



LEACHING BASIN

Leaching or infiltration basins collect roadway runoff and provide the opportunity for stormwater to infiltrate in lieu of an outlet to a storm sewer pipe. There are several types of leaching or infiltration basins, including basins that contain a porous bottom consisting of loose aggregate. This type of basin allows water to infiltrate into the ground underneath the basin. Another type of basin contains both a leaching bottom and orifice holes punched along the vertical walls of the catch basin to provide additional infiltration capacity. Leaching or infiltration basins can replace standard catch basins and are best suited in locations where the native soil is sandy or silty loam (Hydrologic Soil Group A and B soils).

USE

- Unless there is a technical concern, leaching basins should be used in place of standard catch basins where soils are well drained.
- Leaching catch basins are preferred in locations at the upstream points (beginning of system) along a stormwater drainage system where volumes are relatively smaller.
- Best suited at locations with no inlet pipes, i.e., offline with only an inlet grate.
- Not recommended where sediment loading is likely to result in clogging of infiltration surface.

DESIGN

- Perform an infiltration test at the location of each leaching basin.
- The tributary area to each leaching basin should be based on typical spacing of basins along a roadway. Soil infiltration and depth to ground water must be investigated to determine the feasibility of a leaching basin in a particular area.
- Use a pre-cast concrete basin structure with a deep sump. Typically, this sump is up to 10-feet deep and 3-feet in diameter, with 1" diameter perforations to allow stormwater water to infiltrate out of the sump.
- The basin structure should be surrounded by 2-foot thick layer of coarse aggregate (MDOT 6A or equivalent) to function as a stone reservoir.
- Work with City requirements to provide adequate freeboard to the roadway surface above the maximum water elevation for the design storm event
- Avoid compaction of soils in leaching basin infiltration area.
- Provide a minimum 3-foot separation between bottom of leaching basin and seasonal high groundwater.
- Use an inlet grate structure that is bike-friendly.

OPERATIONS AND MAINTENANCE

- Inspect structure once every four years (or more frequently as indicated by structure performance).
- Clean leaching basin grates where water enters the structure as needed.
- Remove accumulated debris in the sump to ensure drainage through structure.
- Leaching basins are slightly more expensive compared to a standard catch basin.
- Installing leaching basins could reduce the amount of storm sewer infrastructure required.

SPECIAL CONSIDERATIONS

- Leaching basins can be used in conjunction with porous pavements in the roadway area.
- Leaching basins can be integrated with linear infiltration trenches that provide a larger area for infiltration to occur.

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)

