

# DESIGN OF PRESTRESSED CONCRETE HIGHWAY BRIDGE

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## ABSTRACT

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The use of reinforced for bridge construction goes back to turn of the century. In 1901 Maillart built a three a three-hinged bot section with solid spandrels over the Rhine River at Tavanas, Switzerland, which became the prototype for similar structures in the next 40 years. Since then, this material has become universally accepted for bridge work in a variety of dominant structural forms. The range of applications covers all-concrete structures and noble combination of concrete is related to the availability of structural materials such as reinforcing bars and the constituents of concrete: sand, gravel and cement. The choice is enhanced by the relative simple skills required at the site.

Reinforced concrete bridge in this project is include elements of prestressed concrete produce under factory conditions and subsequently erected at the concrete site.

Concrete is strong in compression but weak in tension. As result, cracks develop when the applied loads or restrained temperature and shrinkage changes introduce tensile stresses exceeding the tensile strength of concrete. Steel reinforcing bars are commonly embedded in concrete to develop the tension forces necessary for moment equilibrium after the concrete has cracked.

The reason of design the prestressed concrete highway bridge in this project is based on the steel bars strengthen the concrete to carried tension force.