



Fact Sheet

Removal of Stream Obstructions

February 2017

Frequently Asked Questions about removing obstructions from streams (formerly known as “One Step Removal”)

Logjams, fallen trees, sediment (silt, sand, and/or gravel), debris, and other materials can build up and obstruct flow in ditches, streams, culverts, and under bridges during and after periods of heavy rainfall. These obstructions may create an increased risk of flooding, property and infrastructure damage, and result in erosion and increased sedimentation. Removing stream obstructions is a temporary solution; streams naturally deposit sediment and form meanders during periods of high flow. Natural debris and sediment play important roles in aquatic ecosystems. If done improperly or excessively, removing stream obstructions may have negative impacts on-site, upstream, and downstream of where the obstructions are being removed. The answers provided in this Frequently Asked Questions (FAQ) outline common best practices for stream obstruction removal.

Do I need a permit to remove stream obstructions?

If the best practices outlined in this FAQ are followed, no. Be aware that depending on the type of work being done, other federal, state, and/or local regulations may apply. Failure to follow these best practices may result in potential penalties and remediation actions.

What is the best way to remove obstructions from streams?

Often after floods, loose debris, vegetation, and dead trees will collect in bridges and culverts and obstruct stream flow. This debris should be removed to ensure the stability of bridges or culverts and to maintain flow through the structure. Equipment (bulldozers, tractors, front-end loaders, etc.) should not be driven in the stream. If it is impossible to remove obstructions from the stream bank or a nearby bridge, equipment with rubber tires must be used and access must be limited to a single perpendicular (90 degree) crossing. Use overland travel as

much as possible and limit the number of access points to the streambed. Do not use streams as a road! If you create an access road, state and local floodplain permits, and a 401 Water Quality Certification may be required. For more information on floodplain permits and 401 Water Quality Certification requirements, contact the Kentucky Division of Water at (502) 564-3410 or water@ky.gov.

What is the best way to remove gravel and gravel bars from streams?

Removing gravel out of the stream channel should be done from the stream bank or a nearby bridge. Limit gravel excavation to areas outside of normal stream flow. Gravel should only be removed from gravel bars. Gravel shouldn't be excavated from a stream within 12 inches above the water's surface. This material should be left so the streambed remains stable. Materials should not be pushed or piled along the stream banks; this material is not stable and will quickly erode. Riparian buffers should be left intact and utilized for bank stability. If working from the stream bank is not possible, please contact the DOW Water Quality Certification Section supervisor at (502) 564-3410 or water@ky.gov for guidance.

What is a riparian buffer and why should they be used?

Riparian buffers are the grasses, shrubs, trees or other vegetation growing along streams. These plants control erosion and protect the stream from pollutants and runoff. They absorb excess nutrients such as nitrogen and phosphorus from farm and livestock operations. Plants protect the stream banks from erosion by intercepting the water currents that can weaken and wash away bank material. Tree stumps and root wads should be left to promote bank stability. A good practice is to leave areas within 25-50 feet of the top of the stream bank undisturbed for riparian buffers.



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What can I do with the materials removed from streams?

Material removed from streams cannot be deposited into the floodplain adjacent to the stream without a state and local floodplain permit. Visit the <http://watermaps.ky.gov/RiskPortal/> to see the floodplains in your area. If the removed material is going to be sold or transported out of your county, a permit from the Kentucky Division of Mine Reclamation and Enforcement may be needed. Visit <http://dmre.ky.gov/Non-COal%20Review%20Branch/Pages/default.aspx> for more information.

When is the best time to remove obstructions from streams?

Conduct activities during low-flow seasons, preferably during late summer & fall. Stream obstructions should not be removed during fish spawning season (April 15th-June 15th).

How often can I remove obstructions from streams?

Limit the frequency of excavation to the greatest extent possible. For example, remove gravel once per year and stockpile at an upland location for future use.

What should I avoid when removing obstructions from streams?

Don't straighten streams! Artificially straightened streams can result in increased stream bank erosion, swifter flowing water, and increased flooding to you and your neighbors. Streams naturally create meanders to reduce the energy of flowing water, especially during floods. These meanders help control flooding events. Also, don't disturb critical areas such as wetlands and Outstanding State Resource Waters (OSRW). To find wetlands or

OSRWs near you, visit the Water Health Portal at <http://watermaps.ky.gov/WaterHealthPortal/>

What sediment and erosion control measures should I use when removing materials from streams?

Use temporary measures to reduce soil erosion while you are working. This can be done by placing sediment barriers to manage stormwater runoff and by seeding disturbed areas. Sediment control measures, such as silt fences or straw bales, shouldn't be placed within streams. These features should be located along the stream banks to catch sediment before it reaches the water. Permanent seeding measures should be implemented when work is complete.

What is bioengineering?

Bioengineering uses low-impact, biological, or recyclable materials to the greatest extent possible (e.g. mulch berms in place of silt fences). Bioengineering involves inserting and tamping of live, vegetative cuttings into the ground in a manner that allows the stake to take root and grow. These practices may reduce waste, reduce removal costs of sediment and erosion control measures, remove excess soil moisture, and encourage bank stabilization

Why should bioengineering be used to stabilize stream bank?

Bioengineering can be used for repairs of small earthen slumps, gullies, and stream channels. Bioengineering methods also encourage natural plant colonization and improve the effectiveness of other stream bank stabilization measures.