

DRAFT
COMPATIBILITY DETERMINATION

Use: Replacement of Five Culverts Under State Route 94 and Request to Extend the North Carolina Department of Transportation's Right-of-Way at the Five Culverts

Refuge Name: Mattamuskeet National Wildlife Refuge, Hyde County, near Swan Quarter, North Carolina

Establishing and Acquisition Authority(ies): Mattamuskeet National Wildlife Refuge was established on December 18, 1934. The establishing and acquisition authorities for the refuge are:

1. National Industrial Recovery Act (48 Stat. 195) (June 16, 1933)
2. Executive Order No. 6924 (December 18, 1934)

Refuge Purpose(s): "...as a refuge and breeding ground for birds and wild animals, and (2) that such portion as the Secretary of Agriculture [Interior] may deem proper be reserved for use as a shooting area, to be operated under a cooperative agreement or lease... With regard to the waters... the Secretary of Agriculture [Interior]... may enter into a cooperative agreement or lease... said waters may be used for fishing purposes..." Executive Order 6924, dated Dec. 18, 1934.

National Wildlife Refuge System Mission:

The mission of the National Wildlife Refuge System is "to administer a national network of lands and waters for the conservation, management, and where appropriate, restoration of the fish, wildlife, and plant resources and their habitats within the United States for the benefit of present and future generations of Americans" (National Wildlife Refuge System Administration Act of 1966, as amended [16 U.S.C. 668dd-668ee]).

Description of Use:

The major geological feature on Mattamuskeet NWR is Lake Mattamuskeet. The lake is 40,000 acres, approximately 16 miles long, 6 miles wide and has an average depth of 2-1/2 to 3 feet. In 1940 the North Carolina State Highway and Public Works Commission, now the North Carolina Department of Transportation (NCDOT), constructed a road, State Route 94 (SR 94), across Lake Mattamuskeet. To provide for the exchange of water and the passage of fish on both sides of the road, five concrete box culverts were installed through the road bed (See attached maps).

Prior to the construction of SR 94, the United States of America, acting through the Secretary of the Interior, granted to the State of North Carolina, through its Highway and Public Works Commission, predecessor of NCDOT, a permit (Permit No. 40-194) to construct and maintain the road subject to certain terms and conditions. Term and condition No. 1 stated: *“The proposed highway shall be constructed and maintained on a right-of-way more particularly described as follows:*

A strip of land 100 feet in width being 50 feet on either side of the following described center line [the description of the beginning and end points followed].

In Term and Condition No. 2 NCDOT was *“permitted to occupy and use for the purpose of constructing the highway lands and lands under water lying within a distance of 300 feet on each side of the center line as described in the permit. Upon completion of the highway, all refuse and material used in the construction of the highway shall be removed and the said highway right-of way shall be kept in a neat and orderly condition at all times”*.

The existing five concrete box culverts are 40 feet long by 25 feet in width and consist of 5 barrel reinforced concrete boxes. The culverts are contained within an existing 100 foot right-of-way. Each culvert has protective concrete wing walls extending approximately 110 feet to 40 feet, depending on the culvert site. The existing concrete wing walls begin at the culverts and extend beyond the 100 foot right-of-way. The existing culverts and wing walls are deteriorating and are causing structural loss. NCDOT plans on replacing the original culverts, concrete aprons and concrete wing walls. The proposed culverts will be replaced within the exact same location/alignment. The proposed culverts will also retain the same dimensions as the existing culverts, except for the length, which will be increased. The length of the proposed culverts will increase from the existing 40 feet to a proposed 58 feet. The lengthening will be asymmetrical and allow for more grassed roadway shoulder adjacent to the asphalt driving surface. This will increase safety to the public that frequently use the culverts for recreational fishing and crabbing. The culvert width (hydraulic opening) will retain the same dimensions as the existing culverts.

Due to scour potential at the culvert sites, NCDOT will replace the concrete wing walls and apron and add a rock rip-rap scour pad on the ends of the aprons. NCDOT hydraulic engineers recommend extending the rock rip-rap to a distance of 30 feet to 60 feet beyond the concrete aprons depending on the site.

The length of the proposed wing walls and rip-rap scour pads will exceed the current right-of-way of 100 feet, 50 feet on each side of the center line of SR 94. The current wing walls have exceeded the right-of-way since the construction of SR 94. NCDOT is requesting a permanent extension of the current right-of-way in order to construct the new structures as designed and for future repair/maintenance needs. NCDOT is requesting an additional 80 feet on each side of the center line of SR 94 in the vicinity of each of the five culverts, for a total expansion of 160 feet. This will result in a total right-of-way of 260 feet within the areas of the culverts, 100 feet of the existing right-of-way and an additional 80 feet of requested right-of-way on either side. The requested extension will only apply to the areas of the five culverts. The remaining areas of SR 94 will retain the 100 foot right-of-way as stated in Permit No. 40-194.

The proposed expanded right-of-way for one side of each culvert will increase the existing right-of-way by 8,160 square feet, or 0.19 acres. The total requested right-of-way expansion for the entire project will be approximately 1.9 acres (0.19 acre each side x 2 sides at each culvert x 5 culverts).

Availability of Resources:

The replacement of the five culverts under SR 94 is a project planned, designed and contracted by NCDOT. Refuge staff time has consisted of meeting with NCDOT representatives to discuss the planning and design of the project, review of the proposed plans, review of refuge permits and documents, consultation with the Division of Ecological Services Raleigh field office and preparation of an Intra-Service Section 7 Biological Evaluation, National Environmental Policy Act documentation, cultural and archaeological resource consultation with the Regional Archaeologist, and preparation of a Compatibility Determination. After the approval of all required documentation, refuge staff time should be limited to consulting with NCDOT personnel during the construction phase and periodic inspection of the project site to determine compliance with refuge policies and terms of an approved right-of-way.

Refuge staff will not be involved in any construction activity during the project. No Refuge funds will be expended for this project, excepted for the staff salaries for consultation between the two agencies and preparation of required documents.

Anticipated Impacts of the Use:

The existing culvert wing walls have exceeded the permitted right-of-way since the original construction in 1940. No detrimental impacts from the culverts or wing walls have been documented in Refuge files. The proposed extension of the five culverts and the right-of-way, only in the vicinity of the five culverts, is not expected to cause any significant biological impacts. The extended right-of-way will not affect waterfowl usage of these areas. Waterfowl are not observed in any significant numbers within the vicinity of the culverts. Ruddy ducks, buffleheads and an occasional lesser scaup or redhead are observed within the wing walls basins or adjacent to the sites. Other bird species observed either actively feeding or sitting on the wing walls include pied-billed grebe, double-crested cormorant, great blue heron, American coot, laughing gull, Bonaparte's gull, ring-billed gull, great black-backed gull and Forster's tern. Land birds, mammals, reptiles and amphibians will not be impacted by the new structures or the proposed increased right-of-way.

Fisheries are not expected to be negatively impacted by the new structures nor the expanded right-of-way. The new culverts are the same dimension as the old culverts and are expected to move the same volume of water. The new rip-rap that will be put down at the end of the concrete aprons may provide increased structure to attract invertebrates and fish. This could provide an additional food source for larger fish and birds, and provide enhanced recreational fishing opportunities.

The proposed 5 culvert replacements will be conducted in two phases. NCDOT has numbered the culverts, starting at the southernmost culvert going north, as #2, #3, #16, #17 and #18. Replacement of culverts #2, #16 and #18 is scheduled to begin on June 15, 2013 and be completed by November 15, 2013. Work on culverts #3 and #17 is scheduled to begin in February 2014 and be completed by November 1, 2014. This will avoid disturbance to waterfowl that may be in the vicinity of the culverts, and avoid the North Carolina Marine Fisheries' moratorium for anadromous fish spawning areas. The construction phase of the project will have a temporary disturbance impact on wildlife and fisheries. The presence of equipment, construction workers, noise and traffic congestion will deter avifauna and terrestrial wildlife from the area. The removal of the old culverts and construction of the new culverts will require that cofferdams be put in to block lake water from the construction areas. This will prevent the passage of water and fish at those sites. The staggered replacement of the culverts will ensure that all of the culverts are not blocked off at the same time.

The hydrological effects that SR 94 and the culverts have had on the lake have never been researched. The road itself is a barrier to the mixing of waters and the passage of fish. The Refuge requested that NCDOT not change the dimensions of the new culverts since the results of changing the flow rate through the culverts is not known. The Refuge also requested that NCDOT construct the new culverts with slots on both the east and west sides. If needed, boards can be inserted into the slots to reduce or block the flow of water through the culverts. Unforeseen future management needs may require that the exchange of lake waters be reduced or stopped for water quality or biological resource needs.

Determination (check one below):

- Use is Not Compatible
 Use is Compatible With Following Stipulations

Stipulations Necessary to Ensure Compatibility:

NCDOT will not exceed the new granted right-of-way either during the culvert replacement project or for future maintenance/repair projects.

NCDOT will comply with the Refuge's request not to conduct construction activities during the wintering waterfowl period of November 15 – February 15, and the NC Division of Marine Fisheries' anadromous breeding fish moratorium of February 16 – June 15. However, work on culverts #3 and #17 will be able to begin in February 2014 due to the isolation of the work area by the steel sheet pile cofferdams. The cofferdams will buffer the work area from the surrounding lake water. The cofferdams will be in place prior to the February 15 in-water work moratorium. NCDOT will replace the old culverts with new culverts of the same hydraulic conveyance to avoid any potential unknown effects that may result from changing the hydraulic flow regimes between the east and west side of Lake Mattamuskeet. NCDOT stated that no hazardous materials will be used, produced, transported or stored on or within the right-of-way or

used in the construction, operation, maintenance or termination of its facilities.

NEPA Compliance for Refuge Use Decision: *Place an X in appropriate space.*

Categorical Exclusion without Environmental Action Statement

Categorical Exclusion and Environmental Action Statement

Environmental Assessment and Finding of No Significant Impact

Environmental Impact Statement and Record of Decision

Justification:

The five current culverts are deteriorating and will worsen over time. A failure of the culverts will prevent the hydrological conveyance of lake waters between the east and west sides of Lake Mattamuskeet and the passage of the lake's fisheries. A catastrophic failure of one of the culverts would result in the closure of Highway 94 across the lake causing a major inconvenience to the public and an economic loss to Hyde County. The timing of the construction will reduce effects on wildlife and anadromous breeding fisheries. Compliance with the Stipulations in this Compatibility Determination, the terms and conditions in a right-of-way permit and easement, and NCDOT compliance with their environmental policies will ensure no net loss in habitat quantity or quality. The longer design of the new culverts will improve public safety while engaging in recreational activities at the culvert sites. The granted extended right-of-way at the culvert sites will not adversely impact refuge resources.

5 Culverts on NC 94 - Lake Mattamuskeet
Hyde County, North Carolina



