

567—72.1(455B) Bridges and road embankments. The following criteria shall apply to the construction, operation, and maintenance of bridges and road embankments.

72.1(1) Bridges and road embankments affecting low damage potential areas. For bridges and road embankments affecting floodway or floodplain areas having a low flood damage potential, the following criteria will apply:

- a. *Backwater Q100.* The maximum allowable backwater for Q100 is 1.5 feet.
- b. *Freeboard.* The minimum freeboard for low superstructure horizontal bridge members above Q50 is 3 feet unless a licensed engineer provides certification that the bridge is designed to withstand the applicable effects of ice and the horizontal stream loads and uplift forces associated with the Q100.

72.1(2) Bridges and road embankments affecting high or maximum damage potential development. For bridges and road embankments affecting floodway or floodplain areas occupied by buildings or building complexes having a high or maximum flood damage potential, the following criteria will apply:

- a. *Backwater Q100.*
 - (1) The maximum allowable Q100 backwater for new bridges and road embankments is 1.0 foot.
 - (2) The maximum allowable Q100 backwater for replacement bridges and roadway embankments is the lesser of the following: Q100 backwater for the existing bridge and road embankment or 1.0 foot.
 - (3) For a new bridge and road embankment located within a stream reach for which the Federal Emergency Management Agency has published a detailed Flood Insurance Study which includes a floodway, the backwater for Q100 shall not exceed the surcharge associated with the delineation for the floodway at that location.
 - (4) In no case shall the Q100 backwater effects of a bridge or road embankment reduce the existing level of protection provided by certain flood control works, unless equivalent remedial measures are provided.
- b. *Freeboard.* The minimum freeboard for low superstructure horizontal bridge members above Q50 is 3 feet unless a licensed engineer provides certification that the bridge is designed to withstand the applicable effects of ice and the horizontal stream loads and uplift forces associated with the Q100.

72.1(3) Bridge and channel change. For bridges and culverts involving channel changes on the floodway of any stream draining at the location of the channel change between 10 and 100 square miles whereby either (i) more than a 500-foot length of the existing channel is being altered or (ii) the length of existing channel being altered is reduced by more than 25 percent, the maximum allowable backwater shall correspond to the limits permitted in 72.1(1), 72.1(2) or 72.1(4) depending upon the associated damage potential.

72.1(4) Culverts. The maximum allowable backwater at culvert inlets shall correspond to the limits permitted in 72.1(1) or 72.1(2) depending upon the damage potential associated with the affected area. In the case of replacement culverts, the backwater shall not exceed that created by the culvert or waterway crossing being replaced or that specified in 72.1(1) or 72.1(2) depending upon the associated damage potential, whichever is greater.

72.1(5) Road embankments. The criteria listed in 567—72.11(455B) for miscellaneous floodplain construction projects shall apply to road embankments located on the floodplain but not crossing any stream or river channel.

72.1(6) Temporary channel obstructions. Temporary stream crossings and other temporary obstructions usually constructed, operated, and maintained during the construction phase of another floodplain construction project shall meet the following criteria:

- a. *Low flow.* Said structures will provide for the passage of the prevailing flow in the stream or river.
- b. *Floodflow.* Said structure shall be designed to fail or otherwise operate in the event of flooding so as to prevent premature overbank flow, or meet the backwater criteria indicated in 72.1(1) or 72.1(2).

72.1(7) Emergency. Repairs or temporary construction required to maintain the operation of a bridge, roadgrade or culverts in time of emergency need not be submitted for prior department approval.

Plans of such emergency or temporary construction shall be submitted to the department for review after the event causing the emergency has passed.

[ARC 2764C, IAB 10/12/16, effective 11/16/16]