

5.0 CONCLUSIONS AND RECOMMENDATIONS

5.1. Recommended Alternative

The Town of Ledyard requested that Weston & Sampson evaluate two (2) specific alternatives to meet the wastewater needs of the Center, which included:

- Transporting the wastewater to the existing Highlands Wastewater Treatment Facility
- On-Site Wastewater Treatment with Subsurface Water Discharge

Through the evaluation of these Alternatives it is clear that only transporting the flows to the Highlands Wastewater Treatment Facility can support the proposed flows from the Center. Using the conceptual Center layout, the proposed flows are estimated to be between 169,000 gallons per day (gpd) and 245,000 gpd. A summary of the recommended plan components are presented below:

- 10,500 linear feet (lf) of gravity sewers.
- 9,500 lf of low-pressure sewers.
- Three (3) submersible duplex pumping stations.
- 19,100 lf of force main piping.

The estimated cost for this alternative is between \$7.7 million and \$12.4 million, as summarized on Table 4-1.

5.2. Permitting

The construction of the wastewater collection, treatment, disposal for this project will be integral to the overall development of the Center, including permits. At this stage, it is expected that the sewer portion of the project will require the following permits.

- Ledyard Zoning Commission
- Ledyard Inland Wetlands/Watercourse Commission
- Connecticut Department of Environmental Protection Municipal Facilities Approval
- Connecticut Department of Environmental Protection Diversion Permit
- Army Corps of Engineers
- Connecticut Office of Policy and Management

A brief discussion of these permits and approvals is presented below.

Ledyard Zoning Commission

The proposed installation of pumping stations and wastewater treatment facility in the project area will require approval from the Ledyard Zoning Commission.

Ledyard Inland Wetlands/Watercourse Agency

The Ledyard Inland/Wetlands Watercourse Agency has jurisdiction within the Town of Ledyard under the Inland Wetlands and Watercourses Act and associated regulations (22a-36 to 22a-45, inclusive, of the Connecticut General Statutes, as amended). In accordance with the Inland Wetlands and Watercourses Regulations of the Town of Ledyard, Connecticut, an Inland Wetlands and Watercourses Application must be filed with the Ledyard Inland Wetlands/Watercourse Agency for any construction within the regulated area.

Connecticut Department of Environmental Protection Municipal Facilities Approval

The Connecticut Department of Environmental Protection (DEP) Municipal Facilities Unit must approve the proposed design of the sanitary sewer and any upgrades to the wastewater treatment facility. Final plans and specifications will have to be submitted to DEP for review and approval.

Connecticut Department of Environmental Protection Diversion Permit

The project will involve the transfer of more than 50,000 gallons per day of water from one area to another and therefore, may require a Diversion Permit from the Connecticut Department of Environmental Protection.

United States Army Corps of Engineers

Since the overall estimated impact of the project will be less than 5,000 square feet, the project will be classified as an Army Corp of Engineers (ACoE) Section 404, Category I Permit. This permit is non-reporting and will not require the submission of application materials. Since the ACoE permit will be classified as Category I Permit, a Water Quality Certification from DEP will not be required.

Connecticut Office of Policy and Management

The project will involve work within or adjacent to State of Connecticut conservation or preservation areas (see Figure 10 for locations). Therefore, the Connecticut Office of Policy and Management must approve the proposed design. This permitting process will be coupled with the permitting process for the overall development of the Center.

5.3. Wastewater Flow Considerations

The estimated flow for the Center is between 169,000 gpd and 245,000 gpd. These flows allow for full development of the Center without hindrances. As a result, the cost to construct the required facilities to

meet these flows is high. Weston & Sampson recommends that the Town of Ledyard carefully review the estimated flows to determine if all this capacity is required.

5.4. Phasing of the Project

The development for the Center would ideally include phasing to allow portions to be developed, as businesses commit to the Town. Phasing of the sewer collection system would be possible and could be easily achieved. Phasing of the treatment and disposal portion of the project would not be easily accomplished if flows were to approach 169,000 gpd, as this would require upgrading the Highlands Wastewater Treatment Facility. The upgrade of the wastewater treatment facility would be completed as one complete project.

5.5. On-Site Septic Feasibility

The Town did not request that Weston & Sampson evaluate the feasibility of utilizing individual on-site systems for the Center. However, typical system costs range from \$20,000 to \$100,000, depending on soil conditions and total wastewater flows. Assuming all lots could support on-site septic systems and using an average cost of \$50,000 per lot, the total cost for on-site septic for 30 future lots would be \$1.5 million. This may not be feasible, however. The benefit would be that these costs would only be incurred as development occurs, not as an upfront capital cost.

To create an incentive for business, the Town may even choose to operate and maintain the septic systems. These options should be reviewed as the overall planning of the Center is considered. If the Town were to pursue this option, it would be advisable for the Town to evaluate the soil conditions and feasibility of this concept during the master planning of the project.

5.6. Next Steps

The development of the Center must move forward in the planning stages to allow for a more refined sewer study. At this stage, it is unclear what type of businesses would be developed in the Center. This uncertainty is resulting in higher sewer flow estimates than may be needed. The Town needs to complete a market study to see what type of businesses are likely to develop in this area and begin the overall master planning for the Center.