Actions Common to All Culvert Replacements

The proposed action for the nine culvert replacements described below would include the following activities unless otherwise noted. Culverts would be sized to pass the estimated 100-year flood and set at an elevation that would allow fish to pass upstream. Culverts would have a bevel that would conform to the slope and would be less likely to become plugged by ice, woody debris or beaver. Fill around the culvert would be compacted to prevent settling, piping of water, and culvert failure. Where necessary, culverts would be skewed to match the natural stream pattern. At streams with substantial flow, stream flow would be temporarily diverted around the culvert site during construction to minimize sedimentation.

Temporary sediment traps (silt fence, straw bales, etc.) would be used to trap sediment until permanent erosion control measures are effective. Erosion control measures would be used to minimize erosion and sedimentation. These would include seeding to ensure re-vegetation and development of permanent ground cover; placement of mulch near the stream, on cut and fill slopes and in ditches to protect the bare soil surface from erosion until re-vegetation is complete and to enhance re-vegetation; 2:1 fill slopes or headwall at the culvert; placement of rock riprap at the inlet and outlet to prevent scour; placement of gravel and crowning of the road where needed; and re-establishment of ditches and outlet ditches where needed.

**Shabadock Creek at Forest Road (FR) 2136 (Goodman Park Road).** Located at NE1/4; NE1/4; Sec13; T35N; R15E, in Forest County. The existing 42” x 29” arch is undersized, deteriorating, affecting channel morphology, and a barrier to aquatic organisms.

At this location Shabadock Creek is a cool water stream. The stream supports Creek Chubs, Dace, and occasionally Brook Trout.

The proposal is to install an aluminum box culvert sized to bankfull width set at a lower elevation. The new culvert would be set approximately 1.5 feet lower than the existing pipe. Rock armoring would be placed on the fill slopes around the ends of the culvert to prevent erosion. The existing road surface is paved and would be paved after the installation. The measured bankfull width is 15.2 feet.

**Halley Creek at FR 2141.** It is located at SE1/4; SW1/4; Sec 13; T35N; R16E, in Forest County. There are currently (1) five foot and (2) two foot circular culverts that are in poor condition and set too high at this site. They are currently acting as a barrier to aquatic organism near the mouth of Halley Creek and Peshtigo River.
Halley Creek is a cold water stream. The stream probably supports sculpins and brook trout. This stream is also an important source of cold water for the Peshtigo River and most likely would provide a thermal refuge for fish during hot summer temperatures. Replacing these culverts will reconnect 7.2 miles of coldwater habitat to the Peshtigo River.

The proposal is to install an aluminum box culvert or con span bridge structure sized to approximately bankfull width set at a lower elevation. The measured bankfull width is 22 feet. Rock armoring would be placed on the fill slopes around the ends of the culvert to prevent erosion.

**Spencer Creek at FR 3220 (Flanner Lane).** The culvert is located at NE1/4; SW1/4; Sec 15; T35N; R15E in Forest County. The existing four foot circular culvert is undersized and is set too high creating a high velocity barrier to aquatic organisms and it is causing ponding upstream.

Spencer Creek at this location is a cold water stream and probably supports Sculpins and Brook Trout. This stream is also an important source of cold water for the Rat River and most likely would provide a thermal refuge for fish during hot summer temperatures. Replacing these culverts will reconnect 5.2 miles of coldwater habitat to the Rat River.

The proposal is to install an aluminum box culvert sized to approximately bankfull width and set at a lower elevation. The existing road surface is paved and would be paved after the installation. Rock armoring would be placed on the fill slopes around the ends of the culvert to prevent erosion. The measured bankfull width is 16.7 feet.

**UNT Armstrong Creek at FR 2163 (Wall Road).** It is located at SW1/4; NW1/4; Sec 27; T37N; R16E, Forest County. Although the site is located outside of the proclamation Forest boundary, the project would replace a barrier on a small unmapped tributary to Armstrong Creek. The existing 1.25 foot culvert is undersized, set too high, located near the mouth of the stream, and adversely affecting channel morphology. The site is also a maintenance problem where the culverts freeze during winter months. The stream is fed by groundwater and would serve as important rearing habitat if connected. This project compliments four other recent barrier replacements within the watershed.

This unnamed tributary to Armstrong Creek is a cold water stream.

The proposal is to install a culvert sized to bankfull width set at a lower elevation. The existing road surface is paved and would be paved after the installation. Rock armoring would be placed on the fill slopes around the ends of the culvert to prevent erosion. The measured bankfull width is five feet.
UNT Hay Creek at FR 2320. The location is NE1/4; NE1/4; Sec 04; T32N; 17E, Oconto County. The existing four foot circular culvert is undersized, has a steep slope, and drop at the outlet. It is a barrier to aquatic organism passage.

This unnamed tributary to Hay Creek is a cold water stream, probably supporting Sculpins and possibly smaller Brook Trout.

The proposal is to install a culvert sized to bankfull width set at a lower elevation. Headwalls and wingwalls will be installed to protect the steep embankment from erosion. The measured bankfull width is eight feet.

Caldron Falls Flowage Tributaries: The following four culvert replacements are on tributaries to the Caldron Falls Flowage. The existing culverts are all aquatic organism barriers located on Class I trout streams. The streams are very high quality, groundwater fed systems that contain native brook trout.

- **UNT Chickadee Creek at FR 2338 (North Fork Road).** The location is NW1/4; SW1/4; Sec 02; T33N; R17E, in Oconto County. The existing two foot culvert is undersized, set too high, and in poor condition. It is causing ponding at least 35 feet upstream. There is currently piping on the right side of the culvert due to its poor condition. The proposal is to install a culvert sized to bankfull width and set at a lower elevation. Rock armoring would be placed on the fill slopes around the ends of the culvert to prevent erosion. The bankfull width is 6.5 feet.

- **Chickadee Creek at FR 2102.** The location is at NW1/4; SE1/4; Sec 2; T33N; R17E, in Oconto County. The existing four foot culvert is perched and undersized creating a velocity and jump barrier to fish. The proposal is to install a culvert sized to bankfull width and set at a lower elevation. Headwalls and wingwalls will be installed to protect the steep embankment slope from erosion. The bankfull width is 11 feet.

- **Chickadee Creek at FR 2102.** Project location is NE1/4; NE1/4; Sec 03; T33N; R17E, in Oconto County. The existing 2.5 foot culvert is perched and undersized resulting in ponding upstream. The proposal is to install a culvert sized to bankfull width set at a lower elevation. Rock armoring would be placed on the fill slopes around the ends of the culvert to prevent erosion. The bankfull width is seven feet.
• **UNT Caldron Falls at FR 2102.** The culvert replacement is at SE1/4; NE1/4; Sec 11; T33N; R17E, in Oconto County. The existing 2.5 foot culvert is perched and undersized. The proposal is to install a culvert sized to bankfull width set at a lower elevation. Rock armoring would be placed on the fill slopes around the ends of the culvert to prevent erosion. The bankfull width is five feet.