

Versatile Biofiltration System Meets Bayside Site Constraints

Modular Wetlands® System Linear



Introduction

Originally built in the 1920s and “once home to the famous Tourister Luggage Company, Tourister Mill is now a stunning waterfront apartment community, on the beautiful bay of Warren, Rhode Island”¹. As part of the new renovation, the developer Brady Sullivan Properties had to redesign surrounding parking lots and roadways while creatively addressing unique construction and design challenges.

Given the development’s location directly along the bay, it was imperative to comply with the Rhode Island state stormwater quality permits closely manage land use in order to maximize the limited open space for occupant amenities and parking.

Situation

“The Rhode Island Department of Environmental Management (DEM) serves as the chief steward of the state’s natural resources - from beautiful Narragansett Bay to our local waters and green spaces to the air we breathe. (Their) mission put simply is to protect, restore, and promote our environment to ensure Rhode Island remains a wonderful place to live, visit, and raise a family.”

In order to comply with Rhode Island regulations, the developers of Tourister Mill Apartments were required to implement Low Impact Development (LID) stormwater treatment systems to mitigate the hazardous pollutants generated from their impervious areas. Pollutants related to this property’s use could include:

- Nutrients & Bacteria
- Sediments, Trash & Debris
- Oils & Grease



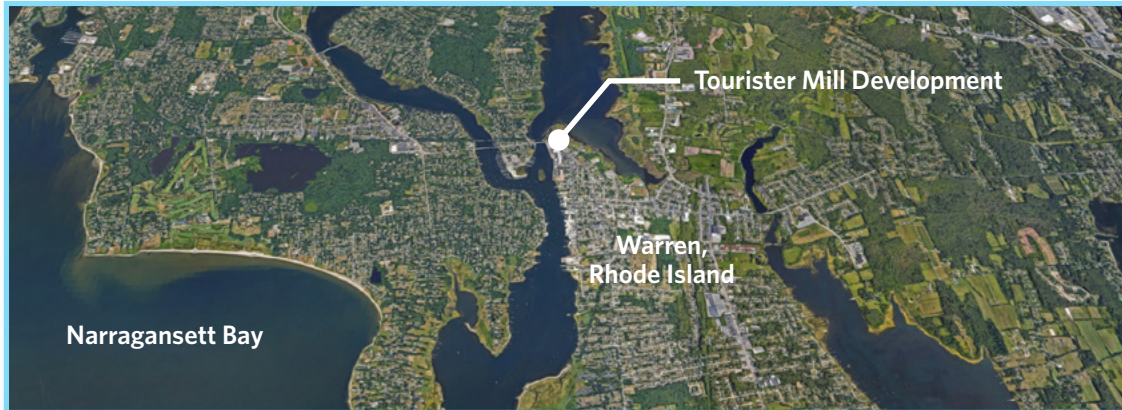
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Challenge

In the original parking lot design, 18 bulky stormwater systems with low-efficiency standards were specified to provide the necessary pollutant removal, but with those units, the development would have lost 34 parking spaces.

After consulting Shane Murphy, a local stormwater expert with Bio Clean Environmental, engineers found a redesign option using only five Modular Wetlands System Linear (MWS Linear) biofiltration systems.



Solution

The Modular Wetlands System Linear (MWS Linear) utilizes horizontal flow, a design that allows the system to yield a higher treatment capacity in a smaller footprint than competitor systems. Additionally, the MWS Linear can incorporate an open planter bed that allows it to blend into surrounding landscapes. These advantages gave the five MWS Linear systems the ability to adapt and fit without losing a single parking space.

An elevated water table also posed a serious challenge. Any non-proprietary bioretention system would never be feasible, as tidal changes would overwhelm and wash out the system, while bulkier systems would require deeper excavation and unrestrained construction costs. The MWS Linear, however, is a precast concrete vault, completely enclosing multiple treatment stages: pretreatment, biofiltration, and discharge - saving land and long-term maintenance costs. Lastly, the horizontal flow design maximizes surface area by circulating stormwater flow around the WetlandMedia chamber. This gives the MWS Linear the ability to provide superior treatment in far less space.

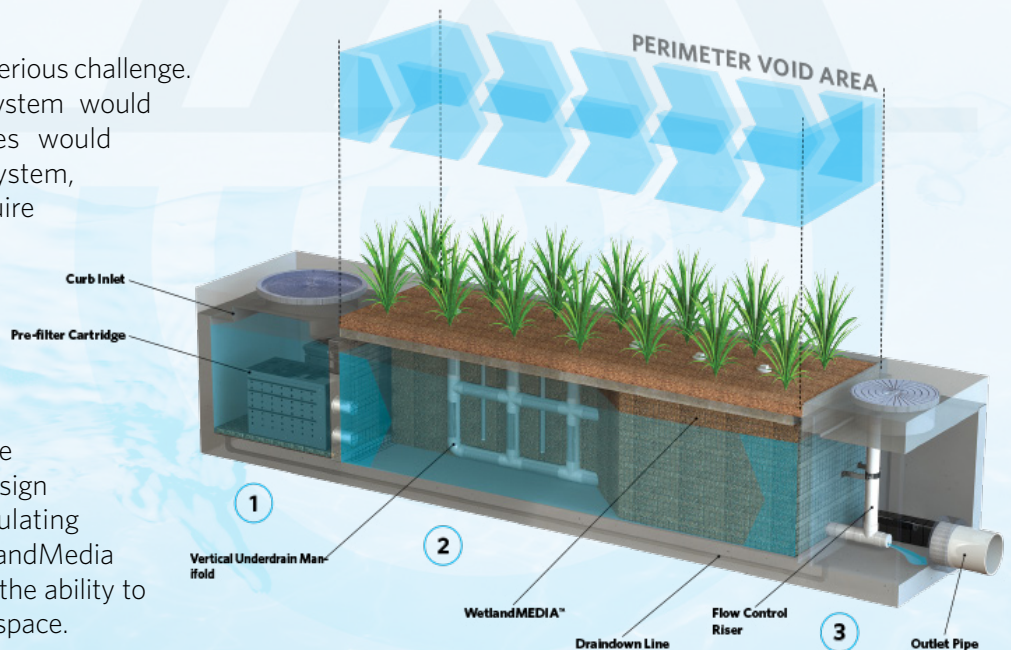


Figure A: Modular Wetlands® System Linear (Operation Rendering)

REFERENCES

1. Bradley Sullivan Properties Website
<https://bradysullivan.com/rhode-island-residential-rent/tourister-mill>

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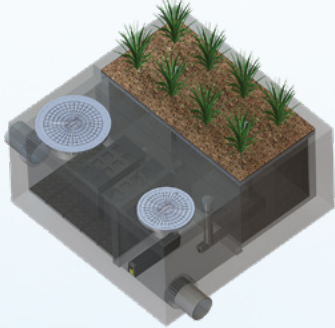
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CONTACT INFORMATION

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MODULAR WETLANDS® SYSTEM LINEAR ADVANTAGES

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| <p>The Modular Wetlands® System Linear</p>  <p>Side-by-Side Orientation</p> | <p>WA TAPE GULD Approval Without Plants</p> | <p>✓ With or without plants (open planter or sealed), the system maintains superior performance in any design configuration.</p> |
| | <p>Can Accept Existing Pipe Below Surface</p> | <p>✓ Piping into the system opens up numerous configuration and design options, like downstream of detention usage or diverting for retrofits.</p> |
| | <p>Works Months Without Requiring Maintenance</p> | <p>✓ The easily accessible pretreatment chamber traps and isolates trash, sediments, and hydrocarbons. A unique feature, proven to keep maintenance frequencies & costs at industry-leading lows.</p> |
| | <p>Can Accommodate High Flow Internal Bypass</p> | <p>✓ The Side-By-Side Orientation option allows abnormal high flows to bypass from pretreatment directly to the discharge chamber.</p> |
| | <p>Design Flexibility & Safety</p> | <p>✓ Space-saving design provides low excavation and installation costs, plus there is no dangerous depressed planter or standing water.</p> |