

Brookside Gardens Subdivision

Low Density Development Downspout Extension Guidelines

3-1-2017

NCDEQ Rules Reference:

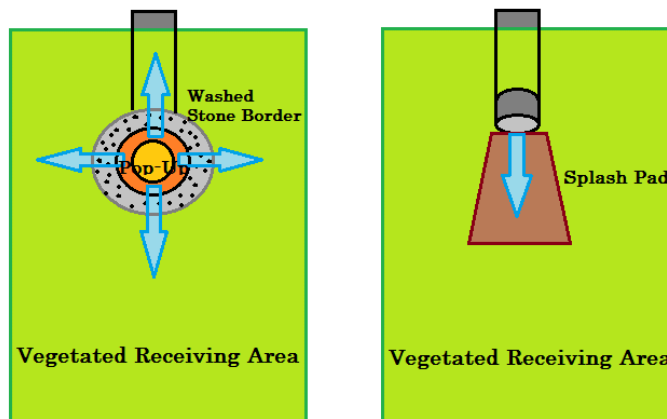
Rule# 15A NCAC 02H .1060: MDC for Disconnected Impervious Surfaces

<https://deq.nc.gov/about/divisions/energy-mineral-land-resources/energy-mineral-land-rules/stormwater-program-rules>

*Please see attached NCDEQ document for details

Installation Guidelines

- 1) All downspouts to be piped shall have a proper Converter Joint installed to transition the downspout into a 4 inch corrugated perforated pipe.
- 2) Each downspout to be piped can have a maximum of 500 square foot of roof draining to it.
- 3) Each downspout to be piped shall drain into a vegetative receiving area (VRA).
- 4) The downspout pipe shall discharge into the center of the uphill side of the VRA.
 - a. The inlet pipe shall have either a pop-up connection at the end of the pipe surrounded by washed stone or a straight 4 inch opening equipped with a splash pad to prevent erosion. (see detail below)

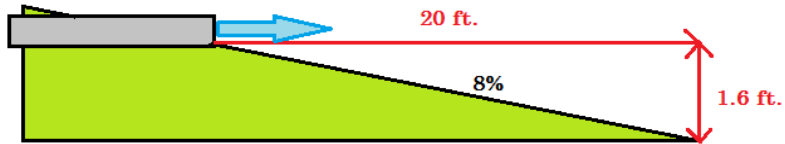


- 5) The VRA shall be a rectangular shape and should not be installed within a suggested 10 foot setback buffer associated with the property boundaries.
- 6) The VRA shall be calculated as follows:
 - a. The length of the rectangle in the direction of flow shall be a minimum of 0.04 times the roof area that drains to it.

Ex) Assume 494 sq.ft. roof area: $494 \times 0.04 = 19.76 \text{ ft. in length}$
 - b. The Width of the rectangle shall be one-half the length of the rectangle
Ex) Assume a VRA length of 19.76 ft.: $19.76/2 = 9.88 \text{ ft. in width}$

- 7) The VRA shall have a uniform transverse slope of 8% or less.

Example



- 8) The VRA pH, compaction, and other attributes of the first eight inches of soil shall be adjusted if necessary to promote plant establishment, growth and infiltration.
- 9) The VRA shall be planted with a non-clumping, deep rooted grass species.

Note: Please see attached proposed installation example

15A NCAC 02H .1060 MDC FOR DISCONNECTED IMPERVIOUS SURFACES

The purpose of this Rule is to set forth the design requirements for disconnected impervious surfaces that are constructed to meet the requirements of this Section.

- (1) **VEGETATED RECEIVING AREA FOR DISCONNECTED ROOFS.** The following requirements shall apply to vegetated receiving areas for disconnected roofs:
 - (a) a maximum of 500 square feet of roof shall drain to each disconnected downspout;
 - (b) the receiving vegetated area shall be a rectangular shape. The length of the rectangle in the direction of flow shall be a minimum of 0.04 times the area of the roof that drains to it. The width of the rectangle shall be one-half the length of the rectangle.
 - (c) the downspout shall discharge in the center of upslope end of the vegetated receiving area;
 - (d) the downspout shall be equipped with a splash pad; and
 - (e) the vegetated receiving area shall not include any built-upon area.
- (2) **VEGETATED RECEIVING AREA FOR DISCONNECTED PAVEMENT.** The following requirements shall apply to the vegetated receiving area for disconnected pavement:
 - (a) the pavement draining to the vegetated receiving area shall be a maximum of 100 feet in length in the direction of flow;
 - (b) the vegetated receiving area shall be a minimum of 10 feet in length in the direction of flow; and
 - (c) the vegetated receiving area shall not contain any built-upon area except for incidental areas such as utility boxes, signs, and lamp posts.
- (3) **VEGETATED RECEIVING AREA SPECIFICATIONS.** The following specifications shall apply to the vegetated receiving areas for both disconnected roofs and disconnected pavement:
 - (a) vegetated receiving areas shall have a uniform transverse slope of 8 percent or less, except in Hydrologic Soil Group A soils where slope shall be 15 percent or less;
 - (b) The pH, compaction, and other attributes of the first eight inches of the soil shall be adjusted if necessary to promote plant establishment and growth;
 - (c) the vegetated receiving area shall be planted with a non-clumping, deep-rooted grass species; and
 - (d) soils shall be stabilized with temporary means such as straw or matting until the permanent vegetative cover has taken root or the runoff shall be directed elsewhere until vegetation has established.

History Note: Authority G.S. 143-214.7B; 143-215.1; 143-215.3(a);
Eff. January 1, 2017.

Brookside Gardens
Downspout Extension Installation Example

