

# GHI IMPERVIOUS SURFACE RULES

## A. PURPOSE

1. Part of GHI's mission is to maintain, protect and enhance the assets of our cooperative. One of these assets is green space. GHI encourages Members to keep their yards in their natural condition as much as possible. This is consistent with the original design of Greenbelt as a garden city.
2. The impervious surface rules herein are intended to help maintain the benefits of natural landscaping by limiting the amount of impervious surface in GHI yards and requiring use of permeable materials. These rules are intended purpose of these rules is to address increased stormwater runoff, reduce or prevent flooding in GHI, and reduce negative effects on area the Cooperative's streams from increased surface water, and maintain a desirable quality of life within the Cooperative. The impervious surface rules herein are intended to limit the amount of impervious surface on GHI yards in the face of increasing precipitation intensity, frequency, and duration due to climate change. Limiting the amount of impervious surface area in GHI also helps Prince Georges County meet its requirement to reduce pollution and flooding caused by rainfall.

## B. RULES

1. Any new eExterior surface structures (meaning those partially or totally outside of the Member's unit's indoor liveable space) such as decks, patios, and walkways other than the access sidewalks, must be constructed using paved with impervious materials, such as concrete, asphalt, or non-porous composite or conglomerate materials.
  - a. Exterior surface structures such as decks may contain concrete pylons in their design, but may not be constructed paved with impervious materials such as concrete, asphalt, or non-porous composite or conglomerate materials. Although permeable, porous asphalt is not allowed because it absorbs heat and creates local heat islands.
  - a.b. Exterior elevated structures, such as decks and porches, may contain concrete pylons in their design, but may not be constructed with impervious materials.
  - b.c. Multiple allowable pervious surface materials are described listed in Section F, below, as well as resources to help Mmembers understand their use, available rebates, and technical specifications.

- ~~2. Pervious surfaces such as patios and decks may cover a single contiguous area up to a total of XXX sq ft or up to two distinct areas totaling no more than XXX sq ft.~~

## C. BACKGROUND

- ~~1. Our weather is changing.~~—Precipitation is increasing in intensity, frequency and duration. ~~Our existing development and infrastructure increase the negative effects of storms, including damage to units.~~ The amount of existing impervious surfaces in and around GHI increases the impact and frequency of flooding events, including ~~in direct relation to~~ damage to GHI member homes and erosion of paths and common areas.
- ~~2.~~—Installing new impervious surfaces reduces the area of land available for rainwater to soak into the ground as well as reducing the area of land that can support trees, woody plants, shrubs, grasses or other types of vegetation (e.g., gardens). ~~The reduction of water-absorbing ground and associated vegetation to install impervious surfaces increases stormwater runoff.~~ Trees and other vegetation help reduce the amount of stormwater runoff by trapping silt and sediment, stabilizing areas susceptible to erosion, increasing infiltration, and reducing surface runoff. By contrast, impervious surfaces increase the speed and amount of stormwater runoff and, therefore, increase erosion. ~~The~~ ~~a~~Additional runoff from impervious surfaces can overload the capacity of streams and storm drains. This runoff also picks up and carries pollutants into storm drains that flow into GHI streams Greenbelt Lake, and ultimately into the Anacostia River and Chesapeake Bay, degrading the water quality in these waterways. ~~Pollutants can include:~~
  - ~~● Sediment~~
  - ~~● Oil, grease and toxic chemicals from motor vehicles~~
  - ~~● Pesticides and nutrients (e.g., nitrogen and phosphorus in fertilizer) from lawns and gardens~~
  - ~~● Viruses, bacteria and nutrients from pet waste~~
  - ~~● Road salts~~
  - ~~● Heavy metals from roof shingles, motor vehicles and other sources~~
  - ~~● Warmer runoff from impervious surfaces such as streets and rooftops~~

3. ~~pollutants can harm fish and other wildlife, kill native plants, contaminate groundwater, and make recreational waters (e.g., Greenbelt Lake) unsafe and unpleasant.~~<sup>1</sup>

## **D. DEFINITIONS**

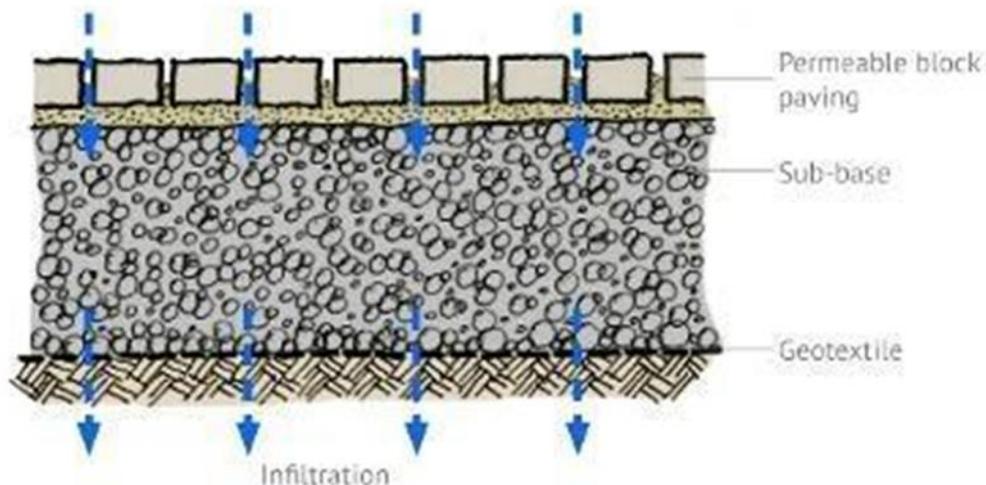
1. **Impervious surface**: a hard surface area that prevents or substantially impedes the natural infiltration of water into the underlying soil, resulting in an increased volume and velocity of surface water runoff. Impervious surfaces include, but are not limited to, buildings; patios, decks, sidewalks, driveways, pavement, parking areas, and driveways constructed of concrete or asphalt; artificial turf, compacted gravel, and hard-surfaced recreational areas (e.g., tennis courts).
2. **Pervious surface**: a surface that allows water to percolate into the underlying soil. Pervious surfaces include grass, mulch, planted areas, vegetated roofs, permeable paving, and porches and decks erected on pier foundations that maintain the covered surface's water permeability ([coz.dc.gov/zoning-rules/general-rules/pervious-surfaces/](http://coz.dc.gov/zoning-rules/general-rules/pervious-surfaces/))
3. **Swales**. Swales are depressed channels designed to move stormwater while slowing down stormwater runoff and removing pollutants.
4. **Compacted cover** - An area of land where water percolation infiltration is reduced hindered by increased compaction of the soil as compared to undisturbed areas (e.g., forest, meadow). Soil compaction occurs from grading, regular foot or vehicle traffic, or regular pet use (e.g., a dog run).
5. **Erosion** - The process by which soil, mulch, etc. is worn away by the action of water.
6. **Runoff** - That portion of rain and/or snow melt that travels over the land surface, rooftops, sidewalks, roads, patios, etc.
7. **Stormwater** – The flow of water that results from rain and/or snow melt runoff, street runoff, and land surface (e.g., yards, common areas) runoff and drainage.

## **E. Allowable Permeable Materials[1]**

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1. Allowable surface and elevated structure construction materials consist of include, permeable pavers, bricks with sand filler, permeable pavement, tamped gravel, and wooden boards.
2. Light colored permeable materials are preferredrecommended in order to increase the reflection of sunlight and reduce the heat island effect.
3. Any additional construction costs associated with using permeable materials in new construction or in removing existing impervious surface and replacing with permeable materials can be offset by utilizing Prince Georges County's Raincheck Rebate program (see Section ).
4. Permeable Pavers

- a. Permeable pavers are a self-draining system that allows rainwater to seep around individual pavers, soaking naturally into the subbase and ground underneath as indicated in the figure below.



Removal of impervious surface and replacement with permeable pavers is commonly done for patios, driveways, and parking lots.

- b. Permeable pavers can create a longer-lasting surface compared with conventional concrete and can reduce flooding on your property or the surrounding area.
- c. Permeable pavers and re-vegetation:
  - a. Reduce flooding and erosion caused by stormwater runoff
  - b. Promote groundwater recharge, increasing both the quantity and quality of water
5. Bricks with Sand
  - a. Similar to permeable pavers, bricks with sand allow rainwater to seep around the bricks and can reduce flooding and erosion caused by stormwater runoff

c. Water flow in brick and sand systems is similar to that shown above for permeable paver systems.

## 6. Pervious Concrete

a. Pervious concrete allows water to filter through the pavement structure into underlying layers and eventually to the soil.

b. Water flows through the pervious concrete system as shown below.



c. Permeable concrete does require some maintenance to retain its permeability.

## 7. Landscaping Rocks

a. Landscaping rocks consist of pea gravel, gravel, crushed stone, river rocks and decomposed granite. Due to their shapes, landscaping rocks allow water to filter down into the underlying soil.

b. In all cases, light colored rocks are preferred to reduce the heat island effect.

c. Pea gravel is slightly rounded stone and about the size of peas and comes in a variety of colors.

d. Machine crushed gravel has triangular sides that fit together.

e. River rocks come in a variety of sizes, ranging from 1 inch up to several inches across.

f. Decomposed granite is simply granite that has weathered to a combination of tiny rocks and silt. Over time, decomposed granite works its way into the soil, and you might need to add more.

d. Crushed stone is similar to decomposed granite, but the rocks aren't crushed quite as finely. Crushed stone comes in a variety of colors. water

## 8. Wooden, Composite, or -Recycled Plastic Boards

- a. Boards used for decking and porch flooring typically have spaces between them, allowing water to flow between the boards to the underlying soil.
- b. Composite boards are made from a mix of wood particles and durable synthetic materials and come in many colors.
- c. Recycled plastic boards mimic wood using recycled plastic and come in many colors.,

## F. Rebate Program

(Recommend just identifying, but not including information about non-relevant info like other).

1. The Rain Check Rebate Program allows GHI Members to receive rebates for installing 'Rain Check' approved practices that reduce stormwater runoff quantity. These practices include permeable pavers, permeable pavement, pavement removal, and tree canopy.
2. Members are encouraged to take advantage of this program as long as it is available to defray costs and decrease stormwater runoff.
3. More information on the Program can be found at <https://cbtrust.org/grants/prince-georges-county-rain-check-rebate/>.



## D.G. SWALES (included as a reminder of where Exterior Structures can not be placed, no new regulations proposed)

1. Swales are part of the original design of GHI and were constructed to control runoff and promote drainage.
2. As stated in Sections III.B.11 and IV.E, existing swales shall not be blocked by any structure or altered in any way by a Member that would compromise the functioning of the swale.
- ~~3. Construction of a swale by a Member as part of an exterior alteration, addition, or improvement as defined in Section X will be evaluated by Technical Services as part of the existing permit process for exterior alterations, additions, or improvements. The design for the proposed swale must be included as part of the permit application for the proposed exterior alteration, addition, or improvement.~~