

WQ-17 FULL DISPERSION

1.0 Full Dispersion

1.1 Description

This BMP allows for "fully dispersing" runoff from impervious surfaces and cleared areas of development sites that protect at least 65% of the site in a forest or native condition.

1.2 Application and Limitations

- Rural single family residential developments that are not conducive to organizing an HOA for maintenance of a stormwater management facility such as those developed by a probate-ordered subdivision, summary plat, small subdivisions that do not have room for a common area stormwater facility or those that will not have the financial means to provide regular maintenance of a stormwater facility.
- Rural single family residential developments will use these dispersion BMPs wherever possible to minimize effective impervious surface to less than 10% of the development site.
- Other types of development that retain 65% of the site in a forested or native condition may also use these BMPs so long as they do not exceed the limitations of the chart below.
- The preserved area will be situated to minimize the clearing of existing forest cover, to maximize the preservation of wetlands (though the wetland area and any streams and lakes do not count toward the 65% forest or native condition area), and to buffer stream corridors.
- The preserved area will be placed in a separate tract or protected through recorded easements for individual lots.
- The preserved area will be shown on all property maps, including final plats, and should be clearly marked and protected during clearing and construction on the site.
- At the time of application, if the area has been timbered, cleared or changed from its native state, the area does not qualify.
- The preserved area may be used for passive recreation and related facilities, including pedestrian and bicycle trails, nature viewing areas, fishing and camping areas, and other similar activities that do not require permanent structures, provided that cleared areas and areas of compacted soil associated with these areas and facilities do not exceed eight percent of the preserved area. Passive recreation use and features must be qualified during the permit process and approved before the initial development takes place.

1.2.1 Full Dispersion for the Entire Development Site

Developments that preserve 65 percent of a site in a forested or native condition can disperse runoff from the developed portion of the site into the native vegetation area as long as the developed areas draining to the native vegetation do not have impervious areas that exceed 10 percent of the entire site. Runoff must be dispersed into the native area in accordance with the BMPs cited in the Design Guidelines below. See Figure 1 for an example schematic for a residential home site implementing Full Dispersion practices.

1.2.2 Full Dispersion for all or Part of the Development Site

Developments that cannot preserve 65 percent or more of the site in a forested or native condition may disperse runoff into a forested or native area in accordance with the BMPs cited in the Design Guidelines if:

- The effective impervious surface of the area draining into the native vegetation area is \leq 10 percent; and
- The development maintains ratios proportional to the 65 percent forested or native condition and 10 percent effective impervious area.

Table 1: Dispersion Ratios

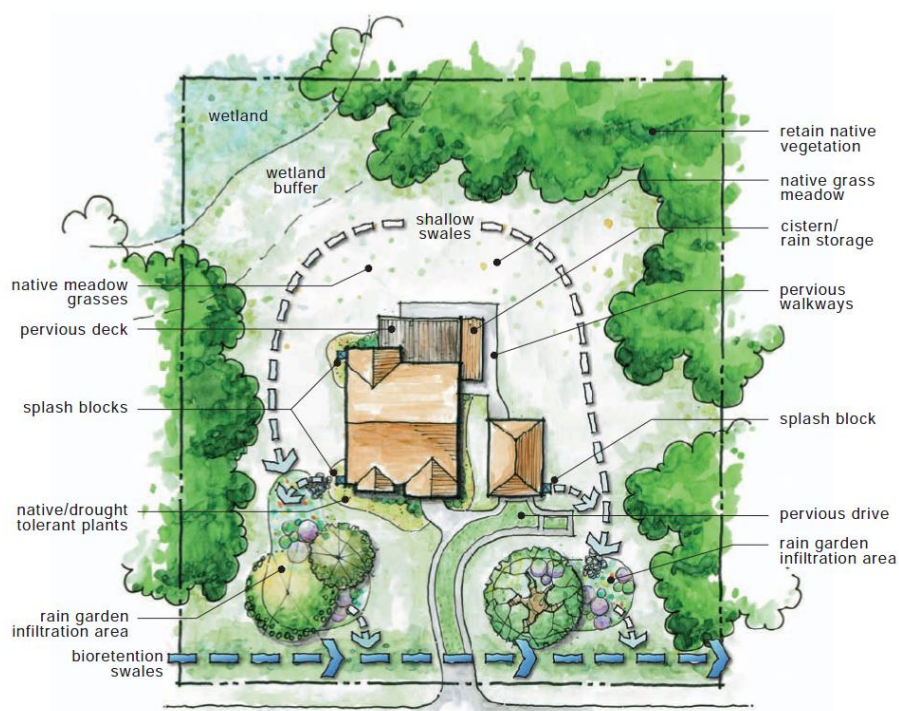
% Native Vegetation Preserved (min. allowed)	% Effective Impervious	% Lawn/Landscape (max. allowed)
65	10	35
60	9	40
55	8.5	45
50	8	50*
45	7	55*
40	6	60*
35	5.5	65*

* Where lawn/landscape areas are established on till soils, and exceed 50 percent of the total site, they should be developed using other LID features.

Within the context of this dispersion option, the only impervious surfaces that are not included are those that are routed into an appropriately sized structural control that does not overflow into the forested or native vegetation area.

Note: For options in 1.2.1 and 1.2.2, native vegetation areas must be protected from future development. Before any land disturbing activities take place, a stormwater and erosion control plan will need to be addressed for the entire tract.

Figure 1: Home Site Dispersion



1.3 Design Requirements

1.3.1 Roof Downspouts

Roof surfaces that drain to infiltration trenches, dry wells, rain barrels, cisterns, or other LID BMP approved by Greenville County Land Development Division are considered to be "fully dispersed" (i.e., zero percent effective imperviousness). All other roof surfaces are considered to be "fully dispersed" if they comply with the downspout dispersion requirements listed below.

Downspout Requirement 1: A vegetated flow path of 100 feet will be maintained between the discharge point and any property line, structure, steep slope (< 30%), surface water, or other impervious surface. Vegetated flow paths must be covered with well-established lawn, pasture, or native vegetation with a minimum of 90% ground cover.

Downspout Requirement 2: Use energy dissipation meeting the following requirements at all downspout discharge locations. Downspout extensions may be used to pipe the roof drainage, as long as the runoff will travel through a vegetated area as described above.

- Energy dissipaters may include appropriately sized manufactured splash blocks or crushed rock pads with dimensions of 2 feet in width, 3 feet in length, and 0.5 feet in depth.
- Maximum 700 square feet of roof area may drain to each energy dissipater.
- For sites with septic systems, the discharge point must be downgrade of any septic drain fields. This requirement may be waived by Greenville County Land Development Division if site topography clearly prohibits flows from intersecting the drain field.

1.3.2 Driveway Dispersion

Driveway surfaces that drain to a, bioretention area, infiltration trench, sand filter, or other LID BMP approved by Greenville County Land Development Division are considered to be "fully dispersed". All other driveway surfaces are considered "fully dispersed" if they comply with the driveway dispersion requirements listed below.

Dispersion Requirement 1: A vegetated flow path of 100 feet will be maintained between the discharge point and any property line, structure, steep slope (< 30%), surface water, or other impervious surface. Vegetated flow paths will be covered with well-established lawn, pasture, or native vegetation with a minimum of 90% ground cover.

Dispersion Requirement 2: Disconnect driveway watershed areas with diversion berms or drains and meet the following dispersion requirements.

- Driveway areas can be disconnected or dispersed by using diagonal rock berms or slotted drains.
- Maximum of 700 square foot of impervious area may drain to each dispersion structure.
- A pad of crushed rock with dimensions of 2-feet in width, 3 feet in length, and 0.5 feet in depth will be placed at each diversion structure
- Erosion or flooding of downstream properties is not allowed. Do not discharge runoff from driveways toward slopes greater than 30%
- Provide a two foot wide transition zone between the edge of the driveway pavement and downgrade vegetation consisting of crushed rock, modular pavement, drain rock, or other erosion prevention materials approved by the Land Development Division.
- Provide a minimum 10 foot vegetated buffer around driveway surfaces.
- For sites with septic systems, the discharge point must be downgrade of any septic drain fields. This requirement may be waived by Greenville County Land Development Division if site topography clearly prohibits flows from intersecting the drain field.

1.3.3 Cleared Area Dispersion BMPs

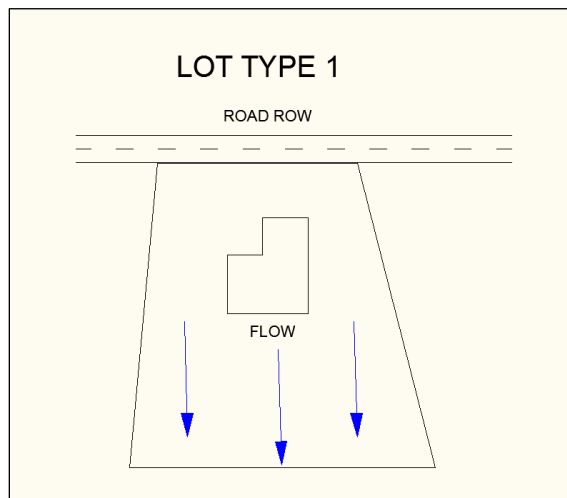
The runoff from cleared areas that are comprised of bare soil, nonnative landscaping, lawn, and/or pasture is considered to be "fully dispersed" if it is dispersed through at least 25 feet of native vegetation in accordance with the following criteria:

- The contributing flow path of cleared area being dispersed must be no more than 150 feet, and
- Slopes within the 25 foot minimum flow path through native vegetation should be no steeper than 8%. If this criterion is not feasible due to site constraints, the 25 foot flow path length must be increased 1.5 feet for each percent increase in slope above 8%.

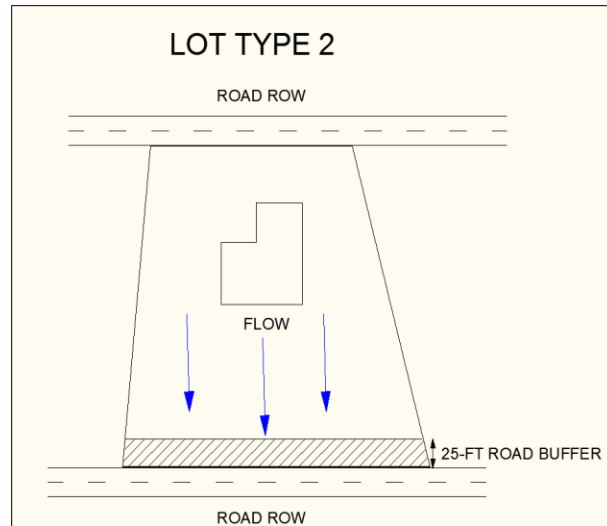
1.4 Road Buffers

Parcels containing building sites with roads on the downslope side of the lot are required to provide undisturbed buffers. Any paved surface in the buffer is required to be a pervious paving application unless unfeasible. No impervious structures or surfaces will be placed in the road buffer. Buffer requirements for three lot type scenarios are provided below.

Lot Type 1 – For all lots that have the building site located downgrade from the road right of way that services the lot and there is no road located on the down slope end of the lot, NO buffer is required along the lot.



Lot Type 2 – For all lots that have the building site located downgrade from the road right of way that services the lot and also have a road located on the down slope end of the building site, the lot development will be accomplished so as to leave a 25-ft wide buffer along the lower end of the lot.

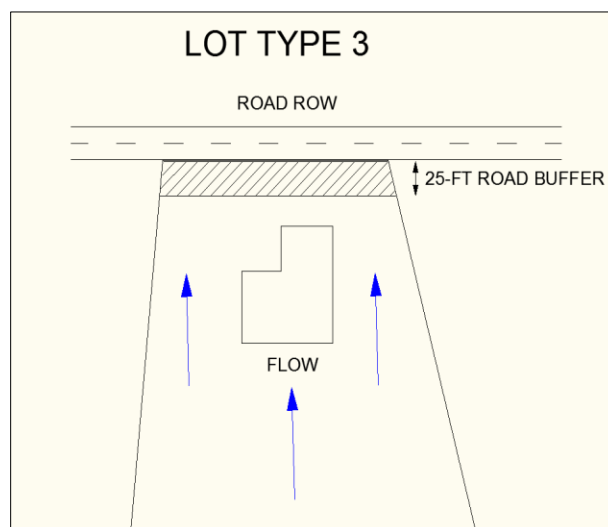


Lot Type 3 – For all lots that have the building site located upgrade from the road right of way that services the lot, the following will be accomplished:

At a minimum, the first 25-ft of entrance drive will be constructed using an approved pervious surface.

At a minimum, the home will be located in such a manner to be able to establish a 25-ft buffer between the entrance road right of way and the home site roof downspouts, allowing the opportunity for the roof drainage to be dispersed by using a level spreader or other approved measures.

If the 25-ft buffer cannot be obtained for any portion of the proposed lot as listed above, then the homeowner, or builder will provide approved “low impact devices” such as rain barrels, cisterns, vegetative swales, or other BMPs to provide permanent water quality control from the impervious surface of the proposed home.



1.5 References

Thurston County Water Resources Unit. Thurston County Drainage Design and Erosion Control Manual. Volume V, July 2009