GUIDELINES FOR APPLICATION OF NATIONWIDE PERMITS FOR PROJECTS INVOLVING ROAD CROSSING PIPE/CULVERT MAINTENANCE

This document is in further reference to the Norfolk District Corps of Engineers Public Notice dated 8 March, 2010 (3/8/10 Public Notice), on this subject. Link to Public Notice: https://www.nao.usace.army.mil/Media/Public-Notices/

The purpose of this document is to provide further guidelines and standards for pipe/culvert repair projects.

Background: Since the 3/8/10 Public Notice was posted, over 30 applications have been received for projects requesting authorization for pipe/culvert repair that involves a discharge of fill that would raise the invert of the pipe/culvert(s), such that the low-flow pipe would not be at the streambed elevation or countersunk below the streambed. Specifically, the addition of 4 to 6 inches of shotcrete and rebar to damaged pipe/culvert inverts has been proposed as the preferred method of repair by applicants. Varying factors, including cost, topography constraints, structure constraints, and property ownership, have been cited as reasons why applicants believe other alternatives are not feasible. Cost appears to be the primary rationale for proposing shotcrete/rebar repair.

Guidelines: Following discussions with other Corps Districts and state DOT's and other research in this matter, the Norfolk District has developed the following guidelines, which will apply to pipe/culvert shotcrete/rebar repair projects:

1) All of the requirements for notification, information, and consideration of alternatives set forth in the Public Notice remain in full force.

2) For all pipe/culvert repairs, the applicant must first consider and evaluate alternatives that will not raise the pipe/culvert's bottom invert elevation. These alternatives shall include, but are not limited to: full replacement and countersinking of new box culverts or pipes, sleeving or "slip-lining" the pipe interior with a metal, PVC, flexible, or other nontoxic pipe liner; or removing the undermined pipe bottom and installing in its place the shotcrete/rebar such that it would not increase the pipe's invert elevation. If more than one pipe exists at the site, the applicant should also evaluate using the above alternatives to repair/replace one pipe at the location of the low flow channel, while using the rebar/shotcrete method at the other pipes, in an effort to address the needs of the applicant, while allowing for movement of aquatic organisms and minimizing costs. If the applicant believes that those alternatives are not practicable, he/she must provide a case- specific analysis for each alternative which explains why. In addition, he/she must provide the additional information stated in #3.A) 2 of the 3/8/10 Public Notice.

3) Pipes in stockable and wild trout streams—The Norfolk District will make these decisions case-by-case, and in consultation with DGIF. Proposals that the agencies determine will disrupt the passage of such species would not qualify for NWPs and would require further review under LOP-1 (VDOT only) or individual permits; however, generally they will not be acceptable.

4) Pipes in threatened/endangered species waterways—The Norfolk District will make these decisions case-by-case, and in consultation with DGIF and FWS. Proposals that the agencies determine will disrupt the passage of such species do not meet the conditions of the NWPs and would require further review under LOP-1 (VDOT only) or individual permits,

as well as possible formal Section 7 consultation with the FWS. However, generally, such proposals will not be acceptable.

5) Pipes that are currently countersunk or pipes whose inverts currently rest on the streambed, but will be elevated above the streambed as a result of the repair work using rebar/shotcrete do not qualify for NWPs. They may be reviewed under LOP-1 (VDOT only) or individual permits; however, generally they will not be acceptable, as they will create a constriction where one does not currently exist. The applicant will be asked to employ an alternative other than shotcrete/rebar, even if it costs more, and/or may be required to mitigate for adverse effects to the stream.

6) Pipes that are already structurally compromised and in very poor condition, i.e., collapsed from the top, crushed, have missing sections, or are otherwise disfigured such that repair would not result in long-term function and stability should be replaced with new pipes, box culvert, or bridge.

7) We will consider, on a case-by-case basis when all of the required information has been submitted, allowing the use or rebar/shotcrete to repair deteriorated pipes which meet any of the following existing conditions:
    a. Bedrock ledges are common upstream and downstream of the pipe such that the stream bottom is already highly variable [If allowed, then changes in the pipe's invert elevation would need to be in keeping with those that currently exist upstream and downstream of the pipe].
    b. The existing inlet and/or outlet invert elevation is already well above (>18")that of the streambed or edge of pool
    c. Ephemeral channels with only periodic flow.
    d. Obstacles such as dams occur upstream or downstream in close proximity [<500'] to the pipe .

    Projects that do not fall into one of these four categories, may be reviewed under LOP-1 (VDOT only) or individual permits; however, generally they will not be acceptable.

<u>Permit conditions when rebar/shotcrete allowed</u>: Following the review procedures outlined above, the Norfolk District will determine whether the work qualifies for NWP, LOP-1 (VDOT) or an individual permit. In those cases where the Norfolk District authorizes the work, the following conditions will apply:

1) All jurisdictional areas that are temporarily disturbed during construction must be restored to pre-construction contours.

2) All work must be performed in the dry. All concrete must be fully cured prior to contact with the stream water.

3) You may not pour a concrete apron at the inlet or outlet of any of the pipes. You may allow a minimum of concrete to flow out of the pipe sufficient to force it back under the pipe in order to provide a seal between the concrete in and under the pipes and minimize water getting under the pipes. However, once the concrete has been forced back under the pipe, it must be cut off 2-3" outside of the pipe lip at a more or less 90-degree angle in order to limit the extent to which the concrete extends into the stream. Stone shall then be placed in front of the concrete; see Condition #4.

4) Stone of sufficient size to prevent erosion and washout must be placed at every inlet and outlet that is not at bottom elevation or below following the placement of the concrete. River rock/native stone is preferred over riprap. Stone must be keyed into the stream bottom and placed to create a slope into/out of the pipe. Where there is more than a 4" rise from the streambed into the inlet or a 4" drop from the outlet to the streambed, then the stone should be placed to create one or more steps pools, depending on what is necessary to make a gradual transition into/out of the pipe. However, the Norfolk District may waive this condition in situations where there is a deep pool at the outlet. You must have a qualified representative on-site during the placement of the stone to insure compliance with this special condition.

5) Following completion of the work authorized herein, you must submit photographs to the Norfolk District of the inlet and outlet of all pipes where work was performed. Photographs must be taken both before the water is allowed back into the pipe and after flows have re-established. In addition, during dry/lower flow periods following construction, presumably in the summer, you must again take photographs of each inlet and outlet and provide them to the Norfolk District. All photographs should be labeled to show the location and the date the pictures were taken.

6) The Norfolk District will determine on a case-by-case basis whether mitigation and/or monitoring of flows will be required to offset adverse effects to the stream.