5 Centennial Drive, Peabody, MA 01960 (HQ)
Tel: 978.532.1900

February 6, 2019

Mr. Randy Sylvester
Superintendent of Public Works
Town of Hingham
25 Bare Cove Park
Hingham, MA 02043

Re: 2018 Pump Station Evaluations

Dear Mr. Sylvester:

On November 20, 2018, Weston & Sampson staff conducted pump station evaluations for eight (8) of the Town's wastewater pump stations. This report contains the evaluations for the following wastewater pump stations:

- Weir River (West Corner) Pump Station
- Mill Street Pump Station
- South Street (Town Brook) Pump Station
- Malcolm Street Pump Station
- Howe Street Pump Station
- Bel Air Pump Station
- Lewis Court Pump Station
- Town Hall Pump Station

Pump station evaluations consisted of the following activities for each pump station:

1. Exterior Inspection.

2. Inspection of Electrical Panels, Breakers, and Control Panels.

3. Miscellaneous Inspection and Operation (if applicable):
   - Pumps and Motors
   - Check and Gate Valves
   - Mechanical Piping
   - Standby Generator
   - Wet well walls and Interior

Pump station photos taken during the inspection are included at the end of each section.

We are pleased to provide this service to you. If you have any questions or would like to discuss the observations and recommendations made in the report, please call me at (978) 532-1900 ext. 2409, or e-mail me at pedersens@wseinc.com

Sincerely,

WESTON & SAMPSON ENGINEERS, INC.

Steven K. Pedersen, PE
Senior Associate

Weir River/West Corner Pump Station

Description

The Weir River Pump Station, also known as the West Corner Pump Station, is a duplex submersible pump station consisting of a 10-foot by 6-foot wet well and an adjacent pump station building. This station collects wastewater from users along Kilby Street, Ring Bolt Road, Weir Street Extension, Oak Road, Chestnut Road, Chestnut Place, Meadow Road, Bonnie Briar Circle, Old Hull Street and portions of Canterbury Street, Pine Street, Hull Street and Rockland Street. Additional wastewater flows from Cohasset and Hull are collected at the station. Wastewater is ultimately discharged across the Weir River into Hull for treatment at the Hull Wastewater Treatment Facility.

The Weir River/West Corner station utilizes two (2) submersible Homa Vortex pumps which are operated using a Rosemont PLC control panel. Wet well levels are monitored using a transducer type level control in addition to a Mission Control system which monitors the stations alarms. A bubbler type level control system was utilized before the transducer system was installed and is currently still in place today. A back-up generator is located inside the pump station building and has been noted by Sewer Department staff as being undersized for station operation.

Observations

The following observations we made during the pump station site investigation and through discussion with Sewer Department staff:

Wet Well-

- Staff discussed that grease was periodically a problem in the wet well, and expressed interest in installing an aerator in the wet well for control of grease
- The wet well hatch has been damaged but is still operational
- The odor control system does not work at the station
- Trap basket in wet well influent pipe has been removed, there is currently no method to remove debris entering the wet well
- The existing crane lift for the pumps is deteriorated and needs replacement, concrete is cracking around existing crane
- Existing 10-horsepower submersible Homa pumps are approximately four (4) years old

Station Building-

- Issues with the generator being undersized and louvers not working were discussed with staff, the louvers are currently scheduled to be replaced
- The meter/valve pit is known to have flooding issues, hatch is not watertight
- Existing station lighting currently uses incandescent bulbs
- The station is still equipped with an out of service bubbler level control system with compressors, in addition to the new transducer level control system. Level controls were observed to be deteriorated
- Existing full speed magnetic motor starters are deteriorated and outdated
- The station contains equipment for both the Town of Hingham and the Town of Hull. The Town of Hull currently uses a Telog R-3307 transmitter to report flows to Hull's wastewater treatment facility. Multiple obsolete controls used by the Town of Hull were observed. It is recommended that the Town discuss with the Town of Hull to consolidate and remove any obsolete equipment.
- Pump station building was built in 1997, overall condition of station building is fair, due to age of building it is recommended that the roof be replaced, and the exterior of the building be repainted

Recommendations

Based on the pump station investigation and input from the Sewer Department staff, Weston & Sampson offers the following recommendations:

Observation	Recommendation	Estimated Cost	
		Short Term	Long Term
Wet Well –			
Periodic grease buildup within wet well	Install an aerator system within the wet well for control of grease buildup		$10,000
Wet well hatch damaged	Replace wet well hatch with new water tight wet well hatch	$7,000	
Odor control system requires service	Replace existing media in odor control unit, service both blower and blower motor		$5,000

Observation	Recommendation	Estimated Cost	
Existing pump crane lift out system in disrepair	Replace existing crane system with a new operational system, install a steel plate for structural support at the base of the new crane system	$10,000	
Existing pumps approximately 4 years old	Rebuild existing 10-horsepower Homa pumps, recommend rebuild approximately every 5 years	$12,000	
Station Building–			
Generator undersized	Replace existing 30 kW generator with a new Kohler generator capable of operating both 10-HP pumps simultaneously	$60,000	
Meter/valve pit flooding	Install new water tight hatch at meter/valve pit		$5,000
Existing incandescent station lighting	Upgrade existing lighting to more efficient LED type lighting		$2,000
Existing level controls deteriorated	Upgrade existing transducer with a Spartan transducer housed in a stilling well, replace existing level controls with a new digital level controller		$30,000
Existing 240-volt, 3-phase motor starters are deteriorated and inefficient	Replace existing starters with solid state 10-HP variable frequency drives (VFDs)		$8,000
Aging roof	Replace roofing shingles		$10,000
Exterior of building requires painting	Repaint exterior of building		$10,000
	Subtotal -	$89,000	$80,000
	25% Contingencies and Engineering Support -	$22,250	$20,000
	Total-	$111,250	$100,000
	Grand Total-	$211,250	

Weir River/West Corner Pump Station Exterior (Front)

Weir River/West Corner Pump Station Exterior (Side) and Wet Well

Wet Well (Inside)

Odor Control Unit (Currently not in use)

Pump Removal Crane Assembly

Pump Station Electrical Control Panel

Automatic Transfer Switch

Pump Control Panel

Mission Control Panel and Flow Meter Panel

Standby Generator

Additional Instrumentation for the Town of Hull

Mill Street Pump Station

Description

The Mill Street Pump station is a duplex submersible pump station consisting of an 8-foot diameter wet well and a pump station building. The Mill Street station collects wastewater flows from users along Water Street, Eldridge Court, Green Street and small portions of Summer Street and Mill Street. Wastewater is pumped through a 6-inch force main and discharges into a manhole on Summer Street, ultimately discharging to the Greenbush Pump Station.

The Mill Street station utilizes two (2) 10-horsepower Flygt submersible pumps, with one spare pump stored on site, and is controlled by a Flygt Control Panel located on the outside of the building. A multitrode type level control system is used at the pump station in conjunction with a Mission Control system for monitoring of the station alarms. The station is equipped with an Evoqua Bioxide chemical odor control system which includes a chemical feed pump and a 1,025 gallon chemical storage tank located inside the pump station building. DPW staff estimates that approximately 11 gallons per day of the Bioxide chemical is used at the Mill Street Pump Station.

Observations

The following observations were made during the inspection of the Mill Street Pump Station and through interviews with Sewer Department staff:

Wet Well-

- The wet well showed signs of H_2S corrosion in the lower sections of the walls, in addition to slight grease

- The multitrode type level control system is functional and in good condition, however the Sewer Department would like to switch to a uniform means of level control system at all pump stations, specifically utilizing a Spartan Transducer type level control.

- Sewer Department staff expressed the need for truck access to the pump station wet well, which is located behind the pump station building.

- Pumps were noted as being in good condition, a spare pump is housed in the building in case of emergency need for replacement

- There is currently no onsite means of removing pumps from the wet well without the use of an outside crane, staff expressed interest in a permanent mounted hoisting system similar to the hoisting system at the Weir River Pump Station

Station Building-

- Sewer Department staff noted that the building is currently used as a maintenance shop/storage facility, the building was observed to have multiple unused equipment and controls (old heating fan unit, old wet well level gauge, etc.) It is recommended that any unnecessary extra electrical equipment which is no longer a match for equipment being used at the pump station be removed.

- Station building observed to be in overall good condition

- The pump control panel is located outside of the pump station building, additionally the pumps are operated using a touch-pad style controller in lieu of the traditional Hand/Off/Auto style switch, leaving no means of operating the pumps in the event of a failure of the touch-pad for the PLC.

- The existing Motor Control Center (MCC) inside the station building is still live and operational, however it is severely deteriorated and obsolete

- Existing motor starters are full speed contactors and are inefficient

- The existing automatic transfer switch at the station was observed to be in good condition

- Existing station lighting currently uses fluorescent bulbs

Recommendations

Based on the pump station investigation and with input from the Sewer Department staff, Weston & Sampson offers the following recommendations:

Observation	Recommendation	Estimated Cost	
		Short Term	Long Term
Wet Well-			
Wet well observed with corrosion and concrete deterioration	Provide epoxy coating on wet well walls	$45,000	
Existing level control system uses a Flygt multitrode stick that requires routine cleaning	Replace existing level control system with a Spartan transducer housed in a stilling well, in conjunction with new level control panel recommendation discussed below	$5,000	
Truck access to wet well is limited	Install a ramp for truck access to the wet well using the last parking spot adjacent to the wet well site		$5,000

Observation	Recommendation	Estimated Cost	
No permanent means of pump removal from wet well	Install electric pump removal hoist system adjacent to wet well		$10,000
Station Building-			
Level control panel is located outside of the station	Install a new level control panel inside of the building with Hand/Off/Auto switches, and provide two means of direct disconnect for the pumps on the outside wall of the building	$25,000	
Existing MCC is deteriorated and obsolete	Replace existing MCC with wall mounted breaker panels and remove all unused obsolete MCC components		$25,000
Existing motor starters are full speed and inefficient	Replace existing motor starters with solid state variable frequency drives (VFDs)		$8,000
Existing fluorescent station lighting	Upgrade existing lighting to more efficient LED type lighting		$2,000
	Subtotal -	$75,000	$50,000
	25% Contingencies and Engineering Support -	$18,750	$12,500
	Total-	**$93,750**	**$62,500**
	Grand Total-	**$156,250**	

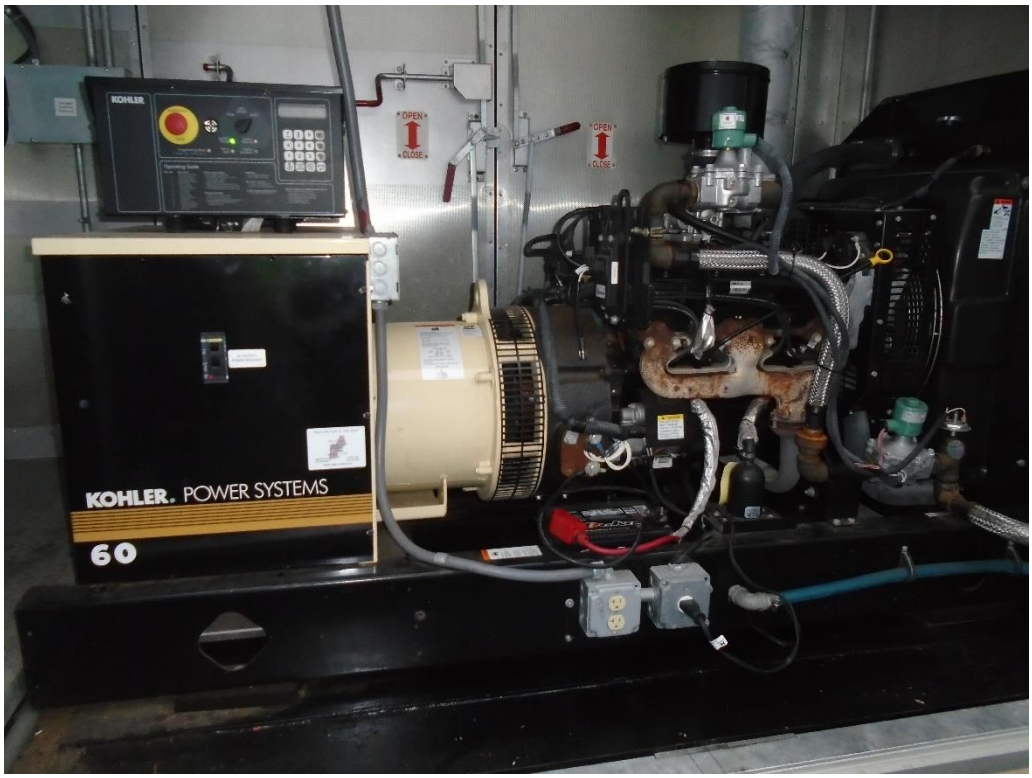
Mill Street Pump Station Exterior (Front)

Mill Street Pump Station Wet Well

Wet Well Interior

Pump Control Panel

Automatic Transfer Switch



Standby Generator

Pump Station Electrical Panel Board and Old Flow Gauge

Odor Control Chemical Storage Tank

Pump Station MCC

South Street/Town Brook Pump Station

Description

The South Street Pump Station, also know as the Town Brook Pump Station, is a duplex custom wet pit/dry pit pump station. The station collects wastewater flows from users along portions of Central Street, Weston Road, Bradford Road, Emerald Street, Thayer Street, Elm Street, Maple Street, Lafayette Avenue, Lantern Lane, Main Street and South Street, with additional tributary wastewater flows from the High School, Fire Station and Town Hall Pump Stations. The South Street/Town Brook station discharges directly into the Greenbush Pump Station located on North Street.

The South Street/Town Brook station is equipped with two (2) 30-horsepower Flygt pumps which are controlled using a Rosemont control panel and soft starters. Wet well levels are monitored using a bubbler type level control system and a Mission system is used for station monitoring and alarm notification. The station is equipped with a back-up generator which is stored in an adjacent room separate from the pump station's main control room. Wastewater flows entering into the station wet well pass through a flow control sluice gate and a bar rack for screening of larger solids before entering the station wet well.

Observations

The following observations we made during the pump station site investigation and through discussion with Sewer Department staff:

Wet Well-

- The inlet sluice gate is deteriorated, gate is currently stuck in the open position and cannot be adjusted
- Existing bar rack requires manual cleaning and does not provide efficient solids removal
- There is no gas monitoring system within the wet well

Station Building-

- The bubbler type level control system is deteriorated and outdated
- The generator automatic transfer switch is outdated and deteriorated
- The existing solid state soft starters are obsolete and deteriorated
- The cages over the pump motor shafts do not extend to the ceiling of the lower level

- There is currently no permanent means of pump removal, staff discussed having to extend chains through the floor after removing the motors and expressed interest in a potential gantry crane type removal system

- The pumps were noted as being approximately 6 to 7 years old, the motors are original and have been in use much longer than the pumps

- Station piping was replaced as of 2010

- Generator was recently replaced and is in good condition

- Roof was recently replaced, building exterior observed to be in good condition

- Backflow preventer is operational but shows signs of deterioration

- Existing pump room exhaust fan is deteriorating

- Existing station lighting uses fluorescent bulbs

Recommendations

Based on the pump station investigation and with input from the Sewer Department staff, Weston & Sampson offers the following recommendations:

Observation	Recommendation	Estimated Cost	
		Short Term	Long Term
Wet Well-			
Inlet sluice gate not operational	Replace existing sluice gate with a new manually operated sluice gate assembly	$20,000	
Existing bar rack does not provide efficient solids removal	Install influent grinder unit		$50,000
No gas monitoring system	Provide gas monitoring sensors	$8,000	
Station Building-			
Existing level control system is deteriorated and outdated	Replace existing bubbler type system with a Spartan transducer housed in a stilling well and a digital programmable level controller		$30,000
Automatic transfer switch outdated	Replace current ATS with a new solid-state system		$12,000

Observation	Recommendation	Estimated Cost	
Pump soft starters are outdated and deteriorated	Replace soft starters with new 30-HP variable frequency drives (VFDs)		$20,000
Pump motor shaft cages and drive shafts	Extend cages over rotating parts of pump motor shaft and up to ceiling of lower level, recommend re-balancing drive shafts	$5,000	
No permanent means of pump removal	Install portable aluminum gantry crane and hoist system		$10,000
Pump motors are original to station	Upgrade motors with new energy efficient type 30-horsepower, 460-volt motors		$15,000
Existing backflow preventer deteriorating	Replace with a new backflow preventer	(Town to perform this work)	
Existing pump room exhaust fan deteriorating	Replace with a new exhaust fan		$5,000
Existing fluorescent station lighting	Upgrade existing lighting to more efficient LED type lighting		$2,000
	Subtotal -	$33,000	$144,000
	25% Contingencies and Engineering Support -	$8,250	$36,000
	Total-	**$41,250**	**$180,000**
	Grand Total-	**$221,250**	

South Street/Town Brook Pump Station Exterior (Front)

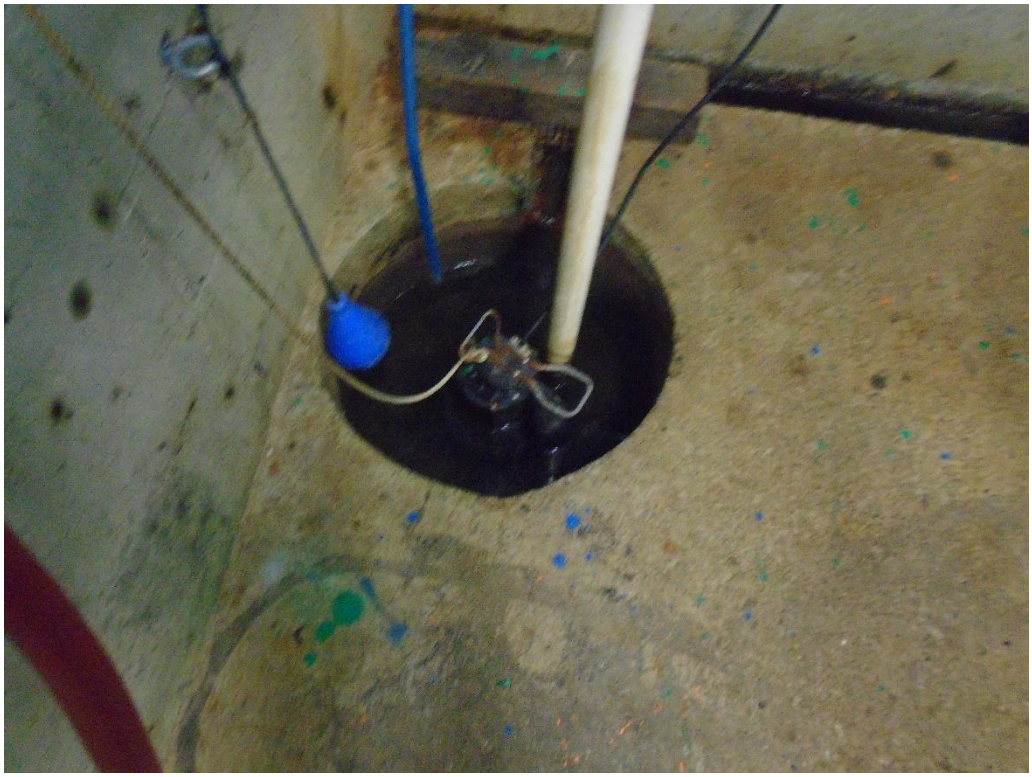
South Street/Town Brook Pump Station Building Interior

Pump Soft Starter Panels, Pump Control Panels and Electrical Panel Board

Automatic Transfer Switch

Transducer Level Control Tubing

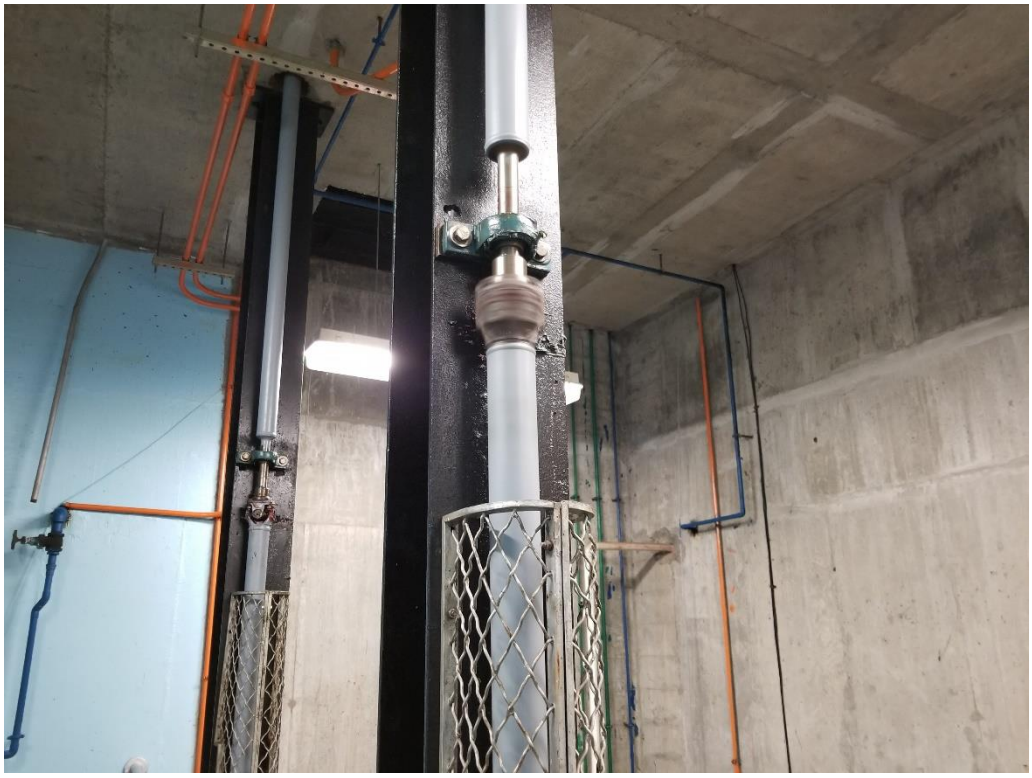
Standby Generator



Sump Pump

Pump Discharge Piping and Appurtenances

Discharge Piping Flow Meter



Pump Motor Shafts and Protective Caging

Influent Sluice Gate and Bar Rack Screen

Malcolm Street Pump Station

Description

The Malcolm Street Pump Station is a duplex submersible pump station consisting of a wet well and pump control building. The Malcolm Street station collects wastewater flows from portions of Marion Street, Merrill Street, Cushing Avenue and Downer Avenue. Wastewater is pumped via a 4-inch force main and discharged into a sewer manhole on Downer Ave, ultimately discharging to the Walton Cove Pump Station.

The Malcolm Street station utilizes two (2) 3-horsepower submersible Hydromatic pumps which are operated using a Rosemont control panel. In 2013 the pumps were replaced with new pumps of the same model and the PLC has been replaced within the last year due to lightning hitting the building. Level controls utilize a Rosemont transducer type system with a float system back-up in case of transducer failure. The station is equipped with a back-up generator and an automatic transfer switch.

Observations

The following observations we made during the pump station site investigation and through discussion with Sewer Department staff:

Wet Well-

- A problem with the pumps was observed during the site visit and Sewer Department staff explained that the pumps had not been operating adequately for the past month. It was noted to take anywhere from one to two hours to pump down the levels in the wet well. Staff noted that the force main had been partially inspected through CCTV inspection methods and the pipe was observed to have some tuberculation.

- The pump rails were observed to be in good working condition, staff expressed interest in a crane type system for pump removal

Station Building

- Existing level control system utilizes float switches

- Motor starters are full speed magnetic type, observed to be outdated and deteriorated

- The PLC was recently hit by lightning and replaced with a new PLC, which was observed to be working properly

- Station building was observed to be in overall good condition, lighting at station is incandescent style lighting

Recommendations

Based on the pump station investigation and with input from the Sewer Department staff, Weston & Sampson offers the following recommendations:

Observation	Recommendation	Estimated Cost	
		Short Term	Long Term
Wet Well-			
Pumps not operating adequately	Conduct an engineering study on the condition of the force main and include comparison of the current pump output against the theoretical operating point	$50,000	
No permanent means of pump removal from wet well	Install pump removal crane system adjacent to wet well		$10,000
Station Building-			
Motor starters are deteriorated and inefficient	Replace full speed magnetic type starters with 3-horsepower solid state variable frequency drives (VFDs)		$8,000
Existing level control system utilizes float switches	Replace existing level control system with a transducer type level control		$30,000
Incandescent lighting at station	Replace incandescent lighting with more efficient LED lighting		$1,000
	Subtotal -	$50,000	$49,000
	25% Contingencies and Engineering Support -	$12,500	$12,250
	Total-	**$62,500**	**$61,250**
	Grand Total-	**$123,750**	

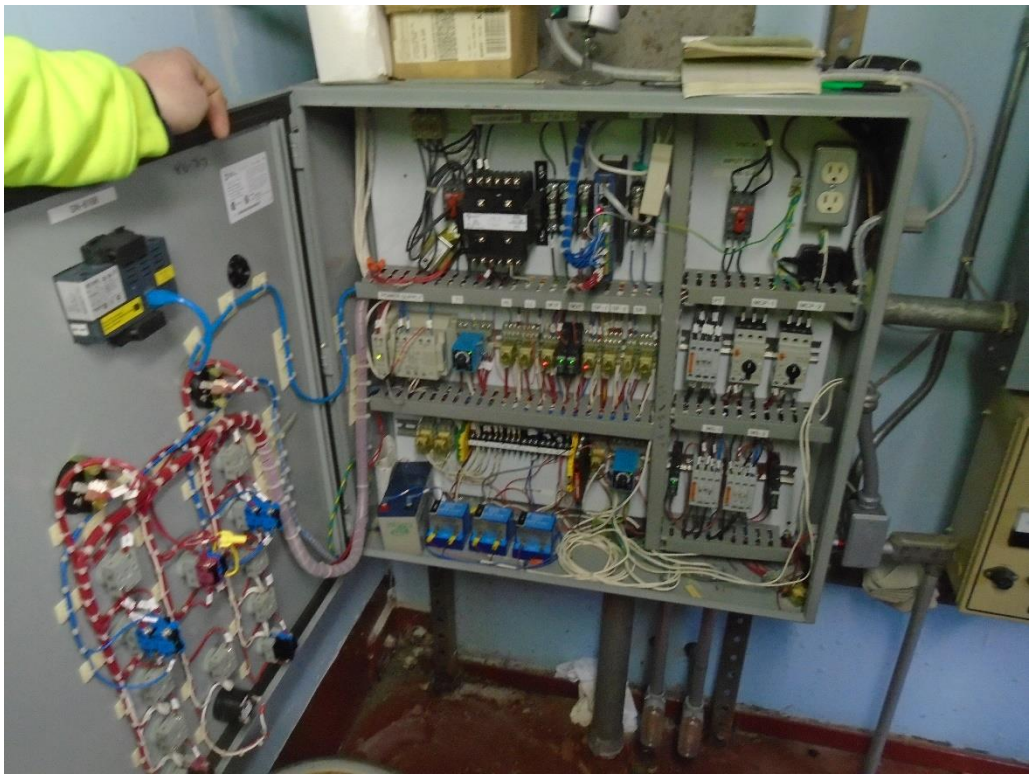
Malcolm Street Pump Station Exterior (Front)

Malcolm Street Pump Station Wet Well Hatch

Pump Station Instrumentation Layout

Automatic Transfer Switch

Pump Control Panel



Pump Control Panel Interior

Panel Board

Howe Street Pump Station

Description

The Howe Street Pump Station is a duplex submersible pump station consisting of a wet well and a pump control building with a similar layout to the Malcolm Street Pump Station. Wastewater flows are collected from users along portions of Shute Avenue, Paige Street, Whiton Avenue, Jarvis Avenue, Howe Street, Mann Street, Parker Drive, Cushing Avenue, Malcolm Street, Standish Street and Merrill Street. Wastewater is pumped via a 4-inch force main to manhole on Whiton Avenue and tributary flows ultimately discharge to the Walton Cove Pump Station.

The Howe Street station is equipped with two (2) 10-hoursepower Hydromatic submersible pumps that are controlled using a Hydromatic pump control panel. Wet well levels are monitored using a transducer type level control with a full float back-up system in case of transducer failure. The Howe Street station is equipped with a back-up generator and automatic transfer switch.

Observations

The following observations we made during the pump station site investigation and through discussion with Sewer Department staff:

Wet Well-

- Staff informed us that the pumps could not be removed due to deteriorated pump rails and brackets. Replacement of the pumps and rails is currently scheduled.
- No permanent means of pump removal from the wet well. Staff expressed interest in a crane for easy pump removal

Station Building-

- The lighting at the station was noted as incandescent lighting
- Station generator and automatic transfer switch were observed to be in good condition
- The existing level control has been recently upgraded with a digital controller
- The 120-volt breaker panel and associated transformer is obsolete and breakers for the panel are no longer available

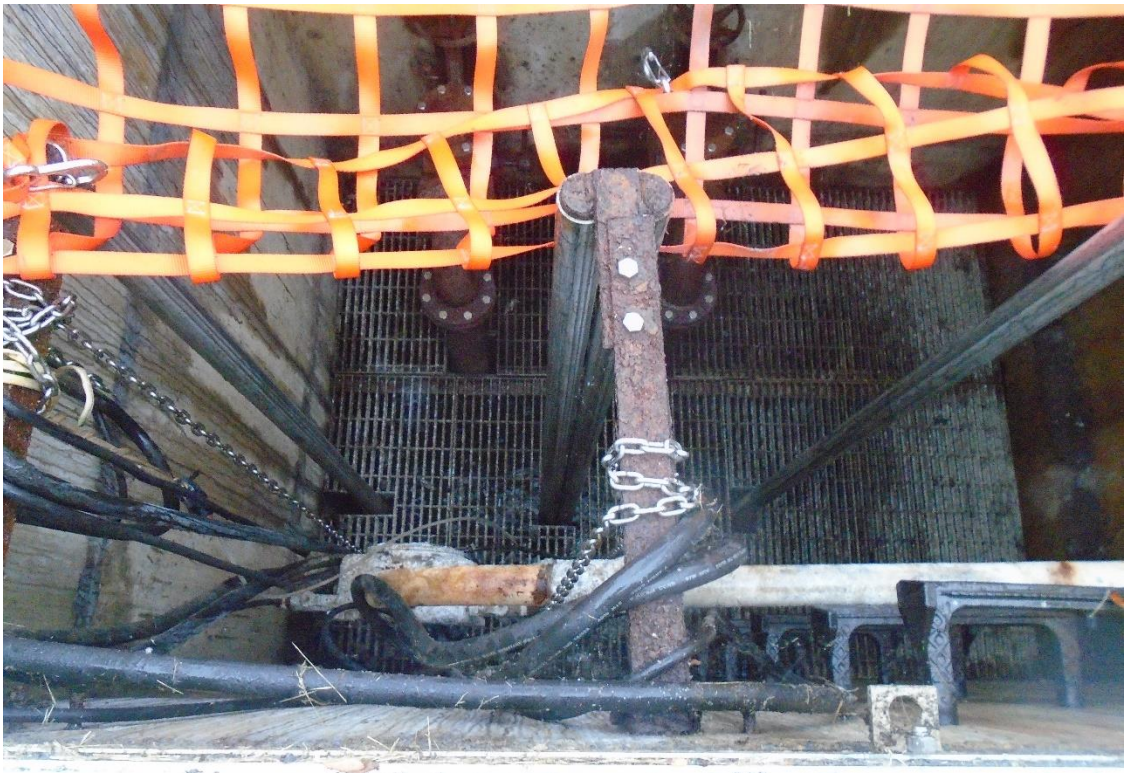
Recommendations

Based on the pump station investigation and with input from the Sewer Department staff, Weston & Sampson offers the following recommendations:

Observation	Recommendation	Estimated Cost	
		Short Term	Long Term
Wet Well-			
No permanent means of pump removal from wet well	Install pump removal crane system adjacent to wet well		$10,000
Station Building-			
Incandescent lighting at station	Replace incandescent lighting with more efficient LED lighting		$1,000
120-volt breaker panel is obsolete	Replace existing 120-volt breaker panel and transformer with new units		$5,000
	Subtotal -		$16,000
	25% Contingencies and Engineering Support -		$4,000
	Total-		**$20,000**
	Grand Total-	**$20,000**	

Howe Street Pump Station Exterior (Front)

How Street Pump Station Wet Well Hatch



Wet Well (Inside)

Pump Control Panel

Automatic Transfer Switch

Standby Generator

Bel Air Pump Station

Description

The Bel Air Pump Station is a duplex submersible pump station consisting of a wet well and a pump station control building. Wastewater flows are collected from users along portions of Wompatuck Road, Beach Road, Beach Lane, Kimball Beach Road, Foley Beach Road, Ocean View Drive, High View Drive, Bel Air Road and Bel Air Drive. Wastewater is pumped via a 4-inch force main to a discharge manhole on ocean view drive before ultimately discharging to the Broad Cove Pump Station.

The Bel Air station utilizes two (2) 5-horsepower Flygt submersible pumps that are controlled using a Flygt control panel. A third spare pump is currently stored on site in the pump station building. Wet well levels are monitored using a transducer type level control and the station alarms are monitored with a Mission Control system. The station is equipped with a back-up generator and an automatic transfer switch.

Observations

The following observations we made during the pump station site investigation and through discussion with Sewer Department staff:

Wet Well-

- Pump #1 was inoperable during the site investigation, it has since been brought back online with the installation of a new soft starter
- The wet well was observed to be in fair condition with signs of grease and slight H_2S corrosion
- Staff noted that the existing Flygt multitrode level control transducer requires cleaning every so often for proper level readings
- No permanent means of pump removal at the wet well. Staff expressed interest in a crane system for easy pump removal

Station Building-

- The pump station building is not insulated and is not equipped with a heating system
- Generator was recently replaced and was observed in good condition
- Existing PLC is outdated and in need of an upgrade

- The station still contains an antiquated phone line which was used prior to the mission system for alarm monitoring, it is recommended that the existing phone service be removed by the Town

- Overall condition of the station building was good, the lighting at the station was noted as incandescent lighting

Recommendations

Based on the pump station investigation and with input from the Sewer Department staff, Weston & Sampson offers the following recommendations:

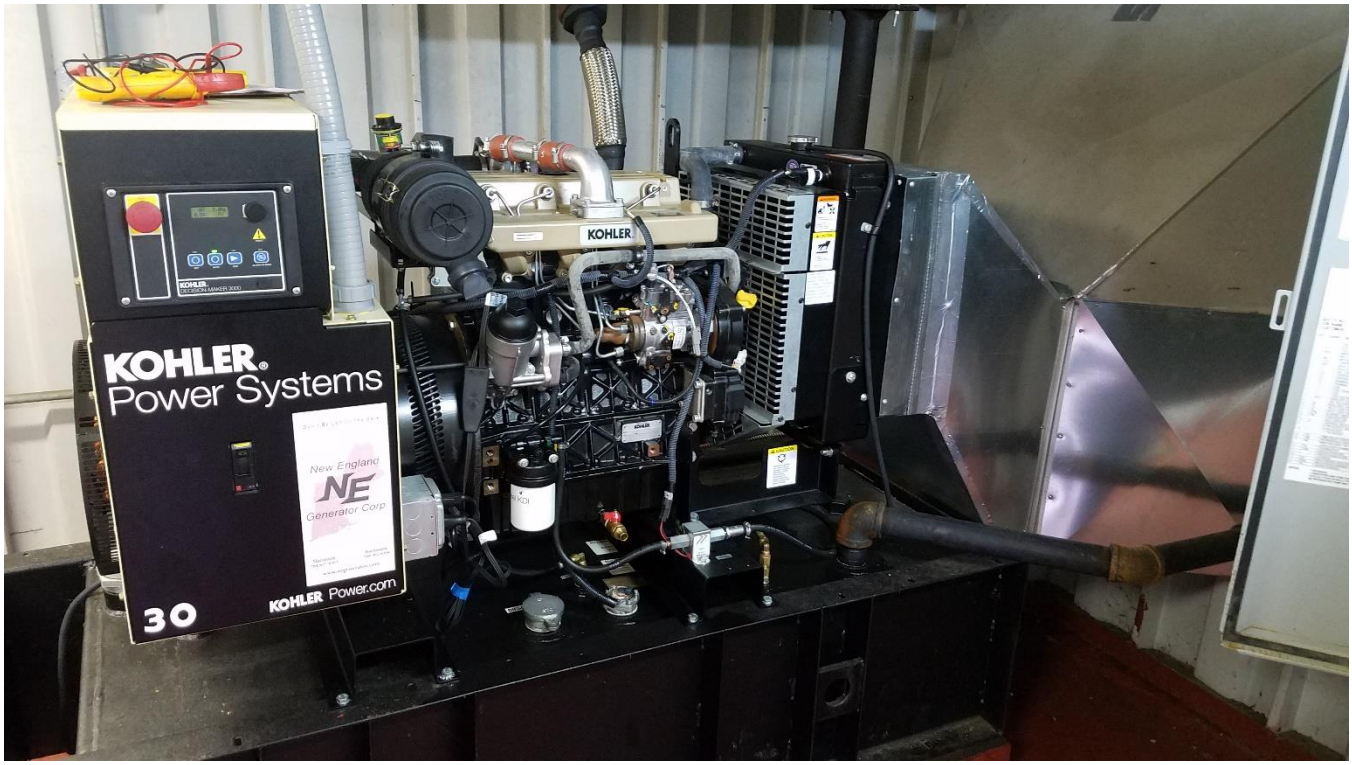
Observation	Recommendation	Estimated Cost	
		Short Term	Long Term
Wet Well-			
Fair condition of wet well	Coat wet well walls in epoxy coating to prevent corrosion	$45,000	
Existing level control system uses a Flygt multitrode stick that requires routine cleaning	Replace existing level control system with a Spartan transducer housed in a stilling well and a new digital level control to replace existing Flygt controller	$5,000	
No permanent means of pump removal from wet well	Install pump removal crane system adjacent to wet well		$10,000
Station Building-			
No insulation or heating in the building	Provide a control panel heater for protection of internal components of the panel	$1,000	
Incandescent lighting at station	Replace incandescent lighting with more efficient LED lighting		$1,000
	Subtotal -	$51,000	$11,000
	25% Contingencies and Engineering Support -	$12,750	$2,750
	Total-	**$63,750**	**$13,750**
	Grand Total-	**$77,500**	

Bel Air Pump Station Exterior (Front)

Bel Air Pump Station Wet Well

Wet Well Interior

Automatic Transfer Switch



Standby Generator

Pump Control Panel

Pump Control Panel Interior (Existing starters)

Lighting Electrical Panel Board

Lewis Court Pump Station

Description

The Lewis Court Pump Station is a duplex submersible pump station consisting of a 6-foot diameter wet well and an instrumentation cabinet. The Lewis Court station collects wastewater flows from users along Delprete Drive, New Town Drive, Lewis Court and a small portion of Hersey Street. Wastewater is pumped through a 6-inch diameter force main and ultimately discharges to the South Street/Town Brook Pump Station. The Lewis Court station was converted to a submersible station in 2000.

The Lewis Court station utilizes a Flygt control panel with soft starters and a multitrode type level control for pump operation. Emergency alarms are transmitted through a Patriot Alarm Telephone transmitter for operator notification. All instrumentation and controls are housed in a weatherproof cabinet secured on a concrete pad. A back-up generator is also located on the concrete pad in a small weatherproof generator cabinet adjacent to the instrumentation and control cabinet. The wet well is ventilated through a cane-type PVC pipe vent.

Observations

The Lewis Court Pump Station was observed to be in good overall working condition. The Sewer Department staff noted that there were no immediate problems at the station and that it was functioning normally. The following observations were made during the inspection of the Lewis Court Pump Station:

Wet Well-

- The wet well was observed to be in good condition, no corrosion issues were observed or reported by Sewer Department staff.

- The multitrode type level control system is functional and in good condition, however the Sewer Department would like to switch to a uniform means of level control system at all pump stations, specifically utilizing a Spartan Transducer type level control.

- No permanent means of pump removal at the wet well. Staff expressed interest in a crane system for easy pump removal

Station Equipment-

- The instrumentation cabinet was observed to be in good condition, all internal instrumentation and controls were also observed to be in good condition, control cabinet located at edge of pump station pad, puddling observed in front of cabinet

- Generator stored on site in a weather proof enclosure, observed to be in good condition

Recommendations

Based on the pump station investigation and with input from the Sewer Department staff, Weston & Sampson offers the following recommendations:

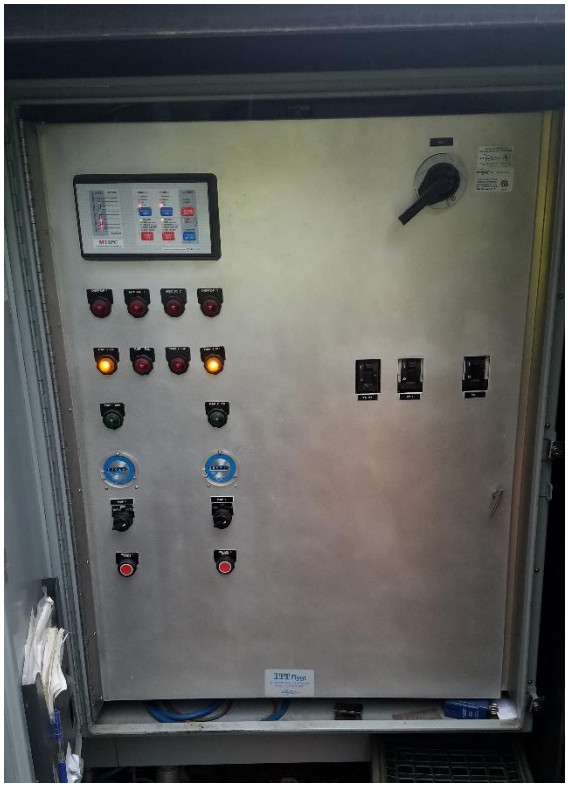
Observation	Recommendation	Estimated Cost	
		Short Term	Long Term
Wet Well-			
Existing level control system uses a Flygt multitrode stick that requires routine cleaning	Replace existing level control system with a Spartan transducer housed in a stilling well and a new digital level control to replace existing Flygt controller		$5,000
No permanent means of pump removal from wet well	Install a crane similar to one at the Weir River station for easy pump removal		$10,000
Station Equipment-			
Instrumentation cabinet pad	Extend cabinet pad to prevent puddling in front of the instrumentation cabinet		$1,500
Patriot alarm system still in use	Replace existing alarm system with a Mission Control system		$5,000
	Subtotal -		$21,500
	25% Contingencies and Engineering Support -		$5,375
	Total-		**$26,875**
	Grand Total-	**$26,875**	

Lewis Court Pump Station

Lewis Court Pump Station Wet Well

Wet Well Interior

Standby Generator



Pump Station Control Panel

Town Hall Pump Station

Description

The Town Hall Pump Station is a duplex submersible station consisting of the station wet well with a control panel cabinet adjacent to the wet well. The Town Hall station does not have a valve or meter pit, and no immediate backup generator; the station utilizes a portion of the backup generator for the Town Hall. The station utilizes a float type system for level control and a Patriot Alarm Telephone transmitter for emergency alarm notifications.

The Town Hall station only receives wastewater flow from the Town Hall building, which includes the Town Hall offices, Police Department and School Department. Flows are pumped through a 4-inch diameter force main and ultimately discharge to the South Street/Town Brook Pump Station.

Observations

The following observations were made during the inspection of the Town Hall Pump Station:

Wet Well-

- Based on visual inspections and conversations with Sewer Department staff, the wet well was observed to be in poor condition, showing signs of Hydrogen Sulfide (H_2S) corrosion and deterioration.

Station Equipment-

- As the station does not have a generator, there is no generator shed or enclosure for the pump control panel, which is housed inside a relatively small pump control panel cabinet. Access to the internal components of the panel is difficult due to the small size of the cabinet.

- Low flow conditions at this station result in wastewater turning septic and result in higher levels of corrosion. Staff noted that the pumps were in fair condition and would likely soon need to be replaced.

Recommendations

Based on the pump station investigation and with input from the Sewer Department staff, Weston & Sampson offers the following recommendations:

Observation	Recommendation	Estimated Cost	
		Short Term	Long Term
Pump Station			
Patriot alarm system still in use	Replace existing alarm system with a Mission Control system		$5,000
Entire station in disrepair	Replace entire pump station with a prefabricated duplex grinder pump system capable of handling existing flows from the Town Hall building	$50,000	
	Subtotal -	$50,000	$5,000
	25% Contingencies and Engineering Support -	$12,500	$1,250
	Total-	$62,500	$6,250
	Grand Total-	$68,750	

Town Hall Pump Station

Town Hall Pump Station Wet Well Interior

Pump Station Control Panel

Pump Station Capital Improvements and Estimated Cost Summary

Pump Station	Short Term Total Cost	Long Term Total Cost	Station Total Cost
Weir River/West Corner Pump Station	$111,250	$100,000	$211,250
Mill Street Pump Station	$93,750	$62,500	$156,250
South Street/Town Brook Pump Station	$41,250	$180,000	$221,250
Malcolm Street Pump Station	$62,500	$61,250	$123,750
Howe Street Pump Station	-	$20,000	$20,000
Bel Air Pump Station	$63,750	$13,750	$77,500
Lewis Court Pump Station	-	$26,875	$26,875
Town Hall Pump Station	$62,500	$6,250	$68,750
Total-	**$435,000**	**$470,625**	**$905,625**

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