

Stormwater Regulations Fact Sheet #4

Disconnecting Your Impervious Area

The information contained in this document is for reference purposes only and should not be deemed as a legally-binding interpretation or substitute for the requirements contained in the Stormwater Management Regulations found in Chapter 6 of the PWD Regulations or any other Federal, State or Local rules.

Reduce Impervious Cover to be Managed

Reduction of impervious cover will reduce runoff from the site and therefore reduce the structural stormwater management requirements for the development project. Impervious cover can be effectively removed by limiting the amount of actual impervious surfaces or by reducing the impervious area that is directly connected to the stormwater conveyance system. The Directly Connected Impervious Area (DCIA) Worksheet guides the designer through this stage of the design process. Disconnected impervious area may be treated as pervious when determining whether redevelopment site has met the 20% reduction in impervious surface. Disconnected impervious area need not be managed for Water Quality or Channel Protection. Appropriate Curve Number values must be utilized when performing Flood Control calculations.

Green Project Review

For redevelopment projects that are able to disconnect 95% or more of the impervious area in the post construction condition PWD offers a Green Project Review. When performing a Green Project Review, PWD is committed to providing review of the stormwater management component within 5 business days of receipt of a complete project submittal. A Green Project Review may not necessarily include review of additional elements outside stormwater management such as Private Cost or Act 537 review. The applicant MUST identify their project as eligible for a Green Project Review in the letter of transmittal sent with the technical submittal. For more information or to determine if a project is eligible for a Green Project Review please contact PWD.

Minimize Area of Impervious Cover

In many cases, alternative configurations for streets and parking lots can provide the same function as traditional designs with reduced impervious area. Minimizing the area of pavement and rooftops will reduce the size and cost of stormwater management practices (SMPs) that must be constructed. Detailed guidelines, examples, and additional references are discussed in "Section 6: Integrated Site Design" of the Philadelphia Stormwater Management Guidance Manual (Manual).

Disconnect Impervious Cover

Rooftop Disconnection

A reduction in DCIA is permitted when the downspout is disconnected and then directed to a pervious area which allows for infiltration, filtration, and increased time of concentration. PWD will support the applicant in their request to obtain relevant necessary Plumbing Code variances for approved rooftop disconnections. A rooftop is considered to be completely or partially disconnected if it meets the requirements below:

- The contributing area of rooftop to each disconnected discharge is 500 square feet or less,
- The soil is not designated as a hydrologic soil group "D" or equivalent, and
- The overland flow path has a positive slope of 5% or less.

Pavement Disconnection

A reduction in DCIA is permitted when pavement runoff is directed to a pervious area which allows for infiltration, filtration and increase time of concentration. This method is generally applicable to small or narrow pavement structures such as driveways and narrow pathways through otherwise pervious areas (e.g., a bike path through a park). For structures that meet the requirements, all of the disconnected impervious area may be deducted from the total impervious cover. Pavement is disconnected if it meets the requirements below:

- The contributing flow path over impervious cover is no more than 75 feet,
- The length of overland flow is greater than or equal to the contributing length,
- The soil is not designated as a hydrologic soil group "D" or equivalent,
- The slope of the contributing impervious area is 5% or less, and
- The slope of the overland flow path is 5% or less.

Maximize Tree Canopy over Impervious Cover

A reduction in DCIA is permitted when new or existing tree canopy from the approved species list extends over or is in close proximity to the impervious cover. Under these circumstances, a portion of impervious cover may be treated as disconnected and deducted from total impervious cover.

The DCIA reduction is calculated for **new** trees as follows:

- The tree species must be chosen from the approved list (see "Section 8: Landscape Guidance" of the Manual).
- New trees planted must be planted within 10 feet of ground level DCIA within the limits of earth disturbance.
- New deciduous trees must be at least 2-inch caliper and new evergreen trees must be at least 6 feet tall to be eligible for the reduction.
- A 100 square foot DCIA reduction is permitted for each new tree. This credit may only be applied to the impervious area adjacent to the tree.
- The maximum reduction permitted, for both new and existing trees is 25% of ground level impervious area within the limits of earth disturbance, unless the width of the impervious area is less than 10 feet. Up to 100% of narrow impervious areas (i.e. sidewalks and paths) may be disconnected through the application of tree credits.

The DCIA reduction is calculated for **existing** trees as follows:

- The tree species must be on the approved list (see “Section 8: Landscape Guidance” of the Manual).
- Existing trees whose canopies are within 20 feet of ground level DCIA within the limits of earth disturbance.
- Existing trees must be at least 4-inch caliper to be eligible for the reduction.
- A DCIA reduction equal to one-half the canopy area is permitted. This credit may only be applied to the DCIA adjacent to the tree.
- The maximum reduction permitted, for both new and existing trees is 25% of ground level impervious area within the limits of earth disturbance, unless the width of the impervious area is less than 10 feet. Up to 100% of narrow impervious areas (i.e. sidewalks and paths) may be disconnected through the application of tree credits.

Install Green Roofs to Minimize DCIA

A reduction in DCIA is permitted when a green roof is installed on a building. The design, construction, and maintenance plan must meet the minimum requirements specified by PWD in “Section 7: Stormwater Management Practices Design Guidelines” of the Manual. To encourage this emerging technology, the DCIA reduction permitted is equal to the entire area of the green roof. However, since a green roof is not a zero discharge system, the remaining site design must safely convey roof runoff to the storm sewer, combined sewer, or receiving water.

Install Porous Pavement to Reduce DCIA

A reduction in DCIA is permitted when a porous pavement system is installed on the site such that it does not create any areas of concentrated infiltration. Porous pavement systems, including porous asphalt; porous concrete; porous/permeable pavers; and other approved porous surfaces can be considered to be disconnected if they receive direct rainfall only and are underlain by a crushed stone infiltration bed that is at least 8 inches deep. Porous asphalt systems must meet the minimum requirements specified by the PWD in “Section 7: Stormwater Management Practices Design Guidelines” of the Manual of the Manual. If the porous surface receives runoff from adjacent conventional pavement surfaces or if roof or other runoff is directed into the subsurface storage bed, the porous pavement/infiltration bed system will be considered a structural SMP and the porous surface will be considered DCIA.