LD-294
(3/20/07)

DEPARTMENT OF TRANSPORTATION
LOCATION AND DESIGN
HYDRAULIC COMMENTARY FOR ENVIRONMENTAL PERMIT FOR CULVERTS

LOCATION
Project :
Route :
PPMS :
Station :
City/County :
Waterway :

PREPARED BY
Name :
Organization :
Date :

1. Type and size of structure_____ Length_____
Invert in_____ out_____ Height of cover_____ Drainage Area_____
Design Discharge_____ Design Frequency_____ Design Headwater Elev._____
100-yr Discharge _____ 100-yr Headwater Elev. _____
OHW elevation_____
Outlet Protection _____

2. Temporary structures for construction _____
_____
_____

3. Applicable flood plain management criteria:
Note: Use **ONLY the one statement that is applicable and erase all the rest,** including this instruction and the FEMA delineation description information.

For project within a FEMA **delineated floodplain**:

FEMA regulates flood level, flood velocity, and flow distribution and this project is within FEMA community panel number: _____ and Zone ____. This project complies with FEMA requirements because there will be no increase in flood levels, velocities or flow distribution. A copy of an excerpt from the aforementioned map panel showing the crossing site has been included.

FEMA regulates flood level, flood velocity, and flow distribution and this project is within FEMA community panel number: _____ and Zone ____. This project complies with FEMA requirements because a bridge/culvert will be replaced with a hydraulically equivalent replacement structure. A copy of an excerpt from the aforementioned map panel showing the crossing site has been included.

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For project permits in a FEMA floodplain carrying a **Zone A** (or **Zone X**) designation that does not have base flood elevations. In such instances, an increase in 100-year flood level not exceeding one foot is acceptable.

> FEMA regulates flood level, flood velocity, and flow distribution and this project is within FEMA community panel number: _____ and Zone A (or X). This project complies with FEMA requirements because there will be no more than a one foot increase in flood levels, velocities and flow distribution will not be changed significantly. A copy of an excerpt from the aforementioned map panel showing the crossing site has been included.

For projects not within a FEMA floodplain, include the following statement:

> FEMA regulates flood level, flood velocity and flood distributions and this project is not within a designated or delineated FEMA floodplain. The project complies because there are no FEMA requirements applicable within the project area.

4. EROSION AND SEDIMENT CONTROL

An erosion and sediment control plan will be prepared and implemented in compliance with the Erosion and Sediment Control Law, the Erosion and Sediment Control Regulations, and VDOTs Annual Erosion and Sediment Control Standards and Specifications approved by the Department of Conservation and Recreation.

5. STORMWATER MANAGEMENT

Design of this project will be in compliance with the Stormwater Management Act, the Stormwater Management Regulations, and VDOTs Annual Stormwater Management Standards and Specifications approved by the Department of Conservation and Recreation.

6. COUNTERSINKING AND MULTIPLE BARRELL CULVERTS

Note: Use **ONLY the statements that are applicable and erase all the rest**.

The upstream and downstream inverts of culverts with diameters greater than 24" (or equivalent) will be countersunk a minimum of 6" below the stream bed.

The upstream and downstream inverts of culverts with diameters equal to or less than 24" (or equivalent) will be countersunk a minimum of 3" below the stream bed.

At least one barrel of a multiple barrel culvert structure will be countersunk a minimum of 6" for a diameter greater than 24" (or equivalent) or a minimum of 3" for a diameter equal to or less than 24" (or equivalent).

The width of the countersunk culvert barrel(s) receiving the low flow is approximately the width of the normal stream bed.

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Low flow design measures have been implemented for multiple barrel culverts in which all barrels will be countersunk.

Culverts on bedrock will be countersunk a minimum of 3" below the stream bed.

Culverts on bedrock will be countersunk at the upstream end a minimum of 3" and at the downstream end stone step pools, low rock weirs or other measures will be constructed.

Countersinking of the culverts is not practicable due to _____ (See IIM-214.2 Section 4). See attached supporting documentation

7. IMPACT STATEMENT_____
_____
_____