

Kentucky Erosion Prevention and Sediment Control Guide

A guide to preventing erosion and controlling sediment from construction activities in Kentucky

Protecting Culverts and Ditch Inlets

Culverts and ditches are designed to carry moderate and large flows of stormwater. They can transport a lot of sediment to streams, rivers, wetlands, and lakes if they are not properly protected. In addition, culvert and ditch outlets can become severely eroded if high velocity flows are not controlled.

Culvert and storm drain ponding methods

Muddy runoff that flows toward a culvert, ditch, or storm drain inlet must be slowed down and pooled or filtered to settle out and remove sediment. This can be accomplished by placing rock, reinforced silt fencing, silt dikes, or other barrier in front of the inlet. The goal is to cause ponding of the inflow so sediment can settle out and allow ponded water to enter the inlet only after sediment has been removed.

Straw bales alone are not approved for inlet protection. If the drainage area above the inlet is greater than 3 acres, a sediment trap or basin is needed. For all inlet protection approaches, seeding and/or mulching upland areas promptly will greatly reduce incoming runoff volumes and sediment loads.

Inlet protection devices

Inlets can be protected with structures made of rock, reinforced silt fence, stone-filled bags, or commercial “inlet dam” products. Accumulated sediment must be removed after each rain to ensure effectiveness. Place materials to form a small dam around the inlet. Build larger dams farther away from inlets with heavy incoming flows. When using rock, mix rock of various sizes so flows can seep through the dam slowly. If spaces between rocks are too large, runoff will move through the dam without adequate settling time.

Silt fence dams can be used in low flow areas. Install a wire-reinforced silt fence dam or box around the inlet. Use diagonal bracing on sides and/or top to protect against incoming flow pressures. Make sure fence is trenched in and securely fastened to posts. Repair bypasses and undercuts promptly.

Place removed sediment in areas where it will not wash into inlets, ditches, channels, or streams. **Do not wash sediment or any other material down curb, channel, or drain inlets.**



Excellent use of rock-filled mesh tubes to control sediment at curb inlet. Concrete block spacers keep tubes from moving into - and clogging - the inlet during heavy flows.



Very good design and installation of inlet protection ponding dam using concrete blocks and rock. Outlet pipe in background has a rock apron to dissipate flows.



Another good example of a device that can be used to protect inlets during construction.



Poor protection for drop inlet on concrete pad. Straw bales make good mulch but are not suited for inlet protection or silt check dams.



Poor placement of stone bag inlet dam; poor education of construction site drivers. Bags work well if used properly and maintained. Bags must form a dam around the inlet with no large gaps.



Poor placement and poor maintenance of stone bag inlet ponding dam. Accumulated sediment must be removed and dam should be repaired after each half-inch rain.



Straw bales have rotted and failed, with muddy runoff undercutting bales. Concrete apron and drop inlet grate are nearly covered in sediment. Use straw for mulch only.

Resources

[EPA Storm Drain Inlet Protection](#)