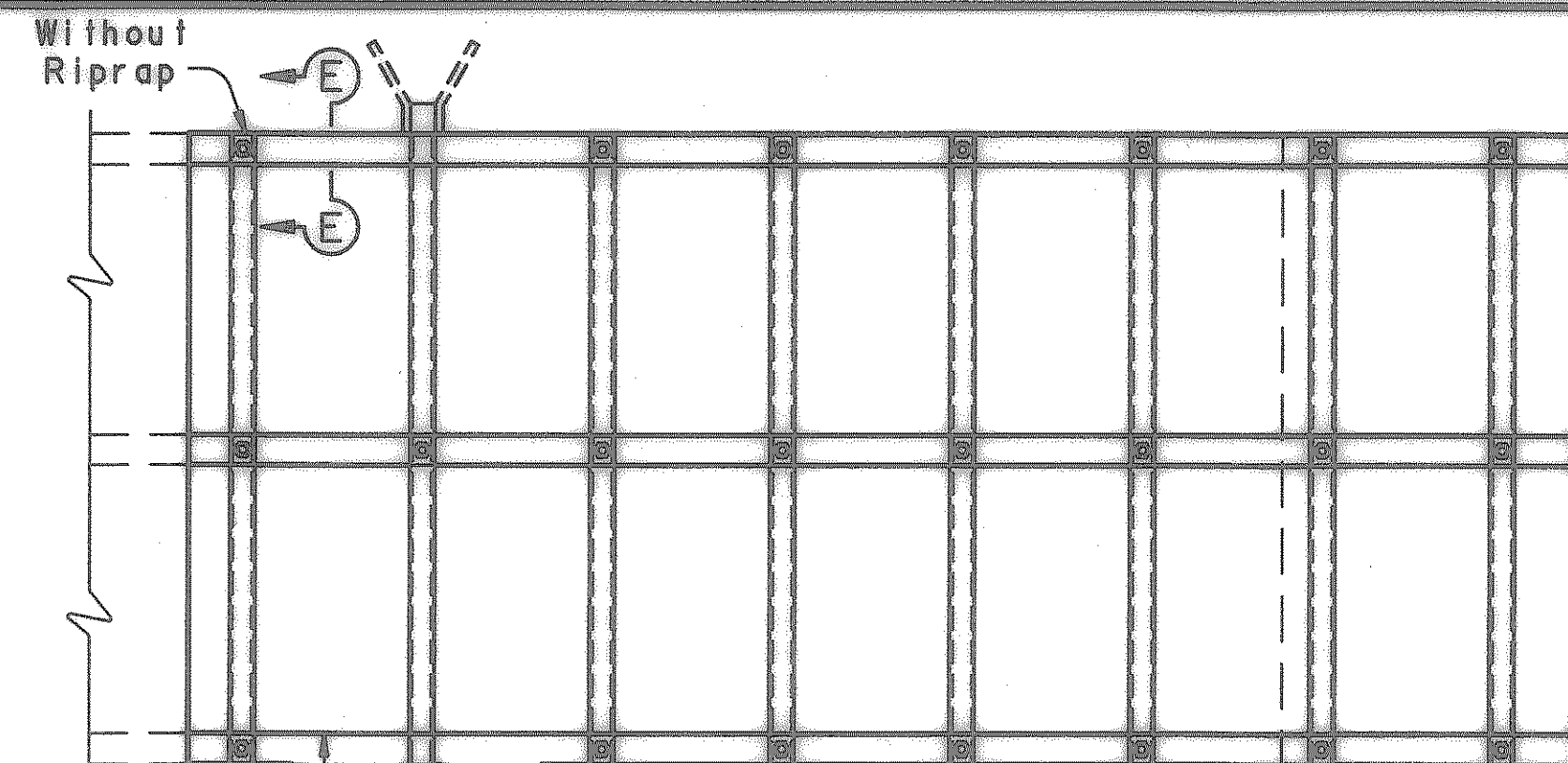
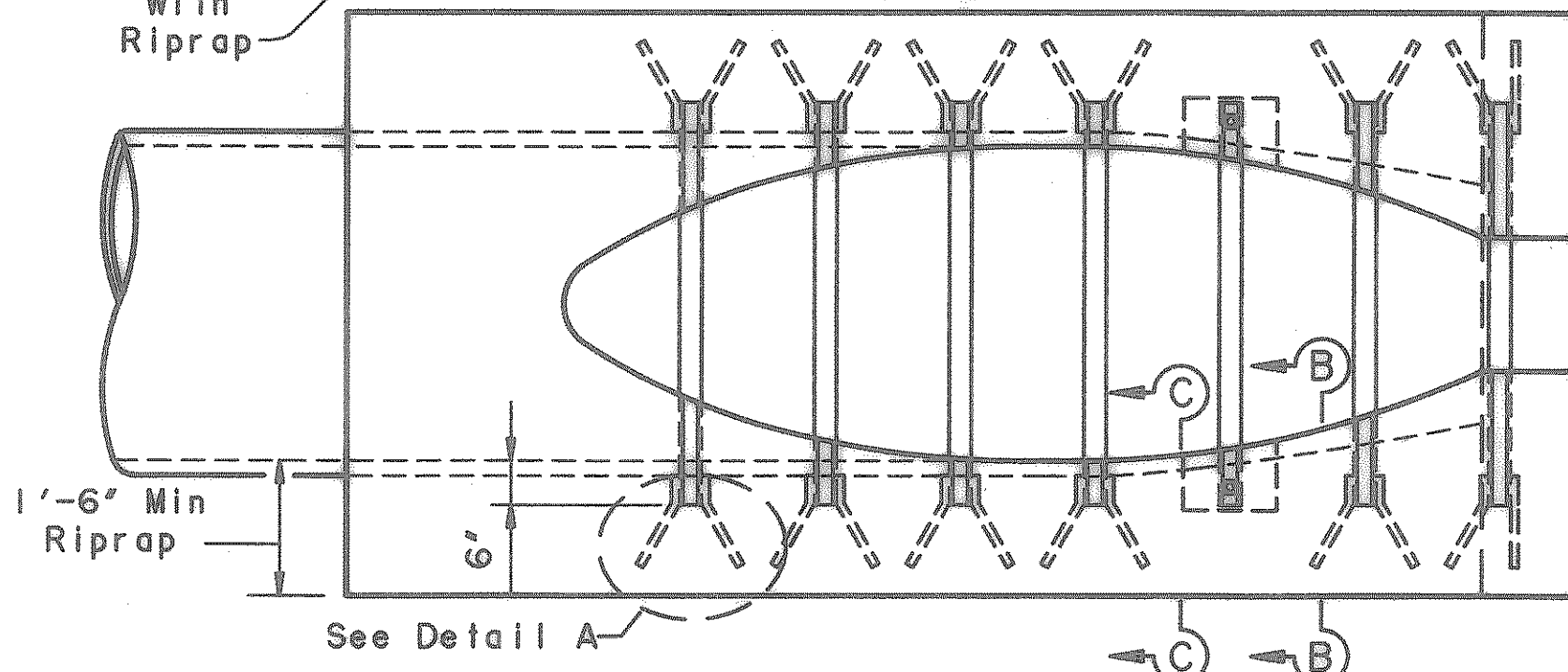


DISCLAIMER: The use of this standard is governed by the "Texas Engineering Practice Act". No warranty of any kind is made by TxDOT for purposes other than those intended. TxDOT assumes no responsibility for the consequences of the use of this standard or for other results or damages resulting from its use.

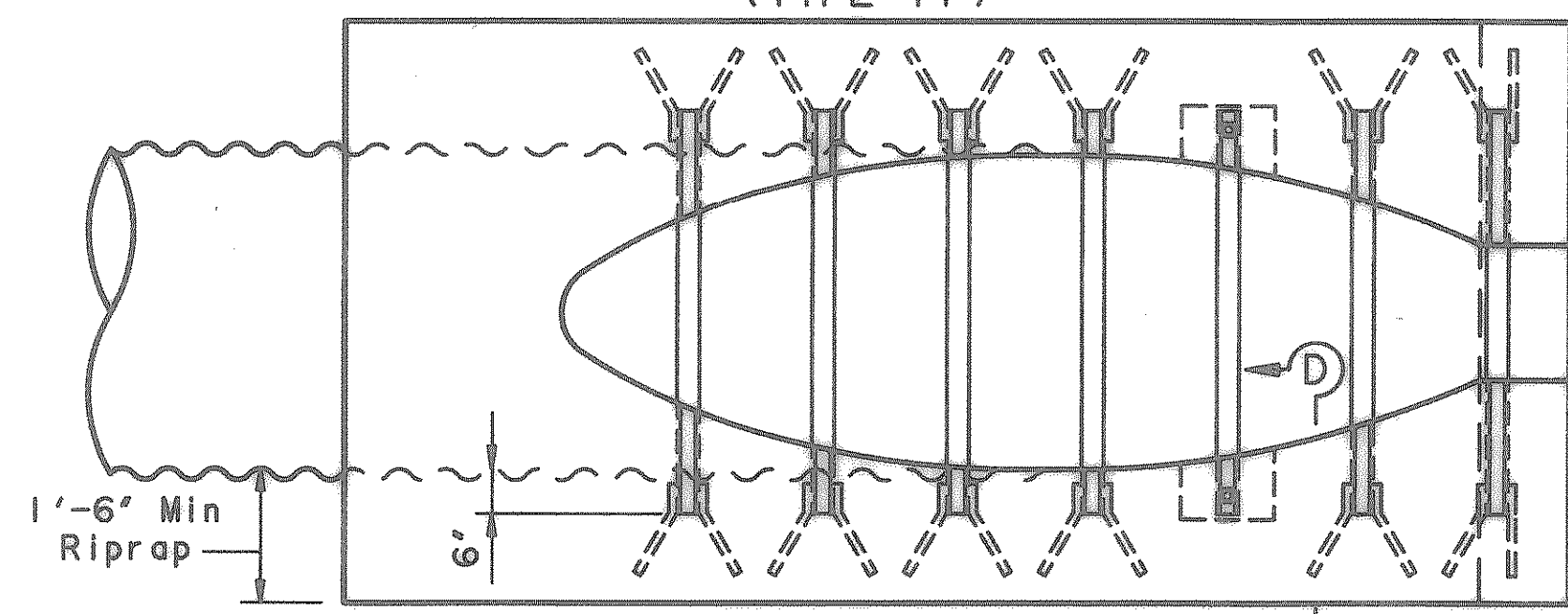
| | |
|------------------|------|
| LEVELS DISPLAYED | ACC. |
| 1 | |
| 2 | |
| 3 | |
| 4 | |
| 5 | |
| 6 | |
| 7 | |
| 8 | |
| 9 | |
| 10 | |
| 11 | |
| 12 | |



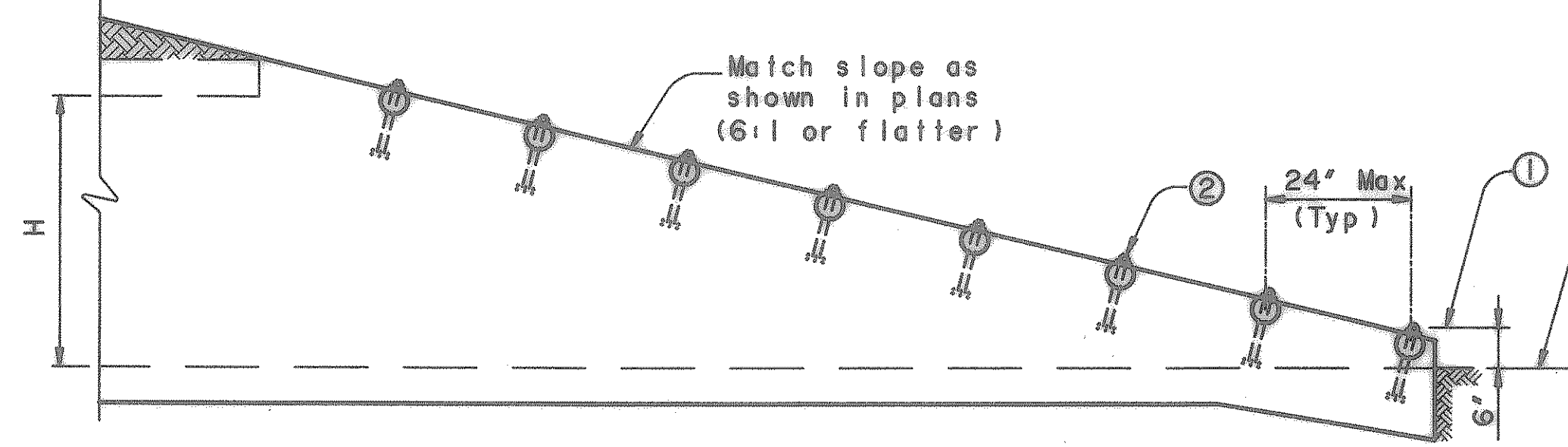
PLAN - BOX CULVERTS
(TYPE I)



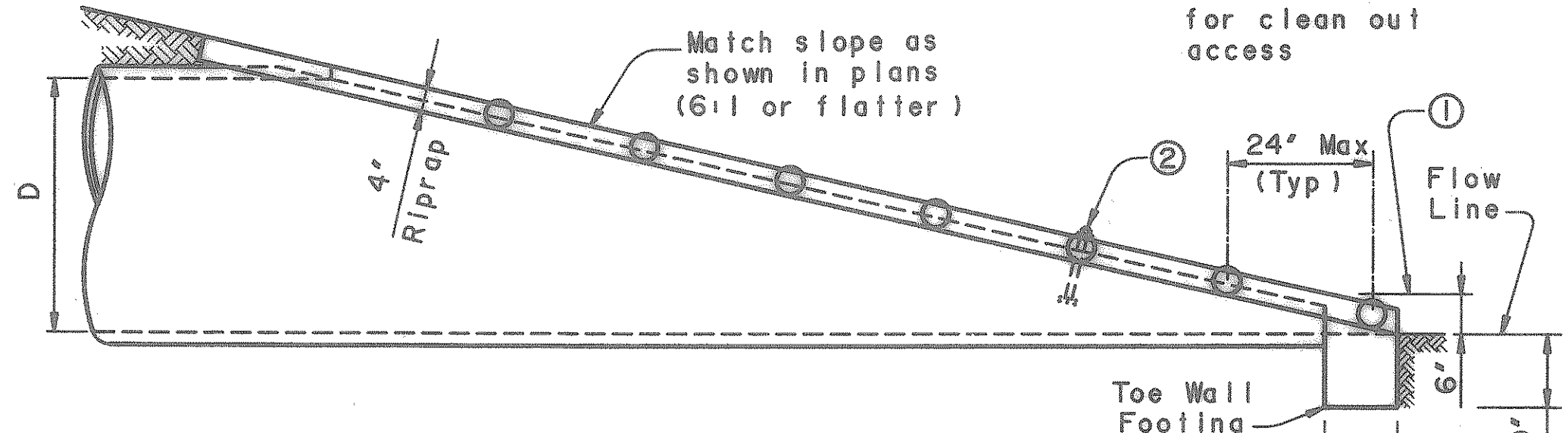
PLAN - CONCRETE PIPE
(TYPE II)



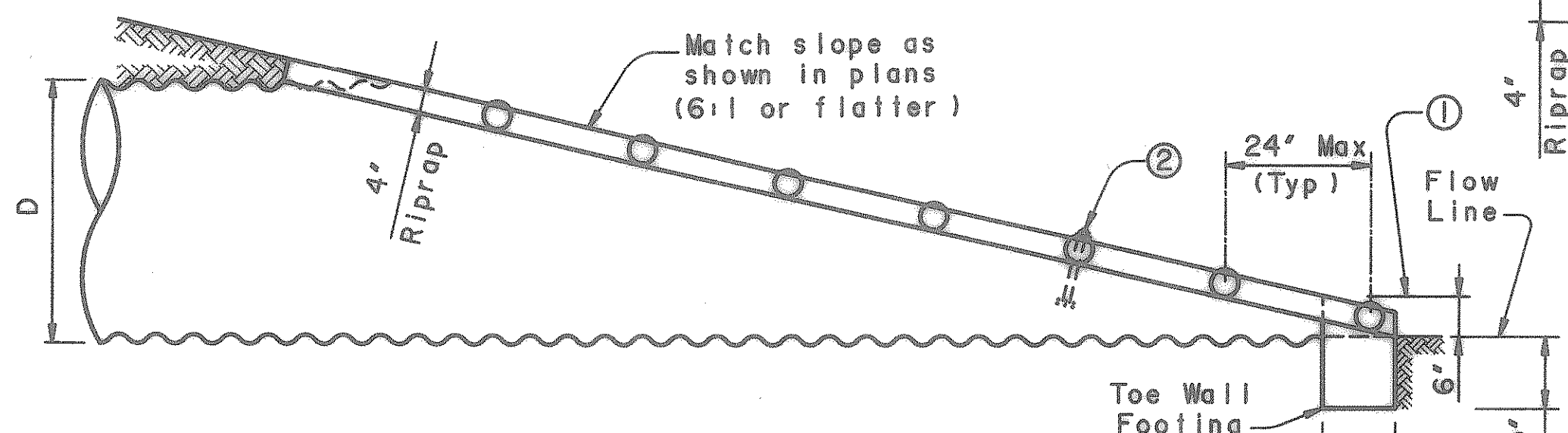
PLAN - CORRUGATED METAL PIPE
(TYPE II)



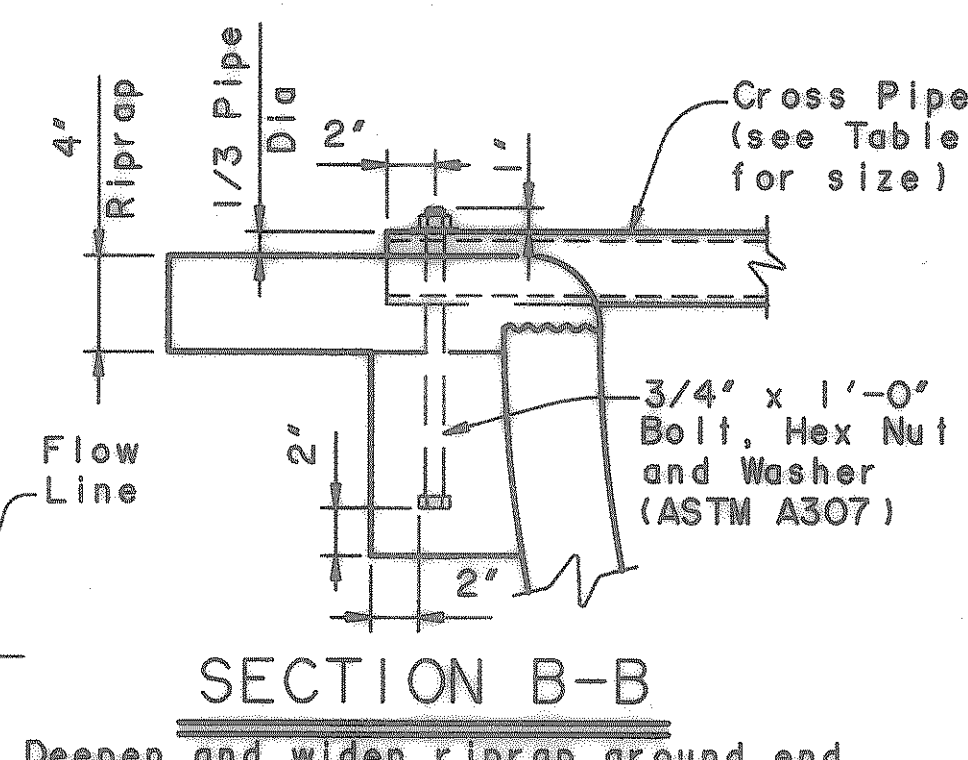
END TREATMENT - MULTIPLE OR SINGLE BOX CULVERTS



END TREATMENT - CONCRETE PIPE

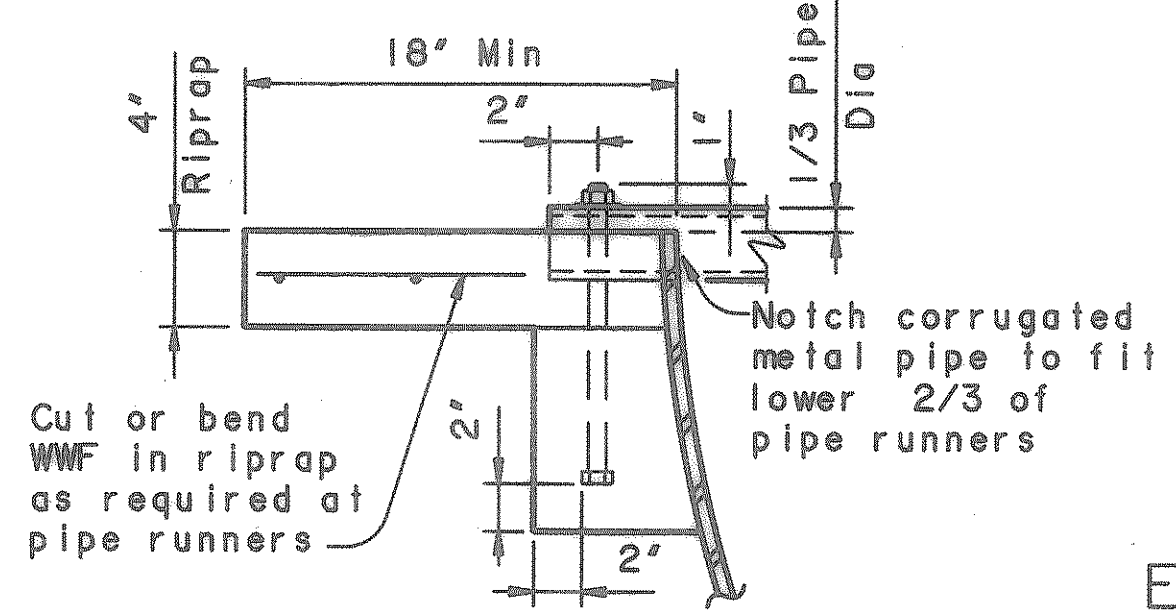


END TREATMENT - CORRUGATED METAL PIPE

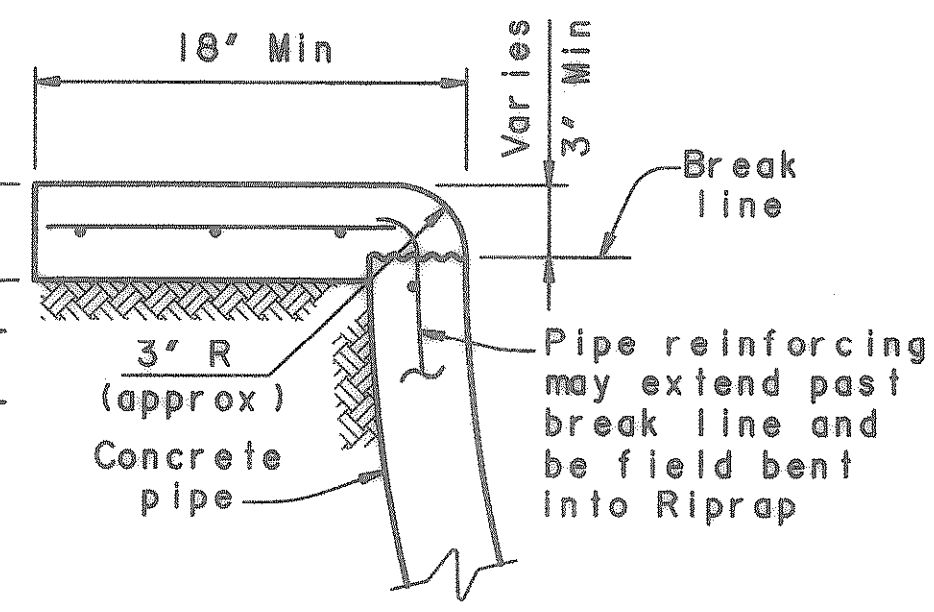


SECTION B-B

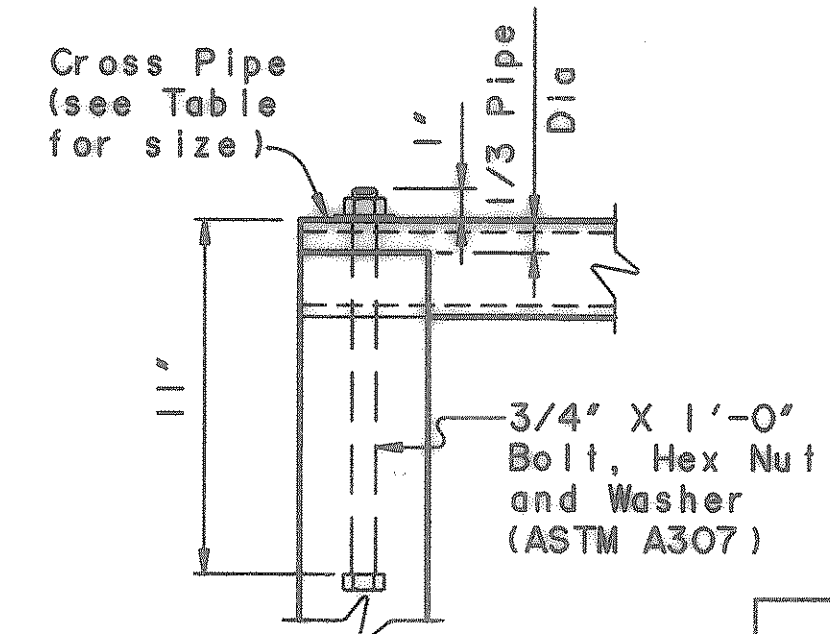
Deepen and widen riprap around end of cross pipe and provide bolted connection to allow cleanout access



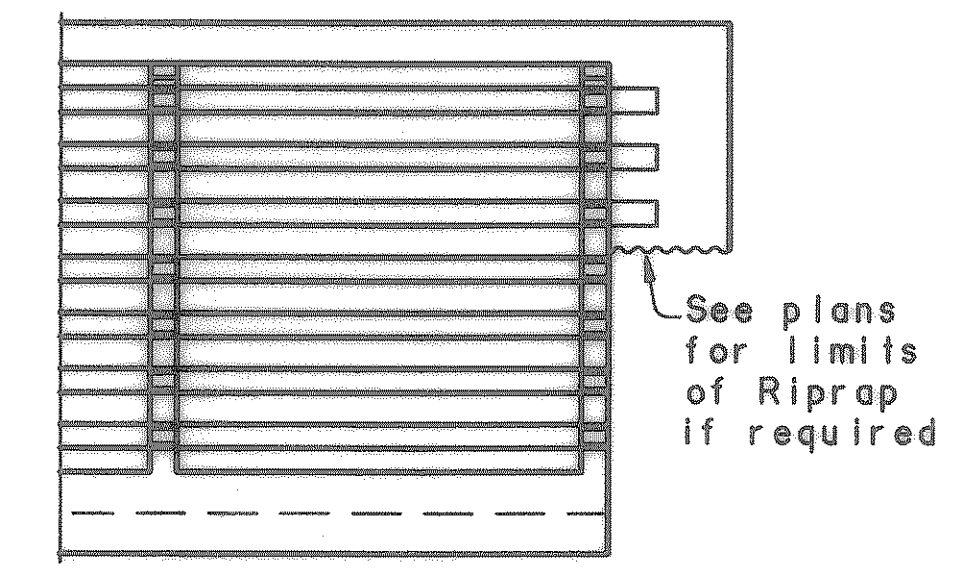
SECTION D-D



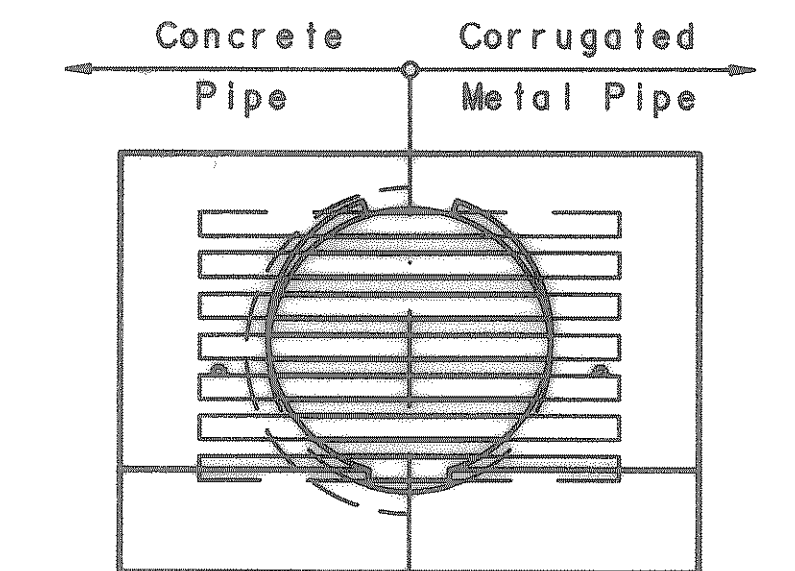
SECTION C-C



SECTION E-E



END VIEW - MULTIPLE OR SINGLE BOX CULVERTS

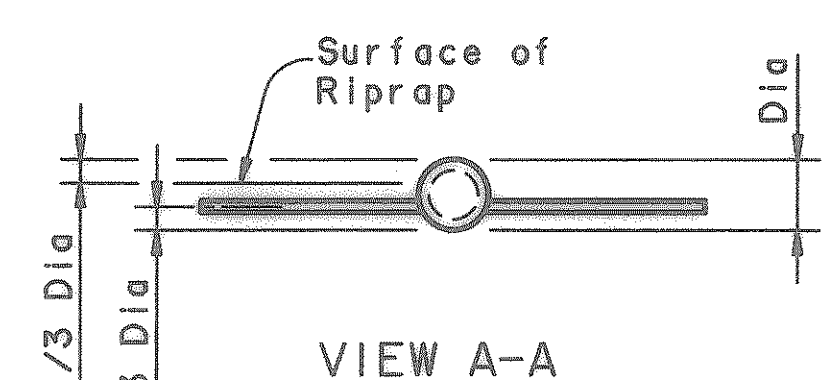


END VIEW - CONCRETE OR CORRUGATED METAL PIPE

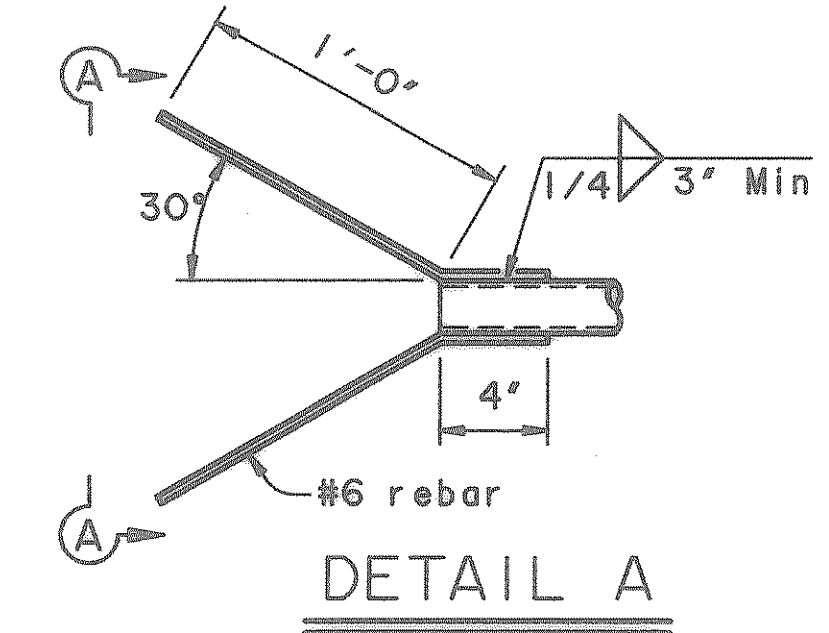
DESIGN: Safety Pipe Runners are designed for a traversing load of 10,000 pounds at yield as recommended by Research Report 280-2F, Safety Treatment of Roadside Parallel-Drainage Structures, Texas Transportation Institute, June 1981.

GENERAL NOTES:
 These details are to be used as a guide for installation of safety pipe runners for parallel drainage structures where out of control vehicles may impact the openings approximately perpendicular to the safety pipe runners. Some installations may require the preparation of special details. In general, safety pipe runners are installed on parallel drainage structures at maximum spacings of approximately 24 inches.
 Installation of safety pipe runners for single or multiple culverts will be in accordance with the details shown if the use of safety pipe runners are specified elsewhere in the plans.
 Payment for riprap (if required) and toe wall footing is included in the price bid for each Safety Pipe End Treatment.

| Culvert Size "H" or "D" | Pipe Runner Length | REQUIRED PIPE SIZES FOR GIVEN PIPE YIELD | | | | | | | | |
|-------------------------|--------------------|--|-------|-------|---------------------------|-------|-------|---------------------|-------|-------|
| | | 35 ksi ASTM A53, Ty E and S Gr B | | | 42 ksi ASTM A500, Gr B | | | 52 ksi API 5LX52 | | |
| | | Nom | OD | ID | Nom | OD | ID | Nom | OD | ID |
| 30" | 42" | 3" XS | 3.500 | 2.900 | 2 1/2" XXS | 2.875 | 1.771 | 2 1/2" XXS | 2.875 | 1.771 |
| | | 3 1/2" STD | 4.000 | 3.548 | 3" STD | 3.500 | 3.068 | 3" STD | 3.500 | 3.068 |
| 36" | 48" | 3" XXS | 3.500 | 2.300 | 3" XS | 3.500 | 2.900 | 3" STD | 3.500 | 3.068 |
| | | 3 1/2" XS | 4.000 | 3.364 | 3 1/2" STD | 4.000 | 3.548 | | | |
| 42" | 54" | 3" XXS | 3.500 | 2.300 | 3" XXS | 3.500 | 2.300 | 3" XS | 3.500 | 2.900 |
| | | 3 1/2" XS | 4.000 | 3.364 | 3 1/2" XS | 4.000 | 3.364 | 3 1/2" STD | 4.000 | 3.548 |
| 48" | 60" | 4" STD | 4.500 | 4.026 | 4" STD | 4.500 | 4.026 | | | |
| | | 3" XXS | 3.500 | 2.300 | 3" XXS | 3.500 | 2.300 | 3" XXS | 3.500 | 2.300 |
| 54" | 66" | 4" XS | 4.500 | 3.826 | 3 1/2" XS | 4.000 | 3.364 | 3 1/2" STD | 4.000 | 3.548 |
| | | 4" XS | 4.500 | 3.826 | 4" STD | 4.500 | 4.026 | | | |
| 60" | 72" | 4" XS | 4.500 | 3.826 | 3" XXS | 3.500 | 2.300 | 3" XXS | 3.500 | 2.300 |
| | | 5" STD | 5.563 | 5.047 | 4" STD | 4.500 | 4.026 | 3 1/2" XS | 4.000 | 3.364 |
| | | 4" STD | 4.500 | 4.026 | | | | | | |
| | | 4" XS | 4.500 | 3.826 | 4" XS | 4.500 | 3.826 | 3" XXS | 3.500 | 2.300 |
| | | 5" STD | 5.563 | 5.047 | 5" STD | 5.563 | 5.047 | 3 1/2" XS | 4.000 | 3.364 |
| | | 4" STD | 4.500 | 4.026 | | | | | | |



VIEW A-A



DETAIL A

RECORD PLANS
12-17-2002

Texas Department of Transportation
Design Division (Roadway)

PARALLEL DRAINAGE
SAFETY PIPE RUNNERS

PD-SPR

| | | | | | |
|-------------------------|---------|------------------------------|-----------|---------|-----------------------------|
| FILE: pspresid.dgn | DN: MPM | CK: TER | DN: MCB | CK: TER | STD: BIG |
| ORIG DATE: October 1996 | DIST: 6 | FED REA: FEDERAL AID PROJECT | SHEET: 57 | COUNTY: | CONTROL/SECT: JOB: HIGHWAY: |