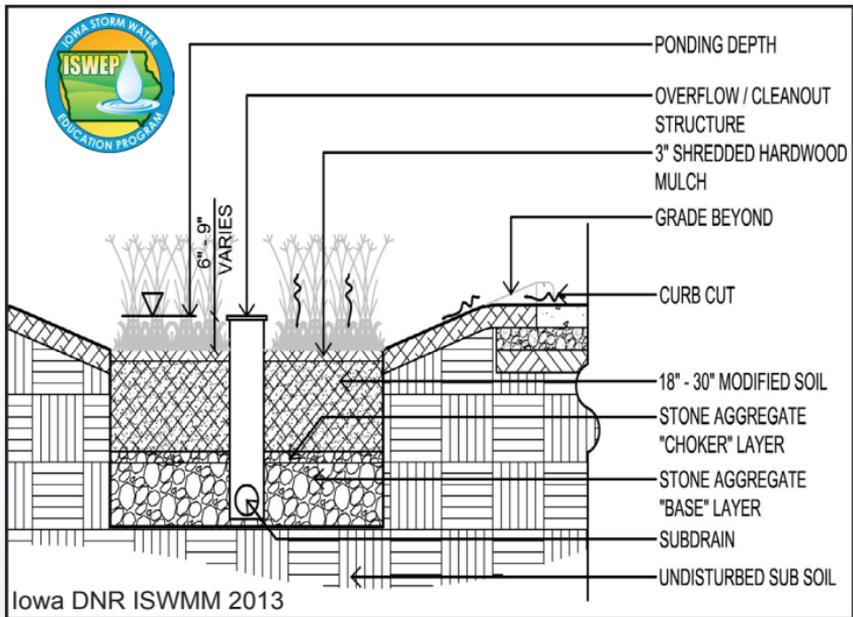


# Bioretention Cell

## Installation



Bioretention cells filter, absorb, infiltrate and percolate stormwater runoff. Attention must be given during construction to prevent compaction and prevent sediment from clogging the modified soil layer.

**Installation Notes:** **BEFORE** installation begins, ensure all grading activity is complete and erosion and sediment control practices are in place upstream to protect the integrity of the bioretention cell. **DO NOT** stockpile materials on or near the surface of the completed bioretention cell. Minimize foot traffic. **DO NOT** drive or operate machinery through the cell.

**Excavation:** Excavate area to the length, width, and depth specified in the contract documents. **DO NOT** compact the subgrade of the cell. **DO NOT** operate machinery in the cell – work from the sides. Dig with the bucket tines in a forward motion instead of side-to-side to prevent smearing and soil compaction.

**Stone Aggregate Sub-Base:** Place the first 2 inches of the aggregate sub-base, consisting of an open-graded, clean, durable aggregate 1 to 2 inches in diameter with a porosity of 35 to 40%, spread evenly on the bottom of the bioretention cell.

**Sub-drain:** Make a small depression in the layer of stone aggregate sub-base where the slotted pipe will be placed. If underdrain is specified in the contract documents, install slotted pipe at the elevation specified. Install cleanouts at locations specified in the contract documents.



**Overflow / Outlet:** Install outlet structure according to contract documents at elevation specified above ponding depth.

**Remaining Aggregate Base:** Place remaining aggregate base layer to elevation specified in the contract document.

**Choker Layer:** Place a 2 to 3 inch choker aggregate layer that consists of clean, durable 3/8 inch diameter chip over the stone aggregate sub-base.

**Modified Soil Mix:** Use uniform mixture of 75-90% washed concrete sand, 0-10% approved organic compost, 0-25% soil with a soil texture that includes A-horizon characteristics and meets specifications.

**Modified Soil Mix Placement:** Place modified soil, in 8 to 12 inch lifts to the elevation specified in the contract documents, plus 15% of specified depth to allow for natural settlement. **DO NOT** operate machinery in the excavated area while placing the modified soil mix.

**Settling:** Allow natural settlement of the modified soil mix or spray water to saturate bioretention cell. Add additional modified soil mix as required to restore settled surface to finished elevation.



**Level Surface:** Uniformly grade and rake the top of the modified soil mix to a flat, smooth surface which is level front to back - side to side while maintaining required ponding depth, as specified in contract documents.



**Seeding:** If contract documents specify seeding for the surface of the bioretention cell, install seeding as specified. Mulch seeded areas with bonded fiber matrix or rolled erosion control products as specified in the contract documents.

**Mulching / Planting:** If contract documents specify mulching, place a 3 inch layer of shredded hardwood mulch over area filled with modified soil. Do not place hardwood mulch over seeded areas. If the contract documents specify plants for the surface of the modified soil mix, install after placing mulch.

**Stabilization:** Protect the area immediately around the bioretention cell. Allow entry of stormwater from the site area only after the bioretention cell is completed. Keep inlet protection in place for a few rains in order for the bioretention cell to settle, plants to establish or seed to grow.

**Curb Cuts:** Once the bioretention cell is established, after a few good rains curb cuts can be installed. If installed with a wet saw, vacuum up the slurry or if dry cuttings, sweep up dust and dispose of properly, along with any sediment that may have accumulated in the inlet areas.

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