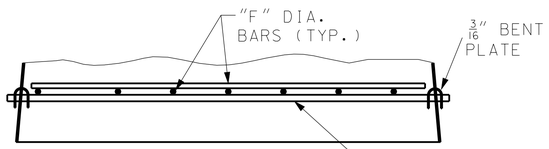
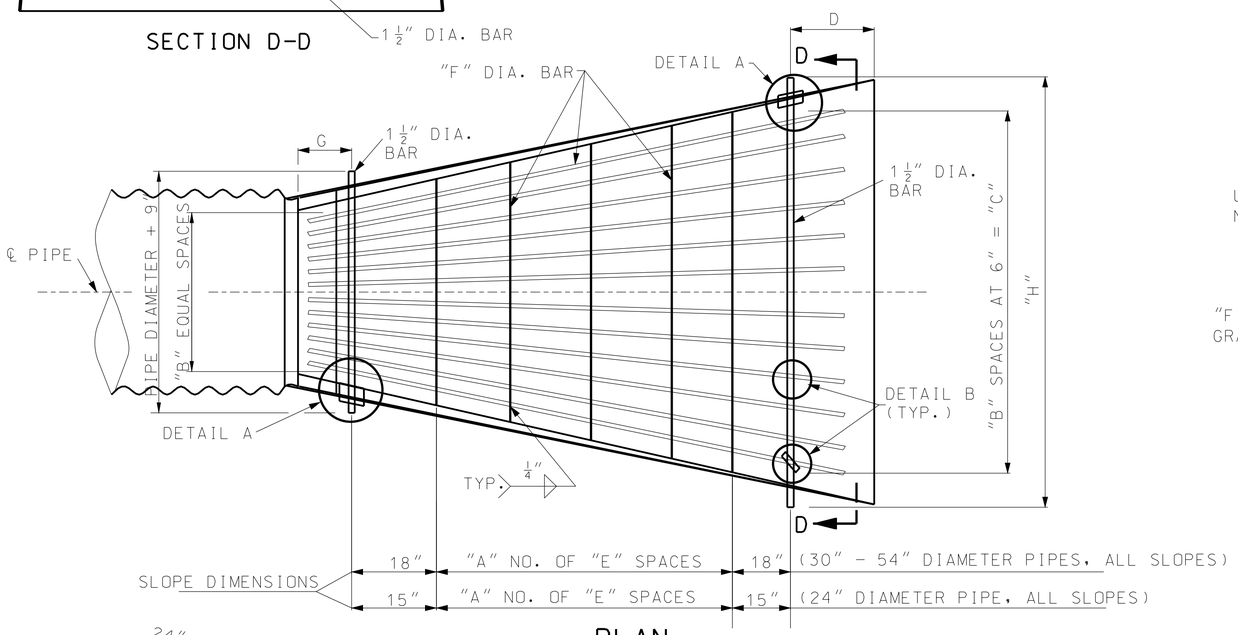
## BAR GRATE SYSTEM DATA

| DRAIN PIPE SIZE | 3:1 SLOPE | | | | | | | | | 4:1 SLOPE | | | | | | | | | 6:1 SLOPE | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | A | B | C | D | E | "F" BARS | G | H | J | A | B | C | D | E | "F" BARS | G | H | J | A | B | C | D | E | "F" BARS | G | H | J |
| 15"✱✱ | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 18"✱✱ | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 21"✱✱ | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 24" | 0 | 4 | 2'-0" | 6" | 15" | $\frac{5}{8}$" | $8\frac{1}{4}$" | 3'-3" | 18.4° | 0 | 4 | 2'-0" | $15\frac{3}{4}$" | 15" | $\frac{5}{8}$" | 12" | 3'-3" | 14° | 2 | 4 | 2'-0" | $13\frac{1}{8}$" | 15" | $\frac{5}{8}$" | 12" | 3'-3" | 9.5° |
| 30" | 0 | 5 | 2'-6" | $15\frac{1}{4}$" | 18" | $\frac{5}{8}$" | 12" | 3'-9" | 18.4° | 1 | 5 | 2'-6" | $16\frac{1}{2}$" | 18" | $\frac{5}{8}$" | 12" | 3'-9" | 14° | 3 | 5 | 2'-6" | $19\frac{5}{8}$" | 18" | $\frac{5}{8}$" | 12" | 3'-9" | 9.5° |
| 36" | 1 | 6 | 3'-0" | $16\frac{1}{4}$" | 18" | $\frac{3}{4}$" | 12" | 4'-3" | 18.4° | 2 | 6 | 3'-0" | 18" | 18" | $\frac{3}{4}$" | $17\frac{1}{4}$" | 4'-3" | 14° | 5 | 6 | 3'-0" | $20\frac{1}{8}$" | 18" | $\frac{3}{4}$" | 12" | 4'-3" | 9.5° |
| 42" | 2 | 7 | 3'-6" | $17\frac{1}{4}$" | 18" | 1" | 12" | 4'-9" | 18.4° | 4 | 7 | 3'-6" | 12" | 18" | 1" | 12" | 4'-9" | 14° | 7 | 7 | 3'-6" | $11\frac{7}{8}$" | 18" | 1" | 9" | 4'-9" | 10.1° |
| 48" | 3 | 8 | 4'-0" | 18" | 18" | 1" | $12\frac{1}{8}$" | 5'-3" | 18.4° | 5 | 8 | 4'-0" | 18" | 18" | 1" | $12\frac{5}{8}$" | 5'-3" | 14° | 7 | 8 | 4'-0" | 13" | 18" | 1" | 9" | 5'-3" | 11.9° |
| 54" | 4 | 9 | 4'-6" | 18" | 18" | $1\frac{1}{8}$" | $13\frac{1}{8}$" | 5'-9" | 18.4° | 6 | 9 | 4'-6" | 18" | 18" | $1\frac{1}{8}$" | $19\frac{3}{8}$" | 5'-9" | 14° | 7 | 9 | 4'-6" | $14\frac{1}{4}$" | 18" | $1\frac{1}{8}$" | 9" | 5'-9" | 13.7° |

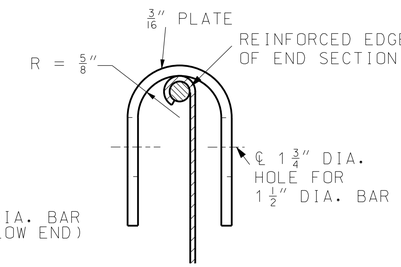
✱✱ BAR GRATE SYSTEM IS NOT REQUIRED FOR DRAIN PIPE DIAMETER OF 21" OR LESS, FOR SINGLE PIPE INSTALLATIONS.

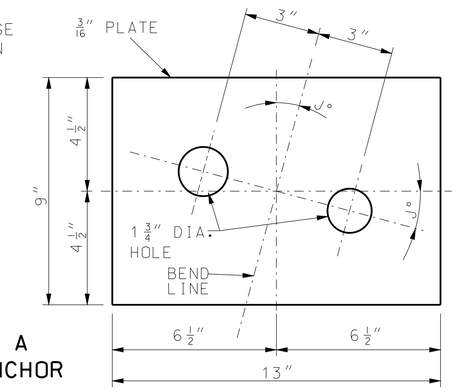



SECTION D-D

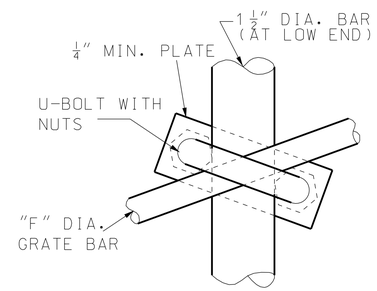


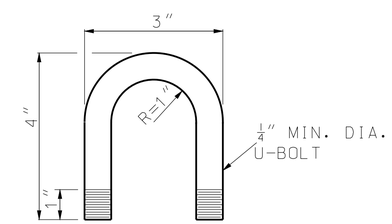

PLAN

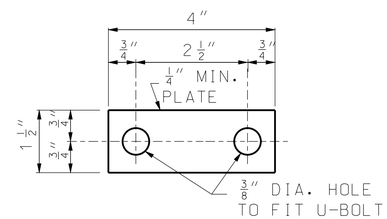


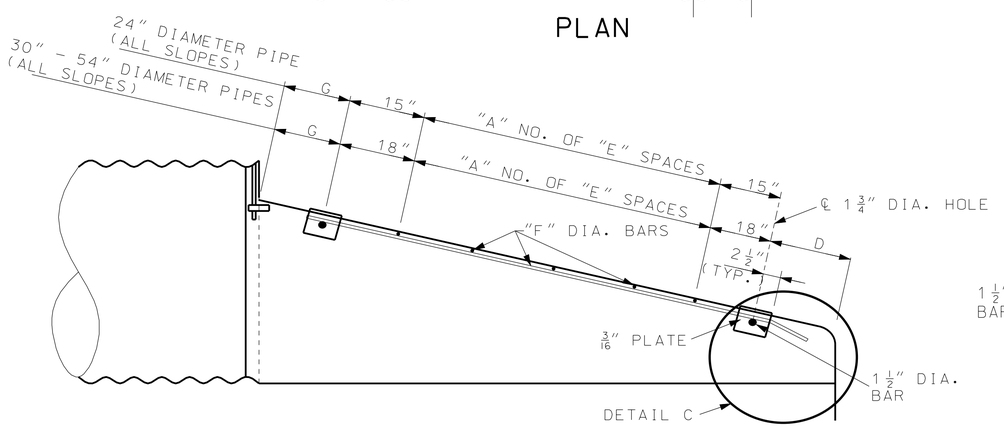

DETAIL A
BENT PLATE ANCHOR



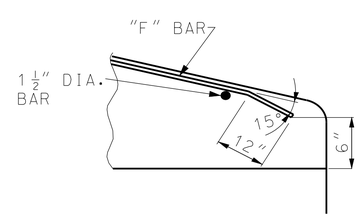




DETAIL B
U-BOLT ANCHOR




ELEVATION




DETAIL C

GENERAL NOTES:

ALL STEEL MATERIAL FOR BAR GRATE SYSTEM SHALL BE IN ACCORDANCE WITH ASTM A575 GRADE 1020 STEEL.

ALL MATERIAL IN GRATE SYSTEM SHALL BE GALVANIZED.

GALVANIZING SHALL BE DONE IN ACCORDANCE WITH ASTM A123.

ALL MATERIALS, FABRICATION AND INSTALLATION OF OPTIONAL BAR GRATE SYSTEM USED IN LIEU OF SAFETY BAR SYSTEM SHALL BE INCLUDED IN CONTRACT UNIT PRICE BID FOR END SECTION (SAFETY SLOPE).


MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
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JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)


STATE OF MISSOURI
KATHRYN PHILLIPS HARVEY
NUMBER PE-23751
PROFESSIONAL ENGINEER
THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

# OPTIONAL BAR GRATE SYSTEM FOR SAFETY SLOPE END SECTION

DATE EFFECTIVE: 08/01/2009
DATE PREPARED: 6/15/2009

732.10G

SHEET NO. 3 OF 3


IF A SEAL IS PRESENT ON THIS SHEET IT HAS BEEN ELECTRONICALLY SEALED AND DATED.