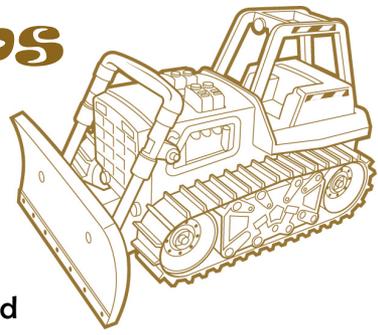


Sediment Traps & Basins



Where are they used?

Sediment traps and basins are pond-like structures designed to retain runoff from disturbed areas, allowing suspended sediment to settle out.

Sediment traps are simpler than sediment basins, in that they have a simpler outlet structure, are usually smaller and generally not designed to detain stormwater flows. Basins generally combine wet storage with detention storage. Sediment traps are more appropriate for small drainage areas (less than five acres), while sediment basins can be used for areas up to 100 acres. Both techniques are relatively effective, with efficiencies ranging from 60% to 80% for sediment traps and 70% to 90% for sediment basins.

Techniques

Rather than being designed simply as holes in the ground, design techniques that ensure better pollutant removal can be used on both sediment traps and basins. These structures should be designed with gentle side slopes, a high surface area to drainage area ratio (1% or greater), and a long flow path. Traps and basins with a permanent pool of water are more successful at slowing runoff velocities and settling out sediment.

Sediment basins are often converted into long-term stormwater management facilities by modifying the outlet structure. During construction, the outlet is usually a vertical pipe surrounded by gravel or a similar structure. After construction, this outlet structure is removed, and replaced with a low-flow orifice designed to retain stormwater for pollutant removal.

Limitations and challenges

Sediment traps can be applied to most sites, but sediment basins are only possible on sites larger than five acres. Neither traps nor basins are particularly effective for fine silts or clay soils or for intense rainfall events, which can resuspend sediment within the trap or basin.

Innovations and improvements

Baffles reduce the inflow velocity to basins and create a longer flow path, thereby enhancing trapping efficiency.

Fast Facts - Sediment traps & basins

Approximate Cost: \$50 / cubic yard

| Effectiveness | Low | Mod | High |
|-------------------------------|-----|-----|------|
| Erosion/Sediment Control | | X | |
| Long-Term Pollutant Reduction | | | X |
| Habitat/ Stream Protection | | X | |

| Ease of Application | Difficult | Average | Easy |
|---------------------|-----------|---------|------|
| Installation | | X | |
| Maintenance | | X | |

Limitations

- Fine soils
- Small sites (especially for basins)
- Extreme weather conditions



Left: Some sediment basins become permanent after construction.



Find more construction site educational materials at:

cleanwatermn.org/MS4toolkit



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