b. Channel excavation requirements;
c. Minimum vertical clearance;
d. Minimum horizontal clearance;
e. Abutment type and orientation;
f. Pier orientation;
g. Scour depths for the design storm return period flows, 100-year flows, and maximum overtopping flows — if needed for main or major roadways;
h. Scour protection requirements for abutments, piers, and channels;
i. Deck drainage.

4. Documentation of hydraulic designs of culverts, including larger culverts with bridge design characteristics, shall include recommendations for the following:
   a. Culvert size and justification for the size, barrel length, and location;
   b. Up- and downstream invert elevations;
   c. End wall type for entrance and outlet, including the need for an improved inlet;
   d. Skew;
   e. Inlet and outlet ends scour protection requirements; and,
   f. Final Project plans shall show the peak stages, peak discharges, peak velocities, and peak scour predictions for the design flows, and the greatest flow or overtopping flow that can be expected at the structure.
   g. Many computer programs are available for computation of backwater curves. The most general and widely used program, HEC-2 was developed by the U.S Army corps of Engineers and it's recommended for floodwater profile computations. This program can be used to computer water surfaces profiles for both natural and artificial channels and culverts.