



STORMWATER PLANTER

A stormwater planter is a vegetated green infrastructure practice relying on specified soils and vegetation to treat and absorb stormwater. It is different from other vegetated best management practices as it typically has concrete vertical side walls allowing it to be incorporated into congested street corridors or attached to the perimeter of a building.

Planter boxes are often categorized either as flow-through planter boxes or infiltrating planter boxes. Infiltrating planter boxes have an open bottom to allow infiltration into the underlying soils. Flow-through planter boxes are completely lined and have an underdrain system to convey flow that is not taken up by plants to drainage areas.

USE

- Most appropriate in locations where stormwater flows along a curb line and can be directed into the Stormwater Planter and where stormwater overflows can be directed or connected to an appropriate outlet structure.

- Can also be used adjacent to or in close proximity to a building where downspout discharge water can be directed into the Stormwater Planter.
- Do not locate a stormwater planter downstream of sediment sources (e.g., gravel shoulders, gravel driveways, dirt roads).
- Avoid installation where the water table is less than 2 feet below the bottom of the storage layer.

DESIGN

- The sizing of the stormwater planter varies depending upon the goals for infiltrating stormwater, but generally the surface area should be about 5 to 7 percent of the drainage area. If the goal is to treat the stormwater rather than infiltrate it, there are patented high flow rate engineered media available that can decrease the required stormwater planter footprint.
- Provide a stone reservoir area below the planting soil and separated by a geotextile fabric to provide maximal storage volume and prevent planting medium from migrating downward into the stone. Design the storage layer to drain within 24 to 48 hours by an underdrain or infiltration.
- Use retaining walls, geotextile separators, or impermeable liners to avoid undermining adjacent structures.

- When water runoff is captured from the street, it should be brought into the infiltration planter through a covered flow inlet structure that does not break the top surface of the curb or walkable pavement surfaces.
- Where water is directed to the Stormwater Planter from adjacent sidewalk or pedestrian areas, provide breaks in the wall and/or metal inlet structures to allow water to pass through.
- Provide a pretreatment sump at the inlets with easy access for maintenance.
- Provide a perforated underdrain pipe that takes excess water to the storm sewer system.
- Keep the elevation of the top of the overflow lower than the adjacent sidewalk or road.
- Prioritize the use of native plants in the Stormwater planter. Provide a 2" thick mulch layer. The facility should be designed such that the top of the mulch layer is at least 4" below but not more than 18" below the adjacent sidewalk grade. The growing medium should contain a blend of sand, compost, and soil to allow drainage and support plant growth. Selected plant materials should be tolerant of both drought and wet conditions, as well as being salt tolerant.
- If the stormwater planter walls are taller than curb height, place outside of the reach of open car doors where on-street parking is present and adjacent to the Stormwater Planter.
- Provide periodic pedestrian walkways or "bridges" from roadside parking to the sidewalk area.
- Avoid conflict with existing underground and above ground utilities.
- Ensure that ADA access is maintained if taking up sidewalk space.

OPERATIONS AND MAINTENANCE

- Clear debris from inlets and overflow grates.
- Remove accumulated sediment.
- Remove weeds during plant establishment and annually thereafter.
- Water plants during plant establishment.
- Use deep-rooted native plants for reduced maintenance.
- Remove trash and debris weekly.

SPECIAL CONSIDERATIONS

- The walls of the Stormwater Planter can be increased in height and width to provide seatwalls and places for pedestrians to rest.

REFERENCES

- SEMCOG Low Impact Development Manual for Michigan (2008). Refer to Planter Boxes, Native Landscaping, and Bioretention sections for additional design guidance.
- Grand Rapids Green Infrastructure Guidance Manual (2015)
- Grand Rapids Green Infrastructure Technical Reference Manual (2013)