to 2028 (3% per Year)	$1,800,000	$20,500,000
Contingency (20%)	$360,000	$4,100,000
Engineering, Legal, Administrative (18%)	$$400,000	$4,400,000
Total Estimated Project Capital Cost (2028 Dollars)	**$2,600,000**	**$29,000,000**
Notes: 1. Total Estimated Project Capital Cost is rounded to the nearest hundred thousand dollar		

8.3. Alternative O&M Costs

8.3.1. Alternative 1 O&M

Although the Town will not own any wastewater treatment infrastructure with this alternative, Town users will pay a conveyance fee and treatment charge to Oswego County. These charges will support the construction, operation and maintenance of the regional transmission line, and the cost to treat wastewater at the City of Fulton WPCF.

The Town of Constantia is in the process of executing a Memorandum of Understanding (MOU) with the County of Oswego to memorialize the Town's interest in participating in this initiative. Future efforts will include progressing the MOU into an Intermunicipal Agreement (IMA) between the Town and County to identify the fees, terms and conditions for the Town to connect and have their waste treated through SOCRIS. The fee that the Town incurs from the County will ultimately be shared by the Town sewer users on an EDU basis. The conveyance charge from the County will be a function of the debt incurred to construct the County interceptor and the operation and maintenance necessary for the County to handle and convey the wastewater. How this will be structured at the County level is still in development and will ultimately impact the cost to the Town. At this planning stage based on preliminary discussions and County feasibility efforts it is anticipated that this charge will be approximately $399 per EDU for the Town of Constantia users. This amount is based on preliminary estimates for the construction of SOCRIS, the development of a County operated sewer department for SOCRIS, and the Town(s) of Constantia, Hastings, and Schroeppel as potential initial users. Oswego County has authorized B&L to perform a feasibility study for the proposed SOCRIS initiative and this study is still ongoing. The County SOCRIS study is targeting the 2025 IUP listing date of May 30, 2025 for submission to funding agencies.

In addition to the conveyance charge, the Town will pay a treatment charge based on metered flows at the Town's point of connection. The treatment charge will be based on a price per gallon of wastewater treated and will be established between Oswego County and City of Fulton in a future IMA. The treatment charge will be paid by the Town sewer users on the same EDU basis. The City of Fulton outside waste acceptance rates for 2025 range from $5.73 to $10.03 per 1,000 gallons of wastewater delivered. The amount differs based on the source of wastewater and outside user class. For the purposes of this report, it is assumed that the cost per 1,000 gallons of wastewater for SOCRIS connected users will be $6/k-gal which is used for calculations herein. This amount will ultimately need to be established in a future IMA. Based on the estimated users, and tightness of an entirely low pressure sewer system, the Town of Constantia's initial flow at start-up is estimated to be 190,000 gpd. The current EDU assessment includes 1,122.8 service EDUs and 107.5 vacant EDUs (1,230.3 total). The anticipated initial Town flow shared amongst the service EDUs would result in a treatment charge of approximately $371 per EDU.

Anticipated annual conveyance and treatment charges associated with implementation of Alternative 1 are included in the table below.

Table 8-2: Annual O&M Cost Estimate Per EDU (Alternative 1)

Item	Cost
County Conveyance Charge	$399
County Treatment Charge (@ $6/k-gal)	$371
Total Estimate O&M Cost	**$770**

8.3.2. Alternative 2 O&M

The anticipated annual O&M for the WWTP considering all anticipated processes is approximately $350,000. A summary of the O&M costs is included in the table below.

Table 8-3: Annual O&M Cost Estimate (Alternative 2)

Line Item	**Associated Cost**
Sewer Administration	
Personal Services	$18,000
Equipment	$0
Contractual	$12,000
Sewage Treatment Disposal	
Personal Services	$150,000
Equipment	$12,500
Contractual	$30,000
Power/Heat	$50,000
Chemicals	$40,000
Sludge	$30,000
Lab Tests	$5,000
UV Lamp Replacement	$2,500
Total Estimate O&M Cost	**$350,000**

8.3.3. O&M Comparison

The operational costs (O&M and other related charges) for the two alternatives vary significantly. Alternative 1 has a higher variable cost due to the planned relatively low user count at the beginning of the SOCRIS initiative. Theoretically, as more users connect to SOCRIS in the future there will be a larger user base to share costs with which may reduce the costs for Constantia users over time. The charges identified with the SOCRIS initiative will also increase over time as the costs of operating and maintaining the system go up. However, having more users on the SOCRIS system will help insulate the Town of Constantia users from these increases. Conversely, Alternative 2 has a much lower initial operational cost than Alternative 1. Operation and maintenance costs of the Town owned WWTP will also increase over time, however the Town will be solely responsible for these increases unlike the SOCRIS alternative. Note, that the debt service of both alternatives can decrease over time with development within the Constantia sewer district resulting in additional users. The table below shows the difference in operational costs for the two alternatives.

Table 8-4: Operational Costs Comparison

Cost	**Alternative 1 - SOCRIS**	**Alternative 2 - Town WWTP**
Town WWTP O&M	$0	$312
SOCRIS Conveyance Charge	$399	$0
SOCRIS Treatment Charge	$371	$0
Total Operational Costs	**$770**	**$335**

8.4. Alternative Short-Lived Asset Costs

Short-lived assets (SLA) are items that are likely to fail and need replacement within the typical 30-year design life of a capital improvement project. These items are typically smaller assets or ancillary system assets that are more prone to heavy wear due to frequent operation. In a typical water treatment and distribution system, the pumps, blowers, generator, flow meters, and other components are all considered to be short-lived assets. Municipalities typically budget through their billing collections to create a financial reserve account to replace these short-lived assets when they fail or begin to consistently incur annual maintenance costs.

8.4.1. Alternative 1 SLA

The Town of Constantia will have short lived assets associated with the additional Town pump station necessary for the SOCRIS connection. The annual SLA reserve account will be split amongst non-vacant users in the Sewer District with payment based on their EDU assessment. The Town SLA for this alternative are summarized in the table below.

Table 8-5: Alternative 1 Short-Lived Assets

Equipment	Quantity	Unit	Unit Cost	Total Cost	Useful Life (yr)	SLA Reserve Contribution
SOCRIS Pump Station	2	EA	$22,500	$45,000	15	$3,000
Total Annual SLA Reserve Account						**$3,000**

8.4.2. Alternative 2 SLA

A table of short-lived (SLA) and the anticipated reserve account needed for replacement of the equipment in the treatment plant is shown below. The estimated annual short-lived reserve account need to offset the replacement of the short lived assets in the treatment plant is approximately $26,500. The annual collection system SLA reserve account will be split amongst non-vacant users in the Sewer District with payment based on their EDU assessment.

Table 8-6: Short-Lived Assets (Alternative 2)

Equipment	Quantity	Unit	Unit Cost	Total Cost	Useful Life (yr)	SLA Reserve Contribution
Blower Refurbishment	3	EA	$25,000	$75,000	15	$5,000
Diffuser Replacement	1	EA	$20,000	$20,000	8	$2,500
WAS Pumps	2	EA	$20,000	$40,000	15	$2,667
Sludge Pumps	2	EA	$18,000	$36,000	20	$1,800
Effluent EQ Pumps	4	EA	$18,000	$72,000	15	$4,800
Influent Screen Mechanical	1	EA	$1,200	$1,200	15	$80
Filter Media Replacement	1	EA	$40,000	$40,000	15	$2,667
Filter Mechanical Replacement	1	EA	$10,000	$10,000	15	$667
Screw Press Mechanicals	1	EA	$10,000	$10,000	15	$667
Generator Refurbishment	1	EA	$40,000	$40,000	20	$2,000
Chemical Feed Pumps	2	EA	$3,000	$6,000	15	$400
Valve Allowance	1	EA	$15,000	$15,000	15	$1,000
UV Bulbs	18	A	$500	$9,000	4	$2,250
Total Annual SLA Reserve Account						**$26,500**

8.4.3. Alternative SLA Comparison

The estimated short-lived asset costs per EDU for each alternative are summarized in the table below.

Table 8-7: Summary of Estimated Short-Lived Asset Costs

Short-Lived Asset Costs	Alternative 1 - SOCRIS	Alternative 2 – Town WWTP
Treatment SLA	$0	$24
Collection SLA	$100	$100
Total SLA	**$100**	**$124**

8.5. Life Cycle Cost Analysis

Life-cycle costs inclusive of the project capital costs, the estimated annual O&M costs, and the short-lived asset costs as discussed in previously have been extrapolated to cover an estimated 30-year operational life of the project. Life Cycle Costs are summarized in the following table.

Table 8-8: Summary of Alternative Capital and Net Present Value Costs

Net Present Value (NPV) Analysis	Alternative 1 - SOCRIS	Alternative 2 – Town WWTP
Estimated Project Capital Cost	$2,600,000	$29,000,000
30-Year O&M + SLA NPV	$17,234,055	$8,228,877
Total Net Present Value	**$19,834,055**	**$37,228,877**
Difference	-	*$17,394,823*

8.6. Non-Monetary Factors

The following table compares non-monetary factors of each feasible alternative:

Table 8-9: Non-Monetary Factors

Factor	Alternative No. 1 – SOCRIS	Alternative No. 2 – Town WWTP
Impact on Existing Facility	This alternative would require the construction of an additional pumping station and dedicated sewer barn which would be used to house, maintain, and rebuild grinder pump cores as they are removed from the system.	This alternative will have no impact on an existing facility as the Town of Constantia does not currently own or operate a wastewater treatment plant.
WWTP Capacity	This would not result in a change of capacity at the City of Fulton WPCF. The City's plant has approximately 1.0 MGD of excess capacity based on historic usage, which equates to approximately 10,000 people at 100 gpd per capita. This excess capacity will allow the City to handle the flows from the Town Sewer District.	The Town would construct a new WWTP with 400,000 gal ADF capacity for future development within the Town.
Outfall Configuration	An effluent outfall will not be required with as collected wastewater flows will be conveyed to an existing wastewater treatment plan outside of the Town.	This alternative will require a new effluent outfall to be constructed and permitted for Oneida Lake which will be expensive.
Compliance with Standards and SPDES Permit	This alternative will comply with standards and will not require a Town SPDES permit.	This alternative will comply with standards and will require a new SPDES Effluent Discharge permit for the new WWTP.
Discharge Permit Requirements	This alternative will not require a Town SPDES discharge permit and will ultimately discharge to the Oswego River with greater assimilative capacity.	This alternative will require a Town SPDES discharge permit and will discharge to Oneida Lake which is a sensitive receiving body when considering nutrient discharge.
CSO/SSO Reduction	There are currently no CSO/SSO.	There are currently no CSO/SSO.
Operator Requirements	This alternative will require personnel to operate the Town collection system	This alternative will require personnel to operate the Town collection system and will require licensed operators to operate the Town WWTP.
Schedule and Constructability	The additional PS and sewer barn will be constructed offline while the rest of the Town collection system is constructed.	The WWTP would be constructed offline in parallel to the collection system work. In general, the new equipment would be able to be commissioned prior to being placed into service.

Land Requirements	The Town would need to construct an additional pump station and Town sewer barn. The Town may find it necessary to purchase property in the Hamlet of Constantia to situate the structures.	The Town WWTP would be located off Kibbie Lake Road east of the Hamlet of Constantia. The Town would need to acquire a minimum 2-acre parcel to construct the proposed treatment plant and allow for future expansions if necessary.
Environmental Impacts and Mitigation	There may be minor environmental impacts considering the final location of the additional pump station. Measures will be taken to mitigate potential impacts and there be no permanent impacts to endangered/threatened species habitats, wetlands, or flood zones.	Minor temporary environmental impacts may result from necessary clearing at the proposed WWTP location during construction. There does not appear to be any impacts on flood plains, cultural resources or wetlands, however mitigation measures would be instated as necessary.
Wetlands and Waterbodies	Wetlands and waterbodies will be avoided when considering location for pump station and sewer barn to mitigate potential impacts.	Wetlands and waterbodies will be avoided when considering location for WWTP to mitigate potential impacts.
Storm & Flood Resiliency	Final locations of pump station and sewer barn will be such that there are no concerns with FEMA Flood Zones and storm resiliency.	The WWTP would be located in an area of minimal flood hazard as determined by FEMA. However, with adjacent land located within 100-year and 500-year flood zones, the WWTP would be designed and constructed as to minimize any impacts of severe flooding on the operation of this facility.
Seasonal Limits, Challenges, & Requirements	There will be tree clearing seasonal limits to protect the native bat species local to the service area. Clearing will occur outside of the protected windows to ensure native species are not impacted.	There will be tree clearing seasonal limits to protect the native bat species local to the service area. Clearing will occur outside of the protected windows to ensure native species are not impacted.
Reduction of Carbon Footprint	Opportunities for the reduction of carbon footprint will be limited for this alternative as the carbon burden is relatively low.	The WWTP components and energy efficient measures would provide opportunities for reducing the WWTP's carbon footprint to the extent possible. The construction of the WWT will extend construction duration which will increase carbon burden based on equipment operation, fuel and energy consumption, etc.
Opportunities for Green Infrastructure	Porous paving would be explored for the site to reduce on-site run-off. Plantings would be incorporated into the site to provide shade and aid in stormwater runoff.	Porous paving would be explored for the site to reduce on-site run-off. Plantings would be incorporated into the site to provide shade and aid in stormwater runoff. If sufficient land and budget is available, solar power may be explored to offset the additional energy usage
Water & Energy Efficiency Measures	Design of the additional pump station will include LED lighting and high efficiency pumps to reduce the energy consumption of the asset. The sewer barn will include LED lighting and efficient heating systems for reduced consumption.	New pumps and equipment motors would be installed with premium efficiency motors where applicable. The UV disinfection system would be furnished with flow capabilities to dim the UV bulbs at lower flows for energy conservation. Site lighting and building lighting would use LED fixtures.

Local Employment Opportunities	This alternative will require the Town hire additional staff to operate and maintain the collection system. Additionally, employment opportunities will be increase during the construction of the project.	This alternative will require the Town hire additional staff to operate and maintain the collection system and WWTP. Additionally, employment opportunities will be increase during the construction of the project.
Recreational Impact	The Oneida Lake community, in particular, has historically attracted many residents and visitors as it serves host to well attended local, state, and national events; many of which take place on the lake. This alternative will help improve and protect the water quality of Oneida Lake enhancing recreation by removing sanitary discharge.	The Oneida Lake community, in particular, has historically attracted many residents and visitors as it serves host to well attended local, state, and national events; many of which take place on the lake. This alternative will help improve and protect the water quality of Oneida Lake enhancing recreation by controlling and limiting sanitary discharge.
Aesthetics Impact	There will be temporary aesthetic impacts associated with this alternative during construction. All impacts will be temporary and limited to the construction duration.	There will be temporary aesthetic impacts associated with this alternative during construction. All impacts will be temporary and limited to the construction duration.
Security and Cyber security	There are no security or cybersecurity concerns associated with this alternative.	There are no security or cybersecurity concerns associated with this alternative.
Community Objections	Public hearings and public information meetings will be held discussing project to allow for community input.	Public hearings and public information meetings will be held discussing project to allow for community input.

9.0 RECOMMENDED ALTERNATIVE

9.1. Basis of Selection

The recommended alternatives for this project are as follows:

- Collection Alternative 2 – Low Pressure Sewer Collection System and,
- Treatment Alternative 1 – Connection to SOCRIS.

These alternatives will provide the desperately needed sewer infrastructure to collect and treat wastewater from the northern shore area of Oneida Lake in the Town of Constantia. The project will consist of a newly constructed low-pressure sanitary sewer collection system to serve the Town of Constantia along the State Route 49 corridor from the West Monroe town line on the western project limits to the Village of Cleveland village line on the eastern project limits. Collected wastewater will flow to the Hamlet of Constantia where a new wastewater pump station will connect to the proposed Southern Oswego County Regional Interceptor Sewer line at the intersection of the Oswego County Rail Trail and State Route 49. From this connection point, wastewater flows will reach the City of Fulton WPCF where treatment and discharge into the Oswego River will occur. These alternatives achieve not only the Town's goal of centralized sewer, but the Town's wishes to leverage nearby wastewater treatment plants and their excess treatment capacity. This recommendation is made on the basis that this project and the Oswego County SOCRIS Project come to fruition and sufficient grant and users are connected into the system such that the user costs are within those established herein. Should the projects referenced above not come to fruition or grants/users not be sufficient to achieve the targeted user costs, the Town of Constantia should re-evaluate and consider the construction of their own WWTP as identified in Treatment Alternative 2

9.2. Opinion of Probable Cost

The estimated probable cost and maximum to be expended for the Town of Constantia Northshore Sewer Project is $61,800,000. The expected first year user cost is estimated to be $1,200 based on the preliminary plan of finance contained herein.

9.3. Green Infrastructure

The recommended project presents some/few opportunities for the practical implementation of green infrastructure practices. Infrastructure installed will be located outside of flood-prone areas as much as practicable and would be installed to meet all applicable flood and climate resiliency requirements. Green infrastructure practices will be explored during the preliminary design phase of the project.

10.0 FUNDING AND FINANCING

Project funding may be sought from a variety of State, Federal, and private sources. Several funding opportunities are available to ensure that the chosen alternative is affordable for system users. User costs will vary depending on the amount of funding ultimately awarded to the Municipality for the project. Each user served by the system will be charged on an equivalent dwelling unity (EDU) basis. This section presents a brief summary of several programs that the recommended project is or may be eligible for.

10.1. **Grant Opportunities**

10.1.1. NYSEFC Water Infrastructure Act (WIIA) Grant

The NYSEFC Water Infrastructure Improvement Act (WIIA) program provides competitive grants to help municipalities fund critical wastewater and drinking water infrastructure projects. Eligible wastewater infrastructure projects may receive a WIIA grant award as described below:

- A project, including all phases of the project, may be awarded the lesser of $25 million or 25% of net eligible project costs (total eligible project costs less any third-party grants awarded in respect of the project).
- Any grants administered through EFC will not be used to calculate net eligible project costs.

EFC evaluates all applications based on factors including the protection of public health and water quality, median household income, governmental and community support, environmental justice considerations, and the readiness of the project to proceed. Municipalities are limited to receiving no more than $5 million in WIIA grant funds in a single year; grant awards greater than $5 million for a project or projects are allocated over multiple years in annual increments not exceeding $5 million.

10.1.1.1 Enhanced WIIA Grant

In 2024 NYSEFC introduced the "Enhanced" WIIA Grant which expands upon the existing WIIA grant program. The Enhanced WIIA Grant allows municipalities to receive a 50% grant up to $25 million of net project costs if they qualify. Qualification criteria for the Enhanced WIIA grant are as follows:

- The Project must serve a population of 3,500 or less, and
- The Community must meet the hardship criteria as defined in the current Clean Water Hardship Policy, and
- The Project (without the Enhanced WIIA grant) would result in residential user rates exceeding 1.5% of the Median Household Income (MHI) of the community.

Municipalities who qualify and receive the Enhanced WIIA Grant are also limited to receiving no more than $5 million in WIIA grant funds in a single year, consistent with the base WIIA policy.

10.1.2. Bipartisan Infrastructure Law (BIL) Additional Subsidy

Projects eligible for hardship financing may qualify for additional subsidy via the CWSRF and/or the Infrastructure Investment and Jobs Act – also known as the Bipartisan Infrastructure Law (BIL). Projects awarded additional subsidy funds may receive grant funding up to 50% of eligible project costs, net of non-EFC grants, up to a maximum amount of $25 million. NYSEFC determines eligibility for additional subsidy using a 'Blended Affordability Score'. The Blended Affordability Score is the sum of the 'Affordability Score' and 'Water Quality Score'. The Water Quality Score is determined by NYSEFC based on a variety of factors, including existing source condition, water quality improvement, and enforcement action(s). The Affordability Score is determined based on the following criteria:

- Municipal MHI Relative to Regionally Adjusted MHI
- Municipal Poverty Level Relative to Statewide Level
- Environmental Justice
- Readiness
- Municipal Population Trend
- County Unemployment Rate Relative to Statewide Rate.

The table below shows the Affordability Score achieved by the Town of Constantia.

Table 10-1: Affordability Score and Award Criteria

Category	Value	Criteria	Score
Municipal MHI Relative to Regionally Adjusted MHI[1]	**$45,000**	**0-60%**	**20**
Municipal Poverty Level Relative to Statewide Level[1]	**5.9%**	**< 100%**	**0**
Environmental Justice[2]	**-**	**No anticipated benefit to a potential EJ area**	**0**
Readiness	-	**EFC received an acceptable financing application**	**2**
Municipal Population Trend[3]	**-3.90%**	**Negative**	**1**
County Unemployment Rate Relative to Statewide Rate[4]	**3.8%**	**Less than or equal to**	**0**
		Total	**23**

Data Sources:
[1]2021 American Community Survey's five-year estimates published by the U.S. Census Bureau or alternate data approved by EFC
[2]Potential Environmental Justice Areas identified by the New York State Department of Environmental Conservation
[3]2010 and 2020 Decennial Census Data
[4]2021 New York State Department of Labor Local Area Unemployment Statistics

The recommended project is projected to achieve a Water Quality Score of **41**, which is the sum of Scoring Criteria A, B, C, and D1 on the CWSRF Project Score Sheet included in Appendix M. Based on these scores, the Blended Affordability Score for the recommended project is projected to be **63**.

10.1.3. NYSEFC Intermunicipal Grant (IMG) Program

The NYSEFC Intermunicipal Grant (IMG) program provides funding to joint wastewater or drinking water projects undertaken by two or more communities to consolidate services. Eligible projects could receive up to $30,000,000 of grant or 40% of the total net eligible project costs. Priority will be given to projects that demonstrate a public health need, are located in hardship communities, and involve multiple municipalities.

10.1.4. NYSDEC WQIP Gant Program

The NYSDEC Water Quality Improvement Program (WQIP) provides funding to capital projects that's directly address documented water quality issues. The WQIP grant could provide up to $10,000,000 or 80% of the cost of construction in grant funding.

10.1.5. HCR Small Cities Community Development Block Grant (CDBG)

The CDBG program through HCR offers grants up to $1,500,000 for public infrastructure projects, and $2,000,000 for co-funded projects. Grants are also available for projects that promote economic development and/or job creation and retention. Grants are applied through the NYS Consolidated Funding Application (CFA) process and are awarded based on the public health need of the project and the financial need of the community. A critical requirement of this program is that 51% or more of the project beneficiaries (i.e., resident user base) must be low-to-moderate income (LMI) individuals. An income survey for the Town of Constantia Sewer District was completed in 2021 which indicated the district has an LMI of 59.3% which qualifies the project for CDBG funding.

10.1.6. USDA Rural Development (RD) Water & Waste Disposal Grant

The United States Department of Agriculture (USDA) Rural Development (RD) Water & Waste Disposal Loan & Grant Program provides funding for a variety of water infrastructure projects, including wastewater collection infrastructure improvements, in eligible rural areas. USDA RD funding is intended for rural communities with a population less than 10,000. Funding levels are typically based on a "target service charge", inclusive of capital debt and O&M, which is generally determined as 1.5% to 2% of MHI. If the resulting user charge is above the target service charge, additional grant dollars may be available. If the resulting user charge with RD loan financing is below the TSC, no additional grant dollars would be available.

RD is currently using 2020 Census data with the Town of Constantia median household income (MHI) at $66,743. However, the income survey completed spring 2024 determined that the MHI for the project area is actually $45,000. The population of the City/Town/Village per the 2020 Census is 4,836. Therefore, the target annual service charge for homeowners is assumed to be at least $675 per EDU. Based on the preliminary plan of finance for the project, it is expected that the project would qualify for USDA RD grant opportunities.

10.1.7. Congressionally Directed Spending

Each year, Members of Congress are allowed to request funds in the annual federal budget to be allocated for specific projects within their state. Members of the House are allowed to submit a limited number of discretionary program requests to the House Appropriations Committee for projects in need of federal funding. CDS items are typically local projects which promote economic development, education, health care initiatives, and other worthy investments. Several water and wastewater infrastructure projects have been sponsored by their respective representatives and subsequently received federal funding. CDS for water and wastewater infrastructure projects is administered by the United States Environmental Protection Agency via the State and Tribal Assistance Grant (STAG) program. Congresswoman Claudia Tenney represents the Town of Constantia. The Town anticipates submitting a request for $2,000,000 in funds through this program.

10.1.8. NYSDEC GIGP Grant Program

The NYSDEC Green Innovation Grant Program (GIGP) provides funding to projects that improve water quality and mitigate the effects of climate change through the implementation of one or more of the following green practices:

- Green Stormwater Infrastructure,
- Energy Efficiency,
- Water Efficiency and Environmental Innovation.

10.1.9. NYSDOS Local Government Efficiency (LGE) Grant Program

The NYSDOS Local Government Efficiency (LGE) grant program provides grant funding to local governments for projects that can reduce operations costs and limit property tax growth. Priority will be given to projects that demonstrate cost savings by utilizing shared services. Eligible projects could receive a grant of up to $200,000 per involved municipality or 90% of the total cost.

10.1.10. NYSREDC Empire State Development (ESD) Grant Program

Empire State Development (ESD) grants are available through the NYS Regional Economic Development Council (REDC) initiative for projects which drive regional and local economic development.

10.1.11. Northern Border Regional Commission (NBRC) Development Grant

The 2017-2021 Northern Border Regional Commissions Strategic Plan was established to guide program investments for three main goals. The first main goal being to modernize the infrastructure in northern border communities to better support business retention and expansion, and better position the region to compete in the global economy. Funding for the NBRC program is available for up to $1,000,000 for infrastructure and $3,000,000 for maximum infrastructure projects. The maximum NBRC contribution for a project is up to 80%, depending upon the NBRC's economic designation for the county.

10.2. Financing Opportunities

10.2.1. NYSEFC Clean Water State Revolving Fund Financing

The CWSRF program through NYSEFC offers interest-free financing for 100% of eligible project costs for municipalities that qualify for hardship. Market-rate or subsidized financing (up to 50% reduced) are also available through the CWSRF if the municipality does not qualify for zero interest financing. Loan terms are determined at the time of long-term closing which typically occurs at project completion.

In order to qualify for hardship financing, a municipality must meet at least one (1) of the following criteria:

- The Median Household Income (MHI) of the municipality must be:
    - Less than 80% of the regionally adjusted MHI
    - 80% to less than 100% of the regionally adjusted MHI and the poverty of the municipality must be greater than the 2023 Statewide Poverty
- At least 50% of the project costs/scope serves an identified Environmental Justice Area

The 2023 Statewide MHI is $84,578. Therefore, the Town of Constantia is eligible for hardship financing since the Town MHI for the project area is $45,000 according to the 2021 Income Survey, which is below the 80% or $67,662, threshold. The family poverty rate in the Town is 4.3%, less than the New York State average of 9.8%.

Each eligible project on the Annual List is assigned a project score by EFC to determine the type and amount of financing the project may be eligible for; it is projected that the recommended Town of Constantia Northshore Sewer Project will receive a project score of 51. Refer to Appendix M for a full breakdown of the projected scoring.

In order for the recommended Town of Constantia project to qualify for hardship financing, the project score must be above the Hardship Funding Line, which will be established upon finalization of the 2026 IUP. In the event the project score falls above this line, the Town would be issued a confirmation letter offering hardship financing, and potentially additional subsidy. It is anticipated that the project will qualify for Hardship financing.

If the Town does not qualify for hardship financing, the Town may pursue Long-Term Market-Rate Financing (LTMRF) through EFC. The LTMRF program offers eligible municipality’s access to financing at preferred triple-A interest rates. For municipal recipients who take advantage of the LTMRF program, EFC will retain their projects on the Annual Project Priority List to allow these recipients to compete in future years for DWSRF subsidized funding or hardship determination, if applicable.

10.2.2. USDA Rural Development Loan

USDA Rural Development provides financing for projects in eligible rural areas (defined as municipalities with populations of 10,000 or less). Current interest rates (for second quarter FY 2025, effective January 1, 2025) for 38-year loans offered by RD are as follows:

- Poverty: 2.500%
- Intermediate: 3.250%
- Market: 4.125%

10.2.3. Long-Term Bond

Municipalities commonly use long term bonding to finance large infrastructure projects. Recent long term municipal bonding rates for water/wastewater capital projects have been in the proximity of 4.75% for a 15-year bond, 5.0% for a 20 year loan, and 5.25% for a 30 year loan.

10.3. **Funding Limitations**

The Federal government's contribution for grant funding is usually limited to 80% of the total project cost. A minimum 20% cost share from non-federal sources is usually required. The U.S. Environmental Protection Agency (EPA) has been tasked with administering water/wastewater infrastructure projects identified for funding in the Appropriations Act through the Congressionally Directed Spending (CDS) and Community Project Funding (CPF) programs. The EPA has released guidance for administering these programs which identifies the potential non-federal sources for the 20% match requirement. It should be noted that the EPA does allow a municipality to apply for a cost share waiver.

Eligible Sources of Cost Share:

1. Public Sources
   a. State Appropriations;
   b. Local government match to the grant project;
   c. U.S. Department of Housing and Urban Development, Community Development Block Grant funds;
   d. U.S. Department of Agriculture, Rural Development funds;
   e. Appalachian Regional Commission funds; and
   f. The CWSRF and DWSRF programs if those funds area:
      i. Non-federal funds such as loan repayments, interest earnings, bond proceeds, and fees, or
      ii. A state contribution to the SRF above the statutorily required 20% match.
2. Private Sources
   a. These include funding from a business or nonprofit contributing to the project.

3. In-Kind Services
    a. These may include the applicant's administrative expenses for managing and overseeing the grant and projects, provided that the expenses are not being reimbursed by the federal share of the grant award;
    b. Force accounts may be used as in-kind services: personnel costs including salaries, wages, and allowable incentive compensation for recipient employees who spend time working on the project;
    c. In-kind (cost share) contributions must be verifiable and documented.

Ineligible Sources of Cost Share

1. American Rescue Plan Act of 2021 (ARPA) including ARPA Revenue loss funds
2. Bipartisan Infrastructure Law funding

11.0 PRELIMINARY PLAN OF FINANCE

Project funding may be sought from a variety of State, Federal, and private sources. This section presents a brief summary of several programs that the recommended project is or may be eligible for, as well as a preliminary plan of finance based on the sources which the recommended project is most likely to be awarded. It is recommended that the Town review each of the funding and financing options presented above to determine which are in the best interest of the community.

11.1. Funding Scenarios

The project is eligible for multiple grants through State and Federal funding programs. The funding table below summarizes three potential funding scenarios.

1. Scenario 1 (Worst Case) – The project receives funding from the following programs:
    a. Maximum Enhanced WIIA Grant
    b. Maximum WQIP Grant
    c. NYSEFC Hardship Financing
2. Scenario 2 (Middle-Case) – The project receives funding from the following programs:
    a. Maximum Enhanced WIIA Grant
    b. Maximum WQIP Grant
    c. Partial BIL Grant
    d. NYSEFC Hardship Financing
3. Scenario 3 (Best-Case) – The project receives funding from the following programs:
    a. Maximum Enhanced WIIA Grant
    b. Maximum WQIP Grant
    c. Maximum BIL Grant
    d. NYSEFC Hardship Financing

11.2. Preliminary Plan of Finance

For the purposes of this report, it is assumed that the Town will secure Scenario 2 as shown in the table below. The schedule of the report plans for a minimum of two full funding rounds to secure the necessary project funding. Annual project costs per equivalent dwelling unit (EDU) are presented in the table below for the funding scenarios outlined above.

11.3. Financial Need

Debt service for this financing would be borne by system users through an increase in annual sewer use rates. These debt service charges would be paid in addition to the quarterly sewer charges which will also be paid by Sewer District users. The successful pursuit of supplemental funding in addition to the funding outlined in Scenario 2 would reduce the user cost impacts.

Table 11-1: Estimated Annual User Cost Scenarios

		Scenario 1: EFC Hardship Financing **Max WIIA Grant + WQIP Grant**	Scenario 2: EFC Hardship Financing **Max WIIA Grant + Max WQIP Grant + BIL Grant**	Scenario 3: EFC Hardship Financing **Max WIIA Grant + Max WQIP Grant + Max BIL Grant**
	Number of EDU's	*1,230.3*	*1,230.3*	*1,230.3*
	Total Project Cost	$61,800,000	$61,800,000	$61,800,000
Grants	Enhanced WIIA Grant	$25,000,000	$25,000,000	$25,000,000
	WQIP Grant	$10,000,000	$10,000,000	$10,000,000
	BIL Grant	$0	$18,000,000	$25,000,000
	Other Grant	$0	$0	$0
	Total Grant Funding (%)	*57%*	*86%*	*97%*
Loan Terms	NYS EFC Financing (30yr term, 0% Interest)	$20,000,000	$8,800,000	$1,800,000
	USDA RD Financing (38yr term, 2.5% interest)	$6,800,000	$0	$0
	Annual Debt Service	$812,610	$234,667	$48,000
	Annual Debt Service Per EDU	$660	**$191**	$39
Operational Costs	Annual Town Collection O&M Cost	$139	$139	$139
	Annual Town Collection SLA Cost	$100	$100	$100
	Annual SOCRIS Conveyance Charge	$399	$399	$399
	Annual SOCRIS Treatment Charge	$371	$371	$371
User Cost	**Total Annual First Year User Cost**	$1,669	**$1,200**	$1,048
Affordability	District MHI *(based on 2021 Income Survey)*	$45,000	$45,000	$45,000
	User Cost Affordability Factor *(% of MHI)*[(1)]	3.71%	2.67%	2.33%

Notes:

(1) NYSEFC Enhanced WIIA program identifies that project financing must result in a user charge of 1.5% of MHI or greater in order to qualify for enhanced grant opportunities. USDA RD typically provide grant funds as available to eligible projects in an effort to meet a target "similar system" cost of ~1.5% of MHI.

12.0 CONCLUSION

Results from this evaluation indicate that the recommended alternative provides the optimal solution for a 30-year planning period and the best solution to protect the water quality of Oneida Lake. The proposed project includes the construction of a turn-key, low-pressure sewer collection system and pumping stations to provide a connection to the proposed Oswego County SOCRIS initiative for wastewater conveyance and final treatment.

The estimated probable project cost of these improvements is $61,800,000 (in 2028 dollars), which will be distributed over the user base of the Town of Constantia's sanitary sewer system. User costs to fund these improvements will vary depending on financing terms and amount of grant funding received. The anticipated annual first year user cost would be $1,200/EDU per year. This estimate assumes the Town will receive 86% in grant and fund the remaining portion of the project through a 30-year, interest free loan. This assumption will be the recommended scenario for project funding. If adequate funding is not received to complete the recommended capital project, the scope of the improvements can be reduced to include only those items that fit within a fundable project for the Town.

See Appendix N for the EFC Engineering Report Certification Form.

12.1. Project Schedule

It is recommended that this report be presented to the Town residents, the NYS Department of Environmental Conservation, and potential funding agencies outlined herein. Additional steps and timeframe for the project implementation generally include the following:

Table 12-1: Anticipated Project Schedule

Milestone	Schedule Date
Environmental Review	November 2024
Submit Engineering Report	May 30, 2025
CWSRF Project Listing	May 30, 2025
Submit CWSRF funding application to NYSEFC	May 2025
Close on Short Term Financing (CWSRF)	July 2026
Submit Project Plans and Specifications for Review and Approval	June 2027
Project Letting/Bidding Phase	January 2028
Award Bids	March 2028
Issue Notice to Proceed	April 2028
Construction Start	April 2028
Construction Completion	September 2029

12.2. Next Steps

The following regulatory reviews and/or approvals for the project are anticipated and will be obtained during the project planning and design phase:

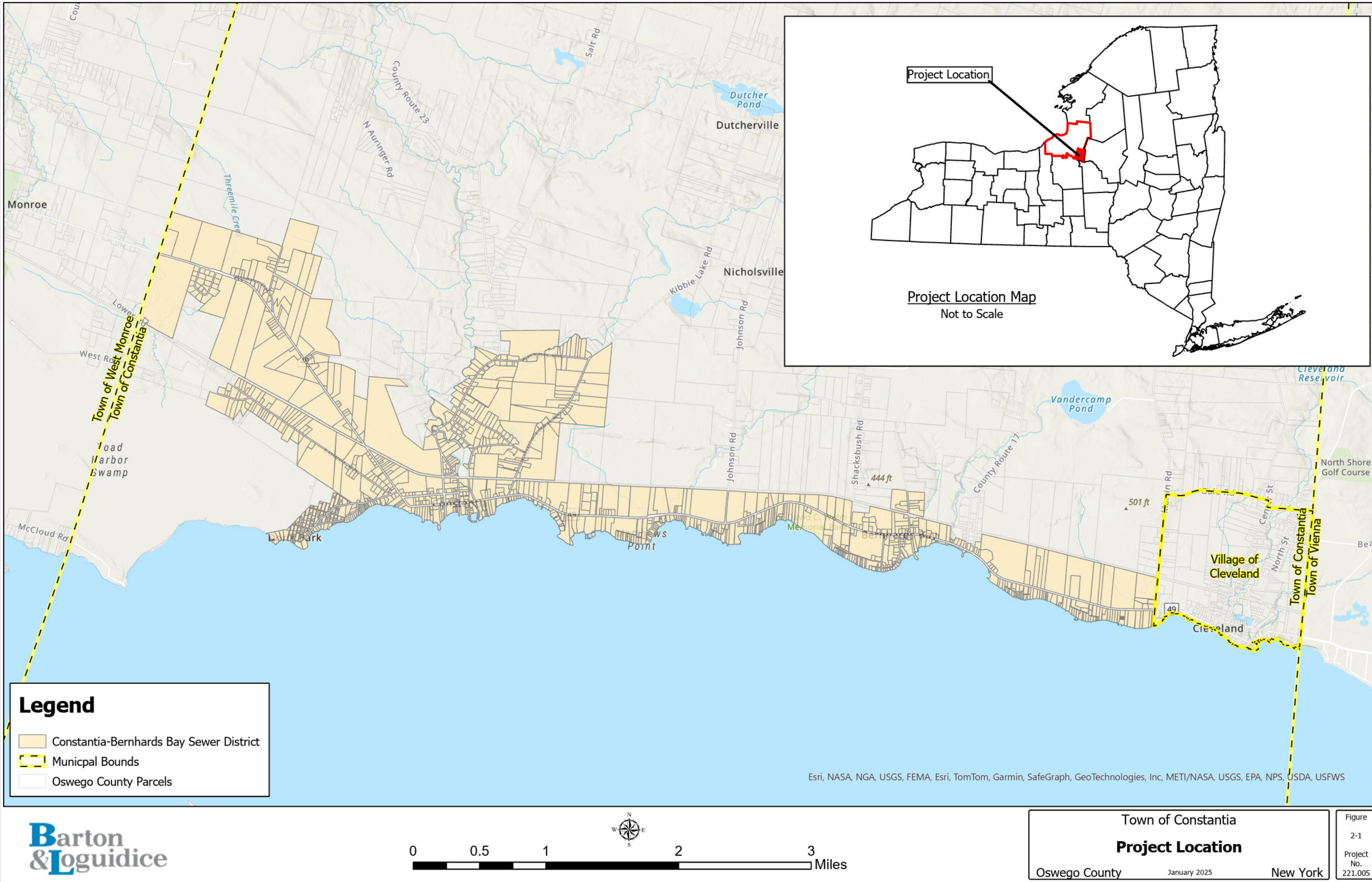
- New York State Department of Environmental Conservation (NYSDEC) and NYS Environmental Facilities Corporation (EFC) – Engineering Report and Plan Approval

REFERENCES

There are no sources in the current document.

FIGURES

FIGURE 2-1
Project Location



Barton & Loguidice

Town of Constantia

Project Location

Oswego County January 2025 New York

Figure 2-1

Project No. 221.005

FIGURE 2-2
Restrictive Soils

Barton & Loguidice

Town of Constantia

Restrictive Soils

Oswego County January 2025 New York

Figure 2-2

Project No. 221.005

FIGURE 2-3
100 Year Flood Zones

Barton & Loguidice

0 0.25 0.5 1 1.5 2 Miles

Town of Constantia

100 Year Flood Zone

Oswego County January 2025 New York

Figure 2-3

Project No. 221.005

FIGURE 2-4
Agricultural Districts

Barton & Loguidice

0 0.25 0.5 1 1.5 2 Miles

Town of Constantia

Agricultural Districts

Oswego County January 2025 New York

Figure 2-4

Project No. 221.005

FIGURE 6-1
Petition Plan

Barton & Loguidice

1 inch = 1,000 feet

Town of Constantia

Petition Plan

Oswego County | 5/28/2019 | New York

Figure 6-1

Project No. 221.005

FIGURE 6-2
Constantia-Bernhard's Bay Collection System – SOCRIS Connection

Barton & Loguidice

0 0.25 0.5 1 1.5 2 Miles

Town of Constantia

Low Pressure Sewer Collection System - SOCRIS Connection

Oswego County | January 2025 | New York

Figure 6-2

Project No. 221.005

FIGURE 6-3

Constantia-Bernhard's Bay Collection System – Town WWTP Connection

Barton & Loguidice

0 0.25 0.5 1 1.5 2 Miles

Town of Constantia

Low Pressure Sewer Collection System - Town WWTP Connection

Oswego County | January 2025 | New York

Figure 6-3

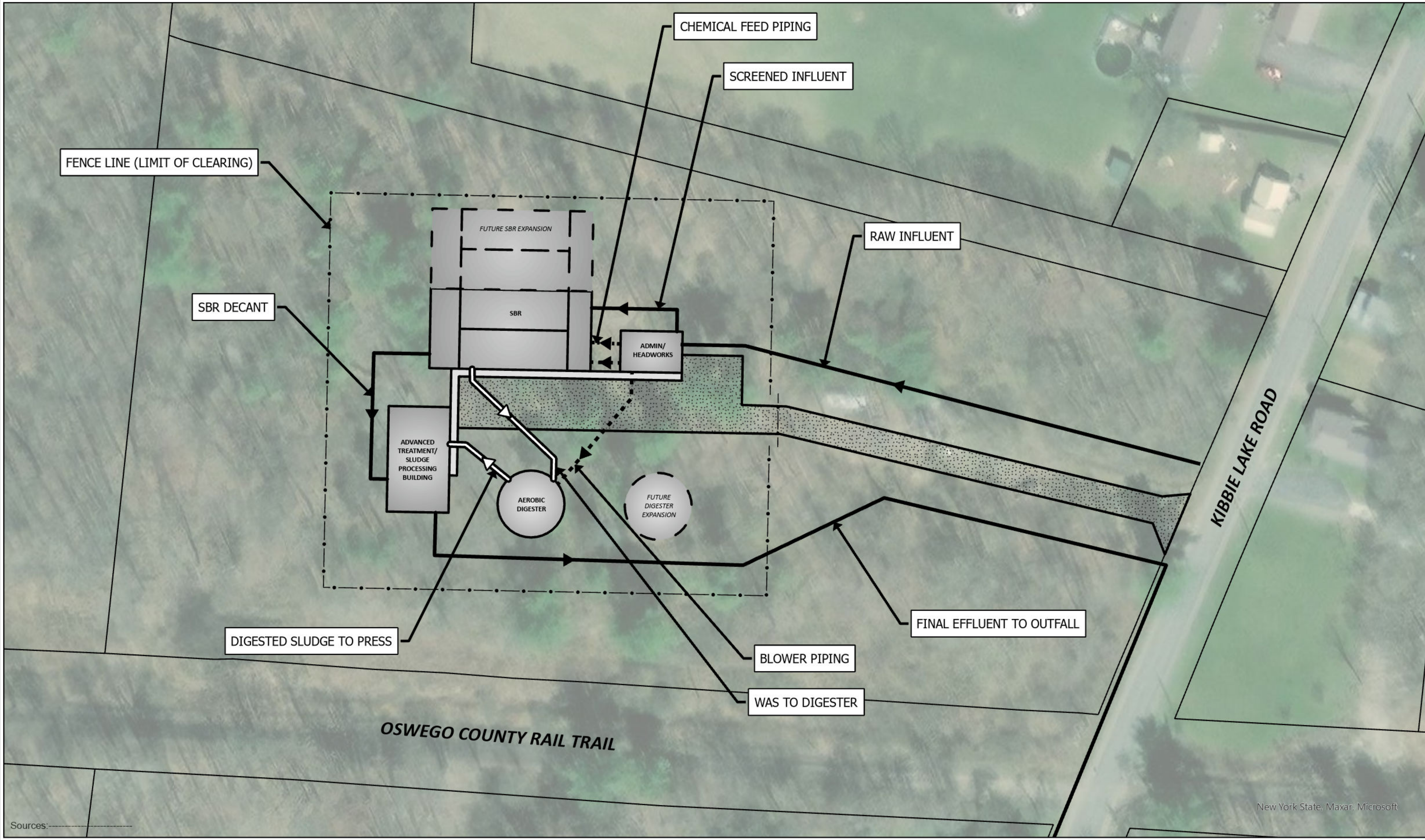
Project No. 221.005

FIGURE 7-1
WWTP Technology Pros vs. Cons

Figure 7-1: WWTP Technology – Pro vs. Con Evaluation

	Sequencing Batch Reactor (SBR)	Membrane Bioreactor (MBR)	Integrated Fixed Film Activated Sludge (IFAS)
Pros	• Automated Operation: PLC controlled process, reduces manpower to run. • Energy Conservation: No return sludge pumping required eliminating RAS pumping facilities. • Flow Equalization: Batch process inherently acts as both a flow and organic equalization tank therefore eliminating clarifiers and potential for solids washout. Flow equalization is a critical concern to accommodate potential loading variances attributed to long collection system. • Versatility: Altering length or operation of the aeration cycle enables anoxic or aerobic conditions to occur, enabling biological nitrogen removal without additional tankage. • O&M Costs: Reduced O&M costs due to highly automated treatment technology.	• Footprint: MBR footprint is smaller than that of an SBR. • Automated Operation: PLC controlled process, reduces manpower to run. More complex than SBRs. • Versatility: MBRs are capable of producing the highest quality effluent of all alternatives considered.	• Versatility: IFAS offers potential to provide advanced treatment
Cons	• Footprint: SBR footprint is larger than that of the MBR.	• O&M Cost: The MBR process equipment package is the highest cost of alternatives considered. The MBR process is capable of higher levels of treatment than as required at the Constantia WWTP; therefore the equipment is not being maximized for the application. • Flow Equalization: MBR systems are limited by the membrane flux rate. Either flow equalization is provided to shave peak flows or adequate membrane capacity must be installed to accommodate peak flows. Either scenario represents an additional cost as compared to SBR which inherently provide flow equalization through batch operation.	• Complexity: Process designs are empirical and based on limited full scale operations. Potential to introduce additional process monitoring and O&M costs. Processes utilize proprietary media. • Tankage: Discrete tankage would be required for biological nitrogen and phosphorous removal in addition to mixers and pumps. • O&M Cost: The IFAS system will have relatively high and ongoing O&M costs as compared to the SBR.

FIGURE 7-2
WWTP Preliminary Site Layout



Barton & Loguidice

Town of Constantia

Town of Constantia Proposed WWTP Preliminary Site Layout

Oswego County 1/30/2025 New York

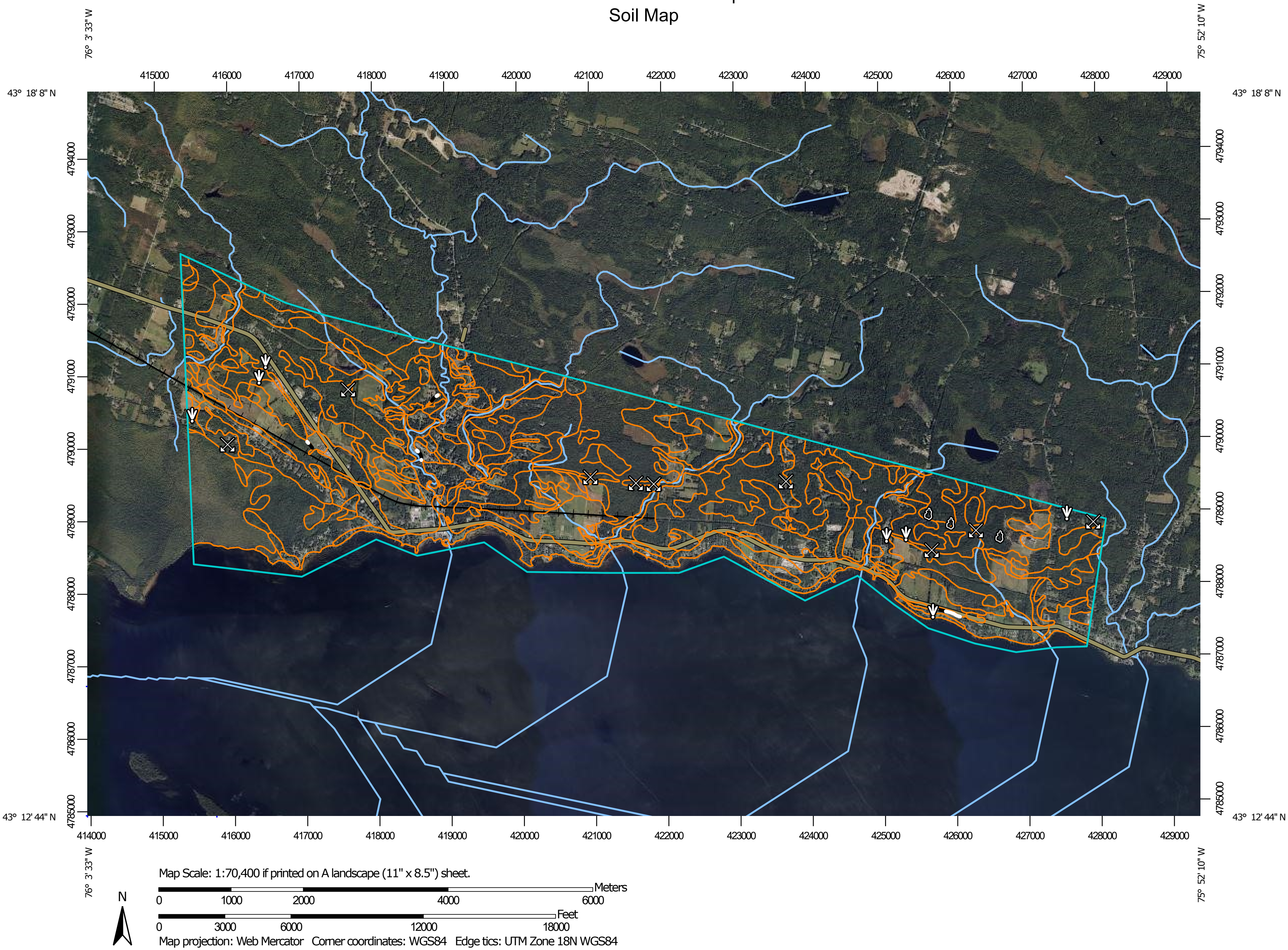
Figure 7-2

Project No. 221.005

APPENDICES

APPENDIX A
USGS Soil Mapping

Custom Soil Resource Report
Soil Map



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.

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: Oswego County, New York
Survey Area Data: Version 25, Aug 29, 2024

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

Date(s) aerial images were photographed: Jul 19, 2020—Oct 28, 2022

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.

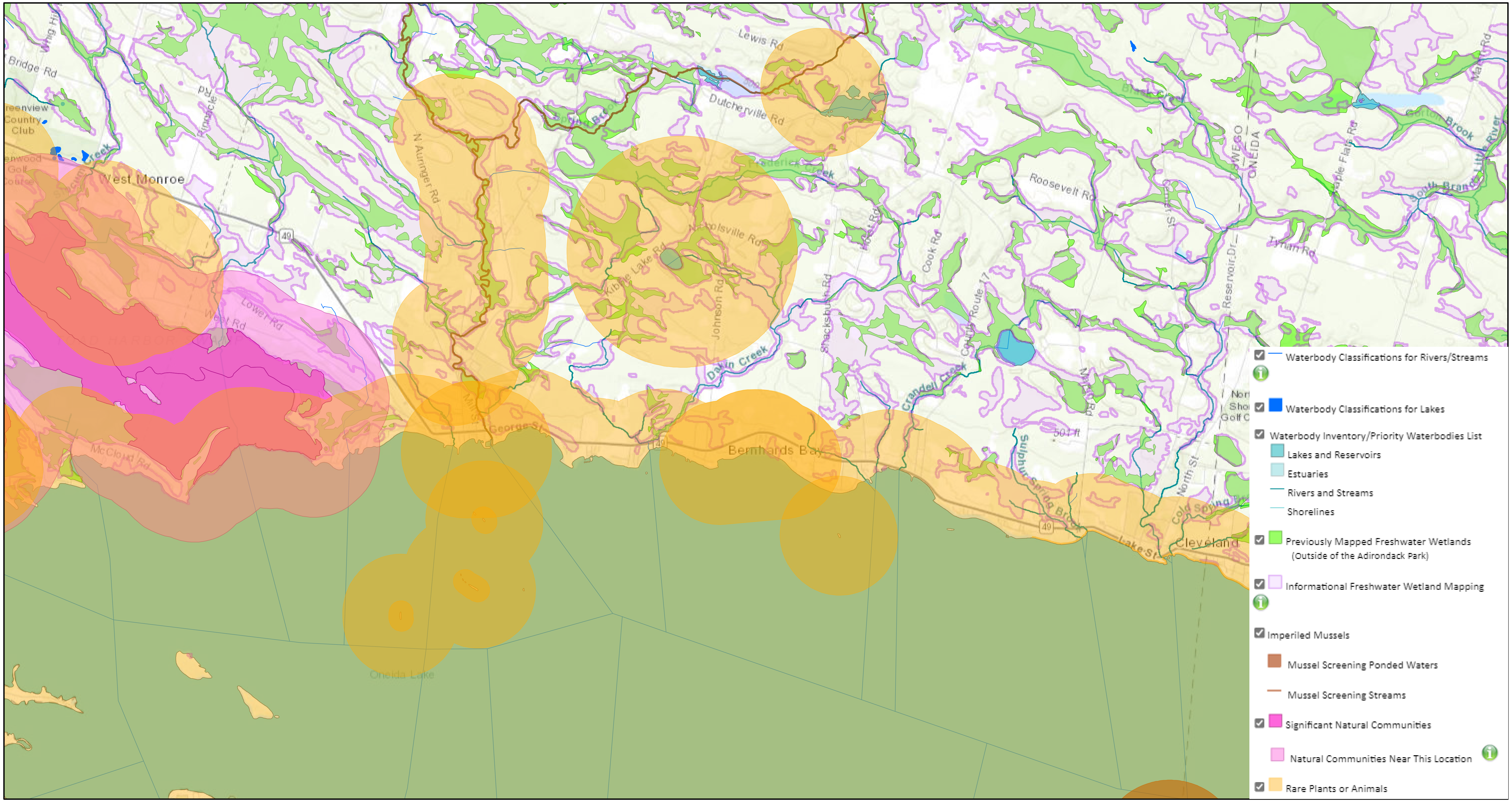
Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
AAC	Adams-Windsor complex, rolling	884.8	10.9%
AAD	Adams-Windsor complex, moderately steep	33.9	0.4%
AgB	Alton gravelly fine sandy loam, 3 to 8 percent slopes	30.6	0.4%
AgC	Alton gravelly fine sandy loam, rolling	5.0	0.1%
AvB	Amboy very fine sandy loam, 2 to 6 percent slopes	4.2	0.1%
AvC3	Amboy very fine sandy loam, 6 to 12 percent slopes, severely eroded	10.1	0.1%
AwC3	Amboy-Williamson complex, rolling, severely eroded	31.4	0.4%
AyD3	Amboy soils, hilly, severely eroded	33.4	0.4%
BC	Beaches	207.9	2.6%
Cd	Canandaigua silt loam	112.1	1.4%
Ce	Carlisle muck	55.4	0.7%
CFL	Cut and fill land	67.6	0.8%
CHC	Colton-Hinckley complex, rolling	643.6	7.9%
DeB	Deerfield loamy fine sand, 0 to 6 percent slopes	14.1	0.2%
EmB	Elmwood fine sandy loam, 2 to 6 percent slopes	7.6	0.1%
EpB	Empeyville very fine sandy loam, 3 to 8 percent slopes, stony	283.0	3.5%
FA	Fluvaquents and Udifluvents, frequently flooded	173.4	2.1%
Fn	Fonda mucky silt loam	17.7	0.2%
Fr	Fredon gravelly fine sandy loam	9.9	0.1%
GP	Gravel pits	13.2	0.2%
Gr	Granby loamy fine sand	0.8	0.0%
Ha	Halsey gravelly loam	13.7	0.2%
HuB	Hudson silt loam, 2 to 6 percent slopes	4.5	0.1%
HuC	Hudson silt loam, 6 to 12 percent slopes	20.1	0.2%
Lf	Lamson very fine sandy loam	4.0	0.0%

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
Ma	Madalin silt loam, 0 to 3 percent slopes	204.0	2.5%
Mn	Minoa very fine sandy loam	93.6	1.2%
Na	Naumburg loamy fine sand	194.5	2.4%
NDB	Naumburg-Duane complex, gently sloping	82.2	1.0%
NGB	Naumburg-Granby complex, gently sloping	1,395.3	17.2%
OaB	Oakville loamy fine sand, 0 to 6 percent slopes	137.6	1.7%
RaB	Raynham silt loam, 0 to 6 percent slopes	669.4	8.2%
RhA	Rhinebeck silt loam, 0 to 2 percent slopes	311.0	3.8%
RhB	Rhinebeck silt loam, 2 to 6 percent slopes	130.5	1.6%
RM	Rifle muck	312.7	3.8%
SD	Sand dunes	4.1	0.1%
Su	Sun loam	3.8	0.0%
Sw	Swanton fine sandy loam	71.6	0.9%
W	Water	539.2	6.6%
WbB	Westbury gravelly fine sandy loam, 0 to 8 percent slopes	8.2	0.1%
WDB	Westbury-Dannemora complex, very stony, gently sloping	383.8	4.7%
WlA	Williamson very fine sandy loam, 0 to 2 percent slopes	121.9	1.5%
WlB	Williamson very fine sandy loam, 2 to 6 percent slopes	282.8	3.5%
WlC	Williamson very fine sandy loam, 6 to 12 percent slopes	9.3	0.1%
WnB	Windsor loamy fine sand, undulating	32.1	0.4%
WnC	Windsor loamy fine sand, rolling	18.0	0.2%
WoB	Worth very fine sandy loam, 3 to 8 percent slopes, stony	156.2	1.9%
WoC	Worth very fine sandy loam, 8 to 15 percent slopes, stony	3.1	0.0%
WSC	Worth and Empeyville soils, 8 to 15 percent slopes, very stony	281.2	3.5%
Totals for Area of Interest		**8,130.2**	**100.0%**

APPENDIX B
Environmental Resource Mapper

Environmental Resource Mapper



January 6, 2025

1:72,224

0 0.5 1 2 mi

0 1 2 4 km

Province of Ontario, Esri Canada, Esri, HERE, Garmin, INCREMENT P, USGS, METI/NASA, NGA, EPA, USDA

NYS Department of Environmental Conservation
Not a legal document

APPENDIX C
Phase 1A Archaeological Report

Phase IA Archaeological Background and Literature Review and Preliminary Phase IB Archaeological Survey Methodology Report for the Proposed Town of Constantia Northshore Sewer Project in the Town of Constantia and the Village of Cleveland, Oswego County, New York

OPRHP #19PR01158

Phase I report prepared by:

Alliance Archaeology Services, Inc.

Phase I report date:
March 13, 2022

Reports of Investigations
22FR02

223 James Street
Canastota, New York 13032

Mobile: 315-632-8283

Visit us online at www.alliancearchaeology.com

Phase IA Archaeological Background and Literature Review and Preliminary Phase IB Archaeological Survey Methodology Report for the Proposed Town of Constantia Northshore Sewer Project in the Town of Constantia and the Village of Cleveland, Oswego County, New York

OPRHP #19PR01158

Report prepared by:
Nikki A. Waters, M.A., RPA
Principal Investigator

Report submitted by:
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223 James Street
Canastota, New York 13032
Mobile: (315) 632-8283

Report submitted to:
Howard "Buck" Haines, I.E., Engineer I
Barton & Loguidice, D.P.C.
443 Electronics Parkway
Liverpool, New York 13088

March 13th, 2022

Reports of Investigations 22FR02

Management Summary

Involved State and Federal Agencies: Town of Constantia; Village of Cleveland; OPRHP

OPRHP Project #: 19PR01158

Phase of Survey: Phase IA

Location Information: Along portions of the north shore of Oneida Lake in the Town of Constantia and the Village of Cleveland in central New York State.

Minor Civil Division: Town of Constantia; Village of Cleveland
County: Oswego

U.S.G.S. 7.5' Quadrangle Maps: Mallory, Panther Lake, and Cleveland, New York, no photo-revisions

Archaeological Survey Overview:

- *Number and interval of shovel tests:* not applicable
- *Number and size of units:* not applicable
- *Width of plowed strips:* not applicable
- *Surface survey transect interval:* not applicable

Results of the Phase IA Archaeological Survey:

- *Number and name of pre-contact sites identified:* 9 (8 may represent related components)
- *Number and name of historic sites identified:* 12
- *Number and name of sites recommended for Avoidance or Further Testing:* 21 (all identified sites)

Results of the Phase IA Architectural Survey:

- *Number of buildings/structures/cemeteries within the project area:* 258 potentially adjacent MDS
- *Number of buildings/structures/cemeteries adjacent the project area:* 258 potentially adjacent MDS
- *Number of National Register Listed buildings/structures/cemeteries/districts:* 1 (Trinity Church)
- *Number of National Register Eligible buildings/structures/cemeteries/districts:* 17 archaeology sites

Phase IA Recommendations:

In addition to the standard sensitivity encountered anywhere historic MDS are within and/or adjacent a proposed project area, the phase IA background and literature review identified four specific areas of high archaeological sensitivity. Each is discussed in detail below.

Constantia: Pre-contact village area and historic site area

The background review suggested that the remains of a pre-contact village site are present within Contantia (Figure 15). This site was first recorded in 1922 by Parker, and a 2011 study identified five discrete loci with lithics, ceramics and fire-cracked rock. All five sites were determined NRE. These sites suggest general boundaries for the village site from near the Doris Park Drive and SR 49 (George Street) intersection on the west to the Kibbie Lake Road area on the east. At least nine historic archaeological sites have also been recorded along both sides of SR 49 within Constantia, and the Trinity Church and grounds were listed on the National Register of Historic Places in 1990 (Figure 15). Given the high density of MDS shown within this area on the historic maps, it is highly likely that additional historic archaeological sites are present.

Due to the high potential for additional pre-contact and historic archaeological sites to be present within this area, it is recommended that the proposed sewer alignment remain within the already disturbed utility corridors or, if possible, be placed underneath the existing street. Directional drilling could also be used to minimize archaeological impacts. However, limited phase IB testing, phase II or phase III evaluations, and/or monitoring under construction may still be required. If this is not possible, shovel testing at 7.5

meter/25-foot initial intervals is recommended for all portions of the alignment not covered by pavement, and not between the current edge of pavement and the far edge of the ditch.

Kempwyk Log Cabin Site

This site (OPRHP #A07504.000001) is shown on the state records along the north side of SR 49, across from the intersection with Forest Drive (Figure 15). It marks the location where Francis Adrian Van Der Kemp built a log cabin and associated outbuildings in 1793. Due to the potential for related historic archaeological deposits to present, it is recommended that the proposed sewer alignment remain within the already disturbed utility corridors or, between the current edge of pavement and the far edge of the ditch. Limited phase IB testing may still be required. If this is not possible, shovel testing at 7.5 meter/25-foot initial intervals is recommended for all portions of the alignment adjacent this site. Depending on the results of the shovel test investigation, phase II testing may be required.

Pre-contact Camp West of Martin Road

This site (NYSM #4444) is shown on the state records to the immediate west of Martin Road along the east banks of a small stream (Figure 15). Due to the potential for related pre-contact archaeological deposits to present, it is recommended that the proposed sewer alignment remain within the already disturbed utility corridors, between the current edge of pavement and the far edge of the ditch, or along the east side of the Martin Road right-of-way. Limited phase IB testing may still be required. If this is not possible, shovel testing at 7.5 meter/25-foot initial intervals is recommended for all portions of the alignment adjacent this site. Depending on the results of the shovel test investigation, phase II testing may be required.

Sand Street Factory Foundations

This site (OPRHP #A07544.000026) is recorded along the south side of Sand Street within the Village of Cleveland and consists of industrial foundation remains (Figure 15). Due to the potential for related historic archaeological deposits to present, it is recommended that the proposed sewer alignment remain within the already disturbed utility corridors, between the current edge of pavement and the far edge of the ditch, or along the north side of the Sand Street Road right-of-way. Limited phase IB testing may still be required. If this is not possible, shovel testing at 7.5 meter/25-foot initial intervals is recommended for all portions of the alignment adjacent this site. Depending on the results of the shovel test investigation, phase II testing may be required.

General Pre-contact Sensitivity

Apart from the village and camp areas discussed above, the overall phase IA APE was likely part of the resource extraction sphere utilized during occupation of the Constantia village site, and the smaller village site reported further to the west within Toad Harbor Swamp. Although the procurement of floral and faunal resources does not always produce a visible archaeological trace, there remains a potential for activities which transcended this threshold to have taken place within the current project boundaries. As a result, the remainder of the phase IA APE has a moderate to high potential to contain previously unidentified pre-contact archaeological sites. To mitigate the potential for the current project to impact previously unidentified pre-contact sites, it is recommended that the proposed sewer alignment remain within the already disturbed utility corridors, or between the current edge of pavement and the far edge of the existing ditch. Where this is not possible, shovel testing at an initial 15 meter/50-foot interval is recommended. This interval should be reduced to 7.5 meter/25-feet if cultural materials are identified.

General Historic Sensitivity

Apart from the higher sensitivity within Constantia discussed above, the overall phase IA APE has a moderate to high potential to contain previously unidentified historic archaeological sites. This potential is dependent on the density of MDS within any given area as shown on the historic maps (figures 16 to 29). To mitigate the potential for the current project to impact previously unidentified historic sites, it is recommended that the proposed sewer alignment remain within the already disturbed utility corridors, or between the current edge of pavement and the far edge of the existing ditch. Where this is not possible, shovel testing at an initial 15 meter/50-foot interval is recommended. This interval should be reduced to 7.5 meter/25-feet if cultural materials are identified.

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Phase IA Report Date: March 13th, 2022

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Introduction

In response to a request from Barton & Loguidice, D.P.C., Alliance Archaeology Services, Inc. has completed a phase IA archaeological background and literature review of the proposed Town of Constantia Northshore Sewer Project in the Town of Constantia and the Village of Cleveland in Oswego County, New York (OPRHP Project #19PR01158).

The purpose of a phase IA archaeological background and literature review is to identify and describe all previously recorded pre-EuroAmerican contact and historic archaeological sites and resources within and around the boundaries of the proposed project area. This information is then combined with a review of the natural setting of the project area in order to develop a regionally specific pre-contact and historic context. This context is then used to evaluate the project area's sensitivity to contain additional pre-contact and/or historic archaeological sites. The results of the phase IA evaluation are then used to evaluate the necessity of any additional archaeological investigations, and if necessary, to formulate a project-specific phase IB archaeological field reconnaissance methodology. The results of both investigations are then used to evaluate the eligibility of any archaeological sites within the project area for nomination to the State and/or National Registers of Historic Places. All aspects of the phase I archaeological survey conducted for this project conform to the New York Archaeological Council's (NYAC) *Standards for Cultural Resource Investigations* (1994) as adopted and required by the New York State Office of Parks, Recreation and Historic Preservation (OPRHP), as well as to the *Phase I Archaeological Report Format Requirements* as published and required by the OPRHP (2005; revised 2013).

The following report details the results of the phase IA background and literature review and presents Alliance Archaeology's conclusions and recommendations concerning the recommended phase IB archaeological field reconnaissance. The phase IB investigation will be completed once further refinement of the proposed sewer alignment (including building footprints for the pump houses) has been made.

Project Description

The proposed project plan calls for the installation of ~ 38.9 linear km (24.2 linear miles) of new low-pressure sewer main, two pump houses, and 900 individual grinder pumps. Most of this installation will take place within the Town of Constantia; however, the sewer main will connect to the existing wastewater treatment plant within the Village of Cleveland. The sewer main will be installed within the rights-of-way along portions of Ackerman Road, Adrian Circle, Avery Road, Camper's Road, Coleman Drive, County Route 23, Cove Road, Dakin Road, Doris Park Drive, Elderberry Lane, Fawn Road, Forest Drive, Fredrick Street, Hatchery Road, Hickory Point Road, Hillside Drive, Kellar Drive, Kibbie Lake Road, Knapp Road, Lakeshore Drive, Lakeview Drive, Liniment Street, Louis Drive, Lower Road, Martin Road, Mill Street, Old Farm Road, Park Street Drive, Parmley Drive, Pepper Drive, Railroad Street (Bernhard's Bay), Railroad Street (Constantia), Redfield Street, Rock Shore Lane, Sand Street, Shagbark Lane, Simmons Drive, State Route 49, Sunset Bay Road, Taft Bay Drive, Tannery Road, West Road, Whippoorwill Lane, Willard Drive, Youman Road, 1st Ave, 26th, Street, 28th Street, and 34th Street. The proposed main will also run along portions of the Oswego County Recreational Trail (the rail trail) between Martin Road and Sand Street.

The current work scope was defined as a phase IA background and literature review of both sides of all proposed project roadways and the rail trail. The results of the phase IA investigation will be used to refine the project alignment and guide the phase IB investigation. The overall project area and phase IA APE therefore include both sides of all proposed project road and trail ways. The overall phase IA APE is shown on Figure 2. Project photography was completed in November and December of 2021 and all phase IA photographs are provided in Appendix A (pending inclusion in the final phase IA report).

Project Location

The APE is located along the north shore of Oneida Lake in central New York State between Constantia and Cleveland (Figure 1). Figure 2 shows the location of the overall APE on a map provided by Barton & Loguidice. Figures 3 through 6 show the location of the phase IA APE on portions of the Mallory, Panther Lake and Cleveland, New York 7.5' quadrangles, no photo-revisions, Copyright Terrain Navigator Pro 2019. Figures 7 through 14 show the phase IA APE on maps generated on the Web Soil Survey. Figure 15 shows the locations of

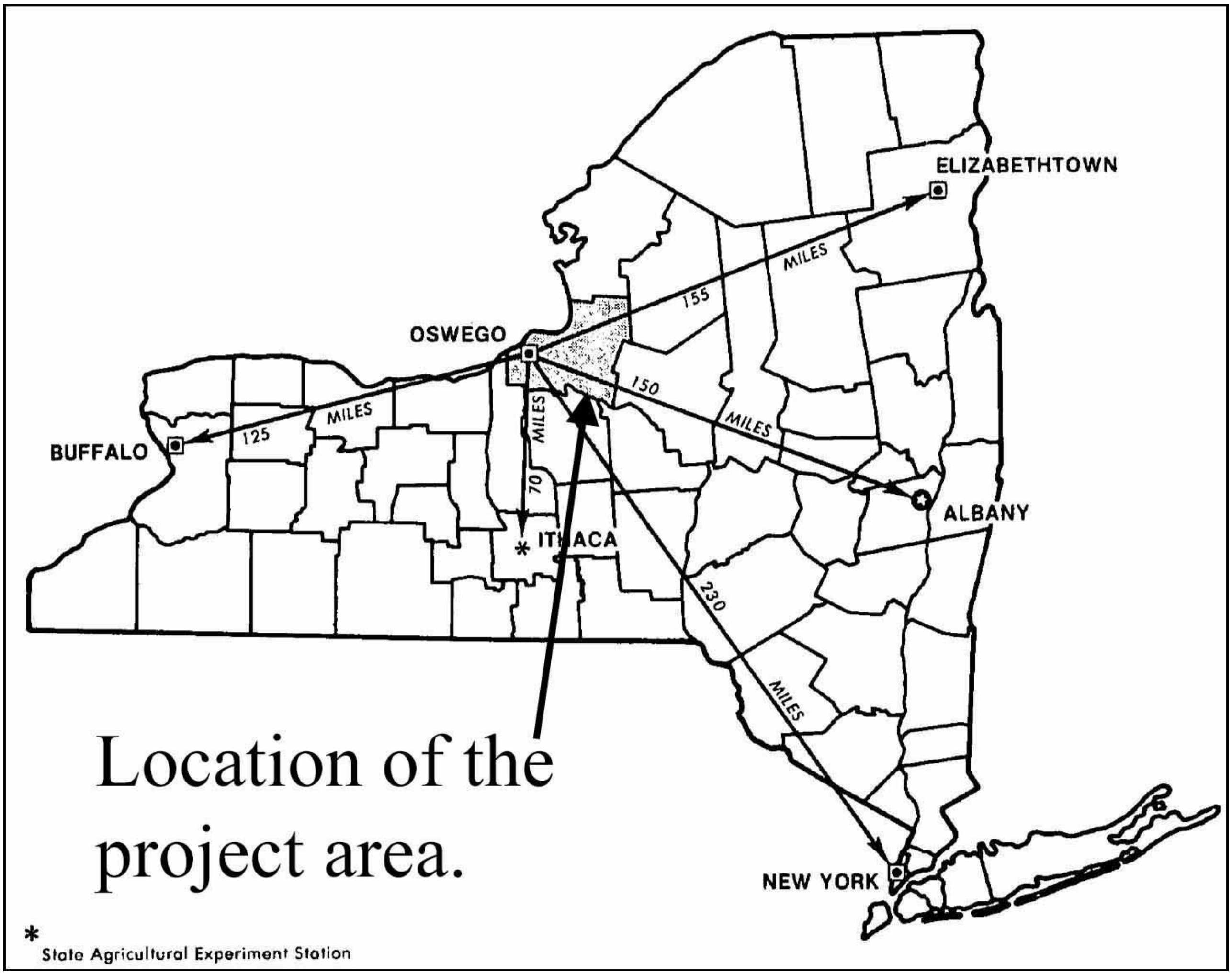

Figure 1. General location of the project area within New York State (Adapted from a base map provided in Rapparlie 1981).

Barton & Loguidice

Figure 2. Location of the phase IA APE.

1 inch = 1,400 feet

Town of Constantia
Low Pressure Sewer Collection System
Oswego County | May 2019 | New York

Figure 4-1
Project No. 221.005

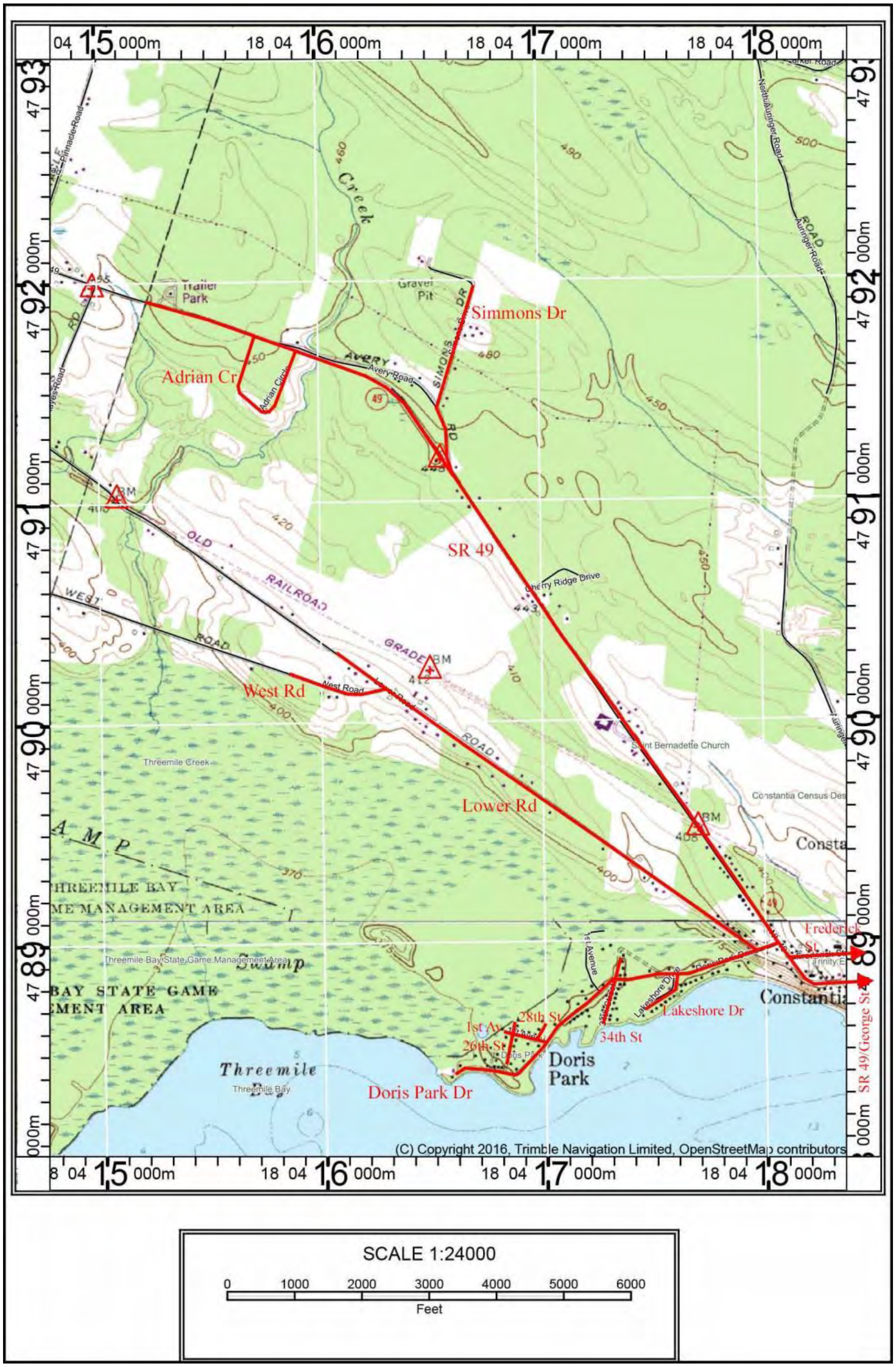

Figure 3. Location of the phase IA APE as shown on a portion of the Mallory, New York 7.5' quadrangle, no photo-revisions, Copyright Terrain Navigator Pro 2019.

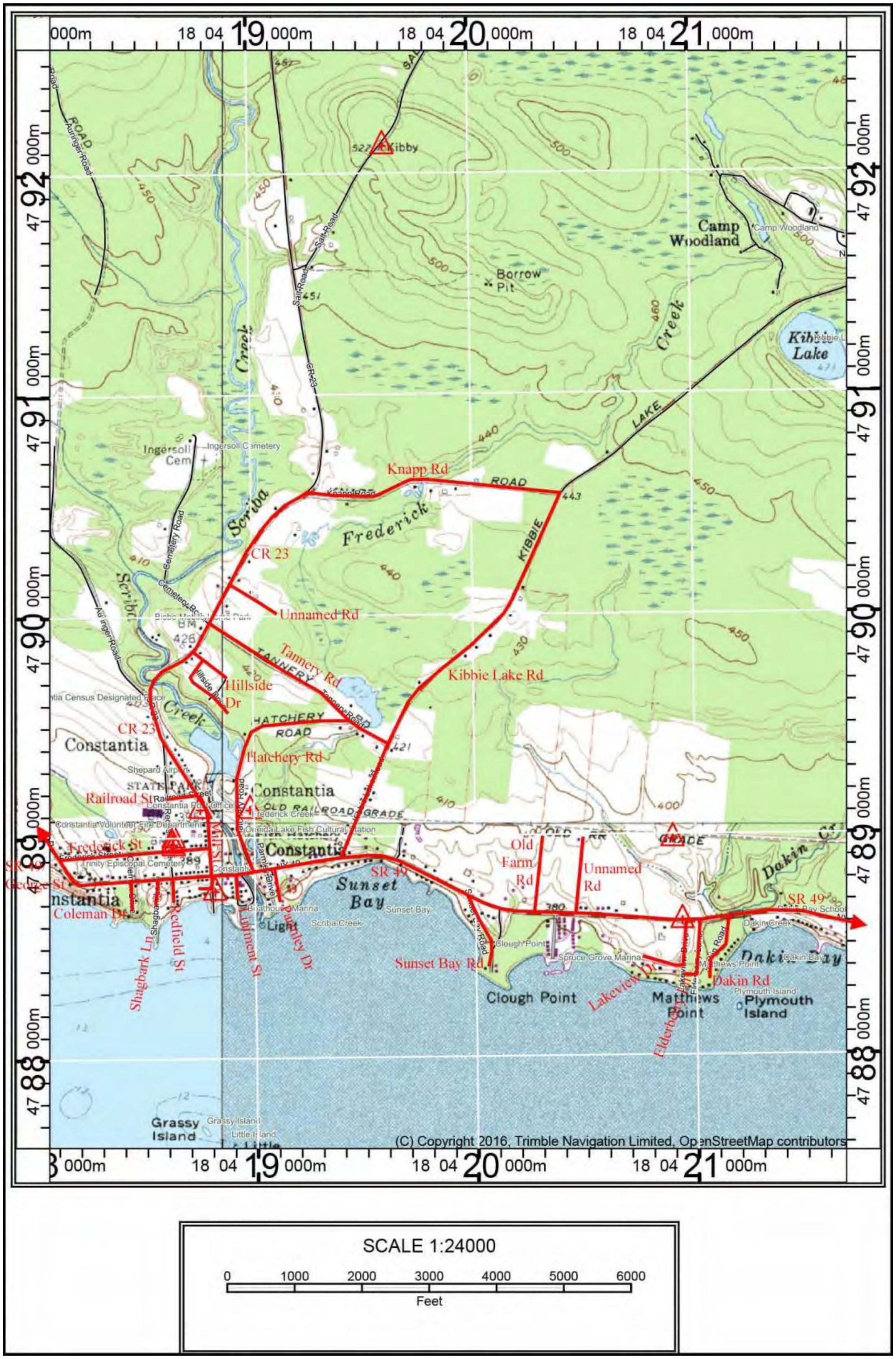

Figure 4. Location of the phase IA APE as shown on a portion of the Panther Lake, New York 7.5' quadrangle, no photo-revisions, Copyright Terrain Navigator Pro 2019.

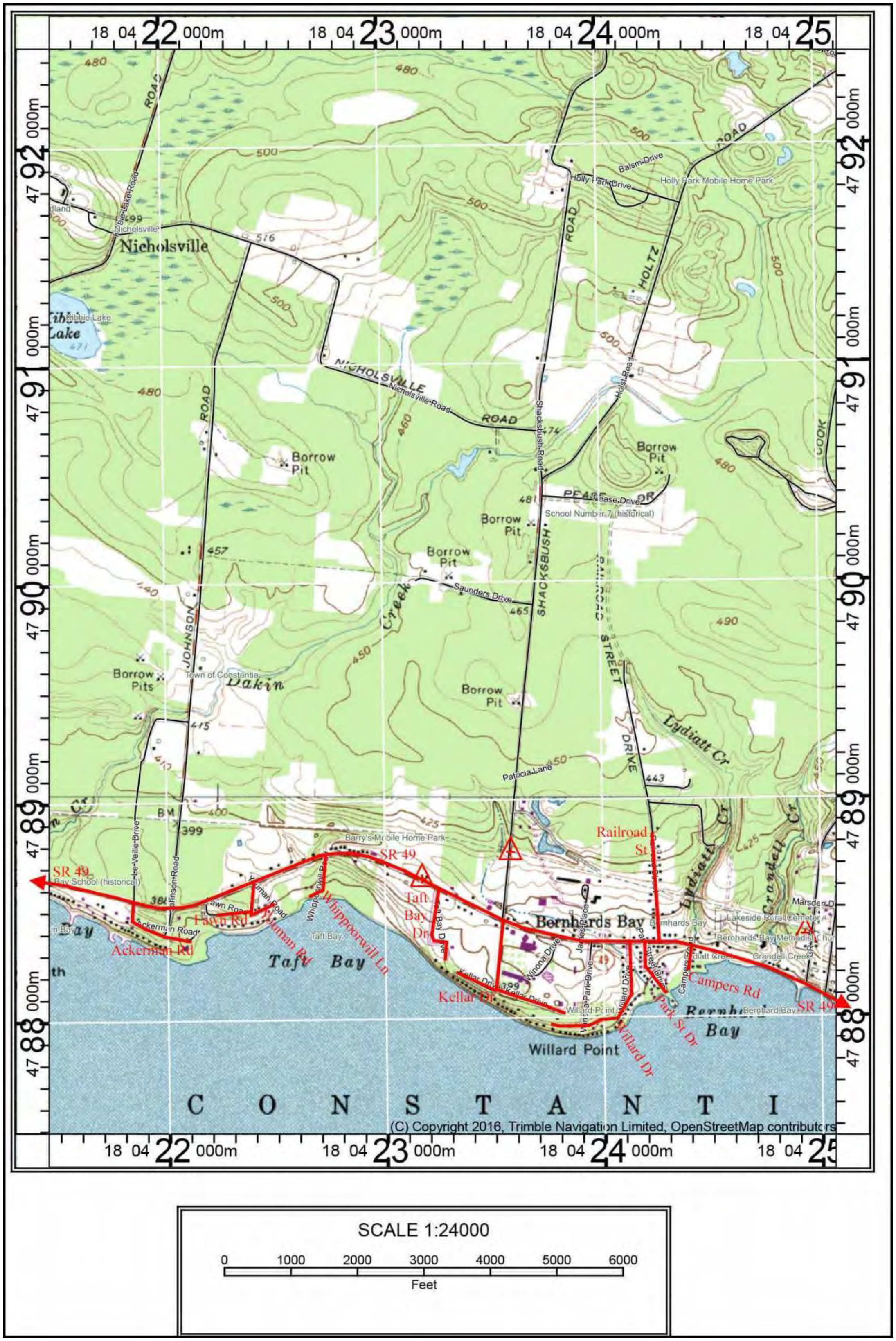

Figure 5. Location of the phase IA APE as shown on a portion of the Panther Lake, New York 7.5' quadrangle, no photo-revisions, Copyright Terrain Navigator Pro 2019.

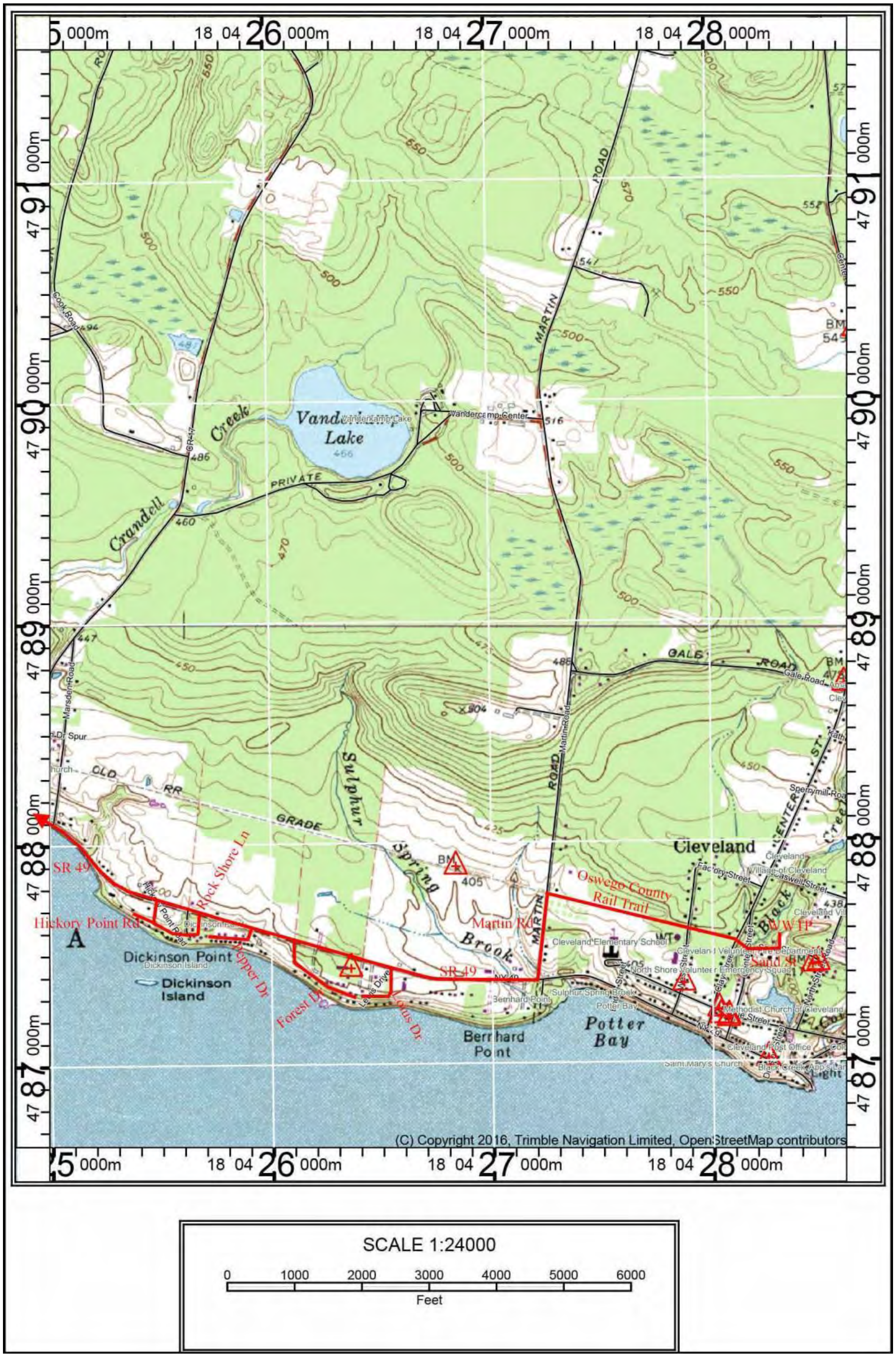

Figure 6. Location of the phase IA APE as shown on a portion of the Cleveland, New York 7.5' quadrangle, no photo-revisions, Copyright Terrain Navigator Pro 2019.

four areas of enhanced archaeological sensitivity identified during the phase IA review. Historic maps of the phase IA APE are provided as figures 16 through 29. Figures showing the locations and orientations of all phase IA photographs will be included in Appendix A for the final phase IA report.

Background Research

Environmental Setting

The following represents a brief synthesis of the available information regarding the physical and environmental setting of the current project area. This information is provided in order to place this area within a context conducive to assessing its potential to contain significant archaeological resources.

Past and Present Land Use and Current Conditions

The phase IA project area consists of ~ 38.9 linear km (24.2 linear miles) of existing road rights-of-way along portions of Ackerman Road, Adrian Circle, Avery Road, Camper's Road, Coleman Drive, County Route 23, Cove Road, Dakin Road, Doris Park Drive, Elderberry Lane, Fawn Road, Forest Drive, Fredrick Street, Hatchery Road, Hickory Point Road, Hillside Drive, Kellar Drive, Kibbie Lake Road, Knapp Road, Lakeshore Drive, Lakeview Drive, Liniment Street, Louis Drive, Lower Road, Martin Road, Mill Street, Old Farm Road, Park Street Drive, Parmley Drive, Pepper Drive, Railroad Street (Bernhard's Bay), Railroad Street (Constantia), Redfield Street, Rock Shore Lane, Sand Street, Shagbark Lane, Simmons Drive, State Route 49, Sunset Bay Road, Taft Bay Drive, Tannery Road, West Road, Whippoorwill Lane, Willard Drive, Youman Road, 1st Ave, 26th, Street, 28th Street, and 34th Street. The proposed main will also run along portions of the Oswego County Recreational Trail (the rail trail) between Martin Road and Sand Street. Width of the phase IA APE varies from 6 to 17 meters (20 to 55 feet) off the road centerline, depending on the existing road width. For those portions of the project area along the Oswego County Rail Trail, the width of the APE is 24 meters (80 ft) off the current trail centerline. Disturbances along the existing roadways are related to the road construction and maintenance, installation and maintenance of drainage ditches, as well as the installation of buried utilities. Other disturbances include paved driveways and parking lots as well as commercial and residential landscaping.

Soils

The phase IA APE is within the Adams, Amboy, Beaches, Canandaigua, Colton, Dannemora, Duane, Empeyville, Fluvaquents and Udifluvents, Granby, Hinckley, Lamson, Madalin, Minoa, Naumburg, Oakville, Raynham, Rhinebeck, Sun, Swanton, Westbury, Williamson, Windsor and Worth Series soil associations. Small portions of the APE are mapped with Cut and Fill Land (CFL) (figures 6 through 13).

Adams Series are deep, excessively drained soils which formed in glaciofluvial and eolian sand deposits. They are rolling to moderately steep and are found on deltas, outwash plains, terraces, beach ridges and low, dunelike hills (Rapparlie 1981: 17-18; Web Soil Survey). Amboy Series are deep, well drained soils with a fragipan which formed in glaciolacustrine and eolian deposits of silt and very fine sand. They are gently sloping to hilly (Rapparlie 1981: 20-21; Web Soil Survey). Beaches consist of mixed sand, gravel, cobbles and boulders that are being continuously deposited by waves, wind and ice. They are found on hummocky and dunelike ridges within narrow strips along lake shorelines (Rapparlie 1981: 21; Web Soil Survey. Canandaigua Series are deep, poorly to very poorly drained soils which formed in glaciolacustrine deposits. They are nearly level and are found within depressional basins on lake plains (Rapparlie 1981: 23-24; Web Soil Survey). Colton Series are deep, excessively drained soils which formed in glaciofluvial deposits of sand and gravel. They are rolling to steep and are found on outwash plains, eskers, terraces and low, rounded hills (Rapparlie 1981: 25-26; Web Soil Survey). Dannemora Series are deep, poorly drained soils with a fragipan which formed in glacial till. They are nearly level and are found within low areas on till plains (Rapparlie 1981: 26-27; Web Soil Survey).

Duane Series are deep, moderately well drained soils which formed in glaciofluvial deposits of gravel and sand. They are gently sloping and are found on outwash terraces (Rapparlie 1981: 28; Web Soil Survey). Empeyville Series are deep, moderately well drained soils with a fragipan which formed in glacial till. They are gently sloping to moderately steep and are found on upland till plains within higher elevations (Rapparlie 1981: 29-31; Web Soil Survey). Fluvaquents and Udifluvents are frequently flooded soils which vary greatly in texture and drainage. They consist primary of recent alluvium and are found on floodplains (Rapparlie 1981: 31; Web Soil Survey). Granby Series are deep, poorly to very poorly drained soils which formed in sandy, glaciolacustrine and glaciofluvial deposits. They are nearly level and are found within low areas and depressions in lake and outeash plains, and along remnant glacial drainageways (Rapparlie 1981: 33-34; Web Soil Survey). Hinckley Series are deep, excessively drained soils which formed in glaciofluvial deposits of sand and gravel. They are gently rolling to steep and are found on terraces, remnant beach ridges, kame moraines, eskers and outwash plains (Rapparlie 1981: 36-37; Web Soil Survey). Lamson Series are deep, poorly to very poorly drained soils which formed in glaciolacustrine deposits fine and very fine sand. They are nearly level and are found on broad flats and within depressions on lake plains (Rapparlie 1981: 41; Web Soil Survey).

Madalin Series are deep, poorly to very poorly drained soils which formed in glaciolacustrine deposits of clay and silt. They are nearly level and are found on low flats and within small basin-like areas (Rapparlie 1981: 41-42; Web Soil Survey). Minoa Series are deep, somewhat poorly drained soils which formed in glaciolacustrine of very fine sand. They are nearly level and are found on moderately low benches and within broad flats (Rapparlie 1981: 44-45; Web Soil Survey). Naumburg Series are deep, somewhat poorly and poorly drained soils which formed in glaciofluvial and glaciolacustrine deposits of sand and fine sand. They are nearly level to gently sloping and are found on moderately low broad flats and plains (Rapparlie 1981: 46-48; Web Soil Survey). Oakville Series are deep, well drained soils which formed in glaciolacustrine, glaciofluvial and eolian deposits of fine sand. They are nearly level to gently sloping and are found on terraces, low dunes, remnant beach ridges, sandbars and deltas of post-glacial lakes (Rapparlie 1981: 48-49; Web Soil Survey). Raynham Series are deep, somewhat poorly to poorly drained soils which formed in glaciolacustrine deposits or coarse silt. They are nearly level to gently rolling and are found on moderately low terraces, benches and plains (Rapparlie 1981: 50; Web Soil Survey). Rhinebeck Series are deep, somewhat poorly drained soils which formed in glaciolacustrine deposits of clay and silt. They are nearly level to gently sloping and are found on moderately low plains and within basins (Rapparlie 1981: 50-52; Web Soil Survey).

Sun Series are deep, poorly to very poorly drained soils which formed in glacial till. They are nearly level and are found on broad flats and toeslopes, and within slight depressions on drainageways within till plains (Rapparlie 1981: 57; Web Soil Survey). Swanton Series are deep, somewhat poorly to poorly drained soils which formed in glaciofluvial and glaciolacustrine deposits. They are nearly level and are found on moderately low plains (Rapparlie 1981: 58-59; Web Soil Survey). Westbury Series are deep, somewhat poorly drained soils with a fragipan which formed in glacial till deposits. They are nearly level to gently sloping and are found within moderately low areas on upland till plains (Rapparlie 1981: 60-61; Web Soil Survey). Williamson Series are deep, moderately well drained soils with a fragipan which formed in glaciolacustrine deposits of silt and very fine sand. They are nearly level to sloping and are found on flats, ridges, knolls and low hills on lake plains (Rapparlie 1981: 61-63; Web Soil Survey). Windsor Series are deep, excessively drained soils which formed in sandy glaciofluvial and eolian deposits. They are undulating to moderately steep and are found on outwash terraces, remnant beaches, deltas, and low dunelike hills (Rapparlie 1981: 63-64; Web Soil Survey). Worth Series are deep, well drained soils with a fragipan which formed in glacial till. They are gently sloping to steep and are found on convex areas of till plains within higher elevations (Rapparlie 1981: 64-67; Web Soil Survey).

The specific soils within the APE are Adams-Windsor complex, rolling (AAC); Amboy-Williamson complex, rolling, severely eroded (AwC3); Beaches (BC); Canandaigua silt loam (Cd); Colton-Hinckley complex, rolling (CHC); Cut and Fill Land (CFL); Empeyville gravelly fine sandy loam, 3 to 8% slopes (EpB); Fluvaquents and Udifluvents, frequently flooded (FA); Lamson very fine sandy loam (Lf); Madalin silt loam (Ma); Minoa very fine sandy loam (Mn); Naumburg loamy fine sand (Na); Naumburg-Duane complex, gently sloping (NDB); Naumburg-Granby complex, gently sloping (NGB); Oakville loamy fine sand, 0 to 6% slopes (OaB); Raynham silt loam, 0 to 6% slopes (RaB); Rhinebeck silt loam, 0 to 2% slopes (RhA); Rhinebeck silt loam, 2 to 6% slopes (RhB); Sun loam (Su); Swanton fine sandy loam (Sw); Westbury-Dannemora complex, very stony, gently sloping (WDB); Williamson very fine sandy loam, 0 to 2% slopes (WIA); Williamson very fine sandy loam, 2 to 6% slopes (WIB); Windsor loamy fine sand, undulating (WnB); Worth gravelly fine sandy loam, 3 to 8% slopes (WoB); and Worth and Empeyville very stony soils, sloping (WSC) (Rapparlie 1981: 17, 21, 24, 26, 30-31, 41-42, 45, 47-48, 50-51, 57-58, 61-63, and 65-66; Web Soil Survey; Figures 6 to 13). The key properties of these soils are illustrated in Table 1.

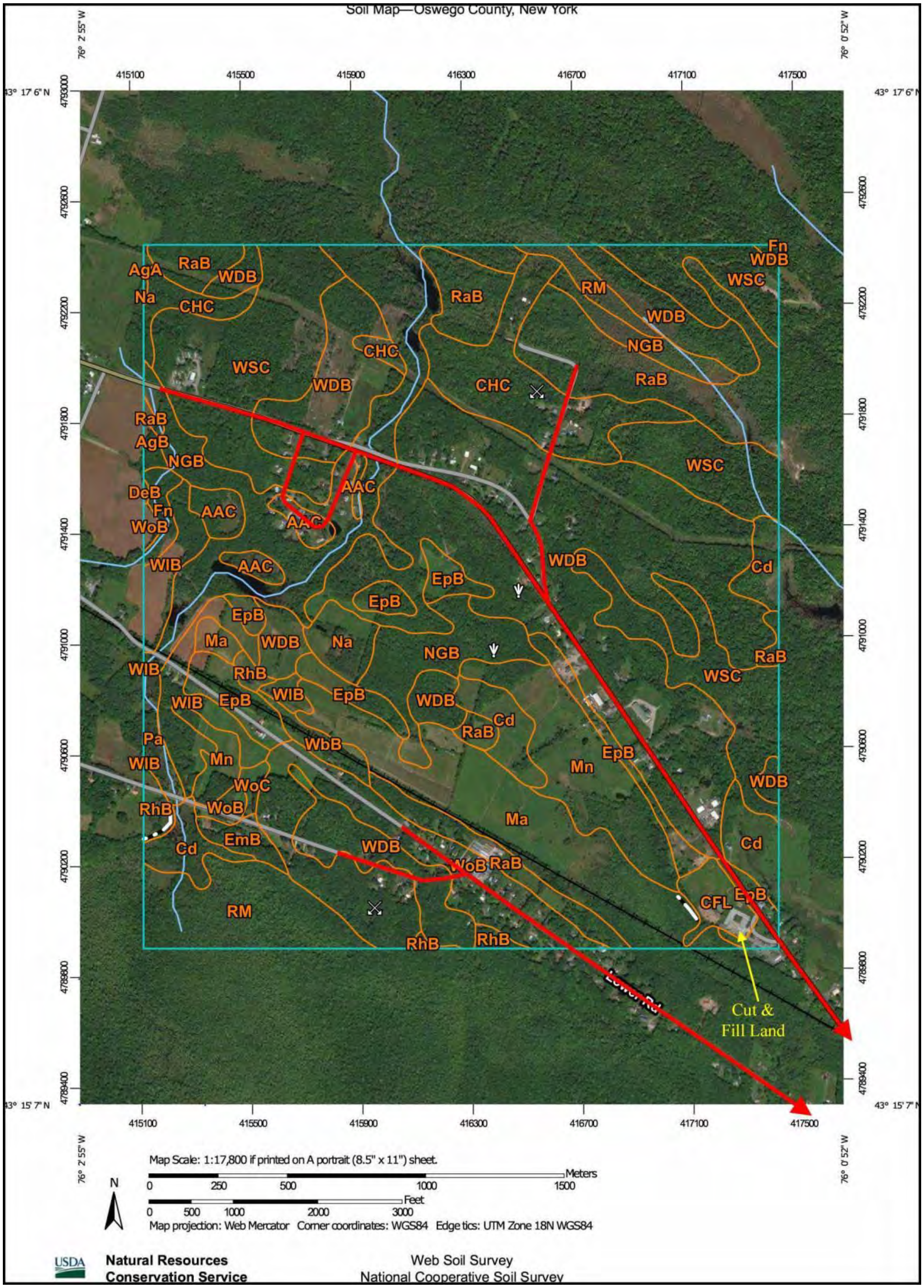

Figure 7. Location of the northwestern portion of the phase IA APE as shown on a map generated on the Web Soil Survey. The phase IA APE is outlined in red. The Cut and Fill Land area is shown in yellow.

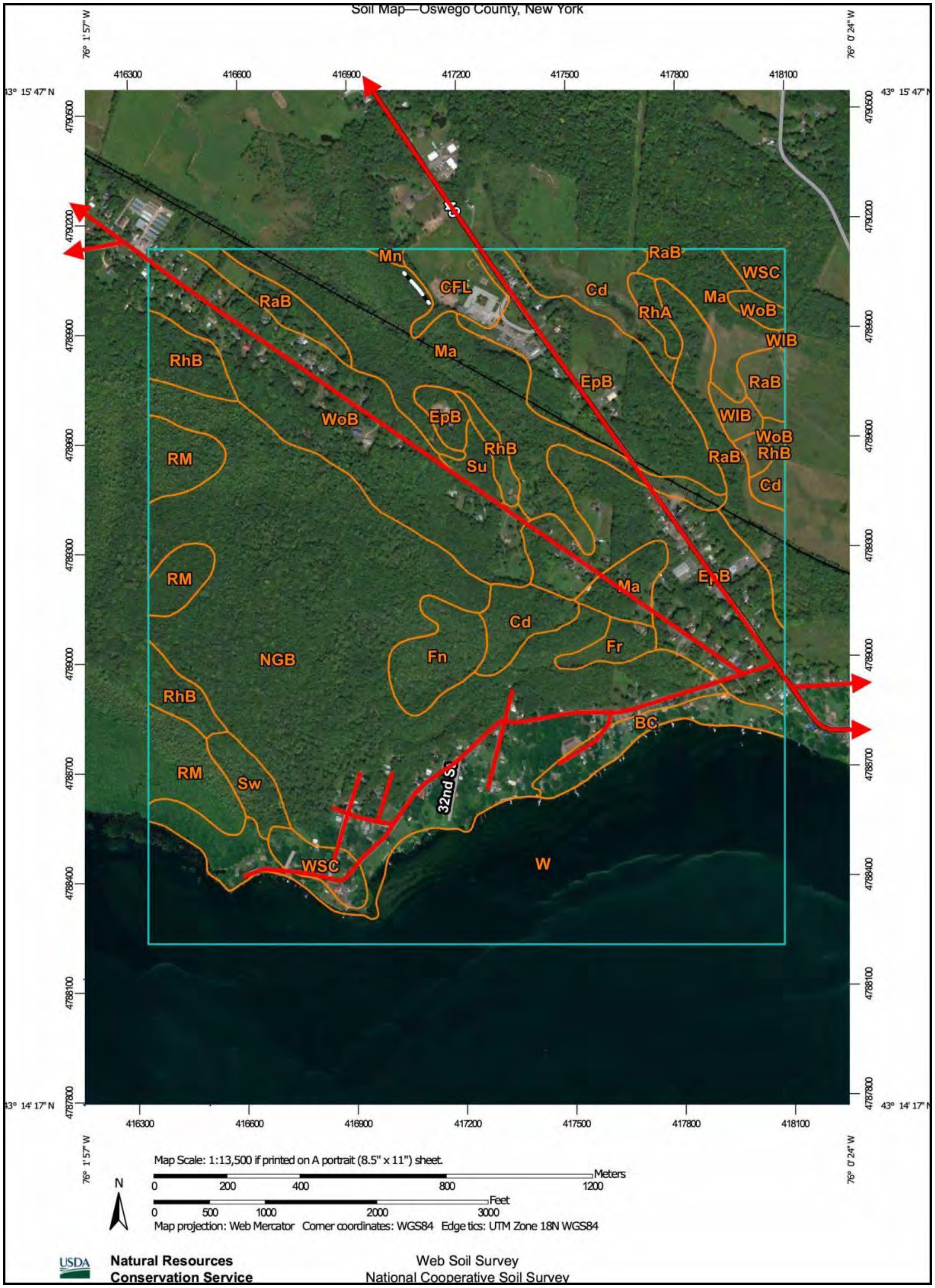

Figure 8. Location of the southwestern portion of the phase IA APE as shown on a map generated on the Web Soil Survey. The phase IA APE is outlined in red.

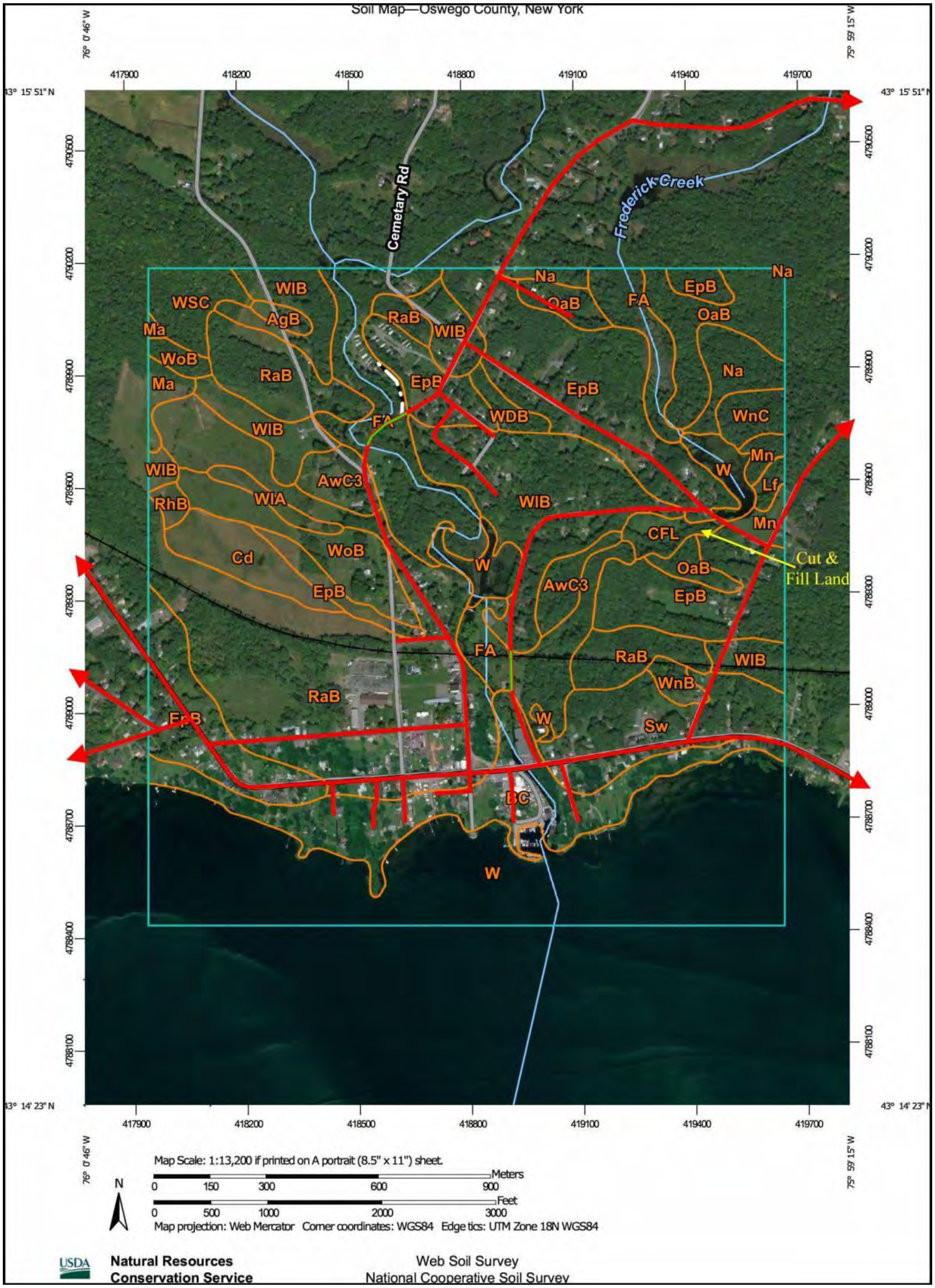

Figure 9. Location of the west-central portion of the phase IA APE as shown on a map generated on the Web Soil Survey. The phase IA APE is outlined in red. The Cut and Fill Land area is shown in yellow. Alluvial soil areas are shown in green.

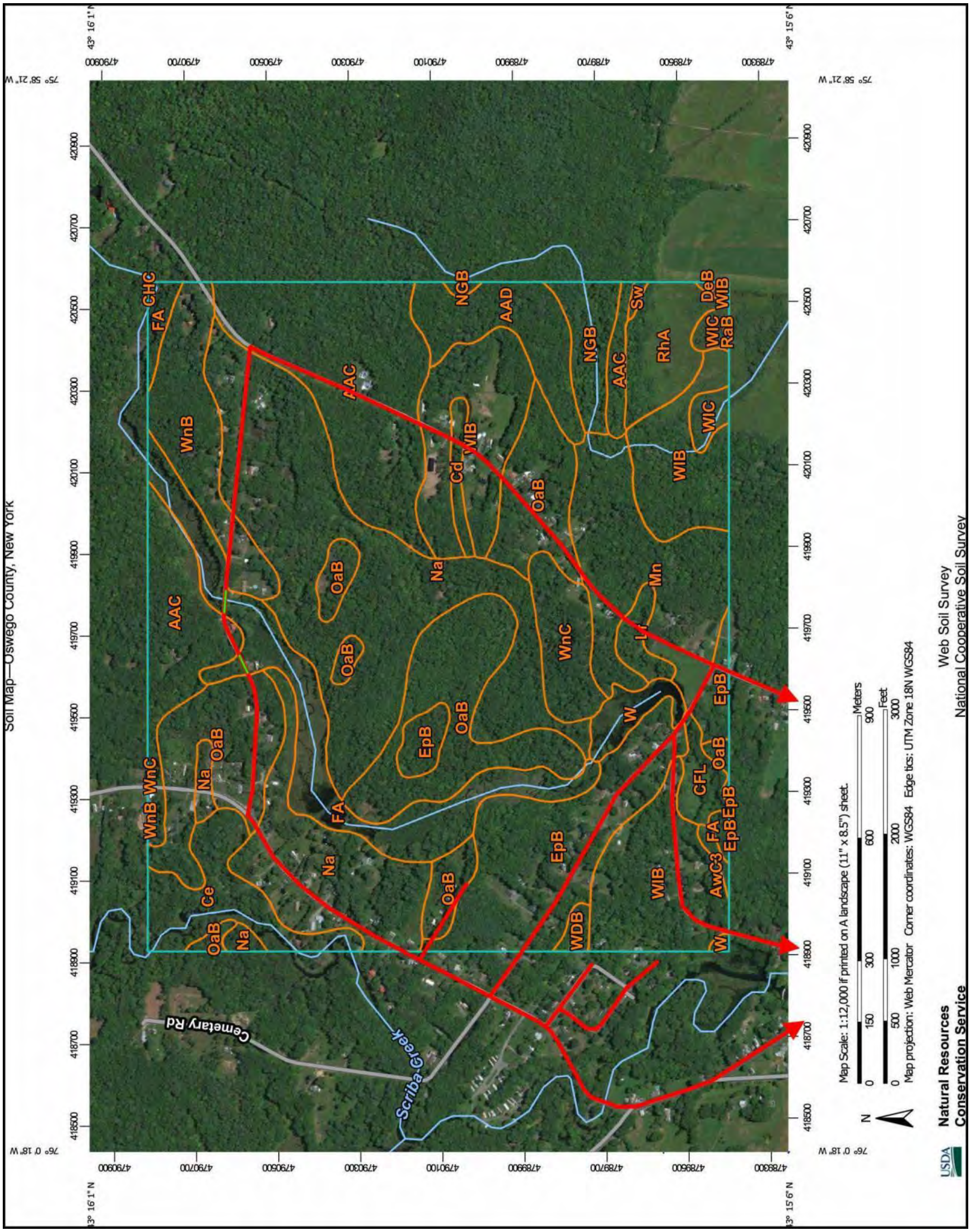

Figure 10. Location of the northern, west-central portion of the phase IA APE as shown on a map generated on the Web Soil Survey. The phase IA APE is outlined in red. The alluvial soil areas are shown in green.

Figure 11. Location of the central portion of the phase IA APE as shown on a map generated on the Web Soil Survey. The phase IA APE is outlined in red. The alluvial soil area is shown in green.

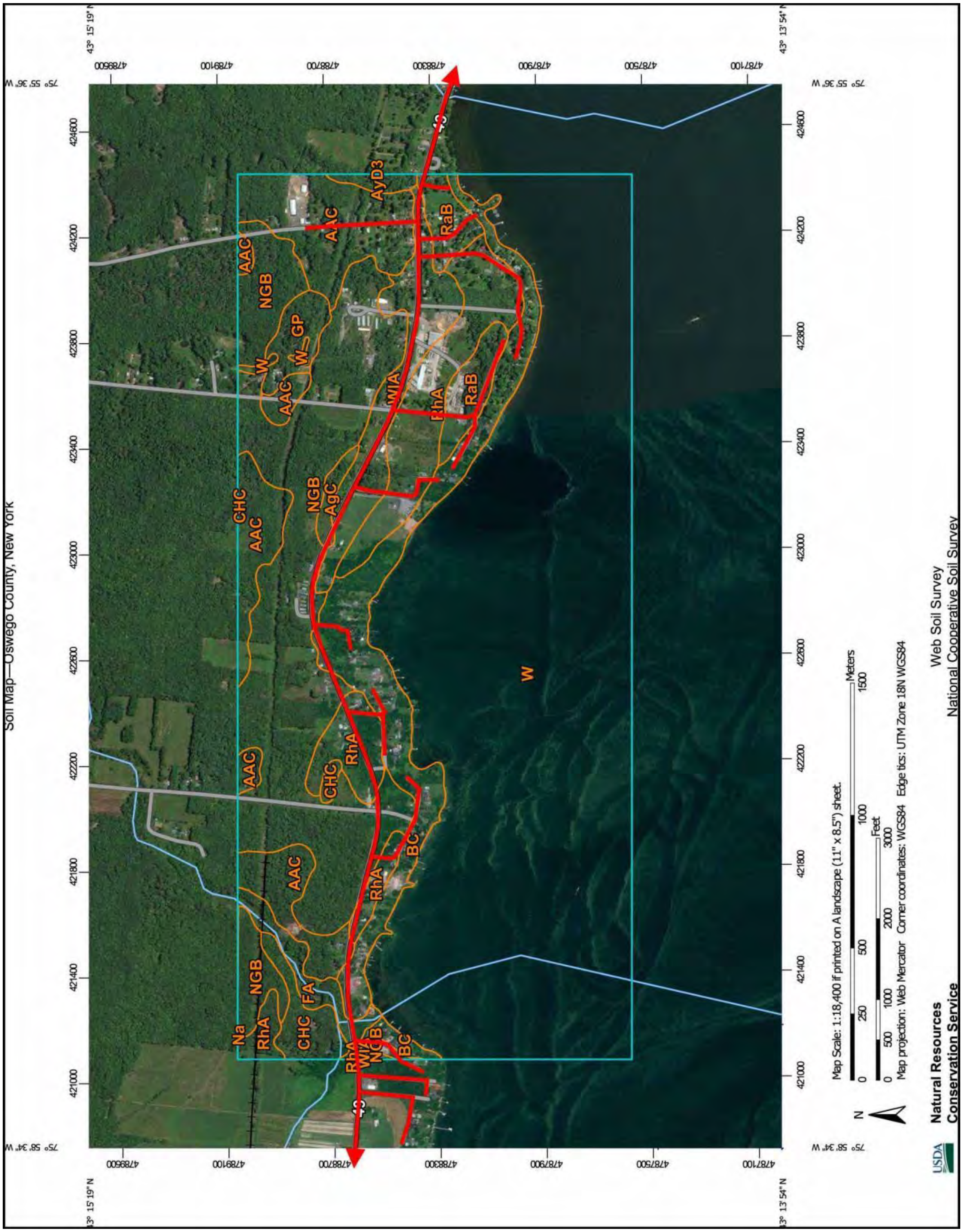

Figure 12. Location of the central portion of the phase IA APE as shown on a map generated on the Web Soil Survey. The phase IA APE is outlined in red.

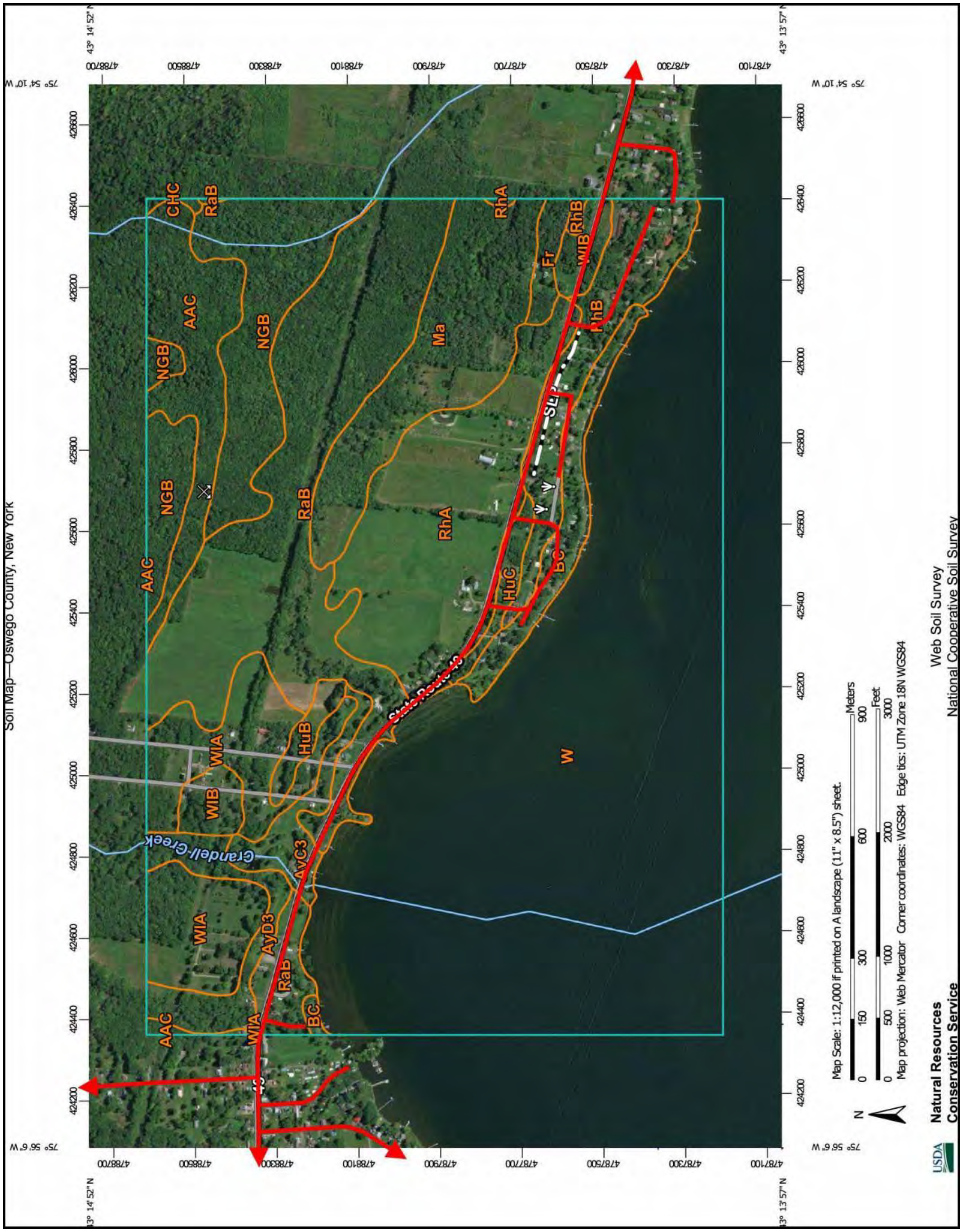

Figure 13. Location of the east-central portion of the phase IA APE as shown on a map generated on the Web Soil Survey. The phase IA APE is outlined in red.

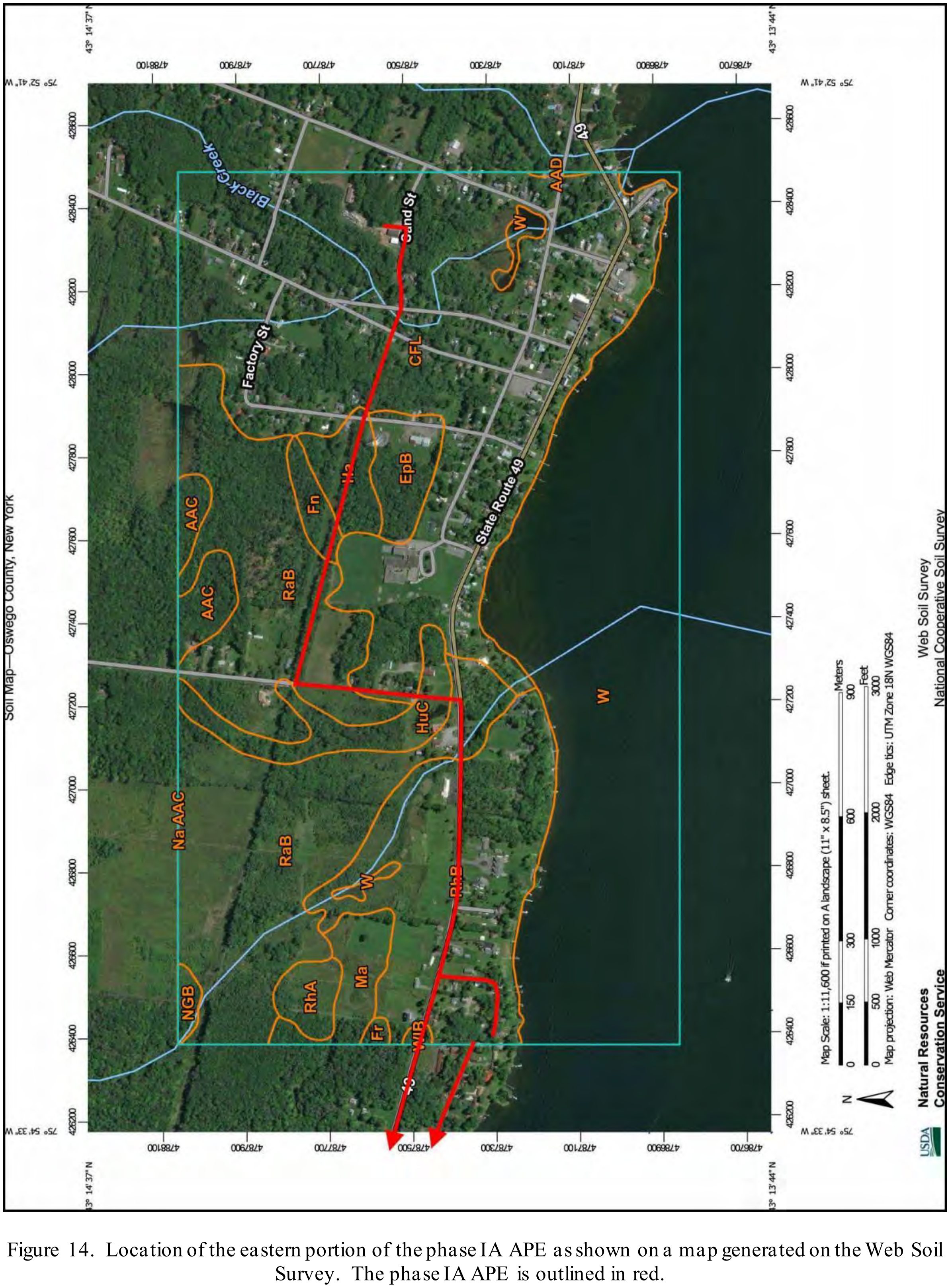

Figure 14. Location of the eastern portion of the phase IA APE as shown on a map generated on the Web Soil Survey. The phase IA APE is outlined in red.

Table 1: Soils Within the Phase IA APE						
Name	*Soil Horizon Depth (cm/in)*	*Color*	*Texture & Inclusions*	*Slope*	*Drainage*	*Landform*
Adams-Windsor complex, rolling (AAC)	A_p: 0-23 cm (0-9 in) A2: 23-28 cm (9-11 in) $B21_h$: 28-30 cm (11-12 in) $B22_{ir}$: 30-41 cm (12-16 in) B23: 41-58 cm (16-23 in) C1: 58-89 cm (23-35 in) C2: 89-152 cm (35-60 in)	DkBrn PnkGr DkRdBrn StrBrn YBrn PaBrn GrBrn	LoFSa LoFSa LoFSa LoFSa LoFSa Sa Sa	6-12%	ED	On glacial outwash terraces, plains and low dune-like hills.
Comments: these soils are so closely inter-mixed that separate mapping is not feasible. This profile is for the Adams Series. The Windsor Series is profiled below.						
Adams-Windsor complex, rolling (AAC)	A_p: 0-23 cm (0-9 in) B21: 23-33 cm (9-13 in) B22: 33-53 cm (13-21 in) C1: 53-119 cm (21-47 in) C2: 119-160 cm (47-63 in)	DkBrn StrBrn BrnY YBrn LtRdBrn	LoFSa LoFSa FSa FSa FSa	6-12%	ED	On glacial outwash terraces, plains and low dune-like hills.
Comments: these soils are so closely inter-mixed that separate mapping is not feasible. This profile is for the Windsor Series. The Adams Series is profiled above.						
Amboy-Williamson complex, rolling, severely eroded (AwC3)	A_p: 0-10 cm (0-4 in) B2: 10-33 cm (4-13 in) A2: 33-53 cm (13-21 in) B_x: 53-130 cm (21-51 in) IIC: 130-152 cm (51-60 in)	VDkGr YBrn YBrn Brn PaBrn	VFSaLo VFSaLo VFSaLo VFSaLo LoFSa	6-12%	WD - MWD	On low hills, knolls and ridges.
Comments: these soils are so closely inter-mixed that separate mapping is not feasible. This profile is for the Amboy Series. The Williamson Series is profiled below. These soils are severely eroded.						
Amboy-Williamson complex, rolling, severely eroded (AwC3)	A_p: 0-23 cm (0-9 in) B2: 23-43 cm (9-17 in) A2: 43-51 cm (17-20 in) B_x: 51-112 cm (20-44 in) C: 112-127 cm (44-50 in)	Brn DkBrn PaBrn Brn Brn	VFSaLo VFSaLo VFSaLo SiLo SiLo	6-12%	WD - MWD	On low hills, knolls and ridges.
Comments: these soils are so closely inter-mixed that separate mapping is not feasible. This profile is for the Williamson Series. The Amboy Series is profiled above. These soils are severely eroded.						
Beaches (BC)	These soils consist of mixed sand, gravel, cobbles and boulders that are being actively re-worked and deposited by waves, wind and ice. They are found along lakeshores.					
Canandaigua silt loam (Cd)	A_p: 0-18 cm (0-7 in) $B21_g$: 18-41 cm (7-16 in) $B22_g$: 41-64 cm (16-25 in) B3: 64-84 cm (25-33 in) C: 84-127 cm (33-50 in)	VDkGrBrn Gr GrBrn LtGr Gr	SiLo SiLo SiLo LtSiClLo VrSiVFSa	0-3%	PD - VPD	On flats and in depressions.
Comments: This soil has a profile described as representative of the series.						
Colton-Hinckley complex, rolling (CHC)	A_p1: 0-8 cm (0-3 in) A_p2: 8-20 cm (3-8 in) A2: 20-30 cm (8-12 in) $B21_h$: 30-33 cm (12-13 in) $B22_{ir}$: 33-48 cm (13-19 in) B3: 48-86 cm (19-34 in) C: 86-152 cm (34-60 in)	DkBrn DkRdBrn PnkGr DkRdBrn YRd StrBrn BrnY	GrvLoSa GrvLoSa GrvLoFSa VGrvLoSa VGrvLoSa VGrvLoSa VGrvLoSa	8-15%	ED	On low hills, kettle kames, and outwash plains.

Comments: these soils are so closely inter-mixed that separate mapping is not feasible. This profile is for the Colton Series. The Hinckley Series is profiled below.						
Colton-Hinckley complex, rolling (CHC)	A_p: 0-18 cm (0-7 in) B21: 18-53 cm (7-21 in) B22: 53-84 cm (21-33 in) C: 84-157 cm (33-62 in)	DkGrBrn DkBrn DkYBrn DkGr	GrvLoSa GrvLoSa VGrvLoSa VGrvLoSa	8-15%	ED	On low hills, kettle kames and outwash plains.
Comments: these soils are so closely inter-mixed that separate mapping is not feasible. This profile is for the Hinckley Series. The Colton Series is profiled above.						
Cut and Fill Land (CFL)	This mapping unit represents areas where the original soil has been stripped and removed, or where the original soil has been covered by fill to a depth of 1 meter (3 feet) or more.					
Empeyville gravelly fine sandy loam, (EpB)	A_p: 0-23 cm (0-9 in) $B21_{ir}$: 23-33 cm (9-13 in) $B22_{ir}$: 33-43 cm (13-17 in) $A2_x$: 43-69 cm (17-27 in) B_x: 69-112 cm (27-44 in) C: 112-152 cm (44-60 in)	DkBrn YBrn YBrn LtGr Brn Brn	GrvFSaLo GrvFSaLo GrvFSaLo GrvFSaLo GrvFSaLo GrvSaLo	3-8%	MWD	On convex areas on upland till plains.
Comments: this soil has a profile described as representative of the series.						
Fluvaquents and Udifluvents, frequently flooded (FA)	The texture and drainage of these soils varies greatly over short distances which makes separate mapping impossible. They are mostly found on floodplains along small streams and flood annually. Slopes are typically less than 3%. Although these soils are deep, they have very little profile development.					
Lamson very fine sandy loam (Lf)	A_p: 0-23 cm (0-9 in) $A2_g$: 23-33 cm (9-13 in) $B21_g$: 33-48 cm (13-19 in) $B22_g$:48-127 cm (19-50 in) IIC_g:127-152 cm(50-60 in)	VDkGr PnkGr Brn GrBrn Gr	VFSaLo VFSaLo VFSaLo VFSaLo StraFSa&VFSa	0-3%	PD - VPD	On flats and depressions.
Comments: this soil has a profile described as representative of the series.						
Madalin silt loam (Ma)	A_p: 0-15 cm (0-6 in) $B1_g$: 15-25 cm (6-10 in) $B2_{tg}$: 25-64 cm (10-25 in) B3: 64-107 cm (25-42 in) C: 107-127 cm (42-50 in)	VDkGr Gr Brn Gr LtOBrn	SiLo SiClLo SiCl SiCl VrSiCl	0-3%	PD - VPD	On low broad flats, & basin-like areas.
Comments: this soil has a profile described as representative of the series.						
Minoa very fine sandy loam (Mn)	A_p: 0-20 cm (0-8 in) B21: 20-36 cm (8-14 in) B22: 36-46 cm (14-18 in) B23: 46-66 cm (18-26 in) B3: 66-79 cm (26-31 in) C1: 79-107 cm (31-42 in) C2: 107-152 cm (42-60 in)	DkBrn Brn Brn StrBrn Brn DkBrn Brn	VFSaLo LoVFSa LoVFSa VFSaLo LoVFSa LoVFSa VFSaLo	0-3%	SWPD	On moderately low flats and benches.
Comments: this soil has a profile described as representative of the series.						
Naumburg loamy fine sand (Na)	A_p: 0-20 cm (0-8 in) A2: 20-36 cm (8-14 in) $B21_h$: 36-41 cm (14-16 in) $B22_{ir}$: 41-61 cm (16-24 in) B3: 61-97 cm (24-38 in) C: 97-127 cm (38-50 in)	DkGr PnkGr DkRdBrn RdY YBrn DkGrBrn	LoFSa LoFSa LoFSa LoFSa LoSa Sa	0-3%	SWPD - PD	On broad flats, footslopes & depressions
Comments: this soil has a profile described as representative of the series.						
Naumburg-Duane complex,	O2: 3-0 cm (1-0 in) A1: 0-3 cm (0-1 in) A21: 3-36 cm (1-14 in) A22: 36-43 cm (14-17 in)	Blk Blk RdGR DkRdGr	D.O.M.* VGrvLoSa VGrvSa VGrvSa	2-6%	SWPD – PD & MWD	On foot & toe slopes, plains, flats,

gently sloping (NDB)	$B21_h$: 43-64 cm (17-25 in) $B22_{ir}$: 64-97 cm (25-38 in) C: 97-132 cm (38-52 in)	DkRdBrn DkRdBrn GrBrn	VGrvSa VGrvSa VGrvSa			terraces, benches and knolls.
Comments: these soils are so closely inter-mixed that separate mapping is not feasible. This profile is for the Duane Series. The Naumburg Series is profiled above. *Decayed Organic Matter						
Naumburg-Granby complex, gently sloping (NGB)	A_p1: 0-18 cm (0-7 in) A_p2: 18-28 cm (7-11 in) $IIB2_g$: 28-64 cm (11-25 in) IIC: 64-152 cm (25-60 in)	VDkGr Gr Gr RdBrn	LoFSa LoFSa FSa Sa	2-6%	SWPD – PD - VPD	On low plains and broad flats.
Comments: these soils are so closely inter-mixed that separate mapping is not feasible. This profile is for the Granby Series. The Naumburg Series is profiled above.						
Oakville loamy fine sand, (OaB)	A_p: 0-18 cm (0-7 in) B2: 18-48 cm (7-19 in) B3: 48-91 cm (19-36 in) C: 91-140 cm (36-55 in)	DkBrn StrBrn BrnY LtYBrn	LoFSa FSa FSa FSa	0-6%	WD	On ridges, knolls, hills, terraces & plains.
Comments: this soil has a profile described as representative of the series.						
Raynham silt loam, (RaB)	A_p: 0-23 cm (0-9 in) B21: 23-51 cm (9-20 in) B22: 51-91 cm (20-36 in) C: 91-152 cm (36-60 in)	DkGrBrn LtBrnGr LtOBrn Brn	SiLo SiLo SiLo SiLo	0-6%	SWPD - PD	On low benches & plains.
Comments: this soil has a profile described as representative of the series.						
Rhinebeck silt loam, (RhA)	A_p: 0-20 cm (0-8 in) B1: 20-41 cm (8-16 in) $B2_{tg}$: 41-99 cm (16-39 in) C: 99-135 cm (39-53 in)	VDkGrBrn DkBrn GrBrn LtOBrn	SiLo SiClLo SiCl SiCl	0-2%	SWPD	On low, broad flats.
Comments: this soil has a profile described as representative of the series.						
Rhinebeck silt loam, (RhB)	A_p: 0-20 cm (0-8 in) B1: 20-41 cm (8-16 in) $B2_{tg}$: 41-99 cm (16-39 in) C: 99-135 cm (39-53 in)	VDkGrBrn DkBrn GrBrn LtOBrn	SiLo SiClLo SiCl SiCl	2-6%	SWPD	On foot slopes, plains and drainages.
Comments: this soil has a profile described as representative of the series.						
Sun loam (Su)	A_p: 0-23 cm (0-9 in) $B21_g$: 23-46 cm (9-18 in) B22: 46-91 cm (18-36 in) C: 91-127 cm (36-50 in)	VDkGr Gr Brn Brn	Lo GrvFSaLo GrvFSaLo GrvFSaLo	0-3%	PD - VPD	On toe slopes and depressions
Comments: this soil has a profile described as representative of the series.						
Swanton fine sandy loam (Sw)	A_p: 0-20 cm (0-8 in) A2: 20-25 cm (8-10 in) $B21_g$: 25-38 cm (10-15 in) $B22_g$: 38-48 cm (15-19 in) $IIB23_g$:48-61 cm(19-24 in) $IIB3_g$:61-107 cm(24-42 in) IIC: 107-152 cm (42-60 in)	VDkGrBrn LtBrnGr GrBrn GrBrn DkGr Gr LtGR	FSaLo FSaLo FSaLo FSaLo SiCl SiCl Cl	0-3%	SWPD - PD	On moderately low flats.
Comments: this soil has a profile described as representative of the series.						
Westbury-Dannemora complex, very stony, gently sloping (WDB)	A_p: 0-20 cm (0-8 in) $B2_{ir}$: 20-38 cm (8-15 in) A2: 38-51 cm (15-20 in) B_x: 51-104 cm (20-41 in) C: 104-127 cm (41-50 in)	VDkGr YBrn Gr Brn&Gr LtBrnGr	GrvFSaLo GrvFSaLo GrvFSaLo GrvFSaLo GrvCbSaLo	3-8%	PD - SWPD	Low areas on till plains.
Comments: these soils are so closely inter-mixed that separate mapping is not feasible. This profile is for the Westbury Series. The Dannemora Series is profiled below.						

Westbury-Dannemora complex, very stony, gently sloping (WDB)	A_p: 0-23 cm (0-9 in) $A2_g$: 23-33 cm (9-13 in) $B2_g$: 33-43 cm (13-17 in) B_x1: 43-69 cm (17-27 in) B_x2: 69-102 cm (27-40 in) C: 102-152 cm (40-60 in)	VDkBrn GrBrn DkGrBrn GrBrn GrBrn GrBrn	GrvFSaLo GrvFSaLo GrvSaLo GrvFSaLo GrvFSaLo GrvFSaLo	3-8%	PD - SWPD	Low areas on till plains.
Comments: these soils are so closely inter-mixed that separate mapping is not feasible. This profile is for the Dannemora Series. The Westbury Series is profiled above.						
Williamson very fine sandy loam, (WIA)	A_p: 0-23 cm (0-9 in) B2: 23-43 cm (9-17 in) A2: 43-51 cm (17-20 in) B_x: 51-112 cm (20-44 in) C: 112-127 cm (44-50 in)	Brn DkBrn PaBrn Brn Brn	VFSaLo VFSaLo VFSaLo SiLo SiLo	0-2%	MWD	On elevated flats and benches.
Comments: this soil has a profile described as representative of the series.						
Williamson very fine sandy loam, (WIB)	A_p: 0-23 cm (0-9 in) B2: 23-43 cm (9-17 in) A2: 43-51 cm (17-20 in) B_x: 51-112 cm (20-44 in) C: 112-127 cm (44-50 in)	Brn DkBrn PaBrn Brn Brn	VFSaLo VFSaLo VFSaLo SiLo SiLo	2-6%	MWD	On ridges, knolls and the tops of low hills.
Comments: this soil has a profile described as representative of the series.						
Windsor loamy fine sand, undulating (WnB)	A_p: 0-23 cm (0-9 in) B21: 23-33 cm (9-13 in) B22: 33-53 cm (13-21 in) C1: 53-119 cm (21-47 in) C2: 119-160 cm (47-63 in)	DkBrn StrBrn BrnY YBrn LtRdBrn	LoFSa LoFSa FSa FSa FSa	2-6%	ED	On deltas, beaches, plains and terraces.
Comments: this soil has a profile described as representative of the series.						
Worth gravelly fine sandy loam, (WoB)	A_p: 0-23 cm (0-9 in) $B21_{ir}$: 23-33 cm (9-13 in) B22: 33-43 cm (13-17 in) A2: 43-69 cm (17-27 in) B_x1: 69-102 cm (27-40 in) B_{x2}: 69-102 cm (27-40 in) C: 102-152 cm (40-60 in)	Brn YBrn YBrn VPaBn Brn Brn Brn	GrvFSaLo GrvFSaLo GrvFSaLo GrvFSaLo GrvFSaLo VGrvFSaL VGrvFSaL	3-8%	WD	On ridges, knolls and shoulders of hills.
Comments: this soil has a profile described as representative of the series.						
Worth and Empeyville very stony soils, sloping (WSC)	A_p: 0-23 cm (0-9 in) $B21_{ir}$: 23-33 cm (9-13 in) $B22_{ir}$: 33-43 cm (13-17 in) $A2_x$: 43-69 cm (17-27 in) B_x: 69-112 cm (27-44 in) C: 112-152 cm (44-60 in)	DkBrn YBrn YBrn LtGr Brn Brn	GrvFSaLo GrvFSaLo GrvFSaLo GrvFSaLo GrvFSaLo GrvSaLo	8-15%	WD & MWD	On hillsides and sides of ridges.
Comments: these soils are so closely inter-mixed that separate mapping is not feasible. This profile is for the Empeyville Series. The Worth Series is profiled above.						

*D.O.M. = Decayed Organic Matter

COLOR/TEXTURE KEY:

Brn-Brown	Cl-Clay	cm-centimeters	Dk-Dark	F-Fine
Gr-Grayish	Grv-Gravelly	Lo-Loam	Lt-Light	O-Olive
Pa-Pale	Pnk-Pink	Rd-Reddish	Sa-Sandy	Si-Silt
Str-Strong	Stra-Stratified	V-Very	V-Varved	Y-Yellowish

DRAINAGE KEY:

ED-Excessively Drained	MWD – Moderately Well Drained	PD-Poorly Drained
VPD-Very Poorly Drained	WD – Well Drained	

The APE is mapped within a wide mix of level to nearly level soils which formed in glaciolacustrine, glaciofluvial and glacial till deposits. They vary from very poorly to excessively drained, with most falling within the better drained category. However, one mapping unit of variably drained recent alluvial soils (Fluvaquents and Udifluvents, FA) is also present. The locations of these alluvial soils are shown on figures 9 through 11. Two small portions of the APE are also within/adjacent Cut and Fill Land (CFL). These areas are shown on figures 7 and 9. With these exceptions, cultural materials are expected to be restricted to the upper and central portions of the soil profile: i.e. less than 40 cm (16 inches) below the ground surface. For those portions of the phase IA APE within alluvial soils, deep testing may be necessary. Deep testing may also be required if the C.F. L. areas contain original soils buried underneath fill.

Drainage

The APE is drained by Oneida Lake and its associated tributaries. Toad Harbor Swamp is also roughly adjacent the western portion of the APE to the southwest. Smaller wetlands flank the associated tributaries (figures 3 to 6). Given that some portions of the APE are mapped within poorly and very poorly drained soils, it is expected that some areas will be eliminated from the phase IB field investigation based on drainage.

Site File Search

Evaluated files included the currently available New York State Museum (NYSM) site file records, the currently available OPRHP site file records, and the currently available OPRHP previous archaeological survey report files. Available *National Register of Historic Places Building Inventories* were also evaluated to identify both National Register Listed (NRL) and National Register Eligible (NRE) structures within or adjacent to the current project area. Historic map evaluation included the 1854 *Map of Oswego County*, the 1867 *Atlas of Oswego County*, the 1895 Syracuse quadrangle, the 1895 Chittenango quadrangle, the 1905 Mexico quadrangle, the 1906 Kasoag quadrangle, the 1941 Cleveland quadrangle, the 1943 Mallory quadrangle, the 1943 Panther Lake quadrangle, and the 1944 Cicero quadrangle. The file search also included an evaluation of any pre-EuroAmerican contact sites documented by early investigators of the region, such as Beauchamp (1900) and Parker (1922), as well as an evaluation of the Town of Constantia, Village of Cleveland, and Oswego County histories for information relevant to the current project. These data were then combined with the results of the natural and environmental setting review in order to construct a regionally specific archaeological sensitivity assessment for the current project area. The results of this file search are presented below.

Previously Recorded Archaeological Sites

A review of the available site files indicated that 9 pre/early contact archaeological sites and 12 historic archaeological sites have been already recorded within approximately one mile of the APE. All of these sites are potentially within or adjacent the APE. At least three of the pre/early contact sites also contain historic components. All of these pre-recorded sites are summarized in Table 2 and discussed in more detail below.

Table 2:
Pre-recorded Archaeological Sites Reported within ~One Mile of the Project Area

NYS OPRHP Site #	Additional Site #s and/or Names	Dist./Direction (meters/feet)*	Time Period	Site Type
Pre/Early Contact Archaeological Sites				
---	NYSM #4444; ACP Oswego County Site, No #	Potentially within or adjacent.	indeterminate pre-contact	camp
----	NYSM #4445; ACP Oswego County Site, No #	Potentially within or adjacent.	no info	no info
A07504.000035	Constantia 1 Site; SUBi-1944; NYSM #10830	Potentially within or adjacent.	Middle Woodland (c. 200-700 A.D.)	village
A07504.000038	Scriba Creek 1 Site; SUBi-1947; NYSM #10833	Potentially within or adjacent.	indeterminate pre-contact	lithic scatter
A07504.000042	Scriba Creek II Site; SUBi-1951; NYSM #10837	Potentially within or adjacent.	Middle Woodland (c. 200-700 A.D.)	village

A07504.000063	Constantia Locus #1; NYSM #12272	Potentially within or adjacent.	Late Archaic and Middle to Late Woodland	village
A07504.000064 (**)	Constantia Locus 2 and 3; NYSM #12273	Potentially within or adjacent.	Late Middle - Early Late Woodland	village
A07504.000066 (**)	Constantia Locus #5; NYSM #12275	Potentially within or adjacent.	indeterminate pre-contact; Late Woodland?	village
A07504.000067 (**)	Constantia Locus #6; NYSM #12276	Potentially within or adjacent.	Late Archaic to Late Woodland/Early Contact Period	village
Historic Archaeological Sites				
A07504.000001	Kempwyk Log Cabin Site	Potentially within or adjacent.	Late 18th century to early 19th century	log cabin
A07504.000030	Stevens/Baker Office Site; SUBi-1939; NYSM #10825	Potentially within or adjacent.	c. 1830 to present	store
A07504.000031	Fuller House Site; SUBi-1940; NYSM #10826	Potentially within or adjacent.	c. 1810 to present	residence
A07504.000032	Scriba Lodge Site; SUBi-1941; NYSM #10827	Potentially within or adjacent.	c. 1830 to present	store
A07504.000033	Constantia House Site; SUBi-1942; NYSM #10828	Potentially within or adjacent.	c. 1830 to 1960	hotel
A07504.000034	Constantia Iron Co. Store; SUBi-1943; NYSM #10829	Potentially within or adjacent.	c. 1820 to 1920	store
A07504.000036	Scriba Store Site; SUBi-1945; NYSM #10831	Potentially within or adjacent.	1794 to c. 1870	store
A07504.000039	J. Carter Store Site; SUBi-1948; NYSM #10834	Potentially within or adjacent.	c. 1850 to 1920	store/ shop
A07504.000040	Butcher Shop Site; SUBi-1949; NYSM #10835	Potentially within or adjacent.	c. 1860 to present	store/ shop
A07504.000041	Dundas House Site; SUBi-1950; NYSM #10836	Potentially within or adjacent.	c. 1810 to present	residence
A07504.000068	Constantia Locus #4; NYSM #12274	Potentially within or adjacent.	indeterminate pre-contact; 19th century	scatter
A07544.000026	Sand Street Factory Foundations	Potentially within or adjacent.	indeterminate historic	industrial

*Minimum distance provided. ** Also contains an historic component.

Pre/Early Contact Archaeological Sites

NYSM Site #4444

NYSM Site #4444 is shown on the state records to the immediate west of Martin Road along the banks of a small stream. This site was first identified by Parker and is shown as a camp on his county site map. However, no county site number is assigned so no further description is provided in his text (Parker 1922: Plate 205). The OPRHP records provide no additional information on this site. Depending on the final project alignment, this site could be within or adjacent the phase IB APE (Figure 15). As a result, further phase IB archaeological investigations are recommended.

NYSM Site #4445

NYSM Site #4445 is shown on the state records in two possible locations. The first is to the north of SR 49 and to the east of Johnson Road. The second is to the northeast of the intersection of SR 49 and Kibbie Lake Road. The state records indicate that this site represents an unnumbered Parker Oswego County Site. However, an evaluation of Parker's Oswego County Site Map (1922: Plate 205) does not show any sites within or adjacent

Constantia. The camp site discussed above is shown to the west and his County Site #17 is shown further to the west, straddling the border between the towns of West Monroe and Constantia. Parker's description for Site #17 is as follows:

> A small village on a point on the north shore of Oneida Lake halfway between Brewerton and Constantia. Early relics but no pottery (Parker 1922: Plate 205, p. 667).

An evaluation of the available historic and modern topographic maps (figures 3 to 6) suggests this point could be either Phillips Point or Toad Harbor. Both are within the Toad Harbor Swamp. Although Parker could have misidentified the location of this village, his report that this site did not contain pottery suggests it is distinct from the large cluster of Woodland period sites (Table 2) identified just to the east within Constantia (Figure 15). All of these sites are discussed in detail below. As it is uncertain whether this village has been re-recorded as the multiple smaller sites discussed below, both locations reported on the OPRHP records are potentially within or adjacent the current APE. As a result, further phase IB archaeological investigations are recommended.

OPRHP Site #A07504.000035

OPRHP Site #A07504.000035 (the Constantia 1 Site) is shown on the OPRHP site form along SR 49 between Redfield and Mill streets in Constantia. Depending on the final project alignment, this site could be within or adjacent the phase IB APE as part of the generalized village location shown on Figure 15. The Constantia 1 Site was identified in 1998 by the Public Archaeology Facility at SUNY Binghamton (Abel et al. 1998) and consisted of unmodified flakes, utilized flakes, smoothed grit-tempered body sherds, and 2 chert scrapers (one of which may have been hafted) recovered from 17 shovel tests. No indications of further investigations are provided on the site form. Given that this site is potentially adjacent the APE (Figure 15), further phase IB archaeological investigations are recommended.

OPRHP Site #A07504.000038

OPRHP Site #A07504.000038 (the Scriba Creek 1 Site) is shown on the OPRHP site form to the northeast of the intersection of SR 49 and Hatchery Road, adjacent the southern shore of the fish hatchery pond. Depending on the final project alignment, this site could be within or adjacent the phase IB APE as part of the generalized village location shown on Figure 15. The Scriba Creek 1 Site was identified in 1998 by the Public Archaeology Facility at SUNY Binghamton (Abel et al. 1998) and consisted of unmodified flakes of Onondaga chert recovered from 5 shovel tests. No indications of further investigations are provided on the site form. Given that this site is potentially adjacent the APE (Figure 15), further phase IB archaeological investigations are recommended.

OPRHP Site #A07504.000042

OPRHP Site #A07504.000042 (the Scriba Creek II Site) is shown on the OPRHP site form to the southeast of the intersection of SR 49 and Parmley Drive in Constantia. Depending on the final project alignment, this site could be within or adjacent the phase IB APE as part of the generalized village location shown on Figure 15. The Scriba Creek II Site was identified in 1998 by the Public Archaeology Facility at SUNY Binghamton (Abel et al. 1998) and consisted of unmodified flakes and St. Lawrence pseudo-scalloped, shell-impressed body sherds. No indications of further investigations are provided on the site form. Given that this site is potentially adjacent the APE (Figure 15), further phase IB archaeological investigations are recommended.

OPRHP Site #A07504.000063

OPRHP Site #A07504.000063 (the Constantia Locus #1 Site) is recorded along the north side of SR 49 adjacent the Trinity Episcopal Church. Depending on the final project alignment, this site could be within or adjacent the phase IB APE as part of the generalized village location shown on Figure 15. The Constantia Locus # 1 Site was identified in 2011 by the New York State Museum (Cardinal 2011) and consisted of a projectile point, broken flakes, unmodified flakes, utilized flakes, chert shatter, fire-cracked rock and body sherds. These materials were recovered over the course of phase I and limited phase II investigations. Given that this site is potentially adjacent the APE (Figure 15), further phase IB archaeological investigations are recommended.

Barton & Loguidice

Figure 15. Phase IA archaeological sensitivity map.

Town of Constantia
Low Pressure Sewer Collection System
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OPRHP Site #A07504.000064

OPRHP Site #A07504.000064 (the Constantia Locus 2 and 3 Site) is recorded along the north side of SR 49 between the intersections with Coleman Drive and Shagbark Lane. Depending on the final project alignment, this site could be within or adjacent the phase IB APE as part of the generalized village location shown on Figure 15. The Constantia Locus 2 and 3 Site was also identified in 2011 by the New York State Museum (Cardinal 2011) and consisted of a biface, a drill, a scraper, a spoke shave, broken flakes, unmodified flakes, utilized flakes, chert shatter, fire-cracked rock, undecorated body sherds, and decorated sherds. Limited 19th century historic artifacts associated with the adjacent map-documented structures were also identified. These materials were recovered over the course of phase I and limited phase II investigations. Given that this site is potentially adjacent the APE (Figure 15), further phase IB archaeological investigations are recommended.

OPRHP Site #A07504.000066

OPRHP Site #A07504.000066 (the Constantia Locus #5 Site) is recorded along the north side of SR 49, just to the east of its intersection with Mill Street. This site is shown just to the south of OPRHP Site #A07504.000033 (discussed above). Depending on the final project alignment, this site could be within or adjacent the phase IB APE as part of the generalized village location shown on Figure 15. The Constantia Locus #5 Site was also identified in 2011 by the New York State Museum (Cardinal 2011) and consisted of a projectile point, a projectile point fragment, a biface, a drill, broken flakes, unmodified flakes, fire-cracked rock, an undecorated body sherd, and a glass trading bead. A high-density collection of mid to late 19th century historic artifacts associated with the adjacent map-documented structures was also identified. These materials were recovered over the course of phase I and limited phase II investigations. Given that this site is potentially adjacent the APE (Figure 15), further phase IB archaeological investigations are recommended.

OPRHP Site #A07504.000067

OPRHP Site #A07504.000067 (the Constantia Locus #6 Site) is recorded along the south side of SR 49, just to the east of its intersection with Mill Street. Depending on the final project alignment, this site could be within or adjacent the phase IB APE as part of the generalized village location shown on Figure 15. The Constantia Locus #6 Site was also identified in 2011 by the New York State Museum (Cardinal 2011) and consisted of a projectile point, a projectile point fragment, a biface, a chopper, a drill, a scraper, a uniface, a core, broken flakes, unmodified flakes, chert shatter, fire-cracked rock, an undecorated rim sherd, undecorated body sherds, an abrader, a hammerstone, a pitted stone, and a stone ornament. A high-density collection of late 19th century historic artifacts associated with the adjacent map-documented structures was also identified. These materials were recovered over the course of phase I and limited phase II investigations. Given that this site is potentially adjacent the APE (Figure 15), further phase IB archaeological investigations are recommended.

Historic Archaeological Sites

OPRHP Site #A07504.000001

OPRHP Site #A07504.000001 (Kempwyk) is shown on the state records along the north side of SR 49, across from the intersection with Forest Drive. A state marker is also present at this location. Depending on the final project alignment, this site could be within or adjacent the phase IB APE (Figure 15). Kempwyk was recorded in 1967 and marks the location where Franis Adrian Van Der Kemp built a log cabin in 1793. However, he only lived at this site with his family for a few years before returning to Oneida County. The log cabin and any associated buildings were removed many years prior to 1967. No indications of further investigations are provided on the site form. Given that this site is potentially adjacent the APE (Figure 15), further phase IB archaeological investigations are recommended.

OPRHP Site #A07504.000030

OPRHP Site #A07504.000030 (the Stevens/Baker Office Site) is shown on the state records along the north side of SR 49, between the intersections with Redfield Street and Mill Street. Depending on the final project alignment, this site could be within or adjacent the phase IB APE as part of the historic site area shown on Figure 15.

The Stevens/Baker Office Site was identified in 1998 by the Public Archaeology Facility at SUNY Binghamton (Abel et al. 1998) and consisted of a small historic scatter associated with a c. 1830 MDS. No indications of further investigations are provided on the site form. Given that this site is potentially adjacent the APE (Figure 15), further phase IB archaeological investigations are recommended.

OPRHP Site #A07504.000031

OPRHP Site #A07504.000031 (the Fuller House Site) is shown on the state records along the north side of SR 49, between the intersections with Redfield Street and Mill Street, just to the east of the site discussed above. Depending on the final project alignment, this site could be within or adjacent the phase IB APE as part of the historic site area shown on Figure 15. The Fuller House Site was identified in 1998 by the Public Archaeology Facility at SUNY Binghamton (Abel et al. 1998) and consisted of a diverse historic scatter associated with a c. 1810 MDS. No indications of further investigations are provided on the site form. Given that this site is potentially adjacent the APE (Figure 15), further phase IB archaeological investigations are recommended.

OPRHP Site #A07504.000032

OPRHP Site #A07504.000032 (the Scriba Lodge Site) is shown on the state records along the north side of SR 49, between the intersections with Redfield Street and Mill Street, just to the east of the Fuller House Site discussed above. Depending on the final project alignment, this site could be within or adjacent the phase IB APE as part of the historic site area shown on Figure 15. The Scriba Lodge Site was identified in 1998 by the Public Archaeology Facility at SUNY Binghamton (Abel et al. 1998) and consisted of a small historic scatter associated with a c. 1830 MDS. No indications of further investigations are provided on the site form. Given that this site is potentially adjacent the APE (Figure 15), further phase IB archaeological investigations are recommended.

OPRHP Site #A07504.000033

OPRHP Site #A07504.000033 (the Constantia House Site) is shown on the state records to the northeast of the intersection of SR 49 and Mill Street. Depending on the final project alignment, this site could be within or adjacent the phase IB APE as part of the historic site area shown on Figure 15. The Constantia House Site was identified in 1998 by the Public Archaeology Facility at SUNY Binghamton (Abel et al. 1998) and consisted of a diverse historic scatter associated with a c. 1830 to 1960 MDS. No indications of further investigations are provided on the site form. Given that this site is potentially adjacent the APE (Figure 15), further phase IB archaeological investigations are recommended.

OPRHP Site #A07504.000034

OPRHP Site #A07504.000034 (the Constantia Iron Co. Store Site) is shown on the state records along the north side of SR 49, just to the west of Scriba Creek. Depending on the final project alignment, this site could be within or adjacent the phase IB APE as part of the historic site area shown on Figure 15. The Iron Store Site was identified in 1998 by the Public Archaeology Facility at SUNY Binghamton (Abel et al. 1998) and consisted of a diverse historic scatter associated with a c. 1820 to 1920 MDS. No indications of further investigations are provided on the site form. Given that this site is potentially adjacent the APE (Figure 15), further phase IB archaeological investigations are recommended.

OPRHP Site #A07504.000036

OPRHP Site #A07504.000036 (the Scriba Store Site) is shown on the state records along the north side of SR 49, just east of the intersection with Hatchery Road. Depending on the final project alignment, this site could be within or adjacent the phase IB APE as part of the historic site area shown on Figure 15. The Scriba Store Site was identified in 1998 by the Public Archaeology Facility at SUNY Binghamton (Abel et al. 1998) and consisted of a dense, diverse historic scatter associated with a 1794 to c. 1870 MDS. No indications of further investigations are provided on the site form. Given that this site is potentially adjacent the APE (Figure 15), further phase IB archaeological investigations are recommended.

OPRHP Site #A07504.000039

OPRHP Site #A07504.000039 (the J. Carter Store Site) is shown on the state records along the south side of SR 49, just west of the intersection with Mill Street. Depending on the final project alignment, this site could be within or adjacent the phase IB APE as part of the historic site area shown on Figure 15. The J. Carter Store Site was identified in 1998 by the Public Archaeology Facility at SUNY Binghamton (Abel et al. 1998) and consisted of a dense, diverse historic scatter associated with a c. 1850 to 1920 MDS. No indications of further investigations are provided on the site form. Given that this site is potentially adjacent the APE (Figure 15), further phase IB archaeological investigations are recommended.

OPRHP Site #A07504.000040

OPRHP Site #A07504.000040 (the Butcher Shop Site) is shown on the state records along the south side of SR 49, just west of the J. Carter Store Site discussed above. Depending on the final project alignment, this site could be within or adjacent the phase IB APE as part of the historic site area shown on Figure 15. The Butcher Shop Site was identified in 1998 by the Public Archaeology Facility at SUNY Binghamton (Abel et al. 1998) and consisted of an historic scatter associated with a c. 1860 to present MDS. No indications of further investigations are provided on the site form. Given that this site is potentially adjacent the APE (Figure 15), further phase IB archaeological investigations are recommended.

OPRHP Site #A07504.000041

OPRHP Site #A07504.000041 (the Dundas House Site) is shown on the state records along the south side of SR 49, between Scriba Creek and Parmley Drive. Depending on the final project alignment, this site could be within or adjacent the phase IB APE. The Dundas House Site was identified in 1998 by the Public Archaeology Facility at SUNY Binghamton (Abel et al. 1998) and consisted of an historic scatter associated with a c. 1810 MDS. No indications of further investigations are provided on the site form. Given that this site is potentially adjacent the APE, further phase IB archaeological investigations are recommended.

OPRHP Site #A07504.000068

OPRHP Site #A07504.000068 (the Constantia Locus #4 Site) is recorded along the north side of SR 49 between the intersections with Redfield and Mill streets. Depending on the final project alignment, this site could be within or adjacent the phase IB APE as part of the historic site area shown on Figure 15. The Constantia Locus # 4 Site was identified in 2011 by the New York State Museum (Cardinal 2011) and consisted of a high concentration of pre-contact and 19th century historic artifacts recovered over the course of phase I and limited phase II investigations. Given that this site is potentially adjacent the APE (Figure 15), further phase IB archaeological investigations are recommended.

OPRHP Site #A07544.000026

OPRHP Site #A07544.000026 (the Sand Street Factory Foundations) is recorded along the south side of Sand Street within the Village of Cleveland. Depending on the final project alignment, this site could be within or adjacent the phase IB APE (Figure 15). This site was identified in 2020 by Morton Archaeological Research Services (Morton and Carretta 2020) and consisted of foundation remains. Given their location they were presumed to be industrial, or factory remains. Given that this site is potentially adjacent the APE (Figure 15), further phase IB archaeological investigations are recommended.

Previous Professional Archaeological Investigations

A review of the available survey files indicated that portions of the phase IA APE have previously been evaluated for archaeological resources. The first survey consisted of phase I and limited phase II investigations for the proposed ARRA/ADA Sidewalk Replacement project conducted by the Cultural Resource Survey Program at the New York State Museum. Five archaeological sites (Constantia Loci 1 through 6, discussed above) were identified and recommended NRE (Cardinal 2011).

The second survey was conducted by Archaeological Consulting Experts, LLC and consisted of phase IA archaeological sensitivity assessment of the proposed Constantia Lakefront and Hamlet Sewer and Bernhard's Bay Water District projects. This assessment covered most portions of the current APE. It recommended phase IB archaeological evaluations wherever undisturbed soils were present, and either avoidance or further phase II testing of Constantia Loci Sites 1 through 6 if they were determined to be potentially within the area of proposed project impacts (Graupman and Ewing 2015).

The third phase I survey was conducted within the lot south of SR 49 and immediately east of Mill Street by Archaeological Consulting Experts, LLC and consisted of phase I archaeological evaluations of the proposed Constantia Nice n' Easy Grocery Shoppe Project. Constantia Locus #6 was within the northern portion of this area along the south side of SR 49. Although additional cultural materials related to this site were identified, most were recovered from disturbed deposits and no additional investigations were recommended. However, the portion of the site between the existing pavement and sidewalk was considered intact and still NRE. Either avoidance or phase III data recovery excavations were recommended for this area (Graupman and Ewing 2016).

The fourth phase I survey was conducted within and beyond portions of the current APE by Alliance Archaeology Services, Inc. and consisted of phase I archaeological evaluations of the proposed Bernhard's Bay Water District. However, no potentially significant cultural materials and/or indications of cultural features were identified, and no further archaeological investigations were recommended (Waters 2017).

The fifth phase I survey was conducted within and beyond the current APE by Morton Archaeological Research Services and consisted of phase IA archaeological sensitivity assessment of the Oneida Lake North Shore Interconnect Project. It recommended phase IB archaeological evaluations wherever undisturbed soils were present, as well as further assessment of the Sand Street Factory Foundations Site (discussed above) and the structural remains at SR 49 and Drive 7 (Morton and Carretta 2020). Although the Sand Street site is potentially within/adjacent the current APE, the structural remains site area is well removed.

Pre-contact Sensitivity Assessment

Except for one camp recorded to the west of Martin Road, all pre-recorded sites within approximately one mile either represent components related to NYSM Site #4445 (a small village) or represent deposits related to a previously unknown village site. The presence of diverse lithic assemblages, coupled with numerous sherds of Middle to Late Woodland pottery, indicate that habitation was taking place within the point of land where Scriba Creek joins Oneida Lake. This area is now the Hamlet of Constantia. Although considerable disturbance related to road and utility construction has taken place within this overall area, five NRE archaeological sites have already been recorded along both sides of SR 49 within Constantia. As a result, this portion of the project area was considered to have a very high potential to contain additional pre-contact sites and/or related village components (Figure 15). The remainder of the phase IA APE was likely part of the resource extraction sphere utilized during occupation of these villages. Although the procurement of floral and faunal resources does not always produce a visible archaeological trace, there remains a potential for activities which transcended this threshold to have taken place within the current project boundaries. As a result, the remainder of the APE has a moderate to high potential to contain previously unidentified pre-contact archaeological sites.

National Register Listed and Eligible Properties

A review of the available *National Register of Historic Places Building Inventories* was also undertaken to identify both National Register Listed (NRL) and National Register Eligible (NRE) structures within or adjacent to the current project area. Five NRE archaeology sites (discussed above) are potentially within or adjacent the APE along portions of SR 49 in Constantia. This review also indicated that the Trinity Church in Constantia is NRL (Figure 15). This listing includes the church, an adjacent 19th century graveyard, and a c. 1960 social hall (Harwood 1982). Either avoidance or phase IB archaeological assessment to further evaluate any potential impacts to these resources is recommended.

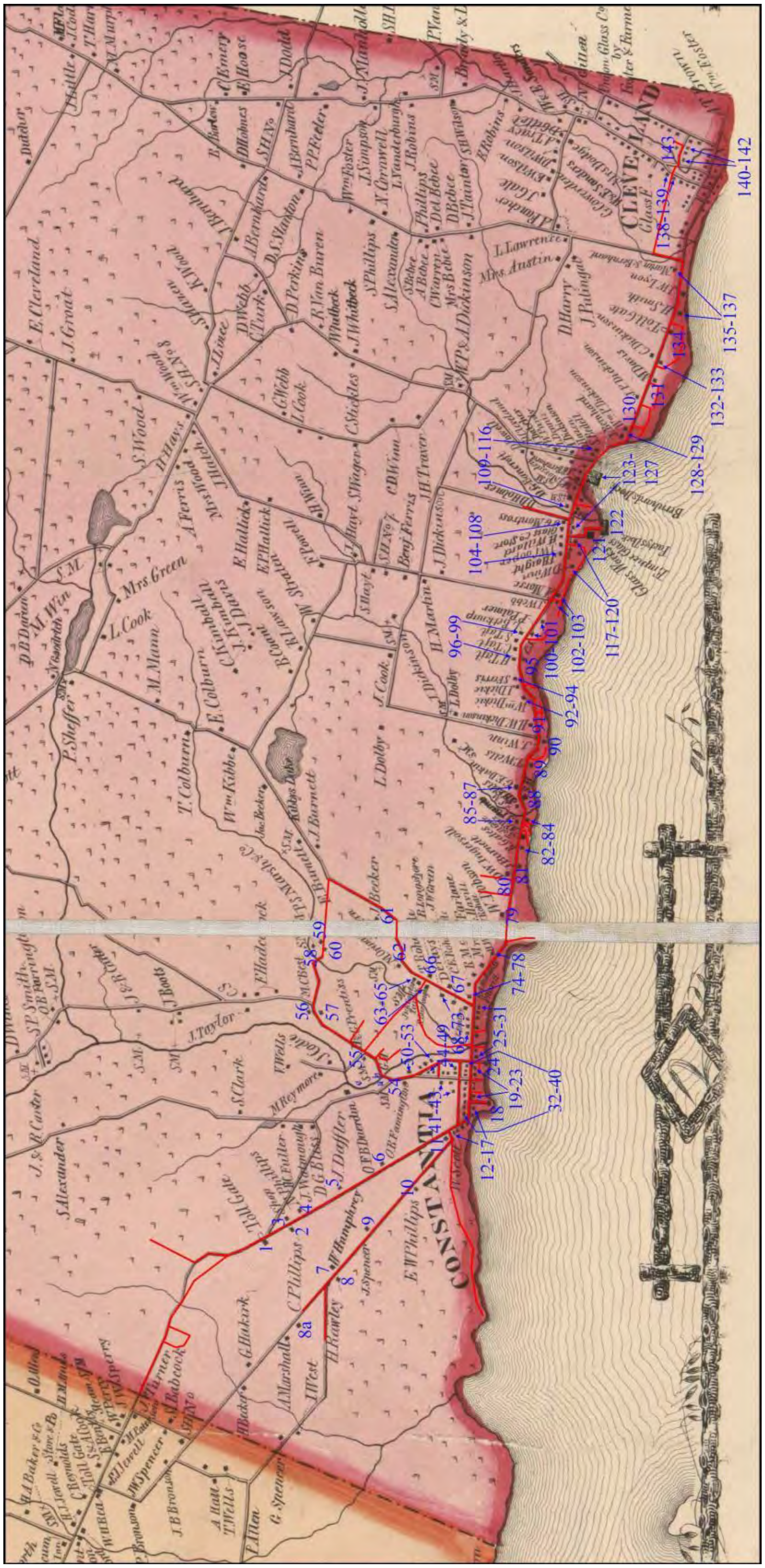

Figure 16. Location of the phase IA APE as shown on a portion of the 1854 *Map of Oswego County, New York*. All MDS are shown in blue.

Figure 17. Location of the western portion of the phase IA APE as shown on a portion of the 1867 *Atlas of Oswego County, New York.* All MDS are shown in blue.

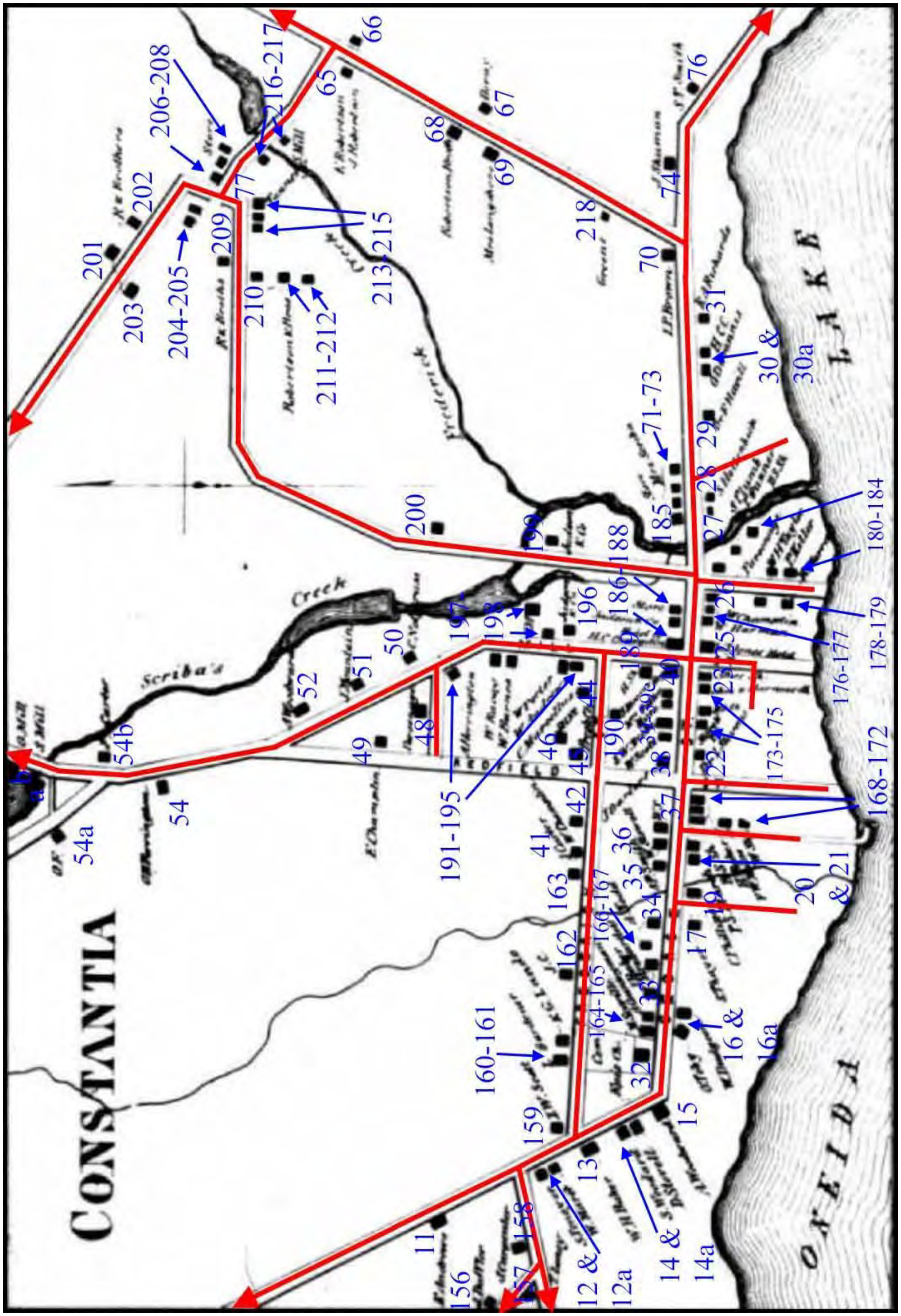

Figure 18. Location of the Constantia portion of the phase IA APE as shown on a portion of the 1867 *Atlas of Oswego County, New York.* All MDS are shown in blue.

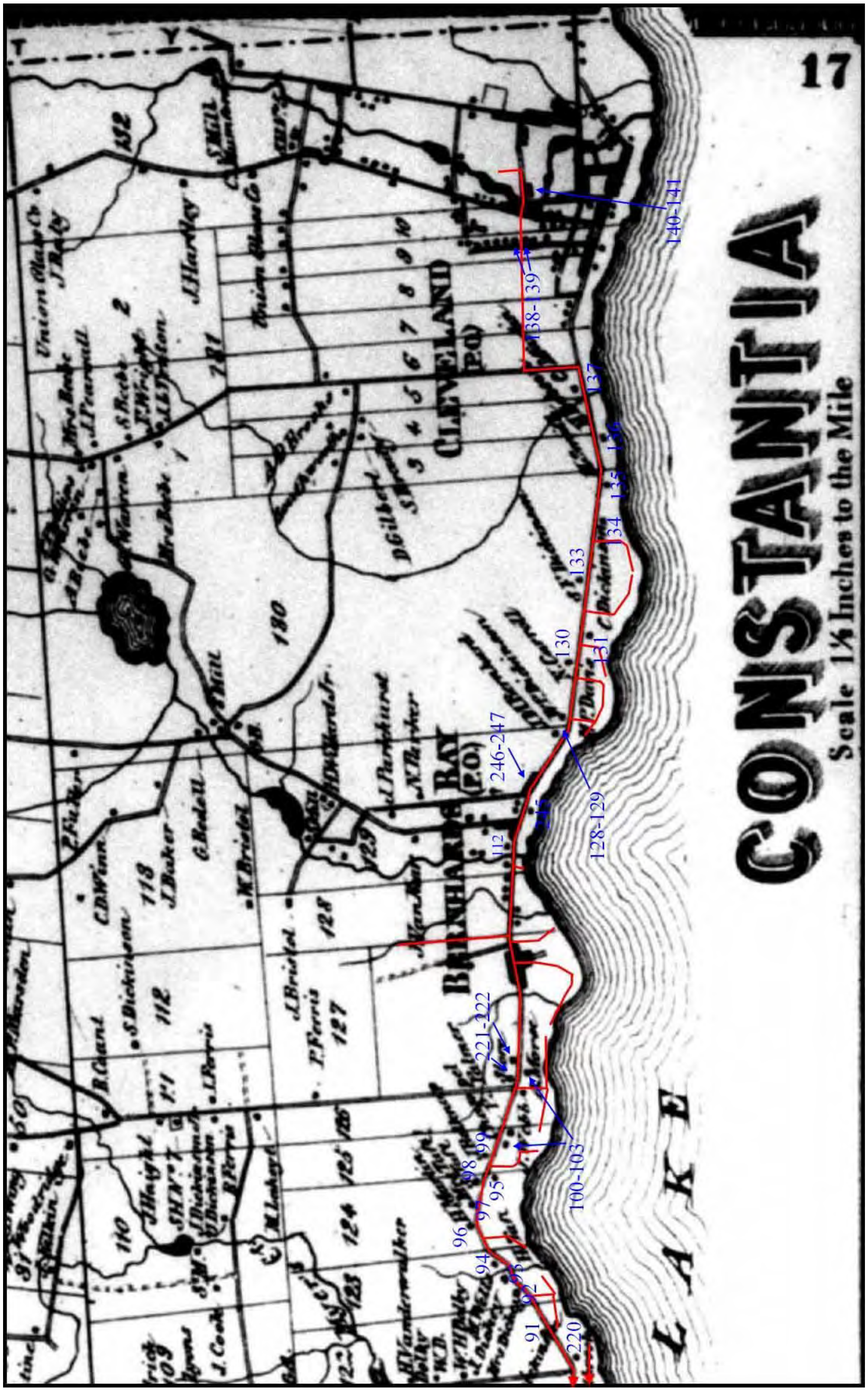

Figure 19. Location of the eastern portion of the phase IA APE as shown on a portion of the 1867 *Atlas of Oswego County, New York.* All MDS are shown in blue.

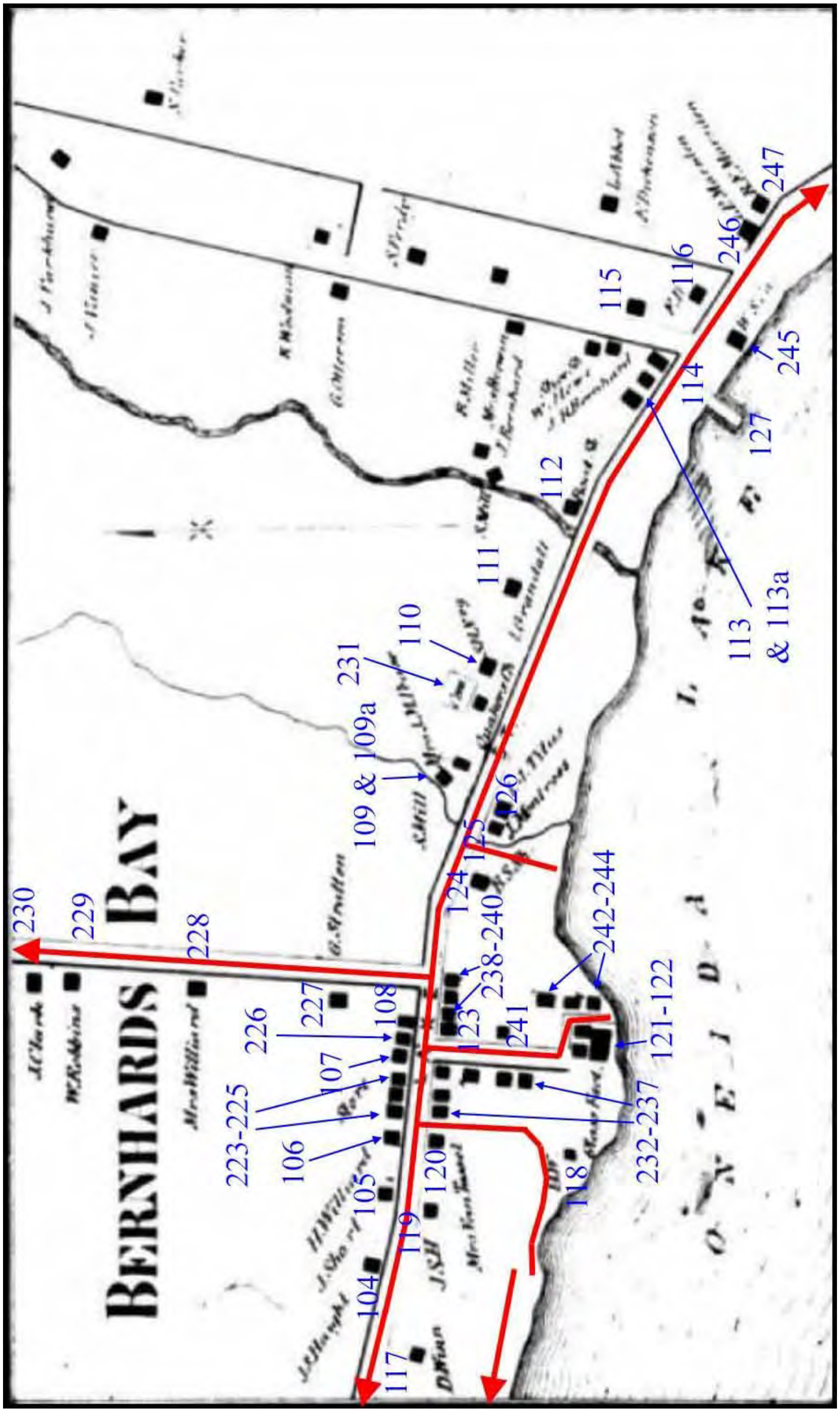

Figure 20. Location of the Bernhard's Bay portion of the phase IA APE as shown on a portion of the 1867 *Atlas of Oswego County, New York*. All MDS are shown in blue.

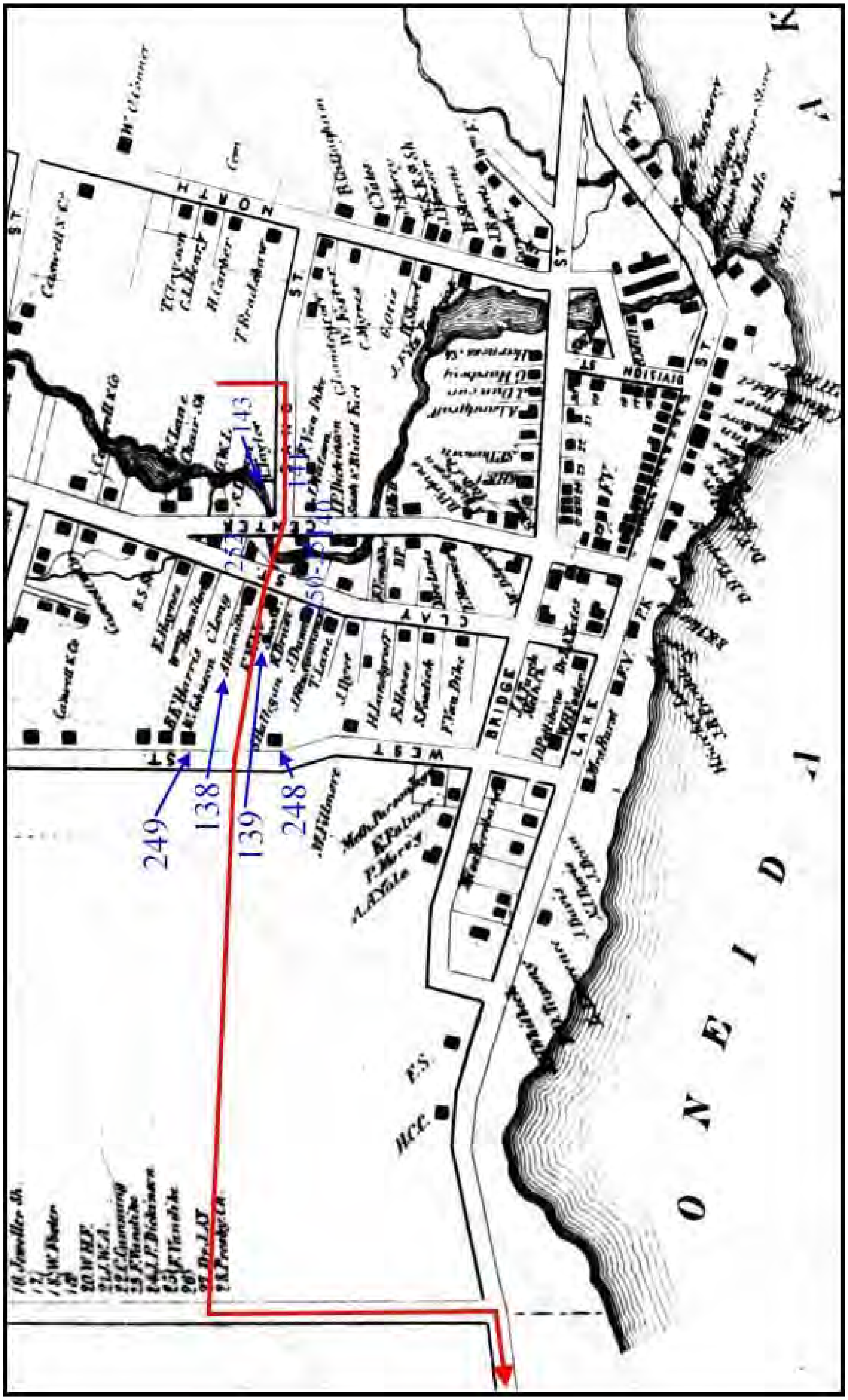

Figure 21. Location of the Cleveland portion of the phase IA APE as shown on a portion of the 1867 *Atlas of Oswego County, New York.* All MDS are shown in blue.

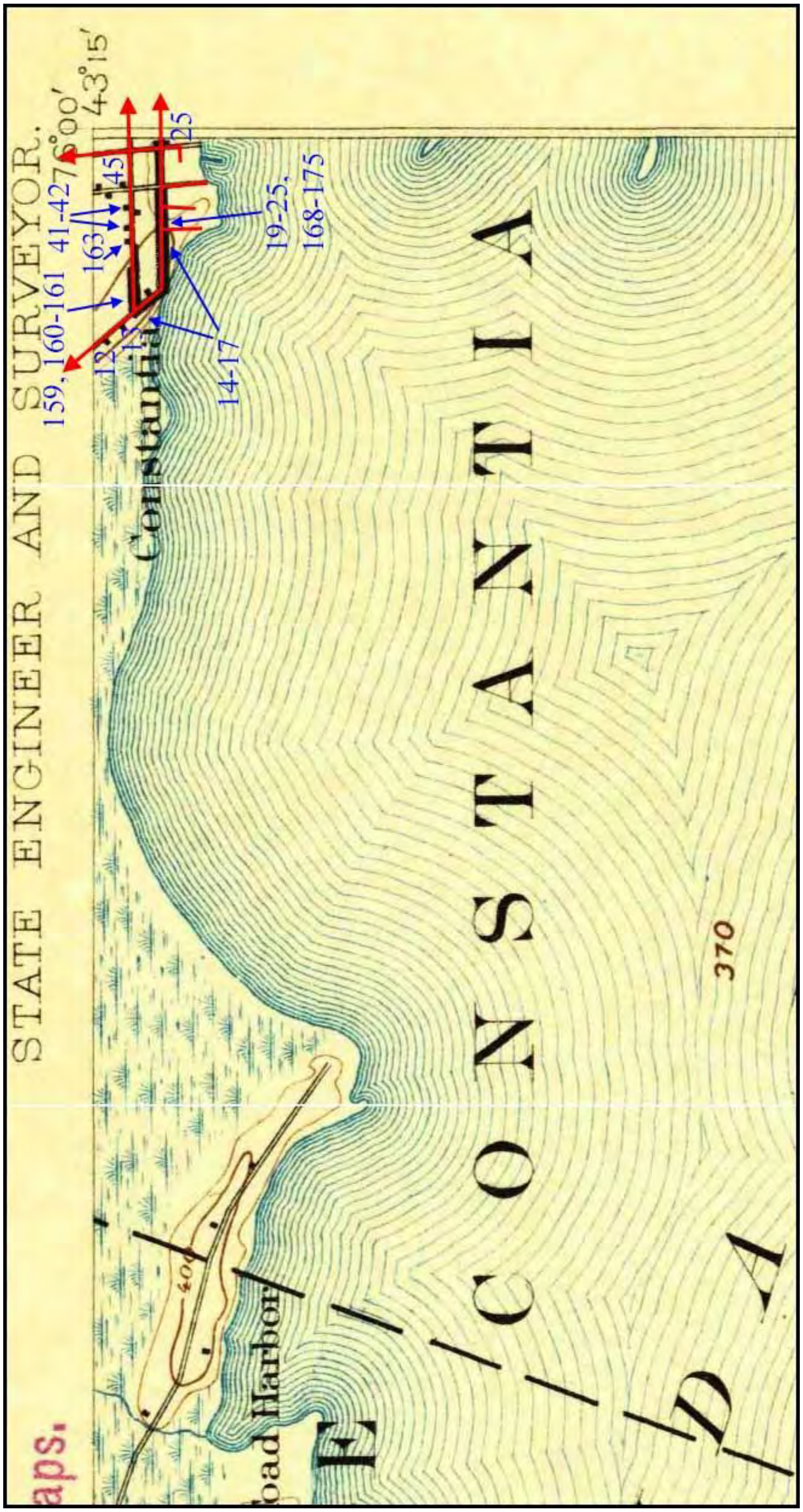

Figure 22. Location of the southwestern portion of the phase IA APE as shown on a portion of the 1895 Syracuse, New York quadrangle. All MDS are shown in blue.

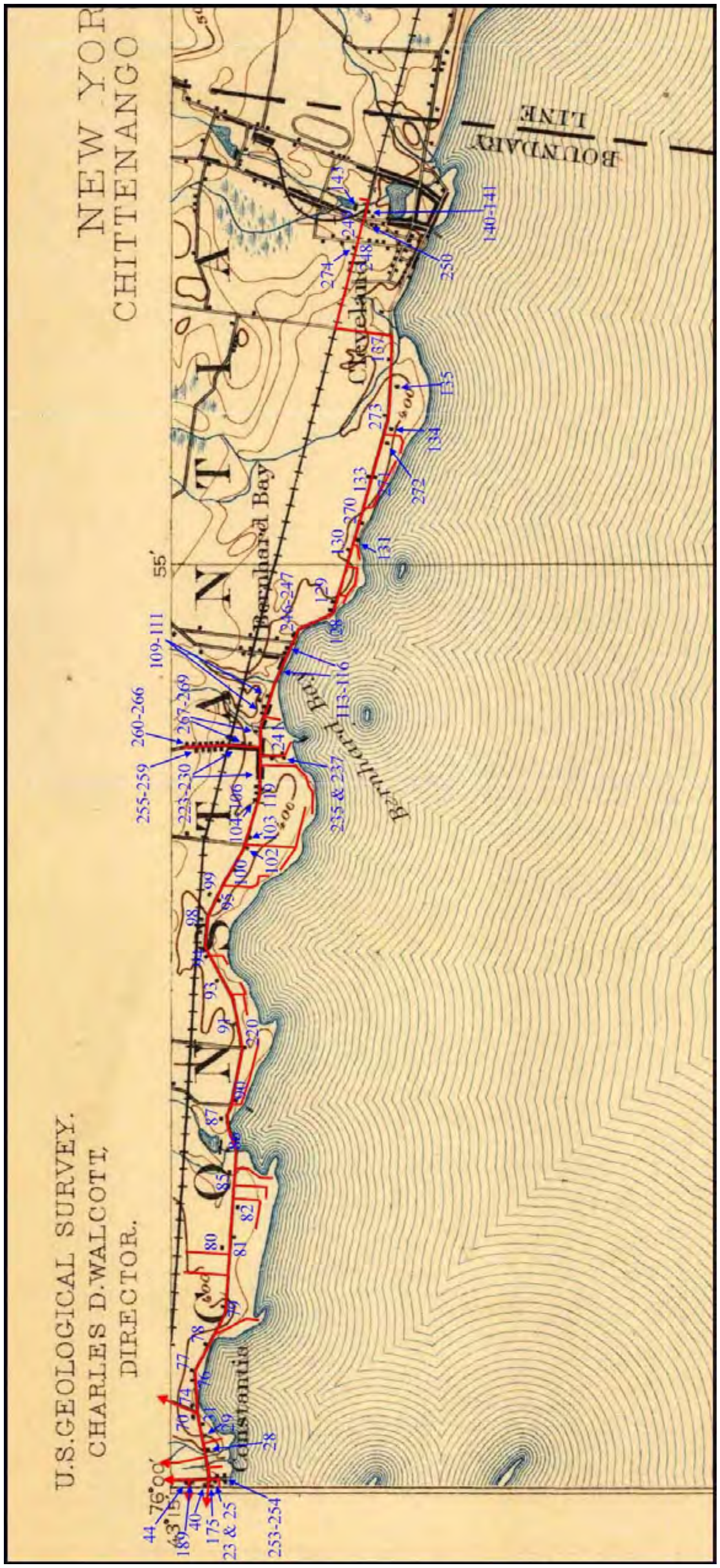

Figure 23. Location of the phase IA APE as shown on a portion of the 1895 Chittenango, New York quadrangle. All MDS are shown in blue.

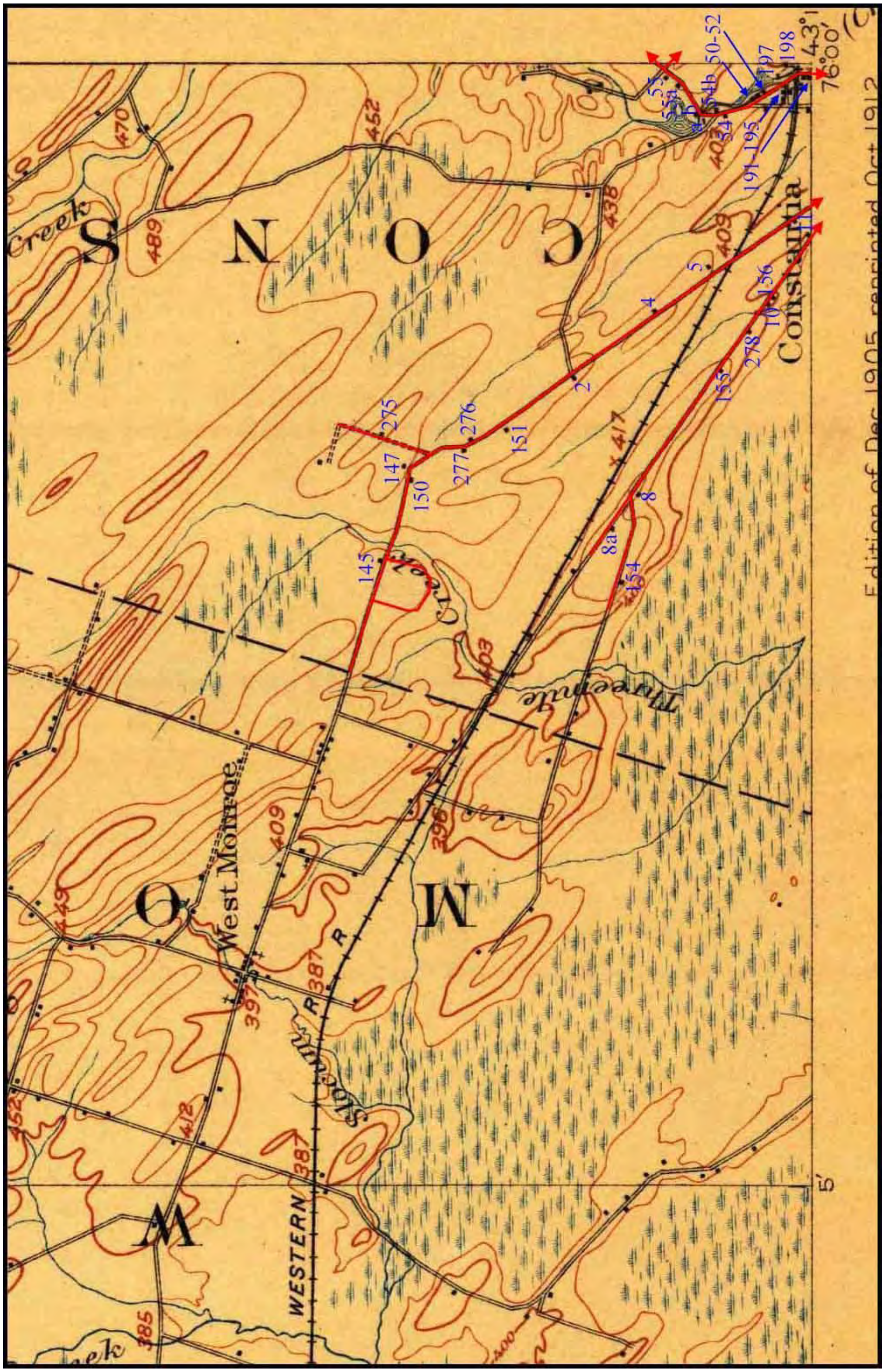

Figure 24. Location of the northwestern portion of the phase IA APE as shown on a portion of the 1905 Mexico, New York quadrangle. All MDS are shown in blue.

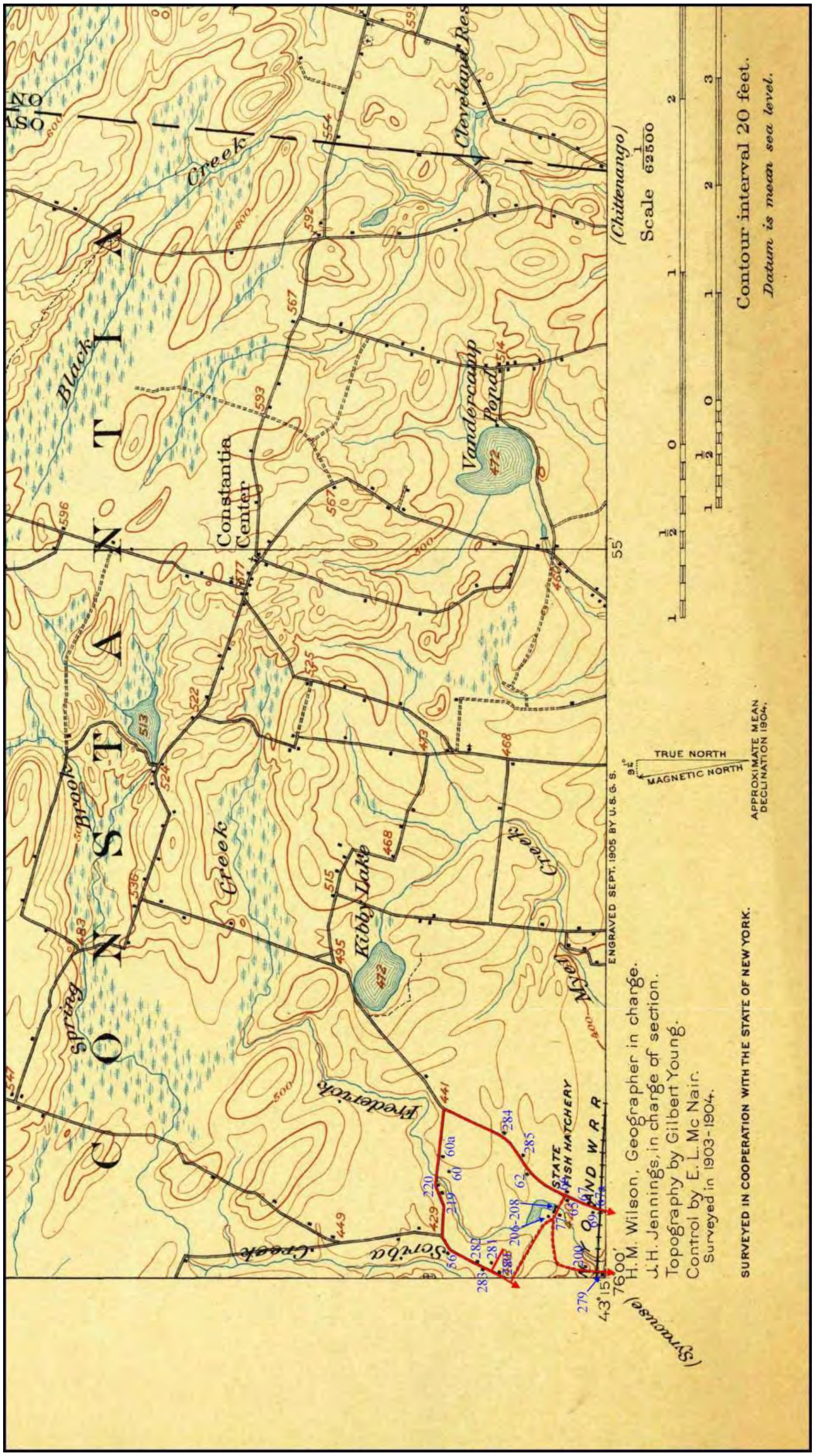

Figure 25. Location of the northern, west-central portion of the phase IA APE as shown on a portion of the 1906 Kasoag, New York quadrangle. All MDS are shown in blue.

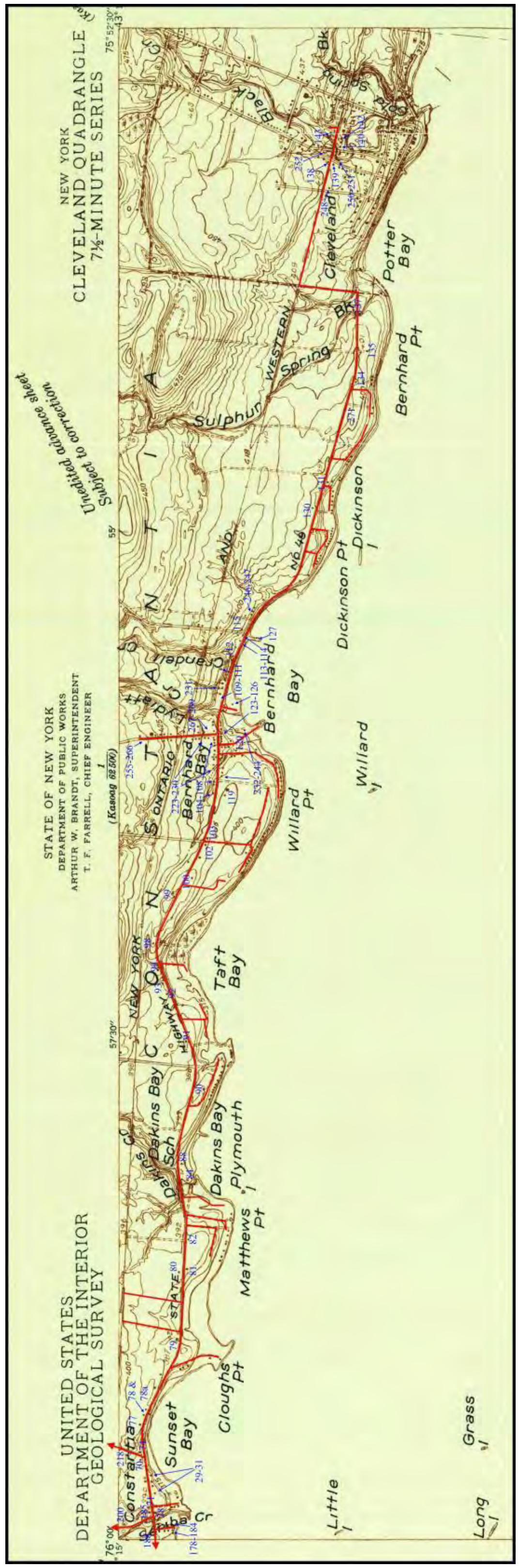

Figure 26. Location of the phase IA APE as shown on a portion of the 1941 Cleveland, New York quadrangle. All MDS are shown in blue.

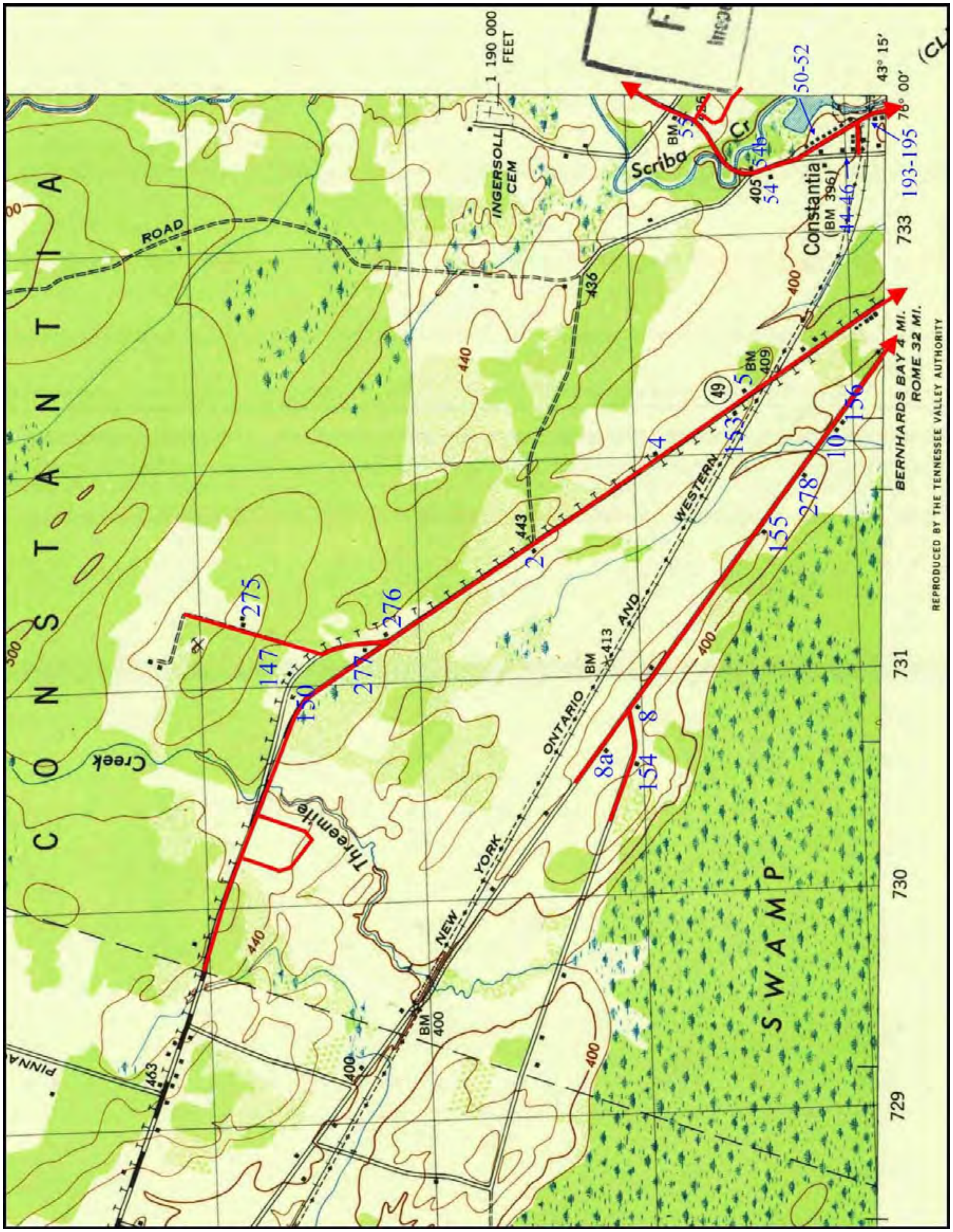

Figure 27. Location of the northwestern portion of the phase IA APE as shown on a portion of the 1943 Mallory, New York quadrangle. All MDS are shown in blue.

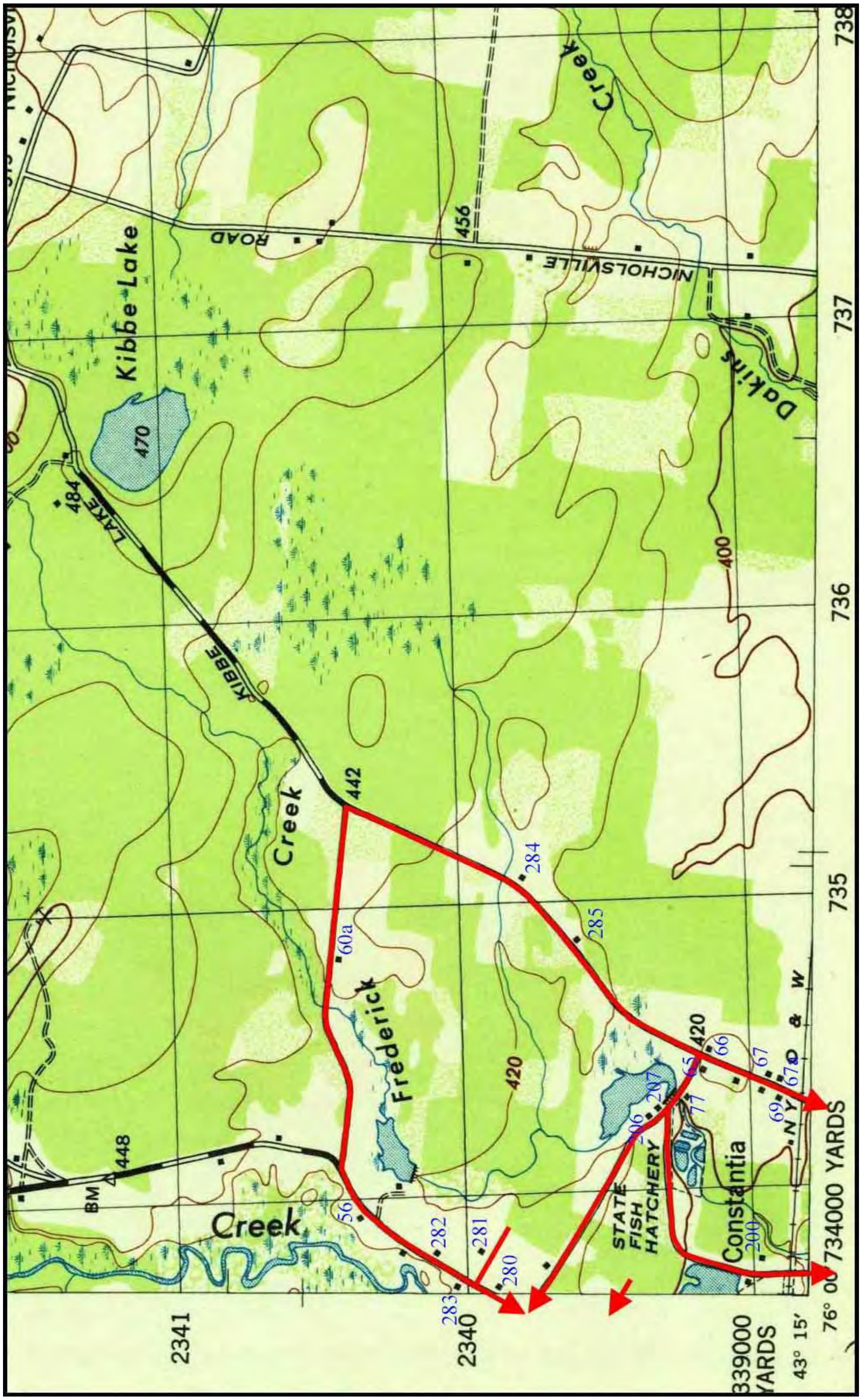

Figure 28. Location of the northern west-central portion of the phase IA APE as shown on a portion of the 1943 Panther Lake, New York quadrangle. All MDS are shown in blue.

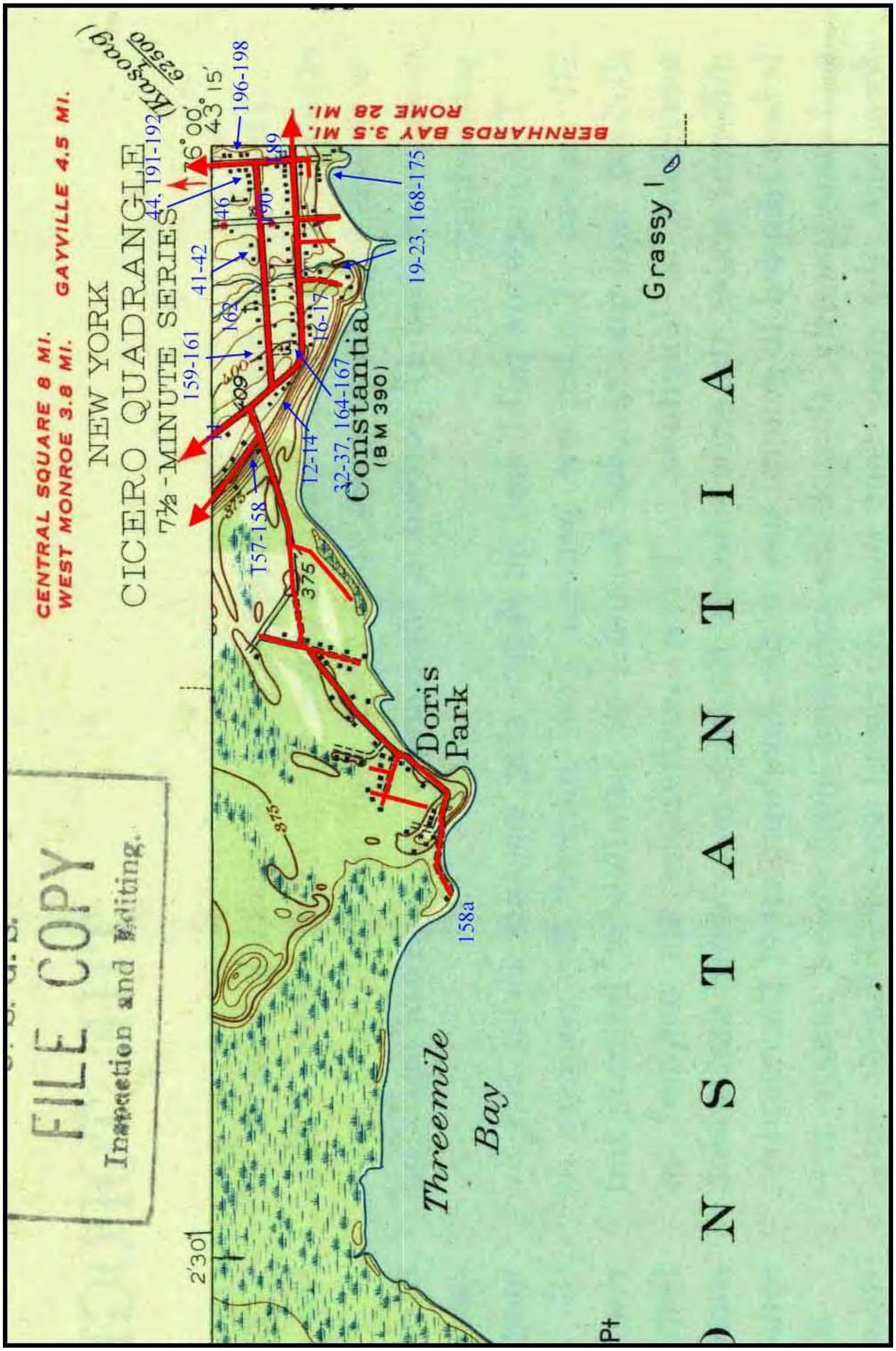

Figure 29. Location of the southwestern portion of the phase IA APE as shown on a portion of the 1944 Cicero, New York quadrangle. All MDS are shown in blue.

Map-documented Historic Structures

The phase IA historic map review indicated that at least 285 map-documented structures (MDS) are shown potentially within or adjacent the APE between 1854 and 1944. These MDS are shown in Table 3 below and their locations are provided on figures 16 through 29.

Table 3: Historic Map-documented Structures Within/Adjacent the Phase IA APE				
MDS #	*1854*	*1867*	*1895/1905/1906*	*1941/1943/1944*
1	Toll Gate	---	---	---
2	C. Plillips	T. Murty	unnamed	unnamed
3	shop	---	---	---
4	N. Phillips	A. Phillips	unnamed	unnamed
5	J. Daffler	A. Daffler	unnamed	unnamed
6	OFB Daerdin	---	---	---
7	W. Humphrey	S. VanDercook	---	---
8	H. Rawley	Hitchcook	unnamed	unnamed
8a	unnamed	P. Phillips	unnamed	unnamed
9	J. Spencer	---	---	---
10	E.W. Phillips	F.W. Phillips	unnamed	unnamed
11	W. Scott	E. Andrews	unnamed	unnamed
12	unnamed	S. Penoyer	unnamed	unnamed
12a	---	W. Maret	---	---
13	unnamed	W.H. Baker	unnamed	unnamed
14	unnamed	S. Woodard	unnamed	unnamed
14a	---	D. Stovell	unnamed	unnamed
15	unnamed	A. Woodward	unnamed	---
16	unnamed	O. Toby	unnamed	unnamed
16a		W. Dudgeon	unnamed	unnamed
17	unnamed	S. Thayer	unnamed	unnamed
18	unnamed	---	---	---
19	unnamed	C. Phillips	unnamed	unnamed
20	unnamed	P.S. Marsh	unnamed	unnamed
21	unnamed	blacksmith shop	unnamed	unnamed
22	unnamed	Dr. L. Stevens	unnamed	unnamed
23	unnamed	shoe shop	unnamed	unnamed
24	unnamed	---	unnamed	---
25	unnamed	L.T. Jones Hold	unnamed	---
26	unnamed	parsonage	---	---
27	unnamed	S. Hollenbeck	---	---
28	unnamed	S. Hollenbeck	unnamed	unnamed
29	F. Havill	Dr. F. Havill	unnamed	unnamed
30	unnamed	G.D. Grannis	---	unnamed
30a	---	H.C.C.	---	unnamed
31	R.A. Richards	R.A. Richards	unnamed	unnamed
32	unnamed	Episcopal Church & Cemetery	no exposure	unnamed
33	unnamed	J. Baker	no exposure	unnamed
34	unnamed	A. Todd	no exposure	unnamed
35	unnamed	S.P. Smith	no exposure	unnamed
36	unnamed	W. Slowell	no exposure	unnamed
37	unnamed	workshop	no exposure	unnamed
38	unnamed	J. Ganders	no exposure	unnamed
39	unnamed	S.W. Beebe	no exposure	unnamed

39a	---	W. Scott	no exposure	unnamed
39b	---	Mrs. Fulker Store	no exposure	unnamed
39c	---	Mrs. Fulker Store	no exposure	unnamed
40	unnamed	J. Moore's Drygoods	unnamed	unnamed
41	unnamed	J. Carter	no exposure	unnamed
42	unnamed	W. Champlin	no exposure	unnamed
43	unnamed	---	no exposure	---
44	unnamed	C. Marcellus	unnamed	unnamed
45	unnamed	Presbyterian Church	no exposure	unnamed
46	unnamed	School House No. 2	no exposure	school house
47	unnamed	---	no exposure	---
48	unnamed	parsonage	no exposure	unnamed
49	unnamed	F. Champlin	no exposure	unnamed
50	unnamed	C. Nolgrass	unnamed	unnamed
51	unnamed	J. Mountain	unnamed	unnamed
52	unnamed	A. Woodward	unnamed	unnamed
53	unnamed	---	---	---
54	O.B. Farrington	O.B. Farrington	unnamed	unnamed
54a	---	O. Farrington	---	---
54b	---	J. Carter	unnamed	unnamed
a	sawmill	sawmill	unnamed	---
b	grist mill	grist mill	unnamed	---
c	sawmill	sawmill	---	---
55	H & G Prentiss	Joiner Shop	unnamed	unnamed
55a	---	G.J. Prentiss	unnamed	---
56	M.C. Best	C. Best	unnamed	unnamed
57	M.C. Best	H. Champlin	---	---
58	S.N. (illegible)	(reservoir)	---	---
59	P.S. Marsh & Co.	(reservoir)	---	---
60	(illegible) M.	J. Robertson & Bro.	unnamed	---
60a	---	J. Robertson & Bro.	unnamed	unnamed
61	J. Becker	unnamed	---	---
62	M. Orington Tavern?	M. Auranger	unnamed	---
63	J & R Carter	---	---	---
64	tannery	---	---	---
65	R. Burlough	E. Robertson	unnamed	unnamed
66	T. Rohi...de	J. Robertson	unnamed	unnamed
67	Derays	Deray	unnamed	unnamed
67a	---	---	unnamed	unnamed
68	R. Longshore	Robertson Brothers	---	---
69	J.W. Green	Mrs. Longshore	unnamed	unnamed
70	J. Bentley	I.P. Brown	unnamed	unnamed
71	unnamed	Mrs. Scriba	---	unnamed
72	unnamed	Mrs. Scriba	---	---
73	unnamed	Mrs. Scriba	---	---
74	C.E. Roh...de	J. Shuman	unnamed	unnamed
75	C.E. Roh...de	---	---	---
76	R. McFarlane	S.T. Smith	unnamed	---
77	Mrs. Havill	Mrs. Andrews	unnamed	unnamed
78	H.W. Rohde	C.E. Rohde	unnamed	unnamed
78a	---	C.E. Rohde	---	unnamed
79	W. Dobson	J. Clough	unnamed	unnamed
80	D.W. Ingersoll	L. Dolby & Brothers	unnamed	unnamed

81	J. Burnett	C.J. Thompson	unnamed	unnamed
82	R. Gates	J.C. Turner	unnamed	unnamed
83	Toll Gate	---	---	---
84	A. Ellis	A. Ellis	---	unnamed
85	S. Plumb	S. Plumb	unnamed	---
86	S.H. Ellis	R. Goodrich	unnamed	---
87	G.E. Dakin	G.K. Dakin	unnamed	---
88	school house	school house	---	unnamed
89	T. Wells	---	---	---
90	J. Winn	R. Kibbs	unnamed	unnamed
91	H.W. Dickinson	H.W. Dickinson	unnamed	unnamed
92	Wm. Dickie	Mrs. Dickey	---	unnamed
93	J. Dickie	J. Dickie	unnamed	unnamed
94	S. Ferris	M. Wells	unnamed	unnamed
95	cooper shop	H. Taft	unnamed	---
96	H. Taft	H. Martin	---	---
97	C. Taft	Mrs. Taft	---	---
98	S. Taft	S. Taft	unnamed	unnamed
99	L. Belknap	J. Belknap	unnamed	unnamed
100	P. Palmer	Chappel	unnamed	unnamed
101	unnamed	P. Palmer	---	---
102	J. Webb	J. Webb	unnamed	unnamed
103	J. Morse	A. Morse	unnamed	unnamed
104	J. Haight	J.S. Haight	unnamed	unnamed
105	J.W. Cooper	J. Short	unnamed	unnamed
106	H. Willard	H. Williard	unnamed	unnamed
107	Glass Co. Store	store	unnamed	unnamed
108	J.G. Montross	unnamed	unnamed	unnamed
109	D.D. Holmes	Mrs. J.M. Pease	unnamed	unnamed
109a	---	Mrs. J. M. Pease	unnamed	unnamed
110	D.G. Bancroft	School House No. 9	unnamed	unnamed
111	L.P. Morsden	L. Crandall	unnamed	unnamed
112	J.B. Bernhard	Boarding School	---	unnamed
113	J.B. Bernhard	J.B. Bernhard	unnamed	unnamed
113a	---	J.B. Bernhard	unnamed	unnamed
114	J.B. Bernhard	J.B. Bernhard	unnamed	unnamed
115	D. Hazen	F.D.	unnamed	unnamed
116	S. Bedell	F.D.	unnamed	---
117	D. Winn	D. Winn	---	---
118	unnamed	H.W.	---	---
119	unnamed	J.S.H.	unnamed	unnamed
120	unnamed	Mrs. Van Tassel	unnamed	unnamed
121	Empire Glass Glass Works	Glass Factory	---	---
122	Glass Factory Docks	Glass Factory	---	unnamed
123	unnamed	unnamed	unnamed	unnamed
124	blacksmith shop	blacksmith shop	unnamed	unnamed
125	unnamed	J. Montross	unnamed	unnamed
126	unnamed	I.J. Titus	unnamed	unnamed
127	Bernhard’s Dock	dock	land spit	land spit
128	J. Bernhard	J.M. Bernhard	unnamed	---
129	Wm. P. Dickinson	W. P. Dickinson	unnamed	---
130	J.P. Dickinson	N. Carroll	unnamed	unnamed
131	M. Davis	M.P. Davis	unnamed	unnamed

132	C. Dickinson	---	---	---
133	C. Dickinson	S.F. Dickinson	unnamed	---
134	Toll Gate	C. Dickinson	unnamed	unnamed
135	H. Smith	H. Smith	unnamed	unnamed
136	J.W. Lyon	H. Dobees	---	---
137	Martin & Bernhard	C. Martin	unnamed	unnamed
138	unnamed	A. Hamilton	---	unnamed
139	unnamed	E.Nible Shoe Shop	---	unnamed
140	unnamed	J. Watson	unnamed	unnamed
141	unnamed	F. Van Dike	unnamed	unnamed
142	unnamed	---	---	unnamed
143	unnamed	H. Taylor	unnamed	unnamed
144	---	Judson & Co.	---	---
145	---	Judson & Co.	unnamed	---
146	---	Judson & Co.	---	---
147	---	Judson & Co.	unnamed	unnamed
148	---	Judson & Co.	---	---
149	---	Judson & Co.	---	---
150	---	Judson & Co.	unnamed	unnamed
151	---	H.C. Well	unnamed	---
152	---	V. Wells	---	---
153	---	J.L. Segwick	---	unnamed
154	---	J.H. Farran	unnamed	unnamed
155	---	G. Phillips	unnamed	unnamed
156	---	F.W. Phillips	unnamed	unnamed
157	---	T. Loney	no exposure	unnamed
158	---	T. Loney	no exposure	unnamed
158a	---	M. Ingersoll	no exposure	unnamed
159	---	J.W. Scott	no exposure	unnamed
160	---	I. Gardner	unnamed	unnamed
161	---	K.G. Lando	unnamed	unnamed
162	---	J. Carter	---	unnamed
163	---	J. Carter	unnamed	unnamed
164	---	M. Scoville	no exposure	unnamed
165	---	A. Countryman	no exposure	unnamed
166	---	Mrs. Bartlett	no exposure	unnamed
167	---	A. Todd	no exposure	unnamed
168	---	workshop	---	unnamed
169	---	F.W. Miles	---	unnamed
170	---	H. Becker	unnamed	unnamed
171	---	H. Becker	unnamed	unnamed
172	---	H. Becker	unnamed	unnamed
173	---	store & post office	unnamed	unnamed
174	---	blacksmith shop	unnamed	unnamed
175	---	shop & harness shop	unnamed	unnamed
176	---	W. Harman	no exposure	no exposure
177	---	W. Champlin	no exposure	no exposure
178	---	W. Warren	no exposure	unnamed
179	---	parsonage	no exposure	unnamed
180	---	P. Keller	---	unnamed
181	---	W.H. Taylor	---	unnamed
182	---	S. Plumb	---	unnamed
183	---	R. Gunner	---	unnamed

184	---	blacksmith shop	---	unnamed
185	---	Mrs. Scriba Store	---	unnamed
186	---	store	---	---
187	---	Judson & Co.	---	---
188	---	Hotel of H.C. Champlin	---	unnamed
189	---	H. Sh.	unnamed	unnamed
190	---	J. Moore's Drygoods	---	unnamed
191	---	W. Andrews	unnamed	unnamed
192	---	W. Porter	unnamed	unnamed
193	---	W. Barnes	unnamed	unnamed
194	---	W. Raogy	unnamed	unnamed
195	---	A. Herrington	unnamed	unnamed
196	---	Judson & Co.	no exposure	unnamed
197	---	Judson & Co.	unnamed	unnamed
198	---	sawmill	unnamed	unnamed
199	---	Judson & Co.	no exposure	---
200	---	unnamed	unnamed	unnamed
201	---	Robertson Brothers	---	---
202	---	Robertson Brothers	---	---
203	---	Robertson Brothers	---	---
204	---	Robertson Brothers	---	---
205	---	Robertson Brothers	---	---
206	---	Robertson Brothers	unnamed	unnamed
207	---	Robertson Brothers	unnamed	unnamed
208	---	Robertson Brothers Store	unnamed	---
209	---	Robertson Brothers	---	---
210	---	Robertson Brothers	---	---
211	---	Robertson Brothers	---	---
212	---	Robertson Brothers	---	---
213	---	Robertson Brothers	---	---
214	---	Robertson Brothers	---	---
215	---	Robertson Brothers Tannery	---	---
216	---	Robertson Brothers	---	---
217	---	Robertson Brothers Sawmill	---	---
218	---	Greene	no exposure	unnamed
219	---	J. Vennicee	unnamed	---
220	---	R. Holbrook	unnamed	---
221	---	store	---	---
222	---	store	---	---
223	---	unnamed	unnamed	unnamed
224	---	unnamed	unnamed	unnamed
225	---	unnamed	unnamed	unnamed
226	---	unnamed	unnamed	unnamed
227	---	G. Stratton	unnamed	unnamed
228	---	Mrs. Williard	unnamed	unnamed
229	---	W. Robbins	unnamed	unnamed
230	---	J. Clarke	unnamed	unnamed
231	---	Quaker's Church & Cemetery	unnamed	unnamed
232	---	unnamed	unnamed	unnamed
233	?	unnamed	unnamed	unnamed

234	?	unnamed	---	unnamed
235	?	unnamed	unnamed	unnamed
236	?	unnamed	---	unnamed
237	?	unnamed	unnamed	unnamed
238	?	unnamed	unnamed	unnamed
239	?	unnamed	unnamed	unnamed
240	?	unnamed	unnamed	unnamed
241	?	unnamed	unnamed	unnamed
242	?	unnamed	---	unnamed
243	?	unnamed	---	unnamed
244	?	unnamed	---	unnamed
245	?	W.S...	---	---
246	---	I.P. Marsden	unnamed	unnamed
247	---	R.F. Marsden	unnamed	unnamed
248	---	S. Hallegun	unnamed	unnamed
249	---	W. Johnson	unnamed	---
250	---	unnamed	unnamed	unnamed
251	---	unnamed	---	unnamed
252	---	unnamed	---	unnamed
253	---	---	unnamed	---
254	---	---	unnamed	unnamed
255	---	---	unnamed	unnamed
256	---	---	unnamed	unnamed
257	---	---	unnamed	unnamed
258	---	---	unnamed	unnamed
259	---	---	unnamed	unnamed
260	---	---	unnamed	unnamed
261	---	---	unnamed	unnamed
262	---	---	unnamed	unnamed
263	---	---	unnamed	unnamed
264	---	---	unnamed	unnamed
265	---	---	unnamed	unnamed
266	---	---	unnamed	unnamed
267	---	---	unnamed	unnamed
268	---	---	unnamed	unnamed
269	---	---	unnamed	unnamed
270	---	---	unnamed	---
271	---	---	unnamed	unnamed
272	---	---	unnamed	---
273	---	---	unnamed	---
274	---	---	unnamed	---
275	---	---	unnamed	unnamed
276	---	---	unnamed	unnamed
277	---	---	unnamed	unnamed
278	---	---	unnamed	unnamed
279	---	---	unnamed	---
280	---	---	unnamed	unnamed
281	---	---	unnamed	unnamed
282	---	---	unnamed	unnamed
283	---	---	unnamed	unnamed
284	---	---	unnamed	unnamed
285	---	---	unnamed	unnamed

Historic Sensitivity Assessment

The historic map evaluation (figures 16 through 29) indicated that settlement was taking place along the major roadways within the APE from the early 19th century onward. However, many of the lake-adjacent camps were not built until the early to mid-20th century. Nineteenth century commercial and residential development was especially robust within Constantia, Bernhard's Bay and Cleveland, and ten of the twelve historic archaeological sites already recorded as within/adjacent the APE are related to MDS. The Trinity Church and associated grounds within Constantia are also NRL. SR 49 was also a toll road until sometime between 1855 and 1866. Specific areas of high historic sensitivity are shown on Figure 15. The remainder of the APE is considered to have a moderate to high potential to contain late 19th to mid-20th century archaeological deposits, depending on the presence of intact soils.

Proposed Phase IB Archaeological Survey Methodology

Surface Inspection

Once the final alignment has been secured, a non-systematic pedestrian survey should be conducted to gather data relevant to 1) assessing the nature and extent of any previous disturbance, 2) identify any surface indications of adjacent MDS, 3) gather data relevant to formulating an effective systematic subsurface testing strategy, and 4) identify any obvious surface indications of the previously recorded pre-contact and/or historic sites prior to the initiation of more intensive investigations. Once this initial walk-over has been completed, shovel testing should proceed within any intact soil areas.

If any portions of the final alignment are within the boundaries of the pre-recorded archaeological sites, a phase II testing or phase III data recovery investigation should be designed in consultation with the OPRHP and any invested stakeholders.

Subsurface Inspection

All shovel tests should be a minimum of 30 cm (12 inches) in diameter, should excavate a minimum of one cubic foot of soil, and should be continued into undisturbed or non-artifact bearing subsoil. All excavated soils should then be screened through 6mm (1/4 inch) mesh hardware cloth. The exposed soil profile should then be visually examined to aid in the identification of cultural features, deposits and/or buried cultural horizons. If cultural materials are identified, the recovered artifacts should be bagged by shovel test location and relative depth below surface, if applicable. Radial shovel tests should then be excavated in each of the cardinal and subcardinal directions at 3- and 7.5-meter (10 and 25 foot) intervals, respectively. If indications of cultural features are noted, the relevant portion of the shovel test should be profiled, the exposed feature described and documented, and then covered with plastic prior to backfilling. Additional radial shovel tests, as described above, should then be excavated. All positive shovel test locations should then be photographed, and their location recorded on the appropriate project testing map. A detailed soil profile, including Munsell color and soil texture analyses, should be obtained for each excavated probe. Upon completion of each investigation, all shovel tests should be backfilled, and their location recorded on the appropriate project map.

Additional Excavation

Several areas of variably drained alluvial soils are present within the APE. These areas are shown on figures 9 through 11. Two small areas of Cut and Fill Land (C.F.L.) are also shown on figures 7 and 9. For the alluvial portions of the APE, deep testing may be necessary. Deep testing may also be required if the C.F. L. areas contain original soils buried underneath fill. If directional drilling is employed, deep testing will only be required within the areas of the sending and receiving pits. If determined necessary, these investigations should be designed in consultation with the OPRHP and any invested stakeholders.

Phase IA Archaeological Sensitivity Conclusions and Recommendations

In addition to the standard sensitivity encountered anywhere historic MDS are within and/or adjacent a proposed project area, the phase IA background and literature review identified four specific areas of high archaeological sensitivity. Each is discussed in detail below.

Constantia: Pre-contact village area and historic site area

The background review suggested that the remains of a pre-contact village site are present within Contantia (Figure 15). This site was first recorded in 1922 by Parker, and a 2011 study identified five discrete loci with lithics, ceramics and fire-cracked rock. All five sites were determined NRE. These sites suggest general boundaries for the village site from near the Doris Park Drive and SR 49 (George Street) intersection on the west to the Kibbie Lake Road area on the east. At least nine historic archaeological sites have also been recorded along both sides of SR 49 within Constantia, and the Trinity Church and grounds were listed on the National Register of Historic Places in 1990 (Figure 15). Given the high density of MDS shown within this area on the historic maps, it is highly likely that additional historic archaeological sites are present.

Due to the high potential for additional pre-contact and historic archaeological sites to be present within this area, it is recommended that the proposed sewer alignment remain within the already disturbed utility corridors or, if possible, be placed underneath the existing street. Directional drilling could also be used to minimize archaeological impacts. However, limited phase IB testing, phase II or phase III evaluations, and/or monitoring under construction may still be required. If this is not possible, shovel testing at 7.5 meter/25-foot initial intervals is recommended for all portions of the alignment not covered by pavement, and not between the current edge of pavement and the far edge of the ditch.

Kempwyk Log Cabin Site

This site (OPRHP #A07504.000001) is shown on the state records along the north side of SR 49, across from the intersection with Forest Drive (Figure 15). It marks the location where Francis Adrian Van Der Kemp built a log cabin and associated outbuildings in 1793. Due to the potential for related historic archaeological deposits to present, it is recommended that the proposed sewer alignment remain within the already disturbed utility corridors or, between the current edge of pavement and the far edge of the ditch. Limited phase IB testing may still be required. If this is not possible, shovel testing at 7.5 meter/25-foot initial intervals is recommended for all portions of the alignment adjacent this site. Depending on the results of the shovel test investigation, phase II testing may be required.

Pre-contact Camp West of Martin Road

This site (NYSM #4444) is shown on the state records to the immediate west of Martin Road along the east banks of a small stream (Figure 15). Due to the potential for related pre-contact archaeological deposits to present, it is recommended that the proposed sewer alignment remain within the already disturbed utility corridors, between the current edge of pavement and the far edge of the ditch, or along the east side of the Martin Road right-of-way. Limited phase IB testing may still be required. If this is not possible, shovel testing at 7.5 meter/25-foot initial intervals is recommended for all portions of the alignment adjacent this site. Depending on the results of the shovel test investigation, phase II testing may be required.

Sand Street Factory Foundations

This site (OPRHP #A07544.000026) is recorded along the south side of Sand Street within the Village of Cleveland and consists of industrial foundation remains (Figure 15). Due to the potential for related historic archaeological deposits to present, it is recommended that the proposed sewer alignment remain within the already disturbed utility corridors, between the current edge of pavement and the far edge of the ditch, or along the north side of the Sand Street Road right-of-way. Limited phase IB testing may still be required. If this is not possible, shovel testing at 7.5 meter/25-foot initial intervals is recommended for all portions of the alignment adjacent this site. Depending on the results of the shovel test investigation, phase II testing may be required.

General Pre-contact Sensitivity

Apart from the village and camp areas discussed above, the overall phase IA APE was likely part of the resource extraction sphere utilized during occupation of the Constantia village site, and the smaller village site reported further to the west within Toad Harbor Swamp. Although the procurement of floral and faunal resources does not always produce a visible archaeological trace, there remains a potential for activities which transcended this threshold to have taken place within the current project boundaries. As a result, the remainder of the phase IA APE has a moderate to high potential to contain previously unidentified pre-contact archaeological sites. To mitigate the potential for the current project to impact previously unidentified pre-contact sites, it is recommended that the proposed sewer alignment remain within the already disturbed utility corridors, or between the current edge of pavement and the far edge of the existing ditch. Where this is not possible, shovel testing at an initial 15 meter/50-foot interval is recommended. This interval should be reduced to 7.5 meter/25-feet if cultural materials are identified.

General Historic Sensitivity

Apart from the higher sensitivity within Constantia discussed above, the overall phase IA APE has a moderate to high potential to contain previously unidentified historic archaeological sites. This potential is dependent on the density of MDS within any given area as shown on the historic maps (figures 16 to 29). To mitigate the potential for the current project to impact previously unidentified historic sites, it is recommended that the proposed sewer alignment remain within the already disturbed utility corridors, or between the current edge of pavement and the far edge of the existing ditch. Where this is not possible, shovel testing at an initial 15 meter/50-foot interval is recommended. This interval should be reduced to 7.5 meter/25-feet if cultural materials are identified.

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APPENDIX D
2025 EDU Assessment

Parcel ID	Primary Owner	Local Street Number	Local Street Name	Local Municipality	Property Class Code	Property Class Description	2025 Updated EDU Estimate
310.05-03-17	Cavallaro, Dean	1	1st Ave	Constantia	210	1 Family Res	1.00
310.05-03-16	Cavallaro, Dean R	2	1st Ave	Constantia	210	1 Family Res	1.00
310.05-03-20.03	Toleson, Kathleen M	5	1st Ave	Constantia	210	1 Family Res	1.00
310.05-03-21	Blake, Michael Emerson	7	1st Ave	Constantia	210	1 Family Res	1.00
310.05-03-32	Reynolds, Jesse R	9	1st Ave	Constantia	210	1 Family Res	1.00
310.05-03-30	Scotto, Vincent	14	1st Ave	Constantia	210	1 Family Res	1.00
310.05-04-24	Sotherden, Timothy L	22	1st Ave	Constantia	210	1 Family Res	1.00
310.05-04-07	Kiernan, Ryan	20	1st Ave	Constantia	210	1 Family Res	1.00
310.05-04-23	Malvasi, Michael J	12	24th St	Constantia	210	1 Family Res	1.00
310.05-04-26	Rowe, Michelle M	7	24th St	Constantia	260	Seasonal res	1.00
310.05-04-27	Malvasi, Ashley	13	24th St	Constantia	314	Rural vac<10	0.50
310.05-04-15	Wormuth, Gary	0	25th St	Constantia	314	Rural vac<10	0.50
310.05-03-36	Robert & Eileen Sokol Living Trust	8	26th St	Constantia	210	1 Family Res	1.00
310.05-04-12	DiMura, Michael T	17	26th St	Constantia	210	1 Family Res	1.00
310.05-04-14	Bolton-Ronacher, Jamie	0	26th St	Constantia	314	Rural vac<10	0.50
310.05-03-25.01	Cooper, Leonard S	0	26th St	Constantia	314	Rural vac<10	0.50
310.05-03-34	Wormuth, Gary S	14	26th St	Constantia	210	1 Family Res	1.00
310.05-04-11	Thomas, Ricky	19	26th St	Constantia	210	1 Family Res	1.00
310.05-03-31	Colvin, Ronald Sr	20	26th St	Constantia	210	1 Family Res	1.00
310.05-04-10	Rinaldi, George	25	26th St	Constantia	210	1 Family Res	1.00
310.05-04-08	Hadyk-Wepf, Sonia	27	26th St	Constantia	260	Seasonal res	1.00
310.05-03-25.02	Cooper, Leonard S	32	26th St	Constantia	270	Mfg housing	1.00
310.05-03-25.03	Fazio, Todd M	33	26th St	Constantia	314	Rural vac<10	0.50
310.05-03-25.07	Ostune, John B	7	28th St	Constantia	210	1 Family Res	1.00
310.05-03-05	Dineen, Michael J	15	28th St	Constantia	210	1 Family Res	1.00
310.05-03-25.06	Martin, James	11	28th St	Constantia	260	Seasonal res	1.00
310.05-04-28	Stone, Philip	0	29th St	Constantia	314	Rural vac<10	0.50
310.05-03-25.05	Mac Millan, Kirk A	0	29th St	Constantia	314	Rural vac<10	0.50
310.05-03-10	Dineen, Michael J	0	29th St	Constantia	314	Rural vac<10	0.50
310.05-02-01	Armstrong, Bertha E	0	29th St	Constantia	314	Rural vac<10	0.50
310.05-03-02	LaRobardiere, Trace B	0	2nd Ave	Constantia	314	Rural vac<10	0.50
310.05-01-39	Schwarz, Fred D	5	32nd St	Constantia	210	1 Family Res	1.00
310.05-01-38	Haramis, Lee	9	32nd St	Constantia	210	1 Family Res	1.00
310.05-01-37	Esposito, Kathleen	0	33rd St	Constantia	314	Rural vac<10	0.50
310.05-01-31	Dempster, Derinda D Boyden	0	33rd St	Constantia	314	Rural vac<10	0.50
310.05-01-23	Hecimovich, Steven M	4	34th St	Constantia	260	Seasonal res	1.00
310.05-01-16	Limestone Ridge LLC	18	34th St	Constantia	210	1 Family Res	1.00
310.05-01-26	Carrol Dempster	21	34th St	Constantia	210	1 Family Res	1.00
310.05-01-15	Limestone Ridge LLC	0	34th St	Constantia	260	Seasonal res	1.00
310.05-01-36	Edwards, Judith	1	34th St	Constantia	260	Seasonal res	1.00
310.05-01-25	Usakewicz, Edward John	2	34th St	Constantia	260	Seasonal res	1.00
310.05-01-35	Ireland, Ross	3	34th St	Constantia	260	Seasonal res	1.00
310.05-01-24.01	Curinga, Theodore F	8	34th St	Constantia	314	Rural vac<10	0.50
310.05-01-17	Davis, Joseph	16	34th St	Constantia	260	Seasonal res	1.00
310.05-01-14	Miller, Richard	20	34th St	Constantia	210	1 Family Res	1.00
310.05-01-09	Walters, Bailey M	32	34th St	Constantia	210	1 Family Res	1.00
310.05-01-06	Walsh, Derrick A	34	34th St	Constantia	210	1 Family Res	1.00
310.05-01-18	Curinga, Theodore F	12-14	34th St	Constantia	312	Vac w/imprv	0.50
310.05-01-01	Sweet, Thomas J	36 & 37	34th St	Constantia	210	1 Family Res	2.00
310.05-01-33	Garfield High LLC	5-9	34th St	Constantia	210	1 Family Res	2.00
311.06-01-22	Smith, Michael R	14	Ackerman Rd	Constantia	260	Seasonal res	1.00
311.06-01-23.1	DiFlorio, Pasquale P	16	Ackerman Rd	Constantia	210	1 Family Res	1.00
311.06-01-26.01	Hinman, Jacob Steven	19	Ackerman Rd	Constantia	210	1 Family Res	1.00
311.06-01-25	Resch, Richard	20	Ackerman Rd	Constantia	210	1 Family Res	1.00
311.06-01-27	Nodine, Douglas G	22	Ackerman Rd	Constantia	210	1 Family Res	1.00
311.06-01-28	Kaminski Asset Trust	26	Ackerman Rd	Constantia	260	Seasonal res	1.00
311.06-01-30	Kurzinski, Bradley	30	Ackerman Rd	Constantia	210	1 Family Res	1.00
311.06-01-31	Taveras, Elizabeth	36	Ackerman Rd	Constantia	280	Res Multiple	2.00
311.06-01-35	Sutton, Richard I	42	Ackerman Rd	Constantia	210	1 Family Res	1.00
311.07-01-09	Faulkner, Dale S Estate	46	Ackerman Rd	Constantia	210	1 Family Res	1.00
311.06-01-21	Roemer, David J	8-12	Ackerman Rd	Constantia	280	Res Multiple	2.00
311.06-01-24	Anderson, John H	18	Ackerman Rd	Constantia	210	1 Family Res	1.00
311.06-01-34	Griffith, Edward A	40	Ackerman Rd	Constantia	210	1 Family Res	1.00
278.00-02-07.15	McKinney, Holli L	3	Adrian Cir	Constantia	210	1 Family Res	1.00
278.00-02-07.02	Bingham, William R	10	Adrian Cir	Constantia	210	1 Family Res	1.00
278.00-02-07.03	Phillips, Timothy C	18	Adrian Cir	Constantia	210	1 Family Res	1.00
278.00-02-07.18	Eldridge, Martha E	31	Adrian Cir	Constantia	210	1 Family Res	1.00
278.00-02-07.05	William J Collaro	34	Adrian Cir	Constantia	210	1 Family Res	1.00
278.00-02-07.07	Todd, Christopher J	50	Adrian Cir	Constantia	210	1 Family Res	1.00
278.00-02-07.09	Aubertine, Robert	66	Adrian Cir	Constantia	210	1 Family Res	1.00
278.00-02-07.21	Buckingham, Michael D	67	Adrian Cir	Constantia	210	1 Family Res	1.00
278.00-02-07.1	Nassimos, Jeffrey C	72	Adrian Cir	Constantia	210	1 Family Res	1.00
278.00-02-07.22	Musengo, Robert F Jr	73	Adrian Cir	Constantia	210	1 Family Res	1.00
278.00-02-07.23	Donaldson, Gregg E	81	Adrian Cir	Constantia	210	1 Family Res	1.00
278.00-02-07.12	Chwalibog, Adam P	90	Adrian Cir	Constantia	210	1 Family Res	1.00
278.00-02-07.17	Visconti, Michael	0	Adrian Cir	Constantia	314	Rural vac<10	0.50
278.00-02-07.01	Earls, Jim E	4	Adrian Cir	Constantia	210	1 Family Res	1.00
278.00-02-07.16	Ayen, Jerrid E	11	Adrian Cir	Constantia	210	1 Family Res	1.00
278.00-02-07.04	Burton, Michael J	26	Adrian Cir	Constantia	210	1 Family Res	1.00

278.00-02-07.06	Garlic, Kevin R	42	Adrian Cir	Constantia	210	1 Family Res	1.00
278.00-02-07.19	Freewalt, Joseph	43	Adrian Cir	Constantia	210	1 Family Res	1.00
278.00-02-07.2	Baye, Danielle N	53	Adrian Cir	Constantia	210	1 Family Res	1.00
278.00-02-07.08	Bush, Susan E	56	Adrian Cir	Constantia	210	1 Family Res	1.00
278.00-02-07.11	La Forest, Marc A	80	Adrian Cir	Constantia	210	1 Family Res	1.00
278.00-02-07.13	Bartowski, Damian	89	Adrian Cir	Constantia	314	Rural vac<10	1.00
278.00-02-06.02	West, Janet L	29	Avery Rd	Constantia	210	1 Family Res	1.00
278.00-02-09	Riesterer, Kristina M	39	Avery Rd	Constantia	210	1 Family Res	1.00
278.00-02-04	Coe, Randy J	61	Avery Rd	Constantia	210	1 Family Res	1.00
278.00-01-12.2	Mc Ardell, Jerry	84	Avery Rd	Constantia	210	1 Family Res	1.00
278.00-01-08	Doughty, Roger L	90	Avery Rd	Constantia	210	1 Family Res	1.00
278.00-01-09	Conley, Timothy P	94	Avery Rd	Constantia	210	1 Family Res	1.00
278.00-01-10	Aubut, Sheridan	100	Avery Rd	Constantia	210	1 Family Res	1.00
296.00-01-24.06	Graczyk, Stephen C	20	Avery Rd	Constantia	240	Rural res	1.00
296.00-01-03.12	Barry, Nathan T	36	Avery Rd	Constantia	210	1 Family Res	1.00
278.00-02-09.01	Luckette, Donna S	43	Avery Rd	Constantia	210	1 Family Res	1.00
278.00-02-08.01	White, Valerie C	51	Avery Rd	Constantia	210	1 Family Res	1.00
278.00-02-08	Wilson, Jacob W	57	Avery Rd	Constantia	210	1 Family Res	1.00
278.00-01-06.03	Weaver, Karan	58	Avery Rd	Constantia	220	2 Family Res	2.00
278.00-02-03.1	Cornell, Robert R	67	Avery Rd	Constantia	210	1 Family Res	1.00
278.00-02-03.2	Hynes, Thomas Michael	75	Avery Rd	Constantia	210	1 Family Res	1.00
278.00-01-07	Weaver, Robert	76	Avery Rd	Constantia	210	1 Family Res	2.00
278.00-01-11	Lambert, Kitty Jane	104	Avery Rd	Constantia	210	1 Family Res	1.00
278.00-01-13	Wiltse, Dennis J	134	Avery Rd	Constantia	240	Rural res	2.00
278.00-02-06.01	Frigon, Sean T	9-19	Avery Rd	Constantia	280	Res Multiple	2.00
312.05-03-15	Pietrowicz, James	12-18	Camper Dr	Constantia	280	Res Multiple	4.00
296.00-02-14.12	Cook, Allen	8	Cemetery Rd	Constantia	210	1 Family Res	1.00
296.00-01-28.01	Wagoner, Eric P	37	Cherry Ridge Dr	Constantia	240	Rural res	1.00
312.06-01-12	Baldrini, Robert F	6	Co Rt 17	Constantia	220	2 Family Res	2.00
312.06-01-01.02	Winn, Courtney C III	5	Co Rt 17	Constantia	210	1 Family Res	1.00
296.15-02-03.1	Eschbach, Christopher J	0	Co Rt 23	Constantia	210	1 Family Res	1.00
296.19-02-03	McAllister, Derek S	50	Co Rt 23	Constantia	210	1 Family Res	1.00
296.19-02-04	Baker, Barbara	58	Co Rt 23	Constantia	210	1 Family Res	1.00
296.19-01-04	Harris, Timothy P	59	Co Rt 23	Constantia	210	1 Family Res	1.00
296.19-02-05	Hanley, Douglas	60	Co Rt 23	Constantia	210	1 Family Res	1.00
296.19-02-07	Yonkers, Ethan	66	Co Rt 23	Constantia	210	1 Family Res	1.00
296.19-02-09	Mc Connell, Barbara	74	Co Rt 23	Constantia	210	1 Family Res	1.00
296.15-02-19	Collins, Derek T	84	Co Rt 23	Constantia	210	1 Family Res	1.00
296.00-02-19	Doran, Michael R	99	Co Rt 23	Constantia	210	1 Family Res	1.00
296.15-01-02.01	Solomon, Robert B	135	Co Rt 23	Constantia	416	Mfg hsing pk	11.50
296.15-02-27	Rouse, Valerie	142	Co Rt 23	Constantia	210	1 Family Res	1.00
296.15-02-28	Campbell, John	148	Co Rt 23	Constantia	210	1 Family Res	1.00
296.00-02-15.01	Cottet, Robert J	163	Co Rt 23	Constantia	210	1 Family Res	1.00
296.00-04-29.02	Peaden, Tamara	186	Co Rt 23	Constantia	210	1 Family Res	1.00
296.00-04-29.01	Jackson, Peter	190	Co Rt 23	Constantia	210	1 Family Res	1.00
296.00-02-14.11	Avery, William F	191	Co Rt 23	Constantia	210	1 Family Res	1.00
296.00-02-26	Peaden, Tamara	195	Co Rt 23	Constantia	210	1 Family Res	1.00
296.00-02-26.04	Kaljeskie, Samuel J	199	Co Rt 23	Constantia	210	1 Family Res	1.00
296.00-04-01.03	Halpin, Derrick M	204	Co Rt 23	Constantia	210	1 Family Res	1.00
296.00-02-26.03	Tuff, Cassie L	205	Co Rt 23	Constantia	210	1 Family Res	1.00
296.00-02-26.01	VanMarter, Christopher D	215	Co Rt 23	Constantia	210	1 Family Res	1.00
296.00-04-03.1	Peaden, Michael E	224	Co Rt 23	Constantia	210	1 Family Res	1.00
296.00-03-18.01	Davis, Terry M II	232	Co Rt 23	Constantia	210	1 Family Res	1.00
296.00-03-18.04	Flood, Kelley J	264	Co Rt 23	Constantia	210	1 Family Res	1.00
296.00-02-10	Kitts, Paul A	249-53	Co Rt 23	Constantia	280	Res Multiple	2.00
296.19-02-10	Niagara Mohawk dba Nat Grid	0	Co Rt 23	Constantia	872	Elec-Substation	0.50
296.15-02-21	Collins, Derek T	0	Co Rt 23	Constantia	314	Rural vac<10	0.50
296.00-02-09	Slade Springer	0	Co Rt 23	Constantia	314	Rural vac<10	0.50
296.19-01-06	Fosgate, Dara G	49	Co Rt 23	Constantia	210	1 Family Res	1.00
296.19-02-06	Warner, Deuretta	64	Co Rt 23	Constantia	210	1 Family Res	1.00
296.19-02-08	Simonds, Howard F III	70	Co Rt 23	Constantia	210	1 Family Res	1.00
296.19-01-01	Trexler, Leslie	73	Co Rt 23	Constantia	210	1 Family Res	1.00
296.15-02-17	Yaw, Julia A	76	Co Rt 23	Constantia	210	1 Family Res	1.00
296.15-02-21.01	Whelpton, Travis K	102	Co Rt 23	Constantia	210	1 Family Res	1.00
296.15-02-25	Wilding, Doreen E	110	Co Rt 23	Constantia	210	1 Family Res	1.00
296.15-01-03	Mazzaroppi, Cathy P	121	Co Rt 23	Constantia	210	1 Family Res	1.00
296.15-01-02	Clark, Kim O	151	Co Rt 23	Constantia	210	1 Family Res	1.00
296.15-02-02	Obey, Jennifer L	154	Co Rt 23	Constantia	210	1 Family Res	1.00
296.15-02-03.2	VanEpps, Dean	160	Co Rt 23	Constantia	270	Mfg housing	1.00
296.00-04-02.1	Sweet, Thomas J	198	Co Rt 23	Constantia	240	Rural res	1.00
296.00-02-26.02	Camardella, Scott C	207	Co Rt 23	Constantia	210	1 Family Res	1.00
296.00-04-01.02	Sweet, Thomas J	208	Co Rt 23	Constantia	210	1 Family Res	1.00
296.00-04-03.2	Edwards, Fred S	216	Co Rt 23	Constantia	210	1 Family Res	1.00
296.00-02-25.1	Spadaro, Caitlin B	225	Co Rt 23	Constantia	210	1 Family Res	1.00
296.00-02-25.2	Frigon, Ryan M	231	Co Rt 23	Constantia	210	1 Family Res	1.00
296.00-02-11.22	Hansen, James B	237	Co Rt 23	Constantia	210	1 Family Res	1.00
296.00-03-18.02	Eldred, Troy E	238	Co Rt 23	Constantia	210	1 Family Res	1.00
296.00-02-24	Raymond, Russell M	243	Co Rt 23	Constantia	210	1 Family Res	1.00
296.00-03-18.05	Presseau, Cheryl	244	Co Rt 23	Constantia	240	Rural res	1.00
296.00-03-18.03	Tsosie, Jessie L	250	Co Rt 23	Constantia	210	1 Family Res	1.00
296.00-03-18.06	Peaden, Michael E	Off	Co Rt 23	Constantia	314	Rural vac<10	0.50
296.19-04-15	Ferry, Charles G Jr	16	Co Rt 23 (1)	Constantia	210	1 Family Res	1.00

296.19-05-04	Constantia Fire District #1	23	Co Rt 23 (1)	Constantia	662	Police/fire	1.00
296.19-04-01	Dineen, Michael J	24	Co Rt 23 (1)	Constantia	210	1 Family Res	1.00
296.19-05-03	Constantia Fire District #1	29	Co Rt 23 (1)	Constantia	449	Other Storage	1.00
296.19-04-11	Vella, Joseph L	0	Co Rt 23 (1)	Constantia	314	Rural vac<10	0.50
296.19-06-04	Abbass, Joseph D	3	Co Rt 23 (1)	Constantia	314	Rural vac<10	0.50
296.19-04-09	Concolino, Gennaro J	6	Co Rt 23 (1)	Constantia	210	1 Family Res	1.00
296.19-04-08	Concolino, Scott J	8	Co Rt 23 (1)	Constantia	270	Mfg housing	1.00
296.19-04-14	Holava, Craig A	14	Co Rt 23 (1)	Constantia	210	1 Family Res	1.00
296.19-05-06	Campbell, John S	17	Co Rt 23 (1)	Constantia	210	1 Family Res	1.00
296.19-05-05	Darrow, Richard J	19	Co Rt 23 (1)	Constantia	210	1 Family Res	1.00
296.19-04-17	Hobson, Richard J	20	Co Rt 23 (1)	Constantia	210	1 Family Res	1.00
296.19-05-02	Solomon, Eric Troy	33	Co Rt 23 (1)	Constantia	425	Bar	2.00
310.07-01-04	Renpro LLC	1	Coleman Dr	Constantia	210	1 Family Res	1.00
310.07-01-03	Hoellrich, Jane E	7	Coleman Dr	Constantia	220	2 Family Res	2.00
310.07-01-02	Fox, Harland L	15	Coleman Dr	Constantia	260	Seasonal res	1.00
310.07-01-03.01	Anthony, Todd S	21	Coleman Dr	Constantia	210	1 Family Res	1.00
310.07-02-06	Kopacko, Michael J	3	Cove Rd	Constantia	210	1 Family Res	1.00
310.07-02-07	Comestro, Robert	5	Cove Rd	Constantia	210	1 Family Res	1.00
310.07-02-08	Ward, David	7	Cove Rd	Constantia	210	1 Family Res	1.00
311.06-01-01	Mullin, Travis R	7	Dakin Rd	Constantia	210	1 Family Res	1.00
311.05-02-06	Willis, Ralph	9	Dakin Rd	Constantia	210	1 Family Res	1.00
311.05-02-07	Macaluso, Gregory J	13	Dakin Rd	Constantia	260	Seasonal res	1.00
311.05-02-08	Godzwon, Martin F	17	Dakin Rd	Constantia	260	Seasonal res	1.00
311.05-02-09.1	Young, Robert C	19	Dakin Rd	Constantia	210	1 Family Res	1.00
311.05-02-10	Nastri, Jan F	25	Dakin Rd	Constantia	210	1 Family Res	1.00
311.05-02-11	Nastri, Joseph E	27	Dakin Rd	Constantia	210	1 Family Res	1.00
311.05-02-12	Kosecki, Joseph J	33	Dakin Rd	Constantia	210	1 Family Res	1.00
311.05-02-14	O'Connor-Alfred, Mary B	35	Dakin Rd	Constantia	210	1 Family Res	1.00
311.06-01-02	AES Trust	3	Dakin Rd	Constantia	210	1 Family Res	2.00
311.05-02-04	Warner, Carlo	10	Dakin Rd	Constantia	260	Seasonal res	1.00
311.05-02-05	Heckman, Jeffrey	12	Dakin Rd	Constantia	210	1 Family Res	1.00
311.05-02-13	Hubbard, K Keith	37	Dakin Rd	Constantia	314	Rural vac<10	1.00
310.05-01-50.02	Usakewicz, Edward J	0	Doris Park	Constantia	314	Rural vac<10	0.50
296.18-04-07.03	Sullivan, Edward T	5	Doris Park Dr	Constantia	210	1 Family Res	1.00
296.18-04-06	Fawole, Gbadebo Oluwatoyin	19	Doris Park Dr	Constantia	210	1 Family Res	1.00
296.18-04-05	Derocher, William J III	21	Doris Park Dr	Constantia	210	1 Family Res	1.00
296.18-04-04	Tryniski, Matthew	23	Doris Park Dr	Constantia	210	1 Family Res	1.00
296.18-04-03	Kamp, David W	27	Doris Park Dr	Constantia	210	1 Family Res	1.00
296.18-05-07	Porter, Deborah	30	Doris Park Dr	Constantia	210	1 Family Res	1.00
296.18-04-01	Kelley, Donald N	31	Doris Park Dr	Constantia	210	1 Family Res	1.00
296.18-05-08	Elderbroom, Ellen J	34	Doris Park Dr	Constantia	210	1 Family Res	1.00
310.06-02-16	Bader, Linda A	37	Doris Park Dr	Constantia	210	1 Family Res	1.00
310.06-02-15	Kieffer, Thomas	39	Doris Park Dr	Constantia	210	1 Family Res	1.00
310.06-02-14	Tyminski Family Irr Trust	41	Doris Park Dr	Constantia	210	1 Family Res	1.00
310.06-02-12	Kowanes, Howard	43	Doris Park Dr	Constantia	210	1 Family Res	1.00
310.06-01-06	Mirra, Paul J	53	Doris Park Dr	Constantia	210	1 Family Res	1.00
310.05-01-13	Weaver, William H	83	Doris Park Dr	Constantia	210	1 Family Res	1.00
310.05-01-44	Rumo, Zachary P	103	Doris Park Dr	Constantia	210	1 Family Res	1.00
310.05-02-02.2	Ostuni, Elizabeth A	106	Doris Park Dr	Constantia	270	Mfg housing	1.00
310.05-01-43	Jesmer, Maryanne	107	Doris Park Dr	Constantia	210	1 Family Res	1.00
310.05-02-08	Estate of Loreta L Donlon	115	Doris Park Dr	Constantia	280	Res Multiple	2.00
310.05-02-15.1	Smith, Carl W Jr	116	Doris Park Dr	Constantia	210	1 Family Res	1.00
310.05-02-09	Williams, Denise	121	Doris Park Dr	Constantia	210	1 Family Res	1.00
310.05-02-15.2	Dineen, Michael J	122	Doris Park Dr	Constantia	260	Seasonal res	1.00
310.05-02-10	Erler, David M	125	Doris Park Dr	Constantia	210	1 Family Res	1.00
310.05-02-17	Dineen, Michael J	126	Doris Park Dr	Constantia	210	1 Family Res	1.00
310.05-03-11	Donigan Irrevocable Trust, Nancy	142	Doris Park Dr	Constantia	280	Res Multiple	2.00
310.05-03-39	Fitts, James	150	Doris Park Dr	Constantia	210	1 Family Res	1.00
310.05-03-20.01	Lubinger, Karl	152	Doris Park Dr	Constantia	210	1 Family Res	1.00
310.05-03-37.01	Duvall Irrev Trust	165	Doris Park Dr	Constantia	260	Seasonal res	1.00
310.05-03-37	Visconti, Michael D	171	Doris Park Dr	Constantia	210	1 Family Res	1.00
310.05-04-32.2	Kadlubowski, Marcia J	200	Doris Park Dr	Constantia	210	1 Family Res	1.00
310.05-03-19.01	Blue Skies Trust	158-60	Doris Park Dr	Constantia	280	Res Multiple	2.00
310.05-04-16	Wormuth, Gary	0	Doris Park Dr	Constantia	314	Rural vac<10	0.50
310.05-03-41	Martin, John F	0	Doris Park Dr	Constantia	314	Rural vac<10	0.50
310.05-01-52.01	Buchan, William	0	Doris Park Dr	Constantia	314	Rural vac<10	0.50
310.05-01-52	Curinga, Theodore F	0	Doris Park Dr	Constantia	314	Rural vac<10	0.50
310.05-01-48	Erler, David	0	Doris Park Dr	Constantia	314	Rural vac<10	0.50
296.18-05-10.02	Abold, Daniel	0	Doris Park Dr	Constantia	314	Rural vac<10	1.00
296.18-04-07.02	Peltz, Steven M	3	Doris Park Dr	Constantia	210	1 Family Res	1.00
296.18-04-07	Mahalick, Edward	7	Doris Park Dr	Constantia	210	1 Family Res	1.00
310.06-02-18	Abold, Daniel W	33	Doris Park Dr	Constantia	210	1 Family Res	1.00
296.18-05-09	Kelley Irrev Trust, Beverly A	38	Doris Park Dr	Constantia	210	1 Family Res	1.00
310.06-02-11	Talbot, Richard	45	Doris Park Dr	Constantia	210	1 Family Res	1.00
310.06-02-10	Gushlaw, Randy	47	Doris Park Dr	Constantia	260	Seasonal res	1.00
296.18-05-11	Smith, Thomas E	54	Doris Park Dr	Constantia	210	1 Family Res	1.00
310.06-01-05	Smith, Roger	57	Doris Park Dr	Constantia	210	1 Family Res	1.00
310.06-01-01.11	Martin-Evenden, Tia	66	Doris Park Dr	Constantia	210	1 Family Res	1.00
310.05-01-53	Greene, Nicole D	74	Doris Park Dr	Constantia	270	Mfg housing	1.00
310.05-01-12	Weaver, William H	81	Doris Park Dr	Constantia	314	Rural vac<10	0.50
310.05-01-08	Hollenbeck, Kathleen J	82	Doris Park Dr	Constantia	210	1 Family Res	1.00
310.05-01-29	Boyden, Kevin E	97	Doris Park Dr	Constantia	210	1 Family Res	1.00

310.05-02-06	Cimilluca, Jonathan M	108	Doris Park Dr	Constantia	210	1 Family Res	1.00
310.05-02-05	Wright, David L Jr	114	Doris Park Dr	Constantia	210	1 Family Res	1.00
310.05-03-40	Asmus, Robert J	166	Doris Park Dr	Constantia	314	Rural vac<10	1.00
310.05-04-18	Fleury, Gary H	180	Doris Park Dr	Constantia	210	1 Family Res	1.00
310.05-04-19	Wood, Randy	184	Doris Park Dr	Constantia	210	1 Family Res	1.00
310.05-04-20	Kabat, James R	186	Doris Park Dr	Constantia	210	1 Family Res	1.00
310.05-04-21	Mancini, Daniel A	188	Doris Park Dr	Constantia	210	1 Family Res	1.00
310.05-04-25.1	Equity Trust Co	192	Doris Park Dr	Constantia	210	1 Family Res	1.00
310.05-04-30	Graver, Timothy T	196	Doris Park Dr	Constantia	210	1 Family Res	1.00
310.05-04-32.1	Hafermalz, William	206	Doris Park Dr	Constantia	210	1 Family Res	2.00
309.00-01-01	Armstrong, Roberta M	210	Doris Park Dr	Constantia	210	1 Family Res	1.00
310.06-02-13	Kowanes, Howard	43A	Doris Park Dr	Constantia	312	Vac w/imprv	0.50
311.05-02-16	Dussing, Robert	42	Elderberry Ln	Constantia	210	1 Family Res	1.00
311.05-02-15	Bennett, William	46	Elderberry Ln	Constantia	210	1 Family Res	1.00
311.07-01-03	Desimone, David M	24	Fawn Rd	Constantia	210	1 Family Res	1.00
311.07-01-04.02	Davis, Daniel F	26	Fawn Rd	Constantia	210	1 Family Res	1.00
311.07-01-04.01	Nichols, Brian	29	Fawn Rd	Constantia	210	1 Family Res	1.00
311.07-01-05	Ruoff, Steven	32	Fawn Rd	Constantia	210	1 Family Res	1.00
311.07-01-06.01	Kriesel 2022 Irrev Trust, Joan	36	Fawn Rd	Constantia	210	1 Family Res	1.00
311.07-01-07	Emborski, Robert A	40	Fawn Rd	Constantia	210	1 Family Res	1.00
312.15-01-21.02	Adamski, Monika	0	Forest Dr	Constantia	312	Vac w/imprv	1.00
312.15-01-17	Dean, Thomas L	41	Forest Dr	Constantia	312	Vac w/imprv	1.00
312.15-01-13	Cooper, Joseph L	15	Forest Dr	Constantia	210	1 Family Res	1.00
312.15-01-14	Vallilee Irrev Trust	17	Forest Dr	Constantia	210	1 Family Res	1.00
312.15-01-15	Adamski, Jason	21	Forest Dr	Constantia	260	Seasonal res	1.00
312.15-01-16	Hellmann, Ronald G & Gerlinde	23	Forest Dr	Constantia	210	1 Family Res	1.00
312.15-01-16.01	Madonna, Raffaele	25	Forest Dr	Constantia	210	1 Family Res	1.00
312.15-01-03.111	Pierce, Thomas R	29	Forest Dr	Constantia	210	1 Family Res	1.00
312.15-01-03.2	Sherlock, Earl L	31	Forest Dr	Constantia	210	1 Family Res	1.00
312.15-01-03.12	Watson Family Trust	37	Forest Dr	Constantia	210	1 Family Res	1.00
312.15-01-02	Volpi, Bernard L Jr	45	Forest Dr	Constantia	210	1 Family Res	1.00
296.19-05-10	Town Of Constantia	14	Frederick St	Constantia	652	Govt bldgs	1.00
296.19-06-01.02	Abbass, Joseph	17	Frederick St	Constantia	484	1 use sm bld	1.00
296.18-03-06	Harper, Robert	56	Frederick St	Constantia	210	1 Family Res	1.00
296.18-03-05	United Methodist Church	58	Frederick St	Constantia	620	Religious	1.00
296.18-03-17	VanZandt, Tyler S	67	Frederick St	Constantia	210	1 Family Res	1.00
296.18-03-03	Renpro LLC	76	Frederick St	Constantia	210	1 Family Res	1.00
296.18-03-02	Renpro, LLC	84	Frederick St	Constantia	210	1 Family Res	1.00
296.18-03-01	England, Angela L	86-88	Frederick St	Constantia	210	1 Family Res	1.00
296.19-05-07	Tryon, Margaret	4	Frederick St	Constantia	210	1 Family Res	1.00
296.19-05-08	Best, Randy E	6	Frederick St	Constantia	210	1 Family Res	1.00
296.19-05-09	Campbell, Mallory	10	Frederick St	Constantia	210	1 Family Res	1.00
296.19-05-11	Renpro LLC	20	Frederick St	Constantia	484	1 use sm bld	2.00
296.19-08-03.2	Howard, Nicholas	28	Frederick St	Constantia	270	Mfg housing	1.00
296.19-07-02	Blair, Brandon	31	Frederick St	Constantia	210	1 Family Res	1.00
296.19-08-03.1	Crowell, Thomas W	32	Frederick St	Constantia	210	1 Family Res	1.00
296.19-07-01.1	Walter, Robert A	37	Frederick St	Constantia	314	Rural vac<10	0.50
296.18-03-08	Petro, Nettie	49	Frederick St	Constantia	270	Mfg housing	1.00
296.18-03-18.2	Derushia, Nettie J	53	Frederick St	Constantia	210	1 Family Res	1.00
296.18-03-04	Miller, Charles	72	Frederick St	Constantia	210	1 Family Res	1.00
296.19-08-07	Baxter, Charles J	40-44	Frederick St	Constantia	280	Res Multiple	2.00
296.19-03-09	Ransom, James E	56	Hatchery Rd	Constantia	210	1 Family Res	1.00
296.19-03-10	Storie, Robert C	68	Hatchery Rd	Constantia	210	1 Family Res	1.00
296.15-02-14.07	Ouimet, Jessica L	95	Hatchery Rd	Constantia	210	1 Family Res	1.00
296.19-03-03	Rivizzigno, Angelo A	100	Hatchery Rd	Constantia	210	1 Family Res	1.00
296.19-03-04	Seoane, Tyler	106	Hatchery Rd	Constantia	210	1 Family Res	1.00
296.15-02-14.08	Cadwell, Matthew P	125	Hatchery Rd	Constantia	210	1 Family Res	1.00
296.19-03-05	New York State Fish Hatchery	0	Hatchery Rd	Constantia	314	Rural vac<10	0.50
296.15-02-14.05	Cadwell, Matthew P	0	Hatchery Rd	Constantia	314	Rural vac<10	0.50
296.19-02-02	La Pieta Prayer Group	53	Hatchery Rd	Constantia	620	Religious	1.00
296.19-03-01	Kelley, Gregory D	78	Hatchery Rd	Constantia	210	1 Family Res	1.00
296.15-02-15	Graczyk, Stephen	79	Hatchery Rd	Constantia	220	2 Family Res	2.00
296.15-02-14.01	Waldau, Thelma L	89	Hatchery Rd	Constantia	210	1 Family Res	1.00
296.19-03-02.2	Fram, John W	92	Hatchery Rd	Constantia	210	1 Family Res	1.00
296.15-02-14.06	Shippee, Jeremy A	97	Hatchery Rd	Constantia	210	1 Family Res	1.00
296.15-02-14.04	Allen, Patrice	105	Hatchery Rd	Constantia	210	1 Family Res	1.00
296.19-03-08	Wroblewski, Chester	44-48	Hatchery Rd	Constantia	210	1 Family Res	1.00
296.19-03-06	Town Of Constantia	OFF	Hatchery Rd	Constantia	963	Municpl park	0.00
296.19-02-01	New York State Fish Hatchery	3-29	Hatchery Rd (1)	Constantia	533	Game farm	3.00
312.10-02-14	Polson, Ross W	8	Hickory Pt	Constantia	210	1 Family Res	1.00
312.10-02-13	Polson, James A	10	Hickory Pt	Constantia	210	1 Family Res	1.00
312.10-02-12	Hamann, Richard D	12	Hickory Pt	Constantia	210	1 Family Res	1.00
312.10-02-25	Burger, Kenneth R	8	Hickory Pt Rd	Constantia	210	1 Family Res	1.00
312.10-02-25.01	Hissong, Steven	10	Hickory Pt Rd	Constantia	210	1 Family Res	1.00
312.10-02-21	Wright, Mary Rose	14	Hickory Pt Rd	Constantia	210	1 Family Res	1.00
312.10-02-20.2	Dilcher, Roger M Jr	18	Hickory Pt Rd	Constantia	260	Seasonal res	2.00
312.10-02-18	Kindt, Jennifer	24	Hickory Pt Rd	Constantia	260	Seasonal res	1.00
312.10-02-17	Thorp, Peter A	26	Hickory Pt Rd	Constantia	260	Seasonal res	1.00
312.10-02-16	Martin, Michael	28	Hickory Pt Rd	Constantia	260	Seasonal res	1.00
312.10-02-15	Root Irrevocable Trust	30	Hickory Pt Rd	Constantia	260	Seasonal res	1.00
312.10-02-20.1	Chesebro, Jack V Jr	20	Hickory Pt Rd	Constantia	260	Seasonal res	1.00
312.10-02-19	Militi, Jamie K	22	Hickory Pt Rd	Constantia	210	1 Family Res	1.00

296.15-02-30	Avery, Craig S	15	Hillside Dr	Constantia	210	1 Family Res	1.00
296.15-02-32.03	Holmes, David	0	Hillside Dr	Constantia	310	Res Vac	0.50
296.15-02-06	Dupre, Richard J	5	Hillside Dr	Constantia	210	1 Family Res	1.00
296.15-02-07	Kolodziejczyk, Thomas J	9	Hillside Dr	Constantia	210	1 Family Res	1.00
296.15-02-31.01	Witherell, Pamela J	10	Hillside Dr	Constantia	210	1 Family Res	1.00
296.15-02-32.01	Solomon, Matthew T	23	Hillside Dr	Constantia	837	Cell Tower	0.50
296.15-02-11.2	Millen, Sheila A	26	Hillside Dr	Constantia	210	1 Family Res	1.00
296.15-02-24	Glasheen, Catherine J	18	Hillside Dr Ext	Constantia	210	1 Family Res	1.00
296.15-02-23.01	Kinnaird-Lovaas, Ashlynn	19	Hillside Dr Ext	Constantia	210	1 Family Res	1.00
296.15-02-22	Sondej, Robert S	20	Hillside Dr Ext	Constantia	210	1 Family Res	1.00
296.15-02-20	Gibbs, Casey	32	Hillside Dr Ext	Constantia	210	1 Family Res	1.00
296.15-02-16	#N/A	44	Hillside Dr Ext	Constantia	210	1 Family Res	1.00
296.15-02-23.02	Millen, George James	0	Hillside Dr Ext	Constantia	312	Vac w/imprv	1.00
296.15-02-31.02	Mark, Richard C	33	Hillside Dr Ext	Constantia	210	1 Family Res	1.00
296.15-02-18	Williams Living Trust	38	Hillside Dr Ext	Constantia	210	1 Family Res	1.00
296.15-02-32.04	Solomon, Matthew T	43-45	Hillside Dr Ext	Constantia	210	1 Family Res	1.00
311.06-01-33	Sutton, Richard I	1	Johnson Rd	Constantia	270	Mfg housing	1.00
311.12-01-19	Mura, John J	44	Kellar Dr	Constantia	210	1 Family Res	1.00
311.12-01-18	Martin, Randy P	48	Kellar Dr	Constantia	210	1 Family Res	1.00
311.12-01-17	Murphy, Daniel J Jr	50	Kellar Dr	Constantia	210	1 Family Res	1.00
311.12-01-16	Cordova, Harrison P	54	Kellar Dr	Constantia	210	1 Family Res	1.00
311.12-01-14	Hartman, Jon F	56	Kellar Dr	Constantia	210	1 Family Res	1.00
311.12-01-12	Kimmel, Michael	62	Kellar Dr	Constantia	260	Seasonal res	1.00
311.12-01-10	Sluzar, Joseph P	66	Kellar Dr	Constantia	260	Seasonal res	1.00
311.12-01-01	Freeman, Scott D	69	Kellar Dr	Constantia	210	1 Family Res	1.00
311.12-01-09	Andrewski, Tracy Ann	68-70	Kellar Dr	Constantia	280	Res Multiple	2.00
311.08-01-15.03	Murphy, Craig L	0	Kellar Dr	Constantia	314	Rural vac<10	0.50
311.08-01-15.02	Strebel, Matthew	0	Kellar Dr	Constantia	314	Rural vac<10	0.50
311.08-01-15.01	Strebel, Matthew	0	Kellar Dr	Constantia	314	Rural vac<10	0.50
311.08-03-01.1	Files, Rockie Mae	1	Kellar Dr	Constantia	210	1 Family Res	1.00
311.12-01-20	Sykes, Roger W	42	Kellar Dr	Constantia	210	1 Family Res	1.00
311.12-01-13	Pierce, Joseph A	60	Kellar Dr	Constantia	210	1 Family Res	1.00
311.12-01-11	Suer, Mark E	64	Kellar Dr	Constantia	210	1 Family Res	1.00
311.12-01-22.1	Moher, Robert W Jr	7	Kellar Dr Ext	Constantia	260	Seasonal res	1.00
311.12-01-24.1	Strebel, Matthew	13	Kellar Dr Ext	Constantia	210	1 Family Res	1.00
311.08-01-06.1	Strebel, Matthew P	15	Kellar Dr Ext	Constantia	210	1 Family Res	1.00
311.08-01-07.1	Miller, Stuart M	17	Kellar Dr Ext	Constantia	260	Seasonal res	1.00
311.08-01-08.1	Allport, Michael E	19	Kellar Dr Ext	Constantia	210	1 Family Res	1.00
311.08-01-10.11	Biela, Daniel	28	Kellar Dr Ext	Constantia	210	1 Family Res	1.00
311.12-01-23.1	Essary, Janice	9-12	Kellar Dr Ext	Constantia	210	1 Family Res	2.00
311.12-01-21.1	Murphy, Connor P	3	Kellar Dr Ext	Constantia	210	1 Family Res	1.00
311.08-01-09.1	Wisinski, Cory T	21	Kellar Dr Ext	Constantia	210	1 Family Res	1.00
311.08-01-10.12	Freson, David M	23	Kellar Dr Ext	Constantia	260	Seasonal res	1.00
311.08-01-11	Eccles, Steven M	25	Kellar Dr Ext	Constantia	260	Seasonal res	1.00
296.00-04-23.2	Metzger, John R	92	Kibbie Lake Rd	Constantia	210	1 Family Res	1.00
296.00-04-19	Limestone Ridge LLC	142	Kibbie Lake Rd	Constantia	210	1 Family Res	1.00
296.00-04-13	Holst, Hans	162	Kibbie Lake Rd	Constantia	210	1 Family Res	1.00
296.00-04-09	Koshinski Living Trust, Craig S	216	Kibbie Lake Rd	Constantia	210	1 Family Res	1.00
296.00-04-17.2	Martino, Matthew P	134-36	Kibbie Lake Rd	Constantia	270	Mfg housing	2.00
296.00-04-06	Limestone Ridge LLC	167-169	Kibbie Lake Rd	Constantia	210	1 Family Res	1.00
296.20-01-10	Town Of Constantia	0	Kibbie Lake Rd	Constantia	963	Municpl park	0.00
296.00-04-33.01	Childs, Michael	0	Kibbie Lake Rd	Constantia	322	Rural vac>10	1.00
296.00-04-30.04	Corsette, Daniel J	0	Kibbie Lake Rd	Constantia	322	Rural vac>10	1.00
296.00-04-10.01	Koshinski Living Trust, Craig S	0	Kibbie Lake Rd	Constantia	312	Vac w/imprv	1.00
296.00-04-08	Reed, Marvin S	0	Kibbie Lake Rd	Constantia	322	Rural vac>10	1.00
296.00-03-05	Tryon, Chris G	0	Kibbie Lake Rd	Constantia	322	Rural vac>10	1.00
296.20-01-13	Corsette, Jeffrey D	35	Kibbie Lake Rd	Constantia	314	Rural vac<10	0.50
296.20-01-09	Gandino, Anthony R	41	Kibbie Lake Rd	Constantia	210	1 Family Res	1.00
296.20-01-12	Foster, Bradley A	42	Kibbie Lake Rd	Constantia	210	1 Family Res	1.00
296.20-01-08	Harris, James O	45	Kibbie Lake Rd	Constantia	210	1 Family Res	1.00
296.20-01-11	Wescott, Wayne	48	Kibbie Lake Rd	Constantia	210	1 Family Res	2.00
296.20-01-05	Bisson, Donald M	51	Kibbie Lake Rd	Constantia	210	1 Family Res	1.00
296.00-04-33	Cook, Judith	52	Kibbie Lake Rd	Constantia	270	Mfg housing	1.00
296.20-01-04	Lobdell, Mitchell	53	Kibbie Lake Rd	Constantia	210	1 Family Res	1.00
296.20-01-03	Taylor, Greg R	57	Kibbie Lake Rd	Constantia	210	1 Family Res	1.00
296.00-04-18	Ziervogel, Claire	60	Kibbie Lake Rd	Constantia	270	Mfg housing	1.00
296.00-04-34	Baird, Gregory P	68	Kibbie Lake Rd	Constantia	210	1 Family Res	2.00
296.00-04-21	Wesolowski, Michelle	121	Kibbie Lake Rd	Constantia	270	Mfg housing	1.00
296.00-04-20.01	Lubeck, Francine	145	Kibbie Lake Rd	Constantia	240	Rural res	1.00
296.00-04-31.01	Dutcher, Kenneth R	152	Kibbie Lake Rd	Constantia	210	1 Family Res	1.00
296.00-04-20.02	Lemond, Donald R	157	Kibbie Lake Rd	Constantia	210	1 Family Res	1.00
296.00-04-31	Dutcher, Franklin L Jr	158	Kibbie Lake Rd	Constantia	210	1 Family Res	1.00
296.00-04-12	Richards, Christina M	164	Kibbie Lake Rd	Constantia	210	1 Family Res	1.00
296.00-04-05.12	Brill, Joe	174	Kibbie Lake Rd	Constantia	210	1 Family Res	2.00
296.00-04-30.02	Brill, Joseph	176	Kibbie Lake Rd	Constantia	240	Rural res	1.00
296.00-04-30.03	Mendez, Matthew	180	Kibbie Lake Rd	Constantia	312	Vac w/imprv	1.00
296.00-04-05.2	Corsette, Christopher	187	Kibbie Lake Rd	Constantia	280	Res Multiple	2.00
296.00-04-11	Corsette, Daniel J	188	Kibbie Lake Rd	Constantia	210	1 Family Res	1.00
296.00-03-05.02	Tessitore, Christopher L	195	Kibbie Lake Rd	Constantia	210	1 Family Res	1.00
296.00-04-07	Coffin, Earl	196	Kibbie Lake Rd	Constantia	270	Mfg housing	1.00
296.00-03-05.01	Renpro LLC	201	Kibbie Lake Rd	Constantia	210	1 Family Res	1.00
296.00-04-10	Jones, Judy A	250	Kibbie Lake Rd	Constantia	210	1 Family Res	1.00

296.00-04-22	West, John A	111-13	Kibbie Lake Rd	Constantia	210	1 Family Res	1.00
296.00-04-20	Tripp, Kenneth	129-31	Kibbie Lake Rd	Constantia	270	Mfg housing	1.00
296.00-04-30.01	Mendez, Tracey	173-75	Kibbie Lake Rd	Constantia	270	Mfg housing	2.00
296.20-03-05	Schindler, Kurt F	3	Kibbie Lake Rd (1)	Constantia	210	1 Family Res	1.00
296.20-03-01	Scilingo, Michael F	17	Kibbie Lake Rd (1)	Constantia	210	1 Family Res	1.00
296.20-03-02	Johnson Irrevocable Trust, Nevaeh	13	Kibbie Lake Rd (1)	Constantia	210	1 Family Res	1.00
296.20-02-22	Ryan, Hilary	14	Kibbie Lake Rd (1)	Constantia	210	1 Family Res	1.00
296.20-02-22.01	Hart, Joshua A	18	Kibbie Lake Rd (1)	Constantia	210	1 Family Res	1.00
296.00-03-20	Pennock Brook LLC	8	Knapp Rd	Constantia	210	1 Family Res	1.00
296.00-03-24	Winks, Daryl	84	Knapp Rd	Constantia	240	Rural res	1.00
296.00-03-17	Waskiewicz, Robert S	143	Knapp Rd	Constantia	210	1 Family Res	1.00
296.00-03-24.03	Martino, Susan M	144	Knapp Rd	Constantia	210	1 Family Res	1.00
296.00-03-27.01	Norton, Matthew J	0	Knapp Rd	Constantia	314	Rural vac<10	0.50
296.00-03-25	Finch, Maxine	0	Knapp Rd	Constantia	314	Rural vac<10	0.50
296.00-03-03.2	Boisey, George D	13	Knapp Rd	Constantia	210	1 Family Res	2.00
296.00-03-23	King, William J	18	Knapp Rd	Constantia	210	1 Family Res	1.00
296.00-03-21.2	Warlock Trust, Patricia A	22	Knapp Rd	Constantia	210	1 Family Res	1.00
296.00-03-03.112	Roach, Curtis	32	Knapp Rd	Constantia	210	1 Family Res	1.00
296.00-03-04.12	Stoddard, Erika N	35	Knapp Rd	Constantia	210	1 Family Res	1.00
296.00-03-22	Norton, Matthew J	36	Knapp Rd	Constantia	210	1 Family Res	1.00
296.00-03-04.2	Fleisch, Theresa M	45	Knapp Rd	Constantia	210	1 Family Res	1.00
296.00-03-27	Needle, Emily	46	Knapp Rd	Constantia	210	1 Family Res	1.00
296.00-03-07	Rowe, Marsha A	57	Knapp Rd	Constantia	240	Rural res	1.00
296.00-03-08	Gilbert, Victoria	58	Knapp Rd	Constantia	210	1 Family Res	1.00
296.00-03-09	Harrington, Warren	73	Knapp Rd	Constantia	240	Rural res	2.00
296.00-03-10	Schroder, John P	83	Knapp Rd	Constantia	210	1 Family Res	2.00
296.00-03-12	Gulliver, Sabrina S	101	Knapp Rd	Constantia	270	Mfg housing	1.00
296.00-03-13	Youmand, Ronald	115	Knapp Rd	Constantia	210	1 Family Res	1.00
296.00-03-24.01	Webb, Timothy E	116	Knapp Rd	Constantia	210	1 Family Res	1.00
296.00-03-14	Youmans, Ronald	119	Knapp Rd	Constantia	270	Mfg housing	1.00
296.00-03-15	Perry, Steven A	123	Knapp Rd	Constantia	210	1 Family Res	2.00
296.00-03-19.2	Radomsky, Erik J	124	Knapp Rd	Constantia	210	1 Family Res	1.00
296.00-03-16	Springer, David W	135	Knapp Rd	Constantia	210	1 Family Res	2.00
310.06-02-09	Scarcella, Rocco	5	Lakeshore Dr	Constantia	210	1 Family Res	1.00
310.06-01-07	Salisbury, Michael R	6	Lakeshore Dr	Constantia	210	1 Family Res	1.00
310.06-02-08.01	Sheldon, James	7	Lakeshore Dr	Constantia	210	1 Family Res	1.00
310.06-02-07	Yell, George A	11	Lakeshore Dr	Constantia	210	1 Family Res	1.00
310.06-02-06	Sutter, Lawrence L	15	Lakeshore Dr	Constantia	210	1 Family Res	1.00
310.06-01-10	Buchan, William M	18	Lakeshore Dr	Constantia	312	Vac w/imprv	1.00
310.06-02-05	Buchan, William M	19	Lakeshore Dr	Constantia	210	1 Family Res	1.00
310.06-02-04	Buchan, William M	21	Lakeshore Dr	Constantia	210	1 Family Res	1.00
310.06-02-03	Quick, Margaret	25	Lakeshore Dr	Constantia	260	Seasonal res	1.00
310.06-02-02	Unger Fmly Asset Mgmt Trust	29	Lakeshore Dr	Constantia	210	1 Family Res	1.00
310.06-02-01	Young, Henry K	33	Lakeshore Dr	Constantia	210	1 Family Res	1.00
310.05-01-20	Brown, Scott M	41	Lakeshore Dr	Constantia	260	Seasonal res	1.00
310.05-01-21	Goyette, Teresa	46	Lakeshore Dr	Constantia	210	1 Family Res	1.00
310.05-01-51	Hecimovich, Steven M	0	Lakeshore Dr	Constantia	314	Rural vac<10	0.50
310.05-01-50.01	Ireland, Ross M	0	Lakeshore Dr	Constantia	314	Rural vac<10	0.50
310.05-01-50	Ireland, Ross M	0	Lakeshore Dr	Constantia	314	Rural vac<10	0.50
310.05-01-10.03	Young, Henry	0	Lakeshore Dr	Constantia	314	Rural vac<10	0.50
310.05-01-19	Young, Henry	37	Lakeshore Dr	Constantia	314	Rural vac<10	0.50
311.05-02-02	Bell, Mark	29	Lakeview Grv	Constantia	210	1 Family Res	1.00
311.05-01-07	Hubbard, Gary W	31	Lakeview Grv	Constantia	210	1 Family Res	1.00
311.05-01-08	Gladziszewski, Charles J	37	Lakeview Grv	Constantia	210	1 Family Res	1.00
311.05-01-09	Flynn, Christopher J Sr.	39	Lakeview Grv	Constantia	210	1 Family Res	1.00
311.05-01-10	Kimmel, James	41	Lakeview Grv	Constantia	210	1 Family Res	1.00
311.05-01-11	Kimmel, James	45	Lakeview Grv	Constantia	260	Seasonal res	1.00
311.05-01-12	Schwartz, Stephen P	47	Lakeview Grv	Constantia	210	1 Family Res	1.00
311.05-01-13	Wojdyla, Robert L	49	Lakeview Grv	Constantia	210	1 Family Res	1.00
311.05-01-15	Lawless Lvg Trust	53	Lakeview Grv	Constantia	210	1 Family Res	1.00
311.05-01-14	Foor, David J	51	Lakeview Grv	Constantia	210	1 Family Res	1.00
310.07-03-09.01	Gordon, Jacquelin M	8	Liniment St	Constantia	210	1 Family Res	1.00
310.07-03-04.2	Vela, LLC	9	Liniment St	Constantia	314	Rural vac<10	1.00
310.07-03-09	Brown, Christopher	10	Liniment St	Constantia	220	2 Family Res	2.00
310.07-03-08	Seal, David G	14	Liniment St	Constantia	210	1 Family Res	1.00
310.07-03-06	Marticello, Daniel N Jr	15	Liniment St	Constantia	210	1 Family Res	1.00
310.07-03-07	Marticello, Daniel N Jr	16	Liniment St	Constantia	210	1 Family Res	1.00
310.07-03-04.1	Marticello, Grace	13	Liniment St	Constantia	314	Rural vac<10	1.00
312.15-01-05	Flynn, John	15	Louis Dr	Constantia	210	1 Family Res	2.00
312.15-01-12	Ayoub, David A	20	Louis Dr	Constantia	210	1 Family Res	2.00
312.15-01-11	Allison, Jason A	22	Louis Dr	Constantia	260	Seasonal res	1.00
312.15-01-09	Lewis and Reittinger Trust, Christine A	24	Louis Dr	Constantia	260	Seasonal res	1.00
312.15-01-08	Kiah, Mary Alice	26	Louis Dr	Constantia	260	Seasonal res	1.00
312.15-01-07	Leyla Morgillo Rev Trust	28	Louis Dr	Constantia	260	Seasonal res	1.00
296.18-01-13	LaVigne, David	6	Lower Rd	Constantia	210	1 Family Res	1.00
296.18-01-16	Potter, Scott D	30	Lower Rd	Constantia	210	1 Family Res	1.00
296.18-05-03	Cheney, Marc L	31	Lower Rd	Constantia	210	1 Family Res	1.00
296.18-05-02	Webb, Donald L	37	Lower Rd	Constantia	210	1 Family Res	1.00
296.18-01-18	Neilon, Michael	44	Lower Rd	Constantia	210	1 Family Res	1.00
296.00-06-13.2	Dineen, Michael J	159	Lower Rd	Constantia	210	1 Family Res	1.00
296.00-06-17.02	Barone, Charles Jr	169	Lower Rd	Constantia	210	1 Family Res	1.00
295.00-02-12	Barry, Mark T	210	Lower Rd	Constantia	210	1 Family Res	1.00

295.00-02-11	Currie, Tyler W	220	Lower Rd	Constantia	210	1 Family Res	1.00
295.00-04-11	Cronell, Jonathan	229	Lower Rd	Constantia	210	1 Family Res	1.00
295.00-02-08	Aubertine, Alex	244	Lower Rd	Constantia	210	1 Family Res	1.00
295.00-04-10	Babenzien, Mark J	249	Lower Rd	Constantia	210	1 Family Res	1.00
295.00-04-13	LaVigne, Susan L	253	Lower Rd	Constantia	210	1 Family Res	1.00
295.00-02-06	Gadoua, John E	260	Lower Rd	Constantia	210	1 Family Res	1.00
295.00-02-06.03	Hemings, Russell	264	Lower Rd	Constantia	210	1 Family Res	1.00
295.00-02-06.02	Nash, Ricky L	270	Lower Rd	Constantia	210	1 Family Res	1.00
295.00-02-04	Gravelle, Sean M	298	Lower Rd	Constantia	210	1 Family Res	1.00
295.00-03-08	Swank, David D Jr	307	Lower Rd	Constantia	210	1 Family Res	1.00
296.00-06-06.1	Feng, Francis	0	Lower Rd	Constantia	322	Rural vac>10	1.00
295.00-04-08.12	Williams, Wilhelmena	0	Lower Rd	Constantia	314	Rural vac<10	0.50
295.00-02-08.01	Maher, David	0	Lower Rd	Constantia	314	Rural vac<10	0.50
296.18-04-09	Kleis, Luiza	1	Lower Rd	Constantia	210	1 Family Res	1.00
296.18-04-08	Harrington, Mark R	5	Lower Rd	Constantia	210	1 Family Res	1.00
296.18-05-05	Bixby, Jontomas	13	Lower Rd	Constantia	210	1 Family Res	1.00
296.18-01-12	Davis, Harry H	14	Lower Rd	Constantia	210	1 Family Res	1.00
296.18-01-14	Wells, Billie Joel	16	Lower Rd	Constantia	210	1 Family Res	1.00
296.18-05-04	Paronett, David J	21	Lower Rd	Constantia	210	1 Family Res	1.00
296.18-01-15	Williams, Marc A	24	Lower Rd	Constantia	210	1 Family Res	1.00
296.18-01-17	19 Emma Street LLC	34	Lower Rd	Constantia	210	1 Family Res	1.00
296.18-05-01	Clasen, Timothy A	51	Lower Rd	Constantia	210	1 Family Res	1.00
296.18-01-18.01	McGowan, Michael	52	Lower Rd	Constantia	210	1 Family Res	1.00
296.18-01-18.02	Main, Shannon M	58	Lower Rd	Constantia	210	1 Family Res	2.00
296.18-01-01	Cote, Lisa A	66	Lower Rd	Constantia	210	1 Family Res	1.00
296.00-06-16	Barnes, Carl M	72	Lower Rd	Constantia	210	1 Family Res	1.00
296.00-06-07	Worlock, C Kevin	73	Lower Rd	Constantia	270	Mfg housing	1.00
296.00-06-08	Giovannini, Daniel T	77	Lower Rd	Constantia	210	1 Family Res	1.00
296.00-06-16.02	Schwartz, Robert	78	Lower Rd	Constantia	210	1 Family Res	1.00
296.00-06-09	Oswego County Land Bank	83	Lower Rd	Constantia	210	1 Family Res	1.00
296.00-06-16.01	Kowaleski, Nathan	86	Lower Rd	Constantia	210	1 Family Res	1.00
296.00-06-10	Cavallaro, Philip	89	Lower Rd	Constantia	210	1 Family Res	1.00
296.00-06-06.2	Spadaro, Philip H	109	Lower Rd	Constantia	240	Rural res	1.00
296.00-06-14	Raehm, Charles	116	Lower Rd	Constantia	270	Mfg housing	2.00
296.00-06-12	Wagstaff, Charles H Jr	121	Lower Rd	Constantia	240	Rural res	2.00
296.00-06-05.02	Barry, Michael E	130	Lower Rd	Constantia	210	1 Family Res	1.00
296.00-06-05.01	Barry, Joseph	148	Lower Rd	Constantia	240	Rural res	2.00
296.00-06-17.01	Sakonyi, Ronald E II	179	Lower Rd	Constantia	210	1 Family Res	1.00
296.00-06-04	Gass, Steven C Jr	180	Lower Rd	Constantia	210	1 Family Res	1.00
296.00-06-03	Murray, Nancy	186	Lower Rd	Constantia	210	1 Family Res	1.00
295.00-04-18	Humez, Kenneth J	189	Lower Rd	Constantia	210	1 Family Res	1.00
296.00-06-02.01	Murphy, Marianne	194	Lower Rd	Constantia	210	1 Family Res	1.00
296.00-06-02	Newton, Taylor J	198	Lower Rd	Constantia	210	1 Family Res	1.00
295.00-04-17	Clement, Richard	199	Lower Rd	Constantia	210	1 Family Res	1.00
296.00-06-01	Brown, David A	202	Lower Rd	Constantia	210	1 Family Res	2.00
295.00-04-16	Hrywnak, Rowlan S	209	Lower Rd	Constantia	210	1 Family Res	1.00
295.00-04-15	Bartorillo, Justin S	217	Lower Rd	Constantia	210	1 Family Res	1.00
295.00-04-14	Bartorillo, Ryan V	223	Lower Rd	Constantia	210	1 Family Res	1.00
295.00-02-08.02	Shippee, Michael F	224	Lower Rd	Constantia	210	1 Family Res	1.00
295.00-04-08.2	Fowler, Patricia A	241	Lower Rd	Constantia	210	1 Family Res	1.00
295.00-02-06.01	Richards, Lennie M	254	Lower Rd	Constantia	210	1 Family Res	1.00
295.00-04-12	King, William	257	Lower Rd	Constantia	210	1 Family Res	1.00
295.00-04-21	Williams, John D	263-69	Lower Rd	Constantia	210	1 Family Res	2.00
295.00-04-09	Wilcox, David J	275	Lower Rd	Constantia	210	1 Family Res	1.00
295.00-04-09.01	Wilcox, David J II	279	Lower Rd	Constantia	210	1 Family Res	1.00
295.00-02-05.2	Williams, Charles R	280	Lower Rd	Constantia	210	1 Family Res	2.00
295.00-02-05.11	Williams, Charles R	292	Lower Rd	Constantia	312	Vac w/imprv	1.00
295.00-02-09.1	Payment, Lisa A	294	Lower Rd	Constantia	270	Mfg housing	1.00
295.00-03-06	Nisbitt, Nicole	295	Lower Rd	Constantia	210	1 Family Res	1.00
295.00-02-04.01	Russ, Conner T	296	Lower Rd	Constantia	210	1 Family Res	1.00
295.00-03-05	Tuff, Samantha L	303	Lower Rd	Constantia	210	1 Family Res	1.00
295.00-02-03	Davis, Terry M	306	Lower Rd	Constantia	270	Mfg housing	1.00
295.00-02-10.01	Howard, Eric E	314	Lower Rd	Constantia	210	1 Family Res	1.00
295.00-03-08.01	Barry, Ashley M	319	Lower Rd	Constantia	210	1 Family Res	1.00
312.06-02-05	Shepard, Thomas C	4	Marsden Rd	Constantia	210	1 Family Res	2.00
312.00-02-14.07	Shlotzhauer, Dean M Sr	35	Martin Rd	Constantia	312	Vac w/imprv	1.00
312.00-02-15.01	Congden, Lisa	0	Martin Rd	Constantia	314	Rural vac<10	0.50
312.00-02-14.08	Benjamin Essig		Martin Rd	Constantia	314	Rural vac<10	0.50
312.00-02-14.06	Benjamin Essig		Martin Rd	Constantia	314	Rural vac<10	0.50
312.00-02-14.05	Benjamin Essig		Martin Rd	Constantia	322	Rural vac>10	1.00
312.00-02-15	Ridgeway, Jeannie	0	Martin Rd	Constantia	314	Rural vac<10	0.50
310.07-02-05	Fournier, Michael A	10	Mill St	Constantia	210	1 Family Res	1.00
296.00-04-15.02	Kelley, Ralph E III	28	Old Farm Dr	Constantia	210	1 Family Res	1.00
296.00-04-15.03	Covell, Samuel S	16	Old Farm Dr	Constantia	210	1 Family Res	1.00
296.00-04-15.05	Kelley, Jeffrey H	42	Old Farm Dr	Constantia	210	1 Family Res	1.00
312.05-03-03	Spear, Leo J Jr	8	Park St Dr	Constantia	210	1 Family Res	1.00
312.05-03-04	Whitney, Edward John	10	Park St Dr	Constantia	331	Com vac w/imp	1.00
312.05-03-02	Goodsell, Kameron James	6	Park St Dr	Constantia	210	1 Family Res	1.00
312.05-03-06	Whitney, Richard C Sr	9	Park St Dr	Constantia	210	1 Family Res	1.00
312.05-03-05	Kowanes, Mable	16	Park St Dr	Constantia	210	1 Family Res	1.00
312.05-03-11	Kowanes, Mable	25	Park St Dr	Constantia	312	Vac w/imprv	1.00
312.09-02-01	Kowanes, Mable	15	Park St Dr	Constantia	416	Mfg hsing pk	14.80

310.07-04-03	Allen, John	26	Parmley Dr	Constantia	280	Res Multiple	2.00
310.07-04-02	Oneida Lake North Shore Campgrounds LLC	2-18	Parmley Dr	Constantia	582	Camping park	7.00
312.11-01-08	Waszkiewicz, William L	7	Pepper Dr	Constantia	210	1 Family Res	1.00
312.11-01-07	Lachut, William A	11	Pepper Dr	Constantia	210	1 Family Res	1.00
312.11-01-06	Airth, Harley D	13	Pepper Dr	Constantia	210	1 Family Res	1.00
312.11-01-05	Palaszynski, John A	15	Pepper Dr	Constantia	210	1 Family Res	1.00
312.11-01-04	Oneida Lakeview Retreat Inc	21	Pepper Dr	Constantia	210	1 Family Res	1.00
312.11-01-03	Pawlyk, Catherine J	23	Pepper Dr	Constantia	210	1 Family Res	1.00
312.10-02-24	Jordan, James J	35	Pepper Dr	Constantia	210	1 Family Res	1.00
312.11-01-02	Somers, Mark J	29-31	Pepper Dr	Constantia	210	1 Family Res	1.00
312.05-01-08	Gillespie, Robert E	3	Railroad St	Constantia	210	1 Family Res	1.00
312.05-01-06	Lowe, Lyn I	7	Railroad St	Constantia	210	1 Family Res	1.00
312.05-02-20	Covel, Jeffrey H	10	Railroad St	Constantia	210	1 Family Res	1.00
296.19-01-07	Renpro LLC	10	Railroad St	Constantia	210	1 Family Res	1.00
312.05-01-02	Yaciuk, Steve	23	Railroad St	Constantia	210	1 Family Res	1.00
312.05-02-01	Friedel, Daniel A	24	Railroad St	Constantia	210	1 Family Res	1.00
312.05-01-03	Schell, Brian	27	Railroad St	Constantia	210	1 Family Res	1.00
298.00-02-18	Wilkins, Randy S	38	Railroad St	Constantia	210	1 Family Res	1.00
298.00-01-04	Bolton, Gregory S	41	Railroad St	Constantia	210	1 Family Res	1.00
298.00-02-19	Cassidy, Paul C	42	Railroad St	Constantia	210	1 Family Res	1.00
298.00-02-20	Fox, Thomas R Jr	46	Railroad St	Constantia	210	1 Family Res	1.00
298.00-02-22	Town Of Constantia	60	Railroad St	Constantia	651	Highway Gar	1.00
312.05-01-05	Chiro, William J	15-19	Railroad St	Constantia	210	1 Family Res	1.00
312.05-02-19	Hurley, Timothy J	4	Railroad St	Constantia	210	1 Family Res	1.00
312.05-01-07	Zakrzeski, Jeffrey M	5	Railroad St	Constantia	210	1 Family Res	1.00
296.19-01-05	Amerman, Robert R	8	Railroad St	Constantia	210	1 Family Res	1.00
312.05-02-21	Lord, Tami	16	Railroad St	Constantia	210	1 Family Res	1.00
298.00-01-03	Youmans, Edward C	45	Railroad St	Constantia	210	1 Family Res	1.00
298.00-02-21	Hall, Bonnie	50	Railroad St	Constantia	312	Vac w/imprv	1.00
298.00-01-02	Sweet, Loren E	59	Railroad St	Constantia	314	Rural vac<10	1.00
310.07-01-08	Eldred, Emily A	9	Redfield St	Constantia	210	1 Family Res	1.00
296.19-06-01	Denney, Avery R	22	Redfield St	Constantia	230	3 Family Res	3.00
296.19-08-01	Vella Realty LLC	45	Redfield St	Constantia	452	Nbh shop ctr	3.00
296.19-05-01.01	Ansley, Patrica	54	Redfield St	Constantia	210	1 Family Res	1.00
296.00-02-20.01	Sarchioto, Thomas J	83	Redfield St	Constantia	240	Rural res	1.00
310.07-01-09.2	Warford, Ryan J	3-5	Redfield St	Constantia	210	1 Family Res	2.00
296.19-07-03	Campbell, John	0	Redfield St	Constantia	314	Rural vac<10	0.50
310.07-01-10	Mangicaro, Gianna M	1	Redfield St	Constantia	210	1 Family Res	1.00
296.19-07-04	Mary Sitnik-Heitkamp	23	Redfield St	Constantia	210	1 Family Res	2.00
296.19-01-08	McCloat, Douglas E	70	Redfield St	Constantia	210	1 Family Res	1.00
296.19-01-09	Gibbons, Thomas W	74	Redfield St	Constantia	210	1 Family Res	2.00
312.10-02-10	Weeks, Thomas J	4	Rock Shore Ln	Constantia	210	1 Family Res	1.00
312.10-02-11.2	Renne, Anthony J	11	Rock Shore Ln	Constantia	210	1 Family Res	1.00
312.16-01-11.02	Bishop, Billy J	7	S Stoney Brk	Constantia	314	Rural vac<10	0.50
311.08-02-01.21	Camarda, Kristian A	10	Shacksbush Rd	Constantia	312	Vac w/imprv	1.00
310.07-01-11	Hrywnak, Rowlan S	3	Shagbark Ln	Constantia	210	1 Family Res	1.00
310.07-01-12	Hrywnak, Rowlan S	4	Shagbark Ln	Constantia	210	1 Family Res	1.00
296.00-01-03.2	MacPherson, John J	24	Simmons Dr	Constantia	270	Mfg housing	1.00
279.00-04-17	Hite, Carrie	60	Simmons Dr	Constantia	240	Rural res	1.00
296.00-01-02	Warner, Robert E III	0	Simmons Dr	Constantia	312	Vac w/imprv	1.00
279.00-04-16.02	Sandy, William H	0	Simmons Dr	Constantia	314	Rural vac<10	0.50
279.00-04-16.01	Sandy, William H F Jr	0	Simmons Dr	Constantia	314	Rural vac<10	0.50
278.00-01-03	Quinn, Irving J	0	Simmons Dr	Constantia	314	Rural vac<10	0.50
296.00-01-01	Barry, Brandon	4	Simmons Dr	Constantia	270	Mfg housing	1.00
279.00-04-23	Stevenson, Scott	32	Simmons Dr	Constantia	322	Rural vac>10	0.50
278.00-01-06.02	McIntosh, Austin	35	Simmons Dr	Constantia	210	1 Family Res	1.00
278.00-01-06.01	Weaver, Karan	39	Simmons Dr	Constantia	210	1 Family Res	1.00
279.00-04-16	Sandy, William H F	44	Simmons Dr	Constantia	210	1 Family Res	1.00
278.00-01-05	Patchett, Chester Sr	45	Simmons Dr	Constantia	210	1 Family Res	1.00
278.00-01-04	Bouchard, Lucas W	49	Simmons Dr	Constantia	210	1 Family Res	1.00
312.05-01-09.2	Ciesla, Anthony M	676	St Rt 49	Constantia	314	Rural vac<10	1.00
311.07-02-23.01	Seidman, Jack	863	St Rt 49	Constantia	314	Rural vac<10	1.00
311.05-02-03	Macaluso, Gregory J	0	St Rt 49	Constantia	314	Rural vac<10	1.00
312.16-01-11.01	Kane, John A	251	St Rt 49	Constantia	210	1 Family Res	1.00
312.16-01-10	Nickerson, Willard F	255	St Rt 49	Constantia	280	Res Multiple	1.00
312.00-02-16.01	Ridgeway, Jeannie	260	St Rt 49	Constantia	484	1 use sm bld	1.00
312.00-02-11.04	NEM Enterprises LLC	276	St Rt 49	Constantia	484	1 use sm bld	1.00
312.16-01-12	Rock Point Homeowners Assoc	299	St Rt 49	Constantia	210	Vac w/imprv	7.00
312.16-01-12.01	Hartnett, Michael	299	St Rt 49	Constantia	210	1 Family Res	0.00
312.16-01-12.02	Thompson, Steven P	299	St Rt 49	Constantia	210	1 Family Res	0.00
312.16-01-12.03	Abdo, John W	299	St Rt 49	Constantia	210	1 Family Res	0.00
312.16-01-12.04	Migliore, Giuseppe	299	St Rt 49	Constantia	210	1 Family Res	0.00
312.16-01-12.05	Morin, Dale L	299	St Rt 49	Constantia	210	1 Family Res	0.00
312.16-01-12.06	Baehre, Bradley R	299	St Rt 49	Constantia	210	1 Family Res	0.00
312.16-01-12.07	Ryan Family Trust	299	St Rt 49	Constantia	210	1 Family Res	0.00
312.16-01-02	Wisneski, Chester	311	St Rt 49	Constantia	210	1 Family Res	1.00
312.16-01-01	Gwynn, Deborah	315	St Rt 49	Constantia	210	1 Family Res	1.00
312.15-01-19	Flatt Irrevocable Trust, Samuel J	321	St Rt 49	Constantia	210	1 Family Res	1.00
312.00-02-08.2	McCarthy, Jeremy	322	St Rt 49	Constantia	240	Rural res	2.00
312.15-01-19.01	McCarthy, Jeremy J	323	St Rt 49	Constantia	210	1 Family Res	1.00
312.15-01-06	Giarrusso, Thomas J	337	St Rt 49	Constantia	210	1 Family Res	1.00
312.00-02-17.01	Bareika, Anthony A III	340	St Rt 49	Constantia	210	1 Family Res	1.00

312.15-01-04	Venezia, Michael	349	St Rt 49	Constantia	210	1 Family Res	1.00
312.15-01-21	Hones Family 607 Realty LLC	355	St Rt 49	Constantia	449	Other Storage	1.00
312.00-02-05.01	Connolly, Brien C	384	St Rt 49	Constantia	210	1 Family Res	1.00
312.15-01-01.1	Bottrill, Miles	395	St Rt 49	Constantia	210	1 Family Res	1.00
312.15-01-01.2	Bottrill, Miles	397	St Rt 49	Constantia	260	Seasonal res	1.00
312.11-02-02	Redmond, Daniel`	399	St Rt 49	Constantia	260	Seasonal res	1.00
312.11-01-10	Darrow Living Trust	407	St Rt 49	Constantia	210	1 Family Res	1.00
312.11-01-09.01	Perry, Victoria	417	St Rt 49	Constantia	210	1 Family Res	1.00
312.00-02-03	Webb, Joshua	432	St Rt 49	Constantia	270	Mfg housing	1.00
312.00-02-12.01	Morrell, Brittany	460	St Rt 49	Constantia	270	Mfg housing	1.00
312.10-02-07.01	Weaver, Joe Alan	483	St Rt 49	Constantia	210	1 Family Res	1.00
312.00-02-01	Bittner, Jennifer	492	St Rt 49	Constantia	240	Rural res	1.00
312.10-02-06.01	Dziura, John	493	St Rt 49	Constantia	260	Seasonal res	1.00
312.10-02-05.01	Porosky, Theodore W	495	St Rt 49	Constantia	210	1 Family Res	1.00
312.10-02-02	Farrand, Franklin D and Judith	501	St Rt 49	Constantia	210	1 Family Res	1.00
312.10-01-05	La Pine, Ellen M	518	St Rt 49	Constantia	210	1 Family Res	1.00
312.10-01-04.01	Zakrzeski, Jeffrey	520	St Rt 49	Constantia	210	1 Family Res	1.00
312.10-01-03	Eldred, Karen A	526	St Rt 49	Constantia	210	1 Family Res	1.00
312.10-01-02	Scrimale, Angela M	530	St Rt 49	Constantia	210	1 Family Res	1.00
312.06-02-04	Powell, Robert F Jr	550	St Rt 49	Constantia	210	1 Family Res	1.00
312.06-02-03	Sweeter, Jeremiah	554	St Rt 49	Constantia	210	1 Family Res	1.00
312.06-01-01.04	Harrison, Susan	588	St Rt 49	Constantia	210	1 Family Res	1.00
312.05-02-09.1	Harrison, David	596	St Rt 49	Constantia	210	1 Family Res	1.00
312.05-02-08.1	Lefler, Daniel K	600	St Rt 49	Constantia	210	1 Family Res	1.00
312.05-02-07.1	Schafer, James	602	St Rt 49	Constantia	260	Seasonal res	1.00
312.05-02-06	Masella, Joseph	608	St Rt 49	Constantia	210	1 Family Res	1.00
312.05-02-05	Webb, Patricia A	620	St Rt 49	Constantia	210	1 Family Res	1.00
312.05-02-12	Richardson, Johnnie W	624	St Rt 49	Constantia	210	1 Family Res	1.00
312.05-03-17.01	Zotti, Denise L	639	St Rt 49	Constantia	260	Seasonal res	1.00
312.05-02-03	Collins Irrevocable Trust, Wanda	640	St Rt 49	Constantia	210	1 Family Res	1.00
312.05-02-15	Collins Irrevocable Trust, Wanda	644	St Rt 49	Constantia	210	1 Family Res	1.00
312.05-02-16	Kuznia, Martin P	652	St Rt 49	Constantia	210	1 Family Res	1.00
312.05-03-14	Estate of Donald Lord	657	St Rt 49	Constantia	210	1 Family Res	1.00
312.05-02-18	Meekma, Thom M	660	St Rt 49	Constantia	210	1 Family Res	1.00
312.05-03-13	Martin, David M III	661	St Rt 49	Constantia	210	1 Family Res	1.00
312.05-03-12	Kowanes, Mable	665	St Rt 49	Constantia	210	1 Family Res	1.00
312.05-03-08	Pennock Brook LLC	671	St Rt 49	Constantia	210	1 Family Res	1.00
312.05-03-07	Meagher, Thomas E	673	St Rt 49	Constantia	210	1 Family Res	1.00
312.05-01-09.1	Ciesla, Anthony M	676	St Rt 49	Constantia	483	Converted Res	1.00
312.05-01-09.2	Ciesla, Anthony M		St Rt 49	Constantia	314	Rural vac<10	0.50
312.05-03-01	Lengauer, Pierre	679	St Rt 49	Constantia	210	1 Family Res	1.00
312.05-04-05	Whitney, Edward John	685	St Rt 49	Constantia	210	1 Family Res	1.00
312.05-01-01	United States Postal Service	694	St Rt 49	Constantia	652	Govt bldgs	1.00
312.05-04-03	Moore, Edward	697	St Rt 49	Constantia	210	1 Family Res	1.00
312.05-05-02	Ormsbee, Allen R	698	St Rt 49	Constantia	210	1 Family Res	1.00
311.08-02-07	Bernhards Bay Storage Corp	712	St Rt 49	Constantia	449	Other Storage	2.00
311.08-02-08	DeMayo, Linda	726	St Rt 49	Constantia	210	1 Family Res	1.00
311.08-03-03	Oswego County IDA	741	St Rt 49	Constantia	444	Lumber yd/ml	5.00
311.08-02-03	Kinsey, Dillon R	748	St Rt 49	Constantia	210	1 Family Res	1.00
311.08-02-04	Confer, Wayne H	762	St Rt 49	Constantia	484	1 use sm bld	1.00
297.00-04-33.01	Holst, John Alan	772	St Rt 49	Constantia	210	1 Family Res	1.00
297.00-04-11.03	Slate, Madeline	786	St Rt 49	Constantia	240	Rural res	1.00
311.08-01-03	Fuller, Douglas J	795	St Rt 49	Constantia	210	1 Family Res	1.00
311.08-01-02	Town Of Constantia	807	St Rt 49	Constantia	963	Municpl park	1.00
311.07-02-24.01	Markham, Joseph	859	St Rt 49	Constantia	210	1 Family Res	1.00
311.07-02-24	Rourke, Wendy L	861	St Rt 49	Constantia	210	1 Family Res	1.00
311.07-02-21.01	Laianca, Charles	865	St Rt 49	Constantia	210	1 Family Res	1.00
311.07-02-04.02	Nesci, David R	897	St Rt 49	Constantia	210	1 Family Res	1.00
311.07-02-04.01	Stala Irrevocable Trust, Raymond & Grace	899	St Rt 49	Constantia	210	1 Family Res	1.00
311.07-02-04.03	Root, John P	901	St Rt 49	Constantia	210	1 Family Res	1.00
311.07-02-22	Root Irrevocable Trust, David F & Ruth A	903	St Rt 49	Constantia	210	1 Family Res	1.00
311.07-02-22.01	Gadway, Adam J	907	St Rt 49	Constantia	210	1 Family Res	1.00
297.00-06-05	Raus, Michael O	912	St Rt 49	Constantia	210	1 Family Res	1.00
311.07-02-03	Fabian, James W	915	St Rt 49	Constantia	210	1 Family Res	1.00
297.00-06-02.1	Gilbert, William C IV	932	St Rt 49	Constantia	210	1 Family Res	1.00
297.00-06-03	Church, John L	938	St Rt 49	Constantia	210	1 Family Res	1.00
311.06-01-19.12	Nardozza, V Stephen	1019	St Rt 49	Constantia	210	1 Family Res	1.00
311.06-01-18	Burns, Robert G	1023	St Rt 49	Constantia	210	1 Family Res	1.00
311.06-01-16	Walker, Mark A	1027	St Rt 49	Constantia	210	1 Family Res	1.00
311.06-01-15	Yackel, Raymond A Jr	1035	St Rt 49	Constantia	210	1 Family Res	1.00
311.06-01-14	Heller, Bruce	1043	St Rt 49	Constantia	210	1 Family Res	1.00
311.06-01-13	Neary, Kevin S	1047	St Rt 49	Constantia	210	1 Family Res	1.00
297.00-05-16.01	Whitney, Chad E	1048	St Rt 49	Constantia	210	1 Family Res	1.00
311.06-01-12	Asquith, Mary Sue	1049	St Rt 49	Constantia	210	1 Family Res	1.00
311.06-01-11	Ritter, Dianne	1051	St Rt 49	Constantia	210	1 Family Res	1.00
311.06-01-10	Wilson, Kathleen M	1053	St Rt 49	Constantia	210	1 Family Res	1.00
311.06-01-09	Letterer, Melvin	1055	St Rt 49	Constantia	210	1 Family Res	1.00
311.06-01-08	Thomases, Jordan M	1059	St Rt 49	Constantia	260	Seasonal res	1.00
297.00-05-10	Perry, Michael	1060	St Rt 49	Constantia	210	1 Family Res	1.00
297.00-05-07.01	Shearer, William H	1066	St Rt 49	Constantia	240	Rural res	1.00
311.06-01-07	Aksterowicz, Sheryl A	1067	St Rt 49	Constantia	421	Restaurant	3.00
311.06-01-05	County of Oswego	1075	St Rt 49	Constantia	210	1 Family Res	1.00

311.06-01-04	Lovell, Christine A	1077	St Rt 49	Constantia	260	Seasonal res	1.00
311.05-02-01	Whitney, Karl E	1119	St Rt 49	Constantia	449	Other Storage	1.00
297.00-05-04	Webb, Cynthia S	1154	St Rt 49	Constantia	210	1 Family Res	1.00
297.00-05-14	Hamilton, Richard T	1158	St Rt 49	Constantia	240	Rural res	2.00
297.00-05-13	Houppert, Steven S	1162	St Rt 49	Constantia	210	1 Family Res	1.00
311.05-01-04	Sussey, Janis W	1163	St Rt 49	Constantia	210	1 Family Res	1.00
297.00-05-13.01	Carroll, Daniel P	1166	St Rt 49	Constantia	210	1 Family Res	1.00
297.00-05-02.1	Camarda, Timothy J II	1170	St Rt 49	Constantia	411	Apartment	3.00
297.00-05-02.2	Jones, Robert M	1176	St Rt 49	Constantia	210	1 Family Res	1.00
311.05-01-03.01	Ianzito, Peter	1179	St Rt 49	Constantia	210	1 Family Res	1.00
310.08-01-13.03	Heins, Agnes M	1217	St Rt 49	Constantia	210	1 Family Res	1.00
310.08-01-13.01	Kalemba, Mark	1225	St Rt 49	Constantia	210	1 Family Res	1.00
310.08-01-13	Noonan, Thomas R	1235	St Rt 49	Constantia	210	1 Family Res	1.00
310.08-01-11	Foster, Gregory	1237	St Rt 49	Constantia	411	Apartment	3.00
310.08-01-10	Reynolds, George A	1241	St Rt 49	Constantia	210	1 Family Res	1.00
296.00-07-04	Carlson, Joan E	1248	St Rt 49	Constantia	210	1 Family Res	1.00
310.08-01-05	Alexander, Charlotte C	1267	St Rt 49	Constantia	210	1 Family Res	1.00
296.20-02-08	Berry, Maria C	1284	St Rt 49	Constantia	210	1 Family Res	1.00
296.20-02-10	Smith, Michael D	1287	St Rt 49	Constantia	210	1 Family Res	1.00
296.20-02-11	Panipinto, Tammy	1291	St Rt 49	Constantia	210	1 Family Res	1.00
296.20-02-04	Hughes, Terry	1316	St Rt 49	Constantia	210	1 Family Res	1.00
296.20-02-12.1	Mathis, Paul	1319	St Rt 49	Constantia	210	1 Family Res	1.00
296.20-02-18	Passage, Jennifer	1339	St Rt 49	Constantia	210	1 Family Res	1.00
296.20-02-19	Parker, Jeanne K	1341	St Rt 49	Constantia	210	1 Family Res	1.00
296.20-03-04	Barnello, Anthony	1348	St Rt 49	Constantia	210	1 Family Res	1.00
310.07-04-11	Ward, Charles M	1351	St Rt 49	Constantia	210	1 Family Res	1.00
296.19-04-18	Wickham, Jerald	1352	St Rt 49	Constantia	485	>1use sm bld	2.00
296.19-04-06	Marr Revocable Trust	1358	St Rt 49	Constantia	484	1 use sm bld	1.00
310.07-04-06	Eccleston, Alice	1371	St Rt 49	Constantia	210	1 Family Res	1.00
296.19-04-07	Peters, Wendy E	1372	St Rt 49	Constantia	210	1 Family Res	1.00
310.07-04-05	1373 George LLC	1373	St Rt 49	Constantia	210	1 Family Res	1.00
296.19-04-03.01	Evans, Philip E	1380	St Rt 49	Constantia	210	1 Family Res	2.00
310.07-02-04	Casselman, Betty	1415	St Rt 49	Constantia	210	1 Family Res	1.00
296.19-06-05	Scriba Lodge F A M	1416	St Rt 49	Constantia	534	Social org.	1.00
310.07-02-03	Brill, Glenda I	1417	St Rt 49	Constantia	210	1 Family Res	1.00
310.07-02-02	Rogers, Karen L	1419	St Rt 49	Constantia	210	1 Family Res	1.00
296.19-06-07	Swift, Daniel	1420	St Rt 49	Constantia	220	2 Family Res	2.00
296.19-06-03	Swift, Daniel	1422	St Rt 49	Constantia	220	2 Family Res	2.00
296.19-06-08	Renpro LLC	1424	St Rt 49	Constantia	220	2 Family Res	2.00
310.07-01-07	Watson, Kenneth J	1441	St Rt 49	Constantia	210	1 Family Res	1.00
296.19-07-05	Verizon New York, Inc	1448	St Rt 49	Constantia	831	Tele Comm	1.00
310.07-01-05	Tassone, Daniel R	1451	St Rt 49	Constantia	210	1 Family Res	1.00
310.06-03-08	Fecco, Andrew Reed Jr	1477	St Rt 49	Constantia	210	1 Family Res	1.00
296.18-03-12	Wicks, Richard	1478	St Rt 49	Constantia	210	1 Family Res	1.00
296.18-03-13	Walter, Jeffrey J	1484	St Rt 49	Constantia	210	1 Family Res	1.00
310.06-03-06	Sodon, Jason	1485	St Rt 49	Constantia	210	1 Family Res	1.00
310.06-03-05	Appleton, Jeremy D	1487	St Rt 49	Constantia	210	1 Family Res	1.00
296.18-03-15	Trinity Episcopal Church	1492	St Rt 49	Constantia	620	Religious	1.00
310.06-03-10.01	Laska-Kulba, Judith Kathryn	1497	St Rt 49	Constantia	280	Res Multiple	2.00
310.06-03-03	Matt, Douglas W	1503	St Rt 49	Constantia	280	Res Multiple	2.00
311.06-01-03.22	Cutrone, Adele M	1079-81	St Rt 49	Constantia	280	Res Multiple	2.00
296.20-02-02	Dill, Daniel G	1325-26	St Rt 49	Constantia	210	1 Family Res	1.00
310.07-03-05	Oneida Lake North Shore Marina LLC	1393-97	St Rt 49	Constantia	570	Marina	4.00
296.19-04-10	Denney, Avery	1400-1406	St Rt 49	Constantia	483	Converted Res	3.00
310.06-03-09.01	Normandeau, Lawrence E Jr	1471-73	St Rt 49	Constantia	280	Multiple res	2.00
310.06-03-07	Parker, Deborah A	1479-83	St Rt 49	Constantia	280	Res Multiple	3.00
296.18-03-14	Sodon, Jason	1486-88	St Rt 49	Constantia	210	1 Family Res	1.00
312.16-01-09.1	Vella, I Lance	259-261	St Rt 49	Constantia	210	1 Family Res	1.00
312.10-02-03	Farrell, Tracey E	497-99	St Rt 49	Constantia	280	Res Multiple	2.00
312.10-01-01	Clauter LLC	538-40	St Rt 49	Constantia	280	Res Multiple	2.00
312.05-03-16	Fuller, Bonnie	643-45	St Rt 49	Constantia	582	Camping park	1.50
297.00-04-07.01	Tarnacki, Edward M	858-76	St Rt 49	Constantia	416	Mfg hsing pk	5.00
311.05-02-17	Dussing, Robert	OFF	St Rt 49	Constantia	314	Rural vac<10	1.00
312.16-01-09.2	Robbins, Donald W	0	St Rt 49	Constantia	260	Seasonal res	1.00
312.10-02-09.02	Thorp, Peter A	0	St Rt 49	Constantia	314	Rural vac<10	0.50
312.10-02-09.01	Martin, Michael J SR	0	St Rt 49	Constantia	314	Rural vac<10	0.50
312.10-01-04.02	Galvin, Jeffrey	0	St Rt 49	Constantia	314	Rural vac<10	0.50
312.06-01-01.03	Harrison, David	0	St Rt 49	Constantia	314	Rural vac<10	0.50
312.05-03-17.02	Metot Living Trust	0	St Rt 49	Constantia	314	Rural vac<10	0.50
312.05-02-02	Town Of Constantia	0	St Rt 49	Constantia	963	Municpl park	0.00
312.00-02-13	Pawlyk, Catherine J	0	St Rt 49	Constantia	322	Rural vac>10	0.50
312.00-02-12.02	Porter, Michael R	0	St Rt 49	Constantia	322	Rural vac>10	0.50
312.00-02-06.02	Bulawa, Francis E Jr	0	St Rt 49	Constantia	322	Rural vac>10	0.50
312.00-02-05.02	Adamski, Jason	0	St Rt 49	Constantia	322	Rural vac>10	0.50
312.00-02-04.1	Darrow Living Trust	0	St Rt 49	Constantia	322	Rural vac>10	0.50
311.07-02-06	Spaziani, Michael A	0	St Rt 49	Constantia	314	Rural vac<10	0.50
311.06-01-36	New York State	0	St Rt 49	Constantia	653	Govt pk lot	0.50
311.05-02-04.01	Johnson, Marilyn	0	St Rt 49	Constantia	314	Rural vac<10	0.50
310.07-04-01	New York State	0	St Rt 49	Constantia	961	State park	0.50
297.00-06-01	Reina, Angelo Joseph	0	St Rt 49	Constantia	322	Rural vac>10	1.00
297.00-05-12	Marcoccia, Tino	0	St Rt 49	Constantia	322	Rural vac>10	1.00
297.00-04-08	Durant, Trina	0	St Rt 49	Constantia	322	Rural vac>10	1.00

297.00-04-06	Spaziani, Michael A	0	St Rt 49	Constantia	322	Rural vac>10	1.00
297.00-01-09.01	Adams, Roxanne L	0	St Rt 49	Constantia	322	Rural vac>10	1.00
296.20-02-17	Town Of Constantia	0	St Rt 49	Constantia	963	Municpl park	0.00
296.00-04-32.02	Kelley, Jeffrey	0	St Rt 49	Constantia	314	Rural vac<10	0.50
296.00-04-32	Kelley, Jeffrey	0	St Rt 49	Constantia	322	Rural vac>10	1.00
312.00-02-16	Blue Ridge Holding LLC	264	St Rt 49	Constantia	422	Diner/lunch	1.00
312.16-01-08	Kistler, Rodney J	269	St Rt 49	Constantia	210	1 Family Res	1.00
312.16-01-07.2	Loock, Irvin O	283	St Rt 49	Constantia	210	1 Family Res	1.00
312.16-01-06	Roach, Regan R	293	St Rt 49	Constantia	210	1 Family Res	1.00
312.16-01-04	Argulski, Raymond	303	St Rt 49	Constantia	210	1 Family Res	1.00
312.16-01-03	Ryan, John V	309	St Rt 49	Constantia	210	1 Family Res	1.00
312.15-01-20	Duck, Brian	319	St Rt 49	Constantia	210	1 Family Res	1.00
312.15-01-18	Flatt Irrevocable Trust, Samuel T	331	St Rt 49	Constantia	314	Rural vac<10	1.00
312.00-02-17	Hallenbeck, Rachel	334	St Rt 49	Constantia	240	Rural res	1.00
312.11-02-01	Ruffos, Mitchell P	403	St Rt 49	Constantia	210	1 Family Res	1.00
312.00-02-13.01	Powell, Benjamin	446	St Rt 49	Constantia	210	1 Family Res	1.00
312.10-02-01	Steven Trax	509	St Rt 49	Constantia	210	1 Family Res	1.00
312.06-01-01.05	Dignean, Terrie	594	St Rt 49	Constantia	210	1 Family Res	1.00
312.05-03-21	Liedka, Jerry	623	St Rt 49	Constantia	314	Rural vac<10	0.50
312.05-02-14	Community Methodist Church	632	St Rt 49	Constantia	620	Religious	1.00
312.05-02-17.01	Zakrzeski, Jeffrey	658	St Rt 49	Constantia	210	1 Family Res	1.00
312.05-03-09	Zakrzeski, Jeffrey	667	St Rt 49	Constantia	210	1 Family Res	1.00
312.05-01-10	Mc Grath, Thomas J	680	St Rt 49	Constantia	210	1 Family Res	1.00
312.05-01-12	Mc Grath, Thomas	688	St Rt 49	Constantia	270	Mfg housing	1.00
312.05-04-02	Babcock, Douglas	701	St Rt 49	Constantia	210	1 Family Res	1.00
312.05-05-01	Frasier, Michael W	708	St Rt 49	Constantia	210	1 Family Res	1.00
311.08-02-05.01	Hinman, Jacqueline E	728	St Rt 49	Constantia	210	1 Family Res	1.00
311.08-02-08.01	Swift, Daniel	738	St Rt 49	Constantia	314	Rural vac<10	0.50
311.08-03-01.2	Paradiso, Cathy	753	St Rt 49	Constantia	331	Com vac w/imp	1.00
311.08-02-01.22	Confer, Evonne D	756	St Rt 49	Constantia	210	1 Family Res	1.00
311.08-01-05	Hardy, Eugene P	765	St Rt 49	Constantia	312	Vac w/imprv	1.00
297.00-06-10	Sulock, Matthew	800	St Rt 49	Constantia	210	1 Family Res	1.00
297.00-04-08.01	Pawlikowski, Joseph T Jr	816	St Rt 49	Constantia	210	1 Family Res	1.00
311.08-01-01.01	Wynkoop, Kathleen	837	St Rt 49	Constantia	210	1 Family Res	1.00
311.07-02-07	New York State	851	St Rt 49	Constantia	314	Rural vac<10	0.50
297.00-04-07	Dean, Dylan	852	St Rt 49	Constantia	240	Rural res	1.00
311.07-02-05	Brady Family Trust	855	St Rt 49	Constantia	210	1 Family Res	1.00
297.00-06-06.12	Kelly, Judith	892	St Rt 49	Constantia	210	1 Family Res	1.00
297.00-06-11	Whitney, Corey M	900	St Rt 49	Constantia	240	Rural res	1.00
297.00-06-06.2	Cosco, Stasia A	908	St Rt 49	Constantia	210	1 Family Res	1.00
297.00-06-02.2	Hendrickson, Steven M	940	St Rt 49	Constantia	270	Mfg housing	1.00
311.06-01-20	Devayani, Nalini Jayanth	1013	St Rt 49	Constantia	210	1 Family Res	1.00
311.06-01-17	Stroud, Alan	1025	St Rt 49	Constantia	260	Seasonal res	1.00
297.00-05-16	Keiser, Jamie L	1040	St Rt 49	Constantia	210	1 Family Res	1.00
297.00-05-11.2	Riquier, Luke	1056	St Rt 49	Constantia	210	1 Family Res	1.00
297.00-05-09	Thomases, Jordan M	1064	St Rt 49	Constantia	314	Rural vac<10	0.50
297.00-05-07	Johnson, Lindsay Roberta	1082	St Rt 49	Constantia	322	Rural vac>10	1.00
297.00-05-06	Johnson, Marilyn	1102	St Rt 49	Constantia	210	1 Family Res	1.00
297.00-05-01.2	Amidon, Jeramy K	1184	St Rt 49	Constantia	210	1 Family Res	1.00
297.00-05-01.1	Harrington, Robert E	1188	St Rt 49	Constantia	210	1 Family Res	1.00
296.00-04-15.04	Kelly, Ralph E Jr	1192	St Rt 49	Constantia	837	Cell Tower	0.50
296.00-04-32.01	Hubbard, Jason P	1196	St Rt 49	Constantia	210	1 Family Res	1.00
310.08-01-13.05	Boncella, Mark R	1231	St Rt 49	Constantia	314	Rural vac<10	1.00
296.00-07-03	Organic Maniac LLC	1258	St Rt 49	Constantia	240	Rural res	1.00
310.08-01-04.01	Nelson, Charles E	1274	St Rt 49	Constantia	210	1 Family Res	1.00
296.20-02-21	MacNabb Living Trust	1279	St Rt 49	Constantia	210	1 Family Res	1.00
296.20-02-20	Maser Holdings LLC	1280	St Rt 49	Constantia	421	Restaurant	2.00
296.20-02-07	Childs, Kelly A	1292	St Rt 49	Constantia	210	1 Family Res	1.00
296.20-02-05	Wright, Robert J	1306	St Rt 49	Constantia	312	Vac w/imprv	0.50
296.20-02-03	Harrington, Jeremy	1322	St Rt 49	Constantia	220	2 Family Res	2.00
296.20-02-13	Baker, James A	1323	St Rt 49	Constantia	260	Seasonal res	1.00
296.20-02-15	McCarthy, Francene	1329	St Rt 49	Constantia	210	1 Family Res	1.00
296.20-02-16	Prunoske, Louis N	1335	St Rt 49	Constantia	210	1 Family Res	1.00
310.07-04-10	Widowski, Todd	1357	St Rt 49	Constantia	210	1 Family Res	1.00
310.07-04-09	Widowski, Todd	1361	St Rt 49	Constantia	220	2 Family Res	2.00
296.19-04-05.1	Scriba, Frederick G	1364	St Rt 49	Constantia	210	1 Family Res	1.00
296.19-04-05.2	James, Daniel	1366	St Rt 49	Constantia	210	1 Family Res	1.00
310.07-04-08	Howard, Sean M	1367	St Rt 49	Constantia	210	1 Family Res	1.00
310.07-04-07	Nirelli, Yvonne	1369	St Rt 49	Constantia	260	Seasonal res	1.00
296.19-04-04.1	Kellison, Jane M	1376	St Rt 49	Constantia	210	1 Family Res	1.00
310.07-03-03.2	Seneca & Washington LLC	1403	St Rt 49	Constantia	486	Mini-mart	1.00
296.19-06-09	Hodge, Edward	1428	St Rt 49	Constantia	210	1 Family Res	1.00
310.07-01-06	Scheuer, Kevin	1445	St Rt 49	Constantia	210	1 Family Res	1.00
296.19-07-06	Ward, Paul	1452	St Rt 49	Constantia	210	1 Family Res	1.00
296.19-07-01.2	Steinbach, Ronald J	1454	St Rt 49	Constantia	210	1 Family Res	1.00
296.18-03-09	Foster, Ryan S	1464	St Rt 49	Constantia	210	1 Family Res	1.00
310.07-01-01	Stagg, Andrea	1469	St Rt 49	Constantia	210	1 Family Res	1.00
296.18-03-10	Kiedrowski, Allen P	1470	St Rt 49	Constantia	210	1 Family Res	1.00
296.18-03-11	Klossner, Robert L	1476	St Rt 49	Constantia	210	1 Family Res	1.00
310.06-03-02	Garafalo Trust, Virginia R	1505	St Rt 49	Constantia	210	1 Family Res	1.00
310.06-03-01	Ortlieb, Erminia	1507	St Rt 49	Constantia	210	1 Family Res	1.00
296.18-04-10	Ames, Eric L	1511	St Rt 49	Constantia	280	Res Multiple	2.00

311.05-01-06	Lord, Mae E	1135-57	St Rt 49	Constantia	240	Rural res	1.00
311.05-01-02.01	Ellis, Lawrence A	1185-89	St Rt 49	Constantia	280	Res Multiple	2.00
296.00-04-15.01	Mahaffy Irrevocable Trust, Laurie A	1226-36	St Rt 49	Constantia	312	Vac w/imprv	1.00
296.20-02-06	Southworth, Debra M	1298-1302	St Rt 49	Constantia	416	Mfg hsing pk	4.00
312.05-02-04	Lakeside Rural Cemetery	622-628	St Rt 49	Constantia	695	Cemetery	0.00
311.08-02-02.12	Hare, Kenneth A Sr	716-20	St Rt 49	Constantia	280	Res Multiple	2.00
311.08-01-04	Meg's New Corporation	781-87	St Rt 49	Constantia	433	Auto body	2.00
311.07-02-01	Krause, William G	917-19	St Rt 49	Constantia	210	1 Family Res	1.00
312.16-01-11.03	Shaughnessy, Richard G	OFF	St Rt 49	Constantia	314	Rural vac<10	0.00
311.08-02-07.01	Gwynn, Deborah J	OFF	St Rt 49	Constantia	312	Vac w/imprv	0.50
311.08-02-06.01	Gwynn, Deborah J	OFF	St Rt 49	Constantia	449	Other Storage	1.00
311.07-01-08	Novenche, John T	OFF	St Rt 49	Constantia	314	Rural vac<10	0.50
310.07-03-01	CAPL Operations 1 LLC	1411	St Rt 49	Constantia	484	1 use sm bld	2.00
296.19-06-06	Winters, Stephen	1418	St Rt 49	Constantia	483	Converted Res	1.00
310.07-02-01	Voda's Constantia Cove LLC	1427	St Rt 49	Constantia	422	Diner/lunch	9.20
311.05-01-01	Spruce Grove 1193 LLC	1193-1201	St Rt 49	Constantia	570	Marina	18.80
296.00-05-03	Buckingham Landholdings LLC	0	St Rt 49 (2)	Constantia	322	Rural vac>10	1.00
296.00-05-03.01	Marr, Michael P	1522	St Rt 49 (2)	Constantia	210	1 Family Res	1.00
296.00-05-01	Maitland, Michael R	1548	St Rt 49 (2)	Constantia	210	1 Family Res	2.00
296.18-02-11	DeVaul, Donald P Jr	1556	St Rt 49 (2)	Constantia	210	1 Family Res	1.00
296.18-02-10	Trach-Auringer Post VFW	1560	St Rt 49 (2)	Constantia	534	Social org.	1.00
296.18-02-09	Baldwin, Grant	1564	St Rt 49 (2)	Constantia	210	1 Family Res	1.00
296.18-01-08.02	1573 Route 49 LLC	1573	St Rt 49 (2)	Constantia	484	1 use sm bld	1.00
296.18-02-06	Renpro LLC	1576	St Rt 49 (2)	Constantia	280	Res Multiple	2.00
296.18-01-06	Renpro LLC	1577	St Rt 49 (2)	Constantia	485	>1use sm bld	2.00
296.18-02-06.01	Renpro LLC	1578	St Rt 49 (2)	Constantia	220	2 Family Res	2.00
296.18-02-04	Rathbun, Richard	1580	St Rt 49 (2)	Constantia	210	1 Family Res	1.00
296.18-02-03	La Vigne, Joseph Jr	1584	St Rt 49 (2)	Constantia	210	1 Family Res	1.00
296.18-02-02	McVeen, Scott	1588	St Rt 49 (2)	Constantia	485	>1use sm bld	2.00
296.00-01-26.01	HCS Property Management LLC	1636	St Rt 49 (2)	Constantia	484	1 use sm bld	1.00
296.00-01-10.01	Lewis, Kevin J	1641	St Rt 49 (2)	Constantia	210	1 Family Res	1.00
296.00-01-09	Benway, Howard	1646	St Rt 49 (2)	Constantia	210	1 Family Res	1.00
296.00-01-12	St Mary's Church	1667	St Rt 49 (2)	Constantia	620	Religious	1.00
296.00-01-14	H G Ellis Agency Inc	1672	St Rt 49 (2)	Constantia	210	1 Family Res	1.00
296.00-01-16	Constantia Central School	1683	St Rt 49 (2)	Constantia	612	School	15.00
296.00-01-27.02	Foster, Gregory S	1724	St Rt 49 (2)	Constantia	210	1 Family Res	1.00
296.18-01-09	Cavallaro, Dean	1551-59	St Rt 49 (2)	Constantia	330	Vacant comm	1.00
296.00-01-10.02	Gladle, Kimberly J	0	St Rt 49 (2)	Constantia	314	Rural vac<10	0.50
296.18-01-12.01	Tooly, Robert J	1531	St Rt 49 (2)	Constantia	483	Converted Res	1.00
296.18-01-11	Ruel, John	1537	St Rt 49 (2)	Constantia	210	1 Family Res	1.00
296.18-01-10	Mumford, Michael E	1547	St Rt 49 (2)	Constantia	210	1 Family Res	1.00
296.18-02-08	Shattell, Douglas J Jr	1568	St Rt 49 (2)	Constantia	210	1 Family Res	1.00
296.18-02-07	McGregor, Michael	1572	St Rt 49 (2)	Constantia	312	Vac w/imprv	1.00
296.18-01-05	Chilson, Teresa	1579	St Rt 49 (2)	Constantia	312	Vac w/imprv	0.50
296.18-01-04	Chilson, Gordon C	1587	St Rt 49 (2)	Constantia	210	1 Family Res	1.00
296.18-02-01	McVeen, Scott	1592	St Rt 49 (2)	Constantia	314	Rural vac<10	0.50
296.18-01-03	Ost, Raymond	1595	St Rt 49 (2)	Constantia	210	1 Family Res	1.00
296.18-01-02	Radell, Daniel	1599	St Rt 49 (2)	Constantia	210	1 Family Res	1.00
296.00-06-15	Aylor, Gerald L	1605	St Rt 49 (2)	Constantia	312	Vac w/imprv	0.50
296.00-01-26	Stone, Michael R	1632	St Rt 49 (2)	Constantia	210	1 Family Res	1.00
296.00-01-11	Whipple, Charles	1655	St Rt 49 (2)	Constantia	210	1 Family Res	1.00
296.00-01-13	Thompson Living Trust	1668	St Rt 49 (2)	Constantia	210	1 Family Res	1.00
296.00-01-15	Kupelian Family Trust	1678	St Rt 49 (2)	Constantia	210	1 Family Res	1.00
296.00-01-18	Connors, Stephen	1686	St Rt 49 (2)	Constantia	240	Rural res	1.00
296.00-01-17	Brunelle, Peggy J	1690	St Rt 49 (2)	Constantia	210	1 Family Res	1.00
296.00-01-23	Brown, Susan Jean	1696	St Rt 49 (2)	Constantia	270	Mfg housing	1.00
296.00-01-25	Flint, Duane	1754	St Rt 49 (2)	Constantia	210	1 Family Res	1.00
296.00-05-02	Maser, Ruth	1540-44	St Rt 49 (2)	Constantia	210	1 Family Res	2.00
296.00-01-22	Kleis, John	1731	St Rt 49 (3)	Constantia	322	Rural vac>10	5.00
296.00-01-25.01	Foster, Gregory Scot	1744	St Rt 49 (3)	Constantia	485	>1use sm bld	2.00
295.00-01-12	Coon, Lon B	1801	St Rt 49 (3)	Constantia	240	Rural res	1.00
295.00-01-12.02	Sharlon LLC	1805	St Rt 49 (3)	Constantia	331	Com vac w/imp	1.00
296.00-01-06	Redmond, Daniel P	1818	St Rt 49 (3)	Constantia	210	1 Family Res	2.00
295.00-01-14	Fowler, Ruby S	1825	St Rt 49 (3)	Constantia	555	Ridng stable	1.00
296.00-01-05	Schortemeier, Raymond G II	1826	St Rt 49 (3)	Constantia	240	Rural res	1.00
295.00-01-14.01	Kleis, John W	1837	St Rt 49 (3)	Constantia	455	Dealer-prod.	1.00
295.00-01-10	Lacey, Susan M	1843	St Rt 49 (3)	Constantia	210	1 Family Res	1.00
295.00-01-08	Bolen, Joshua T	1855	St Rt 49 (3)	Constantia	210	1 Family Res	1.00
295.00-01-07	Haight, Michael J	1859	St Rt 49 (3)	Constantia	210	1 Family Res	1.00
278.00-01-15	Dorolean Development Corp	2068	St Rt 49 (3)	Constantia	416	Mfg hsing pk	11.50
296.00-01-29.03	Wagoner, Eric P	0	St Rt 49 (3)	Constantia	314	Rural vac<10	0.50
296.00-01-27.03	Foster, Gregory S	0	St Rt 49 (3)	Constantia	314	Rural vac<10	0.50
296.00-01-24.02	Wenham, James G	0	St Rt 49 (3)	Constantia	314	Rural vac<10	0.50
296.00-01-19.11	Rider, James M	0	St Rt 49 (3)	Constantia	314	Rural vac<10	0.50
295.00-01-13.01	Kleis, John W	0	St Rt 49 (3)	Constantia	331	Com vac w/imp	0.50
295.00-01-03	Retajczyk, Daniel	0	St Rt 49 (3)	Constantia	322	Rural vac>10	1.00
278.00-02-10	Retajczyk, Daniel D	0	St Rt 49 (3)	Constantia	322	Rural vac>10	1.00
278.00-02-01	Hayes Trust, Richard K	0	St Rt 49 (3)	Constantia	322	Rural vac>10	1.00
278.00-01-14	Winks, Frances A	0	St Rt 49 (3)	Constantia	322	Rural vac>10	1.00
278.00-01-12.1	Phillips, Kirk P Sr	0	St Rt 49 (3)	Constantia	322	Rural vac>10	1.00
296.00-01-25	Flint, Duane	1754	St Rt 49 (3)	Constantia	210	1 Family Res	1.00
296.00-01-20	Cooligan, Peter J	1764	St Rt 49 (3)	Constantia	210	1 Family Res	1.00

296.00-01-21	Alger, Leslie Paul	1772	St Rt 49 (3)	Constantia	210	1 Family Res	1.00
295.00-01-12.01	Rider, James M II	1773	St Rt 49 (3)	Constantia	240	Rural res	2.00
296.00-01-07.02	Oswego County IDA	1804	St Rt 49 (3)	Constantia	331	Com vac w/imp	1.00
296.00-01-04	Rowe, Scott	1844	St Rt 49 (3)	Constantia	210	1 Family Res	1.00
295.00-01-09	Kupelian Family Trust	1849	St Rt 49 (3)	Constantia	210	1 Family Res	1.00
295.00-01-06	Haight, Michael J	1861	St Rt 49 (3)	Constantia	314	Rural vac<10	0.50
296.00-01-24.01	Wenham, James G	1864	St Rt 49 (3)	Constantia	210	1 Family Res	1.00
295.00-01-05	Sherman, Jean	1867	St Rt 49 (3)	Constantia	270	Mfg housing	1.00
295.00-01-04	Strebel, Deborah	1879	St Rt 49 (3)	Constantia	210	1 Family Res	1.00
295.00-01-15	Retajczyk, Daniel	1949	St Rt 49 (3)	Constantia	240	Rural res	1.00
278.00-02-07.14	Dowd, Benjamin	1999	St Rt 49 (3)	Constantia	220	2 Family Res	2.00
310.08-01-07.2	Alsworth, Krista	2	Sunset Bay Rd	Constantia	210	1 Family Res	1.00
310.08-01-19	Page, Robert H Jr	4	Sunset Bay Rd	Constantia	210	1 Family Res	1.00
310.08-01-17	Piquet, Richard C	12	Sunset Bay Rd	Constantia	210	1 Family Res	1.00
310.08-01-16	Pone, Daniel T	14	Sunset Bay Rd	Constantia	210	1 Family Res	2.00
310.08-01-07.1	Glenn, William H IV	0	Sunset Bay Rd	Constantia	314	Rural vac<10	0.50
310.08-01-08	Smart, Gale P	3	Sunset Bay Rd	Constantia	210	1 Family Res	1.00
310.08-01-18	Moran, Daniel F	8	Sunset Bay Rd	Constantia	210	1 Family Res	1.00
310.08-01-14	Tomasone, Dennis R I	16	Sunset Bay Rd	Constantia	210	1 Family Res	1.00
311.08-01-13	Hamilton, Tracy	50	Taft Bay Rd	Constantia	280	Res Multiple	2.00
311.08-01-12	Sovay, William J	52	Taft Bay Rd	Constantia	210	1 Family Res	1.00
311.08-01-14	Howe, Steven W	48	Taft Bay Rd	Constantia	260	Seasonal res	1.00
311.08-01-03.01	Fuller, Douglas J	33-39	Taft Bay Rd	Constantia	210	1 Family Res	1.00
296.00-04-24	Geary, David	28	Tannery Rd	Constantia	210	1 Family Res	1.00
296.00-04-25	Fregoe, Daniel M	32	Tannery Rd	Constantia	210	1 Family Res	1.00
296.15-02-29	Chauvaux, Robert	45	Tannery Rd	Constantia	270	Mfg housing	1.00
296.00-04-26	Metcalf, Stephen J	52	Tannery Rd	Constantia	210	1 Family Res	1.00
296.00-04-04	Durfee, Aimee E	88	Tannery Rd	Constantia	240	Rural res	1.00
296.00-04-04.02	Austin, Robert W	96	Tannery Rd	Constantia	210	1 Family Res	1.00
296.15-02-10	Eastman, Jessica E	97	Tannery Rd	Constantia	210	1 Family Res	1.00
296.00-04-29.03	Peaden, Tamara	124	Tannery Rd	Constantia	210	1 Family Res	1.00
296.15-02-14	Tyrrell, Melvin R	0	Tannery Rd	Constantia	312	Vac w/imprv	0.50
296.00-04-25.02	Tyrrell, Melvin R	0	Tannery Rd	Constantia	314	Rural vac<10	0.50
296.20-01-02.1	Mac Dowell, Clark A	3	Tannery Rd	Constantia	210	1 Family Res	1.00
296.15-02-14.03	Maxwell, Michelle	35	Tannery Rd	Constantia	210	1 Family Res	1.00
296.00-04-25.04	Bellows, Steven	42	Tannery Rd	Constantia	210	1 Family Res	1.00
296.00-04-25.05	Colesante, Richard T	46	Tannery Rd	Constantia	210	1 Family Res	1.00
296.15-02-14.02	Stenner, Dylan	51	Tannery Rd	Constantia	210	1 Family Res	1.00
296.15-02-13	Tyrrell, Melvin	59	Tannery Rd	Constantia	210	1 Family Res	1.00
296.00-04-25.03	Tyrrell, Melvin R	70	Tannery Rd	Constantia	210	1 Family Res	1.00
296.00-04-25.06	Patchen, Dominic S	76	Tannery Rd	Constantia	210	1 Family Res	1.00
296.15-02-12	Macholl, Dennis	77	Tannery Rd	Constantia	210	1 Family Res	1.00
296.00-04-25.01	Kires, Thomas M	80	Tannery Rd	Constantia	210	1 Family Res	1.00
296.15-02-32.05	Pitoniak, Mark	87	Tannery Rd	Constantia	210	1 Family Res	1.00
296.00-04-27.01	Countryman, Peter	106	Tannery Rd	Constantia	210	1 Family Res	1.00
296.15-02-08	Schwalbe, Curt	109	Tannery Rd	Constantia	210	1 Family Res	1.00
296.00-04-28	Villeneuve, Wayne	114	Tannery Rd	Constantia	210	1 Family Res	1.00
296.20-01-01	Ziervogel, Claire	11-13	Tannery Rd	Constantia	210	1 Family Res	1.00
295.00-04-05	Lewis, Scott E	37	West Rd	Constantia	240	Rural res	1.00
295.00-03-03.01	Wickham, Jerald A	50	West Rd	Constantia	210	1 Family Res	1.00
295.00-04-25.02	Figaro, Karen E	0	West Rd	Constantia	314	Rural vac<10	0.50
295.00-04-25.01	Melchior, Jacob D IV	0	West Rd	Constantia	314	Rural vac<10	0.50
295.00-04-09.02	Melchior, Jacob D IV	5	West Rd	Constantia	210	1 Family Res	1.00
295.00-04-07	Davis, Joseph	21	West Rd	Constantia	210	1 Family Res	1.00
295.00-04-06	Dunham, Justin R	29	West Rd	Constantia	210	1 Family Res	2.00
295.00-03-07	Sutton, George F Jr	36	West Rd	Constantia	210	1 Family Res	1.00
295.00-03-04.2	Sonnacchio, Peter J Jr	40	West Rd	Constantia	210	1 Family Res	1.00
311.07-02-08	Zapf, David Edward	13	Whipporwill Ln	Constantia	210	1 Family Res	1.00
311.07-02-12	Maio, Dominick P	17	Whipporwill Ln	Constantia	260	Seasonal res	1.00
311.07-02-13	Kain, Charles J	19	Whipporwill Ln	Constantia	210	1 Family Res	1.00
311.07-02-09	Maio, Dominick P	12-20	Whipporwill Ln		210	1 Family Res	1.00
312.09-01-04	Lutz, Carl M	24	Willard Dr	Constantia	314	Rural vac<10	1.00
312.05-04-06	Simmons, Thomas Jr	8	Willard Dr	Constantia	210	1 Family Res	1.00
312.05-04-07	DeLuca, David M	12	Willard Dr	Constantia	620	Religious	1.00
312.05-03-05.01	Kulesa, Mary E	15	Willard Dr	Constantia	210	1 Family Res	1.00
312.09-02-02	Murphy, Richard D	25	Willard Dr	Constantia	220	2 Family Res	2.00
312.09-02-03	Anderson, Adrian C	29	Willard Dr	Constantia	210	1 Family Res	1.00
312.09-02-04	Lutz-Winn, Sheila G	35	Willard Dr	Constantia	210	1 Family Res	1.00
312.09-02-05	Tompson, Benjamin F III	37	Willard Dr	Constantia	210	1 Family Res	1.00
312.09-02-06	Dibble, Eric P	39	Willard Dr	Constantia	260	Seasonal res	1.00
312.09-01-05.01	Baker, Robert	42	Willard Dr	Constantia	210	1 Family Res	1.00
312.09-02-07	Rathbun, James B	43	Willard Dr	Constantia	260	Seasonal res	1.00
312.09-02-08	Molta, David J	45	Willard Dr	Constantia	210	1 Family Res	1.00
312.09-02-10	Laczak, Joel	49	Willard Dr	Constantia	210	1 Family Res	1.00
312.09-02-16	Simmons, Thomas Jr	0	Willard Dr	Constantia	312	Vac w/imprv	1.00
312.09-01-02.01	Mc Elwain, Bernard C Jr	16	Willard Dr	Constantia	210	1 Family Res	1.00
312.09-01-03	Youker, Cheryl	20	Willard Dr	Constantia	210	1 Family Res	1.00
312.09-01-05	Anderson, Jonathon	30	Willard Dr	Constantia	210	1 Family Res	1.00
312.09-02-09	Kelsey, Albert J	47	Willard Dr	Constantia	210	1 Family Res	1.00
312.05-04-01	Rummell, Michael R	1	Winona Park Dr	Constantia	210	1 Family Res	1.00
312.09-02-17.01	Quinn, Martin P	41	Winona Park Dr	Constantia	210	1 Family Res	1.00
312.09-02-17	Bain, Robert E	42	Winona Park Dr	Constantia	210	1 Family Res	1.00

312.09-02-12.1	Turner, James	43	Winona Park Dr	Constantia	260	Seasonal res	1.00
312.09-02-13.1	Meixell, David	45	Winona Park Dr	Constantia	210	1 Family Res	1.00
312.09-02-14.1	Wysochanski, Michael A	47	Winona Park Dr	Constantia	210	1 Family Res	1.00
312.09-02-15.1	Revelle Lvg Trust, John C	49	Winona Park Dr	Constantia	210	1 Family Res	1.00
311.12-01-04.1	Mizerski, Richard D	51	Winona Park Dr	Constantia	210	1 Family Res	1.00
311.12-01-05.1	Bivens, Barry	53	Winona Park Dr	Constantia	210	1 Family Res	1.00
311.12-01-08	Grammenz Irrevocable Trust	61	Winona Park Dr	Constantia	210	1 Family Res	1.00
312.09-01-07	Meixell, David	0	Winona Park Dr	Constantia	312	Vac w/imprv	1.00
311.12-01-02	Peters, Shawn	36	Winona Park Dr	Constantia	210	1 Family Res	1.00
311.12-01-06	Condolora, Nicholas L	55	Winona Park Dr	Constantia	210	1 Family Res	1.00
311.12-01-07	Russo, F Michael Jr	59	Winona Park Dr	Constantia	210	1 Family Res	1.00
311.07-02-18	Pone, Simmone	20	Youman Rd	Constantia	210	1 Family Res	1.00
311.07-02-20	Lay, Geoffrey	23	Youman Rd	Constantia	260	Seasonal res	1.00
311.07-02-17	Regan, Mary R	24	Youman Rd	Constantia	260	Seasonal res	1.00
311.07-02-16	Cerra, Patrick	26	Youman Rd	Constantia	210	1 Family Res	1.00
311.07-02-15	Ostrowski, Richard	28	Youman Rd	Constantia	210	1 Family Res	1.00
311.07-02-14	Suchecki, Michael A	30	Youman Rd	Constantia	210	1 Family Res	1.00
311.07-02-02.2	Ostrowski, Richard	0	Youman Rd	Constantia	312	Vac w/imprv	1.00
311.07-02-19	Smith, August M	19	Youman Rd	Constantia	312	Vac w/imprv	1.00
						TOTAL EDU ESTIMATE	1230.30

APPENDIX E
2021 Income Survey Report

July 23, 2021

Hon. Ken Mosley, Supervisor
Town of Constantia
P.O. Box 167,
Constantia, NY 13044

Re: Low Moderate Income Survey (LMI) - Sewer District #1

Supervisor Mosley:

Per your request, I have composed a letter outlining the methodology and containing the results of the Low/Moderate Income (LMI) survey conducted for the Town of Constantia, NY.

Service Area
The service area includes approximately 932 occupied households in the Town of Constantia Sewer District #1.

Justification
The request is based on the following factors. The Median Household Income (MHI) of the service area per the US Census Bureau likely has a large margin of error. The median household income for the area would appear to be improperly elevated by the suspected errors in the random sampling process, as utilized by the US Census Bureau American Community Survey (ACS). Typically, households with lower incomes are underrepresented in the ACS. Accordingly, we suspect the household income levels for the proposed area will likely fall below the US Census Bureau ACS estimates.

Survey Procedure/Form/Methodology
G&G Municipal Consulting and Grant Writing (G&G) conducted the survey as an unbiased consultant to the Town. Residences in the survey area were identified as to occupancy by tax parcel records and "in field" observation conducted by G&G staff during door-to-door canvassing. The survey was initiated in April of 2019 and completed in March of 2020. The survey was distributed to 932 occupied households via the United States Post Office. 372 households returned the survey using the provided self-addressed stamped envelope. Door-to-door canvassing conducted by employees of G&G (four separate canvassing events) obtained another 114 surveys for a total of 486 completed surveys. This response rate of 52.14% exceeds the required LMI National Objective Compliance Requirement (CDBG) response rate of 45% for survey areas containing 800 to 1000 households.

A letter from the Town was provided to each household in the service area (see attached) explaining the purpose of the survey. Each household also received a survey which asked:

- the number of people living in the home

- whether the living quarters are owned or rented
- if anyone over 62 lives in the residence
- household income for the past year
- female head of household)
- handicapped status
- ethnicity and race

Raw survey responses were assembled and analyzed to determine the median household income (MHI) of the project service area by entering the income amount received into an Excel file which has been retained by G&G. Each blind survey contained a code matching it to the mailing address provided by the town. The incomes were then formatted into a high to low array. The median was determined using the Excel formula of =median (A1:A486) for a result of $45,000.

Low and moderate income persons have incomes 80% less than the Syracuse, NY MSA median of $80,500. The 2021 Huduser.gov determined this level to be $63,600 for a family of four. For the LMI, the universe population was 1,182 (LMIUNIV) individuals. Of those individuals, 701 (LOWMOD) lived in households adjusted for family size, that were below the median income. Based on those numbers, the LMIPCT for the community is 59.3%, exceeding the 51% threshold necessary for hardship status (CDBG-NYHCR purposes).

All original survey forms received by mail and door-to-door canvassing have been sealed and will be retained by the municipality.

Results

1 – Total Households within Project Service Area: 978
2 – Survey Universe: 932
3 – Complete Surveys Received: 486
4 – Response Rate (Returned Surveys divided by the Survey Universe): 52.14%
(45% required for LMI/CDBG)
5 – Median Household Income (MHI) as measured by income survey: $45,000
Low/Moderate Income Percentage (LMIPCT) as measured by income survey:
1,182 people in the 486 responding houses = average 2.43 people per house
701 low/mod people = 59.3% of the 1,182 respondents
2.43 people x 446 non responding houses = 1,083.78 (1,084) hypothetical non responding people
59.3% of 1,084 = 642.81(643) hypothetical non respondent low/mod people
1,182 responding people + 1,084 hypothetical non responding people = 2,266 total people
701 low/mod (respondents) + 643 low/mod (hypothetical non respondents) = 1,344 people
1,344 low/mod = 59.31% of 2,266 total people (LMIUNIV)

6 - Total population LMIPCT = 59% *(total includes both respondent and non-respondent households per NYS HCR)*

It was a pleasure conducting this survey on behalf of the Town of Constantia. If you have any questions, feel free to contact me anytime. I look forward to working with you in the future.

Respectfully submitted,

J. Grasso

Town of Constantia, NY	
Sewer District #1	
INCOME SURVEY RESULT SUMMARY	
Income Survey Date - April 2019/March 2020	
Most Recent Update:	July 22, 2021
Total Number of Occupied Households:	932
Total Number of Responses:	486
RESPONSE RATE:	**52.1%**
Number of Low-Mod Income Households:	301
Number of Households Above Low-Mod:	185
Percentage Low-Mod Households:	61.9%
Percentage Non Low-Mod Households:	38.1%
Number of Individuals:	1,182
Number of Low-Mod Individuals:	701
Number of Non Low-Mod Indviduals:	481
PERCENT LOW-MOD INDIVIDUALS:	**59.3%**
Average Household Size:	2.43
Number Low Income Households:	301
Percent Low Income Households:	61.9%
Number Low Income Individuals:	701
Percent Low Income Individuals:	59.3%
MEDIAN HOUSEHOLD INCOME (MHI)	**$45,000**
Syracuse, NY MSA	

Town of Constantia, NY

Sewer District #1

INCOME SURVEY RESULT SUMMARY

Income Survey Date - April 2019/March 2020

	Income Survey		**Extrapolated Data**		**Combined Data**	
	HH	**Persons**	**HH**	**Persons**	**HH**	**Persons**
0-30% HAMFI (Very Low)	53	127	49	51	102	178
Percentage of Households 0-30%	10.9%	10.7%	10.9%	10.7%		
31-50% HAMFI (Low)	90	174	83	71	173	245
Percentage of Households 31 - 50%	18.5%	14.7%	18.5%	14.7%		
51-80% HAMFI (Moderate)	158	400	145	163	303	563
Percentage of Households 51 - 80%	32.5%	33.8%	32.5%	33.8%		
81% and Above (Non-LMI)	185	481	170	196	355	677
Percentage of Households Above 81%	38.1%	40.7%	38.1%	40.7%		
Vacant/seasonal (no Income)					0	0
Percentage Vacant	0.0%	0.0%	0.0%	0.0%		
Totals		0	0	0	0	0
Percentage totals	100.0%	100.0%	100.0%	100.0%		100.00%
Totals Check	486	1,182	446	480	932	1,662
Extrapolated Data						
Total Houses in Universe	932					
Total Respondent Households	486					
Non Respondent Households	446					
Low/Moderate Income Percentage (LMIPCT)	59.30%					

RHH = Respondent Households	**RHH**	**Persons**
	486	701
Average number of persons per RHH =2.43 people		
NRHH = Non Respondent Households 446	**NRHH**	**Persons**
2.43people x 446 NRHH	446	1,084
Number Low Income Respondent Individuals:		701
Percent Low Income Individuals (LMIPCT):	59.3%	
59.3% of 1084 Nonresponding HH people (persons)		643
TOTALS:		
Responding people		1,182
Non responding people		1,084
Total responding people (LMIUNV)		2,266
Low/mod respondents		701
Low/mod non respondents		643
Total people		1,344
1344 low/mod people = 59.31% of 2266 LMINUV	59.31%	
Total LMIUNV	59.00%	

APPENDIX F
DOH Endorsed Sanitary Survey

OSWEGO COUNTY HEALTH DEPARTMENT
JIANCHENG HUANG, DIRECTOR OF PUBLIC HEALTH
PHONE 315.349.3545
70 BUNNER STREET, OSWEGO, NEW YORK 13126-3357
FAX 315.349.3435

July 23, 2021

Mr. David C. Powers, I.E.
Engineer II
Barton & Loguidice, D.P.C.
120 Washington Street
Watertown, NY 13601

RE: Town of Constantia Northshore Sewer Project

Dear Mr. Powers:

The Oswego County Health Department (OCHD) has conducted a sanitary survey for the above-referenced project with supporting documentation provided by the Town of Constantia, Barton and Loguidice and OCHD.

The Sanitary Survey Document Compilation (attached) prepared by Barton and Loguidice prepared for the Town of Constantia summarizes following the New York State Sanitary Code requirements that are not being met with many of the existing Onsite Wastewater Treatment Systems (OWTS) currently installed within the proposed sanitary sewer service area.

1. New York State Department of Health (NYSDOH) Wastewater Treatment Standards – Residential Onsite Systems – Appendix 75-A (attached);

    a. 75-A.8 (b)(1) – Site Requirements. A minimum of four feet of usable soil shall exist with a minimum separation of two feet to the lowest part of any absorption trench system;

    b. 75-A.4 (b) Separation Distances from Wastewater System Components – (Table 2) which include separation distances to water bodies, property lines and freshwater wetlands; and

    c. 75-A.8 (b)(2)(i) Minimum absorption field area.

The primary purpose for completion of the Constantia Northshore Sewer Projects to construct new sanitary sewer infrastructure that is required to meet applicable New York State health and safety standards to properly treat residential household wastewater. Completion of the project will accomplish this requirement and will protect the Oneida Lake watershed.

If you have any questions or concerns regarding this correspondence, please feel free to contact me at (315) 349-3557.

Sincerely,

William P. Havener Jr., M.S., P.E.

William P. Havener Jr., M.S., P.E.
Public Health Engineer

c: Judith Grandy, Director of Environmental Health
Kenneth Mosley, Town Constantia Supervisor
John Haynes, Town of Constantia CEO
John Helgren, P.E., USDA Rural Development
File

Town of Constantia

Northshore Sewer District

Sanitary Survey
Document Compilation

Town Code Enforcement Officer Letter	4/20/20
B&L Geographic Restriction Figures	4/20/20
Oswego County Health Department Letter of Support	6/2/20
Oswego County Health Department Septic Tank Absorption Fields	6/2/20

Town Code Enforcement Officer Letter

4/20/20

CODE ENFORCEMENT OFFICER
Town of Constantia

April 20, 2020

Kenneth Mosley
Town of Constantia, Supervisor

Dear Supervisor Mosley:

As you may know New York State establishes minimum standards for the design and construction of private, on-site septic systems. These standards have been compiled in the New York Code of Rules and Regulations, specifically at 10 NYCRR, Chapter 2, Part 75 entitled Standards for Individual Water Supply and Individual Sewage Treatment Systems. The regulations, among other things, establish (1) the minimum size for septic system absorption (leach) fields [§75-A.8] (2) minimum separation distances for the various septic system components from lot lines and wetlands, bodies of water and waterways [§75-A.4(b)], and (3) minimum separation distances between the various septic system components and dwellings, other structures and private, on-site wells [§75-A.4(b)]. The size and design of absorption fields are based primarily on the number of bedrooms contained in the dwelling and the percolation rate of the soils on the property. Other considerations that can and do constrain the design and siting of septic systems are the locations of the structures, driveways and trees on the parcels and the topography. Considering the aforementioned requirements, the average single family household requires approximately 0.25 acres to construct a properly installed private system.

I have recently reviewed Town assessment records relating to properties within the service area for the proposed Northshore Sewer Project. Although I am well acquainted with the area and know that it contains many small lots; a review of the lot dimensions contained in the assessment records enabled me to quantify the number of small parcels within the service area. Based on my findings, I was able to determine that approximately 10 percent of the total number of parcels in the proposed Constantia-Bernhards Bay Sewer District are situated on lots that are so small or so narrow (<0.25 acres) that the septic systems serving these parcels do not meet the minimum standards for septic systems set forth in 10 NYCRR, Chapter 2, Part 75. In some cases, the usable parcel area is insufficient to accommodate the minimum area required for the absorption field to meet current standards and/or to meet the minimum separation distance required between the absorption field and an on-site well. In other cases, the lots are either too small and/or too narrow to accommodate a septic system designed to current standards and still satisfy the setback minimum requirements from lot lines and/or the embayment. The septic systems serving these properties are therefore deficient. In addition, many of the lots in this area would not be able to accommodate an expansion of an existing leach field that would be necessary to repair the on-site septic systems.

I have also coordinated with the Town's engineering firm Barton & Loguidice (B&L) to evaluate the soils present within the sewer District, as well as the existing surface water features. B&L's analysis found that the overwhelming majority of the sewer District area is comprised of hydrologic soils in Groups C and D, which are known poorly draining soils. It was found that 81 percent of the area, or 2,758 acres, is comprised of Groups C and D soil types. These soils generally do not allow adequate percolation and absorption rates for a properly functioning absorption field. Furthermore, the analysis concluded that 26.5 percent of the District area is occupied by water surface features (streams, lakes, wetlands, etc.) with a 100-feet buffer applied around all features. To meet separation requirements as identified in 10 NYCRR, Chapter 2, Part 75, absorption fields must be at least 100-feet from any surface water features. The abundance of surface water features in the sewer District makes it increasingly difficult to install an on-site private septic system to appropriately protect surface water features, which ultimately reach Oneida Lake. B&L prepared a series of figures to graphically represent the abundance of restrictive soils and presence of surface water features throughout the sewer District area.

In view of the small lots, 10 NYCRR, Chapter 2, Part 75 standards requirements, and presence of poorly draining soils and abundant surface water features throughout the District, the only means for the safe disposal of human waste in the proposed sewer district be the construction of a public sewer system. A public sewer system constructed to serve this area would effectively eliminate the existing deficiencies and would help protect the public health or area residents.

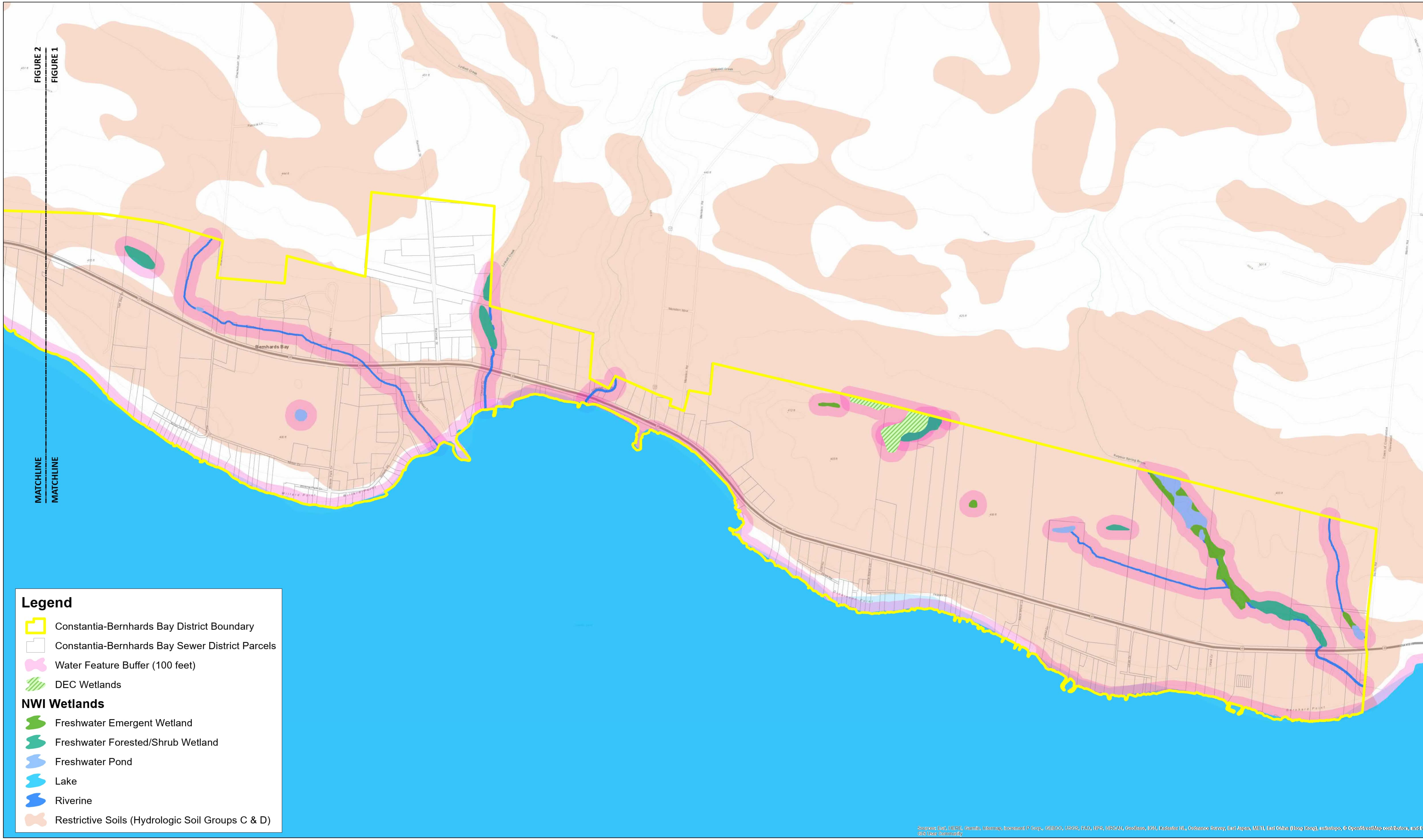
Please let me know if you have any questions or need additional information from.

Sincerely,

Town of Constantia, Code Enforcement Officer
John T. Haynes
315-623-9581

B&L Geographic Restrictions Figures

4/20/20



Barton & Loguidice

N W E S

1 inch = 450 feet

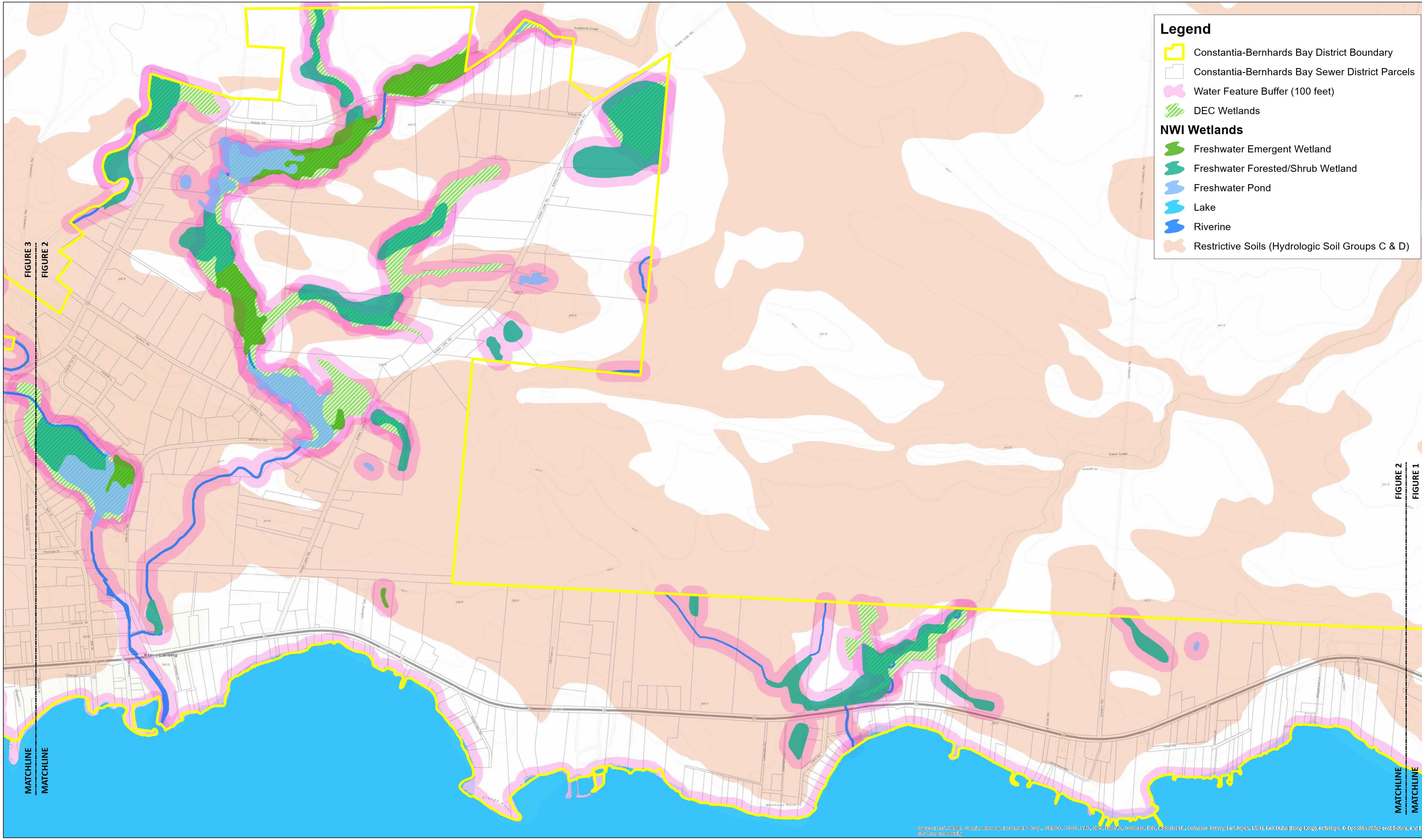
Town of Constantia

Private Wastewater Disposal System Complications

Oswego County April 2020 New York

Figure 1

Project No. 221.005



Barton & Loguidice

N W E S

1 inch = 450 feet

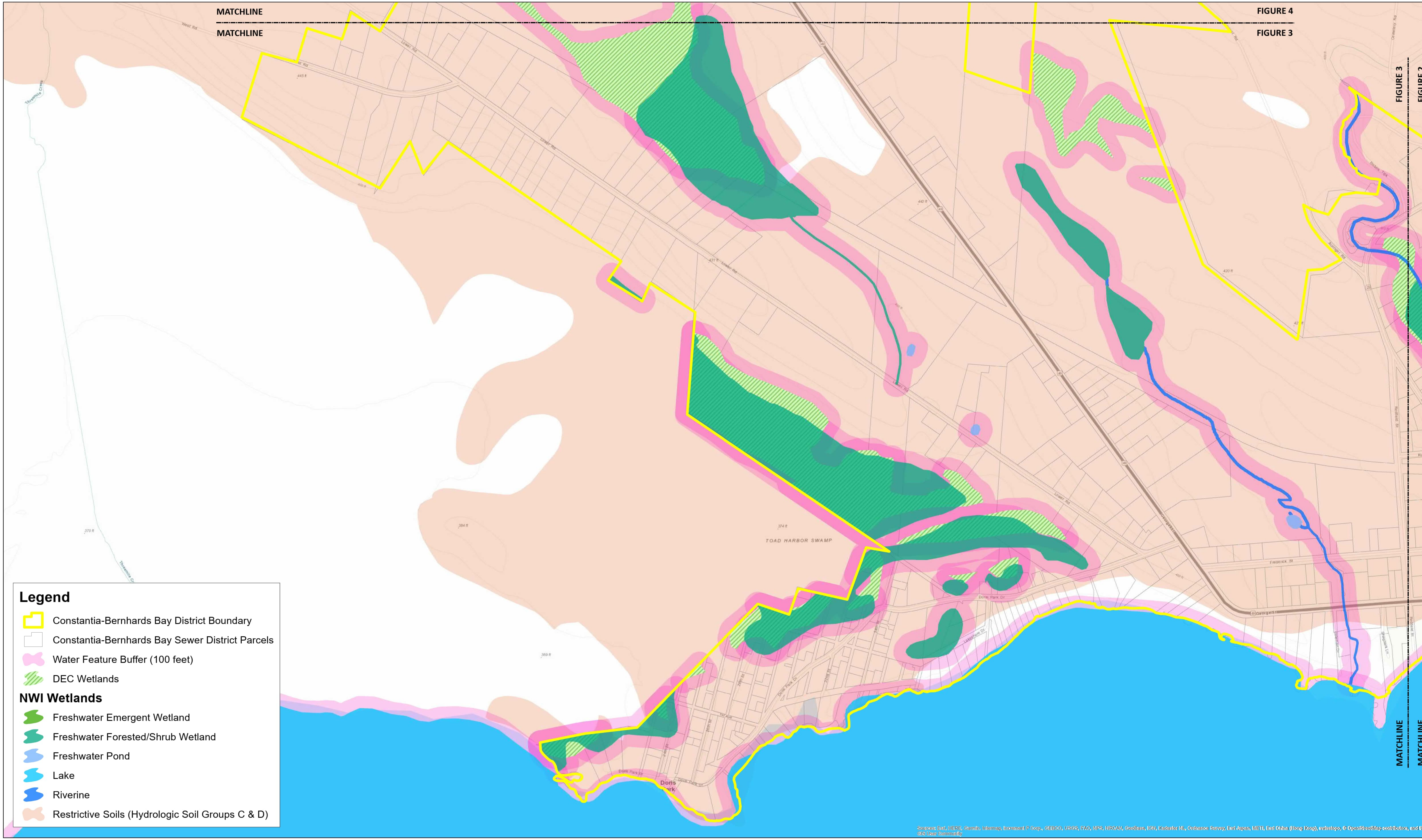
Town of Constantia

Private Wastewater Disposal System Complications

Oswego County | April 2020 | New York

Figure 2

Project No. 221.005



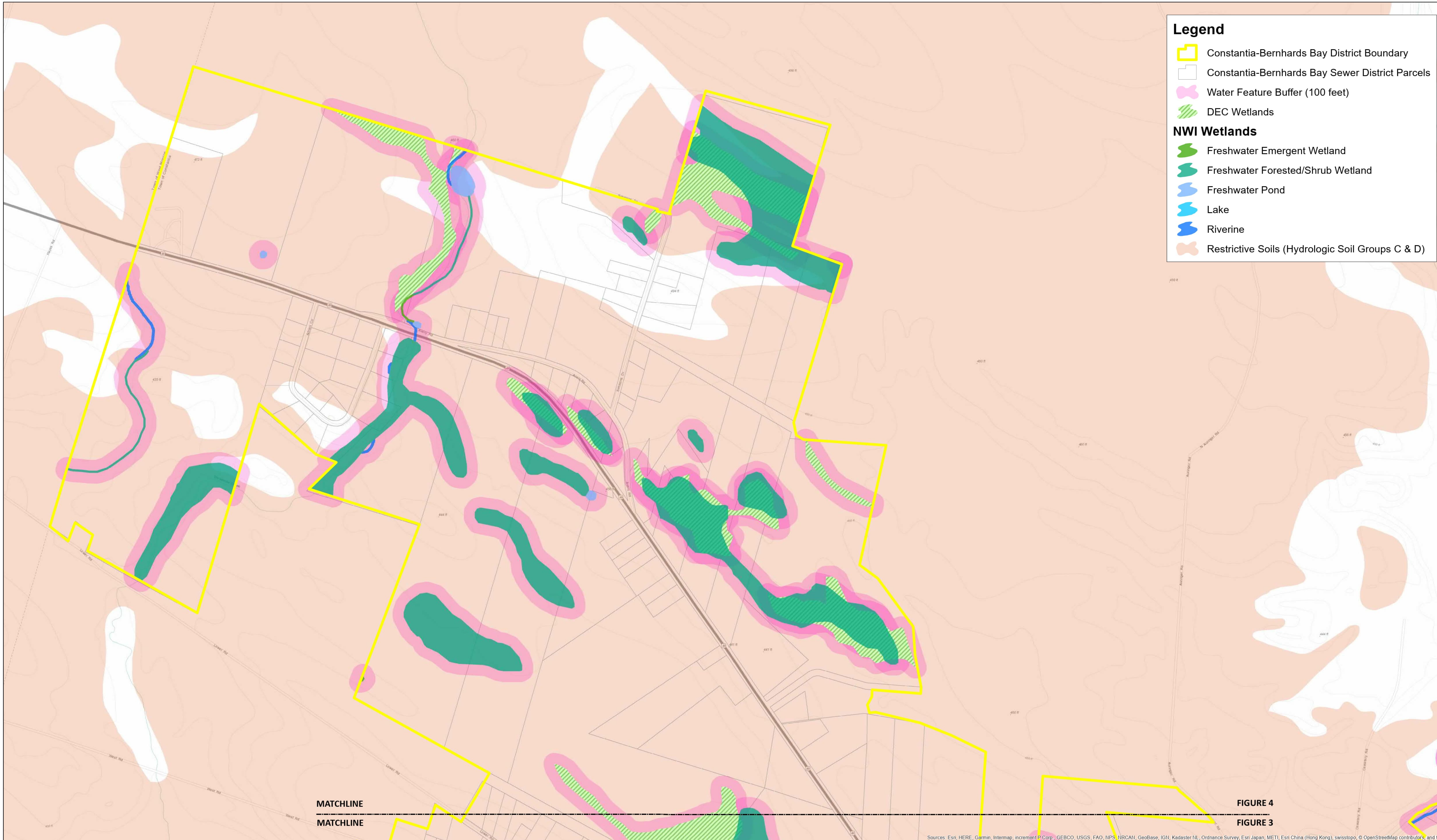
Barton & Loguidice

N W E S

1 inch = 350 feet

Town of Constantia
Private Wastewater Disposal System Complications
Oswego County April 2020 New York

Figure
3
Project No. 221.005



Barton & Loguidice

N W E S

1 inch = 400 feet

Town of Constantia
Private Wastewater Disposal System Complications
Oswego County April 2020 New York

Figure 4
Project No. 221.005

Oswego County Health Department

Letter of Support

6/2/20

OSWEGO COUNTY HEALTH DEPARTMENT
JIANCHENG HUANG, INTERIM DIRECTOR OF PUBLIC HEALTH
PHONE 315.349.3545
70 BUNNER STREET, OSWEGO, NEW YORK 13126-3357
FAX 315.349.3435

June 2, 2020

Mr. David C. Powers, I.E.
Engineer II
Barton & Loguidice, D.P.C.
120 Washington Street
Watertown, NY 13601

RE: Town of Constantia Northshore Sewer Project

Dear Mr. Powers:

The Oswego County Health Department (OCHD) would like to confirm our support for the above-referenced project by documenting the project's health and sanitary needs. OCHD has reviewed materials provided by you in your 5/19/2020 email and has also reviewed files from our Onsite Wastewater Treatment System (OWTS) complaint program and plan approval documents for properties within the proposed sewer district area. Based on this information the Department is providing the following information to support the project.

1. The project area in question consistently has less than two feet of usable soil which forces homeowners to construct Onsite Wastewater Treatment Systems (OWTS systems) that are considered Alternative subsurface treatment systems as defined by the New York State Sanitary Code, Appendix 75-A.9. OCHD has approved replacement/repair OWTS systems for more than 15 raised, mound or systems utilizing enhanced treatment units (ETUs) since 2007 to comply with state requirements. Specifically, OCHD has reviewed and approved plans for 5 mound systems, 7 raised systems and three OWTS system incorporating ETUs to address failing systems with seasonably high groundwater tables;

2. OCHD has attached figures obtained from the USDA Natural Resource Conservation Service Web Soil Survey showing critical portions of the project area (in red) with rated depth to groundwater under two feet below grade;

3. Several failing systems within the Doris Park area were replaced with Alternative OWTS systems due to the shallow groundwater depths encountered and because they were located adjacent to New York State Department of Environmental Conservation (NYSDEC) wetland areas; and

4. Numerous lakeshore properties have also been identified that cannot meet the required separation distances from wastewater treatment system components as presented in Table 2 of Appendix 75-A Specifically, 143 lakeshore properties were identified by the Oswego Department of Real Property Tax Services office that were less 0.5 acres in size.

This project will allow homeowners with OWTS systems that do not comply with Appendix 75-A and businesses to connect to the proposed sanitary sewer constructed in accordance with NYSDEC standards. Therefore, we strongly endorse the proposed sanitary sewer project if grants or low interest loans can be secured by the Town of Constantia to ensure that residents and businesses will be able to afford to pay the first year and long term costs associated with the project.

If you have any questions or concerns regarding this correspondence, please feel free to contact me at (315) 349-3557.

Sincerely,

William P. Havener Jr., M.S., P.E.

William P. Havener Jr., M.S., P.E.
Public Health Engineer

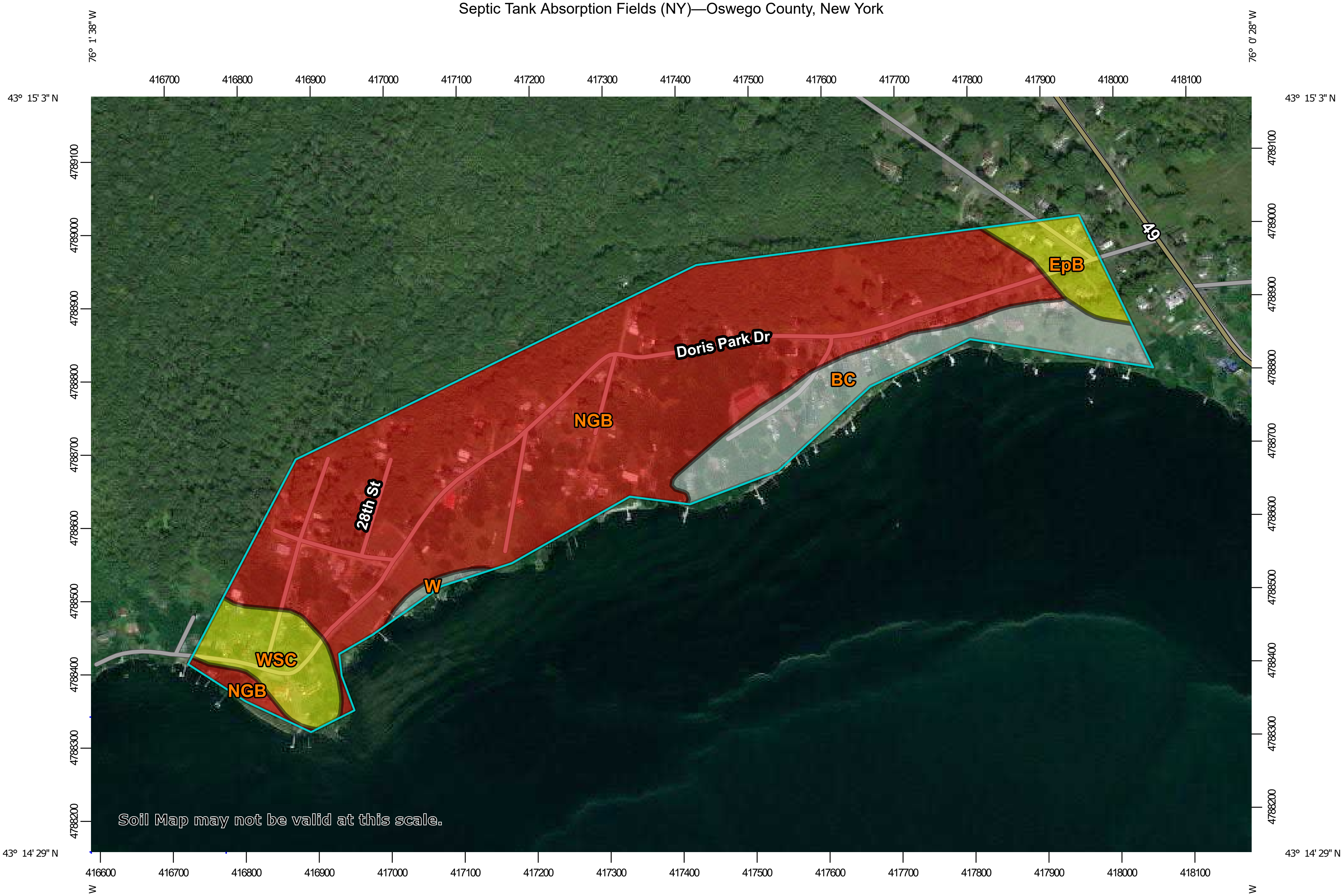
c: Judith Grandy, Director of Environmental Health
Kenneth Mosley, Town Constantia Supervisor
John Haynes, Town of Constantia CEO
John Helgren, P.E., USDA Rural Development
File

Oswego County Health Department

Septic Tank Absorption Fields

6/2/20

Septic Tank Absorption Fields (NY)—Oswego County, New York



Map Scale: 1:7,270 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

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

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: Oswego County, New York
Survey Area Data: Version 20, Sep 16, 2019

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

Date(s) aerial images were photographed: Dec 31, 2009—Oct 10, 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.

Septic Tank Absorption Fields (NY)

Map unit symbol	Map unit name	Rating	Component name (percent)	Rating reasons (numeric values)	Acres in AOI	Percent of AOI
BC	Beaches	Not rated	Beaches (70%)		10.0	12.8%
			Naumburg (5%)			
			Windsor (5%)			
			Hinckley (5%)			
			Granby (5%)			
			Deerfield (5%)			
			Humaquepts (3%)			
			Fibrists (2%)			
EpB	Empeyville very fine sandy loam, 3 to 8 percent slopes, stony	Somewhat limited	Empeyville, stony (85%)	Depth to dense material (0.90)	3.2	4.0%
				Depth to saturated zone (0.90)		
			Worth, stony (7%)	Depth to dense material (0.80)		
				Depth to saturated zone (0.80)		
			Schroon, stony (2%)	Depth to saturated zone (0.80)		
				Restricted permeability (0.31)		
NGB	Naumburg-Granby complex, gently sloping	Very limited	Naumburg, somewhat poorly drained (30%)	Leaching or seepage (1.00)	59.3	76.0%
				Depth to saturated zone (1.00)		
				Filtering capacity (1.00)		
			Granby (25%)	Leaching or seepage (1.00)		
				Depth to saturated zone (1.00)		
				Filtering capacity (1.00)		

Map unit symbol	Map unit name	Rating	Component name (percent)	Rating reasons (numeric values)	Acres in AOI	Percent of AOI
				Ponding (1.00)		
			Naumburg, poorly drained (20%)	Leaching or seepage (1.00)		
				Depth to saturated zone (1.00)		
				Filtering capacity (1.00)		
W	Water	Not rated	Water (100%)		0.5	0.6%
WSC	Worth and Empeyville soils, 8 to 15 percent slopes, very stony	Somewhat limited	Worth, very stony (50%)	Depth to dense material (0.80)	5.1	6.5%
				Depth to saturated zone (0.80)		
				Surface rock fragments (0.60)		
				Slope (0.20)		
			Empeyville, very stony (35%)	Depth to dense material (0.90)		
				Depth to saturated zone (0.90)		
				Surface rock fragments (0.60)		
				Slope (0.20)		
			Bice (7%)	Restricted permeability (0.21)		
				Slope (0.20)		
			Highmarket (3%)	Leaching or seepage (0.90)		
				Slope (0.20)		
Totals for Area of Interest					**78.0**	**100.0%**

Rating	Acres in AOI	Percent of AOI
Very limited	59.3	76.0%
Somewhat limited	8.2	10.5%
Null or Not Rated	10.5	13.4%
Totals for Area of Interest	**78.0**	**100.0%**

Description

Septic tank absorption fields are subsurface systems of perforated pipe or similar devices that distribute effluent from a septic tank into the soil. New York State Department of Health regulations allow installation of septic system absorption fields of varying designs, depending upon the depth of suitable soil material above any limitation in the natural soil at a site (New York State Department of Health, 1990). Where necessary, imported fill material may be used to elevate absorption trenches to at least the minimum distance of 24 inches above limiting soil horizons. The depth ranges of suitable material and corresponding types of absorption systems allowed are as follows:

Less than 12 inches-no system allowed

12 to 24 inches-alternative raised trench

24 to 48 inches-conventional shallow trench

More than 48 inches-conventional system

The ratings in this interpretation are based on evaluation of the soil between depths of 12 and 48 inches. In addition, the bottom layer of the soil is evaluated for risk of seepage. This interpretation does not evaluate bedrock below the soil. The soil properties and site features considered are those that affect absorption of the effluent, construction and maintenance of the system, and public health.

The soil properties and qualities that affect the absorption and effective treatment of wastewater effluent are saturated hydraulic conductivity (Ksat), depth to a seasonal high water table, depth to bedrock, depth to dense material, and susceptibility to flooding. Stones and boulders and a shallow depth to bedrock or dense material interfere with installation. Excessive slope may cause lateral seepage and surfacing of the effluent in downslope areas. In addition, the hazards of erosion and sedimentation increase as slope increases.

Some soils are underlain by loose sand and gravel or fractured bedrock at a depth of less than 2 feet below the distribution lines. In these soils the absorption field may not adequately filter the effluent, particularly when the system is new. As a result, ground water may be contaminated.

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. "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, which is displayed on the report. 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 Selected Soil Interpretations report with this interpretation included 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.

The information in this interpretation is based on criteria developed specifically for soils in New York. The information is not site specific and does not eliminate the need for onsite investigation of the soils.

Reference:

New York State Department of Health. 1990. Appendix 75-A of Part 75, Section 201(1)(1) of New York Public Health Law. Nassau and Suffolk Counties have a waiver from this portion of New York State Department of Health regulations.

Rating Options

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

Septic Tank Absorption Fields (NY)—Oswego County, New York

MAP LEGEND

Area of Interest (AOI)

Area of Interest (AOI)

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

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.

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Soil Survey Area: Oswego County, New York
Survey Area Data: Version 20, Sep 16, 2019

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Date(s) aerial images were photographed: Dec 31, 2009—Oct 10, 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.

Septic Tank Absorption Fields (NY)

Map unit symbol	Map unit name	Rating	Component name (percent)	Rating reasons (numeric values)	Acres in AOI	Percent of AOI
BC	Beaches	Not rated	Beaches (70%)		25.6	67.5%
			Naumburg (5%)			
			Windsor (5%)			
			Hinckley (5%)			
			Granby (5%)			
			Deerfield (5%)			
			Humaquepts (3%)			
			Fibrists (2%)			
Sw	Swanton fine sandy loam	Very limited	Swanton, poorly drained (50%)	Depth to saturated zone (1.00)	8.6	22.6%
				Depth to dense material (0.80)		
			Swanton, somewhat poorly drained (30%)	Depth to saturated zone (1.00)		
				Depth to dense material (0.80)		
W	Water	Not rated	Water (100%)		3.7	9.8%
Totals for Area of Interest					**37.9**	**100.0%**

Rating	Acres in AOI	Percent of AOI
Very limited	8.6	22.6%
Null or Not Rated	29.3	77.4%
Totals for Area of Interest	**37.9**	**100.0%**

Description

Septic tank absorption fields are subsurface systems of perforated pipe or similar devices that distribute effluent from a septic tank into the soil. New York State Department of Health regulations allow installation of septic system absorption fields of varying designs, depending upon the depth of suitable soil material above any limitation in the natural soil at a site (New York State Department of Health, 1990). Where necessary, imported fill material may be used to elevate absorption trenches to at least the minimum distance of 24 inches above limiting soil horizons. The depth ranges of suitable material and corresponding types of absorption systems allowed are as follows:

Less than 12 inches-no system allowed

12 to 24 inches-alternative raised trench

24 to 48 inches-conventional shallow trench

More than 48 inches-conventional system

The ratings in this interpretation are based on evaluation of the soil between depths of 12 and 48 inches. In addition, the bottom layer of the soil is evaluated for risk of seepage. This interpretation does not evaluate bedrock below the soil. The soil properties and site features considered are those that affect absorption of the effluent, construction and maintenance of the system, and public health.

The soil properties and qualities that affect the absorption and effective treatment of wastewater effluent are saturated hydraulic conductivity (Ksat), depth to a seasonal high water table, depth to bedrock, depth to dense material, and susceptibility to flooding. Stones and boulders and a shallow depth to bedrock or dense material interfere with installation. Excessive slope may cause lateral seepage and surfacing of the effluent in downslope areas. In addition, the hazards of erosion and sedimentation increase as slope increases.

Some soils are underlain by loose sand and gravel or fractured bedrock at a depth of less than 2 feet below the distribution lines. In these soils the absorption field may not adequately filter the effluent, particularly when the system is new. As a result, ground water may be contaminated.

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. "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.

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Rating Options

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

Map Scale: 1:4,260 if printed on A landscape (11" x 8.5") sheet.

Meters: 0 50 100 200 300

Feet: 0 200 400 800 1200

N

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

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

Background

Aerial Photography

MAP INFORMATION

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Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

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Septic Tank Absorption Fields (NY)

Map unit symbol	Map unit name	Rating	Component name (percent)	Rating reasons (numeric values)	Acres in AOI	Percent of AOI
BC	Beaches	Not rated	Beaches (70%)		21.9	55.1%
			Naumburg (5%)			
			Windsor (5%)			
			Hinckley (5%)			
			Granby (5%)			
			Deerfield (5%)			
			Humaquepts (3%)			
			Fibrists (2%)			
NGB	Naumburg-Granby complex, gently sloping	Very limited	Naumburg, somewhat poorly drained (30%)	Leaching or seepage (1.00)	7.8	19.7%
				Depth to saturated zone (1.00)		
				Filtering capacity (1.00)		
			Granby (25%)	Leaching or seepage (1.00)		
				Depth to saturated zone (1.00)		
				Filtering capacity (1.00)		
				Ponding (1.00)		
			Naumburg, poorly drained (20%)	Leaching or seepage (1.00)		
				Depth to saturated zone (1.00)		
				Filtering capacity (1.00)		
RhA	Rhinebeck silt loam, 0 to 2 percent slopes	Very limited	Rhinebeck (75%)	Depth to saturated zone (1.00)	9.2	23.2%
				Restricted permeability (1.00)		
W	Water	Not rated	Water (100%)		0.8	1.9%

Map unit symbol	Map unit name	Rating	Component name (percent)	Rating reasons (numeric values)	Acres in AOI	Percent of AOI
Totals for Area of Interest					**39.7**	**100.0%**

Rating	Acres in AOI	Percent of AOI
Very limited	17.1	43.0%
Null or Not Rated	22.7	57.0%
Totals for Area of Interest	**39.7**	**100.0%**

Description

Septic tank absorption fields are subsurface systems of perforated pipe or similar devices that distribute effluent from a septic tank into the soil. New York State Department of Health regulations allow installation of septic system absorption fields of varying designs, depending upon the depth of suitable soil material above any limitation in the natural soil at a site (New York State Department of Health, 1990). Where necessary, imported fill material may be used to elevate absorption trenches to at least the minimum distance of 24 inches above limiting soil horizons. The depth ranges of suitable material and corresponding types of absorption systems allowed are as follows:

Less than 12 inches-no system allowed

12 to 24 inches-alternative raised trench

24 to 48 inches-conventional shallow trench

More than 48 inches-conventional system

The ratings in this interpretation are based on evaluation of the soil between depths of 12 and 48 inches. In addition, the bottom layer of the soil is evaluated for risk of seepage. This interpretation does not evaluate bedrock below the soil. The soil properties and site features considered are those that affect absorption of the effluent, construction and maintenance of the system, and public health.

The soil properties and qualities that affect the absorption and effective treatment of wastewater effluent are saturated hydraulic conductivity (Ksat), depth to a seasonal high water table, depth to bedrock, depth to dense material, and susceptibility to flooding. Stones and boulders and a shallow depth to bedrock or dense material interfere with installation. Excessive slope may cause lateral seepage and surfacing of the effluent in downslope areas. In addition, the hazards of erosion and sedimentation increase as slope increases.

Some soils are underlain by loose sand and gravel or fractured bedrock at a depth of less than 2 feet below the distribution lines. In these soils the absorption field may not adequately filter the effluent, particularly when the system is new. As a result, ground water may be contaminated.

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. "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, which is displayed on the report. 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 Selected Soil Interpretations report with this interpretation included 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.

The information in this interpretation is based on criteria developed specifically for soils in New York. The information is not site specific and does not eliminate the need for onsite investigation of the soils.

Reference:

New York State Department of Health. 1990. Appendix 75-A of Part 75, Section 201(1)(1) of New York Public Health Law. Nassau and Suffolk Counties have a waiver from this portion of New York State Department of Health regulations.

Rating Options

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

Septic Tank Absorption Fields (NY)—Oswego County, New York

Map Scale: 1:4,690 if printed on A landscape (11" x 8.5") sheet.

Meters: 0, 50, 100, 200, 300

Feet: 0, 200, 400, 800, 1200

N

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

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

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: Oswego County, New York
Survey Area Data: Version 20, Sep 16, 2019

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

Date(s) aerial images were photographed: Nov 3, 2013—Sep 27, 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.

Septic Tank Absorption Fields (NY)

Map unit symbol	Map unit name	Rating	Component name (percent)	Rating reasons (numeric values)	Acres in AOI	Percent of AOI
BC	Beaches	Not rated	Beaches (70%)		11.4	39.7%
			Naumburg (5%)			
			Windsor (5%)			
			Hinckley (5%)			
			Granby (5%)			
			Deerfield (5%)			
			Humaquepts (3%)			
			Fibrists (2%)			
HuC	Hudson silt loam, 6 to 12 percent slopes	Very limited	Hudson (80%)	Restricted permeability (1.00)	4.6	16.1%
				Depth to saturated zone (0.80)		
				Slope (0.11)		
RhA	Rhinebeck silt loam, 0 to 2 percent slopes	Very limited	Rhinebeck (75%)	Depth to saturated zone (1.00)	1.6	5.6%
				Restricted permeability (1.00)		
RhB	Rhinebeck silt loam, 2 to 6 percent slopes	Very limited	Rhinebeck (75%)	Depth to saturated zone (1.00)	10.9	38.0%
				Restricted permeability (1.00)		
W	Water	Not rated	Water (100%)		0.2	0.5%
Totals for Area of Interest					**28.7**	**100.0%**

Rating	Acres in AOI	Percent of AOI
Very limited	17.1	59.7%
Null or Not Rated	11.6	40.3%
Totals for Area of Interest	**28.7**	**100.0%**

Description

Septic tank absorption fields are subsurface systems of perforated pipe or similar devices that distribute effluent from a septic tank into the soil. New York State Department of Health regulations allow installation of septic system absorption fields of varying designs, depending upon the depth of suitable soil material above any limitation in the natural soil at a site (New York State Department of Health, 1990). Where necessary, imported fill material may be used to elevate absorption trenches to at least the minimum distance of 24 inches above limiting soil horizons. The depth ranges of suitable material and corresponding types of absorption systems allowed are as follows:

Less than 12 inches-no system allowed

12 to 24 inches-alternative raised trench

24 to 48 inches-conventional shallow trench

More than 48 inches-conventional system

The ratings in this interpretation are based on evaluation of the soil between depths of 12 and 48 inches. In addition, the bottom layer of the soil is evaluated for risk of seepage. This interpretation does not evaluate bedrock below the soil. The soil properties and site features considered are those that affect absorption of the effluent, construction and maintenance of the system, and public health.

The soil properties and qualities that affect the absorption and effective treatment of wastewater effluent are saturated hydraulic conductivity (Ksat), depth to a seasonal high water table, depth to bedrock, depth to dense material, and susceptibility to flooding. Stones and boulders and a shallow depth to bedrock or dense material interfere with installation. Excessive slope may cause lateral seepage and surfacing of the effluent in downslope areas. In addition, the hazards of erosion and sedimentation increase as slope increases.

Some soils are underlain by loose sand and gravel or fractured bedrock at a depth of less than 2 feet below the distribution lines. In these soils the absorption field may not adequately filter the effluent, particularly when the system is new. As a result, ground water may be contaminated.

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. "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, which is displayed on the report. 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.

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The information in this interpretation is based on criteria developed specifically for soils in New York. The information is not site specific and does not eliminate the need for onsite investigation of the soils.

Reference:

New York State Department of Health. 1990. Appendix 75-A of Part 75, Section 201(1)(1) of New York Public Health Law. Nassau and Suffolk Counties have a waiver from this portion of New York State Department of Health regulations.

Rating Options

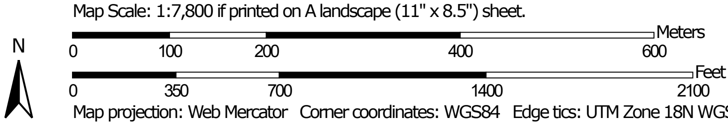
Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

Septic Tank Absorption Fields (NY)—Oswego County, New York

Map Scale: 1:7,800 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
- 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

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.

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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: Oswego County, New York
Survey Area Data: Version 20, Sep 16, 2019

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

Date(s) aerial images were photographed: Nov 3, 2013—Sep 27, 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.

Septic Tank Absorption Fields (NY)

Map unit symbol	Map unit name	Rating	Component name (percent)	Rating reasons (numeric values)	Acres in AOI	Percent of AOI
BC	Beaches	Not rated	Beaches (70%)		11.2	18.7%
			Naumburg (5%)			
			Windsor (5%)			
			Hinckley (5%)			
			Granby (5%)			
			Deerfield (5%)			
			Humaquepts (3%)			
			Fibrists (2%)			
HuC	Hudson silt loam, 6 to 12 percent slopes	Very limited	Hudson (80%)	Restricted permeability (1.00)	4.0	6.6%
				Depth to saturated zone (0.80)		
				Slope (0.11)		
RhA	Rhinebeck silt loam, 0 to 2 percent slopes	Very limited	Rhinebeck (75%)	Depth to saturated zone (1.00)	2.6	4.4%
				Restricted permeability (1.00)		
RhB	Rhinebeck silt loam, 2 to 6 percent slopes	Very limited	Rhinebeck (75%)	Depth to saturated zone (1.00)	39.6	65.9%
				Restricted permeability (1.00)		
W	Water	Not rated	Water (100%)		0.0	0.1%
WlB	Williamson very fine sandy loam, 2 to 6 percent slopes	Somewhat limited	Williamson (75%)	Depth to saturated zone (0.85)	2.6	4.3%
				Depth to dense material (0.83)		
				Restricted permeability (0.31)		
Totals for Area of Interest					**60.0**	**100.0%**

Rating	Acres in AOI	Percent of AOI
Very limited	46.2	76.9%
Somewhat limited	2.6	4.3%
Null or Not Rated	11.3	18.8%
Totals for Area of Interest	**60.0**	**100.0%**

Description

Septic tank absorption fields are subsurface systems of perforated pipe or similar devices that distribute effluent from a septic tank into the soil. New York State Department of Health regulations allow installation of septic system absorption fields of varying designs, depending upon the depth of suitable soil material above any limitation in the natural soil at a site (New York State Department of Health, 1990). Where necessary, imported fill material may be used to elevate absorption trenches to at least the minimum distance of 24 inches above limiting soil horizons. The depth ranges of suitable material and corresponding types of absorption systems allowed are as follows:

Less than 12 inches-no system allowed

12 to 24 inches-alternative raised trench

24 to 48 inches-conventional shallow trench

More than 48 inches-conventional system

The ratings in this interpretation are based on evaluation of the soil between depths of 12 and 48 inches. In addition, the bottom layer of the soil is evaluated for risk of seepage. This interpretation does not evaluate bedrock below the soil. The soil properties and site features considered are those that affect absorption of the effluent, construction and maintenance of the system, and public health.

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Some soils are underlain by loose sand and gravel or fractured bedrock at a depth of less than 2 feet below the distribution lines. In these soils the absorption field may not adequately filter the effluent, particularly when the system is new. As a result, ground water may be contaminated.

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. "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.

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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, which is displayed on the report. 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 Selected Soil Interpretations report with this interpretation included 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.

The information in this interpretation is based on criteria developed specifically for soils in New York. The information is not site specific and does not eliminate the need for onsite investigation of the soils.

Reference:

New York State Department of Health. 1990. Appendix 75-A of Part 75, Section 201(1)(1) of New York Public Health Law. Nassau and Suffolk Counties have a waiver from this portion of New York State Department of Health regulations.

Rating Options

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

APPENDIX G
WWTP Basis of Design

(T) Constantia - Estimated WWTP Flows and Loading

(T) Constantia Population	4,778	*(2020 Decennial Census)*		
Occupied Housing Units	1,934	*(2020 Decennial Census)*		
Peaking Factor	3.26	*(10 State Standards Figure 1)*		
Flow/Capita/Day (gal)	100 gal	*(10 States Standards Section 11.243.b)*		
BOD/Capita/Day (lbs)	0.22	*(10 States Standards Section 11.253.b)*		
TSS/Capita/Day (lbs)	0.25	*(10 States Standards Section 11.253.b)*		
TKN/Capita/Day (lbs)	0.046	*(10 States Standards Section 11.253.b)*		

	(T) Constantia	**(T) Constantia(*)**	**30 Year Design(**)**		**Proposed SBR Design**
EDU's	1,230.30	1,230.30	-		
Average Household Size	2.47	2.47	-		
Population Served	3,039	3,039	4,000		
Avg Gallon/day per Capita	100	60.7	100		
Average Flow (GPD)	310,000	190,000	400,000	**Average Flow (GPD)**	400,000
Peaking Factor	3.26	3.26	3.26	**Peaking Factor**	3.26
Peak Hourly Flow (GPD)	1,020,000	620,000	1,310,000	**Peak Hourly Flow (GPD)**	1,310,000
BOD (lbs/day)	669	669	880	**BOD (lbs/day)**	880
TSS (lbs/day)	760	760	1000	**TSS (lbs/day)**	1000
TKN (lbs/day)	140	140	184	**TKN (lbs/day)**	184
P (lbs/day)(1)	15.5	9.5	20.0	**P (lbs/day)**	20
				BOD Concentration (mg/L)	264
				TSS Concnetration (mg/L)	300
				P Concentration (mg/L)	6
				Minimum Influent Temperature (°C)	8

**considering an estimated flow rate of 60 Gallons/Day/Capita (Approx 150 gpd/EDU)*

***30% growth in (T) Constantia*

(1) Phosphorus loading assumes 6 mg/L influent phosphorus concentration

Estimated By: DPN 9/16/2024

Checked By: DCP 9/18/2024

APPENDIX H
Written Boundary Description

Written Boundary Description

Constantia-Bernhards Bay Sewer District

Oswego County, New York

ALL THAT TRACT OR PARCEL OF LAND SITUATE in the Town of Constantia, County of Oswego and State of New York and being more particularly described as follows:

Commencing at a Point of Beginning (1), said Point being on the northeastern corner of Parcel 312.00-02-15.01; thence proceeding southerly along the eastern boundary line of said Parcel to the southeastern corner of Parcel 312.00-02-16.01; thence proceeding southerly across State Route 49 to the northeastern corner of Parcel 312.00-02-16.01; thence proceeding southerly along the eastern boundary line of said Parcel to the southeastern corner of Parcel 312.16-01-11.01 adjoining the northern shore of Oneida Lake; thence proceeding westerly, northwesterly, and southwesterly along the northern shore of Oneida Lake as it bends and turns to the north westerly corner of Parcel 309.00-01-01; thence proceeding northeasterly along the northern border of Parcels 309.00-01-01, 310.05-04-32.1, 310.05-04-32.2, and 310.05-04-30 to the northeastern corner of Parcel 310.05-04-30, thence proceeding easterly to a point along the northern property boundary of said Parcel which intersects with the southwestern corner of Parcel 310.05-03-25.03; thence proceeding northeasterly along the projection of the western property boundary of Parcel to 310.05-03-25.03 to the northern corner of said Parcel; thence proceeding northeasterly to the northwestern corner of Parcel 310.05-03-05; thence proceeding easterly along the northern boundary of Parcels 310.05-03-05 and 310.05-03-25.03 to the northeastern corner of Parcel 310.05-03-25.03; thence proceeding easterly across 28th Street to a point on the western property boundary of Parcel 310.05-02-02.2, thence proceeding northeasterly along the western property boundary of Parcels 310.05-02-02.2 and 310.05-02-01 to the northwestern corner of Parcel 310.05-02-01; thence proceeding easterly along the northern property boundary of Parcels 310.05-02-01 and 310.05-02-02.2 to the northeastern corner of Parcel 310.05-02-02.2; thence proceeding easterly to a point on the western boundary of Parcel 310.05-01-48 which intersects with the projection of the northern property boundary of Parcel 310.05-02-02.2; thence proceeding northeasterly along the western boundary of Parcels 310.05-01-48, 310-05-01-48.01, and 310.05-01-01 to the northwestern corner of Parcel 310.05-01-01; thence proceeding northeasterly along the projection of the western property boundary of Parcel 310.05-01-01 to a Point along the projection which intersects with the southern boundary of Parcel 296.00-06-06.2; thence proceeding northwesterly along the southern boundary of Parcels 296.00-06-06.2 and 296.00-06-12 to the southeastern corner of Parcel 296.00-06-17.02; thence proceeding northerly along the western property boundary of said Parcel to the southern corner of Parcel 296.00-06-17.01; thence proceeding northwesterly along the southern property boundary of 295.00-04-18 to the southwestern corner of said Parcel which intersects with a point along the eastern property boundary of Parcel 295.00-04-17; thence proceeding northwesterly along the southern property boundary of Parcel 295.00-04-17 to the southwestern corner of said Parcel; thence proceeding northeasterly along the western property boundary of Parcel 295.00-04-17 to the southeastern corner of Parcel 295.00-04-16; thence proceeding northwesterly along the southern property boundaries of Parcels 295.00-04-16, 295.00-04-15, 295.00-04-14, 295.00-04-11, 295.00-04-08.2, 295.00-04-08.12, 295.00-04-10, 295.00-04-13, 295.00-04-12, 295.00-04-21, 295.00-04-20, and 295.00-04-09 to the southwestern corner of Parcel 295.00-04-09; thence proceeding southwesterly along the eastern property boundary of Parcel 295.00-04-25.01 to the southeastern corner of said Parcel; thence proceeding northwesterly to the southwestern corner of Parcel 295.00-04-25.01; thence proceeding southwesterly along the southeastern property boundary of Parcel 295.00-04-25.02 to the southern corner of said Parcel; thence proceeding northerly along the western property boundary of Parcel 295.00-04-25.02 to the point which intersects with the southeastern corner of Parcel 295.00-04-07; thence proceeding northwesterly along the southern property boundaries of Parcels 295.00-04-07, 295.00-04-06, and 295.00-04-05 to the southwestern corner of Parcel 295.00-04-05; thence proceeding northeasterly along the western property boundary of Parcel 295.00-04-05 to the northwestern corner of said Parcel; thence proceeding southeasterly along the northern property boundary of Parcel 295.00-04-05 to a point along the northern boundary which intersects with the projection of the western property boundary of Parcel 295.00-03-03.01; thence proceeding across West Road along the projection of the western property boundary of Parcel 295.00-03-03.01 to the southwestern corner of said Parcel; thence proceeding northeasterly along the western property boundary to the northwestern corner of Parcel 295.00-03-03.01; thence proceeding southeasterly along the northern property boundary of Parcel 295.00-03-03.01 to the northeastern corner of said Parcel; thence proceeding northeasterly along the western property boundary to the northwestern corner of Parcel 295.00-03-08.01; thence proceeding southeasterly along the north property boundary of Parcel 295.00-03-08.01 and 295.00-03-08 to a point on the north property boundary of Parcel 295.00-03-08 which intersects with the projection of the western property boundary of Parcel 295.00-02-10.01; thence proceeding northeasterly along the projection of the western property boundary of Parcel 295.00-02-10.01 to the northwestern corner of said Parcel; thence proceeding along the projection of the western property boundary of Parcel 295.00-02-10.01 across parcel 296.00-08-01 to a point on the southern property boundary that intersects with the said projection; thence proceeding northwesterly along the northern property boundary of Parcel 296.00-08-01 to the southwestern corner of Parcel 295.00-01-02; thence proceeding northeasterly along the western property boundary of Parcel 295.00-01-02 to the southeastern corner of Parcel 278.00-02-10; thence proceeding northwesterly along the southern property boundary of Parcel 278.00-02-10 to the southwestern corner of said Parcel; thence proceeding northeasterly along the western property boundary of Parcel 278.00-02-10 to the southeastern corner of Parcel 278.00-02-07.08; thence proceeding northwesterly along the western property boundary of Parcel 278.00-02-07.08 to the southwestern corner of said Parcel; thence proceeding northwesterly along the southern property boundaries of Parcels 278.00-02-07.07, 278.00-02-07.06, and 278.00-02-07.05 to the southwestern corner of Parcel 278.00-07.05; thence proceeding southwesterly along the eastern property boundary of Parcel 278.00-02-01 to the southeastern corner of said Parcel; thence proceeding northwesterly along the southern property boundary of Parcel 278.00-02-07.05 to the southeastern corner of Parcel 295.00-05-01; thence proceeding northeasterly along the eastern property boundary of Parcel 295.00-05-01 to the northeastern corner of said Parcel; thence proceeding northwesterly along the northern property boundary of parcel 295.00-05-01 to the northwestern corner of said parcel; thence proceeding southwesterly along the western property boundary of Parcel 295.00-05-01 to the southwestern corner of said Parcel; thence proceeding northwesterly along the southern property boundary of Parcel 278.00-02-01 to the southwestern corner of said parcel; thence proceeding northeasterly along the western property boundary of Parcel 278.00-02-01 to the northwestern corner of said Parcel; thence proceeding across State Route 49 to the southwestern corner of Parcel 278.00-01-15; thence proceeding northeasterly along the western property boundaries of Parcels 278.00-01-15 and 278.00-01-14 to the northwestern corner of parcel 278.00-01-14; thence proceeding southeasterly along the northern property boundaries of Parcels 278.00-01-14, 278.00-01-13, 278.00-01-12.1, and 278.00-01-03 to the northeastern corner of Parcel 278.00-01-03; thence proceeding southeasterly along the projection of the northern property boundary of Parcel 278.00-01-03 across Simmons Drive to a point on the western property boundary of Parcel 279.00-04-17 that intersects with the said projection; thence proceeding northeasterly along the western property boundary of Parcel 279.00-04-17 to the northwestern corner of said property; thence proceeding southeasterly along the northern property boundary of Parcel 279.00-04-17 to the northeastern corner of said parcel; thence proceeding southwesterly along the eastern property boundary of Parcel 279.00-04-17 to the southeastern corner of said Parcel; thence proceeding southwesterly along the northern property boundaries of Parcels 296.00-01-05 and 296.00-01-06 to the northeastern corner of parcel 296.00-01-06; thence proceeding southwesterly along the eastern property boundary of parcel 296.00-01-06 to the north western corner of Parcel 296.00-01-28.01; thence proceeding north easterly along the northern property boundary of Parcel 296.00-01-28.01 to the north easterly corner of said Parcel; thence proceeding southwesterly and southeasterly along the eastern property boundary of Parcel 296.00-01-28.01 to the southeastern corner of said property; thence proceeding southwesterly and northwesterly along the southern property boundary of Parcel 296.00-01-28.01 to its intersection with State Route 49; thence proceeding southeasterly along State Route 49 to the northwestern corner of Parcel 296.00-01-29.03; thence proceeding northeasterly along the northern property boundary of Parcel 296.00-01-29.03 to the northeastern corner of said Parcel; thence proceeding southwesterly and southeasterly along the eastern property boundary of Parcel 296.00-01-29.03 to the southeastern corner of said Parcel; thence proceeding southeasterly along the northern property boundaries of Parcels 296.00-01-27.02, 296.00-01-27.03, and 296.00-01-18 to the northeastern corner of Parcel 296.00-01-18; thence proceeding southwesterly along the eastern property boundary of Parcel 296.00-01-18 to the northwestern corner of Parcel 296.00-01-26.01; thence proceeding southeasterly along the northern property boundary of Parcel 296.00-01-26.01 to the northeastern corner of said Parcel; thence proceeding northeasterly along the western property boundary of Parcel 296.00-02-20.01 to the northwestern corner of said Parcel; thence proceeding southeasterly along the northern property boundary of Parcel 296.00-02-20.01 to the north eastern corner of said Parcel; thence proceeding southeasterly along the eastern property boundary of Parcel 296.00-02-20.01 to the Northeastern corner of Parcel 296.00-02-31.02; thence proceeding northwesterly along the northern property boundary of Parcel 296.00-02-31.02 to the northwestern corner of said Parcel; thence proceeding southeasterly along the western property boundary of Parcel 296.00-02-31.02 and Parcel 296.00-02-31.01 to the southwestern corner of Parcel 296.00-02-20; thence proceeding northeasterly along the eastern property boundary of Parcel 296.00-02-20 to the northwestern corner of Parcel 296.00-02-19; thence proceeding northeasterly along the northern property boundary of Parcel 296.00-02-19 to its intersection with Auringer Road; thence proceeding across Auringer Road to a point on the southwestern property boundary of Parcel 296.15-01-03 that intersects the projection of the northern property boundary of Parcel 296.00-02-19; thence proceeding northwesterly along the southwestern property boundary of Parcel 296.15-01-03 to the northwestern corner of said Parcel; thence proceeding northeasterly along the northern property boundary of Parcel 296.15-01-03 to its intersection with Scriba River; thence proceeding across the Scriba River to a point on the southeastern property boundary of Parcel 296.15-01-02.01 that intersects the projection of the northern property boundary of Parcel 296.15-01-03; thence proceeding northwesterly along the eastern boundary of the Scriba River to the northwestern corner of Parcel 296.15-01-02.01; thence proceeding southeasterly along the southern property boundary of Parcel 296.00-02-15.02 to the southwest corner of said Parcel; thence proceeding northeasterly along the western property boundary of Parcel 296.00-02-15.01 to the northwestern corner of said Parcel; thence proceeding across Cemetery Road to a point on Parcel 296.00-02-14.12 that intersects the projection of the western property boundary of Parcel 296.00-02-15.01; thence proceeding northwesterly along the southern property boundary of Parcel 296.00-02-14.12 to the northwestern corner of said Parcel; thence proceeding northeasterly along the western property boundary of Parcel 296.00-02-14.12 to the northwestern corner of said Parcel; thence proceeding northwesterly along the southern property boundary of Parcel 296.00-02-14.11 to the southwestern corner of said Parcel; thence proceeding northeasterly along the western property boundary of Parcel 296.00-02-14.11 to the northwestern corner of said Parcel; thence proceeding northwesterly along the southern property boundary of Parcel 296.00-01-26 to the southwestern corner of said Parcel ; thence proceeding northeasterly along the western property boundaries of Parcels 296.00-01-26 , 296.00-02-26.03, 296.00-02-26.02, 296.00-02-26.01, 296.00-02-25.1, 296.00-02-25.2, 296.00-02-11.22, 296.00-02-24, 296.00-02-10, and 296.00-02-09 to the north western corner of Parcel 296.00-02-09; thence proceeding southeasterly along the northern property boundary of Parcel 296.00-02-09 to its intersection with State Route 23; thence proceeding across State route 23 to a point on the western property boundary of Parcel 296.00-03-24.03 that intersects the projection of the northern property boundary of Parcel 296.00-02-09; thence proceeding northeasterly along the western property boundary of Parcel 296.00-03-24.03 to the northwestern corner of said Parcel; thence proceeding southeasterly along the northern property boundary of Parcel 296.00-03-24.03 to the northeastern corner of said Parcel; thence proceeding easterly along the western property boundary of Parcel 296.00-03-19.2 to the northwestern corner of said Parcel; thence proceeding easterly along the northern property boundaries of Parcels 296.00-03-19.2 and 296.00-03-24.01 to the southwestern corner of Parcel 296.00-03-24; thence proceeding northeasterly along the western property boundary of Parcel 296.00-03-24 to the northeastern corner of Parcel 296.00-03-24.02; thence proceeding northwesterly along the northern property boundary of Parcel 296.00-03-24.02 to the northwestern corner of said Parcel; thence proceeding northwesterly along State Route 23 to the northwestern corner of Parcel 296.00-03-24; thence proceeding northeasterly along the northern property boundary of Parcel 296.00-03-24 to the northeastern corner of said Parcel; thence proceeding southwesterly along the eastern property boundary of Parcel 296.00-03-24 to the northwestern corner of Parcel 296.00-03-27; thence proceeding northeasterly and southeasterly along the northern property boundaries of Parcels 296.00-03-27, 296.00-03-27.01, 296.00-03-22, 296.00-03-03.112, 296.00-03-21.2, 296.00-03-23, 296.00-03-21.11, and 296.00-03-20 to the northeastern corner of Parcel 296.00-03-20; thence proceeding southwesterly along the eastern property boundary of Parcel 296.00-03-20 to the northwestern corner of Parcel 296.00-03-25; thence proceeding southeasterly along the northern property boundary of Parcel 296.00-03-20 to its intersection with Kibbie Lake Road; thence preceding across Kibbie Lake Road to a point on the western property boundary of Parcel 296.00-04-10 that intersects with the northern property boundary of Parcel 296.00-03-20; thence proceeding northeasterly along the western property boundary of Parcel 296.00-04-10 to the northeastern corner of said Parcel; thence proceeding southwesterly along the eastern property boundaries of Parcels 296.00-04-10, 296.00-04-10.01, 296.00-04-08, 296.00-04-30.03, and 296.00-04-30.02 to the southeastern corner of Parcel 296.00-04-30.02; thence proceeding northwesterly along the southern property boundaries of Parcels 296.00-04-30.02 and 296.00-04-31 to the northeast corner of Parcel 296.00-04-17.2; thence proceeding southwesterly along the eastern property boundaries of Parcels 296.00-04-17.2 and 296.00-04-33.01 to the southeastern corner of Parcel 296.00-04-33.01; thence proceeding southerly across Parcel 296.00-08-01 to a point on the northern property boundary of Parcel 296.00-07-03 that intersects with the projection of the eastern property boundary of Parcel 296.00-04-33.01; thence proceeding easterly along the southern property boundary of Parcel 296.00-08-01 to the northeastern corner of Parcel 297.00-04-33.01; thence proceeding southerly along the eastern property boundary of said Parcel to a point on the eastern property boundary which intersects the western projection of the north property boundary of Parcel 311.08-02-01.21; thence proceeding easterly from said point, across Shacksbush Road to the northwestern corner of the property boundary of Parcel 311.08-02-01.21; thence proceeding easterly along the northern property boundary of said Parcel to the northeastern corner of said parcel; thence proceeding easterly to the northwestern corner of Parcel 311.08-02-07; thence proceeding northerly along the western parcel boundary of Parcel 311.08-02-07 to the northernmost corner of said parcel; thence proceeding easterly along the southern property boundary of Parcel 296.00-08-01 to a point on Parcel 311.08-02-07 that intersects the projection of the western property boundary of Parcel 298.00-01-02; thence proceeding northerly across Parcel 296.00-08-01 to the southwestern corner of Parcel 298.00-01-02; thence proceeding northerly along the western property boundary of Parcel 298.00-01-02 to the northwestern corner of said Parcel; thence proceeding easterly along the northern property boundary of Parcel 298.00-01-02 to its intersection with the Right-of-Way boundary of Railroad Street; thence proceeding southerly along the eastern property boundary of Parcel 298.00-01-02 to a point that intersects with the projection of the northern property boundary of Parcel 298.00-02-22; thence proceeding easterly across Railroad Street along the northern property boundary of Parcel 298.00-02-22 to the northeastern corner of said Parcel; thence proceeding southerly along the eastern property boundaries of Parcels 298.00-02-22, 298.00-02-20, and 298.00-02-18 to the southeastern corner of Parcel 298.00-02-18; thence proceeding southerly across Parcel 296.00-08-01 to a point on the northern property boundary of Parcel 312.05-02-02 that intersects the projection of the eastern property boundary of Parcel 298.00-02-18; thence proceeding southeasterly along the southern property boundary of Parcel 296.00-08-01 to the northeastern corner of Parcel 312.05-02-06; thence proceeding southerly along the eastern property boundary of said parcel to the northwestern corner of Parcel 312.05-02-07.1; thence proceeding northeasterly along the northern property boundary of said Parcel to the northeastern property boundary corner of said Parcel; thence proceeding southerly along the eastern property boundary to the northwestern property boundary corner of Parcel 312-05-02-08.1; thence proceeding southeasterly along the northern property boundaries of Parcel 312-05-02-08.1 and 312-05-02-09.1 to the northeastern property boundary corner of Parcel 312-05-09.1; thence proceeding northeasterly along the along the western property boundary of Parcel 312.06-01-01.05 to the northwestern corner of the property boundary of said Parcel; thence proceeding southeasterly along the northern property boundaries of Parcels 312.06-01-01.05, 312.06-01-01.04, 312.06-01-01.03, and 312.06-01-01.02 to the northeastern corner of Parcel 312.06-01-01.02; thence southerly along the eastern parcel boundary of Parcel 312.06-01-01.02 to a point along the eastern property boundary of said Parcel which intersects with the westward projection of the north property boundary of Parcel 312.06-01-12; thence proceeding easterly along said projection across County Route 17 to the northwestern corner of Parcel 312.06-01-12; thence proceeding easterly along the north property boundary of said Parcel to the northeastern corner of said Parcel; thence proceeding southerly along the eastern property boundary of said Parcel to the northwestern corner of the property boundary of Parcel 312.06-01-09; thence proceeding southerly along the eastern property boundary of said Parcel to a point on the eastern property boundary which intersects with the westward projection of the north property boundary of Parcel 312.06-02-05; thence proceeding easterly along said projection across Marsden Road to the northwestern corner of the boundary of Parcel 312.06-02-05; then proceeding northerly along the western property boundary of Parcel 312.06-02-03 to the northwestern corner of the property boundary of said Parcel; thence proceeding easterly along the northern property boundary of said Parcel to the northeastern corner of the property boundary; thence proceeding northerly along the western property boundary of Parcel 312.00-02-01 to the northwestern corner of said Parcel; thence proceeding southeasterly along the southern property boundary of Parcel 296.00-08-01 to the northeastern corner of the property boundary of Parcel 312.00-02-14.04; thence proceeding southerly along the eastern property boundary of Parcels 312.00-02-14.04 and 312.00-02-05 to the northeastern corner of Parcel 312.00-02-15.01, said Point also being the Point of Beginning (1), encompassing all Parcels within said Boundary.

APPENDIX I
E-One Low Pressure Model Data

Environment One Corporation

Pressure Sewer Preliminary

Cost and Design Analysis

For

Town of Constantia - Rev.2
Oswego County, New York

Prepared For:
Barton & Loguidice, DPC

NY **USA**
Tel:
Fax:
Prepared By: D. Benson/ A. Harrison
November 27, 2024

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Town of Constantia - Rev.2
Oswego County, New York

Prepared by : D. Benson/ A. Harrison **On:** November 27, 2024

Notes :
Analysis based upon drawings and data provided. Station recommendations are preliminary.

GPD values impact retention times only, not line sizing or hydraulics.

Elevations approximate/based upon spots provided.

General recommendations for valve placement are: clean out valves at intervals of approximately 1,000 ft and at branch ends and junctions; isolation valves at branch junctions; and air release valves at peaks of 25 ft or more and/or at intervals of 2,000 to 2,500 ft. Lateral kits comprised of a ball and check valve are required to be installed between the pump discharge and street main on all installations. Laterals should be located as close to the public right of way as possible. Valve quantities approximate.

08.31.2015 - Comments delivered
09.09.2015 - Comments delivered
01.02.2019 - Initial analysis

03.09.2023 - Rev.1 - Recommended total daily flow per single residential dwelling should reflect actual water use or the EPA value of200GPD. Other flows estimated based on provided EDU's, prediction of building use, and UPC code. For more accurate retention time calculations and better station sizing recommendations, please provide total daily flow for all non-residential buildings. Retention times around or above 10 hours may necessitate periodic flushing and/or odor control. Pools and large tanks of water not to be flushed into GP stations. Stub out elevations and FM lengths approximate. Valve quantities approximate. PS1 to serve zones 1-100 and flow into zone 101. PS2 to serve PS1, zones 101-158, and flow into zone 159. Zone 35 (stub out location) branch piping to be sized at a later date. Elevations and FM length to be reassessed when more information regarding the stub out location is available.

Pump station 1 (PS1): 253 GPM, 123150 GPD
Pump station 2 (PS2): 407 GPM, 181118 GPD

11.27.2024 - Rev.2 - Per engineers request, system layout is modified to reflect new WWTP discharge location. Area to the left of PS1 is re-zoned accordingly. Note reflected changes in pipe sizes and FM elevations in zones 101- 215. Size and location of PS1 is unchanged. PS2 serves zones 109-126 and flows into zone 163. An intermediate grinder pump station (IS1) is required due to high TDH. High TDH due to static head and long pumping distances. IS1 serves grinder pumps in zones 109 &110. Station to be WH484 or E/One equivalent, located in zone 111. Retention times exceed 10hr in many areas. Periodic line flushing and/or odor control will likely be necessary.

Pump station 2 (PS2): 143 GPM, 50200 GPD

<<<<< E N D O F N O T E S >>>>>

November 27, 2024

Budgetary Low Pressure Sewer System Costs

Town of Constantia - Rev.2
Oswego County, New York

	Quantity	Description	Unit Cost	Installation	Sub Total
Valves	50	Air/Vacuum Release Valve	$0.00	0.00	$0.00
	180	Clean Out	$0.00	0.00	$0.00
					$0.00
Pumps	1,114	DH071-129	$0.00	0.00	$0.00
	1,126	Lateral Kits (Includes Ball/Check Valve Assembly)	$0.00	0.00	$0.00
	1,126	Lateral (Boundary) Installation	$0.00	0.00	$0.00
	1,126	Pump/Panel Installation	$0.00	0.00	$0.00
	56,300	LF of 1.25" Lateral Pipe	$0.00	0.00	$0.00
	2	WH484-122	$0.00	0.00	$0.00
	10	DH152-129	$0.00	0.00	$0.00
					$0.00
Piping	399	1.25" Pipe	$0.00	0.00	$0.00
	38,151	2.00" Pipe	$0.00	0.00	$0.00
	37,948	3.00" Pipe	$0.00	0.00	$0.00
	34,999	4.00" Pipe	$0.00	0.00	$0.00
	13,189	6.00" Pipe	$0.00	0.00	$0.00
	5,925	8.00" Pipe	$0.00	0.00	$0.00
	1,270	10.00" Pipe	$0.00	0.00	$0.00
					$0.00

Number of Connections	**1,128**			
Total Per Connection	**$0.00**	**Total (w/o other)**	>>>>>>>>>>>>>	**$0.00**
Grand Total Per Connection	**$0.00**	**Grand Total (including other)**	>>>>>>>>>>>>>	**$0.00**

Note: The System Costs above are based on piping sized for, and Grinder Pumps manufactured by Environment One Corporation.

PRELIMINARY PRESSURE SEWER - PIPE SIZING AND BRANCH ANALYSIS

Prepared By: Town of Constantia - Rev.2

D. Benson/ A. Harrison Oswego County, New York November 27, 2024

This spreadsheet was calculated using pipe diameters for: SDR11HDPE Friction loss calculations were based on a Constant for inside roughness "C" of: 150

Zone Number	Connects to Zone	Number of Pumps in Zone	Accum Pumps in Zone	Gals/day per Pump	Max Flow Per Pump (gpm)	Max Sim Ops	Max Flow (GPM)	Pipe Size (inches)	Max Velocity (FPS)	Length of Main this Zone	Friction Loss Factor (ft/100 ft)	Friction Loss This Zone	Accum Fric Loss (feet)	Max Main Elevation	Minimum Pump Elevation	Static Head (feet)	Total Dynamic Head (ft)
1.00	2.00	3	3	200	11.00	2	22.00	2.00	2.38	176.00	1.19	2.09	58.12	411.00	371.00	40.00	98.12
2.00	4.00	3	6	200	11.00	3	33.00	2.00	3.57	314.00	2.52	7.91	56.03	411.00	372.00	39.00	95.03
3.00	4.00	3	3	200	11.00	2	22.00	2.00	2.38	371.00	1.19	4.41	52.53	411.00	374.00	37.00	89.53
4.00	10.00	7	16	200	11.00	4	44.00	3.00	2.19	1,081.00	0.65	7.03	48.12	411.00	377.00	34.00	82.12
4.10	5.00	3	3	200	11.00	2	22.00	2.00	2.38	228.00	1.19	2.71	51.55	411.00	375.00	36.00	87.55
5.00	8.00	2	5	200	11.00	3	33.00	2.00	3.57	170.00	2.52	4.28	48.84	411.00	376.00	35.00	83.84
6.00	8.00	4	4	200	11.00	3	33.00	2.00	3.57	138.00	2.52	3.48	48.04	411.00	374.00	37.00	85.04
7.00	8.00	3	3	200	11.00	2	22.00	2.00	2.38	301.00	1.19	3.58	48.14	411.00	376.00	35.00	83.14
8.00	9.00	6	18	200	11.00	4	44.00	3.00	2.19	311.00	0.65	2.02	44.56	411.00	376.00	35.00	79.56
9.00	10.00	2	20	200	11.00	5	55.00	3.00	2.74	148.00	0.98	1.45	42.54	411.00	375.00	36.00	78.54
10.00	13.00	0	36	200	11.00	6	66.00	3.00	3.29	177.00	1.38	2.44	41.09	411.00	375.00	36.00	77.09
11.00	12.00	3	3	200	11.00	2	22.00	2.00	2.38	182.00	1.19	2.16	49.45	411.00	376.00	35.00	84.45
12.00	13.00	2	5	200	11.00	3	33.00	2.00	3.57	343.00	2.52	8.64	47.29	411.00	376.00	35.00	82.29
13.00	16.00	7	48	200	11.00	6	66.00	3.00	3.29	707.00	1.38	9.74	38.65	411.00	375.00	36.00	74.65
14.00	15.00	3	3	200	11.00	2	22.00	2.00	2.38	218.00	1.19	2.59	34.80	411.00	372.00	39.00	73.80
15.00	16.00	2	5	200	11.00	3	33.00	2.00	3.57	131.00	2.52	3.30	32.21	411.00	372.00	39.00	71.21
16.00	20.00	5	58	200	11.00	7	77.00	4.00	2.32	497.00	0.54	2.68	28.91	411.00	373.00	38.00	66.91
17.00	18.00	3	3	200	11.00	2	22.00	2.00	2.38	98.00	1.19	1.17	38.60	411.00	372.00	39.00	77.60
18.00	19.00	6	9	200	11.00	3	33.00	2.00	3.57	409.00	2.52	10.30	37.43	411.00	372.00	39.00	76.43
19.00	20.00	3	12	200	11.00	4	44.00	3.00	2.19	139.00	0.65	0.90	27.13	411.00	373.00	38.00	65.13
20.00	22.00	0	70	200	11.00	7	77.00	4.00	2.32	50.00	0.54	0.27	26.23	411.00	376.00	35.00	61.23
21.00	22.00	3	3	200	11.00	2	22.00	2.00	2.38	273.00	1.19	3.25	29.21	411.00	375.00	36.00	65.21
22.00	26.00	6	79	200	11.00	7	77.00	4.00	2.32	853.00	0.54	4.60	25.96	411.00	374.00	37.00	62.96
23.00	24.00	3	3	200	11.00	2	22.00	2.00	2.38	269.00	1.19	3.20	37.92	411.00	371.00	40.00	77.92
24.00	25.00	6	9	200	11.00	3	33.00	2.00	3.57	445.00	2.52	11.21	34.72	411.00	371.00	40.00	74.72
25.00	26.00	4	13	200	11.00	4	44.00	3.00	2.19	331.00	0.65	2.15	23.51	411.00	373.00	38.00	61.51
26.00	34.00	19	111	200	11.00	8	88.00	4.00	2.65	1,347.00	0.69	9.31	21.36	411.00	374.00	37.00	58.36
27.00	28.00	3	3	200	11.00	2	22.00	2.00	2.38	313.00	1.19	3.72	93.67	435.00	432.00	3.00	96.67
28.00	31.00	6	9	200	11.00	3	33.00	2.00	3.57	458.00	2.52	11.54	89.95	435.00	431.00	4.00	93.95
29.00	30.00	3	3	200	11.00	2	22.00	2.00	2.38	110.00	1.19	1.31	106.00	445.00	442.00	3.00	109.00
30.00	31.00	6	9	200	11.00	3	33.00	2.00	3.57	1,043.00	2.52	26.28	104.69	434.00	425.00	9.00	113.69
31.00	32.00	12	30	200	11.00	5	55.00	3.00	2.74	1,014.00	0.98	9.96	78.41	434.00	432.00	2.00	80.41
32.00	33.00	20	50	200	11.00	6	66.00	3.00	3.29	2,990.00	1.38	41.17	68.45	411.00	410.00	1.00	69.45
33.00	34.00	24	74	200	11.00	7	77.00	4.00	2.32	2,823.00	0.54	15.23	27.28	411.00	390.00	21.00	48.28
34.00	49.00	3	188	200	11.00	11	121.00	4.00	3.65	346.00	1.25	4.31	12.05	411.00	410.00	1.00	13.05

Note: This analysis is valid only with the use of progressive cavity type grinder pumps as manufactured by Environment One.

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PRELIMINARY PRESSURE SEWER - PIPE SIZING AND BRANCH ANALYSIS

Prepared By: Town of Constantia - Rev.2

D. Benson/ A. Harrison Oswego County, New York November 27, 2024

This spreadsheet was calculated using pipe diameters for: SDR11HDPE

Friction loss calculations were based on a Constant for inside roughness "C" of: 150

Zone Number	Connects to Zone	Number of Pumps in Zone	Accum Pumps in Zone	Gals/day per Pump	Max Flow Per Pump (gpm)	Max Sim Ops	Max Flow (GPM)	Pipe Size (inches)	Max Velocity (FPS)	Length of Main this Zone	Friction Loss Factor (ft/100 ft)	Friction Loss This Zone	Accum Fric Loss (feet)	Max Main Elevation	Minimum Pump Elevation	Static Head (feet)	Total Dynamic Head (ft)
35.00	36.00	50	50	200	11.00	6	66.00	3.00	3.29	1,500.00	1.38	20.66	131.51	465.00	435.00	30.00	161.51
36.00	41.00	6	56	450	11.00	7	77.00	4.00	2.32	2,432.00	0.54	13.12	110.85	465.00	450.00	15.00	125.85
37.00	38.00	3	3	200	11.00	2	22.00	2.00	2.38	233.00	1.19	2.77	130.18	454.00	454.00	0.00	130.18
38.00	39.00	6	9	200	11.00	3	33.00	2.00	3.57	784.00	2.52	19.75	127.41	451.00	439.00	12.00	139.41
39.00	40.00	9	18	200	11.00	4	44.00	3.00	2.19	1,029.00	0.65	6.69	107.66	451.00	438.00	13.00	120.66
40.00	41.00	3	21	200	11.00	5	55.00	3.00	2.74	330.00	0.98	3.24	100.97	451.00	444.00	7.00	107.97
41.00	42.00	3	80	200	11.00	7	77.00	4.00	2.32	1,803.00	0.54	9.73	97.73	451.00	445.00	6.00	103.73
42.00	46.00	5	85	200	11.00	8	88.00	4.00	2.65	1,144.00	0.69	7.90	88.00	451.00	445.00	6.00	94.00
43.00	44.00	3	3	200	11.00	2	22.00	2.00	2.38	426.00	1.19	5.07	117.52	487.00	471.00	16.00	133.52
44.00	45.00	6	9	200	11.00	3	33.00	2.00	3.57	1,053.00	2.52	26.53	112.45	455.00	455.00	0.00	112.45
45.00	46.00	5	14	200	11.00	4	44.00	3.00	2.19	896.00	0.65	5.82	85.92	449.00	449.00	0.00	85.92
46.00	47.00	14	113	200	11.00	8	88.00	4.00	2.65	2,483.00	0.69	17.16	80.10	445.00	443.00	2.00	82.10
47.00	48.00	33	146	285	11.00	9	99.00	4.00	2.98	5,310.00	0.86	45.63	62.94	437.00	436.00	1.00	63.94
48.00	49.00	8	154	200	11.00	10	110.00	4.00	3.31	916.00	1.04	9.57	17.31	410.00	409.00	1.00	18.31
49.00	50.00	2	344	200	11.00	15	165.00	6.00	2.29	213.00	0.34	0.72	7.74	408.00	407.00	1.00	8.74
50.00	100.00	16	360	200	11.00	16	176.00	6.00	2.45	1,704.00	0.38	6.47	7.02	390.00	380.00	10.00	17.02
51.00	52.00	3	3	200	11.00	2	22.00	2.00	2.38	181.00	1.19	2.15	25.10	405.00	405.00	0.00	25.10
52.00	53.00	6	9	200	11.00	3	33.00	2.00	3.57	293.00	2.52	7.38	22.95	401.00	401.00	0.00	22.95
53.00	54.00	9	18	200	11.00	4	44.00	3.00	2.19	397.00	0.65	2.58	15.57	394.00	394.00	0.00	15.57
54.00	57.00	4	22	200	11.00	5	55.00	3.00	2.74	249.00	0.98	2.45	12.99	389.00	387.00	2.00	14.99
55.00	56.00	3	3	200	11.00	2	22.00	2.00	2.38	60.00	1.19	0.71	21.25	389.00	385.00	4.00	25.25
56.00	57.00	3	6	200	11.00	3	33.00	2.00	3.57	397.00	2.52	10.00	20.54	389.00	383.00	6.00	26.54
57.00	59.00	2	30	200	11.00	5	55.00	3.00	2.74	366.00	0.98	3.60	10.54	389.00	385.00	4.00	14.54
58.00	59.00	3	3	200	11.00	2	22.00	2.00	2.38	221.00	1.19	2.63	9.57	389.00	375.00	14.00	23.57
59.00	72.00	4	37	200	11.00	6	66.00	3.00	3.29	266.00	1.38	3.66	6.94	389.00	385.00	4.00	10.94
60.00	61.00	3	3	200	11.00	2	22.00	2.00	2.38	3.00	1.19	0.04	10.88	389.00	376.00	13.00	23.88
61.00	72.00	3	6	200	11.00	3	33.00	2.00	3.57	300.00	2.52	7.56	10.84	389.00	376.00	13.00	23.84
62.00	63.00	3	3	333	11.00	2	22.00	2.00	2.38	101.00	1.19	1.20	15.28	389.00	374.00	15.00	30.28
63.00	67.00	7	10	200	11.00	4	44.00	3.00	2.19	718.00	0.65	4.67	14.08	389.00	375.00	14.00	28.08
64.00	65.00	3	3	200	11.00	2	22.00	2.00	2.38	131.00	1.19	1.56	18.28	389.00	378.00	11.00	29.28
65.00	67.00	5	8	200	11.00	3	33.00	2.00	3.57	290.00	2.52	7.31	16.72	389.00	378.00	11.00	27.72
66.00	67.00	2	2	200	11.00	2	22.00	2.00	2.38	595.00	1.19	7.07	16.48	390.00	386.00	4.00	20.48
67.00	71.00	6	26	200	11.00	5	55.00	3.00	2.74	330.00	0.98	3.24	9.41	389.00	388.00	1.00	10.41
68.00	69.00	3	3	142	11.00	2	22.00	2.00	2.38	70.00	1.19	0.83	11.50	389.00	383.00	6.00	17.50
69.00	70.00	6	9	142	11.00	3	33.00	2.00	3.57	139.00	2.52	3.50	10.67	389.00	383.00	6.00	16.67

Note: This analysis is valid only with the use of progressive cavity type grinder pumps as manufactured by Environment One.

PRELIMINARY PRESSURE SEWER - PIPE SIZING AND BRANCH ANALYSIS

Prepared By:
D. Benson/ A. Harrison

Town of Constantia - Rev.2
Oswego County, New York

November 27, 2024

This spreadsheet was calculated using pipe diameters for: SDR11HDPE — Friction loss calculations were based on a Constant for inside roughness "C" of: 150

Zone Number	Connects to Zone	Number of Pumps in Zone	Accum Pumps in Zone	Gals/day per Pump	Max Flow Per Pump (gpm)	Max Sim Ops	Max Flow (GPM)	Pipe Size (inches)	Max Velocity (FPS)	Length of Main this Zone	Friction Loss Factor (ft/100 ft)	Friction Loss This Zone	Accum Fric Loss (feet)	Max Main Elevation	Minimum Pump Elevation	Static Head (feet)	Total Dynamic Head (ft)
70.00	71.00	4	13	142	11.00	4	44.00	3.00	2.19	154.00	0.65	1.00	7.17	389.00	383.00	6.00	13.17
71.00	72.00	1	40	200	11.00	6	66.00	3.00	3.29	210.00	1.38	2.89	6.17	389.00	386.00	3.00	9.17
72.00	100.00	1	84	200	11.00	8	88.00	4.00	2.65	395.00	0.69	2.73	3.28	389.00	387.00	2.00	5.28
73.00	74.00	3	3	200	11.00	2	22.00	2.00	2.38	446.00	1.19	5.30	112.72	445.00	444.00	1.00	113.72
74.00	75.00	6	9	200	11.00	3	33.00	2.00	3.57	788.00	2.52	19.85	107.42	445.00	444.00	1.00	108.42
75.00	76.00	9	18	200	11.00	4	44.00	3.00	2.19	1,733.00	0.65	11.26	87.57	439.00	430.00	9.00	96.57
76.00	77.00	12	30	200	11.00	5	55.00	3.00	2.74	1,654.00	0.98	16.25	76.31	439.00	425.00	14.00	90.31
77.00	83.00	17	47	200	11.00	6	66.00	3.00	3.29	1,560.00	1.38	21.48	60.06	439.00	423.00	16.00	76.06
78.00	79.00	3	3	200	11.00	2	22.00	2.00	2.38	537.00	1.19	6.38	98.05	439.00	399.00	40.00	138.05
79.00	80.00	6	9	200	11.00	3	33.00	2.00	3.57	812.00	2.52	20.46	91.67	439.00	402.00	37.00	128.67
80.00	81.00	9	18	200	11.00	4	44.00	3.00	2.19	1,473.00	0.65	9.57	71.21	439.00	405.00	34.00	105.21
81.00	82.00	12	30	200	11.00	5	55.00	3.00	2.74	1,307.00	0.98	12.84	61.64	439.00	422.00	17.00	78.64
82.00	83.00	7	37	200	11.00	6	66.00	3.00	3.29	742.00	1.38	10.22	48.80	439.00	429.00	10.00	58.80
83.00	87.00	1	85	200	11.00	8	88.00	4.00	2.65	248.00	0.69	1.71	38.58	439.00	425.00	14.00	52.58
84.00	85.00	3	3	200	11.00	2	22.00	2.00	2.38	109.00	1.19	1.30	46.94	439.00	415.00	24.00	70.94
85.00	86.00	6	9	200	11.00	3	33.00	2.00	3.57	238.00	2.52	6.00	45.64	439.00	419.00	20.00	65.64
86.00	87.00	1	10	200	11.00	4	44.00	3.00	2.19	426.00	0.65	2.77	39.64	439.00	428.00	11.00	50.64
87.00	94.00	3	98	200	11.00	8	88.00	4.00	2.65	222.00	0.69	1.53	36.87	439.00	429.00	10.00	46.87
88.00	89.00	3	3	200	11.00	2	22.00	2.00	2.38	257.00	1.19	3.06	53.73	431.00	404.00	27.00	80.73
89.00	90.00	6	9	200	11.00	3	33.00	2.00	3.57	462.00	2.52	11.64	50.67	431.00	410.00	21.00	71.67
90.00	93.00	1	10	200	11.00	4	44.00	3.00	2.19	336.00	0.65	2.18	39.03	431.00	414.00	17.00	56.03
91.00	92.00	3	3	200	11.00	2	22.00	2.00	2.38	262.00	1.19	3.12	42.39	431.00	416.00	15.00	57.39
92.00	93.00	2	5	200	11.00	3	33.00	2.00	3.57	96.00	2.52	2.42	39.27	431.00	428.00	3.00	42.27
93.00	94.00	0	15	200	11.00	4	44.00	3.00	2.19	232.00	0.65	1.51	36.85	431.00	431.00	0.00	36.85
94.00	98.00	2	115	200	11.00	9	99.00	4.00	2.98	362.00	0.86	3.11	35.34	426.00	426.00	0.00	35.34
95.00	96.00	3	3	200	11.00	2	22.00	2.00	2.38	147.00	1.19	1.75	42.98	410.00	406.00	4.00	46.98
96.00	97.00	6	9	200	11.00	3	33.00	2.00	3.57	226.00	2.52	5.69	41.23	410.00	404.00	6.00	47.23
97.00	98.00	3	12	200	11.00	4	44.00	3.00	2.19	509.00	0.65	3.31	35.54	410.00	404.00	6.00	41.54
98.00	99.00	19	146	200	11.00	9	99.00	4.00	2.98	2,642.00	0.86	22.71	32.23	409.00	400.00	9.00	41.23
99.00	100.00	6	152	200	11.00	10	110.00	4.00	3.31	859.00	1.04	8.97	9.52	390.00	390.00	0.00	9.52
100.00	100.00	0	596	200	11.00	23	253.00	6.00	3.52	74.00	0.74	0.55	0.55	389.00	389.00	0.00	0.55
101.00	102.00	12	12	200	11.00	4	297.00	8.00	2.44	830.00	0.28	2.30	14.76	410.00	389.00	21.00	35.76
On	PS1 101.00		GPD:	123,150.000		GPM:	253.00	Type:	C	Desc: Zones 1-100							
102.00	106.00	5	17	1160	11.00	4	297.00	8.00	2.44	1,850.00	0.28	5.13	12.46	410.00	391.00	19.00	31.46
103.00	104.00	3	3	200	11.00	2	22.00	2.00	2.38	89.00	1.19	1.06	14.35	410.00	374.00	36.00	50.35

Note: This analysis is valid only with the use of progressive cavity type grinder pumps as manufactured by Environment One.

PRELIMINARY PRESSURE SEWER - PIPE SIZING AND BRANCH ANALYSIS

Prepared By:
D. Benson/ A. Harrison

Town of Constantia - Rev.2
Oswego County, New York

November 27, 2024

This spreadsheet was calculated using pipe diameters for: SDR11HDPE — Friction loss calculations were based on a Constant for inside roughness "C" of: 150

Zone Number	Connects to Zone	Number of Pumps in Zone	Accum Pumps in Zone	Gals/day per Pump	Max Flow Per Pump (gpm)	Max Sim Ops	Max Flow (GPM)	Pipe Size (inches)	Max Velocity (FPS)	Length of Main this Zone	Friction Loss Factor (ft/100 ft)	Friction Loss This Zone	Accum Fric Loss (feet)	Max Main Elevation	Minimum Pump Elevation	Static Head (feet)	Total Dynamic Head (ft)
104.00	105.00	6	9	200	11.00	3	33.00	2.00	3.57	211.00	2.52	5.32	13.29	410.00	389.00	21.00	34.29
105.00	106.00	2	11	200	11.00	4	44.00	3.00	2.19	99.00	0.65	0.64	7.97	410.00	390.00	20.00	27.97
106.00	108.00	1	29	200	11.00	5	308.00	8.00	2.53	162.00	0.30	0.48	7.33	410.00	389.00	21.00	28.33
107.00	108.00	3	3	200	11.00	2	22.00	2.00	2.38	437.00	1.19	5.20	12.05	410.00	388.00	22.00	34.05
108.00	210.00	12	44	200	11.00	6	319.00	8.00	2.62	955.00	0.32	3.02	6.85	410.00	386.00	24.00	30.85
109.00	110.00	3	3	200	11.00	2	22.00	2.00	2.38	1,054.00	1.19	12.53	94.91	420.00	415.00	5.00	99.91
110.00	110.00	6	9	200	11.00	3	33.00	2.00	3.57	3,270.00	2.52	82.38	82.38	416.00	392.00	24.00	106.38
111.00	112.00	11	11	327	11.00	4	44.00	3.00	2.19	1,218.00	0.65	7.92	132.77	416.00	385.00	31.00	163.77
112.00	113.00	12	23	200	11.00	5	55.00	3.00	2.74	1,331.00	0.98	13.08	124.85	416.00	397.00	19.00	143.85
113.00	116.00	2	25	200	11.00	5	55.00	3.00	2.74	249.00	0.98	2.45	111.77	416.00	403.00	13.00	124.77
114.00	115.00	3	3	200	11.00	2	22.00	2.00	2.38	199.00	1.19	2.37	124.21	416.00	390.00	26.00	150.21
115.00	116.00	4	7	200	11.00	3	33.00	2.00	3.57	497.00	2.52	12.52	121.84	416.00	394.00	22.00	143.84
116.00	120.00	2	34	200	11.00	6	66.00	3.00	3.29	151.00	1.38	2.08	109.32	416.00	409.00	7.00	116.32
117.00	118.00	3	3	200	11.00	2	22.00	2.00	2.38	238.00	1.19	2.83	124.99	416.00	392.00	24.00	148.99
118.00	119.00	6	9	200	11.00	3	33.00	2.00	3.57	484.00	2.52	12.19	122.16	416.00	395.00	21.00	143.16
119.00	120.00	2	11	200	11.00	4	44.00	3.00	2.19	420.00	0.65	2.73	109.97	416.00	394.00	22.00	131.97
120.00	121.00	3	48	200	11.00	6	66.00	3.00	3.29	1,093.00	1.38	15.05	107.24	416.00	388.00	28.00	135.24
121.00	125.00	5	53	200	11.00	7	77.00	4.00	2.32	602.00	0.54	3.25	92.19	416.00	395.00	21.00	113.19
122.00	123.00	3	3	200	11.00	2	22.00	2.00	2.38	237.00	1.19	2.82	99.56	416.00	378.00	38.00	137.56
123.00	124.00	6	9	200	11.00	3	33.00	2.00	3.57	263.00	2.52	6.63	96.74	416.00	380.00	36.00	132.74
124.00	125.00	1	10	200	11.00	4	44.00	3.00	2.19	180.00	0.65	1.17	90.11	416.00	381.00	35.00	125.11
125.00	127.00	3	66	200	11.00	7	77.00	4.00	2.32	806.00	0.54	4.35	88.94	416.00	393.00	23.00	111.94
126.00	127.00	3	3	200	11.00	2	22.00	2.00	2.38	281.00	1.19	3.34	87.93	416.00	378.00	38.00	125.93
127.00	134.00	1	70	200	11.00	7	77.00	4.00	2.32	676.00	0.54	3.65	84.59	416.00	397.00	19.00	103.59
128.00	129.00	3	3	200	11.00	2	22.00	2.00	2.38	116.00	1.19	1.38	92.12	416.00	380.00	36.00	128.12
129.00	130.00	6	9	200	11.00	3	33.00	2.00	3.57	262.00	2.52	6.60	90.74	416.00	380.00	36.00	126.74
130.00	133.00	3	12	200	11.00	4	44.00	3.00	2.19	237.00	0.65	1.54	84.14	416.00	381.00	35.00	119.14
131.00	132.00	3	3	200	11.00	2	22.00	2.00	2.38	159.00	1.19	1.89	88.34	416.00	385.00	31.00	119.34
132.00	133.00	2	5	200	11.00	3	33.00	2.00	3.57	153.00	2.52	3.85	86.45	416.00	385.00	31.00	117.45
133.00	134.00	0	17	200	11.00	4	44.00	3.00	2.19	255.00	0.65	1.66	82.60	416.00	398.00	18.00	100.60
134.00	135.00	19	106	200	11.00	8	88.00	4.00	2.65	2,996.00	0.69	20.70	80.94	416.00	375.00	41.00	121.94
135.00	139.00	18	124	200	11.00	9	99.00	4.00	2.98	1,697.00	0.86	14.58	60.24	416.00	370.00	46.00	106.24
136.00	137.00	3	3	200	11.00	2	22.00	2.00	2.38	247.00	1.19	2.94	66.20	420.00	420.00	0.00	66.20
137.00	138.00	6	9	200	11.00	3	33.00	2.00	3.57	589.00	2.52	14.84	63.26	416.00	400.00	16.00	79.26
138.00	139.00	5	14	200	11.00	4	44.00	3.00	2.19	424.00	0.65	2.76	48.42	416.00	394.00	22.00	70.42

Note: This analysis is valid only with the use of progressive cavity type grinder pumps as manufactured by Environment One.

PRELIMINARY PRESSURE SEWER - PIPE SIZING AND BRANCH ANALYSIS

Prepared By: Town of Constantia - Rev.2

D. Benson/ A. Harrison Oswego County, New York November 27, 2024

Zone Number	Connects to Zone	Number of Pumps in Zone	Accum Pumps in Zone	Gals/day per Pump	Max Flow Per Pump (gpm)	Max Sim Ops	Max Flow (GPM)	Pipe Size (inches)	Max Velocity (FPS)	Length of Main this Zone	Friction Loss Factor (ft/100 ft)	Friction Loss This Zone	Accum Fric Loss (feet)	Max Main Elevation	Minimum Pump Elevation	Static Head (feet)	Total Dynamic Head (ft)
This spreadsheet was calculated using pipe diameters for: SDR11HDPE										Friction loss calculations were based on a Constant for inside roughness "C" of: 150							
139.00	140.00	1	139	200	11.00	9	99.00	4.00	2.98	83.00	0.86	0.71	45.66	416.00	395.00	21.00	66.66
140.00	145.00	3	142	200	11.00	9	99.00	4.00	2.98	152.00	0.86	1.31	44.95	416.00	394.00	22.00	66.95
141.00	142.00	3	3	200	11.00	2	22.00	2.00	2.38	34.00	1.19	0.40	52.61	416.00	374.00	42.00	94.61
142.00	143.00	6	9	200	11.00	3	33.00	2.00	3.57	146.00	2.52	3.68	52.21	416.00	375.00	41.00	93.21
143.00	144.00	9	18	200	11.00	4	44.00	3.00	2.19	474.00	0.65	3.08	48.53	416.00	380.00	36.00	84.53
144.00	145.00	3	21	200	11.00	5	55.00	3.00	2.74	184.00	0.98	1.81	45.45	416.00	391.00	25.00	70.45
145.00	150.00	1	164	200	11.00	10	110.00	4.00	3.31	222.00	1.04	2.32	43.64	416.00	392.00	24.00	67.64
146.00	147.00	3	3	200	11.00	2	22.00	2.00	2.38	175.00	1.19	2.08	70.07	416.00	390.00	26.00	96.07
147.00	148.00	6	9	200	11.00	3	33.00	2.00	3.57	559.00	2.52	14.08	67.99	416.00	386.00	30.00	97.99
148.00	149.00	9	18	200	11.00	4	44.00	3.00	2.19	469.00	0.65	3.05	53.91	416.00	381.00	35.00	88.91
149.00	150.00	10	28	200	11.00	5	55.00	3.00	2.74	971.00	0.98	9.54	50.86	416.00	381.00	35.00	85.86
150.00	151.00	13	205	200	11.00	11	121.00	4.00	3.65	1,746.00	1.25	21.76	41.32	416.00	390.00	26.00	67.32
151.00	159.00	1	206	200	11.00	11	121.00	4.00	3.65	166.00	1.25	2.07	19.56	416.00	402.00	14.00	33.56
152.00	153.00	3	3	200	11.00	2	22.00	2.00	2.38	427.00	1.19	5.08	46.95	416.00	396.00	20.00	66.95
153.00	154.00	6	9	200	11.00	3	33.00	2.00	3.57	462.00	2.52	11.64	41.87	416.00	399.00	17.00	58.87
154.00	158.00	4	13	200	11.00	4	44.00	3.00	2.19	345.00	0.65	2.24	30.23	416.00	400.00	16.00	46.23
155.00	156.00	3	3	200	11.00	2	22.00	2.00	2.38	187.00	1.19	2.22	37.65	416.00	391.00	25.00	62.65
156.00	157.00	6	9	200	11.00	3	33.00	2.00	3.57	245.00	2.52	6.17	35.43	416.00	393.00	23.00	58.43
157.00	158.00	3	12	200	11.00	4	44.00	3.00	2.19	196.00	0.65	1.27	29.26	416.00	394.00	22.00	51.26
158.00	159.00	1	26	200	11.00	5	55.00	3.00	2.74	1,069.00	0.98	10.50	27.99	416.00	405.00	11.00	38.99
159.00	162.00	5	237	200	11.00	12	132.00	4.00	3.98	1,121.00	1.46	16.41	17.49	416.00	404.00	12.00	29.49
160.00	161.00	3	3	200	11.00	2	22.00	2.00	2.38	210.00	1.19	2.50	27.06	416.00	388.00	28.00	55.06
161.00	162.00	3	6	200	11.00	3	33.00	2.00	3.57	932.00	2.52	23.48	24.56	416.00	395.00	21.00	45.56
162.00	162.00	1	244	200	11.00	12	132.00	6.00	1.83	483.00	0.22	1.08	1.08	416.00	413.00	3.00	4.08
163.00	164.00	4	4	200	11.00	3	176.00	6.00	2.45	869.00	0.38	3.30	70.05	410.00	409.00	1.00	71.05
On PS2 163.00		GPD: 50,200.000			GPM: 143.00		Type: C			Desc: Serves zones 109 - 162							
164.00	167.00	8	12	250	11.00	4	187.00	6.00	2.60	615.00	0.42	2.61	66.75	410.00	374.00	36.00	102.75
165.00	166.00	3	3	200	11.00	2	22.00	2.00	2.38	101.00	1.19	1.20	79.37	410.00	374.00	36.00	115.37
166.00	167.00	1	4	200	11.00	3	33.00	2.00	3.57	557.00	2.52	14.03	78.17	410.00	375.00	35.00	113.17
167.00	173.00	8	24	200	11.00	5	198.00	6.00	2.75	1,160.00	0.47	5.48	64.14	410.00	389.00	21.00	85.14
168.00	169.00	3	3	200	11.00	2	22.00	2.00	2.38	37.00	1.19	0.44	69.25	410.00	381.00	29.00	98.25
169.00	172.00	5	8	200	11.00	3	33.00	2.00	3.57	330.00	2.52	8.31	68.81	410.00	380.00	30.00	98.81
170.00	171.00	3	3	200	11.00	2	22.00	2.00	2.38	270.00	1.19	3.21	69.96	410.00	387.00	23.00	92.96
171.00	172.00	3	6	200	11.00	3	33.00	2.00	3.57	248.00	2.52	6.25	66.75	410.00	385.00	25.00	91.75
172.00	173.00	1	15	200	11.00	4	44.00	3.00	2.19	283.00	0.65	1.84	60.50	410.00	388.00	22.00	82.50

Note: This analysis is valid only with the use of progressive cavity type grinder pumps as manufactured by Environment One.

Prepared By:
D. Benson/ A. Harrison

Town of Constantia - Rev.2
Oswego County, New York

November 27, 2024

This spreadsheet was calculated using pipe diameters for: SDR11HDPE — Friction loss calculations were based on a Constant for inside roughness "C" of: 150

Zone Number	Connects to Zone	Number of Pumps in Zone	Accum Pumps in Zone	Gals/day per Pump	Max Flow Per Pump (gpm)	Max Sim Ops	Max Flow (GPM)	Pipe Size (inches)	Max Velocity (FPS)	Length of Main this Zone	Friction Loss Factor (ft/100 ft)	Friction Loss This Zone	Accum Fric Loss (feet)	Max Main Elevation	Minimum Pump Elevation	Static Head (feet)	Total Dynamic Head (ft)
173.00	177.00	4	43	200	11.00	6	209.00	6.00	2.90	1,815.00	0.52	9.48	58.66	410.00	386.00	24.00	82.66
174.00	175.00	3	3	200	11.00	2	22.00	2.00	2.38	207.00	1.19	2.46	67.41	410.00	378.00	32.00	99.41
175.00	176.00	6	9	200	11.00	3	33.00	2.00	3.57	518.00	2.52	13.05	64.95	410.00	383.00	27.00	91.95
176.00	177.00	5	14	200	11.00	4	44.00	3.00	2.19	419.00	0.65	2.72	51.90	410.00	386.00	24.00	75.90
177.00	178.00	3	60	200	11.00	7	220.00	6.00	3.06	731.00	0.57	4.20	49.18	410.00	391.00	19.00	68.18
178.00	182.00	19	79	200	11.00	7	220.00	6.00	3.06	1,664.00	0.57	9.56	44.98	410.00	378.00	32.00	76.98
179.00	180.00	3	3	200	11.00	2	22.00	2.00	2.38	86.00	1.19	1.02	53.45	410.00	373.00	37.00	90.45
180.00	181.00	6	9	200	11.00	3	33.00	2.00	3.57	575.00	2.52	14.49	52.43	410.00	375.00	35.00	87.43
181.00	182.00	4	13	200	11.00	4	44.00	3.00	2.19	387.00	0.65	2.52	37.94	410.00	375.00	35.00	72.94
182.00	184.00	0	92	200	11.00	8	231.00	6.00	3.21	421.00	0.63	2.65	35.42	410.00	385.00	25.00	60.42
183.00	184.00	3	3	200	11.00	2	22.00	2.00	2.38	947.00	1.19	11.26	44.03	410.00	375.00	35.00	79.03
184.00	187.00	0	95	200	11.00	8	231.00	6.00	3.21	218.00	0.63	1.37	32.77	410.00	387.00	23.00	55.77
185.00	186.00	3	3	200	11.00	2	22.00	2.00	2.38	217.00	1.19	2.58	63.53	410.00	387.00	23.00	86.53
186.00	187.00	5	8	200	11.00	3	33.00	2.00	3.57	1,173.00	2.52	29.55	60.95	410.00	383.00	27.00	87.95
187.00	195.00	17	120	200	11.00	9	242.00	6.00	3.36	1,678.00	0.69	11.50	31.40	410.00	383.00	27.00	58.40
188.00	189.00	3	3	111	11.00	2	22.00	2.00	2.38	114.00	1.19	1.36	28.14	410.00	374.00	36.00	64.14
189.00	192.00	6	9	111	11.00	3	33.00	2.00	3.57	148.00	2.52	3.73	26.78	410.00	374.00	36.00	62.78
190.00	191.00	3	3	111	11.00	2	22.00	2.00	2.38	91.00	1.19	1.08	26.32	410.00	373.00	37.00	63.32
191.00	192.00	3	6	111	11.00	3	33.00	2.00	3.57	87.00	2.52	2.19	25.24	410.00	374.00	36.00	61.24
192.00	193.00	3	18	111	11.00	4	44.00	3.00	2.19	231.00	0.65	1.50	23.05	410.00	375.00	35.00	58.05
193.00	195.00	1	19	111	11.00	5	55.00	3.00	2.74	168.00	0.98	1.65	21.55	410.00	377.00	33.00	54.55
194.00	195.00	1	1	200	11.00	1	11.00	1.25	2.44	399.00	1.88	7.51	27.41	410.00	385.00	25.00	52.41
195.00	199.00	0	140	200	11.00	9	242.00	6.00	3.36	284.00	0.69	1.95	19.90	410.00	378.00	32.00	51.90
196.00	197.00	3	3	111	11.00	2	22.00	2.00	2.38	175.00	1.19	2.08	27.42	410.00	372.00	38.00	65.42
197.00	198.00	6	9	111	11.00	3	33.00	2.00	3.57	223.00	2.52	5.62	25.34	410.00	373.00	37.00	62.34
198.00	199.00	6	15	111	11.00	4	44.00	3.00	2.19	272.00	0.65	1.77	19.72	410.00	375.00	35.00	54.72
199.00	201.00	0	155	200	11.00	10	253.00	6.00	3.52	315.00	0.74	2.34	17.95	410.00	378.00	32.00	49.95
200.00	201.00	3	3	200	11.00	2	22.00	2.00	2.38	991.00	1.19	11.78	27.39	410.00	388.00	22.00	49.39
201.00	202.00	1	159	200	11.00	10	253.00	6.00	3.52	244.00	0.74	1.82	15.61	410.00	380.00	30.00	45.61
202.00	205.00	4	163	200	11.00	10	253.00	6.00	3.52	701.00	0.74	5.21	13.79	410.00	380.00	30.00	43.79
203.00	204.00	3	3	200	11.00	2	22.00	2.00	2.38	107.00	1.19	1.27	27.26	410.00	372.00	38.00	65.26
204.00	205.00	6	9	200	11.00	3	33.00	2.00	3.57	691.00	2.52	17.41	25.99	410.00	373.00	37.00	62.99
205.00	208.00	12	184	233	11.00	11	264.00	8.00	2.17	1,238.00	0.22	2.76	8.58	410.00	380.00	30.00	38.58
206.00	207.00	3	3	133	11.00	2	22.00	2.00	2.38	180.00	1.19	2.14	17.11	410.00	401.00	9.00	26.11
207.00	208.00	3	6	133	11.00	3	33.00	2.00	3.57	363.00	2.52	9.15	14.97	410.00	399.00	11.00	25.97

Note: This analysis is valid only with the use of progressive cavity type grinder pumps as manufactured by Environment One.

PRELIMINARY PRESSURE SEWER - PIPE SIZING AND BRANCH ANALYSIS

Prepared By:
D. Benson/ A. Harrison

Town of Constantia - Rev.2
Oswego County, New York

November 27, 2024

Zone Number	Connects to Zone	Number of Pumps in Zone	Accum Pumps in Zone	Gals/day per Pump	Max Flow Per Pump (gpm)	Max Sim Ops	Max Flow (GPM)	Pipe Size (inches)	Max Velocity (FPS)	Length of Main this Zone	Friction Loss Factor (ft/100 ft)	Friction Loss This Zone	Accum Fric Loss (feet)	Max Main Elevation	Minimum Pump Elevation	Static Head (feet)	Total Dynamic Head (ft)
This spreadsheet was calculated using pipe diameters for: SDR11HDPE										Friction loss calculations were based on a Constant for inside roughness "C" of: 150							
208.00	209.00	2	192	200	11.00	11	264.00	8.00	2.17	509.00	0.22	1.14	5.82	410.00	378.00	32.00	37.82
209.00	210.00	5	197	200	11.00	11	264.00	8.00	2.17	381.00	0.22	0.85	4.68	410.00	376.00	34.00	38.68
210.00	215.00	3	244	200	11.00	12	528.00	10.00	2.86	871.00	0.29	2.56	3.83	410.00	391.00	19.00	22.83
211.00	212.00	3	3	200	11.00	2	22.00	2.00	2.38	1,309.00	1.19	15.56	74.40	441.00	441.00	0.00	74.40
212.00	213.00	6	9	200	11.00	3	33.00	2.00	3.57	596.00	2.52	15.02	58.84	434.00	434.00	0.00	58.84
213.00	214.00	9	18	200	11.00	4	44.00	3.00	2.19	791.00	0.65	5.14	43.82	433.00	432.00	1.00	44.82
214.00	215.00	17	35	200	11.00	6	66.00	3.00	3.29	2,717.00	1.38	37.41	38.68	412.00	412.00	0.00	38.68
215.00	215.00	0	279	200	11.00	14	550.00	10.00	2.98	399.00	0.32	1.27	1.27	410.00	410.00	0.00	1.27

Note: This analysis is valid only with the use of progressive cavity type grinder pumps as manufactured by Environment One.

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PRELIMINARY PRESSURE SEWER - ACCUMULATED RETENTION TIME(HR)

Prepared By: Town of Constantia - Rev.2

D. Benson/ A. Harrison Oswego County, New York November 27, 2024

Zone Number	Connects to Zone	Accumulated Total of Pumps this Zone	Pipe Size (inches)	Gallons per 100 lineal feet	Length of Zone	Capacity of Zone	Average Daily Flow	Average Fluid Changes per Day	Average Retention Time (Hr)	Accumulated Retention Time (Hr)
This spreadsheet was calculated using pipe diameters for: SDR11HDPE								Gals per Day per Dwelling		200
1.00	2.00	3	2.00	15.40	176.00	27.11	600	22.13	1.08	8.56
2.00	4.00	6	2.00	15.40	314.00	48.36	1,200	24.81	0.97	7.47
3.00	4.00	3	2.00	15.40	371.00	57.14	600	10.50	2.29	8.79
4.00	10.00	16	3.00	33.47	1,081.00	361.77	3,200	8.85	2.71	6.51
4.10	5.00	3	2.00	15.40	228.00	35.12	600	17.09	1.40	6.82
5.00	8.00	5	2.00	15.40	170.00	26.18	1,000	38.19	0.63	5.41
6.00	8.00	4	2.00	15.40	138.00	21.26	800	37.64	0.64	5.42
7.00	8.00	3	2.00	15.40	301.00	46.36	600	12.94	1.85	6.64
8.00	9.00	18	3.00	33.47	311.00	104.08	3,600	34.59	0.69	4.78
9.00	10.00	20	3.00	33.47	148.00	49.53	4,000	80.76	0.30	4.09
10.00	13.00	36	3.00	33.47	177.00	59.24	7,200	121.55	0.20	3.79
11.00	12.00	3	2.00	15.40	182.00	28.03	600	21.40	1.12	5.99
12.00	13.00	5	2.00	15.40	343.00	52.83	1,000	18.93	1.27	4.86
13.00	16.00	48	3.00	33.47	707.00	236.61	9,600	40.57	0.59	3.60
14.00	15.00	3	2.00	15.40	218.00	33.58	600	17.87	1.34	4.83
15.00	16.00	5	2.00	15.40	131.00	20.18	1,000	49.56	0.48	3.49
16.00	20.00	58	4.00	55.31	497.00	274.91	11,600	42.20	0.57	3.00
17.00	18.00	3	2.00	15.40	98.00	15.09	600	39.75	0.60	4.34
18.00	19.00	9	2.00	15.40	409.00	63.00	1,800	28.57	0.84	3.74
19.00	20.00	12	3.00	33.47	139.00	46.52	2,400	51.59	0.47	2.90
20.00	22.00	70	4.00	55.31	50.00	27.66	14,000	506.21	0.05	2.44
21.00	22.00	3	2.00	15.40	273.00	42.05	600	14.27	1.68	4.07
22.00	26.00	79	4.00	55.31	853.00	471.82	15,800	33.49	0.72	2.39
23.00	24.00	3	2.00	15.40	269.00	41.43	600	14.48	1.66	5.27
24.00	25.00	9	2.00	15.40	445.00	68.54	1,800	26.26	0.91	3.61
25.00	26.00	13	3.00	33.47	331.00	110.77	2,600	23.47	1.02	2.69
26.00	34.00	111	4.00	55.31	1,347.00	745.07	22,200	29.80	0.81	1.67
27.00	28.00	3	2.00	15.40	313.00	48.21	600	12.45	1.93	10.03
28.00	31.00	9	2.00	15.40	458.00	70.55	1,800	25.52	0.94	8.10
29.00	30.00	3	2.00	15.40	110.00	16.94	600	35.41	0.68	9.98
30.00	31.00	9	2.00	15.40	1,043.00	160.65	1,800	11.20	2.14	9.30
31.00	32.00	30	3.00	33.47	1,014.00	339.35	6,000	17.68	1.36	7.16
32.00	33.00	50	3.00	33.47	2,990.00	1,000.65	10,000	9.99	2.40	5.80
33.00	34.00	74	4.00	55.31	2,823.00	1,561.49	14,800	9.48	2.53	3.40
34.00	49.00	188	4.00	55.31	346.00	191.38	37,600	196.46	0.12	0.87

Note: This analysis is valid only with the use of progressive cavity type grinder pumps as manufactured by Environment One

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PRELIMINARY PRESSURE SEWER - ACCUMULATED RETENTION TIME(HR)

Prepared By: Town of Constantia - Rev.2

D. Benson/ A. Harrison Oswego County, New York November 27, 2024

Zone Number	Connects to Zone	Accumulated Total of Pumps this Zone	Pipe Size (inches)	Gallons per 100 lineal feet	Length of Zone	Capacity of Zone	Average Daily Flow	Average Fluid Changes per Day	Average Retention Time (Hr)	Accumulated Retention Time (Hr)
This spreadsheet was calculated using pipe diameters for: SDR11HDPE								Gals per Day per Dwelling		200
35.00	36.00	50	3.00	33.47	1,500.00	502.00	10,000	19.92	1.20	10.50
36.00	41.00	56	4.00	55.31	2,432.00	1,345.22	12,700	9.44	2.54	9.29
37.00	38.00	3	2.00	15.40	233.00	35.89	600	16.72	1.44	12.72
38.00	39.00	9	2.00	15.40	784.00	120.76	1,800	14.91	1.61	11.29
39.00	40.00	18	3.00	33.47	1,029.00	344.37	3,600	10.45	2.30	9.68
40.00	41.00	21	3.00	33.47	330.00	110.44	4,200	38.03	0.63	7.38
41.00	42.00	80	4.00	55.31	1,803.00	997.30	17,500	17.55	1.37	6.75
42.00	46.00	85	4.00	55.31	1,144.00	632.78	18,500	29.24	0.82	5.38
43.00	44.00	3	2.00	15.40	426.00	65.62	600	9.14	2.62	11.92
44.00	45.00	9	2.00	15.40	1,053.00	162.19	1,800	11.10	2.16	9.29
45.00	46.00	14	3.00	33.47	896.00	299.86	2,800	9.34	2.57	7.13
46.00	47.00	113	4.00	55.31	2,483.00	1,373.43	24,100	17.55	1.37	4.56
47.00	48.00	146	4.00	55.31	5,310.00	2,937.13	33,505	11.41	2.10	3.19
48.00	49.00	154	4.00	55.31	916.00	506.67	35,105	69.29	0.35	1.09
49.00	50.00	344	6.00	119.90	213.00	255.38	73,105	286.25	0.08	0.74
50.00	100.00	360	6.00	119.90	1,704.00	2,043.08	76,305	37.35	0.64	0.66
51.00	52.00	3	2.00	15.40	181.00	27.88	600	21.52	1.12	4.17
52.00	53.00	9	2.00	15.40	293.00	45.13	1,800	39.88	0.60	3.06
53.00	54.00	18	3.00	33.47	397.00	132.86	3,600	27.10	0.89	2.46
54.00	57.00	22	3.00	33.47	249.00	83.33	4,400	52.80	0.45	1.57
55.00	56.00	3	2.00	15.40	60.00	9.24	600	64.92	0.37	2.71
56.00	57.00	6	2.00	15.40	397.00	61.15	1,200	19.62	1.22	2.34
57.00	59.00	30	3.00	33.47	366.00	122.49	6,000	48.98	0.49	1.11
58.00	59.00	3	2.00	15.40	221.00	34.04	600	17.63	1.36	1.99
59.00	72.00	37	3.00	33.47	266.00	89.02	7,400	83.13	0.29	0.62
60.00	61.00	3	2.00	15.40	3.00	0.46	600	1,298.46	0.02	1.28
61.00	72.00	6	2.00	15.40	300.00	46.21	1,200	25.97	0.92	1.26
62.00	63.00	3	2.00	15.40	101.00	15.56	999	64.22	0.37	3.81
63.00	67.00	10	3.00	33.47	718.00	240.29	2,399	9.98	2.40	3.43
64.00	65.00	3	2.00	15.40	131.00	20.18	600	29.74	0.81	2.51
65.00	67.00	8	2.00	15.40	290.00	44.67	1,600	35.82	0.67	1.70
66.00	67.00	2	2.00	15.40	595.00	91.65	400	4.36	5.50	6.53
67.00	71.00	26	3.00	33.47	330.00	110.44	5,599	50.70	0.47	1.03
68.00	69.00	3	2.00	15.40	70.00	10.78	426	39.51	0.61	2.24
69.00	70.00	9	2.00	15.40	139.00	21.41	1,278	59.69	0.40	1.63

 Note: This analysis is valid only with the use of progressive cavity type grinder pumps as manufactured by Environment One

\\Eoneis1\data\Common\SSB\SSB Engineering Data\AE Projects\Constantia, NY\Constantia, NY - Analysis-Rev.2.EOne

Prepared By: Town of Constantia - Rev.2
D. Benson/ A. Harrison Oswego County, New York November 27, 2024

Zone Number	Connects to Zone	Accumulated Total of Pumps this Zone	Pipe Size (inches)	Gallons per 100 lineal feet	Length of Zone	Capacity of Zone	Average Daily Flow	Average Fluid Changes per Day	Average Retention Time (Hr)	Accumulated Retention Time (Hr)
This spreadsheet was calculated using pipe diameters for: SDR11HDPE								Gals per Day per Dwelling		200
70.00	71.00	13	3.00	33.47	154.00	51.54	1,846	35.82	0.67	1.23
71.00	72.00	40	3.00	33.47	210.00	70.28	7,645	108.78	0.22	0.56
72.00	100.00	84	4.00	55.31	395.00	218.49	16,445	75.27	0.32	0.34
73.00	74.00	3	2.00	15.40	446.00	68.70	600	8.73	2.75	13.93
74.00	75.00	9	2.00	15.40	788.00	121.37	1,800	14.83	1.62	11.18
75.00	76.00	18	3.00	33.47	1,733.00	579.97	3,600	6.21	3.87	9.56
76.00	77.00	30	3.00	33.47	1,654.00	553.54	6,000	10.84	2.21	5.69
77.00	83.00	47	3.00	33.47	1,560.00	522.08	9,400	18.01	1.33	3.48
78.00	79.00	3	2.00	15.40	537.00	82.71	600	7.25	3.31	12.96
79.00	80.00	9	2.00	15.40	812.00	125.07	1,800	14.39	1.67	9.66
80.00	81.00	18	3.00	33.47	1,473.00	492.96	3,600	7.30	3.29	7.99
81.00	82.00	30	3.00	33.47	1,307.00	437.41	6,000	13.72	1.75	4.70
82.00	83.00	37	3.00	33.47	742.00	248.32	7,400	29.80	0.81	2.95
83.00	87.00	85	4.00	55.31	248.00	137.18	17,000	123.93	0.19	2.15
84.00	85.00	3	2.00	15.40	109.00	16.79	600	35.74	0.67	4.82
85.00	86.00	9	2.00	15.40	238.00	36.66	1,800	49.10	0.49	4.15
86.00	87.00	10	3.00	33.47	426.00	142.57	2,000	14.03	1.71	3.66
87.00	94.00	98	4.00	55.31	222.00	122.80	19,600	159.62	0.15	1.95
88.00	89.00	3	2.00	15.40	257.00	39.59	600	15.16	1.58	6.31
89.00	90.00	9	2.00	15.40	462.00	71.16	1,800	25.29	0.95	4.72
90.00	93.00	10	3.00	33.47	336.00	112.45	2,000	17.79	1.35	3.77
91.00	92.00	3	2.00	15.40	262.00	40.36	600	14.87	1.61	4.39
92.00	93.00	5	2.00	15.40	96.00	14.79	1,000	67.63	0.35	2.78
93.00	94.00	15	3.00	33.47	232.00	77.64	3,000	38.64	0.62	2.42
94.00	98.00	115	4.00	55.31	362.00	200.23	23,000	114.87	0.21	1.80
95.00	96.00	3	2.00	15.40	147.00	22.64	600	26.50	0.91	4.67
96.00	97.00	9	2.00	15.40	226.00	34.81	1,800	51.71	0.46	3.76
97.00	98.00	12	3.00	33.47	509.00	170.34	2,400	14.09	1.70	3.30
98.00	99.00	146	4.00	55.31	2,642.00	1,461.37	29,200	19.98	1.20	1.59
99.00	100.00	152	4.00	55.31	859.00	475.14	30,400	63.98	0.38	0.39
100.00	100.00	596	6.00	119.90	74.00	88.73	123,150	1,387.99	0.02	0.02
101.00	102.00	12	8.00	203.19	830.00	1,686.47	125,550	74.45	0.32	1.82
102.00	106.00	17	8.00	203.19	1,850.00	3,759.00	131,350	34.94	0.69	1.50
103.00	104.00	3	2.00	15.40	89.00	13.71	600	43.77	0.55	2.16
104.00	105.00	9	2.00	15.40	211.00	32.50	1,800	55.38	0.43	1.61

Note: This analysis is valid only with the use of progressive cavity type grinder pumps as manufactured by Environment One

Zone Number	Connects to Zone	Accumulated Total of Pumps this Zone	Pipe Size (inches)	Gallons per 100 lineal feet	Length of Zone	Capacity of Zone	Average Daily Flow	Average Fluid Changes per Day	Average Retention Time (Hr)	Accumulated Retention Time (Hr)
This spreadsheet was calculated using pipe diameters for: SDR11HDPE								Gals per Day per Dwelling		200
105.00	106.00	11	3.00	33.47	99.00	33.13	2,200	66.40	0.36	1.17
106.00	108.00	29	8.00	203.19	162.00	329.17	133,750	406.33	0.06	0.81
107.00	108.00	3	2.00	15.40	437.00	67.31	600	8.91	2.69	3.45
108.00	210.00	44	8.00	203.19	955.00	1,940.46	136,750	70.47	0.34	0.75
109.00	110.00	3	2.00	15.40	1,054.00	162.35	600	3.70	6.49	13.21
110.00	110.00	9	2.00	15.40	3,270.00	503.67	1,800	3.57	6.72	6.72
111.00	112.00	11	3.00	33.47	1,218.00	407.62	3,597	8.82	2.72	11.74
112.00	113.00	23	3.00	33.47	1,331.00	445.44	5,997	13.46	1.78	9.02
113.00	116.00	25	3.00	33.47	249.00	83.33	6,397	76.77	0.31	7.23
114.00	115.00	3	2.00	15.40	199.00	30.65	600	19.57	1.23	9.46
115.00	116.00	7	2.00	15.40	497.00	76.55	1,400	18.29	1.31	8.23
116.00	120.00	34	3.00	33.47	151.00	50.53	8,197	162.21	0.15	6.92
117.00	118.00	3	2.00	15.40	238.00	36.66	600	16.37	1.47	10.77
118.00	119.00	9	2.00	15.40	484.00	74.55	1,800	24.14	0.99	9.30
119.00	120.00	11	3.00	33.47	420.00	140.56	2,200	15.65	1.53	8.31
120.00	121.00	48	3.00	33.47	1,093.00	365.79	10,997	30.06	0.80	6.77
121.00	125.00	53	4.00	55.31	602.00	332.99	11,997	36.03	0.67	5.97
122.00	123.00	3	2.00	15.40	237.00	36.50	600	16.44	1.46	8.03
123.00	124.00	9	2.00	15.40	263.00	40.51	1,800	44.43	0.54	6.57
124.00	125.00	10	3.00	33.47	180.00	60.24	2,000	33.20	0.72	6.03
125.00	127.00	66	4.00	55.31	806.00	445.82	14,597	32.74	0.73	5.31
126.00	127.00	3	2.00	15.40	281.00	43.28	600	13.86	1.73	6.31
127.00	134.00	70	4.00	55.31	676.00	373.92	15,397	41.18	0.58	4.57
128.00	129.00	3	2.00	15.40	116.00	17.87	600	33.58	0.71	6.64
129.00	130.00	9	2.00	15.40	262.00	40.36	1,800	44.60	0.54	5.93
130.00	133.00	12	3.00	33.47	237.00	79.32	2,400	30.26	0.79	5.39
131.00	132.00	3	2.00	15.40	159.00	24.49	600	24.50	0.98	6.14
132.00	133.00	5	2.00	15.40	153.00	23.57	1,000	42.43	0.57	5.16
133.00	134.00	17	3.00	33.47	255.00	85.34	3,400	39.84	0.60	4.59
134.00	135.00	106	4.00	55.31	2,996.00	1,657.18	22,597	13.64	1.76	3.99
135.00	139.00	124	4.00	55.31	1,697.00	938.66	26,197	27.91	0.86	2.23
136.00	137.00	3	2.00	15.40	247.00	38.05	600	15.77	1.52	5.32
137.00	138.00	9	2.00	15.40	589.00	90.72	1,800	19.84	1.21	3.80
138.00	139.00	14	3.00	33.47	424.00	141.90	2,800	19.73	1.22	2.59
139.00	140.00	139	4.00	55.31	83.00	45.91	29,197	635.96	0.04	1.37

 Note: This analysis is valid only with the use of progressive cavity type grinder pumps as manufactured by Environment One

Zone Number	Connects to Zone	Accumulated Total of Pumps this Zone	Pipe Size (inches)	Gallons per 100 lineal feet	Length of Zone	Capacity of Zone	Average Daily Flow	Average Fluid Changes per Day	Average Retention Time (Hr)	Accumulated Retention Time (Hr)
This spreadsheet was calculated using pipe diameters for: SDR11HDPE								Gals per Day per Dwelling		200
140.00	145.00	142	4.00	55.31	152.00	84.08	29,797	354.41	0.07	1.33
141.00	142.00	3	2.00	15.40	34.00	5.24	600	114.57	0.21	3.19
142.00	143.00	9	2.00	15.40	146.00	22.49	1,800	80.04	0.30	2.98
143.00	144.00	18	3.00	33.47	474.00	158.63	3,600	22.69	1.06	2.68
144.00	145.00	21	3.00	33.47	184.00	61.58	4,200	68.21	0.35	1.62
145.00	150.00	164	4.00	55.31	222.00	122.80	34,197	278.49	0.09	1.27
146.00	147.00	3	2.00	15.40	175.00	26.95	600	22.26	1.08	5.85
147.00	148.00	9	2.00	15.40	559.00	86.10	1,800	20.91	1.15	4.77
148.00	149.00	18	3.00	33.47	469.00	156.96	3,600	22.94	1.05	3.62
149.00	150.00	28	3.00	33.47	971.00	324.96	5,600	17.23	1.39	2.57
150.00	151.00	205	4.00	55.31	1,746.00	965.77	42,397	43.90	0.55	1.18
151.00	159.00	206	4.00	55.31	166.00	91.82	42,597	463.92	0.05	0.63
152.00	153.00	3	2.00	15.40	427.00	65.77	600	9.12	2.63	6.88
153.00	154.00	9	2.00	15.40	462.00	71.16	1,800	25.29	0.95	4.25
154.00	158.00	13	3.00	33.47	345.00	115.46	2,600	22.52	1.07	3.30
155.00	156.00	3	2.00	15.40	187.00	28.80	600	20.83	1.15	4.54
156.00	157.00	9	2.00	15.40	245.00	37.74	1,800	47.70	0.50	3.39
157.00	158.00	12	3.00	33.47	196.00	65.59	2,400	36.59	0.66	2.89
158.00	159.00	26	3.00	33.47	1,069.00	357.76	5,200	14.54	1.65	2.23
159.00	162.00	237	4.00	55.31	1,121.00	620.06	48,797	78.70	0.30	0.58
160.00	161.00	3	2.00	15.40	210.00	32.35	600	18.55	1.29	4.44
161.00	162.00	6	2.00	15.40	932.00	143.55	1,200	8.36	2.87	3.15
162.00	162.00	244	6.00	119.90	483.00	579.11	50,197	86.68	0.28	0.28
163.00	164.00	4	6.00	119.90	869.00	1,041.92	51,000	48.95	0.49	6.47
164.00	167.00	12	6.00	119.90	615.00	737.38	53,000	71.88	0.33	5.98
165.00	166.00	3	2.00	15.40	101.00	15.56	600	38.57	0.62	8.84
166.00	167.00	4	2.00	15.40	557.00	85.79	800	9.32	2.57	8.22
167.00	173.00	24	6.00	119.90	1,160.00	1,390.83	55,400	39.83	0.60	5.64
168.00	169.00	3	2.00	15.40	37.00	5.70	600	105.28	0.23	6.79
169.00	172.00	8	2.00	15.40	330.00	50.83	1,600	31.48	0.76	6.56
170.00	171.00	3	2.00	15.40	270.00	41.59	600	14.43	1.66	8.23
171.00	172.00	6	2.00	15.40	248.00	38.20	1,200	31.41	0.76	6.56
172.00	173.00	15	3.00	33.47	283.00	94.71	3,000	31.68	0.76	5.80
173.00	177.00	43	6.00	119.90	1,815.00	2,176.17	59,200	27.20	0.88	5.04
174.00	175.00	3	2.00	15.40	207.00	31.88	600	18.82	1.28	7.70

 Note: This analysis is valid only with the use of progressive cavity type grinder pumps as manufactured by Environment One

Zone Number	Connects to Zone	Accumulated Total of Pumps this Zone	Pipe Size (inches)	Gallons per 100 lineal feet	Length of Zone	Capacity of Zone	Average Daily Flow	Average Fluid Changes per Day	Average Retention Time (Hr)	Accumulated Retention Time (Hr)
This spreadsheet was calculated using pipe diameters for: SDR11HDPE								Gals per Day per Dwelling		200
175.00	176.00	9	2.00	15.40	518.00	79.79	1,800	22.56	1.06	6.43
176.00	177.00	14	3.00	33.47	419.00	140.22	2,800	19.97	1.20	5.36
177.00	178.00	60	6.00	119.90	731.00	876.46	62,600	71.42	0.34	4.16
178.00	182.00	79	6.00	119.90	1,664.00	1,995.12	66,400	33.28	0.72	3.82
179.00	180.00	3	2.00	15.40	86.00	13.25	600	45.30	0.53	6.01
180.00	181.00	9	2.00	15.40	575.00	88.57	1,800	20.32	1.18	5.48
181.00	182.00	13	3.00	33.47	387.00	129.52	2,600	20.07	1.20	4.30
182.00	184.00	92	6.00	119.90	421.00	504.77	69,000	136.69	0.18	3.10
183.00	184.00	3	2.00	15.40	947.00	145.87	600	4.11	5.83	8.76
184.00	187.00	95	6.00	119.90	218.00	261.38	69,600	266.28	0.09	2.93
185.00	186.00	3	2.00	15.40	217.00	33.42	600	17.95	1.34	6.88
186.00	187.00	8	2.00	15.40	1,173.00	180.68	1,600	8.86	2.71	5.55
187.00	195.00	120	6.00	119.90	1,678.00	2,011.90	74,600	37.08	0.65	2.84
188.00	189.00	3	2.00	15.40	114.00	17.56	333	18.96	1.27	5.57
189.00	192.00	9	2.00	15.40	148.00	22.80	999	43.82	0.55	4.31
190.00	191.00	3	2.00	15.40	91.00	14.02	333	23.76	1.01	5.25
191.00	192.00	6	2.00	15.40	87.00	13.40	666	49.70	0.48	4.24
192.00	193.00	18	3.00	33.47	231.00	77.31	1,998	25.84	0.93	3.76
193.00	195.00	19	3.00	33.47	168.00	56.22	2,109	37.51	0.64	2.83
194.00	195.00	1	1.25	7.52	399.00	30.02	200	6.66	3.60	5.79
195.00	199.00	140	6.00	119.90	284.00	340.51	76,909	225.86	0.11	2.19
196.00	197.00	3	2.00	15.40	175.00	26.95	333	12.35	1.94	6.16
197.00	198.00	9	2.00	15.40	223.00	34.35	999	29.08	0.83	4.22
198.00	199.00	15	3.00	33.47	272.00	91.03	1,665	18.29	1.31	3.40
199.00	201.00	155	6.00	119.90	315.00	377.68	78,574	208.04	0.12	2.08
200.00	201.00	3	2.00	15.40	991.00	152.64	600	3.93	6.11	8.07
201.00	202.00	159	6.00	119.90	244.00	292.55	79,374	271.31	0.09	1.97
202.00	205.00	163	6.00	119.90	701.00	840.49	80,174	95.39	0.25	1.88
203.00	204.00	3	2.00	15.40	107.00	16.48	600	36.41	0.66	3.71
204.00	205.00	9	2.00	15.40	691.00	106.43	1,800	16.91	1.42	3.05
205.00	208.00	184	8.00	203.19	1,238.00	2,515.48	84,770	33.70	0.71	1.63
206.00	207.00	3	2.00	15.40	180.00	27.73	399	14.39	1.67	4.27
207.00	208.00	6	2.00	15.40	363.00	55.91	798	14.27	1.68	2.60
208.00	209.00	192	8.00	203.19	509.00	1,034.23	85,968	83.12	0.29	0.92
209.00	210.00	197	8.00	203.19	381.00	774.15	86,968	112.34	0.21	0.63

 Note: This analysis is valid only with the use of progressive cavity type grinder pumps as manufactured by Environment One

PRELIMINARY PRESSURE SEWER - ACCUMULATED RETENTION TIME(HR)

Prepared By: Town of Constantia - Rev.2

D. Benson/ A. Harrison Oswego County, New York November 27, 2024

Zone Number	Connects to Zone	Accumulated Total of Pumps this Zone	Pipe Size (inches)	Gallons per 100 lineal feet	Length of Zone	Capacity of Zone	Average Daily Flow	Average Fluid Changes per Day	Average Retention Time (Hr)	Accumulated Retention Time (Hr)
This spreadsheet was calculated using pipe diameters for: SDR11HDPE								Gals per Day per Dwelling		200
210.00	215.00	244	10.00	307.33	871.00	2,676.81	224,318	83.80	0.29	0.41
211.00	212.00	3	2.00	15.40	1,309.00	201.62	600	2.98	8.06	14.30
212.00	213.00	9	2.00	15.40	596.00	91.80	1,800	19.61	1.22	6.23
213.00	214.00	18	3.00	33.47	791.00	264.72	3,600	13.60	1.76	5.01
214.00	215.00	35	3.00	33.47	2,717.00	909.28	7,000	7.70	3.12	3.24
215.00	215.00	279	10.00	307.33	399.00	1,226.23	231,318	188.64	0.13	0.13

 Note: This analysis is valid only with the use of progressive cavity type grinder pumps as manufactured by Environment One

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PS1
PS2

APPENDIX J
Estimated Project Cost – Collection System

TOWN OF CONSTANTIA LOW PRESSURE COLLECTION SYSTEM IMPROVEMENTS
ESTIMATE OF PROBABLE PROJECT COST

2025 PER - Collection System Estimated (Grinder Pumps)

B&L JOB NO.:	221.005.003
ESTIMATED BY:	DCP
CHECKED BY:	DJC

Item No.	Description	Unit	Estimated Quantities	Engineers Estimate Unit Price	Engineers Estimate Total Cost
1	Mobilization/Debmobilization (Not to exceed 4%)	LS	1	$ 877,000.00	$ 877,000.00
2	Work Zone Traffic Control	LS	1	$ 30,000.00	$ 30,000.00
3	Erosion and Sediment Control	LS	1	$ 75,000.00	$ 75,000.00
4	Clearing	LS	1	$ 75,000.00	$ 75,000.00
5	General Restoration	LF	165,550	$ 5.00	$ 827,750.00
6	Furnish and Install Simplex Grinder Pump	EA	1,018	$ 8,000.00	$ 8,144,000.00
7	Furnish and Install Duplex Grinder Pump	EA	20	$ 17,000.00	$ 340,000.00
8	Furnish and Install Triplex Grinder Pump	EA	2	$ 60,000.00	$ 120,000.00
9	Furnish and Install Quadplex Grinder Pump	EA	4	$ 68,000.00	$ 272,000.00
10	Furnish and Install 1.25" Low Pressure Lateral	LF	120,000	$ 29.00	$ 3,480,000.00
11	Furnish and Install 1.5" Low Pressure Lateral	LF	10,000	$ 32.00	$ 320,000.00
12	Furnish and Install 2-inch Low Pressure Lateral	LF	1,000	$ 36.00	$ 36,000.00
13	Furnish and Install 4-Inch SDR 35 Non-Pressure PVC Sewer	LF	30,000	$ 52.00	$ 1,560,000.00
14	Furnish and Install 8-Inch SDR 35 Non-Pressure PVC Sewer	LF	4,550	$ 110.00	$ 500,500.00
15	Furnish and Install New Manhole	EA	27	$ 2,800.00	$ 75,600.00
16	Grinder Pump Building Sewer Connections	EA	1,135	$ 700.00	$ 794,500.00
17	Furnish Spare Pump Assemblies and Alarm Panels	EA	52	$ 3,200.00	$ 167,040.00
18	Electrical Panel Modifications	EA	1,044	$ 3,000.00	$ 3,132,000.00
19	Decommission Existing Septic Tank	EA	1,044	$ 1,800.00	$ 1,879,200.00
20	Field Order Allowance	LS	1	$ 100,000.00	$ 100,000.00
	Construction Subtotal (2025 Dollars)			$	22,806,000.00
	Construction Subtotal (2028 Dollars)(1)(2)			**$**	**24,900,000.00**

(1) Final estimated amount rounded to nearest hundred thousand dollar.
(2) 2025 Construction estimate inflated 3% per year for 3 years to represent midpoint of construction in 2028.

TOWN OF CONSTANTIA LOW PRESSURE COLLECTION SYSTEM IMPROVEMENTS
ESTIMATE OF PROBABLE PROJECT COST

2025 PER - Collection System Estimate (Low-Pressure Sewer)

B&L JOB NO.: 221.005.003
ESTIMATED BY: DCP
CHECKED BY: DJC

Item No.	Description	Unit	Estimated Quantities	Engineers Estimate Unit Price	Engineers Estimate Total Cost
1	Mobilization/Demobilization (not to exceed 4% of construction costs)	LS	1	$ 736,000.00	$ 736,000.00
2	Work Zone Traffic Control	LS	1	$ 250,000.00	$ 250,000.00
3	Furnish and Install Erosion and Sediment Control	LS	1	$ 240,000.00	$ 240,000.00
4	Clearing	LS	1	$ 380,000.00	$ 380,000.00
5	Furnish and Install 2-Inch HDPE DR11 Force Main-Open Cut Method	LF	38,200	$ 36.00	$ 1,375,200.00
6	Furnish and Install 3-Inch HDPE DR11 Force Main-Open Cut Method	LF	24,600	$ 43.00	$ 1,057,800.00
7	Furnish and Install 4-Inch HDPE DR11 Force Main-Open Cut Method	LF	16,200	$ 49.00	$ 793,800.00
8	Furnish and Install 6-Inch HDPE DR11 Force Main-Open Cut Method	LF	6,000	$ 57.00	$ 342,000.00
9	Furnish and Install 8-Inch HDPE DR11 Force Main-Open Cut Method	LF	19,200	$ 70.00	$ 1,344,000.00
10	Furnish and Install 10-Inch HDPE DR11 Force Main-Open Cut Method	LF	13,400	$ 85.00	$ 1,139,000.00
11	Furnish and Install 2-Inch HDPE DR11 Force Main-Directional Drill Method	LF	2,600	$ 74.00	$ 192,400.00
12	Furnish and Install 3-Inch HDPE DR11 Force Main-Directional Drill Method	LF	5,200	$ 88.00	$ 457,600.00
13	Furnish and Install 4-Inch HDPE DR11 Force Main-Directional Drill Method	LF	1,300	$ 106.00	$ 137,800.00
14	Furnish and Install 6-Inch HDPE DR11 Force Main-Directional Drill Method	LF	90	$ 122.00	$ 10,980.00
15	Furnish and Install 8-Inch HDPE DR11 Force Main-Directional Drill Method	LF	1,500	$ 136.00	$ 204,000.00
16	Furnish and Install 10-Inch HDPE DR11 Force Main-Directional Drill Method	LF	2,100	$ 152.00	$ 319,200.00
17	Furnish and Install 2-Inch Ball Valve	EA	43	$ 600.00	$ 25,800.00
18	Furnish and Install 3-Inch Ball Valve	EA	34	$ 1,200.00	$ 40,800.00
19	Furnish and Install 4-Inch Gate Valve	EA	19	$ 1,500.00	$ 28,500.00
20	Furnish and Install 6-Inch Gate Valve	EA	7	$ 1,850.00	$ 12,950.00
21	Furnish and Install 8-Inch Gate Valve	EA	25	$ 2,300.00	$ 57,500.00
22	Furnish and Install 10-Inch Gate Valve	EA	18	$ 2,700.00	$ 48,600.00
23	Furnish and Install 2" Type A Clean Out	EA	45	$ 4,500.00	$ 202,500.00
24	Furnish and Install 3" Type A Clean Out	EA	34	$ 5,000.00	$ 170,000.00
25	Furnish and Install 4" Type A Clean Out	EA	18	$ 6,000.00	$ 108,000.00
26	Furnish and Install 6" Type A Clean Out	EA	6	$ 6,500.00	$ 39,000.00
27	Furnish and Install 8" Type A Clean Out	EA	25	$ 7,000.00	$ 175,000.00
28	Furnish and Install 10" Type A Clean Out	EA	18	$ 8,500.00	$ 153,000.00
29	Furnish and Install Type B Clean Out	EA	56	$ 3,250.00	$ 182,000.00
30	Furnish and Install 4-Foot Diameter Air Release Valve Manhole	EA	74	$ 11,000.00	$ 814,000.00
31	Pipe Bedding	CY	16,100	$ 28.00	$ 450,800.00
32	General Restoration	LF	129,900	$ 18.00	$ 2,338,200.00
33	Special Backfill	CY	16,100	$ 38.00	$ 611,800.00
34	Near Side Lateral Connection	EA	640	$ 1,400.00	$ 896,000.00
35	Far Side Lateral Connection	EA	400	$ 3,100.00	$ 1,240,000.00
36	1.25" Lateral Piping	LF	14,200	$ 29.00	$ 411,800.00
37	1.5" Lateral Piping	LF	2,300	$ 32.00	$ 73,600.00
38	Lateral Kits	EA	1,044	$ 1,600.00	$ 1,670,400.00
40	Furnish and Install Taft Bay Park Pump Station	EA	1	$ 300,000.00	$ 300,000.00
44	Field Order Allowance	EA	1	$ 100,000.00	$ 100,000.00
	Construction Subtotal (2025 Dollars)			$	19,130,000.00
	Construction Subtotal (2028 Dollars)(1)(2)			**$**	**20,900,000.00**

(1) Final estimated amount rounded to nearest hundred thousand dollar.
(2) 2025 Construction estimate inflated 3% per year for 3 years to represent midpoint of construction in 2028.

APPENDIX K
Equipment Data Sheets

Great White Shark Center Flow Screen & Whitetip Shark Washing Compactor Budget Proposal Package

Constantia, New York

November 8, 2024

Original Equipment Manufactured By

HYDRO DYNE
ENGINEERING
DESIGNED TO PROTECT. BUILT TO PERFORM.™

4750 118th Avenue North • Clearwater, Florida 33762
Phone: 813-818-0777 • Fax: 813-818-0770
Email: info@hydro-dyne.com

GREAT WHITE SHARK CENTER FLOW SCREEN & WHITETIP SHARK WASHING COMPACTOR BUDGET PROPOSAL INDEX

1) Recommended Screen Hydraulic Profile:

    a. Equipment Sizing
    b. Hydraulic Performance

2) Standard Breakout Drawings:

    a. Center Flow Screen
    b. Washing Compactor

3) Literature:

    a. Hydro-Dyne Overview
    b. Products Overview
    c. Great White Shark Center Flow Screen
    d. Screening Grid Options
    e. Whitetip Shark Washing Compactor
    f. East Region Project Profiles

Great White Center Flow Screen Equipment Sizing

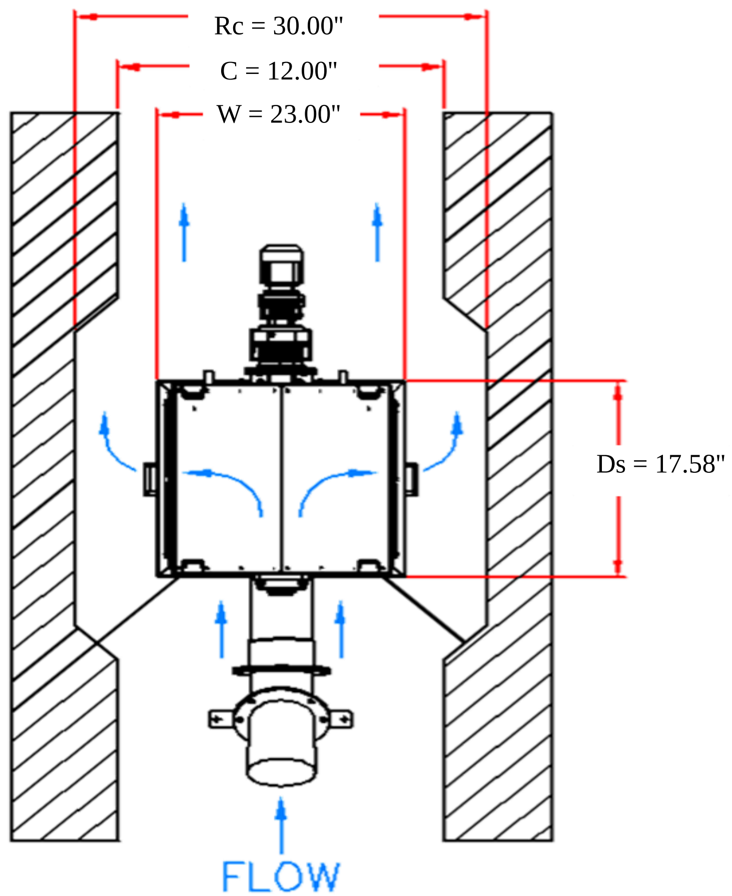
HYDRO DYNE ENGINEERING
Tel: 813-818-0777   Fax: 813-818-0770

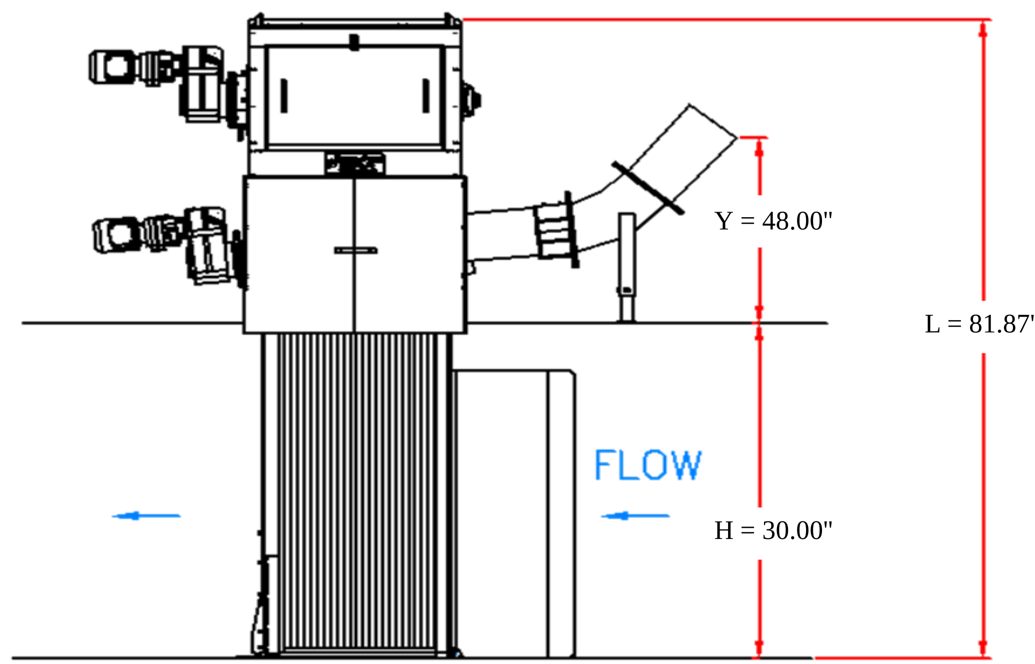
Project: Constantia, NY - WWTP
Date: 11/8/2024
Rep: Siewert Equipment
By: STM   **Checked:** JMB

Model # **CF** 23 – 18 – 82 – 6 – P

Channel Dimensions:		English Units	SI Units
C	Channel Width	12.00 in	305 mm
H	Channel Height	30.00 in	762 mm
Rc	Recess Width,	30.00 in	762 mm
Rd	Channel Recess Depth	37.58 in	955 mm
TC	Height from Grade to Top of Channel	0.00 in	0 mm

Equipment Dimensions:			English Units	SI Units
L	Length of Screen		81.87 in	2079 mm
W	Width of Screen		23.00 in	584 mm
Ds	Depth of Screen		17.58 in	447 mm
Y	Discharge Height from the Compactor		48.00 in	1219 mm
Screen Grid Parameters:				
S	Grid Opening Spacing		6mm Perf UHMWPE	
Obs	Percent of Screen Obstructed	50 %	Hook Link	12 ga
OA_{eff}*	Effective Percent of Grid Opening	31.32 %	Straight Link	12 ga





NOTE: Image is not to Scale. Orientation of Equipment Subject to Change Depending on Layout Requirements.

NOTE: * Effective Percent of Grid Opening = Percent of Grid Opening at 6mm Opening × (1 - Proposed 50% of Screen Obstructed).

Great White Center Flow Screen Hydraulic Performance

HYDRO DYNE ENGINEERING

Tel: 813-818-0777 Fax: 813-818-0770

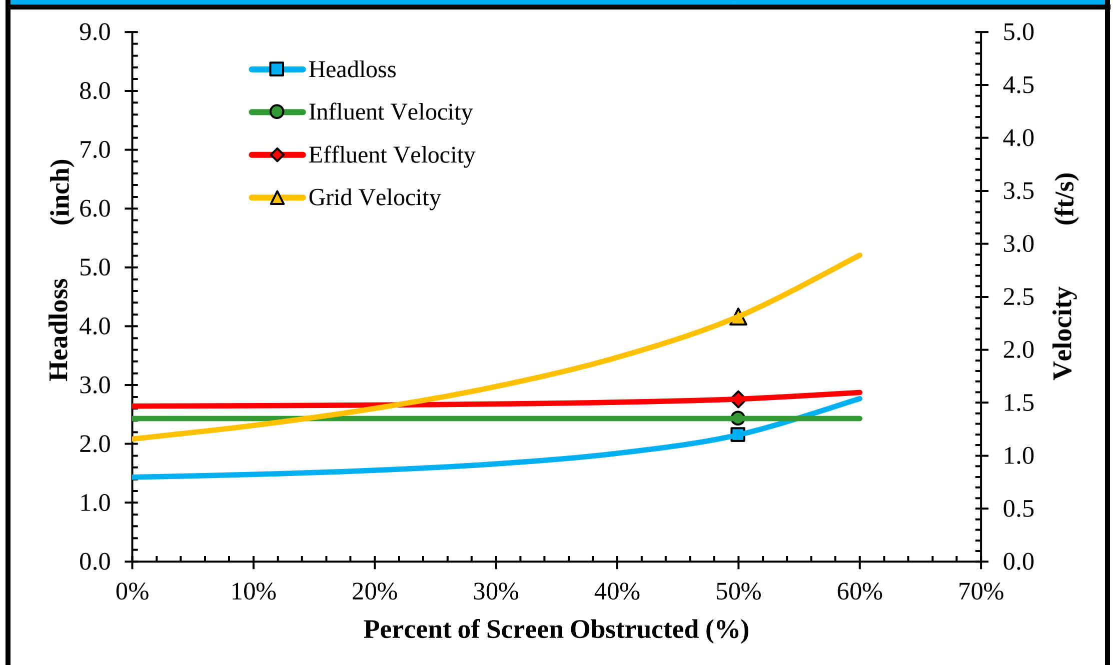
Project: Constantia, NY - WWTP
Date: 11/8/2024
Rep: Siewert Equipment
By: STM **Checked:** JMB

Model # CF 23 – 18 – 82 – 6 — P

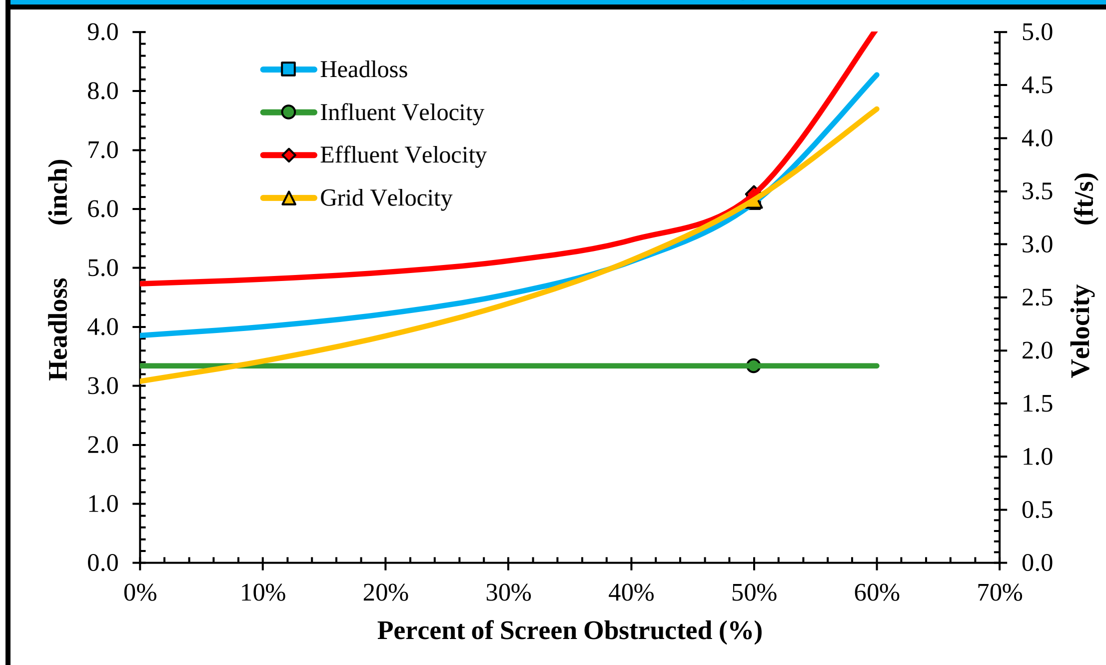
Fixed D_1 Condition @ 50% Obs		English Units		SI Units	
Q	Flow Rate	1.31 MGD	910 gpm	57 L/s	4959 m^3/d
D_1	Upstream Water Depth	18.00 in		457 mm	
D_2	Downstream Water Depth	15.84 in		402 mm	
ΔH	Total Headloss	2.16 in		55 mm	
F	Freeboard	12.00 in		305 mm	
V_1	Influent Channel Velocity	1.35 ft/s		0.41 m/s	
V_T	Throat Velocity of Screen	2.09 ft/s		0.64 m/s	
V_G	Velocity Through Grid	2.31 ft/s		0.70 m/s	
V_{Re}	Recess Zone Velocity	1.73 ft/s		0.53 m/s	
V_2	Effluent Channel Velocity	1.54 ft/s		0.47 m/s	

Fixed D_1 Condition @ 50% Obs		English Units		SI Units	
Q	Flow Rate	1.31 MGD	910 gpm	57 L/s	4959 m^3/d
D_1	Upstream Water Depth	13.11 in		333 mm	
D_2	Downstream Water Depth	7.00 in		178 mm	
ΔH	Total Headloss	6.11 in		155 mm	
F	Freeboard	16.89 in		429 mm	
V_1	Influent Channel Velocity	1.86 ft/s		0.57 m/s	
V_T	Throat Velocity of Screen	3.56 ft/s		1.09 m/s	
V_G	Velocity Through Grid	3.42 ft/s		1.04 m/s	
V_{Re}	Recess Zone Velocity	3.24 ft/s		0.99 m/s	
V_2	Effluent Channel Velocity	3.47 ft/s		1.06 m/s	

Screen Performance VS. Screen Blocking at Fixed D_1



Screen Performance VS. Screen Blocking at Fixed D_1



Great White Center Flow Screen Hydraulic Performance

HYDRO DYNE ENGINEERING

Tel: 813-818-0777 Fax: 813-818-0770

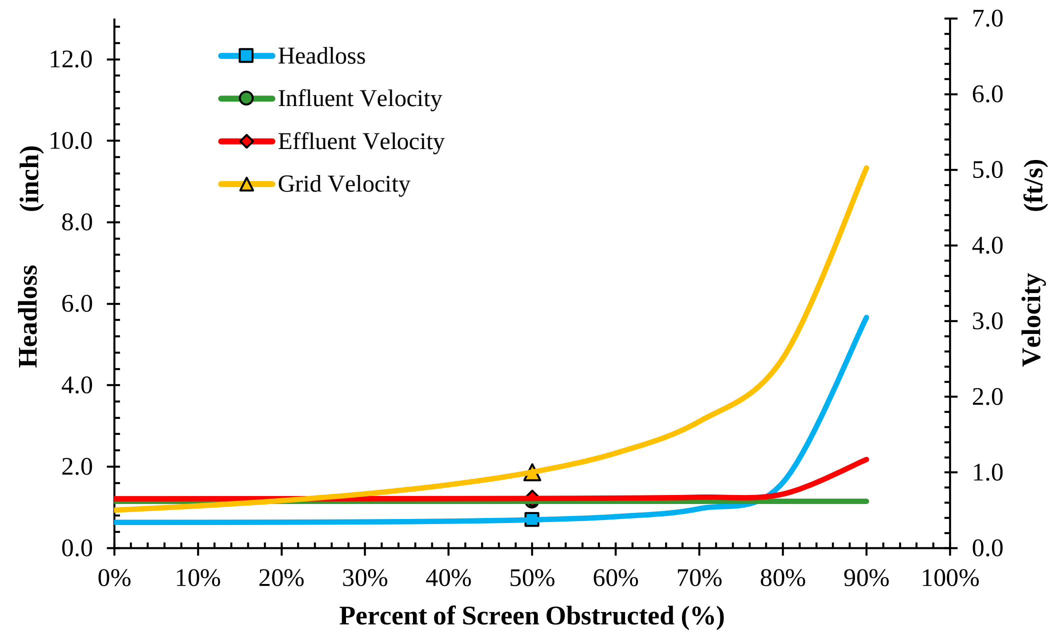
Project: Constantia, NY - WWTP
Date: 11/8/2024
Rep: Siewert Equipment
By: STM **Checked:** JMB

Model # **CF** 23 – 18 – 82 – 6 — P

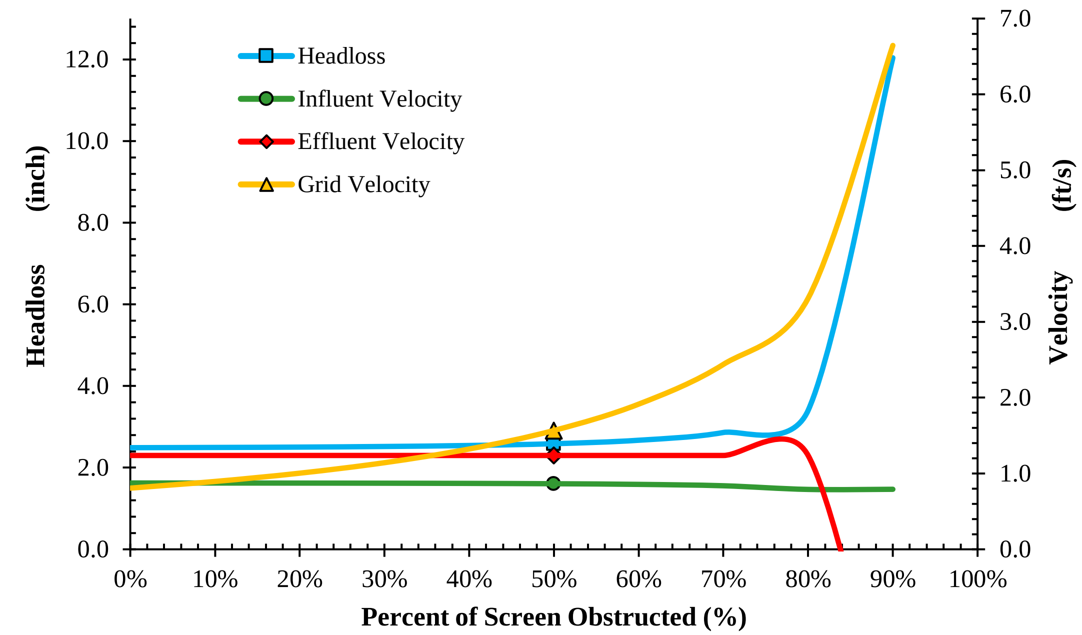
Fixed D_1 Condition @ 50% Obs		English Units		SI Units	
Q	Flow Rate	0.40 MGD	278 gpm	18 L/s	1514 m^3/d
D_1	Upstream Water Depth	12.00 in		305 mm	
D_2	Downstream Water Depth	11.30 in		287 mm	
ΔH	Total Headloss	0.70 in		18 mm	
F	Freeboard	18.00 in		457 mm	
V_1	Influent Channel Velocity	0.62 ft/s		0.19 m/s	
V_T	Throat Velocity of Screen	1.29 ft/s		0.39 m/s	
V_G	Velocity Through Grid	1.01 ft/s		0.31 m/s	
V_{Re}	Recess Zone Velocity	0.76 ft/s		0.23 m/s	
V_2	Effluent Channel Velocity	0.66 ft/s		0.20 m/s	

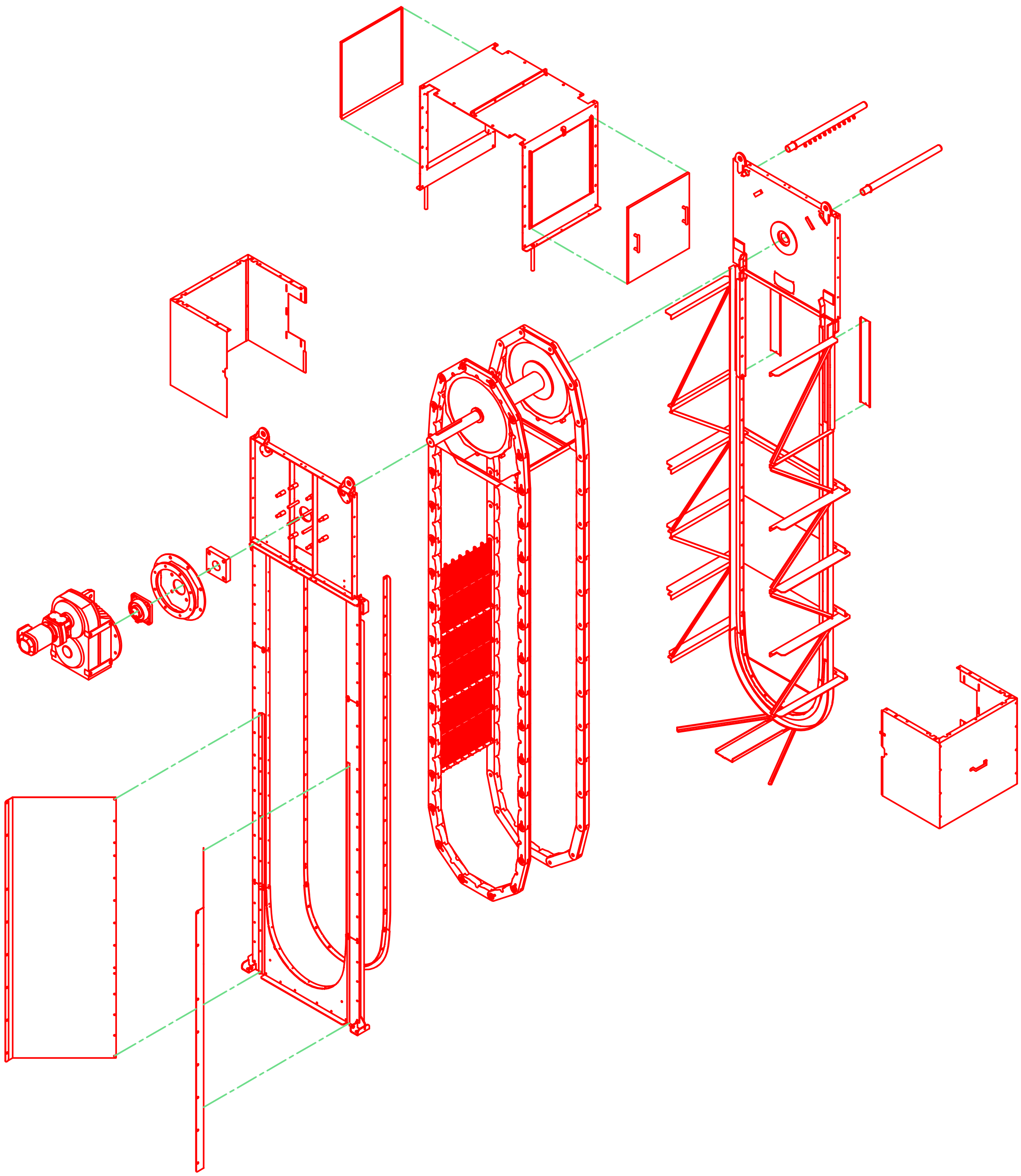
Fixed D_2 Condition @ 50% Obs		English Units		SI Units	
Q	Flow Rate	0.40 MGD	278 gpm	18 L/s	1514 m^3/d
D_1	Upstream Water Depth	8.59 in		218 mm	
D_2	Downstream Water Depth	6.00 in		152 mm	
ΔH	Total Headloss	2.59 in		66 mm	
F	Freeboard	21.41 in		544 mm	
V_1	Influent Channel Velocity	0.86 ft/s		0.26 m/s	
V_T	Throat Velocity of Screen	3.11 ft/s		0.95 m/s	
V_G	Velocity Through Grid	1.57 ft/s		0.48 m/s	
V_{Re}	Recess Zone Velocity	1.37 ft/s		0.42 m/s	
V_2	Effluent Channel Velocity	1.24 ft/s		0.38 m/s	

Screen Performance VS. Screen Blocking at Fixed D_1

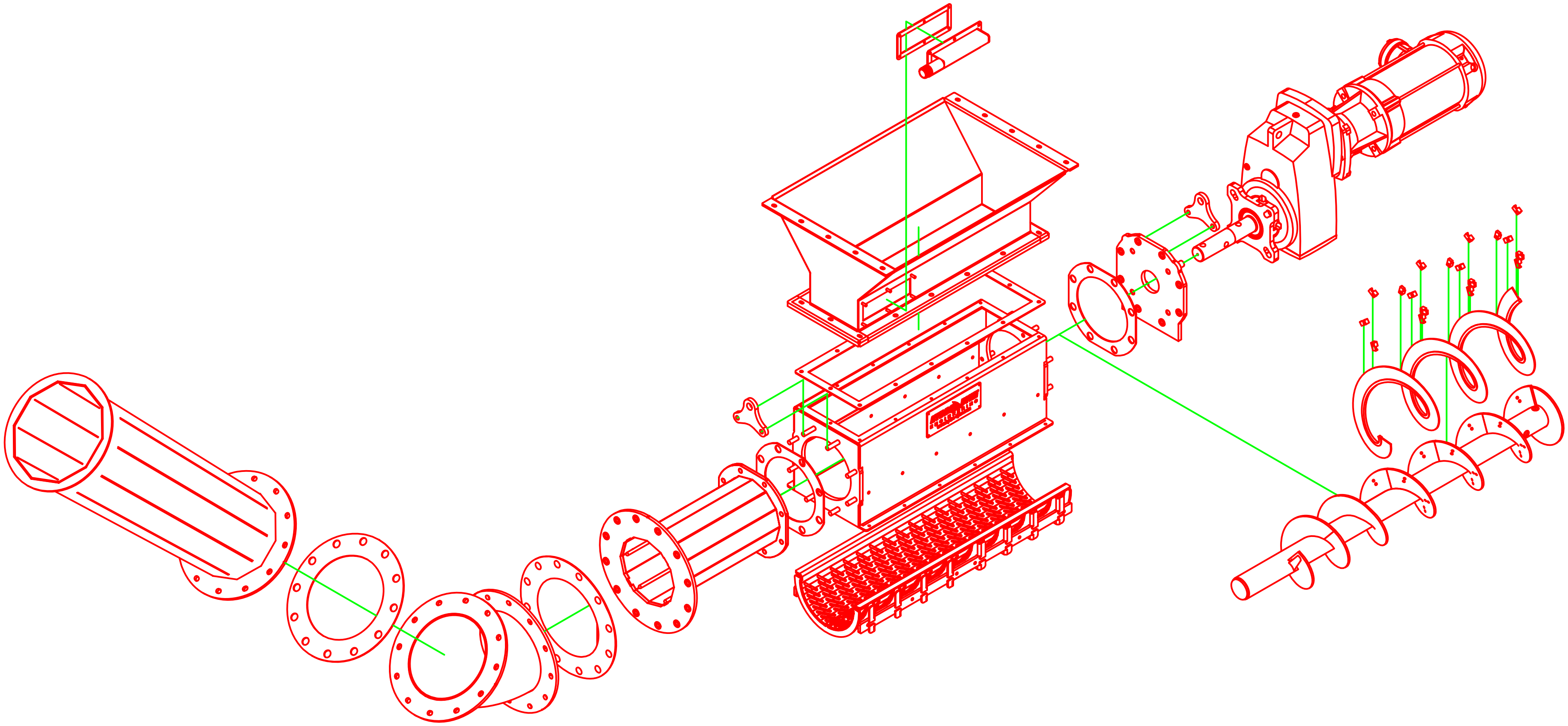


Screen Performance VS. Screen Blocking at Fixed D_2





UNLESS NOTED TOLERANCE	HYDRO-DYNE Engineering, Inc. www.hydro-dyne.com	HYDRO-FLO – TYPICAL BREAKOUT – COMPLETE ASSEMBLY		
.X ± .030		FILE #: HF23-32-2SPR-P	SHT.: 1/4	REV.: A
.XX ± .015		DRAWN BY/DATE: J. COONEY – 02/25/14	SCALE: NTS	
.XXX ± .005		CHECKED BY/DATE: T. HUNT – 02/25/14		SIZE: A
.XXXX ± .0005				



UNLESS NOTED

TOLERANCE
.X ± 0.125"
.XX ± 0.060" ∠ ± 1°
.XXX ± 0.030"
FRACTIONAL: ± ¼"

HYDRO DYNE® ENGINEERING
www.hydro-dyne.com

TYPICAL BREAKOUT – COMPACTOR			
DRAWING #: WCP6–CF		SHT.: 1/1	REV.: –
DRAWN BY/DATE: C. DISPENZA	2/23/2017	SCALE: NTS	
CHECKED BY/DATE: J. BOGGESS	2/23/2017		SIZE: A

Hydro-Dyne Engineering

Our formula for success is simple: intelligently design and skillfully manufacture exceptional quality equipment that provides extraordinary value to our customers. We do so by having complete control of our products from start to finish. As a full-service manufacturer, all design, fabrication and assembly is handled in-house. Since 1978, our time-proven designs in custom-engineered water and wastewater screening equipment have been trusted at more than 2,000 installations worldwide. At Hydro-Dyne Engineering, our solutions are ***Designed to Protect. Built to Perform.***

At-a-glance

- In-house design, fabrication and assembly
- Time-proven design
- 2,000+ installations worldwide since 1978
- Exceptional quality equipment and services
- Custom-engineered solutions
- All stainless steel fabrication
- 110,000 sq. ft (10,000 m^2) manufacturing facility
- Made in the U.S.A.

Applications

Municipal Wastewater
- Combined storm overflow
- Correctional facilities
- Headworks for wastewater treatment plants
- Membrane bioreactor (MBR) protection
- Package plants
- Pump and lift stations
- Sludge and septage screening

Municipal Water
- Algae removal
- Desalination plant/RO protection
- Drainage canals
- Membrane protection
- Raw water intake
- Stormwater

Industrial
- Agriculture
- Chemical processing
- Cooling water intake
- Food processing
- Manufacturing
- Membrane protection
- Mining
- Petroleum
- Pulp and paper
- Textiles

Service

At Hydro-Dyne Engineering our factory-trained technicians take great pride in providing exceptional service to our customers around the world. From on-site screen sizing, equipment start-up, scheduled maintenance, service contracts, optional equipment, replacement parts and equipment remanufacturing, our experts support our customers throughout the life of their equipment.

To learn more visit: www.hydro-dyne.com
sales@hydro-dyne.com | +1 (813) 818-0777

Coarse Screens | Fine Screens | Screenings Handling | Grit Removal Equipment

Designed & Manufactured in the USA

4750 118th Avenue North Clearwater, FL 33762

ISO 9001:2015 Certified

HYDRO DYNE® ENGINEERING

Designed to Protect. Built to Perform.™

Products Overview

HYDRO DYNE ENGINEERING

Designed to Protect. Built to Perform.™

Coarse Screens

Extremely reliable and versatile screens through robust design. With a wide variety of models and grid options, our coarse screens easily remove large solids for unsurpassed downstream protection.

Bull Shark
Through Flow Screen

- Heavy-duty, high capacity system
- Unlimited support against deflection

Tiger Shark
Multi-Rake Screen

- No submerged sprockets
- Dry unloading of screenings

Dusky Shark
Septage Receiving Station

- Effortlessly screens high TSS and FOG flows
- Monitoring and billing control available

Sawshark
Filter Stepper

- Low flow step-style screen
- Designed for smaller processes

Fine Screens

Our fine screens have been independently certified to have among the highest screening capture ratios available. Through flow, center flow and dual flow models capture solids as small as 0.5mm.

Great White Shark
Center Flow Screen

- Low headloss and no carryover
- Ideal for sensitive process protection

Bull Shark
Through Flow Screen

- Proprietary sealing eliminates ragging
- Multiple models and grid types

Dusky Shark
Septage Receiving Station

- All maintenance above tank
- Dual spray wash unloading

Great White Shark
Dual Flow Screen

- Side entrance/rear exit
- Ideal in influent chambers

Screenings Handling

Multiple models are designed for a variety of needs – from simple conveyance to sophisticated washing and compaction. Custom-designed equipment to perfectly complement a plant's screening system.

Whitetip Shark
Washing Compactor

- Collects, transports, washes, dewaters and compacts screenings
- Reduces disposal weight and volume

Thresher Shark
Washing Machine

- Highest capture of inorganics with no emulsification
- Excellent return of organics and fecals to plant

Spinner Shark
Screw Conveyor

- Effective transportation of solids
- Shafted and shaftless flights

Sluice Systems

- Proprietary bolt-on actuated gates available to retrofit existing sluice systems

Grit Removal

Highly efficient all stainless steel grit traps and classifiers effectively remove grit particles at variable flow rates with very little headloss. Durable and rugged equipment easily retrofits existing systems.

Sand Shark
Grit Trap

- Highly efficient vortex-style system
- Sized to trap 95% of 300 micron grit

Sand Shark
Grit Classifier & Hydro-Cyclone

- Specifically designed for de-gritting wastewater
- Elevates, dewaters and disposes grit

Equipment Sizing

Hammerhead
Onsite Screen Sizing

- Proprietary technology to analyze a plant's unique flow to properly design equipment
- Decreases capital and maintenance costs of the entire plant

For detailed product information visit **www.hydro-dyne.com**

Great White Center/Dual Flow Screen

Highest Screenings Capture Ratio Available

- Independently certified[1] highest SCR water/wastewater screen
  - 93.25% with 2mm opening
  - 84% with 6mm opening
- Continuous band screen design eliminates bypass and carryover
- Excellent sensitive process and membrane protection
- Proprietary design features easily capture and offload screenings including rags and stringy material
- All T304 or T316 stainless steel fabrication

About the Great White Center/Dual Flow Screen

The Great White Shark is an apex predator that rules almost every body of water around the world. Like the Great White, our Center/Dual Flow Screen is designed and manufactured at the pinnacle of quality and dominates application environments.

The Great White Center/Dual Flow continuous band screen is designed to handle low-to-high flows and has been independently[1] certified to have the highest screenings capture ratio of all band screens on the market. Dual spray wash, patented grid design, proprietary sealing system and UHMWPE guide links make this an exceptional product for the filtering and offloading of water and wastewater screenings.

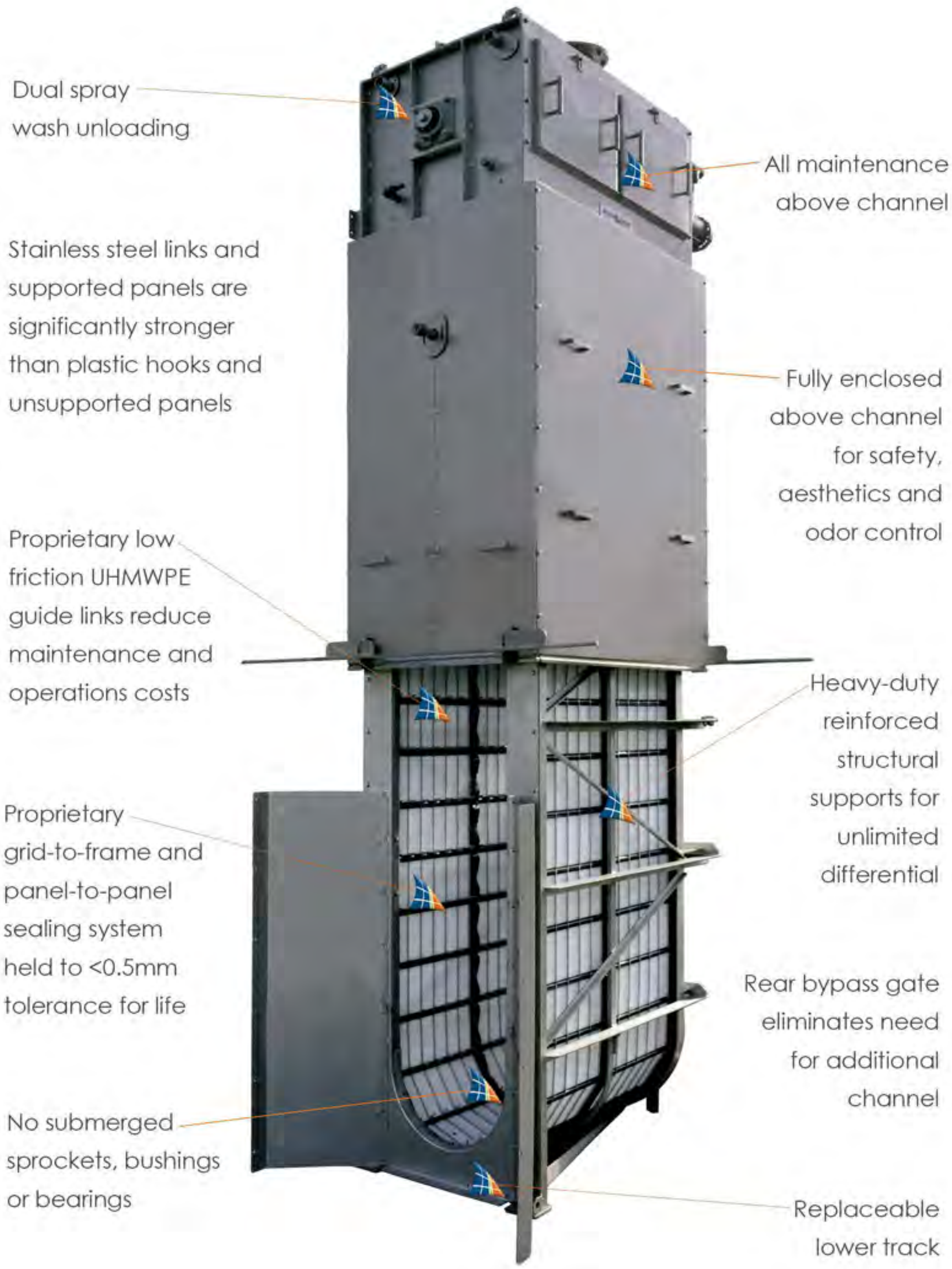
[1] *UK Water Industry Research in National Screen Evaluation Facility Inlet Screen Evaluation Comparative Report (1999-2011)*

To learn more visit: www.hydro-dyne.com
sales@hydro-dyne.com | +1 (813) 818-0777

Coarse Screens | Fine Screens | Screenings Handling | Grit Removal Equipment

Designed and manufactured in U.S.A.
4750 118th Avenue North Clearwater, FL 33762

HYDRO DYNE® ENGINEERING
Designed to Protect. Built to Perform.™



At-a-glance

models

Center Flow (center entrance/side exit)

Dual Flow (side entrance/rear exit)

grid opening range

0.5-25mm

flow capacity

0.1mgd (5 L/s) to 125+mgd (5,500+ L/s)

grid types

Stainless steel laced link

Stainless steel wire mesh

Stainless steel perforated panel

UHMWPE perforated panel

Patented Drive Features

- Grid does not contact drive or unloading mechanism
- Direct drive uses no chains or sprockets
- Fully supports grid for negligible wear
- Fractional hp requirements

Optional Equipment

- Specialty stainless steel construction
- Cold weather/freeze protection
- Basic to sophisticated automation controls
- Sectional construction for restricted area assembly
- Integrated screenings handling equipment
- Electric, hydraulic or explosion-proof drives

To learn more visit: www.hydro-dyne.com

sales@hydro-dyne.com | +1 (813) 818-0777

Coarse Screens | Fine Screens | Screenings Handling | Grit Removal Equipment

Designed and manufactured in U.S.A.

4750 118th Avenue North Clearwater, FL 33762

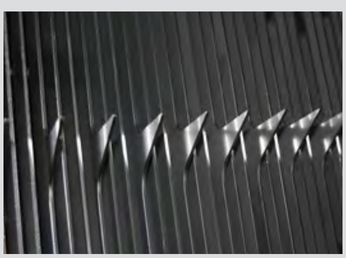
HYDRO DYNE® ENGINEERING

Designed to Protect. Built to Perform.™

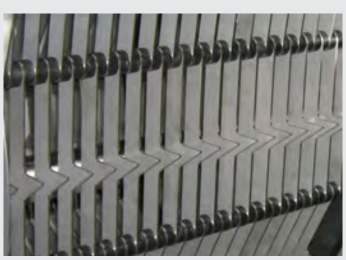
Stainless Steel Laced Links & Bars
Rectangular Openings from 1-300mm

3mm Laced Link

6mm Laced Link



25mm Laced Link



Stainless Steel & UHMWPE Perforated Panels
Round Openings from 1-9mm

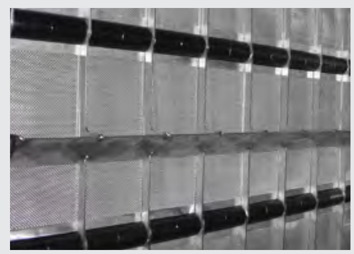
2mm Stainless Steel

5mm Stainless Steel

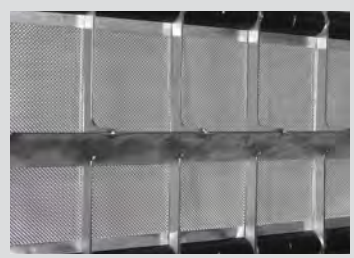
6mm UHMWPE

Stainless Steel Woven Mesh Panels
Square Openings from 0.5-25mm

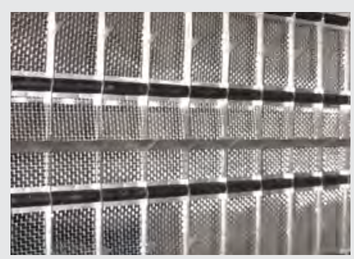
1mm



2mm



6mm



Whitetip Shark Washing Compactors

Robust, High Performing Design to Meet Your Application Needs

- Multiple models and options to suit individual applications
- Designed to collect, dewater, condition, compact and transport screenings from any screen, launder/sluice or conveyor to any waste disposal drop point
- Weight reduction up to 80%
- Screening volume reduction up to 85%
- Organic removal up to 95%
- Dewatered screenings dry solids content up to 40% (depending on material to be dewatered)
- Screenings meet strict landfill requirements (EPA 9095 Paint Filter Test)
- All T304 or T316 stainless steel fabrication
- Heavy duty AR400 Auger for long wear life and ability to crush large objects
- Standard screw diameters: 6", 8", 10", 12" ,16" and 20"

Whitetip Shark Family of Washing Compactors

The Whitetip Shark is a fierce but slow-moving shark, notable for its long, rounded fins which feature an iconic white tip. Hydro-Dyne's family of Whitetip Shark Washing Compactors thoroughly wash and compact screenings to produce the clean, compact white screening plugs they are known for by efficiently returning organics to the channel. Every compactor is custom-designed for individual applications, taking into account the type of flow and solids collected. Multiple models are available to ensure organic material is returned to the treatment plant's process and inorganic materials are separated, cleaned and dewatered in the most effective and efficient way possible. Stainless steel construction with a hardened alloy auger provides an enduring solution to exceed performance and disposal requirements.

To learn more visit: www.hydro-dyne.com
sales@hydro-dyne.com | +1 (813) 818-0777

Coarse Screens | Fine Screens | Screenings Handling | Grit Removal Equipment

Designed & Manufactured in the USA
4750 118th Avenue North Clearwater, FL 33762

ISO 9001:2015 Certified

HYDRO DYNE® ENGINEERING
Designed to Protect. Built to Perform.™

Whitetip Shark Washing Compactor

The Whitetip Shark Washing Compactor features screenings drainage and compaction zones. Stainless steel flights and anti-rotation bars improve compaction and provide reliable equipment performance and life.

- Drainage/Washing
- Compaction

Whitetip Shark with Enhanced Dewatering

The Whitetip Shark Washing Compactor with Enhanced Dewatering features screenings drainage and rinse/ compaction zones. Hardened Alloy screw and AR-400 flights greatly improve compaction and equipment reliability in harsh environments.

- Drainage/Washing
- Rinse/Dewatering
- Compaction

Whitetip Shark with Enhanced Wash/Dewatering

Up to 80% decrease in the total weight of solids output and up to 90% organic removal is achieved by this model with the addition of a washing zone and additional wash cycle. Operation includes a reversing function to the auger and timers so that the screened material is aggressively agitated during a longer wash cycle. Organic material is further broken down and washed back into the system through the drain. Rinse/Dewatering zone thoroughly rinses and compacts captured screenings.

- Drainage/Washing
- Enhanced Washing
- Rinse/Dewatering
- Compaction

Optional Equipment

- Basic rinsing to thorough washing
- Integrated models located within screens
- External models fed via sluice or conveyor
- Trough types: perforated, slotted, wedgewire
- Shafted or shaftless flight
- Electric or hydraulic drive
- Cold weather/freeze protection

Discharge Options

- Dual Bearing: Dewatering
- Reduction Flange: Dewatering and some compaction
- Hinged Gate: Dewatering and compaction
- Press Elbow: Maximum dewater and compaction plus elevation

Screenings Collection Options

- Screenings collection bagging system
- Self-leveling bins
- Stainless steel discharge chute
- Lay flat hose or flexible pipe

To learn more visit: www.hydro-dyne.com
sales@hydro-dyne.com | +1 (813) 818-0777

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Great White Center Flow Screen

36390.06.20

quick facts

location
Kentucky, USA

models
CF32-36-203-6P
WCP10H-5P
Sluice

application
Municipal Wastewater Treatment Plant

peak flow
18 MGD (789 L/s)

grid openings
6 mm - UHMWPE Perforated Panels

screen height
203” (5,156 mm)

screen width
32” (813 mm)

screen depth
36” (914 mm)

Whitetip Shark Washing Compactor
10” (254 mm) diameter

HYDRO DYNE® ENGINEERING
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www.hydro-dyne.com

Great White Center Flow Screen

30660.08.18

quick facts

location
New York, USA

models
CF32-43-363-6L (x2)
WCP10-5S (x2)

application
Municipal Wastewater Treatment Plant

peak flow
20 MGD (876 L/s) each

grid openings
6 mm - Stainless Steel Laced Links

screen height
363” (9,220 mm)

screen width
32” (813 mm)

screen depth
43” (1,092 mm)

Whitetip Shark Washing Compactor
10” (254 mm) diameter

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quick facts

location
Pennsylvania, USA

models
CF23-36-170-3L
WCP6-3S

application
Municipal Wastewater Treatment Plant

peak flow
5 MGD (219 L/s)

grid openings
3 mm - Stainless Steel Laced Link

screen height
170” (4,318 mm)

screen width
23” (584 mm)

screen depth
36” (914 mm)

Whitetip Shark Washing Compactor
10” (254 mm) diameter

optional equipment
- Cold weather/freeze protection

HYDRO DYNE ENGINEERING
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300+ gpm sluice hydraulic capacity test at factory.

Three screens feeding into common sluice at plant during commissioning.

Custom lifting trays specifically designed to remove seagulls.

Screen shown at plant with covers removed.

Common sluice able to isolate duty/standby Whitetip Shark Washing Compactor.

quick facts

location
Rhode Island, USA

models
CF44-57-290-6P (x3)
WCP-12VP-2WW-66 (x2)
Connecting Laundering Sluice

application
Municipal Wastewater Treatment Plant

peak flow
48 MGD (2,103 L/s) each

grid openings
6 mm - UHMWPE Perforated Panels

screen height
290” (7,366 mm)

screen width
44” (1,118 mm)

screen depth
57” (1,448 mm)

Whitetip Shark Washing Compactor (x2)
12” (305 mm) diameter
66” (1,676 mm) length

controls
(5) NEMA 4X UL listed main control panels with T316 stainless enclosures, Micrologix PLCs with ethernet connection, touchscreen HMIs, surge suppression, alarm beacons, current monitors, VFDs and ultrasonic level sensors.

HYDRO DYNE® ENGINEERING
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quick facts

location
Tennessee, USA

models
CF32-55-131-4P (x3)
WCP12-4P (x2)
Sluice

application
Municipal Wastewater
Treatment Plant

peak flow
14 MGD (613 L/s) each

grid openings
4 mm - UHMWPE
Perforated Panels

screen height
131” (3,327 mm)

screen width
32” (813 mm)

screen depth
55” (1,397 mm)

Whitetip Shark
Washing Compactor (x2)
12” (305 mm) diameter

optional equipment
- Cold weather/freeze protection

HYDRO DYNE® ENGINEERING
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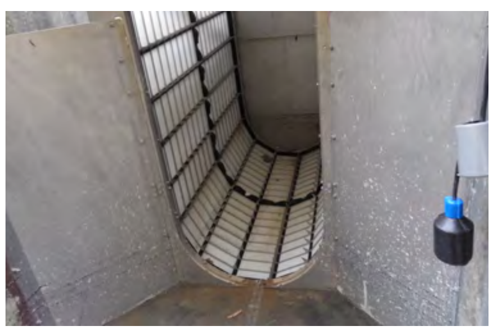
Equipment replaced by Hydro-Dyne.



quick facts

location
Tennessee, USA

models
CF38-61-127-6P (x2)
WCP10-5P (x2)

application
Municipal Wastewater
Treatment Plant

peak flow
20 MGD (876 L/s) each

grid openings
6 mm - UHMWPE
Perforated Panels

screen height
127” (3,226 mm)

screen width
38” (965 mm)

screen depth
61” (1,549 mm)

Whitetip Shark
Washing Compactor
10” (254 mm) diameter

optional equipment
- Cold weather/freeze protection

HYDRO DYNE ENGINEERING
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DESIGN PROPOSAL

Constantia, NY WWTP Sanitaire #a33018-24

Max Month*	MGD	0.40	
Max 4.0hr Cycle Flow	MGD	0.975	
Max 3.0hr Cycle Flow	MGD	1.30	
		mg/l	lb/day
BOD_5 (20°C)		260	867
Suspended Solids		300	1001
TKN		50	167
Total Phosphorus		6	20
Max Wastewater Temperature	°C	20	
Min Wastewater Temperature	°C	8	
Ambient Air Temperature	°F	20 - 90	
Site Elevation	ft	1,000	

*** - Maximum 30 day period mass flow**

Table B: ICEAS® EFFLUENT QUALITY (MONTHLY AVERAGE)

BOD_5 (20°C)	mg/l	15
Suspended Solids	mg/l	15
Total Phosphorus*	mg/l	0.5

*Requires chemical precipitation and tertiary filtration

Table C: ICEAS PROCESS DESIGN CRITERIA

Operating Basins		2
Operating Top Water Level	ft	18.00
F / M	BOD5/DAY/MLSS	0.045
SVI (after 30 minutes settling)	ml/g	150
MLSS at Bottom Water Level	mg/l	5,222
Waste Sludge Produced (Approx.)	lb/day	791
Volume of Sludge Produced (Approx., 0.85% solids)	GPD	11,200
Max Month Decant Rate	GPM	1,128
Peak Decant Rate	GPM	1,505
Hydraulic Retention Time	Days	1.21
Sludge Age	Days	23.2

Sufficient Alkalinity must be provided to maintain basin pH of 6.8

Chemical Dosage (as Alum)	mg/l	50

Bold, italicized text indicate assumptions made by Sanitaire

Cycle Timing

		Max Month*	
		Normal	Min
Air-On	min	120	90
Settle	min	48	36
Decant	min	72	54
Total	min	240	180

Table D: KEY ICEAS DESIGN DETAILS

Top Water Level	ft	18.00
Basin Width (Inside)	ft	27.0
Basin Length (Inside)	ft	77.0
Bottom Water Level	ft	14.29
No. of Sludge Holding Tanks		2
SHT Top Water Level	ft	18.0
SHT Width	ft	28.0
SHT Length	ft	27.0
Sludge Storage Time	days	16

ICEAS EQUIPMENT(Base Design)

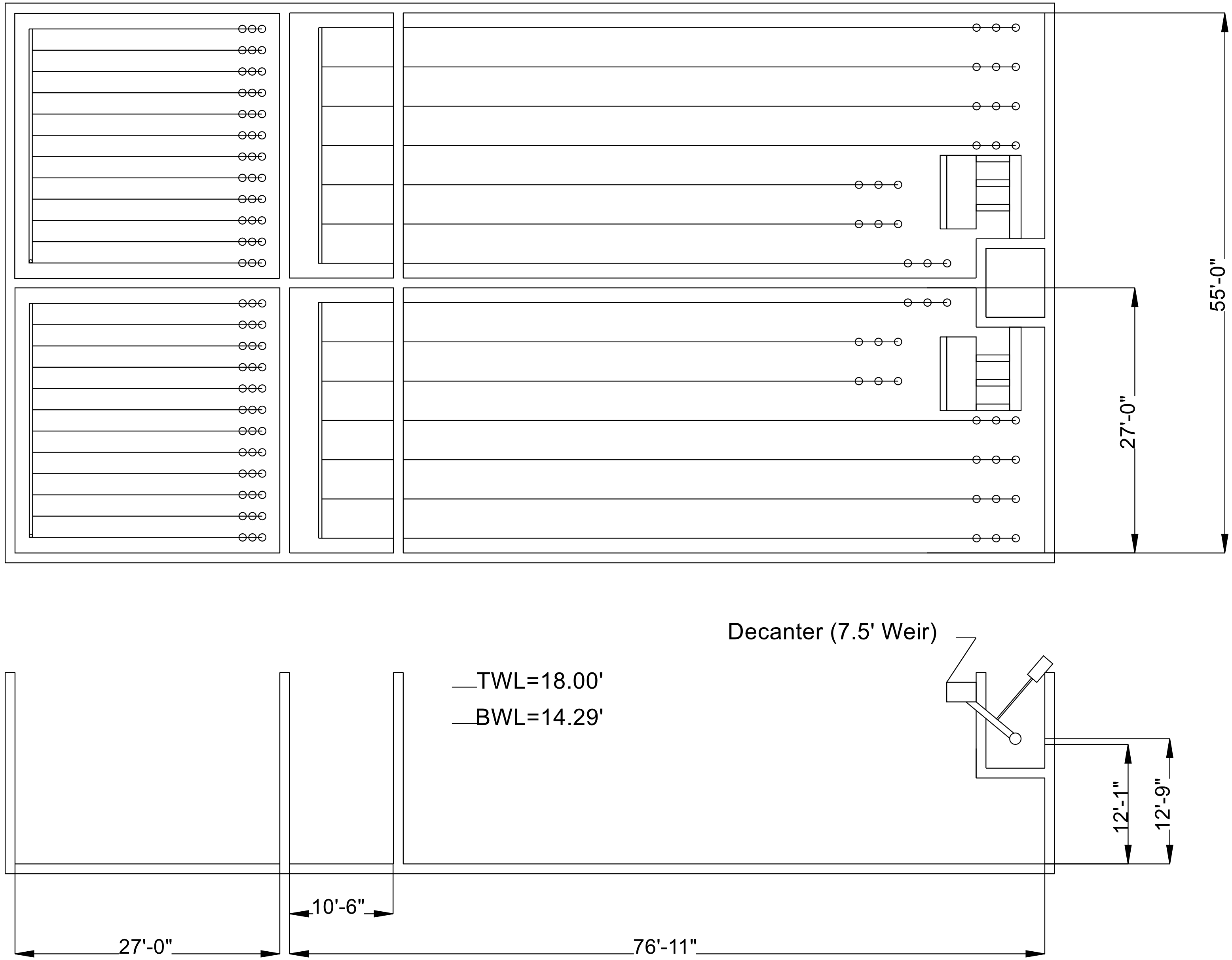
				Motor HP	No. Req.
Decanter Mechanism	7.5	' Weir length			2
Decanter Drive Unit				1/4	2
ICEAS Blower	390	SCFM	8.4 PSIG	30	2
ICEAS Fine Bubble Aeration System	252	Disc Diffusers/Basin			2
Air Control Valve	6	"			2
Waste Sludge Pump	110	GPM		2.4	2
ICEAS Controls					1
SHT Blower	390	SCFM	8.8 PSIG	30	3
SHT Aeration System	264	Disc Diffusers/Basin			2

ICEAS POWER REQUIREMENTS Ma Max Month

				(At Average Aeration Depth)		Kwh/Day
Decant Drive Unit	0.2 BHP	2 run	@		7 Hrs/day	2.1
ICEAS Air Blowers	25.6 BHP	1 run*	@		24 Hrs/day	457.5
Waste Sludge Pump	1.9 BHP	2 run	@		0.8 Hrs/day	2.4
				KWH/DAY		462.0
			AVERAGE	KWH/HR		19.25

* Shared ICEAS Blowers

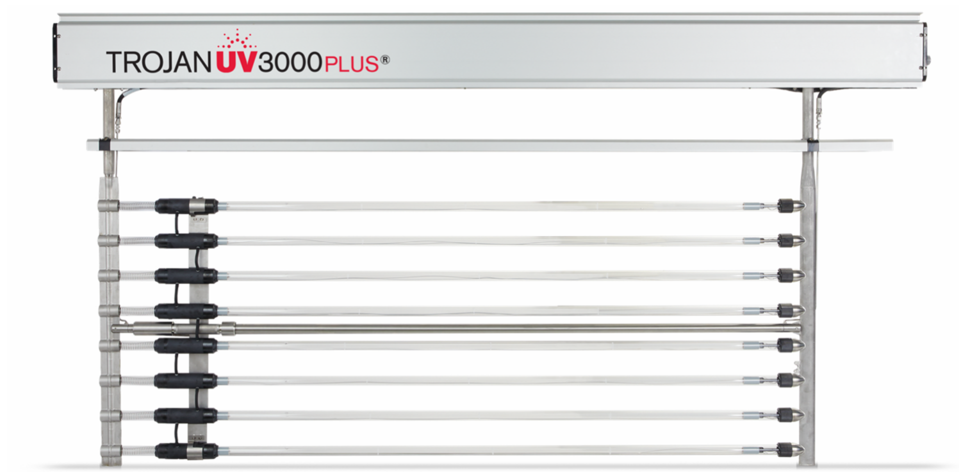
SHT Blower	26.8 BHP	2 run	@		18 Hrs/day	718.60
				KWH/DAY		1,180.60
			AVERAGE	KWH/HR		49.19



PRELIMINARY - THIS DRAWING IS NOT INTENDED FOR CONTRACT DOCUMENTS, SUBMITTALS OR CONSTRUCTION

Sanitaire a xylem brand BROWN DEER, WISCONSIN 53223	CUST NO. DWG NO.	THIS DRAWING IS THE PROPERTY OF XYLEM AND IS SUBMITTED IN CONFIDENCE. IT IS NOT TO BE DISCLOSED, USED OR DUPLICATED WITHOUT PERMISSION OF XYLEM.	Constantia, NY WWTP PRELIMINARY LAYOUT ICEAS System	DRAWN BY TB CHKD BY APPVD BY	DATE 10/11/24 DATE DATE	MODEL	JOB a33018-24 SHEET

TROJAN UV3000PLUS®



BUDGET PROPOSAL:

For: Constantia, NY
Quote: 247472
11/5/2024

John Faber, Trojan Technologies
3020 Gore Road
London, Ontario
(519) 457-3400
jfaber@trojantechnologies.com

Local Representative:
Taylor Bottar, Koester Associates, Inc.
3101 Seneca Turnpike
Canastota, NY
(315) 697-3800

We are pleased to submit this design and quote for the **Constania, NY** project. This quotation is based on the TrojanUV3000Plus® system which provides dependable performance, superior electrical efficiency and simplified maintenance that meets your UV treatment needs.

TrojanUV3000Plus: For over 20 years the TrojanUV3000Plus has been continuously refined to include innovative features that have enhanced easy operation and reduced O&M costs. The latest generation product released in 2022 continues to enhance and focus on the features our customers value which is why the TrojanUV3000Plus has been trusted to deliver reliable performance at over 2500 sites globally. Every system includes the following highlighted features:

Validated Performance & A Lifetime Performance Guarantee: Real-world microbial testing on an actual working system is the basis for sizing and design of the TrojanUV3000Plus. Validated data combined with deep domain experience allows us to be the only UV provider that stands behind our systems with a Lifetime Performance Guarantee. Our systems are independently third-party bioassay validated to USEPA and NWRI guidelines. The system relies on an extended lamp warranty with a validated end-of-lamp-life of 98% output after 12,0000 hours and our unique ActiClean® system that is validated to maintain 95% of sleeve transmittance. Get peace of mind with trusted design and performance to meet your treatment requirements.

Automatic Lamp Sleeve Cleaning: Unique in the industry, the the TrojanUV3000Plus uses both mechanical wiping and chemical cleaning which cleans 50% more effectively than mechanical wiping. Automatic chemical and mechanical cleaning means operations are uninterrupted by offline cleans and can rely on consistent UV Dose delivery with the ActiClean system.

Integra™ Lamp Assembly: Built around our high-efficiency stable output 250W amalgam lamp and ballast technology, Trojan Technologies' newest breakthrough is a patented and unique fully sealed integrated lamp and sleeve assembly. The entire assembly is water-tight, with a fewer number of parts to manage, no special handling and a reduction in lamp installation time by more than 50%.

Modular Design: The scalable architecture and modular design ensure efficient and reliable performance and ease of maintenance. Precise sizing and easy expandability can simplify future expansion needs with less upfront costs. The advanced, self-contained UV Module arrives at site factory assembled and tested to reduce installation costs, complexity, and start-up issues. The UV module has been designed to protect cables, lamps and electronic ballasts from effluent and UV light while using convective natural cooling to ensure lasting performance at a lower total cost of ownership.

Support and Service: Your partner in UV treatment, owners and operators have access to free technical service assistance 24/7 through a toll-free number. Leverage the experience of Trojan Technologies with guided troubleshooting, local service, analytical services, in-stock replacement parts and our global network of trained & certified technicians.

We look forward to working with you on this project. We hope that our experience and expertise along with the trusted TrojanUV3000Plus system enable you to provide Water Confidence to your customers and their community.

Design Criteria

Peak Design Flow:	**1505 GPM**
UV Transmittance:	**65 %** (minimum)
Total Suspended Solids:	**30 mg/l** (30-Day Average, grab sample)
Treatment Limit:	**200 Fecal Coliform per 100 ml** (30-Day Geometric Mean; grab sample)
Design Dose:	**>30 mJ/cm^2** (bioassay validated per NWRI 2003)
Equipment Redundancy:	**100%** (1 duty + 1 standby bank at peak flow)

Design Summary

QUOTE: 247472

Based on the above design criteria, the TrojanUV3000Plus® proposed consists of:

CHANNEL (Please reference Trojan layout drawings for details.)	
Number of Channels:	**1**
Approximate Channel Length Required:	**30 ft**
Channel Width Based on Number of UV Modules:	**16 in**
Channel Depth Recommended for UV Module Access:	**54 in**
UV MODULES	
Total Number of Banks:	**2 (1 duty + 1 standby at peak flow)**
Number of Modules per Bank:	**4**
Number of Lamps per Module:	**6**
Total Number of UV Lamps:	**48**
Maximum Power Draw:	**12 kW**
UV PANELS	
Power Distribution Center Quantity:	**2**
System Control Center Quantity:	**1**
MISCELLANEOUS EQUIPMENT	
Level Controller Quantity:	**1**
Type of Level Controller:	**Serpentine Weir**
Automatic Chemical / Mechanical Cleaning:	**Trojan ActiClean-WW™**
UV Module Lifting Device:	**UV Module Lifting Sling**
Standard Spare Parts / Safety Equipment:	**Included**
Start Up & Freight:	**Included**

ELECTRICAL REQUIREMENTS
• Each Power Distribution Center requires an electrical supply of one (1) 480Y/277V, 3 Phase, 4 Wire + Ground, 6.2 kVA. • The Hydraulic System Center requires an electrical supply of one (1), 480V, 3 Phase, 3 Wire + Ground, 2.5 kVA. • The System Control Center requires an electrical supply of one (1) 120V 1 Phase, 2 Wire + Ground, 1.5 kVA. • Electrical disconnects required per local code are not included in this proposal.

Commercial Information

Total Capital Cost:	**$193,000 (USD)**

This price excludes any taxes that may be applicable and is valid for 90 days from the date of this letter.

Equipment Warrantees

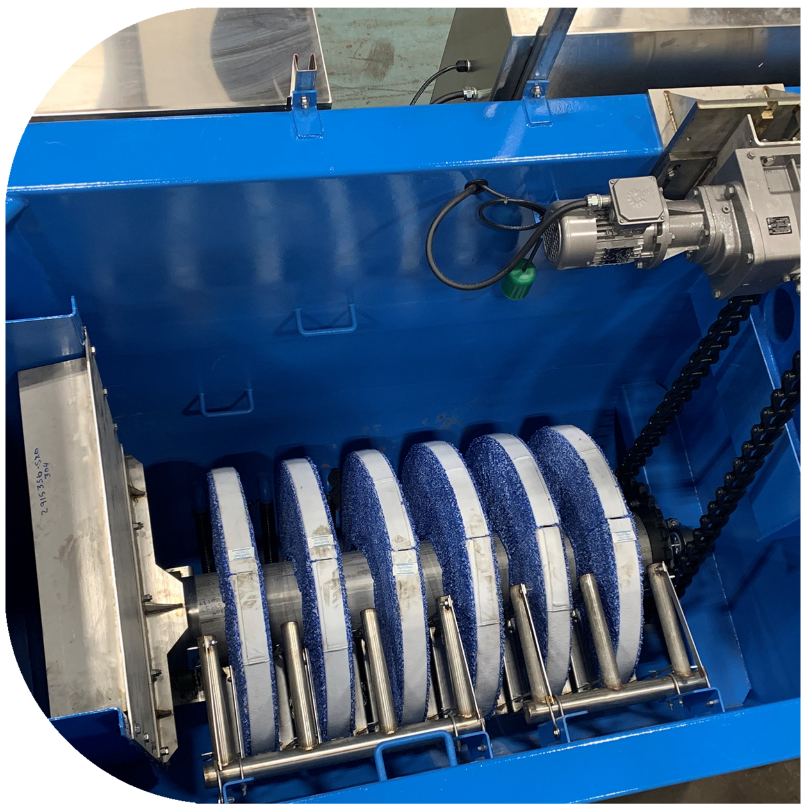
1. Trojan Technologies warrants all components of the system (excluding UV lamps) against faulty workmanship and materials for a period of 12 months from date of start-up or 18 months after shipment, whichever comes first.
2. UV lamps purchased are warranted for 12,000 hours of operation or 3 years from shipment, whichever comes first. The warranty is pro-rated after 9,000 hours of operation. This means that if a lamp fails prior to 9,000 hours of use, a new lamp is provided at no charge.
3. Electronic ballasts are warranted for 5 years, pro-rated after 1 year.

AQUA-AEROBIC SYSTEMS, INC.
A Metawater Company

Process Design Report

CONSTANTIA WWTP NY

Design# 177916
Option: Preliminary Filter Design



Aqua MiniDisk®

Cloth Media Filter

January 03, 2025
Designed By: Meera Manoharan

6306 N. Alpine Rd Loves Park, IL 61111
(815) 654-2501 www.aqua-aerobic.com

Flow Considerations

- The maximum flow has been assumed to be equal to the average flow.

Process/Site

- To achieve the effluent monthly average total phosphorus limit, the biological process, chemical feed systems, and Cloth Media Filters need to be designed to facilitate optimum performance.

- A minimum of twelve (12) daily composite samples per month (both influent and effluent) shall be obtained for total phosphorus analysis.

- Secondary effluent phosphorus shall be in a reactive phosphate form and/or a filterable particulate form.

- Chemical feed lines (i.e. metal salts) shall be furnished to each reactor, aerobic digester and dewatering supernatant streams as necessary. Metal salts shall be added to each reactor during the React phase of the cycle.

- Chemical addition (i.e. metal salts, and/or polymer) shall be furnished prior to the filter. Adequate rapid mixing must be provided as part of the chemical feed system. The chemical dosage should be flow-paced and controlled to avoid overdosing. Jar testing with various metal salts and polymers is recommended to determine the most effective metal salt and polymer as well as the optimum dosages of each, and to estimate the degree of phosphorus removal that can be achieved. In addition, a pilot study may be required to verify the actual performance capability.

- A flocculation tank with a minimum of 5-minute HRT at the maximum daily flow shall be furnished after chemical addition and prior to the filter.

- pH monitoring and control in a range of 6.8-7.2 of the biological reactor is required when adding metal salts.

- The cloth media filter will only remove TP that is associated with the TSS removed by the filter. Since only insoluble, particle-associated phosphorous is capable of being removed by filtration, phosphorous speciation shall be provided by the owner to substantiate the concentrations of soluble and insoluble phosphorous in the filter influent. If the proportions of soluble (unfilterable) and insoluble phosphorous are such that removal to achieve the desired effluent limit is not practical, the owner will provide for proper conditioning of the wastewater, upstream of the filter system, to allow for the required removal.

- The average and maximum design flows and loading conditions, shown within the report, are all based on average day conditions.

Filtration

- The cloth media filter recommendation and anticipated effluent quality are based upon influent water quality conditions as shown under "Design Parameters" of this Process Design Report.

- The filter influent should be free of algae and other solids that are not filterable through a nominal 5 micron pore size media. Provisions to treat algae and condition the solids to be filterable are the responsibility of others.

- The cloth media filter has been designed to handle the maximum design flow while maintaining one unit out of service.

- The cloth media filter will only remove BOD5 that is associated with the TSS removed by the filter.

Equipment

- Scope of supply includes freight, installation supervision and start-up services.

- Equipment selection is based upon the use of Aqua-Aerobic Systems' standard materials of construction and electrical components, suitable for non-classified electrical environments.

- Aqua-Aerobic Systems, Inc. is familiar with various “Buy American” Acts (i.e. BABA, AIS, ARRA, Federal FAR 52.225, EXIM Bank, USAid, PA Steel Products Act, etc.). As the project develops Aqua-Aerobic Systems can work with you to ensure full compliance of our goods with various Buy American provisions if they are applicable/required for the project. When applicable, please provide us with the specifics of the project’s “Buy American” provisions.

- If the cloth media filter will be offline for extended periods of time, protection from sunlight is required.

AquaDisk® Tertiary Filtration - Design Summary

Project: CONSTANTIA WWTP NY

Option: Preliminary Filter Design

Designed by Meera Manoharan on Friday, January 3, 2025

AQUA-AEROBIC SYSTEMS, INC.
A Metawater Company

DESIGN INFLUENT CONDITIONS

Pre-Filter Treatment:	Secondary		
Avg. Design Flow	= 0.40 MGD	= 277.78 gpm	= 1514.16 m³/day
Max Design Flow	= 0.40 MGD	= 277.78 gpm	= 1514.16 m³/day

DESIGN PARAMETERS

			Effluent			
	Influent	mg/l	Required	<= mg/l	Anticipated	<= mg/l
Avg. Total Suspended Solids:	TSSa	15	--	--	TSSa	5
Max. Total Suspended Solids:	TSSm	15	--	--	--	--
Phosphorus:	Total P	0.50	--	--	Total P	0.13
Bio/Chem Oxygen Demand:	BOD5	15	--	--	BOD5	10

AquaDisk FILTER RECOMMENDATION

Qty Of Filter Units Recommended	= 2
Number Of Disks Per Unit	= 8
Total Number Of Disks Recommended	= 16
Total Filter Area Provided	= 172.8 ft² = (16.05 m²)
Filter Model Recommended	= AquaDisk Package: Model ADFSP-11-8E-PC
Filter Media Cloth Type	= OptiFiber PES-14®

AquaDisk FILTER CALCULATIONS

Filter Type:

Vertically Mounted Cloth Media Disks featuring automatically operated vacuum backwash . Tank shall include a rounded bottom and solids removal system.

Average Flow Conditions:

Average Hydraulic Loading
= Avg. Design Flow (gpm) / Recommended Filter Area (ft²)
= 277.8 / 172.8 ft²
= 1.61 gpm/ft² (3.93 m/hr) at Avg. Flow

Maximum Flow Conditions:

Maximum Hydraulic Loading
= Max. Design Flow (gpm) / Recommended Filter Area (ft²)
= 277.8 / 172.8 ft²
= 1.61 gpm/ft² (3.93 m/hr) at Max. Flow

Solids Loading:

Solids Loading Rate
= (lbs TSS/day at max flow and max TSS loading) / Recommended Filter Area (ft²)
= 50 lbs/day / 172.8 ft²
= 0.29 lbs. TSS /day/ft² (1.41 kg. TSS/day/m²)

The above recommendation is based upon the provision to maintain a satisfactory hydraulic surface loading with (1) unit out of service. The resultant hydraulic loading rate at the Maximum Design Flow is: 3.2 gpm / ft² = (7.9 m/hr)

Cloth Media Filters

AquaDisk Tanks/Basins

2 AquaDisk Model # ADFSP-11x8E-PC Package Filter Painted Steel Tank(s) consisting of:

- 8 Disk painted steel tank(s).
- 2" ball valve(s).

AquaDisk Centertube Assemblies

2 Cloth set(s) will have the following feature:

- Cloth will be chlorine resistant.

2 Centertube(s) consisting of:

- 304 stainless steel centertube weldment(s).
- Centertube driven sprocket(s).
- Dual wheel assembly(ies).
- Rider wheel bracket assembly(ies).
- Centertube bearing kit(s).
- Effluent centertube lip seal.
- Pile cloth media and non-corrosive support frame assemblies.
- 304 Stainless steel frame top plate(s),
- Media sealing gaskets.
- Disk segment 304 stainless steel support rods.

AquaDisk Drive Assemblies

2 Drive System(s) consisting of:

- Gearbox with motor.
- Drive sprocket(s).
- Drive chain(s) with pins.
- Stationary drive bracket weldment(s).
- Adjustable drive bracket weldment(s).
- Chain guard weldment(s).
- Warning label(s).

AquaDisk Backwash/Sludge Assemblies

2 Backwash System(s) consisting of:

- Backwash shoe assemblies.
- Includes enhanced backwash shoe design.
- Backwash shoe support weldment(s).
- 1 1/2" flexible hose.
- Stainless steel backwash shoe springs.
- Hose clamps.

2 Backwash/Solids Waste Pump(s) consisting of:

- Backwash/waste pump(s).
- 0 to 15 psi pressure gauge(s).
- 0 to 30 inches mercury vacuum gauge(s).
- Throttling gate valve(s).
- 2" bronze 3 way ball valve(s).

AquaDisk Instrumentation

2 Pressure Transmitter(s) consisting of:

- Level transmitter(s).

2 Float Switch(es) consisting of:

- Float switch(es).

2 Vacuum Transmitter(s) consisting of:

- Vacuum transmitter(s).

AquaDisk Valves

2 Solids Waste Valve(s) consisting of:

- 2" full port, three piece, stainless steel body ball valve(s), grooved end connections with single phase electric actuator(s). Valve / actuator combination shall be TCI / RCI (RCI, a division of Rotork).
- 2" flexible hose.
- Victaulic coupler(s).

2 Set(s) of Backwash Valves consisting of:

- 2" full port, three piece, stainless steel body ball valve(s), grooved end connections with single phase electric actuator(s). Valve / actuator combination shall be TCI / RCI (RCI, a division of Rotork).
- 2" flexible hose.
- Victaulic coupler(s).

AquaDisk Controls w/Starters

2 Control Panel(s) consisting of:

- NEMA 4X fiberglass enclosure(s).
- Circuit breaker with handle.
- Transformer(s).
- Fuses and fuse blocks.
- Line filter(s).
- GFI convenience outlet(s).
- Control relay(s).
- Selector switch(es).
- Indicating pilot light(s).
- Compactlogix Processor.
- Power supply(s).
- Input card(s)
- Output card(s).
- Analog input card(s).
- Ethernet switch(es).
- Operator interface(s).
- Power supply(ies).
- Motor starter(s).
- Terminal blocks.
- UL label(s).

2 Conduit Installation(s) consisting of:

- PVC conduit and fittings.

APPENDIX L
Estimated Project Cost – Treatment Alternatives

TOWN OF CONSTANTIA LOW PRESSURE COLLECTION SYSTEM IMPROVEMENTS
ESTIMATE OF PROBABLE PROJECT COST

2025 PER - Treatment Alternative 1 (SOCRIS Connection)

B&L JOB NO.:	221.005.003
ESTIMATED BY:	DCP
CHECKED BY:	DJC

Item No.	Description	Unit	Estimated Quantities	Engineers Estimate	
				Unit Price	Total Cost
1	Mobilization/Demobilization (not to exceed 4% of construction costs)	LS	1	$ 62,000.00	$ 62,000.00
2	Town Sewer Facility Building	SF	2,400	$ 500.00	$ 1,200,000.00
3	SOCRIS PS	LS	1	$ 300,000.00	$ 300,000.00
4	Field Order Allowance	EA	1	$ 50,000.00	$ 50,000.00
	Construction Subtotal (2025 Dollars)			$	1,612,000.00
	Construction Subtotal (2028 Dollars)(1)(2)			**$**	**1,800,000.00**

(1) Final estimated amount rounded to nearest hundred thousand dollar.
(2) 2025 Construction estimate inflated 3% per year for 3 years to represent midpoint of construction in 2028.

TOWN OF CONSTANTIA WASTEWATER TREATMENT PLANT IMPROVEMENTS
ESTIMATE OF PROBABLE PROJECT COST

2025 PER - Treatment Alternative 2 (Town WWTP)

B&L JOB NO.: 221.005.003
ESTIMATED BY: DCP
CHECKED BY: DJC

Description	Unit	Estimated Quantity	Engineers Estimate Unit Price	Engineers Estimate Total Cost
Mobilization/ General Conditions (not to exceed 4%)	LS	1	$722,000	$722,000
Admin/ Headworks				
Excavation	LS	1	$100,000	$100,000
Admin Building	LS	1	$700,000	$700,000
Influent Conc. Channel	LS	1	$50,000	$50,000
Influent Screen w/washer compactor & conveyor	LS	1	$600,000	$600,000
Influent Metering and Pipe Bypass	LS	1	$100,000	$100,000
Coagulant Feed System	LS	1	$100,000	$100,000
Lab Equipment	LS	1	$200,000	$200,000
Process Piping	LS	1	$50,000	$50,000
SBR Complex				
Excavation/Dewatering/Shoring	LS	1	$250,000	$250,000
Concrete Tankage	LS	1	$2,400,000	$2,400,000
SBR Equipment (includes blowers, diffusers, WAS pumps)	LS	1	$2,000,000	$2,000,000
Post EQ Pumps	LS	1	$100,000	$100,000
Metal Furnishings (Stairs, Handrails, Gates, etc.)	LS	1	$200,000	$200,000
Process Piping and Valve Allowance	LS	1	$150,000	$150,000
Advanced Treatment Building				
Excavation/Dewatering/Shoring	LS	1	$100,000	$100,000
ATB Construction	SF	3000	$450	$1,350,000
Pad Mounted UV Equipment	LS	1	$600,000	$600,000
Filter/UV Piping and Valves	LS	1	$100,000	$100,000
Cloth Media Filters	LS	1	$1,500,000	$1,500,000
Metal Furnishings (Stairs, Handrails, Gates, etc.)	LS	1	$100,000	$100,000
Screw Press (Skid Mounted), Polymer Feed, Conveyor, Vertical Thickener	LS	1	$1,300,000	$1,300,000
Sludge Feed Pump & VFD	LS	1	$60,000	$60,000
Sludge Process Piping and Valve Allowance	LS	1	$75,000	$75,000
Aerobic Digester				
Excavation/Dewatering/Shoring	LS	1	$75,000	$75,000
Digester Tankage	LS	1	$300,000	$300,000
Digester Process Equipment (Diffusers, Blowers, Instruments)	LS	1	$500,000	$500,000
Blower Air Piping and Support	LS	1	$100,000	$100,000
Metal Furnishings	LS	1	$100,000	$100,000
Yard Piping	LS	1	$75,000	$75,000
Site/Civil				
Install Gravity Outfall to Lake Shoreline	LS	1	$500,000	$500,000
In-Lake Outfall and Diffuser Structure	LS	1	$500,000	$500,000
Yard Piping Allowance	LS	1	$250,000	$250,000
Clearing	LS	1	$100,000	$100,000
Fencing	LS	1	$100,000	$100,000
Erosion and Sediment Control	LS	1	$75,000	$75,000
Site Restoration (Paving, Sidewalks, etc.)	LS	1	$200,000	$200,000
Emergency Generator and Pad	LS	1	$250,000	$250,000
Miscellaneous				
Misc. Instrumentation and Controls	LS	1	$400,000	$400,000
Electrical Service, Distribution, Wiring	LS	1	$1,000,000	$1,000,000
Process Electrical	LS	1	$1,000,000	$1,000,000
Field Order Allowance	LS	1	$350,000	$350,000
Construction Subtotal (2025 Dollars)				$18,782,000
Construction Subtotal (2028 Dollars)(1)(2)				**$20,500,000**

(1) Final estimated amount rounded to nearest hundred thousand dollar.
(2) 2025 Construction estimate inflated 3% per year for 3 years to represent midpoint of construction in 2028

APPENDIX M
CWSRF Project Score Sheet

NEW YORK STATE OF OPPORTUNITY | Environmental Facilities Corporation

625 Broadway Albany
New York 12207-2997
(518) 402-7085 (p)
(518) 402-7086 (f)
www.efc.ny.gov/CWSRF

New York Clean Water State Revolving Fund

Project Scoring Criteria

EFC scores CWSRF eligible projects in Categories A, B, C, D, and E using the criteria stated in 6 NYCRR § 649.13. The criteria are summarized as follows:

A. Existing Source
B. Water Quality Improvement
C. Consistency With Management Plans
D. Intergovernmental Needs
E. Financial Need *(municipal projects only)*
F. Economic Need

The total numerical score for the project or project segment being scored shall be the sum of the applicable scores for criteria A, B, C, D, E and F.

The project score(s) will be computed based on information in the approved or approvable facilities plan, engineering report, or other equivalent document. Projects without approved or approvable facilities plans or engineering reports will be scored based on information from other sources and adjusted when a facilities plan or engineering report is determined to be approvable or is approved. Projects must be adequately supported by technical documentation, data, reports, etc.

> *NOTE: For purposes of project scoring, the term* ***wastewater*** *shall mean any water that contains pollutants that may cause or reasonably be expected to cause pollution of the waters of the state in contravention of the standards adopted, as provided under Article 17 of the Environmental Conservation Law. This includes, as a minimum, sewage, nonpoint source, stormwater, septage, and other pollutants.*

A. Existing Source Criterion

The project receives a score based on whichever of the factors (1-5) listed below best describes the source of pollution associated with the impairment of use, scored under criterion B, which may be resolved by the project.

Factor	Points
1. A critical source of pollution a. A raw, partially treated or intermittent point or nonpoint source causing or significantly contributing to a priority water problem which has been identified on Priority Waterbodies List (PWL) as “precluded” or “impaired” or is resulting in documented use impairment of surface and/or groundwater quality equivalent to “precluded” or “impaired”, or b. A source from which bioaccumulative chemicals of concern (BCCs) would be reduced or eliminated.	50
2. A significant source of pollution A raw, partially treated or intermittent point or nonpoint source causing or significantly contributing to a priority water problem which has been identified on Priority Waterbodies List (PWL) as “stressed” or “threatened” or causing a documented use impairment of surface and/or groundwater quality equivalent to “stressed” or “threatened”.	25
3. A potential source of pollution a. A point or nonpoint source causing or significantly contributing to a water use impairment that is not identified on the Priority Waterbodies List (PWL) nor causing a documented use impairment or surface water or groundwater quality, or b. A point or nonpoint source project necessary to maintain or protect existing facilities, conditions or water quality.	10
4. Other A point or nonpoint source project that was necessary to preserve, protect and/or improve surface and/or groundwater quality from a source of pollution identified in 1, 2, or 3 above and which construction was complete as defined in section 649.2(a)(9) of this Part prior to being listed in a final IUP.	5
5. None of the above.	0

B. Water Quality Improvement Criterion (WQIC)

The WQIC is determined by the following three factors: 1) Classification Points Factor (CPF); 2) Impairment Factor (IF); and 3) Potential Improvement Factor (PIF). Based on the existing source identified for criterion A, points are allotted to a project on the basis of the State-assigned classification of the receiving water at the point of discharge, or where higher, the classification of downstream surface waters, the use of which is impacted or potentially impacted by the existing discharge. The points are modified depending upon the severity of impairment of the desired best usage of the receiving water and the potential for the proposed project to improve water quality.

The WQIC is calculated using the following equation: WQIC = CPF x IF x PIF

1. Classification Points Factor (CPF)

Points are allotted to a project on the basis of the State-assigned classification of the receiving water at the point of discharge, or where higher, the classification of downstream surface waters, the use of which is impacted or potentially impacted by the existing discharge.

Classification	Description	Points
AA, SA, GA (primary water supply aquifer), AA special	Specially protected high quality drinking water and shellfish.	8
A, A special, GA (other), GSA	Other drinking water.	6
B, SB, C(T)[1], C(TS)	Contact recreation, trout and trout propagation.	4
C[2], SC, I	Other fishing.	3
D, SD, GSB	Other water uses.	2
	Impairment of resources which have important environmental quality impacts such as odor, sludge disposal, sewer maintenance equipment, etc. or for a project which received a score under Existing Source Criterion, Factor 4.	
	No resource is impaired.	0

[1] (T) and (TS) indicate the application of standards to protect trout and trout spawning, respectively.
[2] Classification C without (T) or (TS) appended.

2. Impairment Factor (IF)

Points are allotted to a project based on the severity of impairment of the desired best usage of the affected surface water or groundwater caused by the existing discharge, as indicated in the Priority Waterbodies List (PWL), or verifiable documentation of the surface water and/or groundwater impairment.

Impairment	Definition	Points
Precluded	A use is not possible *(i.e., frequent/persistent water quality or quantity conditions prevents all aspects of the waterbody use).*	6
Impaired	A use cannot be fully met *(i.e., occasional water quality or quantity conditions periodically prevent or discourage the use of the waterbody).*	4
Stressed	A water quality problem is evident, but impairment is not clearly demonstrated *(i.e., waterbody uses are not significantly limited or restricted, but occasional water quality or quantity conditions periodically discourage the use of the waterbody).*	2
Threatened or None	There is a threat to future water quality but no existing evidence of impairment *(i.e., water quality currently supports waterbody uses, however, existing or changed land use patterns may result in restricted use)* or if a project maintained or protected water quality and was complete as defined in section 649.2(a)(9) of this Part prior to being listed in a final IUP.	1

3. Potential Improvement Factor (PIF)

Points are allotted to the project based on the potential for the project to improve water quality.

Factor	Points
1. Degree of impairment reduced by three levels *(i.e., from "Precluded" to "Threatened or None").*	4
2. Degree of impairment reduced by two levels *(i.e., from "Precluded" to "Stressed" or from "Impaired" to "Threatened or None").*	3
3. Degree of impairment reduced by one level *(i.e., from "Precluded" to "Impaired", from "Impaired" to "Stressed", or from "Stressed" to* "Threatened or None").	2
4. No reduction in impairment level.	1

C. Consistency With Management Plan Criterion

Factor	Points
1. A project that: (a) significantly addresses the highest priority water quality problem or solution identified in one of the following management plans: Peconic Estuary CCMP, South Shore Estuary Reserve CMP, Long Island Sound CCMP, New York/New Jersey Harbor CCMP, Hudson River Estuary Plan, Lake Champlain Management Plan, Onondaga Lake Plan, or Great Lakes Program, or (b) is a land acquisition project whose primary purpose is to protect water quality, and that has been included as a priority in the most recent State Open Space Conservation Plan prepared pursuant to article 49-0207 of the ECL.	15
2. A project that: (a) significantly addresses the secondary or priority water quality problem or solution identified in one of the following management plans: Peconic Estuary CCMP, South Shore Estuary Reserve CMP, Long Island Sound CCMP, New York/New Jersey Harbor CCMP, Hudson River Estuary Plan, Lake Champlain Management Plan, Onondaga Lake Plan, or Great Lakes Program, or (b) is a land acquisition project whose secondary purpose is to protect water quality, and that has been included as a priority in the most recent State Open Space Conservation Plan prepared pursuant to article 49-0207 of the ECL.	10
3. A project which is consistent with water quality policies or recommendations in the New York State Nonpoint Source Management Plan, the State's Open Space Conservation Plan or in a DEC approved watershed management plan.	5
4. None of the above.	0

Points may be allocated under C.1, C.2, C.3 or C.4.

D. Intergovernmental Needs Criterion

1. Intergovernmental Needs

Factor	Points
a. A project to abate water pollution, which is required by an executed enforcement instrument or required by a SPDES permit to be undertaken.	25
b. A project that will maintain or protect the integrity of existing wastewater treatment facilities to insure continued SPDES compliance.	10
c. A land acquisition project that is identified as a high priority for acquisition in the most recent State Open Space Conservation Plan, prepared pursuant to Article 49-0207 of the ECL.	5
d. None of the above.	0

Points may be allocated under either 1.a, 1.b, 1.c or 1.d.

2. Construction Start

Factor	Points
A project that has commenced construction, as defined in section 649.2(a)(8) of this Part.	5

E. Financial Need Criterion *(municipal projects only)*

Factor	Points
If a project receives points under *A - Existing Source Criterion* and *B - Water Quality Improvement Criterion*, or *D.1.a - Enforcement Status Criterion* and the Median Household Income (MHI) of the recipient in which the project service area is located is below the Statewide MHI, the project receives 10 points for financial need.	10

The MHI of the recipient in which the project service area is located and the Statewide MHI will be determined from income data in the most recent United States census. If there is reason to believe that the census data are not an accurate representation of the MHI within the area to be served, the reasons must be documented and the applicant will furnish, or the department may obtain, additional information regarding the MHI. Information will consist of reliable data from local, regional, State or Federal sources or from an income survey.

F. Economic Need Criterion

Factor	Points
1. If a project receives points under *A – Existing Source Criterion* and *B - Water Quality Improvement Criterion*, or *D.1.a - Enforcement Status Criterion*, and the project is located in or serving an Empire Zone, the project receives 10 points for economic need.	10
2. If a land acquisition project has received a commitment for purchase by State as part of its most recent Open Space Conservation Plan, prepared pursuant to article 49-0207 of the ECL, the project receives 5 points for economic need.	5

Tie Breaking

In the event of equal total scores, preference shall be given: first to the project having the highest existing condition criterion raw score; then, if not resolved, to the project receiving the highest water quality improvement points; and finally to the project serving the greatest population. Projects are listed in the Annual Project Priority List in accordance with these criteria.

CWSRF Project Score Sheet

CWSRF Project Number: C 7-6 3 5 6-0 2-0 0

Applicant Name: ____________________

DEC Region: 7 County: Oswego Project Category: ____________

Project Description: Construction of new low-pressure sewer collection system

Total Project Cost: $ 61,782,000

Construction Start Date *(Target or Actual T/A)*: 4 / 1 / 2028

Comments: ____________________

A.	EXISTING CONDITIONS CRITERION Paragraph # 3.a	(0-50 pts)		A. 10
B.	WATER QUALITY IMPROVEMENT CRITERION (WQIC)			
	Drainage Basin Code: 0414020208			
	Receiving Water Name: ONEIDA LAKE			
	Classification Points Factor (CPF)	(0 to 8)	4	
	Impairment Factor (IF)	(1 to 6)	4	
	Potential Improvement Factor (PIF)	(1 to 4)	1	
	WQIC = CPF x IF x PIF =			B. 16
C.	MANAGEMENT PLAN CONSISTENCY CRITERION Paragraph # 1.a	(0-15 pts)		C. 15
D.	INTERGOVERNMENTAL NEEDS CRITERION *(check all that apply)*			
	D1. Enforcement or Management Plan	(0-25 pts)	D1. 0	
	D2. Construction Started	(0 or 5 pts)	D2. 0	D. 0
E.	FINANCIAL NEED CRITERION Median Household Income	(0 or 10 pts)	10	E. 10
F.	ECONOMIC NEED CRITERION			
	Included in Empire Zone	(0-10 pts)	0	
	NYS Open Space Plan	(0-5 pts)	0	F. 0

CORE PROJECT SCORE (A+B+C+D+E+F): 51

IS THIS PROJECT INCLUDED IN A PROJECT FINANCING AGREEMENT (PFA)?			
	No	(0 pts)	0
	Yes - STF	(1000 pts)	
	Yes - LTS	(2000 pts)	

TOTAL PROJECT SCORE (A+B+C+D+E+F+PFA): 51

APPENDIX N
Engineering Report Certification

Engineering Report Certification

During the preparation of this Engineering Report, I have studied and evaluated the cost and effectiveness of the processes, materials, techniques, and technologies for carrying out the proposed project or activity for which assistance is being sought from the New York State Clean Water State Revolving Fund. In my professional opinion, I have recommended for selection, to the maximum extent practicable, a project or activity that maximizes the potential for efficient water use, reuse, recapture, and conservation, and energy conservation, taking into account the cost of constructing the project or activity, the cost of operating and maintaining the project or activity over the life of the project or activity, and the cost of replacing the project and activity.

Title of Engineering Report: Town of Constantia - Northshore Sewer Project

Date of Report: January 2025

Professional Engineer's Name: Eric A. Pond

Signature:

Date: 1/31/2025

APPENDIX O
Oneida Lake WI/PWL Listing

ONEIDA LAKE
(SEGMENT ID 0703-0001)

Waterbody Segment Assessment Factsheet

Factsheet Update: December 18, 2024
Integrated Reporting Cycle: 2022
NYSDEC CALM: 2021

IMPAIRED SEGMENT (IR CATEGORY 5)

Introduction

This fact sheet contains the most recent water quality assessment information for this waterbody segment. The assessment is based on water quality data that meet the quality assurance requirements of NYSDEC's Division of Water (DOW). An outline of the process used to assess the quality of New York State waters is described in the NYSDEC's Consolidated Assessment and Listing Methodology (CALM). (https://extapps.dec.ny.gov/docs/water_pdf/calm.pdf)

WATERBODY INFORMATION

- **Water Index Number:** Ont 66-11-P26
- **Segment Classification:** B
- **Waterbody Type:** Lake/Reservoir
- **Size:** 51269.4 Acres
- **Drainage Basin:** Oswego-Seneca-Oneida
- **Hydrologic Unit Code:** 0414020208
- **County:** Oswego
- **Segment Description:** Entire lake

Assessment of Best Use

Background

New York State waterbodies are classified to reflect their best use(s), and the assessment of a waterbody is based on the ability of waters to support those uses. This section lists whether this waterbody segment supports its best use(s).

Best Use	Use Assessment	Use Assessment Confirmation	Pollutant(s) Cause(s)	303(d) Year	Integrated Reporting Category
Fishing	Impaired	Confirmed	Dissolved Oxygen	2022	IR5
Secondary Contact Recreation	Fully Supported	Confirmed	Total Phosphorus	N/A	IR1

Best Use	Use Assessment	Use Assessment Confirmation	Pollutant(s) Cause(s)	303(d) Year	Integrated Reporting Category
Primary Contact Recreation	Fully Supported	Confirmed	Total Phosphorus	N/A	IR1
Source of Water Supply	N/A for Waterbody Class	—	—	—	—
Shellfishing	N/A for Waterbody Class	—	—	—	—

Water Quality Monitoring Data and Information

Background

Water quality monitoring data used for assessments may come from a variety of sources, including but not limited to NYSDEC's surface water monitoring and regulatory programs, and monitoring network partnerships on rivers, streams, lakes, reservoirs, estuaries, and coastal waters.

For access to current and historical DOW data collected by our stream and lake monitoring programs, please use the Division of Water Monitoring Data Portal (https://nysdec.maps.arcgis.com/apps/webappviewer/index.html?id=692b72ae03f14508a0de97488e142ae1).

Data Source	Pollutant(s)
Division of Water's Lake Monitoring and Assessment Programs	Dissolved Oxygen
	Phosphorus

For more information, or to sign-up for email updates from NYSDEC, visit our website: https://dec.ny.gov/environmental-protection/water (https://dec.ny.gov/environmental-protection/water)

NEW YORK STATE | Department of Environmental Conservation

The experience to
listen
The power to
solve℠

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