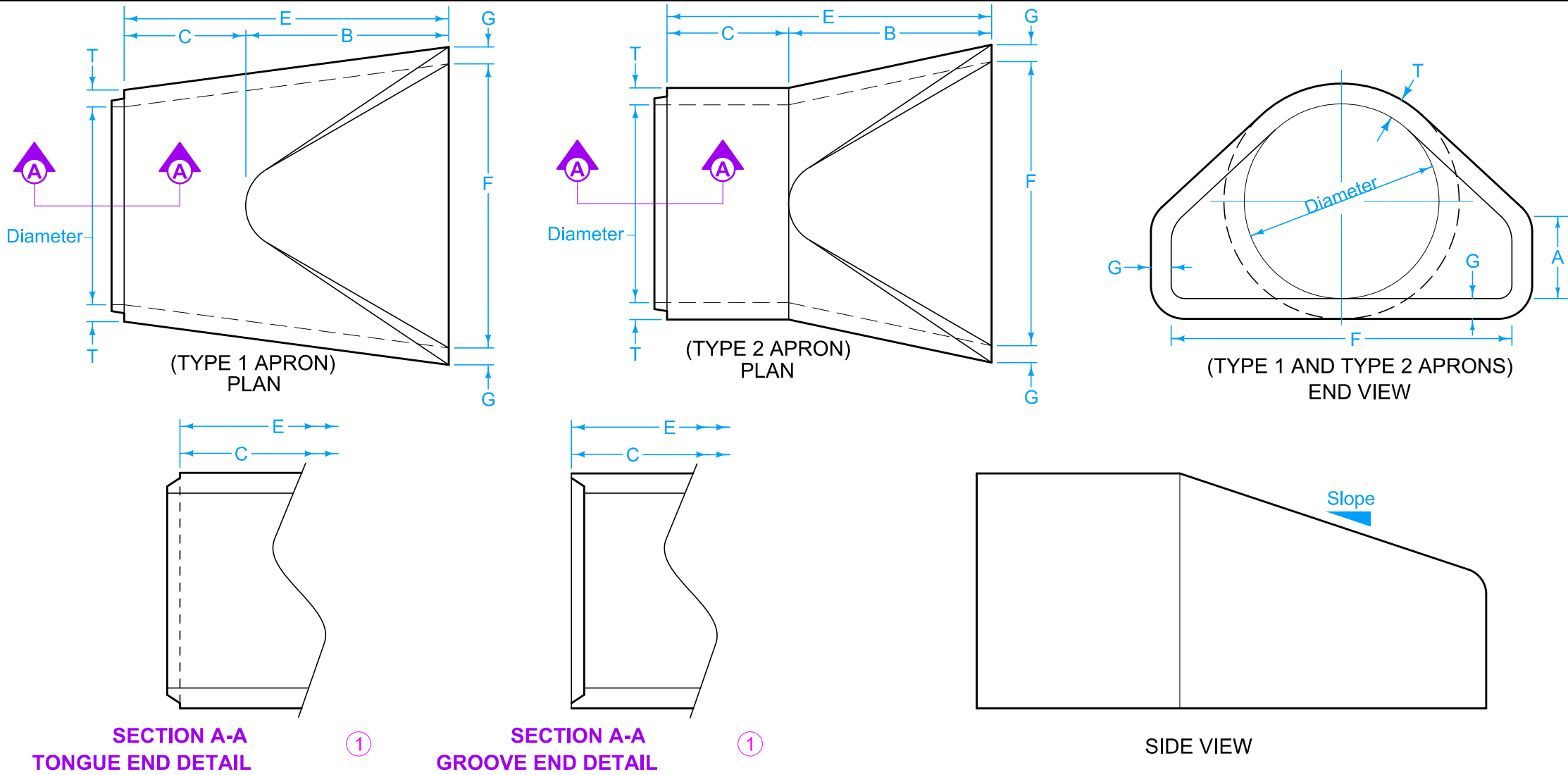




Dimension 'E' shown is the minimum and is considered the design length. Adjust for any difference between the actual length of concrete apron installed and the length indicated hereon within the length of concrete culvert pipe furnished.

Install connected pipe joints as shown on DR-121.

When specified in the contract documents, install pipe apron guards as shown on DR-213. Pipe apron guards are incidental to "Concrete Aprons".

Slight variations in both shape and dimensions from those shown may be accepted if approved by the engineer.

① Tongue end used on inlet end section. Groove end used on outlet end section.

| TYPE 1 APRONS * Maximum |       |                    |                      |                      |                      |         |                   |                   |
|-------------------------|-------|--------------------|----------------------|----------------------|----------------------|---------|-------------------|-------------------|
| DIAM.                   | SLOPE | A                  | B                    | MINIMUM              |                      | F       | G                 | T                 |
|                         |       |                    |                      | C                    | E                    |         |                   |                   |
| 12"                     | 2.4:1 | 4"                 | 2'-0"                | 4'- $\frac{7}{8}$ "  | 6'- $\frac{7}{8}$ "  | 2'-0"   | 2"                | 2"                |
| 15"                     | 2.4:1 | 6"                 | 2'-3"                | 3'-10"               | 6'-1"                | 2'-6"   | 2 $\frac{1}{4}$ " | 2 $\frac{1}{4}$ " |
| 18"                     | 2.3:1 | 9"                 | 2'-3"                | 3'-10"               | 6'-1"                | 3'-0" * | 2 $\frac{1}{2}$ " | 2 $\frac{1}{2}$ " |
| 21"                     | 2.4:1 | 9"                 | 3'-0"                | 3'-1 $\frac{1}{2}$ " | 6'-1 $\frac{1}{2}$ " | 3'-5"   | 3"                | 3"                |
| 24"                     | 2.5:1 | 9 $\frac{1}{2}$ "  | 3'-7 $\frac{1}{2}$ " | 2'-6"                | 6'-1 $\frac{1}{2}$ " | 4'-0"   | 3"                | 3"                |
| 27"                     | 2.5:1 | 10 $\frac{1}{2}$ " | 4'-1"                | 2'-0"                | 6'-1 $\frac{1}{2}$ " | 4'-4"   | 3 $\frac{1}{2}$ " | 3 $\frac{1}{2}$ " |
| 30"                     | 2.5:1 | 12"                | 4'-6"                | 1'-7 $\frac{3}{4}$ " | 6'-1 $\frac{3}{4}$ " | 5'-0"   | 3 $\frac{1}{2}$ " | 3 $\frac{1}{2}$ " |
| 36"                     | 2.5:1 | 15"                | 5'-3"                | 2'-9"                | 8'-0"                | 6'-0"   | 4"                | 4"                |
| 42"                     | 2.5:1 | 21"                | 5'-3"                | 2'-9"                | 8'-0"                | 6'-6"   | 4 $\frac{1}{2}$ " | 4 $\frac{1}{2}$ " |
| 48"                     | 2.5:1 | 24"                | 6'-0"                | 2'-0"                | 8'-0"                | 7'-0"   | 5"                | 5"                |
| 54"                     | 1.8:1 | 27"                | 5'-0"                | 3'-0"                | 8'-0"                | 7'-6"   | 5 $\frac{1}{2}$ " | 5 $\frac{1}{2}$ " |
| 60"                     | 1.6:1 | 29 $\frac{1}{2}$ " | 5'-0"                | 3'-0"                | 8'-0"                | 8'-0"   | 5 $\frac{1}{2}$ " | 6"                |
| 66"                     | 1.7:1 | 30"                | 6'-0"                | 2'-3"                | 8'-3"                | 8'-0"   | 5 $\frac{1}{2}$ " | 6"                |
| 72"                     | 1.6:1 | 30"                | 6'-6"                | 1'-9"                | 8'-3"                | 9'-0"   | 6"                | 7"                |
| 78"                     | 1.8:1 | 36"                | 7'-6"                | 1'-9"                | 9'-3"                | 9'-6"   | 6 $\frac{1}{2}$ " | 7 $\frac{1}{2}$ " |
| 84"                     | 1.3:1 | 29 $\frac{1}{2}$ " | 6'-9"                | 2'-6 $\frac{1}{2}$ " | 9'-3 $\frac{1}{2}$ " | 10'-0"  | 6 $\frac{1}{2}$ " | 8"                |

| TYPE 2 APRONS * Maximum |       |                    |                      |                      |                      |         |                   |                   |
|-------------------------|-------|--------------------|----------------------|----------------------|----------------------|---------|-------------------|-------------------|
| DIAM.                   | SLOPE | A                  | B                    | MINIMUM              |                      | F       | G                 | T                 |
|                         |       |                    |                      | C                    | E                    |         |                   |                   |
| 12"                     | 2.4:1 | 4"                 | 2'-0"                | 4'- $\frac{7}{8}$ "  | 6'- $\frac{7}{8}$ "  | 2'-0"   | 2"                | 2"                |
| 15"                     | 2.4:1 | 6"                 | 2'-3"                | 3'-10"               | 6'-1"                | 2'-6"   | 2 $\frac{1}{4}$ " | 2 $\frac{1}{4}$ " |
| 18"                     | 2.3:1 | 9"                 | 2'-3"                | 3'-10"               | 6'-1"                | 3'-0" * | 2 $\frac{1}{2}$ " | 2 $\frac{1}{2}$ " |
| 21"                     | 2.4:1 | 9"                 | 3'-0"                | 3'-1 $\frac{1}{2}$ " | 6'-1 $\frac{1}{2}$ " | 3'-5"   | 3"                | 3"                |
| 24"                     | 2.5:1 | 9 $\frac{1}{2}$ "  | 3'-7 $\frac{1}{2}$ " | 2'-6"                | 6'-1 $\frac{1}{2}$ " | 4'-0"   | 3"                | 3"                |
| 27"                     | 2.5:1 | 10 $\frac{1}{2}$ " | 4'-1"                | 2'-0"                | 6'-1 $\frac{1}{2}$ " | 4'-4"   | 3 $\frac{1}{2}$ " | 3 $\frac{1}{2}$ " |
| 30"                     | 2.5:1 | 12"                | 4'-6"                | 1'-7 $\frac{3}{4}$ " | 6'-1 $\frac{3}{4}$ " | 5'-0"   | 3 $\frac{1}{2}$ " | 3 $\frac{1}{2}$ " |
| 36"                     | 2.5:1 | 15"                | 5'-3"                | 2'-9"                | 8'-0"                | 6'-0"   | 4"                | 4"                |
| 42"                     | 2.5:1 | 21"                | 5'-3"                | 2'-9"                | 8'-0"                | 6'-6"   | 4 $\frac{1}{2}$ " | 4 $\frac{1}{2}$ " |
| 48"                     | 2.5:1 | 24"                | 6'-0"                | 2'-0"                | 8'-0"                | 7'-0"   | 5"                | 5"                |
| 54"                     | 1.9:1 | 24 $\frac{1}{2}$ " | 5'-5"                | 2'-7"                | 8'-0"                | 7'-6"   | 5 $\frac{1}{2}$ " | 5 $\frac{1}{2}$ " |
| 60"                     | 1.4:1 | 24 $\frac{1}{2}$ " | 5'-0"                | 3'-0"                | 8'-0"                | 8'-0"   | 5 $\frac{1}{2}$ " | 6"                |
| 66"                     | 1.7:1 | 30"                | 6'-0"                | 2'-3"                | 8'-3"                | 8'-0"   | 5 $\frac{1}{2}$ " | 6"                |
| 72"                     | 1.4:1 | 24"                | 6'-6"                | 1'-9"                | 8'-3"                | 9'-0"   | 6"                | 7"                |
| 78"                     | 1.8:1 | 36"                | 7'-6"                | 1'-9"                | 9'-3"                | 9'-6"   | 6 $\frac{1}{2}$ " | 7 $\frac{1}{2}$ " |
| 84"                     | 1.5:1 | 23 $\frac{1}{2}$ " | 7'-6 $\frac{1}{2}$ " | 1'-9"                | 9'-3 $\frac{1}{2}$ " | 10'-0"  | 6 $\frac{1}{2}$ " | 8"                |

Contract Item:  
Apron, Concrete

Tabulations:  
104-3  
104-5C

STANDARD ROAD PLAN

REVISIONS: Added note about shape and dimensions.

APPROVED BY DESIGN METHODS ENGINEER

CONCRETE APRONS

REVISION

310-17-23

DR-201

SHEET 1 of 1