PRECAST CONCRETE BOX CULVERTS

Dale Schwindt, P.E.
Project Engineer @ Forterra Pipe & Precast - Bismarck, ND

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Rapid City, SD - October 18-19, 2017
Outline

- Inlet/Outlet Components
  - Sloped End Sections
  - Flared Wingwalls
- Modifying Existing Structures
- Types of Sections Available
- County Forces Can Install
Inlet/Outlet Components

- Sloped End Sections
  - Match embankment slopes @ 2:1 Slope
  - Cheaper than flared wingwalls
    - Less Excavation Required
    - Less Foundation Fill Required
    - Less Installation Time
  - Easier to set in place with County Forces
14’x14’ Double w/ Sloped Ends
Inlet/Outlet Components

- **Flared Wingwalls**
  - Allow for more efficient flow
  - Minimize embankment erosion
  - More costly than sloped ends (Time)
  - Require more excavation
  - In most cases require granular backfill
  - Require careful backfill methods
15’x15 Double w/ Wingwalls
Extend Existing Structures

- Can extend an existing structure
  - If it has the same joint type, just add on
  - If it is tied with post-tensioned cables, these can be extended also.
  - If an existing section was damaged and needs replacing, we are able to replace if the joint is similar.
Extend Existing 9x6 Single - Closure Pour
9’x8’ Single Under Existing Bridge
Cover Depths

• Range from no cover to 30 + feet.
• Each structure is designed according to the fill height and loading applied to the structure.
• Designs meet AASHTO Standards and others as required.
Types of Sections Available

- Single Cells
  - Heights range from 4’ to 16’ tall
  - Widths range from 4’ to 20’-8” wide
  - Wall, roof & floor thicknesses vary
  - Standard barrel length = 6’
16’x16’ Single w/ Wingwalls
Types of Sections Available

- **Double Cells**
  - Heights range from 4’ to 16’ tall
  - Widths range from 6’ to 16’ wide
  - Wall, roof and floor thicknesses vary
  - Standard barrel lengths = 6’
    - Vary based on weight
15’x15 Double w/ Wingwalls
Types of Sections Available

- Regular barrels
- Beveled barrel sections
- Bends
- Special sections
  - Storm sewer access points/tie-ins
  - Look at site specific options
15’x6’ Double w/ Bevels
14’x10’ Singles w/ Skewed Ends
12’x9’ Triple w/ Access Point
County Forces Can Install

- Can excavate and level bed.
- Hire a crane service to set in place.
- Crew aides in placing sections in place.
- Backfill when in place.
- Can be installed in less than a day.
Summary

• There are a wide variety of options.
• We will work with you on design options and costing.
• In most cases we will have a field representative on site during the installation process.
Dale Schwindt, PE

Contact Information

Phone: 701-471-6261

E-Mail: dale.schwindt@forterrabp.com

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