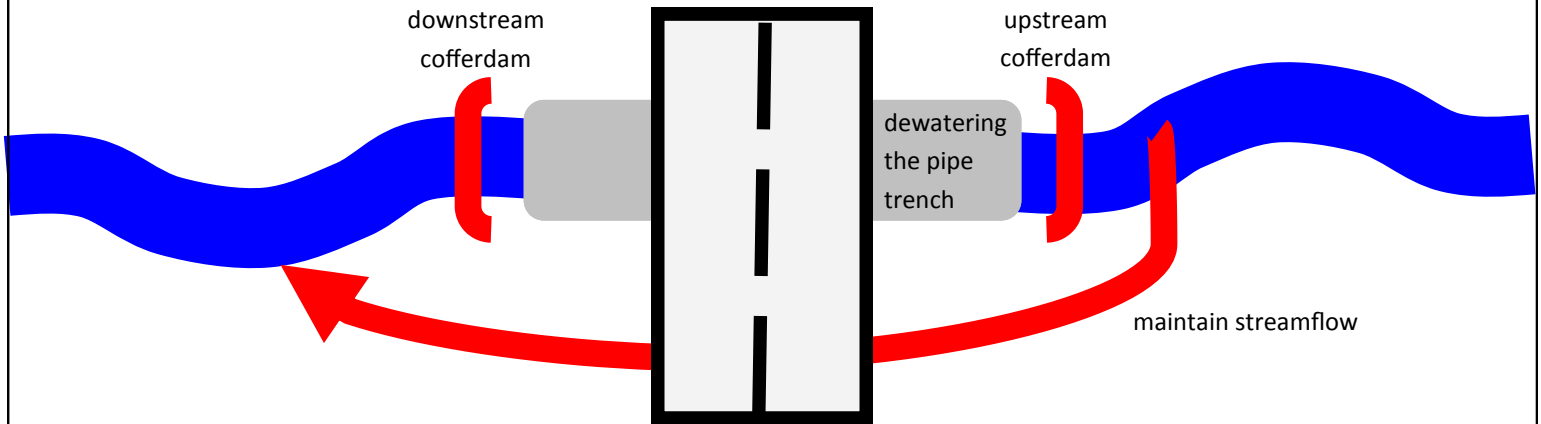




The following example describes typical best management practices that are needed to protect water quality at culvert replacement projects.

BEFORE Construction: Devise an erosion control plan for the project site. Be sure the plans include stockpile protection. Further, be sure all stockpiles and borrow/waste sites are setback from waterways, wetlands, and floodplains. Begin to install erosion control items before any ground is disturbed. *Common methods include: construction site diversion, silt fence, ditch checks, vegetative buffers, inlet protection, sediment traps, and tracking pads.*

DURING Construction:



- **Non-erodible coffer dams** up and downstream to isolate the pipe during excavation. *Common methods include sand bags wrapped in plastic sheeting, other reinforced plastic sheeting, steel sheeting, and water bladder barrier.*
- **Treat water from the culvert trench** to prevent cloudy water from reaching waterways or wetlands. *Common methods include temporary settling basin, infiltration basin, filtration bag, sediment tank. Water applied polymer may be needed in conjunction with these methods.*
- **Maintain streamflow downstream** to protect aquatic life. *Common methods include by-pass pumping, plastic and rock/rock bag lined channel, by-pass culvert, and diverting water to one culvert (at sites with 2 or more culverts only).*

AFTER Construction:

Topsoil and seed protected by mulch or erosion mat



Trenched in silt fence, fiber logs, or other method

Place geotextile fabric then cover with clean, sediment free riprap 6" to 24" in diameter as appropriate for the site.

At sites with water quality issues (road overtopping, bank erosion, streambed scour, etc.), installing a larger culvert that does not constrict the stream channel is an important best management practice for water quality protection and flood resiliency.

STREAM CULVERTS (NAVIGABLE WATERWAYS) —BEST MANAGEMENT PRACTICES (Sept. 2015)

Construction Timing: Once waterway work begins (below the ordinary high water mark (OHWM)), all construction activities in those waterways must be continuous to the greatest extent practicable until the work is completed and the site is stabilized. If periods of inactivity are unavoidable, the site must be temporarily stabilized until the work is resumed and completed.

Timing Restrictions: To minimize adverse impacts on fish movement, fish spawning, and egg incubation periods, work below the OHWM may not occur during the following time periods:

- September 15th to May 15th for all trout streams.
- March 1st through June 15th for ALL other waters.

The timing restrictions listed may be waived or modified by the [WDNR Transportation Liaison](#).

Wetlands: Vegetation, material, soil stockpiles, or equipment cannot be stored in wetlands (even on a temporary basis). The project needs to be constructed in a manner that will maintain natural hydrology in the wetland complex.

Erosion and Sediment Control Practices: The project site shall implement erosion and sediment control measures that adequately control or prevent erosion, and prevent damage to waterways and wetlands as outlined in [NR 151](#), Wis. Adm. Code. All erosion control measures must meet or exceed the [WDNR Technical Standards](#).

- All grading, excavation and disturbance will be confined to the minimum area necessary for the placement of the structure.
- Construction equipment should not operate on the bed of the stream, below the OHWM, except for that which is necessary for the placement of the structure.
- Unless the waterway is dry for the duration of the construction activities, you must install a cofferdam upstream and downstream of your project area. The coffer dam needs to be installed in conjunction with a method to maintain downstream flow .
- Cofferdams and temporary diversion channels must be constructed of non-erodible material and secured with rock/ rock-bags at the bottom of the channel and top of the banks. No earthen cofferdams are permitted.
- Pump intakes and discharges shall prevent impacts to fisheries, wildlife, and their habitat, and must be placed to prevent the disturbance, removal and/or scour of bed material.
- Temporary bypass structures used to maintain streamflow (i.e. diversion channel, pump bypass system, diverting to one culvert at a time, etc.) need to be adequately sized to prevent damage from upstream flooding and downstream siltation, wash-out, or scouring.
- Construction and dewatering activities shall be accomplished in such a manner as to prevent erosion and siltation into surface waters and wetlands.
- Remove all coffer dams in such a way that minimizes the release of sediment and other downstream impacts. Conventional practice is to remove the downstream coffer dam first then slowly remove the upstream coffer dam. When no longer needed, restore any bypass channel to original condition.
- Unless it is an emergency situation, avoid construction during periods of high water to avoid flooding the construction site.

Suitable Fill Material: All fill must consist of clean suitable soil material, as defined by s. NR 500.03(214), Wis. Admin. Code, free from hazardous substances as defined by s. 289.01(11), Wis. Stats., and free from solid waste as defined by ss. 289.01(11) and (33), Wis. Stats.

Dredging: Any dredging necessary to bury the culvert will be limited to the greatest extent possible and deposition of sand, gravel, or stone will only occur immediately underneath and within 2 feet of the culvert. The width and depth of the waterway must not be altered.

Site Maintenance: The replacement stream culvert must be maintained in good condition. Remove accumulated brush, debris or other obstructions that are trapped in or underneath the structure regularly.

Invasive Species: Invasive species pose adverse effects to waters of the state. Any equipment that has been in contact with waters of the state needs to be properly cleaned and decontaminated.

Note: If the project includes any wetland fill, approval from DNR and the U.S. Army Corps of Engineers (ACOE) is required. If the project includes land-disturbance activity in excess of one acre, a [Construction Site Stormwater Permit](#) may be needed. Municipalities are responsible for obtaining any other permit or approval required by local zoning ordinances, other local authority, other state permits and by the ACOE before starting your project.