
CITY OF MERCER ISLAND

COMMUNITY PLANNING AND DEVELOPMENT

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STORM WATER DRAINAGE

Review and Permit Process

When is a Storm Water Drainage Review necessary?

A STORM WATER DRAINAGE REVIEW is required for projects that:

1. Result in 2,000 square feet, or greater, of new plus replaced **Hard Surface** area, or
2. Have a land disturbing activity of 7,000 square feet or greater, or
3. Result in a net increase of **impervious surface** of 500 square feet or greater.

What should I know about Hard Surface, Impervious Surface, and Hardscape?

Hard Surface and **Impervious Surface** are terms used in the storm water regulations (MICC 15.09) while **Hardscape** is a term used in the zoning code (MICC 19.02.020(F)(3)(b)) and not in the storm water regulations.

Hard Surface can be an impervious surface, a permeable pavement, or a vegetated roof. Common Hard Surfaces include roofs, paved driveways, and paved sport courts.

Impervious Surface is a non-vegetated surface area which either prevents/retards the entry of water into the soil mantle as under natural conditions prior to development or causes water to run off the surface in greater quantities or at an increased rate of flow from the flow present under natural conditions prior to development. Common **Impervious Surfaces** include, but are not limited to, roof tops, walkways, patios, driveways, parking lots or storage areas, concrete or asphalt paving, gravel roads, packed earthen materials, and oiled, macadam or other surfaces which similarly impede the natural infiltration of storm water.

Hardscape is defined as the solid, hard elements or structures that are incorporated into landscaping. The hardscape includes, but is not limited to, structures other than buildings, paved areas other than driving surfaces, stairs, walkways, decks, patios, and similar constructed elements. The **hardscape** [zoning] within landscaping is usually made up of materials that include, but are not limited to, wood, stone, concrete, gravel, artificial turf, and permeable pavements or pavers, and similar materials. Hardscape does not include solid, hard elements or structures that are covered by a minimum of two feet of soil intended for softscape (for example, a septic tank or detention tank covered with at least two feet of soil and planted shrubs is not hardscape). Hardscape areas do not include driving surfaces or buildings.

Pervious pavers are not considered **Impervious Surface** when used as a non-drivable surface (e.g. patio, path, sport court), does not include an underdrain pipe system and is installed meeting the standards in the [Permeable Paver Block Design Guidelines](#). From a zoning code perspective pervious pavers are considered **Hardscape** [zoning].

All other paver systems and installations are considered **Impervious Surface**.

Artificial turf is considered **Hardscape** [zoning] and, when installed according to the manufacturer's recommendations is not considered an **Impervious Surface** when:

1. There is documentation from the manufacturer confirming that the turf material is porous, allowing the free flow of water through it, and
2. The base material is washed rock, sand, or other material that does not impede the natural flow of storm water through it, and
3. There is no underdrain pipe system.

Refer to the table below for a graphical depiction of the storm water and zoning designations for different construction materials.

Storm Water and Zoning Designations for Construction Materials								
	Roof	Driveway (regardless of surface material)	Paved Areas (non-driving surfaces)	Gravel (non-driving surfaces)	Paver Blocks <u>with</u> Underdrain	Paver Blocks <u>without</u> Underdrain	Artificial Turf <u>with</u> Underdrain	Artificial Turf <u>without</u> Underdrain
Stormwater	HS/IMP	HS/IMP	HS/IMP	not IMP	IMP	not IMP	IMP	not IMP
Zoning	LOT COV	LOT COV	H SCAPE	H SCAPE	H SCAPE	H SCAPE	HSCAPE	H SCAPE

HS = hard surface
 IMP = impervious
 H SCAPE = hardscape
 LOT COV = lot coverage
 Note 1: Lot coverage includes house, driving surfaces, and accessory buildings

How much exterior wall can be removed before the roof area is considered Replaced Hard Surface?

Replaced Hard Surface [storm water] for structures is based on the removal of exterior walls down to the foundation. If any part of an exterior wall is removed down to the foundation and is replaced, all supporting roof area replaced is considered **Replaced Hard Surface** [storm water]. The only exception is when the exterior wall removal to foundation is done for a building addition and the wall becomes interior space (i.e. no longer an exterior wall).

What information is needed for the review?

Complete an application with the following information:

1. Owner Name
2. Site Address
3. Description of proposed work

Submit drainage plans electronically to the City's [Permit Submittal Portal](#).

1. Existing Conditions
2. Site Layout
3. Grading

Proposed temporary erosion and sediment control:

1. Construction Storm Water Pollution Prevention Plan (SWPPP) Narrative
2. Projects triggering only Minimum Requirements #1-5 can use the City's Small Project Construction SWPPP Narrative (Worksheet B).
3. Temporary Erosion and Sediment Control Plan

Proposed storm drainage:

1. Drainage Report
2. Drainage Plan

A detailed list of required content for each of these submittals is included in the City's Engineering Plan Submittal Requirements handout.

What is the process?

The application and site drawings will be reviewed by the Development Review Engineer for compliance with the City STORM WATER MANAGEMENT ORDINANCE (MICC Chapter 15.09). The reviewer may require additional information, corrections or modifications to the drawings which will be communicated to the applicant's Engineer. In some cases, a geotechnical analysis (soils report) may be required to define the character and nature of the onsite soils, slope stability, infiltration potential, LID feasibility, recommended methods of construction, or measures to be taken to accomplish the work. Soils reports shall be prepared by a professional soil scientist certified by the Soil Science Society of America (or an equivalent national program), or by other suitably trained persons working under the supervision of a professional engineer, geologist, hydrogeologist, or engineering geologist registered in the State of Washington.

Following the approval of the plans and accompanying documents, City staff will inform the applicant that the plan is approved and ready for issuance of a Storm Water Permit. If the plan is associated with a building permit application, the approved plans and permits will be combined with the building plans for issuance together.

If the application included a STORM WATER MANAGEMENT PLAN requirement, the applicant may be required to post the required bond or cash set aside to cover the estimated cost of the storm water facilities and final site stabilization and restoration work, prior to the issuance of the Storm Water Permit. Final as-built drawings prepared by the applicant's engineer shall be submitted and approved prior to final acceptance of the work and subsequent release of the bond or cash set aside.

Inspections and Approval Process

The Contractor is required to install and request an inspection of the TEMPORARY EROSION AND SEDIMENTATION CONTROL facilities, and tree protection prior to commencing any clearing, excavating, grading or other land disturbing activities.

During construction, inspections are required prior to backfilling any storm drainpipe or connections, backfill/compaction, the construction of flow control and/or treatment facilities, low impact development best management practices (LID BMPs), watercourse stabilization, final site grading, and site/right-of-way (ROW) restoration. Inspections during construction will also verify proper installation and maintenance of the required erosion and sediment controls. A video inspection of the storm drainage system may also be required. LID BMPs may require special inspections.

Inspections are required upon completion of construction and prior to final approval or occupancy to ensure proper installation of permanent storm water facilities and to verify that an Operations and Maintenance Manual has been completed and responsibility for maintenance is assigned for storm water treatment and flow control.

Projects that meet the threshold for a storm water review must comply with BMP T5.13 Post-Construction Soil Quality & Depth. This requires enhancement of on-site soils in turf and landscape areas meeting specific requirements. For more information, refer to [BMP Requirements](#) and the [Building Soil Manual](#). The manual includes a field guide to verify soil quality and depth. Non-compliance could result in removal of landscaping and turf to meet the soil requirements before replanting.

Final As-Built Plan Submittal

Prior to final acceptance of the project, the applicant shall submit to the City's Development Review Engineer a final as-built site drawing in sufficient detail to accurately reflect the actual locations of the storm drainage system and storm water BMPs/facilities. These should be engineering drawings that accurately represent the storm water infrastructure of the project as constructed. These corrected drawings must be professionally drafted revisions that are stamped, signed, and dated by a licensed civil engineer registered in the State of Washington, unless otherwise allowed by the Development Review Engineer.

Seasonal Development Limitation

A seasonal development limitation (MICC Chapter 19.07.060(D)(4)) on construction activity, defined as work on any building site that affects erosion control (excavation, foundation placement, backfill, etc.) is effective annually between October 1 and April 1. To avoid the waiver requirement, all site-related activities on affected building sites (see list on page 3 of this handout) must be completed outside of the October 1 to April 1 seasonal development limitation period.

Affected Building Sites

1. Sites subject to an Erosion Hazard with soils having "severe" rill and inter-rill erosion hazard, typically slopes of 15 percent or greater over any 30-foot horizontal run. Also, see Mercer Island's Erosion Hazard Map.
2. Sites subject to a Potential Slide Hazard with a slope of 15 percent or greater over any 30-foot horizontal run and with other geologic concerns warranting a potential slide hazard. Also, see Mercer Island's Landslide Hazard Map.
3. Sites subject to a Steep Slope Hazard with a slope of 40 percent or greater and having vertical relief of 10 feet or more. These sites are defined as Critical Slopes. Critical Slopes may cross property lines and the Critical Slope Hazard Area includes the Critical Slope and the land that extends 10 feet past the top and toe of the slope. Also, see Mercer Island's Landslide Hazard Map.
4. Any site that is considered by the Building Official or City Engineer to be subject to the seasonal development limitation.