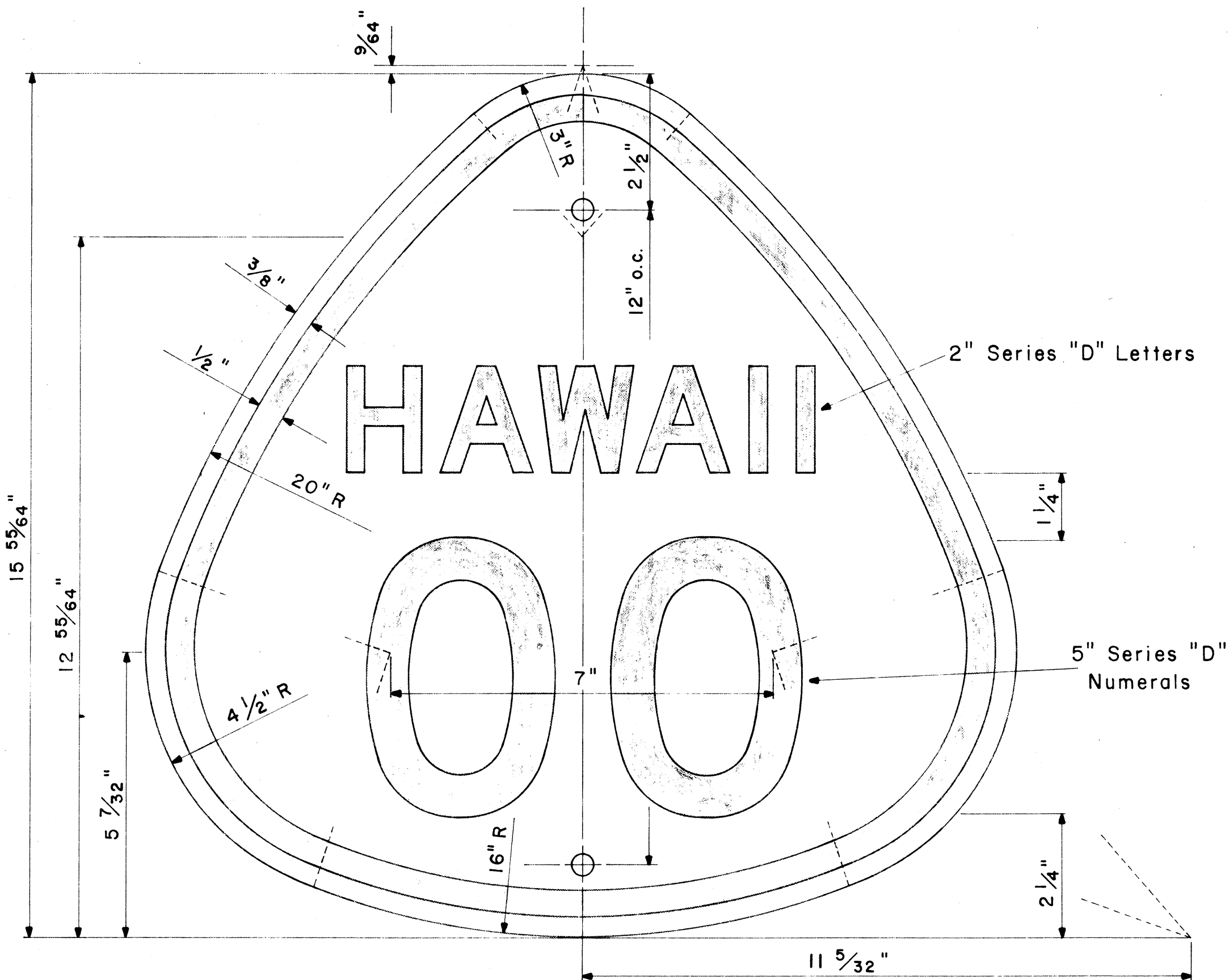
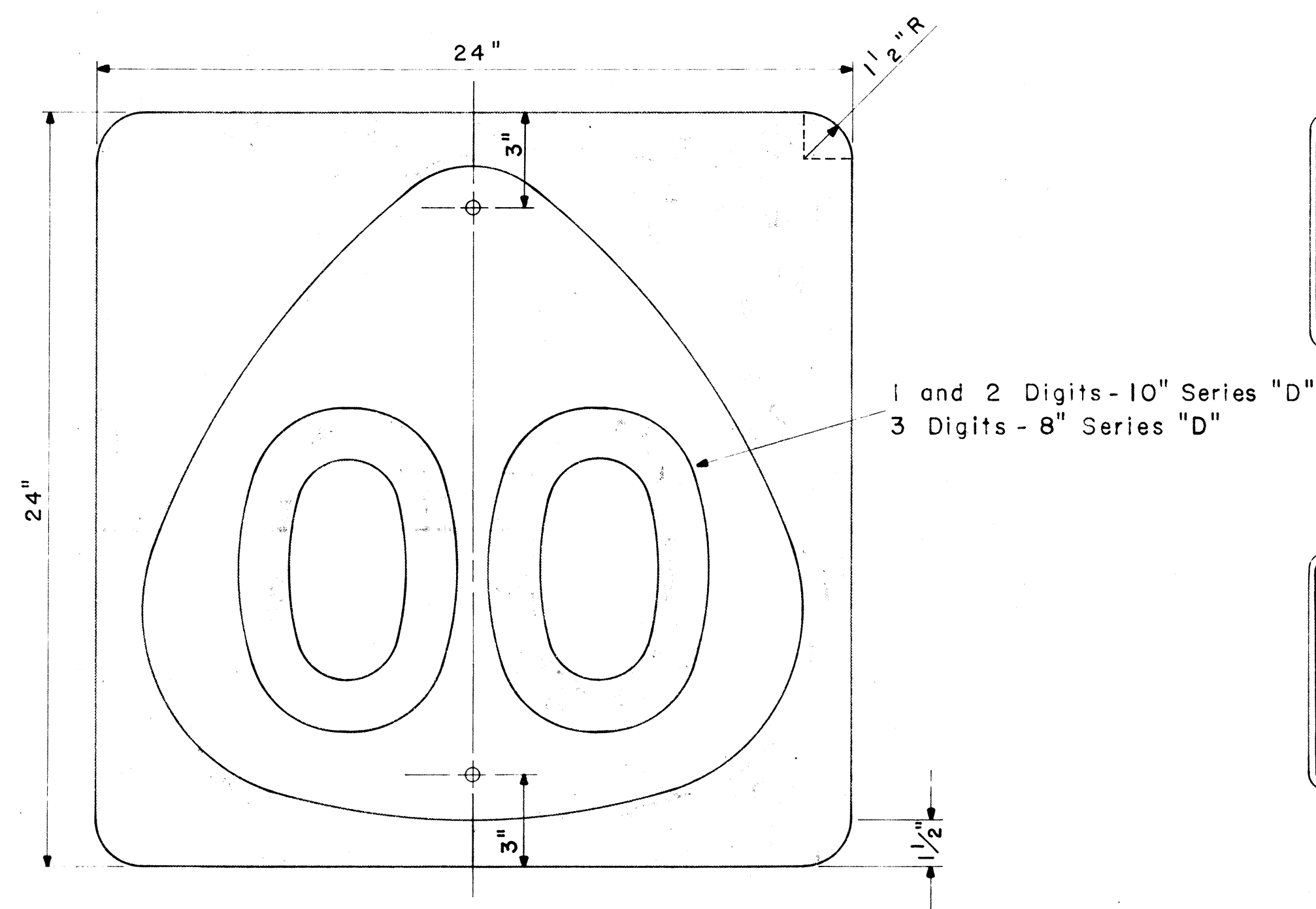




STATE ROUTE MARKER  
M1-3(OO)

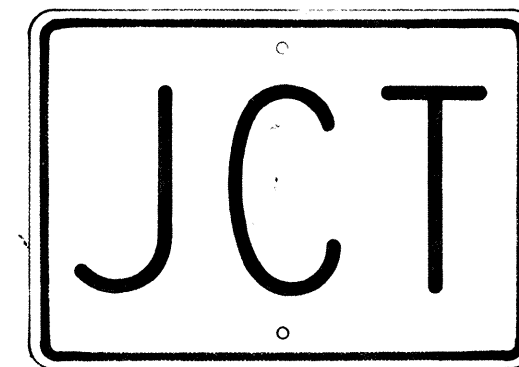
Scale:  $\frac{1}{2}$ " = 1"



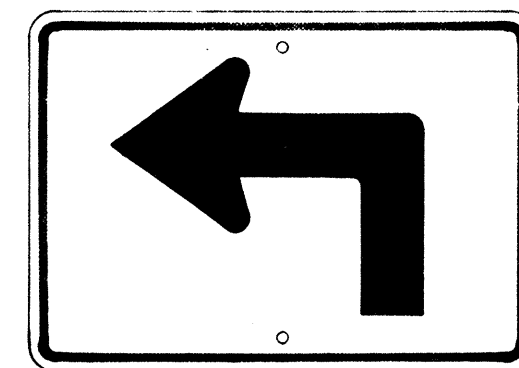
STATE ROUTE MARKER  
M1-4(OO)

Scale:  $\frac{1}{4}$ " = 1"

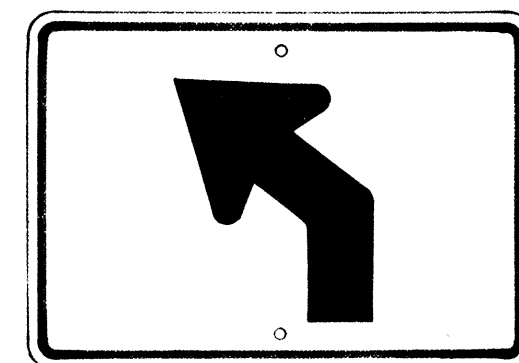
NOTE:  
Multiply all dimensions of State Route Marker M1-3 by 1.3 for the dimensions of the shield for M1-4.



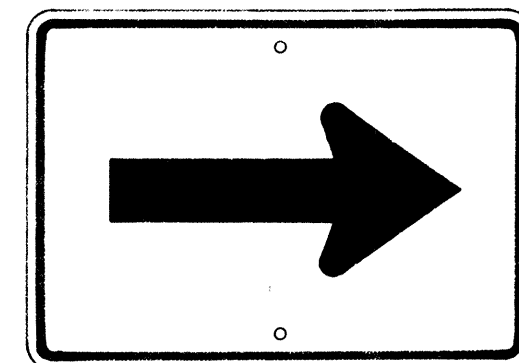
M2-1  
21" x 15"



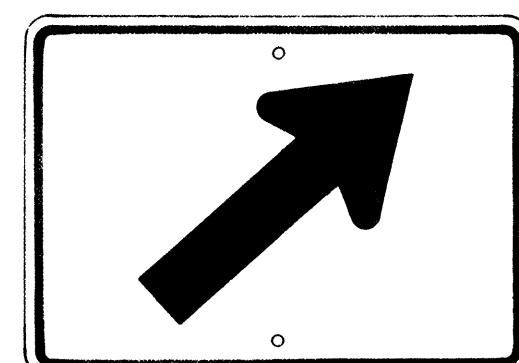
M3-1-L  
\* M3-1-R  
21" x 15"



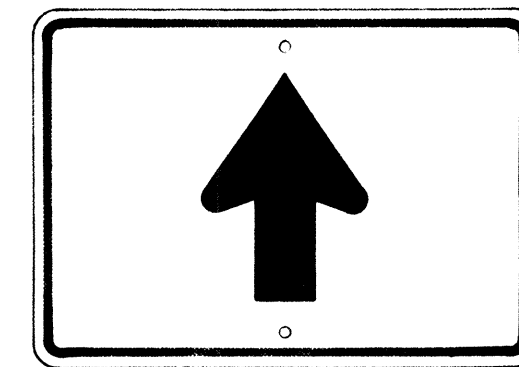
M3-2-L  
\* M3-2-R  
21" x 15"



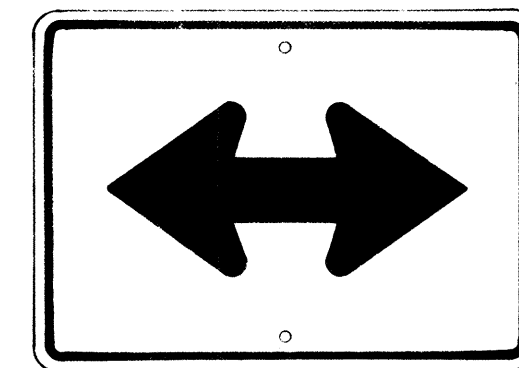
M4-1  
21" x 15"



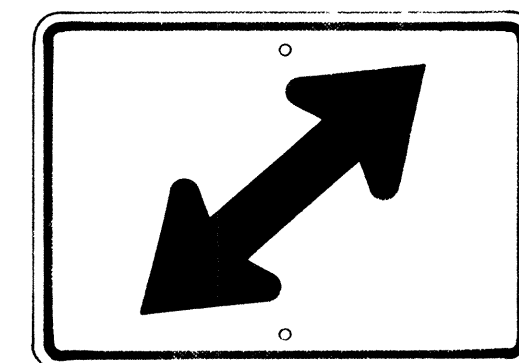
M4-2-R  
\* M4-2-L  
21" x 15"



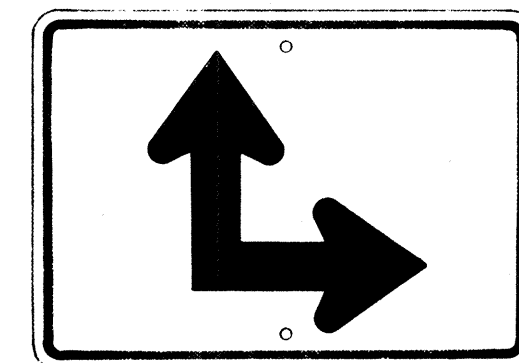
M4-3  
21" x 15"



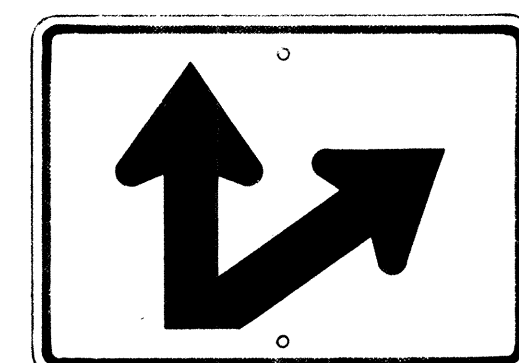
M4-4  
21" x 15"



M4-5-R  
\* M4-5-L  
21" x 15"



M4-6-R  
\* M4-6-L  
21" x 15"

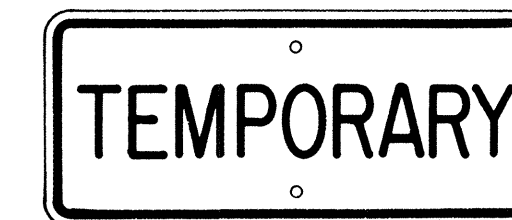


M4-7-R  
\* M4-7-L  
21" x 15"

### AUXILIARY MARKERS

Scale:  $\frac{1}{8}$ " = 1"

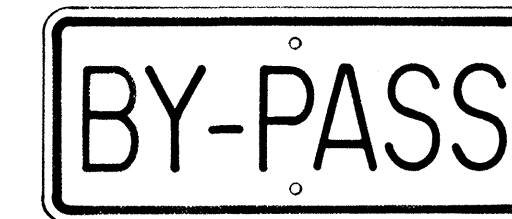
\* NOTE:  
Signs shall be similar but opposite in direction.



M5-1  
21" x 9"



M5-2  
21" x 9"



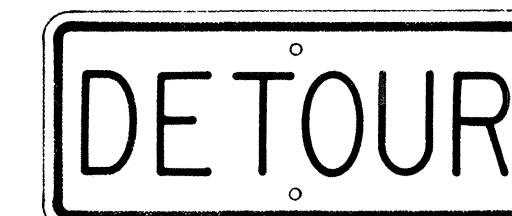
M5-3  
21" x 9"



M5-4  
21" x 9"



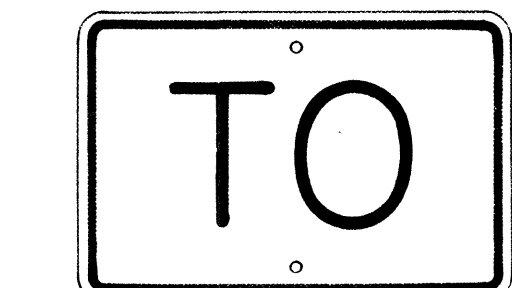
M5-5  
21" x 9"



M5-6  
21" x 9"



M6-1-N  
21" x 9"  
(See Note 6)



M7-1  
18" x 12"

### GENERAL NOTES

- The shape, color, dimensions, symbols, wording, lettering and reflectorizing of all signs shall be in accordance with the "Manual on Uniform Traffic Control Devices for Streets and Highways," dated June 1961 and the BPR manual "Standard Highway Signs," dated September 1961, unless otherwise specified.
- All letters and figures shall conform to the manual "Standard Alphabets for Highway Signs," Dept. of Commerce, Bureau of Public Roads, 1952.
- All markers shall be reflectorized unless otherwise specified.
- All markers shall have  $\frac{3}{8}$ " bolt holes drilled at appropriate locations unless otherwise specified.
- All markers shall have a black legend on a white background unless otherwise specified.
- Sign message of Cardinal Direction Marker (M6-1) shall be denoted by the following suffixes:  
M6-1-N : NORTH  
M6-1-E : EAST  
M6-1-S : SOUTH  
M6-1-W : WEST
- Auxiliary markers denoted with the suffix "1" (M4-1-1) shall have a white legend on a blue background.
- Cardinal Direction Marker (M6-1) with suffix 1(3) shall have a white legend on a blue background and shall be 30" x 15" in size.
- For M1-3, and M1-4 signs, number in ( ) indicates route number and shall be as shown on the plan.

APPROVED: DATE: .....

DIRECTOR OF TRANSPORTATION

STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION  
STANDARD DETAILS  
STATE ROUTE MARKERS  
AND  
AUXILIARY MARKERS  
Scale: As Noted  
SHEET NO. OF SHEETS

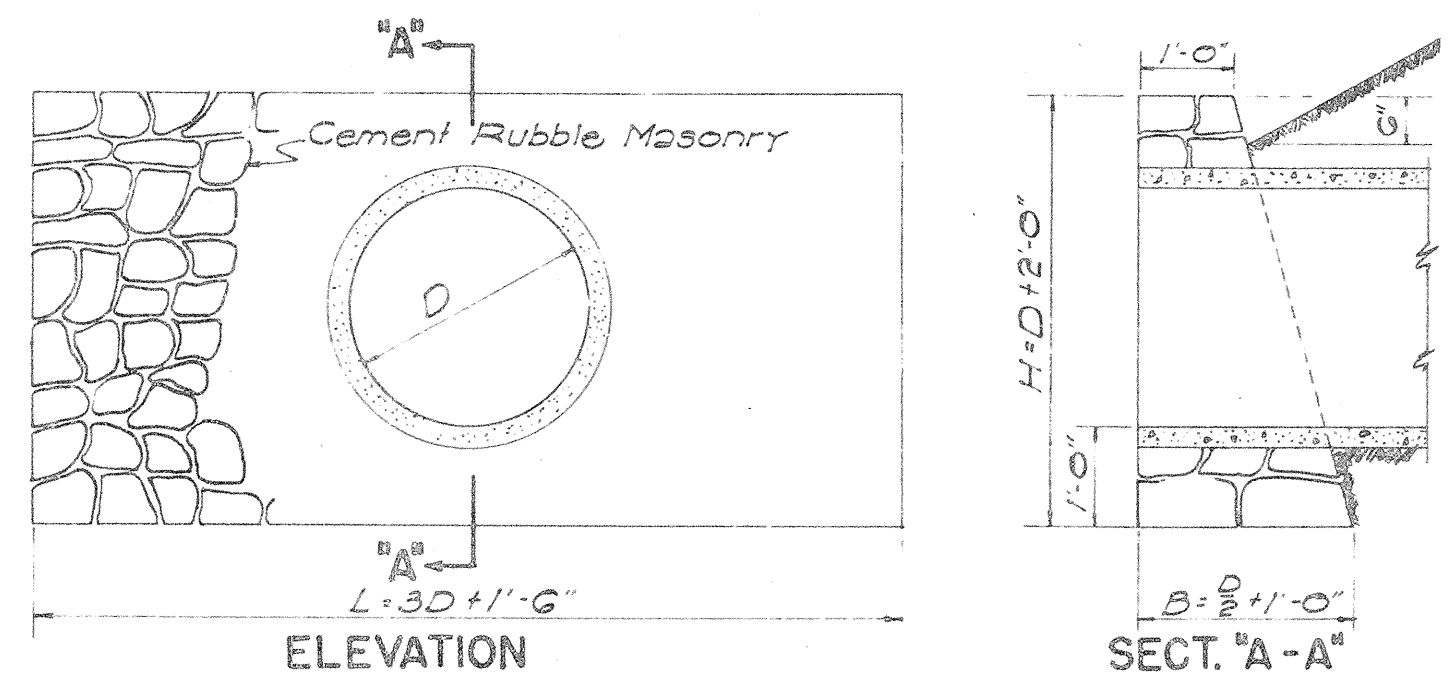
| D   | W   | H     | T=N+H |
|-----|-----|-------|-------|
| 18" | 24" | 2'-0" | 4'-0" |
| 24" | 30" | 2'-0" | 4'-6" |
| 30" | 36" | 2'-6" | 5'-0" |
| 36" | 36" | 3'-0" | 6'-0" |

**DETAIL OF OUTLET DITCH**  
Scale: 1/2" = 1'-0"

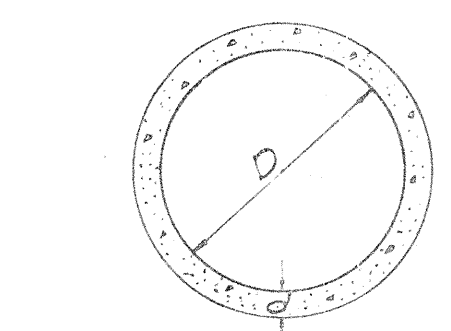
| D'  | D   | L=D+G | Cu Yds. | Where Variables Equal |
|-----|-----|-------|---------|-----------------------|
| 23" | 18" | 2'-5" | 3.02    | 4'-6"                 |
| 30" | 24" | 3'-0" | 3.61    | 5'-0"                 |
| 37" | 30" | 3'-7" | 4.21    | 5'-6"                 |
| 44" | 36" | 4'-2" | 4.85    | 6'-0"                 |

NOTE: Dimension "X" is assumed as 2'-4" in figuring the above quantities.

| D   | H     | B     | L      | Cu Yds. | Cu Yds. | Cu Yds. |
|-----|-------|-------|--------|---------|---------|---------|
| 18" | 3'-6" | 1'-0" | 6'-0"  | 0.85    | 0.95    | 0.93    |
| 24" | 4'-0" | 2'-0" | 7'-6"  | 1.28    | 1.45    | 1.41    |
| 30" | 4'-6" | 2'-6" | 9'-0"  | 1.83    | 2.06    | 2.00    |
| 36" | 5'-0" | 3'-0" | 10'-6" | 2.40    | 2.84    | 2.72    |



**DETAIL OF MASONRY HEADWALL**  
Scale: 1/2" = 1'-0"

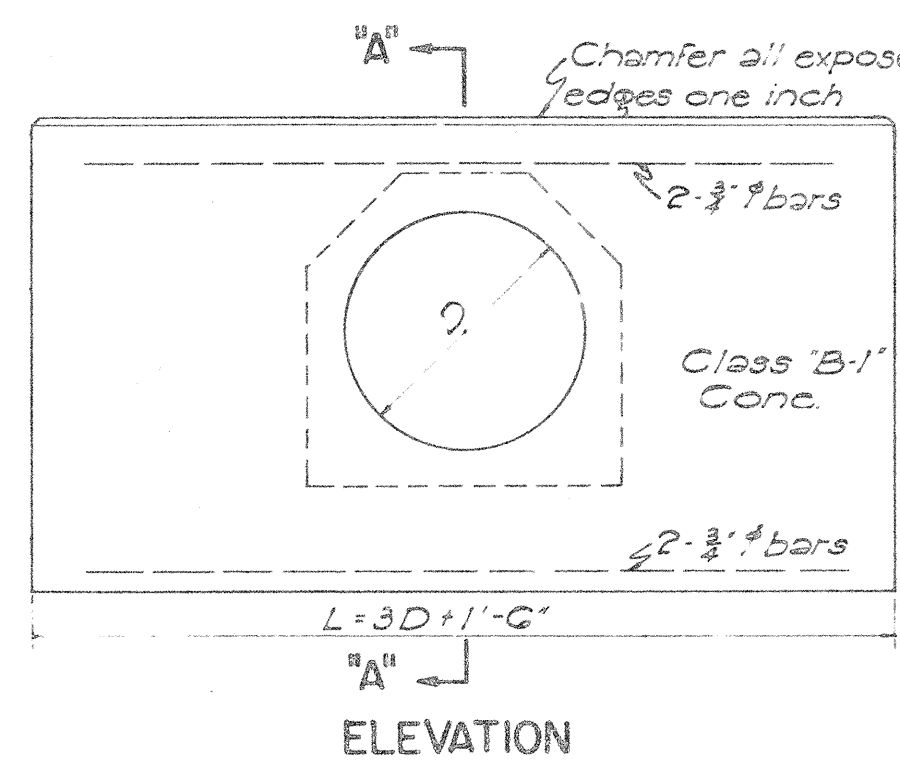


**SECTION CONG. PIPE CULVERT**

NOTE: Thickness "d", reinforcing, and concrete used, are to conform with the approved design as provided by the Specifications.

| D   | d      | W      | Cu Yd per ft |
|-----|--------|--------|--------------|
| 18" | 4"     | 2'-2"  | 0.11         |
| 24" | 4 1/2" | 2'-9"  | 0.14         |
| 30" | 5"     | 3'-4"  | 0.19         |
| 36" | 5 1/2" | 3'-11" | 0.26         |

**CAST-IN-PLACE CONG. CULVERT**

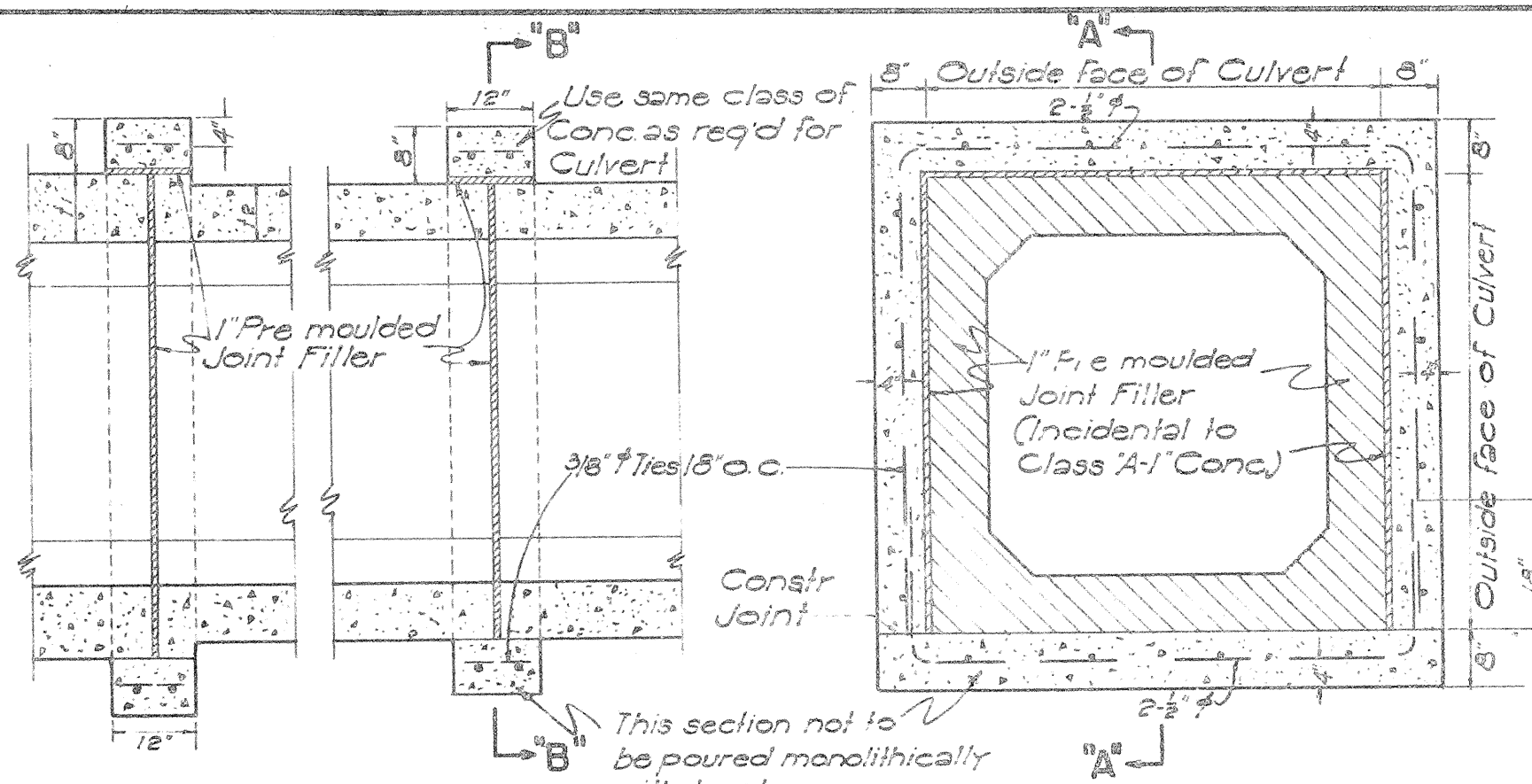


**ELEVATION SECTION "A-A"**

| D   | B     | L      | H     | Cu Yd | Cu Yd | Steel For One Headwall |
|-----|-------|--------|-------|-------|-------|------------------------|
| 18" | 1'-6" | 6'-0"  | 4'-0" | 0.92  | 1.00  | 4 #2's 2'-5"           |
| 24" | 2'-0" | 7'-6"  | 4'-6" | 1.25  | 1.38  | 4 #2's 3'-0"           |
| 30" | 2'-6" | 9'-0"  | 5'-0" | 1.65  | 1.77  | 4 #2's 3'-6"           |
| 36" | 3'-0" | 10'-6" | 5'-6" | 2.15  | 2.27  | 4 #2's 4'-0"           |
| 42" | 3'-6" | 12'-0" | 6'-0" | 2.75  | 2.87  | 4 #2's 4'-6"           |
| 48" | 4'-0" | 13'-6" | 6'-6" | 3.45  | 3.57  | 4 #2's 5'-0"           |

**DETAIL OF CONCRETE HEADWALL**

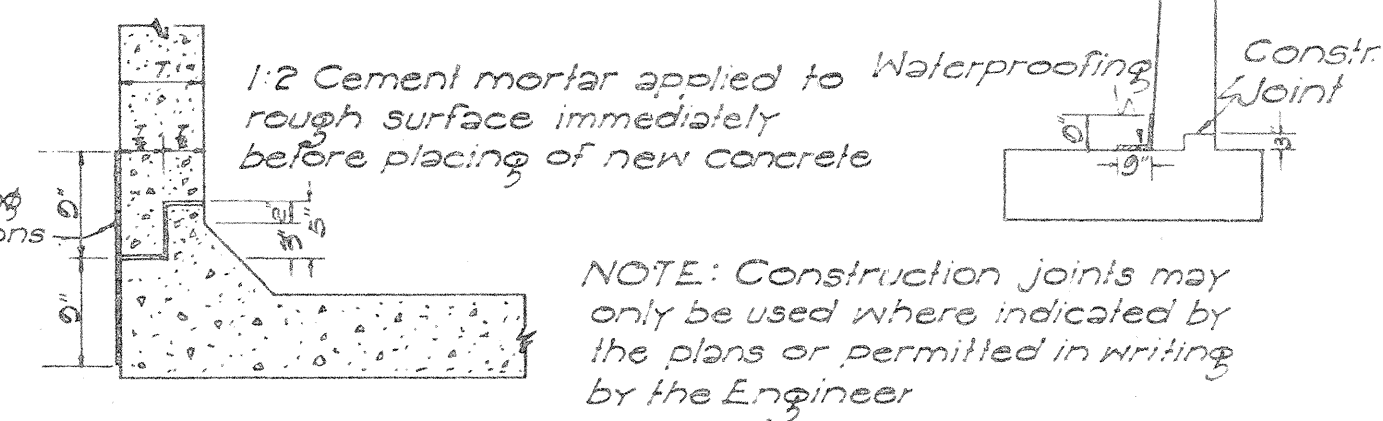
Scale: 1/2" = 1'-0"



**SECTION "A-A" SECTION "B-B"**  
**CONC. COLLAR FOR CONG. BOX CULVERT**

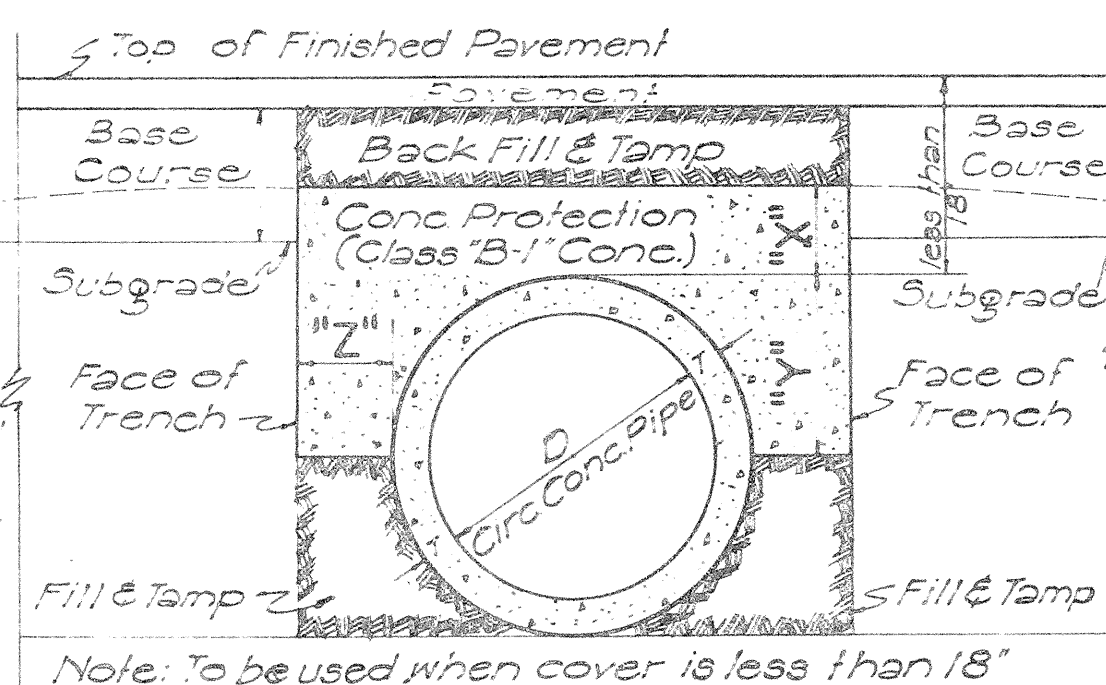
Scale: 1/2" = 1'-0"

**REINFORCING BARS**  
All reinforcing bars for concrete shall be Billet Steel bars, ASTM A15, intermediate grade. Steel shall be made by the open-hearth process. All bars shall be deformed type conforming to ASTM A-305.



**CONSTR. JOINT DETAILS**

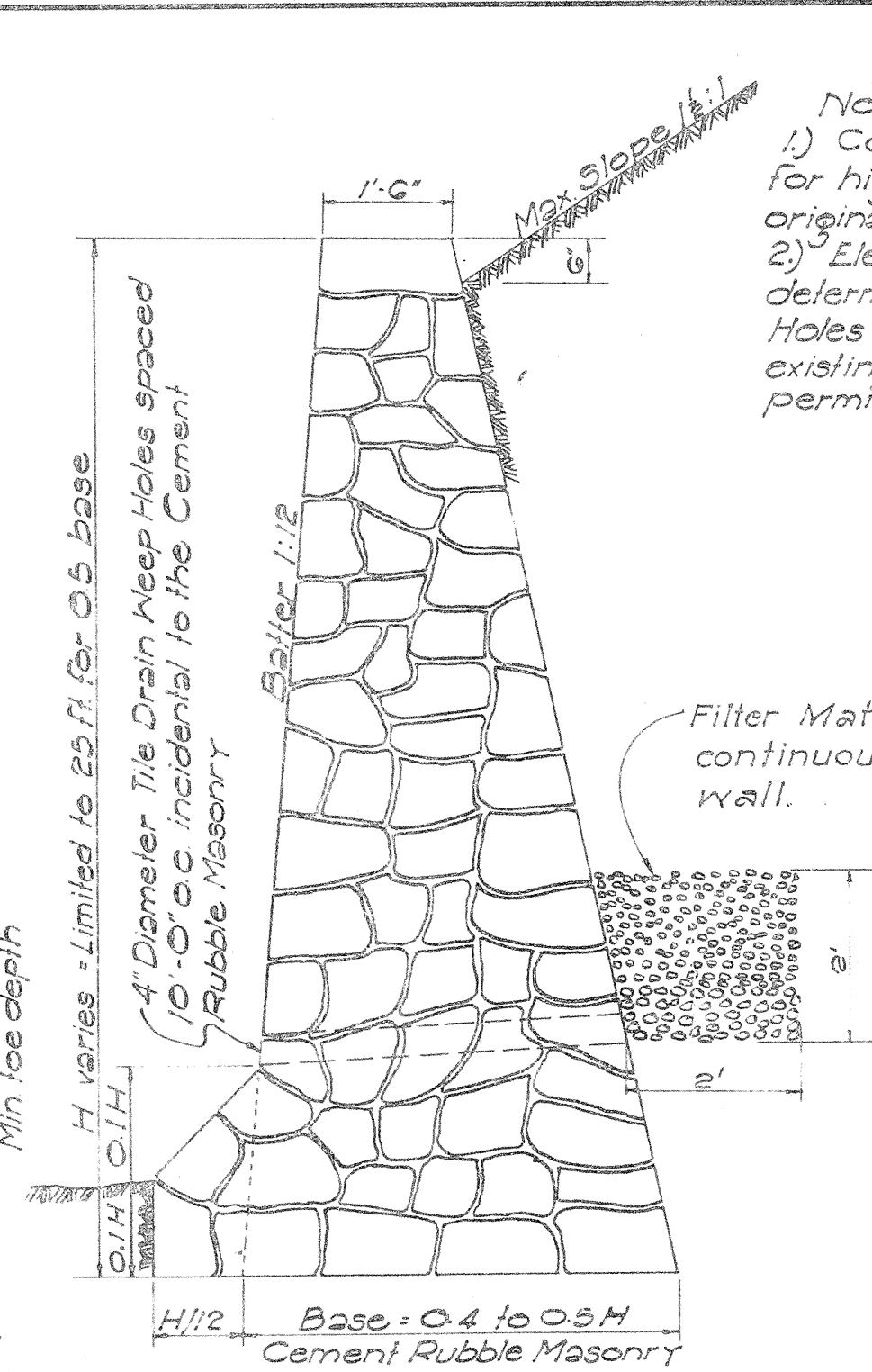
NOTE: Construction joints may only be used where indicated by the plans or permitted in writing by the Engineer.



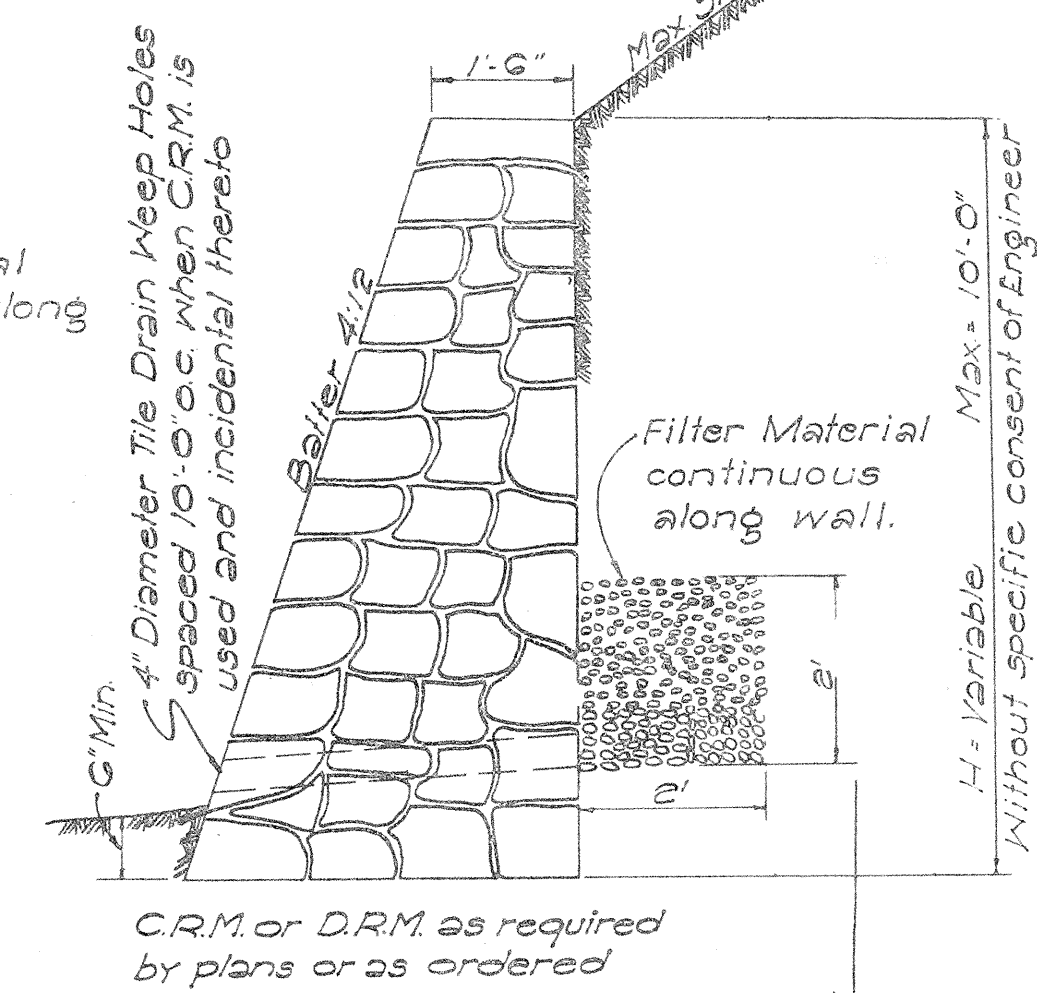
| X           | Y   | Z                                     |
|-------------|-----|---------------------------------------|
| 6" for 18"D |     | Z must be from pipe to face of trench |
| 7" " 24"D   |     |                                       |
| 8" " 30"D   | D+T | Minimum = X                           |
| 9" " 36"D   |     | Maximum pay quantity will be Z=12"    |
| 10" " 42"D  |     |                                       |
| 11" " 48"D  |     |                                       |
| 12" " 54"D  |     |                                       |

**SECT. OF CULVERT WITH CONG. PROTECTION**

Scale: 1" = 1'-0"



**SECTION OF HIGH CEMENT RUBBLE MASONRY RETAINING WALL OR SEAWALL**

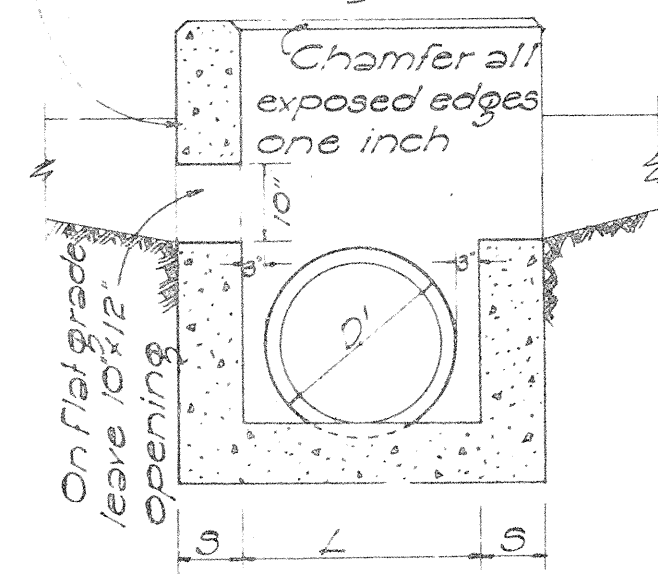


**SECTION OF LOW MASONRY RETAINING WALL OR SEAWALL**

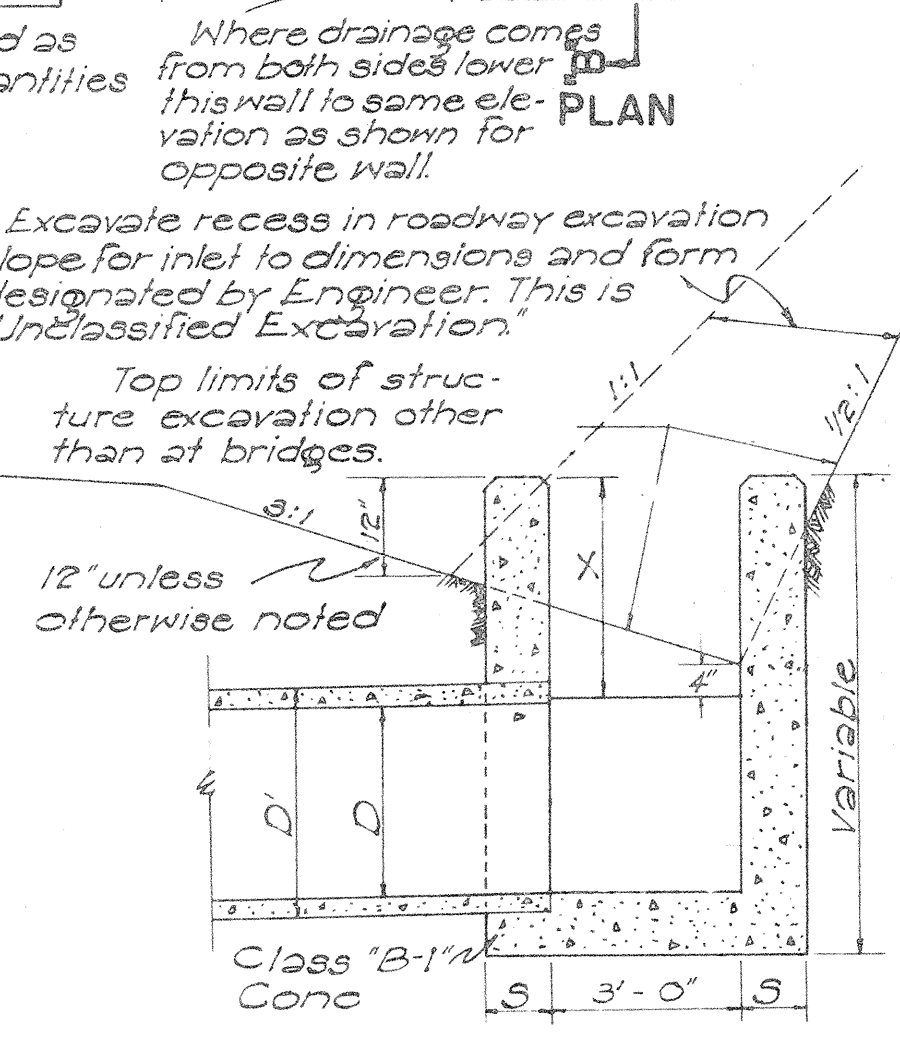
| D'  | D   | L=D+G | S   | Cu Yds. | Where Variables Equal |
|-----|-----|-------|-----|---------|-----------------------|
| 23" | 18" | 2'-5" | 8"  | 1.41    | 4'-6"                 |
| 30" | 24" | 3'-0" | 8"  | 1.72    | 5'-0"                 |
| 37" | 30" | 3'-7" | 8"  | 2.32    | 5'-6"                 |
| 44" | 36" | 4'-2" | 8"  | 2.73    | 6'-0"                 |
| 51" | 42" | 4'-9" | 10" | 3.54    | 6'-6"                 |
| 58" | 48" | 5'-4" | 10" | 4.01    | 7'-0"                 |

NOTE: Dimension "X" is assumed as 2'-4" in figuring the above quantities.

Note: This type of structure shall also be used for the Drop Intakes of Syphons connected with Irrigation Ditches or Flumes with appropriate changes to dimensions. In this case all joints must be made water tight.



**SECTION "B-B"**



**SECTION "A-A"**

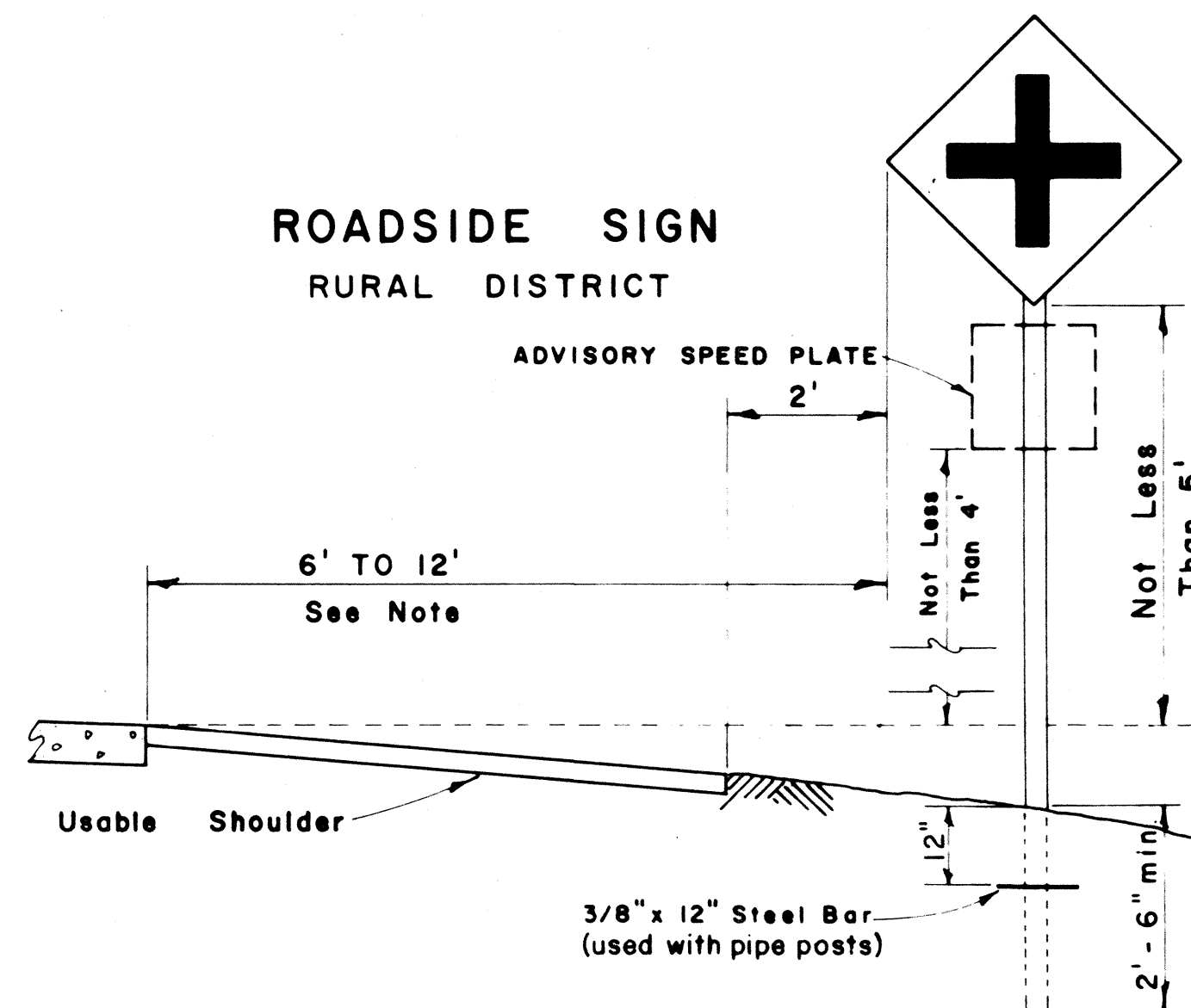
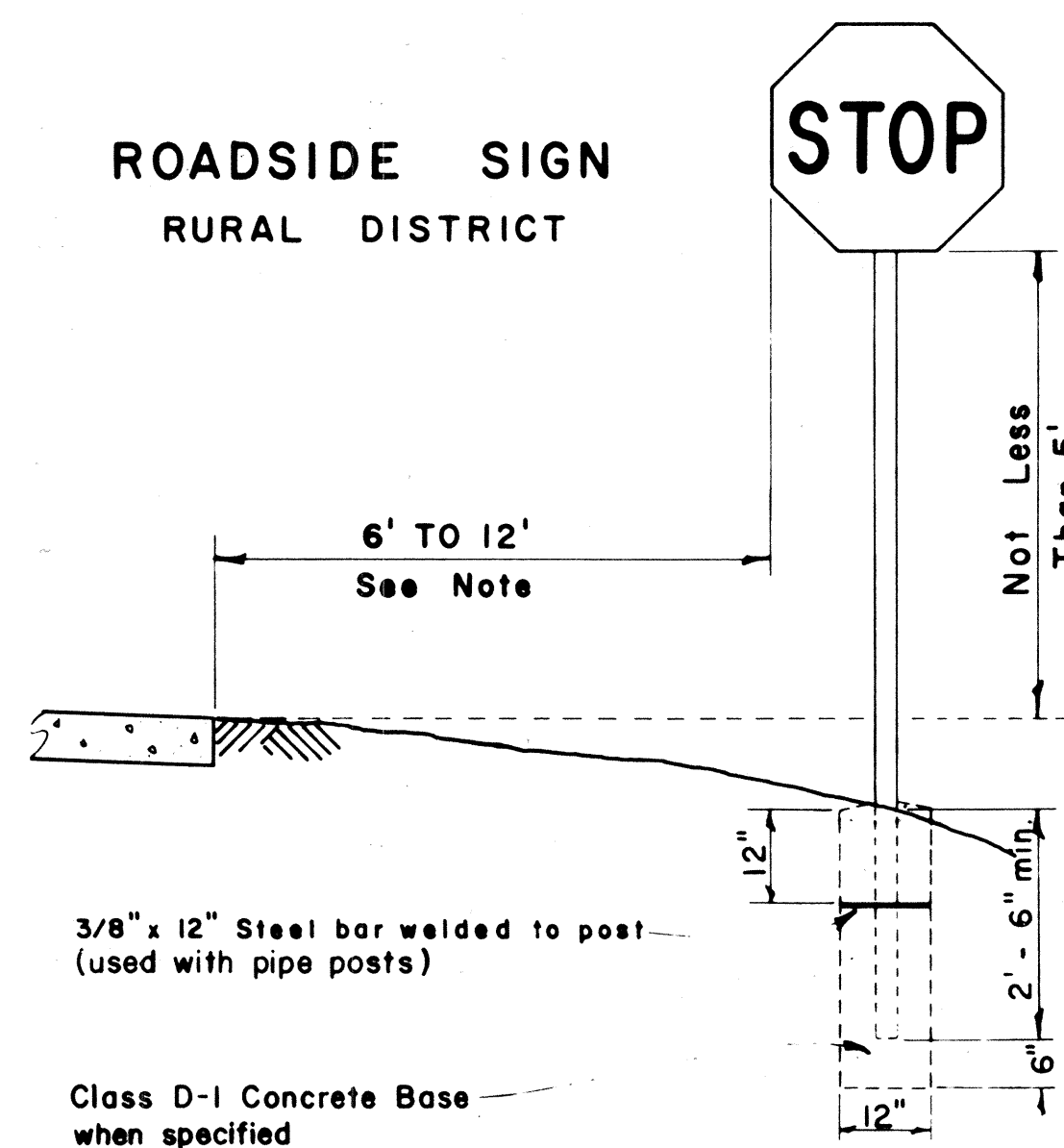
**DETAIL OF CONCRETE DROP INTAKE**

Scale: 1/2" = 1'-0"

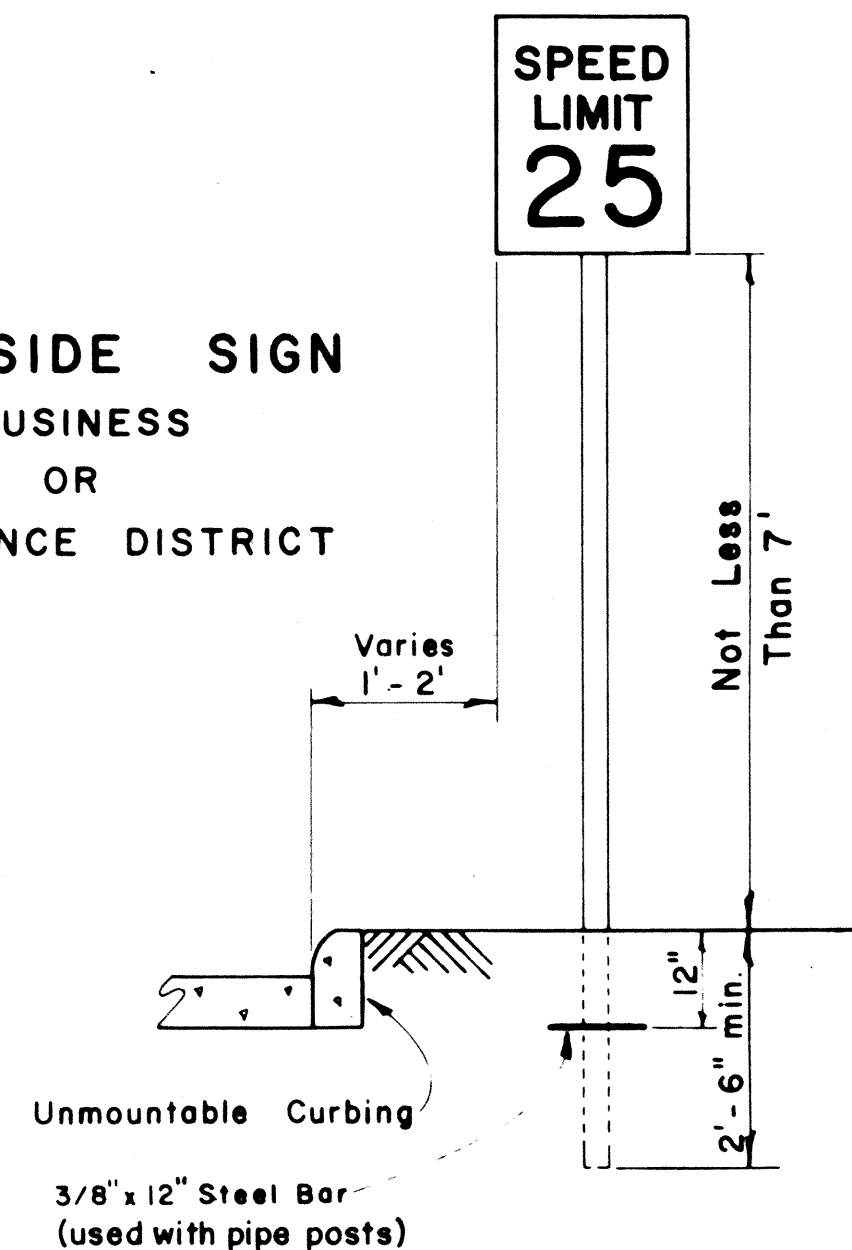
STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

**STANDARD DETAILS**  
**DROP INTAKES, RETAINING WALLS, HEADWALLS, CONSTRUCTION JOINTS**  
SCALES AS NOTED

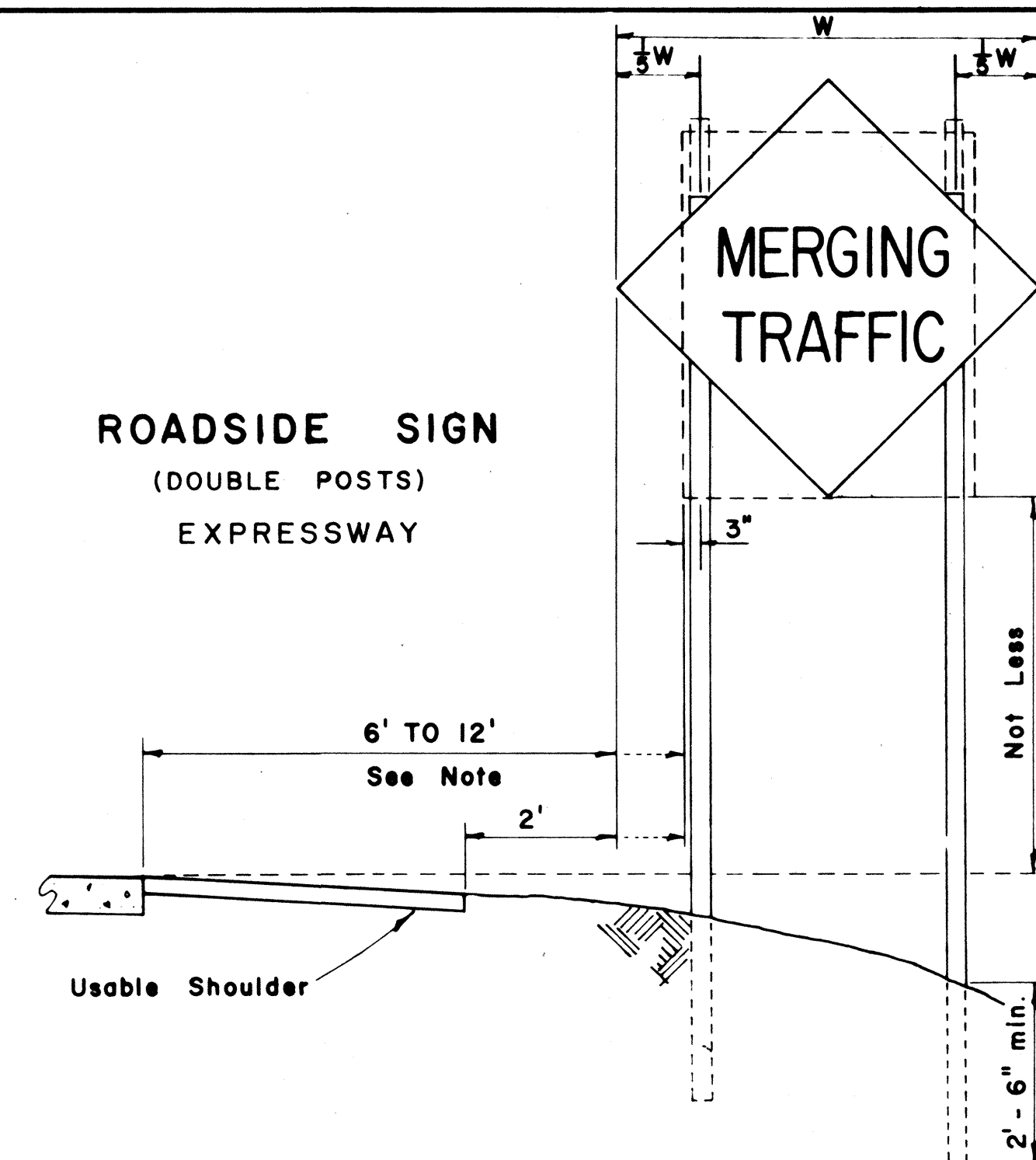
- NOTE:
- All signs and road delineators shall be placed 2' outside the usable roadway shoulder or 1' outside unmountable curbing present and within the limits shown below.
  - Except as noted below, sign posts shall be either 3" galv. std. pipe or 2 1/2" x 2 1/2" galv. square tube posts for signs larger than 24" in any dimension; 2" galv. std. pipe or 2" x 2" galv. square tube posts for signs 24" or less in any dimension.
  - Sign shall be attached to post with 5/16" galvanized bolts with nuts and 7/8" x 7/8" x .120" stainless-steel washers with neoprene rubber gasket.
  - Clearance Markers (RM-3, RM-4) shall be installed with the inside edge of the marker in line with the inner edge of the obstruction.
  - Signs 48" and wider or larger than 10 sq. ft. in area shall be mounted on two 3" galv. std. pipe or two 2 1/2" x 2 1/2" galv. square tube posts.



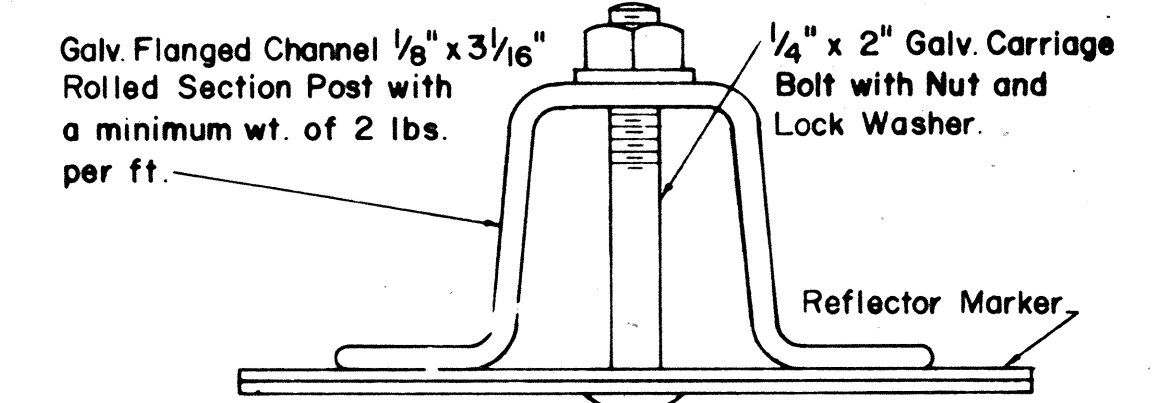
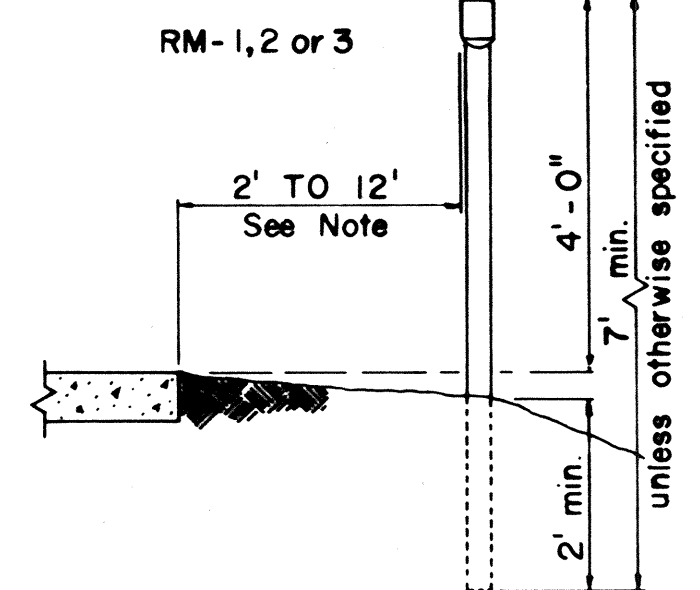
**ROADSIDE SIGN**  
BUSINESS  
OR  
RESIDENCE DISTRICT



**ROADSIDE SIGN**  
(DOUBLE POSTS)  
EXPRESSWAY

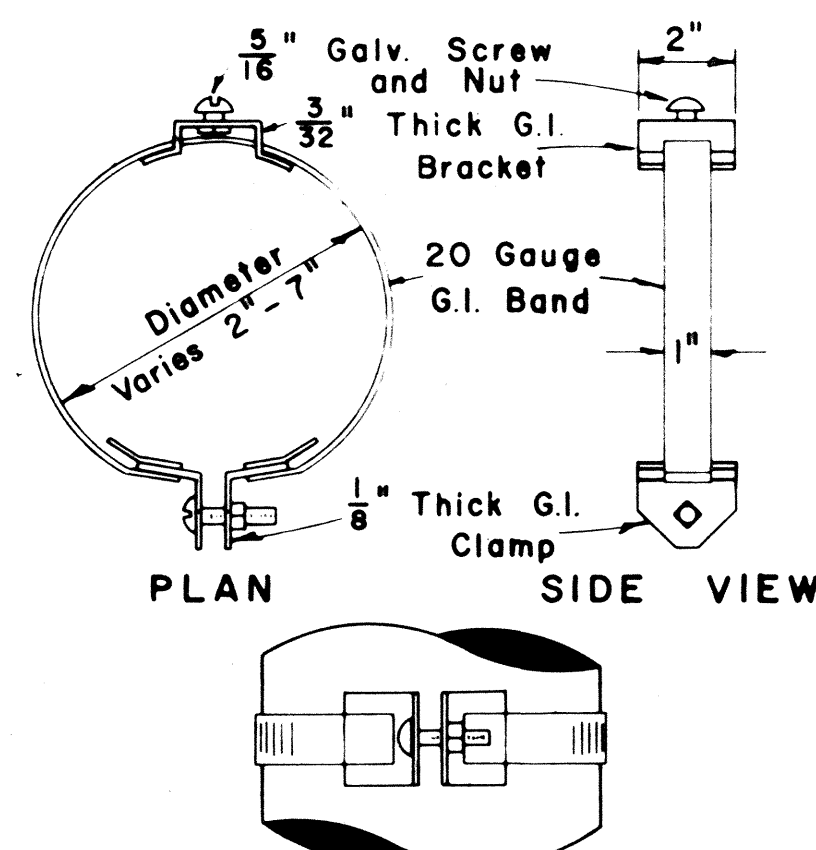
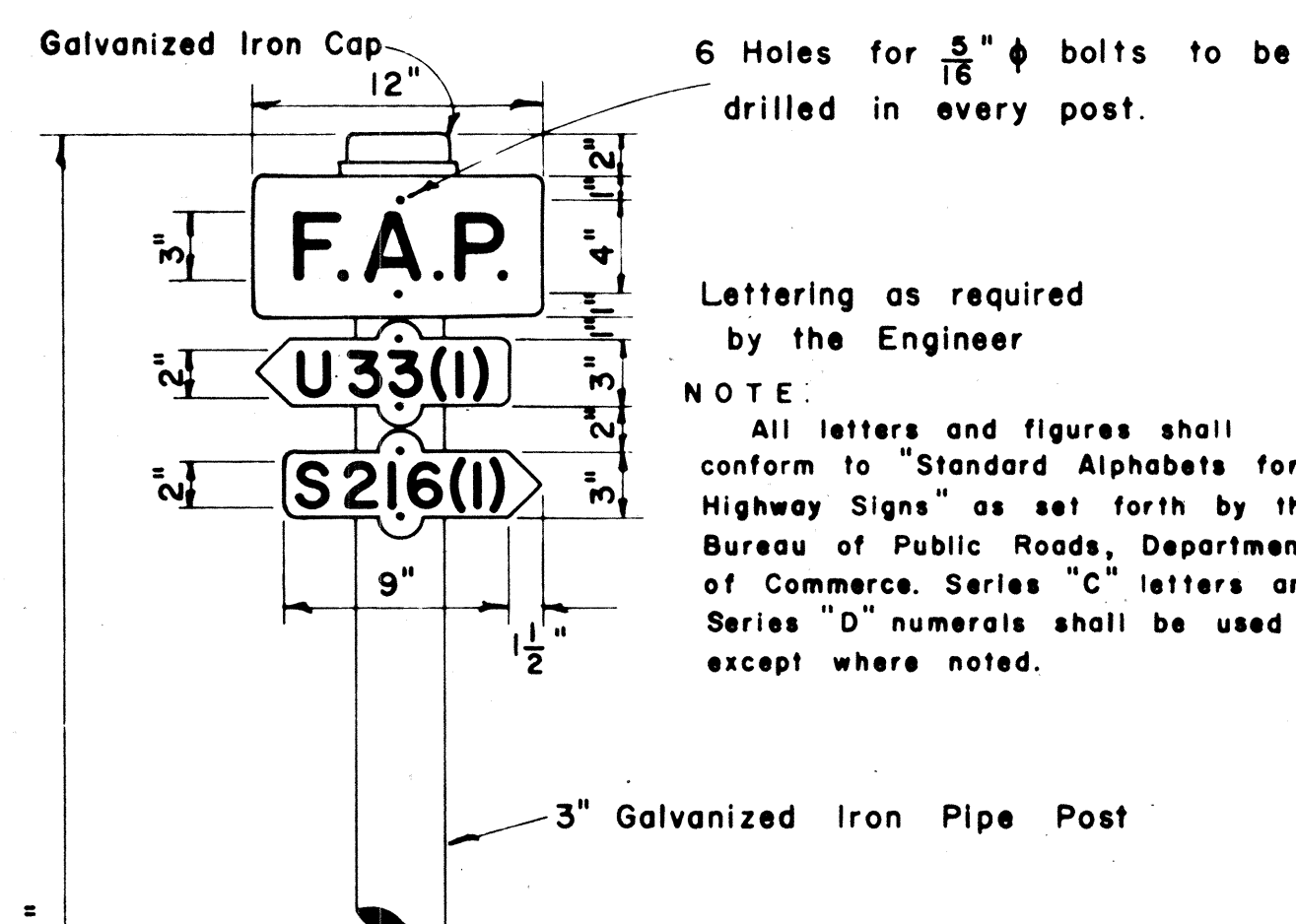


| FED. ROAD DIST. NO. | STATE | FED. AID PROJ. NO. | FISCAL YEAR | SHEET NO. | TOTAL SHEETS |
|---------------------|-------|--------------------|-------------|-----------|--------------|
| HAWAII              | HAW.  | 5-0480(1) UNIT 2   | 1965        | 10        | 15           |

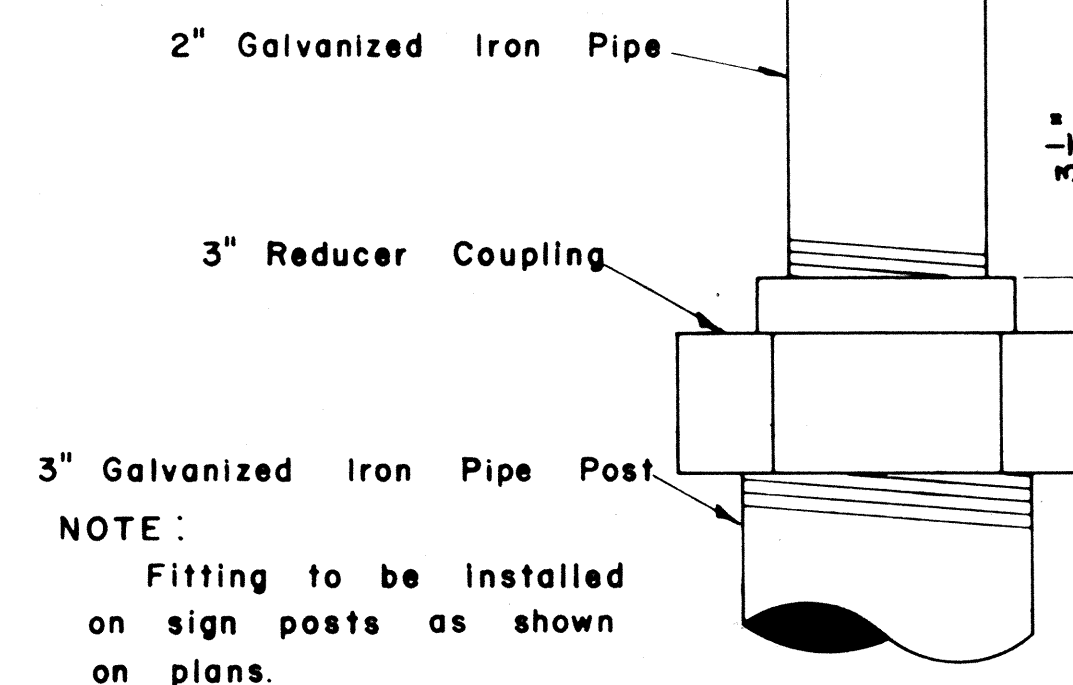


## HEIGHT AND LATERAL LOCATION OF SIGNS - TYPICAL INSTALLATIONS

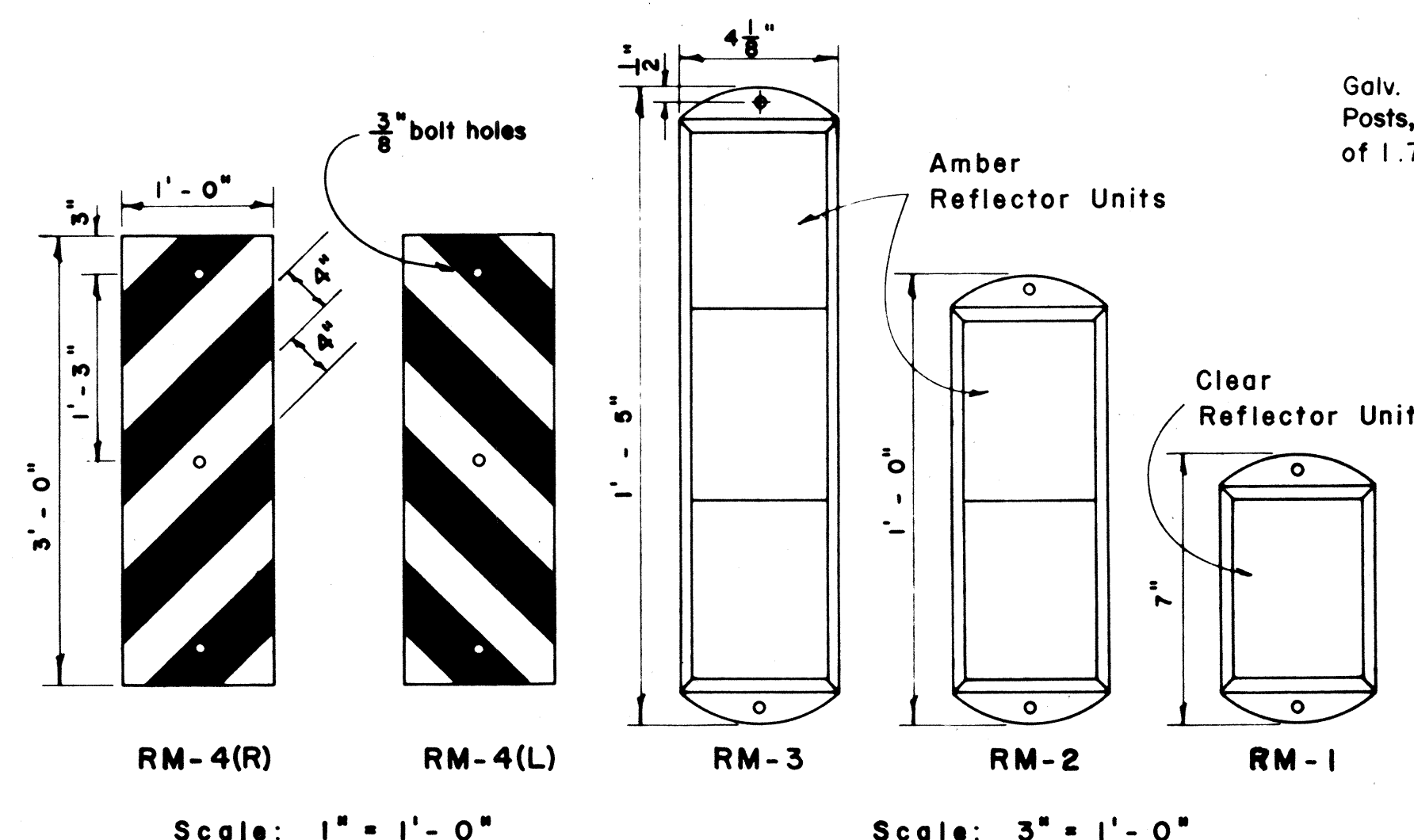
Scale: 1/2" = 1' - 0"



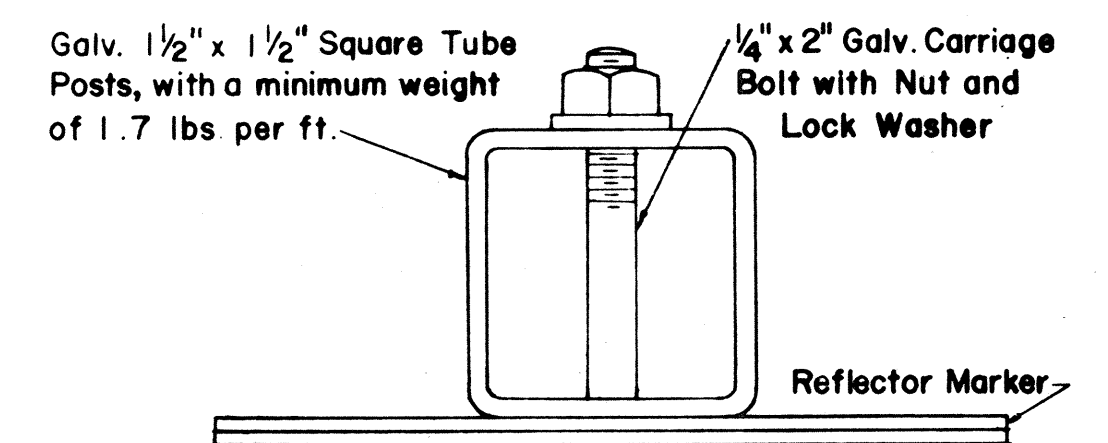
**TYPICAL BAND BRACKET FOR MOUNTING TRAFFIC SIGNS**  
Scale: 3" = 1' - 0"



**DETAIL OF SIGN POST FITTING FOR CITY & COUNTY STREET NAME SIGNS**  
Scale: 1/2" = 1'

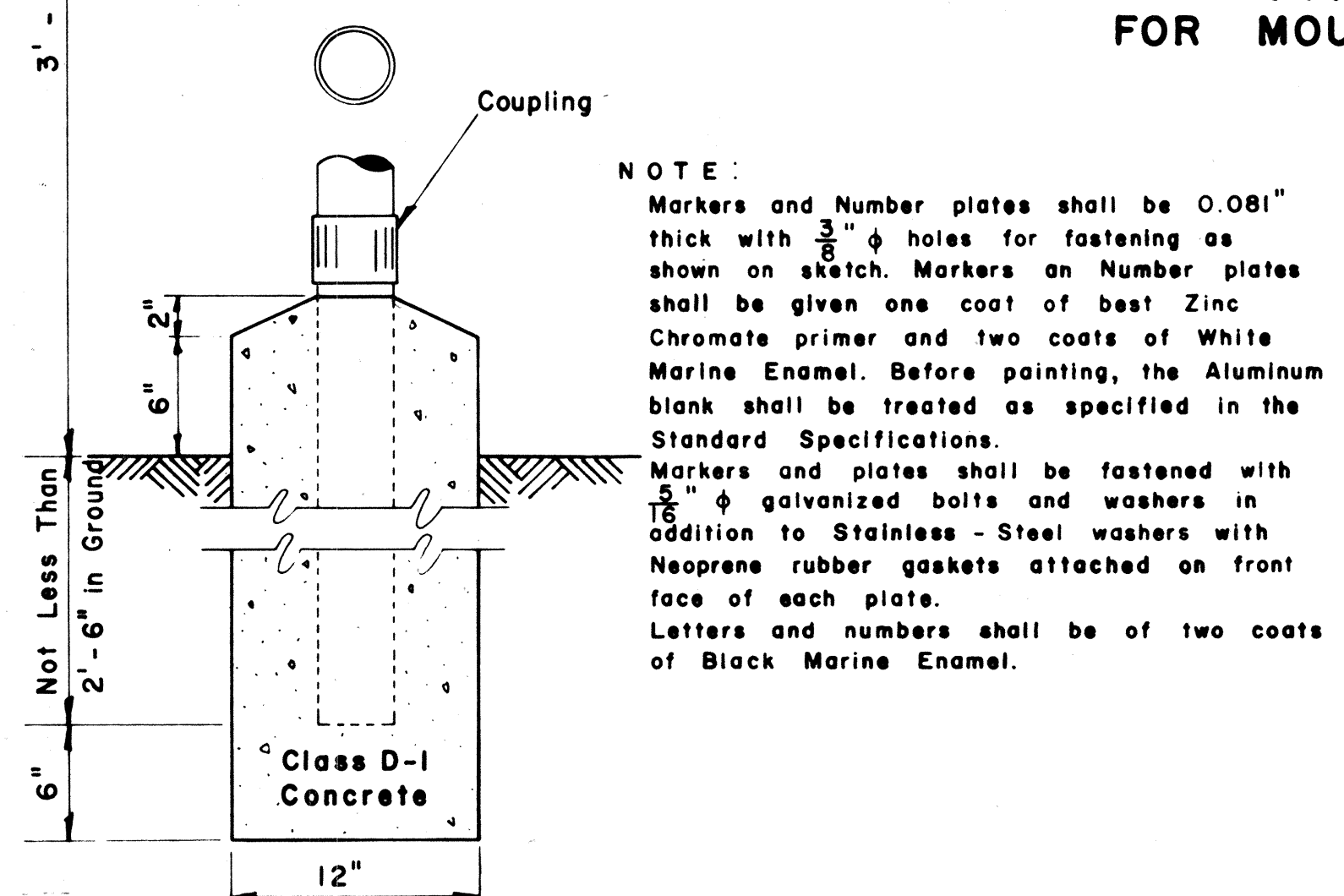


**REFLECTOR MARKERS**  
Scale: As Shown

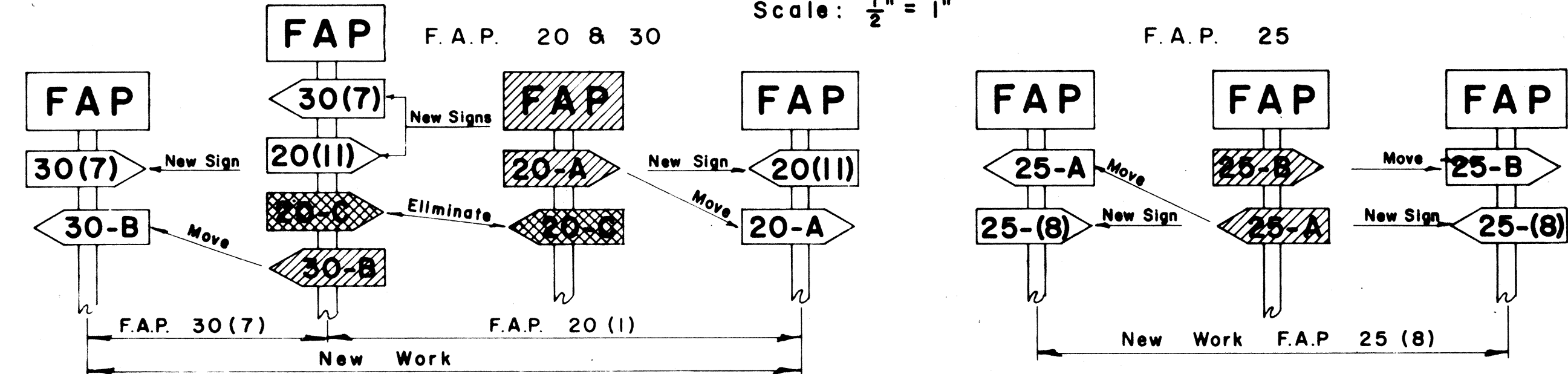


**TYPICAL SECTION OF ROAD DELINEATOR**  
Full Size

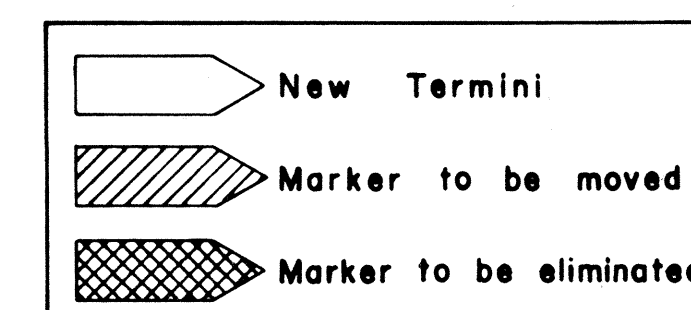
NOTE: Reflector Markers RM-1,2,3 shall be glass sphere reflector markers with 4" x 5" reflector units (as shown) or plastic prismatic reflector markers with 3" diameter reflector units.



**FEDERAL AID MARKER**  
Scale: 1/2" = 1' - 0"



**METHOD OF MARKING F.A. PROJECTS AT OVERLAPS**  
(USING NUMBER SUFFIX ON NEW WORK)



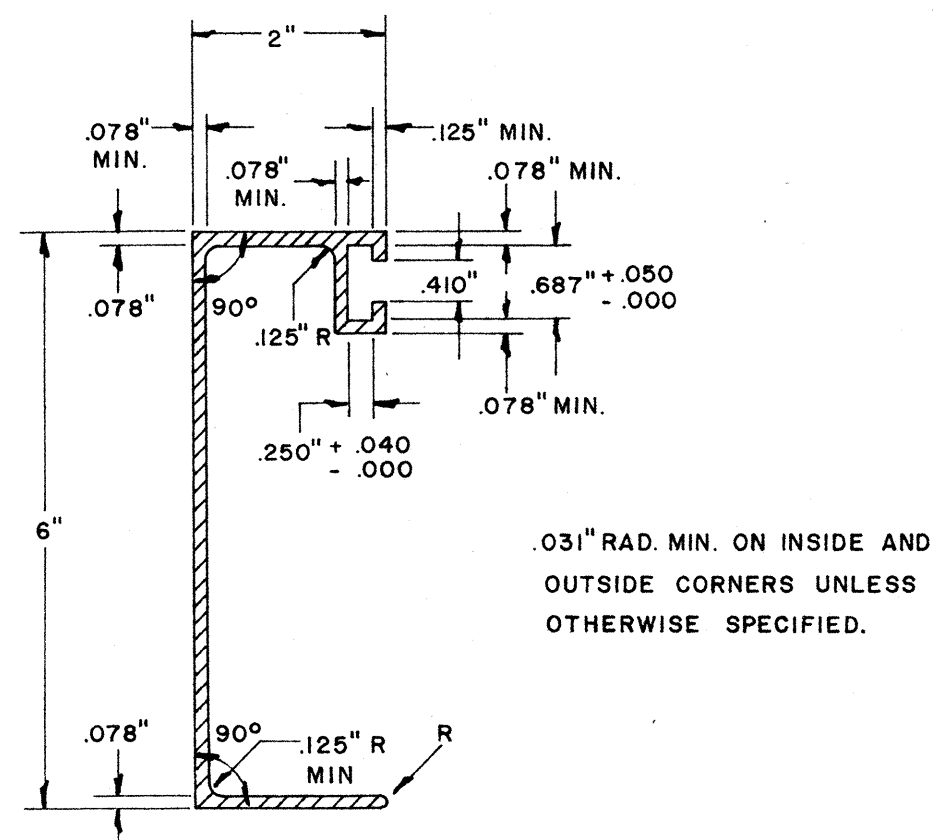
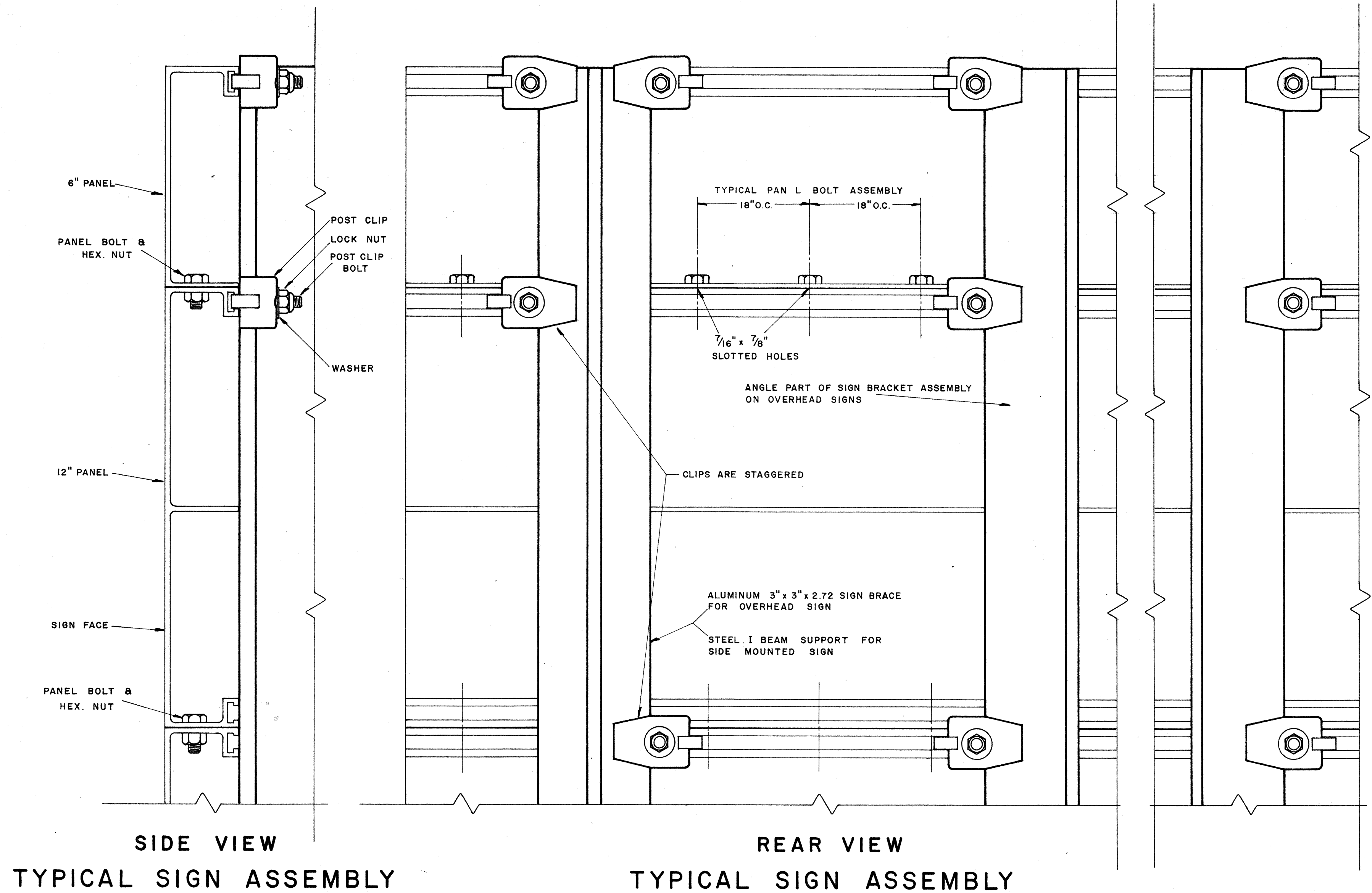
APPROVED: *[Signature]* DATE: 11/1/64  
DIRECTOR OF TRANSPORTATION

DECEMBER 8, 1964  
REVISED: FEBRUARY 25, 1964

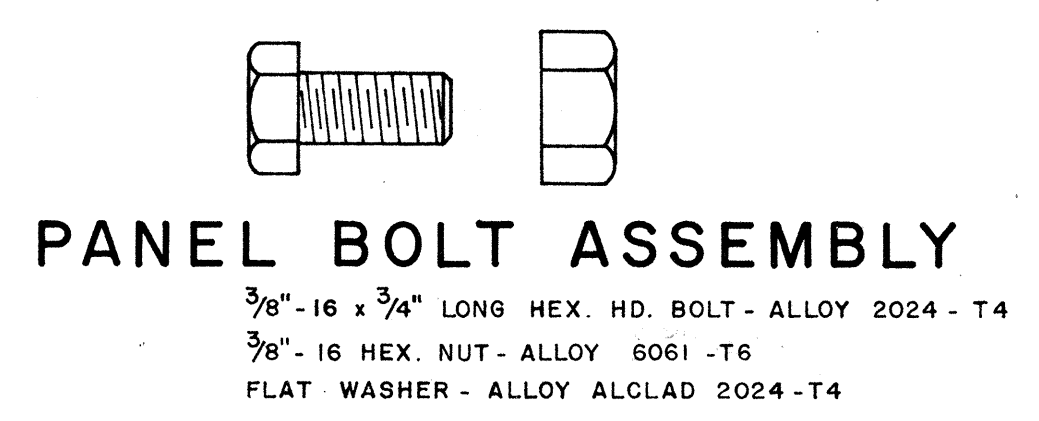
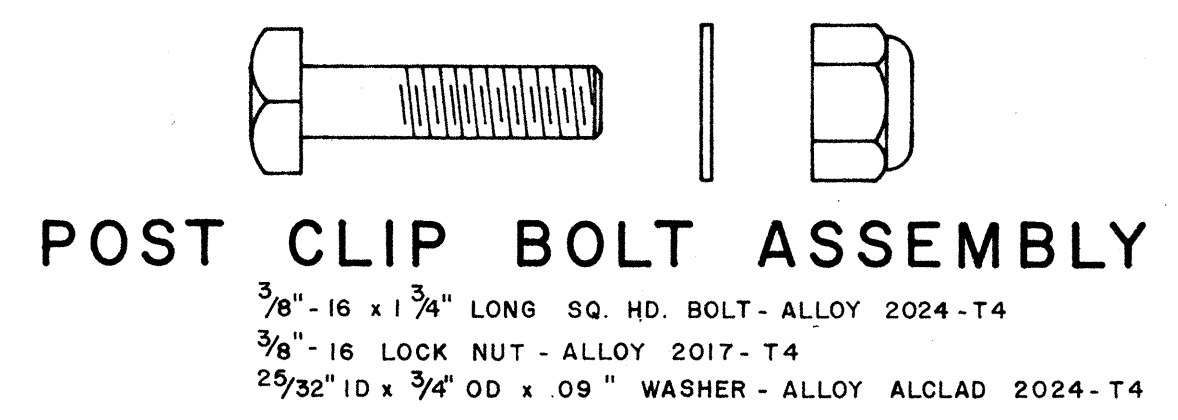
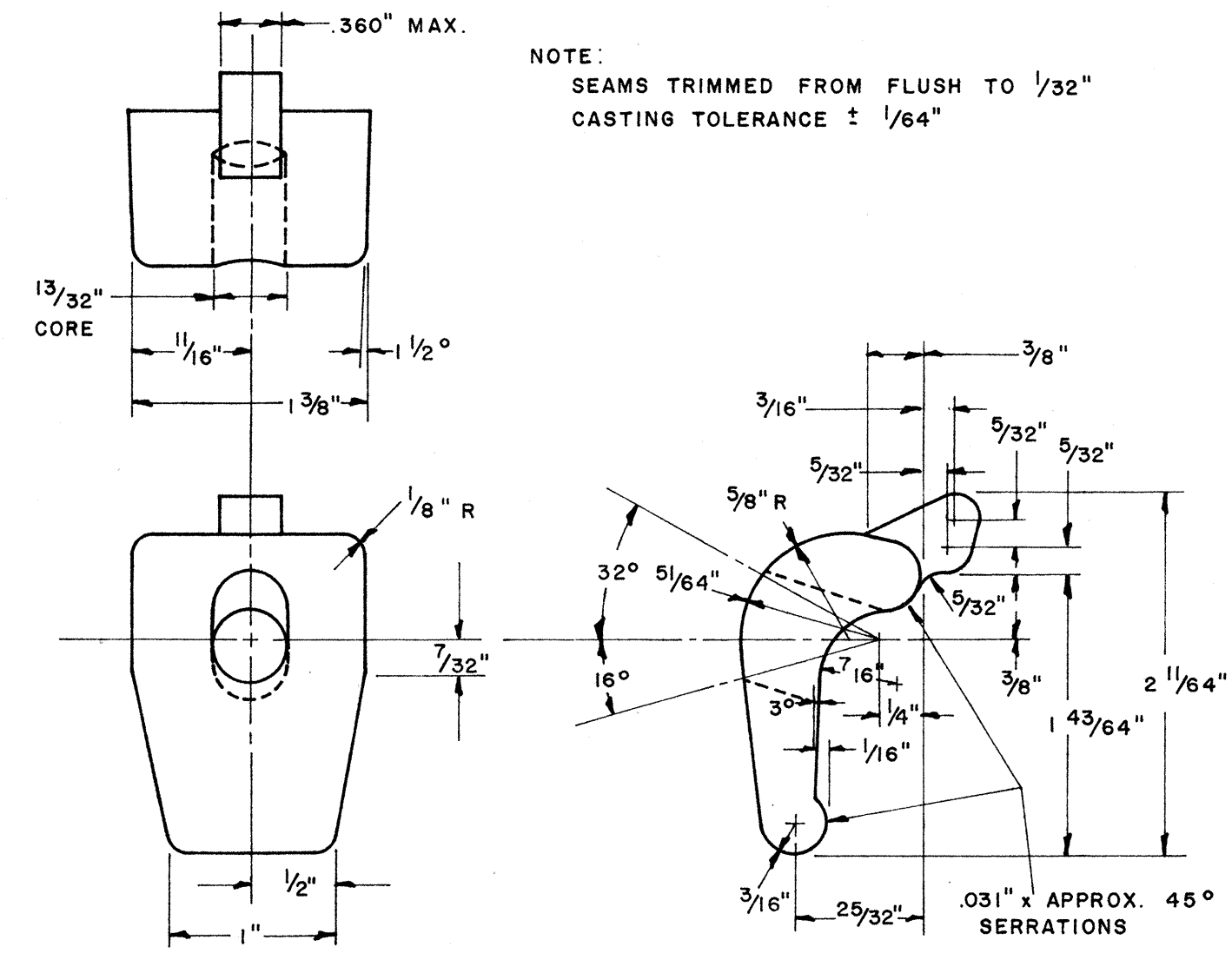
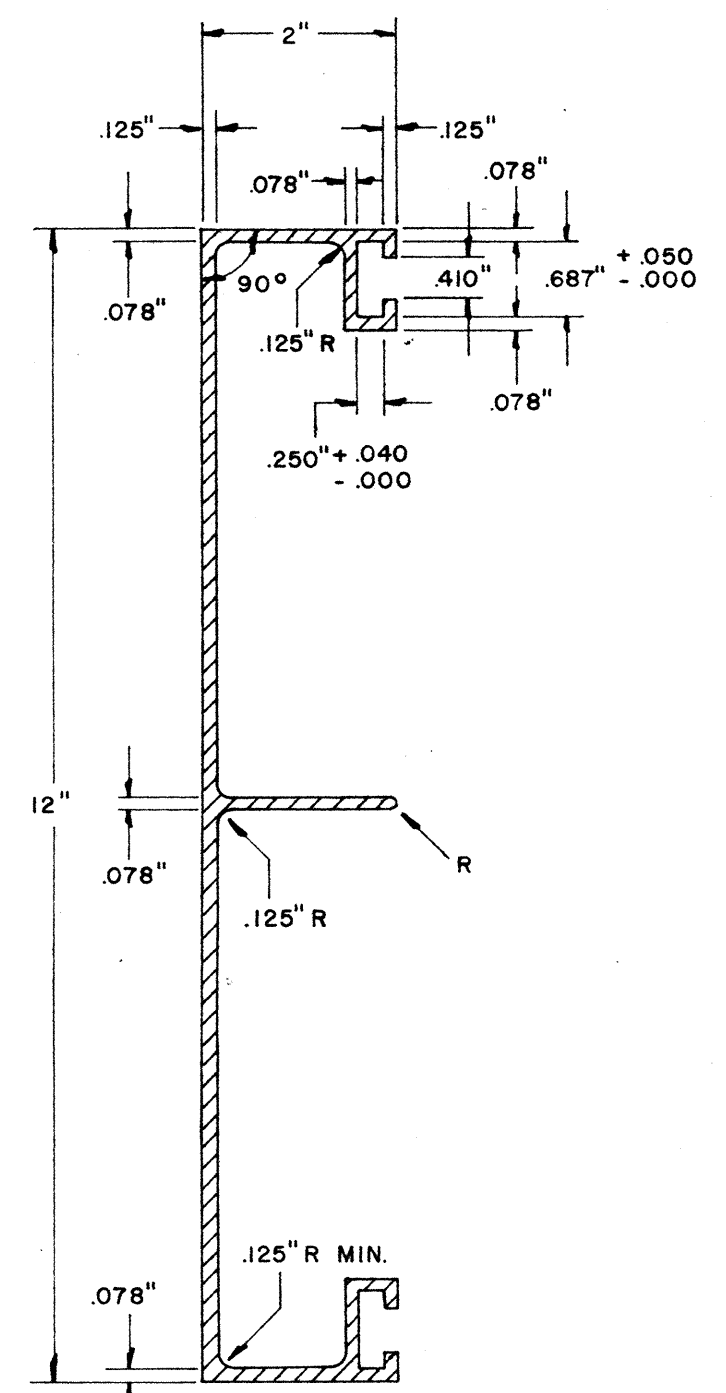
STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION  
**STANDARD DETAILS**  
F.A. MARKER  
AND  
MISCELLANEOUS SIGN  
DETAILS  
Scale: As Shown

SHEET No. 10 OF 15 SHEETS

| FED. ROAD DIST. NO. | STATE | FED. AID PROJ. NO. | FISCAL YEAR | SHEET NO. | TOTAL SHEETS |
|---------------------|-------|--------------------|-------------|-----------|--------------|
| HAWAII              | HAW.  | 50480(1)           | 1965        | 11        | 15           |



SOLID EXTRUDED SIGN  
PANEL DETAILS



**NOTE:**  
Extruded Aluminum Panels shall be used for Destination and Expressway Signs.

STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
**STANDARD DETAILS**  
SOLID ALUMINUM  
EXTRUDED SIGN PANEL  
AND  
ACCESSORY DETAILS  
SCALE: