

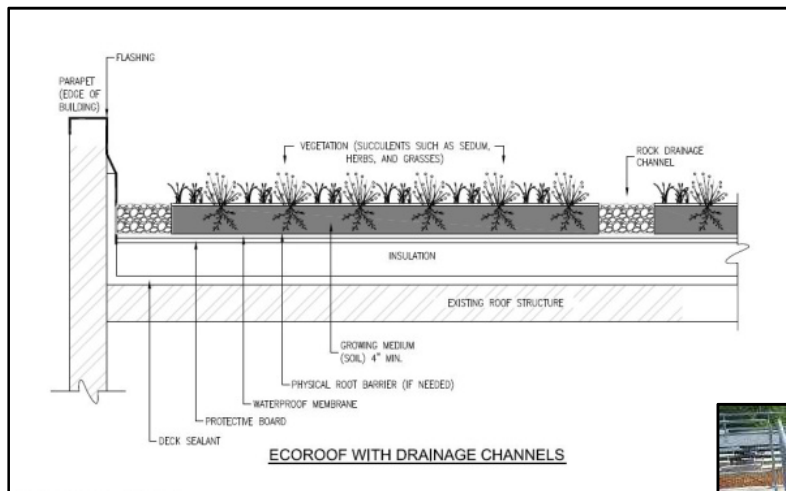
MAINTAINING STORMWATER CONTROL MEASURES

Guidance for Private Owners & Operators

STORMWATER CONTROL MEASURES

Green Roof

Green roofs intercept precipitation and slow and reduce runoff from rooftops through storage and evapotranspiration performed by plants. In addition to reducing the amount of stormwater runoff and improving its quality, green roofs also reduce the effect of city “heat islands” and provide microhabitats for birds and insects.



*City of Portland Oregon
Bureau of Environmental
Services typical
specifications for the
Ecoroof green roof.
Diagram Credit: City of
Portland Oregon Bureau
of Environmental Services.*

*Green roofs are planted with specific plant types such as **sedums** that tolerate variable weather conditions, particularly long dry periods. Credit: Chagrin River Watershed Partners, Inc.*



MAINTENANCE REQUIRED WHEN:

- Vegetation shows signs of stress or dies.
- Debris collects around the drains.
- Leaks are observed in the synthetic roof membrane.
- Unwanted vegetation appears.
- Animal burrows or damage is observed.
- Plant material needs to be watered during dry periods.

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ROUTINE AND NON-ROUTINE MAINTENANCE

- Weeds: Remove weeds, grass or any other plant material growing on the surface of the pavement.

Non-Routine Maintenance:

- Vacuum Sweep: Vacuum sweep entire surface or known clogged areas using a regenerative air street sweeper beginning at 1,500 rpms and increase if needed. More than one pass may be necessary.
- Gravel Replacement: Replace gravel within joints between permeable pavers for PICP, especially after vacuum sweeping.
- Pavement Cleaning: Remove surface stains using a biodegradable detergent.
- Pavement Repair: Replace deteriorated permeable pavers, pervious concrete and porous asphalt following manufacturer guidelines.

Green Roof

Routine Maintenance:

- Moisture Level: Check moisture level of growing media daily during growing season to maintain adequate moisture for plant survival.
- Irrigation: Irrigate vegetation during periods of drought per manufacturer's specifications.
- Weeds: Remove weeds and invasive plants.
- Outlets: Keep outlets such as drains and gutters free from blockage by sediment, debris, trash, mulch or plant material.
- Vegetation Management: Inspect plant health seasonally to ensure vigorous growth.
- Leaks or Damage: Inspect system components for leaks and damage based on manufacturer's specifications.

Non-Routine Maintenance:

- Erosion: Replace eroded or displaced soil or other growing medium materials.
- Trimming Vegetation: Trim vegetation per manufacturer's specifications.
- Plant Replacement: Replace diseased or dying plants.
- Soil Test: Perform annual soil test to check soil fertility and pH.

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ROUTINE AND NON-ROUTINE MAINTENANCE

- Fertilizer Application: Apply slow-release fertilizer per manufacturer's specifications.
- System Component Repair: Repair or replace damaged system components based on manufacturer's specifications.

Non-Structural SCMs: Riparian & Wetland Setbacks and Conservation Areas

Routine Maintenance:

- Encroachment: Inspect boundaries and internal areas of riparian and wetland setbacks or conservation areas for encroachment, damaged vegetation or soil-disturbing activities. Report non-compliance issues to appropriate regulatory authority or conservation easement holder.
- Vegetation Management: Inspect plant health seasonally to ensure vigorous growth and protection from soil erosion.

Non-Routine Maintenance:

- Invasive Vegetation: Treat and remove invasive vegetation from riparian and wetland setbacks or conservation areas per the terms of setback regulations or conservation easement agreements.
- Sign Replacement: Replace riparian and wetland setback or conservation area boundary signs if damaged, vandalized or removed.

Rain Barrels & Cisterns

Routine Maintenance:

- Leaks: Inspect system components for leaks at all connections and joints per manufacturer's specifications.
- Clogging: Inspect system components for clogging at all connections and joints per manufacturer's specifications.
- Winterization: Properly winterize rain barrels and cisterns to protect connections, pipes and storage containers from freeze damage.

Green Roof Inspection and Maintenance Checklist

Facility:			
Location/Address:			
Date:	Time:	Weather Conditions:	Date of Last Inspection:
Inspector:		Title:	
Rain in Last 48 Hours: <input type="checkbox"/> Yes <input type="checkbox"/> No If yes, list amount and timing:			
Type of Irrigation System: <input type="checkbox"/> overhead <input type="checkbox"/> drip <input type="checkbox"/> other, specify:			
Results from Most Recent Soil Test Available: <input type="checkbox"/> Yes <input type="checkbox"/> No			
Site Plan or As-Built Plan Available: <input type="checkbox"/> Yes <input type="checkbox"/> No			

Inspection Item	Comment	Action Needed
1. VEGETATION		
Plant cover is less than 90%.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<input type="checkbox"/> Yes <input type="checkbox"/> No
Vegetation is wilting, discolored, or dying due to disease, pests, or stress.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<input type="checkbox"/> Yes <input type="checkbox"/> No
Vegetation is stressed due to drought.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<input type="checkbox"/> Yes <input type="checkbox"/> No
Vegetation needs to be controlled through manual removal or mowing if specified by manufacturer.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<input type="checkbox"/> Yes <input type="checkbox"/> No
2. GROWING MEDIUM/SOIL LAYER		
Standing water is present. If yes, describe color or smell.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<input type="checkbox"/> Yes <input type="checkbox"/> No
Sediment has accumulated at the surface or throughout the media.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<input type="checkbox"/> Yes <input type="checkbox"/> No
Gullies or other evidence of erosion are observed.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<input type="checkbox"/> Yes <input type="checkbox"/> No
Soil depth is insufficient.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<input type="checkbox"/> Yes <input type="checkbox"/> No
Based on most recent soil test, fertilization is needed.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<input type="checkbox"/> Yes <input type="checkbox"/> No
3. STRUCTURAL COMPONENTS		
Waterproof membrane is cracked or leaking.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<input type="checkbox"/> Yes <input type="checkbox"/> No
Other structural components are in poor condition.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<input type="checkbox"/> Yes <input type="checkbox"/> No
4. INLETS/DRAINAGE LAYER		
Inlets are in poor structural condition.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<input type="checkbox"/> Yes <input type="checkbox"/> No
Sediment, vegetation, trash or debris are blocking inlets.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<input type="checkbox"/> Yes <input type="checkbox"/> No
5. IRRIGATION SYSTEM		
Drip lines, supply lines, or other irrigation components are not functioning or are in poor structural condition.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<input type="checkbox"/> Yes <input type="checkbox"/> No
Additional Notes		
Wet weather inspection needed <input type="checkbox"/> Yes <input type="checkbox"/> No		

Site Sketch: