

Culverts

Technologically the culvert has been defined as "a small bridge constructed entirely below the elevation of the roadway surface and having no part or portion integral therewith. Structures over 20 feet in span parallel to the roadway are usually called bridges, rather than culverts; and structures less than 20 feet in span are called culverts even though they support traffic loads directly" (U.S. Department of Transportation 1979:G-13). As distinct from a highway bridge, a culvert is "a conduit constructed through embankments for the purpose of conducting small streams or surface water" (Hool and Kinne 1924:579). In 1924, culverts with span length of 25 to 30 feet or more were considered bridges; by 1979, spans of 20 feet or more were generally deemed bridges (Hool and Kinne 1924:579; U.S. Department of Transportation 1979:G-13). Culverts may be single-span or multiple-span structures (Figure 21).

Disregarding pipe culverts, concrete culverts can be divided into box and arch culverts. Box culverts have square or rectangular openings; arch culverts feature either a Roman or a semicircular arch. Culverts often feature a floor, but many were built without one. Given the ubiquitousness of culverts, it is not surprising that standardization was applied to their design at an early date; Ketchum's 1920 text provides examples of standard designs from the U.S. Bureau of Public Roads as well as the state highway departments of Iowa and Michigan. Also presented is an 8-foot design for the highways of Puerto Rico by Edwin Thacher (Ketchum1920)

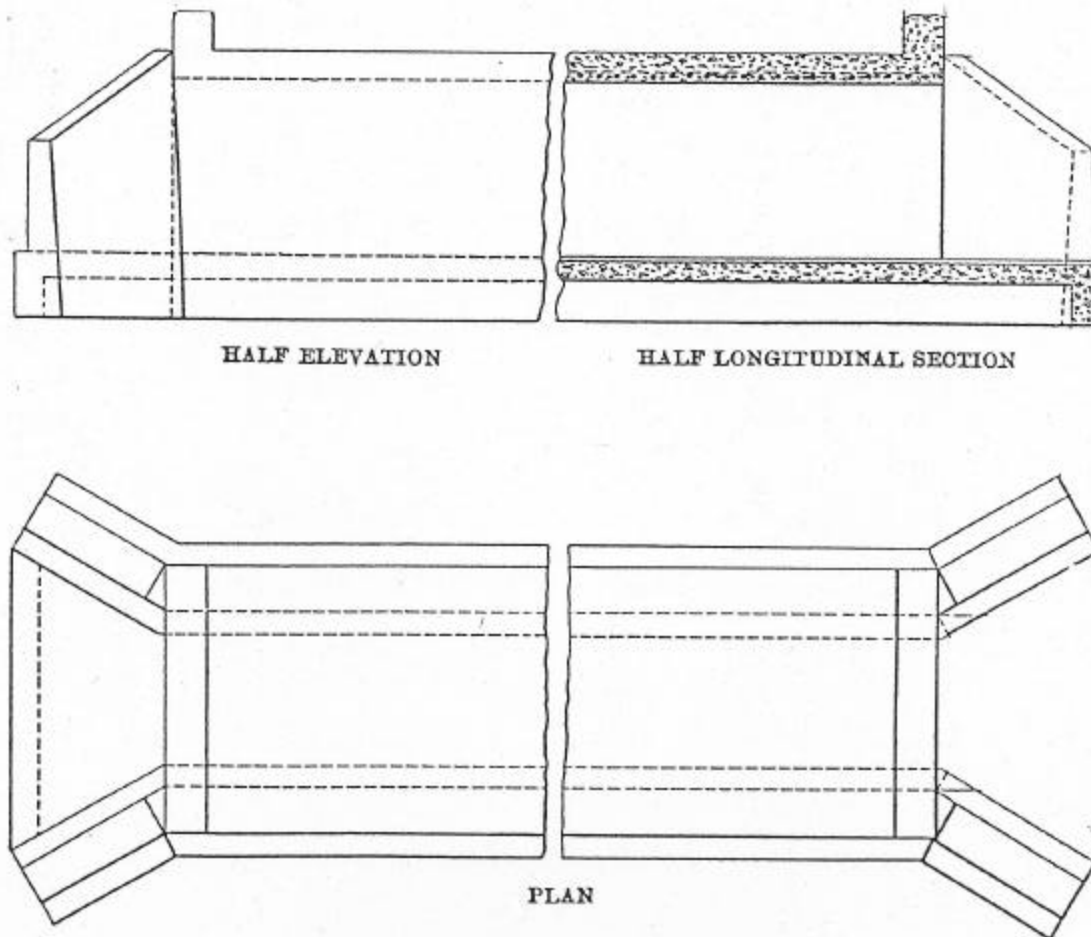


FIGURE 21: Typical Concrete Box Culvert

SOURCE: Seaton 1916