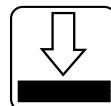


parking areas
& impermeable
landscape



impermeable
soils



permeable
soils

Description

Vegetated filter strips are gently sloped areas designed to receive sheet flows from adjacent impervious surfaces. Filter strips are vegetated with grasses and groundcovers that filter and reduce the velocity of stormwater. Peak stormwater flows are attenuated as stormwater travels across the filter strip and infiltrates or is stored temporarily in the soils below.

For residential driveways, center filter strips typically are 3-feet-wide between two 3-foot-wide paved sections. The strip treats and infiltrates stormwater only from the impervious area of the drive aisles which slope toward the center filter strip. The driveway center filter strip must be maintained to the design requirements for vegetated filter strips.

Application & Limitations

Vegetated filter strips should be integrated into the overall site design and may help fulfill a site's landscaping area requirement. Vegetated filter strips can be used to manage stormwater runoff from a variety of impervious surfaces such as walkways and driveways on private property and within the public right-of-way. Check with the local jurisdiction if proposing to use a vegetated filter strip in the public right-of-way.



Oregon Zoo parking lot, Portland

- Y - Public System Approvable
- Y - Quantity for Conveyance
- Y - Hydromodification Approach
- N - Water Quality Treatment Approach



Oregon Zoo parking lot

Design Factors (continued)

Sizing

Vegetated filter strips are appropriate for all soil types and have 18" depth of growing medium. The size of the filter strip will depend upon the infiltration rate of existing soils. A sizing factor of 0.06 assumes that the site has an infiltration rate less than 2 in/hr.

For example, a facility managing 1,500 square feet of total impervious area would require a 90 sq ft filter strip (1,500 x 0.06).

Size may be decreased if:

- Demonstrated infiltration rate is greater than 2 in/hr using ASTM D3395-09 method; or
- Amended soil depth is increased

Geometry/Slopes

The minimum width of a vegetated filter strip is 5 feet measured in the direction of stormwater flow. The slope is between 0.5 and 6%, and the slope of the impervious area draining to the strip is less than 6%.

Check dams may be required to maintain shallow slopes if the existing site slopes exceed 5%. Typically, check dams are 3 to 5 inches high and are placed every 10 feet where

slopes exceed 5%. If a level spreader such as a grade board or sand/gravel trench is required to disperse runoff evenly across the filter strip, the top must be horizontal and at an appropriate height to direct sheet flow to the soil without scour. Grade boards may be any material that withstands weather and solar degradation but should not be old railroad ties, used utility poles or other pollutant source.

Non-infiltrated flows/overflows from the vegetated filter strip are collected and conveyed to an approved system or outlet structure.

Setbacks

Check with local building department to confirm site-specific requirements.

Soil Amendment/Mulch

Amended soils with appropriate compost and sand provide numerous benefits: infiltration, detention, retention, better plant establishment and growth, reduced summer irrigation needs, reduced fertilizer need, increased physical/chemical/microbial pollution reduction and reduced erosion potential. Primary treatment will occur in the top 18 inches of the



Arata Creek School, Troutdale

Design Factors (continued)

vegetated filter strip. Amended soil in the treatment area is composed of organic compost, gravelly sand and topsoil. Compost is weed-free, decomposed, non-woody plant material; animal waste is not allowed. Check with the local jurisdiction or Clean Water Services for Seal of Testing Approval Program (STA) Compost provider.

To avoid erosion, use approved erosion control BMPs for vegetated filter strip.

Vegetation

Herbaceous plants, shrubs and grasses can provide the vegetation needed to remove sediment and pollutants. The vegetated filter strip is planted or seeded with a mix of grasses, wildflowers and groundcovers well suited to moist-to-dry soil conditions. All vegetation should be self-sustaining and drought tolerant.

Native plants are encouraged, but non-invasive ornamentals that add aesthetic and functional value are acceptable upon approval. For a complete list of allowable plants, refer to page 76.

Trees are not required for vegetated filter strips, but are encouraged where applicable. Tree species should be selected by their adaptability to moist-to-dry conditions and full size at maturity.

Do not plant trees in bottom of facility. The filter strip should be wide enough to accommodate tree growth. The filter strip conveys evenly-distributed sheet flows of water through vegetation for treatment. Because unplanted areas may decrease stormwater treatment, the entire filter strip must have 100% vegetation coverage to ensure proper hydrologic function.

If check dams are required, plants suited to wet-to-moist conditions may be supplemented on the upslope side of the check dam where occasional inundation and pooling of water may occur.