

General Guidelines for Stream Crossings Regional Condition 1

For all Nationwide Permits that involve the construction/installation of culverts and low water crossings, measures will be included in the construction, design, and installation that will allow for the passage of flows and promote the safe passage of fish and other aquatic organisms. The following General Guidelines are required to supplement General Condition (2) Aquatic Life Movements and General Condition (9) Management of Water Flows.

Culverts:

- Culverts must be designed, sized, and placed correctly. Perched structures are not allowed, this includes the installation of weirs or other in-stream structures placed at the inlet with the purpose to reduce sedimentation within the structure. Culverts must be the shortest length necessary to meet the project purpose.
- **New or replacement culverts must be designed to convey the geomorphic bankfull discharge (return period of 1.01 to 1.7 based on an annual maximum series) with a similar average velocity as upstream and downstream sections. A single culvert is encouraged. If multiple culverts are necessary, base flow shall be conveyed through a single culvert. The following guidelines should be used when designing the culvert area:**

Stream Type	Culvert Area
Perennial	Similar to upstream and downstream preconstruction bankfull area (approximate 85-115%)
Intermittent	Similar to upstream and downstream preconstruction bankfull area (approximate 50%)
Ephemeral	Sized to convey bankfull discharge (return period 1.01 – 1.7 years)

- **The culvert must be embedded and backfilled below the grade of the stream ≥ 1 foot for culverts >48 inches. On culverts ≤ 48 inches the bottom of the culvert must be placed at a depth below the natural stream bottom to provide for passage during low flow conditions. Culverts in streams with non-erodible beds (i.e. bedrock or stable clay) must be constructed flush with the stream bed, but do not need to be embedded. Culverts in streams with highly erodible beds must be embedded deeper to lessen the chance of future perching due to downstream degradation.**

Low Water Crossings:

- The applicant must notify the District Engineer when repairing, rehabilitating or replacing low water crossings when discharges of dredged or fill material would raise or lower the lowest elevation of the crossing or when removing the structure.

- When replacing or removing low water crossings the applicant must propose and employ measures to mitigate for the potential of streambed headcutting where channel incision has occurred downstream of the structure and the structure is providing grade control that is preventing channel incision from migrating upstream.