Box Culverts
Box Culvert Learning Objectives

To learn the basics of reading box culvert plans and standards.

To identify the different box culvert components/elements.

To learn the basics of box culvert construction.
One of VDOT's may ways to move water under our Roadways
BOX CULVERTS

Box culverts are to have a minimum 36 ft² opening in order to be taken into our inspection system.
BOX CULVERTS

Sec. 0.06 Culvert Stakeout

All box culverts are to be staked, according to furnished alignment and grades. The Contract Surveyor should check that the dimensions given for the culvert are consistent with the typical section of the roadway, giving attention that the toe of the slope intersects with the proper point of the culvert. Should any major differences be found, the Contract Surveyor is to immediately notify the District Survey Manager so the differences can be resolved. For minor differences, such as the length of the culvert, the stakes for the proposed culvert should be adjusted to match the slope of the section, with notes made on the stakeout sketch and in red pencil on the contractor's and inspector's plans. Figure 8-1 illustrates a procedure for checking the stake out of a box culvert. All culverts will be staked in accordance with Section 105.13 and 517 and Figure 1.

All pipe culverts, 48" and larger, and all culverts with design grades, are to be staked in accordance with Section 105.15 & 517 Road and Bridge Specifications. All pipe culverts less than 48" will be staked by contract personnel.

All pipe culverts with design grades, such as storm sewers, regardless of size are to be staked by the Contract Surveyor. All pipe culverts that are in critical locations will be staked by the Contract Surveyor when specifically requested by the Project Engineer.
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Where do we end box and at what elevation?

Sample stakeout from VDOT Survey Manual
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➢ Stakeout work shall be in accordance with the Department’s current Survey Manual (Issued 2009)


➢ The Contractor shall provide the Engineer with a record copy of survey drawings, field notes and computations prior to the use of said stakeout information for construction.
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- Typical setting of box culvert sections
Don’t drag the box into place lift it and pull the last 3 inches or so, we don’t want stone caught between the boxes.
• Pulling the sections together. There are many ways to do this we just make sure their method does not damage the boxes.
• Lifting inserts, after they are used patch the lifting holes as per our specifications.
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- Setting multiple barrels leave required buffer between boxes.
• 3”- 6” Buffer zone between multiple lines per VDOT Spec. 302.03 Pg 335 Verification that boxes have weep holes in them if required.
The buffer zone after the closure pour
Make sure you have the proper cover over the BC before any traffic is allowed.
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- Precast Segmental Box Culvert These have shop drawings and sequence of tensioning. Use seniors and Drawings
• Problem areas: Level spreader countersinking brace to keep wings apart.
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- Problem areas: Make sure wing walls are tied in properly with water stops and required attachments
Problem areas: Make sure your footing are placed properly and curtain walls are placed.
Why is it important not to damage BOX CULVERTS during installation?
Box Culvert Typical Section
CRITICAL
Most important view
Box Details

- HW outlet
- Wing wall
- HW inlet
- Ww footing
- Curtain wall