

# Sugar Refinery Implements Sweet Space-Saving Stormwater Solution

## Modular Wetlands® Linear



Domino Sugar Refinery, Baltimore

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### Introduction

The iconic and century-old Baltimore refinery, Domino Sugar, is running at full capacity this year, but this aged facility is getting some infrastructure upgrades. While Domino Foods Inc., owned by Florida-based ASR Group, is the nation's largest provider of refined sugar, the refinery property itself is a special patron to the local environment, Baltimore's Inner Harbor and the greater Chesapeake Bay.

### Situation

Many of the impervious areas throughout the facility and parking lot can potentially contribute to hazardous pollutant levels in the surrounding waters as they generate stormwater, rainfall and sheet flows which collect trash and phosphorus contributing pollutants. To manage this potential, owners set out to install stormwater treatment systems to address a drainage area of approximately 5-acres, but found themselves working through multiple design concepts before landing on an approach that effectively addressed the site's challenges.

### Challenges

#### Two Challenging Design Proposals

Design Proposal One:

The original developer-concept consisted of a three-cell design, but the primary build area would have required:

1) An Underground Sand Filter, 2) Separate Sedimentation Basin or Initial Pond, and 3) A Separate Bioretention Cell. This three-cell design would have required an enormous block of land, making it a highly impractical resolution.

Design Proposal Two:

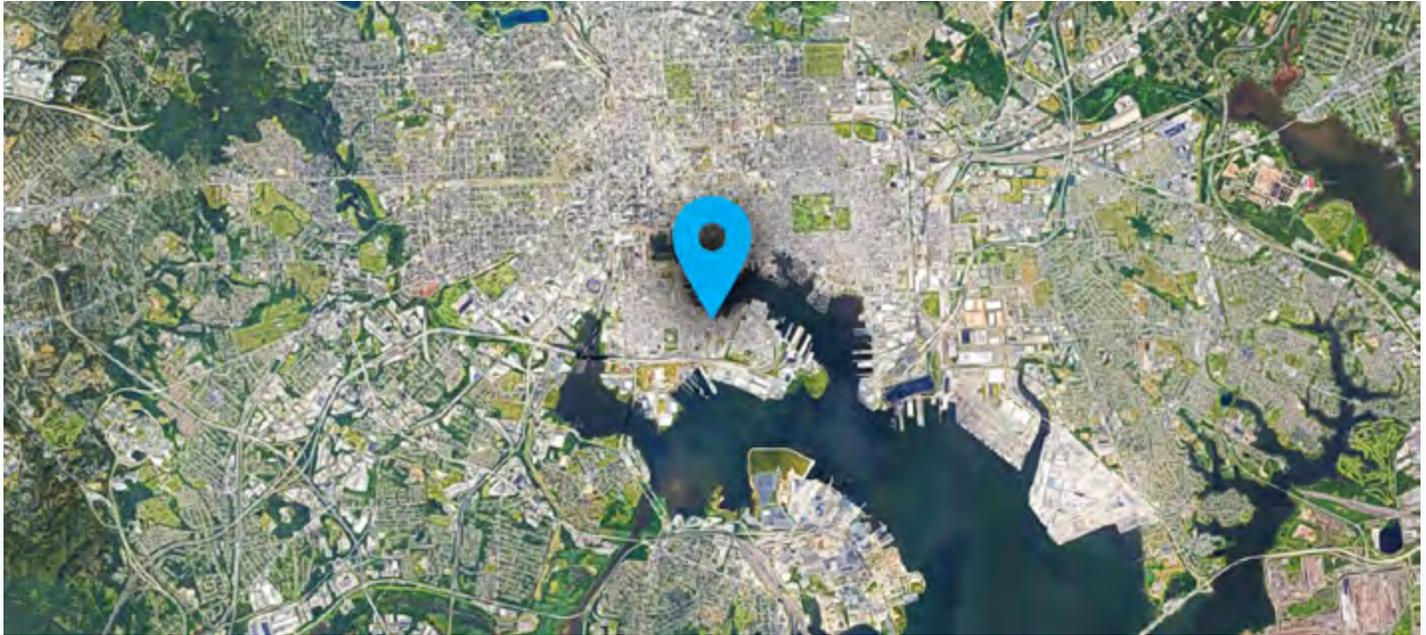
To avoid a portion of excavation, the sand filter from the first concept, was redesigned to be placed above ground in a large precast box (68.5'L x 21'W), and the precast box was eventually shipped in pieces, and installed in the field. The developer and contractor, however, recognized mounting costs and delays related to the land movement or excavation requirements of the bioretention and sedimentation basins, and upon learning more about the Modular Wetlands' benefits, they dismissed this design option.



Photo: Retrofit Precast Box

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Map Diagram: Domino Sugar within Baltimore's Patapsco River

## Solution

After consulting Brad Eldred, of Bio Clean Environmental, the site contractor, Iacoboni Site Specialists, Inc., expressed interest in the Modular Wetlands Linear, a highly rated and efficient stormwater treatment system whose technology consolidates three stages of treatment and volume control into one small footprint. These factors immediately gave the site an ability to consolidate multiple settling and treatment ponds or cells into one concentrated unit.

Brad Eldred explains, "The previously proposed BMPs would have required expensive labor and excavation, but with the Modular Wetlands technology, we were able to repurpose an existing precast box, achieve the required filtration, and do it all within a smaller footprint. The Modular Wetlands Linear has been approved by the MDE (Maryland Department of the Environment) for ESD (Environmental Site Design) and structural use."

The next and final steps were straightforward and efficient. The precast box was retrofit with additional walls, manufactured by CP&P (a local concrete precast partner) and installed by Iacoboni. At this point, Apex (a local activation partner), installed the system's internal components, media and plants. Ultimately this provided the developer and contractor with an efficient and dependable form of the advanced Modular Wetlands Linear treatment system.

Figure A: Modular Wetlands® Linear  
(Side-by-Side Orientation)



## REFERENCES

1. Wikipedia  
[https://en.wikipedia.org/wiki/American\\_Sugar\\_Refining](https://en.wikipedia.org/wiki/American_Sugar_Refining)
2. Baltimore Sun  
<https://www.baltimoresun.com/business/bs-bz-domino-getting-tons-of-sugar-20200123-k3sxvferknfx3fnloiyismu6v4-story.html>

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### CONTACT INFORMATION

Regional Stormwater Consultant for Maryland

Brad Eldred

Mid Atlantic Regional Sales Manager | Phone: (804) 338-2044 | Email: Brad.Eldred@Forterrabp.com

### MODULAR WETLANDS® LINEAR ADVANTAGES

<b>WA TAPE GULD Approval Without Plants</b>	 With or without plants (open planter or sealed), the system maintains superior performance in any design configuration.
<b>Can Accept Existing Pipe Below Surface</b>	 Piping into the system opens up numerous configuration and design options, like downstream of detention usage or diverting for retrofits.
<b>Works Months Without Requiring Maintenance</b>	 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.
<b>Can Accommodate High Flow Internal Bypass</b>	 The Side-By-Side Orientation option allows abnormal high flows to bypass from pretreatment directly to the discharge chamber.
<b>Design Flexibility &amp; Safety</b>	 Space-saving design provides low excavation and installation costs, plus there is no dangerous depressed planter or standing water.

The Modular Wetlands® Linear  
(Modular Wetlands)

