

# ENVIRONMENTAL IMPACT EVALUATION

## FOR THE TOWN OF RIDGEFIELD

### WASTEWATER TREATMENT FACILITIES UPGRADE

#### PROJECT IDENTIFICATION

This project involves bringing flows from the Town's Route 7 wastewater treatment facilities (WWTF) to the Town's South Street WWTF which includes the upgrade of the South Street WWTF in order to treat the current and future flows & loads from both Sewer Districts 1 & 2. The project also includes the decommissioning of the Route 7 WWTF located at 9101 Ethan Allen Highway (Rte. 7), the replacement of the Route 7 Pump Station, and the construction of a new force main to convey Sewer District 2 flows to the South Street WWTF.

#### SUMMARY OF ENVIRONMENTAL REVIEW

The Town of Ridgefield owns and operates the South Street WWTF which serves Sewer District 1 (1,230 acres) and the Route 7 WWTF which serves Sewer District 2 (170 acres). The Town of Ridgefield has proposed modifications to the wastewater treatment facilities in accordance with the facilities planning document prepared by AECOM, "*Draft Report to the Town of Ridgefield, Connecticut on the Phase 2 Wastewater Facilities Plan*" dated February 16, 2017.

The Town has undertaken a two part facilities planning effort to respond to NPDES permit requirements at both Town owned WWTFs to assess potential increases in flows and loads in Sewer District 1 and 2, to identify and provide capacity for possible sewer expansion in the future to areas adjacent to Sewer District 1 with problematic septic systems, enhance nitrogen removal at the South Street WWTF, and to replace and upgrade the aging equipment and components. The findings and recommendations to upgrade Ridgefield's wastewater systems from the two part facilities planning effort are summarized in the Draft Phase 2 Facilities Plan. In accordance with the regulations of the Connecticut Environmental Policy Act, the findings and recommendations of the facilities plan, including all associated comments submitted to the Connecticut Department of Energy and Environmental Protection (DEEP) made as part of that plan, are summarized in the environmental review below. The recommended plan is to address the aging equipment and facilities at the South Street WWTF so as to meet the new effluent permit limits. The project includes the decommissioning of the Route 7 WWTF, conveyance of the Sewer District 2 wastewater to the South Street WWTF through a new force main, and the upgrading of the South Street WWTF to treat flows and loads from both districts.

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#### 1. Project Description

The 2015 "*Draft Report to the Town of Ridgefield Connecticut on the Phase 1 Wastewater Facilities Plan*" and the 2017 "*Draft Report to the Town of Ridgefield, Connecticut on the Phase 2 Wastewater Facilities Plan*" identify alternatives for the Town of Ridgefield's wastewater treatment systems to maintain compliance with current and proposed regulations and to accommodate future flows and loads.

The regulations include the total nitrogen limits in the CT General Permit for Nitrogen Discharges and recent total phosphorus limits included in both WWTF's latest NPDES permits.

The Draft Phase 1 and 2 Facilities Plans identified upgrades required for equipment, structures, and processes to provide reliable wastewater service for the Town for the next 20 years, evaluated upgrade alternatives to treat the current and projected year 2035 design flows and loads, and recommended a plan to upgrade Ridgefield's wastewater facilities to accommodate those future flows and loads. The Draft Phase 1 and 2 Facilities Plans addresses the following:

- Identifies the current conditions of the South Street WWTF and Route 7 WWTF equipment, systems, and facilities.
- Identifies the current and year 2035 design flows and loads to the South Street WWTF and Route 7 WWTF including:
  - Developing a plan for inflow reduction at the South Street WWTF
  - Identifying potential areas of sewer extension within the next 20 years and incorporate those potential additional flows and loads into the recommended upgrades.
  - Identifying the design flows and loads if the Route 7 WWTF was decommissioned and the flows and loads from Sewer District 2 were combined with the flows and loads from Sewer District 2 and treated at the South Street WWTF.
- Identifies effluent permit limits. This includes the current permit limits at each WWTF as well as the anticipated permit limits for treating the combined flows and loads from Sewer District 1 and Sewer District 2 at the South Street WWTF.
- Evaluates alternatives for various systems at both WWTFs to address the needs of each WWTF for the 20 year planning period including capital and life cycle costs.
- Recommends system and equipment upgrades at each WWTF for the 20 year planning period.
- Provides estimated costs for the recommended upgrades for each WWTF.
- Evaluates decommissioning of the Route 7 WWTF, conveyance of the Sewer District 2 flows and treating the combined Sewer District 1 and Sewer District 2 flows and loads at the South Street WWTF.
- Compares the Route 7 WWTF decommissioning alternative versus the alternative of upgrading and continuing the use of the both WWTFs including comparative capital and comparative life cycle costs.
- Provides a recommend plan with estimated costs to upgrade the Town's wastewater systems.

As noted above, as part of the facilities planning effort undertaken by the Town, a separate Infiltration and Inflow (I/I) evaluation was performed on the Sewer District 1 collection system including a Sewer System Evaluation Survey (SSES) to identify sources of I/I entering the collection system. As part of the Phase 2 facilities plan an inflow reduction plan was developed to reduce the inflow to the collection system. In addition, as part of the facilities planning effort, areas of potential sewer needs to improve public health and environmental impacts were identified. Both the Inflow Reduction Plan and any future proposed sewer extensions in areas of sewer needs are separate from the Wastewater Facilities Upgrade Project that is the subject of this EIE.

To address the Town's wastewater needs for the next 20 years, the facilities plan recommends decommissioning of the Route 7 WWTF, conveying the Sewer District 2 flows and treating the combined

Sewer District 1 and Sewer District 2 flows and loads at an upgraded and expanded South Street WWTF. The expanded and upgraded South Street WWTF will require the upgrade of the existing influent pump station and the installation of a new parallel influent pump station, new mechanically cleaned bar screens, new vortex grit removal systems, and a new septage receiving facility. The secondary process upgrade needs consist of aeration tank rehabilitation, conversion of the secondary process to a 4 stage Bardenpho process for nitrogen removal, a new fine bubble aeration system with associated blowers, and new final settling tanks sludge collection mechanisms. A new tertiary phosphorus removal filtration system (Blue PRO process) is required including chemical addition systems for phosphorus precipitation. The new phosphorus removal system will require the installation of a new UV disinfection system and post aeration system in a new structure that will also contain a main WWTF electrical room and vehicle maintenance garage.

The solids handling systems will be upgraded to provide a new aerated waste sludge storage tank (by retrofitting an unused process tank), a new sludge centrifuge that will allow for either thickening or dewatering of the WWTF solids, and a new thickened sludge storage tank to increase thickened sludge storage capacity at the WWTF. Finally the facility requires heating ventilation, and air conditioning (HVAC), instrumentation and supervisory control and data acquisition (SCADA), ancillary pumping, chemical, electrical and odor control system upgrades.

The Project will be designed for continuous operation of the facilities while the project upgrades are being executed.

### **Existing Conditions**

**Wastewater Facilities.** The Town of Ridgefield owns and operates two WWTFs: the South Street WWTF (22 South Street) which serves Sewer District 1 and the Route 7 WWTF (901 Ethan Allen Highway) which serves Sewer District 2. Both town-owned WWTFs and the Sewer District 1 and Sewer District 2 collection systems are operated by Suez through an operations contract with the Town. The South Street WWTF (Facility ID: 118-001) is the larger of the two WWTFs with a design average flow of 1.0 million gallons per day (mgd). The South Street WWTF treats wastewater collected from Sewer District 1 which includes downtown Ridgefield. The collection system consists of approximately 100,000 feet of sewer and six pump stations that serve a tributary area of 1,230 acres.

The South Street WWTF uses a single stage nitrification activated sludge process to provide advanced treatment with operational modifications to provide some denitrification. After secondary treatment, sand filtration and UV disinfection is provided and treated effluent is discharged via the outfall into the Great Swamp/Ridgefield Brook (Waterbody Segment ID: CT7300-02\_02) which then flows into the Norwalk River for 20 miles and finally into Norwalk Harbor and Long Island Sound. (See Figure 1)

The Route 7 WWTF (Facility ID: 118-002) is the smaller of the two WWTFs with a design average flow of 0.12 million gallons per day (mgd). The facility is located in the northeast portion of town in the area where Route 7 and Route 35 intersect. The Route 7 WWTF treats wastewater collected from Sewer District 2 (Figure 2). This collection system consists of approximately 6,300 feet of sewer and one pump station that serve a tributary area of 170 acres.

After a headworks, primary settling tanks, and an equalization tank, the Route 7 WWTF uses rotating biological contactors and final settling tanks to provide seasonal nitrification. After secondary treatment, UV disinfection is provided and treated effluent is discharged via the outfall into Little Pond which then drains into the Norwalk River (Waterbody Segment ID: CT7300-00\_05) and ultimately flows into Norwalk Harbor and Long Island Sound.

As noted above Sewer District 1 and 2 are separate from each other and are served by independent

collection systems, pump stations, and WWTFs. The majority of the alternative force main routes that are being considered to convey Sewer District 2 flow from a newly constructed Route 7 Pump Station to the South Street WWTF are in unsewered areas of the Town. The new force main would be entirely within roadways for one alternative and mostly within roadways for the second alternative with approximately 800 linear feet in easements in a wooded cross country location. There are a number of stream crossings at Ridgefield Brook and its tributaries and areas that in proximity to wetlands including the Great Swamp wetlands complex along both of the alternative routes.

**Existing Water Quality.** The watershed for the Ridgefield Brook and upper reach of the Norwalk River is not a public water supply watershed (Figure 3). Ridgefield Brook is currently listed under the 2014 Connecticut 303(d) list for Impaired Waters as impaired for *Escherichia coli* (*E. coli*) with another unknown cause listed. The probable sources for this impairment are listed in the 303(d) list as: landfills, municipal point source discharges, natural sources such as wildlife and other, unknown sources, unspecified urban stormwater, and waterfowl. The entire Norwalk River Basin is covered under a TMDL for the indicator bacteria *E. coli* from 2006 (CTDEP 2006). The TMDL calls for a 51% reduction of *E. coli* in Ridgefield Brook and a 37% reduction of *E. coli* in the downstream Norwalk River segment CT7300-00\_05 to achieve indicator bacteria criteria from nonpoint sources during dry weather.

It should be noted that there is a capped landfill in the same large town-owned parcel as the South Street WWTF. This area is part of the same parcel but not in the limit of work for the South Street WWTF. In addition, adjacent to Sewer District 1 there are also multiple records of failed septic systems in the New Street and Marcardon/Soundview areas that are of concern for potential human health and environmental impacts. These areas have hardpan soils and/or shallow groundwater, creating challenges for septic systems.

**South Street WWTF Effluent Permit Limits.** The existing South Street WWTF has a permitted design daily average flow limit of 1.0 MGD. The current NPDES permit for the South Street WWTF (CT0100854) was issued by the DEEP on September 29, 2015 Table 1 has the current effluent permit limits which are in Table A of the permit. These limits represent the maximum concentrations and/or loads that can be discharged to Great Swamp/Ridgefield Brook from the WWTF. NPDES permits are issued for a five year period, and the current permit is due to expire on September 29, 2020. As required by the permit, the Town must reapply for their permit 180 days in advance of the expiration of the existing permit. The existing permit remains in effect until a new NPDES permit is issued even if the current permit has since expired.

In addition to the specific NPDES permit issued for the South Street WWTF, the WWTF must also comply with the DEEP General Permit for Nitrogen Discharges. This general permit contains yearly mass based effluent limits on total nitrogen. These are based on the annual average daily total nitrogen that can be discharged by each WWTF in pounds per day. The general permit was renewed effective January 1, 2016 expiring in December, 2018. The 2016 effluent limit for the South Street WWTF was 29 lbs/day. At the annual average design flow of 1.0 mgd for the South Street WWTF this equates to an annual average total nitrogen concentration of 3.5 mg/l.

The existing South Street WWTF is not able to meet the total nitrogen permit limits included in the DEEP General Permit for Nitrogen Discharges without either purchasing nitrogen credits from the DEEP Nitrogen Credit Trading Program to comply with the effluent limit or providing upgrades the WWTF to produce an effluent that meets the limit. The Town has purchased credits under the Nitrogen Trading Program annually since 2009. No compliance schedule is included in the existing South Street WWTF NPDES permit.

The existing WWTF is not able to meet the total phosphorus permit limits included in the NPDES permit without the installation of a tertiary phosphorus removal unit process. The existing South Street WWTF NPDES permit contains a compliance schedule for meeting the phosphorus limits, concerning which the town and their consultant have been meeting consistently.

**TABLE 1. CURRENT SOUTH STREET WWTF NPDES EFFLUENT PERMIT LIMITS**

| Effluent Parameter   | Average Daily | Average Monthly | Maximum Daily | Instantaneous  |
|--|---------------|-----------------|---------------|----------------|
| <b>Flow</b>  | 1.0 mgd       | n/a             | n/a           | n/a            |
| <b>BOD<sub>5</sub> (Nov 1<sup>st</sup> to Mar 31<sup>st</sup>)</b>               | n/a           | 20 mg/l         | 40 mg/l       | n/a            |
| <b>BOD<sub>5</sub> (Apr 1<sup>st</sup> to Oct 31<sup>st</sup>)</b>               | n/a           | 10 mg/l         | 20 mg/l       | n/a            |
| <b>TSS (Nov 1<sup>st</sup> to Mar 31<sup>st</sup>)</b>                           | n/a           | 20 mg/l         | 40 mg/l       | n/a            |
| <b>TSS (Apr 1<sup>st</sup> to Oct 31<sup>st</sup>)</b>                           | n/a           | 10 mg/l         | 20 mg/l       | n/a            |
| <b>Escherichia coli <sup>1</sup></b>   | n/a           | n/a             | n/a           | 410/100ml      |
| <b>Ammonia-Nitrogen</b>  |               |                 |               |                |
| <b>April</b>   | n/a           | 7.3 mg/l        | n/a           | n/a            |
| <b>May</b>   | n/a           | 4.9 mg/l        | n/a           | n/a            |
| <b>June</b>  | n/a           | 2.3 mg/l        | n/a           | n/a            |
| <b>July – September</b>  | n/a           | 1.6 mg/l        | n/a           | n/a            |
| <b>October</b>   | n/a           | 2.7 mg/l        | n/a           | n/a            |
| <b>November-March</b>  | n/a           | n/a mg/l        | n/a           | n/a            |
| <b>Dissolved Oxygen (Apr 1<sup>st</sup> to Oct 31<sup>st</sup>)</b>              | n/a           | n/a             | n/a           | ≥6.0 mg/l min. |
| <b>pH</b>  | n/a           | n/a             | n/a           | 6-9            |
| <b>Total Phosphorus (Nov 1<sup>st</sup> to Mar 31<sup>st</sup>)</b>              | n/a           | 1.0 mg/l        | 2.0 mg/l      | n/a            |
| <b>Total Phosphorus (Apr 1<sup>st</sup> to Oct 31<sup>st</sup>) <sup>2</sup></b> | n/a           | 0.16 mg/l       | 0.31 mg/l     | n/a            |
| <b>Zinc <sup>3</sup></b>   | n/a           | 0.25 kg/d       | 0.33 kg/d     | n/a            |

1. The geometric mean of E. Coli bacteria during a calendar month from May 1<sup>st</sup> to September 30<sup>th</sup> shall not exceed 126/100ml.
2. Total phosphorus average seasonal load limit of 0.52 lbs/day = 0.62 mg/l at 1.0 mgd.
3. Total zinc maximum day load limit of 0.33 kg/day = 0.087 mg/l at 1.0 mgd and 0.016 mg/l @ peak flow of 5.3 mgd

**Route 7 WWTF Effluent Permit Limits.** The existing Route 7 WWTF has a permitted design daily average flow limit of 0.12 MGD. The current NPDES permit for the Route 7 WWTF (CT0101451) was issued by DEEP on September 17, 2014 and is due to expire on September 17, 2019. See Table 2 below for a summary of the current effluent permitted effluent limits. These permitted limits describe the maximum allowable concentrations and or loads that can be discharged to Little Pond/ Norwalk River from the WWTF. As required by the permit, the Town must reapply for their permit 180 days in advance of the expiration of the existing permit. Until DEEP issues a new permit, the existing permit remains in effect. The Route 7 WWTF does not have a total nitrogen limit as part of the DEEP General Permit for Nitrogen Discharges due to the small average day design flow. The existing WWTF is not able to meet the total phosphorus permit limits included in the NPDES permit without an upgrade.

## 2. Purpose and Need

Upgrades to both WWTFs in Ridgefield are necessary in order to address aging equipment/systems and to meet their effluent permit limits at their current and projected future flow and loads. These needs are described for each WWTF in more detail below in Table 2.

**TABLE 2. CURRENT ROUTE 7 WWTF NPDES EFFLUENT PERMIT LIMITS**

| Effluent Parameter  | Average Daily | Average Monthly | Maximum Daily | Instantaneous |
|---|---------------|-----------------|---------------|---------------|
| <b>Flow</b>   | 0.12 mgd      | n/a             | n/a           | n/a           |
| <b>BOD<sub>5</sub></b>  | n/a           | 20 mg/l         | 40 mg/l       | n/a           |
| <b>TSS</b>  | n/a           | 20 mg/l         | 40 mg/l       | n/a           |
| <b>Escherichia coli</b>   | n/a           | n/a             | n/a           | 410/100ml     |
| <b>Ammonia-Nitrogen</b>   | n/a           | 6.7 mg/l        | n/a           | n/a           |
| <b>June</b>   | n/a           | 2.5 mg/l        | n/a           | n/a           |
| <b>July – September</b>   | n/a           | 4.4 mg/l        | n/a           | n/a           |
| <b>October</b>  | n/a           | n/a             | n/a           | n/a           |
| <b>November-May</b>   | n/a           | n/a             | n/a           | n/a           |
| <b>pH</b>   | n/a           | n/a             | n/a           | 6-9           |
| <b>Total Phosphorus (Apr 1<sup>st</sup> to Oct 31<sup>st</sup>)<sup>1</sup></b> | n/a           | 1.55 mg/l       | 3.11 mg/l     | n/a           |

1. Total phosphorus average seasonal load limit of 1.0 lbs/day = 1.0 mg/l at 0.12 mgd.

**South Street WWTF.** The South Street WWTF was originally constructed in the late 1960’s and was subsequently upgraded in the early 1990s to provide additional capacity, seasonal nitrification, and seasonal phosphorus removal. Portions of the WWTF date back to the original construction and are almost 50 years old. The South Street WWTF was not designed to provide significant denitrification for total nitrogen removal, although the WWTF staff has been able to achieve some level of denitrification through operation modifications. Partial phosphorus removal is also employed at the WWTF through chemical additional upstream of the final settling tanks.

Upgrades to the South Street WWTF are required to provide hydraulic and process capacity for future flows and loads, to improve nitrogen removal, and to meet the more stringent phosphorus limits. There are also needs to replace aging structures and equipment, to improve energy efficiency, and to reduce the potential for off-site odors. In addition there are upgrade needs for influent conveyance & screening, grit removal, final settling tanks, plant wide instrumentation and control systems and electrical systems, and UV disinfection and post aeration.

As noted previously as part of the Phase 1 and 2 facilities plans, additional areas have been identified as potential areas of sewer extension in the next 20 years due to the potential of health and environmental issues in those areas. These areas include the New Street and Marcardon/Soundview Sewer Needs Areas (Figure 1). It also recommended an inflow reduction program to reduce the inflow in Sewer District 1 be implemented to reduce peak flows to the South Street WWTF. The construction of sewer extensions to the identified areas of potential need and the inflow reduction plan are not part of the project related to this EIE. However, future flows and loads from the potential areas of sewer extension and an allowance for inflow reduction have been included in the 20 year flow projection for Sewer District 1 in anticipation of these improvements.

**Route 7 WWTF.** The Route 7 WWTF was originally constructed in the mid late 1980’s and has not been significantly upgraded since. The WWTF was designed to provide seasonal nitrification. The majority of the WWTF dates back to the original construction and is over 30 years old. The Route 7 WWTF was not designed to provide phosphorus removal and will not be able to meet future phosphorous limits without significant structural and process improvements.

Upgrades to the Route 7 WWTF are required to provide hydraulic and process capacity for future flows and loads and to meet the effluent phosphorus limits in the new permit. There are also needs to replace

aging structures and equipment, to improve energy efficiency, and to reduce the potential for off-site odors. In addition there are upgrade needs for influent conveyance, influent screening, grit removal, primary settling tank, equalization tank, rotating biological contactors, final settling tanks, and UV disinfection, plant wide instrumentation and control systems, and electrical systems.

### **3. DISCUSSION OF ALTERNATIVES**

There are three alternatives that are under consideration for the Ridgefield wastewater facilities upgrades. These included the following:

- Decommission the Route 7 WWTF, convey the Sewer District 2 flows to the South Street WWTF and upgrade the South Street WWTF to treat flows from Sewer District 1 and 2.
- Upgrade both the South Street WWTF and the Route 7 WWTF
- No Action

#### **Decommission the Route 7 WWTF, Convey the Sewer District 2 Flows to the South Street WWTF and Upgrade the South Street WWTF to Treat Flows from Sewer District 1 and 2.**

The alternative for decommissioning the Route 7 WWTF, conveying the Sewer District 2 Flows to the South Street WWTF and upgrading and expanding the South Street WWTF to treat flows from Sewer District 1 and 2 was evaluated. The components of this alternative are briefly described below.

**South Street WWTF Upgrades.** As result of treating both the Sewer District 1 and Sewer District 2 flows at the South Street WWTF, further upgrades would be required if the South Street WWTF was to treat flows from sewer District 1 only. As a result of treating the flows from Sewer District 1 and 2, the permitted effluent limits for the South Street WWTF would become more stringent than if treating only the flows from Sewer District 1 only. Anticipated effluent limits for the South Street WWTF were developed for the purposes of evaluating this alternative. Table 3 presents the anticipated South Street WWTF effluent limits with the combined Sewer District 1 and Sewer District 2 flows.

#### **Upgrade Both the South Street WWTF and the Route 7 WWTF**

The alternative to upgrade both WWTFs to meet the effluent permit limits at the project year 2035 design flows and loads as well as to address aged equipment and facilities was evaluated. In this alternative, both of the WWTFs would require extensive upgrades.

**South Street WWTF Upgrades.** The required upgrades to the South Street WWTF include those to provide hydraulic and process capacity for future flows and loads, to improve nitrogen removal, and to meet the more stringent phosphorus limits. In addition upgrades would address improvement needs for influent conveyance, influent screening, grit removal, final settling tanks, UV disinfection, post aeration, plant wide instrumentation and control and electrical systems. Finally needed upgrades would include those to replace aging structures/equipment, to improve energy efficiency, and to reduce the potential for off-site odors.

**Route 7 WWTF Upgrades.** The required upgrades to the Route 7 WWTF include those to provide hydraulic and process capacity for future flows and loads and to meet the new effluent phosphorus limits.

In addition upgrades would address improvement needs for influent conveyance, influent screening, grit removal, primary settling tanks, equalization tank, rotating biological contactors, final settling tanks, UV disinfection, plant wide instrumentation and control, and electrical systems. Finally needed upgrades would include those to replace aging structures/equipment, to improve energy efficiency, and to reduce the potential for off-site odors.

**No Action**

If the town chooses this option then the South Street WWTF and the Route 7 WWTF will not be able to meet their new NPDES effluent limits for total phosphorus. If that is the case then DEEP would be forced to issue a Notice of Violation (NOV) which may escalate to an EPA Administrative Order to address the problem. Also, the South Street WWTF will not be able to meet the target total nitrogen limits in the DEEP General Permit for Nitrogen Discharges and continue purchasing nitrogen credits from the DEEP Nitrogen Credit Trading Program with increased rate (\$/credit) and a larger number of credits with the nitrogen limits continuing to be more stringent.

Finally, much of the wastewater equipment, structures, and systems at both facilities are past their service life of about 20 years and some is from the original construction. Continued use of these equipment, structures, and systems will significantly decrease the WWTFs reliability, increase operation & maintenance (O&M) costs, and continue to use equipment that is significantly less energy efficient than what is available today resulting in increasing electric bills & power usage.

**TABLE 3. ANTICIPATED SOUTH STREET WWTF EFFLUENT PERMIT LIMITS WITH COMBINED SEWER DISTRICT 1 AND SEWER DISTRICT 2 FLOWS**

| Effluent Parameter   | Average Daily | Average Monthly | Maximum Daily | Instantaneous  |
|--|---------------|-----------------|---------------|----------------|
| <b>Flow</b>  | 1.12 mgd      | n/a             | n/a           | n/a            |
| <b>BOD<sub>5</sub> Nov 1<sup>st</sup> to Mar 31<sup>st</sup></b> | n/a           | 18 mg/l         | 40 mg/l       | n/a            |
| <b>BOD<sub>5</sub> Apr 1<sup>st</sup> to Oct 31<sup>st</sup></b> | n/a           | 9 mg/l          | 20 mg/l       | n/a            |
| <b>TSS Nov 1<sup>st</sup> to Mar 31<sup>st</sup></b>             | n/a           | 18 mg/l         | 40 mg/l       | n/a            |
| <b>TSS Apr 1<sup>st</sup> to Oct 31<sup>st</sup></b>             | n/a           | 9 mg/l          | 20 mg/l       | n/a            |
| <b>Escherichia coli <sup>1</sup></b>                             | n/a           | n/a             | n/a           | 410/100ml      |
| <b>Ammonia-Nitrogen</b>  |               |                 |               |                |
| <b>April</b>   | n/a           | 6.5 mg/l        | n/a           | n/a            |
| <b>May</b>   | n/a           | 4.4 mg/l        | n/a           | n/a            |
| <b>June</b>  | n/a           | 2.1 mg/l        | n/a           | n/a            |
| <b>July – September</b>  | n/a           | 1.4 mg/l        | n/a           | n/a            |
| <b>October</b>   | n/a           | 2.4 mg/l        | n/a           | n/a            |
| <b>November-March</b>  | n/a           | n/a mg/l        | n/a           | n/a            |
| <b>Dissolved Oxygen</b>  |               |                 |               |                |
| <b>Apr 1<sup>st</sup> to Oct 31<sup>st</sup></b>                 | n/a           | n/a             | n/a           | ≥6.0 mg/l min. |
| <b>pH</b>  | n/a           | n/a             | n/a           | 6-9            |
| <b>Total Phosphorus</b>  |               |                 |               |                |
| <b>Nov 1<sup>st</sup> to Mar 31<sup>st</sup></b>                 | n/a           | 1.0 mg/l        | 2.0 mg/l      | n/a            |
| <b>Apr 1<sup>st</sup> to Oct 31<sup>st</sup> <sup>2</sup></b>    | n/a           | 0.16 mg/l       | 0.31 mg/l     | n/a            |
| <b>Zinc</b>  | n/a           | 0.268 kg/d      | 0.355 kg/d    | n/a            |

1. The geometric mean of E. Coli bacteria during a calendar month from May 1<sup>st</sup> to September 30<sup>th</sup> shall not exceed 126/100ml.
2. Total phosphorus average seasonal load limit of 0.52 lb/day = 0.055 mg/l at 1.12 mgd.
3. Total Zinc maximum day load limit of 0.33 kg/day = 0.084 mg/l at 1.12 mgd and 0.016 mg/l at peak flow of 6.0 mgd.

Under this alternative, similar upgrades to the South Street WWTF would be required as noted above for the alternative where the South Street WWTF would treat only the Sewer District 1 flow. However with the addition of the flows from Sewer District 2, additional upgrades to the South Street WWTF would be required to allow the WWTF to meet the anticipated lower permit limits and to expand the capacity to the



projected year 2035 design flows and loads (average design flow of 1.12 mgd). These additional upgrades include a higher capacity influent pumps in the Influent Pump Station, aeration tank blowers and ancillary systems including a larger blower building, and UV disinfection system. Also there would be a need for additional equipment/systems for the total phosphorus removal unit process (Blue PRO system).

**Route 7 WWTF Decommissioning.** Under this alternative the existing Route 7 WWTF would be demolished and the area would be restored for potential future use. The demolition and restoration would consist of removing the electrical and mechanical equipment, the demolition of above grade structures & in-ground structures to 3 feet below grade, provisions for water drainage of below ground tanks and structures, filling in of below ground tanks and structures, and finishing grading and restoration of the decommissioned site

**New Route 7 Pump Station and Force Main.** Under this alternative, a new Route 7 Pump Station would be constructed at the location of the existing pump station to convey Sewer District 2 flows to the South Street WWTF. A new force main would also be constructed to convey sewer District 2 flows from the new Pump Station to the South Street WWTF. There are currently two force main routes under consideration for this alternative. It should be noted that under the alternative to upgrade the Route 7 WWTF, this pump station would also require replacement to convey Sewer District 2 flows from the pump station to the Route 7 WWTF. However, under this decommissioning alternative, the new Route 7 Pump Station would be larger to accommodate the increase distance to pump the Sewer District 2 flows from the pump station to the South Street WWTF. Chemical addition facilities at the pump station for odor control would also be required.

### **Comparison of Alternatives**

The different alternatives were compared in order to identify a recommended option. The No Action alternative was not satisfactory as it would not allow either WWTF to meet its permitted effluent limits, would not address hydraulic and process capacity issues under future flow and loading condition, and would rely on continued use of aged equipment and systems. The No Action alternative would also lead to nutrient and metals limits violations that would result in fines. As result the discussion below focuses on the other two “action alternatives”

Both comparative cost and the advantages and disadvantages of the two action alternatives were evaluated, and are discussed below.

**Estimated Comparative Costs.** Opinions of the comparative 20 year present worth cost of the two action alternatives considered are presented below. The costs below represent an opinion of the comparative capital costs and associated comparative O&M costs for the two action alternatives for the next 20 years. The costs are not indicative of the total cost associated with upgrades of all components at one or both facilities as many component and their capital and O&M costs would be the same. Instead these costs present a comparison of the costs of the project elements that are unique to each alternative. The costs are summarized in Table 4 below.

**Advantages and Disadvantages.** Opinions of advantage and disadvantages of the two action alternatives were evaluated and are summarized in Table 5 below

**TABLE 4. COMPARATIVE ESTIMATED 20 YEAR PRESENT WORTH COSTS OF THE ACTION ALTERNATIVES**

| Alternative   | Route 7 WWTF and South Street WWTF Separate | Decommission Route 7 WWTF, Convey and Treat All Flows at South Street WWTF |
|---|---|--|
| <b>Comparative 20 Year Total Present Worth Cost</b> | <b>\$12,700,000</b>                         | <b>\$9,700,000</b>   |

**TABLE 5. ACTION ALTERNATIVES ADVANTAGES AND DISADVANTAGES**

| Route 7 WWTF Decommissioning Alternative  | Advantages   | Disadvantages   |
|---|--|---|
| <b>Decommission Route 7 WWTF, Convey and Treat All Flows at South Street WWTF</b> | <ul style="list-style-type: none"> <li>• Lower capital cost</li> <li>• Lower operating costs</li> <li>• May allow for the sale/repurposing of the Route 7 WWTF property.</li> <li>• Consolidates all WWTF operations to one facility</li> <li>• Force main has a service life of 50 years</li> </ul>   | <ul style="list-style-type: none"> <li>• Loss of Route 7 WWTF NPDES Permit (may preclude future use of WWTF if needed)</li> <li>• Reduction in South Street WWTF future capacity due to the additional flow</li> <li>• Future growth in either Sewer District could require costly process upgrade to South Street WWTF</li> <li>• Temporary disruption with new force main construction (traffic, abutters)</li> </ul> |
| <b>Keep Route 7 WWTF and South Street WWTF Separate</b>                           | <ul style="list-style-type: none"> <li>• Maintains Rt. 7 WWTF NPDES permit.</li> <li>• Can more readily accommodate future growth in either Sewer District</li> <li>• Reserves some capacity at the South Street WWTF without the need for a costly process upgrade</li> <li>• Eliminates issues with new force main construction (traffic, disruption, etc.)</li> </ul> | <ul style="list-style-type: none"> <li>• Higher capital cost</li> <li>• Higher operating costs</li> <li>• Need to operate and manage two WWTFs</li> <li>• Route 7 WWTF will require another upgrade in 20 years to replace mechanical/electrical components</li> </ul>  |

**Recommended Alternative**

The alternative to upgrade the South Street WWTF to treat flows from Sewer District 1 and 2 and to decommission the Route 7 WWTF, convey the Sewer District 2 Flows to the South Street WWTF is the recommended alternative. This would address the needs to provide hydraulic and process capacity at the South Street WWTF for future flows and loads from both Sewer Districts, to improve nitrogen removal to meet the effluent target limits, and to meet the more stringent phosphorus effluent limits. This alternative would also address the need to replace aging structures/equipment, to improve energy efficiency, and to reduce the potential for off-site odors. The alternative would also address the upgrade needs at the South Street WWTF for influent conveyance, influent screening, grit removal, final settling tanks, UV

disinfection, post aeration, plant-wide instrumentation/control and electrical systems. This alternative would provide all of the benefits noted above and would do so at lower capital, operation and maintenance, and 20 year life cycle cost than upgrading the two WWTFs independently. This alternative will also consolidated all Town WWTF operations to one facility while at the same time reducing the total effluent loads for both nitrogen and phosphorus in the combined receiving waters versus upgrading the two WWTFs independently.

Figure 4 presents a recommended layout of the new Route 7 Pump Station to be located at the site of the existing Route 7 Pump Station. Figure 5 presents the recommended upgrades to the South Street WWTF highlighting modifications existing facilities as well as the construction of new facilities. Finally, and as noted previously, two force main alternatives have been proposed for the conveyance of Sewer District 2 flows from the new Route 7 Pump Station to the South Street WWTF. These two alternatives are presented in Figure 6 and are discussed below.

The force main route alternative depicted as the blue line in Figure 6 is referred to as the “local road route”. This route runs from the Route 7 Pump Station along Route 7, to Haviland Rd., to Limekiln Rd., to Lee Rd., to Farmingville Rd., and finally to the South Street WWTF. The local road route would be located entirely in roadways except for the stream crossings may have to be trenched below the streambed or installed alongside bridges. Along the local road route there are two stream crossings at Ridgefield Brook and three areas that are close to wetlands. Wetlands would not be directly affected since the force main would be located in the roadway. Stream crossings would be constructed in a way that would minimize impacts to the watercourse. The route proceeds along one state road (Route 7) for approximately ¼ mile, the remainder of the roads are local roads that receive low levels of traffic.

The force main route alternative depicted as the red line in Figure 6 is the “Route 35 route”. This route would either reuse or replace the existing force main that carries wastewater from the Route 7 Pump Station to the Route 7 WWTF and then continue through undeveloped woodland to Route 35. It then proceeds south along Route 35 to Farmingville Road. This option would affect undeveloped land and may also have greater impacts to traffic since it is on a more heavily traveled State Highway. Along the Route 35 alternative there are also two stream crossings at Ridgefield Brook and two areas that are close to mapped wetlands. Wetlands near the roadway would not be directly affected since the force main would be located within the roadway right-of-way. Stream crossings would be constructed in a way that would minimize impacts to the watercourse. Route 35 also has extensive underground utilities.

This facilities planning effort identified areas with potential sewer service needs that may have sewer service provided in the next 20 years to address potential health and environmental issues. These areas include the New Street and Marcardon/ Soundview areas. The New Street area consists of approximately 50 parcels. The Marcardon/ Soundview area consists of approximately 76 parcels. These areas are low lying, with high groundwater, and hard pan soils so therefore have experienced some septic system failures. As part of the facilities planning effort, the potential flows from these areas have been included in the 20 year flow projections. However, the construction of sewers into these areas is not part of the facilities planning recommendations and is not a part of this Environmental Impact Evaluation.

#### **4. IMPACT OF PROPOSED PROJECT ON THE ENVIRONMENT**

##### **a. Direct Impact**

##### **i. Air Quality**

The proposed project would have negative air quality impacts only during construction from equipment emission and the generation of dust. Both impacts are short term and the dust generation would be mitigated by inclusion of dust control measures in the construction contracts. The project

also includes the installation of new odor control systems which would help to reduce off-site odors following the project completion.

**Aesthetics, Traffic, and Noise.** The proposed project would have no net negative impact on aesthetics as the project would eliminate one WWTF while the increase the size of the facilities at the remaining WWTF to accommodate the flows from the eliminated WWTF would be proportionally smaller. Aesthetic impacts due to the new force main would be mitigated by restoring the trenched area to original grade and surface type. Roadways would be repaved and grassed areas would be reseeded. The force main route would avoid wooded areas, wetland impacts, and any impacts to trees whenever practicable with the exception of approximately 800 linear feet of force main in the Route 35 alternative that would run through a cross country route.

Impacts to traffic would be minimized with the choice of the local road route. During the Route 7 Pump Station and South Street WWTF construction and demolition of the Route 7 WWTF there will be hauling of excess excavated material or backfill material, demolition materials, concrete deliveries or equipment deliveries. However, this impact would be limited to contract specified working hours (actual work hour limitation to be determined). The Contractor would be alerted to existing traffic conditions in the area near the entrance to the WWTFs and may utilize traffic control flaggers or police officers during periods of heavy truck traffic.

Noise impacts from construction and demolition would be mitigated by requiring the Contractor to comply with the Town of Ridgefield noise ordinance or more restrictive hours if deemed necessary. The Town ordinance includes limiting work hours from 7:00 am to 6:00 pm Monday through Friday and 7:00 am to 5:00 pm on Saturdays, except when cause can be shown to allow work outside of these hours. The noise ordinance also limits drilling and blasting between 8:00 am and 5:00 pm Monday through Friday.

#### **ii. Water Quality and Quantity.**

Water quality benefits would result from the project as a result of the changes in the discharge volume and content of treated effluent at both WWTFs. The construction activities at the WWTFs and for the force main installation within roadways would have limited impact on water quality with the appropriate use of erosion and sedimentation Best Management Practices (BMPs). Continued operation of the existing facilities during construction is anticipated and the upgraded South Street WWTF would enhance nitrogen and phosphorus removal while providing more reliable equipment for treatment. During construction, some temporary impact on water quality may occur due to erosion and sedimentation. However, mitigation procedures for erosion control would be implemented, along with proper handling of discharges from groundwater dewatering systems, utilizing BMPs.

The increased capacity for treatment at the South Street WWTF would improve the quality of the treated effluent discharged to Great Swamp/Ridgefield Brook. Treatment for BOD, TSS, Total Phosphorus, and Zinc would all be improved to meet more stringent limits anticipated to be include in the a modified permit to include treat of flows from Sewer District 1 and 2. These reduced effluent limits were previously shown in Table 3.

The anticipated target effluent nitrogen load would also be modified. The anticipated annual average daily total nitrogen effluent limit for the South Street WWTF treating flows from both sewer districts would be 32 lbs/day. At the annual average design flow of 1.12 mgd for the South Street WWTF this equates to an annual average total nitrogen concentration of 3.4 mg/l. This target load and resulting concentration is slightly lower than the total nitrogen concentration for Sewer District No. 1 flows only.

Volume of wastewater from identified sewer needs areas (Figure 1) would also be anticipated as part of

the upgrade of the facilities. These areas have septic systems that have some history of failure because they are in shallow groundwater areas with hardpan soils. If constructed, sewers in these areas would remove old septic systems that impact groundwater and public health. The construction of sewers in these areas would increase wastewater flows by approximately 0.015 mgd to the South Street WWTF. These additional flows and loads are not a part of this project but are being planned for in the upgrade of the WWTF.

Effluent discharge to Little Pond from the Route 7 WWTF would cease because it would be conveyed to the South Street WWTF. Due to the change in effluent outflow location, overall water flow from Little Pond would be reduced slightly, a decrease of 0.054 (0.08 cfs) at current flows and 0.12 mgd (0.19 cfs) at design flows. This small amount of flow would be reallocated higher in the watershed to begin at the South Street WWTF outfall, increasing streamflow in the brook between this outfall and the confluence with Little Pond. This small flow increase would likely be mitigated by the downstream wetlands that are prevalent in this area, and would likely not be appreciable. The mean flow for the Brook based on approximately 14 years of stream gauge data is 8.49 cfs (USGS 012095493 Ridgefield Brook at Shields Ln. NR Ridgefield, CT).

If the alternative to upgrade and expand both facilities was chosen, then discharges would continue to both waterbodies and water quality would still improve. However, the treatment at the Route 7 WWTF would treat the effluent to a lesser extent, and at a greater cost. Additionally, the effluent from the Route 7 WWTF would be discharged to Little Pond which offers little additional natural treatment through wetlands. The outfall for the South Street WWTF offers some additional natural treatment as it flows through a large wetland before joining with the main channel of Ridgefield Brook. The Ridgefield Brook then continues to flow through wetlands west of Route 35. These opportunities for natural treatment of Sewer District 2 flows would otherwise be bypassed with the current Route 7 WWTF outfall location, which is further downgradient in the watershed.

### **iii. Environmentally Sensitive Areas.**

**Floodplains.** The Federal Emergency Management Agency (FEMA) Q3 Flood zone data (FEMA DFIRM: Map 09001C0236F; Figure 7) shows that only the local route alternative force main crossing of the Norwalk River on Route 7 is in the Floodway Area in Zone AE. This area must be kept free of encroachment so that the 1% annual chance flood can occur without substantial increases in flood heights. The force main in this area would be installed above the base flood elevation of 486 ft and would not change the topography of the area due to installation.

Other work would occur in the 100-year flood zone (Zone AE). The Route 7 WWTF is located partially in Zone AE near Little Pond. This includes a portion along the eastern edge of the plant with the existing sludge storage tanks and a portion of the Control Building. The demolition of the Route 7 WWTF is within the confines of the existing facility. Demolition of the facility would actually increase flood storage in the area as the buildings would be removed to ground level. All below ground structures would be demolished to three feet below grade, all below ground tanks would be cleaned and filled, and allowed to have ground water drainage through them. Contours would be restored to the current ground level.

The replacement Route 7 Pump Station would be on the edge of the 100-year flood zone (Zone AE) for the Norwalk River, and the additional structures there would be a minimal footprint. Above ground pump station structures would be built so all electric components are at least 3 feet above the base flood elevation for this area (491 feet).

A portion of the local force main route on Route 7 is mapped as being near the edge of Zone AE, however the roadway where the force main is being installed is above the 100-year flood elevation and the work would not result in any change in elevation. The area of the local route where the force main runs

through Farmingville Road and Ligi's Way are within Zone AE with a portion 500-year flood zone along the edges of the Zone AE.

For the Route 35 force main alternative, the area where the Route 35 route crosses Ridgefield Brook is 100- and 500-year floodplain. Care would be taken not to eliminate flood storage at this location. Elevations would be returned to their original state after the installation of the force main in the roadway. This route also runs through Ligi's Way which is within Zone AE with a portion 500-year flood zone along the edges of the Zone AE.

**Wetlands.** Wetlands areas are mapped in Figure 8 using the CT DEEP GIS Data 'Wetland Soils' layer. Specific wetlands boundaries for the project areas are currently not available and mapping would be delineated by a soil scientist to locate any wetlands near the project areas during the design phase. Local wetlands and watercourses agency approval would be needed because construction would likely impact the upland review areas (URA) based on the likely proximity of wetlands adjacent to the work at the South Street WWTF, the Route 7 WWTF, at the Route 7 Pump Station, and in areas along the route of the force main. Work along the route of the force main may also have direct impacts to water courses and wetlands at crossings of the Ridgefield Brook, Great Swamp, and the Norwalk River. Any force main installation activities in the URA would cause minimal impact as it is within the roadway and would be returned to the same original grade when work was completed. Within the URA, erosion control and sedimentation protection would be placed at the edge of the roadway between the pipe trench and the wetlands. As described above, the construction contractor would be required to implement and maintain proper erosion and sediment control procedures during construction as required by Best Management Practices (BMPs).

Erosion and sedimentation control would be used in all areas up gradient of wetlands by installing protection such as filter fabric fencing, silt socks, and hay bales to isolate the construction area from the adjoining wetland and watercourse areas. All exposed soils would be restored to their former condition following construction, either with appropriate vegetation or with erosion-resistant stone cover.

#### **iv. Socio-Economic Impacts.**

The recommended Ridgefield Wastewater Systems Facilities Upgrade alternative is the lowest cost alternative and consolidates all WWTF operations to one WWTF while improving water quality. The projected overall program costs for the recommended Ridgefield Wastewater Facilities Upgrade project is presented below in Table 7.

**TABLE 7. RECOMMENDED RIDGEFIELD WASTEWATER FACILITIES UPGRADE PROJECT - OPINION OF PROJECT COSTS**

| Improvement / Upgrade Element   | Estimated Cost      |
|---|---------------------|
| <b>SOUTH STREET WWTF UPGRADES</b>   |                     |
| <b>Liquid Process</b>   |                     |
| Influent Pumping/Septage Receiving/ Preliminary Treatment                             | \$3,180,000         |
| Aeration Systems, Nitrogen Removal and Settling Tank Upgrades                         | \$5,060,000         |
| Tertiary Treatment – Blue PRO Process   | \$3,355,000         |
| UV Disinfection / Post Aeration / Maintenance Garage Facility                         | \$3,375,000         |
| <b>Solids Handling</b>  |                     |
| WAS Storage / Centrifuge Thickening /Thickened Sludge Storage                         | \$1,560,000         |
| <b>Ancillary Systems</b>  |                     |
| Chemical Storage/ Feed Systems and Ancillary Pumping Equipment                        | \$3,140,000         |
| Electrical Systems  | \$6,975,000         |
| Instrumentation and Control Systems   | \$3,000,000         |
| HVAC and Odor Control Systems   | \$1,495,000         |
| <b>Architectural and Structural Upgrade Recommendations</b>                           |                     |
| Architectural and Structural Systems Upgrades   | \$1,230,000         |
| PCB / Lead / Asbestos Removal and Remediation   | \$290,000           |
| <b>Site Improvements</b>  |                     |
| <b>TOTAL SOUTH STREET WWTF UPGRADE COSTS</b>  | <b>\$33,090,000</b> |
| <b>NEW ROUTE 7 PUMP STATION</b>   | <b>\$2,715,000</b>  |
| <b>FORCE MAIN TO SOUTH STREET WWTF</b>  | <b>\$5,585,000</b>  |
| <b>ROUTE 7 WWTF DECOMMISSIONING</b>   | <b>\$500,000</b>    |
| <b>TOTAL UPGRADE PROJECT COSTS (based on mid-point of construction - Spring 2020)</b> | <b>\$41,890,000</b> |

A number of the recommended Project elements qualify for different Clean Water Funding (CWF) grant programs. Grant funding availability varies on type of project element implemented. For example eligible nitrogen removal project elements would currently qualify for 30% grant funding while eligible phosphorus removal project elements may be eligible for 50% grant funding (provided certain construct award criterion are met). The remaining eligible project elements would qualify for 20% grant funding. It is recommended that the Town pursue the available CWF funds to minimize the Town’s share of the project costs. A summary of the estimated share of the project cost between grant funding and the Town’s share is summarized below in Table 8.

**TABLE 8. RECOMMENDED RIDGEFIELD WASTEWATER FACILITIES UPGRADE PROJECT – ESTIMATED FUNDING SUMMARY**

| TOTAL ESTIMATED CAPITAL COST | ESTIMATED GRANT AMOUNT | ESTIMATED LOAN AMOUNT |
|------------------------------|------------------------|-----------------------|
| <b>\$41,900,000</b>          | <b>\$9,800,000</b>     | <b>\$32,100,000</b>   |

It should be noted that the total estimated funding assistance costs are preliminary planning level costs and have been developed based on a number of assumptions and may not represent the final project

capital costs or the final funding assistance for which the Town will qualify for or will be available for the facilities once designed. The final capital and financial assistance availability could be higher or lower depending on what decisions are made during the design phase, how the final facilities are constructed, and when the final facilities are constructed. In addition, the estimated funding assistance costs assume that the DEEP will have the resources available at the time to provide reimbursement and that their funding programs will not be modified in the future. Project element eligibility and financial assistance availability will need to be further developed and reviewed with input from the DEEP as the design proceeds and is completed.

**v. Historical/Archeological and National Landmarks.**

Many portions of the Town of Ridgefield are designated as historical areas; however, the construction activities at the WWTFs and the force main routes are outside of these areas and would not impact historical or archeological resources. The Historic and Cultural Resources section of the “2010 Ridgefield Conservation and Development Plan” identifies these areas as primarily in the downtown area and the large historic area on the west side of town. All of the work would be outside of these areas and in relatively recently disturbed areas of roadways and municipal property near the WWTF’s.

**vi. Endangered Species.**

The State Natural Diversity Data Base (NDDDB) map for Ridgefield (Figure 9) shows the project area and its intersection with areas where state and federal listed species and significant natural communities may exist. These areas intersect with the project only along the local force main route on sections of Farmingville Road, Lee Road, and Limekiln Road. However, no impacts to these species are as the project is expected to remain within the roadway and follow proper erosion control procedures. A NDDDB request would be submitted as part of the permitting process. The project would comply with requests from the NDDDB program to the extent practicable. If the proposed impacted area is altered during design, DEEP/NDDDB program staff would be consulted for additional measures that may be necessary to provide the required protection for these species.

**vii. Coastal Zone Management. N/A**

**viii. Wild and Scenic Rivers. N/A**

**ix. Prime Farmland.**

The project does intersect with prime farmland as mapped in the Farmland Soils interpretation of Soil Survey Geographic (SSURGO) database for the State of Connecticut’ geographic data layer. However this project would not be impacting prime farmland areas that are not already within paved roadway. See Figure 10.

**x. Existing Houses and Property Values.**

The project would not be impacting any existing houses or values of existing properties that are not already within the confines of the WWTF sites. The improvement of water quality in Ridgefield Brook and the Norwalk River may also increase values of the adjacent residential properties.

**b. Indirect Impacts – deal with population growth and land-use changes included over the long-run by the project**

There would be no long-term adverse impacts on air or water quality due to this project. Traffic would be affected during the construction of the force main within the roadways, however, this would be minimized by restricting work hours to avoid rush hours on busy roads and is also minimized with the local route as it avoids busy roads.



**Irreversible and Irretrievable Commitment of Resources.** Resources being committed to the implementation of the project include all fuel, labor, and materials necessary for work involving the wastewater facilities. This project also requires a long-term commitment on the part of the town to provide labor and management resources to properly operate and maintain the wastewater collection and conveyance system as well as the South Street WWTF.

**Relationship of Project to Approved Land Use Plans.** The Connecticut Office of Policy & Management (OPM) has released updated versions of the statewide Conservation and Development (C&D) Plan. This plan identifies areas where development is encouraged as well as areas where development is discouraged. The intent of the Phase 1 and Phase 2 Facilities Plans are not to encourage future development but rather to project flows in the existing service areas and to allow the potential for sewer service in previously developed areas where septic systems have not provided satisfactory service. Any potential future sewer service areas have been considered in light of the State plan as there are funding assistance implications for sewer extensions into areas designated for preservation. Figure 11 presents the C&D map for Ridgefield.

In 2013, the Connecticut House of Representatives and the Senate adopted the Conservation and Development Policies Plan for Connecticut, 2013-2018. It serves as a statement of the development, resource management, and public investment policies for the state. This update of the C&D plan is highly focused on growth management. The plan encourages municipalities and regional planning agencies to concentrate development around existing infrastructure and discourages construction of new infrastructure in outlying areas, an approach that has been termed “smart growth.” The plan includes a map of the state identifying areas where growth is encouraged (Priority Funding Areas), and areas where conservation of existing resources is encouraged (Conservations Areas). Sewer extension in conservation areas to support new development is not encouraged under the C&D Plan. However, the extension of the wastewater collection system to address pollution or failures of on-site disposal systems in conservation areas serving existing development is allowed provided that it is approved by the OPM.

As indicated in Figure 11, Ridgefield’s locational guide map is comprised of Priority Funding Areas, Conservation Areas, Protected Lands, and a Local Historic District. The majority of Sewer Districts 1 and 2 are considered Priority Funding Areas, however, they do contain Conservation Areas. Areas that meet the criteria of both Priority Funding Areas and Conservation Areas are known as Balanced Funding Areas. As noted above, sewer extensions in Sewer District 1 will only be considered to address documented health issues with existing development in close proximity to the existing Sewer District. Sewer extensions to develop future flow and loading projections for the South Street WWTF upgrade are not part of the project that is the subject of this EIE. Finally, in addition, all of the current Route 7 WWTF (Sewer District 2) capacity has been allocated to the existing users, with no capacity available for extension of the collection system. Potential sewer needs areas will be evaluated for consistency with the C&D Plan.

**Growth Management Principles.** Based on Attachment A of the 2013 to 2018 C&D Plan update, Clean Water Fund projects must be consistent with Growth Management Principle (GMP) Nos. 1 and 5. These are discussed below.

Growth Management Principle No. 1: “Redevelop and Revitalize Regional Centers and Areas with Existing or Currently Planned Physical Infrastructure.”

The upgrade of the Ridgefield WWTFs is consistent with GMP No.1 because it provides repairs and upgrades of existing, aging infrastructure located in the town center. The proposed activities also ensure the safety and integrity of this infrastructure over the 20-year planning period. Areas of planned sewer extensions are near the populated center of the Town and have been identified since the 1987 Facilities

Plan.

Growth Management Principle No. 5: “Protect and Ensure the Integrity of Environmental Assets Critical to Public Health and Safety.”

The proper collection and treatment of sanitary wastes is an important part of protecting public health. The upgrade of the South Street WWTF would help to maintain the reliability of the treatment facilities while providing additional levels of treatment for the protection of local water quality. The project would help meet the bacteria limits for E. Coli in Ridgefield Brook and the Norwalk River. The project would also reduce the discharge of phosphorus and nitrogen to protect local waters and the Long Island Sound. Additional treatment capacity was also apportioned so that areas with confirmed septic system failures that may pose an environmental hazard can be added to the sewer system.

### **5. Mitigation of Adverse Environmental Impacts**

**Air Quality** – The proposed project is not expected to cause significant adverse air quality effects. Limited fugitive dust emissions can occur during materials handling, storage, and movement of equipment at the site. Fugitive dust is most likely to be a problem during periods of maximum construction activity and would be accentuated by windy and/or dry weather conditions. Potential air quality impacts from fugitive dust will be addressed through construction best management practices which may include:

- Covering, shielding, or stabilizing stockpiled material as necessary.
- Limiting dust-producing construction activities during high wind conditions.
- Water trucks and/or chemical treatments (calcium chloride) to minimize dust as needed.

**Water Quality** – To avoid any adverse water quality impacts, sediment and erosion control measures such as hay bale barriers and silt fences would be used to protect wetland areas. Construction easements widths through wetlands would be minimized while still maintaining sufficient width for safe and efficient operations. No equipment or material storage would be allowed in the wetlands area. If any vegetative clearing is necessary, it should be minimized and should be immediately replaced after the end of construction. Last, to prevent disturbance of existing wetlands, no fill should be placed above existing contours in these areas.

**Ambient Noise Levels** - The proposed action will not have long-term adverse impacts to the existing noise environment. The project may result in short-term construction noise impact. Construction equipment is anticipated to be the principal source of noise during the proposed project. Any noise impacts would be limited to the duration of the construction activity.

### **Energy Considerations**

Energy expenditure for this project falls into two categories: construction and operations. In terms of construction, energy consumption would be primarily what is needed to power construction vehicles and produce construction materials. These expenditures are considered relatively minor. In terms of operation, the energy expenditures would be those needed to operate the Route 7 Pimp Station, and that energy used to operate the South Street WWTF.

There is no foreseen substantial operational energy expenditure increase from previous conditions. In fact the consolidation of these facilities would likely increase energy efficiency and operation expenditure, by eliminating redundant infrastructure, eliminating the need for staff to drive between facilities, and replacing aged equipment with new more energy efficient equipment.

### **Storm Resiliency Considerations**

The project has taken into account resiliency to storm events per the recommendation of 2016 Edition of

the New England Interstate Water Pollution Control Commission's TR-16 "*Guides for the Design of Wastewater Treatment Works*". TR-16 recommends that the critical equipment, which includes conveyance and treatment system components, be able to maintain flow as well as primary treatment and disinfection during flood events. As a result, this requires protection of these systems as well as other support systems which include electrical distribution, standby power systems, as well as instrumentation and control systems. The design flood elevation recommended by TR-16 is three feet above the 100 year flood elevation for critical equipment and two feet above the 100 flood elevation for non-critical equipment. The 100 year flood elevations are to be based on the most recent information from the Federal Emergency Management Agency (FEMA). In addition to recommendations related to flood elevations, TR-16 also provides backup power recommendations. TR-16 recommends that wastewater facilities should include backup power system with sufficiency capacity for critical WWTF systems as well as providing sufficient fuel storage for the backup power systems to run 48 hours at peak flow conditions and 96 hours at average conditions.

**South Street WWTF.** The FEMA flood map in the area of the South Street WWTF was reviewed and all buildings at the WWTF are above the TR-16 recommended elevation of three feet above the 100 year flood elevation. So no specific elements to address flooding will be incorporated into the WWTF upgrade. The fuel storage for the backup power systems will be provided to run at least 48 hour at peak flow conditions and 96 hours at average conditions to meet TR-16 recommendations.

**Route 7 Pump Station.** The current 100 year flood elevation at the Route 7 Pump Station is elevation 491 (referenced to the National Geodetic Vertical Datum (NGVD) 1988). Grade in the area of the Route 7 Pump Station varies from elevation 493 to elevation 491. All critical structures will be located at elevation 494 or higher. This includes the top of the wet well, the valve chambers, and the slabs for the standby generator, generator fuel tank, and mechanical building. As stated above for the South Street WWTF, the fuel storage for the backup power systems will be provided to run at least 48 hour at peak flow conditions and 96 hours at average conditions to meet TR-16 recommendations.

## **Licenses, Permits, & Certifications**

### **NPDES Permit**

As part of the design, the effluent limits for the upgraded South Street WWTF to accept flows from Sewer District 2 will need to be formally established, and a formal NPDES permit modification will be required. These anticipated effluent limits are summarized in Table 6 above. DEEP has met with the town and consultant during the planning studies in order to clarify the anticipated effluent limits that would likely be imposed on the South Street WWTF with the combination of the two sewer districts.

### **Flood Management Certificates**

As part of the project, a Flood Management Certification is required and the Town would apply for this certification prior to bidding the project.

### **Stormwater Construction General Permit**

As part of the upgrade, a stormwater construction general permit under the EPA NPDES program may be required and the Contractor would apply for any necessary permit prior to initiating construction.

### **Other Local Permits**

A preliminary list of the local permits and approvals that would likely be required for this project is presented below.

- Local Inland Wetland Approval (upland review area is variable based on activity and whether activity is near wetlands or a watercourse)
- Planning & Zoning Commission Approval

- Local Building Permits (by the Contractor)
- Fire Marshal Approval
- Highway Department Street Excavation Permit

## **6. SUMMARY OF AGENCY AND PUBLIC CONSULTATION**

A scoping notice was publically noticed by the CT DEEP in the Environmental Monitor on May 2, 2017. In response to this scoping notice, CT DEEP received one comment letter from the Connecticut Department of Public Health (DPH) dated June 1, 2017. This letter contained one general comment followed by three specific comments on the scoping notice. A summary of these questions/comments is presented below.

### *General Comment*

*The notice indicates that the facilities plan includes the potential to expand the South Street Wastewater sewer service area by approximately 90 acres and approximately 126 parcels based on an assessment of potential future service needs to address public health concerns in two areas of existing development. Please note that portions of the existing sewer service area are bounded by the public drinking water supply watersheds of the Mill River Reservoir, a source of public drinking water for the customers of the Aquarion Water Company's Stamford System (PWSID# CT1350011) and Brown's Reservoir, a source of public drinking water for the customers of the Norwalk First Taxing District (PWSID# CT1030011). The Environmental Impact Evaluation (EIE) should include the evaluation of the following:*

*Specific Comment 1. Indicate whether the proposed sewer service area expansion is into public drinking water supply source water areas.*

Expansion of sewers into the areas with future potential need for sewer extensions are not part of the recommended plan for this project as noted in the last paragraph on page 2 of the Project Description of the EIE. However, the areas of potential expansion are shown on Figure 1 of the EIE. A portion of these areas with future potential need for sewer extensions are within an area identified as being part of a Public Water Supply Watershed (see Figure 2 of the EIE).

*Specific Comment 2. A detailed evaluation of the need to sewer and options considered.*

Expansion of sewers into the areas with future potential need for sewer extensions are not part of the recommended plan for this project as noted in the last paragraph on page 2 of the Project Description of the EIE. As a result a detailed evaluation of the need to sewer and options considered are not presented in this EIE.

*Specific Comment 3. Evaluation of the mechanism that will be in place to ensure that the sewer service area expansion will be consistent with the policies in Growth Management Principal # 5 of the Conservation and Development Policies 2013-2018, The Plan for Connecticut.*

Expansion of sewers into the areas with future potential need for sewer extensions are not included in the recommended plan for this project as noted in the last paragraph on page 2 of the Project Description of the EIE. Since these are areas with documented septic systems failures and problems, any future sewer expansion would consider Growth Management Principal # 5 of the Conservation and Development Policies 2013-2018, The Plan for Connecticut. It should be noted that these areas are located in areas identified as "Priority Funding Areas" or "Balanced Priority Funding Areas" and not in "Conservation Areas" per the Conservation and Development Policies 2013-2018, The Plan for Connecticut (see Figure 11 of the EIE).

## **CITATIONS**

State of Connecticut Department of Environmental Protection (CTDEP). 2006. A Total Maximum Daily Load Analysis for the Norwalk River Regional Basin. Retrieved from: [A Total Maximum Daily Load Analysis for the Norwalk River Regional Basin](#)

Town of Ridgefield Connecticut, 2010. 2010 Ridgefield Plan of Conservation and Development. Retrieved from: <http://www.ridgefieldct.org/planning-and-zoning/pages/2010-ridgefield-plan-conservation-and-development>

## **FIGURES**