

## **HR-354 An Engineering study to Design Triple Box Culvert Standards**

**Key Words:** Design, Box culverts

### **ABSTRACT:**

Standard plans are very cost effective to the counties by eliminating duplication of effort in performing detailed design and drafting work. Counties in the past have made extensive use of the culvert standards developed through a Highway Research Advisory Board project. To develop box culvert designs, most counties request computer generated design information from the Iowa DOT Bridge Design Office and perform the required detailing and estimating. This procedure is time consuming for both the Office of Bridge Design and the counties. New box culvert standards would eliminate much of the time and expense counties are expending on culvert plans.

The objective is to develop triple reinforced concrete box culvert standards, headwalls, barrel sections, and bell joints for use by the Iowa counties.

The study will involve developing details and quantities for 336 different box culverts. Seven different triple box culverts will be designed for sizes from 101 x 81 to 121 x 121, with 12 different fills and 4 different skewed headwalls (00, 150, 300 and 450). More specific details are given in the attached "Scope of Work." These standards will include details for bell joints and will be similar in layout to the attached standard. Due to the demanding workload of the Iowa DOT Bridge Design Office, an engineering firm will be retained to perform the necessary work. The Office of Bridge Design will provide computer generated design information needed to develop the barrel cross-sections for the triple box culverts to the engineering firm.

The final report is a set of reinforced concrete triple box culvert standards which include barrel sections, headwalls and bell joints.