

## Index 430-010 through 430-012 U-Type Concrete Endwalls

### Design Criteria

*FDOT Design Manual (FDM); Drainage Manual (DM); Drainage Design Guide (DDG)*

### Design Assumptions and Limitations

Locate endwalls in accordance with the *Drainage Manual Chapter 3*.

#### *Steel Grating Use Criteria*

Provide positive debris control at all upgradient openings. Do not install grates unless one or more of the following conditions exist:

- A. Pipe culvert endwalls are located within the designated clear zone.
- B. Drainage area to culvert consists of median or infield areas or areas where debris and/or drift is negligible.
- C. Runoff to culvert is by sheet flow or in such ill-defined channels that debris transport is not considered a major problem.
- D. Runoff to culvert is minor except on an infrequent basis (10 to 15 year frequency); for example a drainage basin in flat sandy terrain with normally low ground water table.
- E. Areas where culvert blockage with resultant backwater would not seriously affect roadway embankment, traffic operation, or upland property.

For sod around end treatments, see *Index 570-001*.

### Plan Content Requirements

In the Roadway Plans:

Summarize quantity by location in the Summary of Drainage Structures, Summary of Sidedrain, or Summary of Miscellaneous Drainage Items in accordance with *FDM 916*.

Clearly show the location of each U-Type Concrete Endwall.

### Payment

Item number	Item Description	Unit Measure
430-6AB-CDD	U-Type Concrete Endwalls	EA
570-1-A	Performance Turf	SY

See the *BOE* and *Specification 430* for additional information on payment, pay item use and compensation.