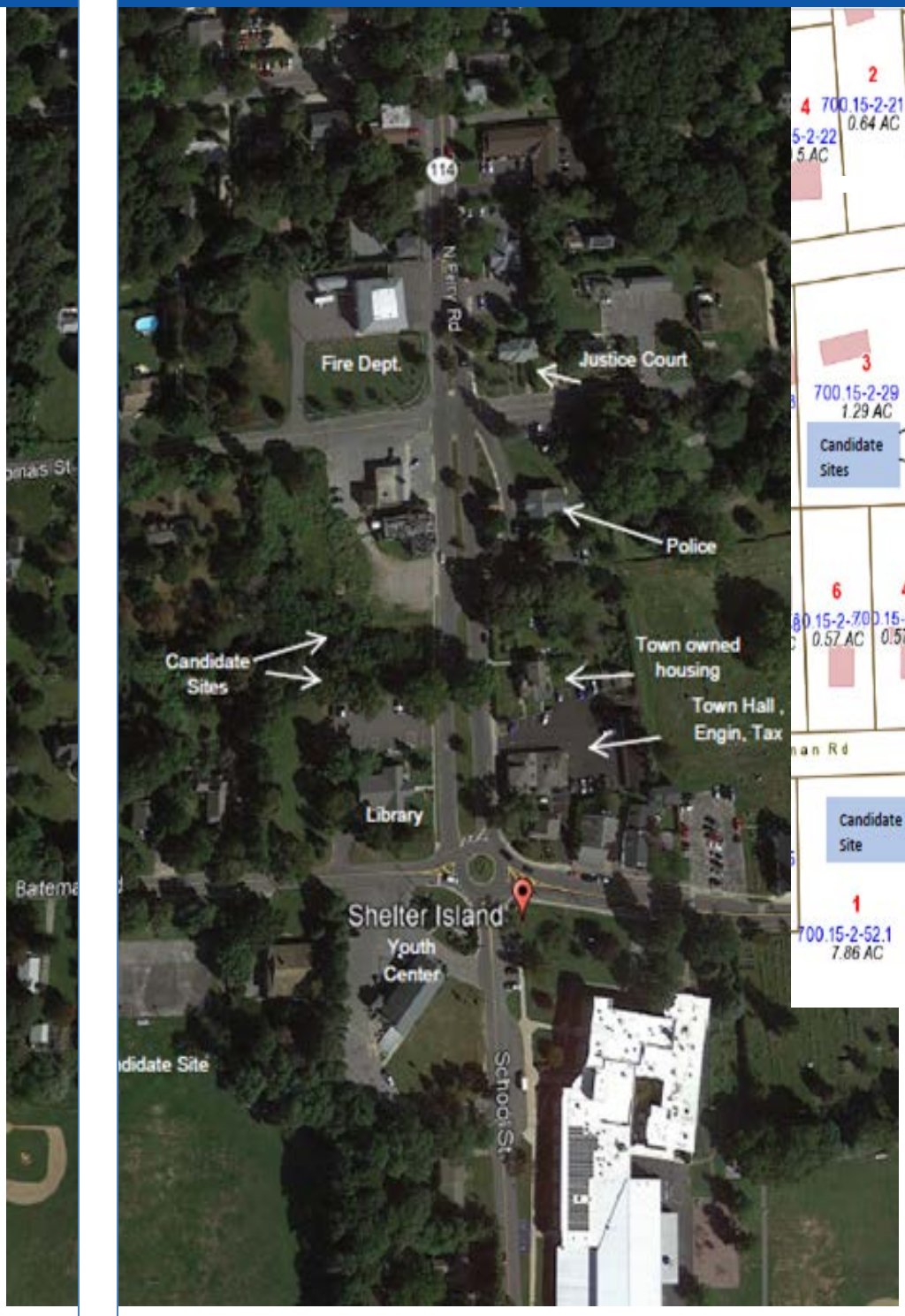
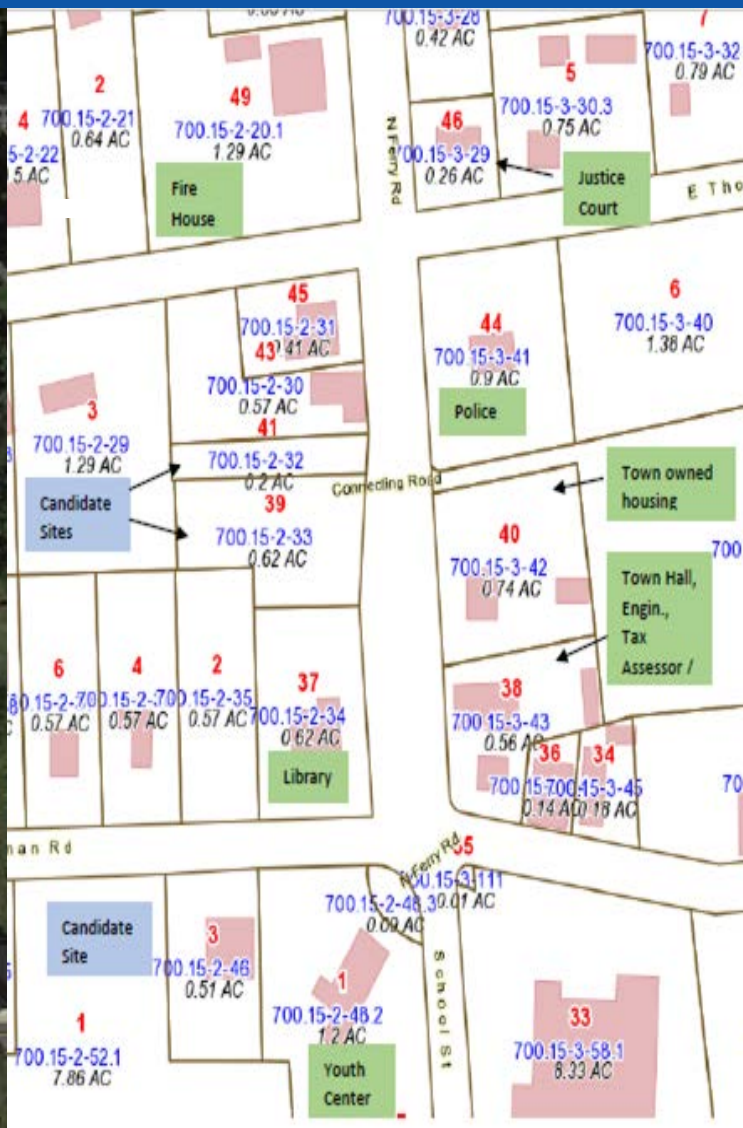
Shelter Island Center Municipal Wastewater Treatment System
Engineering Report





Submitted to:
Town of Shelter Island
38 North Ferry Road
Shelter Island, NY 11964-0907

November 23, 2021

Environmental Engineers/Consultants

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EXECUTIVE SUMMARY

The Project Study Area consists of the eight Town buildings listed on Table ES-1 and identified on Figure ES-1. Table ES-2 lists the size and wastewater design flows for each building.

Table ES-1 Study Area Parcels and Ownership

Shelter Island Center Municipal Wastewater Treatment Project - Parcels to be Served				
Parcel #	**Parcel Use**	**SCTM**	**Street Address**	**Owner**
1	Public Library	700-15-2-34	37 N. Ferry Road	Library Society
2	Fire Depart Center Fire House	700-15-2-20.1	49 N. Ferry Road	Fire District
3	Town Youth Center / American Legion Hall (multi-purpose facility)	700-15-2-48.2	1 Bateman Rd	Town
4	Town Assessors + Tax Receivers Office	700-15-3-43	38 N. Ferry Road	Town
	Town Hall	700-15-3-43	38 N. Ferry Road	Town
	Building + Engineering Depart.	700-15-3-43	38 N. Ferry Road	Town
5	Town-owned residential housing	700-15-3-42	40 N. Ferry Road	Town
6	Police Depart. HQ	700-15-3-41	44 N. Ferry Road	Town
7	Justice Court Building	700-15-3-29	46 N Ferry Rd	Town
8	High School	700-15-3-58.1	33 N Ferry Rd	School District

Table ES-2 Parcel Wastewater Design Flows

Shelter Island Center Municipal Wastewater Treatment Project										
Parcels to be Served + School										
Parcel Count	**Parcel Use**	**Square Footage of Building(s)**			**Total**	**Approx Flow (gpd)**	**Hydraulic Load (gpd/sf)**			**Est. Design Flow (gpd)**
1	Public Library	3,258	3,066		6,324		0.03	0.06		282
2	Fire Depart Center Fire House	8,793			8,793		0.03			264
3	Town Youth Center / American Legion Hall (one facility with multiple purposes)	3,792	3,792		7,584	2,538				2,538
4	Town Assessors + Tax Receivers Office Bldg. Town Hall Building + Engineering Depart. Building	3,929	720	896	5,545		0.06	0.06	0.06	333
5	Town-owned residential housing	2,135			2,135	440				440
6	Police Depart. HQ	1,716	1,716		3,432		0.06	0.06		206
7	Justice Court Building	1,270	1,270		2,540		0.06	0.06		152
								SubTotal		4,215
School	Students & Staff	Code flow	7.5	gpd/person						1,980
								Grand Total		6,195

All properties in the Study Area, and nearby surrounding areas, rely on individual water supply wells and septic systems (predominately cesspools). Groundwater nitrate nitrogen levels have exceeded the drinking water standard. The high groundwater levels of nitrate-nitrogen have been determined due to the use of conventional cesspools / septic systems. As the properties are at the top of their Subwatersheds, the properties are the cause of the high nitrate-N groundwater levels.

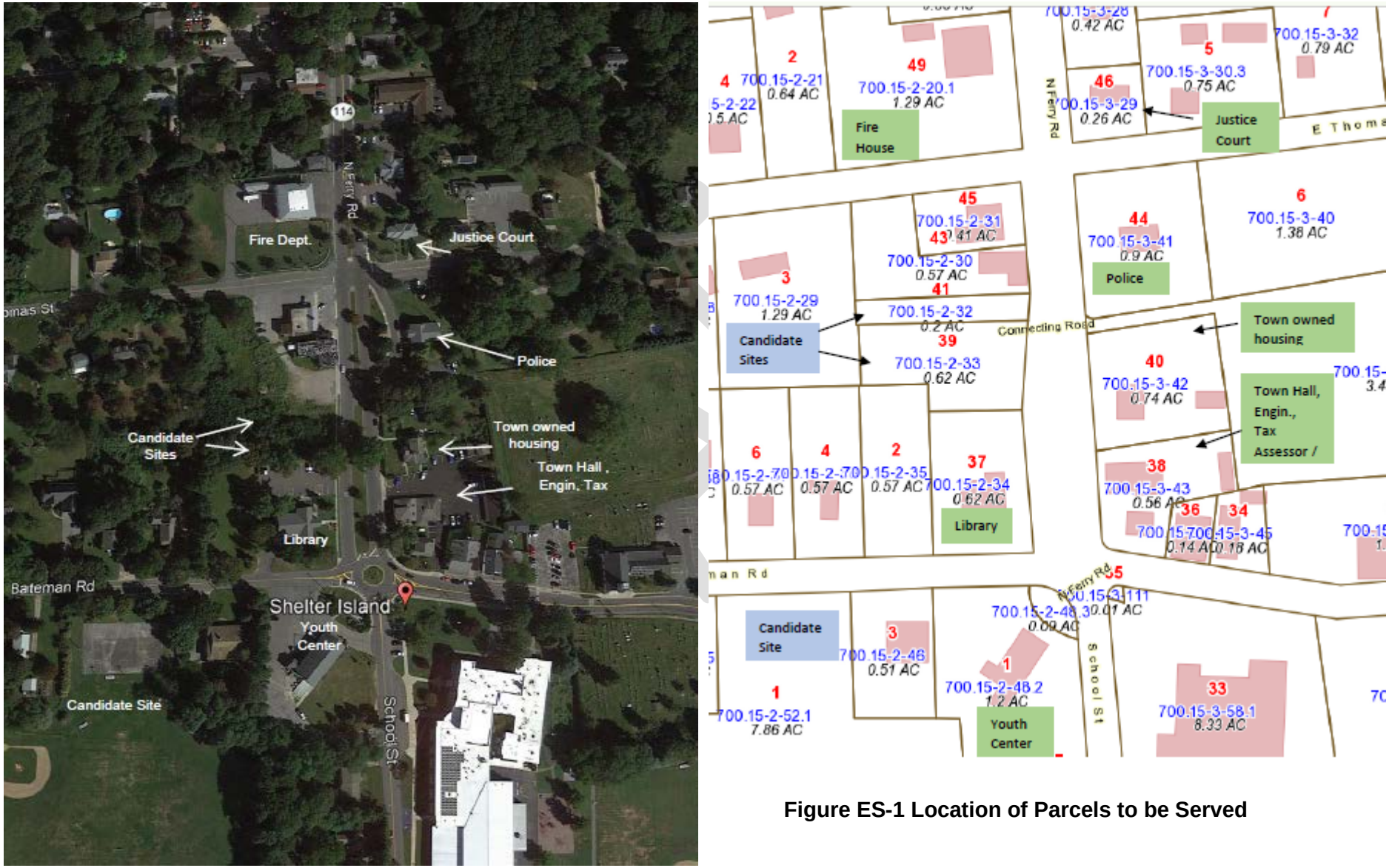

Figure ES-1 Location of Parcels to be Served

Due to public health setback distance requirements, the Fire Department and acquiring/combining the two lots north of the library on North Ferry Road are the only properties that could install a code complaint advanced wastewater nitrogen removing system. While the school has evaluated implementing its own wastewater system, it is included in the Study Area due to the significant economic and environmental benefits of the proposed wastewater system.

Consequently, an off-site community wide system is needed. Multiple Center Area properties were evaluated to locate the treatment and disposal system. However, due to the area being at the top of Subwatersheds with the resulting long (50 +/- year travel time to surface waters) and impacting downgradient water supply wells, other locations were evaluated with a focus on Town owned properties. The Airfield site was determined to be the most favorable location for the wastewater treatment and disposal facility.

Due to its simplicity and lower cost, the septic tank-effluent (STE) wastewater collection system, see Figure ES-1, is the proposed technology. Due to the undulating topography, a hybrid gravity (STEG) / low pressure (STEP) system is proposed, see Figure ES-2.

Due to its simplicity / lower cost of operation, ability to be predominately all underground and high nitrogen removal capability, the Nitrex treatment technology is proposed.

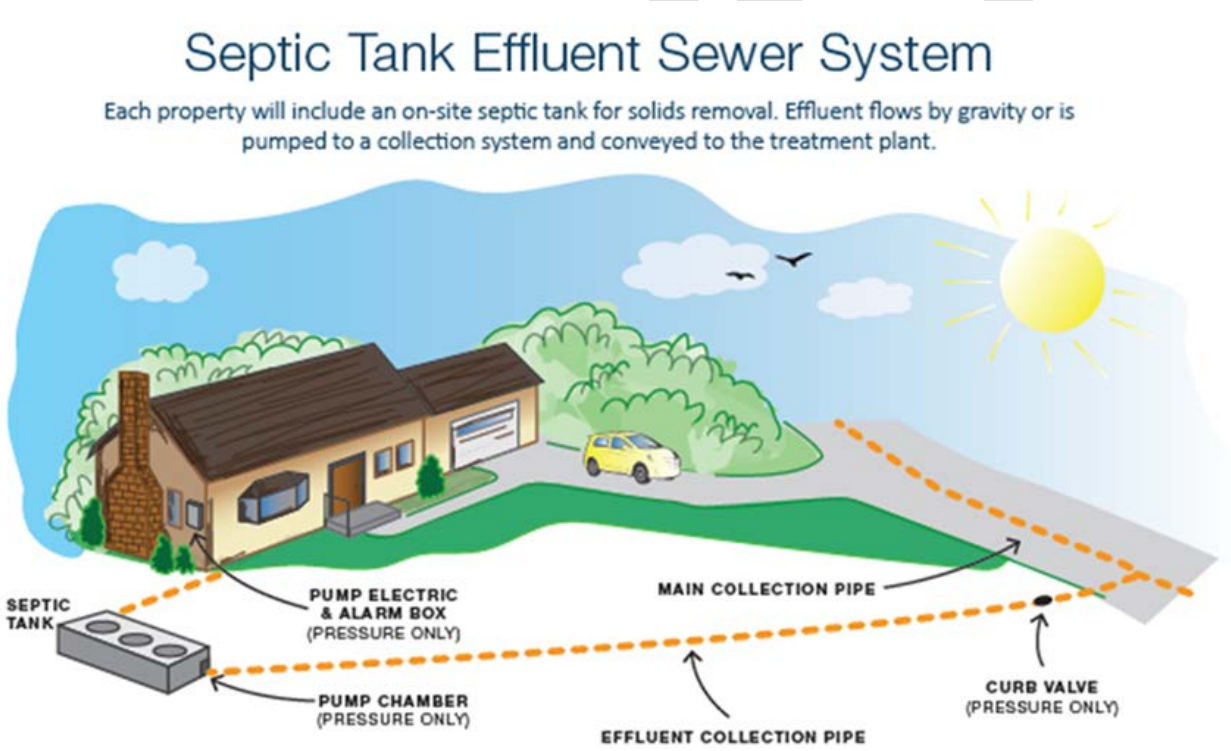

Figure ES-2 STEP – STEG Illustration

Figure ES-3 presents a Plan View of the proposed wastewater system. Table ES-3 presents our opinion of probable cost for implementing the wastewater system, annual O&M costs and local costs at various grant funding levels.

Figure ES-3 Preliminary Collection System Layout – Airfield Site

Table ES-3 Summary of Opinion of Alternatives Probable Cost

WWTF Location	Capital Costs	Annual O&M	Flow
Airfield	$ 3,396,730	$ 79,150	6,200 gpd

Local Capital Costs, Grant Funding & User Charges Scenarios					
Grant Funding	**0%**	**25%**	**50%**	**75%**	**90%**
Local Capital Costs	$ 3,396,730	$ 2,548,000	$ 1,698,000	$ 849,000	$ 340,000
Grant Funding	$ -	$ 849,000	$ 1,698,000	$ 2,548,000	$ 3,057,000
Annual User Costs at with local share funded - 2% 20 years	$ 286,883	$ 234,977	$ 182,994	$ 131,072	$ 99,943
Annual User Costs at with local share funded - 2% 30 years	$ 230,814	$ 192,918	$ 154,966	$ 117,058	$ 94,331

Implementation Plan – Schedule and Financing

The proposed project requires the creation of a District for the proposed sewer system option.

Once a District is formed, project bonding will be necessary, with authorization by the Town.

The following near term milestones schedule is:

Engineering Report Presentation to Town Board — December 14, 2021
Town Review — December – January 2022

Design of Recommended Alternative — February – April 2022

Grant Funding Application — July 2022

Legal formation of Wastewater System Ownership

- Town Board Authorizes Preparation of Map & Plan — January 2022
- Map & Plan Completion & Public Hearings — March 2022
- Town Board Adopt Map & Plan & Calls For Wastewater District Formation — April 2022
- Referendum or 30-day period for any Referendum petition — May 2022
- District formed — June 2022
- Bonding Authorization — July – August 2022