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# **Chapter 7**

## **Earthen Dam Structures**

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# **Earth Dam Structures**

## **Drop Structure (DS)**

## **Sediment Basin (SBN)**

## **Stormwater Detention Basin (SDB)**

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### **Description**

An earthen barrier across a drainage way usually constructed with a pipe system through the embankment and/or an emergency spillway bypass. Earth Dam Structures are used with the following practices:

- Drop Structure
- Sediment Basin
- Stormwater Detention Basin

Basins created by the earth dam can be used to convey runoff water without causing erosion, trap sediment, and reduce stormwater peak flows.

### **Installation**

- Divert runoff from undisturbed areas away from the earth dam practice if allowable.
- Clear and prepare the foundation for the dam removing all objectionable material.
- Stockpile surface soil for use in top soiling and vegetation establishment.
- Excavate a keyway trench with 8 ft. bottom and 1.5:1 side slopes across the dam foundation according to the plans, at least 2 feet deep, and to an adequate foundation.

- Compact earth fill in the keyway trench with good clay material in thin lifts (6" – 9" uncompacted) back up to ground elevation.
- Install pipe system according to plans and elevations with anti-seep collars, anti-flotation block, trash rack, and outlet protection.
- Manually compact moist clayey earth fill around pipe (4"- 6" uncompacted lifts) and anti-seep collars (or drainage diaphragm) within 2 ft. of pipe and to an elevation 2 ft. over the pipe.
- Construct earth dam in 6" – 9" uncompacted lifts (compacted to 4" - 6") to form the embankment to the planned elevation with a top width of at least 8 ft. and side slopes of 3:1 or flatter. Use most clayey material in the core of the dam with more permeable materials in the shell of the dam. Overbuild the dam at least 10% for settlement. Maintain moisture and compaction requirements according to the plans and specifications.
- Construct emergency spillway according to plans and elevation installing geotextile and riprap if specified.
- Make sure stormwater enters the far end of the pool to maximize trap efficiency.
- Spread stockpiled top soil and establish vegetation.

## **Maintenance**

- Inspect the earth dam and basin after each storm event.
- Remove and properly dispose of sediment that has accumulated to ½ the design volume.

- Remove trash from pipe system or emergency spillway.
- Check for any erosion, settlement, seepage, or slumping and make repairs as needed.
- If the basin is temporary, properly remove the structure and stabilize the area.



**Sediment Basin**

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