

| FED. ROAD DIST. NO. | STATE | FED. AID PROJ. NO. | FISCAL YEAR | SHEET NO. | TOTAL SHEETS |
|---------------------|-------|--------------------|-------------|-----------|--------------|
| HAWAII              | HAW.  | I-HI-1(108)        | 1975        | 40        | 100          |

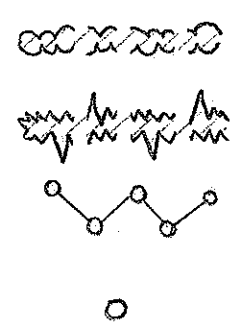
GENERAL NOTES: SIGNING AND PAVEMENT MARKING

- The Contractor shall verify the locations and dimensions of the existing equipments and facilities.
- Unless noted otherwise, see Detail Plan of Roadway for all roadway improvements and dimensions.
- The Engineer shall determine whether or not existing signs not shown on the plans are to be incorporated in the completed project. Unless noted otherwise, all existing signs shown on the plans are to remain in place.
- See sht. 17 for details of pavement marking at Ramp Terminals.
- The Contractor shall replace all defective and missing pavement markers for all lane lines through the length of the project; see Std. Detail Sht. DT 300 for spacing layout of raised pavement markers.
- Refer to respective Standard Detail sheets for all data pertaining to Standard Regulatory and Warning signs.
- See Standard Detail Sheet, DT 400 for the footing detail of the relocated flashing signal on Sheet 21.
- All new and relocated signs and markers installed on pipe post, light standard or Expressway sign post are to be mounted with band brackets or with band brackets and steel braces. See sheets 15 & 16 for details.
- Exact location of traffic signs shall be approved by the Engineer.
- The contractor shall remove all traffic striping, pavement markings and pavement markers not incorporated into the proposed traffic pattern.
- Pavement markings shall conform to the "Manual on Uniform Traffic Control Devices For Streets & Highways", 1971, and as shown on the plans.
- Pavement markings shall be done by the Contractor. Exact locations to be approved by the Engineer.
- During the reconstruction of Ramp "C" at Palailai Interchange, the Contractor shall maintain existing Gore and Exit Direction signs at the ramp until the closure of the ramp; the Contractor shall cover signs D-3 and D-4 with polyethylene sheeting until the opening of Ramp "C"; the cost of covering the signs shall be incidental to the various contract items.

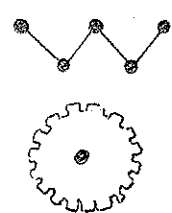
GENERAL NOTES: LANDSCAPING

- All existing shrubs and trees not shown on the plans are to remain in place with the exception that the removal of plants are necessitated by installation of new facilities.
- Contractor to check and verify all dimensions and conditions on the project site prior to construction.
- Prior to excavation, all shrub and tree planting locations shall be staked-out by the contractor for approval by the Engineer.

LEGEND: LANDSCAPING

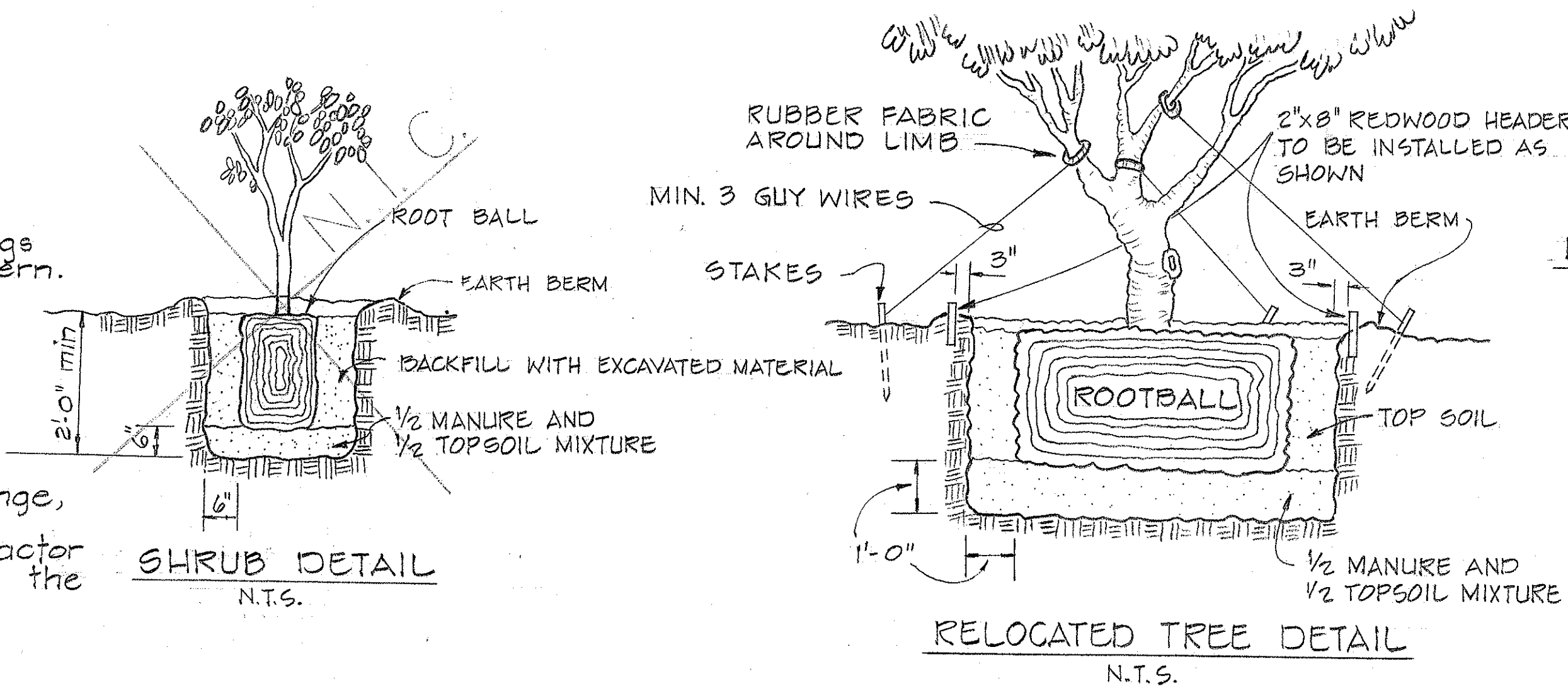


Existing trees and hedges to be relocated or to be removed.



New or relocated trees with species and number as indicated on the plan.

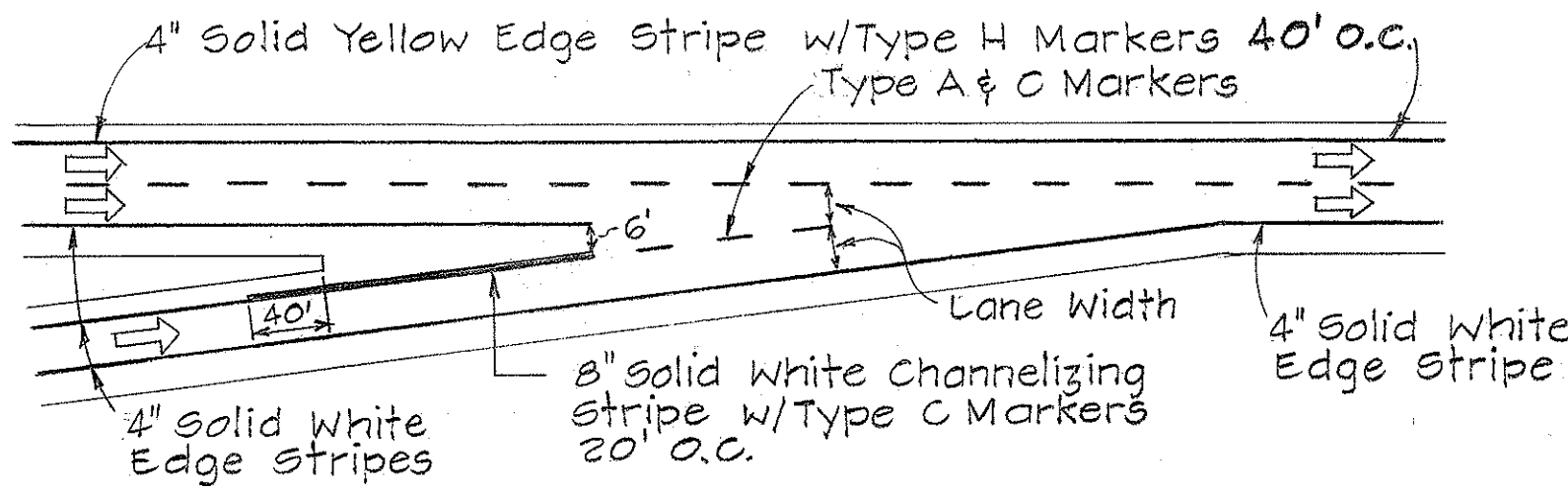
Erosion control planting



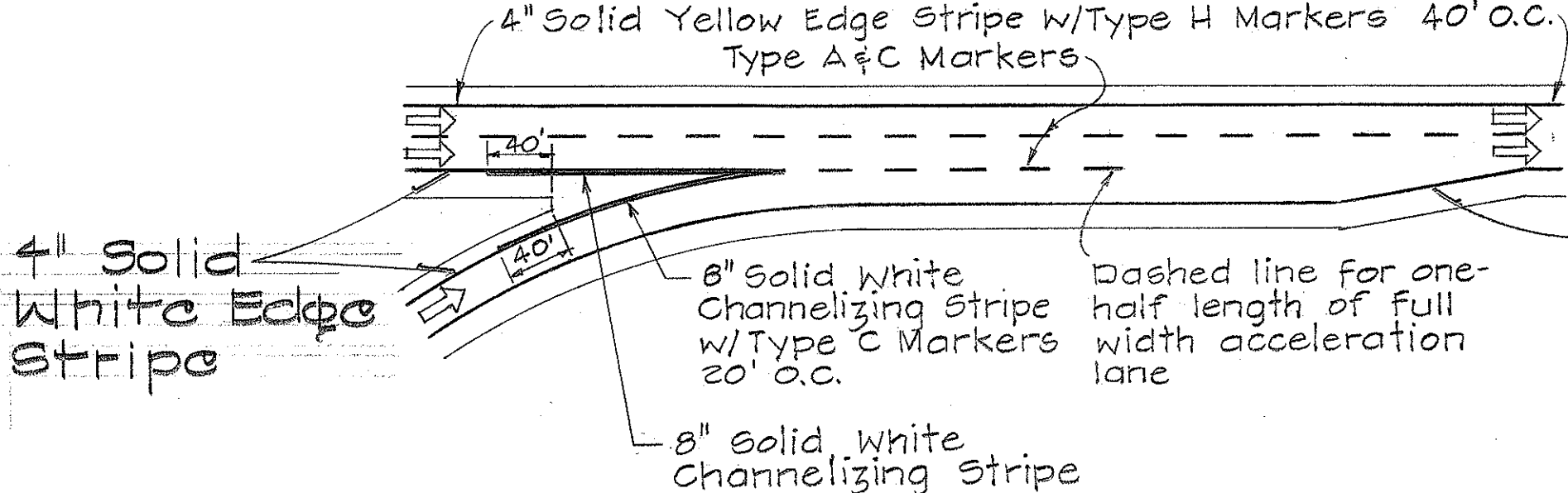
LEGEND: PAVEMENT MARKING AND REFLECTOR MARKERS

- RM-1 Reflector Marker
- RM-2 Reflector Marker Mounted on Concrete Barrier
- RM-2 Reflector Marker
- 4" Solid White Edge Stripe
- Type A and C Raised Pavement Markers
- 4" Solid Yellow Edge Stripe w/Type H Markers 40' O.C.
- 8" Solid White Channelizing Stripe w/Type C Markers 20' O.C. or as noted on the plan.
- 4" White Guide Line
- Pavement Arrow

A. TAPERED ACCELERATION LANE

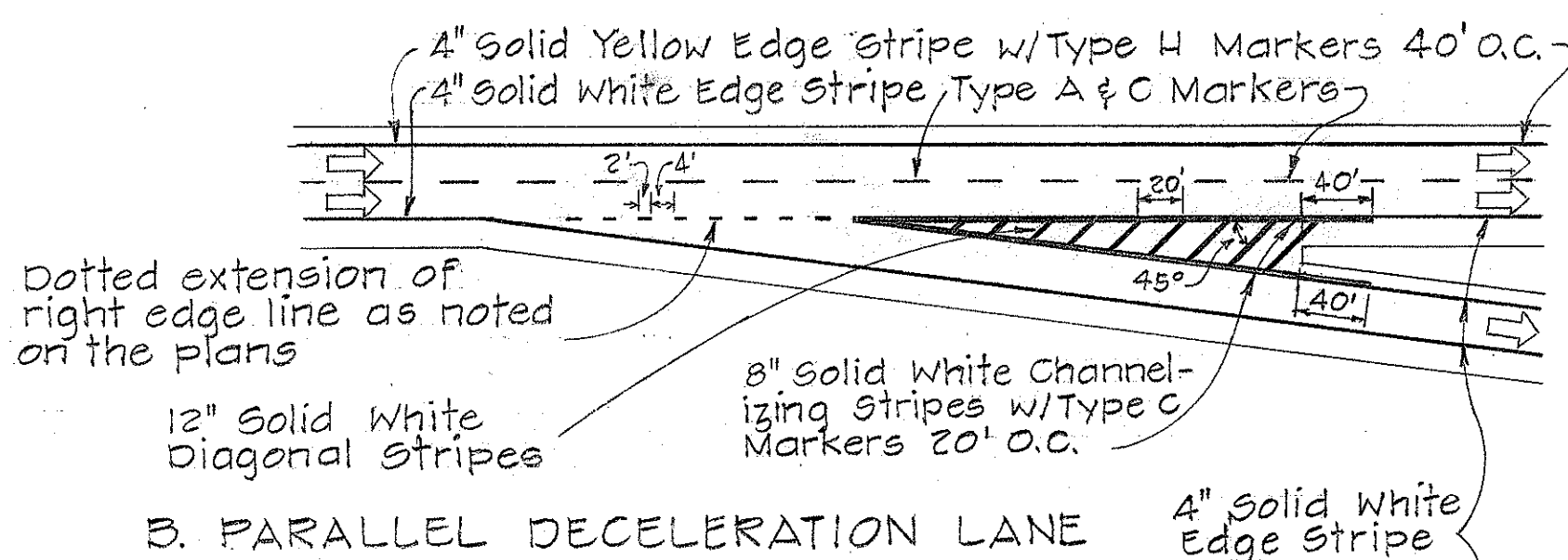


B. PARALLEL ACCELERATION LANE

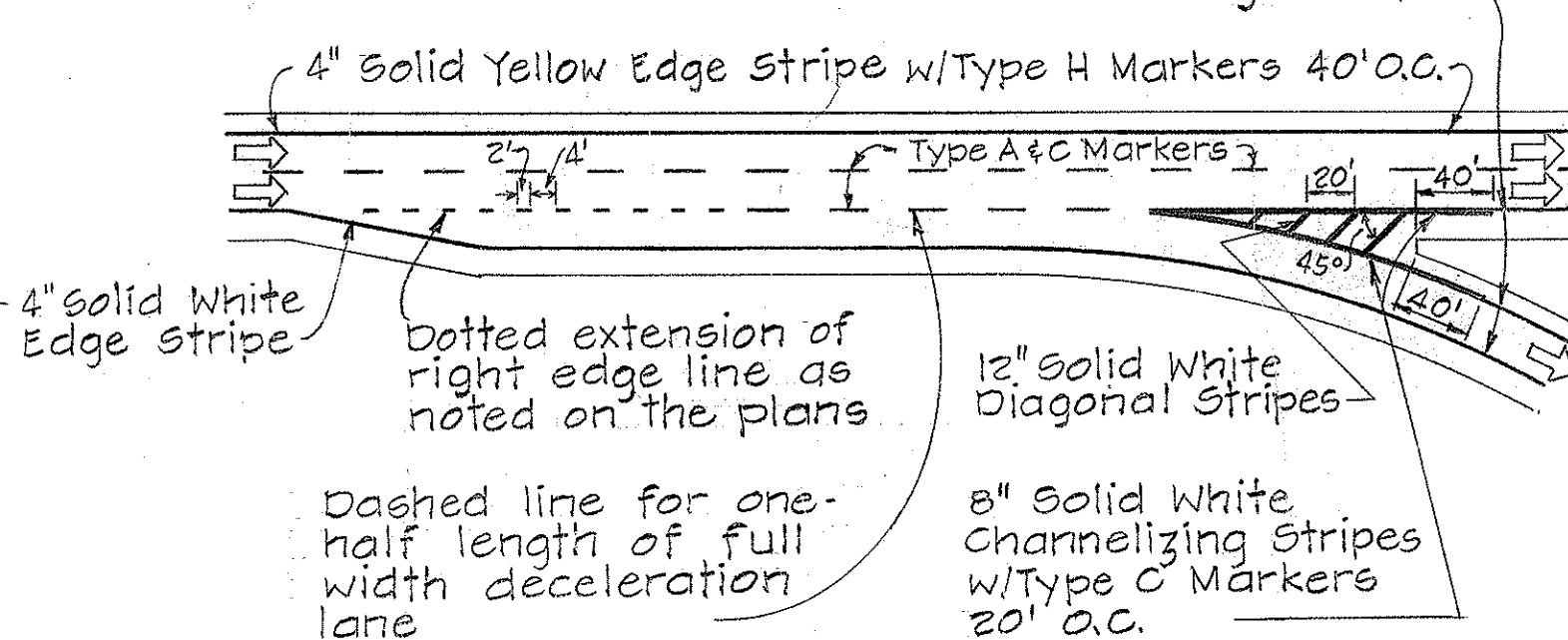


TYPICAL ENTRANCE RAMP MARKINGS  
N.T.S.

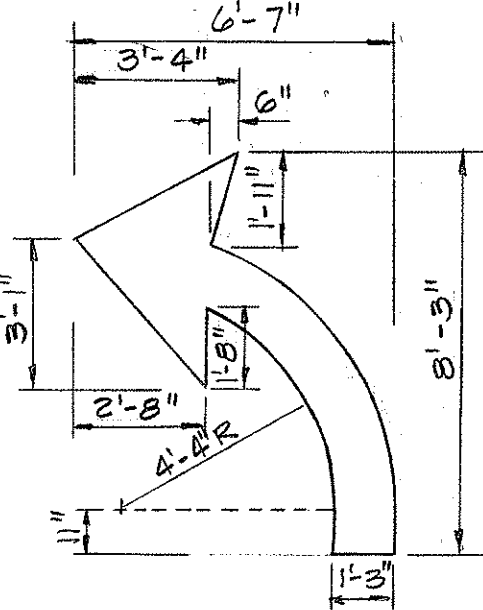
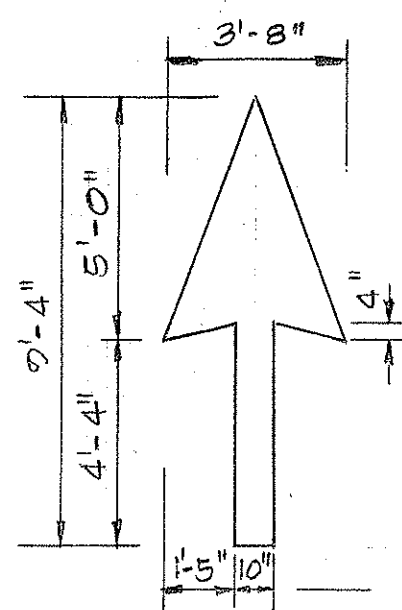
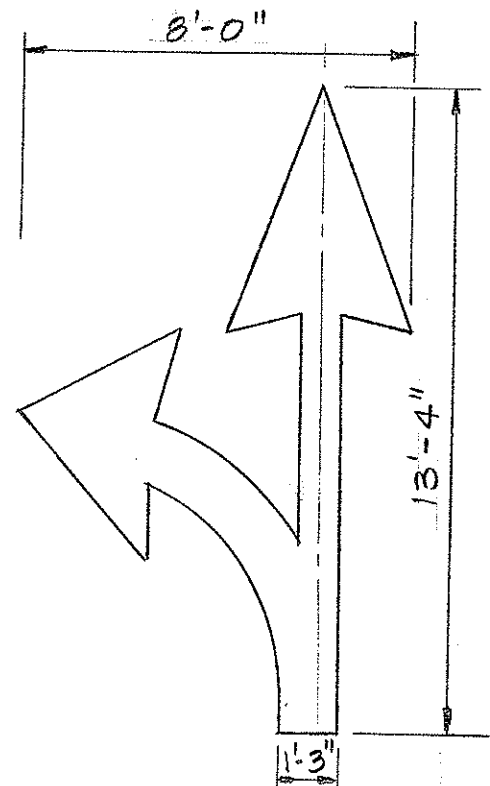
A. TAPERED DECELERATION LANE



B. PARALLEL DECELERATION LANE



TYPICAL EXIT RAMP MARKINGS  
N.T.S.



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

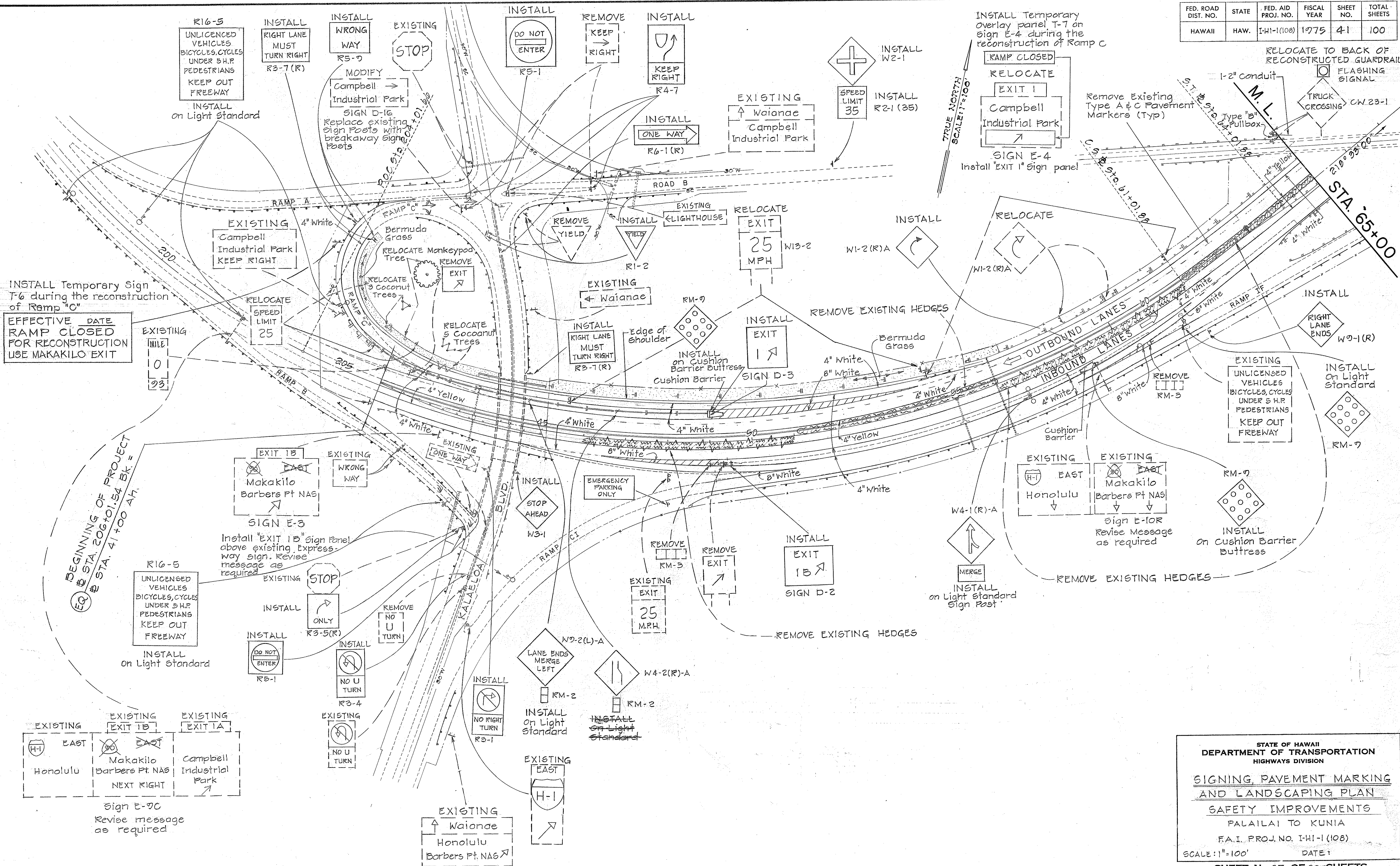
STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

SIGNING, PAVEMENT MARKING  
AND LANDSCAPING PLAN  
SAFETY IMPROVEMENTS  
PALAILAI TO KUNIA  
F.A.I. PROJ. NO. I-HI-1(108)  
DATE:  
SHEET No. 17 OF 33 SHEETS

|           |             |            |
|-----------|-------------|------------|
| DATE      | DESIGNED BY | CHECKED BY |
| PLAN      | DESIGNED BY | CHECKED BY |
| NOTE BOOK | DESIGNED BY | CHECKED BY |
| NO.       | DESIGNED BY | CHECKED BY |



| FED. ROAD DIST. NO. | STATE | FED. AID PROJ. NO. | FISCAL YEAR | SHEET NO. | TOTAL SHEETS |
|---------------------|-------|--------------------|-------------|-----------|--------------|
| HAWAII              | HAW.  | I-41-1(108)        | 1975        | 41        | 100          |



STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

**SIGNING, PAVEMENT MARKING  
AND LANDSCAPING PLAN**

**SAFETY IMPROVEMENTS**

PALAILAI TO KUNIA

F.A.I. PROJ. NO. I-41-1(108)

SCALE: 1"=100' DATE:

**SHEET No. 21 OF 33 SHEETS**

|                   |       |
|-------------------|-------|
| DATE              | _____ |
| SURVEY PLOTTED BY | _____ |
| ORIGINAL PLAN     | _____ |
| TRACED BY         | _____ |
| DESIGNED BY       | _____ |
| CHECKED BY        | _____ |
| NOTE BOOK         | _____ |
| No.               | _____ |



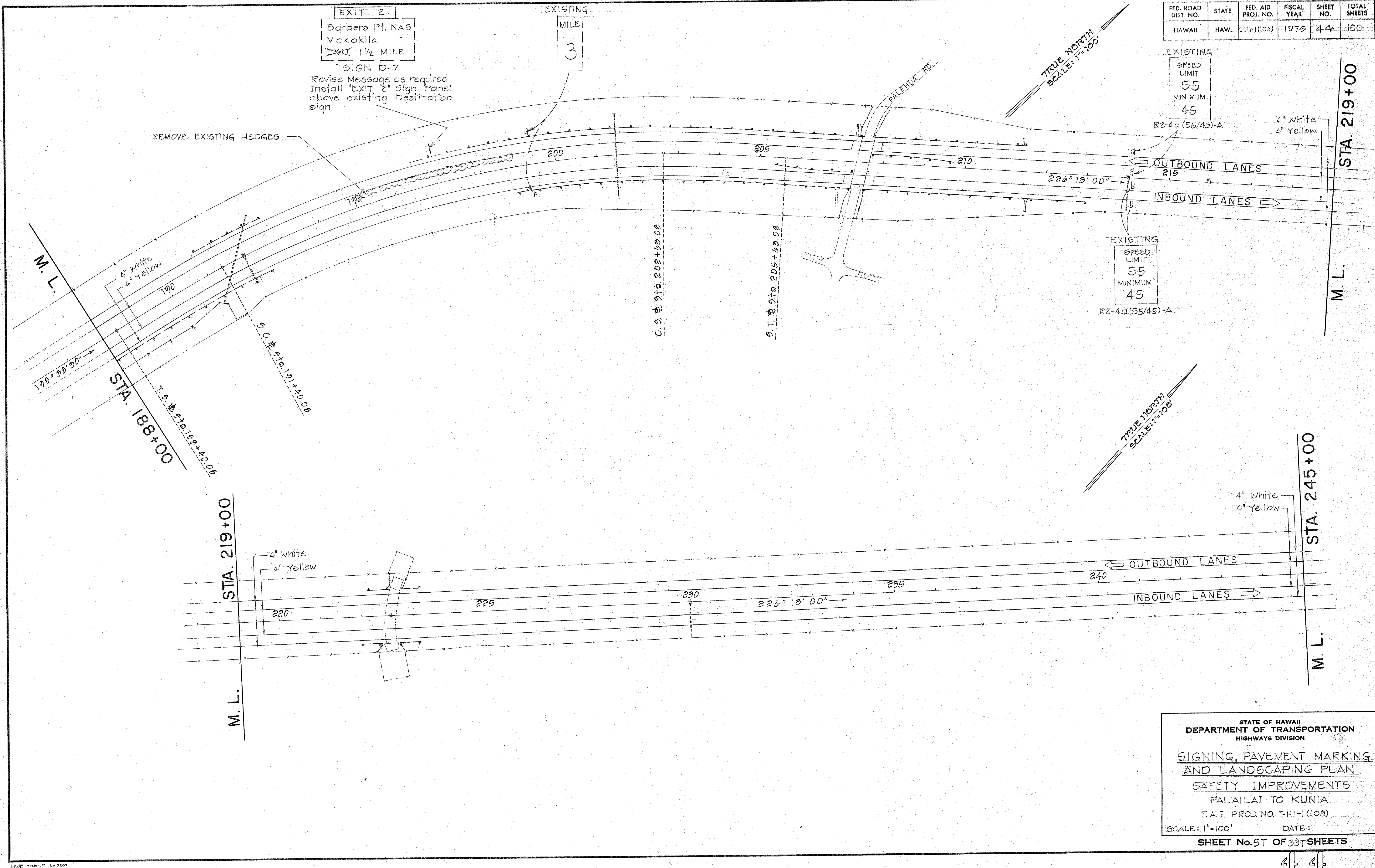








| FED. ROAD DIST. NO. | STATE | FED. AID PROJ. NO. | FISCAL YEAR | SHEET NO. | TOTAL SHEETS |
|---------------------|-------|--------------------|-------------|-----------|--------------|
| HAWAII              | HAW.  | I-HI-1(108)        | 1975        | 44        | 100          |



|             |      |
|-------------|------|
| DESIGNED BY | DATE |
| DRAWN BY    |      |
| CHECKED BY  |      |
| NOTED BY    |      |
| DATE        |      |

STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

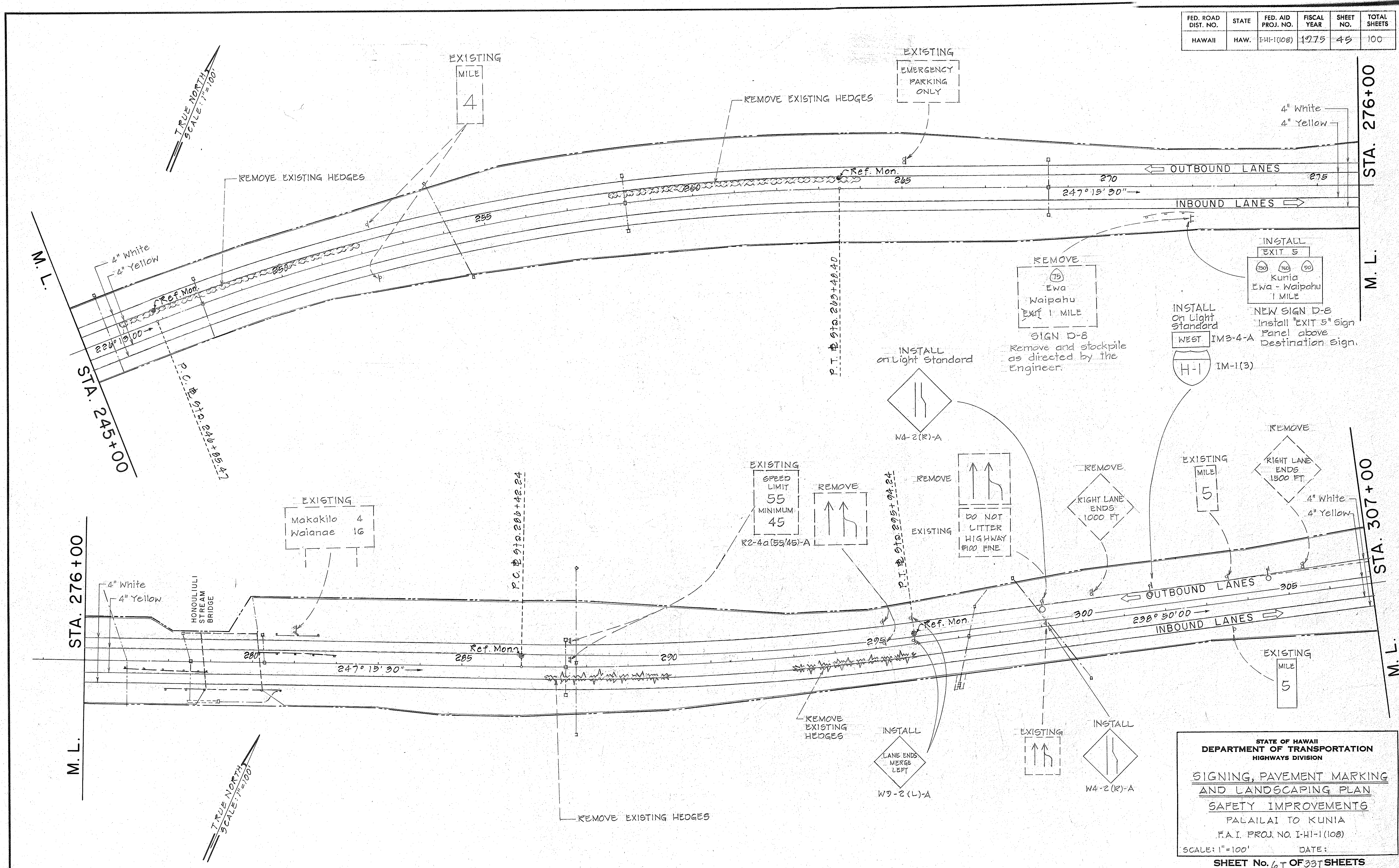
SIGNING, PAVEMENT MARKING  
AND LANDSCAPING PLAN  
SAFETY IMPROVEMENTS  
PALAILAI TO KUNIA  
F.A.I. PROJ. NO. I-HI-1(108)  
SCALE: 1"=100'      DATE:

SHEET No. 51 OF 33 SHEETS



| FED. ROAD DIST. NO. | STATE | FED. AID PROJ. NO. | FISCAL YEAR | SHEET NO. | TOTAL SHEETS |
|---------------------|-------|--------------------|-------------|-----------|--------------|
| HAWAII              | HAW.  | IHI-1(108)         | 1975        | 45        | 100          |

|               |      |
|---------------|------|
| ORIGINAL PLAN | DATE |
| DESIGNED BY   |      |
| NOTED BY      |      |
| CHECKED BY    |      |
| NO.           |      |



STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

**SIGNING, PAVEMENT MARKING  
AND LANDSCAPING PLAN**

**SAFETY IMPROVEMENTS**

PALAILAI TO KUNIA

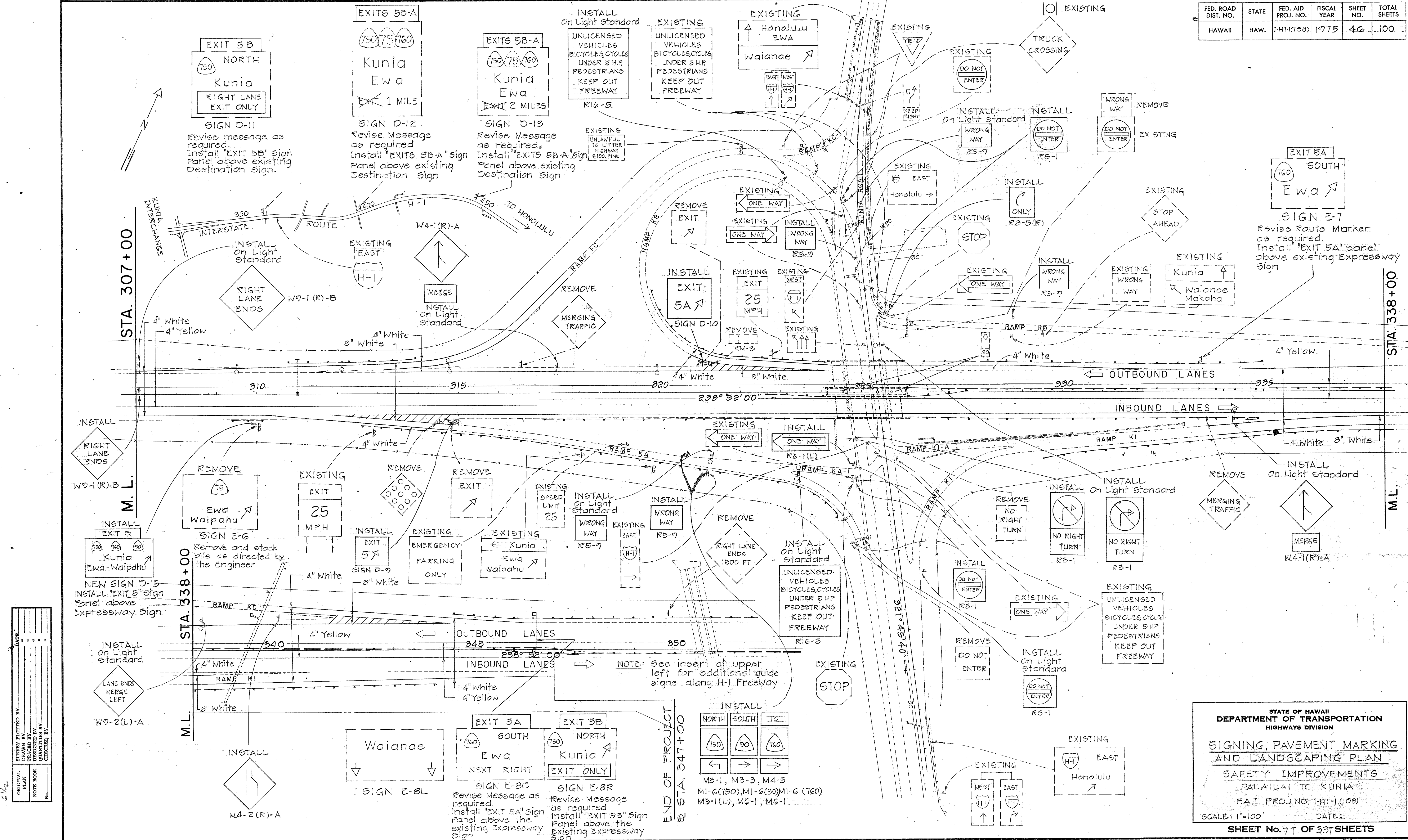
F.A.I. PROJ. NO. IHI-1(108)

SCALE: 1"=100' DATE:

**SHEET No. 6 OF 33 SHEETS**



| FED. ROAD DIST. NO. | STATE | FED. AID PROJ. NO. | FISCAL YEAR | SHEET NO. | TOTAL SHEETS |
|---------------------|-------|--------------------|-------------|-----------|--------------|
| HAWAII              | HAW.  | I-H-1(108)         | 1975        | 46        | 100          |



STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

**SIGNING, PAVEMENT MARKING  
AND LANDSCAPING PLAN**

**SAFETY IMPROVEMENTS**  
PALAILAI TO KUNIA  
F.A.I. PROJ. NO. I-H-1(108)

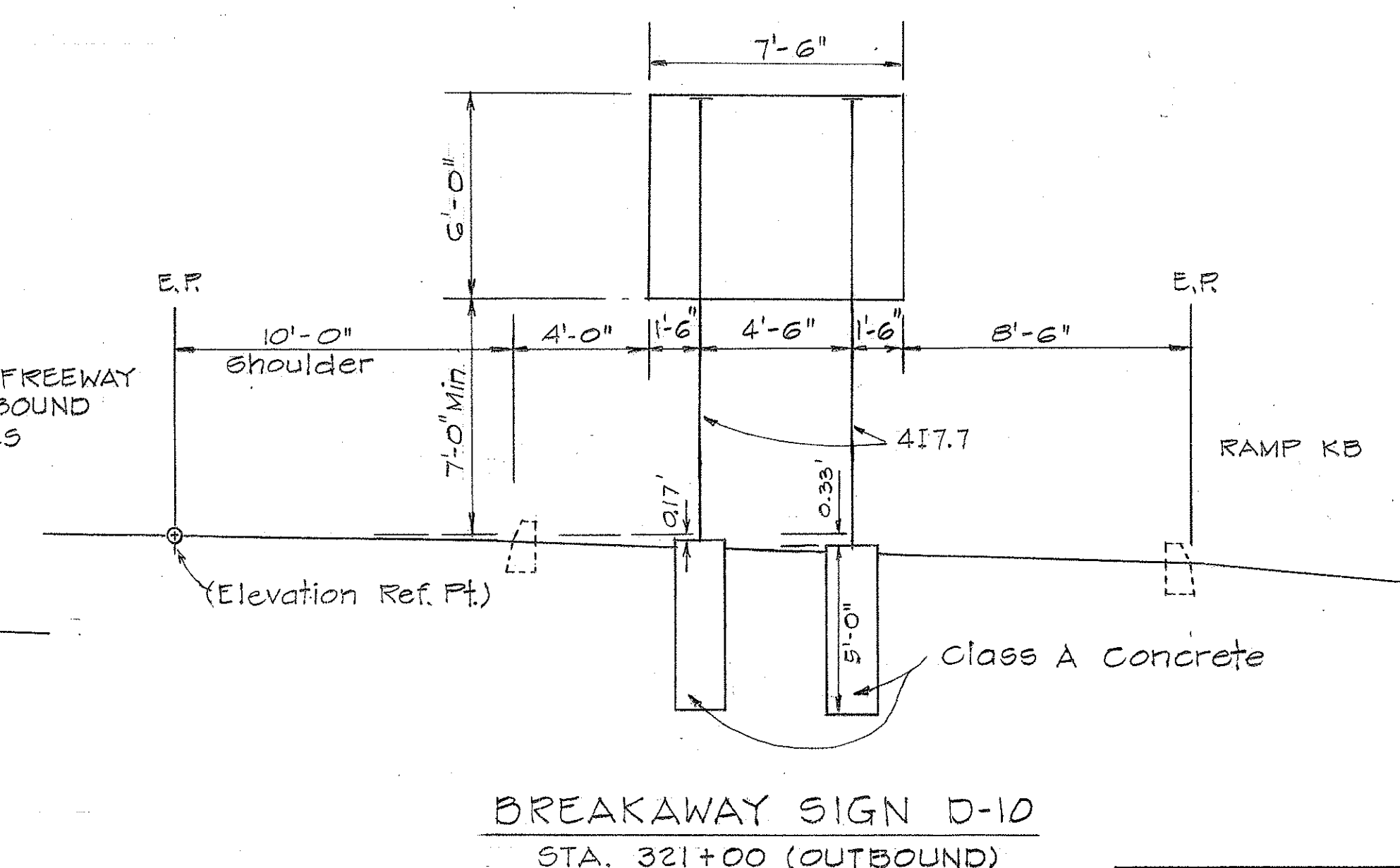
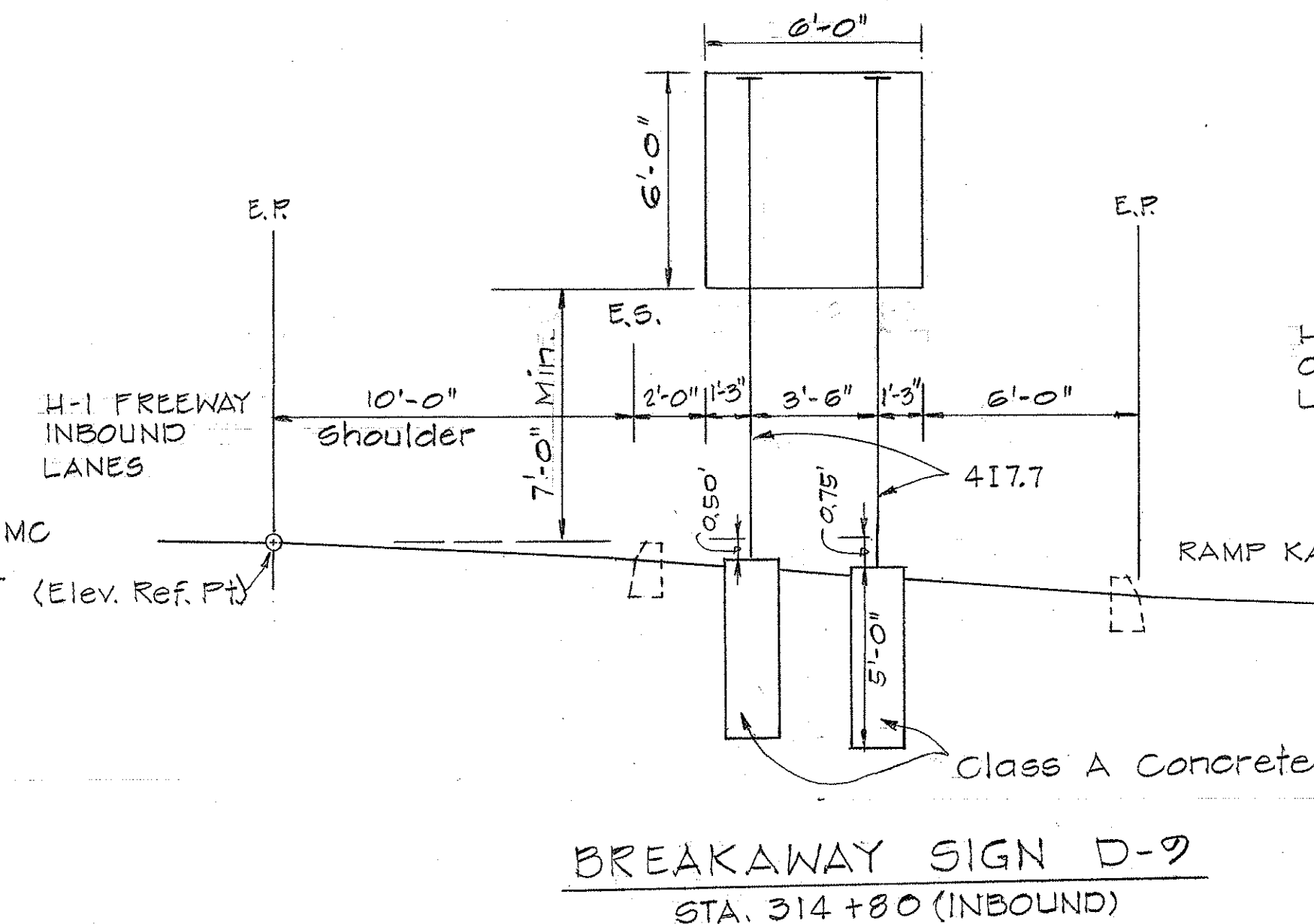
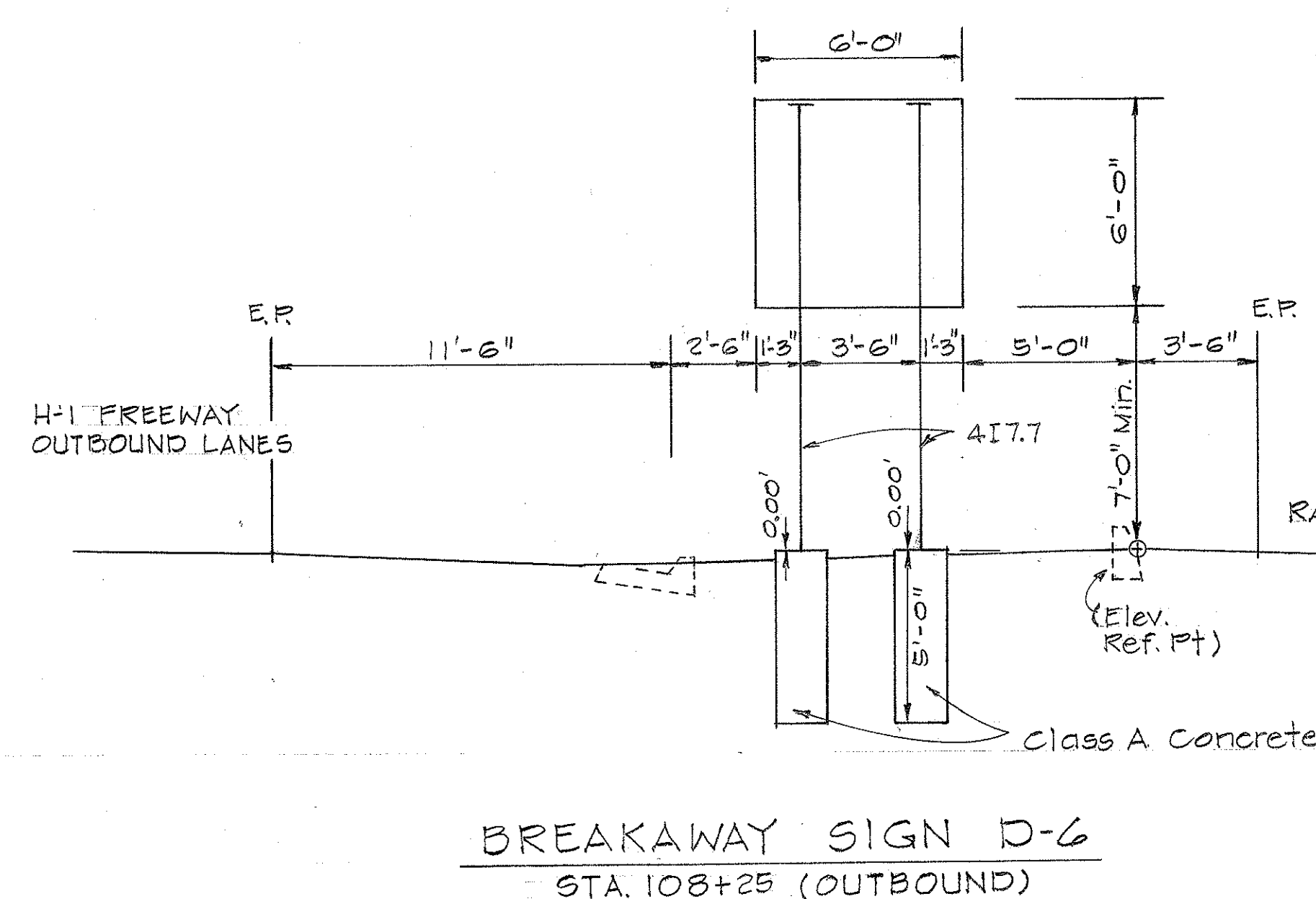
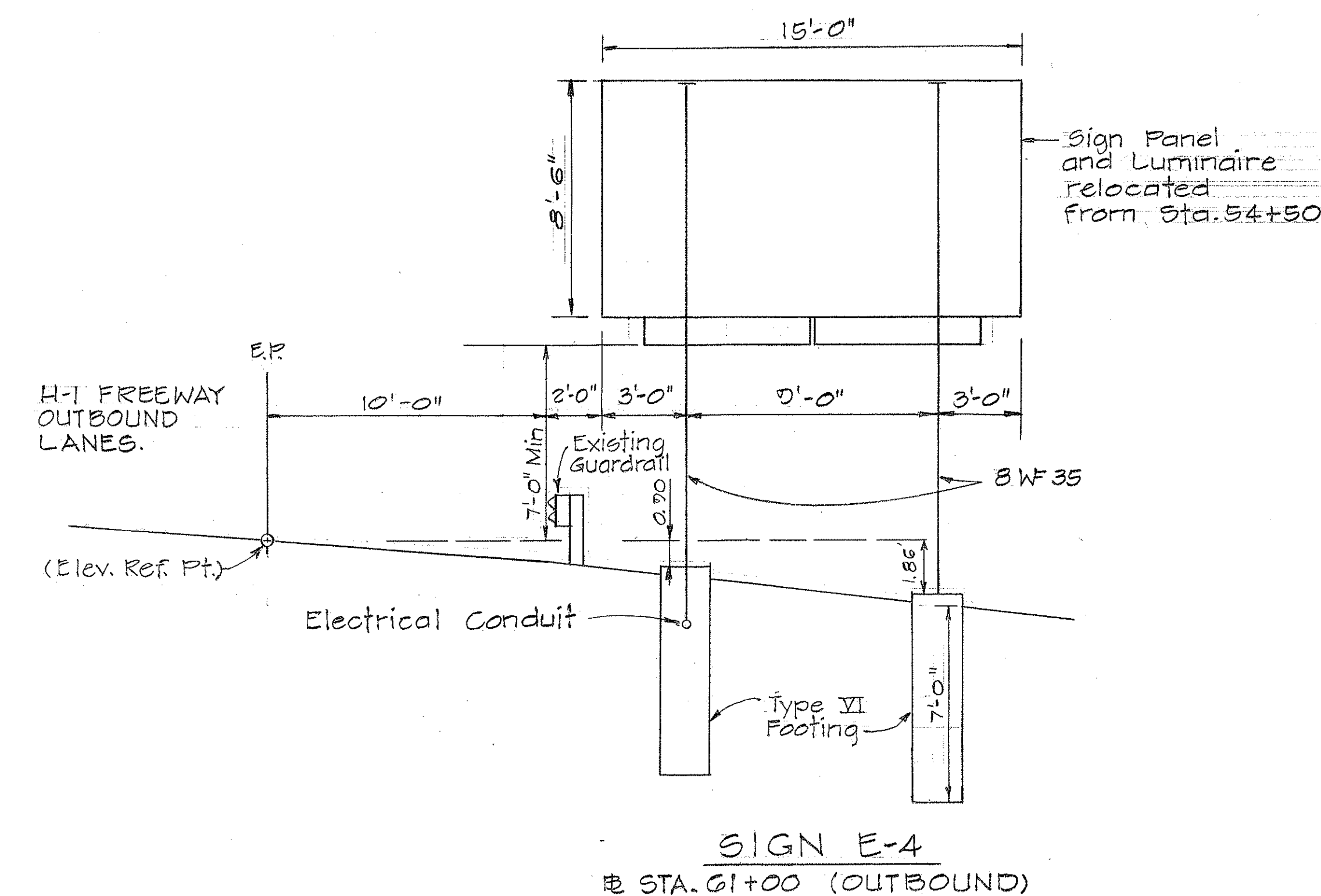
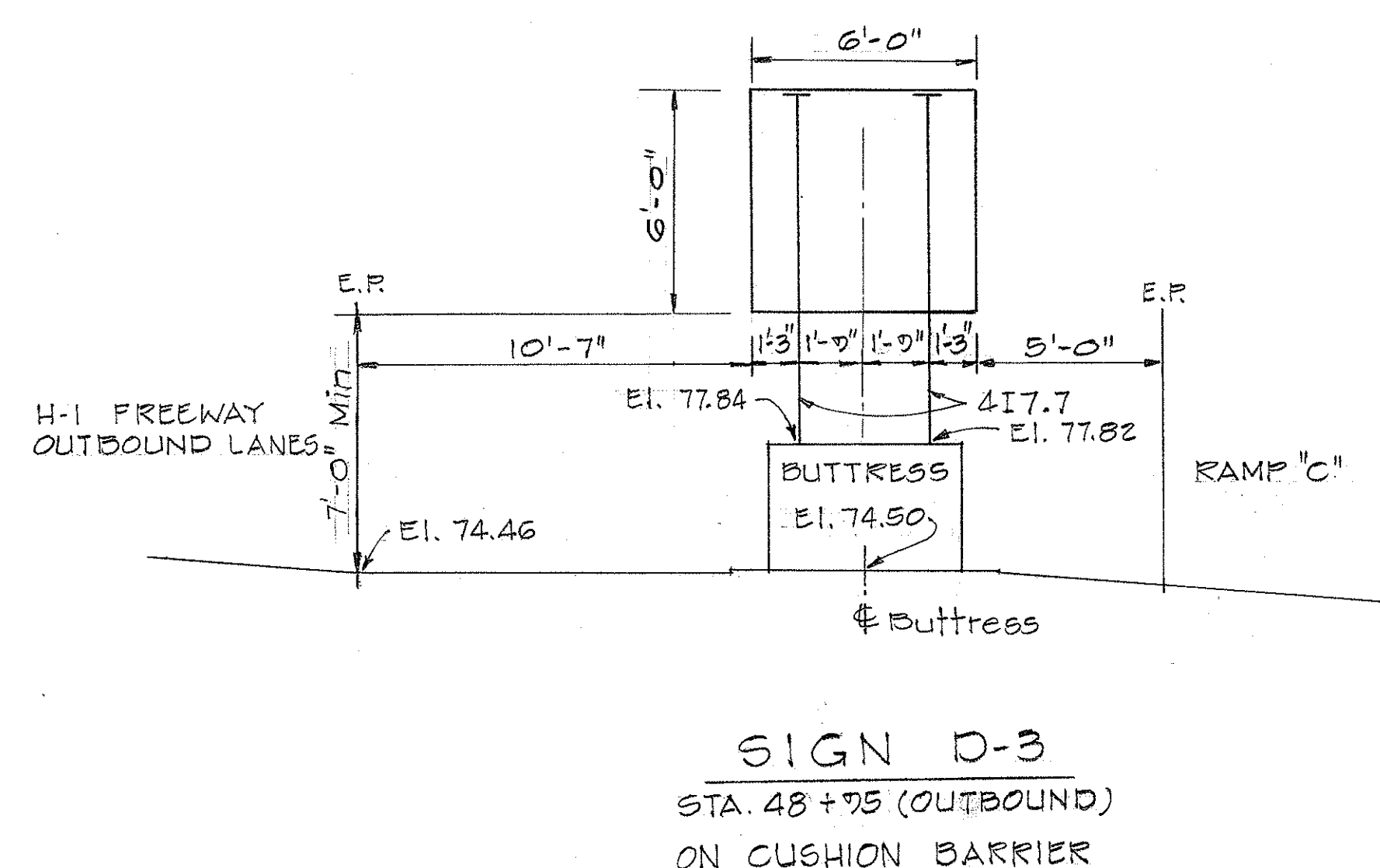
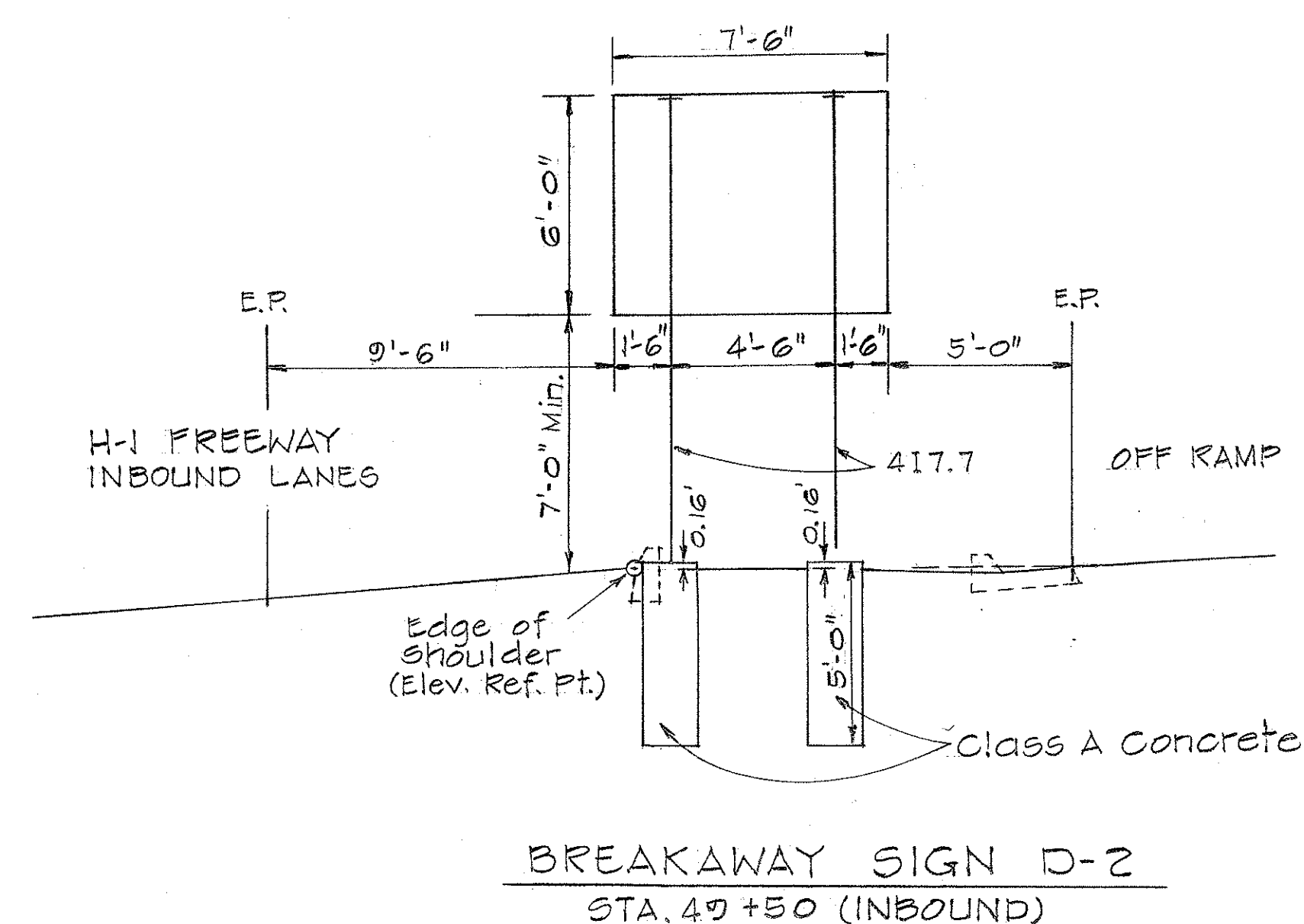
SCALE: 1"=100' DATE:

**SHEET No. 77 OF 337 SHEETS**

|             |      |
|-------------|------|
| DATE        | 6/12 |
| DESIGNED BY |      |
| TRACED BY   |      |
| NOTE BOOK   |      |
| CHECKED BY  |      |



| FED. ROAD DIST. NO. | STATE | FED. AID PROJ. NO. | FISCAL YEAR | SHEET NO. | TOTAL SHEETS |
|---------------------|-------|--------------------|-------------|-----------|--------------|
| HAWAII              | HAW.  | I-HI-1(108)        | 1975        | 47        | 100          |



**NOTE:**  
All Frame Layout of Expressway and Destination Signs are viewed from the direction of traffic.

STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

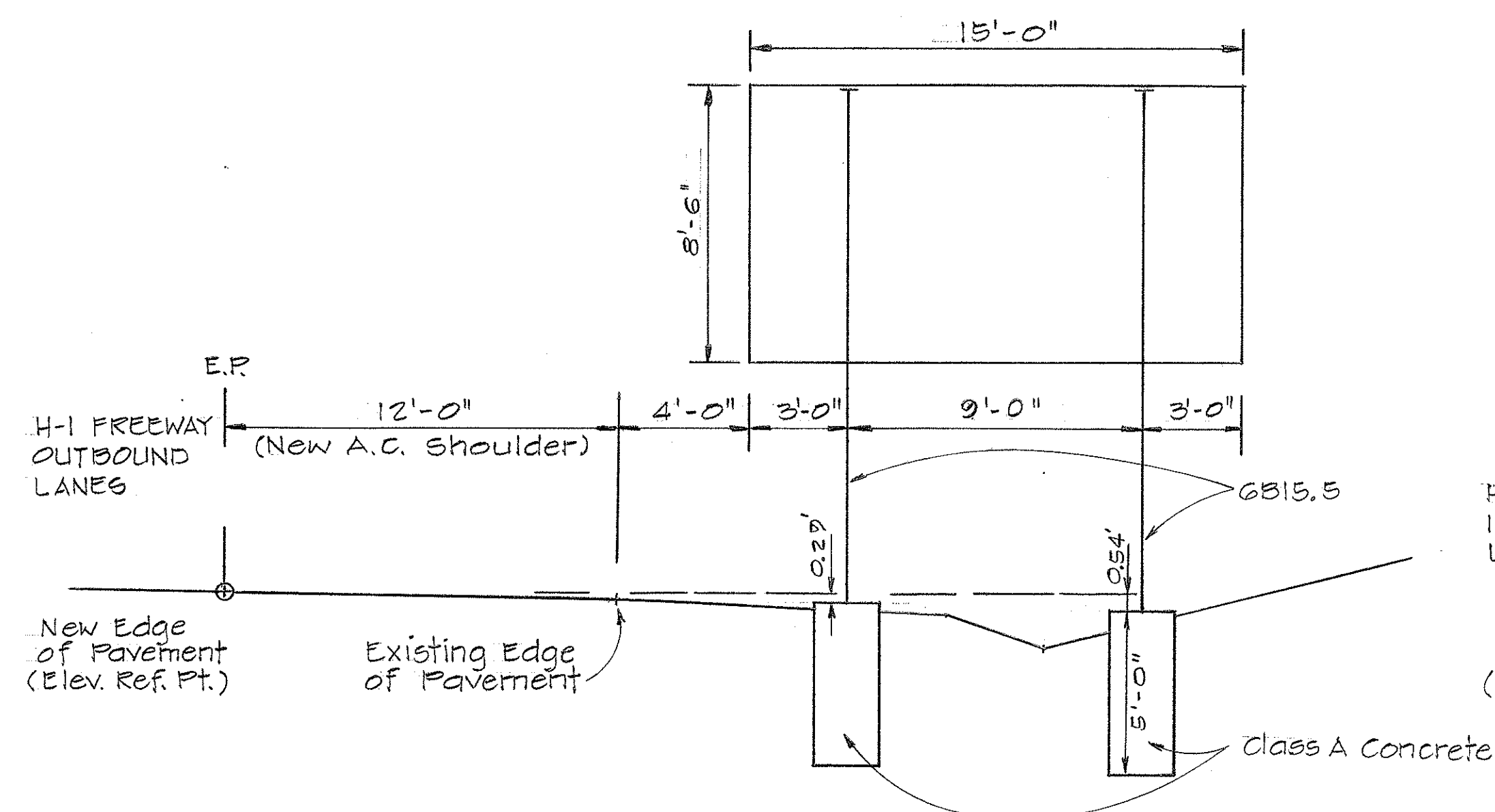
**FRAME LAYOUT**  
SAFETY IMPROVEMENTS  
PALAILAI TO KUNIA  
F.A.I. PROJECT NO. I-HI-1(108)

SHEET No. 87 OF 331 SHEETS

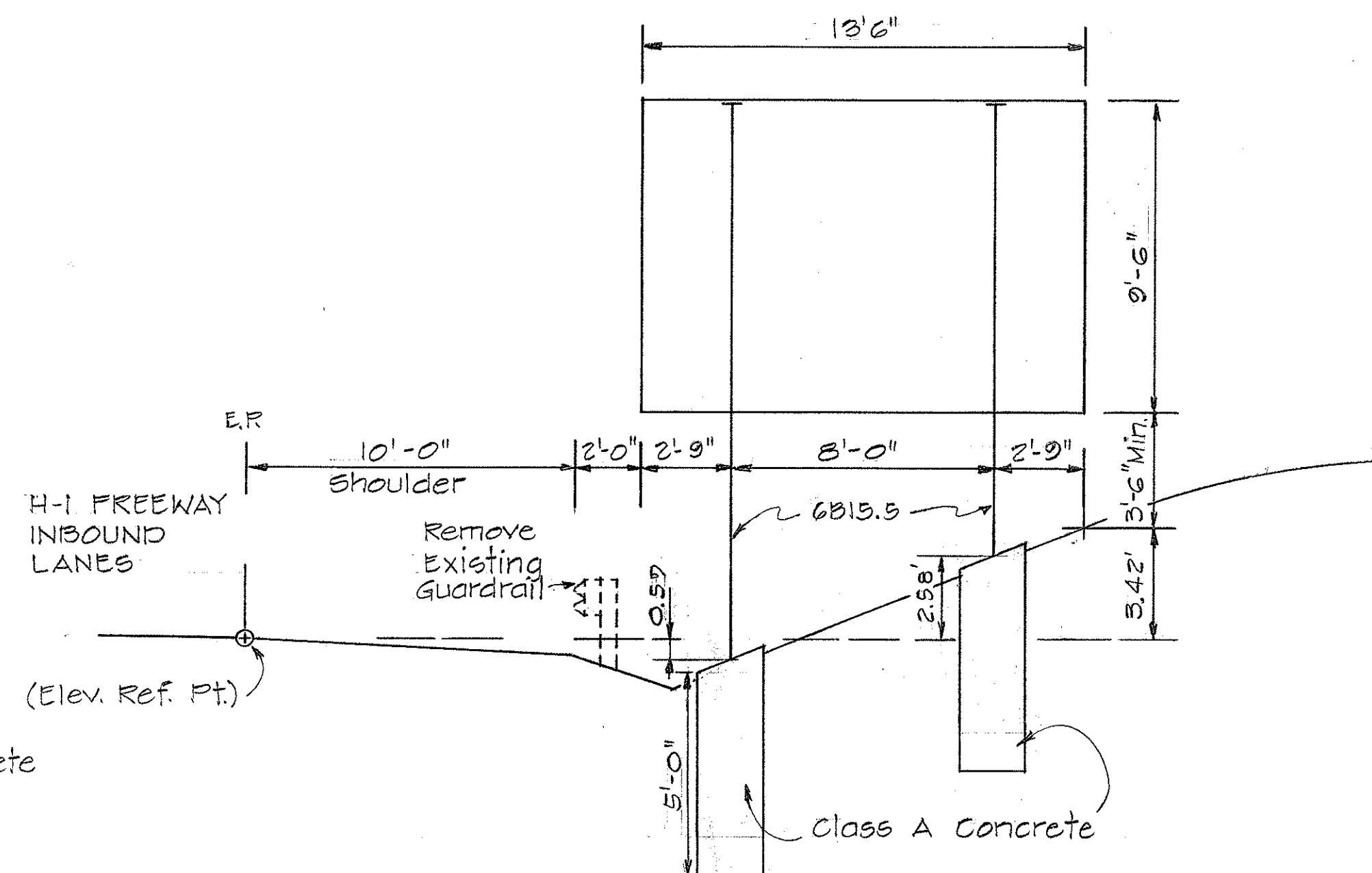
| ORIGINAL PLAN | DATE |
|---------------|------|
| DESIGNED BY   |      |
| NOTED BY      |      |
| CHECKED BY    |      |



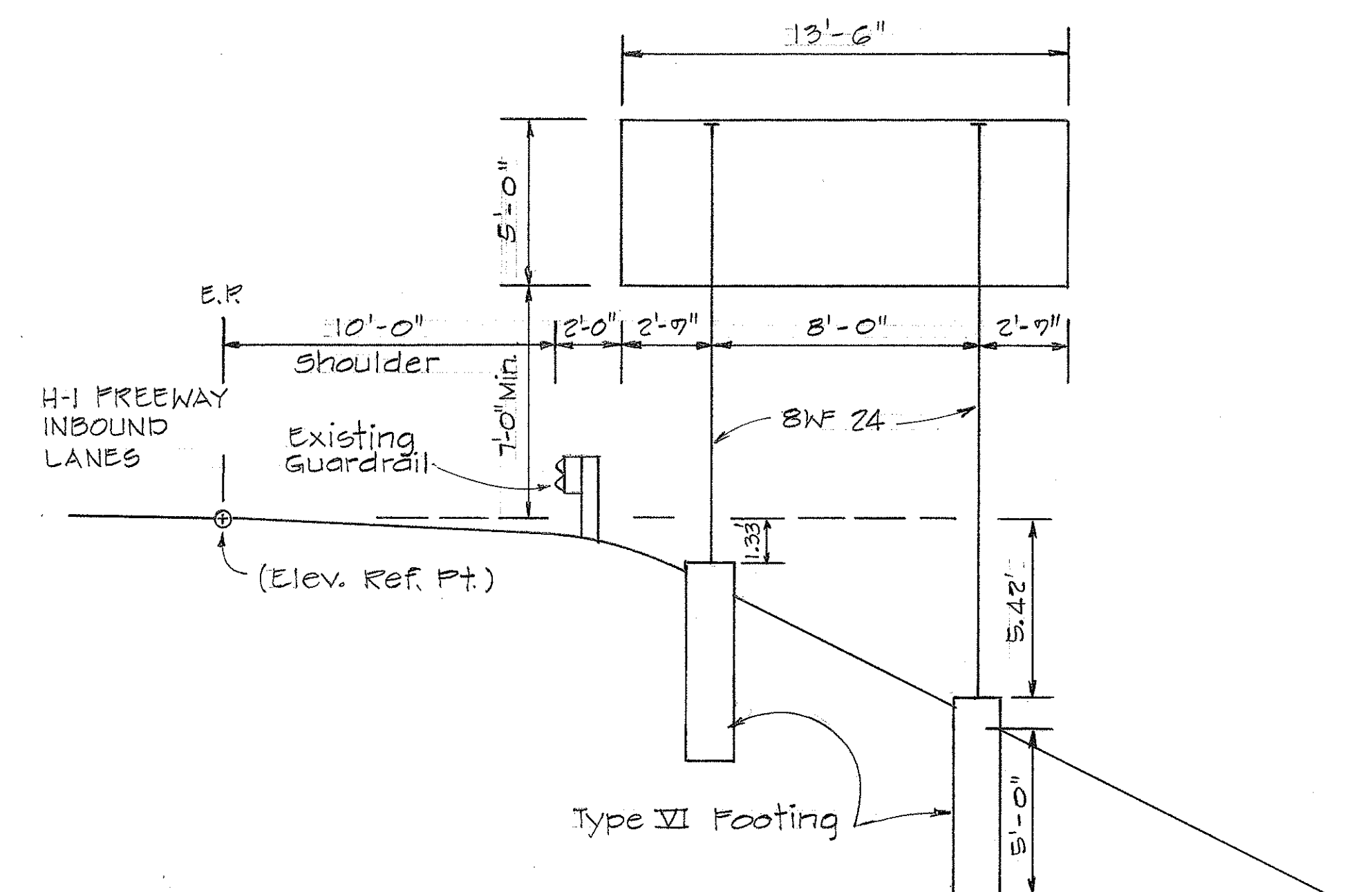
| FED. ROAD DIST. NO. | STATE | FED. AID PROJ. NO. | FISCAL YEAR | SHEET NO. | TOTAL SHEETS |
|---------------------|-------|--------------------|-------------|-----------|--------------|
| HAWAII              | HAW.  | I-HI-1(108)        | 1975        | 48        | 100          |



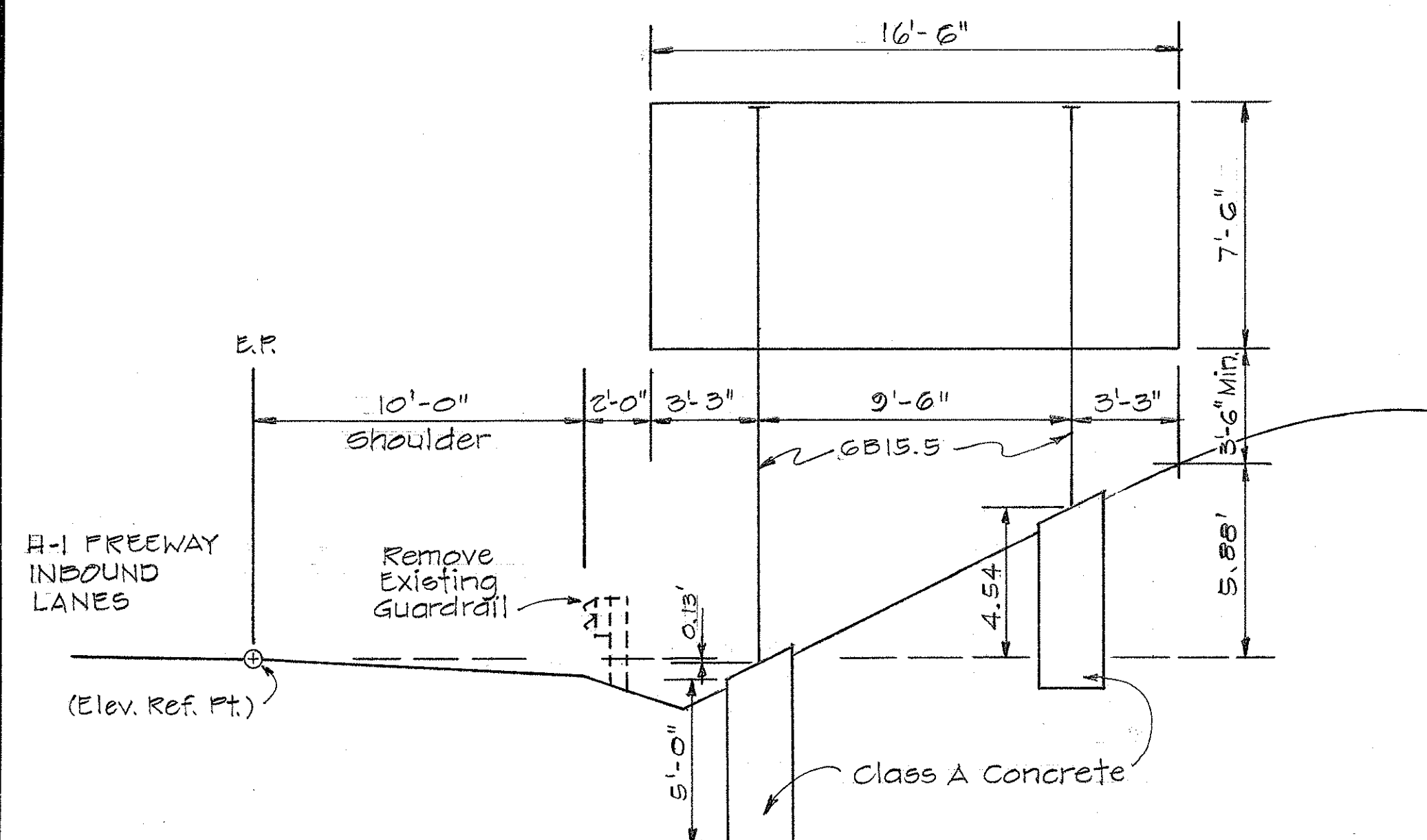
BREAKAWAY SIGN D-4  
# STA. 71+00 (OUTBOUND)



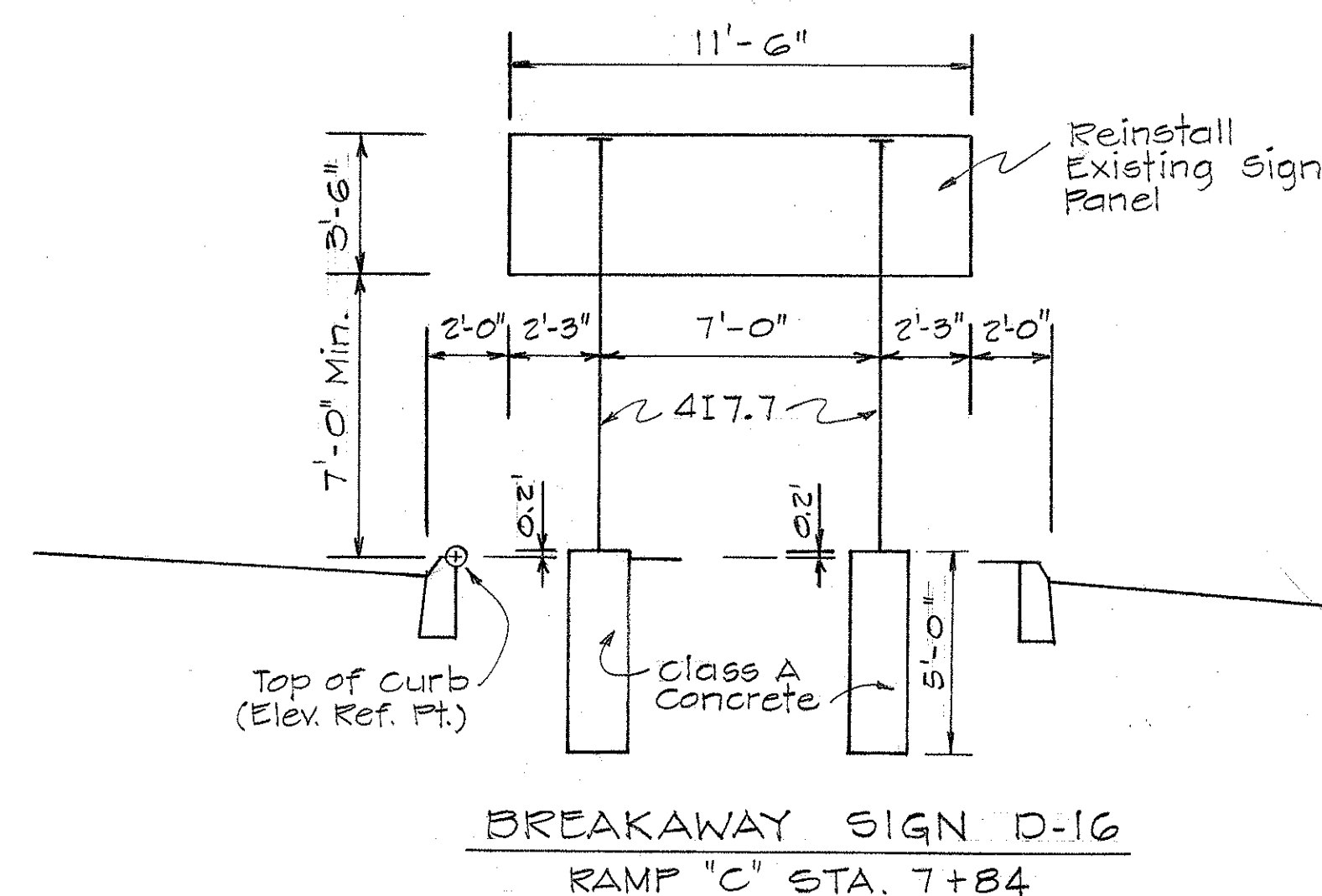
BREAKAWAY SIGN D-8  
# STA. 272+00 (INBOUND)



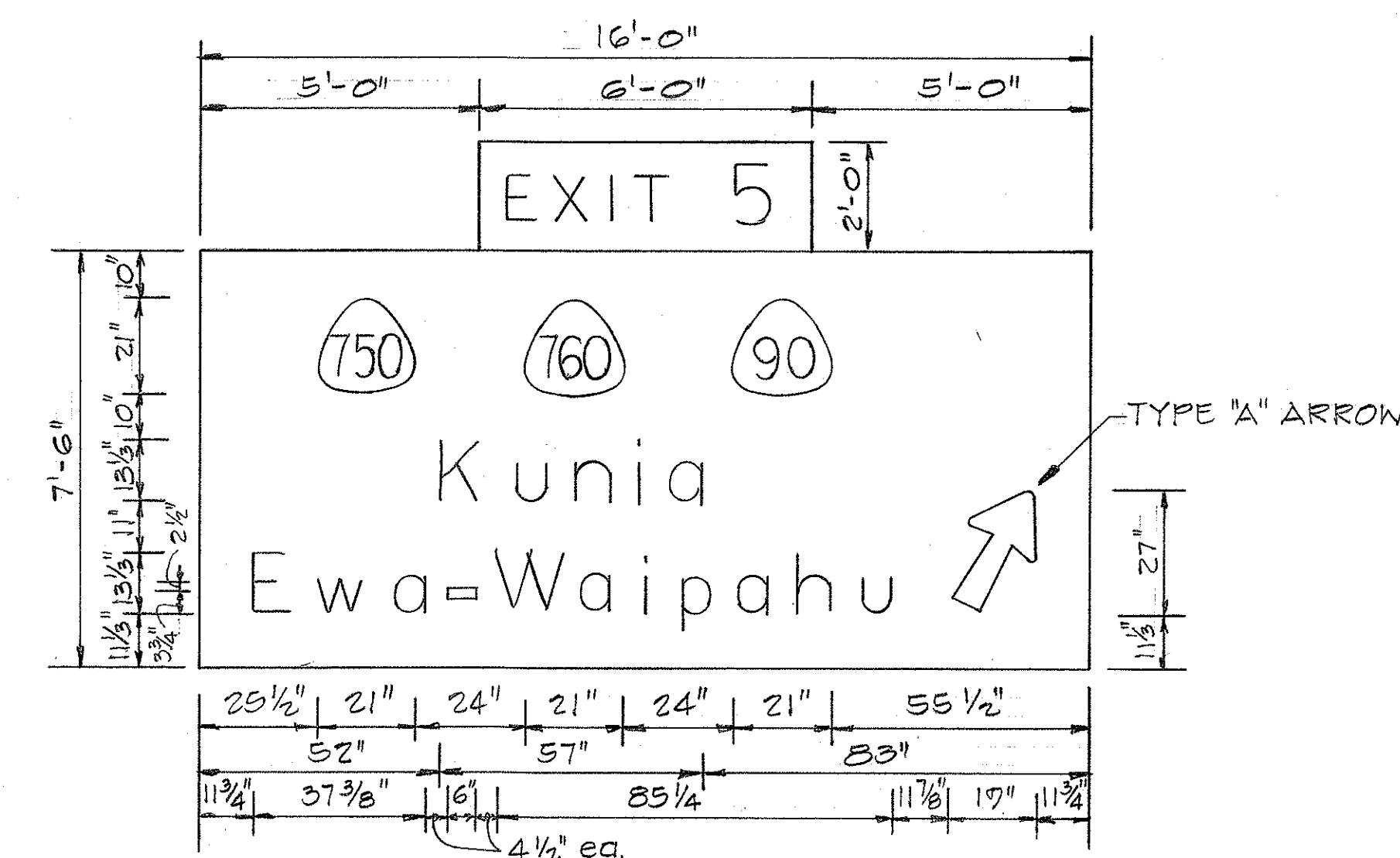
SIGN D-14  
# STA. 186+00 (INBOUND)



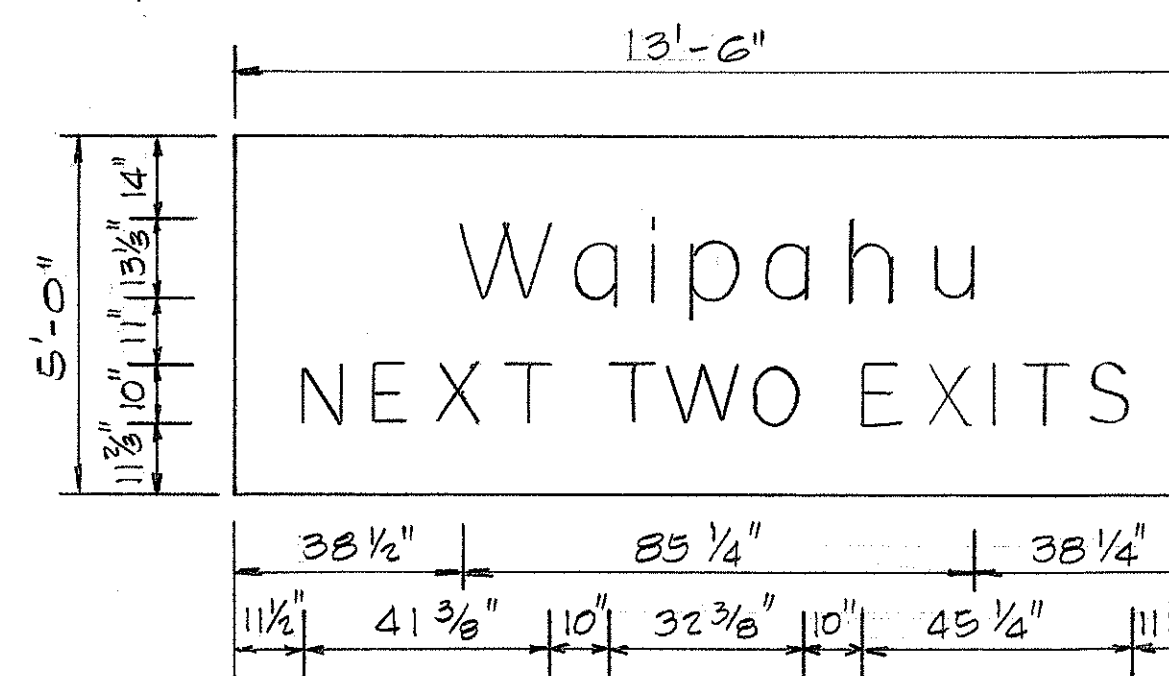
BREAKAWAY SIGN D-15  
# STA. 310+00 (INBOUND)



BREAKAWAY SIGN D-16  
RAMP "C" STA. 7+84



NEW SIGN D-15  
INSTALL "EXIT 5" SIGN PANEL



NEW SIGN D-14

STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION  
FRAME LAYOUT AND  
SIGN PANEL LAYOUT  
SAFETY IMPROVEMENTS  
PALAILAI TO KUNIA  
F.A.I. PROJECT NO I-HI-1(108)

SHEET No. 97 OF 337 SHEETS

41 S

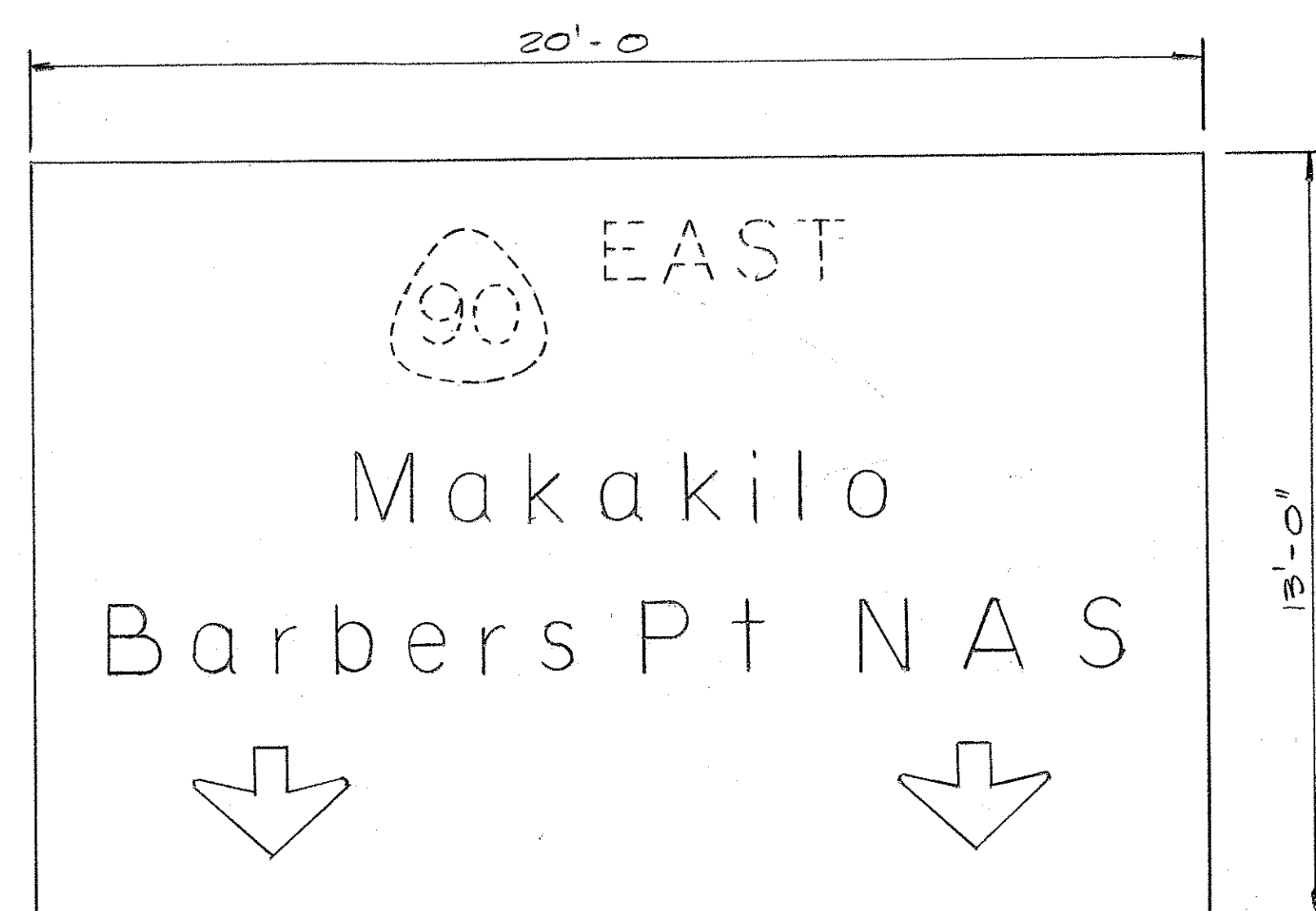
|               |      |
|---------------|------|
| ORIGINAL PLAN | DATE |
| DRAWN BY      |      |
| TRACED BY     |      |
| NOTED BY      |      |
| CHECKED BY    |      |
| NO.           |      |



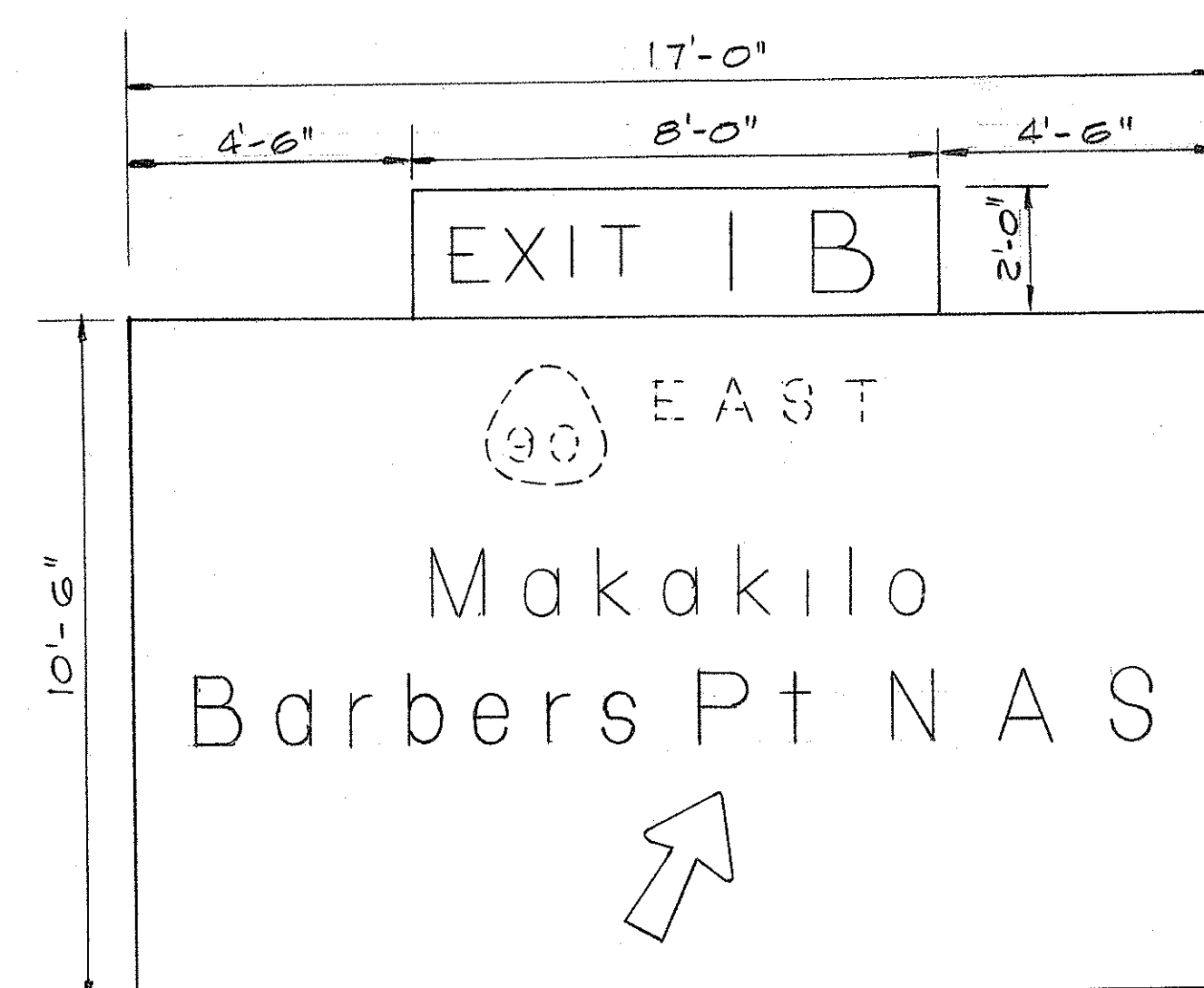
| FED. ROAD DIST. NO. | STATE | FED. AID PROJ. NO. | FISCAL YEAR | SHEET NO. | TOTAL SHEETS |
|---------------------|-------|--------------------|-------------|-----------|--------------|
| HAWAII              | HAW.  | I-HI-1(108)        | 1975        | 49        | 100          |

## GENERAL NOTES: GUIDE SIGNS

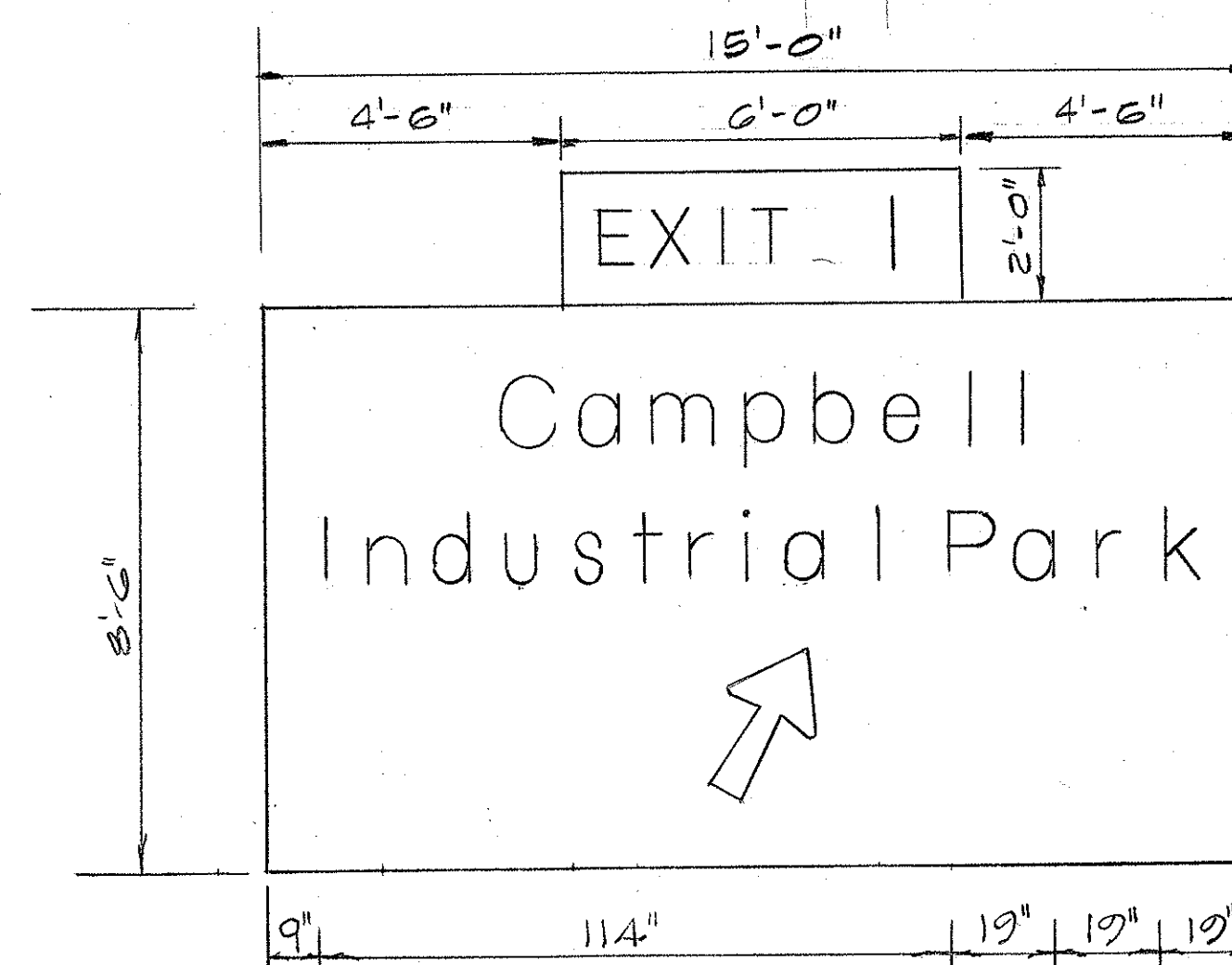
- Sign message shall be lettered according to "Standard Alphabets for Highway Signs," Bureau of Public Roads, 1900. Use Modified Series "E" capital letters and numerals unless otherwise specified.
- All Guide Signs shall have borders.
- Arrows, borders and route markers shall conform with details as shown on plans.
- Individual letters, numerals, symbols and borders shall be demountable and consist of either embossed aluminum cut-outs with applied silver-white high intensity reflective sheeting material or white porcelain enameled aluminum cut-outs with clear reflex reflectors as specified in the special provisions.
- Demountable characters, except as otherwise specified, shall be of one type on any sign panel or group of sign panels mounted on a common support, and shall include letters, numerals, arrows and borders.
- All Illuminated Expressway (E) signs shall have a green porcelain enameled background. Destination (D) signs shall have green reflective sheeting background.
- The special panel reading "EXIT ONLY" or "RIGHT LAPE EXIT ONLY" shall have black legends on a yellow high intensity reflective sheeting background mounted on a flat aluminum cut-out and shall be fastened on sign panel with aluminum blind rivets.
- Design of Exit Number Panels shall conform to all plans and specifications for either Destination or Expressway sign to which the Exit Number Panel will be attached.



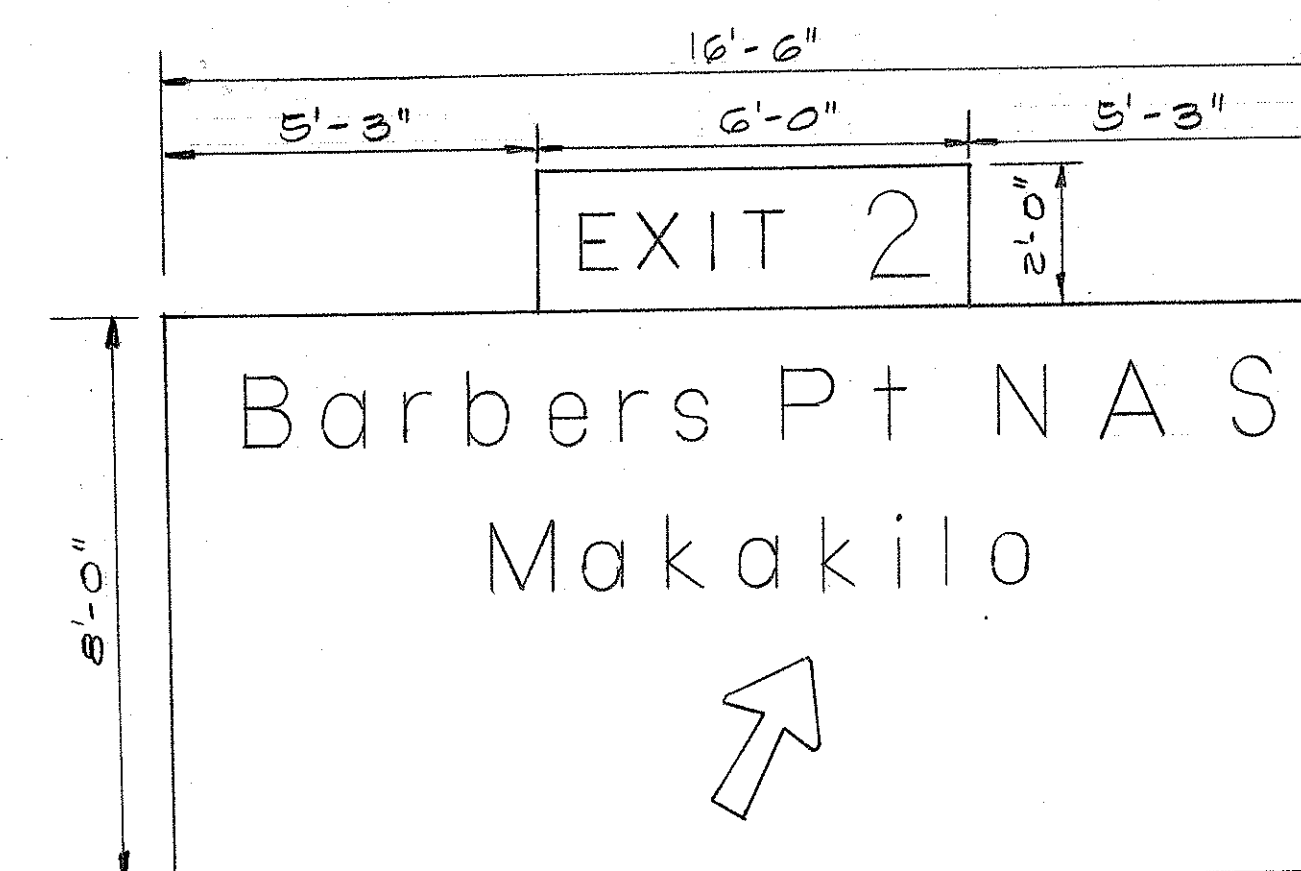
EXISTING SIGN E-10R  
REMOVE 90 AND "EAST"



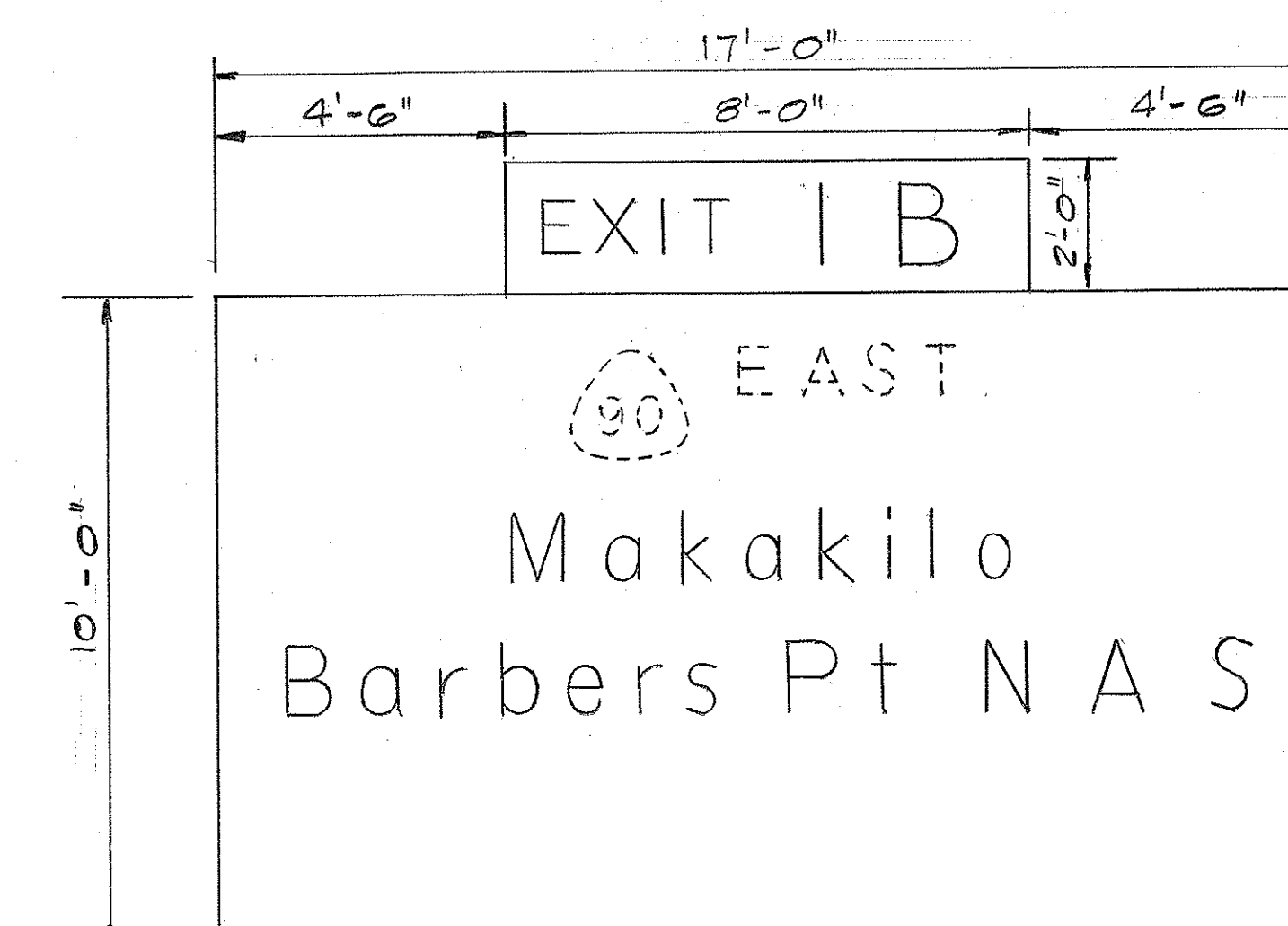
EXISTING SIGN E-3  
REMOVE 90 AND "EAST"  
INSTALL "EXIT 1B" SIGN PANEL



EXISTING SIGN E-4  
INSTALL "EXIT 1" SIGN PANEL



EXISTING SIGN E-5  
INSTALL "EXIT 2" SIGN PANEL



EXISTING SIGN E-7C  
REMOVE 90 AND "EAST"

### NOTE:

See Sht. 97 for Sign Panel Layout of Signs D-14 and D-15.

|                   |       |
|-------------------|-------|
| DATE              | _____ |
| SURVEY PLOTTED BY | _____ |
| DRAWN BY          | _____ |
| TRACED BY         | _____ |
| QUANTITIES BY     | _____ |
| CHECKED BY        | _____ |
| ORIGINAL PLAN     | _____ |
| NOTE BOOK         | _____ |
| No.               | _____ |

STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

### SIGN PANEL LAYOUT

SAFETY IMPROVEMENTS  
PALAILAI TO KUNIA  
F.A.I. PROJECT NO. I-HI-1(108)

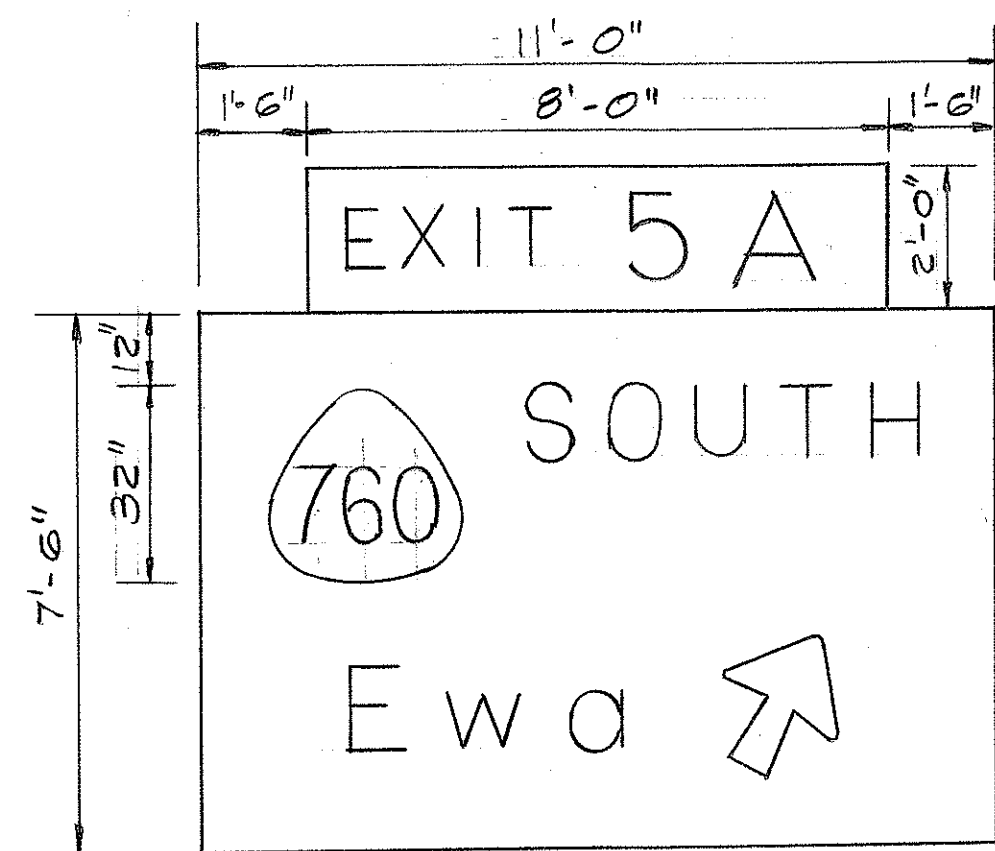
SCALE: 3/8" = 1'-0"

DATE: \_\_\_\_\_

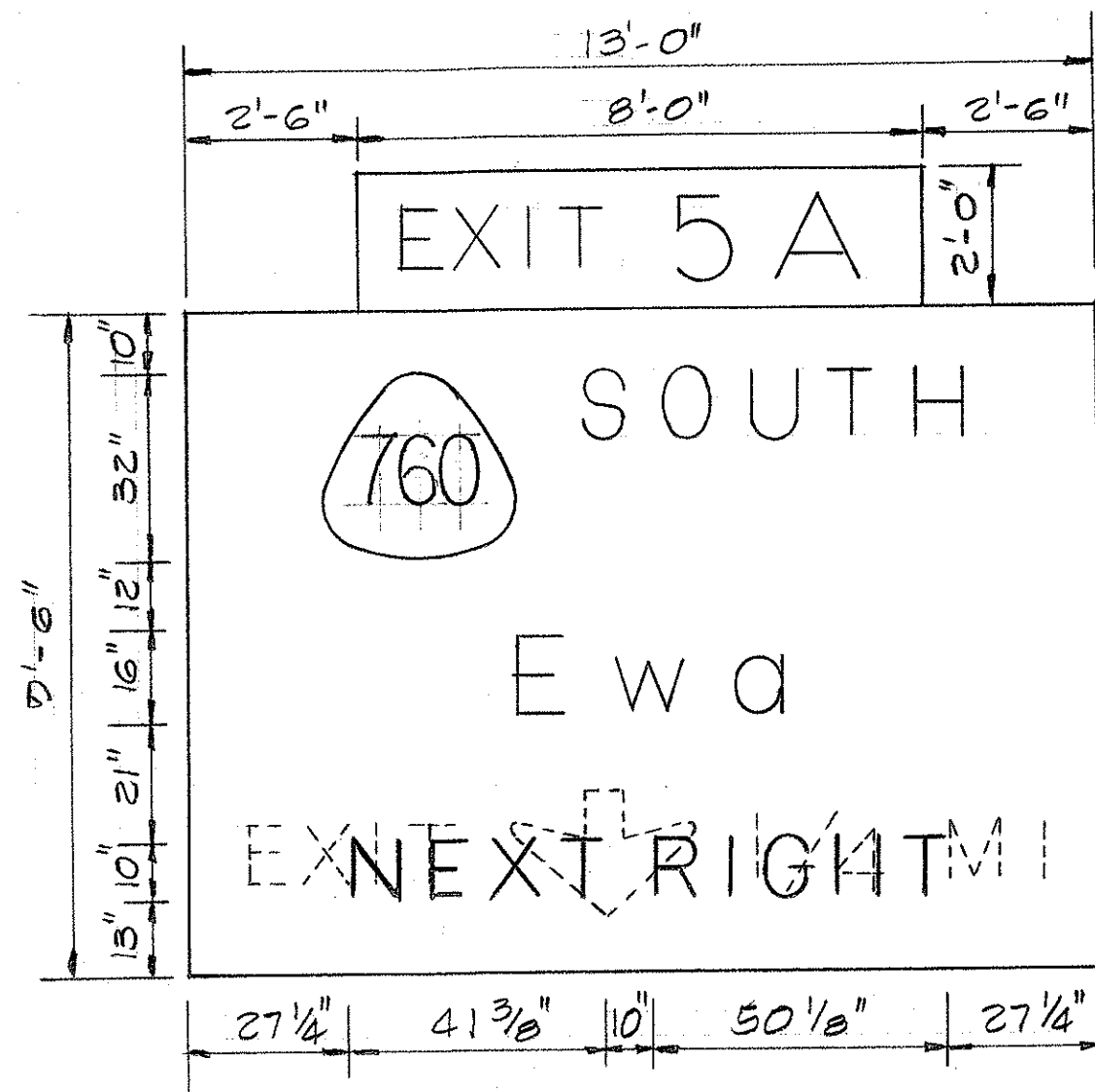
SHEET No. 107 OF 337 SHEETS



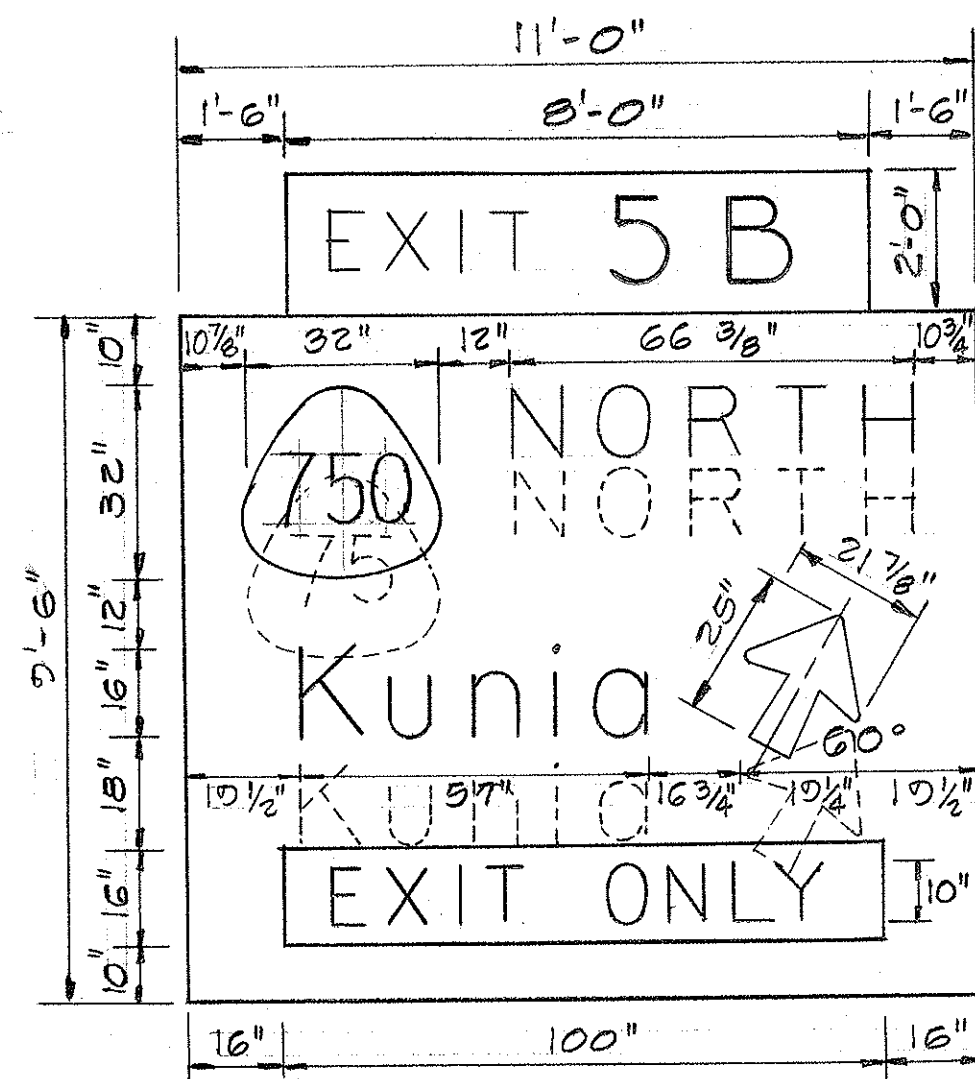
| FED. ROAD DIST. NO. | STATE | FED. AID PROJ. NO. | FISCAL YEAR | SHEET NO. | TOTAL SHEETS |
|---------------------|-------|--------------------|-------------|-----------|--------------|
| HAWAII              | HAW.  | I-HI-1(108)        | 1975        | 50        | 100          |



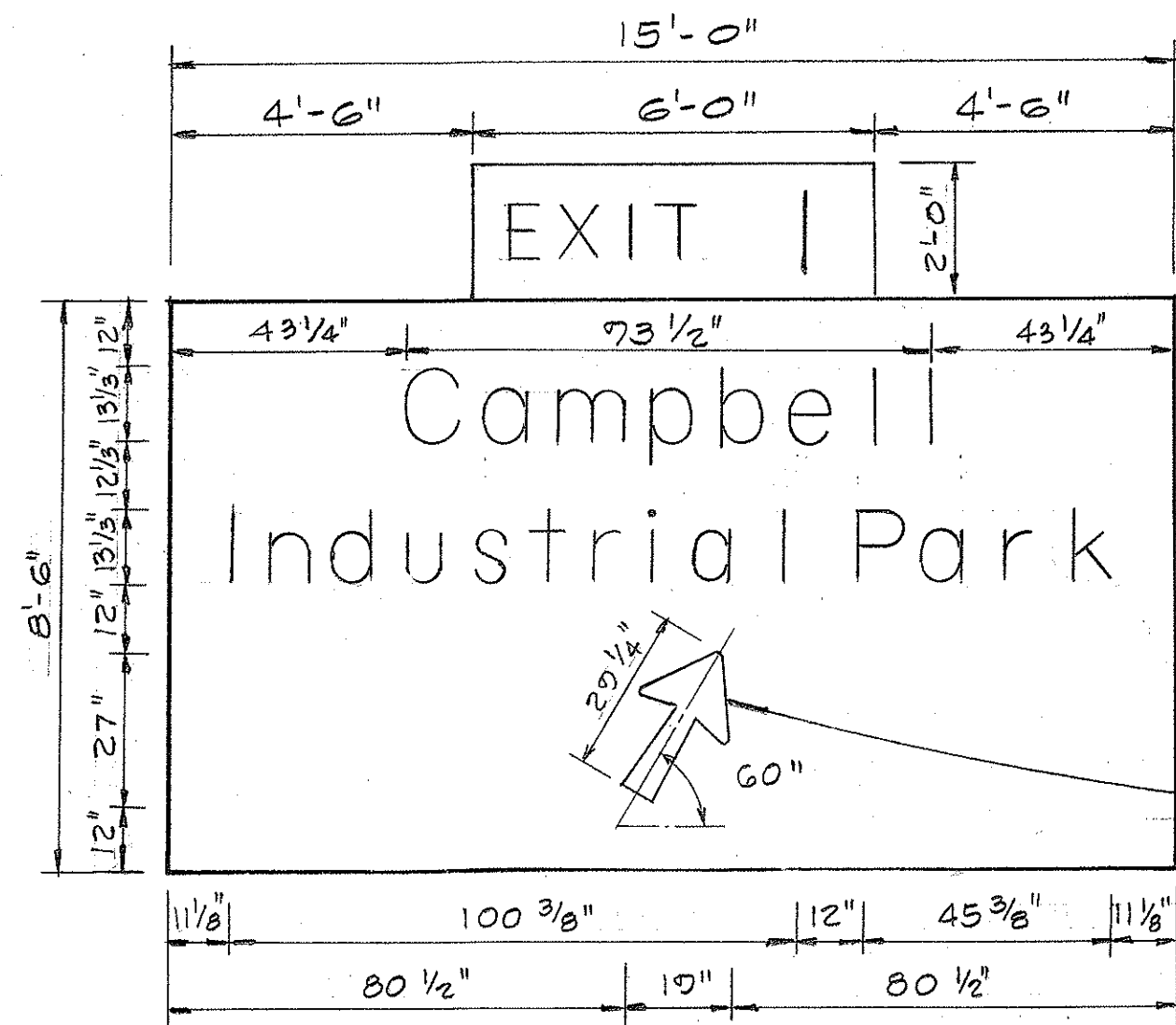
EXISTING SIGN E-7  
MODIFY (75) TO (760)  
INSTALL "EXIT 5A" SIGN PANEL



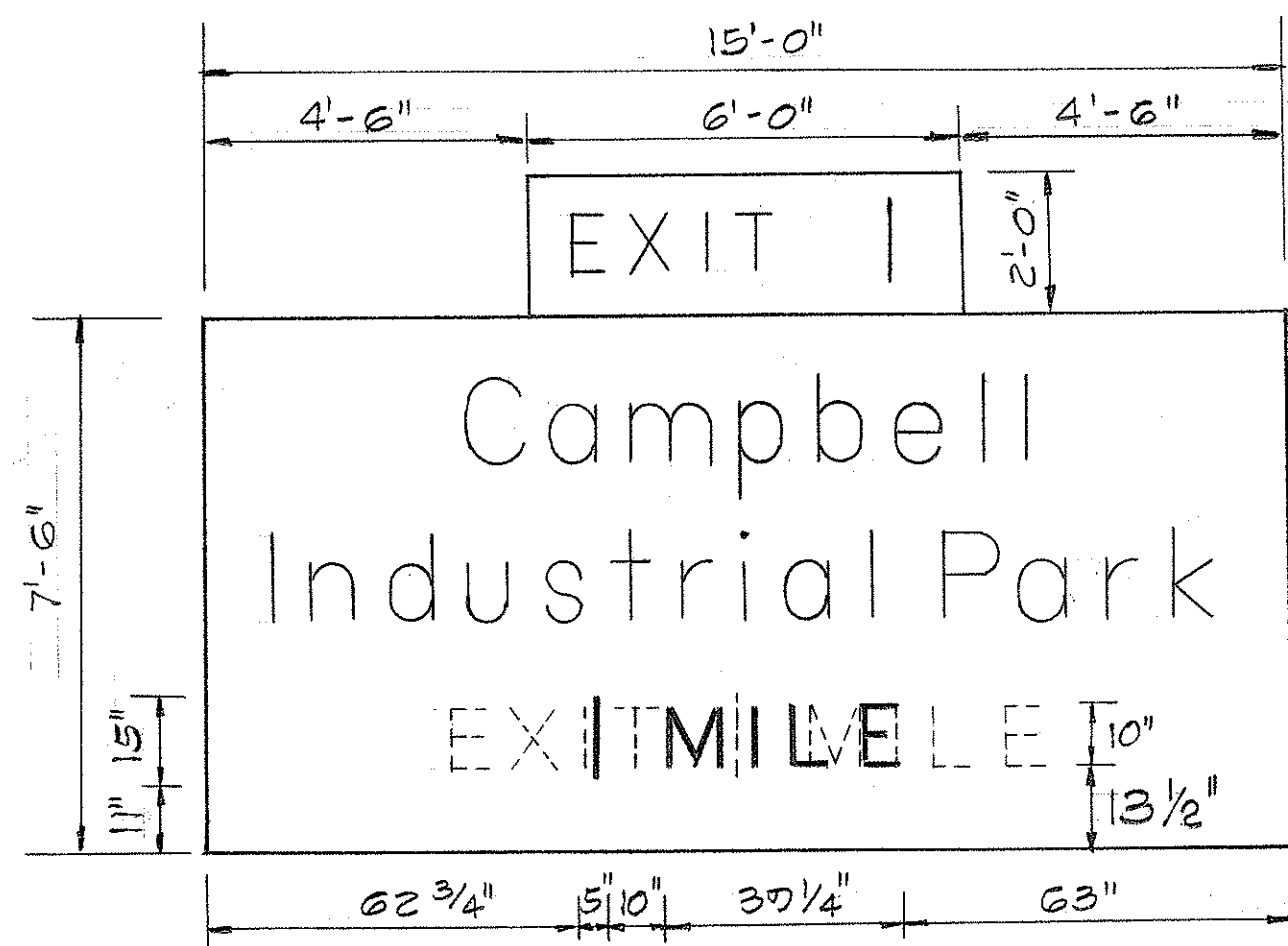
EXISTING SIGN E-8C  
MODIFY (75) TO (760)  
REMOVE "EXIT 1/4 MI" AND  
INSTALL "NEXT RIGHT" SIGN PANEL



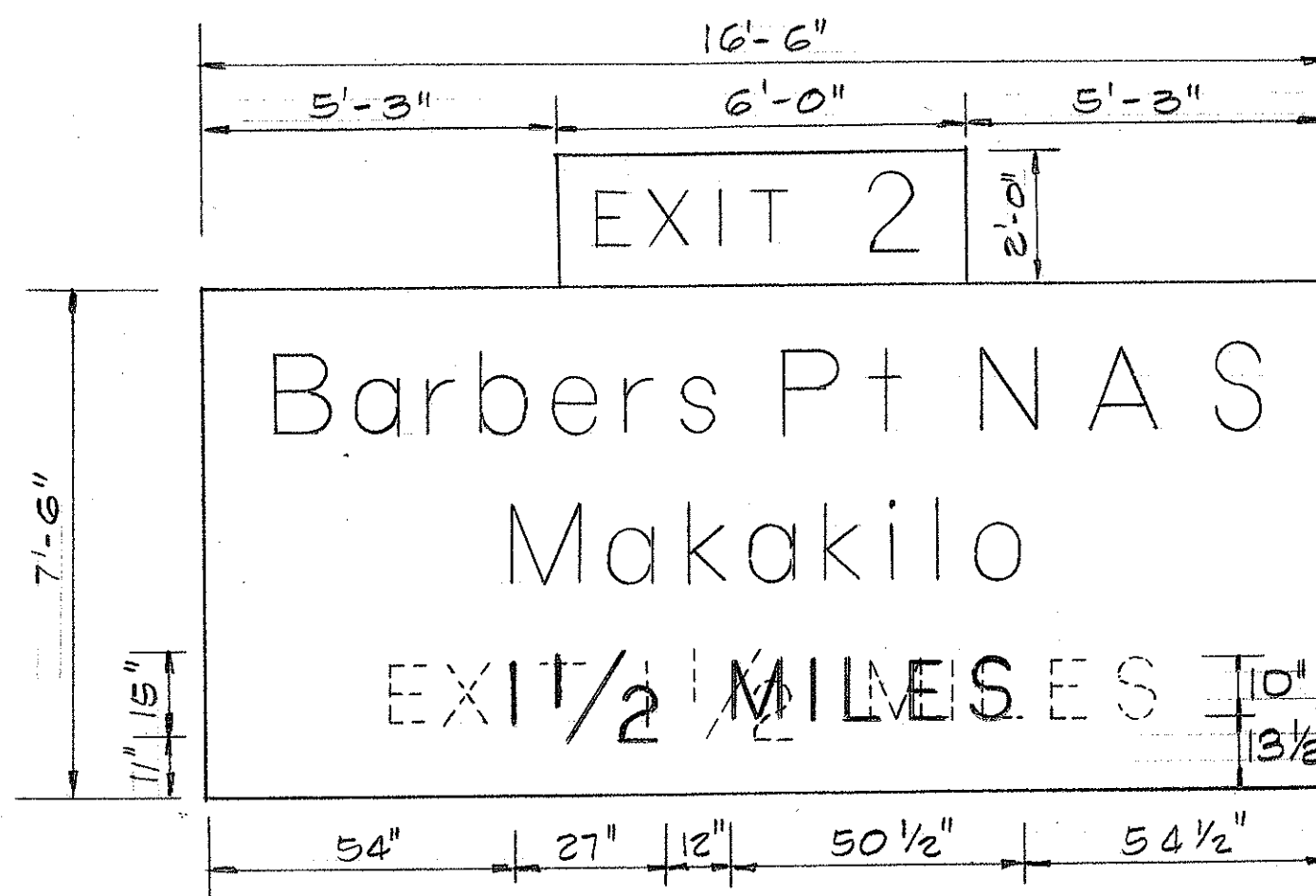
EXISTING SIGN E-8R  
MODIFY (75) TO (750)  
REMOVE AND RESET EXISTING  
MESSAGE AS SHOWN.  
INSTALL OVERLAY PANEL WITH  
BLACK LEGEND ON YELLOW  
BACKGROUND WITH MESSAGE "EXIT ONLY"  
INSTALL "EXIT 5B" SIGN PANEL



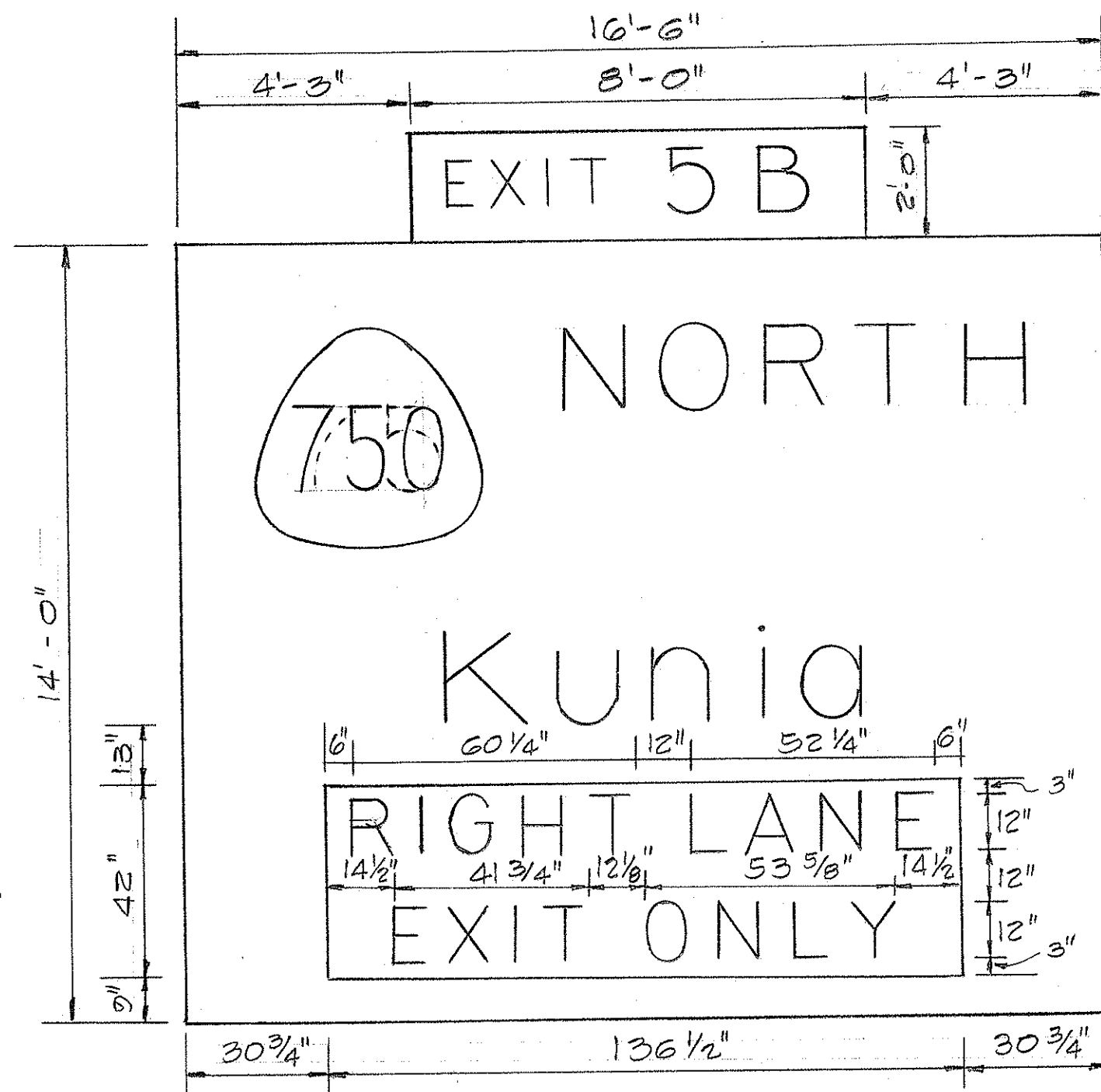
NEW SIGN D-4  
INSTALL "EXIT 1" SIGN PANEL



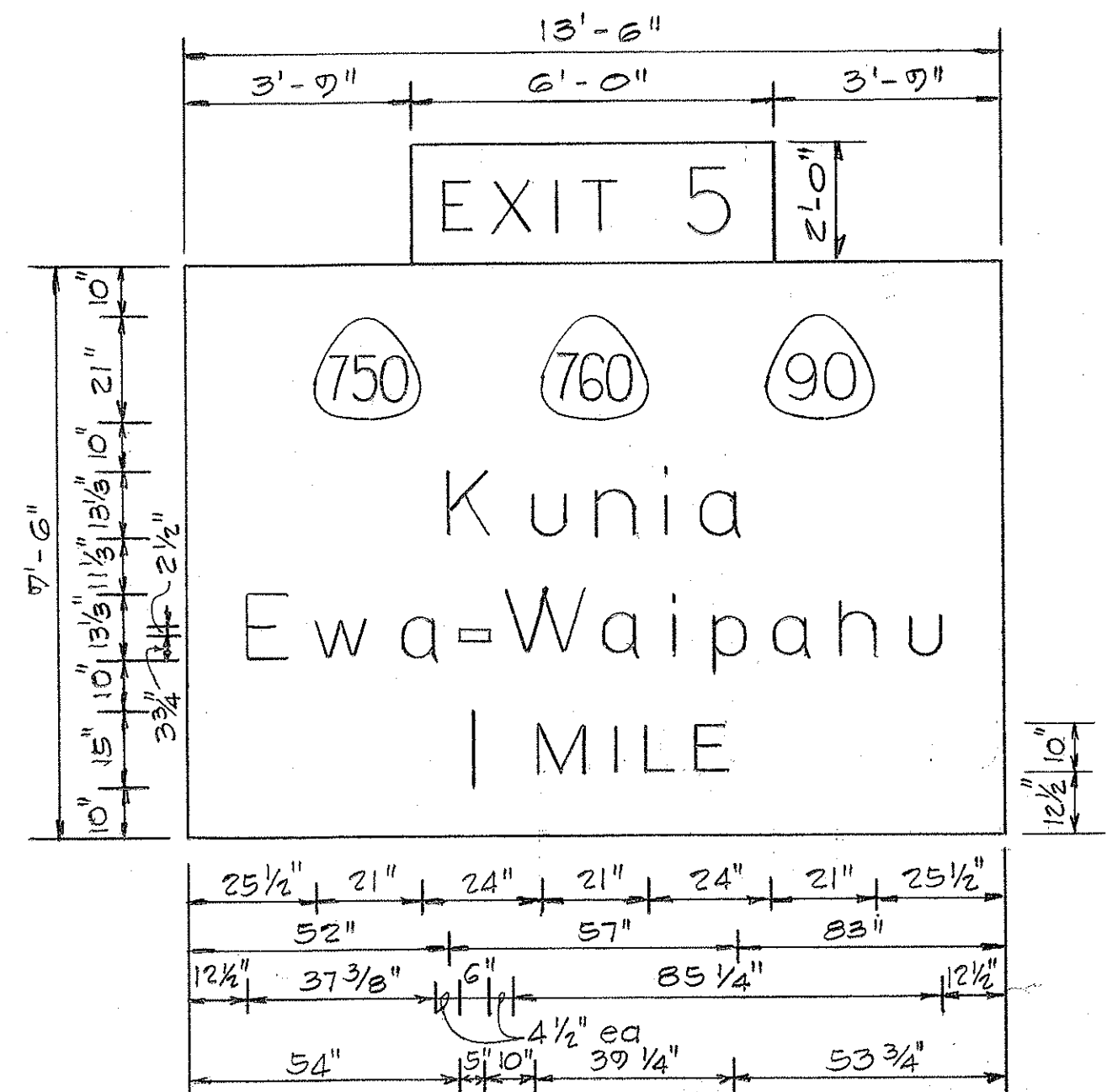
EXISTING SIGN D-5  
REMOVE "EXIT 1 MILE" AND  
INSTALL "1 MILE" SIGN PANEL



REMOVE "EXIT 1 1/2 MILES" AND  
INSTALL "1 1/2 MILES" SIGN PANEL



EXISTING SIGN D-11  
MODIFY (75) TO (750)  
REMOVE EXISTING MESSAGE "RIGHT LANE EXIT ONLY" AND  
INSTALL OVERLAY PANEL WITH BLACK LEGEND ON YELLOW  
BACKGROUND WITH MESSAGE "RIGHT LANE EXIT ONLY"  
INSTALL "EXIT 5B" SIGN PANEL



NEW SIGN D-8  
INSTALL "EXIT 5" SIGN PANEL

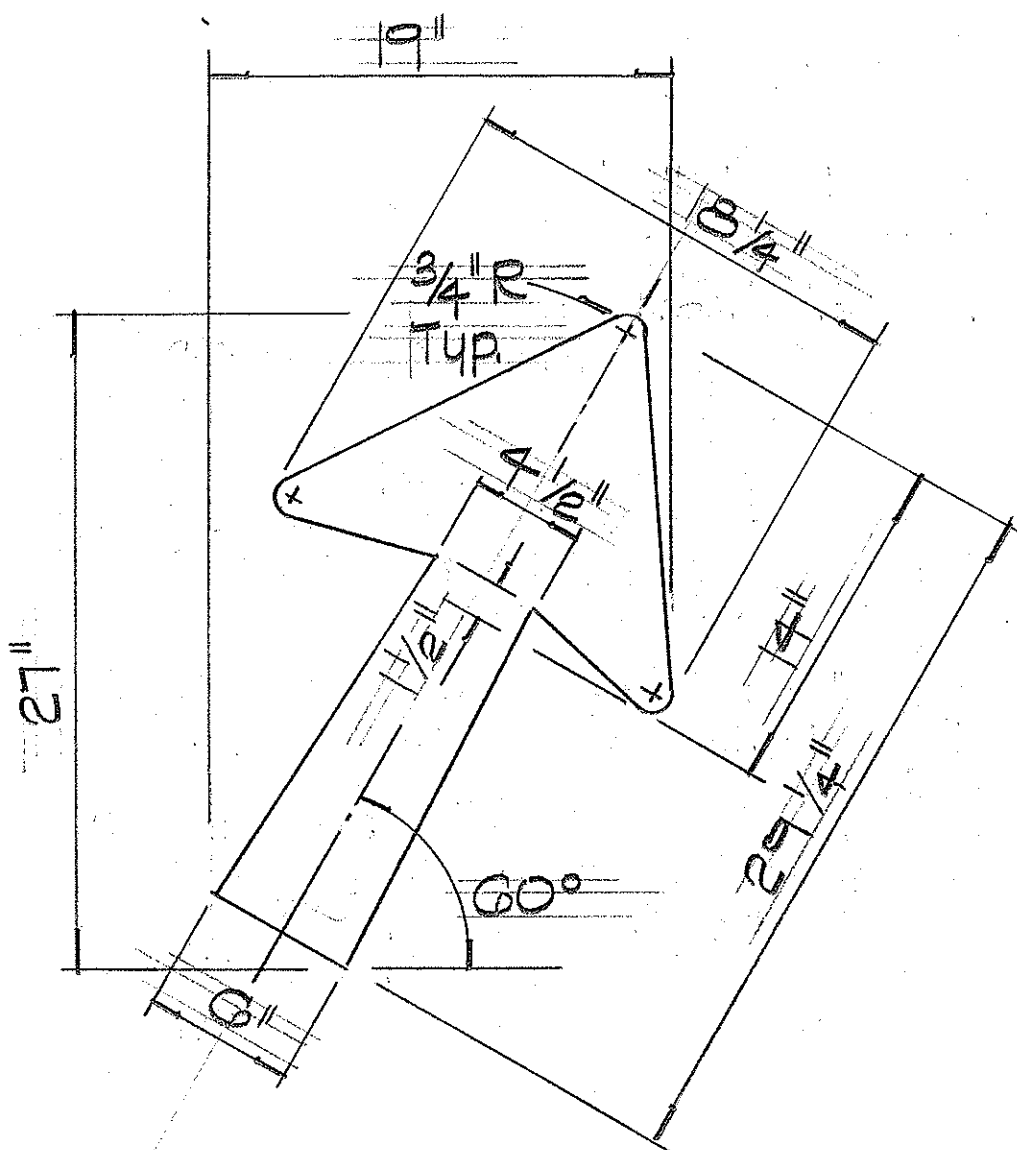
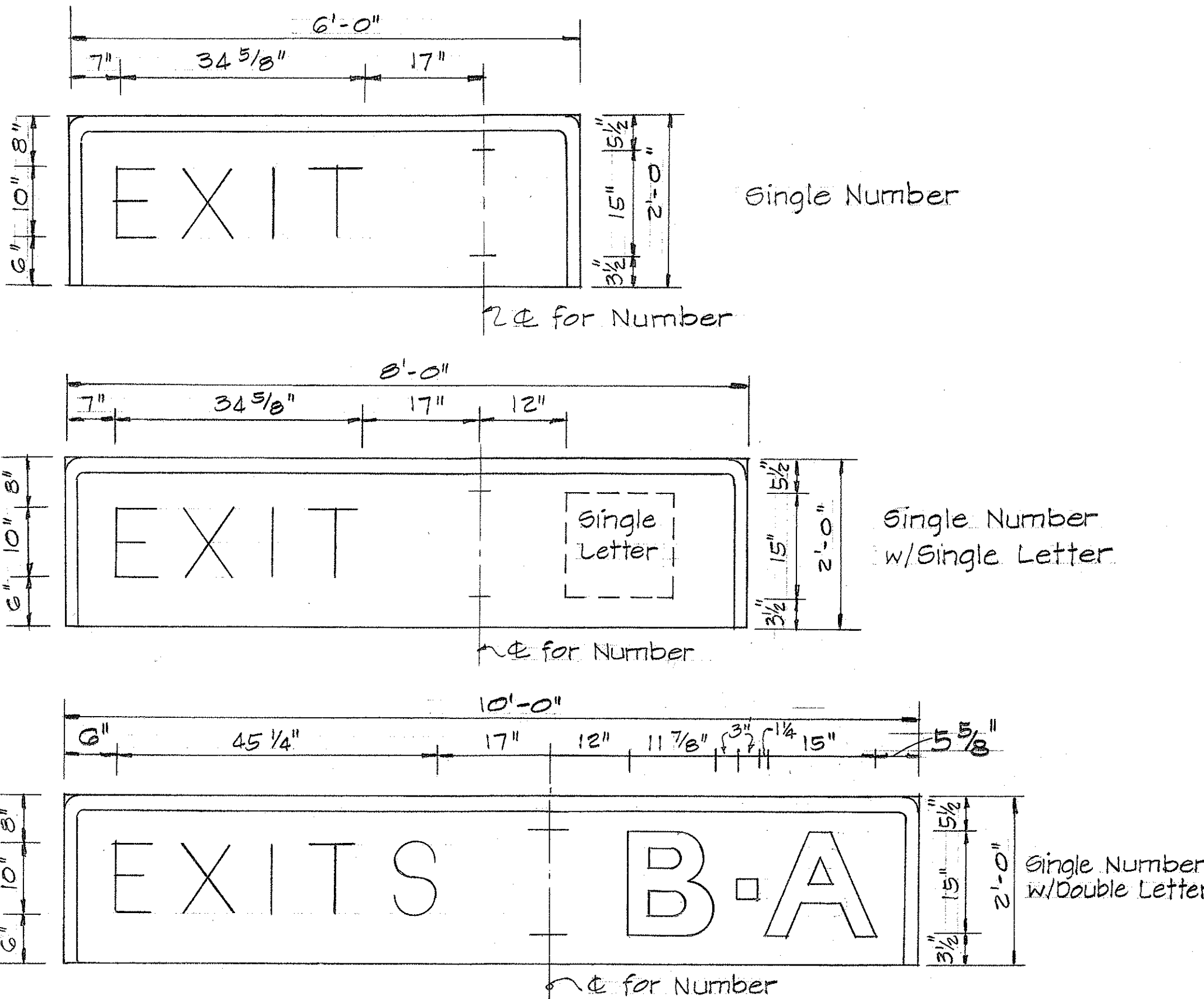
|                                                                            |
|----------------------------------------------------------------------------|
| STATE OF HAWAII<br>DEPARTMENT OF TRANSPORTATION<br>HIGHWAYS DIVISION       |
| SIGN PANEL LAYOUT                                                          |
| SAFETY IMPROVEMENTS<br>PALAILAI TO KUNIA<br>F.A.I. PROJECT NO. I-HI-1(108) |
| SCALE: 3/8"=1'-0" DATE:                                                    |
| SHEET No. 11 OF 33 SHEETS                                                  |

|                   |  |
|-------------------|--|
| DATE              |  |
| SURVEY PLOTTED BY |  |
| DRAWN BY          |  |
| DESIGNED BY       |  |
| NOTED BY          |  |
| CHECKED BY        |  |
| APPROVED BY       |  |
| NO.               |  |



| FED. ROAD DIST. NO. | STATE | FED. AID PROJ. NO. | FISCAL YEAR | SHEET NO. | TOTAL SHEETS |
|---------------------|-------|--------------------|-------------|-----------|--------------|
| HAWAII              | HAW.  | I-HI-1 (108)       | 1975        | 51        | 100          |

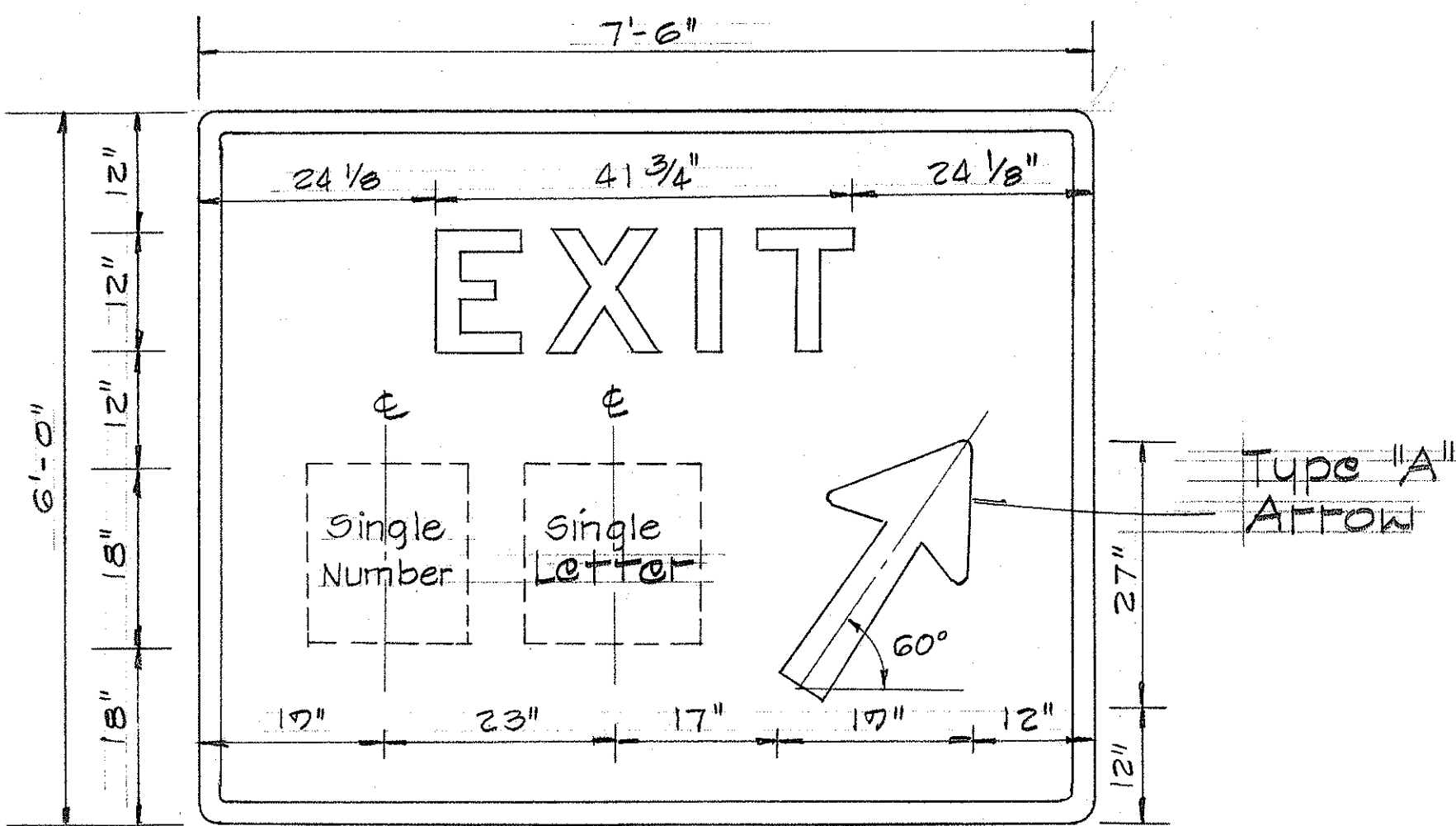
EXIT NUMBER PANELS



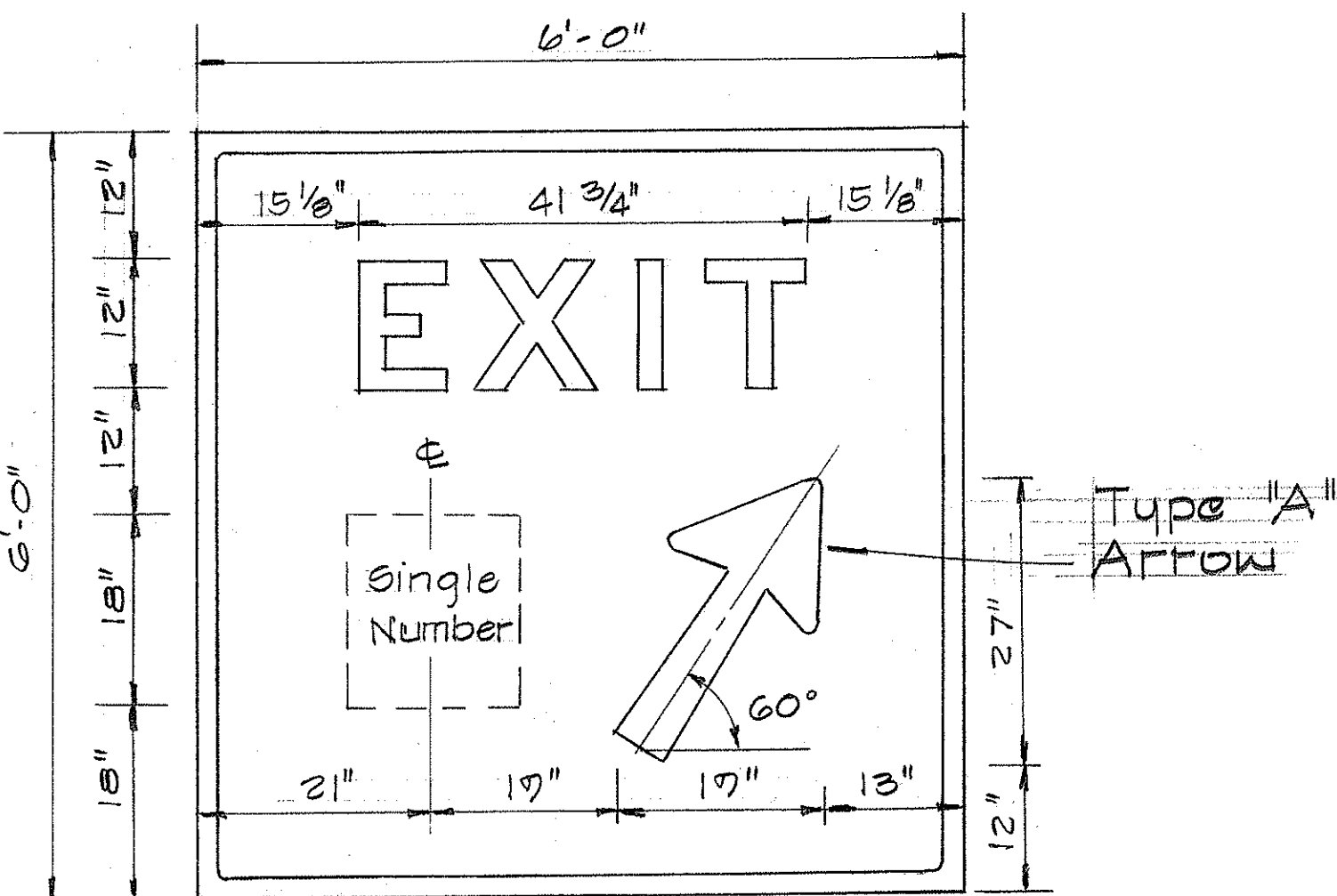
TYPE 'A' DIAGONAL ARROW DETAIL

STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION  
SIGN PANEL LAYOUT  
SAFETY IMPROVEMENTS  
PALALAI TO KUNIA  
F.A.I. PROJ. I-HI-1 (108)

GROUND MOUNTED GORE  
EXIT SIGNS

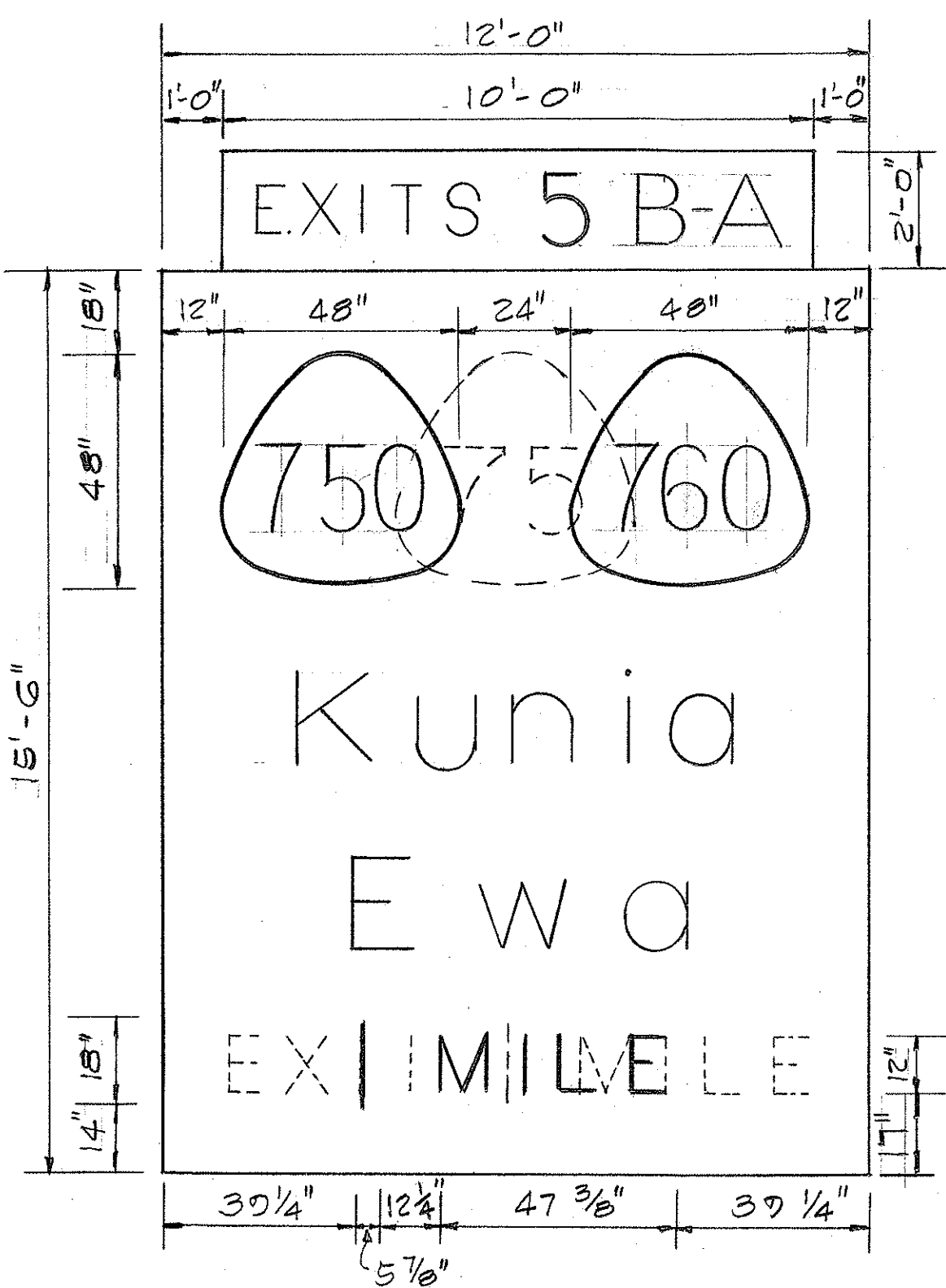


NEW SIGNS D-2 & D-10



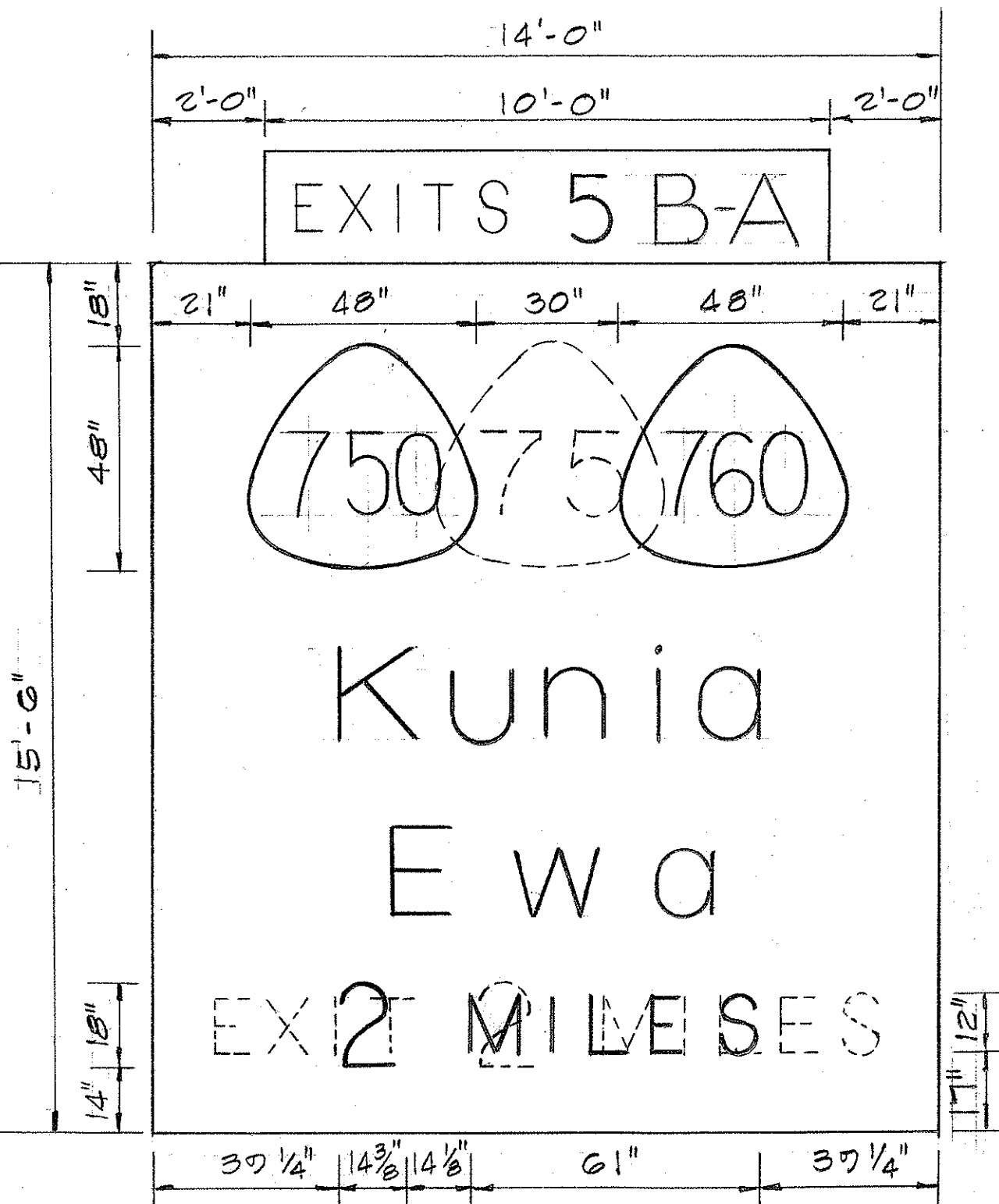
NEW SIGNS D-3, D-6 & D-9

| GROUND MOUNTED GORE EXIT SIGNS REQUIRED |          |                     |
|-----------------------------------------|----------|---------------------|
| DESTINATION SIGN NUMBER                 | MESSAGE  | STATION             |
| SIGN D-2                                | EXIT 1 B | 47 + 50 (INBOUND)   |
| SIGN D-3                                | EXIT 1   | 48 + 75 (OUTBOUND)  |
| SIGN D-6                                | EXIT 2   | 108 + 25 (OUTBOUND) |
| SIGN D-9                                | EXIT 5   | 314 + 80 (INBOUND)  |
| SIGN D-10                               | EXIT 5 A | 321 + 00 (OUTBOUND) |



EXISTING SIGN D-12

REMOVE 75 AND ADD 750 AND 760  
REMOVE "EXIT 1 MILE" AND  
INSTALL "1 MILE"  
INSTALL "EXITS 5B-A" SIGN PANEL



EXISTING SIGN D-13

REMOVE 75 AND ADD 750 AND 760  
REMOVE "EXIT 2 MILES" AND  
INSTALL "2 MILES"  
INSTALL "EXITS 5B-A" SIGN PANEL

| DATE          |  |
|---------------|--|
| DESIGNED BY   |  |
| TRACED BY     |  |
| NOTED BY      |  |
| CHECKED BY    |  |
| ORIGINAL PLAN |  |
| NOTE BOOK     |  |
| NO.           |  |







## SUMMARY OF EXPRESSWAY SIGN PANELS

| EXISTING WITH MESSAGE REVISION |                                       |
|--------------------------------|---------------------------------------|
| SIGN NO.                       | MESSAGE                               |
| E-8R                           | 75 NORTH, Kunia ↗, EXIT ONLY          |
| E-9                            | Makakilo, Barbers Pt. NAS. ↗          |
| E-7                            | 760 SOUTH, Ewa ↗                      |
| E-8C                           | 760 SOUTH, Ewa, NEXT RIGHT            |
| E-9C                           | Makakilo, Barbers Pt. NAS, NEXT RIGHT |
| E-10R                          | Makakilo, Barbers Pt. NAS, ↓ ↓        |

## SUMMARY OF DESTINATION SIGN PANELS

| NEW SIGN PANELS                |                                         |                |
|--------------------------------|-----------------------------------------|----------------|
| SIGN NO.                       | MESSAGE                                 | AREA (SQ. FT.) |
| D-2                            | EXIT 1B ↗                               | 45             |
| D-3                            | EXIT 1 ↗                                | 36             |
| D-4                            | Campbell Industrial Park, ↗             | 127.5          |
| D-6                            | EXIT 2 ↗                                | 36             |
| D-7                            | EXIT 5 ↗                                | 36             |
| D-10                           | EXIT 5A ↗                               | 45             |
| D-8                            | 750 760 70, Kunia, Ewa-Waipahu, 1 MILE  | 128.3          |
| D-14                           | Waipahu, NEXT TWO EXITS                 | 67.5           |
| D-15                           | 750 760 70, Kunia, Ewa-Waipahu ↗        | 120            |
| TOTAL                          |                                         | 641.3          |
| EXISTING WITH MESSAGE REVISION |                                         |                |
| SIGN NO.                       | MESSAGE                                 |                |
| D-5                            | Campbell, Industrial Park, 1 MILE       |                |
| D-7                            | Barbers Pt. NAS, Makakilo, 1½ MILES     |                |
| D-11                           | 750 NORTH, Kunia, RIGHT LANE, EXIT ONLY |                |
| D-12                           | 750 760, Kunia, Ewa, 1 MILE             |                |
| D-13                           | 750 760, Kunia, Ewa, 2 MILES            |                |

## SUMMARY OF ROUTE MARKERS

| TYPE       | MESSAGE | QUANTITY |          |
|------------|---------|----------|----------|
|            |         | W/POST   | W/O POST |
| IM-1 (3)   | H-1     | 1        | 1        |
| IM3-2-A    | EAST    |          | 1        |
| IM3-4-A    | WEST    |          | 1        |
| M3-1       | NORTH   |          | 1        |
| M3-3       | SOUTH   |          | 1        |
| M4-5       | 70      |          | 1        |
| M1-6 (750) | 750     | 1        |          |
| M1-6 (70)  | 70      | 1        |          |
| M1-6 (760) | 760     | 1        |          |
| M5-1 (L)   | ←       |          | 1        |
| M6-1       | →       |          | 2        |
| TOTAL      |         | 4        | 9        |

## SUMMARY OF REGULATORY AND WARNING SIGNS

| NEW SIGNS                |                                                                                      |                |          |
|--------------------------|--------------------------------------------------------------------------------------|----------------|----------|
| TYPE                     | MESSAGE                                                                              | QUANTITY - EA. |          |
|                          |                                                                                      | W/POST         | W/O POST |
| R1-2                     | YIELD                                                                                | 3              | 2        |
| R2-1 (35)                | SPEED LIMIT 35                                                                       |                | 1        |
| R3-1                     | NO RIGHT TURN                                                                        | 2              | 2        |
| R3-2                     | NO LEFT TURN                                                                         | 1              |          |
| R3-5 (R)                 | ↗ ONLY                                                                               |                | 2        |
| R3-7 (R)                 | RIGHT TURN MUST TURN RIGHT                                                           | 1              | 2        |
| R4-7                     | ↗ KEEP RIGHT                                                                         | 3              |          |
| R5-1                     | DO NOT ENTER                                                                         | 11             | 1        |
| R5-7                     | WRONG WAY                                                                            | 4              | 1        |
| R6-1 (R)                 | ONE WAY →                                                                            |                | 1        |
| R6-1 (L)                 | ← ONE WAY                                                                            |                | 2        |
| R16-5                    | UNLICENSED VEHICLES, BICYCLES<br>CYCLES UNDER 5 H.P. PEDESTRIANS<br>KEEP OUT FREEWAY | 2              | 7        |
| W1-2 (R)-A               | ↗                                                                                    | 1              |          |
| W2-1                     | +                                                                                    | 1              |          |
| W3-1                     | STOP AHEAD                                                                           | 1              |          |
| W4-1 (R)-A               | ↑, MERGE                                                                             | 1              | 3        |
| W4-2 (R)-A               | ↘                                                                                    | 2              | 2        |
| W9-1 (R)-B               | RIGHT LANE ENDS                                                                      | 1              | 1        |
| W2-2 (L)-A               | LANE ENDS MERGE LEFT                                                                 | 2              | 2        |
| R3-4                     | ↘ NO U TURN                                                                          | 1              |          |
| W4-1 (R)                 | ↑, MERGE                                                                             | 1              |          |
| W4-2 (R)                 | ↘                                                                                    |                | 1        |
| W9-1 (R)                 | RIGHT LANE ENDS                                                                      | 1              |          |
| TOTAL                    |                                                                                      | 39             | 26       |
| EXISTING TO BE RELOCATED |                                                                                      |                |          |
| TYPE                     | MESSAGE                                                                              | QUANTITY       |          |
|                          |                                                                                      | W/POST         | W/O POST |
| W1-2 (R)-A               | ↗                                                                                    | 2              |          |
| OW23-1                   | TRUCK CROSSING                                                                       |                | 1        |
| R2-1 (25)                | 25 MPH                                                                               | 2              |          |
| W13-2                    | EXIT 25 MPH                                                                          | 1              |          |
| TOTAL                    |                                                                                      | 5              | 1        |

## SUMMARY OF EXIT NUMBER SIGN PANELS

| SIGNS INSTALLED ABOVE EXPRESSWAY SIGNS  |            |                |
|-----------------------------------------|------------|----------------|
| INSTALLED ABOVE SIGN NO.                | MESSAGE    | AREA (SQ. FT.) |
| E-3                                     | EXIT 1B    | 16             |
| E-4                                     | EXIT 1     | 12             |
| E-5                                     | EXIT 2     | 12             |
| E-8R                                    | EXIT 5B    | 16             |
| E-7                                     | EXIT 5A    | 16             |
| E-8C                                    | EXIT 5A    | 16             |
| TOTAL                                   |            | 88             |
| SIGNS INSTALLED ABOVE DESTINATION SIGNS |            |                |
| INSTALLED ABOVE SIGN NO.                | MESSAGE    | AREA (SQ. FT.) |
| D-4                                     | EXIT 1     | 12             |
| D-5                                     | EXIT 1     | 12             |
| D-7                                     | EXIT 2     | 12             |
| D-8                                     | EXIT 5     | 12             |
| D-11                                    | EXIT 5B    | 16             |
| D-12                                    | EXITS 5A-B | 20             |
| D-13                                    | EXITS 5A-B | 20             |
| D-15                                    | EXIT 5     | 12             |
| TOTAL                                   |            | 116            |

## SUMMARY OF PAVEMENT MARKINGS

| SHEET<br>NUMBER | PAVEMENT<br>STRIPING |        | SUMMARY<br>OF<br>PAVEMENT<br>ARROWS<br>- EA. | RAISED PAVEMENT<br>MARKERS |        |        |
|-----------------|----------------------|--------|----------------------------------------------|----------------------------|--------|--------|
|                 | LENGTH - LF.         |        |                                              | QUANTITY                   |        | EA.    |
|                 | YELLOW               | WHITE  |                                              | TYPE A                     | TYPE C | TYPE H |
| 2T              |                      | 350    | 5                                            | 408                        | 224    | 120    |
| 3T              | 12,200               | 14,250 |                                              | 532                        | 208    | 305    |
| 4T              | 12,400               | 12,400 |                                              | 860                        | 186    | 310    |
| 5T              | 11,400               | 11,400 |                                              | 410                        | 157    | 285    |
| 6T              | 12,400               | 12,400 |                                              | 640                        | 184    | 310    |
| 7T              | 8,000                | 12,600 | 2                                            | 340                        | 274    | 200    |
| TOTAL           | 56,400               | 63,400 | 7                                            | 3,170                      | 1,255  | 1,530  |

## SUMMARY OF PLANTS

| QUANTITY |                 | COMMON AND BOTANICAL NAME         |                          | CONDITION & SIZE |
|----------|-----------------|-----------------------------------|--------------------------|------------------|
| PLANTING | REMOVING HEDGES |                                   |                          |                  |
| 43784    | 61 CY.          | BERMUDA GRASS - CYNODON DACTYLON  |                          |                  |
|          |                 | IMPORTED TOPSOIL                  |                          |                  |
| 4250 LF. | 1760 LF.        | OLEANDER - NERIUM OLEANDER        |                          |                  |
|          |                 | PINK HIBISCUS - HIBISCUS CAMERONI |                          |                  |
| 1        |                 | MONKEY POD - SAMANEA SAMAN        | 10" DIA. 20' HT. 30' GPD |                  |
| 8        |                 | COCONUT - COCOS NUCIFERA          |                          |                  |

|                     |       |                    |             |           |              |
|---------------------|-------|--------------------|-------------|-----------|--------------|
| FED. ROAD DIST. NO. | STATE | FED. AID PROJ. NO. | FISCAL YEAR | SHEET NO. | TOTAL SHEETS |
| HAWAII              | HAW.  | I-HI-1 (108)       | 1975        | 53        | 100          |

## SUMMARY OF REFLECTOR MARKERS

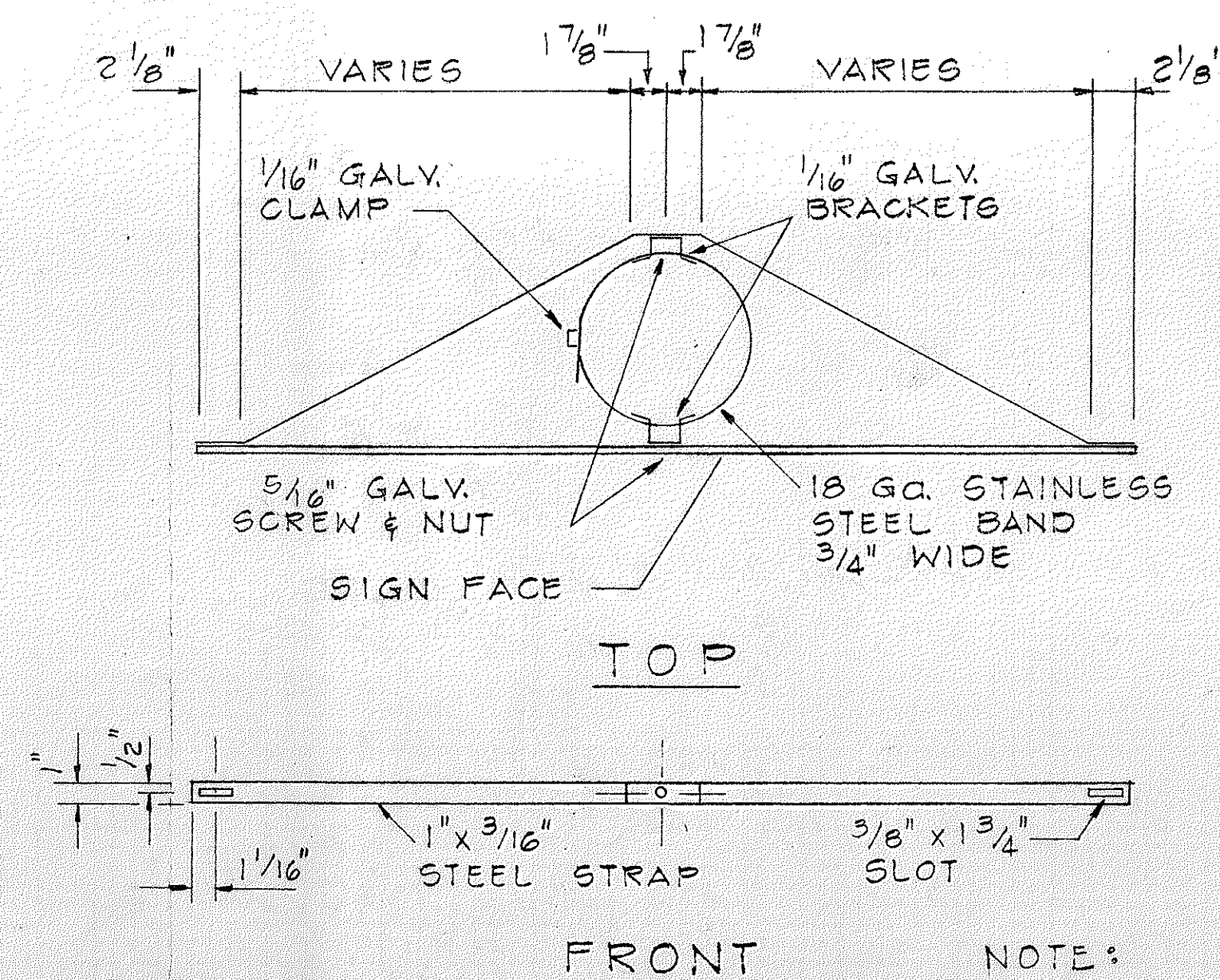
| TYPE | W/POST | W/O POST | ON BARRIER |
|------|--------|----------|------------|
| RM-1 | 17     | -        | -          |
| RM-2 | 45     | 2        | 7          |
| RM-7 | -      | 3        | -          |

|                   |      |
|-------------------|------|
| SURVEY PLOTTED BY | DATE |
| DRAWN BY          |      |
| DESIGNED BY       |      |
| QUANTITIES BY     |      |
| CHECKED BY        |      |
| ORIGINAL PLAN     |      |
| NOTE BOOK         |      |
| No.               |      |

|                                                                            |  |
|----------------------------------------------------------------------------|--|
| STATE OF HAWAII<br>DEPARTMENT OF TRANSPORTATION<br>HIGHWAYS DIVISION       |  |
| SUMMARY OF SIGNS<br>PAVEMENT MARKINGS & PLANTS                             |  |
| PALAILAI TO KUNIA<br>P.A.I. PROJ. NO. I-HI-1 (108)<br>SCALE: 1"=100' DATE: |  |
| SHEET No. 14T OF 33T SHEETS                                                |  |



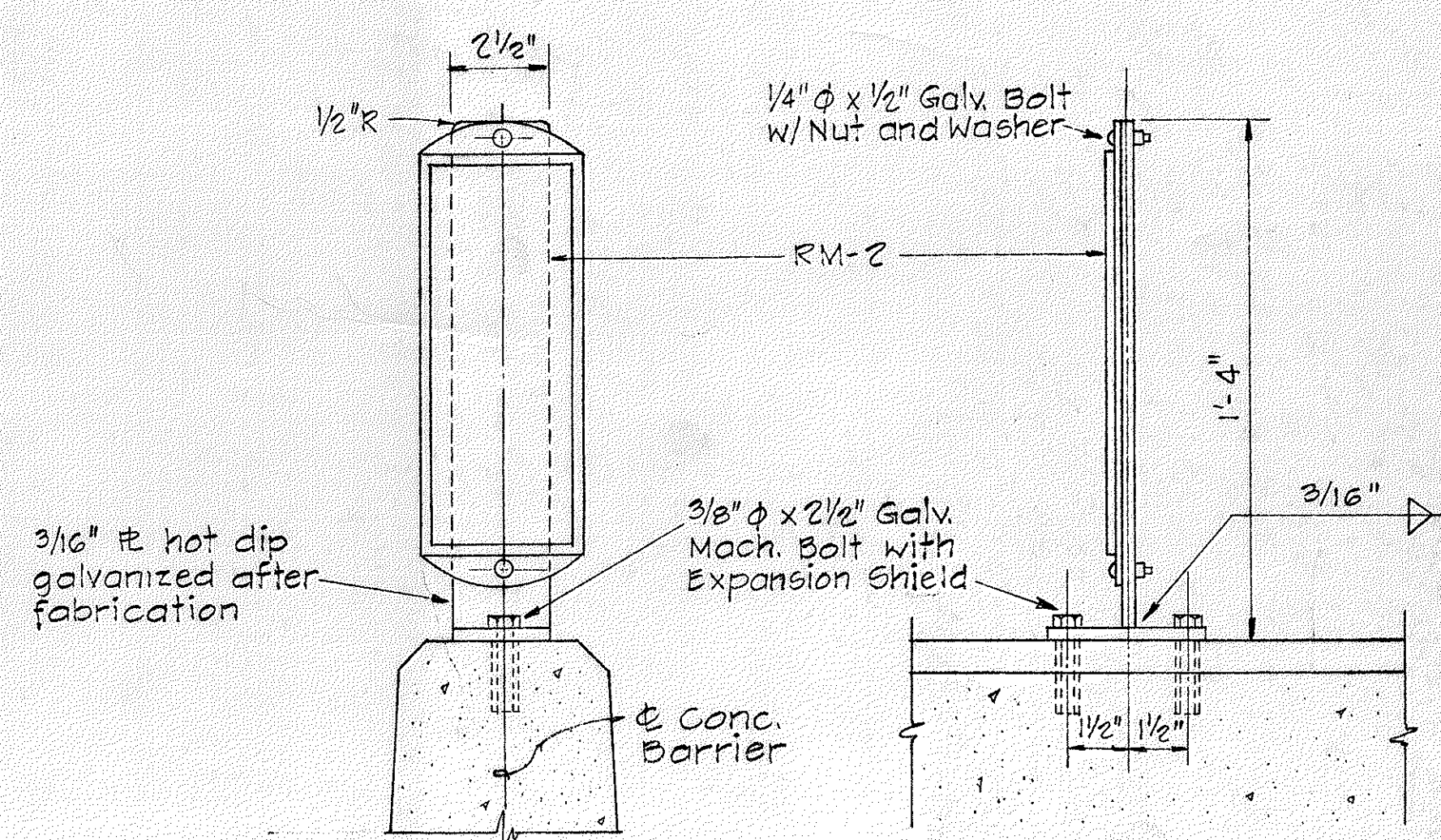
| FED. ROAD DIST. NO. | STATE | FED. AID PROJ. NO. | FISCAL YEAR | SHEET NO. | TOTAL SHEETS |
|---------------------|-------|--------------------|-------------|-----------|--------------|
| HAWAII              | HAW.  | I-HI-1(108)        | 1975        | 54        | 100          |



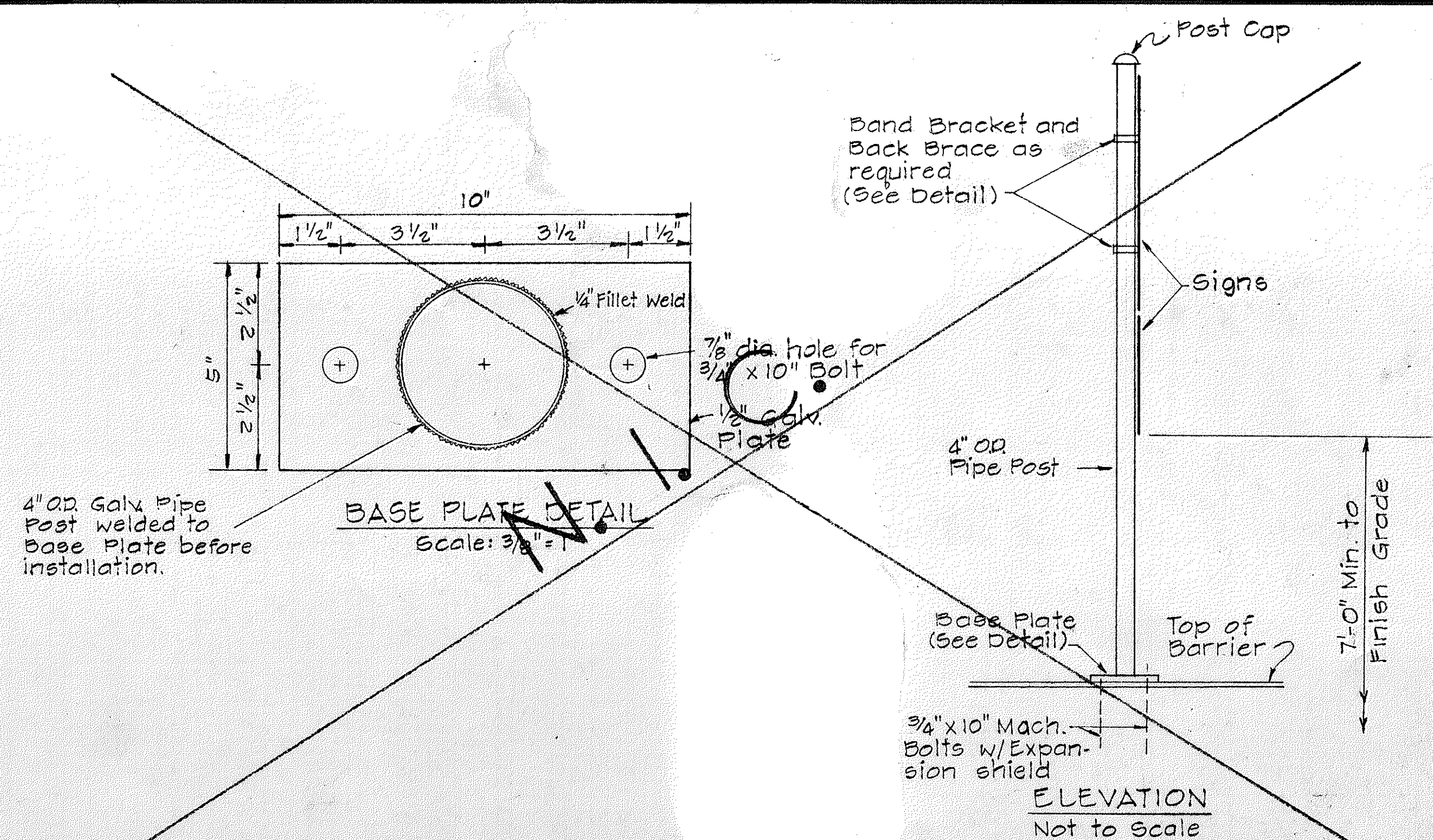
NOTE:  
FOR ADDITIONAL  
DETAILS SEE  
STD DETAIL  
SHT. DT100

### MOUNTING DETAIL OF \* SIGN INSTALLED ON PIPE POST, LIGHT STANDARD OR EXPRESSWAY SIGN POST

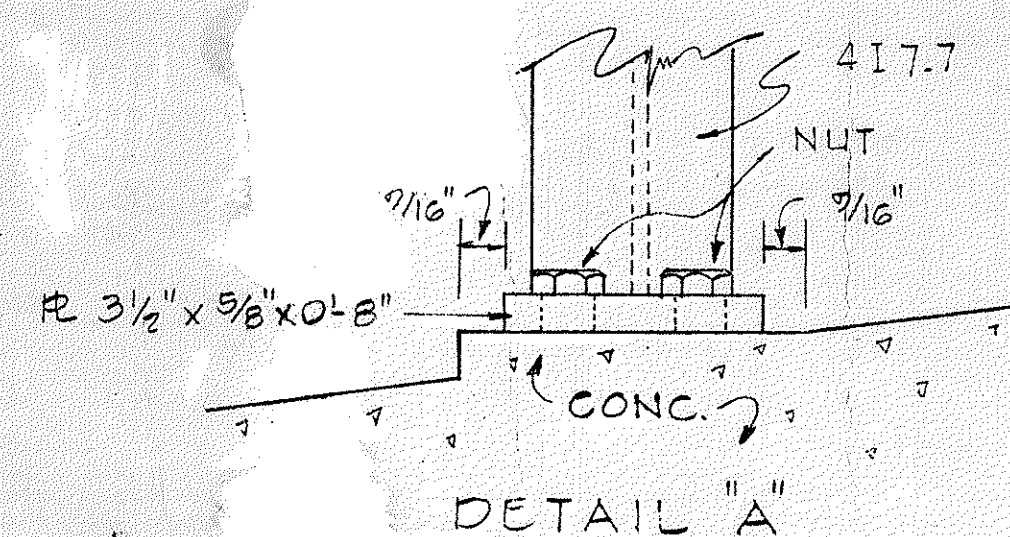
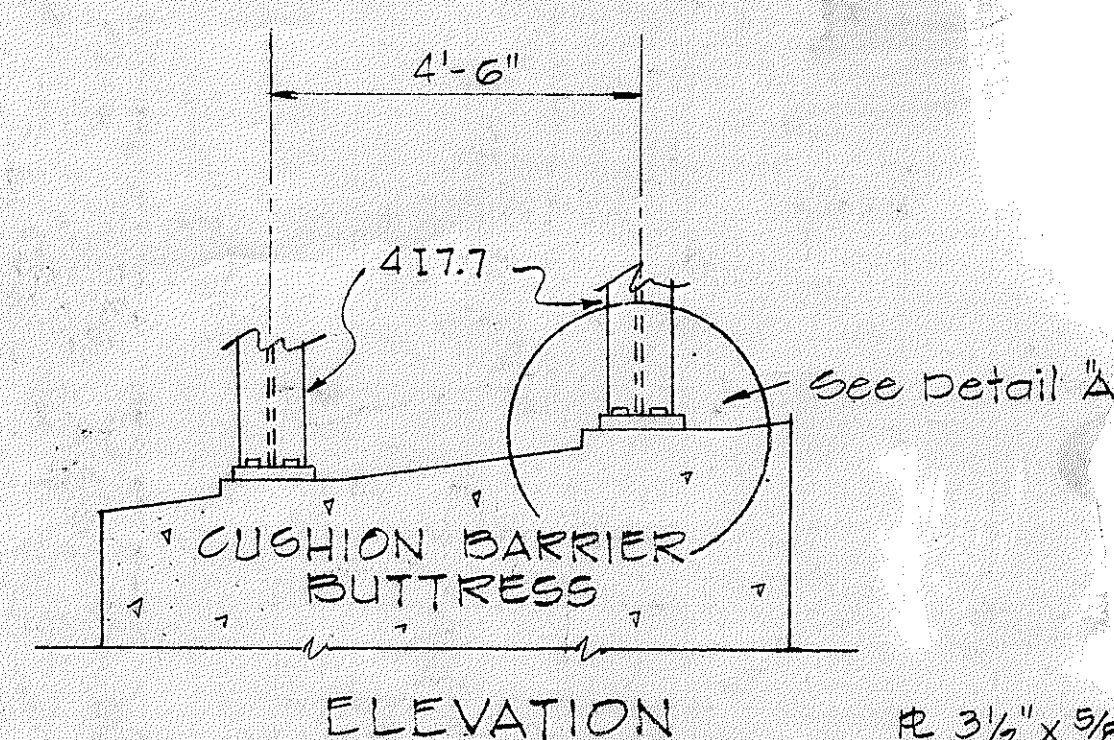
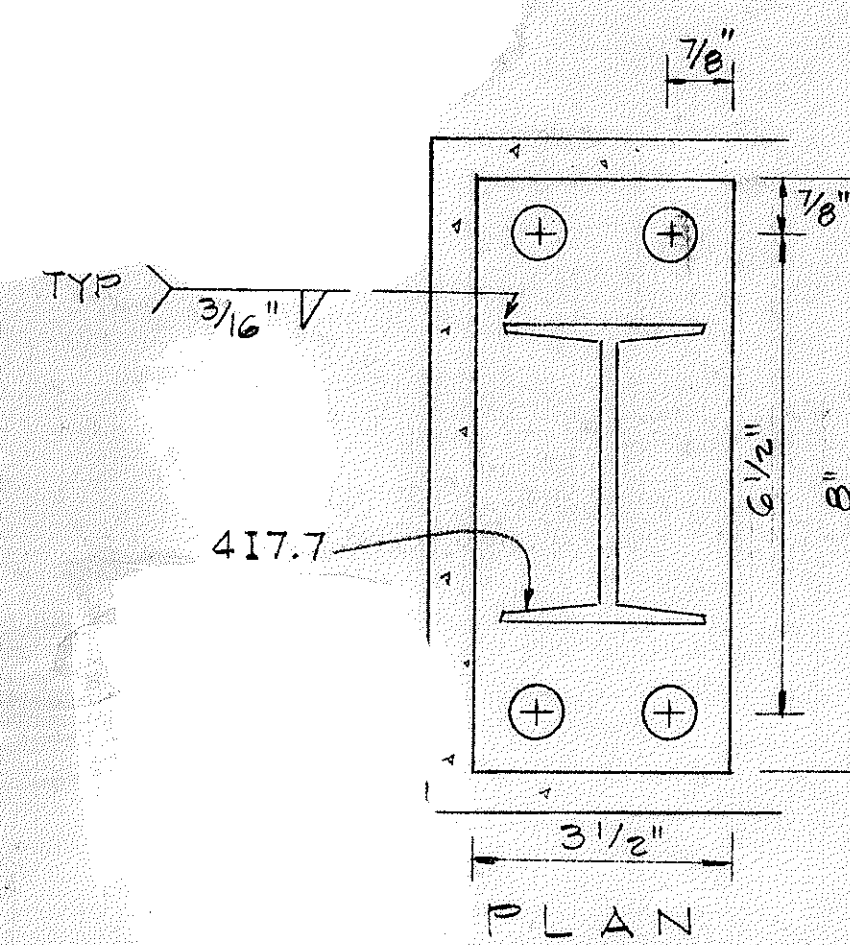
\* FOR SIGNS 48"  
& WIDER  
Scale: 1 1/2" = 1'-0"



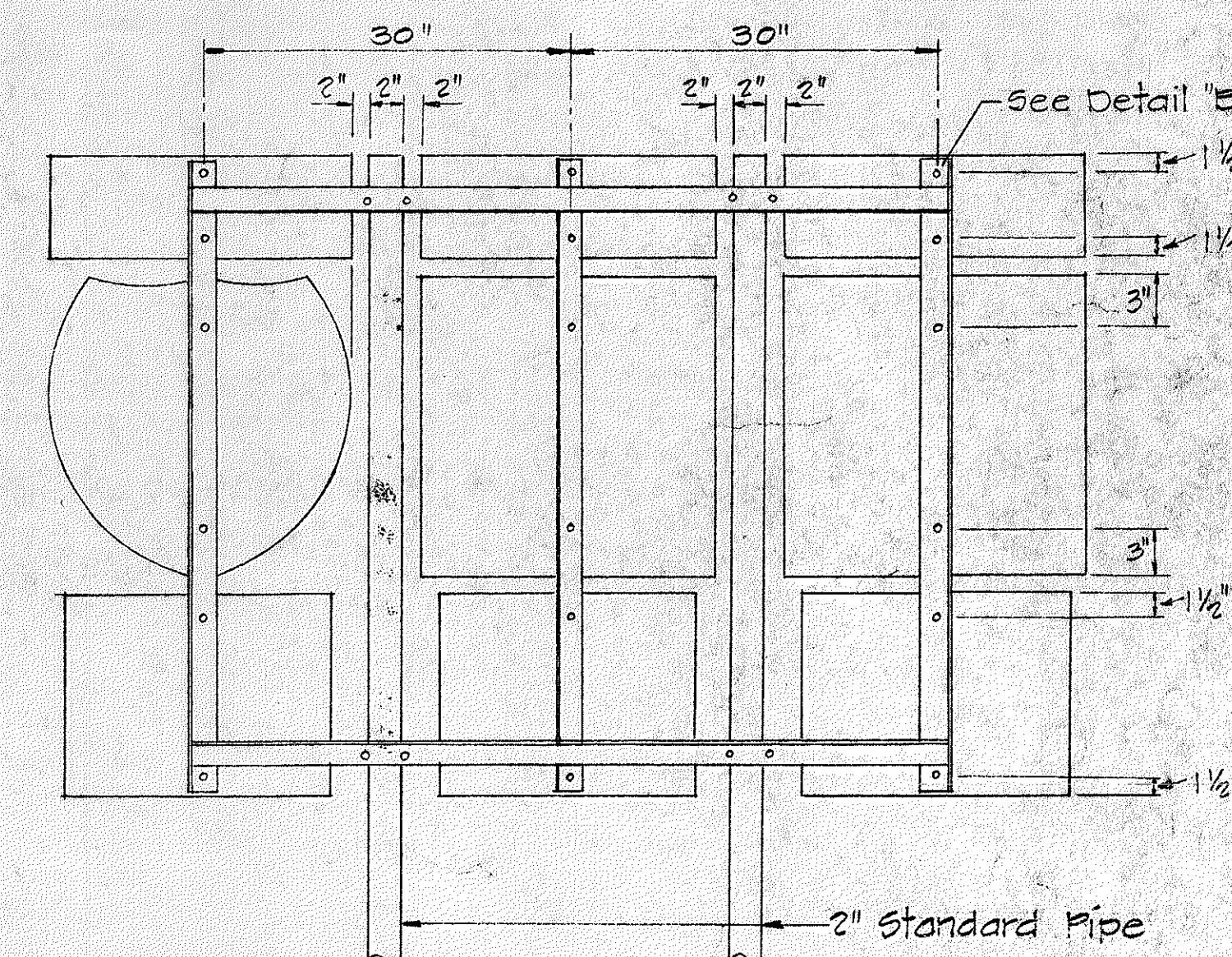
DETAILS OF REFLECTOR MARKER MOUNTED ON CONCRETE BARRIER  
NOT TO SCALE



DETAILS OF SIGN MOUNTED ON CONCRETE BARRIER



BASE PLATE CONNECTION FOR  
SIGN MOUNTED ON CUSHION BARRIER BUTTRESS  
NOT TO SCALE



REAR ELEVATION

NOTE  
For Front Elevation and additional  
details see Std. Detail Sht. DT 107

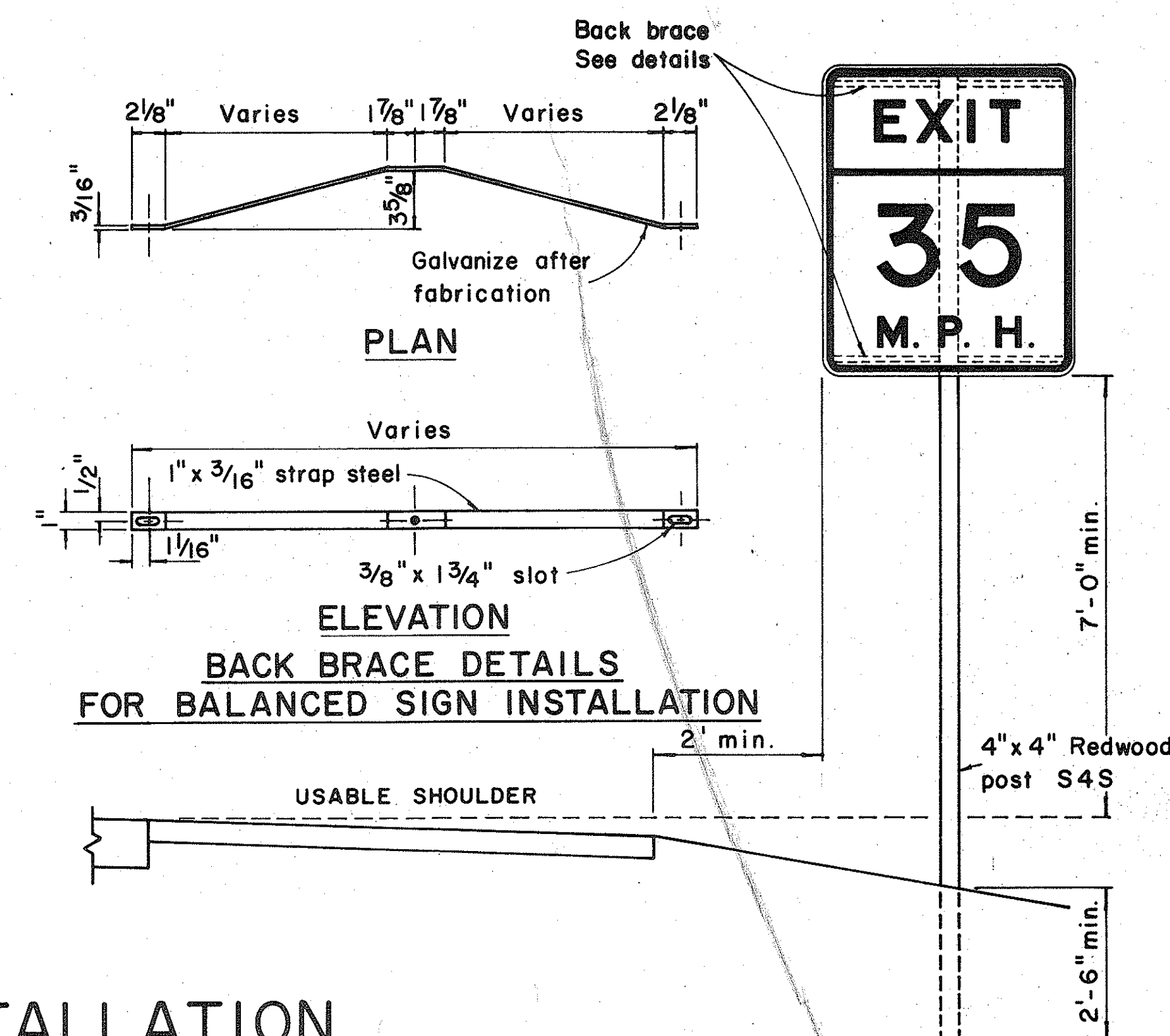
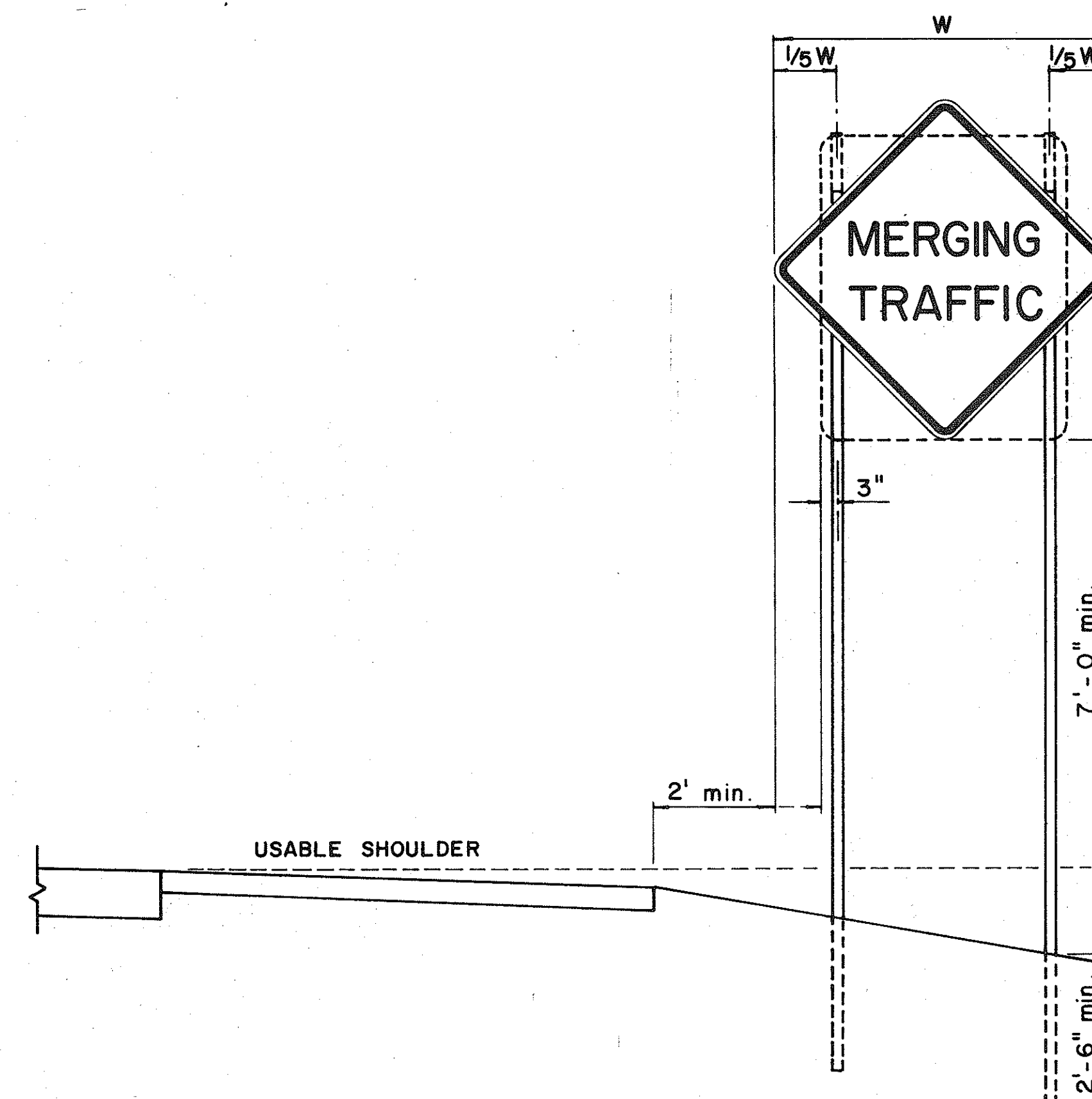
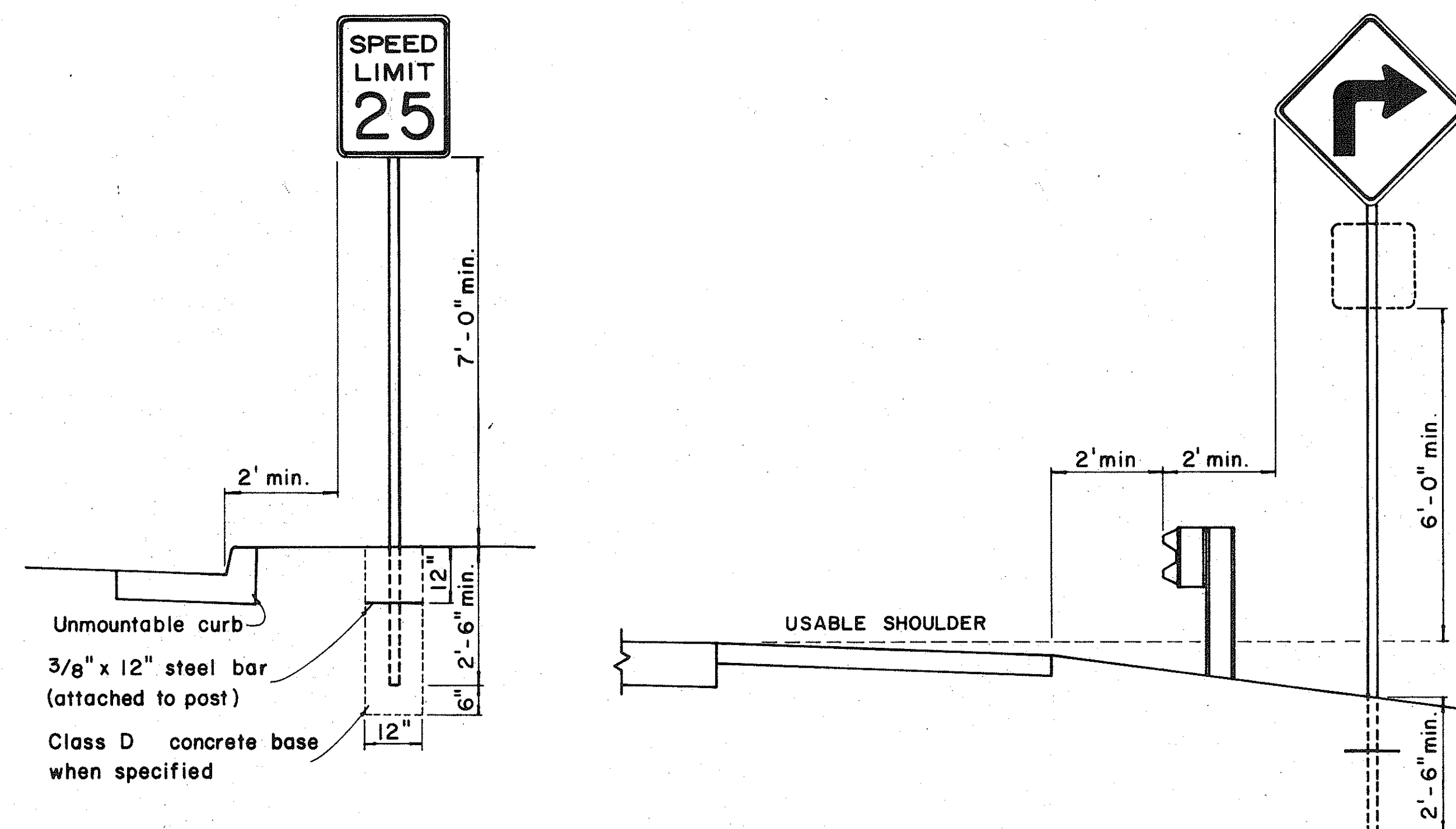
TYPE "C" ROUTE MARKER ASSEMBLY  
N.T.S.

| STATE OF HAWAII<br>DEPARTMENT OF TRANSPORTATION<br>HIGHWAYS DIVISION       |       |
|----------------------------------------------------------------------------|-------|
| MISCELLANEOUS SIGN DETAILS                                                 |       |
| SAFETY IMPROVEMENTS<br>PALAILAI TO KUNIA<br>P.A.I. PROJECT NO. I-HI-1(108) |       |
| SCALE:                                                                     | DATE: |
| SHEET No. 15 OF 33 SHEETS                                                  |       |

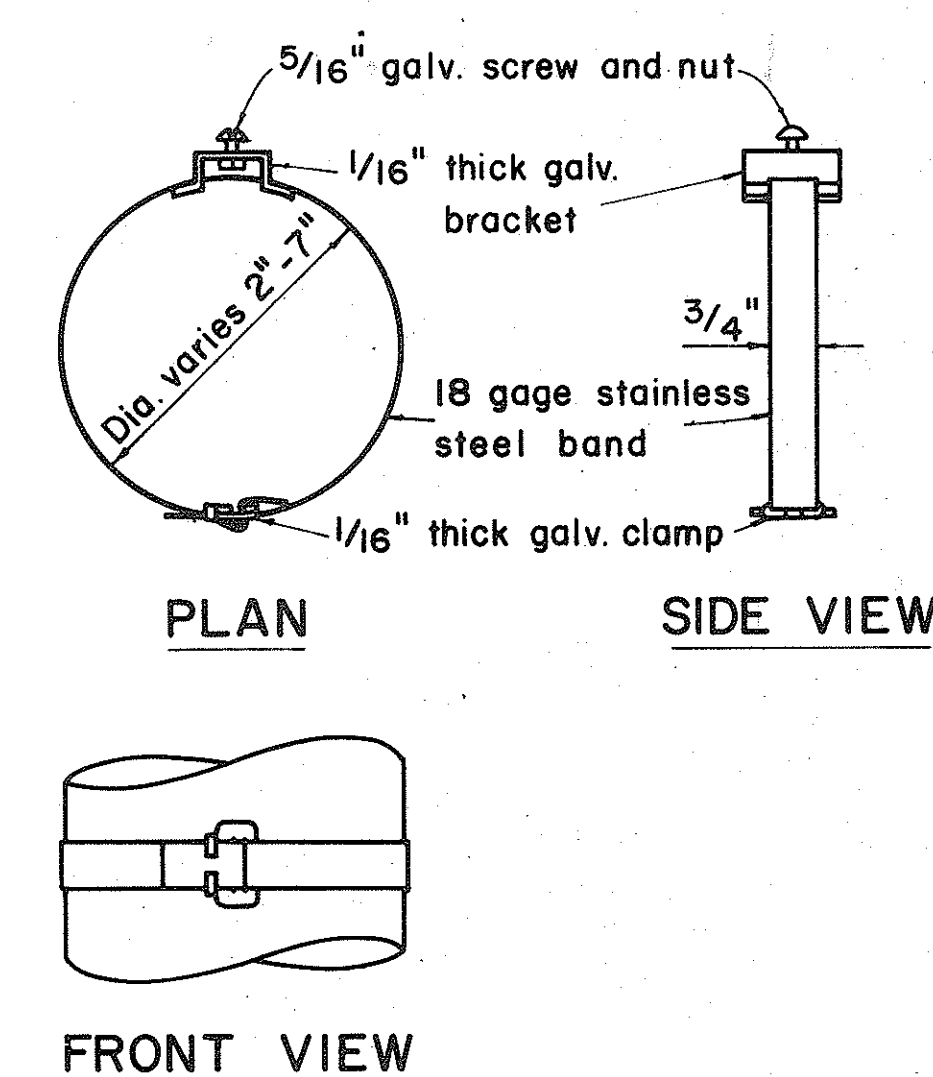
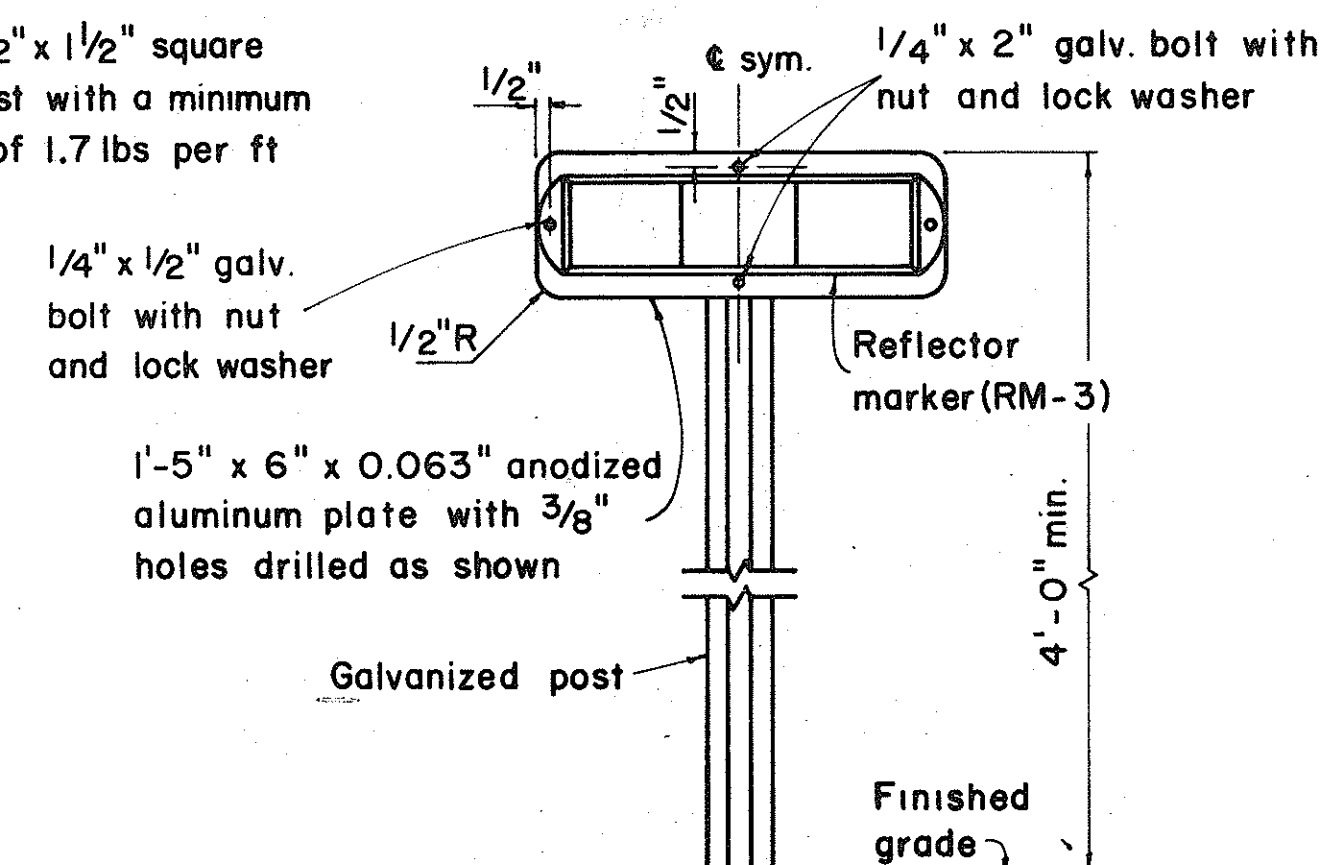
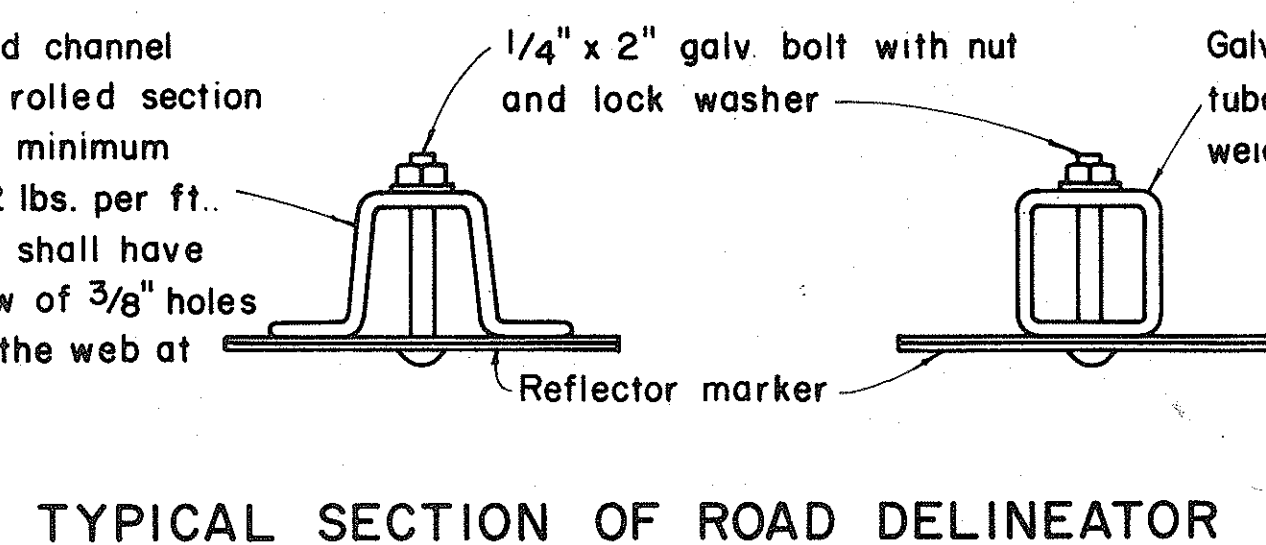
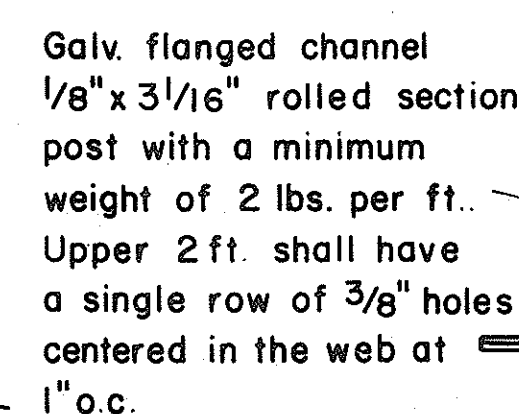
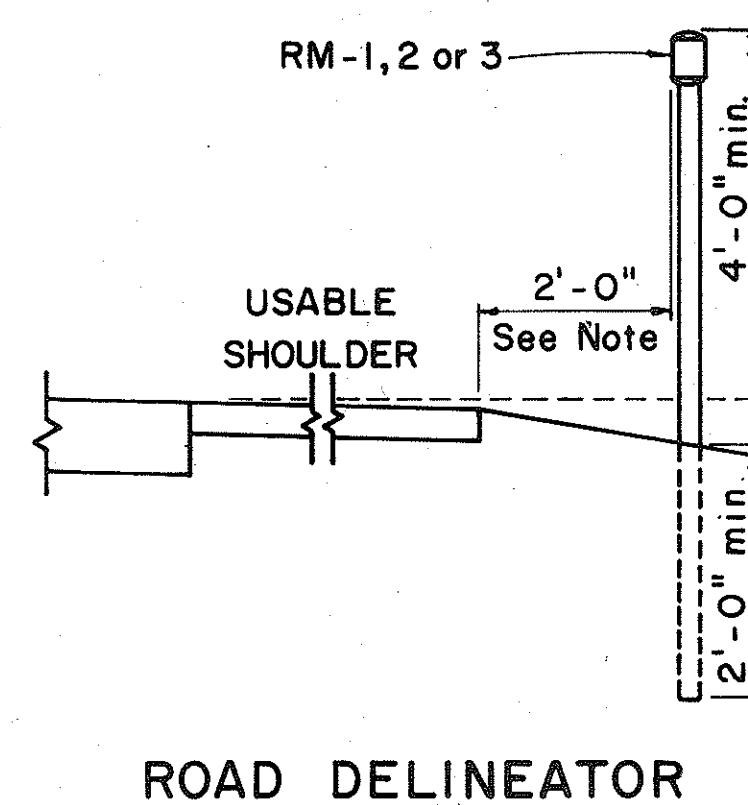
| DATE          | BY   |
|---------------|------|
|               |      |
| ORIGINAL PLAN | DATE |
|               |      |
| NOTES         | BY   |
|               |      |
| QUANTITIES    | BY   |
|               |      |
| CHECKED BY    | DATE |
|               |      |



| FED. ROAD<br>DIST. NO. | STATE | FED. AID<br>PROJ. NO. | FISCAL<br>YEAR | SHEET<br>NO. | TOTAL<br>SHEETS |
|------------------------|-------|-----------------------|----------------|--------------|-----------------|
| HAWAII                 | HAW.  | I-HI-1(108)           | 1975           | 55           | 100             |

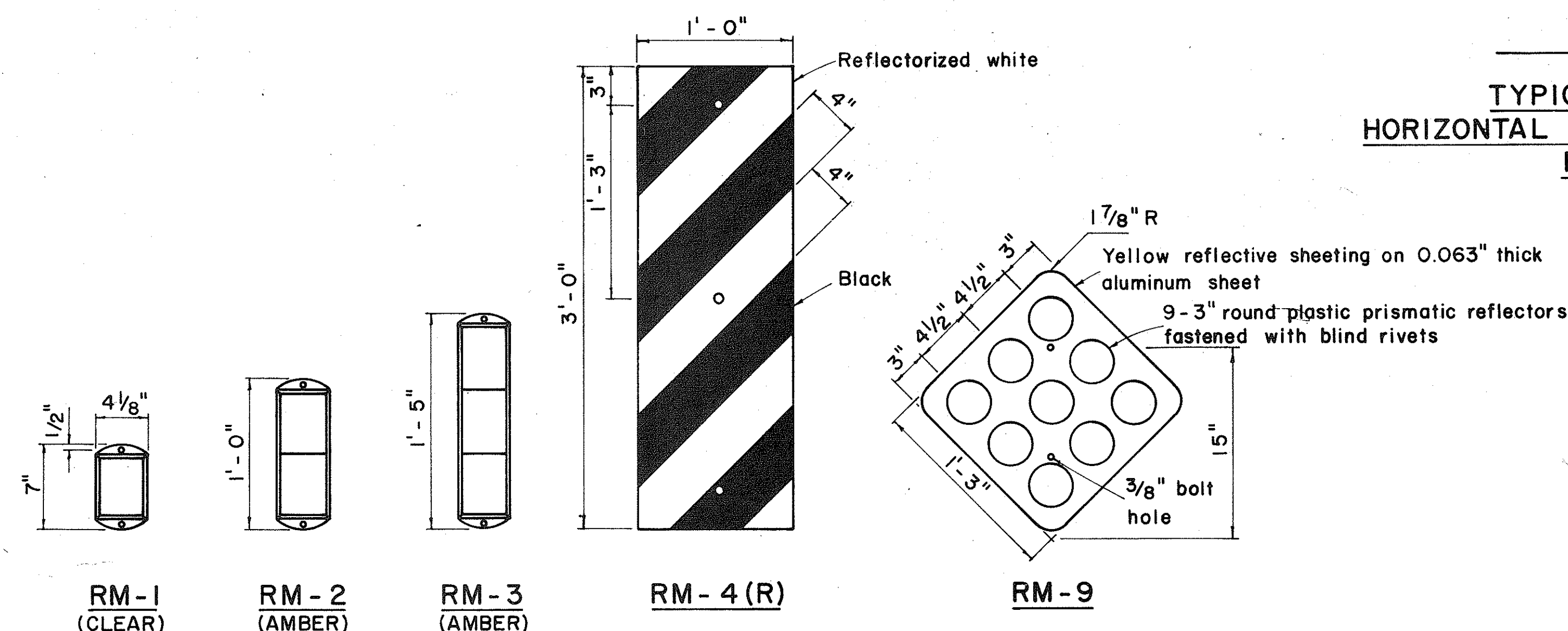


## HEIGHT AND LATERAL LOCATION OF SIGNS - TYPICAL INSTALLATION



GENERAL NOTES:

1. Sign posts shall be 2" galv. standard pipe or 2" x 2" galv. sq. tube post.
2. Signs 48" and wider or larger than 10 sq. ft. in area shall be mounted on two 2" galv. standard pipe or two 2" x 2" galv. sq. tube post or 4" x 4" redwood post S4S.
3. Signs shall be attached to post with 5/16" galv. bolts with nuts and 7/8" x 0.06 stainless steel washers with neoprene rubber gasket.
4. Sign posts shall extend 3/2" above sign where required for City and County street name signs.
5. 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.
6. Clearance markers (RM-3, RM-4) shall be installed with the edge of the marker in line with the inner edge of the obstruction.
7. (R) or (L) indicates right or left and shall be as shown on the plans.



## REFLECTOR MARKERS

## TYPICAL BAND BRACKET FOR MOUNTING TRAFFIC SIGNS

| NO | REVISION | APPROVED<br>BY | DATE |
|----|----------|----------------|------|
|    |          |                |      |

APPROVAL RECOMMENDED:  
Eiichi Tanaka 12/29/69  
TRAFFIC ENGINEER DATE

APPROVED: \_\_\_\_\_  
ASSISTANT CHIEF ENGINEERING DATE

**STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION**

## STANDARD DETAILS

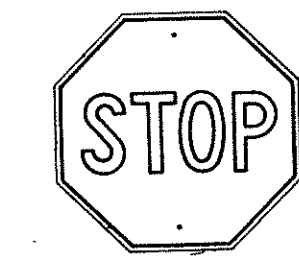
### MISCELLANEOUS SIGN DETAILS

Not to scale March, 1968

**SHEET No. 16T OF 33T SHEETS DT 100**



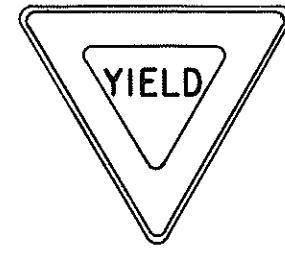
| FED. ROAD DIST. NO. | STATE | FED. AID PROJ. NO. | FISCAL YEAR | SHEET NO. | TOTAL SHEETS |
|---------------------|-------|--------------------|-------------|-----------|--------------|
| HAWAII              | HAW.  | I-H-1(108)         | 1975        | 56        | 100          |



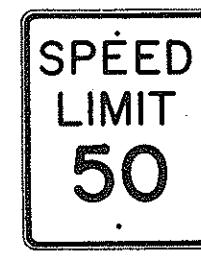
R1-1 30"x30"  
R1-1-A 36"x36"

4-WAY

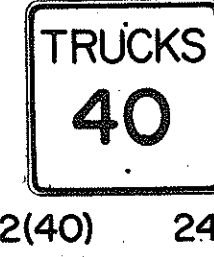
R1-3 12"x6"  
R1-3-A 18"x9"



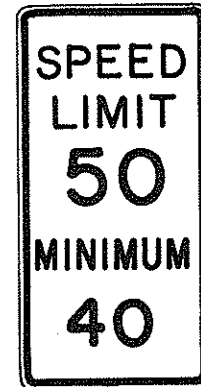
R1-2 36"x36"x36"  
R1-2-A 48"x48"x48"



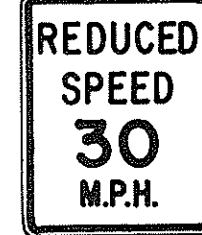
R2-1(50) 24"x30"  
R2-1(50)-A 48"x60"



R2-2(40) 24"x24"  
R2-2(40)-A 48"x48"



R2-4a(50/40) 24"x48"  
R2-4a(50/40)-A 48"x96"



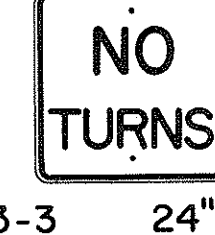
R2-5b(30) 24"x30"  
R2-5b(30)-A 48"x60"



R3-1 24"x24"  
24"x18"  
R3-1-A 48"x48"  
48"x36"



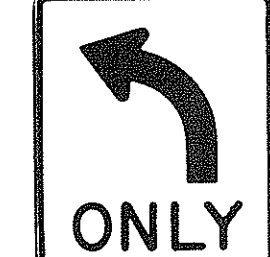
R3-2 24"x24"  
24"x18"  
R3-2-A 48"x48"  
48"x36"



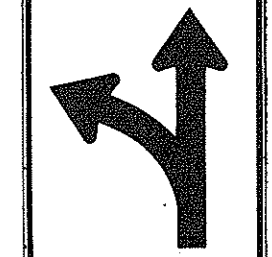
R3-3 24"x24"  
R3-3-A 48"x48"



R3-4 24"x24"  
24"x18"  
R3-4-A 48"x48"  
48"x36"



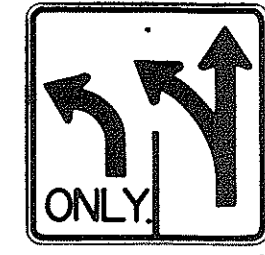
R3-5(L) 30"x36"  
R3-5(L)-A 48"x60"



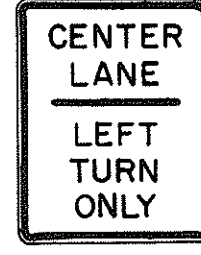
R3-6(L) 30"x36"  
R3-6(L)-A 48"x60"



R3-7(R) 30"x30"  
R3-7(R)-A 48"x48"



R3-8(L) 30"x30"  
R3-8(L)-A 36"x36"  
R3-8(L)-B 48"x48"



R3-9 24"x30"



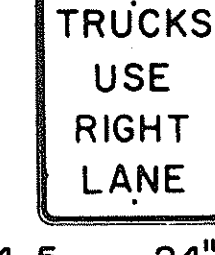
R4-1 24"x30"



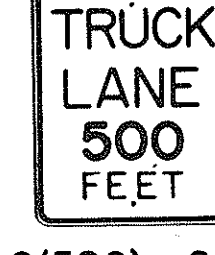
R4-2 24"x30"



R4-3 24"x30"  
R4-3-A 48"x60"



R4-5 24"x30"



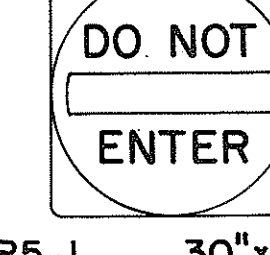
R4-6(500) 24"x30"



R4-7 24"x30"  
24"x18"



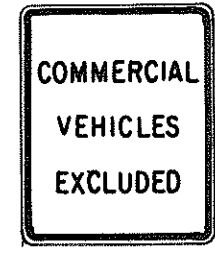
R4-8 24"x30"  
24"x18"



R5-1 30"x30"  
R5-1-A 48"x48"



R5-2 24"x24"  
24"x18"



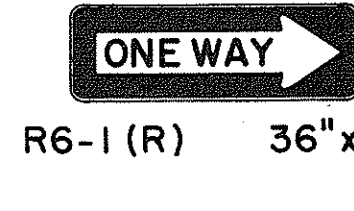
R5-4 24"x30"



R5-6 24"x24"  
24"x18"



R5-9 36"x24"



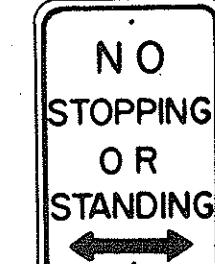
R6-1 (R) 36"x12"



R6-2(R) 18"x24"



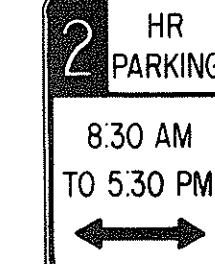
R7-1 12"x18"  
R7-1-A 24"x30"



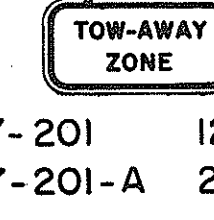
R7-4 12"x18"  
R7-4-A 24"x30"



R7-107(R) 12"x18"



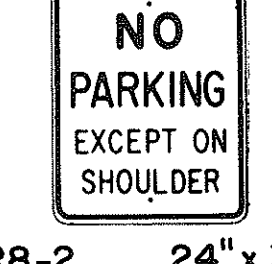
R7-108 12"x18"



R7-201 12"x6"  
R7-201-A 24"x12"



R8-1 24"x30"



R8-2 24"x30"



R8-3 24"x30"



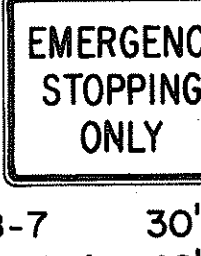
R8-4 30"x24"  
R8-4-A 48"x36"



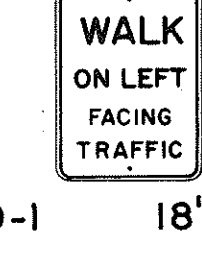
R8-5 24"x30"



R8-6 24"x30"



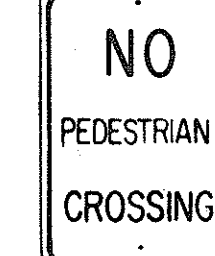
R8-7 30"x24"  
R8-7-A 48"x36"



R9-1 18"x24"



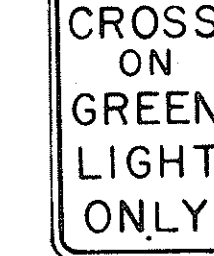
R9-2 12"x18"



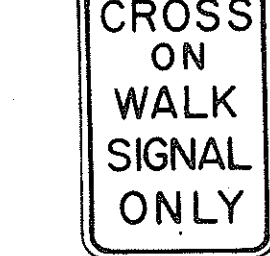
R9-3 12"x18"



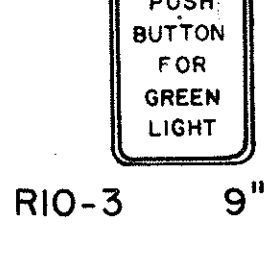
R9-4 18"x24"



R10-1 12"x18"



R10-2 12"x18"



R10-3 9"x12"



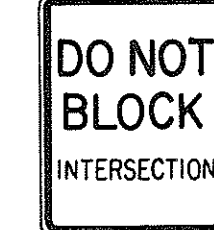
R10-4 9"x12"



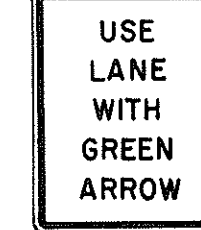
R10-5 24"x30"



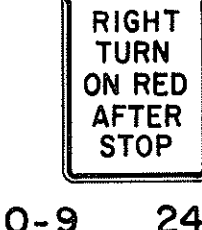
R10-6 24"x36"



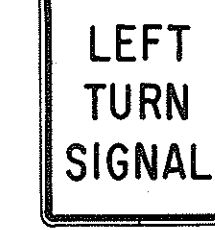
R10-7 24"x30"



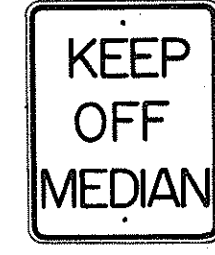
R10-8 24"x30"



R10-9 24"x30"



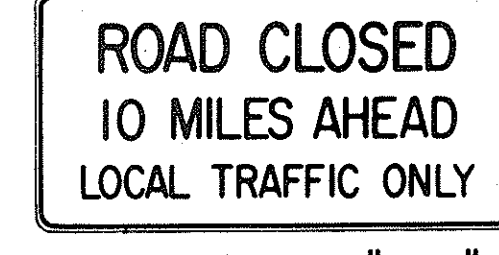
R10-10 24"x30"



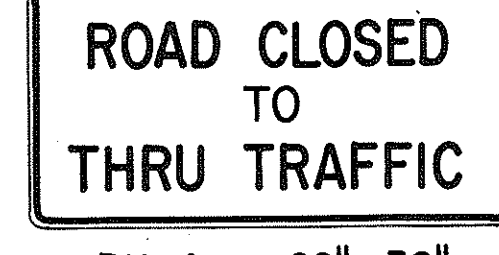
R11-1 24"x30"



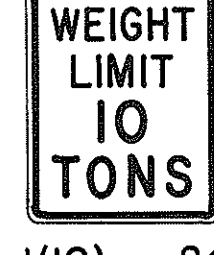
R11-2 48"x30"



R11-3(10) 60"x30"



R11-4 60"x30"



R12-1(10) 24"x30"

### GENERAL NOTES

- Sign details shall conform to the FHWA publications "Manual on Uniform Traffic Control Devices for Streets and Highways," 1971, and "Standard Highway Signs."
- All regulatory signs shall be reflectorized unless otherwise specified.
- All regulatory signs shall have 3/8" bolt holes drilled at appropriate locations.
- Numerals in ( ) indicates numerals to be inserted for sign message. (R) or (L) indicates right or left.

APPROVAL RECOMMENDED:  
*Eishi Tanaka*  
TRAFFIC ENGINEER

3/17/72  
DATE

APPROVED:  
*Robert J. ...*  
ASSISTANT CHIEF, ENGINEERING

3-20-72  
DATE

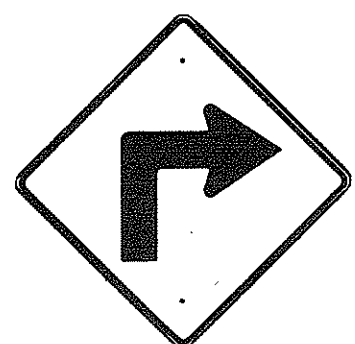
| NO. | REVISION                                    | APPROVED BY | DATE    |
|-----|---------------------------------------------|-------------|---------|
| 1   | Supersedes Sht. DT 101<br>Approved 12-30-69 | H.C.        | 3/20/72 |

|                                                                                                                                                                                          |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| STATE OF HAWAII<br>DEPARTMENT OF TRANSPORTATION<br>HIGHWAYS DIVISION<br><br><b>STANDARD DETAILS</b><br><b>REGULATORY SIGNS</b><br><br>NOT TO SCALE<br>SHEET No. 177 OF 337 SHEETS DT 101 |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

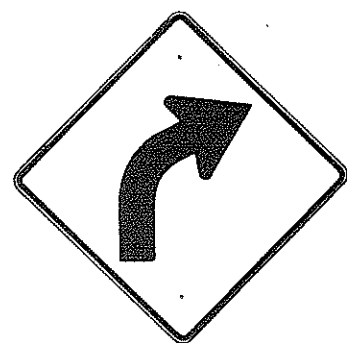
|                                                                                                                                                                |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------|
| SURVEY PLOTTED BY _____<br>CHECKED BY _____<br>DESIGNED BY _____<br>TRACED BY _____<br>NOTE BOOK _____<br>QUANTITIES BY _____<br>CHECKED BY _____<br>No. _____ |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------|



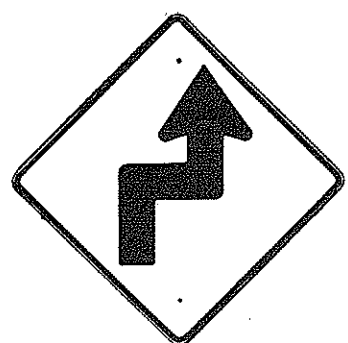
| FED. ROAD DIST. NO. | STATE | FED. AID PROJ. NO. | FISCAL YEAR | SHEET NO. | TOTAL SHEETS |
|---------------------|-------|--------------------|-------------|-----------|--------------|
| HAWAII *            | HAW.  | I-HI-1(100)        | 1975        | 57        | 100          |



W1-1(R) 30"x30"  
W1-1(R)-A 48"x48"



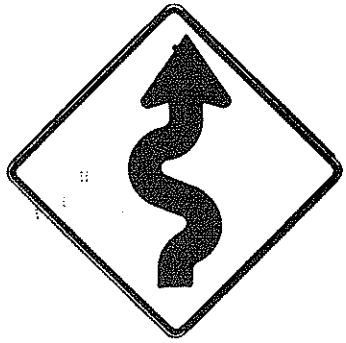
W1-2(R) 30"x30"  
W1-2(R)-A 48"x48"



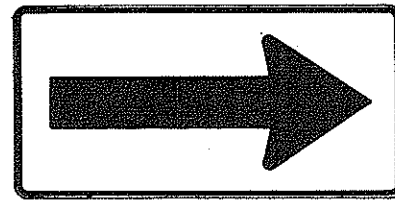
W1-3(R) 30"x30"  
W1-3(R)-A 48"x48"



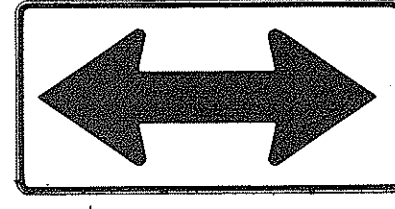
W1-4(R) 30"x30"  
W1-4(R)-A 48"x48"



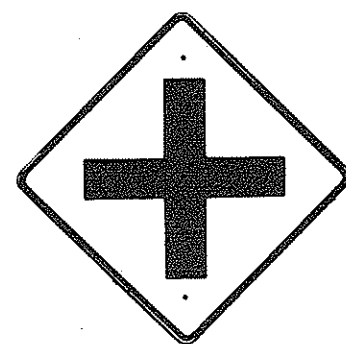
W1-5(R) 30"x30"  
W1-5(R)-A 48"x48"



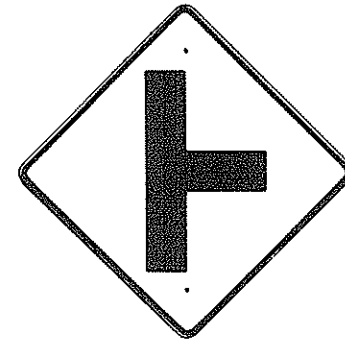
W1-6 48"x24"



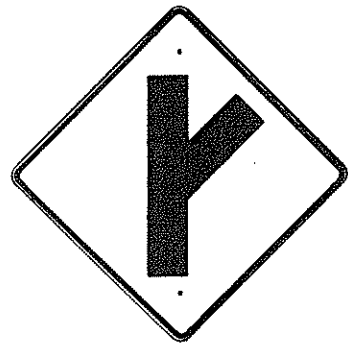
W1-7 48"x24"



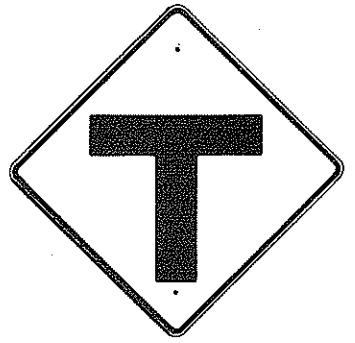
W2-1 30"x30"  
W2-1-A 48"x48"



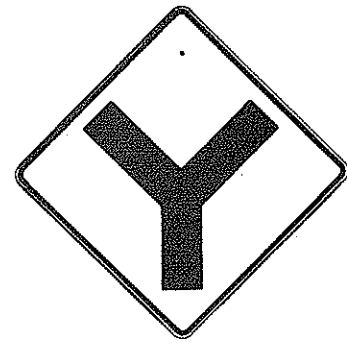
W2-2 30"x30"  
W2-2-A 48"x48"



W2-3(R) 30"x30"  
W2-3(R)-A 48"x48"



W2-4 30"x30"  
W2-4-A 48"x48"



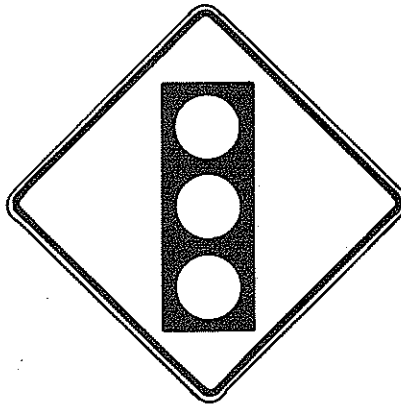
W2-5 30"x30"  
W2-5-A 48"x48"



W3-1 30"x30"  
W3-1-A 36"x36"



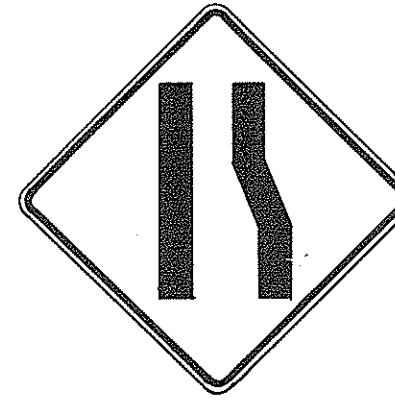
W3-2 30"x30"  
W3-2-A 36"x36"



W3-3 36"x36"  
24"x18"



W4-1(R) 30"x30"  
24"x18"  
W4-1(R)-A 48"x48"  
24"x18"



W4-2(R) 36"x36"  
W4-2(R)-A 48"x48"



W5-1 36"x36"



W5-2 30"x30"  
W5-2-A 36"x36"



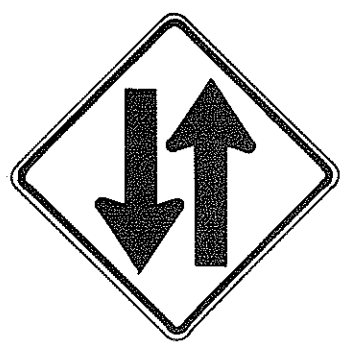
W5-3 36"x36"



W6-1 36"x36"  
24"x18"



W6-2 36"x36"  
24"x18"



W6-3 30"x30"  
24"x18"  
W6-3-A 36"x36"  
24"x18"  
W6-3-B 48"x48"  
24"x18"



W7-1 30"x30"  
24"x18"  
W7-1-A 36"x36"  
24"x18"



W7-2 24"x18"



W8-1 30"x30"  
W8-1-A 36"x36"



W8-2 30"x30"  
W8-2-A 36"x36"



W8-3 30"x30"  
W8-3-A 36"x36"



W8-4 30"x30"  
W8-4-A 36"x36"



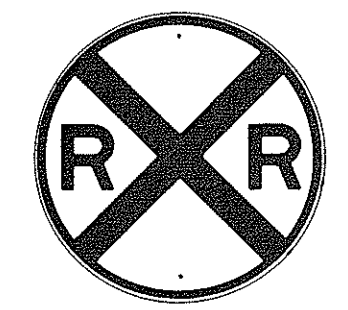
W8-5 30"x30"  
24"x18"  
W8-5-A 36"x36"  
24"x18"



W9-1(R) 30"x30"  
W9-1(R)-A 36"x36"  
W9-1(R)-B 48"x48"



W9-2(L) 36"x36"  
W9-2(L)-A 48"x48"



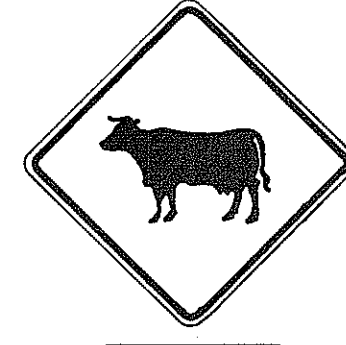
W10-1 36" Diameter



W11-1 30"x30"  
24"x18"  
W11-1-A 36"x36"  
24"x18"



W11-2 30"x30"  
24"x18"  
W11-2-A 36"x36"  
24"x18"



W11-4 30"x30"  
24"x18"  
W11-4-A 36"x36"  
24"x18"



W11-5 30"x30"  
24"x18"  
W11-5-A 36"x36"  
24"x18"



W14-1 30"x30"



W14-3 36" x 48" x 48"

### GENERAL NOTES

- Sign details shall conform to the FHWA publications "Manual on Uniform Traffic Control Devices for Streets and Highways," 1971, and "Standard Highway Signs."
- All warning signs shall be reflectorized unless otherwise specified.
- All warning signs shall have 3/8" bolt holes drilled at appropriate locations.
- Numerals in ( ) indicates numerals to be inserted for sign message. (R) or (L) indicates right or left.
- Signs prefixed with "CW" on the plans shall indicate orange and black construction signs.

APPROVAL RECOMMENDED:  
*E. J. Tanaka*  
TRAFFIC ENGINEER

3/17/72  
DATE

APPROVED:  
*W. J. Davis*  
ASSISTANT CHIEF, ENGINEERING

3-20-72  
DATE

| NO. | REVISION                                 | APPROVED BY | DATE    |
|-----|------------------------------------------|-------------|---------|
| 1   | Supersedes Sht. DT 102 Approved 12-30-69 | H.T.        | 3/20/72 |

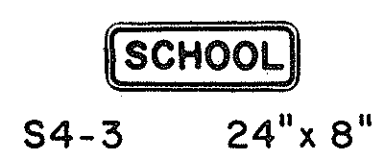
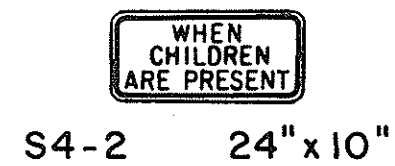
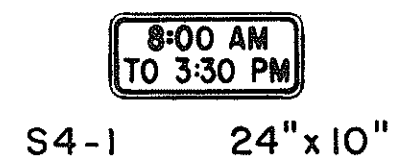
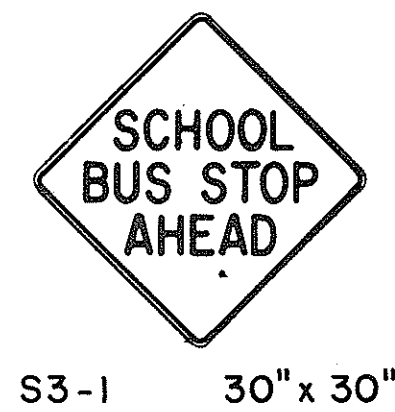
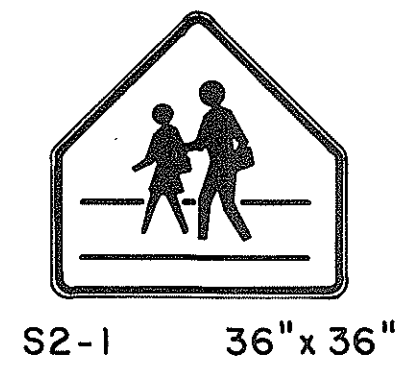
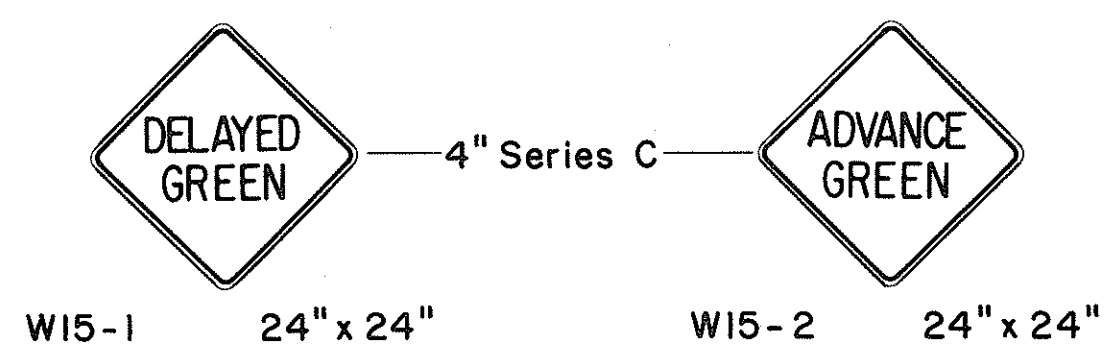
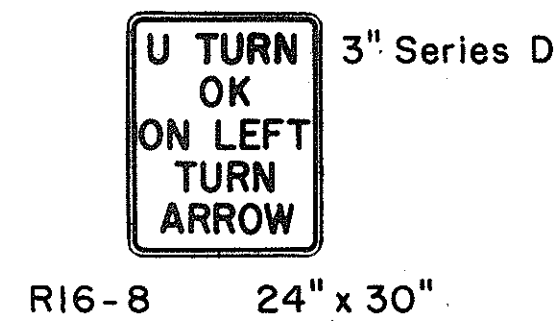
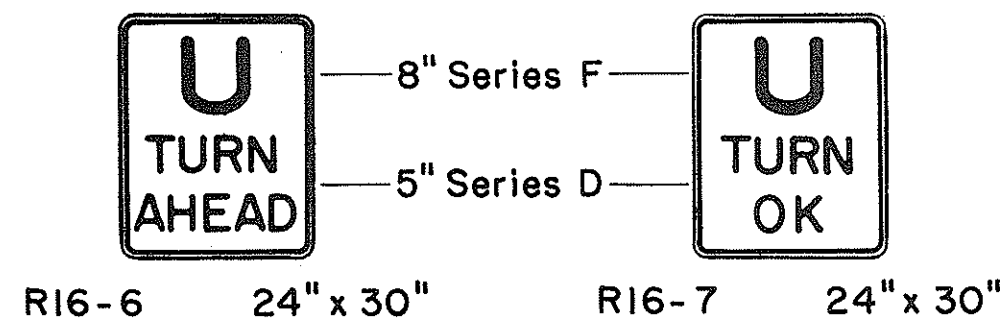
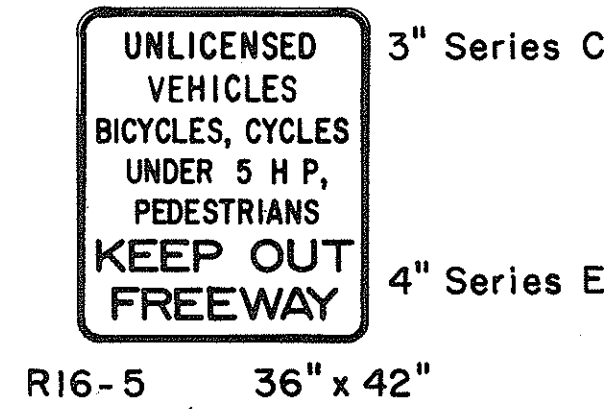
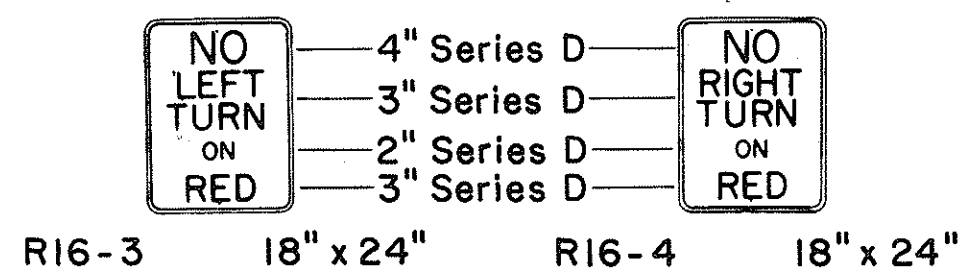
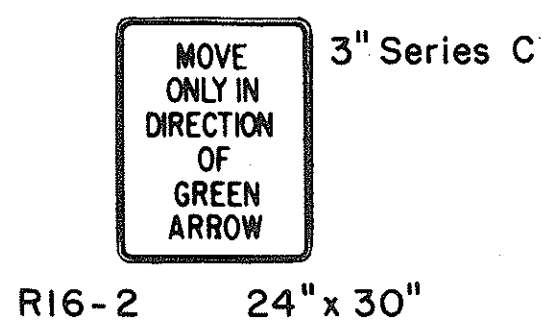
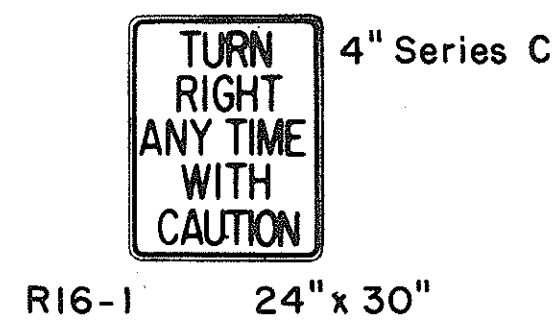
|                                                                      |
|----------------------------------------------------------------------|
| STATE OF HAWAII<br>DEPARTMENT OF TRANSPORTATION<br>HIGHWAYS DIVISION |
| <b>STANDARD DETAILS</b><br><b>WARNING SIGNS</b>                      |
| NOT TO SCALE                                                         |

SHEET No. 187 OF 337 SHEETS DT 102

|                   |       |
|-------------------|-------|
| DATE              | _____ |
| SURVEY PLOTTED BY | _____ |
| DRAWN BY          | _____ |
| TRACED BY         | _____ |
| NOTED BY          | _____ |
| CHECKED BY        | _____ |
| NO.               | _____ |



| FED. ROAD DIST. NO. | STATE | FED. AID PROJ. NO. | FISCAL YEAR | SHEET NO. | TOTAL SHEETS |
|---------------------|-------|--------------------|-------------|-----------|--------------|
| HAWAII              | HAW.  | 1-HI-1(108)        | 1975        | 58        | 100          |



### GENERAL NOTES

1. Sign details shall conform to the FHWA publications "Manual on Uniform Traffic Control Devices for Streets and Highways," 1971, and "Standard Highway Signs."
2. All regulatory and warning signs shall be reflectorized unless otherwise specified.
3. All regulatory and warning signs shall have 3/8" bolt holes drilled at appropriate locations.
4. Numerals in ( ) indicates numerals to be inserted for sign message. (R) or (L) indicates right or left.

APPROVAL RECOMMENDED:  
*Eishi Tanaka*  
TRAFFIC ENGINEER  
DATE 3/17/72

APPROVED:  
*Harold Zalsich*  
ASSISTANT CHIEF, ENGINEERING  
DATE 2-20-72

| NO. | REVISION                                 | APPROVED BY | DATE    |
|-----|------------------------------------------|-------------|---------|
| 1   | Supersedes Sht. DT 103 Approved 12-30-69 | H.T.        | 3/20/72 |

STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

**STANDARD DETAILS**  
**MISCELLANEOUS**  
**REGULATORY & WARNING SIGNS**

NOT TO SCALE

SHEET No. 197 OF 337 SHEETS DT 103



| FED. ROAD DIST. NO. | STATE | FED. AID PROJ. NO. | FISCAL YEAR | SHEET NO. | TOTAL SHEETS |
|---------------------|-------|--------------------|-------------|-----------|--------------|
| HAWAII              | HAW.  | I-41-1(108)        | 1976        | 59        | 100          |



CW20-1a 48" x 48"



CW20-2d 48" x 48"



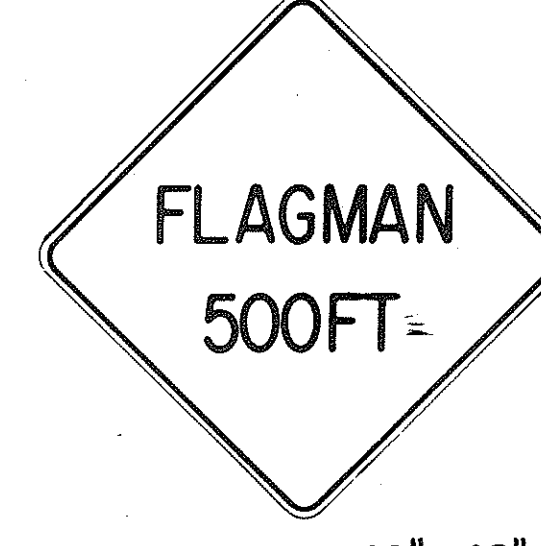
CW20-3b 48" x 48"



CW20-4d 48" x 48"



CW20-5d(L) 48" x 48"



CW20-7c 48" x 48"



CW21-1 30" x 30"



CW21-2 30" x 30"



CW21-3 36" x 36"



CW21-4 36" x 36"



CW21-5 30" x 30"



CW21-6 30" x 30"



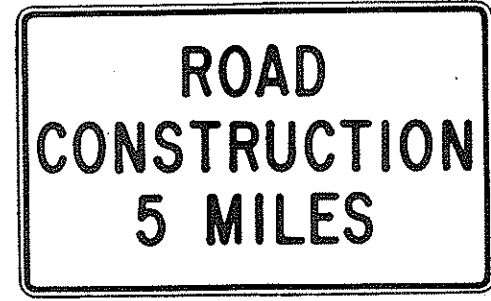
CW22-1b 48" x 48"



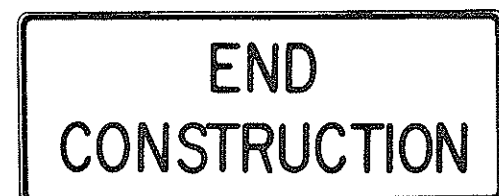
CW22-2 42" x 36"



CW22-3 42" x 36"



CG20-1(5) 60" x 36"



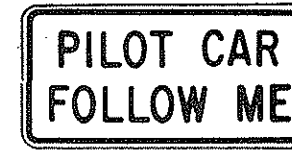
CG20-2 60" x 24"



CM4-9(R) 30" x 24"



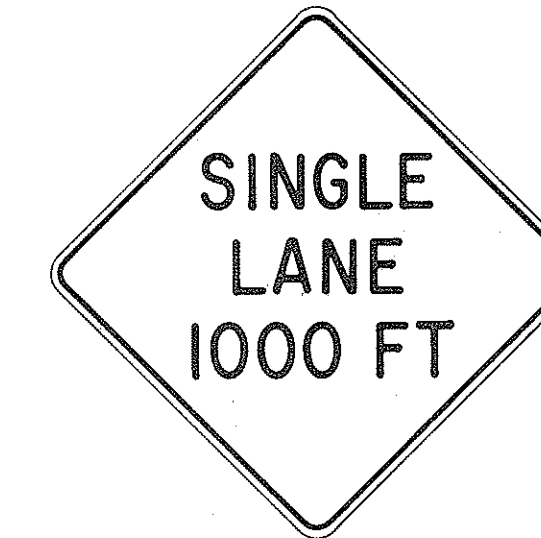
CM4-10(R) 48" x 18"



CG20-4 36" x 18"



CW23-1 36" x 36"



CW23-2b 48" x 48"



CW23-3(R) 48" x 48"

#### GENERAL NOTES

- Sign details shall conform to the FHWA publications "Manual on Uniform Traffic Control Devices for Streets and Highways," 1971, and "Standard Highway Signs."
- All construction signs shall be reflectorized unless otherwise specified.
- All construction signs shall have 3/8" bolt holes drilled at appropriate locations.
- Numerals in ( ) indicates numerals to be inserted for sign message. (R) or (L) indicates right or left.
- For "CW" series signs, suffixes a, b, c and d are as follows:  
a-1500 FT, b-1000 FT,  
c-500 FT and d-AHEAD.

| NO. | REVISION                                    | APPROVED BY | DATE    |
|-----|---------------------------------------------|-------------|---------|
| 1   | Supersedes Sht. DT 104<br>Approved 12-30-69 | H.T.        | 3/23/72 |

APPROVAL RECOMMENDED:  
Erich Tanaka 3/21/72  
TRAFFIC ENGINEER DATE

APPROVED:  
Arthur Salsich 3/23/72  
ASSISTANT CHIEF, ENGINEERING DATE

STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

STANDARD DETAILS  
CONSTRUCTION SIGNS

NOT TO SCALE

SHEET No. 20 OF 33 SHEETS DT 104

|               |      |
|---------------|------|
| DESIGNED BY   | DATE |
| DRAWN BY      |      |
| CHECKED BY    |      |
| NOTED BY      |      |
| QUANTITIES BY |      |
| CHECKED BY    |      |

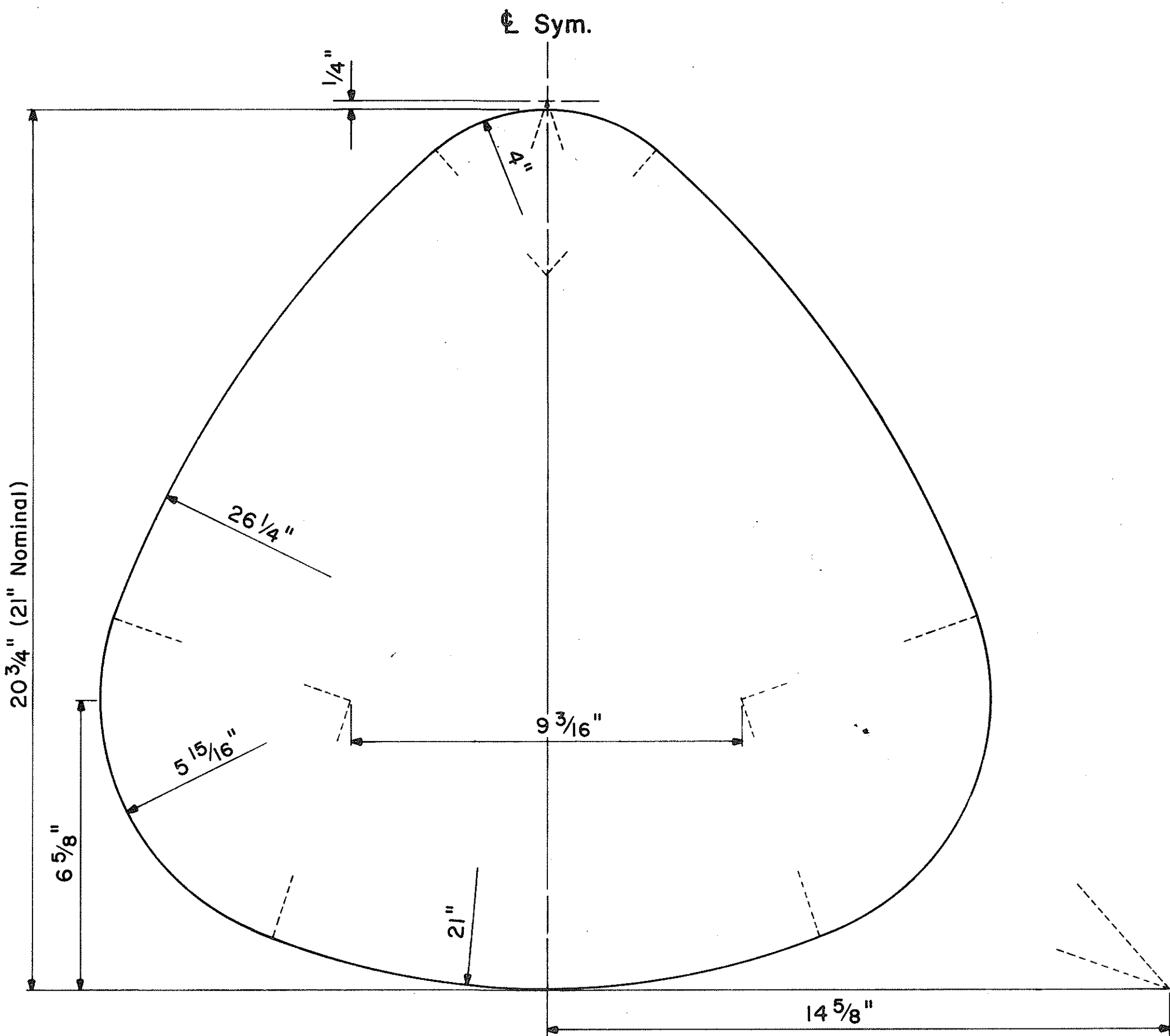


| FED. ROAD DIST. NO. | STATE | FED. AID PROJ. NO. | FISCAL YEAR | SHEET NO. | TOTAL SHEETS |
|---------------------|-------|--------------------|-------------|-----------|--------------|
| HAWAII              | HAW.  | I-HI-1(108)        | 1975        | 60        | 100          |

### GENERAL NOTES

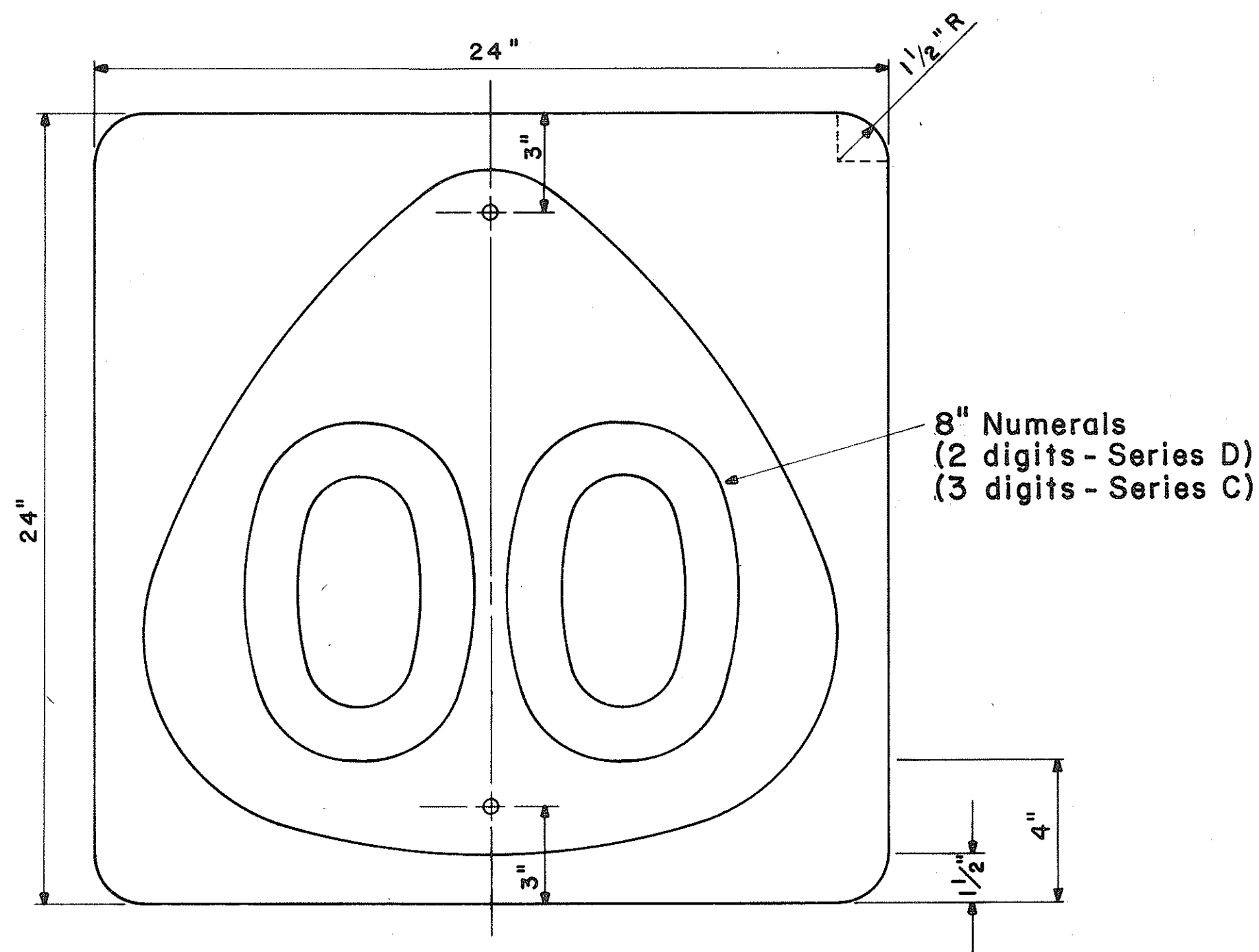
- Marker details shall conform to the FHWA publications "Manual on Uniform Traffic Control Devices for Streets and Highways," 1971, "Standard Alphabets for Highway Signs," 1966 and "Standard Highway Signs."
- All markers shall be reflectorized unless otherwise specified.
- All markers shall have  $\frac{3}{8}$ " bolt holes drilled at appropriate locations.
- Numerals in ( ) indicates numerals to be inserted for marker message. (R) or (L) indicates right or left.
- Sign message of Cardinal Direction Marker (M3 series) shall be denoted by the following:
 

M3-1 : NORTH  
 M3-2 : EAST  
 M3-3 : SOUTH  
 M3-4 : WEST
- Markers prefixed with "IM" on the plans shall have a white legend on a blue background.



### STATE ROUTE MARKER DETAIL

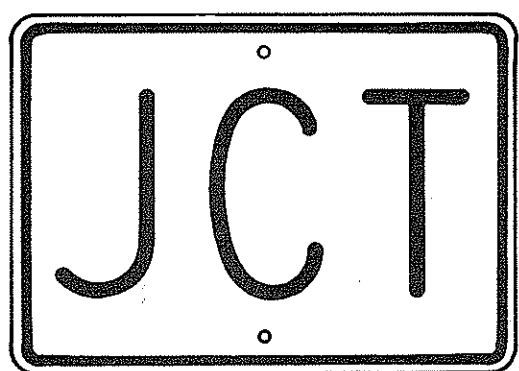
Not to Scale



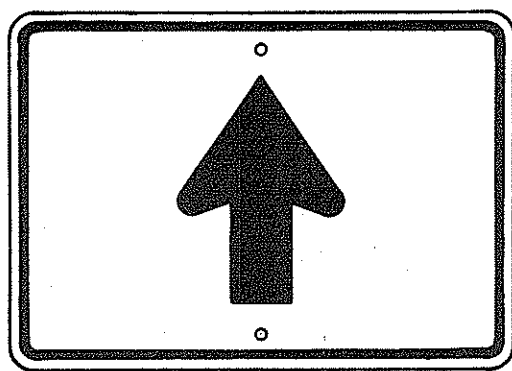
### STATE ROUTE MARKER

M1-6 (00) 24"x 24"

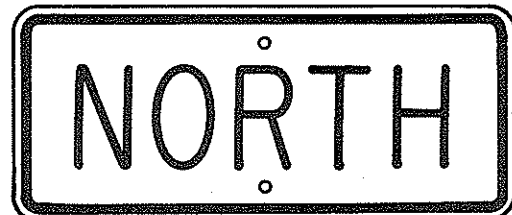
Scale:  $\frac{1}{4}" = 1"$



M2-1 21"x 15"



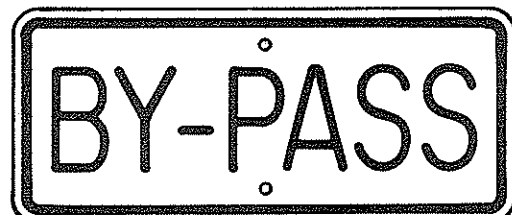
M6-3 21"x 15"



M3-1 24"x 12"  
M3-1-A 36"x 18"



M4-1 24"x 12"



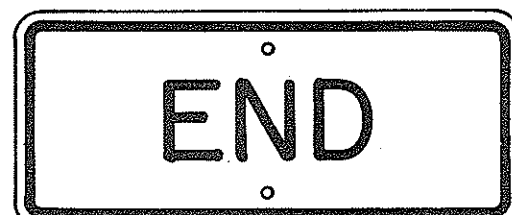
M4-2 24"x 12"



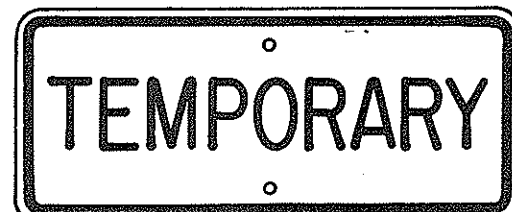
M4-3 24"x 12"



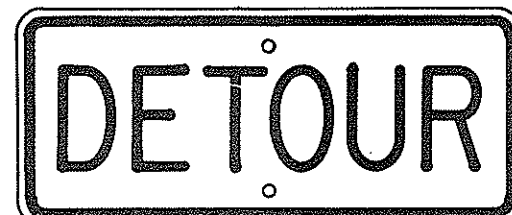
M4-5 24"x 12"



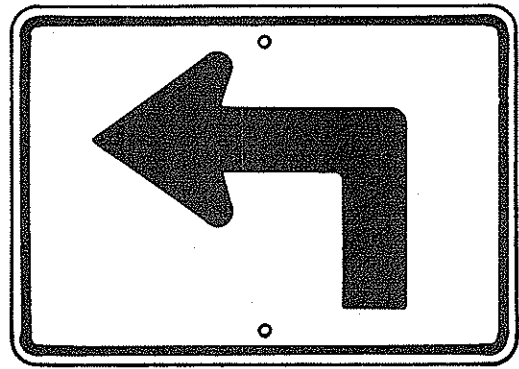
M4-6 24"x 12"



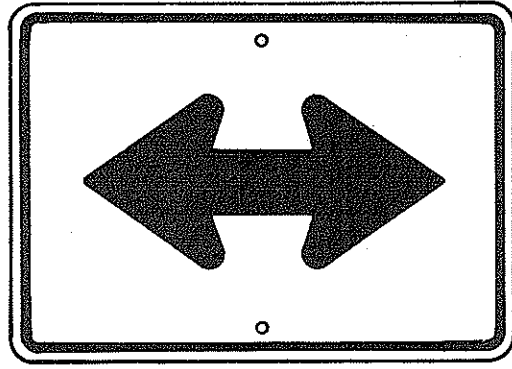
M4-7 24"x 12"



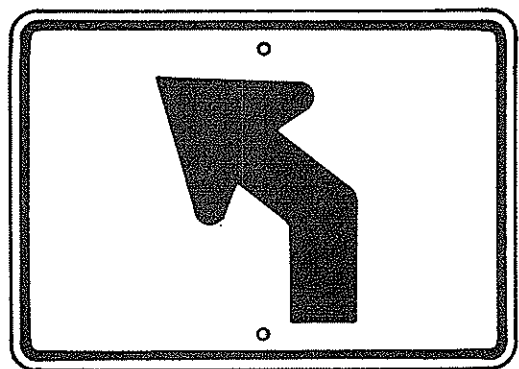
M4-8 24"x 12"



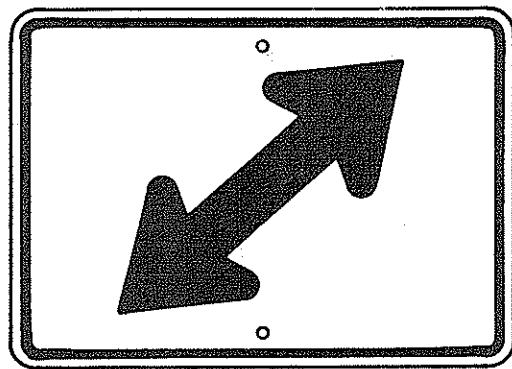
M5-1(L) 21"x 15"



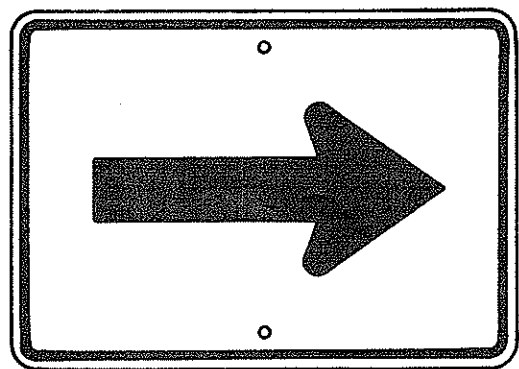
M6-4 21"x 15"



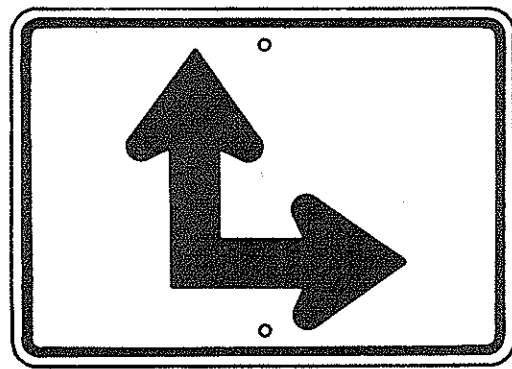
M5-2(L) 21"x 15"



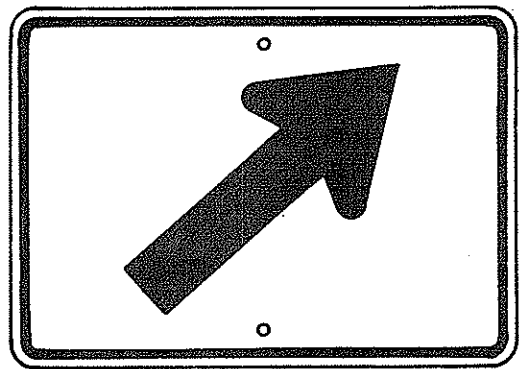
M6-5(R) 21"x 15"



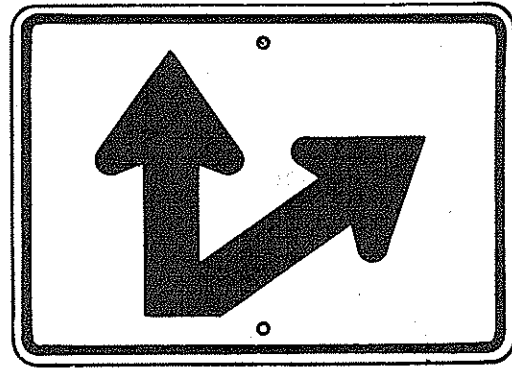
M6-1 21"x 15"



M6-6(R) 21"x 15"



M6-2(R) 21"x 15"



M6-7(R) 21"x 15"

### AUXILIARY MARKERS

Not to Scale

APPROVAL RECOMMENDED:

*Erich Tanaka* 6/6/72  
TRAFFIC ENGINEER DATE

APPROVED:

*Robert S. Salsola* 6-1-72  
ASSISTANT CHIEF, ENGINEERING DATE

| NO. | REVISION                                    | APPROVED BY | DATE   |
|-----|---------------------------------------------|-------------|--------|
| 1   | Supersedes Sht. DT 105<br>Approved 12-30-69 | HT          | 6/1/72 |

STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION  
STANDARD DETAILS  
STATE ROUTE MARKER  
AND AUXILIARY MARKERS

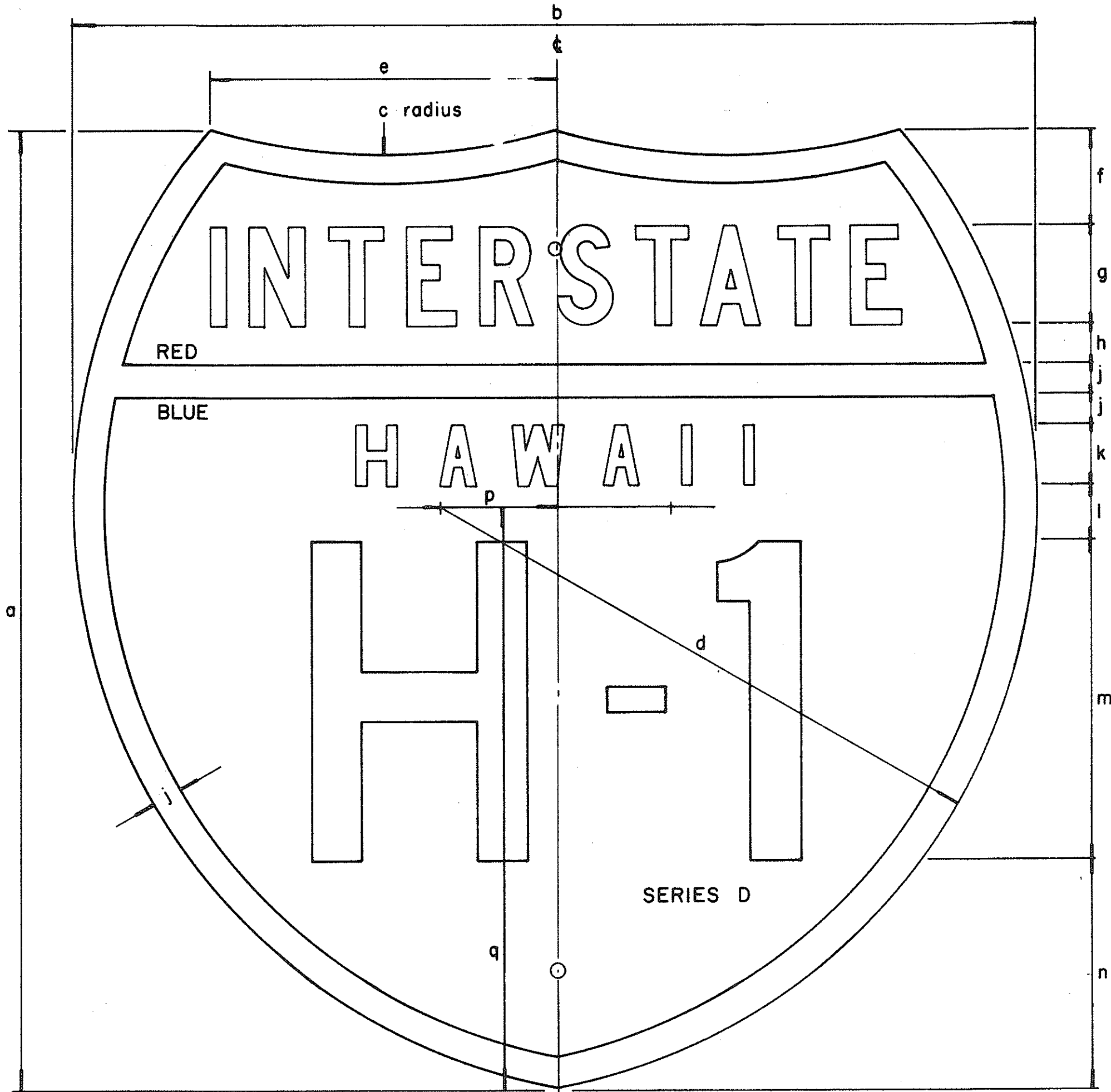
Scale: As Shown

SHEET NO 217 OF 337 SHEETS DT 105

|                   |      |
|-------------------|------|
| ORIGINAL PLAN     | DATE |
| SURVEY PLOTTED BY |      |
| DRAWN BY          |      |
| DESIGNED BY       |      |
| CHECKED BY        |      |
| NO.               |      |



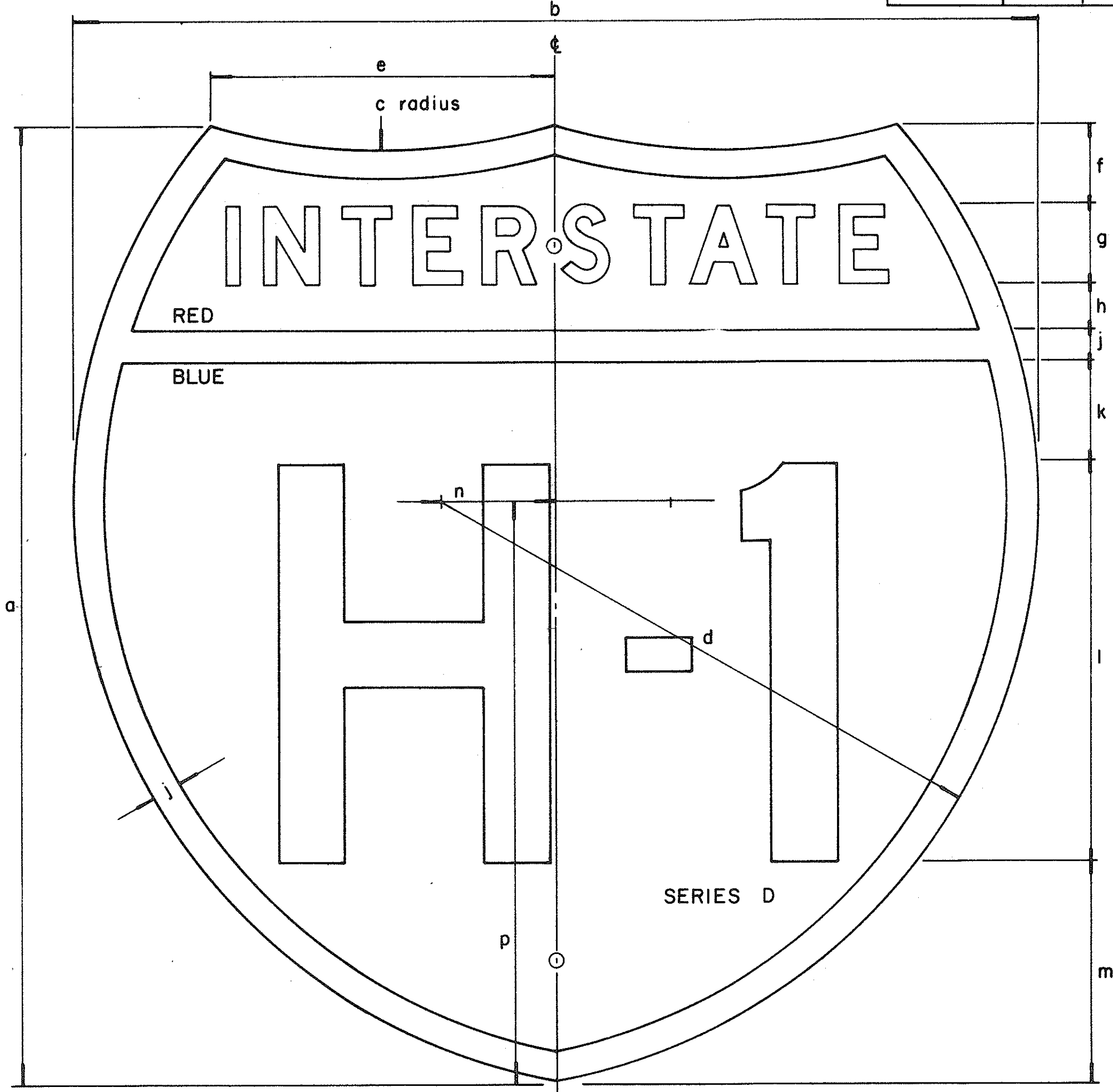
| FED. ROAD DIST. NO. | STATE | FED. AID PROJ. NO. | FISCAL YEAR | SHEET NO. | TOTAL SHEETS |
|---------------------|-------|--------------------|-------------|-----------|--------------|
| HAWAII              | HAW.  | HA-1(108)          | 1975        | 61        | 100          |



INTERSTATE ROUTE MARKER  
IM-1( )

INTERSTATE SHIELDS - INDEPENDENT USE

| ( ) | a  | b  | c      | d       | e        | f       | g       | h     | j     | k       | l      | m  | n      | p      | q        |
|-----|----|----|--------|---------|----------|---------|---------|-------|-------|---------|--------|----|--------|--------|----------|
| 1   | 18 | 21 | 13 1/8 | 12 9/16 | 9 3/16   | 12 5/32 | 1 7/8 C | 3/4   | 9/16  | 1 1/8 D | 1 1/32 | 6  | 4 5/16 | 2 1/16 | 12 7/16  |
| 2   | 24 | 24 | 15     | 14 7/8  | 8 5/8    | 2 3/8   | 2 1/2 C | 1     | 3/4   | 1 1/2 D | 1 3/8  | 8  | 5 3/4  | 2 7/8  | 14 5/8   |
| 3   | 36 | 36 | 22 1/2 | 22 5/16 | 12 15/16 | 3 9/16  | 3 3/4 C | 1 1/2 | 1 1/8 | 2 1/4 D | 2 1/16 | 12 | 8 5/8  | 4 5/16 | 21 15/16 |



INTERSTATE ROUTE MARKER  
IM-2( )

INTERSTATE SHIELDS ON GUIDE SIGNS

| ( ) | a  | b  | c      | d       | e        | f      | g   | h      | j     | k      | l  | m      | n      | p        |
|-----|----|----|--------|---------|----------|--------|-----|--------|-------|--------|----|--------|--------|----------|
| 2   | 24 | 24 | 15     | 14 7/8  | 8 5/8    | 2      | 2 D | 1 3/16 | 3/4   | 2 9/16 | 10 | 5 1/2  | 2 7/8  | 14 5/8   |
| 3   | 36 | 36 | 22 1/2 | 22 5/16 | 12 15/16 | 3 7/16 | 3 C | 1 5/16 | 1 1/8 | 3 1/8  | 15 | 9      | 4 5/16 | 21 15/16 |
| 4   | 48 | 48 | 30     | 29 3/4  | 17 1/4   | 4 3/4  | 5 C | 2      | 1 1/2 | 4      | 18 | 12 3/4 | 5 3/4  | 29 1/4   |

### GENERAL NOTES

- The shape, dimensions, symbols, wording, lettering, color 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, 1966
- All markers shall be reflectorized unless otherwise specified.
- All markers shall have 3/8" bolt holes drilled at appropriate locations unless otherwise specified.
- The Interstate Route Marker shall be a cut-out shield, in a red, white and blue design as shown on the plans.

APPROVAL RECOMMENDED:

*Erich Tanaka*  
TRAFFIC ENGINEER

12/29/69  
DATE

APPROVED:

*John P. ...*  
ASSISTANT CHIEF, ENGINEERING

12-30-69  
DATE

| NO. | REVISION | APPROVED BY | DATE |
|-----|----------|-------------|------|
|     |          |             |      |

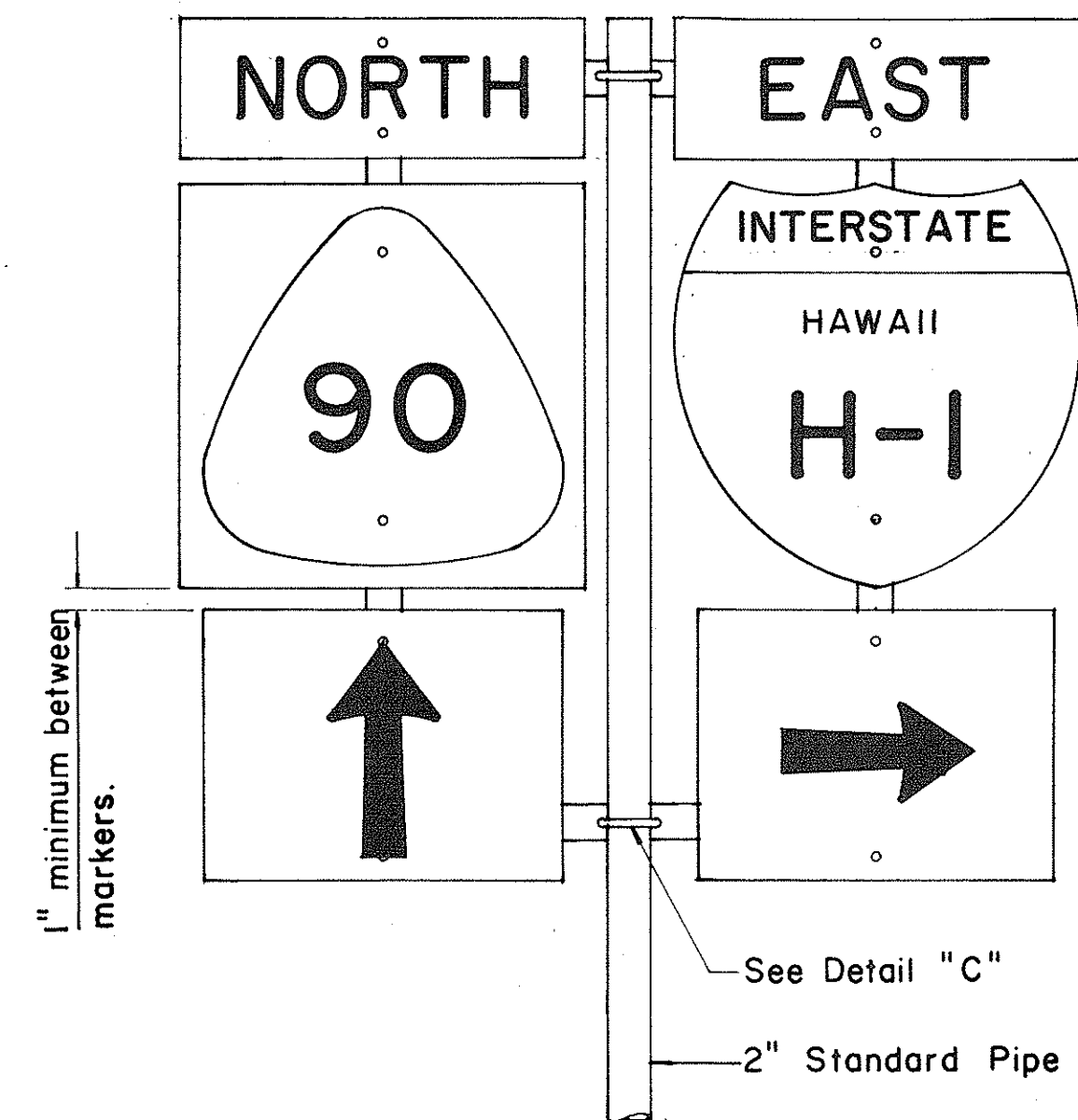
STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

STANDARD DETAILS  
INTERSTATE ROUTE MARKERS

SHEET No. 22 OF 33 SHEETS DT 106

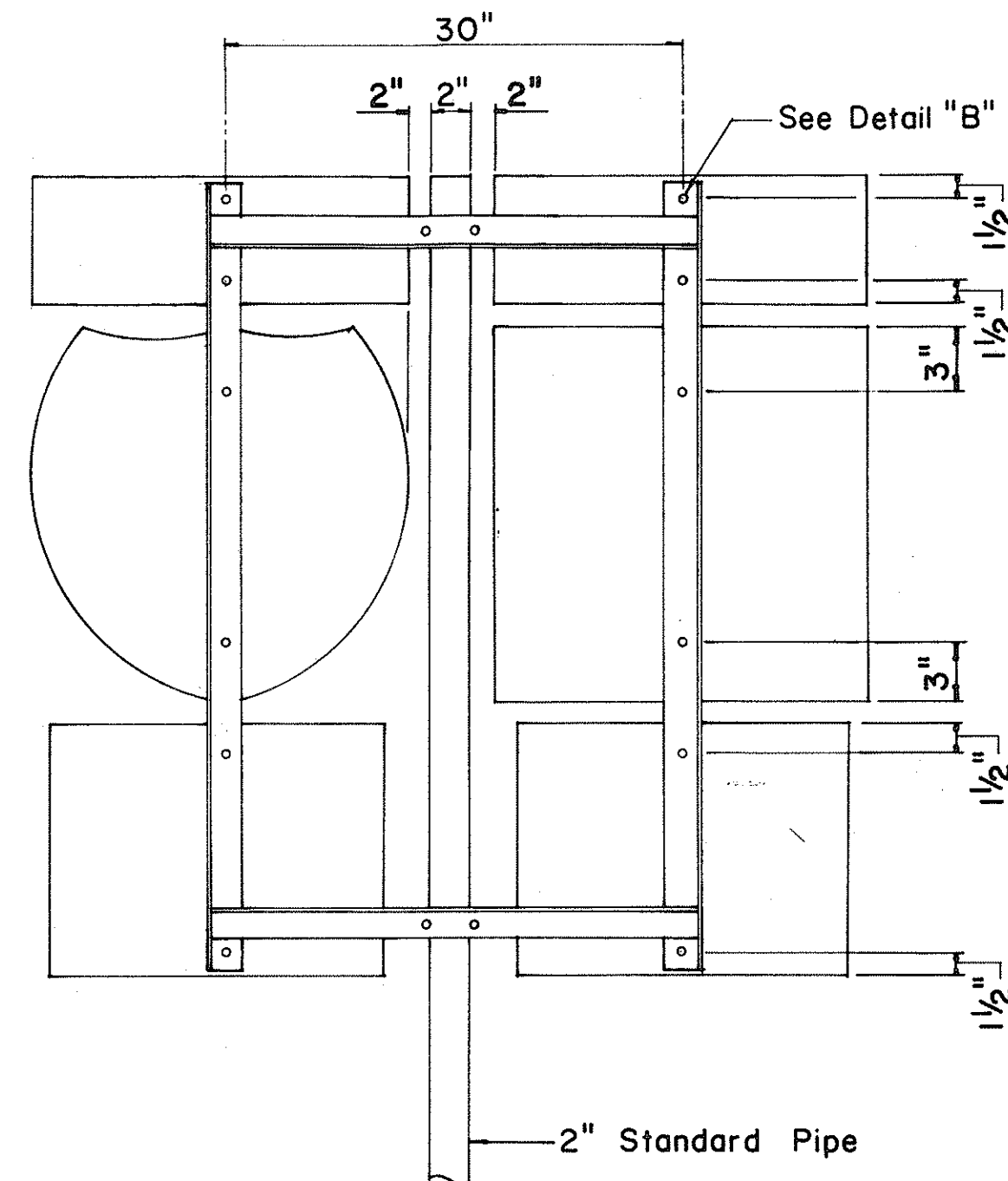


| FED. ROAD DIST. NO. | STATE | FED. AID PROJ. NO. | FISCAL YEAR | SHEET NO. | TOTAL SHEETS |
|---------------------|-------|--------------------|-------------|-----------|--------------|
| HAWAII              | HAW.  | I-H-1(108)         | 1975        | 62        | 100          |



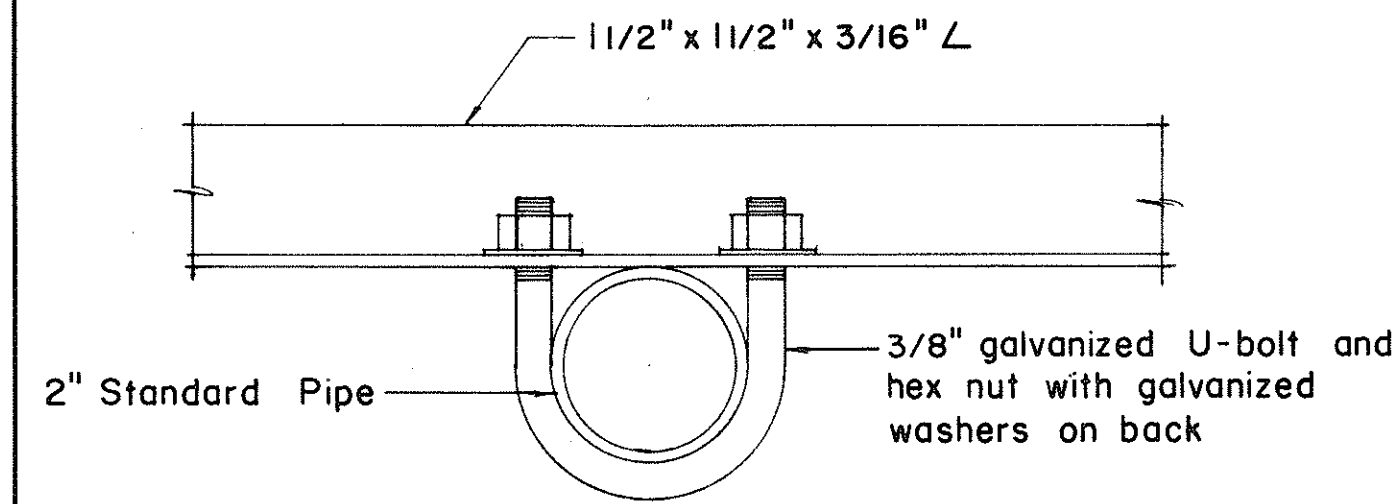
FRONT ELEVATION

TYPE "B" ASSEMBLY  
Not to Scale

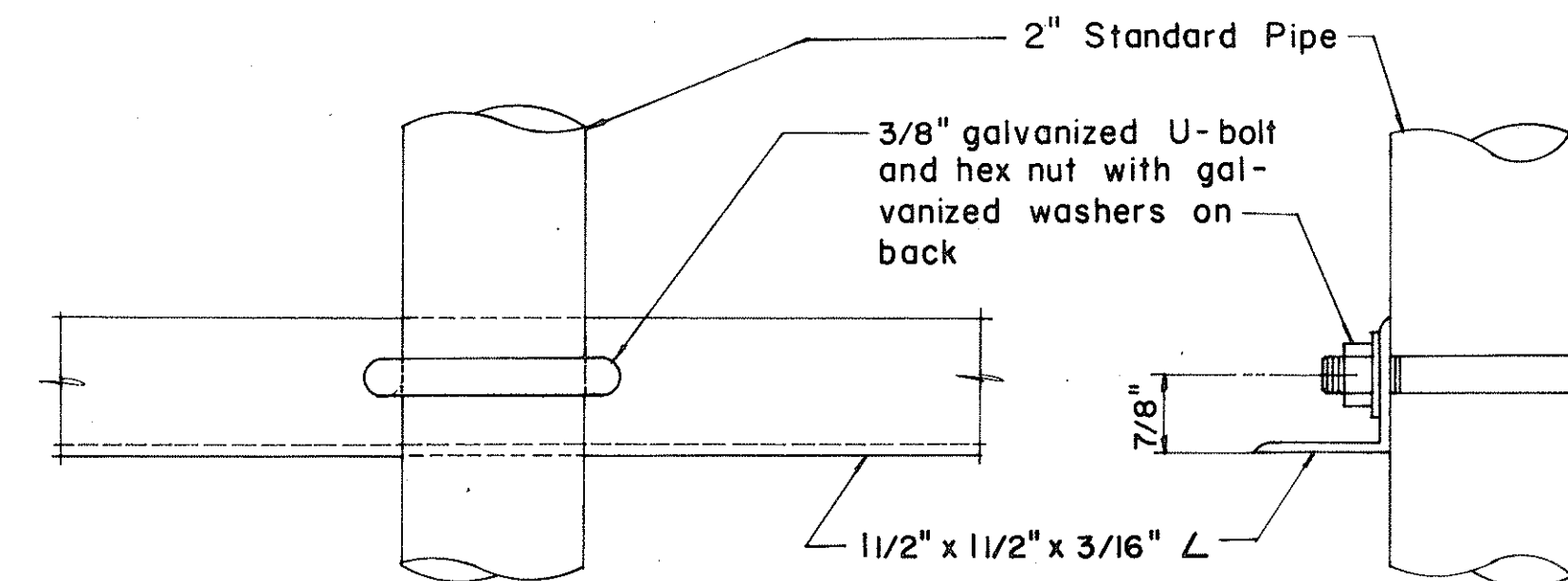


REAR ELEVATION

- NOTE:
1. Minimum clearance between markers shall be one inch. (Larger clearances shall be in multiples of one inch.)
  2. Pipe post for Type "A" & Type "B" Assembly shall be 2" Standard Pipe.



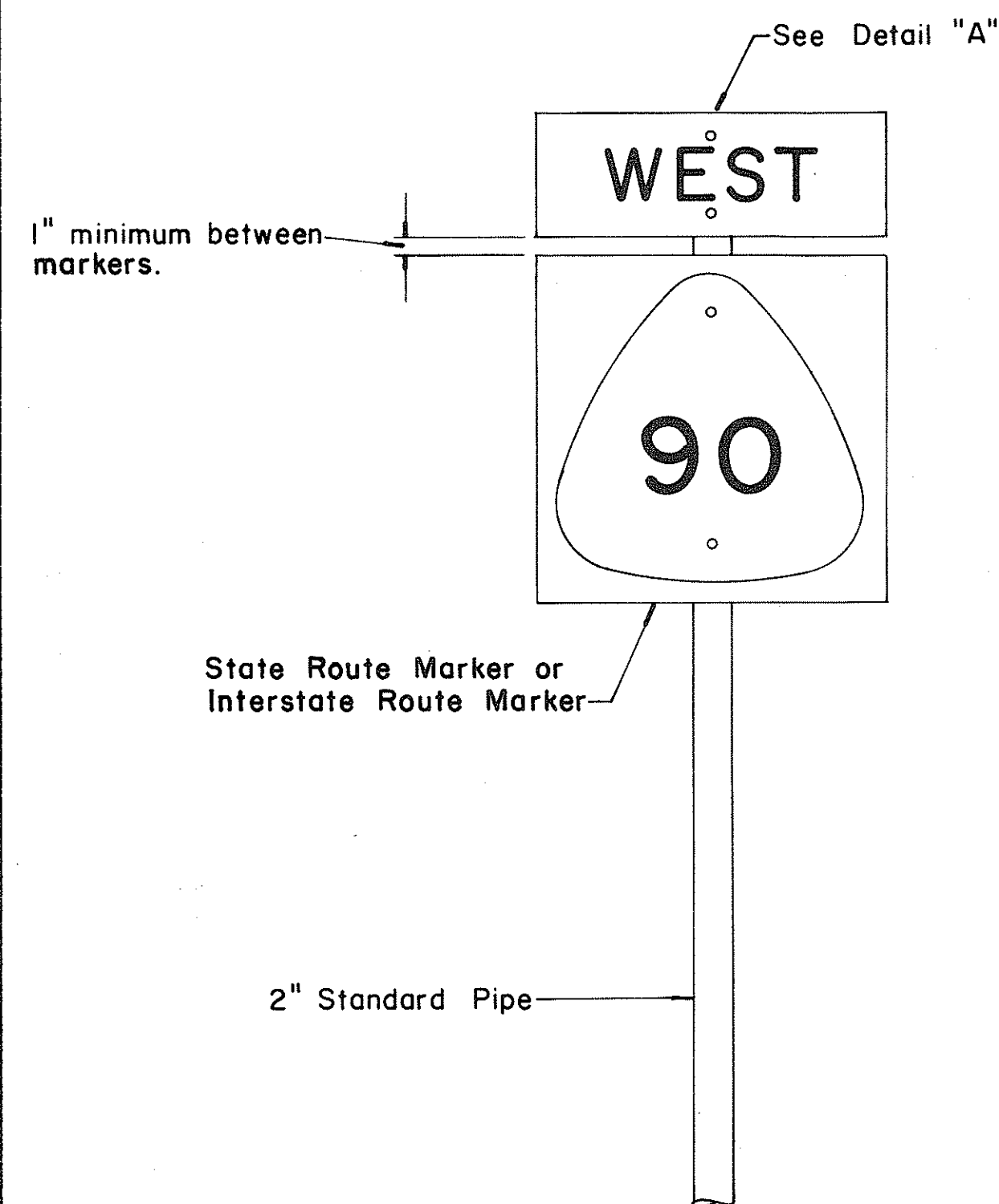
PLAN



FRONT ELEVATION

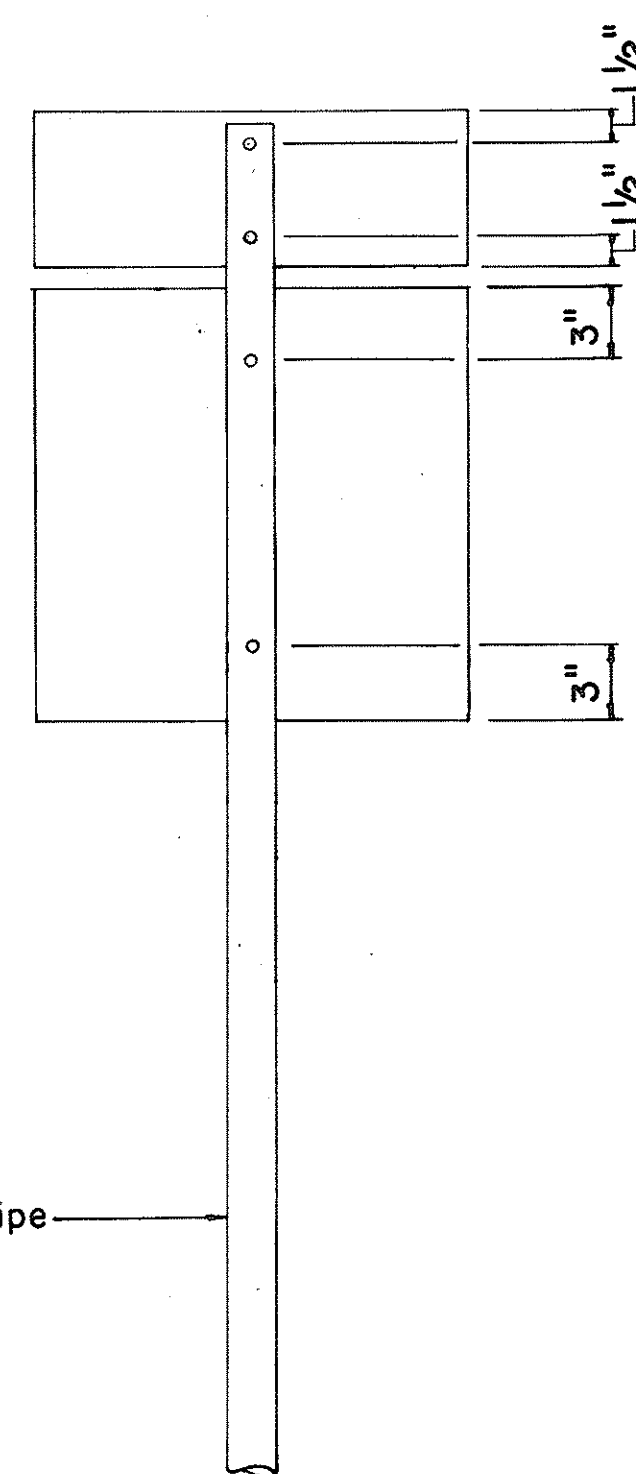
SIDE ELEVATION

DETAIL "C"



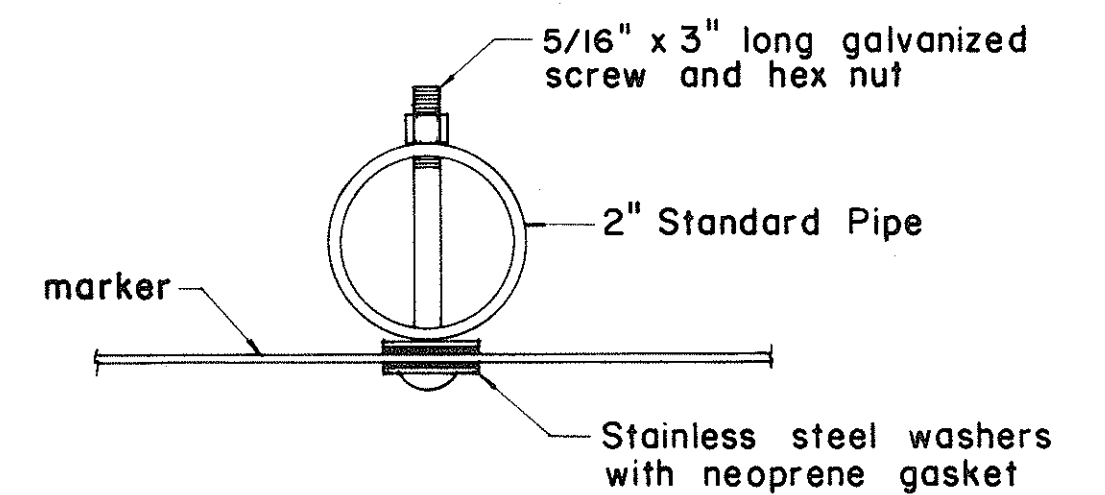
FRONT ELEVATION

TYPE "A" ASSEMBLY  
Not to Scale

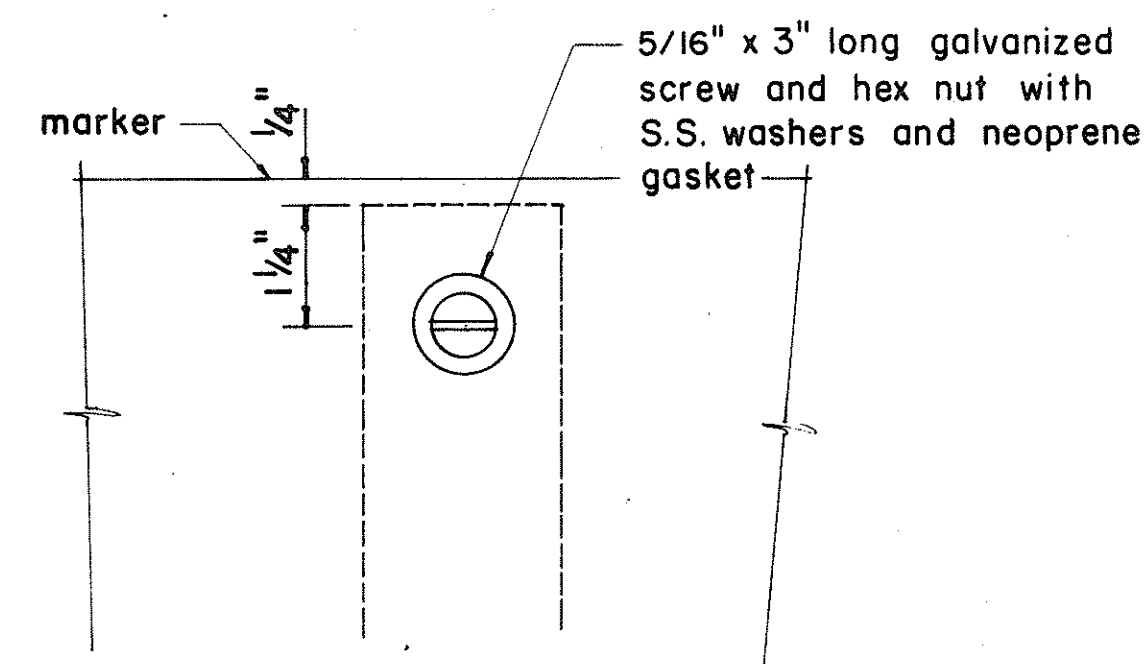


REAR ELEVATION

- NOTE:
- For height and lateral location of Route Marker Assembly, see plan sheet DT 100.

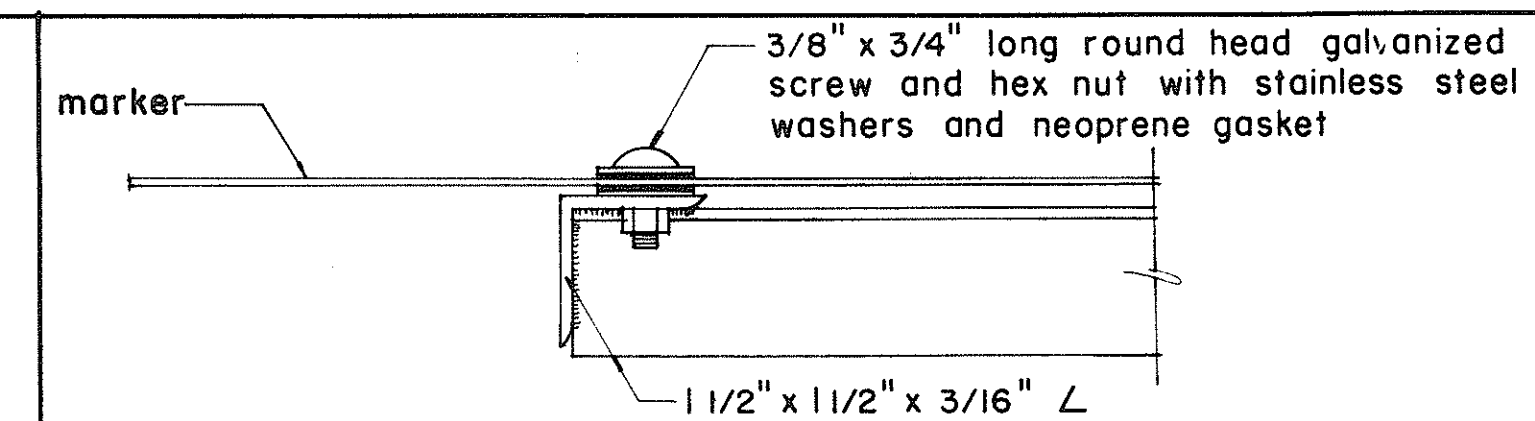


PLAN

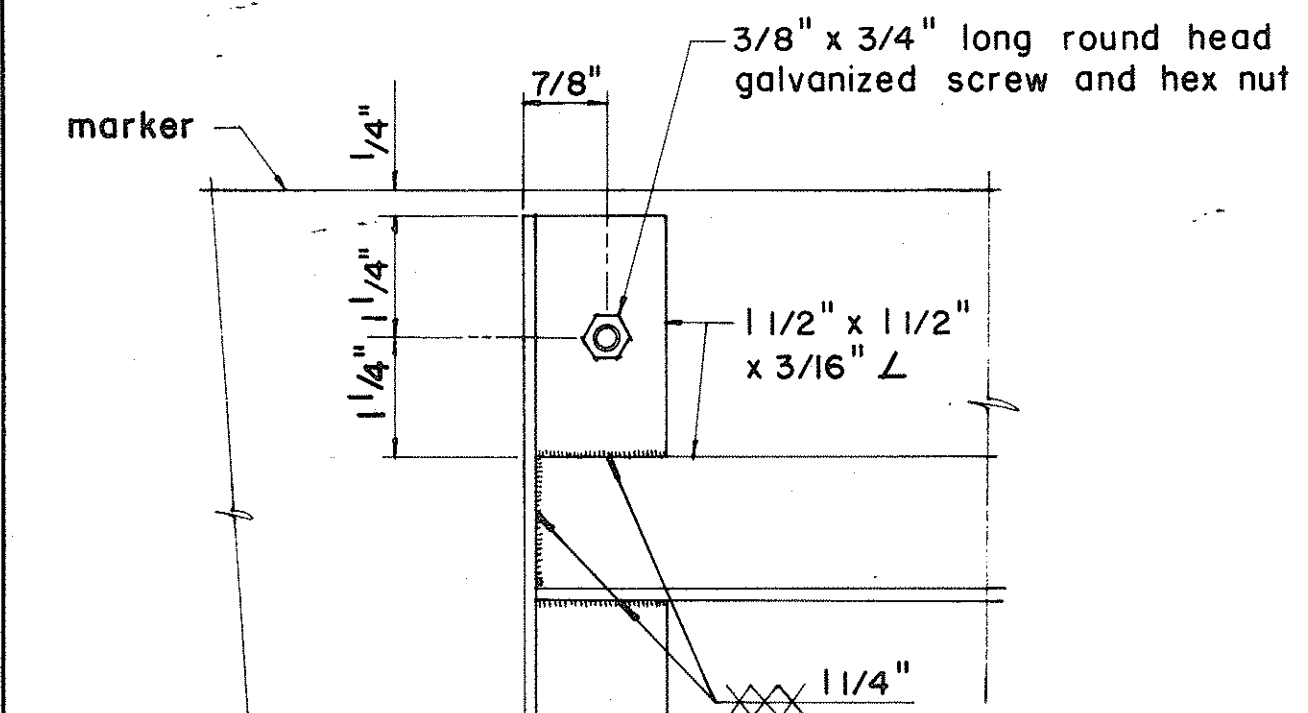


FRONT ELEVATION

DETAIL "A"

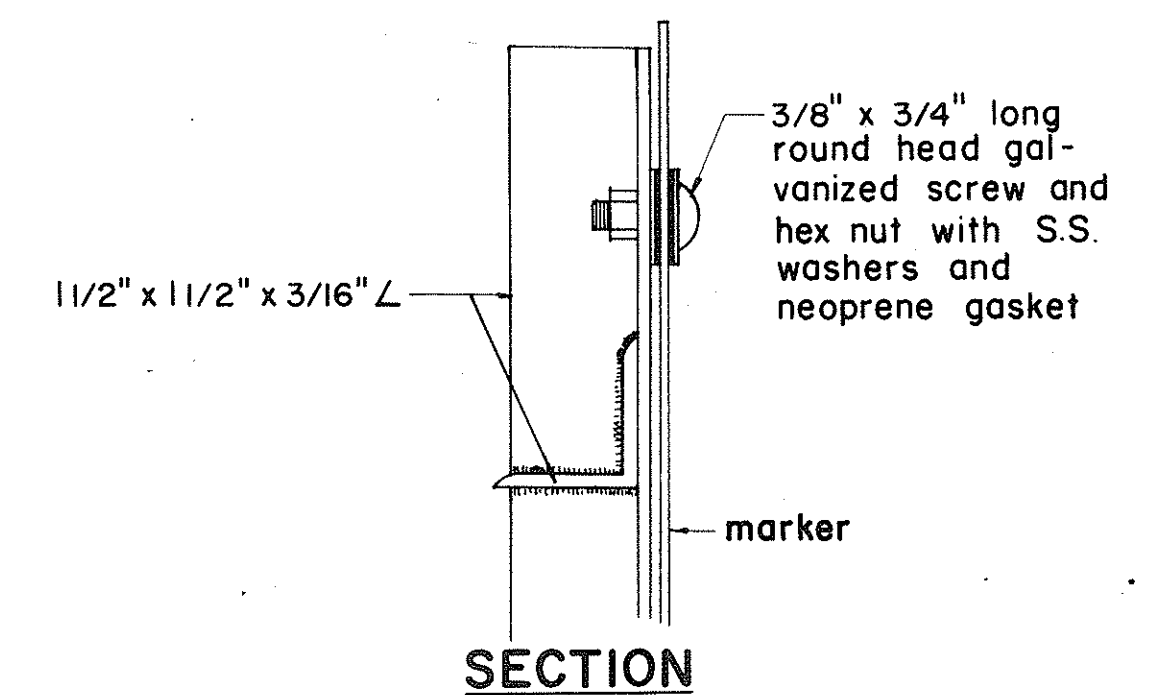


PLAN



ELEVATION

DETAIL "B"



SECTION

APPROVAL RECOMMENDED:  
*Eishi Tanaka* 12/23/69  
 TRAFFIC ENGINEER DATE

APPROVED:  
*Shunji S. Sakai* 12-30-69  
 ASSISTANT CHIEF, ENGINEERING DATE

| NO. | REVISION                              | APPROVED BY | DATE   |
|-----|---------------------------------------|-------------|--------|
| 1   | Revisions to Route Marker Assemblies. | H.T.        | 6/1/72 |

STATE OF HAWAII  
 DEPARTMENT OF TRANSPORTATION  
 HIGHWAYS DIVISION

STANDARD DETAILS  
 ROUTE MARKER ASSEMBLIES

Scale: As Shown

SHEET No. 231 OF 331 SHEETS DT 107

|               |      |
|---------------|------|
| ORIGINAL PLAN | DATE |
| DESIGNED BY   |      |
| TRACED BY     |      |
| DESIGNED BY   |      |
| QUANTITIES BY |      |
| CHECKED BY    |      |
| NO.           |      |



| FED. ROAD DIST. NO. | STATE | FED. AID PROJ. NO. | FISCAL YEAR | SHEET NO. | TOTAL SHEETS |
|---------------------|-------|--------------------|-------------|-----------|--------------|
| HAWAII              | HAW.  | HA-1 (108)         | 1975        | 63        | 100          |

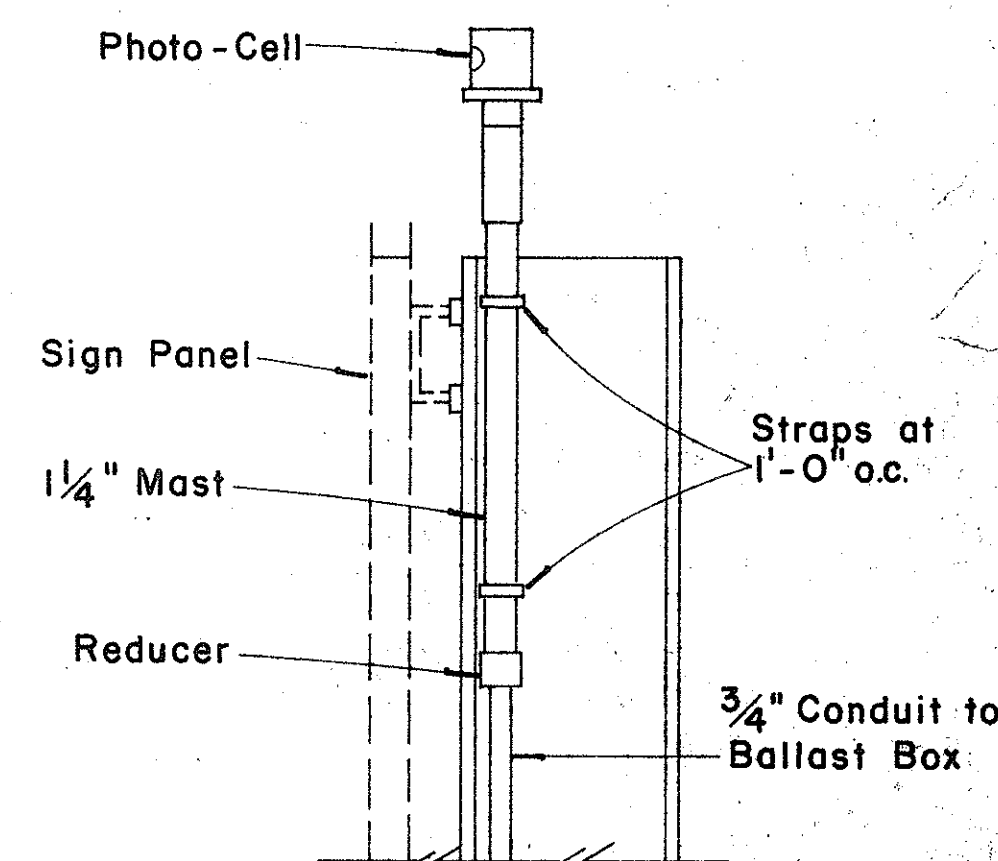


PHOTO-CELL DETAIL

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

APPROVAL RECOMMENDED:

*Eishi Tanaka*  
TRAFFIC ENGINEER 12/29/63  
DATE

APPROVED:

*John J. Salas*  
ASSISTANT CHIEF, ENGINEERING 12-29-63  
DATE

| NO. | REVISION | APPROVED BY | DATE |
|-----|----------|-------------|------|
|     |          |             |      |
|     |          |             |      |
|     |          |             |      |

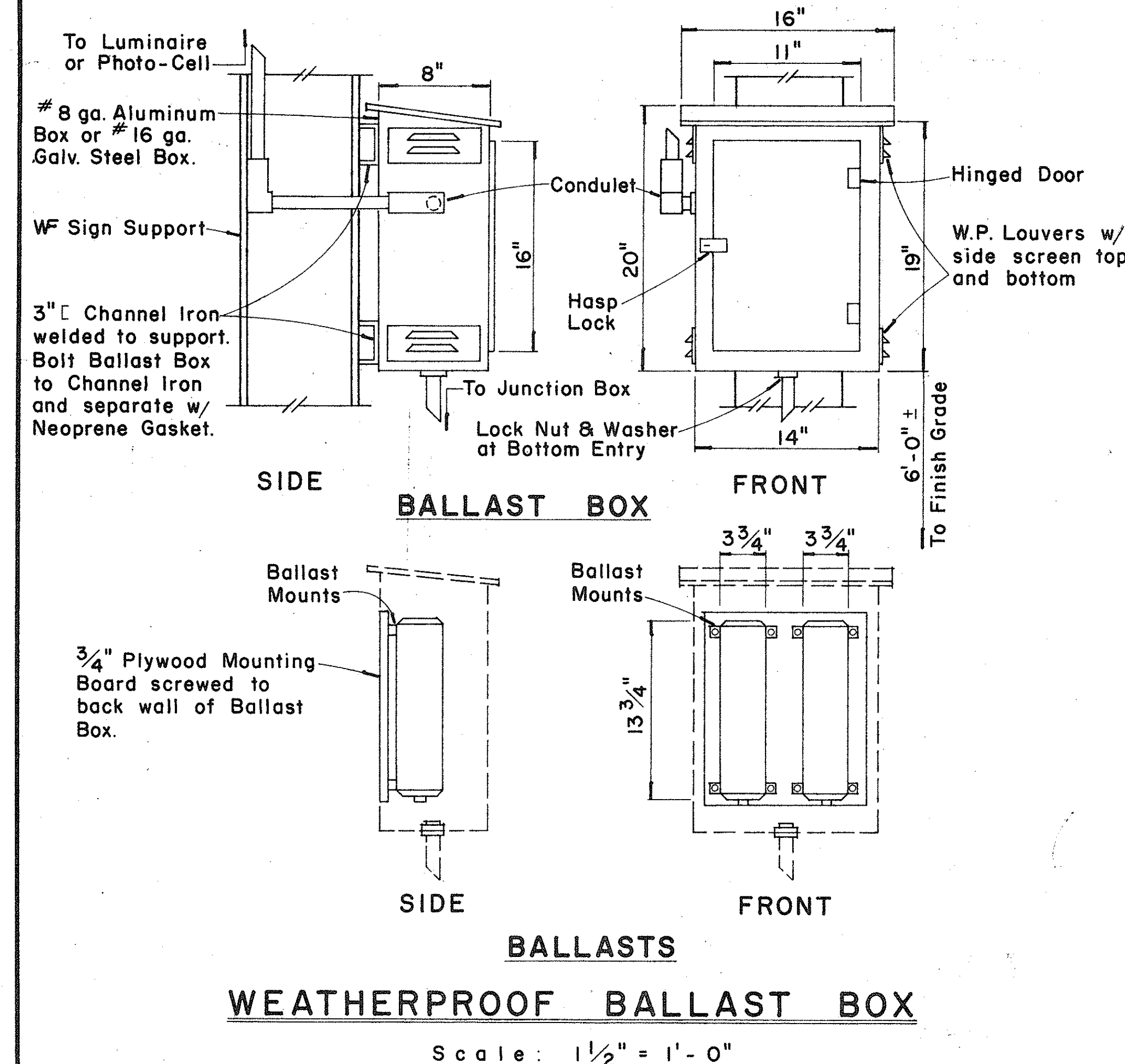
STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION  
  
STANDARD DETAILS  
DESTINATION & GROUND MOUNTED  
EXPRESSWAY SIGNS

Scale: As Shown

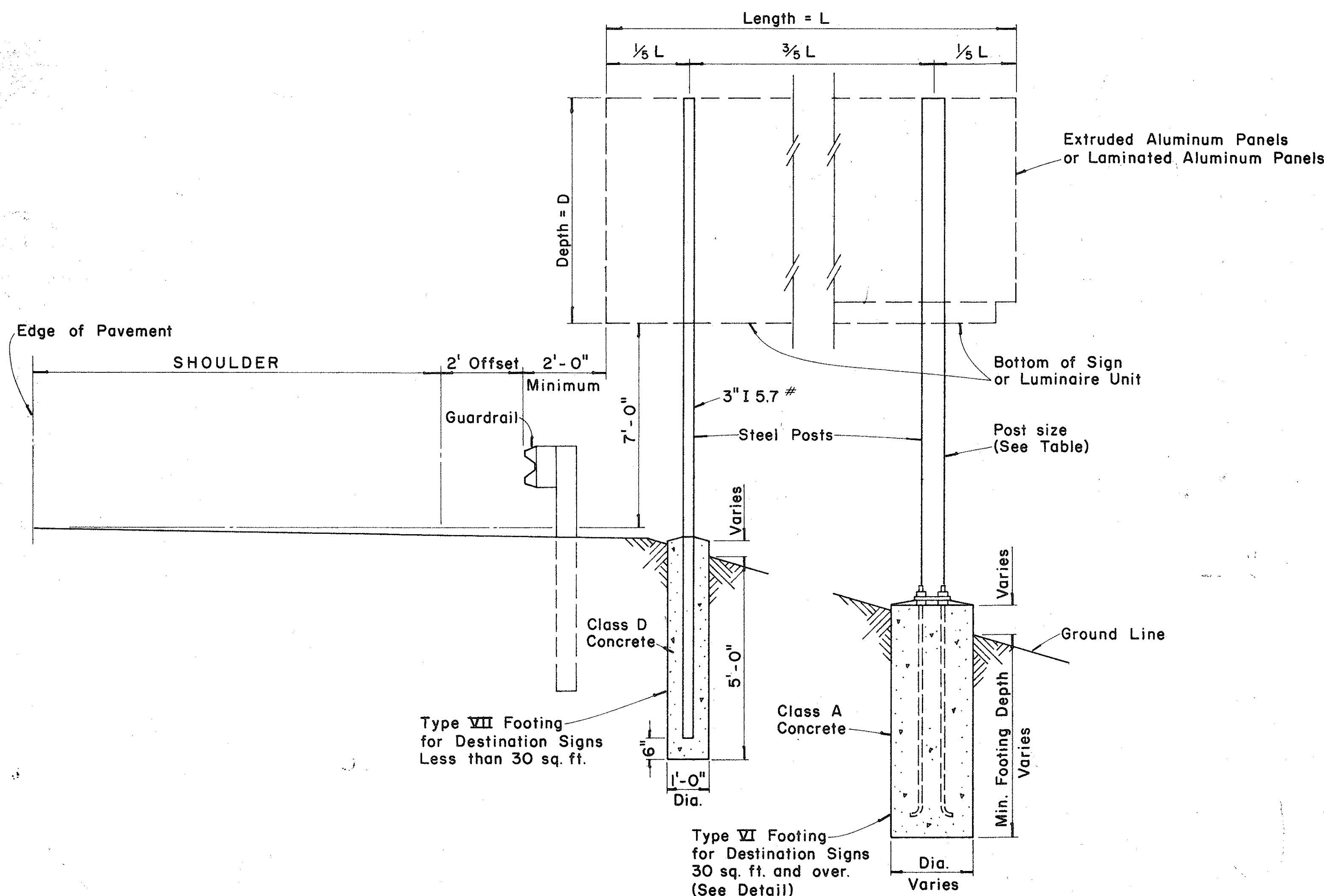
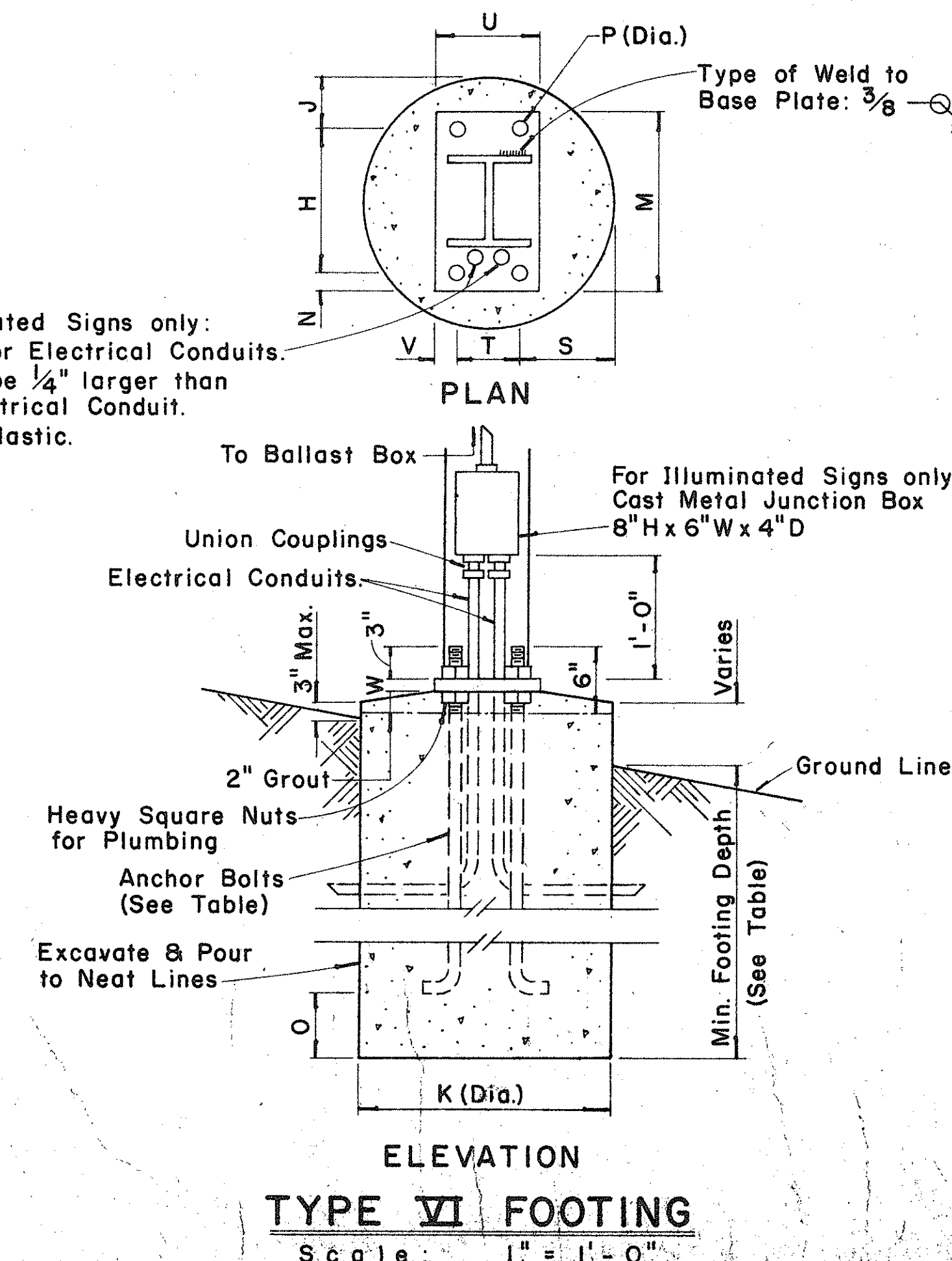
SHEET No. 63 OF 100 SHEETS DT 203

\* For moment calculations only. Post shall be from top of foundation to top of sign.  
\*\* For fills with side slopes flatter than 4:1, Minimum Footing Depth shall be 4 1/2 feet.

| DATA TABLE FOR TYPE VI FOOTING |                   |                                                   |                     |     |     |      |     |    |     |      |     |     |     |    |                  |                       |        |
|--------------------------------|-------------------|---------------------------------------------------|---------------------|-----|-----|------|-----|----|-----|------|-----|-----|-----|----|------------------|-----------------------|--------|
| POST SIZE                      | MAXIMUM SIGN AREA | POST HEIGHT TOP OF FOUNDATION TO CENTER OF SIGN * | D I M E N S I O N S |     |     |      |     |    |     |      |     |     |     |    | ANCHOR BOLT DIA. | MINIMUM FOOTING DEPTH |        |
|                                |                   |                                                   | H                   | J   | K   | M    | N   | O  | P   | S    | T   | U   | V   | W  |                  | CUT                   | FILL** |
| 8 J 10                         | 50 sq. ft.        | 14'                                               | 14"                 | 5"  | 24" | 17¼" | 1⅝" | 6" | 1¼" | 9"   | 6"  | 10" | 2"  | 1" | 1⅛" Ø            | 4 ½'                  | 4 ½'   |
| 8 WF 24                        | 90 sq. ft.        | 21'                                               | ↓                   | ↓   | ↓   | ↓    | ↓   | ↓  | ↓   | ↓    | ↓   | ↓   | ↓   | ↓  | ↓                | ↓                     | 5'     |
| 8 WF 35                        | 190 sq. ft.       | 15'                                               | 16½"                | 6¾" | 30" | 20"  | 1¾" | 6" | 1⅜" | 11¾" | 6½" | 10" | 1¾" | 1" | 1¼" Ø            | 6'                    | 7'     |
| 10 WF 45                       | 190 sq. ft.       | 25'                                               | ↓                   | ↓   | ↓   | ↓    | ↓   | ↓  | ↓   | ↓    | ↓   | ↓   | ↓   | ↓  | ↓                | ↓                     | ↓      |
| 10 WF 45                       | 200 sq. ft.       | 25'                                               | ↓                   | ↓   | ↓   | ↓    | ↓   | ↓  | ↓   | ↓    | ↓   | ↓   | ↓   | ↓  | ↓                | ↓                     | ↓      |
| 12 WF 50                       | 230 sq. ft.       | 25'                                               | ↓                   | ↓   | ↓   | ↓    | ↓   | ↓  | ↓   | ↓    | ↓   | ↓   | ↓   | ↓  | ↓                | 7'                    | ↓      |
| 12 WF 50                       | 250 sq. ft.       | 23'                                               | ↓                   | ↓   | ↓   | ↓    | ↓   | ↓  | ↓   | ↓    | ↓   | ↓   | ↓   | ↓  | ↓                | ↓                     | ↓      |



For Illuminated Signs only:  
Openings for Electrical Conduits.  
Dia. shall be 1/4" larger than  
O.D. of Electrical Conduit.  
Seal with Mastic.



TYPICAL DESTINATION & GROUND MOUNTED EXPRESSWAY SIGN

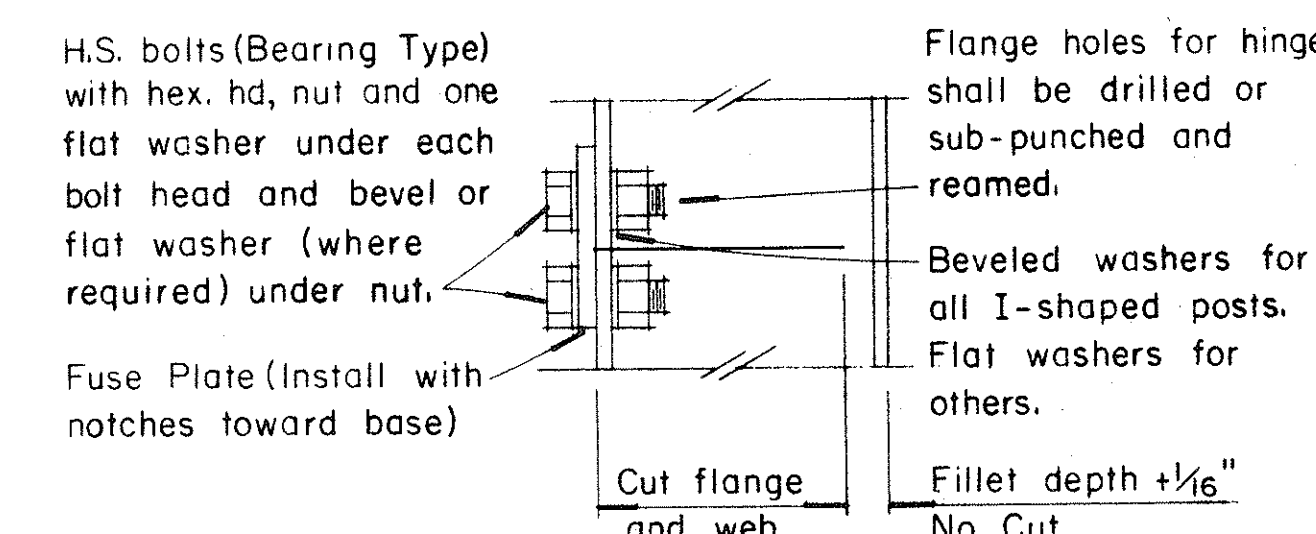
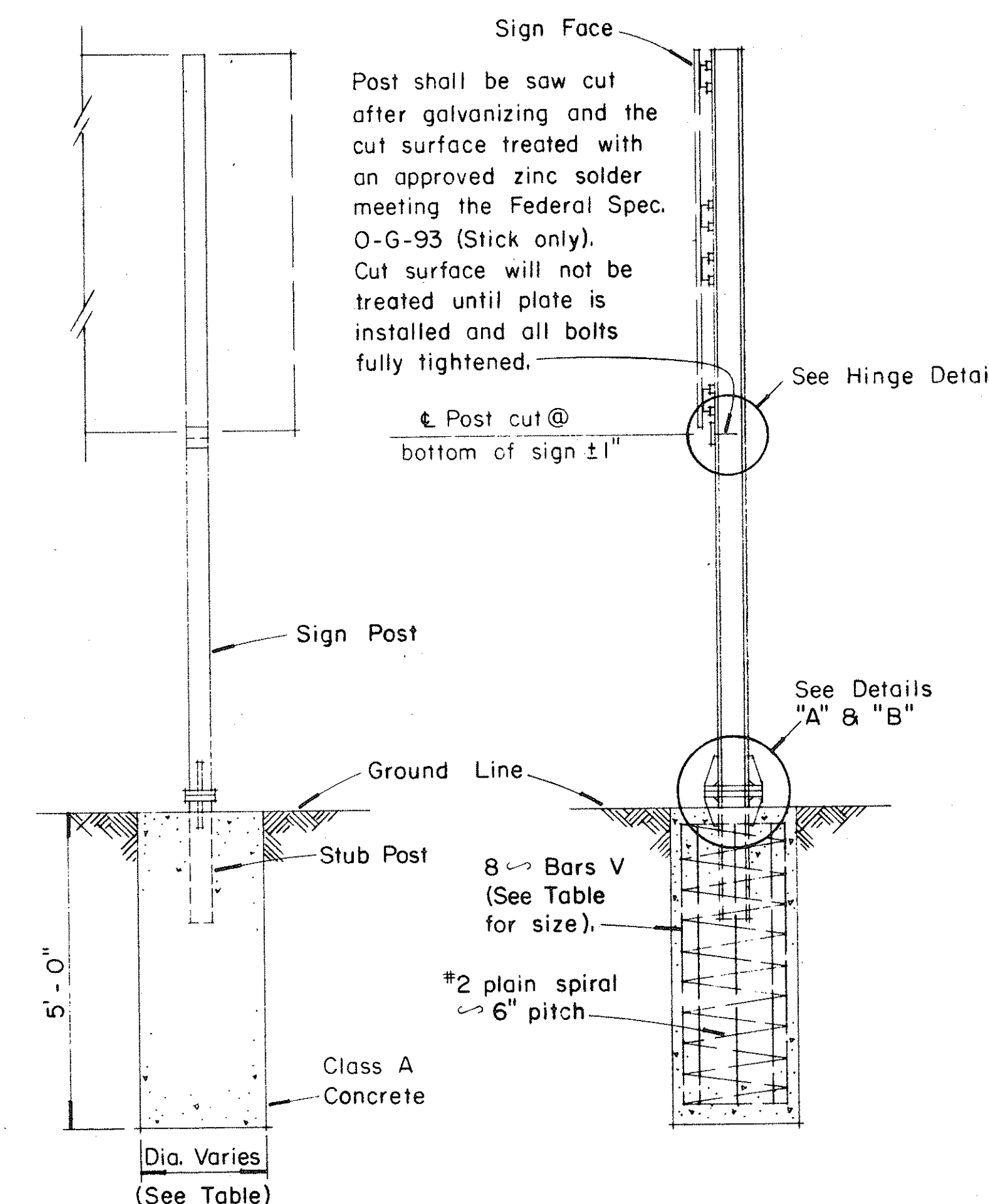
Not to Scale

|                   |  |
|-------------------|--|
| DATE              |  |
| SURVEY PLOTTED BY |  |
| DRAWN BY          |  |
| DESIGNED BY       |  |
| QUANTITIES BY     |  |
| CHECKED BY        |  |
| ORIGINAL PLAN     |  |
| NOTE BOOK         |  |
| No.               |  |

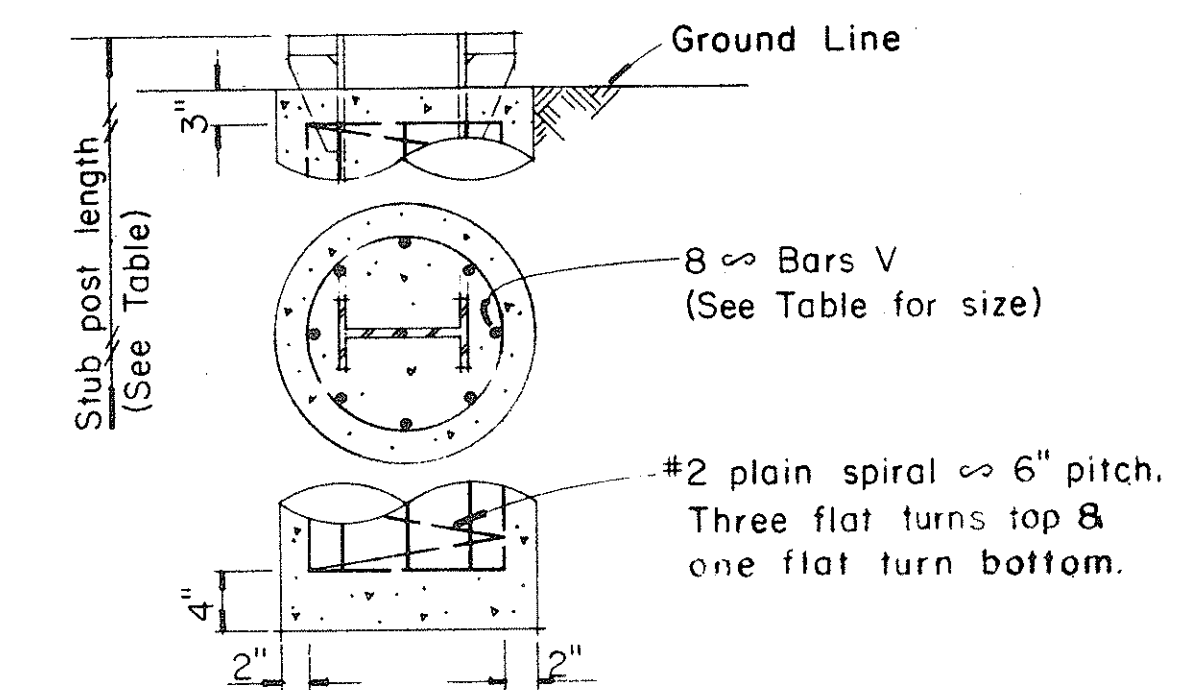


| FED. ROAD DIST. NO. | STATE | FED. AID PROJ. NO. | FISCAL YEAR | SHEET NO. | TOTAL SHEETS |
|---------------------|-------|--------------------|-------------|-----------|--------------|
| HAWAII              | HAW.  | I-H-11(108)        | 1975        | 64        | 100          |

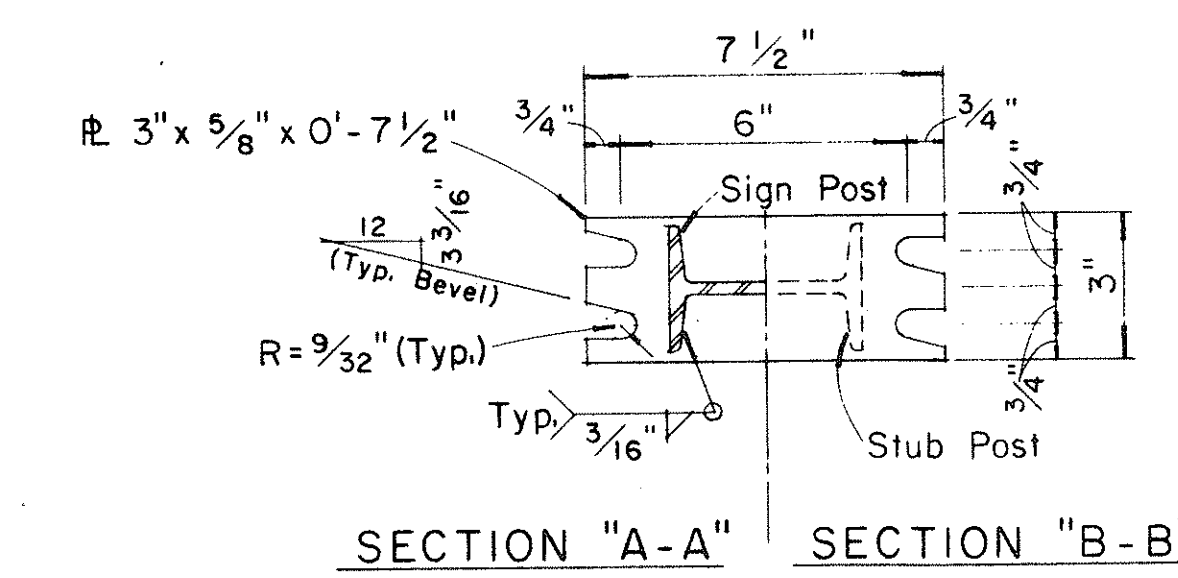
|           | BASE CONNECTION DATA TABLE        |                |        |        |        |        |                |                |       |         | FUSE PLATE DATA TABLE |        |        |        |        |        |      |                |                |           | FOUNDATION DATA      |             |                 |                  |             |
|-----------|-----------------------------------|----------------|--------|--------|--------|--------|----------------|----------------|-------|---------|-----------------------|--------|--------|--------|--------|--------|------|----------------|----------------|-----------|----------------------|-------------|-----------------|------------------|-------------|
| Post Size | Bolt Size & Torque                | A              | B      | C      | D      | E      | t <sub>1</sub> | t <sub>2</sub> | W     | R       | F                     | G      | H      | J      | K      | L      | N    | d <sub>1</sub> | t <sub>3</sub> | Bolt Dia. | Wt. of each Fuse Pl. | Stub Length | Stub Projection | Footing Diameter | Bars V Size |
| 6 B 8.5   | 5/8" ϕ x 2 3/4"<br>Torque = 450"* | 5"             | 2"     | 1 1/4" | 2 3/4" | 1 1/8" | 3/4"           | 1/2"           | 1/4"  | 1 1/32" | 3 5/8"                | 2"     | 1 1/8" | 4"     | 2 1/4" | 7/8"   | 1/2" | 9/16"          | 1/4"           | 1/2" ϕ    | 1.09*                | 2'-0"       | 3"              | 2'-0"            | #5          |
| 6 B 12    |                                   |                |        |        |        |        |                |                |       |         | 3 3/4"                | 2"     | 1 1/8" | 4"     | 2 1/4" | 7/8"   | 5/8" | 1/16"          | 3/8"           | 5/8" ϕ    | 1.60*                | 2'-0"       | 3"              | 2'-0"            | #5          |
| 6 B 15.5  |                                   |                |        |        |        |        |                |                |       |         | 4 1/2"                | 2 1/2" | 1 1/4" | 6"     | 3 1/2" | 1 1/4" | 3/4" | 13/16"         | 1/2"           | 3/4" ϕ    | 3.75*                | 2'-6"       | 3"              | 2'-0"            | #6          |
| 8 WF 17   |                                   |                |        |        |        |        |                |                |       |         | 4 1/2"                | 2 1/2" | 1 1/4" | 5 1/4" | 2 3/4" | 1 1/4" | 3/4" | 13/16"         | 1/2"           | 3/4" ϕ    | 3.27*                | 2'-6"       | 3"              | 2'-0"            | #7          |
| 8 WF 20   | 3/4" ϕ x 3 1/2"<br>Torque = 750"* | 6"             | 2 1/4" | 1 3/8" | 3 1/2" | 1 1/4" | 1"             | 3/4"           | 5/16" | 13/32"  | 4 7/8"                | 2 1/2" | 1 1/2" | 5 1/4" | 2 3/4" | 1 1/4" | 7/8" | 15/16"         | 9/16"          | 7/8" ϕ    | 3.93*                | 3'-0"       | 2 1/2"          | 2'-0"            | #8          |
| 10 WF 21  |                                   |                |        |        |        |        |                |                |       |         | 5 3/8"                | 3"     | 1 1/2" | 5 3/4" | 2 3/4" | 1 1/2" | 7/8" | 15/16"         | 9/16"          | 7/8" ϕ    | 4.75*                | 3'-0"       | 2 1/2"          | 2'-0"            | #9          |
| 10 WF 25  |                                   |                |        |        |        |        |                |                |       |         | 5 3/8"                | 3"     | 1 1/2" | 5 3/4" | 2 3/4" | 1 1/2" | 7/8" | 15/16"         | 9/16"          | 7/8" ϕ    | 4.79*                | 3'-0"       | 2 1/2"          | 2'-0"            | #10         |
| 12 WF 27  |                                   |                |        |        |        |        |                |                |       |         | 5 3/8"                | 3"     | 1 1/2" | 6 1/2" | 3 1/2" | 1 1/2" | 7/8" | 15/16"         | 9/16"          | 7/8" ϕ    | 5.42*                | 3'-0"       | 2 1/2"          | 2'-0"            | #11         |
| 3 I 5.7   | 1/2" ϕ x 2 1/2"<br>Torque = 200"* | SEE DETAIL "A" |        |        |        |        |                |                |       |         | 3 1/8"                | 1 1/2" | 1 1/8" | 2 5/8" | 1 1/2" | 9/16"  | 1/2" | 9/16"          | 1/4"           | 1/2" ϕ    | 0.64*                | 1'-6"       | 3 1/2"          | 1'-6"            | #5          |
| 4 I 7.7   | Torque = 200"*                    | SEE DETAIL "A" |        |        |        |        |                |                |       |         | 3 1/8"                | 1 1/2" | 1 1/8" | 2 5/8" | 1 1/2" | 9/16"  | 1/2" | 9/16"          | 1/4"           | 1/2" ϕ    | 0.64*                | 1'-6"       | 3 1/2"          | 1'-6"            | #5          |



HINGE DETAIL

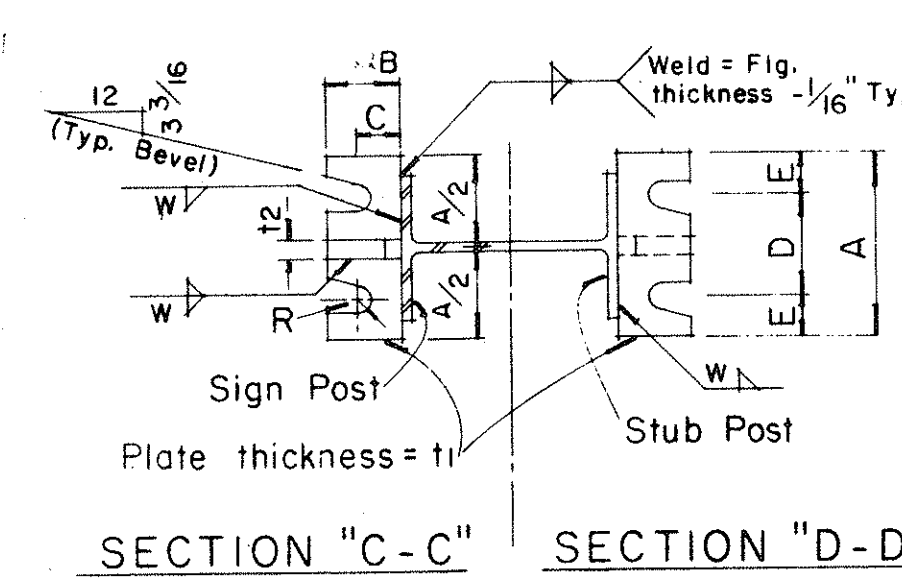


FOUNDATION DETAIL

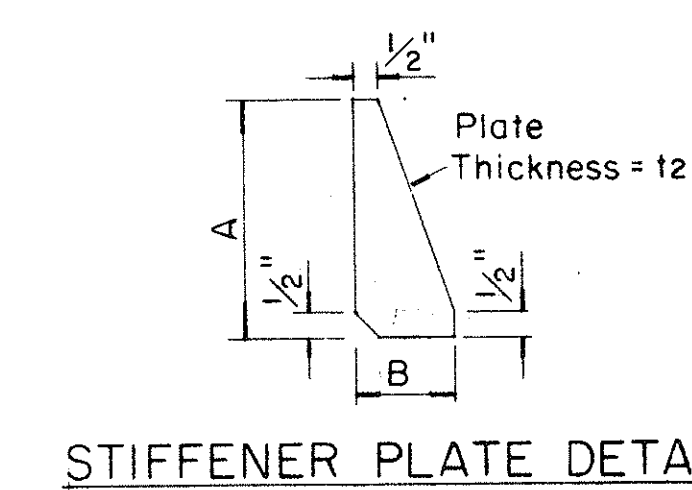


SECTION "A-A" SECTION "B-B"

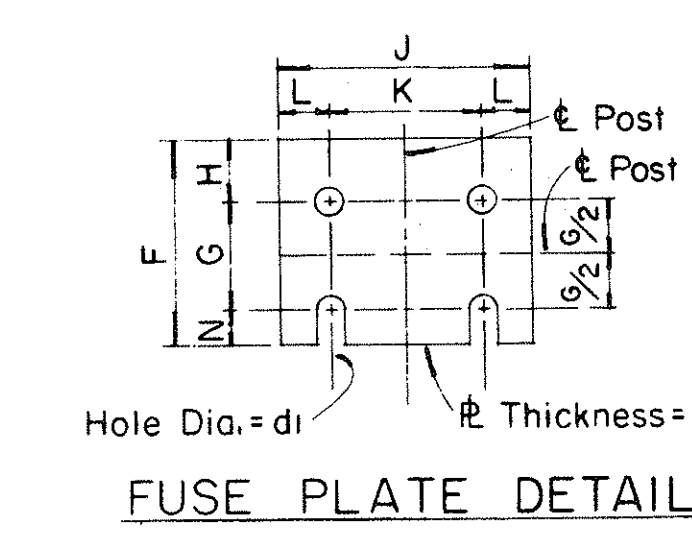
NOTE:  
Sections shown are for installations on right shoulder and in gore. Reverse plate slot bevels for installations on left shoulder.



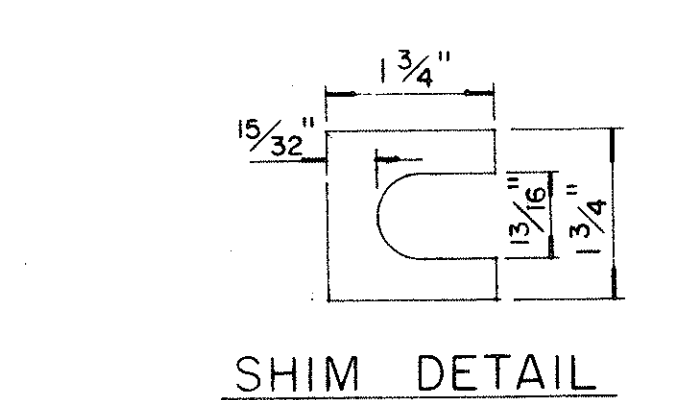
SECTION "C-C" SECTION "D-D"



STIFFENER PLATE DETAIL



FUSE PLATE DETAIL



SHIM DETAIL

- GENERAL NOTES**
- Design conforms with AASHTO Specifications for the design and Construction of Structural Supports for Highway Signs.
  - Materials and Fabrication shall conform to the requirements of the Standard Specifications and Special Provisions.
  - All holes shall be drilled. All plate cuts shall preferably be saw cuts, however; flame cutting will be permitted provided all edges are ground. Metal projecting beyond the plane of the plate face will not be tolerated.
  - Tighten the high strength bolts in the base connection only to the torque shown, do not overtighten. All bolts other than high strength bolts shall conform to ASTM A 307, Class A.
  - All structural steel, bolts, nuts and washers shall be galvanized as per the Standard Specifications and Special Provisions. Structural steel to be galvanized after fabrication except as noted.
  - Structural steel shall conform with the requirements of ASTM A 441.
  - Galvanizing of all posts shall be projection above concrete plus 6" minimum.
  - All friction fuse bolts shall be tightened in the shop following a method approved by the Engineer. Tightening shall be to such a degree as to obtain the following minimum residual tension in each bolt:
- | Bolt Size   | Min. Tension | Bolt Size   | Min. Tension |
|-------------|--------------|-------------|--------------|
| 1/2" $\phi$ | 12050 Lbs.   | 3/4" $\phi$ | 28400 Lbs.   |
| 5/8" $\phi$ | 19200 Lbs.   | 7/8" $\phi$ | 36050 Lbs.   |

APPROVAL RECOMMENDED:  
*Eichi Tanaka*  
TRAFFIC ENGINEER  
12/29/69  
DATE

APPROVED:  
*John J. [Signature]*  
ASSISTANT CHIEF, ENGINEERING  
12-30-69  
DATE

| NO. | REVISION | APPROVED BY | DATE |
|-----|----------|-------------|------|
|     |          |             |      |

STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

**STANDARD DETAILS**  
**BREAK-AWAY SIGN SUPPORTS**  
**FOR**  
**GROUND MOUNTED GUIDE SIGNS**

Not to Scale

SHEET No. 251 OF 331 SHEETS DT 204

DETAIL "A"  
SIGN POST & STUB POST  
(For 4I7.7 and 3I5.7 Shapes)

DETAIL "B"  
SIGN POST & STUB POST  
(For WF and B Shapes)

**PROCEDURE FOR ASSEMBLY OF BASE CONNECTION:**

- Assemble post to stub with bolts and with one flat washer on each bolt between plates.
- Shim as required to plumb post.
- Tighten all bolts the max. possible with 12" to 15" wrench to bed washers & shims and to clean bolt threads then loosen each bolt in turn & retighten bolts in systematic order to prescribed torque. (See Table)
- Burr threads at junction with nut using a center punch to prevent nut loosening.

Furnish 2  $\phi$ .012"  $\pm$  thick and 2  $\phi$ .032"  $\pm$  thick shims per post. Shims shall be fabricated from brass shim stock or strip conforming to A.S.T.M. - B 36.

DATE: \_\_\_\_\_  
DRAWN BY: \_\_\_\_\_  
CHECKED BY: \_\_\_\_\_  
DESIGNED BY: \_\_\_\_\_  
NOTED BY: \_\_\_\_\_  
NO. \_\_\_\_\_



| FED. ROAD DIST. NO. | STATE | FED. AID PROJ. NO. | FISCAL YEAR | SHEET NO. | TOTAL SHEETS |
|---------------------|-------|--------------------|-------------|-----------|--------------|
| HAWAII              | HAW.  | I-HI-1(108)        | 1975        | 65        | 100          |

(OVERHEAD SIGNS)  
SUPPORT SPACING TABLE

| PANEL THICK. | LENGTH OF SIGN | NO. OF SUPPORTS | OVERHANG B | SUPPORT SPACING C or C <sub>1</sub> |
|--------------|----------------|-----------------|------------|-------------------------------------|
| 1"           | 6'-0"          | 2               | 12"        | 48"                                 |
| 1"           | 6'-6"          | 2               | 15"        | 48"                                 |
| 1"           | 7'-0"          | 2               | 15"        | 54"                                 |
| 1"           | 7'-6"          | 2               | 18"        | 54"                                 |
| 1"           | 8'-0"          | 2               | 18"        | 60"                                 |
| 1"           | 8'-6"          | 2               | 22"        | 62"                                 |
| 1"           | 9'-0"          | 2               | 22"        | 64"                                 |
| 1"           | 9'-6"          | 2               | 23"        | 68"                                 |
| 1"           | 10'-0"         | 2               | 24"        | 72"                                 |
| 1"           | 10'-6"         | 2               | 24"        | 78"                                 |
| 1"           | 11'-0"         | 2               | 24"        | 84"                                 |
| 1"           | 11'-6"         | 2               | 27"        | 84"                                 |
| 1"           | 12'-0"         | 2               | 30"        | 84"                                 |
| 1"           | 12'-6"         | 2               | 30"        | 90"                                 |
| 1"           | 13'-0"         | 2               | 30"        | 96"                                 |
| 1"           | 13'-6"         | 2               | 30"        | 102"                                |
| 1"           | 14'-0"         | 2               | 30"        | 108"                                |
| 1"           | 14'-6"         | 2               | 36"        | 102"                                |
| 1"           | 15'-0"         | 2               | 36"        | 108"                                |
| 1"           | 15'-6"         | 3               | 24"        | 69"                                 |
| 1"           | 16'-0"         | 3               | 24"        | 72"                                 |
| 1"           | 16'-6"         | 3               | 24"        | 75"                                 |
| 1"           | 17'-0"         | 3               | 24"        | 78"                                 |
| 1"           | 17'-6"         | 3               | 24"        | 81"                                 |
| 1"           | 18'-0"         | 3               | 24"        | 84"                                 |
| 1"           | 18'-6"         | 3               | 27"        | 84"                                 |
| 1"           | 19'-0"         | 3               | 27"        | 87"                                 |
| 1"           | 19'-6"         | 3               | 27"        | 90"                                 |
| 1"           | 20'-0"         | 3               | 30"        | 90"                                 |
| 1"           | 20'-6"         | 3               | 30"        | 93"                                 |
| 1"           | 21'-0"         | 3               | 30"        | 96"                                 |
| 1"           | 21'-6"         | 3               | 33"        | 96"                                 |
| 1"           | 22'-0"         | 3               | 36"        | 96"                                 |
| 1"           | 22'-6"         | 3               | 36"        | 99"                                 |
| 1"           | 23'-0"         | 3               | 36"        | 102"                                |
| 1"           | 23'-6"         | 3               | 36"        | 105"                                |
| 1"           | 24'-0"         | 3               | 36"        | 108"                                |

APPROVAL RECOMMENDED:

*Eiichi Tanaka* 12/23/69  
TRAFFIC ENGINEER DATE

APPROVED:

*John J. ...* 12-30-69  
ASSISTANT CHIEF, ENGINEERING DATE

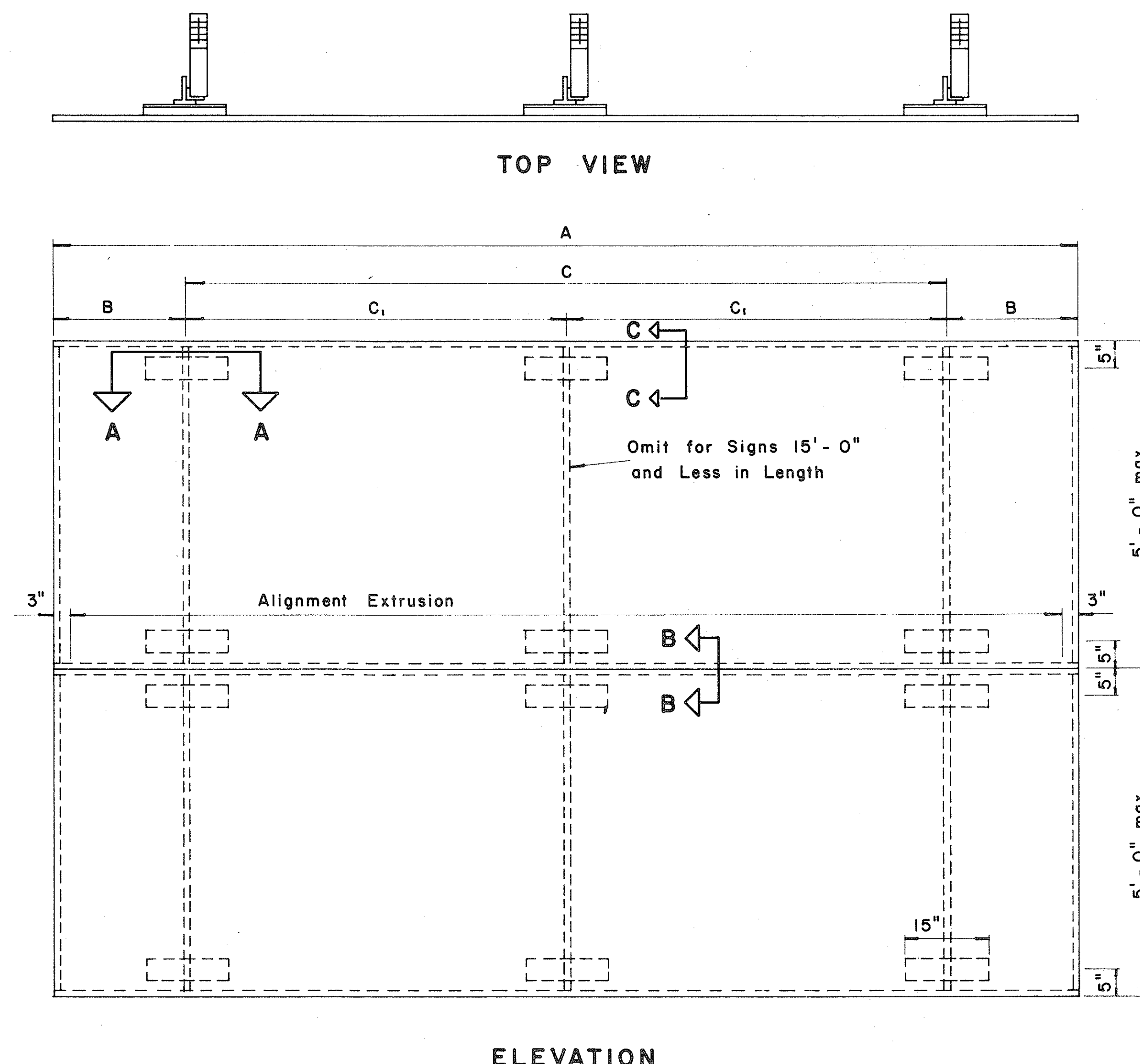
| NO. | REVISION | APPROVED BY | DATE |
|-----|----------|-------------|------|
|     |          |             |      |

STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

STANDARD DETAILS  
LAMINATED ALUMINUM  
SIGN PANELS  
(OVERHEAD)

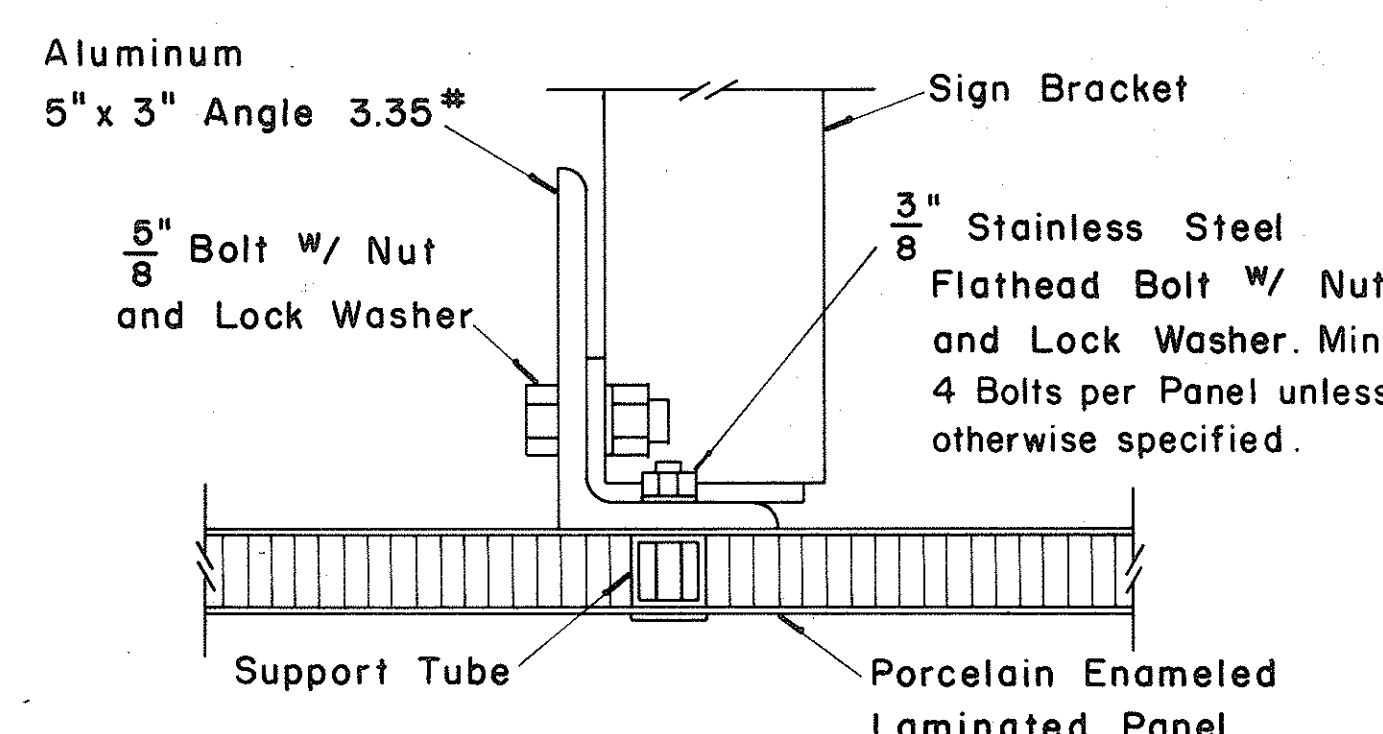
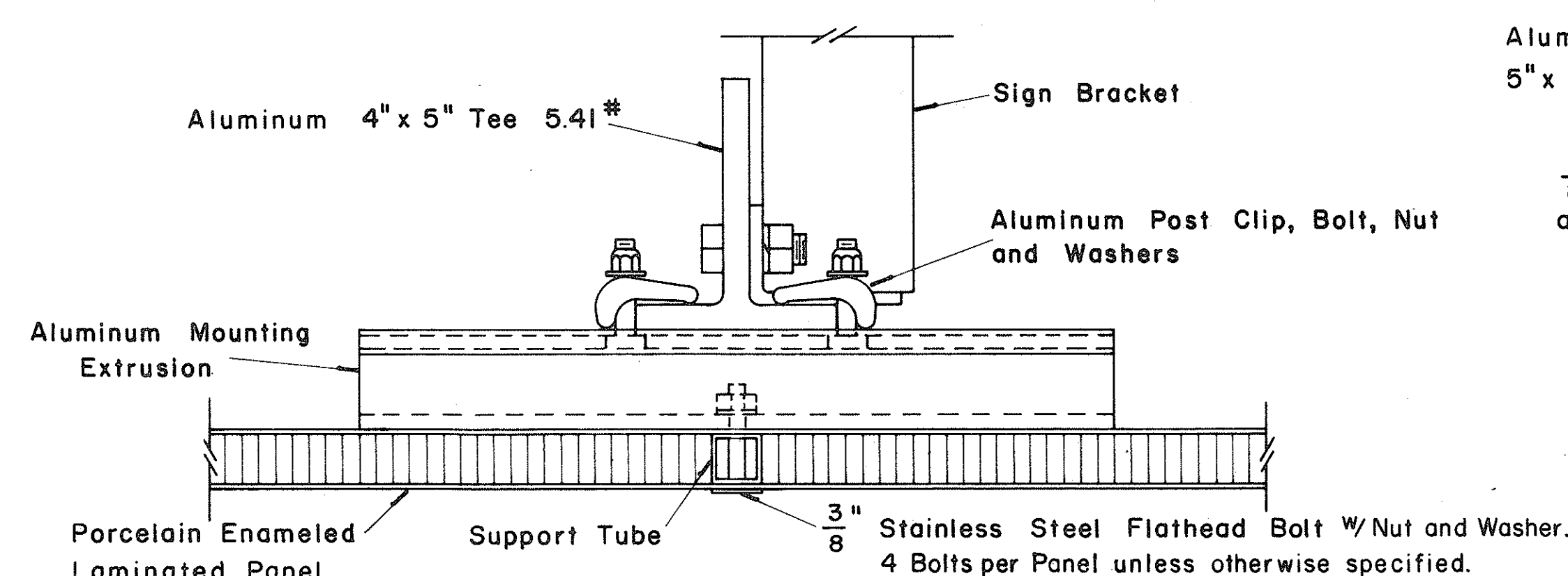
Scale: As Shown

SHEET No. 261 OF 331 SHEETS DT 205



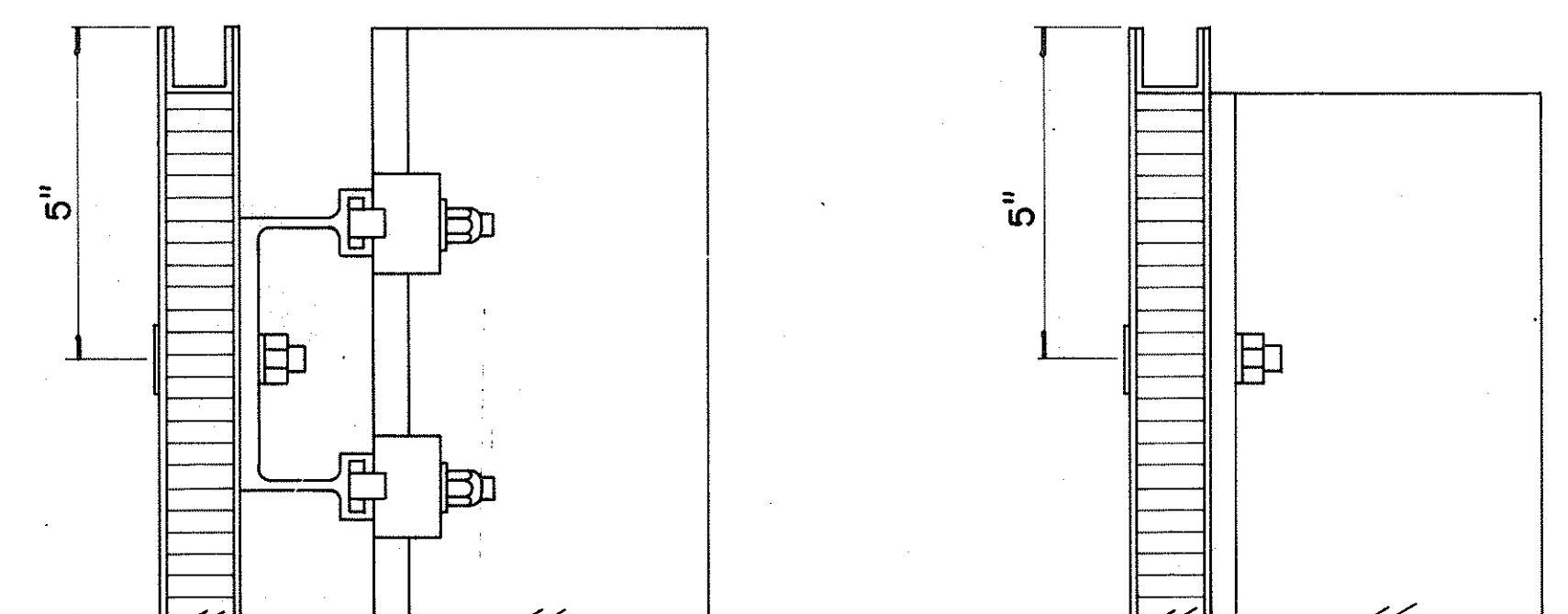
TYPICAL SIGN ASSEMBLY

Scale:  $\frac{3}{4}$ " = 1'-0"



SECTION "A-A" (Alternate)

Scale:  $\frac{3}{8}$ " = 1"

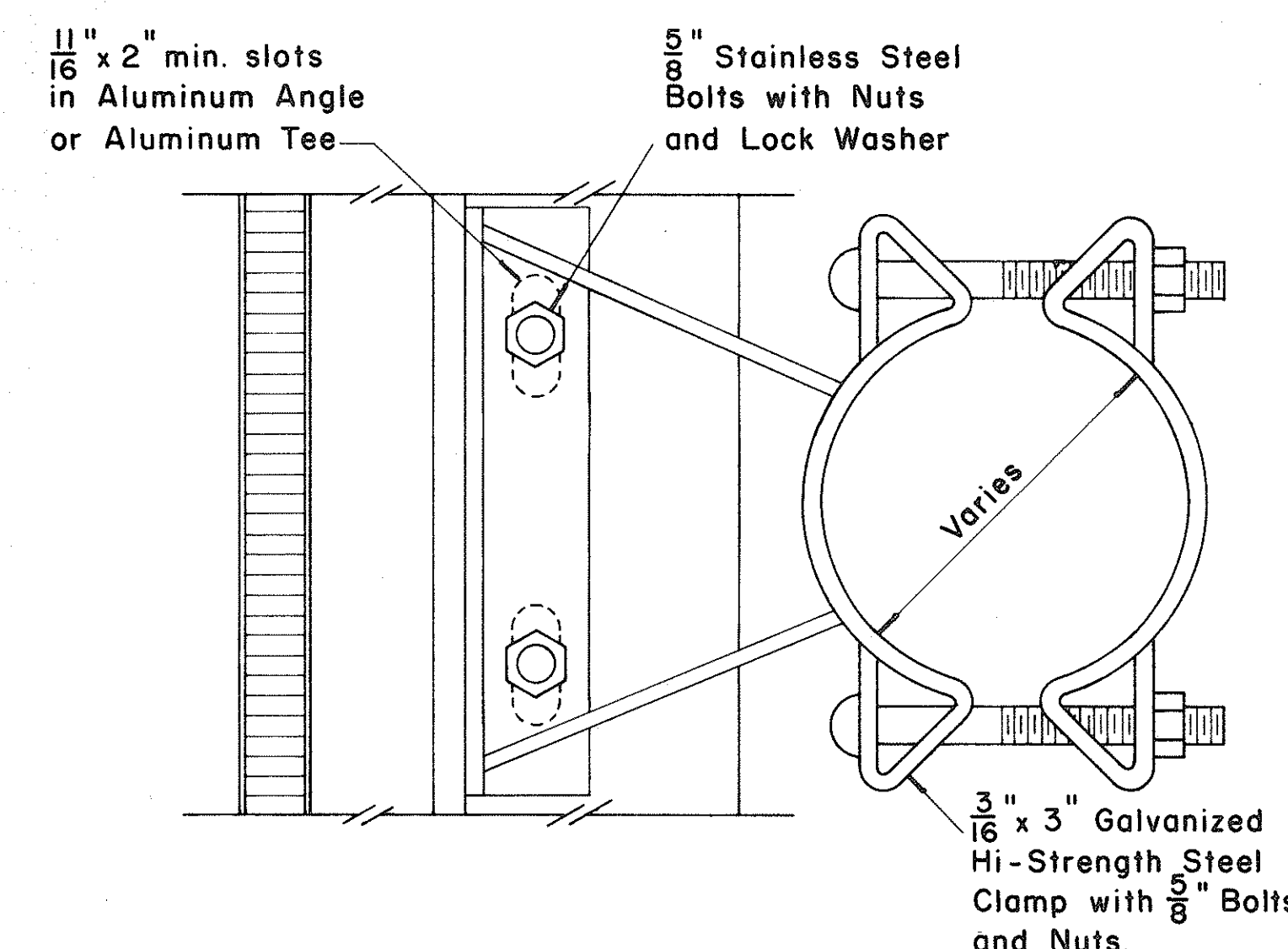


SECTION "C-C"

Scale:  $\frac{3}{8}$ " = 1"

SECTION "C-C" (Alternate)

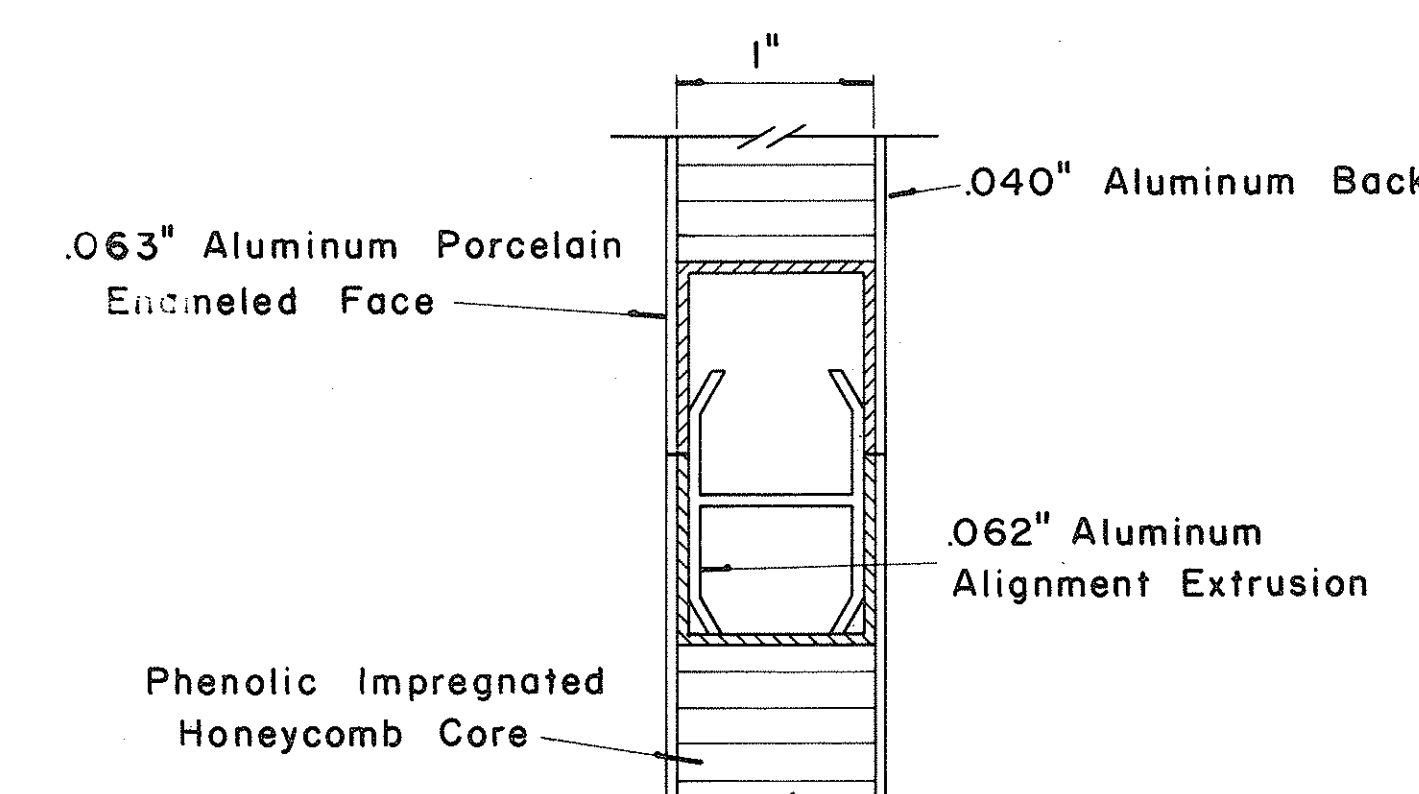
Scale:  $\frac{3}{8}$ " = 1"



SIGN BRACKET ASSEMBLY

Scale:  $\frac{3}{8}$ " = 1"

NOTE: For additional details of Sign Bracket Assembly, see Standard Detail Sheet "Overhead Sign Supports."



CLOSURE DETAIL SECTION "B-B"

FULL SCALE

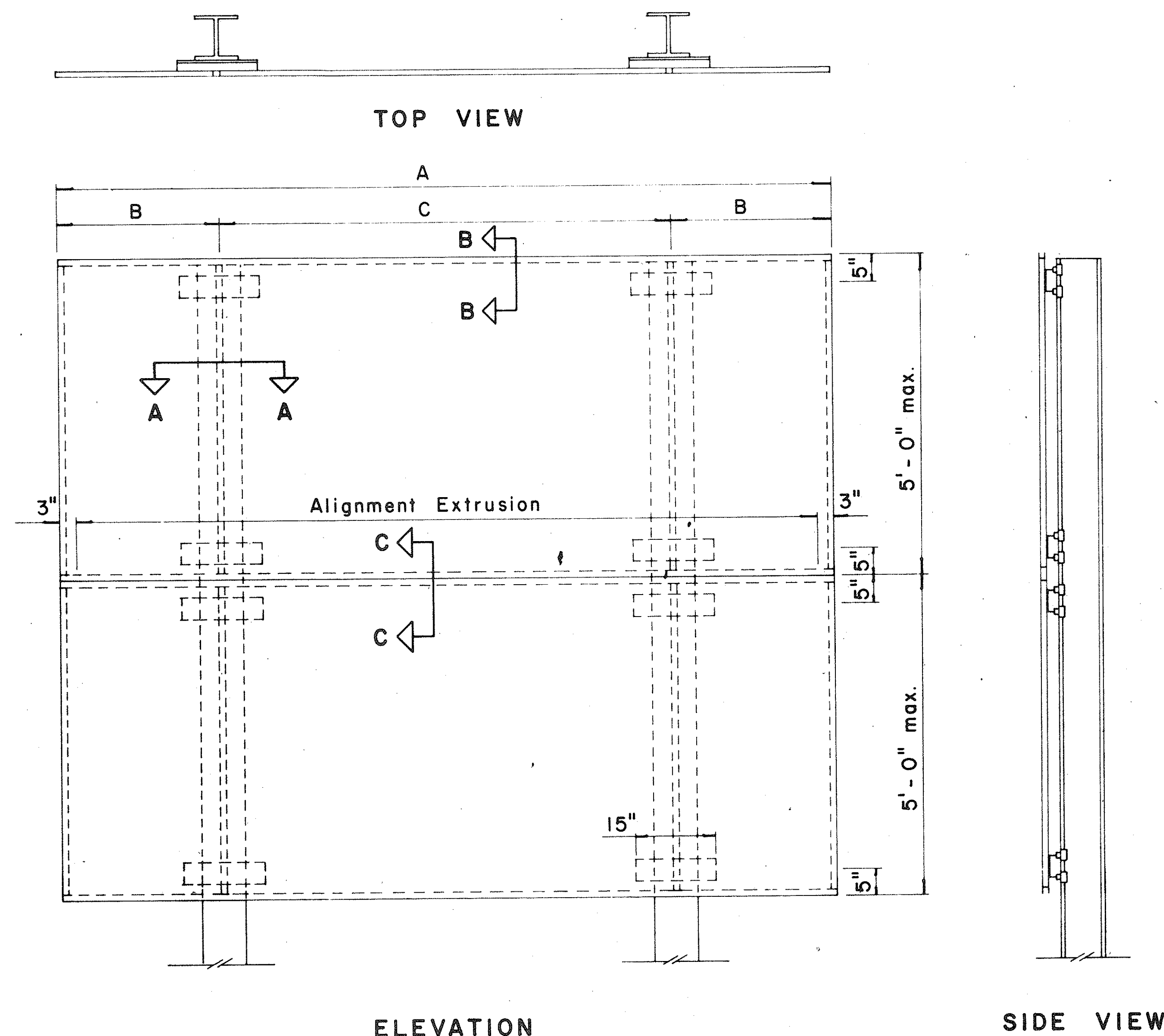
DATE: \_\_\_\_\_  
DRAWN BY: \_\_\_\_\_  
CHECKED BY: \_\_\_\_\_  
DESIGNED BY: \_\_\_\_\_  
QUANTITIES BY: \_\_\_\_\_  
NOTED BY: \_\_\_\_\_  
ORIGINAL PLAN: \_\_\_\_\_  
NOTE BOOK: \_\_\_\_\_  
No. \_\_\_\_\_



| FED. ROAD DIST. NO. | STATE | FED. AID PROJ. NO. | FISCAL YEAR | SHEET NO. | TOTAL SHEETS |
|---------------------|-------|--------------------|-------------|-----------|--------------|
| HAWAII              | HAW.  | HA-1 (108)         | 1975        | 60        | 100          |

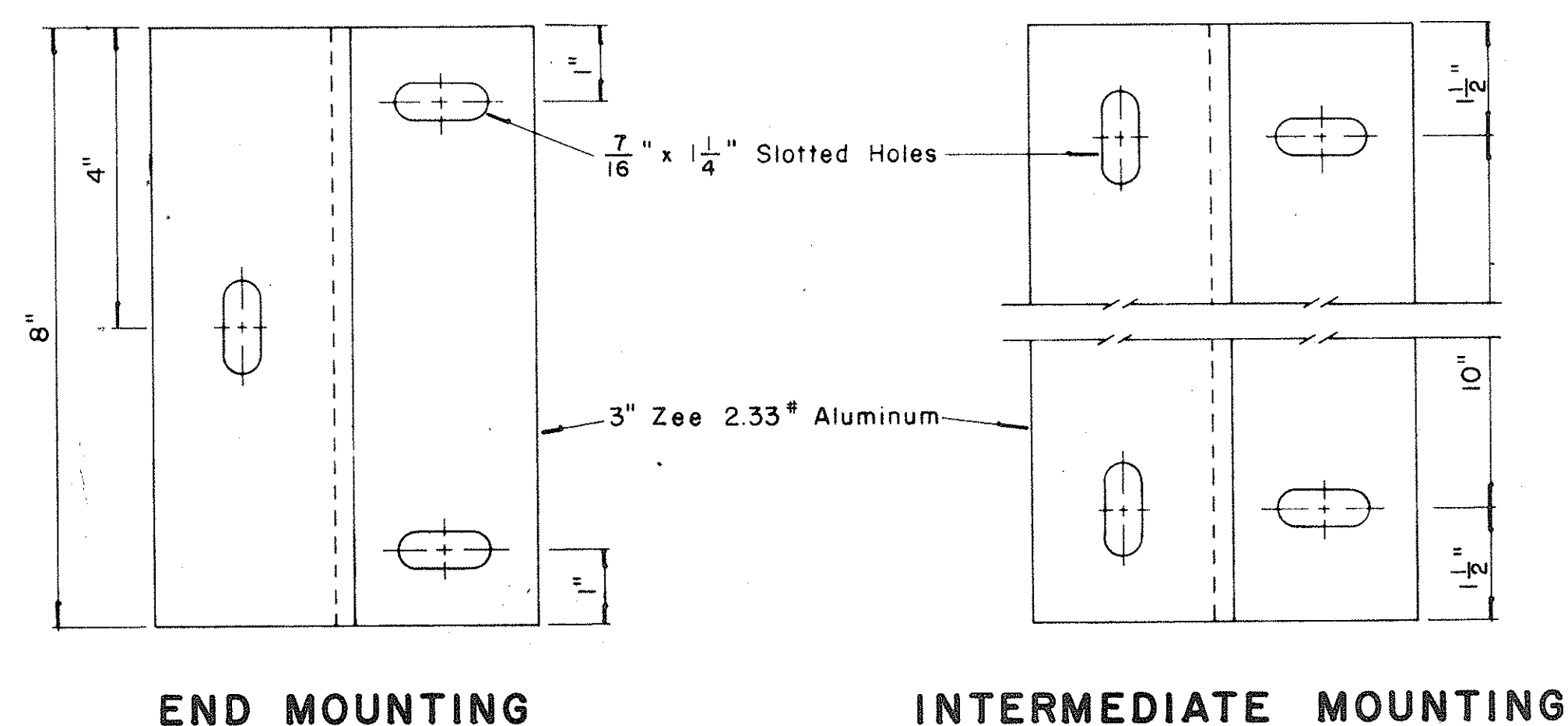
(GROUND MOUNTED SIGNS)  
SUPPORT SPACING TABLE

| PANEL THICK. | LENGTH OF SIGN | NO. OF SUPPORTS | OVERHANG | SUPPORT SPACING |
|--------------|----------------|-----------------|----------|-----------------|
| A            | B              | C               |          |                 |
| 1"           | 6' - 0"        | 2               | 12"      | 48"             |
| 1"           | 6' - 6"        | 2               | 15"      | 48"             |
| 1"           | 7' - 0"        | 2               | 15"      | 54"             |
| 1"           | 7' - 6"        | 2               | 18"      | 54"             |
| 1"           | 8' - 0"        | 2               | 18"      | 60"             |
| 1"           | 8' - 6"        | 2               | 20"      | 62"             |
| 1"           | 9' - 0"        | 2               | 22"      | 64"             |
| 1"           | 9' - 6"        | 2               | 23"      | 68"             |
| 1"           | 10' - 0"       | 2               | 24"      | 72"             |
| 1"           | 10' - 6"       | 2               | 24"      | 78"             |
| 1"           | 11' - 0"       | 2               | 24"      | 84"             |
| 1"           | 11' - 6"       | 2               | 27"      | 84"             |
| 1"           | 12' - 0"       | 2               | 30"      | 84"             |
| 1"           | 12' - 6"       | 2               | 30"      | 90"             |
| 1"           | 13' - 0"       | 2               | 30"      | 96"             |
| 1"           | 13' - 6"       | 2               | 30"      | 102"            |
| 1"           | 14' - 0"       | 2               | 30"      | 108"            |
| 1"           | 14' - 6"       | 2               | 36"      | 102"            |
| 1"           | 15' - 0"       | 2               | 36"      | 108"            |
| 2.5"         | 15' - 6"       | 2               | 36"      | 114"            |
| 2.5"         | 16' - 0"       | 2               | 39"      | 114"            |
| 2.5"         | 16' - 6"       | 2               | 39"      | 120"            |
| 2.5"         | 17' - 0"       | 2               | 39"      | 126"            |
| 2.5"         | 17' - 6"       | 2               | 42"      | 126"            |
| 2.5"         | 18' - 0"       | 2               | 42"      | 132"            |
| 2.5"         | 18' - 6"       | 2               | 45"      | 132"            |
| 2.5"         | 19' - 0"       | 2               | 45"      | 138"            |
| 2.5"         | 19' - 6"       | 2               | 45"      | 144"            |
| 2.5"         | 20' - 0"       | 2               | 48"      | 144"            |
| 2.5"         | 20' - 6"       | 2               | 48"      | 150"            |
| 2.5"         | 21' - 0"       | 2               | 51"      | 150"            |
| 2.5"         | 21' - 6"       | 2               | 51"      | 156"            |
| 2.5"         | 22' - 0"       | 2               | 51"      | 162"            |
| 2.5"         | 22' - 6"       | 2               | 54"      | 162"            |
| 2.5"         | 23' - 0"       | 2               | 54"      | 168"            |
| 2.5"         | 23' - 6"       | 2               | 54"      | 174"            |
| 2.5"         | 24' - 0"       | 2               | 57"      | 174"            |



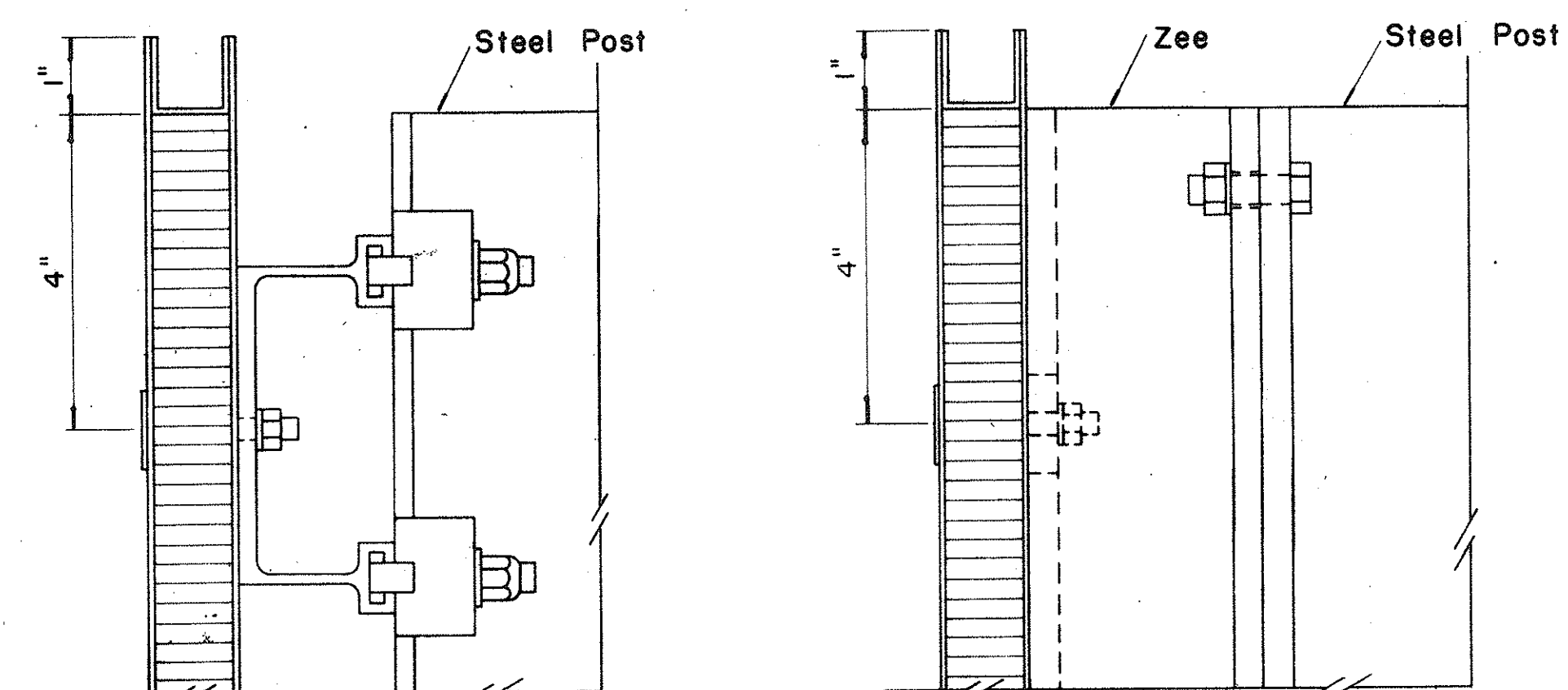
TYPICAL SIGN ASSEMBLY

Scale:  $\frac{3}{4}$ " = 1' - 0"



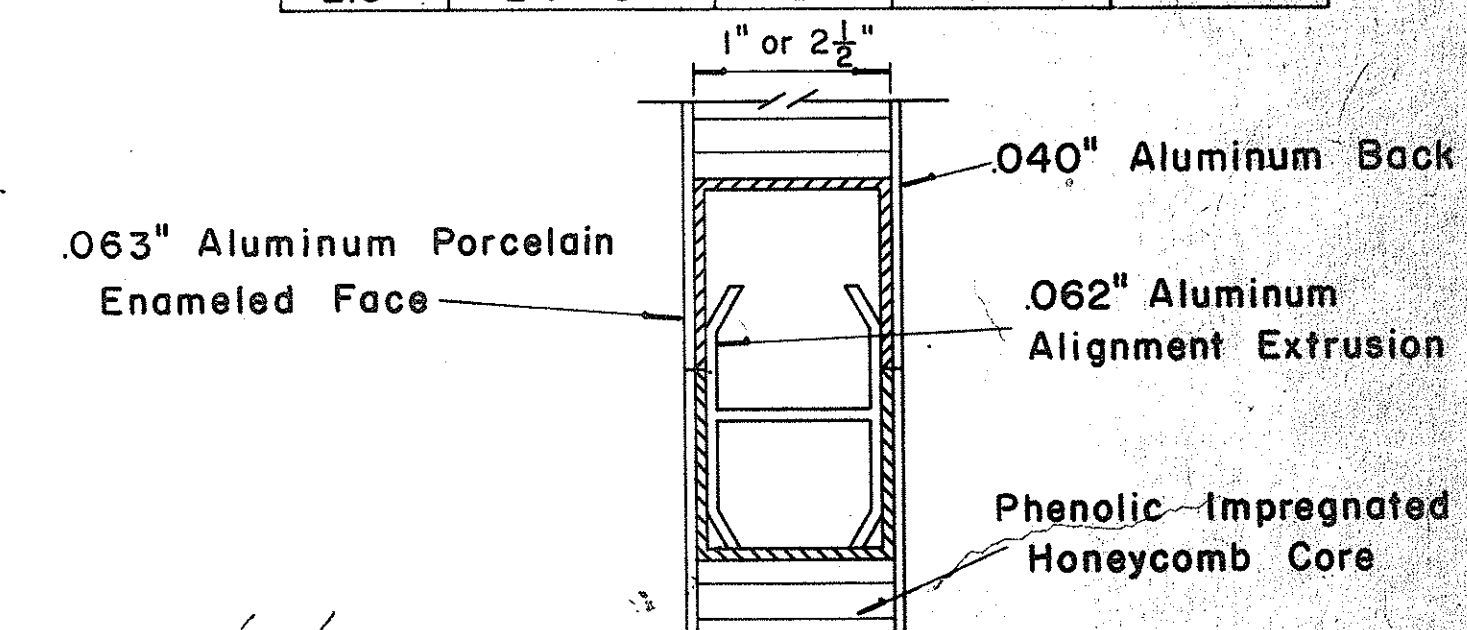
ZEE MOUNTING DETAILS

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



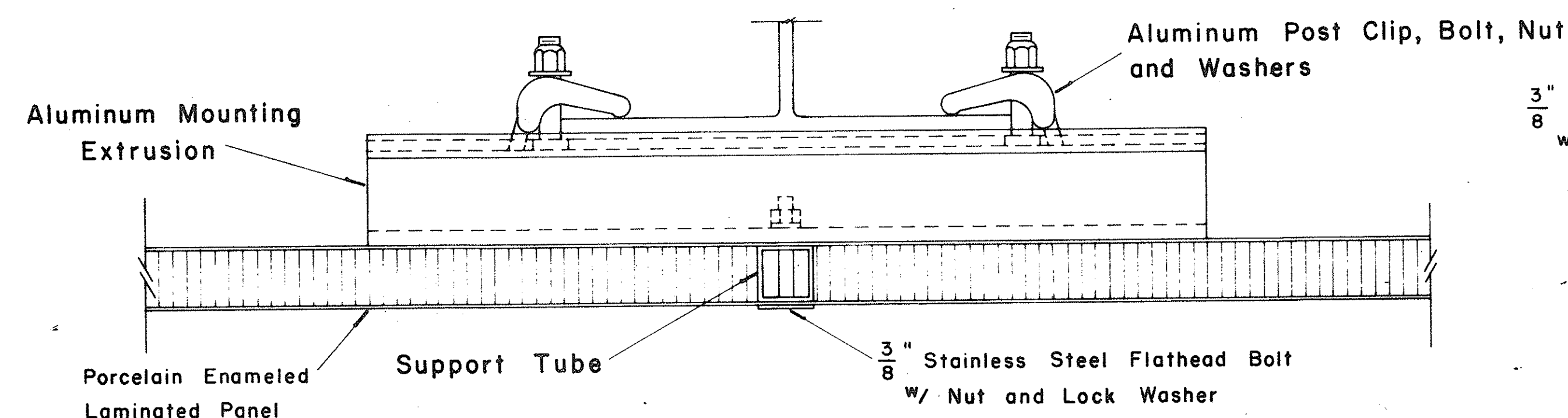
Scale:  $\frac{1}{2}$ " = 1"

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

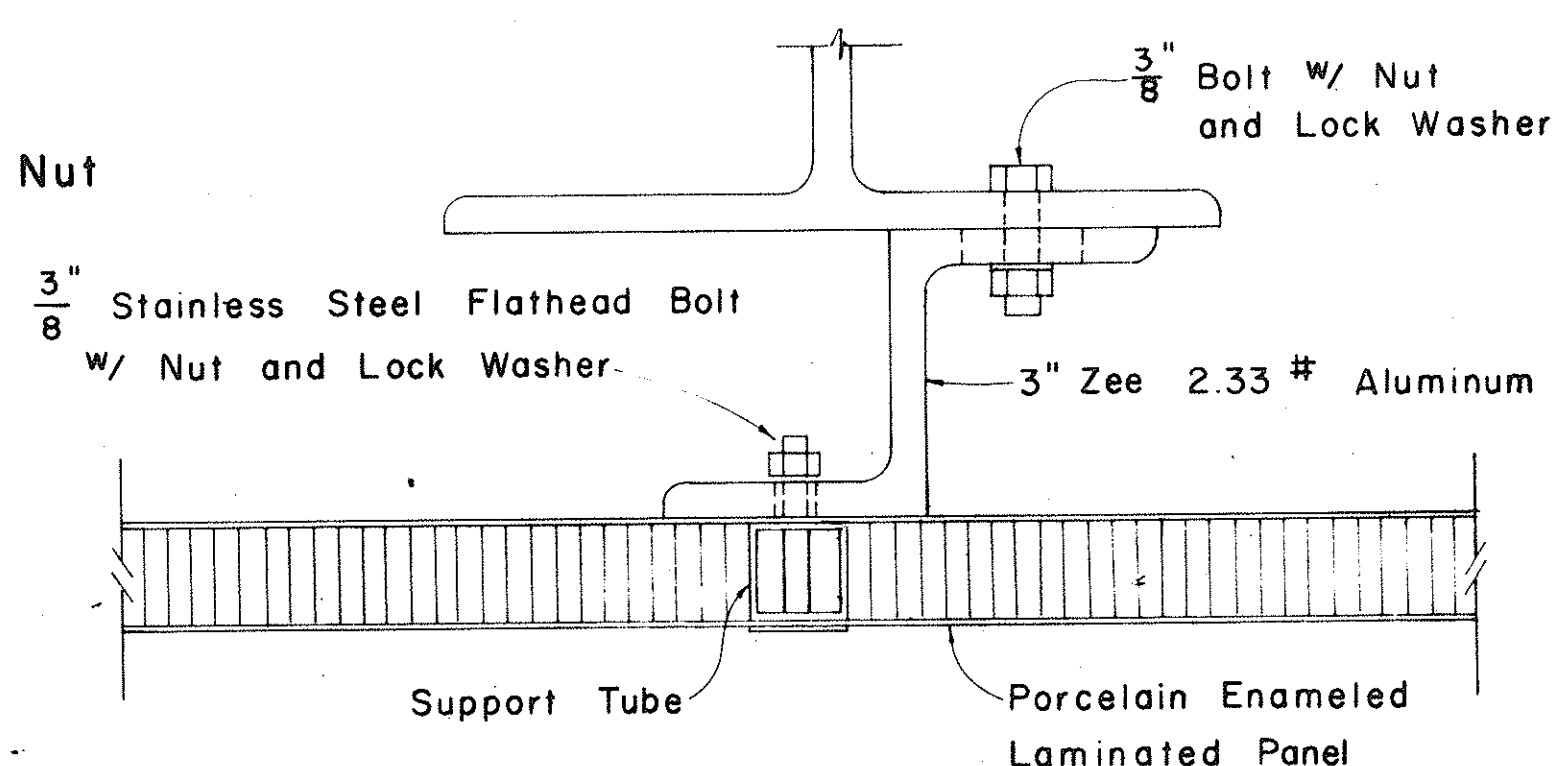


SECTION "C-C"

FULL SCALE



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



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

APPROVAL RECOMMENDED:

*Eishi Tanaka*  
TRAFFIC ENGINEER

12/29/69  
DATE

APPROVED:

*John J. [Signature]*  
ASSISTANT CHIEF, ENGINEERING

12-30-69  
DATE

| NO. | REVISION | APPROVED BY | DATE |
|-----|----------|-------------|------|
|     |          |             |      |
|     |          |             |      |
|     |          |             |      |

STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

STANDARD DETAILS  
LAMINATED ALUMINUM  
SIGN PANELS  
(GROUND MOUNTED)

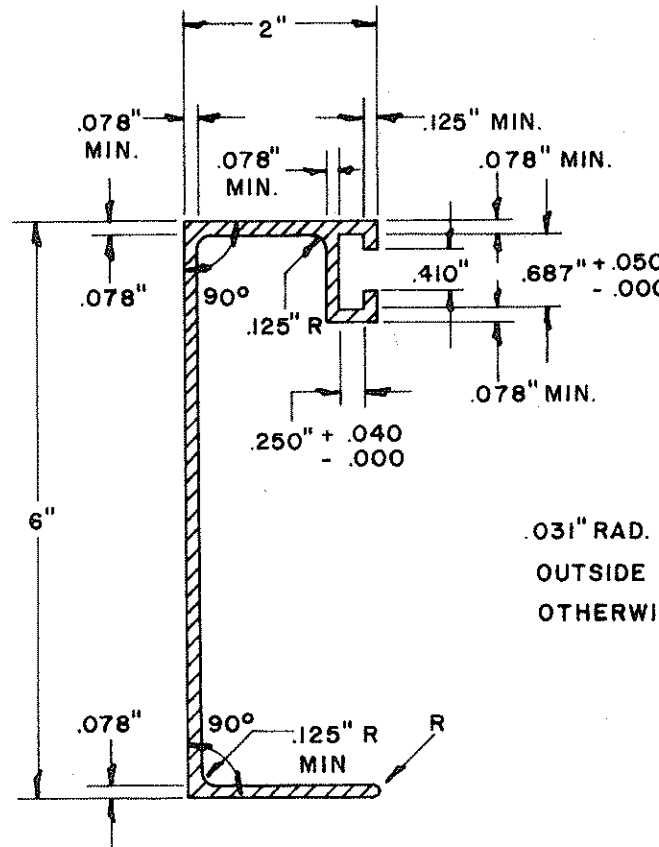
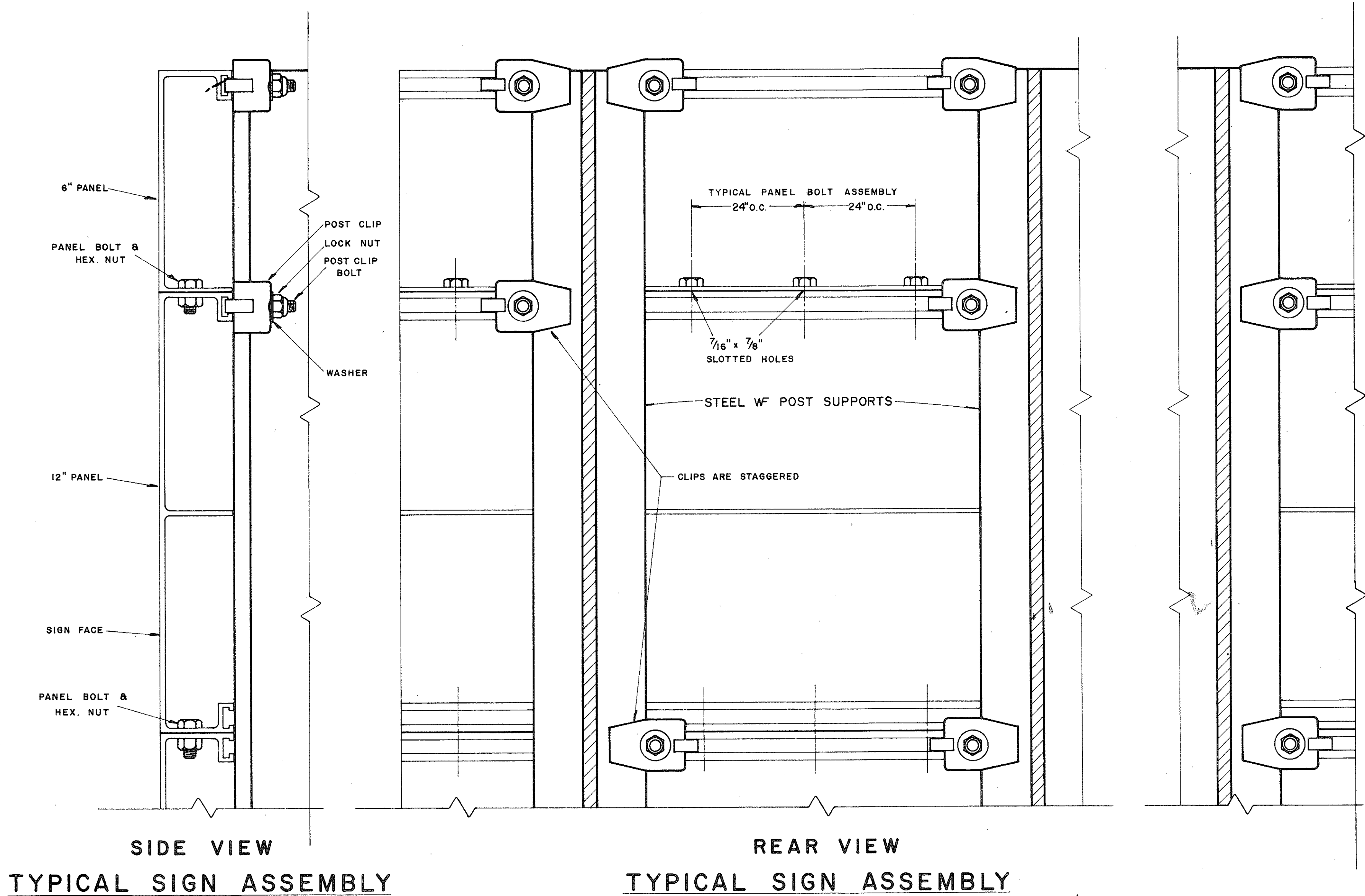
Scale: As Shown

SHEET No. 277 OF 337 SHEETS DT 206

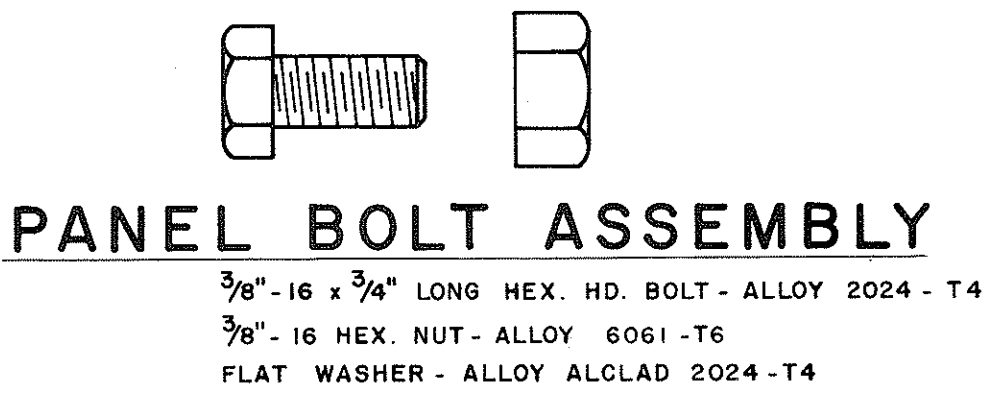
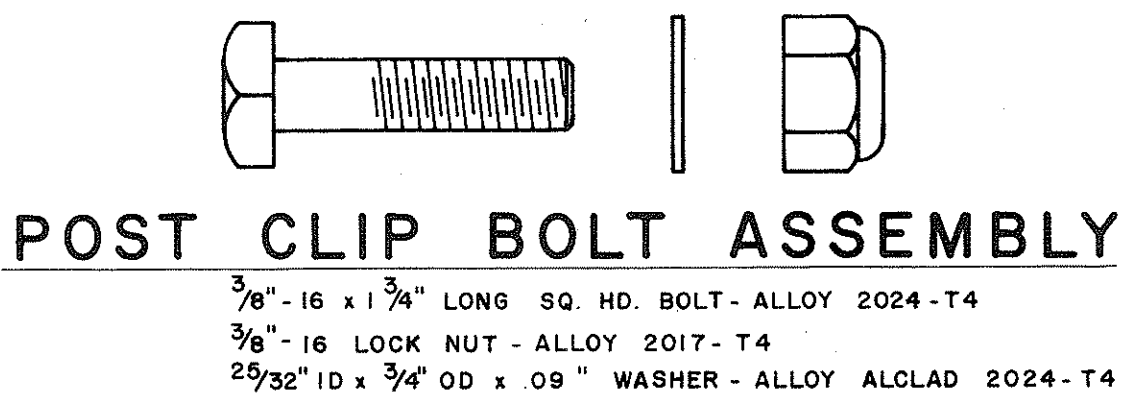
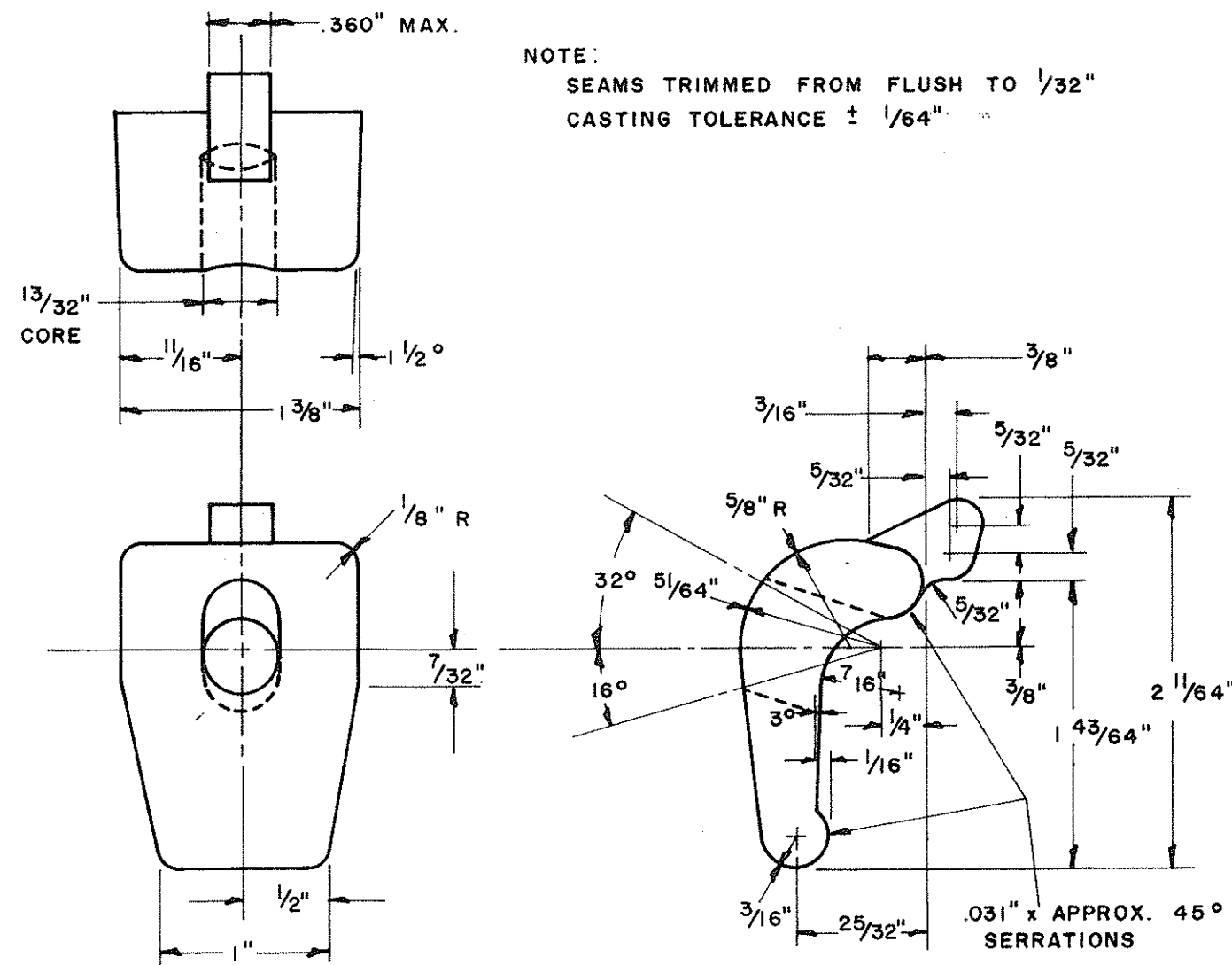
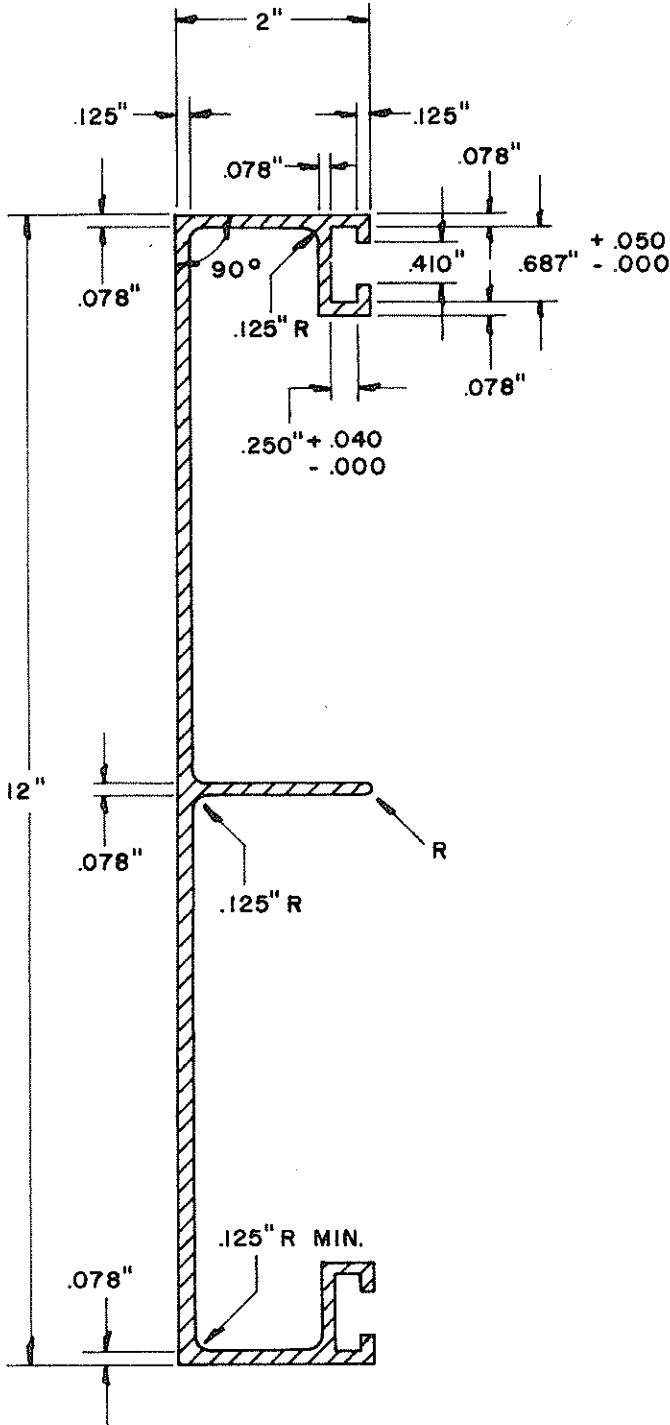
|                   |  |
|-------------------|--|
| DATE              |  |
| SURVEY PLOTTED BY |  |
| DRAWN BY          |  |
| DESIGNED BY       |  |
| QUANTITIES BY     |  |
| CHECKED BY        |  |
| ORIGINAL PLAN     |  |
| NOTE BOOK         |  |
| No.               |  |



| FED. ROAD DIST. NO. | STATE | FED. AID PROJ. NO. | FISCAL YEAR | SHEET NO. | TOTAL SHEETS |
|---------------------|-------|--------------------|-------------|-----------|--------------|
| HAWAII              | HAW.  | 1-41-1(108)        | 1975        | 67        | 100          |



### SOLID EXTRUDED SIGN PANEL DETAILS



NOTE:  
Extruded Aluminum Panels to be used for  
Destination Signs with Reflective Sheeting Background

APPROVAL RECOMMENDED:  
*Eishi Tanaka* 12/29/62  
TRAFFIC ENGINEER DATE

APPROVED:  
*[Signature]* 12-20-69  
ASSISTANT CHIEF, ENGINEERING DATE

| NO. | REVISION | APPROVED BY | DATE |
|-----|----------|-------------|------|
|     |          |             |      |

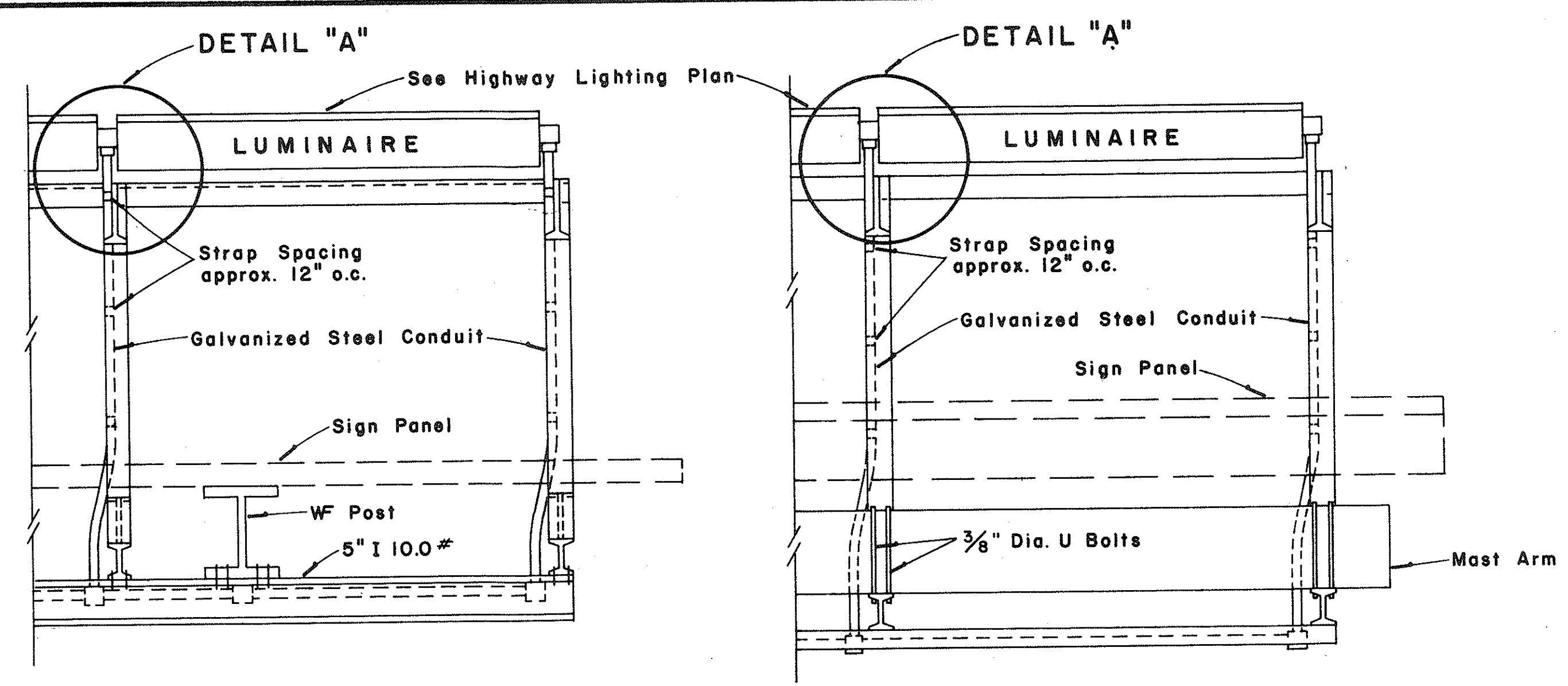
STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION  
**STANDARD DETAILS**  
SOLID ALUMINUM  
EXTRUDED SIGN PANEL  
AND  
ACCESSORY DETAILS  
SCALE:



| FED. ROAD DIST. NO. | STATE | FED. AID PROJ. NO. | FISCAL YEAR | SHEET NO. | TOTAL SHEETS |
|---------------------|-------|--------------------|-------------|-----------|--------------|
| HAWAII              | HAW.  | 1-11-108           | 1975        | 68        | 100          |

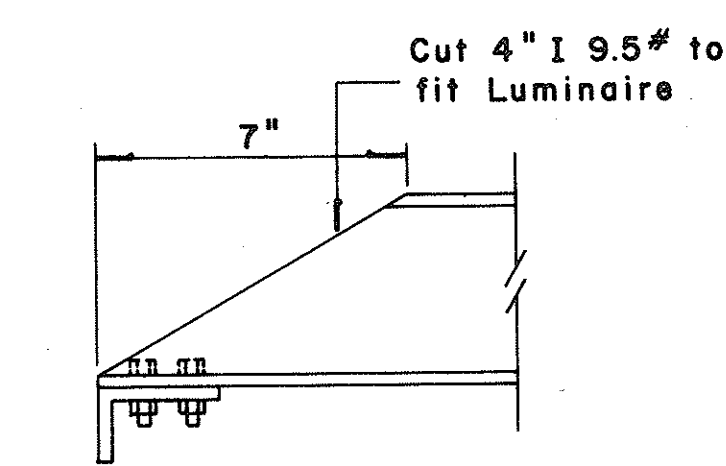
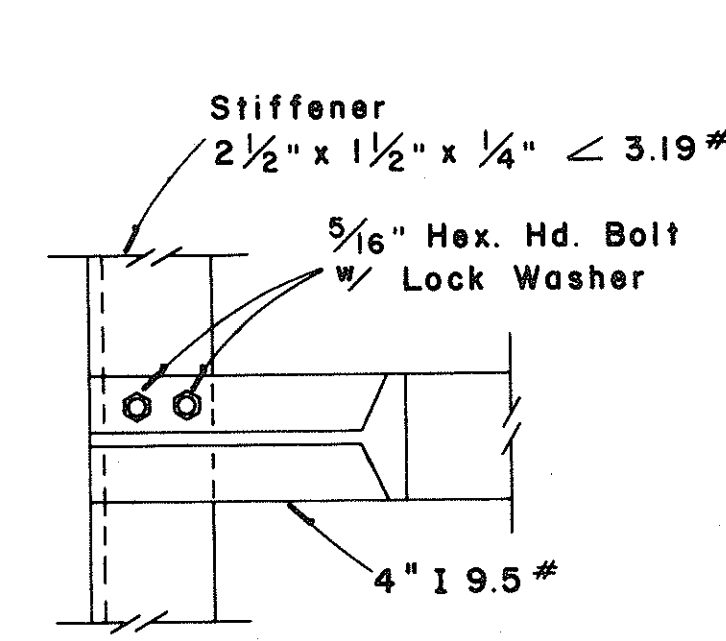
# GENERAL NOTES

1. Conduit sizes:  $\frac{3}{4}$ " diameter for one or two Luminaire Units, 1" diameter for three or more Luminaire Units.
2. Fluorescent Fixtures shall be installed as recommended by the manufacturer.
3. Luminaire brackets shall be spaced to fit 4'-0" to 6'-0" luminaires with fittings. Eight feet (8'-0") luminaires shall have an additional bracket at midpoint.
4. All parts of the bracket shall be hot-dip galvanized, prime coated with a suitable primer and painted with three coats of dark green enamel.



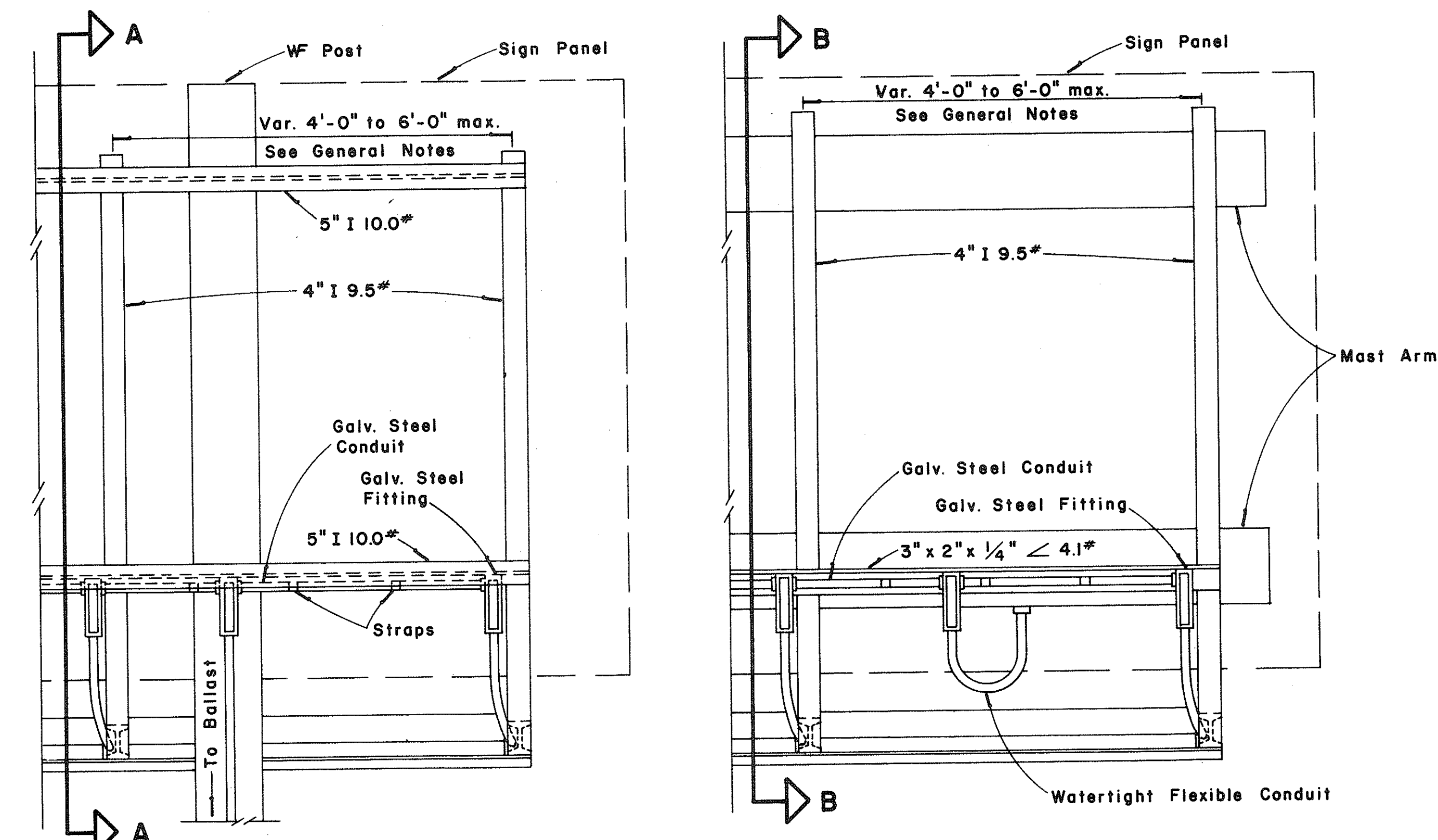
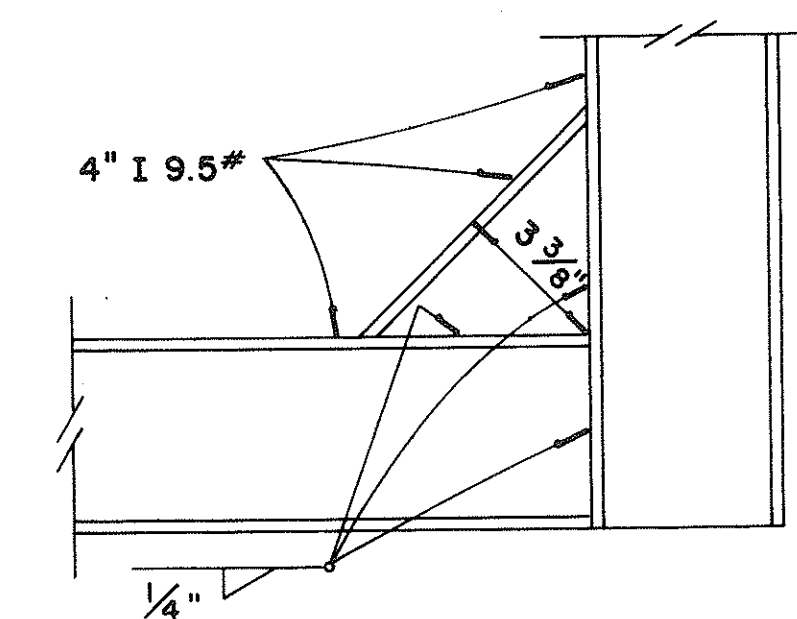
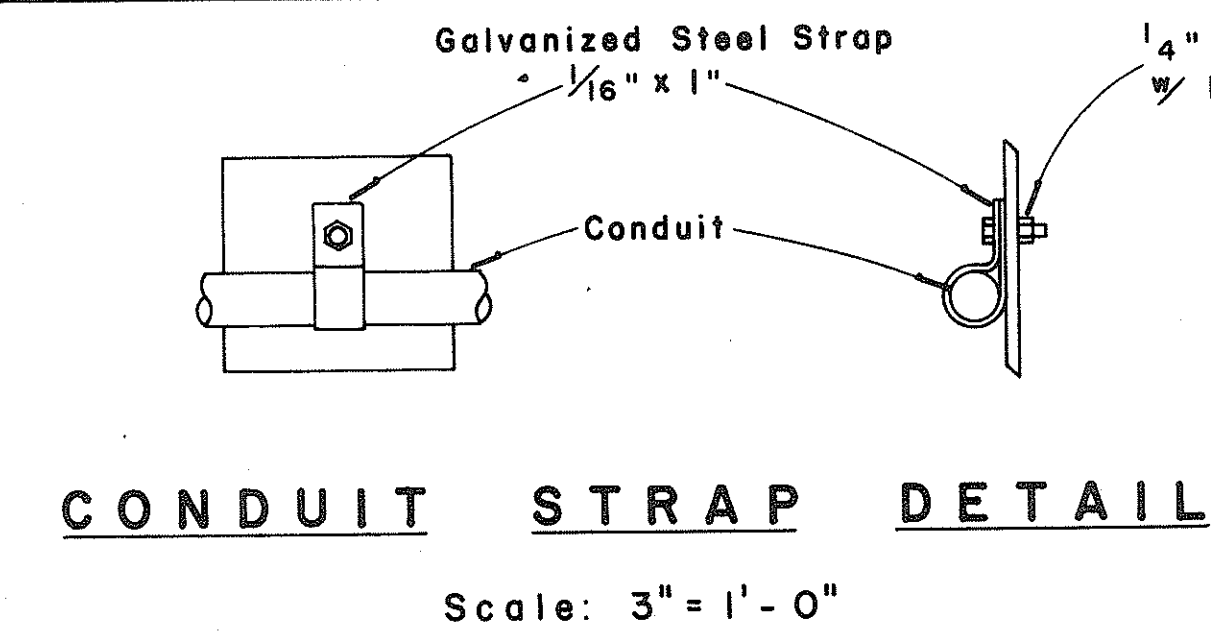
## TOP VIEW LUMINAIRE MOUNTING

Scale: 1" = 1'-0"



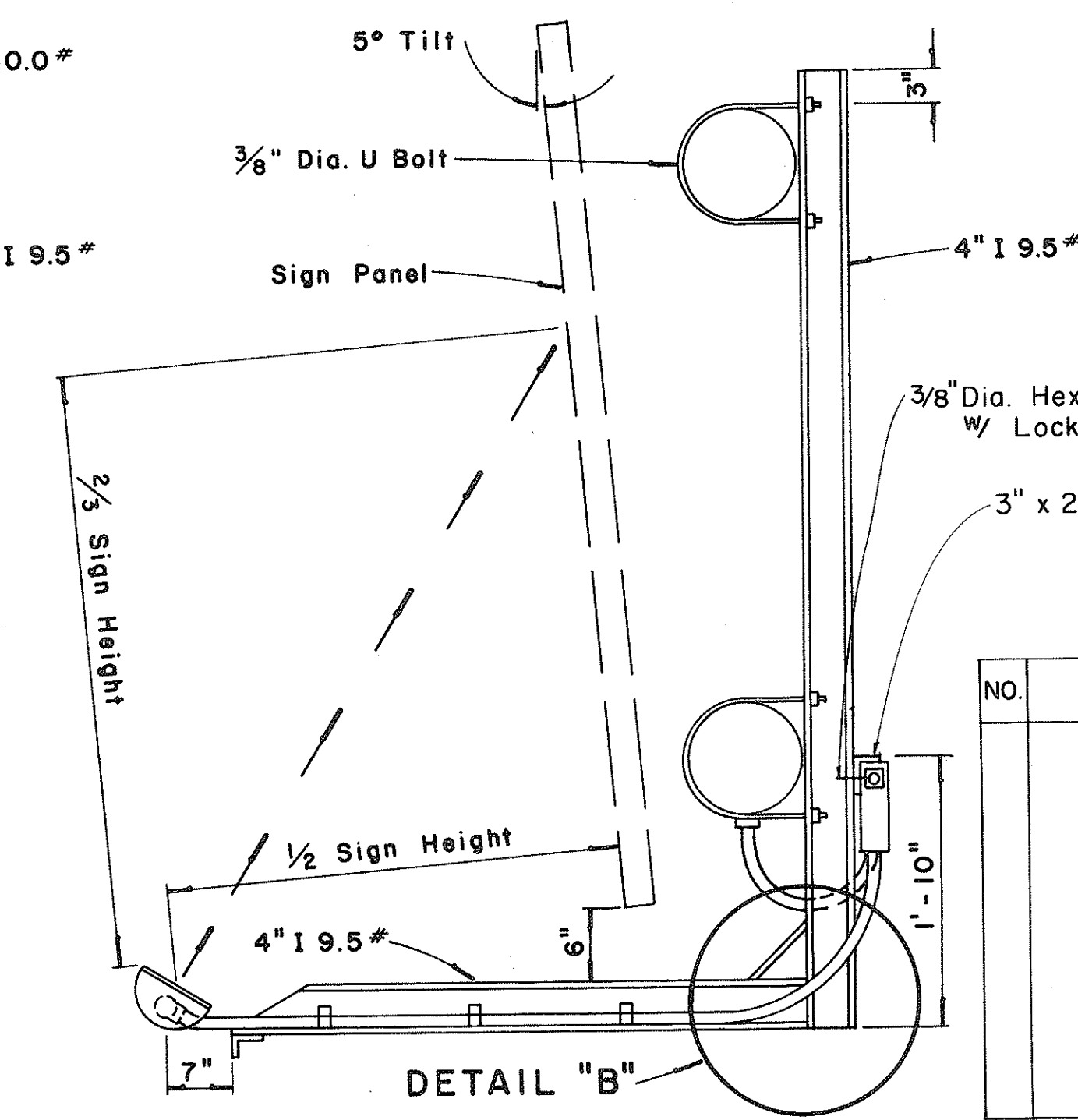
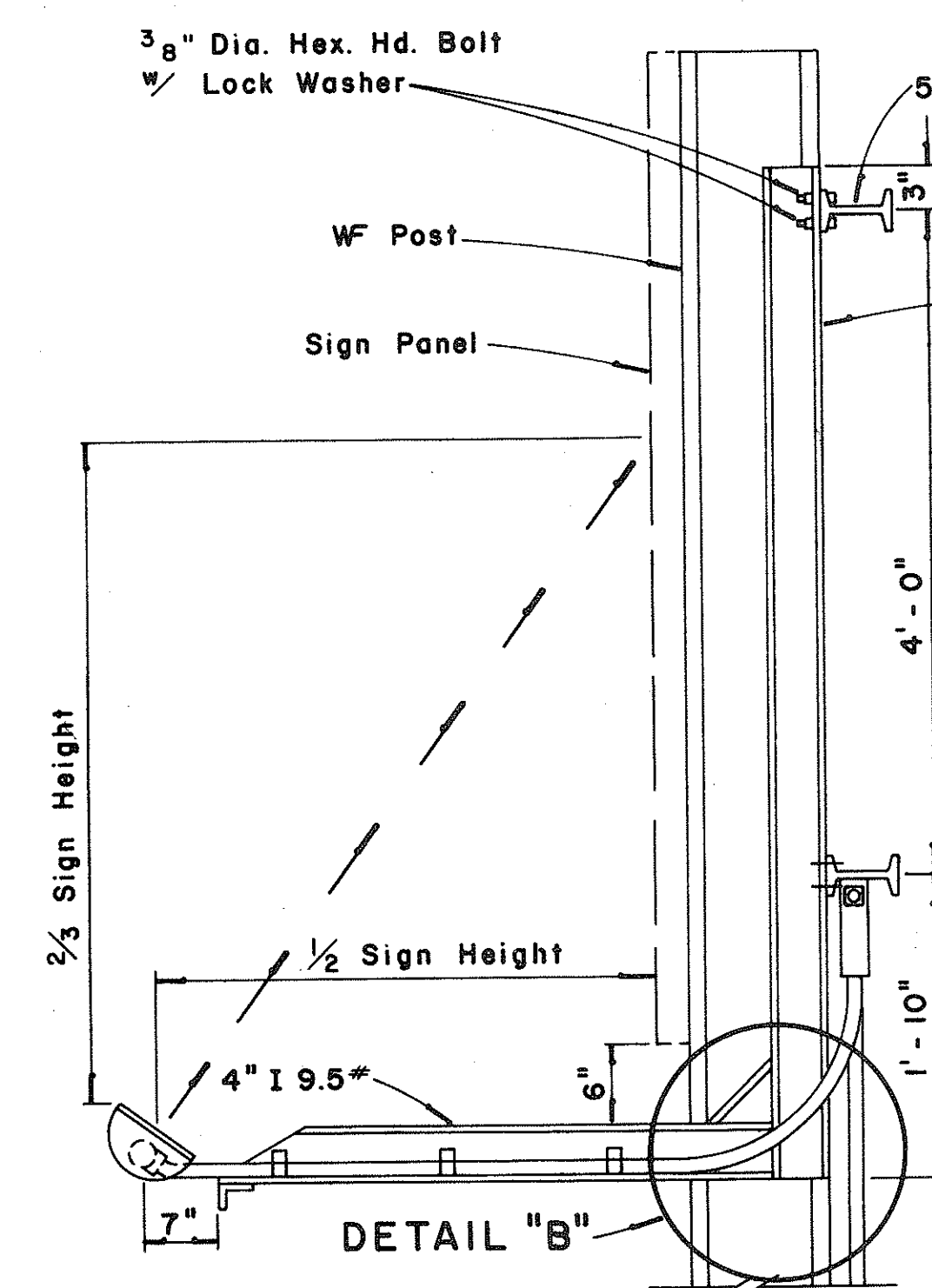
### DETAIL "A"

Scale: 3" = 1'-0"



## REAR VIEW LUMINAIRE MOUNTING

Scale: 1" = 1'-0"



APPROVAL RECOMMENDED: *Eishi Tanaka* 12/29/62 DATE

TRAFFIC ENGINEER

APPROVED: *W. S. S.* 12/30/62 DATE

ASSISTANT CHIEF, ENGINEERING

| NO. | REVISION | APPROVED BY | DATE |
|-----|----------|-------------|------|
|     |          |             |      |

STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

## EXPRESSWAY SIGNS LUMINAIRE MOUNTINGS

Scale: As Shown

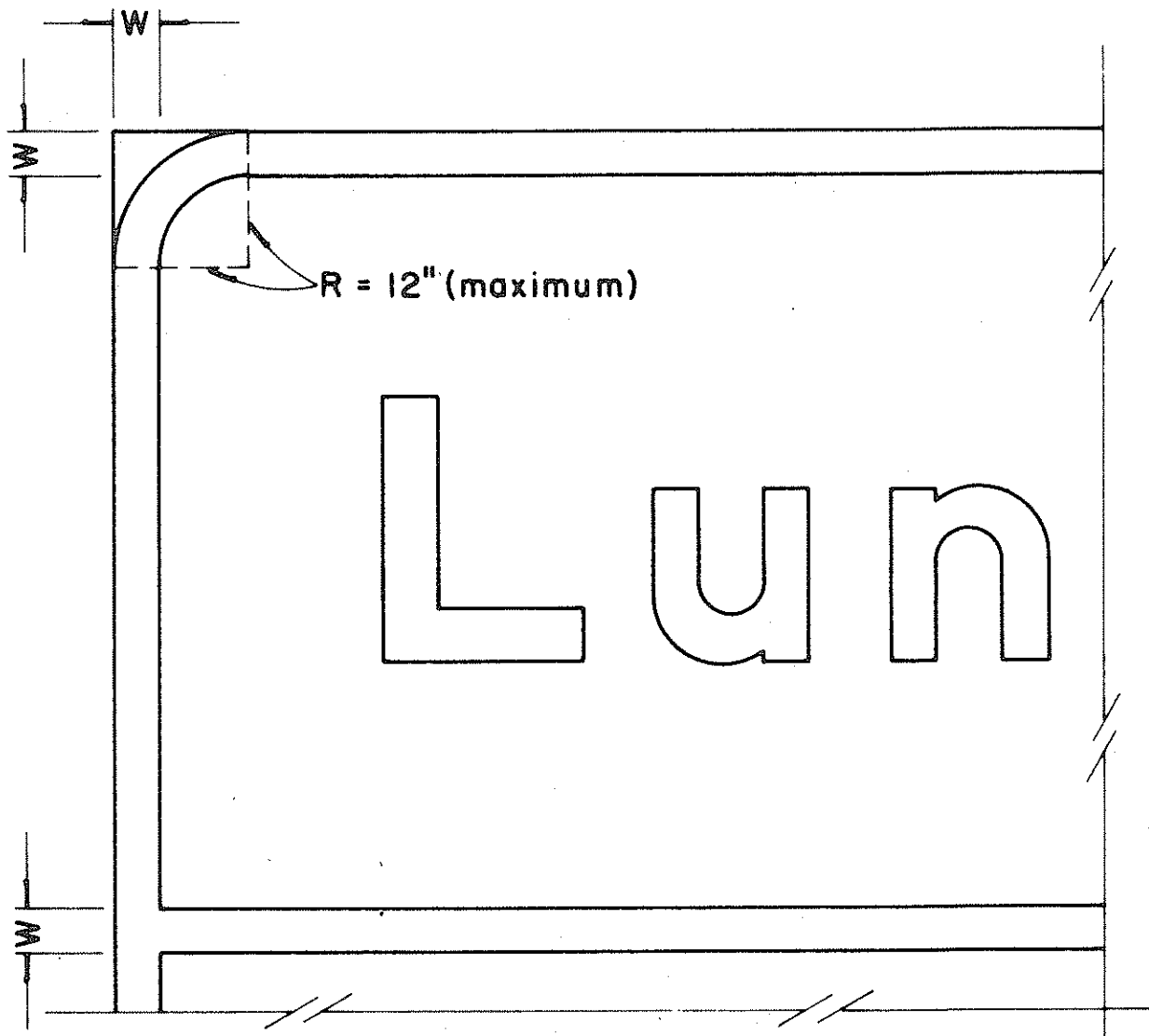
SHEET No. 29 OF 33 SHEETS DT 208

DATE  
SURVEY PLOTTED BY  
DRAWN BY  
DESIGNED BY  
NOTED BY  
CHECKED BY  
ORIGINAL PLAN  
NOTE BOOK  
No.



| FED. ROAD DIST. NO. | STATE | FED. AID PROJ. NO. | FISCAL YEAR | SHEET NO. | TOTAL SHEETS |
|---------------------|-------|--------------------|-------------|-----------|--------------|
| HAWAII              | HAW.  | HI-1(108)          | 1975        | 67        | 100          |

| RADII FOR SIGNS         |    |     |
|-------------------------|----|-----|
| Least Dimension of Sign | W  | R   |
| 2'- 0" to 4'- 6"        | 2" | 3"  |
| 4'- 9" to 5'- 6"        | 2" | 6"  |
| 5'- 9" to 7'- 6"        | 2" | 9"  |
| 7'- 9" and greater      | 2" | 12" |



### BORDER DETAIL FOR GUIDE SIGNS

Not to Scale

#### NOTE:

- Area outside corner radius need not be trimmed.
- All borders shall be embossed cut-outs, white and reflectorized.
- All Guide signs shall have borders.

APPROVAL RECOMMENDED:

*Erich Tenaka* 4/11/72  
TRAFFIC ENGINEER DATE

APPROVED:

*Paul J. Sakai* 4/12/72  
ASSISTANT CHIEF, ENGINEERING DATE

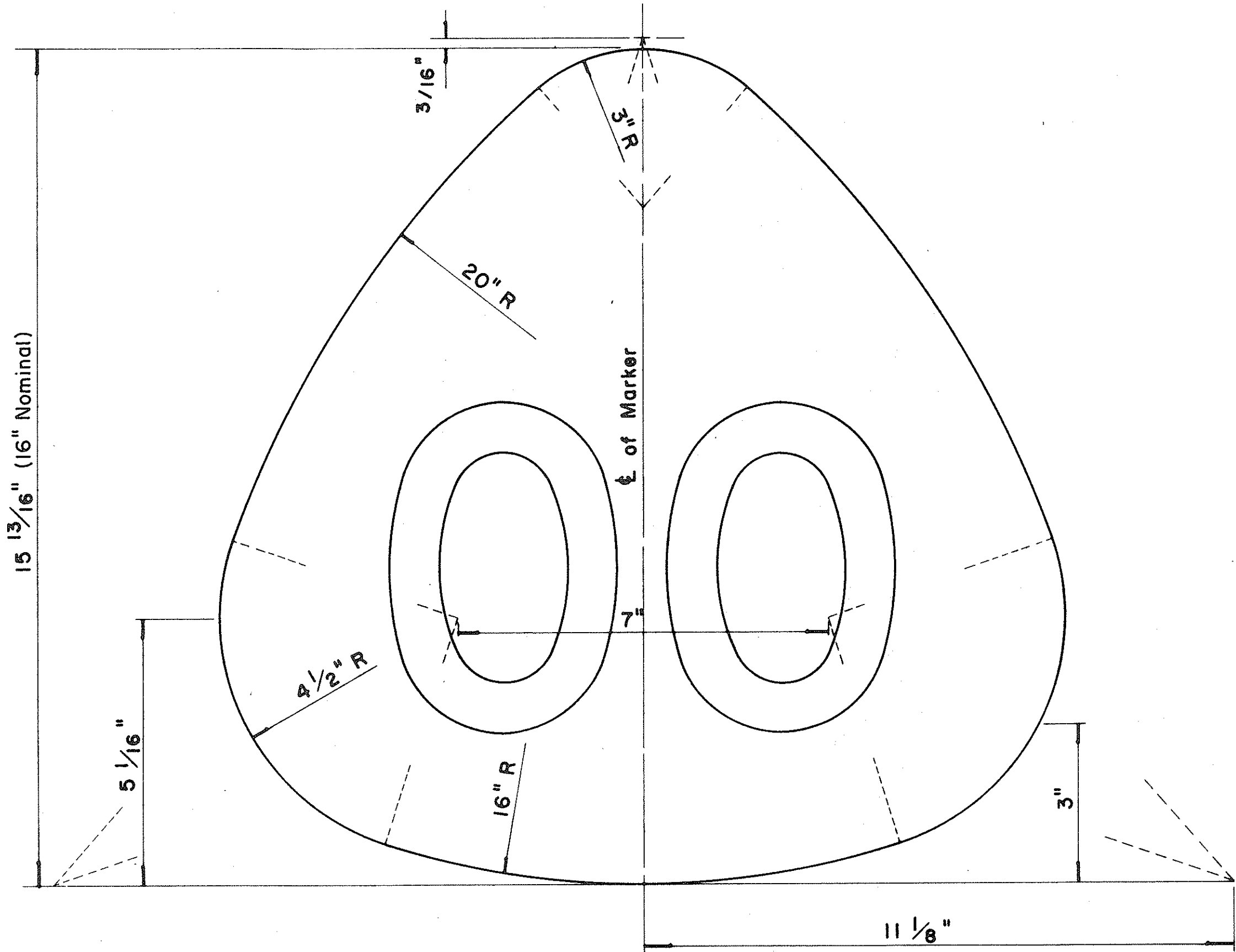
| NO | REVISION                                    | APPROVED BY | DATE    |
|----|---------------------------------------------|-------------|---------|
| 1  | Supersedes Sht. DT 209<br>Approved 12-30-69 | H.T.        | 4/12/72 |

STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION  
  
STANDARD DETAILS  
STATE ROUTE MARKER  
AND BORDER DETAIL  
FOR GUIDE SIGNS

Scale: As Shown

SHEET No. 30 OF 83 SHEETS DT 209

| MARKER SIZE | MULTIPLY DIMENSIONS BY | NUMERAL SIZE                             |
|-------------|------------------------|------------------------------------------|
|             |                        | 2 Digit - Series D<br>3 Digit - Series C |
| 16"         | 1                      | 6"                                       |
| 21"         | 1.3                    | 8"                                       |
| 32"         | 2.0                    | 12"                                      |
| 42"         | 2.63                   | 16"                                      |



### STATE ROUTE MARKER FOR GUIDE SIGNS

Scale: Half Size

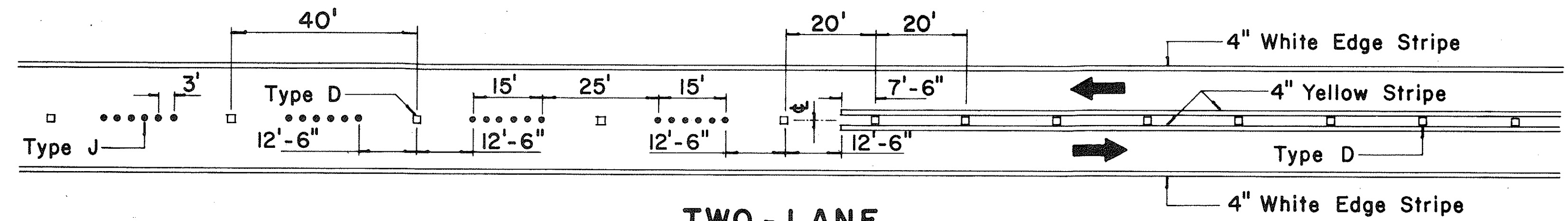
#### NOTE:

- State Route Markers on Guide signs shall have black numerals on a white reflectorized background mounted on a flat aluminum cut-out.
- Numerals shall conform to the FHWA publication "Standard Alphabets for Highway Signs," 1966.
- Cut-outs shall be fastened on sign panel with aluminum blind rivets. See Standard Specifications.
- \* The 16" State Route Marker shall be used only with the Construction Identification sign.

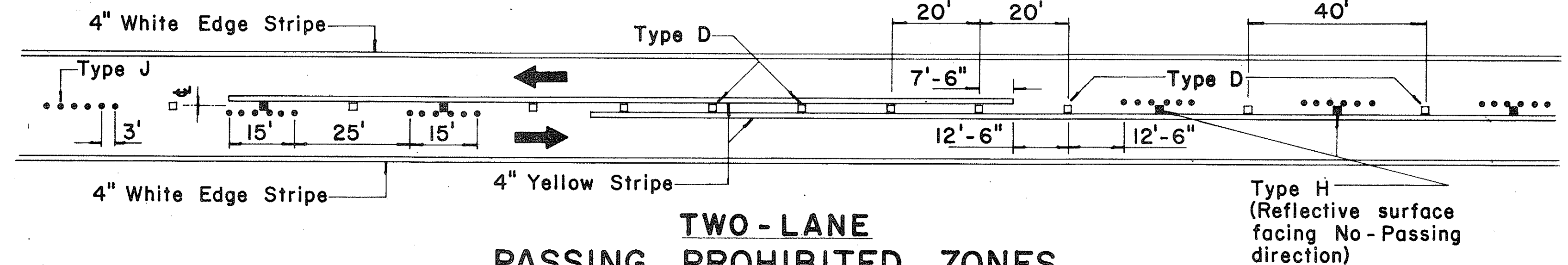
|               |      |
|---------------|------|
| ORIGINAL PLAN | DATE |
| DESIGNED BY   |      |
| CHECKED BY    |      |
| NOTE BOOK     |      |
| NO.           |      |



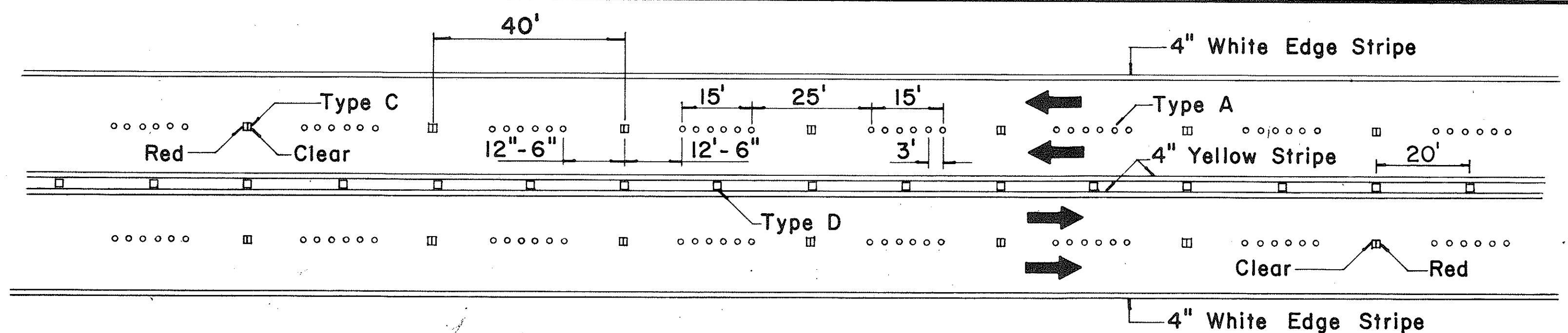
| FED. ROAD DIST. NO. | STATE | FED. AID PROJ. NO. | FISCAL YEAR | SHEET NO. | TOTAL SHEETS |
|---------------------|-------|--------------------|-------------|-----------|--------------|
| HAWAII              | HAW.  | 1-11-1(108)        | 1975        | 70        | 100          |



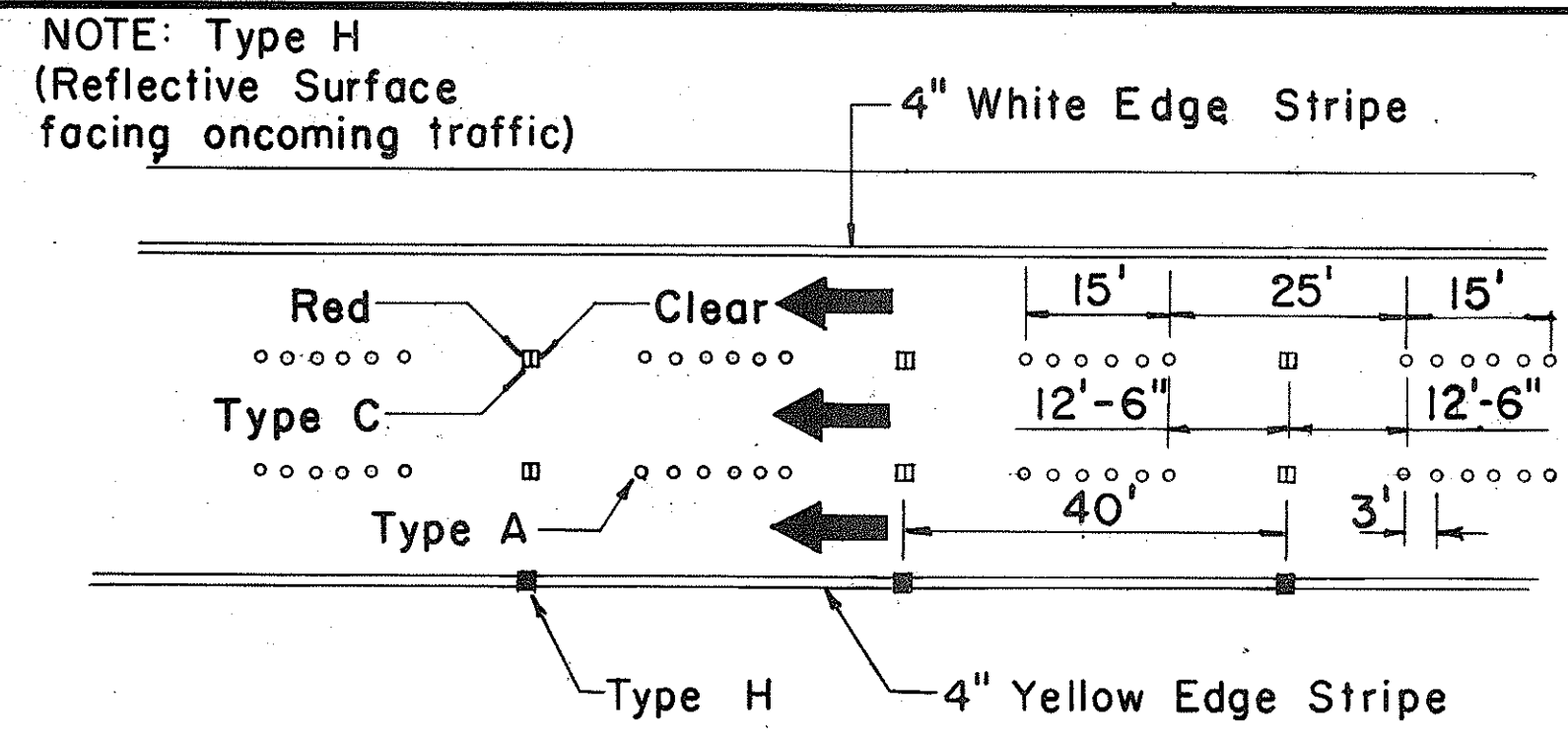
**TWO - LANE  
PASSING PERMITTED AND PASSING PROHIBITED**



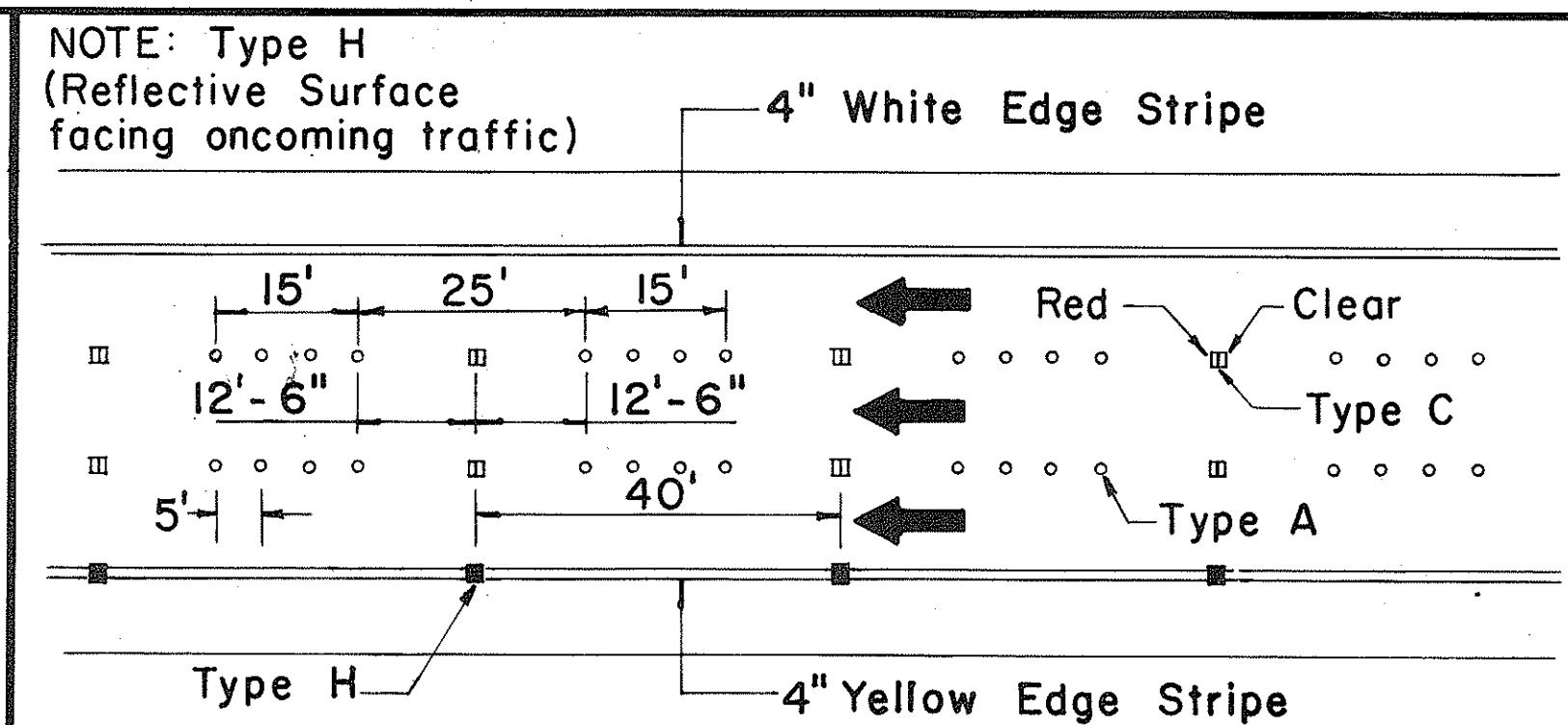
**TWO - LANE  
PASSING PROHIBITED ZONES**



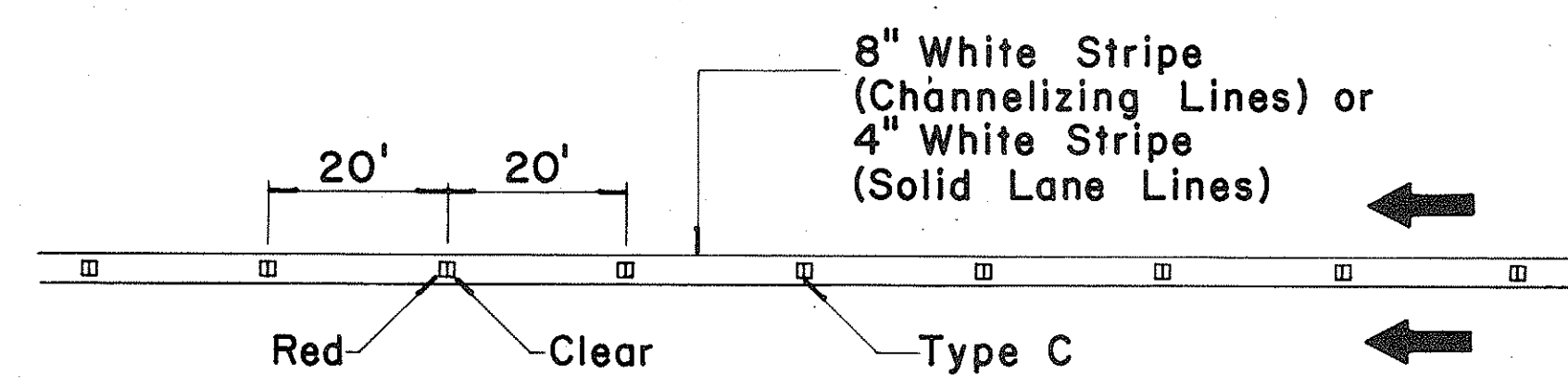
**MULTI - LANE  
LANE LINES AND CENTER LINE**



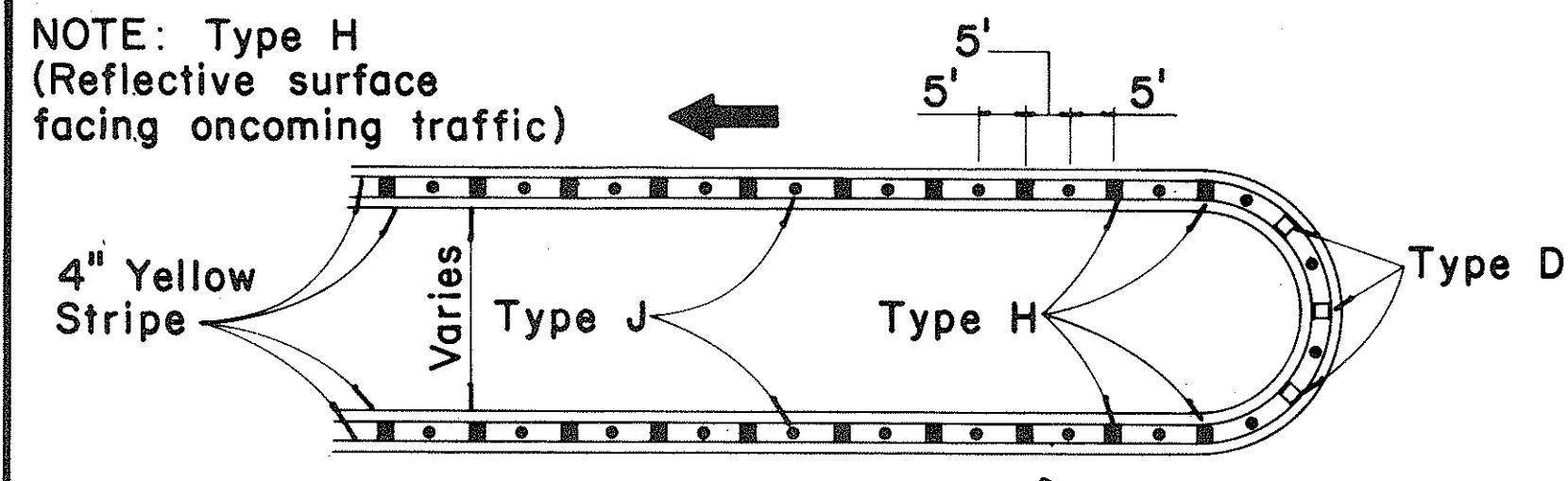
**DIVIDED HIGHWAY LANE LINES**



**FREEWAY LANE LINES**



**CHANNELIZING LINES  
OR SOLID LANE LINES**



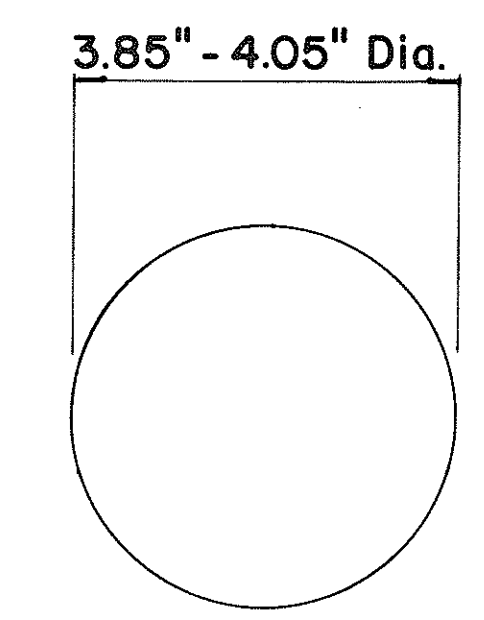
**MEDIAN NOSE DELINEATION**

**TWO - LANE**

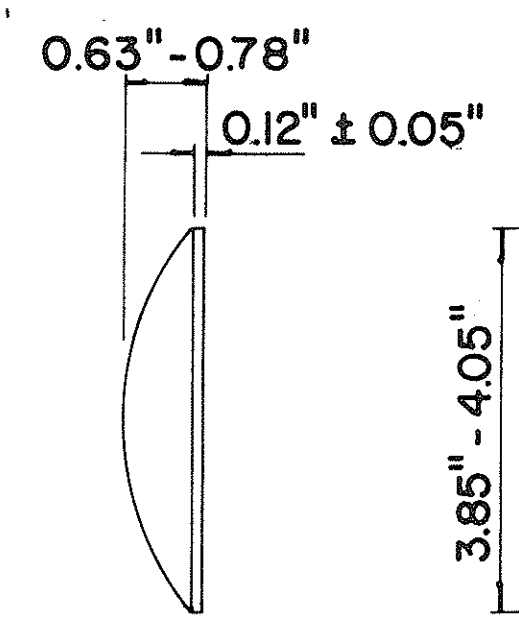
**MULTI - LANE**

**DIVIDED HIGHWAY  
AND  
FREEWAY**

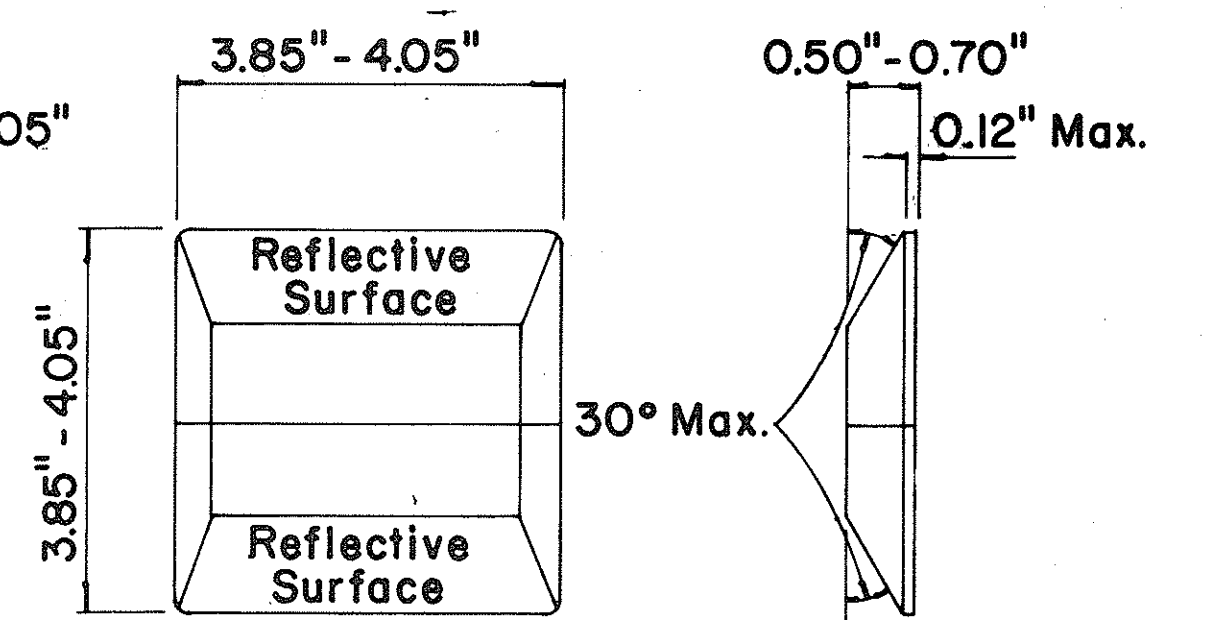
**MISCELLANEOUS**



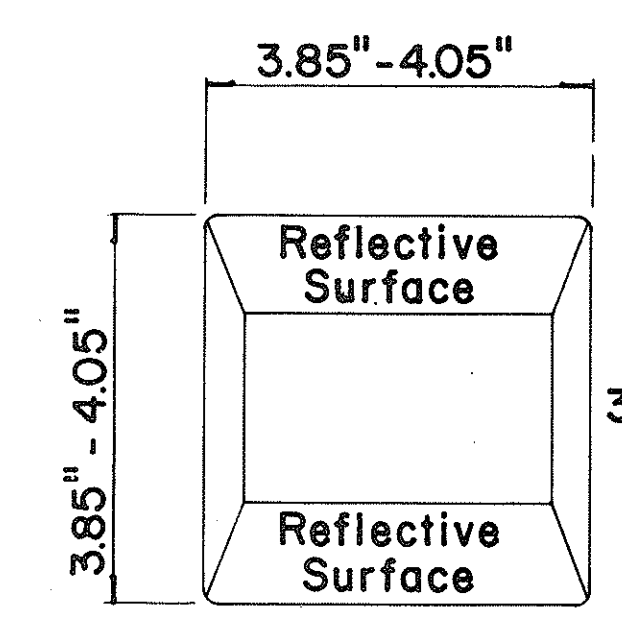
**TYPE A  
NON - REFLECTIVE WHITE MARKER**



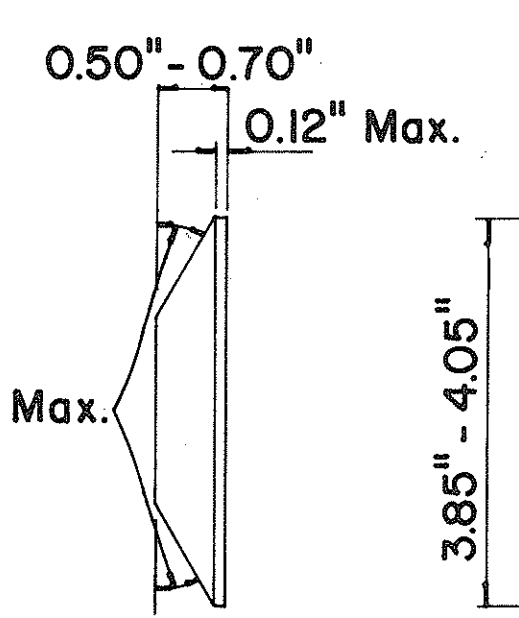
**TYPE J  
NON - REFLECTIVE YELLOW MARKER**



**TYPE C  
RED - CLEAR REFLECTIVE MARKER**



**TYPE D  
TWO - WAY YELLOW REFLECTIVE MARKER**



**TYPE H  
ONE - WAY YELLOW REFLECTIVE MARKER**

**GENERAL NOTES**

1. Painted stripes to be done by Contractor unless otherwise specified.

**LEGEND**

- Type A
- Type C
- Type D
- Type H
- Type J

APPROVAL RECOMMENDED:  
*Erich Tanaka* 11/18/71  
TRAFFIC ENGINEER DATE

APPROVED:  
*Harold Sato* 11/18/71  
ASSISTANT CHIEF, ENGINEERING DATE

| No. | REVISION                                                                                                                 | APPROVED BY | DATE     |
|-----|--------------------------------------------------------------------------------------------------------------------------|-------------|----------|
| 1   | Add reflector marker in each line gap.                                                                                   | H.K.        | 10-21-72 |
| 2   | Revised General Notes.                                                                                                   | H.K.        | 10-21-72 |
| 3   | Change 4" white edge stripe to 4" solid yellow edge stripe to left edge of a travel path and Add Type H Reflector Marker | H.K.        | 5-22-74  |

STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

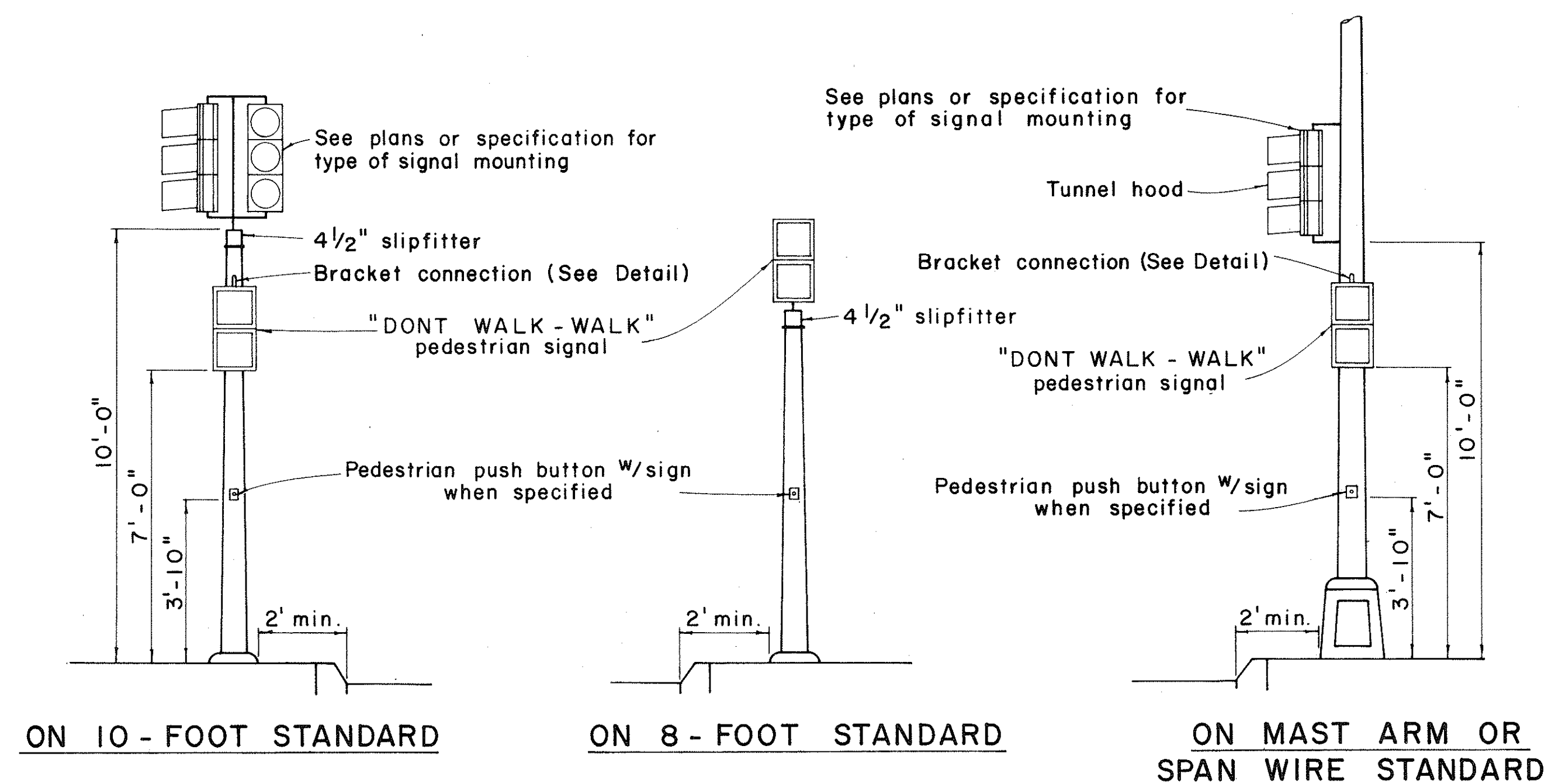
**STANDARD DETAILS  
RAISED PAVEMENT MARKERS**

Not to Scale October 1971  
SHEET No. 31 OF 33 SHEETS DT 300

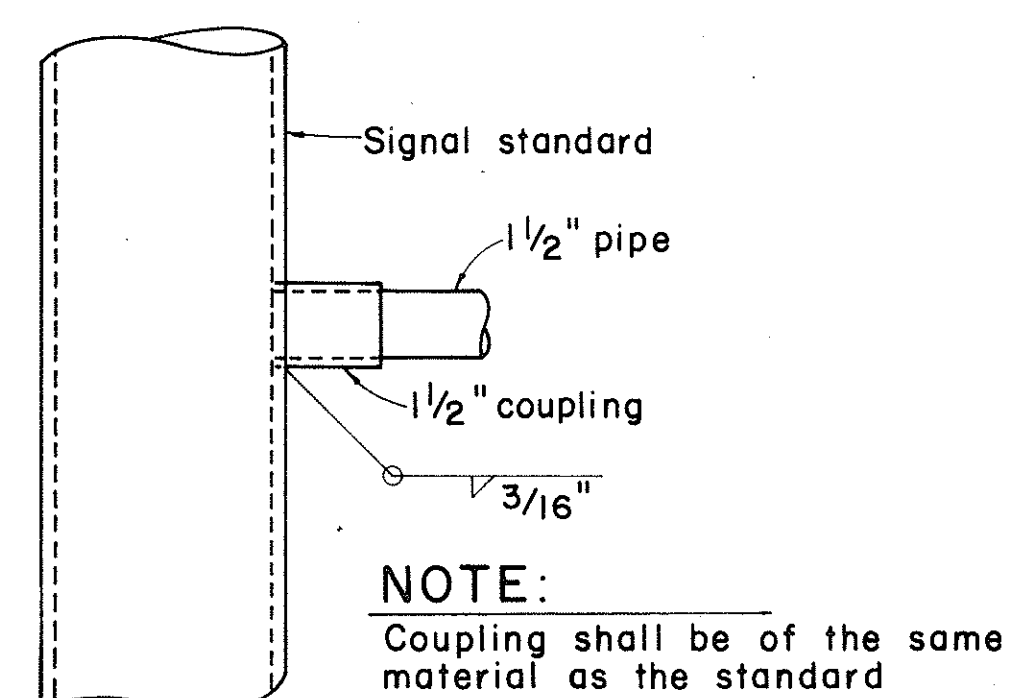
|          |             |            |
|----------|-------------|------------|
| DATE     | DESIGNED BY | CHECKED BY |
| 11/18/71 | H.K.        | H.K.       |
| 11/18/71 | DESIGNED BY | CHECKED BY |
| 11/18/71 | H.K.        | H.K.       |
| 11/18/71 | DESIGNED BY | CHECKED BY |
| 11/18/71 | H.K.        | H.K.       |



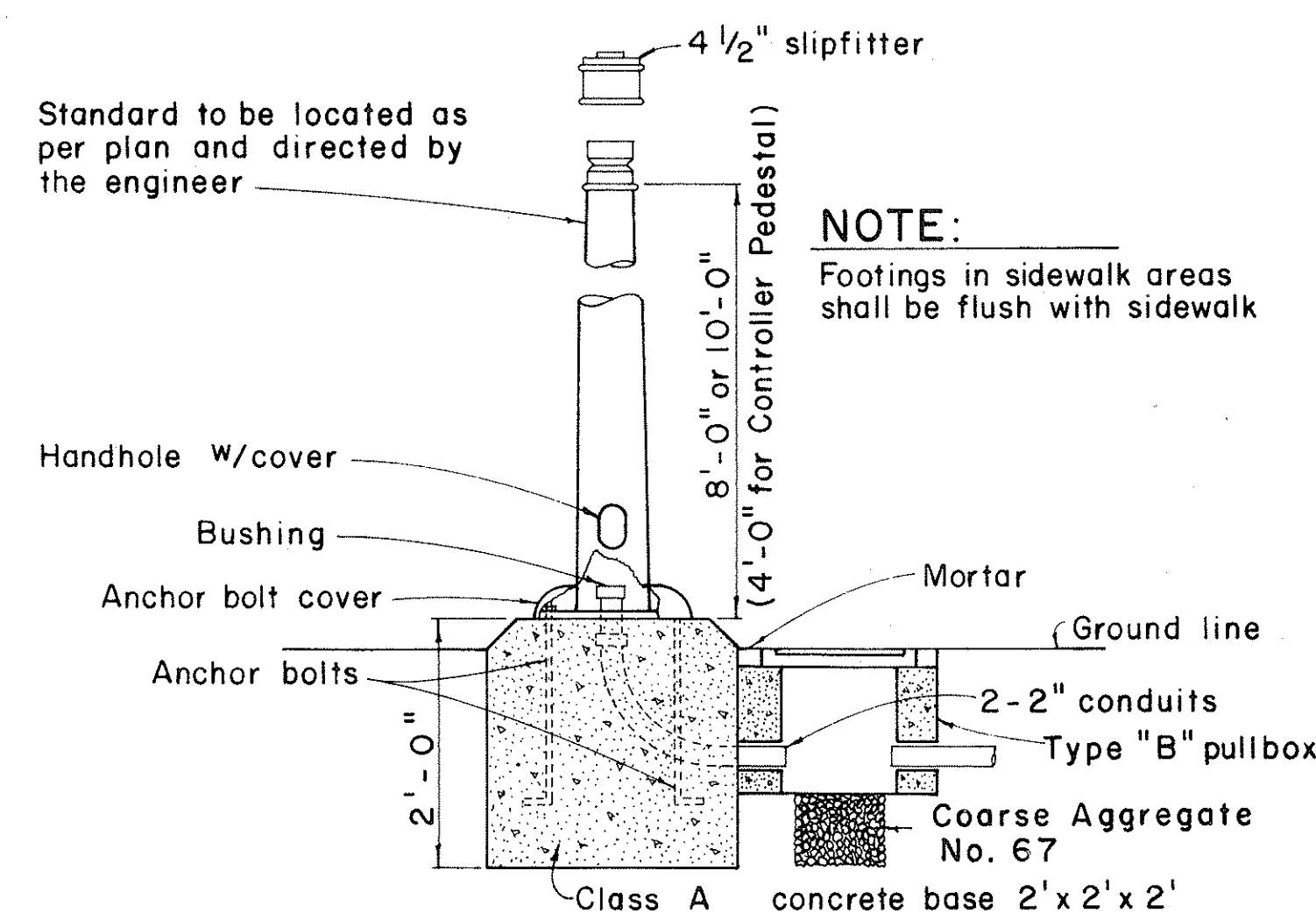
| FED. ROAD<br>DIST. NO. | STATE | FED. AID<br>PROJ. NO. | FISCAL<br>YEAR | SHEET<br>NO. | TOTAL<br>SHEETS |
|------------------------|-------|-----------------------|----------------|--------------|-----------------|
| HAWAII                 | HAW.  | 1-41-1(108)           | 1975           | 71           | 100             |



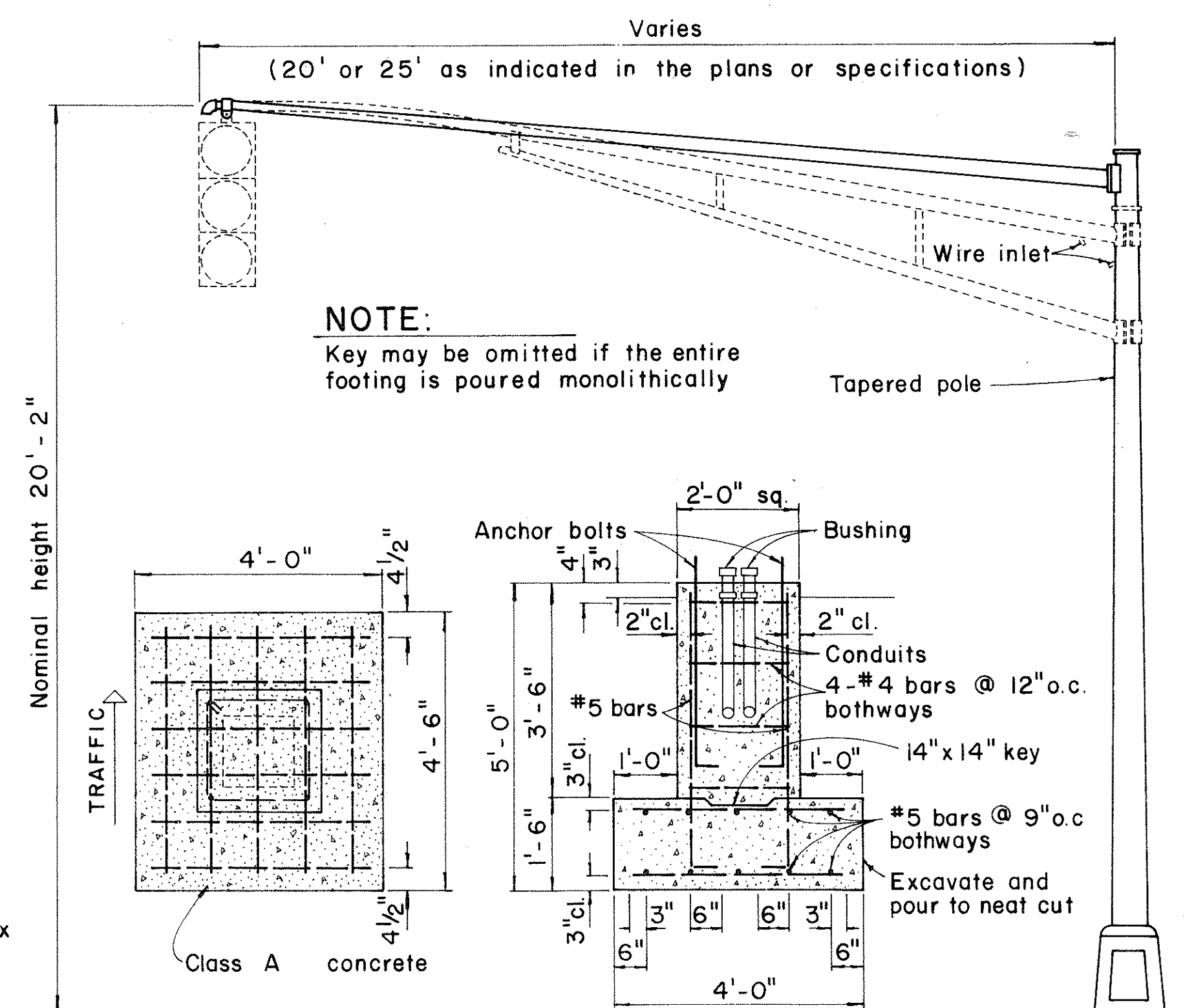
## TYPICAL EQUIPMENT MOUNTINGS



### DETAIL OF BRACKET CONNECTION



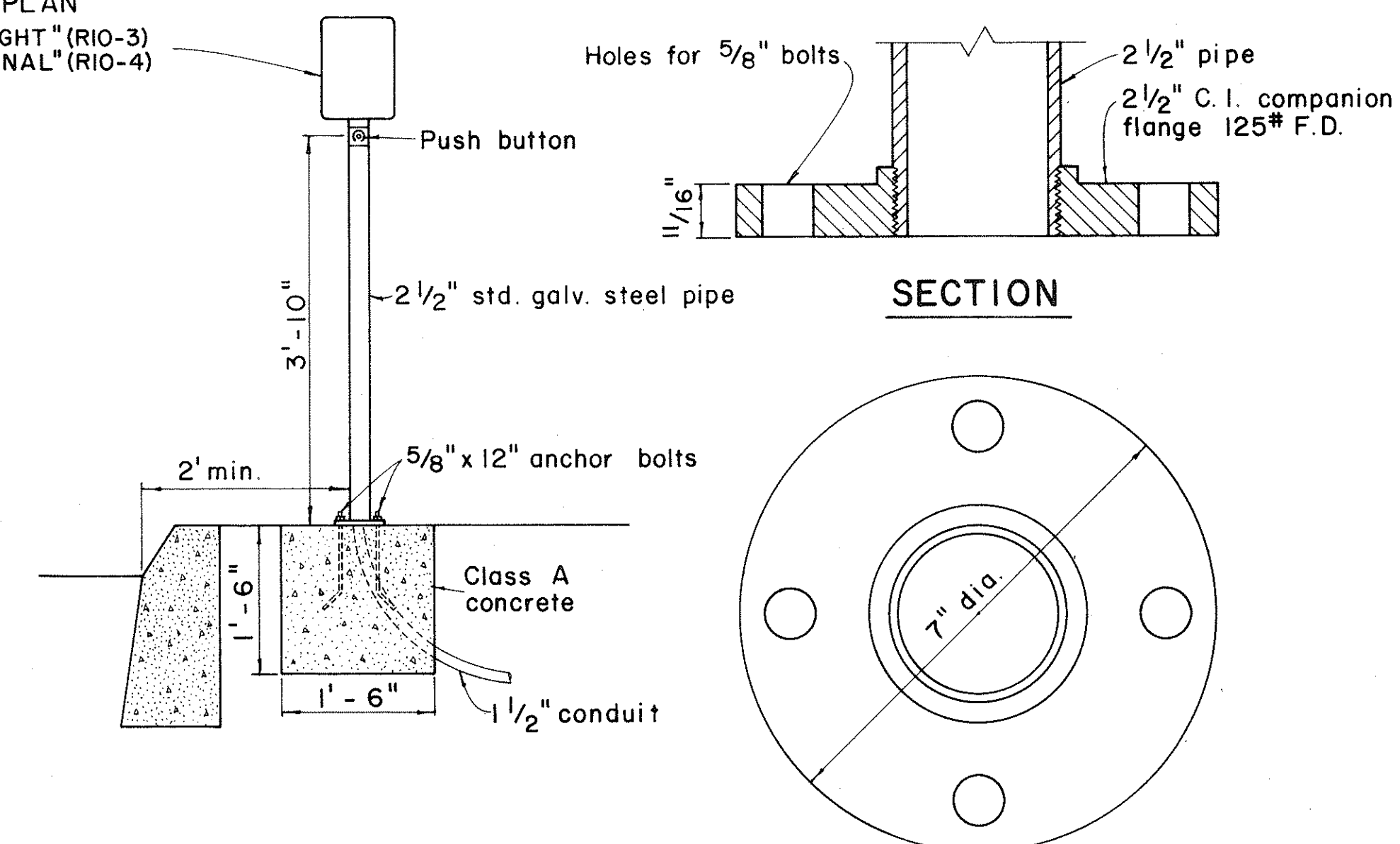
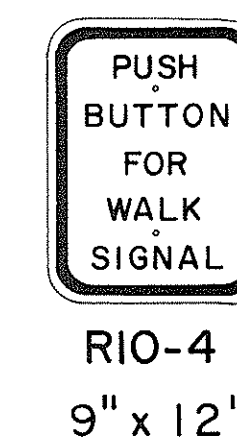
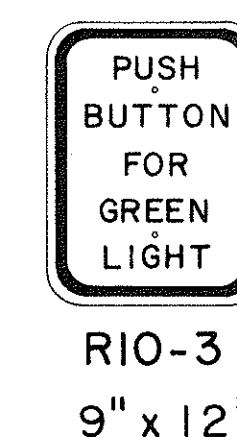
## FOOTING FOR SIGNAL STANDARD OR CONTROLLER PEDESTAL



## MAST ARM FOOTING AND STANDARD

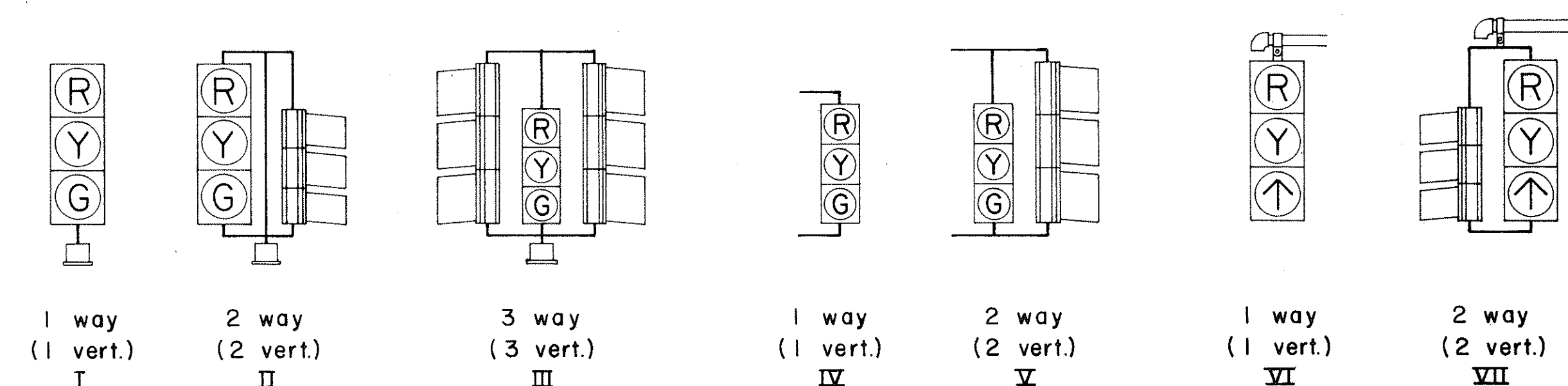
TRAFFIC SIGN AS SPECIFIED IN PLAN

1. "PUSH BUTTON FOR GREEN LIGHT"(RIO-3)
2. "PUSH BUTTON FOR WALK SIGNAL"(RIO-4)

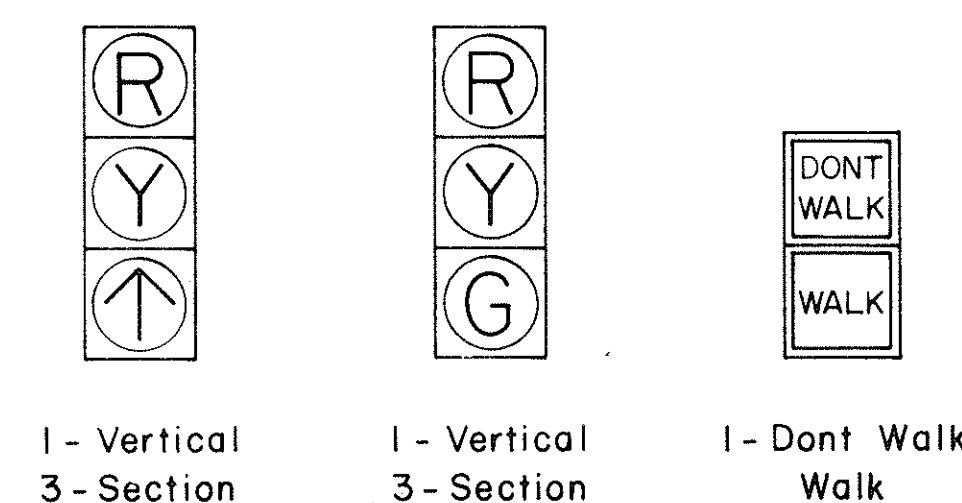


BASE DETAIL

## PEDESTRIAN PUSH BUTTON POST AND FOOTING



## TYPICAL VEHICULAR AND PEDESTRIAN SIGNAL MOUNTINGS



| NO. | REVISION                                           | APPROVED BY | DATE  |
|-----|----------------------------------------------------|-------------|-------|
| 1   | Revise code nos. for Pedestrian Push Button signs. | H.T.        | 3/23/ |

APPROVAL RECOMMENDED:

Shahid A. Shah 12/30/69  
ASSISTANT CHIEF, ENGINEERING DATE

STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

## TRAFFIC SIGNAL SYSTEM

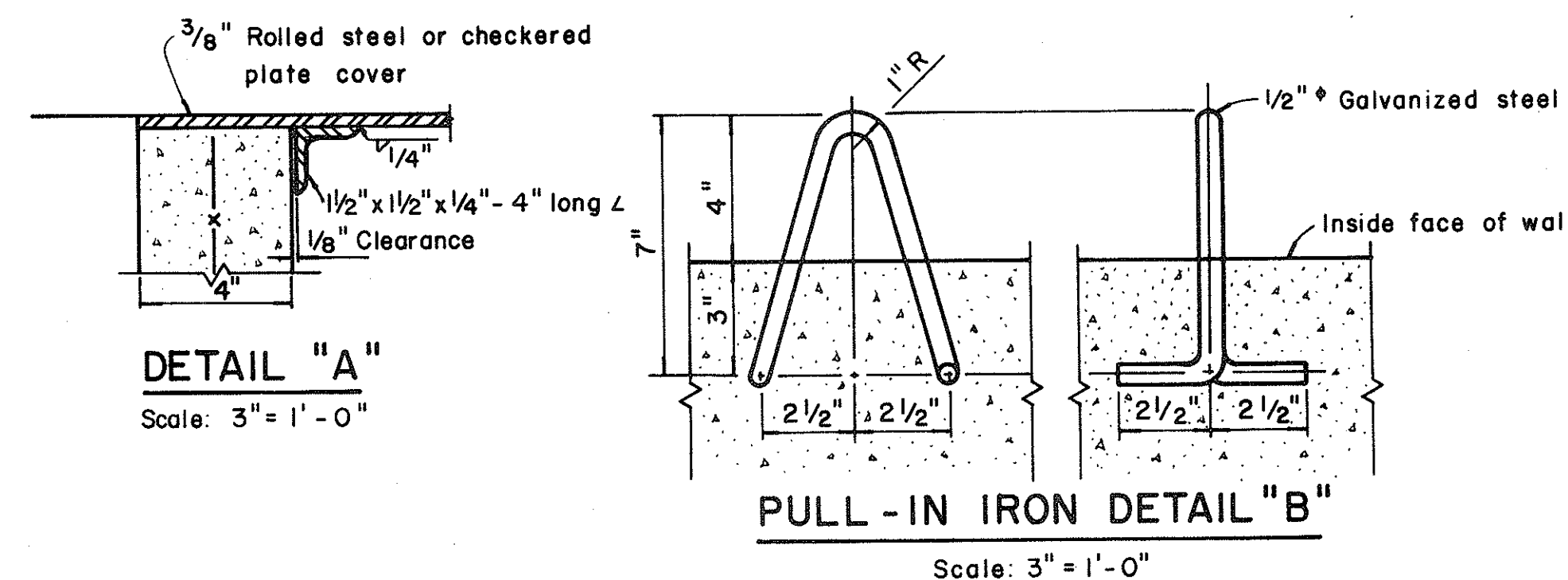
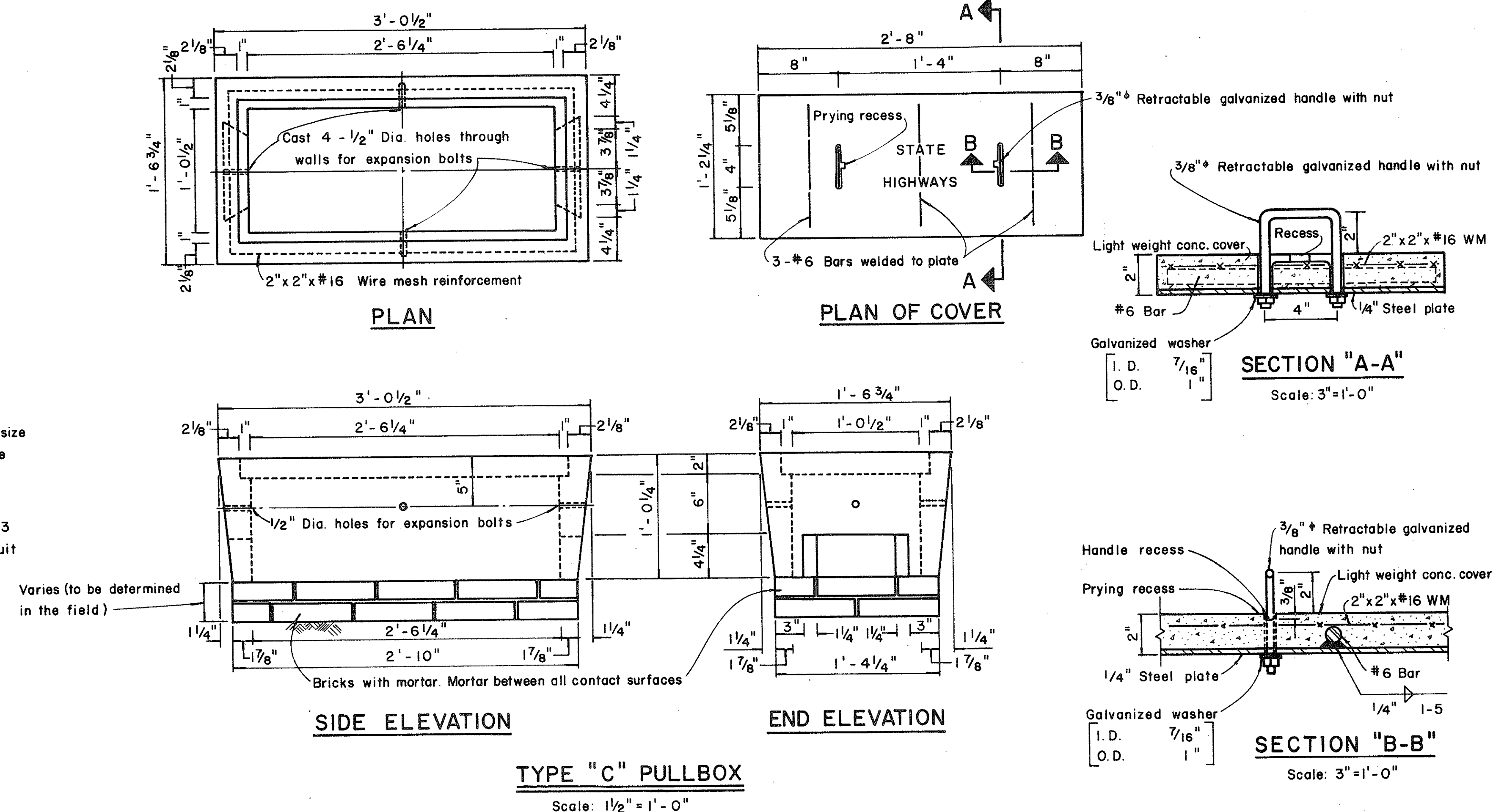
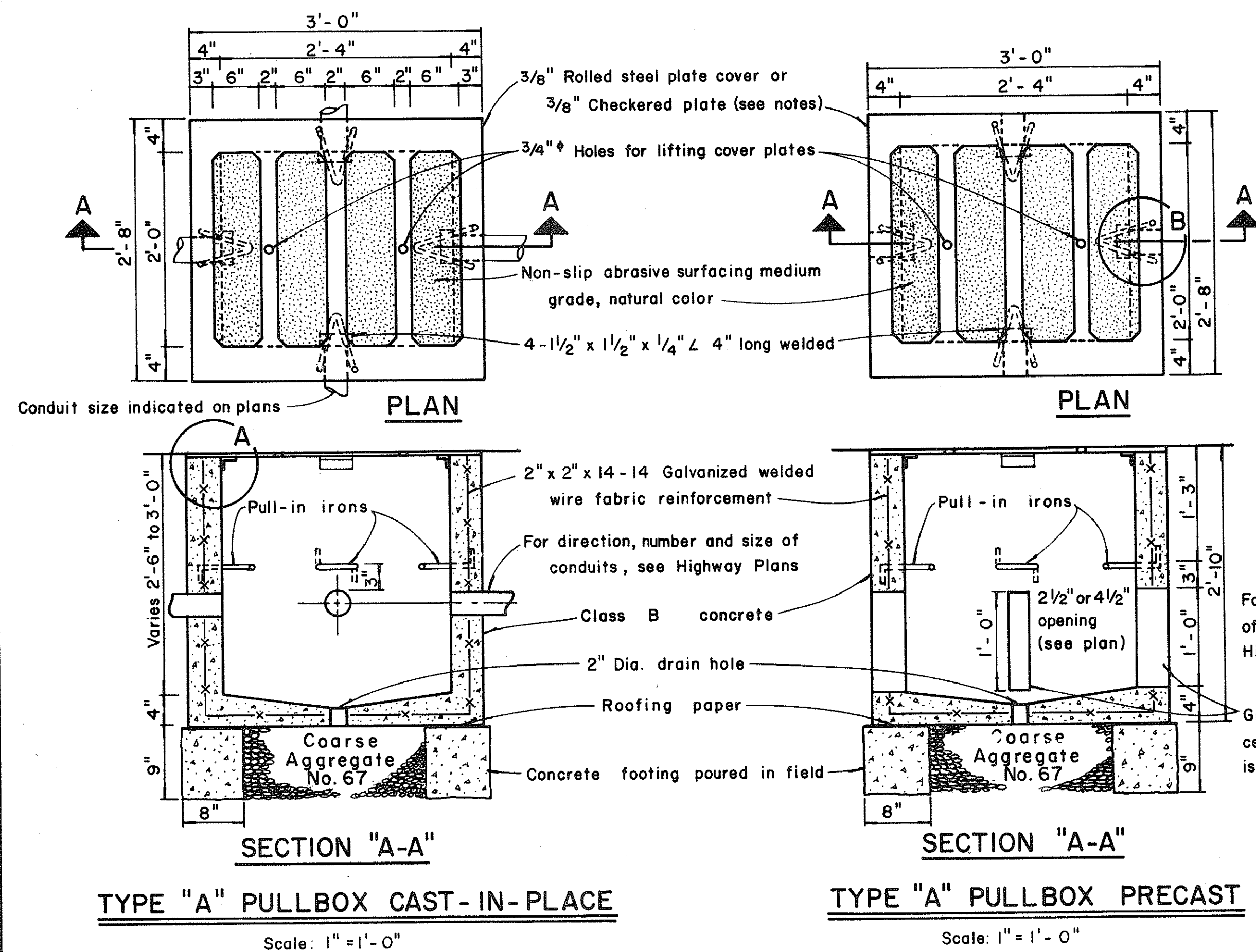
### MISCELLANEOUS DETAILS

Not to Scale

**SHEET No. 32T OF 33T SHEETS DT 400**

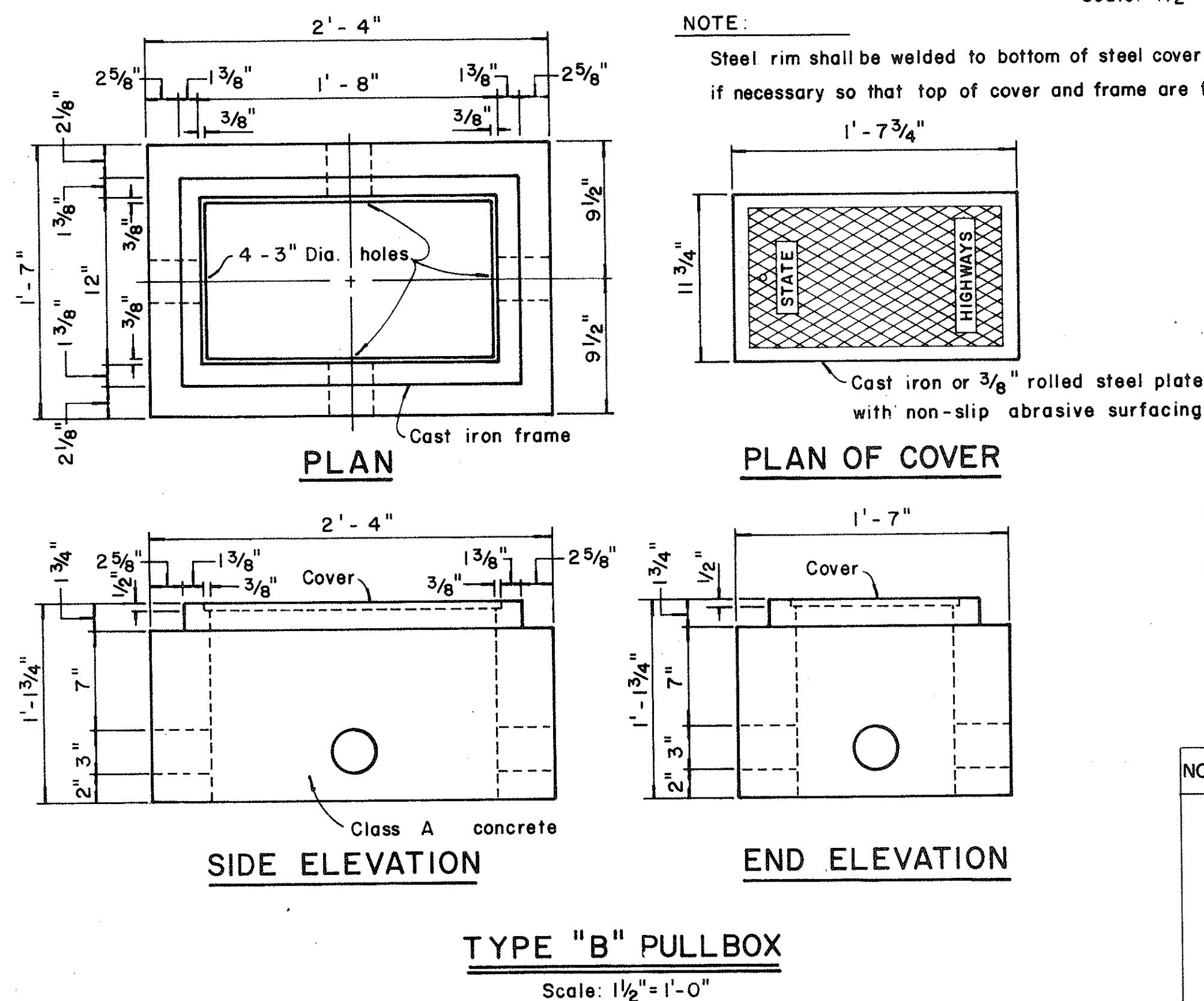


| FED. ROAD<br>DIST. NO. | STATE | FED. AID<br>PROJ. NO. | FISCAL<br>YEAR | SHEET<br>NO. | TOTAL<br>SHEETS |
|------------------------|-------|-----------------------|----------------|--------------|-----------------|
| HAWAII                 | HAW.  | E-H-1 (108)           | 1975           | 72           | 100             |



- NOTES: (FOR TYPE "A" PULLBOX)

1.  $\frac{3}{8}$ " Rolled steel plate cover with non-slip abrasive surfacing medium grade, natural color shall be used on all pullboxes located on sidewalk areas where pedestrians are walking.
2.  $\frac{3}{8}$ " Checkered plate cover shall be used on all pullboxes located in median areas and other locations where there are no pedestrians walking.
3. Pull irons shall be placed opposite each conduit slot.
4. Covers on all pullboxes located in sidewalk areas shall be set flush with the concrete sidewalk.
5. Each pullbox shall have a pair of pull irons opposite each other for lifting purposes.



NOTE

Steel rim shall be welded to bottom of steel cover  
if necessary so that top of cover and frame are flush.

| NO. | REVISION | APPROVED<br>BY | DATE |
|-----|----------|----------------|------|
|     |          |                |      |

APPROVAL RECOMMENDED:

Euchi Tanaka  
TRAFFIC ENGINEER

12/29/69  
DATE

APPROVED

Amr 22 Feb  
ASSISTANT CHIEF, ENGINEERING

12-30-60  
DATE

STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

## STANDARD DETAILS

### PULLBOXES

Scale as noted Date

**SHEET No.33T OF 33T SHEETS DT 401**