



Porous Concrete/Asphalt

This **Advanced Method and Material** was developed jointly by the City of Bellingham Public Works Department and Sustainable Connections to increase stormwater infiltration by providing means for the installation of porous concrete or porous asphalt.



BENEFITS

Porous concrete and porous asphalt provide structural surfaces capable of supporting traffic loads that allows for water drainage through the section into the subgrade below. Additional benefits include:

- ❖ Decreased runoff to adjacent areas
- ❖ Faster surface dry time
- ❖ Faster melt-off of snow
- ❖ Greater resistance to freeze/thaw cracking
- ❖ Help meet local, state and federal stormwater requirements
- ❖ Contribute LEED® points for your project

Stormwater runoff is a key component of site design in the Pacific Northwest due to heavy annual rainfall. Stormwater runoff from impervious areas, specifically roadways, is the primary source of pollutants that are found in our regional streams, rivers, and Puget Sound. In both public and private facilities, alternatives to conventional collect/treat/release infrastructure are being designed and implemented to meet both state and federal regulations.

A porous concrete or porous asphalt surface is one effective way to treat stormwater as it keeps larger organic matter from downstream stormwater systems while providing an infiltration facility for aquifer recharge. A key component is the installation of a minimum layer of drain rock underneath for storage and structural stability, determined by the installer or engineer.

POLICY/CONDITIONS

Porous concrete or porous asphalt may be installed when the following conditions are met:

- The site subgrade has been reviewed by a suitably qualified professional and an infiltration rate determined if applicable.
- The porous concrete is installed by an NRMCA certified contractor.
- The porous concrete mix is designed in accordance with the City of Bellingham Public Works development standards.
- The porous asphalt mix is designed and approved by the City of Bellingham Public Works department.
- A stormwater site plan has been reviewed and approved for the site if applicable.
- Installations on grades greater than 5% need to be specifically engineered.
- Drain rock shall meet the current City or WSDOT standards.

SCOPE

Driveways, patios and pathways on both private property or in the City right-of-way.

DEFINITIONS

Porous Concrete: a concrete design mix found in COB construction specifications that provides voids for water percolation.
Porous Asphalt: an asphalt mix that provides voids for water percolation
NRMCA: National Ready Mix Concrete Association, certification is required for any contractor installing porous concrete in the City of Bellingham.
Infiltration rate: the rate at which stormwater soaks into a native soil. Testing/certification of this rate is required at any site where porous concrete or porous asphalt is used.

PERMIT REQUIREMENTS

City of Bellingham Stormwater Permit (if over 500 sf of land disturbing activities).
City of Bellingham Public Works Permit (if in City ROW).

Contact COB Permit Center for more information: (360) 778-8300 or permits@cob.org.



Porous Concrete/Asphalt (cont'd)

COMPLIANCE WITH THESE STANDARDS

- NRMCA Porous Concrete Installer Certification
- City of Bellingham – Construction Special Provisions (Development Guidelines) for porous concrete

REFERENCES / SOURCES

City of Bellingham Development Standards – Porous Concrete Sidewalk Installation
Puget Sound Action Team – Low Impact Development – Technical Guidance Manual for Puget Sound
Washington Department of Ecology – Stormwater Management Manual for Western Washington

FINANCIAL INCENTIVES

City of Bellingham

Use of porous concrete or porous asphalt will help to meet criteria that could qualify a project for a 50% reduction in the stormwater development charges. See Bellingham Municipal Code 15.16.030 or contact City staff for details and criteria about the reduced stormwater development charges.

Additionally, porous concrete or porous asphalt can also be incorporated into a project to help avoid the triggering of the 0.1 cfs increase in flow for the 100-year storm threshold to require stormwater detention or to reduce the required size of stormwater mitigation facilities by using allowed stormwater modeling credits. Credits can be found in Stormwater Management Manual for Western Washington published in 2005 or the Low Impact Development Technical Guidance Manual for Puget Sound.



ADDITIONAL RESOURCES

National Ready Mixed Concrete Association (NRMCA)

NRMCA supports the continued expansion and improvement of the ready mixed concrete industry through leadership, advocacy, professional development, promotion and partnering.
www.nrmca.org



Asphalt Pavement Alliance

The Asphalt Pavement Alliance's mission is to further the use and quality of Hot Mix Asphalt pavements. The Alliance will accomplish this through research, technology transfer, engineering, education and innovation.
www.pavegreen.com/water_quality.asp



Pervious Concrete Pavement

A site dedicated to pervious concrete pavement as an effective means to address important environmental issues and support green, sustainable growth.
www.perviouspavement.org

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