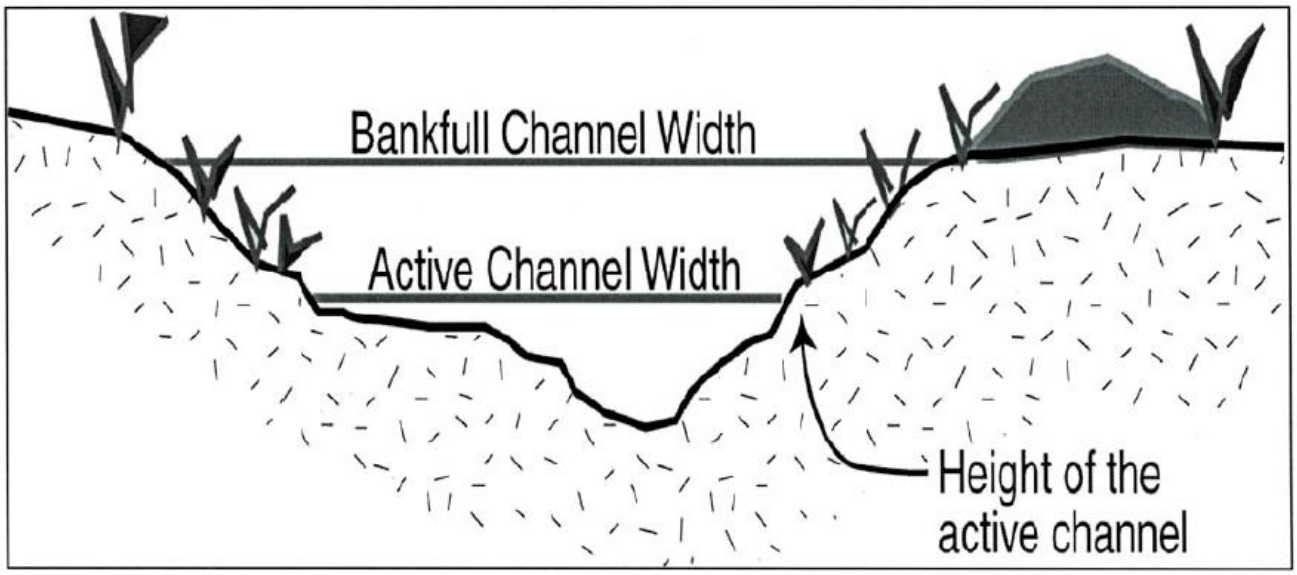
Appendix C. Intermittent Stream Crossing Specification

VT DEC Watershed Management Division Date: June 2022

Per 6.3.D of the Municipal Road General Permit, all municipal road crossings on intermittent streams require sizing of new and replacement structures to be based on the Active Channel Width (ACW).

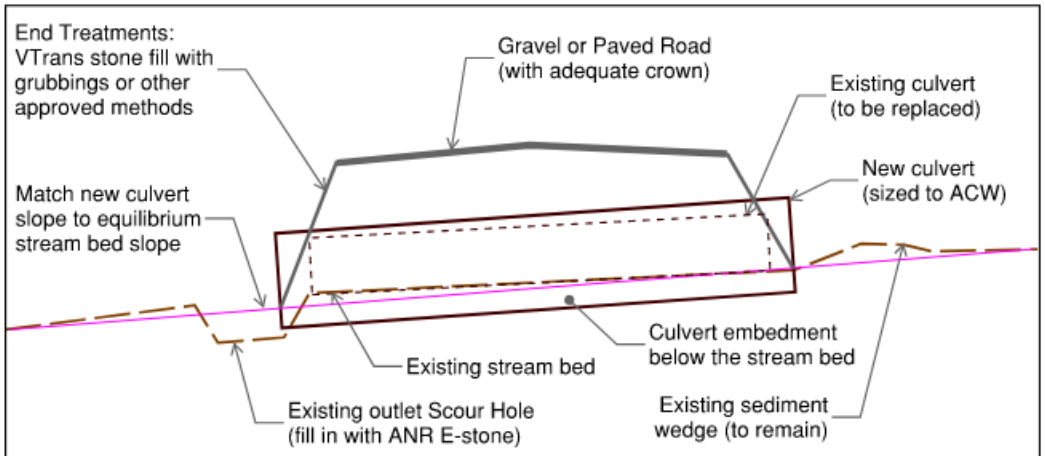
1. Intermittent streams will be field identified and consist of a defined channel entering the road network and a define channel leaving the road network. The absence of surface base flows for an extended period of the year and the watershed size, typically under 0.25 mi2, differentiates these stream channels from perennial stream channels.
2. Hydraulics sizing of intermittent stream crossings will conform with the VTrans Hydraulics Manual for the roadway classification, Chapter 4 - Table 4-2. The design of these culverts will satisfy criteria in Chapter 6 - section 6.4.
3. Embedment of culverts on intermitted streams if often beneficial for sediment transport and to reduce the need to increase road heights when maintaining adequate cover above the pipe; minimum embedment of 1' for 4-6' culverts.
4. Culvert end treatments are required for intermittent stream crossings. Inlet and outlet headwalls must consist of any combination of VTrans stone fill with a grubbing layer, laid-up stone, reinforced concrete, and/or a culvert end section.
5. Culvert slope to match stream bed slope. Outlet apron at culvert end using of E-stone is recommended – see details.

Determining the Active Channel Width on Intermittent Streams

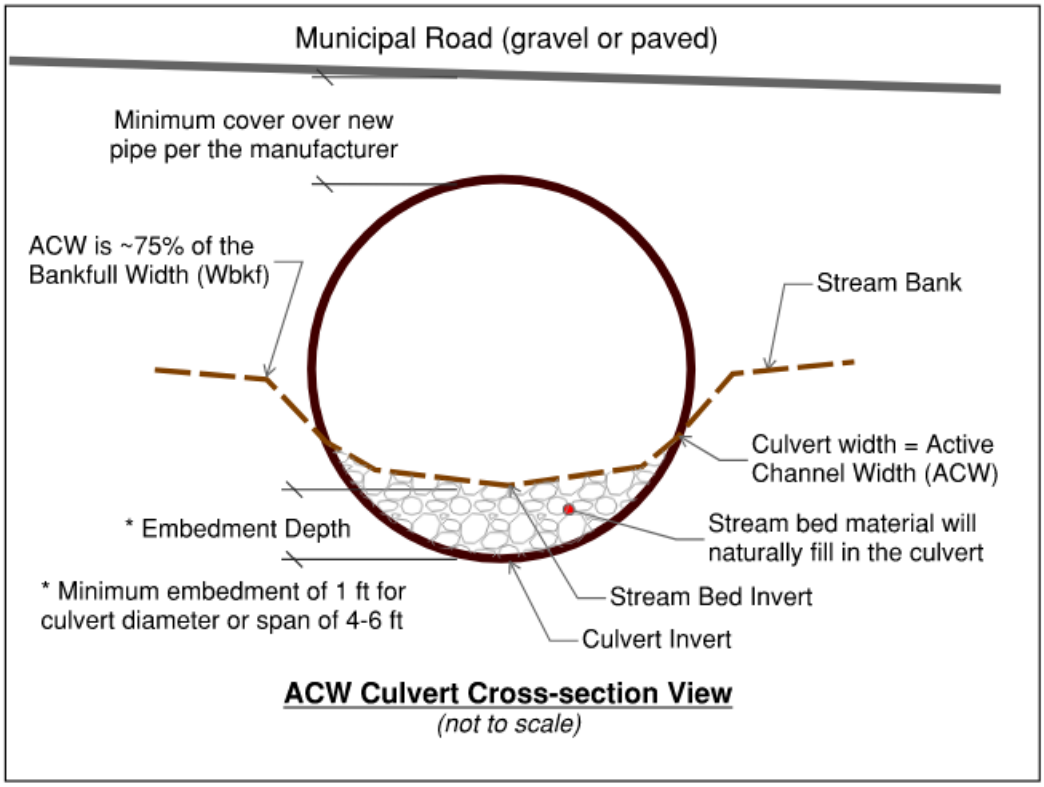


Active Channel Width (ACW) is defined as the limits of streambed scour on banks formed by prevailing stream discharges, measured perpendicular to streamflow. The active channel width is narrower than the bankfull width (~75%) and is defined by a break in slope on the channel bank, typically seen as the edge of permanent vegetation.

Culvert Sizing for Crossings on Intermittent Streams:
Determine the ACW through field measurements, ***the culvert sizing will meet or exceed the Active Channel Width***. * To obtain the measurements, go to a typical crossing location and obtain several upstream and downstream Active Channel Width measurements in riffles or straighter sections which are often the narrower channel width locations. * The selected active channel width for the structure will be a representative average of these field measurements.



ACW Culvert Profile View
(not to scale)



ACW Culvert Cross-section View
(not to scale)