



Walking the Walk & Talking the Talk

A Stormwater Example You Can Apply to Your Site

OCTOBER 15, 2025 5PM Panel | 6PM In-Person Tour

Curious how stormwater retrofits really work in practice? Join us for Walking the Walk and Talking the Talk: A Stormwater Example You Can Apply to Your Site. This **hybrid** event will feature a panel of experts sharing lessons learned from the Chesapeake Bay Trust's own campus retrofit, with clear, actionable steps you can apply to your site.



Thanks for joining!



Low Impact
Development
Center



ENVIRONMENTAL
QUALITY RESOURCES



Chesapeake
Bay Trust

Empowering people. Restoring nature.



If you need assistance, use chat or email sfriesen@cbtrust.org.



Empowering People.
RESTORING NATURE.

About the Chesapeake Bay Trust

The Chesapeake Bay Trust is a nonprofit grantmaking organization dedicated to improving the Chesapeake, Coastal Bays, and Youghiogheny watersheds. Our mission is to restore and protect our natural resources by focusing on three core objectives: environmental education, community outreach, and on-the-ground restoration.

Each year, the Trust awards millions of dollars in grants to support healthier local communities and a cleaner environment. We engage more than 250,000 individuals annually who are making a positive impact on our waterways and the natural resources of our region.

We believe that empowering people to take action is the key to protecting forests, streams, rivers, bays, wildlife, and more—right in their own communities.





Before



Chesapeake
Bay Trust

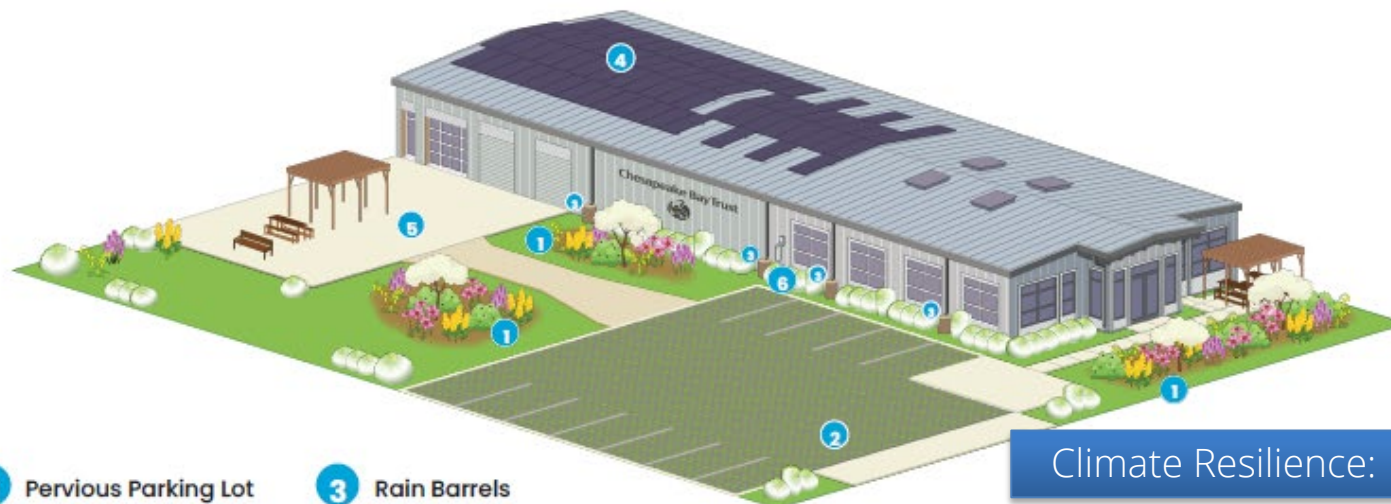
GREEN HEADQUARTERS

The Chesapeake Bay Trust empowers people to restore and experience nature by providing grants to communities who want to improve wildlife habitat, manage and treat stormwater, and create outdoor experiences for community members. When we purchased this half-acre property, the lot was 90% impervious, with the stormwater flowing off the surface, down Severn Avenue, and into Spa Creek and the Severn River, carrying pollutants with it. We wanted to “walk the walk” by transforming our own space AND inspire other property owners and community leaders to “go green.” With investment from hundreds of stakeholders and donors, our space now matches our mission.

The green practices installed on our property address stormwater, energy, materials waste, and human health. Rain gardens (1), pervious parking (2), and rain barrels (3) treat all of the water produced during most rainstorm events, mirroring the effectiveness of a natural undeveloped area. For those who appreciate technical details: The combined stormwater practices at our site treat 100% of every rainstorm event that produces 5.2 inches of rain (which happens on average every 10 years, so called the “10-year storm”) or less, and even most of the “100-year storm” (8.2 inches of rain) that hits our property, keeping pollutants from flowing into Spa Creek, the Severn River, and ultimately the Chesapeake Bay. Our rooftop solar array was designed to be “net energy zero,” producing as much energy as we use (4). Outdoor gathering spaces encourage time outdoors, improving human health, for staff and community (5).

Inside, the Bay Trust follows more than a dozen sustainable business practices, ranging from use of recycled building materials to energy efficient lightbulbs to low-flow toilets.

Our property, similar to the average office building size in the U.S., models realistic practices so building owners can envision what is feasible on their own properties.



1 Rain Gardens

2 Pervious Parking Lot

3 Rain Barrels

4 Solar Energy

5 Heather's Hangout and Gathering Space

6 EV Charging Station

Climate Resilience:

BMPs treat 100% of each 5.2 inch rain event and most of the 8.2 inch rain events)

With Generous Funding From

State of Maryland
Anne Arundel County
Grayce B. Kerr Fund, Inc.
France-Merrick Foundation

Clayton Baker Trust
Batza Family Foundation
Brown Advisory
The MHE Foundation, Inc /
Matthew Earl and Diane K. McBee
Doug Lashley
Southface Institute

Constellation
Fae Daniels and Bud Pezet
Tom and Michelle Ervin
Robert W. and Janellen Frantz
Christoffer Graae and Mary Kfoury
Great Chesapeake Bay Swim
W. Warren and Anne Hamel
Henry H. and Nancy A. Hopkins
Dr. and Mrs. Kris H. Jenner
The Núñez and Hamilton Family
John and Lise Valliant



Want to learn more? Explore www.cbtrust.org





**Chesapeake
Bay Trust**

Empowering people. Restoring nature.

CB Trust - WALKING THE WALK AND TALKING THE TALK

► THE CB Trust HDQTRS EXAMPLE: A CASE STUDY

CB Trust- WALKING THE WALK AND TALKING THE TALK

CB Trust HDQTRS EXAMPLE: A CASE STUDY

- ▶ CB Trust identified stormwater management plan objectives:
 - Treat* all or more of the stormwater volume coming off the impervious surface;
 - Be a demonstration site for nonprofits, people, and businesses who visit site so they can visualize doing something similar themselves;
 - Be cost-effective; and
 - Work with the site/nature for many reasons including long-term sustainability, maintenance needs, & costs

Trust VISION



PROJECT LOCATION



LOCATION



**Chesapeake
Bay Trust**

Empowering people. Restoring nature.



SOILS

AuB—Annapolis-Urban land complex, 0 to 5 percent slopes

Map Unit Setting

National map unit symbol: 4m9y
Elevation: 10 to 160 feet
Mean annual precipitation: 40 to 50 inches
Mean annual air temperature: 52 to 57 degrees F
Frost-free period: 180 to 210 days
Farmland classification: Not prime farmland

Map Unit Composition

Annapolis and similar soils: 50 percent
Urban land: 40 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Annapolis

Setting

Landform: Broad interstream divides
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Glauconitic loamy fluviomarine deposits

Typical profile

Ap - 0 to 8 inches: fine sandy loam
Bt - 8 to 27 inches: channery sandy clay loam
E and Bt - 27 to 61 inches: loamy sand
CB - 61 to 81 inches: loamy sand

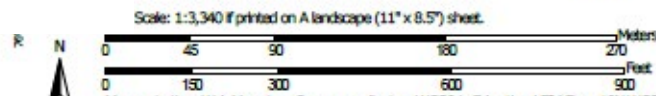
Properties and qualities

Slope: 0 to 5 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to high (0.14 to 1.98 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Moderate (about 7.0 inches)

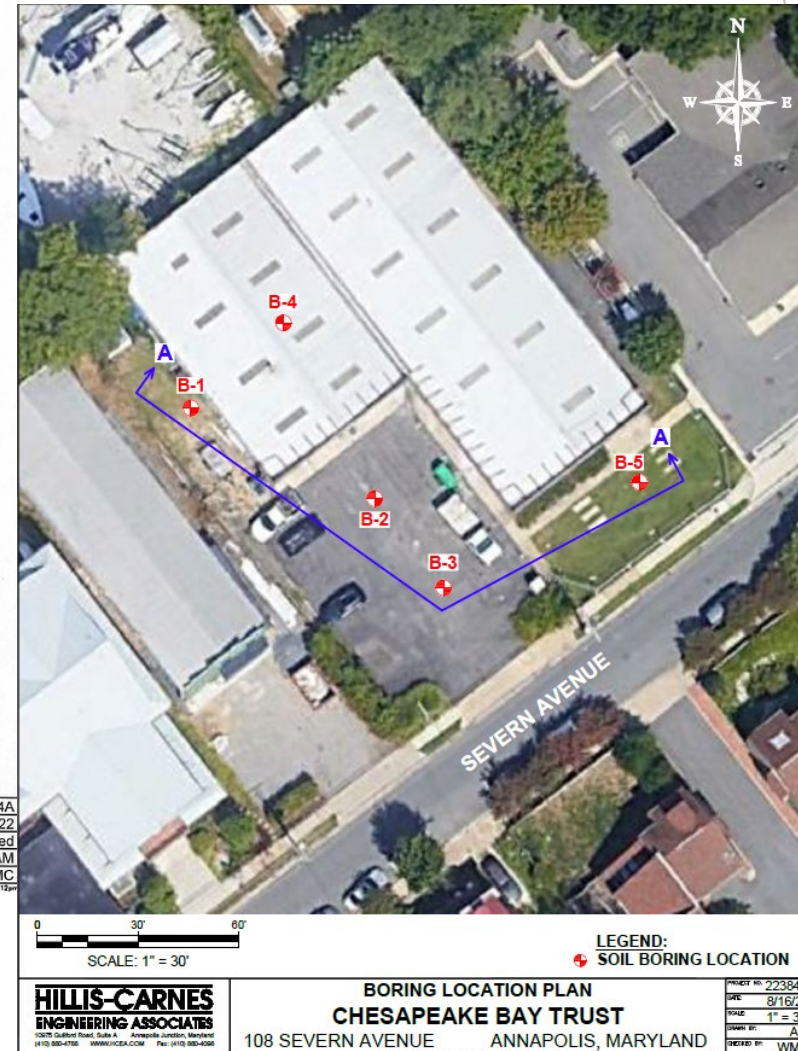
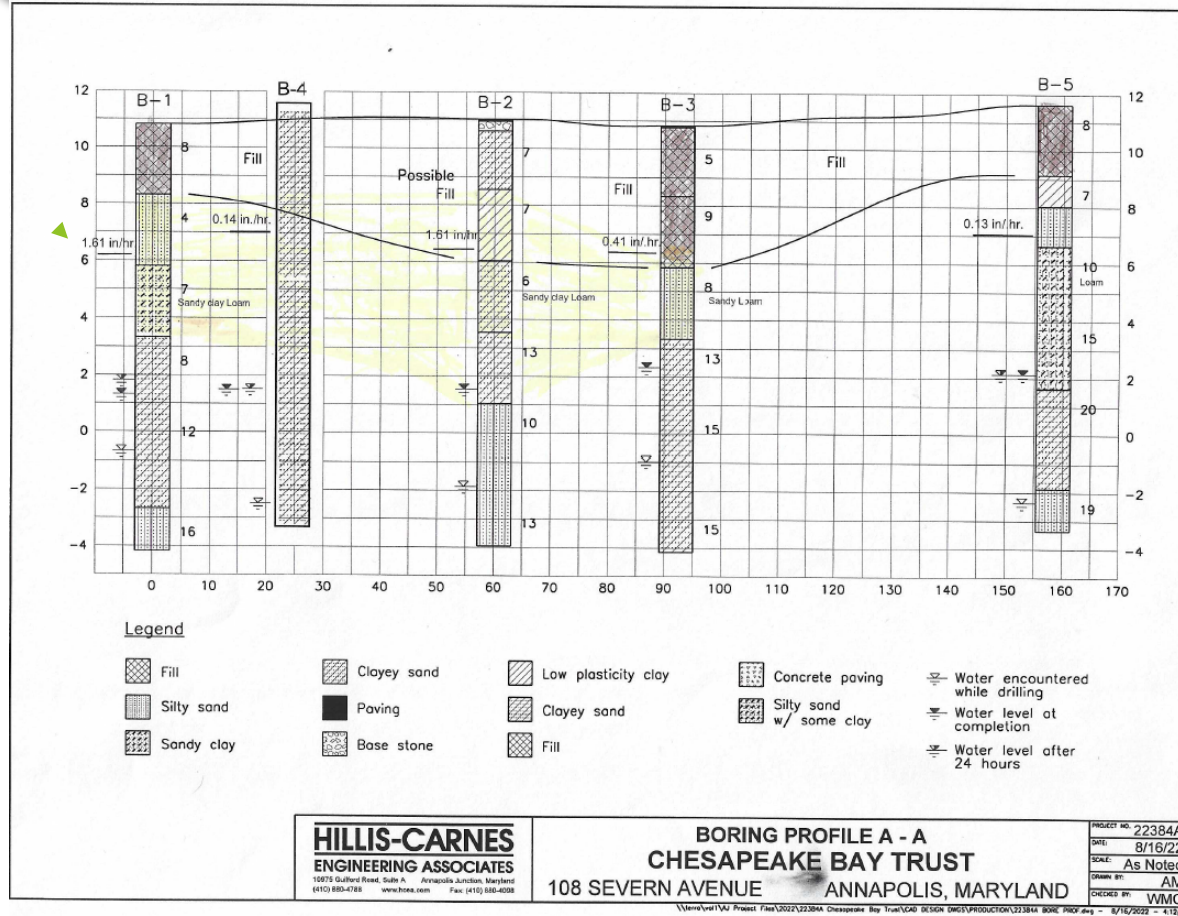
Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2e
Hydrologic Soil Group: C
Hydric soil rating: No

Custom Soil Resource Report Soil Map (CBT - OFFICE)

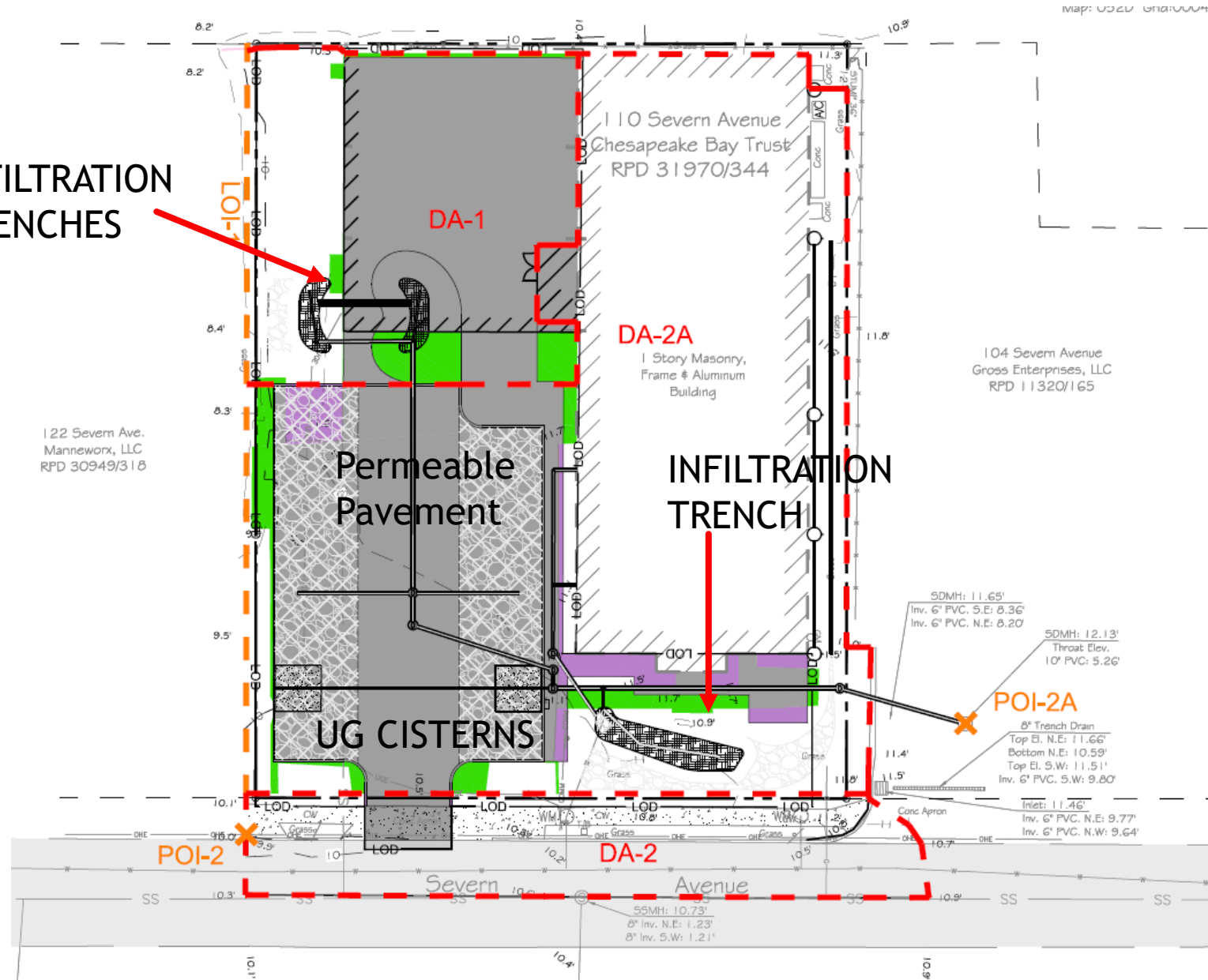


EXISTING IMPERVIOUS COVER



**GEOTECH CONCLUSION:
INFILTRATION NOT FEASIBLE**

***Based on Geotech recommendations**





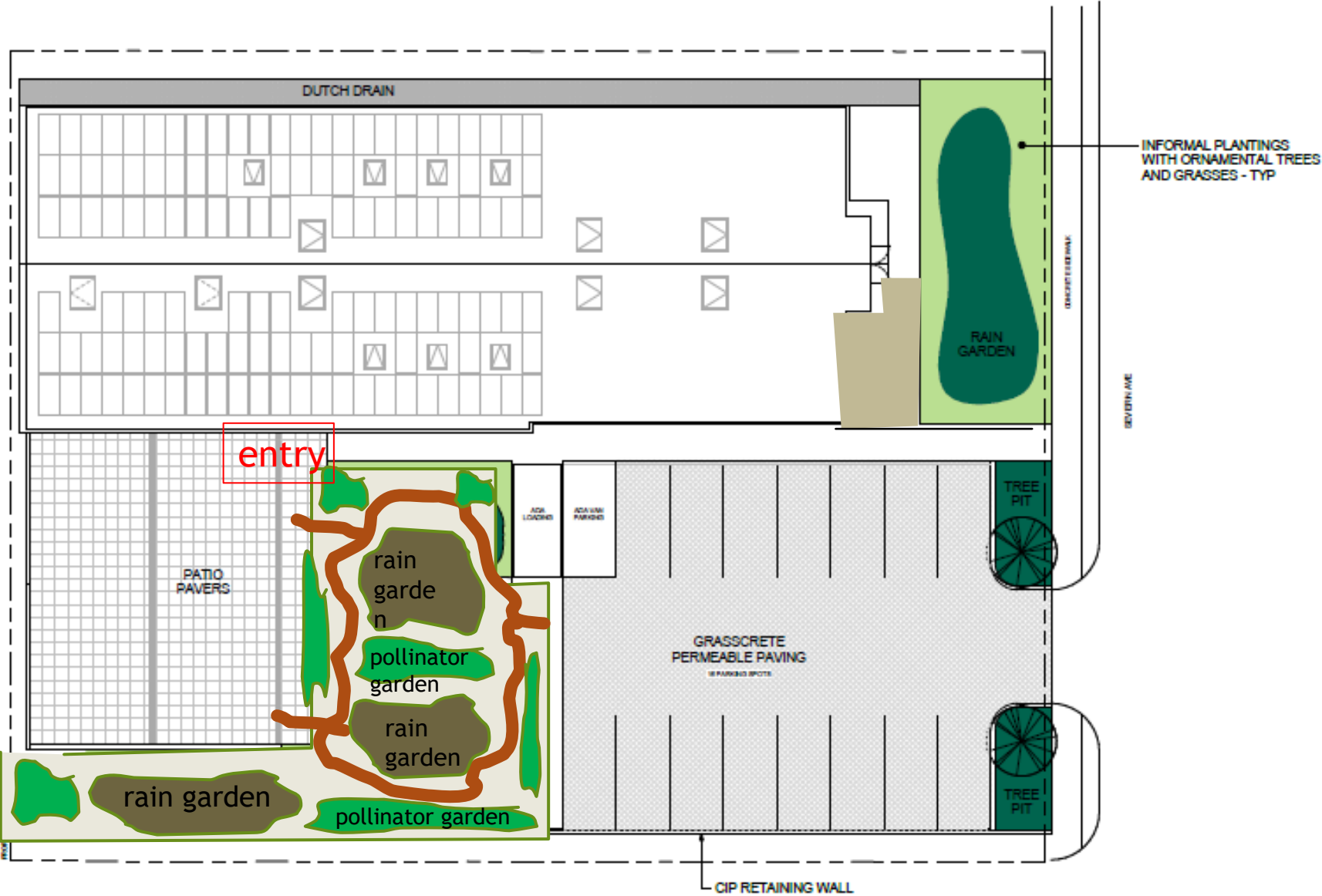
path



rain garden



pollinator garden

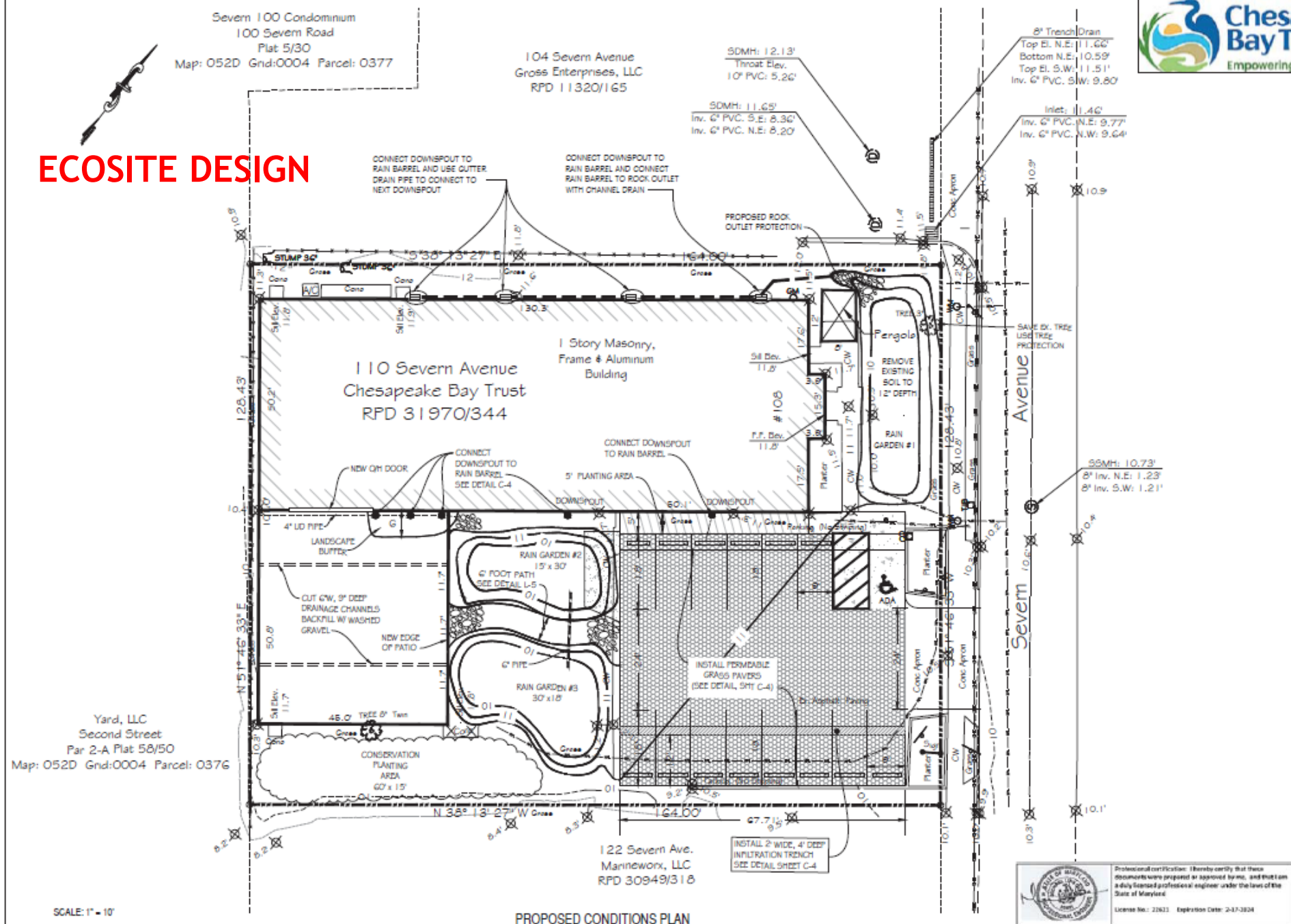


CB Trust HDQTRS EXAMPLE: A CASE STUDY

Issues with traditional Civil design

- Civil design satisfies MDE and City design criteria, but
- Not consistent with Trust vision
- Does not feature GI (design w/ nature approach)
- Too much pipe, excavation, structures, and cost
- Not well suited for desired demonstration site of small-scale innovative practices
- Not cost-effective; and
- Does not feature long-term sustainability, low maintenance needs, & costs

ECOSITE DESIGN



CBT OFFICE RENOVATIONS

DESIGN	MC
DRAWN	JJ
REVIEW	
CONSULTANT	

ECOSITE, INC.
Ecologically Sustainable Design
4600 POWDER MILL RD
SUITE 450-S18
BELTSVILLE, MD 20705
PHONE: (410) 804-8000

SCALE: 1" = 10'

SHEET TITLE

PROPOSED
SITE PLAN

Source: CARROLL ENGINEERING, INC.

DATE: 8/27/20
REVISIONS:
REV 3- 2/7/2023

SHEET NO.

C-3



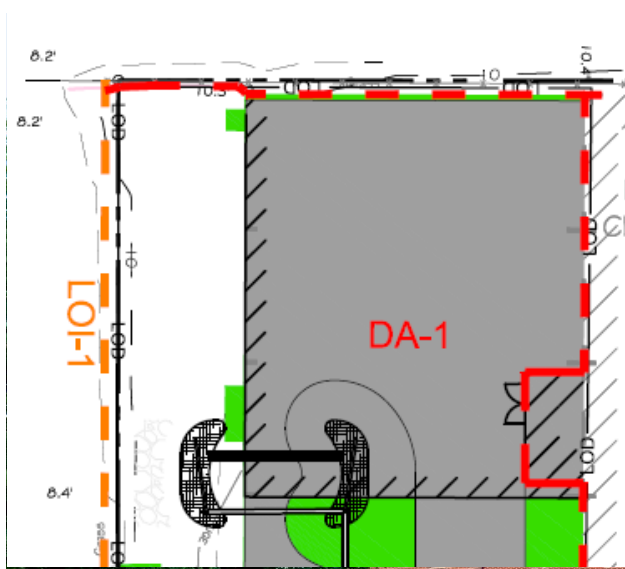
Professional certification: I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland.

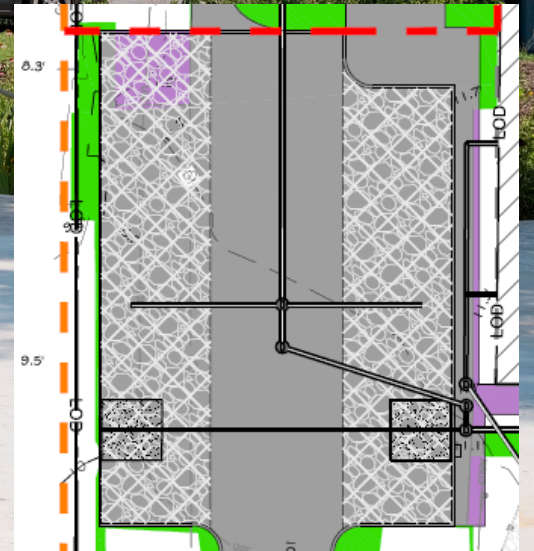
License No.: 21632 Expiration Date: 2-17-2024

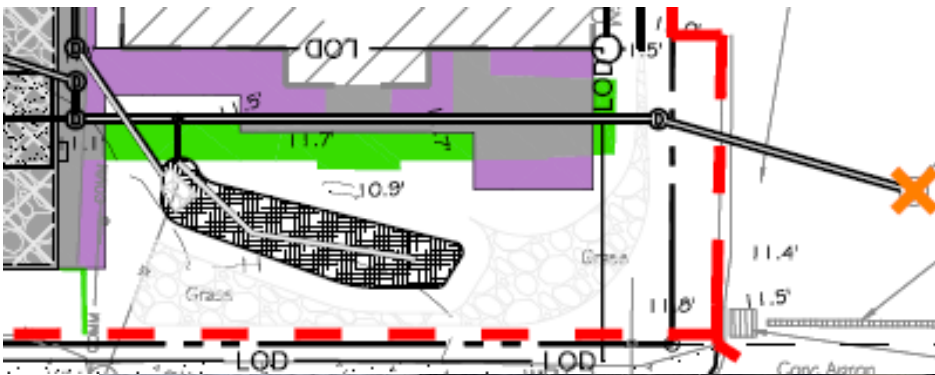
CB Trust HDQTRS EXAMPLE: A CASE STUDY

ECOSITE Redesign

- Based on in-situ*, & landscape-based approach
- *In-situ design guidance not available from MDE, City or County
- Works with & enhances existing soils
- Stormwater infiltration is major feature
- Minimizes existing soil excavation & disposal
- Does not require import of expensive bioretention soils or use of extensive underdrain piping
- Reduces cost by 50% or more
- Provides a more pleasing and aesthetic landscape
- Typically provides greater and more effective stormwater management due to infiltration component









**Chesapeake
Bay Trust**
Empowering people. Restoring nature.

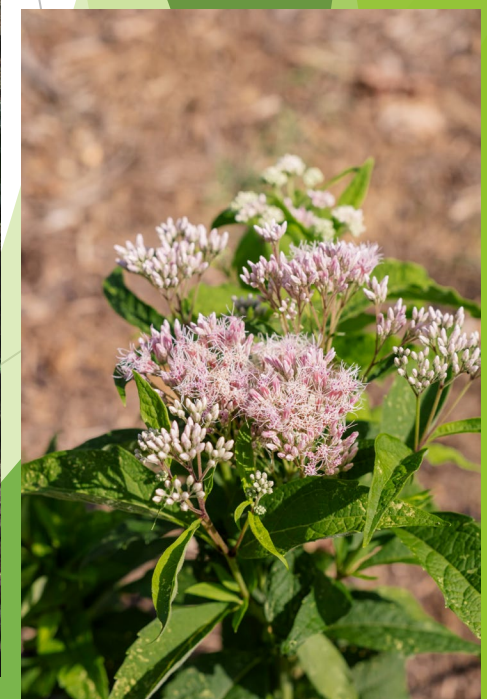
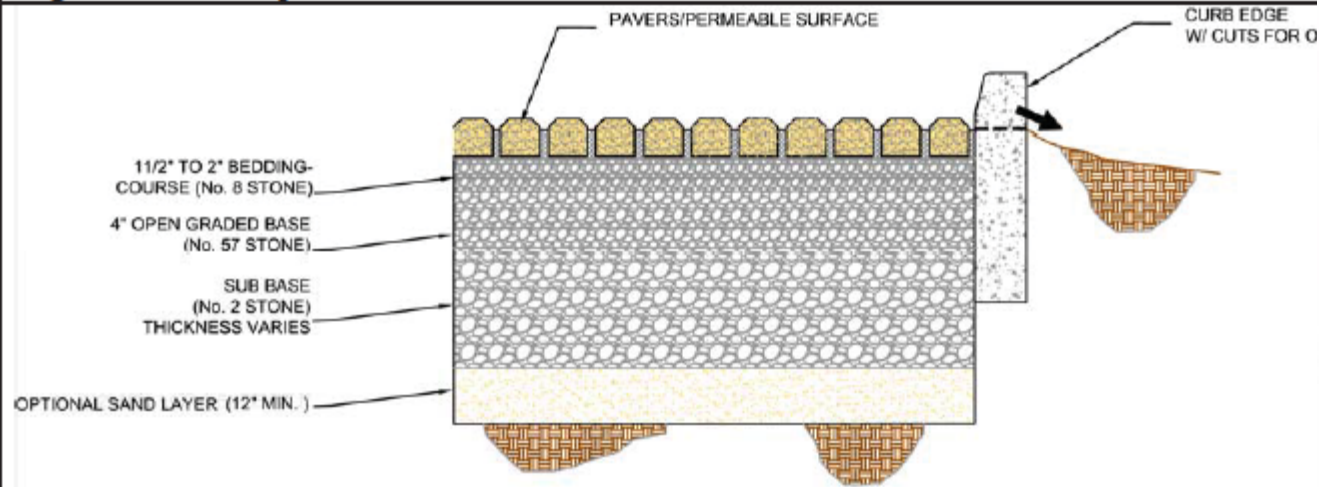
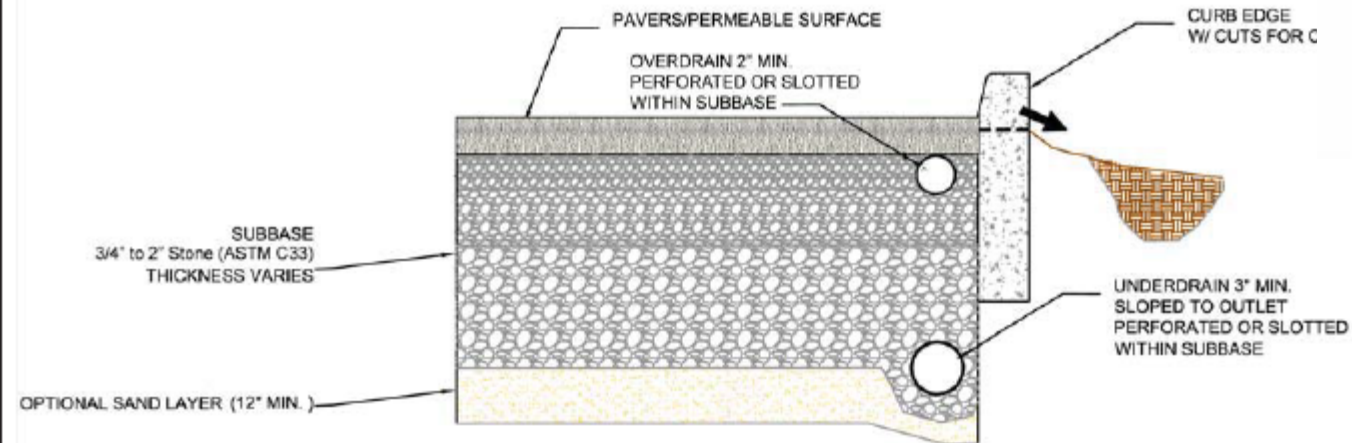




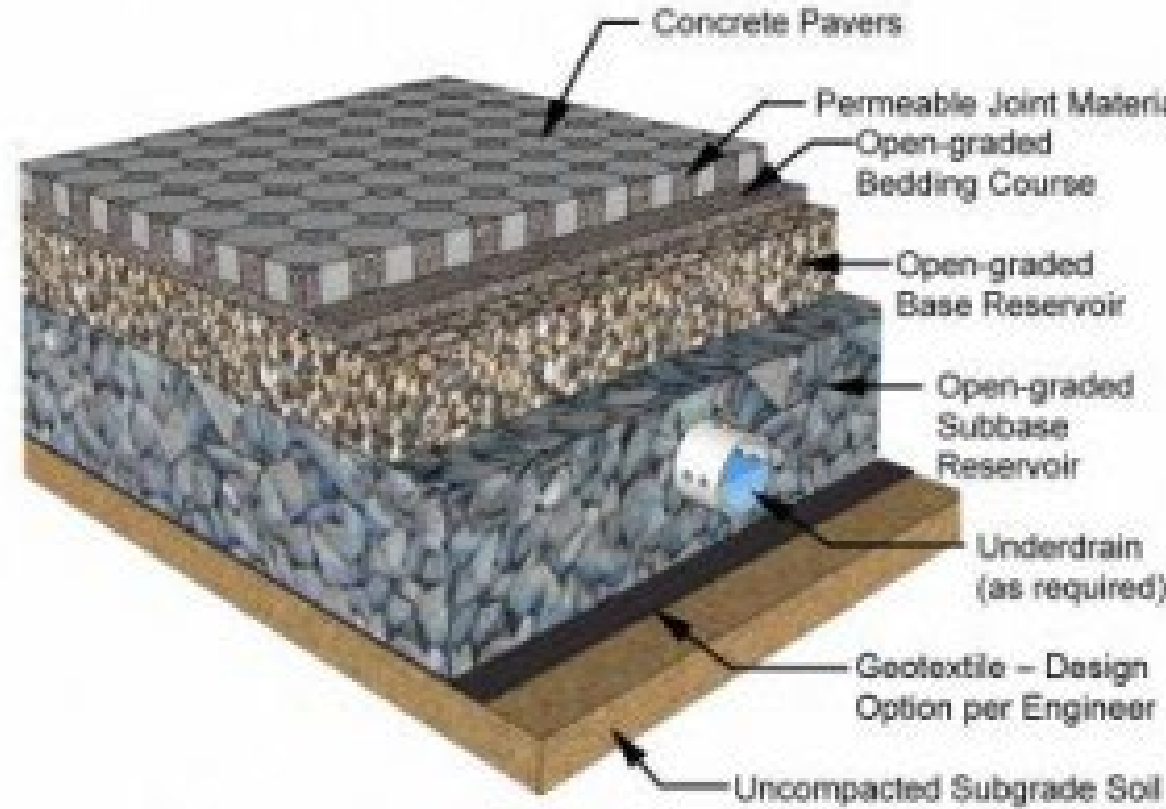
Figure 5.3 Examples of Permeable Pavements



Typical Secti



Typical Section w/Overdrain & Underdrain



CB Trust HDQTRS EXAMPLE: A CASE STUDY

Lessons Learned

- In-situ design allows us to do more at lower cost
- Given the benefits and advantages of this technology it would be advantageous to increase its use
- Currently, use of this technology is limited due to lack of design guidance at State (MDE) County and municipal levels.
- CB Trust is presenting an in-situ design workshop at end of month
- Additional research on performance of technology would be helpful
- More than 100 of these practices have been installed to date

Walking The Walk and Talking The Talk: The Chesapeake Bay Trust's Stormwater Example You Can Apply To Your Site

STEPPING INTO THE SHOES OF A
CONTRACTOR – ENVIRONMENTAL QUALITY
RESOURCES

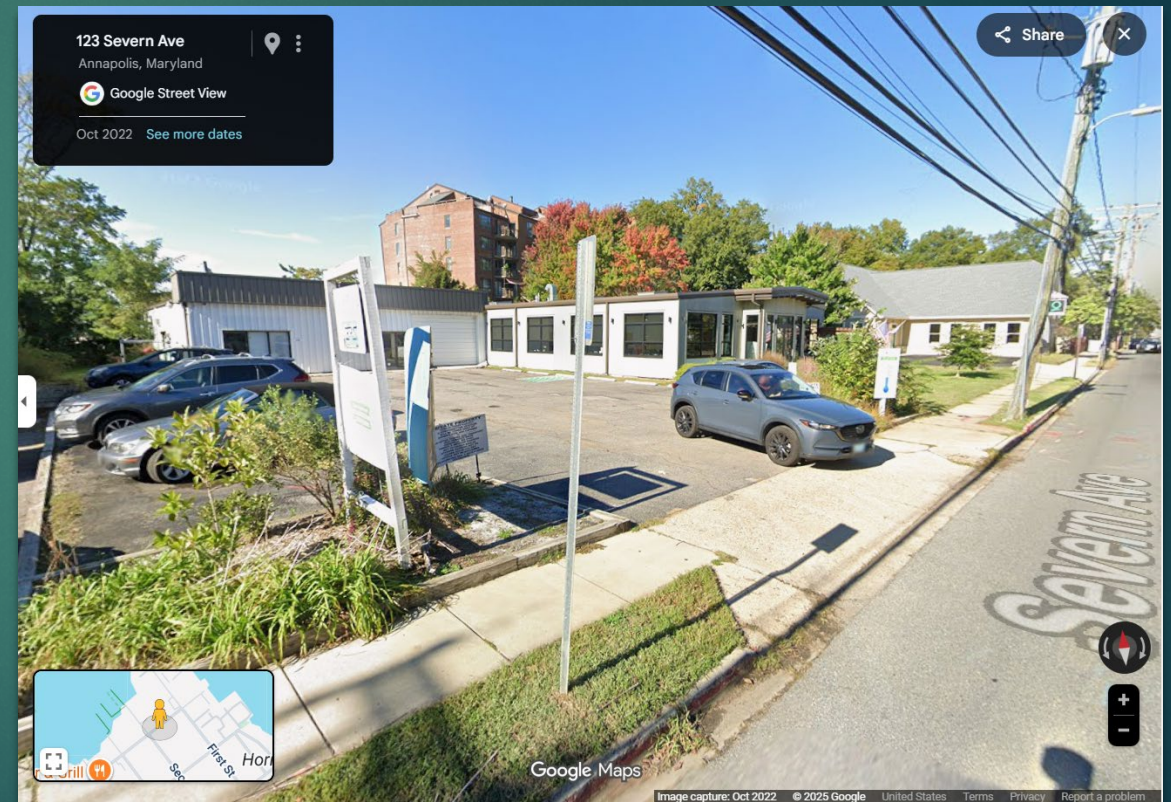


Small Site, Big Impact

- ▶ Initial site visit with CBT and prime contractor to determine the layout of available project space

Existing Conditions
Stockpile Location
E&S Plan Review

- ▶ Review drawing details to determine design conforming materials Example: Biochar
- ▶ Knowing material lead times
- ▶ Project schedule
- ▶ The Five P's



Erosion and Sediment Controls

- ▶ Developing E&S practices that work best with the site: Limiting track out
- ▶ Use of live-loading and Rolloff can services



Weather

- ▶ in situ construction susceptibility to weather
- ▶ Choosing the right working conditions (Proper Planning)
- ▶ Existing material becomes furnished material
- ▶ Success of filtration often determined by effort of mixing and scarifying of soils



Cost Saving



- ▶ In situ approach = lower excavation costs
- ▶ Minimizing material layers within bios/ raingardens = reduces waste
- ▶ Planting Plan: openness to substitutions
- ▶ When to subcontract portions of work out

Key Factors Determining Success

- ▶ Fully understanding site conditions and design expectations, there's a lot happening in a small space
- ▶ Choosing the right vendors for the job – punctual delivery times, great communication
- ▶ Knowing maintenance requirements (weeding, NNI, mulching, watering, planting replacements). These facilities only work effectively if properly maintained
- ▶ Constant communication with client on any changes
- ▶ Flexibility to shifts within project



Walking the Walk and Talking the Talk:

A Stormwater Example You Can Apply to Your Site

Presented by:

Suzy Cho, PLA

Senior Landscape Architect

Low Impact Development Center

October 15, 2025



ABOUT US

The Low Impact Development Center (LID Center) is a 501(c)(3) nonprofit that helps communities adopt innovative stormwater practices and sustainable infrastructure to protect public health and the environment.



PROJECT GOALS

Rain Garden Planting Design

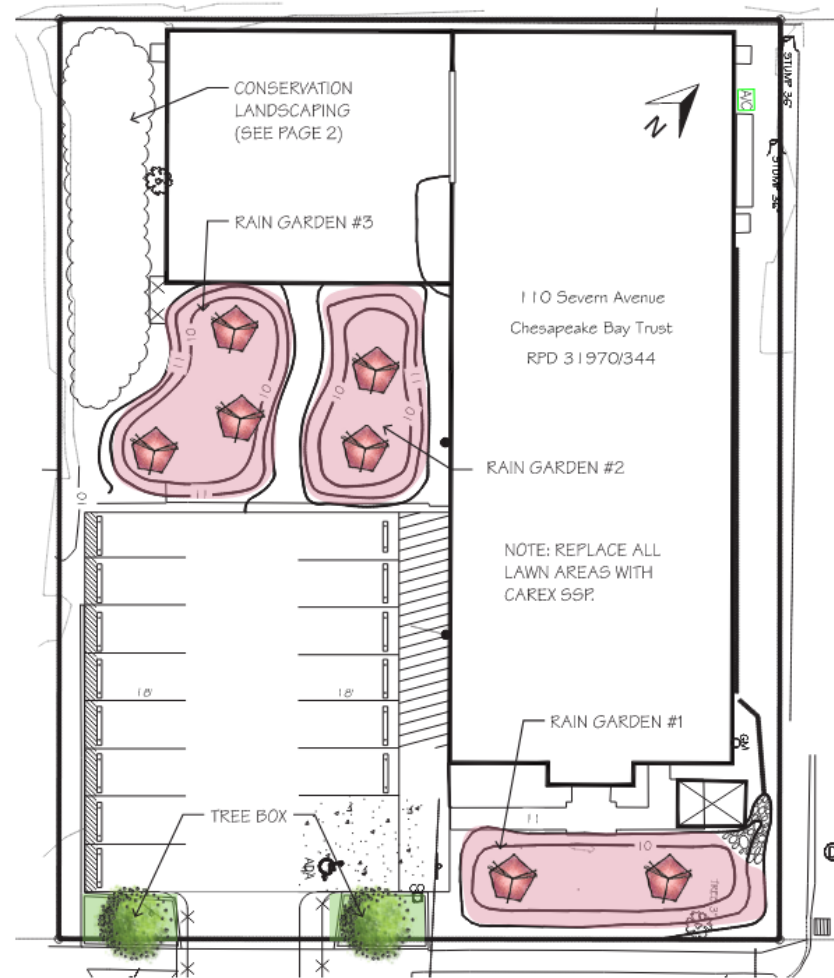
- Highlight native, pollinator-attracting species
- Provide seasonal interest all year around
- Preserve existing natives and increase species diversity



© Chesapeake Bay Trust

PLANT PALETTE

Native Pollinator Garden



LEGEND

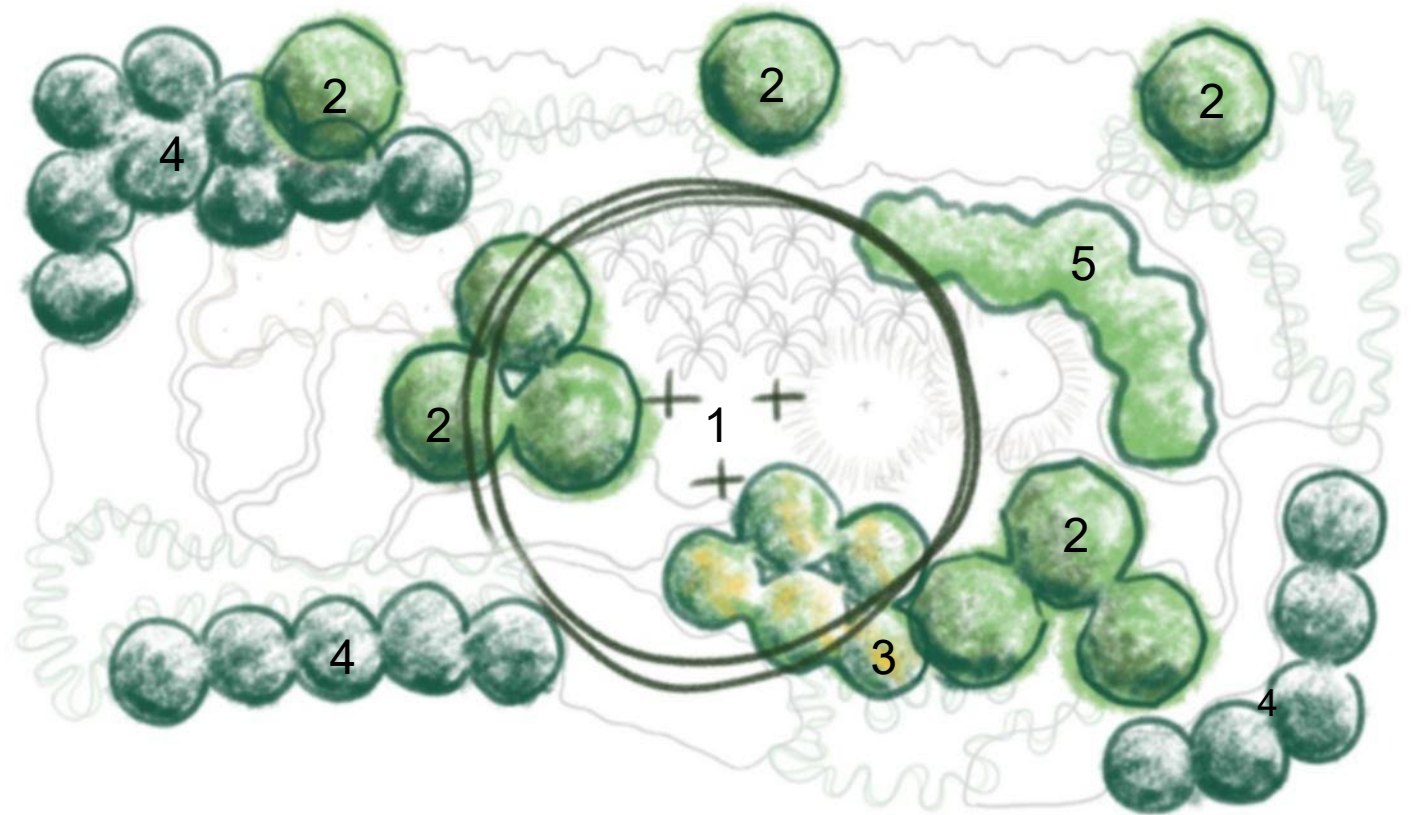
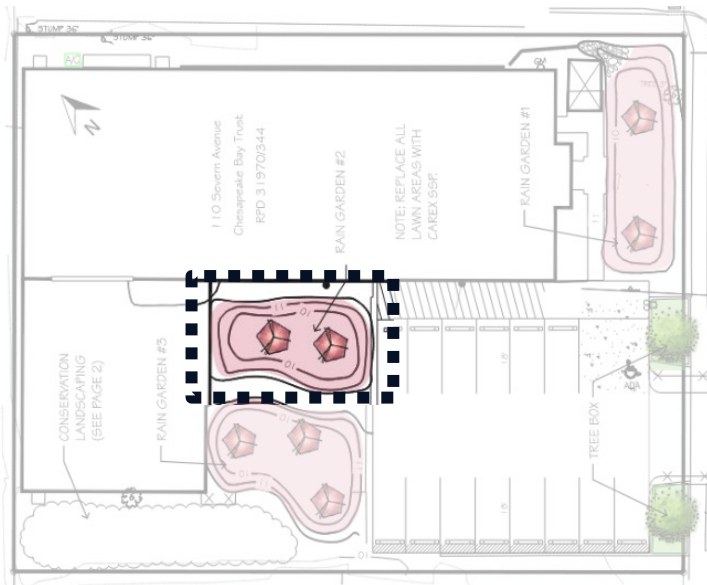
- AA ARONIA ARBUTIFOLIA
RED CHOKEBERRY
- ANA ASTER NOVAE-ANGLIAE
NEW YORK ASTER
- AO ASTER OBLONGIFOLIUS 'RAYDON'S FAVORITE'
AROMATIC ASTER
- AT ASCLEPIAS TUBEROSA
BUTTERFLYWEED
- CA CEANOTHUS AMERICANUS
NEW JERSEY TEA
- CAH CLETHRA ALNIFOLIA 'HUMMINGBIRD'
SUMMERSWEET
- EH EUPATORIUM HYSSOPIFOLIUM
HYSSOPEAF THOROUGHWORT
- EM EUPATORIUM MACULATUM
JOE PYE WEED
- EP ECHINACEA PURPUREA 'MAGNUS'
PURPLE CONEFLOWER
- MF MONARDA FISTULOSA
WILD BERGAMOT
- MV MAGNOLIA VIRGINIANA
SWEETBAY
- PV PANICUM VIRGATUM 'CLOUD NINE'
SWITCHGRASS
- RH RUDBECKIA HIRTA
BLACK EYED SUSAN
- SH SPOROBOLUS HETEROLEPIS
PRAIRIE DROPSEED
- SS SOLIDAGO SPECIOSA
SHOWY GOLDENROD

- BUTTERFLY/POLLINATOR RAIN GARDEN
 - CONSERVATION LANDSCAPING
 - 20' MULTI-STEM TREE
 - 10' SMALL TREE / LARGE SHRUB
 - POLLINATOR SPECIES
- Low Impact Development Center

STRUCTURAL LAYER

Rain Garden #2 - Tree & Shrub

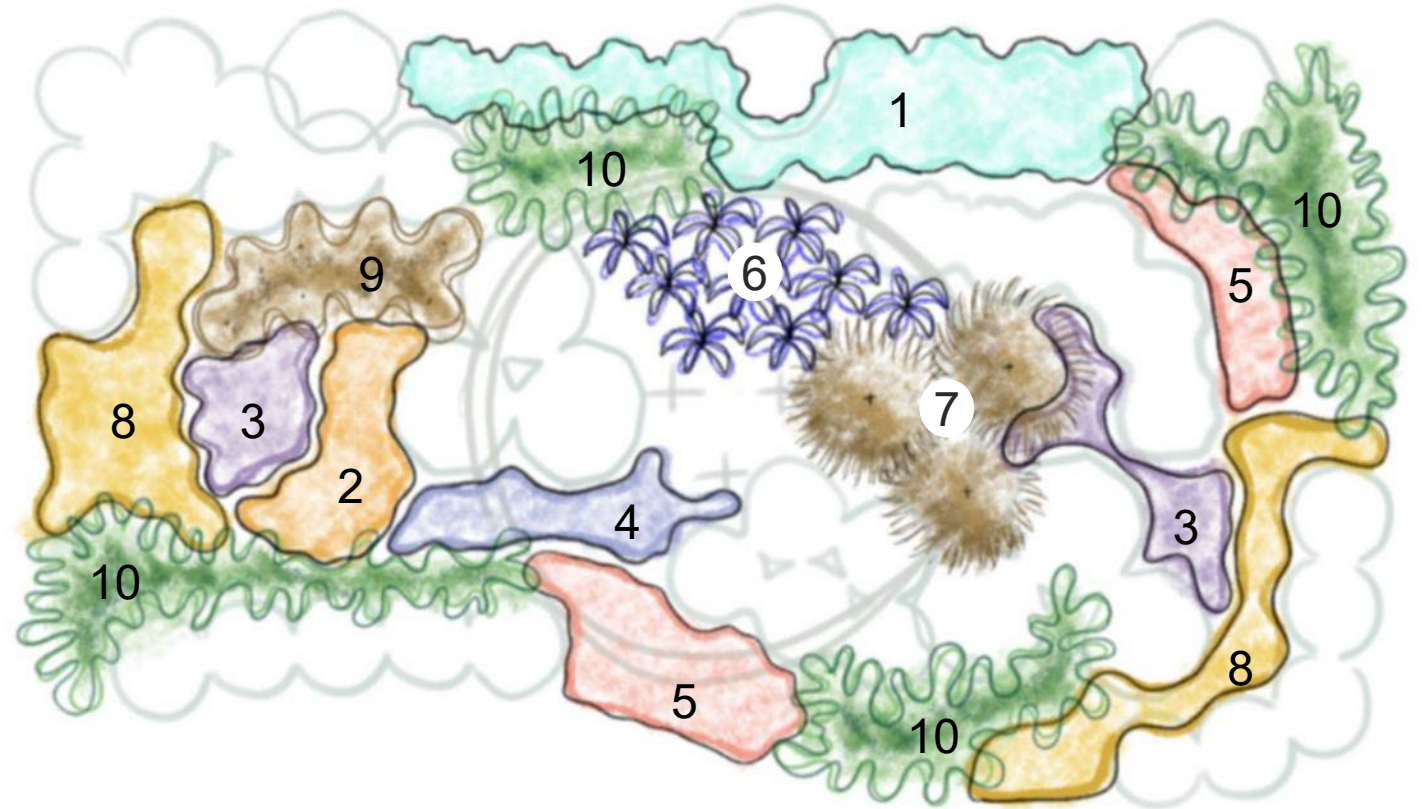
1. *Amelanchier canadensis* / Serviceberry
2. *Aronia arbutifolia* / Red Chokeberry
3. *Clethra alnifolia* / Sweet Pepperbush
4. *Ceanothus americanus* / New Jersey Tea
5. *Itea virginica* 'Little Henry' / Virginia Sweetspire



DYNAMIC LAYER

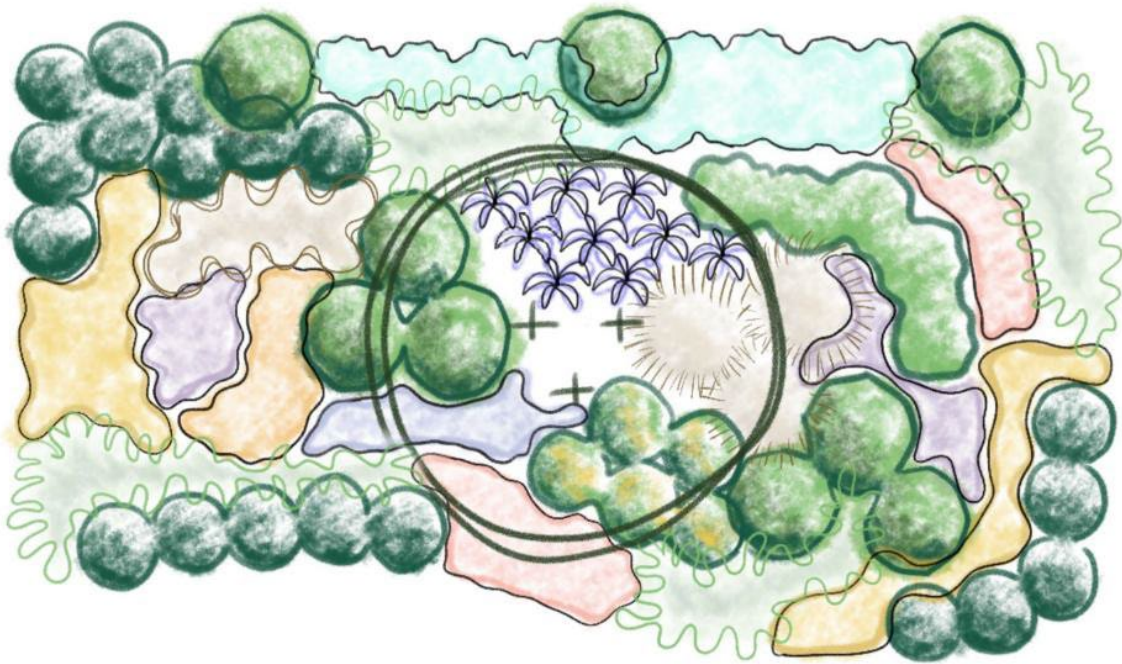
Rain Garden #2 - Herbaceous Perennial

1. *Amsonia hubrichtii* / Bluestar
2. *Asclepias tuberosa* / Butterfly Weed
3. *Eupatorium coelestinum* / Blue Mistflower
4. *Aster oblongifolius* 'Raydon's Favorite'
5. *Echinacea purpurea* 'Magnus' / Purple Coneflower
6. *Iris versicolor* / Northern Blueflag
7. *Panicum virgatum* / Switchgrass
8. *Rudbeckia fulgida* 'Goldsturm' / Black-eyed Susan
9. *Solidago speciosa* / Goldenrod
10. *Sporobolus heterolepis* / Prairie Dropseed



FINAL LAYOUT

Rain Garden #2



Final Design



Post Installation – May 2025

ESTABLISHMENT PROGRESS

Rain Garden #1



November 2024 – 1 month post installation



May 2025

COST EFFECTIVE STRATEGIES

Big impact, mindful budget

- Select hardy and reliable species
- Work with existing soil and match plants to microclimates
- Specify smaller container sizes
- Include rhizomatic species
- Source strategically and be open to substitutions

TAKEAWAY



- Design with flexibility in mind
- Choose appropriate native species
- Design in layers: structural, dynamic, filler plants
- Plan for adaptive management
- Some plant loss is normal
- Observe, learn, and adjust as needed



Looking Forward to
Growth Ahead





In-Situ Soil Solutions

Working with Nature for Better
Stormwater Management

OCTOBER 30, 2025 12 PM – 1 PM

Many bioretention designs replace native soils with engineered media and use underdrains to move water quickly, but this reduces the practice's ability to slow, cool, and clean runoff. This webinar will explore how working with existing soils and native plants can cut costs and improve stormwater management. Drawing on years of practical experience, we will hear from an expert how using "in-situ" soils without underdrains is often more cost-effective—requiring less excavation, hauling, and soil replacement—while also providing better treatment and reducing runoff volumes. Mike Clar, P.E. (Ecosite, LLC), a leading expert in this approach, will share insights and highlight the advantages of this innovative method over conventional practices.

You'll learn when this approach is feasible, the benefits it provides, and how to apply it in your next project.



Register
using this
QR code



REGISTER AT tinyurl.com/Stormwater-ManagementWebinar

Hosted by the Chesapeake Bay Trust
on Zoom





Questions for the panel?

- Raise hand
- Add to chat

