



◻ North Carolina Wildlife Resources Commission ◻

Cameron Ingram, Executive Director

March 20, 2023

Patrick Breedlove
Division 14 PDEA Engineer
North Carolina Department of Transportation
253 Webster Road
Sylva, NC 285779

Subject Scoping Comments on Replacement of Bridge No.s 155, 158, and 168 over US 23/74/19,
Haywood County. **B-5898 and B-3186**

Dear Mr. Breedlove,

Division 14 of the North Carolina Department of Transportation (NCDOT) invited comments from the North Carolina Wildlife Resources Commission (NCWRC) on the subject revised bridge replacement project. NCWRC biologists are familiar with the wildlife resources in the area. The following comments are offered to conserve wildlife resources affected by the project and to promote wildlife-based recreation in accordance with the applicable provisions of the state and federal Environmental Policy Acts (G.S. 113A-1 through 113-10; 1 NCAC 25 and 42 U.S.C. 4332(2)(c), respectively), the Clean Water Act of 1977 (33 U.S.C. 466 et seq.) and the Fish and Wildlife Coordination Act (48 Stat. 401, as amended; 16 U.S.C. 661-667d).

General Comments

NCWRC standard recommendations for bridge and culvert replacement projects of this scope include:

1. New bridges or other channel spanning structures are recommended over culverts because they typically require minimal if any stream impacts. The clearances of bridges allow for human access and wildlife passage, fish passage, and navigation by boaters. Unlike bridges, culverts can prove difficult to dewater during construction, which can lead to extended periods of channel instability and erosion.
2. Bridge deck drains should not discharge directly into streams.
3. Live concrete should not be allowed to contact water in or discharging to streams.

4. If possible, bridge supports (bents) should not be placed in stream channels.
5. Applicable measures from the current *NCDOT Erosion and Sediment Control Design and Construction Manual* should be implemented and maintained during construction. Matting used in riparian areas should not contain nylon mesh because it entangles and kills wildlife. Coir matting should be used on unstable stream banks that are steep or susceptible to high water and matting should be securely anchored with wooden stakes according to NCDOT specifications.
6. Temporary detours and access roads should be designed and located to avoid wetland impacts, to minimize clearing, and avoid destabilizing stream banks. Tree stumps and root mats should be left where possible under and along temporary access roads to limit streambank disturbance and promote regrowth of vegetation. Temporary fills should be removed to original ground elevations upon the completion of the project. Disturbed areas should be seeded, or mulched, and native tree species should be planted with a spacing of 10'x10'.
7. A clear strip of streambank (rip rap free) of 10 feet in width should remain on each side of the channel underneath bridges to facilitate wildlife passage. Smaller widths are also beneficial where there are narrow abutment setbacks. Alternatively, a "wildlife path" can be constructed with a top-dressing of finer stone if full bank plating is required. These measures should also incorporate any ditch line plating.
8. NCDOT biologists should be notified about streams that contain threatened or endangered species. Special measures to protect these sensitive species may be required. NCDOT should also contact the U.S. Fish and Wildlife Service for information on requirements of the Endangered Species Act as it relates to the project.
9. All work in or adjacent to streams should be conducted in dry work areas. Sandbags, cofferdams, or other clean diversion structures should be used where possible to avoid excavation in flowing water.
10. Heavy equipment should be operated from the banks rather than in stream channels to minimize sedimentation and reduce the likelihood of introducing other pollutants into streams.
11. Only clean, sediment-free rock should be used as temporary fill (causeways) and fill material should be removed with minimal disturbance of the natural stream bottom when construction is completed.
12. During geotechnical investigations, equipment should be inspected daily and maintained to prevent contamination of surface waters from leaking fuels, lubricants, and hydraulic fluids.

The following recommendations apply to corrugated pipes, reinforced concrete pipes, or concrete box culvert structures:

1. Culverts and pipes must be designed to allow for aquatic life passage in accordance with current *NCDOT Guidelines for Drainage Studies and Hydraulic Design*. This typically includes burial of a single low flow barrel at least 1 foot below the natural streambed and backfilling with native material. If multiple barrels are required, then the high flow barrel(s) should be placed on or near a bankfull elevation. These "flood" barrels should be reconnected to benches and include sills on the upstream ends to restrict or divert base flow into the low barrel. Barrels with sills should be filled with sediment to avoid standing water. If rip rap is used for backfilling, then it should also be topped with

native or other finer material to facilitate wildlife passage. In accordance with *NCDOT Guidelines for Drainage Studies and Hydraulic Design*, alternating or notched baffles should typically be installed in base flow culverts that are steep or longer than 40-50 linear feet in a manner that mimics the existing stream flow pattern and profile.

2. Riprap should be minimized on banks and avoided on streambeds except where bed scour may be expected. Rip rap placed on the streambed should be embedded or “keyed-in” to prevent or shorten the duration of subsurface streamflow.
3. If multiple pipes or cells are used, then at least one pipe or box should be designed to remain dry during normal flows to allow for wildlife passage.
4. Culverts or pipes should be aligned with the existing channel alignment whenever possible. Channel widening should be avoided. Stream channel widening at the inlet or outlet end of structures typically decreases water velocity, disrupts aquatic life passage, and causes sediment deposition that requires increased maintenance.

Replacement of the existing bridge or culvert in the same location with road closure is typically recommended to minimize impacts. If road closure is not feasible, then a temporary detour should be designed and located to avoid wetland impacts, minimize the need for clearing, and avoid destabilizing stream banks. If the structure will be on a new alignment, then the old structure and the approach fills should be removed from the 100-year floodplain. Approach fills should be removed down to the natural ground elevation. The area should be stabilized with grass and planted with native tree species. NCDOT should restore the area to wetlands if the area reclaimed was previously wetlands.

Project-Specific Comments

Adherence to the trout moratorium should not be necessary with this project. Lake Junaluska is a short distance downstream of the site, and natural reproduction by trout is unlikely in this relatively short stretch of Richland Creek.

Big brown bats (*Eptesicus fuscus*) have been documented roosting east of the project area in bridge no. 107 as well as in bridge no. 155. The project redesign may no longer require modification of bridge no. 107 over the railroad line. Gray bats (*Myotis grisescens*, US Endangered) have been documented roosting in bridge no. 186 over Richland Creek upstream of the project bridges. Because of the concentrated bat activity in the region, and elsewhere in the Pigeon River watershed, the NCWRC recommends that the bridges be resurveyed for bats during the summer roosting season. Consultation with the U.S. Fish and Wildlife Service should occur to update concurrence and conservation measures for the project, as needed.

Wildlife passage under the existing bridges is likely limited, partly due to the urban environment, though small mammals and reptiles likely move along the forested riparian areas of Richland Creek. The greenway trail and rip rap-free floodplain benches allow for unobstructed wildlife passage now. Therefore, in accordance with standard recommendations, we request that the rip rap-free benching be

maintained under the new bridges. This accommodation may become more important to wildlife because the new bridges are likely to be widened to accommodate future highway widening.

Please contact me at david.mchenry@ncwildlife.org or (828) 476-1966 if you have any questions about these comments or need additional assistance.

Cordially,



Dave McHenry, NCWRC Western DOT Coordinator

cc: Susan Westberry, AICP, PWS, CPESC, AECOM
Lauren Wilson, U.S. Fish and Wildlife Service