Engineering Job Sheet – Ditch Plug

Where open channels were previously constructed to drain wetlands, the channel will be filled with earth to restore the wetland hydrology as close as possible to the pre-drained or natural condition.

Design Considerations

- Provisions will be made to store, pass or divert the flow from a 10-year frequency 24-hour storm.
- A keyway will be installed perpendicular to the ditch bottom and shall extend a minimum of 10 feet past the existing ditch bottom. The keyway shall be constructed of non-sandy soils.
- The minimum length of the channel to be filled will be based on the permeability of the backfill material. The minimum length for non-sandy soils is 25 feet and 50 feet for sandy soils.
- The fill for the ditch plug will be compacted to achieve the density of the adjacent material.
- The plug shall be crowned to a minimum of 1.5 ft above the lowest existing channel bank.
- Wing dikes are an integral part of the ditch plug system because they protect the plug against washout during storm events.
- Wing dikes should be constructed to protect the downstream side of the ditch plug during storm events.
- Wing dikes may also be utilized to enhance an area by providing some shallow (<24”) surface water storage.
- Wing dikes should be tied into natural ground at the same elevation as the desired restoration or enhancement level.
Construction Techniques

- Grub and remove all organic soils, woody materials, and other debris from the foundation of the plug including the side slopes and bottom.

- The ditch side slopes shall be pulled back on a 3:1 (H:V) to create the proper bonding surface between the existing soil and the new backfill material.

- A keyway trench shall be excavated to a depth 2.0 feet below the existing ditch bottom and shall extend a minimum of 10 feet into each bank. The trench shall be backfilled and compacted with non-sandy material to the elevation of the existing ditch bottom.

- The backfill for the plug and crown shall be placed in 9 inch loose lifts and compacted to a 6 inch layer.

- The equipment and specific compaction methods to be utilized shall be discussed and agreed upon by the landowner, contractor, and NRCS.

- The ditch plug location shall be marked in the field by NRCS and shall not be moved or altered under any circumstance, unless authorized by NRCS.

- Vegetation of the finished plug shall be in accordance with NRCS specifications.

Operation and Maintenance

- The plug should be evaluated for signs of erosion following heavy or unusual storm events.

- The plug should be mowed at least once a year to minimize the growth of woody vegetation, thus maintaining the structural integrity of the plug.
DITCH PLUG SPECIFICATIONS

DITCH PLUG:
TOTAL LENGTH = _____
TOP WIDTH = _____

TOP OF WING DKE ELEVATION = _____

PLAN VIEW

SLOPES = 3:1
DITCH CENTERLINE

CROSS SECTION - FRONT VIEW

TOP OF CROWN ELEVATION = _____

TBM - Elevation = _____

COMPACTED EARTH FILL

(20 ft HW)

KEYWAY

ELEV.