Section 3.2 Conservation Landscaping (CL)

Conservation Landscaping is the establishment of native plantings to provide ground cover and understory protection from rainfall and runoff. This practice uses exclusively native plants, as native plants are best adapted to local soil and climate conditions and therefore require the least amount of nutrient addition or cultivation to maintain the amount of ground cover best suited to minimize runoff.

A. Purpose

- Meadows (CL-1) are an open habitat or fields vegetated by perennial grasses and other herbaceous ground covers, usually established by seed.
- Tree Plantings (CL-2) is reforestation practice, planting bare root seedlings at a rate of 300 per acre or 12-foot centers.
- Mixed Planting Beds (CL-3) are landscaped beds that combine woody and herbaceous species with a layer of mulch.
- Filter Strips (CL-4) are, as defined in the Virginia Stormwater Management Handbook (V.1) Chapter 8, practice P-FIL-07, “vegetated areas that treat sheet flow delivered from adjacent managed turf and impervious areas by slowing runoff velocities and allowing sediment and attached pollutants to settle and/or be filtered by the vegetation.” Filter Strips may be made of meadows or mixed planting beds with berms.
- Riparian buffers (CL-5) are vegetated areas (tree plantings, meadows, or mixed planting beds) along a stream bank or other body of water comprised of trees and shrubs. The width of the practice is determined by the slope.

This practice is considered a non-structural BMP, unless used as a Filter Strip (CL-4). Conservation Landscaping shall be eligible to receive cost-share only if it addresses a nutrient or sediment resource concern, such as poor vegetative cover or excess runoff. Photo documentation and District verification of the resource concern(s)must be provided in the application.

B. Site Criteria

- Slope gradients greater than 15% should consider temporary erosion control measures during establishment, such as erosion control matting or biologs (coir, compost, or fiber logs).
- Filter Strips (CL-4) are to treat up to 5,000 square feet of impervious area on slopes less than 8%.

C. Design Criteria

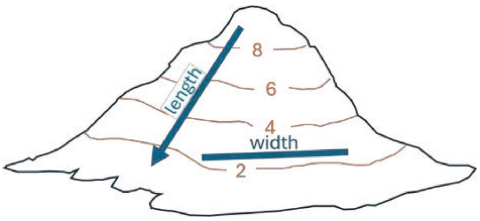
- Plant species must be considered native or nativity uncertain to Virginia by The Flora of Virginia. See Technical References section for publications and websites related to native plants. Invasive or noxious species, as identified by the DCR invasive species list, and/or the USDA noxious weed list are prohibited.
- Perennial native species that are adapted to the site conditions must be used. As is practicable, it is advised to select plants native to the project's region within the state.
- Cost-share for the removal of invasive species is only allowable within the footprint of the project. Invasive species removal outside of the project's footprint is not eligible for cost-share. Invasive species management must be addressed in the Operation and Maintenance Plan. Invasive or noxious species are identified by the DCR invasive species list and/or the USDA noxious weed list.
- Vegetation establishment must include proper soil preparation. Deep tillage may be required to address soil compaction. Addition and incorporation of topsoil or organic matter may be necessary for proper seedbed establishment.
- Lime and fertilizer soil amendments will only be added as necessary according to a soil test report.
- This practice should be initiated as closely as possible to the optimum time for vegetation establishment. If areas are denuded but not planted immediately, temporary erosion control cover or temporary vegetation cover must be established within 14 calendar days.
- Meadow (CL-1):
    - A meadow should include a seed mix with at least two (2) native grass species and nine (9) forbs/wildflower species. A nurse crop of suitable annual groundcover such as cereal rye or oats may be used. Alternative Seed Mix ratio may be considered.
    - Competition controls must be included with the final plans. Competition controls should be described in greater detail in the site-specific plan submitted before installation. A temporary vegetative cover is necessary when there will be two (2) burn downs separated by a growing season.
    - Meadows shall be established by seed for areas over 1,000 square feet unless plugs are necessary for successful establishment of the planting area.
    - Tree canopy shall be maintained at less than 30%.
    - Wet areas not suitable for Rain Gardens or Constructed Wetland practices may be converted to a Wet Meadow under Conservation Landscaping. This should be used in areas where standing water or saturated soil limits vegetative cover to less than 75% and contributes to a water quality concern downstream.
- Tree Planting (CL-2):
    - Plant material is to be bare root seedlings and containers no larger than a 2" caliper. Material can include trees or shrubs. Smallest or youngest plants reasonable are recommended for planting.
    - Planting density shall be at least 300 trees per acre or 12-foot on-center.
    - Diversity is encouraged for larger scale projects. A minimum of 6 native species shall be used on areas over 10,000 square feet.
    - Appropriate tree protection measures must be employed, such as tree shelters, weed barriers, tree wraps, and/or other approved methods.

- Mixed Planting Beds (CL-3):
  - Mixed Plantings Beds can be a mix of native woody and herbaceous plant species and must include suitable a mulch layer sufficient to maintain soil coverage.
  - Mixed Beds aims for a mature plant canopy with 90% soil coverage. To achieve this, planting at a 75% density with the suggested spacing is recommended. Density for all plantings will be based on mature size of approved species. Smallest or youngest plants reasonable are recommended for planting.

Suggested Spacing	
Perennials	1 foot
Grasses	2-3 feet
Small Shrubs (< 6 feet)	3-5 feet
Large Shrubs (> 6 feet)	6-8 feet
Small Trees (< 25 feet)	25 feet
Medium Trees (< 40 feet)	30 feet
Large Trees (>40 feet)	35 feet

  - Berms 3 feet wide and 12 inches tall can be used to intercept stormwater when a mixed planting bed is used as a Filter Strip.
- Filter Strips (CL-4):
  - Per the Virginia Stormwater Management Handbook (V.1) Chapter 8, practice P-FIL-07, "Stormwater must enter the vegetated filter strip […] as sheet flow. A typical configuration consists of the stormwater runoff from the paved area uniformly entering the practice along a linear edge (such as the edge of a road or parking lot) and draining across the length of the filter strip [...]. This configuration would be accompanied by a gravel diaphragm or other pretreatment practice to establish a non-erosive transition between the pavement and the filter strip[…]. If the inflow to the filter strip is from a pipe or channel, a level spreader must be designed in accordance with BMP C-ECM-14, Level Spreader, to convert the concentrated flow to sheet flow.
  - A robust stand of vegetation should be established with a minimum cover density of 90%.
  - Length is the measurement of distance perpendicular to the contour. Width is the measurement of distance across the slope, parallel to the contour.
  - The minimum width for all slopes is 10 feet.
  - Maximum slope is 8%.

Filter Strip Measurements



Filter Strip Minimum Length by Slope	
Slope	Minimum Length
1% to 2%	25 feet
2% to 4%	50 feet
4% to 6%	75 feet
6% to 8%	95 feet

- Riparian Buffer (CL-5):
  - A robust stand of vegetation should be established with a planting density of 300 trees per acre or 12-foot on-center or 90% cover density for meadow buffers.
  - Buffer width is perpendicular to the body of water.

Riparian Buffer Minimum Width by Slope	
Slope	Minimum Width
< 4%	35 feet
4% to 6%	50 feet
6% to 8%	65 feet
> 8%	100 feet

D. Design Plan Components

- The district must be notified of any proposed changes to the approved design. Changes to the approved design may jeopardize cost share reimbursement. The Steering Committee has discretion to approve or deny cost share reimbursement in the event of design changes.
- Information required in the design plan includes (see VCAP Application Submission Checklist for a comprehensive list):
    - Photo documentation of site and resource concern.
    - Type of Conservation Landscaping (Meadow CL-1, Tree Planting CL-2, Mixed Planting Bed CL-3, Filter Strip CL-4, Riparian Buffer CL-5).
    - Aerial photo with an outline of practice location and distance to waterways/conveyances.
        a. For Filter Strip (CL-4), include a topographic map with contributing drainage area delineated.
        b. For Riparian Buffer (CL-5), include length of stream/pond being buffered and width of buffer.
    - Soil map with description of soil via Web Soil Survey
    - Landscape planting and mulching plan including species, rate of seeding or planting, minimum quantity of planting stock, and method of establishment. If applicable, list any soil amendments and accompanying soil test results.
        a. Planting list must include the complete scientific name (genus and species) and common name of the plant species. For example, *Cornus florida*, flowering dogwood or *Itea virginica* "Little Henry", Virginia Sweetspire.
    - Installation requirements including timeline, plan to control/eliminate unwanted existing vegetation, planting schedule.
    - Material list and itemized cost estimates from contractor, vendor, and/or supplier.
    - Site constraints identified (utilities, right-of-way, septic, etc.)
    - Confirm local policies, such as land disturbance, grass heights, etc.

E. Operation and Maintenance

- First year maintenance:
    - Weekly watering during the growing season, as necessary to ensure survival.
    - Stabilizing bare or eroding areas.
    - Replace dead, dying or diseased plants.
    - Removal of unwanted and invasive plant species.
- Routine Maintenance:
    - Spot weed and spot treat invasive species to limit undesirable species cover to less than 5%.
    - If needed for Meadows (CL-1), mow high (6-10 inches) no more than twice a year, either before or after nesting season (typically early March or mid-August).
    - Remove trash and debris.
    - Replace dead, dying or diseased plants as necessary.
    - Cut back perennials as needed in early spring.
    - Prune shrubs and trees as needed in early spring. Spring flowering shrubs may be pruned lightly in mid-summer.
    - Supplement wood mulch to maintain consistent depth.
- Applying fertilizer after vegetation has been established is prohibited as one of the purposes of VCAP is to reduce sources of nutrient pollution.
- Measures to exclude pests that will interfere with the timely establishment of vegetation should be employed as part of ongoing maintenance efforts.

F. Cost Share Rates/Incentives

- See **District Guide to VCAP** for practice cost-share rates and caps.
- Eligible costs may include: soil testing, site preparation (herbicide, sod removal, harrowing, raking), installation (broadcast, drill, or planting), temporary and permanent seed, plants, mulch, soil amendments (compost and lime), tree shelter, weed barriers, erosion and sediment controls when necessary.

G. Technical References

- Virginia Stormwater Management Handbook, Version 1.0. 2024. Virginia Department of Environmental Quality.
    - Chapter 8, Practice P-FIL-07 Sheet Flow to Vegetated Filter Strip or Conservation Open Space
- USDA NRCS Conservation Cover for Pollinators Job Sheet (VA-327). September 2010.
- Virginia Department of Forestry. Landowner Guide to Buffer Success. 2022.
- Homeowner Guide for a More Bay Friendly Property. Chesapeake Stormwater Network. June 25, 2014.
- Environmental Protection Agency: Ecosystems Research. Ecoregions of North America.
- Native Plant Resources:
    - *All plants used must be native or uncertain according to the Flora of Virginia; other resources are guidance.*
    - Virginia Botanical Associates. Digital Atlas of the Virginia Flora (http://www.vaplantatlas.org). c/o Virginia Botanical Associates, Blacksburg.
    - Alliance for the Chesapeake Bay. Native Plant Center
    - Virginia Department of Conservation and Recreation. Native Plants for Conservation, Restoration and Landscaping Project. Native Plant Brochures by Region.
    - Plant Virginia Natives Campaign, Virginia Native Plant Guides. Virginia Native Plant Society;
    - Pollinator Partnership. North American Pollinator Protection Campaign. Ecoregional Plant Guides.