



**TOWN OF SOUTHAMPTON**

Department of Community Preservation  
24 W Montauk Hwy, Hampton Bays, NY 11946  
Ph: 631-287-5720 Fx: 631-728-1920  
[WQIPP@southamptontownny.gov](mailto:WQIPP@southamptontownny.gov)

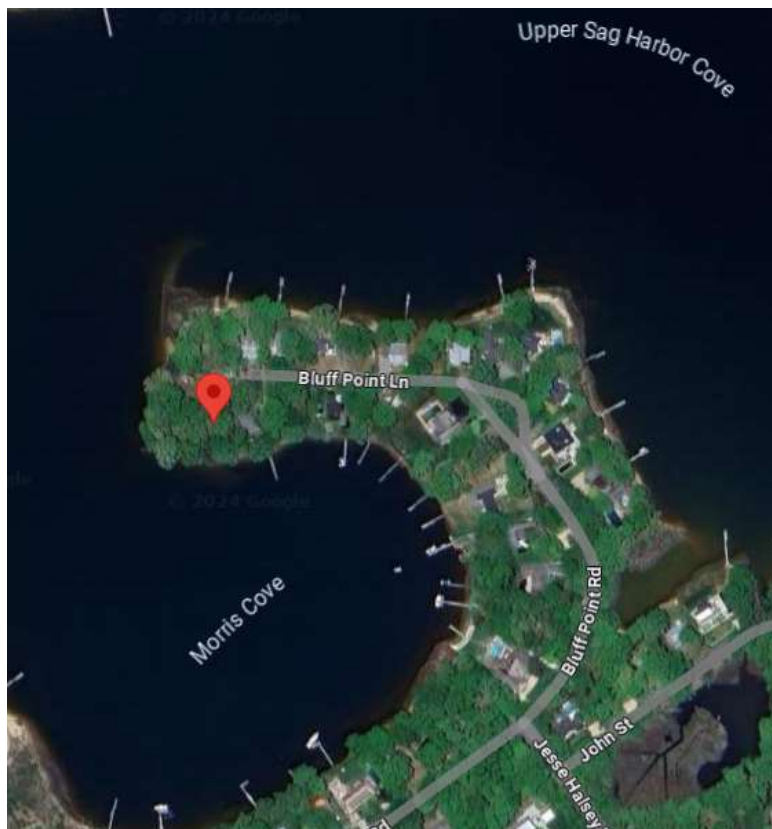
Entity: Sag Harbor Partnership

Project Name: Steinbeck House

**2024**

**Nitrogen Reducing Biofilter  
for  
The Steinbeck House  
On  
Morris Cove and Upper Sag Harbor Cove**

**2024 Grant Funding Application  
to  
COMMUNITY PRESERVATION FUND (CPF)**





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Entity: Sag Harbor Partnership

Project Name: Steinbeck House

**2024**

**COMMUNITY PRESERVATION FUND (CPF)  
WATER QUALITY IMPROVEMENT PROGRAM  
PROPOSAL SUMMARY**

Project Applicant: Sag Harbor Partnership  
Project Title: Nitrogen Reducing Biofilter for the John Steinbeck House  
Project Manager Name: NYS Center for Clean Water Technology at Stony Brook University ("CCWT")  
Grant Recipient: Sag Harbor Partnership

Name	Frank Russo
Title	Associate Director
Organization	CCWT
Address	1000 Innovation Rd, Suite 100, Stony Brook, NY 11794-6044
Phone	631-252-3797
Email	frank.russo.3@stonybrook.edu

Property owner (if different from Project manager organization):

Name	Sag Harbor Partnersh
Affiliation	Steinbeck House
Organization	Sag Harbor Partnership
Address	PO Box 182, Sag Harbor, NY 11963
Contact/Phone	Diane Howard, 214-587-0511
Email	Dkhoward4564@gmail.com

**Project Address: 2 Bluff Point Rd, Sag Harbor, NY 11963**

**SCTM # 903-4-1-3.001**

Type of Project (Check all that apply):

- Reduction     Remediation     Restoration

**Project Summary: (Provide a brief narrative description of proposed WQIPP project)**

Facilitated by the NYS Center for Clean Water Technology, CCWT, Sag Harbor Partnership seeks funding to **replace their existing old cesspool** system with a nitrogen reducing biofilter at the Steinbeck House in Sag Harbor, NY. The single family residence has been converted to a writers' retreat which will also receive public visitors on Saturdays in the summer. It is in a High Priority Area, directly overlooking Morris Cove which adjoins Upper Sag Harbor Cove.

The new system would be a Nitrogen Reducing Biofilter (NRB) with a Woodchip Box Denitrification tank (WCB). Based on data collected from five WCB NRBs in operation in Suffolk County from one to over four years the design is capable of removing total nitrogen to ~ 14 mg-N/L. Based on a long-term average mean of 87 mg-N/L total nitrogen in septic tank effluent, installation of an WCB NRB could be expected to save an estimate 62 lbs of nitrogen annually assuming actual flows of wastewater were 2/3rds of the design flow required by Suffolk County for similar sized houses. This project will also provide NYS CCWT the opportunity to work with a local contractor to achieve lower installation costs and advance this system to become implemented on a widespread basis.



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\*If additional information is needed to describe the project; a project narrative can accompany the application. Please limit the narrative to approximately 3 pages of project description, provide a summary of water quality benefits/objectives of approximately 2 pages and provide a cost estimate of approximately 2 to 4 pages with supporting estimates. Any additional materials should be focused specifically on the proposed project with references to other studies that are pertinent\*

## 1. PROJECT TYPE (check all that apply)

Must meet at least one of the definitions of “Water Quality Improvement Project” per State Law Chapter 551 cited above. Check all that apply.

- Wastewater Treatment Improvement Project
- Non-point source abatement and control
- Aquatic habitat restoration
- Pollution prevention
- Operation of Peconic Bay National Estuary Program (Grant Match)

**Note: Monitoring costs are only potentially eligible for CPF funding within Aquatic habitat restoration projects.**

## 2. PRIORITY AREA(S) (check all that apply)

Priority areas are defined in the [Water Quality Improvement Project Plan \(WQIPP\)](#).

- 303(d) Impaired
- High
- Medium
- Outside High and Medium priority areas\*

\*If Outside High and Medium priority areas, explain how the project is relevant to WQIPP goals.

## 3. PROJECT DESCRIPTION

3a. Existing conditions of applicable groundwater/sub-watershed/waterbody and most recent and relevant data available(provide sources).

During 2018 – 2023, the Goble Laboratory performed a comprehensive study of Sag Harbor surface waters that was designed to 1. Assess water quality across Sag Harbor and Sag Harbor Cove, 2. To identify causes of water quality impairment, and 3. To identify managerial actions that could be taken to improve water quality. A series of impairments (measurements below state or federal guidance values) during each summer were observed. Hypoxia (dissolved oxygen < 3 mg L<sup>-1</sup>) and reduced water clarity (< 2 meters during summer and sometimes < 1 meter within Upper Sag Harbor Cove). Levels of algae (chlorophyll a) were always above the EPA ideal value of 5 µg/L and at times exceeded the maximal guidance value of 20 µg L<sup>-1</sup> in Upper Sag Harbor Cove and Otter Pond. High levels of the ichthyotoxic rust tide algae, *Cochlodinium*, were detected both years in Upper Sag Harbor Cove and in the inner harbor. The Peconic Estuary has a target total N level of 0.4 mg L<sup>-1</sup> and this level was occasionally exceeded in Otter Pond, the inner harbor, and at Haven’s Beach. (source: REFINED ASSESSMENT OF WATER QUALITY IN MARINE AND FRESH WATERS SURROUNDING SAG HARBOR VILLAGE, 2021, Dr. Christopher Goble, April 2022, Stony Brook University School of Marine and Atmospheric Sciences.)

3b. How the proposed solution addresses the issue in the context of Reduction, Remediation and/or Restoration as per the CPF Water Quality Project Plan. Note all remediation and restoration projects must assure that reduction measures are also addressed.

NRB’s have demonstrated the capacity to **reduce nitrogen (N)** by > 80% from most residential wastewater influent. Moreover, this project addresses the pollution from a high-profile property which has recently been purchased by the Sag Harbor community for around \$16 million. In doing this project, the Board of the Sag Harbor Partnership provides an important example and visibility for the replacement of old cesspool technology.



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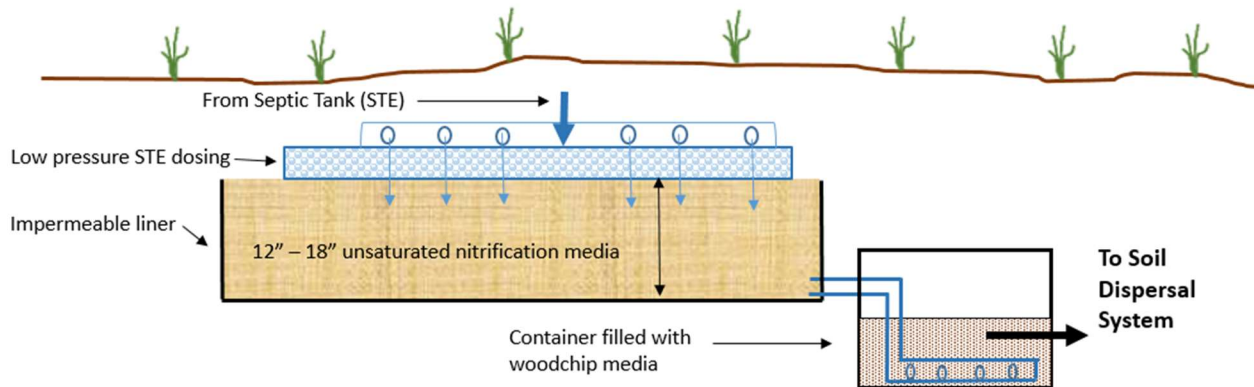
Entity: Sag Harbor Partnership

Project Name: Steinbeck House

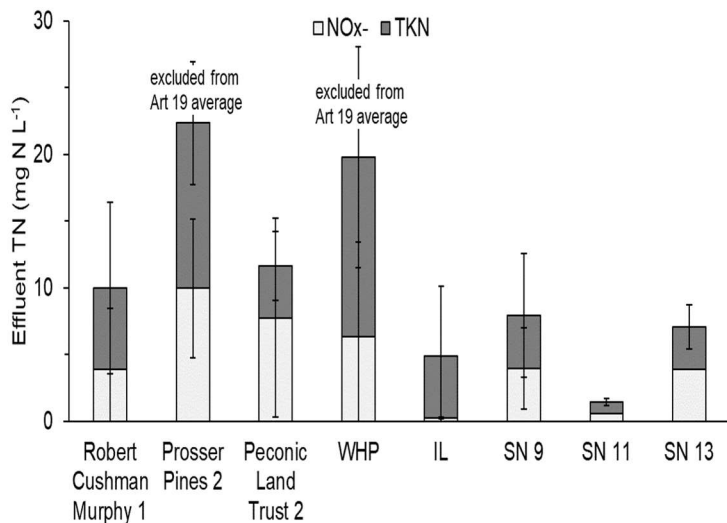
2024

3c. Describe the proposed technology and its demonstrated efficacy in similar settings. May include published data.

**Sand bed with woodchip box** – The proposed technology treats N in wastewater with a very simple but effective configuration. Aside from one pump which assures dosed pulsing to a distribution system (Geomat or Infiltrator) overlaying a drain-field, wastewater flows are entirely gravity-driven, and treatment occurs as wastewater simply percolates down thru the layers of sand and sand/woodchip. Aqueous ammonium is nitrified with oxygen in the sand bed and then the water drains into the anoxic woodchip box where the resulting nitrate is denitrified.



Total nitrogen in final effluent of woodchip boxes monitored in Suffolk County and at the Shinnecock Nation averaged ~ 11.6 mg-N L<sup>-1</sup> over the twelve months ended December 2023 as shown in the figure below. This level compares favorably with results of energy intensive I/A onsite wastewater treatment systems (OWTS) as reported by Suffolk County and represents a removal rate on average Suffolk County effluent measured by NYS CCWT of 87%.



3d. How the project supports Town of Southampton, Suffolk County, NYSDEC, Long Island Nitrogen Action Plan (LINAP) or other adopted goals/policies (provide references with pages numbers).

Aside from the immediate reduction in N loadings to local groundwater in Morris Cove and Upper Sag Harbor Cove, the primary benefit to Southampton estuaries is in advancing NRB technology under Suffolk County’s Article 19 septic permitting program from Pilot to Provisional phase testing, a critical step to general use status on Long Island.

3e. Review the following statements and indicate whether they are applicable to your project. For all “Yes” responses, please indicate how your project addresses the requirements indicated.



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YES      N/A

**If stormwater system or drainage is proposed:** The project must indicate compliance with the New York State Stormwater Design Manual (2015 and as updated).

**If project is related to farmland:** Describe any Agricultural Stewardship Plan or other long term strategy for Nitrogen abatement.

**If the project is for habitat restoration:** The narrative must address how underlying causes are being ameliorated and expected outcomes for local species populations or other ecological considerations are given.

**If project is a Sewage Treatment Plant (STP) or cluster treatment system:** Fund allocation request is based on cost for reduction of pre-existing conditions and not for purpose of accommodating new density (describe pre-existing density and associated flow (gallons per day) and total projected nitrogen reduction in narrative). Include detailed information on how many homes the system would treat as well as potential for formation of Sewer District, if required by Suffolk County Health Department or Town Law.

**If the project is requesting grant match:** Include information related to funding program source and purpose of application and any relevant items on this checklist. Note: A Town Board resolution will be required in order to encumber matching funds for grant applications.



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### 4. WATER QUALITY BENEFIT

4a. Identify Nitrogen, Pathogen or Pollutant of Concern (POC) including Existing Condition and Target Reduction.

High nitrogen levels have led to the degradation of salt marshes, which provides buffering against storm surges, as well as to algal blooms. (Gobler et al., 2004, 2011). NRBs will provide Nitrogen reduction from residential wastewater by 80% or greater.

4b. Describe plans for collecting and reporting on water quality over time.

SCDHS Article 19 regulations for reporting nitrogen levels are required. In addition, the NYS Center for Clean Water Technology will monitor wastewater analytes in the final effluent of these systems once installation is complete and report results to the public broadly including to SC DHS, NYS DEC and as part of design-based articles in engineering journals. Wastewater analytes will include Total Kjeldahl Nitrogen, ammonium, nitrate/nitrite, BOD5, alkalinity and total suspended solids in final effluent. The Center has over eight years' experience collecting and measuring these analytes; its labs are certified by the NYS Environmental Laboratory Assessment Program (ELAP) for these analytes.

4c. Indicate useful life of proposed technology (must meet or exceed five years).

The useful life is greater than 15 years. Published articles in scientific journals (e.g., Robertson, Logan & Lombardo 2008; Groundwater Monitoring & Remediation 28) indicate woodchips continue to provide carbon for nitrate removal for at least 15 years; anecdotal evidence suggests woodchips may continue to provide carbon for nitrate removal for decades beyond. The other components of the systems have been widely in use across the United States for decades.

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### 5. COST FACTORS

5a. Explain how you have confirmed that the proposed budget is reasonable, appropriate, and necessary. If available, provide third party estimates or other documentation of how costs were determined.

The proposed itemized budget was based on actual costs for installed NRBs across Suffolk County and prepared by David Rhoades, P.E. and TF Engineering, an independent professional engineer. Total project cost would be \$95,662. Of that amount, \$35,662 in Matching Funds would be provided by NYS CCWT. We are requesting \$60,000 from the CPF.

5b. Describe any matching funds to be provided.

TF Engineering contributed the site evaluation by the professional engineer. NYS CCWT will be contributing over \$21,960 in project management, engineering during construction, startup support, and other "soft costs" as in-kind matching funds. NYS CCWT match also includes \$13,702 for lab analytics, field technicians for sampling and analyses by its NYS ELAP certified for lab for measurement of wastewater analytes. Total Match is \$35,662.

5c. Explain:

- i. Why project cannot proceed and intended benefits cannot be achieved without external funding.
- ii. If funds are awarded at a lower level than requested, or if there are cost overruns, explain how the project will proceed.

Grants through the Suffolk County SIP and NYS are not eligible until the I/A process achieves Article 19 Provisional Phase approval. The NYSDEC grant to CCWT does not provide sufficient funds to install that many I/A systems. Sag Harbor Partnership does not have the funds to make up for lower levels than requested. The CCWT would have to cover cost overruns out of other grants.



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### MANAGEMENT, EXPERIENCE, ABILITY

6a. Describe applicant's experience in completing similar projects.

NYS Center for Clean Water Technology at Stony Brook University was founded in 2015 to promote technologies to reduce residential nitrogen inputs to groundwater and marine ecosystems. Since inception, CCWT has facilitated the installation of over 20 onsite, residential wastewater treatment systems (Nitrogen Removing Biofilters) at locations across Suffolk County. To advance the WCB NRB design to the Provisional phase of Suffolk County Department of Health Services (SC DHS) Article 19 permitting process, CCWT plans to install additional systems. These installations have all been installed within several days and these designs are producing best in class residential wastewater treatment exceeding Article 19 requirements. There have been no instances of hydraulic or operating problems.

CCWT has hired David Rhoades, PE, with TF Engineering to evaluate the site, design the systems, estimate the budget, submit the permit application, and make sure the system is properly installed. His experience with these systems is extensive and well regarded.

6b. Describe community support or opposition to project. If there is opposition, explain how this is to be addressed.

There is no known opposition for these specific projects currently. To the contrary, the Sag Harbor Partnership has received a lot of donations to preserve John Steinbeck's home and its Board supports this project. Community support for OWTS's is well established. Community opposition to the Subwatershed Plan is largely about expense. By showing the community how to install this technology, we hope to mitigate some of that expense.

6c. Describe any permits needed and time frame/status of approvals. If permits are approved, indicate same.

SCDHS Article 19 compliance is required. SCDHS permitting is under way using the design by TF Engineering. Approval is expected within several weeks.

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### 7. MAINTENANCE, MONITORING, EVALUATION

Estimate ongoing maintenance costs and explain how these will be supported. Explain stewardship and monitoring activities planned for ensuring sustainability of the project.

The installer will provide three years of operations and maintenance. Sag Harbor Partnership (the Owner) has rented the writers' retreat to the University of Texas which will budget for ongoing maintenance and Article 19 reporting compliance by a licensed service provider. CCWT will monitor the performance of the system for research and permitting purposes.

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### 8. DURATION OF PROJECT

8a. Provide a projected project timeline.

CCWT will engage a professional engineer. Survey, soil borings, design drawings and SC DHS permit application will begin as soon as the grant contract is completed. Upon funding and permitting, construction scheduling will take several months. Actual installation takes 3-5 days. CCWT will then commence bi-monthly monitoring wastewater effluent for 36 months (i.e. 18 sample sets).

8b. If project is multi-year or phased, provide a breakdown of budget and milestones for each year and phase.

Not Phased. CCWT will monitor the site, collect and analyze samples, and report results bimonthly for 3 years beginning 4 months after construction as part of matching funds.



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**9. ATTESTATION**

Allocation of CPF funds will not be for the purpose of accommodating new growth, as this is prohibited by State law.

Check box to certify that funds will not be directed for projects for the purpose of accommodating new growth.

Signature: \_\_\_\_\_

Date 3/6/24

**REQUIRED ATTACHMENTS** Confirm that the following required documents are attached to this application:

- Photos of existing conditions
- Location Map
- State Environmental Quality Review Act (SEQRA) Long or Short Environmental Assessment Form (EAF)  
<https://www.dec.ny.gov/permits/6191.html>
- Completed EPA Spreadsheet Tool for Evaluating Pollutant Load (STEPL)  
<https://www.epa.gov/nps/spreadsheet-tool-estimating-pollutant-loads-step/> or similar standardized methodology (describe)
- Project budget (see attached template)
- Ownership commitment is provided via letter of intent (LOI) for non-municipal owners or municipal resolution for municipal owners

**10. OTHER ATTACHMENTS**

List other attachments provided, including cost estimates, bids, plans, documentation of matching funds, and other as appropriate to demonstrate project readiness, quality, feasibility, and cost effectiveness

List of Attachments:

- Attachment A - Photos – pg 9
- Attachment B - Location Map – pg 10
- Attachment C - Project Budget and breakout of CCWT Match – pg 11-13
- Attachment D - Site Assessment and Cost Estimate by David Rhoades, TF Engineering, PLLC, P.E – pg 14-15
- Attachment E - Assessment of Water Quality in Sag Harbor Cove – 16
- Attachment F - Pollutant Loads in lieu of STEPL Calculation - 17
- Attachment G – Applicants Information - 18



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## Attachment A: Photos



Site of leaching pools  
North of driveway



Site of treatment systems  
South of driveway



Location of existing cesspool  
West of driveway





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## Attachment B - Location Map

Site is located in High Priority Area (Source: Southampton Town CPF WQIPP)





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The following Budget was independently prepared by TF Engineering in consultation with NYS CCWT and reviewed by a licensed installer

**Attachment C - BUDGET PROPOSAL**

Steinbeck House (TF Engineering, PLLC, Opinion of Cost)			
PLANNING/ENGINEERING/DESIGN	TOWN CPF REQUEST	MATCHING FUNDS COMMITTED	TOTAL
Update Site Survey	\$ -	\$ 1,000	\$ 1,000
Test Hole/Soil Boring	\$ -	\$ 800	\$ 800
Utility Markout: GPR	\$ -	\$ 800	\$ 800
SCDHS Permit Fee	\$ -	\$ 465	\$ 465
<b>Subtotal</b>	<b>\$ -</b>	<b>\$ 3,065</b>	<b>\$ 3,065</b>
CONTRACTUAL SERVICES			
TOWN CPF REQUEST	MATCHING FUNDS COMMITTED	TOTAL	
Wetlands Permit (Village HC)	\$ -	\$ 2,500	\$ 2,500
Engineer Design, preparation of construction documents and SCDHS Applications	\$ -	\$ 8,500	\$ 8,500
Construction Oversight by Engineer (5 Days)	\$ -	\$ 4,095	\$ 4,095
<b>Subtotal</b>	<b>\$ -</b>	<b>\$ 15,095</b>	<b>\$ 15,095</b>
CONSTRUCTION SERVICES for Construction & Site Improvements			
TOWN CPF REQUEST	MATCHING FUNDS COMMITTED	TOTAL	
Contractor Mobilization & Demobilization	\$ 2,000		\$ 2,000
Electrical, Control Panel, Upgrade Panel and Power Distribution, Receptacles	\$ 1,000		\$ 1,000
Exterior Run, Yard Piping, Sample Ports, Misc. Valves and Fittings	\$ 7,000		\$ 7,000
Export soil, Import Sand, Backfill, Grading, Surface Restoration,	\$ 10,000		\$ 10,000
Startup, Commissioning, Closeout	\$ 3,500	\$ 400	\$ 3,900
<b>Subtotal</b>	<b>\$ 23,500</b>	<b>\$ 400</b>	<b>\$ 23,900</b>



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EQUIPMENT/MATERIALS/SUPPLIES	TOWN CPF REQUEST	MATCHING FUNDS COMMITTED	TOTAL
Remove Concrete Cesspool Tank W/effluent filter & accessories	\$ 3,500		\$ 3,500
Septic Tank and Filter Installed	\$ 4,500		\$ 4,500
Sand Filter with Infiltrator Treatment System and Plumbing	\$ 6,000		\$ 6,000
Sand Filter Liner Installed	\$ 6,500		\$ 6,500
Denitrification Polishing Filter (Woodchips) Installed	\$ 6,500		\$ 6,500
Effluent Disposal Leaching Pools or Gallies Installed	\$ 4,000		\$ 4,000
Pump Stations and Force Mains Installed	\$ 4,500		\$ 4,500
Control Panel	\$ 1,000		\$ 1,000
<b>Subtotal</b>	<b>\$ 36,500</b>	<b>\$ -</b>	<b>\$ 36,500</b>
ADDITIONAL COST	TOWN CPF REQUEST	MATCHING FUNDS COMMITTED	TOTAL
O & M Manual and As-Built Survey, record document	\$ -	\$ 3,400	\$ 3,400
Performance Sampling and Analysis - 3 Years		\$ 13,702	\$ 13,702
<b>Subtotal</b>	<b>\$ -</b>	<b>\$ 17,102</b>	<b>\$ 17,102</b>
<b>Total</b>	<b>\$ 60,000</b>	<b>\$ 35,662</b>	<b>\$ 95,662</b>
<b>PLANNING/ENGINEERING/DESIGN COST TOTAL</b>	<b>\$ -</b>	<b>\$ 35,262</b>	<b>\$ 35,262</b>
<b>TOTAL PROJECT COST</b>	<b>\$ 95,662</b>		
<b>APPLICANT MATCHING FUNDS COMMITTED</b>	<b>\$ 35,662</b>		
<b>APPLICANT MATCHING FUNDS PENDING</b>	<b>\$ -</b>		
<b>TOTAL CPF FUNDS REQUESTED</b>	<b>\$ 60,000</b>		
SOURCE(S) OF OTHER FUNDS & AMOUNTS:	AMOUNT		
CCWT In-Kind Match for Monitoring & Project Management Services	\$ 35,662		



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**The following Table shows the calculation used to estimate In Kind Contribution Match from CCWT**

<b>In kind Contribution Schedule</b>					
<b>NYS Center for Clean Water Technology</b>					
			# Samples	# Visits	
<b>Analytical Lab Services:</b>	cost/sample		/Visit		
NH4+	\$20		3	18	\$1,080
NO3-/NO2-	\$12		2	18	\$432
NO2-	\$12		2	18	\$432
TkN	\$28		3	18	\$1,512
Alkalinity	\$15		3	18	\$810
BOD5	\$30		2	18	\$1,080
TSS	\$20		2	18	\$720
Ortho-Phosphate	\$20		3	18	\$1,080
TKP (phosphorus)	\$30		3	18	\$1,620
Sampling & Analytical Services per site					\$8,766
Sites per project					1
Subtotal Analytical costs				A	\$8,766
<b>Sample Collection</b>	\$/mile	miles/visit	visits	pro-rated allocation	
Truck	\$ 0.69	108	18	33%	\$ 447
		hourly rate	hours/sample set	Sample Sets	
Research Tech II		\$ 31.74	2.3	18	\$ 1,333
Research Support Specialist		\$ 44.10	2.3	18	\$ 1,852
Subtotal Sampling				B	\$ 3,632
<b>Reporting &amp; analysis (SC DHS &amp; NYS DEC):</b>					
Research Support Specialist	\$ 44.10	1	12		\$ 529
Research Scientist II	\$ 64.52	1	12		\$ 774
SubTotal Monitoring Labor/yr				C	\$1,303
Subtotal Technical Costs				A+B + C	\$13,702
<b>Soft Costs in TFEngineering Estimate</b>					
Update Site Survey					\$1,000
Test Hole/Soil Boring					\$800
Utility Markout: GPR					\$800
SCDHS Permit Fee					\$465
Wetlands Permit (Village HC)					\$2,500
Engineer Design, preparation of construction documents and SCDHS Applications					\$8,500
Construciton Oversight by Engineer (5 Days)					\$4,095
Startup, Commissioning, Closeout					\$400
O & M Manual and As-Built Survey, record document					\$3,400
				D	\$21,960
<b>Total NYS CCWT</b>				A+B+C+D	\$35,662
Stony Brook University Research Foundation Overhead (10% SH IDC Rate)				0%	\$0
					\$35,662
<b>Total Matching Funds</b>					\$35,662



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### Attachment D - Site Assessment and Cost Estimate by David Rhoades, P.E., TF Engineering



**TF Engineering**  
Civil Engineer

P.O. Box 596  
Sag Harbor, NY 11963

T 631-740-7273

[info@tfe.pe](mailto:info@tfe.pe)

March 14, 2024

Bud Dunbar  
Stony Brook University  
Center for Clean Water Technology  
1000 Innovation Road, Suite 100  
Stony Brook, NY 11794-6044

RE: 2 Bluff Point Road (24-046)

Dear Mr. Dunbar,

Per your request, TF Engineering, PLLC evaluated the property located at 2 Bluff Point Road (otherwise known as the Steinbeck House) for the possible installation of a new septic treatment train. The new treatment train is proposed to contain a septic tank, effluent pump basin, single pass sand filter, single pass chip tank, distribution box and a drainfield.

In our opinion, the proposed site is a good candidate for this type of treatment train. I have attached a copy of the site plan showing a possible septic layout. However, the actual site layout may vary depending on feedback from Stony Brook University, the property owner, Suffolk County Department of Health, and the Village of Sag Harbor. TF Engineering PLLC will work with all interested parties during the design process to properly site the location of the treatment train in the best possible location to satisfy the permitting authorities.

TF Engineering, PLLC has also attached a copy of the Opinion of Cost for this proposed treatment train. Feel free to contact our office if you have any questions regarding the information provided.

Sincerely,

David Rhoades, P. E.  
TF Engineering, P.L.L.C.

DWR

Clipped from sketch by TF Engineering preliminary site assessment

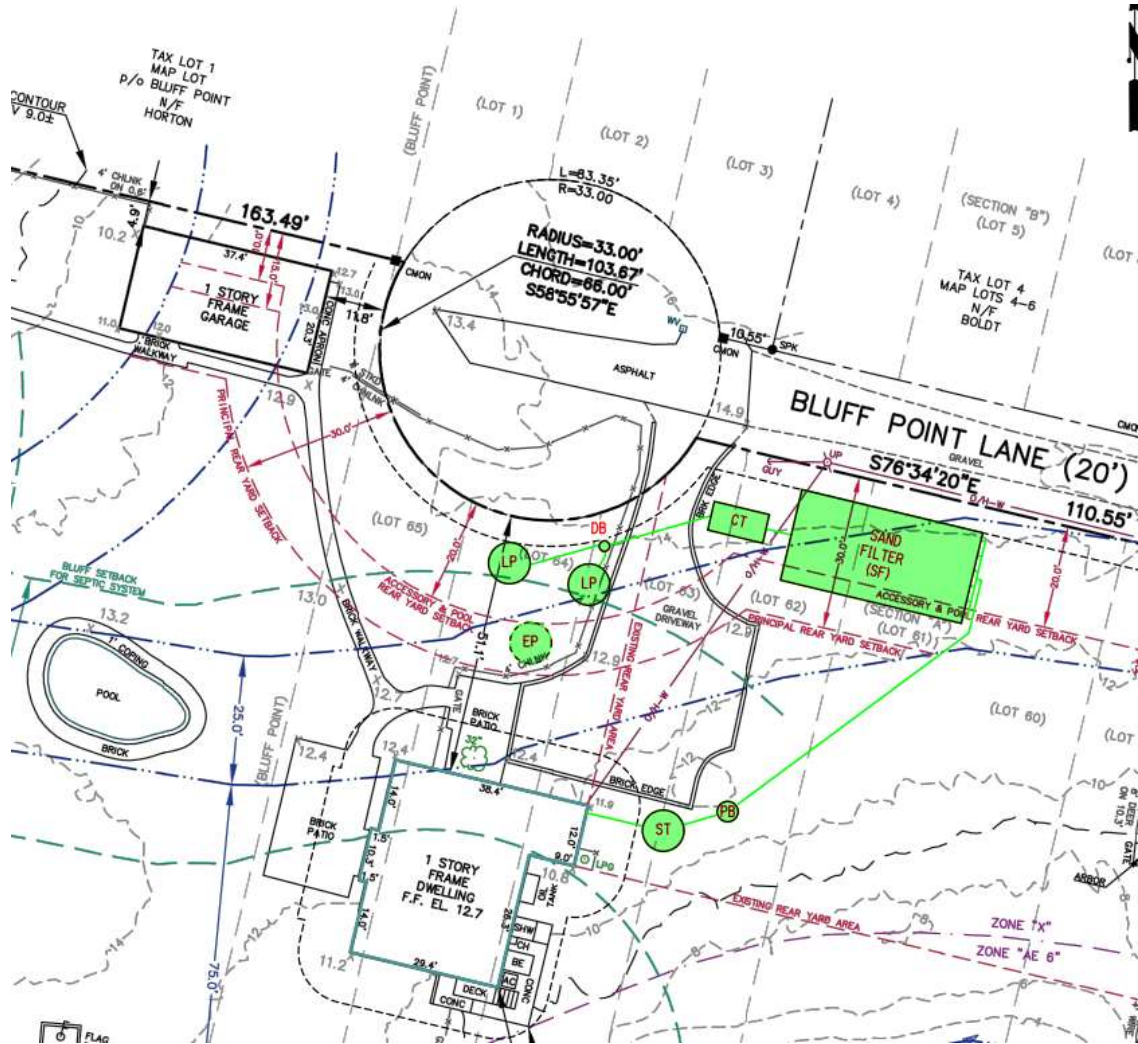


# TOWN OF SOUTHAMPTON

Department of Community Preservation  
24 W Montauk Hwy, Hampton Bays, NY 11946  
Ph: 631-287-5720 Fx: 631-728-1920  
[WQIPP@southamptontownny.gov](mailto:WQIPP@southamptontownny.gov)

Entity: Sag Harbor Partnership  
Project Name: Steinbeck House

**2024**



The location of the treatment system (green) above is preliminary and subject to relocation in the final design. There is room on this 1.8 acre property for other options.



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Entity: Sag Harbor Partnership

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2024

### Attachment E - Assessment of water quality in Upper Sag Harbor Cove

The following excerpt was clipped from the study below.

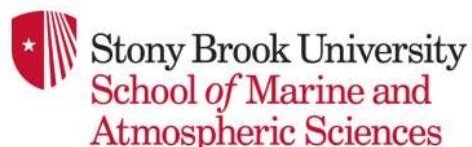
“Experiments performed during both summers demonstrated that nitrogen was clearly the element limiting the growth of algae in Sag Harbor Cove and Upper Sag Harbor Cove. Levels of fecal coliform bacteria exceeded guidance values for shell fishing on occasion in Otter Pond, the inner harbor, and at Haven’s Beach, with the latter location being open to shell fishing. Microbial source tracking revealed the sources of fecal bacteria differed by time and location and primarily included dogs and small mammals, humans, and birds. The human signal was strongest within the inner harbor, while dogs and small mammals, and birds were strongest for Otter Pond and Haven’s Beach. Sediment surveys revealed the presence of thick and organic rich muds in Upper Sag Harbor Cove as well as isolated regions in the Cove and inner harbor. Nitrogen loading analyses indicated that septic tanks and cesspools were the strongest source of N for both the Cove and the Harbor, representing 70 and 90% of the total load, respectively. Given the ability of N to increase phytoplankton biomass, the exceedance of guidance values for total N, algae, and water clarity, and the occurrences of harmful rust tides that are promoted by excessive N, reductions in N loading across the region are warranted. Given the that overwhelming majority of N entering this region emanates from onsite septic systems, upgrading these systems and/or connecting homes to the sewage treatment plant would be the most effective approaches. While a more fine-scale study of pathogenic bacteria may be needed to optimize remedial approaches, minimizing or rerouting surface discharge of water from the Haven’s Beach sump or Otter Pond may be effective management approaches. (source: REFINED ASSESSMENT OF WATER QUALITY IN MARINE AND FRESH WATERS SURROUNDING SAG HARBOR VILLAGE, 2021, Dr. Christopher Gobler, April 2022, Stony Brook University School of Marine and Atmospheric Sciences.)”

#### REFINED ASSESSMENT OF WATER QUALITY IN MARINE AND FRESH WATERS SURROUNDING SAG HARBOR VILLAGE, 2021



Christopher J. Gobler

April 2022





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2024

### **Attachment F - Pollutant Loads In lieu of a STEPL calculation**

CCWT used a Nitrogen Loading Model (NLM) described in Bowen, et al (2007). This method has recently been used by Suffolk County. That model shows very strong correlation to actual measurements. Cesspools/septic systems and atmospheric deposition contribute the highest nitrogen loads.



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**2024**

**COMMUNITY PRESERVATION FUND (CPF)  
WATER QUALITY IMPROVEMENT PROGRAM  
Attachment G - Applicants Information**

**APPLICANT'S INFORMATION**

Owner: Sag Harbor Partnership  
Contact First and Last Name: Diana Howard  
Contact Address: 9 Somers Place, Sag Harbor, NY 11963  
Contact Phone: 214-587-0511  
Contact Email: dkhoward4564

**CONTRACT RECIPIANT INFORMATION**

Name/Organization: Bud Dunbar consultant to NYS Center for Clean Water Technology  
Contact Person/Officer: Hilary Brooks/Frank Russo  
Contact Address: Center for Clean Water Technology, 1000 Innovation Road, Suite 100, Stony Brook, NY 11794-6044  
Contact Phone: Bud Dunbar 617-448-0440, Hilary Brooks 631-816-0912  
Contact Email: Hilary.Brooks@stonybrook.edu; dunbar.bud@gmail.com

**PROJECT INFORMATION**

Project Title: Steinbeck House Nitrogen Reducing Biofilter  
Project Location: 2 Bluff Point Rd, Sag Harbor, NY 11963  
Project Description (1-3 sentences):  
Replace a cesspool system with a nitrogen reducing biofilter for the Steinbeck House, overlooking Morris Cove in Sag Harbor.

**ANTICIPATED PROJECT TIMELINE**

Begin: Design and permitting will begin as soon as the Town contract is completed, November 2024  
Complete: Construction will take less than a week. August 2025

Notes: \_\_\_\_\_

One month to design + three months to permit + one month to solicit bidding + one month to contract + three months until installers can fit it in their schedules + one week to construct + two weeks to commission = 10 months