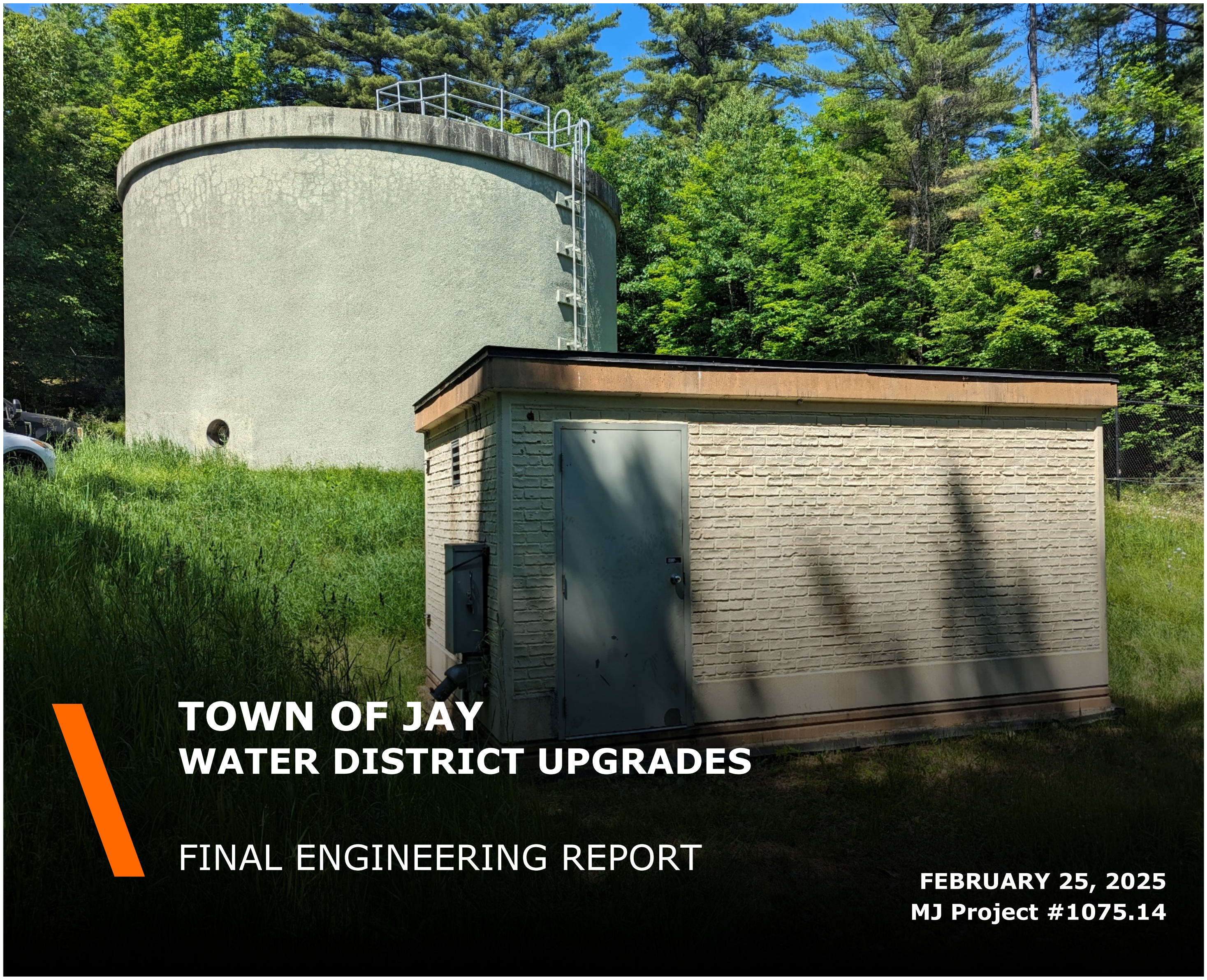

TOWN OF JAY
WATER DISTRICT UPGRADES

FINAL ENGINEERING REPORT

FEBRUARY 25, 2025
MJ Project #1075.14

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EXECUTIVE SUMMARY

- This engineering report has been prepared for the Town of Jay (Town) and evaluates improvements to the Town's water treatment plants (WTP), water storage tanks, pump stations, and distribution systems serving the Town's three water districts, Jay, Upper Jay, and Ausable Forks.

- Due to the age of the existing facilities, issues related to WTP upgrades, source of supply, transmission and distribution systems, and system redundancy, improvements to the Town's public water systems are needed to meet current and future water system demands, regulatory requirements, and ensure system reliability.

- In November 2022, the NYS Department of Health (NYSDOH) issued a Notice of Violation for the three water districts due to insufficient source of supply and other noted deficiencies. This report provides a detailed assessment of system components throughout each district with both short-term and long-term recommendations for system improvements. In addition, the report assesses redundancy issues to ensure the provision of a sustainable distribution of water to the residents of the three districts.

- Sections 4 and 5 include an overview and condition assessment of the existing facilities in each water district.

- Section 6 includes an analysis of alternatives to address the deficiencies identified for the existing facilities (i.e. WTP, well field, pump stations, distribution system, water storage tanks). The analysis of alternatives includes no action, regional consolidation and/or interconnection, and repair or replacement versus new construction.

- A comparison of the alternatives evaluated for the facilities in each water district is presented in Section 7, Table 7.1, including advantages, disadvantages, and associated costs (capital, operation and maintenance, and life cycle).

- Based on the analysis of alternatives conducted, Section 8 summarizes the recommended short and long-term alternatives to address these issues and system deficiencies. The recommended improvements are as follows:

  <u>SHORT-TERM RECOMMENDATIONS</u>

  1. Jay and Upper Jay Water Districts

     – Nugent Road Well Field – New Well Construction

     – Nugent Road Water Treatment Plant – Repair/Replacement of WTP Components

     – Transmission Main - Nugent Road WTP to Glen Road via Rocky Branch Brook Crossing – Transmission Main Replacement

     – Valley Road Pump Station – Repair/Replacement of Pump Station Components

     – Trumbull Road Water Storage Tank and Chlorine Booster Station – Repair/Replacement of Booster Station Components

     – NYS Route 86 Pump Station – Repair/Replacement of Pump Station Components

     – Install Meter Pits and Master Meters onto Private Water Mains Serving Individual Subdivisions

2. AuSable Forks Water District

   – Rolling Mill Hill Road Water Storage Tank – Water Storage Tank Rehabilitation

   – Rolling Mill Hill Road Water Storage Tank Valve Pit – Repair/Replacement of Valve Pit Components

LONG-TERM RECOMMENDATIONS

1. Jay and Upper Jay Water Districts

   – New Transmission Main - Nugent Road WTP to Glen Road

   – New Transmission Main - AuSable River Crossing via Upper Jay Water District

   – New Transmission Main – AuSable River Crossing via Howard Heights

   – Nugent Road WTP – Internal Piping Modifications to bypass Nugent Road Water Storage Tank

   – Valley Road Pump Station – Provide New Fire Pump

   – Valley Road Pump Station – Install New Valve Pit with Pressure Reducing Valve

   – Trumbell Road Chlorine Booster Station

   – Route 86 Pump Station – New Pump Station

2. AuSable Forks Water District

   – AuSable Forks Transmission Main – New Transmission Main

   – Rolling Mill Hill Road Water Storage Tank Replacement

3. General Electrical Improvements

4. System Redundancy Improvements

- As discussed in Section 9, the opinion of probable project costs for the recommended short and long-term improvements is $3,360,000 and $11,370,000, respectively.

- The Engineering Report Certification is included in Appendix O.

1.0 INTRODUCTION

1.1 PROJECT BACKGROUND

The Town of Jay (Town) owns, operates, and maintains three (3) water districts to supply potable water to residents of the community. The districts include the Jay Water District, the Upper Jay Water District, and the AuSable Forks Water District. Together with the three water districts, the Town supplies water through 639 residential and commercial service connections.

The Jay Water District, which serves approximately 500 residents through 265 service connections, is located in the west-central area of the Town, in the Hamlet of Jay, and operates under PWSID NY 1500279. The Upper Jay Water District, which serves approximately 234 residents through 135 service connections, is located in the southwestern section of the Town bordering the east branch of the AuSable River, in the Hamlet of Upper Jay, and operates under PWSID NY 1500294. The AuSable Water District, which services approximately 900 residents through 235 service connections, operates under PWSID NY 1516260. The AuSable Water District is located along the northern border of the Town at the confluence of the east and west branches of the AuSable River. Each district is shown in Appendix A.

In November 2022, the New York State Department of Health (NYSDOH) performed an annual inspection of the Jay and Upper Jay Water Districts. During this inspection, numerous deficiencies were identified within water districts, and one (1) notice of violation was issued for the Jay Water District. A summary of the violations and deficiencies is provided below, and a copy of the November 2022 annual inspection report is provided in Appendix B.

- Jay Water District – Violation
  - Violation issued for insufficient well sources to meet maximum day demand with the largest well out of service.
- Jay Water District – Deficiencies
  - Corrosion observed on piping and valves within the Nugent Road WTP.
  - The hydro-pneumatic tanks and booster pumps at the Route 86 Pump Station have exceeded their useful life and are in need of replacement.
  - A formal hydrant flushing and valve exercising program has not been developed.
  - The flow meter within the Valley Road Pump Station has exceeded its useful life and is in need of replacement.
  - The existing supervisory control and data acquisition (SCADA) system has exceeded its useful life and is in need of replacement.
  - The banks of the Rocky Branch, adjacent to the Nugent Road WTP, have shifted over the years due to major rain events and require stabilization to prevent impacts to the wells and WTP.
- Upper Jay Water District – Deficiencies
  - The basement of the chlorine booster station at the Trumbull Road Water Storage Tank is subject to groundwater inundation.
  - A formal hydrant flushing and valve exercising program has not been developed.

- The existing SCADA system has exceeded its useful life and is in need of replacement.

Additionally, in December 2022, the NYSDOH performed an annual inspection of the AuSable Forks Water District. Although no violations were issued during this inspection, several deficiencies were noted. A summary of the deficiencies is provided below, and a copy of the December 2022 annual inspection report is provided in Appendix B.

- AuSable Forks Water District – Deficiencies
  - A formal hydrant flushing and valve exercising program has not been developed.
  - The exterior coating system of the Rolling Mill Hill Road Water Storage Tank is failing and is in need of cleaning/replacement.
  - Security fencing is required at the Rolling Mill Hill Road Water Storage Tank site.
  - Wiring within the water storage tank flow meter pit is incomplete.
  - The electrical service for the water storage tank site is in need of replacement.

In response to the 2022 NYSDOH inspections, the Town plans to seek funding for a Water District Upgrades project to address the items noted within the NYSDOH inspection reports, as well as additional deficiencies identified in this report.

1.2 NEED FOR PROJECT

The water supply and distribution systems serving the Town's water districts provide a safe and reliable supply of water to the Town residents. The systems are well run and in good overall condition. However, numerous deficiencies exist throughout the water system that require attention to improve operations and ensure system reliability for the future. Improvements are also required specifically with the pump stations and water storage tanks to improve operator safety and ensure compliance with OSHA and NYSDOH requirements.

Through the implementation of a Water District Upgrades project, the Town will be able to correct the deficiencies, improve operations, and extend the useful life of the water treatment system components, booster pump stations, and water storage facilities. To meet these goals, the Town has authorized MJ Engineering, Architecture, Landscape Architecture, and Land Surveying, P.C. (MJ) to prepare an engineering report in accordance with the New York State Department of Health (NYSDOH) Drinking Water Engineering Report Outline, effective October 1, 2021. The objectives of this engineering report are as follows:

- Review the Town's existing well supplies, treatment systems, storage facilities, and distribution network to evaluate and identify existing deficiencies within the system.
- Develop a list of recommendations, short-term and long-term, necessary to correct the existing system deficiencies and assure compliance with NYSDOH standards.
- Provide opinion of probable project cost for the recommended upgrades.

2.0 PLANNING

2.1 PROJECT AREA AND OWNERSHIP

2.1.1 Location

The Town is located in Essex County, New York, within the boundary of the Adirondack Park. The Town is situated due east of the Town of Wilmington and Village of Lake Placid, and directly north of the Town of Keene, NY. The AuSable River runs through the Town bordering the Hamlets of Jay and AuSable Forks. A general project location map is provided below in Figure 2.1, and USGS Topographic Maps for each water district are provided in Appendix A.

Source: Google Earth Imagery

FIGURE 2.1 – PROJECT LOCATION MAP

2.1.2 Ownership

The Town owns, operates, and maintains the three (3) water districts included in this evaluation, which includes Jay, Upper Jay, and AuSable Forks.

2.1.3 Management

The Town Water Department is led by Mr. Paul Mintz, Superintendent of Water/Wastewater. Mr. Mintz is the Chief Water Treatment Plant Operator, and maintains NYS Class IIB – GW, C, and

D licenses under the NYSDOH Operator certification program, for operation of the three water districts.

2.1.4 Outside Users

In addition to providing potable water to residents within the Town, the AuSable Forks Water District previously provided water to the residents of the Town of Black Brook in Clinton County. The Town of Black Brook, however, recently developed its own water supply and, effective January 5, 2024, is no longer purchasing water from the Town through the AuSable Forks Water District. However, an emergency interconnection between the AuSable Forks Water District and the Town of Black Brook remains in place. In addition, the Town provides water service to a number of residences outside the limits of the existing water districts. These are provided water from the Jay Water District.

2.2 POPULATION TRENDS AND PROJECTED GROWTH

Census data indicates the Town has experienced a 2.8% growth rate between 2010 and 2020, and a growth rate of 0.7% between 2020 and 2022, as shown in Table 2.1. Based on these trends, it is expected that the growth rate over the next 20 years (2020 - 2040) will be approximately 7.0%, with the estimated population increasing to 2,729±, or approximately 180 additional residents.

TABLE 2.1
TOWN POPULTATION TRENDS

2000 Population	2010 Population	2020 Population	2022 Population	2040 Projected Population
2,306	2,480 (7.0%)	2,550 (2.8%)	2,567 (0.7%)	2,729 (7.0%)

2.3 SITE CHARACTERISTICS

2.3.1 Land Use of Project Area

Land use within the Town is generally comprised of residential, land conservation, recreational, and general business. The hamlets of Jay, Upper Jay, and AuSable Forks are shown on the project location map - Figure 2.1. Refer to Appendix A for USGS Topographic Mapping illustrating the boundaries of each water district.

2.3.2 Geological Conditions

Site soil and geology characteristics throughout the three (3) water districts were obtained from the USDA Natural Resources Conservation Service (NRCS) online Web Soil Survey. The soil type, depth to ground water, and depth to restrictive feature for each key facility (i.e., WTP, storage tank, pump station) is shown in Table 2.2 below, and complete soil reports and mapping are included in Appendix C. Soils throughout the water districts are generally loamy soils with a large presence of boulders throughout. Soil and geological characteristics appear to vary greatly between sites. Accordingly, it is recommended that a geotechnical investigation, including soil borings, be performed in locations where ground disturbance is proposed to support the design and verify the presence of bedrock and/or groundwater.

TABLE 2.2 SOIL CHARACTERISTICS				
Water District	**Facility ID**	**Soil Type**	**Depth to Water Table**	**Depth to Restrictive Feature**
Jay	Nugent Road WTP	Skerry-Adirondack Complex (727B)	18”-30”	20”-38”
Jay	Nugent Road Water Storage Tank	Becket Fine Sandy Loam (723C)	30”-36”	26”-36”
Upper Jay	Valley Road Pump Station	Adams Loamy Sand (Ada)	>80”	>80”
Upper Jay	Rt. 86 Pump Station	Becket Fine Sandy Loam (BcC)	30”-36”	26”-36”
Upper Jay	Trumbull Road Water Storage Tank	Colton-Adams Complex (375D)	>80”	>80”
AuSable Forks	Grove Rd WTP	Adams Loamy Sand (Ada)	>80”	>80”
AuSable Forks	Rolling Mill Hill Road Water Storage Tank	Monadnock Fine Sandy Loam (MkD)	>80”	>80”

2.3.3 Agricultural Considerations

The Cornell University Geospatial Information Repository was reviewed for the presence of agricultural districts within the project area. Although there are agricultural districts within the Jay, Upper Jay, and AuSable Forks Water Districts, all key facilities (i.e., WTPs, storage tanks, pump stations) appear to outside of the designated districts. Therefore, no impacts on agricultural districts are anticipated as part of the proposed Water District Upgrades project. A map of the designated agricultural districts within the Town of Jay is provided in Appendix D.

2.3.4 Environmental Resources

The Freshwater Wetlands Act (Article 24 of the Conservation Law) required the NYSDEC and Adirondack Park Agency (APA) to map freshwater wetlands and natural resources that are subject to jurisdiction of the law. Accordingly, the NYSDEC Environmental Resource Mapper was reviewed for the presence of natural resources within the project area. Based on the available mapping, there are wetlands, significant natural communities, and rare plants or animals throughout the Jay, Upper Jay, and AuSable Forks Water Districts. Consequently, coordination with the APA will be required for all proposed work areas where wetlands and/or natural resources will be impacted. Refer to Appendix E for associated wetland and natural resource mapping obtained from the NYSDEC Environmental Resource Mapper.

2.3.5 Floodplain Considerations

NYS Route 9N runs diagonally south to north through the Town, bordering the East Branch of the AuSable River from the Hamlet of Upper Jay, at the southern end of the Town, to the Hamlet of AuSable Forks at the northern end. At AuSable Forks, the West Branch of the AuSable River is joined by the East Branch of the river and continues northeast to Lake Champlain. Areas within the Hamlets of Upper Jay, Jay, and AuSable Forks border the AuSable River, which has been designated by the Federal Emergency Management Agency (FEMA) as a Zone AE flood zone, with areas within the 100-year and 500-year flood zones. Additionally, the site of the Nugent Road WTP and well field is located adjacent to Rocky Branch, a tributary to the East Branch of the AuSable River. Although there are no FEMA designated flood zones along this tributary, historical flooding has occurred at the WTP and well field site in recent years following significant rain events. Flood Insurance Rate Maps (FIRM) obtained from the FEMA website are provided in Appendix F.

2.3.6 Cultural / Historical Resources

The NYS Office of Parks, Recreation and Historic Preservation (OPRHP) GIS-based Cultural Resource Information System (CRIS) was reviewed for the presence of cultural and historic resources within the project area. There are select properties and building sites listed on the National Register in the Jay, Upper Jay, and AuSable Forks Water Districts. Although some of the proposed water district upgrades will involve ground disturbance, the proposed work will occur in areas of prior disturbance and no impacts to cultural and/or historical resources are anticipated. Nevertheless, coordination with OPRHP will be provided during detailed design, and the necessary jurisdictional inquiries will be submitted.

2.3.7 Environmental Justice

Included in Appendix G is a map obtained from the NYSDEC website which indicates that the Town's water districts are not located within a potential environmental justice area. As such, no further actions or coordination with the NYSDEC is anticipated.

3.0 WATER USAGE EVALUATION

3.1 HISTORICAL AND PROJECTED WATER USAGE

The combined average daily demand for the Town's three (3) water districts in 2023 was approximately 249,000± gallons per day (GPD). This also included water service to the Town of Black Brook in Clinton County. As the Town of Black Brook has recently developed their own source of supply and is no longer purchasing water from the Town the water demands for the AuSable Forks Water District are expected to decrease significantly. Excluding the water supplied to the Town of Black Brook, the combined average daily demand for the Town's three (3) water districts in 2023 was 196,418 GPD. Based on an estimated 639 total service connections within the three districts, this equates to 307 gallons per connection per day. This is slightly higher than the expected water usage per household indicating possible leakage in the distribution systems, excessive water usage by residents, and/or aged water fixtures in the respective households. A summary of the water usage from 2021 through 2023 is outlined by district in Tables 3.1 through 3.3. Monthly water usage data for 2023 is listed in Appendix H.

TABLE 3.1
JAY WATER DISTRICT WATER USAGE[1]

Year	Average Daily Demand (gallons)	Maximum Daily Demand (gallons)	Total Annual Usage
2021	96,574	295,109	35,249,856
2022	113,456	222,586	41,276,772
2023	118,338	159,780	43,193,612

TABLE 3.2 UPPER JAY WATER DISTRICT WATER USAGE[1]			
Year	**Average Daily Demand (gallons)**	**Maximum Daily Demand (gallons)**	**Total Annual Usage**
2021	24,704	94,584	9,016,792
2022	21,421	41,067	7,818,616
2023	20,405	103,551	7,447,756

TABLE 3.3 AUSABLE FORKS WATER DISTRICT WATER USAGE[2]			
Year	**Average Daily Demand (gallons)**	**Maximum Daily Demand (gallons)**	**Total Annual Production**
2021	128,260	312,931	46,814,963
2022	132,403	222,380	48,326,983
2023	109,911	245,318	40,117,353

[1]The water usage values in Table 3.1 combined with those in Table 3.2 will equal the total water production from the Nugent Road well field.

[2]The water usage values in Table 3.3 for the AuSable Forks Water District include water supplied to the Town of Black Brook in Clinton County. Excluding the water service to the Town of Black Brook for 2023 reduces the average daily demand for the AuSable Forks Water District to approximately 58,000 GPD and the total annual production to approximately 21,000,000 gallons.

As the projected population growth for the next twenty (20) years reflects only a slight increase in the number of residents, it is expected that the average and maximum daily demands will only increase marginally in the three water districts Also, through the installation of the proposed metering program, the total system demand through each district is expected to decrease through improved flow monitoring, leak detection, water conservation, and proper billing based upon water usage.

4.0 EXISTING FACITILIES

4.1 WATER DISTRICTS

4.1.1 Jay Water District

The Jay Water District (PWSID NY 1500279), located in the west-central portion of the Town, supplies water to the residents of the Hamlet of Jay principally along NYS Route 9N and adjacent roadways. The district serves approximately 500 people through 265 service connections. The source of supply for the Jay Water District includes three (3) drilled wells located along Nugent Road within the Town. All existing wells are approximately 60-foot deep, screened, and gravel packed wells with artesian flow characteristics. Well No. 1, a 6-inch diameter well, has been taken out of service and abandoned. Well No. 2, also a 6-inch diameter well, is currently in service producing approximately 110 GPM via a 5 hp submersible pump. A new pitless unit was recently purchased for Well No. 2, however the pitless unit has not been installed, and the existing pitless adapter currently remains in use. Well No. 3, a 12-inch diameter well, currently produces approximately 360 GPM via a 15 hp submersible pump. Recent improvements to Well No. 3 include a new submersible pump and drop piping, as well as an upgraded electrical service.

The existing wells are located adjacent to Rocky Branch, which is a tributary to the East Branch of the Ausable River.

Water flows from Well No. 2 and Well No. 3 to the Nugent Road WTP, located immediately adjacent to the well field, where it is treated with liquid sodium hypochlorite for disinfection. Following disinfection, the treated water flows to a 400,000-gallon concrete ground storage tank, located approximately 550-feet southeast from the WTP. The water level within the Nugent Road WTP water storage tank is monitored at the WTP via an existing pressure transducer. From the water storage tank, treated water enters the Jay Water District distribution system through an 8-inch diameter transmission main.

Electrical service to the Nugent Road WTP is provided by an underground 200-amp, 208Y/120 volt, 3-phase, 4-wire electrical service. The electrical service originates from three 10kVA pole top transformers located adjacent to the building. From the pole top transformers, the electrical service runs underground and terminates in the meter located on the side of the building. From the meter, the electrical service runs through the main service disconnect (MSD) and into the automatic transfer switch (ATS) for the emergency generator system (EGS). The main distribution panelboard (MDP) is located after the ATS. From the MDP, power is distributed throughout the building and across the site to various control panels, disconnects, and equipment/devices. The approximate year built for the WTP is 1993. The WTP is equipped with an EGS in the event of a normal (utility) power failure. The EGS is propane gas fired and is manufactured by Detroit Diesel. The EGS is rated 38kW and housed within the WTP and is original to the WTP. The EGS provides emergency power to all loads throughout the facility given a normal power failure. The transfer of power from normal to emergency power is accomplished by automatic means by use of an ATS. Per conversations with facility personnel, it was noted the EGS is exercised weekly and receives semi-annual service. The well pumps appear to be controlled (start/stop) via variable frequency drives (VFD).

The Nugent Road WTP is the primary supervisory control and data acquisition (SCADA) hub for the Jay Water District, as well as the Upper Jay Water District. The SCADA system consists of a main control panel that was installed in 2005 and is a programmable logic controller (PLC) based panel. The SCADA system is tied to a desktop computer workstation located at the WTP. The WTP is also equipped with chart recorders for recording the tank level. The SCADA system monitors the following: Nugent Road WTP (tank level via pressure transducer at WTP, well pumps, treatment system – sodium hypochlorite, etc.), Valley Road Pump Station (pressure suction & discharge, pumps, flow meter, etc.), and Trumbull Road Water Storage Tank (tank level via pressure transducer, flow meter, etc.). The Valley Road Pump Station communicates via two-way radio with the Nugent Road WTP and acts as a repeater to pass the Trumbull Road Water Storage Tank information along to the Nugent Road WTP.

The Jay Water District also includes a small booster pump station, located along NYS Route 86 just west of NYS Route 9N, that serves approximately twenty-five (25) residences. The Route 86 Pump Station, constructed in 2002, consists of a below-grade concrete vault housing two (2) 7.5 hp multistage vertical centrifugal Grundfos pumps. Six (6) 50-gallon hydropneumatic tanks are also installed within the Route 86 Pump Station to maintain consistent pressure to downstream residents in between pumping cycles. The booster pumps are called to run based on pressure within the hydropneumatic tanks, as indicated by an existing pump discharge pressure sensor/switch.

Electrical service to the Route 86 pump station is provided by an underground 100-amp, 208Y/120 volt, 3-phase, 4-wire electrical service. The electrical service originates from three 10kVA pole top transformers located adjacent to the pump station. From the pole top transformers, the electrical service runs underground and terminates in the meter located on an electrical backboard. From the meter, the electrical service runs through the MSD and into the MTS, which includes an emergency generator receptacle. The MDP is located after the MTS. From the MDP, power is distributed throughout the pump station to a pump control panel, electric heater, dehumidifier, and equipment/devices. The pumps appear to be controlled (start/stop) via a traditional across the line motor starter. No VFD for variable speed pump control is currently in place.

The Route 86 Pump Station is not equipped with any SCADA equipment. Controls for the Route 86 Pump Station are local and are based on pressure in the system to call for the pumps to run.

4.1.2 Upper Jay Water District

The Upper Jay Water District (PWSID NY 1500294) purchases water from the Jay Water District and serves approximately 234 people through 135 services connections. Water flows to the Upper Jay Water District through a booster pump station located on Valley Road, adjacent to Ward Lumber. The Valley Road Pump Station, constructed in 1999, consists of two (2) 15 hp multistage vertical centrifugal Grundfos pumps equipped with variable frequency drives. Control of the Valley Road booster pumps is achieved via an existing local control panel and PLC. Operation of the Valley Road Pump Station is monitored at the Nugent Road WTP via two-way radio communication. Flow through the Valley Road Pump Station is monitored via an existing 3-inch "turbine style" flow meter installed upstream of the booster pumps.

Electrical service to the Valley Road Pump Station is provided by an underground 100-amp, 480Y/277 volt, 3-phase, 4-wire electrical service. The electrical service originates from three 25kVA pole top transformers located adjacent to the pump station. From the pole top transformers, the electrical service runs underground and passes through a service disconnect before terminating in the meter located on an electrical backboard. From the meter, the electrical service runs through the main service disconnect MSD and into the automatic transfer switch ATS for the emergency generator system EGS. The main MDP is an Engineered Fluid Inc. (EFI) Pump Control panel located after the ATS. From the MDP, power is distributed throughout the building and across the site to a SCADA panel, electric heater, transformer, dehumidifier, and equipment/devices. The pump station is equipped with an EGS in the event of a normal (utility) power failure. The EGS is diesel fuel fired and is manufactured by Kohler. The EGS is rated 34kW and housed within an enclosure adjacent to the PS and is original to the PS. The EGS provides emergency power to all loads throughout the facility given a normal power failure. The transfer of power from normal to emergency power is accomplished by automatic means by use of an ATS. Per conversations with facility personnel, it was noted the conduit and wire between the generator and ATS was replaced in 2022. It was also noted that there have been issues at the site with the pumps kicking out of Auto to the OFF position during a power failure. The operators then need to come to the site and manually put the pumps back in the Auto position. The pumps appear to be controlled (start/stop) via a traditional across the line motor starter. No VFD for variable pump control was observed.

The Valley Road Pump Station is equipped with a remote telemetry unit (RTU) panel that was installed in 2005 and is a PLC based panel. The RTU panel communicates with the Nugent Road WTP via two-way radio. The pump station is equipped with pressure switches for both suction and discharge lines as well as a turbine style flow meter. The SCADA system monitors the following: pressure suction & discharge, pumps, flow meter, etc. The Valley Road Pump Station also acts as a repeater to pass the Trumbull Road Water Storage Tank information along to the Nugent Road WTP.

From the Valley Road Pump Station, water flows to the Trumbull Road Water Storage Tank, a 330,000-gallon concrete ground storage tank located off Upper Jay – Trumbull Corners Road. A chlorine booster station, constructed in 1999, is installed immediately adjacent to the water storage tank; however, the chlorine pumping equipment is currently not in use. Flow through the water storage tank is monitored via an 8-inch magnetic flow meter, and water level within the water storage tank is monitored using a pressure transducer. Both the flow meter and pressure transducer are located within the chlorine booster station.

Electrical service the Trumbull Road Water Storage Tank site is provided by an underground 100-amp, 120/240 volt, 1-phase, 3-wire electrical service. The electrical service originates from a single 10kVA pole top transformer located adjacent to the tank site. From the pole top transformer, the electrical service runs overhead to a riser pole before going underground and terminating in the meter located on an electrical backboard. From the meter, the electrical service runs through a 100-amp circuit breaker and into the MDP. From the MDP, power is distributed throughout the chlorine booster station building to a SCADA panel, electric heater, and equipment/devices. The building is equipped with a manual transfer switch, however, per Town personnel, the manual transfer switch has never been used. The chlorine booster station is not currently equipped with a permanent emergency standby generator.

The chlorine booster station at the Trumbull Road Water Storage Tank site is equipped with an RTU panel that was installed in 2005 and is a PLC based panel. The RTU panel communicates with the Nugent Road WTP via two-way radio and the repeater located at the Valley Road Pump Station. The tank site is equipped with a pressure transducer to measure tank level, as well as a magnetic flow meter, both of which are monitored by the SCADA system.

4.1.3 AuSable Forks Water District

The AuSable Forks Water District (PWSID NY1516260) serves approximately 900 people through approximately 235 service connections. The source of supply for the AuSable Forks Water District includes two (2) drilled wells located along Grove Road within the Town of Jay. The existing wells are 12-inch diameter wells each approximately 160-feet deep. Each well is equipped with a submersible pump rated at 300 GPM. A Water Withdrawal Permit was issued to the Town of Jay in August 2023 by the NYSDEC which increased the maximum permitted daily withdrawal from the Grove Road well field to 648,000 GPD.

From the wells, water flows to the Grove Road WTP, located immediately adjacent to the well field, where it is treated with liquid sodium hypochlorite for disinfection. The approximate year built for the WTP is 2020. Following disinfection, the treated water flows through an 18-inch ductile iron water main, running from the WTP to Grove Road for chlorine contact time. The finished water then flows directly into the distribution system. The Rolling Mill Hill Road Water Storage Tank is a 360,000-gallon steel ground storage tank located southwest of the well field. The tank is connected directly to the distribution system downstream of the Grove Road WTP. The water level in the tank is monitored via a pressure transducer connected to a PLC control panel at the site.

Electrical service to the Grove Road WTP is provided by an underground 400-amp, 480Y/277 volt, 3-phase, 4-wire electrical service. The electrical service originates from three 50kVA pole top transformers located adjacent to the WTP building. From the pole top transformers, the electrical service runs underground and passes through a service disconnect before terminating in the meter located on the exterior of the building. From the meter, the electrical service runs through the MSD and into the ATS for the EGS. The MDP is located after the ATS. From the MDP, power is distributed throughout the building and across the site to a distribution panel, SCADA panel, electric unit heaters, transformer, dehumidifier, and equipment/devices. The WTP is equipped with an EGS in the event of a normal (utility) power failure. The EGS is diesel fuel fired and is manufactured by Generac. The EGS is rated 80kW and housed within an enclosure located outside the WTP. The EGS provides emergency power to all loads throughout the facility given a normal power failure. The transfer of power from normal to emergency power is accomplished by automatic means by use of an ATS. Per conversations with facility personnel, it was noted the EGS is exercised weekly and receives semi-annual service. The well pumps appear to be controlled (start/stop) via VFDs.

Electrical service to the Rolling Mill Hill Road Water Storage Tank site is provided by an overhead 100-amp, 120/240 volt, 1-phase, 3-wire electrical service. The electrical service originates from a single 10kVA pole top transformer located across the street from the tank site. From the pole top transformer, the electrical service runs overhead to a riser pole before terminating in the meter located on the riser pole. From the meter, the electrical service runs through a 100-amp circuit breaker and into the MDP. From the MDP, power is distributed to a PLC Control panel. It appears the MDP and PLC Control panel were replaced within the last 2 years along with the covered backboard they are located on. It appears the meter socket and circuit breaker are significantly older than the new equipment that was installed.

The Grove Road WTP is the primary SCADA hub for the AuSable Forks Water District. The SCADA system consists of a main control panel that was installed in 2020 and is a PLC based panel. The PLC control panel has a human machine interface (HMI) screen which allows the user to interact with the equipment and data within the SCADA system. The SCADA system monitors the following: AuSable Forks WTP (well pumps, treatment system – sodium hypochlorite, flow meter, etc.), and Rolling Mill Hill Road Water Storage Tank site (pressure transducer, flow meter, etc.). The Rolling Mill Hill Road Water Storage Tank communicates via two-way radio with the Grove Road WTP.

The Rolling Mill Hill Road Water Storage Tank site is equipped with an RTU panel that was installed in 2020 and is a PLC based panel. The RTU panel communicates with the Grove Road WTP via two-way radio. The tank site is equipped with a pressure transducer to measure tank level as well as a magnetic flow meter. The SCADA system monitors the following: tank level, flow, etc.

4.2 PERMIT CONDITIONS

To ensure proper protection of New York State's water resources, the NYSDEC requires, and issues, water withdrawal permits for any system capable withdrawing greater than 100,000 GPD from all water sources. Given the capacity of the Town's existing well supplies and the anticipated system demand, the NYSDEC has established maximum withdrawal permit limits of 432,000 GPD from the Nugent Road Well Field, which supplies the Jay and Upper Jay Water Districts, and 648,000 GPD from the Grove Road Well Field, which supplies the AuSable Forks Water District. As these permit limits greatly exceed the existing and projected system demands, the Town is in compliance with the permit requirements relative to source capacity. A copy of the Town's current Water Withdrawal Permit is included in Appendix I.

As part of the Water Withdrawal Permit, the Town is required to file an annual water withdrawal report for submission to the NYSDEC. Information to be provided includes data on the location and capacity of the source, amount of water withdrawn for the calendar year, including average and peak withdrawals, and water conservation and efficiency measures undertaken during the reporting period. The Town is also required under the current permit issued by the NYSDEC in August 2023 to establish and implement a water meter program to improve water conservation and reduce usage.

4.3 CAPACITY DEVELOPMENT

Included in Appendix J is the Town's Capacity Development Program Evaluation Form. This form has been completed to demonstrate the Town's technical, managerial, and financial capabilities to provide safe drinking water to the Jay, Upper Jay, and AuSable Forks Water Districts, and to allow the Town to be eligible for funding assistance through the NYS Drinking Water State Revolving Fund.

5.0 EXISTING CONDITIONS ASSESSMENT

5.1 JAY AND UPPER JAY WATER DISTRICTS

The Jay and Upper Jay Water Districts are served by the Nugent Road WTP with water supplied from two operating wells located immediately adjacent to the WTP. The Nugent Road WTP was installed and placed in operation in 1992. Water is conveyed from the WTP through an 8-inch transmission main which continues along Glen Road to serve both districts. At the intersection of Glen Road and Valley Road a separate line branches off to supply the Upper Jay Water District through the Valley Road Pump Station. Water service to the Upper Jay Water District was initiated with the installation of this pump station in 2004, replacing the former Upper Jay well supply. A separate pump station is located on NYS Route 86, a short distance from the intersection with NYS Route 9N. This station principally boosts the pressure and serves a limited number of residences along Route 86.

Overall, the water system is in good condition, however repairs and modifications are required to various components to ensure system reliability.

5.1.1 Nugent Road Well Field

The Jay Water District currently maintains two operating wells located on a small tract of land adjacent to the WTP. Well No. 3, the primary supply, is a 12-inch diameter well drilled and developed in 2002. The well is 68-feet deep with a reported safe yield of 360 GPM. The second well, Well No. 2, is one of two original wells developed in 1992. Similarly, drilled to an approximate depth of 60-feet, the well initially had a sustained yield of 110 GPM. The well is currently being pumped at 125 GPM. The Town is concerned that any increase in the pumping rate could result in a similar failure that previously occurred with Well No. 1. Accordingly, the system relies principally on Well No. 3 to meet the demand requirements of both districts. The other original well, Well No. 1, was taken out of service in 2005 due to damage to the casing and subsequent infiltration of silt into the well. With Well No. 1 out of service, the NYSDOH issued a notice of violation to the Jay Water District as the system can no longer meet the maximum daily demand of the districts with the largest yielding well out of service. The notice of violation was issued on July 14, 2022.

In January 2024, and in response to the NYSDOH notice of violation, the Town retained HydroSource Associates (HSA) to perform an electrical resistivity survey at the Nugent Road well field. The intent of the survey was to identify potential sites for a new production well to replace Well No. 1, and ultimately provide the required redundancy stipulated in the notice of violation. The results of the survey identified two (2) potential well sites, both located immediately southeast of the existing wells and on the existing Town owned parcel. With the electrical resistivity survey completed, and with the potential well sites identified, it is critical that the Town proceed with the installation of a test well to validate the results of the HSA survey and confirm the safe yield from the selected well site.

A copy of the HSA well siting report is provided in Appendix K.

It is to be noted that the well field is also prone to flooding from the Rocky Branch Brook. Water collecting behind the dam just south of the WTP has periodically overflowed flooding the well site.

5.1.2 Nugent Road Water Treatment Plant

The Nugent Road WTP was constructed in 1992 as part of a program to replace the Jay Water District's surface water supply. Water from each well is conveyed separately into the plant through 6-inch and 8-inch ductile iron (DI) lines where it is first chlorinated and then conveyed to the Nugent Road water storage tank. From the storage tank, the water returns through the plant through a 12-inch DI main. A pressure transducer in the line monitors the pressure and directs a signal to the SCADA system which activates the well pumps to maintain system pressure and the water level in the tank.

Based on the November 2022 NYSDOH inspection report, discussions with Town personnel, and observations made by MJ during site visits, the following deficiencies are noted:

a. Disinfection System

The existing disinfection system is in disrepair where various components have been dismantled and removed. The system currently operates with a single chemical feed pump to inject chlorine into the well water prior to distribution. A back-up chlorinator is required to be installed with automatic switchover capability in the event the primary unit fails to function.

b. Process Piping

As discussed in the November 2022 NYSDOH report, some of the ductile iron process piping and valves within the WTP are showing signs of corrosion. To increase the longevity of the existing process piping, all piping, fittings, and valves exhibiting corrosion should be cleaned, primed, and repainted. At bolted flanged connections, all corroded bolts should be replaced with non-corrodible stainless-steel bolts.

c. Instrumentation

Existing instrumentation devices, particularly the magnetic flow meters, are approaching, or have exceeded, their useful life. As these instrumentation devices are critical to the operation and monitoring of WTP processes, it is recommended that corroded and/or obsolete instrumentation devices be replaced with state-of-the-art equipment.

d. Electrical System

Cursory observations indicate that all electrical equipment within the Nugent Road WTP has not had industry accepted preventative maintenance which would provide a better understanding of the internal working condition. The overcurrent protective devices (circuit breakers & fuses) internal to the electrical equipment is using outdated technology and thus have slow clearing/trip times in the event of a fault/problem (in comparison to modern equipment). As a result of slow clearing/trip times, the equipment has the potential to build energy and cause a significant arc flash event which can be extremely dangerous.

Equipment that dates to 1992 is nearing the end of its expected useful life and will soon be considered obsolete. Note, typical useful life of distribution equipment like that installed around the WTP is 30 years. Although equipment is nearing the end of its expected useful life, most electrical distribution equipment appeared in satisfactory working order and well maintained showing only signs of minor rust/corrosion. Additionally, the MDP was observed to be primarily full of branch breakers with little to no space for future additions.

Most existing interior conduit systems were visible and able to be inspected and appeared to be in satisfactory condition.

e. SCADA System

The existing SCADA system was installed in 1992 with the construction of the WTP. The existing system has exceeded its useful life, and its associated components are now obsolete. Further, remote communication issues continue to occur between the Trumbull Road Water Storage Tank, the Valley Road Pump Station and the Nugent Road WTP. Periodically, "communication loss" alarms occur, as well as phone line issues similarly occurring prohibiting the auto-dialer or fire alarm system from properly calling out. Accordingly, the existing SCADA system and telemetry equipment should be replaced with state-of-the-art equipment to ensure reliable monitoring of treatment processes and stable communications.

5.1.3 Transmission Main

Water from the 360,000-gallon concrete Nugent Road Water Storage Tank is first directed through the plant and then conveyed through an 8-inch cast iron transmission main running cross country to Glen Road. This is the single supply line that serves both the Jay and Upper Jay Water Districts. On route, the line crosses Rocky Branch Brook. At this point the line is fully exposed in the creek bed and acts as a dam causing the water to flow over the pipe (see Photo 1). This requires immediate attention to ensure system reliability. In addition, the actual route of the transmission main is unknown and assumed to traverse private property.

Photo 1: Exposed Rocky Branch Transmission Main Crossing

After reaching Glen Road, the transmission main continues north along Glen Road to the center of the Hamlet. The transmission main then crosses the AuSable River to serve properties along NYS Routes 9N and 86. To ensure system reliability, consideration should be given to replacing or installing a second river crossing.

5.1.4 Valley Road Pump Station

The Valley Road Pump Station was constructed in 2004 to replace the Upper Jay Water District's existing water supply. The prefabricated metal building houses two (2) 175 GPM Grundfos vertical turbine pumps, 3-inch water meter, and controls. The station is also equipped with a generator and automatic transfer switch. Pressure gauges in the station monitor incoming pressure from the Jay Water District and outgoing pressure to the Upper Jay Water District. The booster pumps are activated based on the water level in the Trumbull Road Water Storage Tank.

a. Booster Pumps

The pump station is equipped with two (2) Grundfos booster pumps to convey water to the Upper Jay Water District and Trumbull Road Water Storage Tank. The pumps are in good working order, however, if the station loses power, the pump operating at that time, the lead pump will not automatically restart. The lag pump will automatically be placed in service once the generator is activated but the lead pump will not restart until being manually reset. The operating sequence needs to be evaluated and corrected to ensure system reliability.

b. Electrical System

Cursory observations indicate that all electrical equipment has not had industry accepted preventative maintenance which would provide a better understanding of the internal working condition. The overcurrent protective devices (circuit breakers & fuses) internal to the electrical equipment are using outdated technology and thus have slow clearing/trip times in the event of a fault/problem (in comparison to modern equipment). As a result of slow clearing/trip times, the equipment has the potential to build energy and cause a significant arc flash event which can be extremely dangerous.

Equipment that dates to 2004 is nearing the end of its expected useful life and will soon be considered obsolete. Note, typical useful life of distribution equipment like that installed around the WTP is 30 years. Although equipment is nearing the end of its expected useful life, most electrical distribution equipment appeared in satisfactory working order and well maintained showing only signs of minor rust/corrosion. Additionally, the MDP was observed to be primarily full of branch breakers with little to no space for future additions.

Most existing interior conduit systems were visible and able to be inspected and appeared to be in satisfactory condition.

c. SCADA System

The existing RTU panel was installed in 2004 with the construction of the pump station. The existing system has exceeded its useful life, and its associated components are now obsolete. The existing RTU panel should be replaced with state-of-the-art equipment to ensure reliable monitoring of treatment processes and stable communications.

d. Transmission Line

A 6-inch DI transmission main extends from the pump station, continuing along Valley Road to Upper Jay. On route, the line crosses the AuSable River prior to reaching the Hamlet. To ensure system reliability consideration should be given to reinforcing, or replacing, this line.

5.1.5 Trumbull Road Water Storage Tank and Chlorine Booster Station

The Trumbull Road Water Storage Tank is a 330,000-gallon concrete ground storage tank installed in 2004. A chlorine booster station adjacent to the tank monitors pressure and flow and directs a signal to the Valley Road Pump Station, which is then retransmitted to the SCADA system at the Nugent Road WTP. The water storage tank is not equipped with an altitude valve; however, pressure transducers monitor pressure and the water level in the tank. Water flows into the tank through a separate 8-inch DI inlet line and exists through a 12-inch DI discharge pipe. Both lines run through the chlorine booster station. The chlorine booster station is also equipped with a 6-inch magnetic flow meter and chemical feed pumps for re-chlorination, if required.

a. Water Storage Tank

Although installed within the past twenty years, the tank should be inspected to ensure compliance with all NYSDOH and OSHA regulations to ensure operator safety. The American Water Works Association recommends performing inspections on water storage tanks every 3-5 years.

b. Chlorine Booster Station Drainage

As indicated in the November 2022 NYSDOH inspection report, groundwater continually flows into the basement of the chlorine booster station requiring removal via a sump pump. Positive drainage should be provided from the structure to prevent the accumulation of groundwater.

c. Chemical Feed Equipment

Chemical feeders located within the chlorine booster station are not in use. The overall condition of the system is unknown. An inspection and evaluation of the system is required to determine the overall condition. Repair and rehabilitation of system components is required to ensure the system is operable should re-chlorination of the finished water be required.

d. Electrical System

Cursory observations indicate that all electrical equipment has not had industry accepted preventative maintenance which would provide a better understanding of the internal working condition. The overcurrent protective devices (circuit breakers & fuses) internal to the electrical equipment are using outdated technology and thus have slow clearing/trip times in the event of a fault/problem (in comparison to modern equipment). As a result of slow clearing/trip times, the equipment has the potential to build energy and cause a significant arc flash event which can be extremely dangerous.

Equipment that dates to 1999 is nearing the end of its expected useful life and will soon be considered obsolete. Note, typical useful life of distribution equipment like that installed around the WTP is 30 years. Although equipment is nearing the end of expected useful life, most electrical distribution equipment appeared in satisfactory working order and well maintained showing only signs of minor rust/corrosion.

The chlorine booster station is not equipped with emergency power. A portable generator is provided during periods of extended power outages; however, an automatic transfer switch is not available to facilitate the connection. An emergency generator permanently installed on site should be provided to ensure system reliability during prolonged loss of utility power.

e. SCADA System

The existing RTU panel was installed in 1999 with the construction of the pump station. The existing system has exceeded its useful life, and its associated components are now obsolete. The existing RTU panel should be replaced with state-of-the-art equipment to ensure reliable monitoring of water storage tank levels and flow rates.

5.1.6 Route 86 Pump Station

The Route 86 Pump Station is located a short distance west of NYS Route 9N along NYS Route 86**.** The pump station was installed to increase system pressure for approximately twenty-five (25) residences along Route 86. The pump station is a below-grade concrete vault equipped with two (2) Grundfos vertical turbine pumps and six (6) hydro-pneumatic tanks. Pressure entering the station is increased from approximately 75 PSI to 130 PSI, resulting in a system pressure ranging from approximately 45 PSI to 65 PSI for residents at the highest point along the downstream pipe routing. Access into the vault is through an aluminum hatch and a stationary ladder. The vault is approximately 7 feet wide by 16 feet in length. The hydro-pneumatic tanks are located at one end of the vault, while the pumps and controls are located at the opposite end. The pumps are activated based upon system pressure.

a. Pump Station Access

Given the limited access to this below-grade station, the pump station is classified as a confined space structure. The existing station is also located on private land not owned by the Town. To ensure operator safety and compliance with OSHA regulations, it is recommended to relocate and reconstruct the station as an aboveground structure. It is also recommended that the Town secure the necessary easements for the existing/new pump station to facilitate legal access to the site for pump station operation and maintenance. This will provide unlimited and safe access to the building and components.

b. Booster Pumps

The two (2) existing 7.5 hp vertical multistage pumps have exceeded their useful life and are in need of replacement. Per discussions with the Town, the pumps are beginning to exhibit signs of bearing failure and there are concerns that the pumps may fail at any time. Accordingly, both existing booster pumps should be replaced in kind to ensure long-term reliability of the pump station.

c. Electrical System

Cursory observations indicate that all electrical equipment has not had industry accepted preventative maintenance which would provide a better understanding of the internal working condition. The overcurrent protective devices (circuit breakers & fuses) internal to the electrical equipment are using outdated technology and thus have slow clearing/trip times in the event of a fault/problem (in comparison to modern equipment). As a result of slow clearing/trip times, the equipment has the potential to build energy and cause a significant arc flash event which can be extremely dangerous.

Equipment that dates to 1999 is nearing the end of its expected useful life and will soon be considered obsolete. Note, typical useful life of distribution equipment like that installed around the WTP is 30 years. Although equipment is nearing the end of its expected useful life, most electrical distribution equipment appeared in satisfactory working order and well maintained showing only signs of minor rust/corrosion.

The Route 86 Pump Station is not currently equipped with a permanent emergency standby generator. A portable generator is currently provided during periods of extended power outages. To ensure uninterrupted and reliable service an emergency generator and automatic transfer switch should be installed on site.

d. SCADA System

The Route 86 Pump Station is not equipped with any SCADA equipment and any system failures or lack of power currently go unreported. Controls for pump operation are local and are based on pressure within the system to call for the pumps to run. The existing local control panel and pressure sensing devices are antiquated and in poor condition.

5.1.7 <u>Distribution System</u>

In addition to the approximately 15.5 miles of municipal water main installed throughout the Town, several small subdivisions were developed over the past sixty years, each served with

Town water through private water lines. Subdivisions utilizing private water lines include the following:

- Orchard Heights Subdivision - 7 homes
- Bill's Lane Subdivision – 11 homes
- Ward Way Subdivision – 8 homes
- Straight Road Subdivision – 5 homes
- Mt. Meadows - 9 homes

The age, type, and condition of each private water line varies from 1¼-inch PVC and galvanized pipe to 6-inch PVC pipe. None of the subdivisions are metered or equipped with fire hydrants. Given the age and piping materials installed, periodic breakage has occurred with some of the private water lines. To accurately monitor water usage and detect potential system leakage, master meters should be installed at the entrance to each of these subdivisions.

In addition to the five subdivisions listed above, the Howard Heights subdivision is provided water from the Town via the 8-inch water main on Glen Road. Howard Heights, a twenty-eight-lot development, is located due south of the Ausable River. The residences within the subdivision are fed from an existing 2-inch galvanized, privately-owned, water main installed approximately 60-years ago along Howard Heights Lane. The right-of-way, owned by the Town, runs approximately due west from Glen Road, turning abruptly to the north near the end of Howard Heights Land, and ending a short distance from the AuSable river.

Mapping of the existing distribution system is incomplete. Due to the loss of information over the years, and lack of "'as built" maps, the clear location and access to critical control valves is unavailable. A complete GPS survey of the water transmission and distribution system should be conducted to develop accurate mapping and locations for maintenance and asset management planning for improved system reliability.

5.1.8 System Redundancy

The Jay and Upper Jay Water Districts are located approximately three miles apart. Both districts are supplied with water from a single well field located off Nugent Road, due south of the Hamlet of Jay. Water from the wells is conveyed through a single 8-inch water main running along Glen Road which continues north to the Hamlet. On route, a tee at the intersection of Glen Road and Valley Road directs a portion of the water to the Upper Jay Water District. The Valley Road Pump Station, located near the intersection, boosts the pressure and then conveys water through a single 6-inch water main to the Upper Jay Water District. Failure of any of these components will result in a loss of service to either or both of the water districts. Further, while each district maintains a separate water storage tank, the existing piping network will not support service to both districts should either tank be taken out of service.

While the installation of the two (2) new river crossings in the Jay and Upper Jay Water Districts, as previously noted in Sections 5.1.3 & 5.1.4, will improve system redundancy, consideration should be given to source of supply and network piping modifications to ensure system reliability.

System modifications should be installed to enable each water storage tank to supply both districts in the event of failure to either tank. In addition, a separate well supply should be explored to provide water service to the Upper Jay Water District, as well as to serve as a back-up supply for the Jay Water District. This will provide redundant system capacity should a failure occur with the Nugent Road wells, or should an issue occur with either the Glen Road and Valley Road transmission mains or the Valley Road Pump Station.

5.2 AUSABLE FORKS WATER DISTRICT

The AuSable Forks Water District is served by the Grove Road WTP with water supplied from two operating wells located immediately adjacent to the WTP. The Grove Road WTP was installed and placed in operation in 2019. Water is conveyed from the wells to the WTP independently through two (2) 8-inch raw water mains. The water is then chlorinated and directed through an 18-inch DI water main for chlorine contact prior to entering the distribution system. The water runs principally southwest to the Hamlet of AuSable Forks. On route, water is also conveyed through a 10-inch DI line to an existing 360,000-gallon welded steel storage tank on Rolling Hill Mill Road. The water district previously supplied water to the Town of Black Brook in Clinton County. As Black Brook recently developed their own source of supply, service from the Town has been discontinued, however, an emergency interconnection remains in place between the two communities.

As the wells and new WTP have only recently been installed, the majority of components are all in excellent condition. The principal deficiencies in the district are associated with the existing storge tank and controls.

5.2.1 Rolling Mill Hill Road Water Storage Tank and Valve Pit

The Rolling Hill Mill Road water storage tank is a 360,000-gallon welded steel ground storage tank installed in 1981. The water tank is supplied through a single 10-inch DI water main that runs along Rolling Mill Hill Road. The tank “floats” on the system and maintains system pressure throughout the water distribution system.

a. Water Storage Tank

An inspection of the Rolling Mill Hill Road Water Storage Tank was conducted during January 2020 by Seaway Diving and Salvage Co., Inc of Waterford, NY to evaluate the overall condition of tank and coating systems. The inspection and accompanying report indicated several areas of non-compliance with AWWA and OSHA standards, specifically, issues with the access ladders and hatches, safety equipment, and signage. The interior and exterior surfaces of the tank were also inspected. The exterior surface is showing areas of failure and spalling of the outer layer of paint, while the interior inspection indicated failure of the epoxy coating system and visible signs of corrosion on the underside of the roof and sections of the tank walls.

Per the December 2022 NYSDOH inspection report, it was indicated that no security fencing is currently in place around the tank site.

b. Electrical System

Although the electrical service and distribution equipment serving the Rolling Mill Hill Road Water Storage Tank site appear to have been recently replaced, field wiring to the existing flow meter at the site appears to be incomplete.

c. SCADA System

A new AquaLogics PLC control panel was installed in 2019 to direct tank level readings to the Grove Road WTP. The PLC is located adjacent to a below-grade valve pit. A pressure transducer and magnetic flow meter are located in the valve pit. Pressure readings are transmitted by two-way radio signal to the SCADA system in the WTP to activate the well pumps as required to maintain the water level in the tank. The existing flow meter within the valve pit, however, is not currently in operation.

5.2.2 AuSable Forks Transmission Main

The Rolling Mill Hill Road Water Storage Tank is supplied through a 10-inch DI water main directed to the tank from the distribution network along Grove Road. As the water storage tank is currently filled from distribution system piping, a failure of the chlorination system at the Grove Road WTP will result in immediate low chlorine residuals within the distribution system, resulting in the need to issue a boil water advisory. A dedicated transmission main between the Grove Rd WTP and the water storage tank would allow operators to address a chlorination system failure prior to unchlorinated water entering the distribution system.

6.0 ALTERNATIVES ANALYSIS

This section presents alternatives for providing the recommended upgrades to the Jay, Upper Jay, and AuSable Forks Water Districts. The alternatives outlined herein adhere to the latest version of the Recommended Standards for Water Works. The following alternatives were investigated for the existing water districts:

- Alternative No. 1 - No Action
- Alternative No. 2 – Regional Consolidation and/or Interconnection
- Alternative No. 3 – Repair or Replacement versus New Construction

Detailed cost estimates deriving the opinion of probable project cost associated with each alternative are included in Appendix L and include the following factors:

- Construction Costs
  - Escalation to Construction Start (yr 2026): 6%
  - General Conditions: 10%
  - Contractor Overhead & Profit: 15%
  - Design Contingency: 35%
- Non-Construction Costs
  - Legal, Administration, Engineering: 20%

Included in Appendix M are life cycle costs associated with each alternative and are based on the following:

- Life Cycle Period: 25-years (assumed loan period for project financing)

- Inflation Rate: 3% (for deriving future maintenance costs)
- Utility Escalation Rate: 1% (for deriving future electrical costs)
- Interest Rate: 3.5% (for deriving present value)

The short-lived assets for each alternative, including rehabilitation and/or replacement costs, are included under the maintenance breakdown in the life cycle costs. Annual operational and maintenance (O&M) costs presented for each alternative are derived by dividing the total present value of future O&M costs by the life cycle period of 25-years.

6.1 ALTERNATIVE NO. 1 – NO ACTION

Under the no action alternative**,** no changes will be made to the three (3) Town of Jay Water Districts. Taking no action will result in the potential failure of critical assets throughout the water districts, resulting in risks to public health and safety. In addition, the no action alternative does not provide compliance with the requirements of the NYSDOH and past notices of violation. Accordingly, this alternative is not recommended and will not be investigated further.

6.2 ALTERNATIVE NO. 2 – REGIONAL CONSOLIDATION AND/OR INTERCONNECTION

The AuSable Forks Water District is currently connected to the Town of Black Brook water system for emergency use only, as the Town of Black Brook water system was recently installed to meet the needs of only their users on a regular basis. Due to the Town's location and geographical separation between the three water districts and other municipal water systems, there are no opportunities for regional consolidation and/or interconnection to serve the Town's water districts. Accordingly, this alternative is not recommended and will not be investigated further.

6.3 ALTERNATIVE NO. 3 – REPAIR OR REPLACEMENT VERSUS NEW CONSTRUCTION

6.3.1 Jay and Upper Jay Water Districts

6.3.1.1 Nugent Road Well Field

A. Repair / Replacement of Existing Well Field

The existing well field does not meet the redundancy requirements as outlined in Section 5. As such, repair / replacement of the existing well field is not applicable as a new well is required. Therefore, this alternative will not be investigated further.

B. New Well Construction

A new well(s) is required to augment the well yield from the Nugent Road well field. The NYSDOH issued a notice of violation to Jay Water District as the system can no longer meet the maximum daily demand of the districts with the largest yielding well out of service. Based on water usage records for 2022 and 2023, the maximum daily demand for the Jay and Upper Jay water districts was approximately 260,000 GPD. To meet this demand with the largest yielding well out of service, secondary wells must be capable of producing 180 GPM.

The installation of a test well in the location selected per the HSA well siting report is required to verify water quantity and quality from a new back-up production well site. Upon verification that the test well can provide sufficient quantity and quality to meet the back-up well redundancy requirements, a new production well will be installed.

C. Flood Protection

Based on historical flooding of Rocky Branch, additional site work and grading will be conducted to provide berms around the existing and future wells to prevent surface water inundation and contamination of the wells. A separate stream bank assessment study is being conducted by the Town and Essex County to review additional measures required for flood protection of the well field and WTP.

6.3.1.2 Nugent Road Water Treatment Plant

A. Repair / Replacement of Water Treatment Plant Components

The following components at the existing water treatment plant are to be repaired/replaced:

- Replace the existing SCADA system, including the installation of a main control panel (MCP) at the Nugent Rd WTP. The MCP will incorporate wireless radio equipment (spread spectrum radio transceiver, antenna, cabling, masts, and lightning/surge protection), as well as all internal hardware (power supplies, fuses, relays, terminal blocks, etc.) within a single NEMA 12 rated enclosure for wireless radio communication between the Nugent Rd WTP, Valley Road station, Route 86 Pump Station, and Upper Jay water storage tank. All controls, levels, and alarms from each of the sites will be transmitted via the wireless radio network to the main control panel located at the Nugent Rd WTP for remote monitoring and control of each site. A radio path study may need to be performed during the design phase to ensure the viability of a replacement 2-way radio communication system. It is recommended that all processes, systems, instrumentation, controllers, and control panels at the WTP be hardwired via copper connections, or ethernet to the MCP. It is recommended that the MCP be PLC based with a colored touchscreen, operator interface unit (OIU) to monitor and control the Jay Water District.

- Replace the pump control panel and VFD's with the addition of a third well to the system. The existing pump control panel is past its useful life and should be upgraded to reflect the anticipated needs of the system, and to work in conjunction with the new SCADA system.

- Modify the chlorine chemical feed system as required to re-establish the original piping network and reinstall the back-up chlorinator. The provision of system components to enable automatic switchover from one chlorinator to the other in the event of failure of the operating unit should also be included. A back-up chlorinator and replacement components should also be provided.

- Conduct a detailed evaluation of system components in the pipe gallery to ensure proper operation and performance, including the pressure transducer, magnetic flow meter, and chlorine analyzer. Repair and/or recondition existing equipment as required.

- All existing piping, fittings, and valves exhibiting signs of corrosion should be cleaned, primed, and painted to extend the useful life of these assets. Bolts at flanged connection should be replaced with stainless steel hardware.

B. New Water Treatment Plant Construction

The existing water treatment plant continues to operate effectively to serve the existing water district and does not require complete replacement. As such, this alternative will not be investigated further.

6.3.1.3 Jay Transmission Main (Nugent Road WTP to Glen Road)

A. Rocky Branch Brook Crossing - Transmission Main Replacement

The 8-inch CI transmission main running from the Nugent Road WTP to Glen Road crosses Rocky Branch Brook. The line is fully exposed within the creek bed and acts as a dam restricting flow in the brook. This section of the line requires immediate replacement to redirect the water main below the creek bed and ensure system reliability. To correct this deficiency, approximately 100 LF of high-density polyethylene (HDPE) water main will be installed utilizing horizontal directional drilling (HDD) technology, to achieve the creek crossing. HDD installation for the water main replacement will ensure adequate burial depth while minimizing impacts to the creek.

B. New Transmission Main

In addition to the Rocky Branch Brook exposure, the existing 8-inch CI transmission main running from the Nugent Road WTP to Glen Road predates the treatment plant and was installed as the principal supply line for the original surface water supply serving the district. The exact routing of the line is unknown; however, it is believed to traverse private property as it runs to Glen Road. Given the age of the line and limited accessibility, it is recommended to reroute and install 3,000 LF of new 12-inch water main from the WTP along Nugent Road and connecting to the existing water main on Glen Road as shown in Figure 6.1.

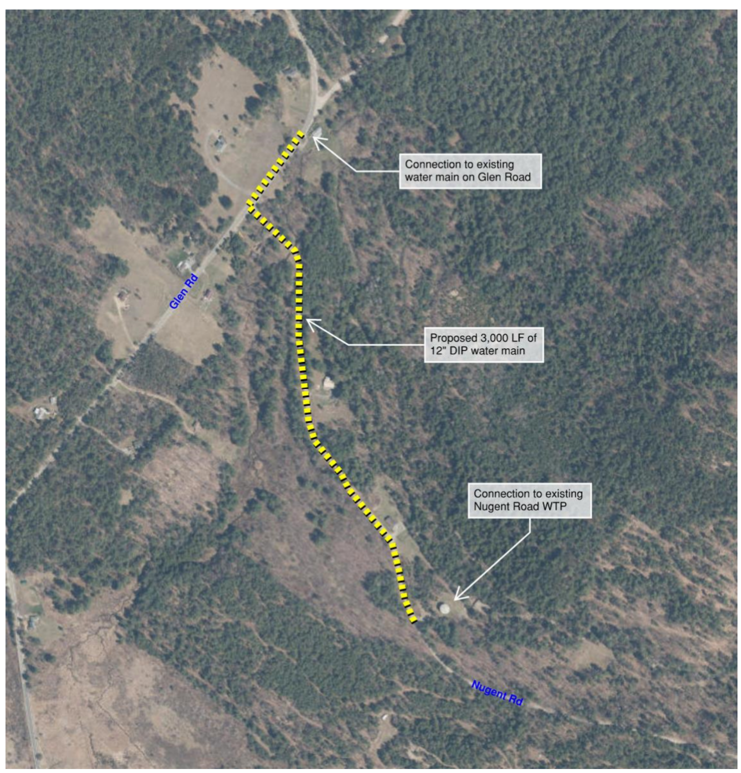


FIGURE 6.1 – JAY TRANSMISSION MAIN (NUGENT ROAD WTP TO GLEN ROAD)

6.3.1.4 Jay Transmission Main (Ausable River Crossing)

A. Repair / Replacement of Transmission Main

The 8-inch transmission main from the Nugent Road WTP runs along Glen Road, supplying water to the Jay Water District. On route, it crosses below the AuSable River prior to reaching NYS Route 9N in the center of the Hamlet. Although the existing 8-inch DI water main has sufficient capacity to meet the needs of the district, the main issue is the lack of redundancy in the event of a water main failure at the river crossing. As such, repair / replacement is not applicable, and this alternative will not be evaluated further.

B. New Transmission Main

A single 8-inch DI water main from the Nugent Road WTP crosses the AuSable River enroute to the center of the Hamlet. To ensure system reliability, it is recommended to install a second river crossing to provide redundancy in the event of a failure of the existing transmission main. The installation of a second river crossing, including approximately 2,500 LF of 8-inch HDPE water main along Howard Heights Lane and connecting with the existing 6-inch water main on NYS Route 9N on the north side of the AuSable River, would also replace the failing galvanized line on Howard Heights Lane with a Town-owned and maintained water line. The new water main would also provide fire protection to the subdivision. The proposed AuSable River crossing is illustrated below in Figure 6.2.

FIGURE 6.2 – JAY TRANSMISSION MAIN (AUSABLE RIVER CROSSING)

6.3.1.5 Upper Jay Transmission Main (AuSable River Crossing)

A. Repair / Replacement of Transmission Main

The existing 6-inch DI water main currently supplying water to the Upper Jay Water District does not have any capacity issues. The main issue is the lack of redundancy in the event of a water main failure at the river crossing. As such, repair / replacement is not applicable, and this alternative will not be evaluated further.

B. New Transmission Main

A single 6-inch DI water main from the Valley Road Pump Station crosses the AuSable River to supply water to the Upper Jay Water District. To ensure system reliability, it is recommended to install approximately 650 LF of 8-inch HDPE water main for a second river crossing to provide redundancy in the event of a failure of the existing transmission main. The proposed AuSable River crossing is illustrated below in Figure 6.3.

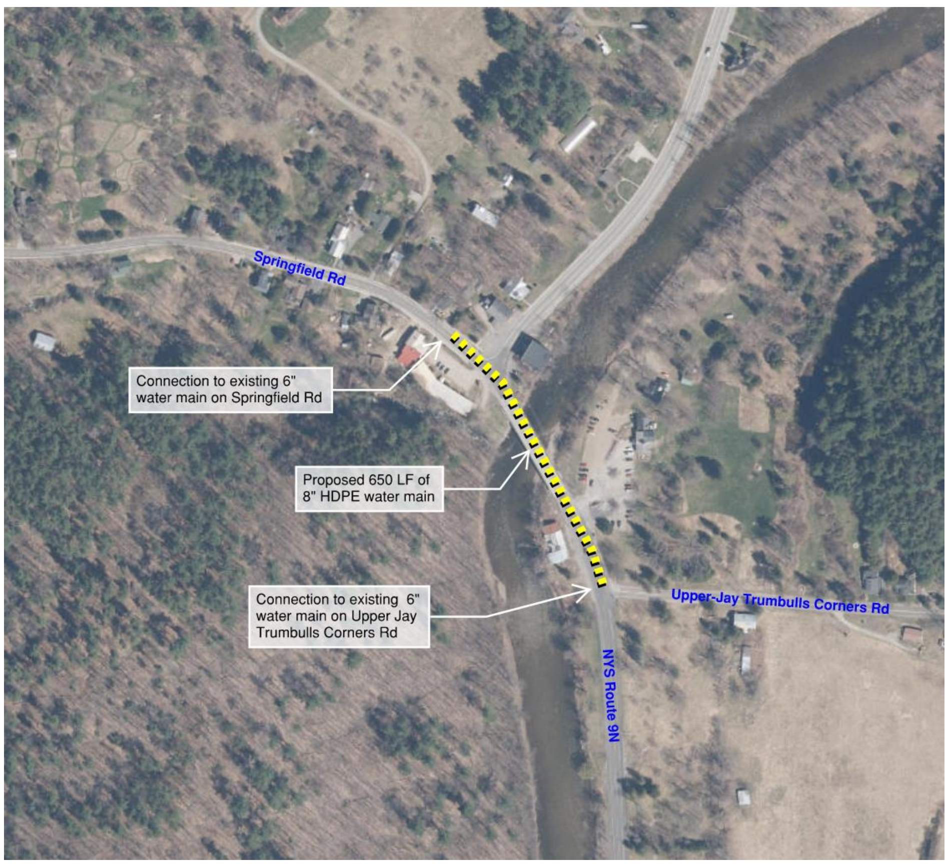


FIGURE 6.3 – UPPER JAY TRANSMISSION MAIN (AUSABLE RIVER CROSSING)

6.3.1.6 Jay and Upper Jay Distribution System Improvements

A. Repair / Replacement of Privately-Owned Water Lines

The existing water lines serving the five subdivisions outlined in Section 5.1.7 are aged, undersized, and in poor condition. The water lines should be replaced with properly sized water mains, and with fire hydrants to afford fire protection to the residents in these areas. The water lines, however, are privately-owned, either through separate homeowner associations or through deeded covenants. As the Town does not own the water lines repair / replacement is not applicable, and this alternative will not be evaluated further.

B. New Meter Pits for Privately-Owned Water Lines

The five subdivisions within the Jay and Upper Jay Water Districts, as outlined in Section 5.1.7, are supplied Town water through private water lines. Meter pits with master meters should be installed at the entrance to each of the subdivisions to monitor and record water usage for billing and potential leakage.

A meter for the Howard Heights subdivision is not required as the existing water main serving the subdivision is proposed to be replaced with a new Town-owned water main, as outlined in Section 6.3.1.4.B.

6.3.1.7 Valley Road Pump Station

A. Repair / Replacement of Pump Station Components

The following components at the existing pump station are to be repaired/replaced:

- Replace the pump control panel and incorporate VFDs into the system. The existing pump control panel is past its useful life and should be upgraded to reflect the anticipated needs of the system, and to work in conjunction with the new SCADA system. This will require the installation of a new distribution panelboard as the current distribution circuits are fed from the existing pump control panel.

- Install a new remote telemetry unit (RTU) within the Valley Road Pump Station. The RTU should incorporate wireless radio equipment (spread spectrum radio transceiver, antenna, cabling, masts, and lightning / surge protection), as well as all internal hardware (power supplies, fuses, relays, terminal blocks, etc.) within a single NEMA 12 rated enclosure for wireless radio communication between the pump station and the main control panel located at the Nugent Rd WTP. All controls, levels, alarms, etc. from the pump control panel will be transmitted via the wireless radio network to the MCP located at the Nugent Rd WTP for remote monitoring and control. It is recommended that all processes, systems, instrumentation, controllers, and control panels be hardwired via copper connections, or ethernet to the RTU for remote monitoring and control. It is recommended to provide temperature sensors within the building to monitor building temperature and provide an alarm to the new telemetry/control system if the temperature falls below an adjustable setpoint, providing protection from freezing, or burst pipes in the event HVAC systems were to fail in the middle of winter.

B. New Pump Station Construction

The existing pump station continues to operate effectively to serve the existing water district and does not require complete replacement. As such, this alternative will not be investigated further.

6.3.1.8 Upper Jay (Trumbell Road) Water Storage Tank

A. Repair / Replacement of Tank Components

The following components at the existing water storage tank are to be repaired/replaced to maintain reliability in system communications:

- Install a new RTU at the tank site. The RTU should incorporate wireless radio equipment (spread spectrum radio transceiver, antenna, cabling, masts, and lightning / surge protection), as well as all internal hardware (power supplies, fuses, relays, terminal blocks, etc.) within a single NEMA 12 rated enclosure for wireless radio communication between the tank site and the main control panel located at the Nugent Rd WTP or the Upper Jay PS as a repeater if necessary. All controls, levels, alarms, etc. from the RTU panel will be transmitted via the wireless radio network to the MCP located at the Nugent Rd WTP for remote monitoring and control. It is recommended that all processes, systems, instrumentation, controllers, and control panels be hardwired via copper connections, or ethernet to the RTU for remote monitoring and control. Temperature sensors should also be provided within the building to monitor building temperature and provide an alarm to the new telemetry/control system if the temperature falls below an adjustable setpoint, providing protection from freezing, or burst pipes in the event HVAC systems were to fail in the middle of winter.

B. New Water Storage Tank

The existing water storage tank was installed in 2004 and has sufficient capacity to serve the water district. Based on the previous inspections, the tank does not need to be replaced. Therefore, this alternative will not be investigated further.

6.3.1.9 Upper Jay (Trumbell Road) Chlorine Booster Station

A. Repair / Replacement of Pump Station Components

The following components at the existing chlorine booster station are to be repaired/replaced:

- Replace the manual transfer switch (MTS) located on the exterior of the building. The existing MTS is oversized for the current electrical system and was designed for an application separate from the chlorine booster station. A new automatic transfer switch (ATS) should be provided and coordinated with the Town to meet the needs of the system.

- Install a permanent emergency generator for system reliability as the chlorine booster station is not equipped with emergency power.

- The existing chlorine chemical feed pump is not in use and no redundancy is provided. The existing pump should be placed into service if re-chlorination is required, and a second chemical feeder should be installed and integrated into the proposed SCADA system.

- Install a new chlorine analyzer within the chlorine booster station to continually monitor the chlorine level leaving the tank. In the event the chlorine level in the finished water drops below an acceptable level, the SCADA system should automatically activate the chlorinators.

- Provide positive drainage from the valve pit to address groundwater that flows into the basement of the valve station requiring continual removal via a sump pump.

B. New Chlorine Booster Station

The existing chlorine booster station does not have any major deficiencies and continues to operate effectively to serve the existing water district and does not require complete replacement. As such, this alternative will not be investigated further.

6.3.1.10 <u>NYS Route 86 Pump Station</u>

A. Repair / Replacement of Pump Station Components

The following components at the existing Route 86 Pump Station are to be repaired/replaced:

- Install a new remote telemetry unit (RTU) be installed within the Route 86 Pump Station. The RTU should incorporate wireless radio equipment (spread spectrum radio transceiver, antenna, cabling, masts, and lightning / surge protection), as well as all internal hardware (power supplies, fuses, relays, terminal blocks, etc.) within a single NEMA 12 rated enclosure for wireless radio communication between the PS and the main control panel located at the Nugent Rd WTP or the Upper Jay PS as a repeater if necessary based on the radio path survey. All controls, levels, alarms, etc. from the pump control panel will be transmitted via the wireless radio network to the MCP located at the Nugent Rd WTP for remote monitoring and control. It is recommended that all processes, systems, instrumentation, controllers, and control panels be hardwired via copper connections, or ethernet to the RTU for remote monitoring and control. Temperature sensors should also be provided within the vault to monitor vault temperature and provide an alarm to the new telemetry/control system if the temperature falls below an adjustable setpoint, providing protection from freezing, or burst pipes in the event HVAC systems were to fail in the middle of winter.

- Install a new permanent emergency generator and ATS at the site for system reliability. The pump station is currently not equipped with permanent emergency power. During extended power outages it is necessary to provide a portable generator to operate the booster pumps to maintain service.

- Replace the two (2) existing 7.5 hp vertical multistage booster pumps in kind to ensure reliable long-term service.

- Replace the two (2) existing Mercoid pressure switches with analog pressure transmitters to provide greater flexibility for pump operation and pump station monitoring.

B. New Pump Station

The existing pump station is a below-grade structure located on private lands a short distance from NYS Route 9N. Given the limited access to this below grade station, the pump station is classified as a confined space structure. The existing station is also located on private land not owned by the Town. To ensure operator safety and compliance with OSHA regulations, a new above-grade pump station should be installed and located on Town property. This will provide unlimited and safe access to the building and components.

6.3.1.11 <u>System Redundancy Improvements</u>

A. Repair / Replacement of System Components

The existing water storge tanks in the Jay and Upper Jay Water Districts separately maintain pressure and independently provide storage to each district and do not solely satisfy the redundancy requirements as outlined in Section 5. As such, repair / replacement of the existing storage tanks is not applicable as modifications to the existing piping network and the installation of a pressure reducing station is required. Further, the installation of a new well at the Nugent Road well field will augment the water supply to both districts and will provide redundancy, however the additional will not independently address the redundancy issues with the Upper Jay Water District. To provide full redundancy, a new well source is required in the Hamlet of Upper Jay to provide water service to the Upper Jay Water District. As such, this alternative will not be investigated further.

B. System Modifications for Storage Tank Redundancy

The following components are required at the Nugent Road WTP and Valley Road Pump Station to provide storage redundancy for the water districts:

- Install a 34-LF 8-inch bypass line, complete with valves and appurtenances in the Nugent Road WTP to connect the finished water transmission main to the Nugent Road Water Storage Tank with the return line from the tank to the WTP to bypass the water storage tank.

- Install a valve vault with a pressure reducing valve and appurtenances adjacent to the Valley Road Pump Station to permit the flow of water from the Trumbull Road Water Storage Tank to service the Jay Water District.

- Provide modifications to the Valley Road Pump Station and install a 1,000 GPM fire pump to provide fire protection to the Upper Jay Water District from the Nugent Road Water Storage Tank in the event of an emergency, or if the Trumbull Road Water Storage Tank is out of service.

C. Hydrogeologic Study – Upper Jay Water District

- Conduct a hydrogeologic investigation in the Hamlet of Upper Jay to determine if a well(s) can be developed in this area to supply both water districts in the event of failure of the Nugent Road Well Field and/or the Glen Road and/or Valley Road transmission mains.

6.3.2 **AuSable Forks Water District**

6.3.2.1 Rolling Mill Hill Road Water Storage Tank

A. Water Storage Tank Rehabilitation

An inspection of the Rolling Mill Hill Road Water Storage Tank conducted during January 2020 indicated several areas of non-compliance with AWWA and OSHA standards, specifically, issues with the access ladders and hatches, safety equipment, and signage. Inspection of the exterior painting systems showed areas of failure and spalling of the outer layer of paint while the interior inspection indicated failure of the epoxy coating system and visible signs of corrosion on the underside of the roof and sections of the tank walls. Based on the completed inspection, the following items should be completed:

- Removal and replacement of the interior and exterior paint coatings.
- Repair the spalling concrete and cracks at the base of the tank. Non-shrink grout and/or caulking around the tank foundation is required to prevent water from entering below the tank further deterioration of the concrete.
- Install required signage, OSHA compliant interior access ladder, level float and exterior liquid indicator, site security fencing, and new exterior ladders to bring the tank into compliance with OSHA and NYSDOH standards.
- Install a manual transfer switch with a generator receptacle to provide the capability of connecting a portable generator to provide emergency service in the event of an extended utility power outage for the tank site.
- Replace the existing flow meter in the valve pit. Provide required components for connection with the existing SCADA system.
- Provide and install exterior security fencing around the tank site.

B. New Water Storage Tank

The existing water storage tank was installed in 1981 and is at the end of its useful life. Consideration should be given to replacement of the water storage tank with a new 360,000-gallon, glass-fused-to-steel, ground storage tank on the existing parcel.

6.3.2.2 Rolling Mill Hill Road Water Storage Tank Valve Pit

A. Repair / Replacement of Valve Pit Components

The flow meter in the valve pit is not currently in operation and will be replaced. A new flow meter will enable the Town to monitor flow from the storage tank.

B. New Valve Pit

The existing valve pit does not have any major deficiencies and continues to operate effectively to serve the existing water district and does not require complete replacement. As such, this alternative will not be investigated further.

6.3.2.3 <u>AuSable Forks Transmission Main</u>

A. Repair / Replacement of Transmission Main

The existing transmission main does not provide sufficient contact time for all users in the water district, as a number of users are located directly off the transmission main in close proximity to the WTP. As such, in the event of a loss of chlorine, there is not sufficient time to address the alarm prior to the delivery of water to the users. Repair / replacement is not applicable as a new transmission configuration is required. This alternative will not be investigated further.

B. New Transmission Main

To assist in maintaining chlorine residuals throughout the distribution system, and for greater system reliability, a dedicated transmission main will be installed from the Grove Road well site to the water storage tank on Rolling Hill Mill Road without water service connections. The new transmission main will include approximately 5,700 LF of new 8-inch DI piping and associated valves. The proposed transmission main is illustrated below in Figure 6.4.

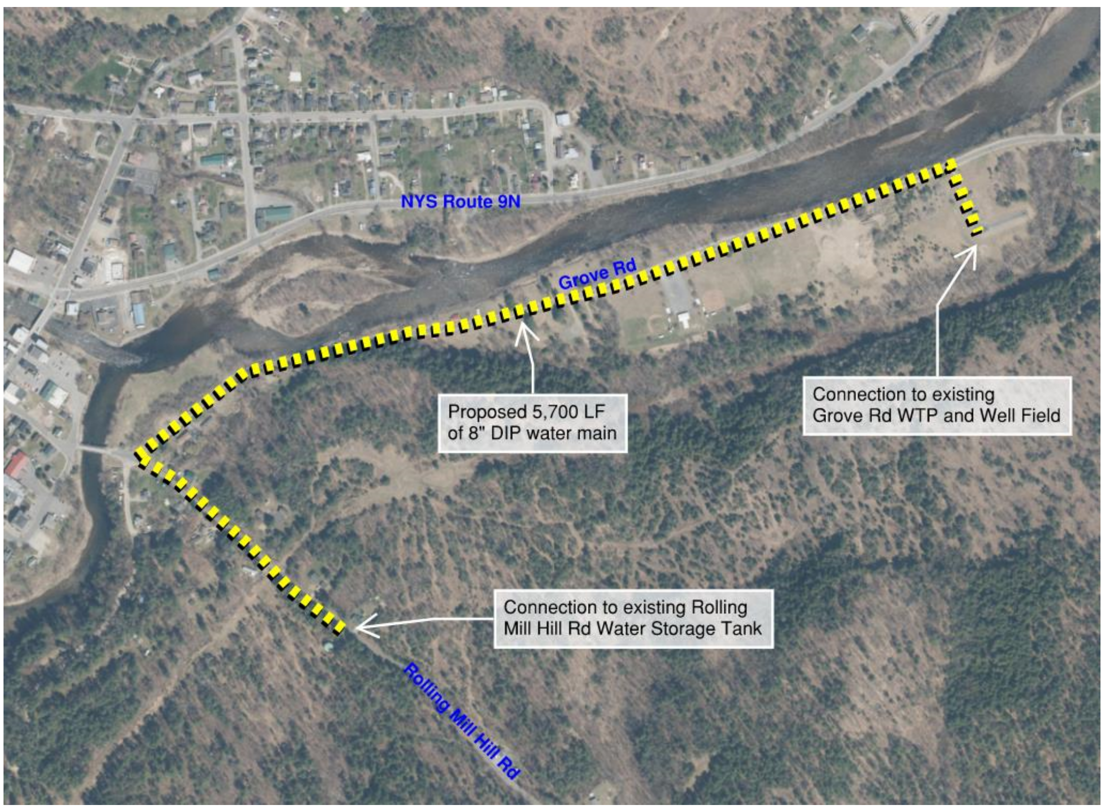


FIGURE 6.4 – AUSABLE FORKS TRANSMISSION MAIN

7.0 COMPARISON OF ALTERNATIVES

Table 7.1 provides a comparison of the alternatives presented in Section 6, including advantages, disadvantages, and associated cost. Alternative No. 1 (No action) and No. 2 (Regional consolidation and/or interconnection) are not included in the comparison table as the justification for the improvement alternatives is discussed in Section 6. Any improvements discussed for Alternative No. 3 (Repair/replacement versus new construction) that were eliminated in Section 6 are not presented in Table 7.1.

TABLE 7.1
COMPARISON OF ALTERNATIVES

Alternative	Advantages	Disadvantages	Cost
JAY AND UPPER JAY WATER DISTRICTS			
1. Nugent Road Well Field			
A. New Well Construction	A. Ensures system reliability and compliance with NYSDOH requirements	A. High project cost; Provides system redundancy if the primary well fails but does not provide complete redundancy to the Upper Jay Water District should the Valley Road Pump Station or Valley Road transmission main fail.	A. • Capital: $1,095,600 • Annual O&M: $5,320 • Life Cycle: $1,229,000
2. Nugent Road WTP			
A. Repair / Replacement of WTP Components	A. Replaces obsolete equipment and ensures correct operation and long-term reliability of system components	A. Higher project cost; Requires full replacement of existing SCADA system and electrical components	A. • Capital: $404,400 • Annual O&M: $10,480 • Life Cycle: $666,000
B. Provide internal piping modifications to bypass the Nugent Road Water Storage Tank	B. Allows water to be supplied from the Nugent Road well field to the water districts if the Nugent Road Storage Tank is out of service.	B. Requires the installation of 34 feet of 8″ DI water main, 4-8″ 90° elbows, and 2 – gate valves and entails relocation of numerous components within the existing pipe gallery.	B. • Capital: $50,000 • Annual O&M: $280 • Life Cycle: $57,000

3. Transmission Main - Nugent Road WTP to Glen Road			
A. Rocky Branch Brook Crossing-Transmission Main Replacement	A. Relocates and protects transmission main to ensure continuous service from Nugent Road WTP to the Jay and Upper Jay Water Districts	A. This is only a partial solution to the problem as the transmission main is still on private property and not readily accessible.	A. • Capital: $149,400 • Annual O&M: $400 • Life Cycle: $159,000
B. New Transmission Main	B. Relocates transmission main to public ROW; ensures accessibility for maintenance and repairs.	B. Higher project cost; although on private property, existing main still operable.	B. • Capital: $2,241,000 • Annual O&M: $400 • Life Cycle: $2,251,000
4. Transmission Main - Ausable River Crossing via Howard Heights			
A. New Transmission Main	A. Provides a redundant river crossing to ensure greater system reliability and provides a new water line along Howard Heights Lane eliminating a privately owned, aged, 2" galvanized pipe and provides fire protection to existing subdivision	A. Project cost; Providing a second river crossing adjacent to the existing Jay WD river crossing will eliminate the necessity of installing 2,500 LF of pipe.	A. • Capital: $1,245,000 • Annual O&M: $1,640 • Life Cycle:$ 1,286,000
5. Valley Road Pump Station			
A. Repair / Replacement of Pump Station Components	A. Replaces obsolete components to improve system operation and ensure system reliability		A. • Capital: $152,400 • Annual O&M: $5,000 • Life Cycle: $276,000
B. Provide New Fire Pump, Valve Pit, and Pressure Reducing Valve	B. A 1,000 GPM fire pump will provide water from the Jay Water District to Upper Jay for emergency situations. Water can be supplied from the Trumbull Road Water Storage Tank to the Jay Water District during emergencies.	B. Providing a well in the Hamlet of Upper Jay may negate the need for the fire pump. Additional project cost. May not be necessary if new well is installed at Nugent Road but will assist with a main break.	B. • Capital: $159,400 • Annual O&M: $2,500 • Life Cycle: $222,000
6. NYS Route 86 Pump Station			
A. Repair/Replacement of Pump Station Components	A. Reconditions components within	A. Reconditions pump station components,	A. • Capital: $273,000 • Annual O&M: $6,760

	existing pump station to improve operation.	however, the existing station is not OSHA compliant.	• Life Cycle: $442,000
B. New Pump Station	B. Replaces pump station with new above-ground structure on Town property – eliminates confined space entry.	B. Higher project cost; Requires full replacement of existing SCADA system and electrical components	B. • Capital: $597,600 • Annual O&M: $6,760 • Life Cycle: $767,000
7. Distribution System Improvements			
A. Private Water Line Meter Pit and Master Meter Installations at Entrance to Five (5) Subdivisions	A. Ensures proper monitoring of water usage to each subdivision and enables Town to monitor each line for potential leakage.	A. Additional maintenance of individual meter pits required by the Town	A. • Capital: $249,000 • Annual O&M: $1,300 • Life Cycle: $281,000
8. Transmission Main - AuSable River Crossing via Upper Jay Water District			
A. New Transmission Main	A. Provides redundant river crossing to ensure greater system reliability	A. Project cost may be greater if uncertainties arise during construction	A. • Capital: $453,200 • Annual O&M: $2,700 • Life Cycle: $520,000
9/10. Upper Jay Water Storage Tank and Chlorine Booster Station			
A. Repair / Replacement of Pump Station Components	A. Improves communications, electrical system, & re-chlorination facilities. Provides emergency power and new metering system.	A. Not currently re-chlorinating at station	A. • Capital: $281,800 • Annual O&M: $4,300 • Life Cycle: $408,000
11. System Redundancy Improvements			
A. Conduct Upper Jay Hydrogeologic Study	A. Provides opportunity for potential development of a well in the Upper Jay Water District to improve system redundancy.	A. Town will need to acquire land; sufficient yield may not be available.	A. • Capital: $119,500 • Annual O&M: N/A • Life Cycle: $119,500
B. Install and Test – New Production Well - Hamlet of Upper Jay	B. Provides system redundancy by installing a second well in the Hamlet of Upper Jay – eliminate total reliance of Valley Road Pump Station	B. Sufficient yield may not be available.	B. • Capital: $498,000 • Annual O&M: $5,320 • Life Cycle: $631,000

AUSABLE FORKS WATER DISTRICT			
1/2. Rolling Mill Hill Road Water Storage Tank and Valve Pit			
A. Water Storage Tank Rehabilitation	A. Recondition and repaint the existing tank and extend useful life.	A. Age of existing steel water storage tank. Periodic repainting will be required.	A. • Capital: $786,800 • Annual O&M: $20,560 • Life Cycle: $1,301,000
B. New Water Storage Tank	B. Replaces the existing steel tank with new glass-lined tank requiring minimal future maintenance.	B. High project cost; new sealant may be periodically required at bolted connections.	B. • Capital: $1,992,000 • Annual O&M: $3,640 • Life Cycle $2,083,000
3. Transmission Main – Grove Road WTP to Rolling Mill Hill Road Water Storage Tank			
A. New 8” Transmission Main	A. Reinforces distribution system and assists in maintaining chlorine residual.	A. High project cost.	A. • Capital $3,974,000 • Annual O&M: $920 • Life Cycle: $3,997,000

8.0 RECOMMENDED ALTERNATIVES

The primary objective of this study is to outline improvements required to upgrade the existing water system to ensure system reliability, operator safety, and maintain compliance with current water supply and treatment standards. The Town’s water systems are well run and maintained; however, components within each district are either outdated or inoperable requiring replacement or upgrades. Other systems require replacement to ensure operator safety and access. Based on the evaluation of the existing system, several short-term recommendations are required to improve system operations. Additional long-term recommendations are also outlined to further improve the operation and long-term reliability of the water systems. A summary of the proposed short-term and long-term recommendations based on the alternatives presented in Sections 6 and 7 are outlined as follows.

8.1 SHORT-TERM RECOMMENDATIONS

8.1.1 Jay and Upper Jay Water Districts

- Nugent Road Well Field – New Well Construction
- Nugent Road Water Treatment Plant – Repair/Replacement of WTP Components
- Transmission Main - Nugent Road WTP to Glen Road via Rocky Branch Brook Crossing – Exposed Transmission Main Replacement
- Valley Road Pump Station – Repair/Replacement of Pump Station Components
- Trumbull Road Water Storage Tank and Chlorine Booster Station – Repair/Replacement of Booster Station Components

- NYS Route 86 Pump Station – Repair/Replacement of Pump Station Components
- Install Meter Pits and Master Meters to Private Water Mains Serving Individual Subdivisions

8.1.2 AuSable Forks Water District

- Rolling Mill Hill Road Water Storage Tank – Water Storage Tank Rehabilitation
- Rolling Mill Hill Road Water Storage Tank Valve Pit – Repair/Replacement of Valve Pit Components

8.2 LONG-TERM RECOMMENDATIONS

8.2.1 Jay and Upper Jay Water Districts

- New Transmission Main - Nugent Road WTP to Glen Road
- New Transmission Main - AuSable River Crossing via Upper Jay Water District
- New Transmission Main – AuSable River Crossing via Howard Heights
- Nugent Road WTP – Internal Piping Modifications to bypass Nugent Road Water Storage Tank.
- Valley Road Pump Station – Provide New Fire Pump
- Valley Road Pump Station – Install New Valve Pit with Pressure Reducing Valve
- Upper Jay Chlorine Booster Station
- Route 86 Pump Station – New Pump Station

8.2.2 AuSable Forks Water District

- AuSable Forks Transmission Main – New Transmission Main
- Rolling Mill Hill Road Water Storage Tank Replacement

8.2.3 General Electrical Recommendations

- As process improvements (or any improvements which have an electrical component associated with them) are completed at the various sites, the electrical service should be analyzed for proper service sizing. As processes are added/modified, it is recommended that a service demand calculation/analysis be conducted to ensure the existing servicing size remains adequate.
- All new wiring shall be in compliance with the NEC, state, and local codes, as well as the authority having jurisdiction (AHJ). All wiring devices and methods within classified areas are recommended to be in compliance with NEC article 500 (containing conduit seal off fittings where required). All new wiring is recommended to contain copper

conductors, be 600-volt rated, contain THWN insulation, and installed within rigid galvanized steel (RGS) conduit, or PVC coated RGS conduit depending on location installed (to be determined during the design phase). Grounding systems shall be provided as required.

- Provide a light and receptacle on electrical backboards for convenience light and power. The light (in addition to close proximity street and vehicle lighting) shall provide adequate illumination to each site for service and maintenance.

- A power system study should be completed at each site, and Arc Flash Warning Labels applied to all electrical equipment likely to require examination, adjustment, servicing, or maintenance while energized. All new electrical equipment to be provided with an Arc Flash Warning Label per NEC and NFPA requirements. In addition, the new electrical service equipment shall clearly be labeled identifying the maximum available fault current.

8.3 SYSTEM MAINTENANCE RECOMMENDATIONS

8.3.1 Distribution System

- Mapping of the Town's existing distribution system for each district is incomplete. An initial review of all existing "As built" plans should be conducted to determine the location of existing valves and system components and areas where documentation is required. A physical inspection and GPS survey of areas lacking information should then be conducted. Detailed mapping of the entire distribution system should then be developed to provide accurate locations of all distribution system assets for maintenance, management planning for improved system reliability.

8.3.2 Electrical Systems

- Implement a preventative maintenance program to actively clean, torque down connections, perform industry accepted maintenance practices, and perform maintenance as recommended by the latest version of ANSI standard for maintenance testing specifications. All new equipment shall have preventative maintenance performed regularly to ensure a safe working environment and to improve the longevity of electrical equipment.

8.4 SYSTEM REDUNDANCY RECOMMENDATIONS

8.4.1 Upper Jay Hydrogeologic Study

- Conduct a hydrogeologic study in the Hamlet of Upper Jay to determine if a well(s) can be developed in this area capable of supplying both water districts.

- Identify the geologic and hydrologic conditions within the study area and determine potential well sites within surficial and/or bedrock aquifers.

- Following initial investigations, a site will be selected for further evaluation including the development of a test well(s) to determine capacity and quality.

9.0 PROJECT COST AND FINANCING

9.1 PROJECT COST

The opinion of probable project cost for the recommended short-term improvements and long-term improvements outlined above are $3,360,000 and $11,370,000 respectively. A detailed breakdown of the opinion of probable costs, O&M costs, and life cycle costs are included in Appendices L and M. For reference, included in Appendix N is the Town's 2025 adopted water budget.

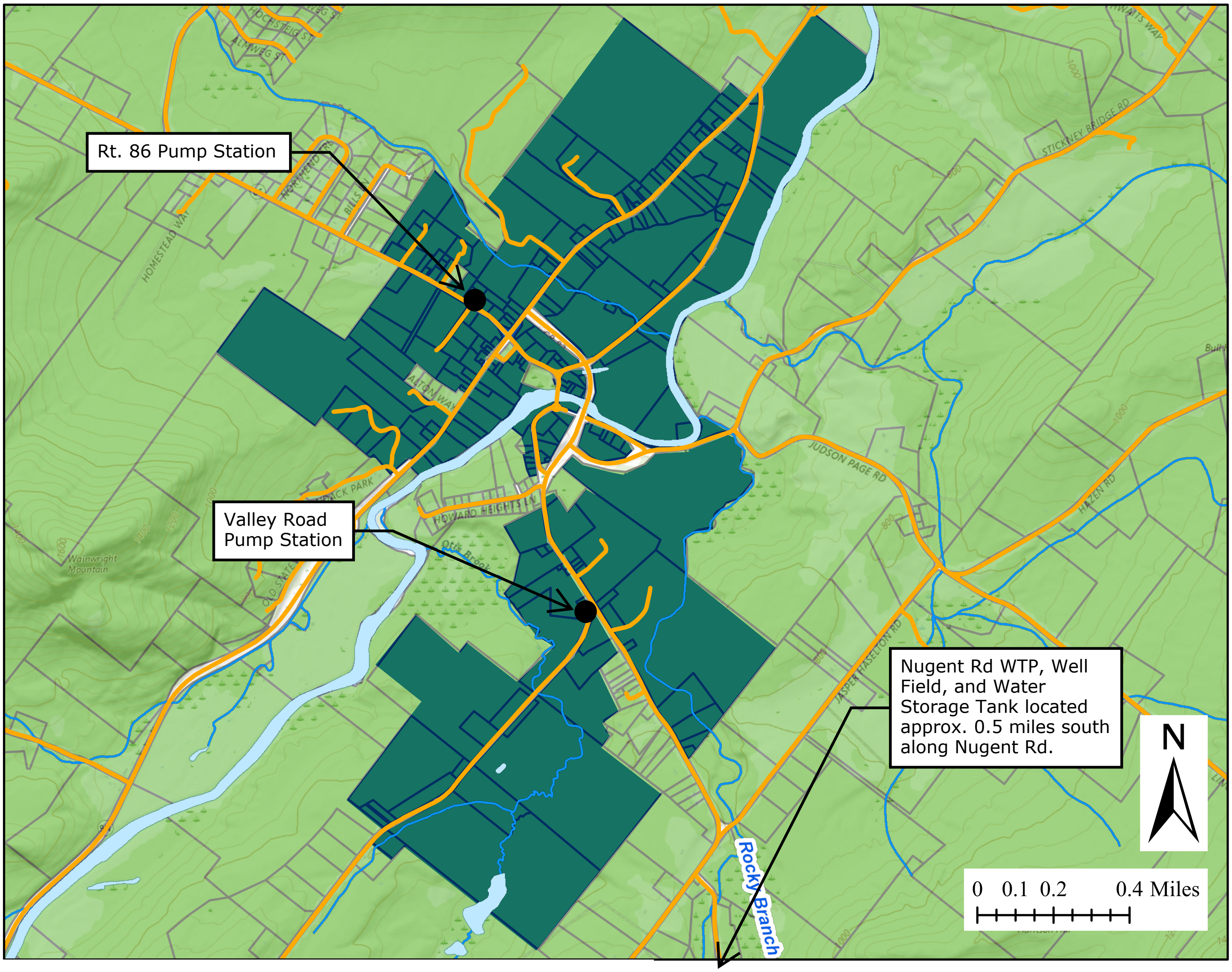
9.2 PROJECT SCHEDULE AND FINANCING

This Engineering Report will be submitted to the New York State Environmental Facilities Corporation (NYSEFC) along with a project listing form to be included in the 2025-26 Intended Use Plan (IUP) through the Drinking Water State Revolving Fund (DWSRF) program. The report will be submitted to the NYSEFC for the 2025 project listing. The project schedule for the design and construction of the recommended improvements will be dependent on securing funding for the project.

Appendix A \

Water District Maps

Hamlet of Jay Water District



Key to to Hamlet Map

Town of Jay

- Roads
- Town Boundary
- Tax Parcels

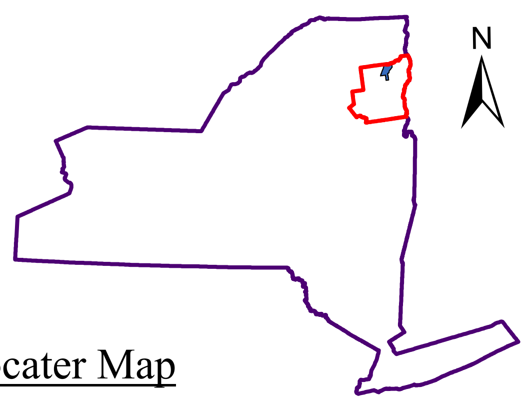
Hamlet of Jay

- 2006 WD Boundary

NYS Hydrography

- Hydrography Flowline
- Hydrography Waterbody Intermittent
- Hydrography Waterbody All

Locater Map



Key to Locater Map

- Essex County Boundary
- New York State Boundary
- Town of Jay Boundary

0 50 100 200 Miles

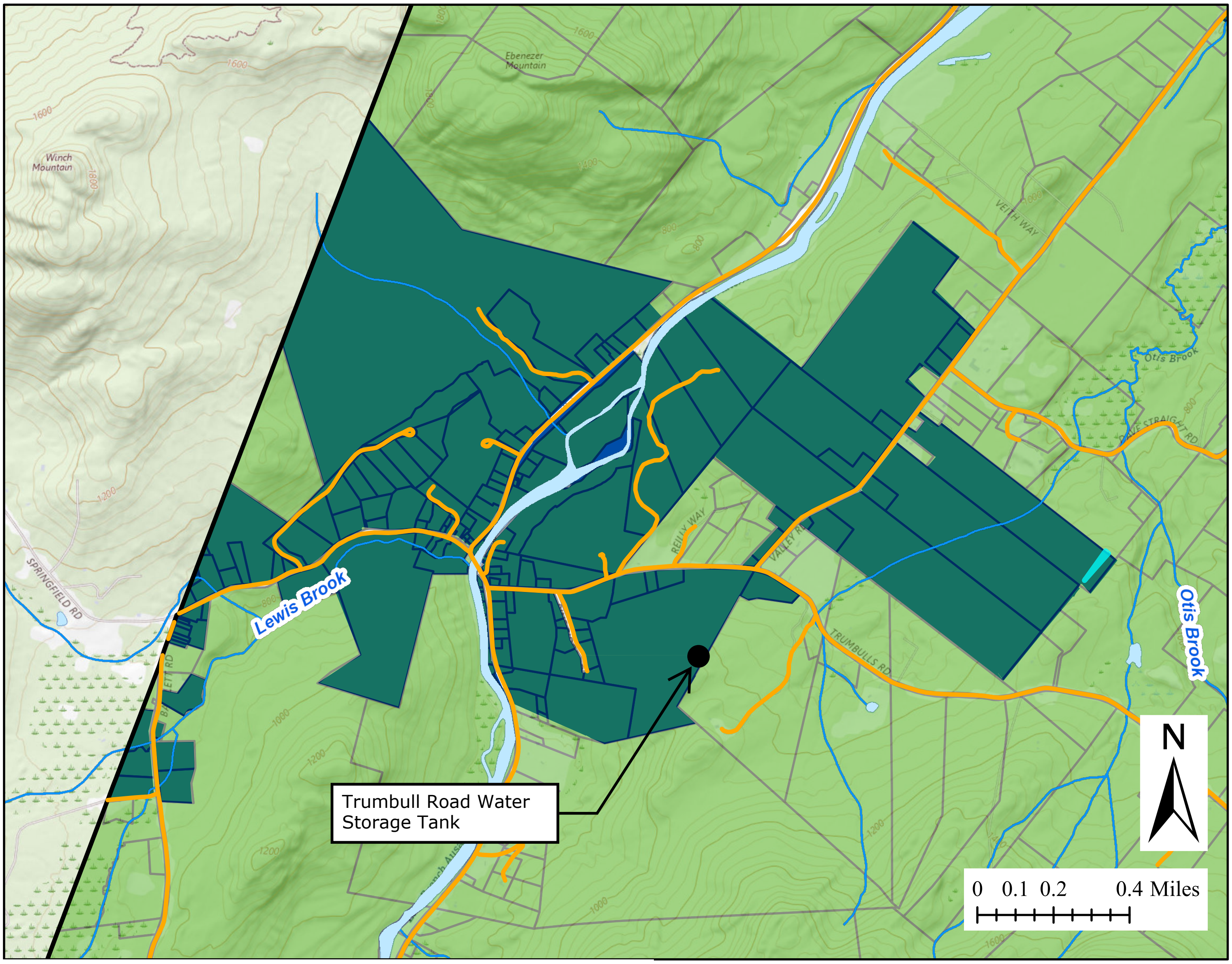
USGS; NYSGPO, USGS The National Map: National Boundaries Dataset, 3DEP Elevation Program, Geographic Names Information System, National Hydrography Dataset, National Land Cover Database, National Structures Dataset, and National Transportation Dataset; USGS Global Ecosystems; U.S. Census Bureau TIGER/Line data; USFS Road data; Natural Earth Data; U.S. Department of State HIU; NOAA National Centers for Environmental Information

Date Saved: 6/11/2024 1:57 PM

Cartographer: Rochelle Daniels

mjteam.com

Hamlet of Upper Jay Water District



Key to to Hamlet Map

Town of Jay

- Roads
- Town Boundary
- Tax Parcels

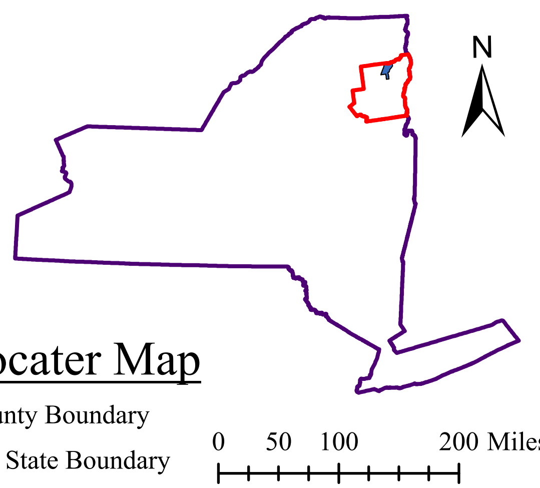
NYS Hydrography

- Hydrography Flowline
- Hydrography Waterbody Intermittent
- Hydrography Waterbody All

Hamlet of Upper Jay

- 2006 WD Boundary

Locater Map



Key to Locater Map

- Essex County Boundary
- New York State Boundary
- Town of Jay Boundary

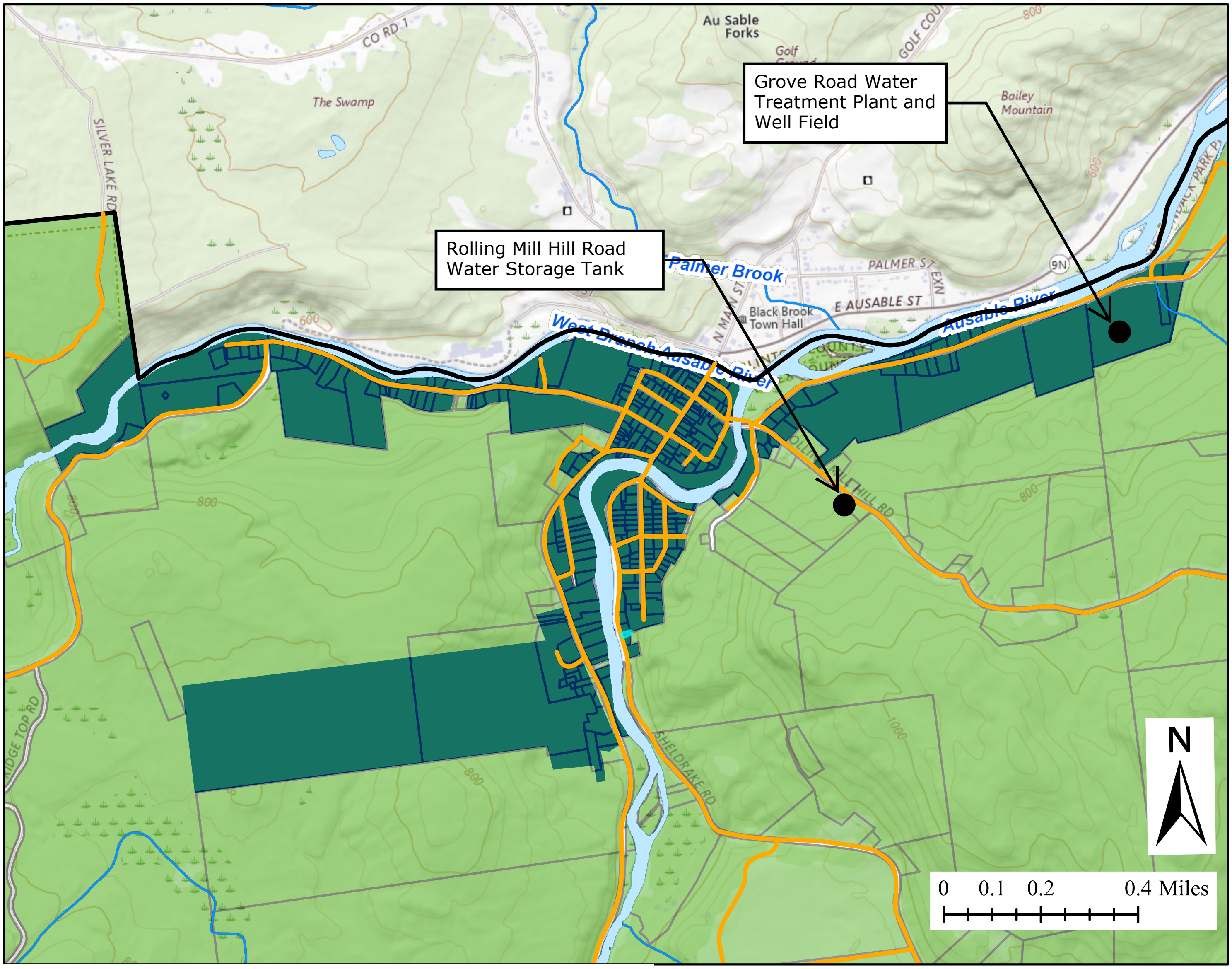
USGS; NYSGPO, USGS The National Map: National Boundaries Dataset, 3DEP Elevation Program, Geographic Names Information System, National Hydrography Dataset, National Land Cover Database, National Structures Dataset, and National Transportation Dataset; USGS Global Ecosystems; U.S. Census Bureau TIGER/Line data; USFS Road data; Natural Earth Data; U.S. Department of State HIU; NOAA National Centers for Environmental Information

Date Saved: 6/11/2024 1:57 PM

Cartographer: Rochelle Daniels

mjteam.com

Hamlet of Au Sable Forks Water District



Key to to Hamlet Map

Town of Jay

- Roads
- Town Boundary
- Tax Parcels

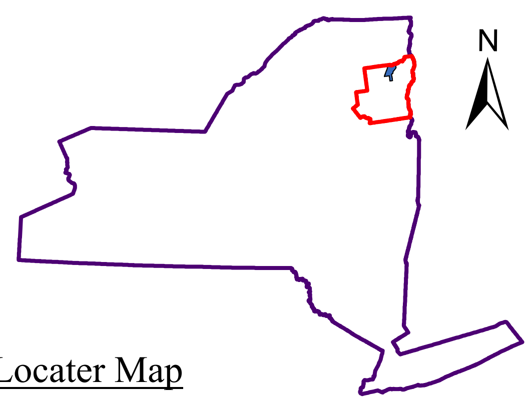
NYS Hydrography

- Hydrography Flowline
- Hydrography Waterbody Intermittent
- Hydrography Waterbody All

Hamlet of Au Sable Forks

- 2006 WD Boundary

Locater Map



Key to Locater Map

- Essex County Boundary
- New York State Boundary
- Town of Jay Boundary

0 50 100 200 Miles

USGS; NYSGPO, USGS The National Map: National Boundaries Dataset, 3DEP Elevation Program, Geographic Names Information System, National Hydrography Dataset, National Land Cover Database, National Structures Dataset, and National Transportation Dataset; USGS Global Ecosystems; U.S. Census Bureau TIGER/Line data; USFS Road data; Natural Earth Data; U.S. Department of State HIU; NOAA National Centers for Environmental Information

Date Saved: 6/11/2024 9:06 AM

Cartographer: Rochelle Daniels

mjteam.com

Appendix B \

NYSDOH Annual Inspection Reports

NEW YORK STATE OF OPPORTUNITY. | Department of Health

KATHY HOCHUL
Governor

MARY T. BASSETT, M.D., MPH
Commissioner

KRISTIN M. PROUD
Acting Executive Deputy Commissioner

December 27, 2022

Supervisor and Town Board
Town of Jay
P. O. Box 730
Au Sable Forks, NY 12912

Re: Annual Inspection – PWS NY1516260
Au Sable Forks Water District
Jay T., Essex Co.

Dear Supervisor Stanley and Board Members:

I met with Norm Coolidge and Kevin Lincoln on September 19, 2022 for the annual inspection of the AuSable Forks water system. I have enclosed copies of the Water System Field Compliance Report and the SDWIS/State Public Water System Inventory Report for your review. Please let me know if any of the information on the forms is incorrect. Also enclosed is an Inspection Report Supplement with general information about operation of a community water supply system, the topics were discussed during the inspection. No violations of the State Sanitary Code were observed during my inspection.

A bacteriological sample was collected from the system on February 9, 2022, and the results were satisfactory.

Water System Description

The Au Sable Forks Water Supply System obtains its water from two new 12-inch drilled wells, each approximately 160 feet deep, located on Grove Road. The new wells replace 2 – 8 inch drilled wells that were called Well #1 and Well #3. The old wells have been decommissioned and the new wells are designated as Well #1 and Well #2. The two new wells both have a 300 gpm pump installed in the well, and the casings for these new wells are located well above the 100-year flood elevation. The new wells went on-line in October 2020. The distribution systems consist of 6”, 8”, 10” and 12” water mains with a 360,000-gallon tank providing storage and pressure. The system also provides water to the Town of Black Brook in Clinton County. The water is chlorinated at the treatment plant. The system presently serves approximately 900 people through approximately 225 service connections. Emergency power is available at the treatment plant.

Saranac Lake District Office – 41 St. Bernard Street, Saranac Lake, New York 12983 – 518-891-1800 l saranaclake@health.ny.gov

Empire State Plaza, Corning Tower, Albany, NY 12237 | health.ny.gov

Deficiencies

There are a couple of deficiencies that are listed below that must be addressed:

1. A hydrant flushing program and a valve exercising program must be developed and implemented. All valves should be located with GPS and exercised on a yearly basis. Valves should be replaced when necessary. Hydrants should be flushed and flow tested on an annual basis. All hydrants in the water district should be painted. Norm did start painting some of the hydrants and they look good.

2. The exterior of the water storage tank needs to be cleaned and repainted. Norm and Kevin did a lot of clearing around the storage tank which looks good and will help to keep mold and algae from growing on the outside of the tank. A fence must be installed around the storage tank for security reasons. The wiring for the heat, temperature sensor installation, and flow meter installation needs to be completed, and a new electric service for the tank site needs to be installed.

Lead and Copper Rule Revisions

The US Environmental Protection Agency is in the process of revising the Lead and Copper Rule. They are implementing the revisions in phases. The first phase of the rule revisions was enacted in December 2021 and includes the requirement for all Community and Non-transient Non-Community water systems to perform a lead service line inventory. The work required to prepare the service line inventory will be significant. The composition of all service lines for all lateral connections must be determined for both the portion of the lateral that the water system owns (from the main to the shutoff valve) and that the homeowner owns (shutoff valve to the home). Service laterals may be lead, copper, galvanized, cast iron, or plastic. I will be sending out an Excel Spreadsheet that water operators can use to compile all of this information. Inventories are due to our office by October 2024. I have discussed the requirements of this rule revision will all water operators during the inspection process. If you need or want any additional information about the requirements for this rule revision, please do not hesitate to call me. My main goal of including this information in this letter is to let you know that a significant amount of additional time will be required by your water operators to perform this task.

I would like to thank Norm and Kevin for their time and courtesy during the inspection. Norm is doing an excellent job operating and maintaining the town water systems. Please call me if you have any question.

Sincerely,

Marlene R. Martin

Marlene R. Martin, P.E.
Professional Engineer

Enc.
cc: Norm Coolidge
Kevin Lincoln

SDWIS/State Public Water System Inventory Report

PWS Name: AUSABLE FORKS WD - PWS ID: NY1516260

Basic Information

State PWS Type Code: C-Community water system	Federal PWS Type Code: C-Community water system
Principal County: ESSEX	Principal City:
Activity: A	Owner Type: L-Local Government
Federal Primary Source Type: GW-Ground water	State Primary Source Type: GW-Ground water
System Population: 900	Total Service Connections: 225
Buyer Population: 594	*Buyer Service Connections: 198*
Overall Population: 1,494	*Overall Service Connections: 423*
Last Sanitary Survey: September 19, 2022	

Population Served

R-Residential Population:	900
Total Population	*900*

Service Areas Characteristics

MUNICIPALITY (MU)	Primary Service Area ☑

Related Geographic Areas

ESSEX (CN-County) FIPS: 36031 State Code: 15	Principal?	Primary ☑	JAY (T) (CT-City) FIPS: State Code: 1554	Principal?	Primary ☐

Points of Contact

AC-Administrative Contact
JAY SUPERVISOR AND TOWN BOARD Phone: 518-647-2204
TOWN OF JAY
PO BOX 730
AUSABLE FORKS, NY 12912

DO-Designated Operator in Direct Charge
COOLIDGE, NORM Phone: 518-647-2204
PO BOX 730
AUSABLE FORKS, NY 12912

EC-Emergency Contact
COOLIDGE, NORM Phone: 518-647-2204
PO BOX 730
AUSABLE FORKS, NY 12912

OP-Operator
COOLIDGE, NORM Phone: 518-647-2204
PO BOX 730
AUSABLE FORKS, NY 12912

Certified Operators

Coolidge, Norman L - NY0041556	Mintz, Paul F - NY0040350

Regulating Agency

SARANAC LAKE DISTRICT OFFICE	NEW YORK STATE DEPARTMENT OF HEALTH

Water Purchases

Sells To: NY0930151 - BLACK BROOK WD #1

Water System Facilities

AUSABLE FORKS WTP State ID: TP001 - Facility Type: TP-Treatment Plant GW-Ground water Activity:A

Unit Process Name: HYPOCHLORINATIO

Treatments Applied:

D423 - DISINFECTION, HYPOCHLORINATION, PRE

DRILLED WELL #1 (200') State ID: W001 - Facility Type: WL-Well GW-Ground water Activity:I

SDWIS/State Public Water System Inventory Report

PWS Name: AUSABLE FORKS WD - PWS ID: NY1516260

DRILLED WELL #2 (200') State ID: W002 - Facility Type: WL-Well GW-Ground water Activity:I	**DRILLED WELL #3 (200') State ID: W003 - Facility Type: WL-Well GW-Ground water Activity:I**
DRILLED WELL #2-12 State ID: WL2-12 - Facility Type: WL-Well GW-Ground water Activity:A	**DRILLED WELL #1-12 (164') State ID: WL1-12 - Facility Type: WL-Well GW-Ground water Activity:A**
DISTRIBUTION SYSTEM State ID: D001 - Facility Type: DS-Distribution System/Zone Activity:A	**CONNECTION TO BLACK BROOK WD#1 State ID: 000000088431 - Facility Type: OT-Other GW-Ground water Activity:A**
STORAGE TANK (360,000) State ID: ST001 - Facility Type: ST-Storage-ST Activity:A	

State of New York Department of Health
Saranac Lake District Office
41 St. Bernard Street
Saranac Lake, NY 12983-1834
(518) 891-1800
saranaclake@health.ny.gov

Water System Field Compliance Inspection Summary Report

Operation:	AuSable Forks WD (ID: 359924)
Facility Name:	AUSABLE FORKS WD
Facility Code:	1516260
Facility Address:	Grove Street, Ausable Forks, NY 12912
NYS Public Water Supply (PWS) ID:	NY1516260

To the Attention of:

Archie Depo
TOWN OF JAY
Po Box 730
Ausable Forks, NY 12912
Email: supervisor@townofjayny.gov

Sanitary Survey

Date:	September 19, 2022 01:30 PM
Inspector:	Marlene Martin (marlene.martin@health.ny.gov)
Responsible Person:	Norm Coolidge

Summary

Number of Critical Violations Found:	0
Number of Other Violations Found:	0
Number of Deficiencies Found:	2

Reinspection is not Required

Each item found in violation is reported below along with the code requirement.

NO CRITICAL VIOLATIONS REPORTED

NO NON-CRITICAL VIOLATIONS REPORTED

DEFICIENCIES FOUND

DISTRIBUTION SYSTEM

Level of deficiency: Minor

Inspector Findings: A hydrant flushing program and a valve exercising program must be developed and implemented. All valves should be located with GPS and exercised on a yearly basis. Valves should be replaced when necessary. Hydrants should be flushed and flow tested on an annual basis. All hydrants in the water district should be painted.

FINISHED WATER STORAGE

Level of deficiency: Minor

Inspector Findings: The exterior of the water storage tank needs to be cleaned and repainted. A fence must be installed around the storage tank for security reasons. The wiring for the heat, temperature sensor and flow meter needs to be completed, and a new electric service for the tank site needs to be installed.

Water System Information

Source Type: **Ground,**

Type of Disinfection: **Chlorine (Cl),**

Disinfection Waiver Issued? No

4-Log Treatment Installed? No

Coliform Surveillance Sample Collected? **No**

Chlorine Residual Reading(s):

1) **Cl Residual:** 0.5 **Time:** 2:00 PM **Location:** wtp

Water System Notes:

Comments: No violations were observed at the time of the inspection.

Marlene R Martin

Inspector: Marlene Martin
(marlene.martin@health.ny.gov)

COMMUNITY WATER SUPPLY INSPECTION SUPPLEMENT - 2022

GENERAL

Reporting Emergencies
A copy of the Reporting Emergencies at Public Water Systems bulletin must be posted at water plants and/or water operators' offices. The requirements for Department of Health notification during emergencies are noted on the bulletin.

Distribution System Flushing
The distribution system should be flushed at least once per year. The distribution system valves should be exercised on an annual basis to ensure that they operate properly. Broken or non-functioning valves and hydrants should be repaired or replaced when they are found.

Distribution System Mapping
Good mapping of the distribution system should be available. Having the map in digital format that can be accessed while in the field is a huge advantage for water operators.

Leak Detection
Leak detection should be performed on a routine maintenance basis, not just in the event of a major loss of water.

Backflow Prevention
Community water suppliers are required to have a cross connection control program in place to protect the water system from contamination by requiring backflow prevention devices to be installed for commercial and industrial users in the system. The water system operators need to determine the degree of potential hazard and the type of device required at each connection. The building owner is responsible for installing an approved backflow prevention device and having the device tested annually by a certified tester.

The water supplier is responsible for making sure that the devices are tested. Water operators should prepare a list of all establishments in the water system that should have backflow prevention devices. Some examples include schools, hospitals, wastewater treatment plants, restaurants, etc. A letter should be sent each year to the owner of the backflow prevention device reminding them to have the device tested and to send certifications to the water supplier. The certifications from the backflow testers should be tracked by the water supplier to ensure that each backflow prevention device in the system is tested on an annual basis.

The Unified Building Code requires that new homes and other structures include a backflow prevention device in their connection to the water system. The water operator should discuss this issue with the local Code Enforcement Officer to ensure that the CEO is enforcing this requirement.

All hoses in use within the water plant should have backflow prevention devices (i.e. hose bib vacuum breakers)

Storage Tanks
The NYS DOH and the American Water Works Association (AWWA) recommend that storage tanks should be inspected every 5 years. A copy of the storage tank inspection report should be submitted to our office.

Annual Water Quality Report
Annual Water Quality Reports must be distributed by May 31st of each year with the previous year water quality information. The Report must be mailed to every bill paying customer and a Certification Form completed and sent to the Department of Health. The Certification Form for last year's report was received.

Operator Certification
Water operators must earn qualified continuing education credit hours within their 3-year certification period. Grade A operators must have at least 5 hours from an approved laboratory course.

Emergency Response Plan (ERP) and Standard Operating Procedures (SOP)
ERPs and SOPs for the water supply system should be reviewed annually and updated as needed. Copies of the ERP and the SOP Manual should be available at the water plant, at a safe location at the municipal office, and a copy sent to DOH for our files.

Labels in Water Plant
All chemical feed equipment and containers must be labeled. All pipes should be labeled and have direction of flow arrows. Chemical to water mix rations must be posted by the day tanks.

MONITORING AND REPORTING

General
The monthly operation report forms and the water samples are completed in a timely and professional manner and are submitted to the Department of Health by the 10th day of the following month as required. Operators should not wait for sample results before submitting the reports. Sampling should be done early in the sampling period.

SDWIS /State Water Sample Schedule Report
A water sampling scheduling report is sent to the water operator every year in January. Information about future monitoring is also shown on the Report.

Asbestos
If your distribution system includes asbestos cement piping, your sampling schedule will include asbestos sampling requirements every nine years. Collect asbestos samples from the distribution system where asbestos cement pipe is located.

Lead and Copper
Lead and copper sampling plans are required and should have already been submitted the DOH. Please review your sampling plan carefully to determine when and how often you need to collect your samples. Samples must be first draw samples, and copies of all results must be sent to homeowners. All sample results, along with the required certification form, must be submitted to the DOH.

Disinfectants/Disinfection By-Products
The Disinfectant / Disinfection By-Product Rule was developed to control levels of trihalomethanes and haloacetic acids that are formed when chlorine is added to water with elevated levels of natural organic matter. Samples are collected at the maximum residence time in the distribution system. Surface water systems must collect a raw water TOC sample on the same day.

Radiological
Samples for Gross Alpha, radium-226 and radium-228 are required every 9 years and are collected at entry point.

Synthetic Organic Chemicals/Principal Organic Chemicals
SOC and POC samples are required every 3 years and are collected at entry point.

Inorganic Chemicals
IOC samples are required every 3 years for groundwater systems and annually for surface water and GWUDI systems and are collected at entry point.

Coliform Bacteria

Coliform bacteria sample are collected in accordance with the Site Sampling Plan. Free chlorine residual levels must be measured at the time the samples are collected. Free chlorine residuals must be measurable throughout the distribution system. In the event of a positive coliform bacteria sample, 3 repeat samples must be collected as soon as possible, from the original site, a location within 5 service connections upstream, a location within 5 service connections downstream and a random location. Systems with groundwater sources must also collect a raw water sample.

Nitrate

A nitrate sample must be collected once each year at entry point.

ADDITIONAL SURFACE WATER & GWUDI SYSTEM REQUIRMENTS

Turbidity

Continuous turbidimeters must be calibrated as required by the manufacturer. Continuous turbidity monitoring is required at the filter plant and results must be reported every 4 hours. If the continuous turbidimeter fails, the water operators must collect grab samples every 4 hours when the filters are operating. The turbidimeters must be repaired or replaced within 5 working days. The performance standard for filters is 0.3 NTU for conventional and direct filtration systems (1.0 NTU for Diatomaceous Earth (DE) and slow sand filter systems). A treatment technique violation occurs if more than 5 percent of the filtered water turbidity measurements taken each month exceed 0.3 NTU (1.0 for DE & slow sand). A violation occurs if the turbidity level of the filtered water entering the distribution system exceeds 1.0 NTU (5.0 NTU for DE & slow sand) and a Boil Water Order will be issued.

Water Intake Structure

Water supply intake structures should be inspected annually.

Long Term 2 Enhanced Surface Water Treatment Rule (LT2)

Surface water systems collected raw water E Coli (enumeration) bacteria samples every other week for 1 year starting in October in 2017 to determine if the water source is vulnerable to contamination with cryptosporidium. This requirement will be repeated every 9 years.


TOWN
OF
JAY


TO
OF

November 28, 2022

Supervisor and Town Board
Town of Jay
P. O. Box 730
AuSable Forks, NY 12912

Re: Annual Inspection
Jay Water District – NY1500279
Upper Jay Water District – NY1500294
Jay T., Essex Co.

Dear Supervisor Stanley and Board Members:

I met with Norm Coolidge, Matt Stanley, Kevin Lincoln, and Erin Himmel on July 14, 2022 for the annual inspection of the Jay and Upper Jay water systems. I have enclosed copies of the Water System Field Compliance Reports and the SDWIS/State Public Water System Inventory Reports for both systems for your review. Please let me know if any of the information on the forms is incorrect. Also enclosed is an Inspection Report Supplement with general information about operation of a community water supply system, the topics were discussed during the inspection.

A bacteriological sample was collected from the Jay WD and Upper Jay WD water systems on July 18, 2022 and the results were satisfactory.

Water System Description

Jay Water District (WD) – The water system that serves the Jay WD consists of one 6" drilled well and one 12" drilled well located adjacent to the water treatment plant on Nugent Lane. The water is chlorinated and pumped directly into a 400,000-gallon storage tank. The water then flows by gravity through an 8" transmission main to the distribution system. The distribution system consists mostly of 8" and 6" ductile iron mains along with other smaller diameter pipe. There is a booster pump station on Jay Hill and at the corner of Glen Road and Valley Road. The Jay WD serves a total of 734 people through 328 service connections including the Upper Jay WD (approximately 500 people through 217 service connections are located in Jay WD). Emergency Power is available at the treatment plant and booster pump stations.

Upper Jay Water District – The Upper Jay WD purchases water from the Jay WD, has a booster pump station, a booster chlorination station (which is currently not being used) and has a 400,000-gallon storage tank. The Upper Jay WD serves approximately 234 people through 111 service connections.

At the time of the inspection, no critical public health violations were noted; however, numerous deficiencies are noted:

Jay WD – Violation

During my inspection I issued a violation for not having "developed well sources sufficient to meet maximum day demand with the largest well out of service". Currently there are two wells that serve the Jay/Upper Jay water system. If the largest well (Well #3) is out of service for any reason, the second well (Well #2) is not capable of meeting the maximum day water demand of the system. Therefore, the Town should begin planning for a third well to meet the water demands of the system. A new well should be sited, drilled and placed online by December 31, 2024.

Jay WD – Deficiencies

1. Some of the piping and valves in the water treatment building are beginning to rust. We recommend that the rusting pipes/valves be wire brushed, primed and painted to prevent further corrosion of these infrastructure.

2. The pressure tanks and pump in the Route 86 Booster Pump Station are reaching the end of their design life and need to be replaced.

3. A formal hydrant flushing program and valve exercising program must be developed and implemented. Flushing should be conducted at least once per year, and all valves should be exercised at least once per year. Additionally, all fire hydrants should be flow tested and painted. The hydrant on Rt 9N near the Rosio residence needs to be replaced.

4. The flow meter in the Valley Road Booster Pump Station needs to be replaced.

5. The SCADA system at the Nugent Plant, including the two booster pump stations and both storage tanks, should be upgraded.

6. The Nugent Plant and associated wells that serve the Jay WD are located adjacent to a brook that is unstable. The streambed has moved over the years and during large rain events, the stream overflows its banks upstream of the water plant and water flows within 10 feet of the storage tank and at some point could potentially impact the wells at the water plant. Based on conversations Norm and Chris, it appears that this situation is a result of Hurricane Irene and Tropical Storm Lee. The Town should work with the County to develop a Scope of Work to address this extremely important issue.

Upper Jay WD - Deficiencies

1. The "basement" portion of the booster chlorination station at the Upper Jay WD finished storage tank is filled was filled with water. The water must be removed and the area must be kept dry.

2. A hydrant flushing and valve exercising program should be developed for the Upper Jay water distribution system. Valves should be located and exercised on a yearly basis. Hydrants should be flushed and flow tested on a yearly basis. All hydrants should be painted.

3. The building at the Upper Jay Plant should be cleaned inside and outside. Vegetation should be removed around the base of the storage tank and replaced with a weed free barrier covered with stone. The fence surrounding the water storage tank must be maintained and tree limbs and leaning/falling trees should be removed from the fence line.

4. The controls at the Upper Jay WD storage tanks are outdated and should be upgraded.

In general, more time needs to be allocated to operating and maintaining the Jay and Upper Jay water systems. Norm is doing an excellent job operating and maintaining the town water systems. Please call me if you have any question.

Sincerely,

Marlene R. Martin

Marlene R. Martin, P.E.
Professional Engineer

Enc.
cc: Norm Coolidge
Kevin Lincoln

SDWIS/State Public Water System Inventory Report

PWS Name: JAY WD - PWS ID: NY1500279

Basic Information

State PWS Type Code: C-Community water system	Federal PWS Type Code: C-Community water system
Principal County: ESSEX	Principal City: JAY (T)
Activity: A	Owner Type: L-Local Government
Federal Primary Source Type: GW-Ground water	State Primary Source Type: GW-Ground water
System Population: 500	Total Service Connections: 217
Buyer Population: 234	*Buyer Service Connections: 111*
Overall Population: 734	*Overall Service Connections: 328*
Last Sanitary Survey: July 14, 2022	

Population Served

R-Residential Population:	500
Total Population	*500*

Service Areas Characteristics

MUNICIPALITY (MU)	Primary Service Area ☑

Related Geographic Areas

ESSEX (CN-County) FIPS: 36031 State Code: 15	Principal? Primary ☑	JAY (T) (CT-City) FIPS: State Code: 1554	Principal? Primary ☑

Points of Contact

AC-Administrative Contact
JAY SUPERVISOR AND TOWN BOARD Phone: 518-647-2204
TOWN OF JAY
PO BOX 730
AUSABLE FORKS, NY 12912

OP-Operator
COOLIDGE, NORM Phone: 518-647-2204
PO BOX 730
AUSABLE FORKS, NY 12912

DO-Designated Operator in Direct Charge
COOLIDGE, NORM Phone: 518-647-2204
PO BOX 730
AUSABLE FORKS, NY 12912

EC-Emergency Contact
COOLIDGE, NORM Phone: 518-647-2204
PO BOX 730
AUSABLE FORKS, NY 12912

Certified Operators

Coolidge, Norman L - NY0041556	Mintz, Paul F - NY0040350	Sousie, Frank H - NY0038522

Regulating Agency

SARANAC LAKE DISTRICT OFFICE	NEW YORK STATE DEPARTMENT OF HEALTH

Water Purchases

Sells To: NY1500294 - UPPER JAY WD

Water System Facilities

JAY WTP State ID: TP001 - Facility Type: TP-Treatment Plant GW-Ground water Activity:A

Unit Process Name: HYPOCHLORINATIO

Treatments Applied:

D423 - DISINFECTION, HYPOCHLORINATION, PRE

DRILLED WELL #1 State ID: W001 - Facility Type: WL-Well GW-Ground water Activity:I

70' DRILLED WELL (#3) State ID: W003 - Facility Type: WL-Well GW-Ground water Activity:A	**DRILLED WELL #2 State ID: W002 - Facility Type: WL-Well GW-Ground water Activity:A**
DISTRIBUTION SYSTEM State ID: D001 - Facility Type: DS-Distribution System/Zone Activity:A	**STORAGE TANK (400,000) State ID: 000000088426 - Facility Type: ST-Storage-ST Activity:A**

SDWIS/State Public Water System Inventory Report

PWS Name: UPPER JAY WD - PWS ID: NY1500294

Basic Information

State PWS Type Code: C-Community water system	Federal PWS Type Code: C-Community water system
Principal County: ESSEX	Principal City: JAY (T)
Activity: A	Owner Type: L-Local Government
Federal Primary Source Type: GWP-Purchased ground water	State Primary Source Type: GW-Ground water
System Population: 234	Total Service Connections: 111
Overall Population: 234	*Overall Service Connections: 111*
Last Sanitary Survey: July 14, 2022	

Population Served

R-Residential Population:	234
Total Population	*234*

Service Areas Characteristics

MUNICIPALITY (MU)	Primary Service Area ✔

Related Geographic Areas

ESSEX (CN-County) FIPS: 36031 State Code: 15	Principal? Primary ✔	JAY (T) (CT-City) FIPS: State Code: 1554	Principal? Primary ✔

Points of Contact

AC-Administrative Contact
JAY SUPERVISOR AND TOWN BOARD Phone: 518-647-2204
TOWN OF JAY
PO BOX 730
AUSABLE FORKS, NY 12912

DO-Designated Operator in Direct Charge
COOLIDGE, NORM Phone: 518-647-2204
PO BOX 730
AUSABLE FORKS, NY 12912

EC-Emergency Contact
COOLIDGE, NORM Phone: 518-647-2204
PO BOX 730
AUSABLE FORKS, NY 12912

OP-Operator
COOLIDGE, NORM Phone: 518-647-2204
PO BOX 730
AUSABLE FORKS, NY 12912

Certified Operators

Mintz, Paul F - NY0040350

Regulating Agency

SARANAC LAKE DISTRICT OFFICE	NEW YORK STATE DEPARTMENT OF HEALTH

Water Purchases

Buys From: NY1500279 - JAY WD

Water System Facilities

UPPER JAY PUMP STATION State ID: CC001 - Facility Type: CC-Consecutive Connection GW-Ground water Activity:A

UPPER JAY WTP State ID: 002 - Facility Type: TP-Treatment Plant GW-Ground water Activity:I

Unit Process Name: HYPOCHLORINATIO

Treatments Applied:

D423 - DISINFECTION, HYPOCHLORINATION, PRE

SDWIS/State Public Water System Inventory Report

PWS Name: UPPER JAY WD - PWS ID: NY1500294

UPPER JAY BOOSTER CHLORINATION STATION State ID: 000000003162 - Facility Type: TP-Treatment Plant Activity:A	**BIG BROOK IMPOUNDMENT State ID: 001 - Facility Type: IN-Intake SW-Surface water Activity:I**
DISTRIBUTION SYSTEM State ID: DS01 - Facility Type: DS-Distribution System/Zone Activity:A	**400,000 GALLON STORAGE TANK State ID: 000000003160 - Facility Type: ST-Storage-ST Activity:A**

State of New York Department of Health
Saranac Lake District Office
41 St. Bernard Street
Saranac Lake, NY 12983-1834
(518) 891-1800
saranaclake@health.ny.gov

Water System Field Compliance Inspection Summary Report

Operation:	JAY WD (ID: 359949)
Facility Name:	JAY WD
Facility Code:	1500279
Facility Address:	Nuggent Road, Jay, NY 12941
NYS Public Water Supply (PWS) ID:	NY1500279

To the Attention of:

Archie Depo
TOWN OF JAY
Po Box 730
Ausable Forks, NY 12912
Email: supervisor@townofjayny.gov

Sanitary Survey

Date:	July 14, 2022 08:15 AM
Inspector:	Marlene Martin (marlene.martin@health.ny.gov)
Responsible Person:	Norman Coolidge

Summary

Number of Critical Violations Found:	0
Number of Other Violations Found:	1
Number of Deficiencies Found:	1

Reinspection is not Required

Each item found in violation is reported below along with the code requirement.

NO CRITICAL VIOLATIONS REPORTED

OTHER NON-CRITICAL VIOLATIONS FOUND

APP.5-A 3.2.1: DEVELOPED WELL SOURCES SUFFICIENT TO MEET MAXIMUM DAY DEMAND WITH THE

Level of deficiency: Minor

Inspector Findings: Currently there are two wells that serve the Jay/Upper Jay water system. If the largest well (Well #3) is out of service for any reason, the second well (Well #2) is not capable of meeting the maximum day water demand of the system. Therefore, the Town should begin planning for a third well to meet the water demands of the system. A new well should be sited, drilled and placed online by December 31, 2024.

DEFICIENCIES FOUND

OTHER

Level of deficiency: Recommendation

Inspector Findings: Some of the piping and valves in the water treatment building are beginning to rust. We recommend that the rusting pipes/valves be wire brushed, primed and painted to prevent further corrosion of these infrastructure.

Water System Information

Source Type: **Ground,**

Type of Disinfection: **Chlorine (Cl),**

Disinfection Waiver Issued? No

4-Log Treatment Installed? Yes

Coliform Surveillance Sample Collected? **No**

Chlorine Residual Reading(s):

1) **Cl Residual:** 1.14 **Time:** 9:05 AM **Location:** wtp

Water System Notes:

Comments:

All Green deficiencies that were noted in the 2021 inspection report that have not been addressed are still open and need to be addressed.

Significant work has been completed since last inspection, and it appears that Norm is getting the support that he needs to properly operate and maintain the water system for Jay and Upper Jay.

Stream restoration work is needed to ensure the stream bed is stable and the wells, storage tank, and water treatment building itself are protected from the shifting stream channel during significant rain events. The Town should work with the County to develop a Scope of Work to address this extremely important Issue. This concern has been brought up for the past couple of years as should be addressed as soon as possible.

Marlene R Martin

Inspector: Marlene Martin
(marlene.martin@health.ny.gov)

State of New York Department of Health
Saranac Lake District Office
41 St. Bernard Street
Saranac Lake, NY 12983-1834
(518) 891-1800
saranaclake@health.ny.gov

Water System Field Compliance Inspection Summary Report

Operation: Upper Jay WD (ID: 360029)
Facility Name: UPPER JAY WD
Facility Code: 1500294
Facility Address: Bartlett Road, Jay, NY 12941
NYS Public Water Supply (PWS) ID: NY1500294

To the Attention of:

Norman Coolidge
Town of Jay
P.o. Box 730
Ausable Forks, NY 12912
Email: NormCoolidgeTOJAY@gmail.com

Sanitary Survey

Date: July 14, 2022 11:15 AM
Inspector: Marlene Martin (marlene.martin@health.ny.gov)
Responsible Person: Norman Coolidge

Summary

Number of Critical Violations Found: 0
Number of Other Violations Found: 0
Number of Deficiencies Found: 1

Each item found in violation is reported below along with the code requirement.

NO CRITICAL VIOLATIONS REPORTED

NO NON-CRITICAL VIOLATIONS REPORTED

DEFICIENCIES FOUND

DISTRIBUTION SYSTEM

Level of deficiency: Minor

Inspector Findings: The "basement" portion of the booster chlorination station at the Upper Jay WD finished storage tank is filled with water. The water must be removed and the area must be kept dry.

Water System Information

Source Type: **Ground,**

Type of Disinfection: **Chlorine (Cl),**

Disinfection Waiver Issued? No

4-Log Treatment Installed? Yes

Coliform Surveillance Sample Collected? **No**

Chlorine Residual Reading(s):

1) **Cl Residual:** 0.54 **Time:** 11:33 A **Location:** storage tank

Water System Notes:

Comments:

Marlene L Martin

Inspector: Marlene Martin
(marlene.martin@health.ny.gov)

COMMUNITY WATER SUPPLY INSPECTION SUPPLEMENT - 2022

GENERAL

Reporting Emergencies

A copy of the Reporting Emergencies at Public Water Systems bulletin must be posted at water plants and/or water operators' offices. The requirements for Department of Health notification during emergencies are noted on the bulletin.

Distribution System Flushing

The distribution system should be flushed at least once per year. The distribution system valves should be exercised on an annual basis to ensure that they operate properly. Broken or non-functioning valves and hydrants should be repaired or replaced when they are found.

Distribution System Mapping

Good mapping of the distribution system should be available. Having the map in digital format that can be accessed while in the field is a huge advantage for water operators.

Leak Detection

Leak detection should be performed on a routine maintenance basis, not just in the event of a major loss of water.

Backflow Prevention

Community water suppliers are required to have a cross connection control program in place to protect the water system from contamination by requiring backflow prevention devices to be installed for commercial and industrial users in the system. The water system operators need to determine the degree of potential hazard and the type of device required at each connection. The building owner is responsible for installing an approved backflow prevention device and having the device tested annually by a certified tester.

The water supplier is responsible for making sure that the devices are tested. Water operators should prepare a list of all establishments in the water system that should have backflow prevention devices. Some examples include schools, hospitals, wastewater treatment plants, restaurants, etc. A letter should be sent each year to the owner of the backflow prevention device reminding them to have the device tested and to send certifications to the water supplier. The certifications from the backflow testers should be tracked by the water supplier to ensure that each backflow prevention device in the system is tested on an annual basis.

The Unified Building Code requires that new homes and other structures include a backflow prevention device in their connection to the water system. The water operator should discuss this issue with the local Code Enforcement Officer to ensure that the CEO is enforcing this requirement.

All hoses in use within the water plant should have backflow prevention devices (i.e. hose bib vacuum breakers)

Storage Tanks

The NYS DOH and the American Water Works Association (AWWA) recommend that storage tanks should be inspected every 5 years. A copy of the storage tank inspection report should be submitted to our office.

Annual Water Quality Report

Annual Water Quality Reports must be distributed by May 31st of each year with the previous year water quality information. The Report must be mailed to every bill paying customer and a Certification Form completed and sent to the Department of Health. The Certification Form for last year's report was received.

Operator Certification
Water operators must earn qualified continuing education credit hours within their 3-year certification period. Grade A operators must have at least 5 hours from an approved laboratory course.

Emergency Response Plan (ERP) and Standard Operating Procedures (SOP)
ERPs and SOPs for the water supply system should be reviewed annually and updated as needed. Copies of the ERP and the SOP Manual should be available at the water plant, at a safe location at the municipal office, and a copy sent to DOH for our files.

Labels in Water Plant
All chemical feed equipment and containers must be labeled. All pipes should be labeled and have direction of flow arrows. Chemical to water mix rations must be posted by the day tanks.

MONITORING AND REPORTING

General
The monthly operation report forms and the water samples are completed in a timely and professional manner and are submitted to the Department of Health by the 10th day of the following month as required. Operators should not wait for sample results before submitting the reports. Sampling should be done early in the sampling period.

SDWIS /State Water Sample Schedule Report
A water sampling scheduling report is sent to the water operator every year in January. Information about future monitoring is also shown on the Report.

Asbestos
If your distribution system includes asbestos cement piping, your sampling schedule will include asbestos sampling requirements every nine years. Collect asbestos samples from the distribution system where asbestos cement pipe is located.

Lead and Copper
Lead and copper sampling plans are required and should have already been submitted the DOH. Please review your sampling plan carefully to determine when and how often you need to collect your samples. Samples must be first draw samples, and copies of all results must be sent to homeowners. All sample results, along with the required certification form, must be submitted to the DOH.

Disinfectants/Disinfection By-Products
The Disinfectant / Disinfection By-Product Rule was developed to control levels of trihalomethanes and haloacetic acids that are formed when chlorine is added to water with elevated levels of natural organic matter. Samples are collected at the maximum residence time in the distribution system. Surface water systems must collect a raw water TOC sample on the same day.

Radiological
Samples for Gross Alpha, radium-226 and radium-228 are required every 9 years and are collected at entry point.

Synthetic Organic Chemicals/Principal Organic Chemicals
SOC and POC samples are required every 3 years and are collected at entry point.

Inorganic Chemicals
IOC samples are required every 3 years for groundwater systems and annually for surface water and GWUDI systems and are collected at entry point.

Coliform Bacteria
Coliform bacteria sample are collected in accordance with the Site Sampling Plan. Free chlorine residual levels must be measured at the time the samples are collected. Free chlorine residuals must be measurable throughout the distribution system. In the event of a positive coliform bacteria sample, 3 repeat samples must be collected as soon as possible, from the original site, a location within 5 service connections upstream, a location within 5 service connections downstream and a random location. Systems with groundwater sources must also collect a raw water sample.

Nitrate
A nitrate sample must be collected once each year at entry point.

ADDITIONAL SURFACE WATER & GWUDI SYSTEM REQUIRMENTS

Turbidity
Continuous turbidimeters must be calibrated as required by the manufacturer. Continuous turbidity monitoring is required at the filter plant and results must be reported every 4 hours. If the continuous turbidimeter fails, the water operators must collect grab samples every 4 hours when the filters are operating. The turbidimeters must be repaired or replaced within 5 working days. The performance standard for filters is 0.3 NTU for conventional and direct filtration systems (1.0 NTU for Diatomaceous Earth (DE) and slow sand filter systems). A treatment technique violation occurs if more than 5 percent of the filtered water turbidity measurements taken each month exceed 0.3 NTU (1.0 for DE & slow sand). A violation occurs if the turbidity level of the filtered water entering the distribution system exceeds 1.0 NTU (5.0 NTU for DE & slow sand) and a Boil Water Order will be issued.

Water Intake Structure
Water supply intake structures should be inspected annually.

Long Term 2 Enhanced Surface Water Treatment Rule (LT2)
Surface water systems collected raw water E Coli (enumeration) bacteria samples every other week for 1 year starting in October in 2017 to determine if the water source is vulnerable to contamination with cryptosporidium. This requirement will be repeated every 9 years.

Appendix C \

NRCS Soils Mapping

United States Department of Agriculture

NRCS

Natural Resources Conservation Service

A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

Custom Soil Resource Report for

Essex County, New York

September 9, 2024

Preface

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

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

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

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

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

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

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, age, disability, and where applicable, sex, marital status, familial status, parental status, religion, sexual orientation, genetic information, political beliefs, reprisal, or because all or a part of an individual's income is derived from any public assistance program. (Not all prohibited bases apply to all programs.) Persons with disabilities who require

alternative means for communication of program information (Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at (202) 720-2600 (voice and TDD). To file a complaint of discrimination, write to USDA, Director, Office of Civil Rights, 1400 Independence Avenue, S.W., Washington, D.C. 20250-9410 or call (800) 795-3272 (voice) or (202) 720-6382 (TDD). USDA is an equal opportunity provider and employer.

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How Soil Surveys Are Made

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

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

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

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

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

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

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

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

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

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

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

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

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

Soil Map

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

Soil Map


73° 42' 54" W
73° 42' 49" W
44° 20' 56" N
44° 20' 54" N
602420
602430
602440
602450
602460
602470
602480
602490
602500
602510
4911440
4911430
4911420
4911410
4911400
4911390
4911380
Nugent Rd
723C
Soil Map may not be valid at this scale.
Map Scale: 1:475 if printed on A landscape (11" x 8.5") sheet.
Meters
0 5 10 20 30
Feet
0 20 40 80 120
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 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 1:24,000.

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: Essex County, New York
Survey Area Data: Version 23, Sep 5, 2023

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

Date(s) aerial images were photographed: Jun 18, 2020—Jun 20, 2020

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
723C	Becket fine sandy loam, 3 to 15 percent slopes, very bouldery	0.5	100.0%
Totals for Area of Interest		**0.5**	**100.0%**

Map Unit Descriptions

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

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

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

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

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

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

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

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

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

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

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

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

Essex County, New York

723C—Becket fine sandy loam, 3 to 15 percent slopes, very bouldery

Map Unit Setting

National map unit symbol: 2spmw
Elevation: 520 to 2,380 feet
Mean annual precipitation: 31 to 95 inches
Mean annual air temperature: 27 to 48 degrees F
Frost-free period: 100 to 130 days
Farmland classification: Not prime farmland

Map Unit Composition

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

Description of Becket, Very Bouldery

Setting

Landform: Hillsides or mountainsides
Landform position (two-dimensional): Backslope, shoulder
Landform position (three-dimensional): Lower third of mountainflank, side slope
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Loamy lodgement till derived from gneiss

Typical profile

Oe - 0 to 1 inches: moderately decomposed plant material
E - 1 to 4 inches: fine sandy loam
Bhs1 - 4 to 6 inches: fine sandy loam
Bhs2 - 6 to 10 inches: fine sandy loam
Bs1 - 10 to 16 inches: fine sandy loam
Bs2 - 16 to 20 inches: gravelly fine sandy loam
BC - 20 to 33 inches: sandy loam
Cd - 33 to 79 inches: gravelly loamy sand

Properties and qualities

Slope: 3 to 15 percent
Surface area covered with cobbles, stones or boulders: 2.4 percent
Depth to restrictive feature: 26 to 36 inches to densic material
Drainage class: Well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.01 to 1.42 in/hr)
Depth to water table: About 30 to 36 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Low (about 5.6 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6s
Hydrologic Soil Group: C

Ecological site: F143XY501ME - Loamy Slope, F143XY505ME - Loamy Over Sandy
Hydric soil rating: No

Minor Components

Skerry, very bouldery

Percent of map unit: 9 percent
Landform: Hillsides or mountainsides
Landform position (two-dimensional): Backslope, footslope
Landform position (three-dimensional): Lower third of mountainflank, side slope
Down-slope shape: Linear
Across-slope shape: Convex
Hydric soil rating: No

Monadnock, very bouldery

Percent of map unit: 5 percent
Landform: Hillsides or mountainsides
Landform position (two-dimensional): Backslope, shoulder
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

Tunbridge, very bouldery

Percent of map unit: 3 percent
Landform: Hillsides or mountainsides
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Side slope, crest
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

Adirondack, very bouldery

Percent of map unit: 2 percent
Landform: Low hills
Landform position (two-dimensional): Footslope, summit
Landform position (three-dimensional): Base slope
Down-slope shape: Concave
Across-slope shape: Linear
Hydric soil rating: No

Adams

Percent of map unit: 1 percent
Landform: Kame moraines
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Tread, riser
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

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United States Department of Agriculture

NRCS

Natural Resources Conservation Service

A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

Custom Soil Resource Report for

Essex County, New York

April 29, 2024

Preface

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

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

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

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

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

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

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Soil Map

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

Soil Map


73° 42' 59" W
73° 42' 50" W
44° 21' 1" N
44° 20' 57" N
602310
602330
602350
602370
602390
602410
602430
602450
602470
602490
4911600
4911580
4911560
4911540
4911520
4911500
4911480
Nugent Rd
Rocky Branch
727B
723C
Soil Map may not be valid at this scale.
Map Scale: 1:891 if printed on A landscape (11" x 8.5") sheet.
Meters
0
10
20
40
60
Feet
0
40
80
160
240
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 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 1:24,000.

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: Essex County, New York
Survey Area Data: Version 23, Sep 5, 2023

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

Date(s) aerial images were photographed: Jun 18, 2020—Jun 20, 2020

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
723C	Becket fine sandy loam, 3 to 15 percent slopes, very bouldery	0.3	25.7%
727B	Skerry-Adirondack complex, 0 to 8 percent slopes, very bouldery	0.9	74.3%
Totals for Area of Interest		**1.2**	**100.0%**

Map Unit Descriptions

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

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

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

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

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

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

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

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

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

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

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

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

Essex County, New York

723C—Becket fine sandy loam, 3 to 15 percent slopes, very bouldery

Map Unit Setting

National map unit symbol: 2spmw
Elevation: 520 to 2,380 feet
Mean annual precipitation: 31 to 95 inches
Mean annual air temperature: 27 to 48 degrees F
Frost-free period: 100 to 130 days
Farmland classification: Not prime farmland

Map Unit Composition

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

Description of Becket, Very Bouldery

Setting

Landform: Hillsides or mountainsides
Landform position (two-dimensional): Backslope, shoulder
Landform position (three-dimensional): Lower third of mountainflank, side slope
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Loamy lodgement till derived from gneiss

Typical profile

Oe - 0 to 1 inches: moderately decomposed plant material
E - 1 to 4 inches: fine sandy loam
Bhs1 - 4 to 6 inches: fine sandy loam
Bhs2 - 6 to 10 inches: fine sandy loam
Bs1 - 10 to 16 inches: fine sandy loam
Bs2 - 16 to 20 inches: gravelly fine sandy loam
BC - 20 to 33 inches: sandy loam
Cd - 33 to 79 inches: gravelly loamy sand

Properties and qualities

Slope: 3 to 15 percent
Surface area covered with cobbles, stones or boulders: 2.4 percent
Depth to restrictive feature: 26 to 36 inches to densic material
Drainage class: Well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.01 to 1.42 in/hr)
Depth to water table: About 30 to 36 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Low (about 5.6 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6s
Hydrologic Soil Group: C

Ecological site: F143XY501ME - Loamy Slope, F143XY505ME - Loamy Over Sandy
Hydric soil rating: No

Minor Components

Skerry, very bouldery

Percent of map unit: 9 percent
Landform: Hillsides or mountainsides
Landform position (two-dimensional): Backslope, footslope
Landform position (three-dimensional): Lower third of mountainflank, side slope
Down-slope shape: Linear
Across-slope shape: Convex
Hydric soil rating: No

Monadnock, very bouldery

Percent of map unit: 5 percent
Landform: Hillsides or mountainsides
Landform position (two-dimensional): Backslope, shoulder
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

Tunbridge, very bouldery

Percent of map unit: 3 percent
Landform: Hillsides or mountainsides
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Side slope, crest
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

Adirondack, very bouldery

Percent of map unit: 2 percent
Landform: Low hills
Landform position (two-dimensional): Footslope, summit
Landform position (three-dimensional): Base slope
Down-slope shape: Concave
Across-slope shape: Linear
Hydric soil rating: No

Adams

Percent of map unit: 1 percent
Landform: Kame moraines
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Tread, riser
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

727B—Skerry-Adirondack complex, 0 to 8 percent slopes, very bouldery

Map Unit Setting

National map unit symbol: bqrd
Elevation: 510 to 2,020 feet
Mean annual precipitation: 34 to 50 inches
Mean annual air temperature: 37 to 45 degrees F
Frost-free period: 100 to 130 days
Farmland classification: Not prime farmland

Map Unit Composition

Skerry, very bouldery, and similar soils: 45 percent
Adirondack, very bouldery, and similar soils: 30 percent
Minor components: 25 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Skerry, Very Bouldery

Setting

Landform: Hillsides or mountainsides
Landform position (two-dimensional): Backslope, footslope
Landform position (three-dimensional): Side slope, base slope
Down-slope shape: Linear
Across-slope shape: Convex
Parent material: Loamy lodgement till derived from gneiss

Typical profile

Oi - 0 to 2 inches: slightly decomposed plant material
A - 2 to 4 inches: loam
E - 4 to 5 inches: fine sandy loam
Bhs - 5 to 9 inches: fine sandy loam
Bs - 9 to 15 inches: fine sandy loam
BC1 - 15 to 26 inches: gravelly fine sandy loam
BC2 - 26 to 38 inches: gravelly fine sandy loam
Cd - 38 to 72 inches: gravelly loamy fine sand

Properties and qualities

Slope: 0 to 8 percent
Surface area covered with cobbles, stones or boulders: 2.4 percent
Depth to restrictive feature: 20 to 38 inches to densic material
Drainage class: Moderately well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.57 in/hr)
Depth to water table: About 18 to 30 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Low (about 5.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6s
Hydrologic Soil Group: B/D
Ecological site: F143XY501ME - Loamy Slope, F143XY505ME - Loamy Over Sandy
Hydric soil rating: No

Description of Adirondack, Very Bouldery

Setting

Landform: Hillsides or mountainsides
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave
Across-slope shape: Concave
Parent material: Loamy lodgement till derived from gneiss

Typical profile

Oe - 0 to 2 inches: moderately decomposed plant material
Oa - 2 to 4 inches: highly decomposed plant material
E - 4 to 6 inches: fine sandy loam
Bh - 6 to 8 inches: fine sandy loam
Bhs - 8 to 9 inches: fine sandy loam
Bs - 9 to 18 inches: fine sandy loam
BC - 18 to 26 inches: sandy loam
Cd1 - 26 to 34 inches: gravelly loamy sand
Cd2 - 34 to 43 inches: gravelly loamy sand
Cd3 - 43 to 72 inches: gravelly loamy sand

Properties and qualities

Slope: 0 to 8 percent
Surface area covered with cobbles, stones or boulders: 2.4 percent
Depth to restrictive feature: 20 to 38 inches to densic material
Drainage class: Somewhat poorly drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: About 6 to 18 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Low (about 5.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6s
Hydrologic Soil Group: C/D
Ecological site: F143XY502ME - Loamy Till Toeslope, F143XY503ME - Loamy Flat
Hydric soil rating: No

Minor Components

Monadnock

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

Tahawus

Percent of map unit: 5 percent
Landform: Till plains
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

Becket

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

Sunapee

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

Ampersand

Percent of map unit: 3 percent
Hydric soil rating: No

Unnamed

Percent of map unit: 2 percent
Hydric soil rating: No

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Custom Soil Resource Report for

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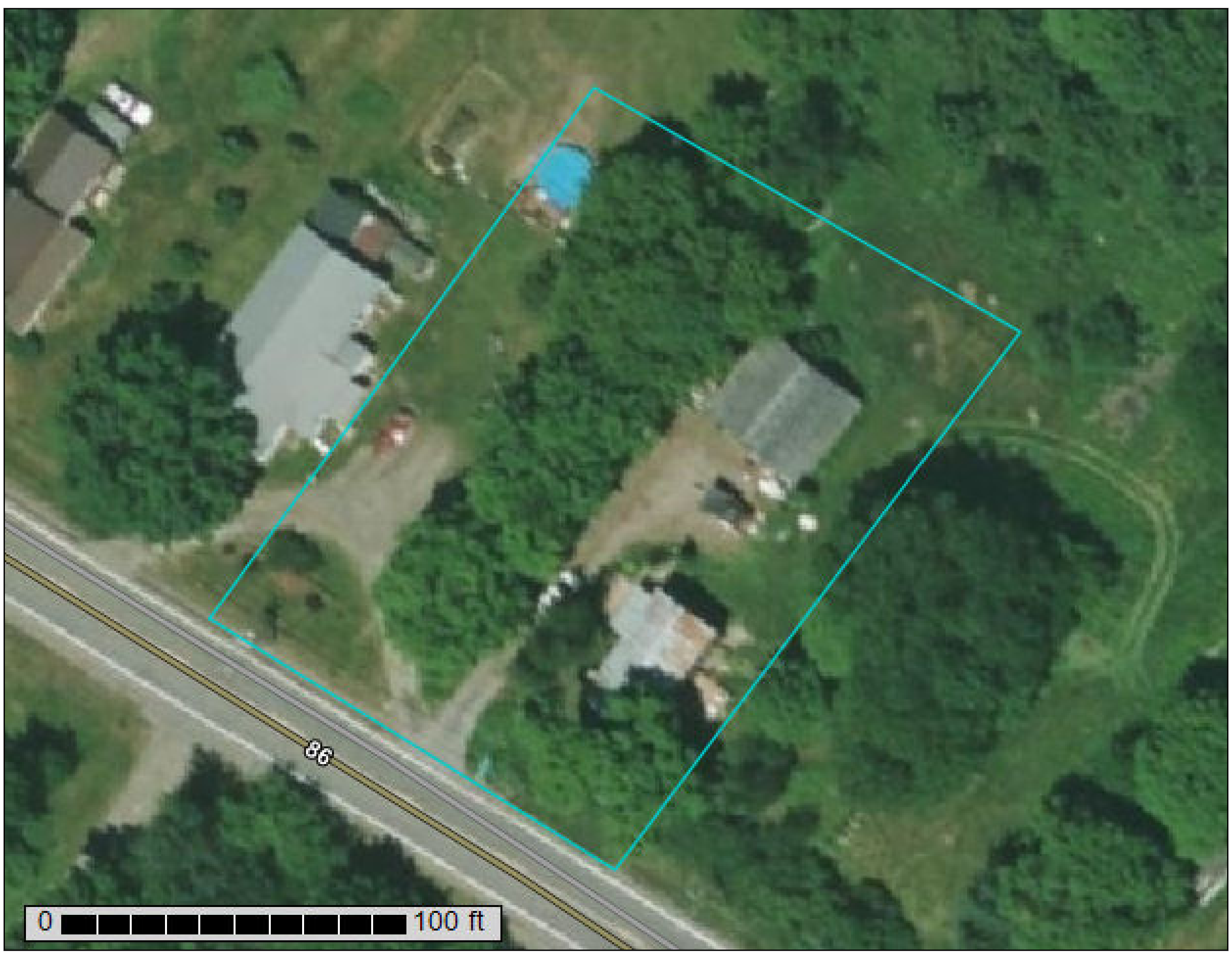

April 29, 2024

Preface

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

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

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

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

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

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

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Soil Map

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

Custom Soil Resource Report
Soil Map

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 1:24,000.

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: Essex County, New York
Survey Area Data: Version 23, Sep 5, 2023

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

Date(s) aerial images were photographed: Jun 18, 2020—Jun 20, 2020

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
BcC	Becket fine sandy loam, 8 to 15 percent slopes	0.3	49.7%
DpC	Depeyster silt loam, 8 to 15 percent slopes	0.3	50.3%
Totals for Area of Interest		**0.6**	**100.0%**

Map Unit Descriptions

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

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

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

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

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

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

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

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

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

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

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

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

Essex County, New York

BcC—Becket fine sandy loam, 8 to 15 percent slopes

Map Unit Setting

National map unit symbol: 2w5jf
Elevation: 520 to 1,970 feet
Mean annual precipitation: 31 to 95 inches
Mean annual air temperature: 27 to 48 degrees F
Frost-free period: 100 to 130 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Becket and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Becket

Setting

Landform: Hillsides or mountainsides
Landform position (two-dimensional): Shoulder, backslope
Landform position (three-dimensional): Lower third of mountainflank, side slope
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Loamy lodgement till derived from gneiss

Typical profile

Oi - 0 to 1 inches: slightly decomposed plant material
Ap - 1 to 6 inches: fine sandy loam
Bs - 6 to 11 inches: fine sandy loam
BC1 - 11 to 23 inches: fine sandy loam
BC2 - 23 to 33 inches: fine sandy loam
Cd1 - 33 to 45 inches: gravelly loamy sand
Cd2 - 45 to 79 inches: gravelly loamy sand

Properties and qualities

Slope: 8 to 15 percent
Surface area covered with cobbles, stones or boulders: 0.0 percent
Depth to restrictive feature: 26 to 36 inches to densic material
Drainage class: Well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.01 to 1.42 in/hr)
Depth to water table: About 30 to 36 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Low (about 4.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: B
Ecological site: F143XY501ME - Loamy Slope, F143XY505ME - Loamy Over Sandy

Hydric soil rating: No

Minor Components

Monadnock

Percent of map unit: 7 percent
Landform: Hillsides or mountainsides
Landform position (two-dimensional): Backslope, shoulder
Landform position (three-dimensional): Lower third of mountainflank, side slope
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

Skerry

Percent of map unit: 4 percent
Landform: Hillsides or mountainsides
Landform position (two-dimensional): Backslope, footslope
Landform position (three-dimensional): Lower third of mountainflank, side slope
Down-slope shape: Linear
Across-slope shape: Convex
Hydric soil rating: No

Adirondack

Percent of map unit: 3 percent
Landform: Low hills
Landform position (two-dimensional): Shoulder, backslope
Landform position (three-dimensional): Lower third of mountainflank, side slope
Down-slope shape: Concave
Across-slope shape: Linear
Hydric soil rating: No

Henniker

Percent of map unit: 1 percent
Landform: Hillsides or mountainsides
Landform position (two-dimensional): Shoulder, backslope
Landform position (three-dimensional): Lower third of mountainflank, side slope
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

DpC—Depeyster silt loam, 8 to 15 percent slopes

Map Unit Setting

National map unit symbol: bmbh
Elevation: 510 to 2,020 feet
Mean annual precipitation: 34 to 50 inches
Mean annual air temperature: 37 to 45 degrees F
Frost-free period: 100 to 130 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Depeyster and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Depeyster

Setting

Landform: Glacial-valley walls
Landform position (two-dimensional): Shoulder, backslope
Landform position (three-dimensional): Tread, riser
Down-slope shape: Concave
Across-slope shape: Convex
Parent material: Silty glaciolacustrine deposits derived from igneous and sedimentary rock

Typical profile

Ap - 0 to 4 inches: silt loam
E - 4 to 7 inches: silt loam
Bt/E - 7 to 13 inches: silt loam
Bt1 - 13 to 18 inches: silt loam
Bt2 - 18 to 25 inches: silt loam
C1 - 25 to 31 inches: silt loam
C2 - 31 to 72 inches: silt loam

Properties and qualities

Slope: 8 to 15 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Moderately well drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to high (0.06 to 1.98 in/hr)
Depth to water table: About 18 to 30 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 10 percent
Available water supply, 0 to 60 inches: Very high (about 12.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: C/D
Ecological site: F142XA012NY - Rich Lacustrine Terraces Frigid
Hydric soil rating: No

Minor Components

Hailesboro

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

Nicholville

Percent of map unit: 4 percent
Hydric soil rating: No

Champlain

Percent of map unit: 3 percent

Hydric soil rating: No

Tonawanda

Percent of map unit: 2 percent
Hydric soil rating: No

Unnamed

Percent of map unit: 1 percent
Hydric soil rating: No

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United States Department of Agriculture

NRCS

Natural Resources Conservation Service

A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

Custom Soil Resource Report for

Essex County, New York

September 9, 2024

Preface

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375D—Colton-Adams complex, 15 to 35 percent slopes..13
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How Soil Surveys Are Made

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

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

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

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

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

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

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

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

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

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

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

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

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

Soil Map

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Soil Map

Map Scale: 1:414 if printed on A landscape (11" x 8.5") sheet.

N

Meters: 0, 5, 10, 20, 30

Feet: 0, 20, 40, 80, 120

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 Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
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- 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
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- Rails
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Background
- Aerial Photography

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Soil Survey Area: Essex County, New York
Survey Area Data: Version 23, Sep 5, 2023

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

Date(s) aerial images were photographed: Jun 18, 2020—Jun 20, 2020

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
375D	Colton-Adams complex, 15 to 35 percent slopes	0.4	100.0%
Totals for Area of Interest		**0.4**	**100.0%**

Map Unit Descriptions

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

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

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

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

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

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

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

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

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

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

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

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

Essex County, New York

375D—Colton-Adams complex, 15 to 35 percent slopes

Map Unit Setting

National map unit symbol: bqqv
Elevation: 510 to 3,030 feet
Mean annual precipitation: 34 to 50 inches
Mean annual air temperature: 37 to 45 degrees F
Frost-free period: 100 to 130 days
Farmland classification: Not prime farmland

Map Unit Composition

Colton and similar soils: 45 percent
Adams and similar soils: 30 percent
Minor components: 25 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Colton

Setting

Landform: Kame terraces, outwash plains
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Riser
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Gravelly outwash derived from gneiss

Typical profile

Oi - 0 to 1 inches: slightly decomposed plant material
Oe - 1 to 2 inches: moderately decomposed plant material
E - 2 to 3 inches: very gravelly loamy sand
Bhs - 3 to 6 inches: very gravelly loamy sand
Bs - 6 to 13 inches: very gravelly loamy sand
BC - 13 to 21 inches: very gravelly loamy sand
C - 21 to 72 inches: extremely gravelly coarse sand

Properties and qualities

Slope: 15 to 35 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Excessively drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): High to very high (1.98 to 19.98 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Very low (about 1.8 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7e
Hydrologic Soil Group: A
Ecological site: F143XY601ME - Dry Sand
Hydric soil rating: No

Description of Adams

Setting

Landform: Outwash plains, kame terraces
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Riser
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Sandy glaciofluvial deposits derived from gneiss

Typical profile

Oe - 0 to 2 inches: moderately decomposed plant material
Oa - 2 to 4 inches: highly decomposed plant material
E - 4 to 5 inches: sand
Bhs - 5 to 8 inches: loamy sand
Bs - 8 to 14 inches: loamy sand
BC - 14 to 23 inches: sand
C - 23 to 72 inches: sand

Properties and qualities

Slope: 15 to 35 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat excessively drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 5.95 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Low (about 4.5 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6e
Hydrologic Soil Group: A
Ecological site: F143XY601ME - Dry Sand
Hydric soil rating: No

Minor Components

Monadnock

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

Duxbury

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

Unnamed

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

Fernlake

Percent of map unit: 4 percent
Hydric soil rating: No

Hermon

Percent of map unit: 3 percent

Hydric soil rating: No

Champlain

Percent of map unit: 2 percent
Hydric soil rating: No

Croghan

Percent of map unit: 1 percent
Hydric soil rating: No

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United States
Department of
Agriculture

NRCS

Natural
Resources
Conservation
Service

A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

Custom Soil Resource Report for

Essex County, New York

September 9, 2024

Preface

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

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

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

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

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

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

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How Soil Surveys Are Made

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

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

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

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

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

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

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

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

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

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

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

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

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

Soil Map

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

Soil Map


73° 43' 25" W
73° 43' 24" W
44° 21' 53" N
44° 21' 52" N
601685
601688
601691
601694
601697
601700
601703
601706
601709
601712
4913180
4913177
4913174
4913171
4913168
4913165
4913162
AdA
Soil Map may not be valid at this scale.
N
Map Scale: 1:137 if printed on A landscape (11" x 8.5") sheet.
Meters
0 2 4 8 12
Feet
0 5 10 20 30
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 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 1:24,000.

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: Essex County, New York
Survey Area Data: Version 23, Sep 5, 2023

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

Date(s) aerial images were photographed: Jun 18, 2020—Jun 20, 2020

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
AdA	Adams loamy sand, 0 to 3 percent slopes	0.1	100.0%
Totals for Area of Interest		**0.1**	**100.0%**

Map Unit Descriptions

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

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

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

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

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

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

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

Essex County, New York

AdA—Adams loamy sand, 0 to 3 percent slopes

Map Unit Setting

National map unit symbol: 9s3b
Elevation: 510 to 3,030 feet
Mean annual precipitation: 34 to 50 inches
Mean annual air temperature: 37 to 45 degrees F
Frost-free period: 100 to 130 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Adams and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Adams

Setting

Landform: Deltas, kame terraces, outwash plains
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Sandy glaciolacustrine deposits derived from gneiss

Typical profile

Oe - 0 to 2 inches: moderately decomposed plant material
Oa - 2 to 4 inches: highly decomposed plant material
E - 4 to 5 inches: sand
Bhs - 5 to 8 inches: loamy sand
Bs - 8 to 14 inches: loamy sand
BC - 14 to 23 inches: sand
C - 23 to 72 inches: sand

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat excessively drained
Runoff class: Very low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 5.95 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Low (about 4.5 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3s
Hydrologic Soil Group: A
Ecological site: F143XY601ME - Dry Sand
Hydric soil rating: No

Minor Components

Colton

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

Duxbury

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

Croghan

Percent of map unit: 4 percent
Hydric soil rating: No

Unnamed

Percent of map unit: 1 percent
Hydric soil rating: No

References

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United States Department of Agriculture

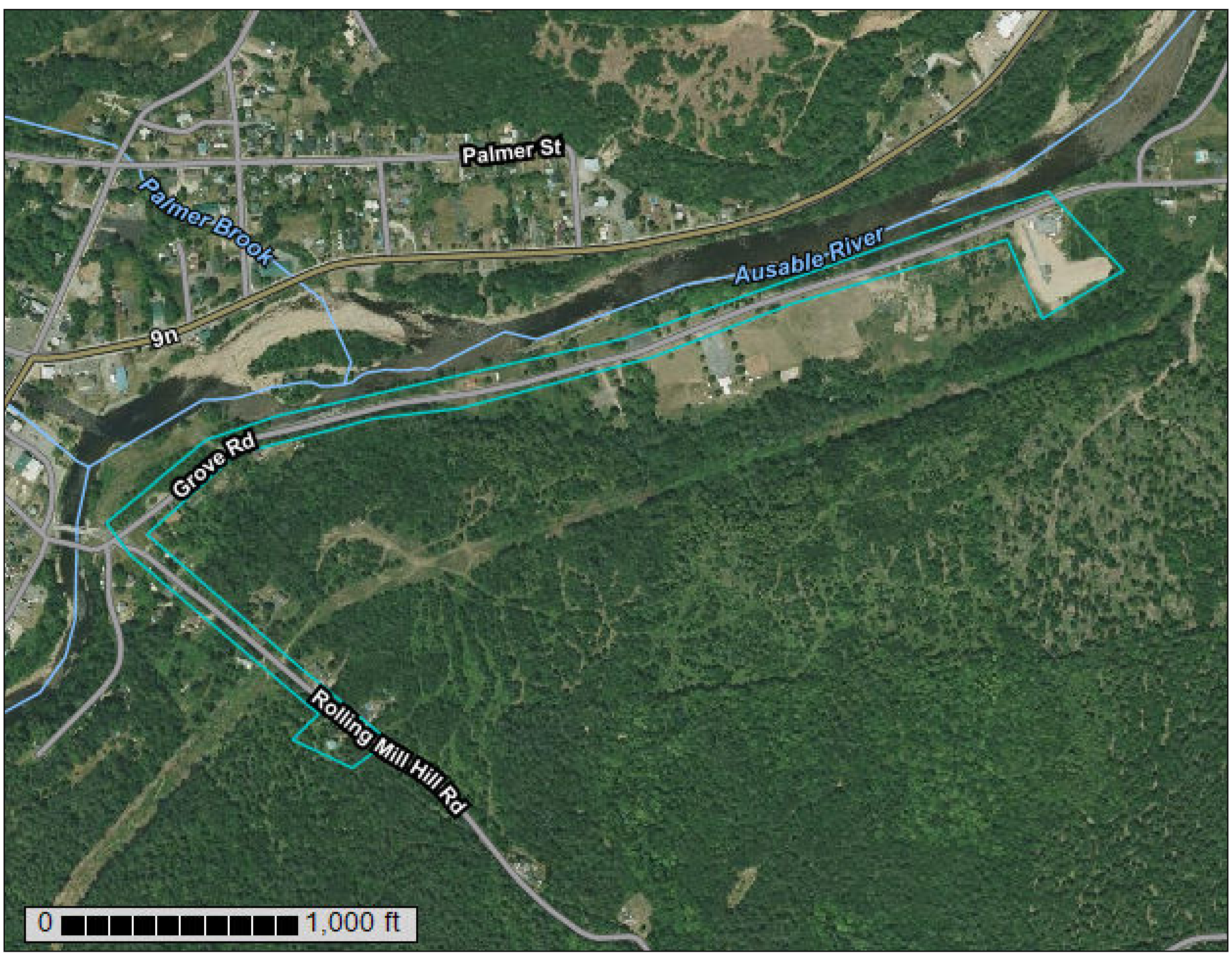
NRCS

Natural Resources Conservation Service

A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

Custom Soil Resource Report for

Essex County, New York



April 29, 2024

Preface

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

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

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

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

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

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

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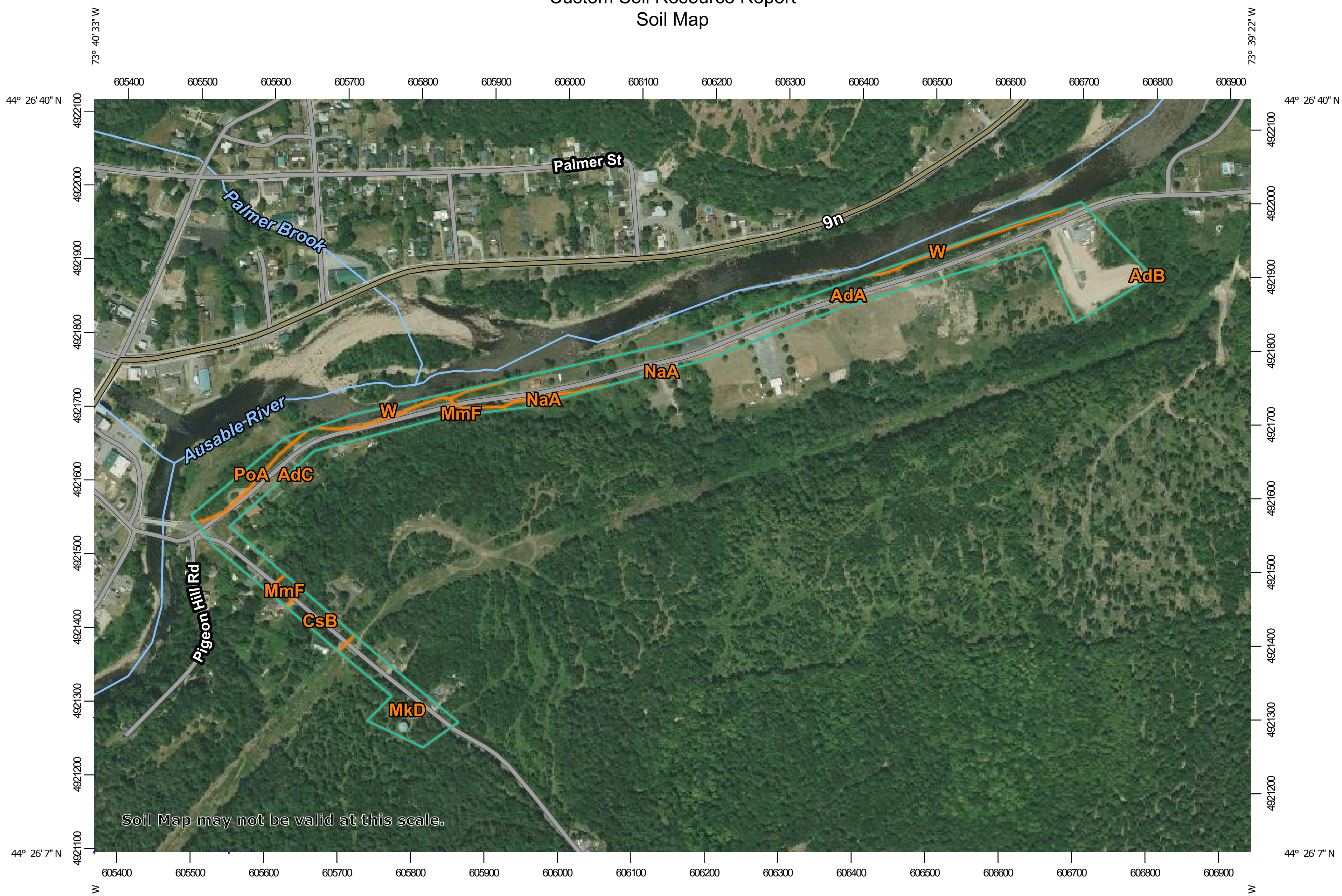
Soil Map

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

Soil Map



Map Scale: 1:7,200 if printed on A landscape (11" x 8.5") sheet.

N

Meters: 0, 100, 200, 400, 600

Feet: 0, 350, 700, 1400, 2100

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 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 1:24,000.

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: Essex County, New York
Survey Area Data: Version 23, Sep 5, 2023

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

Date(s) aerial images were photographed: Jun 18, 2020—Jun 20, 2020

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
AdA	Adams loamy sand, 0 to 3 percent slopes	10.2	55.5%
AdB	Adams loamy sand, 3 to 8 percent slopes	0.0	0.1%
AdC	Adams loamy sand, 8 to 15 percent slopes	3.0	16.5%
CsB	Colton very gravelly loamy sand, 3 to 8 percent slopes	0.7	4.0%
MkD	Monadnock fine sandy loam, 15 to 35 percent slopes, very bouldery	2.1	11.5%
MmF	Monadnock-Adams complex, 25 to 60 percent slopes, bouldery	0.4	2.3%
NaA	Naumburg loamy fine sand, 0 to 3 percent slopes	0.2	1.1%
PoA	Podunk very fine sandy loam, 0 to 3 percent slopes	0.8	4.6%
W	Water	0.8	4.3%
Totals for Area of Interest		**18.4**	**100.0%**

Map Unit Descriptions

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

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

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

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

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

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

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

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

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

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

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

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

Essex County, New York

AdA—Adams loamy sand, 0 to 3 percent slopes

Map Unit Setting

National map unit symbol: 9s3b
Elevation: 510 to 3,030 feet
Mean annual precipitation: 34 to 50 inches
Mean annual air temperature: 37 to 45 degrees F
Frost-free period: 100 to 130 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Adams and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Adams

Setting

Landform: Deltas, kame terraces, outwash plains
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Sandy glaciolacustrine deposits derived from gneiss

Typical profile

Oe - 0 to 2 inches: moderately decomposed plant material
Oa - 2 to 4 inches: highly decomposed plant material
E - 4 to 5 inches: sand
Bhs - 5 to 8 inches: loamy sand
Bs - 8 to 14 inches: loamy sand
BC - 14 to 23 inches: sand
C - 23 to 72 inches: sand

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat excessively drained
Runoff class: Very low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 5.95 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Low (about 4.5 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3s
Hydrologic Soil Group: A
Ecological site: F143XY601ME - Dry Sand
Hydric soil rating: No

Minor Components

Colton

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

Duxbury

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

Croghan

Percent of map unit: 4 percent
Hydric soil rating: No

Unnamed

Percent of map unit: 1 percent
Hydric soil rating: No

AdB—Adams loamy sand, 3 to 8 percent slopes

Map Unit Setting

National map unit symbol: 9s3c
Elevation: 510 to 3,030 feet
Mean annual precipitation: 34 to 50 inches
Mean annual air temperature: 37 to 45 degrees F
Frost-free period: 100 to 130 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Adams and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Adams

Setting

Landform: Deltas, outwash plains, kame terraces
Landform position (two-dimensional): Summit, shoulder
Landform position (three-dimensional): Tread
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Sandy glaciolacustrine deposits derived from gneiss

Typical profile

Oe - 0 to 2 inches: moderately decomposed plant material
Oa - 2 to 4 inches: highly decomposed plant material
E - 4 to 5 inches: sand
Bhs - 5 to 8 inches: loamy sand
Bs - 8 to 14 inches: loamy sand
BC - 14 to 23 inches: sand
C - 23 to 72 inches: sand

Properties and qualities

Slope: 3 to 8 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat excessively drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 5.95 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Low (about 4.5 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3s
Hydrologic Soil Group: A
Ecological site: F143XY601ME - Dry Sand
Hydric soil rating: No

Minor Components

Colton

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

Duxbury

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

Croghan

Percent of map unit: 4 percent
Hydric soil rating: No

Unnamed

Percent of map unit: 1 percent
Hydric soil rating: No

AdC—Adams loamy sand, 8 to 15 percent slopes

Map Unit Setting

National map unit symbol: 9s3d
Elevation: 510 to 3,030 feet
Mean annual precipitation: 34 to 50 inches
Mean annual air temperature: 37 to 45 degrees F
Frost-free period: 100 to 130 days
Farmland classification: Not prime farmland

Map Unit Composition

Adams and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Adams

Setting

Landform: Deltas, outwash plains, kame terraces
Landform position (two-dimensional): Backslope, shoulder
Landform position (three-dimensional): Riser
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Sandy glaciolacustrine deposits derived from gneiss

Typical profile

Oe - 0 to 2 inches: moderately decomposed plant material
Oa - 2 to 4 inches: highly decomposed plant material
E - 4 to 5 inches: sand
Bhs - 5 to 8 inches: loamy sand
Bs - 8 to 14 inches: loamy sand
BC - 14 to 23 inches: sand
C - 23 to 72 inches: sand

Properties and qualities

Slope: 8 to 15 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat excessively drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 5.95 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Low (about 4.5 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: A
Ecological site: F143XY601ME - Dry Sand
Hydric soil rating: No

Minor Components

Colton

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

Unnamed

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

Duxbury

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

CsB—Colton very gravelly loamy sand, 3 to 8 percent slopes

Map Unit Setting

National map unit symbol: bm9g
Elevation: 510 to 3,030 feet
Mean annual precipitation: 34 to 50 inches
Mean annual air temperature: 37 to 45 degrees F
Frost-free period: 100 to 130 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Colton and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Colton

Setting

Landform: Kame terraces, outwash plains
Landform position (two-dimensional): Summit, shoulder
Landform position (three-dimensional): Tread
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Gravelly outwash derived from gneiss

Typical profile

Oi - 0 to 1 inches: slightly decomposed plant material
Oe - 1 to 2 inches: moderately decomposed plant material
E - 2 to 3 inches: very gravelly loamy sand
Bhs - 3 to 6 inches: very gravelly loamy sand
Bs - 6 to 13 inches: very gravelly loamy sand
BC - 13 to 21 inches: very gravelly loamy sand
C - 21 to 72 inches: extremely gravelly coarse sand

Properties and qualities

Slope: 3 to 8 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Excessively drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): High to very high (1.98 to 19.98 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Very low (about 1.8 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3s
Hydrologic Soil Group: A

Ecological site: F143XY601ME - Dry Sand
Hydric soil rating: No

Minor Components

Adams

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

Duxbury

Percent of map unit: 4 percent
Hydric soil rating: No

Unnamed

Percent of map unit: 3 percent
Hydric soil rating: No

Monadnock

Percent of map unit: 2 percent
Hydric soil rating: No

Croghan

Percent of map unit: 1 percent
Hydric soil rating: No

MkD—Monadnock fine sandy loam, 15 to 35 percent slopes, very bouldery

Map Unit Setting

National map unit symbol: bq72
Elevation: 510 to 3,030 feet
Mean annual precipitation: 34 to 50 inches
Mean annual air temperature: 37 to 45 degrees F
Frost-free period: 100 to 130 days
Farmland classification: Not prime farmland

Map Unit Composition

Monadnock, very bouldery, and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Monadnock, Very Bouldery

Setting

Landform: Hillsides or mountainsides
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Loamy ablation till over sandy ablation till derived from gneiss

Typical profile

Oe - 0 to 2 inches: moderately decomposed plant material
E - 2 to 3 inches: fine sandy loam
Bs1 - 3 to 12 inches: fine sandy loam
Bs2 - 12 to 19 inches: fine sandy loam
BC - 19 to 30 inches: fine sandy loam
2C1 - 30 to 37 inches: gravelly loamy sand
2C2 - 37 to 72 inches: gravelly sand

Properties and qualities

Slope: 15 to 35 percent
Surface area covered with cobbles, stones or boulders: 2.4 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 5.95 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Moderate (about 6.2 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7s
Hydrologic Soil Group: A
Ecological site: F142XA019NY - Acidic Moist Till Frigid
Hydric soil rating: No

Minor Components

Becket

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

Fernlake

Percent of map unit: 3 percent
Hydric soil rating: No

Adams

Percent of map unit: 3 percent
Hydric soil rating: No

Pyrities

Percent of map unit: 3 percent
Hydric soil rating: No

Sunapee

Percent of map unit: 1 percent
Hydric soil rating: No

MmF—Monadnock-Adams complex, 25 to 60 percent slopes, bouldery

Map Unit Setting

National map unit symbol: 13nzf
Elevation: 510 to 3,030 feet
Mean annual precipitation: 34 to 50 inches
Mean annual air temperature: 37 to 45 degrees F
Frost-free period: 100 to 130 days
Farmland classification: Not prime farmland

Map Unit Composition

Monadnock, bouldery, and similar soils: 55 percent
Adams and similar soils: 25 percent
Minor components: 20 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Monadnock, Bouldery

Setting

Landform: Hillsides or mountainsides
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Loamy ablation till over sandy ablation till derived from gneiss

Typical profile

Oe - 0 to 2 inches: moderately decomposed plant material
E - 2 to 3 inches: fine sandy loam
Bs1 - 3 to 12 inches: fine sandy loam
Bs2 - 12 to 19 inches: fine sandy loam
BC - 19 to 30 inches: fine sandy loam
2C1 - 30 to 37 inches: gravelly loamy sand
2C2 - 37 to 72 inches: gravelly sand

Properties and qualities

Slope: 25 to 60 percent
Surface area covered with cobbles, stones or boulders: 0.1 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 5.95 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Moderate (about 6.2 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 7s
Hydrologic Soil Group: A
Ecological site: F143XY505ME - Loamy Over Sandy
Hydric soil rating: No

Description of Adams

Setting

Landform: Hillsides or mountainsides
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Sandy glaciofluvial deposits derived from gneiss

Typical profile

Oe - 0 to 2 inches: moderately decomposed plant material
Oa - 2 to 4 inches: highly decomposed plant material
E - 4 to 5 inches: sand
Bhs - 5 to 8 inches: loamy sand
Bs - 8 to 14 inches: loamy sand
BC - 14 to 23 inches: sand
C - 23 to 72 inches: sand

Properties and qualities

Slope: 25 to 60 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat excessively drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 5.95 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Low (about 4.5 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7e
Hydrologic Soil Group: A
Ecological site: F143XY601ME - Dry Sand
Hydric soil rating: No

Minor Components

Colton

Percent of map unit: 7 percent
Hydric soil rating: No

Fernlake

Percent of map unit: 7 percent
Hydric soil rating: No

Becket

Percent of map unit: 6 percent
Hydric soil rating: No

NaA—Naumburg loamy fine sand, 0 to 3 percent slopes

Map Unit Setting

National map unit symbol: 1vjzw
Elevation: 510 to 3,030 feet
Mean annual precipitation: 34 to 50 inches
Mean annual air temperature: 37 to 45 degrees F
Frost-free period: 100 to 130 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Naumburg and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Naumburg

Setting

Landform: Deltas, outwash plains, stream terraces
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Tread
Down-slope shape: Concave
Across-slope shape: Concave
Parent material: Sandy glaciolacustrine deposits derived from gneiss

Typical profile

Oa - 0 to 2 inches: highly decomposed plant material
E - 2 to 7 inches: loamy fine sand
Bhs - 7 to 10 inches: loamy fine sand
Bs - 10 to 18 inches: loamy fine sand
BC - 18 to 31 inches: fine sand
Cg1 - 31 to 54 inches: sand
Cg2 - 54 to 72 inches: stratified sand to coarse sand

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat poorly drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 5.95 in/hr)
Depth to water table: About 6 to 18 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Low (about 4.3 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3w

Hydrologic Soil Group: A/D
Ecological site: F143XY602ME - Sandy Flat
Hydric soil rating: No

Minor Components

Searsport

Percent of map unit: 5 percent
Landform: Deltas
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Tread
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

Croghan

Percent of map unit: 4 percent
Hydric soil rating: No

Tonawanda

Percent of map unit: 3 percent
Hydric soil rating: No

Tahawus

Percent of map unit: 2 percent
Landform: Till plains
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

Unnamed

Percent of map unit: 1 percent
Hydric soil rating: No

PoA—Podunk very fine sandy loam, 0 to 3 percent slopes

Map Unit Setting

National map unit symbol: bq7b
Elevation: 510 to 2,020 feet
Mean annual precipitation: 34 to 50 inches
Mean annual air temperature: 37 to 45 degrees F
Frost-free period: 100 to 130 days
Farmland classification: All areas are prime farmland

Map Unit Composition

Podunk and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Podunk

Setting

Landform: Flood plains
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Talf
Down-slope shape: Concave
Across-slope shape: Linear
Parent material: Loamy alluvium derived from gneiss

Typical profile

Ap - 0 to 7 inches: very fine sandy loam
Bw1 - 7 to 11 inches: very fine sandy loam
Bw2 - 11 to 18 inches: fine sandy loam
C - 18 to 31 inches: loamy fine sand
Ab - 31 to 34 inches: very fine sandy loam
C'1 - 34 to 39 inches: very fine sandy loam
C'2 - 39 to 45 inches: fine sandy loam
C'3 - 45 to 53 inches: sand
C'4 - 53 to 72 inches: sand

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Moderately well drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 5.95 in/hr)
Depth to water table: About 18 to 30 inches
Frequency of flooding: Occasional
Frequency of ponding: None
Available water supply, 0 to 60 inches: Moderate (about 6.3 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2w
Hydrologic Soil Group: A/D
Ecological site: F143XY110ME - Broad Floodplain Riparian Complex, F143XY120ME - Small Floodplain Riparian Complex, F143XY601ME - Dry Sand
Hydric soil rating: No

Minor Components

Ondawa

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

Mooers

Percent of map unit: 3 percent
Hydric soil rating: No

Lovewell

Percent of map unit: 3 percent
Hydric soil rating: No

Rumney

Percent of map unit: 3 percent
Landform: Flood plains
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Dip
Down-slope shape: Convex
Across-slope shape: Concave
Hydric soil rating: Yes

Fluvaquents-udifluvents

Percent of map unit: 1 percent
Landform: Flood plains
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Dip, rise
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

W—Water

Map Unit Composition

Water: 100 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Water

Setting

Landform: Lakes

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Appendix D \

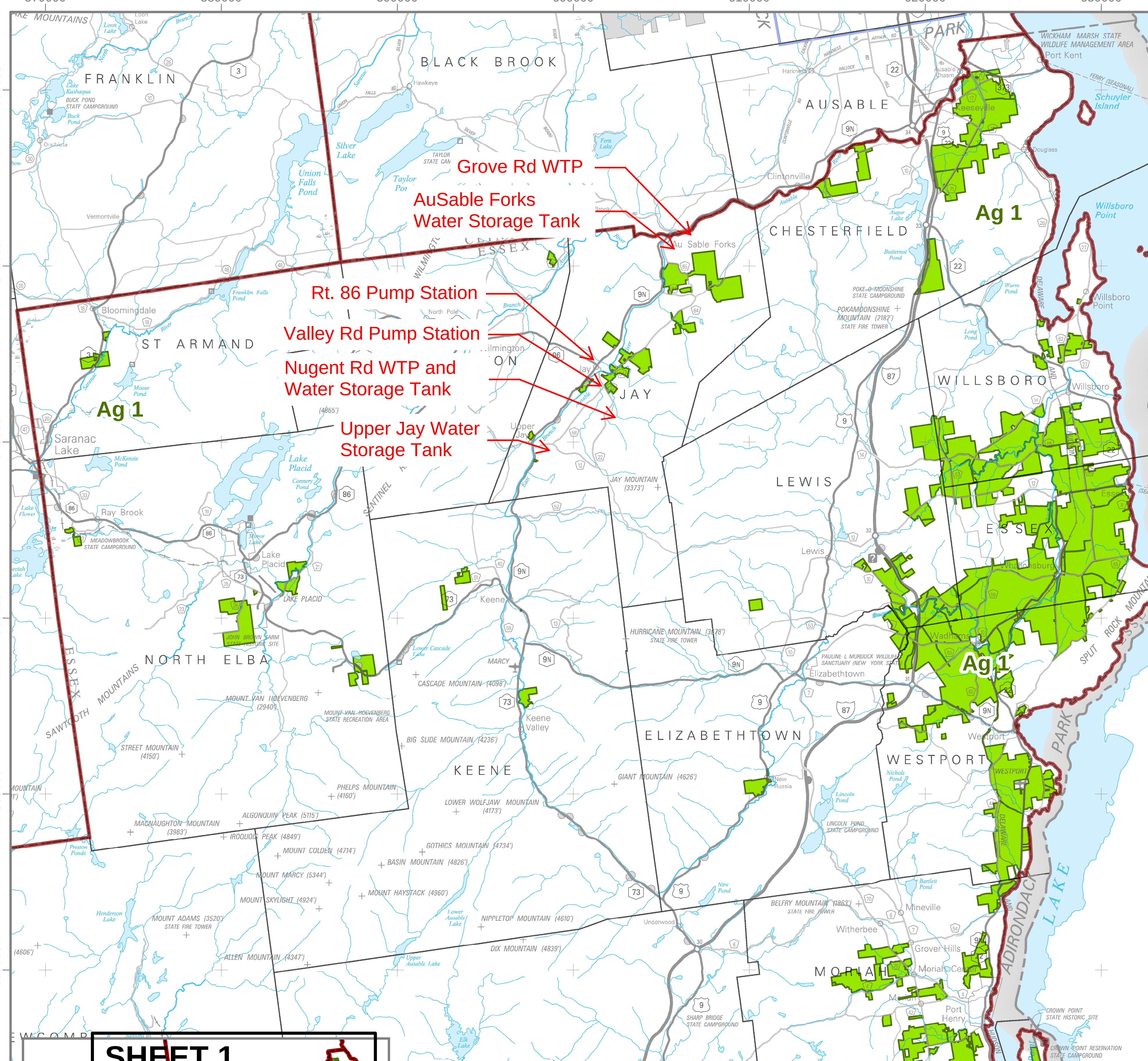
Agricultural District Mapping

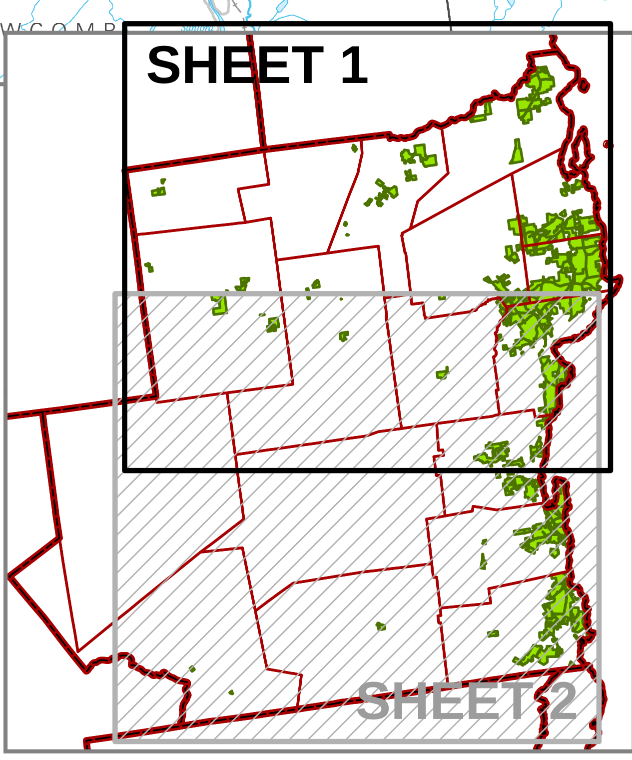
New York State Dept of Agriculture and Markets

ESSEX COUNTY

SHEET 1 of 2

Agricultural Districts 2018





MAP PROJECTION
UTM Zone 18, NAD83 meters

5 4 3 2 1 0 5 miles
10,000 5,000 0 10,000 meters

KEY

Ag. District 1

DISTRICT CERTIFICATION and TOWNS

DISTRICT 1 CERTIFIED 9/5/2017

Chesterfield	Jay	Moriah	Ticonderoga
Crown Point	Keene	North Elba	Westport
Elizabethtown	Lewis	Saint Armand	Willsboro
Essex	Minerva	Schroon	Wilmington

MAP SOURCE INFORMATION

Map created at Cornell IRIS (Institute for Resource Information Sciences) <http://iris.cals.cornell.edu> for the NYS Department of Agriculture and Markets <https://www.agriculture.ny.gov>

Agricultural Districts boundary data is available at CUGIR (Cornell University Geospatial Information Repository) website: <http://cugir.library.cornell.edu>

Base Map: state250_bw.tif 1998
Scale: 1:250,000; County boundaries imported from the file nyshore.e00 from the NYSGIS Clearinghouse website: <http://gis.ny.gov>

DISCLAIMER
This is a general reference to Agricultural District boundaries; not a legal substitute for actual tax parcel information.

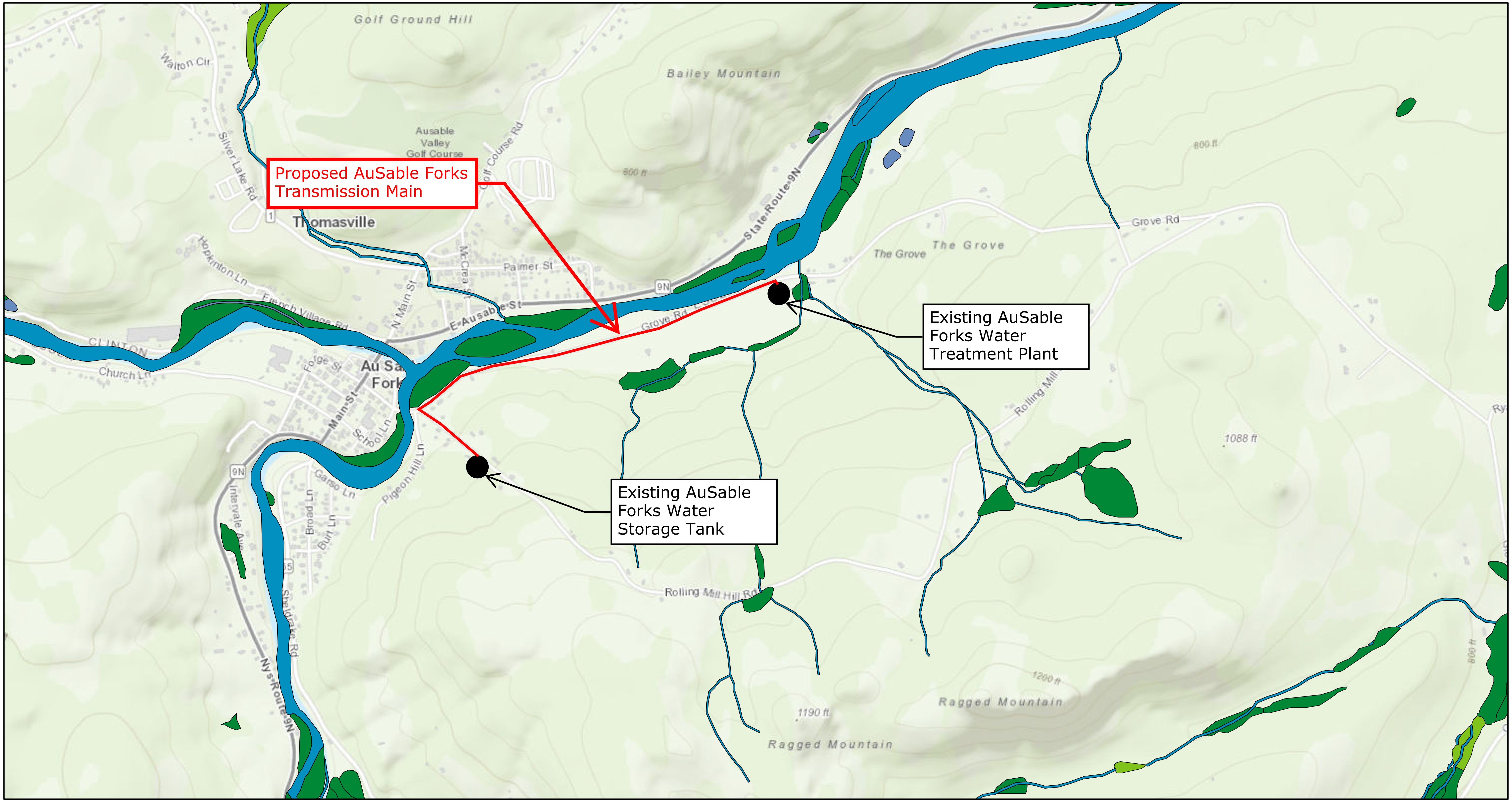
Boundaries as certified prior to April 2018

Open Enrollment Annual Additions through March 2018 are included in this data. Later additions are not. Check with county agencies to confirm the status of individual parcels.

Appendix E \

NYSDEC Wetland Mapping

Environmental Resource Mapper



April 29, 2024

- Estuarine and Marine Deepwater
- Estuarine and Marine Wetland
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Lake
- Other
- Riverine

1:18,056

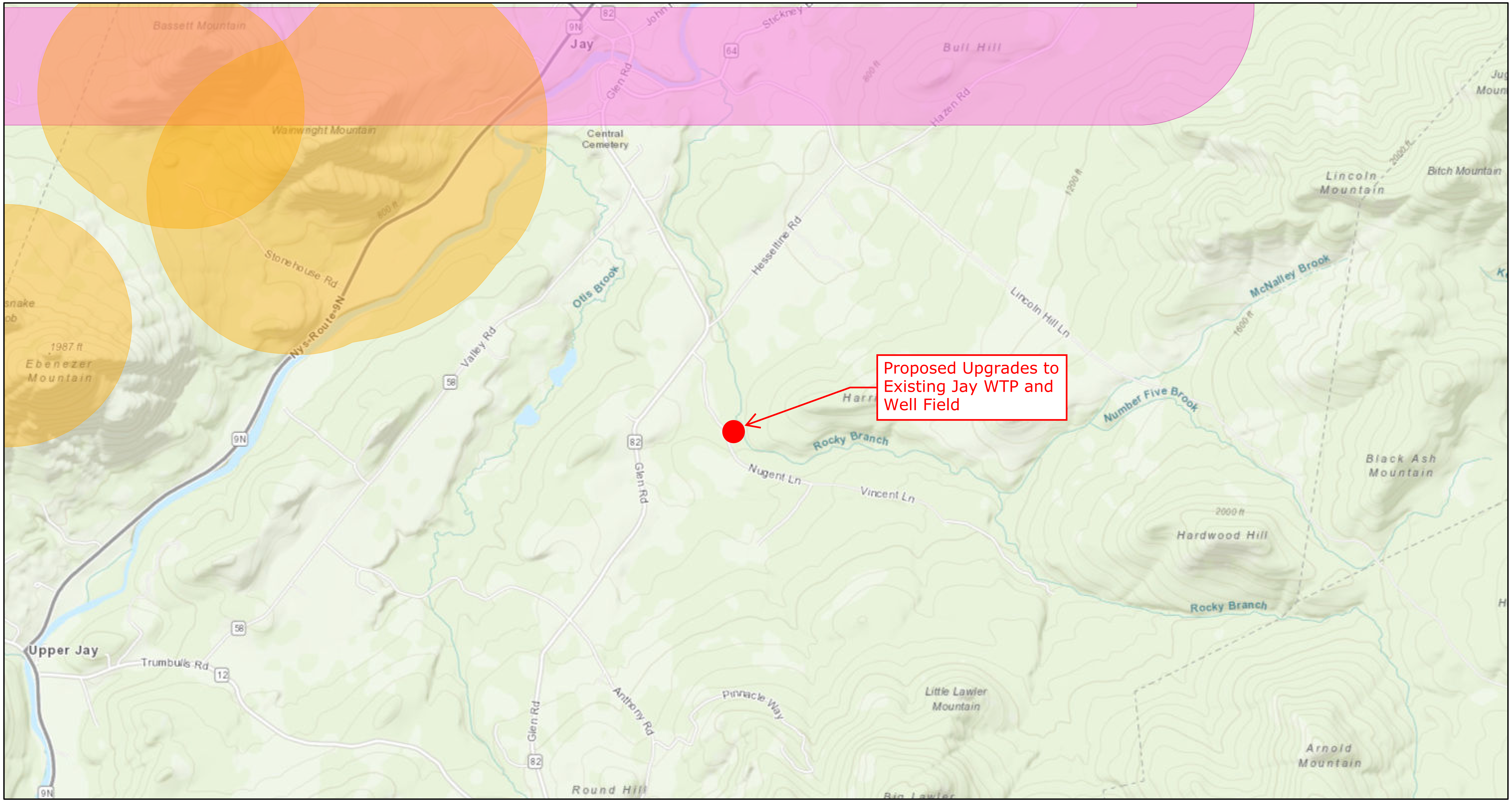
0 0.15 0.3 0.6 mi

0 0.25 0.5 1 km

Esri Canada, Esri, HERE, Garmin, INCREMENT P, USGS, METI/NASA, EPA, USDA

NYS Department of Environmental Conservation
Not a legal document

Environmental Resource Mapper



April 29, 2024

1:36,112

0 0.33 0.65 1.3 mi

0 0.5 1 2 km

Significant Natural Communities

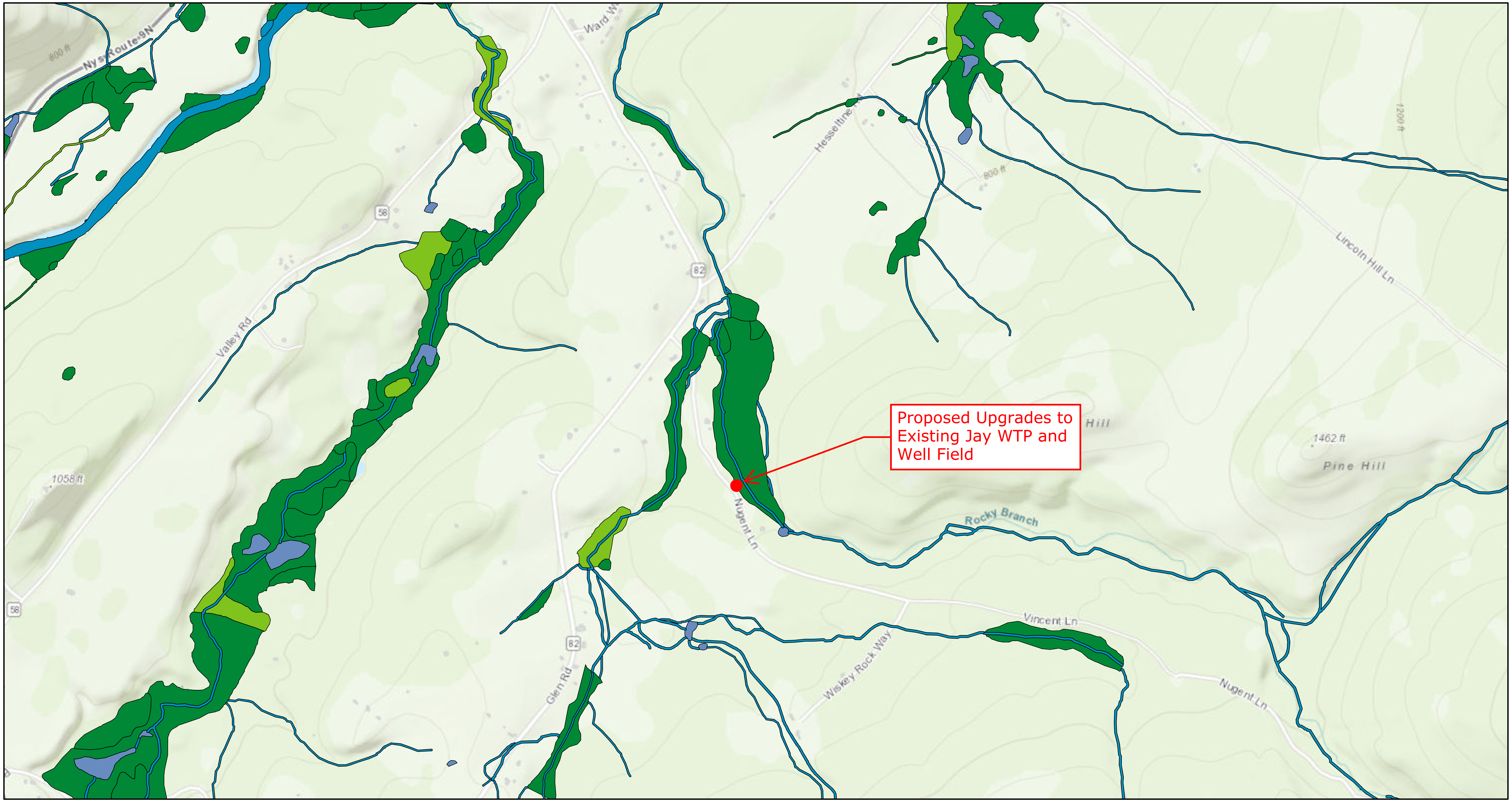
Natural Communities Near This Location

Rare Plants or Animals

Esri Canada, Esri, HERE, Garmin, INCREMENT P, USGS, METI/NASA, EPA, USDA

NYS Department of Environmental Conservation
Not a legal document

Environmental Resource Mapper



April 29, 2024

- Estuarine and Marine Deepwater
- Estuarine and Marine Wetland
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Lake
- Other
- Riverine

1:18,056

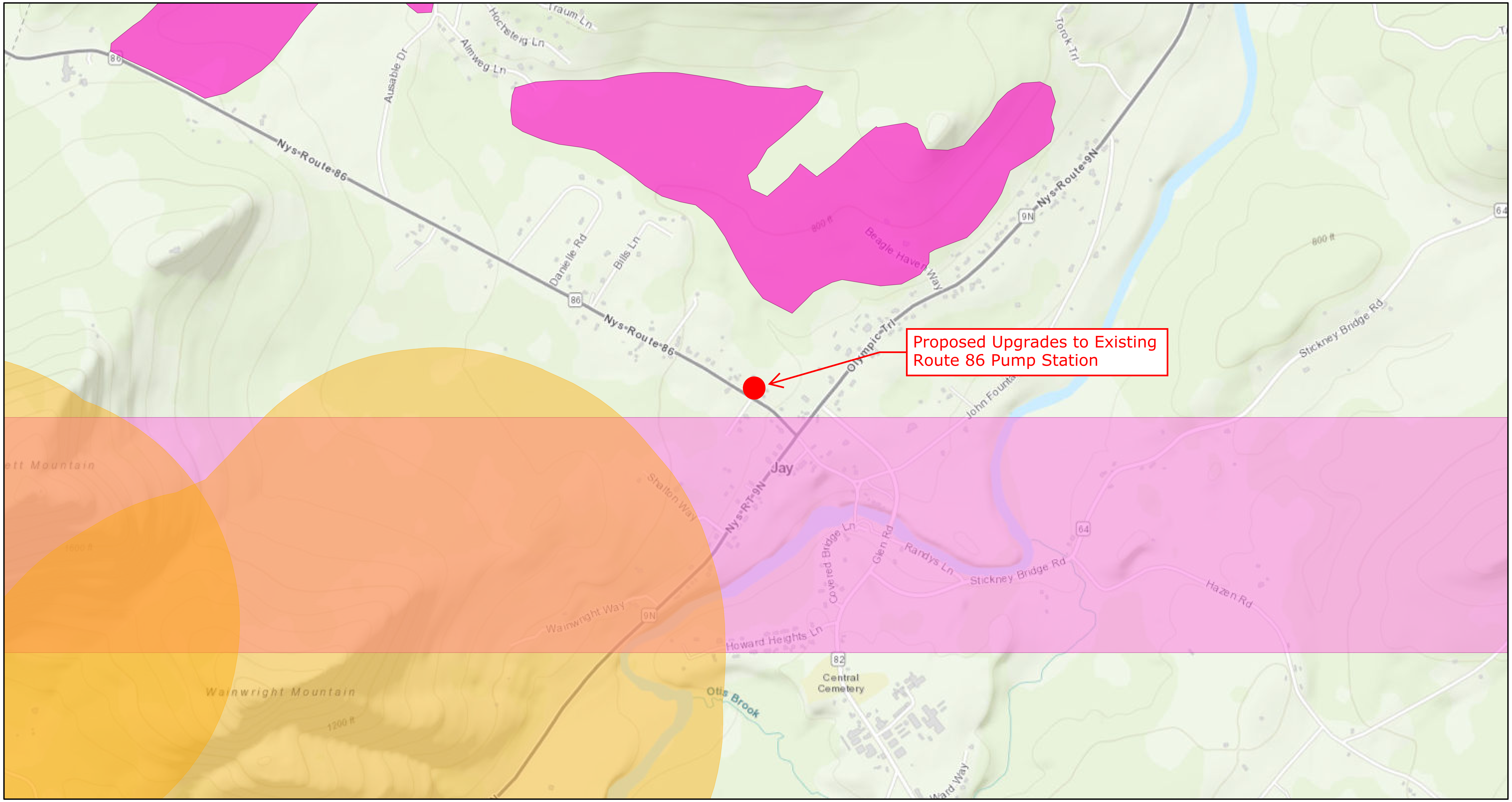
0 0.15 0.3 0.6 mi

0 0.25 0.5 1 km

Esri Canada, Esri, HERE, Garmin, INCREMENT P, USGS, METI/NASA, EPA, USDA

NYS Department of Environmental Conservation
Not a legal document

Environmental Resource Mapper



April 29, 2024

1:18,056

0 0.15 0.3 0.6 mi

0 0.25 0.5 1 km

Significant Natural Communities

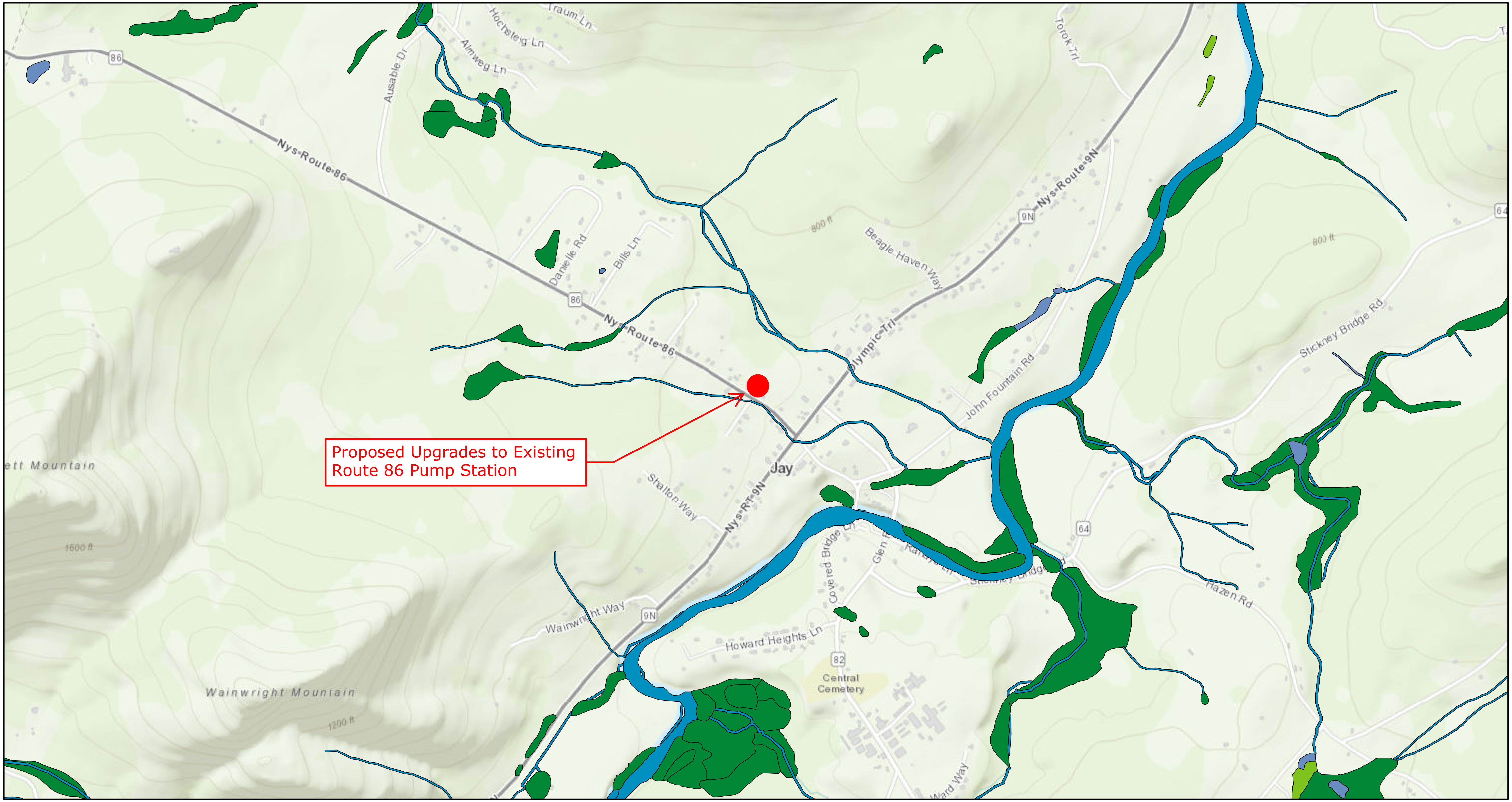
Natural Communities Near This Location

Rare Plants or Animals

Esri Canada, Esri, HERE, Garmin, INCREMENT P, USGS, METI/NASA, EPA, USDA

NYS Department of Environmental Conservation
Not a legal document

Environmental Resource Mapper



April 29, 2024

- Estuarine and Marine Deepwater
- Estuarine and Marine Wetland
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Lake
- Other
- Riverine

1:18,056

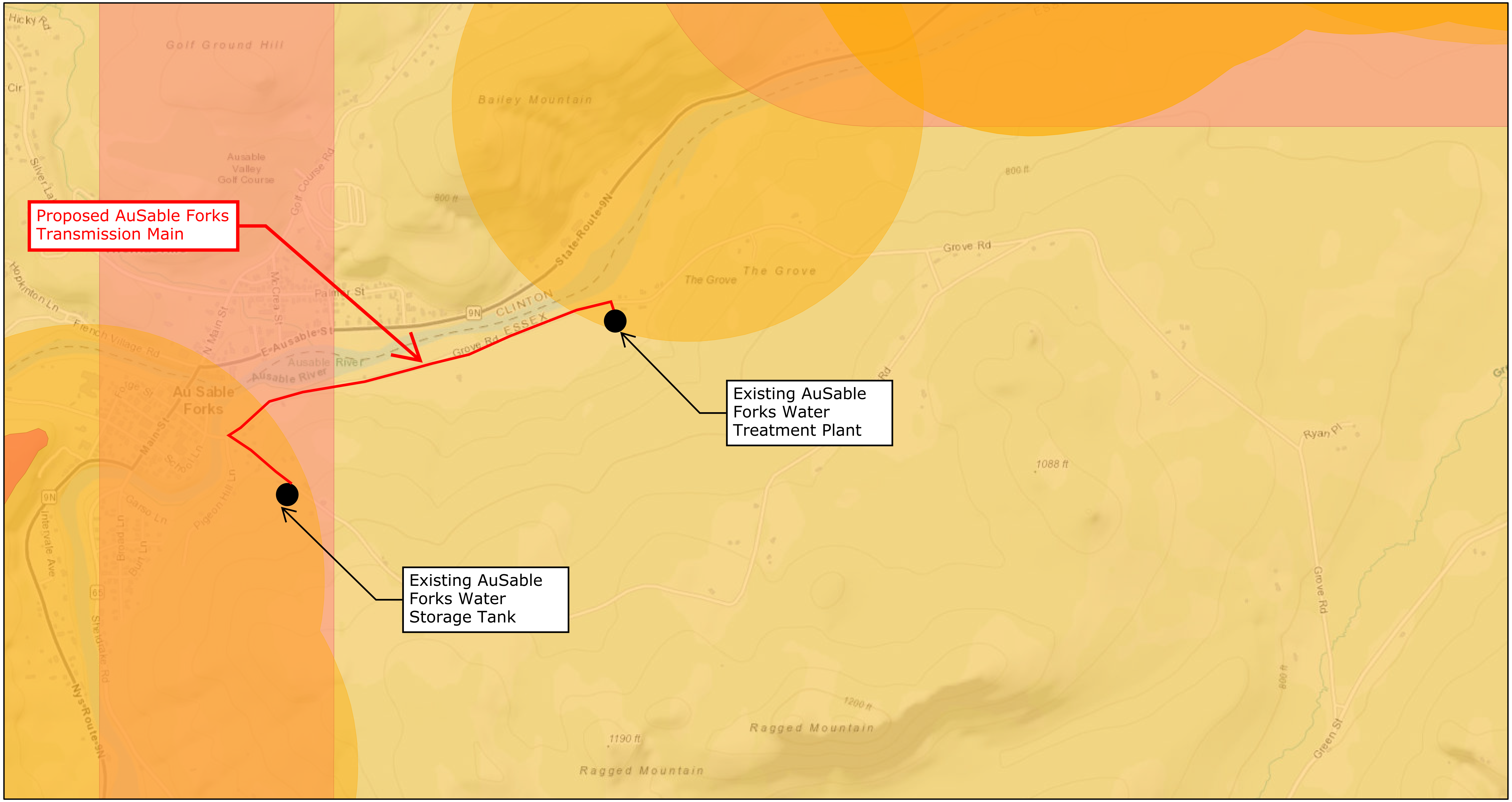
0 0.15 0.3 0.6 mi

0 0.25 0.5 1 km

Esri Canada, Esri, HERE, Garmin, INCREMENT P, USGS, METI/NASA, EPA, USDA

NYS Department of Environmental Conservation
Not a legal document

Environmental Resource Mapper



April 29, 2024

1:18,056

0	0.15	0.3	0.6 mi
0	0.25	0.5	1 km

Significant Natural Communities

Natural Communities Near This Location

Rare Plants or Animals

Esri Canada, Esri, HERE, Garmin, INCREMENT P, USGS, METI/NASA, EPA, USDA

NYS Department of Environmental Conservation
Not a legal document

Appendix F \

FEMA Flood Mapping

National Flood Hazard Layer FIRMette

FEMA

73°43'14"W 44°21'13"N

73°42'36"W 44°20'47"N

Feet: 0 | 250 | 500 | 1,000 | 1,500 | 2,000

1:6,000

Basemap Imagery Source: USGS National Map 2023

Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

SPECIAL FLOOD HAZARD AREAS
- Without Base Flood Elevation (BFE) *Zone A, V, A99*
- With BFE or Depth *Zone AE, AO, AH, VE, AR*
- Regulatory Floodway

OTHER AREAS OF FLOOD HAZARD
- 0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile *Zone X*
- Future Conditions 1% Annual Chance Flood Hazard *Zone X*
- Area with Reduced Flood Risk due to Levee. See Notes. *Zone X*
- Area with Flood Risk due to Levee *Zone D*

OTHER AREAS
- NO SCREEN Area of Minimal Flood Hazard *Zone X*
- Effective LOMRs
- Area of Undetermined Flood Hazard *Zone D*

GENERAL STRUCTURES
- Channel, Culvert, or Storm Sewer
- Levee, Dike, or Floodwall

OTHER FEATURES
- B 20.2 / 17.5 Cross Sections with 1% Annual Chance Water Surface Elevation
- 8 Coastal Transect
- 513 Base Flood Elevation Line (BFE)
- Limit of Study
- Jurisdiction Boundary
- Coastal Transect Baseline
- Profile Baseline
- Hydrographic Feature

MAP PANELS
- Digital Data Available
- No Digital Data Available
- Unmapped

N

The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards

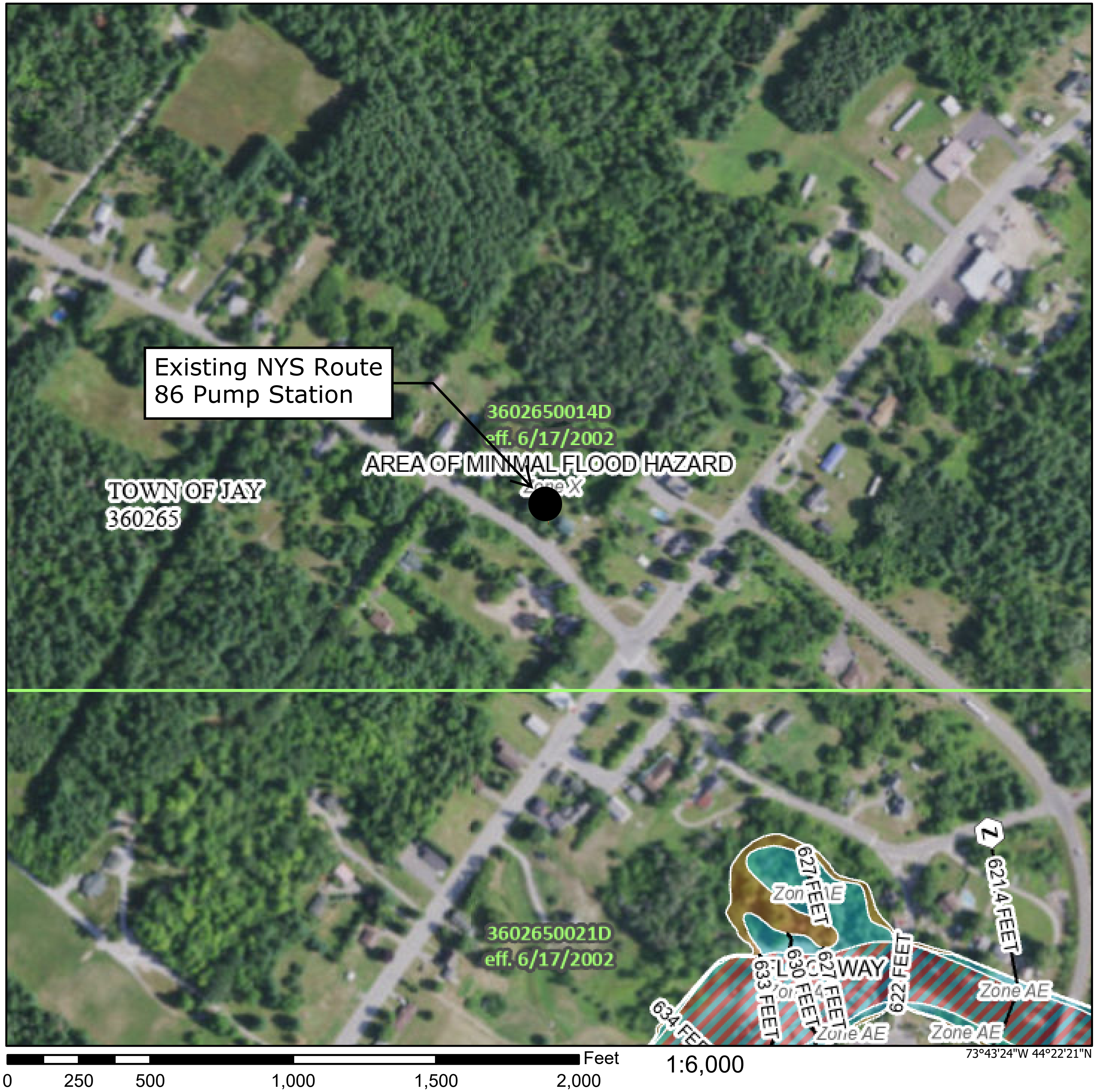
The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 4/29/2024 at 1:34 PM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.

National Flood Hazard Layer FIRMette

FEMA

73°44'1"W 44°22'47"N



73°43'24"W 44°22'21"N

1:6,000

Basemap Imagery Source: USGS National Map 2023

Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

SPECIAL FLOOD HAZARD AREAS
- Without Base Flood Elevation (BFE) *Zone A, V, A99*
- With BFE or Depth *Zone AE, AO, AH, VE, AR*
- Regulatory Floodway

OTHER AREAS OF FLOOD HAZARD
- 0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile *Zone X*
- Future Conditions 1% Annual Chance Flood Hazard *Zone X*
- Area with Reduced Flood Risk due to Levee. See Notes. *Zone X*
- Area with Flood Risk due to Levee *Zone D*

OTHER AREAS
- NO SCREEN Area of Minimal Flood Hazard *Zone X*
- Effective LOMRs
- Area of Undetermined Flood Hazard *Zone D*

GENERAL STRUCTURES
- Channel, Culvert, or Storm Sewer
- Levee, Dike, or Floodwall

OTHER FEATURES
- B 20.2 / 17.5 Cross Sections with 1% Annual Chance Water Surface Elevation
- 8 Coastal Transect
- 513 Base Flood Elevation Line (BFE)
- Limit of Study
- Jurisdiction Boundary
- Coastal Transect Baseline
- Profile Baseline
- Hydrographic Feature

MAP PANELS
- Digital Data Available
- No Digital Data Available
- Unmapped

N

The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 4/29/2024 at 1:29 PM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.

National Flood Hazard Layer FIRMette

FEMA

73°43'47"W 44°22'14"N

0 250 500 1,000 1,500 2,000 Feet

1:6,000

73°43'10"W 44°21'48"N

Basemap Imagery Source: USGS National Map 2023

Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

SPECIAL FLOOD HAZARD AREAS
- Without Base Flood Elevation (BFE) *Zone A, V, A99*
- With BFE or Depth *Zone AE, AO, AH, VE, AR*
- Regulatory Floodway

OTHER AREAS OF FLOOD HAZARD
- 0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile *Zone X*
- Future Conditions 1% Annual Chance Flood Hazard *Zone X*
- Area with Reduced Flood Risk due to Levee. See Notes. *Zone X*
- Area with Flood Risk due to Levee *Zone D*

OTHER AREAS
- NO SCREEN Area of Minimal Flood Hazard *Zone X*
- Effective LOMRs
- Area of Undetermined Flood Hazard *Zone D*

GENERAL STRUCTURES
- Channel, Culvert, or Storm Sewer
- Levee, Dike, or Floodwall

OTHER FEATURES
- 20.2 / 17.5 Cross Sections with 1% Annual Chance Water Surface Elevation
- 8 Coastal Transect
- 513 Base Flood Elevation Line (BFE)
- Limit of Study
- Jurisdiction Boundary
- Coastal Transect Baseline
- Profile Baseline
- Hydrographic Feature

MAP PANELS
- Digital Data Available
- No Digital Data Available
- Unmapped

N

The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 9/11/2024 at 11:30 AM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.

National Flood Hazard Layer FIRMette

FEMA

73°46'13"W 44°20'12"N

73°45'36"W 44°19'46"N

0 250 500 1,000 1,500 2,000 Feet

1:6,000

Basemap Imagery Source: USGS National Map 2023

Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

SPECIAL FLOOD HAZARD AREAS	Without Base Flood Elevation (BFE) *Zone A, V, A99*
	With BFE or Depth *Zone AE, AO, AH, VE, AR*
	Regulatory Floodway
OTHER AREAS OF FLOOD HAZARD	0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile *Zone X*
	Future Conditions 1% Annual Chance Flood Hazard *Zone X*
	Area with Reduced Flood Risk due to Levee. See Notes. *Zone X*
	Area with Flood Risk due to Levee *Zone D*
OTHER AREAS	NO SCREEN Area of Minimal Flood Hazard *Zone X*
	Effective LOMRs
	Area of Undetermined Flood Hazard *Zone D*
GENERAL STRUCTURES	Channel, Culvert, or Storm Sewer
	Levee, Dike, or Floodwall
OTHER FEATURES	B 20.2 17.5 Cross Sections with 1% Annual Chance Water Surface Elevation
	8 Coastal Transect
	513 Base Flood Elevation Line (BFE)
	Limit of Study
	Jurisdiction Boundary
	Coastal Transect Baseline
	Profile Baseline
	Hydrographic Feature
MAP PANELS	Digital Data Available
	No Digital Data Available
	Unmapped

N

The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 9/11/2024 at 11:34 AM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.

73°41'15.43"W 44°27'34.04"N

73°39'22.08"W 44°25'28.36"N

FLOOD HAZARD INFORMATION

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR DRAFT FIRM PANEL LAYOUT

SPECIAL FLOOD HAZARD AREAS	Without Base Flood Elevation (BFE) *Zone A, V, A99*; With BFE or Depth *Zone AE, AO, AH, VE, AR*
	Regulatory Floodway
OTHER AREAS OF FLOOD HAZARD	0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile *Zone X*
	Future Conditions 1% Annual Chance Flood Hazard *Zone X*
	Area with Reduced Flood Risk due to Levee See Notes *Zone X*
	Area with Flood Risk due to Levee *Zone D*
OTHER AREAS	NO SCREEN Area of Minimal Flood Hazard *Zone X*
	Effective LOMRs
	Area of Undetermined Flood Hazard *Zone D*
GENERAL STRUCTURES	Channel, Culvert, or Storm Sewer
	Levee, Dike, or Floodwall
OTHER FEATURES	B 20.2 Cross Sections with 1% Annual Chance
	17.5 Water Surface Elevation
	8 Coastal Transect
	Coastal Transect Baseline
	Profile Baseline
	Hydrographic Feature
	513 Base Flood Elevation Line (BFE)
	Limit of Study
	Jurisdiction Boundary

NOTES TO USERS

For information and questions about this Flood Insurance Rate Map (FIRM), available products associated with this FIRM, including historic versions, the current map date for each FIRM panel, how to order products, or the National Flood Insurance Program (NFIP) in general, please call the FEMA Map Information eXchange at 1-877-FEMA-MAP (1-877-336-2627) or visit the FEMA Flood Map Service Center website at https://msc.fema.gov. Available products may include previously issued Letters of Map Change, a Flood Insurance Study Report, and/or digital versions of this map. Many of these products can be ordered or obtained directly from the website.

Communities annexing land on adjacent FIRM panels must obtain a current copy of the adjacent panel as well as the current FIRM Index. These may be ordered directly from the Flood Map Service Center at the number listed above.

For community and countywide map dates, refer to the Flood Insurance Study Report for this jurisdiction.

To determine if flood insurance is available in this community, contact your Insurance agent or call the National Flood Insurance Program at 1-800-638-6620.

Basemap information shown on this FIRM was provided in digital format by USDA, Farm Service Agency (FSA). This information was derived from NAIP, dated April 11, 2018.

This map was exported from FEMA's National Flood Hazard Layer (NFHL) on **4/29/2024 1:50 PM** and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time. For additional information, please see the Flood Hazard Mapping Updates Overview Fact Sheet at https://www.fema.gov/media-library/assets/documents/118418

This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards. This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date.

SCALE

Map Projection:
GCS, Geodetic Reference System 1980;
Vertical Datum: NGVD29, NAVD88
For information about the specific vertical datum for elevation features, datum conversions, or vertical monuments used to create this map, please see the Flood Insurance Study (FIS) Report for your community at https://msc.fema.gov

N

1 inch = 500 feet 1:6,000

0 250 500 1,000 1,500 2,000 Feet

0 50 100 200 300 400 Meters

FEMA
National Flood Insurance Program

NATIONAL FLOOD INSURANCE PROGRAM
FLOOD INSURANCE RATE MAP

PANEL **4** OF **30**

Panel Contains:

COMMUNITY	NUMBER	PANEL
TOWN OF JAY	360265	0004
TOWN OF BLACK BROOK	361309	0004

MAP NUMBER
3602650004D
EFFECTIVE DATE
June 17, 2002

73°41'15.43"W 44°26'21.62"N

73°39'22.08"W 44°24'15.94"N

FLOOD HAZARD INFORMATION

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP
FOR DRAFT FIRM PANEL LAYOUT

SPECIAL FLOOD HAZARD AREAS	Without Base Flood Elevation (BFE) *Zone A, V, A99* With BFE or Depth *Zone AE, AO, AH, VE, AR*
	Regulatory Floodway
OTHER AREAS OF FLOOD HAZARD	0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile *Zone X*
	Future Conditions 1% Annual Chance Flood Hazard *Zone X*
	Area with Reduced Flood Risk due to Levee See Notes *Zone X*
	Area with Flood Risk due to Levee *Zone D*
OTHER AREAS	NO SCREEN Area of Minimal Flood Hazard *Zone X*
	Effective LOMRs
	Area of Undetermined Flood Hazard *Zone D*
GENERAL STRUCTURES	Channel, Culvert, or Storm Sewer
	Levee, Dike, or Floodwall
OTHER FEATURES	B 20.2 Cross Sections with 1% Annual Chance
	17.5 Water Surface Elevation
	8 Coastal Transect
	Coastal Transect Baseline
	Profile Baseline
	Hydrographic Feature
	513 Base Flood Elevation Line (BFE)
	Limit of Study
	Jurisdiction Boundary

NOTES TO USERS

For information and questions about this Flood Insurance Rate Map (FIRM), available products associated with this FIRM, including historic versions, the current map date for each FIRM panel, how to order products, or the National Flood Insurance Program (NFIP) in general, please call the FEMA Map Information eXchange at 1-877-FEMA-MAP (1-877-336-2627) or visit the FEMA Flood Map Service Center website at https://msc.fema.gov. Available products may include previously issued Letters of Map Change, a Flood Insurance Study Report, and/or digital versions of this map. Many of these products can be ordered or obtained directly from the website.

Communities annexing land on adjacent FIRM panels must obtain a current copy of the adjacent panel as well as the current FIRM Index. These may be ordered directly from the Flood Map Service Center at the number listed above.

For community and countywide map dates, refer to the Flood Insurance Study Report for this jurisdiction.

To determine if flood insurance is available in this community, contact your Insurance agent or call the National Flood Insurance Program at 1-800-638-6620.

Basemap information shown on this FIRM was provided in digital format by USDA, Farm Service Agency (FSA). This information was derived from NAIP, dated April 11, 2018.

This map was exported from FEMA's National Flood Hazard Layer (NFHL) on **4/29/2024 2:31 PM** and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time. For additional information, please see the Flood Hazard Mapping Updates Overview Fact Sheet at https://www.fema.gov/media-library/assets/documents/118418

This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards. This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date.

SCALE

Map Projection:
GCS, Geodetic Reference System 1980;
Vertical Datum: NGVD29

For information about the specific vertical datum for elevation features, datum conversions, or vertical monuments used to create this map, please see the Flood Insurance Study (FIS) Report for your community at https://msc.fema.gov

N

1 inch = 500 feet 1:6,000

0 250 500 1,000 1,500 2,000 Feet

Meters 0 50 100 200 300 400

FEMA

National Flood Insurance Program

NATIONAL FLOOD INSURANCE PROGRAM

FLOOD INSURANCE RATE MAP

PANEL 10 OF 30

Panel Contains:

COMMUNITY	NUMBER	PANEL
TOWN OF JAY	360265	0010

MAP NUMBER
3602650010D
EFFECTIVE DATE
June 17, 2002

Appendix G \

Environmental Justice Area Mapping

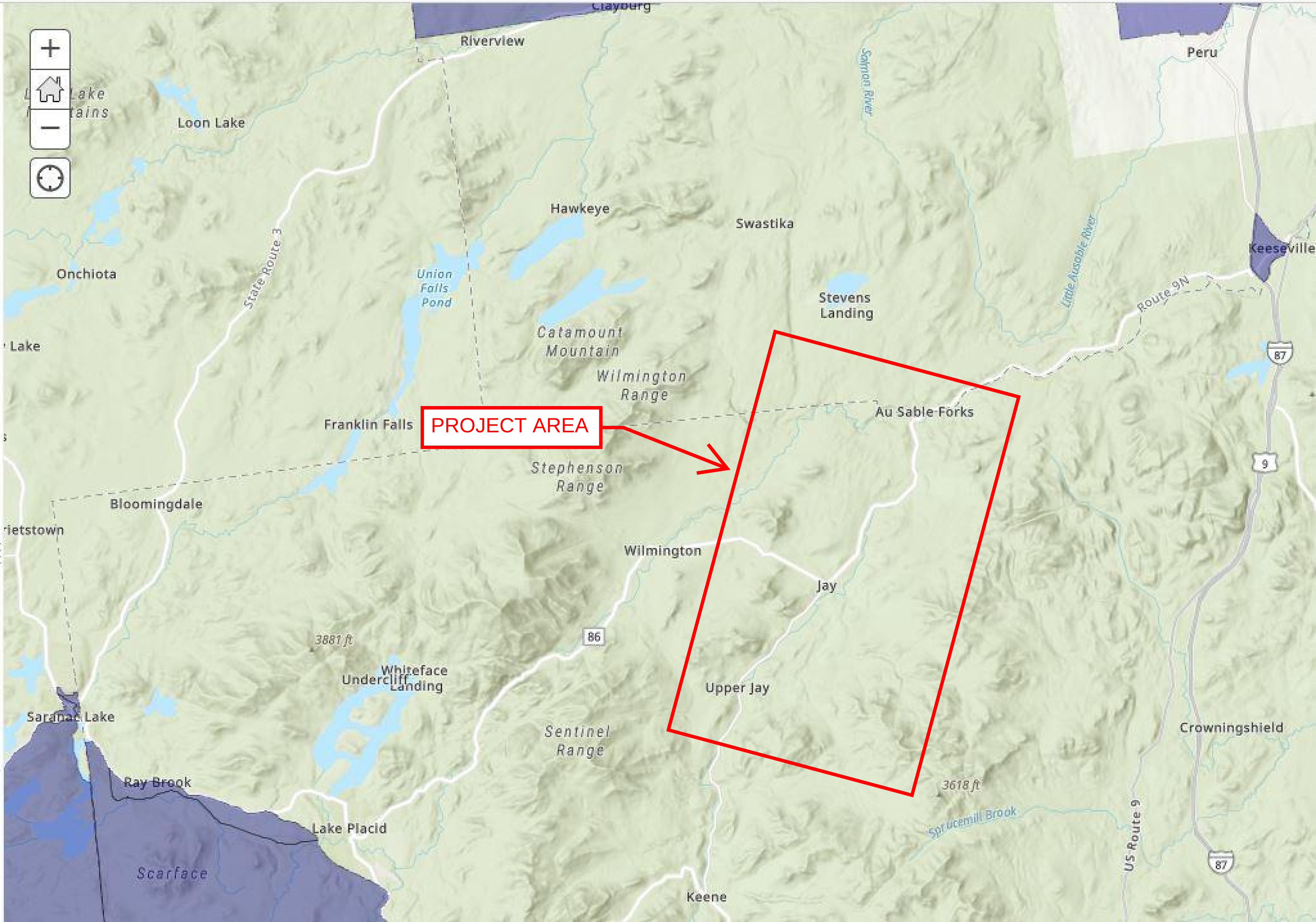
ArcGIS My Map

Details | Basemap | Print Measure

About Content Legend

Legend

Potential_Environmental_Justice_Area__PEJA__Communities - Potential Environmental Justice Area (PEJA) Communities



Appendix H \

Water Usage Data

2023 - WATER WITHDRAWAL DATA

(in 1,000's of gallons)

Month	Nugent Road Wells Jay & Upper Jay Water Districts	AuSable Forks Wells AuSable Forks Water District and Black Brook (T)
January	3,791	3,636
February	3,538	3,151
March	4,189	3,591
April	3,838	3,432
May	4,285	3,737
June	4,826	3,993
July	4,826	3,481
August	4,819	3,324
September	5,078	3,390
October	4,487	3,076
November	3,348	2,924
December	3,796	2,962
Average Daily Withdrawal	138.8	109.9
Maximum Daily Withdrawal	263.3	245.3
Daily NYSDEC Permitted Capacity	792	504

Note: Approximately 50% of the water withdrawn from the AuSable forks wells was directed to and purchased by the Town of Black Brook. Beginning in 2024, Black Brook installed an independent water system and is no longer purchasing water from the Town of Jay. Accordingly, the water demand from the AuSable Forks wells will decrease by approximately 50%.

Water Withdrawal Reporting Form
version 1.9

(Submission #: HQ2-3EPE-JJXQ1, version 1)

Details

Originally Started By	Paul Mintz
Alternate Identifier	Nugent Road Water Plant
Submission ID	HQ2-3EPE-JJXQ1
Submission Reason	New
Status	Draft

Form Input

Basic Information

Facility ID (WWR0000000)
WWR0000823

Facility Name
Nugent Road Water Plant

Facility Street Address
73 Nugent Rd

City
Jay

Zip Code
12941

Town (The municipality in which the facility is located)
Jay

County
Essex

Contact Name
Paul Mintz

Contact Email
watersewersuper@townofjayny.gov

Contact Telephone
5185785957

Submitter Name
Paul Mintz

Submitter Title
Superintendent of Water/Wastewater

Water Withdrawal Category

Select the main water withdrawal category. If you have a secondary water withdrawal category, you may enter it as an "Other" category.

Water Withdrawal Category (select one)
Public Water Supply

If you selected "Other", please provide the other water withdrawal category here.
NONE PROVIDED

If you selected 'Power - Other' above, please provide the other power category here.
NONE PROVIDED

If you selected 'Recreational - Other' above, please provide the other recreation category here.
NONE PROVIDED

Source Information

Source Information

Source Name	Source Type	Well Depth (Feet)	Max Rate (Source Capacity)	Units
Well #3	BW - Bedrock Well	60	450	GPM - Gallons per Minute
Well #2	BW - Bedrock Well	60	130	GPM - Gallons per Minute

Do you have additional sources to report?

To add another source, click the "Add Row" button below the table.

Annual Water Withdrawal Data

Reporting Year
2023

Average Day Withdrawal
138760

Units (Average Day Withdrawal)
GPD (Gallons per Day)

Maximum Day Withdrawal
263331

Units (Maximum Day Withdrawal)
GPD (Gallons per Day)

NYSDEC Permitted Withdrawal Amount or Maximum System Capacity
792000

Units (Permitted Withdrawal Amount or Maximum System Capacity)
GPD (Gallons per Day)

Calculation Method
M - Metered

Monthly Data - Withdrawals

Withdrawal: Amount of water removed from all sources. This includes groundwater and/or surface water.

Must be reported in units of gallons per month. All fields are required. Please enter "0" if no water was withdrawn.

January
3790715

February
3537976

March
4189177

April
3838069

May
4284931

June
4791500

July
4826098

August
4819287

September
5077504

October
4487173

November
3348041

December
3795849

Monthly Data - Transferred/Imported/Purchased

Transferred/Imported/Purchased: Amount of water brought in from or sent to another facility, including bulk sales.

Must be reported in units of gallons per month. All fields are required. Please enter "0" if no water was transferred, imported, or purchased. Use a negative number for transferred water and a positive number for imported or purchased water.

Did your facility transfer, import, or purchase water during this reporting year?
No

January
0

February
0

March
0

April
0

May
0

June
0

July
0

August
0

September
0

October
0

November
0

December
0

Monthly Data - Consumed

Consumed: Amount of water not returned (e.g. water incorporated into a product or lost through evaporation). Public water suppliers must use metered sales to customers. Irrigation is considered consumed water.

Must be reported in units of gallons per month. All fields are required. Please enter "0" if no water was consumed.

January
3824387

February
3725562

March
4197551

April
3896977

May
4433063

June
4734558

July
4816127

August
4846465

September
5070431

October
4528766

November
3350314

December
3862644

Monthly Data - Returned

Returned: Amount of water discharged to a water treatment system or back to the environment. Irrigation and snowmaking is not considered returned water.

Must be reported in units of gallons per month. All fields are required. Please enter "0" if no water was returned.

Did your facility return water to a water treatment system or the environment?
No

Location of returned water, if applicable
NONE PROVIDED

January
0

February
0

March
0

April
0

May
0

June
0

July
0

August
0

September
0

October
0

November
0

December
0

Monthly Data - Diversions

Diversions: Amount of water, if any, diverted to or from another major drainage basin.

Must be reported in units of gallons per month. All fields are required. Please enter "0" if no water was withdrawn. Use a negative number for water diverted out of your basin and a positive number for water diverted into your basin. To aid in determining whether you may have an interbasin diversion, see the DEC Major Drainage Basins Map (link provided below).
DEC Major Drainage Basins Map

Did your facility divert water to or from another major drainage basin?
No

January
0

February
0

March
0

April
0

May
0

June
0

July
0

August
0

September
0

October
0

November
0

December
0

Interbasin Diversions

Fill out this section only if water is being transferred between major drainage basins.

To determine the basin name, go to the DEC Major Drainage Basins Map (link provided below). Then select the basin name using the drop down menus under Originating and Receiving Major Drainage Basin headings below. Describe the locations of originating and receiving sites in the site description boxes (e.g.Town water intake on Route 12 at northern end of Pleasant Lake to Stony Reservoir near Bear Road).
DEC Major Drainage Basins Map

Originating Major Drainage Basin
NONE PROVIDED

Originating Site Description
NONE PROVIDED

Receiving Major Drainage Basin
NONE PROVIDED

Receiving Site Description
NONE PROVIDED

General Map (1 of 1)

New Source Name
Nugent Road Water Plant

New Source Coordinates
44.350020287711516,-73.7153572742747

Public Water Supplies

Are all sources of supply including major interconnections equipped with master meters?
Yes

What percentage of your system is metered?
0

Average age of meters (Years)
0

Range of age of installed meters (Years)
0

How often were customer meters read this past year?
0

Number of water service connections
545

Total population served
1234

How many customer meters were recalibrated and/or replaced in the past year?
0

Miles of pipe in water distribution system
9

Length of pipe replaced in the past year (Feet)
0

Miles of pipe on which leak detection was performed using sonic listening equipment.
0

What type of equipment was used to perform sonic leak detection?
0

How many system-wide water audits were performed in the past year?
0

Residential charge per 1,000 gallons of water ($X.XX)
0.00

What percentage of water withdrawn was not billed to customers?
0

What percentage of water was lost to distribution system leakage?
0

Was information about household water saving devices and ways to reduce water distributed to residential customers?
No

Was water conservation information about promoting recycling and reuse distributed to industrial and commercial customers?
No

Do you have lawn sprinkling time restrictions (e.g., odd/even days) during periods of peak demand?
No

Do you have a plan that takes progressive steps to further reduce outdoor water use during drought conditions with an ordinance to assure compliance?
No

Please review your permit(s) for any specific water conservation conditions and report below on progress made in the past year.
Town contracted with MJ Engineering for residential water metering.

Outside Sales

Outside Sales

Purchaser Name	Facility Type	Type of Sale	Contracted Amount (Gallons per Day)	Water Sold in Year (Gallons per Year)	Average Amount (Gallons per Day)	Maximum Amount (Gallons per Day)

Do you have additional sales to report?

To add another sale, click "ADD ROW" beneath the table.

Legally Responsible Party Information

Legally Responsible Party Representative

The legally responsible party representative is: 1) For a corporation - the president, secretary, treasurer, or vice president of the corporation in charge of a principal business function; or other responsible corporate officer as specified in 6 NYCRR 601.22(a)(1)(i) or (ii); 2) For a partnership or sole proprietorship - general partner or proprietor, respectively; 3) For a municipality, State, Federal or other public agency - the principal executive officer or ranking elected official. For a Federal agency, the principal executive officer includes the chief executive officer of the agency; or a senior executive officer having responsibility for the overall operations of a principal geographic unit of the agency (e.g., regional administrators of EPA).

Name of Company/Legally Responsible Party for the Facility
Town of Jay

Legally Responsibly Party Address

> PO Box 730
>
> Au Sable Forks, NY 12912

Representative Name
Paul Mintz

Representative Title
Superintendent of Water/WW

Certification Statement - I hereby certify that the information provided on this reporting form is true to the best of my knowledge and belief. I understand that false statements made in this reporting form are made under penalty of perjury and that they are punishable under section 210.45 of the New York State Penal Law.
Yes

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Water Withdrawal Reporting Form
version 1.9

(Submission #: HQ2-3DKT-02F3W, version 3)

Details

Submitted	3/13/2024 (0 days ago) by Paul Mintz
Alternate Identifier	Au Sable Forks Water Plant
Submission ID	HQ2-3DKT-02F3W
Submission Reason	New
Status	Submitted
Active Steps	Review Submittal

Form Input

Basic Information

Facility ID (WWR0000000)
WWR0000076

Facility Name
Au Sable Forks Water Plant

Facility Street Address
196 Grove Rd

City
Au Sable Forks

Zip Code
12912

Town (The municipality in which the facility is located)
Jay

County
Essex

Contact Name
Paul Mintz

Contact Email
watersewersuper@townofjayny.gov

Contact Telephone
518-578-5957

Submitter Name
Paul Mintz

Submitter Title
Superintendent of Water/Wastewater

Water Withdrawal Category

Select the main water withdrawal category. If you have a secondary water withdrawal category, you may enter it as an "Other" category.

Water Withdrawal Category (select one)
Public Water Supply

If you selected "Other", please provide the other water withdrawal category here.
NONE PROVIDED

If you selected 'Power - Other' above, please provide the other power category here.
NONE PROVIDED

If you selected 'Recreational - Other' above, please provide the other recreation category here.
NONE PROVIDED

Source Information

Source Information

Source Name	Source Type	Well Depth (Feet)	Max Rate (Source Capacity)	Units
PW-1	BW - Bedrock Well	164	265	GPM - Gallons per Minute
PW-2	BW - Bedrock Well	139	255	GPM - Gallons per Minute

Do you have additional sources to report?

To add another source, click the "Add Row" button below the table.

Annual Water Withdrawal Data

Reporting Year
2023

Average Day Withdrawal
109907

Units (Average Day Withdrawal)
GPD (Gallons per Day)

Maximum Day Withdrawal
245318

Units (Maximum Day Withdrawal)
GPD (Gallons per Day)

NYSDEC Permitted Withdrawal Amount or Maximum System Capacity
504000

Units (Permitted Withdrawal Amount or Maximum System Capacity)
GPD (Gallons per Day)

Calculation Method
M - Metered

Monthly Data - Withdrawals

Withdrawal: Amount of water removed from all sources. This includes groundwater and/or surface water.

Must be reported in units of gallons per month. All fields are required. Please enter "0" if no water was withdrawn.

January
3636272

February
3150552

March
3591432

April
3431658

May
3736781

June
3993305

July
3481312

August
3323908

September
3390302

October
3075994

November
2923938

December
2962075

Monthly Data - Transferred/Imported/Purchased

Transferred/Imported/Purchased: Amount of water brought in from or sent to another facility, including bulk sales.

Must be reported in units of gallons per month. All fields are required. Please enter "0" if no water was transferred, imported, or purchased. Use a negative number for transferred water and a positive number for imported or purchased water.

Did your facility transfer, import, or purchase water during this reporting year?
Yes

January
-1672720

February
-1350910

March
-1493720

April
-1516230

May
-1800400

June
-1731460

July
-1752250

August
-1769800

September
-1604270

October
-1533070

November
-1398290

December
-1442840

Monthly Data - Consumed

Consumed: Amount of water not returned (e.g. water incorporated into a product or lost through evaporation). Public water suppliers must use metered sales to customers. Irrigation is considered consumed water.

Must be reported in units of gallons per month. All fields are required. Please enter "0" if no water was consumed.

January
1963552

February
1799642

March
2097712

April
1915428

May
1936381

June
2261845

July
1729062

August
1554108

September
1786032

October
1542924

November
1525648

December
1519235

Monthly Data - Returned

Returned: Amount of water discharged to a water treatment system or back to the environment. Irrigation and snowmaking is not considered returned water.

Must be reported in units of gallons per month. All fields are required. Please enter "0" if no water was returned.

Did your facility return water to a water treatment system or the environment?
No

Location of returned water, if applicable
NONE PROVIDED

January
0

February
0

March
0

April
0

May
0

June
0

July
0

August
0

September
0

October
0

November
0

December
0

Monthly Data - Diversions

Diversions: Amount of water, if any, diverted to or from another major drainage basin.

Must be reported in units of gallons per month. All fields are required. Please enter "0" if no water was withdrawn. Use a negative number for water diverted out of your basin and a positive number for water diverted into your basin. To aid in determining whether you may have an interbasin diversion, see the DEC Major Drainage Basins Map (link provided below).
DEC Major Drainage Basins Map

Did your facility divert water to or from another major drainage basin?
No

January
0

February
0

March
0

April
0

May
0

June
0

July
0

August
0

September
0

October
0

November
0

December
0

Interbasin Diversions

Fill out this section only if water is being transferred between major drainage basins.

To determine the basin name, go to the DEC Major Drainage Basins Map (link provided below). Then select the basin name using the drop down menus under Originating and Receiving Major Drainage Basin headings below. Describe the locations of originating and receiving sites in the site description boxes (e.g.Town water intake on Route 12 at northern end of Pleasant Lake to Stony Reservoir near Bear Road).
DEC Major Drainage Basins Map

Originating Major Drainage Basin
NONE PROVIDED

Originating Site Description
NONE PROVIDED

Receiving Major Drainage Basin
NONE PROVIDED

Receiving Site Description
NONE PROVIDED

General Map (1 of 1)

New Source Name
Au Sable Forks Water Plant

New Source Coordinates
44.442503334980174,-73.65912031045795

Public Water Supplies

Are all sources of supply including major interconnections equipped with master meters?
Yes

What percentage of your system is metered?
0

Average age of meters (Years)
0

Range of age of installed meters (Years)
0

How often were customer meters read this past year?
0

Number of water service connections
225

Total population served
900

How many customer meters were recalibrated and/or replaced in the past year?
0

Miles of pipe in water distribution system
9

Length of pipe replaced in the past year (Feet)
0

Miles of pipe on which leak detection was performed using sonic listening equipment.
0

What type of equipment was used to perform sonic leak detection?
0

How many system-wide water audits were performed in the past year?
0

Residential charge per 1,000 gallons of water ($X.XX)
0.00

What percentage of water withdrawn was not billed to customers?
0

What percentage of water was lost to distribution system leakage?
0

Was information about household water saving devices and ways to reduce water distributed to residential customers?
No

Was water conservation information about promoting recycling and reuse distributed to industrial and commercial customers?
No

Do you have lawn sprinkling time restrictions (e.g., odd/even days) during periods of peak demand?
No

Do you have a plan that takes progressive steps to further reduce outdoor water use during drought conditions with an ordinance to assure compliance?
No

Please review your permit(s) for any specific water conservation conditions and report below on progress made in the past year.
Town contracted with MJ Engineering to work on water metering.

Outside Sales

Outside Sales

Purchaser Name	Facility Type	Type of Sale	Contracted Amount (Gallons per Day)	Water Sold in Year (Gallons per Year)	Average Amount (Gallons per Day)	Maximum Amount (Gallons per Day)
Town of Black Brook	PWS - Public Water Supply	C - Continuous	NONE PROVIDED	19065960	52236	122659

Do you have additional sales to report?

To add another sale, click "ADD ROW" beneath the table.

Legally Responsible Party Information

Legally Responsible Party Representative

The legally responsible party representative is: 1) For a corporation - the president, secretary, treasurer, or vice president of the corporation in charge of a principal business function; or other responsible corporate officer as specified in 6 NYCRR 601.22(a)(1)(i) or (ii); 2) For a partnership or sole proprietorship - general partner or proprietor, respectively; 3) For a municipality, State, Federal or other public agency - the principal executive officer or ranking elected official. For a Federal agency, the principal executive officer includes the chief executive officer of the agency; or a senior executive officer having responsibility for the overall operations of a principal geographic unit of the agency (e.g., regional administrators of EPA).

Name of Company/Legally Responsible Party for the Facility
Town of Jay

Legally Responsibly Party Address

> PO Box 730
>
> Au Sable Forks, NY 12912

Representative Name
Paul Mintz

Representative Title
Superintendent of Water/WW

Certification Statement - I hereby certify that the information provided on this reporting form is true to the best of my knowledge and belief. I understand that false statements made in this reporting form are made under penalty of perjury and that they are punishable under section 210.45 of the New York State Penal Law.
Yes

Status History

	User	Processing Status
3/13/2024 12:33:28 PM	Paul Mintz	Draft
3/13/2024 12:33:58 PM	Paul Mintz	Submitting
3/13/2024 12:34:02 PM	Paul Mintz	Submitted

Processing Steps

Step Name	Assigned To/Completed By	Date Completed
Review Submittal		

Revisions

Revision	Revision Date	Revision By
Revision 1	3/13/2024 10:50 AM	Paul Mintz
Revision 2	3/13/2024 12:31 PM	Paul Mintz
Revision 3	3/13/2024 12:33 PM	Paul Mintz

Appendix I \

Water Withdrawal Permit

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

Division of Environmental Permits, Region 5
1115 State Route 86, PO Box 296, Ray Brook, NY 12977-0296
P: (518) 897-1234 | F: (518) 897-1394
www.dec.ny.gov

August 4, 2023

Sent Via Email Only

Matthew Stanley, Supervisor
Town of Jay
11 School St
AuSable Forks, NY 12912

Re: Town of Jay Consolidated Water District
DEC #5-1528-00124/00001
WWA # 12,514
Jay (T) Essex County

Dear Permittee:

The Water Withdrawal Permit for the Town of Jay is enclosed. Please read it carefully and note the conditions that are included. Withdrawals beyond the scope of the permit and the approved project plans may be considered a violation of the law and subject to appropriate enforcement action.

Also note that this permit does not eliminate the need to obtain any other federal, state or local permits or approvals that may be required for this project.

Should you have any questions regarding your obligations under the permit, please feel free to contact Michael Kuzia-Carmel in the Division of Water at (518) 402-7231.

Sincerely,

Erin M. Donhauser

Erin M. Donhauser
Deputy Regional Permit Administrator

ec: Derek Thorsland, DEC
Michael Kuzia-Carmel, DEC
Madisen Hetman, DEC
Aaron Love, DEC
Marlene Martin, DOH
Rob Wick, Essex County
Norman Coolidge
Brian Hahn, EFC

PERMIT

Under the Environmental Conservation Law (ECL)

Permittee and Facility Information

Permit Issued To:
TOWN OF JAY
11 SCHOOL ST
PO BOX 730
AU SABLE FORKS, NY 12912-0730
(518) 647-2204

Facility:
Town of Jay Consolidated Water District
Grove Rd
Jay, NY

Facility Location: in JAY in ESSEX COUNTY
Facility Principal Reference Point: NYTM-E: 606.742 NYTM-N: 4921.976
Latitude: 44°26'35.6" Longitude: 73°39'31.0"

Authorized Activity: This permit authorizes the withdrawal of a supply of up to 1,080,000 gallons per day (GPD) from the approved sources listed in Condition No. 1 of this permit to serve within the approved service areas in Condition No. 2 of this permit. This permit modification approves the addition of wells 1-12 and 2-12 at the Grove Road Well Field as permanent sources of water supply for the Ausable Forks Water District. This permit consolidates and supersedes all previous permits for the Jay Water and Park District, the Upper Jay Water District, and the Ausable Forks Water District.

Permit Authorizations

Water Withdrawal Public - Under Article 15, Title 15
Permit ID 5-1528-00124/00001 (WWA No. 12,514)
New Permit Effective Date: 8/4/2023 Expiration Date: 8/3/2033

NYSDEC Approval

By acceptance of this permit, the permittee agrees that the permit is contingent upon strict compliance with the ECL, all applicable regulations, and all conditions included as part of this permit.

Permit Administrator: ERIN M DONHAUSER, Deputy Regional Permit Administrator
Address: NYSDEC Region 5 Headquarters
1115 NYS ROUTE 86
PO BOX 296
RAY BROOK, NY 12977 -0296

Authorized Signature: Erin M. Donhauser Date 08/ 04/ 23

Permit Components

WATER WITHDRAWAL PUBLIC PERMIT CONDITIONS

GENERAL CONDITIONS, APPLY TO ALL AUTHORIZED PERMITS

NOTIFICATION OF OTHER PERMITTEE OBLIGATIONS

WATER WITHDRAWAL PUBLIC PERMIT CONDITIONS

1. **Source Approval Table**

This table summarizes all system source approvals				
Well Field or Source of Water Supply	**Status**	**Past WWA Number**	**Individual Source Capacities (GPM)**	**Maximum Permitted Well Field or Supply of Water (GPD)**
Grove Road Well Field	**Ausable Forks Water District**			
Well 1 (8-inch)	Active	7,155	175 gpm	252,000 gpd
Well 3 (8-inch)	Active	7,155	225 gpm	324,000 gpd
Well 1-12	Active	This Permit	450 gpm	648,000 gpd[1]
Well 2-12	Active	This Permit	450 gpm	
Total Approved (AuSable Forks Water District)				648,000 gpd
Nugent Road Well Field	**Jay Water and Park, Upper Jay Water Districts**			
Well # 2	Active	9,054	130 gpm	432,000 gpd
Well # 3	Active	10,432	225 gpm	
Total Approved (Jay Water and Park, Upper Jay Water Districts)				432,000 gpd
Total Approved				**1,080,000 gpd**

1. New Source wells Well 1-12 and Well 2-12 are not authorized for simultaneous use.

2. **Map of Approved Water Supply Service Area** The approved water service areas of the Jay, Upper Jay, and Ausable Forks Water Districts are shown on three maps submitted with this application entitled, Jay Water District Map, Upper Jay Water District Map, and Ausable Forks Water District Map, by Essex County on behalf of the Town of Jay and dated July 28, 2023.

3. **No Distribution Beyond District Without Approval** Nothing contained herein shall authorize the permittee to distribute water to any water district extension or out of district user that has not already been approved by the Department or its predecessors without first obtaining a further permit from the Department.

4. **Approval of Plans by NYS DOH** Contract plans and specifications, or changes thereto, for a public water supply system for which a permit has been issued by the Department are subject to review and approval by the Department of Health prior to the commencement of construction.

5. **Approval of Completed Works from NYSDOH** The water withdrawal permittee shall submit to the Department a copy of the Approval of Completed Works issued by the Department of Health before the commencement of final operation of the water withdrawal system.

6. **NYSDOH Approval of Potable Water Supplies** This permit does not authorize the permittee to supply, sell or distribute potable water from any source approved herein, without all necessary approvals from NYSDOH.

7. **Water Sampled and Approved by NYSDOH** Before any water from the source(s) approved herein may be used for any purpose, the permittee shall collect and analyze a sample of the water from each source and shall submit the results of such analyses to the NYS Department of Health (NYSDOH).

8. **Protect Land Around Well** All land within 200 feet of any well approved herein shall be protected and controlled, in order to prevent pollution of the ground or groundwater, by direct ownership of the land, by the acquisition of protective easements, or by other appropriate measures. Any lesser distances must be acceptable to the NYS Department of Health. This area shall further be protected from pollution by surface waters originating outside thereof by the construction of suitable diversion ditches or embankments, and the construction of the wells shall so be carried out that there shall be no opportunity for pollution to enter the wells.

9. **Abandonment of Sources of Supply** Approval of the following sources of supply, as granted previously by the Department or its predecessors, is hereby revoked:

1) Well 2 (8-inch) - initially authorized under WWA # 7,155.

All sources herein this condition shall be permanently disconnected from the permitee's system and decommissioned in a manner satisfactory to the New York State Department of Health. The sources so abandoned shall not again be used for public water supply purposes without a further permit from the Department.

10. **Enclose and Protect Pumping Facilities** The physical pumping facilities and controls at any well site approved herein shall be protected against damage or tampering either by a fence or other suitable enclosure or by their manner of construction and installation.

11. **Diminished Private Drinking Water Wells** The permittee shall make provisions to provide an adequate supply of water to those residents whose private drinking water wells are significantly diminished or rendered non-productive by the permittee's use of the sources of water supply approved by this permit.

12. **Treatment Before Distribution** Nothing contained in this permit shall authorize the permittee to supply, sell or distribute, for any purpose, water from any source approved herein unless all such water is first treated in a manner satisfactory to the NYS Department of Health (NYSDOH).

13. **Discharge of Chlorinated Water** The permittee shall ensure that water used for disinfecting water mains, storage tanks and other water system appurtenances, if discharged to area streams, has a free chlorine residual not exceeding 0.05 milligrams per liter (mg/l) at the point of discharge.

14. **Meter All Sources and Customers** The permittee must install and maintain meters on all sources of supply used in the system and on all customer service connections supplied by the system. Source master meters are to be read, and records kept of those readings on a weekly basis. At a minimum, customer service meters are to be read, and records kept of those readings, at least once per year. The permittee must maintain records of production (master meter readings) and consumption (service meter readings) for each calendar year.

15. **Metering Compliance Schedule** The permittee shall complete the following compliance schedule:

Schedule of Compliance

1) The Department has accepted the schedule for water meter installations on the service to the municipal water system customers in the Jay Water and Park District, the Ausable Forks Water District, and the Upper Jay Water District as provided in the attached letter from the Town of Jay dated May 18, 2023. Requests to modify the Schedule of Compliance shall be directed to the Regional Water Manager. This schedule and any subsequent approved modifications shall be considered an enforceable component of this permit.

2) Within 30 days of the completion of the schedule described in Item 1, the permittee shall provide documentation in the form of a letter that the meter installations were completed with the date of the completion to:

NYSDEC Region 5 Regional Permit Administrator
1115 Route 86
PO Box 296
Ray Brook, NY 12977

16. **Meter Calibration for Publicly Owned Systems** At least once every fifteen years, the permittee must have all of its small service connection meters (less than 1-inch in diameter) calibrated for accuracy according to standards of the American Water Works Association (AWWA). Larger service meters and all source meters must be calibrated more frequently, based upon the AWWA standards for the size of the meter used.

17. **Conduct Water Audits** At least once annually, the permittee must conduct a system-wide water audit that utilizes metered water production and consumption data to determine unaccounted-for water.

18. **Leak Detection and Repair Program** The permittee must develop and implement a leak detection and repair program that uses sonic detection equipment to inspect its entire distribution system in a systematic fashion. At a minimum, this program must cover the entire system in a three-year cycle by inspecting at least one-third of the system each year. Whenever two consecutive annual water audits show that unaccounted-for water is 15% or less of system production, the leak detection and repair program may be modified to cover the entire system in a longer cycle.

19. **Annual Water Withdrawal Reports** The permittee must submit a Water Withdrawal Reporting Form to the Department's Division of Water, Albany, NY by March 31st of each year. The form is available on the Department's website and includes information regarding approved sources of water supply, source capacities, average and maximum day water use data and water conservation and efficiencies employed during the past calendar year.

20. Permittee Must Maintain Records The permittee must retain records of production and consumption, reports of audit results, and summaries of leaks detected and repaired for at least ten years. The permittee must provide copies of such of these records, reports, and summaries as might be requested in writing by the Department within one month of receiving such a request.

21. Agreements for Sale of Water The permittee may not sell water to any other municipality or private entity without the execution of a proper agreement or contract that includes: the amounts of water to be sold, a requirement that individual customers are metered and that water conservation measures including water audits and leak detection and repair programs consistent with those practiced by the permittee will be implemented. Such agreements shall be made available to the Department upon request.

22. Permit Expiration and Renewal Any permittee who intends to continue to operate a water withdrawal system beyond the period of time covered in the applicable water withdrawal permit must apply for a renewal of the permit at least 30 days prior to its expiration.

23. Transfer of Ownership of Water Withdrawal Systems Unless otherwise specified in this permit, a new water withdrawal permit application is required for the acquisition or condemnation of the approved water withdrawal system.

GENERAL CONDITIONS - Apply to ALL Authorized Permits:

1. Facility Inspection by The Department The permitted site or facility, including relevant records, is subject to inspection at reasonable hours and intervals by an authorized representative of the Department of Environmental Conservation (the Department) to determine whether the permittee is complying with this permit and the ECL. Such representative may order the work suspended pursuant to ECL 71- 0301 and SAPA 401(3).

The permittee shall provide a person to accompany the Department's representative during an inspection to the permit area when requested by the Department.

A copy of this permit, including all referenced maps, drawings and special conditions, must be available for inspection by the Department at all times at the project site or facility. Failure to produce a copy of the permit upon request by a Department representative is a violation of this permit.

2. Relationship of this Permit to Other Department Orders and Determinations Unless expressly provided for by the Department, issuance of this permit does not modify, supersede or rescind any order or determination previously issued by the Department or any of the terms, conditions or requirements contained in such order or determination.

3. Applications For Permit Renewals, Modifications or Transfers The permittee must submit a separate written application to the Department for permit renewal, modification or transfer of this permit. Such application must include any forms or supplemental information the Department requires. Any renewal, modification or transfer granted by the Department must be in writing. Submission of applications for permit renewal, modification or transfer are to be submitted to:

Regional Permit Administrator
NYSDEC Region 5 Headquarters
1115 NYS ROUTE 86
PO BOX 296
RAY BROOK, NY 12977 -0296

4. Permit Modifications, Suspensions and Revocations by the Department The Department reserves the right to exercise all available authority to modify, suspend or revoke this permit. The grounds for modification, suspension or revocation include:

a. materially false or inaccurate statements in the permit application or supporting papers;

b. failure by the permittee to comply with any terms or conditions of the permit;

c. exceeding the scope of the project as described in the permit application;

d. newly discovered material information or a material change in environmental conditions, relevant technology or applicable law or regulations since the issuance of the existing permit;

e. noncompliance with previously issued permit conditions, orders of the commissioner, any provisions of the Environmental Conservation Law or regulations of the Department related to the permitted activity.

5. Permit Transfer Permits are transferrable unless specifically prohibited by statute, regulation or another permit condition. Applications for permit transfer should be submitted prior to actual transfer of ownership.

NOTIFICATION OF OTHER PERMITTEE OBLIGATIONS

Item A: Permittee Accepts Legal Responsibility and Agrees to Indemnification
The permittee, excepting state or federal agencies, expressly agrees to indemnify and hold harmless the Department of Environmental Conservation of the State of New York, its representatives, employees, and agents ("DEC") for all claims, suits, actions, and damages, to the extent attributable to the permittee's acts or omissions in connection with the permittee's undertaking of activities in connection with, or operation and maintenance of, the facility or facilities authorized by the permit whether in compliance or not in compliance with the terms and conditions of the permit. This indemnification does not extend to any claims, suits, actions, or damages to the extent attributable to DEC's own negligent or intentional acts or omissions, or to any claims, suits, or actions naming the DEC and arising under Article 78 of the New York Civil Practice Laws and Rules or any citizen suit or civil rights provision

under federal or state laws.

Item B: Permittee's Contractors to Comply with Permit
The permittee is responsible for informing its independent contractors, employees, agents and assigns of their responsibility to comply with this permit, including all special conditions while acting as the permittee's agent with respect to the permitted activities, and such persons shall be subject to the same sanctions for violations of the Environmental Conservation Law as those prescribed for the permittee.

Item C: Permittee Responsible for Obtaining Other Required Permits
The permittee is responsible for obtaining any other permits, approvals, lands, easements and rights-of-way that may be required to carry out the activities that are authorized by this permit.

Item D: No Right to Trespass or Interfere with Riparian Rights
This permit does not convey to the permittee any right to trespass upon the lands or interfere with the riparian rights of others in order to perform the permitted work nor does it authorize the impairment of any rights, title, or interest in real or personal property held or vested in a person not a party to the permit.

Appendix J\

Capacity Development Evaluation Form

CAPACITY DEVELOPMENT PROGRAM

TECHNICAL, MANAGERIAL, AND FINANCIAL EVALUATION CRITERIA FOR: COMMUNITY PUBLIC WATER SYSTEMS

SYSTEM NAME: Au Sable Forks (1516260), Jay (1500279), Upper Jay (1500294)

COUNTY: Essex **PWSID #:** See above

COMPLETED BY: Paul Mintz **DATE:** 6/5/24

Technical Capacity

A. System Infrastructure

1. Does the system have as-built plans, drawings, or maps of its facilities including source, treatment, storage, and distribution?

   [x] Yes(mostly) [ ] No [ ] Not Applicable

   If the system lacks certain plans, please specify:
   Jay/Upper Jay missing plans for Glen Rd and Valley Rd.

2. Does the system have exact location measurements of all main valves and service shut-offs?

   [ ] Yes [x] No [ ] Not Applicable

3. Can the system's pumping, storage and distribution facilities meet current normal and peak demands and required distribution pressures?

   [x] Yes [ ] No [ ] Not Applicable

4. Does the system have a water conservation plan?

   [x] Yes [ ] No [ ] Not Applicable

5. Are all customers on the water system metered?

   [ ] Yes [x] No [ ] Not Applicable

6. Is the system equipped with "master" meters that measure the amount of water the system produces or purchases for each source of water?

   [x] Yes [ ] No [ ] Not Applicable

B. Source Water Evaluation

1. Does the system have a copy of its Source Water Assessment?

   ☐ Yes ☒ No ☐ Not Applicable

2. Has a yield analysis been done for the system's source?

   ☐ Yes ☐ No ☐ Not Applicable x - Unsure

3. Does the system have a description of the existing source-pumping capacity and the system's raw and finished water storage capacity?

   ☒ Yes ☐ No ☐ Not Applicable

4. For groundwater systems, does your system have a wellhead protection program in place?

   ☐ Yes ☒ No ☐ Not Applicable

C. Technical Knowledge

1. Has an evaluation of the water system facilities been conducted with respect to its ability to reliably meet current and proposed State and Federal drinking water regulations?

   ☒ Yes ☐ No ☐ Not Applicable

   If system can't meet regulations, please specify:

   ____

   ____

2. Does the system have monthly water production records or treatment records that show daily and monthly water production for each source used by the system?

   ☒ Yes ☐ No ☐ Not Applicable

3. Has an evaluation been conducted to document the condition and remaining service life of existing facilities?

   ☐ Yes ☒ No ☐ Not Applicable

4. Has the system been cited within the past two years for failing to sample and report test results?

   ☐ Yes ☒ No ☐ Not Applicable

5. Has the system been cited within the past two years for operating deficiencies as a result of a sanitary survey or other inspection conducted by the DOH?

   ☒ Yes ☐ No ☐ Not Applicable

6. If you answered *"Yes"* to Questions 4 or 5, has corrective action been taken to correct all deficiencies?

☐ Yes ☒ No ☐ Not Applicable

D. Certified Operators

1. Does the water system have a certified water operator(s) and designated an operator in responsible charge?

☒ Yes ☐ No

2. If the water system does not have a state-certified water treatment operator, or lacks the necessary number of operators to safely and reliably operate the system, does the system have a plan to acquire the services of a (additional) state-certified operator?

☒ Yes ☐ No ☐ Not Applicable

Managerial Capacity

A. Staffing and Organization

1. What type of training/continuing education did system personnel attend within the last two years (please specify)?
NY Rural Water Assoc. Technical Conference, 2023.

2. Who is responsible for policy and operational decisions for the water system *(name and title)*?
Policy decisions: Town Board; Operational decisions: Paul Mintz, Superintendent

3. Who is responsible for ensuring compliance with state regulatory requirements *(name and title)*?
Paul Mintz, Superintendent

4. Who is responsible for approving expenditures *(name and title)*?
< $1500: Paul Mintz, Superintendent; >$1500, Town Board.

5. *For systems that contract for system operation or management*: Does the system have a valid (signed) contract that summarizes the duties and responsibilities the contractor must provide to the system?

☐ Yes ☐ No ☒ Not Applicable

B. Ownership

1. *If the system is under temporary ownership*, has a future owner been found for the water system?

   ☐ Yes ☐ No ☒ Not Applicable

   If *"Yes"*, who will the future owner be?

   ____

2. *For systems that use, but do not own, land or facilities that are essential to water system operation:* Is there a valid long-term contract (i.e., lease) between the water system and the owner of the land or facilities essential to the operation of the system?

   ☒ Yes ☐ No ☐ Not Applicable

3. *For systems with a single proprietor:* Does the system have a contingency plan for continuing system operation in the event the owner becomes incapable of carrying out his/her responsibilities?

   ☐ Yes ☐ No ☒ Not Applicable

C. Consolidation/Restructuring

1. Has the system examined the feasibility of:
   a) Incorporating with an existing water system in the immediate proximity?

   ☐ Yes ☒ No ☐ Not Applicable

   b) Selling ownership to an existing water system?

   ☐ Yes ☒ No ☐ Not Applicable

   c) Contracting for the management or operation of the system with an existing system or satellite management/operations agency?

   ☐ Yes ☒ No ☐ Not Applicable

D. Emergency/Disaster Response Plans

1. Has the system developed an Emergency Response Plan?

   ☒ Yes ☐ No ☐ Not Applicable

2. Does the Emergency Response Plan:

   a) Designate responsible personnel in the event of an emergency?

   ☒ Yes ☐ No ☐ Not Applicable

b) Provide for emergency phone and radio capabilities?

☐ Yes ☒ No ☐ Not Applicable

c) Describe public and health department notification procedures?

☒ Yes ☐ No ☐ Not Applicable

3. Does the system have any emergency contract agreements under which it operates (e.g., emergency water interconnections and alternative sources)?

☐ Yes ☒ No ☐ Not Applicable

E. Water System Policies

1. Does the system have a *written* System Operations Manual or Policy?

☒ Yes ☐ No ☐ Not Applicable

F. Record Keeping

1. Does the system keep water utility records including: financial, regulatory, facility, operations and maintenance, data quality, Annual Water Quality Reports, and correspondence with the NYS Department of Health and/or local Health Departments (and where appropriate, the NYSPSC)?

☒ Yes ☐ No ☐ Not Applicable

Financial Capacity

A. Budget Projection – Revenues and Expenses

1. Does the system have a water budget?

☒ Yes ☐ No ☐ Not Applicable

2. Are the system's annual water revenues sufficient to cover the annual water expenses as well as anticipated capital improvements?

☐ Yes ☒ No ☐ Not Applicable

3. Are the system's water rates, when combined with other revenue sources, sufficient to cover all listed expenditures for the water system?

☒ Yes ☐ No ☐ Not Applicable

4. Does the system retain budget information for at least two years?

[x] Yes   [ ] No   [ ] Not Applicable

B. Reserves

1. Does the system have a reserve account (or funds within a reserve account) dedicated to:

   a) Financing the emergency replacement of critical facilities in the event of their failure?

   [x] Yes   [ ] No   [ ] Not Applicable

   b) The maintenance of cash flow in the event of an unexpected funding shortfall?

   [x] Yes   [ ] No   [ ] Not Applicable

2. If the system has a reserve account, how does it determine the amount to put into the account?

   ____ Fixed Amount_____Percentage of Revenues_____Percentage of Expenses

   __x_Other (please specify) Varies by year

3. If the system has a reserve account, what type(s) of reserve account(s) does it have?

   _____Operation and Maintenance__x__Capital Projects______Debt Service

   _____Other (please specify)____

C. Capital Improvement Plan

1. How do you finance operation and maintenance costs (Check all that apply)?

   __x__Rates collected from ratepayers   _____Rental fees
   _____Other business revenue   _____Personal capital
   _____Surcharges   _____Reserve account
   _____Other (Please specify) ____

2. How did you finance your LAST major repair or improvement?

   _____Commercial bank loan   ____Bonds
   _____ DWSRF   __x_Other State or federal loan/grant program
   _____Surcharge   ____Personal Capital
   _____Reserve Account   ____Revenue from other business
   _____Other (Please specify) ____

3. What options do you have for financing your NEXT major repair or improvement?

______Commercial bank loan
______DWSRF
______Surcharge
__X__Reserve Account
______Other (Please specify) ____

__X__Bonds
__X__Other State or federal loan/grant program
_____Personal Capital
_____Revenue from other business

D. Water System Rates

1. Does the water system management review user fee, user charge, or rate system at least once every two years?

☐ Yes ☒ No ☐ Not Applicable

2. What is the frequency of billing (e.g., 12, 6, or 4 times per/year)?__1__times/year

3. Where applicable, what are the system's water rates?
__$50 annual + tax rates ($1.72/$1000 ASF, $1.00/$1000 Jay, $2.93/$1000 Upper Jay

4. What are rates based on?
__X__Capital Improvement Plan and Annual Budget
______Annual Budget Only
______Cash on Hand
______Last year's expenses
______Not sure
______Other (Please specify____)

5. What was the date of the last rate increase? -
__Yearly, determined by budgetary needs________

END OF DOCUMENT

Appendix B- Examples of Short-Lived Assets

Source Relates	Distribution System Related
Pumps Pump Controls Pump Motors Telemetry Intake/Well Screens Water Level Sensors Pressure Transducers	Residential and Small Commercial Meters Meter boxes Hydrants and Blow-offs Pressure Reducing Valves Cross Connection Control Devices Altitude Valves Alarms & Telemetry Vaults, Lids and Access Hatches Security Devices and Fencing Storage Reservoir Painting/Patching
Treatment Related Chemical Feed Pumps Altitude Valves Valve Actuators Water Level Sensors Pressure Transducers Air Compressor and Controls Pumps Pump Controls Pump Motors Chemical Feed Pumps Granular Filter Media Membranes Field & Process Instrumentation Equipment UV Lamps Back-up Power Generator Chemical Leak Detection Equipment Flow Meters SCADA Systems	

Appendix C - Smart Growth Assessment Form

A copy of this form in a fillable format is available at www.efc.ny.gov/SmartGrowth

Appendix K\

HSA Well Siting Report

Proposed Test Well Sites at the Nugent Road Wellfield
Jay Water District
Jay, New York

January 29, 2024

Introduction

HydroSource Associates (HSA) conducted an electrical resistivity survey at the Nugent Road Wellfield of the Jay Water District on December 7. The purpose of the survey was to identify promising sites for the installation of test wells whose objective would be to assess the ability of the locations to support development of a suitable backup well to the District's primary water source, Well #3. This report provides the results of the survey, and identifies two sites where we propose test wells be installed.

Nugent Road Wellfield

The Nugent Road Wellfield currently hosts two functioning wells. Well #3 is a 12-inch-diameter screened well that was constructed in 2002. It is 68 feet deep, and is outfitted with 150-slot screen over the depth interval from 56 to 68 feet. The well is reported to have a safe yield of up to 300 gallons per minute (gpm).

The other well, Well #2, is one of two six-inch-diameter wells that were drilled in 1992 by Harold Ormsby Drilling. Although the well's current yield is not known, Well #2 was subjected to a 48-hour pumping test at a rate of 110 gpm shortly after it was drilled. The water level had reportedly stabilized at about eight feet below the top of the casing by the end of the test.

The other six-inch-diameter well drilled in 1992 was named Well #1. This well was abandoned in 2005, after a skidder ran into the casing.

Hydrogeology

The wells at the Nugent Road Wellfield are completed in sand and gravel deposits that were laid down by meltwater rivers that flowed during the last glacial retreat. After glacial ice had mostly melted out of the valley of the East Branch of the Ausable River, the valley was for a time occupied by a glacial lake. The lake formed from meltwater that ponded in the valley because the normal drainage outlets from the valley were temporarily blocked by barriers of residual ice and till. One result is that the lower elevations of the valley are largely covered by sediments deposited in the lake, including lacustrine sand and delta deposits.

The meltwater that filled the glacial lake carried a heavy load of rock flour, and in the quiet-water parts of the lake this suspended load of very fine grained sediment gradually settled out to form a layer of laminated clay on the lake floor. This clay layer was observed during drilling of Well #3, where the layer extends from approximately 14 feet to 54 feet below ground surface.

The clay layer is essentially impermeable, and it constitutes the confining layer above the aquifer that results in flowing artesian conditions at the wellfield. Artesian head at a height of 15 feet above ground level was reported in one document that describes testing of wells at the wellfield. The artesian conditions will have to be taken into account by the Town's well drilling contractor during well installations. It will be important to ensure that a good seal is maintained between the clay layer and the casing of test wells that will be drilled initially, and the same will be true when a larger-diameter supply well is then drilled. Uncontrolled leakage from the artesian aquifer to the surface must be avoided.

Resistivity Survey

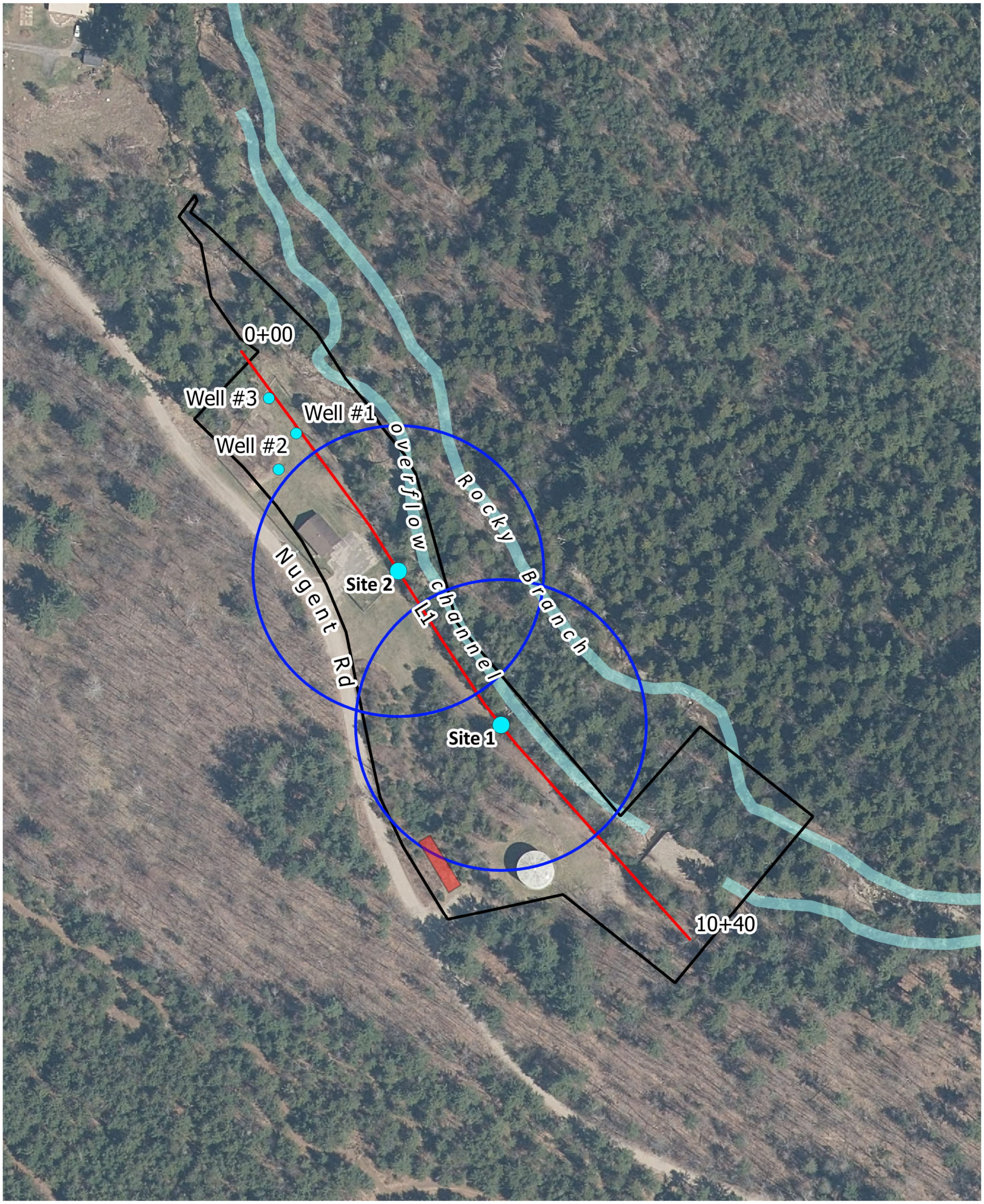
A resistivity survey was conducted on the wellfield property on December 7, 2023. Figure 1 shows the location of the survey line, along with the wellfield property boundary and locations of the existing wells. Also shown are two proposed sites for test well installation that were chosen based on interpretation of the survey results, with a 200-foot protective radius shown around each.

The survey line was 1040 feet long. The line has a northwest-southeast orientation, and runs roughly parallel to Rocky Branch. The southeast half of the line runs along the edge of the woods road that traverses that part of the property.

Figure 2 is an annotated profile of electrical resistivity along the survey line. The surveying process involved laying out cable along the line. Steel electrodes were driven into the ground at intervals of roughly 10 meters along the line, and connected to the cable. A data collection unit was hooked to the cable, and an electrical charge was applied to every possible set of two electrodes, in sequence, with measurements of electrical resistivity being made at electrodes to which a charge was not being applied. The results were recorded, and back at the office a computer model was run to produce the color-coded profile of Figure 2, which shows the variation of resistivity with depth along the line. The process is similar to that used to produce a hospital MRI image. The resistivity ranges indicated by the color ramp are shown in the key at the lower-right corner of the diagram.

Resistivity profiles are useful in groundwater exploration because different sediments typically correspond with specific ranges of resistivity, so that the distribution of sediments can be inferred from patterns in the resistivity values. In general, in unconsolidated sediments in the northeastern U. S., fine-grained sediments like silt and clay have comparatively low resistivities; they are conductive. Sand and gravel deposits of the type we target as potential aquifers have intermediate to high resistivities. High resistivities may indicate the bedrock beneath the unconsolidated sediments, and they may also mark some unsaturated sediments above the water table.

In Figure 2, distance along the line is given in feet on the scale at the bottom of the diagram, and in meters along the ground surface. The scale at the left of the diagram gives the depth below ground surface in feet.



Proposed Well Sites
Existing Wells
Resistivity Line
200-ft Radius
Leachfield
Wellfield Property

Figure 1 - Proposed Well Sites
Jay, NY

0 200 ft

N

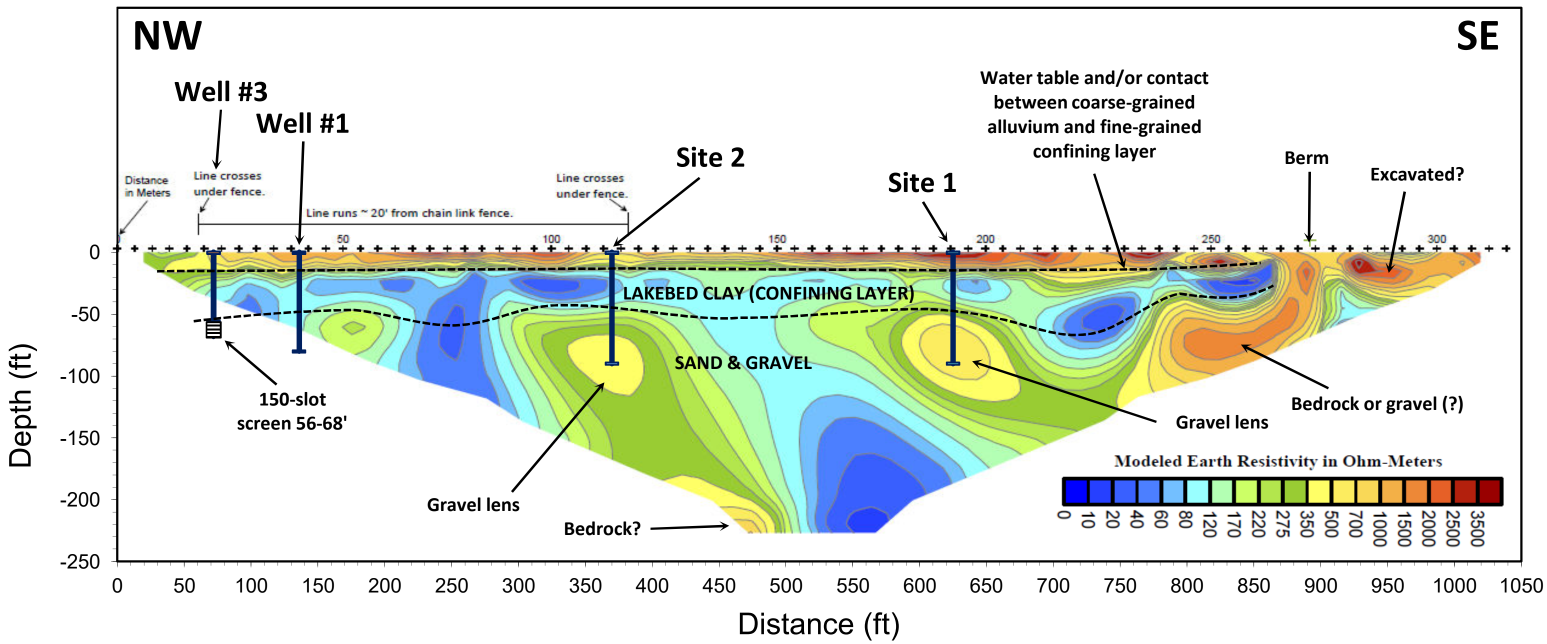


Figure 2 - Annotated Resistivity Profile

Interpretation of resistivity profiles becomes more reliable in situations where wells along the survey line allow correlation of stratigraphic information (that is, the depth intervals occupied by different layers of sediment) to resistivity patterns. In Figure 2, Well #3 and Well #1 plot near the northwest end of the line. We have no stratigraphic information for Well #1, but according to past reports Well #3 went through 14 feet of boulder gravel before passing into "gray pebble clay" down to a depth of 54 feet. This controls the depth at which the black dashed lines defining the clay layer are shown at Well #3, and it helps in interpreting the thickness and depth of the clay layer along the rest of the line.

A thin layer (perhaps 10 to 15 feet) of high-resistivity material with a well-defined base runs along most of the length of the profile. This layer appears to represent the near-surface alluvial layer of boulder gravel, the shallowest part of which would be unsaturated. The pattern persists toward the southeast until the vicinity of the berm near the upper end of the overflow channel of Rocky Branch.

Beneath that is a layer of lower resistivity, with resistivity values ranging from 10 to 170 ohm-meters, and this is interpreted to represent the lakebed clay layer. The resistivity pattern is somewhat less uniform that we expect to see in lakebed clays, but the interpretation is reasonable given the clay layer encountered at Well #3. Also, the observations of artesian head would be consistent with the existence of a clay confining layer that must extend some distance upstream in the Rocky Branch drainage. Finally, lakebed clay layers tend to have considerable lateral continuity.

Considerable variation is seen in the resistivity pattern beneath the clay layer. Of particular interest are two bullseye-like areas at distances of 370 feet and 625 feet along the line, and with centers at a depth of near 100 feet. The resistivity at the center of both bullseyes is near 500 ohm-meters (shown in yellow). These regions are interpreted to be lenses of sand and gravel that may be somewhat coarser than the sediments in which they are enclosed. A proposed test well site is marked at each of these locations, Site 1 at 625 feet, Site 2 at 370 feet. The vertical lines shown at both sites extend to a depth of 90 feet, and we would expect test wells drilled at either location to reach that depth or somewhat deeper before coming out of the most productive part of the aquifer sediments and entering a zone of finer-grained sediments underneath. Both of these anomalies suggest that productive gravel could be found at a depth comparable to or somewhat deeper than the screened interval in Well #3.

Two additional zones of higher-resistivity are marked on the profile. Around the 850-foot mark on the line, a zone of resistivity with values of 2000 to 2500 ohm-meters is marked "bedrock or gravel?". We did not notice nearby bedrock outcrops on the day of the resistivity survey, so we have no supporting evidence other than the resistivity results to suggest a shallow bedrock surface in this area, but it is a possibility. The high-resistivity material could also be coarse-grained sand and gravel. However, because the patterns at Site 1 and Site 2 are more clearly indicative of sand and gravel features, we have not chosen a potential test well site targeting this zone.

A second zone of higher-resistivity material shows up at the very bottom edge of the profile at the 475-foot mark, and at a depth of about 225 feet. This could be bedrock, and this would also seem reasonable based on the overall topographic relief in the uplands portions of the area. We do not have an explanation for the deep low-resistivity area near the 550-foot mark on the line.

Conclusions and Recommendations

The resistivity profile suggests two obvious test well drilling targets on the wellfield property. Both sites are separated from Well #3 far enough that we would expect little risk that construction and testing of the wells should interfere with normal operation of Well #3. Their separation distance also should allow future well redevelopment work at Well #3 or a new well at either of these locations to be carried out without affecting operation of the other well. Both sites have the potential to allow construction of a well that might be slightly deeper than Well #3, and with more available drawdown.

Our preferred choice would be Site 1, for several reasons. The indicated maximum resistivity of the anomalous area is slightly higher here than at the Site 2 anomaly. Because the site is higher in elevation than Well #3, and up the valley, it is likely that the artesian head might be somewhat lower, and this could marginally reduce drilling challenges associated with penetrating the confining layer. Hydraulic interference between Site 1 and Well #3 would be less than interference between Site 2 and Well #3, though this may not be an important consideration if both wells will never be pumped at the same time. Note that because the aquifer is confined, the extent of the cone of depression that develops around a pumping well when pumping at a given rate will be greater than would be the case for an unconfined aquifer, so interference between wells would be more of an issue if there were expectations for pumping multiple wells simultaneously.

Though we said that we prefer the resistivity anomaly at Site 1, the Site 2 anomaly also looks quite promising. Because it is closer to Well #3 than Site 1 is, this might increase the chances that an aquifer with similar productivity will be encountered here.

Figure 1 shows a sanitary protective area (SPA) with a radius of 200 feet around each of the proposed test well sites. The SPA of both proposed sites extends beyond the boundaries of the wellfield property, but this is of course also true for Well #3 and Well #2, and use of these wells has been accepted by the New York State Department of Health (NYSDOH) for years. Most of the SPA for each site is on land owned by the Town. The area of SPA overlap onto the property to the northeast would not appear to be a serious problem because most of this area is affected by Rocky Branch and its overflow channel, so that land uses incompatible with the restrictions on what is allowed in an SPA would not be feasible on that property. Therefore it seems likely that either site would be acceptable to NYSDOH from the standpoint of SPA considerations. However, it would be prudent to consult with NYSDOH before test drilling begins.

One additional possible SPA issue concerns the leach field for the water plant's septic system. We understand that the leach field is near the gate on Nugent Road that leads to the water tank. The area we believe to be occupied by the leach field is shown in Figure 1, and the Site 1 SPA appears to extend onto a portion of the field. Before a test well is drilled at Site 1, it will be important to determine the precise boundaries of the leach field, and make sure the well site is at least 200 feet from the field's edge. Although the confining layer of lakebed clay should provide substantial protection from near-surface contamination, NYSDOH might be unable to accept any portion of a leach field inside a supply well SPA.

Appendix L\

Opinion of Probable Cost

TOWN OF JAY WATER DISTRICT UPGRADES OPINION OF PROBABLE PROJECT COST - SHORT TERM RECOMMENDATIONS				
ITEM	**QTY**	**UNIT**	**UNIT COST**	**TOTAL COST**
JAY AND UPPER JAY WATER DISTRICTS				
NUGENT ROAD WELL FIELD				
Test Well Installation/Development and Hydrogeologic Evaluation	1	LS	$ 150,000	$ 150,000
Install New Production Well and Raw Water Transmission Main to WTP	1	LS	$ 350,000	$ 350,000
Well Site Improvements for Flood Prevention	1	LS	$ 50,000	$ 50,000
NUGENT ROAD WATER TREATMENT PLANT (WTP)				
Install New SCADA System and Main Control Panel	1	LS	$ 100,000	$ 100,000
Electrical System Improvments - Pump Control Panel & VFD's	1	LS	$ 75,000	$ 75,000
Chlorination System Improvements	1	LS	$ 10,000	$ 10,000
Replace Existing Flow Meter, Chlorine Analyzer, & Pressure Transducer	1	LS	$ 15,000	$ 15,000
Paint Internal Pipe & Replace Bolted Connections with S.S. Hardware	1	LS	$ 3,000	$ 3,000
JAY TRANSMISSION MAIN (NUGENT ROAD WTP TO GLEN ROAD)				
Replace Exposed Water Main at Rocky Branch Brook Crossing w/ New 8" HDPE	100	LF	$ 750	$ 75,000
JAY and UPPER JAY DISTRIBUTION SYSTEM IMPROVEMENTS				
Five Meter Pit and Master Meter Installations	5	EA	$ 25,000	$ 125,000
VALLEY ROAD PUMP STATION				
Replace Existing 3" Flow Meter	1	LS	$ 1,500	$ 1,500
Install New Pump Control Panel & Remote Telemetry Unit	1	LS	$ 75,000	$ 75,000
UPPER JAY WATER STORAGE TANK AND CHLORINE BOOSTER STATION				
Install Redundant Metering Pump and Integrate w/ SCADA	1	LS	$ 4,000	$ 4,000
Install Chlorine Analyzer Integrate w/ SCADA & Provide Second Chlorinator	1	LS	$ 10,000	$ 10,000
Install New RTU & Related Components	1	LS	$ 50,000	$ 50,000
NYS ROUTE 86 PUMP STATION				
Install New Pump Control Panel & Remote Telemetry Unit	1	LS	$ 75,000	$ 75,000
Install Emergency Generator & Automatic Transfer Switch	1	LS	$ 50,000	$ 50,000
Replace Existing 7.5 HP Booster Pumps	2	EA	$ 6,000	$ 12,000
SYSTEM REDUNDANCY				
Conduct Upper Jay Hydrogeologic Study	1	LS	$ 60,000	$ 60,000
AUSABLE FORKS WATER DISTRICT				
AUSABLE FORKS WATER STORAGE TANK AND VALVE PIT				
Exterior - Inspect, Sandblast, Provide Three Coat Paint System	5,500	SF	$ 30	$ 165,000
Interior - Inspect, Sandblast, Provide Three Coat Paint System	5,500	SF	$ 30	$ 165,000
Miscellaneous Tank Improvments	1	LS	$ 20,000	$ 20,000
Exterior Security Fencing	1	LS	$ 30,000	$ 30,000
Manual Transfer Switch and Electrical Improvments	1	LS	$ 10,000	$ 10,000
Flow Meter Replacement	1	LS	$ 5,000	$ 5,000
			SUBTOTAL	**$ 1,685,500**
			Escalation to Construction Start (6%)	$ 101,200
			General Conditions (10%)	$ 168,600
			Contractor Overhead & Profit (15%)	$ 252,800
			Design Contingency (35%)	$ 589,900
			TOTAL GENERAL CONSTRUCTION COST	**$ 2,798,000**
			Legal, Admin, Engineering (20%)	**$ 559,600**
			TOTAL PROJECT COST	**$ 3,357,600**
			SAY	**$ 3,360,000**

The above costs are in 2025 dollars. Costs for equipment and materials are subject to change based on market conditions.

TOWN OF JAY WATER DISTRICT UPGRADES OPINION OF PROBABLE PROJECT COST - LONG TERM RECOMMENDATIONS				
ITEM	**QTY**	**UNIT**	**UNIT COST**	**TOTAL COST**
JAY AND UPPER JAY WATER DISTRICTS				
NUGENT ROAD WTP				
Provide Internal Piping Modifications to Bypass Storage Tank	1	LS	$ 25,000	$ 25,000
JAY TRANSMISSION MAIN (NUGENT ROAD WTP TO GLEN ROAD)				
Replace Existing Transmission Main Along Nugent and Glen Roads w/New 12" DI	3,000	LF	$ 375	$ 1,125,000
JAY - HOWARD HEIGHTS TRANSMISSION MAIN				
Install New Water Main to Provide Second Ausable River Crossing - 8" HDPE	2,500	LF	$ 350	$ 625,000
UPPER JAY TRANSMISSION MAIN				
Provide Redundant Ausable River Crossing - 8" HDPE	650	LF	$ 350	$ 227,500
VALLEY ROAD PUMP STATION				
Provide New Fire Pump	1	LS	$ 30,000	$ 30,000
Provide New Valve Pit and Pressure Reducing Valve	1	LS	$ 50,000	$ 50,000
UPPER JAY WATER STORAGE TANK AND CHLORINE BOOSTER STATION				
Replace Manual Transfer Switch on Exterior of Building	1	LS	$ 7,500	$ 7,500
Provide Emergency Generator w/ Automatic Transfer Switch	1	LS	$ 50,000	$ 50,000
Provide Positive Drainage from Basement of Booster Station	1	LS	$ 20,000	$ 20,000
NYS ROUTE 86 PUMP STATION				
Replace Existing Pump Station with New Above Ground Pre-Fab Station	1	LS	$ 300,000	$ 300,000
SYSTEM REDUNDANCY				
Installation of Test/Production Well - Hamlet of Upper Jay	1	LS	$ 250,000	$ 250,000
AUSABLE FORKS WATER DISTRICT				
AUSABLE FORKS WATER STORAGE TANK AND VALVE PIT				
Replace Existing 360,000-Gallon Water Storage Tank and Valve Pit	1	LS	$ 1,000,000	$ 1,000,000
AUSABLE FORKS TRANSMISSION MAIN				
Install new 8" DI Transmission Main from the Grove Road WTP to Water Storage Tank	5,700	LF	$ 350	$ 1,995,000
			SUBTOTAL	**$ 5,705,000**
			Escalation to Construction Start (6%)	$ 342,300
			General Conditions (10%)	$ 570,500
			Contractor Overhead & Profit (15%)	$ 855,800
			Design Contingency (35%)	$ 1,996,800
			TOTAL GENERAL CONSTRUCTION COST	**$ 9,470,400**
			Legal, Admin, Engineering (20%)	**$ 1,894,100**
			TOTAL PROJECT COST	**$ 11,364,500**
			SAY	**$ 11,370,000**

The above costs are in 2025 dollars. Costs for equipment and materials are subject to change based on market conditions.

Appendix M\

Life Cycle Costs

LIFE CYCLE COSTS
SHORT TERM IMPROVEMENTS

Town of Jay
New Production Well - Nugent Road Well Field
LIFE CYCLE COST

Initial Expenses - Construction	**Qty**	**Unit**	**Unit Cost**	**Total Cost**	**Present Value**
Install and Test New Production Well	1	LS	$1,095,600	$1,095,600	**$1,095,600**

Future Maintenance Expenses (Non-Annually Recurring Costs)

Equipment	**Current Base Cost**	**# of Years to Occurrence**	**Inflation Rate**	**Future Cost [1]**	**Interest Rate**	**Present Value [2]**
Yr 10 - General Maintenance	$5,000	10.00	3.0%	$6,720	3.5%	$4,764
Yr 10 - Water Level Sensors Replacement	$10,500	10.00	3.0%	$14,111	3.5%	$10,004
Yr 20 - General Maintenance	$5,000	20.00	3.0%	$9,031	3.5%	$4,538
Yr 25 - Submersible Well Pump Replacement	$52,000	25.00	3.0%	$108,876	3.5%	$46,071
Yr 25 - Well Screen	$10,500	25.00	3.0%	$21,985	3.5%	$9,303
Subtotal - Future Maintenance Costs				$160,722		**$74,679**
					SAY	**$75,000**

Future Operational Costs	**Qty**	**Unit**	**Current Unit Cost**	**Current Base Cost**	**UPV[3]**	**Present Value**
Submersible Well Pump	27,000	KWh/Yr	$0.09	$2,430	23.49	**$57,078**
					SAY	**$58,000**

Total Costs	**Present Value**
Initial Expense	$1,095,600
Future Maintenance Costs	$75,000
Future Operational Costs	$58,000
Total Life Cycle Cost	**$1,229,000**

Notes

[1] Future Cost = Current Base Cost x $(1+i)^n$ Where; i = inflation rate, n = number of years to occurrence

[2] Present Value = Future Cost x $[1 / (1+d)^n]$ Where; d = interest rate, n = number of years to occurrence

[3] Uniform Present Value (UPV) for determining present value of annual recurring maintenance costs over a 25 year period derived as follows:

$$UPV = \left(\frac{1+e}{d-e}\right)\left[1-\left(\frac{1+e}{1+d}\right)^N\right]$$

Where;
e = escalation rate (@ 3%)
d = interest rate (@ 3.5%)
N = number of time periods for annual occurrence (25 years)

Town of Jay
Nugent Road Water Treatment Plant
Repair/Replacement of WTP Components
LIFE CYCLE COST

Initial Expenses - Construction	Qty	Unit	Unit Cost	Total Cost	Present Value
Repair/Replacement of WTP Components	1	LS	$404,400	$404,400	**$404,400**

Future Maintenance Expenses (Non-Annually Recurring Costs)

Equipment		Current Base Cost	# of Years to Occurrence	Inflation Rate	Future Cost [1]	Interest Rate	Present Value [2]
Yr 15	Chlorination System Replacement	$20,000	15.00	3.0%	$31,159	3.5%	$18,599
Yr 15	General Maintenance	$10,000	15.00	3.0%	$15,580	3.5%	$9,299
Yr 15	VFD Replacements	$60,000	15.00	3.0%	$93,478	3.5%	$55,796
Yr 15	Flow Meter Replacement	$10,000	15.00	3.0%	$15,580	3.5%	$9,299
Yr 25	SCADA Systeml Replacement	$85,000	25.00	3.0%	$177,971	3.5%	$75,308
Yr 25	Pump Control Panel Replacement	$44,100	25.00	3.0%	$92,336	3.5%	$39,072
Yr 25	Main Control Panel Replacement	$41,600	25.00	3.0%	$87,101	3.5%	$36,857
Yr 25	General Maintenance	$20,000	25.00	3.0%	$41,876	3.5%	$17,720
	Subtotal - Future Maintenance Costs				$555,080		**$261,949**
						SAY	**$262,000**

Future Operational Costs	Qty	Unit	Current Unit Cost	Current Base Cost	UPV[3]	Present Value

Total Costs	Present Value
Initial Expense	$404,400
Future Maintenance Costs	$262,000
Future Operational Costs	$0
Total Life Cycle Cost	**$666,000**

Notes

[1] Future Cost = Current Base Cost x $(1+i)^n$ Where; i = inflation rate, n = number of years to occurrence

[2] Present Value = Future Cost x $[1 / (1+d)^n]$ Where; d = interest rate, n = number of years to occurrence

[3] Uniform Present Value (UPV) for determining present value of annual recurring maintenance costs over a 25 year period derived as follows:

$$UPV = \left(\frac{1+e}{d-e}\right)\left[1-\left(\frac{1+e}{1+d}\right)^N\right]$$

Where;
e = escalation rate (@ 3%)
d = interest rate (@ 3.5%)
N = number of time periods for annual occurrence (25 years)

Town of Jay
Jay Water District Transmission Main
Rocky Branch Brook Crossing
LIFE CYCLE COST

Initial Expenses - Construction	Qty	Unit	Unit Cost	Total Cost	Present Value
Rocky Branch Brook Crossing	1	LS	$149,400	$149,400	**$149,400**

Future Maintenance Expenses (Non-Annually Recurring Costs)

Equipment		Current Base Cost	# of Years to Occurrence	Inflation Rate	Future Cost [1]	Interest Rate	Present Value [2]
Yr 15	General Maintenance	$1,000	15.00	3.0%	$1,558	3.5%	$930
Yr 25	Gate Valve Replacement	$8,000	25.00	3.0%	$16,750	3.5%	$7,088
Yr 25	General Maintenance	$1,500	25.00	3.0%	$3,141	3.5%	$1,329
	Subtotal - Future Maintenance Costs				$21,449		**$9,347**
						SAY	**$10,000**

Future Operational Costs	Qty	Unit	Current Unit Cost	Current Base Cost	UPV[3]	Present Value

Total Costs	Present Value
Initial Expense	$149,400
Future Maintenance Costs	$10,000
Future Operational Costs	$0
Total Life Cycle Cost	**$159,000**

Notes

[1] Future Cost = Current Base Cost x $(1+i)^n$ Where; i = inflation rate, n = number of years to occurrence

[2] Present Value = Future Cost x $[1 / (1+d)^n]$ Where; d = interest rate, n = number of years to occurrence

[3] Uniform Present Value (UPV) for determining present value of annual recurring maintenance costs over a 25 year period derived as follows:

$$\text{UPV} = \left(\frac{1+e}{d-e}\right)\left[1-\left(\frac{1+e}{1+d}\right)^N\right]$$

Where;
e = escalation rate (@ 3%)
d = interest rate (@ 3.5%)
N = number of time periods for annual occurrence (25 years)

Town of Jay
Jay & Upper Jay - Distribution System Improvements
Master Meter Pits
LIFE CYCLE COST

Initial Expenses - Construction	Qty	Unit	Unit Cost	Total Cost	Present Value
Jay & Upper Jay Master Meter Pits	1	LS	$249,000	$249,000	**$249,000**

Future Maintenance Expenses (Non-Annually Recurring Costs)

Equipment	Current Base Cost	# of Years to Occurrence	Inflation Rate	Future Cost [1]	Interest Rate	Present Value [2]
Yr 15 General Maintenance	$5,000	15.00	3.0%	$7,790	3.5%	$4,650
Yr 25 Meter Replacements	$25,000	25.00	3.0%	$52,344	3.5%	$22,149
Yr 25 General Maintenance	$5,000	25.00	3.0%	$10,469	3.5%	$4,430
Subtotal - Future Maintenance Costs				$70,603		**$31,229**
					SAY	**$32,000**

Future Operational Costs	Qty	Unit	Current Unit Cost	Current Base Cost	UPV[3]	Present Value

Total Costs	Value
Initial Expense	$249,000
Future Maintenance Costs	$32,000
Future Operational Costs	$0
Total Life Cycle Cost	**$281,000**

Notes

[1] Future Cost = Current Base Cost x $(1+i)^n$ Where; i = inflation rate, n = number of years to occurrence

[2] Present Value = Future Cost x $[1 / (1+d)^n]$ Where; d = interest rate, n = number of years to occurrence

[3] Uniform Present Value (UPV) for determining present value of annual recurring maintenance costs over a 25 year period derived as follows:

$$\text{UPV} = \left(\frac{1+e}{d-e}\right)\left[1-\left(\frac{1+e}{1+d}\right)^N\right]$$

Where;
e = escalation rate (@ 3%)
d = interest rate (@ 3.5%)
N = number of time periods for annual occurrence (25 years)

Town of Jay
Valley Road Pump Station
Repair / Replacement of System Components
LIFE CYCLE COST

Initial Expenses - Construction	Qty	Unit	Unit Cost	Total Cost	Present Value
Repair / Replace System Components	1	LS	$152,400	$152,400	**$152,400**

Future Maintenance Expenses (Non-Annually Recurring Costs)

Equipment		Current Base Cost	# of Years to Occurrence	Inflation Rate	Future Cost [1]	Interest Rate	Present Value [2]
Yr 10	General Maintnenace	$5,000	10.00	3.0%	$6,720	3.5%	$4,764
Yr 15	3" Flow Meter Replacement	$6,500	15.00	3.0%	$10,127	3.5%	$6,045
Yr 15	Booster Pump Replacements	$30,000	15.00	3.0%	$46,739	3.5%	$27,898
Yr 15	VFD Replacements	$30,000	15.00	3.0%	$46,739	3.5%	$27,898
Yr 25	Pump Control Panel Replacement	$44,000	25.00	3.0%	$92,126	3.5%	$38,983
Yr 25	General Maintenance	$20,000	25.00	3.0%	$41,876	3.5%	$17,720
	Subtotal - Future Maintenance Costs				$244,326		**$123,307**
						SAY	**$124,000**

Future Operational Costs	Qty	Unit	Current Unit Cost	Current Base Cost	UPV[3]	Present Value

Total Costs	Present Value
Initial Expense	$152,400
Future Maintenance Costs	$124,000
Future Operational Costs	$0
Total Life Cycle Cost	**$276,000**

Notes

[1] Future Cost = Current Base Cost x $(1+i)^n$ Where; i = inflation rate, n = number of years to occurrence

[2] Present Value = Future Cost x $[1 / (1+d)^n]$ Where; d = interest rate, n = number of years to occurrence

[3] Uniform Present Value (UPV) for determining present value of annual recurring maintenance costs over a 25 year period derived as follows:

$$\text{UPV} = \left(\frac{1+e}{d-e}\right)\left[1-\left(\frac{1+e}{1+d}\right)^N\right]$$

Where;
e = escalation rate (@ 3%)
d = interest rate (@ 3.5%)
N = number of time periods for annual occurrence (25 years)

Town of Jay
Upper Jay Water Storage Tank and Chlorine Booster Station
LIFE CYCLE COST

Initial Expenses - Construction	**Qty**	**Unit**	**Unit Cost**	**Total Cost**	**Present Value**
Chemical Feed and Communication Upgrades	1	LS	$127,400	$127,400	**$127,400**

Future Maintenance Expenses (Non-Annually Recurring Costs)

Equipment		Current Base Cost	# of Years to Occurrence	Inflation Rate	Future Cost [1]	Interest Rate	Present Value [2]
Yr 10	Booster Station Improvements	$10,000	10.00	3.0%	$13,439	3.5%	$9,527
Yr 15	Flow Meter Replacement	$10,000	15.00	3.0%	$15,580	3.5%	$9,299
Yr 15	Replace Cl2 Pumps & SCADA Connection	$10,000	15.00	3.0%	$15,580	3.5%	$9,299
Yr 15	Replace Chlorine Analyzer & SCADA Conn.	$6,500	15.00	3.0%	$10,127	3.5%	$6,045
Yr 25	Replace RTU and Related Components	$63,000	25.00	3.0%	$131,908	3.5%	$55,816
Yr 25	Booster Station Improvements	$20,000	25.00	3.0%	$41,876	3.5%	$17,720
	Subtotal - Future Maintenance Costs				$228,509		**$107,707**
						SAY	**$108,000**

Future Operational Costs	**Qty**	**Unit**	**Current Unit Cost**	**Current Base Cost**	**UPV[3]**	**Present Value**

Total Costs	**Present Value**
Initial Expense	$127,400
Future Maintenance Costs	$108,000
Future Operational Costs	$0
Total Life Cycle Cost	**$235,000**

Notes

[1] Future Cost = Current Base Cost x $(1+i)^n$ Where; i = inflation rate, n = number of years to occurrence

[2] Present Value = Future Cost x $[1 / (1+d)^n]$ Where; d = interest rate, n = number of years to occurrence

[3] Uniform Present Value (UPV) for determining present value of annual recurring maintenance costs over a 25 year period derived as follows:

$$UPV = \left(\frac{1+e}{d-e}\right)\left[1-\left(\frac{1+e}{1+d}\right)^N\right]$$

Where;
e = escalation rate (@ 3%)
d = interest rate (@ 3.5%)
N = number of time periods for annual occurrence (25 years)

Town of Jay
NYS Route 86 Pump Station - Rehabilitation
LIFE CYCLE COST

Initial Expenses - Construction	**Qty**	**Unit**	**Unit Cost**	**Total Cost**	**Present Value**
NYS Route 86 Pump Station - Rehabilitation	1	LS	$273,000	$273,000	**$273,000**

Future Maintenance Expenses (Non-Annually Recurring Costs)

Equipment	**Current Base Cost**	**# of Years to Occurrence**	**Inflation Rate**	**Future Cost [1]**	**Interest Rate**	**Present Value [2]**
Yr 10 General Maintnenace	$10,000	10.00	3.0%	$13,439	3.5%	$9,527
Yr 15 - Flow Meter Replacement	$10,000	15.00	3.0%	$15,580	3.5%	$9,299
Yr 15 - Replace Booster Pumps	$21,000	15.00	3.0%	$32,717	3.5%	$19,529
Yr 20 - Replace VFD's	$40,000	20.00	3.0%	$72,244	3.5%	$36,308
Yr 20 - Hydro-pneumatic Tank Replacements	$10,000	20.00	3.0%	$18,061	3.5%	$9,077
Yr 20 - Pump Control Panel Replacement	$44,100	20.00	3.0%	$79,650	3.5%	$40,029
Yr 20 - Remote Telemetery Unit Replacement	$39,800	20.00	3.0%	$71,883	3.5%	$36,126
Yr 20 General Maintenance	$10,000	20.00	3.0%	$18,061	3.5%	$9,077
Subtotal - Future Maintenance Costs				$321,636		**$168,972**
					SAY	**$169,000**

Future Operational Costs	**Qty**	**Unit**	**Current Unit Cost**	**Current Base Cost**	**UPV[3]**	**Present Value**

Total Costs	**Value**
Initial Expense	$273,000
Future Maintenance Costs	$169,000
Future Operational Costs	$0
Total Life Cycle Cost	**$442,000**

Notes

[1] Future Cost = Current Base Cost x $(1+i)^n$ Where; i = inflation rate, n = number of years to occurrence

[2] Present Value = Future Cost x $[1 / (1+d)^n]$ Where; d = interest rate, n = number of years to occurrence

[3] Uniform Present Value (UPV) for determining present value of annual recurring maintenance costs over a 25 year period derived as follows:

$$UPV = \left(\frac{1+e}{d-e}\right)\left[1-\left(\frac{1+e}{1+d}\right)^N\right]$$

Where;
e = escalation rate (@ 3%)
d = interest rate (@ 3.5%)
N = number of time periods for annual occurrence (25 years)

Town of Jay
System Redundancy - Hydrogeologic Study - Hamlet of Upper Jay
LIFE CYCLE COST

Initial Expenses - Construction	**Qty**	**Unit**	**Unit Cost**	**Total Cost**	**Present Value**
System Redundancy - Hydrogeologic Study	1	LS	$119,500	$119,500	**$119,500**

Future Maintenance Expenses (Non-Annually Recurring Costs)

Equipment	**Current Base Cost**	**# of Years to Occurrence**	**Inflation Rate**	**Future Cost [1]**	**Interest Rate**	**Present Value [2]**
Subtotal - Future Maintenance Costs				$0		**$0**
					SAY	**$0**

Future Operational Costs	**Qty**	**Unit**	**Current Unit Cost**	**Current Base Cost**	**UPV[3]**	**Present Value**
						$0

Total Costs	**Present Value**
Initial Expense	$119,500
Future Maintenance Costs	$0
Future Operational Costs	$0
Total Life Cycle Cost	**$119,500**

Notes

[1] Future Cost = Current Base Cost x $(1+i)^n$ Where; i = inflation rate, n = number of years to occurrence

[2] Present Value = Future Cost x $[1 / (1+d)^n]$ Where; d = interest rate, n = number of years to occurrence

[3] Uniform Present Value (UPV) for determining present value of annual recurring maintenance costs over a 25 year period derived as follows:

$$UPV = \left(\frac{1+e}{d-e}\right)\left[1-\left(\frac{1+e}{1+d}\right)^N\right]$$

Where;
e = escalation rate (@ 3%)
d = interest rate (@ 3.5%)
N = number of time periods for annual occurrence (25 years)

Town of Jay
AuSable Forks Water Storage Tank & Valve Pit - Rehabilitation
LIFE CYCLE COST

Initial Expenses - Construction	Qty	Unit	Unit Cost	Total Cost	Present Value
AuSable Forks Water Storage Tank Rehab	1	LS	$786,800	$786,800	**$786,800**

Future Maintenance Expenses (Non-Annually Recurring Costs)

Equipment		Current Base Cost	# of Years to Occurrence	Inflation Rate	Future Cost [1]	Interest Rate	Present Value [2]
Yr 15	Replace Flow Meter	$10,000	15.00	3.0%	$15,580	3.5%	$9,299
Yr 15	Replace Manual Transfer Switch	$20,900	15.00	3.0%	$32,562	3.5%	$19,436
Yr 15	Misc. Tank & Valve Pit Improvements	$10,000	15.00	3.0%	$15,580	3.5%	$9,299
Yr 15	Sandblast & Repaint Exterior	$252,000	15.00	3.0%	$392,608	3.5%	$234,344
Yr 25	Sandblast & Repaint Interior	$252,000	25.00	3.0%	$527,632	3.5%	$223,266
Yr 25	Misc. Tank & Valve Pit Improvments	$10,000	25.00	3.0%	$20,938	3.5%	$8,860
Yr 25	Repairs to Exterior Fencing	$10,000	25.00	3.0%	$20,938	3.5%	$8,860
	Subtotal - Future Maintenance Costs				$1,025,836		**$513,364**
						SAY	**$514,000**

Future Operational Costs	Qty	Unit	Current Unit Cost	Current Base Cost	UPV[3]	Present Value

Total Costs	Present Value
Initial Expense	$786,800
Future Maintenance Costs	$514,000
Future Operational Costs	$0
Total Life Cycle Cost	**$1,301,000**

Notes

[1] Future Cost = Current Base Cost x $(1+i)^n$ Where; i = inflation rate, n = number of years to occurrence

[2] Present Value = Future Cost x $[1 / (1+d)^n]$ Where; d = interest rate, n = number of years to occurrence

[3] Uniform Present Value (UPV) for determining present value of annual recurring maintenance costs over a 25 year period derived as follows:

$$UPV = \left(\frac{1+e}{d-e}\right)\left[1-\left(\frac{1+e}{1+d}\right)^N\right]$$

Where;
e = escalation rate (@ 3%)
d = interest rate (@ 3.5%)
N = number of time periods for annual occurrence (25 years)

LIFE CYCLE COSTS
LONG TERM IMPROVEMENTS

Town of Jay
Nugent Road Water Treatment Plant
Nugent Road Storage Tank Bypass
LIFE CYCLE COST

Initial Expenses - Construction	Qty	Unit	Unit Cost	Total Cost	Present Value
Nugent Road Storage Tank Bypass	1	LS	$50,000	$50,000	**$50,000**

Future Maintenance Expenses (Non-Annually Recurring Costs)

Equipment	Current Base Cost	# of Years to Occurrence	Inflation Rate	Future Cost [1]	Interest Rate	Present Value [2]
Yr 15 General Maintenance	$1,000	15.00	3.0%	$1,558	3.5%	$930
Yr 25 Gate Valve Replacement	$5,000	25.00	3.0%	$10,469	3.5%	$4,430
Yr 25 General Maintenance	$1,500	25.00	3.0%	$3,141	3.5%	$1,329
Subtotal - Future Maintenance Costs				$15,168		**$6,689**
					SAY	**$7,000**

Future Operational Costs	Qty	Unit	Current Unit Cost	Current Base Cost	UPV[3]	Present Value

Total Costs	Present Value
Initial Expense	$50,000
Future Maintenance Costs	$7,000
Future Operational Costs	$0
Total Life Cycle Cost	**$57,000**

Notes

1 Future Cost = Current Base Cost x $(1+i)^n$ Where; i = inflation rate, n = number of years to occurrence

2 Present Value = Future Cost x $[1 / (1+d)^n]$ Where; d = interest rate, n = number of years to occurrence

3 Uniform Present Value (UPV) for determining present value of annual recurring maintenance costs over a 25 year period derived as follows:

$$UPV = \left(\frac{1+e}{d-e}\right)\left[1-\left(\frac{1+e}{1+d}\right)^N\right]$$

Where;
e = escalation rate (@ 3%)
d = interest rate (@ 3.5%)
N = number of time periods for annual occurrence (25 years)

Town of Jay
Jay Water District Transmission Main
Nugent Road WTP to Glen Road
LIFE CYCLE COST

Initial Expenses - Construction	Qty	Unit	Unit Cost	Total Cost	Present Value
Transmission Main - Nugent WTP to Glen Rd	1	LS	$2,241,000	$2,241,000	**$2,241,000**

Future Maintenance Expenses (Non-Annually Recurring Costs)

Equipment	Current Base Cost	# of Years to Occurrence	Inflation Rate	Future Cost [1]	Interest Rate	Present Value [2]
Yr 15 General Maintenance	$1,000	15.00	3.0%	$1,558	3.5%	$930
Yr 25 Gate Valve Replacement	$8,000	25.00	3.0%	$16,750	3.5%	$7,088
Yr 25 General Maintenance	$1,500	25.00	3.0%	$3,141	3.5%	$1,329
Subtotal - Future Maintenance Costs				$21,449		**$9,347**
					SAY	**$10,000**

Future Operational Costs	Qty	Unit	Current Unit Cost	Current Base Cost	UPV[3]	Present Value

Total Costs	Present Value
Initial Expense	$2,241,000
Future Maintenance Costs	$10,000
Future Operational Costs	$0
Total Life Cycle Cost	**$2,251,000**

Notes

[1] Future Cost = Current Base Cost x $(1+i)^n$ Where; i = inflation rate, n = number of years to occurrence

[2] Present Value = Future Cost x $[1 / (1+d)^n]$ Where; d = interest rate, n = number of years to occurrence

[3] Uniform Present Value (UPV) for determining present value of annual recurring maintenance costs over a 25 year period derived as follows:

$$UPV = \left(\frac{1+e}{d-e}\right)\left[1-\left(\frac{1+e}{1+d}\right)^N\right]$$

Where;
e = escalation rate (@ 3%)
d = interest rate (@ 3.5%)
N = number of time periods for annual occurrence (25 years)

Town of Jay
Jay WD - Howard Heights Transmission Main
LIFE CYCLE COST

Initial Expenses - Construction	Qty	Unit	Unit Cost	Total Cost	Present Value
Howard Heights Transmission Main	1	LS	$1,245,000	$1,245,000	**$1,245,000**

Future Maintenance Expenses (Non-Annually Recurring Costs)

Equipment		Current Base Cost	# of Years to Occurrence	Inflation Rate	Future Cost [1]	Interest Rate	Present Value [2]
Yr 15	General Maintenance	$10,000	15.00	3.0%	$15,580	3.5%	$9,299
Yr 25	Gate Valve Replacement	$25,000	25.00	3.0%	$52,344	3.5%	$22,149
Yr 25	General Maintenance	$10,000	25.00	3.0%	$20,938	3.5%	$8,860
	Subtotal - Future Maintenance Costs				$88,862		**$40,309**
						SAY	**$41,000**

Future Operational Costs	Qty	Unit	Current Unit Cost	Current Base Cost	UPV[3]	Present Value

Total Costs

	Value
Initial Expense	$1,245,000
Future Maintenance Costs	$41,000
Future Operational Costs	$0
Total Life Cycle Cost	**$1,286,000**

Notes

[1] Future Cost = Current Base Cost x $(1+i)^n$ Where; i = inflation rate, n = number of years to occurrence

[2] Present Value = Future Cost x $[1 / (1+d)^n]$ Where; d = interest rate, n = number of years to occurrence

[3] Uniform Present Value (UPV) for determining present value of annual recurring maintenance costs over a 25 year period derived as follows:

$$UPV = \left(\frac{1+e}{d-e}\right)\left[1-\left(\frac{1+e}{1+d}\right)^N\right]$$

Where;
e = escalation rate (@ 3%)
d = interest rate (@ 3.5%)
N = number of time periods for annual occurrence (25 years)

Town of Jay
Upper Jay WD - Transmission Main
Redundant AuSable River Crossing
LIFE CYCLE COST

Initial Expenses - Construction	Qty	Unit	Unit Cost	Total Cost	Present Value
Redundant AuSable River Crossing	1	LS	$453,200	$453,200	**$453,200**

Future Maintenance Expenses (Non-Annually Recurring Costs)

Equipment		Current Base Cost	# of Years to Occurrence	Inflation Rate	Future Cost [1]	Interest Rate	Present Value [2]
Yr 15	General Maintenance	$10,000	15.00	3.0%	$15,580	3.5%	$9,299
Yr 25	Gate Valve Replacement	$15,000	25.00	3.0%	$31,407	3.5%	$13,290
Yr 25	Transmisson Main Repairs	$50,000	25.00	3.0%	$104,689	3.5%	$44,299
	Subtotal - Future Maintenance Costs				$151,675		**$66,888**
						SAY	**$67,000**

Future Operational Costs	Qty	Unit	Current Unit Cost	Current Base Cost	UPV[3]	Present Value

Total Costs	Value
Initial Expense	$453,200
Future Maintenance Costs	$67,000
Future Operational Costs	$0
Total Life Cycle Cost	**$520,000**

Notes

1 Future Cost = Current Base Cost x $(1+i)^n$ Where; i = inflation rate, n = number of years to occurrence

2 Present Value = Future Cost x $[1 / (1+d)^n]$ Where; d = interest rate, n = number of years to occurrence

3 Uniform Present Value (UPV) for determining present value of annual recurring maintenance costs over a 25 year period derived as follows:

$$UPV = \left(\frac{1+e}{d-e}\right)\left[1-\left(\frac{1+e}{1+d}\right)^N\right]$$

Where;
e = escalation rate (@ 3%)
d = interest rate (@ 3.5%)
N = number of time periods for annual occurrence (25 years)

Town of Jay
Valley Road Pump Station
Fire Pump and Valve Pit w/ PRV
LIFE CYCLE COST

Initial Expenses - Construction	**Qty**	**Unit**	**Unit Cost**	**Total Cost**	**Present Value**
Fire Pump and Valve Pit w/ PRV	1	LS	$159,400	$159,400	**$159,400**

Future Maintenance Expenses (Non-Annually Recurring Costs)

Equipment		**Current Base Cost**	**# of Years to Occurrence**	**Inflation Rate**	**Future Cost [1]**	**Interest Rate**	**Present Value [2]**
Yr 10	General Maintnenace	$2,500	10.00	3.0%	$3,360	3.5%	$2,382
Yr 15	Pump Control Panel Replacement	$6,500	15.00	3.0%	$10,127	3.5%	$6,045
Yr 15	General Maintenance	$5,000	15.00	3.0%	$7,790	3.5%	$4,650
Yr 15	VFD Replacements	$15,000	15.00	3.0%	$23,370	3.5%	$13,949
Yr 25	Fire Pump Replacement	$40,000	25.00	3.0%	$83,751	3.5%	$35,439
Yr 25	Pressure Reducing Valve Replacement	$15,000	25.00	3.0%	$31,407	103.5%	$0
	Subtotal - Future Maintenance Costs				$128,397		**$62,464**
						SAY	**$63,000**

Future Operational Costs	**Qty**	**Unit**	**Current Unit Cost**	**Current Base Cost**	**UPV[3]**	**Present Value**

Total Costs	**Present Value**
Initial Expense	$159,400
Future Maintenance Costs	$63,000
Future Operational Costs	$0
Total Life Cycle Cost	**$222,000**

Notes

[1] Future Cost = Current Base Cost x $(1+i)^n$ Where; i = inflation rate, n = number of years to occurrence

[2] Present Value = Future Cost x $[1 / (1+d)^n]$ Where; d = interest rate, n = number of years to occurrence

[3] Uniform Present Value (UPV) for determining present value of annual recurring maintenance costs over a 25 year period derived as follows:

$$UPV = \left(\frac{1+e}{d-e}\right)\left[1-\left(\frac{1+e}{1+d}\right)^N\right]$$

Where;
e = escalation rate (@ 3%)
d = interest rate (@ 3.5%)
N = number of time periods for annual occurrence (25 years)

Town of Jay
Upper Jay Water Storage Tank and Chlorine Booster Station
LIFE CYCLE COST

Initial Expenses - Construction	**Qty**	**Unit**	**Unit Cost**	**Total Cost**	**Present Value**
Emergency Generator and Site Improvements	1	LS	$154,400	$154,400	**$154,400**

Future Maintenance Expenses (Non-Annually Recurring Costs)

Equipment		**Current Base Cost**	**# of Years to Occurrence**	**Inflation Rate**	**Future Cost [1]**	**Interest Rate**	**Present Value [2]**
Yr 10	Generator Maintenance	$10,000	10.00	3.0%	$13,439	3.5%	$9,527
Yr 20	Generator Maintenance	$10,000	20.00	3.0%	$18,061	3.5%	$9,077
	Subtotal - Future Maintenance Costs				$31,500		**$18,604**
						SAY	**$19,000**

Future Operational Costs	**Qty**	**Unit**	**Current Unit Cost**	**Current Base Cost**	**UPV[3]**	**Present Value**

Total Costs	**Present Value**
Initial Expense	$154,400
Future Maintenance Costs	$19,000
Future Operational Costs	$0
Total Life Cycle Cost	**$173,000**

Notes

[1] Future Cost = Current Base Cost x $(1+i)^n$ Where; i = inflation rate, n = number of years to occurrence

[2] Present Value = Future Cost x $[1 / (1+d)^n]$ Where; d = interest rate, n = number of years to occurrence

[3] Uniform Present Value (UPV) for determining present value of annual recurring maintenance costs over a 25 year period derived as follows:

$$UPV = \left(\frac{1+e}{d-e}\right)\left[1-\left(\frac{1+e}{1+d}\right)^N\right]$$

Where;
e = escalation rate (@ 3%)
d = interest rate (@ 3.5%)
N = number of time periods for annual occurrence (25 years)

Town of Jay
NYS Route 86 Pump Station - Replacement
LIFE CYCLE COST

Initial Expenses - Construction	Qty	Unit	Unit Cost	Total Cost	Present Value
NYS Route 86 Pump Station - Replacement	1	LS	$597,600	$597,600	**$597,600**

Future Maintenance Expenses (Non-Annually Recurring Costs)

	Equipment	Current Base Cost	# of Years to Occurrence	Inflation Rate	Future Cost [1]	Interest Rate	Present Value [2]
Yr 10	Misc.Pump Station Repairs	$10,000	10.00	3.0%	$13,439	3.5%	$9,527
Yr 15	Flow meter Replacement	$10,000	15.00	3.0%	$15,580	3.5%	$9,299
Yr 20	Replace Booster Pumps	$21,000	20.00	3.0%	$37,928	3.5%	$19,061
Yr 20	Replace VFD's	$40,000	20.00	3.0%	$72,244	3.5%	$36,308
Yr 20	Replace Hydro-Pneumatic Tanks	$10,000	20.00	3.0%	$18,061	3.5%	$9,077
Yr 20	Pump Control Panel Replacement	$44,100	20.00	3.0%	$79,650	3.5%	$40,029
Yr 20	Remote Telemetery Unit Replacement	$39,800	20.00	3.0%	$71,883	3.5%	$36,126
Yr 20	Misc.Pump Station Repairs	$10,000	20.00	3.0%	$18,061	3.5%	$9,077
	Subtotal - Future Maintenance Costs				$326,847		**$168,505**
						SAY	**$169,000**

Future Operational Costs	Qty	Unit	Current Unit Cost	Current Base Cost	UPV[3]	Present Value

Total Costs	Present Value
Initial Expense	$597,600
Future Maintenance Costs	$169,000
Future Operational Costs	$0
Total Life Cycle Cost	**$767,000**

Notes

[1] Future Cost = Current Base Cost x $(1+i)^n$ Where; i = inflation rate, n = number of years to occurrence

[2] Present Value = Future Cost x $[1 / (1+d)^n]$ Where; d = interest rate, n = number of years to occurrence

[3] Uniform Present Value (UPV) for determining present value of annual recurring maintenance costs over a 25 year period derived as follows:

$$UPV = \left(\frac{1+e}{d-e}\right)\left[1-\left(\frac{1+e}{1+d}\right)^N\right]$$

Where;
e = escalation rate (@ 3%)
d = interest rate (@ 3.5%)
N = number of time periods for annual occurrence (25 years)

Town of Jay
Install and Test New Production Well - Hamlet of Upper Jay
LIFE CYCLE COST

Initial Expenses - Construction	**Qty**	**Unit**	**Unit Cost**	**Total Cost**	**Present Value**
Install and Test New Production Well	1	LS	$498,000	$498,000	**$498,000**

Future Maintenance Expenses (Non-Annually Recurring Costs)

Equipment	**Current Base Cost**	**# of Years to Occurrence**	**Inflation Rate**	**Future Cost [1]**	**Interest Rate**	**Present Value [2]**
Yr 10 General Maintenance	$5,000	10.00	3.0%	$6,720	3.5%	$4,764
Yr 10 Water Level Sensors Replacement	$10,500	10.00	3.0%	$14,111	3.5%	$10,004
Yr 20 General Maintenance	$5,000	20.00	3.0%	$9,031	3.5%	$4,538
Yr 25 Submersible Well Pump Replacement	$52,000	25.00	3.0%	$108,876	3.5%	$46,071
Yr 25 Well Screen	$10,500	25.00	3.0%	$21,985	3.5%	$9,303
Subtotal - Future Maintenance Costs				$160,722		**$74,679**
					SAY	**$75,000**

Future Operational Costs	**Qty**	**Unit**	**Current Unit Cost**	**Current Base Cost**	**UPV[3]**	**Present Value**
Submersible Well Pump	27,000	KWh/Yr	$0.09	$2,430	23.49	**$57,078**
					SAY	**$58,000**

Total Costs	**Present Value**
Initial Expense	$498,000
Future Maintenance Costs	$75,000
Future Operational Costs	$58,000
Total Life Cycle Cost	**$631,000**

Notes

[1] Future Cost = Current Base Cost x $(1+i)^n$ Where; i = inflation rate, n = number of years to occurrence

[2] Present Value = Future Cost x $[1 / (1+d)^n]$ Where; d = interest rate, n = number of years to occurrence

[3] Uniform Present Value (UPV) for determining present value of annual recurring maintenance costs over a 25 year period derived as follows:

$$\text{UPV} = \left(\frac{1+e}{d-e}\right)\left[1-\left(\frac{1+e}{1+d}\right)^N\right]$$

Where;
e = escalation rate (@ 3%)
d = interest rate (@ 3.5%)
N = number of time periods for annual occurrence (25 years)

Town of Jay
AuSable Forks Water Storage Tank & Valve Pit - Replacement
LIFE CYCLE COST

Initial Expenses - Construction	**Qty**	**Unit**	**Unit Cost**	**Total Cost**	**Present Value**
Replace AuSable Forks Water Storage Tank	1	LS	$1,992,000	$1,992,000	**$1,992,000**

Future Maintenance Expenses (Non-Annually Recurring Costs)

Equipment	**Current Base Cost**	**# of Years to Occurrence**	**Inflation Rate**	**Future Cost [1]**	**Interest Rate**	**Present Value [2]**
Yr 15 Replace Flow Meter	$10,000	15.00	3.0%	$15,580	3.5%	$9,299
Yr 20 Bolt & Joint Sealant Replacement	$50,000	20.00	3.0%	$90,306	3.5%	$45,384
Yr 20 Misc Tank Repairs	$30,000	20.00	3.0%	$54,183	3.5%	$27,231
Yr 25 - Misc. Exterior Repairs	$10,000	25.00	3.0%	$20,938	3.5%	$8,860
Subtotal - Future Maintenance Costs				$181,006		**$90,774**
					SAY	**$91,000**

Future Operational Costs	**Qty**	**Unit**	**Current Unit Cost**	**Current Base Cost**	**UPV[3]**	**Present Value**

Total Costs	**Present Value**
Initial Expense	$1,992,000
Future Maintenance Costs	$91,000
Future Operational Costs	$0
Total Life Cycle Cost	**$2,083,000**

Notes

1 Future Cost = Current Base Cost x $(1+i)^n$ Where; i = inflation rate, n = number of years to occurrence

2 Present Value = Future Cost x $[1 / (1+d)^n]$ Where; d = interest rate, n = number of years to occurrence

3 Uniform Present Value (UPV) for determining present value of annual recuring maintenance costs over a 25 year period derived as follows:

$$\text{UPV} = \left(\frac{1+e}{d-e}\right)\left[1-\left(\frac{1+e}{1+d}\right)^N\right]$$

Where;
e = escalation rate (@ 3%)
d = interest rate (@ 3.5%)
N = number of time periods for annual occurrence (25 years)

Town of Jay
AuSable Forks Transmission Main
Grove Road WTP to Rolling Mill Hill Road Water Storage Tank
LIFE CYCLE COST

Initial Expenses - Construction	Qty	Unit	Unit Cost	Total Cost	Present Value
AuSable Forks Transmission Main	1	LS	$3,974,000	$3,974,000	**$3,974,000**

Future Maintenance Expenses (Non-Annually Recurring Costs)

Equipment		Current Base Cost	# of Years to Occurrence	Inflation Rate	Future Cost [1]	Interest Rate	Present Value [2]
Yr 15	General Maintenance	$5,000	15.00	3.0%	$7,790	3.5%	$4,650
Yr 25	Gate Valve Replacement	$15,000	25.00	3.0%	$31,407	3.5%	$13,290
Yr 25	General Maintenance	$5,000	25.00	3.0%	$10,469	3.5%	$4,430
	Subtotal - Future Maintenance Costs				$49,665		**$22,369**
						SAY	**$23,000**

Future Operational Costs	Qty	Unit	Current Unit Cost	Current Base Cost	UPV[3]	Present Value

Total Costs	Present Value
Initial Expense	$3,974,000
Future Maintenance Costs	$23,000
Future Operational Costs	$0
Total Life Cycle Cost	**$3,997,000**

Notes

[1] Future Cost = Current Base Cost x $(1+i)^n$ Where; i = inflation rate, n = number of years to occurrence

[2] Present Value = Future Cost x $[1 / (1+d)^n]$ Where; d = interest rate, n = number of years to occurrence

[3] Uniform Present Value (UPV) for determining present value of annual recurring maintenance costs over a 25 year period derived as follows:

$$\text{UPV} = \left(\frac{1+e}{d-e}\right)\left[1-\left(\frac{1+e}{1+d}\right)^N\right]$$

Where;
e = escalation rate (@ 3%)
d = interest rate (@ 3.5%)
N = number of time periods for annual occurrence (25 years)

Appendix N\

2025 Adopted Budget

TOWN OF JAY

2025 ADOPTED BUDGET

Code	FUND	Appropriations and Provisions for Other Uses	Less Estimated Revenues	Less Unexpended Balance	AMOUNT TO BE RAISED BY TAX
A	General	$ 1,416,836.40	$ 470,200.00	$ 200,000.00	$ 746,636.40
DA	Highway - Town Wide	$ 1,657,150.00	$ 679,740.00	$ 50,000.00	$ 927,410.00
S	SPECIAL DISTRICTS				
SW1	Au Sable Forks Water	$ 81,725.00	$ 22,640.00	$ 10,000.00	$ 49,085.00
SW1	Bond and Interest	$ 51,366.00			$ 51,366.00
SW2	Jay Water	$ 74,825.00	$ 33,200.00		$ 41,625.00
SW2	Bond and Interest	$ 11,706.00			$ 11,706.00
SW3	Upper Jay Water	$ 71,740.00	$ 24,530.00		$ 47,210.00
SW3	Bond and Interest	$ 61,028.00			$ 61,028.00
SS	Au Sable Forks Sewer	$ 175,510.00	$ 89,950.00		$ 85,560.00
SS	Bonds and Interest	$ 18,966.00			$ 18,966.00
SM	Ambulance District	$ 430,600.00	$ 150,000.00		$ 280,600.00
				SUBTOTAL	$ 2,321,192.40
SF1	Au Sable Forks Fire Dis	$ 286,145.42			$ 286,145.42
SF2	Jay Fire District	$ 224,300.00			$ 224,300.00
SF3	Upper Jay Fire District	$ 110,881.00			$ 110,881.00
	TOTALS	$ 4,672,778.82	$ 1,470,260.00	$ 260,000.00	$ 2,942,518.82

GENERAL FUND APPROPRIATIONS -- GOVERNMENT SUPPORT					
Accounts	***Code***	**2024 Budget**	**2025 Tentative**	**2025 Preliminary**	**2025 Adopted**
TOWN BOARD					
Personal Services	A1010.1	$ 25,200.00	$ 25,200.00	$ 25,960.00	$ 25,960.00
Equipment	A1010.2	$ -	$ -	$ -	$ -
Contractual Expense	A1010.4	$ 2,500.00	$ 3,500.00	$ 3,500.00	$ 3,500.00
TOTAL		**$ 27,700.00**	**$ 28,700.00**	**$ 29,460.00**	**$ 29,460.00**
JUSTICES					
Personal Services	A1110.1	$ 12,500.00	$ 12,875.00	$ 12,875.00	$ 12,875.00
Clerk	A1110.1	$ 5,000.00	$ 5,150.00	$ 5,150.00	$ 5,150.00
Equipment	A1110.2	$ -			$ -
Contractual Expense	A1110.4	$ 6,000.00	$ 6,700.00	$ 6,700.00	$ 6,700.00
TOTAL		**$ 23,500.00**	**$ 24,725.00**	**$ 24,725.00**	**$ 24,725.00**
SUPERVISOR					
Personal Services	A1220.1	$ 52,000.00	$ 52,000.00	$ 53,560.00	$ 53,560.00
Deputy Supervisor	A1220.1	$ 1,500.00	$ 1,500.00	$ 1,500.00	$ 1,500.00
Equipment	A1220.2	$ 500.00	$ 1,000.00	$ 1,000.00	$ 1,000.00
Contractual Expense	A1220.4	$ 12,500.00	$ 13,500.00	$ 13,500.00	$ 13,500.00
TOTAL		**$ 66,500.00**	**$ 68,000.00**	**$ 69,560.00**	**$ 69,560.00**
INDEPENDENT AUDITING & ACCOUNTING					
Contractual Expense	A13204.1	$ 21,000.00	$ 21,000.00	$ 21,000.00	$ 21,000.00
TOTAL		**$ 21,000.00**	**$ 21,000.00**	**$ 21,000.00**	**$ 21,000.00**
TAX COLLECTION					
Personal Services	A1330.1	$ 8,400.00	$ 8,600.00	$ 8,600.00	$ 8,600.00
Equipment	A1330.2	$ -			$ -
Contractual Expense	A1330.4	$ 6,000.00	$ 4,000.00	$ 4,000.00	$ 4,000.00
TOTAL		**$ 14,400.00**	**$ 12,600.00**	**$ 12,600.00**	**$ 12,600.00**
BUDGET					
Personal Services	A1340.1	$ 2,000.00	$ 3,500.00	$ 2,000.00	$ 2,000.00
Equipment	A1340.2	$ -			$ -
Contractual Expense	A1340.4	$ 250.00	$ 250.00	$ 250.00	$ 250.00
TOTAL		**$ 2,250.00**	**$ 3,750.00**	**$ 2,250.00**	**$ 2,250.00**
ASSESSORS					
Personal Services	A1355.1	$ 50,000.00	$ 51,500.00	$ 51,500.00	$ 51,500.00
Clerk One	A1355.1	$ 1,500.00	$ 500.00	$ 500.00	$ 500.00
Clerk Two	A1355.1	$ -	$ 500.00	$ 500.00	$ 500.00
Equipment	A1355.2	$ 500.00	$ 1,000.00	$ 1,000.00	$ 1,000.00
Contractual Expense	A1355.4	$ 7,500.00	$ 7,500.00	$ 7,500.00	$ 7,500.00
TOTAL		**$ 59,500.00**	**$ 61,000.00**	**$ 61,000.00**	**$ 61,000.00**

GENERAL FUND APPROPRIATIONS -- GOVERNMENT SUPPORT					
Accounts	***Code***	**2024 Budget**	**2025 Tentative**	**2025 Preliminary**	**2025 Adopted**
TOWN CLERK					
Personal Services	A1410.1	$ 14,000.00	$ 14,450.00	$ 14,450.00	$ 14,450.00
Deputy Clerk	A1410.1	$ 1,000.00	$ 1,500.00	$ 1,500.00	$ 1,500.00
Equipment	A1410.2	$ 750.00	$ 750.00	$ 750.00	$ 750.00
Contractual Expense	A1410.4	$ 2,000.00	$ 2,500.00	$ 2,500.00	$ 2,500.00
TOTAL		**$ 17,750.00**	**$ 19,200.00**	**$ 19,200.00**	**$ 19,200.00**
ATTORNEY					
Personal Services	A1420.1	$ -			$ -
Equipment	A1420.2	$ -			$ -
Contractual Expense	A1420.4	$ 15,000.00	$ 10,000.00	$ 10,000.00	$ 10,000.00
		$ 15,000.00	**$ 10,000.00**	**$ 10,000.00**	**$ 10,000.00**
PERSONNEL-SUPR. OFFICE					
Personal Services-Clerk1	A1430.1	$ 45,900.00	$ 47,240.00	$ 47,240.00	$ 47,240.00
Clerk 2	A1430.1	$ 20,160.00	$ 22,500.00	$ 22,500.00	$ 22,500.00
Clerk 3	A1430.1	$ 42,000.00	$ 43,250.00	$ 43,250.00	$ 43,250.00
Longevity	A1430.1	$ 300.00	$ 600.00	$ 600.00	$ 600.00
Equipment	A1430.2	$ 2,000.00	$ 1,000.00	$ 1,000.00	$ 1,000.00
Contractual Expense	A1430.4	$ 8,000.00	$ 6,000.00	$ 6,000.00	$ 6,000.00
TOTAL		**$ 118,360.00**	**$ 120,590.00**	**$ 120,590.00**	**$ 120,590.00**

GENERAL FUND APPROPRIATIONS -- GOVERNMENT SUPPORT					
Accounts	*Code*	2024 Budget	2025 Tentative	2025 Preliminary	2025 Adopted
BUILDINGS					
Personal Services 1	A1620.1	$ 23,775.00	$ 17,760.00	$ 17,760.00	$ 17,760.00
Personal Services 2	*A1620.1*		$ 21,840.00	$ 22,006.40	$ 22,006.40
Equipment	A1620.2	$ 50,000.00	$ 40,000.00	$ 40,000.00	$ 40,000.00
Contractual Expense	A1620.4	$ 80,000.00	$ 80,000.00	$ 80,000.00	$ 80,000.00
TOTAL		**$ 153,775.00**	**$ 159,600.00**	**$ 159,766.40**	**$ 159,766.40**
SPECIAL ITEMS					
Unallocated Insurance	A1910.1	$ 60,000.00	$ 85,000.00	$ 85,000.00	$ 85,000.00
Municipal Assoc. Dues	A1920.2	$ 2,100.00	$ 2,100.00	$ 2,100.00	$ 2,100.00
Taxes & Assess.	A1950.4	$ 5,500.00	$ 5,000.00	$ 5,000.00	$ 5,000.00
Judge/Claims	A1930.4	$ 5,000.00	$ 5,000.00	$ 5,000.00	$ 5,000.00
Other Gen. Gov't Support	A1989.4	$ 40,000.00	$ 40,000.00	$ 40,000.00	$ 40,000.00
TOTAL		**$ 112,600.00**	**$ 137,100.00**	**$ 137,100.00**	**$ 137,100.00**
TOTAL GENERAL SUPPORT		**$ 632,335.00**	**$ 666,265.00**	**$ 667,251.40**	**$ 667,251.40**

GENERAL FUND APPROPRIATIONS -- PUBLIC SAFETY					
Accounts	**Code**	**2024 Budget**	**2025 Tentative**	**2025 Preliminary**	**2025 Adopted**
Public Safety-Codes					
Personal Services	A3010.1	$ 25,000.00	$ 25,750.00	$ 25,750.00	$ 25,750.00
Equipment	A3010.2	$ 1,500.00	$ 1,500.00	$ 1,500.00	$ 1,500.00
Contractual Expense	A3010.4	$ 4,500.00	$ 4,500.00	$ 4,500.00	$ 4,500.00
TOTAL		$ 31,000.00	**$ 31,750.00**	**$ 31,750.00**	**$ 31,750.00**
Traffic Control-Signs					
Contractual Expense	**A3310.4**	$ 1,000.00	$ 1,000.00	$ 1,000.00	$ 1,000.00
TOTAL		$ 1,000.00	**$ 1,000.00**	**$ 1,000.00**	**$ 1,000.00**
Animal Control					
Personal Services	A3510.1	$ 4,410.00	$ 4,500.00	$ 4,500.00	$ 4,500.00
Contractual Expense	A3510.4	$ 5,000.00	$ 5,000.00	$ 5,000.00	$ 5,000.00
TOTAL		$ 9,410.00	**$ 9,500.00**	**$ 9,500.00**	**$ 9,500.00**
Amnesty Day					
Contractual Expense	A3650.4	$ 10,000.00	$ 10,000.00	$ 10,000.00	$ 10,000.00
TOTAL		$ 10,000.00	**$ 10,000.00**	**$ 10,000.00**	**$ 10,000.00**
Total Public Safety		$ 51,410.00	**$ 52,250.00**	**$ 52,250.00**	**$ 52,250.00**

GENERAL FUND APPROPRIATIONS -- HEALTH					
Accounts	**Code**	**2024 Budget**	**2025 Tentative**	**2025 Preliminary**	**2025 Adopted**
Board of Health					
Vital Stats	40201.1	$ 500.00	$ 520.00	$ 520.00	$ 520.00
TOTAL		**$ 500.00**	**$ 520.00**	**$ 520.00**	**$ 520.00**
Public Health - Other					
Contractual Expense	A4050.4	$ 400.00	$ 400.00	$ 400.00	$ 400.00
TOTAL		**$ 400.00**	**$ 400.00**	**$ 400.00**	**$ 400.00**
Insect Control					
Contractual Expense	A4068.4	$ 19,360.00	$ 19,900.00	$ 19,900.00	$ 19,900.00
TOTAL		**$ 19,360.00**	**$ 19,900.00**	**$ 19,900.00**	**$ 19,900.00**
TOTAL HEALTH		**$ 20,260.00**	**$ 20,820.00**	**$ 20,820.00**	**$ 20,820.00**

GENERAL FUND APPROPRIATIONS -- TRANSPORTATION					
Accounts	**Code**	**2024 Budget**	**2025 Tentative**	**2025 Preliminary**	**2025 Adopted**
Superintendent of Highways					
Personal Services	A5010.1	$ 70,000.00	$ 70,000.00	$ 72,100.00	$ 72,100.00
Clerk 1	A5010.1	$ 28,828.00	$ 29,690.00	$ 29,690.00	$ 29,690.00
Deputy Superintendent	A5010.1	$ 2,500.00	$ 2,500.00	$ 2,500.00	$ 2,500.00
Longevity	*A5010.1*	$ 300.00	$ 1,200.00	$ 1,200.00	$ 1,200.00
Equipment	A5010.2	$ 2,000.00	$ 2,000.00	$ 2,000.00	$ 2,000.00
Contractual Expense	A5010.4	$ 4,500.00	$ 4,500.00	$ 4,500.00	$ 4,500.00
TOTAL		**$ 108,128.00**	**$ 109,890.00**	**$ 111,990.00**	**$ 111,990.00**
Garage					
Personal Services	A5132.1	$ -			$ -
Equipment	A5132.2	$ 5,000.00	$ 5,000.00	$ 5,000.00	$ 5,000.00
Contractual Expense	A5132.4	$ 60,000.00	$ 60,000.00	$ 60,000.00	$ 60,000.00
TOTAL		**$ 65,000.00**	**$ 65,000.00**	**$ 65,000.00**	**$ 65,000.00**
Street Lighting					
Contractual Expense	A5182.4	$ 15,000.00	$ 17,500.00	$ 17,500.00	$ 17,500.00
TOTAL		**$ 15,000.00**	**$ 17,500.00**	**$ 17,500.00**	**$ 17,500.00**
Sidewalks					
Contractual Expense	A5410.4	$ 40,000.00	$ 40,000.00	$ 40,000.00	$ 40,000.00
Street Paint	A5680.4	$ 2,500.00	$ 2,500.00	$ 2,500.00	$ 2,500.00
TOTAL		**$ 42,500.00**	**$ 42,500.00**	**$ 42,500.00**	**$ 42,500.00**
Total Transporation		**$ 230,628.00**	**$ 234,890.00**	**$ 236,990.00**	**$ 236,990.00**

GENERAL FUND APPROPRIATIONS -- ECONOMIC ASSISTANCE AND OPPORTUNITY					
Accounts	**Code**	**2024 Budget**	**2025 Tentative**	**2025 Preliminary**	**2025 Adopted**
PUBLICITY					
Personal Services	A6410.1	$ -			$ -
Equipment	A6410.2	$ -			$ -
Event Promo	64204.46	$ 30,000.00	$ 30,000.00	$ 30,000.00	$ 30,000.00
Consult Contract	64204.46	$ 9,000.00	$ 9,000.00	$ 9,000.00	$ 9,000.00
TOTAL		**$ 39,000.00**	**$ 39,000.00**	**$ 39,000.00**	**$ 39,000.00**
VETERANS SERVICES					
Contractual Expense	A6510.4	$ -			$ -
TOTAL		**$ -**	**$ -**	**$ -**	**$ -**
PROGRAMS OF AGING					
Personal Services	A6772.1	$ -			$ -
Equipment	A6772.2	$ -			$ -
Contractual Expense	A6772.4	$ 1,550.00	$ 1,550.00	$ 1,550.00	$ 1,550.00
TOTAL		**$ 1,550.00**	**$ 1,550.00**	**$ 1,550.00**	**$ 1,550.00**
Total Economic Assistance and Opportunity		**$ 40,550.00**	**$ 40,550.00**	**$ 40,550.00**	**$ 40,550.00**

GENERAL FUND APPROPRIATIONS -- CULTURE AND RECREATION					
Accounts	**Code**	**2024 Budget**	**2025 Tentative**	**2025 Preliminary**	**2025 Adopted**
PARKS					
Personal Services 1	A7110.1	$ 36,950.00	$ 17,760.00	$ 17,760.00	$ 17,760.00
Personal Services 2	A7110.1		$ 21,840.00	$ 21,840.00	$ 21,840.00
Equipment	A7110.2	$ 65,000.00	$ 30,000.00	$ 30,000.00	$ 30,000.00
Contractual Expense	A7110.4	$ 7,500.00	$ 10,000.00	$ 10,000.00	$ 10,000.00
TOTAL		**$ 109,450.00**	**$ 79,600.00**	**$ 79,600.00**	**$ 79,600.00**
JAY PLAYGROUND					
Contractual Expense	A7140.4	$ -			$ -
TOTAL		$ -			**$ -**
JOINT REC. PROJECT					
Contractual Expense	A7140.4	$ -			$ -
TOTAL		**$ -**	**$ -**	**$ -**	**$ -**
GROVE ENHANCEMENT					
Contractual Expense	A7180.4	$ -			$ -
TOTAL		**$ -**	**$ -**	**$ -**	**$ -**
BAND CONCERTS					
Contractual Expense-R*	A7270.4	$ 1,500.00	$ 7,500.00	$ 7,500.00	$ 7,500.00
TOTAL		**$ 1,500.00**	**$ 7,500.00**	**$ 7,500.00**	**$ 7,500.00**
YOUTH PROGRAM					
Personal Services	A7310.1	$ 17,500.00	$ 15,000.00	$ 15,000.00	$ 15,000.00
Equipment	A7310.2	$ -			$ -
Contractual Expense	A7310.4	$ 6,000.00	$ 4,000.00	$ 4,000.00	$ 4,000.00
TOTAL		**$ 23,500.00**	**$ 19,000.00**	**$ 19,000.00**	**$ 19,000.00**
LIBRARY					
Contractual Expense	A7410.4	$ 17,500.00	$ 20,000.00	$ 20,000.00	$ 20,000.00
TOTAL		**$ 17,500.00**	**$ 20,000.00**	**$ 20,000.00**	**$ 20,000.00**
HISTORIAN					
Personal Services	A7510.1	$ 1,550.00	$ 1,600.00	$ 1,600.00	$ 1,600.00
Equipment	A7510.2	$ 1,500.00	$ 1,500.00	$ 1,500.00	$ 1,500.00
Contractual Expense	A7510.4	$ 1,000.00	$ 1,000.00	$ 1,000.00	$ 1,000.00
TOTAL		**$ 4,050.00**	**$ 4,100.00**	**$ 4,100.00**	**$ 4,100.00**
Total Culture & Recreation		**$ 156,000.00**	**$ 130,200.00**	**$ 130,200.00**	**$ 130,200.00**

GENERAL FUND APPROPRIATIONS -- HOME AND COMMUNITY SUPPORT					
Accounts	**Code**	**2024 Budget**	**2025 Tentative**	**2025 Preliminary**	**2025 Adopted**
PLANNING					
Personal Services	A8020.1	$ 1,200.00	$ 1,200.00	$ 1,200.00	$ 1,200.00
Equipment	A8020.2	$ -			$ -
Contractual Expense	A8020.4	$ 1,500.00	$ 1,500.00	$ 1,500.00	$ 1,500.00
TOTAL		**$ 2,700.00**	**$ 2,700.00**	**$ 2,700.00**	**$ 2,700.00**
REFUSE & GARBAGE					
Contractual Expense	A8160.4	$ 1,500.00	$ 3,000.00	$ 3,000.00	$ 3,000.00
TOTAL		**$ 1,500.00**	**$ 3,000.00**	**$ 3,000.00**	**$ 3,000.00**
BEAUTIFICATION					
Contractual Expense-R*	A8510.4	$ -			$ -
		$ -			**$ -**
Total Home & Community		**$ 4,200.00**	**$ 5,700.00**	**$ 5,700.00**	**$ 5,700.00**

GENERAL FUND APPROPRIATIONS -- UNDISTRIBUTED					
Accounts	**Code**	**2024 Budget**	**2025 Tentative**	**2025 Preliminary**	**2025 Adopted**
Employee Benefits					
State Retirement	A9010.8	$ 37,550.00	$ 40,000.00	$ 40,000.00	$ 40,000.00
Social Security	A9030.8	$ 37,750.00	$ 39,500.00	$ 39,800.00	$ 39,800.00
Worker's Compensation	A9040.8	$ -		$ 45,000.00	$ 45,000.00
Unemployment Insurance	A9050.8	$ -			$ -
Disability Insurance	A9055.8	$ 275.00	$ 275.00	$ 275.00	$ 275.00
Hospital and Medical Insurance	A9060.8	$ 138,000.00	$ 138,000.00	$ 138,000.00	$ 138,000.00
TOTAL		**$ 213,575.00**	**$ 217,775.00**	**$ 263,075.00**	**$ 263,075.00**
Debt Service Principal					
Bond Anticipation	A9730.6	$ -			$ -
TOTAL		**$ -**	**$ -**	**$ -**	**$ -**
Interest					
Bond Anticipation	A9730.7	$ -			$ -
TOTAL		**$ -**	**$ -**	**$ -**	**$ -**
Total Debt. Service	**A9899**	**$ -**	**$ -**	**$ -**	**$ -**

GENERAL FUND APPROPRIATIONS -- UNDISTRIBUTE			0	0	0
Accounts	**Code**	**2024 Budget**	**2025 Tentative**	**2025 Preliminary**	**2025 Adopted**
Interfund Transfers					
Transfer to:					
Other Funds	A9901.9	$ -			$ -
TOTAL		**$ 1,135,383.00**	**$ 569,260.00**	**$ 1,153,761.40**	**$ 1,153,761.40**
Total Undistributed		**$ 213,575.00**	**$ 217,775.00**	**$ 263,075.00**	**$ 263,075.00**
Total Appropriations		**$ 1,348,958.00**	**$ 787,035.00**	**$ 1,416,836.40**	**$ 1,416,836.40**

GENERAL FUND -- ESTIMATED REVENUES					
Accounts	**Code**	**2024 Budget**	**2025 Tentative**	**2025 Preliminary**	**2025 Adopted**
Other Tax Items					
Real Property Taxes Prior Years	A1020	$ 1,500.00	$ 1,500.00	$ 1,500.00	$ 1,500.00
Other Payments in Lieu of	A1081	$ -			$ -
Interest & Penalties on Real Property Taxes	A1090	$ 8,000.00	$ 8,500.00	$ 8,500.00	$ 8,500.00
Non-Property Tax Distribution by County	A1120	$ 120,000.00	$ 120,000.00	$ 120,000.00	$ 120,000.00
Francises Fees	A1170	$ 30,000.00	$ 30,000.00	$ 30,000.00	$ 30,000.00
TOTAL		**$ 159,500.00**	**$ 160,000.00**	**$ 160,000.00**	**$ 160,000.00**

DEPARTMENT INCOME					
Tax Collection Fees (Not Interest on Taxes	**A1232**	$ -			$ -
Clerk Fees	A1255	$ 750.00	$ 1,000.00	$ 1,000.00	$ 1,000.00
Dog Control Fees	A1550	$ 50.00	$ 50.00	$ 50.00	$ 50.00
Park & Recreation Charges	A2001	$ -			$ -
Planning Board Fees	A2115	$ 750.00	$ 500.00	$ 500.00	$ 500.00
Tax and Assessment Services for Other Govt.	A2210	$ -			$ -
DEPARTMENT INCOME					
TOTAL		**$ 1,550.00**	**$ 1,550.00**	**$ 1,550.00**	**$ 1,550.00**

GENERAL FUND -- ESTIMATED REVENUES					
Accounts	**Code**	**2024 Budget**	**2025 Tentative**	**2025 Preliminary**	**2025 Adopted**
Programs for Aging-Other Gov'ts	**A2351**	$ -			
Youth Rec Serv. Other Gov't	**A2350**	$ 1,500.00	$ 1,500.00	$ 1,500.00	$ 1,500.00
TOTAL	**2380**	**$ 1,500.00**	**$ 1,500.00**	**$ 1,500.00**	**$ 1,500.00**
USE OF MONEY AND PROPERTY					
Interest and Earnings	**A2401**	$ 70,000.00	$ 70,000.00	$ 70,000.00	$ 70,000.00
Rental of Real Property	A2410	$ 11,400.00	$ 11,400.00	$ 11,400.00	$ 11,400.00
Commissions	**A2450**	$ -			$ -
TOTAL		**$ 81,400.00**	**$ 81,400.00**	**$ 81,400.00**	**$ 81,400.00**
LICENSES & PERMITS					
Games of Chance License	A2530	$ -			$ -
Bingo License	A2540	$ -			$ -
Dog License	A2544	$ 150.00	$ 150.00	$ 150.00	$ 150.00
Licenses & Permits	A2555	$ 15,000.00	$ 18,700.00	$ 18,700.00	$ 18,700.00
TOTAL		**$ 15,150.00**	**$ 18,850.00**	**$ 18,850.00**	**$ 18,850.00**
FINES & FOREITURES					
Fines & Forfeited Bail	A2610	$ 1,500.00	$ 1,500.00	$ 1,500.00	$ 1,500.00
Fines & Pen Dog Cases	A2611	$ -			$ -
Forfeiture of Deposits	A2620	$ -			$ -
TOTAL		**$ 1,500.00**	**$ 1,500.00**	**$ 1,500.00**	**$ 1,500.00**

Accounts	Code	2024 Budget	2025 Tentative	2025 Preliminary	2025 Adopted
SALES OF PROPERTY AND COMPENSATION FOR LOSS					
Sale of Forest Products	A2652	$ 2,500.00	$ 2,500.00	$ 2,500.00	$ 2,500.00
Minor Sales, Other	A2655	$ -			$ -
Sales of Real Property	A2660	$ -			$ -
Sales of Equipment	A2665	$ -			$ -
Insurance Recoveries	A2680	$ 20,000.00	$ 15,000.00	$ 15,000.00	$ 15,000.00
TOTAL		**$ 22,500.00**	**$ 17,500.00**	**$ 17,500.00**	**$ 17,500.00**
MISCELLANEOUS					
Refunds of Prior Years Expenditures	***A2701***	$ -			$ -
Gifts and Donations	**A2705**	$ 2,500.00	$ 2,400.00	$ 2,400.00	$ 2,400.00
Endowment and Trust Fund Income	A2755	$ -			$ -
Roost	2089.1	$ 98,000.00	$ 100,000.00	$ 100,000.00	$ 100,000.00
Other Unclassified Revenues	A2770	$ 500.00	$ 500.00	$ 500.00	$ 500.00
TOTAL		**$ 101,000.00**	**$ 102,900.00**	**$ 102,900.00**	**$ 102,900.00**
INTERFUND REVENUE					
Interfund Revenue	**A2801**	$ -			$ -
TOTAL		$ -			$ -
STATE AID					
AIM	**A2750**	$ 25,000.00	$ 25,000.00	$ 25,000.00	$ 25,000.00
Mortgage Tax	A3005	$ 80,000.00	$ 60,000.00	60000	$ 60,000.00
Tax Map Assessments	A3040	$ -			$ -
Insect Control	A3468	$ -			$ -
Youth Programs	A3820	$ -			$ -
TOTAL		**$ 105,000.00**	**$ 85,000.00**	**$ 85,000.00**	**$ 85,000.00**

GENERAL FUND -- ESTIMATED REVENUES					
Accounts	**Code**	**2024 Budget**	**2025 Tentative**	**2025 Preliminary**	**2025 Adopted**
INTERFUND TRANSFER					
Interfund Transfers	A5031	$ -			$ -
TOTAL		$ -			$ -
Estimated Revenues Total		**$ 489,100.00**	**$ 470,200.00**	**$ 470,200.00**	**$ 470,200.00**

Highway Appropriations					
Accounts	**Code**	**2024 Budget**	**2025 Tentative**	**2025 Preliminary**	**2025 Adopted**
GENERAL REPAIRS					
Personal Services	DA5110.1	$ 259,200.00	$ 275,000.00	$ 275,510.00	$ 275,510.00
Contractual Expense	DA5110.4	$ 70,000.00	$ 70,000.00	$ 70,000.00	$ 70,000.00
TOTAL		**$ 329,200.00**	**$ 345,000.00**	**$ 345,510.00**	**$ 345,510.00**
IMPROVEMENTS					
Capital Outlay	DA5112.02	$ 306,591.00	$ 261,240.00	$ 261,240.00	$ 261,240.00
TOTAL		**$ 306,591.00**	**$ 261,240.00**	**$ 261,240.00**	**$ 261,240.00**
BRIDGES					
Personal Services	DA5120.1	$ -			$ -
Capital Outlay	DA5120.2	$ -			$ -
Contractual Expense	DA5120.4	$ -			$ -
TOTAL		**$ -**	**$ -**	**$ -**	**$ -**
MACHINERY					
Personal Services	DA5130.1	$ -			$ -
Equipment	DA5130.2	$ 110,000.00	$ 440,000.00	$ 110,000.00	$ 110,000.00
Contractual Expense	DA5130.4	$ 135,000.00	$ 135,000.00	$ 135,000.00	$ 135,000.00
TOTAL		**$ 245,000.00**	**$ 575,000.00**	**$ 245,000.00**	**$ 245,000.00**
BRUSH & WEEDS					
Personal Services	DA5140.1	$ -			$ -
Equipment	DA5140.2	$ -			$ -
Contractual Expense	DA5140.4	$ 2,500.00	$ 2,500.00	$ 2,500.00	$ 2,500.00
TOTAL		**$ 2,500.00**	**$ 2,500.00**	**$ 2,500.00**	**$ 2,500.00**
SNOW REMOVAL (Town Highways)					
Personal Services	DA5142.1	$ 195,000.00	$ 205,120.00	$ 205,500.00	$ 205,500.00
Contractual Expense	DA5142.4	$ 158,000.00	$ 160,000.00	$ 160,000.00	$ 160,000.00
TOTAL		**$ 353,000.00**	**$ 365,120.00**	**$ 365,500.00**	**$ 365,500.00**

HIGHWAY APPROPRIATIONS TOWNWIDE					
Accounts	**Code**	**2024 Budget**	**2025 Tentative**	**2025 Preliminary**	**2025 Adopted**
SERVICES FOR OTHER GOVERNMENTS					
Personal Services	DA5148.1	$ 51,750.00	$ 54,525.00	$ 54,700.00	$ 54,700.00
Contractual Expense	DA5148.4	$ 42,000.00	$ 44,000.00	$ 44,000.00	$ 44,000.00
TOTAL		**$ 93,750.00**	**$ 98,525.00**	**$ 98,700.00**	**$ 98,700.00**
EMPLOYEE BENEFITS					
State Retirement	DA9010.8	$ 42,225.00	$ 45,000.00	$ 45,000.00	$ 45,000.00
Social Security	DA9030.8	$ 40,000.00	$ 43,000.00	$ 43,000.00	$ 43,000.00
Unemployment Insurance	DA9050.8	$ -			$ -
Disability Insurance	DA9055.80	$ 250.00	$ 250.00	$ 250.00	$ 250.00
Hospital & Medical Insurance	DA9060.8	$ 120,750.00	$ 125,000.00	$ 125,000.00	$ 125,000.00
TOTAL		**$ 203,225.00**	**$ 213,250.00**	**$ 213,250.00**	**$ 213,250.00**
OTHER EMP BENEFITS					
Longevity	51101.2.1	$ 1,400.00	$ 1,600.00	**$ 1,600.00**	$ 1,600.00
Clothing Allowance	51101.2.1	$ 2,700.00	$ 3,000.00	**$ 3,000.00**	$ 3,000.00
Safety Equipment	9089.9	$ 2,700.00	$ 3,000.00	$ 3,000.00	$ 3,000.00
SPECIAL ITEMS		$ -			$ -
Judge/Claims	1930.4	$ 4,000.00	$ 4,000.00	$ 4,000.00	$ 4,000.00
TOTAL		**$ 10,800.00**	**$ 11,600.00**	**$ 11,600.00**	**$ 11,600.00**
Debt Service					
BAN - Principal	9710.6	$ 40,000.00	$ 201,236.00	$ 40,000.00	$ 40,000.00
BAN - Interest	9710.7	$ -	$ 23,850.00	$ 23,850.00	$ 23,850.00
TOTAL		**$ 40,000.00**	**$ 225,086.00**	**$ 63,850.00**	**$ 63,850.00**
Transfer to:					
Capital Project Fund	DA9950.9	$ 50,000.00	$ 50,000.00	$ 50,000.00	$ 50,000.00
TOTAL		**$ 50,000.00**	**$ 50,000.00**	**$ 50,000.00**	**$ 50,000.00**
Appropriations Total		**$ 1,634,066.00**	**$ 2,147,321.00**	**$ 1,657,150.00**	**$ 1,657,150.00**

HIGHWAY REVENUES -- TOWNWIDE

Accounts	Code	2024 Budget	2025 Tentative	2025 Preliminary	2025 Adopted
LOCAL SOURCES					
Non-Property Tax Distribution by County	DA1120	$ -			$ -
Services for Other Governments	DA2300-2399	$ 150,000.00	$ 150,000.00	$ 150,000.00	$ 150,000.00
Interest and Earnings	DA2401	$ 45,000.00	$ 45,000.00	$ 45,000.00	$ 45,000.00
Rental of Equipment -	DA2414	$ 15,000.00	$ 15,000.00	$ 15,000.00	$ 15,000.00
Sales of Scrap & Excess	DA2650	$ 500.00	$ 200,000.00	$ 200,000.00	$ 200,000.00
Unclassified	DA2770	$ 500.00	$ 500.00	$ 500.00	$ 500.00
Insurance Recovery	DA2680	$ 30,250.00	$ 8,000.00	$ 8,000.00	$ 8,000.00
Interfund Revenues	DA2801	$ -			$ -
TOTAL		**$ 241,250.00**	**$ 418,500.00**	**$ 418,500.00**	**$ 418,500.00**
STATE AID					
Consolidated Highway	DA3501-3099B	$ 306,591.00	$ 261,240.00	$ 261,240.00	$ 261,240.00
State Aid - General Government	DA3089	$ -			$ -
TOTAL		**$ 306,591.00**	**$ 261,240.00**	**$ 261,240.00**	**$ 261,240.00**
FEDERAL AID - SPECIFY					
Interfund Transfer	DA5031	$ -			$ -
TOTAL					
Revenues Total		**$ 547,841.00**	**$ 679,740.00**	**$ 679,740.00**	**$ 679,740.00**

Au Sable Forks Water District SW1					
DISTRICT APPROPRIATIONS PART I AND PART II					
Accounts	**Code**	**2024 Budget**	**2025 Tentative**	**2025 Preliminary**	**2025 Adopted**
ADMINISTRATION					
Personal Services	SW8310.1	$ 2,855.00	$ 2,925.00	$ 2,925.00	$ 2,925.00
Equipment	SW8310.2	$ 5,000.00	$ 2,850.00	$ 2,850.00	$ 2,850.00
Contractual Expense	SW8310.4	$ 4,000.00	$ 7,500.00	$ 7,500.00	$ 7,500.00
TOTAL		**$ 11,855.00**	**$ 13,275.00**	**$ 13,275.00**	**$ 13,275.00**
SOURCE OF SUPPLY, POWER & PUMPING					
Personal Services	SW8320.1	$ -			$ -
Equipment	SW8320.2	$ -			$ -
Contractual Expense	SW8320.4	$ 18,000.00	$ 16,000.00	$ 16,000.00	$ 16,000.00
TOTAL		**$ 18,000.00**	**$ 16,000.00**	**$ 16,000.00**	$ 16,000.00
PURIFICATION					
Personal Services	SW8330.1	$ -			$ -
Equipment	SW8330.2	$ -			$ -
Contractual Expense	SW8330.4	$ 5,500.00	$ 5,500.00	$ 5,500.00	$ 5,500.00
TOTAL		**$ 5,500.00**	**$ 5,500.00**	**$ 5,500.00**	**$ 5,500.00**
TRANSMISSION AND DISTRIBUTION					
Personal Services	SW8340.1	$ 24,000.00	$ 27,600.00	$ 27,650.00	$ 27,650.00
Longevity			$ -	$ -	$ -
Equipment	SW8340.2	$ -			$ -
Contractual Expense	SW8340.4	$ 500.00	$ 4,500.00	$ 4,500.00	$ 4,500.00
TOTAL		**$ 24,500.00**	**$ 32,100.00**	**$ 32,150.00**	**$ 32,150.00**
EMPLOYEE BENEFITS					
State Retirement	SW9010.8	$ 1,500.00	$ 1,500.00	$ 1,500.00	$ 1,500.00
Social Security	SW9030.8	$ 2,550.00	$ 2,200.00	$ 2,200.00	$ 2,200.00
Disability Insurance	SW9055.8	$ 400.00	$ 100.00	$ 100.00	$ 100.00
Hospital & Medical Insurance	SW9060.8	$ 3,000.00	$ 2,500.00	$ 2,500.00	$ 2,500.00
TOTAL		**$ 7,450.00**	**$ 6,300.00**	**$ 6,300.00**	**$ 6,300.00**
Transfer to Capital Projects	**SW9950.9**	$ -	$ 5,000.00	$ 5,000.00	$ 5,000.00
SPECIAL ITEMS					
Attorney	**1420.4**	$ 2,500.00	$ 2,500.00	**$ 2,500.00**	$ 2,500.00
Judge/Claims	**1930.4**	$ 1,000.00	$ 1,000.00	**$ 1,000.00**	$ 1,000.00
Total		**$ 3,500.00**	**$ 3,500.00**	**$ 3,500.00**	**$ 3,500.00**
Total Part 1 Au Sable Forks Water		**$ 70,805.00**	**$ 81,675.00**	**$ 81,725.00**	**$ 81,725.00**

Au Sable Forks Water District SW1					
DISTRICT APPROPRIATIONS PART I AND PART II					
Accounts	**Code**	**2024 Budget**	**2025 Tentative**	**2025 Preliminary**	**2025 Adopted**
DEBT SERVICE PRINCIPAL					
Serial Bonds	SW9710.6	$ 30,000.00	$ 30,000.00	$ 30,000.00	$ 30,000.00
Statutory Bonds	SW9720.6	$ -			$ -
Bond Anticipation	SW9730.6	$ -			$ -
TOTAL		**$ 30,000.00**	**$ 30,000.00**	**$ 30,000.00**	**$ 30,000.00**
INTEREST					
Serial Bonds	SW9710.7	$ 21,489.00	$ 21,366.00	$ 21,366.00	$ 21,366.00
Statuatory Bonds	SW9720.7	$ -			$ -
Bond Anticipation	SW9730.7	$ -			$ -
TOTAL		**$ 21,489.00**	**$ 21,366.00**	**$ 21,366.00**	**$ 21,366.00**

Total Part1 + Transfer		**$ 70,805.00**	**$ 81,675.00**	**$ 81,725.00**	**$ 81,725.00**
Total Part II		**$ 51,489.00**	**$ 51,366.00**	**$ 51,366.00**	**$ 51,366.00**
Total Part I & Part II		**$ 122,294.00**	**$ 133,041.00**	**$ 133,091.00**	**$ 133,091.00**

Au Sable Forks Water District SW1					
ESTIMATED WATER REVENUES					
Accounts	**Code**	**2024 Budget**	**2025 Tentative**	**2025 Preliminary**	**2025 Adopted**
Unmetered Water Sales	SW2142	$ 17,700.00	$ 17,450.00	$ 17,450.00	$ 17,450.00
Water Service Charges	SW2144	$ -	$ 40.00	$ 40.00	$ 40.00
Interest & Penalty	SW2148	$ 50.00	$ 50.00	$ 50.00	$ 50.00
Water Services Other Governments	SW2378	$ -			$ -
Debt Charges Other Governments	SW2392	$ -			$ -
Interest & Earnings	SW2401	$ 5,000.00	$ 5,000.00	$ 5,000.00	$ 5,000.00
Insurance Recoveries	SW2680	$ 1,725.00	$ 100.00	$ 100.00	$ 100.00
Miscellaneous Revenues	SW2770	$ -			$ -
Total Est. Revenue		**$ 24,475.00**	**$ 22,640.00**	**$ 22,640.00**	**$ 22,640.00**

Jay Water District SW2-Appropriations-Part 1					
Accounts	**Code**	**2024 Budget**	**2025 Tentative**	**2025 Preliminary**	**2025 Adopted**
Adminstration					
Personal Services	SW8310.1	$ 2,855.00	$ 2,925.00	2925	$ 2,925.00
Equipment	SW8310.2	$ 12,000.00	$ 2,900.00	$ 2,900.00	$ 2,900.00
Contractual Expense	SW8310.4	$ 5,000.00	$ 11,000.00	$ 11,000.00	$ 11,000.00
Total		**$ 19,855.00**	**$ 16,825.00**	**$ 16,825.00**	**$ 16,825.00**
SPECIAL ITEMS					
Attorney	1420.4	$ 100.00	**$ 100.00**	**$ 100.00**	$ 100.00
Judge/Claims	**1930.4**	$ 1,500.00	$ 1,500.00	$ 1,500.00	$ 1,500.00
Total		**$ 1,600.00**	**$ 1,600.00**	**$ 1,600.00**	**$ 1,600.00**
Source Power Pump					
Personal Services	SW8320.1	$ 24,000.00	$ 27,600.00	$ 27,650.00	$ 27,650.00
Contractual Expense	SW8320.4	$ 11,000.00	$ 11,000.00	$ 11,000.00	$ 11,000.00
Total		**$ 35,000.00**	**$ 38,600.00**	**$ 38,650.00**	**$ 38,650.00**
Purification					
Personal Services	SW8330.1	$ -			
Contractual Expense	SW8330.4	$ 4,500.00	$ 4,000.00	$ 4,000.00	$ 4,000.00
Total		**$ 4,500.00**	**$ 4,000.00**	**$ 4,000.00**	**$ 4,000.00**
Trans/Distribution					
Personal Services	SW8340.1	$ -			
Contractual Expense	SW8340.4	$ 2,500.00	$ 2,500.00	$ 2,500.00	$ 2,500.00
Total		**$ 2,500.00**	**$ 2,500.00**	**$ 2,500.00**	**$ 2,500.00**
State Retirement	SW9010.8	$ 1,500.00	$ 1,500.00	$ 1,500.00	$ 1,500.00
Social Security	SW9030.8	$ 2,525.00	$ 2,120.00	$ 2,200.00	$ 2,200.00
Disability	SW9055.8	$ 50.00	$ 50.00	$ 50.00	$ 50.00
Medical Insurance	SW9060.8	$ 3,000.00	$ 2,500.00	$ 2,500.00	$ 2,500.00
Total		**$ 7,075.00**	**$ 6,170.00**	**$ 6,250.00**	**$ 6,250.00**
Transfer to Capital	**SW9950.9**	$ -	**$ 5,000.00**	**$ 5,000.00**	$ 5,000.00
Total Part 1 SW2		**$ 70,530.00**	**$ 74,695.00**	**$ 74,825.00**	**$ 74,825.00**

Jay Water District SW2-Appropriations-Part 2					
Accounts	**Code**	**2024 Budget**	**2025 Tentative**	**2025 Preliminary**	**2025 Adopted**
Debt Service Principal					
Serial Bonds	SW9710.6	$ 8,600.00	$ 8,600.00	$ 8,600.00	$ 8,600.00
Statutory Bonds	SW9720.6	$ -			
Bond Anticipation	SW9730.6	$ -			
TOTAL		**$ 8,600.00**	**$ 8,600.00**	**$ 8,600.00**	**$ 8,600.00**
Interest					
Serial Bonds	SW9710.7	$ 3,600.00	$ 3,106.00	$ 3,106.00	$ 3,106.00
Statutory Bonds	SW9720.7	$ -			
Bond Anticipation	SW9730.7	$ -			
Total		**$ 3,600.00**	**$ 3,106.00**	**$ 3,106.00**	**$ 3,106.00**
TOTAL PART 2		**$ 12,200.00**	**$ 11,706.00**	**$ 11,706.00**	**$ 11,706.00**
					$ 23,412.00
Total Part 1 & Part 2 SW2		**$ 82,730.00**	**$ 86,401.00**	**$ 86,531.00**	**$ 86,531.00**

Jay Water SW2 ESTIMATED WATER REVENUES					
Accounts	**Code**	**2024 Budget**	**2025 Tentative**	**2025 Preliminary**	**2025 Adopted**
Unmetered Water Sales	SW2142	$ 29,420.00	$ 28,190.00	$ 28,190.00	$ 28,190.00
Water Service Charges	SW2144	$ 2,000.00	$ 3,000.00	$ 3,000.00	$ 3,000.00
Interest & Penalties	SW2148	$ 10.00	$ 10.00	$ 10.00	$ 10.00
Interest & Earnings	SW2401	$ 2,000.00	$ 2,000.00	$ 2,000.00	$ 2,000.00
Misc. Refunds	SW2701	$ -			$ -
Misc.Revenues	SW2770	$ -			$ -
Total		**$ 33,430.00**	**$ 33,200.00**	**$ 33,200.00**	**$ 33,200.00**

Upper Jay Water District SW3 - Appropriations Part 1					
Accounts	**Code**	**2024 Budget**	**2025 Tentative**	**2025 Preliminary**	**2025 Adopted**
Adminstration					
Personal Services	SW8310.1	$ 2,855.00	$ 2,925.00	$ 2,925.00	$ 2,925.00
Equipment	SW8310.2	$ 12,000.00	$ 2,840.00	$ 2,840.00	$ 2,840.00
Contractual Expense	SW8310.4	$ 4,500.00	$ 7,500.00	$ 7,500.00	$ 7,500.00
Total		**$ 19,355.00**	**$ 13,265.00**	**$ 13,265.00**	**$ 13,265.00**
Power & Pumping					
Personal Services	SW8320.1	$ 24,000.00	$ 27,600.00	$ 27,650.00	$ 27,650.00
Equipment	SW8320.2	$ -			$ -
Contractual Expense	**SW8320.4**	$ 12,500.00	$ 12,500.00	$ 12,500.00	$ 12,500.00
Total		**$ 36,500.00**	**$ 40,100.00**	**$ 40,150.00**	**$ 40,150.00**
Purification					
Personal Services	SW8330.1	$ -			$ -
Equipment	SW8330.2	$ -			$ -
Contractual Expense	SW8330.4	$ 4,000.00	$ 4,000.00	$ 4,000.00	$ 4,000.00
Total		**$ 4,000.00**	**$ 4,000.00**	**$ 4,000.00**	**$ 4,000.00**
Special Items					
Attorney	1420.4	$ 100.00	$ 100.00	**$ 100.00**	$ 100.00
Transfer to Capital			$ 5,000.00	**$ 5,000.00**	$ 5,000.00
Judge/Claim	1930.4	$ 150.00	$ 1,000.00	$ 1,000.00	$ 1,000.00
Total		**$ 250.00**	**$ 6,100.00**	**$ 6,100.00**	**$ 6,100.00**
Transmission & Distribution					
Personal Services	SW8340.1	$ -			$ -
Equipment	SW8340.2	$ -			$ -
Contractual Expense	SW8340.4	$ 2,000.00	$ 2,000.00	$ 2,000.00	$ 2,000.00
Total		**$ 2,000.00**	**$ 2,000.00**	**$ 2,000.00**	**$ 2,000.00**
State Retirement	SW9010.8	$ 1,500.00	$ 1,500.00	$ 1,500.00	$ 1,500.00
Social Security	SW9030.8	$ 2,525.00	$ 2,120.00	$ 2,200.00	$ 2,200.00
Disability	SW9055.8	$ 25.00	$ 25.00	$ 25.00	$ 25.00
Medical Insurance	SW9060.8	$ 3,000.00	$ 2,500.00	$ 2,500.00	$ 2,500.00
Total		**$ 7,050.00**	**$ 6,145.00**	**$ 6,225.00**	$ 6,225.00
Total Part 1 SW3		**$ 69,155.00**	**$ 71,610.00**	**$ 71,740.00**	**$ 71,740.00**
Debt Service Principal					
Serial Bonds	SW9710.6	$ 60,226.00	$ 61,028.00	$ 61,028.00	$ 61,028.00
Bond Anticipation	SW9730.6	$ -			$ -
Total		**$ 60,226.00**	**$ 61,028.00**	**$ 61,028.00**	**$ 61,028.00**
Interest					
Serial Bonds	SW9710.7	$ -			$ -
Bond Anticipation	SW9730.7	$ -			$ -
Total		$ -	$ -	$ -	$ -

Total Part 2		$ 60,226.00	$ 61,028.00	$ 61,028.00	$ 61,028.00
Total Part 1 & Part 2 SW3		$ 129,381.00	$ 132,638.00	$ 132,768.00	$ 132,768.00

Upper Jay Water SW3					
ESTIMATED WATER REVENUES					
Accounts	**Code**	**2024 Budget**	**2025 Tentative**	**2025 Preliminary**	**2025 Adopted**
Unmetered Water Sales	SW2142	$ 15,700.00	$ 20,730.00	$ 20,730.00	$ 20,730.00
Interest & Penalties	SW2148	$ 100.00	$ 50.00	$ 50.00	$ 50.00
Water Service charges	SW2144	$ 250.00	$ 250.00	$ 250.00	$ 250.00
Interest & Earnings	SW2401	$ 3,500.00	$ 3,500.00	$ 3,500.00	$ 3,500.00
Refunds	SW2701	$ -			$ -
Misc. Revenues	SW2770	$ -			$ -
Interfund Transfer	SW5031	$ -			$ -
Total Est. Revenues		**$ 19,550.00**	**$ 24,530.00**	**$ 24,530.00**	**$ 24,530.00**

Au Sable Forks Sewer District Appropriations					
Accounts	**Code**	**2024 Budget**	**2025 Tentative**	**2025 Preliminary**	**2025 Adopted**
SANITATION					
Admin. Personal Services	SS8110.1	$ 3,750.00	$ 3,760.00	3760	$ 3,760.00
Equipment	SS8110.2	$ 20,000.00	$ 18,500.00	$ 18,500.00	$ 18,500.00
Contractual Expense	SS8110.4	$ 7,000.00	$ 11,000.00	$ 11,000.00	$ 11,000.00
Total		**$ 30,750.00**	**$ 33,260.00**	**$ 33,260.00**	**$ 33,260.00**
Sanitary Sewer					
Personal Services	SS8120.1	$ 71,600.00	$ 81,550.00	$ 82,500.00	$ 82,500.00
Equipment	SS8120.2	$ 4,000.00	$ -	$ -	$ -
Contractual Expense	SS8120.4	$ 5,000.00	$ 9,000.00	$ 9,000.00	$ 9,000.00
Total		**$ 80,600.00**	**$ 90,550.00**	**$ 91,500.00**	**$ 91,500.00**
Sewer Treat/Disp					
Contractual Expense	SS8130.4	$ 30,000.00	$ 30,000.00	$ 30,000.00	$ 30,000.00
Total		**$ 30,000.00**	**$ 30,000.00**	**$ 30,000.00**	**$ 30,000.00**
Special Items					
Attorney	SS1420.4	$ 150.00	**$ 500.00**	**$ 500.00**	$ 500.00
Judge/Claims	SS1930.4	$ -			$ -
Total		$ 150.00	$ 500.00	$ 500.00	$ 500.00
Employee Benefits					
State Retirement	SW9010.8	$ 4,500.00	$ 4,500.00	$ 4,500.00	$ 4,500.00
Social Security	SS9030.8	$ 7,025.00	$ 6,000.00	$ 6,200.00	$ 6,200.00
Disabulity			$ 50.00	$ 50.00	$ 50.00
Hospital/Medical Insurance	9060.8	$ 4,500.00	$ 4,500.00	$ 4,500.00	$ 4,500.00
Total Employee Benefits		**$ 16,025.00**	**$ 15,050.00**	**$ 15,250.00**	**$ 15,250.00**
Transfer to Capital	SS9950.9	$ 26,500.00	$ 5,000.00	$ 5,000.00	$ 5,000.00
TOTAL PART I		**$ 184,025.00**	**$ 174,360.00**	**$ 175,510.00**	**$ 175,510.00**
Debt Service Principal					
Serial Bonds	SS9710.6	$ 15,000.00	$ 15,000.00	$ 15,000.00	$ 15,000.00
Bond Anticipation	SS9730.6	$ -			$ -
Total		**$ 15,000.00**	**$ 15,000.00**	**$ 15,000.00**	**$ 15,000.00**
Debt Service Interest					
Serial Bonds	SS9710.7	$ 4,847.00	$ 3,966.00	$ 3,966.00	$ 3,966.00
Bond Anticipation	SS9730.7	$ -			$ -
Total		**$ 4,847.00**	**$ 3,966.00**	**$ 3,966.00**	**$ 3,966.00**
TOTAL PART II		**$ 19,847.00**	**$ 18,966.00**	**$ 18,966.00**	**$ 18,966.00**
TOTAL SS PART I & II		**$ 203,872.00**	**$ 193,326.00**	**$ 194,476.00**	**$ 194,476.00**

Au Sable Forks Sewer District Revenues					
Accounts	**Code**	**2024 Budget**	**2025 Tentative**	**2025 Preliminary**	**2025 Adopted**
Home & Community Services					
Sewer Rents	SS2120	$ 73,400.00	$ 72,800.00	$ 72,800.00	$ 72,800.00
Interest & Penalties	SS2128	$ 150.00	$ 150.00	$ 150.00	$ 150.00
Water Services Other Governments	SS2378	$ 12,000.00	$ 13,500.00	$ 13,500.00	$ 13,500.00
Use Of Money & Property					$ -
Interest & Earnings	SS2401	$ 3,000.00	$ 3,000.00	$ 3,000.00	$ 3,000.00
					$ -
Insurance Recoveries	SS2680	$ 2,500.00	$ 500.00	$ 500.00	$ 500.00
Total		**$ 91,050.00**	**$ 89,950.00**	**$ 89,950.00**	**$ 89,950.00**

Au Sable Forks Ambulance District SM					
Accounts	**Code**	**2024 Budget**	**2025 Tentative**	**2025 Preliminary**	**2025 Adopted**
Other Health					
Ambulance Contractual	SM4540.4	$ 411,000.00	$ 430,600.00	$ 430,600.00	$ 430,600.00
Total		**$ 411,000.00**	**$ 430,600.00**	**$ 430,600.00**	**$ 430,600.00**
Ambulance Reimbursement		$ 148,500.00		**$ 150,000.00**	$ 150,000.00
Revenue Total		**$ 148,500.00**	**$ -**	**$ 150,000.00**	**$ 150,000.00**

Au Sable Forks Fire District Appropriations					
Accounts	**Code**	**2024 Budget**	**2025 Tentative**	**2025 Preliminary**	**2025 Adopted**
Fire Prevention & Control SF1					
Fire Protection	SF3410.4	$ 250,562.00		$ 286,145.42	$ 286,145.42
					$ -
Total		**$ 250,562.00**	**$ -**	**$ 286,145.42**	**$ 286,145.42**

Jay Fire District					
Accounts	**Code**	**2024 Budget**	**2025 Tentative**	**2025 Preliminary**	**2025 Adopted**
Fire Prevention & Control SF2					
Fire Protection	SF3410.4	$ 196,000.00	$ 224,300.00	$ 224,300.00	$ 224,300.00
					$ -
Total		**$ 196,000.00**	**$ 224,300.00**	**$ 224,300.00**	**$ 224,300.00**

Upper Jay Fire District					
Accounts	**Code**	**2024 Budget**	**2025 Tentative**	**2025 Preliminary**	**2025 Adopted**
Fire Prevention & Control SF3					
Fire Protection	SF3410.4	$ 105,140.00	$ 110,881.00	$ 110,881.00	$ 110,881.00
					$ -
Total		**$ 105,140.00**	**$ 110,881.00**	**$ 110,881.00**	**$ 110,881.00**

Appendix O\

Engineering Report Certification

Engineering Report Certification

To Be Provided by the Professional Engineer Preparing the Report

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.

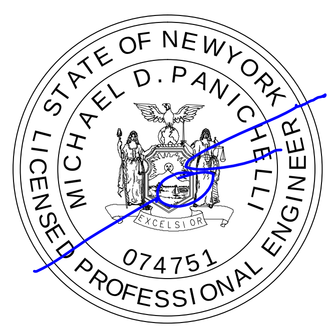
Title of Engineering Report: Town of Jay Water District Upgrades

Date of Report: 2/25/25

Professional Engineer's Name: Michael D. Panichelli, PE

Signature:

Date: 2/25/25



Registartion Expires 10.31.2026