APPENDIX B
North Fork Water Main Project: Hydrogeologic Analysis and Route Evaluation Study Report

Prepared by Suffolk County Water with input from CDM Smith

June, 2026

ENGINEERING REPORT
THE NORTH FORK WATER MAIN PROJECT

Hydrogeological analysis and route evaluation for the installation of a water main beginning at the intersection of Flanders Road and Whitebrook Drive in the Town of Southampton, NY and extending eastward to a connection point with the existing Suffolk County Water Authority owned and operated water distribution system within the Town of Southold, NY.

Suffolk County, New York Implementation Agency:
Suffolk County Water Authority
Oakdale, New York 11769

Joseph M. Pokorny, P.E. Deputy CEO of Operations

Prepared By:

Suffolk County Water Authority
PO Box 38
Oakdale, New York

Approved

Joseph M. Pokorny, P.E.
Deputy CEO of Operations
N.Y.S. P.E. License No. 070103

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ENGINEERING REPORT

I. Executive Summary

The Suffolk County Water Authority has been supplying potable water on the North Fork of Suffolk County since 1987. The unique hydrogeologic setting of the North Fork, combined with the ubiquity of agricultural land use and its associated high volume groundwater withdrawals present unique challenges to supplying water to that area. Historically, the Suffolk County Water Authority's approach to water supply on the North Fork has been site specific. The Suffolk County Water Authority has acquired properties, constructed wells, installed treatment facilities, and laid water mains in small increments to address limited, localized supply and quality issues. More recently, larger diameter mains have been strategically installed on the North Fork to connect these localized areas into one subregional system. While this strategy has enabled the Suffolk County Water Authority to effectively serve residents of the Town of Southold, the combination of a limited aquifer, significant groundwater contamination, and the continued increase in demand for public water makes it increasingly difficult to ensure an adequate supply during peak periods. During summer months when the population of the North Fork swells and water usage is at its maximum, storage tank levels drop to dangerously low levels. These reduced tank levels create low water system pressures which together limit the availability of water for public safety purposes. Under the right circumstances, during an extended summer heat wave, it would be possible that there would be little to no water available to fight a fire of any significance. The proposed construction of the North Fork water main and importing water from outside the North Fork hydrogeologic system is part of an overall resource sustainability strategy that will enable the Suffolk County Water Authority to improve aquifer conditions on the North Fork while at the same time ensuring its ability to meet present peak and future demands which in turn helps to improve public safety.

The construction of the North Fork water main offers a benefit to the residents of Southold by reducing the need for additional well fields and the demand from Suffolk County Water Authority wells currently in use. This decrease in Suffolk County Water Authority water withdrawals along with the importation of additional water from outside the local aquifer system allows for the gradual restoration and long-term preservation of the fragile aquifer within Southold. In addition, the water main can play an important role in mitigating the impacts of climate change on the aquifer and can be seen as a key step toward a more sustainable and resilient future for the town.

Climate change and saltwater encroachment are interlinked phenomena that have significant impacts on the environment and natural resources. Climate change causes sea levels to rise, which makes it easier for saltwater to infiltrate freshwater sources. As the sea level rises, it creates a pressure gradient that pushes saltwater into freshwater aquifers which can affect the quality and quantity of freshwater resources. Climate change and over-pumping are the primary drivers of saltwater encroachment. The North Fork water main will help preserve and restore the local aquifer, even when faced with changing climate conditions. This is because the water main will decrease the demand from Suffolk County Water Authority production wells and reduce the risk of over-pumping in the Town of Southold. Bringing water in from outside the North Fork hydrogeologic system will further help to preserve and restore the aquifer.

Besides chlorides, the North Fork aquifer has been significantly impacted by the presence of nitrates, pesticides, and emerging contaminants, specifically per- and polyfluoroalkyl substances (PFAS). The Suffolk County Water Authority has been required to install elaborate wellhead treatment systems and alter its well field operations in order to mitigate the impact of these contaminants. At the same time Suffolk County Water Authority public supply wells have been impacted by human activities on the North Fork, there is also a steady demand for public water throughout the area by residents previously reliant on private wells. These residents have expressed concerns about the quality of their well water and the public water supply provides insurance that their water is safe to consume. The installation of this new water main will help ensure that there is water available to these residents. In addition, this project will ecologically benefit the Town of Southold because it will help to preserve the limited aquifer on the North Fork, and it will, over time, help to improve the water quality of the aquifer for all users including farms and private well owners. It will also ensure the Suffolk County Water Authority's ability to continue to provide a safe and reliable source of public drinking water well into the future.

The ensuing analysis demonstrates the challenges faced by the Suffolk County Water Authority in supplying public water to the residents of the town of Southold. Three potential options are presented for the water main route. The analysis shows that the route, via Main Road, is the preferred alternative. The analysis also shows that the impact of transmitting water from the pine barrens to Southold will have little impact on the water table in either location. In fact, it is anticipated that the long-term improvements to the aquifer due to increased return recharge sourced from the transported water, will afford the ability to restore curtailed well operations. This

together with other future infrastructure improvements such as increases in system storage capacity, along with continued aggressive conservation programs, will contribute to ensuring adequate water supply for generations of Southold residents to come. The North Fork water main is an environmental positive for the township of Southold and its residents.

II. Objectives and Benefits

The primary objectives of the proposed water main installation to supply the Town of Southold are as follows:

1. Supplement the existing Suffolk County Water Authority system with water sources that have minimal impacts on the saltwater interface. Water brought to the area will replenish and rehabilitate the local aquifer system.

2. Create a substantial interconnection between the Southold system and the Suffolk County Water Authority distribution system to the west thereby increasing overall system reliability.

3. Provide a sufficient quantity of high-quality potable water to all current and future Suffolk County Water Authority customers within the Town of Southold for both domestic and public safety purposes.

4. Offset the future capital cost of purchasing land and developing multiple smaller well fields that will in all likelihood require elaborate treatment systems in order to remove contaminants.

In addition, the capacity provided by the water main will allow the Suffolk County Water Authority to reduce the cost associated with operating and maintaining numerous low-capacity wells, or in some cases, reduce the use or take well fields with costly water treatment systems off-line, that currently comprise the Southold Low water pressure zone.

III. Project Background and History

A. Background

Historically, most of the North Fork's residents and business owners have had their domestic water needs met via individual wells for each home or business. Since sufficient quantities of water for domestic use (approximately 5 to 10 gallons per minute) can be obtained virtually anywhere on Long Island, relying on individual domestic wells did not pose a quantity problem to the individual homeowner or to the water resources as a whole. The pumping of numerous low-capacity wells, spread out over the length and breadth of the North Fork did not result in any negative quantity impacts to the aquifer system. However, water quality has always been a common problem with shallow domestic wells. As population has increased, the potential for contamination in private wells has also increased. Public water purveyors have had to supply routinely monitored, high-quality potable water, often requiring extensive treatment, from a few centralized locations at higher capacities than private wells can supply, impacts to the aquifer system have resulted which are ongoing and must be monitored closely. Nowhere is this more evident than on the North Fork. Most public potable water had historically been supplied to North Fork residents from the Riverhead Water District and from the Greenport Water District. A myriad of small community and non-community public water systems also supplied residents with water. In 1987, the Suffolk County Water Authority acquired one of these smaller community systems, Captain Kidd Water Company, and thus began supplying potable water to North Fork residents. Over the next several years, this system was expanded and upgraded, and new treatment facilities and wells were constructed. In 1997, the Suffolk County Water Authority acquired the facilities of the Greenport Water District (outside the village), thus increasing its presence on the North Fork. Since the Greenport acquisition, numerous supply wells, water mains, and treatment facilities have been added, and the Suffolk County Water Authority now provides potable water to almost 10,000 service connections on the North Fork, via a network of 61 wells, 3 storage tanks, and 208 miles of water main. Figure 1 shows the extent of the Suffolk County Water Authority water supply system on the North Fork. It should be noted that the North Fork water supply and distribution system is isolated from the rest of the much larger Suffolk County Water Authority water system. The North Fork system does have a limited interconnection with the public water supply system to the west which is operated by the Riverhead Water District. This connection is capable of supplying up to 750 gallons per minute of high-quality potable water, but this connection is considered to be an emergency connection as the Riverhead Water District has similar challenges meeting peak demand.

As previously stated, the Suffolk County Water Authority's approach to water supply on the North Fork has been site specific. The Suffolk County Water Authority has acquired properties, constructed wells, installed treatment facilities and laid water mains in small increments to address limited, localized supply and quality issues. More recently, larger diameter mains have been strategically installed on the North Fork to connect these localized areas into subregional systems. These improvements have made it easier to move water throughout the Suffolk County Water Authority North Fork service territory and have improved the reliability of the water system. These improvements have also made it possible for the Suffolk County Water Authority to continue to serve its North Fork customers without the need to construct additional supply wells. Construction of additional supply wells is extremely difficult on the North Fork due to the limited availability of water in the thin aquifer and threats to the aquifer related to chloride, pesticide, and nitrate contamination. Even when a suitable location for a public supply well can be located, regulatory restrictions on well size and capacity (due to aquifer restrictions) means that wells need to be smaller in capacity to minimize impacts to the resource due to overpumping. Smaller wells with limited capacity are not sufficient to satisfy the demand for water and so more wells are needed, which further complicates the situation. Compounding the problem is competing uses for water by the farming community that relies on larger irrigation wells to sustain crop production. Farm wells are not regulated the way public water supply wells are, and so their operation is permitted even if it contributes to the degradation of the aquifer. The inability to develop additional wells on the North Fork has created a supply-demand imbalance. This imbalance is most notable during the summer periods when population and water use on the North Fork is greatest. During peak periods, the existing well infrastructure cannot keep pace with water demand and during these periods, the Suffolk County Water Authority must rely on its storage tanks to contribute to demand. This is normal for a water system but in the case of the North Fork, when demand peaks, the storage tank levels become dangerously low because the wells are being used supplying water to customers and cannot also replenish the tanks. The result is that storage tanks reach critically low levels during peak periods which creates low pressure in the water system and becomes a threat to public safety since adequate water levels in storage tanks are critical to fighting fires. After many years of making incremental improvements to the public water supply system on the North Fork, it is clear that the only realistic solution to serving the current customer base and future customers on the North Fork, is to import water from outside the North Fork hydrogeologic system.

The proposed project of constructing a large diameter water main to interconnect the isolated Suffolk County Water Authority North Fork system (Southold Low pressure zone) with the much larger Suffolk County Water Authority water system (South Shore Low pressure zone) to the west is part of an overall resource sustainability strategy that not only ensures service to current and future North Fork customers but also helps reduce the negative impacts of pumping on the North Fork aquifer and helps to improve aquifer conditions by bringing additional fresh water into the North Fork hydrogeologic system.

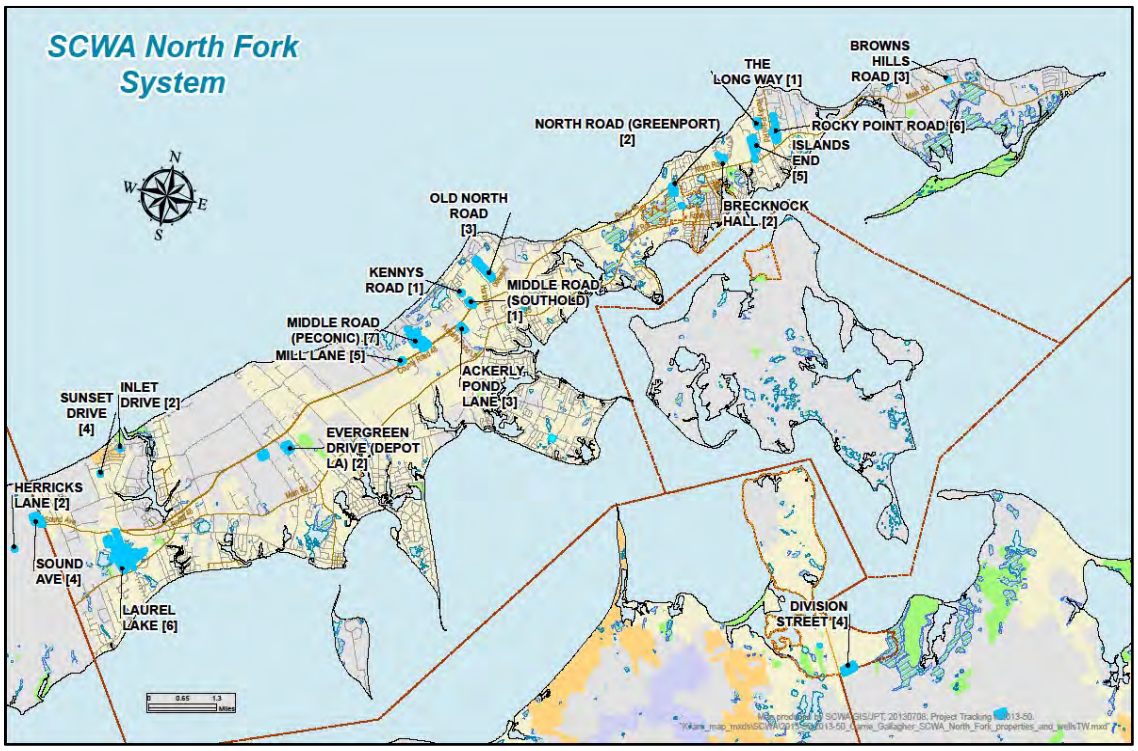


Figure 1 Suffolk County Water Authority Water Supply System on the North Fork

B. Natural Resources in the Vicinity of the Project Area

The same aquifer system that supplies the main body of Suffolk County also exists on the North Fork, with some significant localized differences. The Lloyd aquifer is naturally salty throughout the North Fork, and for this reason (in addition to the legal moratorium against its use) is not usable as a source of drinking water. The Magothy aquifer is also naturally salty over most of the North Fork but contains enough fresh water to be usable for lower capacity production wells west of the Riverhead- Southold Town line. Figure 2 below shows a geologic cross section

through the length of the North Fork from west to east showing the numerous geologic units and the saltwater interface. The average depth to bedrock in the region is shown in Figure 3.

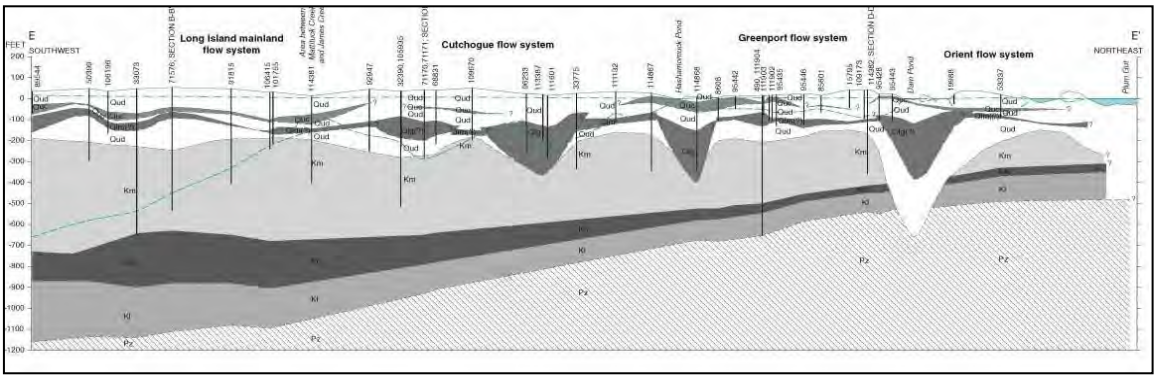


Figure 2 North Fork Geologic Cross Section

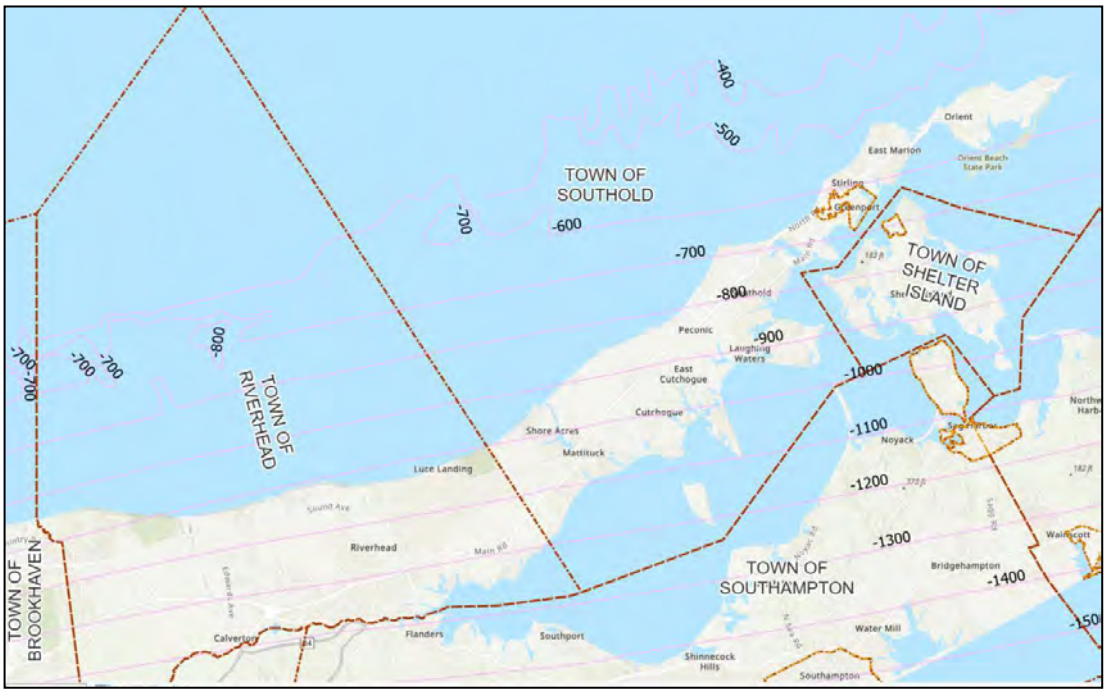


Figure 3 Regional Depth to Bedrock

The principal aquifer for water production on the North Fork is the upper Glacial aquifer. The vast majority of Suffolk County Water Authority production wells on the North Fork, in addition to all wells on the North Fork supplying water to farms, homes, commercial businesses, and golf courses, are screened in the upper Glacial aquifer. Only five Suffolk County Water Authority North Fork production wells are screened in the Magothy aquifer. The ground water flow system on the North Fork is dissected by surface water features, which serve to subdivide it into five distinct, isolated sections. Lands that are west of Mattituck Inlet and James Creek are part of the easternmost extent of the Main Body groundwater flow system. The area between Mattituck Inlet and Hashamomuck Pond is known as the Cutchogue flow system. The Greenport flow system lies between Hashamomuck Pond and Dam Pond. Orient, Little Hog Neck and Great Hog Neck each have their own groundwater flow system. The North Fork groundwater flow systems are shown in Figures 4 and 5.

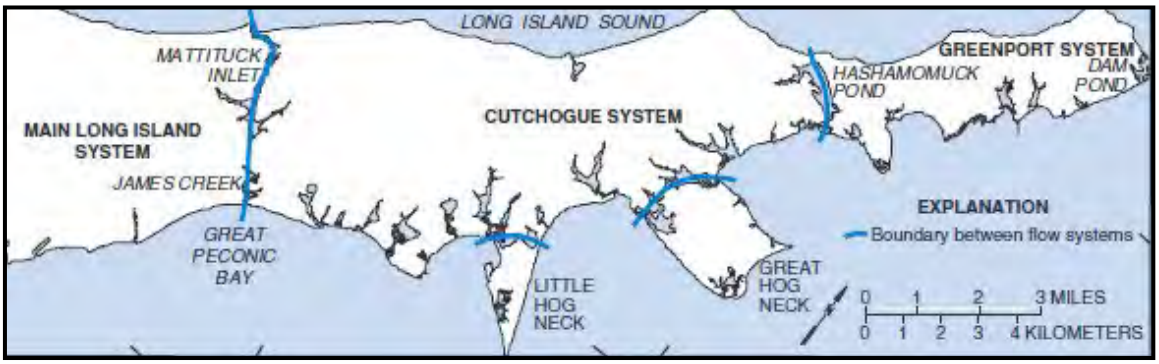


Figure 4 North Fork Groundwater Flow Systems

Overall, the aquifer system lying beneath the North Fork has far less water available for potable purposes than that beneath the main body of Suffolk or even the South Fork. The maximum water table elevation within most of the Town of Southold is approximately 5-foot above mean sea level. Figure 6 presents the depth to groundwater across the North Fork, based on the United States Geological Survey Depth to Water dataset. Applying the Ghyben-Herzberg relationship (also known as, “the 40 to 1 rule”), the maximum depth of fresh water is approximately 200 feet below sea level beneath most of Southold (though some localized exceptions do exist), which is generally within the upper glacial aquifer. As mentioned previously, east of the Southold-Riverhead Town line, the groundwater within the Magothy aquifer is naturally salty and therefore unusable for potable purposes.

Figure 5 North Fork Water Table Contour Map

This limited freshwater resource is under further stress (both quality and quantity) from competing water users. Large portions of the upper glacial aquifer within the Town of Southold have been contaminated by chemicals derived from agricultural, industrial, or household uses. Additionally, some community public supply wells have seen elevated levels of chlorides, due to road salting practices or seasonal salt water upconing during peak summer pumping periods.

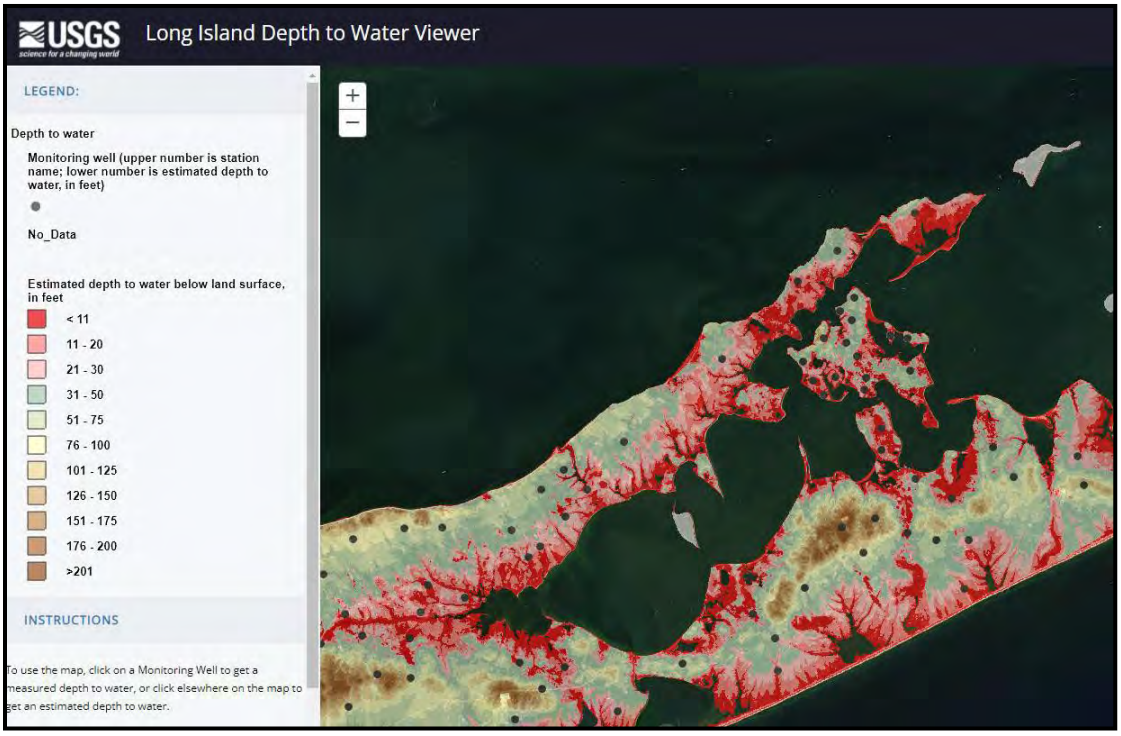


Figure 6 United States Geologic Survey Depth to Water

C. Ownership and Suffolk County Water Authority Service Area

1. Suffolk County Water Authority Service Area

The overall Suffolk County Water Authority service area presently consists of over 40 individual water supply systems, most of which are interconnected. These systems are referred to as pressure zones. The Town of Southold is located within the Southold Low pressure zone, which encompasses the North Fork. The Suffolk County Water Authority has recently combined several of the separate water supply systems (Southold Low, Mattituck Low, the area previously known as the Greenport Low, and the facilities acquired from the former Village of Greenport water supply systems) on the North Fork to be jointly known as the Southold Low pressure zone. During the calendar year 2024, the Suffolk County Water Authority produced 75.9 billion gallons of water, serving 407,269 customer connections and providing water to approximately 1.2 million people in Suffolk County.

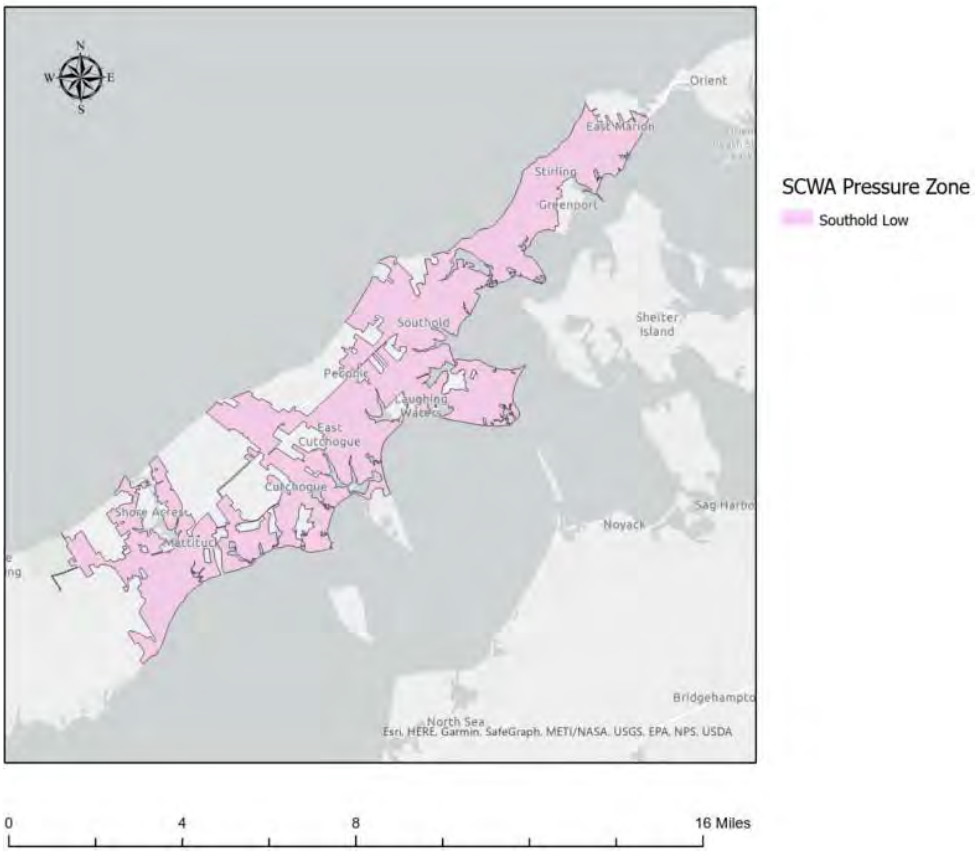


Figure 7 Southold Low Pressure Zone

2. Population Trends and Growth

The Suffolk County Water Authority has been studying the population of its water supply systems since 1987, when the Suffolk County Department of Planning compiled its first report. Since that time, the boundaries of some Suffolk County Water Authority systems have changed, and the population growth in Suffolk County as a whole has leveled off.

The data shown in Figure 8 is from Esri's 2020 Updated Demographic estimates using Census 2010 geographies. The map layer shows the estimated annual growth rate of population in the Southold Low pressure zone from 2010 to 2026 in a multiscale map by country, state, county, ZIP Code, tract, and block group. The current population in the Southold Low pressure zone is 16,542 and is estimated to be 16,655 in 2026. The estimated annual rate of change is 0.14%.

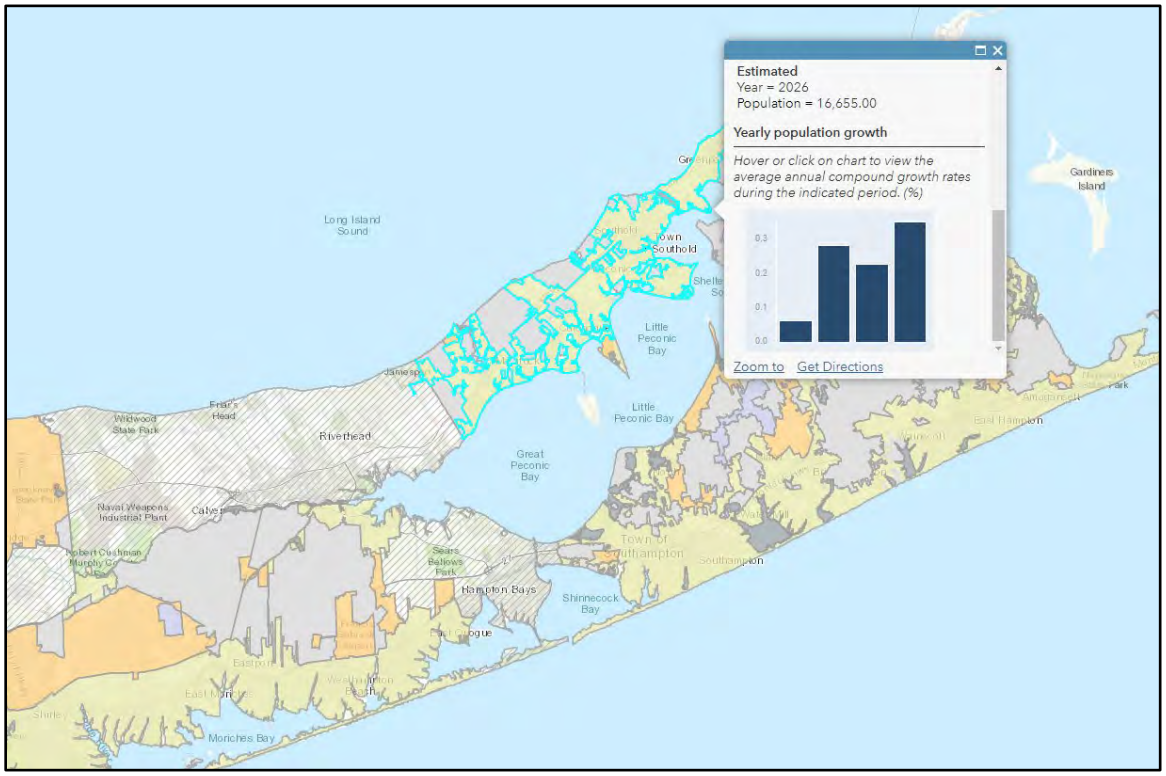


Figure 8 Southold Low Population

IV. Water Supply Challenges on the North Fork

A. Historical Water Use on the North Fork

Water use on the North Fork has reflected the combined demands of agriculture, a seasonally expanding population, and the widespread use of private domestic wells. Agricultural irrigation has long constituted one of the largest withdrawals from the aquifer, with high-capacity irrigation wells operating intensively during the same summer months in which residential outdoor water use and population increase sharply. This seasonal overlap has produced significant peak-day stresses on the upper glacial aquifer, which is limited in both thickness and freshwater volume relative to other regions of Suffolk County. As public water became more established and concerns about shallow private well quality increased, the Suffolk County Water Authority assumed a greater role in meeting the demand for domestic potable drinking water. Unlike the diffuse withdrawal pattern of individual wells, public supply wells exert localized stresses at higher pumping rates, making the system more sensitive to seasonal fluctuations and water quality constraints. In prior decades, conservation practices were limited, and peak summer demand frequently approached the operating limits of available well capacity. Recognizing these challenges, the Suffolk County Water Authority began implementing formal conservation strategies with a revised conservation plan starting in 2011. In 2016 the Suffolk County Water Authority publicly advanced a three-point conservation program designed specifically to reduce excessive peak-season irrigation demand. This initiative encouraged adoption of odd/even lawn watering schedules, partnered with major water users to adjust irrigation practices, and established the East End Water Wise Club, which provided customer incentives to install water-saving devices. The program was created in direct response to increasingly sharp peaks in summer water use, which had necessitated the continued installation of new well infrastructure and system improvements in order to meet peak demand in Southold.

B. Water Quality Challenges on the North Fork

Much has been studied as to the water quality challenges on the North Fork. The 2015 Suffolk County Comprehensive Water Resources Management plan stated that, “because the quality of the shallow aquifer has been compromised by widespread contamination from agricultural contaminants such as nitrates and pesticides, provision of a community supply for all residents is recommended”. The Suffolk County Water Authority has been required to install expensive wellhead treatment systems to mitigate these contaminants. Suffolk County Water Authority wells are being impacted by activities on the North Fork, while at the same time there is

an increasing demand for public water throughout the area. Residents previously reliant on private wells have begun hooking up to public water as regional water quality issues and the public safety aspects of enhanced fire protection become better known. While the Suffolk County Water Authority has been proactive at installing treatment to address these contaminants, there are other contaminants such as chlorides that are not easily removed.

C. Chlorides

Chloride contamination of ground water on Long Island can occur in three ways: (1) through lateral intrusion, as has happened in western portions of Nassau County; (2) through salt water upconing beneath individual wells, as has occurred seasonally on both the north and south forks; and (3) from road salting practices, as has occurred at several Suffolk County Water Authority well fields throughout Suffolk County. In the 1980's the Suffolk County Water Authority initiated the Montauk Chloride Study that found seasonal increases in chloride concentrations can be correlated to well construction practices, pumpage patterns and subsurface geology. It was observed that upconing of salty ground water beneath the screen of an individual well was typically occurring under summer season pumping stresses.

The Suffolk County Water Authority manages chloride concentrations through two main strategies: pumping/production management and shallow depth well screen settings. These methods are intended to mitigate the effects of both chloride up coning and lateral encroachment. However, in the long term, and without sufficient recharge, continued freshwater extraction inevitably raises chloride levels in the aquifer. Recognizing this risk, the Suffolk County Water Authority continuously monitors chloride concentrations in all of its production wells. This is imperative because once chloride concentrations reach a level of 250 mg/L, a well can no longer be utilized as this level is above the New York State maximum contaminant level (MCL) for chlorides. Overall, the need to continually monitor and adjust well pumping routines limits the ability to operate wells.

An additional factor affecting the Suffolk County Water Authority's ability to fully utilize its North Fork wells is the presence of numerous New York State Department of Environmental Conservation water quality based pumpage restrictions attached to its well permits. These Special Conditions often require that the Suffolk County Water Authority reduce or cease pumping from a given well when chlorides reach a certain level, usually far below the MCL for chlorides. For example, under the Special Conditions in its water withdrawal permit the Suffolk County Water

Authority must reduce the pumping of well No. 3 at the Old North Road when chloride levels exceed 50 mg/L. These Special Conditions have the effect of reducing the effective capacity of the Suffolk County Water Authority well network by restricting the number of hours a well can pump or requiring that the well and its pump either be “throttled” to reduce its capacity or taken offline all together for extended periods of time in an effort to minimize chloride increases.

A more recent phenomenon affecting Suffolk County Water Authority wells with increasing chloride concentrations are the effects of road salting. This problem was first observed at the Mill Lane and the Ackerly Pond Lane well fields on the North Fork. The Suffolk County Water Authority conducted an extensive hydrogeologic investigation at both sites with the help of its cooperative research partner, the United States Geological Survey. After much study, it was determined that the chloride increases observed at both sites were due to seasonal road salting. This type of chloride increase can be differentiated from upconing or lateral intrusion by measuring the Bromide/Chloride ratio of the water pumped by each well. Once the distinction was made, a pumping schedule for each site was implemented, and no further water quality or operational impacts have resulted. In addition, the United States Geologic Survey and the Suffolk County Water Authority maintain water quality observation stations near each well field as a continuous early warning system should any road salt related water quality problems occur in the future.

Several well fields within the Southold Low system have been identified as experiencing increasing chloride concentrations that require operational attention. Figure 9 shows the location of these well fields. The affected well fields include Laurel Lake, Kennys Road, Ackerly Pond Lane, Mill Lane (Peconic), Middle Road (Southold), Old North Road, Rocky Point Road, and Island’s End. At these locations, chloride levels have risen to the point where pumping schedules must be modified or, under existing New York State Department of Environmental Conservation Special Conditions, output must be reduced when threshold concentrations are reached. These increases reflect a combination of seasonal upconing during peak summer pumping, localized impacts from road salting, and the limited thickness of the freshwater lens on the North Fork. The chloride trend graphs prepared by Suffolk County Water Authority staff (see Appendix A) demonstrate the seasonal and long-term increases at these well fields and underscore the operational constraints now limiting the effective capacity of the system.

Figure 9 Map of Suffolk County Water Authority Well Fields Chloride impacts in the Southold Low Pressure Zone

D. Pesticides and Herbicides

Approximately 25 Suffolk County Water Authority wells located on the North Fork currently require treatment for pesticide and herbicide contamination. These wells are located on 11 of the 18 well fields on the North Fork. The location of these wells is shown in Figure 10. Additional wells are routinely added to the growing list of those requiring such treatment, as water quality fluctuates seasonally and regionally. The Suffolk County Water Authority tests for 95 different types of pesticide-related groundwater contaminants. The annual cost of testing for these contaminants on the North Fork is approximately $350,000. The total capital cost to date of installing treatment by Granular Activated Carbon adsorption systems for agricultural contaminants on the North Fork is approximately $8,000,000. The annual average operating and maintenance cost of treatment by Granular Activated Carbon adsorption systems for agricultural contaminants on the North Fork, not including electricity, is over $100,000.

Figure 10 Map of Suffolk County Water Authority Well Fields with Usage of Granular Activated Carbon Systems in the Southold Low Pressure Zone

E. Nitrate

According to data obtained from regional monitoring wells, Nitrate levels in “raw” groundwater exceed the drinking water MCL in many sections of the aquifer throughout the North Fork, though this level of nitrate is uncommon in public supply wells. Elevated nitrate levels pose a health threat to any homeowners that utilize a private well for their water supply, and places greater pressure on the Suffolk County Water Authority to provide public water to these affected residential areas. Portions of the groundwater system on the North Fork have been affected by nitrate contamination and existing law requires that public drinking water continues to meet the NYS 10 mg/L MCL for nitrate. Figure 11 depicts wells in Southold with nitrate levels greater than one half the NYS MCL or 5 mg/L.

Nitrates are difficult and expensive to treat. Blending two wells together at the same site is an option if one of the wells (usually constructed with a deeper screen setting) has much lower

levels of nitrate in its water. On the North Fork, very few locations with those hydrogeologic conditions exist, largely due to the limited vertical extent of the freshwater aquifer in the area. Lacking the ability to blend with a lower nitrate (deeper) source, Nitrates can be removed from raw well water by the operation of a Nitrate removal plant, which uses regenerable ion exchange (IX) resins. These resins exchange chloride ions for nitrate ions. This generates a brine waste which must be disposed of as a hazardous material, at a substantial cost.

It is important to realize that any nitrate treatment plant should be seen as a blending facility, since approximately 1/3 of the total flow is treated to a nitrate level of zero, and then blended with the raw water to produce a finished water with a nitrate concentration that meets NYS drinking water standards. The Suffolk County Water Authority operates one such ion exchange nitrate treatment facility at its South Spur Drive well field in Commack. This facility produces nitrate free water at a cost of approximately $4.44 per 1,000 gallons, which is significantly more than the current SCWA standard retail rate of $2.57 per 1,000 gallons and the conservation rate of $3.71 per 1000 gallons. Overall costs for this treatment are reduced by blending the nitrate free water with the remainder of water produced on site. This blending practice is essential to minimize the costs of this expensive treatment technique, to minimize the waste brine that must be disposed of, and to reduce energy consumption. The Suffolk County Water Authority owns an additional nitrate removal facility at its Old North Road well field in Southold. This facility was in service for many years and was taken out of service when nitrate levels in the local groundwater began to decline. It is thought that this decline was related to a change in farming practices near the well field.

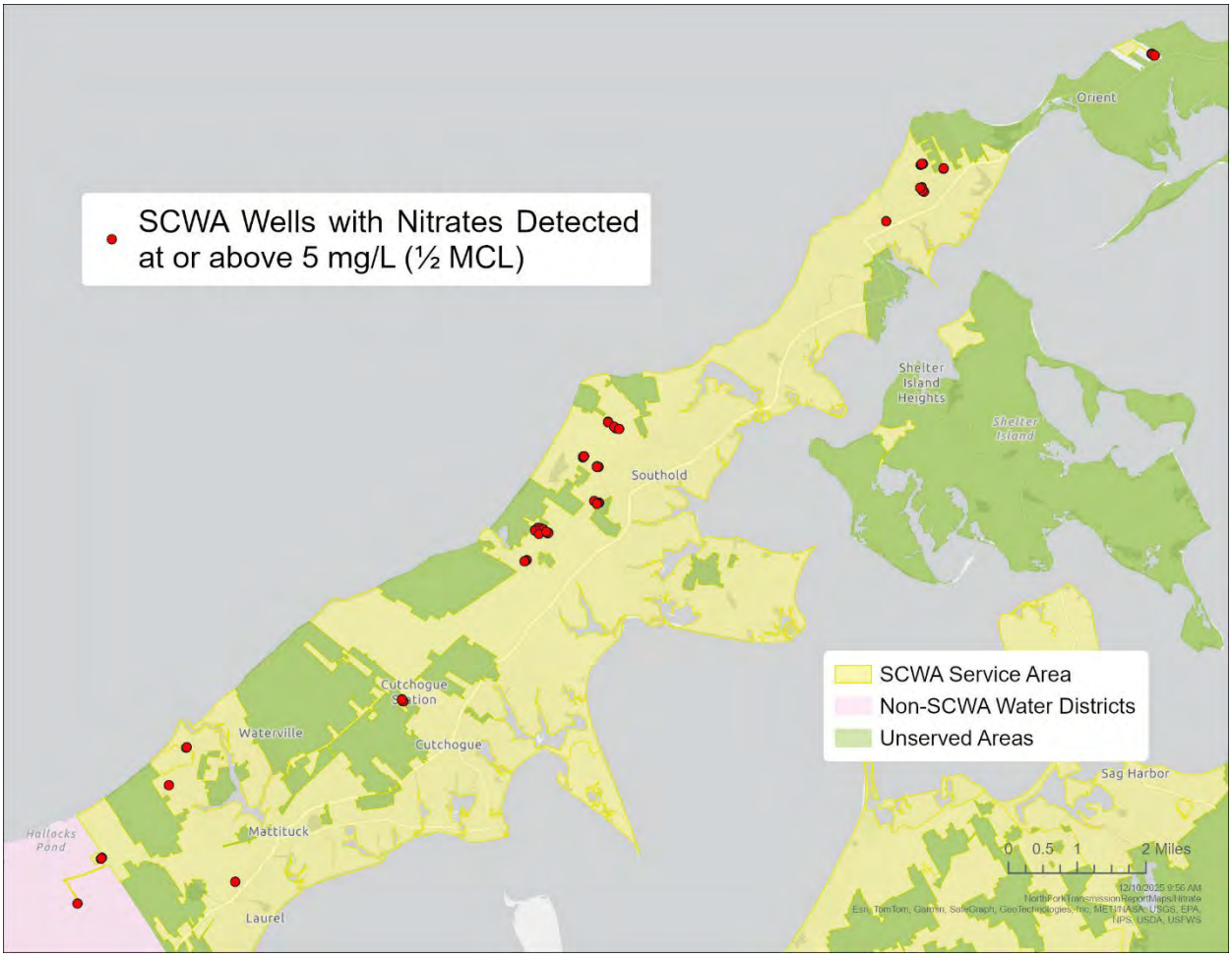


Figure 11 Map of Suffolk County Water Authority Well Fields with Nitrate levels above 5 mg/l in the Southold Low Pressure Zone

F. Perchlorate

Many of the wells on the North Fork have tested positive for perchlorate with levels in the range of 1.0 to 5.0 ppb. Southold wells with detections of perchlorate are shown in Figure 12. Perchlorate contamination is derived from certain organic fertilizers, as well as oxidizing agents found in fireworks and road flares. Though perchlorate is not a United States Environmental Protection Agency -regulated compound at the present time, the agency has announced it will set a standard in the near future. New York State has an interim MCL of 18 ppb and an action level of 5 ppb. The concentration at which the United States Environmental Protection Agency standard is to be set could greatly impact the majority of North Fork wells. Wellhead treatment, in the form of resin would be required for those wells. Perchlorate-affected wells represent approximately 2,800 gallons per minute of capacity.

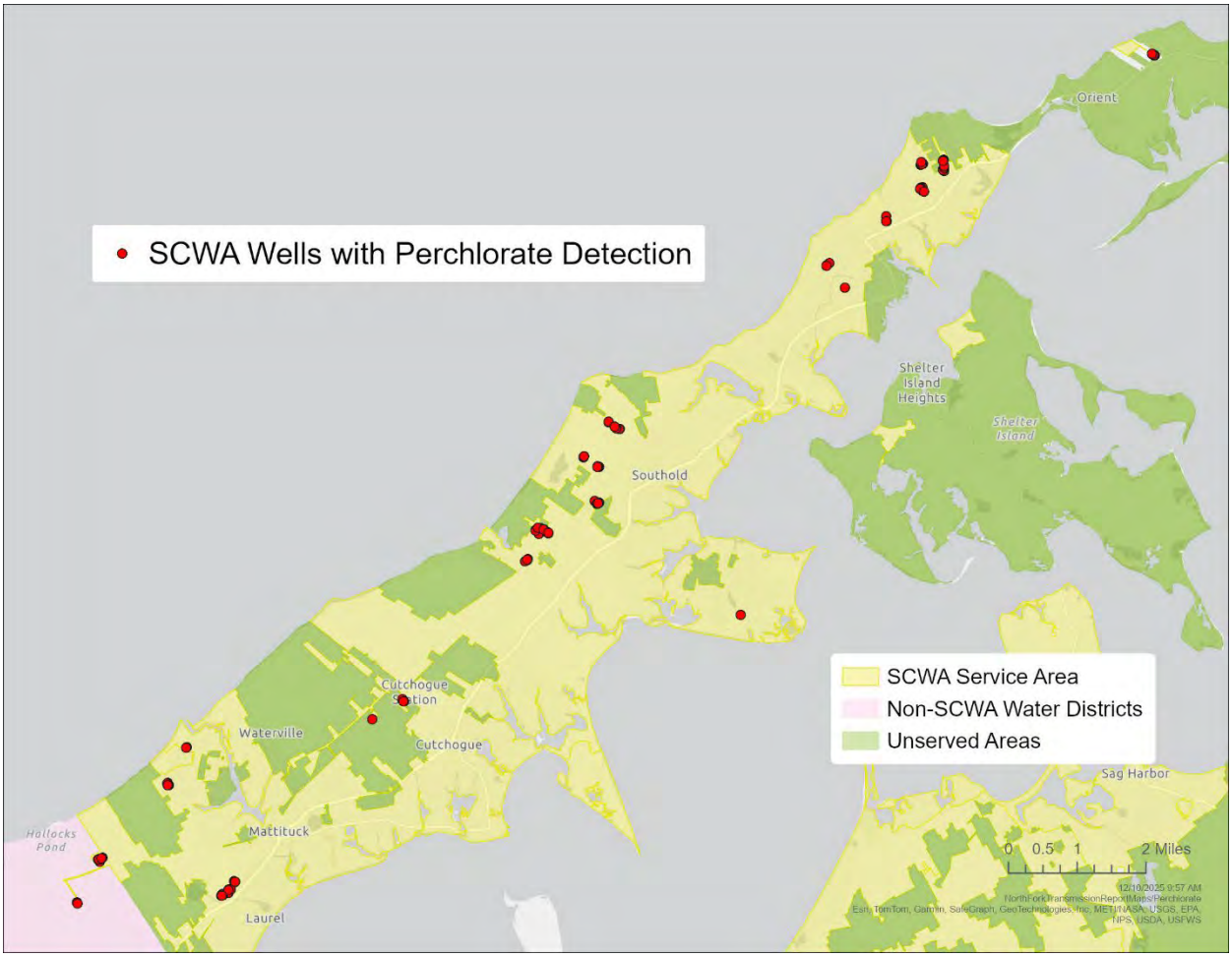


Figure 12 - Map of Suffolk County Water Authority Well Fields that have Perchlorate detections in the Southold Low Pressure Zone

G. Water Quality Summary

Suffolk County Water Authority wells on the North Fork are threatened by a variety of different contaminants. In many locations, the Suffolk County Water Authority has deployed treatment systems to remove these contaminants. This strategy allows the impacted wells to remain in service, providing clean drinking water to the residents of Southold. There are contaminants, however, for which treatment is not a viable treatment option. The primary contaminant in this category is chlorides. While there are treatment technologies for the removal of chlorides, it is important to note that even if filtration systems were installed to filter them, continued use of wells that are impacted by chlorides further degrades the aquifer and eventually renders those wells inoperable since the more they are pumped, the higher the concentration of chlorides will become as salt water continues to migrate towards the pumped well. In addition, and specifically in the case of chlorides, the New York State Department of Environmental Conservation will not permit continued use of permitted wells when it is clear that they have been significantly impacted by chlorides. Thus, wellhead treatment for chlorides is not feasible and as such, not an option when it comes to providing a sustainable source of water to the North Fork.

In the case of chlorides, the only effective strategy for dealing with their impact is to reduce pumping rates or cease pumping altogether until such a time when the aquifer recovers and pumping can be resumed. This creates additional challenges, however, since all wells are needed to meet the peak demand in Southold and so if wells are to be curtailed in operation or shut down, additional water will be needed in order to make up for this lost production.

V. Water Quantity Challenges on the North Fork

All water consumed on the North Fork is produced through the use of the Suffolk County Water Authority's 61 wells situated on 18 well fields. While the Southold portion of the Suffolk County Water Authority's system (the Southold Low pressure zone) is isolated from the main body of the Suffolk County Water Authority water system, there is one interconnection with the Riverhead Water District. This interconnection is for emergencies only and can be used by both the Riverhead Water District or the Suffolk County Water Authority as a limited backup for either system. Since its acquisition of the Captain Kid Water System in Mattituck and the Greenport Water system, the Suffolk County Water Authority has constructed additional wells throughout the Southold area to meet the demand for public water. Since 1994 the Suffolk County Water Authority has constructed 9 new pump stations (bringing the total to 18 well fields in the pressure zone and constructed approximately 55 new wells (there are 61 wells are in the pressure zone).

Demand for water is greatest in the summer months when population on the North Fork swells and water consumption is at its peak. A properly sized water system should have sufficient capacity to meet normal and peak demand. Normal demand is the amount of water required for typical domestic use during non-peak months. The Southold system is easily capable of providing this normal off-peak demand. As can be seen in Figure 13 below, demand for water in Southold, like most areas in Suffolk County, is relatively low during the peak (non-irrigation) months.

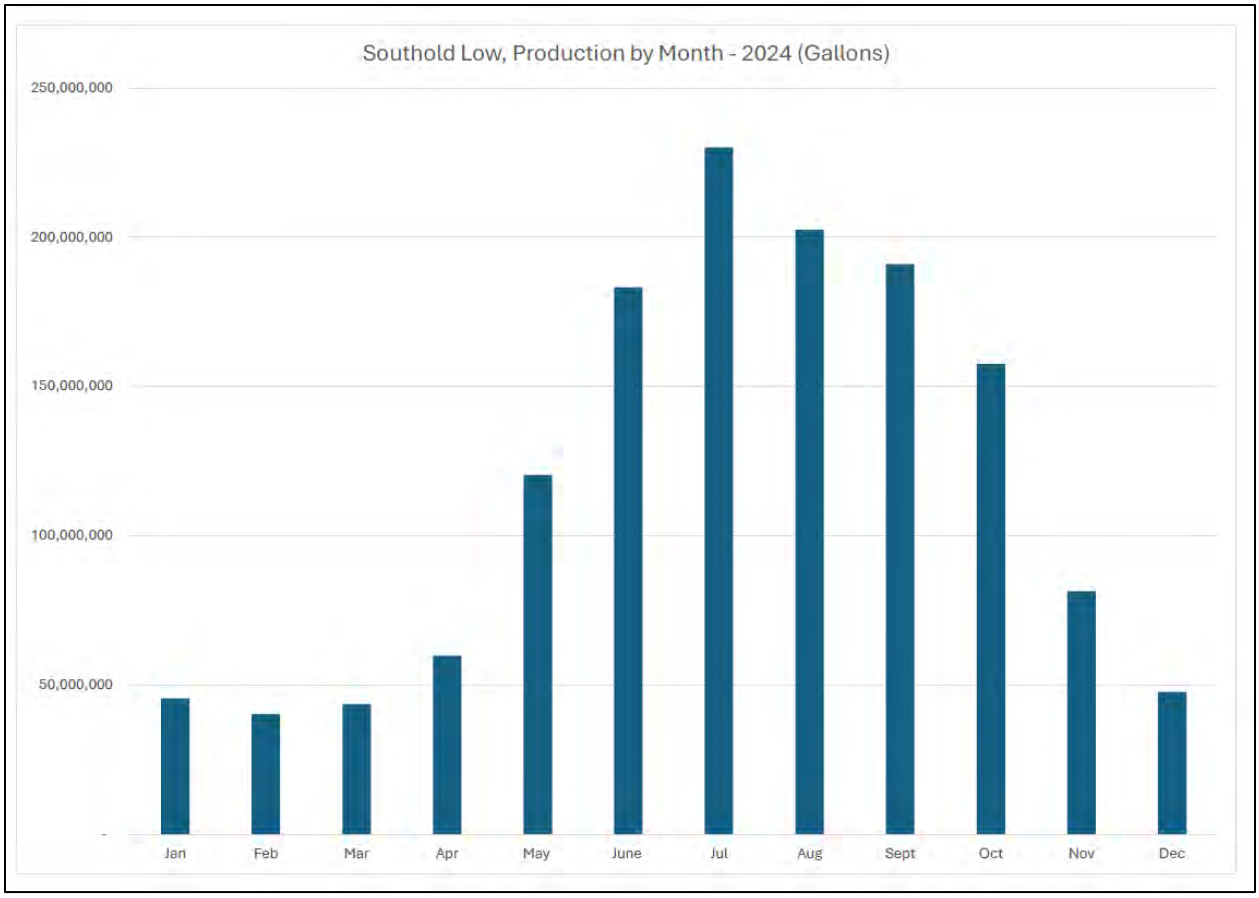


Figure 13 – Southold Low Production by Month 2024 (Gallons)

During the summer periods, however, especially in places like Southold where populations swell and water use increases dramatically during the summer months, a water system will be challenged to meet the peak demand brought on by this increased use. During these peak periods, and more specifically during the peak 5-hour period in the early morning hours, all wells in Southold are running in order to provide continuous water to customers and to maintain system pressures. Table 1 below lists the 18 well fields that are operated on the North Fork along with the number of wells at each. During peak periods in Southold, every available well is operated to meet system demand.

Table 1 – Number of Wells Southold Low Pressure Zone

WELL FIELD SITE NAME	NUMBER OF WELLS
ACKERLY POND LANE	3
ALVAH'S LANE	1
BRECKNOCK HALL	2
EVERGREEN DR. (DEPOT LA)	3
HERRICKS LANE	2
INLET DRIVE	2
ISLANDS END	5
KENNYS ROAD	2
LAUREL LAKE	6
MIDDLE ROAD (PECONIC)	7
MIDDLE ROAD (SOUTHOLD)	2
MILL LANE (PECONIC)	2
NORTH ROAD (GREENPORT)	2
OLD NORTH ROAD	3
ROCKY POINT ROAD	6
SOUND AVENUE	7
SUNSET DRIVE	4
THE LONG WAY	2
TOTAL NUMBER OF WELLS	**61**

When the demand for water at this time exceeds well capacity, storage tanks are used as a source of water. The Suffolk County Water Authority Southold Low pressure zone includes ground storage tanks and elevated water storage tanks. Table 2 lists the storage tanks in the Suffolk County Water Authority Southold Low pressure zone along with their capacities.

Table 2 – Southold Low Pressure Zone Storage Facilities

Site Name	Tank Type	Tank Capacity
LAUREL LAKE	GROUND STORAGE RESERVOIR	2,000,000
MOORES LANE	ELEVATED TANK	300,000
ROCKY POINT ROAD	GROUND STORAGE RESERVOIR	500,000
Total Storage Gallons		**2,800,000**

While ground and elevated water storage tanks are similar, they operate much differently. Ground storage requires a mechanical means of pumping in order deliver the water within them into the water distribution system. This is accomplished through the use of booster pumps. Booster pumps are electric powered pumps that, much like wells, force water into the water distribution system at a given flow rate and are turned on and off in response to system demand. Elevated water tanks such as the Moores Lane elevated tank, do not require booster pumps since the water at a high elevation is ready to flow from the tank into the water distribution system at any given time. Water does not flow from an elevated tank if the wells and ground storage boosters are keeping up with the demand for water. In fact, if more water is pumped from wells and boosters than is utilized by customers, water will flow into the elevated tank and its level will increase. When the demand for water exceeds the capacity of the wells and boosters, water flows out of the elevated tank to maintain system pressures and satisfy demand. As water flows out of the elevated tank, its level decreases. If the supply/demand imbalance continues for a prolonged period, the operating level of the elevated water tank can drop to dangerously low levels. Low levels in an elevated tank are considered dangerous because the water in the elevated tank is considered to be a reserve and without a reserve, there is little water left should there be an emergency need for water such as a fire.

Figure 14 below is a multi-variable trend from the Suffolk County Water Authority's Supervisory, Control and Data Acquisition (SCADA) system. This system controls the operation of all wells and boosters in the Suffolk County Water Authority water system. It also monitors the levels of all of Suffolk County Water Authority's 64 storage tanks. This trend covers the period of November 10, 2025, through November 14, 2025. This trend is typical of most days during non-peak periods. As can be seen, the level of the Moores Lane tank (the blue trace) is stable most all of the time. Total system flow or the demand for water is relatively stable (the green trace) and while not shown on the trend, only a fraction of wells and boosters are operating in order to meet demand.

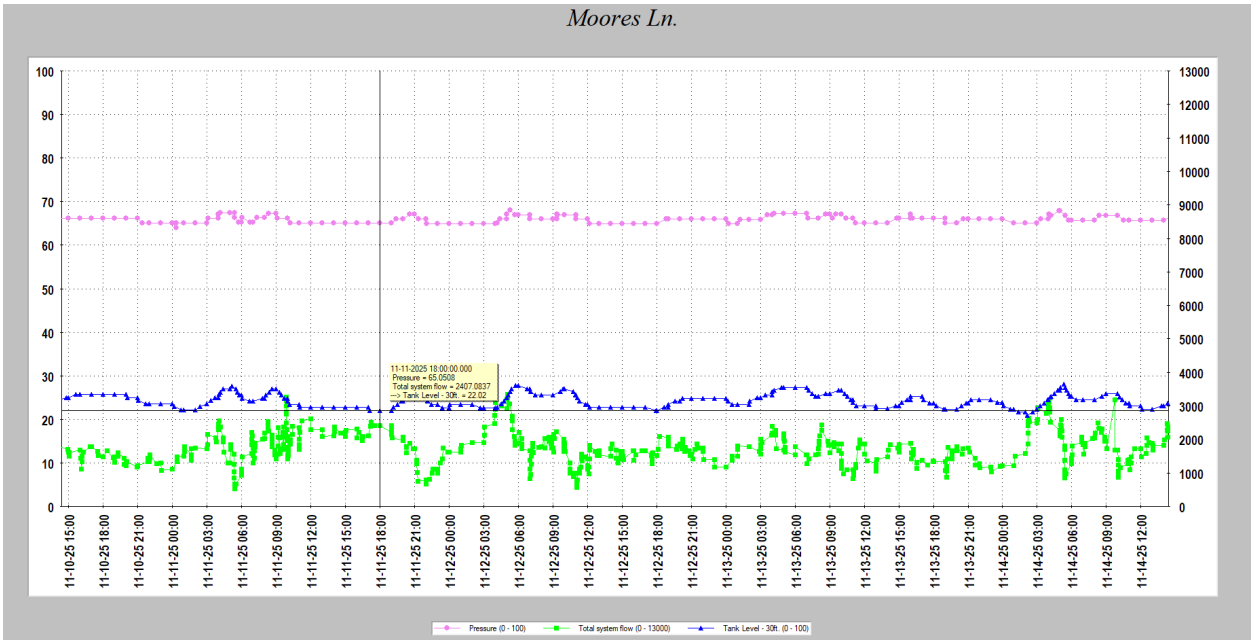


Figure 14

Figure 15 below is a much different trend. This trend covers the period of August 11, 2025, through August 18, 2025. This trend shows the dramatic increase in total system flow that is typical during summer (the green trace) and how that demand peaks at roughly the same time each morning (approximately 6AM). At this time, water use is at its peak as Southold residents are getting out of bed, showering and attending to the early morning needs of life. In addition, this is the time that automatic irrigation systems are typically running. The combination of the peak in domestic use together with the irrigation demand combines to create the greatest demand for water during a typical summer 24-hour period. The size of the peaks varies depending on recent outside weather conditions such as temperature, humidity and rainfall. Other factors influencing peak demand for water are how long it has been since the last rainfall and the day of the week as most automatic irrigation systems are set to operate on a Monday-Wednesday-Friday schedule. Monday is typically the day that the irrigation demand is highest since many homes do not irrigate on the weekend so as to not interfere with turf related weekend activities. As can be seen, at the very time total system demand is at its highest, the level in the Moores Lane elevated tank drops to its lowest. The water pressure at the base of the Moores Lane tank (the magenta trace) is also at its lowest at this point as pressure is a function of the tank level. This chart which covers an entire weekday period in August demonstrates the cyclical nature of water consumption. Of most concern in this trend is the tank level and the fact that the tank is at its minimum level when system demand and pumpage from all sources is at its greatest. On all three days in this trend, the tank

level is below 10 feet which is equivalent to less than 100,000 gallons of water remaining in the tank. If a fire were to occur during a worst-case peak period, firefighters would have limited resources with which to fight a fire.

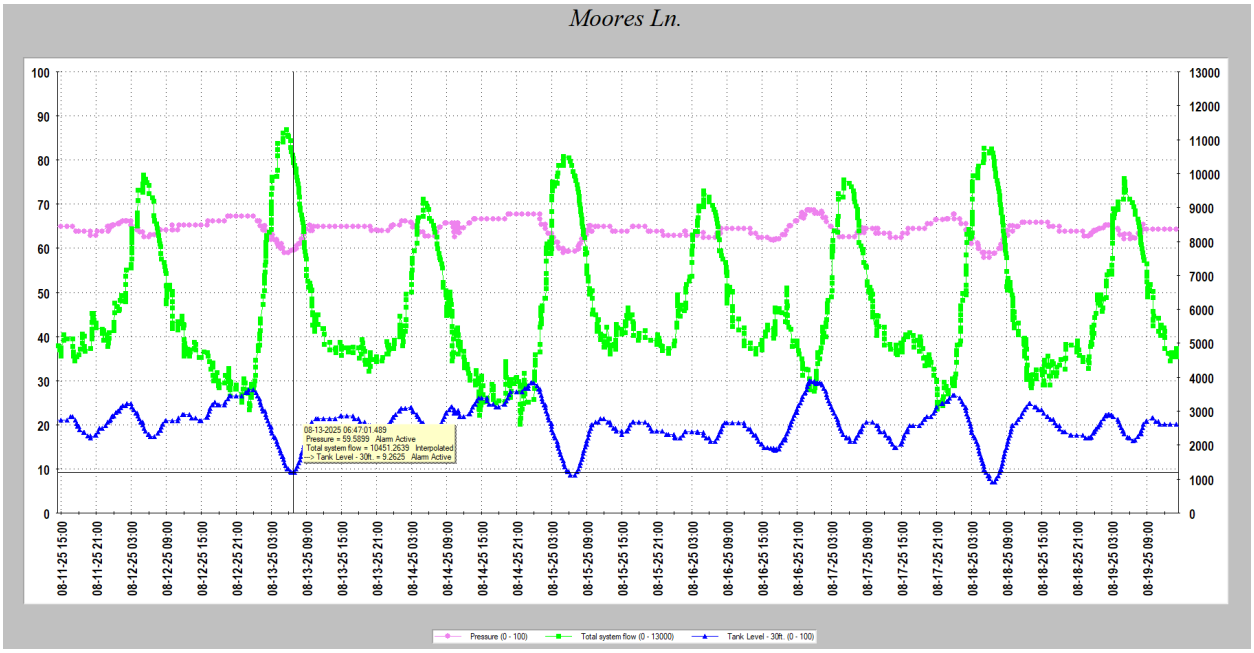


Figure 15

As previously explained, the Southold Low pressure zone is isolated from the rest of the Suffolk County Water Authority water system and is reliant on wells, storage tanks and one interconnection with the Riverhead Water District to provide all the water consumed by Suffolk County Water Authority customers on the North Fork. Within the Southold Low pressure zone there are eighteen well fields, sixty-one wells, two ground storage tanks with boosters and one elevated storage tank. There is also one interconnection with the Riverhead Water District, but this interconnection is considered only for use in emergencies. In a situation where peak demand continues to outstrip supply in a location such as Southold, where the threat of contamination continues to drive new and existing homeowners to seek connection to the public water supply system, the Suffolk County Water Authority has three realistic options for meeting demand.

1. Construct Additional Wells
2. Add additional storage
3. Import water from another source.

Over the time period that the Suffolk County Water Authority has operated the public water system on the North Fork, it has performed extensive investigations and worked with representatives from Suffolk County, the United States Geologic Survey, the New York State Department of Environmental Conservation and others in order to locate additional suitable sites for new pump stations and wells. While there has been moderate success in finding suitable new locations for public supply wells, the Suffolk County Water Authority's engineers and hydrogeologist have determined that given the limited fresh water resources on the North Fork and the challenges associated with addressing the variety of contamination found in those resources, the potential to develop any sustainable, significant additional public supply wells will continue to be very difficult and given the projections for future water demand on the North Fork, drilling new wells to satisfy that demand is not realistic. Some have suggested that additional storage tanks can be constructed and that these additional tanks can be filled during the off-peak periods and used to supply peak demand much like the two existing ground storage tanks the Suffolk County Water Authority already operates on the North Fork. Ground storage tanks are certainly an effective means of meeting peak demand but in a locale where there is limited well capacity, the ability to fill them during the off-peak periods will be limited. The Suffolk County Water Authority already struggles to fill its existing ground storage tanks during the off-peak period. That together with the understanding that this approach would, as time goes on, require even more water to be withdrawn from the thin aquifer makes this approach equally unrealistic. Quite simply put, storage tanks without the necessary, unconstrained wells to fill them are useless. Finally, interconnections with the adjacent water district that are only suitable for use during emergencies cannot be counted on to meet peak demand.

It is clear that in order to address the current supply/demand imbalance on the North Fork and to address future needs, it will be necessary to import water from a reliable source that is outside of the North Fork hydrogeological system. To evaluate the mechanism, quantities and impact of how this importation will occur, it will be necessary to understand the current and future water needs on the North Fork.

VI. ANALYSIS OF CURENT AND FUTURE WATER DEMAND

A. The Growth in Demand for Water on the North Fork

The demand for water on the North Fork varies depending upon the time of year. In the non-growing months, water demand is limited due to the smaller population and the absence of irrigation. During the warmer months, which coincides with the tourist and growing season, however, the demand for water increases dramatically, which stresses the water system. When demand exceeds supply, storage tanks are called upon to supply water to meet that demand. Storage tanks, however, have finite capacities and can become depleted when demand is extreme. The resulting low levels in tanks means lower water pressure in the water system (pressure is a function of water level in a tank) and less water available for emergency purposes such as firefighting. As demand continues to grow, this condition becomes unsustainable.

The above condition gets progressively worse as demand grows. Demand grows based upon several factors. The first is the conversion of existing private wells to Suffolk County Water Authority supplied public water. Conversion to public water typically takes place when a customer on a private well decides that they would like to connect to public water. This very often happens when a private well fails and the owner is surprised by the cost of replacing the failed well. More recently, private well owners are expressing concern about the quality and safety of the water supplied by their private wells. Public water is highly regulated and so its quality is frequently tested, closely monitored and controlled. A private well requires routine testing to ensure its quality and the cost of this testing is typically out of reach for the average homeowner. These concerns about cost and quality drive many private well conversions. Another reason for increasing demand is due to new customers that connect to the system. Typically, this occurs when a new home or business is approved for construction and the owner desires to be connected to public water. In these cases, a water main extension may or may not be required in order to serve the property. The cost of the water main and connection to it is typically paid for by the property owner. Very often, a newly developed lot owner is required, by the Suffolk County Department of Health Services regulations, to connect to public water if they are within close proximity to a water main. This very often leaves new property owners with no choice other than to connect to public water. Regardless of the specific reason, this process of adding new customers to the public water system continues to increase the overall demand for water and more importantly, the peak demand.

In order to evaluate the anticipated future peak and volumetric demand for water, authority records for new connections were examined for the preceding 5 years. New connections were made during this time as homes and businesses on private wells connected to public water or new homes or businesses were constructed and connected to public water. In either case, the Suffolk County Water Authority has continued to connect these homes on an as requested basis and has not refused new connections. In some cases, it has been necessary to install new water mains to connect new customers. Table 3 shows the number of new connections made within the Town of Southold over the last 5 years:

Table 3 – Number of Services Southold Low Pressure Zone

Year	Number Of New Services Added	Total Number of Southold Services
2021	149	9,431
2022	114	9,559
2023	100	9,653
2024	103	9,759
2025	98	9,857
5 Year Average # of New Services	113	

Based on Table 3 the average number of new connections to the public water system made within the Town of Southold is 113 per year. This figure will be used to project future peak and volumetric demand for water on the North Fork.

B. Current Peak Demand

The data in Table 4 has been prepared by the Suffolk County Water Authority's Production Control Department. It summarizes peak demand detail for the calendar year 2024 which was considered to be typical for peak water consumption on the North Fork. At the time of the preparation of this report, 2025 peak demand data had not yet been calculated and summarized.

Table 4 – Southold Low Peak Demand Analysis

SYSTEM PEAK DAY FOR THIS PERIOD: 7/8/2024

PEAK 5-HRS: 0200-0700 HRS.

STATION	ANNUAL TOTAL (MG)	AVERAGE DAY (MG)	PEAK DAY (MG)	PEAK 5-HRS (MG)	PEAK RATE (GPM)	5-HOUR STORAGE (LOSS)/GAIN (MG)	PEAK STORAGE (LOSS)/GAIN RATE(GPM)	PEAK DAY AVAIL PUMPS NO.	(GPM)	NOTES
SOUTHOLD LOW 7/26/24										
ACKERLY POND LA	126.116	0.346	0.937	0.224	764	--------	--------			
ALVAHS LA	93.324	0.256	0.812	0.191	637	--------	--------			
BRECKNOCK HALL	21.407	0.059	0.094	0.020	205	--------	--------	1	100	Well run restricted for chloride mgmnt
EVERGREEN DR	117.276	0.321	0.835	0.194	679	--------	--------			
HERRICKS LN	113.339	0.311	0.686	0.145	537	--------	--------			
INLET DR	30.792	0.084	0.276	0.147	500	--------	--------			
ISLANDS END	31.811	0.087	0.216	0.080	341	--------	--------	2	300	Well run restricted for chloride mgmnt
KENNEYS RD	166.840	0.457	0.836	0.172	671	--------	--------			
LAUREL LAKE	55.791	0.153	0.436	0.076	525	--------	--------	2	200	Wells restricted by DEC permit
LAUREL LAKE BOOSTER	67.570	0.185	0.663	0.418	1,603	--------	--------			
MIDDLE RD PECONIC	99.519	0.273	0.466	0.160	564	--------	--------	2	200	
MIDDLE RD SOUTHOLD	178.385	0.489	0.822	0.183	660	--------	--------			
MILL LANE PECONIC	81.184	0.222	0.271	0.080	358	--------	--------	1	300	Wells restricted by DEC permit
MOORES LANE TANK	--------	--------	--------	--------	--------	(0.139)	(700)			
NORTH RD	5.469	0.015	0.055	0.036	126	--------	--------			
OLD NORTH RD	83.238	0.228	0.461	0.236	1,159	--------	--------			
PECONIC BAY BLVD BSTR	0.003	0.000	0.000	0.000	0	--------	--------	1	250	
ROCKY POINT RD.	37.396	0.102	0.178	0.043	186	--------	--------	2	100	Well run restricted for chloride mgmnt
ROCKY POINT RD BSTR.	33.895	0.093	0.330	0.190	658	--------	--------	1	500	
SOUND AVE.	78.370	0.215	1.236	0.230	828	--------	--------	3	150	Well run restricted for chloride mgmnt
SUNSET DR.	66.356	0.182	0.473	0.106	359	--------	--------	1	150	
THE LONG WAY	8.611	0.024	0.103	0.038	336	--------	--------			
TOTALS	1,496.692	4.101	10.186	2.969	11,696	(0.139)	(700)	16	2,250	

As shown in Table 4, peak demand in 2024 occurred on July 8. On that day, during the peak 5-hour period the total flow of water supplied by all North Fork wells (all wells were running) and boosters amounted to 11,696 gallons per minute. Not included in this figure is the contribution from storage by the Moores Lane elevated storage tank which contributed an additional 700 gallons per minute toward the peak demand. Water from the elevated tank flows out in order to satisfy any demand that exceeds the capacity of the wells and boosters in the water system. Based on this, and since the Moores Lane tank contributed 700 gallons per minute toward demand, the total peak demand on July 8 came to 12,396 gallons per minute from all sources.

As previously discussed, the continued draining of the Moores Lane elevated water storage tank during the peak period results in its level dropping to dangerously low levels. The Moores Lane elevated tank has a capacity of 300,000 gallons. If it were to drain at the 700 gallons per minute rate, the tank would be empty within approximately 7 hours. Fortunately, the peak demand period typically lasts for 5 to 6 hours and as a result, in 2024, the Moores Lane tank never ran completely empty. The key finding from this analysis is that the Suffolk County Water Authority water system on the North Fork is currently stretched to its maximum capacity during peak periods. In addition, the peak demand will continue to increase as new customers continue to be added to the system. Without an increase in system capacity to address the supply/demand imbalance, or in the likely instance where a well or booster pump fails during the peak period, the Moores Lane elevated storage tank could, in the very near future, go empty which would cause low water pressures in the system and leave virtually no water for firefighting purposes.

C. Future Peak Demand

For a public water supplier, the ability to meet peak demand is critical. It is thus very important to understand both the peak demand capacity of a water system and how that peak demand changes with the addition of new customers. The Suffolk County Water Authority performs peak analysis by examining the water system and its peak demand factor which assigns a gallons per minute value to each service in its system. Peak demand factors will differ based upon the area served. On the North Fork, the most recent peak demand factor was calculated based upon 2024 Suffolk County Water Authority Production Control Department pumping and storage statistics. In the case of the Southold Low pressure zone, the peak demand factor was calculated by dividing the peak pumpage rate of 12,396 gallons per minute by the number of services within the Town (9759). In 2024, the peak demand factor was calculated to be 1.27 gallons per minute per service connection. Using peak demand factor together with the previously calculated average number of new services per year, it is possible to calculate overall peak demand growth over time. Table 5 shows the projected peak demand out to the year 2050. This table includes additional new connections that on average would be made in the main body of Southold along with any that might be made in any new service area that was established in Orient as part of a potential second phase of the North Fork Water Main Project. The year 2034 was chosen as the year where Orient would be connected based upon the Suffolk County Water Authority's experience with projects where public water is brought into an area with contamination. Experience shows that it takes years to develop a consensus on the part of the public and once that consensus is developed, it takes additional time to apply for and to be approved for the required Federal, State and local grants needed to pay the enormous cost of such a project.

Table 5, which is data extracted from the North Fork Demand Projections Worksheet shown in Appendix B, assumes a steady growth in service connections in the main body of Southold based upon the recent 5-year average, a completion date of 2034 for Phase 2 of the North Fork Water Main Project and an identical growth rate for Orient after 2034.

Table 5 – Southold Low Pressure Zone Demand Projections

Peak Analysis				
Year	**Projected Number of Southold Main Body Services**	**Projected Number of Orient Services**	**Total Projected Services in Southold Town**	**Projected Peak Demand (gpm)**
2024	9,759	0	9,759	12,396
2025	9,857	0	9,857	12,520
2026	9,970	0	9,970	12,664
2027	10,083	0	10,083	12,808
2028	10,196	0	10,196	12,951
2029	10,309	0	10,309	13,095
2030	10,422	0	10,422	13,238
2031	10,535	0	10,535	13,382
2032	10,648	0	10,648	13,525
2033	10,761	0	10,761	13,669
2034	10,874	310	11,184	14,206
2035	10,987	313	11,300	14,354
2036	11,100	316	11,416	14,501
2037	11,213	320	11,533	14,649
2038	11,326	323	11,649	14,797
2039	11,439	326	11,765	14,944
2040	11,552	329	11,881	15,092
2041	11,665	333	11,998	15,240
2042	11,778	336	12,114	15,387
2043	11,891	339	12,230	15,535
2044	12,004	342	12,346	15,683
2045	12,117	346	12,463	15,830
2046	12,230	349	12,579	15,978
2047	12,343	352	12,695	16,126
2048	12456	355	12,811	16,273
2049	12,569	359	12,928	16,421
2050	12,682	362	13,044	16,569

As can be seen from Table 5 above, it is projected that in 2050, there will be a total of 13,044 services in Southold, including Orient. The resulting peak demand for water will be 16,569 gallons per minute, which is 4,173 gallons per minute or approximately 33.6 percent more than the peak demand experienced in 2024. As can be seen, the contribution to peak demand from expansion of public water into Orient is assumed to start in 2034. This year was chosen since the process of expanding the water system is costly and will most likely require the application and approval of one or more grant applications. In addition, sufficient time must be allowed to account for community input.

As explained previously, there are three possible ways to address this projected future demand. Adding new wells, increasing storage or bringing in a source of water from outside the Southold hydrogeological system. As previously indicated, adding wells and increasing storage are not considered feasible due to the fact that the limited aquifer on the North Fork is not capable of sustaining additional water withdrawals without further degradation of the aquifer. In addition, without a plentiful source of water, there is not sufficient well capacity to fill additional storage tanks even if they were constructed. The only viable solution to addressing the current and future peak demand for water on the North Fork is by the importation of water from outside the Southold hydrogeological system. Importing water from outside the Southold hydrogeological system not only provides a mechanism for meeting future peak demand, it also provides the additional supply needed to offset the loss of well capacity due to curtailment of use in order to address chloride contamination. Finally, construction of the water main provides the off-peak surplus water that would be needed beyond 2050 so that traditional engineering methods of meeting peak demand such as increasing the amount of storage in the Southold low system could be implemented.

D. Analysis of Current and Future Volumetric Demand

From the standpoint of a water supplier, the ability to meet the peak demand is of primary importance when evaluating the capacity of a water system. It is safe to say that if a water system can meet its peak demand, then providing a sufficient quantity of water to its customers during non-peak periods is not a challenge. Notwithstanding this fact, similar to peak demand analysis, it is extremely important to understand the volumetric needs of the North Fork and how those needs will change over the next 25 years. This is particularly true in a groundwater setting where the aquifer is limited.

In order to accomplish this analysis, Suffolk County Water Authority engineers utilized the same data used for peak demand projections and applied the same rate of growth in service connections for both the main body of Southold along with Orient but this time in relation to the amount of water needing to be pumped from Authority wells to serve an average customer. Again, using 2024 calendar year pumpage statistics in Table 4 along with the number of active water services in Southold the per service annual water production is calculated as follows:

2024 total Southold Well Pumpage / 2024 total active services

=

1.497 Billion gallons / 9,759 Active water services

=

153,397 gallons pumped per domestic service

It must be emphasized that this amount is not what a typical customer consumes. This is what might be referred to as the gross amount of water pumped from Suffolk County Water Authority wells in order to service a typical customer. The amount actually consumed per service would be approximately 92 percent of this figure as the Suffolk County Water Authority calculates that in a typical year, 8 percent of water pumped will be lost for reasons such as use of hydrants for firefighting, water distribution system flushing, water main breaks or other forms of what is commonly referred to as “lost and unaccounted for water”. It will be shown through the volumetric analysis why this number is important. Table 6 below, which is data extracted from the North Fork Demand Projection Worksheet show in Appendix B, utilizes the gallons per service above to forecast the amount of water expected to be pumped from the aquifer over the next 25 years.

Table 6 – Southold Low Pressure Zone Volumetric Analysis

Volumetric Analysis				
Year	**Projected Number of Southold Main Body Services**	**Projected Number of Orient Services**	**Total Projected Services in Southold Town**	**Projected Total Annual Water Requirements North Fork (MG)**
2024	9,759	0	9,759	1,497
2025	9,857	0	9,857	1,512
2026	9,970	0	9,970	1,529
2027	10,083	0	10,083	1,547
2028	10,196	0	10,196	1,564
2029	10,309	0	10309	1,581
2030	10,422	0	10,422	1599
2031	10,535	0	10,535	1,616
2032	10,648	0	10,648	1,633
2033	10,761	0	10,761	1,651
2034	10,874	310	11,184	1,716
2035	10,987	313	11,300	1,733
2036	11,100	316	11416	1751
2037	11,213	320	11,533	1,769
2038	11,326	323	11,649	1,787
2039	11,439	326	11,765	1,805
2040	11,552	329	11,881	1,823
2041	11,665	333	11,998	1,840
2042	11,778	336	12,114	1,858
2043	11,891	339	12,230	1,876
2044	12,004	342	12,346	1,894
2045	12,117	346	12,463	1,912
2046	12,230	349	12,579	1,930
2047	12,343	352	12,695	1,947
2048	12,456	355	12,811	1,965
2049	12,569	359	12,928	1,983
2050	12,682	362	13,044	2,001

As can be seen from Table 6 above, it is projected that in 2050, there will be a total of 13,044 services in Southold, including Orient (providing that phase 2 proceeds). The resulting

total annual water required to serve Southold in 2050 will be approximately 2,001 MG which is 504 MG or 33.6 percent more than supplied in 2024. As explained previously, there are three possible ways to address this projected future increase in water required to serve Southold. Adding new wells and increasing storage are not considered feasible due to the fact that the limited aquifer on the North Fork cannot sustain additional water withdrawals without further degradation of the aquifer. In addition, without a plentiful source of water, there is not sufficient well capacity to fill additional storage tanks even if new tanks were constructed. The only viable solution to address the current and future potable water needs on the North Fork is by the importation of water from outside the Southold hydrogeological system.

VII. The North Fork Water Main Flow Analysis

A. Assumptions

To determine the appropriate capacity of the North Fork water main, it will be necessary to understand the amount of water that will be required to flow through it. The purpose of the North Fork water main is to supplement the Southold water system by providing water from outside its hydrogeological system. After construction and commissioning of the North Fork water main, many wells in Southold will continue to operate. Many however, will have their operation reduced to what is referred to as “last call” meaning that they run only during emergencies or in order to compensate for another well that has experienced a mechanical failure. The wells that will be placed into this category are those that are most impacted by chloride contamination. For the purposes of our analysis, these wells will be considered to have been turned off. Other wells that have been determined to be moderately impacted by chlorides will see their annual pumpage reduced by approximately 20 to 25 percent. The determination of which wells are to be either placed in last call or will have their pumpage reduced is based on the Suffolk County Water Authority’s long experience with operating these wells and their response to pumping. This modulation and close management of pumping to manage chlorides is also based on the Suffolk County Water Authority’s experience which has demonstrated that when a well is allowed to rest, or if its pumpage is reduced, the aquifer typically recovers, after which a well can resume production.

B. Curtailment of Well Operation

The Suffolk County Water Authority has identified 8 wells that, due to high levels of chloride contamination and once the North Fork water main went into service, would be shut down and used only for emergencies. These wells are listed in Table 7 along with their 3-year annual average volumetric production and their contribution to peak demand.

Table 7 – Wells Identified as Emergency-Use Only

Station	Well #	Contribution to Peak Demand (gpm)	Chlorides (mg/L) Min	Chlorides (mg/L) Max	2022 (MG)	2023 (MG)	2024 (MG)	3-yr Avg (MG)
Old North Rd	3	300	37	121	8.018	8.322	6.580	7.640
Sound Ave	3	200		183	2.135	2.399	2.918	2.484
Laurel Lake	2A	200	30	125	1.896	2.082	2.293	2.090
The Long Way	1A	150	23	100	9.413	7.102	4.396	6.970
The Long Way	2	150	42	150	2.407	4.893	4.214	3.838
Islands End	8A	150	65	150	4.791	4.411	1.850	3.684
Islands End	10	150	50	150	2.496	2.353	2.866	2.572
Rocky Point Rd	6	50	37	126	4.530	3.312	1.814	3.219

Total contribution to peak demand = 1,350 gallons per minute
Total 3-year average production reduction by taking wells out of service = 32.497 MG

The Suffolk County Water Authority has also identified 9 wells that, due to rising chloride concentrations, would have their production curtailed in order to reduce the stress on the aquifer where they are screened. These wells are listed in Table 8 showing their 3-year annual average volumetric production along with the amount by which their production will be curtailed (20-25%).

Table 8 - Wells Identified for Production Curtailment

Station	Well #	Chlorides (mg/L) Min	Max	2022 (MG)	2023 (MG)	2024 (MG)	3-yr Avg	Notes	Annual Reduced Production
Inlet Dr	1A	27	71	11.242	11.129	13.334	11.902	Reduce 25%	2.975
Inlet Dr	2A	37	58	14.761	14.581	17.458	15.600	Reduce 25%	3.900
Laurel Lake	1	17	25	9.975	10.141	9.253	9.790	Reduce 20%	1.958
Sound Ave	4	14	55	11.979	6.946	11.344	10.090	Reduce 25%	2.522
Old North Rd	1A	31	80	33.944	28.666	27.731	30.114	Reduce 25%	7.528
Brecknock Hall	1	55	76	18.090	17.981	9.045	15.039	Reduce 25%	3.760
Brecknock Hall	2	55	72	6.514	12.010	12.361	10.295	Reduce 25%	2.574
Islands End	6A	24	28	5.523	6.388	7.789	6.567	Reduce 20%	1.313
Islands End	7A	45	100	6.916	9.580	8.842	8.446	Reduce 20%	1.689

Total 3-year average production = 117.843

Total 3-year annual average reduction in production due to curtailed operation = 28.220 MG

As can be seen from the two tables above, the total reduction in peak demand and volumetric production through shutting down 8 wells above and curtailing the operation of 9 wells is 1,350 gallons per minute and 60.717 MG respectively. It is planned that these operational changes to the wells will occur concurrently with the North Fork water main going into service. After that point, all reduced well production will be made up through flow from the North Fork water main. In the years following the North Fork water main going into service, any new demand for water related to the increase in the number of service connections due to customer growth in the main body of Southold or in the event Orient is eventually served by public water, all new demand for water will be satisfied by the North Fork water main. The North Fork Demand Projection Spreadsheet in Appendix B provides the complete analysis of customer growth, peak analysis, well production, tank contributions as well as volumetric transfer calculations for the North Fork water main over a 25-year period.

C. Southold Water Demand and Flows Through the North Fork Water Main

The North Fork Demand Projection Worksheet shown in Appendix B provides a 25-year analysis of all sources of water used to satisfy demand starting in 2024, the baseline year, and projecting out to 2050. The worksheet projects peak and volumetric flows through the water main that will occur over a 25-year period to the main body of Southold and Orient. Major assumptions are that the water main goes into service in 2027 and that public water would be initially extended to Orient in 2034. As can be seen in the worksheet, the maximum peak flow through the water main occurs in the year 2050 and is calculated to be 5,423 gallons per minute. In that same year it is expected that a total of 515 MG of water will pass through the water main in order to serve the needs of Southold. Further details explaining the assumptions used to develop the worksheet are included in the assumptions section of the worksheet.

D North Fork Transmission Water Main Source of Water and Aquifer Impact

The Suffolk County Water Authority has considered the need for a water main to supplement the water needs of Southold for many years. Through careful management of well production and by making many improvements to the Southold Low pressure zone distribution system including the construction of additional storage facilities, the Suffolk County Water Authority has managed to sustain operations and serve its customers. It is now clearly evident that the importation of water from outside the North Fork hydrogeological system is necessary for long term sustainability.

Regardless of the capacity and route of the water main, the source of the water has always been considered to be the Suffolk County Water Authority South Shore Low pressure zone. The Suffolk County Water Authority system is divided into over 50 pressure zones. It is necessary to divide the system up this way due to the variations in land surface elevation found throughout Suffolk County. As a result, the Suffolk County Water Authority system functions more like 50 smaller, interconnected water systems, rather than one large water system. The largest pressure zone in the Suffolk County Water Authority water system is the South Shore Low pressure zone. Land surface elevations on the south shore of Suffolk County gently slope towards the Great South Bay and this is true from Amityville all the way to where the Suffolk County Water Authority system meets the Hampton Bays Water District boundary just east of Quogue. This entire

distance from sea level up to roughly the 70-foot land elevation constitutes the largest pressure zone in the Suffolk County Water Authority system. The South Shore Low pressure zone is served by 163 wells and in 2024, a total of 27.7 billion gallons was pumped from those wells in order to serve the residences and businesses within its boundaries. Figure 16 provides an overview of the size and scope of the Suffolk County Water Authority South Shore Low pressure zone. The water quality in the South Shore Low pressure zone is generally considered to be excellent and given its size compared to the Southold Low pressure zone it is clear that it can easily serve as the source of water for the North Fork water main.

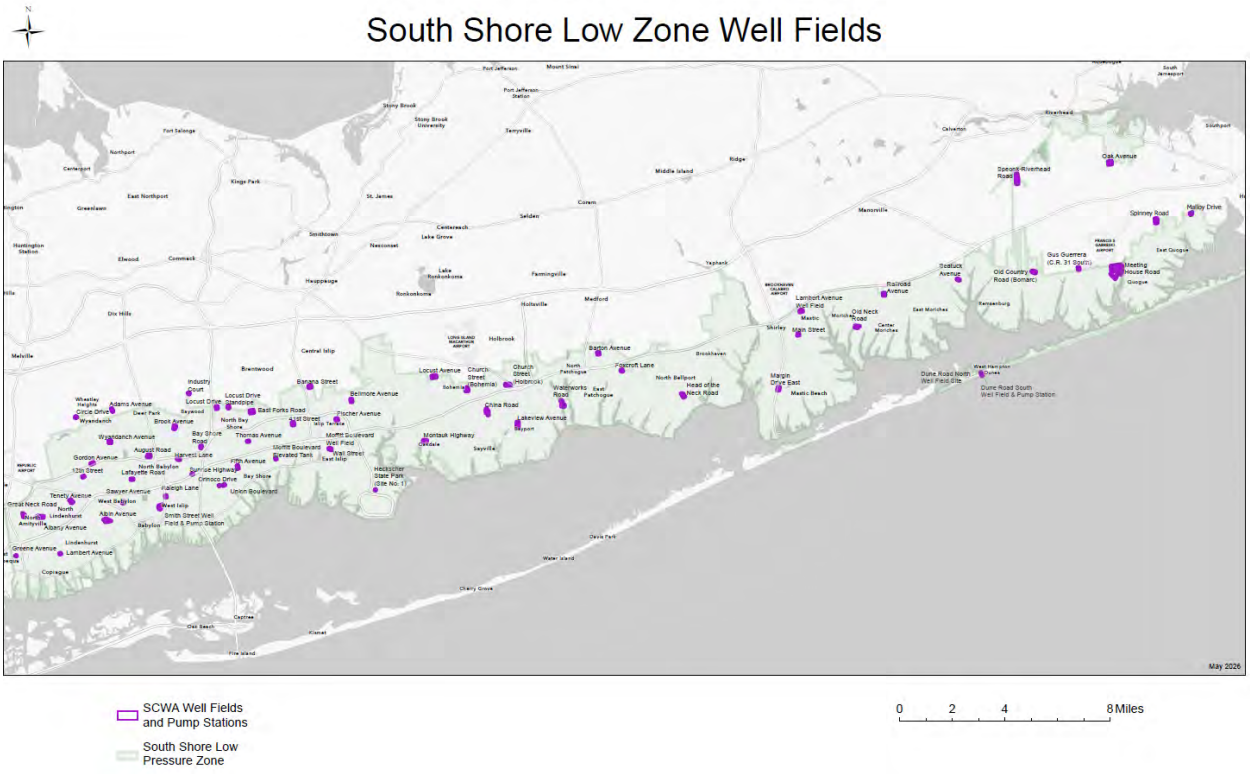


Figure 16 South Shore Low Water Pressure Zone

It is important to note that while the South Shore Low pressure zone is very large, it is only the farthest east portion of it that will serve as the source of water for the North Fork water main since that is where the line's terminus is located (Flanders). In light of this, only those wells considered to be contributors to the North Fork water main will be analyzed with respect to the hydrogeological impact created when those wells pump additional water throughout the year to support the North Fork water main. The act of pumping additional water from the South Shore Low pressure zone and transmitting it to Southold will, in general, have the impact of lowering

aquifer levels in eastern end of the South Shore low pressure zone and raising levels in the aquifer in the area of the Southold Low pressure zone. The Suffolk County Water Authority has commissioned CDM-Smith to perform an analysis that evaluates the impact to the aquifers in both areas. This analysis is contained in the following section.

VIII. North Fork Water Main Groundwater Model Analysis

A. Introduction

The extraction of water from one area to supply another can produce measurable environmental impacts in both the source and receiving areas. These effects relate to water withdrawal (South Shore Low pressure zone), the usage, and subsequent recharge processes in the Southold area. It is also important to note that the design of the infrastructure (use of booster pumps) and hydraulic constraints (pressure differences due to elevation) will only allow water in the water main to flow toward the east, making it physically impossible to transport water from Southold to the South Shore Low pressure zone.

Given the scale and complexity of the ecological systems in both the South Shore Low pressure zone Quogue vicinity and the North Fork Southold area, a comprehensive evaluation of these impacts is essential, requiring the application of the most advanced analytic tools and modeling techniques available.

To evaluate the environmental impacts of the North Fork water main project to both Southold and the South Shore Low pressure zone, the Suffolk County Water Authority hired CDM to conduct a detailed analysis using Suffolk County Subwatersheds Groundwater models. The CDM report detailing the model parameters, simulations approach, data output analysis, and result assessment is presented in Appendix C.

B. CDM Report Overview

The North Fork Water Main project will use water pumped from existing Suffolk County Water Authority's South Shore Low pressure zone and transmit that water to the Town of Southold to replace groundwater produced by existing Southold water supply wells, some of which have operational restrictions due to elevated chloride concentrations. It will also support new connections to the public distribution system in the Town of Southold, including properties

converting from private wells, new development along with areas such as Orient where elevated detections of PFAS are driving the need for the extension of public water.

This analysis uses two models developed for the Suffolk County Department of Health Services' Subwatersheds Wastewater Plan: the freshwater Nork Fork Model and the Main Body Flow model. Their fine discretization allows for improved representation of groundwater/surface water interactions and the recharge distribution across the North Fork.

The models were run to evaluate two potential impacts from the North Fork Water Main Project:

1) Water table mounding – Within the Town of Southold, most properties use onsite wastewater systems (e.g. septic tanks) that return water to the aquifer. Recharge from wells already served by the Suffolk County Water Authority is included in the groundwater model. New connections will either eliminate withdrawals from private wells or avoid new withdrawals, resulting in a net increase in recharge from imported North Fork water main water.

2) Water table drawdown and reduced stream flow – By 2050, approximately 980 gallons per minute supplied to the North Fork water main will increasing pumping, causing some water table decline from current (2022-2024) conditions and reduce baseflow to streams within the vicinity of the increased pumpage.

Although the North Fork water main route is not yet finalized, it is expected to originate in the South Shore Low pressure zone near Riverside and connect to the Southold Low pressure zone. Flow is projected to increase linearly to meet future demand, with an average of 113 new services added per year. Sea level rise has not been incorporated into the analysis since it's impact will take place regardless of this project. In addition, importing water into the Southold Low hydrogeological system, where the impacts of seal level rise are expected to be profound will only help to offset the negative impact to the fresh-. water resource caused by sea level rise.

Pumping Configuration

Several water supply wells within Southold will be either shutdown or reduced (Table 9), with their withdrawals replaced by supply from the North Fork water main. Wells supplying the North Fork water main are listed in Table 10, along with projected pumping increases (in gallons per minute), based on annual average pumping). By 2050, average flow through the water main

is estimated at 980 gallons per minute, distributed across 33 wells within the Quogue area based on relative installed capacities.

In order to represent worst-case conditions, the Main Body model was run under steady-state conditions, corresponding to:

1) Average annual (2022,2023,2024) conditions of pumping and recharge were used. Precipitation recharge was based on data from the Brookhaven National Laboratory for Suffolk County and the gage in Mineola for Nassau County. Suffolk County pumping and sanitary return were applied from the Main Body in the Suffolk County model as Nassau County conditions do not affect the study area. Sanitary return follows the Subwatersheds Wastewater Plan (2012-2013) assumptions set at 85% of average winter pumping.

2) Increased pumping conditions. Additional pumpage as shown in Table 10 was applied to the selected wells (without additional sanitary recharge).

Approach for Southold

The north fork model was run under transient conditions using average annual pumping and precipitation recharge (data gathered from the Riverhead Research Farm). A new baseline was developed using 2022, 2023 to 2024 average conditions. Sanitary return was applied to model nodes intersecting developed parcels using Suffolk County Planning Department 2016 land use GIS data based on 85% of winter pumpage. Average pumping seasonal adjustments followed Subwatersheds Wastewater Plan assumptions with return multiplied by 2.5 in Southold and 1.4 in Riverhead during summer months. Each parcel was represented by one node even for large parcels. Recharge for new customers was added as described in Appendix C North Fork Water Main Modeling - CDM. Assuming 113 new customers per year from 2027 to 2050, this results in 2,712 new Southold connections, excluding Orient. Although 113 new connections per year are assumed, it is not known where those connections will be made during any given year. Therefore, a random number generator was utilized on the 2,712 model nodes to assign “new connections”. The numbers were randomly assigned, sorted and distributed from low to high to represent parcels added from 2026 through 2050.

The Suffolk County Water Authority currently serves part of the Village of Orient (the Brown's Hills Community), the North Fork water main will extend service to the southeastern area with elevated concentrations PFAS, and these parcels are included.

Table 9. Suffolk County Water Authority Wells within Southold to be Reduced or Emergency-Use-Only for the North Fork Water Main

Station	Well #	S#	Auth Cap (gpm)	Projected Status
Old North Rd	3	S-83475	500	Shut-Down
Sound Ave	3	S-123898	500	Shut-Down
Laurel Lake	2A	S-127039	200	Shut-Down
The Long Way	1A	S-134405	150	Shut-Down
The Long Way	2	S-134404	150	Shut-Down
Islands End	8A	S-125107	150	Shut-Down
Islands End	10	S-125108	150	Shut-Down
Rocky Point Rd	6	S-131282	50	Shut-Down
Inlet Dr	1A	S-105669	150	Reduce 25%
Inlet Dr	2A	S-108347	200	Reduce 25%
Laurel Lake	1	S-101755	200	Reduce 20%
Sound Ave	4	S-126521	500	Reduce 25%
Old North Rd	1A	S-134899	500	Reduce 25%
Brecknock Hall	1	S-76772	200	Reduce 25%
Brecknock Hall	2	S-118097	150	Reduce 25%
Islands End	6A	S-124937	100	Reduce 20%
Islands End	7A	S-125174	200	Reduce 20%

Table 10. Wells to Supply the North Fork Water Main

DEC ID	Wellfield	Well ID	Actual Cap (gpm)	Average Pumping (gpm)[1]	Extra Average Pumping for Pipeline (gpm)
S-Cent1	Central Boulevard	1	1388	500.00	42.69
S-Cent2	Central Boulevard	2	1388	500.00	42.69
S-112236	COUNTY RD 31	1	1100	148.11	33.83
S-113672	COUNTY RD 31	2	1100	135.17	33.83
S-122364	GUS GUERRERA	1	825	148.44	25.37
S-124263	GUS GUERRERA	2	1000	187.12	30.76
S-130263	GUS GUERRERA	3	1000	204.65	30.76
S-115945	MALLOY DR	1	950	224.30	29.22
S-115899	MALLOY DR	2	950	216.69	29.22
S-10733	MEETINGHOUSE	14	100	23.80	3.08
S-17577	MEETINGHOUSE	16	100	0.00	3.08
S-17576	MEETINGHOUSE	17	100	25.85	3.08
S-20687	MEETINGHOUSE	19	150	25.88	4.61
S-96673	MEETINGHOUSE	22	450	118.06	13.84
S-127777	MEETINGHOUSE	12A	250	70.08	7.69
S-109073	MORICHES-RIVRHD	3	950	231.99	29.22
S-128260	MORICHES-RIVRHD	1A	1100	269.90	33.83
S-118987	MORICHES-RIVRHD	2A	1050	255.43	32.29
S-120958	OAK AV	1	650	309.44	19.99
S-65905	OLD COUNTRY RD	3	350	59.81	10.76
S-108911	OLD COUNTRY RD	4	1100	190.04	33.83
S-111969	OLD COUNTRY RD	1A	850	123.71	26.14
S-94286	QUOGUE-RIV	1	1750	291.18	53.82
S-108161	QUOGUE-RIV	2	1300	214.99	39.98
S-81473	RAILROAD AV	2	1250	268.90	38.44
S-126134	RAILROAD AV	3	1388	292.43	42.69
S-136135	RAILROAD AV	1A	1388	266.50	42.69
S-121517	SEATUCK AVE	1	1250	237.71	38.44
S-124983	SEATUCK AVE	2	1300	236.16	39.98
S-121294	SEATUCK AVE	3	1300	231.82	39.98
S-123249	SPINNEY RD	3	1250	181.04	38.44
S-133227	SPINNEY RD	4	1388	216.64	42.69
S-136559	SPINNEY RD	5	1388	185.97	42.69

[1] Average annual pumping (equivalent gpm) from 2022, 2023 and 2024

C. Summary of Results

Groundwater model simulations indicate minor impacts with slight water table increases in Southold and mild drawdown in the South Shore Low pressure zone compared to current (2022-2024) conditions. Increased pumping at selected wells within the SCWA South Shore Low pressure zone remains within permitted capacity. Simulated water table drawdown on the Main Body model following the additional pumping is shown in Table 10. Average annual water table drawdown, as compared to average 2022-2024 conditions, is mild having a maximum of between 0.3 and 0.35 feet in the vicinity of the Gus Guerrera well field. The maximum simulated increase in the water table on the North Fork resulting from the reduced pumpage and additional water supplied by the North Fork Water Main is 0.27 feet but is variable and less throughout most of the Town. The increase is within seasonal fluctuations observed within Southold (see drawdown and water table contour figures in Appendix C North Fork Water Main Modeling – CDM.

Simulated baseflow to Aspatuck Creek and Quantuck Creeks is mildly reduced, with a difference from baseline (2022-2024) conditions of approximately 0.04 cubic feet per second (Table 11). Simulated baseflow under baseline conditions is within the ranges of measured stream flow over the period of record for each stream. The decline in simulated baseflow represents between 2.1 and 4.5% of simulated baseline conditions at the United States Geological Survey stream gage locations.

Table 11 Simulated Baseflow (Cubic Feet/Second)

Stream	Simulated Baseflow (cfs)		
	Baseline	Simulation	Difference
Aspatuck Creek:	1.79	1.75	-0.04
Beaverdam Pond	1.34	1.28	-0.06
Quantuck Creek:	1.23	1.19	-0.04
Speonk River	1.10	1.07	-0.03

IX. Analysis of Potential Water Main Routes, Booster and Orient Extension

A. Pipeline Route - General

The North Fork water main will be constructed so as to move water from the Suffolk County Water Authority's South Shore Low pressure zone to the Southold Low pressure zone. Water will be transmitted only to Southold and it will not be possible for water to flow back into the South Shore Low pressure zone. All water flowing through the water main will be metered and large variable speed booster pumps will be utilized to modulate the flow through the water main depending upon demand. The control of the booster pumps and the monitoring of water main flows will be accomplished by utilizing the Suffolk County Water Authority's SCADA system. Integrating the water main monitoring and controls with the system that controls well operation and tank levels on the North Fork will ensure that flows and pressures are carefully controlled. To efficiently move the water, it is desirable for the water main to be as short as possible and so the origin of the water main should be logically sited in the Riverside/Flanders area, which is the northernmost part of the South Shore Low pressure zone in that area. From that point, the primary obstacle to reach the Town of Southold is crossing the Peconic River. Any crossings west of Cross River Drive would require installing a water main through downtown Riverhead, which would present significant constructability issues due to congestion from existing utilities and the potential for construction related disruption to local traffic and commerce. For this reason, it was determined that the optimal Peconic River crossing location is via directional drilling alongside the existing CR-105 bridge. Approximately 15 years ago, a permit for this same crossing was applied for and issued by the New York State Department of Environmental Conservation. A copy of that permit is included in Appendix E. The Suffolk County Water Authority routinely employs horizontal directional drilling in cases where surface obstructions preclude open-cut installation of water mains. These obstructions could range from busy roadways, railroad crossings to waterways. Directional drilling is considered to be environmentally friendly as the pipe can be installed without disturbance to the land surface or in this case a river waterway. When completed, the water main will rest approximately 30 feet below the river bottom and as such, no disturbance to marine life or the aquatic environment is anticipated. The Suffolk County Water Authority has previously installed long directional drills to cross the Connetquot and Carmens Rivers with great success. Once across the Peconic River, the considered routes all follow CR-105 until north of Indian Island Park. From there, only three roadways connect west to east to Southold. The analysis evaluates three key aspects for each route: the estimated cost, the head loss on the suction side of the booster, and the transit time for water through the water main.

Each route under consideration must be evaluated from both a constructability and a hydraulic standpoint. Constructability refers to the complexity of constructing the water main including, the methods required and the potential impacts during construction. Hydraulic analysis focuses on two primary factors: head loss and water age. Head loss represents the amount of energy lost when pumping water through the water main at the design flow rates. Regardless of the selected route, the water main material would be the same, therefore, the major factors affecting head loss are elevation change along the route, total route length, and the water main diameter. With design flow rates of 6,000 gallons per minute, two standard pipe sizes were evaluated: 24-inch and 36-inch diameters. Pipes smaller than 24-inches result in significant head loss over the required length. Conversely, pipes larger than 36 inches significantly increase construction costs, partly due to the greater excavation depth needed to ensure adequate cover over the pipe. Water Age is the other key hydraulic factor that must be evaluated. It represents the time required for water to travel through the transmission route. As water main diameter increases, the total volume within the water main also increases, which leads to higher water age. Elevated water age can negatively impact water quality, as chlorine residuals decrease over time. The following sections analyze cost, hydraulics and water age for each potential route.

B. Route One - Via Peconic Bay Boulevard

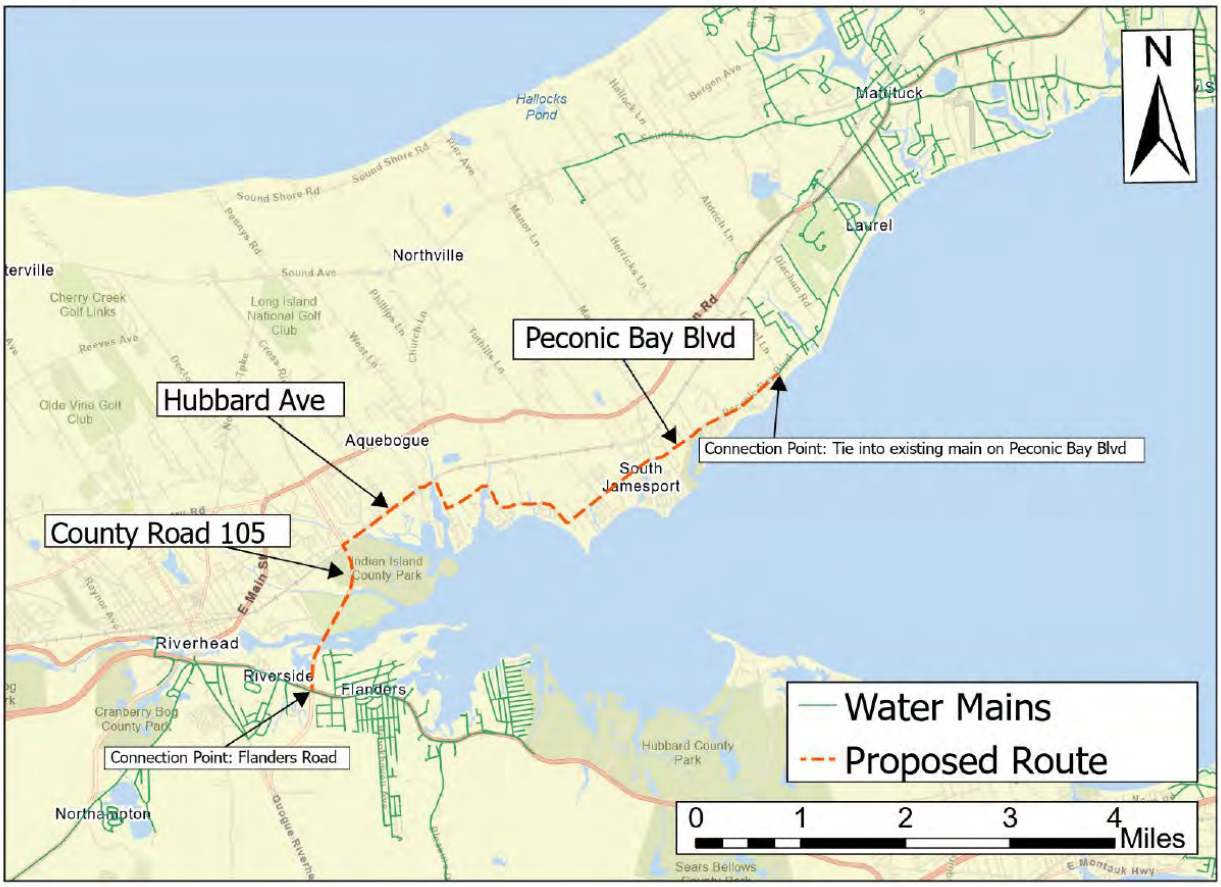


Figure 17 – Proposed North Fork Water Main Route on Peconic Bay Boulevard

1. Details – Peconic Bay Boulevard Route

The southernmost of the three routes with a total length of 45,650 linear feet. This route follows Peconic Bay Boulevard after the Peconic River crossing via directional drill. The water main would then proceed along the shoulder of Cross River Drive for approximately 4,000 linear feet, enter Indian Island County Park following interior roadways until it exits the park on the north side at Hubbard Avenue, continue east on Hubbard Avenue for approximately 4,900 linear feet until Meeting House Creek Road and then head south of Meeting House Creek Road for approximately 2,200 linear feet until reaching Peconic Bay Boulevard. The route then continues east on Peconic Bay Boulevard for approximately 25,000 linear feet where it would connect to the Suffolk County Water Authority's existing distribution system near Laurel Lane. The main would also be extended north on Laurel Lane for 5,000 linear feet until Main Road, where it would head east for approximately 800 linear feet. The main would then connect to an existing 16-inch water main on Main Road. Over the course of this route, there would be over a dozen waterway

crossings, each requiring a directional drill. In addition, a booster station would be built within the Indian Island Park property. Constructing a booster station within the park would require permission from Suffolk County Parks along with an alienation of parkland.

2. Estimated Cost– Peconic Bay Boulevard Route

The estimated contract cost (contract costs do not include Authority overhead or contingencies) for this route is approximately $20,000,000, with an average cost per foot of $438.13. A detailed breakdown of the contractor costs is shown below. The primary cost drivers for this route are the overall length and the substantial number of directional drills.

Table 12 - Estimated Cost– Peconic Bay Boulevard Route

Highway/ Street	Pipe Footage	Price PF	Drill Footage	Drill PPF	HDD Total	Total Footage	Resto PPF	Est. Contract Cost-$
Cross River Drive	1,527	285	0	910	$ -	1,527	$ 125.00	$626,070
Cross River Drive	1,527	285		910	$ -	1,527	$ 125.00	$626,070
Peconic River Drill			1,951	910	$ 1,775,410	1,951	$ -	$1,775,410
Cross River Drive	3,751	255		910	$ -	3,751	$ 6.00	$979,011
Indian Point Rd. Thru Park to Hubbard	1,834	255	0	910	$ -	1,834	$ 87.00	$627,228
Hubbard Ave.	4,371	255	600	910	$ 546,000	4,971	$ 87.00	$2,040,882
Meeting House Creek Rd.	1,638	285	600	910	$ 546,000	2,238	$ 87.00	$1,155,336
Peconic Bay Blvd (to Laurel Lake)	26,577	285	2,800	910	$ 2,548,000	29,377	$ 87.00	$12,434,644
TOTAL	**39,698**		**5,951**		**$ 5,415,410**	**45,649**		**$19,638,581**

3. Hydraulic Analysis– Peconic Bay Boulevard Route

Analysis of the head loss through the water main demonstrates negligible head loss prior to the booster station. This is due to the booster's closer proximity to the origin of the water main and the absence of a significant elevation differential between the two. Even with the smaller diameter pipe at maximum flow rates, head loss remains reasonable at approximately 8.5 psi, as shown in the chart below. The second chart shows a significant increase in water age between the 24-inch and 36-inch pipes when the main operates at lower flow rates.

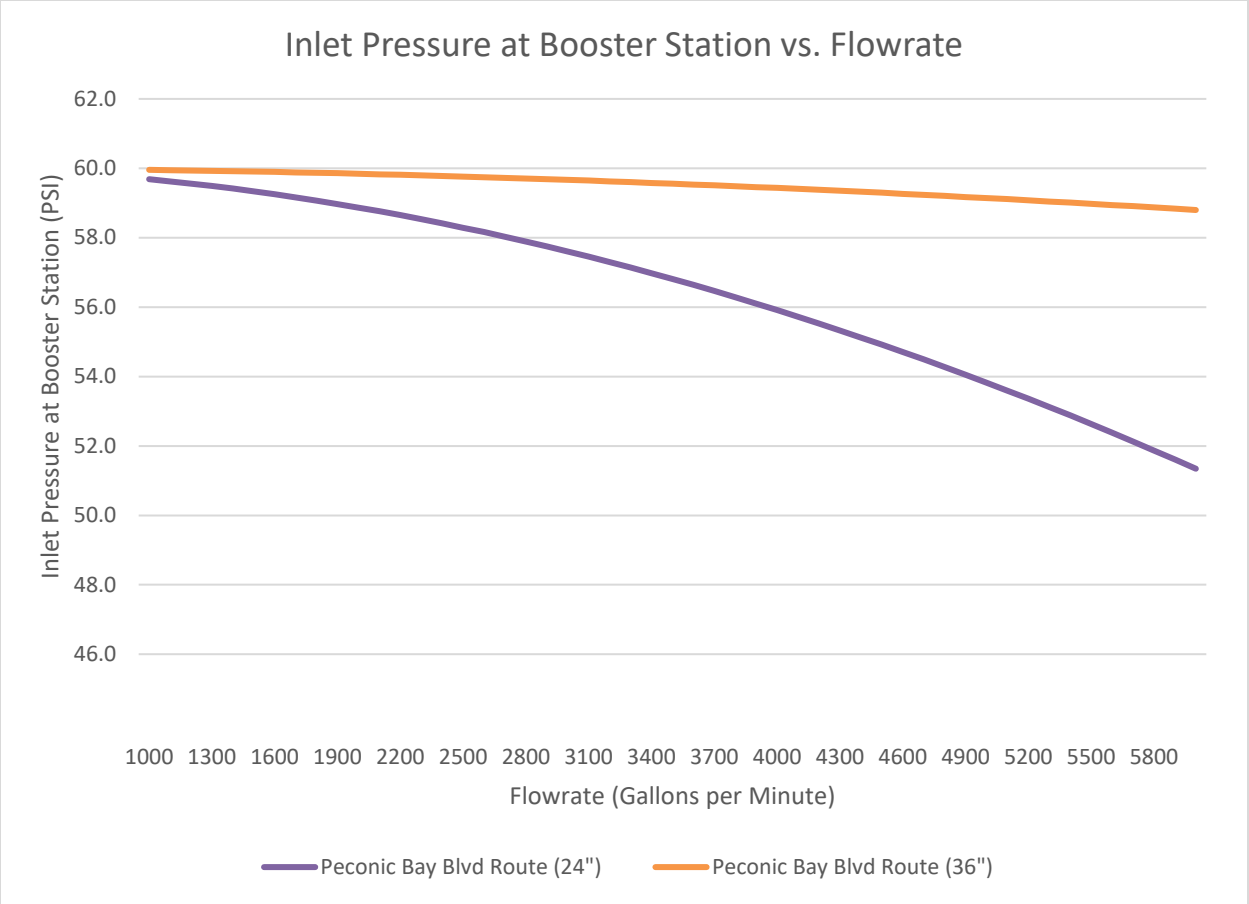

Inlet Pressure at Booster Station vs. Flowrate
62.0
60.0
58.0
56.0
54.0
52.0
50.0
48.0
46.0
Inlet Pressure at Booster Station (PSI)
1000 1300 1600 1900 2200 2500 2800 3100 3400 3700 4000 4300 4600 4900 5200 5500 5800
Flowrate (Gallons per Minute)
Peconic Bay Blvd Route (24")
Peconic Bay Blvd Route (36")

Figure 18

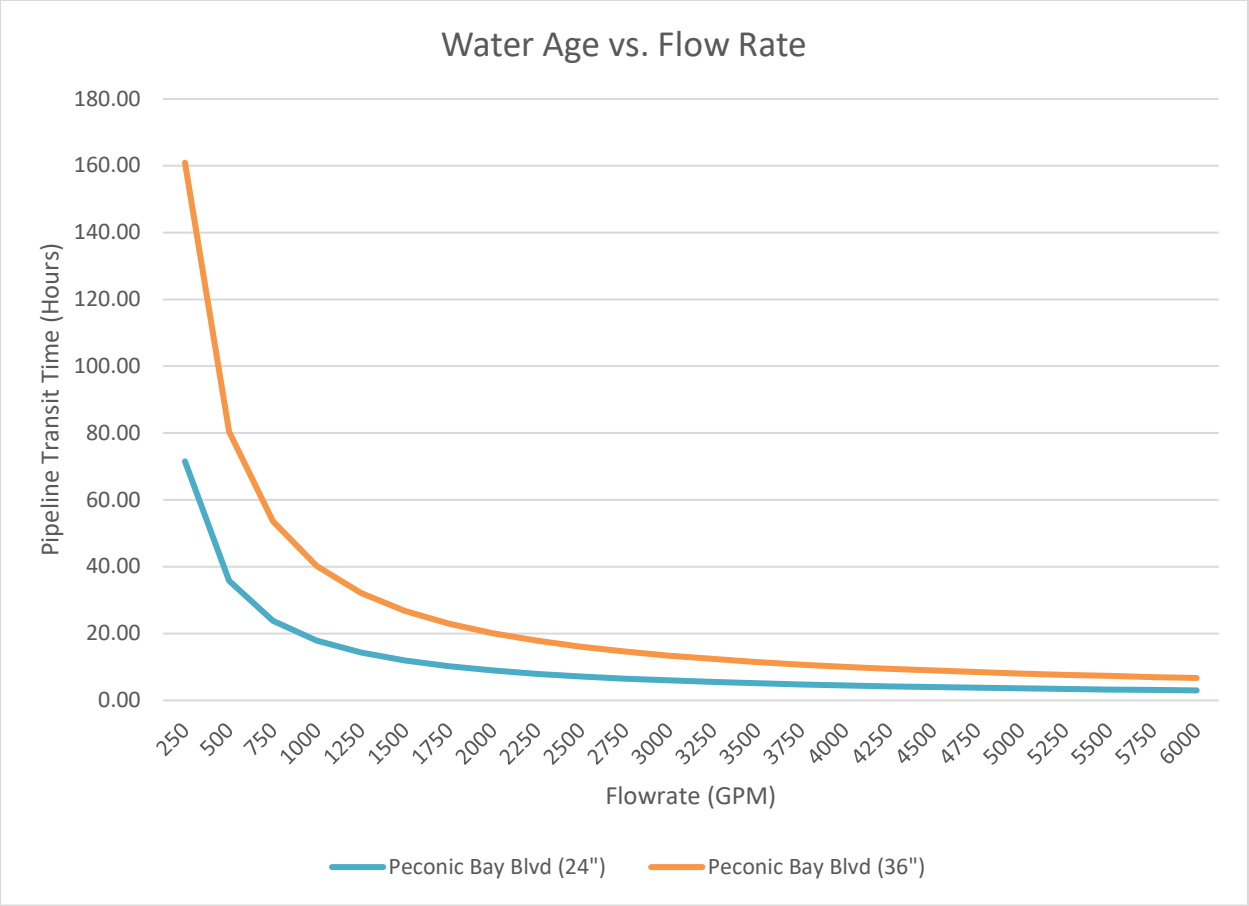

Water Age vs. Flow Rate
180.00
160.00
140.00
120.00
100.00
80.00
60.00
40.00
20.00
0.00
Pipeline Transit Time (Hours)
250
500
750
1000
1250
1500
1750
2000
2250
2500
2750
3000
3250
3500
3750
4000
4250
4500
4750
5000
5250
5500
5750
6000
Flowrate (GPM)
Peconic Bay Blvd (24")
Peconic Bay Blvd (36")

Figure 19

C. Route Two - Via Sound Avenue

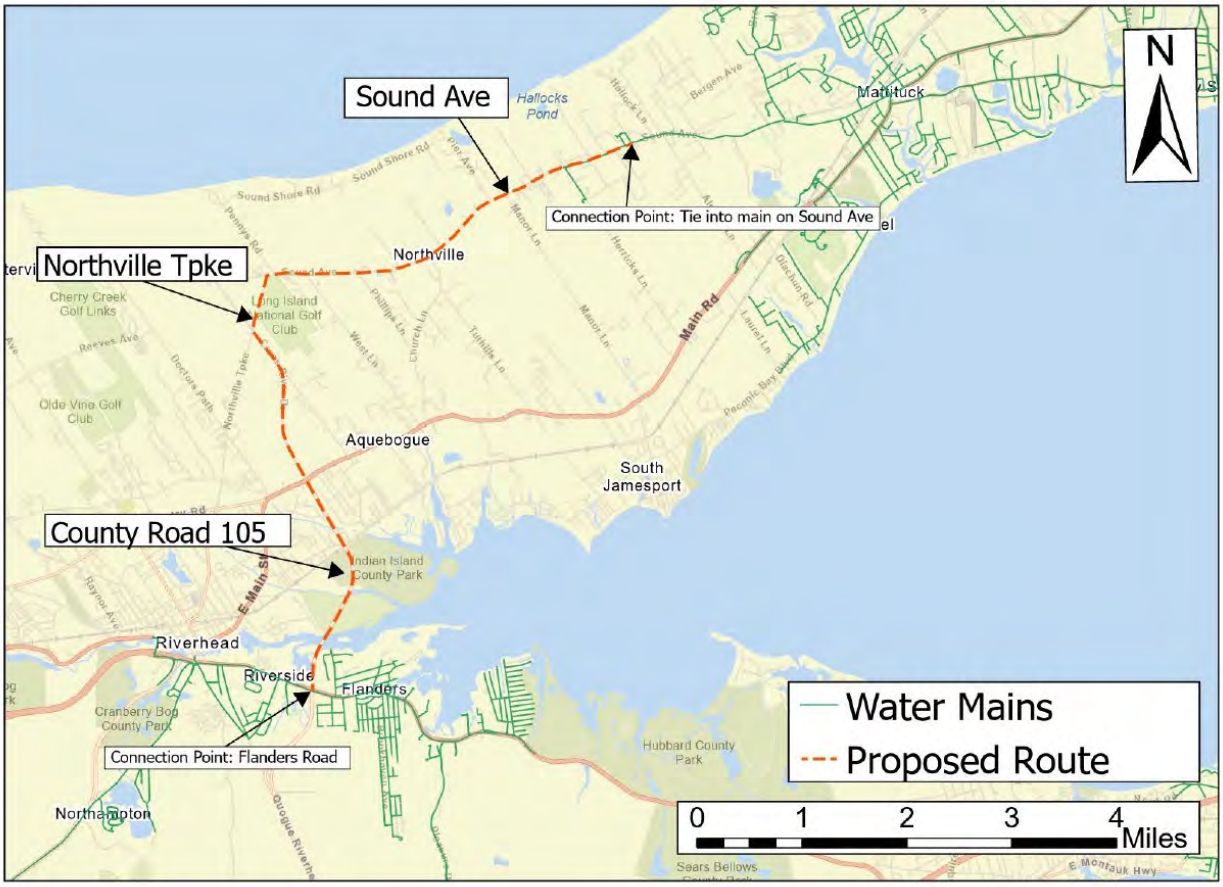


Figure 20 - Proposed North Fork Water Main Route on Sound Avenue

1. Details- Sound Avenue

The northernmost of the three routes with a total length of 43,077 linear feet, with much of its footage along Sound Avenue, which runs west to east on the northern part of the North Fork. After the Peconic River directional drill, the main route would follow along the shoulder of Cross River Drive for approximately 17,000 linear feet. Once it reaches Northville Turnpike, it will remain on the shoulder heading north for approximately 2,800 linear feet before turning east on Sound Avenue. The water main would then run on Sound Avenue for approximately 20,000 linear feet until it ties into an existing 16-inch water main just over the Town of Southold border. The Suffolk County Water Authority currently owns a parcel of land on Pier Avenue, approximately 12,500 linear feet east of Northville Turnpike along the water main route – which is the proposed location of the booster station.

2. Estimated Cost- Sound Avenue

The estimated contract cost (contract costs do not include Authority overhead or contingencies) for this route is approximately $16,000,000 with an average cost per foot of $371.42. A detailed breakdown of the contractor costs is shown below. Sound Avenue is a town road with typical asphalt construction which results in lower restoration costs. Additionally, much of the route on Cross River Drive and Northville Turnpike is off-roadway, further reducing the overall cost of final restoration.

Table 13- Estimated Cost- Sound Avenue

Highway/ Street	Pipe Footage	Price PF	Drill Footage	Drill PPF	HDD Total	Total Footage	Resto PPF	Est. Contract Cost-$
Cross River Drive	1,527	285	0	910	$ -	1,527	$ 125.00	$626,070
Peconic River Drill	0		1,951	910	$ 1,775,410	1,951	$ -	$1,775,410
Cross River Drive	3,751	255	0	910	$ -	3,751	$ 6.00	$979,011
Hubbard Ave. Drill	0		1201	910	$ 1,092,910	1,201	$ -	$1,092,910
Cross River Drive	3,122	255	0	910	$ -	3,122	$ 6.00	$814,842
Main Road Drill	0		171	910	$ 155,610	171	$ -	$155,610
Cross River Drive	8,193	255	0	910	$ -	8,193	$ 6.00	$2,138,373
Northville Turnpike	2,853	255	0	910	$ -	2,853	$ 6.00	$744,633
Sound Ave	20,308	285	0	910	$ -	20,308	$ 87.00	$7,554,576
TOTAL	**39,754**		**3,323**		**$ 3,023,930**	**43,077**		**$15,881,435**

3. Hydraulic Analysis- Sound Avenue

From a head loss perspective, this route faces two major challenges. First, the proposed booster station is the furthest from the water main origin of any of the routes. Second, the elevation of Sound Avenue is approximately 60 feet higher than where the water main originates. Consequently, there is significant pressure loss between the origin and the booster station. The first chart below highlights the inlet side pressures at the booster station for this route. Notably, at higher flow rates, the inlet-side pressure drops below 20 psi when utilizing a 24-inch main; New York State Sanitary Code requires a minimum pressure of 20 psi. To overcome this, an additional booster station would be necessary to accommodate the higher flow rates, or the main would have to be upsized to a 36-inch pipe. The second major consideration is the expected water age. Similar to the Peconic Bay Boulevard route, the water age increases significantly at the lower flow rates, and this issue is exacerbated with the larger 36-inch main.

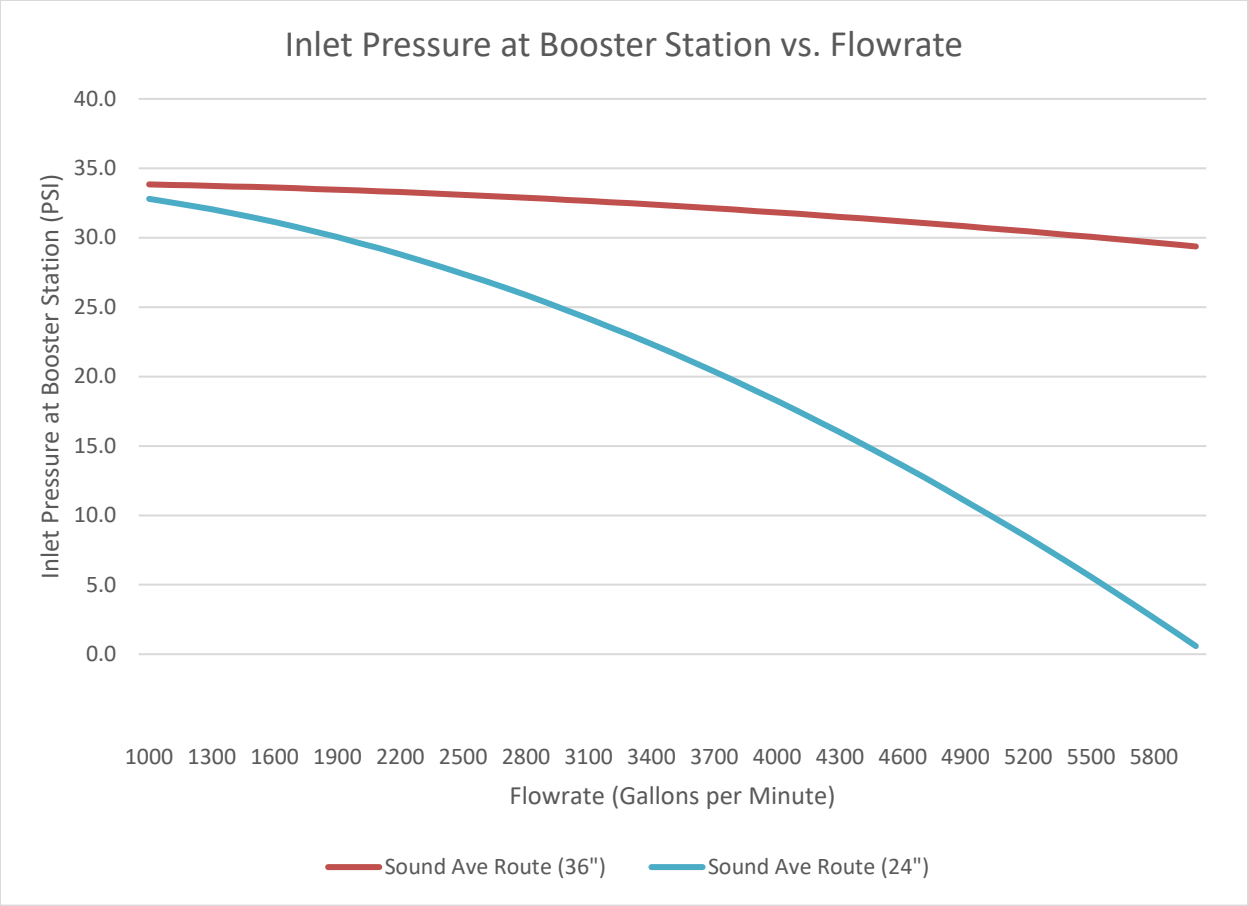

Inlet Pressure at Booster Station vs. Flowrate
Inlet Pressure at Booster Station (PSI)
40.0
35.0
30.0
25.0
20.0
15.0
10.0
5.0
0.0
1000 1300 1600 1900 2200 2500 2800 3100 3400 3700 4000 4300 4600 4900 5200 5500 5800
Flowrate (Gallons per Minute)
Sound Ave Route (36")
Sound Ave Route (24")

Figure 21

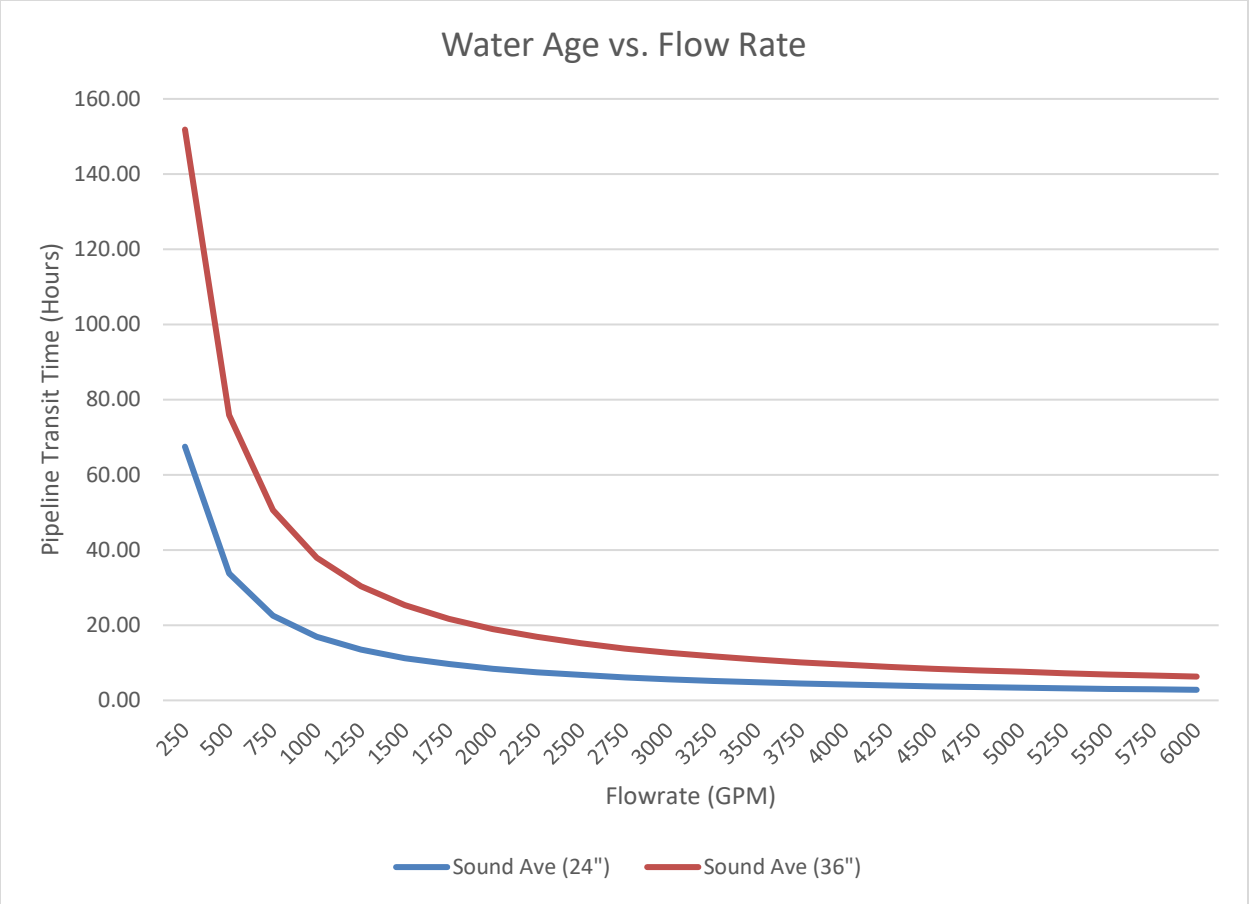

Water Age vs. Flow Rate
160.00
140.00
120.00
100.00
80.00
60.00
40.00
20.00
0.00
Pipeline Transit Time (Hours)
250
500
750
1000
1250
1500
1750
2000
2250
2500
2750
3000
3250
3500
3750
4000
4250
4500
4750
5000
5250
5500
5750
6000
Flowrate (GPM)
Sound Ave (24")
Sound Ave (36")

Figure 22

D Route Three - Via Main Road

Figure 23 - Proposed North Fork Water Main Route on Main Road

1. Details- Main Road

This is the shortest of the three routes with a total length of 37,872 linear feet, with most of the footage along Main Road, a state road running east-west. After the Peconic River directional drill, the water main would follow along the shoulder of Cross River Drive for approximately 8,000 linear feet. Once it reaches Main Road, it would turn east and continue for approximately 26,000 linear feet. The water main would tie into an existing 16-inch distribution water main located on Main Road just east of Laurel Lane. As with all the routes, a booster station is required. For the analysis, it is assumed that a booster station would be constructed near the intersection of Main Road and Cross River Drive on an Authority owned parcel.

2. Estimated Cost- Main Road

The estimated contract cost (contract costs do not include Authority overhead or contingencies) for this route is approximately $20,000,000 with an average cost per foot of $528.09. A detailed breakdown of the contractor costs is shown below. Main Road is a state roadway and would require installation within the shoulder, passing through a mix of commercial, residential, and agricultural properties. Based on the experience of the Suffolk County Water Authority, water main installation along state roads is typically more expensive due to stipulations required by the permitting agency, in this case the New York State Department of Transportation. These requirements often include restricted work hours to mitigate traffic impacts, and in some cases, may necessitate nighttime construction, which can further increase the cost of construction. Additionally, state roads are often constructed with asphalt over underlying concrete panels. If water main must be installed within the travel lanes, this can significantly increase the cost of final roadway restoration.

Table 14 – Estimated Cost Main Road

Highway/ Street	Pipe Footage	Price PF	Drill Footage	Drill PPF	HDD Total	Total Footage	Resto PPF	Est. Contract Cost-$
Cross River Drive	1,527	285	0	910	$ -	1,527	$ 125.00	$626,070
Peconic River Drill	0		1,951	910	$ 1,775,410	1,951	$ -	$1,775,410
Cross River Drive	3,751	255	0	910	$ -	3,751	$ 5.00	$975,260
Hubbard Ave. Drill	0		1201	910	$ 1,092,910	1,201	$ -	$1,092,910
Cross River Drive	3,122	255	0	910	$ -	3,122	$ 5.00	$811,720
Main Road Drill	0	285	171	910	$ 155,610	171	$ -	$155,610
Main Road	26,149	335	0	910	$ -	26,149	$ 210.00	$14,251,205
TOTAL	**34,549**		**3,323**		**$ 3,023,930**	**37,872**		**$19,688,185**

3. Hydraulic Analysis- Main Road

Utilizing a similar approach to the other two routes, the booster station inlet pressure and the water age were both evaluated. The first chart below shows that there is no significant head loss leading up to the booster station. This is due to the closer proximity of the booster station to the origin of the water main, as well as the minimal elevation change between the two. The second factor analyzed was the water age. As with the previous routes, water age increases significantly at lower flow rates and is further exacerbated by upsizing the water main from 24-inches to 36-inches. Considering the combined effects of head loss and water age, it would be reasonable to size this route as a 24-inch water main.

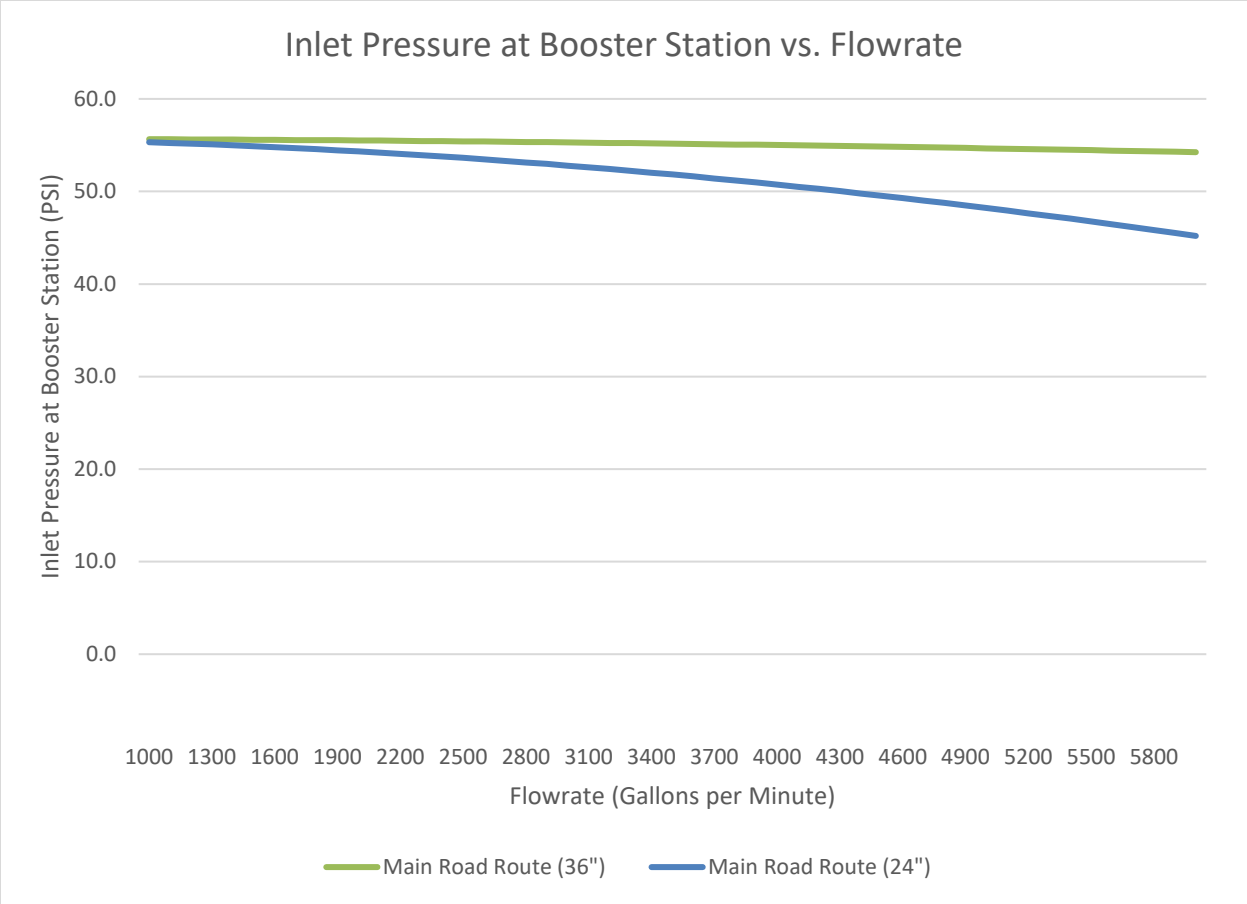

Inlet Pressure at Booster Station vs. Flowrate
60.0
50.0
40.0
30.0
20.0
10.0
0.0
Inlet Pressure at Booster Station (PSI)
1000 1300 1600 1900 2200 2500 2800 3100 3400 3700 4000 4300 4600 4900 5200 5500 5800
Flowrate (Gallons per Minute)
Main Road Route (36")
Main Road Route (24")

Figure 24

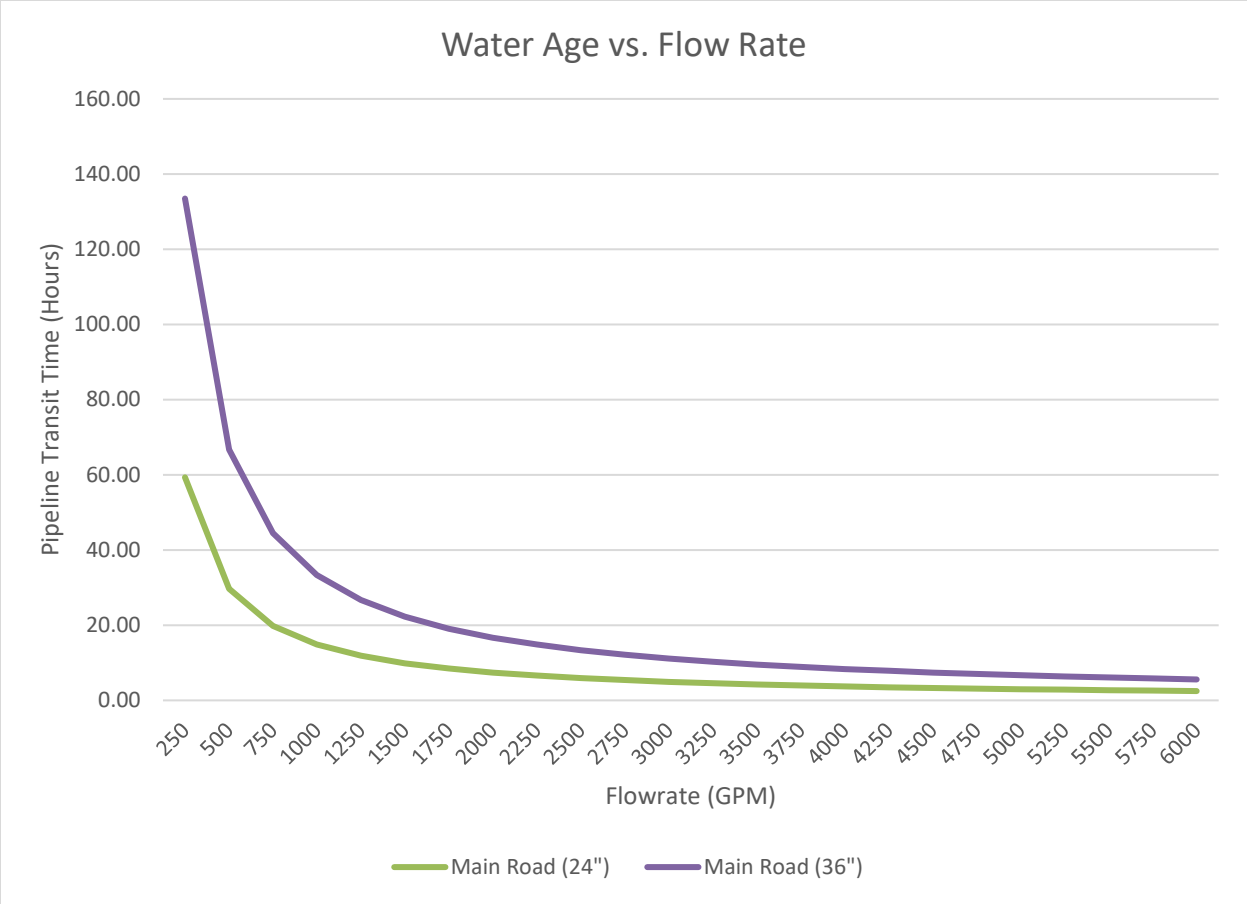


Figure 25

E. Optimal Route Selection

Through careful consideration of cost, head loss and water age, the analysis has identified the preferred route and pipe diameter. Analysis of the three routes indicates that the Main Road Route is the most favorable option. While the Peconic Bay Boulevard route performs well hydraulically, it presents significant environmental challenges due to its proximity to wetlands and the required water crossings. The Sound Ave route offers some constructability benefits however the hydraulic analysis highlights significant challenges in meeting the design flow rates. In order to meet those challenges an additional booster or larger water main would be required. These changes along with the additional energy required to overcome the hydraulic restrictions will increase the capital and operating costs of the water main thus eliminating any cost advantage the Sound Avenue route may have had.

This leaves the Main Road route as the preferred option, as it is hydraulically favorable and avoids proximity to wetlands. The primary challenge associated with this route is the installation of the water main along a state highway. There are however, several methods available to mitigate construction impacts. The Suffolk County Water Authority has dozens of miles of water main along state roads throughout the county and has extensive experience working within these corridors. While this presents a challenge, it is one where the Suffolk County Water Authority is well equipped to manage. For these reasons, the Main Road route is the most viable option for the North Fork Water Main Project.

F. North Fork Water Main Booster

As previously discussed, regardless of the route, a booster will be required in order to effectively pump and control the flow of water from the South Shore Low pressure zone and into the Southold Low pressure zone. In order pump water efficiently, it is preferred to utilize several booster pumps instead of one large pump. Authority engineers have determined that a three-pump booster configuration will allow the system to operate more efficiently and will provide a full range of control with the use of a combination of 2 variable frequency drives and one soft starter. Also included is space for one additional future booster if needed. The boosters will be housed in a precast brick enclosure with a gabled roof that is designed to look like a residential structure. An emergency generator will be provided to ensure that the ability to move water will not be impacted by a loss of power event. The proposed booster pumps will be as follows:

North Fork Transmission Booster #1
Short Vertical Turbine – Booster #1 – 2000GPM – 100HP - VFD

North Fork Transmission Booster #2
Short Vertical Turbine – Booster #2 – 2000GPM – 100HP – Soft Starter

North Fork Transmission Booster #3
Short Vertical Turbine – Booster #3 – 4,000GPM – 200HP – VFD

North Fork Transmission Booster #4 (SPARE)
Space for a future pump if needed.

The cost of this booster station together with backup generator and all related yard piping and appurtenances is considered to be the same regardless of route. The estimated cost of the booster station is as follows:

Table 15 - Estimated Booster Costs

Discipline	Scope	Estimate
Mechanical	(2) 2,000 gpm boosters - 1 on VFD, 1 on soft starter (1) 4,000 gpm booster 4,000 gpm on VFD (1) spare booster can	$466,570
Electrical	Service Generator / ATS LHV / Controls	$433,500
Civil	Clearing/Site work Building Piping Asphalt/Restoration Fence	$900,000
	Total Contract Costs	**$1,800,070**

The plot plan for the proposed booster along with building elevations are shown in Appendix F.

G. Orient Extension

As previously discussed, there is the possibility that there would be a second phase to the North Fork water main project. This second phase would involve extending water to Orient to serve parcels that are impacted by the presence of emerging contaminants in their private wells. Extension of water to Orient to this Suffolk County Department of Health Services survey area is unlike phase one of this project because it involves extending new water main to serve new customers. Under SCWA rules and regulations, extensions of this nature are paid for by the new customers being served unless there is a third party that will pay the cost of the extension. The Authority estimates that because of the length of the extension necessary to serve Orient and the relatively few customers that would be served, the per parcel cost will be very high. Given the high cost, it is unlikely that enough residents would choose to connect to make the project viable. The Authority recognizes this fact and has determined that the only

realistic way to fund the extension necessary to serve the survey area will be through the use of grant money. In recent years, the Authority has executed several projects where public water was extended to survey areas through the use of grants. In most cases, multiple grants were needed to pay the entire cost. The administrative effort and time necessary to secure several grants is significant and requires that the community and elected officials are all supportive of the project. For this reason, the Authority assumes that any extension into Orient will take place in 2034 at the earliest. Figure 26 below depicts the proposed water main associated with providing public water to the Orient survey area.

Figure 26

The estimated contract cost (contract costs do not include Authority overhead or contingencies) for the Phase 2 Orient Extension is approximately $12,500,000.00 with an average cost per foot of $500.71. Additional estimate details and construction drawings are included in Appendix G.

X. Alternatives Analysis

A. Point of Use and Point of Entry Water Treatment

Point of Use and Point of Entry water treatment devices are designed to treat domestic water use. The amount of water that can be treated varies, however in general, a Point of Use device is installed on a single sink and a Point of Entry device is installed on the water line entering the house. The use of either device would require the homeowner to test regularly to ensure that standards for levels of contaminants are maintained.

Treating water at the well field to serve the community is considered a more viable option. The Suffolk County Water Authority utilizes Granular Activated Carbon adsorption systems which are capable of treating hundreds of gallons of water per minute. Figure 10 shows the locations of Granular Activated Carbon adsorption systems in service in the Southold Low pressure zone. In addition, the Suffolk County Water Authority has adopted a policy to impose limits which are more restrictive than New York State standards for many contaminants.

Furthermore, Point of Use and Point of Entry water treatment devices do not improve fire protection to properties and do not contribute to system wide resiliency or redundancy.

B. Purchase Water from the Riverhead Water District

The Suffolk County Water Authority has an existing, boosted interconnection with the Riverhead Water District at Peconic Bay Boulevard. Another interconnection could be made on Sound Avenue near the town of Riverhead/Southold line. In the case of Riverhead however, having a viable interconnection would require Riverhead to supply water during peak periods when it is needed by Suffolk County Water Authority. Unfortunately, the peak periods are when the Riverhead Water District experiences its own peak and so relying on it would not be a prudent approach. In addition, for an interconnection to be viable, it would need to provide the peak flows and volumes that are projected to occur throughout the projection period. This would require the Riverhead Water District to supply close to 6,000 gallons per minute at peak to through the interconnections. The Riverhead Water District does not have this capacity.

C. Continue to Obtain Water from Southold and Eastern Riverhead, Using Wells with Capacities of 100 to 500 gallons per minute.

Utilizing this alternative, the Suffolk County Water Authority would have to secure multiple future well locations in order to support a minimum of 12 and a maximum of 60 new wells. Considerations would need to be given to the quantity of water available at each location, the potential hydrogeologic and environmental impacts due to pumping at each location, nearby competing pumpage, (such as that from agriculture, or pre-existing Riverhead Water District facilities), well construction costs, and treatment costs. Viable parcels of land or easements would have to be purchased, adding substantially to the overall cost of this alternative. Due to their relatively small size, well construction costs are very high in this area vs. the capacity of those wells. Additionally, given the existing contamination of the upper glacial aquifer in this area, treatment costs would be anticipated to be quite high. Even though the shallow Magothy aquifer (with much lower levels of agricultural contamination) might be available for use in Eastern Riverhead Town, it is not believed that this represents a viable solution given the volume of water needed and the expected opposition to drilling additional wells in the Town of Riverhead. Therefore, implementation of this alternative would not only be difficult to accomplish, it would be costly, difficult from a permitting standpoint and ultimately require the construction of numerous wells, most of which would be screened in the upper glacial aquifer, and require the extensive use of treatment facilities for volatile organic compounds, nitrate, pesticides, perchlorate, and numerous other contaminants.

Beyond the abovementioned issues, the availability of land on which to situate new wells is extremely limited. Even though farms and undeveloped parcels are abundant on the North Fork, the availability of developable land for future well fields is not. The overwhelming majority of existing farm parcels on the North Fork have had their development rights removed from them. This means that they can only be used for agricultural purposes in the future and are therefore not available to the Suffolk County Water Authority as potential well fields.

In early 2015, a search for vacant parcels in eastern Riverhead that could potentially serve as future Suffolk County Water Authority well fields were conducted. Using the approximate location of the approximate 10-foot mean sea level water table contour as a guide (based upon a 2010 USGS water table map), eastern Riverhead was targeted because the shallow portions of the Magothy aquifer are exploitable in that area with minimal risk of salt water upconing.

The search was therefore limited to (1) farm parcels with development rights intact, (2) individual building lots, or (3) potential easements on larger parcels with intact development rights. Unfortunately, no suitable parcels were found, and the search was abandoned by mid-2015.

Several years prior to the above-mentioned search, two building lots in the eastern Riverhead hamlet of Jamesport were offered for sale and eventually purchased by the Suffolk County Water Authority. These parcels are located on Herricks Lane and Pier Avenue. The Herricks Lane parcel was converted to a Suffolk County Water Authority well field and is currently operational. It contains two Magothy wells (each with a permitted capacity of 400 gallons per minute), with depths of 370 feet and 270 feet. A similar well field was planned for the Pier Avenue parcel. A water supply application was submitted to the NYSDEC and a permit was received for one well in 2016. After further evaluation of the cost to develop this parcel and connect it to the Southold Low system, Authority Engineers decided to place on hold any plans to develop this site as a Suffolk County Water Authority well field.

The hydrogeologic ramifications of this alternative were examined extensively as part of the 2015 Suffolk County Comprehensive Groundwater Resources Management Plan. Several simulations were done with all new wells located within the approximate 5-foot msl groundwater contour and limited to 200 gallons per minute capacity. Under this scenario, the saltwater interface rose by approximately 40 feet (though it did not intersect any of the simulated well screens). Additionally, the overall water table decline was such that freshwater wetlands were potentially negatively affected. Additional simulations were performed with most of the additional capacity obtained from four wells of higher capacity (either 500 or 1,000 gallons per minute, depending on location) located further to the west, and only five new wells located in Southold and pumping at 200 gallons per minute. Under this scenario, the interface was predicted to rise between 15 feet (beneath Southold) and 50 feet (beneath portions of eastern Riverhead) within 20 years. As with the “Southold only” simulations, the interface was predicted to stay below the depth of any new well screens. The decline in the water table approached 0.5 feet in parts of Riverhead, which could impact some wetlands and surface water bodies.

D. Construction of Additional Water Storage Facilities

Given that the principal water supply issue on the North Fork is meeting peak demand, further consideration must be given to ground storage and booster pumping to meet this peak demand. This alternative is already being practiced on the North Fork. A 500,000-gallon ground

storage reservoir has been constructed at the Rocky Point Road well field in East Marion, and a 2-million-gallon ground storage tank has recently been placed in service at the Laurel Lake well field.

The Rocky Point Road well field has six 50 gallons per minute wells, which are undersized relative to the instantaneous demand in the area. However, once the reservoir is filled, booster pumps can supply water from the reservoir during peak periods for several hours. Once the demand subsides, the well field (and the entire rest of the distribution system) can fill the tank during the remainder of the day so that it can again satisfy peak demand. This allows for lower pumping rates for area wells, which minimizes potential upconing. During the summer of 2024, these booster pumps provided 658 gallons per minute during the peak 5-hour period, in addition to the 186 gallons per minute provided directly by the Rocky Point Road wells.

The ground storage tank at the Laurel Lake well field in Laurel is capable of boosting 1,500 gallons per minute to the system. The main concern with these storage and booster systems is the ability to fill the tank during the off-peak periods. If this approach were to be possible, additional capacity will still be needed since many of the existing wells within the Southold Low system are impacted by chlorides and continuing to run these wells, even in the off-peak period will further exacerbate this problem. Because of the lack of a reliable source of additional water, this alternative is not feasible.

E. Water Efficiency and Conservation Measures

Given the additional capacity that will be required to meet the water demands of future population in Southold, and the infrastructure required to supply and treat this quantity of water, the need for water efficiency measures is a priority.

Conservation can be achieved by a number of different measures, including but not limited to the following:

1. Mandatory odd-even lawn watering rules enforced by local jurisdictions
2. Imposition of a multi-tiered rate structure, that charges more as water use increases
3. Pressure reducing valves between the irrigation piping and the home, thus maintaining the same flow to the system regardless of increases in water main pressure
4. “Smart” controllers on irrigation systems which can be controlled remotely

and shut down in the event of a sudden rainstorm, or can utilize regional weather data to automatically determine when a system operates and how much water it uses

5. Encouraging the use of private wells for lawn irrigation and other non-potable purposes

While conservation can help reduce overall demand for water, its impact on North Fork consumption has shown to be limited. The Suffolk County Water Authority has a robust conservation plan in place on the North Fork consisting of digital and direct advertising to promote conservation along with financial incentives for the installation of water saving devices. In the case of the North Fork, the projections for new connections are such that conservation will not be sufficient to offset the increased demand for public water that is projected over time.

F. Desalination

Another possible water supply alternative is desalination of brackish or salty groundwater. Typically, such facilities are costly to build, consume large amounts of energy, and produce large quantities of waste brine, and are difficult to obtain all of the necessary permits for. Therefore, the vast majority of desalination facilities are very large, municipal plants that provide 100-mgd or more. Obviously, the demand of the Southold Low pressure zone is much less, making the costs per gallon extremely high using this alternative. There are, however, numerous smaller sized desalination plants that serve small barrier island resort communities near the Atlantic and Gulf coasts. These plants usually withdraw water from a brackish water aquifer and inject the wastewater into a deeper aquifer of higher salinity, or to a surface saltwater body. Should this alternative become feasible on Long Island in the future, it could be accomplished utilizing brackish groundwater from Magothy wells in the Town of Southold. Throughout the Town of Southold, the groundwater in the mid-to deep Magothy aquifer is naturally salty, but far less than water from nearby bays or from the Long Island Sound (10,000 mg/L of total dissolved solids vs. 35,000 mg/L). Utilizing this lower-salinity groundwater as the source water to a desalination plant, overall desalination treatment costs would be far less than if surface saltwater was utilized as the source. In addition, salt concentration of the waste brine resulting from the treatment process may be more compatible with disposal to a surface saltwater body, thereby minimizing the environmental impact of the waste brine disposal. Depending on the concentration of the waste brine, subsurface disposal on land via deep injection wells could be utilized, which would minimize environmental impacts. The injection zone must be deeper than the production zone and separated by impermeable geologic units for this option to be feasible and permittable. The

regulatory considerations imposed upon an injection well applicant is usually quite extensive. They may include numerous monitoring wells placed strategically around the injection well, both above and below the injection zone, or water quality sampling at greater than normal frequency for very multiple parameters. These regulatory factors may make this type of disposal extremely difficult to implement especially on a large scale.

Field work in support of the injection well at Browns Hills Road began in late 2005. The Suffolk County Water Authority applied for a permit in 2007 and received it in 2008 from the United States Environmental Protection Agency. The original intent was to construct a nitrate removal system at this site and dispose of its waste brine via the deep injection well. However, this plan never came to fruition, and the injection well was never constructed.

At the time of the receipt of the injection well permit from the United States Environmental Protection Agency, Suffolk County Water Authority engineers performed a cost estimate for a small reverse osmosis desalination facility, capable of producing 1 million gallons of potable water per day (694 gallons per minute). The estimated cost for construction of the facility, including Engineering design and contingencies, was almost $5 million. This did not include the cost for construction of the injection well and all of the monitor wells that were required. This cost was estimated at just over $200,000. Annual operating and maintenance costs for this desalination plant were estimated at over $1.6 million. The estimated cost to produce 694 gallons per minute of potable water via desalination is therefore $5.63 per 1,000 gallons, or more than twice the current retail price charged to Suffolk County Water Authority customers. This option, as originally envisioned, was prohibitively expensive compared to other alternatives. Despite the above-mentioned factors, deep well injection may become a potential (though limited) option for waste brine disposal, whether it be from nitrate removal or from desalination. The costs of construction and operation vs. the quantity of water supplied must be weighed against those of other alternatives.

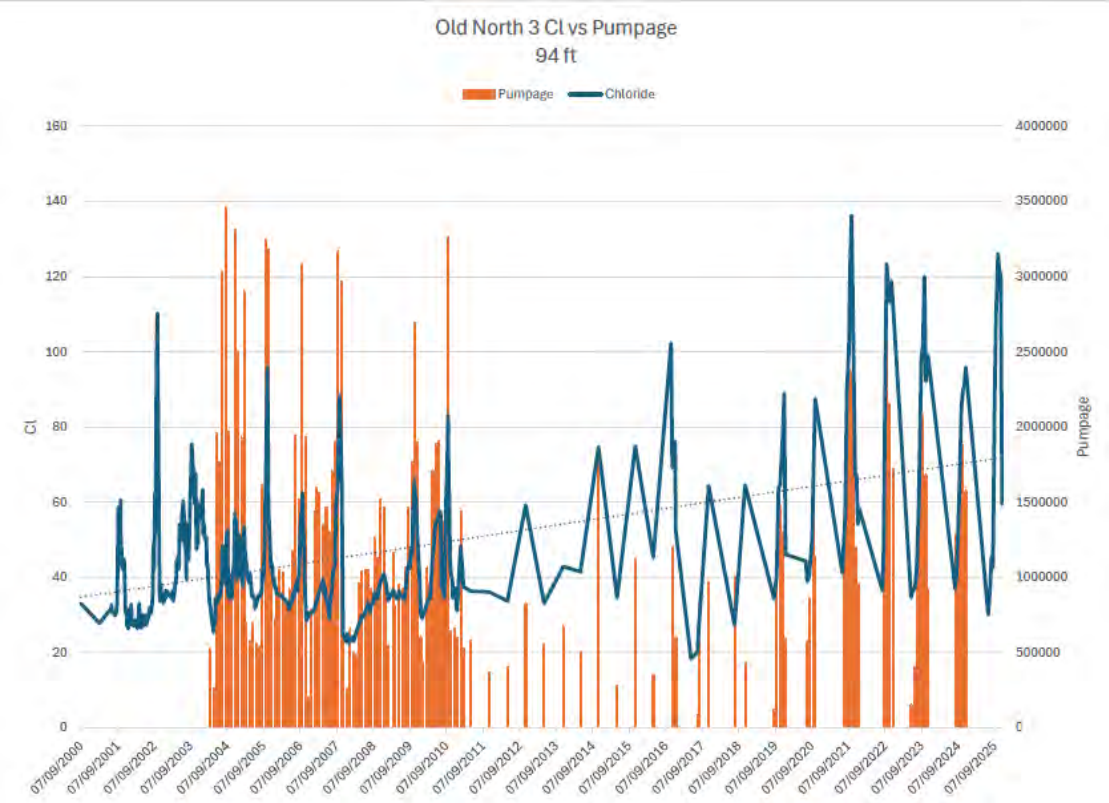
G. No Action

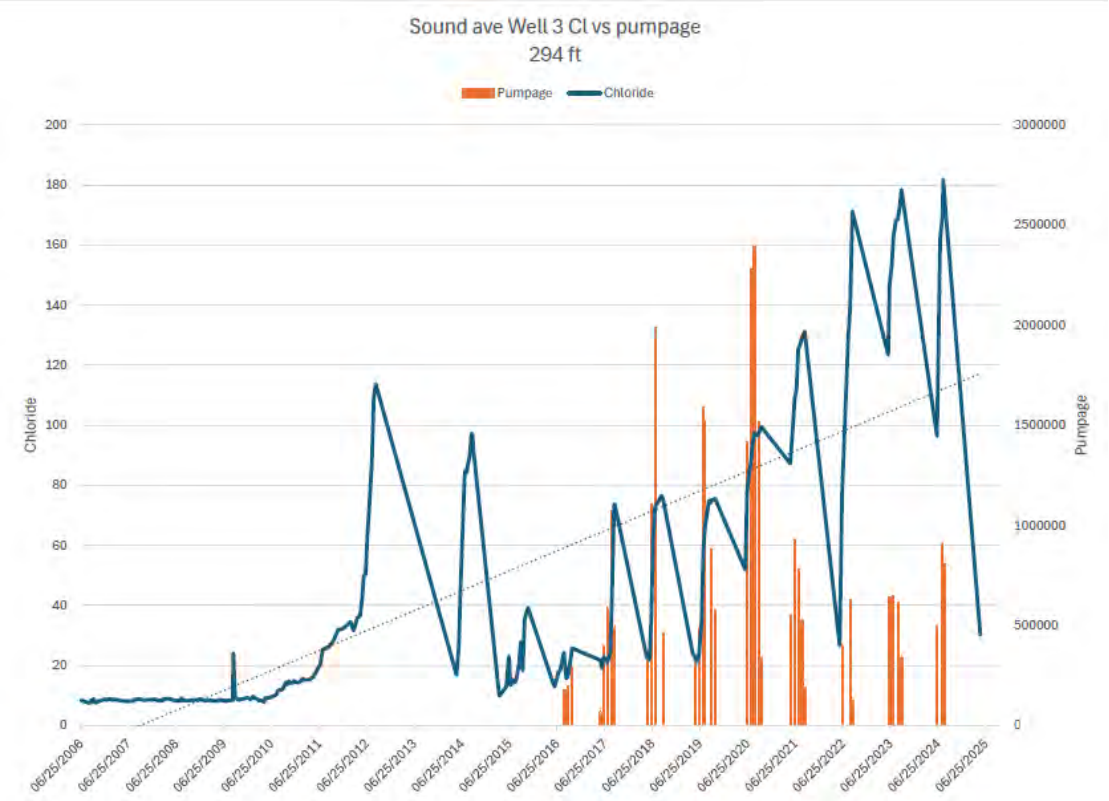
After evaluating the current and projected future demand for water on the North Fork, it is clear that taking no action or continuing with the historic approach to providing potable water to Suffolk County Water Authority customers on the North Fork is not sustainable. This report has identified a number of North Fork wells that, in order to remain viable, require that their operation be curtailed or altogether restricted to emergency use only. This loss in production together with

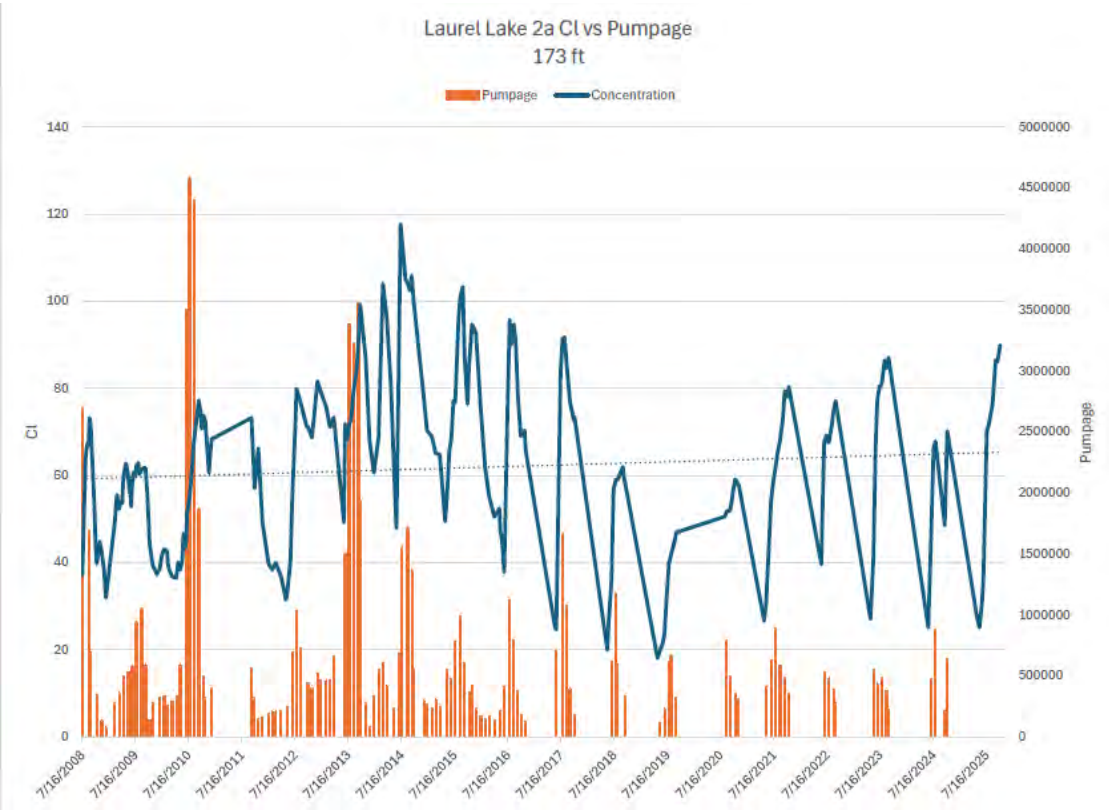
projected future demand for public water cannot be replaced or satisfied with the construction of new well fields or the installation of additional wells within the North Fork hydrogeologic system. Given the limitations on the North Fork aquifer along with the lack of reasonable alternatives to supplying current and future demand for public water, the only reasonable approach to providing water to the North Fork into the future is through its importation from the South Shore Low system.

Appendix A. North Fork Well Chloride Trends

Emergency-Use-Only Wells






Laurel Lake 2a Cl vs Pumpage
173 ft
Pumpage
Concentration
Cl
Pumpage
140
120
100
80
60
40
20
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4500000
4000000
3500000
3000000
2500000
2000000
1500000
1000000
500000
0
7/16/2008
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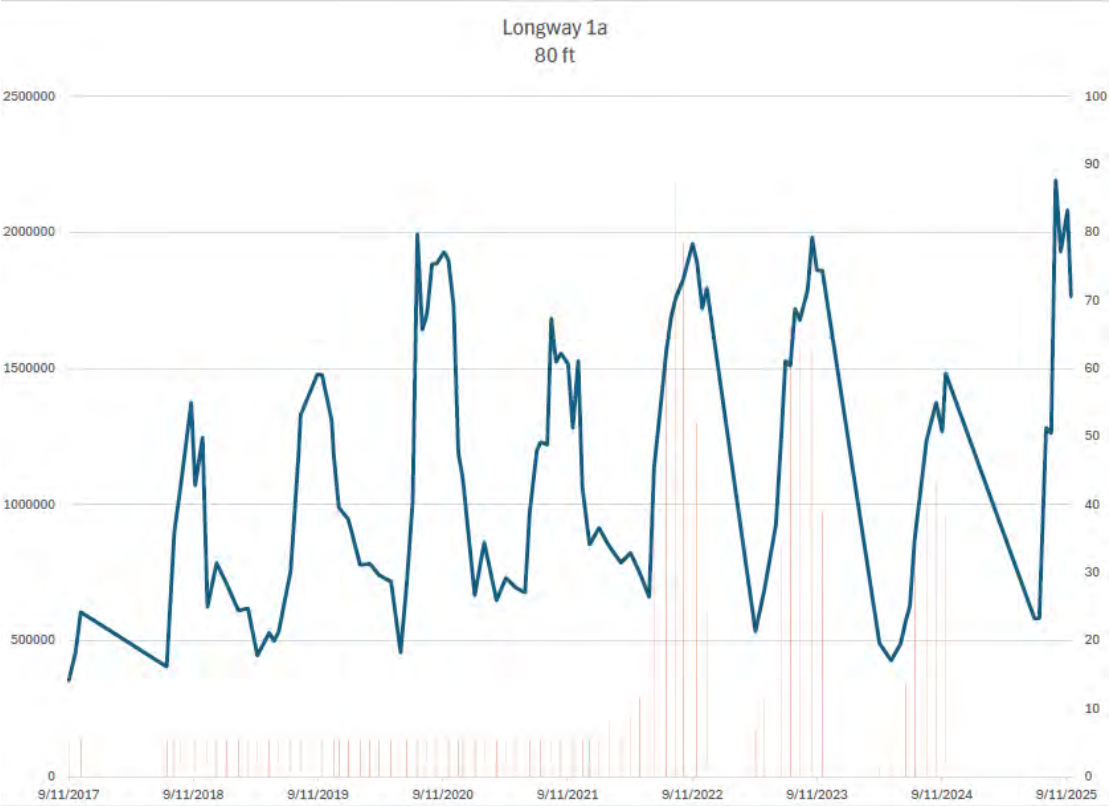
Longway 1a
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2000000
1500000
1000000
500000
0
100
90
80
70
60
50
40
30
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0
9/11/2017
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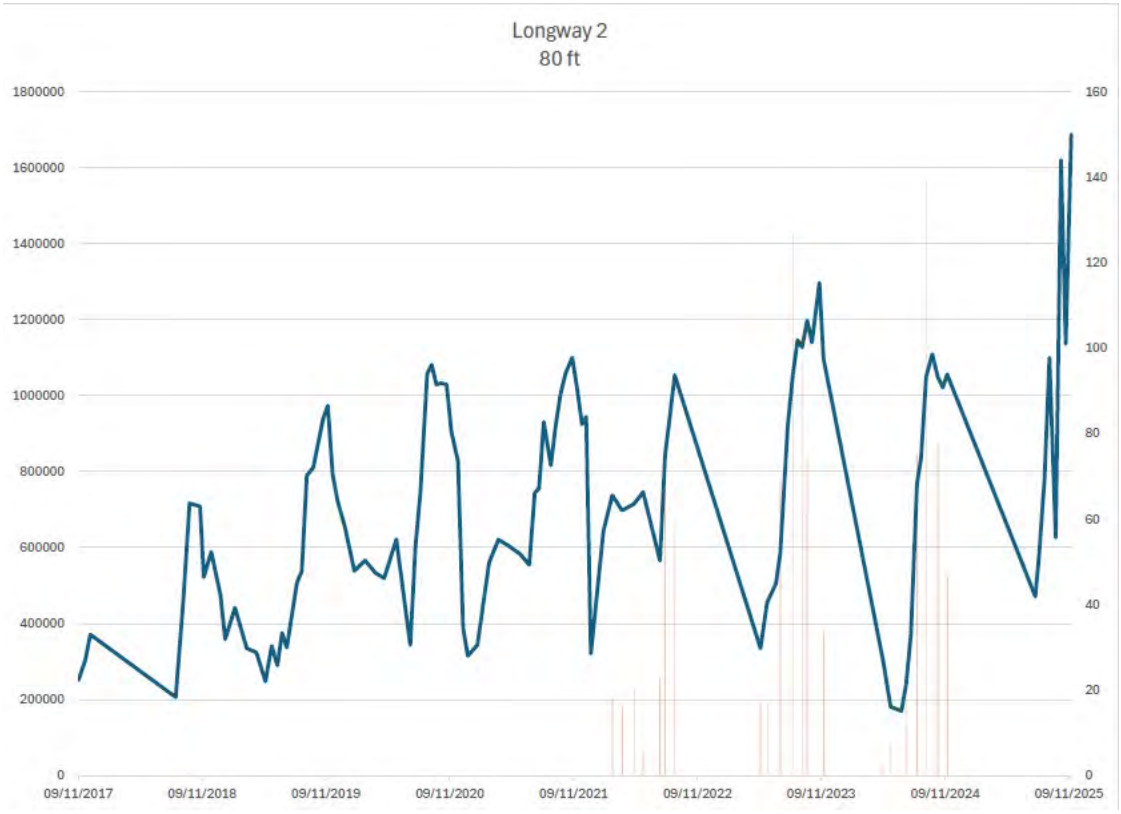
Longway 2
80 ft
1800000
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1400000
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1000000
800000
600000
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200000
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140
120
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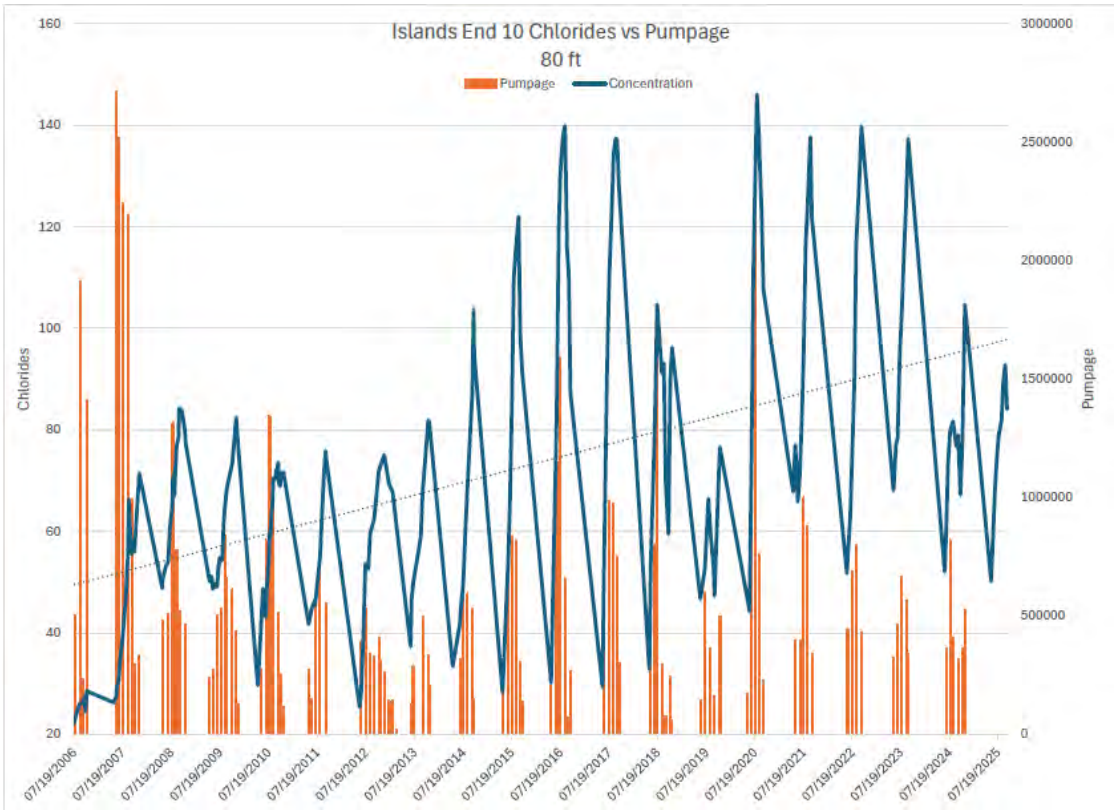
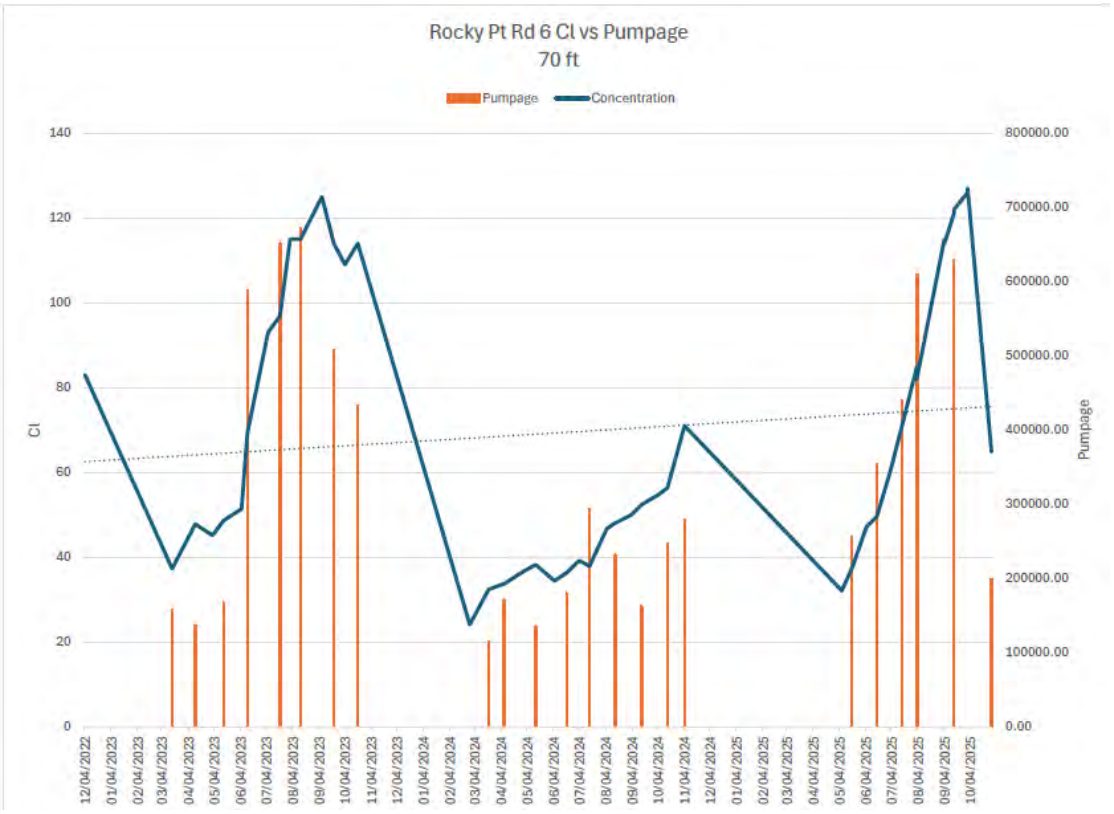
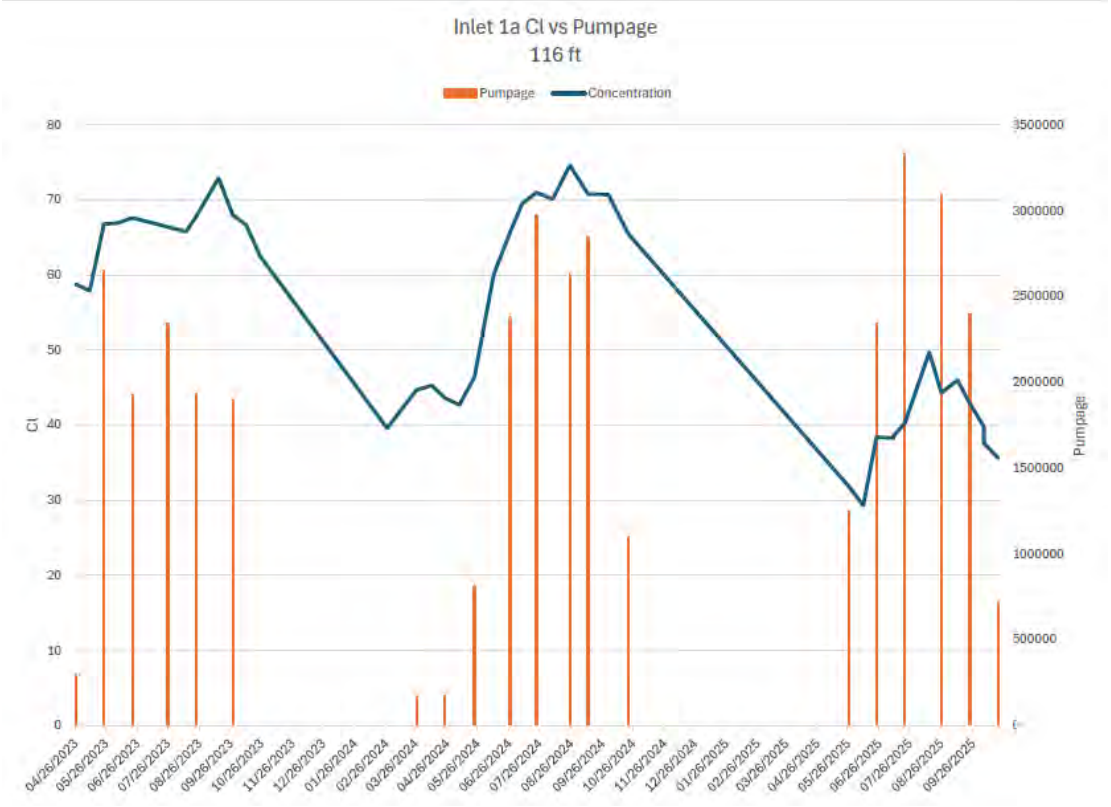
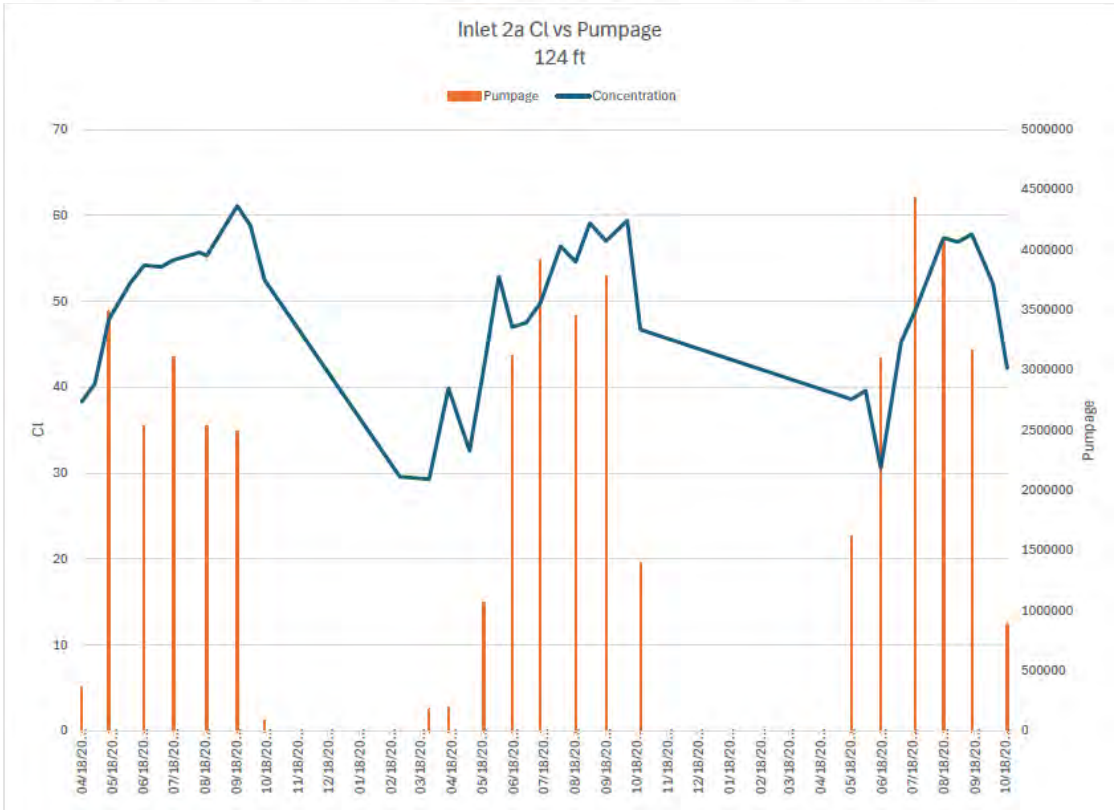
60
40
20
0
09/11/2017
09/11/2018
09/11/2019
09/11/2020
09/11/2021
09/11/2022
09/11/2023
09/11/2024
09/11/2025

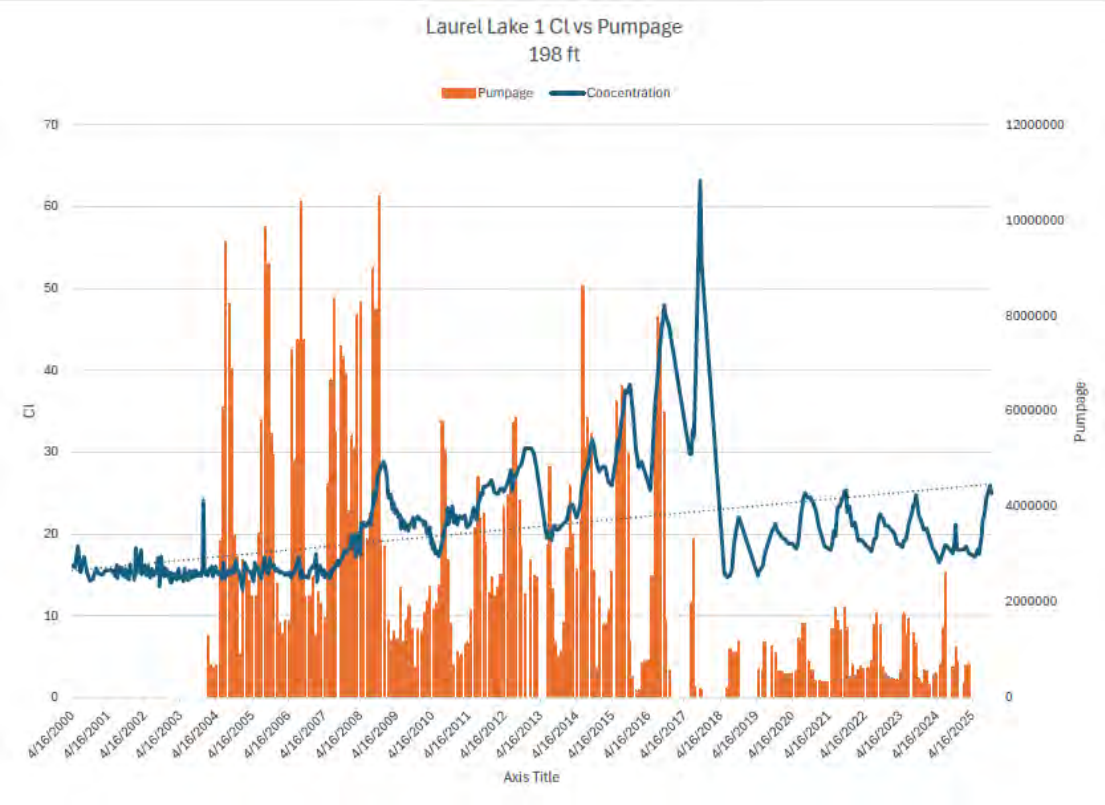

Islands End 10 Chlorides vs Pumpage
80 ft
Pumpage
Concentration
Chlorides
Pumpage
160
140
120
100
80
60
40
20
3000000
2500000
2000000
1500000
1000000
500000
0
07/19/2006
07/19/2007
07/19/2008
07/19/2009
07/19/2010
07/19/2011
07/19/2012
07/19/2013
07/19/2014
07/19/2015
07/19/2016
07/19/2017
07/19/2018
07/19/2019
07/19/2020
07/19/2021
07/19/2022
07/19/2023
07/19/2024
07/19/2025

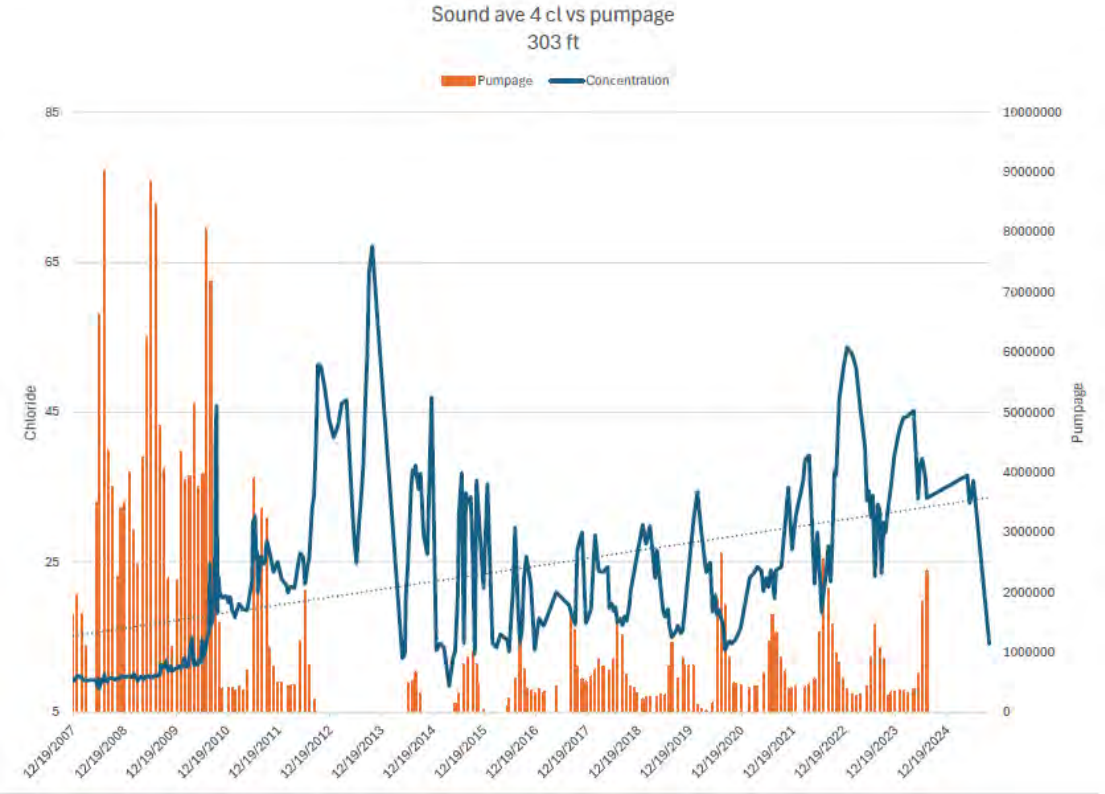

Rocky Pt Rd 6 Cl vs Pumpage
70 ft
Pumpage
Concentration
Cl
Pumpage
140
120
100
80
60
40
20
0
800000.00
700000.00
600000.00
500000.00
400000.00
300000.00
200000.00
100000.00
0.00
12/04/2022
01/04/2023
02/04/2023
03/04/2023
04/04/2023
05/04/2023
06/04/2023
07/04/2023
08/04/2023
09/04/2023
10/04/2023
11/04/2023
12/04/2023
01/04/2024
02/04/2024
03/04/2024
04/04/2024
05/04/2024
06/04/2024
07/04/2024
08/04/2024
09/04/2024
10/04/2024
11/04/2024
12/04/2024
01/04/2025
02/04/2025
03/04/2025
04/04/2025
05/04/2025
06/04/2025
07/04/2025
08/04/2025
09/04/2025
10/04/2025

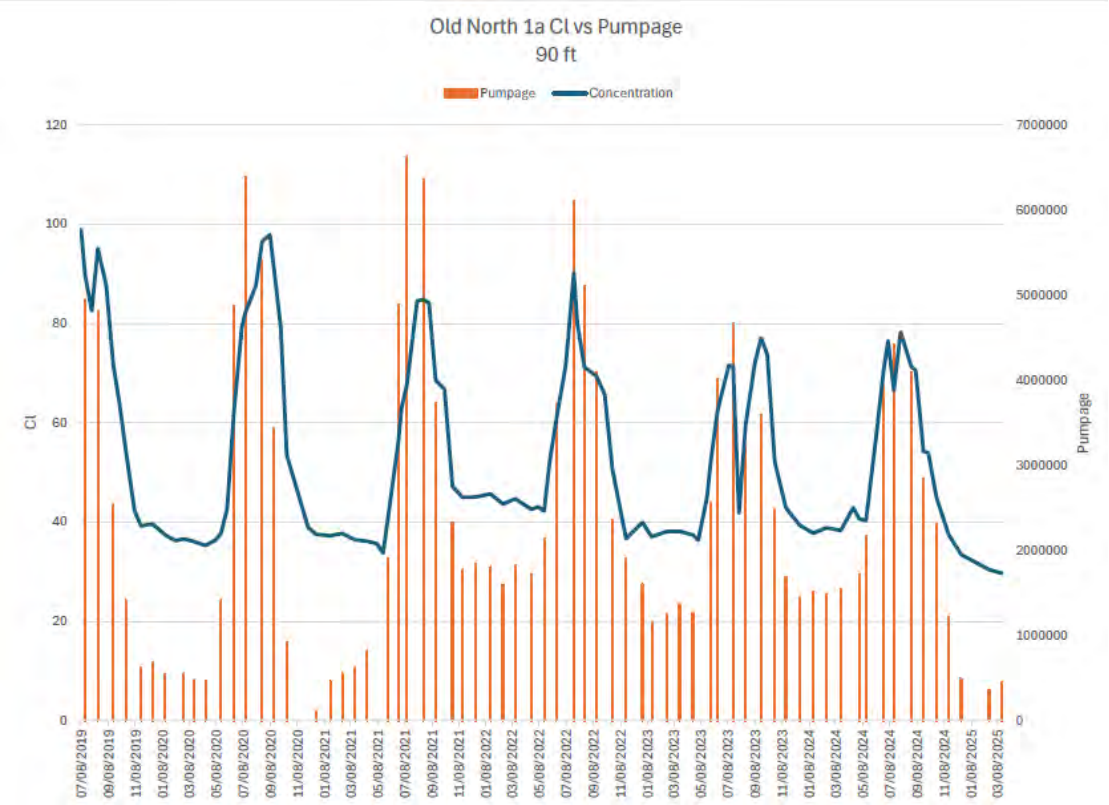
Reduced-Pumpage Wells






Laurel Lake 1 Cl vs Pumpage
198 ft
Pumpage
Concentration
Cl
Pumpage
Axis Title


Sound ave 4 cl vs pumpage
303 ft
Pumpage
Concentration
Chloride
Pumpage


Old North 1a Cl vs Pumpage
90 ft
Pumpage
Concentration
Cl
Pumpage
120
100
80
60
40
20
0
7000000
6000000
5000000
4000000
3000000
2000000
1000000
0
07/08/2019
09/08/2019
11/08/2019
01/08/2020
03/08/2020
05/08/2020
07/08/2020
09/08/2020
11/08/2020
01/08/2021
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11/08/2022
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09/08/2023
11/08/2023
01/08/2024
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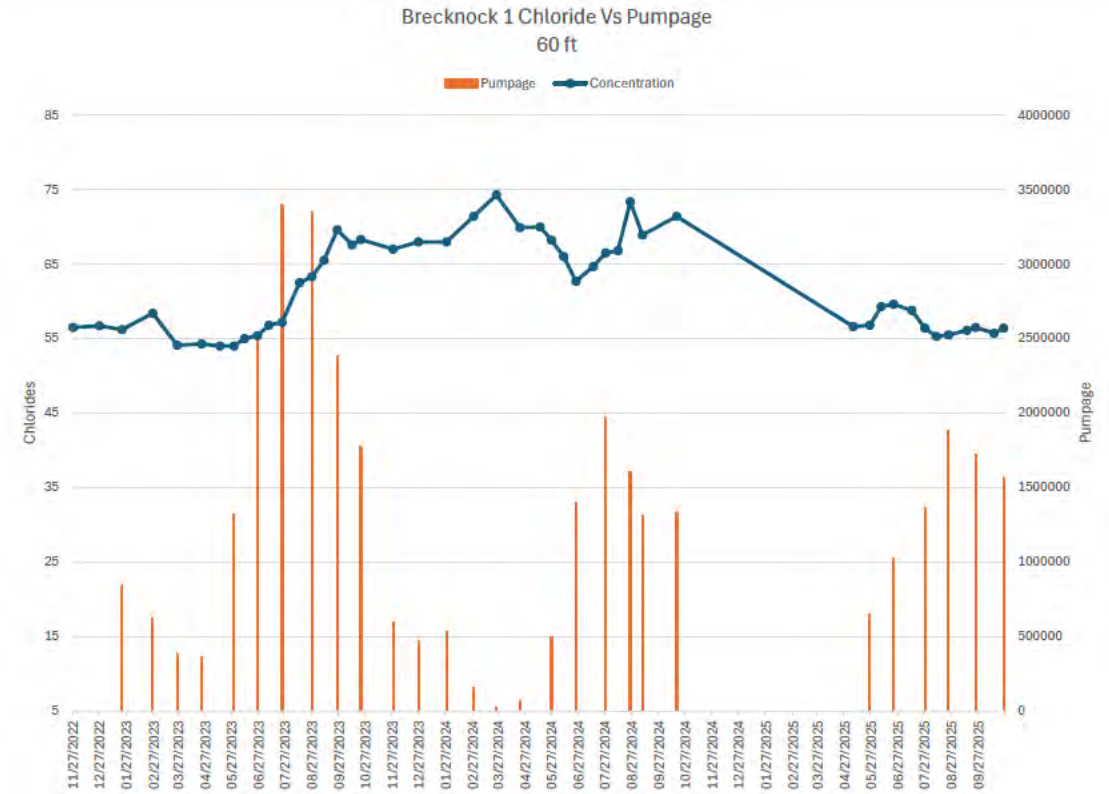
11/08/2024
01/08/2025
03/08/2025


Brecknock 1 Chloride Vs Pumpage
60 ft
Pumpage
Concentration
Chlorides
Pumpage
85
75
65
55
45
35
25
15
5
4000000
3500000
3000000
2500000
2000000
1500000
1000000
500000
0
11/27/2022
12/27/2022
01/27/2023
02/27/2023
03/27/2023
04/27/2023
05/27/2023
06/27/2023
07/27/2023
08/27/2023
09/27/2023
10/27/2023
11/27/2023
12/27/2023
01/27/2024
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03/27/2024
04/27/2024
05/27/2024
06/27/2024
07/27/2024
08/27/2024
09/27/2024
10/27/2024
11/27/2024
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01/27/2025
02/27/2025
03/27/2025
04/27/2025
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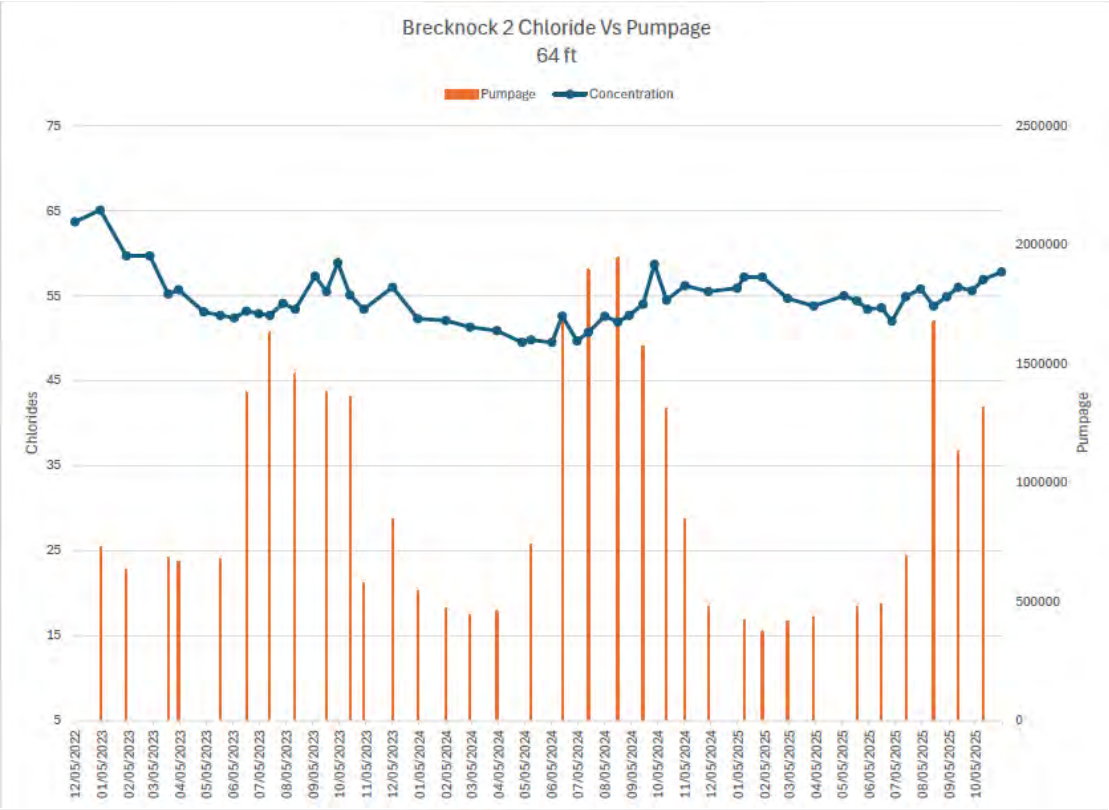
06/27/2025
07/27/2025
08/27/2025
09/27/2025


Brecknock 2 Chloride Vs Pumpage
64 ft
Pumpage
Concentration
Chlorides
Pumpage
75
65
55
45
35
25
15
5
2500000
2000000
1500000
1000000
500000
0
12/05/2022
01/05/2023
02/05/2023
03/05/2023
04/05/2023
05/05/2023
06/05/2023
07/05/2023
08/05/2023
09/05/2023
10/05/2023
11/05/2023
12/05/2023
01/05/2024
02/05/2024
03/05/2024
04/05/2024
05/05/2024
06/05/2024
07/05/2024
08/05/2024
09/05/2024
10/05/2024
11/05/2024
12/05/2024
01/05/2025
02/05/2025
03/05/2025
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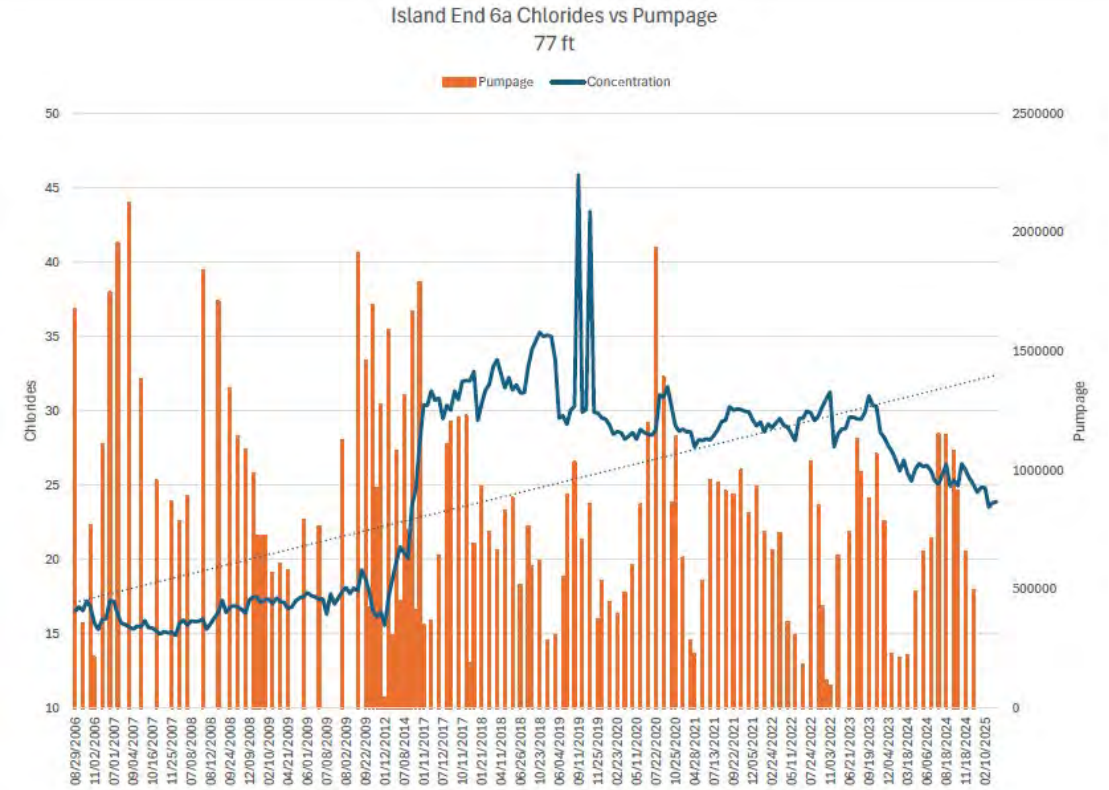
06/05/2025
07/05/2025
08/05/2025
09/05/2025
10/05/2025


Island End 6a Chlorides vs Pumpage
77 ft
Pumpage
Concentration
Chlorides
Pumpage
50
45
40
35
30
25
20
15
10
2500000
2000000
1500000
1000000
500000
0
08/29/2006
11/02/2006
07/01/2007
09/04/2007
10/16/2007
11/25/2007
07/08/2008
08/12/2008
09/24/2008
12/09/2008
02/10/2009
04/21/2009
06/01/2009
07/08/2009
08/02/2009
09/22/2009
01/12/2012
07/08/2014
01/11/2017
07/12/2017
10/11/2017
01/21/2018
04/11/2018
06/28/2018
10/23/2018
06/04/2019
09/11/2019
11/25/2019
02/23/2020
05/11/2020
07/22/2020
10/25/2020
04/28/2021
07/13/2021
09/22/2021
12/05/2021
02/24/2022
05/11/2022
07/24/2022
11/03/2022
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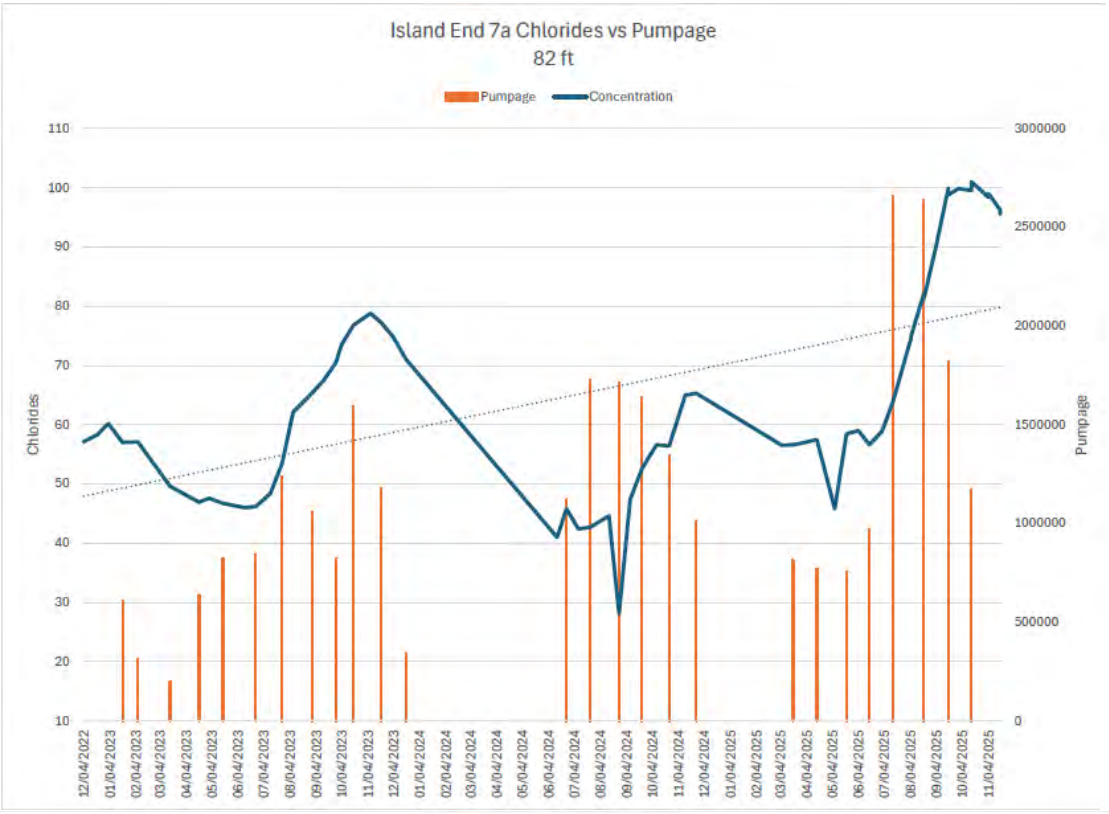
08/18/2024
11/18/2024
02/10/2025


Island End 7a Chlorides vs Pumpage
82 ft
Pumpage
Concentration
Chlorides
Pumpage
110
100
90
80
70
60
50
40
30
20
10
3000000
2500000
2000000
1500000
1000000
500000
0
12/04/2022
01/04/2023
02/04/2023
03/04/2023
04/04/2023
05/04/2023
06/04/2023
07/04/2023
08/04/2023
09/04/2023
10/04/2023
11/04/2023
12/04/2023
01/04/2024
02/04/2024
03/04/2024
04/04/2024
05/04/2024
06/04/2024
07/04/2024
08/04/2024
09/04/2024
10/04/2024
11/04/2024
12/04/2024
01/04/2025
02/04/2025
03/04/2025
04/04/2025
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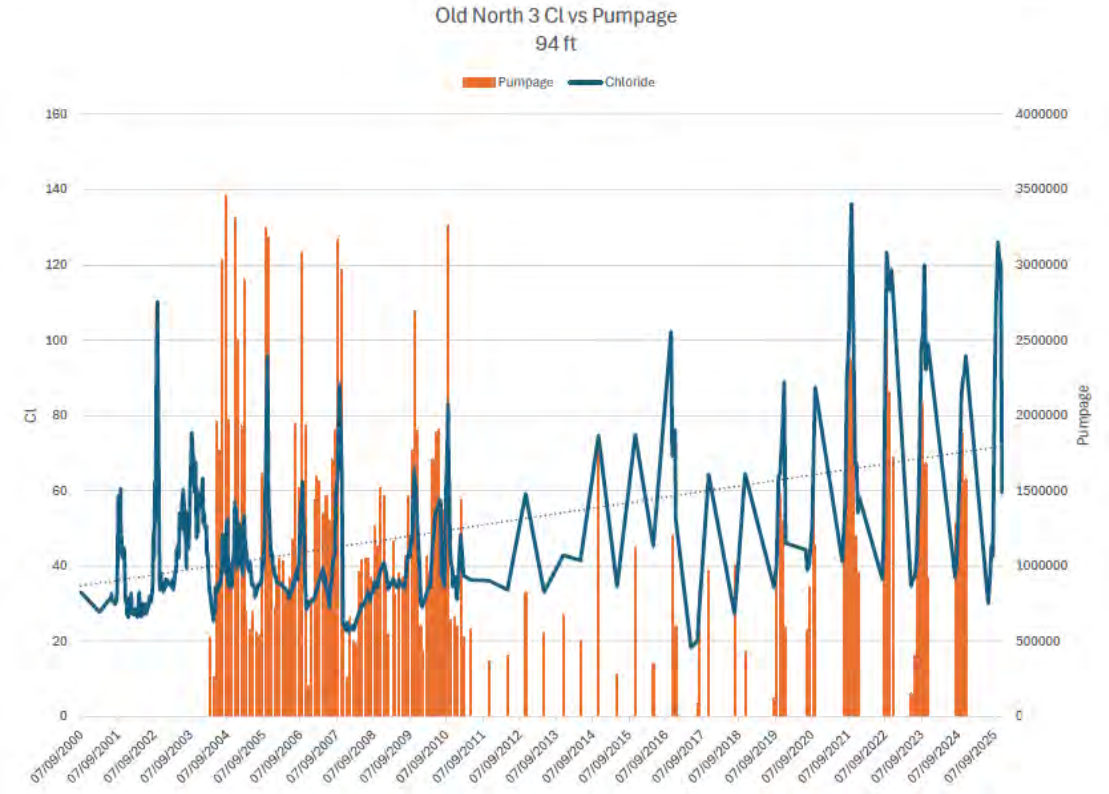
09/04/2025
10/04/2025
11/04/2025


Old North 3 Cl vs Pumpage
94 ft
Pumpage
Chloride
Cl
Pumpage
160
140
120
100
80
60
40
20
0
4000000
3500000
3000000
2500000
2000000
1500000
1000000
500000
0
07/09/2000
07/09/2001
07/09/2002
07/09/2003
07/09/2004
07/09/2005
07/09/2006
07/09/2007
07/09/2008
07/09/2009
07/09/2010
07/09/2011
07/09/2012
07/09/2013
07/09/2014
07/09/2015
07/09/2016
07/09/2017
07/09/2018
07/09/2019
07/09/2020
07/09/2021
07/09/2022
07/09/2023
07/09/2024
07/09/2025

Appendix B North Fork Demand Projections Worksheet

	Peak Analysis								Volumetric Analysis					
Year	Projected Number of Southold Main Body Services	Projected Number of Orient Services	Total Projected Services in Southold Town	Projected Peak Demand (GPM)	Projected North Fork Wells Contribution to Peak Demand (GPM)	Projcted North Fork Ground Storage Boosters Contribution to Peak Demand (GPM)	Projected Moores Lane Tank Contribution to Peak Demand (GPM)	Projected Pipeline Contribution to Peak Demand (GPM)	Projected Total Annual Water Requirements North Fork (MG)	Projected Annual Production by Wells on North Fork (MG)	Projected Total Annual Flow Through Pipeline (MG)	Projected Total Flow Annual Through Pipeline to Main Body of Southold (MG)	Projected Total Annual Flow Through Pipeline to Orient (MG)	Projected Average Flow Through Pipeline (GPM)
2024	9759	0	9759	12396	9249	2447	700	0	1497	1497	0	0	0	0
2025	9857	0	9857	12520	9249	2447	824	0	1512	1512	0	0	0	0
2026	9970	0	9970	12664	9749	2447	468	0	1529	1529	0	0	0	0
2027	10083	0	10083	12808	8399	2447	300	1662	1547	1486	61	61	0	116
2028	10196	0	10196	12951	8399	2447	300	1805	1564	1486	78	78	0	148
2029	10309	0	10309	13095	8399	2447	300	1949	1581	1486	95	95	0	181
2030	10422	0	10422	13238	8399	2447	300	2092	1599	1486	113	113	0	214
2031	10535	0	10535	13382	8399	2447	300	2236	1616	1486	130	130	0	247
2032	10648	0	10648	13525	8399	2447	300	2379	1633	1486	147	147	0	280
2033	10761	0	10761	13669	8399	2447	300	2523	1651	1486	165	165	0	313
2034	10874	310	11184	14206	8399	2447	300	3060	1716	1486	230	182	48	437
2035	10987	313	11300	14354	8399	2447	300	3208	1733	1486	247	199	48	471
2036	11100	316	11416	14501	8399	2447	300	3355	1751	1486	265	217	49	505
2037	11213	320	11533	14649	8399	2447	300	3503	1769	1486	283	234	49	539
2038	11326	323	11649	14797	8399	2447	300	3651	1787	1486	301	251	50	573
2039	11439	326	11765	14944	8399	2447	300	3798	1805	1486	319	269	50	606
2040	11552	329	11881	15092	8399	2447	300	3946	1823	1486	337	286	51	640
2041	11665	333	11998	15240	8399	2447	300	4094	1840	1486	354	303	51	674
2042	11778	336	12114	15387	8399	2447	300	4241	1858	1486	372	321	52	708
2043	11891	339	12230	15535	8399	2447	300	4389	1876	1486	390	338	52	742
2044	12004	342	12346	15683	8399	2447	300	4537	1894	1486	408	355	53	776
2045	12117	346	12463	15830	8399	2447	300	4684	1912	1486	426	373	53	810
2046	12230	349	12579	15978	8399	2447	300	4832	1930	1486	444	390	54	844
2047	12343	352	12695	16126	8399	2447	300	4980	1947	1486	461	407	54	878
2048	12456	355	12811	16273	8399	2447	300	5127	1965	1486	479	425	55	912
2049	12569	359	12928	16421	8399	2447	300	5275	1983	1486	497	442	55	946
2050	12682	362	13044	16569	8399	2447	300	5423	2001	1486	515	459	56	980

Asumptions

Zone 30 Per Year

Year	Number Services Added
2021	149
2022	114
2023	100
2024	103
2025	98

5 Year Avg # New Services 113

	2024 Baseline Year	
2024	Peak Demand (GPM)	12396
	Peak Demand Factor	1.27
	Total Production (MG)	1497
	Total Number Services	9759
	Total Production Per Service (Gallons)	153397
2025	Projected Figures based on Assumed Growth	
2026	Two new wells at Alvahs Lane go into Service	
2027	North Fork Transmission Line goes into service and well curtailment begins.	
	Production Due to Curtailment (MG)	60.717

Appendix C North Fork Water Main Modeling - CDM

Memorandum

To: *Joseph Pokorny, P.E.*

From: *Dan O'Rourke, P.G., PMP*

Date: *May 21, 2026*

Subject: *North Fork Water Main Groundwater Modeling: FINAL*

CDM Smith utilized previously developed finite-element groundwater flow models to evaluate the change in the water table within the Quogue area of Suffolk County as well as within the Town of Southold on the North Fork to support an assessment of groundwater changes resulting from full implementation of the North Fork Water Main over a 25-year period. The results of the analysis are provided herein.

Introduction & Project Set-Up

The North Fork Water Main (NFWM) project will utilize water pumped from existing water supply wells within the SCWA's South Shore Low pressure zone and transmit that water to the Town of Southold to replace groundwater provided from several existing water supply wells, particularly those that have restrictions due to salt-water intrusion. Furthermore, new connections to SCWA's distribution system (either from new development or switching from private to public water supply) will be supported, including areas of Orient that have had elevated detections of per- and polyfluoroalkyl substances (PFAS). The additional supply will increase the reliability and water quality to hundreds of residences within the Town over time.

This analysis utilized two groundwater flow models, as developed for the Suffolk County Department of Health Services' Subwatersheds Wastewater Plan, namely the freshwater version of the North Fork Model and the Main Body Flow model (**Figure 1A and Figure 1B**). The models have extremely tight node discretization which allow for a better representation of groundwater and surface water interaction and distribution of recharge within the North Fork.

The models were run to evaluate two potential impacts from the NFWM:

- Water table mounding within Southold – The majority of properties within the Town of Southold are served by on-site wastewater disposal systems (OSWDS) such as septic tanks and cesspools, returning water to the aquifer. While the recharge return from wells currently served by SCWA is already incorporated into the groundwater model, new connections will either have no groundwater withdrawn from new wells or will represent a shut-down of existing private wells. Therefore, a net positive recharge will result. Therefore, new connections will include additional recharge to the groundwater model from the import of water from the North Fork Water Main.
- Water table drawdown and reduced stream flow – As approximately 980 gallons per minute (gpm) will be ultimately supplied to the North Fork Water Main by 2050, the increased pumping

will result in a water table decline from current (2022-2024) conditions. Furthermore, baseflow to streams within the vicinity of the increased pumpage will also be reduced to some degree.

Although the route and alignment of the North Fork Water Main have not yet been finalized, it is projected to begin within the SCWA's South Shore Low Pressure Zone near Riverside and connect to the Southold Low Pressure Zone. Flow though the water main is projected to linearly increase, to meet current demand that is provided by several wells in addition to the average addition of 113 services per year. Sea level rise has not been incorporated into the analysis.

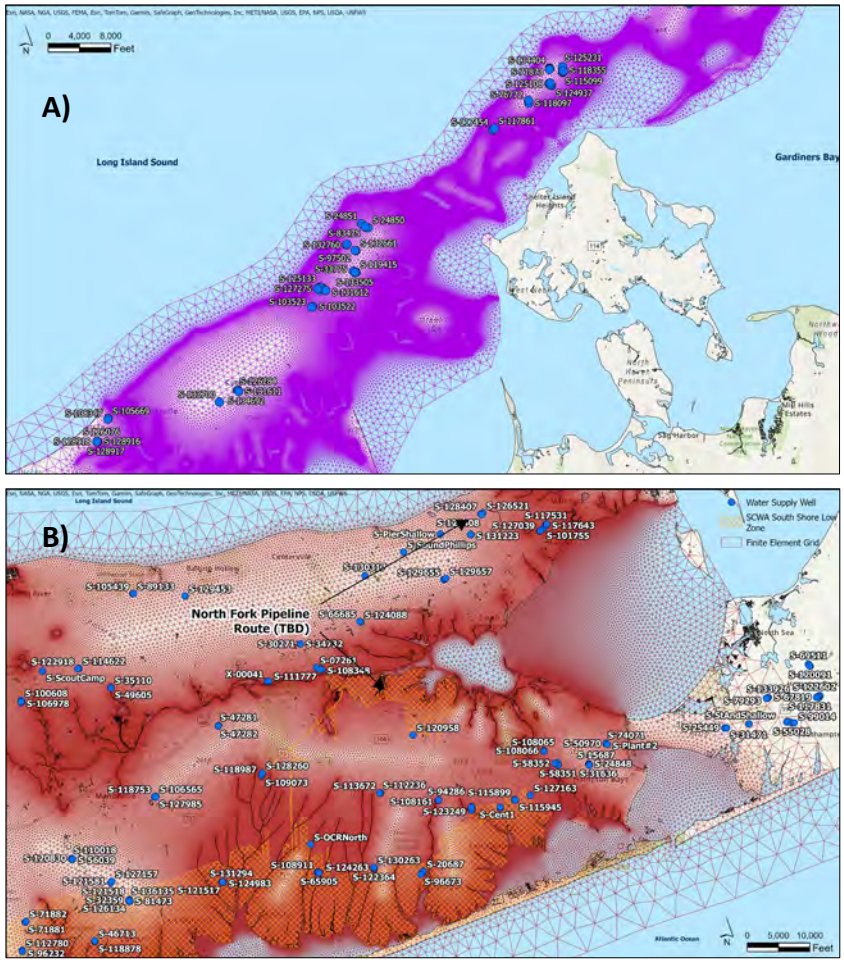


Figure 1 Finite Element Grids used for the North Fork Water Main Simulations. Blue dots represent water supply wells and orange hatch is the South Shore Low distribution zone. A) North Fork and B) Main Body

Pumping Configuration

Several water supply wells within Southold will be either shutdown or reduced as shown in **Table 1** and the water withdrawn from these wells under current and historic periods will be replaced by water supplied from the NFWM. Wells that will be utilized to provide water to the NFWM are shown in **Table 2**. Also shown in the table is the projected increase in pumping (in gallons per minute (gpm), based on annual average pumping) to supply the required water to the water main. Projected annual average flow through the water main is approximately 980 gpm by 2050. This additional pumpage was applied to 33 wells within the Quogue area, distributed by relative installed capacities.

As a conservative approach, the Main Body model was run under steady-state conditions, corresponding to:

- Average annual (2022,2023,2024) conditions of pumping and recharge (recharge from precipitation was calculated using the weather station at Brookhaven National Laboratory for Suffolk County and the gage in Mineola for Nassau County). Nassau County pumpage and sanitary return simply utilized pumpage utilized for the Subwatersheds Wastewater Plan (2012-2013) as conditions in Nassau County have no impact on the study area and Nassau is included as part of the Main Body flow model. Sanitary return for the Main Body

in the Suffolk County model was also based on average sanitary return applied for SWP (which is based on 85% of winter average pumping).

- Increased pumping conditions. Additional pumpage as shown in **Table 2** was applied to the selected wells (without additional sanitary recharge).

Approach for Southold

The North Fork model was run under transient conditions, utilizing annual average pumping and recharge (recharge from precipitation from the Riverhead Research Farm). A new baseline run was developed using average annual pumping and recharge conditions from 2022, 2023 and 2024. Sanitary return was applied to model nodes that intersected developed parcels (based on the Suffolk County Planning Department 2016 land use GIS coverage) based on 85% of average pumping in January, February and December (winter-pumpage). A seasonal component was also applied, based on Suffolk County Planning Department data utilized for the SWP. Seasonal return was multiplied by 2.5 for parcels within Southold and 1.4 for those in Riverhead (during summer months only). Although the model discretization is very fine, not every parcel is represented by a node. For larger parcels that included more than one node within their boundary, only one node was utilized (to represent an onsite wastewater treatment system). The process to add recharge to the model to represent new customers at model nodes is described below. Assuming 113 new customers are added per year, a simulation from 2027 to 2050 would result in the addition of 2,712 new customers in Southold (excluding Orient).

Table 1. SCWA Wells within Southold to be Reduced or Shut-Down for the North Fork Water Main

Station	Well #	S#	Auth Cap (gpm)	Projected Status
Old North Rd	3	S-83475	500	Shut-Down
Sound Ave	3	S-123898	500	Shut-Down
Laurel Lake	2A	S-127039	200	Shut-Down
The Long Way	1A	S-134405	150	Shut-Down
The Long Way	2	S-134404	150	Shut-Down
Islands End	8A	S-125107	150	Shut-Down
Islands End	10	S-125108	150	Shut-Down
Rocky Point Rd	6	S-131282	50	Shut-Down
Inlet Dr	1A	S-105669	150	Reduce 25%
Inlet Dr	2A	S-108347	200	Reduce 25%
Laurel Lake	1	S-101755	200	Reduce 20%
Sound Ave	4	S-126521	500	Reduce 25%
Old North Rd	1A	S-134899	500	Reduce 25%
Brecknock Hall	1	S-76772	200	Reduce 25%
Brecknock Hall	2	S-118097	150	Reduce 25%
Islands End	6A	S-124937	100	Reduce 20%
Islands End	7A	S-125174	200	Reduce 20%

Table 2. Wells to Supply the North Fork Water Main.

DEC ID	Wellfield	Well ID	Actual Cap (gpm)	Average Pumping (gpm)[1]	Extra Average Pumping for Water main (gpm)
S-Cent1	CENTRAL BOULEVARD	1	1388	500.00	42.69
S-Cent2	CENTRAL BOULEVARD	2	1388	500.00	42.69
S-112236	COUNTY RD 31	1	1100	148.11	33.83
S-113672	COUNTY RD 31	2	1100	135.17	33.83
S-122364	GUS GUERRERA	1	825	148.44	25.37
S-124263	GUS GUERRERA	2	1000	187.12	30.76
S-130263	GUS GUERRERA	3	1000	204.65	30.76
S-115945	MALLOY DR	1	950	224.30	29.22
S-115899	MALLOY DR	2	950	216.69	29.22
S-10733	MEETINGHOUSE	14	100	23.80	3.08
S-17577	MEETINGHOUSE	16	100	0.00	3.08
S-17576	MEETINGHOUSE	17	100	25.85	3.08
S-20687	MEETINGHOUSE	19	150	25.88	4.61
S-96673	MEETINGHOUSE	22	450	118.06	13.84
S-127777	MEETINGHOUSE	12A	250	70.08	7.69
S-109073	MORICHES-RIVRHD	3	950	231.99	29.22
S-128260	MORICHES-RIVRHD	1A	1100	269.90	33.83
S-118987	MORICHES-RIVRHD	2A	1050	255.43	32.29
S-120958	OAK AV	1	650	309.44	19.99
S-65905	OLD COUNTRY RD	3	350	59.81	10.76
S-108911	OLD COUNTRY RD	4	1100	190.04	33.83
S-111969	OLD COUNTRY RD	1A	850	123.71	26.14
S-94286	QUOGUE-RIV	1	1750	291.18	53.82
S-108161	QUOGUE-RIV	2	1300	214.99	39.98
S-81473	RAILROAD AV	2	1250	268.90	38.44
S-126134	RAILROAD AV	3	1388	292.43	42.69
S-136135	RAILROAD AV	1A	1388	266.50	42.69
S-121517	SEATUCK AVE	1	1250	237.71	38.44
S-124983	SEATUCK AVE	2	1300	236.16	39.98
S-121294	SEATUCK AVE	3	1300	231.82	39.98
S-123249	SPINNEY RD	3	1250	181.04	38.44
S-133227	SPINNEY RD	4	1388	216.64	42.69
S-136559	SPINNEY RD	5	1388	185.97	42.69

1. Average annual pumping (equivalent gpm) from 2022, 2023 and 2024

As mentioned above, the groundwater models assign recharge at nodes, not parcels, so representative nodes needed to be identified for recharge to new customers (again, existing customers are already accounted for in the baseline model):

- All developed parcels (residential, commercial, industrial, institutional) from the 2016 Suffolk County Planning Land Use database were selected.
  - 14,969 parcels
    - 14,160 residential
    - 610 commercial
    - 85 industrial
    - 114 institutional
- Remove parcels from Orient (Orient expansion has already been defined)
- Remove parcels that are currently served by SCWA (as of April 2026).
  - 4,967 parcels remaining
    - 4,591 residential
    - 278 commercial
    - 40 industrial
    - 58 institutional
- Select only parcels that intersect the SCWA Southold Low Pressure Zone
  - 1,915 parcels selected
    - 963 represented by model nodes within the pressure zone.
- Add vacant parcels subject to development within the Southold Pressure Zone (as per Suffolk County Planning Department, build-out analysis conducted for the SWP).
    - 928 represented by model nodes within the pressure zone (total 1,891)
- Select model nodes within 500 feet of the edge of the Southold Pressure Zone (to include parcels on the edge or partially within the pressure zone)
    - 795 represented by model nodes (total 2,686)
- Select model nodes within 500-600 feet of the edge of the Southold Pressure Zone.
    - 26 represented by model nodes (total of 2,712)
- Although 113 new connections per year are assumed, it is not known where those connections will be made during any given year. Therefore, a random number generator was utilized on the 2,712 model nodes to assign “new connections”. The numbers were randomly assigned, sorted and distributed from low to high to represent parcels added from 2026 through 2050 (**Figure 2A**). Nodes representing new connections are shown on **Figure 2B**.

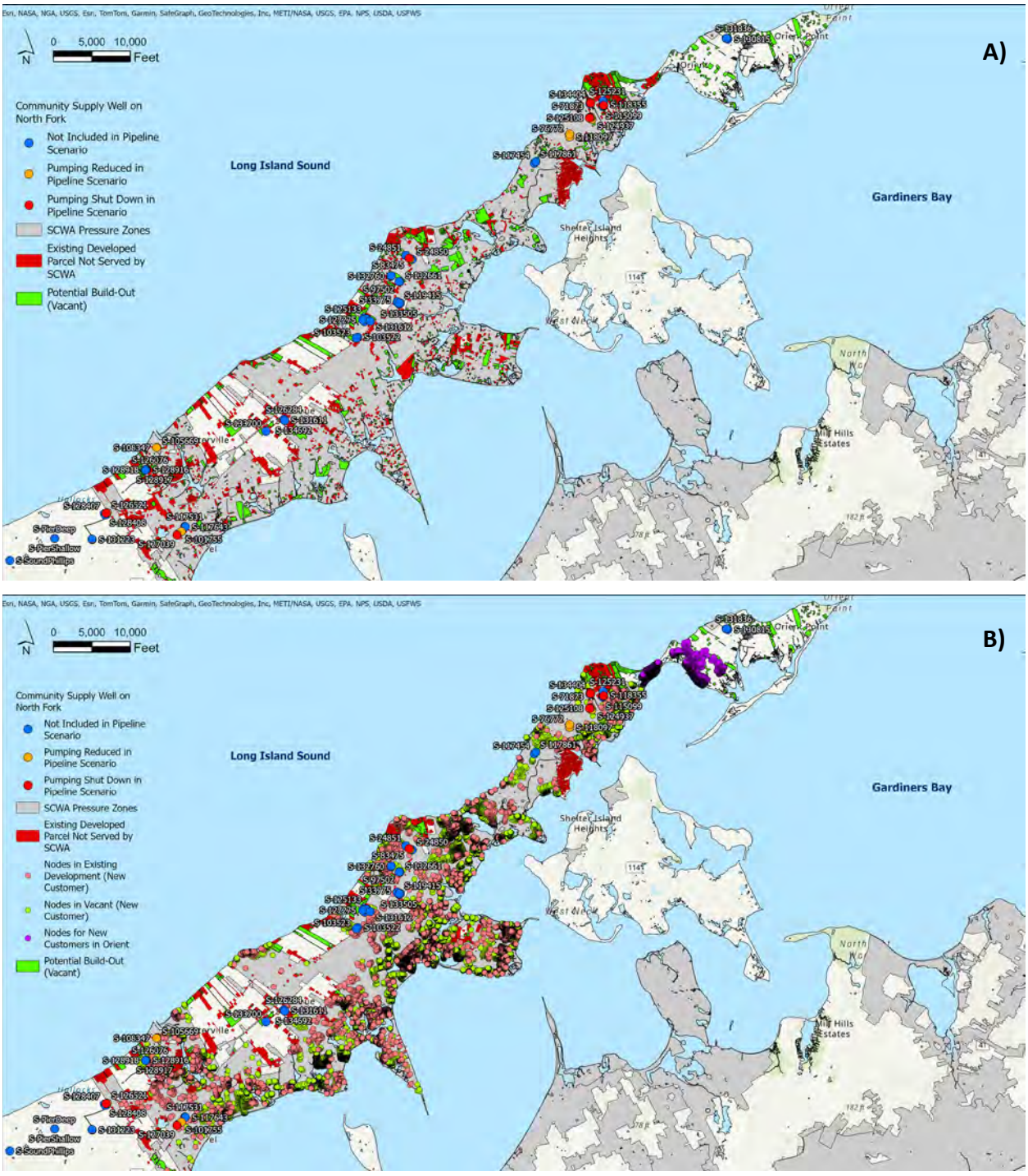


Figure 2 Properties Selected to Represent New Customers for Southold. A) Parcels not served by SCWA (2026) and vacant parcels subject to development. B) Nodes used to represent new customers.

Village of Orient

While SCWA currently serves a portion of the Village of Orient, the North Fork Water Main will also serve the southeast portion that has experienced elevated concentrations of per- and polyfluoroalkyl substances (PFAS). These parcels will be served by the North Fork Water Main and added to the simulation.

- Nodes representing new connections in Orient are shown on **Figure 2B**.

Model Results

Simulated water table drawdown on the Main Body model following the additional pumping in **Table 2** is shown on **Figure 3**. Average annual water table drawdown, as compared to average 2022-2024 conditions, is mild having a maximum between 0.3 and 0.35 feet around the Gus Guerrera wellfield.

Simulated baseflow to creeks within the area (Aspatuck Creek, Beaverdam Pond, Quantuck Creek and Speonk River) is mildly reduced, with a difference from baseline (2022-2024) conditions of approximately 0.04 cubic feet per second (cfs; **Table 3**). Simulated baseflow under baseline conditions is within the range of measured stream flow over the period of record for each stream (**Figure 4**). However, the period of record for 3 of the 4 streams ended more than 30 years ago and may not best represent current pumping and recharge conditions. Nevertheless, the simulated baseflow under baseline conditions remains within the range of the historical record. The decline in simulated baseflow represents between 2.1 and 4.5% of simulated baseline conditions (average annual baseflow under 2022-2024 conditions) at the USGS stream gage locations.

Table 3. Simulated average annual baseflow to Aspatuck Creek and Quantuck Creek upstream of USGS gages.

Stream	Simulated Baseflow (cfs)		
	Baseline	NFWM Sim	Difference
Aspatuck Creek	1.79	1.75	-0.04
Beaverdam Pond	1.34	1.28	-0.06
Quantuck Creek	1.23	1.19	-0.04
Speonk River	1.10	1.07	-0.03

Results of the Southold simulation are shown on **Figure 5**. The maximum simulated increase in the water table resulting from the reduced pumpage and continued growth supplied by the NFWM is 0.27 feet. The increase is well within seasonal fluctuations observed within Southold (**Figure 6**).

Summary

Groundwater model simulations conducted to evaluate potential hydraulic impacts to the water table from the implantation of the North Fork Water Main indicate an overall mild response with limited water table increases in Southold and mild drawdown of the water table in the Quogue area, as compared to current (2022-2024) conditions. Simulated baseflow to the streams decreases by 2.1 to 4.5%, as compared to existing pumping and recharge conditions. The additional pumpage assigned to

the 33 wells within the Quogue area results in pumping rates that remain well below permitted capacity of each well.

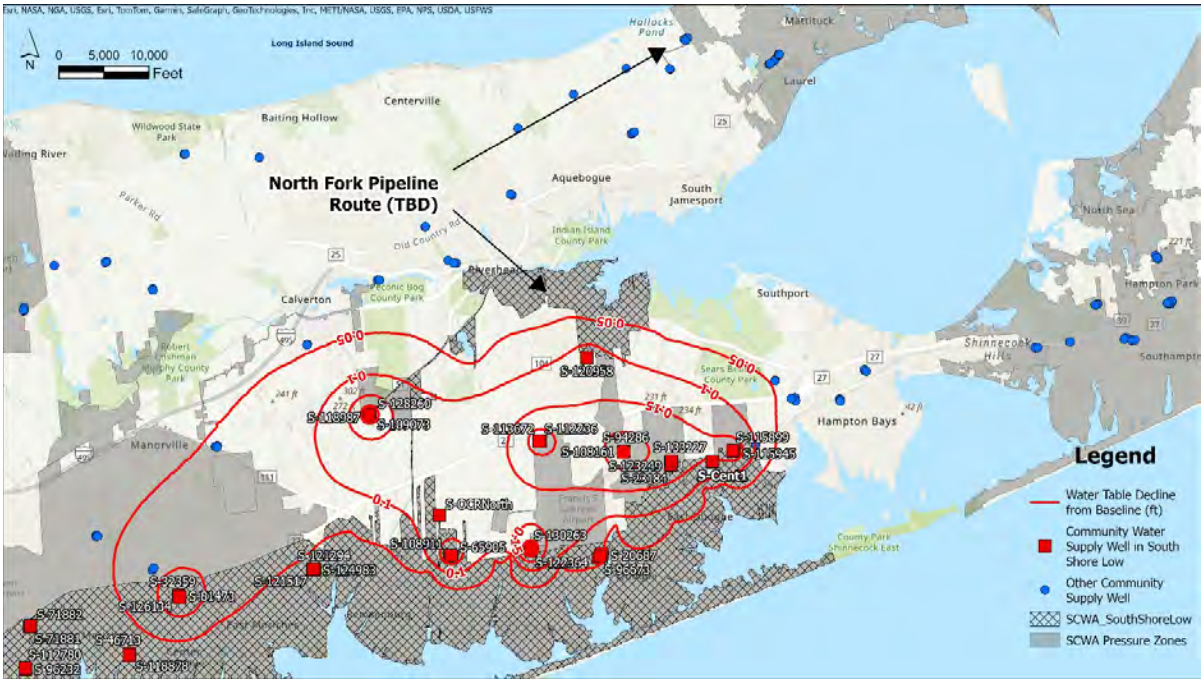


Figure 3 Simulated water table drawdown from baseline conditions.

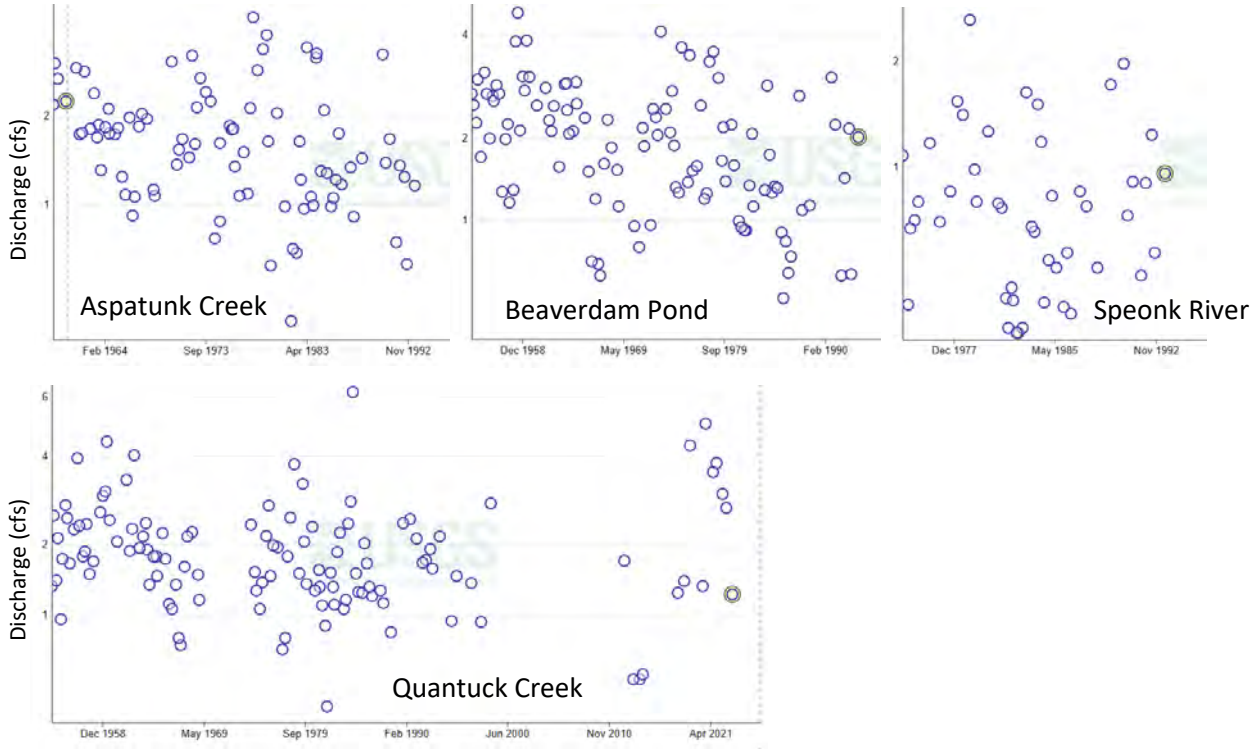


Figure 4 Measured stream flow by USGS at Aspatuck Creek, Beaverdam Pond, Speonk River (top) and Quantuck Creek (bottom) (from USGS NWIS https://apps.usgs.gov/nwismapper/).

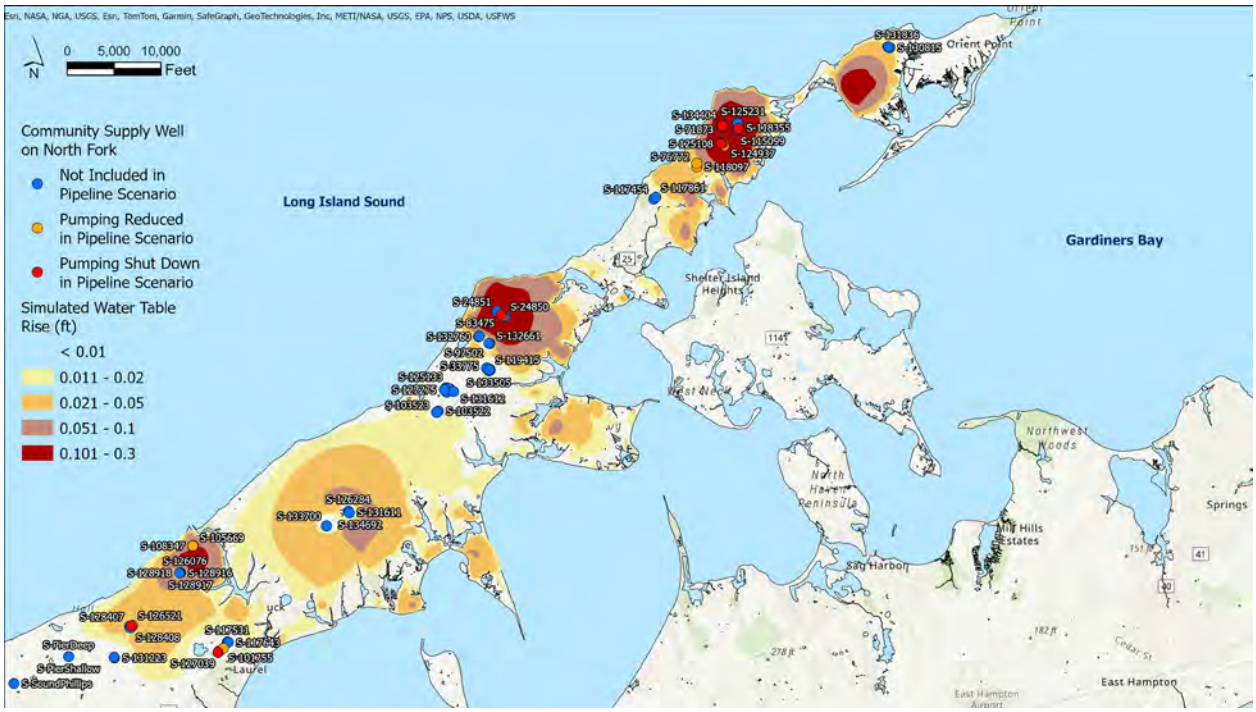


Figure 5 Simulated rise in water table due to North Fork Water Main supplying water to Southold and Orient.

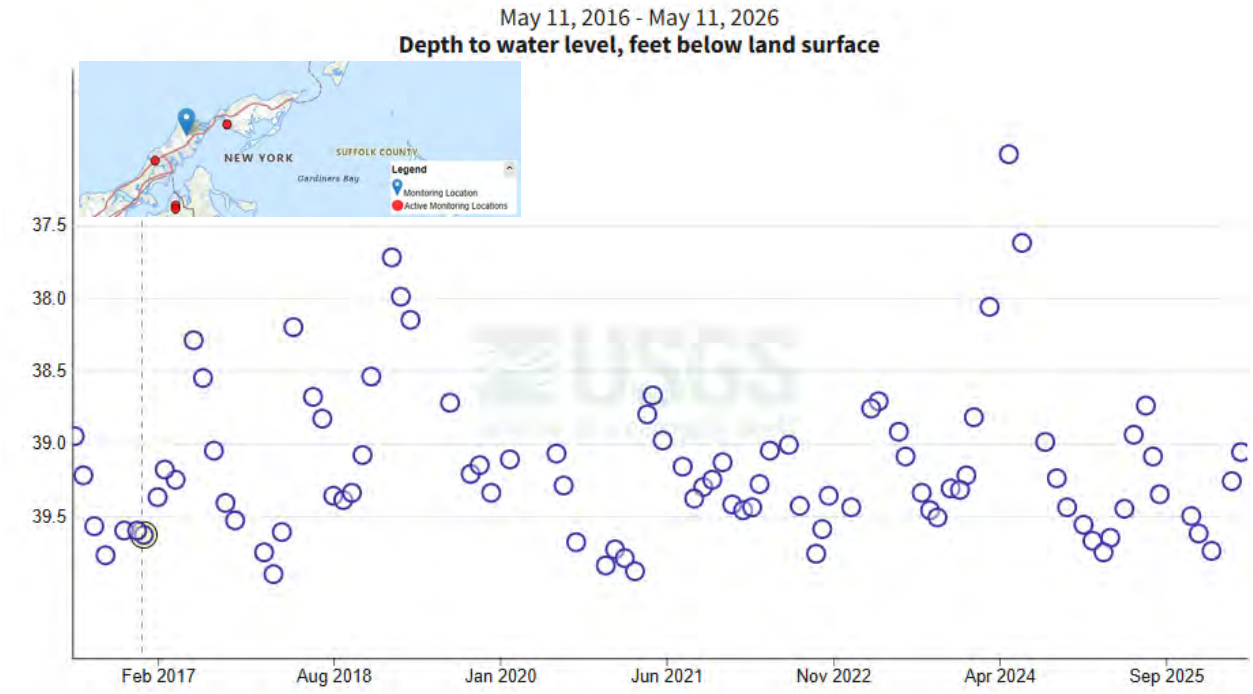


Figure 6 Depth to water measured by the USGS within a shallow monitoring well in eastern Southold. Monitoring well S-72782.1 (from https://waterdata.usgs.gov/monitoring-location/USGS-410740072204901/#dataTypeId=measurements-72019-0&period=periodOfRecord)

Appendix D North Fork Water Main Engineering Plans

N

SEE SHEET 2

A

A

24" 22-1/2° BEND (M/J ANC.)

24" 22-1/2° BEND (M/J ANC.)

48" x 76" RCP

48" x 76" RCP

48" x 76" RCP

CROSS RIVER DRIVE
DRAINAGE CROSSING

667' OF (1,527') OF 24" DUCTILE IRON PIPE

CB

CB

CB

CB

CROSS RIVER DRIVE (C.R.-105)

24" BUTTERFLY VALVE & BOX

36" X 24" REDUCER (M/J)

EXISTING 36" CAP (M/J)

10+67

EXISTING 36" D.I.P. (DRY MAIN)
(11-03-288)

9+67.5

EXISTING 36" 45° BEND

FLANDERS ROAD (S.R.-24)

16"T.I.

TO WHITEBROOK DR

MH

MH

MH

CB

CB

CB

CB

16-K
6

EXISTING 36" X 24" REDUCER
W/1-24" RTG, 1-36" RTG

EXISTING 24" 90° BEND

EXISTING 60" OF 36" STL CASING &
60' OF 24" TR FLEX-LOCK PIPE

0+04.5

0+00

0+05

0+65

FLANDERS ROAD (S.R.-24)

EXISTING 36" D.I.P. (DRY MAIN) (11-03-288)

EXISTING HYDRANT
#577001-000

16-K
4

0+69

EXISTING 24" CAP (M/J)

12"T.I.

BELL AVENUE

T.I.9

B

B

SEE SHEET 2

48" x 76" RCP

48" x 76" RCP

CB

CB

24" BUTTERFLY VALVE & BOX

MATERIAL FURN. BY CONTRACTOR:
1-24" X 8" VERTICAL TEE (M/J)
MATERIAL FURN. BY S.C.W.A.
1-8" PLUG (M/J)
1-8" RUBBER GASKET (M/J)
1-2" PLUG, GALVANIZED, SQUAREHEAD

PECONIC RIVERINE
CROSSING

CROSS RIVER DRIVE (C.R.-105)

860' OF (1,527') OF 24" DUCTILE IRON PIPE

SEE THIS SHEET

A

A

Option #5

NOTE: COORDINATE SYSTEM: N.Y. STATE PLANE FEET, L.I. ZONE 3104; DATUM: N.A.D.1983

	CONTRACTOR COPY
	INSPECTOR COPY
	STOREKEEPER COPY

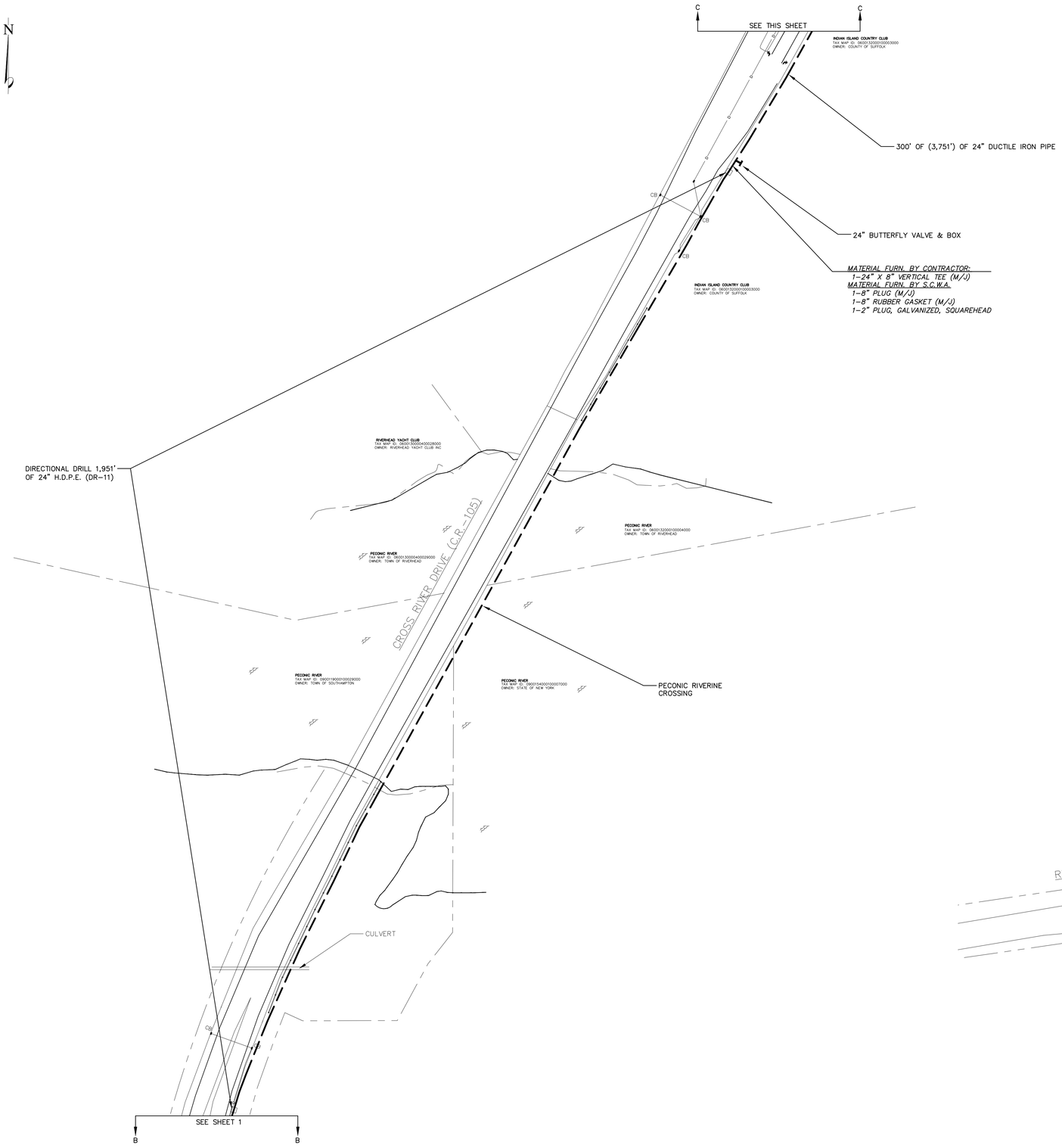
Suffolk County Water Authority
4060 Sunrise Highway
Oakdale, NY 11769

Type Of Project: **WATER MAIN INSTALLATION**

Dwg. No.: 7411029-(1)

Notes:
-All restoration on N.Y.S. R.O.W. to be done to N.Y.S. specs.
-Misc. bends & offsets may be required. All fittings must use Retaining glands.

Reference Authorizations		Fld. Sketch By: CM	Date:	Drawn By: TT, ZB	Date: 11/7/25	Town: FLANDERS/RIVERHEAD/LAUREL
		Field Prep By:	Insp. By:	Scale: 1"=50'	Sheet 1 Of 13	Township: RIVERHEAD/SOUTHOLD
		Contractor:	Map. No: 16L/17L/18L	Serv. Order No:	# of Services:	Fire Dist:
		In Service Date:		Main Order No:		Main Project:
RIVERHEAD/SOUTHOLD		Compl. Dwg. By:	Date:	Hyatt Order No:		Hyatt Project:



NOTE: COORDINATE SYSTEM: N.Y. STATE PLANE FEET, L.I. ZONE 3104; DATUM: N.A.D.1983

CONTRACTOR COPY
INSPECTOR COPY
STOREKEEPER COPY

Suffolk County Water Authority

4060 Sunrise Highway
Oakdale, NY 11769

Type Of Project: WATER MAIN INSTALLATION

Dwg. No.: 7411029-(2)

Notes:
- All restoration on N.Y.S. R.O.W. to be done to N.Y.S. specs.
- Misc. bends & offsets may be required. All fittings must use Retaining glands.

Reference Authorizations					
		Fld. Sketch By: CM	Date:	Drawn By: TT, ZB	Date: 11/7/25
		Field Prep By:	Insp. By:	Scale: 1"=50'	Sheet 2 of 13
		Contractor:	Map No: 16,17,18	Serv. Order No:	# of Services:
		In Service Date:		Main Order No:	
		Compl. Dwg. By:	Date:	Hyatt Order No:	

Town:	FLANDERS/RIVERHEAD/LAUREL
Township:	RIVERHEAD/SOUTHOLD
Fire Dist:	
Main Project:	
Hyatt Project:	

N

E — SEE THIS SHEET — E

24" 22-1/2° BEND (M/J)

TAX MAP ID: 0600112000200001001
OWNER: WILLIAM GATZ

1,165' OF (3,751') OF 24" DUCTILE IRON PIPE

TAX MAP ID: 0600112000100016001
OWNER: COUNTY OF SUFFOLK

CROSS RIVER DRIVE (C.R.-105)

24" 22-1/2° BEND (M/J)

24" 22-1/2° BEND (M/J)

TAX MAP ID: 0600112000200001001
OWNER: WILLIAM GATZ

24" BUTTERFLY VALVE & BOX

MATERIAL FURN. BY CONTRACTOR:
1-24" X 8" VERTICAL TEE (M/J)
MATERIAL FURN. BY S.C.W.A.
1-8" PLUG (M/J)
1-8" RUBBER GASKET (M/J)
1-2" PLUG, GALVANIZED, SQUAREHEAD

PECONIC RIVER
TAX MAP ID: 0600132000100004000
OWNER: TOWN OF RIVERHEAD

SAW CREEK CROSSING

48" X 76" R.C.P.

48" X 76" R.C.P.

48" X 76" R.C.P.

PECONIC RIVER
TAX MAP ID: 0600132000100001000
OWNER: TOWN OF RIVERHEAD

24" 45° BEND (M/J ANC.)

24" 45° BEND (M/J ANC.)

D — SEE SHEET 2 — D

F — SEE SHEET 4 — F

INDIAN ISLAND COUNTY PARK
TAX MAP ID: 0600112000200002001
OWNER: COUNTY OF SUFFOLK

24" BUTTERFLY VALVE & BOX

MATERIAL FURN. BY CONTRACTOR:
1-24" X 8" VERTICAL TEE (M/J)
MATERIAL FURN. BY S.C.W.A.
1-8" PLUG (M/J)
1-8" RUBBER GASKET (M/J)
1-2" PLUG, GALVANIZED, SQUAREHEAD

24" 11-1/4° BEND (M/J)

24" 11-1/4° BEND (M/J)

CROSS RIVER DRIVE (C.R.-105)

SERVICE RD

24" 11-1/4° BEND (M/J)

POINT RD

INDIAN

24" 11-1/4° BEND (M/J)

24" 11-1/4° BEND (M/J)

1,142' OF (3,751') OF 24" DUCTILE IRON PIPE

INDIAN ISLAND COUNTY PARK
TAX MAP ID: 0600112000200002001
OWNER: COUNTY OF SUFFOLK

E — SEE THIS SHEET — E

NOTE: COORDINATE SYSTEM: N.Y. STATE PLANE FEET, L.I. ZONE 3104; DATUM: N.A.D.1983

CONTRACTOR COPY
INSPECTOR COPY
STOREKEEPER COPY

Suffolk County Water Authority
4060 Sunrise Highway
Oakdale, NY 11769

Type Of Project: **WATER MAIN INSTALLATION**
Dwg. No.: 7411029-(3)

Notes:
- All restoration on N.Y.S. R.O.W. to be done to N.Y.S. specs.
- Misc. bends & offsets may be required. All fittings must use Retaining glands.

Reference Authorizations					
		Fld. Sketch By: CM	Date:	Drawn By: TT, ZB	Date: 11/7/25
		Field Prep By:	Insp. By:	Scale: 1"=50'	Sheet 3 Of 13
		Contractor:	Map No: 16, 17, 18	Serv. Order No:	# of Services:
		In Service Date:		Main Order No:	
		Compl. Dwg. By:	Date:	Hyatt Order No:	

Town: FLANDERS/RIVERHEAD/LAUREL
Township: RIVERHEAD/SOUTHOLD
Fire Dist:
Main Project:
Hyatt Project:

NOTE: COORDINATE SYSTEM: N.Y. STATE PLANE FEET, L.I. ZONE 3104; DATUM: N.A.D.1983

CONTRACTOR COPY
INSPECTOR COPY
STOREKEEPER COPY

Notes:
- All restoration on N.Y.S. R.O.W. to be done to N.Y.S. specs.
- Misc. bends & offsets may be required. All fittings must use Retaining glands.

Suffolk County Water Authority

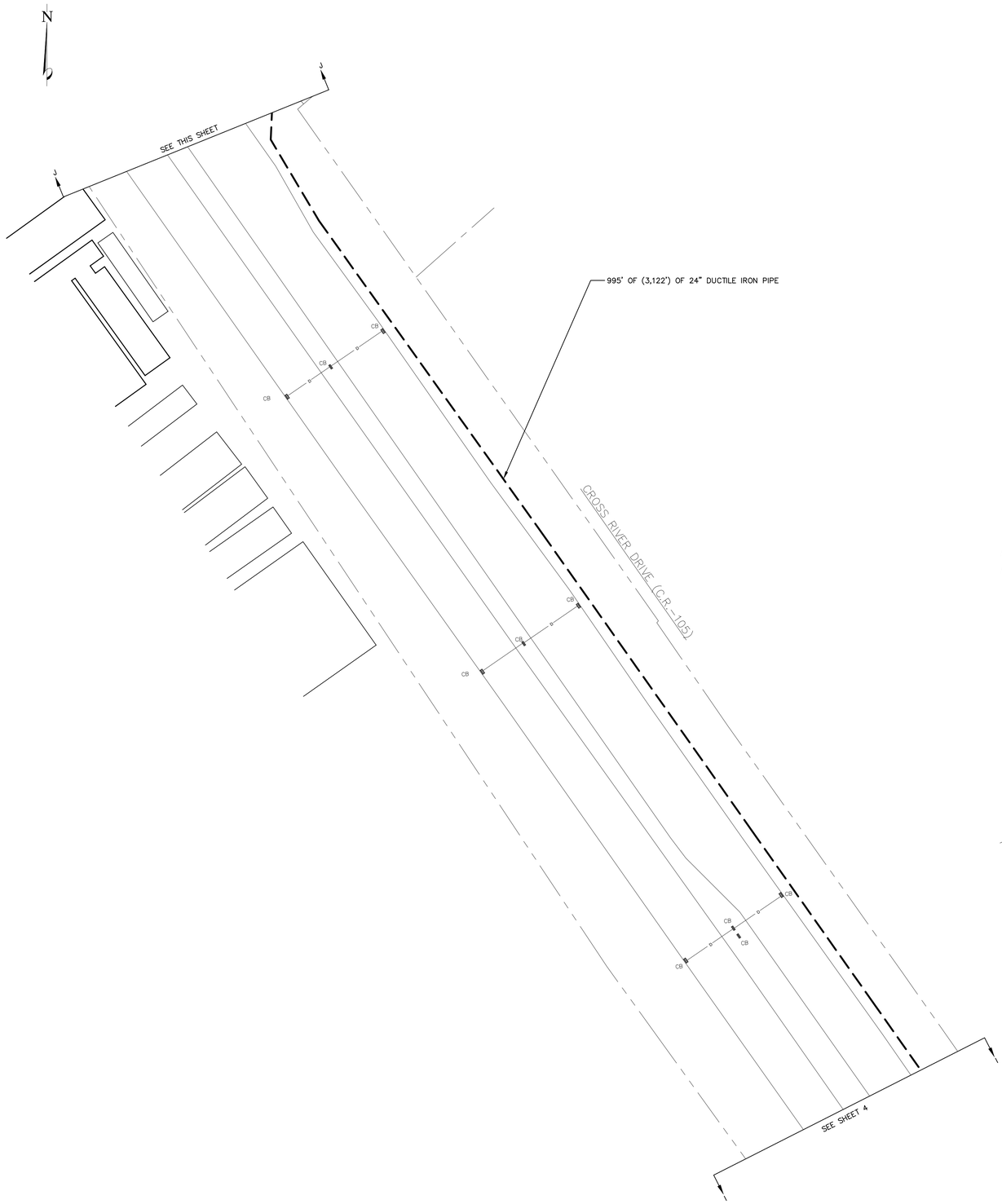
4060 Sunrise Highway
Oakdale, NY 11769

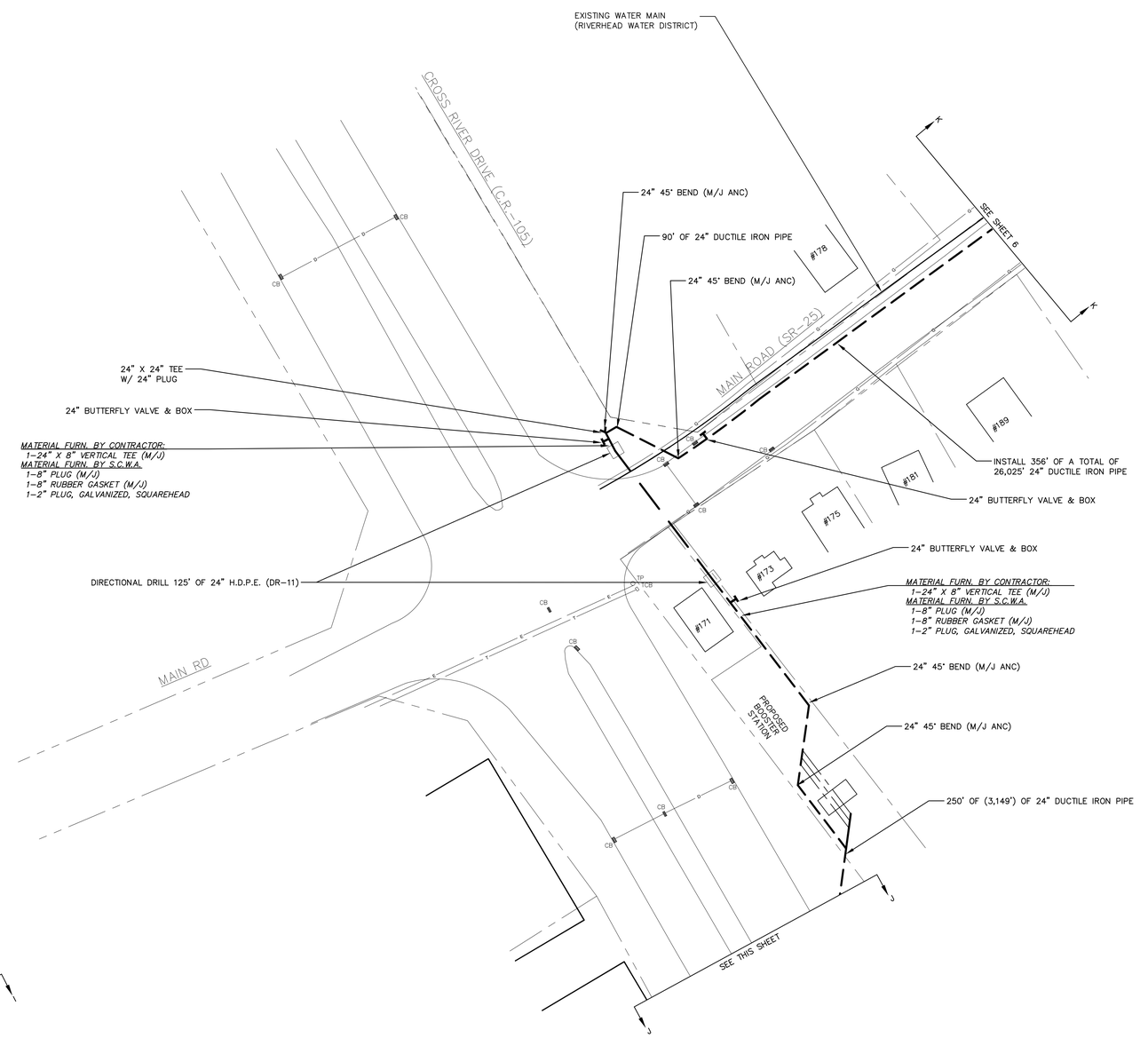
Type Of Project: **WATER MAIN INSTALLATION**

Dwg. No.: 7411029-(4)

Reference Authorizations		Fld. Sketch By: CM	Date:	Drawn By: TT, ZB	Date: 11/7/25
		Field Prep By:	Insp. By:	Scale: 1"=50'	Sheet 4 Of 13
		Contractor:	Map No: 16, 17, 18	Serv. Order No:	# of Services:
		In Service Date:		Main Order No:	
		Compl. Dwg. By:	Date:	Hyatt Order No:	

town: FLANDERS/RIVERHEAD/LAUREL
township: RIVERHEAD/SOUTHOLD
Fire Dist:
Main Project:
Hyatt Project:





NOTE: COORDINATE SYSTEM: N.Y. STATE PLANE FEET, L.I. ZONE 3104; DATUM: N.A.D.1983

	CONTRACTOR COPY
	INSPECTOR COPY
	STOREKEEPER COPY

Suffolk County Water Authority

4060 Sunrise Highway
Oakdale, NY 11769

Type Of Project: WATER MAIN INSTALLATION

Dwg. No.: 7411029-(5)

Notes:
- All restoration on N.Y.S. R.O.W. to be done to N.Y.S. specs.
- Misc. bends & offsets may be required. All fittings must use Retaining glands.

Reference Authorizations					
		Fld. Sketch By: CM	Date:	Drawn By: TT, ZB	Date: 11/7/25
		Field Prep By:	Insp. By:	Scale: 1"=50'	Sheet 5 Of 13
		Contractor:	Map No: 16/17/18	Serv. Order No:	# of Services:
		In Service Date:		Main Order No:	
		Compl. Dwg. By:	Date:	Hydt Order No:	

Town:	FLANDERS/RIVERHEAD/LAUREL
Township:	RIVERHEAD/SOUTHOLD
Fire Dist:	
Main Project:	
Hydt Project:	

N

INSTALL 1,355' OF A TOTAL OF
26,025' OF 24" DUCTILE IRON PIPE

SEE THIS SHEET

(SR-25)

SHADE TREE LANE

#268

#272

#250

#299

#236
#238

MAIN ROAD

#259

#243

EXISTING WATER MAIN
(RIVERHEAD WATER DISTRICT)

EXIST. RWD HYDRANT

EXIST. RWD HYDRANT

LINDA AVENUE

#212

#188

BROAD AVENUE

SEE SHEETS

#199

EXISTING WATER MAIN
(RIVERHEAD WATER DISTRICT)

EXIST. RWD HYDRANT

#396

SEE SHEET 7

(SR-25)

UNION AVENUE

#373

INSTALL 1,290' OF A TOTAL OF
26,025' OF 24" DUCTILE IRON PIPE

#357

MAIN ROAD

#347

#290

SEE THIS SHEET

EXIST. RWD HYDRANT

24" BUTTERFLY VALVE & BOX

MATERIAL FURN. BY CONTRACTOR:
1-24" X 8" VERTICAL TEE (M/J)
MATERIAL FURN. BY S.C.W.A.
1-8" PLUG (M/J)
1-8" RUBBER GASKET (M/J)
1-2" PLUG, GALVANIZED, SQUAREHEAD

#292

NOTE: COORDINATE SYSTEM: N.Y. STATE PLANE FEET, L.I. ZONE 3104; DATUM: N.A.D.1983

CONTRACTOR COPY
INSPECTOR COPY
STOREKEEPER COPY

Suffolk County Water Authority
4060 Sunrise Highway
Oakdale, NY 11769

Type Of Project: **WATER MAIN INSTALLATION**

Dwg. No.: 7411029-(6)

Notes:
- All restoration on N.Y.S. R.O.W. to be done to N.Y.S. specs.
- Misc. bends & offsets may be required. All fittings must use Retaining glands.

Reference Authorizations				
Fld. Sketch By: CM	Date:	Drawn By: TT, ZB	Date: 11/7/25	Town: FLANDERS/RIVERHEAD/LAUREL
Field Prep By:	Insp. By:	Scale: 1"=50'	Sheet 6 Of 13	Township: RIVERHEAD/SOUTHOLD
Contractor:	Map No: 16, 17, 18	Serv.Order No:	# of Services:	Fire Dist:
In Service Date:		Main Order No:		Main Project:
Compl. Dwg. By:	Date:	Hydt Order No:		Hydt Project:

N

EXIST. RWD HYDRANT

EXIST. RWD HYDRANT

EXISTING WATER MAIN
(RIVERHEAD WATER DISTRICT)

EXIST. RWD HYDRANT

MAIN ROAD

(SR-25)

EDGAR AVENUE

#508

#486

#470

#543

#460

#452

#487

#644

#640

#628

#401

#653

#612

#621

#605

#591

#548

#549

24" BUTTERFLY VALVE & BOX

MATERIAL FURN. BY CONTRACTOR:
1-24" X 8" VERTICAL TEE (M/J)
MATERIAL FURN. BY S.C.W.A.
1-8" PLUG (M/J)
1-8" RUBBER GASKET (M/J)
1-2" PLUG, GALVANIZED, SQUAREHEAD

INSTALL 1,705' OF A TOTAL OF
26,025' OF 24" DUCTILE IRON PIPE

24" BUTTERFLY VALVE & BOX

MATERIAL FURN. BY CONTRACTOR:
1-24" X 8" VERTICAL TEE (M/J)
MATERIAL FURN. BY S.C.W.A.
1-8" PLUG (M/J)
1-8" RUBBER GASKET (M/J)
1-2" PLUG, GALVANIZED, SQUAREHEAD

INSTALL 1,535' OF A TOTAL OF
26,025' OF 24" DUCTILE IRON PIPE

SEE THIS SHEET

SEE SHEET 8

SEE SHEET 6

SEE THIS SHEET

NOTE: COORDINATE SYSTEM: N.Y. STATE PLANE FEET, L.I. ZONE 3104; DATUM: N.A.D.1983

CONTRACTOR COPY
INSPECTOR COPY
STOREKEEPER COPY

Suffolk County Water Authority

4060 Sunrise Highway
Oakdale, NY 11769

Type Of Project: **WATER MAIN INSTALLATION**

Dwg. No.: 7411029-(7)

Notes:
- All restoration on N.Y.S. R.O.W. to be done to N.Y.S. specs.
- Misc. bends & offsets may be required. All fittings must use Retaining glands.

Reference Authorizations				
Fld. Sketch By: CM	Date:	Drawn By: TT, ZB	Date: 11/7/25	town: FLANDERS/RIVERHEAD/LAUREL
Field Prep By:	Insp. By:	Scale: 1"=50'	Sheet 7 Of 13	township: RIVERHEAD/SOUTHOLD
Contractor:	Map No: 16/17/18	Serv. Order No:	# of Services:	Fire Dist:
In Service Date:		Main Order No:		Main Project:
Compl. Dwg. By:	Date:	Hyatt Order No:		Hyatt Project:

N

EXIST. RWD HYDRANT

#740

#756

(SR-25)

MH

CB

SEE THIS SHEET

EXISTING WATER MAIN
(RIVERHEAD WATER DISTRICT)

#720

CHURCH LANE

#700

24" BUTTERFLY VALVE & BOX

MATERIAL FURN. BY CONTRACTOR:
1-24" X 8" VERTICAL TEE (M/J)
MATERIAL FURN. BY S.C.W.A.
1-8" PLUG (M/J)
1-8" RUBBER GASKET (M/J)
1-2" PLUG, GALVANIZED, SQUAREHEAD

#747

#739

EXIST. RWD HYDRANT

#688

#680

#676

#674

MAIN ROAD

(WEST LANE)

INSTALL 1,725' OF A TOTAL OF
26,025' OF 24" DUCTILE IRON PIPE

SEE SHEET 7

SEE THIS SHEET

EXIST. RWD HYDRANT

#830

EXISTING WATER MAIN
(RIVERHEAD WATER DISTRICT)

#844

MAIN ROAD

EXIST. RWD HYDRANT

#856

#866

#872

#888

#894

#902

#908

(SR-25)

SEE SHEET 9

INSTALL 1,405' OF A TOTAL OF
26,025' OF 24" DUCTILE IRON PIPE

NOTE: COORDINATE SYSTEM: N.Y. STATE PLANE FEET, L.I. ZONE 3104; DATUM: N.A.D.1983

CONTRACTOR COPY
INSPECTOR COPY
STOREKEEPER COPY

Suffolk County Water Authority
4060 Sunrise Highway
Oakdale, NY 11769

Type Of Project: WATER MAIN INSTALLATION

Dwg. No.: 7411029-(8)

Notes:
- All restoration on N.Y.S. R.O.W. to be done to N.Y.S. specs.
- Misc. bends & offsets may be required. All fittings must use Retaining glands.

Reference Authorizations				
		Fld. Sketch By: CM	Date:	Drawn By: TT, ZB Date: 11/7/25
		Field Prep By:	Insp. By:	Scale: 1"=50' Sheet 8 Of 13
		Contractor:	Map No: 16/17/18	Serv. Order No: # of Services:
		In Service Date:		Main Order No:
		Compl. Dwg. By:	Date:	Hydt Order No:

Town: FLANDERS/RIVERHEAD/LAUREL
Township: RIVERHEAD/SOUTHOLD
Fire Dist:
Main Project:
Hydt Project:

N

EXIST. RWD HYDRANT

EXISTING WATER MAIN
(RIVERHEAD WATER DISTRICT)

EXIST. RWD HYDRANT

#908 #914 #918 #926 #952 #978 #1000 #1008 #1017

MAIN ROAD

(SR-25)

SEE SHEET 8

SEE THIS SHEET

COLONIAL DRIVE

#921 #939 #949 #965 #965

24" BUTTERFLY VALVE & BOX

INSTALL 1,650' OF A TOTAL OF
26,025' OF 24" DUCTILE IRON PIPE

MATERIAL FURN. BY CONTRACTOR:
1-24" X 8" VERTICAL TEE (M/J)
MATERIAL FURN. BY S.C.W.A.
1-8" PLUG (M/J)
1-8" RUBBER GASKET (M/J)
1-2" PLUG, GALVANIZED, SQUAREHEAD

EXISTING WATER MAIN
(RIVERHEAD WATER DISTRICT)

EXIST. RWD HYDRANT

EXIST. RWD HYDRANT

#1062 #1054 #1071 #1089 #1091 #1095 #1146 #1158

MAIN ROAD

(SR-25)

TUTHILLS LANE

SEE THIS SHEET

SEE SHEET 10

INSTALL 1,695' OF A TOTAL OF
26,025' OF 24" DUCTILE IRON PIPE

24" BUTTERFLY VALVE & BOX

MATERIAL FURN. BY CONTRACTOR:
1-24" X 8" VERTICAL TEE (M/J)
MATERIAL FURN. BY S.C.W.A.
1-8" PLUG (M/J)
1-8" RUBBER GASKET (M/J)
1-2" PLUG, GALVANIZED, SQUAREHEAD

NOTE: COORDINATE SYSTEM: N.Y. STATE PLANE FEET, L.I. ZONE 3104; DATUM: N.A.D.1983

CONTRACTOR COPY
INSPECTOR COPY
STOREKEEPER COPY

Suffolk County Water Authority
4060 Sunrise Highway
Oakdale, NY 11769

Type Of Project: **WATER MAIN INSTALLATION**

Dwg. No.: 7411029-(9)

Notes:
- All restoration on N.Y.S. R.O.W. to be done to N.Y.S. specs.
- Misc. bends & offsets may be required. All fittings must use Retaining glands.

Reference Authorizations				
Fld. Sketch By: CM	Date:	Drawn By: TT, ZB	Date: 11/7/25	Town: FLANDERS/RIVERHEAD/LAUREL
Field Prep By:	Insp. By:	Scale: 1"=50'	Sheet 9 Of 13	Township: RIVERHEAD/SOUTHOLD
Contractor:	Map No: 16/17/18	Serv.Order No:	# of Services:	Fire Dist:
In Service Date:		Main Order No:		Main Project:
Compl. Dwg. By:	Date:	Hyatt Order No:		Hyatt Project:

N

SEE SHEET 9

MAIN ROAD

#1176

#1158

#1197

#1223

#1234

#1246

#1260

#1284

#1279

#1291

#1291

EXIST. RWD HYDRANT

EXISTING WATER MAIN
(RIVERHEAD WATER DISTRICT)

EXIST. RWD HYDRANT

EXIST. RWD HYDRANT

(SR-25)

SEE THIS SHEET

INSTALL 1,670' OF A TOTAL OF
26,025' OF 24" DUCTILE IRON PIPE

24" BUTTERFLY VALVE & BOX

MATERIAL FURN. BY CONTRACTOR:
1-24" X 8" VERTICAL TEE (M/J)
MATERIAL FURN. BY S.C.W.A.
1-8" PLUG (M/J)
1-8" RUBBER GASKET (M/J)
1-2" PLUG, GALVANIZED, SQUAREHEAD

#1308

#1322

#1350

#1374

#1396

#1424

#1327

#1403

#1427

EXIST. GAS BOX

EXIST. GAS BOX

EXIST. GAS MAN HOLE

EXIST. GAS MAN HOLE

EXIST. GAS VENT

EXIST. GAS MAN HOLE

EXIST. GAS VENT

EXIST. GAS VENT

MAIN ROAD

(SR-25)

WASHINGTON AVENUE

SEE THIS SHEET

SEE SHEET 11

EXISTING WATER MAIN
(RIVERHEAD WATER DISTRICT)

EXIST. RWD HYDRANT

INSTALL 1,675' OF A TOTAL OF
26,025' OF 24" DUCTILE IRON PIPE

24" 22½° BEND (M/J)

24" 22½° BEND (M/J)

24" 22½° BEND (M/J)

24" 22½° BEND (M/J)

EXIST. RWD HYDRANT

NOTE: COORDINATE SYSTEM: N.Y. STATE PLANE FEET, L.I. ZONE 3104; DATUM: N.A.D.1983

	CONTRACTOR COPY
	INSPECTOR COPY
	STOREKEEPER COPY

Suffolk County Water Authority
4060 Sunrise Highway
Oakdale, NY 11769

Type Of Project: WATER MAIN INSTALLATION

Dwg. No.: 7411029-(10)

Notes:
- All restoration on N.Y.S. R.O.W. to be done to N.Y.S. specs.
- Misc. bends & offsets may be required. All fittings must use Retaining glands.

Reference Authorizations					
		Fld. Sketch By: CM	Date:	Drawn By: TT, ZB	Date: 11/7/25
		Field Prep By:	Insp. By:	Scale: 1"=50'	Sheet 10 Of 13
		Contractor:	Map No: 16/7/1/18	Serv.Order No:	# of Services:
		In Service Date:		Main Order No:	
		Compl. Dwg. By:	Date:	Hydt Order No:	

Town: FLANDERS/RIVERHEAD/LAUREL
Township: RIVERHEAD/SOUTHOLD
Fire Dist:
Main Project:
Hydt Project:

N

SEE THIS SHEET

SEE SHEET 12

SEE SHEET 10

SEE THIS SHEET

MAIN ROAD

CIRCLE DRIVE

MANOR LANE

S. JAMESPORT AVENUE

(SR-25)

#1448 #1492 #1500 #1508 #1520 #1527 #1549

#1491 #5 #1451 #1469

#1556 #1560 #1564 #1566 #1572 #1563

#1586 #1590 #1604 #1612 #1622 #1636

#1601 #1607 #1615 #1627 #1697

INSTALL 1,545' OF A TOTAL OF 26,025' OF 24" DUCTILE IRON PIPE

EXISTING WATER MAIN (RIVERHEAD WATER DISTRICT)

EXIST. RWD HYDRANT

EXIST. RWD HYDRANT

EXISTING WATER MAIN (RIVERHEAD WATER DISTRICT)

EXIST. RWD HYDRANT

EXIST. RWD HYDRANT

INSTALL 1,235' OF A TOTAL OF 26,025' OF 24" DUCTILE IRON PIPE

24" BUTTERFLY VALVE & BOX

24" BUTTERFLY VALVE & BOX

MATERIAL FURN. BY CONTRACTOR:
1-24" X 8" VERTICAL TEE (M/J)
MATERIAL FURN. BY S.C.W.A.
1-8" PLUG (M/J)
1-8" RUBBER GASKET (M/J)
1-2" PLUG, GALVANIZED, SQUAREHEAD

MATERIAL FURN. BY CONTRACTOR:
1-24" X 8" VERTICAL TEE (M/J)
MATERIAL FURN. BY S.C.W.A.
1-8" PLUG (M/J)
1-8" RUBBER GASKET (M/J)
1-2" PLUG, GALVANIZED, SQUAREHEAD

NOTE: COORDINATE SYSTEM: N.Y. STATE PLANE FEET, L.I. ZONE 3104; DATUM: N.A.D.1983

CONTRACTOR COPY
INSPECTOR COPY
STOREKEEPER COPY

Notes:
- All restoration on N.Y.S. R.O.W. to be done to N.Y.S. specs.
- Misc. bends & offsets may be required. All fittings must use Retaining glands.

Suffolk County Water Authority
4060 Sunrise Highway
Oakdale, NY 11769

Type Of Project: WATER MAIN INSTALLATION
Dwg. No.: 7411029-(11)

Reference Authorizations					
		Fld. Sketch By: CM	Date:	Drawn By: TT, ZB	Date: 11/7/25
		Field Prep By:	Insp. By:	Scale: 1"=50'	Sheet 11 Of 13
		Contractor:	Map No: 16,17,18	Serv.Order No:	# of Services:
		In Service Date:		Main Order No:	
		Compl. Dwg. By:	Date:	Hyatt Order No:	

Town: FLANDERS/RIVERHEAD/LAUREL
Township: RIVERHEAD/SOUTHOLD
Fire Dist:
Main Project:
Hyatt Project:

N

EXIST. RWD HYDRANT

SEE THIS SHEET

24" 22½° BEND (M/J)

24" 22½° BEND (M/J)

24" 22½° BEND (M/J)

24" 22½° BEND (M/J)

24" 22½° BEND (M/J)

24" 22½° BEND (M/J)

24" 22½° BEND (M/J)

24" 22½° BEND (M/J)

#1728

#1722

#1739

#1716

#1727

#1686

#1717

#1676

#1662

ZIEMACKI LANE

(SR-25)

MAIN ROAD

EXISTING WATER MAIN
(RIVERHEAD WATER DISTRICT)

EXIST. RWD HYDRANT

INSTALL 1,270' OF A TOTAL OF
26,025' OF 24" DUCTILE IRON PIPE

SEE SHEET 10

W

W

SEE THIS SHEET

Y

Y

#1834

#1830

#1847

#1833

#1825

#1819

#1811

#1844

EXIST. RWD HYDRANT

EXISTING WATER MAIN
(RIVERHEAD WATER DISTRICT)

INSTALL 1,135' OF A TOTAL OF
26,025' OF 24" DUCTILE IRON PIPE

24" BUTTERFLY VALVE & BOX

MATERIAL FURN. BY CONTRACTOR:
1-24" X 8" VERTICAL TEE (M/J)
MATERIAL FURN. BY S.C.W.A.
1-8" PLUG (M/J)
1-8" RUBBER GASKET (M/J)
1-2" PLUG, GALVANIZED, SQUAREHEAD

SEE THIS SHEET

X

X

Z

Z

SEE SHEET 13

24" 22½° BEND (M/J)

24" 22½° BEND (M/J)

EXISTING WATER MAIN
(RIVERHEAD WATER DISTRICT)

24" 22½° BEND (M/J)

24" 22½° BEND (M/J)

INSTALL 1,185' OF A TOTAL OF
26,025' OF 24" DUCTILE IRON PIPE

24" BUTTERFLY VALVE & BOX

MATERIAL FURN. BY CONTRACTOR:
1-24" X 8" VERTICAL TEE (M/J)
MATERIAL FURN. BY S.C.W.A.
1-8" PLUG (M/J)
1-8" RUBBER GASKET (M/J)
1-2" PLUG, GALVANIZED, SQUAREHEAD

#12

#1915

#1882

#1861

#1870

#1860

#1875

(SR-25)

HERRICKS LANE

MAIN ROAD

EXIST. RWD HYDRANT

SEE THIS SHEET

NOTE: COORDINATE SYSTEM: N.Y. STATE PLANE FEET, L.I. ZONE 3104; DATUM: N.A.D.1983

	CONTRACTOR COPY
	INSPECTOR COPY
	STOREKEEPER COPY

Notes:
-All restoration on N.Y.S. R.O.W. to be done to N.Y.S. specs.
-Misc. bends & offsets may be required. All fittings must use Retaining glands.

Suffolk County Water Authority

4060 Sunrise Highway
Oakdale, NY 11769

Type Of Project:

WATER MAIN INSTALLATION

Dwg. No.: 7411029-(12)

Reference Authorizations					
		Fld. Sketch By: CM	Date:	Drawn By: TT, ZB	Date: 11/7/25
		Field Prep By:	Insp. By:	Scale: 1"=50'	Sheet 12 Of 13
		Contractor:	Map No: 16/17/18	Serv. Order No:	# of Services:
		In Service Date:		Main Order No:	
		Compl. Dwg. By:	Date:	Hyat Order No:	

Town: FLANDERS/RIVERHEAD/LAUREL
Township: RIVERHEAD/SOUTHOLD
Fire Dist:
Main Project:
Hyat Project:

N

AA — SEE THIS SHEET — AA

AB — SEE THIS SHEET — AB

(SR-25)

MAIN ROAD

LAUREL LANE

#2026

#2014

#2004

#1998

#1982

#1960

#1995

#1977

#1967

#2092

#2120

#2125

#2168

#775

#600

#50

EXIST. RWD HYDRANT

EXISTING WATER MAIN
(RIVERHEAD WATER DISTRICT)

INSTALL 1,325' OF A TOTAL OF
26,025' OF 24" DUCTILE IRON PIPE

INSTALL 1,425' OF A TOTAL OF
26,025' OF 24" DUCTILE IRON PIPE

INSTALL 844' OF A TOTAL OF
26,025' OF 24" DUCTILE IRON PIPE

18M
37

16" T.L.

6" D.E.
±100'

EXIST. SCWA HYDRANT
(#810005-007)

16" BUTTERFLY VALVE & BOX

24" X 16" REDUCER (M/J)

MATERIAL FURN. BY CONTRACTOR:
1-24" X 8" VERTICAL TEE (M/J)
MATERIAL FURN. BY S.C.W.A.
1-8" PLUG (M/J)
1-8" RUBBER GASKET (M/J)
1-2" PLUG, GALVANIZED, SQUAREHEAD

24" BUTTERFLY VALVE & BOX

MATERIAL FURN. BY CONTRACTOR:
1-24" X 8" VERTICAL TEE (M/J)
MATERIAL FURN. BY S.C.W.A.
1-8" PLUG (M/J)
1-8" RUBBER GASKET (M/J)
1-2" PLUG, GALVANIZED, SQUAREHEAD

SEE SHEET 12 — Z — Z

SEE THIS SHEET — AA — AA

SEE THIS SHEET — AB — AB

NOTE: COORDINATE SYSTEM: N.Y. STATE PLANE FEET, L.I. ZONE 3104; DATUM: N.A.D.1983

CONTRACTOR COPY
INSPECTOR COPY
STOREKEEPER COPY

Suffolk County Water Authority
4060 Sunrise Highway
Oakdale, NY 11769

Type Of Project: WATER MAIN INSTALLATION

Dwg. No.: 7411029-(13)

Notes:
-All restoration on N.Y.S. R.O.W. to be done to N.Y.S. specs.
-Misc. bends & offsets may be required. All fittings must use Retaining glands.

Reference Authorizations				
Fld. Sketch By: CM / NE	Date:	Drawn By: TT, ZB	Date: 11/7/25	Town: FLANDERS/RIVERHEAD/LAUREL
Field Prep By:	Insp. By:	Scale: 1"=50'	Sheet 13 Of 13	Township: RIVERHEAD/SOUTHOLD
Contractor:	Map No: 16L/12L/18M	Serv. Order No:	# of Services:	Fire Dist:
In Service Date:		Main Order No:		Main Project:
Compl. Dwg. By:	Date:	Hyat Order No:		Hyat Project:

Appendix E Peconic River Crossing Permit

MAR 18 2011

New York State Department of Environmental Conservation
Division of Environmental Permits, Region One
SUNY @ Stony Brook, 50 Circle Road, Stony Brook, NY 11790-3409
Phone: (631) 444-0352 **Fax:** (631) 444-0360
Website: www.dec.ny.gov

Joe Martens
Commissioner

March 14, 2011

Suffolk County Water Authority
P.O. Box 38
Oakdale, NY 11769-0038

RE: Permit #1-4700-00010/00782

Dear Permittee:

In conformance with the requirements of the State Uniform Procedures Act (Article 70, ECL) and its implementing regulations (6NYCRR, Part 621) we are enclosing your permit. Please carefully read all permit conditions and special permit conditions contained in the permit to ensure compliance during the term of the permit. If you are unable to comply with any conditions, please contact us at the above address.

Also enclosed is a permit sign which is to be conspicuously posted at the project site and protected from the weather.

Sincerely,

Jacqueline Pasquini

Jacqueline R. Pasquini
Environmental Analyst

JRP/dj
Enclosure

PERMIT

Under the Environmental Conservation Law (ECL)

Permittee and Facility Information

Permit Issued To:
SUFFOLK COUNTY WATER AUTHORITY

PO BOX 38
OAKDALE, NY 11769-0038

Facility:
SUFFOLK COUNTY WATER AUTHORITY DISTRICT
ENTIRE WATER DISTRICT WIDE
SUFFOLK, NY

Facility Application Contact:
JOSEPH M POKORNY
SUFFOLK CO WATER AUTHORITY
PO BOX 37
OAKDALE, NY 11769-0037
(631) 563-0202

Facility Location: THROUGHOUT SUFFOLK COUNTY
Facility Principal Reference Point: NYTM-E: NYTM-N:
Latitude: Longitude:
Project Location: WATERCOURSE: PECONIC RIVER
Authorized Activity: Install water main under Peconic River between Riverside Drive and SR24. All work must be done in accordance with the attached plans prepared by Suffolk County Water Authority dated 8/17/10 and stamped NYSDEC approved on 3/14/11.

NOTE: The project is greater than 100 feet from regulated Freshwater Wetlands therefore it is beyond (Article 24) Freshwater Wetlands jurisdiction.

Permit Authorizations

Tidal Wetlands - Under Article 25
Permit ID 1-4700-00010/00782
New Permit Effective Date: 3/14/2011 Expiration Date: 3/31/2016

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: MARK CARRARA, Deputy Regional Permit Administrator
Address: NYSDEC REGION 1 HEADQUARTERS
SUNY @ STONY BROOK|50 CIRCLE RD
STONY BROOK, NY 11790 -3409

Authorized Signature: _____ Date 3/17/2011

Distribution List

JOSEPH M POKORNY
Habitat - TW
Habitat
JACQUELINE R PASQUINI

Permit Components

NATURAL RESOURCE PERMIT CONDITIONS

GENERAL CONDITIONS, APPLY TO ALL AUTHORIZED PERMITS

NOTIFICATION OF OTHER PERMITTEE OBLIGATIONS

NATURAL RESOURCE PERMIT CONDITIONS - Apply to the Following Permits: TIDAL WETLANDS

1. **Conformance With Plans** All activities authorized by this permit must be in strict conformance with the approved plans submitted by the applicant or applicant's agent as part of the permit application. Such approved plans were prepared by Suffolk County Water Authority dated 8/17/10 and stamped NYSDEC approved on 3/14/11.

2. **Notice of Commencement** At least 48 hours prior to commencement of the project, the permittee and contractor shall sign and return the top portion of the enclosed notification form certifying that they are fully aware of and understand all terms and conditions of this permit. Within 30 days of completion of project, the bottom portion of the form must also be signed and returned, along with photographs of the completed work.

3. **No Construction Debris in Wetland or Adjacent Area** Any debris or excess material from construction of this project shall be completely removed from the adjacent area (upland) and removed to an approved upland area for disposal. No debris is permitted in wetlands and/or protected buffer areas.

4. **No Disturbance to Vegetated Tidal Wetlands** There shall be no disturbance to vegetated tidal wetlands or protected buffer areas as a result of the permitted activities.

5. **Seeding Disturbed Areas** All areas of soil disturbance resulting from the approved project shall be stabilized with appropriate vegetation (grasses, etc.) immediately following project completion or prior to permit expiration, whichever comes first. If the project site remains inactive for more than 48 hours or planting is impractical due to the season, then the area shall be stabilized with straw or hay mulch or jute matting until weather conditions favor germination.

6. **Storage of Equipment, Materials** The storage of construction equipment and materials shall be confined within the project work area and/or upland areas greater than 100 linear feet from the tidal wetland boundary.

7. **Temporary Mulch, Final Seeding** If seeding is impracticable due to the time of year, a temporary mulch shall be applied and final seeding shall be performed at the earliest opportunity when weather conditions favor germination and growth but not more than six months after project completion.

8. **Maintain Erosion Controls** All erosion control devices shall be maintained in good and functional condition until the project has been completed and the area has been stabilized.

9. **No Unauthorized Fill** No fill or backfill is authorized by this permit without further written approval from the department (permit, modification, amendment).

10. **No Dredging or Excavation** No dredging, excavating or other alteration of shoreline or underwater areas is authorized by this permit, nor shall issuance of this permit be construed to suggest that the Department will issue a permit for such activities in the future.

11. **Install, Maintain Erosion Controls** Necessary erosion control measures, i.e., straw bales, silt fencing, etc., are to be placed on the downslope edge of any disturbed area. This sediment barrier is to be put in place before any disturbance of the ground occurs and is to be maintained in good and functional condition until thick vegetative cover is established.

12. **Fueling Areas** Fueling of equipment is strictly prohibited within tidal wetlands and within 100 feet of the tidal wetland boundary. Fueling areas must be approved by the department and contained by haybales or other approved containment devices. Spills must be prevented from entering tidal wetlands and/or waterways. Should a spill occur, the permittee shall notify the office of Regional Habitat - TW immediately and shall provide a plan for containment, clean-up and restoration of the impacted area for the approval of the department.

13. **Disposal Locations** All excavated material shall be appropriately disposed of as per the project plan with minimal disturbance and/or impact to vegetated marsh areas. Off-site, upland disposal of betonite slurry material beyond NYSDEC Tidal Wetland jurisdiction requires the approval of the Division of Solid and Hazardous Materials (631) 444-0375 and is not covered by this permit.

14. **Tidal Wetlands** In case of frac-out in tidal wetlands, all work must cease and the natural resources supervisor must be contacted immediately at 631-444-0270.

15. **Construction** During construction, effluent from the slurry pits shall not escape or be discharged to the adjacent area or nearby tidal wetlands.

16. **Dewatering** No dewatering is authorized without NYSDEC approval.

17. **State Not Liable for Damage** The State of New York shall in no case be liable for any damage or injury to the structure or work herein authorized which may be caused by or result from future operations undertaken by the State for the conservation or improvement of navigation, or for other purposes, and no claim or right to compensation shall accrue from any such damage.

18. **State May Require Site Restoration** If upon the expiration or revocation of this permit, the project hereby authorized has not been completed, the applicant shall, without expense to the State, and to such extent and in such time and manner as the Department of Environmental Conservation may require, remove all or any portion of the uncompleted structure or fill and restore the site to its former condition. No claim shall be made against the State of New York on account of any such removal or alteration.

19. **State May Order Removal or Alteration of Work** If future operations by the State of New York require an alteration in the position of the structure or work herein authorized, or if, in the opinion of the Department of Environmental Conservation it shall cause unreasonable obstruction to the free navigation of said waters or flood flows or endanger the health, safety or welfare of the people of the State, or cause loss or destruction of the natural resources of the State, the owner may be ordered by the Department to remove or alter the structural work, obstructions, or hazards caused thereby without expense to the State, and if, upon the expiration or revocation of this permit, the structure, fill, excavation, or other modification of the watercourse hereby authorized shall not be completed, the owners, shall, without expense to the State, and to such extent and in such time and manner as the Department of Environmental Conservation may require, remove all or any portion of the uncompleted structure or fill and restore to its former condition the navigable and flood capacity of the watercourse. No claim shall be made against the State of New York on account of any such removal or alteration.

20. **Precautions Against Contamination of Waters** All necessary precautions shall be taken to preclude contamination of any wetland or waterway by suspended solids, sediments, fuels, solvents, lubricants, epoxy coatings, paints, concrete, leachate or any other environmentally deleterious materials associated with the project.

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 1 HEADQUARTERS
SUNY @ STONY BROOK|50 CIRCLE RD
STONY BROOK, NY11790 -3409

4. **Submission of Renewal Application** The permittee must submit a renewal application at least 30 days before permit expiration for the following permit authorizations: Tidal Wetlands.

5. **Permit Modifications, Suspensions and Revocations by the Department** The Department reserves the right 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.

6. **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.

NOTICE OF COMMENCEMENT OF CONSTRUCTION

RETURN THIS FORM TO: COMPLIANCE
Bureau of Habitat-TW
50 Circle Road
Stony Brook, NY 11790-3409

Or Fax to: 631-444-0297

PERMIT NUMBER: _____ EXPIRATION DATE: _____

PERMITTEE NAME & PROJECT ADDRESS: _____

_____

CONTRACTOR NAME & ADDRESS: _____

_____ TELEPHONE: _____

_____

Dear Sir:

Pursuant to the special conditions of the referenced permit, you are hereby notified that the authorized activity shall commence on _____ _____. We certify that we have read the referenced permit and approved plans and fully understand the authorized project and all permit conditions. We have inspected the project site and can complete the project as described in the permit and as depicted on the approved plans. We can do so in full compliance with all plan notes and permit conditions. The permit, permit sign, and approved plans will be available at the site for inspection in accordance with General Condition No. 1. (Both signatures required)

PERMITEE: _____ DATE _____

CONTRACTOR: _____ DATE _____

*THIS NOTICE MUST BE SENT TO THE ABOVE ADDRESS **AT LEAST TWO DAYS PRIOR TO COMMENCEMENT OF THE PROJECT** AND /OR ANY ASSOCIATED ACTIVITIES. FAILURE TO RETURN THIS NOTICE, POST THE PERMIT SIGN, OR HAVE THE PERMIT AND APPROVED PLANS AVAILABLE AT THE WORK SITE FOR THE DURATION OF THE PROJECT MAY SUBJECT THE PERMITTEE AND/OR CONTRACTOR TO APPLICABLE SANCTIONS AND PENALTIES FOR NON-COMPLIANCE WITH PERMIT CONDITIONS.*

Cut along this line ✂ ✂ ✂ ✂ ✂ ✂ ✂

NOTICE OF COMPLETION OF CONSTRUCTION

RETURN THIS FORM TO: COMPLIANCE
Bureau of Habitat- TW
50 Circle Road
Stony Brook, NY 11790-3409

Or Fax to: 631-444-0297

PERMIT NUMBER: _____ EXPIRATION DATE: _____

PERMITTEE NAME & PROJECT ADDRESS: _____

_____

CONTRACTOR NAME & ADDRESS: _____

_____ TELEPHONE: _____

Pursuant to special conditions of the referenced permit, you are hereby notified that the authorized activity was completed on _____ _____. We have fully complied with the terms and conditions of the permit and approved plans. (Both signatures required)

PERMITEE: _____ DATE _____

CONTRACTOR: _____ DATE _____

*THIS NOTICE, WITH PHOTOGRAPHS OF THE COMPLETED WORK AND/OR A COMPLETED SURVEY, AS APPROPRIATE, **MUST BE SENT TO THE ABOVE ADDRESS WITHIN 30 DAYS OF COMPLETION OF THE PROJECT.***

95-20-1 (11/03) –9d

New York State
Department of Environmental Conservation

NOTICE

The Department of Environmental Conservation (DEC) has issued permit(s) pursuant to the Environmental Conservation Law for work being conducted at this site. For further information regarding the nature and extent of the approved work and any Department conditions applied to the approval, contact the Regional Permit Administrator listed below. Please refer to the permit number shown when contacting the DEC.

Regional Permit Administrator

ROGER EVANS

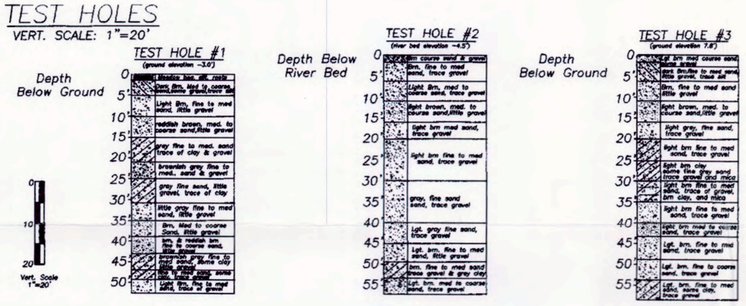
Permit Number 1-4700-00010/00782

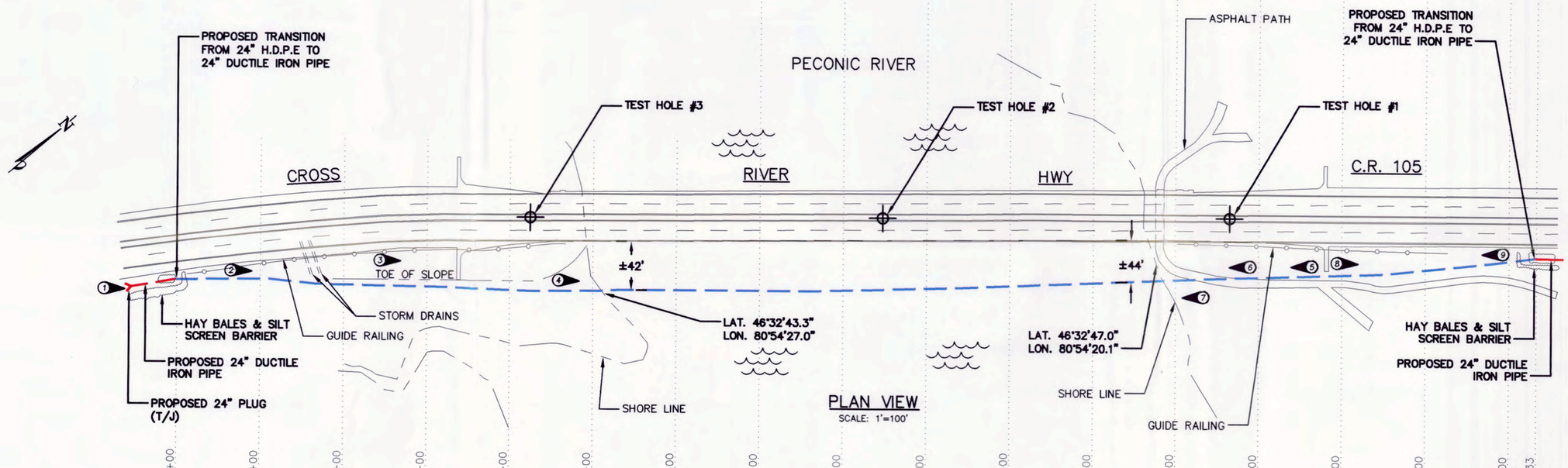
Expiration Date 3/31/2016

NOTE: This notice is **NOT** a permit

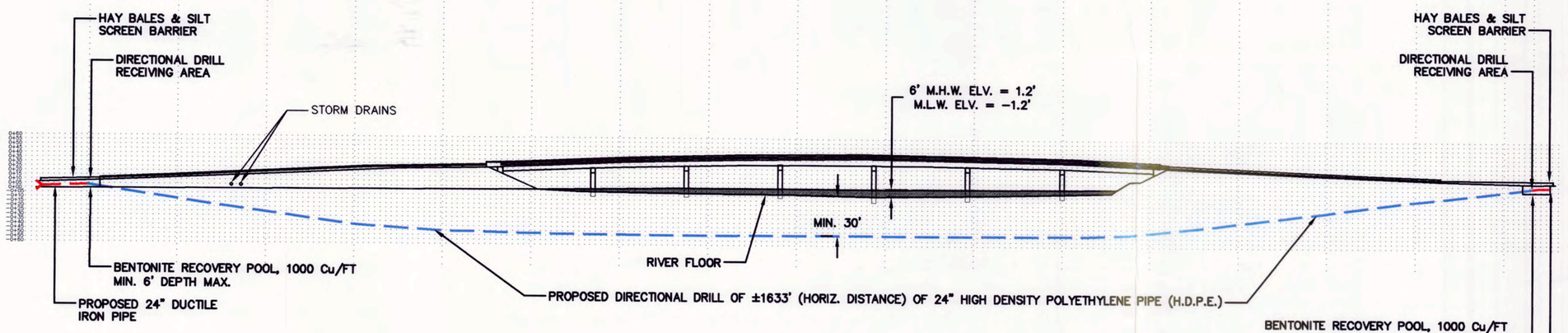
TEST HOLES

VERT. SCALE: 1"=20'





PLAN VIEW
SCALE: 1"=100'



PROFILE VIEW
SCALE: 1"=100'

APPROVED
JAN 24 2011
SOUTHAMPTON TOWN ENVIRONMENT DIVISION

RECEIVED
OCT 28 2010
TOWN OF SOUTHAMPTON ENVIRONMENT DIVISION

NOTE

THE EDUCATION DEPARTMENT OF THE STATE OF NEW YORK PROHIBITS ANY PERSONS FROM ALTERING ANYTHING ON THESE DRAWINGS AND/OR ACCOMPANYING SPECIFICATIONS UNLESS IT IS UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER. WHERE SUCH ALTERATIONS ARE MADE, THE COGNIZANT PROFESSIONAL ENGINEER MUST SIGN, SEAL, DATE AND DESCRIBE THE REVISIONS ON THE DRAWINGS AND/OR SPECIFICATIONS (SEE SECTION 7209 PAR 2)

REVISIONS

NO.	DATE	DESCRIPTION
–	–	–

LEGEND

Proposed 24" H.D.P.E.

Proposed 24" D.I.P

HAY BALES

PHOTO DIRECTION A

SUFFOLK COUNTY WATER AUTHORITY

CONSTRUCTION – MAINTENANCE / DRAFTING DEPARTMENT
4060 SUNRISE HIGHWAY
OAKDALE, NY 11769

PROPOSED PECONIC RIVER CROSSING AT C.R. 105

DIRECTIONAL DRILLING OF:
24" HIGH DENSITY POLYETHYLENE
TOWN OF FLANDERS
TOWNSHIP(S) OF RIVERHEAD & SOUTHAMPTON

DATE	08/17/2010	DRAWN BY	MAB
SCALE	1"=100'	DRAWN BY	

GO #

DIST MAP –

PROP ID

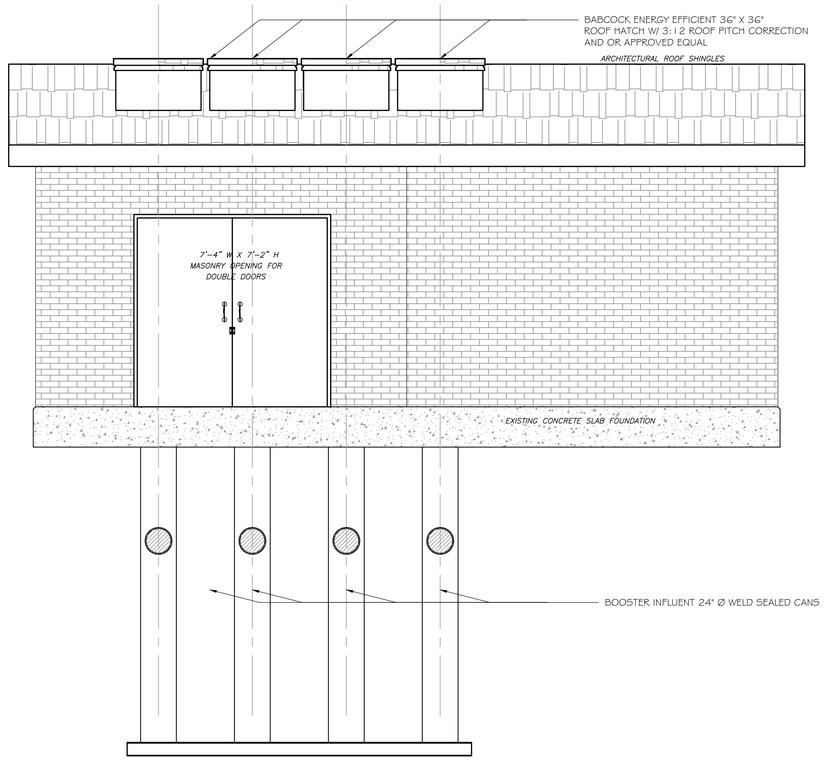
AUTH NO. –

DWG/FILE

H:\CMDRAFT\DEC JOB PERMITS\PECONIC RIVER DIRECTION DRILL.dwg, 10/13/2010 10:45:55 AM

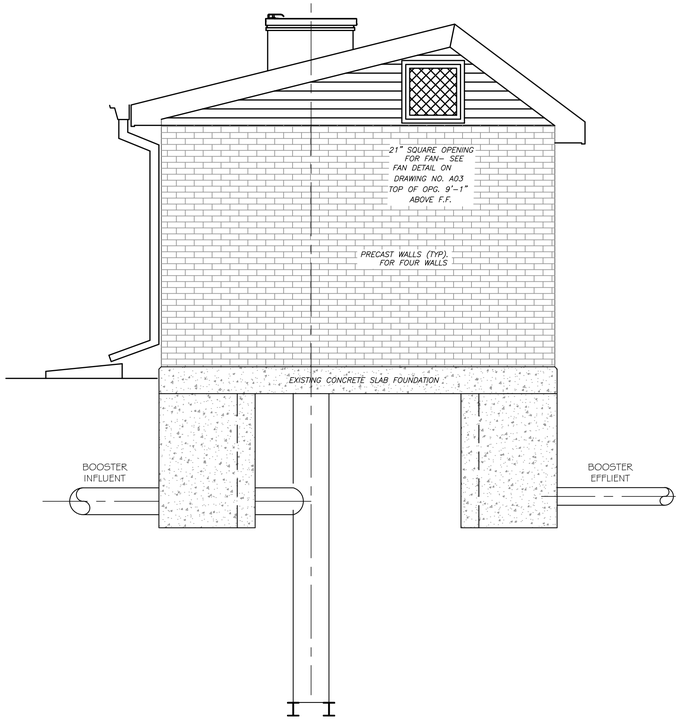
Appendix F Main Road Booster Plans and Elevations

Master Rev. 1/23/08



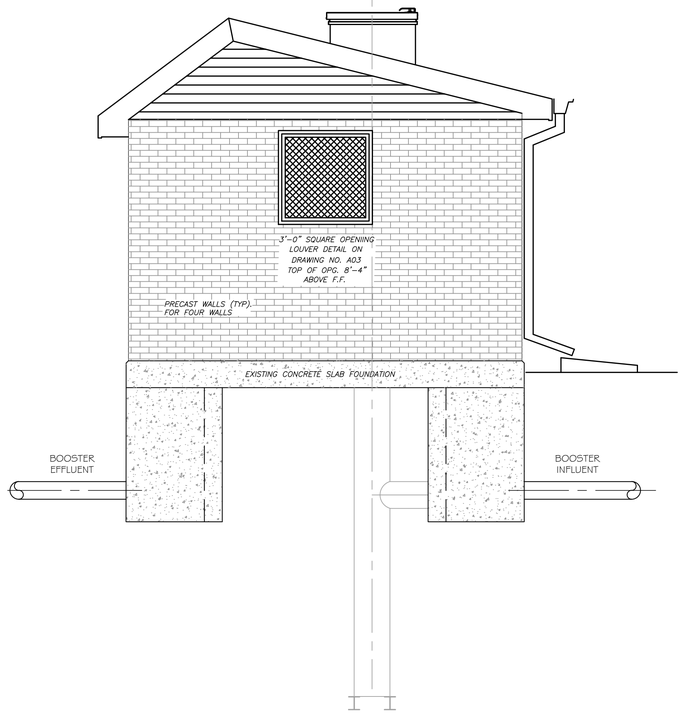
1 FRONT ELEVATION

3/8" = 1'-0"



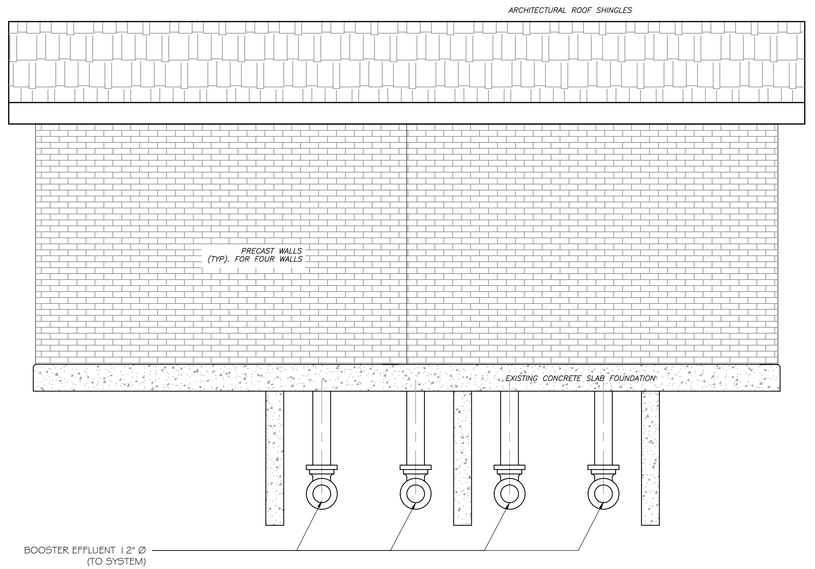
3 LEFT ELEVATION

3/8" = 1'-0"



4 RIGHT ELEVATION

3/8" = 1'-0"



2 REAR ELEVATION

3/8" = 1'-0"

PRELIMINARY

FILE LOCATION: T:\Drawings\distinct\detailsname\drawing.dwg
TAB LAYOUT: xxxxxxxxxx

NOTE

THE EDUCATION DEPARTMENT OF THE STATE OF NEW YORK PROHIBITS ANY PERSONS FROM ALTERING ANYTHING ON THESE DRAWINGS AND/OR ACCOMPANYING SPECIFICATIONS UNLESS IT IS UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER. WHERE SUCH ALTERATIONS ARE MADE, THE COGNIZANT PROFESSIONAL ENGINEER MUST SIGN, SEAL, DATE AND DESCRIBE THE REVISIONS ON THE DRAWINGS AND/OR SPECIFICATIONS (SEE SECTION 7209 PAR 2)

No.	DATE	BY	WBS #	REVISION
X	XX/XX/XX	XX		DESCRIPTION

APPROVED

TIMOTHY J. KILCOMMONS, P.E.
CHIEF ENGINEER
N.Y.S. P.E. LICENSE NO. 073594

SUFFOLK COUNTY WATER AUTHORITY
ENGINEERING DEPARTMENT/WATERWORKS DIVISION
3525 SUNRISE HIGHWAY
GREAT RIVER, NY 11739

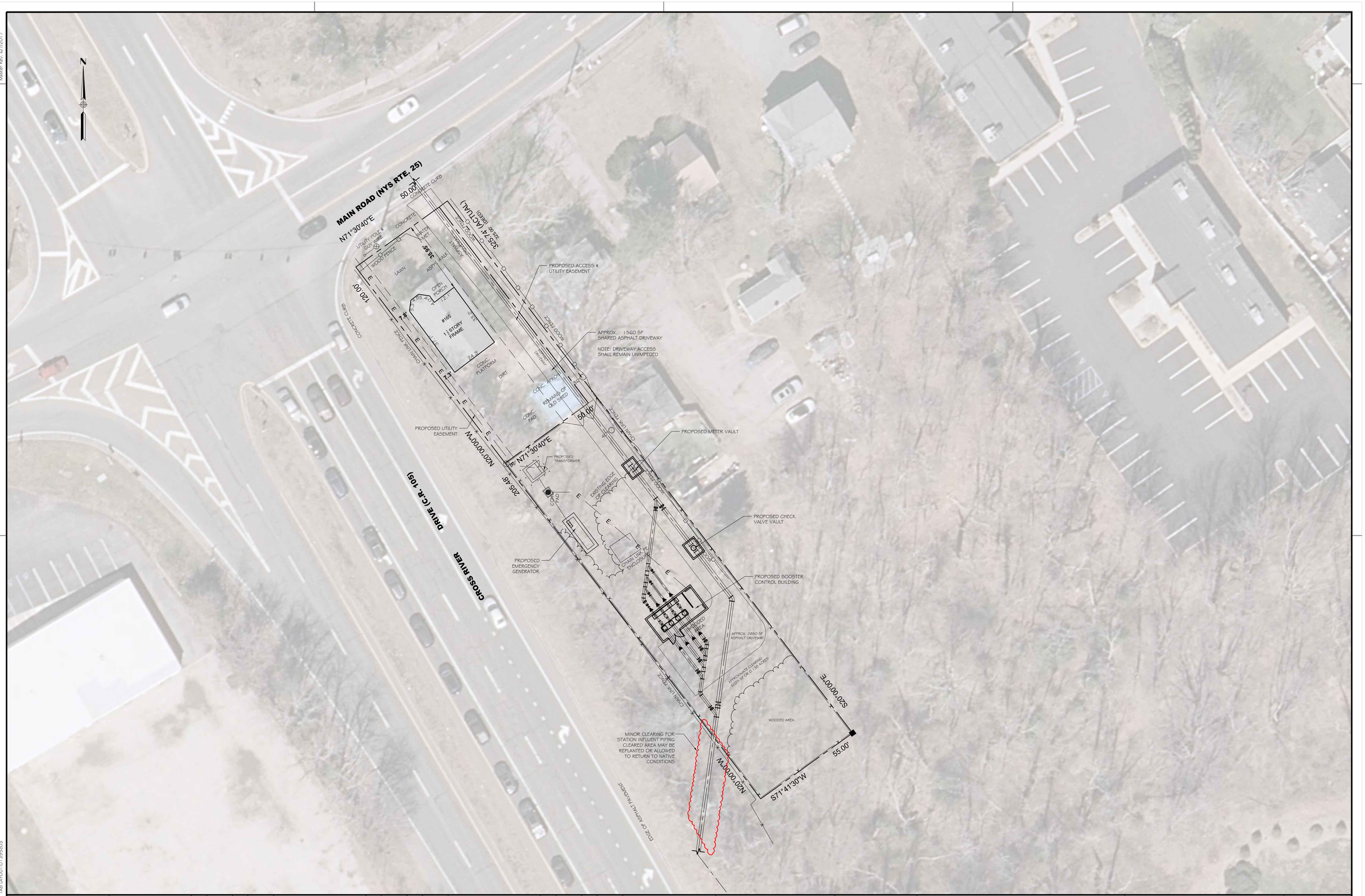
PROP. BOOSTER ELEVATIONS

NORTH FORK TRANMISSION MAIN
MAIN ROAD
RIVERHEAD
TOWN OF RIVERHEAD
----- DISTRICT

DATE	4/29/25	DRAWN BY	PS
SCALE	AS NOTED	CHECKED BY	PS

PRESSURE ZONE: -----
DIST MAP: ----
PROPERTY ID: ----
WBS #: XXX-XX-XX-XXXX
LAYOUT/DRAWING #: A-01

Master Rev. 6/7/2017



FILE LOCATION: T:\Drawings\Well Field Drawings\Town Line Road Warescott\Town Line Road Warescott Site.dwg
TAB LAYOUT:01 1395203

NOTE

THE EDUCATION DEPARTMENT OF THE STATE OF NEW YORK PROHIBITS ANY PERSONS FROM ALTERING ANYTHING ON THESE DRAWINGS AND/OR ACCOMPANYING SPECIFICATIONS UNLESS IT IS UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER. WHERE SUCH ALTERATIONS ARE MADE, THE COGNIZANT PROFESSIONAL ENGINEER MUST SIGN, SEAL, DATE AND DESCRIBE THE REVISIONS ON THE DRAWINGS AND/OR SPECIFICATIONS (SEE SECTION 7209 PAR 2)

No.	DATE	BY	WBS #	REVISION

No.	DATE	BY	WBS #	REVISION

No.	DATE	BY	WBS #	REVISION

APPROVED

TIMOTHY J. KILCOMMONS, P.E.
CHIEF ENGINEER; N.Y.S. P.E. LICENSE NO. 073594

SUFFOLK COUNTY WATER AUTHORITY
ENGINEERING DEPARTMENT/WATERWORKS DIVISION
3525 SUNRISE HIGHWAY
GREAT RIVER, NY 11739

PROPOSED BOOSTER PLAN

NORTH FORK TRANMISSION MAIN
MAIN ROAD
RIVERHEAD
TOWN OF RIVERHEAD
----- DISTRICT

DATE	3/5/25	DRAWN BY	PS
SCALE	1"= 20'-0"	CHECKED BY	PS

PRESSURE ZONE: -----

DIST MAP: ----
PROPERTY ID: ----

WBS #: XXX-XX-XX-XXXX

LAYOUT/DRAWING #: C-01

Appendix G Phase 2 Orient Estimate and Engineering Plans

SUFFOLK COUNTY WATER AUTHORITY
4060 SUNRISE HIGHWAY
OAKDALE, NY 11769

SCWA CAPITAL EXPENDITURE AUTHORIZATION

Account Information		Budget Information	
WBS ID:		**Total Est. Cost of Project** (Actual Cost):	$16,071,381.47
Project Order No:	200022315	**Removal Cost:**	$0.00
Planner Group:	200 Const & Maint	**Salvage Value:**	$0.00
Maint. Activity Type:	196	**Total Cost of Project:**	$16,071,381.47
Preparation Date:	02/02/2026	**Value of this Authorization:**	$0.00
Print Date:	02/02/2026	**Value Previously Authorized to Date:**	$0.00
Budget Year:		**Construction Advance:**	
Auth. Year (1st,2nd,Etc.):			
Supplemental (Yes/No):			

Project Information

Title of Project
MAIN ROAD (SR-25) EAST MARION, SOUTHOLD, #7161169

SEE ATTACHED SHEET.

Approvals		Date
Preparation	Z. B.	2/2/26
Chief Engineer/Director		
Deputy CEO/CFO		
CEO		
Budget Manager	Verified By:	

32,097 Total Footage	**ESTIMATE OF COST**	GROUP #0001	WBS #

MATERIAL FURNISHED BY SCWA

Description	Quantity		Price	ESTIMATED
VALVE,GATE, 12", MJ, RESILIENT SEAT	23.000	@	2,573.86	59,198.78
GLAND,RETAINING,12",LOCKING TYPE	46.000	@	0.00	0.00
GASKET, RUBBER, 12", MJ	46.000	@	0.00	0.00
BOLT-T & NUT ASSBLY,3/4",10 X 4, RD TEF	872.000	@	0.00	0.00
VALVE BOX, TOP	65.000	@	37.43	2,432.95
VALVE BOX, LID	65.000	@	19.44	1,263.60
VALVE BOX, BASE	65.000	@	19.00	1,235.00
VALVE,GATE, 8", MJ, RESILIENT SEAT	12.000	@	1,126.39	13,516.68
GLAND,RETAINING,8",LOCKING TYPE	24.000	@	0.00	0.00
GASKET, RUBBER, 8", MJ	24.000	@	0.00	0.00
VALVE,GATE, 6" ,MJ, RESILIENT SEAT	30.000	@	822.37	24,671.10
GLAND,RETAINING,6",LOCKING TYPE	60.000	@	0.00	0.00
GASKET, RUBBER, 6", MJ	60.000	@	0.00	0.00
PLUG, 6", MJ, WITH 2" TAP	1.000	@	80.64	80.64
GASKET, RUBBER, 6", MJ	1.000	@	0.00	0.00
PLUG, GALVANIZED, SQUAREHEAD, 2"	1.000	@	0.00	0.00
PLUG, 6", MJ, WITH 2" TAP	1.000	@	80.64	80.64
GASKET, RUBBER, 6", MJ	1.000	@	0.00	0.00
PLUG, GALVANIZED, SQUAREHEAD, 2"	1.000	@	0.00	0.00
PLUG, 6", MJ, WITH 2" TAP	1.000	@	80.64	80.64
GASKET, RUBBER, 6", MJ	1.000	@	0.00	0.00
PLUG, GALVANIZED, SQUAREHEAD, 2"	1.000	@	0.00	0.00
PLUG, 6", MJ, WITH 2" TAP	1.000	@	80.64	80.64
GASKET, RUBBER, 6", MJ	1.000	@	0.00	0.00
PLUG, GALVANIZED, SQUAREHEAD, 2"	1.000	@	0.00	0.00
PLUG, 6", MJ, WITH 2" TAP	1.000	@	80.64	80.64
GASKET, RUBBER, 6", MJ	1.000	@	0.00	0.00
PLUG, GALVANIZED, SQUAREHEAD, 2"	1.000	@	0.00	0.00
PLUG, 6", MJ, WITH 2" TAP	1.000	@	80.64	80.64
GASKET, RUBBER, 6", MJ	1.000	@	0.00	0.00
PLUG, GALVANIZED, SQUAREHEAD, 2"	1.000	@	0.00	0.00
PLUG, 6", MJ, WITH 2" TAP	1.000	@	80.64	80.64
GASKET, RUBBER, 6", MJ	1.000	@	0.00	0.00
PLUG, GALVANIZED, SQUAREHEAD, 2"	1.000	@	0.00	0.00
PLUG, 6", MJ, WITH 2" TAP	1.000	@	80.64	80.64
GASKET, RUBBER, 6", MJ	1.000	@	0.00	0.00
PLUG, GALVANIZED, SQUAREHEAD, 2"	1.000	@	0.00	0.00
CURB STOP, 2"FIP X 2" FIP DRAIN, NL	1.000	@	184.22	184.22
CAP, GALVANIZED, 2 "	1.000	@	0.00	0.00
ELBOW, GALVANIZED, 2", 90 DEG	1.000	@	0.00	0.00
NIPPLE,BRASS, 2" X 12",NL	2.000	@	57.30	114.60

32,097 Total Footage	**ESTIMATE OF COST**	GROUP #0001	WBS #	
				ESTIMATED
PIPE,GALVANIZED,2"X10'THREAD BOTH ENDS	5.000	@	0.00	0.00
VALVE BOX, TOP	2.000	@	37.43	74.86
VALVE BOX, LID	2.000	@	19.44	38.88
VALVE BOX, BASE	3.000	@	19.00	57.00
PLUG,12", TJ, WITH 2" TAP	1.000	@	86.51	86.51
CURB STOP, 2"FIP X 2" FIP DRAIN, NL	1.000	@	184.22	184.22
CAP, GALVANIZED, 2 "	1.000	@	0.00	0.00
ELBOW, GALVANIZED, 2", 90 DEG	1.000	@	0.00	0.00
NIPPLE,BRASS, 2" X 12",NL	2.000	@	57.30	114.60
PIPE,GALVANIZED,2"X10'THREAD BOTH ENDS	5.000	@	0.00	0.00
VALVE BOX, TOP	2.000	@	37.43	74.86
VALVE BOX, LID	2.000	@	19.44	38.88
VALVE BOX, BASE	3.000	@	19.00	57.00
PLUG, 6", TJ, WITH 2" TAP	1.000	@	37.73	37.73
PLUG, 6", MJ, WITH 2" TAP	1.000	@	80.64	80.64
GASKET, RUBBER, 6", MJ	1.000	@	0.00	0.00
PLUG, GALVANIZED, SQUAREHEAD, 2"	1.000	@	0.00	0.00
CURB STOP, 2"FIP X 2" FIP DRAIN, NL	1.000	@	184.22	184.22
CAP, GALVANIZED, 2 "	1.000	@	0.00	0.00
ELBOW, GALVANIZED, 2", 90 DEG	1.000	@	0.00	0.00
NIPPLE,BRASS, 2" X 12",NL	2.000	@	57.30	114.60
PIPE,GALVANIZED,2"X10'THREAD BOTH ENDS	5.000	@	0.00	0.00
VALVE BOX, TOP	2.000	@	37.43	74.86
VALVE BOX, LID	2.000	@	19.44	38.88
VALVE BOX, BASE	3.000	@	19.00	57.00
PLUG, 8", TJ, WITH 2" TAP	1.000	@	63.83	63.83
CURB STOP, 2"FIP X 2" FIP DRAIN, NL	1.000	@	184.22	184.22
CAP, GALVANIZED, 2 "	1.000	@	0.00	0.00
ELBOW, GALVANIZED, 2", 90 DEG	1.000	@	0.00	0.00
NIPPLE,BRASS, 2" X 12",NL	2.000	@	57.30	114.60
PIPE,GALVANIZED,2"X10'THREAD BOTH ENDS	5.000	@	0.00	0.00
VALVE BOX, TOP	2.000	@	37.43	74.86
VALVE BOX, LID	2.000	@	19.44	38.88
VALVE BOX, BASE	3.000	@	19.00	57.00
PLUG, 6", TJ, WITH 2" TAP	1.000	@	37.73	37.73
CURB STOP, 2"FIP X 2" FIP DRAIN, NL	1.000	@	184.22	184.22
CAP, GALVANIZED, 2 "	1.000	@	0.00	0.00
ELBOW, GALVANIZED, 2", 90 DEG	1.000	@	0.00	0.00
NIPPLE,BRASS, 2" X 12",NL	2.000	@	57.30	114.60
PIPE,GALVANIZED,2"X10'THREAD BOTH ENDS	5.000	@	0.00	0.00
VALVE BOX, TOP	2.000	@	37.43	74.86
VALVE BOX, LID	2.000	@	19.44	38.88
VALVE BOX, BASE	3.000	@	19.00	57.00
PLUG, 6", TJ, WITH 2" TAP	1.000	@	37.73	37.73

32,097 Total Footage	**ESTIMATE OF COST**	GROUP #0001	WBS #	
				ESTIMATED
CURB STOP, 2"FIP X 2" FIP DRAIN, NL	1.000	@	184.22	184.22
CAP, GALVANIZED, 2 "	1.000	@	0.00	0.00
ELBOW, GALVANIZED, 2", 90 DEG	1.000	@	0.00	0.00
NIPPLE,BRASS, 2" X 12",NL	2.000	@	57.30	114.60
PIPE,GALVANIZED,2"X10'THREAD BOTH ENDS	5.000	@	0.00	0.00
VALVE BOX, TOP	2.000	@	37.43	74.86
VALVE BOX, LID	2.000	@	19.44	38.88
VALVE BOX, BASE	3.000	@	19.00	57.00
PLUG, 6", TJ, WITH 2" TAP	1.000	@	37.73	37.73
CURB STOP, 2"FIP X 2" FIP DRAIN, NL	1.000	@	184.22	184.22
CAP, GALVANIZED, 2 "	1.000	@	0.00	0.00
ELBOW, GALVANIZED, 2", 90 DEG	1.000	@	0.00	0.00
NIPPLE,BRASS, 2" X 12",NL	2.000	@	57.30	114.60
PIPE,GALVANIZED,2"X10'THREAD BOTH ENDS	5.000	@	0.00	0.00
VALVE BOX, TOP	2.000	@	37.43	74.86
VALVE BOX, LID	2.000	@	19.44	38.88
VALVE BOX, BASE	3.000	@	19.00	57.00
PLUG, 6", TJ, WITH 2" TAP	1.000	@	37.73	37.73
PLUG, 6", MJ, WITH 2" TAP	1.000	@	80.64	80.64
GASKET, RUBBER, 6", MJ	1.000	@	0.00	0.00
PLUG, GALVANIZED, SQUAREHEAD, 2"	1.000	@	0.00	0.00
PLUG, 6", MJ, WITH 2" TAP	1.000	@	80.64	80.64
GASKET, RUBBER, 6", MJ	1.000	@	0.00	0.00
PLUG, GALVANIZED, SQUAREHEAD, 2"	1.000	@	0.00	0.00
PLUG, 6", MJ, WITH 2" TAP	1.000	@	80.64	80.64
GASKET, RUBBER, 6", MJ	1.000	@	0.00	0.00
PLUG, GALVANIZED, SQUAREHEAD, 2"	1.000	@	0.00	0.00
PLUG, 6", MJ, WITH 2" TAP	1.000	@	80.64	80.64
GASKET, RUBBER, 6", MJ	1.000	@	0.00	0.00
PLUG, GALVANIZED, SQUAREHEAD, 2"	1.000	@	0.00	0.00
PLUG, 6", MJ, WITH 2" TAP	1.000	@	80.64	80.64
GASKET, RUBBER, 6", MJ	1.000	@	0.00	0.00
PLUG, GALVANIZED, SQUAREHEAD, 2"	1.000	@	0.00	0.00
PLUG, 6", MJ, WITH 2" TAP	1.000	@	80.64	80.64
GASKET, RUBBER, 6", MJ	1.000	@	0.00	0.00
PLUG, GALVANIZED, SQUAREHEAD, 2"	1.000	@	0.00	0.00
PLUG, 6", MJ, WITH 2" TAP	1.000	@	80.64	80.64
GASKET, RUBBER, 6", MJ	1.000	@	0.00	0.00
PLUG, GALVANIZED, SQUAREHEAD, 2"	1.000	@	0.00	0.00
PLUG, 6", MJ, WITH 2" TAP	1.000	@	80.64	80.64
GASKET, RUBBER, 6", MJ	1.000	@	0.00	0.00
PLUG, GALVANIZED, SQUAREHEAD, 2"	1.000	@	0.00	0.00
PLUG, 6", MJ, WITH 2" TAP	1.000	@	80.64	80.64
GASKET, RUBBER, 6", MJ	1.000	@	0.00	0.00

32,097 Total Footage **ESTIMATE OF COST** GROUP #0001 WBS #

				ESTIMATED
PLUG, GALVANIZED, SQUAREHEAD, 2"	1.000	@	0.00	0.00
PLUG, 6", MJ, WITH 2" TAP	1.000	@	80.64	80.64
GASKET, RUBBER, 6", MJ	1.000	@	0.00	0.00
PLUG, GALVANIZED, SQUAREHEAD, 2"	1.000	@	0.00	0.00
PLUG, 6", MJ, WITH 2" TAP	1.000	@	80.64	80.64
GASKET, RUBBER, 6", MJ	1.000	@	0.00	0.00
PLUG, GALVANIZED, SQUAREHEAD, 2"	1.000	@	0.00	0.00
PLUG, 6", MJ, WITH 2" TAP	1.000	@	80.64	80.64
GASKET, RUBBER, 6", MJ	1.000	@	0.00	0.00
PLUG, GALVANIZED, SQUAREHEAD, 2"	1.000	@	0.00	0.00
PLUG, 6", MJ, WITH 2" TAP	1.000	@	80.64	80.64
GASKET, RUBBER, 6", MJ	1.000	@	0.00	0.00
PLUG, GALVANIZED, SQUAREHEAD, 2"	1.000	@	0.00	0.00
PLUG, 6", MJ, WITH 2" TAP	1.000	@	80.64	80.64
GASKET, RUBBER, 6", MJ	1.000	@	0.00	0.00
PLUG, GALVANIZED, SQUAREHEAD, 2"	1.000	@	0.00	0.00
			SUBTOTAL	107,798.74
			STORES	10,779.87
TOTAL MATERIAL FURN. BY SCWA				118,578.61
MATERIAL & LABOR FURNISHED BY CONTRACTOR				
1E-06" INSTALL PIPE OVER 5000'	13,538.000	FT@	95.25	1,289,494.50
1E-08" INSTALL PIPE OVER 5000'	5,678.000	FT@	104.16	591,420.48
1E-12" INSTALL PIPE OVER 5000'	11,676.000	FT@	136.90	1,598,444.40
2- GROUNDWATER OVER 4" DEPTH - 6" PIPE	295.000	FT@	8.20	2,419.00
5A- REMOVE PLUG - 12"	1.000	EA@	2,500.00	2,500.00
16- SCORING OVER 1000'	30,382.000	FT@	30.88	938,196.16
19 - SAWCUT CONCRETE/COMPOSITE	2,900.000	FT@	14.00	40,600.00
22B payt remov concrete/composite rdway	1,450.000	YD2@	35.00	50,750.00
26A- HAYBALES & SILT SCREEN	9,763.000	FT@	11.00	107,393.00
37- WELL POINT SYSTEM	1.000	DAY@	100.00	100.00
17A- 6" X 6" TEE	17.000	LB@	616.00	10,472.00
17A- 8" X 6" TEE	9.000	LB@	792.00	7,128.00
17A- 8" X 8" TEE	2.000	LB@	946.00	1,892.00
17A- 12" X 6" TEE	12.000	LB@	1,210.00	14,520.00
17A- 12" X 8" TEE	1.000	LB@	1,375.00	1,375.00
17A- 12" X 12" TEE	4.000	LB@	1,760.00	7,040.00
17A- 8" X 6" REDUCER	2.000	LB@	396.00	792.00
17A- 12" X 8" REDUCER	2.000	LB@	627.00	1,254.00
17A- 6" SOLID SLEEVE (LONG)	11.000	LB@	319.00	3,509.00
17A- 8" SOLID SLEEVE (LONG)	4.000	LB@	495.00	1,980.00
17A- 12" SOLID SLEEVE (LONG)	5.000	LB@	836.00	4,180.00
17A- 6" M.J. PLUG	3.000	LB@	176.00	528.00

32,097 Total Footage	**ESTIMATE OF COST**	GROUP #0001	WBS #		
					ESTIMATED
17A- 8" M.J. PLUG		2.000	LB@	286.00	572.00
17A- 6" 11-1/4° BEND		3.000	LB@	330.00	990.00
17A- 6" 22-1/2° BEND		6.000	LB@	341.00	2,046.00
17A- 8" 22-1/2° BEND		1.000	LB@	506.00	506.00
17B- 6" 45° BEND		10.000	LB@	352.00	3,520.00
17B- 6" 90° BEND		2.000	LB@	429.00	858.00
17A- 12" X 6" REDUCER		2.000	LB@	638.00	1,276.00
18 B2 6" RCA		16,379.833	YD2@	4.25	69,614.29
18D- ASPHALTIC BINDER PAVEMENT- 4"		16,124.833	YD2@	22.50	362,808.74
T & M (NARROW ROAD) WILLIOW ST		3.000	HR@	2,000.00	6,000.00
T & M (NARROW ROAD) VINCENT ST		3.000	HR@	2,000.00	6,000.00
T & M (NARROW ROAD) FLETCHER ST		3.000	HR@	2,000.00	6,000.00
T & M (NARROW ROAD) PRIVATE RD		3.000	HR@	2,000.00	6,000.00
T & M (NARROW ROAD) MAJOR POND RD		3.000	HR@	2,000.00	6,000.00
T & M (FLAGGERS)		103.000	HR@	2,000.00	206,000.00
2- GROUNDWATER OVER 4" DEPTH - 12" PIPE		5,188.000	FT@	20.00	103,760.00
25- REMVE,DISPOSE & REPL UNSUITABLE FILL		32,898.000	YD3@	95.00	3,125,310.00
TRCH2D - 2" ASPHALT >1000		54,422.889	YD2@	35.00	1,904,801.12
TRCH8B - 6" RCA SUB BASE TYPE1011 >150		9,156.444	YD2@	18.00	164,815.99
TRCH9B -5" BASE,2-1/2"BINDER,2"TOP >150		9,156.444	YD2@	115.00	1,052,991.06
TRCH11B - LINE STRIPE >200'		10,301.000	FT@	1.75	18,026.75
6S- DECORATIVE STONE W/4" RCA >50		686.667	YD2@	125.00	85,833.38
7B- 12" poly 71-300 ft including tie-in		1,205.000	FT@	585.25	705,226.25
Const. Inspector III Regular Time		56.000	H@	146.50	8,204.00
				SUBTOTAL	12,523,147.12
				Contingency - 6%	751,388.80
	TOTAL CONTRACTED AND PURCHASED MATERIAL AND SERVICES				13,274,535.92
	EASEMENTS				
Easements					1,500.00
500.71 /FT				**TOTAL DIRECT COSTS**	13,394,614.53
				PLANNING, SUPERVISION & ACCOUNTING	2,676,766.94
				TOTAL ESTIMATED COST	16,071,381.47

MAIN ROAD (SR-25) EAST MARION, SOUTHOLD, #7161169

INSTALL THE FOLLOWING 12", 8" & 6" DUCTILE IRON PIPE AND DIRECTIONAL DRILL 12" H.D.P.E.

-75' OF 12" D.I.P. ON THE W/S/O MAIN ROAD (SR-25), E/F EXISTING 12" D.I.P. (005-11-00-0039) TO PROPOSED 12" DIRECTIONAL DRILL OPPOSITE #13220.

-DIRECTIONAL DRILL 445' OF 12" H.D.P.E. ON THE W/S/O MAIN ROAD (SR-25) N/F PROPOSED 12" D.I.P. OPPOSITE #13220 TO OPPOSITE END OF EXISTING BRIDGE.

-5,226' OF 12" D.I.P. ON THE W&N/S/O MAIN ROAD (SR-25), N&E/F PROPOSED 12" DIRECTIONAL DRILL E/F #13220 TO PROPOSED 12" DIRECTIONAL DRILL APPROX. 465' E/F OLD MAIN ROAD.

-DIRECTIONAL DRILL 200' OF 12" H.D.P.E. ON THE N/S/O MAIN ROAD (SR-25) E/F PROPOSED 12" D.I.P. APPROX. 465' E/F OLD MAIN ROAD TO THE OPPOSITE END OF EXISTING CULVERT.

-185' OF 12" D.I.P. ON THE N/S/O MAIN ROAD (SR-25) E/F PROPOSED 12" DIRECTIONAL DRILL, APPROX. 685' E/F OLD MAIN ROAD, TO PROPOSED 12" DIRECTIONAL DRILL APPROX. 425' W/F STEPHENSON ROAD.

-DIRECTIONAL DRILL 200' OF 12" H.D.P.E. ON THE N/S/O MAIN ROAD (SR-25) E/F PROPOSED 12" D.I.P., APPROX. 425' W/F STEPHENSON ROAD, TO THE OPPOSITE SIDE OF EXISTING CULVERT.

-4,815' OF 12" D.I.P. ON THE N/S/O MAIN ROAD (SR-25) E/F PROPOSED 12" DIRECTIONAL DRILL APPROX. 305' W/F STEPHENSON ROAD TO TABOR ROAD.

-DIRECTIONAL DRILL 95' OF 12" H.D.P.E. S/F PROPOSED 12" D.I.P. ON THE N/S/O MAIN ROAD (SR-25) TO PROPOSED 6" D.I.P. AT THE S/W/C/O MAIN ROAD(SR-25) & OYSTER POND LANE.

-1,005' OF 6" D.I.P. ON THE W/S/O OYSTER POND LANE, S/F PROPOSED 12" DIRECTIONAL DRILL AT THE S/W/C/O MAIN ROAD (SR-25) & OYSTER POND LANE TO PROPOSED 6" AT SKIPPERS LANE.

-794' OF 6" D.I.P. ON THE N/S/O SKIPPERS LAN, E/F PROPOSED 6" D.I.P. ON HARBOR RIVER ROAD TO PROPOSED 12" D.I.P. ON VILLAGE LANE.

-295' OF 6" D.I.P. ON THE W/S/O HARBOR RIVER ROAD, S/F PROPOSED 6" D.I.P. ON SKIPPERS LANE TO HOUSE #295
ALSO INSTALL A 2" BLOW-OFF AT END OF MAIN.

-DIRECTIONAL DRILL 85' OF 12" H.D.P.E. S/F PROPOSED 12" D.I.P. ON THE N/S/O MAIN ROAD (SR-25) TO PROPOSED 12" D.I.P. AT THE S/W/C/O MAIN ROAD(SR-25) & VILLAGE LANE.

-1,375' OF 12" D.I.P. ON THE W/S/O VILLAGE LANE, S/F PROPOSED 12" DIRECTIONAL DRILL AT THE S/W/C/O MAIN ROAD (SR-25) & VILLAGE LANE TO PROPOSED 8" D.I.P. AT ORCHARD STREET.

-750' OF 8" D.I.P. ON THE W/S/O VILLAGE LANE, S/F PROPOSED 12" D.I.P. AT ORCHARD STREET TO PROPOSED 6" D.I.P. AT VILLAGE LANE & W. BAY AVENUE.

-775' OF 6" D.I.P. ON THE W/S/O VILLAGE LANE, S/F PROPOSED 8" D.I.P. AT VILLAGE LANE & W. BAY AVENUE TO PROPOSED 6" AT KING STREET.

-1,210' OF 6" D.I.P. ON THE N/S/O KING STREET, E/F PROPOSED 6" D.I.P. AT VILLAGE LANE TO OLD FARM ROAD.

-569' OF 6" D.I.P. ON THE N/S/O OLD FARM ROAD FROM PROPOSED 6" ON KING STREET TO HOUSE #1245.
ALSO INSTALL A 2" BLOW-OFF AT END OF MAIN.

-861' OF 6" D.I.P. ON THE N/S/O KING STREET E/F OLD FARM ROAD TO HOUSE #1670.
ALSO INSTALL A 2" BLOW-OFF AT END OF MAIN.

-1,534' OF 6" D.I.P. ON THE W/S/O WILLOW TERRACE LANE S/F KING STREET TO MAJOR POND ROAD.

-1,282' OF 6" D.I.P. ON THE W/S/O MAJOR POND ROAD S/F KING STREET TO WILLOW TERRACE LANE.

-510' OF 6" D.I.P. ON THE N&W/S/O PRIVATE ROAD FROM WILLOW TERRACE LANE TO HOUSE #194.
ALSO INSTALL A 2" BLOW-OFF AT END OF MAIN.

-DIRECTIONAL DRILL 90' OF 12" H.D.P.E. S/F PROPOSED 12" D.I.P. ON THE N/S/O MAIN ROAD (SR-25) TO THE S/W/C/O MAIN ROAD (SR-25) & TABOR ROAD.

-1,366' OF 6" D.I.P. ON THE W/S/O TABOR ROAD, S/F PROPOSED 12" DIRECTIONAL DRILL AT THE S/W/C/O MAIN ROAD (SR-25) & TABOR ROAD TO PROPOSED 8" D.I.P. AT ORCHARD STREET.

-1,531' OF 8" D.I.P. ON THE N/S/O ORCHARD STREET, E/F PROPOSED 12" D.I.P. AT VILLAGE LANE TO HOUSE #1425.
ALSO INSTALL A 2" BLOW-OFF AT END OF MAIN.

-1,488' OF 6" D.I.P. ON THE N&W/S/O NAVY STREET, E&N/F PROPOSED 6" D.I.P. AT VILLAGE LANE TO PROPOSED 8" D.I.P. AT ORCHARD STREET.

-280' OF 6" D.I.P. ON THE N/S/O FLETCHER STREET, E/F PROPOSED 8" D.I.P. AT VILLAGE LANE TO PROPOSED 6" D.I.P. AT VINCENT STREET.

-287' OF 6" D.I.P. ON THE W/S/O VINCENT STREET, S/F PROPOSED 6" D.I.P. AT FLETCHER STREET TO PROPOSED 6" D.I.P. AT WILLOW STREET.

-257' OF 6" D.I.P. ON THE N/S/O WILLOW STREET, E/F PROPOSED 6" D.I.P. AT VILLAGE LANE TO PROPOSED 6" D.I.P. AT VINCENT STREET.

-DIRECTIONAL DRILL 90' OF 12" H.D.P.E. S/F PROPOSED 12" D.I.P. ON THE N/S/O MAIN ROAD (SR-25) TO THE S/W/C/O MAIN ROAD (SR-25)

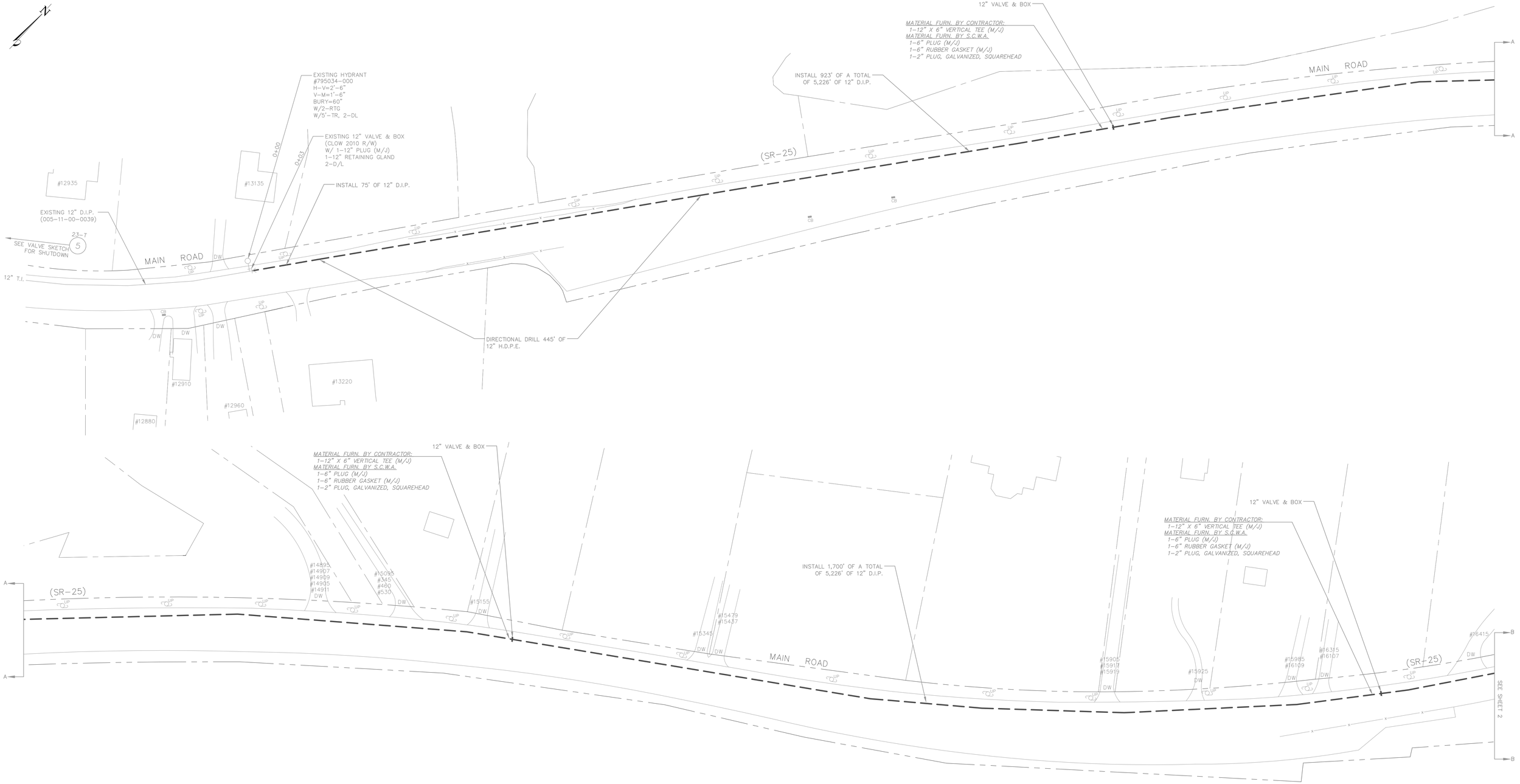
& PLATT ROAD.

-2,425' OF 8" D.I.P. ON THE S/S/O PLATT ROAD, S/F PROPOSED 12" DIRECTIONAL DRILL AT THE S/W/C/O MAIN ROAD (SR-25) & PLATT ROAD TO HALYOAKE AVENUE.

-972' OF 8" D.I.P. ON THE N/S/O HALYOAKE AVENUE S&W/F PLATT ROAD TO ORCHARD STREET.

-1,025' OF 6" D.I.P. ON THE S/S/O ORCHARD STREET FROM THE S/W/C/O OF HALYOAKE AVENUE AND ORCHARD STREET TO HOUSE #4250. ALSO INSTALL A 2" BLOW-OFF AT END OF MAIN.

TOWN: EAST MARION TOWNSHIP: SOUTHOLD SCWA MAP: 22-T



NOTE: COORDINATE SYSTEM: N.Y. STATE PLANE FEET, L.I. ZONE 3104; DATUM: N.A.D.1983

CONTRACTOR COPY
INSPECTOR COPY
STOREKEEPER COPY

Notes:
- All restoration on N.Y.S. R.O.W. to be done to N.Y.S. specs.
- Misc. bends & offsets may be required. All fittings must use Retaining glands.

Suffolk County Water Authority
4060 Sunrise Highway
Oakdale, NY 11769

Type Of Project: WATER MAIN INSTALLATION
Dwg. No.: 7161169-(1)

Reference Authorizations					
		Fld. Sketch By: CM	Date: 2/21/24	Drawn By: TD	Date: 3/1/24
		Field Prep By:	Insp. By:	Scale: 1"=50'	Sheet 1 Of 11
		Contractor:	Map. No: 23-T	Serv.Order No:	# of Services: 258
		In Service Date:		Main Order No:	
		Compl. Dwg. By:	Date:	Hydt Order No:	

Town: EAST MARION
Township: SOUTHOLD
Fire Dist: EAST MARION FD
Main Project: 7161169
Hydt Project:

N

B

B

SEE SHEET 1

MAIN ROAD

#16705
#16597

DW

UP

12" VALVE & BOX

MATERIAL FURN. BY CONTRACTOR:
1-12" X 6" VERTICAL TEE (M/J)
MATERIAL FURN. BY S.C.W.A.
1-6" PLUG (M/J)
1-6" RUBBER GASKET (M/J)
1-2" PLUG, GALVANIZED, SQUAREHEAD

#16855

(SR-25)

INSTALL 1,650' OF A TOTAL
OF 5,226' OF 12" D.I.P.

#17535
OCEAN PONDS
WATERWAY
PARKING LOT

#17235
#17435
#17327

MAIN ROAD

TRUMAN BEACH

C

C

12" VALVE & BOX

MATERIAL FURN. BY CONTRACTOR:
1-12" X 6" VERTICAL TEE (M/J)
MATERIAL FURN. BY S.C.W.A.
1-6" PLUG (M/J)
1-6" RUBBER GASKET (M/J)
1-2" PLUG, GALVANIZED, SQUAREHEAD

C

(SR-25)

INSTALL 860' OF A TOTAL
OF 5,226' OF 12" D.I.P.

OLD MAIN ROAD

MAIN ROAD

D

D

D

D

INSTALL 93' OF A TOTAL
OF 5,226' OF 12" D.I.P.

(SR-25)

DIRECTIONAL DRILL 200' OF
12" H.D.P.E.

CULVERT

INSTALL 185' OF 12" D.I.P.

MATERIAL FURN. BY CONTRACTOR:
1-12" X 6" VERTICAL TEE (M/J)
MATERIAL FURN. BY S.C.W.A.
1-6" PLUG (M/J)
1-6" RUBBER GASKET (M/J)
1-2" PLUG, GALVANIZED, SQUAREHEAD

12" VALVE & BOX

MAIN ROAD

DIRECTIONAL DRILL 200' OF
12" H.D.P.E.

INSTALL 35' OF A TOTAL
OF 4,815' OF 12" D.I.P.

E

E

E

E

(SR-25)

OLD MAIN ROAD

#19855
#283
#625
#825
#500
#925
#1207
#360
#19915

STEPHENSONS ROAD

#20075
#200
#100
#330
#700
#908
#725
#1525
#900

BIRDEYE ROAD

INSTALL 729' OF A TOTAL
OF 4,815' OF 12" D.I.P.

CB

#20275

MATERIAL FURN. BY CONTRACTOR:
1-12" X 6" VERTICAL TEE (M/J)
MATERIAL FURN. BY S.C.W.A.
1-6" PLUG (M/J)
1-6" RUBBER GASKET (M/J)
1-2" PLUG, GALVANIZED, SQUAREHEAD

12" VALVE & BOX

MAIN ROAD

SEE SHEET 3

F

F

NOTE: COORDINATE SYSTEM: N.Y. STATE PLANE FEET, L.I. ZONE 3104; DATUM: N.A.D.1983

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	INSPECTOR COPY
	STOREKEEPER COPY

Suffolk County Water Authority

4060 Sunrise Highway
Oakdale, NY 11769

Type Of Project: **WATER MAIN INSTALLATION**

Dwg. No.: 7161169-(2)

Notes:
- All restoration on N.Y.S. R.O.W. to be done to N.Y.S. specs.
- Misc. bends & offsets may be required. All fittings must use Retaining glands.

Reference Authorizations					
		Fld. Sketch By: CM	Date: 2/21/24	Drawn By: TD	Date: 3/1/24
		Field Prep By:	Insp. By:	Scale: 1"=50'	Sheet 2 Of 11
		Contractor:	Map No: 23-T	Serv.Order No:	# of Services: 258
		In Service Date:		Main Order No:	
		Compl. Dwg. By:	Date:	Hyatt Order No:	

Town: EAST MARION
Township: SOUTHOLD
Fire Dist: EAST MARION FD
Main Project: 7161169
Hyatt Project:

N

#20475
#280
#370
#375
#495
#825
#1025
#1015
#725

#20615
#20715
#20775
#20875
#20955
#20999
#201055
#21165
#21335
#275
#400
#630
#1100
#21445
#21505
#21920
#21955
#1025
#2125
#22045
#22040
#265
#405
#23045
#23405
#22715
#22415
#22495
#22325
#22135
#22540
#22350
#22420
#2260
#22040
#170
#165
#230
#285
#310
#130
#200
#195
#295
#330
#335
#22950
#55
#22845
#200
#300

MAIN ROAD
(SR-25)
MUNN LANE
BACK LANE
PETES HILL ROAD
RACKETS COURT
YOUNGS ROAD
OYSTER POND LANE
VILLAGE LANE
TABOR ROAD

OYSTERPONDS ELEMENTARY SCHOOL

ORIENT FIRE DEPARTMENT

ORIENT VILLAGE CEMETERY

INSTALL 1,708' OF A TOTAL OF 4,815' OF 12" D.I.P.

INSTALL 1,300' OF A TOTAL OF 4,815' OF 12" D.I.P.

INSTALL 325' OF A TOTAL OF 1,375' OF 12" D.I.P.

INSTALL 265' OF A TOTAL OF 1,005' OF 6" D.I.P.

INSTALL 563' OF A TOTAL OF 1,366' OF 6" D.I.P.

MATERIAL FURN. BY CONTRACTOR:
1-12" X 6" VERTICAL TEE (M/J)
MATERIAL FURN. BY S.C.W.A.
1-6" PLUG (M/J)
1-6" RUBBER GASKET (M/J)
1-2" PLUG, GALVANIZED, SQUAREHEAD

12" VALVE & BOX

12" X 12" TEE (M/J)

12" X 6" TEE (M/J)
W/ 1-6" PLUG (M/J)

12" X 6" REDUCER (M/J)

DIRECTIONAL DRILL 90' OF 12" H.D.P.E.

DIRECTIONAL DRILL 85' OF 12" H.D.P.E.

DIRECTIONAL DRILL 95' OF 12" H.D.P.E.

SEE SHEET 2

SEE SHEET 4

SEE SHEET 5

SEE SHEET 9

F F G G H H I I J J R R

UP DW CB

NOTE: COORDINATE SYSTEM: N.Y. STATE PLANE FEET, L.I. ZONE 3104, DATUM: N.A.D.1983

CONTRACTOR COPY
INSPECTOR COPY
STOREKEEPER COPY

Suffolk County Water Authority
4060 Sunrise Highway
Oakdale, NY 11769

Type Of Project: WATER MAIN INSTALLATION

Dwg. No.: 7161169-(3)

Notes:
-All restoration on N.Y.S. R.O.W. to be done to N.Y.S. specs.
-Misc. bends & offsets may be required. All fittings must use Retaining glands.

Reference Authorizations					
		Fld. Sketch By: CM	Date: 2/21/24	Drawn By: TD	Date: 3/1/24
		Field Prep By:	Insp. By:	Scale: 1"=50'	Sheet 3 Of 11
		Contractor:	Map No: 23-T	Serv.Order No:	# of Services: 258
		In Service Date:		Main Order No:	
		Compl. Dwg. By:	Date:	Hydt Order No:	

Town: EAST MARION
Township: SOUTHOLD
Fire Dist: EAST MARION FD
Main Project: 7161169
Hydt Project:

SEE SHEET 3

SEE SHEET 3

INSTALL 740' OF A TOTAL OF 1,005' OF 6" D.I.P.

INSTALL 1,050' OF A TOTAL OF 1,375' OF 12" D.I.P.

OYSTER POND LANE

VILLAGE LANE

VACANT LOT

MATERIAL FURN. BY CONTRACTOR:
1-6" X 6" VERTICAL TEE (M/J)
MATERIAL FURN. BY S.C.W.A.
1-6" PLUG (M/J)
1-6" RUBBER GASKET (M/J)
1-2" PLUG, GALVANIZED, SQUAREHEAD

INSTALL 794' OF 6" D.I.P.

6" VALVE & BOX

6" X 6" TEE (M/J)

6" VALVE & BOX

6" 45° BEND (M/J ANC)

MATERIAL FURN. BY CONTRACTOR:
1-12" X 6" VERTICAL TEE (M/J)
MATERIAL FURN. BY S.C.W.A.
1-6" PLUG (M/J)
1-6" RUBBER GASKET (M/J)
1-2" PLUG, GALVANIZED, SQUAREHEAD

6" VALVE & BOX

12" VALVE & BOX

12" X 6" TEE (M/J)

6" VALVE & BOX

6" 45° BEND (M/J ANC)

SKIPPERS LANE

INSTALL 295' OF 6" D.I.P.

HARBOR RIVER ROAD

12" VALVE & BOX

VILLAGE LANE

12" VALVE & BOX

12" X 8" TEE (M/J)

12" VALVE & BOX

12" X 8" REDUCER (M/J)

8" VALVE & BOX

ORIENT FIRE DISTRICT

INSTALL 210' OF A TOTAL OF 1,531' OF 8" D.I.P.

ORCHARD STREET

INSTALL 78' OF A TOTAL OF 750' OF 8" D.I.P.

LABOR FURN. BY SCWA CREW
INSTALL 2" BLOW-OFF AT END OF NEW WATER MAIN BY USING:
1-6" PLUG (T/J) TAPPED FOR 2"
2-NIPPLE, BRASS, 2" X 12", NL
5' OF 2" GALVANIZED PIPE
1-CAP, GALVANIZED, 2"
1-ELBOW, GALV., 2", 90 DEG
2-VALVE BOX, TOP
2-VALVE BOX, LID
3-VALVE BOX, BASE
1-CURB STOP, 2" FIP X 2" FIP DRAIN

SEE SHEET 5

SEE SHEET 6

NOTE: COORDINATE SYSTEM: N.Y. STATE PLANE FEET, L.I. ZONE 3104; DATUM: N.A.D.1983

CONTRACTOR COPY
INSPECTOR COPY
STOREKEEPER COPY

Suffolk County Water Authority
4060 Sunrise Highway
Oakdale, NY 11769

Type Of Project: WATER MAIN INSTALLATION

Dwg. No.: 7161169-(4)

Notes:
-All restoration on N.Y.S. R.O.W. to be done to N.Y.S. specs.
-Misc. bends & offsets may be required. All fittings must use Retaining glands.

Reference Authorizations					
		Fld. Sketch By: CM	Date: 2/21/24	Drawn By: TD	Date: 3/1/24
		Field Prep. By:	Insp. By:	Scale: 1"=50'	Sheet 4 Of 11
		Contractor:	Map. No: 23-T	Serv.Order No:	# of Services: 258
		In Service Date:		Main Order No:	
		Compl. Dwg. By:	Date:	Hyatt Order No:	

Town: EAST MARION
Township: SOUTHOLD
Fire Dist: EAST MARION FD
Main Project: 7161169
Hyatt Project:

NOTE: COORDINATE SYSTEM: N.Y. STATE PLANE FEET, L.I. ZONE 3104; DATUM: N.A.D.1983

	CONTRACTOR COPY
	INSPECTOR COPY
	STOREKEEPER COPY

Suffolk County Water Authority
4060 Sunrise Highway
Oakdale, NY 11769

Type Of Project: WATER MAIN INSTALLATION
Dwg. No.: 7161169-(5)

Notes:
- All restoration on N.Y.S. R.O.W. to be done to N.Y.S. specs.
- Misc. bends & offsets may be required. All fittings must use Retaining glands.

Reference Authorizations					
		Fld. Sketch By: CM	Date: 2/21/24	Drawn By: TD	Date: 3/1/24
		Field Prep By:	Insp. By:	Scale: 1"=50'	Sheet 5 Of 11
		Contractor:	Map No: 23-T	Serv.Order No:	# of Services: 258
		In Service Date:		Main Order No:	
		Compl. Dwg. By:	Date:	Hyatt Order No:	

Town: EAST MARION
Township: SOUTHOLD
Fire Dist: EAST MARION FD
Main Project: 7161169
Hyatt Project:

N

SEE SHEET 5

SEE SHEET 4

SEE SHEET 8

SEE SHEET 7

NAVY STREET

VILLAGE LANE

FLETCHER STREET

VINCENT STREET

WILLOW STREET

WEST BAY AVENUE

KING STREET

NELSON STREET

WILLOW TERRACE LANE

LANE KING STREET

OYSTERPONDS HISTORIC SOCIETY

#375 #260 #1080 #170 #1060 #1125 #1075 #940 #975 #830 #805 #680 #1555 #695 #230 #150 #70 #595 #510 #1490 #1495 #1555 #1570 #1620 #1700 #1725 #1740 #1775 #1780 #1800 #1855 #20 #375 #255 #355 #745 #850 #595 #700 #660 #525 #560 #425 #325 #400 #350 #205 #2005 #85 #1995 #75 #1970 #95 #220 #180 #225 #145 #2072 #2355 #2395 #2595 #2655 #230 #2190 #2220 #2300 #2360 #2440 #2660 #2760 #120

DW

INSTALL 1,416' OF A TOTAL OF 1,488' OF 6" D.I.P.

6" 90° BEND (M/J ANC)

6" 45° BEND (M/J ANC)

MATERIAL FURN. BY CONTRACTOR:
1-6" X 6" VERTICAL TEE (M/J)
MATERIAL FURN. BY S.C.W.A.
1-6" PLUG (M/J)
1-6" RUBBER GASKET (M/J)
1-2" PLUG, GALVANIZED, SQUAREHEAD

6" VALVE & BOX

INSTALL 280' OF 6" D.I.P.

INSTALL 287' OF 6" D.I.P.

8" VALVE & BOX
8" X 6" TEE (M/J)
8" VALVE & BOX

INSTALL 672' OF A TOTAL OF 750' OF 8" D.I.P.

INSTALL 257' OF 6" D.I.P.

INSTALL 1,015' OF A TOTAL OF 1,210' OF 6" D.I.P.

INSTALL 210' OF A TOTAL OF 1,534' OF 6" D.I.P.

MATERIAL FURN. BY CONTRACTOR:
1-8" X 6" VERTICAL TEE (M/J)
MATERIAL FURN. BY S.C.W.A.
1-6" PLUG (M/J)
1-6" RUBBER GASKET (M/J)
1-2" PLUG, GALVANIZED, SQUAREHEAD
#225
#170
#300
#220
#450
#650
#600
#680

6" X 6" REDUCER (M/J)

8" VALVE & BOX

6" X 6" TEE (M/J)
W/ 1-6" PLUG (M/J)

6" VALVE & BOX

6" 11-1/4" BEND (M/J)

6" 11-1/4" BEND (M/J)

6" X 6" TEE (M/J)

INSTALL 775' OF 6" D.I.P.

6" X 6" TEE (M/J)

6" X 6" TEE (M/J)

6" 90° BEND (M/J ANC)

NOTE: COORDINATE SYSTEM: N.Y. STATE PLANE FEET, L.I. ZONE 3104; DATUM: N.A.D.1983

CONTRACTOR COPY
INSPECTOR COPY
STOREKEEPER COPY

Suffolk County Water Authority
4060 Sunrise Highway
Oakdale, NY 11769

Type Of Project: **WATER MAIN INSTALLATION**

Dwg. No.: 7161169-(6)

Notes:
- All restoration on N.Y.S. R.O.W. to be done to N.Y.S. specs.
- Misc. bends & offsets may be required. All fittings must use Retaining glands.

Reference Authorizations					
		Fld. Sketch By: CM	Date: 2/21/24	Drawn By: TD	Date: 3/1/24
		Field Prep By:	Insp. By:	Scale: 1"=50'	Sheet 6 Of 11
		Contractor:	Map No: 23-T	Serv. Order No:	# of Services: 258
		In Service Date:		Main Order No:	
		Compl. Dwg. By:	Date:	Hyatt Order No:	

Town: EAST MARION
Township: SOUTHOLD
Fire Dist: EAST MARION FD
Main Project: 7161169
Hyatt Project:

N

SEE SHEET 8

MAJOR POND ROAD

DW

#365

#1050

#735

#410

INSTALL 1,137' OF A TOTAL
OF 1,282' OF 6" D.I.P.

6" VALVE & BOX

#422

#600

#423

ROWE STREET

#850

N

SEE SHEET 6

6" X 6" TEE (M/J)

#295

WILLOW TERRACE LANE

#715

#1145

6" 45° BEND (M/J ANC)

MATERIAL FURN. BY CONTRACTOR:
1-6" X 6" VERTICAL TEE (M/J)
MATERIAL FURN. BY S.C.W.A.
1-6" PLUG (M/J)
1-6" RUBBER GASKET (M/J)
1-2" PLUG, GALVANIZED, SQUAREHEAD

6" VALVE & BOX

#1345

#925

#270

#154

6" VALVE & BOX

INSTALL 1,324' OF A TOTAL
OF 1,534' OF 6" D.I.P.

#590

6" X 6" TEE (M/J)
W/ 1-6" PLUG (M/J)

#152

PRIVATE ROAD

6" 22 1/2° BEND (M/J)

#186

#190

#192

#194

#196

#750

MATERIAL FURN. BY CONTRACTOR:
1-6" X 6" VERTICAL TEE (M/J)
MATERIAL FURN. BY S.C.W.A.
1-6" PLUG (M/J)
1-6" RUBBER GASKET (M/J)
1-2" PLUG, GALVANIZED, SQUAREHEAD

6" 22 1/2° BEND (M/J)

6" 45° BEND (M/J ANC)

6" 45° BEND (M/J ANC)

#1500

#1390

#1290

#1060

#1170

#860

#960

INSTALL 510' OF 6" D.I.P.

6" VALVE & BOX

LABOR FURN. BY SCWA CREW
INSTALL 2" BLOW-OFF-AT END
OF NEW WATER MAIN BY USING:
1-6" PLUG (T/J) TAPPED FOR 2"
2-NIPPLE, BRASS, 2" X 12", NL
5' OF 2" GALVANIZED PIPE
1-CAP, GALVANIZED, 2"
1-ELBOW, GALV., 2", 90 DEG
2-VALVE BOX, TOP
2-VALVE BOX, LID
3-VALVE BOX, BASE
1-CURB STOP, 2" FIP X 2" FIP DRAIN

NOTE: COORDINATE SYSTEM: N.Y. STATE PLANE FEET, L.I. ZONE 3104; DATUM: N.A.D.1983

CONTRACTOR COPY
INSPECTOR COPY
STOREKEEPER COPY

Suffolk County Water Authority
4060 Sunrise Highway
Oakdale, NY 11769

Type Of Project: WATER MAIN INSTALLATION

Dwg. No.: 7161169-(7)

Notes:
-All restoration on N.Y.S. R.O.W. to be done to N.Y.S. specs.
-Misc. bends & offsets may be required. All fittings must use Retaining glands.

Reference Authorizations					
		Fld. Sketch By: CM	Date: 2/21/24	Drawn By: TD	Date: 3/1/24
		Field Prep By:	Insp. By:	Scale: 1"=50'	Sheet 7 Of 11
		Contractor:	Map No: 23-T	Serv.Order No:	# of Services: 258
		In Service Date:		Main Order No:	
		Compl. Dwg. By:	Date:	Hydt. Order No:	

Town: EAST MARION
Township: SOUTHOLD
Fire Dist: EAST MARION FD
Main Project: 7161169
Hydt Project:

N

6" 22-1/2° BEND (M/J)

6" 22-1/2° BEND (M/J)

OLD FARM ROAD

DW

LABOR FURN. BY SCWA CREW
INSTALL 2" BLOW-OFF AT END
OF NEW WATER MAIN BY USING:
1-6" PLUG (T/J) TAPPED FOR 2"
2-NIPPLE, BRASS, 2" X 12", NL
5' OF 2" GALVANIZAED PIPE
1-CAP, GALVANIZAED, 2"
1-ELBOW, GALV., 2", 90 DEG
2-VALVE BOX, TOP
2-VALVE BOX, LID
3-VALVE BOX, BASE
1-CURB STOP, 2" FIP X 2" FIP DRAIN

#1655

INSTALL 569' OF 6" D.I.P.

6" 11-1/4° BEND (M/J)

6" VALVE & BOX

6" X 6" TEE (M/J)

6" VALVE & BOX

MATERIAL FURN. BY CONTRACTOR:
1-6" X 6" VERTICAL TEE (M/J)
MATERIAL FURN. BY S.C.W.A.
1-6" PLUG (M/J)
1-6" RUBBER GASKET (M/J)
1-2" PLUG, GALVANIZED, SQUAREHEAD

6" 45° BEND (M/J ANC)

6" VALVE & BOX

INSTALL 861' OF 6" D.I.P.

6" VALVE & BOX

LABOR FURN. BY SCWA CREW
INSTALL 2" BLOW-OFF AT END
OF NEW WATER MAIN BY USING:
1-6" PLUG (T/J) TAPPED FOR 2"
2-NIPPLE, BRASS, 2" X 12", NL
5' OF 2" GALVANIZAED PIPE
1-CAP, GALVANIZAED, 2"
1-ELBOW, GALV., 2", 90 DEG
2-VALVE BOX, TOP
2-VALVE BOX, LID
3-VALVE BOX, BASE
1-CURB STOP, 2" FIP X 2" FIP DRAIN

#1715

#1815

#2025

KING STREET

6" X 6" TEE (M/J)

INSTALL 195' OF A TOTAL
OF 1,210' OF 6" D.I.P.

KING STREET

MAJOR POND RD.

#1320

#1420

#1620

#1670

SEE SHEET 6

SEE SHEET 7

6" VALVE & BOX

INSTALL 145' OF A TOTAL
OF 1,282' OF 6" D.I.P.

NOTE: COORDINATE SYSTEM: N.Y. STATE PLANE FEET, L.I. ZONE 3104; DATUM: N.A.D.1983

CONTRACTOR COPY
INSPECTOR COPY
STOREKEEPER COPY

Suffolk County Water Authority
4060 Sunrise Highway
Oakdale, NY 11769

Type Of Project: WATER MAIN INSTALLATION

Dwg. No.: 7161169-(8)

Notes:
-All restoration on N.Y.S. R.O.W. to be done to N.Y.S. specs.
-Misc. bends & offsets may be required. All fittings must use Retaining glands.

Reference Authorizations						
		Fld. Sketch By: CM	Date: 2/21/24	Drawn By: TD	Date: 3/1/24	Town: EAST MARION
		Field Prep. By:	Insp. By:	Scale: 1"=50'	Sheet 8 Of 11	Township: SOUTHOLD
		Contractor:	Map No: 23-T	Serv. Order No:	# of Services: 258	Fire Dist: EAST MARION FD
		In Service Date:		Main Order No:		Main Project: 7161169
		Compl. Dwg. By:	Date:	Hyat Order No:		Hyat Project:

LABOR FURN. BY SCWA CREW
INSTALL 2" BLOW-OFF AT END
OF NEW WATER MAIN BY USING:
1-12" PLUG (T/J) TAPPED FOR 2"
2-NIPPLE, BRASS, 2" X 12", NL
5' OF 2" GALVANIZAED PIPE
1-CAP, GALVANIZAED, 2"
1-ELBOW, GALV., 2", 90 DEG
2-VALVE BOX, TOP
2-VALVE BOX, LID
3-VALVE BOX, BASE
1-CURB STOP, 2" FIP X 2" FIP DRAIN

12" X 12" TEE (M/J)

12" VALVE & BOX

12" VALVE & BOX

DIRECTIONAL DRILL 90' OF 12" H.D.P.E.

12" X 8" REDUCER (M/J)

INSTALL 905' OF A TOTAL
OF 2,425' OF 8" D.I.P.

INSTALL 1,043' OF A TOTAL
OF 4,815' OF 12" D.I.P.

MATERIAL FURN. BY CONTRACTOR:
1-8" X 6" VERTICAL TEE (M/J)
MATERIAL FURN. BY S.C.W.A.
1-6" PLUG (M/J)
1-6" RUBBER GASKET (M/J)
1-2" PLUG, GALVANIZED, SQUAREHEAD

8" VALVE & BOX

MAIN ROAD

PLATT ROAD

(SR-25)

SEE SHEET 3

SEE SHEET 10

#24435 #45 #24275 #24145 #24065 #23955 #23865 #24260 #380 #620 #140 #23765 #23780 #23650 #23600 #23530 #24190 #23300

DW

NOTE: COORDINATE SYSTEM: N.Y. STATE PLANE FEET, L.I. ZONE 3104; DATUM: N.A.D.1983

CONTRACTOR COPY
INSPECTOR COPY
STOREKEEPER COPY

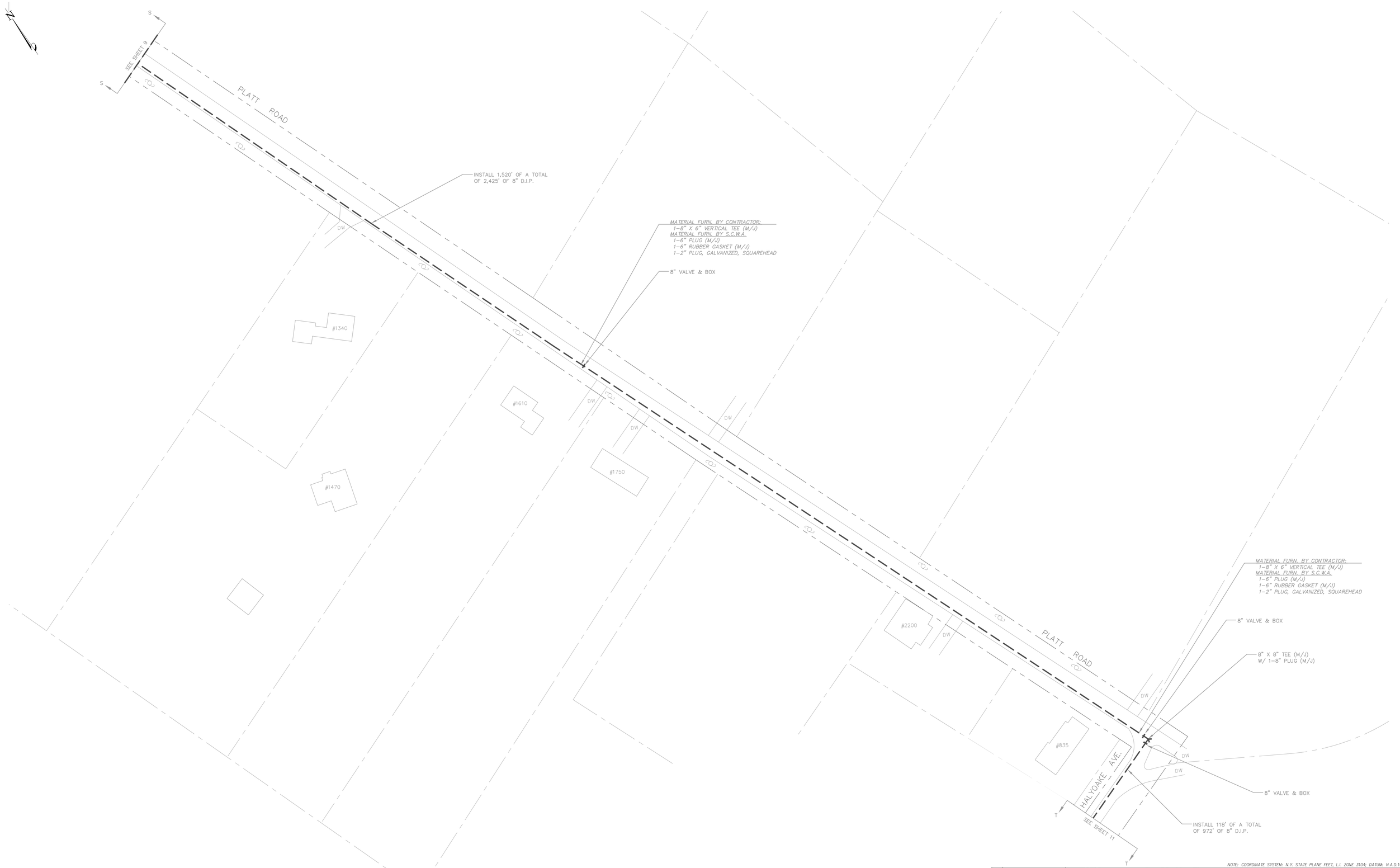
Notes:
-All restoration on N.Y.S. R.O.W. to be done to N.Y.S. specs.
-Misc. bends & offsets may be required. All fittings must use Retaining glands.

Suffolk County Water Authority
4060 Sunrise Highway
Oakdale, NY 11769

Type Of Project: WATER MAIN INSTALLATION
Dwg. No.: 7161169-(9)

Reference Authorizations					
		Fld. Sketch By: CM	Date: 2/21/24	Drawn By: TD	Date: 3/1/24
		Field Prep By:	Insp. By:	Scale: 1"=50'	Sheet 9 Of 11
		Contractor:	Map No: 23-T	Serv.Order No:	# of Services: 258
		In Service Date:		Main Order No:	
		Compl. Dwg. By:	Date:	Hydt. Order No:	

Town: EAST MARION
Township: SOUTHOLD
Fire Dist: EAST MARION FD
Main Project: 7161169
Hydt. Project:



NOTE: COORDINATE SYSTEM: N.Y. STATE PLANE FEET, L.I. ZONE 3104; DATUM: N.A.D.1983

	CONTRACTOR COPY
	INSPECTOR COPY
	STOREKEEPER COPY

Notes:
- All restoration on N.Y.S. R.O.W. to be done to N.Y.S. specs.
- Misc. bends & offsets may be required. All fittings must use Retaining glands.

Suffolk County Water Authority
4060 Sunrise Highway
Oakdale, NY 11769

Type Of Project: WATER MAIN INSTALLATION
Dwg. No.: 7161169-(10)

Reference Authorizations					
		Fld. Sketch By: CM	Date: 2/21/24	Drawn By: TD	Date: 3/1/24
		Field Prep By:	Insp. By:	Scale: 1"=50'	Sheet 10 Of 11
		Contractor:	Map. No: 23-T	Serv.Order No:	# of Services: 258
		In Service Date:		Main Order No:	
		Compl. Dwg. By:	Date:	Hydt. Order No:	

Town: EAST MARION
Township: SOUTHOLD
Fire Dist: EAST MARION FD
Main Project: 7161169
Hydt Project:

N

HALYOAKE AVE.

SEE SHEET 10

T

T

#605

#405

INSTALL 854' OF A TOTAL OF 972' OF 8" D.I.P.

DW

DW

DW

DW

8" 22 1/2' BEND (M/J)

MATERIAL FURN. BY CONTRACTOR:
1-8" X 6" VERTICAL TEE (M/J)
MATERIAL FURN. BY S.C.W.A.
1-6" PLUG (M/J)
1-6" RUBBER GASKET (M/J)
1-2" PLUG, GALVANIZED, SQUAREHEAD

8" VALVE & BOX

TO OLD FARM RD

HALYOAKE AVE.

#3585

#4065

ORCHARD STREET

6" 22 1/2' BEND (M/J)

6" 22 1/2' BEND (M/J)

INSTALL 1025' OF 6" D.I.P.

6" VALVE & BOX

8" X 6" REDUCER (M/J)

8" X 8" TEE (M/J)
W/1-8" PLUG (M/J)

#3480

#3630

#3780

#3940

#4090

#4250

ORCHARD STREET

6" VALVE & BOX

LABOR FURN. BY SCWA CREW
INSTALL 2" BLOW-OFF AT END
OF NEW WATER MAIN BY USING:
1-6"" PLUG (T/J) TAPPED FOR 2"
2-NIPPLE, BRASS, 2" X 12", NL
5' OF 2" GALVANIZED PIPE
1-CAP, GALVANIZED, 2"
1-ELBOW, GALV., 2", 90 DEG
2-VALVE BOX, TOP
2-VALVE BOX, LID
3-VALVE BOX, BASE
1-CURB STOP, 2" FIP X 2" FIP DRAIN

NOTE: COORDINATE SYSTEM: N.Y. STATE PLANE FEET, L.I. ZONE 3104; DATUM: N.A.D.1983

CONTRACTOR COPY
INSPECTOR COPY
STOREKEEPER COPY

Notes:
- All restoration on N.Y.S. R.O.W. to be done to N.Y.S. specs.
- Misc. bends & offsets may be required. All fittings must use Retaining glands.

Suffolk County Water Authority
4060 Sunrise Highway
Oakdale, NY 11769

Type Of Project: WATER MAIN INSTALLATION

Dwg. No.: 7161169-(11)

Reference Authorizations					
		Fld. Sketch By: CM	Date: 2/21/24	Drawn By: TD	Date: 3/1/24
		Field Prep By:	Insp. By:	Scale: 1"=50'	Sheet 11 Of 11
		Contractor:	Map. No: 23-T	Serv.Order No:	# of Services: 258
		In Service Date:		Main Order No:	
		Compl. Dwg. By:	Date:	Hyatt Order No:	

Town: EAST MARION
Township: SOUTHOLD
Fire Dist: EAST MARION FD
Main Project: 7161169
Hyatt Project: