INCORPORATED VILLAGE OF NORTH HAVEN

FRESH POND ROAD STORMWATER INFRASTRUCTURE IMPROVEMENT PROJECT

FRESH POND ROAD, SAG HARBOR, NEW YORK

RG Project No. 3700.02

March 2024

TOWN OF SOUTHAMPTON

SUFFOLK COUNTY, NEW YORK

TOWN OF SOUTHAMPTON
COMMUNITY PRESERVATION FUND
GRANT APPLICATION

Prepared for:

Incorporated Village of North Haven
335 Ferry Road
Sag Harbor, New York 11963
Phone (631) 725-1378
Fax (631) 725-1120

Prepared By:

The Raynor Group, P.E. & L.S. PLLC
Civil Engineers & Land Surveyors
860 Montauk Highway
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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

Entity: Inc Village of North Haven
Project Name: Fresh Pond Road

2024

COMMUNITY PRESERVATION FUND (CPF)
WATER QUALITY IMPROVEMENT PROGRAM
CHECKLIST/APPLICATION INSTRUCTIONS

The CPF Water Quality Improvement Project Plan (WQIPP) Fund follows the objectives in the adopted Water Quality Improvement Project Plan (see http://www.southamptontownny.gov/WQIPP)

To apply for funding, an application must be COMPLETED and submitted along with detailed narratives and supporting information as described below. The Water Quality Advisory Committee will rank and score projects based on the Scoring Criteria contained in the application materials. Parcel acquisitions will be considered on an ongoing basis, independent of this application process.

Note: Electronic application submission required and 4 - full printed sets of application, site plan and narrative.
Upload application at www.southamptontownny.gov/WQIPPSUBMISSION
A Public Hearing and Town Board Resolution will be required for individual or multiple projects.

WATER QUALITY IMPROVEMENT PROJECT MEANS:

[1] DEFINITIONS:

1. **Wastewater Treatment Improvement Project** means the planning, design, construction, acquisition, enlargement, extension, or alteration of a wastewater treatment facility, including alternative systems to a sewage treatment plant or traditional septic system, to treat, neutralize, stabilize, eliminate or partially eliminate sewage or reduce pollutants in treatment facility effluent, including permanent or pilot demonstration wastewater treatment projects, or equipment or furnishings thereof. Stormwater collecting systems and vessel pumpout stations shall also be included within the definition of a wastewater improvement project.

2. **Nonpoint Source Abatement and Control Program Projects** developed pursuant to section eleven-b of the soil and water conservation districts law, title 14 of article 17 of the environmental conservation law, section 1455b of the federal coastal zone management act, or article forty-two of the executive law;

3. **Aquatic Habitat Restoration Project** means the planning, design, construction, management, maintenance, reconstruction, revitalization, or rejuvenation activities intended to improve waters of the state of ecological significance or any part thereof, including, but not limited to ponds, bogs, wetlands, bays, sounds, streams, rivers, or lakes and shorelines thereof, to support a spawning, nursery, wintering, migratory, nesting, breeding, feeding, or foraging environment for fish and wildlife and other biota.

4. **Pollution Prevention Project** means the planning, design, construction, improvement, maintenance or acquisition of facilities, production processes, equipment or buildings owned or operated by municipalities for the reduction, avoidance, or elimination of the use of toxic or hazardous substances or the generation of such substances or pollutants so as to reduce risks to public health or the environment, including changes in production processes or raw materials; such projects shall not include incineration, transfer from one medium of release or discharge to another medium, off-site or out-of-production recycling, end-of-pipe treatment or pollution control.

5. **The Operation of the Peconic Bay National Estuary Program**, as designated by the United States Environmental Protection Agency. Such projects shall have as their purpose the improvement of existing water quality to meet existing specific water quality standards. Projects which have as a purpose to permit or accommodate new growth shall not be included within this definition

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COMMUNITY PRESERVATION FUND (CPF)

WATER QUALITY IMPROVEMENT PROGRAM

PROPOSAL SUMMARY

Project Applicant: _____
Project Title: Village of North Haven - Fresh Pond Road Stormwater Infrastructure Improvements
Project Manager Name: Terie Diat, Village Trustee
Entity Anticipating Grant and Funding: Incorporated Village of North Haven

Name	Beth Kamper
Title	Village Clerk - Treasurer
Organization	Incorporated Village of North Haven
Address	335 Ferry Road, Sag Harbor, NY 11963
Phone	(631) 725-1378
Email	bkamper@northhavenvillage.org, tdiat@northhavenvillage.org

Property owner (if different from Project manager organization):

Name	
Affiliation	
Organization	
Address	
Phone	
Email	

Project Address: Fresh Pond Road, North Haven, NY SCTM #(S) N/A

Type of Project (Check all that apply):
☑ Reduction ☑ Remediation ☐ Restoration

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

This project proposes to install Fabco Industries StormBasin filtration devices in the existing stormwater drainage infrastructure along Fresh Pond Road. Nine (9) existing stormwater catch basins and leaching structures will be retrofitted with the StormBasin filtration devices to sequester road water and storm water runoff contaminants along Fresh Pond Road. Fresh Pond Road runs directly adjacent to the critical waters of Great Salt Pond and Fresh Pond. Contaminants that enter into these waterbodies may include, but not limited to, antifreeze, grease, oil, and heavy metals from cars; fertilizers, pesticides and other chemicals from gardens and homes; bacteria from pet waste and failing septic systems; and sediment from poor construction site practices. As water enters the inlets, the StormBasin captures the water which passes through a cartridge that filters the water, treating it at the source.

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

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

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

Priority areas are defined in the Water Quality Improvement Project Plan (WQIPP).

- [ ] 303(d) Impaired
- [ ] Peconic Estuary Program - PEP map
- [x] 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).

Please see the attached Water Quality Testing Data from 2023 in Appendix D. Additionally, a supplement has been provided that summarizes the data pertaining to Fresh Pond and Great Salt Pond.

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.

The proposed project seeks to reduce or even prevent non-source contaminants found in stormwater from entering the nearby Great Salt Pond and Fresh Ponds. The StormBasin provides storage volume for solid materials such as sediment and debris, while also providing filtration for contaminants including nitrogen, phosphorus, heavy metals, and oils/grease.

3a Project Description:

Great Salt Pond and Fresh Pond, both bordered by Fresh Pond Road are known to have high levels of organic nitrogen, fecal coliform and low dissolved oxygen and poor flushing. Water quality testing was conducted by Dr. Christopher Gobler from Stony Brook University from May - September, 2023 in Great Salt Pond and Fresh Pond. The results showed total nitrogen concentrations at Great Salt Pond exceeded the threshold value of 0.4mg L-1 throughout the sampling period and was almost 10 times the threshold at its highest concentration of 3.68 mg N/L on August 8th. Total nitrogen concentrations were also elevated in Fresh Pod where concentrations were only below the threshold in June and October. Great Salt Pond also had the highest average for cholorphyll a levels. Great Salt Pond exceeded the fecal coliform standard for shellfishing followed by the NYSDEC on seven out of eleven test dates and Fresh Pond exceeded the fecal coliform standard on five out of eleven test dates. Great Salt Pond exceeded the enterococcus bacteria NYSDOH bathing standard threshold on five out of eleven test dates.

To quote Dr. Goblers report *"C.polykrikoides* is an ichthyotoxic dinoflagellate that has caused fish mortality across the globe including some sites on eastern Long Island (Kudela and Gobler, 2012). *C.polykrikoides* blooms in excess of 300 cells mL-1 have been known to cause mortality in larval fish, which use these estuarine systems as nurseries, and in shellfish (Tang and Gobler 2009). Maximum *C.polykrikoides* cell densities surpassed 300 cells mL-1 in Fresh Pond (315 cells mL-1) on September 19th."

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

The Fabco StormBasin captures and retains stormwater catch basin pollutant, namely sediment, trash, nutrients, coliform bacteria, oils/grease and dissolved metals. A heavy-duty aluminum frame is placed below the grate to treat water at the source. The StormBasin has room for three Fabco Filter Cartridges that allow it to treat pollutants. Data from Testing with the Fabphos Cartridge shows an average of ~44% reduction of total nitrogen and ~66% reduction of total phosphate. Data from testing is shown in Appendix E.

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).

The Fabco Industries StormBasin BMP has been approved by the NYSDEC to provide 50% phosphorus reduction in stormwater at its peak treatment flow rate. As per the Town of Southampton WQIPP this project relates to all Vision Goals listed on page 6. The project seeks to reduce the nitrogen loading by installing filter cartridges within the existing stormwater infrastructure. This addresses LINAP's primary goals by identifying sources of nitrogen to surface waters and groundwater and develops a plan to achieve nitrogen reduction.

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.

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.

4. WATER QUALITY BENEFIT

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

Please see the Water Quality Test Results (Appendix D) for existing fecal coliform, total nitrogen, and algae amounts within Fresh Pond and Great Salt Pond. Great Salt Pond exceeds the threshold of the Peconic Estuary total nitrogen amount of 0.4 mg/L. The filter cartridges seek to reduce total nitrogen by at least 40% and phosphorus by at least 50%. FabGuard filter media targets reducing bacteria and FabPhos filter media targets nutrients.

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

The Village will continue to work with it's consulting engineers and Dr. Gobler of Stony Brook University for ongoing water quality monitoring.

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

Please see the attached warranty from Fabco Industries (Appendix F). The manufacturer has an eight year warranty for the stormwater products. The filter cartidges placed within the filtration devices have a recommended lifetime of one year.

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 budget was developed by The Raynor Group, P.E. & L.S. PLLC. The Raynor Group has extensive knowledge in preparing construction estimates for various projects. Price quotes directly from the manufacturer were obtained for the Fabco StormBasin and StormPod devices, as well as the filtering cartridges.

5b. Describe any matching funds to be provided.

No matching funds are proposed. The Village currently has an annual budget of $30,000 for water quality improvement initiatives, the majority of which are spent on testing with Dr. Gobler's lab. The remainder of the budget is spent on community outreach. No further funds are available.

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.

The project cannot proceed without the requested funding as there are presently no public or private funds available to undertake the critically needed remediation to improve the water quality of Great Salt Pond and Fresh Pond.

6. MANAGEMENT, EXPERIENCE, ABILITY

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

The Village of North Haven retains The Raynor Group, P.E. & L.S. PLLC as the Village Engineer. They have prepared the proposed project design and will assist with the required permitting work as well as assisted with preparing the subject Grant Application. The Raynor Group has over 30 years of engineering experience.

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

The community is wholly supportive of these types of environmental projects as they understand and value clean water. The public will be informed of the project via our monthly North Haven Newsletter and be given an opportunity to comment at monthly Board of Trustee meetings.

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

There are no proposed permits needed for the proposed improvements. The installation of the StormBasin filters is a minimally invasive process that does not involve any proposed disturbance other than the removal of the existing grates.

CPF-13107 (rev. 02/2024)

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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.

Please see the attached StormBasin Servicing, Maintenance and Disposal document in Appendix G for the manufacturer's recommendations for servicing and maintenance activities. Within the Village of North Haven's Annual Budget, there are funds allocated for the maintenance and upkeep of existing drainage structures. The maintenance of these existing structures falls under this item in the yearly budget.

8. DURATION OF PROJECT

8a. Provide a projected project timeline. Note: The Committee will only make recommendations for shovel-ready projects that can commence this fiscal year.

Once funds are approved for the purchase of the StormBasin filtration devices, the Village would solicit proposals from vendors to perform the work. The proposed timeline to complete the work once a contractor is selected would be approximately three to five days.

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

N/A

9. ATTESTATION

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

- ☑ We certify that funds will not be directed for projects for the purpose of accommodating new growth.
- ☑ We understand that progress reports will need to be generated as specified in our Water Quality Improvement Contract AND a final report showing qualitative and/or quantitative data will be generated upon project completion. .
- ☑ I authorize the subject property to be inspected by Town Personnel.

Signature: _____ Date 3/11/24

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

11. 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-stepl 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
- ☑ Public agencies must complete SEQRA on the project and submit determination of significance and associated documentation.

12. 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.

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BUDGET PROPOSAL

Is the applicant incorporated or organized as a Not-for-Profit corporation or Not-for Profit limited liability company?
☐ Yes ☑ No **(If Yes, please submit a copy of the Certificate of Incorporation/Organization with this application)**
Is the applicant a municipality? ☑ Yes ☐ No
If yes, please enter the request date or anticipated request date of RFP (Request for Proposals) March 2025.

PLANNING/ENGINEERING/DESIGN	Town CPF Request	Matching Funds Committed	Matching Funds Pending	Estimated Total Project Costs
Task 1-Construction Drawings & Details	$-2,000.00	$-	$-	$-2,000.00
Task 2-	$-	$-	$-	$-0.00
Task 3-	$-	$-	$-	$-0.00
Task 4-	$-	$-	$-	$-0.00
Task 5-	$-	$-	$-	$-0.00
Task 6-	$-	$-	$-	$-0.00
	$-	$-	$-	$-0.00
Planning/Engineering/Design Cost Total	$-2,000.00	$-0.00	$-0.00	$-2,000.00

Contractual Services				
Prepare Bid Document & Public Letting	$-3,000.00	$-	$-	$-3,000.00
	$-	$-	$-	$-0.00
	$-	$-	$-	$-0.00
	$-	$-	$-	$-0.00
	$-	$-	$-	$-0.00
	$-	$-	$-	$-0.00
	$-	$-	$-	$-0.00
Contractual Services Cost Total	$-3,000.00	$-0.00	$-0.00	$-3,000.00

Construction & Site Improvements				
Installation Cost (Labor & Equipment)	$-15,000.00	$-	$-	$-15,000.00
	$-	$-	$-	$-0.00
	$-	$-	$-	$-0.00
	$-	$-	$-	$-0.00
	$-	$-	$-	$-0.00
	$-	$-	$-	$-0.00
	$-	$-	$-	$-0.00
Construction & Site Improvements Cost Total	$-15,000.00	$-0.00	$-0.00	$-15,000.00

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Equipment/Materials/Supplies	Town CPF Request	Matching Funds Committed	Matching Funds Pending	Estimated Total Project Costs
Fabco Industries StormBasin Plus 24" x 45"	$-10,000.00	$-	$-	$-10,000.00
Fabco Industries StormBasin Plus 22" Diameter	$-3,000.00	$-	$-	$-3,000.00
Nutrient Cartridges (126) - 2 year supply	$-31,500.00	$-	$-	$-31,500.00
	$-	$-	$-	$-0.00
	$-	$-	$-	$-0.00
	$-	$-	$-	$-0.00
	$-	$-	$-	$-0.00
				$ 0.00
				$ 0.00
				$ 0.00
				$ 0.00
				$ 0.00
				$ 0.00
				$ 0.00
Equipment/Materials/Supplies Total	$-44,500.00	$0.00	$-0.00	$-44,500.00

Additional Cost				
	$-	$-	$-	$-0.00
	$-	$-	$-	$-0.00
	$-	$-	$-	$-0.00
	$-	$-	$-	$-0.00
	$-	$-	$-	$-0.00
	$-	$-	$-	$-0.00
	$-	$-	$-	$-0.00
Additional Cost Total	$-0.00	$-0.00	$-0.00	$-0.00

Planning/Engineering/Design Cost Total (from page 7)	$-2,000.00	$-0.00	$-0.00	$-2,000.00

Total Project Cost	$-64,500.00
Applicant matching funds committed	$-0.00
Applicant matching funds pending approval (e.g. grant request submitted pending determination)	$-0.00
Total CPF Funds Requested	$-64,500.00

Source of matching funds	Amount

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COMMUNITY PRESERVATION FUND (CPF)
WATER QUALITY IMPROVEMENT PROGRAM
LETTER OF INTENT

APPLICANT'S INFORMATION

Owner: Incorporated Village of North Haven
Contact First and Last Name: Beth Kamper
Contact Address: 335 Ferry Road, Sag Harbor, NY 11963
Contact Phone: (631) 725-1378
Contact Email: bkamper@northhavenvillage.org, tdiat@northhavenvillage.org

CONTRACT RECIPIANT INFORMATION

Name/Organization: Incorporated Village of North Haven
Contact Person/Officer: Terie Diat, Village Trustee
Contact Address: 335 Ferry Road, Sag Harbor, NY 11963
Contact Phone: (631) 725-1378, (516) 606-2600 (cell)
Contact Email: tdiat@northhavenvillage.org

PROJECT INFORMATION

Project Title: Village of North Haven - Fresh Pond Road Stormwater Drainage Improvements
Project Location: Fresh Pond Road, North Haven
Project Description (1-3 sentences):

The Village of North Haven seeks to install Fabco Industries StormBasin filtration devices on existing catch basins and drainage grates along Fresh Pond Road. The filtration devices will be equipped with cartridges that are designed to handle pollutants including sediment, trash & debris, nutrients, coliform bacteria, hydrocarbons and heavy metals.

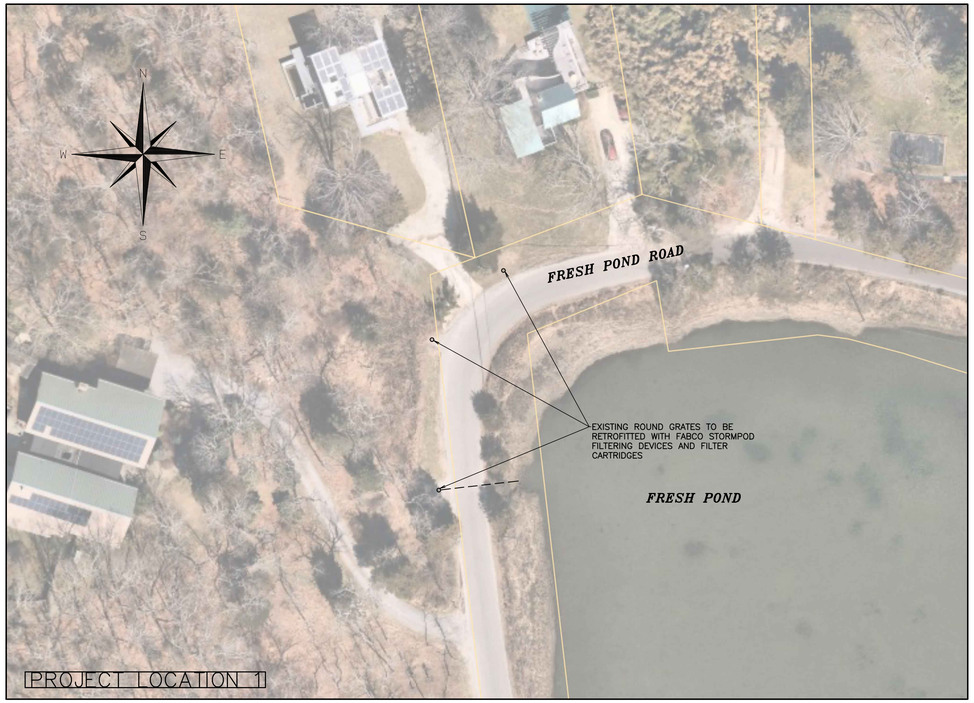
ANTICIPATED PROJECT TIMELINE

Begin: April 2025
Complete: April 2025
Notes:

Once approved and funding is secured, the Village of North Haven would purchase and install the Fabco StormBasin devices on nine (9) existing stormwater structures. The installation would take approximately two days to three days to complete.

Appendix A

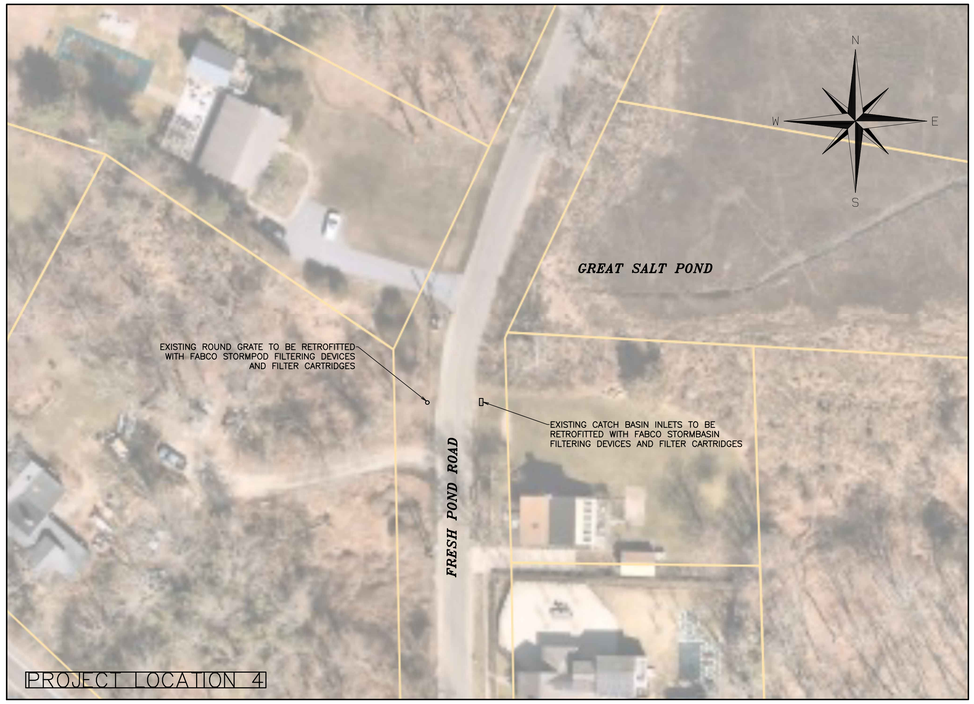
Proposed Project Plan



PROJECT LOCATION 1

PROJECT LOCATION 2

PROJECT LOCATION 3



PROJECT LOCATION 4

0 40 80 120

SCALE: 1"=40'

DATE	BY	DESCRIPTION	APPRVD
REVISIONS			

INCORPORATED VILLAGE OF NORTH HAVEN

335 FERRY ROAD
SAG HARBOR, N.Y. 11963

WATER QUALITY IMPROVEMENT PROJECT

FRESH POND ROAD, VILLAGE OF NORTH HAVEN

FRESH POND ROAD

THE RAYNOR GROUP, P.E. & L.S. PLLC
SURVEYORS CIVIL ENGINEERS SITE PLANNERS
DEERFIELD GREEN P.O.BOX 720
WATER MILL, NY 11976 (631)726- 7600

DESIGNED BY:	VAG	SCALE: 1" = 40'	DWG. NO. SK-1
DRAWN BY:	RCW	DATE: 03/08/2024	
APPROVED BY:	VAG	FILE NO.: 3700.02	

VINCENT A. GAUDIELLO
PROFESSIONAL ENGINEER NO. 073544

Appendix B

Existing Conditions Photos


Feb 29, 2024 at 8:46:58 AM
Fresh Pond Rd, Suffolk County


Feb 29, 2024 at 8:47:12 AM
Fresh Pond Rd, Suffolk County


Feb 29, 2024 at 8:48:59 AM
Fresh Pond Rd, Suffolk County


Feb 29, 2024 at 8:49:06 AM
Fresh Pond Rd, Suffolk County


Feb 29, 2024 at 8:50:30 AM
Fresh Pond Rd, Suffolk County


Feb 29, 2024 at 8:50:34 AM
Fresh Pond Rd, Suffolk County


Feb 29, 2024 at 8:51:47 AM
Fresh Pond Rd, Suffolk County


Feb 29, 2024 at 8:52:52 AM
Fresh Pond Rd, Suffolk County

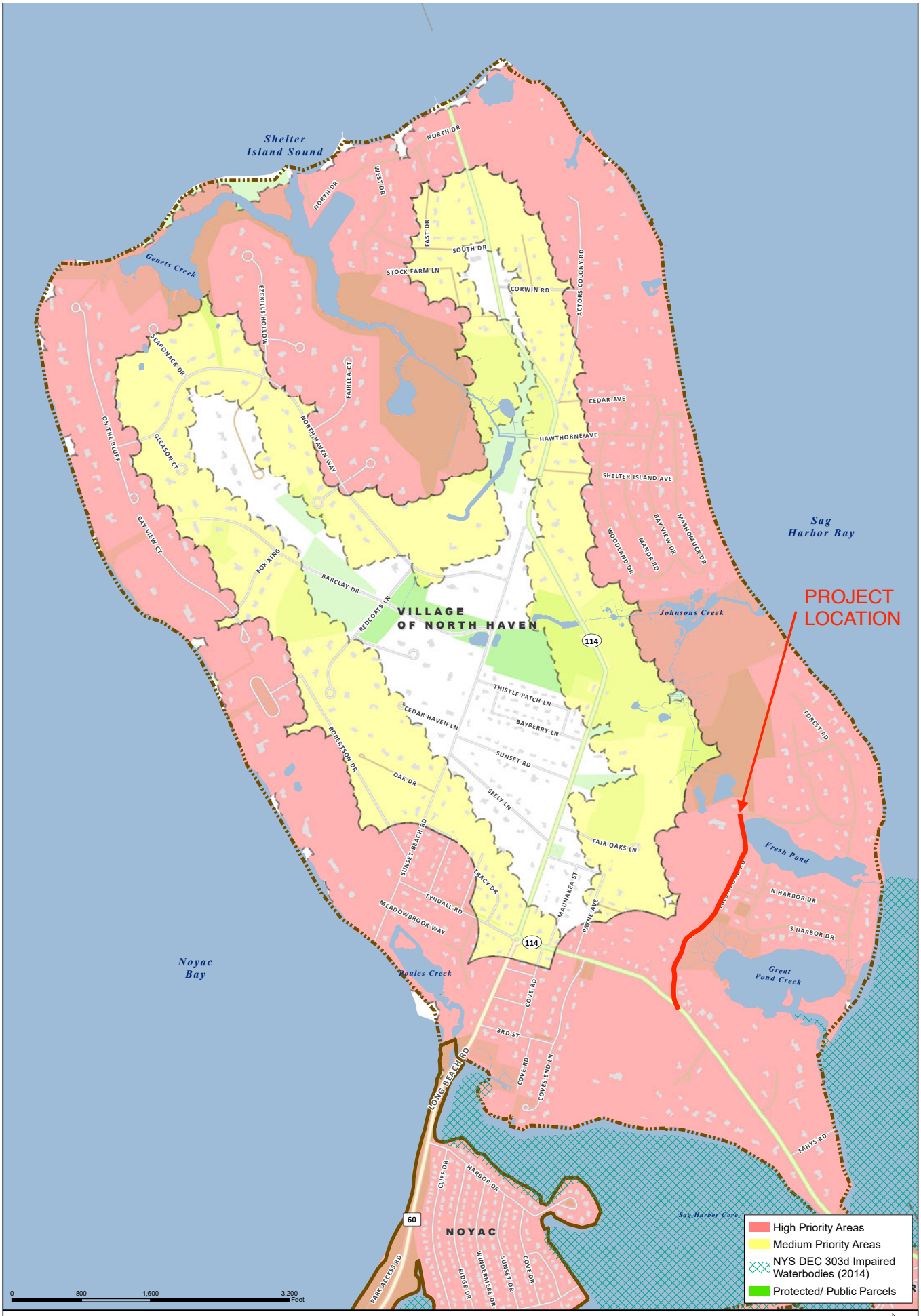

Feb 29, 2024 at 8:53:21 AM
Fresh Pond Rd, Suffolk County


Feb 29, 2024 at 8:53:34 AM
Fresh Pond Rd, Suffolk County


Feb 29, 2024 at 8:54:04 AM
Fresh Pond Rd, Suffolk County

Appendix C

Location Map



Town of Southampton CPF Water Quality Improvement Project Plan

VILLAGE OF NORTH HAVEN

Appendix D

North Haven Village 2023 Water Quality Study

North Haven Village 2023 water quality study

Final Report

by

Christopher J. Gobler, PhD, Jennifer Goleski,

Lakshta Kundal, and Lauren Taveira

Stony Brook University
School *of* Marine and
Atmospheric Sciences

February 2024

Executive Summary

This study was undertaken from May through October of 2023 for the North Haven Village Trustees to assess water quality, harmful algal blooms, and pathogenic bacteria in the marine bodies of Fresh Pond, Mashomuck Creek, Ganet Creek, Great Salt Pond, as well as at the Ferry dock on the north shore. While measurements of dissolved oxygen were generally at concentrations supportive of fisheries, Mashomuck Creek was below for most of sampling season. Great Salt Pond fell below this value for dissolved oxygen 3 times from July to September, as well as Fresh Pond which was low in September. Chlorophyll *a* levels exceeded recommended concentrations at Great Salt Pond and Mashomuck Creek from July to October, and Fresh Creek and Polles Creek in July and August, respectively. Measurements of total nitrogen across all marine sites demonstrated that all sample locations except for the ferry site exceeded the USPEA recommended value of 0.4 mg/L, which can lead to harmful algal blooms. Additionally, there was one instance of a harmful algal bloom (HAB) in Fresh Pond of *Cochlodinium polykrikoides* on September 19th, although *Alexandrium* concentration neared bloom threshold of 1000 cells L^{-1} in Polles Creek on May 16th. All sites experienced fecal coliform levels above the NYSDEC recommended level of 14 CFU/100 mL multiple times during the sampling period for long stretches of time. Half of the sites remained below the NYSDOH recommended level of Enterococci at 104 CFU/100 mL with Mashomuck Creek and Great Salt Pond being above on multiple dates and the Ferry site only on July 27th.

In 2022, a preliminary study was conducted for all sites except for the ferry in September and October. Comparatively, the water quality of North Haven Village has gotten worse since then. There were more instances of low dissolved oxygen at more sites in 2023. Additionally, the levels of fecal coliform, enterococci, and Chlorophyll a were higher in 2023. Overall, this study revealed

regions of North Haven waters that of good or fair quality while other regions require further study, monitoring, and possible remediation.

1. Background

Coastal marine ecosystems are amongst the most ecologically and economically productive areas on the planet. They provide an estimated US $20 trillion in annual resources or about 43% of the global ecosystem goods and services (Costanza et al., 1997). Approximately 40% of the world's population lives within 100 km (about 62.14 mi) of a coastline, making these regions subject to anthropogenic stressors such as intense nutrient loading (Nixon, 1995; Valiela, 2006). These nutrients, including nitrogen and phosphorus, are essential in the growth of algal blooms. Therefore, excessive nitrogen loading into coastal ecosystems promotes algal productivity. These nutrients are often being introduced into water through runoff, so when it rains the levels of nutrients can increase. The microbial consumption of the organic matter caused by algal blooms reduces oxygen levels, promoting hypoxia (Cloern, 2001). The rapid acceleration of nutrient loading to coastal zones in recent decades has contributed to a significant expansion of algal blooms. Additionally, certain types of algal blooms can be especially dangerous to coastal ecosystems and humans who live there.

Globally, the phytoplankton communities of many coastal ecosystems have become increasingly dominated by harmful algal blooms (HABs) and New York is a prime example of this trend. Prior to 2006, algal blooms in NY were well-known for their ability to disrupt coastal ecosystem and fisheries but were never considered a human health threat. Since 2006, blooms of a toxic dinoflagellate, *Alexandrium catenella,* have led to paralytic shellfish poisoning (PSP) due to the production of saxitoxin. This induced the closure of thousands of acres of shellfish beds in Suffolk County. In 2008, a second toxic dinoflagellate *Dinophysis acuminata* began forming large annual blooms, generating the toxins okadaic acid and DTX-1. Both toxins are the causative agents of diarrhetic shellfish poisoning (DSP). During the past decade, moderate levels of *A. catenella*

and *D. acuminata* have been detected in waters surrounding North Haven. The lack of sampling in North Haven has prohibited the understanding of risk.

In Suffolk County, blooms of the ichthyotoxic dinoflagellate *Cochlodinium polykrikoides* have occurred every year since 2004 in the Peconic Estuary and Shinnecock Bay. The algal blooms from these regions have been shown to cause rapid mortality in fish, shellfish, and shellfish larvae (Gobler et al., 2008; Tang & Gobler, 2009a; 2009b). *C. polykrikoides* form blooms around the world and the highly lethal effects of these blooms on fish, shellfish, shellfish larvae, zooplankton, and subsequent impacts on fisheries have been well established (Kudela & Gobler, 2012). Studies to date suggest short-lived, labile toxins, similar to reactive oxygen species (ROS), play a central role in the toxicity of *C. polykrikoides* to fish and shellfish (adult, juvenile, and larvae) (Tang & Gobler, 2009a; 2009b). In 2012, these blooms spread into East Hampton Town marine waters. Large populations of bay scallops, that were otherwise abundant prior to the blooms, died following these bloom events (Deborah Barnes, NYSDEC, pers. comm.). However, the precise distribution of *C. polykrikoides* blooms in North Haven waters is unknown.

A final group of microbes of concern in coastal ecosystems are pathogenic bacteria which can reside in water. Such pathogens can be a hazard to humans swimming by infecting the alimentary canal, ears, eyes, nasal cavity, skin, or upper respiratory tract (Thompson et al., 2005). Consumption of contaminated shellfish is one of the most common exposure routes for marine pathogens. Fecal coliform bacteria and *Enterococcus* are the recommended indicator for human pathogens in marine waters, and gastrointestinal symptoms are a frequent health outcome associated with exposure (Thompson et al., 2005). The presence of high levels of fecal coliform bacteria and/or Enterococcus may trigger action by a municipal agency to remediate such conditions. One key obstacle to generating a successful remediation plan for high levels of indicator bacteria is that the source of the potentially pathogenic bacteria is often unknown. Pathogenic fecal bacteria co-present with fecal coliform bacteria and/or Enterococcus may be derived from any animal. This includes humans and remedial plans for mitigating bacteria from human wastewater will differ radically from plans focused on the mitigation of animal feces. Moreover, mitigation of feces-derived bacteria from birds that live on the waterbody would differ radically from plans to minimize dog or deer feces that might emanate from road run-off.

OBJECTIVES:

1. Monitor water quality across North Haven waters including measurements of temperature, salinity, chlorophyll a, dissolved oxygen, Secchi disk, and harmful algae including A. catenella, D. acuminata, and C. polykrikoides.

2. Quantify nitrogenous nutrients in surface waters. Total levels of nitrogen will be quantified within all marine waters. Concentrations of total nitrogen will be compared to the Peconic Estuary Program's goal of 0.4 mg/L for ecosystem health.

3. Quantify levels of indicator bacteria in North Haven waters. Levels of fecal coliform bacteria and Enterococcus will be quantified in North Haven waters.

4. Provide a final presentation that interprets all findings regarding scientific literature and local, state, and federal regulations.

2. Approach

1. Methods and Approach

The 2023 sampling season ran from May through October. Sampling was performed twice per month with efforts made to sample during wet (within 24 hours of >1" of rainfall) and dry periods and during spring and neap tides. Sampling sites will include Fresh Pond (NHFP), Ganet Creek (NHGC), Polles Creek (NHPC), Great Salt Pond (NHGSP), and Mashomuck Creek (NHMC). In addition, samples were collected from the Shelter Island Sound along the north coast of North Haven (NHFY) as a control, end-member site.

2. Targeted Analyses

General water quality measurements obtained for each site include salinity, temperature, and dissolved oxygen levels measured with a handheld YSI 556 probe calibrated according to the manufacturer's recommendations. A Secchi disk was used to determine water clarity. Additionally, water was collected at each of these sites and analyzed for chlorophyll a. The pigment chlorophyll a, which serves as an analog for algal biomass, was measured by filtering whole water through

glass fiber filters. Chlorophyll a was extracted from the filter with acetone, and then the fluorescence was measured to obtain concentration levels (Parsons et al., 1984).

Levels of harmful algae were quantified by obtaining surface water and preserving it in Lugol's iodine (5% v/v). Samples were then quantified under an inverted microscope. Identification of harmful algae was seasonal with a focus on *A. catenella* in May and June, *D. acuminata* in May, June, and July, and *C. polykrikoides* from July through September. The sites were also sampled for quantification of fecal coliform bacteria and Enterococci bacteria. Enterococci and fecal coliform bacteria were quantified using the IDEXX Enterolert and Colilert, respectively, & Quanti-Tray/2000 sampling kits, giving MPN per 100mL.

3. Findings

3.1. General Water Quality: Temperature, Salinity & Dissolved Oxygen

Surface temperatures ranged from 16.9 to 32.6°C across North Haven's waters. The seasonal average for surface waters was 24.0 ± 4.0°C, and the summertime mean (June 20th – September 22nd) was 26.3 ± 3.0°C (Fig. 2 A & B). Maximum temperatures ranged from 27.3 to 32.6°C and observations peaked between July 20th and August 5th. Surface salinities ranged from 20.0 to 30.8 PSU. The seasonal average was 28.0 ± 1.9 PSU, and summertime average 27.7 ± 2.2 PSU (Fig. 3 A & B). Dissolved oxygen measurements ranged from 1.2 to 11.3 mg L^{-1}, with a mean concentration of 6.5 ± 1.9 mg L^{-1}, and average summertime concentration of 5.8 ± 1.6 mg L^{-1} (Fig. 4 A & B). The NYDEC level of dissolved oxygen supportive of fisheries and other wildlife is 4.8 mg L^{-1}. The only sites that were consistently above this level were in the ferry, Polles Creek, and Ganet Creek. The only site deep enough for use of the Secchi disk was Ganet Creek, which was consistently below the NOAA minimum of 2 meters (Fig. 5).

3.2. Nitrogen Concentrations

Nitrogen is one of the necessary nutrients for algae to grow, and if there is not enough nitrogen in the water it can limit the growth of algae. Therefore, the more nutrients we add to the water, the more the algae can grow. The Peconic Estuary total nitrogen threshold is 0.4 mg L^{-1}. For comparison, total nitrogen concentrations at Great Salt Pond exceeded this threshold value throughout the sampling period and was almost 10 times the threshold at its highest concentration

of 3.68 mg N/L on August 8th (Fig. 6 A). Similarly, total nitrogen levels were consistently above the threshold in Mashomuck Creek from May to September with the highest concentration being almost 5 times that of the threshold on May 16th. Total nitrogen concentrations were also elevated in Fresh Pond where concentrations were only below the threshold in June and October. In Polles Creek, total nitrogen levels exceeded the threshold in July, August, and September and in Ganet Creek, total nitrogen levels only exceeded the threshold in August and September. Summer averages of total nitrogen exceeded the threshold at all sites except at the ferry site never reached the threshold value throughout the sampling season (Fig. 6 A & B). Great Salt Pond also had the highest average for chlorophyll a levels and nitrogen, which is consistent with our expectations (Fig. 6 B; Fig. 7 B).

3.3 Algae and Harmful Algae; A. catenella, D. acuminata, & Cochlodinium

All algae contain the pigment chlorophyll *a* and is used as a proxy for total phytoplankton biomass. Moderate levels of algae support productive fisheries and ecosystems, but excessive algal growth can lead to a series of negative ecological consequences such as hypoxia and acidification. The USEPA considers 20 µg L^{-1} of chlorophyll *a* in marine waters as eutrophic, and all sites except for Great Salt Pond were below this level on average, with mean concentrations ranging from 4.8 to 34.0 µg L^{-1} (Fig. 7 A & B). Sites did surpass 20 µg chl *a* L^{-1} on individual dates in all sites except for at the ferry.

A. catenella is a toxic dinoflagellate that synthesizes saxitoxin, which leads to the syndrome of PSP, and can cause illness or death in individuals consuming shellfish containing these toxins (Anderson 1997). PSP has been occurring annually in New York waters since it first appeared in 2006. Although concentrations of *Alexandrium,* remained well below 1000 cells L^{-1} at most sites, Polles Creek came near the bloom threshold at 910 cells/L on 5/16/23 (Fig. 8 A).

Dinoflagellates of the genus *Dinophysis* can cause DSP, a globally significant human health syndrome (Reguera et al., 2012). *Dinophysis* spp. synthesizes okadaic acid (OA) and dinophysistoxins (DTXs), the causative toxins of DSP. *Dinophysis* spp. blooms exceeding 10,000 cells L^{-1} have the potential to contaminate shellfish, and although cells have been detected, concentrations remained well below this level in 2023 (Fig. 8 B).

C. polykrikoides is an ichthyotoxic dinoflagellate that has caused fish mortality across the globe including some sites on eastern Long Island (Kudela and Gobler, 2012). *C. polykrikoides* blooms in excess of 300 cells mL^{-1} have been known to cause mortality in larval fish, which use these estuarine systems as nurseries, and in shellfish (Tang and Gobler 2009). Maximum *C. polykrikoides* cell densities surpassed 300 cells mL^{-1} in Fresh Pond (315 cells mL^{-1}) on September 19th (Fig. 8 C).

3.4. Fecal Coliform

The average concentration of fecal coliform bacteria across all marine sites was 462 colony forming units (CFU) 100 mL^{-1}, ranging from 0 to 4839 CFU 100 mL^{-1} (Fig. 9 & 10 A). The shell fishing standard for fecal coliform bacteria set by the US FDA National Shellfish Sanitation Program (NSSP) and followed by the NYSDEC are mean values below 14 CFU 100 mL^{-1}, with 90% of individual values below 49 CFU 100 mL^{-1}. All sites except for the ferry were above the mean value limit overall, but not for the summer mean. Fecal coliform concentrations that peaked on 6/29, 7/17, 8/8, 8/19, 9/19 all coincided with rainfall in the days leading to/of sampling (Weather Underground, 2023). The only days where all sites exceeded the NYSDEC limit were 7/13, 9/6, and 9/19. Mashomuck Creek was the first site to exceed the recommended levels on 5/16, while all the other sites began to exceed recommended levels 2 weeks later. Mashomuck Creek was also one of the few sites still over the recommended levels in October, as well as Ganet Creek and Great Salt Pond. From June to September, Mashomuck Creek, Ganet Creek, Great Salt Pond, Polles Creek, and Fresh Pond were all over the recommended levels with few exceptions. On 8/8, Fresh Pond dipped below the recommended levels. The site of the Ferry only exceeded the limit on 7/13, 9/6, and 9/19.

3.5. Enterococcus Bacteria

Mean concentration across all sites was 263 CFU 100 mL^{-1}, ranging from 21 to 1,630 CFU 100 mL^{-1}, far more than the NYSDOH bathing standard of <104 CFU 100 mL^{-1} (Fig. 9 B). Averages were over this threshold in Mashomuck Creek and Great Salt Pond. Values were over the safe bathing standard from June through October for Mashomuck Creek, and a maximum in excess of 4,800 CFU 100 mL^{-1}, was reached on July 27th in Great Salt Pond (Fig. 9 B). The ferry

only exceeded the NYSDOH level on 7/27, while Great Salt Pond exceeded this level on 6/1, 7/27, 8/8, 9/6, and 9/19. Like the fecal coliform levels, many of these dates coincide with rainfall. Fresh Pond, Ganet Creek, and Polles Creek never surpassed the NYSDOH standard levels.

4. Conclusions

Management of pathogens in surface waters of North Haven is warranted. For most samples in and around North Haven, fecal coliform bacteria levels exceeded the NYSDEC standard for shellfishing (14 CFU per 100 mL), in 2023. Similarly, for most samples taken in North Haven, Enterococcus levels exceeded the NYSDOH swimming standard (104 CFU per 100 mL). Yet, North Haven's beaches remain open as a bathing beach locale. At the North Haven marine sites, fecal coliform levels were above the NYSDEC shellfishing standard for more than half of the samples, while Enterococcus levels exceeded the NYSDOH swimming standard in around half of samples.

In 2016, Suffolk County adopted Article 19 of the sanitary code which permitted the use of innovative and alternative septic systems. Such systems must reduce total nitrogen levels in septic effluent to less than 19 mg L^{-1} and, to date, five such commercially available systems have been approved for use. Additional systems are in the piloting stage of approval, making the array of choices even larger in the future. For example, the NYS Center for Clean Water Technology at Stony Brook University is piloting Nitrogen Removing Biofilters as onsite septic systems which have been achieving septic effluent of < 10 mg L^{-1} as well as >90% removal of drugs, pharmaceuticals, personal care products, and other organic contaminants. Presently, Suffolk County, the Town of East Hampton Town and the Town of Southampton all have grants available to homeowners to install any of the Article 19-approved low nitrogen septic systems. The cost of a simple installation of the low nitrogen systems is presently ~$25,000, but much more for a complex site. The sum of grants available is often more than the cost of the full installation of the systems, meaning that, in many cases, they can be installed for free. In some cases, however, installation can become more expensive if, for example, major infrastructure or landscaping must be moved or replaced during the installation process.

Beyond the upgrading of septic systems, there are likely opportunities to connect parts of North Haven to the existing sewage treatment plant. The plant is currently discharging very low levels of N to surface waters, on average < 5 mg L^{-1}, which is better than any approved onsite septic system. For regions near the sewage treatment plant, it may be cost effective to hook up homes and facilities to the existing plant. This must be fully investigated, however, as for some parts of Long Island such costs can exceed $50,000 per home and the installation of sewage lines can be disruptive to neighborhoods. Once connected, the installation would create a maintenance-free solution for homeowners although the connection to the sewage treatment plant will represent an additional utility fee. For onsite systems, Suffolk County requires homeowners to purchase operation and maintenance contracts with certified companies who will inspect systems one-to-two times per year to assure systems are functioning properly.

5. Citations

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6. Figures & Tables

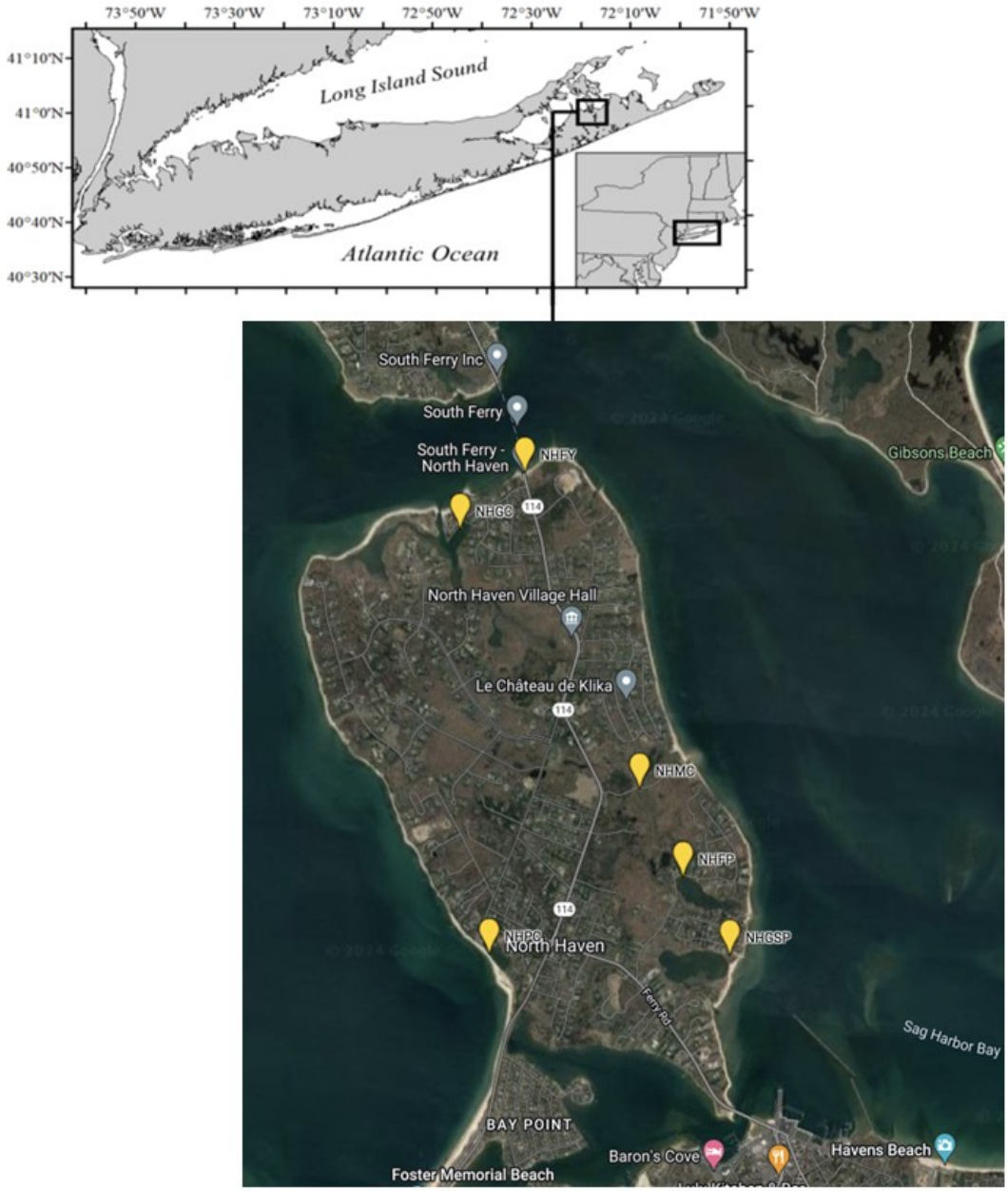


Figure 1. Map of North Haven sample sites during 2023 (indicated with yellow map pins). "NHPC" is Polles Creek, "NHGC" is Ganet Creek, "NHFY" is Ferry, "NHMC" is Mashomuck Creek, "NHFP" is Fresh Pond, and "NHGSP" is Great Salt Pond.

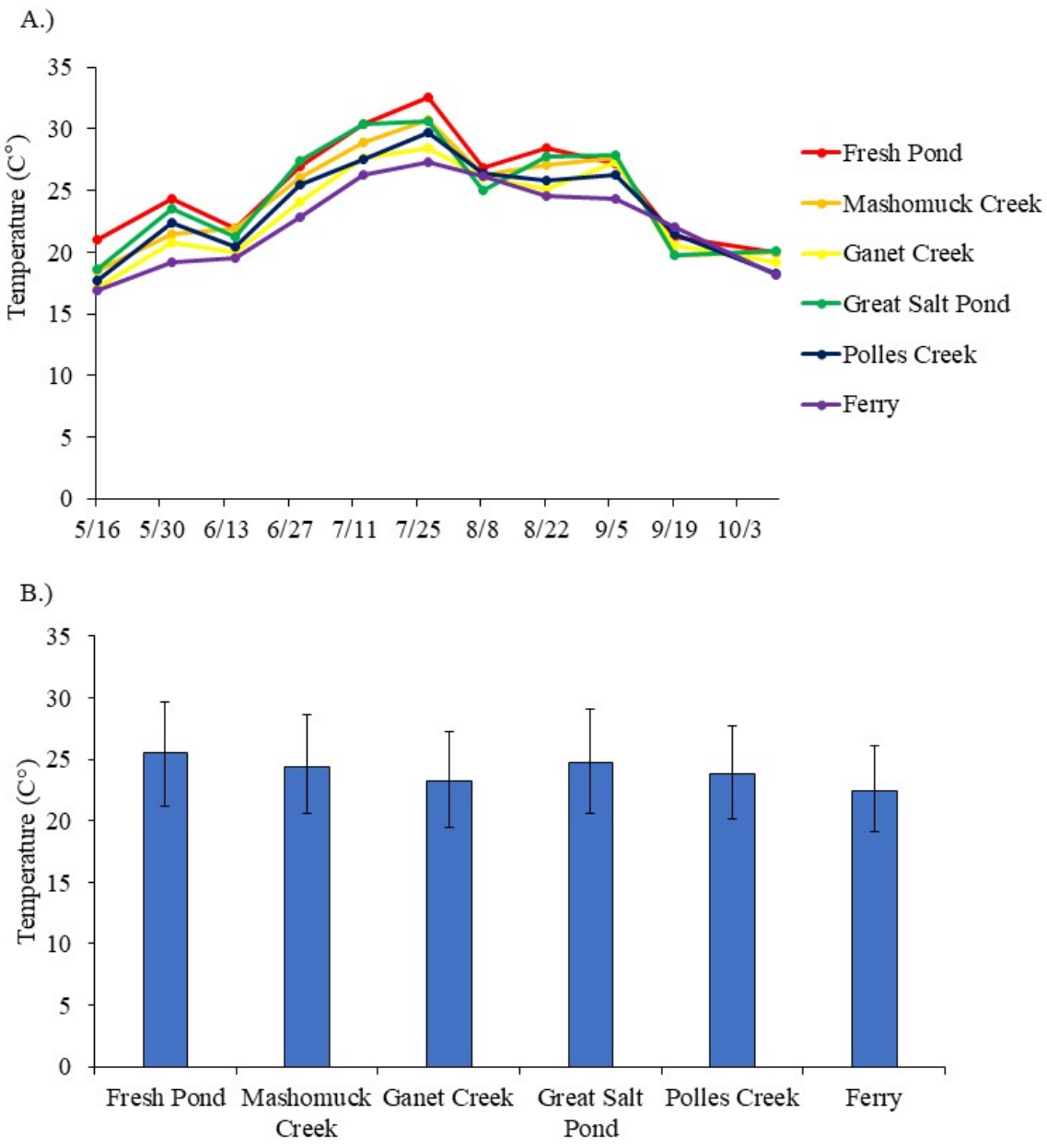


Figure 2. Temperature levels shown in a time series (A) and averages of sites in a bar graph (B) of North Haven in 2023. Standard deviation bars show 1 standard deviation specific to each site.

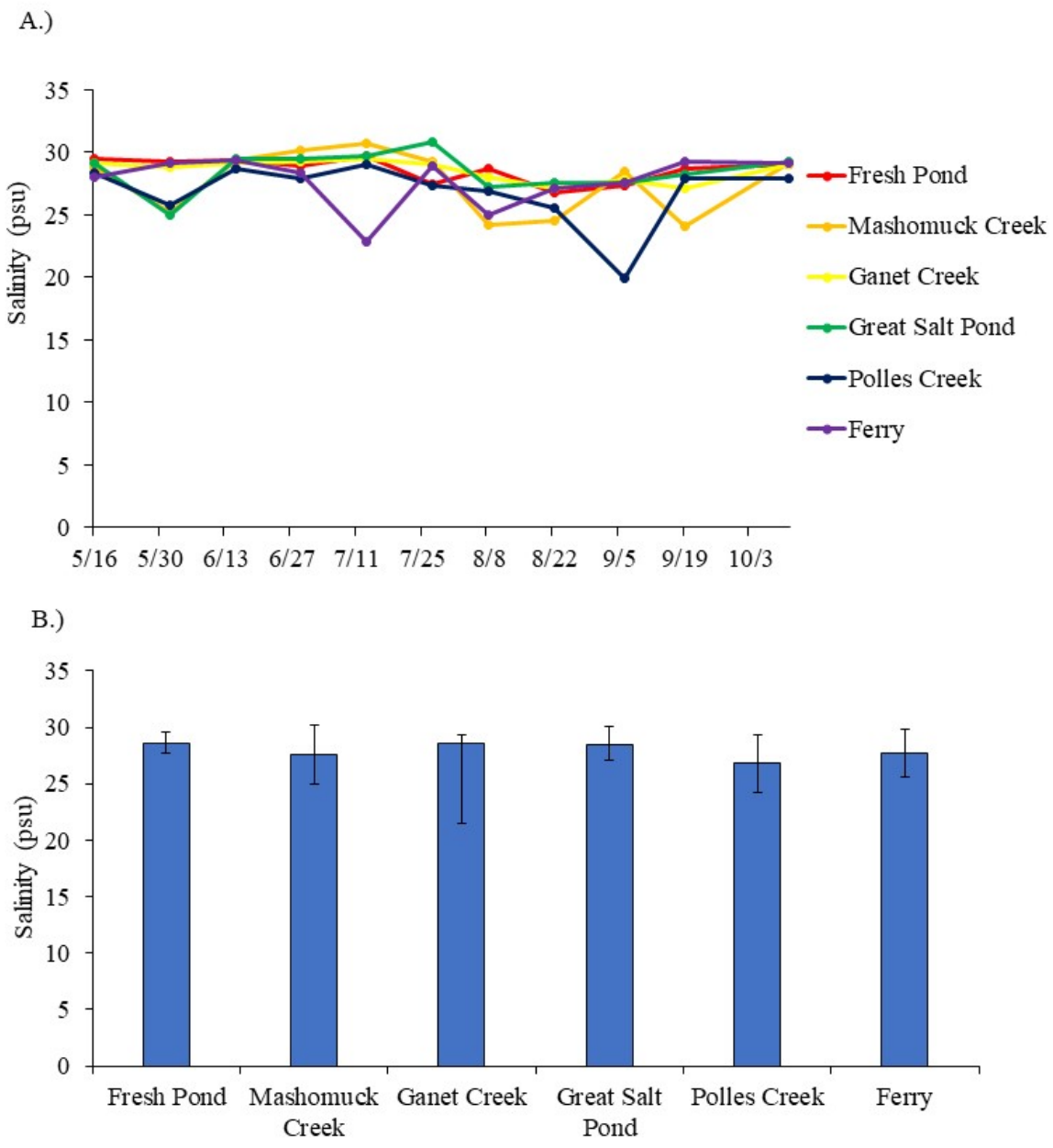


Figure 3. Salinity levels shown in a time series (A) and averages of sites in a bar graph (B) of North Haven in 2023. Standard deviation bars show 1 standard deviation specific to each site.

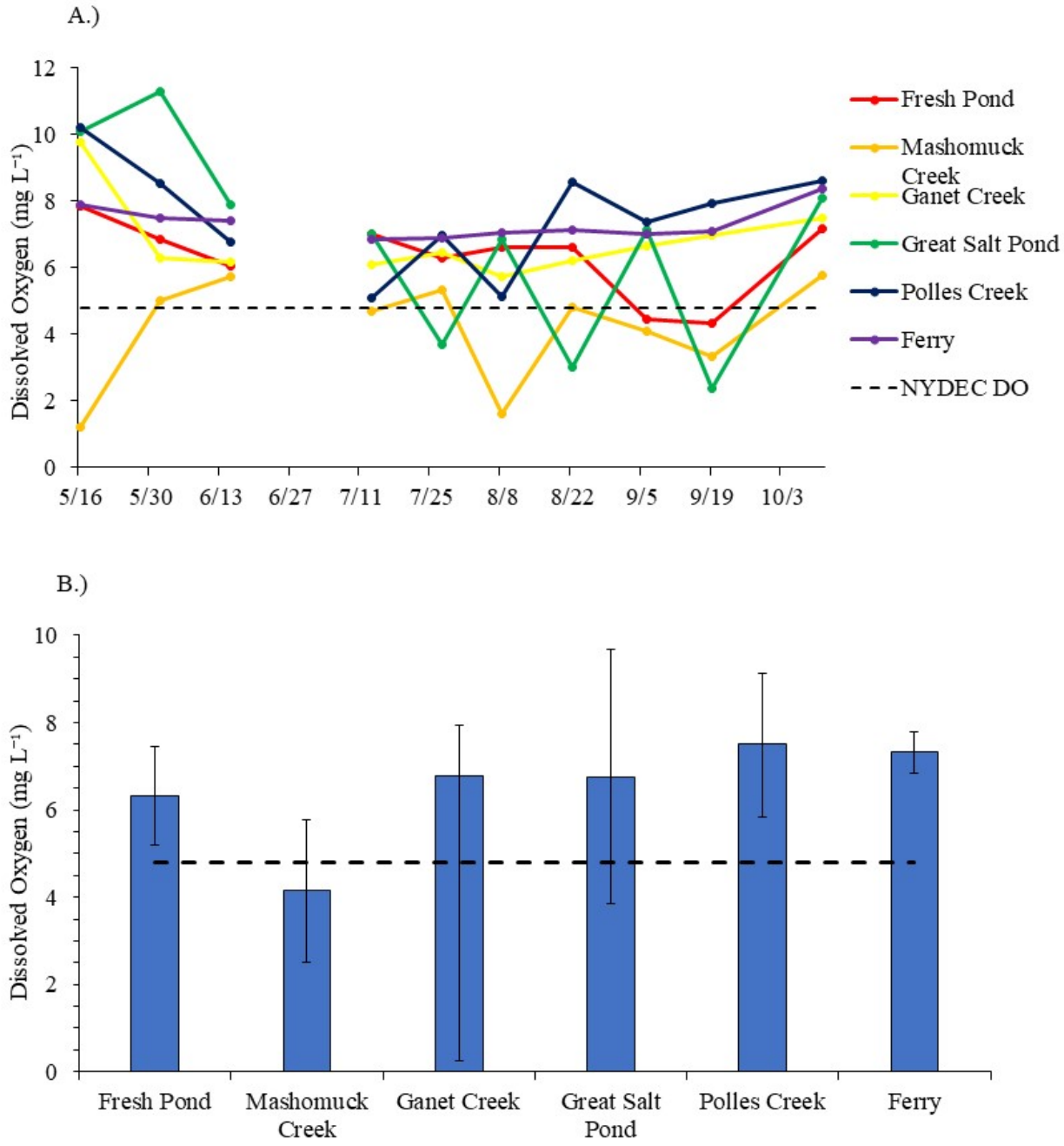


Figure 4. Dissolved Oxygen measurements in a time series (A) and averages taken across sites (B) in North Haven 2023. (*Data was unable to be collected for dates between June 13th and July 11th).* The NYDEC dissolved oxygen recommendation of 4.8 mg L -1 indicated by the dotted line. Standard deviation bars show 1 standard deviation specific to each site.

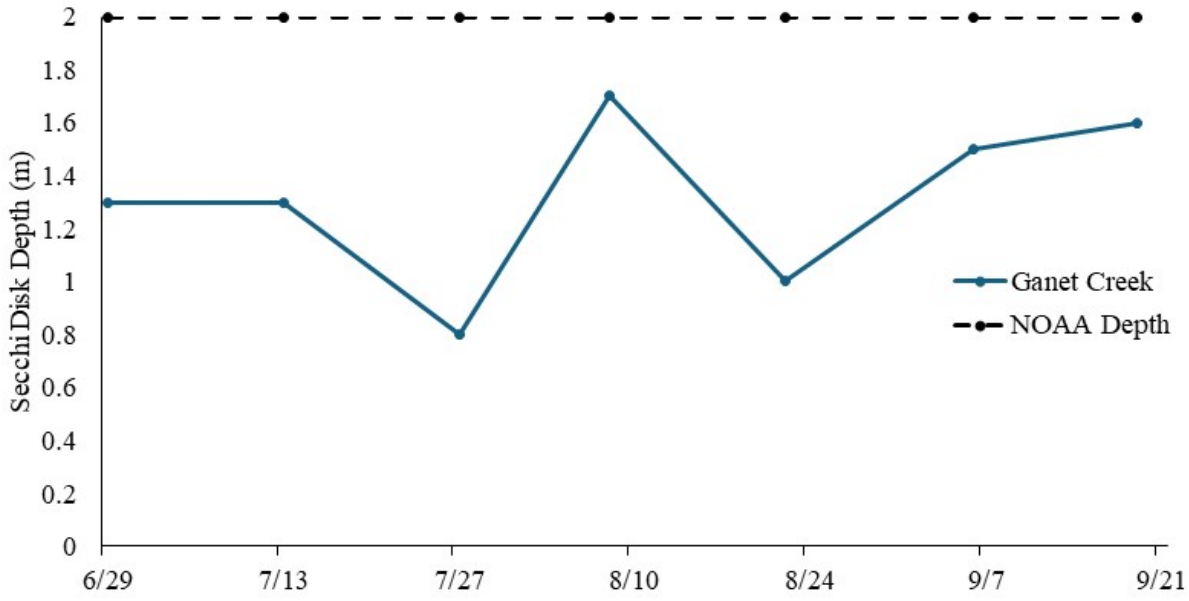


Figure 5. Secchi disk depths (m) across Ganet Creek in North Haven during 2023. Dotted line represents the Secchi disk depth standard of 2.0 meters; Secchi disk depth standard set by NOAA. *All other sampling locations (i.e. Fresh Pond, Mashomuck Creek, Polles Creek, Great Salt Pond, Ferry) had Secchi disk depths consistent at level of the 0.5 meters (not shown in this figure).*

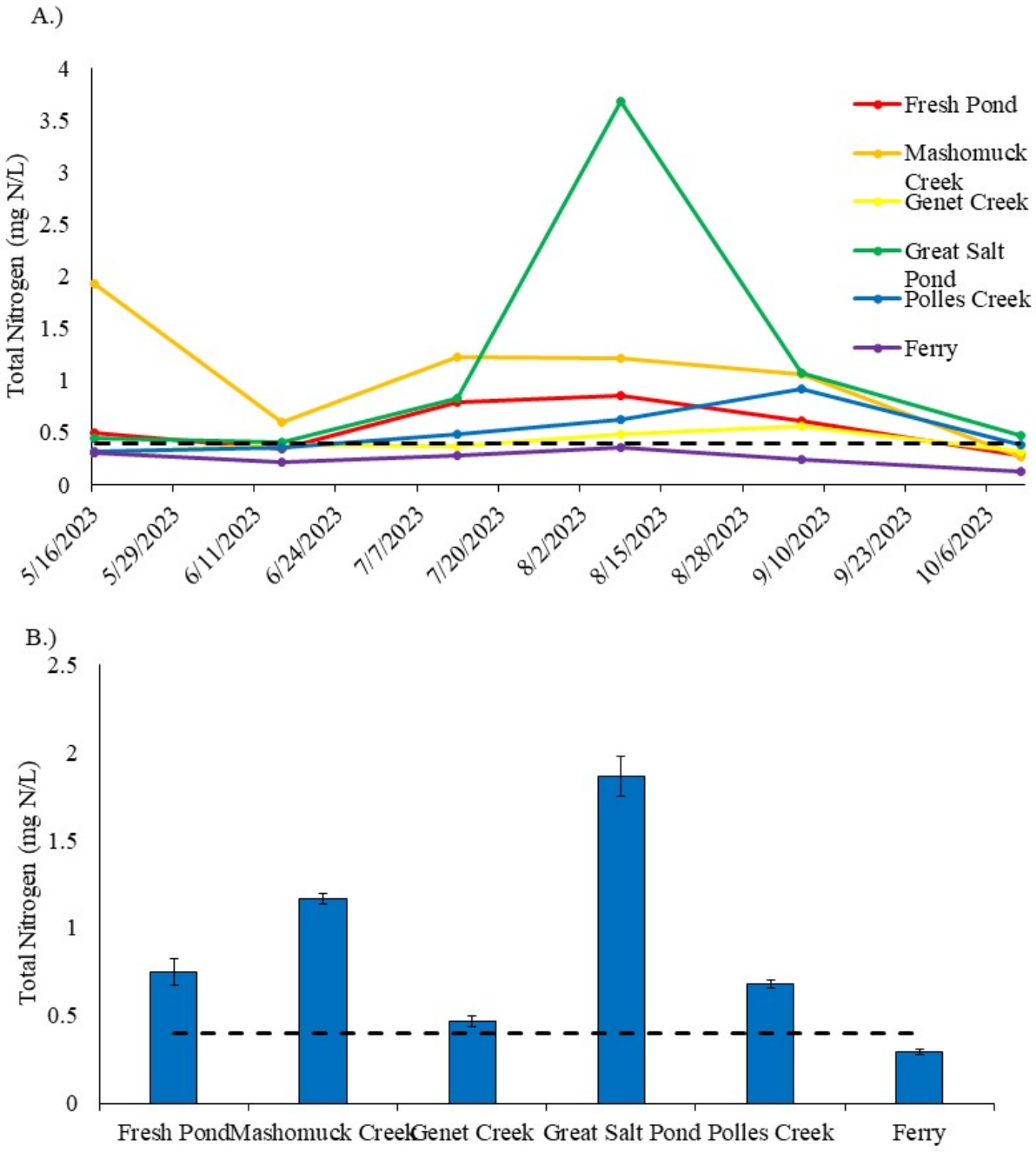


Figure 6. A.) Time-series, and B.) Summer average of total nitrogen levels (mg N/L) at North Haven marine sites during 2023. Columns represent averages ± standard deviation. The USEPA recommends levels of total nitrogen be under 0.4 mg L^{-1}, indicated by the dotted line.

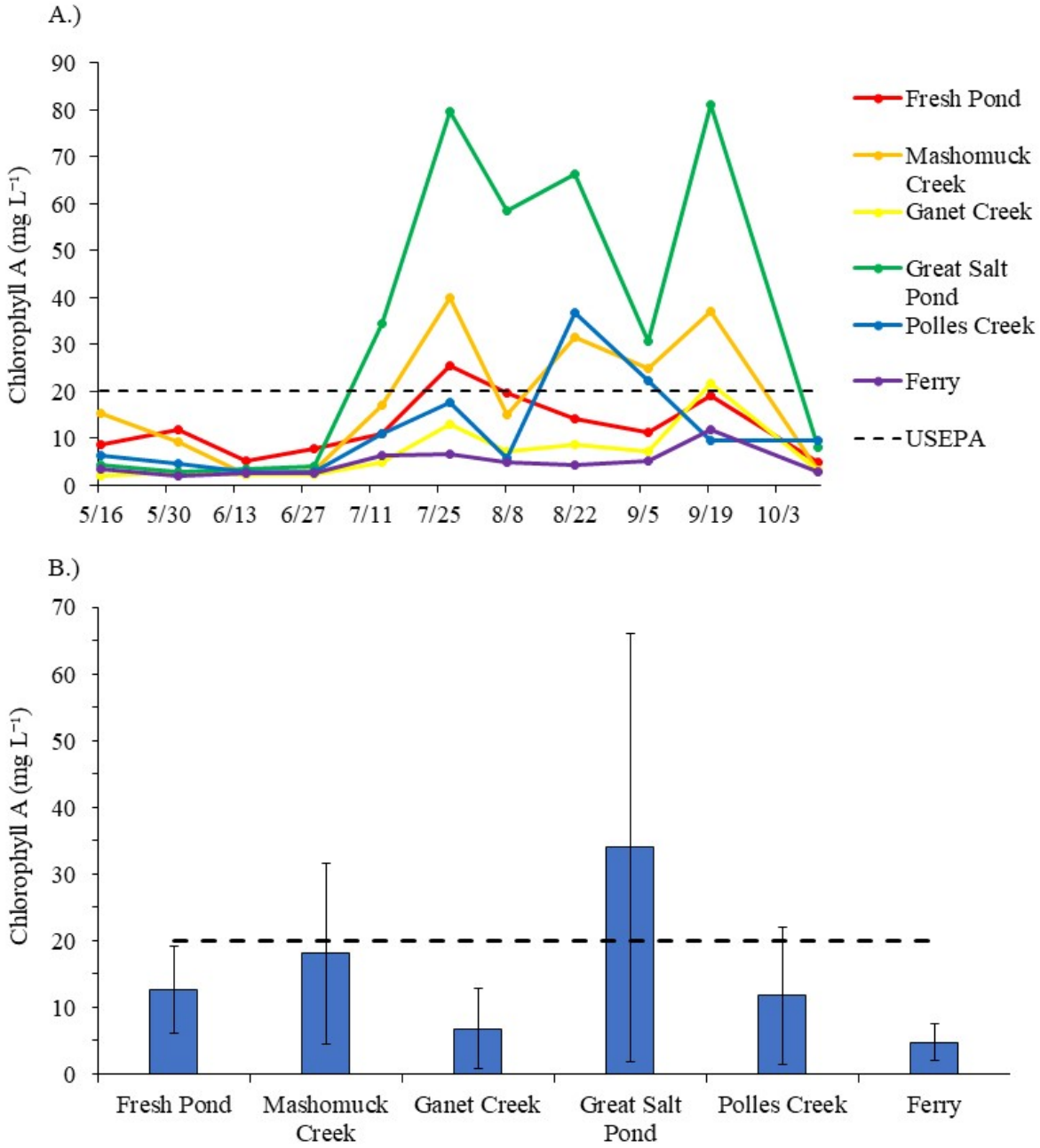


Figure 7. Chlorophyll-a levels measured in a time series (A) and averaged by site in a bar graph (B) in North Haven 2023. The USEPA recommends levels of chlorophyll a be under 20 mg L^{-1}, indicated by the dotted line.

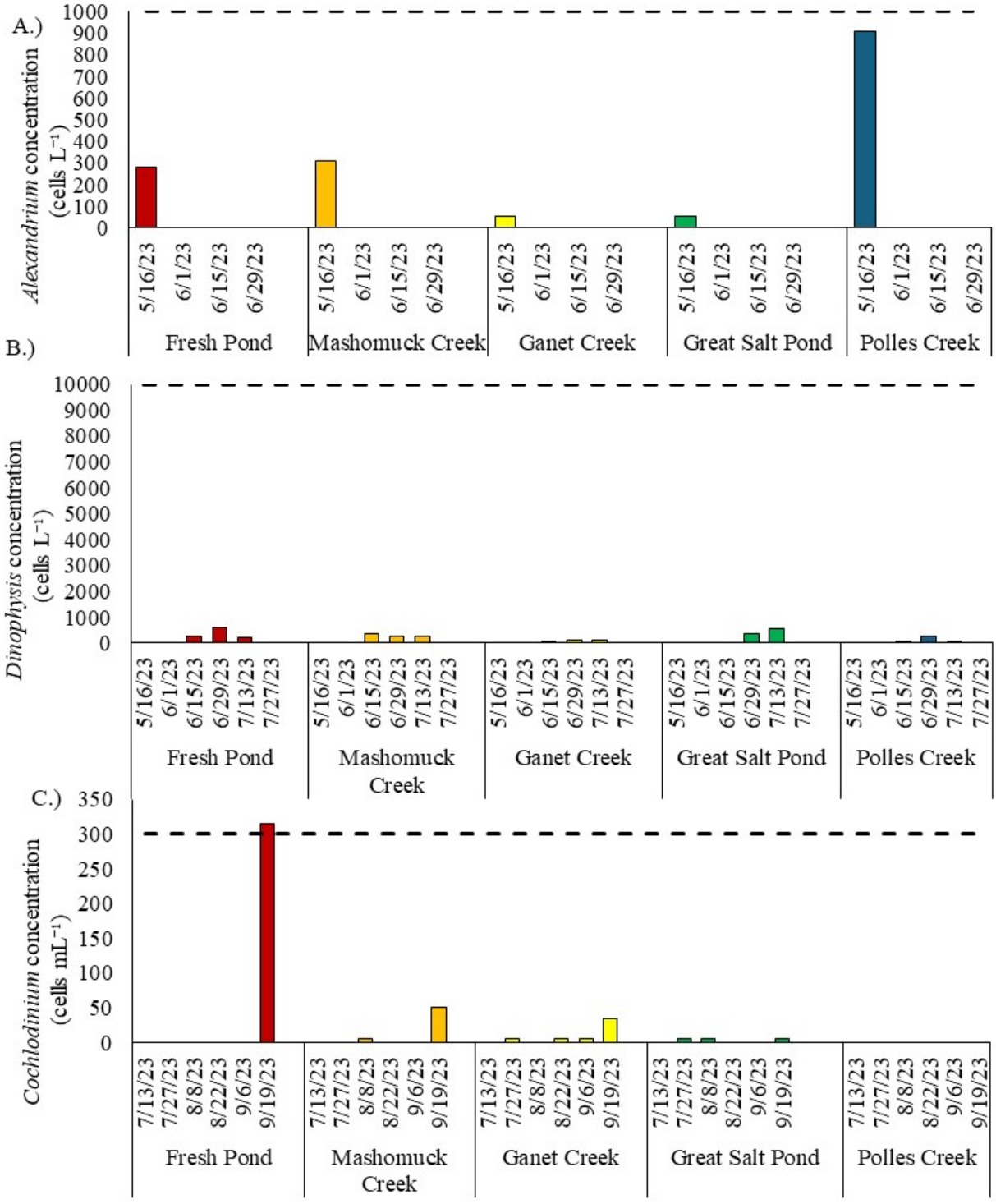


Figure 8. Concentrations of A.) *Alexandrium* (cells L^{-1}) B.) *Dinophysis* (cells L^{-1}) and C.) *Cochlodinium* (cells mL^{-1}) across marine sites in North Haven during 2023. The dashed lines represent respective bloom thresholds: 1000 cells mL^{-1} for *Alexandrium,* 10,000 cells cells L^{-1} for *Dinophysis*, ans 300 cells mL^{-1} for *Cochlodinium*

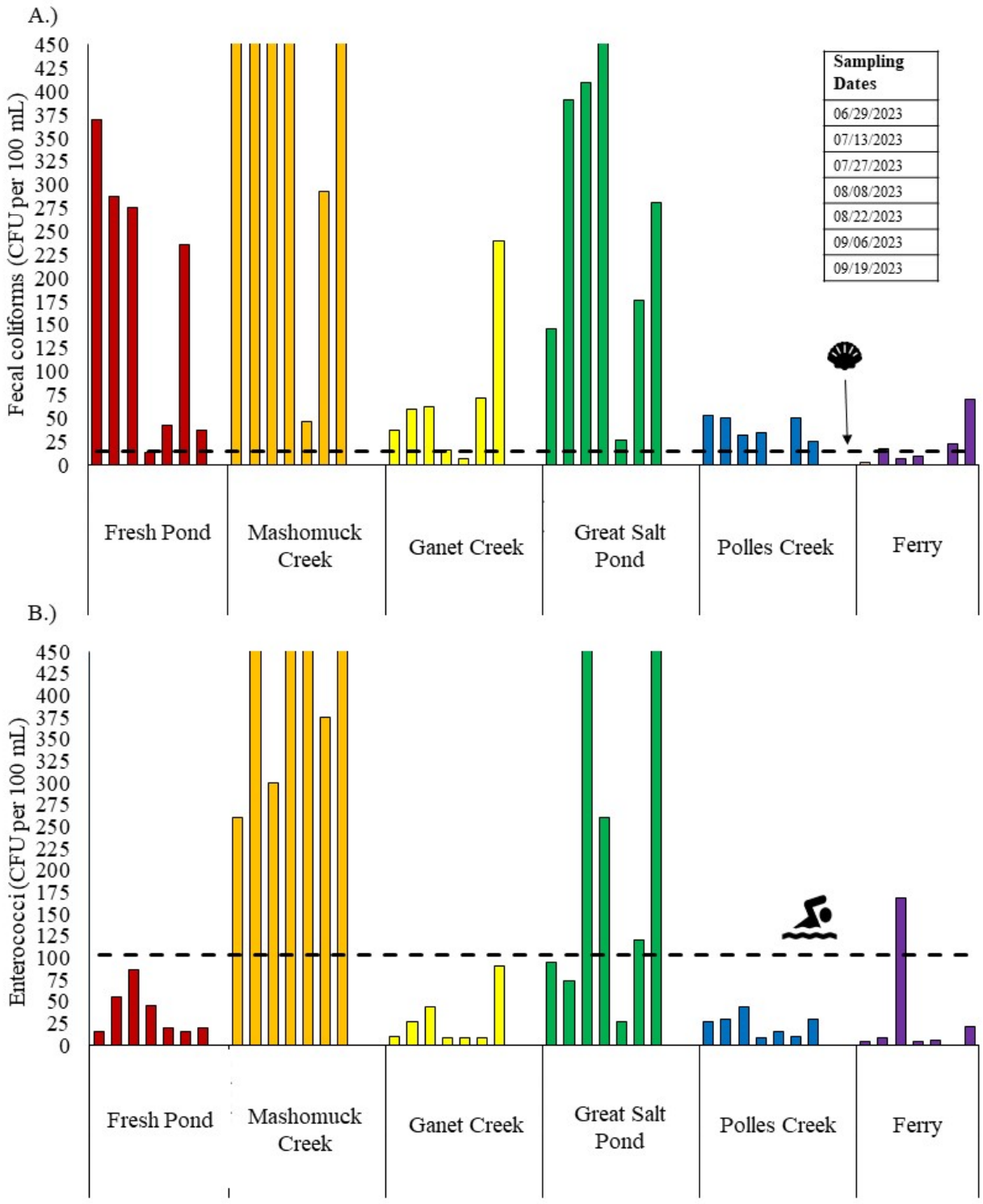


Figure 9. Time-series of A.) fecal coliform and B.) enterococci concentrations (CFU per 100 mL) across marine sites in North Haven in Summer 2023.

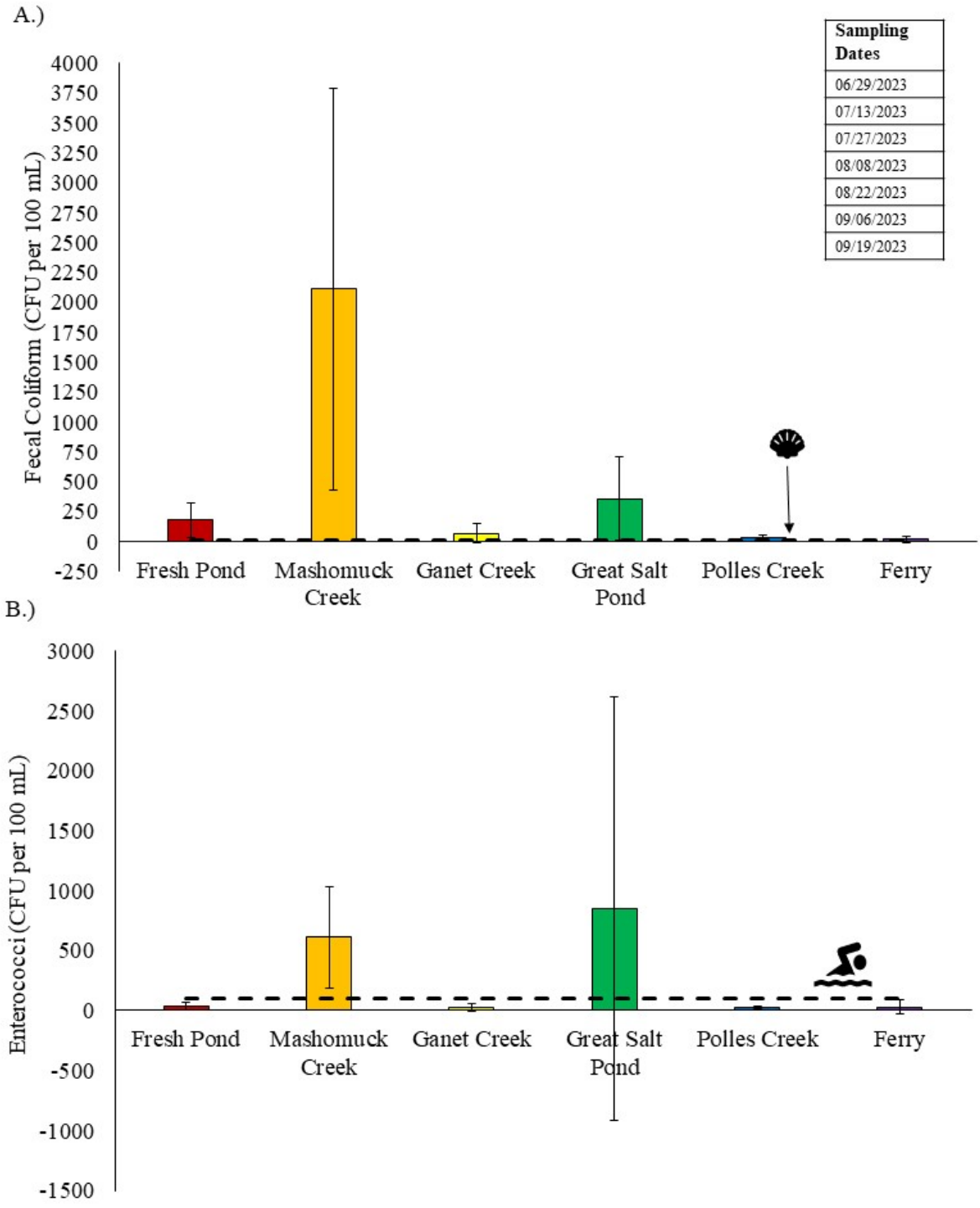


Figure 10. Total averages of A.) fecal coliform and B.) enterococci concentrations (CFU per 100 mL) across marine sites in North Haven, from June to September 2023. Columns represent averages ± standard deviation.

Appendix E

Fabco Industries Field Test Results

2007: Testing with Nutrients cartridge FPAM at Country Lake Court, Centerport, NY

Cartridge type: FPAM											
Untreated	ID	Report Date						**Treated**	ID		
Huntington Town, Country Lake Court	0367 (IN)	11/16/07	**Value**	Sampled	Water LRL	Method		Huntington Town, Country Lake Court	0368 (OUT)	**Value**	% Change
Tot. Kjeldahl N.	mg/L		**3.80**	11/12/07	0.2	SM4500NorgB		Tot. Kjeldahl N.	mg/L	**2.40**	36.84%
Nitrate as N	mg/L		**1.40**	11/7/07	0.5	EPA353.2		Nitrate as N	mg/L	**0.49**	65.00%
Nitrogen, total as N	mg/L		**5.20**	11/12/07	0.2	EPA351,353		Nitrogen, total as N	mg/L	**2.90**	44.23%
Ortho Phosphate as P	mg/L		**0.58**	11/7/07	0.1	EPA365.3		Ortho Phosphate as P	mg/L	**0.17**	70.69%
Tot. Phosphate as P	mg/L		**0.57**	11/14/07	0.02	EPA365.3		Tot. Phosphate as P	mg/L	**0.34**	40.35%
Cartridge type: FPAM											
Untreated	ID	Report Date						**Treated**	ID		
Huntington Town, Country Lake Court	0365 (IN)	11/9/07	**Value**	Sampled	Water LRL	Method		Huntington Town, Country Lake Court	0366 (OUT)	**Value**	% Change
Tot. Kjeldahl N.	mg/L		**0.80**	11/1/07	0.2	SM4500NorgB		Tot. Kjeldahl N.	mg/L	**0.60**	25.00%
Nitrate as N	mg/L		**0.49**	10/30/07	0.5	EPA353.2		Nitrate as N	mg/L	**0.49**	0.00%
Nitrogen, total as N	mg/L		**0.80**	11/1/07	0.2	EPA351,353		Nitrogen, total as N	mg/L	**0.60**	25.00%
Ortho Phosphate as P	mg/L		**0.49**	10/31/07	0.1	EPA365.3		Ortho Phosphate as P	mg/L	**0.09**	81.63%
Tot. Phosphate as P	mg/L		**0.33**	11/2/07	0.02	EPA365.3		Tot. Phosphate as P	mg/L	**0.09**	72.73%
Cartridge type: FPAM											
Untreated	ID	Report Date						**Treated**	ID		
Huntington Town, Country Lake Court	112101 (IN)	12/4/07	**Value**	Sampled	Water LRL	Method		Huntington Town, Country Lake Court	112102 (OUT)	**Value**	% Change
Tot. Kjeldahl N.	mg/L		**3.00**	11/27/07	0.2	SM4500NORGB		Tot. Kjeldahl N.	mg/L	**1.00**	66.67%
Nitrate as N	mg/L		**1.00**	11/27/07	0.5	EPA353.2		Nitrate as N	mg/L	**0.50**	50.00%
Nitrogen, total as N	mg/L		**4.00**	11/27/07	0.2	EPA351,353		Nitrogen, total as N	mg/L	**1.50**	62.50%
Ortho Phosphate as P	mg/L		**1.90**	11/21/07	0.1	EPA365.3		Ortho Phosphate as P	mg/L	**0.26**	86.32%
Tot. Phosphate as P	mg/L		**2.10**	11/30/07	0.1	EPA365.3		Tot. Phosphate as P	mg/L	**0.30**	85.71%
Avg											
Tot. Kjeldahl N.	mg/l		**2.53**					Tot. Kjeldahl N.	mg/L	**1.33**	
Nitrate as N			**0.96**					Nitrate as N	mg/L	**0.49**	
Nitrogen, total as N			**3.33**					Nitrogen, total as N	mg/L	**1.67**	
Ortho Phosphate as P			**0.99**					Ortho Phosphate as P	mg/L	**0.17**	
Tot. Phosphate as P			**1.00**					Tot. Phosphate as P	mg/L	**0.24**	
								Avg			
								Tot. Kjeldahl N.			42.84%
								Nitrate as N			38.33%
								Nitrogen, total as N			43.91%
								Ortho Phosphate as P			79.55%
								Tot. Phosphate as P			66.26%

Appendix F

Fabco Industries Warranty Arrangement

Fabco Industries Warranty Arrangement

Covered Product: _____
Model Number: _____

Buyer:
Name: _____
Address: _____

Warranty Coverage:

The Fabco Industries, Inc (Fabco) Limited Warranty applies to stormwater products manufactured or distributed by Fabco. The product purchased shall be free from defects in material and workmanship from the date of shipment by Fabco for the duration of the warranty.

Duration of Warranty:

The Fabco Industries, Inc. Limited warranty is for 8 years.

Terms of the Warranty:

Fabco warrants that the product you have purchased from Fabco or a Fabco authorized reseller is free from defects in materials and workmanship under normal use during the warranty period. The warranty period begins on the day of shipment from Fabco.

The warranty extends only to the original purchaser. It is not transferable to anyone who subsequently purchases the product from you. It excludes all expendable parts.

Within the period of this warranty, Fabco Industries will repair or replace, free of charge; any part proving defective in material or workmanship. All warranty repairs and service must be performed by Fabco Industries or a Fabco authorized reseller.

Warranty Exclusions: This Limited Warranty extends only to products purchased from Fabco or a Fabco authorized reseller.

The warranty does not apply but is not limited to any costs, repairs, or services detailed in the following examples:

1) Service calls to correct the installation of the Covered Product (unless installed by Fabco Industries, Inc), or to explain the usage of the product to the buyer.
2) Repairs necessitated by accident, misuse, abuse, alterations, operation outside the usage parameters or improper installation.
3) Corrective work necessitated by repairs made by anyone other than a Fabco Industries authorized service technician.
4) Expendable parts such as but not limited to Filter Cartridges, Filter media and oil absorbent booms.

5) Damage from failure to perform preventative maintenance as imposed by the application Environment. Coverage also does not include normal cosmetic and other signs mechanical wear and tear.
6) Damage from use of parts not manufactured or sold by Fabco
7) Damage from modification or incorporation into other products without prior approval by Fabco or an authorized reseller

How to Obtain Warranty Service:

Upon discovery of any defect, malfunction, or nonconformity in the Covered Product, the buyer may contact Fabco Industries, or if known, its' Fabco authorized reseller and request a service, repair, or replacement.

If warranty coverage is agreed to the buyer may be required to return the damaged item to Fabco. In this situation carefully pack the Covered Product, preferably in the original packing materials and deliver it, together with a copy of the original purchase receipt and a description of the problem, to:

Fabco Industries, Inc.
24 Central Drive
Farmingdale, NY
11735
Tel: 1 631 – 393 – 6024
www.fabco-industries.com

If the buyer sends the product by U.S. mail or other commercially available shipping company, we recommend that the buyer insure it and send it with the return receipt. We accept no liability for products lost or misplaced in shipment.

Notice to Buyer:

This warranty gives you specific legal rights, and you may also have other rights which vary from state to state. You have the right to bring any action at law or equity to resolve disputes concerning or to enforce the provisions of this warranty.

If the buyer disagrees over either's performance under the terms of this warranty, the buyer may submit the matter for resolution to Fabco Industries. The buyer shall not be responsible for expenses incurred in submitting a dispute for resolution under the terms of this paragraph. The buyer is required to submit any dispute for resolution under this paragraph before pursuing any legal remedies to which he or she may be entitled.

Limitations of Warranty

TO THE EXTENT ALLOWED BY LOCAL LAW, NEITHER FABCO NOR ITS AUTHORZIED DISTRIBUTORS MAKES ANY OTHER WARRANTY OR CONDITION OF ANY KIND, WHETHER EXPRESS OR IMPLIED WARRANTIES OR CONDITIONS OF MERCHANTABILITY, SATISFACTORY QUALITY, AND FITNESS FOR A PARTICULAR PURPOSE

Limitations of Liability

TO THE EXTENT ALLOWED BY LOCAL LAW, EXCEPT FOR THE OBLIGATIONS SPECIFICALLY SET FORTH IN THIS WARRANTY STATEMENT, IN NO EVENT SHALL FABCO OR ITS AUTHORIZED DISTRIBUTORS BE LIABLE FOR DIRECT, INDIRECT, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES, WHETHER BASED ON CONTRACT, TORT, OR ANY OTHER LEGAL THEORY AND WHETHER ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

Fabco Industries
24 Central Drive,
Farmingdale, NY
11735

X_____

Appendix G

StormBasin Servicing, Maintenance & Disposal

StormBasin

Cartridge Based Filter System

Servicing, Maintenance and Disposal

The Fabco StormBasin, like other storm water remediation devices, requires regular maintenance to remain efficient as stormwater filters. By their nature, filters are meant to retain materials whether its coarse debris, dissolved pollutants or even bacteria and eventually this collection of *"stuff"* must be removed, and the spent filtering media exchanged. This fact was quickly recognized as we evaluated competitive insert filters during the design phase of the StormBasin. To minimize servicing requirements and extend maintenance intervals both units have benefited from a number of simple but effective features:

Large Collection Basin:

The StormBasin features extra-large, HD plastic or aluminum collection basins. In standard filtering mode, the basin collects and focuses the runoff to the cartridges while providing storage volume for the collection of sediments, trash and debris. A large basin will be able to operate longer and retain more debris while still maintaining the flow of water to the cartridges.

Sealed, High-flow, Filter Cartridge System:

The StormBasin uses Fabco's patented Filter Cartridge system. New Cartridges are quickly installed through a hole in the bottom of the basin. A simple twist locks the filter securely in place even during back flow conditions.

During maintenance the cartridge remains in place for Vac-truck operations. With the debris removed, the one-piece cartridge can be removed and easily transported for disposal. The unique Fabco Filter Cartridge fits all StormBasin designs!

Unique, Cartridge Pre-filter extends filter life:

Each Fabco Filter Cartridge features a large, coarse, polyurethane foam pre-filter at the top of the cartridge body that extends upwards into the plastic basin. Unlike some competitive designs that actually collect sediments and debris in a recessed box above the filter media resulting in reduced treatment and by-pass, the Fabco pre-filter offers more surface area and is designed to shed debris and keep it in the basin. Up to 6 inches or as much as 4 to 5 cubic feet of debris can be collected before the pre-filter is covered. The flexible foam is easily brushed off during maintenance activities and is ready for more use.

Suggested Servicing and Maintenance activities:

Prior to installation of the StormBasin, Fabco Industries recommends thoroughly cleaning the selected catch basin vault of any accumulated sediments and debris.

Once installed, the StormBasin requires periodic cleaning which is wholly dependent upon local conditions. In general, Fabco Industries recommends cleaning the StormBasin unit 2 to 3 times per annum by removing the debris, sand and silt.

A cleaning schedule should consider, road grades, surrounding vegetation, size of the filtering unit and seasonal changes. A large parking lot with limited trees and bushes would have a different schedule than a tree lined housing development.

Maintenance schedule example:

1) Customer located in the northeast 2) Unit installed in the month of June 3) Site is a relatively flat parking field with some trees and bushes.

1) First Cleanout October/November
2) Second cleanout March
3) Third Cleanout May with Filter change

By examining the quantity of debris removed changes can be made to the schedule.

Filter Cartridge Exchange:

The Fabco Industries filter cartridges used in the StormBasin product are designed primarily to capture floating and emulsified hydrocarbon compounds, dissolved heavy metals nutrients and pathogens (bacteria).

5-types of filtering media can be used together or independently in our cartridge body:

- FABGUARD: treated open cell foam product restricts build up (scum) and movement of bacteria through the cartridge
- FABMAX: treated filter media for treating hydrocarbon-based compounds
- FABSORB: Fibrous filter material for absorbing hydrocarbon-based compounds
- FABLITE: Natural ION exchange compound for heavy metals
- FABPHOS proprietary filter media for treating the soluble Phosphates and Nitrogen compounds

Based on typical pollutant concentrations as published in numerous State Stormwater management Design manuals, Fabco recommends changing the cartridge(s) on an annual basis. Users with suspected higher than normal levels of Hydrocarbons and Heavy metals should consider more frequent changes. Fabco can supply specially modified StormBasins to enable field testing.

Disposal:

There are two disposal aspects to consider with the Fabco Industries StormBasin unit.

1. Disposal of the captured sediments, debris and trash
2. Disposal of the spent filter cartridge

Fabco Industries is recommending a minimum 2-3 basin clean outs per year. Under typical local and state regulations, the collected material is considered equivalent to material collected during street sweeping operations. This material is normally considered contaminated non-hazardous solid waste. However as with all waste products intended for disposal, it is up to the generator to properly characterize the waste prior to disposal. After proper characterization the generator can proceed with disposal under the guidance of local, state and federal regulations.

The Fabco Industries Filter Cartridges are manufactured from some or all of the following listed items

1. Polypropylene: Body, grills, and color rings
2. Polypropylene open cell foam
3. FABGUARD treated antimicrobial treated foam pad
4. FABMAX treated hydrocarbon filter media
5. FABSORB polypropylene, fibrous absorbent pad

6. FABPHOS synthetic pad treated for nutrients
7. FABLITE, natural Zeolite compound

The MSDS sheets for each of these materials (accessible on the website) shows that each of the virgin materials is non-toxic and safe for the environment.

Based on the pollutant concentrations listed in the New York State Storm water design manual, spent filter cartridges typically will be considered non-hazardous solid waste and can be disposed of in a landfill.

- The FABGUARD treated foam pre-filter has no absorbent properties and will certainly contain captured solids and trace levels of hydrocarbons.
- The FABSORB oil absorbent pads will be considered similar to oily rags.
- The FABMAX treated foam pads permanently bond with hydrocarbon compounds. Testing under Federal RCRA disposal guidelines confirms that in most cases spent pads pass TCLP testing protocols for non-hazardous disposal.
- The FABLITE should capture and retain the majority of heavy metals. Extensive testing of the FABLITE material confirms that it is capable of capturing and permanently retaining these ionic species, allowing non-hazardous disposal.
- FABPHOS treated pads when used for nutrient treatment should be safe for disposal. The pads are a treated, synthetic material that is non-hazardous, non-toxic and non-biodegradable. Fabco recommends that the pads be characterized by the generator prior to disposal.

Based on discussions with NY State DEC officials and local disposal companies while landfill is a possibility, the high BTU value of the spent cartridge suggests incineration as the preferred method of disposal. Laboratory analysis of spent cartridges by COVANTA Secure Services confirms that it would be acceptable by them for disposal.

Fabco Industries would like to conclude by reaffirming that it is up to the generator to properly characterize all waste products and to arrange for proper disposal, under local, state and federal regulations.

Appendix H

State Environmental Quality Review Act (SEQRA)
Short Environmental Assessment Form (EAF)

Short Environmental Assessment Form
Part 1 - Project Information

Instructions for Completing

Part 1 – Project Information. The applicant or project sponsor is responsible for the completion of Part 1. Responses become part of the application for approval or funding, are subject to public review, and may be subject to further verification. Complete Part 1 based on information currently available. If additional research or investigation would be needed to fully respond to any item, please answer as thoroughly as possible based on current information.

Complete all items in Part 1. You may also provide any additional information which you believe will be needed by or useful to the lead agency; attach additional pages as necessary to supplement any item.

Part 1 – Project and Sponsor Information

Name of Action or Project:
Village of North Haven Stormwater Treatment Improvement Project

Project Location (describe, and attach a location map):
Fresh Pond Road, Village of North Haven

Brief Description of Proposed Action:
This project proposes to install Fabco Industries StormBasin filtration devices in the existing stormwater drainage infrastructure along Fresh Pond Road. Nine (9) existing stormwater catch basins and leaching structures will be retrofitted with the StormBasin filtration devices to sequester road water and storm water runoff contaminants along Fresh Pond Road. Fresh Pond Road runs directly adjacent to the critical waters of Great Salt Pond and Fresh Pond. Contaminants that enter into these waterbodies may include, but not limited to, antifreeze, grease, oil, and heavy metals from cars; fertilizers, pesticides and other chemicals from gardens and homes; bacteria from pet waste and failing septic systems; and sediment from poor construction site practices. As water enters the inlets, the StormBasin captures the water which passes through a cartridge that filters the water, treating it at the source.

Name of Applicant or Sponsor:	Telephone: **631-725-1378**
Incorporated Village of North Haven **Terie Diat, Village Trustee - Project Manager**	E-Mail: **tdiat@northhavenvillage.org**

Address:
335 Ferry Road

City/PO:	State:	Zip Code:
Sag Harbor	**New York**	**11963**

	NO	YES
1. Does the proposed action only involve the legislative adoption of a plan, local law, ordinance, administrative rule, or regulation? If Yes, attach a narrative description of the intent of the proposed action and the environmental resources that may be affected in the municipality and proceed to Part 2. If no, continue to question 2.	☑	☐
2. Does the proposed action require a permit, approval or funding from any other government Agency? If Yes, list agency(s) name and permit or approval: **Town of Southampton CPF Water Quality Improvement Program**	☐	☑

3. a. Total acreage of the site of the proposed action? **0.01** acres
   b. Total acreage to be physically disturbed? **None** acres
   c. Total acreage (project site and any contiguous properties) owned or controlled by the applicant or project sponsor? _____ acres

4. Check all land uses that occur on, are adjoining or near the proposed action:

☐ Urban ☐ Rural (non-agriculture) ☐ Industrial ☐ Commercial ☑ Residential (suburban)
☐ Forest ☐ Agriculture ☑ Aquatic ☐ Other(Specify):
☐ Parkland

	NO	YES	N/A
5. Is the proposed action,			
a. A permitted use under the zoning regulations?	☐	☑	☐
b. Consistent with the adopted comprehensive plan?	☐	☑	☐

	NO	YES
6. Is the proposed action consistent with the predominant character of the existing built or natural landscape?	☐	☑

	NO	YES
7. Is the site of the proposed action located in, or does it adjoin, a state listed Critical Environmental Area?		
If Yes, identify: **The proposed action will treat stormwater runoff that flows into Fresh Pond, which is a tributary to the Peconic Bay Estuary, a designated Critical Environmental Area**	☐	☑

	NO	YES
8. a. Will the proposed action result in a substantial increase in traffic above present levels?	☑	☐
b. Are public transportation services available at or near the site of the proposed action?	☑	☐
c. Are any pedestrian accommodations or bicycle routes available on or near the site of the proposed action?	☑	☐

	NO	YES
9. Does the proposed action meet or exceed the state energy code requirements? **N/A**		
If the proposed action will exceed requirements, describe design features and technologies:	☐	☐
_____		
_____		

	NO	YES
10. Will the proposed action connect to an existing public/private water supply? **N/A**		
If No, describe method for providing potable water: _____	☐	☐
_____		

	NO	YES
11. Will the proposed action connect to existing wastewater utilities? **N/A**		
If No, describe method for providing wastewater treatment: _____	☐	☐
_____		

	NO	YES
12. a. Does the project site contain, or is it substantially contiguous to, a building, archaeological site, or district which is listed on the National or State Register of Historic Places, or that has been determined by the Commissioner of the NYS Office of Parks, Recreation and Historic Preservation to be eligible for listing on the State Register of Historic Places?	☑	☐
b. Is the project site, or any portion of it, located in or adjacent to an area designated as sensitive for archaeological sites on the NY State Historic Preservation Office (SHPO) archaeological site inventory?	☑	☐

	NO	YES
13. a. Does any portion of the site of the proposed action, or lands adjoining the proposed action, contain wetlands or other waterbodies regulated by a federal, state or local agency?	☐	☑
b. Would the proposed action physically alter, or encroach into, any existing wetland or waterbody?	☑	☐
If Yes, identify the wetland or waterbody and extent of alterations in square feet or acres: _____		
_____		
_____		

14. Identify the typical habitat types that occur on, or are likely to be found on the project site. Check all that apply:

☑ Shoreline ☐ Forest ☐ Agricultural/grasslands ☐ Early mid-successional

☑ Wetland ☐ Urban ☐ Suburban

	NO	YES
15. Does the site of the proposed action contain any species of animal, or associated habitats, listed by the State or Federal government as threatened or endangered?	☑	☐
16. Is the project site located in the 100-year flood plan?	☐	X
17. Will the proposed action create storm water discharge, either from point or non-point sources?	☑	☐
If Yes,		
a. Will storm water discharges flow to adjacent properties?	☑	☐
b. Will storm water discharges be directed to established conveyance systems (runoff and storm drains)?	☐	☐
If Yes, briefly describe:		
18. Does the proposed action include construction or other activities that would result in the impoundment of water or other liquids (e.g., retention pond, waste lagoon, dam)?	☑	☐
If Yes, explain the purpose and size of the impoundment:		
19. Has the site of the proposed action or an adjoining property been the location of an active or closed solid waste management facility?	☑	☐
If Yes, describe:		
20. Has the site of the proposed action or an adjoining property been the subject of remediation (ongoing or completed) for hazardous waste?	☑	☐
If Yes, describe:		

I CERTIFY THAT THE INFORMATION PROVIDED ABOVE IS TRUE AND ACCURATE TO THE BEST OF MY KNOWLEDGE

Applicant/sponsor/name: **Terie Diat** Date: 3/11/24

Signature: Terie Diat Title: **Village Trustee - Project Manager**

PRINT FORM

Agency Use Only [If applicable]

Project:	Stormwater Treatment Improvement Project - Fresh Pond Road
Date:	March 8, 2024

Short Environmental Assessment Form
Part 2 - Impact Assessment

Part 2 is to be completed by the Lead Agency.
Answer all of the following questions in Part 2 using the information contained in Part 1 and other materials submitted by the project sponsor or otherwise available to the reviewer. When answering the questions the reviewer should be guided by the concept "Have my responses been reasonable considering the scale and context of the proposed action?"

	No, or small impact may occur	Moderate to large impact may occur
1. Will the proposed action create a material conflict with an adopted land use plan or zoning regulations?	☑	☐
2. Will the proposed action result in a change in the use or intensity of use of land?	☑	☐
3. Will the proposed action impair the character or quality of the existing community?	☑	☐
4. Will the proposed action have an impact on the environmental characteristics that caused the establishment of a Critical Environmental Area (CEA)?	☑	☐
5. Will the proposed action result in an adverse change in the existing level of traffic or affect existing infrastructure for mass transit, biking or walkway?	☑	☐
6. Will the proposed action cause an increase in the use of energy and it fails to incorporate reasonably available energy conservation or renewable energy opportunities?	☑	☐
7. Will the proposed action impact existing: a. public / private water supplies?	☑	☐
b. public / private wastewater treatment utilities?	☑	☐
8. Will the proposed action impair the character or quality of important historic, archaeological, architectural or aesthetic resources?	☑	☐
9. Will the proposed action result in an adverse change to natural resources (e.g., wetlands, waterbodies, groundwater, air quality, flora and fauna)?	☑	☐
10. Will the proposed action result in an increase in the potential for erosion, flooding or drainage problems?	☑	☐
11. Will the proposed action create a hazard to environmental resources or human health?	☑	☐

PRINT FORM

Agency Use Only [If applicable]

Project: Stormwater Treatment Improvement Project - Fresh Pond Road

Date: March 8, 2024

Short Environmental Assessment Form
Part 3 Determination of Significance

For every question in Part 2 that was answered "moderate to large impact may occur", or if there is a need to explain why a particular element of the proposed action may or will not result in a significant adverse environmental impact, please complete Part 3. Part 3 should, in sufficient detail, identify the impact, including any measures or design elements that have been included by the project sponsor to avoid or reduce impacts. Part 3 should also explain how the lead agency determined that the impact may or will not be significant. Each potential impact should be assessed considering its setting, probability of occurring, duration, irreversibility, geographic scope and magnitude. Also consider the potential for short-term, long-term and cumulative impacts.

The Board of Trustees of the Village of North Haven has determined that the installation of storm basin filtration devices on nine (9) existing stormwater catch basins on Fresh Pond Road will not have an adverse impact on the environment and that these filters will, in fact, result in a beneficial impact on the environment by removing contaminants typically found in stormwater runoff. Therefore, a Negative Declaration pursuant to SEQRA has been adopted.

☐ Check this box if you have determined, based on the information and analysis above, and any supporting documentation, that the proposed action may result in one or more potentially large or significant adverse impacts and an environmental impact statement is required.

☐ Check this box if you have determined, based on the information and analysis above, and any supporting documentation, that the proposed action will not result in any significant adverse environmental impacts.

Village of North Haven Board of Trustees	**March 8, 2024**
Name of Lead Agency	Date
Chris Fiore	**Mayor**
Print or Type Name of Responsible Officer in Lead Agency	Title of Responsible Officer
Signature of Responsible Officer in Lead Agency	Signature of Preparer (if different from Responsible Officer)

PRINT FORM

Appendix I

Village of North Haven Resolution

Village of North Haven

335 Ferry Road
Sag Harbor, New York 11963

Phone: 631-725-1378 Fax: 631-725-1120

RESOLUTION 2 – MARCH 2024

INCORPORATED VILLAGE OF NORT HAVEN RESOLUTION SUPPORTING WATER QUALITY IMPROVEMENT PROJECTS TO REDUCE POLLUTANTS IN LOCAL PONDS AND CREEKS

Whereas, the Board of Trustees of the Incorporated Village of North Haven support of any actions that reduces the amount of pollutants that infiltrate any and all local ponds, creeks, bays, and aquifer systems; and

Therefore, Be it Resolved that the Board of Trustees of the Village of North Haven, at its meeting held on March 11, 2024, hereby approves the installation of three (3) water quality improvement projects. The project locations are Short Beach Road/Polles Creek, Fresh Pond Road and Ryders Pond; and

Be it further Resolved, that the Board of Trustees authorizes the submission of three (3) separate grant applications under the 2024 Town of Southampton Community Preservation Fund Water Quality Improvement Program to support the construction and maintenance costs associated with each project.

Motion Made By: Trustee Diat
Motion Seconded By: Mayor Fiore

All in favor motion so carried.

Beth M. Kamper, Clerk-Treasurer

March 11, 2024

Village of North Haven

335 Ferry Road
Sag Harbor, New York 11963

Phone: 631-725-1378 Fax: 631-725-1120

RESOLUTION 4 – MARCH 2024

INCORPORATED VILLAGE OF NORTH HAVEN AUTHORIZING A NEGATIVE DECLARATION FOR THE APPLICATION TO TOWN OF SOUTHAMPTON COMMUNITY PRESERVATION FUND (CPF) WATER QUALITY IMPROVEMENT PROGRAM

Whereas, the Village of North Haven is applying for funding to the Town of Southampton 2024 Community Preservation Fund under the Water Quality Improvement Program for a water quality initiative project on Fresh Pond Road; and

Whereas, the Village Board has reviewed the provisions of the New York State Environmental Quality Review Act (SEQRA), as related to the proposed action: and

Whereas, the proposed action is classified as an Unlisted Action; and

Whereas, the Village Board has conducted a review of the information contained in the SEQRA documentation consisting of a Short Environmental Assessment Form (SEAF) prepared by The Raynor Group, P.E. & L.S. PLLC; and

Whereas, the potential impacts and the magnitude and importance of potential impacts and benefits have been considered and a Negative Determination was recommended; and

Now, Therefore, Be It Resolved, the Village Trustees hereby adopts a Negative Declaration pursuant to the State Environmental Quality Review Act for the application to the Town of Southampton Community Preservation Fund (CPF) Water Quality Improvement Program.

Motion Made By: Mayor Fiore
Motion Seconded By: Trustee Skilbred

All in favor motion so carried.

Beth M. Kamper, Clerk-Treasurer

March 11, 2024

Appendix J

Fabco Industries Product Sheets & Brochure

NOTES:

1. WEIGHT: 5 LBS (MAX)

2. MATERIAL:
   A) HOUSING/GRILL/ID RING: POLYPROPYLENE COPOLYMER
   B) EFFLUENT TREATMENT MEDIA: PROPRIETARY NON-TOXIC TREATMENT PRODUCTS
   C) SUPPORT HARDWARE: CRES 300 SERIES STAINLESS OR EQUAL
   D) CARTRIDGE GASKET: NEOPRENE RUBBER

3. FLOW RATE (TYP): 100 GPM (0.22 CFS)

4. STORMWATER TREATMENT: NUTRIENT CARTRIDGE TO TREAT NUTRIENTS, ORTHO-PHOSPHATES, NITROGEN PATHOGENS, HYDROCARBONS AND HEAVY METALS

5. RING INDENTIFICATION COLOR: GREEN

6. INSTALLATION: INSERT INTO CARTRIDGE OPENING AND ROTATE CLOCKWISE 30-DEGREES TO LOCK CARTRIDGE IN PLACE.

7. FITS ALL FABCO STORM BASIN AND STORMPOD PRODUCTS.

8. DISPOSE OF CARTRIDGE IN ACCORDANCE WITH LOCAL REGULATIONS.

9. ADDITIONAL CARTRIDGE DESIGNS ARE AVAILABLE TO TARGET SPECIFIC POLLUTANTS. SEE TABLE 1 FOR DETAILS.

REFERENCE VIEW

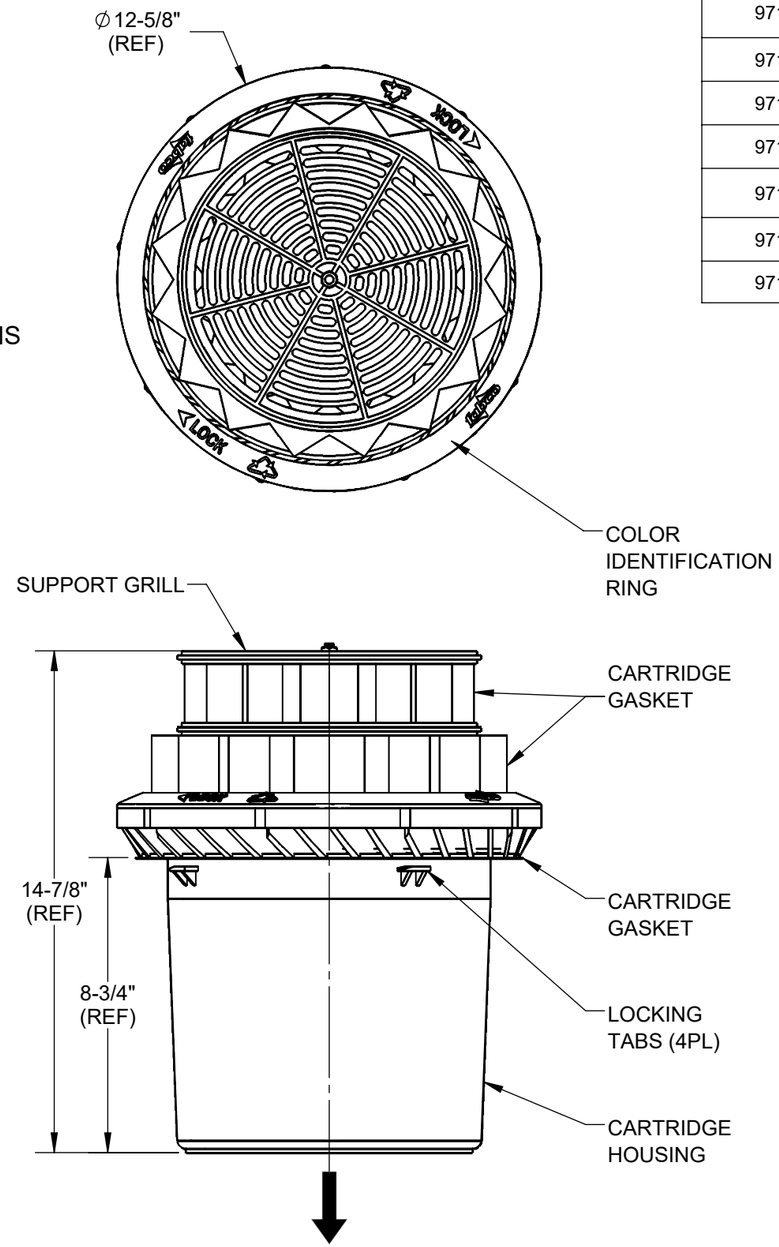


TABLE 1. ADDITIONAL CARTRIDGE DESIGNS

PART NUMBER	DESCRIPTION	COLOR CODE	FLOW RATE (TYP)
9718-1	STANDARD	RED	115 GPM (0.26 CFS)
9718-2	BACTERIA	YELLOW	115 GPM (0.26 CFS)
9718-3	HYDROCARBONS	BLUE	115 GPM (0.26 CFS)
9718-4	HEAVY METALS	GREY	60 GPM (0.13 CFS)
9718-5	STANDARD(SHORT)	MINT	115 GPM (0.26 CFS)
9718-6	NUTRIENTS	GREEN	100 GPM (0.22 CFS)
9718-7	HIGH FLOW	RED (MARKED)	260 GPM (0.58 CFS)

UNLESS OTHERWISE SPECIFIED
REMOVE ALL BURRS
BREAK SHARP EDGES .002 - .020
FILLETS .020 MAX
DIMENSIONS ARE IN INCHES AND INCLUDE CHEMICALLY APPLIED OR PLATED FINISHES

TOLERANCES:
DEC .00 ± .01
DEC .000 ± .005
FRACT ± 1/16
ANGLE ± 2°

PROJECT

MATERIAL

	APPROVAL	DATE
DWN	J.C.	4/26/2021
CHKR		
ENGR	J.P.	4/26/2021
UPD		

FABCO INDUSTRIES, INC.
24 CENTRAL DRIVE
FARMINGDALE, NY 11735

WWW.FABCO-INDUSTRIES.COM

fabco Industries Inc

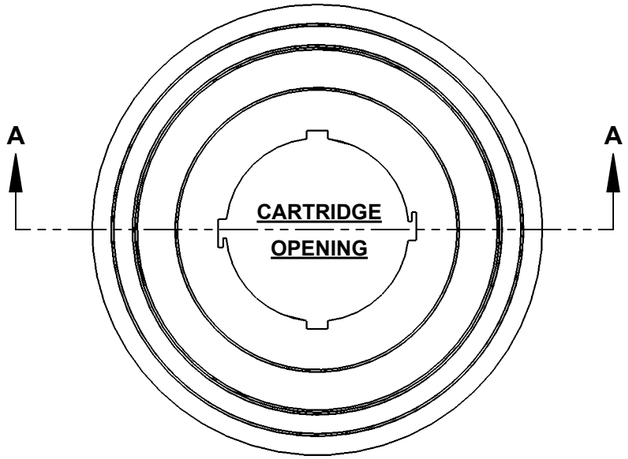
NUTRIENT CARTRIDGE

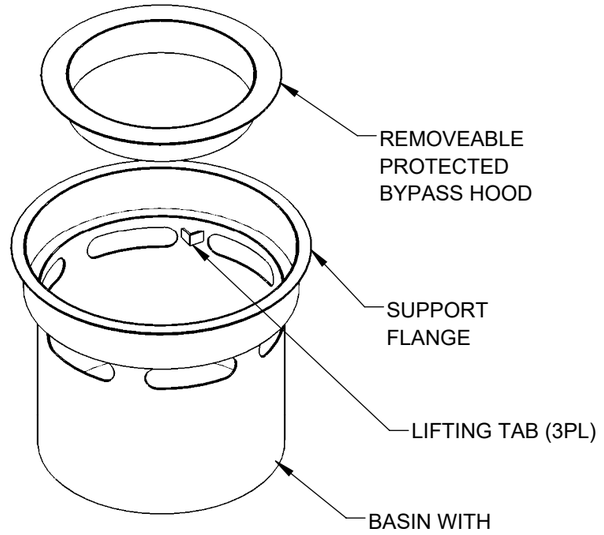
SIZE B | DWG. NO. 9718-6-000 | REV B

SCALE: NONE | SHEET 1 OF 1

NOTES:

1. TOTAL WEIGHT, EMPTY: 20 LBS (EST), NO CARTRIDGES
2. MATERIALS:
    1. FRAME/BASIN: ALUMINUM ALLOY, 5000 SERIES
3. PERFORMANCE CHARACTERISTICS:
    1. DEBRIS CAPACITY: 1.75 CU. FT
    2. FILTERED FLOWRATE (NUTRIENT CART): 100 GPM (0.22 CFS)
    3. BYPASS FLOWRATE: 950 GPM (2.1 CFS)
4. FOR CLEAR OPENING: 22" DIAMETER
5. TYPICAL INSTALLATION:
    CAREFULLY REMOVE THE STORM GRATE, MEASURE CATCH BASIN FRAME CLEAR OPENING AND VERIFY SUPPORT FLANGE WILL REST ON GRATE SUPPORT LEDGE. INSTALL STORMBASIN AND VERIFY THAT THE FLANGE IS SECURE AND THE UNIT IS SNUG WITH LITTLE MOVEMENT IN THE DRAIN. REINSTALL THE STORM GRATE DIRECTLY ON THE STORMBASIN SUPPORT FLANGE.
6. RECOMMENDED MINIMUM VAULT DEPTH 2" BELOW CARTRIDGE
7. USE ONLY WITH FABCO REPLACEABLE MEDIA CARTRIDGES





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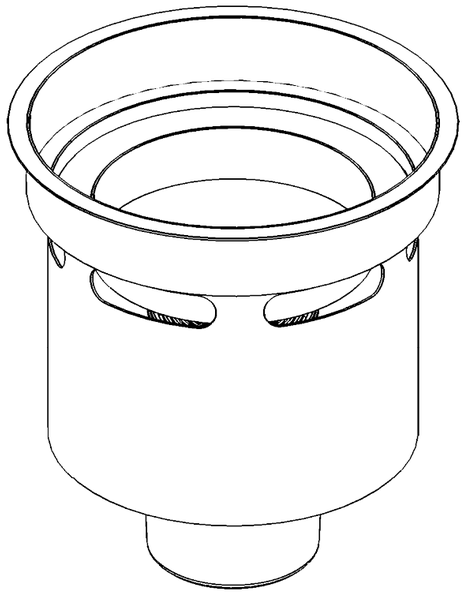
(EXPLODED)



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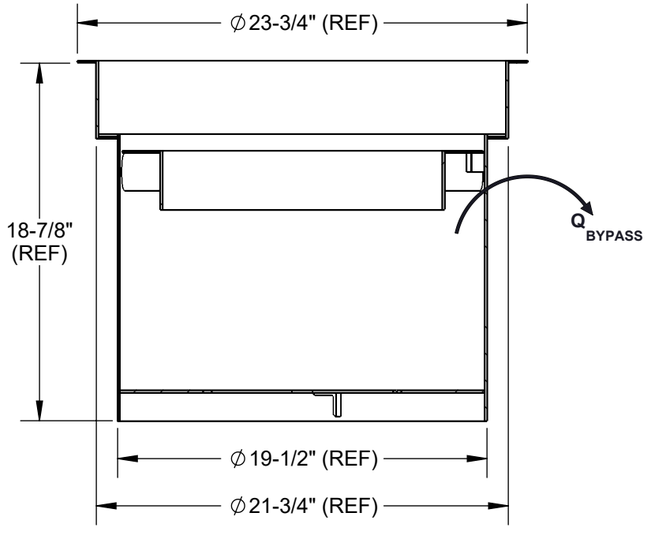
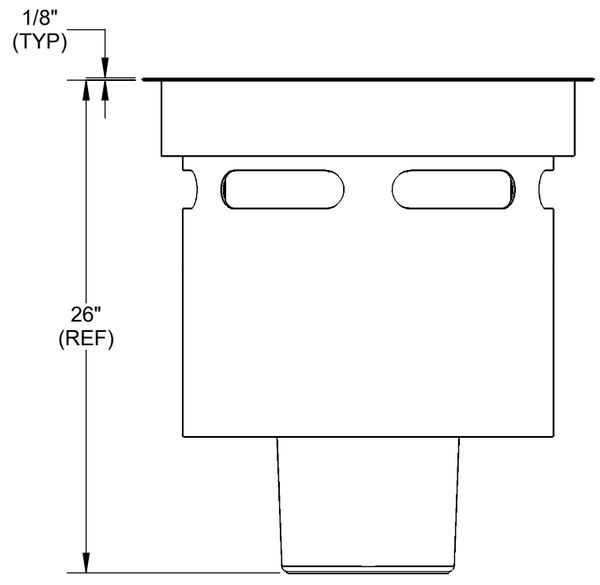


SECTION A-A



NUTRIENT CARTRIDGE
SHOWN FOR REFERENCE

ENGINEER AND CONTRACTOR NOTE: FABCO INDUSTRIES WATER QUALITY INSERTS (WQIS) ARE MANUFACTURED TO PROPERLY FIT INLETS BY USING SPECIFIC INFORMATION COMPILED IN A SURVEY OF THE "AS-BUILT" INLET. IN RETROFIT SITUATIONS THE SURVEY IS DONE TO DOCUMENT THE THREE CRITICAL ASPECTS OF WQI DESIGN (GRATE/FRAME MEASUREMENTS, OPEN/CLEAR SPACE MEASUREMENTS, AND PROTRUSION MEASUREMENTS). IN NEW CONSTRUCTION, FABCO PRODUCT DRAWINGS ARE ESSENTIALLY PLACE HOLDERS BASED ON THE SPECIFIED INLETS. ONCE THE INLETS ARE BUILT, THE PROCESS REVERTS TO THE RETROFIT APPROACH OF SURVEYING THE AS-BUILT INLETS TO CONFIRM FABCO INSERT DESIGN. PLEASE USE THE QR CODE TO ACCESS THE SURVEY FORM AND COMPREHENSIVE GUIDANCE OF THE SURVEY PROCESS. ALTERNATIVELY, NAVIGATE TO www.fabco-industries.com/stormwater-inlet-survey-assistance

UNLESS OTHERWISE SPECIFIED
REMOVE ALL BURRS
BREAK SHARP EDGES .002 - .020
FILLETS .020 MAX
DIMENSIONS ARE IN INCHES AND INCLUDE CHEMICALLY APPLIED OR PLATED FINISHES

TOLERANCES:
DEC .00 ± .01
DEC .000 ± .005
FRACT ± 1/16
ANGLE ± 2°

PROJECT
(NUTRIENT CART)

MATERIAL
SEE NOTES

	APPROVAL	DATE
DWN	R.W.	7/29/2022
CHKR		
ENGR	J.P.	7/29/2022
UPD		

FABCO INDUSTRIES, INC.
24 CENTRAL DRIVE
FARMINGDALE, NY 11735
WWW.FABCO-INDUSTRIES.COM

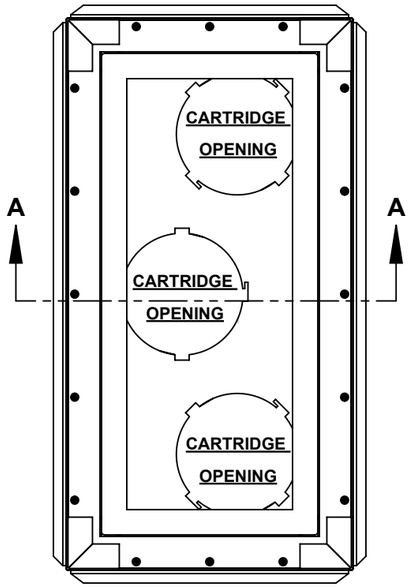
STORMBASIN PLUS (1C)
FOR 22" DIA. C.S.

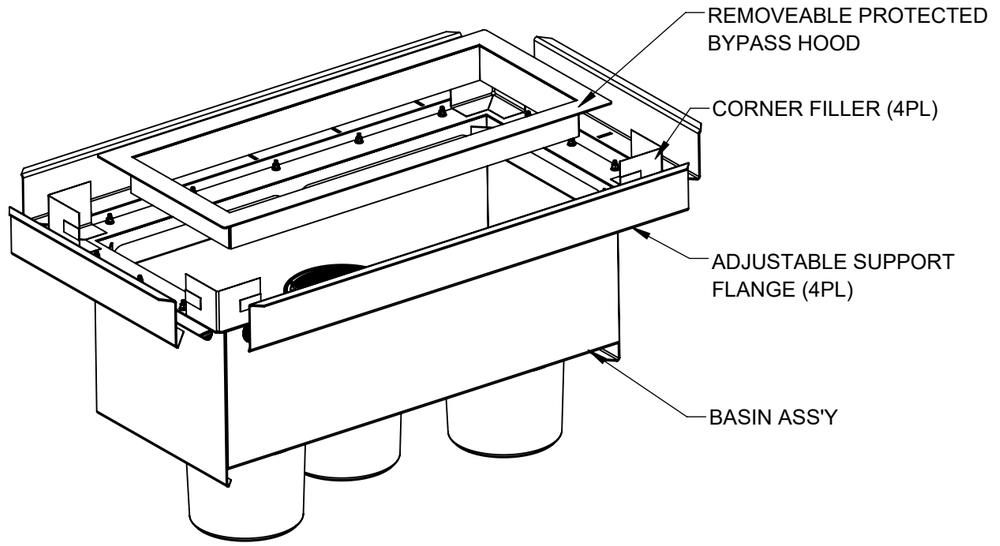
SIZE	DWG. NO.	REV
B	PBM22-1-000	A

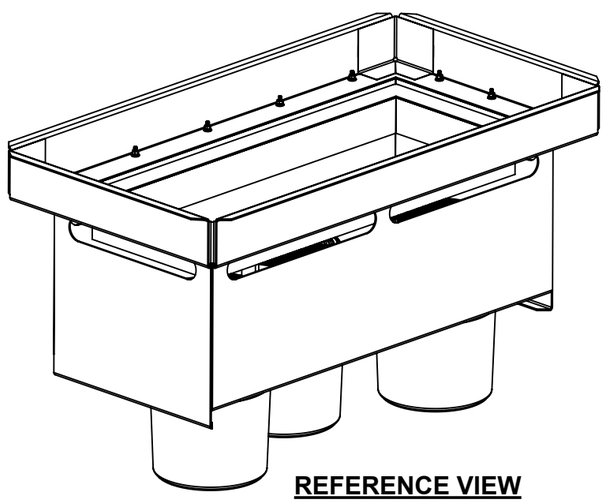
SCALE: NONE
SHEET 1 OF 1

NOTES:

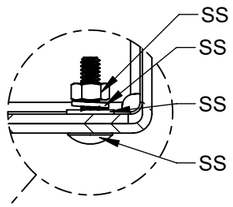
1. TOTAL WEIGHT, EMPTY: 40 LBS (MAX), NO CARTRIDGE
2. MATERIALS:
    1. FRAME/BASIN: ALUMINUM ALLOY, 5000 SERIES
    2. HARDWARE: STAINLESS STEEL
3. PERFORMANCE CHARACTERISTICS:
    1. DEBRIS CAPACITY: 3.9 CU. FT
    2. FILTERED FLOWRATE (STANDARD CARTRIDGE): 345 GPM (0.78 CFS)
    3. BYPASS FLOWRATE: 1,970 GPM (4.4 CFS)
4. CLEAR OPENING RANGE:
    1.MINIMUM SIZE: 23" X 44"
    2.MAXIMUM SIZE: 25" X 46"
5. TYPICAL INSTALLATION:
    CAREFULLY REMOVE THE STORM GRATE, MEASURE CATCH BASIN FRAME CLEAR OPENING AND ADJUST FLANGES TO REST ON GRATE SUPPORT LEDGE. INSTALL STORMBASIN AND VERIFY EACH FLANGE IS SECURE AND THE UNIT IS SNUG WITH LITTLE MOVEMENT IN THE DRAIN. INSTALL CORNER FILLERS USING PROVIDED DOUBLE-SIDED TAPE. COVER ANY UNWANTED GAPS WITH PROVIDED ALUMINUM TAPE. REINSTALL THE STORM GRATE DIRECTLY ON THE STORMBASIN ADJUSTABLE SUPPORT FLANGES.
6. RECOMMENDED MINIMUM VAULT DEPTH 2" BELOW CARTRIDGE

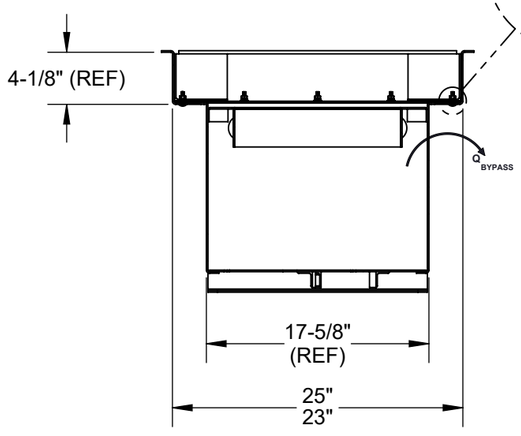




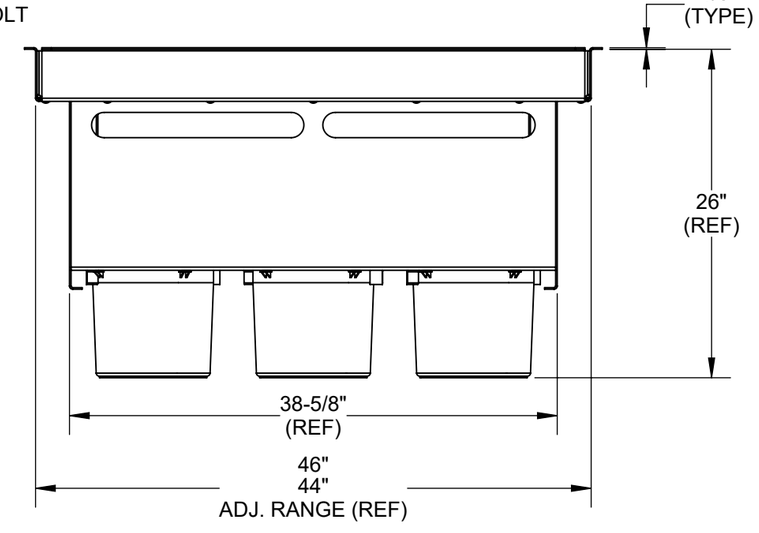


REFERENCE VIEW





SECTION A-A



CARTRIDGES SHOWN FOR REFERENCE

ENGINEER AND CONTRACTOR NOTE: FABCO INDUSTRIES WATER QUALITY INSERTS (WQIS) ARE MANUFACTURED TO PROPERLY FIT INLETS BY USING SPECIFIC INFORMATION COMPILED IN A SURVEY OF THE "AS-BUILT" INLET. IN RETROFIT SITUATIONS THE SURVEY IS DONE TO DOCUMENT THE THREE CRITICAL ASPECTS OF WQI DESIGN (GRATE/FRAME MEASUREMENTS, OPEN/CLEAR SPACE MEASUREMENTS, AND PROTRUSION MEASUREMENTS). IN NEW CONSTRUCTION, FABCO PRODUCT DRAWINGS ARE ESSENTIALLY PLACE HOLDERS BASED ON THE SPECIFIED INLETS. ONCE THE INLETS ARE BUILT, THE PROCESS REVERTS TO THE RETROFIT APPROACH OF SURVEYING THE AS-BUILT INLETS TO CONFIRM FABCO INSERT DESIGN. PLEASE USE THE QR CODE TO ACCESS THE SURVEY FORM AND COMPREHENSIVE GUIDANCE OF THE SURVEY PROCESS. ALTERNATIVELY, NAVIGATE TO www.fabco-industries.com/grate-inlet-survey-guide

UNLESS OTHERWISE SPECIFIED
REMOVE ALL BURRS
BREAK SHARP EDGES .002 - .020
FILLETS .020 MAX
DIMENSIONS ARE IN INCHES AND INCLUDE CHEMICALLY APPLIED OR PLATED FINISHES

TOLERANCES:
DEC .00 ± .01
DEC .000 ± .005
FRACT ± 1/16
ANGLE ± 2°

PROJECT

MATERIAL
SEE NOTES

	APPROVAL	DATE
DWN	M.S.	10/22/2021
CHKR		
ENGR	J.P.	10/22/2021
UPD		

FABCO INDUSTRIES, INC.
24 CENTRAL DRIVE
FARMINGDALE, NY 11735
WWW.FABCO-INDUSTRIES.COM

STORMBASIN PLUS (3C)
NOM. C.S. 24" X 45"

SIZE	DWG. NO.	REV
B	PBM2445-1-000	A

SCALE: NONE SHEET 1 OF 1

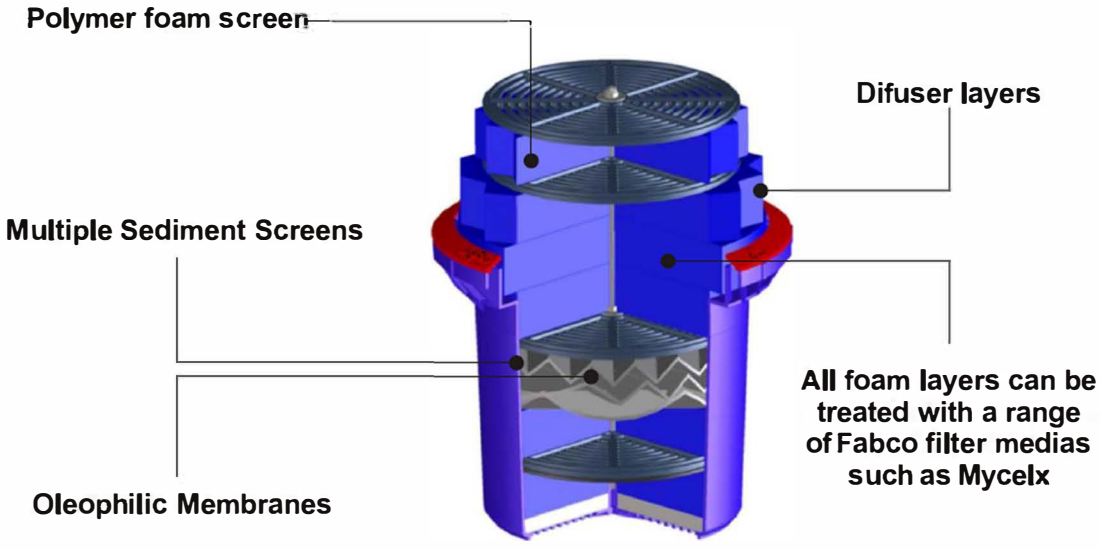
FABCO FILTER CARTRIDGE

Specifically designed to contain TSS sediments and the full range of stormwater pollutants, Fabco Industries' unique filter cartridge system assists you in meeting NPDES II Requirements and can be used to target specifici problems.

Fabco Industries is a world leader in filtration media research and development with over 10 years of experience in applying its proprietary treatment technologies to both industrial wastewater and stormwater applications. Our StormBasin filter cartridges utilize the latest, environmentally safe, filter media technologies to provide effective pollutant reductions while maintaining high flow rates throughout the life of the cartridge.

Fabco filter cartridges are available in various treatment configurations, allowing you to fine tune performance in terms of sediments and debris, heavy metals, hydrocarbons/toxic chemicals, pathogens/bacteria and nutrients. The lightweight filter cartridge comes fully assembled and snaps securely in place with a quick twist to the lock position. The modular cartridge design allows quick and easy replacement while containing the spent material for safe transport and disposal.

KEY FEATURES



Designed for Easy Installation and Maintenance
Addresses All Major Pollutants at High Flow Rates
Easy Disposal by Burning or Landfill
Can be Used to Target Specific Problems

www.fabco-industries.com
(631) 393-6024

STANDARD CARTRIDGE 9718-1

The standard StormBasin filter cartridge is configured to effectively treat a broad spectrum of pollutants commonly associated with surface runoff: sediments/debris, baceria/pathogens, oils/hydrocarbons, and heavy metals. The standard cartridge is ideal for medium traffic volume roadways and small parking fields, especially when located near sensitive waterways, housing areas and businesses with limited freight movement or vehicle traffic.

Filter Media	Quantity	Treats	Flow Rate	Max Weight
FabGuard	4 Pads	Pathogens	115 GPM (.25 CFS)	8 lb
FabMax	2 Pads	Hydrocarbons/Heavy Metals/Nutrients		
FabSorb	3 Ribbed Pads	Hydrocarbons		

PATHOGENS CARTRIDGE 9718-2

Bacteria and pathogen contamination from surface water runoff is a primary cause for beach closings, shellfish restrictions, and for the impairment of waterways in the United States. The pathogen cartridge is intended for catch basins, which empty directly into waterways that have been impacted by bacteria pathogens.

Filter Media	Quantity	Treats	Flow Rate	Max Weight
FabGuard	7 Pads	Pathogens	115 GPM (.25 CFS)	5 lb
FabMax	1 Pads	Hydrocarbons/Heavy Metals/Nutrients		
FabSorb	1 Disk	Hydrocarbons		

HYDROCARBONS CARTRIDGE 9718-3

The hydrocarbon cartridge is ideal for heavily traveled roads, transportation centers, parking fields, business/industrial parks, and areas with higher concentrations of oils, grease, fuel residues, automobile fluids and other hydrocarbon based pollutants.

Filter Media	Quantity	Treats	Flow Rate	Max Weight
FabGuard	3 Pads	Pathogens	115 GPM (.25 CFS)	8 lb
FabMax	3 Pads	Hydrocarbons/Heavy Metals/Nutrients		
FabSorb	3 Ribbed Pads	Hydrocarbons		

HEAVY METALS CARTRIDGE 9718-4

The heavy metals cartridge is a unique product intended for runoff with higher than normal contaminations of heavy metals such as Cd, Cu, Zn, and Pb. Typically, these contaminations are identified with industrial manufacturing zones or runoff from contaminated properties. This cartridge has a lower treatment flow rate than other cartridges.

Filter Media	Quantity	Treats	Flow Rate	Max Weight
FabGuard	3 Pads	Pathogens	60 GPM (.13 CFS)	15 lb
FabMax	2 Pads	Hydrocarbons/Heavy Metals/Nutrients		
FabLite	10 lbs (Dry)	Heavy Metals		

SHORT STANDARD CARTRIDGE 9718-5

The short standard cartridge is designed for use where depth is limited and has all the capabilities of the standard cartridge, with the exception of heavy metals.

Filter Media	Quantity	Treats	Flow Rate	Max Weight
FabGuard	4 Pads	Pathogens	115 GPM (.25 CFS)	5 lb
FabMax	1 Pads	Hydrocarbons/Heavy Metals/Nutrients		
FabSorb	1 Disk	Hydrocarbons		

NUTRIENTS CARTRIDGE 9718-6

The nutrients cartridge contains our proprietary FabPhos filter media to treat the soluble phosphates and nitrogen compounds commonly found in surface water runoff. When combined with efficient solids separation devices like our StormBasin units, total phosphorous levels in particular can be reduced as much as 80% with nitrogen reductions exceeding 40%.

Filter Media	Quantity	Treats	Flow Rate	Max Weight
FabGuard	3 Pads	Pathogens	100 GPM (.22 CFS)	5 lb
FabMax	2 Pads	Hydrocarbons/Heavy Metals/Nutrients		
FabPhos	150 Cu-In	Ortho-Phosphates & Nitrogen		

Appendix K

EPA Spreadsheet Tool for Evaluating Pollutant Load

Total load by subwatershed(s)

Watershed	N Load (no BMP)	P Load (no BMP)	BOD Load (no BMP)	Sediment Load (no BMP)	E. coli Load (no BMP)	N Reduction	P Reduction	BOD Reduction	Sediment Reduction	E. coli Reduction	N Load (with BMP)	P Load (with BMP)	BOD (with BMP)	Sediment Load (with BMP)	E. coli Load (with BMP)	%N Reduction	%P Reduction	%BOD Reduction	%Sed Reduction	%E. coli Reduction
	lb/year	lb/year	lb/year	t/year	Billion MPN/y	lb/year	lb/year	lb/year	t/year	Billion MPN/y	lb/year	lb/year	lb/year	t/year	Billion MPN/y	%	%	%	%	%
W1	3.32	0.64	10.63	0.11	0.00	1.17	0.58	0.00	0.00	0.00	2.15	0.35	7.00	0.05	0.00	41.58	74.99	34.11	36.80	0.00
W2	6.92	0.64	21.72	0.08	0.00	2.52	0.63	7.81	0.06	0.00	4.40	0.67	13.91	0.13	0.00	36.41	48.40	35.96	33.27	0.00
W3	4.47	0.85	13.90	0.19	0.00	1.62	0.40	5.02	0.04	0.00	2.85	0.44	8.88	0.10	0.00	36.21	47.64	36.12	29.62	0.00
W4	2.52	0.49	7.85	0.08	0.00	0.90	0.22	2.79	0.02	0.00	1.62	0.26	5.06	0.06	0.00	35.67	46.17	35.53	28.52	0.00
Total	17.24	3.28	54.09	0.48	0.00	6.21	1.55	19.24	0.16	0.00	11.03	1.73	34.85	0.33	0.00	36.02	47.27	35.58	32.05	0.00

Appendix L

Budget Estimate

From: **Andy Russo** arusso@fabco-industries.com
Subject: RE: StormBasin Prices
Date: March 6, 2024 at 3:19 PM
To: Richard Wesnofske richard.wesnofske@raynorgroup.net
Cc: sales sales@fabco-industries.com

AR

Hello Rick,

Thank you for reaching out to FABCO for a budgetary estimate.

Since we are located on Long Island, we are pleased to provide direct support to all our prospective customers.

Assuming the standard inlet size for Suffolk County, with an approximate clear space dimension below the grate of roughly 24" x 45", the typical StormBasin storm drain insert would likely be our PBM2445-1, which houses three cartridges each. The typical Round StormBasin (aka StormPod) to fit a standard 24" round grated inlet is our PBM22-1 and houses one cartridge (see attached drawings).

For budgetary purposes, we are pleased to offer the following quotation:

Part Number	Description	MSRP (ea)
PBM2445-1	StormBasin PLUS for nom. C.S. 24" x 45" Grated Inlet, with 2" adjustment range and up to three cartridge slots (cartridges not included).	$1,454.00
PBM22-1	StormBasin PLUS for C.S. 22" Diameter Round Grated Inlet, and one cartridge slot (cartridge not included).	$903.00
9718-6	Cartridges, Nutrients	$220.00

NOTE: New & Existing Catch Basin Inlets may have unique characteristics such as ladder rungs, pipe protrusions, frame gussets, variable grate patterns, etc… that may impede a normal installation process. Prior to placing an order, please provide site-survey/measurement sheets for each inlet to identify any existing irregularities or protrusions to ensure a perfect fit once delivered to the jobsite.

We have attached some drawings and related brochures for review and for your subsequent use. If you should require any additional information, please do not hesitate to contact us.

Regards,

Andy Russo
Senior Sales Engineer

Fabco Industries
390 Oser Avenue, Suite B
Hauppauge, NY 11788
Ofc: 631-393-6024

www.fabco-industries.com

From: Richard Wesnofske <richard.wesnofske@raynorgroup.net>
Sent: Wednesday, March 6, 2024 2:51 PM
To: sales <sales@fabco-industries.com>
Subject: StormBasin Prices

Good afternoon,

I am working on a project where we are proposing to use StormBasin and StormPod units to improve water quality. We are required to prepare a budget for the material and I was wondering if you could provide any information on that, or if you could advise on any distributors I could reach out to.

We are locating in Water Mill, New York and the proposed project is in the Village of North Haven.

Should you have any questions, please do not hesitate to call.

Thanks,
Rick

==========
Rick Wesnofske, P.E.
The Raynor Group, P.E. & L.S. PLLC
Office: 860 Montauk Highway — Deerfield Green
Mail: P.O. Box 720
Water Mill, NY 11976
Ph: 631-726-7600
Fax: 631-726-4378
rick.wesnofske@raynorgroup.net
==========

StormBasin Plus Brochure.pdf

Appendix M

Letters of Support

Village of North Haven

335 Ferry Road
Sag Harbor, New York 11963

Phone: 631-725-1378 Fax: 631-725-1120

March 15, 2024

Ms. Maria Moore, Supervisor
Town of Southampton
116 Hampton Road
Southampton, New York 11968

Re: Community Preservation Fund – Water Quality Improvement Projects

Dear Supervisor Moore and Town Councilmen & Councilwoman,

I am writing to you on behalf of the North Haven Village Water Quality Improvement Committee to support the three 2024 CPF applications from North Haven Village Hall for water quality improvements. These applications support our overall plan in North Haven to improve water quality in our ponds, creeks, bays and aquifers.

The 2024 applications submitted are for stormwater infrastructure improvement on Fresh Pond Road to mitigate pollutants in Great Salt Pond and Fresh Pond, a stormwater runoff and rain garden installation to improve water quality in Ryders Pond and a bioswale project on Short Beach Road to mitigate stormwater runoff into Polles Creek. All of these waterbodies – Great Salt Pond, Fresh Pond, Ryders Pond and Polles Creek are important natural resources that have been enjoyed by generations of families on North Haven, and that we seek to protect and improve for future generations. Great Salt Pond, Fresh Pond and Polles Creek are currently impaired as demonstrated by water quality testing performed by Dr. Christopher Gobler's lab at Stony Brook University School of Marine and Atmospheric Sciences.

Our Committee formed in 2022 with the objectives to establish a plan to measure the water quality in our creeks, coves, ponds and shoreline and to define the actions that can be taken to address and mitigate the causes of pollution. The Committee also desires to raise the awareness of the community on the importance of clean water quality initiatives and actions. Since our establishment, our Committee has formed strong partnerships with the Peconic Estuary Partnership and Dr. Chris Gobler, Stony Brook

School of Marine and Atmospheric Sciences. We have begun tracking the number of I/A septic systems installed and in-progress in North Haven.

In 2023 a CPF grant was approved for the installation of an I/A sanitary system at Village Hall. The system will be installed in 2024 and will set the example for the North Haven Community.

Following are the 2023/2024 North Haven Village Water Quality Improvement Committee's Program & Accomplishments:

1. **EDUCATION & ENGAGEMENT OF RESIDENTS**
    a. Innovative/Alternative Septic Systems & Grants Available to Homeowners
        - Presentation delivered in 2023 by Peconic Estuary Partnership & SCDOH on impact on water quality of traditional cesspool septic systems
            - Recording available on Village Website
        - Grant Information on Village Website & at Village Hall
        - Track # of I/A systems in the Village
        - Focused mailing to be sent to waterfront homeowners in 2024
    b. Impact of Fertilization on Water Quality
        - Presentation delivered in 2023 by Edwina Von Gal, Perfect Earth Project, on fertilization alternatives
            - Recording available on Village website
        - Committee currently researching legislative ban on fertilization
2. **PECONIC BLUE CARBON PILOT**
    a. Village of North Haven is supporting Dr. Gobler and Stony Brook University and PEP by participating in pilot activities
        - Summer/Fall 2023 – water quality testing, bottom mapping
        - Winter/Spring 2024 – kelp lines
3. **VILLAGE INFRASTRUCTURE PROJECTS**
    a. Identify with Village Engineer infrastructure projects within the Village to improve storm water runoff
    b. Apply for CPF water quality improvement program funds to support costs
4. **ENFORCEMENT OF VILLAGE VEGETATED BUFFER CODE**
    a. Initiate a focused effort to enforce zoning code section 163-20 regarding vegetated buffers for waterfront and wetland facing homes
5. **ONGOING WATER QUALITY TESTING**
    a. Contracted with Dr. Chris Gobler, Stony Brook University, to perform testing of five key North Haven water bodies from May to October.
        - Post results on Village website
        - Completed in 2023
        - Contracting for 2024

6. **RESTORE HEALTH OF GENET CREEK, FRESH POND AND GREAT SALT POND**
    a. Initiate a plan to dredge the inlets to Genet Creek, Great Salt Pond to restore historical tidal flow to these key estuaries and improve water quality

Thank You for your consideration of these important applications and water quality projects for the Village of North Haven,

Terie Diat, Village Trustee

North Haven Water Quality Improvement Committee

Terie Diat, North Haven Village Trustee

Jeffrey Sander, (Former Mayor North Haven Village) Committee Member

Wes Frye, Committee Member

Christopher Remkus, Committee Member

James McCarthy, Committee Member