Town of South Kingstown
Planning Board

Regular Session Agenda Meeting Minutes
Thursday, October 16, 2025 at 6:30 PM
South Kingstown Town Hall, Town Council Chambers
180 High Street, Wakefield, RI 02879
www.southkingstownri.gov

Maria H. Mack, Chair
Susan Axelrod, Vice Chair
Elizabeth Karp, Secretary
Joseph Murphy
Robyn Pothier
Kaiper Wilson
Armand Monaco

A. Call to Order & Roll Call:

Ms. Mack called the meeting to order at 6:42 p.m.

PRESENT:	Planning Board A. Kaiper Wilson
	Planning Board Elizabeth Karp
	Planning Board Joseph Murphy
	Planning Board Maria Mack
	Planning Board Susan Axelrod
ABSENT:	Planning Board Robyn Pothier
	Planning Board Armand Monaco

Also present were James Rabbitt, Director of Planning; Jay Parker, Deputy Director of Planning; Brian Wagner, Principal Planner; Lynn Smith, Planning Associate; Mark Conboy, Town Engineer; and Peter Skwriz, Special Legal Counsel.

B. Subdivisions and Land Development Projects:

1. **Public Hearing: Minor Land Development, Preliminary Plan - Safe Harbor Marina Silver Spring**
   The applicant is proposing to demolish and reconstruct an existing maintenance building with associated site improvements, AP 63-3, Lot 60, Located at 362 Pond Street, SHM Silver Spring, LLC, applicant/owner.

Matthew Landry, attorney for the applicant, appeared to present the application.
Mr. Landry commented on a letter received today from Mr. Pastor, an abutter to the property, asking for some buffering/screening. Mr. Landry reminded the Board of the 15,000 square foot building originally proposed, but being sensitive to the neighbors' wishes, the original proposal was revised to a smaller building, further away from the neighbors. Boat storage, an existing condition, mentioned in Mr. Pastor's letter has not changed in many years and will not change with this proposal.

Mr. Landry discussed two supplemental exhibits sent to the Planning Department today, which included an aerial view of the site, and elevations and conceptual; Mr. Landry passed these out to the Planning Board members.

Seth Lemoine, Professional Engineer with Principe Engineering Company, appeared to answer questions and gave the status of permit approvals.
Alex Aucoin, General Manager of the property, appeared to answer questions.
Chris Fagan, architect with Fagan Design, appeared to answer questions.
Beck Bennett, VP of Construction & Development for Safe Harbor Marinas, appeared to explain the Spill Prevention Control and Countermeasure Plan (SPCC).

Discussion ensued regarding a bio retention basin planted or paved; rain garden to be used not a basin; drainage (1st flush); "proprietary system" design for the rain garden; volume of glass - bird strike prevention;

Discussion regarding external storage of fuels or hydrocarbons, waste fuels on site are stored in a 20' shipping container (shown on sheet 2) for a third containment. Within the container itself is a secondary container beneath each vessel, maximum containment.

Mr. Parker/Mr. Wagner suggested conditions regarding the change of capacity: "At no point in time shall the waste facility exceed the capacity for which it was designed for, or the Hazardous Waste requirements."
Ms. Mack suggested the condition — "The applicant shall submit the criteria for the Proprietary Rain Garden to the Planning Department."

PUBLIC COMMENT:
Joe Pastore, 380 Pond Street, stated he has a good relationship with the applicant and believes they are good stewards of the property. However, while they are redeveloping the property he would like them to add buffering/screening between the stored boats and his property. Discussion of abutter's request ensued; as the boat storage is an existing use, the Planning Board advised the abutter to have a conversation with the applicant regarding additional buffering.

Dick Pastore, PE, owner of RP Engineering, and father of the abutter, questioned Mr. Rabbitt if he moves toward conformance to zoning. Mr. Rabbitt stated that the question is not germane to the topic. Mr. Pastore reported a very good relationship with the applicant, but is requesting the Planning Board require them to plant the requested buffer. Mr. Rabbitt stated the Planning Board has no regulatory authority to require a buffer.

The following motion, made by Mr. Murphy, duly seconded by Ms. Karp, passed by unanimous vote.
Motion: "The South Kingstown Planning Board hereby closes the PUBLIC HEARING: Minor Land Development, Preliminary Plan — Safe Harbor Marina Silver Spring."

The following motion, made by Mr. Murphy, duly seconded by Ms. Wilson, passed by unanimous vote.
Motion: The South Kingstown Planning Board hereby grants Preliminary Plan approval to SHM Silver Spring Minor Land Development application proposing to demolish and reconstruct an existing maintenance building with associated site improvements on Assessor's Plat 63-3, Lot 60, located at 362 Pond Street, SHM Silver Spring, LLC, applicant/owner This approval is based upon the submitted plan set Preliminary Plan Submission for Safe Harbor Marinas, LLC, Land Development Project, Assessor's Plat 63-3, Lot 60, 362 Pond Street in South Kingstown, Rhode Island, including Sheets 1 through 6, dated July 22, 2025, and the plan set received as of 10/16/2025 dated 09/19/2025, completed by Principe Company, Inc, 27 Sakonnet Ridge Drive, Tiverton, RI 02878. Findings of Fact 1 through 5; Conditions of Approval 1 through 7, with 6 being the language as discussed tonight relative to the storage of hazardous materials; and 7 being the drainage discussion".

2. **Public Hearing: Major Subdivision, Combined Conceptual Maser & Preliminary Plan** - Saugatucket Farms, a 5-lot subdivision utilizing the flexible frontage provisions of the zoning ordinance and associated site improvements, AP 42, Lot 8, located at 216 Saugatucket Road, Denali Corp., applicant/owner.

Dan DeCesaris, P.E. and Project Manager, of Joe Casali Engineering, Inc., appeared to present the application. Mr. DeCesaris presented the proposed project to the Planning Board members.
Peter Abbenante, Jr. applicant/owner, appeared to answer questions.

Discussion ensued regarding requests for waivers-water and fire being resolved (5 out of 7 remaining); and Mark Conboy's memo dated October 16, 2025.
Mr. Rabbitt reviewed the Draft Motion Conditions of Approval #1 through #13. Mr. Conboy stated that item #1 in his memo is something not allowed; and that items #2 - #7 are items easy to conform to.
Discussion ensued regarding where the house location is shown on maps; street view from Saugatucket; keep stonewall natural/as is at the proposed entrance; viewshed analysis waiver request; proposed trees; private gravel road; discuss 20' road width with Fire Marshall to reduce to 18' with 2' load bearing shoulders; landscape architect should be used when grading along existing stonewall and placement of proposed trees; proposed Landscape Plan; and wetland buffer area markers.

Mr. Rabbitt read the additional 5 conditions, new total of 18 conditions of approval.
1. Clarifying any disturbance of the stonewall during construction would require repair and replacement in kind.
2. Relocating the proposed street trees to a location internal to the site to avoid conflicts with utilities. Said trees shall be of the maple variety, red or sugar.
3. Providing permanent wetland buffer markers via permanent posts and marker tags.

4. A requirement to reduce the driveway width to 18' with 2' load bearing shoulders upon approval in consultation with the Town's Fire Marshall.
5. Landscape architect to provide a narrative for the proposed curb cut and associated grading and landscaping.

The following motion, made by Ms. Axelrod, duly seconded by Ms. Wilson, passed by unanimous vote.
Motion: "The South Kingstown Planning Board hereby closes the PUBLIC HEARING: Major Subdivision, Combined Conceptual Master & Preliminary Plan - Saugatucket Farms".

The following motion, made by Ms. Karp, duly seconded by Mr. Murphy, passed by unanimous vote.
Motion: "The South Kingstown Planning Board hereby grants Combined Conceptual Master & Preliminary Plan approval to Saugtucket Farms, a 5-lot major flexible frontage subdivision for single-family development located at 216 Saugatucket Road, Danali Corp, applicant/owner. This approval is based on the plan titled Saugatucket Farms, 5-lot Major Subdivision, 216 Saugatucket Road, AP 42, Lot 8, Sheets 1 through 9, dated June 2025, prepared by Joe Casali Engineering, Inc., 300 Post Road, Warwick, RI 02888. This approval is based on the following Findings of Fact and Conditions of Approval:
Findings of Fact A through F; Findings of Fact in regard to Waivers G and H; Conditions of Approval 1 through 5; Conditions of Approval 6 through 13 added October 16, 2025, from the Town Engineer; 5 additional Findings Condition of Approval summarized as follows: 14-reducing driveway width to 18' with the approval of the Fire Department; 15-Landscape Architect to provide narrative of proposed design and associate grading; 16-regarding repair of existing stonewall; 17-with regard to moving the street trees internally to the site; 18- with regard to permanent wetland markers".

C. Land Use:

1. Old Tower Hill Road (Form Based Code)

Mr. Rabbitt gave the Planning Board an update on the Form Based Code.

D. Planning Board Liaison Activities - Updates from Planning Board members acting as liaison to various Board, Committees, projects, and activities.

None.

E. Update from Planning Department Staff - General update from Planning Director regarding Planning Department staffing and activities including Budget Process and Capital Improvement Program.

Ms. Mack reminded Board members of the Planning Board Training coming up on November 15, 2025.
Ms. Mack asked Mr. Rabbitt when the subject of capacity/Comprehensive Community Plan could be discussed in the future.

Discussion ensued.

1. Legislative Update

None.

F. Update on Legal Issues - Update from Special Legal Counsel for Planning and Zoning relative to any new or ongoing legal issues.

1. Upcoming training.

Planning Board Members training - November 15, 2025
Grow Smart Rhode Island

2. Land Use Legislation — Regulatory implications to local regulations.

None.

G. Adjournment:

Upon Motion made by Ms. Karp, duly seconded by Mr. Murphy, the meeting was adjourned at 8:57 p.m.,

Principe Company

LONG TERM OPERATION AND MAINTENANCE PLAN
July 22, 2025

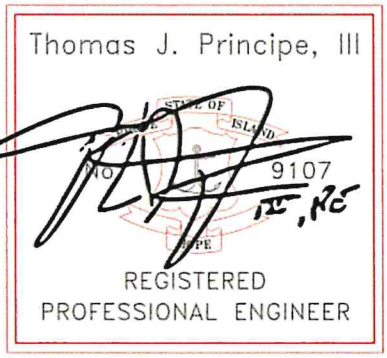
362 POND STREET
AP 63-3, LOT 60
SOUTH KINGSTOWN, RI

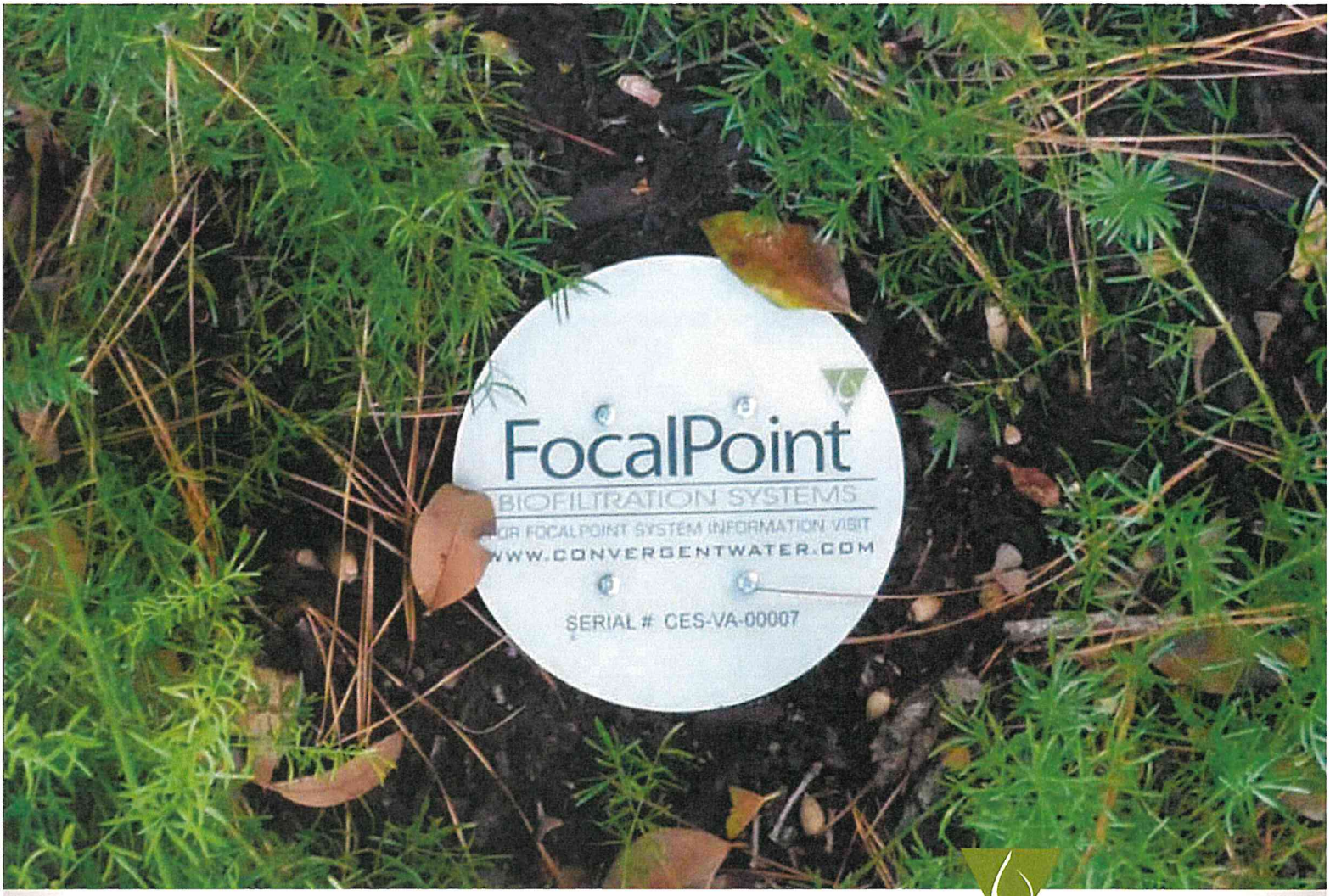
Prepared For:

SHM Silver Spring LLC
14785 Preston Road, Suite 975
Dallas, Texas 75254

Prepared By:

Principe Engineering, Inc.
27 Sakonnet Ridge Drive
Tiverton, Rhode Island





FocalPoint

BIOFILTRATION SYSTEMS

Operations & Maintenance

FERGUSON WATERWORKS

Ferguson.com/waterworks | 800.721.2590

GENERAL DESCRIPTION

The following general specifications describe the general operations and maintenance requirements for the FocalPoint® High Performance Modular Biofiltration System (HPMBS). The system utilizes physical, chemical and biological mechanisms of a soil, plant and microbe complex to remove pollutants typically found in urban stormwater runoff. The treatment system is a fully equipped, modular, constructed in place system designed to treat contaminated runoff.

Stormwater enters the HPMBS, is filtered by the High Performance Biofiltration Media and passes through to the underdrain/storage system where the treated water is detained, retained or infiltrated to sub-soils, prior to discharge to the storm sewer system of any remaining flow.

Higher flows bypass the FocalPoint® via a downstream inlet or other overflow conveyance. Maintenance is a simple, inexpensive and safe operation that does not require confined space entry, pumping or vacuum equipment, or specialized tools. Properly trained landscape personnel can effectively maintain FocalPoint® Stormwater systems by following instructions in this manual.

BASIC OPERATIONS

FocalPoint® is a modular, high performance biofiltration system that often works in tandem with other integrated management practices (IMP). Contaminated stormwater runoff enters the biofiltration bed through a conveyance swale, planter box, or directly through a curb cut or false inlet. Energy is dissipated by a rock or vegetative dissipation device and is absorbed by a 3-inch layer of aged, double shreddded hardwood mulch, with fines removed, (when specified) on the surface of the biofiltration media.

As the water passes through the mulch layer, most of the larger sediment particles and heavy metals are removed through sedimentation and chemical reactions with the organic material in the mulch. Water passes through the biofiltration media where the finer particles are removed and numerous chemical reactions take place to immobilize and capture pollutants in the soil media.

The cleansed water passes into the underdrain/storage system and remaining flows are directed to a storm sewer system or other appropriate discharge point. Once the pollutants are in the soil, bacteria begin to break down and metabolize the materials and the plants begin to uptake and metabolize the pollutants. Some pollutants such as heavy metals, which are chemically bound to organic particles in the mulch, are released over time as the organic matter decomposes to release the metals to the feeder roots of the plants and the cells of the bacteria in the soil where they remain and are recycled. Other pollutants such as phosphorus are chemically bound to the soil particles and released slowly back to the plants and bacteria and used in their metabolic processes. Nitrogen goes through a variety of very complex biochemical processes where it can ultimately end up in the plant/bacteria biomass, turned to nitrogen gas or dissolves back into the water column as nitrates depending on soil temperature, pH and the availability of oxygen. The pollutants ultimately are retained in the mulch, soil and biomass with some passing out of the system into the air or back into the water.

DESIGN AND INSTALLATION

Each project presents different scopes for the use of FocalPoint® system. To ensure the safe and specified function of this stormwater BMP, Convergent Water Technologies and/or its Value Added Resellers (VAR) review each application before supply. Information and design assistance is available to the design engineer during the planning process. Correct FocalPoint® sizing is essential to optimum performance. The engineer shall submit calculations for approval by the local jurisdiction when required. The contractor and/or VAR is responsible for the correct installation of FocalPoint units as described in approved plans. A comprehensive installation manual is available at www.convergentwater.com.

MAINTENANCE

Why Maintain?

All stormwater treatment systems require maintenance for effective operation. This necessity is often incorporated in your property's permitting process as a legally binding BMP maintenance agreement. Other reasons for maintenance include:

- Avoid legal challenges from your jurisdiction's maintenance enforcement program.
- Prolong the lifespan of your FocalPoint HPMBS.
- Avoid costly repairs.
- Help reduce pollutant loads leaving your property.

Simple maintenance of the FocalPoint® is required to continue effective pollutant removal from stormwater runoff before any discharge into downstream waters. This procedure will also extend the longevity of the living biofiltration system. The unit will recycle and accumulate pollutants within the biomass, but may also subjected to other materials entering the surface of the system. This may include trash, silt and leaves etc. which will be contained above the mulch and/or biofiltration media layer. Too much silt may inhibit the FocalPoint's® flow rate, which is a primary reason for system maintenance. Removal of accumulated silt/sediment and/or replacement of the mulch layer (when specified), is an important activity that prevents overaccumulation of such silt/sediment.

When to Maintain?

The start of the maintenance plan begins when the system is activated for full operation. Full operation is defined as when the site is appropriately stabilized and the unit is installed and activated (i.e., when mulch and plantings are added).

Activation should be avoided until the site is fully stabilized (full landscaping, grass cover, final paving and street sweeping completed). Maintenance visits are scheduled seasonally; the spring visit aims to clean up after winter loads including salts and sands. The fall visit helps the system by removing excessive leaf litter.

A first inspection to determine if maintenance is necessary should be performed at least twice annually after storm events of greater than (1) one inch total depth (subject to regional climate). Please refer to the maintenance checklist for specific conditions that indicate if maintenance is necessary.

It has been found that in regions which receive between 30-50 inches of annual rainfall, (2) two visits are generally required. Regions with less rainfall often only require (1) one visit per annum. Varying land uses can affect maintenance frequency.

Some sites may be subjected to extreme sediment or trash loads, requiring more frequent maintenance visits. This is the reason for detailed notes of maintenance actions per unit, helping the VAR/Maintenance contractor and Owner predict future maintenance frequencies, reflecting individual site conditions.

Owners must promptly notify the VAR/Maintenance contractor of any damage to the plant(s), which constitute(s) an integral part of the biofiltration technology. Owners should also advise other landscape or maintenance contractors to leave all maintenance of the HPMBS to the VAR/Maintenance contractor (i.e. no pruning or fertilizing).

EXCLUSION OF SERVICES

It is the responsibility of the owner to provide adequate irrigation when necessary to the plant(s) in the FocalPoint® system.

Clean up due to major contamination such as oils, chemicals, toxic spills, etc. will result in additional costs and are not covered under the VAR/Maintenance contractor maintenance contract. Should a major contamination event occur, the Owner must block off the outlet pipe of the FocalPoint® (where the cleaned runoff drains to, such as drop-inlet) and block off the point where water enters of the FocalPoint®. The VAR/Maintenance contractor should be informed immediately.

MAINTENANCE VISIT SUMMARY

Each maintenance visit consists of the following simple tasks (detailed instructions below).

1. Inspection of FocalPoint® and surrounding area
2. Removal of debris, trash and mulch
3. Mulch replacement
4. Plant health evaluation (including measurements) and pruning or replacement as necessary
5. Clean area around FocalPoint®
6. Complete paperwork, including date stamped photos of the tasks listed above.

MAINTENANCE TOOLS, SAFETY EQUIPMENT AND SUPPLIES

Ideal tools include: camera, bucket, shovel, broom, pruners, hoe/rake, and tape measure. Appropriate Personal Protective Equipment (PPE) should be used in accordance with local or company procedures. This may include impervious gloves where the type of trash is unknown, high visibility clothing and barricades when working in close proximity to traffic and also safety hats and shoes.

MAINTENANCE VISIT PROCEDURE

Inspection of FocalPoint® and surrounding area

Record individual unit before maintenance with photograph (numbered). Record on Maintenance Report (see example in this document) the following:

- Standing Water yes | no
- Is Bypass Inlet Clear? yes | no
- Damage to HPMBS System yes | no
- to Overflow conveyance yes | no

Removal of Silt / Sediment / Clay

Dig out silt (if any) and mulch and remove trash & foreign items.

- Silt / Clay Found? yes | no
- Cups / Bags Found? yes | no
- Leaves? yes | no
- Volume of material removed _____ (volume or weight)

Removal of debris, trash and mulch

After removal of mulch and debris, measure distance from the top of the FocalPoint® engineered media soil to the flow line elevation of the adjacent overflow conveyance. If this distance is greater than that specified on the plans (typ. 6" - 12"), add FocalPoint® media (not top soil or other) to recharge to the distance specified.

- Distance to media surface to flow line of overflow conveyance (inches) _____
- # of Buckets of Media Added _____

Mulch Replacement

Most maintenance visits require only replacement mulch (if utilized). Bags of clean, double shredded hardwood mulch are typically used for smaller biofiltration beds, however larger systems may require truck loads of mulch. For smaller projects, one cubic foot of mulch will cover four square feet of biofiltration bed, and for larger projects, one cubic yard of mulch will cover 108 square feet of biofiltration bed. Some visits may require additional FocalPoint® engineered soil media available from the VAR/Contractor.

- Add double shredded, aged hardwood mulch which has been screened to remove fines, evenly across the entire biofiltration media bed to a depth of 3".
- Clean accumulated sediment from energy dissipation system at the inlet to the FocalPoint® system to allow for entry of trash during a storm event.

Plant health evaluation and pruning or replacement as necessary

Examine the plant's health and replace if dead or dying.
Prune as necessary to encourage growth in the correct directions

- Height above Grade (feet) _____
- Width at Widest point (feet) _____
- Health alive | dead
- Damage to Plant yes | no

Clean area around FocalPoint®

- Clean area around unit and remove all refuse to be disposed of appropriately.

Complete paperwork

- Deliver Maintenance Report and photographs as appropriate.
- Some jurisdictions may require submission of maintenance reports in accordance with approvals.
- It is the responsibility of the Owner to comply with local regulations.

FocalPoint Warranty

Seller warrants goods sold hereunder against defects in materials and workmanship only, for a period of (1) year from date the Seller activates the system into service. Seller makes no other warranties, express or implied.

Seller's liability hereunder shall be conditioned upon the Buyer's installation, maintenance, and service of the goods in strict compliance with the written instructions and specifications provided by the Seller. Any deviation from Seller's instructions and specifications or any abuse or neglect shall void warranties.

In the event of any claim upon Seller's warranty, the burden shall be upon the Buyer to prove strict compliance with all instructions and specifications provided by the Seller.

Seller's liability hereunder shall be limited only to the cost or replacement of the goods. Buyer agrees that Seller shall not be liable for any consequential losses arising from the purchase, installation, and/or use of the goods.

Maintenance Checklist

Element	Problem	What To Check	Should Exist	Action
Inlet	Excessiver sediment or trash accumulation	Accumulation of sediment or trash impair free flow of water into FocalPoint	Inlet free of obstructions allowing free flow into FocalPoint System	Sediments or trash should be removed
Mulch Cover	Trash and floatable debris accumulation	Excessive trash or debris accumulation.	Minimal trash or other debris on mulch cover	Trash and debris should be removed and mulch cover raked level. Ensure that bark nugget
Mulch Cover	Ponding of water on mulch cover	Ponding in unit could be indicative of clogging due to excessive fine sediment accumulation or spill of petroleum oils	Stormwater should drain freely and evenly over mulch cover.	Contact VAR for advice.
Plants	Plants not growing, or in poor condition	Soil/mulch too wet, evidence of spill. Pest infestation. Vandalism to plants.	Plants should be healthy and pest free.	Contact VAR for advice.
Plants	Plant growth excessive	Plants should be appropriate to the species and location of FocalPoint		Trim/prune plants in accordance with typical landscaping and

Sample Stormwater Facility Maintenance Agreement

THIS AGREEMENT, made and entered into this ___ day of _____, 20___, by and between (Insert Full Name of Owner)
_____ hereinafter called the "Landowner", and the [Local Jurisdiction], hereinafter called the "[Town/City]". WITNESSETH, that WHEREAS, the Landowner is the owner of certain real property described as (Tax Map/Parcel Identification Number) _____ as recorded by deed in the land records of [Local Jurisdiction] Deed Book _____ Page _____, hereinafter called the "Property".

WHEREAS, the Landowner is proceeding to build on and develop the property; and WHEREAS, the Site Plan/Subdivision Plan known as
_____, (Name of Plan/Development) hereinafter called the "Plan", which is expressly made a part hereof, as approved or to be approved by the [Town/City], provides for detention of stormwater within the confines of the property; and

WHEREAS, the [Town/City] and the Landowner, its successors and assigns, including any homeowners association, agree that the health, safety, and welfare of the residents of [Local Jurisdiction] require that on-site stormwater management facilities be constructed and maintained on the Property; and

WHEREAS, the [Town/City] requires that on-site stormwater management facilities as shown on the Plan be constructed and adequately maintained by the Landowner, its successors and assigns, including any homeowners association.

NOW, THEREFORE, in consideration of the foregoing premises, the mutual covenants contained herein, and the following terms and conditions, the parties hereto agree as follows:

1. The on-site stormwater management facilities shall be constructed by the Landowner, its successors and assigns, in accordance with the plans and specifications identified in the Plan.
2. The Landowner, its successors and assigns, including any homeowners association, shall adequately maintain the stormwater management facilities in accordance with the required Operation and Maintenance Plan. This includes all pipes, channels or other conveyances built to convey stormwater to the facility, as well as all structures, improvements, and vegetation provided to control the quantity and quality of the stormwater. Adequate maintenance is herein defined as good working condition so that these facilities are performing their design functions. The Stormwater Best Management Practices Operation, Maintenance and Management Checklists are to be used to establish what good working condition is acceptable to the [Town/City].

3. The Landowner, its successors and assigns, shall inspect the stormwater management facility and submit an inspection report annually. The purpose of the inspection is to assure safe and proper functioning of the facilities. The inspection shall cover the entire facilities, berms, outlet structure, basin areas, access roads, etc. Deficiencies shall be noted in the inspection report.
4. The Landowner, its successors and assigns, hereby grant permission to the [Town/City], its authorized agents and employees, to enter upon the Property and to inspect the stormwater management facilities whenever the [Town/City] deems necessary. The purpose of inspection is to follow-up on reported deficiencies and/or to respond to citizen complaints. The [Town/City] shall provide the Landowner, its successors and assigns, copies of the inspection findings and a directive to commence with the repairs if necessary.
5. In the event the Landowner, its successors and assigns, fails to maintain the stormwater management facilities in good working condition acceptable to the [Town/City], the [Town/City] may enter upon the Property and take whatever steps necessary to correct deficiencies identified in the inspection report and to charge the costs of such repairs to the Landowner, its successors and assigns. This provision shall not be construed to allow the [Town/City] to erect any structure of permanent nature on the land of the Landowner outside of the easement for the stormwater management facilities. It is expressly understood and agreed that the [Town/City] is under no obligation to routinely maintain or repair said facilities, and in no event shall this Agreement be construed to impose any such obligation on the [Town/City].
6. The Landowner, its successors and assigns, will perform the work necessary to keep these facilities in good working order as appropriate. In the event a maintenance schedule for the stormwater management facilities (including sediment removal) is outlined on the approved plans, the schedule will be followed.
7. In the event the [Town/City] pursuant to this Agreement, performs work of any nature, or expends any funds in performance of said work for labor, use of equipment, supplies, materials, and the like, the Landowner, its successors and assigns, shall reimburse the [Town/City] upon demand, within thirty (30) days of receipt thereof for all actual costs incurred by the [Town/City] hereunder.
8. This Agreement imposes no liability of any kind whatsoever on the [Town/City] and the Landowner agrees to hold the [Town/City] harmless from any liability in the event the stormwater management facilities fail to operate properly.
9. This Agreement shall be recorded among the land records of [Local Jurisdiction] and shall constitute a covenant running with the land, and shall be binding on the Landowner, its administrators, executors, assigns, heirs and any other successors in interests, including any homeowners association.

WITNESS the following signatures and seals:

_____

Company/Corporation/Partnership Name (Seal)

By: _____

_____
(Type Name and Title)

The foregoing Agreement was acknowledged before me this ____ day of _____, 20___, by _____
___.

_____
NOTARY PUBLIC
My Commission Expires: _____

By: _____
_____
(Type Name and Title)

The foregoing Agreement was acknowledged before me this ____ day of _____, 20___, by _____
___.

_____
NOTARY PUBLIC
My Commission Expires: _____

Approved as to Form:

_____ _____
[Town/City] Attorney Date

Principe Company

DRAINAGE ANALYSIS
July 22, 2025

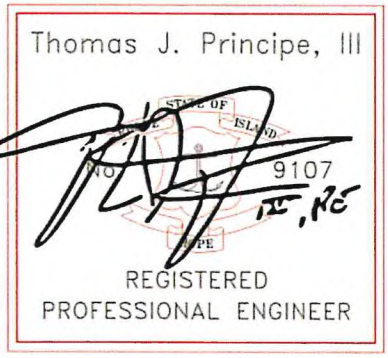
362 Pond Street
AP 63-3, Lot 60
South Kingstown, RI

Prepared For:

SHM Silver Spring LLC
14785 Preston Road, Suite 975
Dallas, Texas 75254

Prepared By:

Principe Engineering, Inc.
27 Sakonnet Ridge Drive
Tiverton, Rhode Island



Stormwater Calculations
362 Pond Street
South Kingstown, RI
July 22, 2025

Storm Water Management

The storm water management system selected is best suited to the site and provides the least disturbance of the site while complying with the stormwater regulations to the greatest extent feasible. The storm water management system consists of the collection of roof to an Alternative Stormwater Technology known as a "FocalPoint High Performance Modular Biofiltration System (HPMBS)". This technology was certified for use in Rhode Island on October 4, 2021 and has been utilized on other Rhode Island marina projects including at Wickford Harbor. As per the certification requirements, the design of the system for the project was completed by **Brett Keszczyk, Green Stormwater Infrastructure (GSI) Engineer, Ferguson | Waterworks. Contact information is** C: 610-607-4563 E: Brett.Keszczyk@ferguson.com. The drainage system is designed to provide water quality and recharge in accordance with the regulations of both state and local authorities.

PRE-DEVELOPMENT SITE CONDITIONS

There are several existing site constraints present that impact the design of proposed project. This is an existing developed marina with several existing buildings/containers totaling 6,600 square feet, an inground pool, areas of pavement (concrete and asphalt) and compacted gravel, an existing OWTS, boat storage areas both during the boating season and particularly during the winter off-season, extensive dock system and boat launch.

Principe Company

Stormwater Calculations
362 Pond Street
South Kingstown, RI
July 22, 2025

POST-DEVELOPMENT SITE CONDITIONS

Under post development conditions, one of the existing buildings (2,472 sf) will be removed in its entirety and replaced with a new, larger building (4,680 sf) in the same location, with a portion of the new building located within an area that previously provided for boat storage on compacted gravel. No clearing of any vegetation is proposed, and no work outside of already disturbed areas is proposed. Therefore, no change in discharge peaks or volumes to Silver Spring Cove/Upper Point Judith Pond is anticipated. Per CRMC regulations, the increase in structural Lot Coverage (SLC) is 34.5% (less than 50%). The entirety of the new building roof will be treated to meet water quality volume and recharge requirements in accordance with the manufacturer's certification for the alternative stormwater treatment. As the building is located within 100-year floodplain (BFE 10'), the building is designed with the required flood vents.

Principe Company

APPENDIX A: STORMWATER MANAGEMENT PLAN CHECKLIST AND LID PLANNING REPORT – STORMWATER DESIGN SUMMARY

PROJECT NAME **362 POND STREET**	(RIDEM USE ONLY) STW/WQC File #:
TOWN **SOUTH KINGSTOWN**	Date Received:
BRIEF PROJECT DESCRIPTION: REMOVE & DISPOSE OF EXISTING BUILDING AND REPLACE WITH NEW LARGER BUILDING IN SAME LOCATION. TREAT WITH ALTERNATIVE STORMWATER TECHNOLOGY	

Stormwater Management Plan (SMP) Elements – Minimum Standards

When submitting a SMP,[1] submit four separately bound documents: Appendix A Checklist; Stormwater Site Planning, Analysis and Design Report with Plan Set/Drawings; Soil Erosion and Sediment Control (SESC) Plan, and Post Construction Operations and Maintenance (O&M) Plan. Please refer to Suggestions to Promote Brevity.

Note: **All stormwater construction projects must create a Stormwater Management Plan (SMP). However, not every element listed below is required per the RIDEM Stormwater Rules and the RIPDES Construction General Permit (CGP). This checklist will help identify the required elements to be submitted with an Application for Stormwater Construction Permit & Water Quality Certification.**

PART 1. PROJECT AND SITE INFORMATION

PROJECT TYPE (Check all that apply)

☐ Residential	☒ Commercial	☐ Federal	☐ Retrofit	☐ Restoration
☐ Road	☐ Utility	☐ Fill	☐ Dredge	☐ Mine
☐ Other (specify):				

SITE INFORMATION

☒ Vicinity Map

INITIAL DISCHARGE LOCATION(S): The WQv discharges to: (You may choose more than one answer if several discharge points are associated with the project.)

☒ **Groundwater**	☒ **Surface Water**	☐ **MS4**
☐ GAA	☐ Isolated Wetland	☐ RIDOT
☒ GA	☒ Named Waterbody	☐ RIDOT Alteration Permit is Approved
☐ GB	☐ Unnamed Waterbody Connected to Named Waterbody	☐ Town
		☐ Other (specify):

ULTIMATE RECEIVING WATERBODY LOCATION(S): Include pertinent information that applies to both WQ_v and flow from larger storm events including overflows. Choose all that apply, and repeat table for each waterbody.

☒ Groundwater or Disconnected Wetland	☒ SRWP		
☒ Waterbody Name: PT. JUDITH POND	☐ Coldwater	☐ Warmwater	☐ Unassessed
☐ Waterbody ID: RI0010043E-06B	☐ 4th order stream of pond 50 acres or more		
☒ TMDL for: FECAL COLIFORM	☐ Watershed of flood prone river (e.g., Pocasset River)		
☐ Contributes to a priority outfall listed in the TMDL	☐ Contributes stormwater to a public beach		
☒ 303(d) list – Impairment(s) for: FECAL COLIFORM	☐ Contributes to shellfishing grounds		

[1] Applications for a Construction General Permit that do not require any other permits from RIDEM and will disturb less than 5 acres over the entire course of the project do not need to submit a SMP. The Appendix A checklist must still be submitted.

PROJECT HISTORY		
☐ RIDEM Pre- Application Meeting	Meeting Date:	☐ Minutes Attached
☐ Municipal Master Plan Approval	Approval Date:	☐ Minutes Attached
☐ Subdivision Suitability Required	Approval #:	
☐ Previous Enforcement Action has been taken on the property	Enforcement #:	

FLOODPLAIN & FLOODWAY See Guidance Pertaining to Floodplain and Floodways	
☐ Riverine 100-year floodplain: **FEMA FLOODPLAIN FIRMETTE** has been reviewed and the 100-year floodplain is on site	
☒ Delineated from FEMA Maps	
NOTE: Per Rule 250-RICR-150-10-8-1.1(B)(5)(d)(3), provide volumetric floodplain compensation calculations for cut and fill/displacement calculated by qualified professional	
☐ Calculated by Professional Engineer	
☐ Calculations are provided for cut vs. fill/displacement volumes proposed within the 100-year floodplain	Amount of Fill (CY): Amount of Cut (CY):
☐ Restrictions or modifications are proposed to the flow path or velocities in a floodway	
☐ Floodplain storage capacity is impacted	
☐ Project area is not within 100-year floodplain as defined by RIDEM	

CRMC JURISDICTION
☒ CRMC Assent required
☒ Property subject to a Special Area Management Plan (SAMP). If so, specify which SAMP: SALT POND REGION
☐ Sea level rise mitigation has been designed into this project

LUHPPL IDENTIFICATION - MINIMUM STANDARD 8:			
1. OFFICE OF Land Revitalization and Sustainable Materials Management (OLRSMM)			
	☐ Known or suspected releases of HAZARDOUS MATERIAL are present at the site (Hazardous Material is defined in Rule 1.4(A)(33) of 250-140-30-1 of the RIDEM Rules and Regulations for Investigation and Remediation of Hazardous Materials (the Remediation Regulations))		**RIDEM CONTACT:**
	☐ Known or suspected releases of PETROLEUM PRODUCT are present at the site (Petroleum Product as defined in Rule 1.5(A)(84) of 250-140-25-1 of the RIDEM Rules and Regulations for Underground Storage Facilities Used for Regulated Substances and Hazardous Materials)		
	☐ This site is identified on the RIDEM Environmental Resources Map as one of the following regulated facilities		**SITE ID#:**
		☐ CERCLIS/Superfund (NPL)	
		☐ State Hazardous Waste Site (SHWS)	
		☐ Environmental Land Usage Restriction (ELUR)	
		☐ Leaking Underground Storage Tank (LUST)	
		☐ Closed Landfill	
Note: If any boxes in 1 above are checked, the applicant must contact the RIDEM OLRSMM Project Manager associated with the Site to determine if subsurface infiltration of stormwater is allowable for the project. Indicate if the infiltration corresponds to "Red," "Yellow" or "Green" as described in Section 3.2.8 of the RISDISM Guidance (Subsurface Contamination Guidance). Also, note and reference approval in PART 3, Minimum Standard 2: Groundwater Recharge/Infiltration.			
2. PER MINIMUM STANDARD 8 of RICR 8.14.C.1-6 "LUHPPLS," THE SITE IS/HAS:			
	☐ Industrial Site with RIPDES MSGP, except where No Exposure Certification exists. http://www.dem.ri.gov/programs/water/permits/ripdes/stormwater/status.php		
	☐ Auto Fueling Facility (e.g., gas station)		
	☐ Exterior Vehicles Service, Maintenance, or Equipment Cleaning Area		

	☐ Road Salt Storage and Loading Areas (exposed to rainwater)	
	☐ Outdoor Storage and Loading/Unloading of Hazardous Substances	
3.	**STORMWATER INDUSTRIAL PERMITTING**	
	☐ The site is associated with existing or proposed activities that are considered Land Uses with Higher Potential Pollutant Loads (LUHPPLS) (see RICR 8.14.C)	Activities: Sector:
	☐ Construction is proposed on a site that is subject to THE MULTI-SECTOR GENERAL PERMIT (MSGP) UNDER RULE 31(B)15 OF THE RIPDES REGULATIONS.	MSGP permit #

REDEVELOPMENT STANDARD – MINIMUM STANDARD 6		
☒ Pre Construction Impervious Area		
	☒ Total Pre-Construction Impervious Area (**TIA**):2.94 Ac	
	☒ Total Site Area (**TSA**): 3.27 Ac	
	☒ Jurisdictional Wetlands (**JW**) Yes, but not subtracted.	
	☐ Conservation Land (**CL**) N/A	
☒ Calculate the Site Size (defined as contiguous properties under same ownership)		
	☒ Site Size (**SS**) = (**TSA**) – (**JW**) – (**CL**): 3.27-0=3.27	
	☒ (**TIA**) / (**SS**) = 2.94/3.27=0.9>0.4	☒ (**TIA**) / (**SS**) >**0.4**?
☒ YES, Redevelopment		

PART 2. LOW IMPACT DEVELOPMENT ASSESSMENT – MINIMUM STANDARD 1

(NOT REQUIRED FOR REDEVELOPMENT OR RETROFITS)
This section may be deleted if not required.

Note: A written description must be provided specifying why each method is not being used or is not applicable at the Site. Appropriate answers may include:

- Town requires … (state the specific local requirement)
- Meets Town's dimensional requirement of …
- Not practical for site because …
- Applying for waiver/variance to achieve this (pending/approved/denied)
- Applying for wavier/variance to seek relief from this (pending/approved/denied)

A) PRESERVATION OF UNDISTURBED AREAS, BUFFERS, AND FLOODPLAINS	**IF NOT IMPLEMENTED, EXPLAIN HERE**
☒ Sensitive resource areas and site constraints are identified (required) ☒ Local development regulations have been reviewed (required) ☒ All vegetated buffers and coastal and freshwater wetlands will be protected during and after construction ☐ Conservation Development or another site design technique has been incorporated to protect open space and pre-development hydrology. **Note:** If Conservation Development has been used, check box and skip to Subpart C ☒ As much natural vegetation and pre-development hydrology as possible has been maintained	

B) LOCATE DEVELOPMENT IN LESS SENSITIVE AREAS AND WORK WITH THE NATURAL LANDSCAPE CONDITIONS, HYDROLOGY, AND SOILS ☒ Development sites and building envelopes have been appropriately distanced from wetlands and waterbodies ☐ Development and stormwater systems have been located in areas with greatest infiltration capacity (e.g., soil groups A and B) ☐ Plans show measures to prevent soil compaction in areas designated as Qualified Pervious Areas (QPA's) ☐ Development sites and building envelopes have been positioned outside of floodplains ☒ Site design positions buildings, roadways and parking areas in a manner that avoids impacts to surface water features ☒ Development sites and building envelopes have been located to minimize impacts to steep slopes (≥15%) ☐ Other (describe):	
C) MINIMIZE CLEARING AND GRADING ☒ Site clearing has been restricted to minimum area needed for building footprints, development activities, construction access, and safety. ☒ Site has been designed to position buildings, roadways, and parking areas in a manner that minimizes grading (cut and fill quantities) ☒ Protection for stands of trees and individual trees and their root zones to be preserved has been specified, and such protection extends at least to the tree canopy drip line(s) ☐ Plan notes specify that public trees removed or damaged during construction shall be replaced with equivalent	
D) REDUCE IMPERVIOUS COVER ☐ Reduced roadway widths (≤22 feet for ADT ≤ 400; ≤ 26 feet for ADT 400 - 2,000) ☐ Reduced driveway areas (length minimized via reduced ROW width (≤ 45 ft.) and/or reduced (or absolute minimum) front yard setback; width minimized to ≤ 9 ft. wide one lane; ≤ 18 ft. wide two lanes; shared driveways; pervious surface) ☐ Reduced building footprint: Explain approach: ☐ Reduced sidewalk area (≤ 4 ft. wide; one side of the street; unpaved path; pervious surface) ☐ Reduced cul-de-sacs (radius < 45 ft; vegetated island; alternative turn-around) ☐ Reduced parking lot area: Explain approach ☐ Use of pervious surfaces for driveways, sidewalks, parking areas/overflow parking areas, etc. ☐ Minimized impervious surfaces (project meets or is less than maximum specified by Zoning Ordinance) ☒ Other (describe): No increase over existing.	
E) DISCONNECT IMPERVIOUS AREA ☐ Impervious surfaces have been disconnected, and runoff has been diverted to QPAs to the maximum extent possible ☐ Residential street edges allow side-of-the-road drainage into vegetated open swales ☐ Parking lot landscaping breaks up impervious expanse AND accepts runoff ☒ Other (describe): All new roof to be treated.	
F) MITIGATE RUNOFF AT THE POINT OF GENERATION ☒ Small-scale BMPs have been designated to treat runoff as close as possible to the source	
G) PROVIDE LOW-MAINTENANCE NATIVE VEGETATION ☐ Low-maintenance landscaping has been proposed using native species and cultivars ☐ Plantings of native trees and shrubs in areas previously cleared of native vegetation are shown on site plan ☐ Lawn areas have been limited/minimized, and yards have been kept undisturbed to the maximum extent practicable on residential lots	

H) RESTORE STREAMS/WETLANDS ☐ Historic drainage patterns have been restored by removing closed drainage systems, daylighting buried streams, and/or restoring degraded stream channels and/or wetlands ☐ Removal of invasive species ☐ Other	

PART 3. SUMMARY OF REMAINING STANDARDS

GROUNDWATER RECHARGE – MINIMUM STANDARD 2		
YES	**NO**	
☒	☐	The project has been designed to meet the groundwater recharge standard.
☐	☐	If "No," the justification for groundwater recharge criterion waiver has been explained in the Narrative (e.g., threat of groundwater contamination or physical limitation), if applicable (see RICR 8.8.D);
☐	☐	Your waiver request has been explained in the Narrative, if applicable.
☐	☒	Is this site identified as a Regulated Facility in Part 1, Minimum Standard 8: LUHPPL Identification?
☐	☐	If "Yes," has approval for infiltration by the OLRSMM Site Project Manager, per Part 1, Minimum Standard 8, been requested?

TABLE 2-1: Summary of Recharge (see RISDISM Section 3.3.2)
(Add or Subtract Rows as Necessary)

Design Point	Impervious Area Treated (sq ft)	Total Re_v Required (cu ft)	LID Stormwater Credits (see RISDISM Section 4.6.1) Portion of Re_v directed to a QPA (cu ft)	Recharge Required by Remaining BMPs (cu ft)	Recharge Provided by BMPs (cu ft)
New Roof	4,680	97.50		97.50	*
TOTALS:					

Notes:
1. Only BMPs listed in RISDISM Table 3-5 "List of BMPs Acceptable for Recharge" may be used to meet the recharge requirement.
2. Recharge requirement must be satisfied for each waterbody ID.

☐ Indicate where the pertinent calculations and/or information for the above items are provided (i.e., name of report/document, page numbers, appendices, etc.):

*NOTE: PROPRIETARY SYSTEM, DESIGN PROVIDED BY MANUFACTURER, CERTIFIED BY RIDEM

WATER QUALITY – MINIMUM STANDARD 3		
YES	**NO**	
☒	☐	Does this project meet or exceed the required water quality volume WQv (see RICR 8.9.E-I)?
☐	☒	Is the proposed final impervious cover greater than 20% of the disturbed area (see RICR 8.9.E-I)?
☐	☐	If "Yes," either the Modified Curve Number Method or the Split Pervious/Impervious method in Hydro-CAD was used to calculate WQv; or,
☐	☐	If "Yes," either TR-55 or TR-20 was used to calculate WQv; and,
☐	☐	If "No," the project meets the minimum WQv of 0.2 watershed inches over the entire disturbed area.
☐	☐	Not Applicable
☐	☐	Does this project meet or exceed the ability to treat required water quality flow WQf (see RICR 8.9.I.1-3)?
☐	☐	Does this project propose an increase of impervious cover to a receiving water body with impairments? If "Yes," please indicate below the method that was used to address the water quality requirements of no further degradation to a low-quality water.
☐	☐	RICR 8.36. A Pollutant Loading Analysis is needed and has been completed.
☐	☐	The Water Quality Guidance Document (Water Quality Goals and Pollutant Loading Analysis Guidance for Discharges to Impaired Waters) has been followed as applicable.
☐	☐	BMPs are proposed that are on the approved technology list . If "Yes," please provide all required worksheets from the manufacturer.
☐	☐	Additional pollutant-specific requirements and/or pollutant removal efficiencies are applicable to the site as the result of a TMDL, SAMP, or other watershed-specific requirements. If "Yes," please describe:

TABLE 3-1: Summary of Water Quality (see RICR 8.9)

Design Point and WB ID	Impervious area treated (sq ft)	Total WQ_v Required (cu ft)	LID Stormwater Credits (see RICR 8.18) WQv directed to a QPA (cu ft)	Water Quality Treatment Remaining (cu ft)	Water Quality Provided by BMPs (cu ft)
New Roof	4,680	390		390	*
TOTALS:					

Notes:

*NOTE: PROPRIETARY SYSTEM, DESIGN PROVIDED BY MANUFACTURER, CERTIFIED BY RIDEM

☒ YES ☐ NO	This project has met the setback requirements for each BMP. If "No," please explain:

☐ Indicate where the pertinent calculations and/or information for the above items are provided (i.e., name of report/document, page numbers, appendices, etc.):

CONVEYANCE AND NATURAL CHANNEL PROTECTION (RICR 8.10) – MINIMUM STANDARD 4			
YES	**NO**		
☒	☐	Is this standard waived? If "Yes," please indicate one or more of the reasons below:	
		☒	The project directs discharge to a large river (i.e., 4th-order stream or larger. See RISDISM Appendix I for State-wide list and map of stream orders), bodies of water >50.0 acres in surface area (i.e., lakes, ponds, reservoirs), or tidal waters.
		☐	The project is a small facility with impervious cover of less than or equal to 1 acre.
		☐	The project has a post-development peak discharge rate from the facility that is less than 2 cfs for the 1-year, 24-hour Type III design storm event (prior to any attenuation). (Note: LID design strategies can greatly reduce the peak discharge rate).
☐	☐	Conveyance and natural channel protection for the site have been met. If "No,' explain why:	

OVERBANK FLOOD PROTECTION (RICR 8.11) AND OTHER POTENTIAL HIGH FLOWS – MINIMUM STANDARD 5			
YES	**NO**		
☒	☐	Is this standard waived? If yes, please indicate one or more of the reasons below:	
		☒	The project directs discharge to a large river (i.e., 4th-order stream or larger. See Appendix I for state-wide list and map of stream orders), bodies of water >50.0 acres in surface area (i.e., lakes, ponds, reservoirs), or tidal waters.
		☐	A Downstream Analysis (see RICR 8.11.D and E) indicates that peak discharge control would not be beneficial or would exacerbate peak flows in a downstream tributary of a particular site (e.g., through coincident peaks).
☐	☐	Does the project flow to an MS4 system or subject to other stormwater requirements? If "Yes," indicate as follows:	
		☐	RIDOT
		☐	Other (specify):
Note: The project could be approved by RIDEM but not meet RIDOT or Town standards. RIDOT's regulations indicate that post-volumes must be **less** than pre-volumes for the 10-yr storm at the design point entering the RIDOT system. If you have not already received approval for the discharge to an MS4, please explain below your strategy to comply with RIDEM and the MS4.			
		Indicate below which model was used for your analysis. ☐ TR-55 ☐ TR-20 ☐ HydroCAD ☐ Bentley/Haestad ☐ Intellisolve ☐ Other (Specify):	
YES	**NO**		
☐	☐	Does the drainage design demonstrate that flows from the 100-year storm event through a BMP will safely manage and convey the 100-year storm? If "No," please explain briefly below and reference where in the application further documentation can be found (i.e., name of report/document, page numbers, appendices, etc.): NO TO RIDOT	
☐	☐	Do off-site areas contribute to the sub-watersheds and design points? If "Yes,"	
☐	☐	Are the areas modeled as "present condition" for both pre- and post-development analysis?	
☐	☐	Are the off-site areas shown on the subwatershed maps?	
☐	☐	Does the drainage design confirm safe passage of the 100-year flow through the site for off-site runoff?	
☐	☐	Is a Downstream Analysis required (see RICR 8.11.E.1)?	
☐	☐	Calculate the following:	
		☐	Area of disturbance within the sub-watershed (areas):
		☐	Impervious cover (%):
☐	☐	Is a dam breach analysis required (earthen embankments over six (6) feet in height, or a capacity of 15 acre-feet or more, and contributes to a significant or high hazard dam)?	

Table 5-1 Hydraulic Analysis Summary								
Subwatershed (Design Point)	**1.2" Peak Flow (cfs) ****		**1-yr Peak Flow (cfs)**		**10-yr Peak Flow (cfs)**		**100-yr Peak Flow (cfs)**	
	Pre (cfs)	Post (cfs)	Pre (cfs)	Post (cfs)	Pre (cfs)	Post (cfs)	Pre (cfs)	Post (cfs)
DP-1:								
DP-2:								
DP-3:								
DP-4:								
TOTALS:								

** Utilize modified curve number method or split pervious /impervious method in HydroCAD.

Note: The hydraulic analysis must demonstrate no impact to each individual subwatershed DP unless each DP discharges to the same wetland or water resource.

Indicate as follows where the pertinent calculations and/or information for the items above are provided	**Name of report/document, page numbers, appendices, etc.**
Existing conditions analysis for each subwatershed, including curve numbers, times of concentration, runoff rates, volumes, and water surface elevations showing methodologies used and supporting calculations.	
Proposed conditions analysis for each subwatershed, including curve numbers, times of concentration, runoff rates, volumes, water surface elevations, and routing showing the methodologies used and supporting calculations.	
Final sizing calculations for structural stormwater BMPs, including contributing drainage area, storage, and outlet configuration.	
Stage-storage, inflow and outflow hydrographs for storage facilities (e.g., detention, retention, or infiltration facilities).	

Table 5-2 Summary of Best Management Practices											
BMP ID	**DP #**	**BMP Type** (e.g., bioretention, tree filter)	**BMP Functions**					**Bypass Type**	**Horizontal Setback Criteria are met per RICR 8.21.B.10, 8.22.D.11, and 8.35.B.4**		
			Pre-Treatment (Y/N/NA)	Re_v	WQ_v	CP_v (Y/N/NA)	Overbank Flood Reduction (Y/N/NA)	External (E) Internal (I) or NA	Yes/No	Technical Justification (Design Report page number)	Distance Provided
Roof		FocalPoint		x	x						
		TOTALS:									

NOTE: PROPRIETARY SYSTEM, DESIGN PROVIDED BY MANUFACTURER, CERTIFIED BY RIDEM

Table 5.3 Summary of Soils to Evaluate Each BMP									
DP #	BMP ID	BMP Type (e.g., bioretention, tree filter)	Soils Analysis for Each BMP						
			Test Pit ID# and Ground Elevation		SHWT Elevation (ft)	Bottom of Practice Elevation* (ft)	Separation Distance Provided (ft)	Hydrologic Soil Group (A, B, C, D)	Exfiltration Rate Applied (in/hr)
			Primary	Secondary					
Roof		Proprietary							*100
		TOTALS:							
* NOTE: PROPRIETARY SYSTEM, DESIGN PROVIDED BY MANUFACTURER, CERTIFIED BY RIDEM									

LAND USES WITH HIGHER POTENTIAL POLLUTANTS LOADS (LUHPPLs) – MINIMUM STANDARD 8			
YES	**NO**	**N/A**	
☐	☐	☒	Describe any LUHPPLs identified in Part 1, Minimum Standard 8, Section 2. If not applicable, continue to Minimum Standard 9.
☐	☐	☒	Are these activities already covered under an MSGP? If "No," please explain if you have applied for an MSGP or intend to do so?
☐	☐	☒	List the specific BMPs that are proposed for this project that receive stormwater from LUHPPL drainage areas. These BMP types must be listed in RISDISM Table 3-3, "Acceptable BMPs for Use at LUHPPLs." Please list BMPs:
☐	☐	☒	Additional BMPs, or additional pretreatment BMP's if any, that meet RIPDES MSGP requirements; Please list BMPs:
			Indicate below where the pertinent calculations and/or information for the above items are provided (i.e., name of report/document, page numbers, appendices, etc.).

ILLICIT DISCHARGES – MINIMUM STANDARD 9			
Illicit discharges are defined as unpermitted discharges to Waters of the State that do not consist entirely of stormwater or uncontaminated groundwater, except for certain discharges identified in the RIPDES Phase II Stormwater General Permit.			
YES	**NO**	**N/A**	
☐	☒	☐	Have you checked for illicit discharges?
☐	☐	☐	Have any been found and/or corrected? If "Yes," please identify.
☐	☐	☐	Does your report explain preventative measures that keep non-stormwater discharges out of the Waters of the State (during and after construction)?

SOIL EROSION AND SEDIMENT CONTROL (SESC) – MINIMUM STANDARD 10				
YES	**NO**	**N/A**		
☐	☐	☒	Have you included a Soil Erosion and Sediment Control Plan Set and/or Complete Construction Plan Set?	
☐	☐	☒	Have you provided a **separately-bound** document based upon the SESC Template? If yes, proceed to Minimum Standard 11 (the following items can be assumed to be addressed).	
			If "No," include a document with your submittal that addresses the following elements of an SESC Plan:	
			☐	Soil Erosion and Sediment Control Plan Project Narrative, including a description of how the fifteen (15) Performance Criteria have been met:
			☐	Provide Natural Buffers and Maintain Existing Vegetation
			☐	Minimize Area of Disturbance
			☐	Minimize the Disturbance of Steep Slopes
			☐	Preserve Topsoil
			☐	Stabilize Soils
			☐	Protect Storm Drain Inlets
			☐	Protect Storm Drain Outlets
			☐	Establish Temporary Controls for the Protection of Post-Construction Stormwater Control Measures
			☐	Establish Perimeter Controls and Sediment Barriers
			☐	Divert or Manage Run-On from Up-Gradient Areas
			☐	Properly Design Constructed Stormwater Conveyance Channels
			☐	Retain Sediment On-Site
			☐	Control Temporary Increases in Stormwater Velocity, Volume, and Peak Flows
			☐	Apply Construction Activity Pollution Prevention Control Measures
			☐	Install, Inspect, and Maintain Control Measures and Take Corrective Actions
			☐	Qualified SESC Plan Preparer's Information and Certification
			☐	Operator's Information and Certification; if not known at the time of application, the Operator must certify the SESC Plan upon selection and prior to initiating site activities
			☐	Description of Control Measures, such as Temporary Sediment Trapping and Conveyance Practices, including design calculations and supporting documentation, as required

STORMWATER MANAGEMENT SYSTEM OPERATION, MAINTENANCE, AND POLLUTION PREVENTION PLAN – MINIMUM STANDARDS 7 AND 9		
Operation and Maintenance Section		
YES	**NO**	
☒	☐	Have you minimized all sources of pollutant contact with stormwater runoff, to the maximum extent practicable?
☒	☐	Have you provided a **separately-bound** Operation and Maintenance Plan for the site and for all of the BMPs, and does it address each element of RICR 8.17 and RISDISM Appendix C and E?
☒	☐	Lawn, Garden, and Landscape Management meet the requirements of RISDISM Section G.7? If "No," why not?
☒	☐	Is the property owner or homeowner's association responsible for the stormwater maintenance of all BMP's? If "No," you must provide a legally binding and enforceable maintenance agreement (see RISDISM Appendix E, page 26) that identifies the entity that will be responsible for maintenance of the stormwater. Indicate where this agreement can be found in your report (i.e., name of report/document, page numbers, appendices, etc.).
☒	☐	Do you anticipate that you will need legal agreements related to the stormwater structures? (e.g. off-site easements, deed restrictions, covenants, or ELUR per the Remediation Regulations). If "Yes," have you obtained them? Or please explain your plan to obtain them:
☐	☒	Is stormwater being directed from public areas to private property? If "Yes," note the following: Note: This is not allowed unless a funding mechanism is in place to provide the finances for the long-term maintenance of the BMP and drainage, or a funding mechanism is demonstrated that can guarantee the long-term maintenance of a stormwater BMP by an individual homeowner.
Pollution Prevention Section		

☐	☒	Designated snow stockpile locations?
☐	☒	Trash racks to prevent floatables, trash, and debris from discharging to Waters of the State?
☒	☐	Asphalt-only based sealants?
☐	☒	Pet waste stations? (Note: If a receiving water has a bacterial impairment, and the project involves housing units, then this could be an important part of your pollution prevention plan).
☐	☒	Regular sweeping? Please describe:
☐	☒	De-icing specifications, in accordance with RISDISM Appendix G. (NOTE: If the groundwater is GAA, or this area contributes to a drinking water supply, then this could be an important part of your pollution prevention plan).
☐	☒	A prohibition of phosphate-based fertilizers? (Note: If the site discharges to a phosphorus impaired waterbody, then this could be an important part of your pollution prevention plan).

PART 4. SUBWATERSHED MAPPING AND SITE-PLAN DETAILS

Existing and Proposed Subwatershed Mapping (REQUIRED)			
YES	**NO**		
☒	☐		Existing and proposed drainage area delineations
☒	☐		Locations of all streams and drainage swales
☒	☐		Drainage flow paths, mapped according to the DEM *Guidance for Preparation of Drainage Area Maps* (included in RISDISM Appendix K)
☒	☐		Complete drainage area boundaries; include off-site areas in both mapping and analyses, as applicable
☒	☐		Logs of borings and/or test pit investigations along with supporting soils/geotechnical report
☒	☐		Mapped seasonal high-water-table test pit locations
☒	☐		Mapped locations of the site-specific borings and/or test pits and soils information from the test pits at the locations of the BMPs
☒	☐		Mapped locations of the BMPs, with the BMPs consistently identified on the Site Construction Plans
☒	☐		Mapped bedrock outcrops adjacent to any infiltration BMP
☒	☐		Soils were logged by a:
		☒	DEM-licensed Class IV soil evaluator Name: Thomas J. Principe, III
		☒	RI-registered P.E. Name: Thomas J. Principe, III

Subwatershed and Impervious Area Summary				
Subwatershed (area to each design point)	**First Receiving Water ID or MS4**	**Area Disturbed (units)**	**Existing Impervious (units)**	**Proposed Impervious (units)**
DP-1: SITE	PT. JUDITH POND	32,972 SF	32,972 SF	32,972 SF
DP-2:				
DP-3:				
DP-4:				
TOTALS:				

Site Construction Plans (Indicate that the following applicable specifications are provided)		
YES	**NO**	
☒	☐	Existing and proposed plans (scale not greater than 1" = 40') with North arrow
☒	☐	Existing and proposed site topography (with 1 or 2-foot contours); 10-foot contours accepted for off-site areas
☒	☐	Boundaries of existing predominant vegetation and proposed limits of clearing
☒	☐	Site Location clarification
☐	☒	Location and field-verified boundaries of resource protection areas such as: ► freshwater and coastal wetlands, including lakes and ponds ► coastal shoreline features Perennial and intermittent streams, in addition to Areas Subject to Storm Flowage (ASSFs)
☒	☐	All required setbacks (e.g., buffers, water-supply wells, septic systems)
☒	☐	Representative cross-section and profile drawings, and notes and details of structural stormwater management practices and conveyances (i.e., storm drains, open channels, swales, etc.), which include: ► Location and size of the stormwater treatment practices (type of practice, depth, area). Stormwater treatment practices (BMPs) must have labels that correspond to RISDISM Table 5-2; ► Design water surface elevations (applicable storms); ► Structural details of outlet structures, embankments, spillways, stilling basins, grade-control structures, conveyance channels, etc.; ► Existing and proposed structural elevations (e.g., inverts of pipes, manholes, etc.); ► Location of floodplain and, if applicable, floodway limits and relationship of site to upstream and downstream properties or drainage that could be affected by work in the floodplain; ► Planting plans for structural stormwater BMPs, including species, size, planting methods, and maintenance requirements of proposed planting
☒	☐	Logs of borings and/or test pit investigations along with supporting soils/geotechnical report and corresponding water tables
☐	☒	Mapping of any OLRSMM-approved remedial actions/systems (including ELURs)
☒	☐	Location of existing and proposed roads, buildings, and other structures including limits of disturbance; ► Existing and proposed utilities (e.g., water, sewer, gas, electric) and easements; ► Location of existing and proposed conveyance systems, such as grass channels, swales, and storm drains, and location(s) of final discharge point(s) (wetland, waterbody, etc.); ► Cross sections of roadways, with edge details such as curbs and sidewalks; ► Location and dimensions of channel modifications, such as bridge or culvert crossings
☐	☒	Locations, cross sections, and profiles of all stream or wetland crossings and their method of stabilization

Rhode Island Department of Environmental Management

Office of Water Resources – Stormwater Technology Review Committee
235 Promenade St. Providence, RI 02908 Ph: 401-222-4700

Alternative Stormwater Technology Program

Vendor Information:
Convergent Water Technologies
13810 Hollister Road
Houston, TX 77086

Contact:
W. Scott Gorneau, P.E.
Vice President
Email: sgorneau@convergentwater.com
Web: www.convergentwater.com
Phone: 207-885-6174

Technology Name:
FocalPoint High Performance Modular Biofiltration System (HPMBS)

Approval Type:
WQBMP, Retrofits, Pre-Treatment

Certification Dates:
Issued: October 4, 2021
Expires: October 4, 2026

CERTIFICATION:

The Rhode Island Stormwater Technology Review Committee which consists of members from the Department of Environmental Management (DEM), Department of Transportation (DOT) and the Coastal Resources Management Council (CRMC) have reviewed the **FocalPoint** High Performance Modular Biofiltration System (HPMBS) application for Technology Approval and accepted use for Stormwater Treatment in the State of Rhode Island.

In accordance with Stormwater Rule 250-RICR-150-10-8.9B, **Convergent Water Technologies** has petitioned the permitting agencies to add the **FocalPoint** HPMBS to the list of acceptable structural stormwater controls described in Sections 8.19 through 8.25 of Stormwater Rule 250-RICR-150-10. They have submitted monitoring results and supporting information developed in accordance with the provisions of the Technology Assessment Protocol for Innovate and Emerging Technologies as described in Stormwater Rule 250-RICR-150-10 Sections 8.39 and 8.40.

The **FocalPoint** HPMBS is granted reciprocity in Rhode Island as a proprietary stormwater treatment technology, given that it has been certified by other State agencies which are members of the Technology Acceptance Reciprocity Partnership. The device was certified by the Maryland Department of Environment as a micro-bioretention practice in September of 2018. The Pennsylvania Department of Environmental Protection has also certified the device as a constructed filter approved for stand-alone treatment on new construction projects. Additionally, the Virginia Department of Environmental Quality certified the **FocalPoint** as a manufactured treatment device (MTD) in June 2016. These approvals/certifications issued by TARP member States were granted as a result of the multiple field studies of the **FocalPoint** which were conducted in accordance with the protocol specified by the Washington Department of Ecology's Technology Assessment Protocol – Ecology (TAPE). The first TAPE field study was conducted by Civil and Environmental Consultants, Inc. at a parking lot on Campbell Run Road in Pittsburgh, Pennsylvania during the period of July 2015 to May 2016. Another TAPE field study was conducted by the NAVFAC Engineering and Expeditionary Warfare Center at the Navy Fleet Readiness Center Metal Finishing Complex located on Naval Base Point Loma in San Diego, California during the period of February 2018 to May 2019. A third field study was also conducted in accordance with the North Carolina Department of Environmental Quality and University Field Monitoring Protocols to determine total suspended solids (TSS) and pathogen removal. This study was conducted by North Carolina State University's Department of Biological and Agricultural Engineering on a roadside swale South of US Route 17 in Brunswick County, North Carolina during the period of February 2014 to February 2015.

The **FocalPoint** HPMBS is a structural stormwater treatment system developed by **Convergent Water Technologies**. The system utilizes regionally acceptable vegetation housed in an open-bed style without the use of

a pre-cast concrete container. The system contains energy dissipator stones at the inlet, a mulch layer to capture debris, a layer of engineered soil media, an overflow/bypass outlet, and a modular underdrain system.

This device varies from the design guidance for filtering systems described in Stormwater Rule 250-RICR-150-10-8.23 because of the device's atypically high flow-rate engineered soil media in lieu of traditional filter low flow medias such as: ASTM C33 concrete sand, USDA loamy sand or USDA sandy loam. Additionally, the device in and of itself does not meet minimum requirements for filter bed area or minimum temporary water quality storage. However, the increased infiltration rate compensates for the device's smaller filter bed area and temporary storage. The manufacturer has demonstrated through the provided field studies that the device provides the minimum water quality pollutant removal rates specified in Stormwater Rule 250-RICR-150-10-8.9B. It is approved in Rhode Island for the following pollutant removals when designed with a maximum infiltration rate of 100 inches per hour: **85%** removal of total suspended solids (TSS), **60%** removal of pathogens, **30%** removal of total phosphorus (TP) for discharges to freshwaters, and **30%** removal of total nitrogen (TN) for discharges to tidal waters. This device may be used as an approved water quality BMP provided that the design, installation, and maintenance are conducted in accordance with the following terms and conditions:

I. GENERAL CERTIFICATION REQUIREMENTS

1. The system must be designed and installed to adhere to the manufacturer's specifications titled "SPECIFICATION: HIGH PERFORMANCE MODULAR BIOFILTRATION SYSTEM (HPMBS) Material, Performance and Installation Specification". https://acfenvironmental.com/wp-content/uploads/2015/09/S.1FocalPoint_Specification.pdf

2. The system must be designed to incorporate a PRETX, Rain Guardian or water quality manhole upstream of the filter bed so as to provide a sump to capture and store sediment.
    a. The maximum drainage area that can be directed to each PRETX unit is 1 acre.
    b. The maximum drainage area that can be directed to each upstream water quality manhole is 0.5 acres.
    c. The maximum drainage area that can be directed to each Rain Guardian unit is 0.25 acres.

3. The system must utilize a minimum 3 inch layer of hardwood mulch, a minimum 18 inch layer of the engineered soil media as defined by the device's specification.

4. Systems designed with a modular underdrain must utilize a minimum 6 inch layer of washed 3/8" bridging stone and a high-tenacity monofilament polypropylene yarn, open mesh, woven geotextile to separate the soil media and the underdrain.

5. The system must utilize a plant or plants listed in *Table 2: Approved List of Plants for FocalPoint Systems in Rhode Island*.

6. The **FocalPoint** HPMBS is **certified as a pretreatment device** in accordance with Stormwater Rule 250-RICR-150-10-8.31, provided the device treats the first inch of runoff from the capture area, unless waived by the state permitting agency.

7. The vendor must provide applicants with a signed letter which verifies that the design for each proprietary device meets the requirements set forth in this certification letter and the device's specification. The applicant must include this verification letter as part of their application.

8. A representative from the vendor must be on site during the installation of systems to ensure that the system is installed in accordance with the manufacturer's specifications and the approved design.

9. The **FocalPoint** HPMBS is **certified as a retrofit device** in accordance with Stormwater Rule 250-RICR-150-10-8.6A. Retrofits are allowed flexibility with regards to the eleven minimum standards described in Sections 8.6 through 8.17 of Stormwater Rule 250-RICR-150-10, but in general they are considered effective if they capture at least 50% of the catchment and meet the target water quality treatment of at least the first 0.5 inches of the water quality volume.

10. This device is **certified as a Water Quality BMP** in accordance with pollutant removal requirements specified in Stormwater Rule 250-RICR-150-10-8.9B, provided that:

    a. The unit is sized to treat the water quality volume and the water quality flow. The filter bed area must be sized to be at least 0.44% of the impervious area that drains into it (this equates to approximately 192 square feet of filter bed area per acre of impervious cover). Pre-detention practices may be utilized as long as the first inch of runoff is treated. Should the permitting agency waive or relieve the applicant from treatment of the full water quality volume (i.e., retrofits or redevelopments), the applicant is granted relief and may design the system to treat a smaller volume, as required by the permitting agency.

    b. This product meets recharge volume requirements, as specified in Stormwater Rule 250-RICR-150-10-8.8, only if designed with a modular underdrain that meets all requirements of a water quality stormwater infiltration practice (excluding standard storage sizing requirements), as specified in Stormwater Rule 250-RICR-150-10-8.21. However, use of **FocalPoint** HPMBS products not designed to infiltrate into in-situ soils are not prohibited so long as the applicant can demonstrate to the permitting agency that the required recharge is met within the sub-watershed, unless waived by the state permitting agency on a case-by-case basis (i.e., LUHHPLs, retrofits or redevelopments).

II. MAINTENANCE REQUIREMENTS

1. The device must be maintained in accordance with the manufacturer's specifications provided in the **FocalPoint** HPMBS Operation & Maintenance Manual, which can be found on the manufacturer's website. https://convergewater.wpengine.com/wp-content/uploads/2021/06/focalpoint-operations-maintenance-guide.pdf

2. The entire device (mulch, soil media, underdrain, etc.) must be maintained in accordance with the requirements for filtering system water quality BMPs, as stated in Stormwater Rule 250-RICR-150-10-8.23-F.3 which requires that the entire device must be inspected on at least an annual basis and after storms equal to or greater than the 1-year Type-III 24-hour design storm.

3. The device must be maintained in accordance with Stormwater Rule 250-RICR-150-10-8.23-F.1b which requires that "silt/sediment shall be removed from the filter bed when the accumulation exceeds one inch. When the filtering capacity of the device diminishes substantially (water ponds on the surface of the filter bed for more than 48 hours), the top few inches of discolored material shall be removed and shall be replaced with fresh material" (where "fresh material" means the engineered soil media described in the manufacturer's specification). If it is determined that replacing the top few inches of discolored material (or other restoration methods) does not restore the device's filtering capacity (water is still ponding on the filter bed for more than 48 hours), then the entirety of the device's filtering media must be replaced with fresh material.

4. The device's sump (i.e., PRETX, Rain Guardian, or upstream manhole) must be maintained in accordance with the requirements for proprietary pre-treatment devices, as stated in Stormwater Rule 250-RICR-150-10-8.31-C, which requires the sump to be inspected a minimum of 2 times per year. Additionally, the sump must be cleaned out when 50% or more of the pollutant storage capacity is filled or displaced.

5. All material removed from the unit must be properly disposed of and is the responsibility of the owner.

6. The applicant must provide evidence of a maintenance contract which extends for a minimum of two years. The contracted maintenance provider must receive training by **Convergent Water Technologies** on how to properly maintain **FocalPoint** HPMBS devices. This requirement excludes maintenance providers recognized by the RIDEM to be qualified in the maintenance of **FocalPoint** HPMBS devices.

7. The applicant must include a copy of the **FocalPoint** HPMBS Operation & Maintenance Manual in their project specific long term operation and maintenance plan.

III. REPORTING REQUIREMENTS

1. Upon request from the owner of any **FocalPoint** HPMBS system installed in the State of Rhode Island, the vendor shall provide the owner with a recommended maintenance schedule after the first year of operation. If a recommended maintenance schedule is requested by the owner after the first year of the device's operation, then the owner is responsible for notifying the vendor of any additional pollutant loads on sites where contributing drainage areas may be subject to further development (i.e., strip malls).

2. The Vendor shall provide a listing to the RIDEM Office of Water Resources of all systems installed within the State of Rhode Island on an annual basis. This list shall also include the name of the Vendor representative who was on-site to verify proper installation of each system.

3. The Vendor shall provide an annual listing to the RIDEM Office of Water Resources of all Rhode Island maintenance providers that they trained in **FocalPoint** HPMBS maintenance.

4. The Vendor shall immediately notify the RIDEM Office of Water Resources if and when any changes are made to the model name or number of any **FocalPoint** HPMBS device applicable to this certification.

5. The Vendor shall immediately notify the RIDEM Office of Water Resources if and when any revisions are made to the design, installation or operation and maintenance manuals for all models applicable to this certification.

6. The Vendor shall notify the RIDEM within at least thirty (30) days following any proposed transfer of ownership of the Component technology. Notification shall include the name and address of the new owner and a written agreement between the existing and new owner specifying a date for transfer of ownership, responsibility, and liability for the Component. All provisions of this Certification shall be applicable to any new owners.

IV. RIGHTS OF THE RIDEM AND CRMC

1. The RIDEM may suspend, modify or revoke this approval for cause, including but not limited to non-compliance with any of the conditions or provisions of this approval, mis-representation or failure to fully disclose all relevant data, or receipt of new information indicating that the use of the **FocalPoint** HPMBS system is contrary to the public interest, public health or the environment.

2. This approval does not represent an endorsement of the **FocalPoint** HPMBS system by the RIDEM, RIDOT or CRMC. This letter of approval may be reproduced only in its entirety.

3. The **FocalPoint** HPMBS Bioretention System Standard Specification and **FocalPoint** HPMBS operation and maintenance manual referenced herein are approved upon the date of approval of this Certification.

4. The RIDEM reserves the right to suspend or revoke this Certification if updated design, installation, and O&M manuals are not provided to the RIDEM within thirty (30) days of RIDEM request or one hundred and eighty (180) days prior to the expiration date of this Certification. All revisions must be reviewed and approved by the RIDEM prior to re-certification.

Eric Beck

Digitally signed by Eric Beck
Date: 2021.10.12 10:09:42 -04'00'

Eric A. Beck, P.E. Date
Administrator of Groundwater and Wetlands Protection
RIDEM – Office of Water Resources

ATTACHMENTS:

Table 2: Approved List of Plants for FocalPoint Systems in Rhode Island

Common Name/Species	*Spacing*	*Exposure*	*Comments*
American Beach Grass/ Ammophila breviligulata	*24" on center*	*Full and high high temperatures*	*Tolerates wet to well-drained soil; flowers appear to float; high wildlife value.*
Switchgrass/Pancium virgatum	*24" on center*	*Full sun, high temperatures*	*Tolerates wet to well-drained soil; flowers appear to float; high wildlife value.*
Day Lily/ Hemerocallis	*24" on center*	*Full sun, tolerate shade*	*Yellow, Red and Pink colors available. Many red and purple varieties benefit from partial shade in the hottest part of the day since dark colors absorb heat and do not withstand the sun as well as lighter colors.*
Black Eyed Susan/Rudbeckia hirta	*24" on center*	*Full sun, tolerate shade*	*Widely cultivated in parks and gardens, for summer bedding schemes, borders, containers, wildflower gardens, prairie-style plantings and cut flowers.*
Cone Flower/Echinacea	*24" on center*	*Full sun, tolerate shade*	*Herbaceous flowering plant in the daisy family. Grows in moist to dry prairies and open wooded areas.*

DESIGNING WITH FOCALPOINT IN RHODE ISLAND (CONTINUED)

4. **Pretreatment Device: System must incorporate pretreatment device based on drainage area (select one):**
   - Rain Guardian (impervious drainage area of 0.25 acres or less) ☐
   - Upstream water quality manhole (drainage area of 0.50 acres or less) ☐
   - PRETX Unit (drainage area of 1 acre or less) ☐

5. **Recharge, channel protection and over-bank flood protection of major storms.**
   The R-Tank modular underdrain can be expanded beyond the footprint of the FocalPoint treatment area to meet groundwater recharge volume, conveyance, natural channel protection and over-bank flood protection requirements per the Rhode Island Stormwater Design & Installation Standards Manual. Contact Ferguson for additional information on designing expanded R-Tank systems.

6. **Prepare a landscape plan including approved plantings for the FocalPoint system (per RIDEM approval letter).**

7. **Ensure manufacturer's representative verifies the design of each FocalPoint system with a signed letter as required in the applicant's submission to the RIDEM.**

8. **Coordinate installation oversight provided by manufacturer's representative.**

Approved Plant List by Common Name/Species

- American Beach Grass/Ammophila Breviligulata
- Switchgrass/Pancium Virgatum
- Day Lily/Hemerocallis
- Black Eyed Susan/Rudbeckia Hirta
- Cone Flower/Echinacea

FOCALPOINT SYSTEMS

FOCALPOINT ACCESSORIES

Pretreatment–Rain Guardian Turret

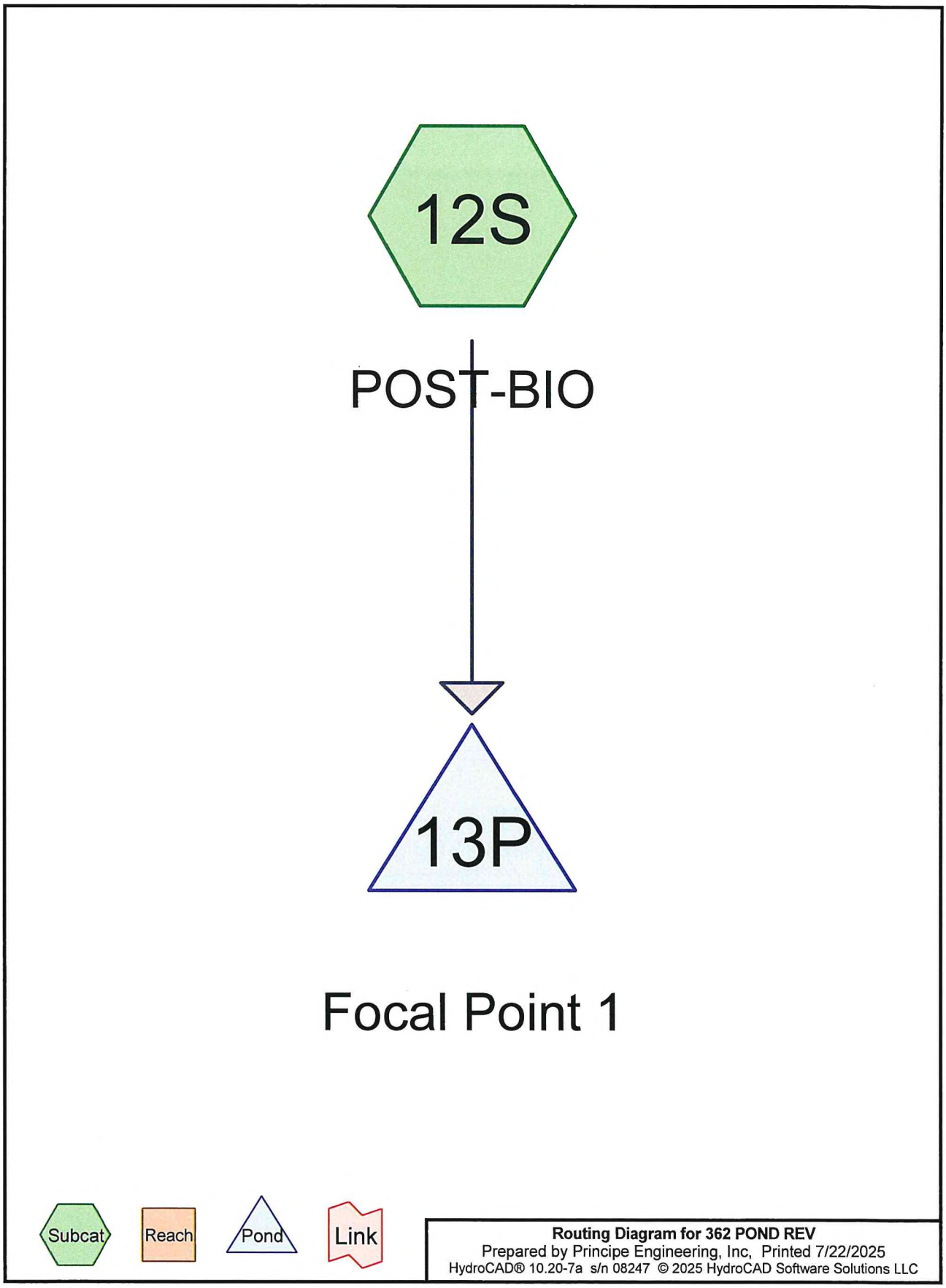
Pretreatment–Rain Guardian Foxhole

Pretreatment–PreTx

Bypass Protection–Domed Overflow with Filter Insert

For additional information, please visit: fergusongss.com

Contact Maggie Chase - Green Stormwater Infrastructure Specialist
Cell: (959) 867-8854 | Email: Maggie.Chase@ferguson.com



Routing Diagram for 362 POND REV
Prepared by Principe Engineering, Inc, Printed 7/22/2025
HydroCAD® 10.20-7a s/n 08247 © 2025 HydroCAD Software Solutions LLC

Area Listing (all nodes)

Area (sq-ft)	CN	Description (subcatchment-numbers)
4,680	98	New Roof,HSG C (12S)
4,680	**98**	**TOTAL AREA**

Soil Listing (all nodes)

Area (sq-ft)	Soil Group	Subcatchment Numbers
0	HSG A	
0	HSG B	
4,680	HSG C	12S
0	HSG D	
0	Other	
4,680		**TOTAL AREA**

Ground Covers (all nodes)

HSG-A (sq-ft)	HSG-B (sq-ft)	HSG-C (sq-ft)	HSG-D (sq-ft)	Other (sq-ft)	Total (sq-ft)	Ground Cover	Subcatchment Numbers
0	0	4,680	0	0	4,680	New Roof	1 2 S
0	**0**	**4,680**	**0**	**0**	**4,680**	**TOTAL AREA**	

Time span=0.00-30.00 hrs, dt=0.01 hrs, 3001 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 12S: POST-BIO Runoff Area=4,680 sf 100.00% Impervious Runoff Depth=0.79"
Tc=6.0 min CN=98 Runoff=0.10 cfs 308 cf

Pond 13P: Focal Point 1 Peak Elev=7.08' Storage=183 cf Inflow=0.10 cfs 308 cf
Discarded=0.00 cfs 239 cf Primary=0.00 cfs 0 cf Outflow=0.00 cfs 239 cf

Total Runoff Area = 4,680 sf Runoff Volume = 308 cf Average Runoff Depth = 0.79"
0.00% Pervious = 0 sf 100.00% Impervious = 4,680 sf

Summary for Subcatchment 12S: POST-BIO

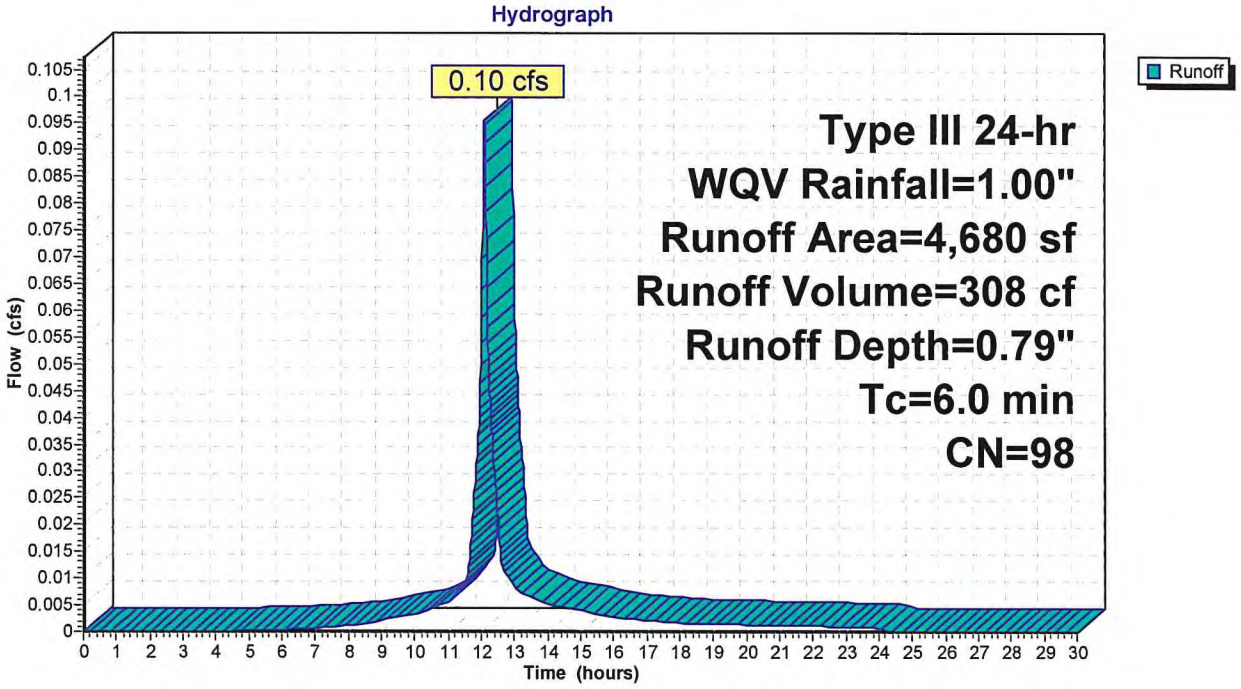
Runoff = 0.10 cfs @ 12.08 hrs, Volume= 308 cf, Depth= 0.79"
Routed to Pond 13P : Focal Point 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr WQV Rainfall=1.00"

	Area (sf)	CN	Description
*	4,680	98	New Roof,HSG C
	4,680	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 12S: POST-BIO



Summary for Pond 13P: Focal Point 1

Inflow Area = 4,680 sf,100.00% Impervious, Inflow Depth = 0.79" for WQV event
Inflow = 0.10 cfs @ 12.08 hrs, Volume= 308 cf
Outflow = 0.00 cfs @ 11.04 hrs, Volume= 239 cf, Atten= 97%, Lag= 0.0 min
Discarded = 0.00 cfs @ 11.04 hrs, Volume= 239 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf
Routed to nonexistent node 11L

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 7.08' @ 15.74 hrs Surf.Area= 270 sf Storage= 183 cf

Plug-Flow detention time= 452.2 min calculated for 239 cf (78% of inflow)
Center-of-Mass det. time= 372.0 min (1,159.9 - 787.9)

Volume	Invert	Avail.Storage	Storage Description
#1	7.70'	9 cf	**3.00'W x 7.00'L x 2.08'H Focal Point 1** 44 cf Overall x 20.0% Voids
#2	9.78'	57 cf	**Surface Bowl (Prismatic)** Listed below (Recalc) -Impervious
#3A	6.00'	152 cf	**11.87'W x 22.77'L x 2.19'H Field A** 593 cf Overall - 213 cf Embedded = 380 cf x 40.0% Voids
#4A	6.25'	203 cf	**Ferguson R-Tank HD 1** x 48 Inside #3 Inside= 15.7"W x 17.3"H => 1.80 sf x 2.35'L = 4.2 cf Outside= 15.7"W x 17.3"H => 1.89 sf x 2.35'L = 4.4 cf 48 Chambers in 6 Rows
		420 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
9.78	43	0	0
10.00	64	12	12
10.50	116	45	57

Device	Routing	Invert	Outlet Devices
#1	Discarded	6.00'	**0.500 in/hr Exfiltration from R-Tank over Surface area** Phase-In= 0.10'
#2	Primary	10.25'	**2.0' long x 2.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32

Discarded OutFlow Max=0.00 cfs @ 11.04 hrs HW=6.14' (Free Discharge)
↑**1=Exfiltration from R-Tank** (Exfiltration Controls 0.00 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=6.00' (Free Discharge)
↑**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 13P: Focal Point 1 - Chamber Wizard Field A

Chamber Model = Ferguson R-Tank HD 1 (Ferguson R-Tank HD)
Inside= 15.7"W x 17.3"H => 1.80 sf x 2.35'L = 4.2 cf
Outside= 15.7"W x 17.3"H => 1.89 sf x 2.35'L = 4.4 cf

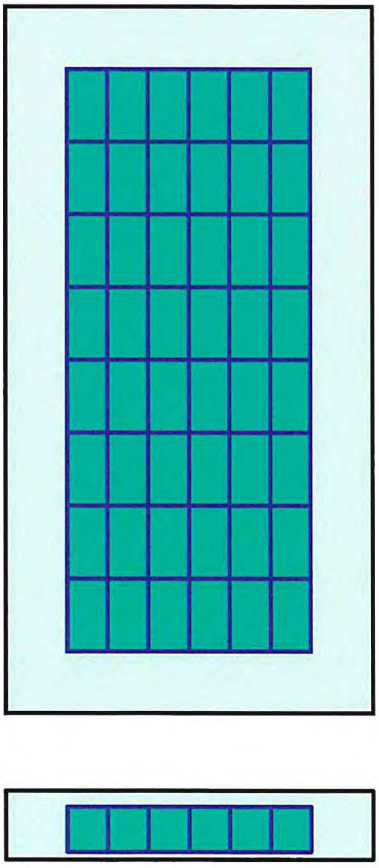
8 Chambers/Row x 2.35' Long = 18.77' Row Length +24.0" End Stone x 2 = 22.77' Base Length
6 Rows x 15.7" Wide + 24.0" Side Stone x 2 = 11.87' Base Width
3.0" Stone Base + 17.3" Chamber Height + 6.0" Stone Cover = 2.19' Field Height

48 Chambers x 4.2 cf = 202.6 cf Chamber Storage
48 Chambers x 4.4 cf = 213.3 cf Displacement

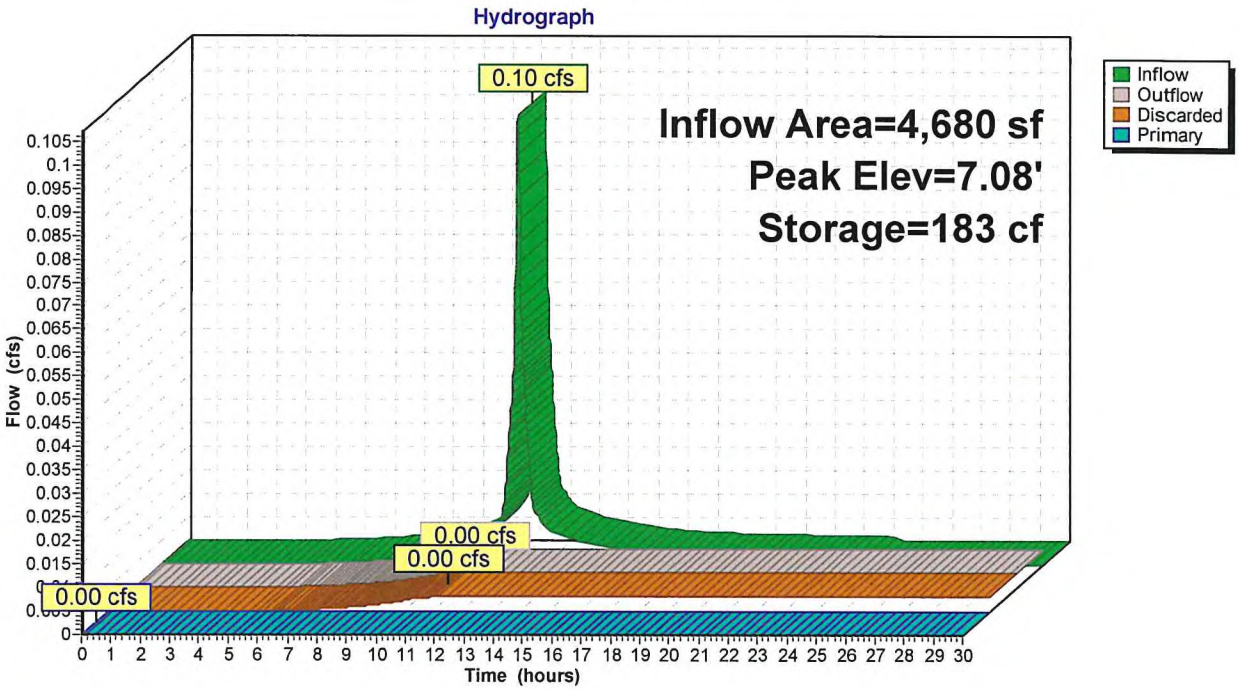
593.0 cf Field - 213.3 cf Chambers = 379.7 cf Stone x 40.0% Voids = 151.9 cf Stone Storage

Chamber Storage + Stone Storage = 354.5 cf = 0.008 af
Overall Storage Efficiency = 59.8%
Overall System Size = 22.77' x 11.87' x 2.19'

48 Chambers
22.0 cy Field
14.1 cy Stone



Pond 13P: Focal Point 1



SPECIFICATION
HIGH PERFORMANCE MODULAR BIOFILTRATION SYSTEM (HPMBS)
Material, Performance and Installation Specification

I. Summary

The following general specifications describe the components and installation requirements for a volume based High Performance Modular Biofiltration System (HPMBS) that utilizes physical, chemical and biological mechanisms of a soil, plant and microbe complex to remove pollutants typically found in urban storm water runoff. The modular treatment system in which the biologically active biofiltration media is used shall be a complete, integrated system designed to be placed in Square Foot or Linear Foot increments per the approved drawings to treat contaminated runoff from impervious surfaces.

The High Performance Modular Biofiltration System (HPMBS) is comprised of the following components:

A. Plant Component

1. Manufacturer shall provide a regionalized list of acceptable plants.
2. Plants, as specified in the approved drawings/manufacturer's plant list, shall be installed at the time the HPMBS is commissioned for use.
3. Plants and planting are typically included in landscape contract.

B. Biofilter Component

1. This component employs a high performance cross-section in which each element is highly dependent on the others to meet the performance specification for the complete system. It is important that this entire cross-section be provided as a complete system and installed as such.

2. As indicated in the approved drawings, the elements of the Biofilter include:

   A. *A mulch protective layer (if specified).*

   B. *An advanced high infiltration rate biofiltration planting media bed which utilizes physical, chemical and biological mechanisms of the soil, plant, and microbe complex, to remove pollutants found in storm water runoff.*

   C. *A separation layer which utilizes the concept of 'bridging' to separate the biofiltration media from the underdrain without the use of geotextile fabrics.*

   D. *A wide aperture mesh layer utilized to prevent bridging stone from*

entering the underdrain/storage element.

E. *A modular, high infiltration rate 'flat pipe' style underdrain/storage system which is designed to directly infiltrate or exfiltrate water through its surface. The modular underdrain must provide a minimum of 95% void space.*

C. Energy Dissipation Component

1. An Energy Dissipation Component is typically specified to slow and spread out water as it enters the system. This component is dependent upon the design in the approved drawings, but typically consists of a rock gabion, rock filter dam or dense vegetation element, such as native grasses, either surrounding the Biofiltration Component or located immediately upstream of it.

D. Pretreatment Component

1. Pretreatment, when specified, is typically accomplished by locating the Biofiltration Component downstream of a swale, curb cut/rock apron, sediment forebay, deep or shallow sump water quality manhole, etc. These BMPs should target trash and debris and medium to coarse sediment.

E. Observation and Maintenance Component

1. An Observation and Maintenance Port shall be installed per the approved drawings to provide for easy inspection of the underdrain/storage element, and cleanout access if needed.

F. Extreme Event Overflow (by others)

1. An Extreme Event Overflow should be located external to, but near the Biofiltration element to provide bypass when needed. This may be an overland flow bypass structure, beehive overflow grate structure, or equivalent that serves the purpose. If a beehive overflow structure is utilized it should include a removable filter insert to provide a minimum of 50% TSS removal and control of gross pollutants, trash and floatables.

II. Quality Assurance and Performance Specifications

The quality and composition of all system components and all other appurtenances and their assembly process shall be subject to inspection upon delivery of the system to the work site.

Installation is to be performed only by skilled work people with satisfactory record of performance on earthworks, pipe, chamber, or pond/landfill construction projects of comparable size and quality.

A. Plants

1. Plants must be compatible with the HPMBS media and the associated highly variable hydrologic regime. Plants are typically facultative with fibrous roots systems such as native grasses and shrubs.

2. Manufacturer shall provide a regionalized list of acceptable plants.

3. All plant material shall comply with the type and size required by the approved drawings and shall be alive and free of obvious signs of disease.

B. Mulch

1. Mulch, typically double shredded hardwood (non-floatable), shall comply with the type and size required by the approved drawings, and shall be screened to minimize fines. Rock mulch is an alternative to wood-based mulch and typically consists of clean, rounded river rock (3-4' diam in size).

C. Biofiltration Media

1. Biologically active biofiltration media shall be visually inspected to ensure appropriate volume, texture and consistency with the approved drawings, and must bear a batch number marking from the manufacturer which certifies performance testing of the batch to meet or exceed the required infiltration rate (100 in/hr). A third-party laboratory test must be provided to certify the 100 in/hr rate.

2. At no additional cost and within the first year following installation, authorized value-added reseller shall provide one site visit/maintenance training at the request of owner or owner's representative.

3. Pollutant Removal performance, composition and characteristics of the Biofiltration Media must meet or exceed the following minimum standards as demonstrated by testing acceptable to the project engineer:

Pollutant	**Removal Efficiency**
TSS	91%
Phosphorus	66%
Nitrogen	48%
Composition and Characteristics	
Sand - Fine	< 5%
Sand – Medium	10% - 15%
Sand – Coarse	15% - 25%
Sand – Very Coarse	40% - 45%
Gravel	10% - 20%
Infiltration Rate	>100 inches per hour
Peat Moss*	5% - 15%
*** Peat Moss Specification**	

Listed by Organic Materials Review Institute 100% natural peat (no composted, sludge, yard or leaf waste) Total Carbon >85% Carbon to Nitrogen Ratio 15:1 to 23:1 Lignin Content 49% to 52% Humic Acid >18% pH 6.0 to 7.0 Moisture Content 30% to 50% 95% to 100% passing 2.0mm sieve > 80% passing 1.0mm sieve

D. Underdrain/Storage System

1. Underdrain/storage components shall be manufactured in an ISO certified facility and be manufactured from at least 90% post-consumer recycled materials.

2. Underdrain/storage components shall meet or exceed the following characteristics:

Property	Value
Surface Void Area	≥ 85%
Unit Weight	3.25 lbs/cf
Service Temperature	-14° to 167°
Unconfined Crush Strength	32.48 psi
180 Day Creep Test	
Load Applied – Initial and Sustained	11.16 psi
• Creep Sustained – After 180 Days	0.20 inches
• Creep Sustained – After 180 Days	1.13 %
• Projected Creep – 40 years	1.72%

E. Separation Mesh

1. Separation Mesh shall be composed of high-tenacity monofilament polypropylene yarns that are woven together to produce an open mesh geotextile which shall be inert to biological degradation and resistant to naturally encountered chemicals, alkalis and acids. The mesh shall meet or exceed the following characteristics:

Properties	Test Method	Unit	Min Ave Roll Value	
			MD	CD
Tensile Strength	ASTM D4595	kN/m (lbs/ft)	21 (1440)	25.3 (1733)
Creep Reduced Strength	ASTM D5262	kN/m (lbs/ft)	6.9 (471)	8.3 (566)
Long Term Allowable Design Load	GRI GG-4	kN/m (lbs/ft)	5.9 (407)	7.2 (490)
UV Resistance (at 500 hours)	-	% strength retained	90	

Aperture Size (machine direction)	-	mm (in)	2 (0.08)
Aperture Size (cross machine direction)	-	mm (in)	2 (0.08)
Mass/Unit Area	ASTM D5261	g/m^2 (oz/yd^2)	197 (5.8)

F. Bridging Stone

1. Bridging Stone shall be 3/8" pea gravel, or other diameter sized to prevent migration of filter media, as specified by manufacturer.

2. Stone must be washed and free from sediment, soil and contaminants.

III. Delivery, Storage and Handling

A. Protect all materials from damage during delivery and store UV sensitive materials under tarp to protect from sunlight including all plastics, when time from delivery to installation exceeds one week. Storage should occur on smooth surfaces, free from dirt, mud and debris.

B. Biofiltration media shall be segregated from any other aggregate materials and shall be protected against contamination, including contamination from any stormwater runoff from areas of the site which are not stabilized.

IV. Submittals

A. Product Data

1. Submit manufacturer's product data and approved Installation Manual as well as manufacturer's Operations and Maintenance Manual for the system. It will be the responsibility of the system owner/operator or their contractor to ensure the system is operated and maintained in accordance with the manual.

B. Certification

1. Manufacturer shall submit a letter of certification that the complete system meets or exceeds all technical and packaging requirements. Biofiltration media packaging must bear a batch number marking from the manufacturer which matches a letter from the manufacturer certifying performance testing of the batch to meet or exceed the required infiltration rate.

C. Drawings

1. Manufacturer shall provide dimensional drawings including details for construction, materials, specifications and pipe connections.

D. Manufacturer's Warranty

1. Manufacturer shall provide a warranty for all components of the HPMBS for a period of one year provided the unit is installed, operated and maintained in accordance with the manual. Improper operation, maintenance or accidental or illegal activities (i.e. dumping of pollutants, vandalism, etc.) will void the warranty.

E. Design Computations

1. The HPMBS must be sized using a volume-based sizing criteria and demonstrate, using an SCS stormwater modelling software/spreadsheet calculator that the required water quality volume (defined by the Engineer of Record) passes through the HPMBS prior to activation of the overflow device (set no higher than twelve (12) inches above the top elevation of the HPMBS (typically defined as top of mulch). Design computations must be provided as part of the submittal process. If local regulations have the system approved based on an alternative sizing criterion the larger of the two computed sizes will govern.

F. Substitutions

1. Any proposed equal alternative product substitution to this specification must be submitted for review and approved prior to bid opening. Review package should include third party reviewed performance data for both flow rate and pollutant removal of biofiltration media. Pollutant removal data must follow specified protocols. All components must meet or exceed Quality Assurance and Performance Criteria indicated herein.

V. Project Conditions

A. Review manufacturer's recommended installation procedures and coordinate installation with other work affected, such as grading, excavation, utilities, construction access and erosion control to prevent all non-installation related construction traffic over the completed HPMBS.

B. Cold Weather

1. Do not use frozen materials or materials mixed or coated with ice or frost.

2. Do not build on frozen ground or wet, saturated or muddy subgrade.

3. Care must be taken when handling plastics when air temperature is at 40 degrees Fahrenheit or below as plastic becomes brittle.

C. Protect partially completed installation against damage from other construction

traffic when work is in progress and following completion of backfill by establishing a perimeter with highly visible construction tape, fencing, or other means until construction is complete.

D. Soil stabilization of the surrounding site must be complete before the Biofiltration System can be brought online. Soil stabilization occurs when 90% of the site has been paved or vegetated. Temporary erosion control and/or sedimentation prevention measures shall be implemented to reduce the possibility of sediments being transported into the Biofiltration System prior to full stabilization of the site. Significant sediment loads can damage the HPBMS and lead to failure if not prevented or remediated promptly.

VI. PRODUCTS

A. Acceptable HPBMS

FocalPoint High Performance Biofiltration System

B. Acceptable Beehive Overflow Grate Structure (Optional)

Beehive Overflow Grate Structure with removable StormSack

C. Acceptable Manufacturer

Manufacturer:
Convergent Water Technologies, Inc.
(800) 711-5428
www.convergentwater.com

D. Authorized Value Added Reseller

Ferguson Waterworks
(800) 448-3636
www.ferguson.com

VII. Packaging

A. HPMBS is assembled on site.

B. Modular underdrain/storage unit is shipped flat and modules are assembled prior to installation.

C. Biofiltration media is delivered in one ton super sacks each labeled with manufacturer's batch number and/or in bulk with accompanying manufacturer's certification.

D. Other components are delivered in bulk or super sacks

VIII. Execution

A. Excavation and Backfill

1. Base of excavation shall be smooth, level and free of lumps or debris, and compacted unless infiltration of storm water into subgrade is desired. A thin layer (3") of compacted base material is recommended to establish a level working platform (may not be needed in sandy soils). If the base of the excavation is pumping or appears excessively soft, a geotechnical engineer should be consulted for advice. In many cases, a stabilization geotextile and 6" of compactable material that drains well will be sufficient to amend the bearing capacity of the soil.

2. Most applications require 8 oz Non-Woven Geotextile or equivalent nonwoven geotextile with a nominal weight of 8 oz per square yard to line the excavation to separate in situ soils and the HPMBS. (Applications requiring water to infiltrate the in situ sub-soils should use a bridging stone rather than geotextile to provide a separation layer between the HPMBS and the in situ soils). Geotextile, when utilized, should be placed on the bottom and up the sides of the excavation. Absolutely no geotextiles should be used in the water column. If an impermeable liner is specified, it shall be installed according to manufacturer's instructions and recommendations.

3. Specified backfill material must be free from lumps, debris and any sharp objects that could penetrate the geotextile. Material is used for backfill along the sides of the system as indicated in engineering detail drawings.

B. Inspection

1. Examine prepared excavation for smoothness, compaction and level. Check for presence of high water table, which must be kept at levels below the bottom of the underdrain structure at all times. If the base is pumping or appears excessively soft, a geotechnical engineer should be consulted for advice.

2. Installation commencement constitutes acceptance of existing conditions and responsibility for satisfactory performance. If existing conditions are found to be unsatisfactory, contact Project Manager or Engineer for resolution prior to installation.

IX. Cleanup and Protection during Ongoing Construction Activity

A. Perform cleaning during the installation and upon completion of the work.

B. Remove from site all excess materials, debris, and equipment. Repair any damage to adjacent materials and surfaces resulting from installation.

C. If surrounding drainage area is not fully stabilized, a protective covering of geotextile fabric should be securely placed to protect the Biofiltration Media.

D. Construction phase erosion and sedimentation controls shall be placed to protect the inlet(s) to the Biofiltration System. Excessive sedimentation, particularly prior to establishment of plants may damage the HPMBS.

E. Strictly follow manufacturer's guidelines with respect to protection of the HPMBS between Installation and Commissioning phases.

X. Commissioning

A. Commissioning should only be carried out once the contributing drainage area is fully stabilized. If Commissioning must be carried out sooner, it is imperative that appropriate erosion and sediment controls be placed to prevent the entry of excessive sediment/pollutant loads into the system.

B. Commissioning entails removing the protective covering from the Biofiltration Media, planting the plant material in accordance with the approved drawings, and placing mulch if specified.

2.1 Dig planting holes the depth of the root ball and two to three times as wide as the root ball. Wide holes encourage horizontal root growth that plants naturally produce.

2.2 With trees, you must ensure you are not planting too deep. Don't dig holes deeper than root balls. The media should be placed at the root collar, not above the root collar. Otherwise the stem will be vulnerable to disease.

2.3 Strictly follow manufacturer's planting guidance.

C. Cover the exposed root ball top with mulch. Mulch should not touch the plant base because it can hold too much moisture and invite disease and insects. Evenly place 3 inches of double-shredded hardwood mulch (if specified) on the surface of the media.

D. Plantings shall be watered-in at installation and temporary irrigations shall be provided, if specified.

XI. Using the HPMBS

A. Maintenance Requirements

1. Annual maintenance generally consists of two (2) scheduled visits unless otherwise specified.

2. Each maintenance visit consists of the following:

   2.1 Complete system inspection

   2.2 Removal of foreign debris, silt, plant material, trash and mulch (if needed)

   2.3 Evaluation of biofiltration media

   2.4 Evaluation of plant health

   2.5 Inspection of underdrain/storage system via Observation/Maintenance Port

   2.6 Properly dispose of all maintenance refuse items (trash, mulch, etc.)

   2.7 Take photographs documenting plant growth and general system health

   2.8 Update and store maintenance records

   2.9 To ensure long term performance of the HPMBS, continuing annual maintenance should be performed per the manufacturer's Operations and Maintenance Manual.

3. If sediment accumulates beyond an acceptable level in the underdrain/storage system, it will be necessary to flush the underdrain. This can be done by pumping water into the Observation/Maintenance Port or adjacent overflow structure, allowing the turbulent flows through the underdrain to re-suspend the fine sediments. If multiple Observation/Maintenance Ports have been installed, water should be pumped into each port to maximize flushing efficiency.

   Sediment-laden water can be pumped out and either captured for disposal or filtered through a Dirtbag filter bag, if permitted by the locality.

XII. Measurement and Payment

Given the integrated nature of the HPMBS, measurement and payment will be based not on the individual component prices, but on the size of the Biofiltration Media bed. The external dimension as indicated in the approved plans and executed in the installation will be measured in Square Feet and payment will be made per HPMBS system.

Measurement and payment of beehive overflow grate structure with removable filter insert will be based on per unit price.

Section 33 46 23 MODULAR STORMWATER STORAGE UNITS

PART 1 GENERAL

1.01 SUMMARY

A. This section includes specifications or the supply and installation of modular stormwater storage units, specifically the R-Tank^{HD}, R-Tank^{SD}, R-Tank^{MD}, R-Tank^{UD} or R-Tank^{XD} system (hereafter called R-Tank).

1.02 REFERENCES

A. **ASTM D698** - Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft^3 (600 kN-m/m^3)).

B. **ASTM D2412** - Standard Test Method for Determination of External Loading Characteristics of Plastic Pipe by Parallel-Plate Loading.

C. **ASTM F2418** - Standard Specification for Polypropylene (PP) Corrugated Wall Stormwater Collection Chambers.

D. Manufacturer's product literature and guidelines for R-Tank product.

1.03 QUALITY CONTROL

A. **Manufacturer Qualifications:** The R-Tank modular stormwater storage units shall be supplied by Ferguson Waterworks and manufactured in ISO certified facilities.

   a. Manufacturer samples shall be provided to the client & contractor for review upon request.

   b. A manufacturer's representative is available for pre-installation conference, per Section 1.06A & site review, upon request.

B. **Installer Qualifications:** Installation shall be performed by a contractor experienced in the installation of modular stormwater storage units.

   a. A minimum of three R-Tank or equivalent projects completed within 2 years; and,

   b. A minimum of 25,000 cubic feet of subsurface storage volume completed within 2 years.

   c. Contractor experience requirement may be waived if the manufacturer's representative provides on-site training and review during construction.

   d. Installation Contractor shall demonstrate knowledge and experience in the installation of subsurface storage system. Work shall be performed only by skilled workers with experience in bulk earthworks, pipe, chamber, or pond/landfill construction projects of comparable size and quality.

1.04 SUBMITTALS

A. Submit product data, installation guidelines, and product certifications for the R-Tank modular stormwater storage units.

   a. R-Tank layout drawings, including typical sections, details as well as the required base elevation of stone and tanks, minimum cover requirements and tank configuration.

   b. R-Tank product data, including compressive strength, and installation guidelines.

   c. Accessory material documentation / certificates for geotextile, geogrid, base course and backfill materials.

B. Any proposed equal alternative product substitution to this specification must be submitted for review and approved prior to bid opening. Review package should include third party reviewed performance data that meets or exceeds criteria in Table 2.01 B.

1.05 DELIVERY, STORAGE, AND HANDLING

A. Protect R-Tank and other materials from damage during delivery and offloading. Handling is to be performed with equipment appropriate to the materials and site conditions.

B. Storage of materials should be on smooth surfaces, free from dirt, mud and debris, and away from any open flame, welding operations, or other potential heat sources. UV sensitive materials and R-Tank units should be stored under a tarp to protect from sunlight when time from delivery to installation exceeds two weeks.

C. When handling and installing product in cold weather:
   a. When the air temperature is 40° F or below, care must be taken when handling plastics to ensure no cracking. Do not use frozen materials, or materials coated with ice or frost.
   b. Do not build on frozen ground or wet, saturated or muddy subgrade.

1.06 PREINSTALLATION CONFERENCE.

A. Prior to the start of the installation, a pre-installation conference shall occur with the representatives from the design team, the general contractor, the excavation contractor, the R-Tank installation contractor, and the manufacturer's representative.

B. The pre-installation conference shall review the layout drawings, pre-construction checklist, and discuss key steps of the process. The pre-construction checklist shall be signed and dated by all participants.

1.07 PROJECT CONDITIONS

A. Coordinate installation for the R-Tank system with other on-site activities to eliminate all non-installation related construction traffic over the completed R-Tank system.

B. Protect adjacent work from damage during R-Tank system installation.

C. Provide proper sediment controls to prevent sediment intrusion, if the system is operational during construction.

D. Contractor is responsible for any damage to the system during construction.

E. All pre-treatment systems must be in place and functional prior to operation of the R-Tank system.

PART 2 PRODUCTS

2.01 R-TANK UNITS

A. Injection molded plastic tank components assembled to form a modular structure of predesigned height.

B. R-Tank units shall meet the following Physical & Chemical Characteristics:

PROPERTY	DESCRIPTION	R-Tank^{HD} VALUE	R-Tank^{SD} VALUE	R-Tank^{MD} VALUE	R-Tank^{UD} VALUE	R-Tank^{XD} VALUE
Void Area	Volume available for water storage	95%	95%	95%	95%	90%
Surface Void Area	Percentage of exterior available for infiltration	90%	90%	90%	90%	90%
Vertical Compressive Strength	ASTM D 2412 / ASTM F 2418	33.0 psi	42.0 psi	64.0 psi	134.0 psi	220.0 psi
Lateral Compressive Strength	ASTM D 2412 / ASTM F 2418	20.0 psi	22.0 psi	35.0 psi	19.0 psi	N/A
HS-20 Minimum Cover	Cover required to support HS-20 loads	20"	18"	15"	12"	6"
Maximum Cover	Maximum allowable cover depth	< 7 feet	< 10 feet	< 10 feet	< 7 feet	< 10 feet
Unit Weight	Weight of plastic per cubic foot of tank	3.62 lbs/cf	3.96 lbs/cf	3.53 lbs/cf	4.33 lbs/cf	7.55 lbs/cf

2.02 GEOSYNTHETICS

A. Geotextile
   a. Standard Application: The standard geotextile shall be an 8 oz per square yard nonwoven geotextile.
   b. Infiltration Applications: When water must infiltrate/exfiltrate through the geotextile as a function of the system design, a woven monofilament shall be used. In specialty applications, a microgrid/mesh may be approved as an alternative separation fabric, in consultation with the manufacturer's representative.
   c. Lined Applications: When water must be retained within the tanks to prevent infiltration/exfiltration, an impermeable liner shall be used. The liner material and thickness shall be specified by the project design engineer. This liner should be installed per liner manufacturer specifications and industry accepted techniques.

B. Geogrid
   a. For installations subject to traffic loads, install geogrid to reinforce backfill above the R-Tank system.
   b. Geogrid is not required for R-Tank^{XD} and is often not required for non-traffic load applications.

2.03 BEDDING, BACKFILL & COVER MATERIALS

A. All materials shall be free from lumps, debris, and any sharp objects that could cut the geotextile.

B. **Bedding Materials:** Stone (angular and smaller than 1.5" in diameter) or soil (GW, GP, SW, or SP as classified by the Unified Soil Classification System) shall be used below the R-Tank system (3" minimum and 12" maximum). For infiltration applications bedding material shall be free draining.

C. **Side and Top Backfill:** Recommended backfill material should be clean and free of debris, with a particle size distribution that is appropriate for the specific application. Identical backfill material shall be used on the side and top of the units.
   a. Traffic Applications: Backfill materials shall be free draining stone (angular and smaller than 1.5" in diameter) or soil (GW, GP, SW, or SP as classified by the Unified Soil Classification System).
   b. Non-Traffic Applications - For all R-Tank modules installed in green spaces and not subjected to vehicular loads, backfill materials may either follow the guidelines for Traffic Applications above, or the top backfill layer may consist of AASHTO #57 stone blended with 30-40% (by volume) topsoil to aid in establishing vegetation.
   c. Biofiltration / Bioretention Applications - Backfill materials shall be in accordance with the cross-section for the specific biofiltration/bioretention application and media. A layer of bridging stone shall separate the soil media from the R-Tank units.

D. **Additional Cover Materials:** Additional cover material shall be structural fill meeting the gradational requirements of SM, SP, SW, GM, GP, or GW as classified by the Unified Soil Classification System. Structural fill shall be specified by the engineer of record.

2.04 OTHER MATERIALS

A. **Utility Marker:** Install metallic tape at corners of R-Tank system to mark the area for future utility detection.

PART 3 EXECUTION

3.01 EXCAVATION PREPARATION

A. Verify the site conditions are suitable for product storage and installation per guidelines.

B. All excavations must meet OSHA safety standards for slopes or shoring.

C. Stake out, excavate, and prepare the subgrade area per geotechnical engineer's recommendations and/or as shown on the design drawings, to provide adequate support for project design loads.

   a. Ensure that the excavation is at least 2 feet greater than R-Tank dimensions in each direction allowing for installation of geotextile filter fabric, R-Tank modules, and free draining backfill materials.

   b. Base of the excavation shall be uniform, level, and free of lumps or debris and soft or yielding subgrade areas.

D. **Unsuitable Soils or Conditions:** All questions about the base of the excavation shall be directed to the owner's engineer. The owner's engineer shall determine the required bearing capacity of the R-Tank subgrade; however, in no case shall a bearing capacity of less than 2,000 pounds per square foot be provided.

3.02 BEDDING PREPARATION

A. Where a geotextile wrap is specified between the native soil and stone base, cut strips to length, and install in excavation, removing wrinkles so material lays flat.

   a. Overlap geotextile a minimum 12" or as recommended by manufacturer. Use tape, special adhesives, sandbags, or other ballast to secure overlaps.

   b. Where an impervious liner is specified, install the liner per manufacturer's recommendations and the contract documents. The liner should be sandwiched between layers of non-woven geotextile at a minimum.

   c. As geotextiles can be damaged by extreme heat, smoking is not permissible on/near the geotextile, and tools using a flame to tack the overlaps, such as propane torches, are prohibited.

B. Place a thin layer (3" unless otherwise specified) of bedding material (Section 2.03B), within ½" (+/- ¼") of level or as shown on the plans. Vibratory tamp or static roll to prepare bedding materials until they are firm and unyielding.

C. Outline the footprint of the R-Tank system on the excavation floor using spray paint or chalk line to ensure a 2' perimeter is available around the R-Tank system for proper installation and compaction of backfill.

3.03 LAYOUT AND INSTALLATION OF R-TANK UNITS

A. Install a geotextile wrap by cutting strips to length and removing wrinkles so material lays flat.

   a. Overlap geotextile a minimum 12" or as recommended by manufacturer. Use tape, special adhesives, sandbags, or other ballast to secure overlaps.

   b. Where an impervious liner is specified, install the liner per manufacturer's recommendations and the contract documents. The liner should be sandwiched between layers of non-woven geotextile at a minimum.

   c. As geotextiles can be damaged by extreme heat, smoking is not permissible on/near the geotextile, and tools using a flame to tack the overlaps, such as propane torches, are prohibited.

B. Mark or outline the unit area to ensure a square and straight installation.

C. Assemble R-Tank units in accordance with the R-Tank drawings and installation guidelines.

D. Install R-Tank modules by placing side by side, in accordance with the design drawings. The modules are to be oriented as per the design drawing with required depth as shown on plans.

   a. For HD and SD installations, the large side plate of the tank should be placed on the perimeter of the system. This will typically require that the ends of the tank area will have a row of tanks placed perpendicular to all other tanks. Refer to R-Tank drawings and installation guide for more details.

   b. For MD, UD, and XD installations, there is no perpendicular end row required.

   c. For MD installation, external side panels shall be installed around the perimeter of the system. Stacking clips shall be installed in each tier and each direction, as shown on design drawing details.

   d. For XD installations, install stacking clips as specified in design drawings.

3.03 LAYOUT AND INSTALLATION OF R-TANK UNITS (CONTINUED)

E. Completely encapsulate the R-Tank units in the specified geotextile to prevent backfill entry into the system. Overlap geotextile 12" or as recommended by manufacturer. Take great care to avoid damage to geotextile (and, if specified, impervious liner) during placement.

F. Identify any inlet(s) or outlet(s) locations. The geotextile fabric shall be cut to enable hydraulic continuity between the connections and the R-Tank units. These connections shall be secured using pipe boots with stainless steel pipe clamps. Support pipe in trenches during backfill operations to prevent pipe from settling and damaging the geotextile wrap or pipe. Ensure end of pipe is installed snug against R-Tank system.

G. Install inspection and ventilation ports in locations noted on plans. At a minimum one maintenance port shall be installed within 10' of each inlet & outlet connection, and with a maximum spacing of approximately 50' on center. Install all ports as noted in the R-Tank Installation Guide.

3.04 BACKFILLING OF THE R-TANK UNITS

A. Backfill with materials in accordance with Section 2.03C and project specifications
   a. Place material around the perimeter of the units in lifts with a maximum thickness of 12" and compacted with walk behind compaction equipment.
      i. Each lift shall be placed around the entire perimeter such that each lift is no more than 24" higher than the side backfill along any other location on the perimeter of the R-Tank system.
      ii. No fill shall be placed over top of tanks until the side backfill has been completed.
      iii. Each lift shall be compacted project specifications or until no further densification is observed (for self-compacting stone materials). Even when "self-compacting" backfill materials are selected, a walk behind vibratory compactor must be used.
      iv. Take care to ensure that the compaction process does not allow the machinery to contact the modules due to the potential for damage to the geotextile and R-Tank units.
      v. No compaction equipment is permissible to operate directly on the R-Tank modules.
   b. Place a top backfill layer on the units to the thickness specified in the R-Tank drawings and in accordance with project specifications.
      i. Only low-pressure track vehicles shall be operated over the R-Tank system during construction. Dump Trucks and Pans shall not be operated within the R-Tank system footprint at any time. Heavy equipment should unload in an area adjacent to the R-Tank system and the material should be moved over the system using low ground pressure tracked equipment.
      ii. Lightly compacted using a walk-behind trench roller. Alternately, a roller (maximum gross vehicle weight of 6 tons) may be used. Roller must remain in static mode until a minimum of 24" of cover has been placed over the modules. Sheep foot rollers should not be used.

B. If specified, completely encapsulate the backfill in the specified geotextile. Overlap geotextile 12" or as recommended by manufacturer. Take great care to avoid damage to geotextile (and, if specified, impervious liner) during placement.

C. If required, install a geogrid as shown on plans. Geogrid shall extend a minimum of 3 feet beyond the limits of the excavation wall. In cases of limitations such as curb, property line, etc. consult a manufacturer's representative about reducing the minimum extension length.

D. Following placement and compaction of the initial cover, subsequent lifts of structural fill (Section 2.03D) shall be placed and compacted per engineer of record specifications. Do not exceed maximum cover depths listed in Table 2.01B.

E. Ensure that all unrelated construction traffic is kept away from the limits of excavation until the project is complete and final surface materials are in place. It is recommended that high visibility tape or other devices be placed around the system to prevent traffic access.

F. Place surfacing materials, such as groundcovers (no large trees), or paving materials over the structure with care to avoid displacement of cover fill and damage to surrounding areas.

3.05 MAINTENANCE REQUIREMENTS

A. A routine maintenance effort is required to ensure proper performance of the R-Tank system. The Maintenance program should be focused on pretreatment systems. Ensuring these structures are clean and functioning properly will reduce the risk of contamination of the R-Tank system and stormwater released from the site. Maintain as needed using acceptable practices or following manufacturer's guidelines (for proprietary systems).

B. All inlet pipes and Inspection and/or Maintenance Ports in the R-Tank system will need to be inspected for accumulation of sediments at least quarterly through the first year of operation and at least yearly thereafter.

C. If sediment has accumulated to the level noted in the R-Tank Operation and Maintenance Guide or beyond a level acceptable to the Owner's engineer, the R-Tank system should be flushed.

3.06 END OF SECTION

FERGUSON WATERWORKS

FOCALPOINT DESIGN SHEET

HIGH-PERFORMANCE MODULAR BIOFILTRATION SYSTEM
RHODE ISLAND DEM CERTIFIED

DESIGNING WITH FOCALPOINT IN RHODE ISLAND

FocalPoint (High-Performance Modular Biofiltration System) is recognized by the Rhode Island Department of Environmental Management (DEM) and Coastal Resources Management Council (CRMC) for use as a water quality BMP or pretreatment device for site development projects and as a retrofit device for redevelopment projects.

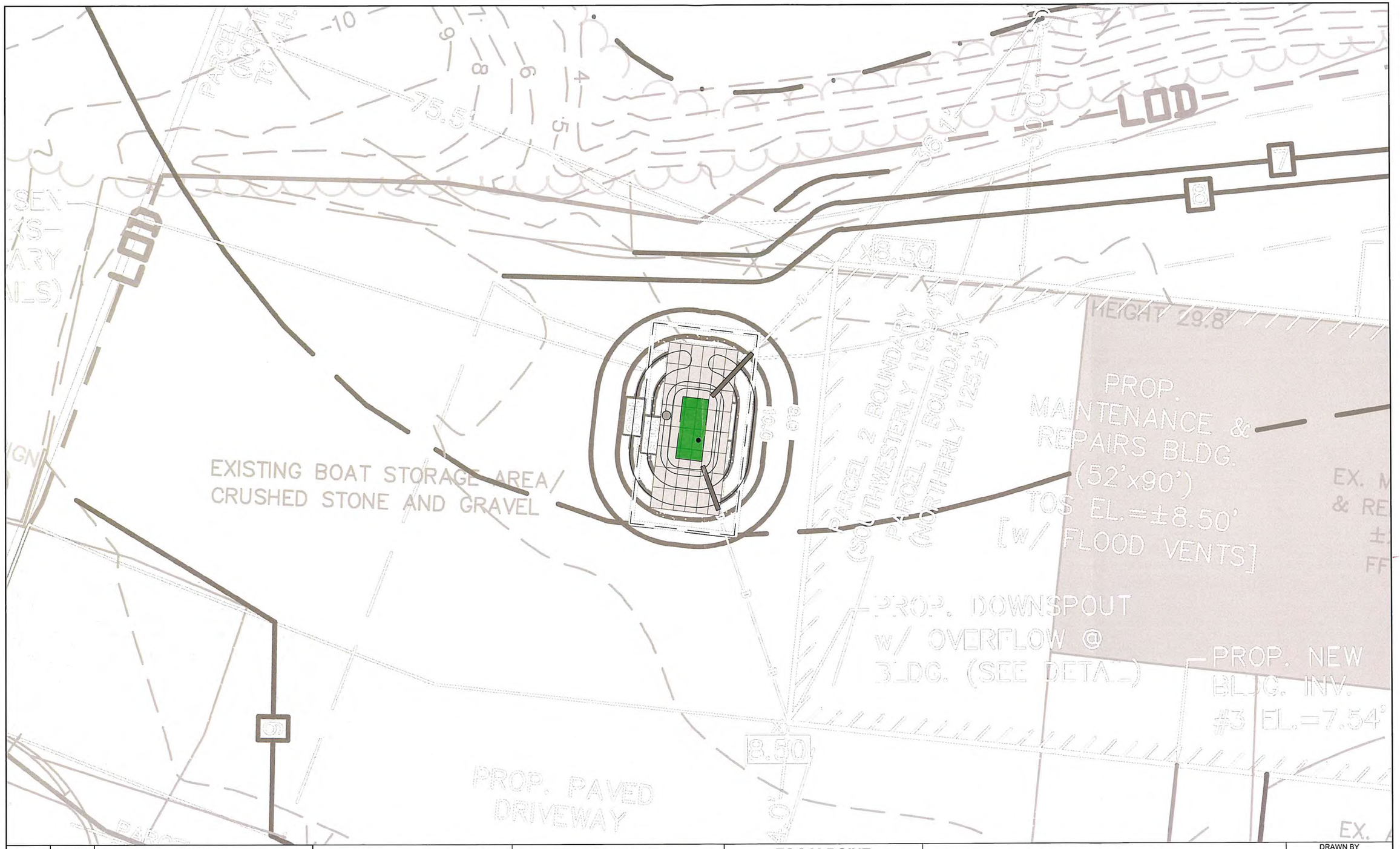
The FocalPoint is approved in Rhode Island for the following pollutant removals when designed with the maximum infiltration rate of 100 inches per hour: 85% removal of total suspended solids (TSS), 60% removal of pathogens, 30% removal of total phosphorus (TP) for discharges to freshwaters, and 30% removal of total nitrogen (TN) for discharges to tidal waters.

1. **Determine FocalPoint bed area (minimum 192 sf/acre of impervious drainage area-ex: 0.2 acres = 39 sf) See step 2 to determine if minimum size is appropriate.**
   - Tributary impervious area: = 0.107 ac **(A)**
   - Tributary pervious area: = _____ ac **(B)**
   - Minimum FocalPoint bed area required: **= ((A x 1.0) + (B x 0.4)) * 192** = 21 sf
   - FocalPoint bed area provided: = 21 sf
   - Dimensions of proposed FocalPoint: = 7 ft x 3 ft

2. **Model a Type III 24-hr rainfall event that generates the water quality volume to demonstrate that the entire storm volume is treated prior to activation of the overflow (typically set at 6–12 in. above the mulch). Note: A 1.2–1.3 in. rainfall event usually generates 1.0 in. of runoff.**
   Contact Ferguson for a sample HydroCAD node.
   - Water quality volume (WQv) goal: = 307 ft^3
   - Type III 24-hr rainfall depth to generate WQv: = 1 in.
   - Temporary storage depth provided (typically 6–12 in.): = 5.64 in.
   - Temporary storage volume provided at above depth: = 57 ft^3
   - Peak ponding depth from Type III 24-hr WQv event: = 0 in.

3. **Size the Harco PVC domed overflow riser.**
   Note: Ferguson recommends installation of a Fabco domed overflow filter kit for overflow protection.
   - Domed overflow riser diameter: = _____ in.
   - Rim elevation of overflow riser: (typically 6–12 in. above mulch surface) = _____ ft
   - Pipe size and pipe invert IN elevation: (typically 3 ft. below mulch surface) = _____ in. = _____ ft
   - Pipe size and pipe invert OUT elevation: = _____ in. = _____ ft

Contact Maggie Chase - Green Stormwater Infrastructure Specialist
Cell: (959) 867-8854 | Email: Maggie.Chase@ferguson.com



DATE	INITIALS	DESCRIPTIONS
7/18/2025	BMK	OVERLAY UPDATED, REMOVED OVERFLOW PIPE

FocalPoint
BIOFILTRATION SYSTEMS

DISTRIBUTED BY:
FERGUSON WATERWORKS

FOCALPOINT
HIGH PERFORMANCE BIOFILTRATION MEDIA
0 10' 20'

SYSTEM OVERLAY
362 POND STREET
SOUTH KINGSTON, RI

DRAWN BY
BMK
DATE
07/02/2025
SHEET NO.
1 of 5

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SYSTEM VOLUMES

FOCALPOINT FOOTPRINT	21 SF
FOCALPOINT MEDIA QUANTITY	1 CY
SUBSURFACE STORAGE VOLUME	351 CF
EXCAVATION FOOTPRINT	270 SF
DRAINAGE STONE QUANTITY	14 CY

R-TANK QUANTITIES

# OF HD SINGLE R-TANKS	48

ELEVATIONS

DESCRIPTION	ELEVATION
TOP OF MULCH ELEVATION	9.78
TOP OF MEDIA ELEVATION	9.53
DEPTH OF MEDIA	18"
TOP OF BRIDGING STONE ELEVATION	8.03
TOP OF R-TANK UNDERDRAIN ELEV.	7.70
R-TANK UNDERDRAIN INVERT	6.25
INVERT OF STONE BASE (3")	6.00

LEGEND

R-TANK HD SINGLE UNITS

INSPECTION PORT

6" FOCALPOINT INSPECTION INLET

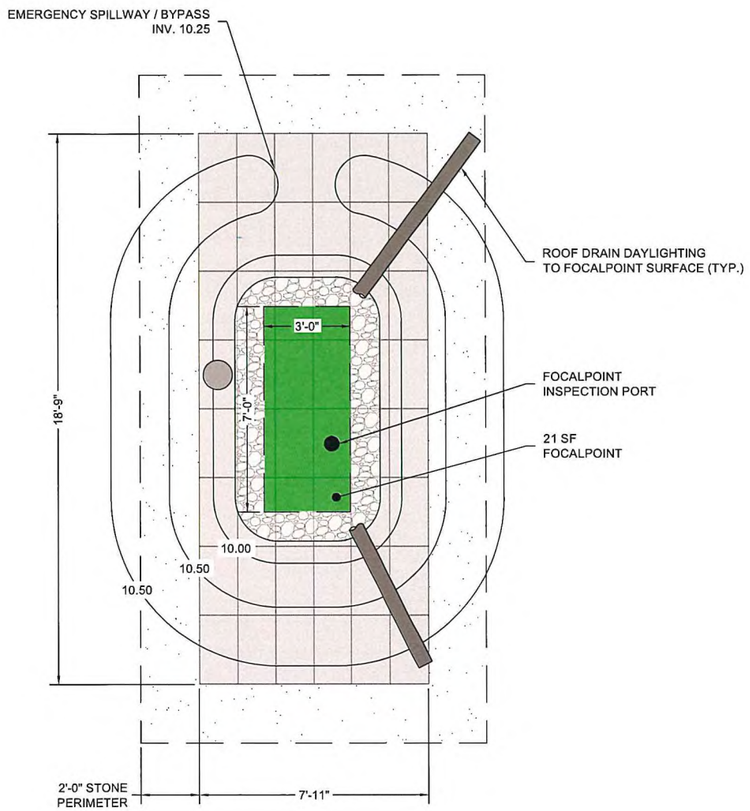
PIPE CONNECTION

EXCAVATION PERIMETER

PERIMETER BACKFILL

NOTES & DISCLAIMERS

1. INSTALLATION TO BE COMPLETED IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS.
2. BACKFILL, GEOTEXTILE, AND/OR LINER QUANTITIES ARE APPROXIMATIONS BASED ON DIMENSIONS SHOWN.
3. CONSULTANT DRAWINGS ARE BEING RELIED UPON AS BEING ACCURATE IN DEPICTING SITE CONDITIONS, THAT THEY SATISFY ANY LOCAL BUILDING CODE REQUIREMENTS, AND THAT THEY ACCURATELY DEPICT SUBSURFACE CONDITIONS.
4. FERGUSON SUPPLIES THE PRODUCTS ONLY AND TAKES NO RESPONSIBILITY FOR INSTALLATION AND HAS NO ROLE IN THE INSTALLATION OF THE PRODUCTS.
5. R-TANK SYSTEMS ARE NOT DESIGNED TO SUPPORT LOADS FROM BUILDINGS, RETAINING WALLS, ETC. THEREFORE, THE ENGINEER OF RECORD MUST COORDINATED WITH THE PROPER DISCIPLINES TO ENSURE NO STRUCTURAL LOADS ARE IMPARTED UPON THE SYSTEM AND ANY INFILTRATION FROM THE SYSTEM HAS BEEN ACCOUNTED FOR IN FOUNDATION DESIGN.



DATE	INITIALS	DESCRIPTIONS
7/18/2025	BMK	OVERLAY UPDATED, REMOVED OVERFLOW PIPE

FocalPoint BIOFILTRATION SYSTEMS

DISTRIBUTED BY:

FERGUSON WATERWORKS

FOCALPOINT

HIGH PERFORMANCE BIOFILTRATION MEDIA

0 5' 10'

SYSTEM LAYOUT
362 POND STREET
SOUTH KINGSTON, RI

DRAWN BY
BMK

DATE
07/02/2025

SHEET NO.
2 of 5

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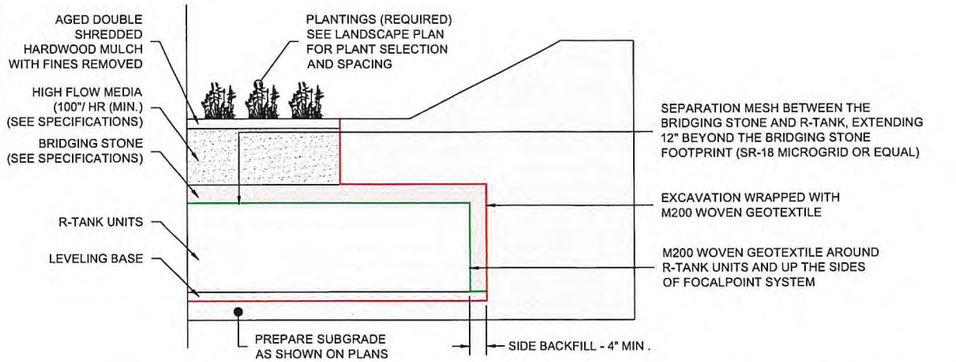
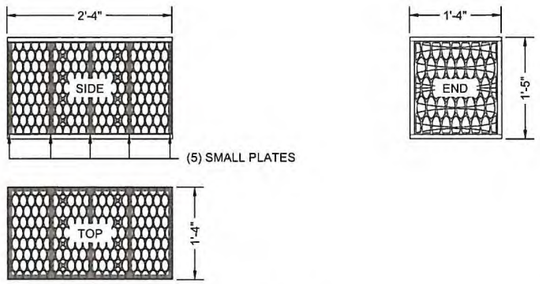
R-TANK UNIT LOAD RATING					
UNIT TYPE	COMPRESSION STRENGTH	NON-VEHICULAR MIN. COVER*	HS-20 MIN. COVER*	HS-25 MIN. COVER*	MAX. COVER*
HD	33.4 PSI	12"	20"	24"	6.99'
* MINIMUM AND MAXIMUM COVER ARE MEASURED FROM THE TOP OF THE R-TANK UNIT TO THE TOP OF THE FINISHED SURFACE.					



TYPICAL FOCALPOINT SECTION



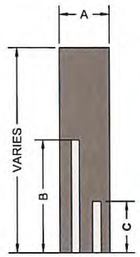
MODULE DATA

GEOMETRY:
LENGTH = 28.15 IN. (715 MM)
WIDTH = 15.75 IN. (400 MM)
HEIGHT = 17.32 IN. (440 MM)
TANK VOLUME = 4.44 CF
STORAGE VOLUME = 4.22 CF
VOID INTERNAL VOLUME: 95%
VOID SURFACE AREA: 90%

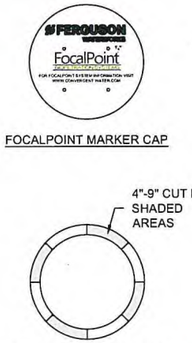
LOAD RATING:
33.4 PSI, (MODULE ONLY)
HS20/HS25 - SEE SPEC FOR COVER REQUIREMENTS
MATERIAL:
100% RECYCLED POLYPROPYLENE
SMALL PLATES REQUIRED:
5/SEGMENT, 5/MODULE

SINGLE R-TANK^{HD} - MODULE DETAIL

R-TANK INSPECTION PORT DIMENSIONS			
UNIT TYPE	PORT DIAMETER ("A")	TALL SLOT HEIGHT ("B")	SHORT SLOT HEIGHT ("C")
HD	12"	9"	4"
SD	12"	7"	4"
UD	10"	9"	4"
XD	12"	VARIES*	VARIES*
* VERTICAL HEIGHTS VARY BASED ON THE STACKING HEIGHT OF THE XD SYSTEM. THE TOP OF ANY OPENING SHOULD NOT EXCEED THE TOP OF THE STACK HEIGHT.			

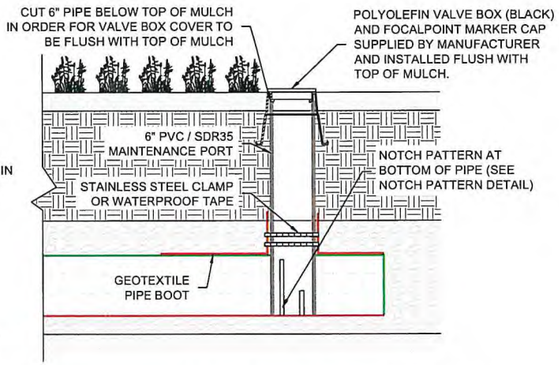


FRONT VIEW OF INSPECTION PORT



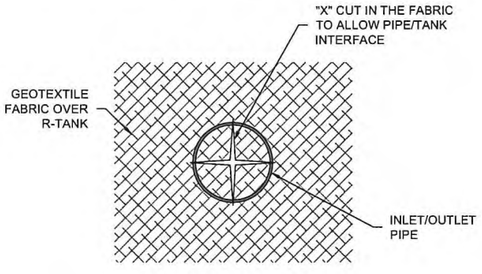
FOCALPOINT MARKER CAP

PIPE NOTCH PATTERN DETAIL



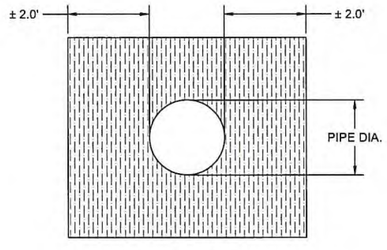
FOCALPOINT 6" INSPECTION PORT DETAIL

CUT AN "X" IN THE FABRIC ENVELOPE THAT IS SLIGHTLY LARGER THAN THE PIPE. PULL THE FABRIC FLAPS AROUND THE PIPE, AND SEAL WITH A STAINLESS STEEL BAND.

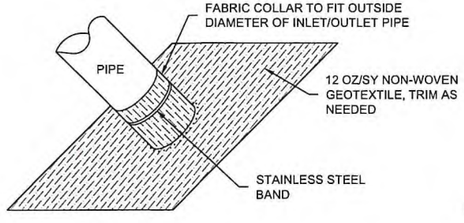


END VIEW OF PIPE/FABRIC CONNECTION

NOTE:
- PIPE BOOTS ARE AVAILABLE IN THE FOLLOWING STANDARD SIZES: 8" | 12" | 15" | 18" | 24".
- LARGER SPECIAL ORDER, CUSTOM SIZES ARE AVAILABLE.

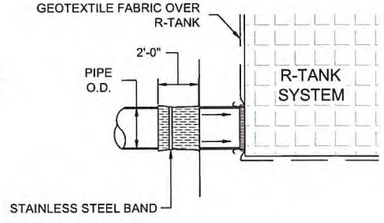


FRONT VIEW OF GEOTEXTILE BOOT

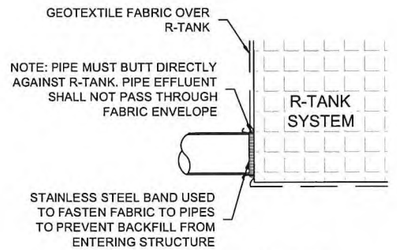


GEOTEXTILE BOOT

AFTER TANK WRAP IS SECURED TO PIPE, SLIDE BOOT AGAINST R-TANK AND SECURE WITH SECOND STAINLESS STEEL BAND, THEN ATTACH BOOT FLAP TO TANK ENVELOPE FABRIC WITH DUCT TAPE OR OTHER ADHESIVE.



SIDE VIEW OF GEOTEXTILE BOOT



SIDE VIEW OF PIPE/FABRIC CONNECTION

R-TANK TYPICAL TANK INLET/OUTLET W/ GEOTEXTILE PIPE BOOT DETAIL

DATE	INITIALS	DESCRIPTIONS
7/18/2025	BMK	OVERLAY UPDATED, REMOVED OVERFLOW PIPE

FocalPoint BIOFILTRATION SYSTEMS

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FOCALPOINT
HIGH PERFORMANCE BIOFILTRATION MEDIA

SYSTEM DETAILS
362 POND STREET
SOUTH KINGSTON, RI

DRAWN BY: BMK
DATE: 07/02/2025
SHEET NO.: 3 of 5

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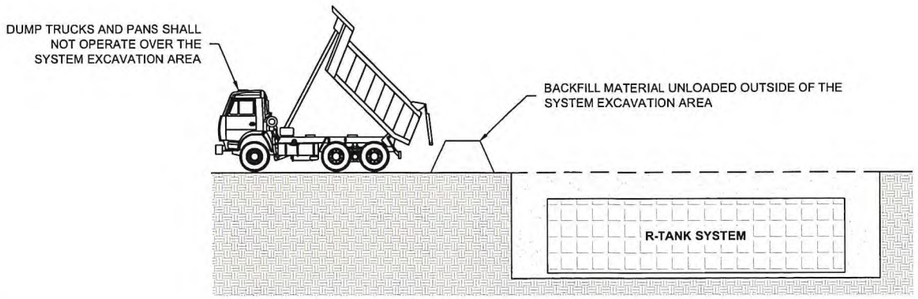
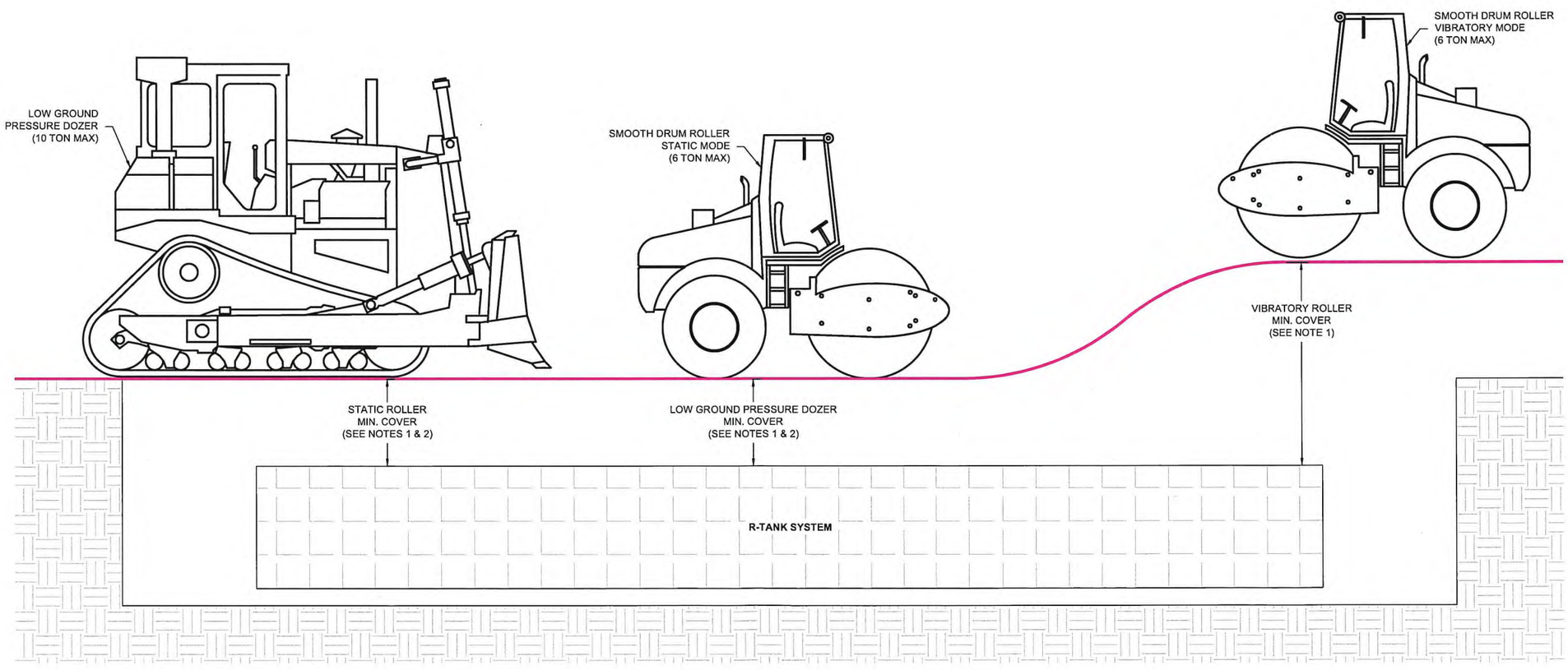
R-TANK CONSTRUCTION EQUIPMENT RECOMMENDATIONS				
UNIT TYPE	**COMPRESSION STRENGTH**	**10 TON LOW GROUND PRESSURE DOZER MIN. COVER**	**6 TON SMOOTH DRUM STATIC ROLLER MIN. COVER**	**6 TON SMOOTH DRUM VIBRATORY ROLLER MIN. COVER**
HD	33.4 PSI	12" (SEE NOTE 1, 2 & 3)	12" (SEE NOTE 1, 2 & 3)	24" (SEE NOTE 2)
SD	42.9 PSI	12" (SEE NOTE 1, 2 & 3)	12" (SEE NOTE 1, 2 & 3)	24" (SEE NOTE 2)

NOTES:
1. FOLLOWING PLACEMENT OF SIDE BACKFILL, A UNIFORM 12" LIFT OF THE FREELY DRAINING MATERIAL (SPEC SECTION 2.03 B1) SHALL BE PLACED OVER THE R-TANK AND LIGHTLY COMPACTED USING A WALK-BEHIND TRENCH ROLLER. ALTERNATELY, A ROLLER (MAXIMUM GROSS VEHICLE WEIGHT OF 6 TONS) MAY BE USED. ROLLER MUST REMAIN IN STATIC MODE UNTIL A MINIMUM OF 24" OF COVER HAS BEEN PLACED OVER THE MODULES. SHEEP FOOT ROLLERS SHOULD NOT BE USED. **SPEC SECTION 3.05 A5**
2. ONLY LOW PRESSURE TIRE OR TRACK VEHICLES (LESS THAN 7 PSI AND OPERATING WEIGHT OF LESS THAN 20,000 LBS) SHALL BE OPERATED OVER THE R-TANK SYSTEM DURING CONSTRUCTION. **SPEC SECTION 3.05 A5**
3. DUMP TRUCKS AND PANS SHALL NOT BE OPERATED WITHIN THE R-TANK SYSTEM AT ANY TIME. WHERE NECESSARY, THE HEAVY EQUIPMENT SHOULD UNLOAD IN AN AREA ADJACENT TO THE R-TANK SYSTEM AND THE MATERIAL SHOULD BE MOVED OVER THE SYSTEM WITH TRACKED EQUIPMENT. **SPEC SECTION 3.05 A5**
4. ENSURE THAT ALL UNRELATED CONSTRUCTION TRAFFIC IS KEPT AWAY FROM THE LIMITS OF EXCAVATION UNTIL THE PROJECT IS COMPLETE AND FINAL SURFACE MATERIALS ARE IN PLACE. NO NON-INSTALLATION RELATED LOADING SHOULD BE ALLOWED OVER THE R-TANK SYSTEM UNTIL THE FINAL DESIGN SECTION HAS BEEN CONSTRUCTED (INCLUDING PAVEMENT). **SPEC SECTION 3.05 B**
5. SEE R-TANK INSTALLATION GUIDE OR CONTACT YOUR LOCAL FERGUSON REPRESENTATIVE FOR ADDITIONAL INFORMATION.



DUMP TRUCK DETAIL



R-TANK HD OR SD CONSTRUCTION EQUIPMENT COVER DETAIL - GREEN SPACE

DATE	INITIALS	DESCRIPTIONS
7/18/2025	BMK	OVERLAY UPDATED, REMOVED OVERFLOW PIPE

FocalPoint BIOFILTRATION SYSTEMS

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FOCALPOINT
HIGH PERFORMANCE BIOFILTRATION MEDIA

CONSTRUCTION EQUIPMENT COVER DETAIL
362 POND STREET
SOUTH KINGSTON, RI

DRAWN BY: BMK
DATE: 07/02/2025
SHEET NO.: 4 of 5

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FOCALPOINT SPECIFICATION

SUMMARY

THE FOLLOWING GENERAL SPECIFICATIONS DESCRIBE THE COMPONENTS AND INSTALLATION REQUIREMENTS FOR A VOLUME BASED HIGH PERFORMANCE MODULAR BIOFILTRATION SYSTEM (HPMBS) THAT UTILIZES PHYSICAL, CHEMICAL AND BIOLOGICAL MECHANISMS OF A SOIL, PLANT AND MICROBE COMPLEX TO REMOVE POLLUTANTS TYPICALLY FOUND IN URBAN STORM WATER RUNOFF. THE MODULAR TREATMENT SYSTEM IN WHICH THE BIOLOGICALLY ACTIVE BIOFILTRATION MEDIA IS USED SHALL BE A COMPLETE, INTEGRATED SYSTEM DESIGNED TO BE PLACED IN SQUARE FOOT OR LINEAR FOOT INCREMENTS PER THE APPROVED DRAWINGS TO TREAT CONTAMINATED RUNOFF FROM IMPERVIOUS SURFACES.

THE HIGH PERFORMANCE MODULAR BIOFILTRATION SYSTEM (HPMBS) IS COMPRISED OF THE FOLLOWING COMPONENTS:

A. PLANT COMPONENT
   1. MANUFACTURER SHALL PROVIDE A REGIONALIZED LIST OF ACCEPTABLE PLANTS.
   2. PLANTS, AS SPECIFIED IN THE APPROVED DRAWINGS/MANUFACTURER'S PLANT LIST, SHALL BE INSTALLED AT THE TIME THE HPMBS IS COMMISSIONED FOR USE.
   3. PLANTS AND PLANTING ARE TYPICALLY INCLUDED IN LANDSCAPE CONTRACT.

B. BIOFILTER COMPONENT
   1. THIS COMPONENT EMPLOYS A HIGH PERFORMANCE CROSS-SECTION IN WHICH EACH ELEMENT IS HIGHLY DEPENDENT ON THE OTHERS TO MEET THE PERFORMANCE SPECIFICATION FOR THE COMPLETE SYSTEM. IT IS IMPORTANT THAT THIS ENTIRE CROSS-SECTION BE PROVIDED AS A COMPLETE SYSTEM AND INSTALLED AS SUCH.
   2. AS INDICATED IN THE APPROVED DRAWINGS, THE ELEMENTS OF THE BIOFILTER INCLUDE:
      a. A MULCH PROTECTIVE LAYER (IF SPECIFIED).
      b. AN ADVANCED HIGH INFILTRATION RATE BIOFILTRATION PLANTING MEDIA BED WHICH UTILIZES PHYSICAL, CHEMICAL AND BIOLOGICAL MECHANISMS OF THE SOIL, PLANT, AND MICROBE COMPLEX, TO REMOVE POLLUTANTS FOUND IN STORM WATER RUNOFF.
      c. A SEPARATION LAYER WHICH UTILIZES THE CONCEPT OF 'BRIDGING' TO SEPARATE THE BIOFILTRATION MEDIA FROM THE UNDERDRAIN WITHOUT THE USE OF GEOTEXTILE FABRICS.
      d. A WIDE APERTURE MESH LAYER UTILIZED TO PREVENT BRIDGING STONE FROM ENTERING THE UNDERDRAIN/STORAGE ELEMENT.
      e. A MODULAR, HIGH INFILTRATION RATE 'FLAT PIPE' STYLE UNDERDRAIN/STORAGE SYSTEM WHICH IS DESIGNED TO DIRECTLY INFILTRATE OR EXFILTRATE WATER THROUGH ITS SURFACE. THE MODULAR UNDERDRAIN MUST PROVIDE A MINIMUM OF 95% VOID SPACE.

C. ENERGY DISSIPATION COMPONENT
   1. AN ENERGY DISSIPATION COMPONENT IS TYPICALLY SPECIFIED TO SLOW AND SPREAD OUT WATER AS IT ENTERS THE SYSTEM. THIS COMPONENT IS DEPENDENT UPON THE DESIGN IN THE APPROVED DRAWINGS, BUT TYPICALLY CONSISTS OF A ROCK GABION, ROCK FILTER DAM OR DENSE VEGETATION ELEMENT, SUCH AS NATIVE GRASSES, EITHER SURROUNDING THE BIOFILTRATION COMPONENT OR LOCATED IMMEDIATELY UPSTREAM OF IT.

D. PRETREATMENT COMPONENT
   1. PRETREATMENT, WHEN SPECIFIED, IS TYPICALLY ACCOMPLISHED BY LOCATING THE BIOFILTRATION COMPONENT DOWNSTREAM OF A SWALE, CURB CUT/ROCK APRON, SEDIMENT FOREBAY, DEEP OR SHALLOW SUMP WATER QUALITY MANHOLE, ETC. THESE BMPS SHOULD TARGET TRASH AND DEBRIS AND MEDIUM TO COARSE SEDIMENT.

E. OBSERVATION AND MAINTENANCE COMPONENT
   1. AN OBSERVATION AND MAINTENANCE PORT SHALL BE INSTALLED PER THE APPROVED DRAWINGS TO PROVIDE FOR EASY INSPECTION OF THE UNDERDRAIN/STORAGE ELEMENT, AND CLEANOUT ACCESS IF NEEDED.

F. EXTREME EVENT OVERFLOW (BY OTHERS)
   1. AN EXTREME EVENT OVERFLOW SHOULD BE LOCATED EXTERNAL TO, BUT NEAR THE BIOFILTRATION ELEMENT TO PROVIDE BYPASS WHEN NEEDED. THIS MAY BE AN OVERLAND FLOW BYPASS STRUCTURE, BEEHIVE OVERFLOW GRATE STRUCTURE, OR EQUIVALENT THAT SERVES THE PURPOSE. IF A BEEHIVE OVERFLOW STRUCTURE IS UTILIZED IT SHOULD INCLUDE A REMOVABLE FILTER INSERT TO PROVIDE A MINIMUM OF 50% TSS REMOVAL AND CONTROL OF GROSS POLLUTANTS, TRASH AND FLOATABLES.

QUALITY ASSURANCE AND PERFORMANCE SPECIFICATIONS
THE QUALITY AND COMPOSITION OF ALL SYSTEM COMPONENTS AND ALL OTHER APPURTENANCES AND THEIR ASSEMBLY PROCESS SHALL BE SUBJECT TO INSPECTION UPON DELIVERY OF THE SYSTEM TO THE WORK SITE.
INSTALLATION IS TO BE PERFORMED ONLY BY SKILLED WORK PEOPLE WITH SATISFACTORY RECORD OF PERFORMANCE ON EARTHWORKS, PIPE, CHAMBER, OR POND/LANDFILL CONSTRUCTION PROJECTS OF COMPARABLE SIZE AND QUALITY.

A. PLANTS
   1. PLANTS MUST BE COMPATIBLE WITH THE HPMBS MEDIA AND THE ASSOCIATED HIGHLY VARIABLE HYDROLOGIC REGIME. PLANTS ARE TYPICALLY FACULTATIVE WITH FIBROUS ROOTS SYSTEMS SUCH AS NATIVE GRASSES AND SHRUBS.
   2. MANUFACTURER SHALL PROVIDE A REGIONALIZED LIST OF ACCEPTABLE PLANTS.
   3. ALL PLANT MATERIAL SHALL COMPLY WITH THE TYPE AND SIZE REQUIRED BY THE APPROVED DRAWINGS AND SHALL BE ALIVE AND FREE OF OBVIOUS SIGNS OF DISEASE.

B. MULCH
   1. MULCH, TYPICALLY DOUBLE SHREDDED HARDWOOD (NON-FLOATABLE), SHALL COMPLY WITH THE TYPE AND SIZE REQUIRED BY THE APPROVED DRAWINGS, AND SHALL BE SCREENED TO MINIMIZE FINES. ROCK MULCH IS AN ALTERNATIVE TO WOOD-BASED MULCH AND TYPICALLY CONSISTS OF CLEAN, ROUNDED RIVER ROCK (3-4" DIAM IN SIZE).

C. BIOFILTRATION MEDIA
   1. BIOLOGICALLY ACTIVE BIOFILTRATION MEDIA SHALL BE VISUALLY INSPECTED TO ENSURE APPROPRIATE VOLUME, TEXTURE AND CONSISTENCY WITH THE APPROVED DRAWINGS, AND MUST BEAR A BATCH NUMBER MARKING FROM THE MANUFACTURER WHICH CERTIFIES PERFORMANCE TESTING OF THE BATCH TO MEET OR EXCEED THE REQUIRED INFILTRATION RATE (100 IN/HR). A THIRD-PARTY LABORATORY TEST MUST BE PROVIDED TO CERTIFY THE 100 IN/HR RATE.
   2. POLLUTANT REMOVAL PERFORMANCE, COMPOSITION AND CHARACTERISTICS OF THE BIOFILTRATION MEDIA MUST MEET OR EXCEED THE FOLLOWING MINIMUM STANDARDS AS DEMONSTRATED BY TESTING ACCEPTABLE TO THE PROJECT ENGINEER:

Pollutant	Removal Efficiency
TSS	91%
Phosphorus	66%
Nitrogen	48%
Composition and Characteristics	
Sand - Fine	< 5%
Sand – Medium	10% - 15%
Sand – Coarse	15% - 25%
Sand – Very Coarse	40% - 45%
Gravel	10% - 20%
Infiltration Rate	>100 inches per hour
Peat Moss*	5% - 15%

* Peat Moss Specification
Listed by Organic Materials Review Institute
100% natural peat (no composted, sludge, yard or leaf waste)
Total Carbon >85%
Carbon to Nitrogen Ratio 15:1 to 23:1
Lignin Content 49% to 52%
Humic Acid >18%
pH 6.0 to 7.0
Moisture Content 30% to 50%
95% to 100% passing 2.0mm sieve
> 80% passing 1.0mm sieve

D. UNDERDRAIN/STORAGE SYSTEM
   1. UNDERDRAIN/STORAGE COMPONENTS SHALL BE MANUFACTURED IN AN ISO CERTIFIED FACILITY AND BE MANUFACTURED FROM AT LEAST 90% RECYCLED MATERIALS.
   2. UNDERDRAIN/STORAGE COMPONENTS SHALL MEET OR EXCEED THE FOLLOWING CHARACTERISTICS:

Property	Value
Surface Void Area	≥ 85%
Unit Weight	3.25 lbs/cf
Service Temperature	-14° to 167°
Unconfined Crush Strength	32.48 psi

180 Day Creep Test	
Load Applied – Initial and Sustained	11.16 psi
* Creep Sustained – After 180 Days	0.20 inches
* Creep Sustained – After 180 Days	1.13%
* Projected Creep – 40 years	1.72%

E. SEPARATION MESH
   1. SEPARATION MESH SHALL BE COMPOSED OF HIGH-TENACITY MONOFILAMENT POLYPROPYLENE YARNS THAT ARE WOVEN TOGETHER TO PRODUCE AN OPEN MESH GEOTEXTILE WHICH SHALL BE INERT TO BIOLOGICAL DEGRADATION AND RESISTANT TO NATURALLY ENCOUNTERED CHEMICALS, ALKALIS AND ACIDS. THE MESH SHALL MEET OR EXCEED THE FOLLOWING CHARACTERISTICS:

Properties	Test Method	Unit	Min Avg Roll Value	
			MD	CD
Tensile Strength	ASTM D4595	kN/m (lbs/ft)	21 (1440)	25.3 (1733)
Creep Reduced Strength	ASTM D5262	kN/m (lbs/ft)	6.9 (471)	8.3 (566)
Long Term Allowable Design Load	GRI GG-4	kN/m (lbs/ft)	5.9 (407)	7.2 (490)
UV Resistance (at 500 hours)	-	% strength retained	90.00	
Aperture Size (machine direction)	-	mm (in)	2 (0.08)	
Aperture Size (cross machine direction)	-	mm (in)	2 (0.08)	
Mass/Unit Area	ASTM D5261	g/m2 (oz/yd2)	197 (5.8)	

F. BRIDGING STONE
   1. BRIDGING STONE SHALL BE 3/8" PEA GRAVEL, OR OTHER DIAMETER SIZED TO PREVENT MIGRATION OF FILTER MEDIA, AS SPECIFIED BY MANUFACTURER. STONE MUST BE WASHED AND FREE FROM SEDIMENT, SOIL AND CONTAMINANTS.

G. DELIVERY, STORAGE AND HANDLING
   1. PROTECT ALL MATERIALS FROM DAMAGE DURING DELIVERY AND STORE UV SENSITIVE MATERIALS UNDER TARP TO PROTECT FROM SUNLIGHT INCLUDING ALL PLASTICS, WHEN TIME FROM DELIVERY TO INSTALLATION EXCEEDS ONE WEEK. STORAGE SHOULD OCCUR ON SMOOTH SURFACES, FREE FROM DIRT, MUD AND DEBRIS.
   2. BIOFILTRATION MEDIA SHALL BE SEGREGATED FROM ANY OTHER AGGREGATE MATERIALS AND SHALL BE PROTECTED AGAINST CONTAMINATION, INCLUDING CONTAMINATION FROM ANY STORMWATER RUNOFF FROM AREAS OF THE SITE WHICH ARE NOT STABILIZED.

SUBMITTALS

A. PRODUCT DATA
   1. SUBMIT MANUFACTURER'S PRODUCT DATA AND APPROVED INSTALLATION MANUAL AS WELL AS MANUFACTURER'S OPERATIONS AND MAINTENANCE MANUAL FOR THE SYSTEM. IT WILL BE THE RESPONSIBILITY OF THE SYSTEM OWNER/OPERATOR OR THEIR CONTRACTOR TO ENSURE THE SYSTEM IS OPERATED AND MAINTAINED IN ACCORDANCE WITH THE MANUAL.
   2. CERTIFICATION
   3. MANUFACTURER SHALL SUBMIT A LETTER OF CERTIFICATION THAT THE COMPLETE SYSTEM MEETS OR EXCEEDS ALL TECHNICAL AND PACKAGING REQUIREMENTS. BIOFILTRATION MEDIA PACKAGING MUST BEAR A BATCH NUMBER MARKING FROM THE MANUFACTURER WHICH MATCHES A LETTER FROM THE MANUFACTURER CERTIFYING PERFORMANCE TESTING OF THE BATCH TO MEET OR EXCEED THE REQUIRED INFILTRATION RATE.

B. DRAWINGS
   1. MANUFACTURER SHALL PROVIDE DIMENSIONAL DRAWINGS INCLUDING DETAILS FOR CONSTRUCTION, MATERIALS, SPECIFICATIONS, AND PIPE CONNECTIONS. THESE DIMENSIONAL DRAWINGS SHALL INDICATE THE HPMBS FILTER BED AREA (SQ. FT) AND CORRESPOND WITH AN APPROVED SET PLANS OR DRAINAGE/STORMWATER MANAGEMENT REPORT STAMPED BY THE ENGINEER OF RECORD.
   2. MANUFACTURER'S WARRANTY
   3. MANUFACTURER SHALL PROVIDE A WARRANTY FOR ALL COMPONENTS OF THE HPMBS FOR A PERIOD OF ONE YEAR PROVIDED THE UNIT IS INSTALLED, OPERATED AND MAINTAINED IN ACCORDANCE WITH THE MANUAL. IMPROPER OPERATION, MAINTENANCE OR ACCIDENTAL OR ILLEGAL ACTIVITIES (I.E. DUMPING OF POLLUTANTS, VANDALISM, ETC.) WILL VOID THE WARRANTY.

C. DESIGN COMPUTATIONS
   1. THE HPMBS MUST BE SIZED USING A VOLUME-BASED SIZING CRITERIA AND DEMONSTRATE, USING AN SCS STORMWATER MODELLING SOFTWARE/SPREADSHEET CALCULATOR THAT THE REQUIRED WATER QUALITY VOLUME (DEFINED BY THE ENGINEER OF RECORD) PASSES THROUGH THE HPMBS PRIOR TO ACTIVATION OF THE OVERFLOW DEVICE (SET NO HIGHER THAN TWELVE (12) INCHES ABOVE THE TOP ELEVATION OF THE HPMBS (TYPICALLY DEFINED AS TOP OF MULCH). DESIGN COMPUTATIONS MUST BE PROVIDED AS PART OF THE SUBMITTAL PROCESS. IF LOCAL REGULATIONS HAVE THE SYSTEM APPROVED BASED ON AN ALTERNATIVE SIZING CRITERION THE LARGER OF THE TWO COMPUTED SIZES WILL GOVERN.

D. SUBSTITUTIONS
   1. ANY PROPOSED EQUAL ALTERNATIVE PRODUCT SUBSTITUTION TO THIS SPECIFICATION MUST BE SUBMITTED FOR REVIEW AND APPROVED PRIOR TO BID OPENING. REVIEW PACKAGE SHOULD INCLUDE THIRD PARTY REVIEWED PERFORMANCE DATA FOR BOTH FLOW RATE AND POLLUTANT REMOVAL OF BIOFILTRATION MEDIA. POLLUTANT REMOVAL DATA MUST FOLLOW SPECIFIED PROTOCOLS. ALL COMPONENTS MUST MEET OR EXCEED QUALITY ASSURANCE AND PERFORMANCE CRITERIA INDICATED HEREIN.

PROJECT CONDITIONS

REVIEW MANUFACTURER'S RECOMMENDED INSTALLATION PROCEDURES AND COORDINATE INSTALLATION WITH OTHER WORK AFFECTED, SUCH AS GRADING, EXCAVATION, UTILITIES, CONSTRUCTION ACCESS AND EROSION CONTROL TO PREVENT ALL NON-INSTALLATION RELATED CONSTRUCTION TRAFFIC OVER THE COMPLETED HPMBS.

A. COLD WEATHER
   1. DO NOT USE FROZEN MATERIALS OR MATERIALS MIXED OR COATED WITH ICE OR FROST.
   2. DO NOT BUILD ON FROZEN GROUND OR WET, SATURATED OR MUDDY SUBGRADE.
   3. CARE MUST BE TAKEN WHEN HANDLING PLASTICS WHEN AIR TEMPERATURE IS AT 40 DEGREES FAHRENHEIT OR BELOW AS PLASTIC BECOMES BRITTLE.

B. PROTECT PARTIALLY COMPLETED INSTALLATION AGAINST DAMAGE FROM OTHER CONSTRUCTION TRAFFIC WHEN WORK IS IN PROGRESS AND FOLLOWING COMPLETION OF BACKFILL BY ESTABLISHING A PERIMETER WITH HIGHLY VISIBLE CONSTRUCTION TAPE, FENCING, OR OTHER MEANS UNTIL CONSTRUCTION IS COMPLETE.

C. SOIL STABILIZATION OF THE SURROUNDING SITE MUST BE COMPLETE BEFORE THE BIOFILTRATION SYSTEM CAN BE BROUGHT ONLINE. SOIL STABILIZATION OCCURS WHEN 90% OF THE SITE HAS BEEN PAVED OR VEGETATED. TEMPORARY EROSION CONTROL AND/OR SEDIMENTATION PREVENTION MEASURES SHALL BE IMPLEMENTED TO REDUCE THE POSSIBILITY OF SEDIMENTS BEING TRANSPORTED INTO THE BIOFILTRATION SYSTEM PRIOR TO FULL STABILIZATION OF THE SITE. SIGNIFICANT SEDIMENT LOADS CAN DAMAGE THE HPBMS AND LEAD TO FAILURE IF NOT PREVENTED OR REMEDIATED PROMPTLY.

PRODUCTS

A. ACCEPTABLE HPBMS
   1. FOCALPOINT HIGH PERFORMANCE BIOFILTRATION SYSTEM

B. ACCEPTABLE BEEHIVE OVERFLOW GRATE STRUCTURE (OPTIONAL)
   1. BEEHIVE OVERFLOW GRATE STRUCTURE WITH REMOVABLE STORMSACK

C. ACCEPTABLE MANUFACTURER
   CONVERGENT WATER TECHNOLOGIES, INC.
   800-711-5428
   WWW.CONVERGENTWATER.COM

D. AUTHORIZED VALUE ADDED RESELLER
   FERGUSON WATERWORKS
   800-448-3636
   WWW.FERGUSON.COM

PACKAGING

A. HPMBS IS ASSEMBLED ON SITE.
B. MODULAR UNDERDRAIN/STORAGE UNIT IS SHIPPED FLAT AND MODULES ARE ASSEMBLED PRIOR TO INSTALLATION.
C. BIOFILTRATION MEDIA IS DELIVERED IN ONE TON SUPER SACKS EACH LABELED WITH MANUFACTURER'S BATCH NUMBER AND/OR IN BULK WITH ACCOMPANYING MANUFACTURER'S CERTIFICATION.
D. OTHER COMPONENTS ARE DELIVERED IN BULK OR SUPER SACKS

EXECUTION

A. EXCAVATION AND BACKFILL
   1. BASE OF EXCAVATION SHALL BE SMOOTH, LEVEL AND FREE OF LUMPS OR DEBRIS, AND COMPACTED UNLESS INFILTRATION OF STORM WATER INTO SUBGRADE IS DESIRED. A THIN LAYER (3") OF COMPACTED BASE MATERIAL IS RECOMMENDED TO ESTABLISH A LEVEL WORKING PLATFORM (MAY NOT BE NEEDED IN SANDY SOILS). IF THE BASE OF THE EXCAVATION IS PUMPING OR APPEARS EXCESSIVELY SOFT, A GEOTECHNICAL ENGINEER SHOULD BE CONSULTED FOR ADVICE. IN MANY CASES, A STABILIZATION GEOTEXTILE AND 6" OF COMPACTABLE MATERIAL THAT DRAINS WELL WILL BE SUFFICIENT TO AMEND THE BEARING CAPACITY OF THE SOIL.
   2. MOST APPLICATIONS REQUIRE 8 OZ NON-WOVEN GEOTEXTILE OR EQUIVALENT NONWOVEN GEOTEXTILE WITH A NOMINAL WEIGHT OF 8 OZ PER SQUARE YARD TO LINE THE EXCAVATION TO SEPARATE IN SITU SOILS AND THE HPMBS. (APPLICATIONS REQUIRING WATER TO INFILTRATE THE IN SITU SUB-SOILS SHOULD USE A BRIDGING STONE RATHER THAN GEOTEXTILE TO PROVIDE A SEPARATION LAYER BETWEEN THE HPMBS AND THE IN SITU SOILS). GEOTEXTILE, WHEN UTILIZED, SHOULD BE PLACED ON THE BOTTOM AND UP THE SIDES OF THE EXCAVATION. ABSOLUTELY NO GEOTEXTILES SHOULD BE USED IN THE WATER COLUMN. IF AN IMPERMEABLE LINER IS SPECIFIED, IT SHALL BE INSTALLED ACCORDING TO MANUFACTURER'S INSTRUCTIONS AND RECOMMENDATIONS.
   3. SPECIFIED BACKFILL MATERIAL MUST BE FREE FROM LUMPS, DEBRIS AND ANY SHARP OBJECTS THAT COULD PENETRATE THE GEOTEXTILE. MATERIAL IS USED FOR BACKFILL ALONG THE SIDES OF THE SYSTEM AS INDICATED IN ENGINEERING DETAIL DRAWINGS.

B. INSPECTION
   1. EXAMINE PREPARED EXCAVATION FOR SMOOTHNESS, COMPACTION AND LEVEL. CHECK FOR PRESENCE OF HIGH WATER TABLE, WHICH MUST BE KEPT AT LEVELS BELOW THE BOTTOM OF THE UNDERDRAIN STRUCTURE AT ALL TIMES. IF THE BASE IS PUMPING OR APPEARS EXCESSIVELY SOFT, A GEOTECHNICAL ENGINEER SHOULD BE CONSULTED FOR ADVICE.
   2. INSTALLATION COMMENCEMENT CONSTITUTES ACCEPTANCE OF EXISTING CONDITIONS AND RESPONSIBILITY FOR SATISFACTORY PERFORMANCE. IF EXISTING CONDITIONS ARE FOUND TO BE UNSATISFACTORY, CONTACT PROJECT MANAGER OR ENGINEER FOR RESOLUTION PRIOR TO INSTALLATION.

C. CLEANUP AND PROTECTION DURING ONGOING CONSTRUCTION ACTIVITY
   1. PERFORM CLEANING DURING THE INSTALLATION AND UPON COMPLETION OF THE WORK.
   2. REMOVE FROM SITE ALL EXCESS MATERIALS, DEBRIS, AND EQUIPMENT. REPAIR ANY DAMAGE TO ADJACENT MATERIALS AND SURFACES RESULTING FROM INSTALLATION.
   3. IF SURROUNDING DRAINAGE AREA IS NOT FULLY STABILIZED, A PROTECTIVE COVERING OF GEOTEXTILE FABRIC SHOULD BE SECURELY PLACED TO PROTECT THE BIOFILTRATION MEDIA.
   4. CONSTRUCTION PHASE EROSION AND SEDIMENTATION CONTROLS SHALL BE PLACED TO PROTECT THE INLET(S) TO THE BIOFILTRATION SYSTEM. EXCESSIVE SEDIMENTATION, PARTICULARLY PRIOR TO ESTABLISHMENT OF PLANTS MAY DAMAGE THE HPMBS.
   5. STRICTLY FOLLOW MANUFACTURER'S GUIDELINES WITH RESPECT TO PROTECTION OF THE HPMBS BETWEEN INSTALLATION AND COMMISSIONING PHASES.

D. COMMISSIONING
   1. COMMISSIONING SHOULD ONLY BE CARRIED OUT ONCE THE CONTRIBUTING DRAINAGE AREA IS FULLY STABILIZED. IF COMMISSIONING MUST BE CARRIED OUT SOONER, IT IS IMPERATIVE THAT APPROPRIATE EROSION AND SEDIMENT CONTROLS BE PLACED TO PREVENT THE ENTRY OF EXCESSIVE SEDIMENT/POLLUTANT LOADS INTO THE SYSTEM.
   2. COMMISSIONING ENTAILS REMOVING THE PROTECTIVE COVERING FROM THE BIOFILTRATION MEDIA, PLANTING THE PLANT MATERIAL IN ACCORDANCE WITH THE APPROVED DRAWINGS, AND PLACING MULCH IF SPECIFIED.
   3. DIG PLANTING HOLES THE DEPTH OF THE ROOT BALL AND TWO TO THREE TIMES AS WIDE AS THE ROOT BALL. WIDE HOLES ENCOURAGE HORIZONTAL ROOT GROWTH THAT PLANTS NATURALLY PRODUCE.
   4. WITH TREES, YOU MUST ENSURE YOU ARE NOT PLANTING TOO DEEP. DON'T DIG HOLES DEEPER THAN ROOT BALLS. THE MEDIA SHOULD BE PLACED AT THE ROOT COLLAR, NOT ABOVE THE ROOT COLLAR. OTHERWISE THE STEM WILL BE VULNERABLE TO DISEASE.
   5. STRICTLY FOLLOW MANUFACTURER'S PLANTING GUIDANCE.
   6. COVER THE EXPOSED ROOT BALL TOP WITH MULCH. MULCH SHOULD NOT TOUCH THE PLANT BASE BECAUSE IT CAN HOLD TOO MUCH MOISTURE AND INVITE DISEASE AND INSECTS. EVENLY PLACE 3 INCHES OF DOUBLE-SHREDDED HARDWOOD MULCH (IF SPECIFIED) ON THE SURFACE OF THE MEDIA.
   7. PLANTINGS SHALL BE WATERED-IN AT INSTALLATION AND TEMPORARY IRRIGATIONS SHALL BE PROVIDED, IF SPECIFIED.

DATE	INITIALS	DESCRIPTIONS
7/18/2025	BMK	OVERLAY UPDATED, REMOVED OVERFLOW PIPE

FocalPoint BIOFILTRATION SYSTEMS

DISTRIBUTED BY: FERGUSON WATERWORKS

FOCALPOINT
HIGH PERFORMANCE BIOFILTRATION MEDIA

FOCALPOINT SPECIFICATION
362 POND STREET
SOUTH KINGSTON, RI

DRAWN BY: BMK
DATE: 07/02/2025
SHEET NO.: 5 of 5

THIS DRAWING HAS BEEN PREPARED BASED ON INFORMATION PROVIDED TO FERGUSON WATERWORKS BY THE DESIGN ENGINEER, CONTRACTOR, OR OTHER PROJECT REPRESENTATIVE. THE ENGINEER OF RECORD SHALL REVIEW AND APPROVED THAT THE DEPICTED LAYOUT AND ALL ASSOCIATED DETAILS MEET ALL APPLICABLE REGULATIONS AND PROJECT SPECIFIC REQUIREMENTS.

OWNER AUTHORIZATION FORM

Submittal Date: _____

Owner Authorization Forms for each owner of the property being considered for subdivision/development is to be submitted with each stage of review. If no changes to the ownership have occurred since the last stage of review, a copy of the previously submitted Form may be submitted with an updated Submittal Date.

I, John Ray for SHM Silver Spring, LLC hereby certify that I am an/the owner of property designated as Plat 63.3, Lot 60, as shown on the Town of South Kingstown Tax Assessor Maps. I further certify that I am the owner of the development rights for this property.

I hereby authorize and am in agreement with the application, signed by Blish & Cavanagh LLP (applicant), for subdivision or development for the subject property. Said application is to be submitted to the Planning Department of the Town of South Kingstown for review and decision by the Planning Board.

WITNESS its name this 28th day of May, 2025.

BY: _____
John Ray on behalf of SHM Silver Spring, LLC Signature of Owner

STATE OF ~~RHODE ISLAND~~ TEXAS

County of Dallas

In Dallas, Texas on the 28th day of May, 2025, before me personally appeared John Ray (name) to me known and known by me to the party executing the foregoing instrument and acknowledged said instrument, by him/her executed, to be his/her free act and deed, as limited liability company (individual, corporation, trustee, partnership, non-profit, etc.).

MICHELLE OLVEDO
Notary Public, State of Texas
Comm. Expires 02-23-2027
Notary ID 1121504-4

_____
Notary Public

My Commission Expires: 02/23/2027

TOWN OF SOUTH KINGSTOWN
PLANNING BOARD
PROJECT REVIEW APPLICATION FORM

This Application Form is to be submitted with each stage of review.

APPLICANT INFORMATION

Applicant Name: SHM Silver Spring, LLC

Name of Primary Contact (if applicant is an organization): Beck Bennett

Applicant Address: 14785 Preston Road, Ste 975 Dallas, TX 75254

Applicant Phone: 401-864-1574 Applicant Email: bbennett@shmarinas.com

OWNER INFORMATION

Owner Name(s): SHM Silver Spring, LLC

Owner Contact Information: see above

PROJECT INFORMATION

Assessor's Plat and Lot of Parcel(s) Proposed for Subdivision/Development: 63-3:60

Physical Address or Location of Parcel(s): 362 Pond Street

Zoning District(s) of Parcel(s): CW Total Size of Development Parcel: 3.2acres

Date of Initial Meeting with Planning Department Staff (before first stage of review): _____

TYPE OF PROJECT (select all that apply)

- ☐ Development Plan Review
- ☐ Administrative Subdivision
- ☐ Minor Subdivision, without street creation or extension
- ☐ Minor Subdivision, with street creation or extension
- ☐ Major Subdivision
- ☑ Minor Land Development Project
- ☐ Major Land Development Project
- ☐ Multi-Household Land Development Project
- ☐ Flexible Design Residential Project (FDRP)
- ☐ Residential Compound
- ☐ Comprehensive Permit

CURRENT STAGE OF REVIEW (if applicable)

- ☐ Pre-Application Concept Review
- ☐ Conceptual Master Plan
- ☑ Preliminary Plan
- ☐ Final Plan
- ☐ Recording
- ☐ Release of Performance/Maintenance Guarantee
- ☐ Change to an Approved Plan
- ☐ Reinstatement or Extension to Approved Plan
- ☐ Request to Combine Review Stages
- ☐ Other

WAIVERS AND MODIFICATIONS

Does this application request waiver of or modification to any of the requirements of the Town of South Kingstown Subdivision and Land Development Regulations? ☐ yes* ☑ no

**If yes, a statement describing the specific regulation(s) for which waiver or modification is requested must be included in the application materials.*

CERTIFICATION OF COMPLETE APPLICATION

(1) The applicant hereby certifies that all of the materials required by the applicable checklist(s), as determined by Planning Department staff during the initial meeting, have been submitted including a review fee in the amount of $200.

(2) The applicant hereby certifies that the plan set and other submitted materials conform to the requirements of the current adopted version of the Town of South Kingstown Subdivision and Land Development Regulations, or, that a written statement has been provided listing all requested waivers and/or modifications of the Regulations.

_____ _____

Applicant Signature Date

_____

Printed Name

PROJECT TEAM FORM

Submittal Date: 07/29/2025

The Project Team Form is to be submitted with each stage of review. If no changes to the Project Team have occurred since the last stage of review, a copy of the previously submitted Form may be submitted with an updated Submittal Date.

ATTORNEY *This entity should be copied on all project correspondence* ☑ **YES** ☐ **NO**

Name: Matthew J. Landry, Esq.

Name of Primary Contact (if attorney is an organization): Blish & Cavanagh, LLP

Address: 30 Exchange Terrace, Ste 3, Providence, RI 02903

Phone: 401-831-8900 Email: mjl@blishcavlaw.com

ENGINEER *This entity should be copied on all project correspondence* ☑ **YES** ☐ **NO**

Name: Tom Principe

Name of Primary Contact (if engineer is an organization): Principe Engineering, c/o Tom Principe/Karen Beck

Address: 27 Sakonnet Ridge Drive, Tiverton, RI 02878

Phone: 401-816-5385 Email: tom@principeengineering.com; karen@principeengineering

SURVEYOR *This entity should be copied on all project correspondence* ☐ **YES** ☐ **NO**

Name:

Name of Primary Contact (if surveyor is an organization):

Address:

Phone: Email:

LANDSCAPE ARCHITECT *This entity should be copied on all project correspondence* ☐ **YES** ☐ **NO**

Name:

Name of Primary Contact (if landscape architect is an organization):

Address:

Phone: Email:

ARCHITECT *This entity should be copied on all project correspondence* ☑ **YES** ☐ **NO**

Name: Chris Fagan - Fagan Design

Name of Primary Contact (if architect is an organization):

Address:

Phone: 401-855-4873 Email: fagan1@gmail.com

OTHER *This entity should be copied on all project correspondence* ☑ **YES** ☐ **NO**

Name: Beck Bennett - Safe Harbor Marinas

Role on Project: VP of Construction and Development

Name of Primary Contact (if entity is an organization):

Address:

Phone: 401-864-1574 Email: bbennett@shmarinas.com

C:\Users\Seth Lemoine\Principe Engineering Dropbox_OWTS DESIGNS\2024 OWTS JOBS\24001.00_362 Pond Street_Wakefield_Safe Harbor_Silver Spring_Chris Fagan\Drawings\24

PRELIMINARY PLAN SUBMISSION
FOR
SAFE HARBOR MARINAS, LLC
LAND DEVELOPMENT PROJECT
A.P. 63-3 LOT 60
362 POND STREET
IN
SOUTH KINGSTOWN, RHODE ISLAND

OWNER/APPLICANT:
SHM SILVER SPRING LLC
14785 PRESTON ROAD, STE 975
DALLAS, TEXAS 75254
C/O BECK BENNETT
bbennett@shmarinas.com

LIST OF DRAWINGS

1) TITLE SHEET
2) EXISTING CONDITIONS PLAN 1 OF 2 (2 of 9, dated 07/28/2020)
3) EXISTING CONDITIONS PLAN 2 OF 2 (2 of 9, dated 07/28/2020)
4) PROPOSED CONDITIONS PLAN
4) PROPOSED OWTS PLAN
5) OWTS DETAILS
6) SITE DETAILS

AERIAL LOCUS MAP
SCALE 1"=600'

PRINCIPE COMPANY ESTABLISHED IN 1981

PREPARED BY:
PRINCIPE COMPANY, INC.
ENGINEERING DIVISION
27 SAKONNET RIDGE DRIVE
TIVERTON, RHODE ISLAND 02878
401.816.5385
WWW.PRINCIPECOMPANY.COM

JULY 22, 2025

Thomas J. Principe, III
9107
REGISTERED PROFESSIONAL ENGINEER

PLAN REFERENCES:

1) CLASS 1 LIMITED CONTENT BOUNDARY SURVEY DATED JULY 2020 BY CHARLES LENT, P.L.S. No. 1947 EXISTING CONDITIONS PLAN PREPARED BY RAVI ENGINEERING & LAND SURVEYING P.C. PREPARED FOR SAFE HARBORS MARINAS, LLC A.P. 60-3 LOT 60 362 POND STREET SOUTH KINGSTOWN, RHODE ISLAND;

2) RIDEM OWTS APPLICATION NO. 2032-1906

PROJECT DATA:

EXISTING: PLAT: 60-3 LOT: 60
LOT AREA : 142,365 SF (3.27 Ac.)

STREET INDEX
POND STREET

ZONING DESIGNATION: CW (COMMERCIAL WATERFRONT)

MIN. LOT AREA	40,000 MIN.
FRONTAGE/LOT WIDTH	100 FT
MIN. FRONT YARD	40 FT
MIN. SIDE YARD	30 FT
MIN. REAR YARD	30 FT
MIN. CORNER SIDE YARD	40 FT
MAX BUILDING LOT COVERAGE	25 %

PROPOSED:
REPLACE EXISTING 2,400 SF MAINTENANCE BUILDING WITH A PROPOSED 4,680 SF MAINTENANCE BUILDING

PARKING (CW ZONE):
1-1/2 PARKING SPACES FOR EVERY BOAT SLIP
(85 BOAT SLIPS) = 128 SPACES REQUIRED

LOT COVERAGE:

TOTAL LOT AREA	142,365 SF
UNSUITABLE AREA (WETLANDS)	0 SF
SUITABLE AREA	142,365 SF
EXISTING STRUCTURES*	6,600 SF
PROP. STRUCTURE (WITH OVERHANGS)	4,680 SF
TOTAL PROP. STRUCTURAL LOT COVERAGE	8,880 SF (6.2%)
INCREASE IN TOTAL LOT (CRMC)	34.5%

*EXISTING 2,400 SF STRUCTURE TO BE RAZED

PROPOSED WAIVERS/VARIANCES

1. ZONING 401: DIMENSIONAL RELIEF FOR SIDE YARD SETBACK ENCROACHMENT FOR PROPOSED BUILDING IN ZONING DISTRICT CW

LIGHTING NOTE:
ALL PROPOSED LIGHTING SHALL BE DARK-SKY COMPLIANT.

UTILITY NOTE:
ALL PROPOSED ON-SITE UTILITIES SHALL BE INSTALLED UNDERGROUND.

DRAWING ISSUE:
- ☐ CONCEPT
- ☐ CUSTOMER APPROVAL
- ☒ PERMITTING
- ☐ CONSTRUCTION
- ☐ AS-BUILT
- ☐ OTHER:

ONLY PLANS ISSUED FOR CONTRUCTION SHALL BE USED FOR CONSTRUCTION

NORTH
POND STREET
STATE HIGHWAY R.O.W. (PUBLIC)
FREEWAY LINE (PUBLIC)
STATE HIGHWAY R.O.W.
EDGE OF PAVEMENT
WATERLINE
EDGE OF ASPHALT
CURB CUT
ASPHALT DRIVE (ACCESS)
HIGHWAY SIGN MAINTENANCE PUBLIC ACCESS ASPHALT WIDTH 24'±
LANDSCAPING
GRASS
WOODED
CAPPED IRON ROD SET AS WITNESS
S 80°05'06" E 42.57' TIE
N 82°12'59" E 4.23' TIE
APPROXIMATE MARINA PERIMETER AS PER CRMC ADMINISTRATIVE ASSENT 94-2-28
FLOATING DOCKS
GANGPLANK
DRILL HOLE
WOOD DECK
BOB WAY
LIGHT
WOODS/BRUSH
WATER
WATER HOIST AREA
CONCRETE
30' SETBACK
TRAVEL LIFT RAILS
CRUSHED STONE AND GRAVEL
174.3'
FLOATING DOCKS (TYP.)
30' SETBACK
1 STORY HIGH CEILING ALUMINUM MAINTENANCE AND REPAIRS 2400 SQ. FT.
HEIGHT 28'-8"
144.00 FT. (M) 144.00 FT. (D) BOUNDARY LINE
DOOR SAL
STEEL CONTAINER
CONCRETE
OVERHEAD WIRES
SCHOONER
TABLES (TYP.)
GANGPLANK (TYP.)
169.0'
PARCEL 1
PARCEL 1 BOUNDARY
N 82°14'20" E 238.70' (M) 238.70' (D) GENERALLY ALONG MEAN HIGH WATER
N 82°01'00"E 82°01'00"E
PARCEL 2
PARCEL 2 BOUNDARY (EASTERLY 99.83')
PARCEL 2 BOUNDARY (NORTHERLY 129.42')
ASPHALT
IRON PIPE DISTANCES
45' SETBACK
60'
PROPANE
WATERLINE (ASSUMED LOCATION)
U/G UTILITY (ASSUMED LOCATION)
LANDSCAPING
CONCRETE
HEIGHT 26.4'
2 STORY WOOD FRAME STORAGE 3300 SQ. FT.
FUEL OIL TANK
A/C CONDENSER
WOOD DECK AND STEPS
CONCRETE
DRUMLIN
DRUMLIN SIGN
DRUMLIN SIGN
DRUMLIN SIG

NOTES CORRESPONDING TO SCHEDULE B

The commitment for title insurance issued by First American Title Insurance Company Commitment No. NCS-1017784-PHIL with a commitment date of June 24, 2020 contains the following exceptions which are survey matters:

(7) Stipulations set forth in Assent from the Coastal Resources Management Council dated April 26, 1993 and recorded August 24, 1993 in Book 518 at Page 149. Affected surveyed parcel. Nothing to plot.

(8) Stipulations set forth in Assent from the Coastal Resources Management Council dated February 17, 1994 and recorded March 31, 1994 in Book 594 at Page 197. Creates a Perimeter Plan for the surveyed parcel. Plotted approximately.

(9) Notice of Decision from the Zoning Board of Review of the Town of South Kingstown dated May 25, 1999 and recorded May 25, 1999 in Book 769 at Page 140. Permits an outdoor in-ground pool to be constructed, affects surveyed parcel. Nothing to plot.

SURVEYOR NOTES

1. This map was prepared with the benefit of Commitment for Title Insurance having Commitment No. NCS-1017784-PHIL issued by First American Title Insurance Company, and having an commitment date of June 24, 2020.
2. Only copies of the original of this survey marked with an original of the land surveyor's stamped seal shall be considered valid true copies.
3. This parcel is subject to any and all rights, easements, encumbrances, restrictions and covenants recorded and unrecorded.
4. No photogrammetric mapping, or airborne laser scanning was utilized for this map. Docks and gangplanks were located by conventional survey methods. Docks and gangplanks are subject to movement, reconfiguration, and removal for winter and at any other time.
5. No evidence of recent earth moving work, building construction, or building additions observed at the time of survey.
6. No apparent proposed street right of way changes, recent street construction, or recent sidewalk construction observed at time of survey.
7. No evidence of potential wetlands were observed on the subject property at the time the survey was conducted, nor has the surveyor received any documentation of any wetlands being located on the subject property.
8. The locations of all utilities shown on the survey are from visible surface evidence only. There is visible evidence of the following servitude utilities: electric, telephone and water service.
9. No apparent division walls or party walls with respect to adjoining property owners.
10. Due to parked vehicles and storage of boats/trailers in Marina yards at time of survey, some surface features may not have been visible and are not shown on this map.
11. The property is contiguous to all abutting public rights of way shown hereon, without gaps, gores or overlapping portions.
12. All parcels are contiguous within their common boundary line and together create one contiguous parcel without gaps or gores.
13. There is access to the surveyed parcel directly from Pond Street, a public right-of-way, via an asphalt drive. The east line of Pond Street is the same as the westerly boundary line of the surveyed parcel without gaps. The east line of Pond Street, a public highway maintained by the Town, is one and the same as the easterly State Highway right-of-way.
14. All bearings and distances shown and described in As-Surveyed Perimeter Legal Description are as measured.

MAP REFERENCES

1. "Plan Showing a Survey of Certain Land of Man Associates, Inc. on Pond Street South Kingstown, R.I." Dated June-1992 as prepared by Lloyd L. Whaley, Professional Land Surveyor #1613 as provided by client.
2. "Silver Spring Cove Marina: Marina Perimeter Plan" Dated December 1993 Revised to February 1994 prepared by Lloyd L. Whaley, Professional Land Surveyor #1613.

ENCROACHMENT STATEMENT

1. Landscaping within the right-of-way of Pond Street.
2. Gravel parking partially (triangular 34' x 7') within right-of-way of Pond Street.
3. Gravel parking and boat/trailer storage partially (irregular shape 0' - 9' x 159') within lands of Anne L. Pedro and Joseph R. Pastore AP Map 63-3 Lot 28.
4. Sign 8'± within highway right-of-way.

TITLE COMMITMENT LEGAL DESCRIPTION

The land is described as follows: Real property in the Village of Wakefield, Town of South Kingstown, County of Washington, and State of Rhode Island.

Those three contiguous parcels of land with all the buildings and improvements thereon, situated on the westerly side of Silver Spring Cove in the Village of Wakefield, Town of South Kingstown, Rhode Island, bounded and described as follows:

PARCEL 1:

Beginning at the southwesterly corner of the parcel herein described, said point being in the northwesterly line of Quagnut Hollow Path and at a stone bound set at the southeasterly corner of land now or formerly owned by Burton L. Little, said point also being 195.47 feet northeasterly of Quagnut Drive;

Thence turning an interior angle of 71°-00'00", and running northwesterly bounding southwesterly on the said Little land 155 Feet to an angle point marked by a concrete bound; thence turning an interior angle of 130°-44'-00" and running generally northerly bounding westerly on said Little land 200 Feet to a point at the southeasterly corner of a right-of-way running at a right angle from the property line herein described, across said Little land, to Pond Street, said right-of-way being 30 feet wide;

Thence continuing generally northerly in the aforesaid line bounding westerly in part on the said right-of-way, in part on the said Little land, and in part on the high water line of Silver Spring Cove 125 Feet, more or less, to an angle point in the aforesaid mean high water line;

Thence turning an interior angle of 117°-45'-00" and running generally easterly in the mean high water line of Silver Spring Cove 238 Feet, more or less, to an angle point; thence turning an interior angle of 82°-35'-00" and running southerly in the mean high water of Silver Spring Cove 438 Feet, more or less, to an angle point;

Thence turning an interior angle of 87°-51'-00" and running westerly in the mean high water line of Silver Spring Cove 106 Feet, more or less, to an angle point, said point being in the easterly line of land now or formerly owned by Sixty-six Acres Improvement Association;

Thence turning an interior angle of 104°-05'-00" and running northwesterly bounding southwesterly on said last named land in part and on the northeasterly end of Quagnut Hollow Path 104 Feet, more or less, to a point at the most northerly corner of Quagnut Hollow Path;

Thence turning an interior angle of 270°-00'00" and running southwesterly bounding southeasterly on said Quagnut Hollow Path 136.90 feet to the first mentioned point.

Less, however, that portion conveyed by Wilson Boothroyd and edith Cottrell Boothroyd to Burton L. Little by deed dated August 5, 1972, and recorded in the Land Evidence Records of South Kingstown in Book 111, at Page 607.

PARCEL 2:

Commencing at a point in the westerly line of land now or formerly of Antares Corporation, said point being located 200 Feet northerly from a concrete bound marking a southwesterly corner of said Antares Corporation;

Thence running in a northeasterly direction in a line perpendicular to said westerly line of land now or formerly of Antares Corporation to the easterly line of the State Highway line of Pond Street;

Thence turning and running in a northeasterly direction along the easterly side of the State Highway line in the mean high water line of Silver Spring Cove of Point Judith Pond;

thence turning and running generally southeasterly along the mean high water line of said Silver Spring Cove to a drill hole in a stone in the rip rap, said drill hole being the northwesterly corner of said Antares land;

thence turning and running in a southwesterly direction a distance of 119.94 feet to the point or place of beginning, bounding easterly of said Antares land.

PARCEL 3:

Commencing at a point in the easterly line of Pond Street said point being marked by a pipe at the south west corner of land of Wilson Boothroyd and Edith Boothroyd;

Thence running in an easterly direction of ninety-four and fifty-three one-hundredths (94.53') Feet to land of said Boothroyds marked by a pipe, bounding northerly by said land of Boothroyds;

Thence turning an interior angle of 90° and running in a southwesterly direction two hundred (200') feet, more or less, to a cement bound, bounding easterly by said Boothroyd land;

Thence turning an interior angle of 98°-47'-54" and running in a westerly direction a distance of one hundred seven and fifty-eight one hundredths (107.58) Feet to the easterly line of Pond Street, bounding southerly by other land of Burton L. Little;

Thence turning an interior angle of 78°-05'-00" and running in a northeasterly direction along the easterly line of Pond Street a distance of two hundred sixteen and seventy-seven one-hundredths (216.77') Feet to the point of beginning. The first course and the last course forming an interior angle of 93°-07'-06".

The land described in this map of survey is the same property as that described in First American Title Insurance Company Commitment No. NCS-1017784-PHIL with a commitment date of June 24, 2020.

AS-SURVEYED PERIMETER LEGAL DESCRIPTION

The land referred to herein below is situated in the Town of South Kingstown, County of Washington, State of Rhode Island, and described as follows:

Commencing at a the northerly drill hole of a stone monument on the northeasterly boundary of Quagnut Hollow Path; thence N51° 19' 12"W, 239.26' to the Point of Beginning located on the boundary division line between lands N/F Man Associates, Inc. on the north and lands N/F Anne L. Pedro and Joseph R. Pastore on the south at its intersection with the southeasterly R.O.W. of Pond Street; thence N21° 04' 04"E along said Pond Street R.O.W., 371'± (tie distance 370.78') to its intersection with the mean high water of Silver Spring Cove; thence southeasterly, easterly and northeasterly along the said mean high water, 118'± (tie line of S50° 32' 36"E, 92.12') to a point marked by a drill hole in the rip rap; thence generally along the said mean high water the following three (3) courses and distances:

1. N80° 14' 20"E, 239.70' to a point;
2. S32° 35' 41"E, 438.00' to a point;
3. S89° 33' 19"W, 106.00' to a point on the boundary division line between said lands N/F Man Associates, Inc. on the northeast and reputed lands N/F Sixty-Six Acres Improvement Association on the southwest;

Thence N50° 31' 41"W along said division line, 104.00' to its intersection with the first mentioned boundary division line between said lands N/F Man Associates, Inc. on the north and said lands N/F Anne L. Pedro and Joseph R. Pastore on the south; thence N80° 50' 54"W, a distance of 277.73 ' to the Point of Beginning, being 142,365± square feet or 3.27± acres of land.

Note of Assurance: The As-Surveyed legal descriptions and the Title Commitment record legal descriptions describe the same property.

This survey has been conducted and the plan has been prepared pursuant to Section 9 of the Rules and Regulations adopted by the Rhode Island State Board of Registration for Professional Land Surveyors on November 25, 2015, as follows:

- Comprehensive Boundary Survey
- Class I Horizontal
- Class T-2 Topographic

The purpose for the conduct of the survey and for the preparation of the plan is as follows: Perform and prepare an ALTA/NSPS Land Title Survey and plan for the client to obtain funding for purchase.

Date: [illegible], 2020

CHARLES E. LENT
RHODE ISLAND
1047
REGISTERED
PROFESSIONAL
LAND SURVEYOR

Charles E. Lent, PLS
Registration No. 1047
CDA LS.0000720-CDM

Drawn By: CL Checked By: CL

DATE: JULY 28, 2020

REVISIONS

NO.	DATE	DESCRIPTION
1	09/15/20	CLIENT COMMENTS
2	10/01/20	CLIENT COMMENTS
3		
4		
5		
6		
7		

SURVEYOR:
RAVI ENGINEERING & LAND SURVEYING, P.C.

SURVEYOR DRAWING NUMBER
20200978

SHEET TITLE
2016 ALTA/NSPS LAND TITLE SURVEY

PREPARED FOR:
SAFE HARBOR MARINAS, LLC
14785 PRESTON ROAD
SUITE 975
DALLAS, TX 75254

PROJECT NUMBER
RI - 3

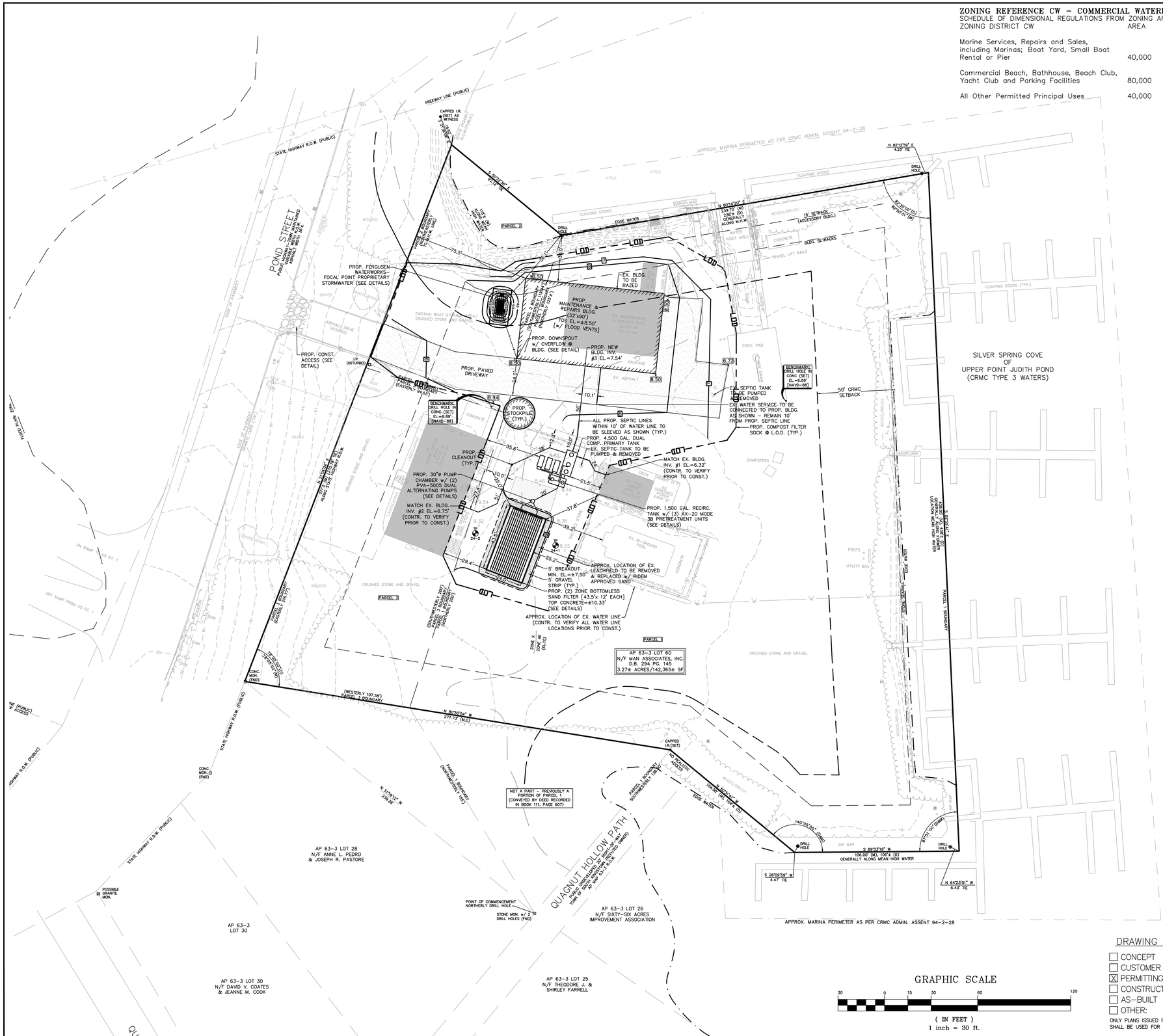
SITE ADDRESS
362 POND STREET
SOUTH KINGSTOWN, RI 02879

WORK COORDINATED BY:
COX LEVIN
National Land Survey Consultants
1264 Main Street - Waltham, MA 02451
781-353-2437 (phone/fax) - www.coxlevin.com

SITE NAME
SILVER SPRING MARINA

SHEET NUMBER
2 of 2

C:\Users\Seth Lemoine\Principe Engineering Dropbox_OWTS DESIGNS\2024 OWTS JOBS\24001.00_362 Pond Street_Wakefield_Safe Harbor_Silver Spring_Chris Fagan\Drawings\24



ZONING REFERENCE CW – COMMERCIAL WATERFRONT
SCHEDULE OF DIMENSIONAL REGULATIONS FROM ZONING ARTICLE 4

ZONING DISTRICT CW	AREA	FRONTAGE & WIDTH	BUILDING COVERAGE	MAX BLDG. HEIGHT PRINCIPLE	ACCSY.	YARD SETBACK FRONT	CORNER SIDE	SIDE	REAR	ACCSY. BLDG SIDE LINE	REAR LINE
Marine Services, Repairs and Sales, including Marinas; Boat Yard, Small Boat Rental or Pier	40,000	100	25%	35	15	40	40	30	30	15	15
Commercial Beach, Bathhouse, Beach Club, Yacht Club and Parking Facilities	80,000	200	15%	35	20	40	40	40	40	15	15
All Other Permitted Principal Uses	40,000	100	25%	35	15	40	40	30	30	15	15

LEGEND & ABBREVIATIONS

N/F	- NOW OR FORMERLY
A.P.	- ASSESSORS PLAT
S.F.	- SQUARE FEET
AC.	- ACRES
±	- PLUS OR MINUS
STY	- STORY
W/F	- WOOD FRAMED
SHP	- STATE HIGHWAY PLAT
RET.	- RETAINING WALL
PED.	- PEDESTRIAN
(FND.)	- FOUND
RIHB	- RI HIGHWAY BOUND
PK NAIL	- MASONRY NAIL
FE	- FLARED END
RCP	- REINFORCED CONCRETE PIPE
CLF	- CHAIN LINK FENCE
INV.	- INVERT
x 10.80	- EXISTING SPOT GRADE
	- EXISTING STONE WALL
	- PROPOSED EROSION CONTROLS @ LIMIT OF DISTURBANCE
	- SHEET PILE RETAINING WALL TYPE A-2
	- PRECAST BLOCK RETAINING WALL TYPE A-1
38	- PROPOSED CONTOUR LINE
	- PROPERTY LINE
	- ZONING SETBACK LINE
	- EXISTING CONTOUR
—X—X—	- FENCE
—S—S—	- SEWER LINE
—D—D—	- DRAIN LINE
—W—W—	- WATER LINE
—G—G—	- GAS LINE
—E—E—	- ELECTRIC LINE
(S)	- SANITARY SEWER MANHOLE
	- CATCH BASIN
(D)	- STORM DRAIN MANHOLE
(W)	- WATER GATE
(GV)	- GAS VALVE
(E)	- ELECTRIC MANHOLE
	- GRANITE BOUND
	- DRILL HOLE
	- IRON PIPE
	- PROPOSED LOT LINE
	- PROPOSED EASEMENT
V	- PROPOSED WATER LINE
S	- PROPOSED SEWER LINE
FM	- PROPOSED SEWER FORCE MAIN
	- PROPOSED EDGE OF PAVEMENT
	- PROPOSED SIDEWALK

CRMC STRUCTURAL LOT COVERAGE:

EXISTING OFFICE (TO REMAIN): 3,200 SF
EXISTING MAINTENANCE BLDG. (TO BE RAZED): 2,400 SF
EXISTING POOL HOUSE & PORCH (TO REMAIN): 1,000 SF
TOTAL EX. STRUCTURAL LOT COVERAGE: 6,600 SF

PROPOSED MAINTENANCE BLDG: 4,680 SF
TOTAL PROPOSED STRUCTURAL LOT COVERAGE: 8,880 SF

TOTAL PROPOSED STRUCTURAL LOT COVERAGE (%) =
(8,880 SF – 6,600 SF) / 6,600 SF = 0.345
34.5% TOTAL PROPOSED INCREASE IN STRUCTURAL LOT COVERAGE

RIDEM MAPPED SOILS:
UD: Udorthents–Urban land complex, "H", 3.5 to > 6ft.
UrS: Human Transported Material "H", >6ft.

CHECKLIST NOTES

THERE ARE NO EXISTING ACTIVE AGRICULTURAL USES AND THERE OR NO AREAS CONTAINING PRIME AGRICULTURAL SOILS OR FARMLAND SOILS OF STATEWIDE IMPORTANCE LOCATED ON THE SUBJECT PARCEL

THERE ARE NO CEMETERIES LOCATED ON OR IMMEDIATELY ADJACENT TO THE SUBJECT PARCEL

THERE ARE NO KNOWN HISTORICAL OR UNIQUE NATURAL FEATURES LOCATED ON THE SUBJECT PARCEL

THE DEVELOPMENT PARCEL OR ANY BUILDINGS WITHIN THE PARCEL ARE NOT LISTED ON THE NATIONAL REGISTER OF HISTORIC PLACES

THE SITE IS LOCATED WITHIN THE FOLLOWING AREAS OF SPECIAL CONCERN:
- SALT POND REGION SPECIAL AREA MANAGEMENT PLAN (SAMP) OF RI CRMC;
- OWTS CRITICAL RESOURCE AREA, AS DEFINED BY RIDEM;
- POINT JUDITH POND WATERS TMDL FOR FECAL COLIFORM BACTERIA

THE SITE IS NOT LOCATED WITHIN THE FOLLOWING AREAS OF SPECIAL CONCERN:
- SOUTH KINGSTOWN GROUNDWATER PROTECTION OVERLAY DISTRICT;
- A DRINKING WATER SUPPLY WATERSHED AS DEFINED BY RIDEM;
- NATURAL HERITAGE AREAS, AS DEFINED BY RIDEM

OWNER/APPLICANT:
SHM SILVER SPRING LLC
14785 PRESTON ROAD, STE 975
DALLAS, TEXAS 75254
C/O BECK BENNETT
bbennett@shmarinas.com

PROPOSED CONDITIONS

GRAPHIC SCALE
30 0 15 30 60 120
(IN FEET)
1 inch = 30 ft.

DRAWING ISSUE:
- ☐ CONCEPT
- ☐ CUSTOMER APPROVAL
- ☒ PERMITTING
- ☐ CONSTRUCTION
- ☐ AS–BUILT
- ☐ OTHER:

ONLY PLANS ISSUED FOR CONTRUCTION SHALL BE USED FOR CONSTRUCTION

Thomas J. Principe, III
RHODE ISLAND
No. 15107
REGISTERED PROFESSIONAL ENGINEER

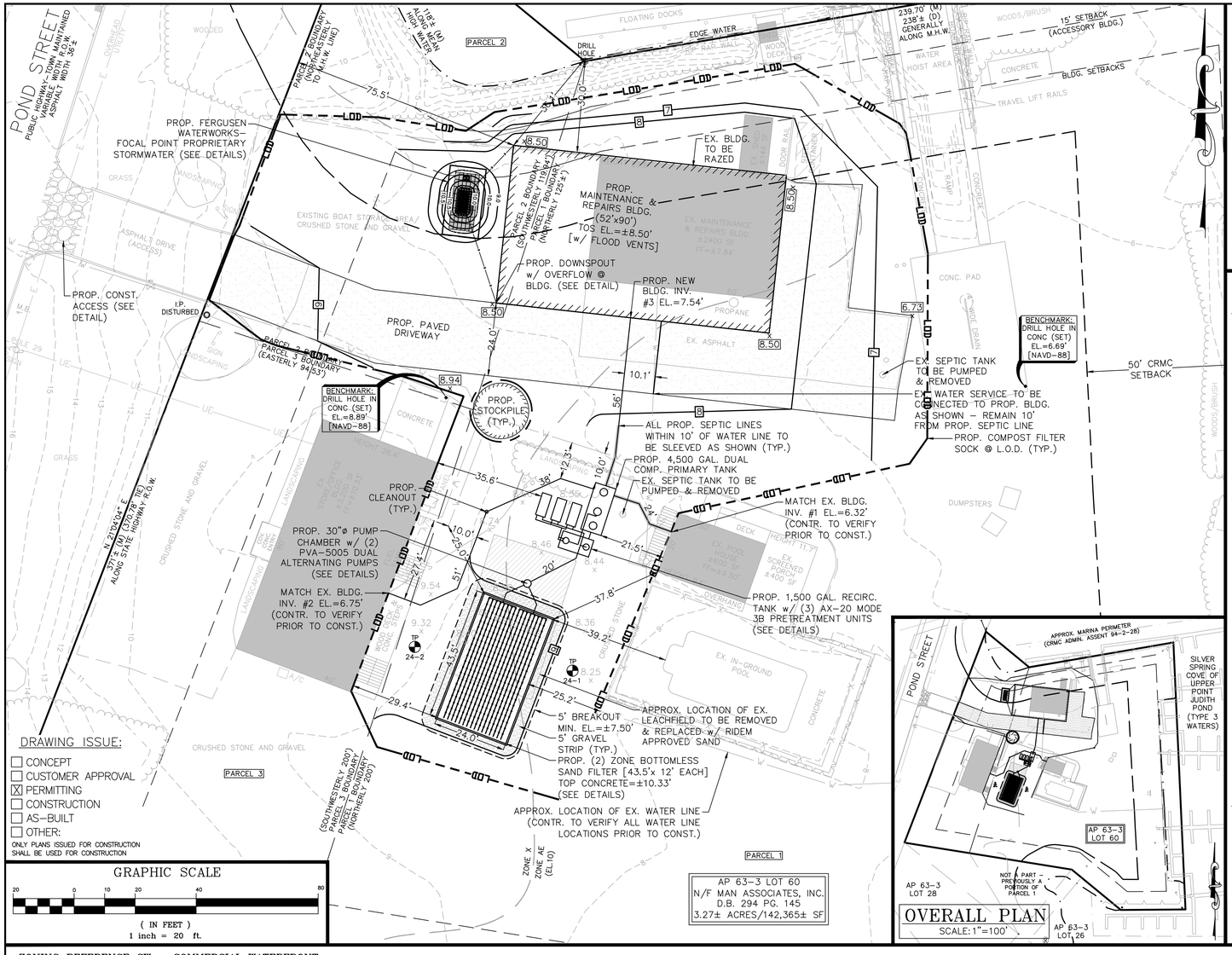
REVISIONS

No.	DATE	DRWN	CHKD

PRINCIPE COMPANY, INC.
ENGINEERING DIVISION
27 SAKONNET RIDGE DRIVE
TIVERTON, RI 02878
401.816.5385
WWW.PRINCIPECOMPANY.COM

CRMC PLAN SUBMISSION
for
PROPOSED BUILDING & SITE IMPROVEMENTS
AP 63-3 LOT 60
362 POND STREET
in
WAKEFIELD, RHODE ISLAND

SCALE: 1"=30'		SHEET NO: 4 of 7
DRAWN BY: KAB	DESIGN BY: KAB	CHECKED BY: TJP
DATE: 07/22/2025		PROJECT NO.: OWTS–24001



OVERALL PLAN
SCALE: 1"=100'

DRAWING ISSUE:
- ☐ CONCEPT
- ☐ CUSTOMER APPROVAL
- ☒ PERMITTING
- ☐ CONSTRUCTION
- ☐ AS-BUILT
- ☐ OTHER:

ONLY PLANS ISSUED FOR CONSTRUCTION SHALL BE USED FOR CONSTRUCTION

GRAPHIC SCALE
20 0 10 20 40 80
(IN FEET)
1 inch = 20 ft.

LEGEND:
- PROPERTY LINE
- ABUTTER LINE
- EX. EDGE OF PAVEMENT
- EXISTING CONTOUR — 89 —
- EXISTING WATERLINE — W —
- TEST PIT — TP
- EXISTING TREE LINE
- EXISTING FENCE LINE — X — X —
- PROPOSED WATERLINE — W —
- PROPOSED LIMIT OF CLEARING — LOD —
- PROPOSED CONTOUR — 89 —
- PROPOSED DRAIN LINE — D —
- BUILDING SETBACK LINE
- PROPOSED DOWNSPOUTS
- PROPOSED SPOT GRADE x 116.5
- COMPOST FILTER SOCK FOR EROSION CONTROL
- RI DOT STD. 9.9.0 CONSTRUCTION ACCESS

SITE LOCUS
NOT TO SCALE

BOTTOMLESS SAND FILTER DESIGN CALCULATIONS

FLOW:
EXISTING 85 SLIPS x 10 GAL./DAY = 850 GAL./DAY
EXISTING 10 EMPLOYEES x 15 GAL./DAY = 150 GAL./DAY
EXISTING 1 WASHER x 500 GAL./DAY = 550 GAL./DAY
TOAL FLOW = EXISTING 1,500 GAL./DAY

SOILS: 72" FILL, 36" GWT E.G.; SOIL CATEGORY 9 SUBSOIL
LOADING RATE FOR TIME DOSED SYSTEM (CAT. 1) = 1.5 GAL./SF/DAY

BOTTOMLESS SAND FILTER SIZING
1,500 GAL./DAY / 1.5 GAL/SF/DAY = 1,000 SF

USE FILTER (2) 43.5' X 12' = 1,044 SF (RATIO 3.63:1)
USE 18" BETWEEN LATERALS AND 9" BETWEEN LATERALS AND WALLS
USE 18" BETWEEN ORIFICES

LATERALS [(12-1.5)/1.5]+1 = 8 LATERALS PER ZONE
ORIFICES [(43.5-1.5)/2]+1 = 22 ORIFICES/LATERAL
22 ORIFICES/LATERAL X 8 LATERALS = 176 ORIFICES PER ZONE

(MIN. ORIFICE SPACING: 14"-24") (MIN. LATERAL SPACING: 14"-24")

SOILS:
RIDEM APP. #2032-1906
EVALUATED BY: THOMAS J. PRINCIPE III, PE
DATE: 02/27/2024

TP 24-1:	TP 24-2:
72" FILL	96" FILL
36" GWT E.G.	36" GWT E.G.
CAT. 1	CAT. 9

PLAN REFERENCES:
1.) EXISTING OWTS & FLOW INFORMATION TAKEN FROM RIDEM PERMIT #2032-1906
2) CRMC ASSENT #2021-06-032 & #2021-06-069
3) EXISTING CONDITIONS TAKEN FROM SURVEY PLAN ENTITLED:
"SILVER SPRING MARINA"
362 POND STREET - SOUTH KINGSTON, RI
DATE: 07/28/2020 REV. 10/01/2020
PREPARED BY: RAVI ENGINEERING & LAND SURVEYING, P.C.
PHONE: (585)223-3660

PLAN NOTES:
1. CONTRACTOR TO VERIFY BENCHMARK AND EXISTING CONDITIONS PRIOR TO COMMENCING CONSTRUCTION AND SHALL NOTIFY ENGINEER OF ANY DISCREPANCIES.

2. PLAN IS TO BE USED SOLELY FOR THE USE OF THE SOIL EROSION, RUNOFF AND SEDIMENT CONTROL ORDINANCE FOR THE TOWN OF SOUTH KINGSTOWN AND IS NOT AUTHORIZED FOR ANY OTHER USE. CONTRACTOR TO STRICTLY ADHERE TO WARREN'S SOIL EROSION, RUNOFF, AND SEDIMENT CONTROL ORDINANCE AT ALL TIMES DURING CONSTRUCTION.

3. SEE ADDITIONAL NOTES ON SHEET 2 OF 2, WHICH NEED TO BE STRICTLY ADHERED TO AS WELL.

SPECIFICATIONS
1. THE SYSTEM FOR SUBSURFACE DISPOSAL OF SANITARY SEWAGE SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE LATEST REQUIREMENTS OF THE STATE OF RHODE ISLAND AND PROVIDENCE PLANTATIONS, DEPARTMENT OF ENVIRONMENTAL MANAGEMENT, "RULES ESTABLISHING MINIMUM STANDARDS RELATING TO LOCATION, DESIGN, CONSTRUCTION, AND MAINTENANCE OF ON-SITE WASTEWATER TREATMENT SYSTEMS" RULE 6.2 THROUGH RULE 6.58.
2. THE PIPE FROM THE BUILDING TO THE SEPTIC TANK SHALL BE SDR-35 PVC PIPE OR EQUIVALENT. SCH-40 PVC OR EQUIVALENT TO BE USED FOR ALL PORTIONS SUBJECT TO VEHICULAR TRAFFIC.
3. SOLID WALL PIPE AND FITTINGS SHALL BE SCHEDULE 35 PVC (POLYVINYL CHLORIDE) MANUFACTURED IN ACCORDANCE WITH THE LATEST REQUIREMENTS OF ASTM D 3034. JOINTS SHALL BE SOLVENT WELDED TYPE.
4. THE SEPTIC TANK MUST HAVE TWO COMPARTMENTS WITH THE FIRST COMPARTMENT HAVING A LIQUID VOLUME THAT IS TWO THIRDS THE REQUIRED VOLUME OF THE ENTIRE TANK. THE SEPTIC TANK SHALL BE WATER TIGHT, AND CONSTRUCTED OF PRECAST REINFORCED CONCRETE, FIBERGLASS, POLYETHYLENE OR OTHER MATERIALS APPROVED BY THE RIDEM. OUTLET TEES MUST BE EQUIPPED WITH AN EFFLUENT SCREEN. THE INLET AND OUTLET TEES MUST HAVE A MINIMUM OF 20 INCH ACCESS OPENINGS. THE OUTLET TEE RISER MUST BE AT FINISH GRADE, AND THE INLET TEE RISER WITHIN 12 INCHES OF FINISH GRADE.
5. THE DISTRIBUTION BOX SHALL BE A WATERTIGHT PRECAST CONCRETE STRUCTURE OR OTHER DURABLE MATERIAL MEETING THE REQUIREMENTS OF THE SPECIFICATIONS WITH A BAFFLE AND SUITABLE PIPE PENETRATION KNOCKOUTS.
6. WASHED STONE AND OTHER SOIL MATERIALS SHALL BE IN CONFORMANCE WITH THE STATE RULES AND REGULATIONS, RULE 6.33 K.
7. WHENEVER THE SYSTEM IS TO BE CONSTRUCTED WHOLLY OR PARTIALLY IN FILL, THE PROCEDURE AS DEFINED IN RULE 6.33 OF THE STATE RULES AND REGULATIONS SHALL APPLY.
8. THE DESIGN INTENT IS TO MEET THE STATE STANDARDS. THE SYSTEM OPERATION IS DEPENDENT ON PROPER USAGE, AND IT'S OPERATION IS NOT GUARANTEED BY THIS PLAN.

NOTE :
CONTRACTOR TO VERIFY BENCHMARK & EXISTING CONDITIONS PRIOR TO CONSTRUCTION. ANY DISCREPANCIES BETWEEN FIELD AND DESIGN DATA SHOWN HEREON TO BE REPORTED TO THE ENGINEER

DESIGN NOTES
1. UNLESS SPECIFICALLY NOTED, THE PROPOSED OWTS IS NOT WITHIN A WATERSHED OF A PUBLIC WATER SUPPLY OR OTHER CRITICAL RESOURCE AREA.
2. UNLESS OTHERWISE NOTED, THERE ARE NO DRINKING WATER LINES, EXISTING OR PROPOSED WITHIN 50 FEET OF THE PROPOSED OWTS.
3. UNLESS OTHERWISE NOTED, THERE ARE NO POTABLE WATER WELLS, EXISTING OR PROPOSED WITHIN 100 FEET OF THE PROPOSED OWTS
4. UNLESS OTHERWISE NOTED, THERE ARE NO EXISTING OR PROPOSED PUBLIC DRINKING WATER SUPPLY WELLS WITHIN 500 FEET OF THE PROPOSED OWTS.
5. UNLESS OTHERWISE NOTED, THERE ARE NO WETLANDS OR DRAINS (STORM) WITHIN 200 FEET OF THE PROPOSED OWTS.
6. THE SEPTIC TANK WILL BE PROVIDED WITH AN OUTLET TEE, INLET TEE AND RISERS TO GRADE.
7. DISTRIBUTION BOX TO HAVE A MINIMUM BOTTOM AREA OF 3 SQ. FT.
8. LEACH FIELD CONSTRUCTION SHALL CONFORM TO RULE 6.33 OF THE SPECIFICATIONS.

ZONING REFERENCE CW - COMMERCIAL WATERFRONT
SCHEDULE OF DIMENSIONAL REGULATIONS FROM ZONING ARTICLE 4

ZONING DISTRICT CW	AREA	FRONTAGE & WIDTH	BUILDING COVERAGE	MAX BLDG. HEIGHT PRINCIPLE	ACCSY.	YARD SETBACK FRONT	CORNER	SIDE	REAR	ACCSY. BLDG SIDE	REAR
Marine Services, Repairs and Sales, including Marinas; Boat Yard, Small Boat Rental or Pier	40,000	100	25%	35	15	40	40	30	30	15	15

LOT BUILDING COVERAGE:
EXISTING OFFICE (TO REMAIN): 3,200 SF
EXISTING MAINTENANCE BLDG. (TO BE RAZED): 2,400 SF
EXISTING POOL HOUSE & PORCH (TO REMAIN): 1,000 SF
EXISTING SHED (TO BE RAZED): 144 SF
TOTAL EX. LOT COVERAGE: 6,744 SF

PROPOSED MAINTENANCE BLDG: 4,680 SF

TOTAL PROPOSED LOT COVERAGE: 8,880 SF
TOTAL LOT AREA: 142,365 SF

LOT COVERAGE (%)=
8,880 S.F. / 142,365 S.F. X 100% = 6.24%
6.24% TOTAL LOT COVERAGE < 25% O.K.

FEMA FLOOD NOTE:
ZONE X - AREA OF MINIMAL FLOOD HAZARD
ZONE X* - 0.2% ANNUAL CHANCE FLOOD HAZARD
ZONE AE (EL.10) - 1% ANNUAL CHANCE FLOOD HAZARD
FIRM #44009C0211J & #44009C0192J
EFF. DATE: 10/16/2013

CRMC STRUCTURAL LOT COVERAGE:
EXISTING OFFICE (TO REMAIN): 3,200 SF
EXISTING MAINTENANCE BLDG. (TO BE RAZED): 2,400 SF
EXISTING POOL HOUSE & PORCH (TO REMAIN): 1,000 SF
TOTAL EX. STRUCTURAL LOT COVERAGE: 6,600 SF

PROPOSED MAINTENANCE BLDG: 4,680 SF
TOTAL PROPOSED STRUCTURAL LOT COVERAGE: 8,880 SF

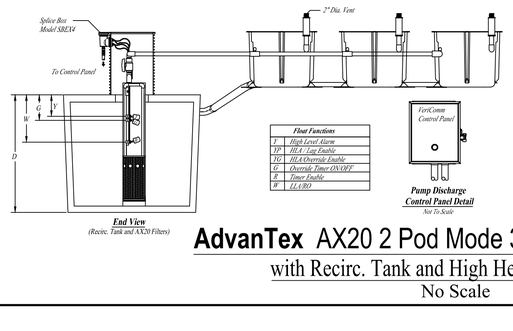
TOTAL PROPOSED STRUCTURAL LOT COVERAGE (%) =
(8,880 SF - 6,600 SF) / 6,600 SF = 0.345
34.5% TOTAL PROPOSED INCREASE IN STRUCTURAL LOT COVERAGE

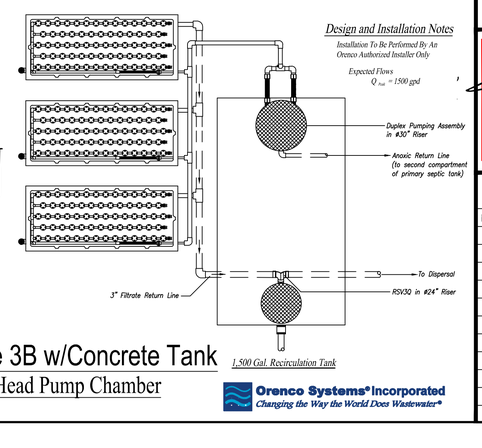
ARCHITECT NOTE:
IT IS THE RESPONSIBILITY OF THE ARCHITECT TO FINALIZE SITE LAYOUT & COORDINATE ELEMENTS WITH ENGINEER PRIOR TO CONSTRUCTION. FINAL GRADING & LAYOUT SHALL BE COORDINATED AND VERIFIED THROUGH ARCHITECT DRAWINGS.

CRITICAL RESOURCE AREA NOTE:
THE SUBJECT PROPERTY IS LOCATED WITHIN AN OWTS CRITICAL RESOURCE AREA

UTILITY NOTE:
CONTRACTOR TO VERIFY LOCATION OF EXISTING UTILITIES PRIOR TO CONSTRUCTION - REPORT ANY DISCREPANCIES TO ENGINEER

COMPACTION NOTE:
[FOR SEPTIC TANK/POD/PUMP CHAMBER]
IF USING PROCESSED GRAVEL:
CONTRACTOR TO VERIFY 95% COMPACTION
- OR -
USE ¾"ø STONE
TO PREVENT POTENTIAL SETTLING





AdvanTex AX20 2 Pod Mode 3B w/Concrete Tank
with Recirc. Tank and High Head Pump Chamber
No Scale

Orenco Systems® Incorporated
Changing the Way the World Does Wastewater®

Thomas J. Principe, III
No. 9102
REGISTERED PROFESSIONAL ENGINEER

PRINCIPE COMPANY, INC.
ENGINEERING DIVISION
27 SAKONNET RIDGE DR
TIVERTON, RI 02878
401.816.5385
www.PrincipeCompany.com
ESTABLISHED IN 1981

REVISIONS

No.	DATE	DRWN	CHKD

ON-SITE WASTEWATER TREATMENT SYSTEM ALTERATION [NIF]
for
AP 63-3 LOT 60
362 POND STREET
in
SOUTH KINGSTOWN, RHODE ISLAND

SCALE: 1' = 20"		SHEET NO: 5 of 7
DRAWN BY: BRM	DESIGN BY: BRM	CHECKED BY: TJP
DATE: 05/13/2025		PROJECT NO.: 24001.00

C:\Users\Seth Lemoine\Principe Engineering Dropbox_OWTS DESIGNS\2024 OWTS JOBS\24001.00_362 Pond Street_Wakefield_Safe Harbor_Silver Spring_Chris Fagan\Drawings\24

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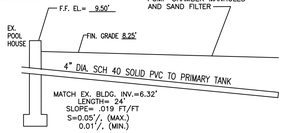
*CONTRACTOR TO VERIFY FOUNDATION ELEVATION AND BLDG. SEWER INVERT AT TIME OF CONSTRUCTION

GRADE TO DIVERT RUNOFF AWAY FROM SEPTIC TANK, & PUMP CHAMBER MANHOLES AND SAND FILTER

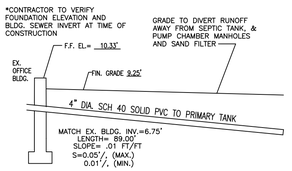


BUILDING DETAIL #1

NOT TO SCALE

*CONTRACTOR TO VERIFY FOUNDATION ELEVATION AND BLDG. SEWER INVERT AT TIME OF CONSTRUCTION

GRADE TO DIVERT RUNOFF AWAY FROM SEPTIC TANK, & PUMP CHAMBER MANHOLES AND SAND FILTER

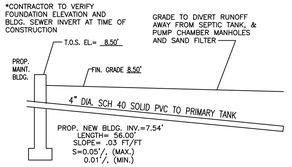


BUILDING DETAIL #2

NOT TO SCALE

*CONTRACTOR TO VERIFY FOUNDATION ELEVATION AND BLDG. SEWER INVERT AT TIME OF CONSTRUCTION

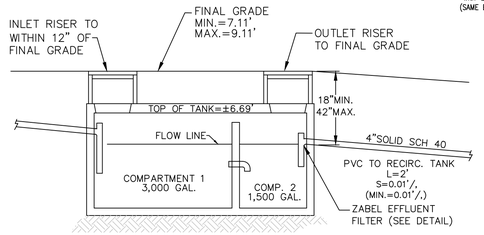
GRADE TO DIVERT RUNOFF AWAY FROM SEPTIC TANK, & PUMP CHAMBER MANHOLES AND SAND FILTER



BUILDING DETAIL #3

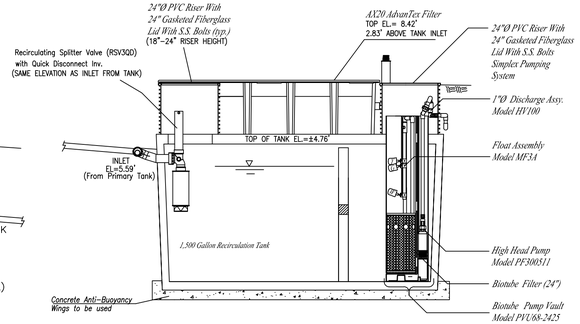
NOT TO SCALE

**INSTALL TEE IN CONFORMANCE WITH REGULATIONS.
*CONTRACTOR TO VERIFY BENCHMARK PRIOR TO CONSTRUCTION. ANY DISCREPANCIES BETWEEN FIELD AND DESIGN DATA SHOWN HEREON TO BE REPORTED TO THE ENGINEER



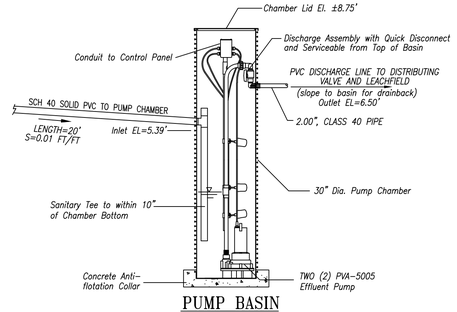
4,500 GAL. DUAL COMPARTMENT PRIMARY SEPTIC TANK

JOLLEY PRE-CAST MONOLITHIC TANKS
INLET INV.=5.86' OUTLET INV.=5.61'



1,500 GAL. DUAL COMPARTMENT RECIRCULATION TANK

JOLLEY PRE-CAST MONOLITHIC TANKS



PUMP BASIN

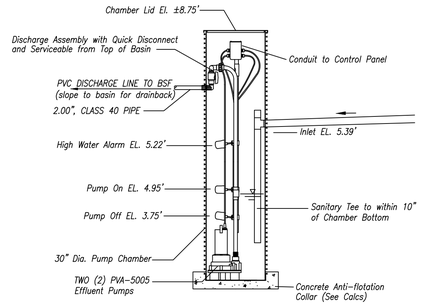
(SEE DETAIL SHEET 3 of 3)

DISCHARGE PUMP FLOAT SETTING CALCULATIONS

TOTAL DAILY FLOW = 1,500 GALLON/DAY
DOSING RATE OF BSF/ZONE: 176 ORIFICES X .25 GAL/DOSE= 44.00 GALLONS
TOTAL CYCLES PER DAY: 1,500 GALLONS/ 44.00 GALLON/CYCLE = 34.09 CYCLES
DOSE SETTINGS: 44.00 GALLON DOSE/ 36.70 GALLON/LIQ. FT. = 1.20 FT.
PUMP CHAMBER ELEVATIONS (84" CHAMBER):

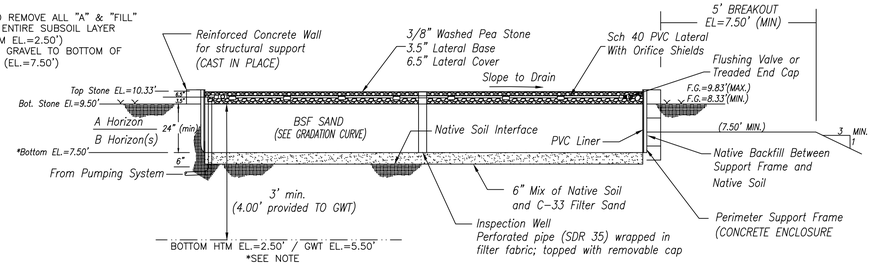
RIM = ±8.75' (TOP OF CHAMBER)
INLET = 5.39'
HWA = 5.22' (2" BELOW INLET)
PUMP ON = 4.95'
PUMP OFF = 3.75' (2' MINIMUM LIQUID LEVEL)
BOTTOM CHAMBER = ±1.75'

NOTE: DISCHARGE ASSEMBLY DRAWN TO SHOW KEY COMPONENTS – ALL PIPING AND FITTINGS SHALL BE INSTALLED TO ENSURE DRAIN-BACK INTO THE PUMP BASIN TO AVOID FREEZING OF SHALLOW BURY DISCHARGE PIPING (WHERE APPLICABLE).



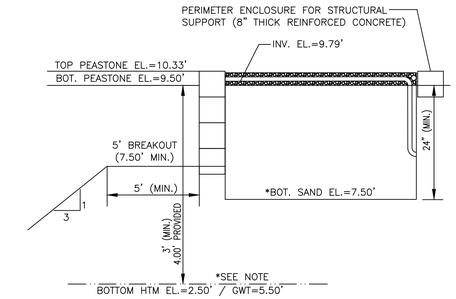
[2] 43.5' x 12' (1,044 S.F.) Bottomless Sand Filter - Two Zones - 176 Orifices / zone - 8 Laterals / zone

*CONTRACTOR TO REMOVE ALL "A" & "FILL" SOILS THROUGH ENTIRE SUBSOIL LAYER (APPROX. BOTTOM EL.=2.50') & PLACE SEPTIC GRAVEL TO BOTTOM OF SAND ELEVATION (EL.=7.50')



PROFILE VIEW - 43.5' X 12' BOTTOMLESS SAND FILTER (TWO ZONE)

N.T.S.



BOTTOMLESS SAND FILTER PROFILE

NOT TO SCALE

BOTTOMLESS SAND FILTER GENERAL NOTES

1. THE BOTTOMLESS SAND FILTER (BSF) SHALL BE INSTALLED BY A QUALIFIED LICENSED INSTALLER. THE INSTALLER SHALL BE FAMILIAR WITH THE REQUIREMENTS AND INFORMATION OF THE "GUIDELINES FOR THE DESIGNER AND USE OF BOTTOMLESS SAND FILTER" REFERED TO AS THE SAND FILTER GUIDANCE DOCUMENT ISSUED BY THE DEPARTMENT OF ENVIRONMENTAL MANAGEMENT (RIDEM) ISSUED NOVEMBER 2001.

2. THE DESIGNER SHALL BE GIVEN ADEQUATE NOTIFICATION FROM THE INSTALLER TO PROVIDE PROPER INSPECTION OF THE BSF STRUCTURAL SUPPORT SYSTEM, 30 MIL PVC LINER MEMBRANE, ASTM C-33 SAND MEDIA MATERIALS, SYSTEM PIPING, AND COARSE PEASTONE GRAVEL MEDIA.

3. PRIOR TO DELIVERY OF SAND AND PEASTONE GRAVEL MEDIA MATERIALS, THE INSTALLER SHALL PROVIDE THE DESIGNER WITH INFORMATION OF THE MATERIALS TO BE USED FOR THE BSF TO ASSURE THAT THE MATERIALS MEET THE REQUIRED GRADATION AND SPECIFICATIONS. THE SAND FILTER MEDIA MATERIALS SHALL MEET THE REQUIREMENTS OF THE GRADATION SPECIFICATIONS SHOWN ON THIS SHEET AND ON FIGURE 3 OF THE BSF GUIDANCE DOCUMENT. ALL MEDIA WITHIN THE STRUCTURAL ENCLOSURE AND BELOW THE PEASTONE MUST MEET THE REQUIREMENTS OF ASTM C-33 SAND WITH AN EFFECTIVE SIZE (D10) OF 0.3MM AND UNIFORMITY COEFFICIENT (D60/D10) OF 3.0 TO 4.0. THE MAXIMUM ALLOWABLE FINES PASSING THROUGH A NO. 200 SIEVE SHALL BE 1% THE DESIGNER AND/OR PROPERTY OWNER SHALL HAVE THE RIGHT TO REQUEST THAT THE MATERIALS BE REMOVED AND REPLACED IF THEY DO NOT MEET THE ASTM C-33 SPECIFICATIONS. SIEVE ANALYSIS PERFORMED SHALL MEET THE REQUIREMENTS OF ASTM D-136 AND ASTM D-422 AS DESCRIBED IN THE MEDIA SPECIFICATIONS AND PROCEDURES FOR COLLECTING SOIL SAMPLES, SOIL SURVEY INVESTIGATION REPORT #1 U.S. DEPARTMENT OF AGRICULTURE, 1964.

4. THE BOTTOMLESS SAND FILTER (BSF) MUST BE USED IN CONJUNCTION WITH THE REQUIRED ADVANCED PRETREATMENT SYSTEM INDICATED ON THE APPROVED DESIGN.

5. THE PREPARED BOTTOM AND SIDE EXCAVATION OF THE BSF SHALL BE INSPECTED BY THE DESIGNER PRIOR TO CONSTRUCTION OF ANY STRUCTURAL ENCLOSURE AND PLACEMENT OF SAND FILTER MEDIA MATERIALS.

6. THE LANDSCAPE AREA IMMEDIATELY ADJACENT TO THE BSF SYSTEM SHALL BE PROTECTED FROM HEAVY VEHICLE TRAFFIC AND EXCESSIVE WEIGHT LOADS BEFORE, DURING AND AFTER CONSTRUCTION. IT IS THE CONTRACTOR WITH SUPERVISION OF THE DESIGNER SHALL INSTALL A PERIMETER BARRIER TO KEEP VEHICLE TRAFFIC OFF THE LEACHFIELD AREA. WHERE REQUIRED ON THE SITE PLANS, THE INSTALLER SHALL INSTALL REQUIRED TIMBER TIE BARRIERS, FENCING OR OTHER MEANS TO PROTECT THE BSF AND SYSTEM AREA AS DIRECTED.

7. THE FINISHED GRADE OF ANY BOTTOMLESS SAND FILTER SHALL BE A MINIMUM OF 6 INCHES ABOVE THE ELEVATION OF THE SURROUNDING FINISH GRADE TO PREVENT SURFACE WATER FROM FLOWING ONTO THE BSF FILTER AREA. LANDSCAPING TIMBERS SHALL BE PRESSURE TREATED AND SHALL BE SECURED IN PLACE WITH IRON PINS, STEEL REBAR, OR GALVANIZED SPIKES TO THE SUPPORT WALLS TO PREVENT MOVEMENT. CONCRETE LANDSCAPING BLOCKS SUCH AS VERSA-LOK RETAINING WALL BLOCKS MAY BE SUBSTITUTED FOR THE SUPPORT STRUCTURE. SEGMENTAL BLOCK UNITS SHALL BE INSTALLED PER MANUFACTURE'S SPECIFICATIONS AND CONSTRUCTION METHODS.

8. THE LAND SURFACE ELEVATION AT THE EXISTING GRADE/SAND FILTER MEDIA INTERFACE (ELEV. 96.20') SHALL BE MAINTAINED WITHIN A TOLERANCE OF ± 0.5 FEET OVER THE ENTIRE BSF AREA. THE BSF SHALL BE CONSTRUCTED AT LAND SURFACE REGRADING ADJOINING THIS 5-FOOT PERIMETER MUST MAINTAIN A MINIMUM OF 3:1 SLOPE DOWN GRADIENT.

9. THE DESIGNER WILL AID IN THE STAKEOUT OF THE PROTECTED BSF AREA PRIOR TO ANY SITE PREPARATION ACTIVITIES.

10. A MINIMUM BUFFER OF TEN (10) FEET SHOULD BE MAINTAINED BETWEEN BSFs AND NEIGHBORING TREES AND SHRUBS. ALL LIVE TREES AND SHRUBS WITHIN THE BSF AREA OR WITHIN THE 10-FOOT BUFFER ZONE TO BE REMAINED TO SCREEN THE BSF SYSTEM, THEN A ROOT BARRIER FABRIC SHALL BE PLACED BETWEEN THE TREES AND THE FILTER.

11. PUMPS SPECIFIED AFTER THE ADVANCED TREATMENT SYSTEM SHALL BE SIZED TO PROVIDE A MINIMUM OF TWO (2) FEET OF HEAD (PRESSURE) AT THE DISTAL END OF EACH DISTRIBUTION LATERAL IN THE BSF. A PUMP SIZING DIAGRAM SHALL BE PROVIDED FOR THE DESIGNER'S REVIEW AND APPROVAL PRIOR TO PURCHASE OF THE PUMP. AFTER REMOVAL BY THE DESIGNER APPROVAL FIRST, THE DESIGNER WILL BE PRESENT TO VERIFY DISTAL END PRESSURES WITH THE INSTALLER PRIOR TO BACKFILLING OF THE BSF.

12. EFFLUENT TRANSPORT LINES FROM THE PUMP TO THE BSF SHALL BE CLASS 200 MINIMUM PIPE OF SIZE SPECIFIED ON THE ATTACHED SITE PLAN. THE TRANSPORT LINE SHALL BE SLOPED BACK TOWARD THE PUMP CHAMBER/BASIN OR ONTO THE BSF TO ALLOW FOR DRAINBACK AFTER EACH DOSE. CHECK VALVES SHALL NOT BE INSTALLED AT THE PUMP CHAMBER/BASIN TO PREVENT FREEZING WITHIN THE TRANSPORT LINES. IF TRANSPORT LINES CANNOT BE DRAINED, THE INSTALLER WILL BE REQUIRED TO INSTALL THE TRANSPORT LINES WITH A 2-FOOT MINIMUM BURIAL WITH A 2" THICK BY 24" WIDE EXPANDED RIGID POLYTRENE PLASTIC INSULATION ABOVE THE TRANSPORT LINE.

13. WALLS OF THE BSF ENCLOSURE SHALL BE LINED WITH A 30 MIL PVC LINER WITH ALL BOOTS, PATCHES, REPAIRS, AND SEAMS USING THE SAME PHYSICAL PROPERTIES OF THE LINER MATERIAL AS SPECIFIED BELOW. THE INSTALLATION OF THE PVC LINER WALL SHALL BE DONE WITH A PVC BOOT ATTACHMENT GLUED TO THE LINER WITH THE APPROPRIATE RESILIENT SEALER. DESIGNER WILL INSPECT PVC LINER AND PENETRATIONS PRIOR TO BACKFILLING WITH SAND/PEASTONE FILTER MATERIALS. BELOW GRADE LINER WALL DETAIL SHALL BE CONSTRUCTED WITH PRESSURE TREATED PLYWOOD , (or equivalent) AND 2x4 SUPPORTS. A PERMANENT TOP FRAME STRUCTURE SHALL BE PROVIDED ON ANY PORTION OF THE BSF ABOVE FINISH GRADE.

14. THE DISTRIBUTION MANIFOLD PIPING AND DISTRIBUTION PIPING SHALL CONFORM TO THE SIZES, MATERIALS AND PRESSURE CLASSIFICATION SPECIFICATIONS AS INDICATED IN THE DETAILS OF THIS SHEET. INDIVIDUAL LATERALS SHALL BE NO LONGER THAN 50 FEET IN LENGTH. A SERIES OF 1/8" INCH DIAMETER HOLES (ORIFICES), SPACED AT 6" ON CENTER IN THE DISTRIBUTION LATERALS AT SPACES INCREMENTS NOTED ON THE DETAILS OF THIS SHEET. THE LATERALS SHALL BE INSTALLED WITH ALL ORIFICE HOLES POINTING DOWN (6 o'clock position) COVERED BY ORIFICE SHIELDS (USUALLY REFERRED TO AS COLD WEATHER ORIFICE SHIELDS). LATERALS SHALL BE INSTALLED AT ON-CENTER SPACINGS NOTED ON THE DETAILS OF THIS SHEET. EACH DISTRIBUTION LATERAL WITHIN THE BSF SHALL BE EQUIPPED AT A RELIEF END OF A THREADED END CAP AT ITS DISTAL END. AN INSPECTION WELL SHALL BE INSTALLED IN THE APPROXIMATE CENTER OF THE BSF AND SHALL EXTEND DOWN TO THE SAND AND NATIVE SOIL INTERFACE. THE INSPECTION WELL SHALL BE MADE OF 4-INCH DIAMETER PERFORATED OR SLOTTED PVC (SDR 35 MINIMUM) WRAPPED IN FILTER FABRIC AND TOPPED WITH REMOVABLE TOP AT FINISH GRADE.

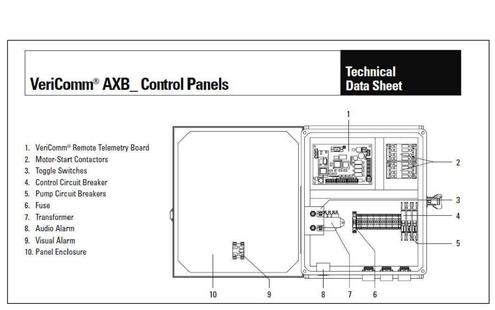
15. SOD, VEGETATION, OR DEAD OR DECAYING ORGANIC LITTER SHALL BE REMOVED FROM THE BSF AREA. THREE (3) INCHES OF THE NATIVE SOIL/FILTER MATERIAL SHALL BE SCARIFIED AND MIXED WITH 3 INCHES OF SAND MEDIA. NOTE: PERIMETER STRIPPING AND EXCAVATION OF SOIL BENEATH THE NATIVE SOIL/FILTER SAND INTERFACE IS PROHIBITED.

16. ALL EQUIPMENT USED BY THE INSTALLER TO PLACE SAND AND PEASTONE MATERIALS INTO THE BSF SHALL BE FREE OF MUD, OR SILT FINES PRIOR TO LOADING. THE SAND FILTER MEDIA SHALL BE PLACED IN LEVEL EIGHT (8) INCH LIFTS IN THE FILTER ENCLOSURE AND WETTED SLIGHTLY DURING INSTALLATION TO PROMOTE EVEN SETTLING. OVER WETTING THE SAND SHALL BE AVOIDED TO ENSURE THAT PARTICLE STRATIFICATION DOES NOT OCCUR. THE INSTALLER SHALL WALK DOWN THE EDGES OF THE FILTER TO MAKE SURE THE SAND MEDIA IS TIGHT ALONG THE FILTER PERIMETER AND NO VOIDS EXIST. THE PVC LINER SHALL BE PROTECTED DURING THESE OPERATIONS TO AVOID TEARING OR STRETCHING OF THE LINER.

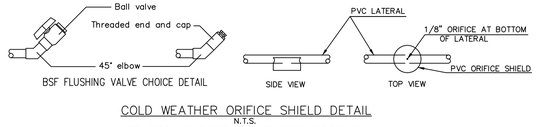
17. IMMEDIATELY AFTER INSTALLATION OF THE BSF, THE HEAD OR "SQUIRT HEIGHT" OF THE DISTRIBUTION LATERALS SHALL BE DETERMINED, RECORDED IN THE MAINTENANCE RECORD LOG, AND LEFT ON SITE. THE MINIMUM DISTAL END PRESSURES SHALL BE 2-FEET OF HEAD.

18. DURING OPERATIONAL AND MAINTENANCE VISITS, READINGS FORM ELAPSED RUN TIME METERS, EVENT COUNTERS, WATER METERS AND DISTAL END PRESSURES SHALL BE RECORDED ON THE DATA CARDS (USUALLY STORED IN THE ELECTRICAL CONTROL PANEL). ALSO, AT EACH SITE VISIT, A SAMPLE OF THE BSF INFLUENT SHOULD BE COLLECTED, AT THE PUMP CHAMBER OR LATERAL AND OF THE BSF TO VISUALLY CHECK THE CLARITY ACHIEVED BY THE ADVANCED TREATMENT UNIT. THE SAMPLE SHOULD BE CLEAR OF FINES AND/OR ORGANIC MATTER AND BE RELATIVELY FREE OF SEPTIC ODORS. SAMPLES DEVIATING FROM THE LATTER CONDITIONS WILL INDICATE THAT THE SYSTEM NEEDS MAINTENANCE OR SYSTEM SETTINGS NEED TO BE MODIFIED.

19. IMPORTANT NOTE: IF FIBERGLASS OR POLYETHYLENE TANKS ARE USED, IT IS IMPORTANT TO MONITOR GROUNDWATER LEVELS BEFORE PUMPING SEPAGE OR TO SCHEDULE PUMPING OF TANKS LATE SUMMER OR EARLY FALL TO AVOID TANKS FLOATING. PUMPING OF CONCRETE TANKS DURING PERIODS OF HIGH GROUNDWATER MAY ALSO CAUSE TANK FLOATATION PROBLEMS. CAREFUL CONSIDERATION SHALL BE PAID TO TANKS CLOSE TO TIDAL ZONES WHERE GROUNDWATER LEVELS MAY FLUCTUATE DUE TO TIDAL INFLUENCE. ALL TANKS SHALL BE FILLED WITH TAP WATER IMMEDIATELY AFTER SEPTAGE PUMPING IS COMPLETED.



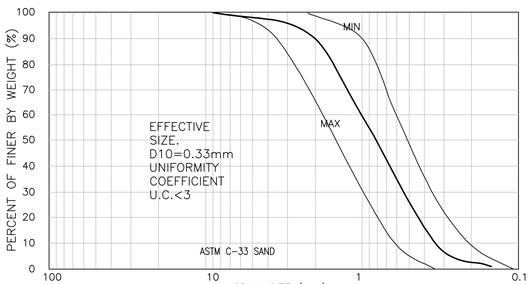
RECIRCULATION & DISCHARGE PUMP CONTROL PANEL (VERICOMM AX20B1)



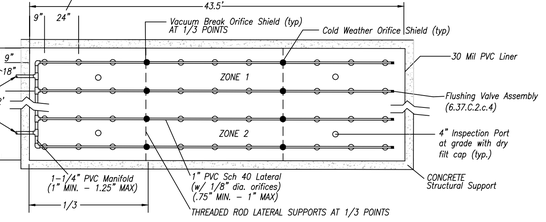
COLD WEATHER ORIFICE SHIELD DETAIL

N.T.S.

NOTE: FORTH AND TWELFTH TO LAST ORIFICE ARE DRILLED IN TOP OF LATERAL FOR VACUUM BREAK AND MANIFOLD DRAINBACK



BOTTOMLESS SAND FILTER MEDIA SPECIFICATIONS



TOP VIEW - 43.5' X 12' BOTTOMLESS SAND FILTER (TWO ZONE)

N.T.S.

ADVANTEX TREATMENT SYSTEM- AX MODEL 3b GENERAL NOTES:

1. VENDOR INFORMATION: TECHNICAL INFORMATION OR VENDOR MAY SERVICE MAY BE OBTAINED FORM THE FOLLOWING ORENCO SYSTEMS INC. 814 AIRWAY AVENUE SUTHERLINE, OR 97479 TEL.1-800-348-9843 FAX. 1-541-459-2884, OR WASTEWATER TECHNOLOGIES, INC. 70 VERMONT AVE., WARWICK, RI 02888 TEL.1-401-737-7810 FAX. 1-401-737-4521.

2. THE TREATMENT SYSTEM PROVIDED (ADVANTEX TREATMENT SYSTEM – AX SERIES) MEETS THE REQUIREMENTS OF A CATEGORY 1 SYSTEM: ADVANCED TREATMENT UNIT THAT HAS BEEN TESTED AND HAS BEEN CLASSIFIED BY RIDEM AS MEETING EFFLUENT STANDARDS LESS THAN OR EQUAL TO 20 mg/l FOR THE BOD5 AND TSS: AND FOG OF LESS THAN OR EQUAL TO 5 mg/l.

3. ALL SEPTIC TANKS AND PUMP CHAMBERS FOR THE ADVANTEX TREATMENT SYSTEM SHALL BE WATERTIGHT CONSTRUCTION AND SHALL BE PROVIDED WITH INLET AND OUTLET TRAPS. TRAPS MAY BE SUBSTITUTED BY TEES. ALL INLET AND OUTLET PIPES TO CONCRETE CHAMBERS SHALL HAVE FLEXIBLE RUBBER SEALS SECURED BY STAINLESS STEEL BANDS TO FORM A WATERTIGHT CONNECTION. WATERTIGHT RUBBER GROMMETS SHALL BE USED AT INLET AND OUTLET PIPES OF PLASTIC OR FIBERGLASS PUMP CHAMBERS/BASINS.

4. THE PUMP CHAMBER SPECIFIED AFTER THE TREATMENT SYSTEM DISCHARGING TO THE BSF SHALL PROVIDE A MINIMUM STORAGE VOLUME EQUAL TO THE DESIGN VOLUME DOSED INTO THE BSF DURING ONE PUMP RUN TIME AS INDICATED ON THIS SHEET. PUMP CHAMBERS FOR SEASONALLY-USED SYSTEMS SHALL BE INCREASED IN CAPACITY BY A MINIMUM OF THIRTY (30) PERCENT. REFER TO PUMP CHAMBER DIMENSIONAL SIZING THIS SHEET.

5. A LICENSED ELECTRICIAN SHALL INSTALL ALL ELECTRICAL COMPONENTS WIRING, CIRCUITS, CONTROL & ALARM PANELS, AND ELECTRONIC CONTROL PANELS PER STATE/NATIONAL ELECTRIC CODE REQUIREMENTS.

6. THE ADVANTEX TREATMENT SYSTEM SHALL INCLUDE A PROGRAMMABLE TIMER TO PROVIDE SMALL DOSES OF TREATMENT EFFLUENT TO THE BSF THROUGHOUT THE DAY. WITH THE LOCAL SYSTEM DESIGN DOSE WILL OCCUR OF 5 DOSE PER HOUR. THE DESIGNER SHALL VERIFY THE INSTALLER HAS PROGRAMMED THE TIMER AND PUMP CHAMBER/BASIN THAT SWITCHES WILL BE REQUIRED TO MEET THE REQUIRED DOSE. THE DESIGNER TWO TO FOUR WEEKS AFTER SUFFICIENT USE HAS OCCURRED OF THE SYSTEM TO ENSURE THAT THE PROGRAMMABLE TIMER IS RESET, AS NEEDED, ON WALKS TO PROVIDE FOR EXISTING CONDITIONS FOR THE SYSTEM.

7. THE INSTALLER SHALL PROVIDE A HIGH-LEVEL WATER ALARM, PUMP, AND FLOAT SWITCH(S) SET TO OVERRIDE THE PROGRAMMABLE TIMER IN THE EVENT OF TIMER MALFUNCTIONS OR TEMPORARY EXCESSIVE WATER USE. A LOW LEVEL WATER REDUNDANT OFF SHALL ALSO BE PROVIDED – REFER TO SEPTIC TANK AND PUMP BASIN DETAILS THIS SHEET.

8. AN IMPULSE COUNTER SHALL BE PROVIDED ON THE TIMER OVERRIDE OR HIGH WATER ALARM FLOAT (WHICHEVER IS APPLICABLE BASED ON ESTIMATED FLOW CONDITIONS) FOR THE ADVANTEX TREATMENT SYSTEM AND PUMP CHAMBER/ BASIN PUMPS.

9. PUMP CONTROL PANELS SHALL BE PROVIDED WITH AN ELAPSED TIME RUN METER AND A DOSING EVENT COUNTER (PUMP IMPULSE COUNTER) FOR EACH PUMP IN THE SYSTEM. THE ELAPSED TIME RUN METER AND DOSING EVENT COUNTERS SHALL BE NON-RESETTABLE. PUMP CONTROL PANELS SHALL BE LOCATED ON THE EXTERIOR WALL OF THE RESIDENCE FOR EASE OF SERVICE OF THE SYSTEM. IT IS RECOMMENDED THAT THE PANEL BOX(ES) BE PLACED IN A MANNER WITHIN VIEW OF THE SYSTEM LOCATION OF POSSIBLE TO HELP FACILITATE OPERATION AND MAINTENANCE.

10. INSTALLATION OF THE ADVANTEX TREATMENT SYSTEM SHALL BE PERFORMED IN ACCORDANCE WITH THE ADVANTEX TREATMENT SYSTEM INSTALLATION GUIDE.

11. IF THE ADVANTEX-AX FILTER IS PLACED OVER THE TOP OF THE TANK, A MINIMUM 6" THICK LAYER OF COMPACTED SOIL OR SAND MUST BE PLACED ON TOP OF THE TANK IN ORDER TO ACHIEVE THE REQUIRED SLOPE ON THE FILTRATE RETURN LINE. REFER TO INSTALLATION GUIDELINES FOR SPECIAL LENGTH REQUIREMENTS.

12. RISER TANK ADAPTERS AND ACCESS RISERS SHALL BE CONSTRUCTED TO BE WATERTIGHT. CARE SHALL BE TAKEN TO ORIENT RISERS TO CORRECT POSITIONS BEFORE REQUIRED ADHESIVE CURES. RISER-ADAPTER JOINTS SHALL ALSO BE SEALED BETWEEN THE ADAPTER AND RISER JOINT WITH A CONTINUOUS FILLET OF NONESIVE SEALANT. AFTER INSTALLATION, EACH RISER SHALL WATER TEST TANK AND RISER CONNECTIONS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS AND SAFETY GUIDELINES.

13. INSTALLATION OF THE RECIRCULATING SPLITTER VALVE SHALL BE INSTALLED WITHIN THE RISER OVER THE SEPTIC TANK'S INLET AND MUST BE INSTALLED SO AS NOT TO INTERFERE WITH THE INLET TEE.

14. THE ENTIRE VENTILATION FAN ASSEMBLY (VFA) MUST BE INSTALLED ABOVE THE SEASONAL HIGH GROUNDWATER LEVEL AIR INTAKE LINE SHOULD BE SLOPED TOWARDS THE VFA SO THAT ANY CONDENSING WATER WILL DRAIN THROUGH THE DUCTBILL IN THE VFA AND NOT ACCUMULATE IN THE LINE. AIR INTAKE SHOULD BE MOUNTED AT A LOCATION WHICH REDUCES POSSIBLE DAMAGE FORM OUTDOOR ACTIVITIES. AIR INTAKE PIPING SHALL BE LESS THAN 40' IN LENGTH. CONSULT ORENCO FOR LONGER DISTANCES.

15. THE HIGH-HEAD PUMP AND RESPECTIVE FLOAT LEVELS FOR THE ADVANTEX FILTER POD WITH THE TWO COMPARTMENT SEPTIC TANK SHALL BE INSTALLED PER THE INSTALLATION GUIDELINES DOCUMENT AND MANUFACTURER'S SPECIFICATIONS.

16. CONTROL PANEL, ELECTRICAL JUNCTION BOXES, AND WIRING RUNS SHALL BE INSTALLED BY A LICENSED ELECTRICIAN.

17. PUMPS AND FLOAT LEVELS SHALL BE MANUALLY AND AUTOMATICALLY TESTED. DESIGNER SHALL BE PRESENT DURING TESTING OF SYSTEM COMPONENTS. MANUAL AND AUTOMATIC TESTING SHALL BE PERFORMED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS AND SPECIFICATIONS.

18. WHENEVER AN ALARM CONDITION OCCURS, THE RED LIGHT ON THE FRONT OF THE ALARM PANEL WILL COME ON, ALONG WITH THE AUDIBLE HORN. THE AUDIBLE PORTION OF ALL ALARMS CAN BE SILENCED BY PUSHING THE ILLUMINATED LIGHT.

SYSTEM INSTALLER AND PROPERTY OWNER NOTE

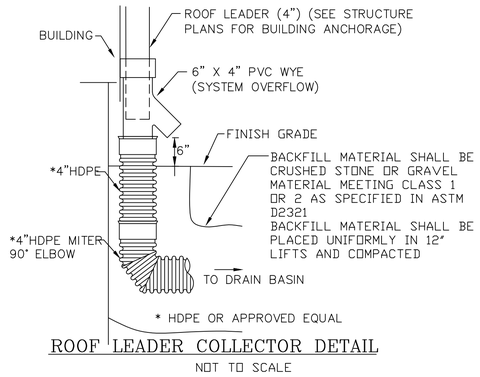
THE ONSITE WASTEWATER TREATMENT SYSTEM (OWTS) AND PROPOSED IMPROVEMENTS ON THIS PLAN SHALL BE STAKED BY A PROFESSIONAL LAND SURVEYOR REGISTERED IN THE STATE OF RHODE ISLAND. THE SYSTEM INSPECTION THROUGHOUT THE ENTIRE INSTALLATION SHALL BE THE RESPONSIBILITY OF THE PREPARER OF THIS PLAN AND OR HIS AUTHORIZED REPRESENTATIVE. THE INSTALLATION SHALL BE AS PER TO LOCATION, DESIGN, CONSTRUCTION AND MAINTENANCE OF ONSITE WASTEWATER TREATMENT SYSTEMS, AS ENFORCED UNDER CURRENT RIDEM DIVISION OF GROUNDWATER AND ISDS SECTION PROCEDURES AND POLICIES. PRIOR TO THE START OF ANY CONSTRUCTION, AND WITH A MINIMUM 48 HOURS NOTICE AS TO THE DATE OF THE START OF CONSTRUCTION, THE INSTALLER SHALL NOTIFY THE SYSTEM DESIGNER.

BOTTOMLESS SAND FILTER (BSF) OPERATION OPERATION & MAINTENANCE (O&M) REQUIREMENTS:

1. WARNING–BEFORE DOING ANY WORK ON EITHER THE WIRING TO THE LEVEL CONTROL FLOATS AND PUMPS IN THE VAULT, TANKS, OR ON THE CONTROL PANEL, PULL THE FUSE AND/OR SWITCH ALL THE CIRCUIT BREAKERS SERVING THE CONTROL PANEL TO THE "OFF" POSITION. DO NOT ENTER A CONFINED SPACE WITHOUT USING PROPER EQUIPMENT AND FOLLOWING STANDARD CONFINED SPACE SAFETY PRECAUTIONS.

2. REMOVE ACCUMULATED SOLIDS IN LATERALS. FIRST OPEN THE LATERAL END BALL VALVE OR THREADED END CAP. ENGAGE THE PUMP AND F

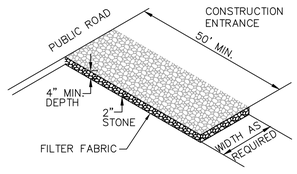
C:\Users\Seth Lemoine\Principe Engineering Dropbox_OWTS DESIGNS\2024 OWTS JOBS\24001.00_362 Pond Street_Wakefield_Safe Harbor_Silver Spring_Chris Fagan\Drawings\24



ROOF LEADER COLLECTOR DETAIL

NOT TO SCALE

SEE SITE DRAINAGE CALCULATIONS FOR PROPRIETARY STORMWATER TREATMENT SYSTEM DETAILS

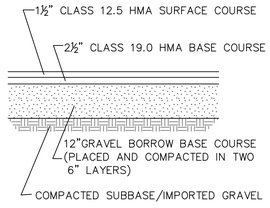


MATERIALS SIZE			
SQUARE MESH SIEVES	2"CRUSHED STONE OR GRAVEL	ASTM C-33 NO. 2	ASTM C-33 NO. 3
	% FINER	% FINER	% FINER
2-1/2 INCHES	100	90-100	100
2 INCHES	95-100	35-70	90-100
1-1/2 INCHES	30-55	0-15	35-70
1-1/4 INCHES	0-25	–	–
1 INCH	0-5	–	0-15
3/4 INCH	–	0-5	–
1/2 INCH	–	–	0-5
3/8 INCH	–	–	–

NOTE:
STABILZATION PAD TO BE IN COMFORMANCE WITH STANDARDS SET FORTH IN THE "RHODE ISLAND GUIDELINES FOR SOIL & SEDIMENT CONTROL".

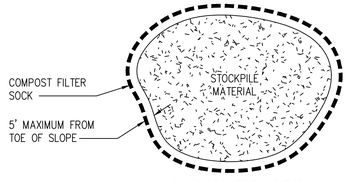
RIP-RAP STABILIZATION PAD @ CONSTRUCTION ENTRANCE

NOT TO SCALE



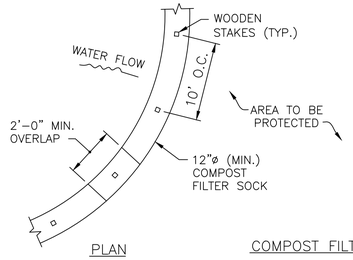
SITE PAVEMENT TYPICAL CROSS SECTION

NOT TO SCALE

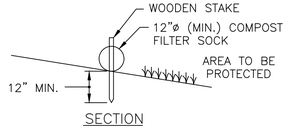


STOCKPILE DETAIL

NOT TO SCALE



PLAN



SECTION

COMPOST FILTER SOCK

PERIMETER EROSION CONTROLS

NOT TO SCALE

NOTES:

1. ALL MATERIAL TO MEET REQUIREMENTS OF SECTION 206 OF RI STANDARD SPECIFICATIONS.
2. COMPOST MATERIAL MUST BE ACCEPTED BY THE ENGINEER PRIOR TO PLACEMENT.

GENERAL NOTES:

1. IT SHALL BE THE CONTRACTOR'S SOLE RESPONSIBILITY TO FAMILIARIZE HIMSELF WITH ANY APPLICABLE LOCAL, STATE AND FEDERAL LAWS GOVERNING HIS INTENDED ACTIVITIES. OSHA REGULATIONS ARE APPLICABLE OF PROJECT SITE CONSTRUCTION ACTIVITIES.
2. ALL CONSTRUCTION WILL BE UNDERTAKEN IN ACCORDANCE WITH THE APPLICABLE REQUIREMENTS OF THE TOWN OF LITTLE COMPTON.
3. IT SHALL BE THE CONTRACTOR'S SOLE RESPONSIBILITY TO MAINTAIN THE INTEGRITY OF ALL EXISTING UTILITIES, STRUCTURES, AND ABUTTING PROPERTIES. THE COST OF ANY REPAIR OR REPLACEMENT OF DAMAGED ITEMS SHALL BE BORNE BY THE CONTRACTOR.
4. IF THE MUNICIPALITY REQUIRES A PROJECT PRE-CONSTRUCTION CONFERENCE, THE PROJECT DEVELOPER AND THE PROJECT CONTRACTOR WILL ATTEND AND WILL PROVIDE ALL REQUESTED MATERIALS PRIOR TO COMMENCING ANY WORK.
5. IF CEMENT CONCRETE MIX TRUCKS ARE TO BE WASHED OUT ON SITE, THE CONTRACTOR IS RESPONSIBLE FOR ESTABLISHING AND MAINTAINING A WASH OUT AREA WITH APPROPRIATE PROTECTION CONTROLS.
6. THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING AND MAINTAINING COLLECTION AND STORAGE LOCATIONS ON-SITE FOR ALL CONSTRUCTION DEBRIS AND TRASH SO THAT THIS MATERIAL DOES NOT BECOME A NEIGHBORHOOD NUISANCE.

OWNER/APPLICANT:
SHM SILVER SPRING LLC
14785 PRESTON ROAD, STE 975
DALLAS, TEXAS 75254
C/O BECK BENNETT
bbennett@shmarinas.com

DRAWING ISSUE:

- ☐ CONCEPT
- ☐ CUSTOMER APPROVAL
- ☒ PERMITTING
- ☐ CONSTRUCTION
- ☐ AS-BUILT
- ☐ OTHER:

ONLY PLANS ISSUED FOR CONSTRUCTION SHALL BE USED FOR CONSTRUCTION

SITE DETAILS

Thomas J. Principe, III
RHODE ISLAND 9107
REGISTERED PROFESSIONAL ENGINEER

PRINCIPE COMPANY, INC.
ENGINEERING DIVISION
27 SAKONNET RIDGE DRIVE
TIVERTON, RI 02878
401.816.5385
WWW.PRINCIPECOMPANY.COM

REVISIONS

No.	DATE	DRWN	CHKD

CRMC PLAN SUBMISSION
for
PROPOSED BUILDING & SITE IMPROVEMENTS
AP 63-3 LOT 60
362 POND STREET
in
WAKEFIELD, RHODE ISLAND

SCALE: 1"=30'		SHEET NO: 7 of 7
DRAWN BY: KAB	DESIGN BY: KAB	CHECKED BY: TJP
DATE: 07/22/2025		PROJECT NO.: OWTS-24001

BLISH & CAVANAGH LLP
COUNSELLORS AT LAW

Joseph V. Cavanagh Jr.
William R. Landry
Edmund L. Alves, Jr.
Scott T. Spear
Mary Cavanagh Dunn
Joseph V. Cavanagh, III
Christopher J. O'Connor
Matthew J. Landry
Philip R. Primeau

Steven I. Rosenbaum
Of Counsel

John H. Blish
(1986-2007)

Commerce Center
30 Exchange Terrace
Providence, RI 02903-1765

Tel (401) 831-8900
Fax (401) 751-7542
www.blishcavlaw.com

August 6th, 2025

Town of South Kingstown Planning Board
c/o James D. Rabbitt, AICP
Planning Director
Town Hall - 180 High Street
Wakefield, RI 02879

RE: SHM Silver Spring, LLC; Safe Harbor Marina; 362 Pond Street
Response to Notice of Incomplete Submittal – Preliminary Plan

Dear Mr. Rabbitt:

Enclosed, please find the following supplemental materials in response to the Letter of Incomplete Submittal dated August 5th, 2025:

- Items 1&2: Sixteen (16) copies of Narrative Report and list of waivers requested;
- Item 7: Two (2) copies of CRMC Assent No M2021-06-032; CRMC Correspondence;
- Item 8: Two (2) copies of current water bill evidencing existing water service;
- Item 11: Two (2) copies of RIDEM submittal confirmation; (See waiver request attached);
- Item 14: Subject property is subject to CRMC jurisdiction, formal submission to follow Town approval as required; (Waiver to Final Plan requested);
- Item 15: Emergency access to remain unchanged as existing, fire suppression to be per architectural specifications; Fire District review pending. Request for waiver prior to preliminary plan approval.

Respectfully Submitted:

Matthew J. Landry, Esq.

Item 1 – Request for Waivers and Modifications

The project conforms to the district dimensional regulations for the (CW) zoning district and does not require variances. Waivers from the Town of South Kingstown Land Development and Subdivision Regulations, specifically waivers from Preliminary Plan – Minor Subdivision checklist items:

- Item 7 – Affidavit by qualified professional stating that there are no coastal features and/or buffer areas adjacent to or within the development parcels; or A preliminary determination, including coastal feature verification, from CRMC.

    - The Applicant requests a waiver of this requirement; The current plan set reflects the limits of the coastal feature and applicable buffers/setbacks as confirmed on prior CRMC submittals and approvals (See Assent No. M2021-06-032). All proposed work conforms with applicable setbacks/buffer requirements. Applicant has not submitted a separate preliminary determination for the current application. SHM Management and CRMC staff conducted a pre-application site visit in 2023 in connection with the scope of work contemplated herein and received favorable feedback. The Applicant will make a formal submission to CRMC following Town approval. (See August 5th, 2025 Letter, Karen Beck, Principe Engineering attached hereto).

- Item 11 – For developments proposing service by OWTS, (2) copies of an On-Site Wastewater Treatment System Permit issued by RIDEM.

    - Applicant requests a waiver of this requirement to Final Plan submission. The Applicant has made a formal submission, and review is pending by RIDEM (See documentation of submittal attached). Due to RIDEM system and online portal implementation, approvals have been significantly delayed for processing. Applicant expects approval prior to Final Plan.

- Item 14 – (2) copies of RIDEM stormwater or other general construction permits that are required, or an affidavit, signed by a qualified professional, stating that no RIDEM stormwater or construction permits are required.

    - Applicant requests a waiver subject to CRMC approval. The Property is within CRMC jurisdiction, and a formal application will be submitted following Town approval (See also August 5th, 2025 Letter, Principe Engineering and Prior Assent).

- Item 15 – (2) copies of written confirmation that the applicable Fire District has reviewed the proposed plans and approves the proposed street design relative to emergency vehicle access and fire suppression documents.
    - The applicant requests a waiver to the extent required. Emergency access to remain unchanged as existing, fire suppression to be included in new building and subject to architectural specifications and Code requirements. Principe Engineering to submit for Fire District Review prior to TRC hearing.

Project Narrative (Item 2)

The subject property is located at 362 Pond Street (A.P. 63-3, Lot 60) and contains approximately 3.2 acres in lot area. SHM Silver Spring (d/b/a/ Safe Harbor Marina) currently operates a marina with associated maintenance, boat storage, and offices located on the property. A two-story commercial space/office building currently exists on site along with a pool house and in-ground pool to the rear of the building. The property also contains an aluminum maintenance and repair building approximately 60x40 (2,400s.f).

The Property is located in the Commercial Waterfront (CW) zoning district wherein Marina Services, Repairs, and Sales (including marinas) are permitted uses.

The Applicant is proposing to demolish and rebuild the existing maintenance building and construct a modern 52x90 (4680sf) building that will provide upgraded workspace and maintenance area for the marina and its members. The Application also proposes upgraded stormwater management systems, replacement of an aging OWTS system and other property enhancements. The existing store/offices and pool building will remain unchanged. A conceptual set of architectural plans have been included in the plan set. All lighting upgrades will be minimal and will be dark sky compliant.

The area of disturbance is limited to the area of the existing maintenance facility and entry to the northwest quadrant of the property and contemplates an enlargement of the existing building and replacement of OWTS system with additional impervious surface area to be added. The consideration for additional impervious surface area was intended to service both customers and employees as well as emergency vehicles and protects the maintenance facility from existing crushed stone and gravel from entering the building. The northwest quadrant was also chosen, specifically, to limit any impacts on abutting residential properties whereas the proposed location abuts Pond Street and is situated further away from those properties. Existing boat storage in the northwest quadrant will be relocated as there is ample area to the rear of the site.

The Applicant does not anticipate an impact or increase to the school aged population or any substantive impacts on Town services. This is an existing commercial use that will be modernized and include upgrades to its private stormwater management and OWTS systems. No phasing is proposed as part of this application.

Safe Harbor Management facilitated a site visit with representatives from CRMC for a pre-application conference and review on April 20th, 2023. The visit was favorable, and Safe Harbor does not anticipate any issues with formal review. The current site plans reflect the limits of the coastal feature and all applicable setbacks/buffer requirements based on prior submittals and approvals (See Assent No M2021-06-032 attached hereto). All proposed construction activity is located outside of applicable setbacks and buffer areas.

August 5, 2025

Mr. Beck Bennett
SHM Silver Spring LLC
14785 Preston Road, Suite 975
Dallas, Texas 75254

RE: Site Investigation
AP 63-3, Lot 60
362 Pond Street
South Kingstown, RI

Dear Mr. Bennett:

Per your request, Principe Engineering reviewed the project for impacts related to Coastal Resources Management Council jurisdiction. Several sources of information were reviewed, including mapping and regulations provided by the RI Department of Environmental Management (RIDEM), the Federal Emergency Management Agency (FEMA), the Coastal Resources Management Council (CRMC), the Town of South Kingstown (Town), and the Preliminary Plan prepared by Principe Company, dated July 22, 2025

The Town mapping for the property (AP 63-3, Lot 60) indicates that the site contains 3.27 acres and is an active marina that contains several existing structures, seasonal boat storage and dock space. The property is located on Silver Spring Cove in Upper Point Judith Pond, which is a CRMC Type 3 Water (High Intensity Boating). The lot has over 300 linear feet of frontage on Pond Street and an existing access drive off Pond Street to service the existing business. The site is serviced by public water and an OWTS. According to the FEMA flood insurance rate map the site is located in an AE Zone (100-year floodplain) with a base flood elevation of 10 NGVD. Based on the RIDEM mapping the soil on the site is Urban land, 0 to 3 percent slopes, sandy substratum. No rare species are mapped on the site.

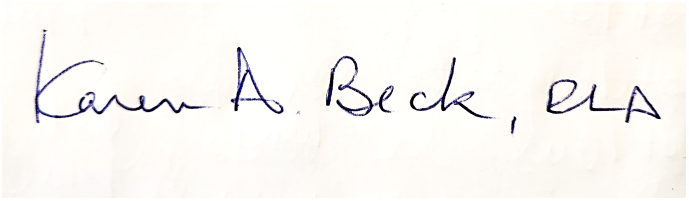
Over the years, multiple permits have been received from CRMC for work on the property, clearly defining the edge of the coastal feature predominantly man-made shoreline).

Per the Principe plan, an existing 2,400 square foot aluminum maintenance building will be removed and replaced with a 4,680 square foot building. This is less than a 50%

Structural Lot Coverage (SLC) increase. The existing and proposed building are located within the limits of the 100-year floodplain and the architectural plans include the required flood vents. Due to the proposed work on the lot within 200' of a coastal feature the project will require submission to CRMC for an Assent.

Based on all of the information reviewed, it is my professional opinion that the site does substantially comply with applicable rules and regulations regarding coastal resources, wetlands, and flood hazards. Should you have any questions regarding this, please do not hesitate to contact me.

Sincerely yours,
PRINCIPE COMPANY



Karen A. Beck, RLA, FASLA
Wetlands Biologist

COASTAL RESOURCES MANAGEMENT COUNCIL

Pre-Application Meeting

Date: 4/13/2023

The Pre-Application meeting process is intended to facilitate application submittals for large scale projects (Industrial; Commercial; Subdivisions).

1. Pre-Application meetings help both the applicant and the CRMC staff better understand the parameters and regulatory issues associated with large-scale projects. Staff will offer guidance, suggestions and even opinions on your project in respect of the management of the RICRMP.
2. This meeting is held at the beginning of your project so as to better understand conceptually the coastal management issues that may present themselves during the project review and ahead of any significant investments of your time, energy and other resources.
3. Should any of the facts on which we are basing our guidance, suggestions, or opinions at this meeting change, (i.e.: site inspection reveals plan inaccuracies; review of previous applications for the site shows discrepancies in representations; review of enforcement file shows previous site histories; etc...) this may result in different outcome(s) being made when the final application submission is complete.
4. This meeting is not intended to review preliminary design and offer feedback on Regulatory compliance.
5. If your project is at preliminary design level, you should submit a submit Preliminary Determination application. This will allow a more formal and written narrative that will provide you with a discussion of the merits of your proposed project in respect to the Regulations within the RICRMP.

Project & Project Location: SHM Silver Spring 362 Pond St. Wakefield, RI 02879

- Replacement of existing service shop on North side of property
- Expansion of existing footprint
- Paving improvements

Participants:

Alex Ancoin - GM SHM Silver Spring

Beck Bennett - Regional Project Manager

State of Rhode Island
Coastal Resources Management Council
Oliver H. Stedman Government Center
4808 Tower Hill Road, Suite 3
Wakefield, RI 02879-1900

(401) 783-3370
Fax (401) 783-2069

Certificate of Maintenance

June 14, 2021

SHM Silver Spring, LLC
14785 Preston Road
Suite 975
Dallas, TX 75254

RE: CRMC Assent No. M2021-06-032: ***Remove existing leachfield and Install new bsf OWTS as approved by RIDEM 2032-1906 and received by CRMC dated stamped 06-09-2021. Improve pool house within existing footprint and demensions as per plans submitted to CRMC Stamp dater received 06-09-2021***
Project Location: 362 Pond Street, South Kingstown; Plat 63-3, Lot 60

Dear Applicant:

The Coastal Resources Management Council has reviewed your project proposal and has determined that it conforms to RICRMP Section 1.3.1(N) and applicable standards. Construction authorized by this approval shall be limited to replacement, reconstruction, or rebuilding to approved, pre-existing conditions and dimensions of the above noted structure. This project must be completed within three (3) years of the date of this approval. If this project involves excess construction materials or debris, these materials shall be removed from the site and disposed of at a suitable legal upland location. No equipment access or storage of equipment, construction material or debris shall occur on coastal features. If the project involves earthwork, appropriate erosion controls shall be utilized. All applicable conditions of original CRMC Assents that pertain to this property shall be upheld unless otherwise modified by the CRMC. All applicable policies, prohibitions, and standards of the RICRMP shall be upheld.

A copy of this maintenance authorization to perform maintenance work shall be kept on site and available for inspection. The maintenance (blue) card must be posted on site during the duration of the project.

Sincerely,

Odetta Morris, Engineering Technician III
Coastal Resources Management Council

/OOM

CRMC Application Review Sheet

File Number: 2021-06-032
Owner Name: SHM Silver Spring, LLC
Site Address: 362 Pond Street, South Kingstown
Plat: 63-3; Lot: 60

Administrative Review

Reviewer: BMS
Completed on 6/10/2021
☐ **Application Complete**
☐ **Application Deficient**
☐ **FONSI**
☐ **Enforcement compliance** _____

Missing
_____ **Application**
_____ **Fee**
_____ **ISDS**
_____ **Proof of Ownership**
_____ **Building Permit**
_____ **Site Plans**

As Applicable:
____ **CHA Worksheet**
____ **Stormwater Calcs**
____ **Structural Lot Calcs**

☐ **EXTENSION** (Enforcement review)

Notes: _____

Team Review for Acceptance

Application Deficient
☐ **Deficiency Letter Required**
☐ **Notified Via Phone Call – waiting for** _____

(✓) **Application Accepted**
Date: 6/14/21

Assigned To		Date Completed	Denial Recommendation	Management Sign-off
Project Manager				
Engineer	OOM	6/14/21		
Biologist				
Geologist				
Aqua				
Dredge				
Other				

Category: M
Project Type: 13
Water Type: _____
Water Area: _____
PGP Category: **SV** **PCN** **IP** ☐ **Public Access 355** ☐ **Public Access Easement**
Project Description:

State of Rhode Island
Coastal Resources Management Council
Oliver H. Stedman Government Center
4808 Tower Hill Road, Suite 3
Wakefield, RI 02879-1900

(401) 783-3370
Fax (401) 783-2069

MAINTENANCE CERTIFICATION APPLICATION

Project Location 362 Pond Street South Kingstown (No. Street City/Town)	File No. (CRMC USE ONLY): 2021-06-032
Owner's Name SHM Silver Spring LLC	Plat: 63-3 Lot(s): 60
Mailing Address 14785 Preston Road Suite 975 City/Town Dallas State TX Zip Code 75254	Contact No.:
Contractor RI Reg. #: Address:	
Name of Waterway: Silver Spring Cove	Estimated Project Cost: $ 75,000 Fee (chart based on EPC): $ 425

Description of facility to be maintained (type of facility and present conditions)

Marina pool house

Describe accurately the maintenance work proposed. (Use additional sheets of paper if necessary and attach this form.)

Install an approved Bottomless Sand Filter leachfield and associated septic tank, recirculation tank, pump chamber, pre-treatment pods, and septic piping. Improve existing pool house.

Describe equipment to be used, construction methods, access routes, etc.

The site will be accessed from Pond Street within the existing paved entrance. Equipment and construction methods will be consistent with similar projects and will include the use of backhoes, dump trucks, etc.

Have you or any previous owner filed an application for and/or received an assent for any activity on this property?
(If so please provide the file and/or assent numbers): Yes (Assent #2016-09-118)

Is this site within a designated historic district? ☐ **YES** ☒ **NO**

Is this application being submitted in response to a coasta violation? ☐ **YES** ☒ **NO**

If YES, you must indicate NOV or C&D Number: _____

NOTE: The applicant acknowledges by evidence of their signature that they have reviewed the Rhode Island Coastal Resources Management Program, and have, where possible adhered to the policies and standards of the program. The applicant also acknowledges by evidence of their signature that to the best of their knowledge the information contained in the application is true and valid. The filing of false information can result in the Coastal Resources Management Council revoking state assent.

Owner's Signature

RECEIVED
JUN 09 2021
COASTAL RESOURCES MANAGEMENT COUNCIL

/ajt 03/2020

SEE REVERSE SIDE →

Town of South Kingstown, Rhode Island

DEPARTMENT OF ASSESSMENT

180 High Street
Wakefield, RI 02879
Tel. 401-789-9331 Ext. 1220

February 18, 2021

To Whom It May Concern:

This letter will confirm ownership of real estate located in the Town of South Kingstown under the name(s) of **SHM Silver Spring LLC., as** of **December 30, 2020**. This property is located at **362 Pond Street** and listed on my records as Map **63-3** Lot **60**.

The Tax Assessor's Office cannot verify residency.

Sincerely,

Jean-Paul Bouchard

Jean-Paul Bouchard
Town Assessor

RECEIVED
JUN 09 2021
COASTAL RESOURCES
MANAGEMENT COUNCIL

Northeast Engineers & Consultants, Inc.
A Knowledge Corporation℠

June 1, 2021

Coastal Resources Management Council
Stedman Government Center, Suite 3
4808 Tower Hill Road
Wakefield, RI 02879-1900

Re: Silver Spring Marina LLC
A.P. 63-3, Lot 60
362 Pond Street
Wakefield, Rhode Island

To whom it may concern,

The following are previous CRMC permits for 362 Pond Street.

2021-02-092	MAINTINENCE	Mar 05, 2021
2021-02-077	COMMERICAL ALTERATION	Feb 23, 2021
2016-09-118	CLEAN MARINA	Sep 28, 2016
2015-07-088	DREDGING & DISPOSAL PERMIT	Sep 17, 2015
2007-11-013	MAINTINENCE	Nov 02, 2007
1999-05-057	SWIMMING POOL	May 20, 1999
1994-02-028	MARINA CERTIFICATION	Feb 17, 1994
1993-02-069	MARINAS (ALTERATION)	Apr 26, 1993
1987-09-063	COMMERCIAL STRUCTURE	Nov 19, 1987
1978-03-014	MARINAS (ALTERATION)	June 15, 1978

Sincerely,
NORTHEAST ENGINEERS & CONSULTANTS, INC.

Geralyn E. Small, P.E.
Senior Project Manager

CRMC Permit Records

RECEIVED
JUN 09 2021
COASTAL RESOURCES
MANAGEMENT COUNCIL

6 Valley Road • Middletown, RI 02842 • p. 401.849.0810 • f. 401.846.4169 • www.northeastengineers.com

TO: **Coastal Resources Management Council**
4808 Tower Hill Road Suite 3
Wakefield, RI 02879
Phone: (401) 783-3370

FROM: Building Official DATE: 5/27/2021

SUBJ: Application of: SILVER SPRING MARINA

Location: 362 POND STREET, SOUTH KINGSTOWN

Address: 362 POND ST. Plat No. 68-3 Lot No. 60

To Construct: INSTALL BSF LEACHFIELD AND SEPTIC TANK, RECIRCULATION TANK, PUMP CHAMBER, PRETREATMENT PODS, AND SEPTIC PIPING AND IMPROVEMENTS TO EXISTING POOL HOUSE

I hereby certify that I have reviewed _____ foundation plan(s).
_____ plan(s) for entire structure
__X__ site plans
Titled: OWTS REPAIR PLAN, C-1

Date of Plan (last revision): 2/24/2021

✓ and find that the issuance of a local building permit is not required as in accordance with Section _____ of the Rhode Island State Building Code.

N/A and find that the issuance of a local building permit is required. I hereby certify that this permit shall be issued once the applicant demonstrates that the proposed construction/activity fully conforms to the applicable requirements of the RISBC.

N/A and find that a Septic System Suitability Determination (SSD) must be obtained from the RI Dept. of Environmental Management.

✓ and find that a Septic System Suitability Determination (SSD) need not be obtained from the RI Dept. of Environmental Management.

N/A and find that said plans conform with all elements of the zoning ordinance, and that if said plans require zoning board approval, that the applicant has secured such approval and that the requisite appeal period has passed with no appeal filed or appeal is final. The Zoning Board approval shall expire on _____.

Building Official's Signature 5/27/2021 Date

✓ and find that said plans conform with all elements of the zoning ordinance, and that if said plans require zoning board approval, that the applicant has secured such approval and that the requisite appeal period has passed with no appeal filed or appeal is final.

Zoning Officer's Signature 5/27/2021 Date

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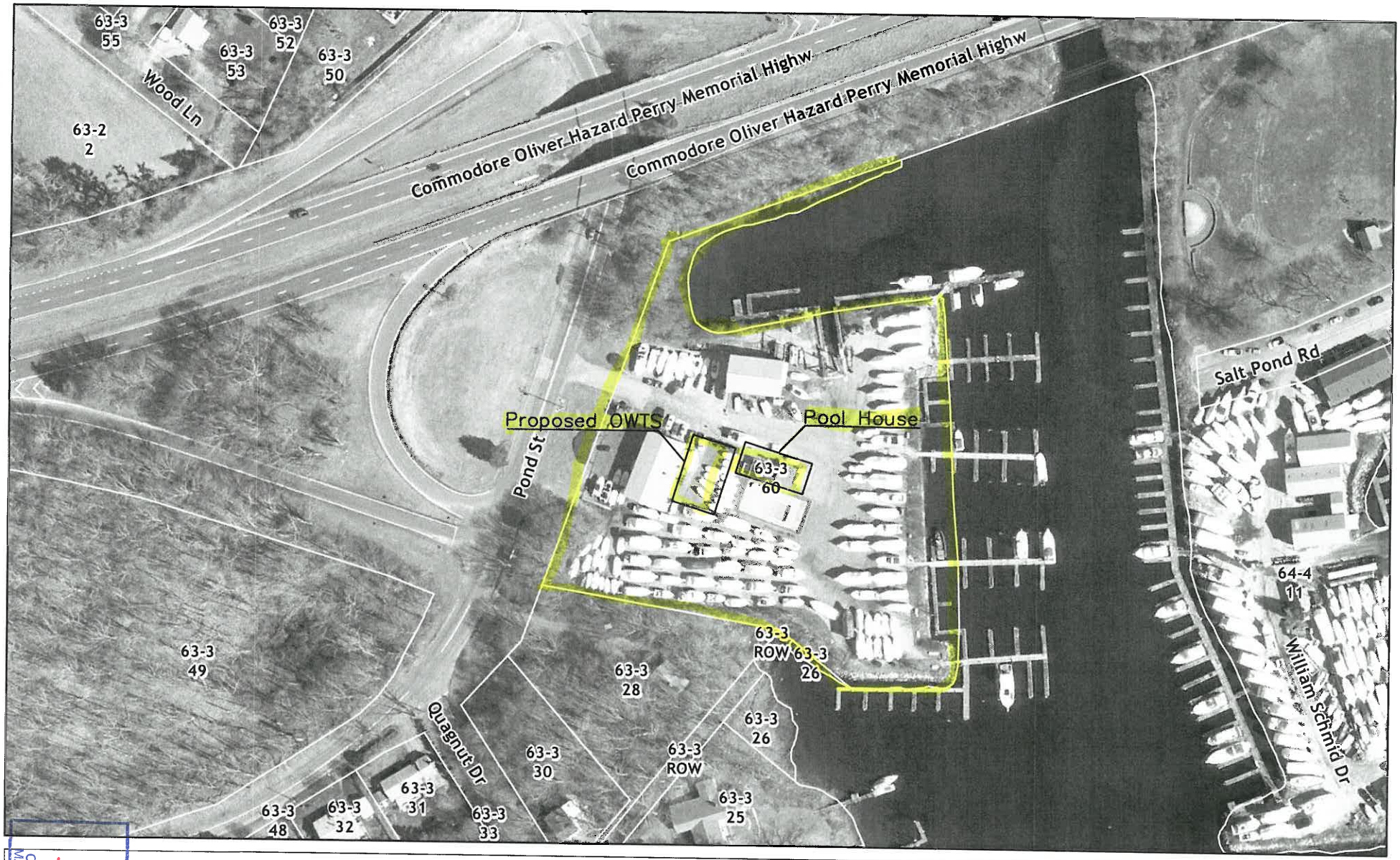
rev. 5/11/2001



Washington County, Rhode Island

Horizontal Datum is Rhode Island State Plane Feet, NAD83.

1 inch = 150 feet

Feet
0 95 190 380

Town of South Kingstown *Web GIS*

A.P 63-3 Lot 60

Parcel Boundaries not legally binding for title or zoning purposes.

The Town of South Kingstown makes no warranty as to the accuracy, reliability, or completeness of the information and is not responsible for any errors or omissions for results obtained from the use of the information.

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RHODE ISLAND DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
ONSITE WASTEWATER TREATMENT SYSTEM CONSTRUCTION PERMIT
www.dem.ri.gov/septic

FOR RIDEM USE ONLY

APPLICATION No. 20- _____ DATE RECEIVED ____/____/____ AMOUNT RECEIVED $_____ CHECK #_____ NOTE_____

TYPE OF APPLICATION (CHECK ALL THAT APPLY)

- ☐ NEW BUILDING CONSTRUCTION
- ☐ ALTERATION
- ☑ REPAIR
- ☐ TRANSFER
- ☑ A/E TECHNOLOGY TYPE ADVANTEX
- ☐ VARIANCE
- ☐ REDESIGN
- ☐ JOINT OWTS / WETLANDS PD

SITE INFORMATION

362 POND STREET — WAKEFIELD (SOUTH KINGSTOWN)
NO. STREET — CITY/TOWN — POLE #

PLAT NUMBER 63-3 LOT NUMBER 60 SUBDIVISION LOT NUMBER N/A

LOT SIZE 3.2 SF (ACRES)

SUBDIVISION NAME N/A MAR 8 2021

SUBDIVISION SITE SUITABILITY CERTIFICATION # N/A

OWNER INFORMATION

SHM SILVER SPRING LLC
LAST NAME — FIRST NAME — M.I.

14785 PRESTON RD. SUITE 975 DALLAS, TX 75254
NO. STREET — CITY/TOWN — ZIP CODE

RIDEM APPLICATION HISTORY

PREVIOUS SITE TESTING ☑ YES ☐ NO APPLICATION # 2032-1906

DEPTH TO APPROVED WATER TABLE 0" HOW DETERMINED SOIL EVAL

TEST HOLE # 1 DATE EXCAVATED 1/6/21 WETLANDS within 200' OF OWTS ☐ YES ☐ NO

WETLAND DETERMINATION ☐ YES ☑ NO RIDEM FILE # N/A DATE ___/___/___

LARGE SYSTEM ☐ YES ☐ NO OCI FILE # IF APPLICABLE N/A

DESIGN INFORMATION

BUILDING USE: ☐ Residential ☑ Commercial MARINA
☐ Other _____

WATER SUPPLY: ☑ public water ☐ public well ☐ private well

OF DESIGN UNITS N/A

UNIT DESIGN FLOW ____ gallons per ____ (unit) TOTAL DAILY FLOW 1,500 gallons

TANK SIZE 1500 gallons DESIGN LOADING RATE 2.5 gpd/sf

MINIMUM REQUIRED LEACHFIELD AREA 653 square feet

LEACHFIELD TYPE BOTTOMLESS SAND FILTERS

TOTAL AREA OF LEACHFIELD PROVIDED 665 square feet

RECEIVED MAR 8 2021 COASTAL RESOURCES MANAGEMENT COUNCIL

CERTIFICATION

I, GERALYN SMALL (print), the undersigned licensed OWTS designer, certify that I prepared this application and accompanying forms, submittals, plans and sketches in accordance with the RULES of the RIDEM pertaining to OWTS and that all the information provided on this application and accompanying forms, submittals, plans and sketches is true and accurate.

Designer's Signature _____ License # D3089

Designer's Email [illegible] Phone # 401-841-0810

Business/Company Name NORTHEAST ENGINEERS & CONSULTANTS, INC.

I certify that a) I am the owner of the property indicated under the site information on this application, b) I will hire a licensed OWTS installer to install the system proposed herein, c) the system will be installed in strict accordance with this application, d) I will hire and retain the licensed OWTS designer of record to witness and inspect the installation of the system, e) I assume all responsibility for the truth and accuracy of this application and all liability and responsibility for any improper installations of the system on this site and agree to hold the RIDEM harmless from any and all claims relating whatsoever to the system. In the case of a transfer application, I acknowledge that the permit application and plans previously approved and accompanying this application are the operative documents subject to certification.

Owner's Phone Number 401 339 3116

Owner's Email [illegible]

Owner(s) Signature _____

PERMIT APPROVAL SECTION: DO NOT WRITE BELOW THIS LINE

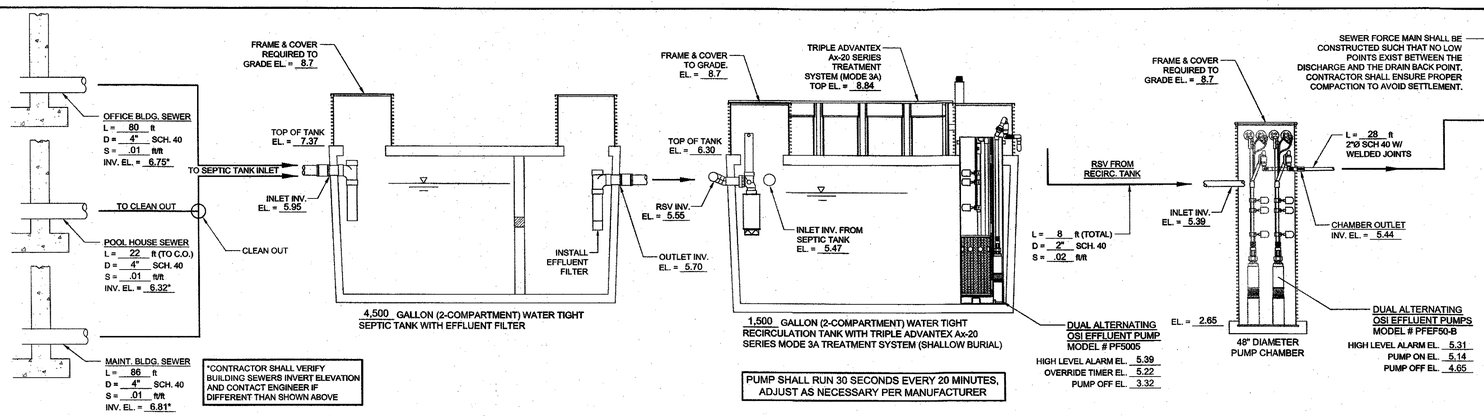
Based upon the representations of the owner and the owner's agents, including the representations of the owner's OWTS designer, and the truth and accuracy of all information submitted, this application for an OWTS is hereby approved. The RIDEM assumes no responsibility or liability for the future safe operation or maintenance of the aforesaid system, of the fitness or suitability of this system to this site, nor does it assume any responsibility for the accuracy and truth of the owner's, or the owner's agent's representations. This approval is subject to future suspension or revocation in the event that subsequent examination reveals any data indicated on any application, form, submittal, plan or sketch to be incorrect, or not in compliance with the RULES or any conditions at the site are such that the approved design is not in accordance with the RULES, or in the event that the system discharges inadequately treated wastewater to waters of the State or fails to operate satisfactorily in any other manner.

IMPORTANT: Additional terms of approval as circled.

A. Bottom of leaching area excavation must be inspected by the RIDEM prior to placement of any gravel or stone.
B. System installation must be inspected by RIDEM prior to covering any component of the system with backfill.
C. Applicant shall comply with all requirements, conditions and stipulations of variance(s) approved on _____.
D. Joint Permit: Designer of record must contact RIDEM prior to start of any site construction.
E. A/E Technology: additional installation, operation or maintenance requirements may apply (see A/E Technology Certification.)
F. Copy of this form and Operation/Maintenance contract must be filed in land evidence records prior to conformance.
G. Proposed construction falls within "Coastal Zone". Contact Rhode Island Coastal Resources Management Council.
H. Proper erosion and sedimentation controls must be installed prior to start of construction.
I. Transfer: See original permit for all applicable conditions.
J. Other Alternate Brine Solution Required

Signature of RIDEM Official	Date of Approval	Date of Expiration
[signature]	3/16/21	3/16/26

DESIGNER



SEWER PROFILE

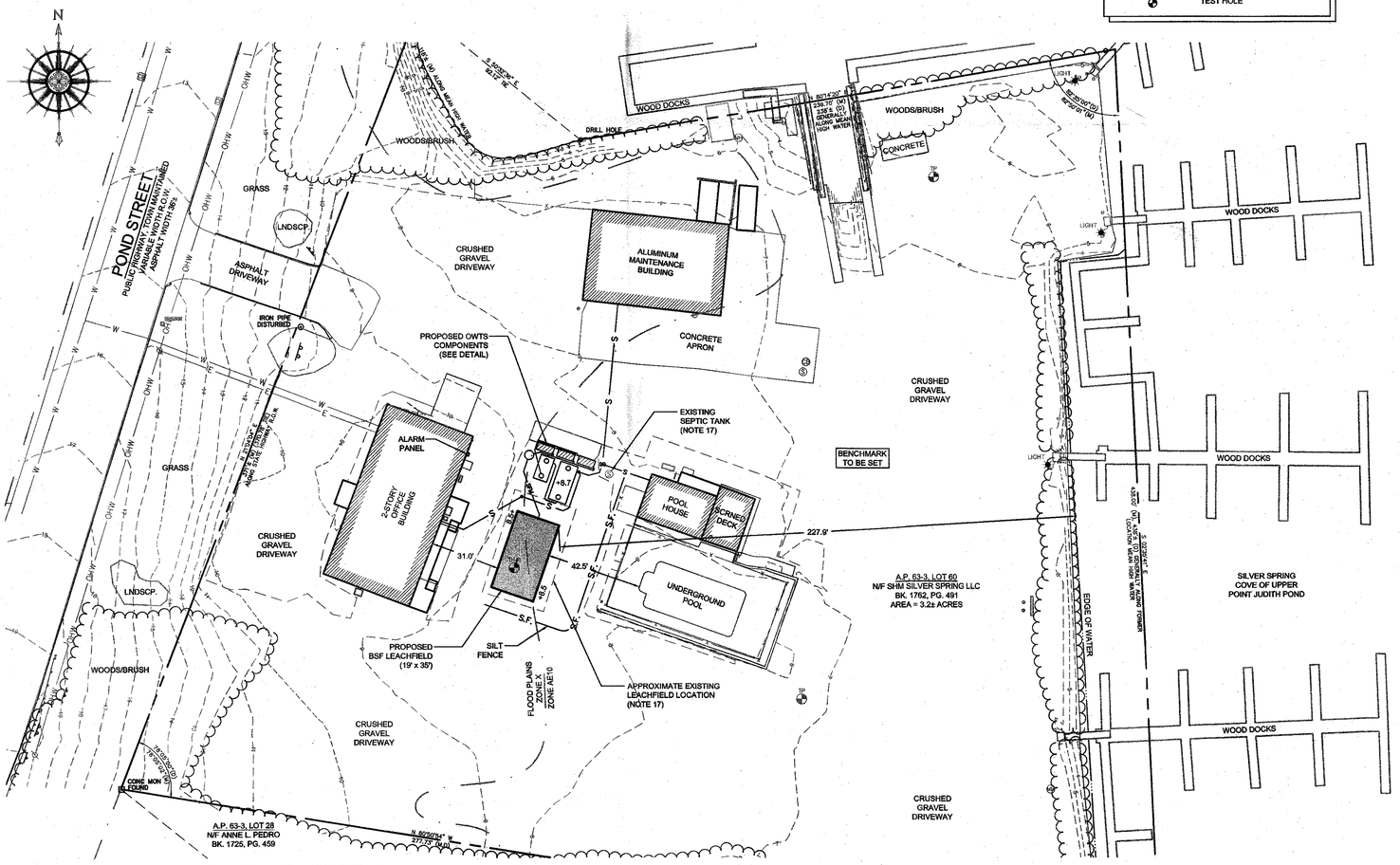
SCALE: NOT TO SCALE

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF WATER RESOURCES
ISDS PROGRAM
PLAN 2022-1006 DATE 3-16-21
APPROVED
NO CHANGES ALLOWED WITHOUT PRIOR APPROVAL
APPROVAL MUST BE KEPT AT CONSTRUCTION SITE

SOIL EVALUATION DATA

TP# 1

HORIZON	DEPTH (INCHES)	HORIZON BOUNDARIES DIST	HORIZON BOUNDARIES TOPO	SOIL COLORS MATRIX	SOIL COLORS RE-DOX FEATURES	RE-DOX DESCRIPTION	TEXTURE	STRUCTURE	CONSISTENCE	SOIL CATEGORY
HTM	37-0	-	-	-	-	-	-	-	-	-
BC	0-18	c	w	2.5Y 3/3	-	-	gls	sg	l	1m
2C	18-47	-	-	5Y 4/1	-	-	cos	sg	l	1



P:\Projects\2020\20244.0 Downes - Silver Spring Marina. 362 Pond St. SK\Drawings\Current\20244_OWTS_rev.dwg

LEGEND

- PROPERTY LINE
- ABUTTERS PROPERTY LINE
- EXISTING CONTOUR
- MEAN HIGH WATER
- FLOOD ZONE LINE
- BRUSH LINE
- W — EXISTING WATER LINE
- E — EXISTING ELECTRIC LINE
- OHW — EXISTING OVERHEAD WIRE
- S — PROPOSED SEWER LINE
- SFM — PROPOSED SEWER FORCE MAIN
- 8.7+ PROPOSED SPOT ELEVATION
- S.F. — SILT FENCE
- IRON ROD
- STONE BOUND
- SIGN
- MAN HOLE
- UTILITY POLE
- CATCH BASIN
- SEWER STRUCTURE
- TEST HOLE

GENERAL OWTS SYSTEM NOTES:

1) ALL BRUSH AND TREES WILL BE CLEARED WITHIN (10) ft OF THE SYSTEM.

2) A MINIMUM ELEVATION OF 7.75 , CORRESPONDING TO 2 FEET BELOW THE BOTTOM OF THE PEASTONE, SHOULD BE MAINTAINED WITHIN 5 FEET OF OWTS.

3) ALL EXISTING AND PROPOSED PRIVATE WELLS WITHIN 200 ft. OF OWTS ARE SHOWN. ALL PUBLIC WELLS EXISTING OR PROPOSED WITHIN 500' ARE SHOWN.

4) NO DRAINS OR WATER LINES ARE KNOWN TO EXIST OR ARE TO BE CONSTRUCTED IN THE PROXIMITY OF THE SYSTEM WITHIN THE DISTANCES SPECIFIED IN RIDEM OWTS TABLE 6.23.

5) PROPOSED TANKS, INLETS, OUTLETS, & PIPING MUST BE WATERTIGHT TO PREVENT THE INFILTRATION OF GROUND WATER.

6) THE SYSTEM FOR THE SUBSURFACE DISPOSAL OF SANITARY SEWAGE SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE LATEST REQUIREMENTS OF THE STATE OF RHODE ISLAND, DEPARTMENT ENVIRONMENTAL MANAGEMENT, "RULES ESTABLISHING MINIMUM STANDARDS RELATING TO LOCATION, DESIGN, CONSTRUCTION, AND MAINTENANCE OF ONSITE WASTEWATER TREATMENT SYSTEMS."

7) THE DESIGN INTENT IS TO MEET THE STATE STANDARDS. SINCE THIS PLAN HAS BEEN CREATED TO GAIN THE NECESSARY PERMITTING, NO CONSTRUCTION INSTALLATIONS HAVE COMMENCED. BECAUSE THIS IS NOT A "RECORD DRAWING OF AS-BUILT CONDITIONS" AND NOTHING HAS BEEN INSTALLED, THE ENGINEER SIGNING AND STAMPING THIS PLAN IS NOT GUARANTEEING THE OPERATION OF THE INSTALLED SEPTIC SYSTEM. UPON THE APPROVED SYSTEM INSTALLATION, THE DESIGN ENGINEER WILL SUPERVISE, VERIFY, AND CERTIFY THAT THE SYSTEM WAS INSTALLED AS SPECIFIED ON THE APPROVED PLAN.

8) ANTI- FLOATATION DEVICES AS PROVIDED BY THE MANUFACTURER SHALL BE USED FOR THE PROPOSED ADVANTEX PODS.

9) NO FOUNDATION DRAIN LINES ARE TO BE CONSTRUCTED WITHIN 25 FT. OF THE OWTS OR BUILDING SEWER.

10) SEWER FORCE MAIN SHALL BE CONSTRUCTED SUCH THAT NO LOW POINTS EXIST BETWEEN THE DISCHARGE AND THE DRAIN BACK POINT. CONTRACTOR SHALL ENSURE PROPER COMPACTION TO AVOID SETTLEMENT.

11) LAND OWNER MUST MINIMIZE SHADING OF THE BOTTOMLESS SAND FILTER. THE RHODE ISLAND DEPARTMENT OF ENVIRONMENTAL MANAGEMENT RECOMMENDS THAT BOTTOMLESS SAND FILTERS BE EXPOSED TO THE SUNLIGHT TO PREVENT FREEZING DURING THE WINTER MONTHS.

12) THE FILL LAYER BELOW THE LEACHFIELD SHALL BE REMOVED AND REPLACED WITH ASTM C-33 SAND THAT MEETS RIDEM OWTS RULE 6.37.C.2.b.

13) CONTRACTOR SHALL VERIFY EXISTING BUILDING SEWER INVERT ELEVATION PRIOR TO CONSTRUCTION AND CONTACT DESIGN ENGINEER IF DIFFERENT THAN SHOWN.

14) CONTRACTOR TO VERIFY EXISTING INVERT ELEVATIONS AND CONTACT DESIGN ENGINEER IF DIFFERENT THAN SHOWN.

15) SEPTIC TANK INLET AND OUTLET PIPES SHALL BE CONNECTED TO THE TANK WITH WATERTIGHT SEALED FLEXIBLE JOINTS. THE PIPE GASKET SHALL BE AN INTEGRAL PART OF ALL TANKS AND THE PIPE GASKET SHALL BE FASTENED TO THE PIPE WITH A STAINLESS STEEL RETRACTABLE CLAMP PER RIDEM RULE 6.27.F.

16) THE PROPOSED LEACHFIELD AREA SHALL BE PROTECTED FROM ANY ACTIONS THAT COULD RESULT IN THE COMPACTION OF SOILS INCLUDING PARKING, VEHICLE TRAFFIC, STAGING AREAS, ETC.

17) EXISTING SEPTIC TANK TO BE PUMPED, REMOVED, AND DISPOSED OF PROPERLY. EXISTING LEACHFIELD TO BE REMOVED AND DISPOSED OF PROPERLY. REMOVAL AND/OR ABANDONMENT TO BE COMPLETED IN ACCORDANCE WITH OWTS RULE 6.56.

18) PROPERTY LINES, NORTH ARROW, EXISTING CONDITIONS, AND TOPOGRAPHY SCALED FROM PLANS ENTITLED, "2016 ALTA/NSPS LAND TITLE SURVEY" PREPARED BY RAVI ENGINEERING & LAND SURVEYING, P.C., LAST REVISED OCTOBER 1, 2020.

19) BASE OF ELEVATIONS REFERENCES VERTICAL DATUM NAVD 88.

20) FLOOD ZONE LINES SCALED FROM PLAN REFERENCED IN NOTE 19.

21) ALL UNDERGROUND UTILITIES SHOWN ON THIS PLAN HAVE BEEN LOCATED FROM FIELD SURVEY INFORMATION AND EXISTING PLANS. THE SURVEYOR MAKES NO GUARANTEE THAT THE UNDERGROUND UTILITIES SHOWN COMPRISE ALL SUCH UTILITIES IN THE AREA, EITHER IN SERVICE OR ABANDONED. THE SURVEYOR DOES NOT WARRANT THAT THE UNDERGROUND UTILITIES SHOWN ARE IN THE EXACT LOCATION INDICATED ALTHOUGH THEY ARE LOCATED AS ACCURATELY AS POSSIBLE FROM ALL AVAILABLE INFORMATION. (PLEASE CONTACT DIGSAFE PRIOR TO CONSTRUCTION AT 1-888-344-7233, AND/OR ALL LOCAL UTILITY COMPANIES).

22) BENCHMARK TO BE SET WITHIN 150' OF PROPOSED OWTS PRIOR TO CONSTRUCTION.

DESIGN COMPUTATION

DESIGN PERC. RATE	DESIGN APP. RATE	SEEPAGE SYSTEM:
CATEGORY 1	2.3 gal/SF/day	TRIPLE ADVANTEX AX-20 WITH A BOTTOMLESS SAND FILTER

DESIGN WATER TABLE: TH 1: WT = 0", FILL = 39" (REPAIR)

SEWAGE FLOW:

85 SLIPS	x 10	g/day	=	850 g/day
10 EMPLOYEES	x 15	g/day	=	150 g/day
1 WASHER	x 500	g/day	=	550 g/day
TOTAL FLOW = 1,500 g/day				

TANK CAPACITY:
SEPTIC TANK: 4,500 GALLONS
RECIRCULATION TANK: 1,500 GALLONS

TOTAL LEACHING AREA REQUIRED: 653 SF
LEACHING AREA PROVIDED: 665 SF
NUMBER OF LATERALS: 9
LENGTH OF SAND FILTER: 35 FT
WIDTH OF SAND FILTER: 19 FT

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GRAPHIC SCALE

30 0 15 30 60 120

(in feet)

1 INCH = 30 FEET

NORTHEAST ENGINEERS & CONSULTANTS, INC.
A KNOWLEDGE CORPORATION®
6 VALLEY ROAD MIDDLETOWN RHODE ISLAND 02842
PHONE (401) 849-0810 FAX (401) 846-4169
WWW.NORTHEASTENGINEERS.COM

SITE/CIVIL
LAND PLANNING
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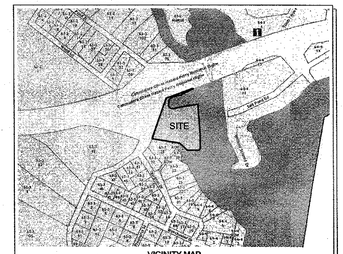
STRUCTURAL
MATERIALS TESTING



VICINITY MAP
NOT TO SCALE

VARIANCES REQUIRED FROM THE FOLLOWING RULES:

1. ESTIMATED SEASONAL HIGH WATER TABLE LESS THAN 18" (OWTS RULE 6.33.E)

No.	Revision	Date	App.

Designed By: GES | Drawn by: DJW | Checked by:
Scale: 1" = 30' | Date: 24FEB21

Project Title:

SILVER SPRING MARINA
A.P. 63-3, LOT 60
362 POND STREET
WAKEFIELD, RHODE ISLAND

Client/Owner:
SHM SILVER SPRING LLC
14785 PRESTON RD STE 975
DALLAS, TX 75254

Issued for:

Note to applicant: Property construction falls within "Coastal Zone" Contact CRMC, Oliver Stedman Government Center, Tower Hill Road, Wakefield, Rhode Island (401) 783-3370 before undertaking any construction.

RIDEM

Drawing Title:
OWTS REPAIR PLAN

GERALYN E. SMALL
No. 8550
REGISTERED PROFESSIONAL ENGINEER
CIVIL
2-25-21

Drawing Number: C-1
Sheet 1 of 2
Project Number: 20244.0
Survey Index: 38 - 63-3 - 60

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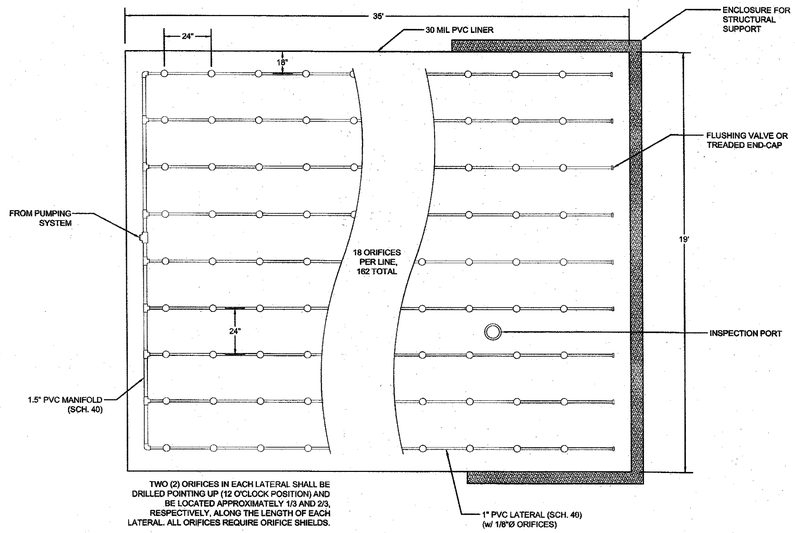
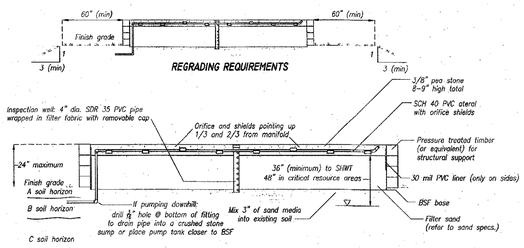
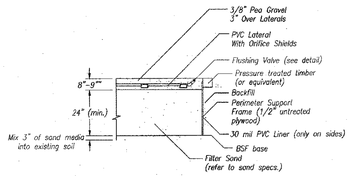


19' x 35' BOTTOMLESS SAND FILTER

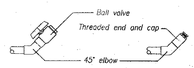
SCALE: NOT TO SCALE



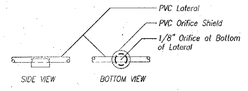
SIDE VIEW



END VIEW



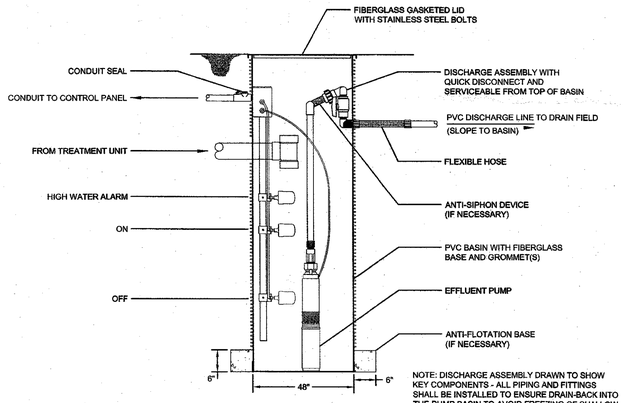
FLUSHING VALVE CHOICE



ORIFICE SHIELD

TYPICAL BOTTOMLESS SAND FILTER

SCALE: NOT TO SCALE

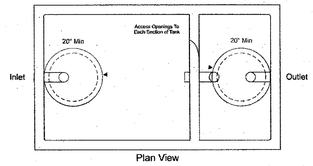


TYPICAL PUMP CHAMBER WITH DUPLEX HIGH HEAD PUMPS

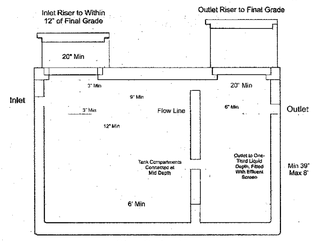
SCALE: NOT TO SCALE

OWTS COMPONENTS DETAIL

SCALE: NOT TO SCALE



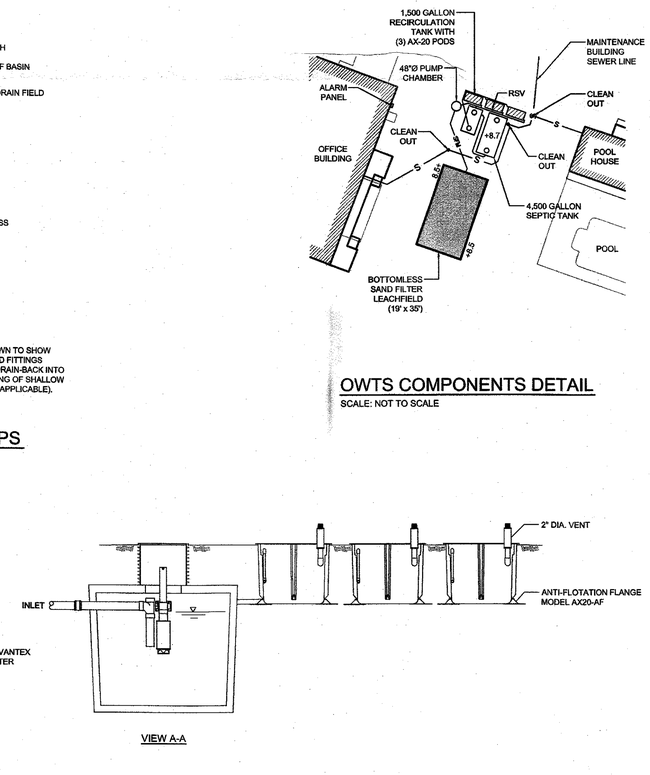
Plan View



Cross Section View

SEPTIC TANK DETAIL (4,500gal.)

SCALE: NOT TO SCALE



SIDE VIEW

ADVANTEX TREATMENT SYSTEM AX20 MODE 3A (SHALLOW BURIAL)

SCALE: NOT TO SCALE

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Client/Owner:
SHM SILVER SPRING LLC
14785 PRESTON RD STE 975
DALLAS, TX 75254

Issued for:
RIDEM

Drawing Title:
OWTS DETAILS

GERALD E. SMALL
No. 8550
12-25-24
REGISTERED PROFESSIONAL ENGINEER
CIVIL

Drawing Number: D-1
Sheet 2 of 2
Project Number: 20244.0
Survey Index: 38 - 63-3 - 60

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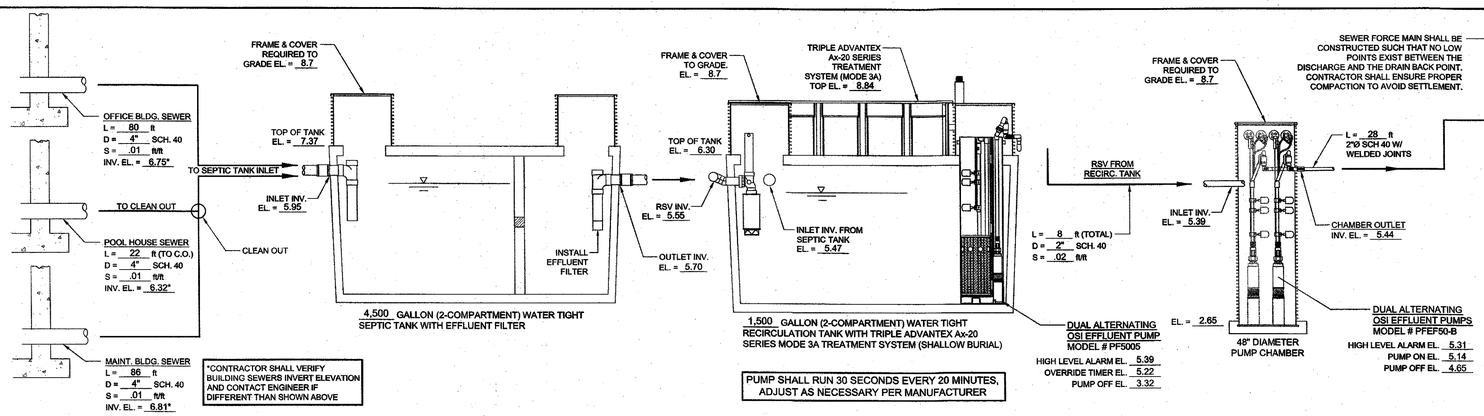
P:\Projects\2020\20244.0 Downes - Silver Spring Marina. 362 Pond St. SK\Drawings\Current\20244_OWTS_rev.dwg



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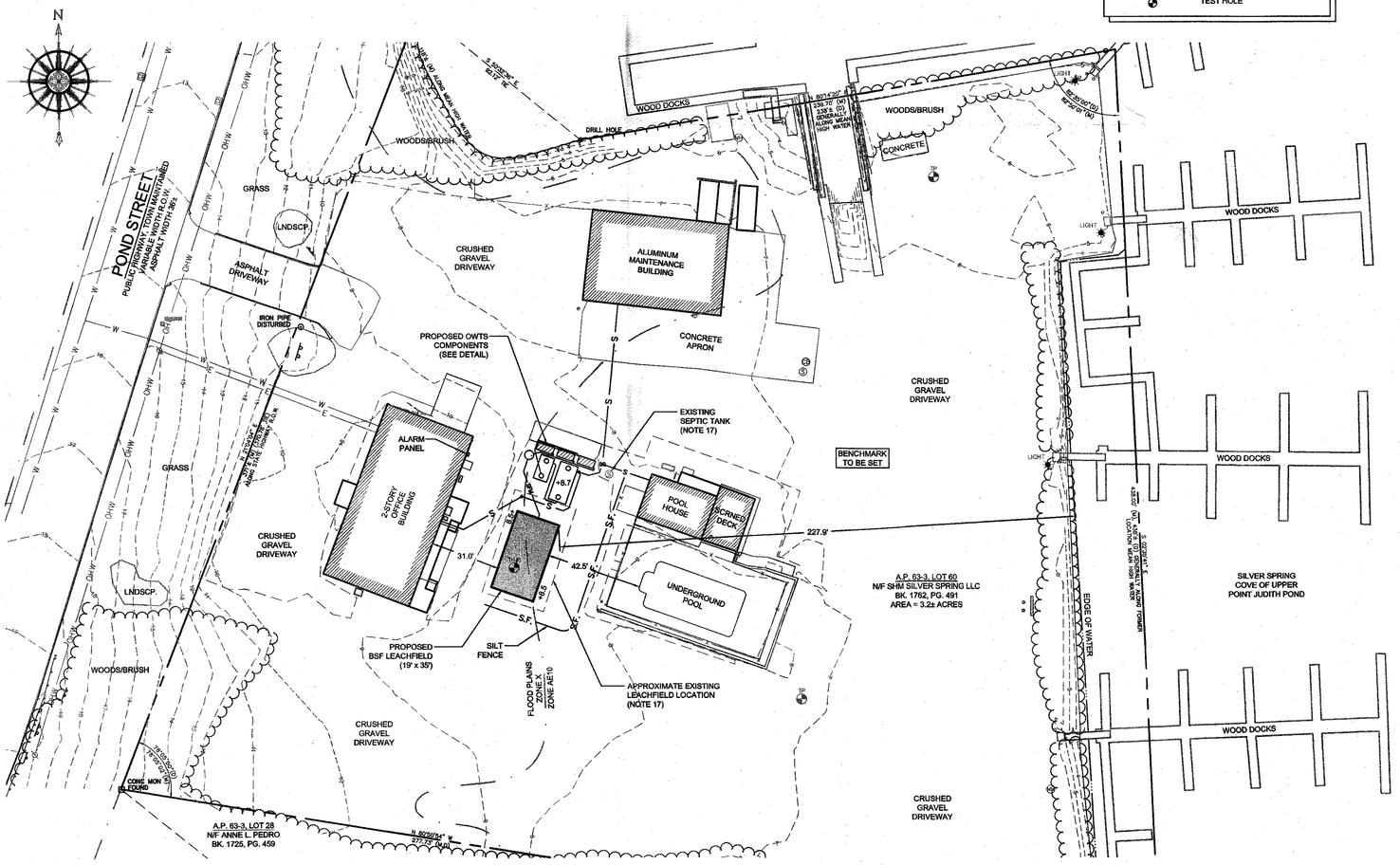
HTM	37-0	-	-	-	-	-	-	-	-	-
BC	0-18	c	w	2.5Y 3/3	-	-	gls	sg	l	1m
2C	18-47	-	-	5Y 4/1	-	-	cos	sg	l	1



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LEGEND

- PROPERTY LINE
- ABUTTERS PROPERTY LINE
- EXISTING CONTOUR
- MEAN HIGH WATER
- FLOOD ZONE LINE
- BRUSH LINE
- W — EXISTING WATER LINE
- E — EXISTING ELECTRIC LINE
- OHW — EXISTING OVERHEAD WIRE
- S — PROPOSED SEWER LINE
- SFM — PROPOSED SEWER FORCE MAIN
- 8.7+ PROPOSED SPOT ELEVATION
- S.F. — SILT FENCE
- IRON ROD
- STONE BOUND
- SIGN
- MAN HOLE
- UTILITY POLE
- CATCH BASIN
- SEWER STRUCTURE
- TEST HOLE

GENERAL OWTS SYSTEM NOTES:

1) ALL BRUSH AND TREES WILL BE CLEARED WITHIN (10) ft OF THE SYSTEM.

2) A MINIMUM ELEVATION OF 7.75 , CORRESPONDING TO 2 FEET BELOW THE BOTTOM OF THE PEASTONE, SHOULD BE MAINTAINED WITHIN 5 FEET OF OWTS.

3) ALL EXISTING AND PROPOSED PRIVATE WELLS WITHIN 200 ft. OF OWTS ARE SHOWN. ALL PUBLIC WELLS EXISTING OR PROPOSED WITHIN 500' ARE SHOWN.

4) NO DRAINS OR WATER LINES ARE KNOWN TO EXIST OR ARE TO BE CONSTRUCTED IN THE PROXIMITY OF THE SYSTEM WITHIN THE DISTANCES SPECIFIED IN RIDEM OWTS TABLE 6.23.

5) PROPOSED TANKS, INLETS, OUTLETS, & PIPING MUST BE WATERTIGHT TO PREVENT THE INFILTRATION OF GROUND WATER.

6) THE SYSTEM FOR THE SUBSURFACE DISPOSAL OF SANITARY SEWAGE SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE LATEST REQUIREMENTS OF THE STATE OF RHODE ISLAND, DEPARTMENT ENVIRONMENTAL MANAGEMENT, "RULES ESTABLISHING MINIMUM STANDARDS RELATING TO LOCATION, DESIGN, CONSTRUCTION, AND MAINTENANCE OF ONSITE WASTEWATER TREATMENT SYSTEMS."

7) THE DESIGN INTENT IS TO MEET THE STATE STANDARDS. SINCE THIS PLAN HAS BEEN CREATED TO GAIN THE NECESSARY PERMITTING, NO CONSTRUCTION INSTALLATIONS HAVE COMMENCED. BECAUSE THIS IS NOT A "RECORD DRAWING OF AS-BUILT CONDITIONS" AND NOTHING HAS BEEN INSTALLED, THE ENGINEER SIGNING AND STAMPING THIS PLAN IS NOT GUARANTEEING THE OPERATION OF THE INSTALLED SEPTIC SYSTEM. UPON THE APPROVED SYSTEM INSTALLATION, THE DESIGN ENGINEER WILL SUPERVISE, VERIFY, AND CERTIFY THAT THE SYSTEM WAS INSTALLED AS SPECIFIED ON THE APPROVED PLAN.

8) ANTI- FLOATATION DEVICES AS PROVIDED BY THE MANUFACTURER SHALL BE USED FOR THE PROPOSED ADVANTEX PODS.

9) NO FOUNDATION DRAIN LINES ARE TO BE CONSTRUCTED WITHIN 25 FT. OF THE OWTS OR BUILDING SEWER.

10) SEWER FORCE MAIN SHALL BE CONSTRUCTED SUCH THAT NO LOW POINTS EXIST BETWEEN THE DISCHARGE AND THE DRAIN BACK POINT. CONTRACTOR SHALL ENSURE PROPER COMPACTION TO AVOID SETTLEMENT.

11) LAND OWNER MUST MINIMIZE SHADING OF THE BOTTOMLESS SAND FILTER. THE RHODE ISLAND DEPARTMENT OF ENVIRONMENTAL MANAGEMENT RECOMMENDS THAT BOTTOMLESS SAND FILTERS BE EXPOSED TO THE SUNLIGHT TO PREVENT FREEZING DURING THE WINTER MONTHS.

12) THE FILL LAYER BELOW THE LEACHFIELD SHALL BE REMOVED AND REPLACED WITH ASTM C-33 SAND THAT MEETS RIDEM OWTS RULE 6.37.C.2.b.

13) CONTRACTOR SHALL VERIFY EXISTING BUILDING SEWER INVERT ELEVATION PRIOR TO CONSTRUCTION AND CONTACT DESIGN ENGINEER IF DIFFERENT THAN SHOWN.

14) CONTRACTOR TO VERIFY EXISTING INVERT ELEVATIONS AND CONTACT DESIGN ENGINEER IF DIFFERENT THAN SHOWN.

15) SEPTIC TANK INLET AND OUTLET PIPES SHALL BE CONNECTED TO THE TANK WITH WATERTIGHT SEALED FLEXIBLE JOINTS. THE PIPE GASKET SHALL BE AN INTEGRAL PART OF ALL TANKS AND THE PIPE GASKET SHALL BE FASTENED TO THE PIPE WITH A STAINLESS STEEL RETRACTABLE CLAMP PER RIDEM RULE 6.27.F.

16) THE PROPOSED LEACHFIELD AREA SHALL BE PROTECTED FROM ANY ACTIONS THAT COULD RESULT IN THE COMPACTION OF SOILS INCLUDING PARKING, VEHICLE TRAFFIC, STAGING AREAS, ETC.

17) EXISTING SEPTIC TANK TO BE PUMPED, REMOVED, AND DISPOSED OF PROPERLY. EXISTING LEACHFIELD TO BE REMOVED AND DISPOSED OF PROPERLY. REMOVAL AND/OR ABANDONMENT TO BE COMPLETED IN ACCORDANCE WITH OWTS RULE 6.56.

18) PROPERTY LINES, NORTH ARROW, EXISTING CONDITIONS, AND TOPOGRAPHY SCALED FROM PLANS ENTITLED, "2016 ALTA/NSPS LAND TITLE SURVEY" PREPARED BY RAVI ENGINEERING & LAND SURVEYING, P.C., LAST REVISED OCTOBER 1, 2020.

19) BASE OF ELEVATIONS REFERENCES VERTICAL DATUM NAVD 88.

20) FLOOD ZONE LINES SCALED FROM PLAN REFERENCED IN NOTE 19.

21) ALL UNDERGROUND UTILITIES SHOWN ON THIS PLAN HAVE BEEN LOCATED FROM FIELD SURVEY INFORMATION AND EXISTING PLANS. THE SURVEYOR MAKES NO GUARANTEE THAT THE UNDERGROUND UTILITIES SHOWN COMPRISE ALL SUCH UTILITIES IN THE AREA, EITHER IN SERVICE OR ABANDONED. THE SURVEYOR DOES NOT WARRANT THAT THE UNDERGROUND UTILITIES SHOWN ARE IN THE EXACT LOCATION INDICATED ALTHOUGH THEY ARE LOCATED AS ACCURATELY AS POSSIBLE FROM ALL AVAILABLE INFORMATION. (PLEASE CONTACT DIGSAFE PRIOR TO CONSTRUCTION AT 1-888-344-7233, AND/OR ALL LOCAL UTILITY COMPANIES).

22) BENCHMARK TO BE SET WITHIN 150' OF PROPOSED OWTS PRIOR TO CONSTRUCTION.

DESIGN COMPUTATION

DESIGN PERC. RATE	DESIGN APP. RATE	SEEPAGE SYSTEM:
CATEGORY 1	2.3 gal/SF/day	TRIPLE ADVANTEX AX-20 WITH A BOTTOMLESS SAND FILTER

DESIGN WATER TABLE: TH 1: WT = 0", FILL = 39" (REPAIR)

SEWAGE FLOW:

85 SLIPS	x 10	g/day	=	850 g/day
10 EMPLOYEES	x 15	g/day	=	150 g/day
1 WASHER	x 500	g/day	=	550 g/day
TOTAL FLOW = 1,500 g/day				

TANK CAPACITY:
SEPTIC TANK: 4,500 GALLONS
RECIRCULATION TANK: 1,500 GALLONS

TOTAL LEACHING AREA REQUIRED: 653 SF
LEACHING AREA PROVIDED: 665 SF
NUMBER OF LATERALS: 9
LENGTH OF SAND FILTER: 35 FT
WIDTH OF SAND FILTER: 19 FT

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GRAPHIC SCALE

30 0 15 30 60 120

(in feet)

1 INCH = 30 FEET

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6 VALLEY ROAD MIDDLETOWN RHODE ISLAND 02842
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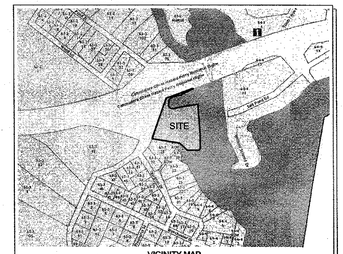

VICINITY MAP
NOT TO SCALE

VARIANCES REQUIRED FROM THE FOLLOWING RULES:

1. ESTIMATED SEASONAL HIGH WATER TABLE LESS THAN 18" (OWTS RULE 6.33.E)

No.	Revision	Date	App.

Designed By: GES | Drawn by: DJW | Checked by:
Scale: 1" = 30' | Date: 24FEB21

Project Title:

SILVER SPRING MARINA
A.P. 63-3, LOT 60
362 POND STREET
WAKEFIELD, RHODE ISLAND

Client/Owner:
SHM SILVER SPRING LLC
14785 PRESTON RD STE 975
DALLAS, TX 75254

Issued for:

Note to applicant: Property construction falls within "Coastal Zone" Contact CRMC, Oliver Stedman Government Center, Tower Hill Road, Wakefield, Rhode Island (401) 783-3370 before undertaking any construction.

RIDEM

Drawing Title:
OWTS REPAIR PLAN

GERALYN E. SMALL
No. 8550
REGISTERED PROFESSIONAL ENGINEER
CIVIL
2-25-21

Drawing Number: C-1
Sheet 1 of 2
Project Number: 20244.0
Survey Index: 38 - 63-3 - 60

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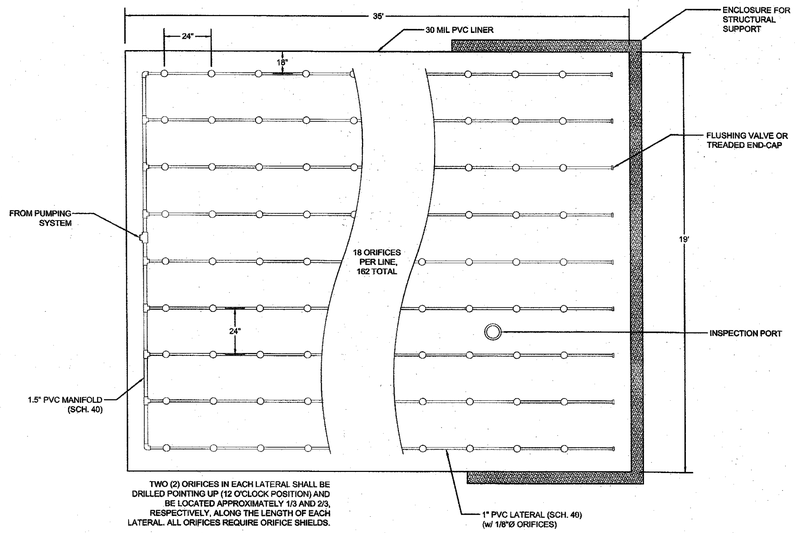
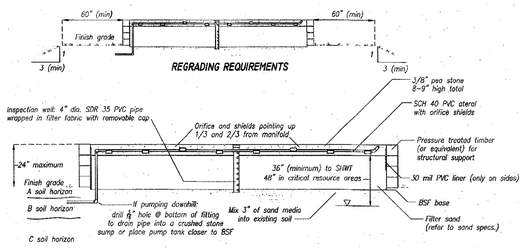
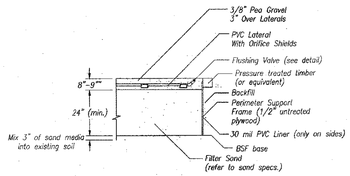


19' x 35' BOTTOMLESS SAND FILTER

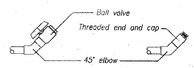
SCALE: NOT TO SCALE



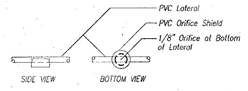
SIDE VIEW



END VIEW



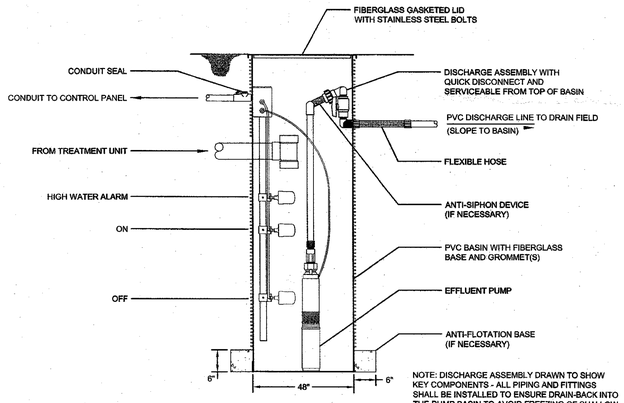
FLUSHING VALVE CHOICE



ORIFICE SHIELD

TYPICAL BOTTOMLESS SAND FILTER

SCALE: NOT TO SCALE

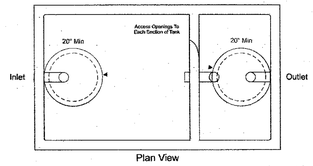


TYPICAL PUMP CHAMBER WITH DUPLEX HIGH HEAD PUMPS

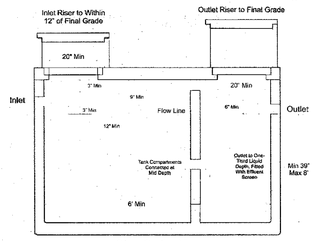
SCALE: NOT TO SCALE

OWTS COMPONENTS DETAIL

SCALE: NOT TO SCALE



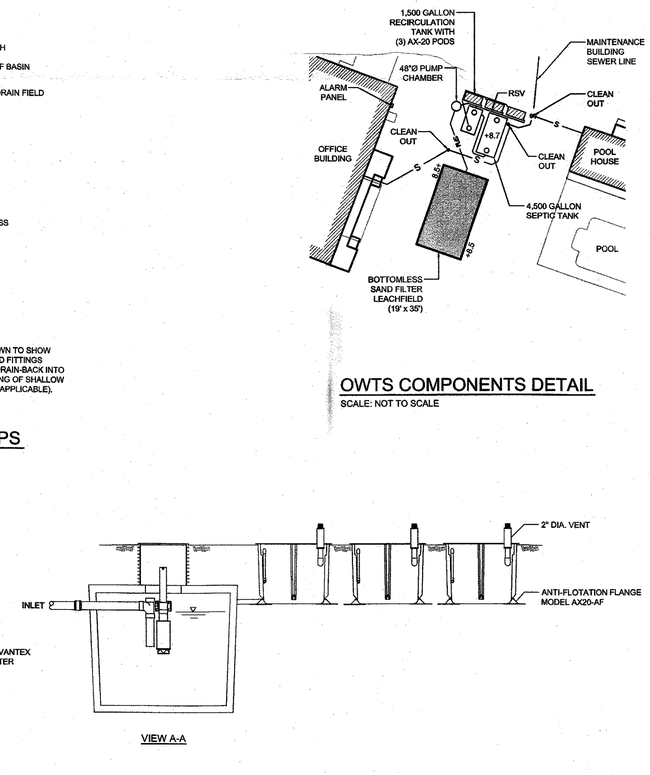
Plan View



Cross Section View

SEPTIC TANK DETAIL (4,500gal.)

SCALE: NOT TO SCALE



SIDE VIEW

ADVANTEX TREATMENT SYSTEM AX20 MODE 3A (SHALLOW BURIAL)

SCALE: NOT TO SCALE

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14785 PRESTON RD STE 975
DALLAS, TX 75254

Issued for:
RIDEM

Drawing Title:
OWTS DETAILS

GERALD E. SMALL
No. 8550
12-25-24
REGISTERED PROFESSIONAL ENGINEER
CIVIL

Drawing Number: D-1
Sheet 2 of 2
Project Number: 20244.0
Survey Index: 38 - 63-3 - 60

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From: (null)
Subject: RE: Safe Harbor Silver Spring
Date: August 5, 2025 at 3:46 PM
To: Alex M. Aucoin aaucoin@shmarinas.com, Jason Parker jparker@southkingstownri.com, rbourbonnais@southkingstownri.gov, mconboy@southkingstownri.gov, jgorman@southkingstownri.gov

---

From: Alex M. Aucoin <aaucoin@shmarinas.com>
Sent: Monday, June 5, 2023 4:46 PM
To: Jason Parker <jparker@southkingstownri.com>; rbourbonnais@southkingstownri.gov; mconboy@southkingstownri.gov; jgorman@southkingstownri.gov
Cc: Beck Bennett <bbennett@shmarinas.com>
Subject: Safe Harbor Silver Spring

My name is Alex Aucoin, and I am the General Manager from Safe Harbor Silver Spring on 362 Pond Street. We recently had been working on designing a large storage building on the southern side of our property. We have decided not to continue working towards completing that project. Instead we are looking towards taking down our aging service shop and replacing it with a new structure that has a modest expansion. We would like to change our 40 x 60 Service Shop to 50 x 80. This would allow us to keep a large portion of work indoors, as well as allow our travel lift to enter the building. The current building is a pole barn constructed probably in the 1960's, it is barely insulated and is in need of an upgrade.

We have already had CRMC on site to do an a visual inspection and test out their thoughts on the project. They walked through the property and did not have any concerns over the project. At this point would it be possible set up an appointment with someone from the town to go over our plan on site. We would like to be able to address any concerns that the TRC may have before submitting any formal site plans or designing any structures or water management systems. We had already gone through extensive planning on the larger storage building, however a conflict with the neighbor was a large reason we decided to scrap that project. We would like to keep the neighborhood happy and have a visually appealing and functional Marina.

I have attached Beck Bennett to this email, he is from the Safe Harbor Organization overseeing and assisting with large Capitol Projects. He is more suited towards working with the CRMC and Towns in the planning and permitting process.

Thank you,
Alex Aucoin

AAucoin@shmarinas.com
401 783 0783 office
401 261 8904 cell

Alex Aucoin
General Manager
Safe Harbor Silver Spring
O: (401) 783-0783

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RHODE ISLAND DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

ONSITE WASTEWATER TREATMENT SYSTEM CONSTRUCTION PERMIT

www.dem.ri.gov/septic

PERMIT NO.:
IA : IA-0000008313
LOCATION NUMBER: 2032-1906
DATE OF DECISION:

DESIGNER: Thomas Principe
REVIEWER:
DECISION: Submitted
DATE OF EXPIRATION:

TYPE OF APPLICATION

• Alteration • A/E Technology Type

AE Technology List

Name
AdvanTex AX20 Mode 3 ResidentialBottomless Sand Filter

SITE INFORMATION

NO. STREET : 362 Pond Street

CITY/TOWN: South Kingstown

POLE#:
LOT NUMBER: 60
LOT SIZE: 142365 Sq.ft.
SUBDIVISION NAME:
SUBDIVISION SITE SUITABILITY CERTIFICATION#:

PLAT NUMBER: 63-3
BLOCK NUMBER: :

OWNER INFORMATION

NAME: SHM Silver Spring LLC
PHONE:

CITY/TOWN: Dallas
ZIP CODE: 75254

EMAIL:
STREET: 14785 Preston Road, Suite #975
STATE: 75254

DESIGN INFORMATION

BUILDING USE: Commercial
SPECIFY: SAFE HARBOR SILVER SPRING
WATER SUPPLY: Public Water
DESIGN LOADING RATE: 1.5 gpd/sf

TANK SIZE: 6000 Gals.

MINIMUM REQUIRED LEACHFIELD AREA: 1000 Sq.ft.
LEACHFIELD TYPE: Bottomless Sand Filter
TOTAL AREA OF LEACHFIELD PROVIDED: 1044 Sq.ft.

TYPE OF USE	UNIT DESIGN FLOW (Gals.)	# OF DESIGN UNITS	TOTAL DAILY FLOW (Gals.)
Marina (shore-side facilities)	500	1	500
Marina (shore-side facilities)	10	85	850
Marina (shore-side facilities)	15	10	150

RIDEM APPLICATION HISTORY

PREVIOUS SITE TESTING:
APPLICATION #: 2032-1906 **DATE:** 2024-02-27
DEPTH TO APPROVED WATER TABLE: 36 Inches
OCI FILE# IF APPLICABLE:
HOW DETERMINED: TEST HOLES
WETLANDS WITHIN 200' OF OWTS: No
WETLAND DETERMINATION: No
RIDEM FILE #:
LARGE SYSTEM: No
TESTHOLE#: 1 & 2

Based upon the representations of the owner and the owner's agents, including the representations of the owner's OWTS designer, and the truth and accuracy of all information submitted, this permit for an OWTS is hereby approved. The RIDEM assumes no responsibility or liability for the future safe operation or maintenance of the aforesaid system, of the fitness or suitability of this system to this site, nor does it assume any responsibility for the accuracy and truth of the owner's, or the owner's agent's representations. This approval is subject to future suspension or revocation in the event that subsequent examination reveals any data indicated on any application, form, submittal, plan or sketch to be incorrect, or not in compliance with the RULES or any conditions at the site are such that the approved design is not in accordance with the RULES, or in the event that the system discharges inadequately treated wastewater to waters of the State or fails to operate satisfactorily in any other manner.

IMPORTANT: Additional terms of approval

Signature of RIDEM Official :

Date of Approval :
Date of Expiration :

DEM
RHODE ISLAND