

**NATURAL RESOURCES CONSERVATION SERVICE
ILLINOIS CONSTRUCTION SPECIFICATION
STRUCTURE FOR WATER CONTROL –
DRAINAGE WATER MANAGEMENT**

Scope

The work consists of furnishing and installing flash board structure, conduits and appurtenances for the water control structure system as shown on the drawings and specified herein.

Utilities

The landowner and/or contractor is responsible for locating all buried utilities in the project area, including drainage tile and other structural measures.

General

Carry out construction operations in a manner and sequence such that erosion, air and water pollution are minimized and held within legal limits.

The completed job must present a workmanlike appearance and conform to the line, grades, and elevations shown on the drawings or as staked in the field.

Carry out all operations in a safe and skillful manner. Observe safety and health regulations and use appropriate safety measures.

Contractor must assure that all state laws concerning buried utilities have been met.

Save documentation of materials used (rock or concrete delivery tickets, geotextile tags, seed tags, photographs of pipe labeling, etc) and provide to NRCS.

Remove all trees, stumps, roots, brush, weeds, and other objectionable materials from designated work area.

Materials

Ensure materials for the structure for water control, conduit and appurtenances meet NRCS specifications. Materials must be carefully inspected before installation. Materials with physical imperfections will not be installed.

The following reference specifications pertain to

conduit materials currently acceptable for use in the water control structure system:

REFERENCE SPECIFICATIONS FOR CONDUIT MATERIALS	
Description	ASTM
<i>Plastic</i>	
Corrugated Polyethylene (PE) Pipe and Fittings	F405 F667
Poly Vinyl Chloride (PVC) Pipe and Fittings	F949 D1785 D2241
Styrene-Rubber (SR) Plastic Drain Pipe and Fittings	D2852
<i>Dual Wall Polyethylene Pipe</i>	
Corrugated Polyethylene (PE) Pipe and Fittings	F2306 F2648 F405 F667
Elastomeric Seals and Joints (Gaskets)	F477 D3212
<i>Clay</i>	
Clay Drain Tile and Pipe	C4 C700 C301
<i>Concrete</i>	
Concrete Drain Tile and Pipe	C412 C118 C14 C76 C444
Test Methods for Concrete Pipe	C497
Portland Cement	C150
<i>Metal</i>	
Corrugated Aluminum Pipe	B745
Corrugated Steel Pipe	A760

Install a minimum of 20 feet of solid pipe immediately upstream and downstream of the water control structure. All connections to the water control structure must be watertight.

Placement

Place the water control structure and pipe couplers on a stable base. The stable base may be compacted earth, compacted fill sand, or concrete pad. Extend the stable base no less than 1 foot around the structure.

Install structure with all stop boards in tracks. Place impervious backfill material around the structure and other appurtenances by hand, in layers not more than 6 inches thick before compaction. Thoroughly compact each layer, by means of hand tamping, to the same density as the surrounding material. Achieve proper compaction without the use of mechanical equipment. Increase height of fill at approximately the same rate on all sides of the structure.

For inline water control structures, install according to manufacturer's instructions.

Lay the pipes to the lines, grades and elevations shown on the drawings and bed the pipes firmly and uniformly throughout their entire length. Use hand tamping methods around pipes that are within 20 feet of the water control structure. Beyond that distance, pipes may be laid with a tile plow or trencher designed for proper bedding of the pipe, and the disturbed soil allowed to naturally subside back into place.

Excavation

Excess spoil material must be placed, spread, leveled, shaped, or hauled away as shown on the construction plans or as staked in the field. Finish the completed job to a degree so the surface can be traveled with farm-type equipment unless otherwise specified in the construction plans.

All excavations must conform to the lines, grades, elevations, bottom width, and side

slopes shown on the construction plans or as staked in the field.

Outlet

Where the construction plans call for a free outlet, use a continuous section of non-perforated conduit at the outlet, unless a headwall is used. All outlets must have an animal guard, installed to allow passage of debris.

The continuous section of non-perforated conduit must be long enough to satisfy all requirements of Conservation Practice Standard 606 – Subsurface Drain:

- At least two-thirds of the pipe must be buried in the ditch bank.
- The cantilever section must extend to the toe of the ditch side slope or to the side slope protected from erosion.
- The continuous section must be at least 10 feet long.

Acceptable materials for use at the outlet include the following:

- Corrugated metal pipe, galvanized or aluminum, 16-gauge, minimum thickness,
- Smooth steel pipe with 3/16 of an inch minimum thickness,
- Smooth plastic pipe, polyvinyl chloride (PVC), with a SDR of 35 or less or schedule 40 or heavier, and
- Dual wall corrugated polyethylene pipe.

All plastic and polyethylene pipe outlets will include an ultra-violet stabilizer. Conduit ends must be protected from sun damage during installation.

Vegetation

Establish a protective cover of vegetation on all non-crop areas disturbed by construction as specified in the design plans. Vegetation should be established as soon after construction as possible.