

Design of RCC Culvert By Using comparative study of Moment Distribution Method and STAAD Pro - An Economical Approach

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Abstract— There are a few explores as of now have been done on conduct of strengthened cement (RC) confine ducts past with various states of burdens. The structure and examination of box ducts is a mind boggling task. The current time offers the limited component examination of 3D model of structures, making it simpler through programming. The ordinary techniques have been utilized broadly for structure yet the utilization of limited component strategy (FEM) has not been so mainstream yet. Limited component examination of box duct for parametric investigations has been completed, in any event, for various viewpoint proportion. Here an exertion has been made to show the financial and successful plan can be accomplished by doing limited component examination of a crate duct whose idea can be utilized for huge basic structure also. This paper shows the similar investigation of examination of customary technique utilizing STAAD programming and of FEM utilizing ANSYS programming.

Keywords— Box Culvert, Finite Element Analysis, Software Comparison,

I. INTRODUCTION

It is structure of monolithic aspects having the parts of top slab, bottom slab and vertical walls and wing walls. Culverts are used to provide to allow which can balanced the water level on both the sides embankments during formation of flood these type of culverts are called as balancers. Which also used to allow the flow of water during in embankments.

Types of culverts

Type of Culvert: Selecting the shape and type of culvert depends on several factors

Rigid: Reinforced concrete pipe (RCP)

Horizontal elliptical reinforced concrete pipe (HERCP)

Reinforced concrete box (RCB)

Reinforced concrete pipe arch (RCP arch)

Structural plate pipe (SPP)

Flexible: Corrugated steel pipe (CSP)

Corrugated aluminum alloy pipe (CAP)

Corrugated metal pipe (CMP)

Four-sided concrete box culverts are typically referred to as box culverts. Box culvert is a type of drainage structures which carries two or more vertical walls and two horizontal slabs so as to make a structure in proper manner for drainage condition. The uses of four sided culvert which included storm drain to convey storm water, sewage, industrial waste, short-span bridges (over highways, waterways, railways, golf courses), detention tunnels (for conveyors, utilities, access tunnels, escape tunnels). Culvert are available in various sizes and as per the custom requirements design configuration is also available. It can build within various features as per the project requirements like toe walls, manhole openings, headwalls, pipe opening, wing walls, watertight joints, keyed joints, and more. Precast concrete block have better service life as per the required condition.

There are three types of four-sided box culverts

1. Monolithically poured
2. Mid-seam two piece
3. Base And Crown

As per the precast box culvert which are monolithically connected on four sides to form a box type structure in an one piece. Mid seam culvert is nothing but the three sided U and inverted U joined structure to form a box like structure. For manufacturing the box culvert another ways to finding out is base and crown structure. Base and crown is a type of box culvert is a precast inverted U jointed base of a concrete structure

II. LITERATURE REVIEW

B.N. Sinha, R.P. Sharma (2009): Culverts are required to be given under earth dike to intersection of water course like streams, Nallas over the bank as street dike can't be permitted to deter the normal conduit. The courses are additionally required to adjust