

Culvert Replacement Guidance for Meeting Aquatic Organism Passage (AOP) Requirements

In addition to hydraulic criteria provided by the Vermont Agency of Transportation, the following is a brief description of key design and construction concepts for culvert replacements requiring Aquatic Organism Passage (AOP).

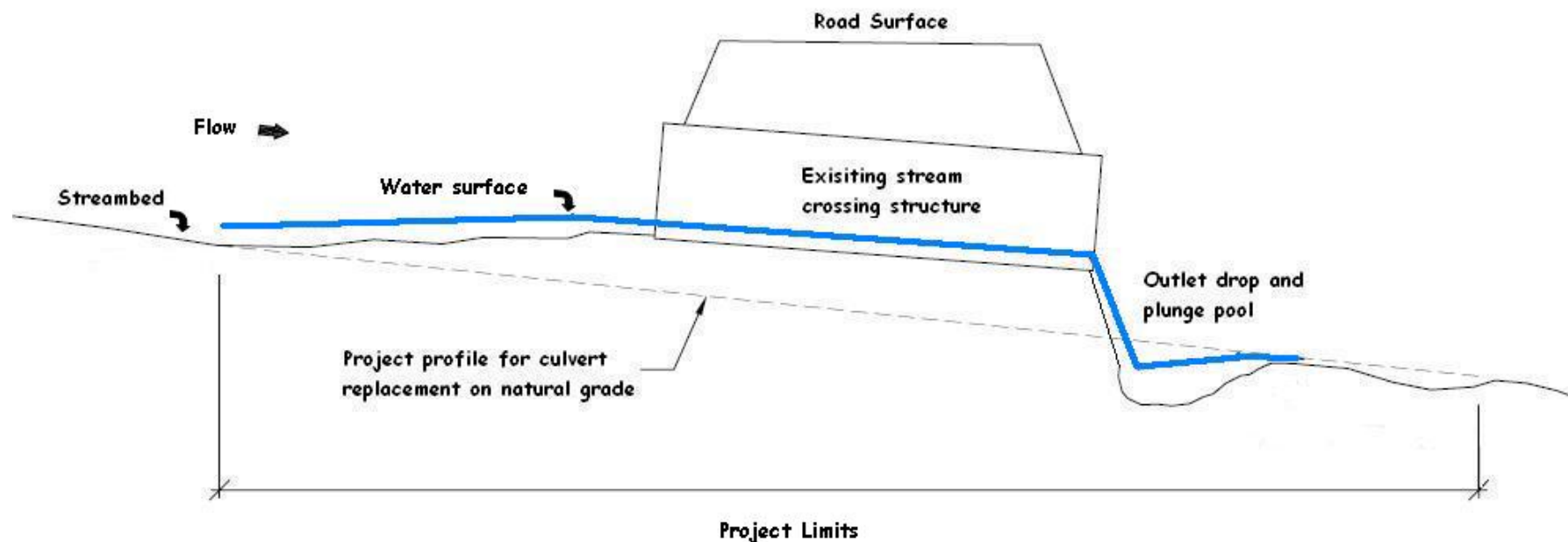
Structure Width: New structures should meet or exceed the stream channel bankfull width.

Vertical Alignment (Project Profile): New structures should match the stream's long profile. The stream profile should be determined outside of the influence of the existing structure and recent flood deposition (see sketch below).

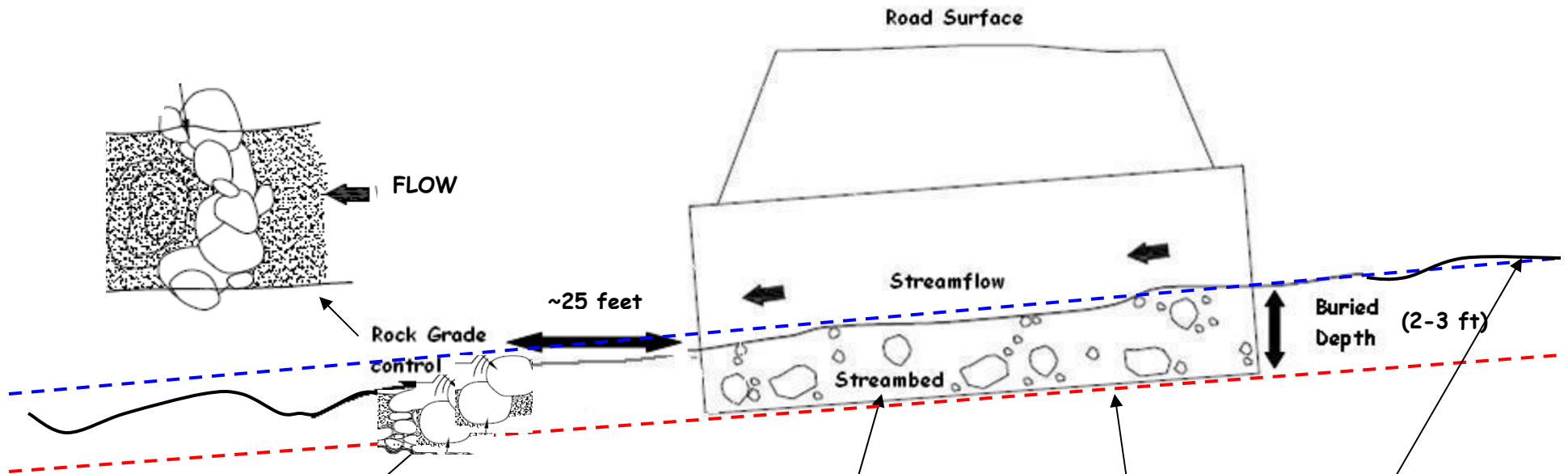
Embedment: New structures should be embedded a minimum of 2 feet (up to 3% slope) and filled with Type II or larger stone. Structures on steeper slopes will require greater embedment and larger sized stone fill.

Grade Control: A channel spanning grade control structure should be constructed ~ 25 feet downstream (no closer than one structure width) of the outlet using Type IV stone to set the streambed profile and maintain material within the structure.

This information is not meant to replace more deliberate design of future stream crossing structures, but is intended to provide additional guidance during flood recovery. More information on AOP culvert design, fisheries biologist contacts for AOP assessments, technical assistance and regulatory contacts is available at http://www.vtfishandwildlife.com/fisheries_AOP.cfm



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Stone should be immobile at high flows..generally Type IV stone

Up to 3% grade - embed structure 2 feet and fill with Type II or larger stone.
 Steeper slopes will require greater embedment and stone size.

Culvert profile should match stream's long profile (this should be determined by the stream profile outside the influence of the existing structure)