CleanScapes

RESIDENTIAL STORMWATER SOLUTIONS

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Session Agenda

- Stormwater Overview
- Program Overview
- Program Timeline & Process
- BMP Overview
- Site Visit Expectations
- Q&A

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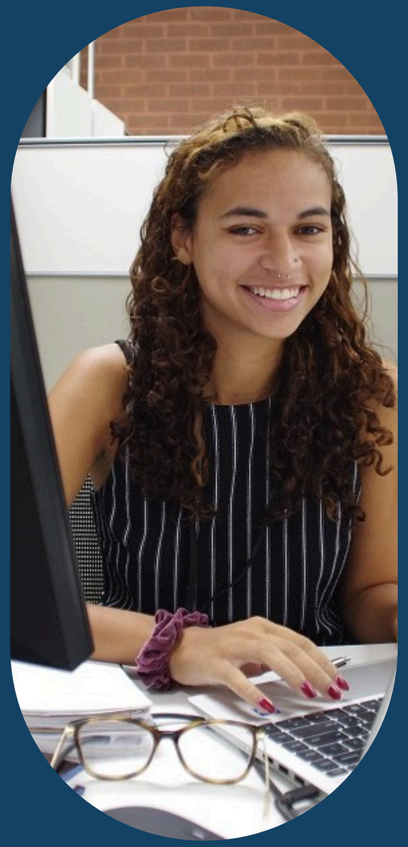
Meet the CleanWater Howard Team

Julie Costantino

CleanScapes Program Manager - OCS

Lindsay DeMarzo

Commercial Stormwater Programs Manager - OCS



Avery Farrell

Non-Profit/HOA Grant Program Manager - OCS

Radhika Wijetunge

Stormwater Engineer - DPW

Blythe Brewster (outgoing) / Chantal Desmarais (incoming)

Chesapeake Conservation Corps Intern - OCS

Stormwater 101

What *Is* Stormwater?

- Stormwater = Rain + melting snow
- It runs off rooftops, driveways, lawns, and streets

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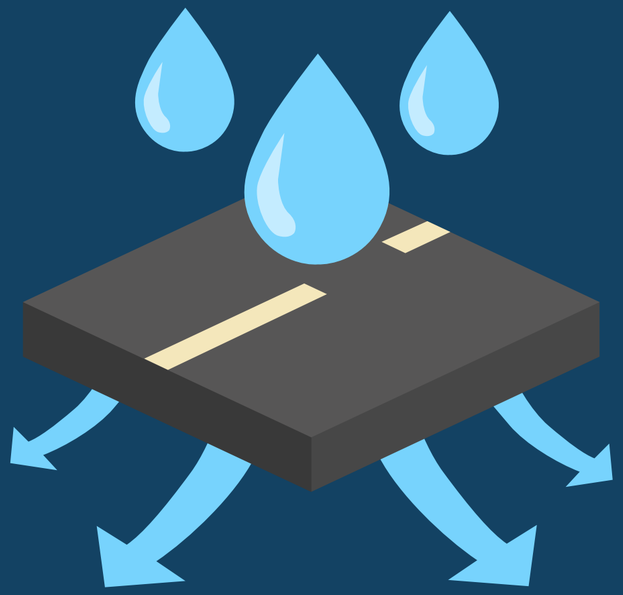
Stormwater 101



Pervious vs. Impervious Surfaces

- Pervious = absorbs water (forests, gardens
- Impervious = sheds water (roofs, streets, driveways, patios)

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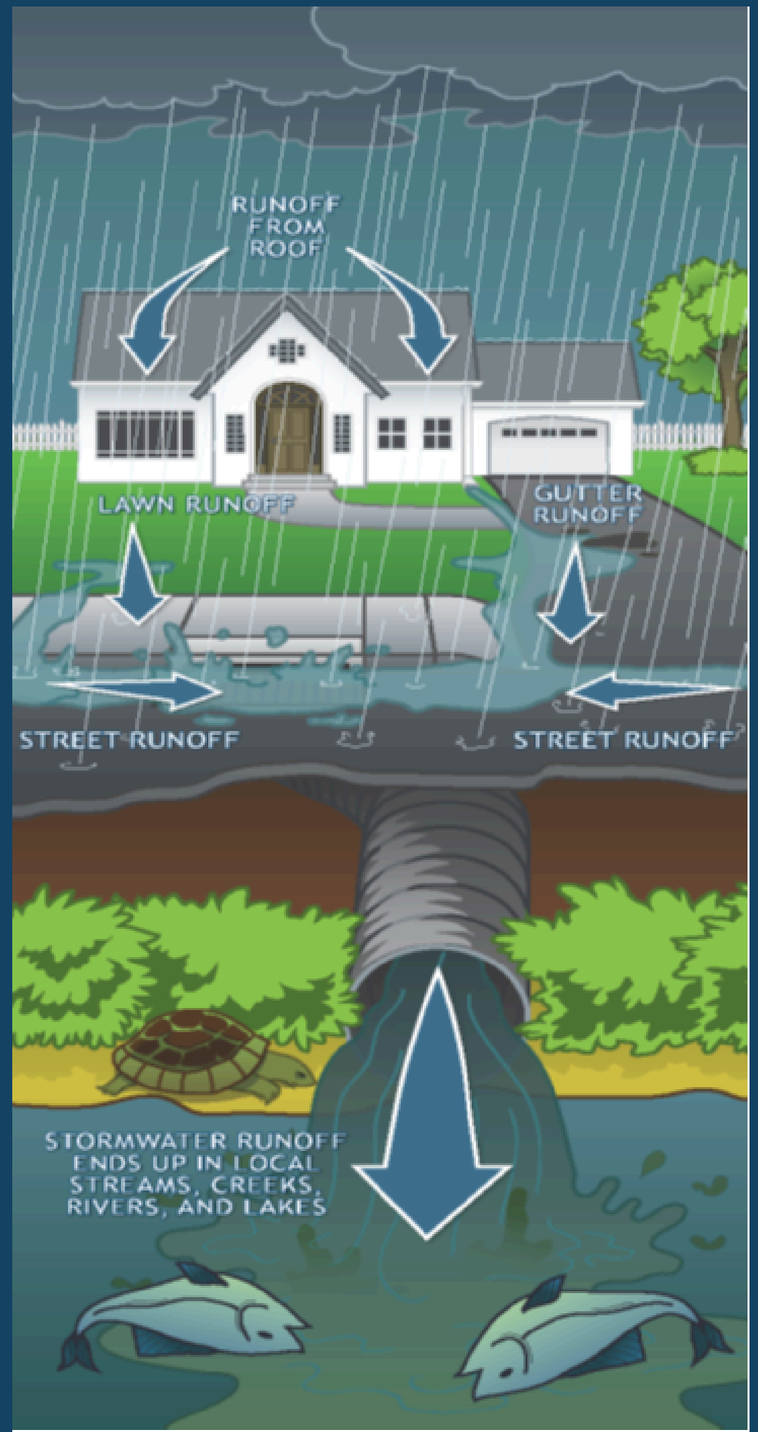
Stormwater 101 - Where does stormwater go?

- Runoff flows into storm drains
- then into streams and rivers
- eventually reaches the Chesapeake Bay



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Stormwater 101 - What's in stormwater runoff?

Stormwater runoff can carry

- oil from cars
- fertilizers and pesticides
- trash and litter
- pet waste
- sediment
- other pollutants

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Stormwater 101 - Why it matters

Unmanaged stormwater runoff can cause:

- Water pollution
- Erosion
- Flooding & property damage
- Habitat loss

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Stormwater Math - How much water are we talking about?

- 1 inch of rain on a 1,000 SF roof = 623 gallons of runoff
- That's 12 rain barrels worth of water!

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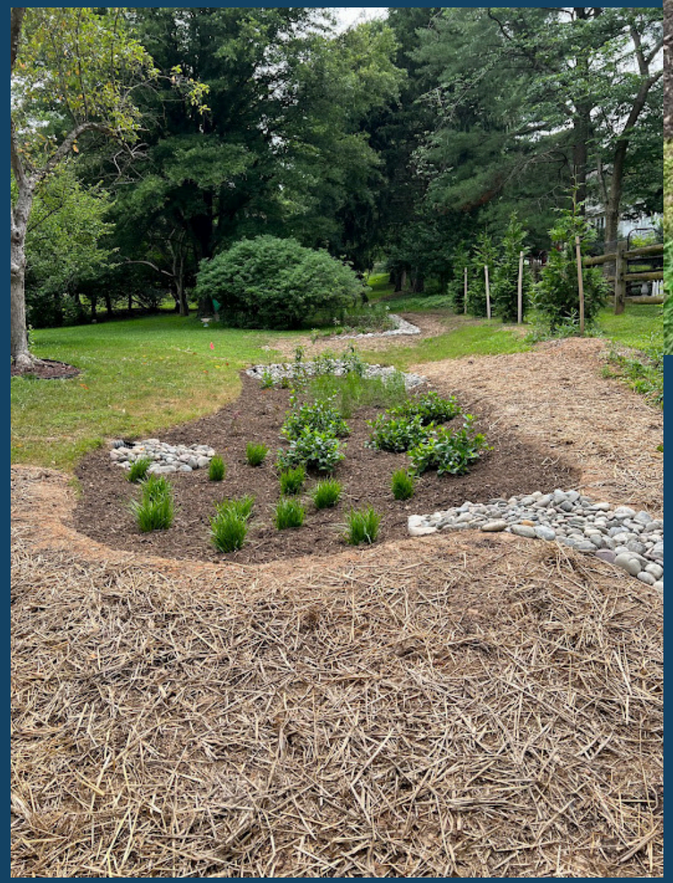
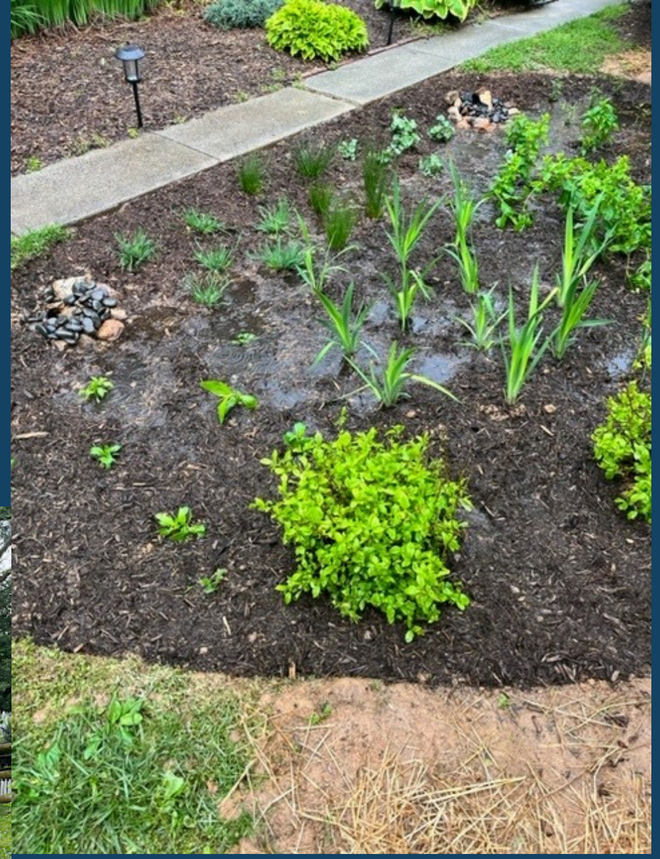
Where CleanScapes Comes In

CleanScapes helps homeowners:

- Capture runoff
- Slow it down
- Let it soak in naturally





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Understanding Stormwater on Your Property

Normal

- Standing water for 24-48 hours
- Water flowing between properties via swales

Keep an eye out for

- Standing water for over 48 hours
- Deep gullies
- Severe erosion
- Water intrusion

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DIY Tips that can Improve Conditions

- Check your downspouts
- Check your mowing habits
- Talk to your neighbors
- Observe stormwater flow
- Reduce lawn
    - Plant native plants

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CleanScapes Program Goals

- Help solve residential stormwater concerns
- Offer financial incentives to homeowners
- Treat impervious surfaces
- Provide County resources and support

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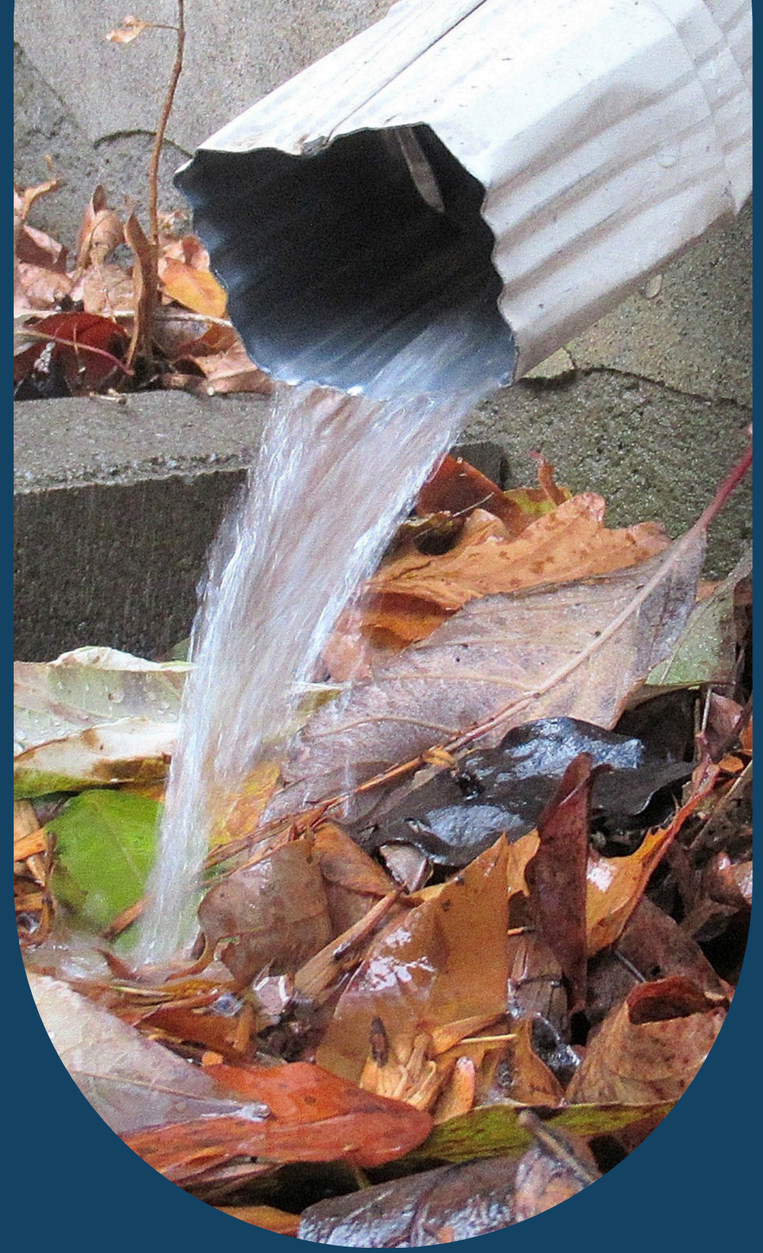
Background

- Started in 2014
- Tied to County's Stormwater Goals
- Changed over time



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Program Eligibility

- **Howard County Resident**
- **Home Built Before 2003**
- **Homeowner or working with owner**

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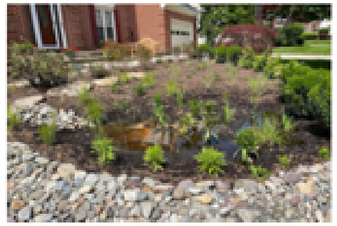
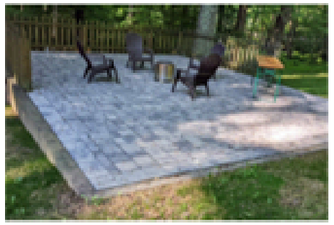
Eligible BMPs

Rain garden

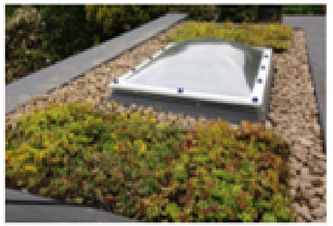


Conservation Landscaping

Permeable Pavers



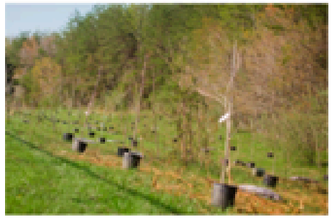
Green Roof



Pavement Removal

Dry Well

Tree Canopy Expansion



Rainwater Harvesting

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Financial Savings: Reimbursement

75% of the cost up to the maximum

BMP	Reimbursement cap*
Rain Garden	75% up to $5,000
Conservation Landscape	75% up to $3,000
Permeable Pavers	75% up to $5,000
Dry Well	75% up to $2,000
Tree Canopy Expansion	75% up to $1,000
Green Roof	75% up to $7,000
Rainwater Harvesting	75% up to $750
Impervious Surface Removal	75% up to $750

* **Residents demonstrating a hardship may qualify for a 100% reimbursement**

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Reimbursement vs. Credit

Reimbursement - one time payment

Credit - annual reduction in your Watershed Protection Fee

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Financial Savings: Watershed Protection Fee Credit

Determined by your lot size

Lot Size	Annual Fee
TH or Condo	$40
Up to .25 acre	$115
Over .25 acre	$225

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Examples

Reimbursement

- Rain Garden 1
  - Cost - $3,000
  - Eligible for 75% of cost - $2,250
- Rain Garden 2
  - Cost - $7,000
  - Eligible for max - $5,000

Credit

- Rain Garden treats 500 SF of impervious
  - Total impervious on property: 1,000 SF
  - Rain garden treats 30% of property impervious
  - Current Fee - $115
  - New Fee - $80.50

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2024 Highlights

$204k
Awarded in reimbursements

67
Projects Installed

34k
SF of impervious surfaces treated

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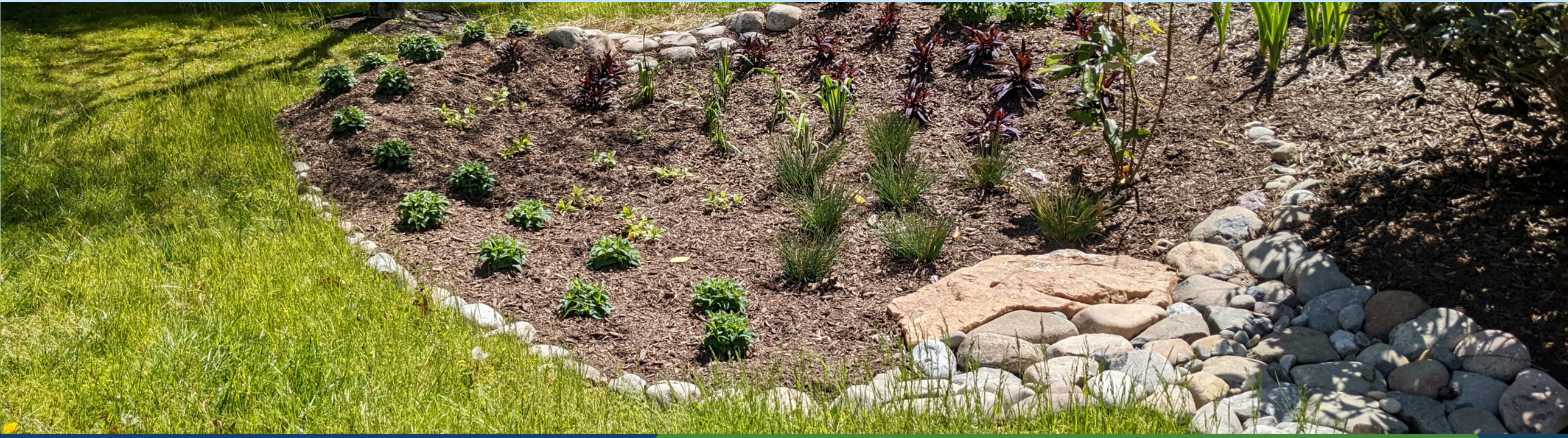

2024 BMPs

Project Break Down

29	Conservation Landscapes
19	Rain Gardens
10	Permeable Pavers
7	Pavement Removals
2	Dry Wells

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Program Process

1 **Site Visit Requests**

April 1st each year -
** form to fill out*

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August 1st -
September 13

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Submit by November 30th -
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December 1st -
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Through June 15th

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April 1st - June 30th-
** form to fill out*

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What to expect during your Site Visit

- 20-25 mins on site
- Walk the property together
- Receive a complete report before I leave
- Discuss drainage issues and your goals
- Observe site conditions (slope, sun, soil, etc)

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What I'll be looking for

- Where stormwater is flowing
- Sign of erosion or soggy spots
- Available space for plantings or other BMPs
- How your downspouts are set up
- Opportunities for slowing water down

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What You Don't Need to Worry About

- No need to have a design ready
- Not an inspection
- You don't have to be a plant expert
- Won't be locked into a specific project

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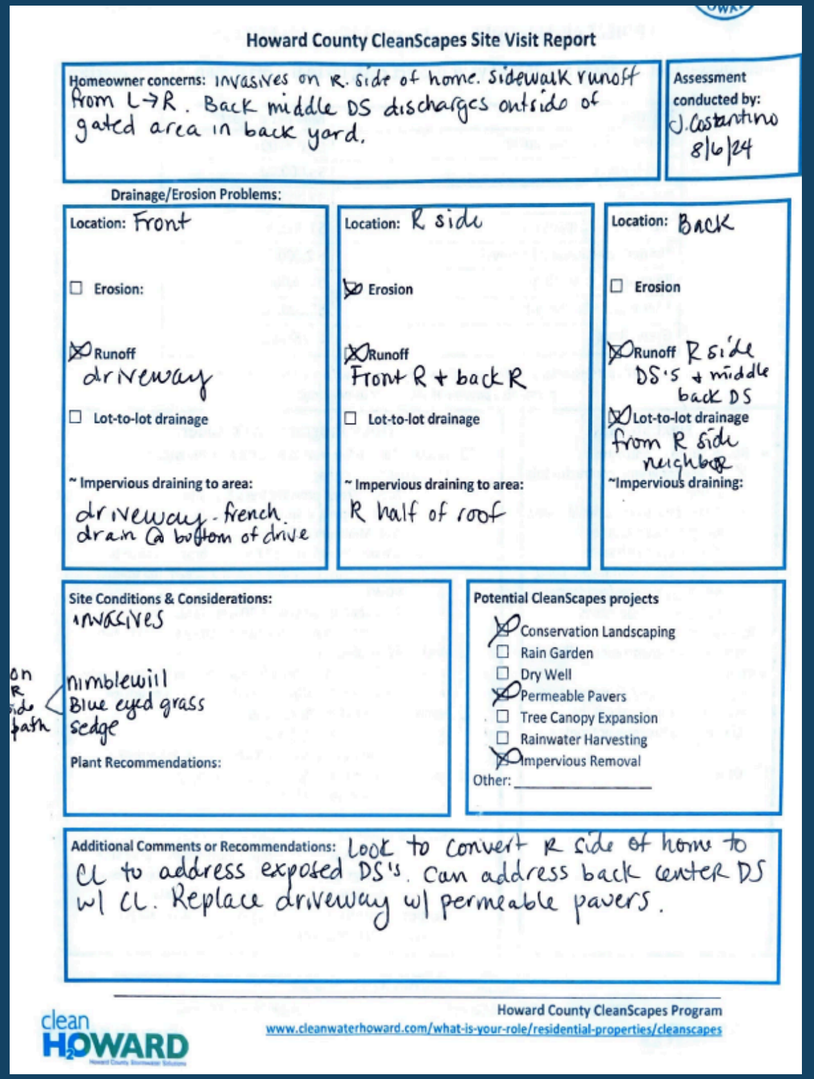
What is the Site Visit Report?

- Completed by hand during your site visit
- Summarizes observations, site conditions, and project opportunities
- You receive it on the spot to use in planning your project with your contractor



Howard County CleanScapes Site Visit Report

Homeowner concerns: Invasives on R. side of home. Sidewalk runoff from L→R. Back middle DS discharges outside of gated area in back yard.

Assessment conducted by: J. Costantino 8/6/24

Drainage/Erosion Problems:

Location: Front
- ☐ Erosion:
- ☒ Runoff driveway
- ☐ Lot-to-lot drainage
- ~ Impervious draining to area: driveway - french drain @ bottom of drive

Location: R side
- ☒ Erosion
- ☒ Runoff Front R + back R
- ☐ Lot-to-lot drainage
- ~ Impervious draining to area: R half of roof

Location: Back
- ☐ Erosion
- ☒ Runoff R side DS's + middle back DS
- ☒ Lot-to-lot drainage from R side neighbor
- ~Impervious draining:

Site Conditions & Considerations: invasives

on R side path: nimblewill, Blue eyed grass, sedge

Plant Recommendations:

Potential CleanScapes projects
- ☒ Conservation Landscaping
- ☐ Rain Garden
- ☐ Dry Well
- ☒ Permeable Pavers
- ☐ Tree Canopy Expansion
- ☐ Rainwater Harvesting
- ☒ Impervious Removal

Other: _____

Additional Comments or Recommendations: Look to convert R side of home to CL to address exposed DS's. Can address back center DS w/ CL. Replace driveway w/ permeable pavers.

Howard County CleanScapes Program
www.cleanwaterhoward.com/what-is-your-role/residential-properties/cleanscapes

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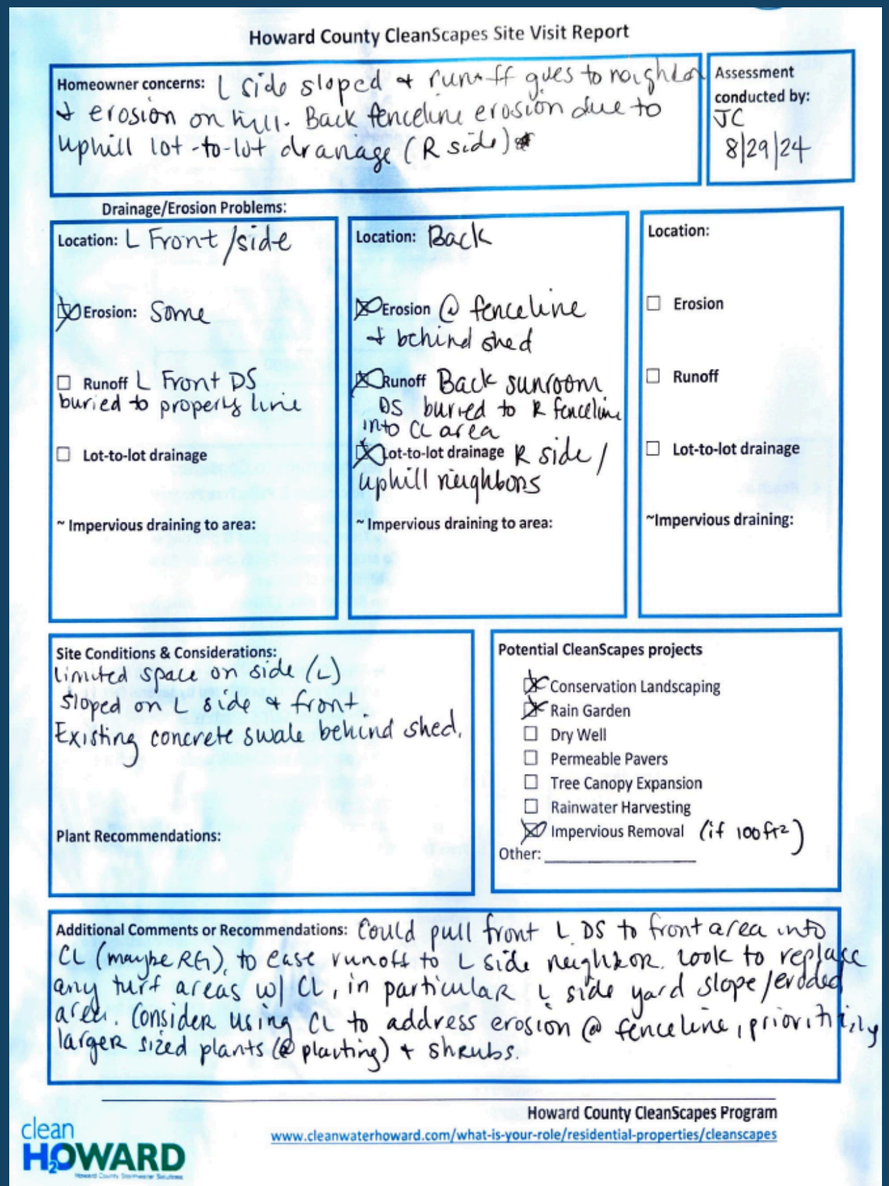
What does the Report Include?

- Drainage & erosion issues observed
- Homeowner concerns
- Site conditions: slope, sun, soils, impervious areas
- Recommended CleanScapes project types
- Suggested native plants (optional)
- Program limits & next steps



Howard County CleanScapes Site Visit Report

Homeowner concerns: L side sloped + runoff goes to neighbor + erosion on hill. Back fenceline erosion due to uphill lot-to-lot drainage (R side)

Assessment conducted by: JC 8/29/24

Drainage/Erosion Problems:

Location: L Front/side
- [x] Erosion: Some
- [ ] Runoff L Front DS buried to property line
- [ ] Lot-to-lot drainage
- ~ Impervious draining to area:

Location: Back
- [x] Erosion @ fenceline + behind shed
- [x] Runoff Back sunroom DS buried to R fenceline into CL area
- [x] Lot-to-lot drainage R side / uphill neighbors
- ~ Impervious draining to area:

Location:
- [ ] Erosion
- [ ] Runoff
- [ ] Lot-to-lot drainage
- ~Impervious draining:

Site Conditions & Considerations: limited space on side (L) sloped on L side + front. Existing concrete swale behind shed.

Plant Recommendations:

Potential CleanScapes projects
- [x] Conservation Landscaping
- [x] Rain Garden
- [ ] Dry Well
- [ ] Permeable Pavers
- [ ] Tree Canopy Expansion
- [ ] Rainwater Harvesting
- [x] Impervious Removal (if 100ft²)

Other: _____

Additional Comments or Recommendations: Could pull front L DS to front area into CL (maybe RG), to ease runoff to L side neighbor. Look to replace any turf areas w/ CL, in particular L side yard slope/eroded area. Consider using CL to address erosion @ fenceline, prioritizing larger sized plants (@ planting) + shrubs.

Howard County CleanScapes Program
www.cleanwaterhoward.com/what-is-your-role/residential-properties/cleanscapes

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What CleanScapes Can't Address

✓ Can

- Recommend small-scale, site appropriate stormwater practices
- Help you manage runoff from your roof, patio, or driveway
- Suggesting native plants and project ideas eligible for rebate

✗ Can't

- Fix drainage coming onto your property from the street or neighbor
- Engineer a major grading or drainage overhaul
- Address major flooding, infrastructure or property-wide drainage systmes

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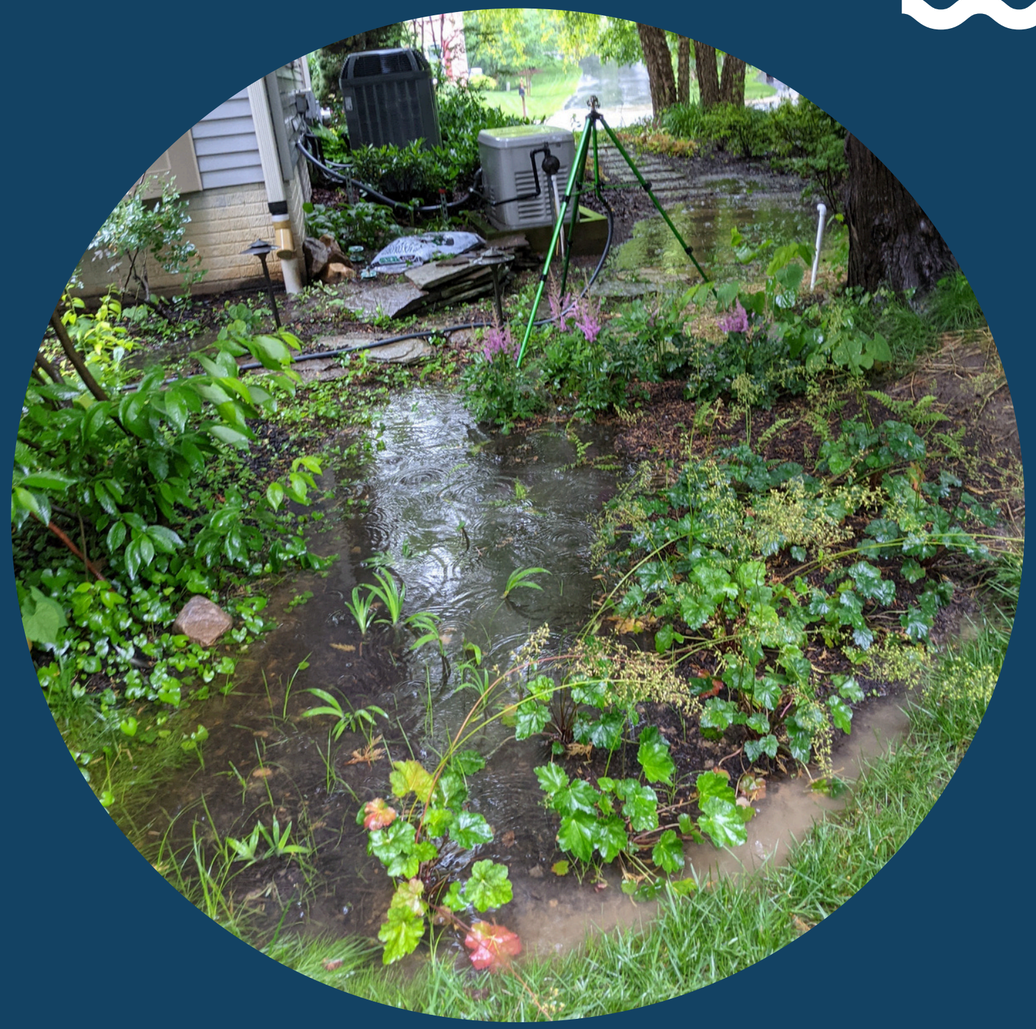
Project Application



Ready to Move Forward?
Here's What Happens Next

- Reach out to contractors after your site visit
- Get a design + cost estimate for your project
- Submit your application by November 30th
- Wait for approval before beginning installation

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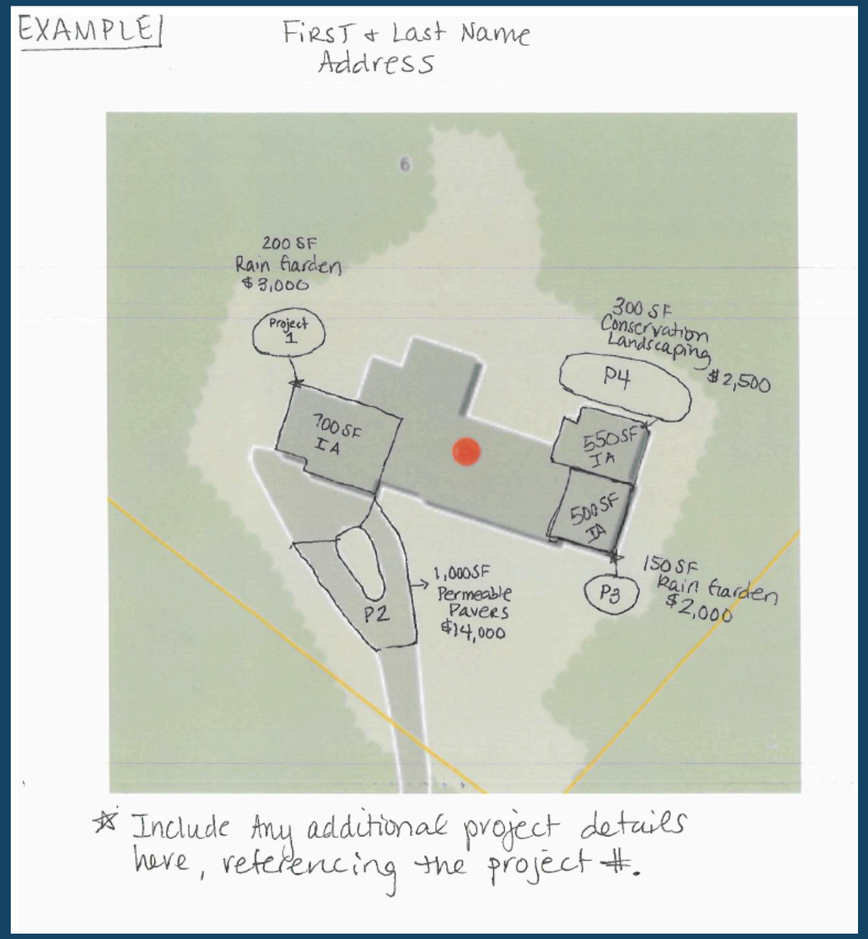
Project Application



What we're looking for:

- Project type
- Project cost
- Project size
- Visual of project location
- Impervious treatment
- Ponding for CL

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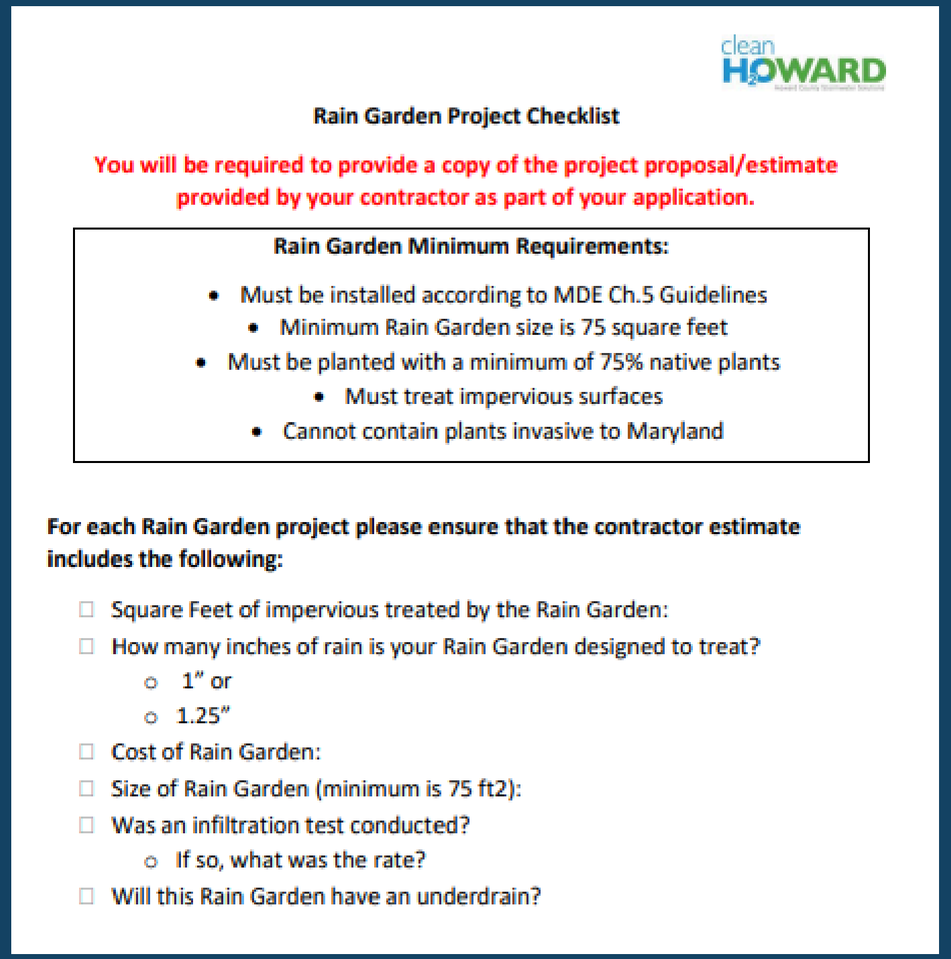
Project Application

Double check before you submit:

- Use the appropriate project detail sheet that matches your project

❌ Common Mistakes to Avoid

- Missing details on project size or location
- Incomplete estimates from contractors
- Submitting after the deadline
- Installing before getting approval!



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Rain Garden Project Checklist

You will be required to provide a copy of the project proposal/estimate provided by your contractor as part of your application.

Rain Garden Minimum Requirements:

- Must be installed according to MDE Ch.5 Guidelines
- Minimum Rain Garden size is 75 square feet
- Must be planted with a minimum of 75% native plants
- Must treat impervious surfaces
- Cannot contain plants invasive to Maryland

For each Rain Garden project please ensure that the contractor estimate includes the following:

- ☐ Square Feet of impervious treated by the Rain Garden:
- ☐ How many inches of rain is your Rain Garden designed to treat?
  - 1" or
  - 1.25"
- ☐ Cost of Rain Garden:
- ☐ Size of Rain Garden (minimum is 75 ft2):
- ☐ Was an infiltration test conducted?
  - If so, what was the rate?
- ☐ Will this Rain Garden have an underdrain?

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Your Go-To Resource

CleanScapes Webpage

https://www.cleanwaterhoward.com/what-is-your-role/residential-properties/cleanscapes

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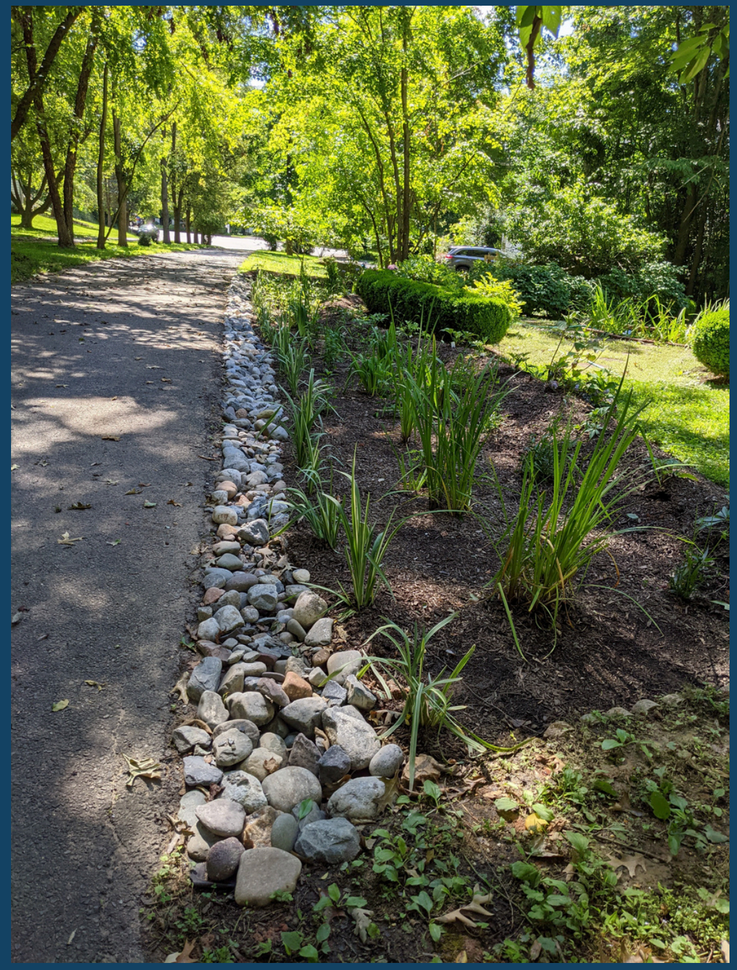
BMP Overview

- Learn about each eligible CleanScapes BMP
- What they do
- Where they are suitable
- Minimum requirements



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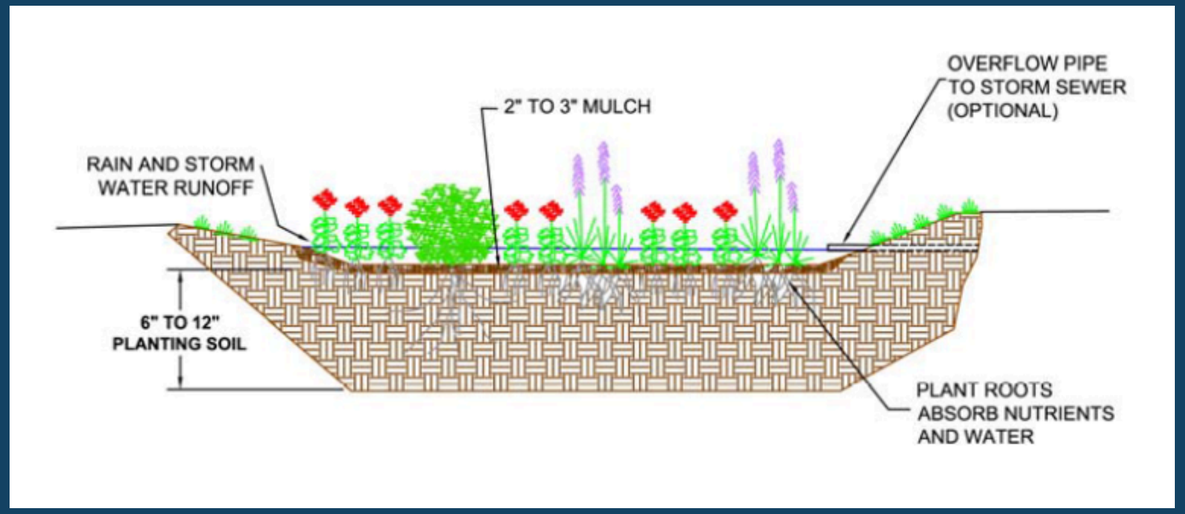
Rain Gardens



What are they?

- Shallow depression that captures stormwater allowing it to collect and pool.
- Designed to treat runoff from small areas, such as individual rooftops, driveways
- Planted with a mix of native plants

What do they do?

- Slow the flow of runoff, recharges groundwater
- Help prevent erosion

Where are they suitable?

- Relatively flat areas
- At least 10' away from foundation
- Away from tree canopy

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Rain Garden Requirements

Minimum size 75 SF	Treats Impervious Surfaces
75% Native Plants Used	Sized appropriately

Conservation Landscaping

What is it?

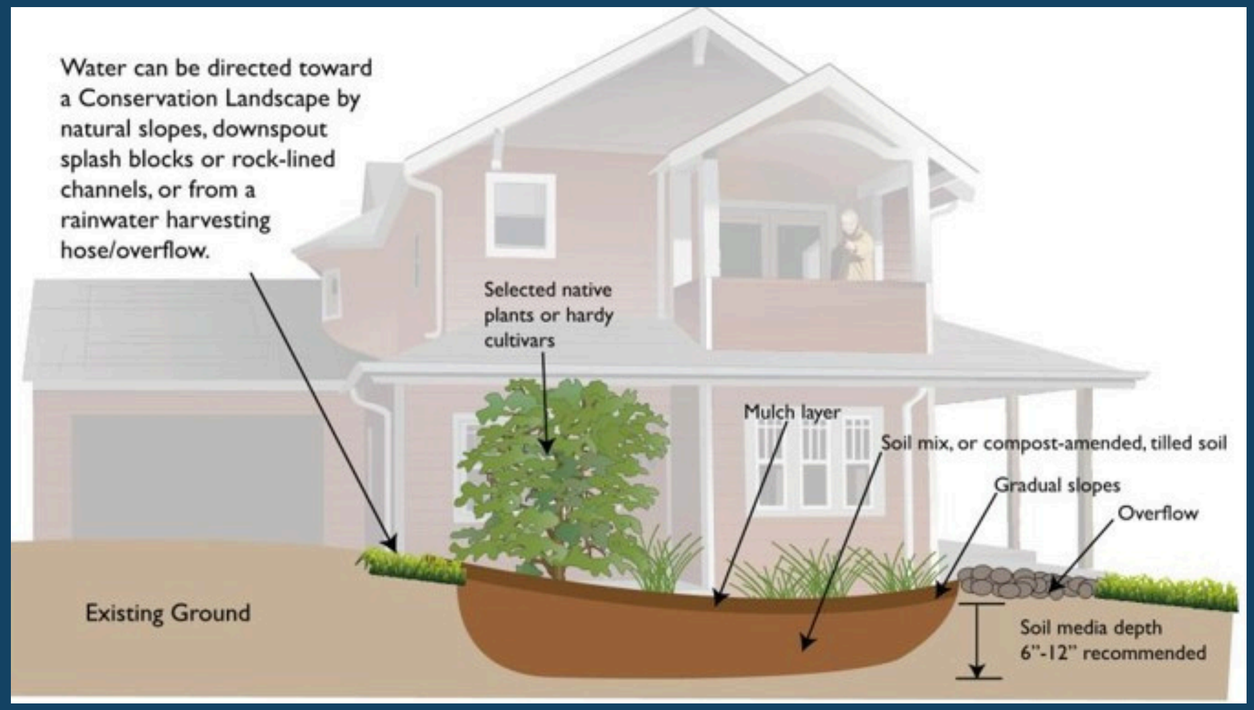
- Areas of managed turf where soil is decompacted and converted into perennial plantings using species native to the Chesapeake Bay region
- Can treat runoff from small areas, such as individual rooftops, driveways

What does it do?

- Slow the flow of runoff, recharges groundwater
- Stabilizes soil and helps prevent erosion

Where is it suitable?

- Flat and sloped areas
- At least 5' away from foundation
- Areas with more tree canopy



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Conservation Landscaping Requirements

Minimum size 150 SF	Ponding & treats impervious surfaces for WPF Credit
75% Native Plants Used	Sized appropriately

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Rainwater Harvesting

What is it?

- Capture and reuse of rainwater in a barrel or cistern.
- Stored water can be used for outdoor landscaping irrigation

What does it do?

- Promotes conservation of resources
- Reduces runoff volumes & discharge of pollutants downstream

Where is it suitable?

- Areas with minimum yard space
- Connected to another BMP like Rain Gardens or Conservation Landscaping
- Areas with more tree canopy or underground utilities

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Rainwater Harvesting Requirements

Minimum storage: 250 gallons SFH; 100 gallons TH	Treats Impervious Surfaces from roof tops

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Permeable Pavers

What are they?

- Typically consists of a porous surface course and open graded stone base/subbase or sand drainage system

How do they work?

- Stormwater drains through the paver joints, is captured in the drainage system, and infiltrates into the surrounding soils

Where are they suitable?

- Relatively flat areas
- At least 10' away from foundation
- Areas with sandy/silty soils

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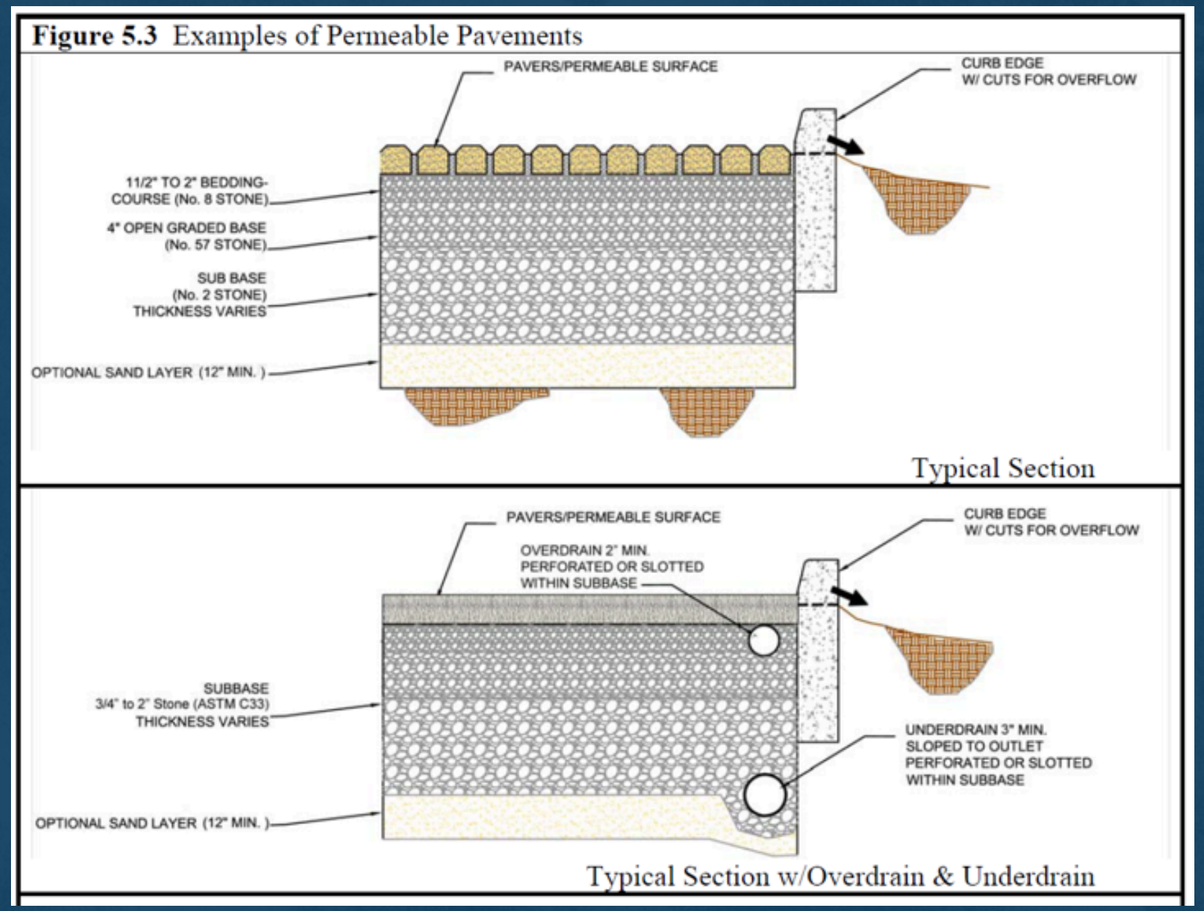
Permeable Paver Requirements

Minimum size 100 SF	Treats Impervious Surfaces
ICPI certified installer	Sized appropriately



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Pavement Removal

What is it?

- Removal of impervious surfaces
- roto-tilling of the underlying soils to relieve compaction, return to vegetated state or permeable pavers

What does it do?

- Increases area where stormwater can infiltrate into surrounding soils
- Help prevent erosion

When is it suitable?

- Getting rid of excess impervious

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Pavement Removal Requirements

Minimum area removed 100 SF	Returned to vegetated state or permeable pavers

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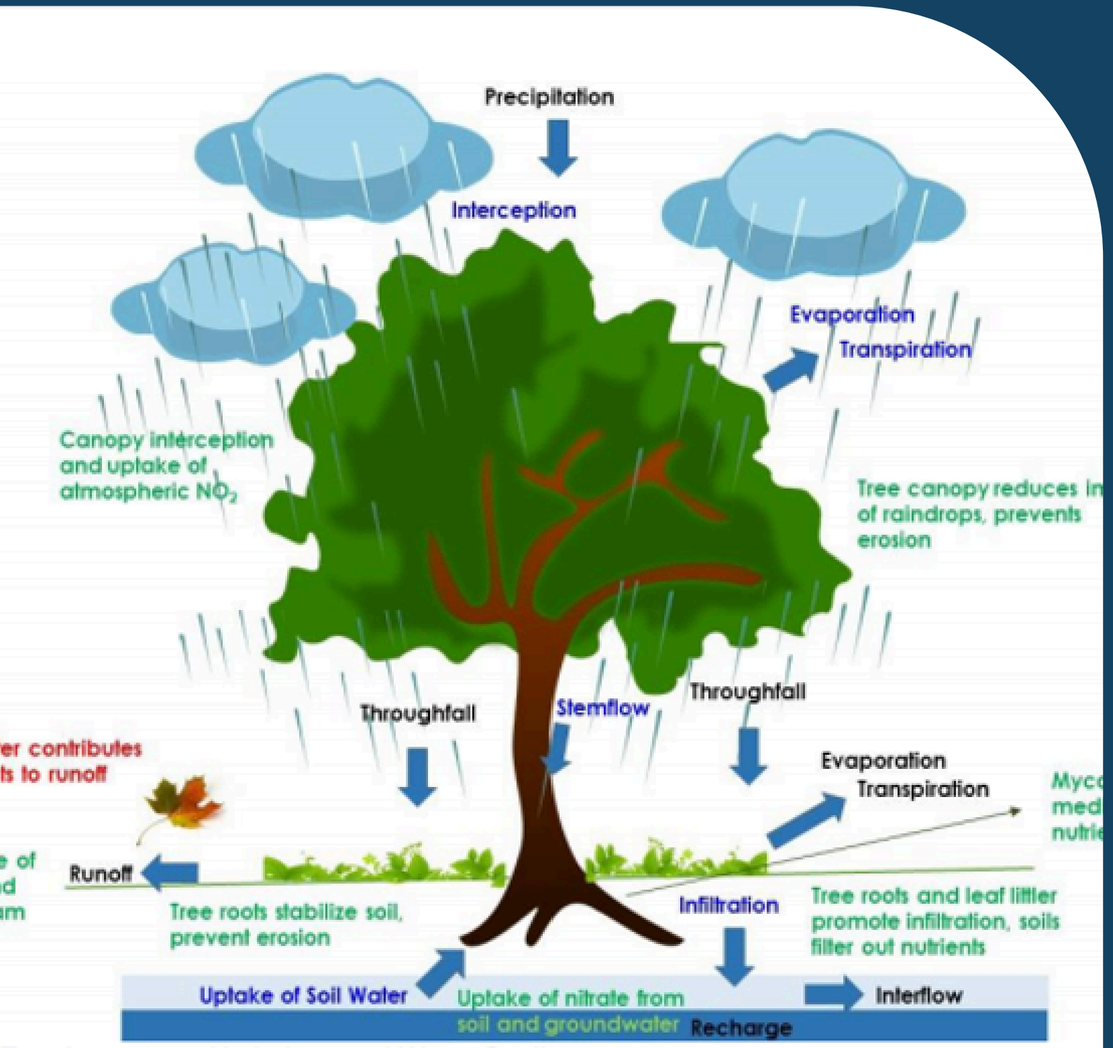
Tree Canopy Expansion



Tree Impacts on Hydrology and Water Quality

What is it?

- Tree plantings that intercept impervious runoff using native tree species

What is it good for?

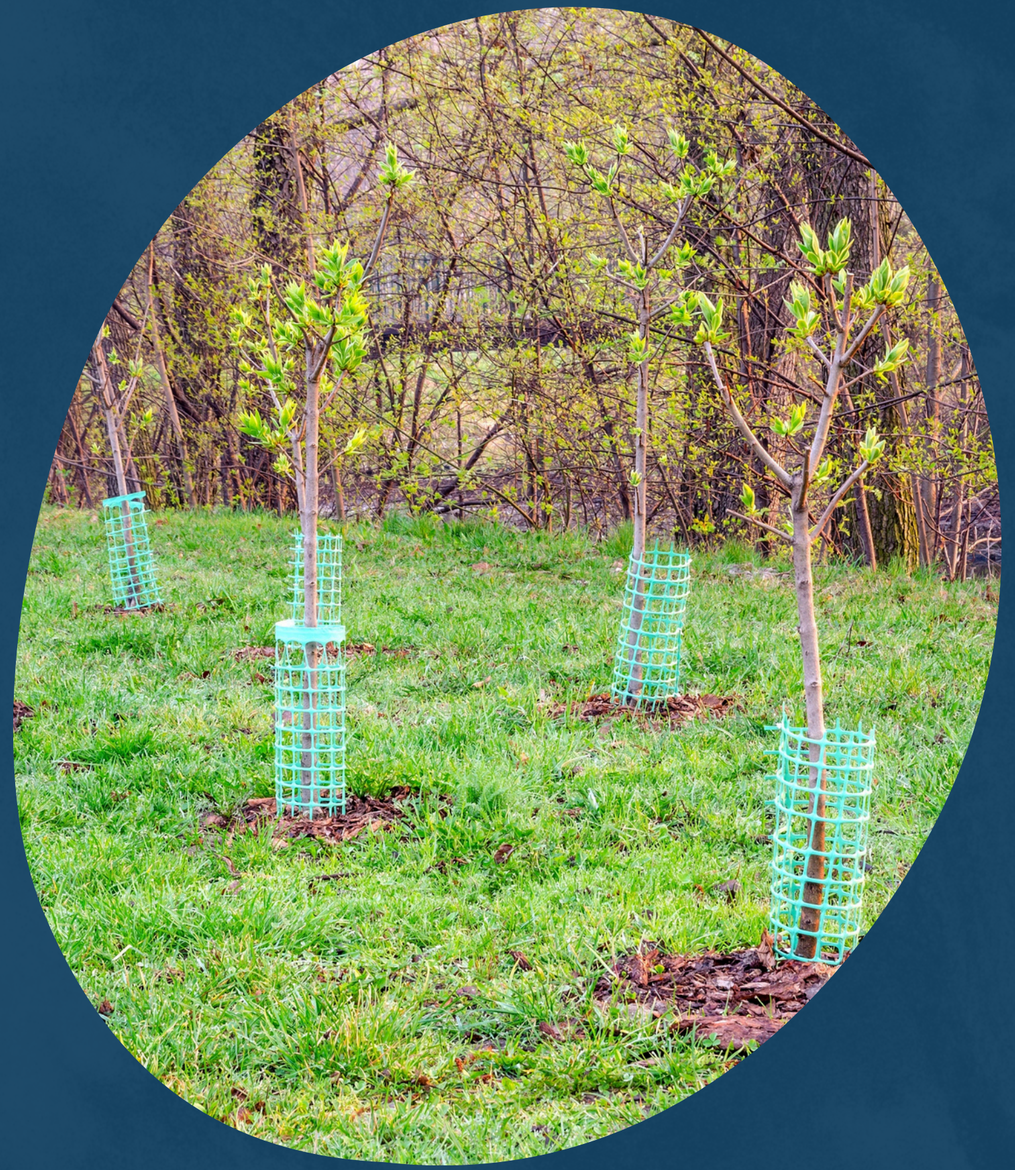
- Erosion control
- Low maintenance
- Wildlife Value

Where is it suitable?

- Areas with a lot of turf grass
- Areas where water accumulates

Tree Canopy Expansion Requirements

Minimum 2 trees planted	No invasive species
Deciduous 1" caliper; Evergreen 3' tall	



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Dry Wells

What are they?

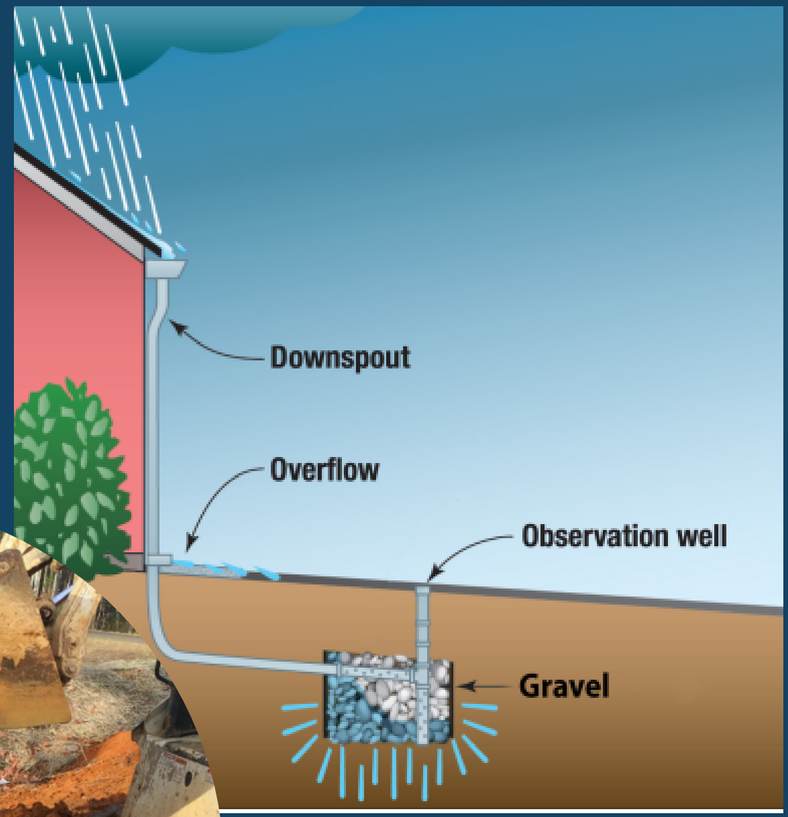
- An excavated pit or structural chamber filled with gravel or stone that provides temporary storage of stormwater runoff from rooftops.
- May be constructed as a shallow trench or a deep well

What does it do?

- Rooftop runoff is directed to these storage areas and infiltrates into the surrounding soils prior to the next storm event.

Where is it suitable?

- Areas with minimum yard space
- For small drainage areas
- Areas with permeable soils



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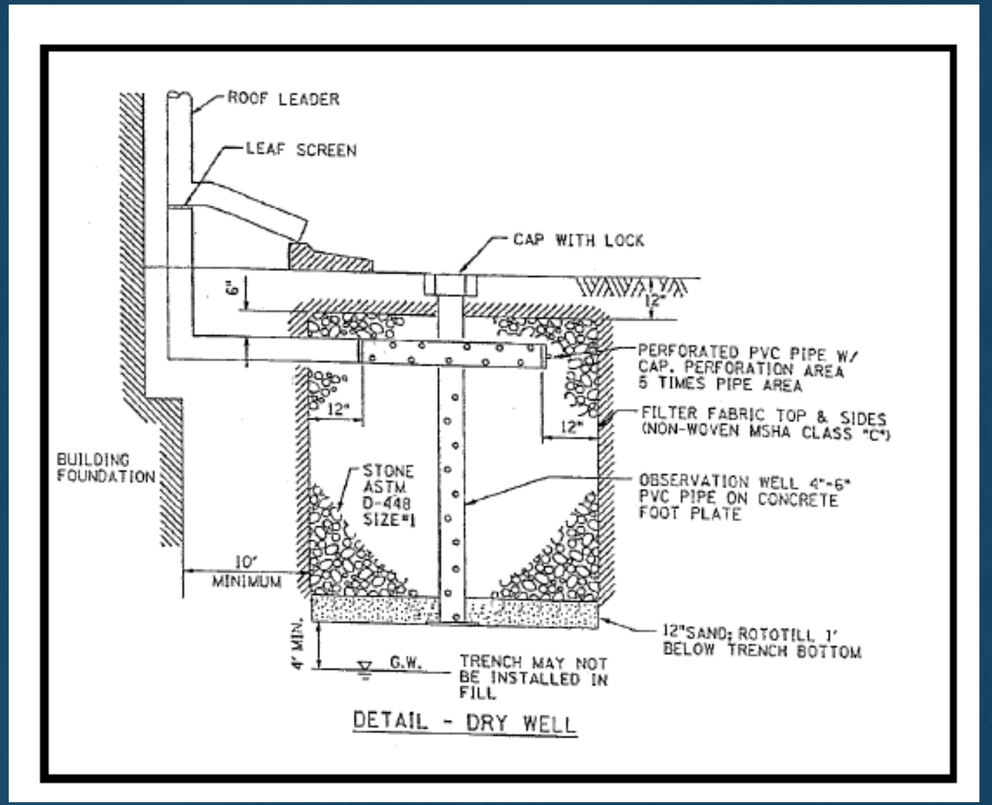
Dry Well Requirements

Sized appropriately & appropriate infiltration rate and/or soils	Treats impervious surfaces



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Green Roof

What are they?

- Green roofs are alternative surfaces that replace conventional construction materials and include a protective covering of planting media and vegetation

What are they good for?

- Green roofs produce less heat than conventional systems and can help mitigate stormwater impacts and temperature increases

Where is it suitable?

- In place of traditional flat or pitched roofs to reduce impervious cover and more closely mimic natural hydrology

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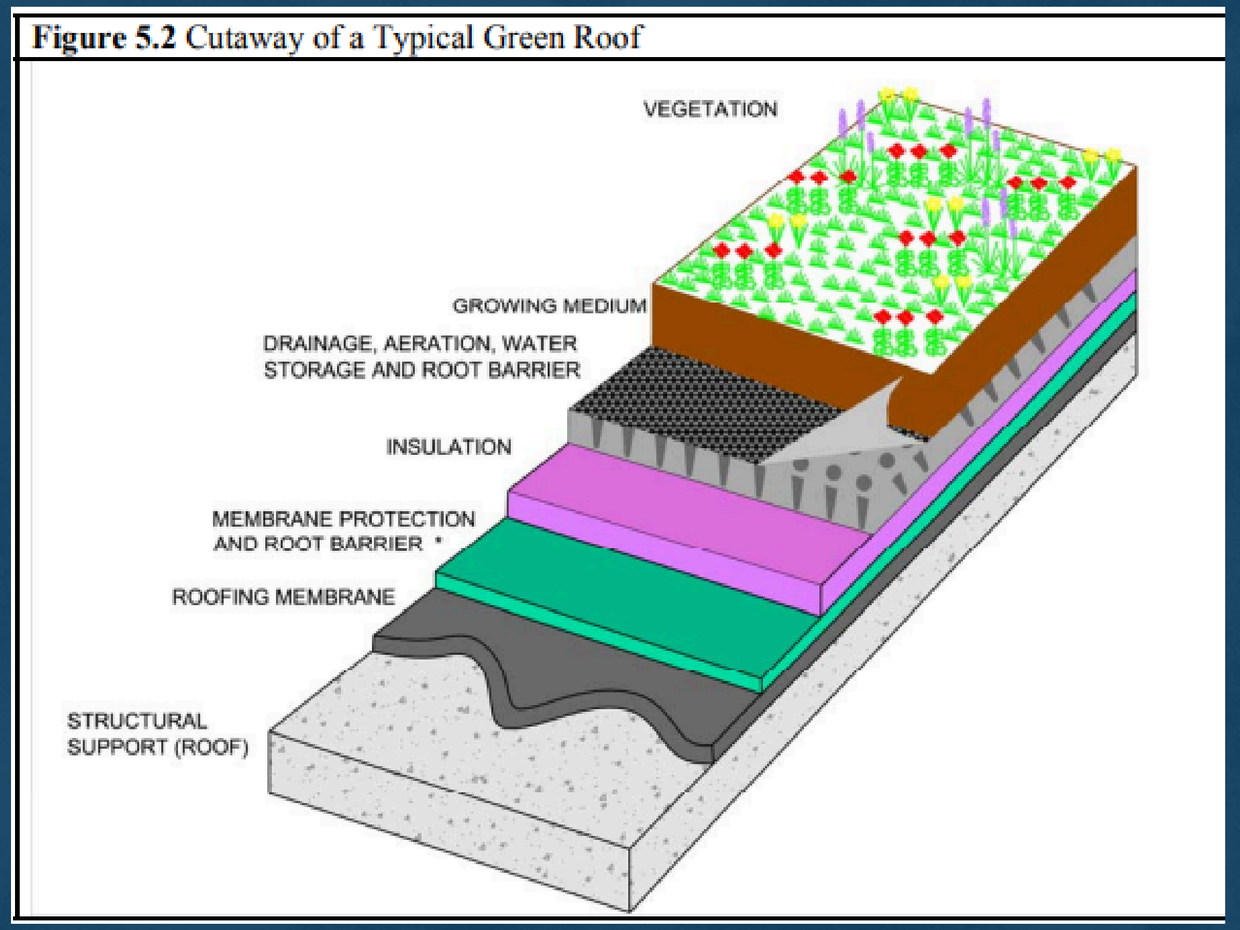
Green Roof Requirements

Certified installer	300 SF or 1/4 roof



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Planting Requirements

Vegetated Practices: 75% Native Plants; no invasives

Tree Canopy Expansion: Native trees only; no invasives

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Why We Plant

Deep rooted & help sequester carbon in soil

Promotes biodiversity & beneficial to wildlife

Adapted to local conditions and soil types

Less water required once established

Native Plant Resources

- Recommended Native Plants for MD - UME
- Native Plants for Wildlife Habitat & Conservation Landscaping
- Chesapeake Bay Native Plant Center
- Native Plant Suppliers

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Online Tools

Howard County Interactive Map:

https://data.howardcountymd.gov/InteractiveMap.html

Howard County Impervious Map:

https://data.howardcountymd.gov/InteractiveMap.html?Workspace=Impervious

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Other Resources

Sustainable Landscape Maintenance Manual:

http://www.cblpro.org/downloads/CBLPMaintenanceManual.pdf

Howard County Watershed Stewards:

https://www.howardwsa.org/

Baywise Master Gardeners

https://extension.umd.edu/locations/howard-county/environment-and-natural-resources/master-gardener/bay-wise-landscape-management/

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Questions?

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THANK YOU

HOWARD COUNTY CLEANSCAPES PROGRAM

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