

# Items 9 A – G CCAP Standards and Policy Updates

- Seven BMP policy updates

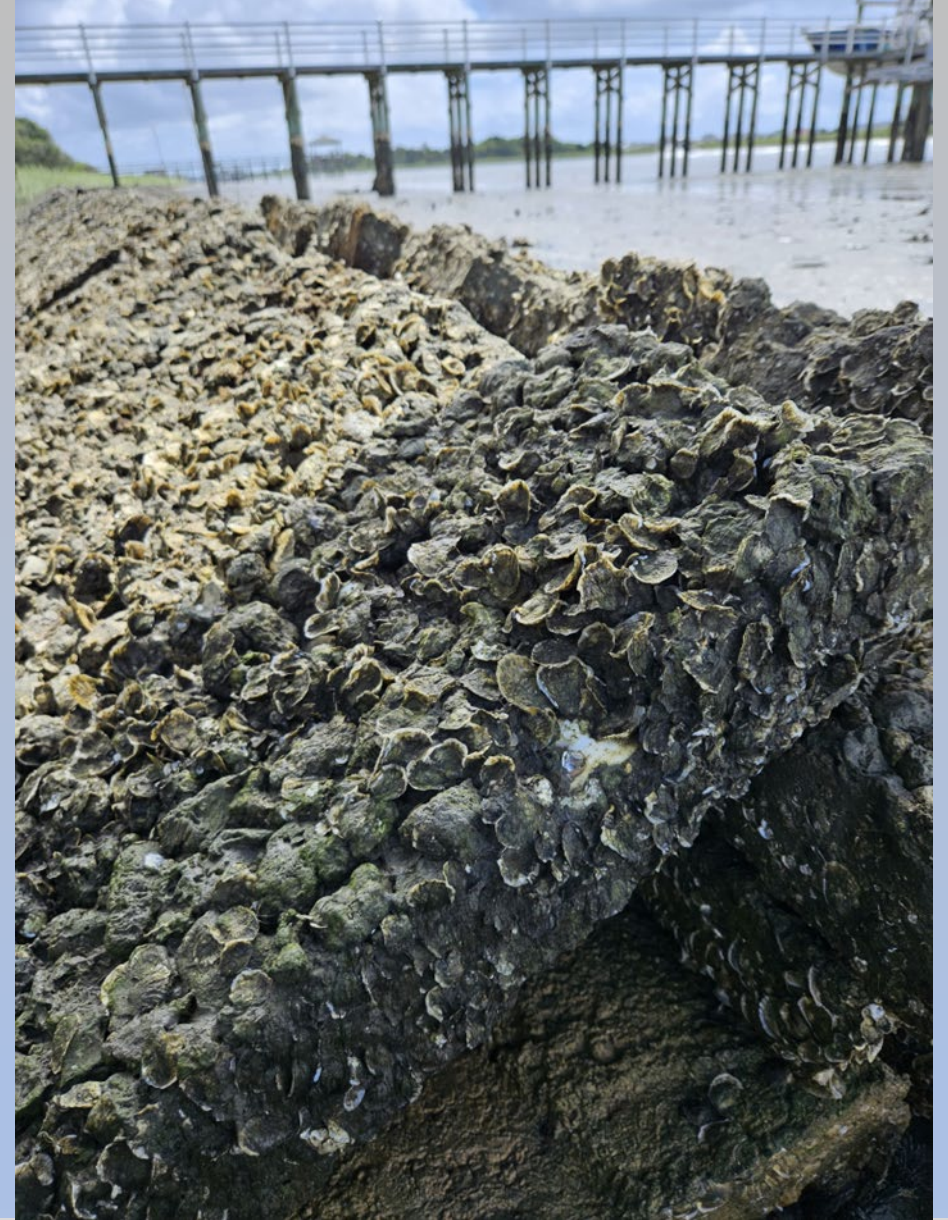




# *The CCAP Advisory Committee*

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# *The Seven Policy Updates*

## *Items 9A – 9G*

- Backyard Raingardens
- Backyard Wetlands
- Cisterns
- Critical Area Plantings
- Riparian Buffer
- Stormwater Wetland
- Structural Stormwater Conveyance





# Formatting, Organizational, and Policy Adjustment Changes Are Recommended

- Typos, grammar, minor wording changes
- Updated to reflect the current standards
- Specifications changed to references and guidance where applicable
- Policy adjustments
- Changes are grouped by type of change in this presentation



# Formatting and Organizational Changes

- All standards were reformatted for ease of read, from this...

BACKYARD RAIN GARDEN	
Lifespan	5 years single-family home, 10 years all other properties
BMP Units	SQUARE FEET
Required Effects	<ul style="list-style-type: none"> <li>• Total Nitrogen Removed</li> <li>• Total Phosphorus Removed</li> <li>• Total Suspended Solids Removed</li> </ul> <p><a href="#">Use CCAP BMP Water Quality Benefits Spreadsheet Tool</a></p> <p><a href="#">Use CCAP BMP Water Quality Benefits Spreadsheet Tool</a></p>
JAA	<a href="#">Backyard rain garden/wetland JAA from the Commission Backyard raingarden design worksheet</a>

July 2012, August 2014, July 2019, January 2025

## Community Conservation Assistance Program

<b>Supporting Standards</b>	<p><a href="#">N.C. Community Conservation Assistance Program (CCAP) Design Manual: Backyard Rain Garden Design</a>  <a href="http://www.ncagr.gov/SWC/costshareprograms/CCAP/documents/Chapter5-BackyardRainGardenDesign.pdf">http://www.ncagr.gov/SWC/costshareprograms/CCAP/documents/Chapter5-BackyardRainGardenDesign.pdf</a></p>
<b>CS2 Reference Materials</b>	<ul style="list-style-type: none"> <li>• NC-CSP-11 Signature Page</li> <li>• Map with BMP location</li> <li>• <a href="#">Rain garden Checklist Form</a></li> <li>• <a href="#">Backyard rain garden Operation &amp; Maintenance plan</a></li> </ul>

### Special Considerations:

[Soils play a critical role in the function of backyard raingardens and backyard wetlands. Infiltration rates of the soils onsite will affect not only the plant materials, but adjustments to the size of the treatment volume will also help them function better and reduce maintenance. Please refer to Chapter 5 of the CCAP Design Manual for additional information.](#)

### Standards

[N.C. Community Conservation Assistance Program \(CCAP\) Design Manual: Backyard Rain Garden Design](#)  
<http://www.ncagr.gov/SWC/costshareprograms/CCAP/documents/Chapter5-BackyardRainGardenDesign.pdf>





...to this

## Community Conservation Assistance Program

### Backyard Rain Garden

#### Definition/Purpose

A rain garden is a shallow depression in the ground that captures runoff from a driveway, roof or lawn and allows it to soak into the ground, rather than running across roads or other impervious surfaces, capturing pollutants and delivering them to a stream. The rain garden absorbs and filters pollutants and returns cleaner water through the ground to nearby streams. Rain gardens can also reduce stormwater runoff by sending the water back underground, rather than onto impervious surfaces.

#### Policies

1. Rain gardens should retain water for less than three days after a storm event. If water poured into a hole dug one-foot deep is still there after three days (provided there has been no rain), the site should be designed as a backyard wetland or another site should be selected.
2. If this BMP is treating more than 2500 ft<sup>2</sup> of impervious surfaces or an underdrain is required for proper drainage, design approval is required by a Professional Engineer (PE). A bioretention area with engineered soils may be required.
3. Grassed swales or filter strips should be considered as a method of pretreatment to reduce sediment loading.
4. Native plant species capable of tolerating the extreme moisture conditions typical of this practice are recommended. Invasive or noxious species are prohibited, with the exception of all common turf type grasses.

BACKYARD RAIN GARDEN	
Lifespan	5 years single-family home, 10 years all other properties
BMP Units	SQUARE FEET
Required Effects	<ul style="list-style-type: none"><li>•Total Nitrogen Removed</li><li>•Total Phosphorus Removed</li><li>•Total Suspended Solids Removed</li></ul> <p><a href="#">Use CCAP BMP Water Quality Benefits Spreadsheet Tool</a></p>
JAA	<a href="#">Backyard rain garden/wetland JAA</a> from the Commission <a href="#">Backyard rain garden design worksheet</a>
Supporting Standards	N.C. Community Conservation Assistance Program (CCAP) Design Manual: Backyard Rain Garden Design <a href="http://www.ncagr.gov/SWC/costshareprograms/CCAP/documents/Chapter5-BackyardRainGardenDesign.pdf">http://www.ncagr.gov/SWC/costshareprograms/CCAP/documents/Chapter5-BackyardRainGardenDesign.pdf</a>

July 2012, August 2014, July 2019, January 2025

#### Community Conservation Assistance Program

CS2 Reference Materials	<ul style="list-style-type: none"><li>• NC-CSP-11 Signature Page</li><li>• Map with BMP location</li><li>• <a href="#">Rain garden Checklist Form</a></li><li>• <a href="#">Backyard rain garden Operation &amp; Maintenance plan</a></li></ul>
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#### Special Considerations:

Soils play a critical role in the function of backyard reingardens and backyard wetlands. Infiltration rates of the soils onsite will affect not only the plant materials, but adjustments to the size of the treatment volume will also help them function better and reduce maintenance. Please refer to Chapter 3 of the CCAP Design Manual for additional information.



## Items 9A and 9B

# Backyard Raingardens and Backyard Wetlands

Formatting changes and Special Considerations added

Special Consideration addresses:

- Soils and Infiltration rates
- Encourages increasing treatment volume for low infiltration soils
- Chapter 5 of Design Manual adjusted

### Community Conservation Assistance Program

<u>Supporting Standards</u>	<u>N.C. Community Conservation Assistance Program (CCAP) Design Manual: Backyard Rain Garden Design</u> <a href="http://www.ncagr.gov/SWC/costshareprograms/CCAP/documents/Chapter5-BackyardRainGardenDesign.pdf">http://www.ncagr.gov/SWC/costshareprograms/CCAP/documents/Chapter5-BackyardRainGardenDesign.pdf</a>
CS2 Reference Materials	<ul style="list-style-type: none"><li>• NC-CSP-11 Signature Page</li><li>• Map with BMP location</li><li>• <a href="#">Rain garden Checklist Form</a></li><li>• <a href="#">Backyard rain garden Operation &amp; Maintenance plan</a></li></ul>

### Special Considerations:

Soils play a critical role in the function of backyard raingardens and backyard wetlands. Infiltration rates of the soils onsite will affect not only the plant materials, but adjustments to the size of the treatment volume will also help them function better and reduce maintenance. Please refer to Chapter 5 of the CCAP Design Manual for additional information.

### Attachments

N.C. Community Conservation Assistance Program (CCAP) Design Manual: Backyard Rain Garden Design  
<http://www.ncagr.gov/SWC/costshareprograms/CCAP/documents/Chapter5-BackyardRainGardenDesign.pdf>

*Special thanks to Dalton Buchanan, Edward Stephens, and Starr Silvis*



## Item 9C

# Cisterns

Formatting and minor wording changes

Wording changes addresses:

- Clarity in reading
- Clarity in policy

### Community Conservation Assistance Program

#### Cisterns

##### Definition/Purpose

Cisterns are above or below ground storage tanks for rainwater harvesting systems used to collect and store rainwater. ~~The~~ ~~se~~ ~~y~~ ~~are~~ ~~intended~~ ~~to~~ ~~reduce~~ ~~stormwater~~ ~~runoff~~, ~~encourage~~ ~~runoff~~ ~~infiltration~~ and ~~conserve~~ ~~utilize~~ ~~the~~ ~~captured~~ ~~rainwater~~.

##### Policies:

1. Cisterns must be placed in accordance with manufacturer's instructions.
2. Cisterns shall be sized to provide 0.5 - 1.0 gallon of cistern volume for each square foot of contributing rooftop depending on the site and the water use demand.
3. Cost share assistance will only be provided for cisterns 250 gallons or larger.
4. Cistern cost share eligibility to receive CCAP funding is based on the existence of a water quality concern. The CCAP checklist must be completed.
5. Agricultural non-point source pollution sources are not eligible, with the exception of runoff from a greenhouse on an educational ~~entity~~ facility (ex: school).
6. Any system collecting 3,000 gallons or more requires a PE design, regardless of the number of cisterns and whether or not they are connected.
7. If installing multiple cisterns, cisterns should be connected. If the cisterns are not connected, a written justification is required. This justification will determine whether one or more accessory packages can be approved.

*Special thanks to Starr Silvis*





## Riparian Buffer

## Definition/Purpose

A *riparian buffer* is an area of perennial, long-lived vegetative cover (grass, shrubs, trees, or a combination of vegetation types) established adjacent to and up-gradient from watercourses or water bodies to improve water quality. Benefits may include reduced soil erosion and nutrient delivery, sedimentation, pathogen contamination and pollution from dissolved, particulate and sediment-attached substances.

## Policies

1. Riparian buffers are applied on areas adjacent to perennial or intermittent streams, rivers, lakes, ponds, and types of wetlands that flood or pond. Field staff shall determine the need and suitability of this practice using visual observation.\*
  2. The width of the riparian buffer must be a minimum of 15 feet, measured from the top of the bank.
  3. Cost share for this practice will only be provided for those buffer areas planted with native ~~shrubs and/or trees~~ vegetation.
  4. Riparian buffer projects planned for contiguous land parcels are highly encouraged.
  5. The control of invasive species to reduce competition with desired plant species using appropriate methods is allowed. Appropriate methods can include physical, mechanical, targeted and licensed pesticides, and/or other accepted methods of control. The control of invasives should only take place where it will reduce the establishment and maturity of the desired species, not lead to erosion, and/or result in the proper establishment of the desired species. Pesticide application control measures must be made under the direction and guidance of the applicator with the proper pesticide license.
- Please refer to generally accepted invasives plant species in NC references such as NC Forest Service document, NC Native Plant Society, or similar publications.
- 4-5. BMP soil, nitrogen and phosphorus benefits are required to be documented on contracts greater than 50 feet in width.

## Items 9D and 9E

# Critical Area Planting and Riparian Buffer

Formatting changes  
and addition to policy

Policy addition addresses:

- Clarification on control of invasive species
- Reference to plant lists

*Special thanks to Betsy Gerwig, Jennifer Perrin,  
Starr Silvis, Moriah VanVooris, and Trish D'Arconte*



## Item 9F

# Stormwater Wetland

Formatting and minor wording  
change

Wording changes addresses:

- Clarity in reading

### Stormwater Wetlands

#### Definition/Purpose

*Stormwater wetlands* are constructed systems that mimic the functions of natural wetlands and are designed to mitigate the impacts of urbanization on stormwater quality and quantity. Stormwater wetlands provide an efficient method for removing a wide variety of pollutants such as suspended solids, nutrients (nitrogen and phosphorus), heavy metals, toxic organic pollutants, and petroleum compounds.

#### Policies

1. Stormwater wetlands are intended to treat impervious surface areas of greater than 2500 ft<sup>2</sup>. Refer to the backyard wetland practice if the area to be treated is less than 2500 ft<sup>2</sup>.
2. Stormwater wetlands that are constructed off-line from intermittent and perennial streams and are explicitly designed for stormwater management, and once installed, are not subject to the provisions of Section 401 and 404 of the Clean Water Act. However, if stormwater wetlands are abandoned or no longer used for their original purpose, they may be regulated as wetlands.
3. Measures to reduce high flow velocities and sediments and pollutant loads should be considered. Pretreatment in conveyance facilities (such as grass swales), filter strips or other buffers may be effective.

STORMWATER WETLANDS	
Lifespan	5 years single-family home, 10 years all other properties
BMP Units	SQUARE FEET
Required Effects	Nutrient reductions (SNAP tool)
JAA	There is no job approval authority for stormwater wetlands, this practice must be designed by a division or professional engineer
Supporting Standards	<a href="http://reports.oah.state.nc.us/ncac/title%2015a%20-%20environmental%20quality/chapter%2002%20-%20environmental%20management/subchapter%20h/15a%20ncac%2002h%20.1054.pdf">NC DEQ Stormwater BMP Manual: Stormwater Wetlands http://reports.oah.state.nc.us/ncac/title%2015a%20-%20environmental%20quality/chapter%2002%20-%20environmental%20management/subchapter%20h/15a%20ncac%2002h%20.1054.pdf</a>

*Special thanks to Starr Silvis*





## Structural Stormwater Conveyance

## Definition/Purpose

A *Structural Stormwater Conveyance* includes various techniques to divert or control runoff from paved surfaces where a vegetated diversion is not feasible. The purpose is to manage stormwater runoff (sheet flow or concentrated) from a direct discharge point and divert or control it to an approved BMP, a ~~naturally~~ vegetated area, or to eliminate gully erosion. This may be accomplished through the use of the following: curb cuts, trench drains, drop inlet and grade control structures, raised concrete or asphalt areas in parking lots, earthen berms or check dams.

## Policies

1. The impervious surface treatment area must have existed for at least 3 years.
2. Practice is only eligible in situations where runoff from existing impervious surfaces does not flow onto a stable pervious area and is directed instead to a direct discharge point and is causing erosion, sedimentation, and/or nutrient losses.
3. Practice is only eligible in situations where the land use does not allow for a vegetated diversion or grassed swale to be installed, and additional techniques are required.
4. Structural stormwater conveyance techniques must be directed to an appropriately sized, approved BMP, a naturally vegetated area, or other stable outlet to allow for volume reduction and treatment or to eliminate gully erosion.
5. ~~The practice shall be sized to convey runoff generated by the peak discharge from the 2-year storm.~~
5. This practice shall be designed to convey runoff generated from the 2-year 5-minute storm event for "curb diversions" and the 10-year 5-minute storm event for all other situations.
6. If installing a downstream BMP, it shall be appropriately sized to treat the volume according to specific program BMP guidelines.
7. If the downstream area is natural and will not be improved, the natural soil should be capable of infiltrating the volume of water generated by the aforementioned storm within 24 hours or the outlet remain stable from the conveyed additional water.
8. Devices shall not promote ponding or detention of runoff on the impervious surface. ~~If placed in a low spot, where excessive head could build up, the device shall be sized for the 10-year storm.~~
9. Flow shall exit the conveyance in a ~~non-erosive~~non-erosive manner. This may require outlet protection or other velocity dissipation techniques.

## Items 9G

## Structural Stormwater Conveyance

Formatting, minor wording Changes, and addition to policy

Policy addition addresses:

- Clarification on design criteria for the various uses
- Removal of "naturally" in definition statement



# We are requesting your action for these policy revisions Items 9A – 9G

- 9A – Backyard raingardens
- 9B – Backyard wetland
- 9C - Cisterns
- 9D – Critical area planting
- 9E – Riparian buffer
- 9F – Stormwater wetland
- 9G - Structural stormwater conveyance





Thank You!

