# 10 Year Capital Improvement Plan

## Town of Southampton
## Hampton Bays Water District
## Suffolk County, New York

Prepared By:

D&B Engineers and Architects, P.C.

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# HAMPTON BAYS WATER DISTRICT

# 10 YEAR CAPITAL IMPROVEMENT PLAN

*Prepared By*

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**WOODBURY, NEW YORK**

**JANUARY 2020**

**HAMPTON BAYS WATER DISTRICT**
**10 YEAR CAPITAL PLAN**

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## 1.0 INTRODUCTION

The Town of Southampton has retained D&B engineers and Architects, P.C. (D&B) to develop a 10 Year Capital Plan for the Hampton Bays Water District (HBWD or the District). This Capital Plan includes evaluations of each facility within the District, evaluation of the distribution system based on a hydraulic model, evaluation of water quality and a review of known potential sources of contamination. In addition to capital needs, a cursory evaluation of the District's staffing and operations has been included.

## 2.0 DESCRIPTION OF WATER SUPPLY SERVICE AREA

### 2.1 Location

The Hampton Bays Water District (HBWD) is located within the Town of Southampton in Suffolk County on Long Island. The District is located on the south shore of Long Island to the western end of the south fork. The District is bordered on both the west and the east by water supply service areas of the Suffolk County Water Authority.

### 2.2 Population

The HBWD maintains 7,219 services for roughly 15,500 residents. It should be noted that a significant percentage of the residents of Hampton Bays are seasonal and are only present for the summer months.

### 2.3 Land Use

The HBWD serves a mixed development area of residential properties, commercial properties, marinas, hotels, and park land. The majority of commercial properties are located along Montauk Highway with another grouping along Foster Avenue in the southern portion of the District. The northwestern portion of the District is primarily park land.

### 2.4 Topography

As with the much of the south shore of Long Island, the HBWD has minimal elevation change. The District is divided by two bodies of water. The Shinnecock Canal separates the main section of the District from the eastern end of the District and the Shinnecock Bay separates the main section of the District from a few customers located on the barrier island.

## 3.0 SOURCE OF WATER SUPPLY AND EXISTING SYSTEM

### 3.1 Overview: Source of Supply

The Hampton Bays Water District (HBWD) acquires its potable water supply from eleven (11) wells at five (5) stations throughout the district. These wells are screened in two (2) different aquifer systems: the Upper Glacial and Magothy Aquifers. The total approved capacity of the wells is 11.15 million gallons per day (MGD). The effective capacity based on current operation of the wells is 10.14 MGD. The HBWD has the capacity to store 1.5 million gallons (MG) of water, which includes two 0.25 MG and one 1.0 MG elevated water storage tanks. Calcium hypochlorite is added to the supply wells and storage tanks to maintain a chlorine residual.

### 3.2 Supply, Booster, and Treatment Facilities

The HBWD utilizes eleven (11) groundwater wells drilled to depths ranging from 108 feet to 207 feet below the ground surface. These wells are located at five (5) stations throughout the District. The total authorized capacity of the wells in the District is 7,745 gallons per minute (gpm), and the actual capacity that the wells pump is 7,043 gpm. The addresses of the well stations and detailed information for each well can be found in **Table 3-1.**

Three (3) booster pumps, located at Facility 2, with a total capacity of 1,050 gpm are utilized to maintain a high-pressure zone, located between Sunrise Highway and Montauk Highway and between Newtown Road and Squiretown Road in the vicinity of Facility 2. **Table 3-2** summarizes the booster pump data.

**Table 3-1**
**WELL DATA**

| HBWD Number | NYSDEC Number | Year Drilled | Aquifer | Address | Authorized Well Capacity (gpm) | Depth (feet) | Actual Capacity (gpm) | Status |
|---|---|---|---|---|---|---|---|---|
| 1-1 | S-15687 | 1956 | Glacial | Ponquogue Ave | 500 | 108 | 470 | Active |
| 1-2 | S-24848 | 1965 | Glacial | Ponquogue Ave | 750 | 123 | 325 | Active |
| 1-3 | S-31636 | 1967 | Glacial | Ponquogue Ave | 750 | 120 | 750 | Active |
| 2-1 | S-51970 | 1974 | Glacial | Old Riverhead Rd | 500 | 200 | 500 | Active |
| 2-2 | S-74071 | 1981 | Glacial | Old Riverhead Rd | 750 | 207 | 500 | Active |
| 3-1 | S-58350 | 1977 | Glacial | Bellows Pond Rd-3 | 493 | 151 | 500 | Active |
| 3-2 | S-58351 | 1977 | Glacial | Bellows Pond Rd-3 | 500 | 147 | 500 | Active |
| 3-3 | S-58352 | 1977 | Glacial | Bellows Pond Rd-3 | 500 | 137 | 500 | Active |
| 4-1 | S-108065 | 1997 | Glacial | Bellows Pond Rd-4 | 1000 | 139 | 1000 | Active |
| 4-2* | S-108066 | 1997 | Glacial | Bellows Pond Rd-4 | 1000 | 137 | 1000 | Active |
| 5 | S-127163 | 2008 | Glacial | Jones Rd | 1000 | 147 | 1000 | Active |
| | | | | **Totals** | **7,743 (11.15 MGD)** | | **7,045 (10.14 MGD)** | |

*Well 4-2 is a pitless adapter submersible pump

**Table 3-2**
**BOOSTER PUMP DATA**

| Booster Number | Address | Pump Make/Model | Motor | Pump Capacity (gpm) | Pump Capacity (MGD) |
|---|---|---|---|---|---|
| 1 | Old Riverhead Rd (Facility 2) | Cornell, 3WB-15-2 | Baldor Super-E, 15 hp, 208 V, 3 PH, 3525 rpm | 350 | 0.5 |
| 2 | Old Riverhead Rd (Facility 2) | Cornell, 3WB-15-2 | Baldor Super-E, 15 hp, 208 V, 3 PH, 3525 rpm | 350 | 0.5 |
| 3 | Old Riverhead Rd (Facility 2) | Cornell, 3WB-15-2 | Baldor Super-E, 15 hp, 208 V, 3 PH, 3525 rpm | 350 | 0.5 |

At each pumping station, calcium hypochlorite tablets are used for disinfection, and sodium hydroxide (caustic soda) is added to increase the pH for corrosion control within the distribution system. Additionally, CalciQuest® liquid phosphate solution (phosphate) is injected at each well for iron and manganese sequestration. Granular activated carbon (GAC) filters have been installed at Facility 1 for volatile organic contaminant (VOC) removal. **Table 3-3** summarizes the existing treatment at each well.

**Table 3-3**
**WATER TREATMENT**

| Well Number | Location | Calcium Hypochlorite | Caustic Soda | GAC | Phosphate |
|---|---|---|---|---|---|
| 1-1 | Ponquogue Ave | X | X | X | X |
| 1-2 | Ponquogue Ave | X | X | X | X |
| 1-3 | Ponquogue Ave | X | X | X | X |
| 2-1 | Old Riverhead Rd | X | X | | X |
| 2-2 | Old Riverhead Rd | X | X | | X |
| 3-1 | Bellows Pond Rd-3 | X | X | | X |
| 3-2 | Bellows Pond Rd-3 | X | X | | X |
| 3-3 | Bellows Pond Rd-3 | X | X | | X |
| 4-1 | Bellows Pond Rd-4 | X | X | | X |
| 4-2 | Bellows Pond Rd-4 | X | X | | X |
| 5 | Jones Rd | X | X | | X |

The HBWD maintains ten (10) Chemical bulk storage tanks. The locations and capacities of each are listed in **Table 3-4**.

**Table 3-4**
**CHEMICAL BULK STORAGE TANKS**

| Facility Location | Design Capacity (gal.) | Working Capacity (gal.) | Chemical Stored |
|---|---|---|---|
| Ponquogue Ave | 1,000 | 950 | 25% Sodium Hydroxide (Caustic Soda) |
| Ponquogue Ave | 1,000 | 950 | 25% Sodium Hydroxide (Caustic Soda) |
| Ponquogue Ave | 1,000 | 950 | 25% Sodium Hydroxide (Caustic Soda) |
| Old Riverhead Rd | 1,000 | 950 | 25% Sodium Hydroxide (Caustic Soda) |
| Old Riverhead Rd | 1,000 | 950 | 25% Sodium Hydroxide (Caustic Soda) |
| Bellows Pond Rd | 1,000 | 950 | 25% Sodium Hydroxide (Caustic Soda) |
| Bellows Pond Rd | 1,000 | 950 | 25% Sodium Hydroxide (Caustic Soda) |
| Bellows Pond Rd | 1,000 | 950 | 25% Sodium Hydroxide (Caustic Soda) |
| Bellows Pond Rd | 3,000 | 2,850 | 25% Sodium Hydroxide (Caustic Soda) |
| Jones Rd | 3,000 | 2,850 | 25% Sodium Hydroxide (Caustic Soda) |

## 3.3 Pressure Zones

The HBWD maintains two separate pressure zones. The high-pressure zone is located between Sunrise Highway and Montauk Highway and between Newtown Road and Squiretown Road in the vicinity of Facility 2. The pressure in this zone is maintained by three (3) booster pumps as described in Table 3-2 above.

## 3.4 Water Storage Tanks

The HBWD has three (3) storage facilities to accommodate diurnal variations in water demand. During the morning and afternoon hours, before and after the workday, water usage demand may increase beyond the capacities of the supply wells in the district. All the tanks are elevated for a total capacity of 1.50 MG. **Table 3-5** summarizes the water storage tank data.

**Table 3-5**
**WATER STORAGE TANKS**

| Location | Capacity (mg) | Type |
|---|---|---|
| Ponquogue Ave | 0.25 | Elevated |
| Old Riverhead Rd | 0.25 | Elevated |
| Bellows Pond Rd | 1.0 | Elevated |

## 3.5 Interconnections

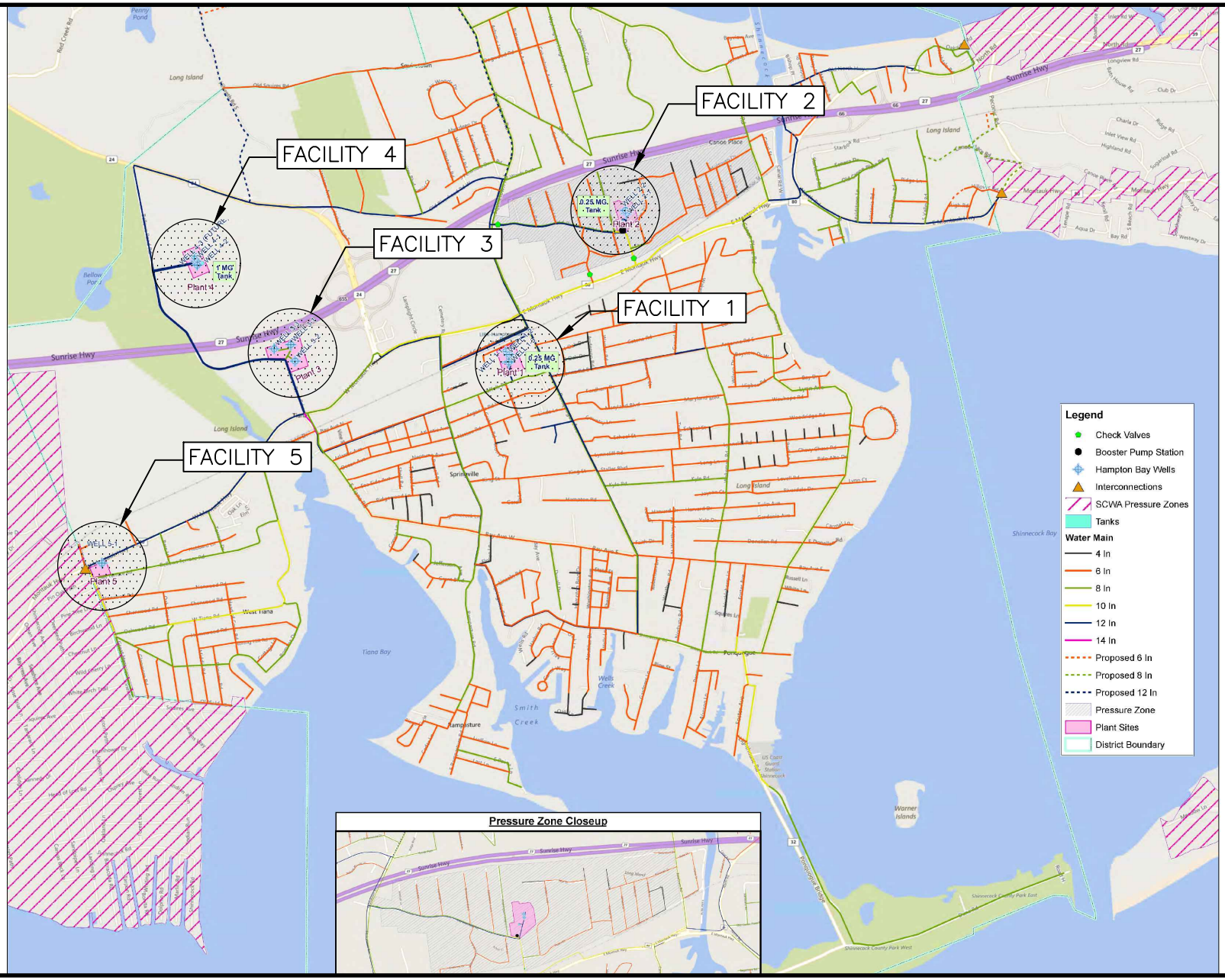
The HBWD maintains three (3) interconnections with one adjacent water supplier, the Suffolk County Water Authority (SCWA). **Table 3-6** summarizes the location and size of each interconnection. These interconnections are maintained for use only as emergency water sources.

**Table 3-6**
**INTERCONNECTION INFORMATION**

| | Location | Pipe Diameter (inches) |
|---|---|---|
| **SCWA** | Oakhurst Road | 6 x 6 |
| | Jones Road North & Montauk Highway | 8 x 12 |
| | Peconic Road & Montauk Highway | 8 x 8 |

## 3.6 Distribution System

The HBWD maintains 7,219 services for roughly 15,500 residents. These are supplied by approximately 100 miles of water mains ranging from 2” to 12” in diameter, with most being 6” or 8” (53 miles and 29 miles respectively). Of the 100 miles of water mains, 11 miles consist of larger transmission mains at least 12” in diameter. The distribution system also maintains 512 hydrants. An overview of the service area is shown as **Figure 3-1.**




D&B ENGINEERS AND ARCHITECTS, P.C.

HAMPTON BAYS WATER DISTRICT

SCALE: NTS

**SERVICE AREA MAP**

**FIGURE 3-1**

J:_WaterSupply\5335 (Southampton - HBWD Capital Plan)\Report\Figures\Figure 3-1_Distribution Map.dwg, Layout1, 12/2/2019 2:42:32 PM, bgiese

### 3.6.1 Distribution System Age

The majority of the water mains within the District are ductile iron pipe installed after 1965. There is a section of cast iron water main that was installed in the 1940's located between Shinnecock Bay and Tiana Bay and south of Montauk Highway near Facility 1 on Ponquogue Avenue. This area represents the original limits of the Water District, before it was expanded to its current boundaries. The typical life expectancy for cast iron pipe is 75 to 100 years. The piping in this area is therefore approaching the end of its useful life. Although this piping is over 70 years old, the District has not reported significant main breaks, water quality issues or water pressure issues in this area. Given the 10-year scope of this Capital Plan and the apparent condition of the pipe, it may not be necessary to replace this piping within the next 10 years. However, the condition of this piping should be monitored and evaluated again as the 10 year scope of this report expires.

### 3.6.2 Lead Services

The proposed Lead and Copper Rule Revisions proposed by the United States Environmental Protection Agency (USEPA), which are scheduled to go into effect in 2020, maintains the current Maximum Contaminant Level Goal (MCLG) of zero and the Action Level of 15 ppb, but will require a more comprehensive response at the action level and introduces a trigger level of 10 ppb that requires more proactive planning in communities with lead service lines.

This is the first major overhaul of the regulation since 1991 and focuses on six (6) areas:

1. Identifying the Areas Most Impacted:

The EPA will for the first time require a public lead service line inventory and systems will have to monitor individual locations with elevated levels of lead by identifying the cause and mitigating the problem.

2. Strengthening Drinking Water Treatment Requirements:

Systems exceeding the proposed trigger level of 10 ppb that currently treat for corrosion will be required to reoptimize their existing treatment and reevaluate their existing corrosion control treatment or conduct a treatment study so that they are prepared to respond quickly when necessary.

3. Replacing Lead Service Lines:

The EPA is proposing to require water systems to replace the water system-owned portion of a lead service line when a customer chooses to replace their customer-owned portion of the line. The EPA is also proposing to require water systems to conduct outreach and initiate lead service line replacement programs when lead levels are above the proposed trigger level of 10 ppb.

4. Increasing Sampling Reliability:

The EPA is proposing to improve tap sampling procedures, requiring wide-mouth bottles for collection and prohibiting flushing and cleaning or removing faucet aerators before sampling. The EPA is also changing the criteria for selecting homes where samples are taken to require sampling in homes with lead service lines. Systems with higher levels of lead will be required to sample more frequently.

5. Improving Risk Communication:

The EPA is proposing to require systems to notify customers of an action level exceedance within 24 hours. The EPA is also proposing to require that systems make the lead service line inventory publicly available and conduct regular outreach to homeowners with lead service lines.

6. Protecting Children in Schools and Childcare Facilities:

Systems will be required to test school and childcare facilities. The system will be required to provide the results and information about the actions the school or childcare facility can take to reduce lead in drinking water.

Evaluation

While a review of lead services was included in the scope of this study. No information was available on which to base an analysis. This information is typically included in water service tap cards. However, District personnel have indicated that these records do not exist.

## 4.0 WATER USE, GROWTH, STORAGE AND DISTRIBUTION

### 4.1 Historical and Projected Water Demands

In the last 10 years, the average daily demand for the HBWD has been 2.7 MGD. The maximum day demand and estimated peak hour demand (typically estimated to be 1.5 times greater than the maximum day demand) both occurred in 2015 and were respectively 8.5 and 12.8 MGD. The historical water demand of the HBWD can be found in **Table 4-1**.

**Table 4-1**
**HISTORICAL WATER DEMAND DATA**

| Year | Average Day (MGD) | Maximum Day (MGD) | Maximum Day + 3,500 GPM Fire Flow (MGD) |
|---|---|---|---|
| 2009 | 2.1 | 5.5 | 6.13 |
| 2010 | 2.6 | 7.6 | 8.23 |
| 2011 | 2.3 | 6.3 | 6.93 |
| 2012 | 2.6 | 6.9 | 7.53 |
| 2013 | 2.6 | 7.5 | 8.13 |
| 2014 | 2.8 | 6.3 | 6.93 |
| 2015 | 2.8 | 8.5 | 9.13 |
| 2016 | 3.3 | 7.2 | 7.83 |
| 2017 | 2.9 | 6.8 | 7.43 |
| 2018 | 2.9 | 7.2 | 7.83 |
| ***Average*** | 2.7 | 7.0 | |
| ***Minimum*** | 2.1 | 5.5 | 6.13 |
| ***Maximum*** | 3.3 | 8.5 | 9.13 |

An analysis of the historical demand data shows a steady increase in the Average Day and Maximum Day demands over the past 10 years. If it is assumed that these demands will continue to grow at a similar rate, it can be calculated that the Average Day demand in 2030 will increase by approximately 0.8 MGD and the Maximum Day demand will increase by approximately 1.7 MGD. Therefore, the projected 2030 Average Day demand is 3.7 MGD and the projected 2030 Maximum Day demands is 8.9 MGD.

Based on a Supplemental Draft Generic Environmental Impact Statement for the Hampton Bays Downtown Overlay District provided by the Town of Southampton, a potential new retail, office, restaurant, possible assisted living, small boutique hotel, and as many as 248-units of residential development are proposed in the area north of the Long Island Railroad, east of Springville Road and Cemetery Road, west of the Hampton Bays Town Center and St. Rosalie's Catholic Church, and south of Good Ground Park are expected to be developed within the next 10 years. The estimated increase in water demand for the entirety of this development is 82,673 gallons per day (gpd) or 0.08 MGD. This increased demand is primarily from commercial and domestic purposes, 83,369 gpd, which includes a reduction in irrigation usage of 696 gpd due to new structures occupying formerly irrigated land. At this time, no other plans for major developments are known. While this is a significant water use, it can be assumed that this additional demand is included in the projected water use calculation presented above.

## 4.2 Water Conservation

The New York State Department of Environmental Conservation (NYSDEC) has requested that all water suppliers reduce their irrigation water use by 15%. To that end the District prepared a Water Conservation Plan in 2017, included in Appendix A, and has taken steps to implement that plan. Given the short time since the implementation of the water conservation measures, it is not yet possible to estimate the effectiveness of the plan. Only after several years can an evaluation be performed to measure the effectiveness of the plan. Annual variations in precipitation have a major effect on irrigation demands. While there may ultimately be a reduction in irrigation demand over the long term, our conservative estimate has been to assume a net zero reduction in irrigation demand and water use due to conservation over the next 10 years. Growth projections discussed in Section 4.4 utilize this assumption.

## 4.3 Assessment of Existing System Capacity and Demands

Maximum Day Demands

The total actual capacity of all the supply wells in the HBWD is 10.14 MGD. The New York State Sanitary Code requires a water supply system to be capable of meeting the Maximum Day demand with the largest well out of service. The total actual capacity with the largest well out of service is 8.7 MGD. The historical Maximum Day demand was 8.5 MGD. The existing well capacity is therefore adequate to meet the historical Maximum Day demand with the largest well out of service.

The New York State Sanitary Code requires that a water supply system be capable of meeting the Maximum Day demands while maintaining minimum pressures throughout the distribution system. The Code requires that a minimum pressure of 35 psi be maintained at all times on a Maximum Day. The District's existing hydraulic model was used to estimate the pressures throughout the distribution system on a Maximum Day. This analysis has indicated that while there is adequate well supply and storage capacity to meet the historical Maximum Day demand, there are areas of low pressure in the distribution system under these conditions. The service area to the east of the Shinnecock Canal especially at higher elevations like the area surrounding Old Canoe Place Road was found to have pressures falling below 35 psi under the historical Maximum Day demand conditions. Additionally, the Rampasture Road Peninsula was found to experience low pressures during Maximum Day demand conditions. Both of these areas of low pressure are confirmed by field observations and complaints received by the District.

Maximum Day Plus Fire

The ability of the system to meet the Peak Hour demands and Peak Hour plus Fire demands is based on a combination of the water supply wells and storage tank capacities. The historical Peak Hour demand is estimated to be 12.8 MGD, assuming a peaking factor of 1.5. The existing wells can provide up to 8.7 MGD with the largest well out of service. Therefore, the balance of up to 4.1 MGD must be provided from the water storage tanks. The tanks are then refilled with

water supplied by the wells during periods of relatively lower demand during the day. This variation in demand throughout a day is described as the Diurnal Curve. Additionally, the New York State Sanitary Code requires that a minimum pressure of 20 psi be maintained at all locations in the distribution system during a fire event.

The combination of water supply wells and storage tanks in a water supply system must be capable of meeting the diurnal peak demands on a Maximum Day, while still maintaining sufficient additional storage for fire-fighting purposes. Based on the American Water Works Association (AWWA) standards for fire flow, the HBWD should have the ability to provide up to 3,500 gpm for a period of 3 hours to fight a fire. Therefore, a total of 630,000 gallons of water must be available in the storage tanks when they are at their lowest level on a Maximum Day.

The District's existing hydraulic model was used to verify that the combination of water supply wells and water storage tanks is able to meet these diurnal peak demands with the largest well out of service, based on a historical Maximum Day, while maintaining a minimum pressure of 20 psi throughout the distribution system. While the required volume of water for firefighting is available in the storage tanks, the service area to the east of the Shinnecock Canal especially at higher elevations like the area surrounding Old Canoe Place Road was found to have pressures falling below 20 psi under the historical Maximum Day demand plus Fire Flow conditions. The District does have an agreement with the SCWA to use their distribution system interconnections to provide emergency fire protection to the service area to the east of the Shinnecock Canal. The Rampasture Road Peninsula was found to experience pressures falling below 35 psi under the historical Maximum Day demand plus fire flow conditions.

## 4.4 Evaluation of Future Capacity and Water Storage Needs

As indicated in Section 4.1, the projected Maximum Day demand in 2030 is 8.9 MGD. The existing well capacity of 8.7 MGD with the largest well out of service will not be adequate to meet this projected demand. An additional capacity of at least 0.2 MGD will be required within the next 10 years.

Given the system deficiencies identified above for the historical demand conditions, the discussions below assume that new wells with a combined capacity of 1,000 gpm (1.44 MGD) will be constructed within the District. We recommend that the District evaluate alternatives for the location of these wells.

Maximum Day Demands

The total actual capacity of all the supply wells in 2030 will be 11.6 MGD, with the addition of new wells totaling 1,000 gpm. The New York State Sanitary Code requires a water supply system to be capable of meeting the Maximum Day demand with the largest well out of service. The total actual capacity with the largest well out of service will be 10.1 MGD in 2030. The projected Maximum Day demand in 2030 is 8.9 MGD. The projected well capacity with these new wells will therefore be adequate to meet the projected Maximum Day demand with the largest well out of service in 2030.

The New York State Sanitary Code requires that a water supply system be capable of meeting the Maximum Day demands while maintaining minimum pressures throughout the distribution system. The Code requires that a minimum pressure of 35 psi be maintained at all times on a Maximum Day. The District's hydraulic model was used to estimate the pressures throughout the distribution system on a Maximum Day in 2030. This analysis has indicated that while there is adequate well supply and storage capacity to meet the projected Maximum Day demand, there are areas of low pressure in the distribution system under these conditions. The service area to the east of the Shinnecock Canal especially at higher elevations like the area surrounding Old Canoe Place Road was found to have pressures falling below 35 psi under the projected 2030 Maximum Day demand conditions with these new wells. Additionally, the Rampasture Road Peninsula was found to experience low pressures during these demand conditions even with the new wells.

Maximum Day Plus Fire

The ability of the system to meet the Peak Hour demands and Peak Hour plus Fire demands is a based on a combination of the water supply wells and storage tank capacities. The projected Peak Hour demand is calculated to be 13.35 MGD based on the assumed peaking factor of 1.5. The wells will be able provide up to 10.1 MGD with the largest well out of service. Therefore, the balance of up to 3.25 MGD must be provided from the water storage tanks. The tanks are then refilled with water supplied by the wells during periods of relatively lower demand during the day. This variation in demand throughout a day is described as the Diurnal Curve. Additionally, the New York State Sanitary Code requires that a minimum pressure of 20 psi be maintained at all locations in the distribution system during a fire event.

The combination of water supply wells and storage tanks in a water supply system must be capable of meeting the diurnal peak demands on a Maximum Day, while still maintaining sufficient additional storage for fire-fighting purposes. Based on the American Water Works Association (AWWA) standards for fire flow, the HBWD should have the ability to provide up to 3,500 gpm for a period of 3 hours to fight a fire. Therefore, a total of 630,000 gallons of water must be available in the storage tanks when they are at their lowest level on a Maximum Day.

The District's hydraulic model was used to verify that the combination of water supply wells and water storage tanks is able to meet these diurnal peak demands with the largest well out of service, based on a historical Maximum Day, while maintaining a minimum pressure of 20 psi throughout the distribution system. While the required volume of water for firefighting is available in the storage tanks, the service area to the east of the Shinnecock Canal especially at higher elevations like the area surrounding Old Canoe Place Road was found to have pressures falling below 20 psi under the historical Maximum Day demand plus fire flow conditions. The District does have an agreement with the SCWA to use their distribution system interconnections to provide emergency fire protection to the service area to the east of the Shinnecock Canal. The Rampasture Road Peninsula was found to experience low pressures during these demand conditions even with the new wells.

## 4.5 Distribution System Improvements

### 4.5.1 Water Main Crossing Shinnecock Canal

As indicated in Sections 4.3 and 4.4, the service located to the east of Shinnecock Canal, especially in areas of high elevation, experiences low pressure conditions under the Maximum Day demand condition. The low pressures are further exacerbated in the event of a fire flow condition. The primary cause of this deficiency is the fact that there is only a single 12 inch water main crossing the canal at Montauk Highway to supply this area. Additionally, there are no water supply wells or water storage tank facilities located within this portion of the service area. In addition to the low pressure issues caused by this configuration, the single water main crossing is also a vulnerability. The failure of this main would result in an inability to provide water to this area.

Through the use of the hydraulic model, four alternatives were evaluated to solve the pressure and redundancy issues:

- Installation of a second 12-inch diameter water main crossing the canal and possible connection to the High Pressure Zone with the exact location to be evaluated during the design.
- Construction of an additional water supply well within the service area to the east of the canal.
- Construction of a water storage tank and booster pumping station within the service area to the east of the canal.
- Enhancement of the two existing emergency interconnections with SCWA on the east side of the service area and potential construction of more emergency interconnections.

The best solution has been determined to be the installation of a second 12-inch water main crossing the canal. This will both improve water pressure and provide redundancy to this portion of the service area. Additionally, if this new water main is connected to the nearby High Pressure Zone it will further increase the pressures to the area to the east of the Shinnecock canal. The installation of a new water supply well in this area will likely be difficult due to the lack of property and the potential for saltwater intrusion. While the installation of a water storage tank and booster

station would address the low-pressure condition problems, it would not provide the required redundancy that the additional water main crossing provides. Based on discussions with District staff, it has been determined that the water pressure in the portion of the SCWA service area to the east of the District is typically lower than it is within the District. Therefore, enhancement of these interconnections will not likely provide adequate pressure in the event of a failure of the canal water main crossing. Additionally, there is no guarantee that SCWA will always be in a position that allows water to be provided in the event of an emergency.

### 4.5.2 Rampasture Road Peninsula Water Mains

As indicated in Sections 4.3 and 4.4, the services located on the peninsula served by Rampasture Road experiences low pressure conditions under the Maximum Day demand condition. H2M Architects and Engineers conducted a C-factor test on the water mains serving this area on October 4, 2019 and found that the existing 8-inch water main on Rampasture Road is in poor condition and may likely be undersized. Based on these findings, they recommended in a letter to the Southampton Town Council (Appendix D) to upgrade the existing main in the area to consider improving pressure to the Rampasture Road Peninsula. The water mains to be upgraded include the following:

- Rampasture Road from Springville Road to Hampton Harbor Road replacement with 12-inch water main (approximately 3,000 feet).
- East Trana Road from Seaside Avenue to Corwin Lane replacement with 8-inch water main (approximately 1,350 feet).
- East Rampasture Road, Hampton Harbor Lane, Elder Avenue replacement in kind with new lined 6-inch and 8-inch water main (approximately 4,000 feet).

### 4.5.3 Water Main Crossing Ponquogue Bridge

A single 8-inch diameter main supplies domestic water and fire protection for two restaurants, commercial docks, private marinas, and the Town of Southampton Beach Pavilion along Dune Road. This is the sole source of water supply to the customers on the barrier island. The existing water main is installed underwater along the alignment of the Ponquogue Bridge.

The existing water main experienced a pipe breakage on January 9, 2017. Underwater repairs of the pipe were completed by a specialized dive team; however, temporary water lines needed to be installed across the bridge to continue to supply these customers while the repairs were performed. Additionally, in 2018 the main was ruptured by a dredging barge dragging equipment across it. The Suffolk County Department of Health Services (SCDHS) has since notified the District that the main must be abandoned and replaced in a more suitable location.

We recommend that the District evaluate alternatives for the relocation of this main including the following:

- Installation of directionally drilled water main under Shinnecock Bay.
- Installation of a water main on Ponquogue Bridge.

The estimated cost listed in this capital plan for addressing this issue is based on the installation of a directionally drilled 8-inch diameter water main under Shinnecock Bay. This potential solution has an advantage over the existing underwater main because there is less potential for the main to be broken with this type of installation.

While the Dune Road water main and interconnection with SCWA theoretically would provide redundancy, it is not desirable because the interconnection valve would be normally closed, resulting in stagnant water in the main. The total length of this main would be approximately two miles, with no water users along the alignment. The combination of stagnant water and the high cost for this solution, make it less desirable than the other proposed solutions.

While any of these potential solutions would work, the District's preferred solution for the supply of water to the barrier island should be more fully evaluated during the design process and have a fully developed cost estimate before it is bonded.

### 4.5.4 SCWA Interconnection Enhancements

As discussed in Sections 4.5.1 and 4.5.2 above, interconnections with SCWA at Dune Road and on the east side of the District service area will not provide solutions to the low pressure or redundancy issues in these areas. Additionally, due to the potential for stagnant water conditions and relatively lower pressures, these interconnections would not benefit the District. Interconnection enhancements with SCWA are not recommended at this time.

## 4.6 Water Storage Tank Improvements

As summarized in Section 3.4 above, the Hampton Bays Water District (HBWD) maintains three (3) elevated water storage tanks. These tanks are summarized in **Table 4-2** below:

**Table 4-2**
**STORAGE TANKS AND CAPACITIES**

| Location | Capacity (mg) | Type |
|---|---|---|
| Ponquogue Ave | 0.25 | Elevated |
| Old Riverhead Rd | 0.25 | Elevated |
| Bellows Pond Rd | 1.0 | Elevated |

Potable water storage tanks are an integral part of any public water supply system. Elevated water storage tanks serve to provide added emergency water supply capacity and pressure. This added supply and pressure ensures that customers have sufficient water to meet their daily needs as well as storage for firefighting purposes.

The Suffolk County Department of Health Services requires that all Suffolk County Water Suppliers regularly inspect their water storage facilities and evaluate them with respect to American Water Works Association (AWWA), Occupational Safety and Health Administration (OSHA), and Recommended Standards for Water Works (RSWW) guidelines. The District's tanks were last inspected in June 2018 by H2M architects + engineers. The reports produced from these inspections were reviewed and used to develop recommendations for this capital plan and are included in **Appendix B.**

### 4.6.1 Ponquogue Avenue – 0.25 Million Gallon Elevated Storage Tank (Tower 1)

The 0.25 million gallon tank on Ponquogue Avenue was constructed in 1967. It is a multi-legged style, welded steel tank. The structure was last painted in 2002. The findings of the most recent inspection indicate that both the exterior and interior coatings are in good condition. The tank was not drained for this inspection, but the visible portions of the tank interior appeared to be in good condition with some rust staining and no metal loss readily visible. There is significant sediment accumulation along the base of the tank interior. The tank access hatch is equipped with a padlock. The tank is retrofitted with a significant amount of telecommunication equipment. All ladders appear to be equipped with safety climb devices.

Typically, coating systems on welded steel tanks have a lifespan of 15 to 20 years. Since the tank was last rehabilitated in 2002, the coating system is approaching the end of its useful life. Although no significant failures are visible, there appears to be generalized corrosion present across all of the tank surfaces. The age of the coating system suggests that a full exterior and interior rehabilitation will be required in about 3 years.

It is recommended that the tank be drained and cleaned of sediment so that a full inspection of the tank interior can be performed within the next 2 years. This inspection can be used as the basis for the development of an appropriate scope of work for a rehabilitation project. It is unlikely that the structure will require replacement, as it is only 52 years old. Properly maintained welded steel structures can last 90 – 100 years.

### 4.6.2 Old Riverhead Road – 0.25 Million Gallon Elevated Storage Tank (Tower 2)

The 0.25 million gallon tank on Old Riverhead Road was constructed in 1985. It is a multi-legged style, welded steel tank. The structure was last painted in 2003. Based on the inspection report and photos contained therein, the exterior and interior coatings appear to be in good condition with no evidence of significant corrosion or metal loss. There is significant rust staining beneath the water line and visible sediment accumulation at the base of the tank. The underside of the exterior of the tank bowl is experiencing mildew accumulation and some corrosion.

Attachment points appear to be corroding as well. The tank access hatch is equipped with a padlock. The tank is fitted with a significant amount of telecommunication equipment. All ladders appear to be equipped with safety climb devices.

A properly applied coating system can generally remain effective for 15 to 20 years. According to all available information, the coating system on this tank is approximately 16 years old and is therefore approaching the end of its useful life. This conclusion is supported by the tank inspection reports. In addition, some of the tank components appear to be non-compliant with relevant standards (e.g. the vent is not accessible for examination.)

It is recommended that the tank be drained and cleaned of sediment so that a full inspection of the tank interior can be performed within the next 3 years. This inspection can be used as the basis for the development of an appropriate scope of work for a rehabilitation project. It is unlikely that the structure will require replacement, as it is only about 34 years old. Properly maintained welded steel structures can last 90 – 100 years.

#### 4.6.3 Bellows Pond Road – 1.0 Million Gallon Elevated Storage Tank (Tower 3)

The 1.0 million gallon tank on Bellows Pond Road was constructed in 2005 and has not yet been rehabilitated. It is a multi-legged style, welded steel tank. Based on the most recent inspection report, the tank exterior coatings are in fair condition and the interior coating is in poor condition. The coating system is 14 years old and appears to be prematurely approaching the end of its useful life. The reason for this premature failure is not known at this time.

Edges and attachment points on the tank exterior, including the vent collar, are experiencing coating failure and delamination. Substrate and intermediate coat are visible in several areas across the tank exterior. There is mildew accumulation and some rust staining on the underside of the exterior of the tank bowl. The tank interior coating is in poor condition and is losing adherence to the substrate. Metal is visible throughout the tank interior. There are several instances of noncompliance with relevant guidelines. For example, the cable-type safety climb device is in poor condition and the overflow discharge is not equipped with an insect screen.

The rehabilitation of this tank should be prioritized when considering tank rehabilitation projects. There are several areas of significant localized corrosion on both the tank interior and exterior. Though no metal loss was evident based on reviewing the available inspection report, the tower may be experiencing metal loss. Moreover, many areas of visible substrate accelerate the rate of corrosion throughout the tank. The design and implementation of a rehabilitation project for this tank should begin within the next 2 years.

It is recommended that the tank be drained and cleaned of sediment so that a full inspection of the tank interior and exterior can be performed within the next year. This inspection can be used as the basis for the development of an appropriate scope of work for a rehabilitation project.

## 5.0 EVALUATION OF EXISTING FACILITY CONDITIONS

Site visits for each Hampton Bays Water District (HBWD) properties were conducted to assess the condition of the sites, the building facilities, the mechanical equipment, the electrical equipment, and treatment equipment.

Assessments were made with respect to a variety of reference codes and standards, including the following:

- New York State Department of Health (NYSDOH)
- Suffolk County Department of Health Services (SCDHS)
- Natural Fire Prevention Association (NFPA) Codes and Standards for the Built Environment
- National Electric Code (NEC)
- American Water Works Association (AWWA)
- New York State Department of Environmental Conservation (NYSDEC)
- Society for Protective Coatings (SSPC)

These, as well as typical industry standards, were used to assess the HBWD buildings and equipment and determine their condition and useful lives. It should be noted that information regarding the age of some of the facilities is limited, therefore the majority of these evaluations are based on visual inspection only.

The following sections summarize the recommended Capital Improvement projects for each of the facilities. A detailed list of observations at each facility is included in Appendix C. It should be noted that some of the observed deficiencies are considered to be operation and maintain items and are therefore not included in the recommended Capital Improvement projects below.

## 5.1 Facility 1

Facility 1, located near Ponquogue Avenue, consists of Well Buildings 1-1, 1-2, and 1-3, one pair of unenclosed Granular Activated Carbon vessels, a chemical treatment building, and a 250,000 gallon elevated water storage tank. An inspection of the facility and component structures has led to the determination that the following capital improvements are required:

- Replacement and relocation of the portable generator connection receptacles to an exterior location at each well building. The receptacles are currently located inside each of the well houses and require the well building doors to be open to allow passage of the connection cable when a portable generator is being used. This represents a security risk as well as an unnecessary logistical challenge when attempting to return the well to service during a loss of power at the facility.

- Construction of a pre-engineered metal building to enclose the GAC units. The GAC units, used for the treatment of PFAS, are currently exposed to the elements. Due to the risk of freezing and ice damage, the vessels must be drained and the wells removed from service in the winter. This prevents the District from utilizing the capacity of the impacted wells during the winter, if needed. Additionally, GAC vessels exposed to the elements require more frequent maintenance than those enclosed within a building.

It should be noted that the chloride concentrations at all three wells at Facility 1 have been increasing in recent years. It is recommended that the pumpage from the impacted wells should be reduced to the extent possible in an effort to mitigate further increases in concentrations. Consideration should be given to using these wells only on a seasonal basis. Therefore, the construction of a building enclosure may not be required. This determination should be made after a full evaluation of the cause of the increasing chlorides has been completed.

## 5.2 Facility 2

Facility 2, located on Old Riverhead Road, consists of Well Buildings 2-1 and 2-2, a booster pump station, and a 250,000 gallon elevated water storage tank. A thorough inspection of the facility and all component structures has led to the determination that the following capital improvements are required:

- Replacement and relocation of the portable generator connection receptacles to an exterior location at each well building. The receptacles are currently located inside each of the well houses and require the well building doors to be open to allow passage of the connection cable when a portable generator is being used. This represents a security risk as well as an unnecessary logistical challenge when attempting to return the well to service during a loss of power at the facility.

- Replacement of the motor control centers (MCCs) at each well building. The existing MCCs are nearing the end of their useful life. The existing MCCs may be prone to failures and replacement parts may be difficult to obtain.

- Installation of a booster pump check valve. The absence of a check valve on the booster pumps may have a negative impact on the control of the pressures within the High Pressure Zone, extending from Sunrise Highway to Montauk Highway between Newtown Road and Squiretown Road in the area surrounding Facility 2, served by the booster pump station. In the event of a sudden loss of pressure being supplied to the High Pressure Zone by the booster pump station due to power loss or mechanical failure, a check valve would prevent backflow towards the booster pumps which could otherwise result in damage to the pumps.

- Installation of an emergency generator and automatic transfer switch for the High Pressure Zone booster pump station. The booster pump station is not currently equipped with an emergency generator. If the booster pump station were to lose power, the High Pressure Zone served by the station will experience low pressure conditions for the duration of the outage.

## 5.3 Facility 3

Facility 3, located on Bellows Pond Road, consists of Well Buildings 3-1, 3-2, and 3-3. An inspection of the facility and component structures has led to the determination that the following capital improvements are required:

- Installation of an emergency generator to serve the entire facility. Facility 3 is currently equipped with three portable generator receptacles, one located within each well house. The three wells at this site require no other treatment beyond the application of calcium hypochlorite, caustic soda, and phosphate and are thus good candidates to receive permanent emergency power. As the facility has no other treatment systems that are required to maintain operation the electrical load that would need to be provided by the emergency generator would be minimized while keeping 3 productive wells in service during a power loss.

- Construction of a dedicated chemical treatment building to treat all three wells in one location. Each of the three well buildings at this facility are currently equipped with

dedicated sodium hydroxide, calcium hypochlorite and phosphate storage and injection equipment. The small footprint of each of the well buildings results in unsafe working conditions within the well houses. The individually segregated tanks, pumps, and other apparatus at the three well buildings also reduces operator efficiency due to the need to repeat the same operation and maintenance procedures at each well building.

- Replacement of the motor control centers (MCCs) at each well building. The existing MCCs are nearing the end of their useful life. The existing MCCs may be prone to failures and replacement parts may be difficult to obtain.

## 5.4 Facility 4

Facility 4, located on Bellows Pond Road, consists of Well Building 4-1, Well 4-2 a pitless adapter submersible pump, and a 1,000,000 gallon elevated water storage tank. An inspection of the facility and component structures has led to the determination that the following capital improvements are required:

- Construction of an iron and manganese treatment plant. Facility 4 is currently impacted by high concentrations of iron and manganese which have spurred rusty water complaints. The use of phosphate for sequestration is not adequate for the high concentrations of iron detected in these wells. Therefore, iron filtration is required. These two wells are among the top producers of water in the District and are essential for the supply of water during the peak pumping season. The District has already retained a design consultant to prepare design documents for this treatment plant.

- Refurbishment of the chemical treatment equipment. The chemical treatment room housed in Well Building 4-1 houses the sodium hydroxide, calcium hypochlorite and phosphate storage and injection equipment for both Wells 4-1 and 4-2. The small footprint of the chemical room at this facility relative to the number of chemical tanks and pumps present, results in unsafe working conditions. Consideration should be given to combining this project with the iron and manganese treatment plan currently under design.

## 5.5 Facility 5

Facility 5, located on Jones Road, consists of Well Building 5. This facility was recently constructed in 2008 and therefore does not require any capital improvements in the foreseeable future.

## 5.6 Caustic Soda Storage Tanks

Since most of the caustic soda storage tanks are located below grade, they cannot be visually inspected. The tanks at Facility 4 and Facility 5 are aboveground and are therefore visible for inspection. The installation year for the tanks at each facility are summarized below.

| Tank Description | Year Installed |
|---|---|
| Facility 1 (3 underground fiberglass coated steel tanks) | 2005 |
| Facility 2 (2 underground fiberglass coated steel tanks) | 2005 |
| Facility 3 (3 underground fiberglass coated steel tanks) | 2005 |
| Facility 4 (1 aboveground painted steel tank) | 1997 |
| Facility 5 (1 aboveground painted steel tank) | 2010 |

With the exception of the tank at Facility 4, all of the tanks are less than 20 years old. Based on information provided by tank manufacturers, the typical life expectancy of a fiberglass coated underground steel tank is 30 years. The typical life expectancy of a painted steel aboveground steel tank is also 30 years.

The most recent Chemical Bulk Storage Compliance Audit at the District was conducted in April 2015. The report prepared for this audit indicates that all the caustic soda tanks had a useful life of "not less than ten (10) years." The next audit and 5-year inspection of these tanks must be performed in 2020. The useful life expectancy of each tank will be estimated again at the time of these inspections. Based on the information provided in the 2015 report, the tanks will most likely not require replacement within the next 5 years. Based on the information summarized above, it appears that the tanks will not likely need to be replaced within the next 10 years. This should be verified after the 2020 audit is completed. No caustic soda storage tank replacement projects are recommended at this time.

# 6.0 ENVIRONMENTAL REVIEW

## 6.1 Review of District Water Quality

The raw water quality of the District's wells from 2015 to the present were analyzed for detected Inorganic Compounds (IOCs), Principal Organic Compounds (POCs), Specific Organic Compounds (SOCs), and emerging contaminants, including 1,4-Dioxane and Perfluorinated compounds (PFAS). The full tabulation of the analyses for each well can be found in Appendix D. Below follows a summary of the contaminants found to be in excess of or approaching the limits set by the state and local health departments.

### 6.1.1 Facility 1

- Well 1-1 has exhibited concentrations of the emerging contaminant perfluorooctanesulfonic acid (PFOS) in exceedance of the proposed New York State Maximum Contaminant Level of 0.01 µg/l (10 ppt). There is currently granular activated carbon (GAC) treatment in place at this facility to remove the PFOS, which is effectively removing this contaminant to non-detectable concentrations.

- Well 1-1 has recently exhibited chloride concentrations approaching ½ of the MCL of 250 mg/l. The cause of the recent increase in concentrations could be related to saltwater intrusion as a result of localized over pumping of the well. However, it is also possible that other sources could impact chloride concentrations, such as road salting operations. The cause of the increased chlorides should be evaluated further and the pumpage from impacted well(s) should be reduced to the extent possible in an effort to mitigate further increases in concentration.

- Well 1-2 has exhibited concentrations of the emerging contaminants PFOS and perfluorooctanoic acid (PFOA) in exceedance of the proposed New York State Maximum Contaminant Level of 0.01 µg/l (10 ppt). The GAC treatment is effectively removing the PFOS and PFOA to non-detectable concentrations.

- Well 1-2 has exhibited concentrations of manganese and iron exceeding the secondary MCL, which while not posing a threat to human health, may have undesirable aesthetic impacts such as discoloration of the water and have the potential to foul the GAC units present. Manganese and iron are naturally occurring in Long Island's groundwater. This well is treated with phosphate to sequester iron and manganese to address the undesirable aesthetic concerns and sequestration appears to be effective as there have been no rusty water complaints in the vicinity of this facility, however, the differential pressure in the GAC units should be monitored to determine if fouling is occurring. If

the iron and manganese start to foul the GACs or the concentrations continue to increase, filtration should be considered.

- Well 1-2 has recently exhibited chloride concentrations approaching ½ of the MCL of 250 mg/l. The cause of the recent increase in concentrations could be related to saltwater intrusion as a result of localized over pumping of the well. However, it is also possible that other sources could impact chloride concentrations, such as road salting operations. The cause of the increased chlorides should be evaluated further and the pumpage from impacted well(s) should be reduced to the extent possible in an effort to mitigate further increases in concentration.

- Well 1-2 has exhibited concentrations of Nitrate approaching the MCL. Nitrate may be reduced by blending of water from two or more wells before discharge to the distribution system. Nitrate is the only compound for which blending of a high concentration well with a low concentration well is considered an acceptable treatment method. Currently the three wells at this facility are blended before discharge to system and the Nitrate concentrations are monitored at the well head and post GAC treatment/blending. The Nitrate concentrations post GAC and before discharge to the distribution system should be closely monitored as Nitrate has the potential to absorb onto the carbon and later discharge as a slug of high nitrate water. Additionally, if the Nitrate concentrations in the raw water exceed the MCL, we recommend that Well 1-2 be interlocked with another well at the site to lower the concentrations. An interlock works by only allowing the high concentration well to run while the low concentration well is running and prevent operation without both wells running. This will result in the blending of the water from both wells which will lower the nitrate concentration present in the treated water.

- Well 1-3 has exhibited concentrations of the emerging contaminant PFOS in exceedance of the proposed New York State Maximum Contaminant Level of 0.01 µg/l (10 ppt). The existing GAC treatment is effectively removing PFOS to non-detectable concentrations.

- Well 1-3 has recently exhibited chloride concentrations approaching ½ of the MCL of 250 mg/l. The cause of the recent increase in concentrations could be related to saltwater intrusion as a result of localized over pumping of the well. However, it is also possible that other sources could impact chloride concentrations, such as road salting operations. The cause of the increased chlorides should be evaluated further and the pumpage from impacted well(s) should be reduced to the extent possible in an effort to mitigate further increases in concentration.

### 6.1.2 Facility 2

- Well 2-2 has recently exhibited chloride concentrations approaching ½ of the MCL of 250 mg/l. The cause of the recent increase in concentrations could be related to saltwater intrusion as a result of localized over pumping of the well. However, it is

also possible that other sources could impact chloride concentrations, such as road salting operations. The cause of the increased chlorides should be evaluated further and the pumpage from impacted well(s) should be reduced to the extent possible in an effort to mitigate further increases in concentration.

- The two wells (Well 2-1 and Well 2-2) have also detected low or trace levels of the following contaminants: Chloroform, Chlorate, Nitrate, Iron, Manganese, Lead, Barium, Bromide, Hexavalent Chromium and 1,4-Dioxane. None of these are at or approaching the MCL. These contaminants should continue to be monitored and reevaluated if they approach the MCL.

### 6.1.3 Facility 3

- Well 3-1 has detected low or trace levels of the following contaminants: Chloroform, Bromoform, Nitrate, Barium, and Hexavalent Chromium. None of these are at or approaching the MCL. These contaminants should continue to be monitored and reevaluated if they approach the MCL.

- Well 3-2 has exhibited concentrations of the emerging contaminant perfluorononanoic acid (PFNA), an unregulated perfluorinated compound. There is currently no treatment for perfluorinated compounds present at this site. It is recommended to continue to monitor the concentrations of PFNA, PFOA and PFOS on a monthly basis.

- Well 3-2 has exhibited concentrations of iron approaching the secondary MCL which while not posing a threat to human health indicates a contaminant may have undesirable effects such as discoloration on the water. Iron is naturally occurring in Long Island's groundwater. This well is treated with phosphate to sequester iron and manganese to address the undesirable aesthetic concerns and sequestration appears to be effective as there have been no rusty water complaints in the vicinity of this facility. If the iron concentrations continue to increase, filtration should be considered.

- Well 3-3 has exhibited concentrations of the emerging contaminant perfluorononanoic acid (PFNA), an unregulated perfluorinated compound. There is currently no treatment for perfluorinated compounds present at this site. It is recommended to continue to monitor the concentrations of PFNA, PFOA and PFOS on a monthly basis.

### 6.1.4 Facility 4

- Well 4-1 has exhibited concentrations of iron exceeding the secondary MCL which while not posing a threat to human health indicates a contaminant may have undesirable effects such as discoloration on the water. Iron is naturally occurring in Long Island's groundwater. This well is treated with phosphate to sequester iron and manganese to address the undesirable aesthetic concerns. However, the concentrations of iron in

Well 4-1 are high enough to result in rusty water complaints despite sequestration. It is recommended to install iron filtration at this facility.

- Well 4-2 has exhibited concentrations of iron exceeding the secondary MCL which while not posing a threat to human health indicates a contaminant may have undesirable effects such as discoloration on the water. Iron is naturally occurring in Long Island's groundwater. This well is treated with phosphate to sequester iron and manganese to address the undesirable aesthetic concerns. However, the concentrations of iron in Well 4-1 are high enough to result in rusty water complaints despite sequestration. It is recommended to install iron filtration at this facility.

#### 6.1.5 Facility 5

- Well 5-1 has detected low or trace levels of the following contaminants: Chloroform, Toluene, Nitrate, Iron, Manganese, Barium, Pentachlorophenol, 1,4-Dioxane, and Hexavalent Chromium. None of these are at or approaching the MCL. These contaminants should continue to be monitored and reevaluated if they approach the MCL.

## 6.2 Contamination Radius Search

A search of known spill locations was performed within a radius of 2 miles around each well facility. In this radius search we were looking for Principal Organic Compounds (POCs) like industrial solvents and Specific Organic Compounds (SOCs) like pesticides. We were not looking for naturally occurring contaminants such as iron and manganese nor other Inorganic Compounds like nitrate which are present due to agricultural use of the land and human or animal waste. While a number of drycleaners, a likely source of POCs, do exist within the District, they have not been found to be affecting any of the wells. Due to the existence of these spill locations the District should continue to monitor POCs in their wells and if concentrations are detected and rise treatment should be considered. The detailed results of this search are shown in Appendix E with further detail contained within the full Environmental Data Resources (EDR) report on a CD in Appendix F. Following is a summary of spill locations which may be of concern for each facility.

### 6.2.1 Facility 1

NYSDEC State Superfund Site (Site No. 152249), located at the Hampton Bays Fire Department at 69 West Montauk Highway in Hampton Bays, is approximately 630 feet north of and upgradient of the Facility 1 wells. High concentrations up to 2,400 ppt of perfluorooctanesulfonic acid (PFOS) and 250 ppt of perfluorooctanoic acid (PFOA) have been detected in onsite groundwater. The NYSDEC is currently determining the next steps of their investigation and cleanup of the site.

As discussed in Section 6.1.1 above, PFOS and PFOA have been detected in the Facility 1 wells with some results greater than the allowable MCL of 10 ppt. The existing GAC filters at the site are effectively removing these compounds to non-detectable concentrations.

### 6.2.2 Facility 2

No potential sources of contamination were identified within a 2-mile radius of Facility 2. No POC or SOC contaminants of concern were detected at either of the two wells located at this facility at levels approaching the MCL.

### 6.2.3 Facility 3

No potential sources of contamination were identified within a 2-mile radius of Facility 3.

As discussed in Section 6.1.3 above, the unregulated compound perfluorononanoic acid (PFNA) was detected in two of the three wells at Facility 3.

### 6.2.4 Facility 4

No potential sources of contamination were identified within a 2-mile radius of Facility 4. No POC or SOC contaminants of concern were detected at either of the two wells located at this facility at levels approaching the MCL.

### 6.2.5 Facility 5

No potential sources of contamination were identified within a 2-mile radius of Facility 5. No POC or SOC contaminants of concern were detected at either of the two wells located at this facility at levels approaching the MCL.

## 7.0 RECOMMENDED CAPITAL IMPROVEMENT PROJECTS AND ESTIMATED COSTS

Following is a summary of the capital improvement projects recommended within the next 10 years. Each capital project is listed with a proposed year as well as a projected cost for construction in that year. **Table 7-1** summarizes the projects and estimated costs. Further information about the cost and scheduling of the projects can be found in the cost estimate spreadsheet in the **Appendix G.**

### 7.1 Facility 1

The following capital improvement projects are recommended at Facility 1:

- Replacement and relocation of the portable generator connection receptacles to an exterior location at each well building. (2026, $105,000)
- Construction of a pre-engineered metal building to enclose the GAC units. (2020-2021, $804,000)

### 7.2 Facility 2

The following capital improvement projects are recommended at Facility 2:

- Replacement and relocation of the portable generator connection receptacles to an exterior location at each well building. (2026, $66,000)
- Replacement of the motor control centers (MCCs) at all of the well buildings. (2025, $482,000)
- Installation of a booster pump check valve. (2024, $78,000)
- Installation of a generator to serve the booster pump station. (2024, $539,000)

# TABLE 7-1

## Hampton Bays Water District 10 Year Capital Plan - Capital Improvement Cost Estimates

| | | First 5 Years | | | | | Second 5 Years | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 2019 Estimated Cost | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 | 2029 | Escalated Totals |
| **Facility 1** | **$835,000** | **$394,000** | **$410,000** | **$0** | **$0** | **$0** | **$0** | **$105,000** | **$0** | **$0** | **$0** | **$909,000** |
| Replace Portable Generator Quick Connects Outside (All Wells) | $78,000 | $0 | $0 | $0 | $0 | $0 | $0 | $105,000 | $0 | $0 | $0 | $105,000 |
| Enclose GAC with Pre-Engineered Metal Building | $757,000 | $394,000 | $410,000 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $804,000 |
| | | | | | | | | | | | | |
| **Facility 2** | **$939,000** | **$0** | **$0** | **$0** | **$0** | **$617,000** | **$548,000** | **$0** | **$0** | **$0** | **$0** | **$1,165,000** |
| Replace Portable Generator Quick Connects Outside (All Wells) | $52,000 | $0 | $0 | $0 | $0 | $0 | $66,000 | $0 | $0 | $0 | $0 | $66,000 |
| Replace MCCs (All Wells) | $380,000 | $0 | $0 | $0 | $0 | $0 | $482,000 | $0 | $0 | $0 | $0 | $482,000 |
| Booster Pump Check Valve Installation | $64,000 | $0 | $0 | $0 | $0 | $78,000 | $0 | $0 | $0 | $0 | $0 | $78,000 |
| Booster Pump Generator Installation | $443,000 | $0 | $0 | $0 | $0 | $539,000 | $0 | $0 | $0 | $0 | $0 | $539,000 |
| | | | | | | | | | | | | |
| **Facility 3** | **$2,468,000** | **$0** | **$0** | **$1,390,000** | **$1,447,000** | **$0** | **$0** | **$0** | **$0** | **$0** | **$0** | **$2,837,000** |
| Facility 3 Generator Installation | $633,000 | $0 | $0 | $357,000 | $371,000 | $0 | $0 | $0 | $0 | $0 | $0 | $728,000 |
| Facility 3 Chemical Building Construction | $1,265,000 | $0 | $0 | $712,000 | $740,000 | $0 | $0 | $0 | $0 | $0 | $0 | $1,452,000 |
| Replace MCCs (All Wells) | $570,000 | $0 | $0 | $321,000 | $336,000 | $0 | $0 | $0 | $0 | $0 | $0 | $657,000 |
| | | | | | | | | | | | | |
| **Facility 4** | **$4,365,000** | **$1,362,000** | **$3,306,000** | **$0** | **$0** | **$0** | **$0** | **$0** | **$0** | **$0** | **$0** | **$4,668,000** |
| Facility 4 Iron & Manganese Treatment | $4,048,000 | $1,263,000 | $3,065,000 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $4,328,000 |
| Facility 4 Chemical Room Refurbishment | $317,000 | $99,000 | $241,000 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $340,000 |
| | | | | | | | | | | | | |
| **New Wells** | **$2,956,000** | **$0** | **$0** | **$0** | **$0** | **$0** | **$3,741,000** | **$0** | **$0** | **$0** | **$0** | **$3,741,000** |
| New Well at Location To Be Determined | $2,956,000 | $0 | $0 | $0 | $0 | $0 | $3,741,000 | $0 | $0 | $0 | $0 | $3,741,000 |
| | | | | | | | | | | | | |
| **Security Improvements** | **$95,000** | **$0** | **$0** | **$0** | **$0** | **$116,000** | **$0** | **$0** | **$0** | **$0** | **$0** | **$116,000** |
| New Access Control System with Entry Keycards | $95,000 | $0 | $0 | $0 | $0 | $116,000 | $0 | $0 | $0 | $0 | $0 | $116,000 |
| | | | | | | | | | | | | |
| **Distribution System Improvements** | **$6,697,600** | **$0** | **$2,880,000** | **$1,785,000** | **$2,866,000** | **$0** | **$0** | **$0** | **$0** | **$0** | **$0** | **$7,531,000** |
| Shinnecock Bay Crossing Enhancement | $3,173,000 | $0 | $1,716,000 | $1,785,000 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $3,501,000 |
| Install New Water Main Across the Shinnecock Canal | $1,076,000 | $0 | $1,164,000 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $1,164,000 |
| Replace Water Mains On Rampasture Road Peninsula | $2,448,600 | $0 | $0 | $0 | $2,866,000 | $0 | $0 | $0 | $0 | $0 | $0 | $2,866,000 |
| | | | | | | | | | | | | |
| **Tank Improvements** | **$9,160,000** | **$408,000** | **$3,812,000** | **$0** | **$3,068,000** | **$0** | **$0** | **$0** | **$0** | **$0** | **$3,882,000** | **$11,170,000** |
| Rehabilitate Tank #1 Ponquogue Avenue | $2,622,000 | $0 | $0 | $0 | $3,068,000 | $0 | $0 | $0 | $0 | $0 | $0 | $3,068,000 |
| Rehabilitate Tank #2 Old Riverhead Road | $2,622,000 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $3,882,000 | $3,882,000 |
| Rehabilitate Tank #3 Bellow Pond Road | $3,916,000 | $408,000 | $3,812,000 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $4,220,000 |
| | | | | | | | | | | | | |
| **Meter Replacement** | **$1,581,000** | **$237,000** | **$246,000** | **$256,000** | **$266,000** | **$277,000** | **$288,000** | **$300,000** | **$312,000** | **$0** | **$0** | **$2,182,000** |
| Meter Replacement Program | $1,581,000 | $237,000 | $246,000 | $256,000 | $266,000 | $277,000 | $288,000 | $300,000 | $312,000 | $0 | $0 | $2,182,000 |
| | | | | | | | | | | | | |
| **District Totals** | **$29,096,600** | **$2,401,000** | **$10,654,000** | **$3,431,000** | **$7,647,000** | **$1,010,000** | **$4,577,000** | **$405,000** | **$312,000** | **$0** | **$3,882,000** | **$34,319,000** |

**Escalated Total of First 5 Years: $25,143,000**

**Escalated Total of Second 5 Years: $9,176,000**

## 7.3 Facility 3

The following capital improvement projects are recommended at Facility 3:

- Installation of a generator to serve the entire facility. (2022-2023, $728,000)
- Construction of a dedicated chemical treatment building to treat all three wells in the facility. (2022-2023, $1,452,000)
- Replacement of the motor control centers (MCCs) at all of the well buildings. (2022-2023, $657,000)

## 7.4 Facility 4

The following capital improvement projects are recommended at Facility 4:

- Construction of an iron and manganese treatment plant. (2020-2021, $4,328,000)
- Refurbishment of the chemical treatment at Facility 4. (2020-2021, $340,000)

## 7.5 New Well

A new well with a capacity of at least 1,000 gpm is recommended within the next 10 years. The well should be located at one of the District's existing facilities. The best site should be evaluated at the time of design. (2025, $3,741,000)

## 7.6 Security Improvements

Upgrading site security to include an entry keycard system for each building is recommended. (2024, $116,000)

## 7.7 Distribution System Improvements

The following capital improvements are recommended for the distribution system:

- Installation of a new water main crossing the Shinnecock Canal. (2021, $1,164,000)
- Installation of a new directionally drilled water main crossing the Shinnecock Bay by the Ponquogue Bridge. (2021-2022, $3,501,000)
- Replacement of water mains on Rampasture Road Peninsula (2023, $2,866,000)

## 7.8 Tank Improvements

The following capital improvements are recommended for the elevated water storage tanks:

- Rehabilitation of Tank #1 on Ponquogue Avenue. (2023, $3,068,000)
- Rehabilitation of Tank #2 on Old Riverhead Road. (2029, $3,882,000)
- Rehabilitation of Tank #3 on Bellows Pond Road. (2020-2021, $4,220,000)

## 8.0 OPERATIONS EVALUATION

In addition to the capital improvements, which are the primary focus of this report, the Town of Southampton requested that an operations evaluation be included as a supplement to this report. Specifically, the following operations evaluation elements have been included:

- Best management practices and Operator responsibilities
- Operations Staffing Requirements
- Operator Safety
- Phosphate Injection Practices
- pH Adjustment and Corrosion Control
- Evaluation of Caustic Soda vs Lime Slurry for Corrosion Control
- Operations & Maintenance Costs and Budgeting

## 8.1 Best Management Practices and Operator Responsibilities

Following is a summary of the typical daily, weekly and monthly activities required of the Operation Staff:

### 8.1.1 General Responsibilities

- Operators should be familiar with all the facilities and know the capacity of each well.
- Operators should be familiar with any treatment.
- Operators should be familiar with the Emergency Response Plan (ERP) and follow the appropriate procedures in the event of an emergency.
- Operators should be familiar with the Spill Prevention Report (SPR) and conduct tank inspections accordingly.
- Operators shall adhere to the chain of command.

- Operators should be familiar with the telemetry/SCADA equipment. Only authorized personnel shall make changes.
- Reports and record logs shall be legible at all times.

### 8.1.2 Daily Operations Activities

- Each well station shall be inspected at least once in the morning and once in the afternoon.
- Record pumpage, run times, chlorine residual and pH
- Sweep or mop floors as needed.
- Check and restock paper goods as needed.
- Check chemical feed pumps/ feed rooms.
- Check the overall condition of the facilities and report anything that needs to be done to a Supervisor.
- Inspect stationary engines and or generators for oil leaks. Wipe down any excess oil.
- Change oil absorbing pads under engines as needed.
- Check chemical tanks for leaks.

### 8.1.3 Weekly Operations Activities

- Chemical Treatment:
  - Take manual chlorine and pH readings and compare with analyzers.
  - Adjust metering pumps as necessary. Record if adjustments were made.
  - Record chlorine tablet level and add tablets if necessary.
  - Inspect chemical injection equipment and related piping for leaks. Repair as needed.
  - Measure caustic tank levels
  - Measure phosphate tank levels and refill if necessary.

- Well pumps, electric motors, drives and engines:
  - Check and grease as required, pumps, shafts, power take offs (PTOs), packing etc.
  - Check engine oil level and add oil as needed.
  - Check engine coolant level and add coolant as needed.
- Building and Grounds:
  - Inspect locks, doors, hatches, windows fencing, lighting and storage tanks. Report repairs needed.
  - Verify all building alarms and surveillance cameras are functioning.

#### 8.1.4 Monthly Operations Activities

- Test run all generators and stationary motors.
- Inspect and test all chemical safety controls.

## 8.2 Operations Staffing Requirements

There are no specific requirements for Operations staffing dictated by the New York State Department of Health (NYSDOH) or Suffolk County Department of Health Services (SCDHS). When developing specific staffing needs for a water system, the following factors should be considered:

- Number of wells
- Number of storage tanks and booster stations
- Types of treatment
- Number of service connections/customers
- Number of hydrants
- Annual pumpage
- Annual budget

Considering the above for Hampton Bays Water District (HBWD), the following staffing in **Table 8-1** is recommended as a minimum:

**Table 8-1**
**RECOMMENDED MINIMUM STAFFING**

| Position Description | Required License | Number Recommended |
|---|---|---|
| Superintendent | IB | 1 |
| Assistant Superintendent/Operations Supervisor | IB | 1 |
| Water Plant Operators | IIB | 3 |
| Water Servicers | D | 4 |

The Superintendent is the "Responsible Person in Charge." The Assistant Superintendent/ Operations Supervisor fills in during the Superintendent's absence or if the Superintendent cannot be available to respond within one hour.

The Water Plant Operators are responsible for the day to day operation of the plants and have the ability to make necessary adjustments and perform basic maintenance to metering pumps, booster pumps, telemetry/SCADA. Water Plant Operators maintain operations and maintenance records and collect water quality samples under the direction of either the Superintendent or Assistant Superintendent/Operations Supervisor.

The Water Servicers are responsible to provide maintenance on hydrants, water mains, water service connections and facilities. Additionally, they can perform visual inspection of storage tanks and meter reading.

A list of the current District staffing including titles and licenses has been requested to compare with the recommended staffing but has not yet been received.

## 8.3 Operator Safety and Training

Operator safety and training is an ongoing process. At a minimum, all Water District personnel should receive the training indicated below. Training is offered by the Long Island

Water Conference (LIWC) and the New York Section of the American Water Works Association (AWWA).

- All employees regardless of title or grade must receive annual Public Employee Safety and Health (PESH) and Occupational Safety and Health Administration (OSHA) training including Confined Space training.
- Any employee who is required to operate any equipment must receive proper training on each piece of equipment that he/she may operate.
- All employees must be trained on the safe handling of chemicals including but not limited to caustic soda, sodium hypochlorite and phosphate.
- All licensed operators must receive the required training hours for their grade in order to maintain their respective licenses.
- Operators must be trained in the proper maintenance and calibration of all chemical metering pumps.
- Operators must be trained in the proper maintenance and calibration of water quality analyzers (pH and chlorine residual) to ensure the safe operation of the plant and to avoid chemical over or under feed issues. Analyzers used to monitor contaminants (nitrates) must also be properly maintained and calibrated to avoid an MCL violation.
- Operators must be trained in the proper electrical lockout tag procedures when pumps, motors and relays are being serviced.
- Operators should familiarize themselves with the Emergency Response Plan (ERP) and Spill Prevention Report (SPR) to ensure that the proper procedures are undertaken during all emergency situations and in the event of a chemical or petroleum spill.

All training and refresher courses must be documented in writing and kept on file.

## 8.4 Phosphate Injection Practices

Iron and/or manganese are present at some level in each of the District's wells. Four of these wells have concentrations of iron or manganese above the secondary standard for drinking water. Neither iron nor manganese in the drinking water are hazardous to human health. However, when they oxidize they may cause discoloration of the water and come out of solution staining

laundry and plumbing fixtures. While this is primarily an aesthetic concern, most water suppliers take steps to mitigate this issue and reduce customer complaints about discolored water.

Where there are particularly high concentrations of iron and/or manganese in the water it is typically recommended to physically remove the iron and manganese through filtration. With lower concentrations chemical sequestration is a lower cost alternative. Sequestration does not remove the iron or manganese from the water but binds it to prevent it from oxidizing and dropping out of solution. Non-oxidized iron and manganese in solution have no color and therefore will not cause staining or discolored water.

The HBWD currently practices chemical sequestration of iron and manganese at all of their wells. This sequestration is facilitated by the injection of a chemical called CalciQuest® liquid phosphate solution (phosphate) into the water. Phosphate is a chemical compound utilized for the sequestration of iron and manganese in the water supply. This works by binding the phosphate molecule to the iron or manganese which prevents oxidation of the iron and/or manganese and keeps it suspended in solution. Liquid phosphate is stored at each of the facilities and is injected using chemical metering pumps to control the dosage. As each well's iron and manganese concentrations vary, the required dosage of phosphate will vary at each well.

The correct dosage of phosphate to fully sequester the iron and/or manganese without introducing excess phosphate to the system should be determined to maintain efficiency and reduce consumable use. Most phosphate manufacturers publish dosing guidelines which provide a good starting point for determining correct dosage. The amount of phosphate required, however, will vary with the concentrations of iron and/or manganese in the source water. Higher iron and manganese concentrations will require a higher phosphate dosage and vice versa. The appropriate dosage at each well must be determined through a pilot study, which measures the effectiveness of sequestration at various dosages and empirically calculates the optimal dosages. It is likely that such a study was performed at some time in the past when phosphate injection was first implemented. However, a copy of the study was not available at the time of this report. It is therefore recommended that a new pilot study be performed to determine the correct dosages at each well.

It should be noted that the District is currently working on the design and construction of an iron filtration system at Facility 4. Therefore, the practice of phosphate injection could potentially be discontinued at this facility. This determination should be made by the design engineer for the filtration system.

## 8.5 pH Adjustment and Corrosion Control

Corrosion control at all the existing well facilities is currently achieved through the injection of sodium hydroxide (caustic soda) into the raw water from each well prior to discharge into the distribution system. This practice increases the pH of the raw water to a value of approximately 8.0. Increasing the pH reduces the corrosivity of the water and thereby decreases the potential for metal piping materials in the distribution system, water services and household plumbing to dissolve into the water before it is drawn from its ultimate point of use. The decision to use caustic soda for corrosion control was likely made in the early 1990's in response to new regulatory requirements at that time. A copy of the evaluation that was prepared at that time was not available at the time of our study. The corrosion control approach currently in practice meets the requirements the Sanitary Code.

Of particular concern to water suppliers and the New York State Department of Health (NYSDOH) is the potential corrosion of copper and/or lead water piping and plumbing fixtures. In accordance with the Sanitary Code, HBWD collects samples from 20 locations throughout the distribution system every 3 years. The sample locations are from pre-selected points of use such as household or commercial faucets. These samples are analyzed for the presence of lead and copper and a report generated to determine the effectiveness of the corrosion control system. The District recently collected these samples and the results of the testing are pending for 2019. Based on a review of the last study conducted in 2016, the District is in compliance with the requirements of the Sanitary Code in this regard. This is an indication that the current method of corrosion control has generally been effective.

## 8.6 Evaluation of Caustic Soda vs Lime Slurry for Corrosion Control

The scope of the 10-year Capital Plan study includes evaluating the alternative of using lime slurry for corrosion control in lieu of the current practice of using sodium hydroxide (caustic soda). Based on the discussions presented in Sections 5.9 and 8.5, there is no compelling reason to make a change to the current corrosion control method, because the existing caustic soda storage tanks do not need to be replaced and the existing corrosion control system appears to be effective. However, the following paragraphs will provide a review of the pros and cons of using lime slurry in lieu of caustic soda for corrosion control.

One of the primary differences between lime slurry and caustic soda is the method of the chemical delivery and on-site handling. Caustic soda is stored in steel tanks and delivered to the site with a bulk container truck. Lime is delivered in 50 lb bags of powered chemical. Typically, the bags are stacked on a pallet which are manually moved from the delivery truck into a storage area within the well house building. Once the bags of lime are stacked and stored within the facility, the Operators will periodically make a solution within a slurry tank inside the well house. Bags of lime are poured into the slurry tank and mixed with an appropriate volume of water to make a concentrated lime slurry mixture for injection into the raw water. The storage and mixture preparation process can create a significant amount of dust within the chemical room. Operators must wear protective clothing and respiratory gear during this process. The dust accumulates in the building interior and ventilation system. A dust collector system is typically provided to prevent the lime dust from exiting the building through the ventilation fan, however this system is often only marginally effective. Therefore, lime dust can sometimes be observed to accumulate outside of the chemical room. The accumulation of lime dust within the chemical room requires periodic cleaning. The cleaning process often results in clogging of floor drains and leaching pools on the site.

One of the primary advantages to lime slurry as compared to caustic soda is the fact that lime slurry adds alkalinity to the finished water, which in some cases can enhance the ability of the process to mitigate corrosion of piping in the distribution system, water services and plumbing fixtures. In the case of HBWD, the increased alkalinity does not appear to be required as the existing corrosion control method has been shown to be effective.

The storage of caustic soda in an underground tank requires a Chemical Bulk Storage (CBS) permit from the New York State Department of Environmental Conservation (NYSDEC). The permit requires that the tank, piping and valves be inspected and tested for tightness periodically, as discussed above. Some of these inspections can be performed by District Operations staff, but some require the District to retain the services of an outside company to assist. While this does introduce some expense to the facility operations, it is minimal.

Because of the lime dust issues discussed above, the implementation of lime slurry for corrosion control in the HBWD, would require the construction of either dedicated buildings or building extensions to store the lime bags and for the lime slurry tank and mixing area. The cost to implement lime slurry would be significant. Since the existing corrosion control system appears to be effective, the cost for implementation of lime slurry is significant and because of the associated inconveniences of handling lime, it is recommended that the District continue to utilize caustic soda for corrosion control.

## 8.7 Operations and Maintenance Costs and Budgeting

The capital improvement project cost estimates included in this report can be utilized by the District to calculate an anticipated debt service, which can be added to the operating budget to develop an appropriate rate increase. In addition to the debt service, some of the recommendations will add result in increased operations and maintenance costs. Specifically, the following capital improvement recommendations will increase the annual expenses of the District:

- Generator at Facility 2 – additional costs for fuel and periodic maintenance
- Generator at Facility 3 – additional costs for fuel and periodic maintenance
- New Well – additional costs for electricity and chemicals
- Security Improvements at all sites – additional cost for central monitoring agreement
- Iron and Manganese Removal at Facility 4 – additional cost for electricity, chemicals, and sludge management/solids disposal

The estimated annual operation and maintenance costs for each of the above items is summarized in **Table 8-2** below:

**Table 8-2**
**OPERATIONS AND MAINTENANCE COST ESTIMATE**

| O&M Item Description | Estimated Annual Cost |
|---|---|
| Generator at Facility 2 | $7,000 |
| Generator at Facility 3 | $7,000 |
| New Well | $300,000 |
| Security Improvements at all sites | $20,000 |
| Iron and Manganese Removal at Facility 4* | $30,000 |
| **Total Additional Annual O&M Cost** | **$364,000** |

*A major operational cost for iron and manganese removal is sludge management and solids disposal. This will vary greatly depending on treatment type, backwash volume, and settling and should be determined by the engineer designing the treatment facility.

# APPENDIX A

# WATER CONSERVATION PLAN

# WATER CONSERVATION PLAN

Hampton Bays Water District
Town of Southampton
Suffolk County, New York

H2M Project No.
HBWD 17-50

**APRIL 2017**

**Prepared for:**

Hampton Bays Water District
P.O. Box 1013
Hampton Bays, New York 11946

**Prepared by:**

H2M architects + engineers
538 Broad Hollow Road, 4th Floor East
Melville, New York 11747

H 2 M water

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## PREFACE

Water conservation is key to protecting Long Island's precious natural resource. Conservation allows for increased water availability in emergency situations such as droughts, and reduces the stress on infrastructure such as water supply wells and water mains. The Hampton Bays Water District is aware of the benefits associated with water conservation and consistently promotes initiatives to the best of its ability with the available resources. As discussed in this report, the Hampton Bays Water District is dedicated to promoting water conservation which should be taken into consideration during evaluation of this plan.

While the need to reduce irrigation demand is understood, it should also be noted that irrigation demands are also dependent on weather, such as the amount, frequency, and duration of rainfall. Although the implemented rate structures are designed to encourage water conservation, the cost of water is not recognized by customers as a strong incentive in reducing irrigation demands. Believing in the importance of preserving the health of Long Island's aquifers, the Hampton Bays Water District will do its best in continuing to educate and encourage its customers on water use reduction.

**HAMPTON BAYS WATER DISTRICT**
**SUFFOLK COUNTY, NEW YORK**

**WATER CONSERVATION PLAN**

**APRIL 2017**

# 1.0 PURPOSE AND INTRODUCTION

## 1.1 PURPOSE

This Water Conservation Plan has been developed for the Hampton Bays Water District (District) as required by the New York State Department of Environmental Conservation (NYSDEC). As per New York State Codes, Rules, and Regulations, Title 6 Chapter V, Part 601.10, the NYSDEC requires water suppliers to submit a Water Conservation Plan with an annual submission of the NYSDEC Water Conservation Annual Reporting Form. This plan will address all items in the NYSDEC's updated reporting form.

The District understands that practical water conservation measures and sustainable practices can be used for short and long term preservation of the groundwater resource and mitigate the need to construct additional infrastructure, such as new supply wells.

The "*Water Conservation Manual for Development of a Water Conservation Plan,*" and 2016 *"Water Conservation Annual Reporting Form"* as distributed by the NYSDEC Division of Water, were used as guides in preparing this conservation program. This guidance manual addresses many basic and vital elements for water conservation planning that include source water inventory, water usage and metering, water supply auditing, leak detection and repair, and water use reduction. These measures are consistent with NYSDEC water conservation policy objectives and will be evaluated and addressed in this Plan. Current District conservation measures and programs will also be reviewed and evaluated including emergency water conservation measures and procedures.

## 1.2 INTRODUCTION

The main office of the Hampton Bays Water District is located on Ponquogue Avenue in Hampton Bays, New York with four additional remote well fields spread across he District. The District encompasses approximately 11.4 square miles and serves an estimated population of 15,500 through 7,219 metered connections. Established in 1930, the District serves a portion of the community of Hampton Bays.

The contact information for the District is as follows:

**Hampton Bays Water District**

| | |
|---|---|
| Address: | P.O. Box 1013, Hampton Bays, NY 11946 |
| Phone Number: | (631) 728-0179 |

**Superintendent**

| | |
|---|---|
| Name: | Robert King |
| Phone Number: | (631) 728-0179 |
| Email Address: | rking@southamptontownny.gov |

**Assistant Superintendent**

| | |
|---|---|
| Name: | James Warner |
| Phone Number: | (631) 728-0179 |
| Email Address: | jwarner@southamptontownny.gov |

**Water Conservation**

| | |
|---|---|
| Name: | Robert King |
| Phone Number: | (631) 728-0179 |
| Email Address: | rking@southamptontownny.gov |

# 2.0 SOURCE WATER INVENTORY AND WATER USAGE

## 2.1 SOURCE WATER INVENTORY

The District obtains its water supply from ten (10) active wells located at five (5) District plant sites in the service area. The District also has one well which has been removed from service due to contamination. Summarized in Table 2-1, the eleven (11) wells have a combined NYSDEC approved pumping capacity 10.44 million gallons per day (MGD).

All wells are equipped with flow meters and flow recorders. Calcium hypochlorite for disinfection and caustic soda (sodium hydroxide) for pH adjustment is provided at each well. Polyphosphate is also used at all wells for iron sequestration and/or corrosion control.

As shown on Table 2-2, the District has three (3) interconnections with neighboring water suppliers. The hydraulic gradients for each interconnection are compatible. None of the interconnections are metered at this time. Since historically, water is not sold or regularly transferred between neighboring systems, metering the interconnections is not necessary. However the two interconnections on the east side of Hampton Bays will be upgraded in the near future and meters installed as they are expected to be utilized more frequently with the construction of new development.

## 2.2 WATER USAGE

Summarized below is the District's water consumption in 2016:

| **Hampton Bays Water District 2016 Pumpage (in thousands of gallons)** | | | |
|---|---|---|---|
| **Water Production** | | **Water Consumption** | |
| Total Metered Production | **1,192,240** | Total Metered Consumption | **1,108,900** |
| Average Day Production (Total/365) | **3,266** | Average Day Consumption | **3,038** |
| Peak Day Production (Largest Single Day) | **7,200** | Per capita usage per day (avg. day/population served - gpcd) | **196.0** |
| Peak Season Daily Average (May - Sept.) | **5,529** | Non-Peak Season Daily Average (Oct. - April) | **1,623** |

## 2.3 WATER USAGE BY TYPE

The breakdown of the District's consumer type and consumption quantity is as follows:

| Consumer Type | Quantity Consumed (in thousands of gallons) |
|---|---|
| Residential (6,665 services) | Not Recorded |
| Commercial (411 services) | Not Recorded |
| Municipal | Not Recorded |

## 2.4 WATER SUPPLY AUDIT

The District conducts an annual audit to calculate total non-revenue water. This data attribute is necessary in determining the effectiveness of conveying water to the consumer with minimal losses in the transmission and distribution system. Simply computed, non-revenue water is the difference between the total volume of water produced at the source discharge (wellhead) and the quantity of water consumed over the course of a single year. In essence, non-revenue for water is water that is not metered. Non-revenue water during 2016 for the Hampton Bays Water District was 83,340,000 gallons or 7.0% as shown below:

$$Percent\ of\ Water\ Loss\ in\ Year = \frac{\text{Total Volume Produced} - \text{Total Volume Consumed}}{\text{Total Volume of Water Metered}} \times 100$$

$$Percent\ of\ Water\ Loss\ in\ 2016 = \frac{1{,}192{,}240\ Gallons - 1{,}108{,}900\ \text{Gallons}}{1{,}192{,}240\ Gallons} \times 100 = 7\%$$

Non-metered water can be primarily attributed to leaks within the transmission and distribution system, unmetered hydrant use and under reporting meters. The American Water Works Association (AWWA) Leak Detection and Accountability Committee in 1996 recommended 10 percent as a benchmark for non-revenue water. Based on present data, non-revenue rates are within the acceptable limits for the District. However, recognizing the importance of water losses, the District understands that further reduction of non-revenue water is necessary.

## 2.5 CUSTOMER BILLING

The District bills it customers based on service size and consumption schedule for all residential and commercial accounts. The District reviews its rate structure annually and most recently raised rates in 2014. When the minimum allowable consumption is exceeded, an additional $1.185/100 cubic feet (cf) is charged.

| Size | Allowable Consumption (cubic feet) | Minimum Quarterly Fee |
|---|---|---|
| 5/8” | 500 | $11.80 |
| 1” | 1,000 | $23.60 |
| 1-1/2” | 1,500 | $35.40 |
| 2” | 2,000 | $47.25 |
| 3” | 4,500 | $106.30 |
| 4” | 5,500 | $127.80 |
| 6” | 7,000 | $165.40 |
| 8” | 12,000 | $189.00 |

# 3.0 INFRASTRUCTURE

The following sections of this plan will review the District's infrastructure programs and initiatives.

## 3.1 METERS

All water supply sources and service connections are currently 100% metered. The majority of the District's well flow meters (master meters) range in age from 10 to 50 years, however all plant meters have been calibrated at least once in the past ten years. The District replaces or recalibrates the measuring devices for one plant meter a year. The age range of the service meters are 0 to 15 years as the District completed a full scale meter replacement program in 2002.

As water meters age, they tend to run slow and provide lower than actual readings. An accurate meter reading, coupled with a block rate pricing program, is a major means of water conservation. Meters should also be maintained and calibrated as per industry standards (AWWA Manual M6) and meter manufacturer's recommendations. Service meters are calibrated by District personnel based on consumer complaint or erroneous bill. Under recording or malfunctioning meters are replaced.

## 3.2 WATER MAIN AND FIRE HYDRANTS

The District has approximately 100 miles of water main in its distribution system. The oldest mains are around 80 years old, with an average age of 40 years. Water main breaks are not a common occurrence with the District responding to a total of six (6) water main failures in 2016. Water main failures and damaged hydrants are repaired immediately. The District maintains an emergency services contractor required to respond within 3 hours of notification to make repairs on the mains. With respect to service lines, the District requests the respective homeowner to address the minor leaks as soon as possible.

Each year, a third of the Districts hydrants are checked for proper operation and repaired if necessary. The unauthorized use of hydrants is prohibited and the District maintains a hydrant rental program where all water is metered. All District personnel are on the lookout for unauthorized use of fire hydrant water.

## 3.3 LEAK DETECTION

Leak detection programs are costly, but if there are significant leaks, the savings can pay for the program in two to three years. A leak detection program can be implemented to examine the older mains of the system. Once leaks are detected, a main repair program can be implemented. The cost of conducting a leak detection system with the services of a professional firm is estimated at $150-$200 per mile of system. The cost of repairing the main leaks can vary depending on the type of leak and the road restoration required. Leak detection programs, especially in older systems, generally pay back within a

few years. The cost of pumping, treating and delivering water can add up to substantial sums in relatively large undetected leaks.

The District has never performed a leak detection survey as the number of breaks experienced year to year warranted the expense. However, the District proposes to complete a survey of approximately half of the District in the coming year with the remainder performed in the following year. It is expected that the cost of the detection will be $7,500 to $10,000 for each phase. The first phase will include the oldest section of the District.

The Districts meter reading software automatically alerts the District of under reporting meters by comparing usage to past bills. The District uses this alert to audit the consumer in question and verify accuracy of meter.

# 4.0 REDUCING WATER USE

## 4.1 PUBLIC OUTREACH

In the past, the District has held a public community question and answer session where the importance of water conservation was discussed. In addition, water conservation tips are provided in their Annual Water Quality Report.

## 4.2 TOP TEN WATER USERS

The District's top ten users account for 5.0% of water consumed in the District. The District plans to conduct an audit for each of the facilities listed below. The results of the audit will allow the District to work with the user in developing a plan to reduce consumption by its largest users.

| HAMPTON BAYS WATER DISTRICT<br>2016 TOP 10 WATER USERS & AUDIT SCHEDULE | | | |
|---|---|---|---|
| Account/User Name | Water Used This Year (Gallons) | Type of Service | Audit Schedule |
| Garden Homes Mgmt Corp. | 1,451,200 | Commercial | |
| Town & Country Apartments | 821,500 | Commercial | |
| Edward Defelice | 752,900 | Commercial | |
| Gregory Rabassa | 465,400 | Residential | |
| Macys | 413,000 | Commercial | |
| LI Center for Recovery | 370,200 | Commercial | |
| 6 Mill Pond Road | 350,900 | Residential | |
| Bishop Ryan Village | 316,700 | Commercial | |
| Hotuna Inc. | 307,800 | Commercial | |
| Southampton Recreation | 285,300 | Commercial | |
| **TOTAL:** | **5,534,900 Gallons** | | |

The District will develop a letter addressed to the top ten users indicating their high usage rates; provide them with suggestions in how to reduce; and invite them to set an appointment with the District for assistance.

## 4.3 INDOOR WATER USE REDUCTION

The District has not historically focused its conservation efforts towards indoor water usage as its main goal was to educate on irrigation reductions. Moving forward the District will address indoor water use reduction in the form of education through pamphlets and postings on its website.

## 4.4 OUTDOOR WATER USE REDUCTION

Water use associated with outdoor activities, such as lawn irrigation, significantly increases during the warm weather months (May through September) when compared to the cold months (October through April). The average warm versus cold month pumpage from 2012 through 2016 is summarized in Table 5-1 and Figure 5-1 which indicates water usage in a typical warm weather month is approximately three times the cold weather month. It should be noted that in a community like Hampton Bays, not all of the increased usage can be attributed to outdoor usage. The community has a large transient population who maintain second "summer" homes. It is estimated the District population in the summer months can increase from 30 to 40%. Therefore, demand not only increases in the summer months due to outside water usage, but from the larger population.

Under NYSDEC guidance, the District's goal is to reduce peak season water demand by 15% over the next three to four years based on 2012 pumpage as it was considered a normal precipitation year. As the District begins implementing its water conservation initiatives, the first year may have a lower percent reduction; however, the percent reduction should escalate in the following years as additional water conservation measures are put into effect.

The District's estimated outdoor water use in 2012 was 265.6 MG. This usage rate was determined by taking the difference of pumpage from May through September (warmer months) and October through April (colder months) and factoring in the effect of a summer population increase. Therefore, in order to achieve a reduction of approximately 15% in 2018, the District's reduction goal is 39.8 MG.

$$\begin{aligned} &Hampton\ Bays\ 2012\ Outdoor\ Use \\ &\quad = 669.5\ MG\ (Warmer\ Months) - 78.5\ MG\ (Transient\ Ressidents) - 325.4\ MG\ (Colder\ Months) \\ &\quad = \mathbf{265.6\ MG\ attributed\ to\ Outdoor\ Water\ Use\ (2012)} \end{aligned}$$

$$\begin{aligned} &Hampton\ Bays\ 2018\ Outdoor\ Use\ Reduction\ (Goal) = 265.6\ MG * 15\% = \mathbf{39.8\ MG\ (2018)} \\ &\quad = 265.6\ MG - 39.8\ MG = \mathbf{225.8\ MG\ Outdoor\ Water\ Use\ (2018)} \end{aligned}$$

Baseline usage rates were calculated using 2012 data as requested by the NYSDEC. As shown below, according to National Oceanic and Atmospheric Administration (NOAA) data for the Long Island/New

York City area (NYS Division 4), the precipitation for the summer months of 2012 was 3.95 inches above normal (per the 20th century average of 18.34 inches), representing a "wet" year. Based on the past 10-year average, year 2013 had the closest summer precipitation and was 1.11 inches above the 20th century average. In addition, the average summer rainfall in the region over the past 10 years is 18.53 inches, comparably close to the NOAA 20th century average used in the data. Although 2013 data appears to be more representative of a normal precipitation year, 2012 usage is included as the baseline.

| **New York Climate Division 4 (Long Island & NYC) May - September** | | |
|---|---|---|
| Year | Precipitation (inches) | Departure from 20th Century Average (inches) |
| 2007 | 16.41 | -1.93 |
| 2008 | 21.2 | 2.86 |
| 2009 | 23.34 | 5.00 |
| 2010 | 13.29 | -5.05 |
| 2011 | 27.3 | 8.96 |
| 2012 | 22.29 | 3.95 |
| 2013 | 19.45 | 1.11 |
| 2014 | 14.99 | -3.35 |
| 2015 | 13.45 | -4.89 |
| 2016 | 13.55 | -4.79 |
| **Average:** | **18.53"** | |

*Source: National Oceanic and Atmospheric Administration*

Studies disseminated by Cornell Cooperative Extension have concluded that lawns on Long Island tend to be over-irrigated. It has been determined that the irrigation of lawns every other day at a rate of 1 inch per week is sufficient for most areas of Suffolk County. Due to significant water use associated with lawn irrigation, the District has identified lawn-sprinkling measures as a logical and simple approach to promote the efficient use of the drinking water supply.

The Town of Southampton does restrict watering within Hampton Bays or elsewhere. The District has requested the Town mandate the use of rain sensors or smart water technology on all irrigation systems. During peak emergency periods, the District policy restricts irrigation as follows:

(1) No watering between 10:00 p.m. and 4:00 p.m. on any day, except for those commercial establishments engaged in the business of growing, distributing or selling plants. These establishments are instructed to reduce consumption by 15% in such periods

(2) The washing of a vehicle from a public water source.

(3) The use of water for ornamental purposes or to fill or maintain levels in swimming pools.

(4) Use of public water in air conditioning system unless said system is equipped with recirculation devices.

(5) Wash down of driveways and sidewalks with garden hoses is prohibited.

In the event that the water restrictions listed do not sufficiently curb water usage, the District can implement further restrictions including a complete halt of all irrigation. See Appendix A.

The Cooperative Extension of Cornell University has published "Lawn Maintenance Guidelines" for Long Island in which they discuss watering for three types of lawns:

(a) Minimum Turf (Fine Fescue Turf Grass)
Irrigation is not necessary for minimum maintenance lawns, except when starting newly seeded lawns.

(b) Regular Maintenance Lawns (Fescues, Kentucky Bluegrass and Perennial Rye Grass)
Water lawns only when necessary during the growing season. Usually, this type of lawn can go to the point where it will start to show a need for water. A smoky gray appearance in spots of lawn indicates a need for water. When watering, apply sufficiently to penetrate soil five or six inches deep. The need to irrigate should be no more frequently than once a week.

(c) Top-Quality Lawns (3 or 4 Improved Kentucky Bluegrass Varieties)
Apply about one inch of water every four to five days, except during periods of adequate rainfall. Avoid frequent, short-interval watering.

The District must work with local planning boards to ensure water efficient smart landscaping in new developments will have no impact with the District's water conservation efforts.

## 5.0 DROUGHT AND SOURCE DEPLETION EMERGENCY PROCEDURES

Drought and source depletion emergency procedures and planning measures are detailed in the Water Supply Emergency Response Plan (ERP) developed for the District. The ERP is reviewed on an annual basis and updated on a comprehensive basis at least every five years. Excerpts of the drought source depletion emergency response procedures are provided in Exhibit A of this plan.

The District ERP includes a Water Restriction Public Notice form which is attached in Exhibit A. The public notice form is intended to inform consumers on corrective actions to take during water emergencies such as drought, a major water main break, a system failure, or excessive consumption beyond the capacity of the system.

The District has also implemented Reverse 911 through the Suffolk County Department of Emergency Management as its Emergency Notification service provider. The system makes phone calls to people in specific areas during an emergency or just for promulgating important information quickly. This is an additional measuring enabling the District to reach its customers to enforce water restrictions during droughts and other emergencies. District personnel also patrol the service area to enforce the restrictions when necessary.

## 6.0 PLANNED AND MEASURABLE OBJECTIVES

The following water conservation measures have been developed and will be assessed based upon their effectiveness in reducing water consumption. The District recognizes that by encouraging water conservation, it can reduce demands on its system and on the water source (aquifer) from which it draws its supply.

The benefits of water conservation can be significant in terms of savings on energy and water bills, and is important to conserve our finite water supply for present and future generations. The District recognizes the importance of water conservation and of working together as a community to ensure this invaluable resource. The District will secure funding through the Town and include it in the budget for the following planned and measurable objects:

- Lost Water
  - Continue to monitor erractic water bills and replace water meters as required.
  - Perform leak detections on half of District
  - Continue to calibrate in-plant meters at a rate of one per year
  - Review rate structure

- Public Outreach
  - Provide information on indoor water usage to consumers.
  - Contact Top 10 Users regarding water usage.

- Outdoor Water Use Reduction
  - Continue to work with Town Board on requiring the installation of irrigation sensors.

## 7.0 REFERENCES


- Manual M6 – “Water Meters – Selection, Installation, Testing and Maintenance”, American Water Works Association, Denver, Colorado.

- “Water Conservation Manual for Development of a Water Conservation Plan”, NYSDEC, Albany, New York.

# TABLES

**TABLE 2-1**

**HAMPTON BAYS WATER DISTRICT**

**WATER SUPPLY WELLS**

| WELL NO. | NYSDEC WELL ID NO. | LOCATION | AQUIFER | DEPTH OF WELL (ft.) | APPROVED CAPACITY | |
|---|---|---|---|---|---|---|
| | | | | | GPM | MGD |
| 1-1 | S-15687 | Ponquoge Avenue | Upper Glacial | 108 | Not Used | |
| 1-2 | S-24848 | Ponquoge Avenue | Upper Glacial | 120 | 750 | 1.08 |
| 1-3 | S-31636 | Ponquoge Avenue | Upper Glacial | 117 | 750 | 1.08 |
| 2-1 | S-51970 | Old Riverhead Road | Upper Glacial | 205 | 500 | 0.72 |
| 2-2 | S-74071 | Old Riverhead Road | Upper Glacial | 207 | 750 | 1.08 |
| 3-1 | S-58350 | Bellow Pond Road | Upper Glacial | 150 | 500 | 0.72 |
| 3-2 | S-58351 | Bellow Pond Road | Upper Glacial | 146 | 500 | 0.72 |
| 3-3 | S-58352 | Bellow Pond Road | Upper Glacial | 135 | 500 | 0.72 |
| 4-1 | S-108065 | Bellow Pond Road | Upper Glacial | 139 | 1,000 | 1.44 |
| 4-2 | S-108066 | Bellow Pond Road | Upper Glacial | 137 | 1,000 | 1.44 |
| 5-1 | S-127163 | Montauk Highway | Upper Glacial | 147 | 1,000 | 1.44 |
| | | | | | 7,250 | 10.440 |

**Notes:**

Depth of well is measured from the ground surface at the well

GPM - Gallons Per Minute

MGD - Million Gallons Per Day

**TABLE 2-2**

**HAMPTON BAYS WATER DISTRICT**

**INTERCONNECTIONS**

| SUPPLIER | LOCATION | SIZE |
|---|---|---|
| 1. Suffolk County Water Authority | Oakhurst Road | 6" x 6" |
| 2. Suffolk County Water Authority | Jones Road North & Montauk Highwy | 8" x 12" |
| 3. Suffolk County Water Authority | Peconic Road & Montauk Highway | 8" x 8" |

**TABLE 2-3**

**HAMPTON BAYS WATER DISTRICT**

**WATER PUMPAGE DATA**

| MONTH | YEAR | | | | | FIVE YEAR AVERAGE (MG) |
|---|---|---|---|---|---|---|
| | 2012 Pumpage (MG) | 2013 Pumpage (MG) | 2014 Pumpage (MG) | 2015 Pumpage (MG) | 2016 Pumpage (MG) | |
| January | 35 | 35 | 41 | 36 | 37 | **37** |
| February | 31 | 31 | 33 | 45 | 35 | **35** |
| March | 37 | 37 | 39 | 49 | 36 | **40** |
| April | 75 | 75 | 48 | 49 | 51 | **60** |
| May | 75 | 75 | 112 | 142 | 102 | **101** |
| June | 127 | 127 | 134 | 145 | 164 | **139** |
| July | 173 | 169 | 168 | 365 | 206 | **216** |
| August | 176 | 146 | 169 | 216 | 210 | **184** |
| September | 119 | 119 | 149 | 174 | 164 | **145** |
| October | 69 | 69 | 88 | 92 | 99 | **83** |
| November | 43 | 43 | 44 | 46 | 48 | **45** |
| December | 35 | 35 | 34 | 37 | 41 | **36** |
| **TOTAL** | 995 | 962 | 1061 | 1395 | 1192 | **1121** |

**TABLE 5-1**

**HAMPTON BAYS WATER DISTRICT**

**SEASONAL PUMPAGE DATA**

| YEAR | TOTAL YEARLY PUMPAGE (MG) | TOTAL WARM MONTH PUMPAGE (MG)[1] | TOTAL COLD MONTH PUMPAGE (MG)[2] | PUMPAGE ATTRIBUTED TO IRRIGATION (MG)[3] [4] | AVERAGE WARM MONTH PUMPAGE (MG) | AVERAGE COLD MONTH PUMPAGE (MG) |
|---|---|---|---|---|---|---|
| 2012 | 994.94 | 669.52 | 325.42 | 265.58 | 133.90 | 46.49 |
| 2013 | 961.67 | 636.24 | 325.43 | 232.30 | 127.25 | 46.49 |
| 2014 | 1,060.60 | 733.28 | 327.32 | 327.44 | 146.66 | 46.76 |
| 2015 | 1,394.57 | 1,041.50 | 353.08 | 609.90 | 208.30 | 50.44 |
| 2016 | 1,192.24 | 845.98 | 346.25 | 421.21 | 169.20 | 49.46 |

**Notes:**

MG - Million Gallons

[1] Warm weather months include May, June, July, August and September

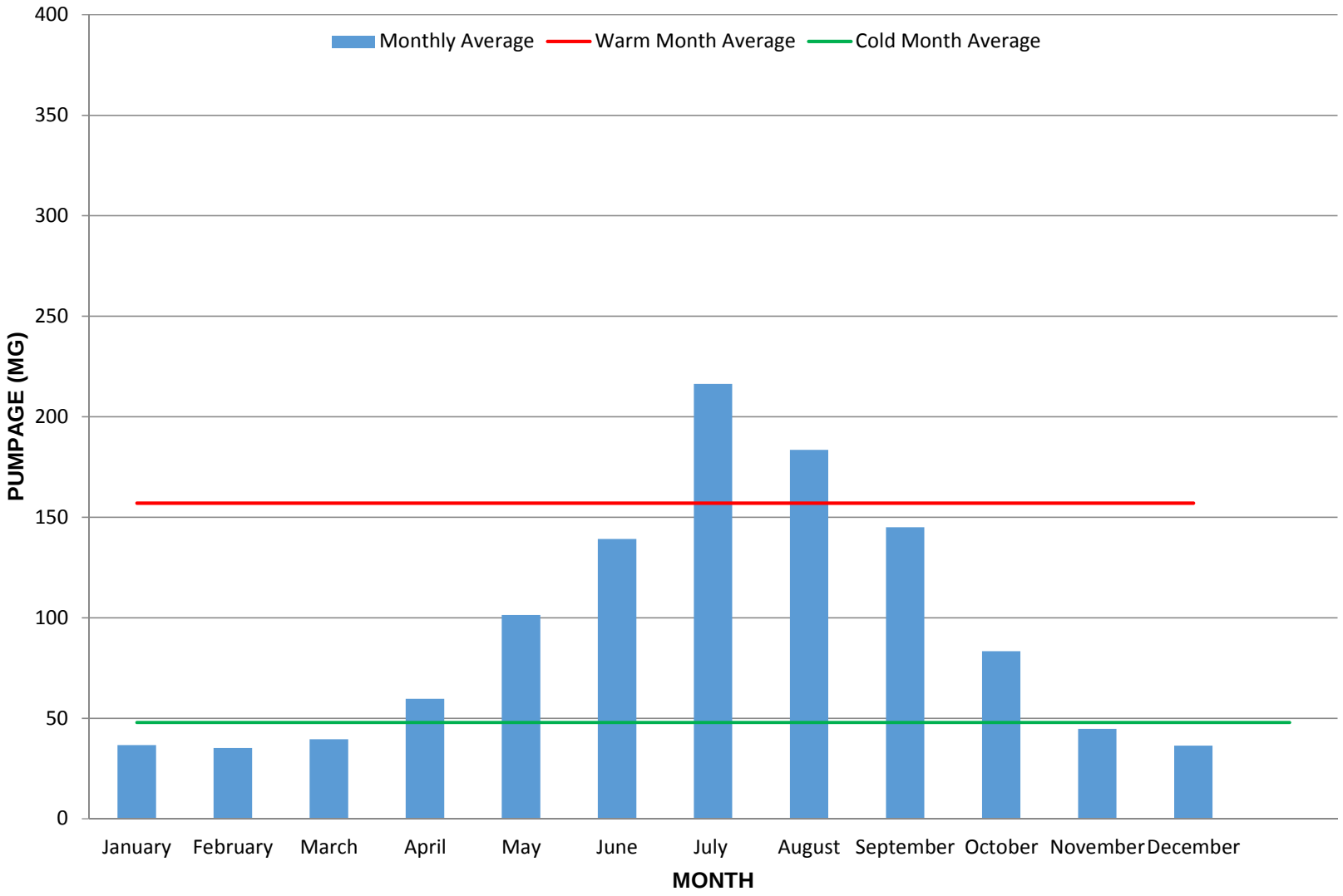
[2] Cold weather months include January, February, March, April, October, November and December

[3] Estimated value based on difference between Warm Month Pumpage and Cold Month Pumpage. Value is considered conservative as water usage rates would be expected to increase in during warm weather months for reasons other than irrigation.

[4] Value is reduced to compensate for transient "summer" population of 5,000 people. At 104.7 gpd per capita for 150 days, total reduced value is 78.52 MG attributable to transient residents (non-irrigation).

# FIGURES

**FIGURE 5-1**
**HAMPTON BAYS WATER DISTRICT**
**AVERAGE MONTH PUMPAGE (2012-2016)**



# EXHIBIT A

## 6.2 – EMERGENCY CURTAILMENT OF USE – WATER RESTRICTION NOTICE FORM

**HAMPTON BAYS WATER DISTRICT**

**PUBLIC NOTICE FORM**

**EMERGENCY RESTRICTION OF USE DUE TO**

**EXCESSIVE LAWN WATERING DURING DROUGHT**

**WATER RESTRICTION NOTICE**

The Southampton Town Board on behalf of the Hampton Bays Water District has declared a water restriction emergency (Stage ). See Attached Emergency Restriction of Use Resolution.

Due to the (**provide description of event**) a potential public health and safety hazard may exist, wherein the District is unable to provide water in sufficient quantity at adequate pressures to its customers and still maintain a minimum reserve in the event of a major fire.

You may experience a drop in water pressure; a discoloration of the water (rust colored) or in extreme cases no water at all.

Public water systems must maintain system pressure above 20 pounds per square inch (psi). In the event that the delivery of water is interrupted to a minimum of 25 individuals or 15 service connections, or to a minimum of one percent (approx. 153) of the total number of individuals served or service connections (approx. 64), whichever is larger, for a period of 4 hours or more, the New York State Sanitary Code deems an emergency condition to exist.

The Suffolk County Department of Health Services has been notified of this condition.

The District is taking the following measures to restrict water use:

The District has enacted an Emergency Restriction of Use Resolution. This resolution declares a Stage ____ emergency and directs that water use by its customers be limited.

The public is urged to limit the use of water until this condition is rectified.

For additional information, please contact Superintendent Robert King of the Hampton Bays Water District at (631) 728-0179 or the Suffolk County Department of Health Services at (631) 852-5810.

*Please share this information with all of the other people who drink this water, especially those who may not have received this notice directly (i.e., people in apartments, nursing homes, schools and businesses). You can do this by posting this notice in a public place or by distributing copies.*

Date Issued: _____ Time Issued: _____ AM / PM

## 6.2a – EMERGENCY RESTRICTION OF USE RESOLUTION

**HAMPTON BAYS WATER DISTRICT**

**(Modify As Necessary To Meet Conditions)**

WHEREAS, due to a significant shortfall of precipitation, a major water main break or leak, a system failure, or excessive consumption beyond the capacity of the system; and

WHEREAS, as a result of the above, unless consumption of water in the water system is substantially reduced, the system will be unable to supply sufficient potable water and fire protection to meet the basic needs of the customers of the system; and

WHEREAS, the Town Board has in light of these conditions, found the water system to be in a state of emergency; and

WHEREAS, the Town Board must accordingly exercise due authority to mandate such measures as are necessary to reduce consumption of water within the service area to a level sufficient to preserve an adequate supply of water to meet the customer's basic water needs and to provide fire protection;

NOW, THEREFORE, the Board finds that an imminent peril to the public health and safety exists and adopts the following regulations as emergency measures to prevent the waste of water;

**STAGE I**

A. No person or entity shall cause, permit or allow:

1. The continuing of any leak or waste from any water pipe, valve, faucet, conduit, equipment, facility or device connected to the water system, or

which utilizes water, on or in any premises owned, leased, managed, operated or controlled by such person or entity.

2. The washing of any vehicle by means of a hose, fire hydrant, or other active source connected to the water system, except by a commercial vehicle washing operation with equipment that has been installed and is utilized so that at least 50% of the water used is recirculated by means of a system approved by the Water District.

3. The washing of any street, sidewalk, driveway, outdoor areaway, outdoor steps, building exterior or other structure by means of a hose, fire hydrant, or other active source connected to the water system or which utilizes water.

4. The use of water from any source for any ornamental purpose, including but not limited to use in fountains, artificial waterfalls, and reflecting pools.

5. The use of water from the water system to water any lawn, golf course, ornamental shrub, plant or tree, <u>except that</u>:

   a. Water may be used to water any lawn, tree, shrub, garden or golf course greens and tees only from 4:00 p.m. to 10:00 p.m.

   b. Water may be used at any time to irrigate, from a hand held container, vegetables or fruits grown for human consumption.

   c. Plant nurseries and other commercial users engaged in the business of growing, distributing, or selling plants may use such water on their business premises for watering ornamental shrubs, plants or

trees, provided that each such user reduces its use of water by 15% or by such other percentage as may hereafter be prescribed for non-residential water users.

6. The opening or use of any fire hydrant, or the taking of the water therefrom, for any purpose other than fire protection except in accordance with a permit obtained from the Water District and only for the period of and the purpose authorized by such permit and in strict adherence to all terms and conditions set forth therein.

7. The operation of an air conditioning system utilizing once through water from the water system in a cooling tower.

8. Operate any air conditioning system in two (2) tons of rated capacity or greater or any refrigeration unit rated at 10 horsepower or greater using water from the District water system, unless such air conditioning system or refrigeration unit is equipped with a water-recirculating device approved by the District.

9. The use of water from the water system to fill or maintain the water level in any swimming pool.

B. Each non-residential user of water from the water system shall prepare and retain a water consumption reduction plan, enabling it to reduce its use of water in stages of 15%, 30% and 50%, based upon its water consumption during the calendar year. Such plans shall be designed so as to achieve and maintain the 15% reduction promptly, and to achieve the 30% and 50% reduction immediately upon the declaration of a Stage II and Stage III emergency, respectively. Each such user shall promptly implement the first phase of its plan during Stage I, and shall reduce its consumption by 15%. On and after 30 days from the effective

date of this regulation, each such user shall have its water consumption reduction plan available at all times for inspection and copying by employees of the Water District.

**STAGE II**

If, at any time the Water Superintendent determines that the measures set forth under Stage I of this regulation have not resulted in a sufficient level of conservation in light of existing water supply conditions, a State II emergency shall be declared. Upon declaration of a Stage II emergency, in addition to these measures set forth hereinabove, the following conditions are imposed:

A. No person or entity shall cause, permit or allow:

1. The use of water from the water system to fill or maintain the water level in any swimming pool.

2. The use of water from the water system to water any lawn, golf course, ornamental shrub or plant, except that water may be used to irrigate, from a hand held container only, vegetables or fruits grown for human consumption.

B. Each non-residential user of water from the water system shall fully implement its Stage II water consumption plan and shall immediately reduce use of water by no less than 30%.

**STAGE III**

If, after the imposition of the measures set forth in Stage II of this regulation the Water Superintendent finds that water consumption must be further reduced, a Stage III emergency in addition to the measures set forth hereinabove shall be declared:

A. All non-residential users of water from the water system shall reduce their consumption by no less than 50%.

B. All air conditioning systems utilizing water from the water system shall be operated only in accordance with hourly restrictions established by the Water Superintendent.

**SANCTIONS**

A. Violations of this regulation shall be punishable by fines and penalties.

B. In addition to any penalties which may be imposed where a leak and waste notice has been served and the condition to which such notice relates has not been corrected, a penalty of up to Two Hundred Dollars ($200.00) per day may be imposed by the Water Superintendent and added to the water rents levied on the tax roll.

C. Water service may be terminated for violations of any provision of this regulation or for any substantial waste of water.

**VARIANCE**

Upon the application of any person or entity, the water system may at their discretion grant a variance relieving such person or entity from compliance with any of the requirements of

this regulation, if such person or entity demonstrates to the satisfaction of the Water Superintendent (1) that undue hardship would otherwise result; (2) that there are no possible alternatives; (3) that the applicant has taken and will take all possible measures to conserve water, with a complete description of such measures and the water savings to be effected; and (4) that such variance is not inconsistent with the purposes of this emergency regulation. In connection with any variance, which may be granted, the water system shall impose such terms and conditions, as it deems appropriate.

**EXPLANATION**

This regulation may be placed in effect by Resolution of the Southampton Town Board for the Hampton Bays Water District and remains in effect until modified or until the emergency condition has been declared terminated.

Date Adopted: _____

## 6.3 – PUBLIC NOTICE FORM – MAJOR WATER MAIN BREAK CAUSING WATER OUTAGES AND/OR CHEMICAL/MICROBIOLOGICAL CONTAMINATION DUE TO BACK SIPHONAGE

**HAMPTON BAYS WATER DISTRICT**
**PUBLIC NOTICE FORM**
**POTENTIAL PUBLIC HEALTH HAZARD FOR**
**MAJOR WATER MAIN BREAK CAUSING**
**WATER OUTAGES AND/OR CHEMICAL/MICROBIOLOGICAL**
**CONTAMINATION DUE TO BACK SIPHONAGE**
**DO NOT USE / BOIL WATER NOTICE (CHOOSE ONE)**

The Hampton Bays Water District, which supplies water to Hampton Bays and portions of Fire Island, is experiencing a major water main break in your neighborhood. This condition is causing a water outage and/ or chemical or microbiological contamination of the system due to back siphonage of contaminated water into the system.

Due to the (*provide description of event*) a potential public health hazard may exist. You may experience a drop in water pressure, a discoloration of the water (rust colored) or, in extreme cases, no water at all.

Public water systems must maintain system pressure above 20 pounds per square inch (psi). In the event that the system pressure drops below 20 psi, or the delivery of water is interrupted to a minimum of 25 individuals or 15 service connections, or to a minimum of 1% (approximately 153) of the total number of individuals served or service connections (approximately 64), whichever is larger, for a period of 4 hours or more, the New York State Sanitary Code deems an emergency condition to exist.

The Suffolk County Department of Health Services has been notified of this condition.

**DO NOT USE / BOIL WATER BEFORE USE (CHOOSE ONE)**

The District is taking the following measures to restore normal service (*describe activities*). Until you are advised otherwise the following restrictions are in effect:

**DO NOT USE WATER RESTRICTIONS:**

1. No consumption or use in food preparation or cooking.
2. No brushing of teeth.
3. No dishwashing.
4. No lawn watering, irrigation or car washing.
5. No washing, bathing or showering.
6. No ice making, baby formula or any food made with water (discard if made during incident).
7. Contaminants that pose a dermal (skin) or inhalation risk should not be aerosolized or splashed within the environment or home. Under extreme conditions this may affect:
    a. fire fighting
    b. water main/hydrant flushing
    c. toilet flushing

Contact Suffolk County Department of Health Services for any questions regarding these extreme conditions.

By not using the water, water demand will cease and the contamination will not spread throughout the distribution system. Water testing may need to be performed that yields satisfactory water quality results before the above uses are permitted. During a major water outage situation, water demand must be significantly reduced in order to restore system pressure.

**BOIL WATER NOTICE RESTRICTIONS:**

1. Boil water by bringing to a rolling boil for two (2) minutes and allow to cool before consuming. Applies to food preparation, making of baby formula, dishwashing, ice making, brushing of teeth or bathing of children.

2. Discard any ice, baby formula or any food made with water during event.

The public is urged to limit the use of water until this condition is rectified.

Should potable water be required, but unavailable, an alternative source should be obtained. Customers are advised to procure bottled water as necessary, and only purchase bottled water that bears a NYSDOH certification on its label. If available, follow USEPA's "Emergency Disinfection of Drinking Water Procedures". See Section 6.19.

For additional information, please contact Superintendent Robert King of the Hampton Bays Water District at (631) 728-0179 or the Suffolk County Department of Health Services at (631) 852-5810.

*Please share this information with all of the other people who drink this water, especially those who may not have received this notice directly (i.e., people in apartments, nursing homes, schools and businesses). You can do this by posting this notice in a public place or by distributing copies.*

Date Issued: _____ Time Issued: _____ AM / PM

EMERGENCY RESTRICTION OF USE RESOLUTION

**HAMPTON BAYS WATER DISTRICT**
**(Modify As Necessary To Meet Conditions)**

WHEREAS, due to a significant shortfall of precipitation, a major water main break or leak, a system failure, or excessive consumption beyond the capacity of the system; and

WHEREAS, as a result of the above, unless consumption of water in the water system is substantially reduced, the system will be unable to supply sufficient potable water and fire protection to meet the basic needs of the customers of the system; and

WHEREAS, the Town Board has in light of these conditions, found the water system to be in a state of emergency; and

WHEREAS, the Town Board must accordingly exercise due authority to mandate such measures as are necessary to reduce consumption of water within the service area to a level sufficient to preserve an adequate supply of water to meet the customer's basic water needs and to provide fire protection;

NOW, THEREFORE, the Town Board finds that an imminent peril to the public health and safety exists and adopts the following regulations as emergency measures to prevent the waste of water;

STAGE I

A. No person or entity shall cause, permit or allow:

1. The continuing of any leak or waste from any water pipe, valve, faucet, conduit, equipment, facility or device connected to the water system, or which utilizes water, on or in any premises owned, leased, managed, operated or controlled by such person or entity.

2. The washing of any vehicle by means of a hose, fire hydrant, or other active source connected to the water system, except by a commercial vehicle washing operation with equipment that has been installed and

is utilized so that at least 50% of the water used is recirculated by means of a system approved by the Water District.

3. The washing of any street, sidewalk, driveway, outdoor areaway, outdoor steps, building exterior or other structure by means of a hose, fire hydrant, or other active source connected to the water system or which utilizes water.

4. The use of water from any source for any ornamental purpose, including but not limited to use in fountains, artificial waterfalls, and reflecting pools.

5. The use of water from the water system to water any lawn, golf course, ornamental shrub, plant or tree, <u>except that</u>:

   a. Water may be used to water any lawn, tree, shrub, garden or golf course greens and tees only from 4:00 p.m. to 10:00 p.m.

   b. Water may be used at any time to irrigate, from a hand held container, vegetables or fruits grown for human consumption.

   c. Plant nurseries and other commercial users engaged in the business of growing, distributing, or selling plants may use such water on their business premises for watering ornamental shrubs, plants or trees, provided that each such user reduces its use of water by 15% or by such other percentage as may hereafter be prescribed for non-residential water users.

6. The opening or use of any fire hydrant, or the taking of the water therefrom, for any purpose other than fire protection except in accordance with a permit obtained from the Water District and only for the period of and the purpose authorized by such permit and in strict adherence to all terms and conditions set forth therein.

7. The operation of an air conditioning system utilizing once through water from the water system in a cooling tower.

8. Operate any air conditioning system in two (2) tons of rated capacity or greater or any refrigeration unit rated at 10 horsepower or greater using water from the District water system, unless such air conditioning system or refrigeration unit is equipped with a water-recirculating device approved by the District.

9. The use of water from the water system to fill or maintain the water level in any swimming pool.

B. Each non-residential user of water from the water system shall prepare and retain a water consumption reduction plan, enabling it to reduce its use of water in stages of 15%, 30% and 50%, based upon its water consumption during the calendar year. Such plans shall be designed so as to achieve and maintain the 15% reduction promptly, and to achieve the 30% and 50% reduction immediately upon the declaration of a Stage II and Stage III emergency, respectively. Each such user shall promptly implement the first phase of its plan during Stage I, and shall reduce its consumption by 15%. On and after 30 days from the effective date of this regulation, each such user shall have its water consumption reduction plan available at all times for inspection and copying by employees of the Water District.

**STAGE II**

If, at any time the Water Superintendent determines that the measures set forth under Stage I of this regulation have not resulted in a sufficient level of conservation in light of existing water supply conditions, a Stage II emergency shall be declared. Upon declaration of a Stage II emergency, in addition to these measures set forth hereinabove, the following conditions are imposed:

A. No person or entity shall cause, permit or allow:

1. The use of water from the water system to fill or maintain the water level in any swimming pool.

2. The use of water from the water system to water any lawn, golf course, ornamental shrub or plant, except that water may be used to irrigate,

from a hand held container only, vegetables or fruits grown for human consumption.

B. Each non-residential user of water from the water system shall fully implement its Stage II water consumption plan and shall immediately reduce use of water by no less than 30%.

**STAGE III**

If, after the imposition of the measures set forth in Stage II of this regulation the Water Superintendent finds that water consumption must be further reduced, a Stage III emergency in addition to the measures set forth hereinabove shall be declared:

A. All non-residential users of water from the water system shall reduce their consumption by no less than 50%.

B. All air conditioning systems utilizing water from the water system shall be operated only in accordance with hourly restrictions established by the Water Superintendent.

**SANCTIONS**

A. Violations of this regulation shall be punishable by fines and penalties.

B. In addition to any penalties which may be imposed where a leak and waste notice has been served and the condition to which such notice relates has not been corrected, a penalty of up to Two Hundred Dollars ($200.00) per day may be imposed by the Water Superintendent and added to the water rents levied on the tax roll.

C. Water service may be terminated for violations of any provision of this regulation or for any substantial waste of water.

## VARIANCE

Upon the application of any person or entity, the water system may at their discretion grant a variance relieving such person or entity from compliance with any of the requirements of this regulation, if such person or entity demonstrates to the satisfaction of the Water Superintendent (1) that undue hardship would otherwise result; (2) that there are no possible alternatives; (3) that the applicant has taken and will take all possible measures to conserve water, with a complete description of such measures and the water savings to be effected; and (4) that such variance is not inconsistent with the purposes of this emergency regulation. In connection with any variance, which may be granted, the water system shall impose such terms and conditions, as it deems appropriate.

## EXPLANATION

This regulation may be placed in effect by Resolution of the Southampton Town Board for the Hampton Bays Water District and remains in effect until modified or until the emergency condition has been declared terminated.

Date Adopted: _____

# EXHIBIT B

**Long Island Public Water Supply** **District name Hampton Bays Water District**

**Water Conservation Yearly Update Form** **Year 2016**

**Section 1- General Information:**

| | | | |
|---|---|---|---|
| Water district street address | Ponquogue Avenue | Water district town and zip code | Hampton Bays 11946 |
| Water district general phone number | (631) 728-0179 | Water district email address | |
| | | | |
| Superintendent name | Robert King | Superintendent phone number | (631) 728-0179 |
| Superintendent email address | Rking@southamptontownny.gov | | |
| | | | |
| Cross connection control contact | Robert King | Cross connection control contact phone number | (631) 728-0179 |
| Cross connection control contact email address | Rking@southamptontownny.gov | | |
| | | | |
| Water conservation contact | Robert King | Water conservation contact phone number | (631) 728-0179 |
| Water conservation contact email address | Rking@southamptontownny.gov | | |

**Section 2: Water Usage:**

| | | | |
|---|---|---|---|
| Water production for calendar year | 1,192,240 | Water consumption for calendar year | |
| Total metered production | 1,192,240 | Total metered consumption | 1,108,900 |
| Average day production (total/365) | 3,266 | Average day consumption | 3,038 |
| Peak day production (largest single day) | 7,200 | Per capita usage per day (avg. day/population served) | 196.0 |
| Peak season daily average (May-Sept.) | 5,529 | Non-peak season daily average (Oct.–April) | 1,623 |

****Please enter pumpage numbers in thousands of gallons****

## Section 3 – Water Usage by Type:

| Please quantify water usage by consumer type | | | |
|---|---|---|---|
| **Type** | **Quantity** | **Type** | **Quantity** |
| Residential | Not Available | Municipal | |
| Commercial | Not Available | Other: | |
| Industrial | Not Available | Other: | |

****Please enter pumpage number in thousands of gallons****

## Section 4– Water Supply Audit:

| **Water Supply Audit for Calendar Year 2016** | | | | |
|---|---|---|---|---|
| Total metered water production (from section 2) | | Total | 1,192,240 | % of Total |
| Total metered water consumed (from section 2) | | Subtract | 1,108,900 | 93 |
| Authorized unmetered usage (e.g. unmetered public buildings, firefighting and training, main flushing, street cleaning) | Fire Fighting / Street Cleaning | Subtract | 10,000 | 0.8 |
| | Unmetered Plant Use | Subtract | 5,000 | 0.5 |
| | Flushing / Circulation | Subtract | 5,000 | 0.5 |
| | Plant 4 Blow-Off | Subtract | 6,000 | 0.5 |
| | | Subtract | | |
| Water lost to leaks that have since been repaired | | Subtract | 2,500 | 0.2 |
| **TOTAL UNACCOUNTED-FOR WATER** | | **Sub-total** | | |
| Unaccounted-for water breakdown | Meter under-registered | Subtract | 14,840 | 1.5 |
| | Unrepaired leakage | Subtract | 40,000 | 3.0 |
| | Other: | Subtract | | |
| | | | **0** | |

****Please enter pumpage numbers in thousands of gallons****

## Section 5- Customer Billing:

| Please discuss the District's water rate structure.<br>**See Report** | |
|---|---|
| When was the last time your rate structure was reviewed? | **2012** |
| When was the last time your rate structure was revised? | **2014** |
| When is the next time the district will review its rate structure? | **TBD** |

## Section 6 - Infrastructure:

### Meters:

| | | |
|---|---|---|
| Please discuss the District's master and customer meter program.<br>All consumers are metered. All plants are metered | | |
| Please discuss the District's master and customer meter replacement program.<br>Last meter replacement program was in 2002 where all customer's meters were replaced. In plant meter flow devices are recalibrated or replaced on a ten-year basis. | | |
| Are all sources of water supply including major interconnections equipped with master meters? If no, please provide a schedule for master meter installation at all wells and major interconnections. | Yes for Wells. No for interconnections. Two in 2018, one TBD. | |
| Are all of the service services metered? If no, please provide a schedule for service meter installation at all customer services. | Yes | |
| How often are the meters calibrated? | Master<br>Once Every 10 years | Service<br>As Required |
| Are the meters calibrated in accordance with the manufacture's recommendations? (NYSDEC recommends yearly calibration for master meters and 15 years for in accordance with AWWA manual M6 for customer meters) | Master<br>Yes | Service<br>No |
| When was the last time the meters were calibrated? | Master<br>Varies | Service<br>2002 (new) |
| Please list the average age of the meters. | Master<br>25 years | Service<br>12 years |
| Please list the age range of the meters. | Master<br>15 – 25 years | Service<br>0 – 15 years |
| Please list the number and percentage of meters replaced over the last year and the percent of total replaced last year. | Master<br>0 | Service<br>< 1% |
| Please list the number and percentage of meters which will be replaced next year. | Master<br>0 | Service<br><1% |
| Please list the number and percentage of meters that were recalibrated over the last year. | Master<br>1 (10%) | Service<br><1% |
| Please list the number and percentage of meters that will be recalibrated next year. | Master<br>1 (10%) | Service<br><1% |

**Piping Replacement:**

| | |
|---|---|
| Please discuss the District's water main replacement program and current implementation status:<br><br>The District does not currently have a water main replacement program because the oldest main has not reached its useful life. | |
| Please list the number of miles of piping in your distribution system. | 100 |
| Please list the average age of the piping, and the age and length of the oldest sections of piping. | 40 years |
| Please list how many feet/miles of main were replaced over the last year. Also list as percentage of total water main within the District. | 0 |
| Please list how many feet/miles will be replaced next year. Also list as percentage of total water main within the District. | 800 feet (<1%) |

**Leak Detection:**

| | | |
|---|---|---|
| Please describe the District's leak detection program and current implementation status:<br><br>The District does not currently have a leak detection program | | |
| How many miles of pipe were surveyed for leaks using sonic leak detection over the past year? Also list as percentage of the total water main within the District | 0 | |
| What type of leak detection equipment was used? | n/a | |
| How many leaks were discovered? How many were repaired? | Discovered:<br>n/a | Repaired:<br>n/a |

| | |
|---|---|
| How many miles of pipe will be surveyed using sonic leak detection next year? Also list as percentage of total water main within the District. | 50 (50%) |
| What type of leak detection equipment will be used? | Sonic |
| Does the district have a program to flag customers with unusually high water usage? If so please describe.<br>Yes. Erratic bills based on padt usage (high or low) are automatically flagged by District billing system | |
| How many users were flagged this past year? | None |
| Were surveys conducted for all flagged users? And how many leaks were discovered/repaired? | n/a |

**Section 7 – Outreach and Public Education:**

| | |
|---|---|
| Please discuss the outreach and public education efforts made over the past year and what will be done next year (Attach additional pages if necessary)<br><br>Water Conservation addressed in CCR | |
| Were presentations given at local schools or to local organizations? If yes, please list how many and please describe. Please also describe what efforts will be made next year:<br>**No** | |
| Has social media been used to reach out to the public? Discuss efforts made this year and efforts planned for next year.<br>**No** | |
| How many pamphlets/bill stuffers were sent to customers this year? (Please attach a copy of each bills stuffer/pamphlet) | **None** |
| How many pamphlets/ bill stuffers will be sent next year? | **None** |
| Has the district distributed information to residential customers on household water saving devices and ways to reduce water use? If so, please describe what was done:<br>**No** | |

| |
|---|
| Has the district distributed water conservation information to industrial and commercial users that promotes water recycling and reuse? If yes, please describe what was done:<br>**No** |

**Section 8- Reducing Water Use:**

**Top 10 Water Users**

| Please list the top 10 water users for your District and how much water they used this past year. | | |
|---|---|---|
| Account/User Name | Water Used This Year | Type of Service (i.e. Residential, Commercial, Industrial, etc.) |
| **1. Garden Homes Mgmt. Corp** | **1,451,200** | **Residential Mobile Home Park** |
| **2. Town & Country Apts** | **821,500** | **Residential** |
| **3. Edward Defelice** | **752,900** | **Commercial** |
| **4. Gregory Rabasse** | **465,400** | **Residential** |
| **5. Macys** | **413,000** | **Commercial** |
| **6. LI Center for Recovery** | **370,200** | **Commercial** |
| **7. 6 Mill Pond Road** | **350,900** | **Residential** |
| **8. Bishop Ryan Village** | **316,700** | **Commercial** |
| **9. Hotuna Inc.** | **307,800** | **Commercial** |
| **10. Southampton Recreation** | **285,300** | **Commercial** |
| Please describe the water district's plan for reducing the water usage of the top ten largest accounts. Please include an implementation schedule:<br><br>Outreach and Education. Summer of 2017. | | |
| Has the district conducted a water audit for each of the above listed facilities? If not, please provide a deadline for implementation of a water audit program with the top ten accounts. | | **No.** |
| Was the district able to find ways to help the top ten users reduce water usage? | | **n/a** |

**Indoor Water Use Reduction:**

| | |
|---|---|
| Please describe the District's plan to reduce indoor water use. Discuss efforts achieved over the past year and planned measureable objectives for next year. (Attach additional pages if necessary)<br>Education | |
| Have public buildings within the District been retrofitted with water saving fixtures? | Yes |
| Have audits been performed on public buildings to see where additional water savings can be achieved? | No |
| Does the District prohibit the use of water for cooling purposes, including but not limited to air conditioning, refrigeration, engine cooling, condensation, etc.? If not, please list a deadline for development of such a prohibition. | No. |

**Outdoor Water Use Reduction:**

| |
|---|
| Has the District been able to achieve a 15% irrigation demand reduction? Please evaluate and discuss irrigation demand reduction pumpage numbers since the new water conservation program was implemented. Please provide any formulas used to calculate the reduction. (Attach additional pages if necessary)<br><br>No |
| Has the District set up a system to permit irrigation systems? If so, please describe. If no, please provide a deadline for developing an irrigation permitting system. (Attach additional pages if necessary)<br><br>No. Permitting irrigation needs to be by Town. District does not have resources to implement or enforce. |

| | |
|---|---|
| Upon request of an irrigation permit application, does the district provide an irrigation conservation package? | **n/a** |
| Does the District require that rain sensors, moisture sensors, or other smart controllers be installed for new systems? | **Not Currently** |
| Does the District require periodic audits of irrigation systems (i.e. certification that sensors are still functioning?) If yes, please describe.<br>No | |
| Does the District restrict irrigation to a certain percentage of the total property? If yes, please state what percentage is allowed to be irrigated. | Town does. Yes, 20% |
| Has the District developed and implemented a plan to work with local planning boards to ensure that the landscaping that they are requiring for new developments is water efficient/ low water use native landscaping? If yes, please describe what has been done. If no, please provide a timeframe for developing and implementing a plan to work with the local planning boards.<br>No | |
| Has the District reached out to local irrigation contractors and landscapers to promote water efficient irrigation techniques and landscaping? If yes, please describe. If not please provide a schedule for implementation of such a program.<br><br>No | |
| Has the District implemented any outdoor water use incentive programs? If yes, please describe.<br>No | |
| Does the District have a permitting system in place of in-ground and above ground pool installations? If yes, please describe.<br><br>The Town requires a permit for a pool | |
| Does the District require that pools be equipped with a recirculation and filter system? | No |
| Does the District prohibit the use of water for filling ponds, lakes and any other natural or manmade water body? | Only in Emergencies |
| Does the District prohibit the use of water for outdoor spray ponds or fountains which do not recirculate water? | Only in Emergencies |

Please describe and discuss other outdoor water conservation efforts being made by the district. Please describe efforts achieved over the past year and planned measureable objectives for next year. (Attach additional pages if necessary)

Outreach in CCR.

**Section 9 - Drought Protection and Emergency Measures:**

Please discuss the plan that the District has in place to enforce water restrictions during droughts and other water emergencies. (Attach additional pages if necessary)

See ERP excerpt in Report

**Section 10 – Funding Sources:**

**Please verify that the necessary funding sources are in place to support current and future plan water conservation efforts discussed in this report.**

**Signature** _____

**Section 11 – Certification of Water Conservation Program:**

**I hereby affirm that the information provided on this form is true to the best of my knowledge and belief. False statements made herein are punishable as a Class A misdemeanor pursuant to Section 210.45 of the Penal Law.**

**Signature**_____

# APPENDIX B

# STORAGE TANK INSPECTION REPORTS

538 Broad Hollow Road, 4th Floor East
Melville, NY 11747 | tel 631.756.8000

July 10, 2018

Mr. Robert King
Superintendent
Hampton Bays Water District
PO Box 1013
New York, 11946

**Re: Hampton Bays Water District**
**Inspection of Water Storage Facility**
**H2M Project No.: HBWD 1870**

Dear Superintendent King:

Enclosed please find a copy of the report for the *Inspection of Water Storage Facilities* for the Hampton Bays Water District dated July 2018.

Please feel free to contact this office should you have any questions.

Very truly yours,

**H2M architects + engineers**

James D. Muskopf
Senior Project Engineer
H2M Water

JA: JCA: jca
Enclosures

cc: Board of Commissioners

# INSPECTION OF WATER STORAGE FACILITIES

## ANNUAL REPORT

## Hampton Bays Water District
## Suffolk County, New York

H2M Project No.
HBWD 1870

**June 2018**

Prepared for:

Mr. Robert King
Superintendent
Hampton Bays Water District
P.O. Box 1013
Hampton Bays, New York 11946

Prepared by:

H2M architects + engineers
538 Broad Hollow Road 4th Floor East
Melville, New York 11747

h2m.com

538 Broad Hollow Road, 4th Floor East
Melville, NY 11747 | tel 631.756.8000

July 10, 2018

Mr. Robert King
Superintendent
Hampton Bays Water District
PO Box 1013
New York, 11946

**Re: Hampton Bays Water District**
**Inspection of Water Storage Facility**
**H2M Project No.: HBWD 1870**

Superintendent King:

The Suffolk County Department of Health requires that all Suffolk County water suppliers perform periodic inspections of their water storage tanks. These inspections help ensure that the tanks are protected from unauthorized access and all vents and overflow outlets are protected against insects and small animal intrusions. As proposed, H2M architects + engineers have completed the inspections of the District's water storage tanks in compliance with the SCHD's requirements.

These inspections also allow the opportunity to assess the general condition of the storage facility and monitor items of concern. These assessments will aid in planning for long-term capital improvements programs as well as determining when periodic maintenance and more though inspections are warranted.

This report includes an inspection checklist that summarizes the conditions observed during the inspection as well as photographs. At the end of each section, specific observations, deficiencies and recommendations for corrective action are offered as needed. Inspections were performed for the following tanks:

1. Ponquogue Ave – 0.25 Million Gallon Elevated Storage Tank
2. Old Riverhead Rd – 0.25 Million Gallon Elevated Storage Tank
3. Bellows Pond Rd – 1.0 Million Gallon Elevated Storage Tank

# Tower No. 1
# Ponquogue Avenue
# 250,000 Gallon
# Elevated Water Storage Tank

# INSPECTION CHECK LIST

**Date**: June 25, 2018
**Owner:** Hampton Bays Water District
**Personnel present:** Joseph Aviles and Joseph Ambert

**Location/Description:** Tower 1, Ponquogue Avenue
**Contact:** Superintendent Robert King

| **Year Constructed:** 1967 | **Last Inspected:** 06/29/2017 | **Last Repainted/Repaired:** 2002 |
|---|---|---|

| Type of Inspection | Type of Tank | | Capacity | |
|---|---|---|---|---|
| ☐ Bi-annual | ☒ Elevated | ☐ Ground Storage | ☐ .5 | |
| ☒ Annual | ☐ Singe Ped | ☐ Concrete | ☐ 1.0 | |
| ☐ Pre-bid | ☒ Multi Leg | ☐ Prestressed | ☐ 1.5 | |
| ☐ Other | ☐ Hydro-pillar | ☐ Bolted | ☐ 2.0 | |
| | ☐ Standpipe | ☐ Clearwell | ☐ 2.5 | ☒ Other: 250,000 |

## COATINGS

| Interior Coating | Exterior Coating | Dry Interior Coating | Comments |
|---|---|---|---|
| ☒ Epoxy<br>☐ Coal tar<br>☐ Urethane<br>☐ Zinc<br>☐ None | ☒ Epoxy<br>☐ Alkyd<br>☐ Noxyde<br>☒ Urethane<br>☐ None | ☐ Epoxy<br>☐ Alkyd<br>☐ Noxyde<br>☐ Other<br>☒ None | Interior: At the time of inspection, there were no foreign objects, no floating debris and a visible amount of sediment was detected |
| ***Coating Condition*** | ***Coating Condition*** | ***Coating Condition*** | ***Water Temperature*** |
| ☒ Good<br>☐ Fair<br>☐ Poor | ☒ Good<br>☐ Fair<br>☐ Poor | ☐ Good<br>☐ Fair<br>☐ Poor | Surface<br>± 10'<br>± 20'<br>± 30' |

## SECURITY

| Perimeter Security | Tank Security | Appurtenances | Yes | No | Comments |
|---|---|---|---|---|---|
| ☒ Fencing<br>☐ Alarms<br>☐ Motion Sensors<br>☐ None | ☒ Locks<br>☐ Alarms<br>☐ Other<br>☐ None | Hatch locked<br>Door Locked<br>Ladder Locked | ☒<br>☐<br>☒ | ☐<br>☐<br>☐ | None. |

## VENT

| Type | Appurtenances | Yes | No | Comments |
|---|---|---|---|---|
| ☒ Pallet<br>☐ Mushroom<br>☐ Screened openings<br>☐ Other | Insect screen present<br>freeze resistant<br>Screen secure | ☒<br>☒<br>☒ | ☐<br>☐<br>☐ | Vandal guard around the vent was secure at the time of inspection. |

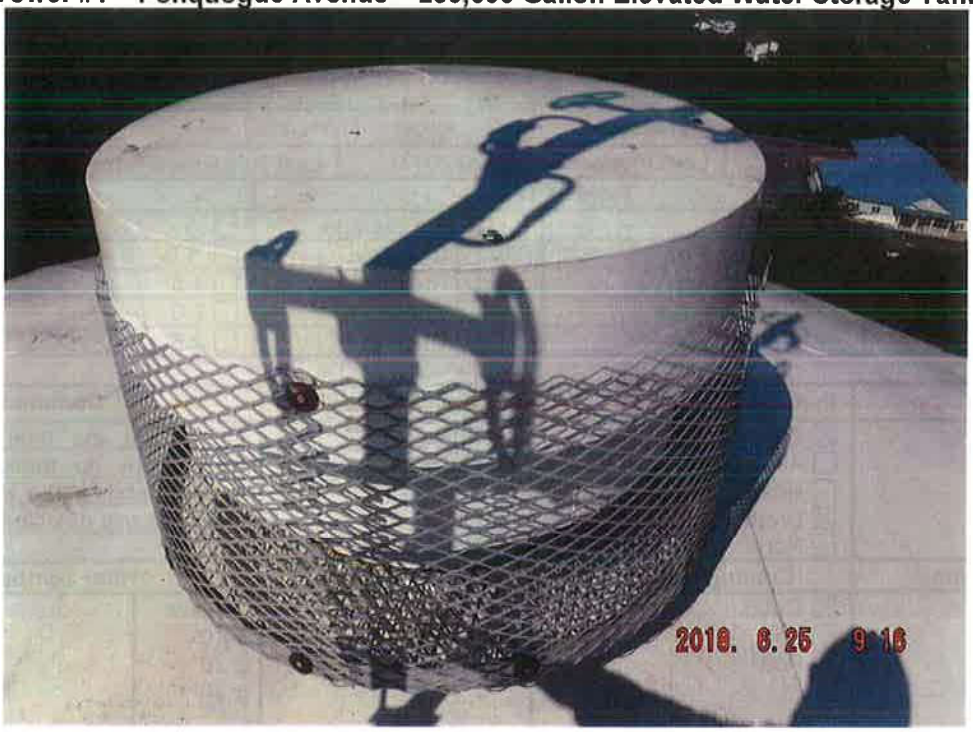
## LIGHTING

| Lighting | Appurtenances | Yes | No | Comments |
|---|---|---|---|---|
| ☐ Beacon<br>☒ Railing<br>☐ Interior<br>☐ Other<br>☐ None | Photocell accessible<br>Lights operable<br>Bulbs Changed<br>Quantity | ☐<br>☐<br>☐ | ☒<br>☒<br>☒ | None. |

## LADDER

| Ladder | Appurtenances | Yes | No | Comments |
|---|---|---|---|---|
| ☒ Exterior Leg<br>☐ Dry Riser<br>☒ Water Cavity<br>☐ Other<br>☐ None | Safety climb present<br>Vandal guard present<br>Condition of safety climb<br>☒ Good ☐ Fair ☐ Poor | ☒<br>☒ | ☐<br>☐ | None. |

**Tower #1 – Ponquogue Avenue – 250,000 Gallon Elevated Water Storage Tank**




**Photograph # 1** – The roof top vent.

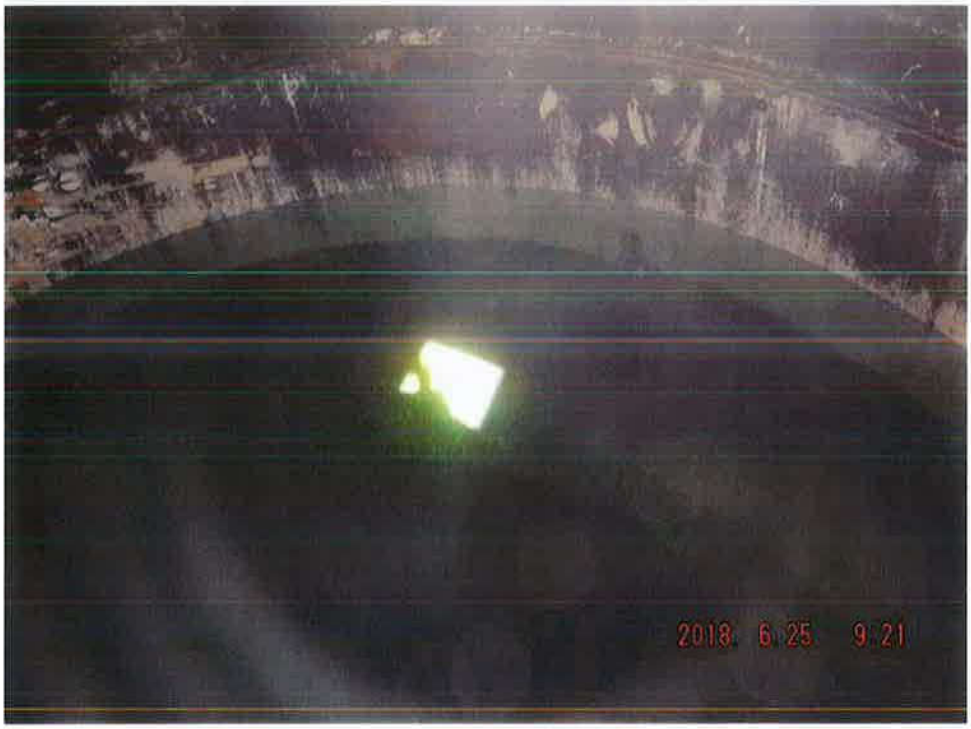
**Photograph # 2** – The roof top vent appears to be in good condition. There is no access to inspect the pallet or internal screen.

**Tower #1 – Ponquogue Avenue – 250,000 Gallon Elevated Water Storage Tank**

**Photograph # 3** – The roof access ladder is equipped with a pipe safety climb. The ladder and safety climb are in good condition.

**Photograph # 4** – The overflow is equipped with a duckbill check valve that is in good condition.

**Tower #1 – Ponquogue Avenue – 250,000 Gallon Elevated Water Storage Tank**




**Photograph #5 –** The water cavity interior has a moderate amount of sediment collected at the base of the tank.

**Photograph # 6** – A moderate amount of rust staining along the side walls of the water cavity interior was noted.

**Tower #1 – Ponquogue Avenue – 250,000 Gallon Elevated Water Storage Tank**

**Photograph # 7 –** The water cavity access hatch was closed and locked prior to and following the tank's inspection.

**Photograph # 8 –** The access ladder's vandal guard was closed and locked prior to and following the tank's inspection.

**Tower #1 – Ponquogue Avenue – 250,000 Gallon Elevated Water Storage Tank**

**RECOMMENDATIONS:**

- During the next rehabilitation of the tank the vent vandal guard should be modified to allow for inspection of the vent by adding an access door with a locking mechanism.

June 27, 2018
Hampton Bays Water District
Annual Tank Inspection
H2M Project No.: HBWD1870

# Tower No. 2
# Old Riverhead Road
# 250,000 Gallon
# Elevated Water Storage Tank

# INSPECTION CHECK LIST

**Date**: June 27, 2018
**Owner:** Hampton Bays Water District
**Personnel present:** Joseph Aviles and Joseph Ambert

**Location/Description:** Tower 2, Old Riverhead Road
**Contact:** Superintendent Robert King

| **Year Constructed:** 1985 | **Last Inspected:** 06/29/2017 | **Last Repainted/Repaired:** 2003 |
|---|---|---|

| Type of Inspection | Type of Tank | | Capacity | |
|---|---|---|---|---|
| ☒ Bi-annual | ☒ Elevated | ☐ Ground Storage | ☐ .5 | |
| ☐ Annual | ☐ Singe Ped | ☐ Concrete | ☐ 1.0 | |
| ☐ Pre-bid | ☒ Multi Leg | ☐ Prestressed | ☐ 1.5 | |
| ☐ Other | ☐ Hydro-pillar | ☐ Bolted | ☐ 2.0 | |
| | ☐ Standpipe | ☐ Clearwell | ☐ 2.5 | ☒ Other: 250,000 |

## COATINGS

| Interior Coating | Exterior Coating | Dry Interior Coating | Comments |
|---|---|---|---|
| ☒ Epoxy | ☒ Epoxy | ☐ Epoxy | No comments. |
| ☐ Coal tar | ☐ Alkyd | ☐ Alkyd | |
| ☐ Urethane | ☐ Noxyde | ☐ Noxyde | |
| ☐ Zinc | ☒ Urethane | ☐ Other | |
| ☐ None | ☐ None | ☒ None | |
| ***Coating Condition*** | ***Coating Condition*** | ***Coating Condition*** | ***Water Temperature*** |
| ☒ Good | ☒ Good | ☐ Good | Surface |
| ☐ Fair | ☐ Fair | ☐ Fair | ± 10' |
| ☐ Poor | ☐ Poor | ☐ Poor | ± 20' |
| | | | ± 30' |

## SECURITY

| Perimeter Security | Tank Security | Appurtenances | Yes | No | Comments |
|---|---|---|---|---|---|
| ☒ Fencing | ☒ Locks | | | | The overall security of the facility was satisfactory. |
| ☐ Alarms | ☐ Alarms | Hatch locked | ☒ | ☐ | |
| ☐ Motion Sensors | ☐ Other | Door Locked | ☐ | ☐ | |
| ☐ None | ☐ None | Ladder Locked | ☒ | ☐ | |

## VENT

| Type | Appurtenances | Yes | No | Comments |
|---|---|---|---|---|
| ☒ Pallet | | | | Vandal guard around vent was secure at the time of inspection. |
| ☐ Mushroom | Insect screen present | ☒ | ☐ | |
| ☐ Screened openings | freeze resistant | ☒ | ☐ | |
| ☐ Other | Screen secure | ☒ | ☐ | |

## LIGHTING

| Lighting | Appurtenances | Yes | No | Comments |
|---|---|---|---|---|
| ☐ Beacon | | | | None. |
| ☐ Railing | Photocell accessible | ☐ | ☐ | |
| ☐ Interior | Lights operable | ☐ | ☐ | |
| ☐ Other | Bulbs Changed | ☐ | ☐ | |
| ☒ None | Quantity | | | |

## LADDER

| Ladder | Appurtenances | Yes | No | Comments |
|---|---|---|---|---|
| ☒ Exterior Leg | | | | None. |
| ☐ Dry Riser | Safety climb present | ☒ | ☐ | |
| ☒ Water Cavity | Vandal guard present | ☒ | ☐ | |
| ☐ Other | Condition of safety climb | | | |
| ☐ None | ☒ Good ☐ Fair ☐ Poor | | | |

**Tower #2 – Old Riverhead Road – 250,000 Gallon Elevated Water Storage Tank**

**Photograph # 1 –** Tank roof vent.

**Photograph # 2 –** The vent is in good condition. There is no access to the pallet or interior screen.

**Tower #2 – Old Riverhead Road – 250,000 Gallon Elevated Water Storage Tank**

**Photograph # 3 –** The roof access ladder is equipped with a pipe safety climb. The ladder and safety climb are both in good condition.

**Photograph # 4 –** The overflow is equipped with a duckbill check valve that is in good condition.

**Tower #2 – Old Riverhead Road – 250,000 Gallon Elevated Water Storage Tank**

**Photograph # 5 –** The water cavity interior is in good condition. Sediment was noted at the bottom of the tank.

**Photograph # 6 –** The water cavity interior sidewalls are in good condition with rust staining below the water line.

**Tower #2 – Old Riverhead Road – 250,000 Gallon Elevated Water Storage Tank**

**Photograph # 7 –** The water cavity access hatch was closed and locked prior to and following the tank's inspection.

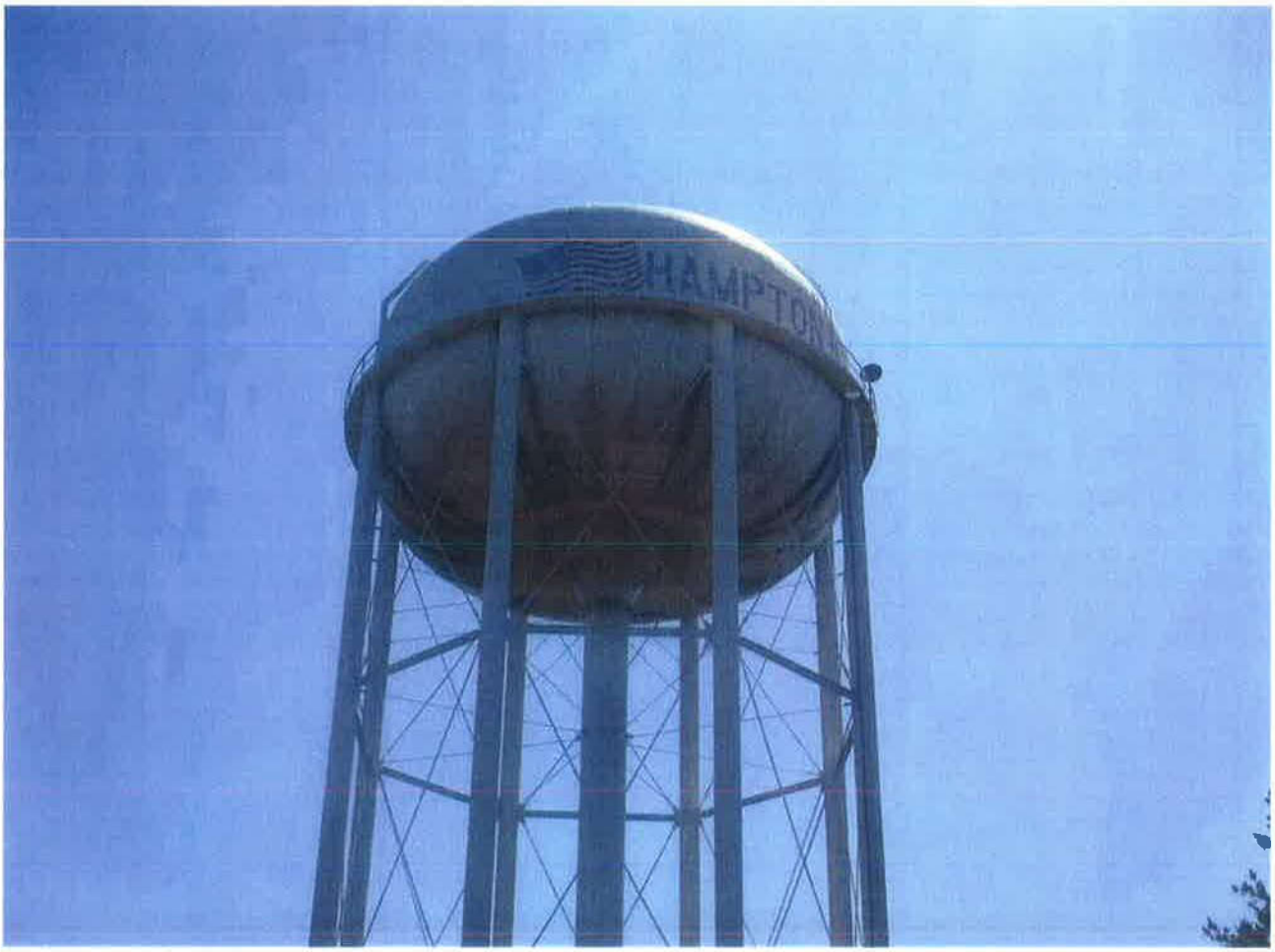
**Photograph # 8 –** The access ladder's vandal guard was closed and locked prior to and following the tank's inspection.

## Tower #2 – Old Riverhead Road – 250,000 Gallon Elevated Water Storage Tank

**RECOMMENDATIONS:**

- During the next rehabilitation of the tank the vent vandal guard should be modified to allow for inspection of the vent by adding an access door with a locking mechanism.

# Tower No. 3
# Bellows Pond Road
# 1.0 Million Gallon
# Elevated Water Storage Tank



# INSPECTION CHECK LIST

**Date:** June 27, 2018
**Owner:** Hampton Bays Water District
**Personnel present:** Joseph Aviles and Joseph Ambert

**Location/Description:** Tower 3, Bellows Pond Road
**Contact:** Superintendent Robert King

| Year Constructed: 2005 | Last Inspected: 06/29/2017 | Last Repainted/Repaired: 2005 |
|---|---|---|

| Type of Inspection | Type of Tank | | Capacity (MG) | |
|---|---|---|---|---|
| ☒ Bi-annual | ☒ Elevated | ☐ Ground Storage | ☐ .5 | |
| ☐ Annual | ☐ Singe Ped | ☐ Concrete | ☒ 1.0 | |
| ☐ Pre-bid | ☒ Multi Leg | ☐ Prestressed | ☐ 1.5 | |
| ☐ Other | ☐ Hydro-pillar | ☐ Bolted | ☐ 2.0 | |
| | ☐ Standpipe | ☐ Clearwell | ☐ 2.5 | ☐ Other |

## COATINGS

| Interior Coating | Exterior Coating | Dry Interior Coating | Comments |
|---|---|---|---|
| ☐ Epoxy | ☒ Epoxy | ☐ Epoxy | Interior: At the time of inspection there were failed coatings present, on the top of the ice. |
| ☐ Coal tar | ☐ Alkyd | ☐ Alkyd | |
| ☐ Urethane | ☐ Noxyde | ☐ Noxyde | |
| ☐ Zinc | ☐ Urethane | ☐ Other | |
| ☒ Unknown | ☒ Unknown | ☒ None | |
| ***Coating Condition*** | ***Coating Condition*** | ***Coating Condition*** | ***Water Temperature*** |
| ☐ Good | ☐ Good | ☐ Good | Surface |
| ☐ Fair | ☒ Fair | ☐ Fair | ± 10' |
| ☒ Poor | ☐ Poor | ☐ Poor | ± 20' |
| | | | ± 30' |

## SECURITY

| Perimeter Security | Tank Security | Appurtenances | Yes | No | Comments |
|---|---|---|---|---|---|
| ☒ Fencing | ☒ Locks | | | | The overall security of the facility was satisfactory. |
| ☐ Alarms | ☐ Alarms | Hatch locked | ☒ | ☐ | |
| ☐ Motion Sensors | ☐ Other | Door Locked | ☐ | ☐ | |
| ☐ None | ☐ None | Ladder Locked | ☒ | ☐ | |

## VENT

| Type | Appurtenances | Yes | No | Comments |
|---|---|---|---|---|
| ☒ Pallet | | | | None. |
| ☐ Mushroom | Insect screen present | ☒ | ☐ | |
| ☐ Screened openings | Freeze resistant | ☐ | ☒ | |
| ☐ Other | Screen secure | ☒ | ☐ | |

## LIGHTING

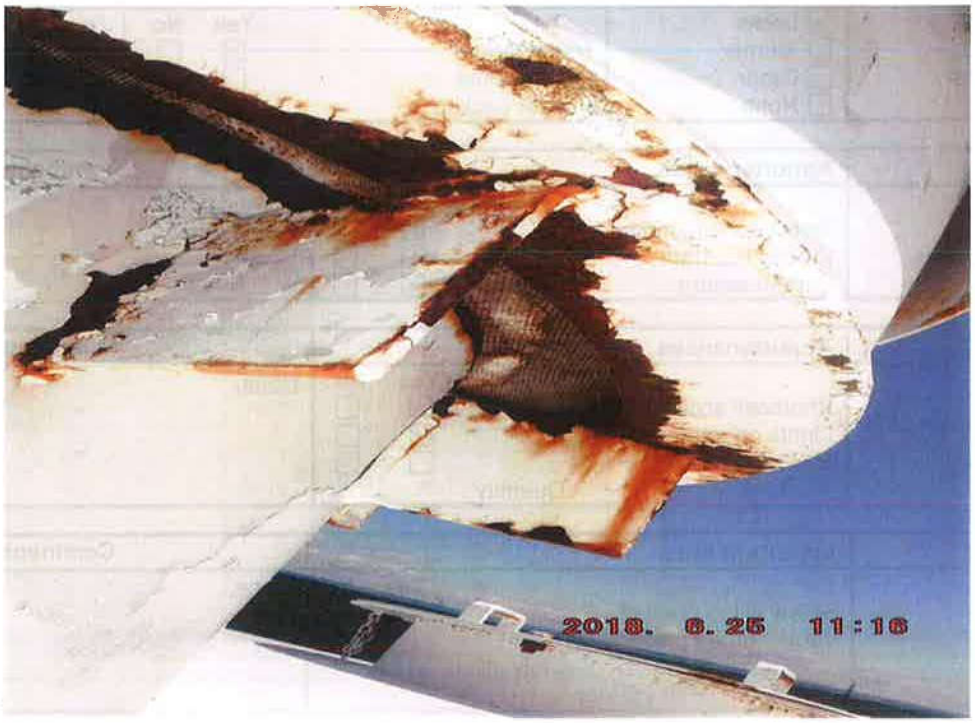
| Lighting | Appurtenances | Yes | No | Comments |
|---|---|---|---|---|
| ☐ Beacon | | | | None. |
| ☐ Railing | Photocell accessible | ☐ | ☐ | |
| ☐ Interior | Lights operable | ☐ | ☐ | |
| ☐ Other | Bulbs Changed | ☐ | ☐ | |
| ☒ None | Quantity | | | |

## LADDER

| Ladder | Appurtenances | Yes | No | Comments |
|---|---|---|---|---|
| ☒ Exterior Leg | | | | None. |
| ☐ Dry Riser | Safety climb present | ☒ | ☐ | |
| ☒ Water Cavity | Vandal guard present | ☒ | ☐ | |
| ☐ Other | Condition of safety climb | | | |
| ☐ None | ☐ Good ☐ Fair ☒ Poor | | | |

**Tower #3 – Bellows Pond Road – 1.0 Million Gallon Elevated Water Storage Tank**

**Photograph # 1 –** Tank roof vent.




**Photograph # 2 –** The body of the vent is in poor condition as moderate corrosion and delaminating coatings are present throughout the vent. The screens are free of obstructions.

**Tower #3 – Bellows Pond Road – 1.0 Million Gallon Elevated Water Storage Tank**

**Photograph # 3 –** The access ladder is equipped with a cable safety climb. The ladder and safety climb are both in fair condition.

**Photograph # 4 –** The over flow discharge.

**Tower #3 – Bellows Pond Road – 1.0 Million Gallon Elevated Water Storage Tank**

**Photograph # 5 –** There is a minimal amount of biological growth present under the tank.

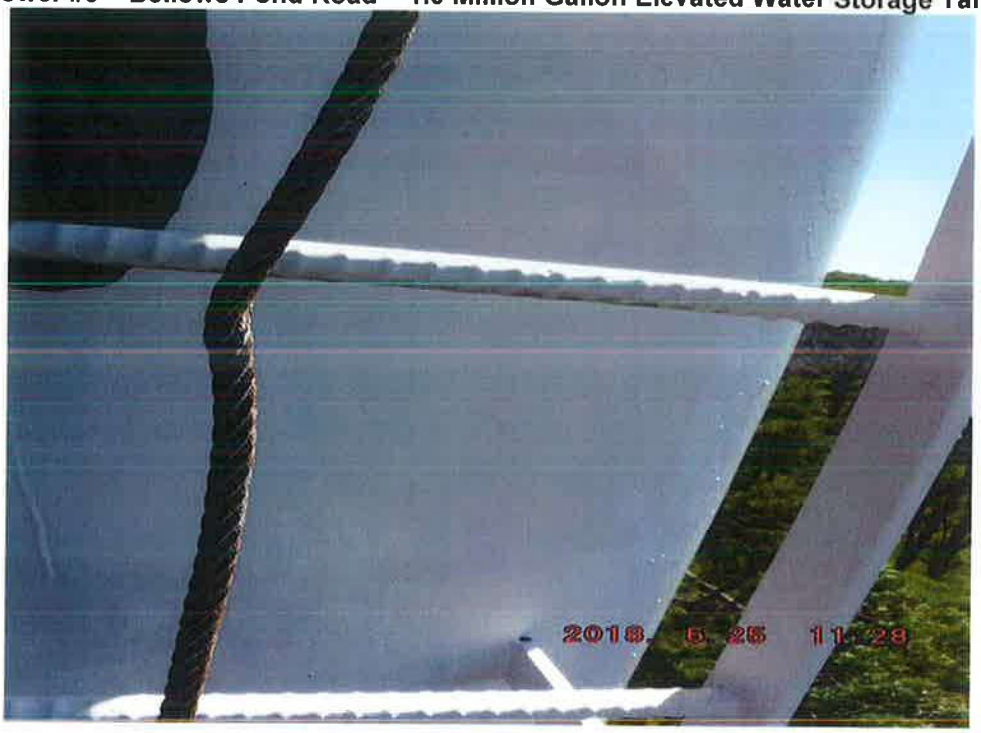
**Photograph # 6 –** There is significant delamination on the exterior roof coating; coating system's mid-coat is mostly intact and will continue to protect the substrate for a limited time.

**Tower #3 – Bellows Pond Road – 1.0 Million Gallon Elevated Water Storage Tank**

**Photograph # 7 –** The overflow discharge is not equipped with a protective screen.

**Photograph # 8 –** The water cavity interior is in poor condition with sediment collected at the base of the tank. The tanks ceiling exhibits severe coating failure with bare steel visible throughout the interior of the tanks roof.

**Tower #3 – Bellows Pond Road – 1.0 Million Gallon Elevated Water Storage Tank**




**Photograph # 9 –** The tanks access ladder is equipped with a cable safety climb. The ladder is in fair condition. The safety climb is showing signs of wear and is damaged at two locations. The safety climb should be replaced at the Districts earliest convenience.

**Photograph # 9 –** The access ladder vandal guard was closed and locked prior to and following the tank's inspection.

**Tower #3 – Bellows Pond Road – 1.0 Million Gallon Elevated Water Storage Tank**

**RECOMMENDATIONS:**

- The overflow discharge should be equipped with a #4 mesh screen.
- The cable safety climb should be replaced at the District's earliest convenience.
- The interior and exterior coatings are in poor condition overall. The District should prioritize rehabilitation of this tank in order to mitigate structural repairs that may become necessary with continued deterioration.

If you have any questions regarding this report, please feel free to contact us at 631-756-8000.

Very truly yours,

**H2M architects + engineers**

Joseph Aviles
Coatings Inspector
NACE Coatings Inspector Level 1 #65062

Joseph C. Ambert
Coatings Inspector
NACE Coatings Inspector Level 1 #69740

JA:jca
Enclosures

# APPENDIX C

# SITE INSPECTION EVALUATIONS

**Site Inspection Evaluations**

D&B Engineers and Architects, P.C. (D&B) conducted site visits for each Hampton Bays Water District (HBWD) property and performed thorough assessments of the condition of the sites themselves, the building facilities, the mechanical equipment, the electrical equipment, and any treatment equipment that was present on site.

Assessments were made in respect to a variety of reference standards, including the Natural Fire Prevention Association (NFPA) Codes and Standards for the Built Environment, National Electric Code (NEC), American Water Works Association (AWWA), and the Society for Protective Coatings (SSPC). These, as well as typical industry standards, were used to assess the HBWD buildings and equipment and determine their condition and useful lives. It should be noted that information regarding some of the District's facilities was limited, so the majority of these evaluations are based on visual inspection.

Facilities were also evaluated in regards to their compliance with Suffolk County Department of Health (SCDH) codes and regulations. SCDH requirements apply to a wide variety of water supply equipment, including chemical storage.

1.1 Main Facility Well 1-3

1.1.1 – Site/Exterior Information

- Fence in good condition
- Rolling gates in good condition
- Pavement in good condition with minimal cracking
- Grass area used as natural drainage
- Blowoff pits present
- Five existing blowoff goosenecks
- 18" airgap present
- 24 mesh screen present, questionable at Well 1-2

1.1.2 – Well 1-3 Building

- Gutters and downspout in fair condition with some bending at ends
- Exterior finish in fair condition, with some cracked siding along bottom edge
- Interior finish in good condition
- New doors in good condition
- New windows in good condition

1.1.3 – Infrastructure Security

- Locks present on gate
- No cameras on site
- Lighting on siting present
- No barbed wire on fence
- A knob with keyhole and alarm system are only direct infrastructure security. It is recommended to upgrade to a key card security system with camera surveillance

1.1.4 – Operation

- Well present
- Has disinfection and pH treatment
- Water storage tank present
- No booster pump
- Well has granular activated carbon

1.1.5 – Well

- Pump model DWT-DEEM
- Motor model 5-stage (4532343)
- The well has a flow of 750 gallons per minute

- Well has TDH of 300.00
- Well casing vent present with minimum 1.5” diameter opening and 24 mesh screen. Does not terminate downward
- Air relief valve present with 24 mesh screen. Terminates downward and is not subject of back siphonage
- Blow off piping with 18” air gap, check valve located inside and 24 mesh screen
- Sanitary seal present 18” above floor and above the 100 year flood level
- Pre-Lube present with Midwest Sight flow indicator and timer inside starter panel
- Piping properly color-coded grey/neutral

1.1.6 – Chemical Safeties

- Chemical metering pumps present

1.1.7 – Operator Safety

- Shower and eyewash present
- Rubber gloves, goggles, and aprons available
- Splash shields present
- Operator log books present
- Overfill alarm panel at fill port present

1.1.8 – Disinfection

- Calcium hypochlorite ACH low in chlorine building, common to all three wells
- Residual set point of 1.21 mg/L
- Chlorine analyzer HACH CL17 with manual reset and alarm notification for operator

1.1.9 – pH

- Caustic soda in three tanks

- 25%
- Tank volume of 1000 gallons
- Tank level on alarm panel line readout
- pH analyzer with hi shutoff and alarm notification for operator

1.1.10 – Water Storage Tank

- Has tank report

1.1.11 – GAC

- Has two vessels
- Uses Calgon carbon
- Vessel in good condition
- Coating in good condition
- Legs in good condition
- Hatches in good condition
- Header in good condition
- Gauges in good condition
- Is present outside with blowoff gap and screen present

## 1.2 Well Facility 2-1

### 1.2.1 – Site/Exterior Features

- Fence in good condition
- Gates in good condition with master lock
- Paving in good condition with moderate cracking
- Two blowoff pits on site with two blowoff goosenecks
- 18” Airgap present

### 1.2.2 – Well 2-1 Building

- Gutters and downspout in good condition
- Vinyl siding exterior in good condition
- Interior finish slightly cracked
- New doors in good condition
- Windows in good condition
- Louvres in good condition
- Vent fan in fair condition with some rust on the edges

### 1.2.3 – Infrastructure Security

- Locks on gate
- Site lighting present in building
- Barbed wire present
- A knob with keyhole and alarm system are only direct infrastructure security. It is recommended to upgrade to a key card security system with camera surveillance

### 1.2.4 – Operation

- Site has two wells
- Site has disinfection and pH treatment
- A water storage tank and booster pump are present
- There is no GAC or pack tower present

1.2.5 – Well

- Well is submersible with no nameplate
- Well casing vents are present with 1.5" diameter opening. They terminate downward and have 24 mesh screen
- Air relief valve present with 24 mesh screen. Terminated downward and is not subject to back siphonage
- Blow-off piping with 18" air gap and 24 mesh screen. Open when the well is off
- Sanitary screen not properly sealed and not 18" above floor.
- Water level measurement present and properly sealed with threaded belt. It is 18" above the floor
- Pre-lube present and on timer

1.2.6 – Chemical Safeties

- Chemical metering pumps present with twist locks. Plugs into wall outlets

1.2.7 – Operator Safety

- Shower and eyewash station present
- Rubber gloves, goggles, aprons, and splash shields present

1.2.8 – Water Storage Tank

- Has tank report

1.2.9 – Booster Pump

- Pump model Super E A20401P-55
- Motor model number 3WB-15-2
- Motor operates at 3525 RPM and 150 HP
- Discharge pressure is 42 psi and discharge size is 12”

## 1.3 Well Facility 2-2

### 1.3.1 – Well

- Motor model 364TP WPI
- Well casing vents present off to the side of the site with 1.5” diameter opening and 24 mesh screen. Does not terminate downwards
- Air relief valve present but does not terminate downwards and does not have 24 mesh screen, leaving it vulnerable to contamination
- Blow-off piping present with 18” air gap and check valve. No 24 mesh screen present
- Sanitary seal properly sealed. Only 10” above floor rather than the recommended 18”, and still above the 100 year flood level
- Water level measurement present, properly sealed and 18” above the floor
- Pre-lube present with a flow indicator and on a timer
- Lubricating oil present
- Piping is properly color coded

### 1.3.2 – Chemical Safety

- Chemical metering pumps present with twist locks and dissimilar plugs

### 1.3.3 – Operator Safety

- Shower and eyewash station present at the other side of the building/room
- Rubber gloves, goggles, aprons and splash shields present
- Chemical safety sheets and operator log books available and present
- Tank contents and capacity properly posted
- Overfill alarm panel at fill port present
- Adequate tank containment present underground

1.3.4 – Disinfection

- Residual set point of 1.2 mg/L
- Chlorine analyzer with alarm that notifies both operator and office all on the SCADA system present

1.3.5 – pH

- Tank volume and level displayed
- pH analyzer with hi shutoff present

1.3.6 – Water Storage Tank

- Water storage tank has tank report

## 1.4 Well Facility 3-1

### 1.4.1 – Site/Exterior Features

- Fence and gates in good condition
- Paving in good condition
- Landscaping in good condition
- Site is flat with some trees
- One blowoff pit and one blowoff gooseneck present on site
- 18” Airgap present on site
- 24 Mesh screen present on site

### 1.4.2 – Well Facility 3-1 Building

- Gutters and downspout in good condition
- Vent fan not running. The fan works, but is noisy and is recommended to be addressed
- Heat start wall mount heater present in building

### 1.4.3 – Infrastructure Security

- Locks on gate present
- No security cameras available
- Site lighting present
- Barbed wire present
- Door locked by knob and key. It is recommended to upgrade to a key card security system with camera surveillance and an alarm system

### 1.4.4 – Operation of Well Facility 3-1

- The well facility has a well present with disinfection and pH treatment
- There is no water storage tank, booster pump or other auxiliary systems to operate with the well

1.4.5 – Well 3-1

- Well is lit by flashing fluorescent bulbs and a ceiling light
- Pump model TJ2596 by Johnson
- Motor model H040V2 BLG-C by Nidec
- The pump has a flow of 410 gallons per minute and a TDH of 36 feet
- The system has a power of 40HP and a discharge pressure of 90 psi
- The discharge size of the well is 6”
- Well casing vents are present with a 1.5” diameter opening and 24 mesh screen. The vents do not terminate downwards, which is recommended to be fixed
- The air relief valve is present with 24 mesh screen and terminate downward
- Blow-off piping with 18” air gap, check valve, and 24 mesh screen present
- Sanitary seal is not properly sealed the concrete patch-up down to it is cracking. This along with not being 18” above the floor needs to be addressed (it is only about 6” above the floor)
- Water level measurement is measured by altitude. It is present at 38 feet and is 18” above the floor. It is not properly sealed as duct tape is currently used to seal the secondary line
- Pre-lube present and on solenoid timer. There is no flow indicator for the pre-lube
- Lubricating oil is present at the well
- The well has properly color coded gray piping

1.4.6 – Chemical Safeties

- Chemical metering pumps present with twist locks
- The chemical metering pump is powered via a wall plug

- Antisiphon valve present as solenoid valve at the point of injection

1.4.7 – Operator Safety

- Shower and eyewash station present
- PPE present includes rubber gloves, goggles, aprons, and splash shields
- Reporting emergency sign present
- Chemical safety sheets and operator log books present
- Tank contents and capacity clearly posted and viewable
- Leak alarm panel present and functional
- Overfill alarm panel at fill port present
- Adequate tank containment located underground

1.4.8 – Disinfection

- Calcium hypochlorite disinfection present
- Residual set point is 1.2 mg/L
- CL17 HACH chlorine analyzer present

1.4.9 – pH

- Tank level of 860 gallons
- HACH SC100 pH analyzer used

## 1.5 Well Facility 3-2

### 1.5.1 – Site/Exterior Features

- Fence and gates in good condition
- Paving in good condition with some cracking

### 1.5.2 – Infrastructure Security

- Gates locked with a master lock
- Site lighting present on building
- Barbed wire present
- Door locked by knob and key. It is recommended to upgrade to a key card security system with camera surveillance and an alarm system

### 1.5.3 – Well Facility 3-1 Operation

- Well facility 3-2 has three wells all with disinfection and pH treatment and no auxiliary systems such as storage tanks, booster pumps, or GAC

### 1.5.4 – Well 3-2

- Pump model TJ-2120 by Johnston Vertical
- Motor model 324TPH by US
- TDH of the well is 38 feet
- The power of the system is 40 HP
- The dynamic level is 95 psi
- The size of discharge is 6”
- Well casing vents present with 1.5” diameter opening and 24 mesh screen. The vents do not terminate downwards which is recommended to be fixed
- Air relief valve present with 24 mesh screen. The valve terminates downwards

- Blow-off piping present with 18” air gap, check valve, and 24 mesh screen
- The sanitary seal is properly sealed and above the 100 year flood level. It is not 18” above the floor sitting at about 12”
- Water level measurement present as an altitude gauge. It is properly sealed and 18” above the floor
- Pre-lube present without flow indicator and not on a timer
- Lubricating oil present
- The well has properly color coded gray piping

1.5.5 – Chemical Safeties

- Chemical metering pumps present with twist locks. The metering pumps are powered by wall outlet plugs
- There is no antisiphon valve, but there is a solenoid valve at the point of injection

1.5.6 – Operator Safety

- Shower and eyewash station present, but eyewash station is in inaccessible location
- PPE available includes rubber gloves, goggles, aprons, and splash shields
- Reporting emergency sign present
- Chemical safety sheets present
- Operator log books not available, which should be addressed for the safety of the operators
- Tank contents and capacity posted and viewable
- Leak alarm panel present and functional
- Overfill alarm panel present at fill port
- Adequate tank containment located underground

1.5.7 – Disinfection

- Calcium hypochlorite disinfection present
- The system has adequate tablet capacity

1.5.8 – pH

- Caustic soda present at 25%
- Proper tank volume present
- Tank level at an adequate 750 gallons
- pH analyzer present

1.5.9 – Water Storage Tank

- The water storage tank has a tank report

## 1.6 Well Facility 3-3

### 1.6.1 – Site/Exterior Features

- Fence and gates in good condition
- Paving in good condition
- Landscape in good condition. Site is flat with some trees present
- Some of the site drainage is undermined by BO at the foundation
- One blowoff pit and one blowoff gooseneck present
- 18” airgap and 24 mesh screen present

### 1.6.2 – Well Facility 3-3 Building

- Gutters and downspout present
- Exterior finish made of plaster in fair condition with minor cracks
- Interior finish done in painting cinder block
- Windows and vent fan in good condition
- Wall mounted heater present

### 1.6.3 – Infrastructure Security

- Gates locked by Masterlock
- Lighting on site present
- Barbed wire present on site
- Door locked by knob and key. It is recommended to upgrade to a key card security system with camera surveillance and an alarm system

### 1.6.4 – Well 3-3 Operation

- Well present with disinfection and pH treatment present

- No auxiliary systems such as storage tanks, booster pumps, or packed towers

1.6.5 – Well 3-3

- Pump model WJ-4121 by Johnston
- Motor model H040V2VL6-C
- The pump has a flow of 480 gallons per minute
- The TDH of the system is 140 psi
- The power of the system is 40 HP
- Static level of the system is 49 feet
- Size of the discharge is 6”
- Well casing vents present with 1.5” diameter opening and 24 mesh screen. The vent does not terminate downward which should be fixed to prevent contamination of the well
- Air relief valve present with 24 mesh screen and terminates downward
- Blow-off piping with 18” air gap, check valve, and 24 mesh screen
- Sanitary seal properly sealed and above 100 year flood level. The seal is only 12” above the floor rather than 18”
- Water level measurement at 49 feet present and properly sealed 18” above the floor
- Pre-lube present and on solenoid timer

1.6.6 – Chemical Safety

- Chemical metering pumps present with twist locks and powered through wall outlet plug
- Solenoid valve present at point of injection

1.6.7 – Operator Safety

- Shower and eyewash station present but inaccessible. The accessibility of these two safety devices need to be addressed for the well-being of the operators
- PPE available includes rubber gloves, goggles, aprons and splash shields
- Reporting emergencies sign present
- Chemical safety sheets and operator log books present and viewable
- Tank contents and capacity clearly posted
- Leak alarm panel present
- Overfill alarm panel present at fill port
- Adequate tank containment present

1.6.8 – Disinfection

- Calcium hypochlorite disinfection present
- Chlorine analyzer not present on system

1.6.9 – pH

- Tank level is an adequate 700 gallons.
- There is no pH analyzer in this system

## 1.7 Well Facility 4-1 & 4-2

### 1.7.1 – General Information

- Well 4-1 inside the facility building and operates year round. Well 4-2 is a seasonal well that is located outside

### 1.7.2 – Well Facility 4-1 & 4-2 Building

- Low heater in well 4-1 room
- Fluorescent lighting used

### 1.7.3 – Well Operation

- Well 4-1 has pump model 25518-1-1 by Floway, which has 1000 gallon per minute flow and four stg
- Well 4-1 is equipped with water level gauge, a PL timer and well vent mesh
- Motor model R484A with 75 HP
- Auxiliary power is direct drive from diesel at 90° with automatic startup
- Chemical metering pumps have data sheets and log books present
- Chemical injection is eroded, which should be addressed
- Tablet chlorinator and caustic pump room is crowded
- Containment is under steel grading. The sump with containment has an automatic sump pump
- Well 4-2 has casing vent with no mesh. All other data on well 4-2 is unavailable because it is underground or in the casing

### 1.7.4 – Operator Safety

- PPE present includes rubber gloves, goggles, aprons, and splash shield in good condition

- Eye wash and shower present and in good condition

1.7.5 – Disinfection

- Calcium hypochlorite concentration of .84 mg/L
- Chemical metering pumps present with twist locks and powered via wall outlet plug

1.7.6 – pH

- Caustic soda with volume of 3000 gallons at 25%
- Chemical metering pumps present with twist locks. Powered through wall outlet plug

## 1.8 Well Facility 5-1

### 1.8.1 – Site/Exterior Features

- Fence is new and in good condition. Gates in good condition
- Paving in good condition
- Sidewalk requires maintenance in expansion joints and spill channel
- Landscaping in good condition with patchy grass and sand. The site has a slight hill
- Spill channel for site drainage requires maintenance
- There is a drywell present on site
- Blowoff pits and one blowoff gooseneck present on site
- 18” Airgap and 24 mesh screen present

### 1.8.2 – Well Facility 5-1 Building

- New gutters and downspout in good condition
- Exterior is a tan vinyl siding which is new in good condition
- Interior finish is white painted cinder block
- Doors new in good condition
- Roof hatch is a sealed wooden board
- Louvres and vent fan present
- Heater is a gas Modine in good condition
- Ladder in good condition

### 1.8.3 – Infrastructure Security

- Locks on gate present
- Site has lighting
- Barbed wire present on fence
- Access control system is present

1.8.4 – Operational Inspection

- Auxiliary power present on-site
- Well is present with disinfection and pH treatment
- No auxiliary well systems including storage tank booster pump and nitrate treatment

1.8.5 – Well 5-1

- Motor model H075V29L6/BF61A
- System has a flow of 655 gallons per minute and a power of 75HP
- The discharge pressure is 70 psi (67.3 psi)
- Size of the discharge is 8”
- Well casing vents are present with 1.5” diameter opening and 24 mesh screen. The vents terminate downward
- Air relief valve present, with no screen and does not terminate downwards. The valve is also not subject to back siphonage
- Blow-off piping present with 18” air gap and check valve
- Sanitary seal is properly sealed, 18” above the floor and above the 100-year flood level
- Water level measurement present, properly sealed, and 18” above the floor
- Pre-lube present and on timer. There is no flow indicator
- Lubricating oil is present
- Piping is properly color coded gray

1.8.6 – Chemical Safeties

- Chemical metering pump with twist locks present and powered by wall outlet plug

1.8.7 – Operator Safety

- Shower and eyewash station present
- PPE available includes rubber gloves, goggles, aprons and splash shields
- Reporting emergencies sign present
- Chemical safety sheets and operator log books present and viewable
- Tank contents and capacity clearly posted
- Leak alarm panel present
- Overfill alarm panel present at fill port

1.8.8 – Disinfection

- Residual set point is 1.70 mg/L
- CL17 HAC chlorine analyzer present

1.8.9 – pH

- Caustic soda present at 25%
- Tank volume of 3000 gallons and tank level at 1671 gallons
- pH analyzer GLI model 53 present

# APPENDIX D

# RAMPASTURE ROAD PENINSULA LETTER

H2M architects + engineers
538 Broad Hollow Road, 4th Floor East
Melville, NY 11747 | tel 631.756.8000

Southampton Town Council
Town of Southampton
116 Hampton Road
Southampton, New York 11968

**Re: Hampton Bays Water District**
**Rampasture Road Peninsula**
**H2M Project No.: HBWD 1950**

Dear Councilmembers:

As you may be aware, residents located on the Rampasture Road peninsula located in the service area of the Hampton Bays Water District (District) have expressed concerns over the past years over low pressure and dirty water complaints. Rampasture Road is a hydraulically isolated peninsula located south of Springville Road in the southwest portion of the District. The area is residential, consisting of over two hundred (200) single family homes plus a cooperative development. The area is fed from a single 8-inch feed extending from Grant Road to East Rampasture Road. The secondary streets consist mostly of 6-inch dead-end water mains. These mains are estimated to be up to 75 years old. During peak demand periods, the District receives complaints of low water pressure. Residents have also registered "dirty water" complaints recently, in particular during the summer of 2018.

These "dirty water" complaints occurred across the southern portion of the District during 2018 due to the unavailability of wells at the Districts Ponquogue Road plant as the current treatment system was placed on-line. The Town has committed to installing treatment for iron filtration at the Plant No. 4 wellfield. This treatment system plus the continued use or sequestrants will alleviate many of these complaints moving forward.

Pressure complaints during the summer months have been an issue. During the winter months, the pressure on the peninsula is more than adequate to meet recommendations and requirements set forth by Ten States Standards. However, two factors create a situation where pressure within these areas drop below recommended guidelines. First, many of the homes on the peninsula are summer residences and therefore do not contribute to water demand during the off-season months (Labor Day to Memorial Day). Secondly, many of these homes maintain large irrigation systems which are often set to turn-on during early morning hours. The demand of these irrigation systems coupled with the single feed to the peninsula create such a large demand that head losses in the piping cause local pressure to drop. These pressure drops may be exacerbated by undersized or tuberculated water main.

One tool that can be used to gauge the condition of the existing water without excavation or destructive measures is a c-factor test. C-factor is a measure of the smoothness of the interior of the pipe. The c-factor test utilizes measured flow and pressure from hydrants to predict the internal condition of water main. Under this test, water only flows in one direction. On October 4, 2019, H2M and Water District personnel performed a c-factor test on the existing 8" water main on Rampasture Road. Results of the test show a measured c-factor from the test of 55, indicating the existing water main is in poor condition and/or may likely be undersized. In comparison, a new ductile iron water main has an expected c-factor of 120 to 130.

In 2010, H2M performed a hydraulic analysis of the District's distribution system with the Rampasture Road peninsula being a focal point of the analysis. The evaluation provided two courses of action to consider improving pressure to the Rampasture Road peninsula:

A. Create a boosted pressure are on the Rampasture peninsula via a new booster station and isolation of the facilities on the peninsula from remainder of District.

B. Upgrade the existing distribution system along Rampasture Road and East Tiana Road with new larger, lined piping.

Taking into account past upgrades performed in the area leading up to this area, the most feasible and easiest improvement to implement is the upgrade of water pipe to the area. A pump may provide a increase in pressure in certain areas of peninsula, however in the end the existing main is still approaching the end of its useful life and is undersized or tuberculated. In accordance with past recommendations and current analysis, the upgrades to existing facilities should be as follows:

1. Rampasture Road from Springville Road to Hampton Harbor Road a distance of approximately 3,000 feet from 8” to 12”.
    a. The cost to install a transmission water main along Rampasture Road is $235 per linear foot or $700,000 including construction, engineering, permitting and contingencies. With a transmission main, the existing 8” water main will stay in place and continue to provide service to existing properties with only key connections to the transmission mains. Cost estimates based on current annual distribution contract.
    b. The cost to replace the existing 8” water main with 12” water main along Rampasture Road is $275 per linear foot or $825,000 including construction, engineering, permitting and contingencies. Under a replacement the existing 8” main will be abandoned and all services connected to it transferred to the new main. Cost estimates based on current annual distribution contract.
2. East Tiana Road from Seaside Avenue and Corwin Lane a distance of approximately 1,350 feet from 6” to 8”.
    a. The cost to replace the existing 6” water main with 8” water main along East Tiana Road is $230 per linear foot or $325,000 including construction, engineering, permitting and contingencies. Under a replacement the existing 6” main will be abandoned and all services connected to it transferred to the new main. Cost estimates based on current annual distribution contract.
3. Upgrade of existing unlined cast water main on East Rampasture Road, Hampton Harbor Lane, Elder Avenue and connected secondary streets with new 6” and 8” cement lined ductile iron.
    a. Estimated cost is $230 per linear foot of pipe installed. Cost estimates based on current annual distribution contract.

If you or staff have any questions, please feel free to contact me at your convenience to discuss.

Very truly yours,

**H2M architects + engineers**

John R. Collins, P.E.

cc: Supervisor Jay Schneiderman
Asst. Superintendent Richard McCuen
James Kappers

x:\hbwd (hampton bays water district) - 10482\hbwd1950 - retainer\00-correspondence\19.10.08_town council - rampasture.docx

# APPENDIX E

# HISTORICAL WATER QUALITY DATA

# Well 1-1 - HISTORICAL WATER QUALITY DATA

| | Contaminant | MCL | 3/15/2015 | 3/18/2015 | 5/18/2015 | 6/17/2015 | 7/15/2015 | 10/21/2015 | 5/18/2016 | 7/18/2018 |
|---|---|---|---|---|---|---|---|---|---|---|
| Well 1-1 | Chloroform | 80 | 0.71 | | | 0.72 | | 0.61 | | 2.5 |
| S-15687 | Chromium, Hexavalent | 100 | | | | | | | | |
| | Barium | 2 | | | | 0.049 | | | | |
| | Nitrate as N | 10 | | | 3.27 | 3.06 | | | 3.02 | |
| | Perfluorooctanesulfonic acid | 0.01 | | | | | | | | |
| | Perfluorooctanoic acid | 0.01 | | | | | | | | |
| | Chloride | 250 | | | | 91.2 | | | | |
| | Manganese | 0.3 | | 0.16 | 0.22 | 0.22 | 0.17 | 0.13 | 0.081 | |
| | Iron | 0.3 | | | | | | | | |
| | 1,4-Dioxane | 1 | | | | | | | | |

| Contaminant | MCL | 8/8/2018 | 8/15/2018 | 9/12/2018 | 9/21/2018 | 10/3/2018 | 2/27/2019 | 4/1/2019 | 5/8/2019 |
|---|---|---|---|---|---|---|---|---|---|
| Chloroform | 80 | | 0.59 | | | 0.88 | | | 0.85 |
| Chromium, Hexavalent | 100 | 0.44 | | | | | | | |
| Barium | 2 | | 0.062 | | | | | 0.062 | |
| Nitrate as N | 10 | | 3.7 | | | | | 3.6 | 4.2 |
| Perfluorooctanesulfonic acid | 0.01 | | | 0.087 | | 0.055 | | | |
| Perfluorooctanoic acid | 0.01 | | | 0.0067 | | 0.0074 | | | |
| Chloride | 250 | | 117 | | | | | | |
| Manganese | 0.3 | | | | 0.024 | 0.018 | 0.018 | 0.01 | 0.015 |
| Iron | 0.3 | | | | | | 0.16 | 0.048 | |
| 1,4-Dioxane | 1 | | | | | | | | |

# Well 1-1 - HISTORICAL WATER QUALITY DATA

| Contaminant | MCL | 5/15/2019 | 6/17/2019 |
|---|---|---|---|
| Chloroform | 80 | | |
| Chromium, Hexavalent | 100 | 0.48 | |
| Barium | 2 | | |
| Nitrate as N | 10 | | 3.7 |
| Perfluorooctanesulfonic acid | 0.01 | | |
| Perfluorooctanoic acid | 0.01 | | |
| Chloride | 250 | | |
| Manganese | 0.3 | | 0.02 |
| Iron | 0.3 | | |
| 1,4-Dioxane | 1 | 0.044 | |

# Well 1-2 - HISTORICAL WATER QUALITY DATA

| | Chemical | MCL | 3/18/2015 | 5/18/2015 | 6/17/2015 | 7/15/2015 | 10/21/2015 | 12/28/2015 | 5/18/2016 |
|---|---|---|---|---|---|---|---|---|---|
| Well 1-2 | Chloroform | 80 | | | | | | | |
| S-24848 | Manganese | 0.3 | 0.03 | 0.042 | 0.02 | 0.026 | 0.088 | 0.15 | 0.36 |
| | Chromium, Hexavalent | 100 | | | | | | | |
| | Barium | 2 | | | 0.08 | | | | |
| | Nitrate as N | 10 | | 5.91 | 4.62 | 4.33 | 6.7 | | 4.65 |
| | Perfluorooctanesulfonic acid | 0.01 | | | | | | | |
| | Perfluorooctanoic acid | 0.01 | | | | | | | |
| | Perfluorononanoic acid | | | | | | | | |
| | Chloride | 250 | | | 104 | | | | |
| | Iron | 0.3 | | | 0.031 | | | | |
| | 1,4-Dioxane | 1 | | | | | | | |
| | Chlorate | | | | | | | | |

| Chemical | MCL | 5/27/2016 | 6/22/2016 | 7/27/2016 | 6/3/2016 | 1/25/2017 | 3/1/2017 | 5/10/2017 |
|---|---|---|---|---|---|---|---|---|
| Chloroform | 80 | | 7.42 | 0.94 | | | | |
| Manganese | 0.3 | 0.37 | 1.2 | 0.56 | 0.5 | | | |
| Chromium, Hexavalent | 100 | | | | | | | |
| Barium | 2 | | 0.067 | | | | | |
| Nitrate as N | 10 | | 4.76 | 4.16 | | | | 2.1 |
| Perfluorooctanesulfonic acid | 0.01 | | | 0.028 | | | | |
| Perfluorooctanoic acid | 0.01 | | | 0.028 | | | | |
| Perfluorononanoic acid | | | | 0.0054 | | | | |
| Chloride | 250 | | 126 | | | | 40.3 | |
| Iron | 0.3 | | | | | | | |
| 1,4-Dioxane | 1 | | | | | | | |
| Chlorate | | | | | | 20.1 | | |

# Well 1-2 - HISTORICAL WATER QUALITY DATA

| Chemical | MCL | 6/7/2017 | 6/21/2017 | 7/18/2017 | 9/6/2017 | 7/18/2018 | 8/8/2018 | 8/15/2018 |
|---|---|---|---|---|---|---|---|---|
| Chloroform | 80 | 2.3 | | | 2.3 | 1.1 | | 1.1 |
| Manganese | 0.3 | | 0.15 | | | | 0.25 | |
| Chromium, Hexavalent | 100 | | | | | | 0.34 | |
| Barium | 2 | | | | 0.043 | | | 0.06 |
| Nitrate as N | 10 | | | | 2.5 | | | 5.4 |
| Perfluorooctanesulfonic acid | 0.01 | | 0.079 | 0.06 | | | | |
| Perfluorooctanoic acid | 0.01 | | 0.0068 | 0.0051 | | | | |
| Perfluorononanoic acid | | | | | | | | |
| Chloride | 250 | | | | 41.5 | | | 103 |
| Iron | 0.3 | | | | 0.046 | | | |
| 1,4-Dioxane | 1 | | | | | | | |
| Chlorate | | | | | | | | |

| Chemical | MCL | 9/12/2018 | 9/21/2018 | 10/3/2018 | 10/19/2018 | 2/27/2019 | 4/1/2019 | 5/8/2019 |
|---|---|---|---|---|---|---|---|---|
| Chloroform | 80 | | | 2.7 | | | | 1.3 |
| Manganese | 0.3 | | 0.41 | 0.48 | | 0.38 | 0.41 | 0.47 |
| Chromium, Hexavalent | 100 | | | | | | | |
| Barium | 2 | | | | | | 0.11 | |
| Nitrate as N | 10 | | | | 7.4 | | 8.7 | 6.6 |
| Perfluorooctanesulfonic acid | 0.01 | 0.047 | | | | | | |
| Perfluorooctanoic acid | 0.01 | 0.005 | | 0.0067 | | | | |
| Perfluorononanoic acid | | | | 0.03 | | | | |
| Chloride | 250 | | | | | | | |
| Iron | 0.3 | | | | | 0.27 | 0.24 | 0.14 |
| 1,4-Dioxane | 1 | | | | | | | |
| Chlorate | | | | | | | | |

# Well 1-2 - HISTORICAL WATER QUALITY DATA

| Chemical | MCL | 5/15/2019 | 6/17/2019 |
|---|---|---|---|
| Chloroform | 80 | | |
| Manganese | 0.3 | | 0.42 |
| Chromium, Hexavalent | 100 | 0.14 | |
| Barium | 2 | | |
| Nitrate as N | 10 | | 4.5 |
| Perfluorooctanesulfonic acid | 0.01 | | |
| Perfluorooctanoic acid | 0.01 | | |
| Perfluorononanoic acid | | | |
| Chloride | 250 | | |
| Iron | 0.3 | | |
| 1,4-Dioxane | 1 | 0.11 | |
| Chlorate | | | |

# Well 1-3 - HISTORICAL WATER QUALITY DATA

Well 1-3
S-31636

| Chemical | MCL | 3/18/2015 | 4/8/2015 | 5/18/2015 | 6/17/2015 | 7/15/2015 | 10/21/2015 |
|---|---|---|---|---|---|---|---|
| Manganese | 0.3 | 0.019 | | 0.021 | 0.023 | 0.023 | 0.03 |
| Chromium, Hexavalent | 100 | | | | | | |
| Barium | 2 | | | | 0.049 | | |
| Nitrate as N | 10 | | 4.26 | 5.24 | 5.26 | 4.72 | 5.75 |
| Chloroform | 80 | | | | | | |
| Perfluorooctanoic acid | 0.01 | | | | | | |
| Chloride | 250 | | | | 49.4 | | |
| Iron | 0.3 | | | | | | |
| 1,4-Dioxane | 1 | | | | | | |
| Perchlorate | 18 | | | 12.3 | | | |
| Tetrachloroethene | 5 | | | | 0.5 | | 0.75 |
| Perfluorooctanesulfonic acid | 0.01 | | | | | | |
| Flouride | 2 | | | | | | |

| Chemical | MCL | 5/18/2016 | 5/27/2016 | 6/22/2016 | 7/27/2016 | 6/3/2016 | 3/1/2017 |
|---|---|---|---|---|---|---|---|
| Manganese | 0.3 | | 0.025 | 0.028 | 0.027 | 0.025 | |
| Chromium, Hexavalent | 100 | | | | | | |
| Barium | 2 | | | 0.045 | | | |
| Nitrate as N | 10 | 4.27 | | 5.09 | 5.08 | | |
| Chloroform | 80 | | | 1.56 | 0.83 | | |
| Perfluorooctanoic acid | 0.01 | | | | 0.0042 | | |
| Chloride | 250 | | | 59 | | | 74.7 |
| Iron | 0.3 | | | | | | |
| 1,4-Dioxane | 1 | | | | | | |
| Perchlorate | 18 | | | | | | |
| Tetrachloroethene | 5 | | | | 0.54 | | |
| Perfluorooctanesulfonic acid | 0.01 | | | | 0.032 | | |
| Flouride | 2 | | | | | | |

# Well 1-3 - HISTORICAL WATER QUALITY DATA

| Chemical | MCL | 3/17/2017 | 5/3/2017 | 5/10/2017 | 6/7/2017 | 6/21/2017 | 6/28/2017 |
|---|---|---|---|---|---|---|---|
| Manganese | 0.3 | 0.022 | | | | 0.017 | |
| Chromium, Hexavalent | 100 | | | | | | |
| Barium | 2 | | | | | | |
| Nitrate as N | 10 | 3.9 | | 4.9 | | | |
| Chloroform | 80 | 0.88 | | | 0.95 | | |
| Perfluorooctanoic acid | 0.01 | | 0.0079 | | | | 0.0083 |
| Chloride | 250 | | | | | | |
| Iron | 0.3 | | | | | | |
| 1,4-Dioxane | 1 | | | | | | |
| Perchlorate | 18 | | | | | | |
| Tetrachloroethene | 5 | | | | | | |
| Perfluorooctanesulfonic acid | 0.01 | | 0.062 | | | | 0.054 |
| Flouride | 2 | | | | | | |

| Chemical | MCL | 7/18/2017 | 8/29/2017 | 8/30/2017 | 9/6/2017 | 9/6/2017 | 9/28/2017 |
|---|---|---|---|---|---|---|---|
| Manganese | 0.3 | | | 0.019 | 0.018 | | |
| Chromium, Hexavalent | 100 | | 0.27 | | | | |
| Barium | 2 | | | | 0.069 | | |
| Nitrate as N | 10 | | | 5.8 | 4.3 | | |
| Chloroform | 80 | | | | | 0.98 | |
| Perfluorooctanoic acid | 0.01 | 0.0051 | | 0.0059 | | | 0.0081 |
| Chloride | 250 | | | | 70.6 | | |
| Iron | 0.3 | | | | | | |
| 1,4-Dioxane | 1 | | | | | | |
| Perchlorate | 18 | | | | | | |
| Tetrachloroethene | 5 | | | | | | |
| Perfluorooctanesulfonic acid | 0.01 | 0.039 | | | | | 0.047 |
| Flouride | 2 | | | | 0.13 | | |

# Well 1-3 - HISTORICAL WATER QUALITY DATA

| Chemical | MCL | 12/6/2017 | 8/8/2018 | 8/15/2018 | 9/12/2018 | 9/21/2018 | 10/3/2018 |
|---|---|---|---|---|---|---|---|
| Manganese | 0.3 | | 0.013 | | | 0.013 | 0.014 |
| Chromium, Hexavalent | 100 | | 0.09 | | | | |
| Barium | 2 | | | 0.05 | | | |
| Nitrate as N | 10 | | | 5.9 | | 4.4 | 5.7 |
| Chloroform | 80 | | | 0.95 | | | |
| Perfluorooctanoic acid | 0.01 | 0.011 | | | 0.0036 | | 0.0037 |
| Chloride | 250 | | | 74.6 | | | |
| Iron | 0.3 | | | | | | |
| 1,4-Dioxane | 1 | | | | | | |
| Perchlorate | 18 | | | | | | |
| Tetrachloroethene | 5 | | | | | | |
| Perfluorooctanesulfonic acid | 0.01 | 0.084 | | | | | |
| Flouride | 2 | | | | | | |

| Chemical | MCL | 2/27/2019 | 4/1/2019 | 5/8/2019 | 5/15/2019 | 6/17/2019 |
|---|---|---|---|---|---|---|
| Manganese | 0.3 | 0.019 | 0.017 | 0.012 | | 0.021 |
| Chromium, Hexavalent | 100 | | | | 0.18 | |
| Barium | 2 | | 0.062 | | | |
| Nitrate as N | 10 | | 5 | 4.8 | | 4.3 |
| Chloroform | 80 | | | | | |
| Perfluorooctanoic acid | 0.01 | | | | | |
| Chloride | 250 | | | | | |
| Iron | 0.3 | 0.1 | 0.1 | 0.062 | | |
| 1,4-Dioxane | 1 | | | | 0.052 | |
| Perchlorate | 18 | | | | | |
| Tetrachloroethene | 5 | | | | | |
| Perfluorooctanesulfonic acid | 0.01 | | | | | |
| Flouride | 2 | | | | | |

# Well 2-1 - HISTORICAL WATER QUALITY DATA

Well 2-1
S-50970

| Chemical | MCL | 3/18/2015 | 5/18/2015 | 6/17/2015 | 10/21/2015 | 6/22/2015 | 7/27/2016 | 3/9/2016 | 1/25/2017 |
|---|---|---|---|---|---|---|---|---|---|
| Chloroform | 80 | 1.3 | | 0.73 | 0.87 | 0.77 | 0.81 | 1.52 | |
| Barium | 2 | | | 0.025 | | 0.02 | | | |
| Nitrate as N | 10 | | 3.37 | 3 | 2.51 | 3.37 | | | |
| Chromium, Hexavalent | 100 | | | | | | | | |
| 1,4-Dioxane | 1 | | | | | | | | |
| Chloride | 250 | | | 41.8 | | 34.5 | | | |
| Iron | 0.3 | | | | | 0.078 | | | |
| Lead | 15 | | | | | 5.6 | | | |
| Chlorate | | | | | | | | | 24.3 |

| Chemical | MCL | 3/1/2017 | 3/17/2017 | 5/10/2017 | 6/7/2017 | 8/29/2017 | 9/6/2017 | 10/4/2017 | 2/26/2018 |
|---|---|---|---|---|---|---|---|---|---|
| Chloroform | 80 | | 4.2 | | 0.99 | | 1.4 | 2.1 | 8.9 |
| Barium | 2 | | | | | | 0.025 | | |
| Nitrate as N | 10 | | | 3 | | | 3.1 | | |
| Chromium, Hexavalent | 100 | | | | | 0.58 | | | |
| 1,4-Dioxane | 1 | | | | | | | | |
| Chloride | 250 | 53.3 | | | | | 31.4 | | |
| Iron | 0.3 | | | | | | | | |
| Lead | 15 | | | | | | | | |
| Chlorate | | | | | | | | | |

| Chemical | MCL | 6/13/2018 | 7/18/2018 | 8/8/2018 | 10/3/2018 | 2/27/2019 | 4/3/2019 | 5/8/2019 | 5/15/2019 |
|---|---|---|---|---|---|---|---|---|---|
| Chloroform | 80 | | 1.5 | | 1.1 | | | 2.3 | |
| Barium | 2 | 0.025 | | | | | | | |
| Nitrate as N | 10 | 3.1 | | | | | 3.3 | | |
| Chromium, Hexavalent | 100 | | | 0.53 | | | | | 0.69 |
| 1,4-Dioxane | 1 | | | 0.064 | | | | | 0.054 |
| Chloride | 250 | 37.8 | | | | | | | |
| Iron | 0.3 | | | | | 0.0333 | | | |
| Lead | 15 | | | | | | | | |
| Chlorate | | | | | | | | | |

# Well 2-2 - HISTORICAL WATER QUALITY DATA

| | Chemical | MCL | 3/18/2015 | 5/18/2015 | 6/17/2015 | 10/21/2015 | 5/18/2016 | 6/22/2016 | 7/27/2016 | 3/9/2016 |
|---|---|---|---|---|---|---|---|---|---|---|
| Well 2-2 | Chloroform | 80 | 0.83 | | 0.62 | 1.02 | | 0.56 | 0.57 | 0.92 |
| N-12734 | Manganese | 0.3 | | | | | | 0.014 | | |
| | Barium | 2 | | | 0.036 | | | 0.031 | | |
| | Lead | 15 | | | | | | | | |
| | Nitrate as N | 10 | | 2.96 | 2.45 | | 2.46 | 2.88 | | |
| | Chloride | 250 | | | 70.2 | | | 74.6 | | |
| | Chromium, Hexavalent | 100 | | | | | | | | |
| | 1,4-Dioxane | 1 | | | | | | | | |
| | Bromide | 80 | | | | | | 0.08 | | |
| | Chlorate | | | | | | | | | |

| Chemical | MCL | 11/16/2016 | 1/25/2017 | 3/1/2017 | 3/17/2017 | 5/10/2017 | 6/7/2017 | 8/29/2017 | 9/6/2017 |
|---|---|---|---|---|---|---|---|---|---|
| Chloroform | 80 | | | | 0.78 | | 0.53 | | 0.7 |
| Manganese | 0.3 | | | | | | | | 0.013 |
| Barium | 2 | | | | | | | | 0.041 |
| Lead | 15 | | | | | | | | 3.9 |
| Nitrate as N | 10 | | | | | 2.9 | | | 3.1 |
| Chloride | 250 | | | 61.1 | | | | | 66.8 |
| Chromium, Hexavalent | 100 | | | | | | 0.43 | | |
| 1,4-Dioxane | 1 | | | | | | | 0.1 | |
| Bromide | 80 | | | | | | | | |
| Chlorate | | 26.9 | 117 | 32.3 | | | | | |

# Well 2-2 - HISTORICAL WATER QUALITY DATA

| Chemical | MCL | 10/4/2017 | 2/26/2018 | 5/20/2018 | 6/13/2018 | 7/18/2018 | 9/21/2018 | 10/3/2018 | 4/3/2019 |
|---|---|---|---|---|---|---|---|---|---|
| Chloroform | 80 | 0.98 | 1.4 | 0.83 | | 1.1 | | 0.63 | |
| Manganese | 0.3 | | | | 0.018 | | 0.021 | | |
| Barium | 2 | | | | 0.042 | | | | |
| Lead | 15 | | | | 3.6 | | | | |
| Nitrate as N | 10 | | | | 2.7 | | | | 4.4 |
| Chloride | 250 | | | | 81.3 | | | | |
| Chromium, Hexavalent | 100 | | | | | 0.56 | | | |
| 1,4-Dioxane | 1 | | | | | 0.073 | | | |
| Bromide | 80 | | | | | | | | |
| Chlorate | | | | | | | | | |

# Well 3-1 - HISTORICAL WATER QUALITY DATA

| | Chemical | MCL | 3/18/2015 | 5/18/2015 | 6/17/2015 | 10/21/2015 | 6/22/2016 | 7/27/2016 | 3/17/2017 | 5/10/2017 |
|---|---|---|---|---|---|---|---|---|---|---|
| Well -31 | Chloroform | 80 | 1.7 | | 3.17 | 2.14 | 1.83 | 4.3 | 2.9 | |
| S-58350 | Nitrate as N | 10 | | 0.15 | 0.1 | 0.11 | | | | 0.063 |
| | Barium | 2 | | | 0.0089 | 0.011 | | | | |
| | Chloride | 250 | | | 29.9 | 46.2 | | | | |
| | Chromium, Hexavalent | 100 | | | | | | | | |
| | Bromoform | 80 | 1.4 | | | | | | | |

| Chemical | MCL | 6/7/2017 | 8/29/2017 | 9/6/2017 | 10/4/2017 | 2/26/2018 | 5/9/2018 | 5/20/2018 | 6/13/2018 |
|---|---|---|---|---|---|---|---|---|---|
| Chloroform | 80 | 2.3 | | 2.1 | 2.2 | 2.2 | | 2.5 | |
| Nitrate as N | 10 | | | 0.065 | | | 0.13 | | 0.12 |
| Barium | 2 | | | 0.013 | | | | | 0.014 |
| Chloride | 250 | | | 37.4 | | | | | 47 |
| Chromium, Hexavalent | 100 | | 0.54 | | | | | | |
| Bromoform | 80 | | | | | | | | |

| Chemical | MCL | 7/18/2018 | 8/8/2018 | 10/3/2018 | 4/3/2019 | 5/8/2019 | 5/15/2019 |
|---|---|---|---|---|---|---|---|
| Chloroform | 80 | 3.7 | | 2.1 | | 2.5 | |
| Nitrate as N | 10 | | | | 0.13 | | |
| Barium | 2 | | | | | | |
| Chloride | 250 | | | | | | |
| Chromium, Hexavalent | 100 | | 0.57 | | | | 0.65 |
| Bromoform | 80 | | | | | | |

# Well 3-2 - HISTORICAL WATER QUALITY DATA

Well 3-2
S-58351

| Chemical | MCL | 3/18/2015 | 5/18/2015 | 6/17/2015 | 10/21/2015 | 5/18/2016 | 6/22/2016 | 7/27/2016 | 3/17/2017 |
|---|---|---|---|---|---|---|---|---|---|
| Chloroform | 80 | 1.4 | | 1.53 | 1.87 | | 1.3 | 2.66 | 2.7 |
| Nitrate as N | 10 | | 0.38 | 0.33 | | 0.26 | 0.35 | | |
| Manganese | 0.3 | | | 0.025 | | | 0.027 | | |
| Barium | 2 | | | 0.019 | | | 0.018 | | |
| Chloride | 250 | | | 43.3 | | | 49.5 | | |
| Chromium, Hexavalent | 100 | | | | | | | | |
| Iron | 0.3 | | | | | | | | |
| Perfluorononanoic acid | | | | | | | | | |
| Perfluorooctanoic acid | 0.01 | | | | | | | | |

| Chemical | MCL | 5/10/2017 | 6/7/2017 | 8/29/2017 | 9/6/2017 | 10/4/2017 | 11/1/2017 | 2/26/2018 | 5/9/2018 |
|---|---|---|---|---|---|---|---|---|---|
| Chloroform | 80 | | 1.4 | | 1.3 | 1.3 | | 1.2 | |
| Nitrate as N | 10 | 0.36 | | | 0.36 | | | | 0.44 |
| Manganese | 0.3 | | | | 0.029 | | | | |
| Barium | 2 | | | | 0.023 | | | | |
| Chloride | 250 | | | | 41 | | | | |
| Chromium, Hexavalent | 100 | | | 0.41 | | | | | |
| Iron | 0.3 | | | | | | | | |
| Perfluorononanoic acid | | | | | | | 0.035 | | |
| Perfluorooctanoic acid | 0.01 | | | | | | 0.0021 | | |

| Chemical | MCL | 5/20/2018 | 6/13/2018 | 7/18/2018 | 8/8/2018 | 6/21/2018 | 10/3/2018 | 2/27/2019 | 4/3/2019 |
|---|---|---|---|---|---|---|---|---|---|
| Chloroform | 80 | 1.2 | | 2.7 | | | 2 | | |
| Nitrate as N | 10 | | 0.39 | | | | | | 0.36 |
| Manganese | 0.3 | | 0.031 | | | 0.038 | | 0.036 | |
| Barium | 2 | | 0.021 | | | | | | |
| Chloride | 250 | | 43 | | | | | | |
| Chromium, Hexavalent | 100 | | | | 0.4 | | | | |
| Iron | 0.3 | | | | | | | 0.24 | |
| Perfluorononanoic acid | | | | | | | | | |
| Perfluorooctanoic acid | 0.01 | | | | | | | | |

# Well 3-2 - HISTORICAL WATER QUALITY DATA

| Chemical | MCL | 5/8/2019 | 5/15/2019 |
|---|---|---|---|
| Chloroform | 80 | 1.8 | |
| Nitrate as N | 10 | | |
| Manganese | 0.3 | | |
| Barium | 2 | | |
| Chloride | 250 | | |
| Chromium, Hexavalent | 100 | | 0.59 |
| Iron | 0.3 | | |
| Perfluorononanoic acid | | | |
| Perfluorooctanoic acid | 0.01 | | |

# Well 3-3 - HISTORICAL WATER QUALITY DATA

Well 3-3
S-58352

| Chemical | MCL | 5/18/2015 | 6/17/2015 | 10/21/2015 | 5/18/2016 | 6/22/2016 | 7/27/2016 | 5/10/2017 | 6/7/2017 |
|---|---|---|---|---|---|---|---|---|---|
| Chloroform | 80 | | 1.95 | 1.09 | | 7.29 | 1.99 | | 1.8 |
| Nitrate as N | 10 | 0.1 | 0.31 | | 0.29 | 0.37 | | 0.65 | |
| Barium | 2 | | 0.017 | | | 0.019 | | | |
| Chloride | 250 | | 35 | | | 47.4 | | | |
| Chromium, Hexavalent | 100 | | | | | | | | |
| Iron | 0.3 | | | | | | | | |
| Bromoform | 80 | | | | | | | | |
| Perfluorononanoic acid | | | | | | | | | |
| Perfluorooctanoic acid | 0.01 | | | | | | | | |

| Chemical | MCL | 8/29/2017 | 9/6/2017 | 10/4/2017 | 11/1/2017 | 5/9/2018 | 5/20/2018 | 6/13/2018 | 7/18/2018 |
|---|---|---|---|---|---|---|---|---|---|
| Chloroform | 80 | | 1.4 | 1.3 | | | 0.95 | | 1.8 |
| Nitrate as N | 10 | | 0.39 | | | 0.18 | | 0.36 | |
| Barium | 2 | | 0.024 | | | | | 0.025 | |
| Chloride | 250 | | 43.5 | | | | | 53.8 | |
| Chromium, Hexavalent | 100 | 0.38 | | | | | | | |
| Iron | 0.3 | | | | | | | | |
| Bromoform | 80 | | | | | | | | |
| Perfluorononanoic acid | | | | | 0.057 | | | | |
| Perfluorooctanoic acid | 0.01 | | | | 0.0035 | | | | |

| Chemical | MCL | 8/8/2018 | 10/3/2018 | 2/27/2019 | 4/3/2019 | 5/8/2019 | 5/15/2019 | 5/18/2019 |
|---|---|---|---|---|---|---|---|---|
| Chloroform | 80 | | 1.1 | | | 1.2 | | 1.4 |
| Nitrate as N | 10 | | | | 0.48 | | | |
| Barium | 2 | | | | | | | |
| Chloride | 250 | | | | | | | |
| Chromium, Hexavalent | 100 | 0.36 | | | | | 0.41 | |
| Iron | 0.3 | | | 0.098 | | | | |
| Bromoform | 80 | | | | | | | 1.3 |
| Perfluorononanoic acid | | | | | | | | |
| Perfluorooctanoic acid | 0.01 | | | | | | | |

# Well 4-1 - HISTORICAL WATER QUALITY DATA

Well 4-1
S-108065

| Chemical | MCL | 3/18/2015 | 5/18/2015 | 6/17/2015 | 10/21/2015 | 5/18/2016 | 6/22/2016 | 7/27/2019 |
|---|---|---|---|---|---|---|---|---|
| Chloroform | 80 | 1 | | 1.06 | 1.4 | | 1.16 | 1.41 |
| Nitrate as N | 10 | | 0.16 | 0.08 | | 0.13 | 0.11 | |
| Iron | 0.3 | | | 0.74 | | | 0.9 | |
| Manganese | 0.3 | | | 0.16 | | | 0.14 | |
| Barium | 2 | | | 0.019 | | | 0.019 | |
| Chloride | 250 | | | 11.5 | | | 12.8 | |
| Chromium, Hexavalent | 100 | | | | | | | |
| Lead | 15 | | | 1.3 | | | 1.7 | |

| Chemical | MCL | 5/10/2017 | 6/7/2017 | 8/29/2017 | 9/6/2017 | 10/4/2017 | 2/26/2018 | 5/9/2018 |
|---|---|---|---|---|---|---|---|---|
| Chloroform | 80 | | 3 | | 3.6 | 2.4 | 2.2 | |
| Nitrate as N | 10 | 0.11 | | | 0.064 | | | 0.13 |
| Iron | 0.3 | | | | 0.86 | | | |
| Manganese | 0.3 | | | | 0.14 | | | |
| Barium | 2 | | | | 0.023 | | | |
| Chloride | 250 | | | | 11.9 | | | |
| Chromium, Hexavalent | 100 | | | 0.32 | | | | |
| Lead | 15 | | | | | | | |

| Chemical | MCL | 5/20/2018 | 6/13/2018 | 7/18/2018 | 8/8/2018 | 9/21/2018 | 10/1/2018 | 10/10/2018 |
|---|---|---|---|---|---|---|---|---|
| Chloroform | 80 | 4.8 | | 3.6 | | | | 5.7 |
| Nitrate as N | 10 | | 0.058 | | | | | |
| Iron | 0.3 | | 0.83 | | | 1.1 | 0.94 | |
| Manganese | 0.3 | | 0.14 | | | 0.15 | 0.15 | |
| Barium | 2 | | 0.023 | | | | | |
| Chloride | 250 | | 12.4 | | | | | |
| Chromium, Hexavalent | 100 | | | | 0.25 | | | |
| Lead | 15 | | | | | | | |

# Well 4-1 - HISTORICAL WATER QUALITY DATA

| Chemical | MCL | 11/30/2018 | 2/27/2019 | 5/1/2019 | 5/8/2019 | 5/15/2019 | 6/17/2019 | 6/26/2019 |
|---|---|---|---|---|---|---|---|---|
| Chloroform | 80 | | | | 5 | | | |
| Nitrate as N | 10 | | | 0.23 | | | | |
| Iron | 0.3 | 0.559 | 0.69 | 0.7 | | 0.69 | 0.69 | 0.54 |
| Manganese | 0.3 | | 0.12 | 0.13 | | 0.12 | 0.11 | 0.12 |
| Barium | 2 | | | 0.018 | | | | |
| Chloride | 250 | | | 15.6 | | | | |
| Chromium, Hexavalent | 100 | | | | | 0.39 | | |
| Lead | 15 | | | | | | | |

# Well 4-2 - HISTORICAL WATER QUALITY DATA

| | Chemical | MCL | 3/18/2015 | 5/18/2015 | 6/17/2015 | 10/21/2015 | 5/18/2016 | 6/22/2016 | 7/27/2016 |
|---|---|---|---|---|---|---|---|---|---|
| Well 4-2 | Chloroform | 80 | 200 | | 1.01 | 4.71 | | 1.08 | 1.17 |
| S-108066 | Nitrate as N | 10 | | 0.14 | 0.22 | | 0.13 | 0.21 | |
| | Iron | 0.3 | | | 0.61 | | | 0.8 | |
| | Manganese | 0.3 | | | 0.082 | | | 0.093 | |
| | Barium | 2 | | | 0.022 | | | 0.02 | |
| | Chloride | 250 | | | 15.3 | | | 15.9 | |
| | Chromium, Hexavalent | 100 | | | | | | | |
| | Bromodichloromethane | 80 | 3.5 | | | | | | |
| | Chloromethane | 5 | 1.3 | | | | | | |
| | Carbon Tetrachloride | 5 | 0.56 | | | | | | |
| | Chloroethane | 5 | 0.76 | | | | | | |
| | Dibromochloromethane | 80 | 0.69 | | | | | | |

| Chemical | MCL | 5/10/2017 | 6/7/2017 | 8/29/2017 | 9/6/2017 | 10/4/2017 | 5/9/2018 | 5/20/2018 |
|---|---|---|---|---|---|---|---|---|
| Chloroform | 80 | | 6.5 | | 1.2 | 0.96 | | 7.6 |
| Nitrate as N | 10 | 0.095 | | | 0.2 | | 0.16 | |
| Iron | 0.3 | | | | 0.9 | | | |
| Manganese | 0.3 | | | | 0.12 | | | |
| Barium | 2 | | | | 0.025 | | | |
| Chloride | 250 | | | | 13.9 | | | |
| Chromium, Hexavalent | 100 | | | 0.085 | | | | |
| Bromodichloromethane | 80 | | | | | | | |
| Chloromethane | 5 | | | | | | | |
| Carbon Tetrachloride | 5 | | | | | | | |
| Chloroethane | 5 | | | | | | | |
| Dibromochloromethane | 80 | | | | | | | |

# Well 4-2 - HISTORICAL WATER QUALITY DATA

| Chemical | MCL | 6/13/2018 | 7/18/2018 | 8/8/20118 | 9/21/2018 | 10/1/2018 | 10/10/2018 | 10/24/2018 |
|---|---|---|---|---|---|---|---|---|
| Chloroform | 80 | | 1.3 | | | | 108 | 9.2 |
| Nitrate as N | 10 | 0.14 | | | | | | |
| Iron | 0.3 | 0.86 | | | 2.4 | 0.49 | | |
| Manganese | 0.3 | 0.1 | | | 0.15 | 0.061 | | |
| Barium | 2 | 0.024 | | | | | | |
| Chloride | 250 | 14.3 | | | | | | |
| Chromium, Hexavalent | 100 | | | 0.055 | | | | |
| Bromodichloromethane | 80 | | | | | | 1.9 | |
| Chloromethane | 5 | | | | | | 0.6 | |
| Carbon Tetrachloride | 5 | | | | | | | |
| Chloroethane | 5 | | | | | | | |
| Dibromochloromethane | 80 | | | | | | | |

| Chemical | MCL | 11/30/2018 | 2/27/2019 | 4/17/2019 | 5/8/2019 | 5/15/2019 | 6/17/2019 | 6/26/2019 |
|---|---|---|---|---|---|---|---|---|
| Chloroform | 80 | | | | 4.6 | | | |
| Nitrate as N | 10 | | | 0.25 | | | | |
| Iron | 0.3 | 2.77 | 0.66 | 2.7 | | 1.1 | 0.55 | 1.1 |
| Manganese | 0.3 | | 0.12 | 0.22 | | 0.13 | 0.11 | 0.12 |
| Barium | 2 | | | 0.023 | | | | |
| Chloride | 250 | | | 20.8 | | | | |
| Chromium, Hexavalent | 100 | | | | | 0.67 | | |
| Bromodichloromethane | 80 | | | | | | | |
| Chloromethane | 5 | | | | | | | |
| Carbon Tetrachloride | 5 | | | | | | | |
| Chloroethane | 5 | | | | | | | |
| Dibromochloromethane | 80 | | | | | | | |

# Well 5-1 - HISTORICAL WATER QUALITY DATA

| | Chemical | MCL | 3/18/2015 | 5/18/2015 | 6/17/2015 | 9/16/2015 | 10/21/2015 | 5/18/2016 | 6/22/2018 |
|---|---|---|---|---|---|---|---|---|---|
| Well 5-1 | Chloroform | 80 | 1.1 | | 0.96 | | 1.07 | | 1.33 |
| S-127163 | Toulene | 5 | | | | | | | |
| | Nitrate as N | 10 | | 1.84 | 1.53 | | | 1.15 | 1.64 |
| | Iron | 0.3 | | | 0.22 | | | | 0.056 |
| | Manganese | 0.3 | | | 0.049 | | | | 0.026 |
| | Barium | 2 | | | 0.03 | | | | 0.025 |
| | Chloride | 250 | | | 26.9 | | | | 28.1 |
| | Chromium, Hexavalent | 100 | | | | | | | |
| | 1,4-Dioxane | 1 | | | | | | | |
| | Pentachlorophenol | 1 | | | | 0.29 | | | |

| Chemical | MCL | 7/27/2016 | 3/9/2016 | 3/17/2017 | 5/10/2017 | 6/7/2017 | 8/29/2017 | 9/6/2017 |
|---|---|---|---|---|---|---|---|---|
| Chloroform | 80 | 1.19 | 0.97 | 1.3 | | 1.5 | | 1.3 |
| Toulene | 5 | | | | | | | |
| Nitrate as N | 10 | | | | 1.8 | | | 1.9 |
| Iron | 0.3 | | | | | | | 0.072 |
| Manganese | 0.3 | | | | | | | 0.019 |
| Barium | 2 | | | | | | | 0.031 |
| Chloride | 250 | | | | | | | 25.5 |
| Chromium, Hexavalent | 100 | | | | | | 0.39 | |
| 1,4-Dioxane | 1 | | | | | | | |
| Pentachlorophenol | 1 | | | | | | | |

# Well 5-1 - HISTORICAL WATER QUALITY DATA

| Chemical | MCL | 10/4/2017 | 2/26/2018 | 2/28/2018 | 3/20/2018 | 3/29/2018 | 4/7/2018 | 4/13/2018 |
|---|---|---|---|---|---|---|---|---|
| Chloroform | 80 | 1.2 | 1.6 | 1.9 | 3 | 3.8 | 3.8 | 4.7 |
| Toulene | 5 | | 1.3 | 1.2 | 0.97 | | | |
| Nitrate as N | 10 | | | | | | | |
| Iron | 0.3 | | | | | | | |
| Manganese | 0.3 | | | | | | | |
| Barium | 2 | | | | | | | |
| Chloride | 250 | | | | | | | |
| Chromium, Hexavalent | 100 | | | | | | | |
| 1,4-Dioxane | 1 | | | | | | | |
| Pentachlorophenol | 1 | | | | | | | |

| Chemical | MCL | 5/8/2018 | 5/9/2018 | 5/20/2018 | 6/5/2018 | 6/11/2018 | 6/13/2018 | 6/29/2018 |
|---|---|---|---|---|---|---|---|---|
| Chloroform | 80 | 7.1 | | 7.4 | 4.3 | 4 | 3.7 | 2.1 |
| Toulene | 5 | | | | | | | |
| Nitrate as N | 10 | | 1.9 | | | | 1.3 | |
| Iron | 0.3 | | | | | | 0.12 | |
| Manganese | 0.3 | | | | | | 0.045 | |
| Barium | 2 | | | | | | 0.027 | |
| Chloride | 250 | | | | | | 25.8 | |
| Chromium, Hexavalent | 100 | | | | | | | |
| 1,4-Dioxane | 1 | | | | | | | |
| Pentachlorophenol | 1 | | | | | | | |

# Well 5-1 - HISTORICAL WATER QUALITY DATA

| Chemical | MCL | 7/11/2018 | 7/18/2018 | 8/8/2018 | 9/21/2018 | 10/3/2018 | 2/27/2019 | 4/3/2019 |
|---|---|---|---|---|---|---|---|---|
| Chloroform | 80 | 1.8 | 1.7 | 1 | 1.3 | 2.2 | | |
| Toulene | 5 | | | | | | | |
| Nitrate as N | 10 | | | | | | | 2 |
| Iron | 0.3 | | | | 0.13 | | 0.1 | |
| Manganese | 0.3 | | | | 0.12 | | 0.053 | |
| Barium | 2 | | | | | | | |
| Chloride | 250 | | | | | | | |
| Chromium, Hexavalent | 100 | | | 0.38 | | | | |
| 1,4-Dioxane | 1 | | | | | | | |
| Pentachlorophenol | 1 | | | | | | | |

| Chemical | MCL | 5/8/2019 | 5/15/2019 |
|---|---|---|---|
| Chloroform | 80 | 1.4 | |
| Toulene | 5 | | |
| Nitrate as N | 10 | | |
| Iron | 0.3 | | |
| Manganese | 0.3 | | |
| Barium | 2 | | |
| Chloride | 250 | | |
| Chromium, Hexavalent | 100 | | 0.43 |
| 1,4-Dioxane | 1 | | 0.022 |
| Pentachlorophenol | 1 | | |

# APPENDIX F

# CONTAMINATION RADIUS SEARCH SUMMARY

**Facility 1**

A radius search was performed to identify possible sources of any contamination at Facility 1 within an approximate 2-mile radius of the wells. A total 3 sites were identified as potential sources of contamination within the vicinity of Facility 1.

1 **Hampton Bays Fire Department –** Located at 69 West Montauk Highway, Hampton Bays, NY 11946; approximately 700 feet (0.13 miles) to the Northwest of Facility 1 (Contaminants: PFOA and PFOS)

2 **Map ID #T113/6: Town of Southampton –** Located at 29 Jackson Ave., Hampton Bays, NY 11946; approximately 5102 feet (0.97 miles) to the Northwest of Facility 1. (Contaminants: Chromium and Lead)

3 **Map ID #CQ467/11: Photory The –** Located at 266 W Montauk Hwy., Hampton Bays, NY 11946; approximately 7762 feet (1.47 miles) to the Southwest of Facility 1. (Contaminants: Silver and D011)

4 **Map ID #CQ468/11: Village Cleaners –** Located at 250 W Montauk Hwy., Hampton Bays, NY 11946; approximately 7571 feet (1.34 miles) to the Southwest of Facility 1. (Contaminants: Chromium, Tetrachloroethylene, Trichlorethylene, F002)

5 **Map ID #AB157/12: NYS DOT Bin 1019412 –** Located at RTE 27 EB OVER Squiretown Rd., Hampton Bays, NY 11946; approximately 4558 feet (0.86 miles) to the Northeast of Facility 1. (Contaminants: Lead)

6 **Map ID #AD162/12: Village Auto Body PA –** Located at 82 Old Riverhead Rd., Hampton Bays, NY 11946; approximately 3379 feet (0.64 miles) to the Northeast of Facility 1. (Contaminants: Xylene, Toulene, Benzene)

7 **Map ID #AW258/12: Rite Aid #10669 –** Located at 50 E Montauk Hwy., Hampton Bays, NY 11946; approximately 1296 feet (0.25 miles) to the Northeast of Facility 1. (Contaminants: Chromium, Mercury, Selenium, Silver, Chloroform, P001, Trichloromethane, Phenol, 1,3-Benzenediol)

8 **Map ID #BB277/12: Good Grounds Cleaner –** Located at 39 W Montauk Hwy., Hampton Bays, NY 11946; approximately 600 feet (0.11 miles) to the North of Facility 1. (Contaminants: Tetrachloroethylene and Trichloroethylene)

9 **Map ID #BI312/11: Petco Store #2785 –** Located at 180 W Montauk Hwy., Hampton Bays, NY 11946; approximately 3569 feet (0.68 miles) to the West of Facility 1. (Contaminants: Chromium, Barium, Lead, Methyl Ethyl Ketone)

10 **Map ID #BT361/11: Macy's – Hampton Bays –** Located at 190 W Montauk Hwy., Hampton Bays, NY 11946; approximately 3581 feet (0.68 miles) to the West of Facility 1. (Contaminants: Silver)

11 **Map ID #CH425/12: Hampton Bays UFS - H –** Located at 72 Ponquogue Ave., Hampton Bays, NY 11946; approximately 2495 feet (0.47 miles) to the South of Facility 1. (Contaminants: Lead)

12 **Map ID #CZ507/16: Hess Corporation –** Located at 239 W Montauk Hwy., Hampton Bays, NY 11946; approximately 7762 feet (1.47 miles) to the Southwest of Facility 1. (Contaminants: D000 and Benzene)

The contaminants known to have been spilled at these sites include 4 of the 12 contaminants detected in Facility 1, (PFOA, PFOS, Chromium and Barium). The Hampton Bays Fire Department is a State Superfund Site and is the likely source of PFOA and PFOS at Facility 1. The water quality should continue to be monitored.

**Facility 2**

A radius search was performed to identify possible sources of any contamination at Facility 2 within an approximate 2-mile radius of the wells. A total 5 sites were identified as potential sources of contamination within the vicinity of Facility 2.

1 **Map ID #T113/6: Town of Southampton –** Located at 29 Jackson Ave., Hampton Bays, NY 11946; approximately 6758 feet (1.28 miles) to the Northwest of Facility 2. (Contaminants: Chromium and Lead)

2 **Map ID #AB157/12: NYS DOT Bin 1019412 –** Located at RTE 27 EB OVER Squiretown Rd., Hampton Bays, NY 11946; approximately 2942 feet (0.56 miles) to the West of Facility 2. (Contaminants: Lead)

3 **Map ID #AD162/12: Village Auto Body PA –** Located at 82 Old Riverhead Rd., Hampton Bays, NY 11946; approximately 4946 feet (0.94 miles) to the West of Facility 2. (Contaminants: Xylene, Toulene, Benzene)

4 **Map ID #AW258/12: Rite Aid #10669 –** Located at 50 E Montauk Hwy., Hampton Bays, NY 11946; approximately 2993 feet (0.57 miles) to the Southwest of Facility 2. (Contaminants: Chromium, Mercury, Selenium, Silver, Chloroform, P001, Trichloromethane, Phenol, 1,3-Benzenediol)

5 **Map ID #BB277/12: Good Grounds Cleaner –** Located at 39 W Montauk Hwy., Hampton Bays, NY 11946; approximately 3791 feet (0.72 miles) to the Southwest of Facility 2. (Contaminants: Tetrachloroethylene and Trichloroethylene)

6 **Map ID #BI312/11: Petco Store #2785 –** Located at 180 W Montauk Hwy., Hampton Bays, NY 11946; approximately 6917 feet (1.31 miles) to the Southwest of Facility 2. (Contaminants: Chromium, Barium, Lead, Methyl Ethyl Ketone)

7 **Map ID #BT361/11: Macy's – Hampton Bays –** Located at 190 W Montauk Hwy., Hampton Bays, NY 11946; approximately 6917 feet (1.31 miles) to the Southwest of Facility 2. (Contaminants: Silver)

8 **Map ID #CH425/12: Hampton Bays UFS - H –** Located at 72 Ponquogue Ave., Hampton Bays, NY 11946; approximately 5438 feet (1.03 miles) to the South of Facility 2. (Contaminants: Lead)

The contaminants known to have been spilled at these sites include 3 of the 10 contaminants detected in Facility 2, (Chromium, Lead and Barium). There were no records on

potential off-site groundwater contamination from any of the sites. The water quality should continue to be monitored.

**Facility 3**

A radius search was performed to identify possible sources of any contamination at Facility 3 within an approximate 2-mile radius of the wells. A total 3 sites were identified as potential sources of contamination within the vicinity of Facility 3.

1 **Map ID #T113/6: Town of Southampton –** Located at 29 Jackson Ave., Hampton Bays, NY 11946; approximately 4209 feet (0.80 miles) to the North of Facility 3. (Contaminants: Chromium and Lead)

2 **Map ID #AB157/12: NYS DOT Bin 1019412 –** Located at RTE 27 EB OVER Squiretown Rd., Hampton Bays, NY 11946; approximately 5702 feet (1.08 miles) to the Northeast of Facility 3. (Contaminants: Lead)

3 **Map ID #AD162/12: Village Auto Body PA –** Located at 82 Old Riverhead Rd., Hampton Bays, NY 11946; approximately 4166 feet (0.79 miles) to the Northeast of Facility 3. (Contaminants: Xylene, Toulene, Benzene)

4 **Map ID #AW258/12: Rite Aid #10669 –** Located at 50 E Montauk Hwy., Hampton Bays, NY 11946; approximately 5702 feet (1.08 miles) to the East of Facility 3. (Contaminants: Chromium, Mercury, Selenium, Silver, Chloroform, P001, Trichloromethane, Phenol, 1,3-Benzenediol)

5 **Map ID #BB277/12: Good Grounds Cleaner –** Located at 39 W Montauk Hwy., Hampton Bays, NY 11946; approximately 4969 feet (0.94 miles) to the East of Facility 3. (Contaminants: Tetrachloroethylene and Trichloroethylene)

6 **Map ID #BI312/11: Petco Store #2785 –** Located at 180 W Montauk Hwy., Hampton Bays, NY 11946; approximately 1483 feet (0.28 miles) to the East of Facility 3. (Contaminants: Chromium, Barium, Lead, Methyl Ethyl Ketone)

7 **Map ID #BT361/11: Macy's – Hampton Bays –** Located at 190 W Montauk Hwy., Hampton Bays, NY 11946; approximately 1488 feet (0.28 miles) to the Southeast of Facility 3. (Contaminants: Silver)

8 **Map ID #CH425/12: Hampton Bays UFS - H –** Located at 72 Ponquogue Ave., Hampton Bays, NY 11946; approximately 6811 feet (1.29 miles) to the Southeast of Facility 3. (Contaminants: Lead)

The contaminants known to have been spilled at these sites include 4 of the 9 contaminants detected in Facility 3, (Chromium and Barium). There were no records on potential off-site

groundwater contamination from any of the sites. The water quality should continue to be monitored.

**Facility 4**

A radius search was performed to identify possible sources of any contamination at Facility 4 within an approximate 2-mile radius of the wells. A total 6 sites were identified as potential sources of contamination within the vicinity of Facility 4.

1 **Map ID #T113/6: Town of Southampton –** Located at 29 Jackson Ave., Hampton Bays, NY 11946; approximately 3307 feet (0.63 miles) to the Northeast of Facility 4. (Contaminants: Chromium and Lead)

2 **Map ID #CQ467/11: Photory The –** Located at 266 W Montauk Hwy., Hampton Bays, NY 11946; approximately 5808 feet (1.10 miles) to the South of Facility 4. (Contaminants: Silver and D011)

3 **Map ID #CQ468/11: Village Cleaners –** Located at 250 W Montauk Hwy., Hampton Bays, NY 11946; approximately 5097 feet (0.97 miles) to the South of Facility 4. (Contaminants: Chromium, Tetrachloroethylene, Trichlorethylene, F002)

4 **Map ID #AB157/12: NYS DOT Bin 1019412 –** Located at RTE 27 EB OVER Squiretown Rd., Hampton Bays, NY 11946; approximately 7075 feet (1.34 miles) to the East of Facility 4. (Contaminants: Lead)

5 **Map ID #AD162/12: Village Auto Body PA –** Located at 82 Old Riverhead Rd., Hampton Bays, NY 11946; approximately 5075 feet (0.96 miles) to the Northeast of Facility 4. (Contaminants: Xylene, Toulene, Benzene)

6 **Map ID #AW258/12: Rite Aid #10669 –** Located at 50 E Montauk Hwy., Hampton Bays, NY 11946; approximately 7920 feet (1.50 miles) to the East of Facility 4. (Contaminants: Chromium, Mercury, Selenium, Silver, Chloroform, P001, Trichloromethane, Phenol, 1,3-Benzenediol)

7 **Map ID #BB277/12: Good Grounds Cleaner –** Located at 39 W Montauk Hwy., Hampton Bays, NY 11946; approximately 7339 feet (1.39 miles) to the East of Facility 4. (Contaminants: Tetrachloroethylene and Trichloroethylene)

8 **Map ID #BI312/11: Petco Store #2785 –** Located at 180 W Montauk Hwy., Hampton Bays, NY 11946; approximately 4279 feet (0.81 miles) to the Southeast of Facility 4. (Contaminants: Chromium, Barium, Lead, Methyl Ethyl Ketone)

9 **Map ID #BT361/11: Macy's – Hampton Bays –** Located at 190 W Montauk Hwy., Hampton Bays, NY 11946; approximately 4185 feet (0.79 miles) to the Southeast of Facility 4. (Contaminants: Silver)

10 **Map ID #CH425/12: Hampton Bays UFS - H –** Located at 72 Ponquogue Ave., Hampton Bays, NY 11946; approximately 9557 feet (1.81 miles) to the Southeast of Facility 4. (Contaminants: Lead)

11 **Map ID #CZ507/16: Hess Corporation –** Located at 239 W Montauk Hwy., Hampton Bays, NY 11946; approximately 5861 feet (1.11 miles) to the Southwest of Facility 4. (Contaminants: D000 and Benzene)

The contaminants known to have been spilled at these sites include 3 of the 12 contaminants detected in Facility 4, (Lead, Chromium, Barium). There were no records on potential off-site groundwater contamination from any of the sites. The water quality should continue to be monitored.

**Facility 5**

A radius search was performed to identify possible sources of any contamination at Facility 5 within an approximate 2-mile radius of the well. A total 2 sites were identified as potential sources of contamination within the vicinity of Facility 5.

1 **Map ID #CQ467/11: Photory The –** Located at 266 W Montauk Hwy., Hampton Bays, NY 11946; approximately 2910 feet (0.55 miles) to the Northeast of Facility 5. (Contaminants: Silver and D011)

2 **Map ID #CQ468/11: Village Cleaners –** Located at 250 W Montauk Hwy., Hampton Bays, NY 11946; approximately 3481 feet (0.66 miles) to the Northeast of Facility 5. (Contaminants: Chromium, Tetrachloroethylene, Trichlorethylene, F002)

3 **Map ID #BI312/11: Petco Store #2785 –** Located at 180 W Montauk Hwy., Hampton Bays, NY 11946; approximately 4279 feet (0.81 miles) to the Northeast of Facility 4. (Contaminants: Chromium, Barium, Lead, Methyl Ethyl Ketone)

4 **Map ID #BT361/11: Macy's – Hampton Bays –** Located at 190 W Montauk Hwy., Hampton Bays, NY 11946; approximately 7814 feet (1.48 miles) to the Northeast of Facility 5. (Contaminants: Silver)

5 **Map ID #CZ507/16: Hess Corporation –** Located at 239 W Montauk Hwy., Hampton Bays, NY 11946; approximately 2910 feet (0.55 miles) to the Northeast of Facility 5. (Contaminants: D000 and Benzene)

The contaminants known to have been spilled at these sites include 2 of the 9 contaminants detected in Facility 5, (Chromium and Barium). There were no records on potential off-site groundwater contamination from any of the sites. The water quality should continue to be monitored.

NEW YORK STATE OF OPPORTUNITY | Department of Environmental Conservation

**PUBLIC NOTICE** | **State Superfund Program**

Receive Site Information by Email. See next page to Learn How.

**Site Name:** Hampton Bays Fire Department **February 27, 2019**
**Site No.** 152249 **Tax Map No.** 224-1-19.1
**Site Location:** 69 West Montauk Highway, Hampton Bays, Suffolk County

# State Superfund Site Classification Notice

The Inactive Hazardous Waste Disposal Site Program (the State Superfund Program) is the State's program for identifying, investigating, and cleaning up sites where the disposal of hazardous waste may present a threat to public health and/or the environment. The New York State Department of Environmental Conservation (DEC) maintains a list of these sites in the Registry of Inactive Hazardous Waste Disposal Sites (Registry). The site identified above, and located on a map on the reverse side of this page, has been added to the Registry as a Class 2 site that presents a significant threat to public health and/or the environment for the following reason(s):

Perfluorooctane sulfonic acid (PFOS) and perfluorooctanoic acid (PFOA) have been detected at elevated levels in groundwater at the Hampton Bays Ponquogue Avenue supply well field above the United States Environmental Protection Agency's lifetime health advisory level of 70 parts per trillion. While some actions have been taken to reduce human exposures to PFOS and PFOA in these water supplies, remedial measures are needed to address the source of the contamination. Based on initial sampling at the Hampton Bays Fire Department, it appears that a source of this contamination is located at the Fire Department.

DEC will keep you informed throughout the investigation and cleanup of the site.

**If you own property adjacent to this site and are renting or leasing your property to someone else, please share this information with them. If you no longer wish to be on the contact list for this site or otherwise need to correct our records, please contact DEC's Project Manager listed below.**

**FOR MORE SITE INFORMATION**

Additional information about this site can be found using DEC's "Environmental Site Remediation Database Search" engine which is located on the internet at: www.dec.ny.gov/cfmx/extapps/derexternal/index.cfm?pageid=3

Comments and questions are always welcome and should be directed as follows:


Project Related Questions
Brian Jankauskas, Project Manager
NYS Department of Environmental Conservation
625 Broadway, 12th Floor
Albany, NY 12233-7015
brian.jankauskas@dec.ny.gov
518-402-9626

Site Related Health Questions
Steven G. Berninger
NYS Department of Health
Empire State Plaza, Corning Tower Rm 1787
Albany, NY 12237
steven.berninger@health.ny.gov
518-402-7860


DEC is sending you this notice in accordance with Environmental Conservation Law Article 27, Title 13 and its companion regulation (6 NYCRR 375-2.7(b)(6)(ii)) which requires DEC to notify all parties on the contact list for this site of this recent action.

**Receive Site Updates by Email**

Have site information such as this public notice sent right to your email inbox. DEC invites you to sign up with one or more contaminated sites county email listservs available at the following web page: www.dec.ny.gov/chemical/61092.html . It's *quick*, it's *free*, and it will help keep you *better informed*.

As a listserv member, you will periodically receive site-related information/announcements for all contaminated sites in the county(ies) you select.

**Note:** Please disregard if you received this notice by way of a county email listserv.

# FACT SHEET

**State Superfund Program**

**Hampton Bays Fire Department**
**69 West Montauk Highway**
**Hampton Bays, NY 11946**

**SITE No. 152249**

**February 2019**

**NYSDEC REGION 1**

## Investigation to Begin at State Superfund Site

The Hampton Bays Fire District ("remedial party") will soon begin a detailed environmental study at the Hampton Bays Fire Department site ("site") located at 69 West Montauk Highway, Hampton Bays, Suffolk County. Please see the map for the site location. Documents related to the cleanup of this site can be found at the location(s) identified to the left under "Where to Find Information."

**Investigation Work Plan:** The investigation work plan, called a "Remedial Investigation Work Plan," was submitted to NYSDEC under New York's State Superfund Program. The site is listed as a Class "2" site in the State Registry of Inactive Hazardous Waste Sites (list of State Superfund sites). A Class 2 site represents a significant threat to public health or the environment; action is required. NYSDEC and the New York State Department of Health (NYSDOH) will oversee the investigation.

**Highlights of the Site Investigation:** A recent investigation performed by the Fire District determined that per- and polyfluoroalkyl substances (PFAS) contamination exists at the site. Perfluorooctane sulfonic acid (PFOS) is the primary PFAS present in the site's subsurface. PFOS is a contaminant often associated with fire-fighting foam. In January 2018, fire-fighting foam was identified within the maintenance building at the site. The remedial investigation will define the nature and extent of contamination in soil, groundwater and any other parts of the environment that may be affected.

Key components of the investigation work include:

- Installing and sampling soil borings to identify possible on-site sources of contamination; and
- Installing and sampling groundwater to monitor impacts from areas of concern.

**Next Steps:** The information collected during the investigation will be summarized in a report. After the site investigation has concluded, the remedial party with oversight provided by NYSDEC will conduct a "Feasibility Study." This study uses information developed during the site investigation to develop and evaluate potential ways to clean up contamination related to the site. The information collected during the site investigation may also support the conclusion that no action, or no further action, is needed to address site-related contamination. NYSDEC will then develop a draft cleanup plan, called a "Proposed Remedial Action Plan." This plan describes the remedy preferred by NYSDEC, or, if warranted, a no action or no further action alternative.

**Where to Find Information:**
*Project documents are available at these location(s) to help the public stay informed.*

**Hampton Bays Public Library**
52 Ponquogue Avenue
Hampton Bays, NY 11946
(631) 728-6241

**Who to Contact:**
*Comments and questions are always welcome and should be directed as follows:*


**Project-Related Questions**
Brian Jankauskas, Project Manager
NYSDEC
625 Broadway, 12th Floor
Albany, NY 12233-7015
(518) 402-9626
brian.jankauskas@dec.ny.gov

**Project-Related Health Questions**
Steven Berninger
NYSDOH
Bureau of Environmental
Exposure Investigation
Empire State Plaza, Corning Tower,
Room 1787
Albany, NY 12237
(518) 402-7860
beei@health.ny.gov


**For more information about New York's State Superfund Program, visit:**
www.dec.ny.gov/chemical/8439.html

# STATE SUPERFUND PROGRAM

The draft cleanup plan explains the decision that led to the preferred remedy by discussing each alternative and the reasons for choosing or rejecting it. The goal of the plan will be to ensure the protection of public health and the environment. NYSDEC will announce the draft cleanup plan in a future fact sheet, and will present it to the public for its review and comment during a 30-day comment period and at a public meeting.

**Site Description:** The site is relatively flat and includes the Hampton Bays Fire Department's five-bay firehouse and a maintenance building. The remaining portion of the site is covered by asphalt and grass. The site has been used by the Hampton Bays Fire Department since the 1930's. The site covers approximately two-acres and is located within a mixed commercial and residential area along West Montauk Highway.

Additional site details, including environmental and health assessment summaries, are available on NYSDEC's Environmental Site Remediation Database (by entering the Site ID, 152249) at:
http://www.dec.ny.gov/cfmx/extapps/derexternal/index.cfm?pageid=3

**State Superfund Program:** New York's State Superfund Program (SSF) identifies and characterizes suspected inactive hazardous waste disposal sites. Sites that pose a significant threat to public health and/or the environment go through a process of investigation, evaluation, cleanup and monitoring. NYSDEC attempts to identify parties responsible for site contamination and require cleanup before committing State funds.

For more information about the SSF, visit:

http://www.dec.ny.gov/chemical/8439.html

***We encourage you to share this fact sheet with neighbors and tenants, and/or post this fact sheet in a prominent area of your building for others to see.***

**Receive Site Fact Sheets by Email**

Have site information such as this fact sheet sent right to your email inbox. NYSDEC invites you to sign up with one or more contaminated sites county email listservs at:

www.dec.ny.gov/chemical/61092.html

It's quick, it's free, and it will help keep you better informed. As a listserv member, you will periodically receive site-related information/ announcements for all contaminated sites in the county(ies) you select.

Note: Please disregard if you already have signed up and received this fact sheet electronically.

# STATE SUPERFUND PROGRAM

0 150 300 600 Feet

1 inch = 300 feet

NEW YORK STATE OF OPPORTUNITY | Department of Environmental Conservation

# Environmental Site Remediation Database Search Details

## Site Record

### Administrative Information

**Site Name:** Hampton Bays Fire Department
**Site Code:** 152249
**Program:** State Superfund Program
Classification: P *
**EPA ID Number:**

### Location

**DEC Region:** 1
**Address:** 69 West Montauk Highway
**City:**Hampton Bays Zip: 11946
**County:**Suffolk
**Latitude:** 40.876944444
**Longitude:** -72.526666667
**Site Type:**
**Estimated Size:** 2.07 Acres

### Site Owner(s) and Operator(s)

**Current Owner Name:** Hampton Bays Fire District
**Current Owner(s) Address:** PO Drawer 800
Hampton Bays,NY, 11946
**Current Owner Name:** Hampton Bays Fire District
**Current Owner(s) Address:** PO Drawer 800
Hampton Bays,NY, 11946
**Current On-Site Operator:** Hampton Bays Fire Department
**Stated Operator(s) Address:** 69 West Montauk Highway
Hampton Bays,NY 11946

### Site Description

Location: The site is a 2.2 acre parcel in suburban area of Hampton Bays, Town of Southampton, Suffolk County. Site Features: The site is relatively flat and includes the Hampton Bays Fire Department¿s Headquarters and 5-bay firehouse. A the remaining portion

of the site is covered by asphalt and grass. Current Zoning and Land Use: The site is currently utilized by the Hampton Bays Fire Department. The site is situated within a residential and commercial area. Past Use of the Site: The site has been utilized by the Hampton Bays Fire Department since the 1930's. In 2008, the Hampton Bays Fire Department purchased aqueous film forming foam (AFFF) for fire suppression, which frequently contain perfluorooctanoic acid (PFOA) and perfluorooctane sulfonic acid (PFOS). Site Geology and Hydrogeology: Site geology consists of coastal plain deposits that includes sand with some silt and gravel. Groundwater is approximately 40 feet below ground surface and flows to the south-southwest.

## Contaminants of Concern (Including Materials Disposed)

**Contaminant Name/Type**

Perfluorooctane Sulfonic Acid

perfluorooctanoic acid

## Site Environmental Assessment

Nature and Extent of Contamination: Containers of aqueous film forming foams (AFFF) for fire fighting were present onsite, which are known to contain per- and polyfluoroalkyl substances (PFAS), such as perfluorooctane sulfonic acid (PFOS) and perfluorooctanoic acid (PFOA). Onsite cesspools contained PFOS up to 1.7 parts per billion (ppb). Onsite groundwater contained PFOS up to 2,400 parts per trillion (ppt) and PFOA up to 250 ppt. The groundwater detections are above the United State Environmental Protection Agency's Health Advisory Level of 70 ppt for combined PFOS and PFOA. Site contamination extends ~630 feet to the southeast towards the Hampton Bays Ponquogue Avenue well field based on detections in groundwater by Suffolk County Department of Health Services and supply water by the Water District. The three supply wells have been shutdown and a treatment system is presently being designed.

## Site Health Assessment

Access to the site is unrestricted and people may come in contact with site related compounds in soil if they dig below ground surface. People are not drinking contaminated water because the public water supply that serves the area is treated to remove contaminants before the water is distributed to consumers.

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* **Class P Sites:** "DEC offers this information with the caution that it should not be used to form conclusions about site contamination beyond what is implied by the classification of this site, namely, that there is a potential for concern about site contamination. Information regarding a Class P site (potential Registry site) is by definition preliminary in nature and unverified because the DEC's investigation of the site is not yet complete. Due to the preliminary nature of this information, significant conclusions or decisions should not be based solely upon this summary."

For more Information: E-mail Us

Return To Results

Refine This Search

# APPENDIX G

# EDR REPORT (CD)

# APPENDIX H

# CAPITAL IMPROVEMENT COST ESTIMATES

# TABLE 7-1

## Hampton Bays Water District 10 Year Capital Plan - Capital Improvement Cost Estimates

| | | First 5 Years | | | | | Second 5 Years | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 2019 Estimated Cost | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 | 2029 | Escalated Totals |
| **Facility 1** | **$835,000** | **$394,000** | **$410,000** | **$0** | **$0** | **$0** | **$0** | **$105,000** | **$0** | **$0** | **$0** | **$909,000** |
| Replace Portable Generator Quick Connects Outside (All Wells) | $78,000 | $0 | $0 | $0 | $0 | $0 | $0 | $105,000 | $0 | $0 | $0 | $105,000 |
| Enclose GAC with Pre-Engineered Metal Building | $757,000 | $394,000 | $410,000 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $804,000 |
| | | | | | | | | | | | | |
| **Facility 2** | **$939,000** | **$0** | **$0** | **$0** | **$0** | **$617,000** | **$548,000** | **$0** | **$0** | **$0** | **$0** | **$1,165,000** |
| Replace Portable Generator Quick Connects Outside (All Wells) | $52,000 | $0 | $0 | $0 | $0 | $0 | $66,000 | $0 | $0 | $0 | $0 | $66,000 |
| Replace MCCs (All Wells) | $380,000 | $0 | $0 | $0 | $0 | $0 | $482,000 | $0 | $0 | $0 | $0 | $482,000 |
| Booster Pump Check Valve Installation | $64,000 | $0 | $0 | $0 | $0 | $78,000 | $0 | $0 | $0 | $0 | $0 | $78,000 |
| Booster Pump Generator Installation | $443,000 | $0 | $0 | $0 | $0 | $539,000 | $0 | $0 | $0 | $0 | $0 | $539,000 |
| | | | | | | | | | | | | |
| **Facility 3** | **$2,468,000** | **$0** | **$0** | **$1,390,000** | **$1,447,000** | **$0** | **$0** | **$0** | **$0** | **$0** | **$0** | **$2,837,000** |
| Facility 3 Generator Installation | $633,000 | $0 | $0 | $357,000 | $371,000 | $0 | $0 | $0 | $0 | $0 | $0 | $728,000 |
| Facility 3 Chemical Building Construction | $1,265,000 | $0 | $0 | $712,000 | $740,000 | $0 | $0 | $0 | $0 | $0 | $0 | $1,452,000 |
| Replace MCCs (All Wells) | $570,000 | $0 | $0 | $321,000 | $336,000 | $0 | $0 | $0 | $0 | $0 | $0 | $657,000 |
| | | | | | | | | | | | | |
| **Facility 4** | **$4,365,000** | **$1,362,000** | **$3,306,000** | **$0** | **$0** | **$0** | **$0** | **$0** | **$0** | **$0** | **$0** | **$4,668,000** |
| Facility 4 Iron & Manganese Treatment | $4,048,000 | $1,263,000 | $3,065,000 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $4,328,000 |
| Facility 4 Chemical Room Refurbishment | $317,000 | $99,000 | $241,000 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $340,000 |
| | | | | | | | | | | | | |
| **New Wells** | **$2,956,000** | **$0** | **$0** | **$0** | **$0** | **$0** | **$3,741,000** | **$0** | **$0** | **$0** | **$0** | **$3,741,000** |
| New Well at Location To Be Determined | $2,956,000 | $0 | $0 | $0 | $0 | $0 | $3,741,000 | $0 | $0 | $0 | $0 | $3,741,000 |
| | | | | | | | | | | | | |
| **Security Improvements** | **$95,000** | **$0** | **$0** | **$0** | **$0** | **$116,000** | **$0** | **$0** | **$0** | **$0** | **$0** | **$116,000** |
| New Access Control System with Entry Keycards | $95,000 | $0 | $0 | $0 | $0 | $116,000 | $0 | $0 | $0 | $0 | $0 | $116,000 |
| | | | | | | | | | | | | |
| **Distribution System Improvements** | **$6,697,600** | **$0** | **$2,880,000** | **$1,785,000** | **$2,866,000** | **$0** | **$0** | **$0** | **$0** | **$0** | **$0** | **$7,531,000** |
| Shinnecock Bay Crossing Enhancement | $3,173,000 | $0 | $1,716,000 | $1,785,000 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $3,501,000 |
| Install New Water Main Across the Shinnecock Canal | $1,076,000 | $0 | $1,164,000 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $1,164,000 |
| Replace Water Mains On Rampasture Road Peninsula | $2,448,600 | $0 | $0 | $0 | $2,866,000 | $0 | $0 | $0 | $0 | $0 | $0 | $2,866,000 |
| | | | | | | | | | | | | |
| **Tank Improvements** | **$9,160,000** | **$408,000** | **$3,812,000** | **$0** | **$3,068,000** | **$0** | **$0** | **$0** | **$0** | **$0** | **$3,882,000** | **$11,170,000** |
| Rehabilitate Tank #1 Ponquogue Avenue | $2,622,000 | $0 | $0 | $0 | $3,068,000 | $0 | $0 | $0 | $0 | $0 | $0 | $3,068,000 |
| Rehabilitate Tank #2 Old Riverhead Road | $2,622,000 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $3,882,000 | $3,882,000 |
| Rehabilitate Tank #3 Bellow Pond Road | $3,916,000 | $408,000 | $3,812,000 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $4,220,000 |
| | | | | | | | | | | | | |
| **Meter Replacement** | **$1,581,000** | **$237,000** | **$246,000** | **$256,000** | **$266,000** | **$277,000** | **$288,000** | **$300,000** | **$312,000** | **$0** | **$0** | **$2,182,000** |
| Meter Replacement Program | $1,581,000 | $237,000 | $246,000 | $256,000 | $266,000 | $277,000 | $288,000 | $300,000 | $312,000 | $0 | $0 | $2,182,000 |
| | | | | | | | | | | | | |
| **District Totals** | **$29,096,600** | **$2,401,000** | **$10,654,000** | **$3,431,000** | **$7,647,000** | **$1,010,000** | **$4,577,000** | **$405,000** | **$312,000** | **$0** | **$3,882,000** | **$34,319,000** |

**Escalated Total of First 5 Years: $25,143,000**

**Escalated Total of Second 5 Years: $9,176,000**

# Facility 1 - CAPITAL IMPROVEMENT COST ESTIMATE

Return to TOC

| | | | Material | | Labor | | | | | Cost by Year | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Task** | **Quantity** | **Units** | **Unit** | **Total** | **Unit** | **Total** | **Subtotal** | **Total Construction Cost with 10% Contingency** | **Total Project Cost with 15% Engineering (in 2019 Dollars)** | **2020** | **2021** | **2022** | **2023** | **2024** | **2025** | **2026** | **2027** | **2028** | **2029** |
| **Well 1-1** | | | | | | | | | | | | | | | | | | | |
| Replace Portable Generator Quick Connect | 1 | Each | $20,000 | $20,000 | | | $20,000 | $22,000 | $26,000 | | | | | | | $35,000 | | | |
| **Well 1-2** | | | | | | | | | | | | | | | | | | | |
| Replace Portable Generator Quick Connect | 1 | Each | $20,000 | $20,000 | | | $20,000 | $22,000 | $26,000 | | | | | | | $35,000 | | | |
| **Well 1-3** | | | | | | | | | | | | | | | | | | | |
| Replace Portable Generator Quick Connect | 1 | Each | $20,000 | $20,000 | | | $20,000 | $22,000 | $26,000 | | | | | | | $35,000 | | | |
| **Chemical Building** | | | | | | | | | | | | | | | | | | | |
| No Capital Improvements | | | | | | | | | | | | | | | | | | | |
| **GAC** | | | | | | | | | | | | | | | | | | | |
| Enclose GAC w/ Pre-Engineered Metal Building | 1 | Each | $598,000 | $598,000 | | | $598,000 | $657,800 | $757,000 | $394,000 | $410,000 | | | | | | | | |
| | | | | | | | **Totals** | **$723,800** | **$835,000** | **$394,000** | **$410,000** | **$0** | **$0** | **$0** | **$0** | **$105,000** | **$0** | **$0** | **$0** |

# Facility 2 - CAPITAL IMPROVEMENT COST ESTIMATE

Return to TOC

| | | | Material | | Labor | | | | | Cost by Year | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Task** | **Quantity** | **Units** | **Unit** | **Total** | **Unit** | **Total** | **Subtotal** | **Total Construction Cost with 10% Contingency** | **Total Project Cost with 15% Engineering (in 2019 Dollars)** | **2020** | **2021** | **2022** | **2023** | **2024** | **2025** | **2026** | **2027** | **2028** | **2029** |
| **Well 2-1** | | | | | | | | | | | | | | | | | | | |
| Replace MCC | 1 | Each | $150,000 | $150,000 | | | $150,000 | $165,000 | $190,000 | | | | | | $241,000 | | | | |
| Replace Portable Generator Quick Connect | 1 | Each | $20,000 | $20,000 | | | $20,000 | $22,000 | $26,000 | | | | | | $33,000 | | | | |
| **Well 2-2** | | | | | | | | | | | | | | | | | | | |
| Replace MCC | 1 | Each | $150,000 | $150,000 | | | $150,000 | $165,000 | $190,000 | | | | | | $241,000 | | | | |
| Replace Portable Generator Quick Connect | 1 | Each | $20,000 | $20,000 | | | $20,000 | $22,000 | $26,000 | | | | | | $33,000 | | | | |
| **Booster Pump Station** | | | | | | | | | | | | | | | | | | | |
| Install Check Valve for Booster Zone | 1 | Each | $50,000 | $50,000 | | | $50,000 | $55,000 | $64,000 | | | | | $78,000 | | | | | |
| Install Generator for Facility 2 Boosters | 1 | Each | $350,000 | $350,000 | | | $350,000 | $385,000 | $443,000 | | | | | $539,000 | | | | | |
| | | | | | | | **Totals** | **$814,000** | **$939,000** | **$0** | **$0** | **$0** | **$0** | **$617,000** | **$548,000** | **$0** | **$0** | **$0** | **$0** |

# Facility 3 - CAPITAL IMPROVEMENT COST ESTIMATE

| | | | Material | | Labor | | | | | Cost by Year | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Task | Quantity | Units | Unit | Total | Unit | Total | Subtotal | Total Construction Cost with 10% Contingency | Total Project Cost with 15% Engineering (in 2019 Dollars) | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 | 2029 |
| **Well 3-1** | | | | | | | | | | | | | | | | | | | |
| Install Generator for Facility 3 | 1 | Each | $500,000 | $500,000 | | | $500,000 | $550,000 | $633,000 | | | $357,000 | $371,000 | | | | | | |
| New Chemical Building at Facility 3 | 1 | Each | $1,000,000 | $1,000,000 | | | $1,000,000 | $1,100,000 | $1,265,000 | | | $712,000 | $740,000 | | | | | | |
| Replace MCC | 1 | Each | $150,000 | $150,000 | | | $150,000 | $165,000 | $190,000 | | | $107,000 | $112,000 | | | | | | |
| **Well 3-2** | | | | | | | | | | | | | | | | | | | |
| Replace MCC | 1 | Each | $150,000 | $150,000 | | | $150,000 | $165,000 | $190,000 | | | $107,000 | $112,000 | | | | | | |
| **Well 3-3** | | | | | | | | | | | | | | | | | | | |
| Replace MCC | 1 | Each | $150,000 | $150,000 | | | $150,000 | $165,000 | $190,000 | | | $107,000 | $112,000 | | | | | | |
| | | | | | | | **Totals** | **$2,145,000** | **$2,468,000** | **$0** | **$0** | **$1,390,000** | **$1,447,000** | **$0** | **$0** | **$0** | **$0** | **$0** | **$0** |

# Facility 4 - CAPITAL IMPROVEMENT COST ESTIMATE

Return to TOC

| | | | Material | | Labor | | | | | Cost by Year | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Task | Quantity | Units | Unit | Total | Unit | Total | Subtotal | Total Construction Cost with 10% Contingency | Total Project Cost with 15% Engineering (in 2019 Dollars) | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 | 2029 |
| **Well 4-1** | | | | | | | | | | | | | | | | | | | |
| Iron & Manganese Treatment | 1 | Each | $3,200,000 | $3,200,000 | | | $3,200,000 | $3,520,000 | $4,048,000 | $1,263,000 | $3,065,000 | | | | | | | | |
| Chemical Room Refurbishment | 1 | Each | $250,000 | $250,000 | | | $250,000 | $275,000 | $317,000 | $99,000 | $241,000 | | | | | | | | |
| **Well 4-2** | | | | | | | | | | | | | | | | | | | |
| | | | | | | | **Totals** | **$3,795,000** | **$4,365,000** | **$1,362,000** | **$3,306,000** | **$0** | **$0** | **$0** | **$0** | **$0** | **$0** | **$0** | **$0** |

# Security Improvements - CAPITAL IMPROVEMENT COST ESTIMATE

| | | | Material | | Labor | | | | | Cost by Year | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Task** | **Quantity** | **Units** | **Unit** | **Total** | **Unit** | **Total** | **Subtotal** | **Total Construction Cost with 10% Contingency** | **Total Project Cost with 15% Engineering (in 2019 Dollars)** | **2020** | **2021** | **2022** | **2023** | **2024** | **2025** | **2026** | **2027** | **2028** | **2029** |
| **All Facilities** | | | | | | | | | | | | | | | | | | | |
| Access Control System with Entry Keycar | 15 | Each | $5,000 | $75,000 | | $0 | $75,000 | $82,500 | $95,000 | | | | | $116,000 | | | | | |
| | | | | | | | **Totals** | **$82,500** | **$95,000** | **$0** | **$0** | **$0** | **$0** | **$116,000** | **$0** | **$0** | **$0** | **$0** | **$0** |

# Distribution Improvement - CAPITAL IMPROVEMENT COST ESTIMATE

| | | | Material | | Labor | | | | | Cost by Year | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Task | Quantity | Units | Unit | Total | Unit | Total | Subtotal | Total Construction Cost with 10% Contingency | Total Project Cost with 15% Engineering (in 2019 Dollars) | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 | 2029 |
| Shinnecock Bay Crossing Enhancement | 3300 | LF | $760 | $2,508,000 | | | $2,508,000 | $2,758,800 | $3,173,000 | | $1,716,000 | $1,785,000 | | | | | | | |
| Install New Secondary Water Main Across Shinnecock Canal | 1700 | LF | $500 | $850,000 | | | $850,000 | $935,000 | $1,076,000 | | $1,164,000 | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | |
| Install New Emergency Interconnections to Suffolk County Water Authority | 6 | Each | $50,000 | $300,000 | | | $300,000 | $330,000 | $380,000 | | | | | | | $501,000 | | | |
| Replacement of Water Main on Rampasture Road 8"-12" | 3000 | LF | $235 | $705,000 | | | $705,000 | $775,500 | $891,900 | | | | $1,044,000 | | | | | | |
| Replacement of Water Main on East Tiana Road 6"-8" | 1350 | LF | $230 | $310,500 | | | $310,500 | $341,600 | $392,900 | | | | $460,000 | | | | | | |
| Replacement In Kind of Water Main on East Rampasture Road, Hampton Harbor Lane, and Elder Avenue | 4000 | LF | $230 | $920,000 | | | $920,000 | $1,012,000 | $1,163,800 | | | | $1,362,000 | | | | | | |
| | | | | | | | **Totals** | **$6,152,900** | **$7,077,600** | **$0** | **$2,880,000** | **$1,785,000** | **$2,866,000** | **$0** | **$0** | **$501,000** | **$0** | **$0** | **$0** |

# Tank Improvements - CAPITAL IMPROVEMENT COST ESTIMATE

| | | | Material | | Labor | | | | | Cost by Year | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Task** | **Quantity** | **Units** | **Unit** | **Total** | **Unit** | **Total** | **Subtotal** | **Total Construction Cost with 10% Contingency** | **Total Project Cost with 15% Engineering (in 2019 Dollars)** | **2020** | **2021** | **2022** | **2023** | **2024** | **2025** | **2026** | **2027** | **2028** | **2029** |
| **Tank #1 Ponquogue Avenue** | | | | | | | | | | | | | | | | | | | |
| Rehabilitate the Tank | 1 | Each | $2,072,000 | $2,072,000 | | | $2,072,000 | $2,279,200 | $2,622,000 | | | | $3,068,000 | | | | | | |
| | | | | | | | | | | | | | | | | | | | |
| **Tank #2 Old Riverhead Road** | | | | | | | | | | | | | | | | | | | |
| Rehabilitate the Tank | 1 | Each | $2,072,000 | $2,072,000 | | | $2,072,000 | $2,279,200 | $2,622,000 | | | | | | | | | | $3,882,000 |
| | | | | | | | | | | | | | | | | | | | |
| **Tank #3 Bellow Pond Road** | | | | | | | | | | | | | | | | | | | |
| Rehabilitate the Tank | 1 | Each | $3,095,000 | $3,095,000 | | | $3,095,000 | $3,404,500 | $3,916,000 | $408,000 | $3,812,000 | | | | | | | | |
| | | | | | | | **Totals** | **$7,962,900** | **$9,160,000** | **$408,000** | **$3,812,000** | **$0** | **$3,068,000** | **$0** | **$0** | **$0** | **$0** | **$0** | **$3,882,000** |

# New Wells - CAPITAL IMPROVEMENT COST ESTIMATE

| | | | Material | | Labor | | | | | Cost by Year | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Task** | **Quantity** | **Units** | **Unit** | **Total** | **Unit** | **Total** | **Subtotal** | **Total Construction Cost with 10% Contingency** | **Total Project Cost with 15% Engineering (in 2019 Dollars)** | **2020** | **2021** | **2022** | **2023** | **2024** | **2025** | **2026** | **2027** | **2028** | **2029** |
| New Well at Existing Well Facility | 1 | Each | $2,336,000 | $2,336,000 | | | $2,336,000 | $2,569,600 | $2,956,000 | | | | | | $3,741,000 | | | | |
| | | | | | | | **Totals** | **$2,569,600** | **$2,956,000** | **$0** | **$0** | **$0** | **$0** | **$0** | **$3,741,000** | **$0** | **$0** | **$0** | **$0** |

# Meter Replacement - CAPITAL IMPROVEMENT COST ESTIMATE

| | | | Material | | Labor | | | | | Cost by Year | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Task** | **Quantity** | **Units** | **Unit** | **Total** | **Unit** | **Total** | **Subtotal** | **Total Construction Cost with 10% Contingency** | **Total Project Cost with 15% Engineering (in 2019 Dollars)** | **2020** | **2021** | **2022** | **2023** | **2024** | **2025** | **2026** | **2027** | **2028** | **2029** |
| Meter Replacement Program | 1 | Each | $1,437,126 | $1,437,126 | | | $1,437,200 | $1,581,000 | $1,819,000 | $237,000 | $246,000 | $256,000 | $266,000 | $277,000 | $288,000 | $300,000 | $312,000 | | |
| | | | | | | | **Totals** | **$1,581,000** | **$1,581,000** | **$237,000** | **$246,000** | **$256,000** | **$266,000** | **$277,000** | **$288,000** | **$300,000** | **$312,000** | **$0** | **$0** |

# Well Pump Motor Rehab & Replace - CAPITAL IMPROVEMENT COST ESTIMATE

| | | | Material | | Labor | | | | | Cost by Year | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Task | Quantity | Units | Unit | Total | Unit | Total | Subtotal | Total Construction Cost with 10% Contingency | Total Project Cost with 0% Engineering (in 2019 Dollars) | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 | 2029 |
| Annual Well Rehab and Replacement Program | 11 | Each | $150,000 | $1,650,000 | | | $1,650,000 | $1,815,000 | $1,815,000 | $172,000 | $179,000 | $186,000 | $194,000 | $201,000 | $209,000 | $218,000 | $226,000 | $235,000 | $245,000 |
| | | | | | | | **Totals** | **$1,815,000** | **$1,815,000** | **$172,000** | **$179,000** | **$186,000** | **$194,000** | **$201,000** | **$209,000** | **$218,000** | **$226,000** | **$235,000** | **$245,000** |