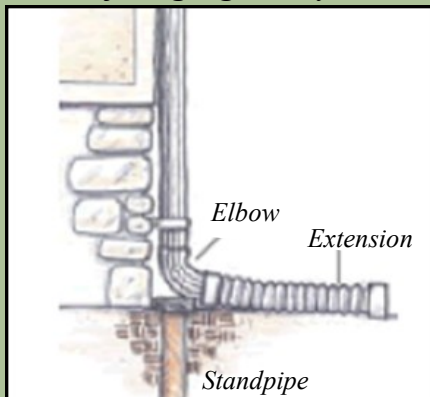


Low Impact Development Practice: *Rooftop Disconnect*

Retrofitting a gutter system

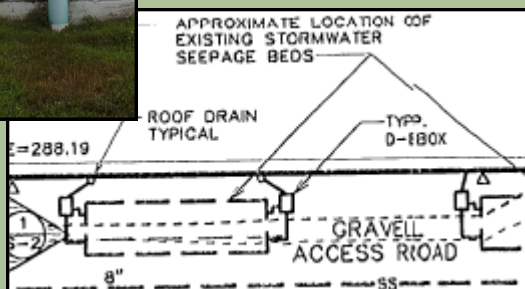


Elbow and extension attached to a downspout, water should drain at least 5 feet away from house. Source: VT DEC

Regional Example



The Big Lots building complex in Morrisville Plaza drains stormwater runoff from the 0.59 acres of rooftop into gutters that lead to an underground dry well for infiltration.



Location

Butternut Mountain Farm & Morrisville Plaza, Morristown, Vermont

Applicable Land Use

Civic, Public, Residential, Commercial,

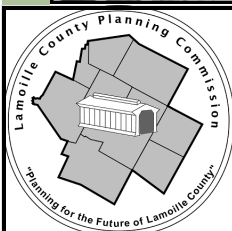
Problem

Buildings and associated paved areas serve as impervious cover and reduce the amount of area available for groundwater recharge on site. Additionally, directly connected impervious areas, such as building gutter systems, drain into storm sewers or nearby waterways and increase the speed and amount of runoff that leaves a site, contributing to peak flow and scouring in streams.

Description

Rooftop disconnection manages runoff close to its source by intercepting, infiltrating, filtering, treating, or reusing it as it moves from the impervious surface to the drainage system. Disconnection of impervious area is applicable to building rooftops or non-rooftop areas, such as narrow driveways or paths. To retrofit a gutter system, the basic practice consists of removing existing gutter from a standpipe and installing a splash block (see diagram). Implementation requires directing the runoff to an adjacent vegetated pervious surface and can incorporate natural site features such as forested areas. The disconnection can lead to alternative runoff reduction practices, including micro-infiltration practices (dry wells or french drains), rain gardens or bioretention areas, or storage and reuse with a cistern or other vessel. Rooftop disconnection can be used as part of a treatment system in tandem with other best management practices (BMP) to reduce the size of downstream treatment and volume capture BMPs.

Implementation requires certain site conditions, primarily a site that has underlying permeable soils (no type D soil) to prevent ponding and aid infiltration. Other site considerations include: being able to direct water away from building foundations and footings; ensuring landscaped areas receiving stormwater are adequately sized to prevent runoff or erosion; and the possibility of incorporating overflow drainage.

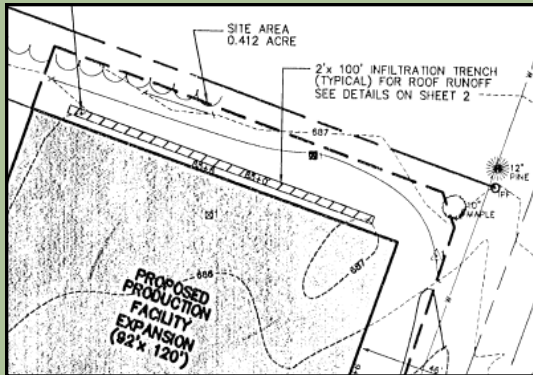


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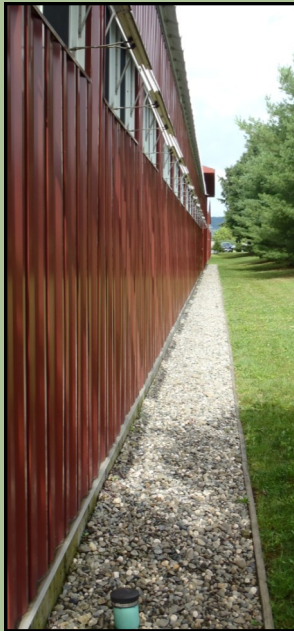


Low Impact Development Practice: *Rooftop Disconnect*

Regional Example



A building at the Butternut Mountain Farm incorporates this practice by capturing building stormwater runoff from roof via sheet-flow onto a gravel infiltration trench containing a french drain to infiltrate into groundwater within the Lamoille River Watershed.



Maintenance

Disconnection of impervious areas promotes onsite filtration and infiltration into the soil. When stormwater runoff flows over a vegetated surface, the vegetation filters suspended sediment and attached pollutants and improves water quality. In addition, directing the runoff to a vegetated pervious area assists in maintaining the pre-development hydrologic characteristics by allowing groundwater recharge and decreasing the total volume of stormwater discharged to receiving water bodies.

Project Specifics

Periodic inspection to ensure areas designated to receive the stormwater runoff are maintained and free of debris.

Water Quality Best Management Practices

Structural:	Used:	Non-Structural:	Used:
Bioretention or Rain Garden		Conservation Design	
Infiltration Basin		Cluster Development	
Infiltration Trench or Gallery		Open Space Preservation	
Dry Well		Preserve Natural Areas	
Constructed Wetland		Shared Driveway	
Vegetated Swales		Minimize Pavement Widths	
Tree Boxes/Planters		Minimize Setbacks & Frontage	
Rain Barrels/Cisterns		Disconnect Impervious Surfaces	X
Porous Pavement		Soil Restoration	
Green Roof		Riparian Buffer/Filter Strip	

Disconnection of impervious area is applicable to building rooftops or non-rooftop areas such as narrow driveways or paths. This practice can apply a simple disconnection, whereby rooftops and/or onsite impervious surfaces are directed to vegetated pervious areas, and disconnection leading to an alternative runoff reduction practice(s) adjacent to the roof, such as a french drain, dry well, or cistern.

Resources

- Additional design guidance can be found under Section 3.2 Disconnection of Rooftop Runoff Credit of the Vermont Stormwater Management Manual Vol. 1 - www.anr.state.vt.us/dec/waterq/stormwater.htm
- Vermont DEC Small Sites Guide for Stormwater Management - www.anr.state.vt.us/dec/waterq/stormwater/htm/sw_LID.htm

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