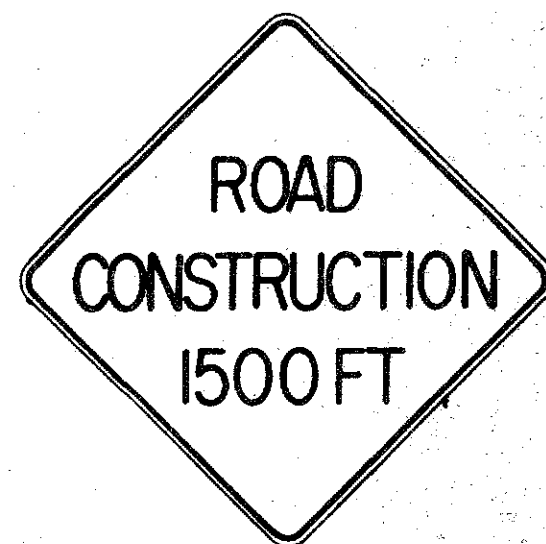


FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HES-063-1(12)	1980	19	44



CW20-1a 48" x 48"



CW20-2d 48" x 48"



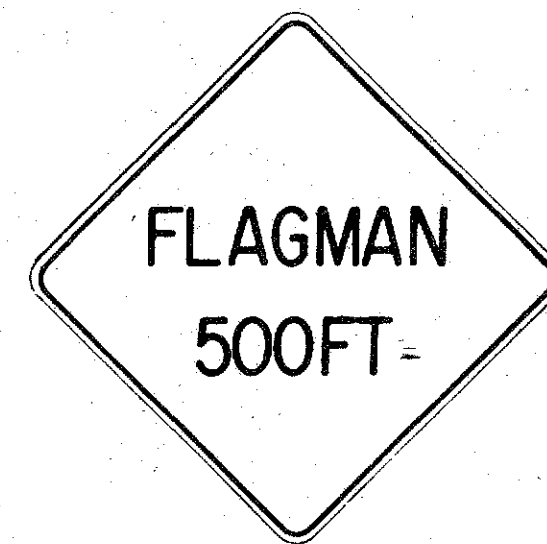
CW20-3b 48" x 48"



CW20-4d 48" x 48"



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



CW20-7c 48" x 48"



CW21-1 30" x 30"



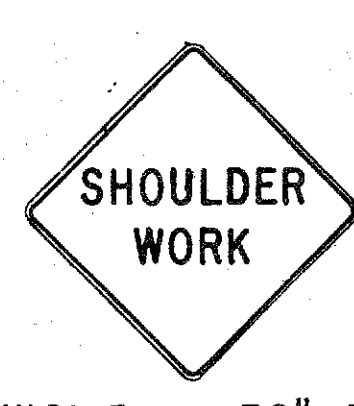
CW21-2 30" x 30"



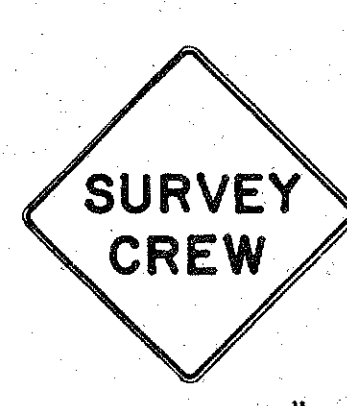
CW21-3 36" x 36"



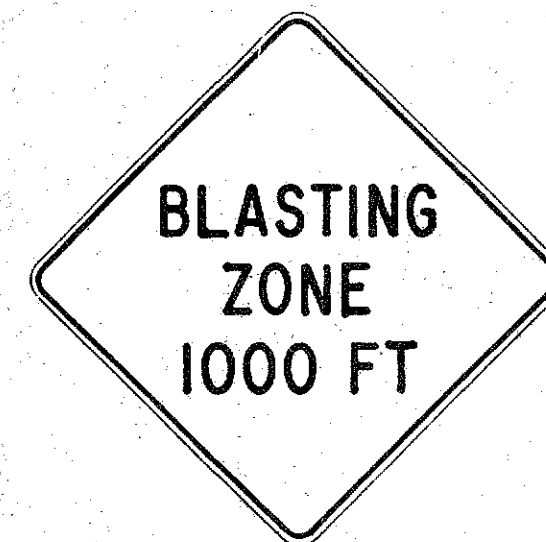
CW21-4 36" x 36"



CW21-5 30" x 30"



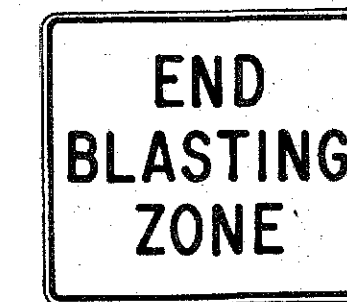
CW21-6 30" x 30"



CW22-1b 48" x 48"



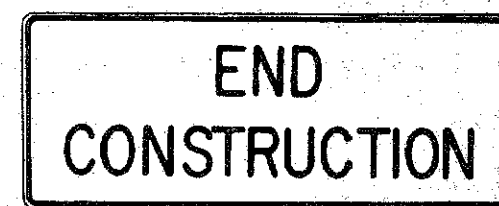
CW22-2 42" x 36"



CW22-3 42" x 36"



CG20-1(5) 60" x 36"



CG20-2 60" x 24"



CM4-9(R) 30" x 24"



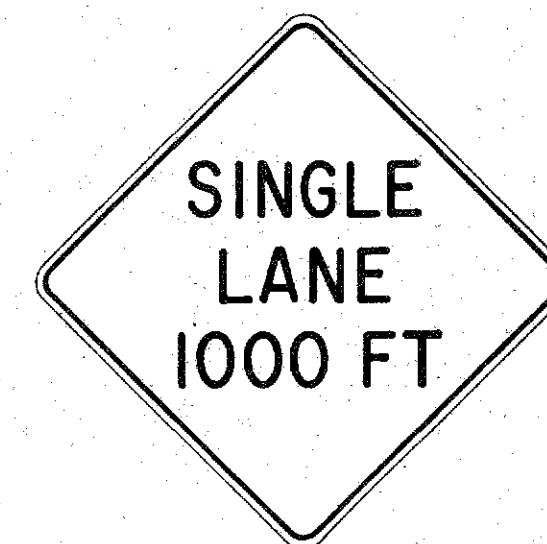
CM4-10(R) 48" x 18"



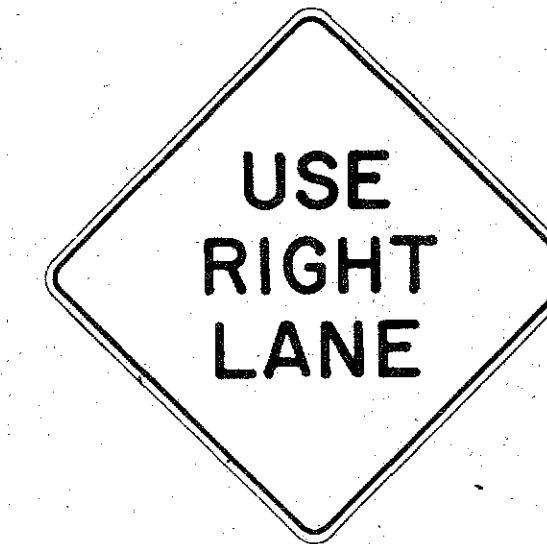
CG20-4 36" x 18"



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," 1972, and as amended.
- All construction signs shall be reflectorized.
- All construction signs shall have $\frac{3}{8}$ " 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.

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

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

NO.	REVISION	APPROVED BY	DATE
1	Supersedes Sht. DT 104 Approved 12-30-69	H.T.	3/23/72
2	Revised General Note 1	H.T.	10/10/74
3	Revised General Note 2	H.T.	9-16-75
4	Revised General Note 2 and sign CG20-1(5)	H.T.	9-14-76

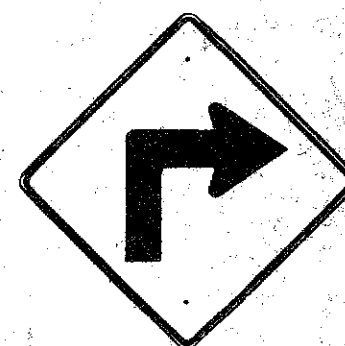
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

STANDARD DETAILS CONSTRUCTION SIGNS

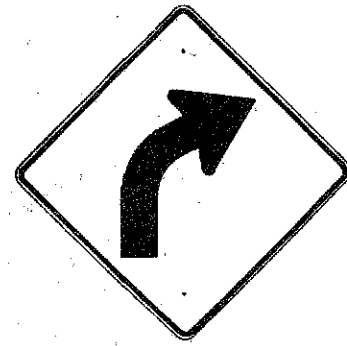
NOT TO SCALE

SHEET No. 1 OF 19 SHEETS DT 104

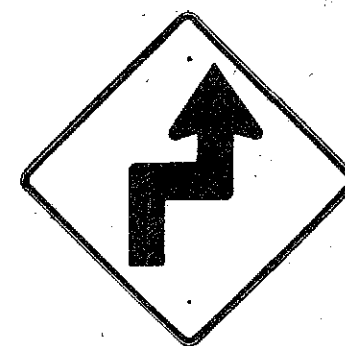
FILE	POCKET	FOLDER	NO.
9	13	2	19



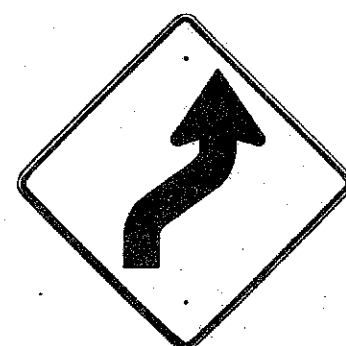
W1-1(R) 30"x30"
W1-1(R)-A 48"x48"



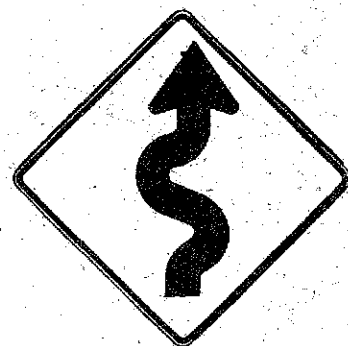
W1-2(R) 30"x30"
W1-2(R)-A 48"x48"



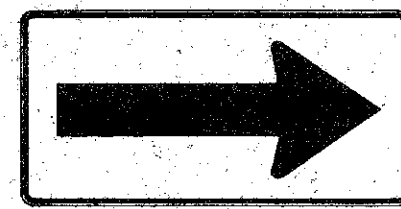
W1-3(R) 30"x30"
W1-3(R)-A 48"x48"



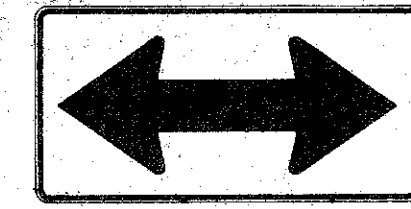
W1-4(R) 30"x30"
W1-4(R)-A 48"x48"



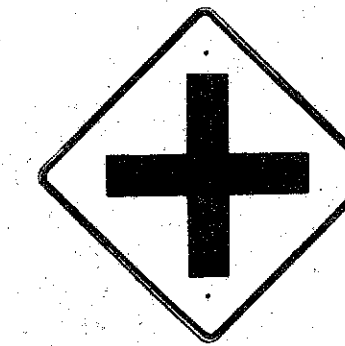
W1-5(R) 30"x30"
W1-5(R)-A 48"x48"



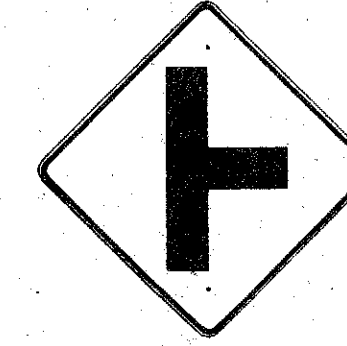
W1-6 48"x24"



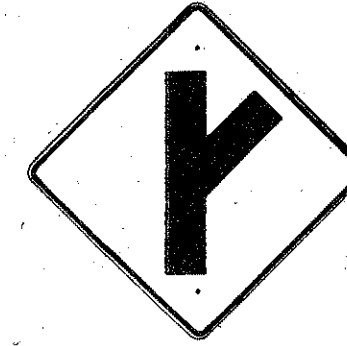
W1-7 48"x24"



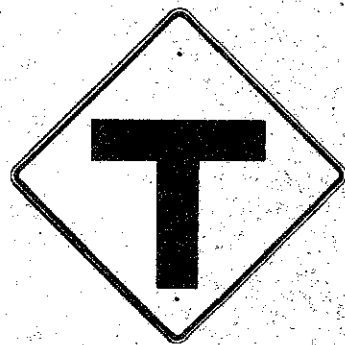
W2-1 30"x30"
W2-1-A 48"x48"



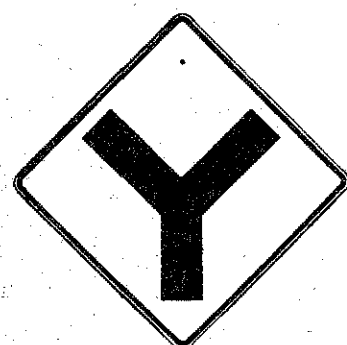
W2-2 30"x30"
W2-2-A 48"x48"



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



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



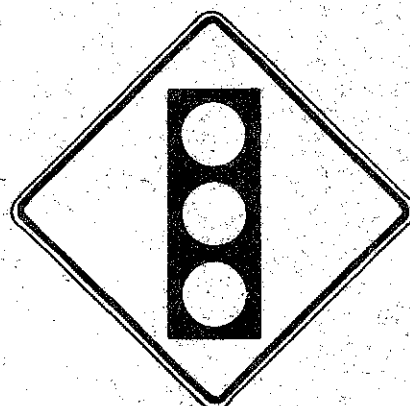
W2-5 30"x30"
W2-5-A 48"x48"



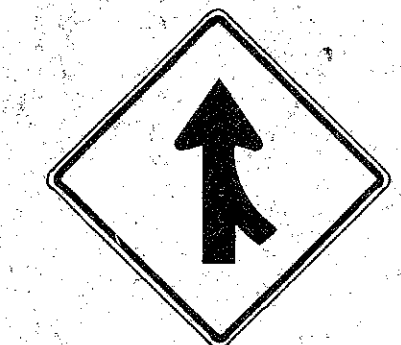
W3-1 30"x30"
W3-1-A 36"x36"



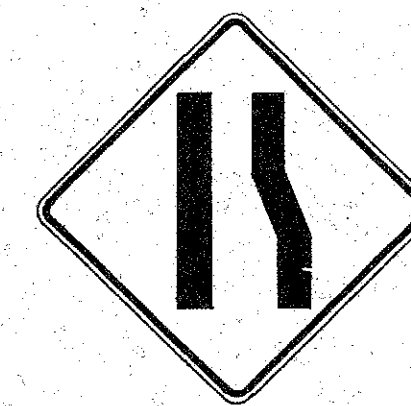
W3-2 30"x30"
W3-2-A 36"x36"



SIGNAL AHEAD
W3-3 36"x36"
24"x18"



MERGE
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"



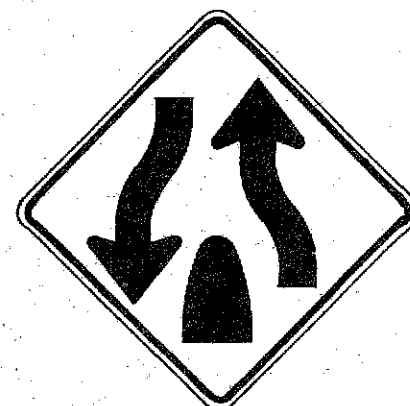
W5-2 30"x30"
W5-2-A 36"x36"



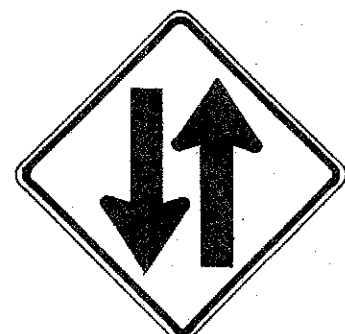
W5-3 36"x36"



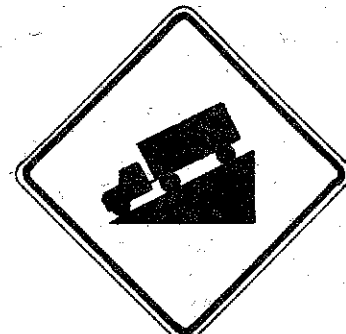
DIVIDED HIGHWAY
W6-1 36"x36"
24"x18"



DIVIDED HIGHWAY ENDS
W6-2 36"x36"
24"x18"



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



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



USE LOW GEAR
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"



SLIPPERY WHEN WET
W8-5 30"x30"
24"x18"
W8-5-A 36"x36"
24"x18"



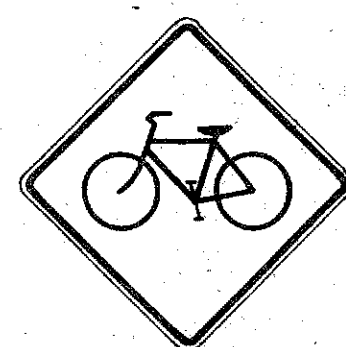
W9-1(R) 30"x30"
W9-1(R)-A 36"x36"
W9-1(R)-B 48"x48"



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



W10-1 36" Diameter



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



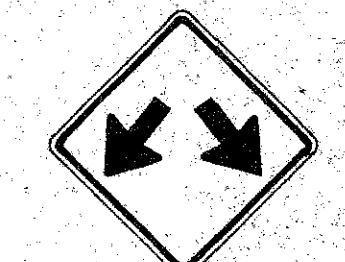
PED XING
W11-2 30"x30"
24"x18"
W11-2-A 36"x36"
24"x18"



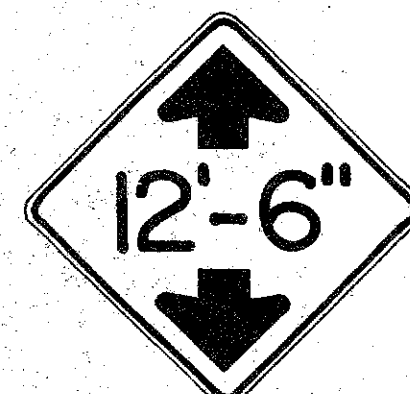
CATTLE XING
W11-4 30"x30"
24"x18"
W11-4-A 36"x36"
24"x18"



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



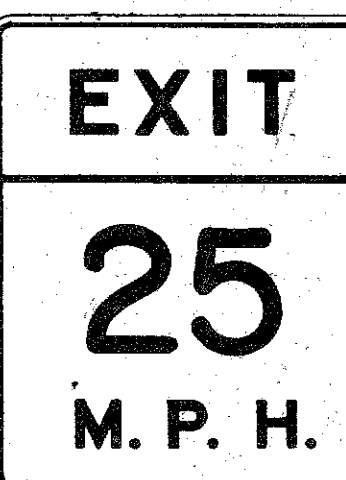
W12-1 24"x24"
W12-1-A 36"x36"
W12-1-B 48"x48"



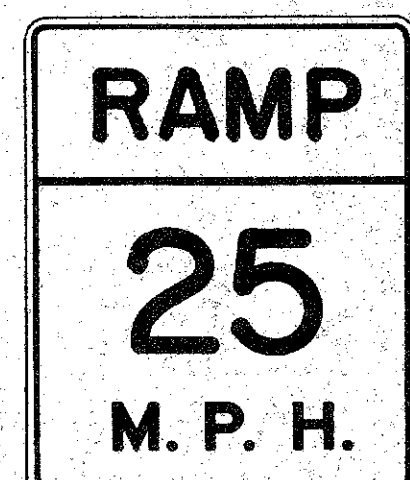
LOW CLEARANCE
W12-2(12'-6") 36"x36"
24"x18"



25 MPH
W13-1(25) 18"x18"
W13-1(25)-A 24"x24"



W13-2(25) 48"x60"



W13-3(25) 48"x60"



W14-1 30"x30"



W14-3 36"x48"x48"

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," 1972, and as amended.
- 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, and shall be reflectorized.

APPROVAL RECOMMENDED:

Eusebio Tanaka
TRAFFIC ENGINEER

3/17/72
DATE

APPROVED:

Walter Belsino
ASSISTANT CHIEF, ENGINEERING

3-20-72
DATE

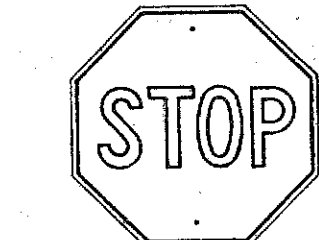
NO.	REVISION	APPROVED BY	DATE
1	Supersedes Sht. DT 102 Approved 12-30-69	H.T.	3/20/72
2	Revised General Note 1	H.T.	10/16/72
3	Revised General Note 5	M.H.	9-16-75
4	Revised General Note 5	H.T.	9-14-76
5	Added Note 1	H.T.	11-9-79

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

STANDARD DETAILS WARNING SIGNS

NOT TO SCALE

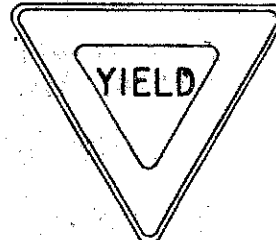
SHEET No. 2 OF 19 SHEETS DT 102



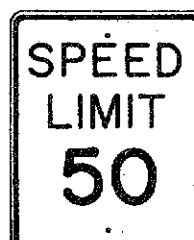
R1-1 30" x 30"
R1-1-A 36" x 36"

4-WAY

R1-3 12" x 6"
R1-3-A 18" x 9"



R1-2 36" x 36" x 36"
R1-2-A 48" x 48" x 48"



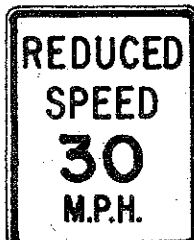
R2-1(50) 24" x 30"
R2-1(50)-A 48" x 60"



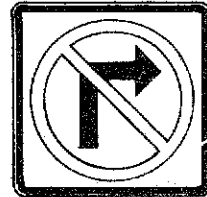
R2-2(40) 24" x 24"
R2-2(40)-A 48" x 48"



R2-4a(50/40) 24" x 48"
R2-4a(50/40)-A 48" x 96"

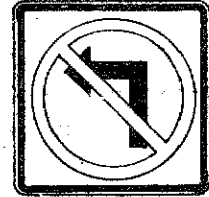


R2-5b(30) 24" x 30"
R2-5b(30)-A 48" x 60"



NO RIGHT TURN

R3-1 24" x 24"
24" x 18"
R3-1-A 48" x 48"
48" x 36"



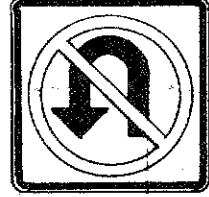
NO LEFT TURN

R3-2 24" x 24"
24" x 18"
R3-2-A 48" x 48"
48" x 36"



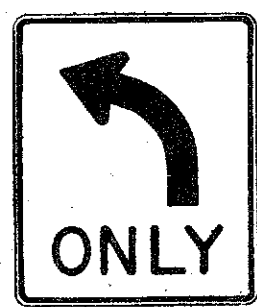
NO TURNS

R3-3 24" x 24"
R3-3-A 48" x 48"

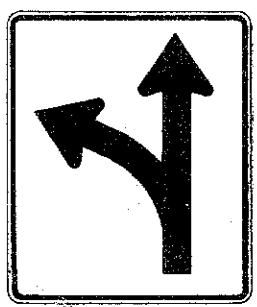


NO U TURN

R3-4 24" x 24"
24" x 18"
R3-4-A 48" x 48"
48" x 36"



R3-5(L) 30" x 36"
R3-5(L)-A 48" x 60"



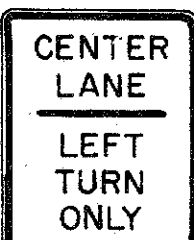
R3-6(L) 30" x 36"
R3-6(L)-A 48" x 60"



R3-7(R) 30" x 30"
R3-7(R)-A 48" x 48"



R3-8(L) 30" x 30"
R3-8(L)-A 36" x 36"
R3-8(L)-B 48" x 48"



R3-9 24" x 30"



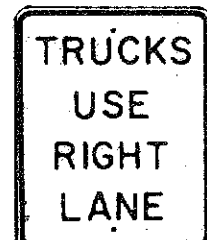
R4-1 24" x 30"



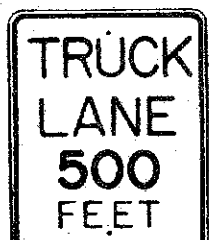
R4-2 24" x 30"



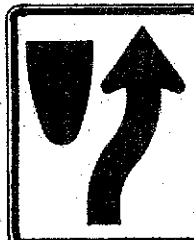
R4-3 24" x 30"
R4-3-A 48" x 60"



R4-5 24" x 30"

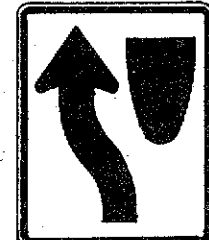


R4-6(500) 24" x 30"



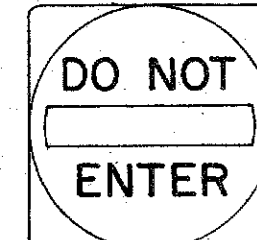
KEEP RIGHT

R4-7 24" x 30"
24" x 18"

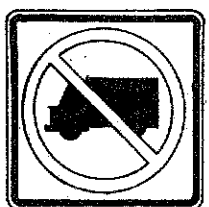


KEEP LEFT

R4-8 24" x 30"
24" x 18"



R5-1 30" x 30"
R5-1-A 48" x 48"



NO TRUCKS

R5-2 24" x 24"
24" x 18"



R5-4 24" x 30"



NO BICYCLES

R5-6 24" x 24"
24" x 18"



R5-9 36" x 24"



R6-1 (R) 36" x 12"



ONE WAY

R6-2(R) 18" x 24"



NO PARKING ANY TIME

R7-1 12" x 18"
R7-1-A 24" x 30"



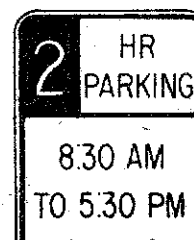
NO STOPPING OR STANDING

R7-4 12" x 18"
R7-4-A 24" x 30"



NO PARKING BUS STOP

R7-1-7(R) 12" x 18"



2 HR PARKING 8:30 AM TO 5:30 PM

R7-108 12" x 18"



TOW-AWAY ZONE

R7-201 12" x 6"
R7-201-A 24" x 12"



NO PARKING ON PAVEMENT

R8-1 24" x 30"



NO PARKING EXCEPT ON SHOULDER

R8-2 24" x 30"



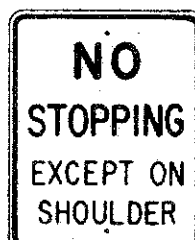
R8-3 24" x 30"



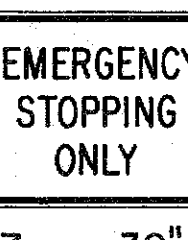
R8-4 30" x 24"
R8-4-A 48" x 36"



R8-5 24" x 30"



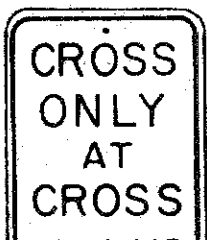
R8-6 24" x 30"



R8-7 30" x 24"
R8 7-A 48" x 36"



R9-1 18" x 24"



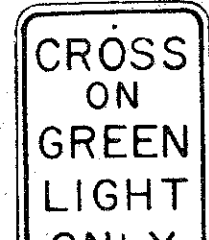
R9-2 12" x 18"



R9-3 12" x 18"



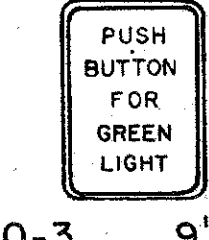
R9-4 18" x 24"



R10-1 12" x 18"



R10-2 12" x 18"



R10-3 9" x 12"



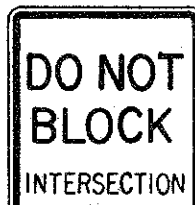
R10-4 9" x 12"



R10-5 24" x 30"



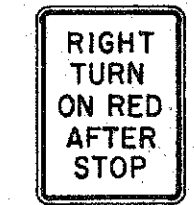
R10-6 24" x 36"



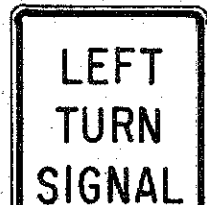
R10-7 24" x 30"



R10-8 24" x 30"



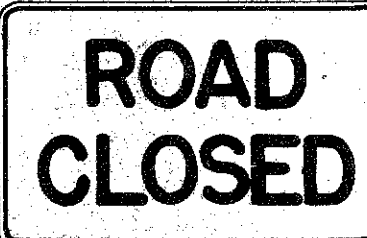
R10-9 24" x 30"



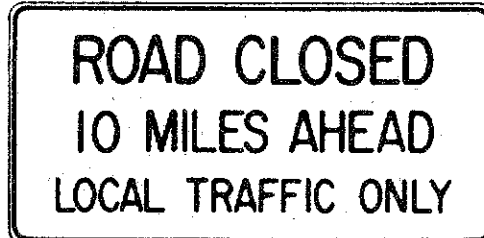
R10-10 24" x 30"



R11-1 24" x 30"



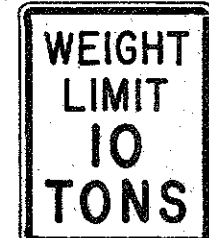
R11-2 48" x 30"



R11-3(10) 60" x 30"



R11-4 60" x 30"



R12-1(10) 24" x 30"

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," 1972, and as amended.
- 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.
- All signs shall be erected without educational plaques unless called for in the plans.

APPROVAL RECOMMENDED:
Enrique Tanaka
TRAFFIC ENGINEER

3/17/72
DATE

APPROVED:
Robert Zetser
ASSISTANT CHIEF, ENGINEERING

3-20-72
DATE

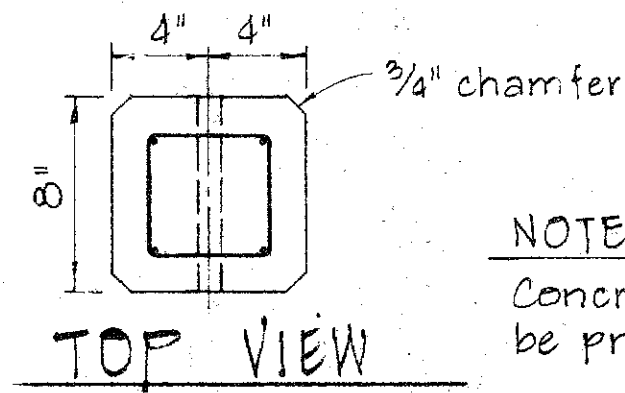
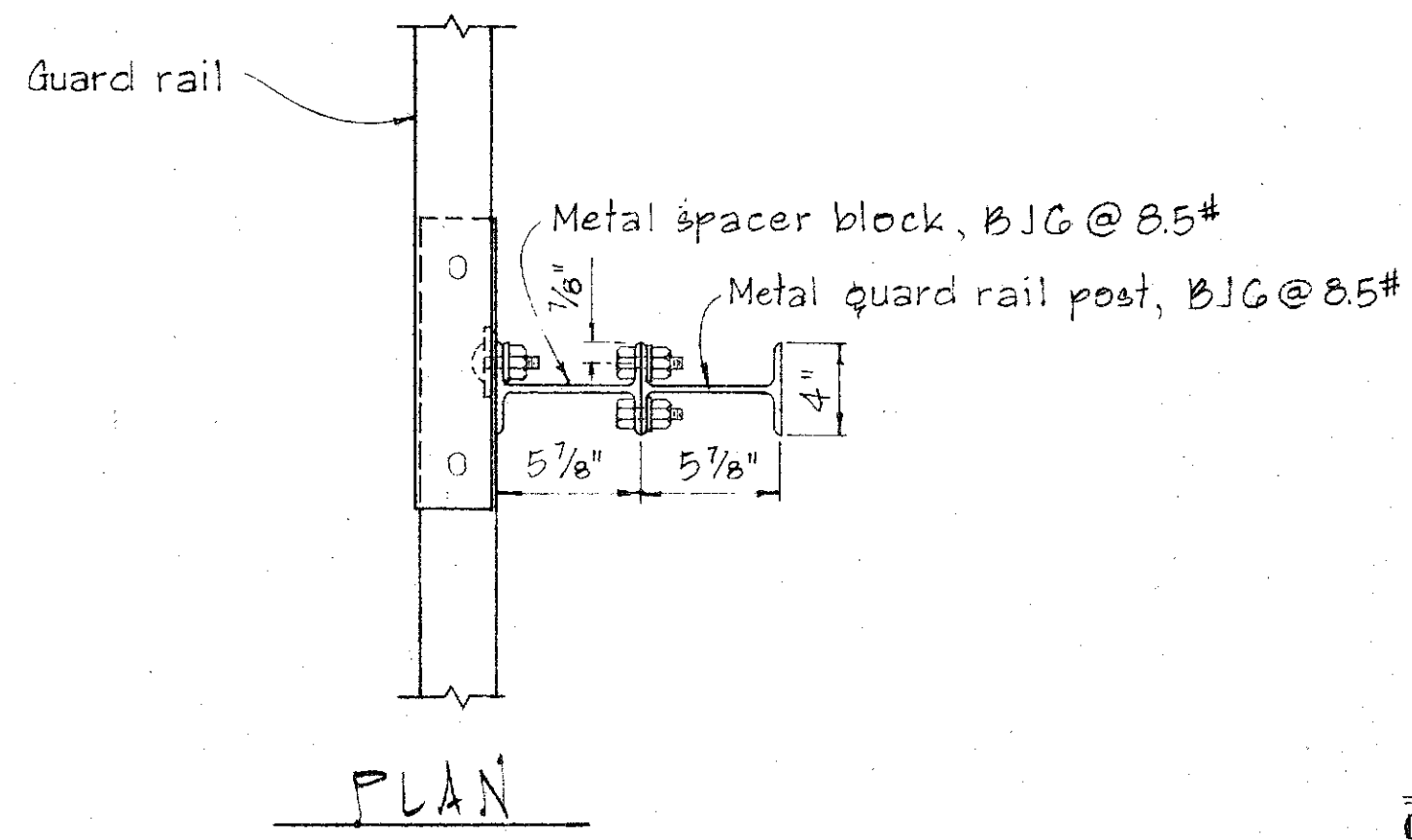
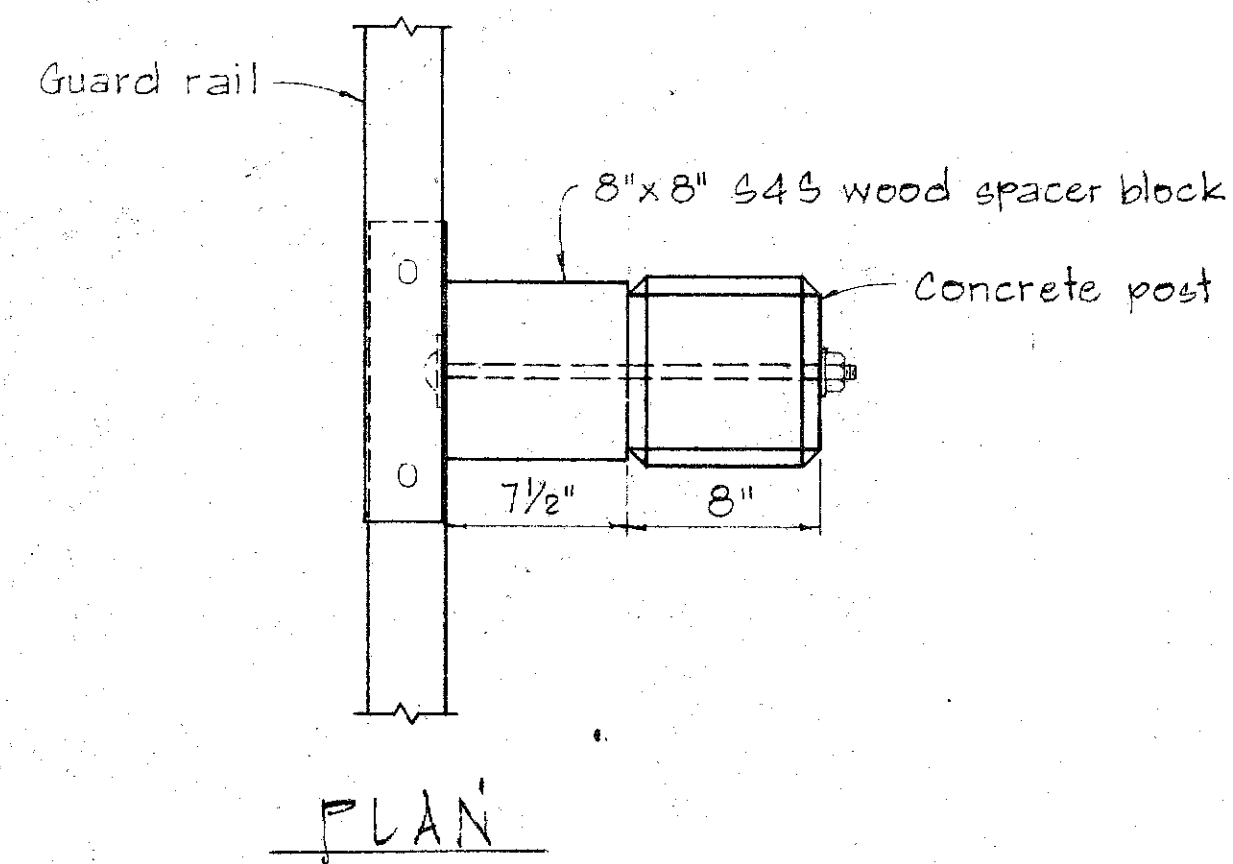
NO.	REVISION	APPROVED BY	DATE
1	Supersedes Sht. DT 101 Approved 12-30-69	H.T.	3/20/72
2	Revised General Note 1.	H.T.	10/16/74
3	Added General Note 5	H.T.	8/7/79

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

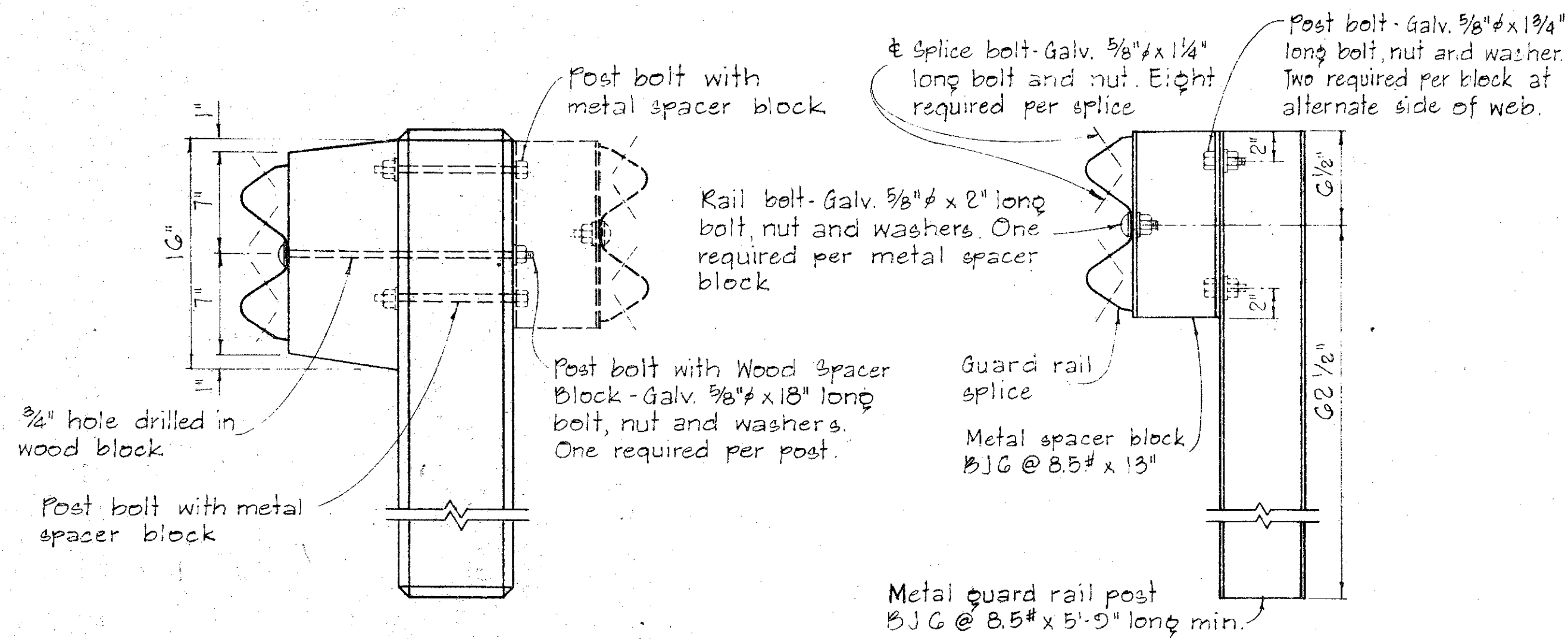
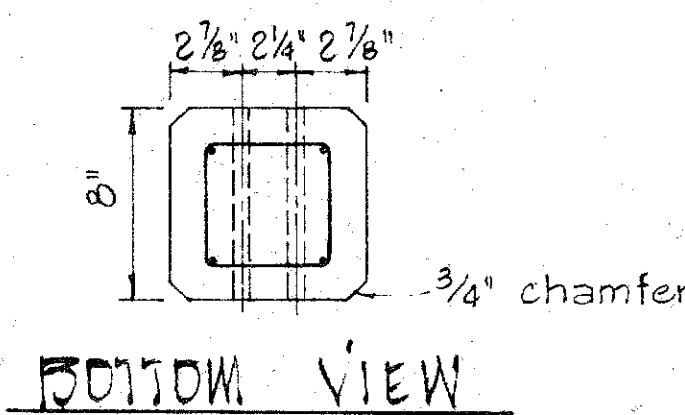
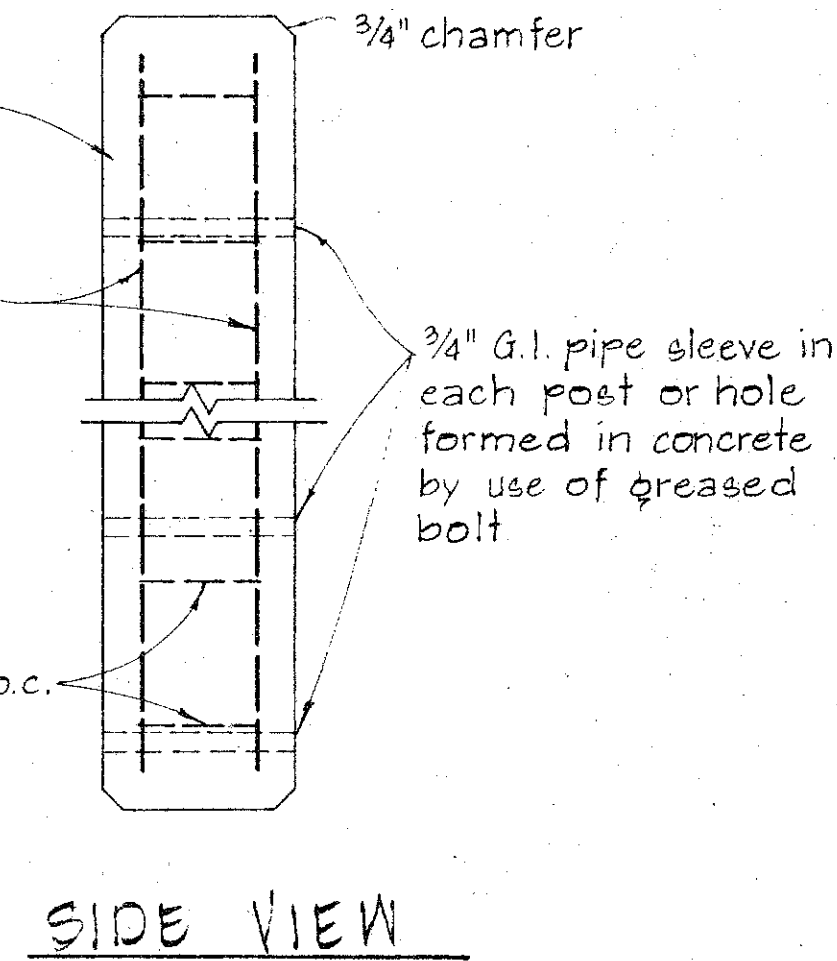
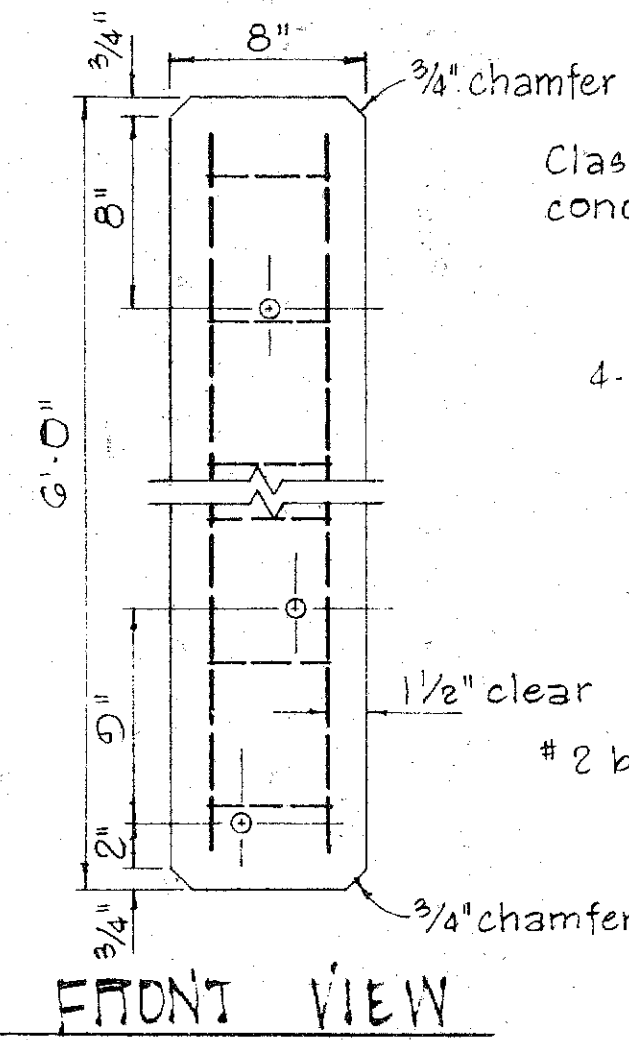
STANDARD DETAILS REGULATORY SIGNS

NOT TO SCALE

SHEET No. 3 OF 19 SHEETS DT 101

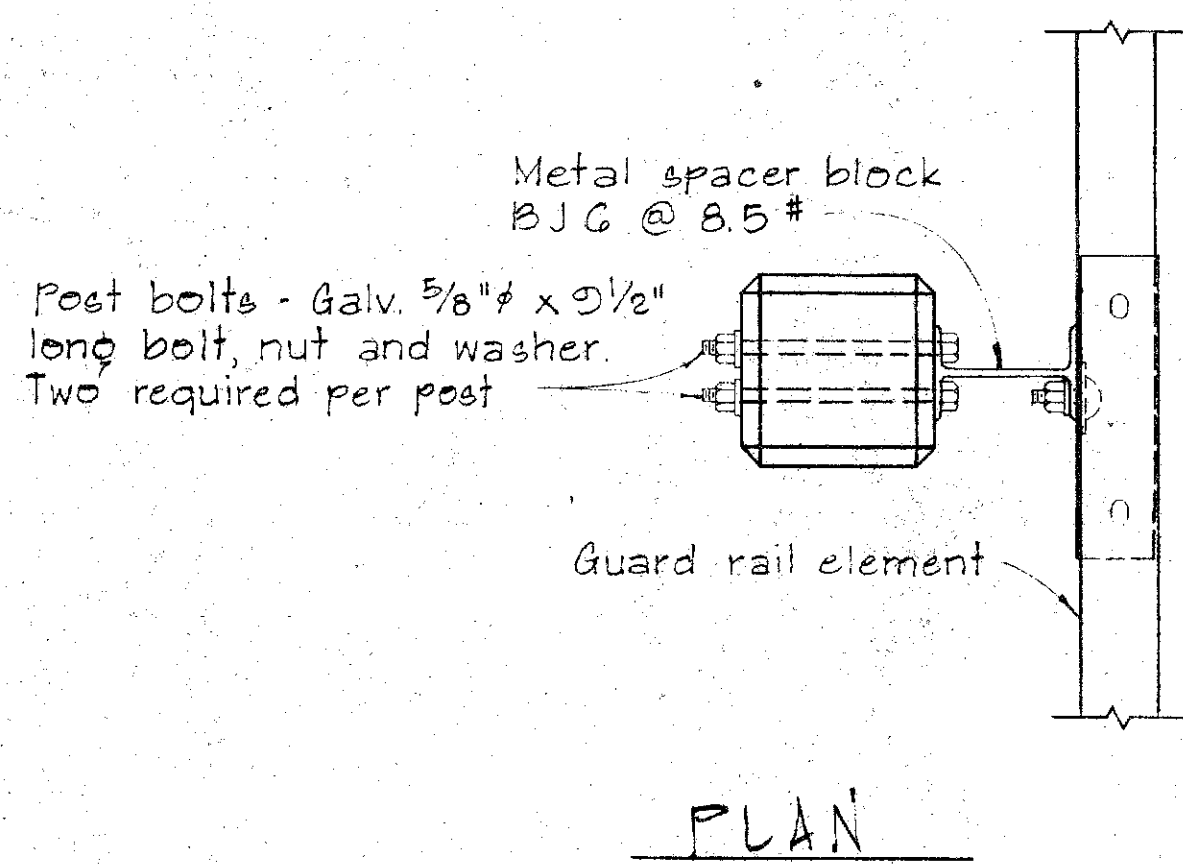


NOTE:
Concrete post shall be precast

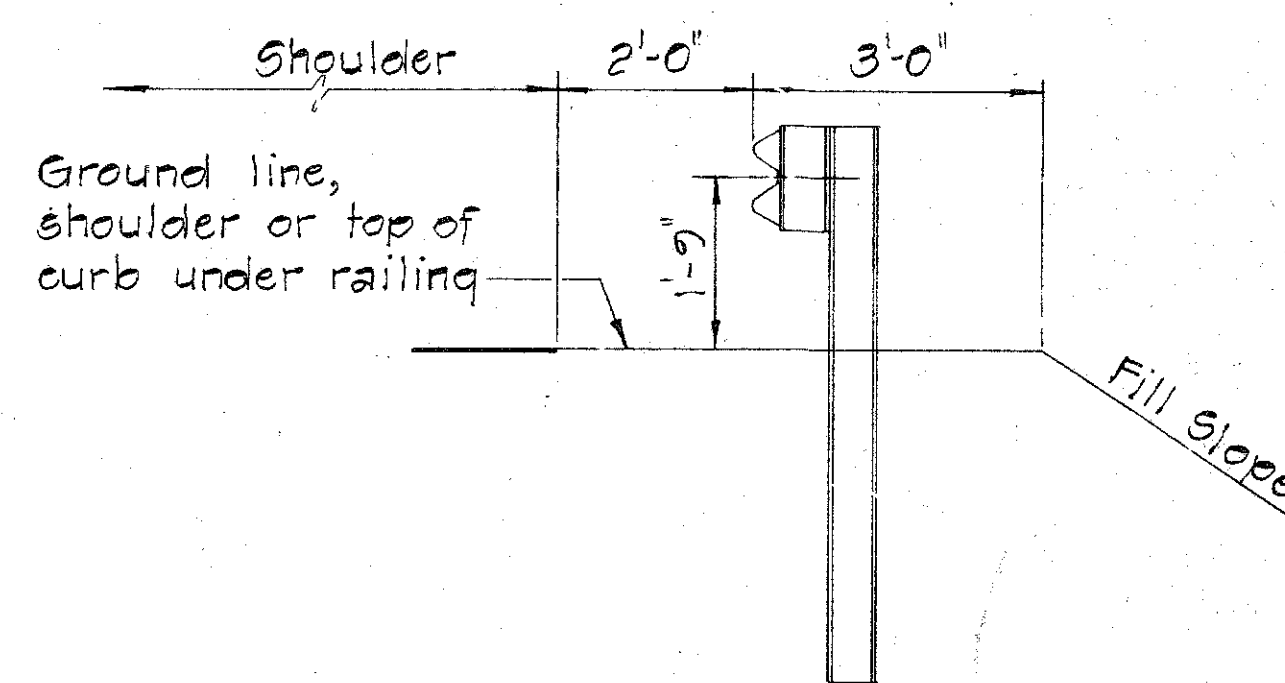


SINGLE METAL GUARD RAIL ON METAL POST WITH METAL SPACER BLOCK
SCALE: 1 1/2" = 1'-0"

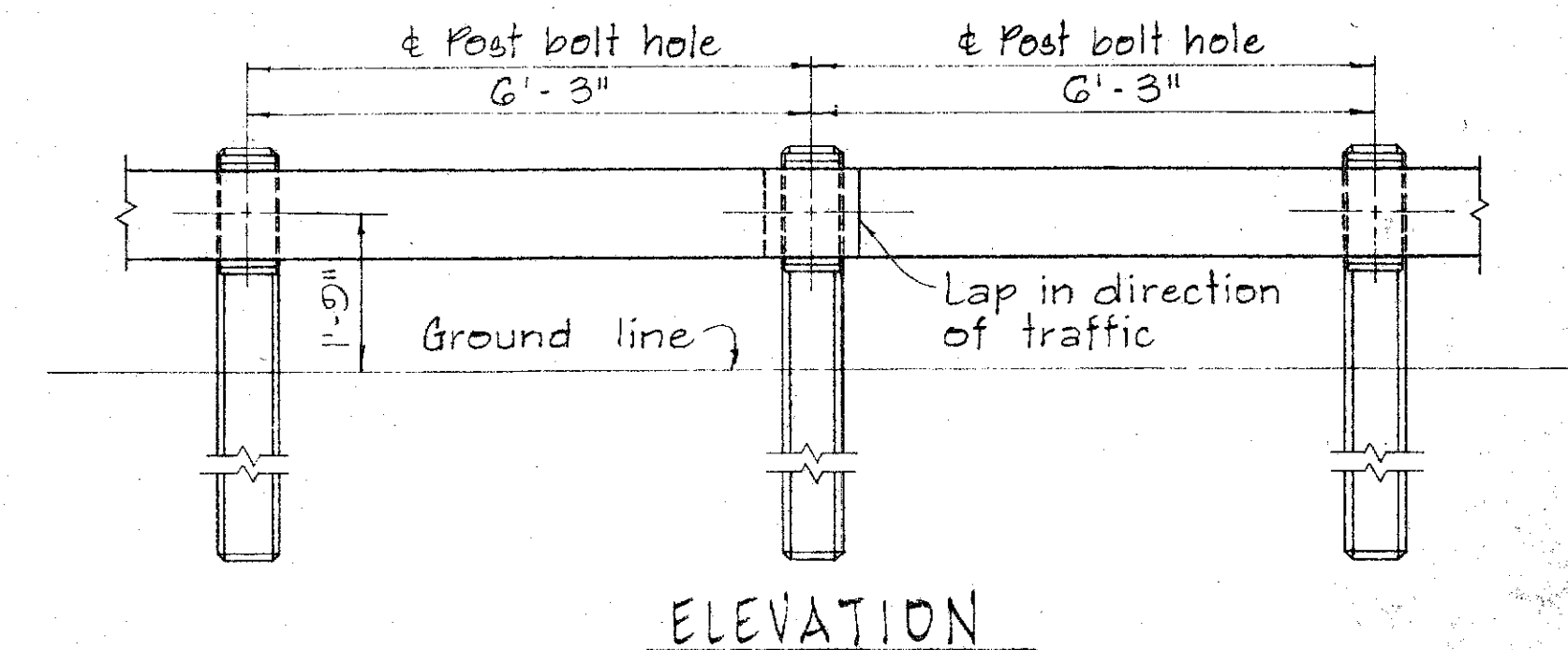
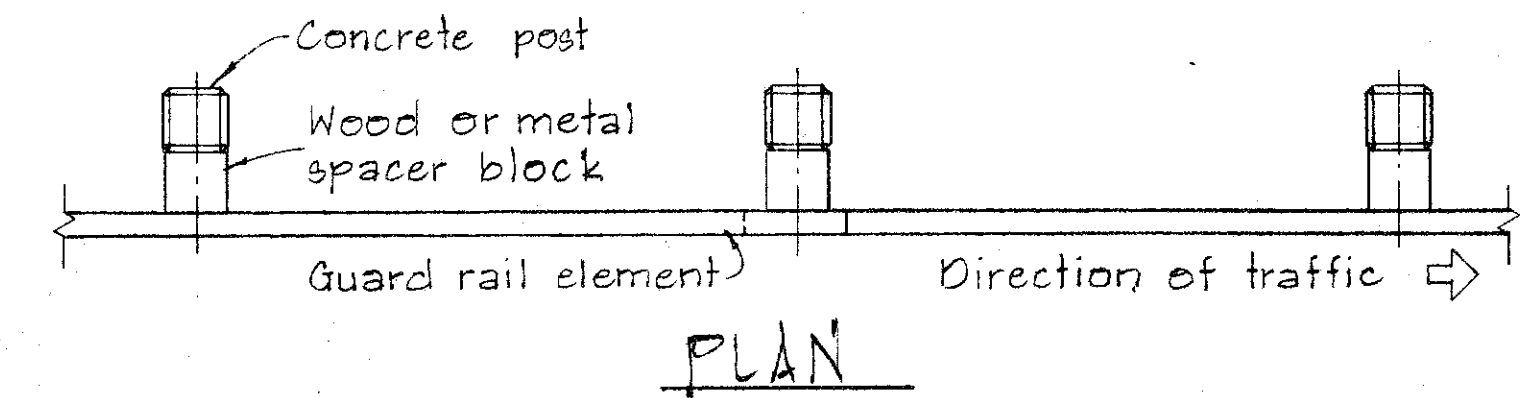
DETAIL OF CONCRETE POST
SCALE: 1 1/2" = 1'-0"



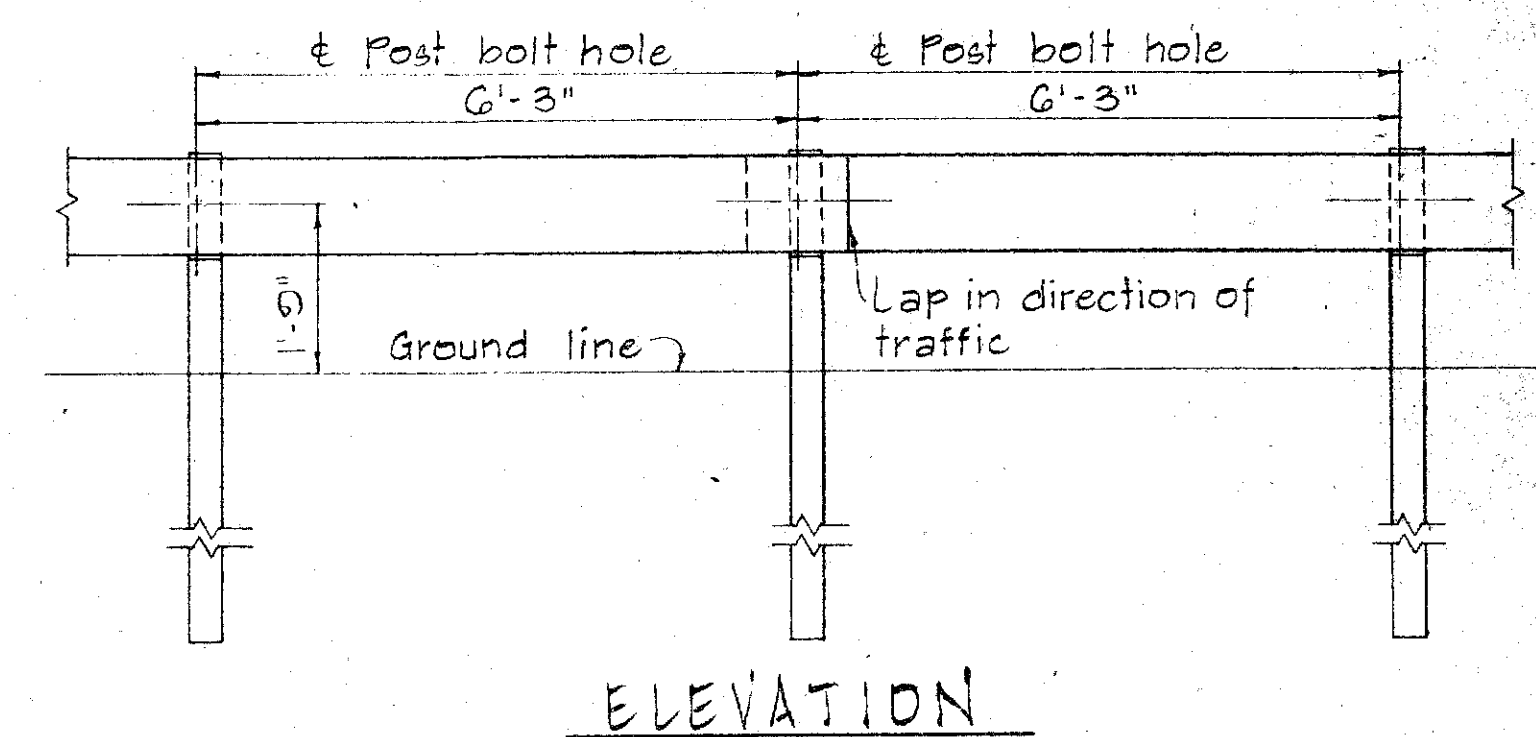
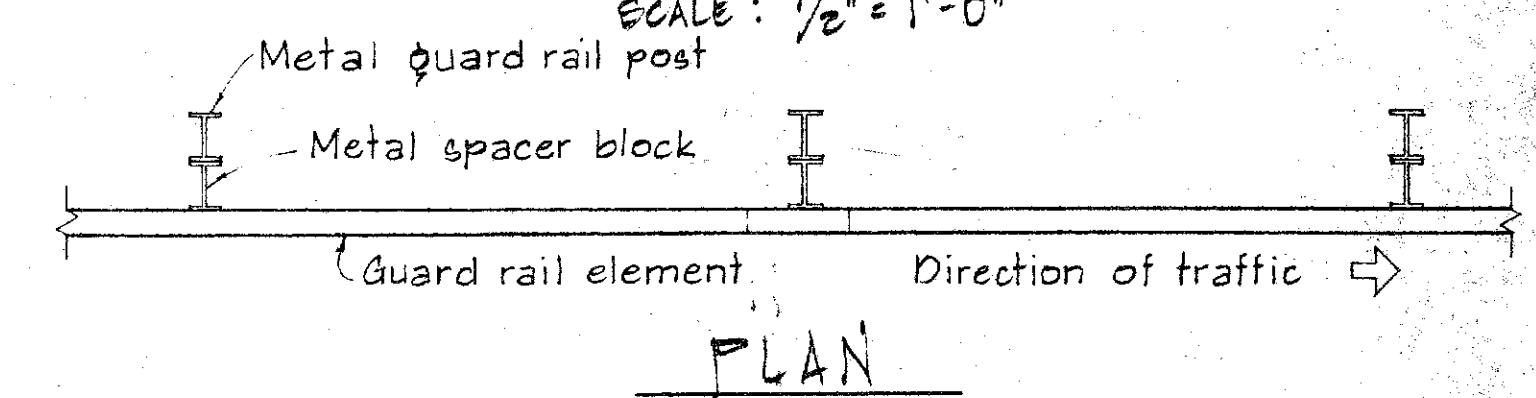
SINGLE METAL GUARD RAIL ON PRECAST CONCRETE POST WITH WOOD OR METAL SPACER BLOCK
SCALE: 1 1/2" = 1'-0"



TYPICAL METAL GUARD RAIL DETAIL
SCALE: 1/2" = 1'-0"



METAL GUARD RAIL ON CONCRETE POST WITH WOOD OR METAL SPACER BLOCK
SCALE: 1/2" = 1'-0"



METAL GUARD RAIL ON METAL POST WITH METAL SPACER BLOCK
SCALE: 1/2" = 1'-0"

NO.	REVISION	APPROVED BY	DATE

APPROVAL RECOMMENDED:
Erich Tanaka
TRAFFIC ENGINEER
12/22/69
DATE

APPROVED:
Hubert J. Scheid
ASSISTANT CHIEF, ENGINEERING
12-30-69
DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

STANDARD DETAILS
METAL GUARD RAIL

SCALE: AS SHOWN
NOV. 1968

SHEET No. 4 OF 19 SHEETS DT 500

[illegible]

2- # 4 Cont. Horiz.
Lap 18" Min. @ Splices

3/4" Chamfer

2" 3"

7"

3"

7"

2"

6" 3"

Varies

1'-7"

R=10"

1'-7"

10"

3"

Fin. Grade

Less than 1'-0"

3" deep key

3"

3 1/2"

2'-0"

9"

3"

Fin. Grade

This height controlled by higher side.

The diagram shows a horizontal section of a pipe with a total length of 90' max. It is divided into three segments by two vertical lines representing joints. The first segment on the left is labeled '30' max.' and ends with an 'Expansion Joint'. The middle segment is labeled '30' max.' and contains two vertical lines representing 'Control Joints w/ Saw Cut 1" Deep'. The third segment on the right is labeled '30' max.' and begins with an 'Expansion Joint'.

[illegible]

ELEVATION

SCALE: $1/2" = 1' - 0"$

Technical drawing of a wall section showing reinforcement details. The drawing includes dimensions for wall height (1'-7"), width (2'-0"), and reinforcement spacing (#5 at 15" o.c., #4 at 15" o.c.). It also shows a 3/4" chamfer, R=10" and R=6" fillets, and a 3" deep key. A note states "This height controlled by higher side."

[illegible]

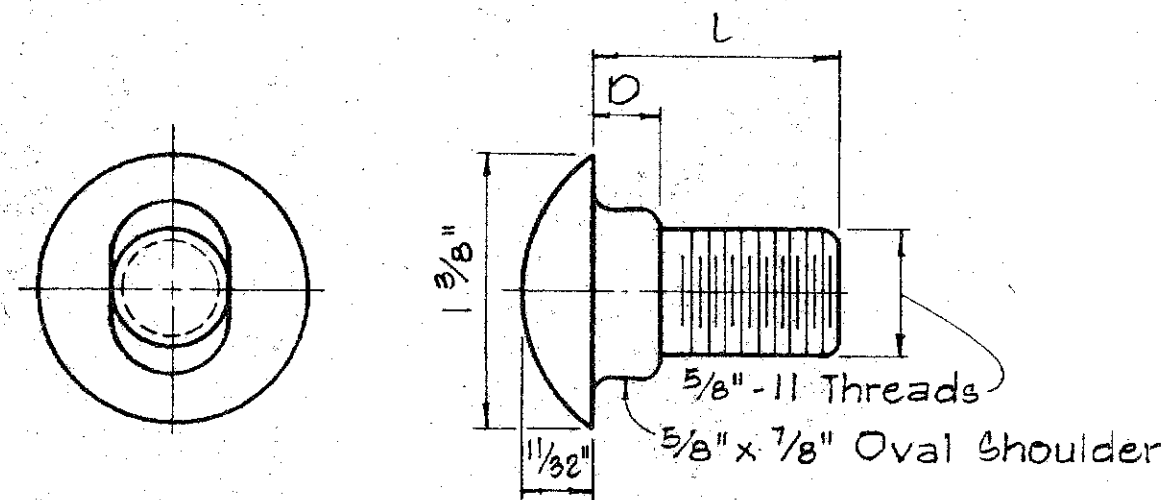
NO.	REVISION	APPROVED BY	DATE
1	Supersede Sht. DT 521 Approved 12-30-69	H.T.	2/10/70
2	Added No. 4 Steel Reinforcing Bar. Change Dimension on Type 4C & 4D Detail	H.T.	8/16/70
3	Added Additional Reinforcing Bars and Revised Control & Expansion Joints	H.T.	6/20/71

Except where noted all dimensions shall be the same for Type 4C and Type 4D.

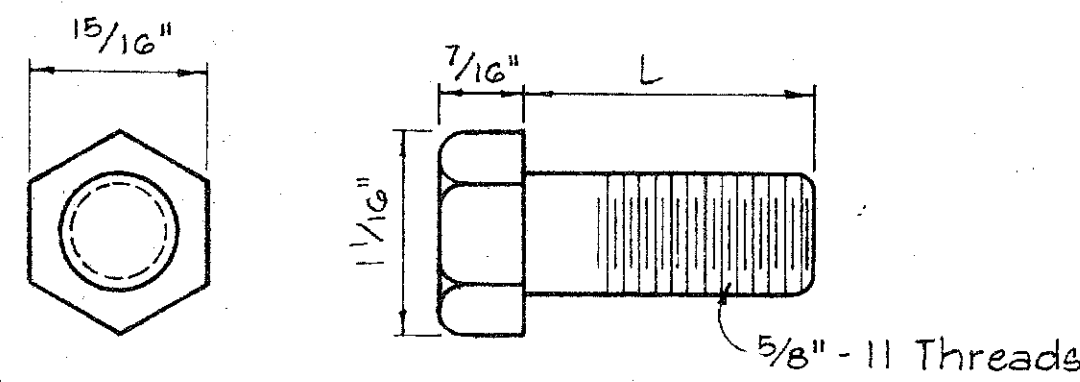
BOLT DIMENSIONS		
TYPE A BOLT		
Splice Bolt	5/16"	1 1/4"
Post Bolt for Conc. Post w/ Double Wood Blocks	3/32"	24"
Post Bolt for Conc. Post w/ Single Wood Block	3/32"	18"
Rail Bolt for Metal Block	3/32"	2"

BOLT DIMENSIONS		
TYPE B BOLT		
Post Bolt for Conc. Post w/ Metal Blocks		5 1/2"
Post Bolt for Metal Post w/ Metal Block		1 3/4"

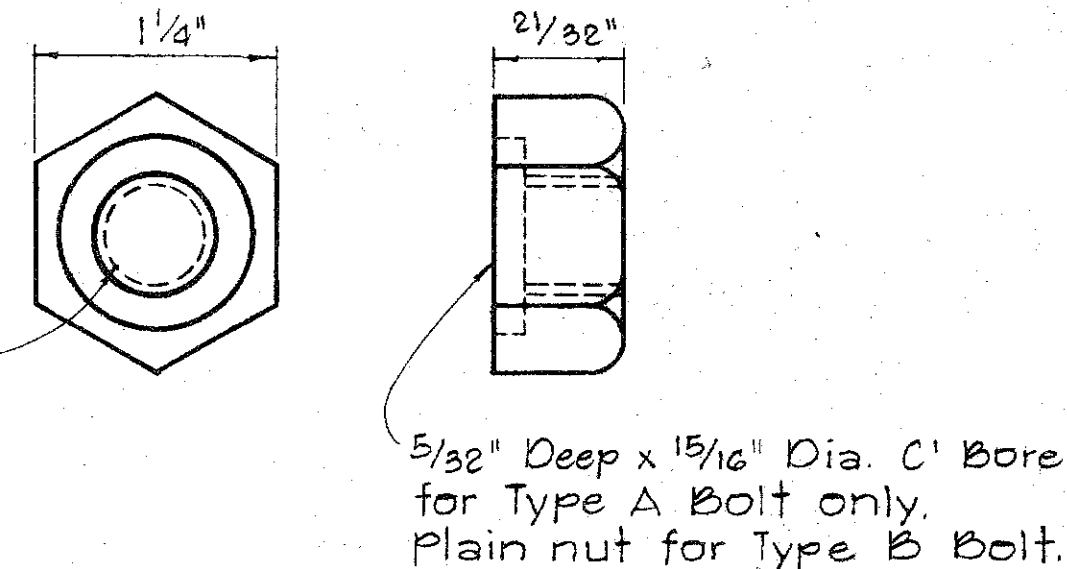
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HE-5-063-1(12)	1980	24	44



TYPE A BOLT



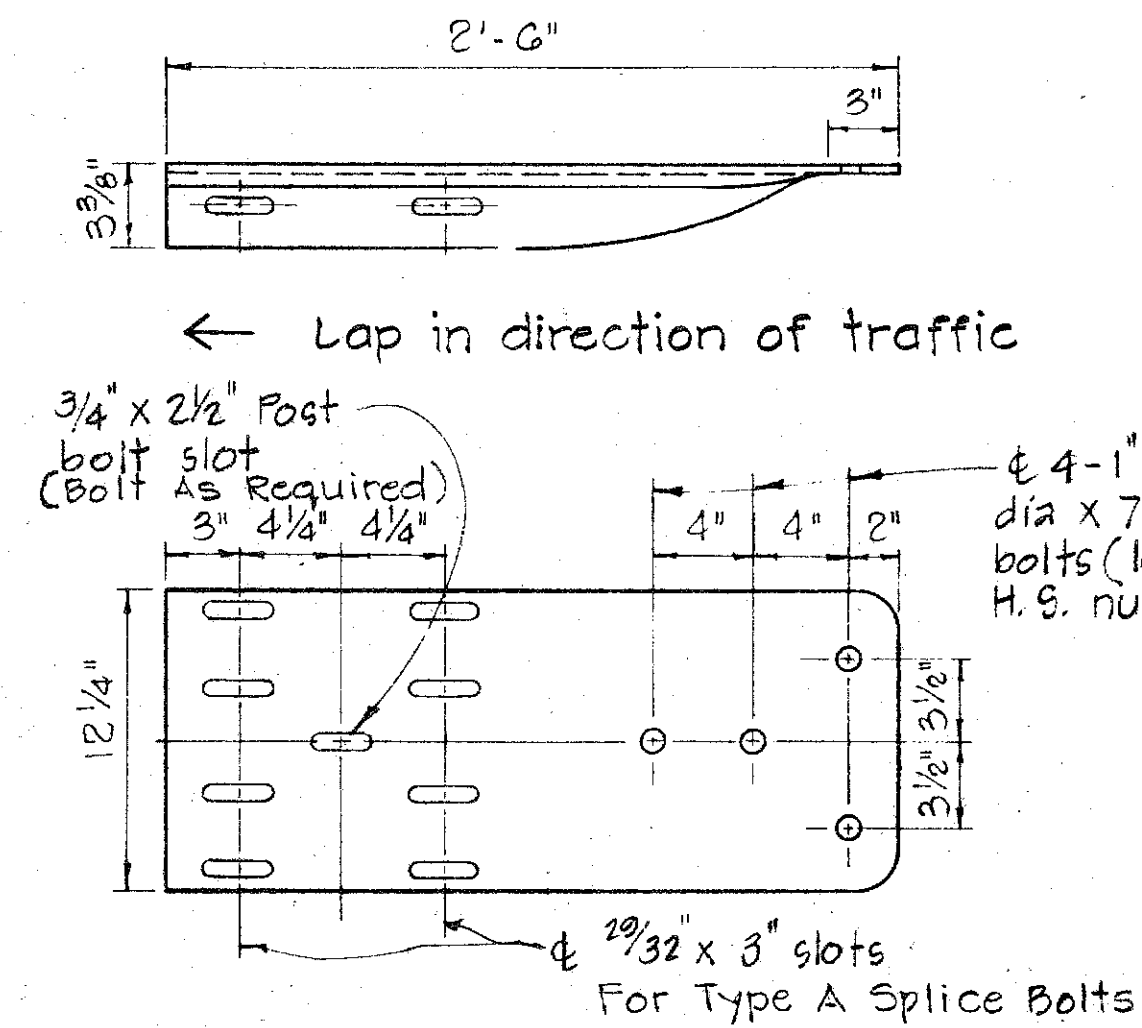
TYPE B BOLT



HEXAGON NUT

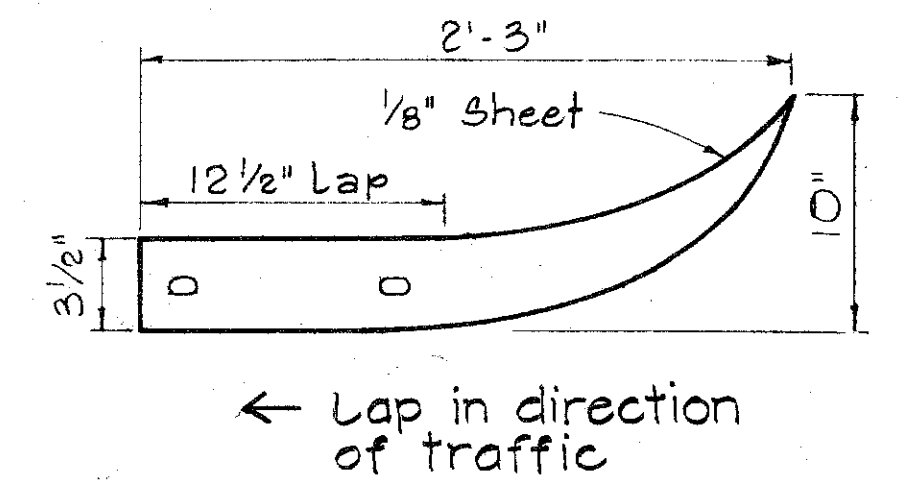
SPlice RAIL AND POST BOLTS
Scale: Full Size

Scale: Full Size



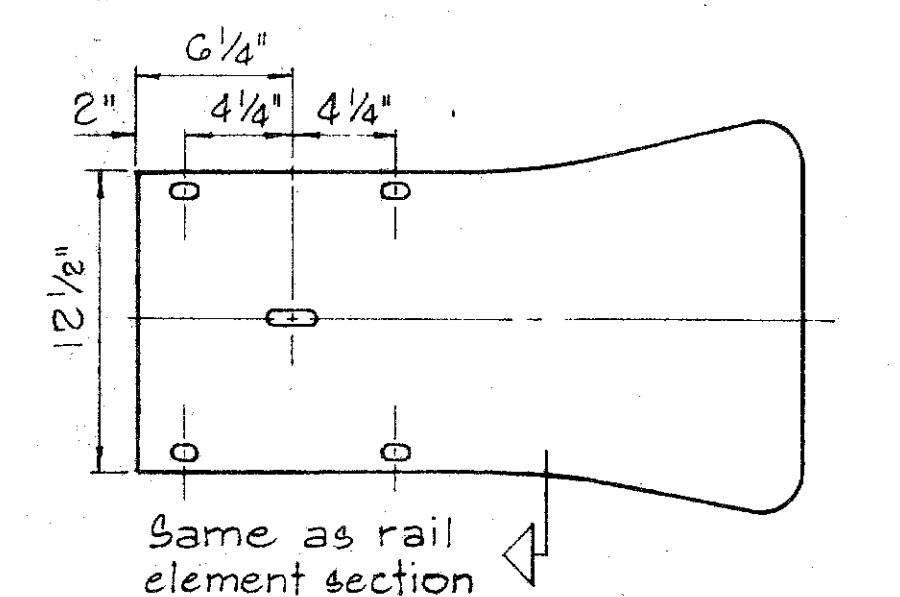
SPECIAL END SHOE

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



FLARED END

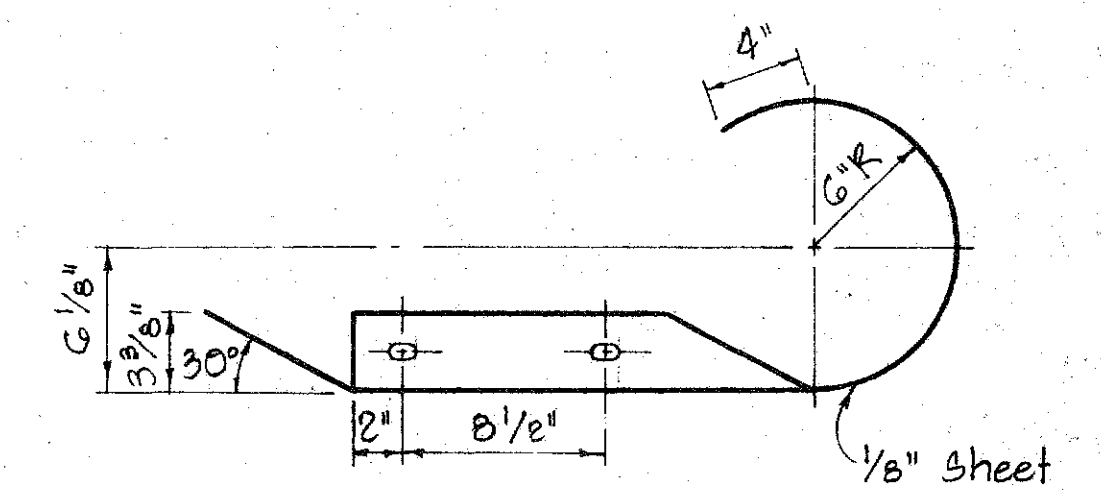
Scale: 1 1/2" = 1'-0"



FLARED END

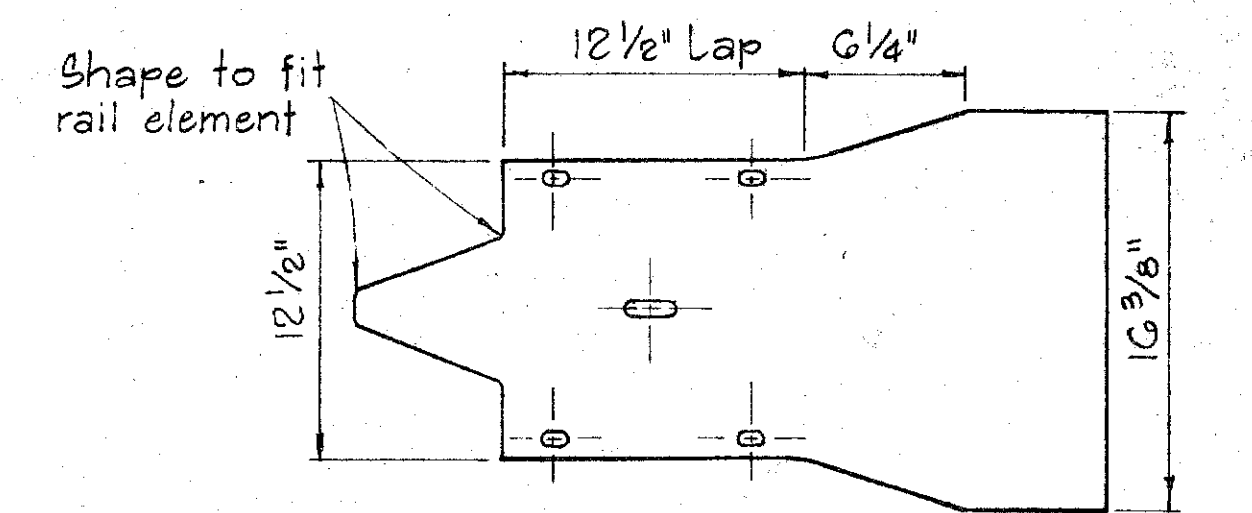
FLARED END

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



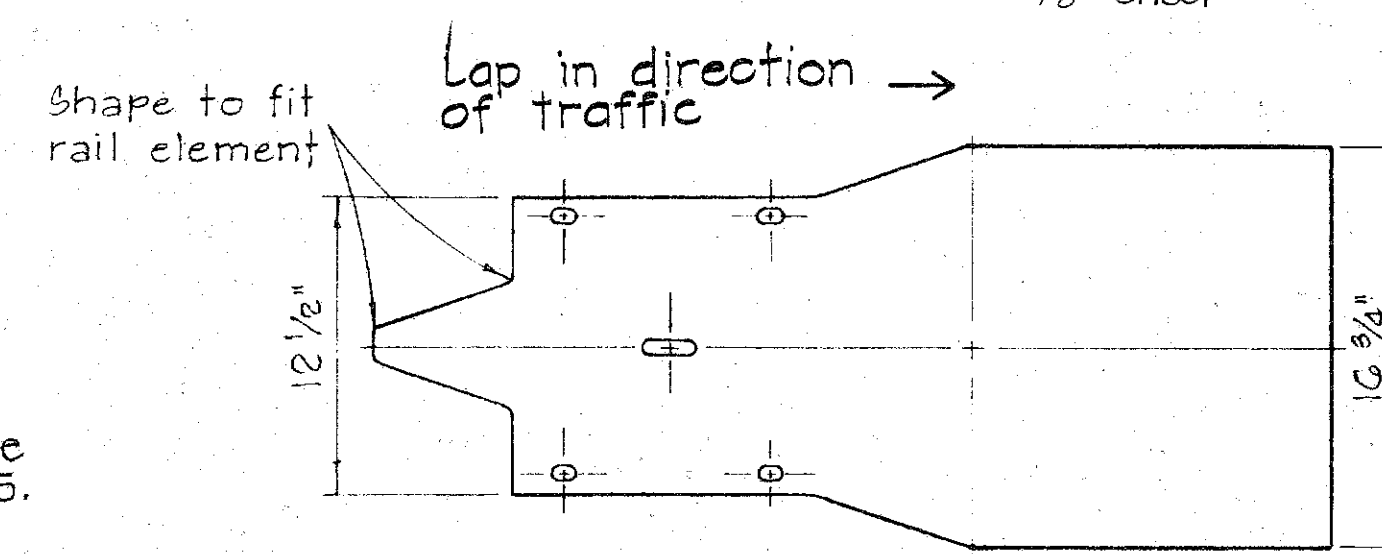
FLARED END

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



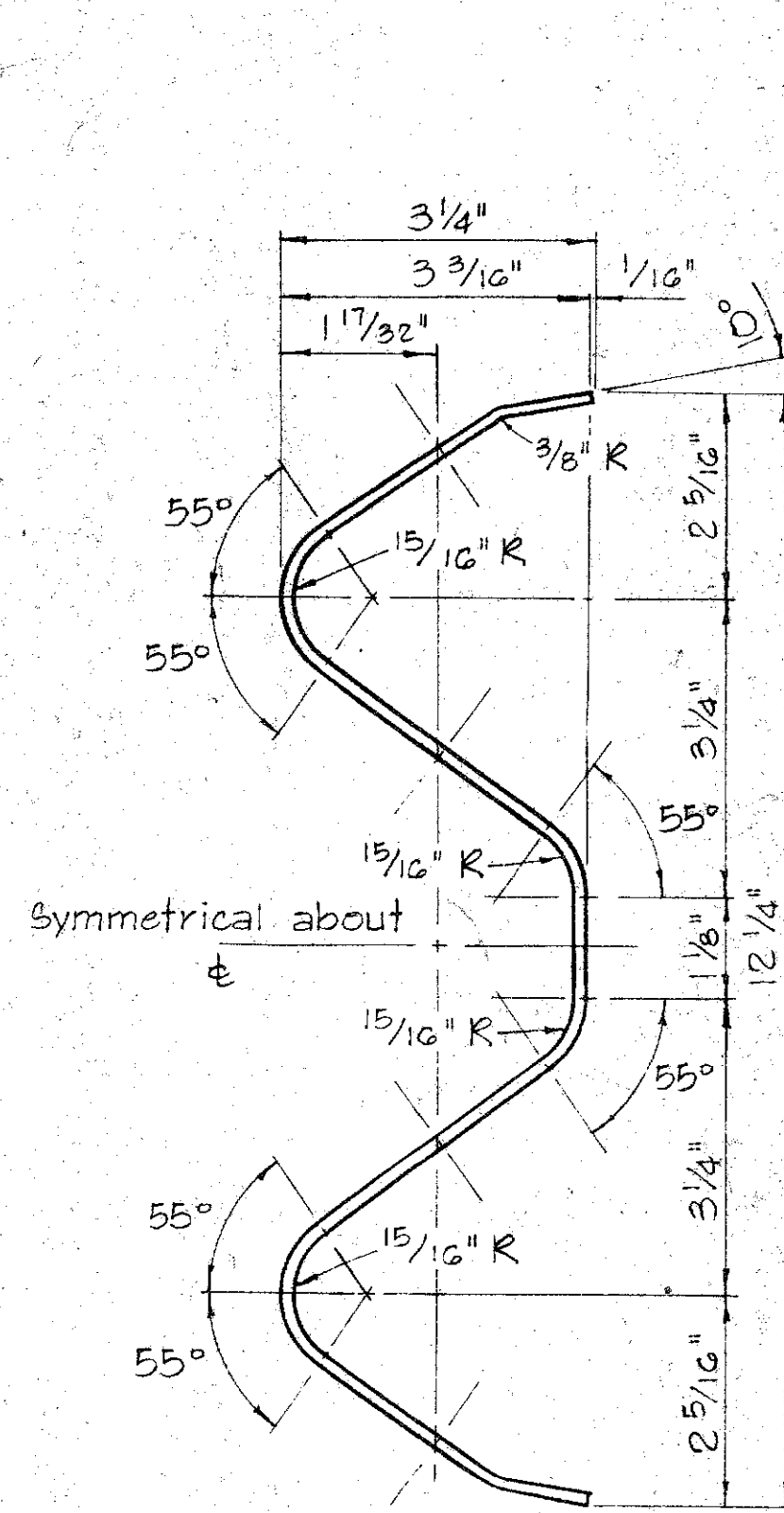
FLARED END

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



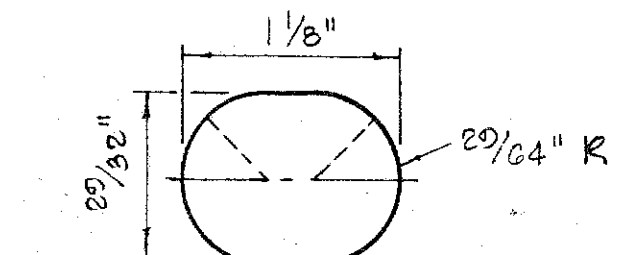
FLARED END

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



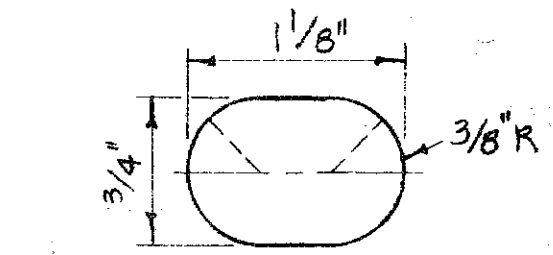
RAIL ELEMENT SECTION

Scale: 6" = 1'-0"

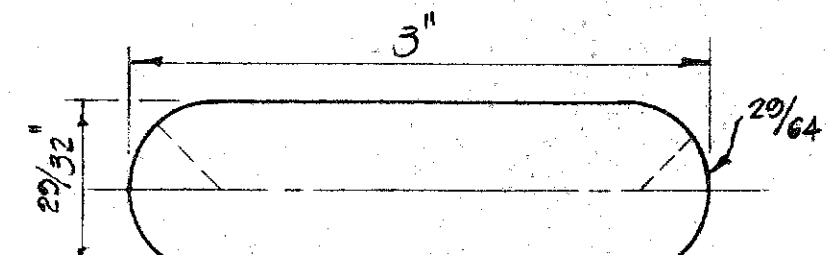


SPlice BOLT SLOT

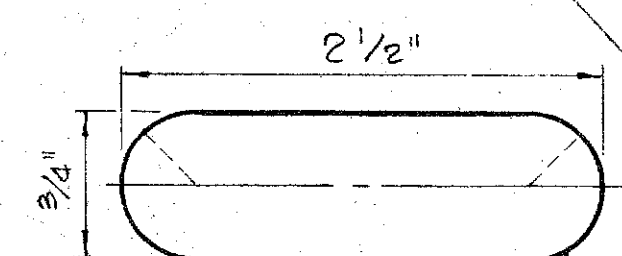
Scale: Full Size



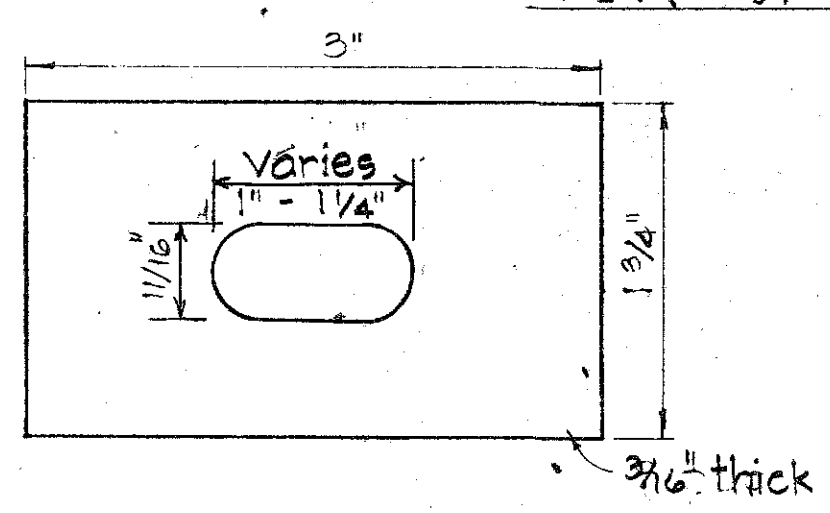
SPlice BOLT SLOT FOR ALL ENDS



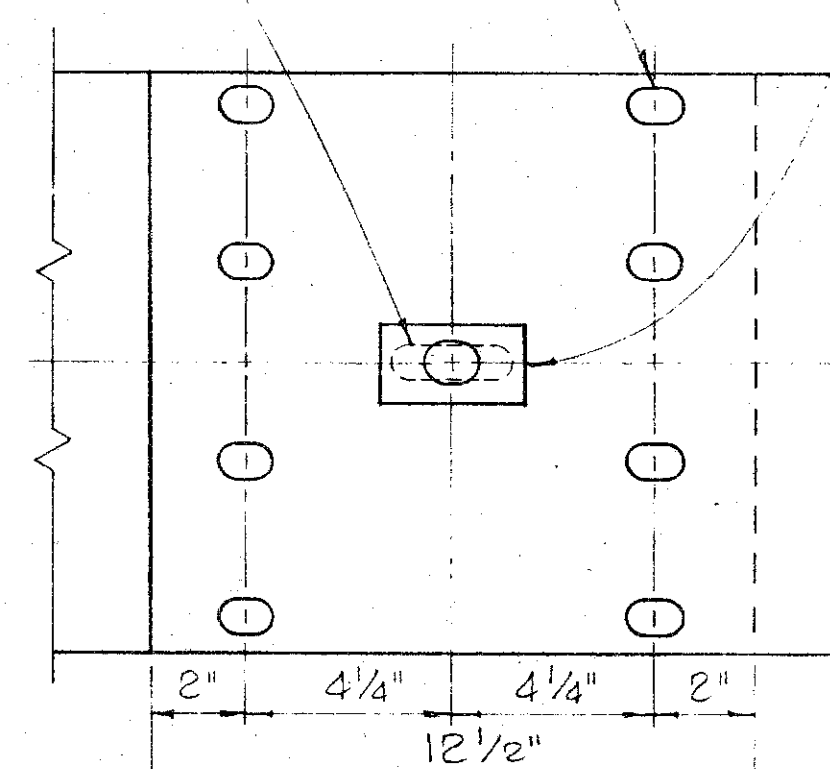
SPlice BOLT SLOT FOR SPECIAL END SHOE



POST BOLT SLOT



RAIL WASHER



RAIL SPlice

Scale: 3" = 1'-0"

NOTES:

1. H.S. Bolts shall conform to the requirements of ASTM A 325.
2. Special End Shoe shall be fabricated from 10 Gage steel conforming to the requirements of AASHTO 180.

MEDIAN END DIMENSIONS		
TYPE OF POST AND BLOCK	W	R
Double Metal Guard Rail on Concrete Post with Wood Blocks	29 3/4"	14 7/8"
Double Metal Guard Rail on Concrete Post with Metal Blocks (BJG)	26 1/2"	13 1/4"
Double Metal Guard Rail on Metal Post with Metal Blocks (BJG)	24 3/8"	12 3/8"

NO	REVISION	APPROVED BY	DATE
1	Revised Hole Size for Rectangular Rail Washer	H.T.	8/10/88

APPROVAL RECOMMENDED:	12/29/69
TRAFFIC ENGINEER	DATE
APPROVED:	12-30-69
ASSISTANT CHIEF, ENGINEERING	DATE

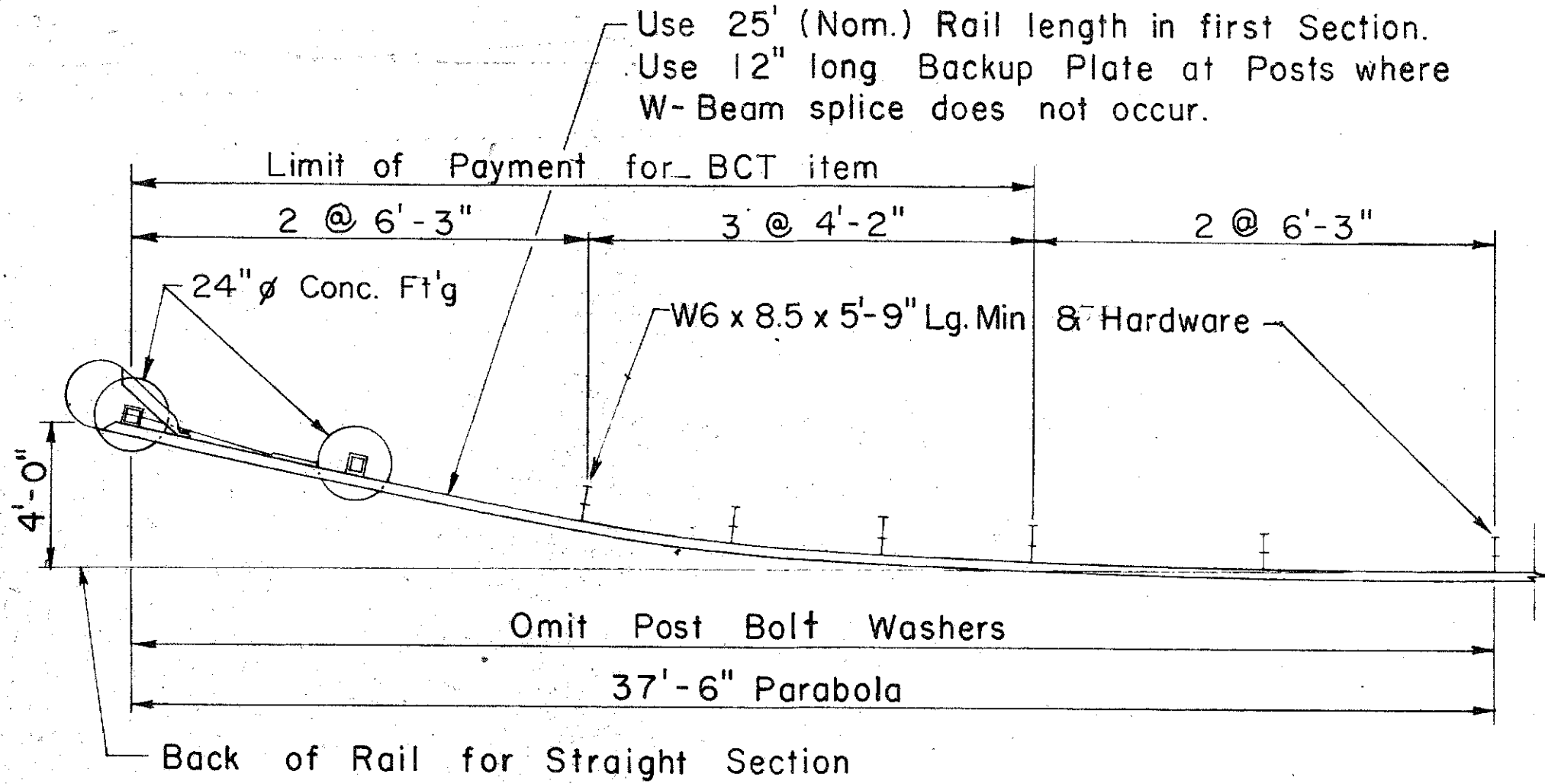
STATE OF HAWAII	12/29/69
DEPARTMENT OF TRANSPORTATION	DATE
HIGHWAYS DIVISION	
STANDARD DETAILS	
METAL GUARD RAIL	
Scale: As Noted	August, 1968
SHEET No. 6 OF 19 SHEETS	DT 501

FILE	POCKET	FOLDER	NO.
9	13	2	24

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HES-063-1(12)	1980	26	44

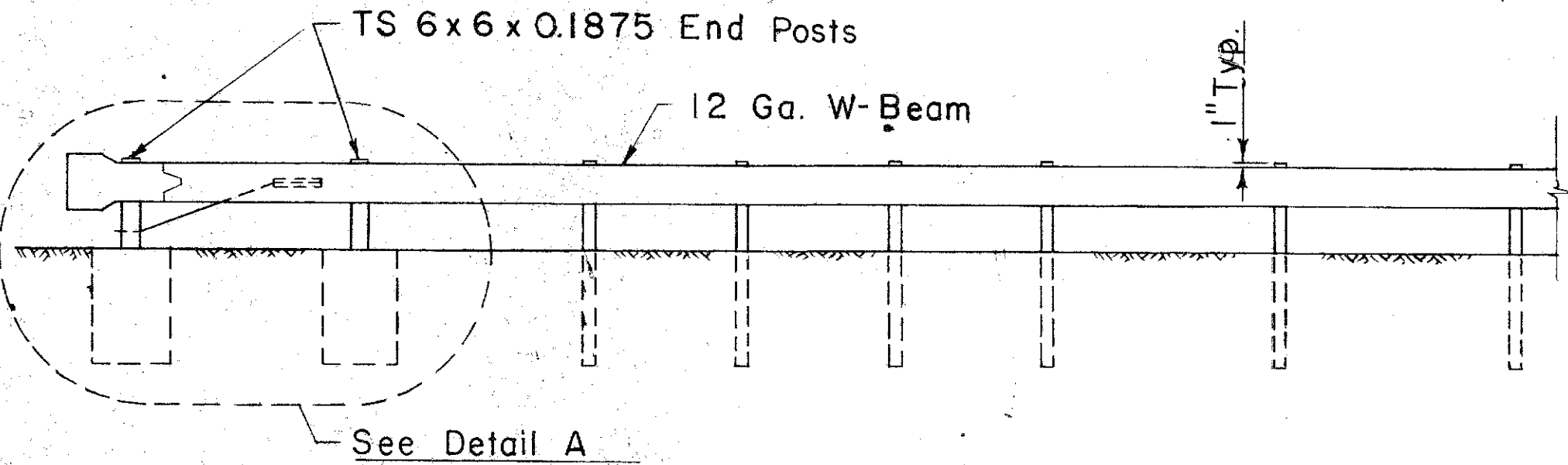
NOTES:

- Anchor Plate and Anchor Cable Assembly (Standard Swaged Fitting and Stud). See Standard Detail Sheet No. DT 520.
- Other Anchor Cable Assemblies may be used. Minimum breaking strength of assembly should be 40,000 lbs.
- Second Terminal Post does not require holes to accomodate Anchor Cable.
- Slip Base Load shall be controlled with a Calibrated Torque Wrench - Torque 155 - 170 ft. lbs.
- Concrete shall be Class A.



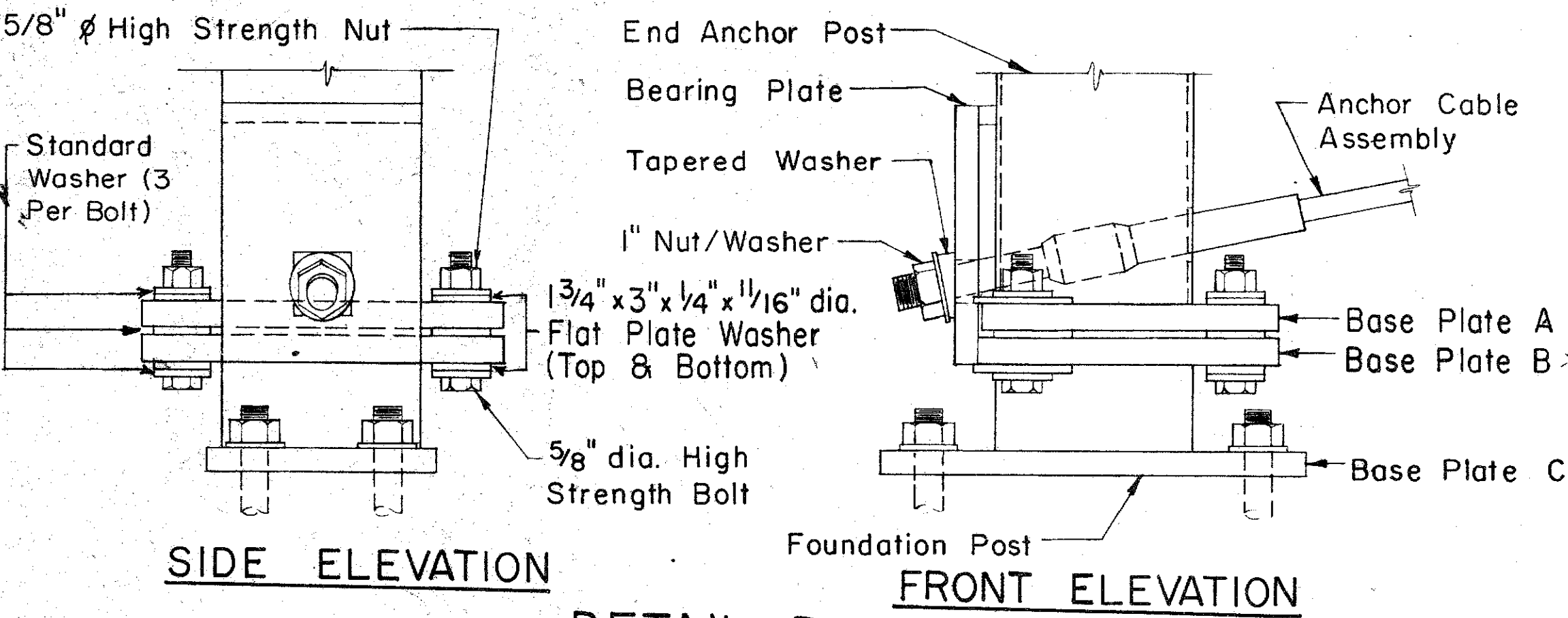
PLAN

Scale: 1/4" = 1'-0"



ELEVATION

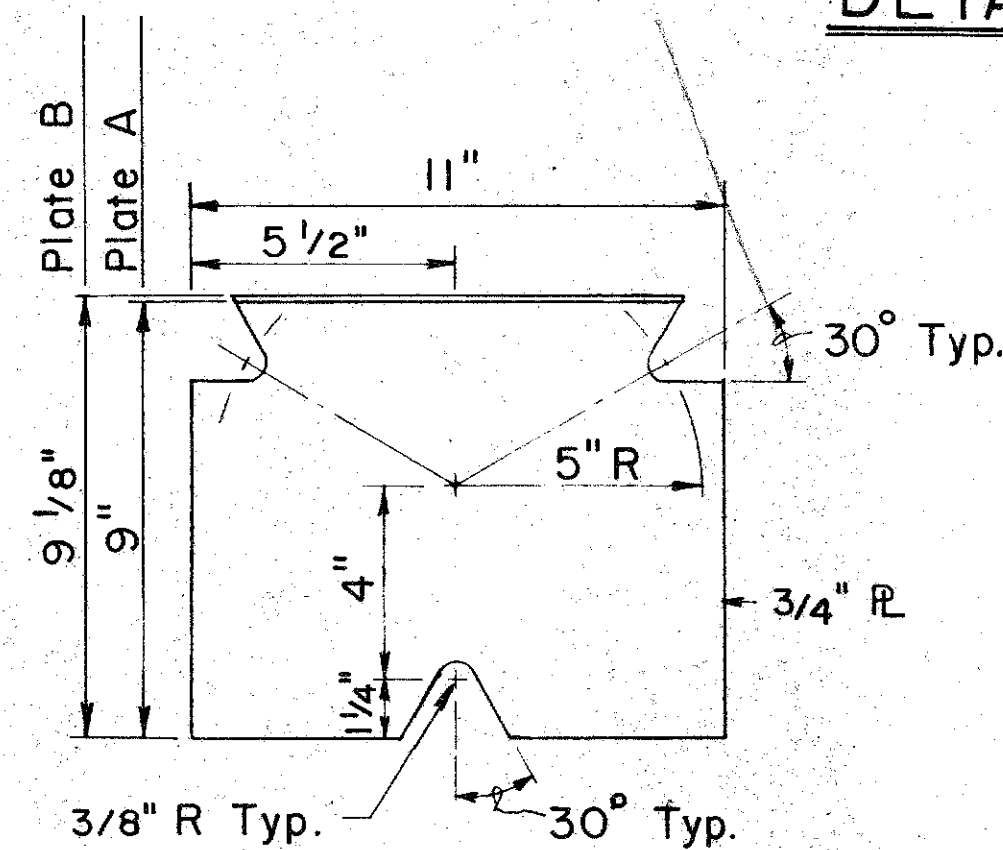
Scale: 1/4" = 1'-0"



SIDE ELEVATION

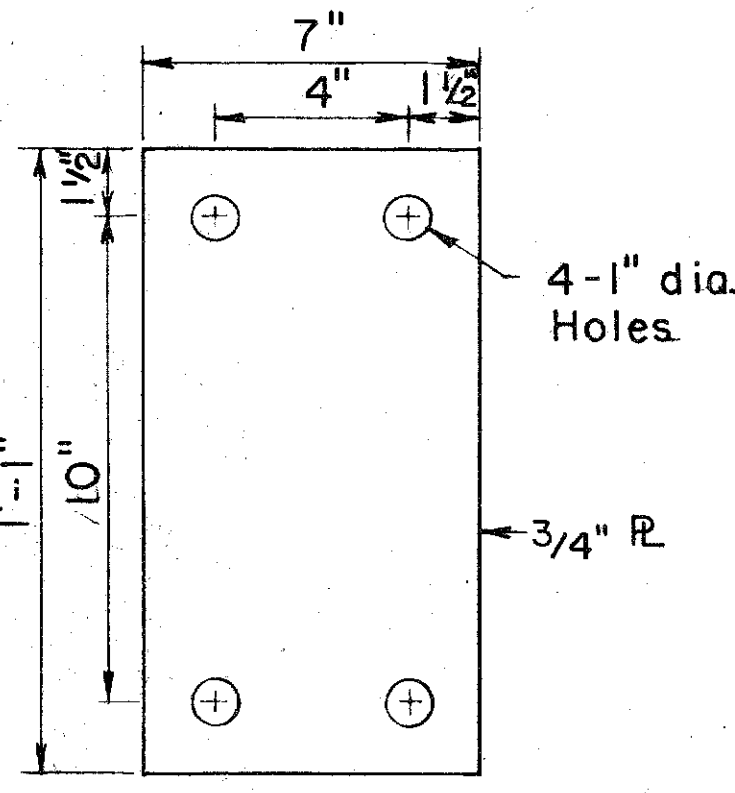
DETAIL B

FRONT ELEVATION



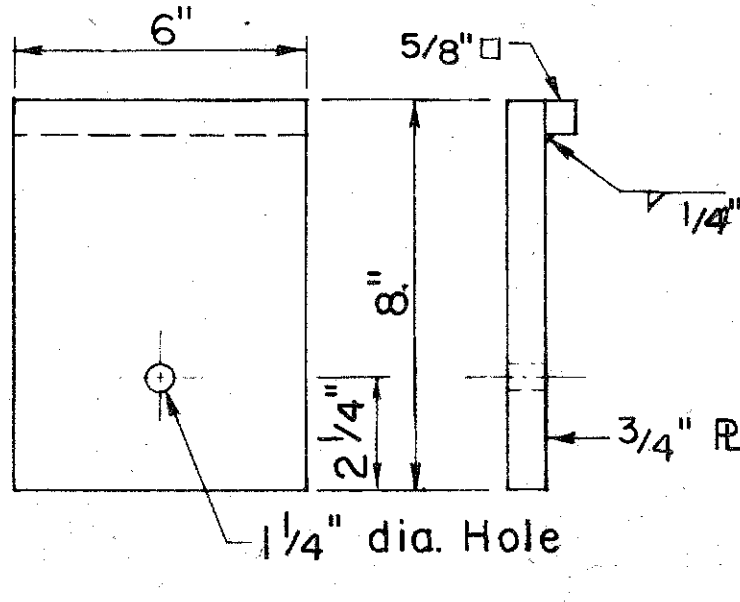
BASE PLATES A & B

Scale: 3" = 1'-0"



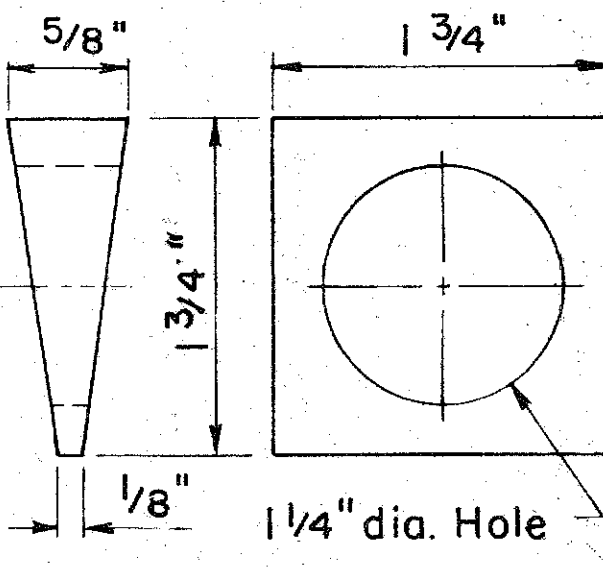
BASE PLATE C

Scale: 3" = 1'-0"



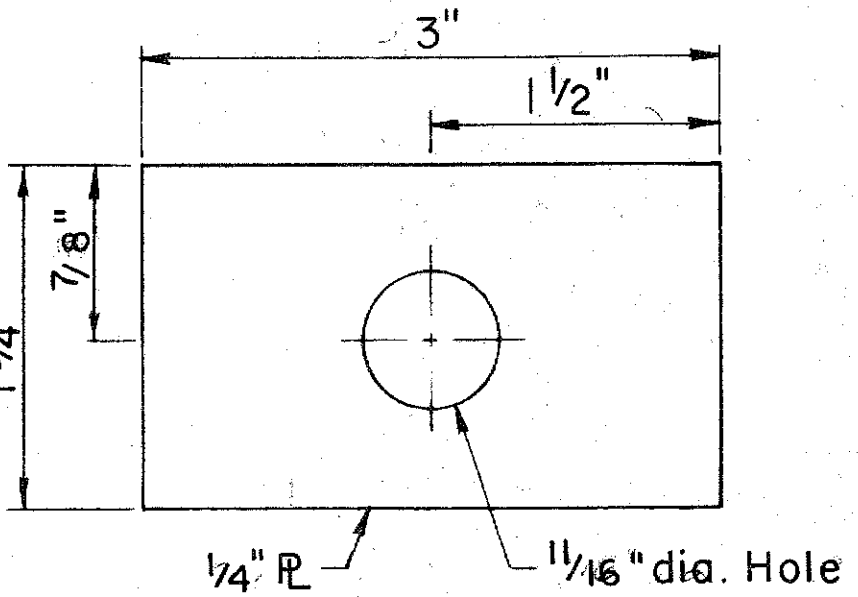
BEARING PLATE

Scale: 3" = 1'-0"



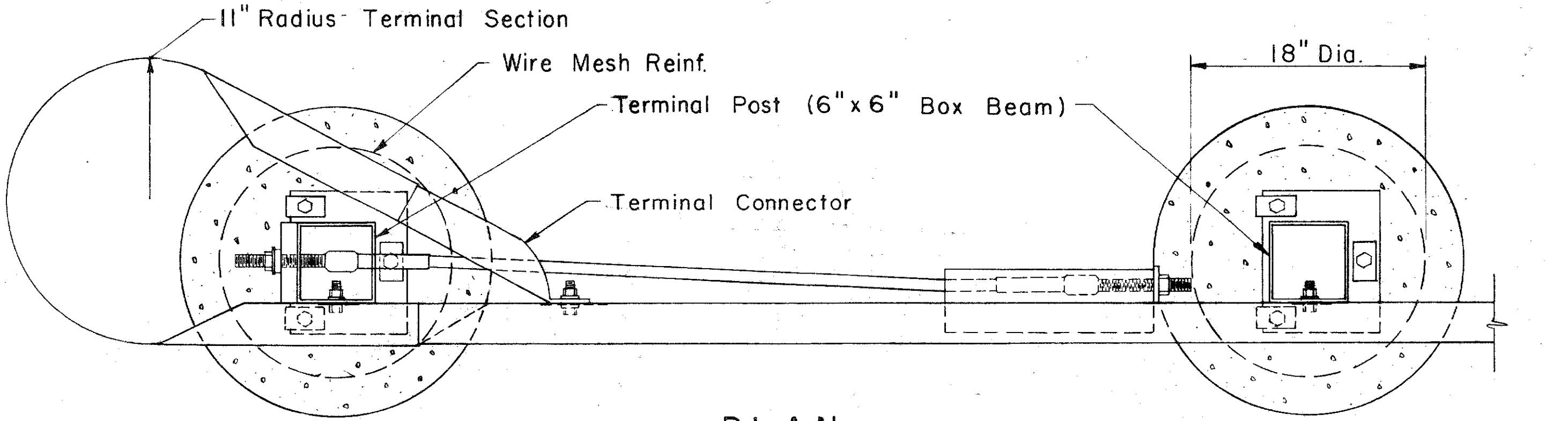
TAPERED WASHER

Scale: Full Size

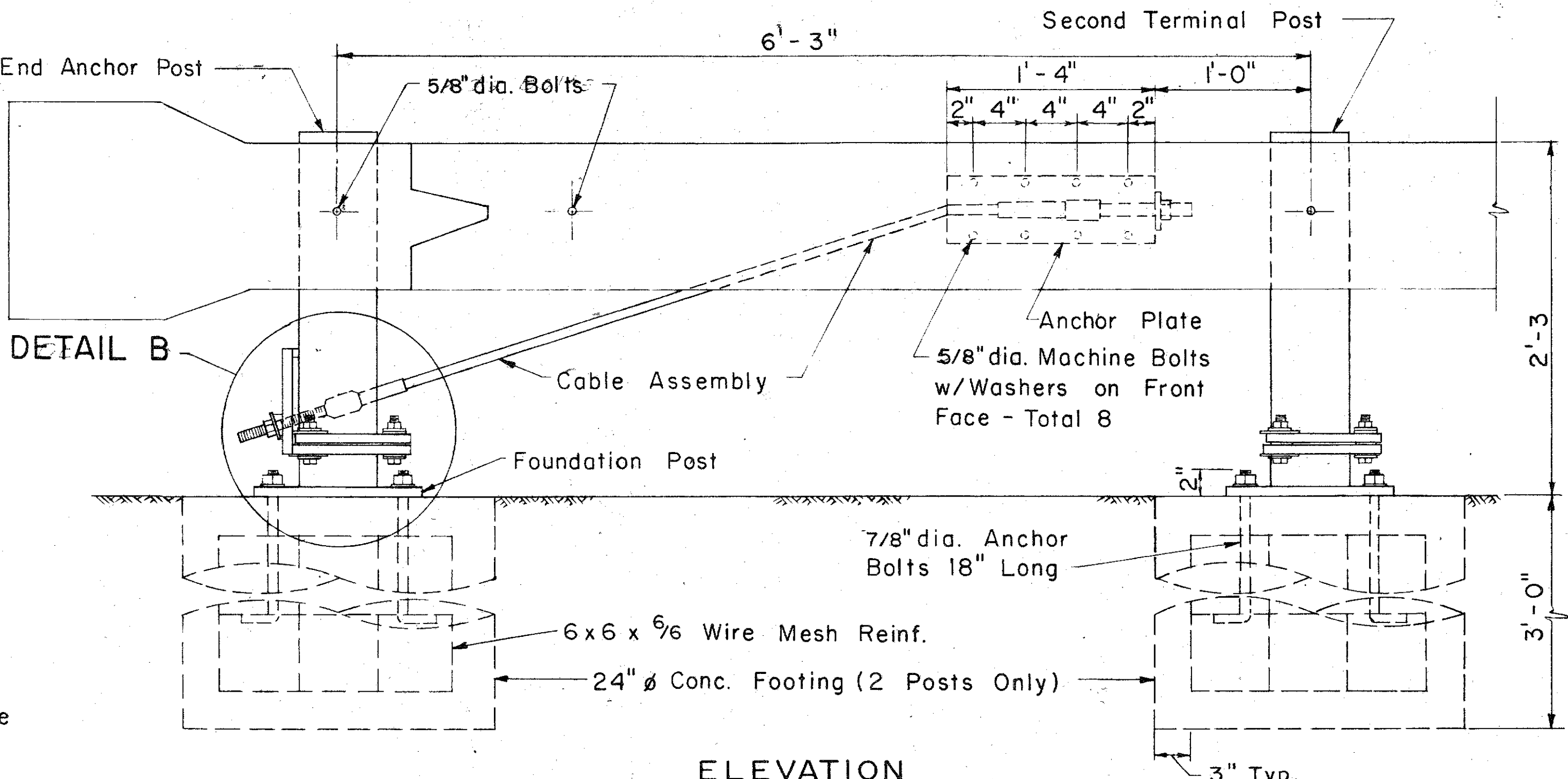


FLAT PLATE WASHER

Scale: Full Size



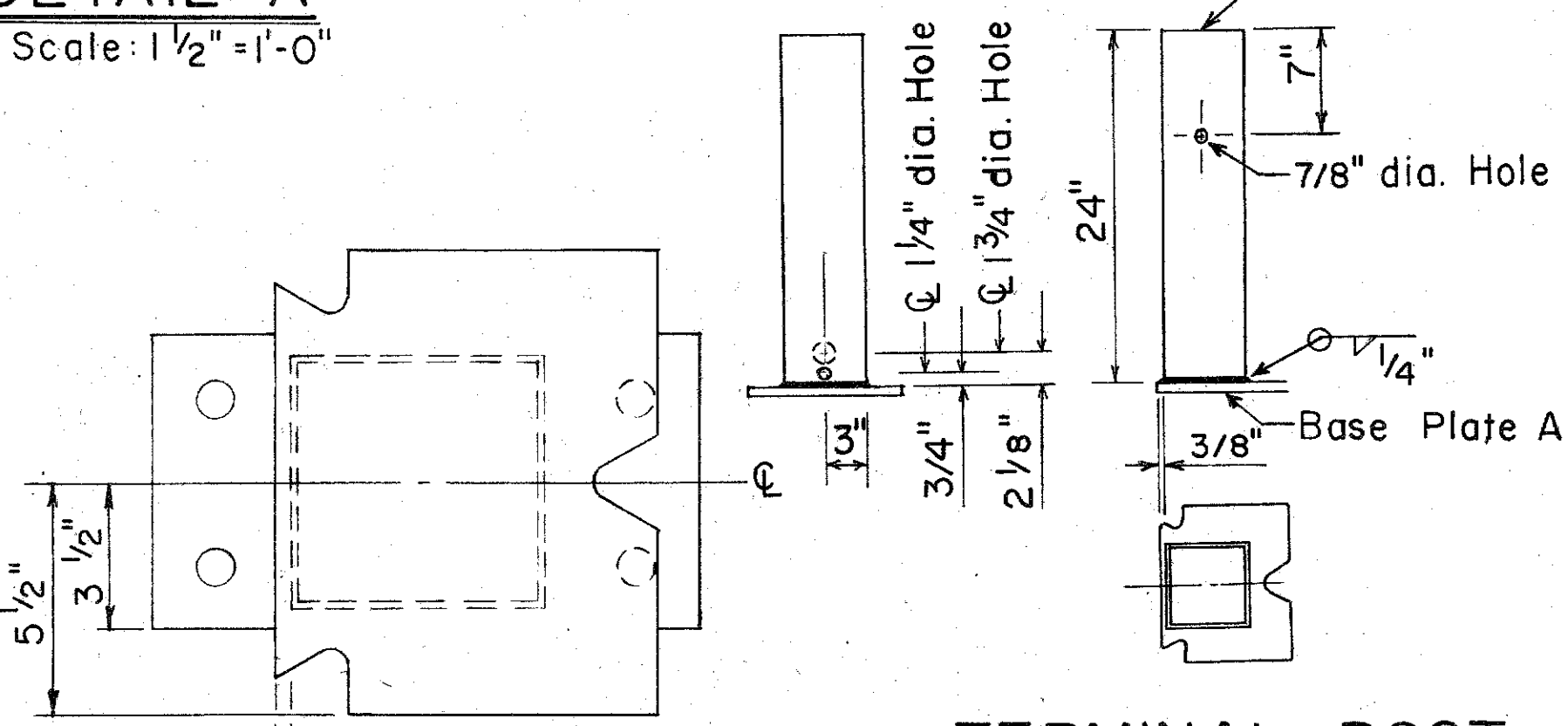
PLAN



ELEVATION

DETAIL A

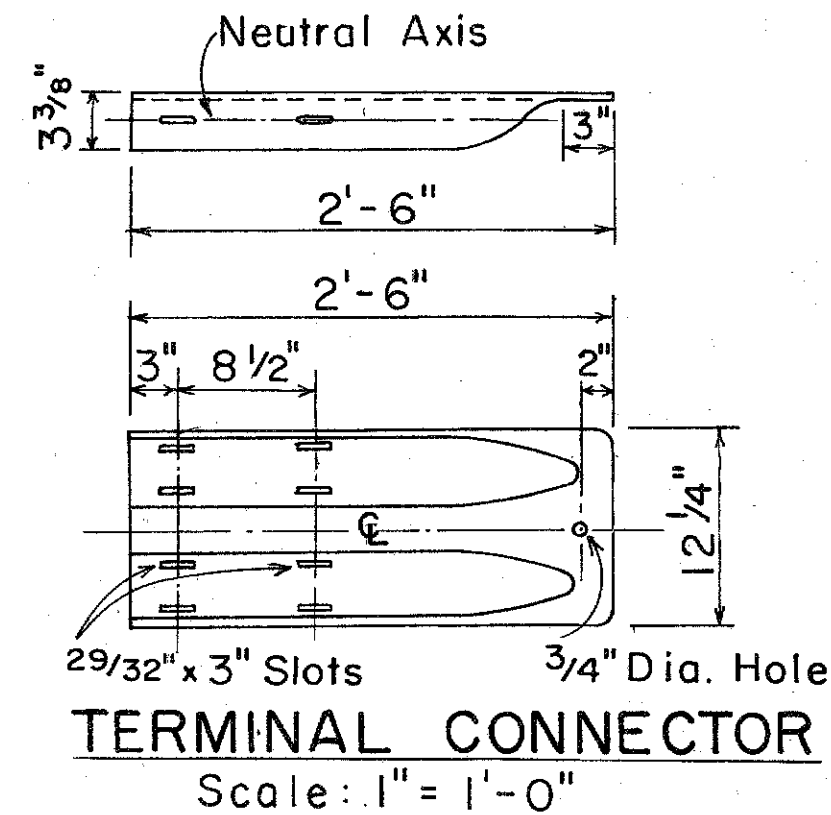
Scale: 1 1/2" = 1'-0"



TERMINAL POST

Scale: 1" = 1'-0"

NO.	REVISION	APPROVED BY	DATE
1	Supersedes Sht. DT 519 Approved 12/30/69	H.I.	6/15/78



TERMINAL CONNECTOR

Scale: 1" = 1'-0"

APPROVAL RECOMMENDED:

Eishi Tanaka 6/14/78
TRAFFIC ENGINEER DATE

APPROVED:

Shunichi Sakaiishi 6/15/78
ASSISTANT CHIEF, ENGINEERING DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

STANDARD DETAIL

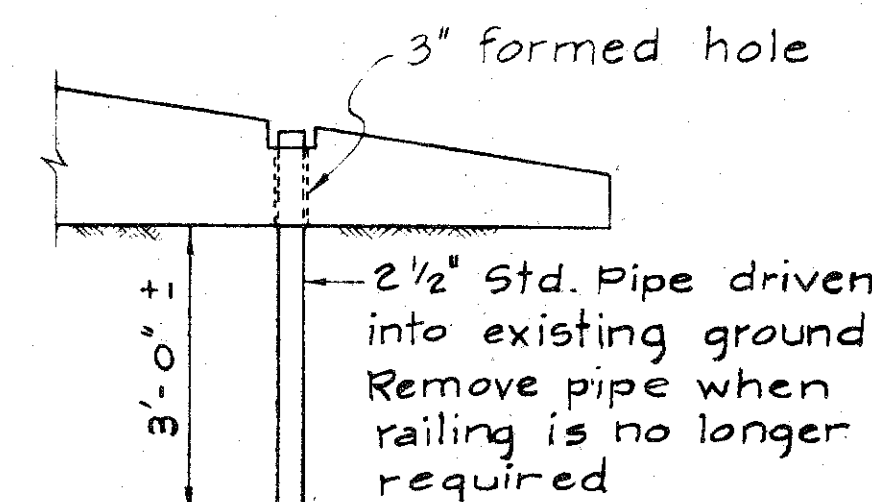
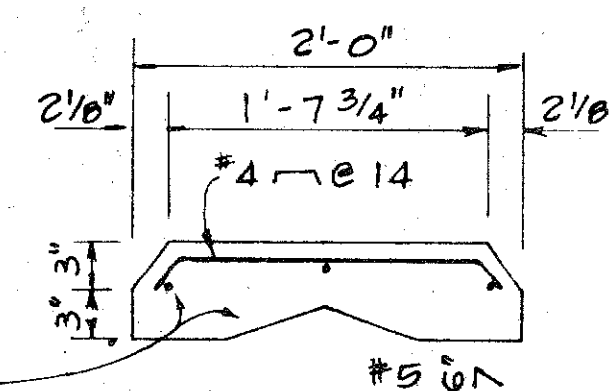
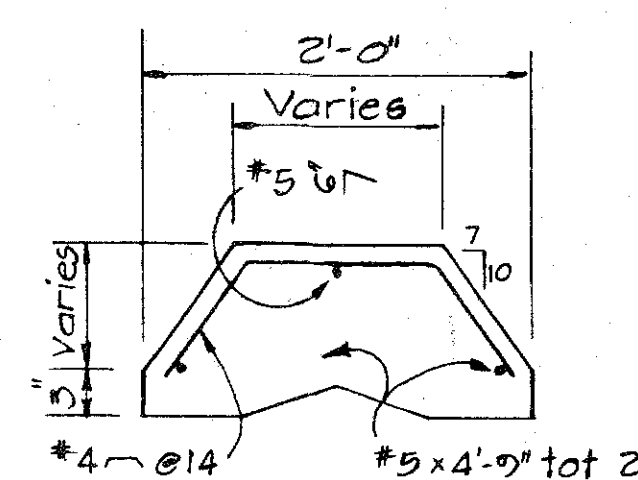
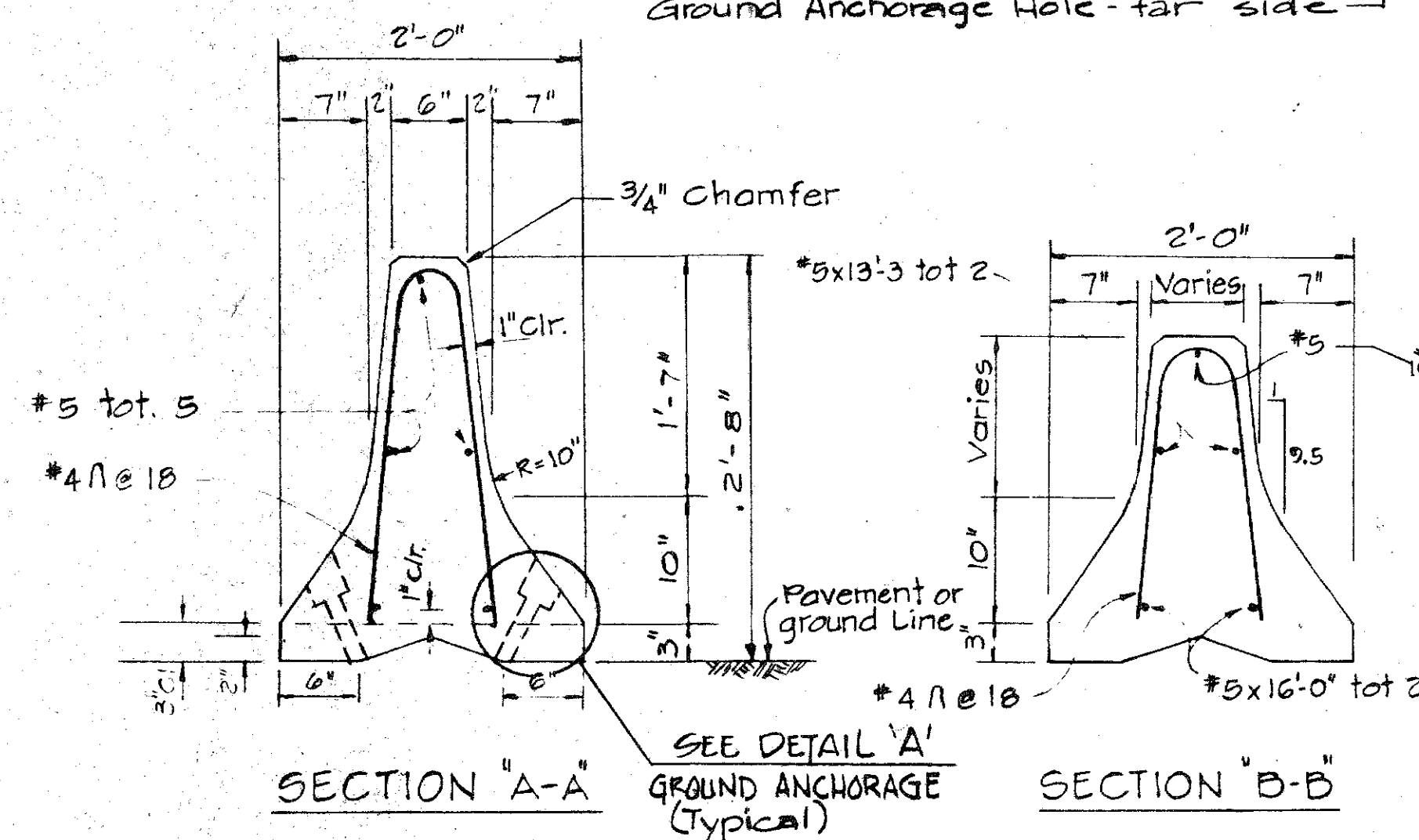
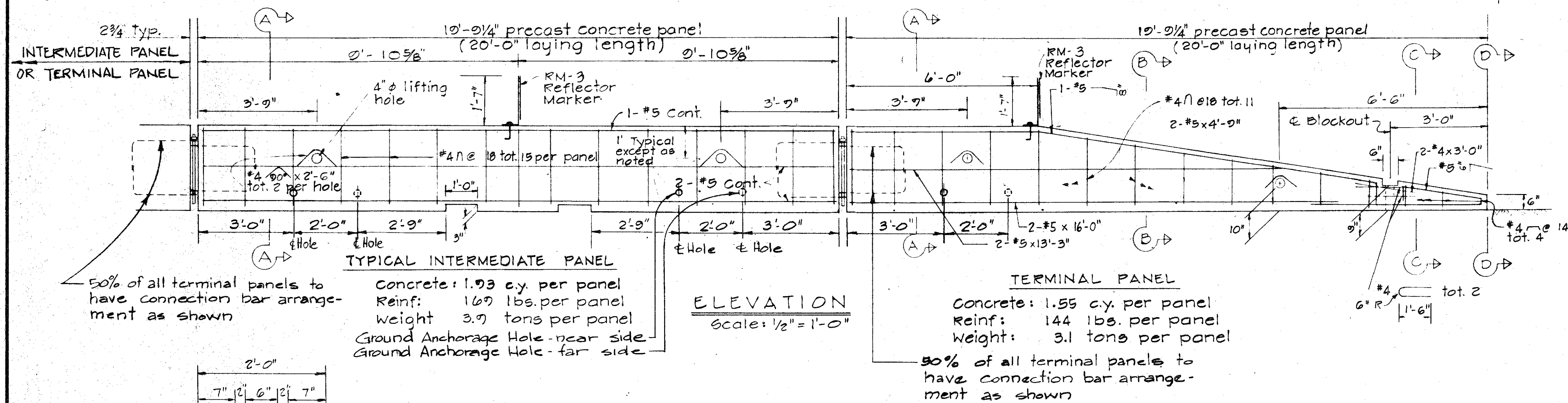
BREAKAWAY CABLE TERMINAL (BCT)

Scale: As Shown Date: June 1978

SHEET No. 8 OF 19 SHEETS DT 519

FILE	POCKET	FOLDER	NO.
9	13	2	26

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HES-063- 1(12)	1980	27	44

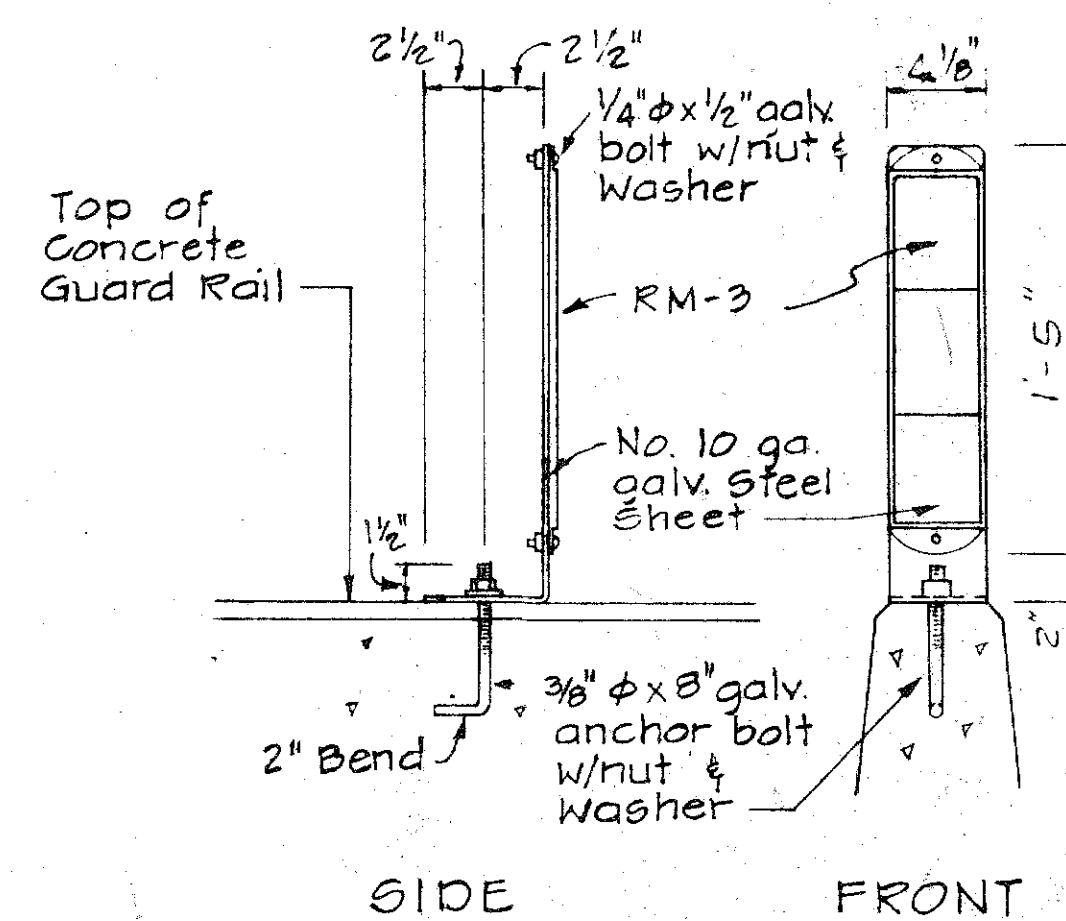
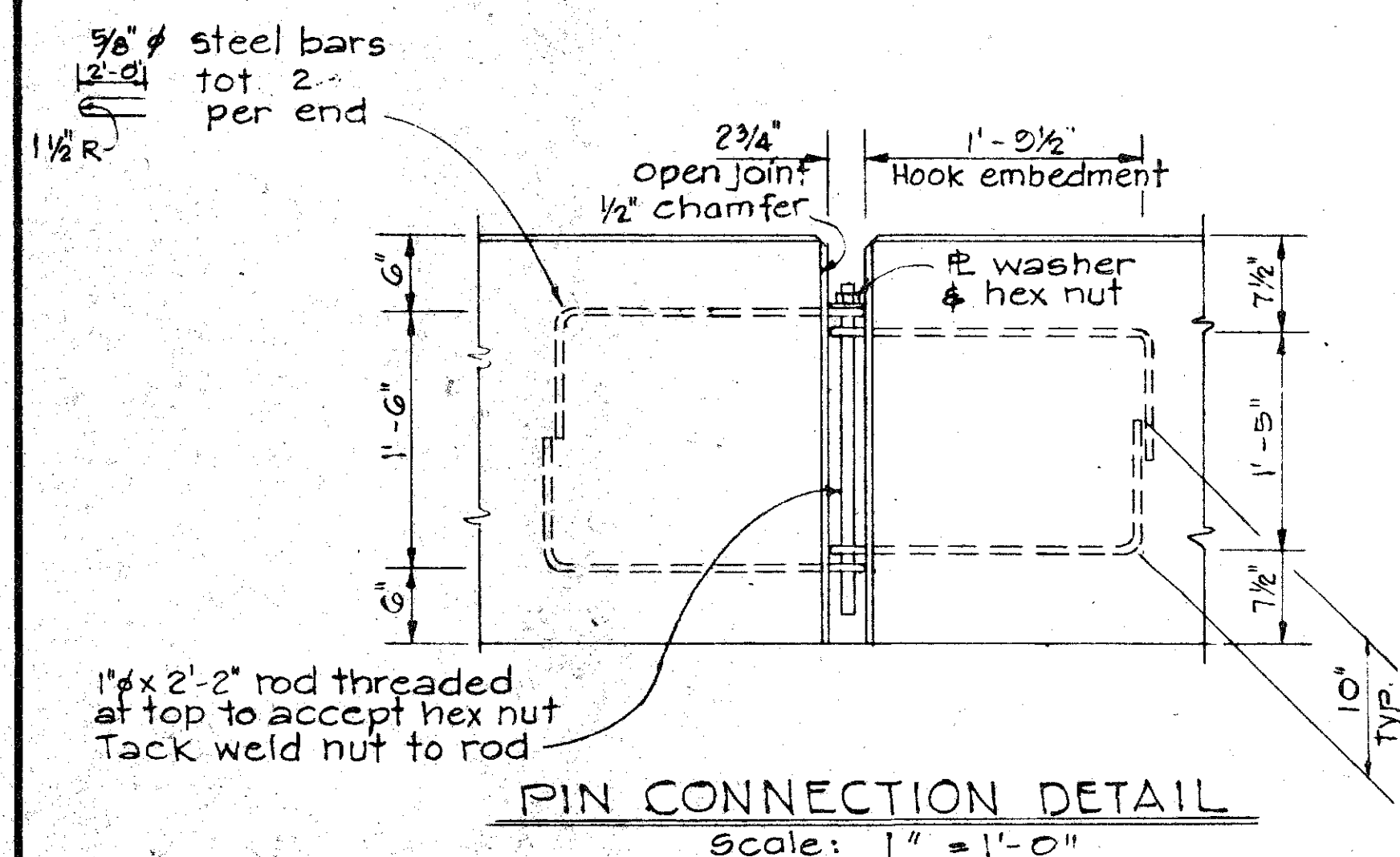


- ### NOTES
1. For details not shown in Sections BB, C-C, & D-D, see Section A-A
 2. Reflector Marker shall not be paid for separately but shall be considered incidental to "Portable Concrete Guard Rail."
 3. Concrete shall be Class "A".
 4. All bolts to have cut washers unless otherwise noted.

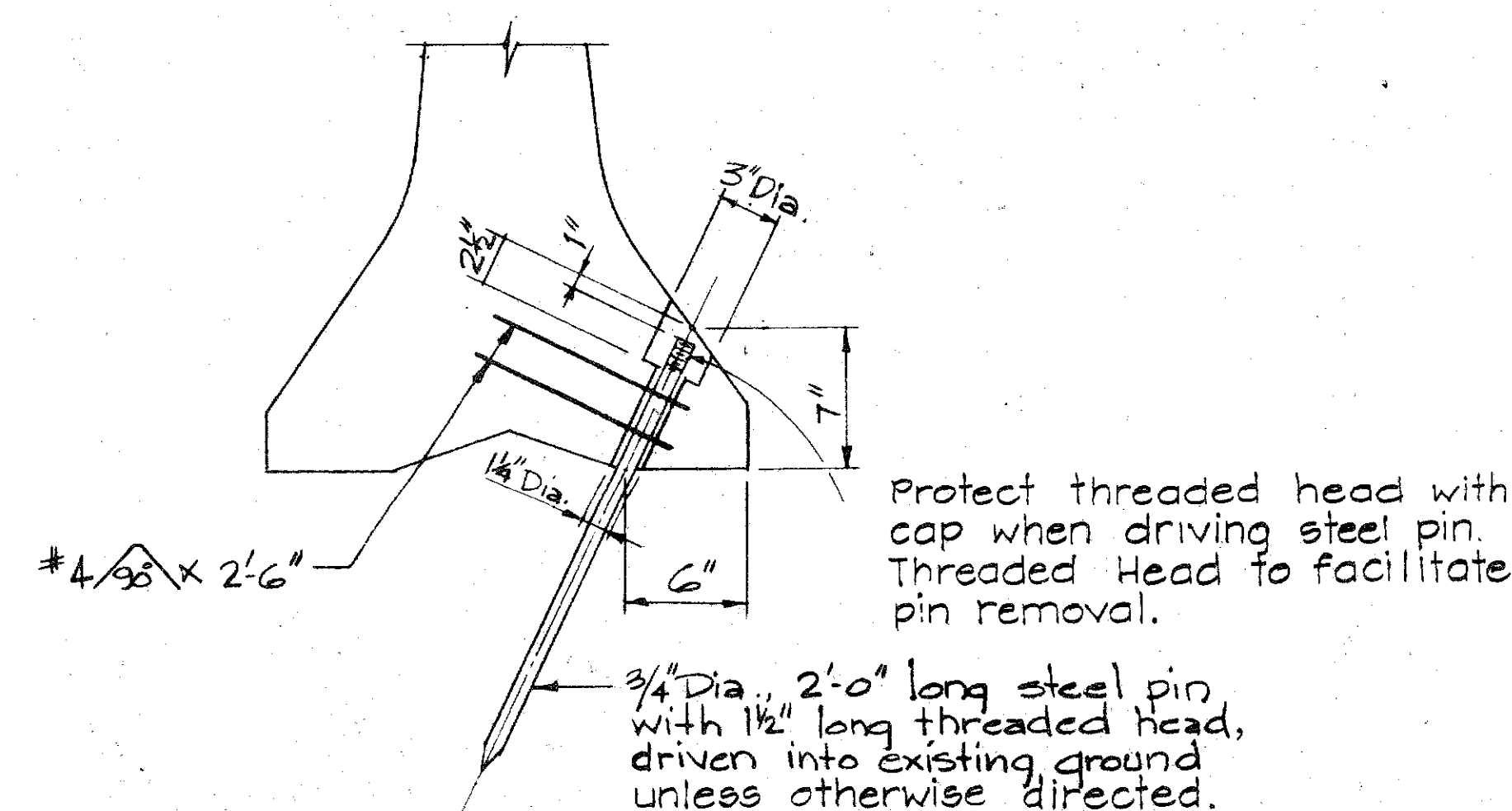
GROUND ANCHORAGE FOR
RAMPED END OF TERMINAL PANEL
Scale: $\frac{1}{2}'' = 1' = 0''$

SECTIONS

Scale: 1" = 1'-0"



REFLECTOR MARKER
MOUNTING DETAIL
Scale: $1\frac{1}{2}" = 1'-0"$

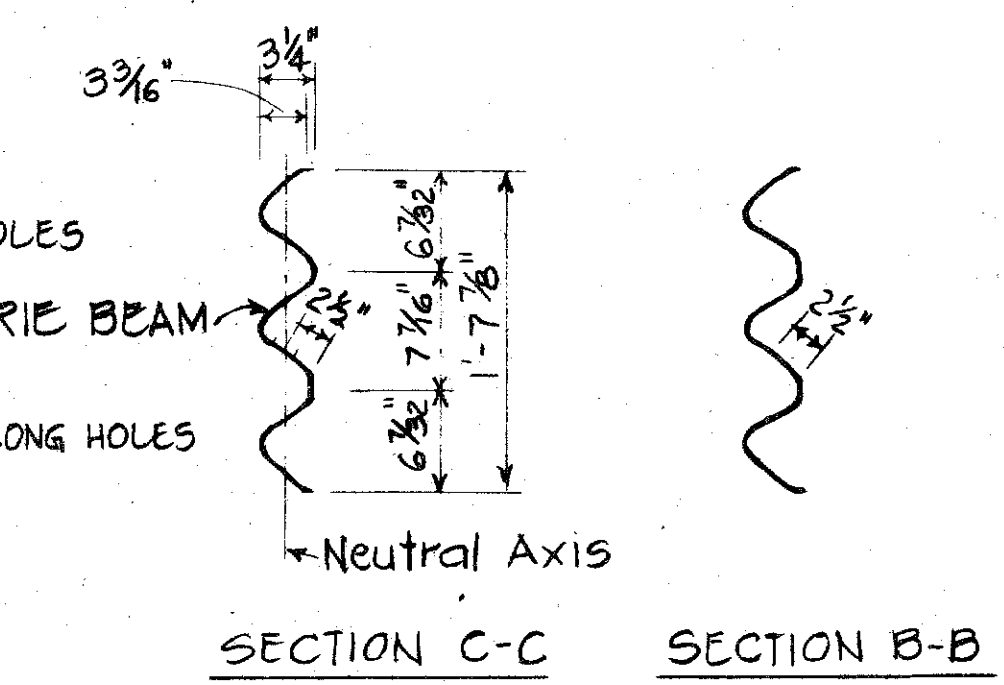
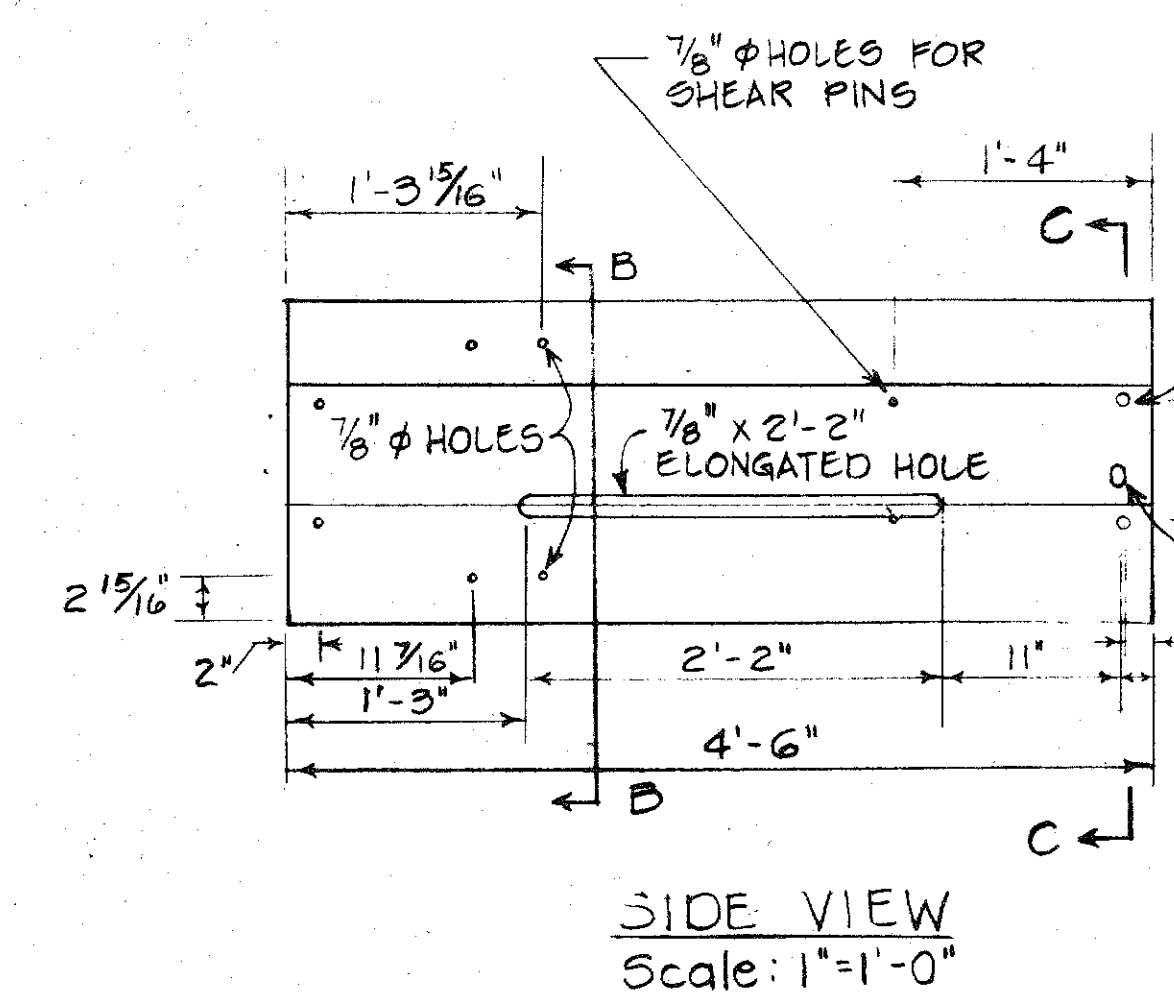
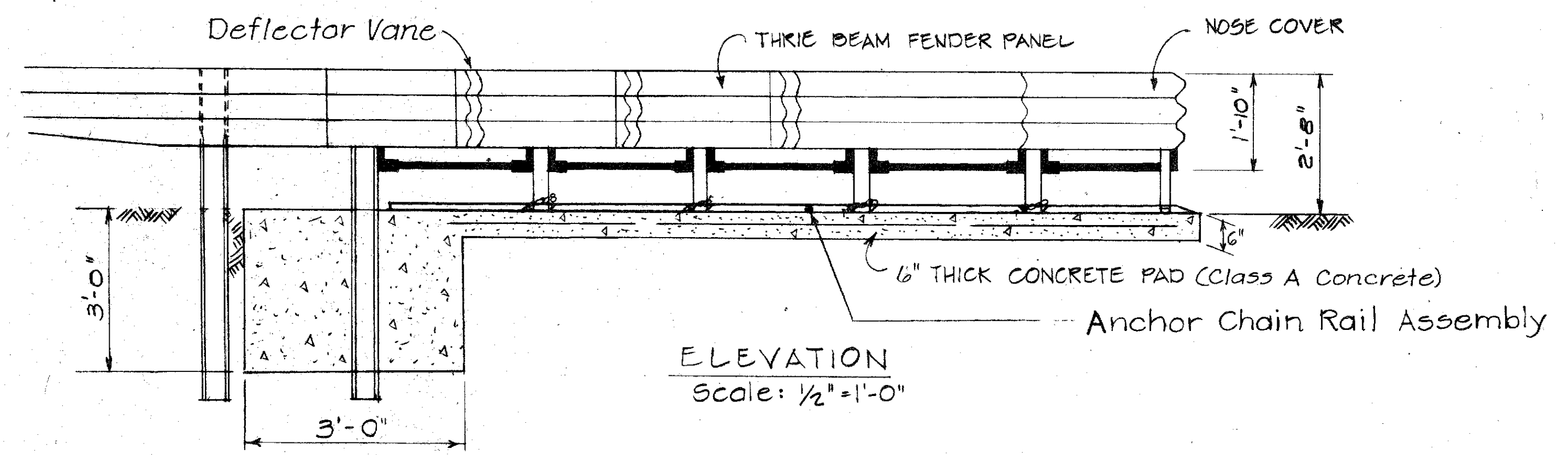
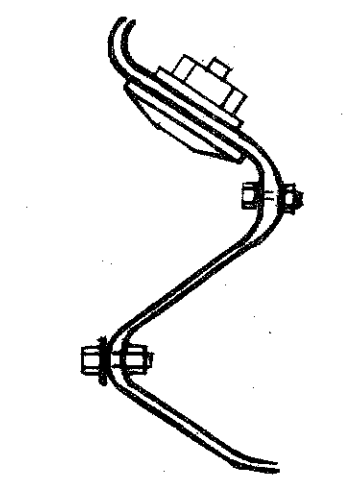
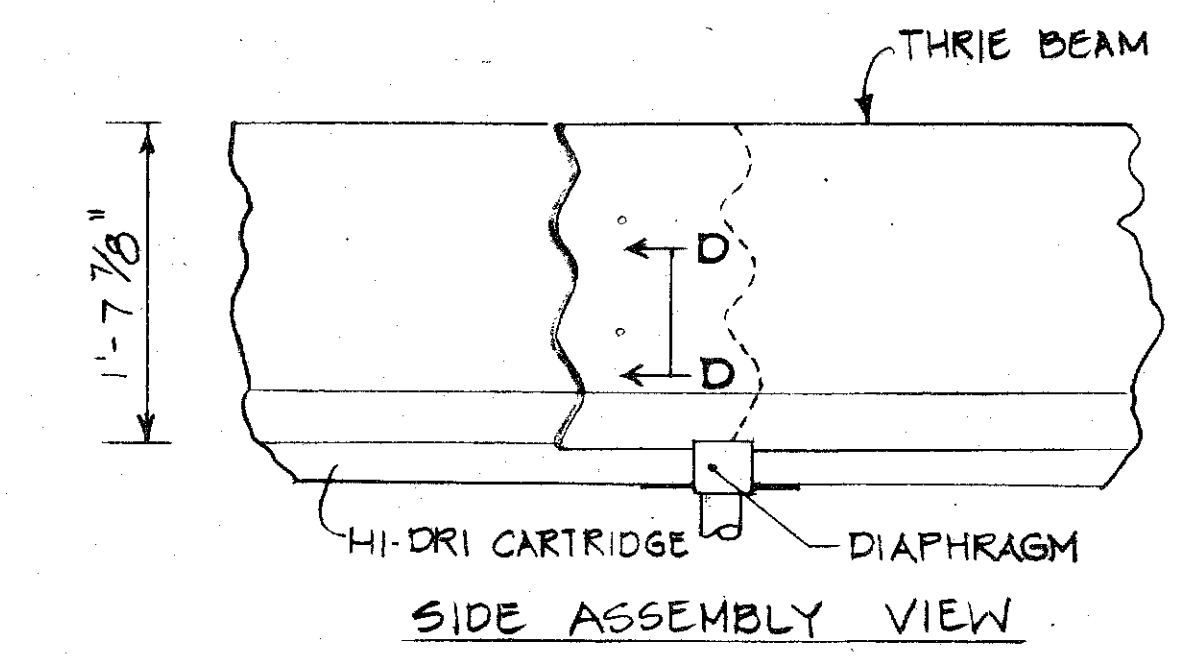
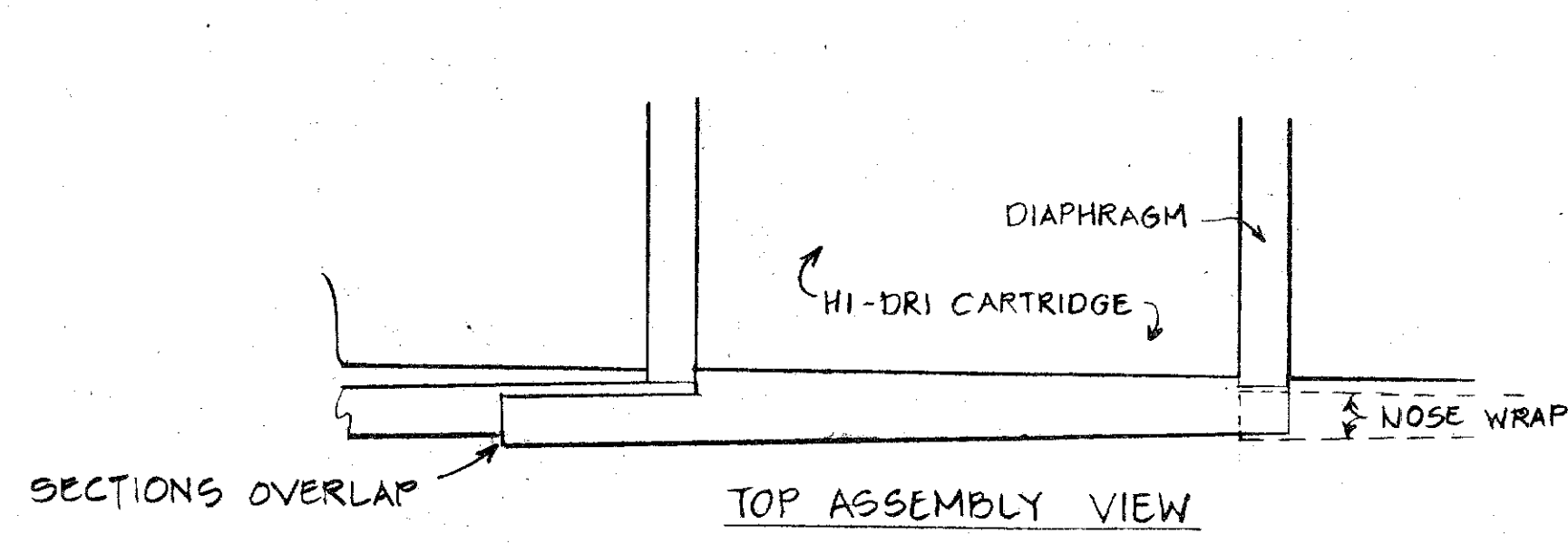
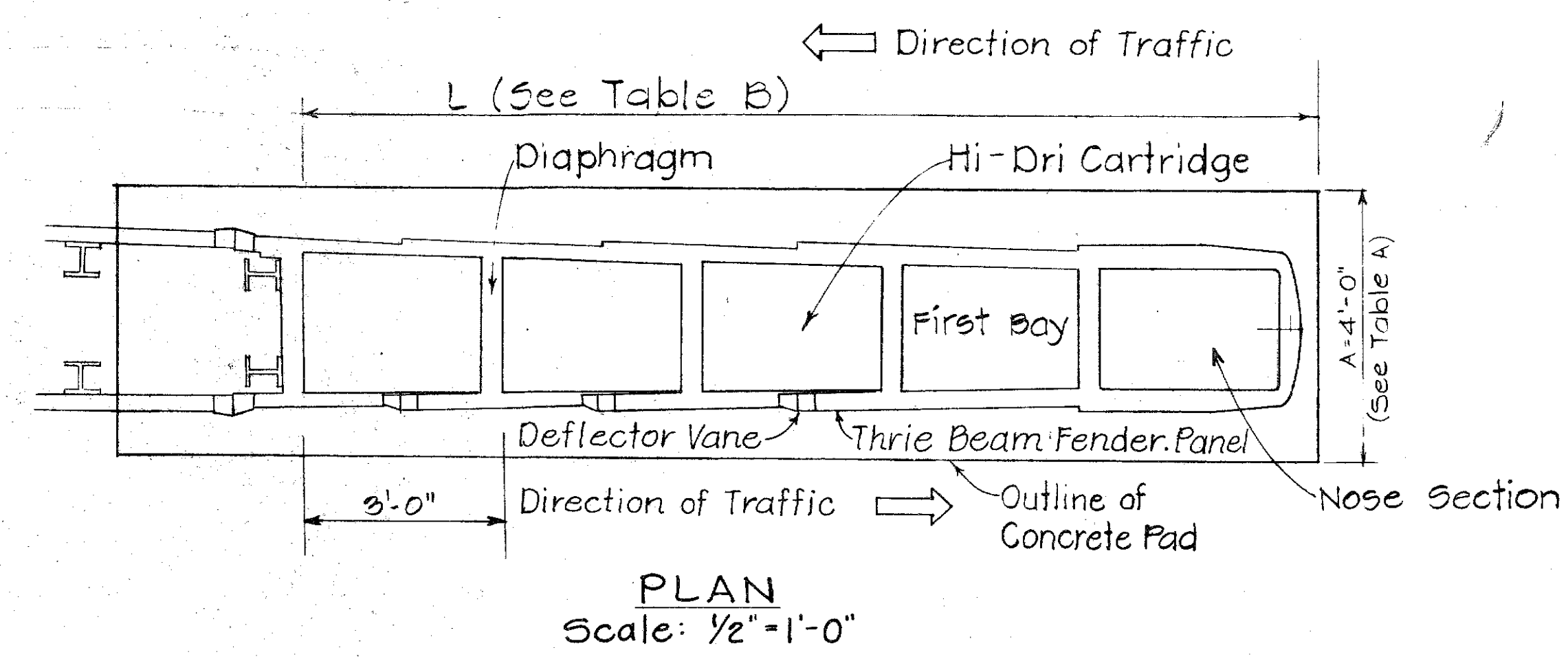


DETAIL A - GROUND ANCHORAGE
scale: $1\frac{1}{2}" = 1'-0"$

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

PORTABLE CONCRETE GUARD RAIL TYPICAL DETAILS

Scale: As Noted Date: _____
SHEET No. 9 OF 19 SHEETS



- NOTE:**
1. The Contractor shall verify with the manufacturer, any amendments or revisions thereof as may be made from time to time, shall be used in this project.
 2. Constant longitudinal and transverse slope throughout Concrete Pad.
 3. Concrete Pad cross slope shall not exceed 3%.
 4. Outline of concrete pad shall match grades with surrounding median area.

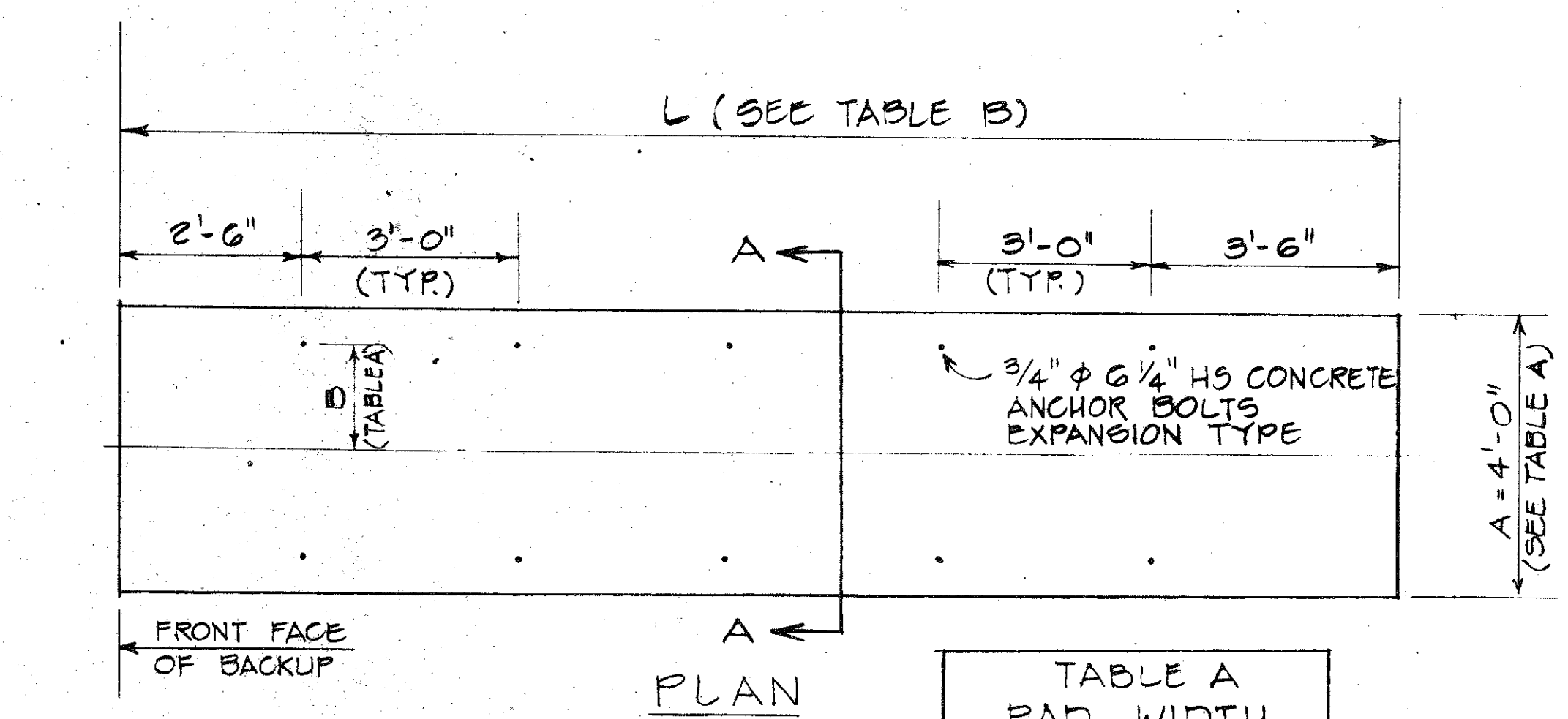
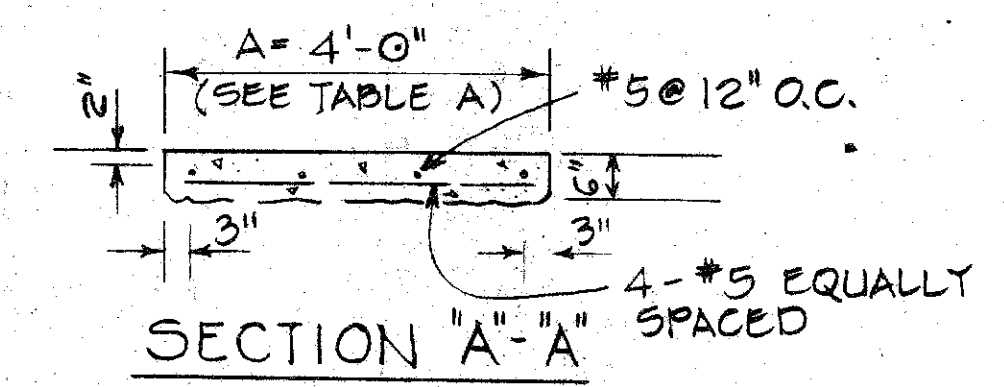
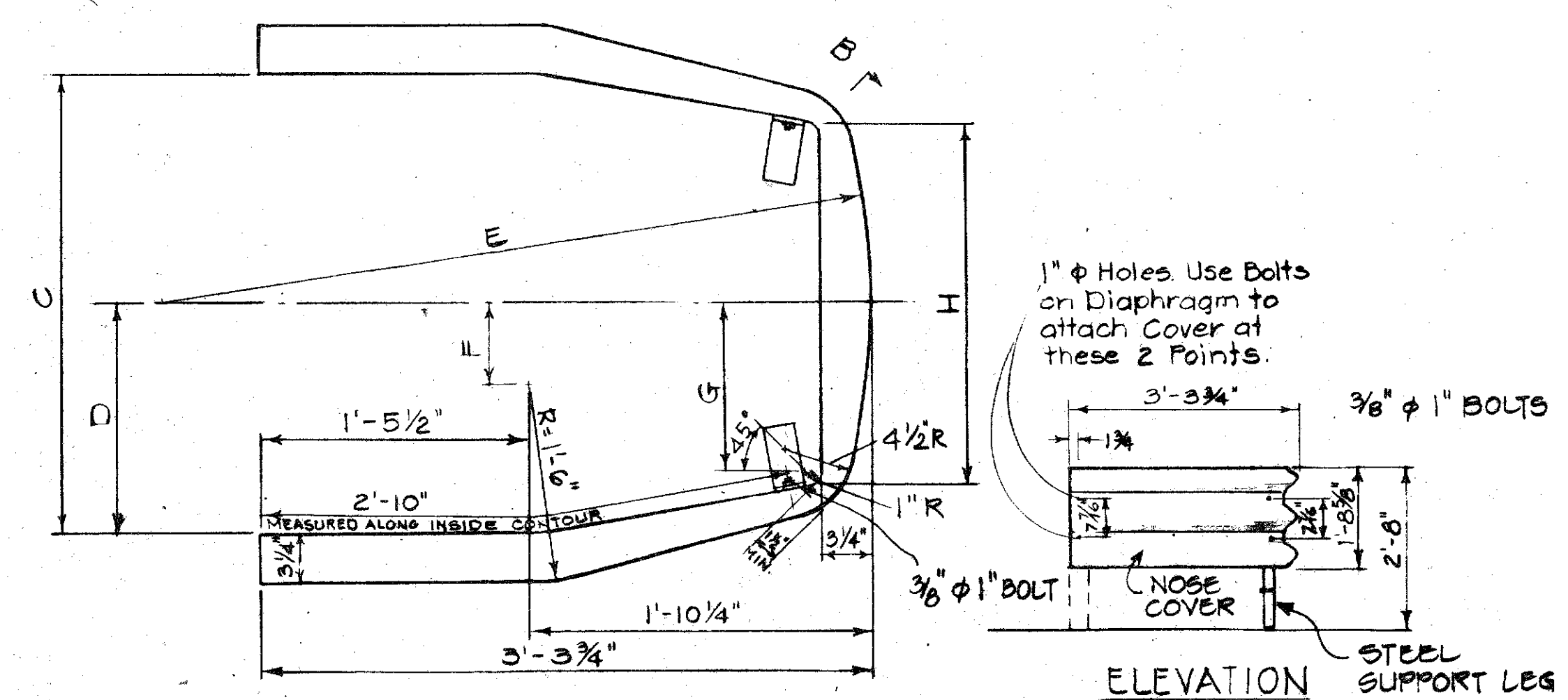


TABLE A PAD WIDTH		
MODEL NO.	A	B
200200	4'-0"	1'-0"
206206	4'-0"	1'-3"
300300	4'-0"	1'-6"

TABLE B PAD LENGTH		
NO. OF BAYS	L	ANCHOR BOLTS QUAN.
4	15'-6"	14
5	18'-6"	16
6	21'-6"	20
7	24'-6"	22
8	27'-6"	24
9	30'-6"	26
10	33'-6"	30
3	12'-6"	12



CONCRETE PAD DETAILS
Scale: 1/2" = 1'-0"



PLAN
N.T.S.

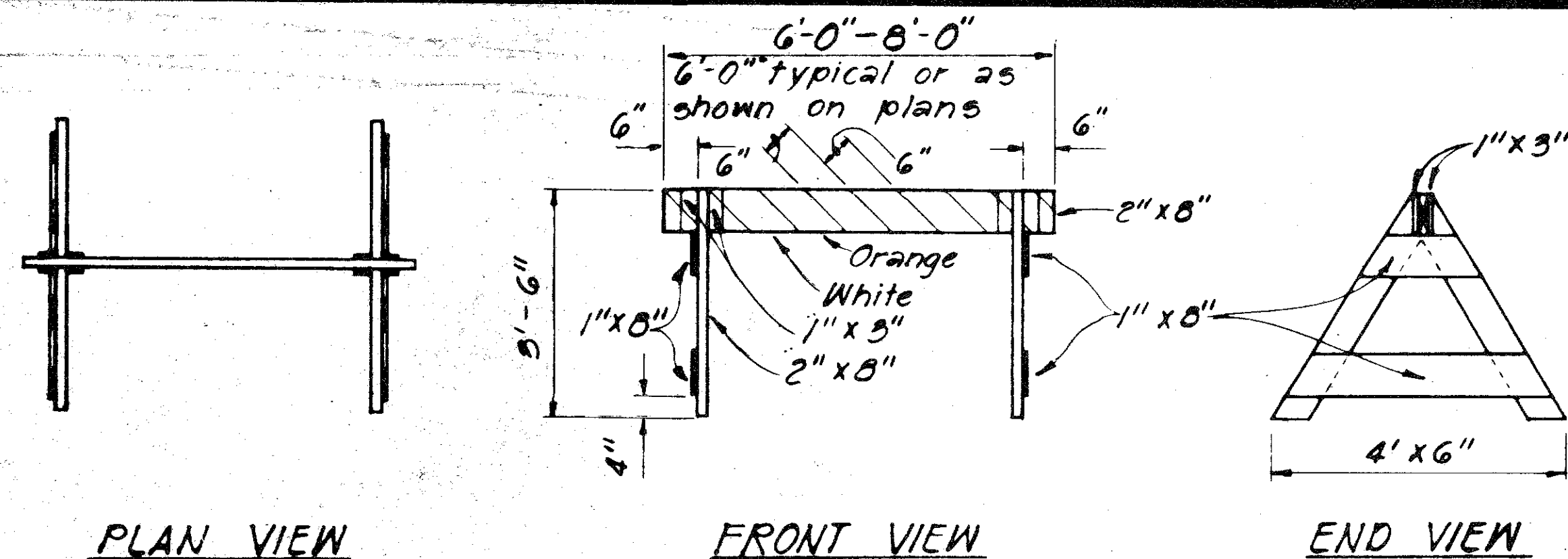
TABLE C							
UNIT SIZE	ASST. NO	C	D	E	F	G	H
2'-0"	35-02-031	2'-0"	1'-0"	2'-1 3/8"	3'-4"	8"	1'-6"
2'-6"	35-02-032	2'-6"	1'-3"	3'-10"	6'-4"	11"	2'-0"
3'-0"	35-02-032	2'-6"	1'-3"	3'-10"	6'-4"	11"	2'-0"

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
LAND TRANSPORTATION FACILITIES DIVISION

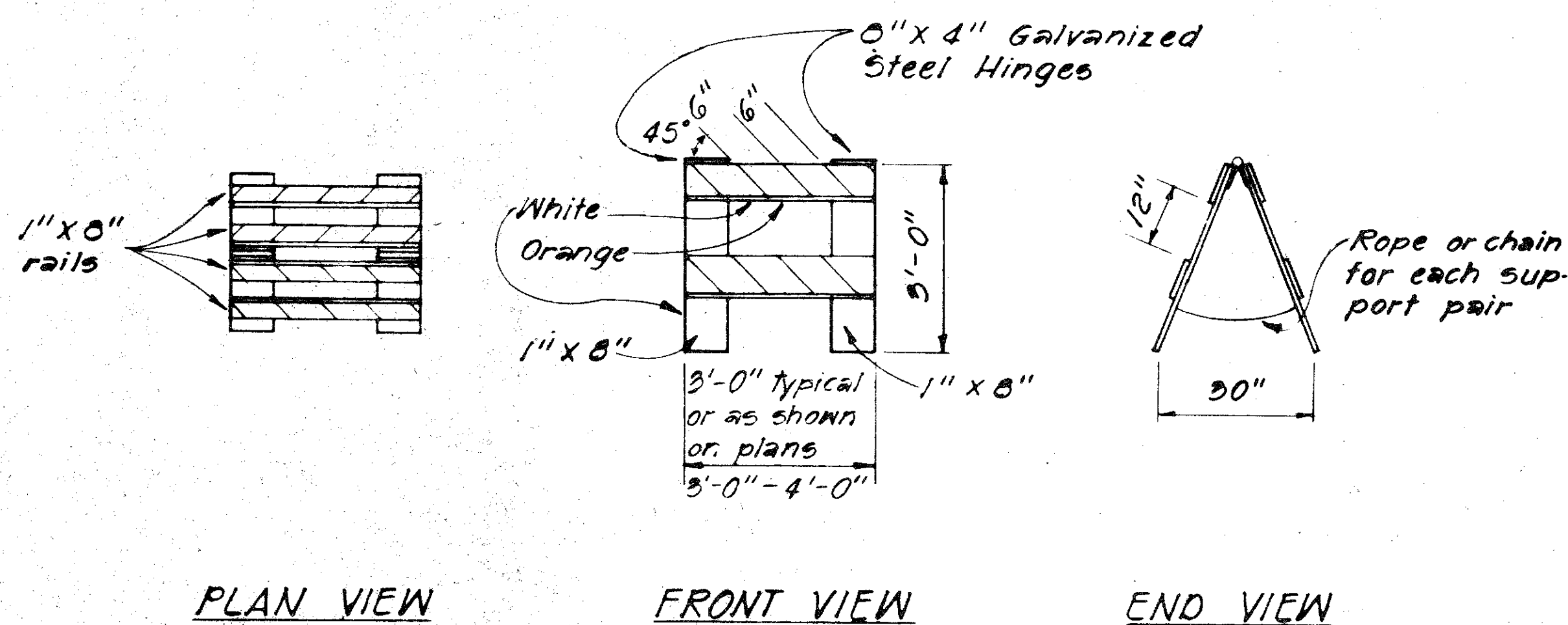
**DETAILS OF GUARD RAIL
ENERGY ABSORBING TERMINAL**

Scale: As Shown Date: 1978
SHEET NO. 10 OF 19 SHEETS

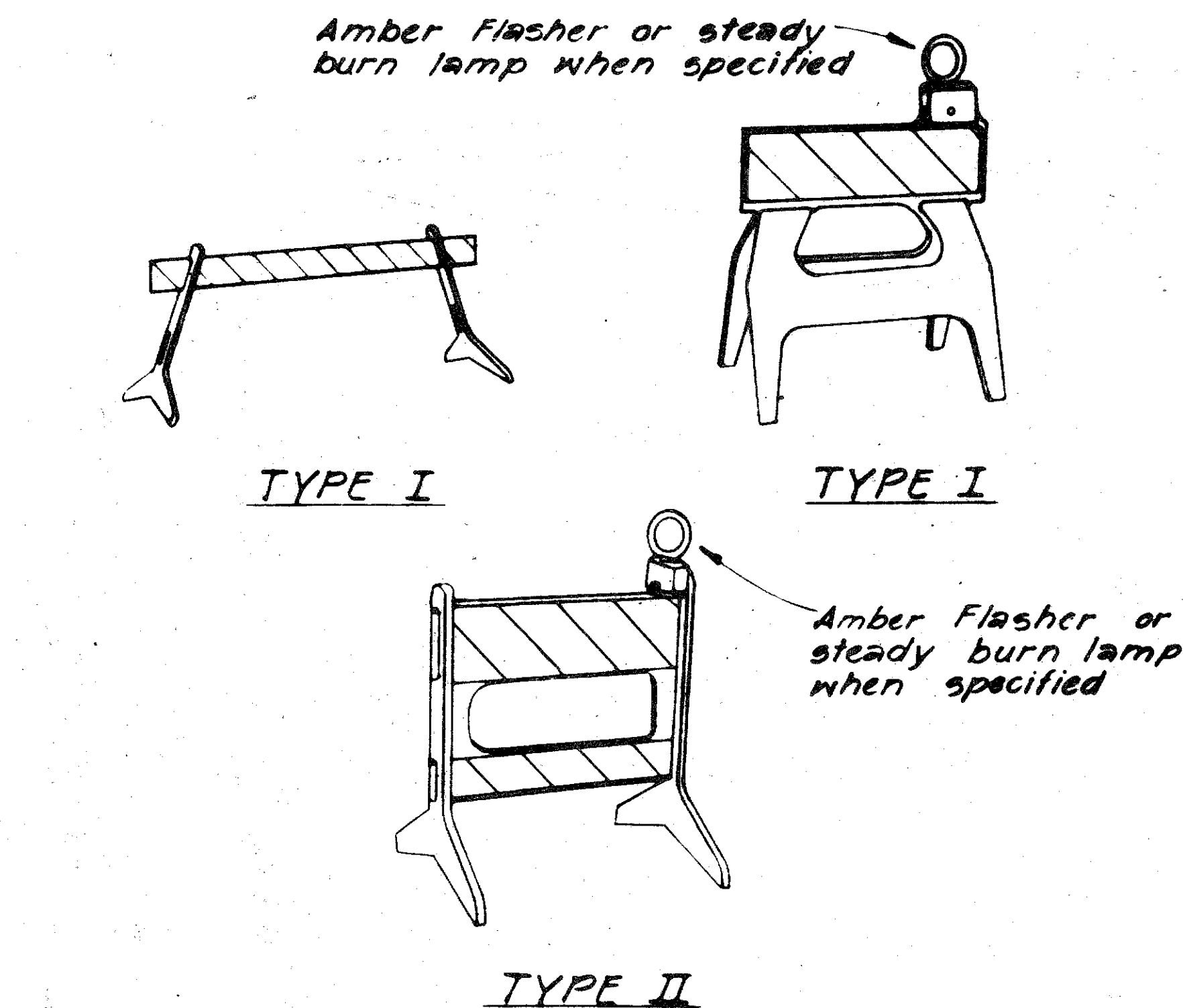
ORIGINAL SURVEY PLOTTED BY: DATE: _____
DESIGNED BY: _____
CHECKED BY: _____
NOTE BOOK QUANTITIES BY: _____
No. _____



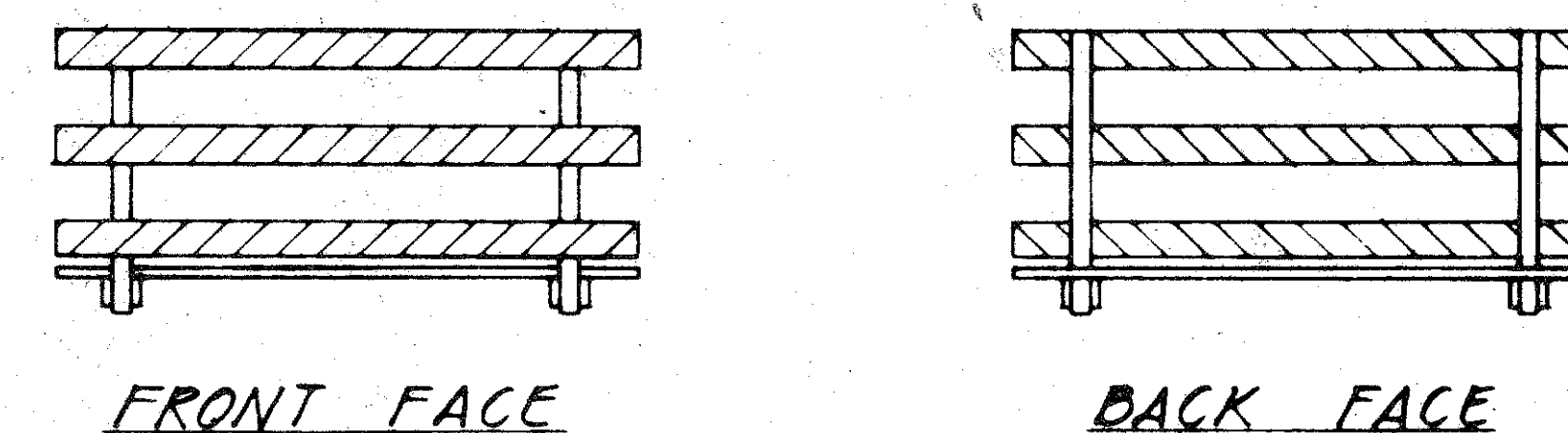
TYPE I BARRICADE
Scale: 1/2" = 1'-0"



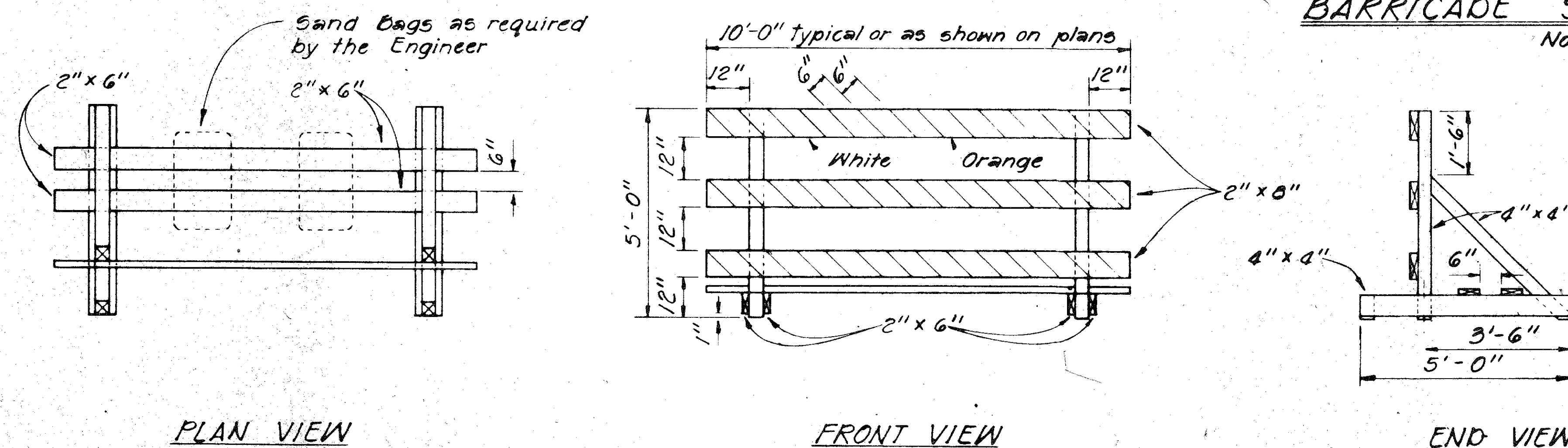
TYPE II BARRICADE
Scale: 1/2" = 1'-0"



PLASTIC MOLDED BARRICADE OPTIONS *
Not to Scale
* Shop Drawings must be submitted for approval.



BARRICADE STRIPING DETAILS
Not to Scale



TYPE III BARRICADE
Scale: 1/2" = 1'-0"

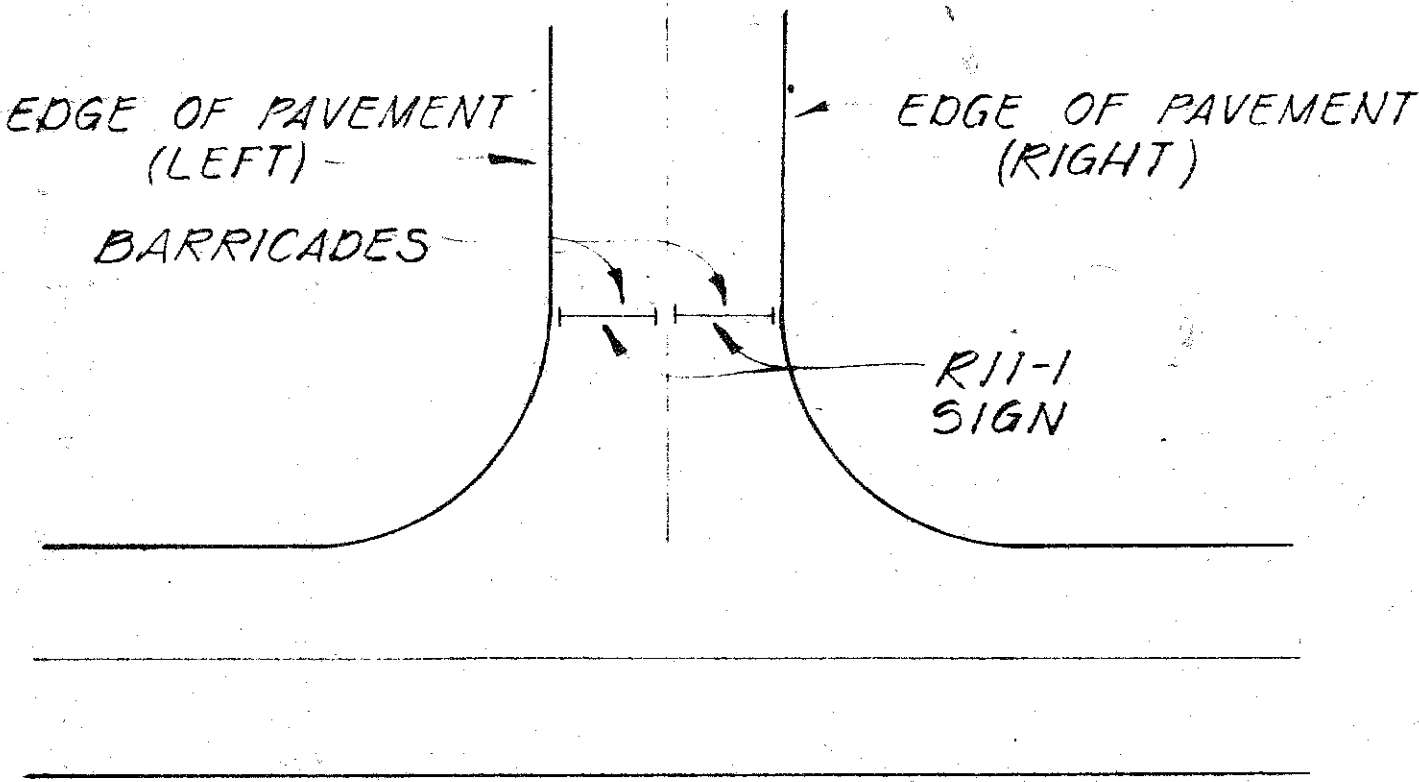
GENERAL NOTES

1. The Contractor shall construct, install and maintain the barricades at the locations shown on the Plans, or as when called for.
2. The barricades shall be left in place or relocated upon completion of the project as ordered by the Engineer and are to become State property, unless otherwise specified.
3. The orange and white stripes shall slant downward toward the side on which traffic is to pass and shall be reflectorized with reflective sheeting.
4. Both faces of the barricade rails shall be striped. See Striping Detail Arrangement.
5. Contractor may submit alternate designs for approval.
6. Barricade details shall conform to the "Manual on Uniform Traffic Control Devices for Streets and Highways," 1971, by the Federal Highway Administration and as amended.
7. If wooden rails are used, 26 ga. galv. steel sheet shall be first tacked on to the rails and then overlaid with reflective sheeting.

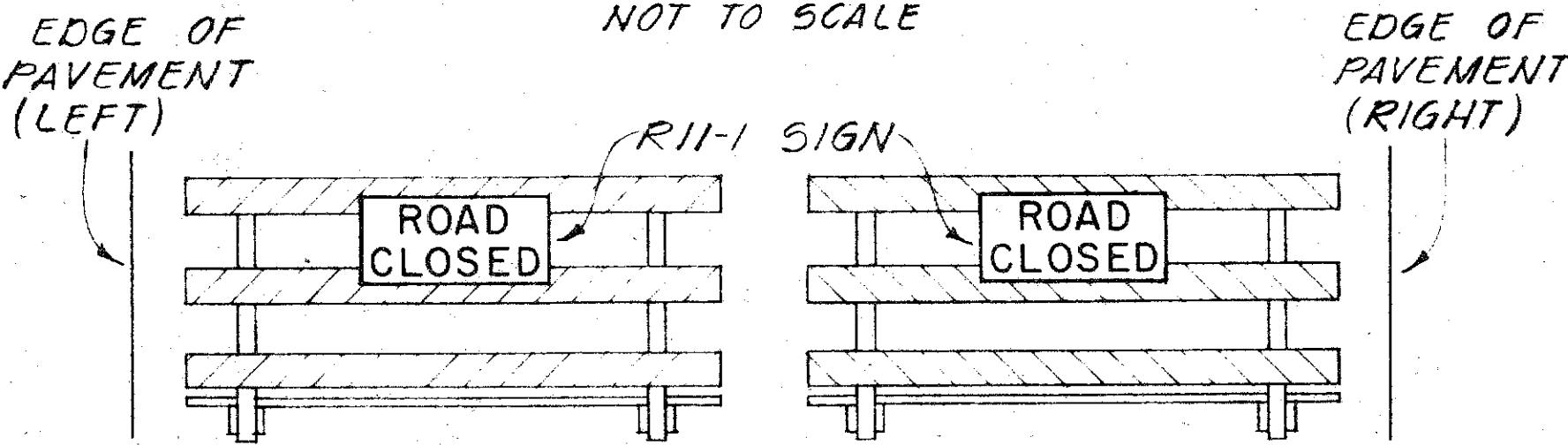
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HES-063-1(12)	1980	30	44

GENERAL NOTES

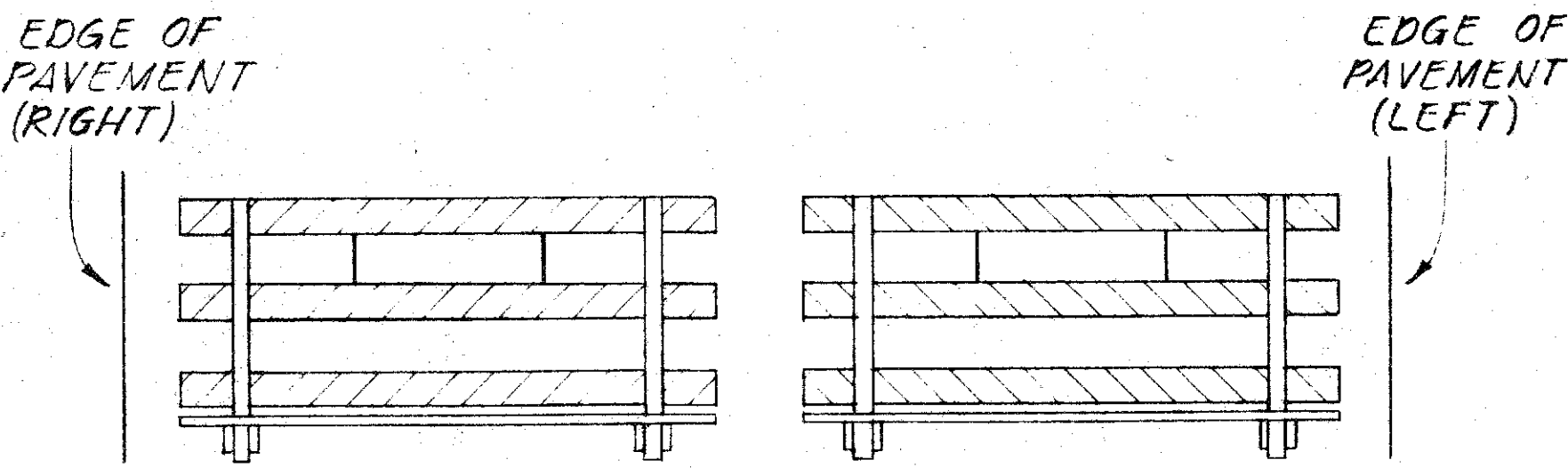
- Barricade Type, Placement, and Arrangement shall be as shown on the Construction Plans or as when called for.



ROADWAY CLOSED NOT TO SCALE

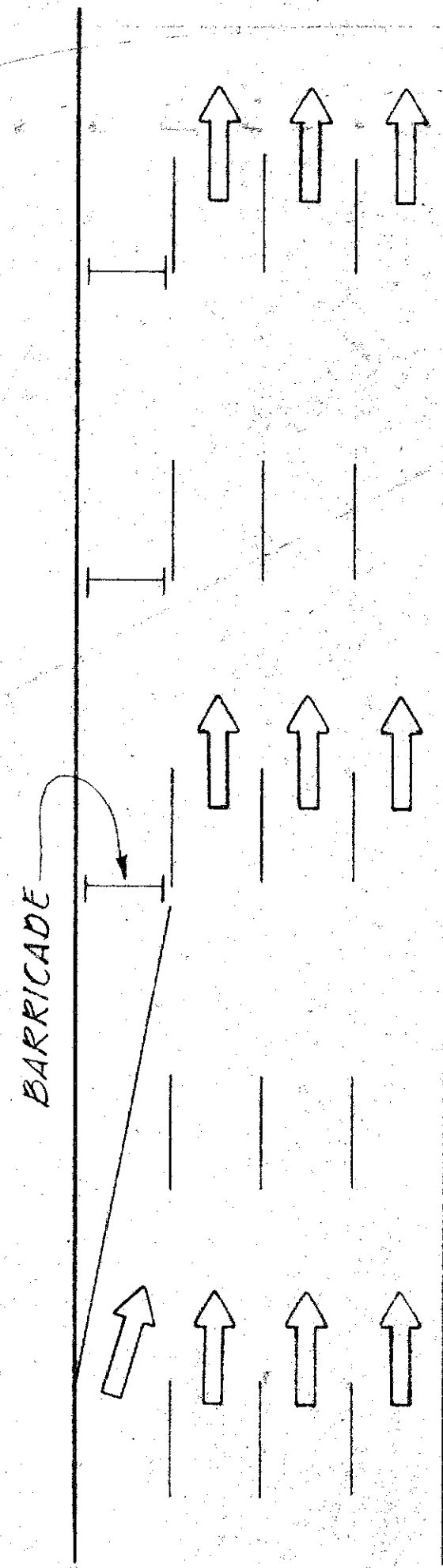


FRONT VIEW

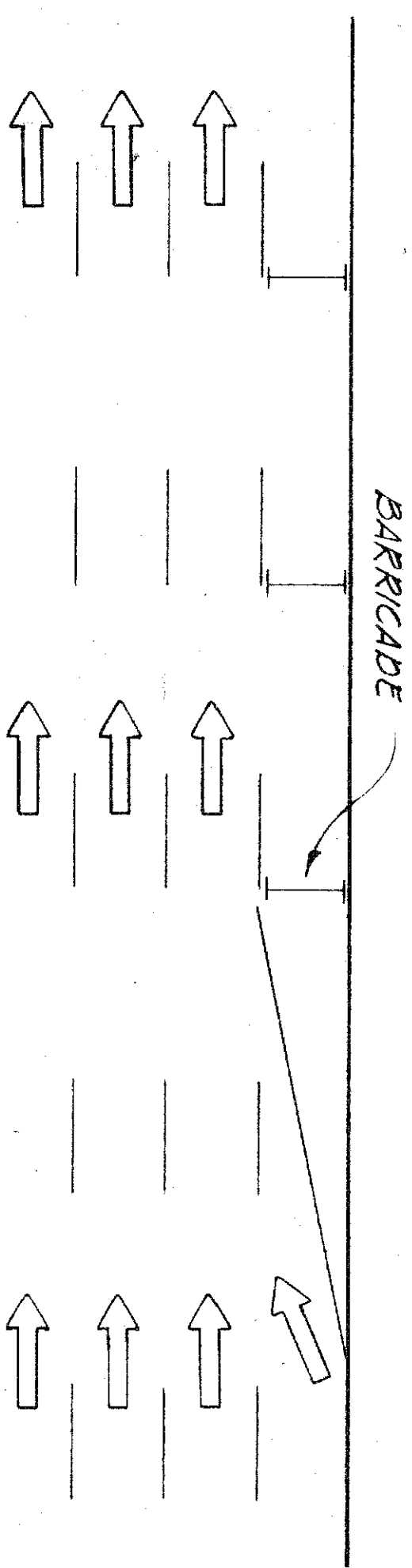


BACK VIEW

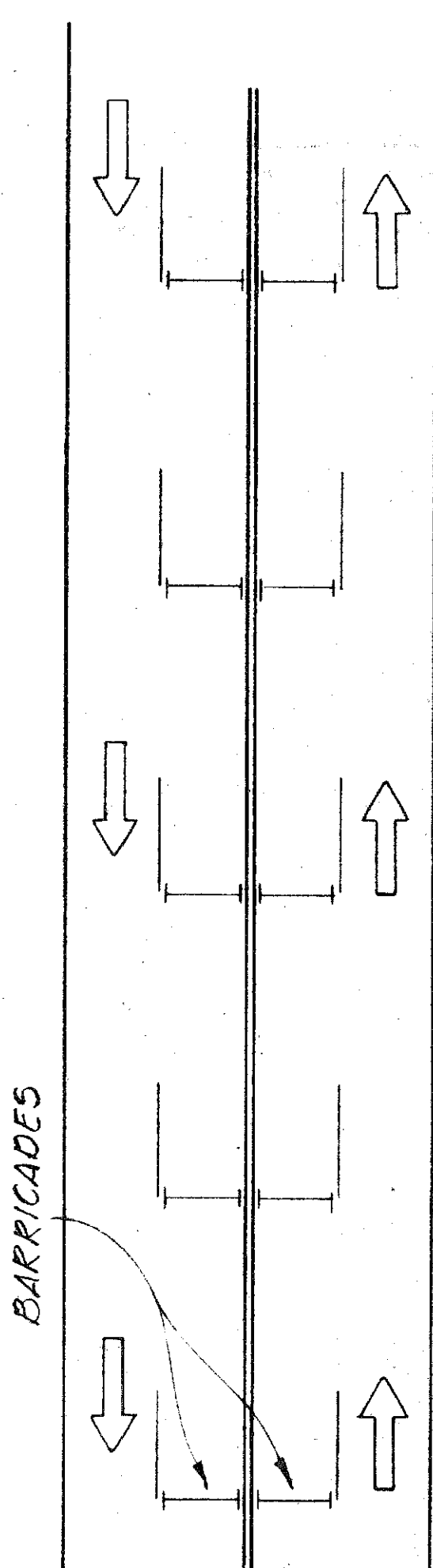
BARRICADE STRIPING ARRANGEMENT NOT TO SCALE



ROADWAY DELINEATION TO THE RIGHT
NOT TO SCALE

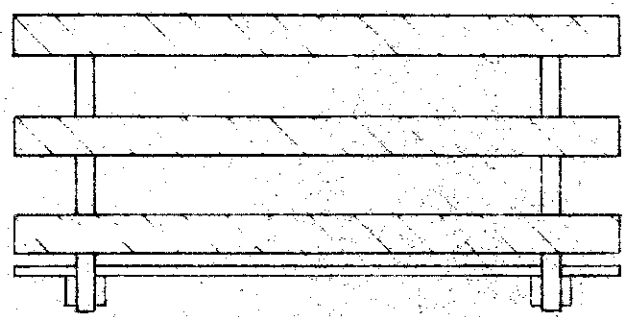


ROADWAY DELINEATION TO THE LEFT
NOT TO SCALE



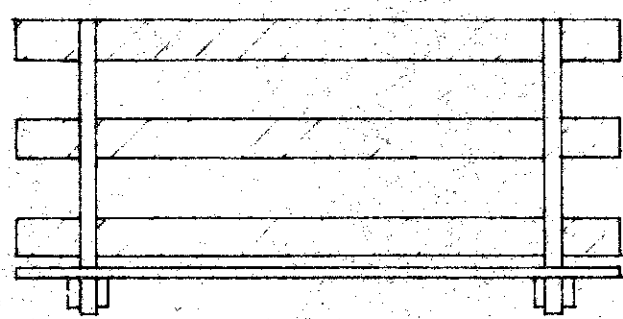
ROADWAY DELINEATION FOR 2-WAY TRAFFIC
NOT TO SCALE

Roadway Travelway Edge



FRONT VIEW

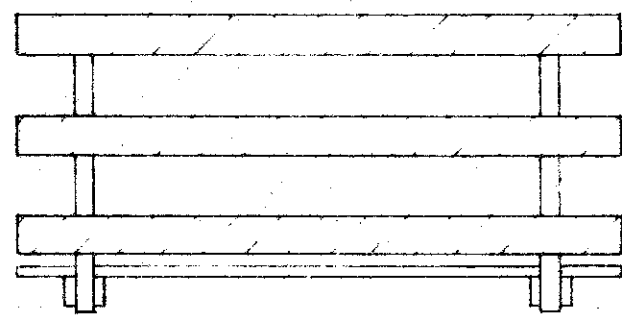
Roadway Travelway Edge



BACK VIEW

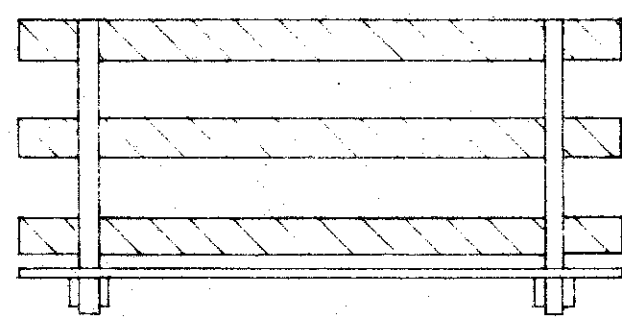
BARRICADE STRIPING ARRANGEMENT
NOT TO SCALE

Roadway Travelway Edge



FRONT VIEW

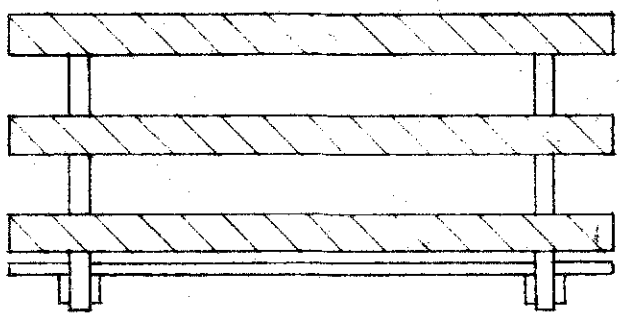
Roadway Travelway Edge



BACK VIEW

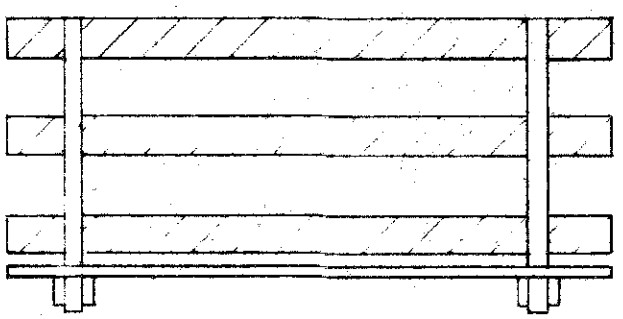
BARRICADE STRIPING ARRANGEMENT
NOT TO SCALE

Roadway Travelway Edge



FRONT VIEW

Roadway Travelway Edge



BACK VIEW

BARRICADE STRIPING ARRANGEMENT
NOT TO SCALE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TYPICAL DETAILS BARRICADE STRIPING DETAILS

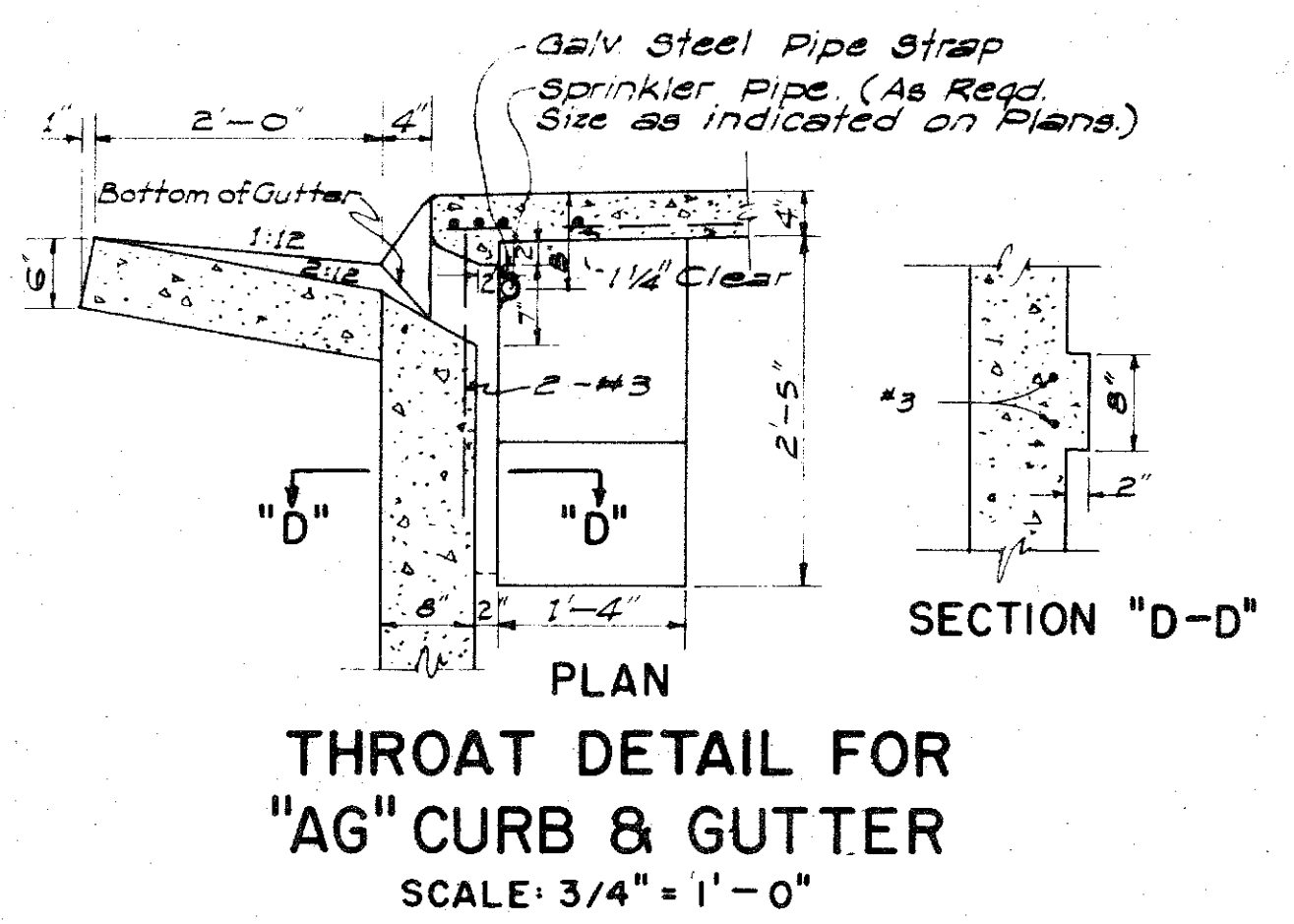
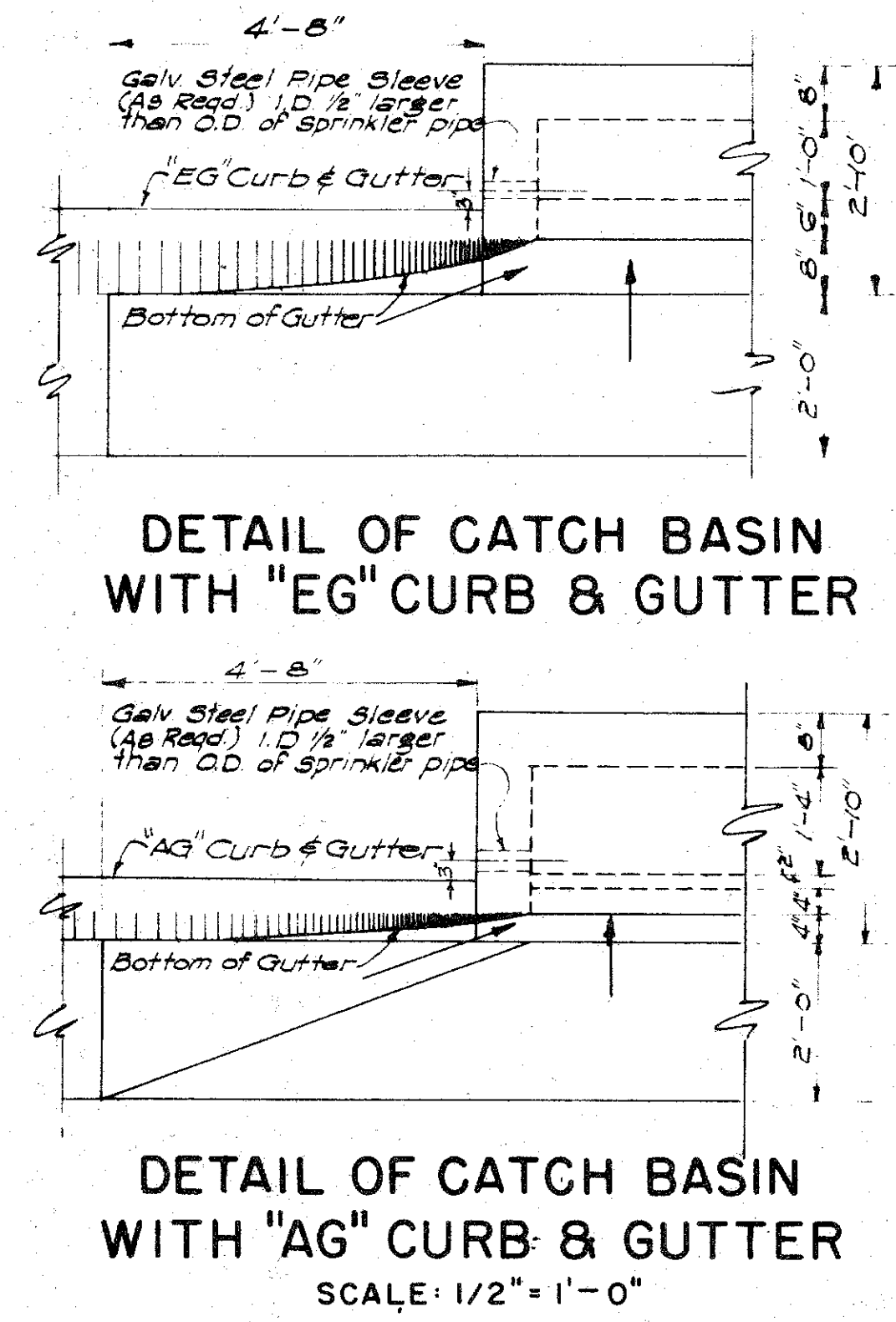
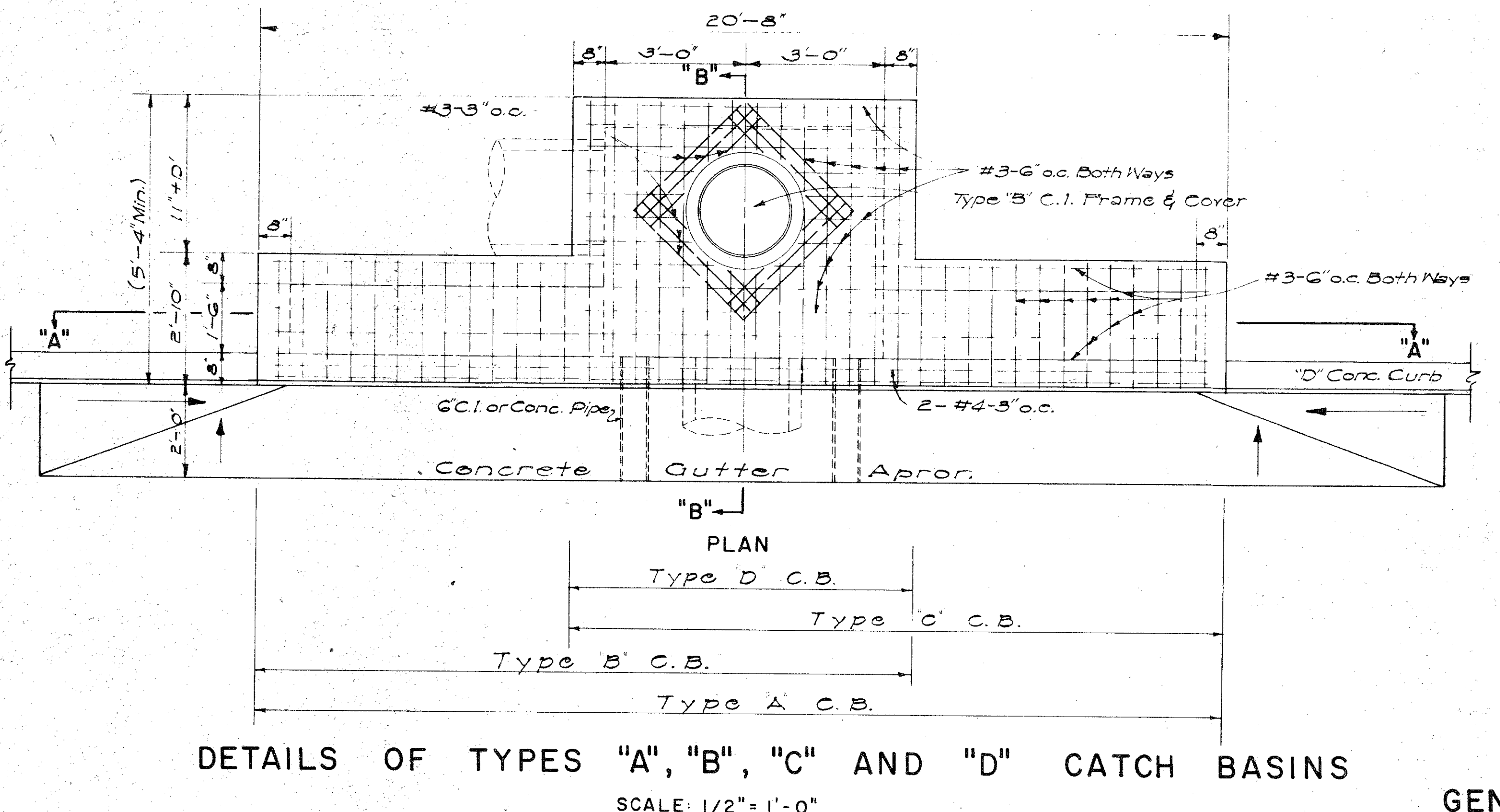
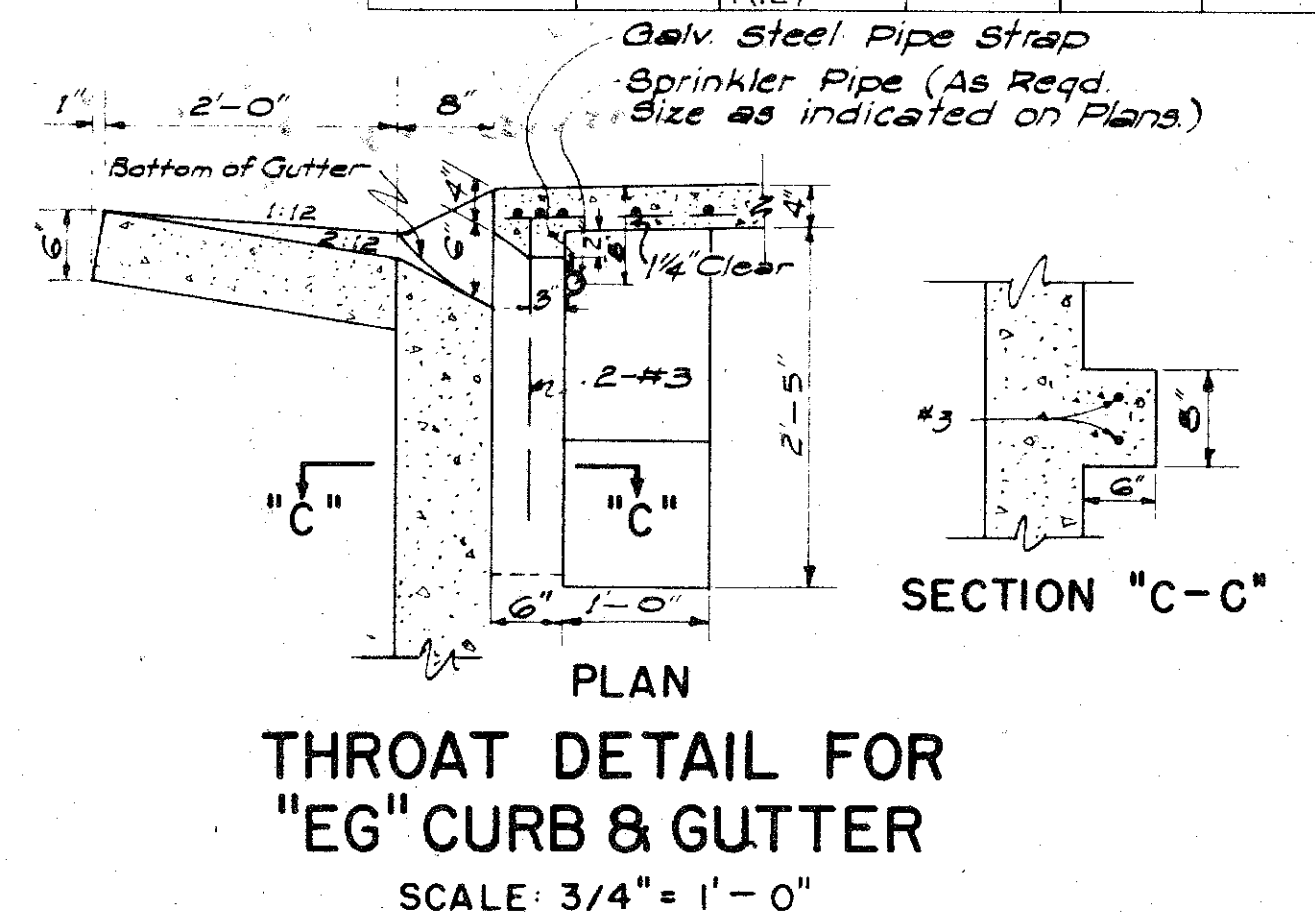
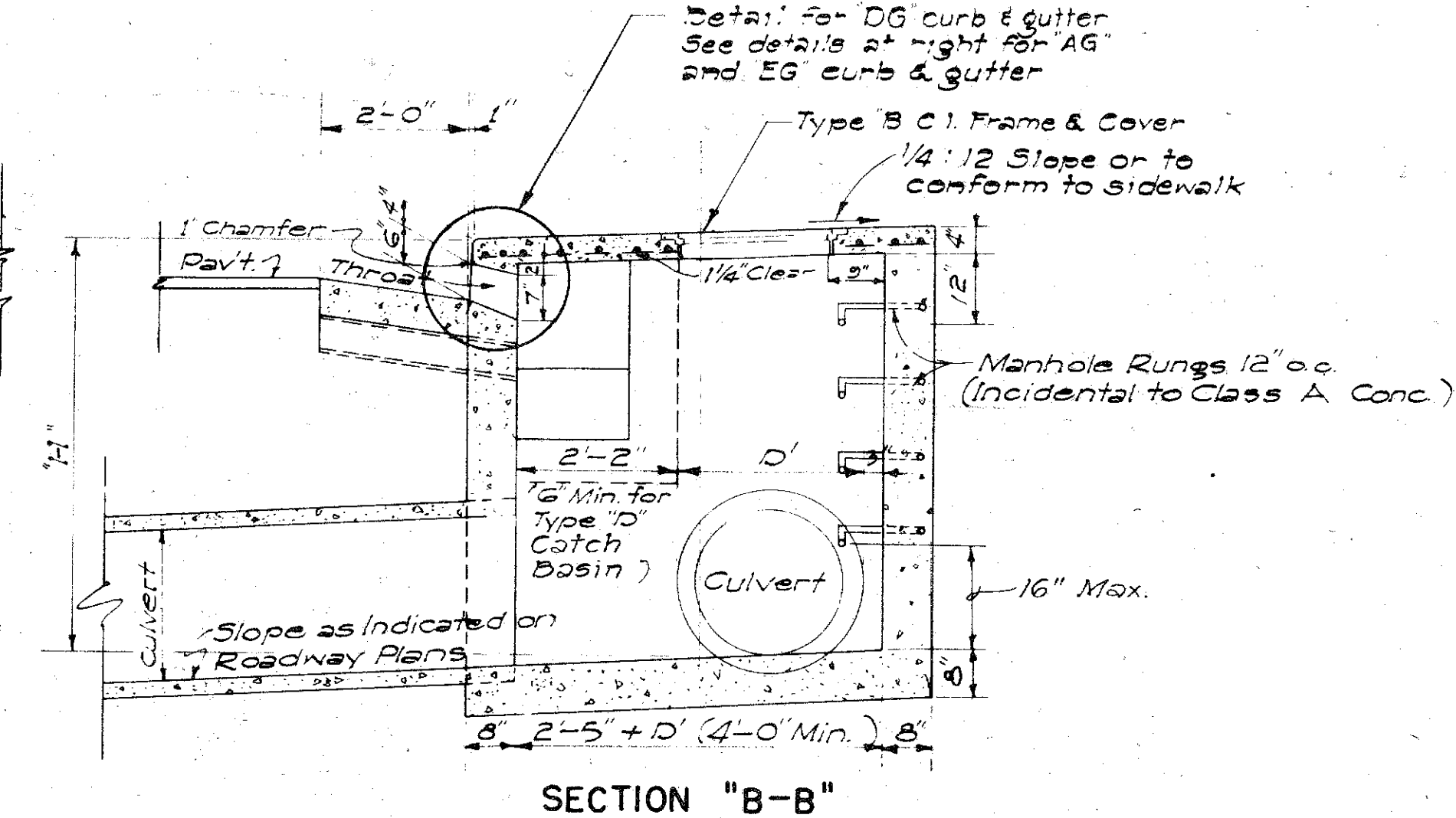
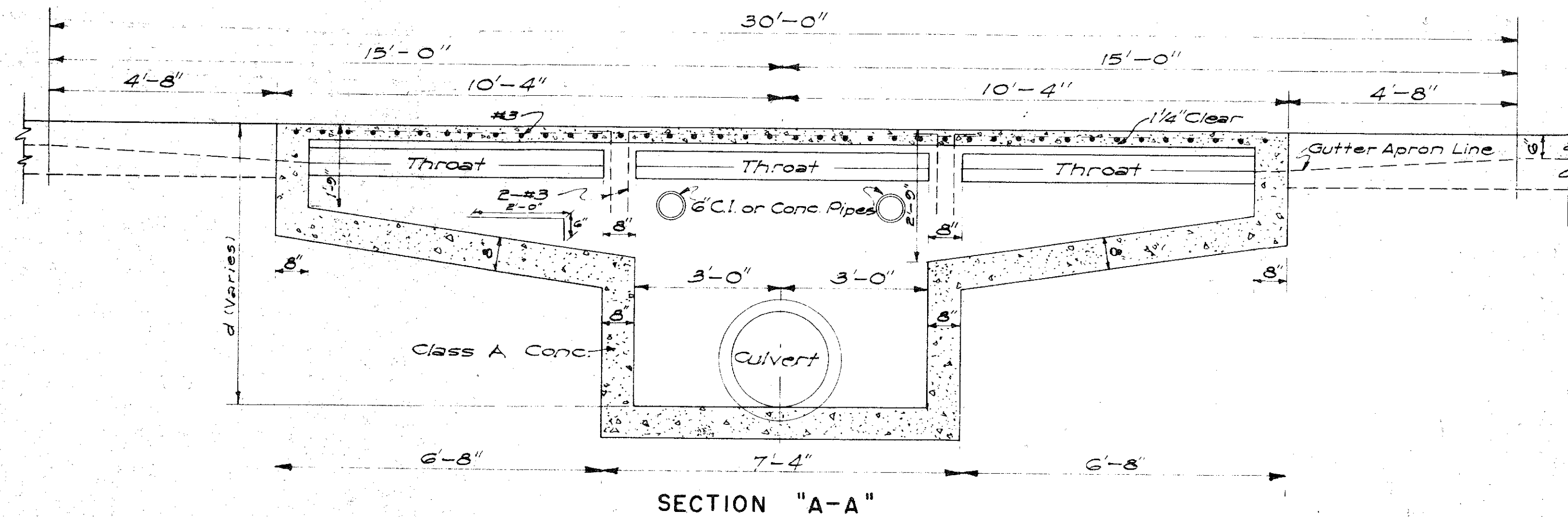
SHEET No. 12 OF 19 SHEETS

FILE	POCKET	FOLDER	NO.
2	13	7	30

DATE	_____
SURVEY PLOTTED BY	_____
DRAWN BY	_____
DESIGNED BY	_____
CHECKED BY	_____
NO.	_____

2/17/59

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW	HES-063-1(12)	1980	31	44



GENERAL NOTES

1. Quantities based on d = 5.75' and D = 30".
2. Quantities do not include concrete for Gutter Apron.
3. The Contractor shall install two 6" Cast Iron or Concrete Pipes as incidental to Class A Concrete for Construction Drainage. The Engineer shall determine the exact location in the field.
4. Culvert shall leave C.B. from any position and any direction indicated by plans or ordered by the Engineer. Culvert may both enter and leave C.B. so that C.B. will also act as Manhole.
5. The Contractor shall install Galvanized Steel Pipe Sleeves and Straps as incidental to Sprinkler System.
6. The type of curb and/or gutter (Type 1, 2, 3, etc.) shall conform to the type specified on the Roadway plans.
7. Manhole Rungs (12" o.c.) are required when "H" is greater than 4 feet 6 inches. Only one rung (16 inches from the bottom) is required if "H" is 4 feet 6 inches or less. Type "B" Cast Iron Frame and Cover and Manhole Rungs may be placed at any location as ordered by the Engineer.

ESTIMATED QUANTITIES

Type	Class A Conc.	Struct. Exc.	Reinf. Steel	Gutter Length
"A"	7.5 c.y.	24.7 c.y.	145 lb.	30'-0"
"B"	6.0 c.y.	21.5 c.y.	108 lb.	23'-4"
"C"	6.0 c.y.	21.5 c.y.	108 lb.	23'-4"
"D"	4.9 c.y.	16.5 c.y.	77 lb.	16'-8"

APPROVAL RECOMMENDED:
HYDRAULIC DESIGN ENGINEER
DATE: 12-17-69

APPROVED:
ASSISTANT CHIEF, ENGINEERING
DATE: 12-17-69

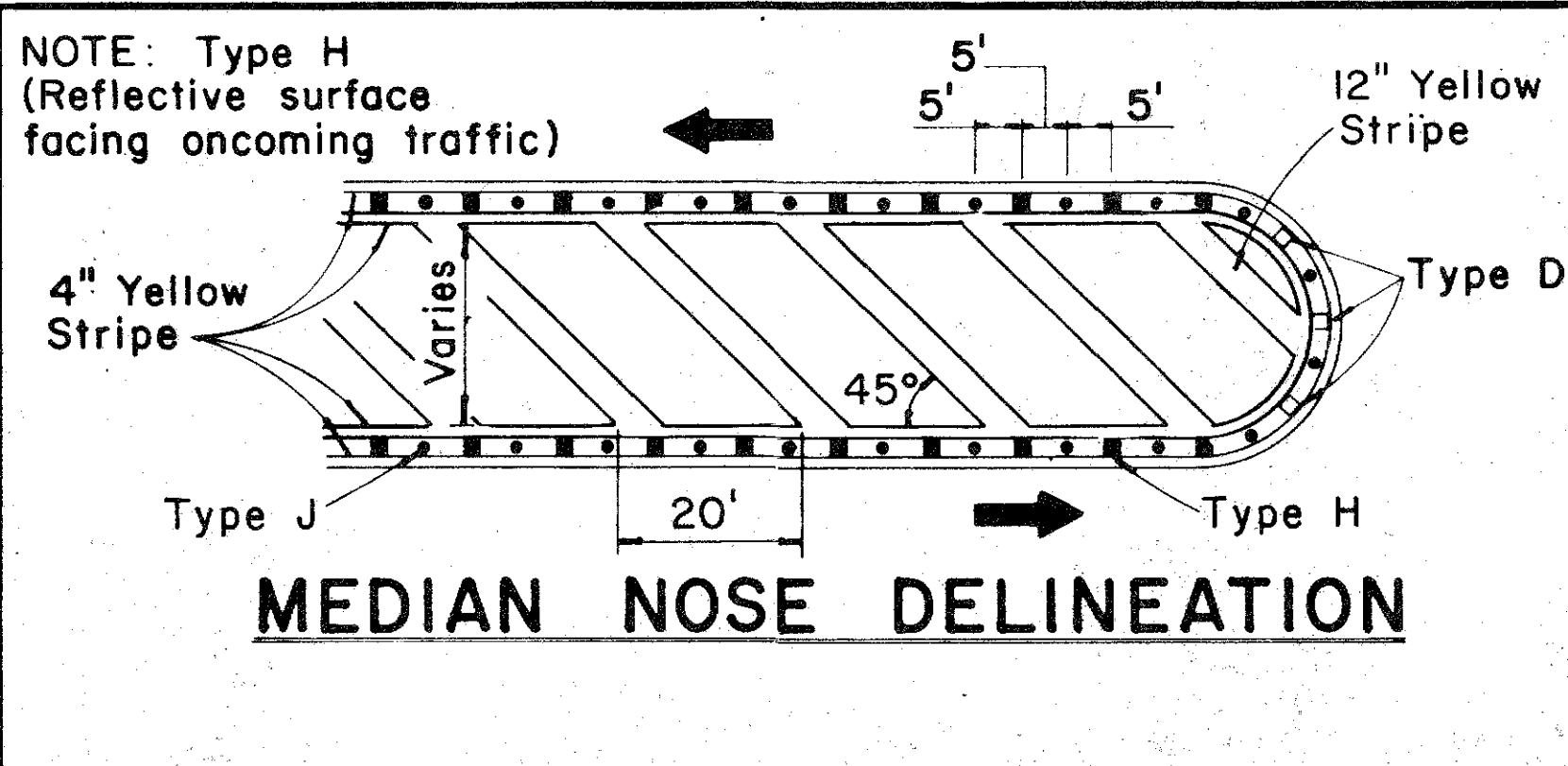
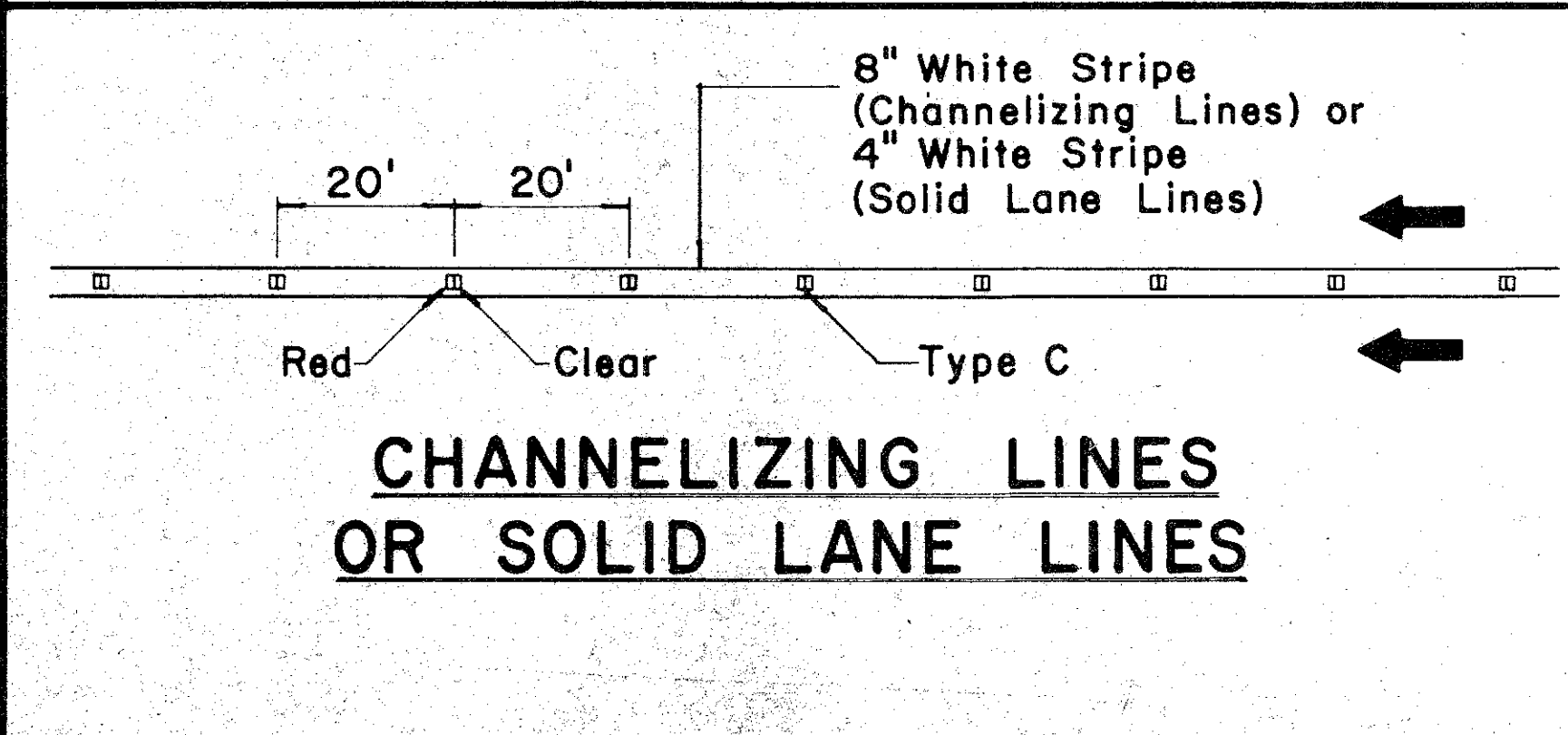
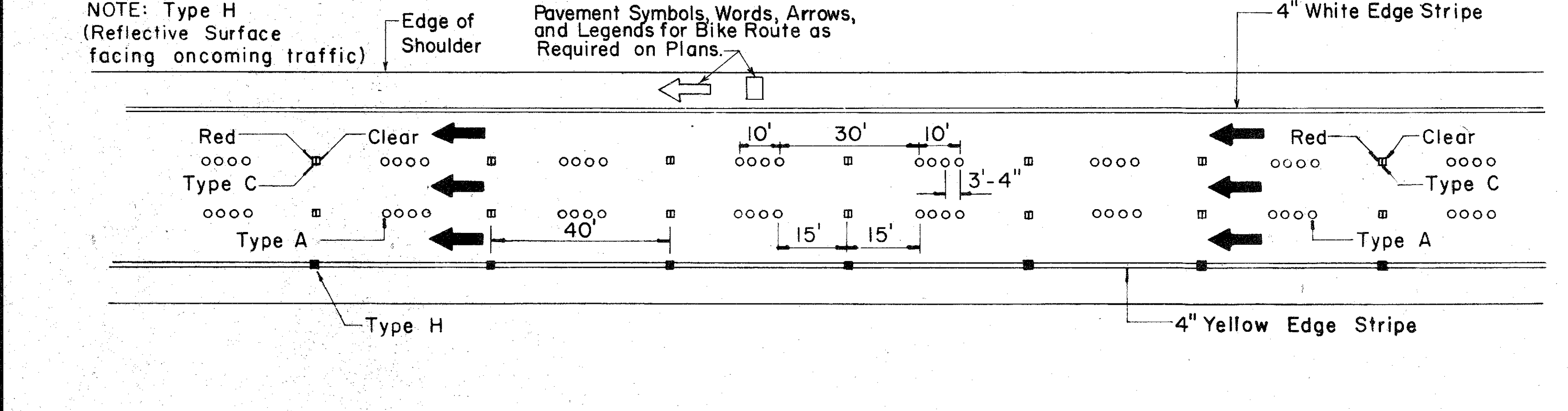
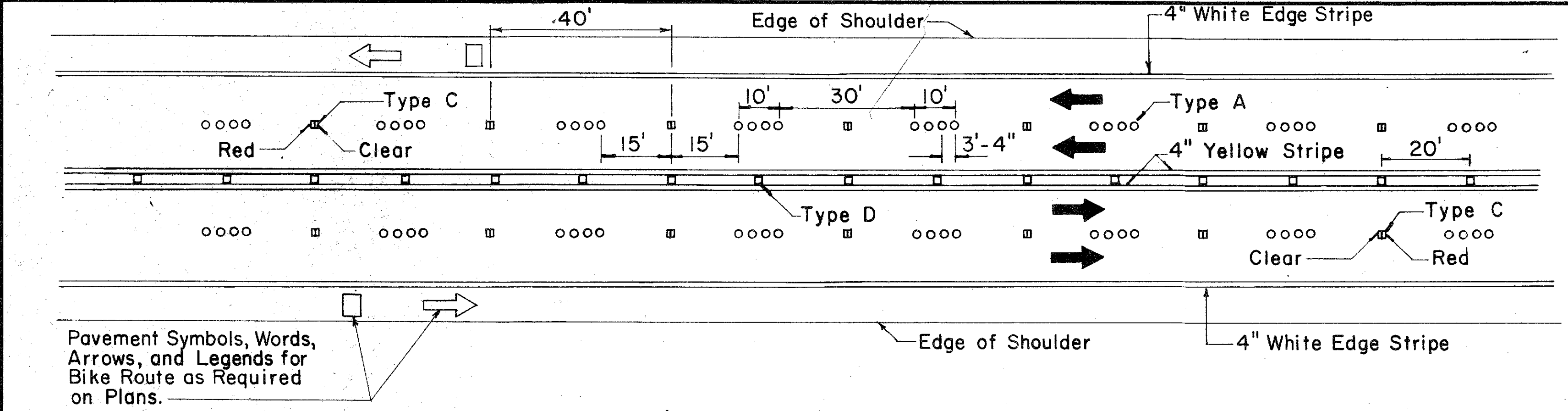
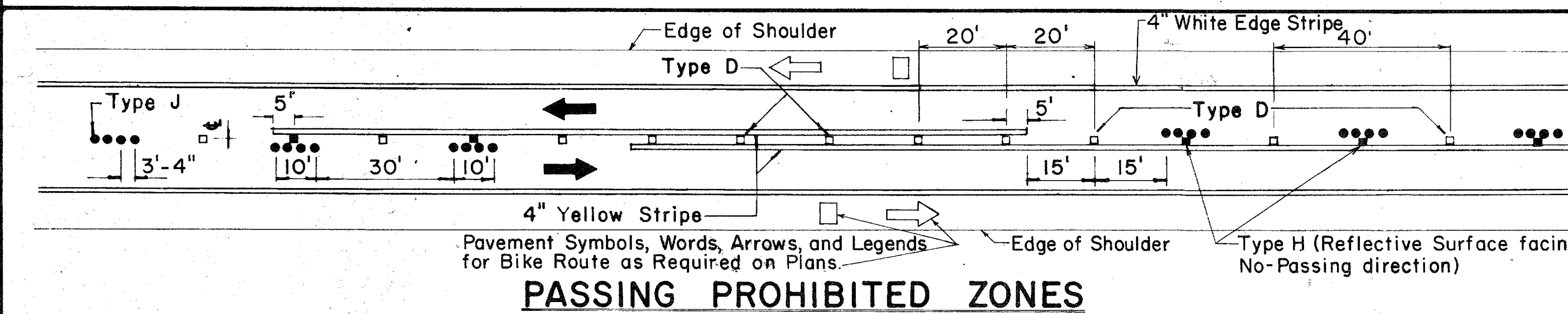
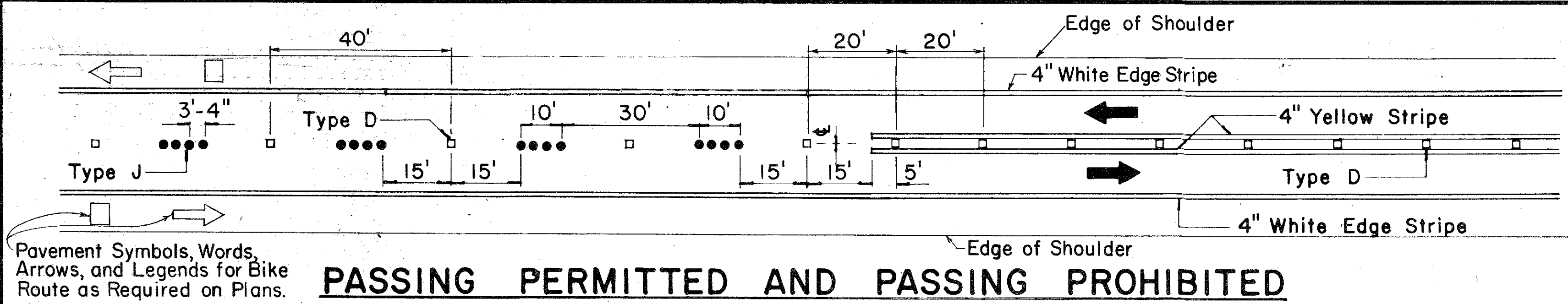
NO.	REVISION	APPROVED BY	DATE
1	Spacing on Manhole Rungs to conform to OSHA.	H.T.	1-21-75

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
STANDARD DETAILS
CATCH BASINS

Scale: As Noted
Date: July, 1969
SHEET No 13 OF 19 SHEETS

FILE	POCKET	FOLDER	NO.
9	13	2	31

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HES-063-1(12)	1980	32	44

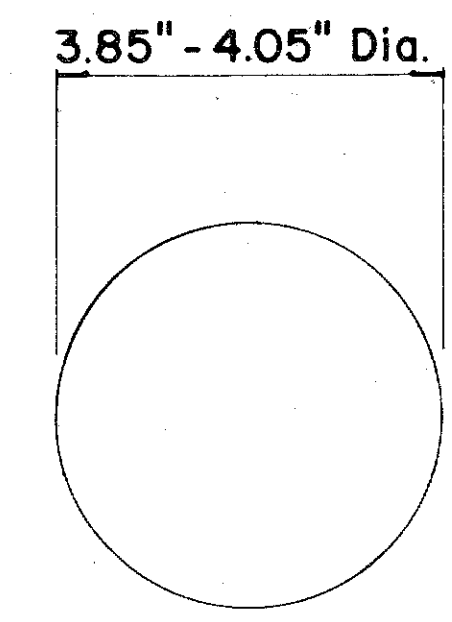


TWO - LANE

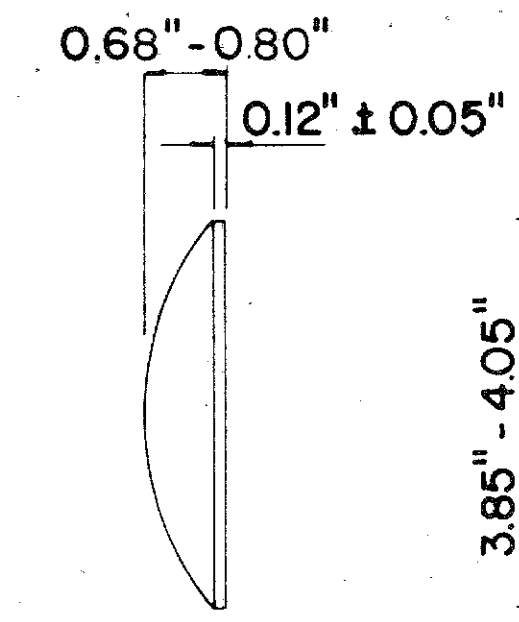
MULTI - LANE

DIVIDED HIGHWAY AND FREEWAY

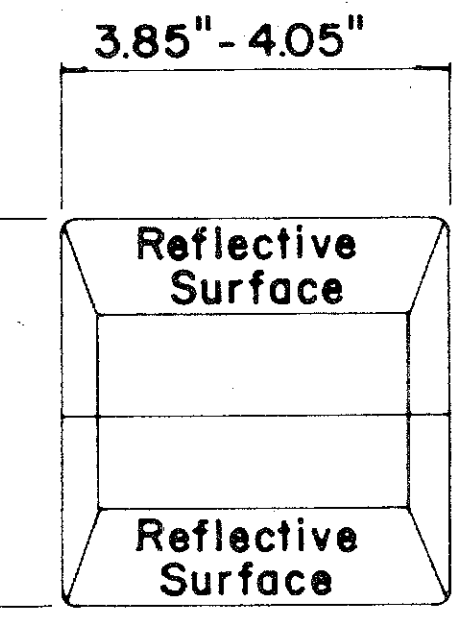
MISCELLANEOUS



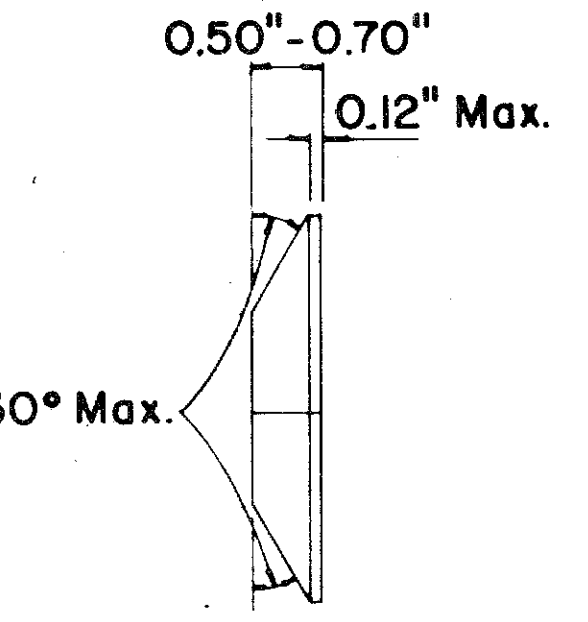
TYPE A
NON - REFLECTIVE WHITE MARKER



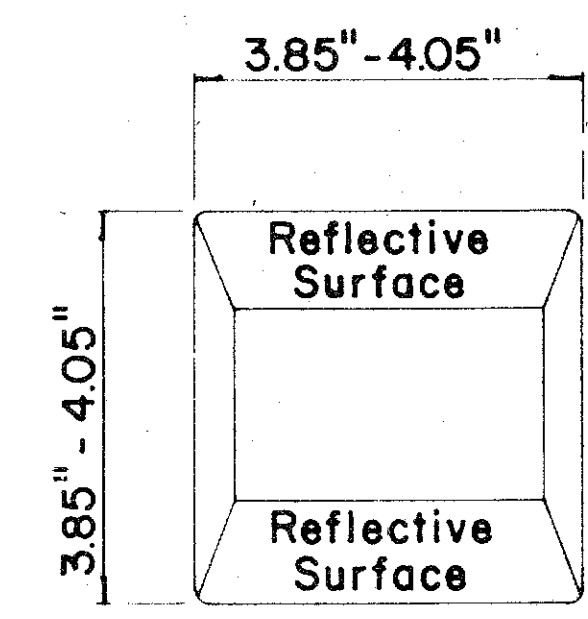
TYPE J
NON - REFLECTIVE YELLOW MARKER



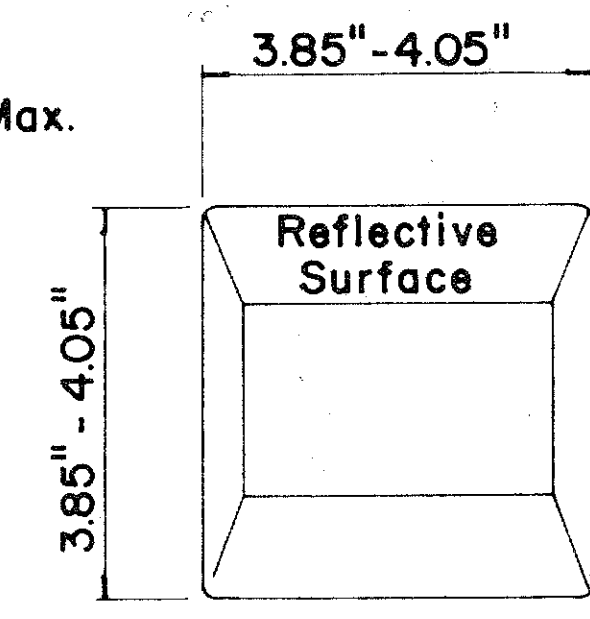
TYPE C
RED - CLEAR REFLECTIVE MARKER



TYPE H
ONE - WAY YELLOW REFLECTIVE MARKER



TYPE D
TWO - WAY YELLOW REFLECTIVE MARKER



GENERAL NOTES

- Pavement marking and striping shall conform to the latest "Manual on Uniform Traffic Control Devices for Streets and Highways," and as amended.
- Layout and installation of pavement marking and striping shall be done by the Contractor. The Contractor shall check the layouts with the Engineer prior to performing work.

LEGEND

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

APPROVAL RECOMMENDED:

Erich Tanaka
TRAFFIC ENGINEER

7/21/78
DATE

APPROVED:

Herbert J. Zelenka
ASSISTANT CHIEF, ENGINEERING

7/24/78
DATE

No.	REVISION	APPROVED BY	DATE
1	Supersedes DT 300 approved 11/18/71.	H.C.	7/24/78
2	Delete Type A Markers from Bike Route Delineation.	H.C.	10/15/79

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

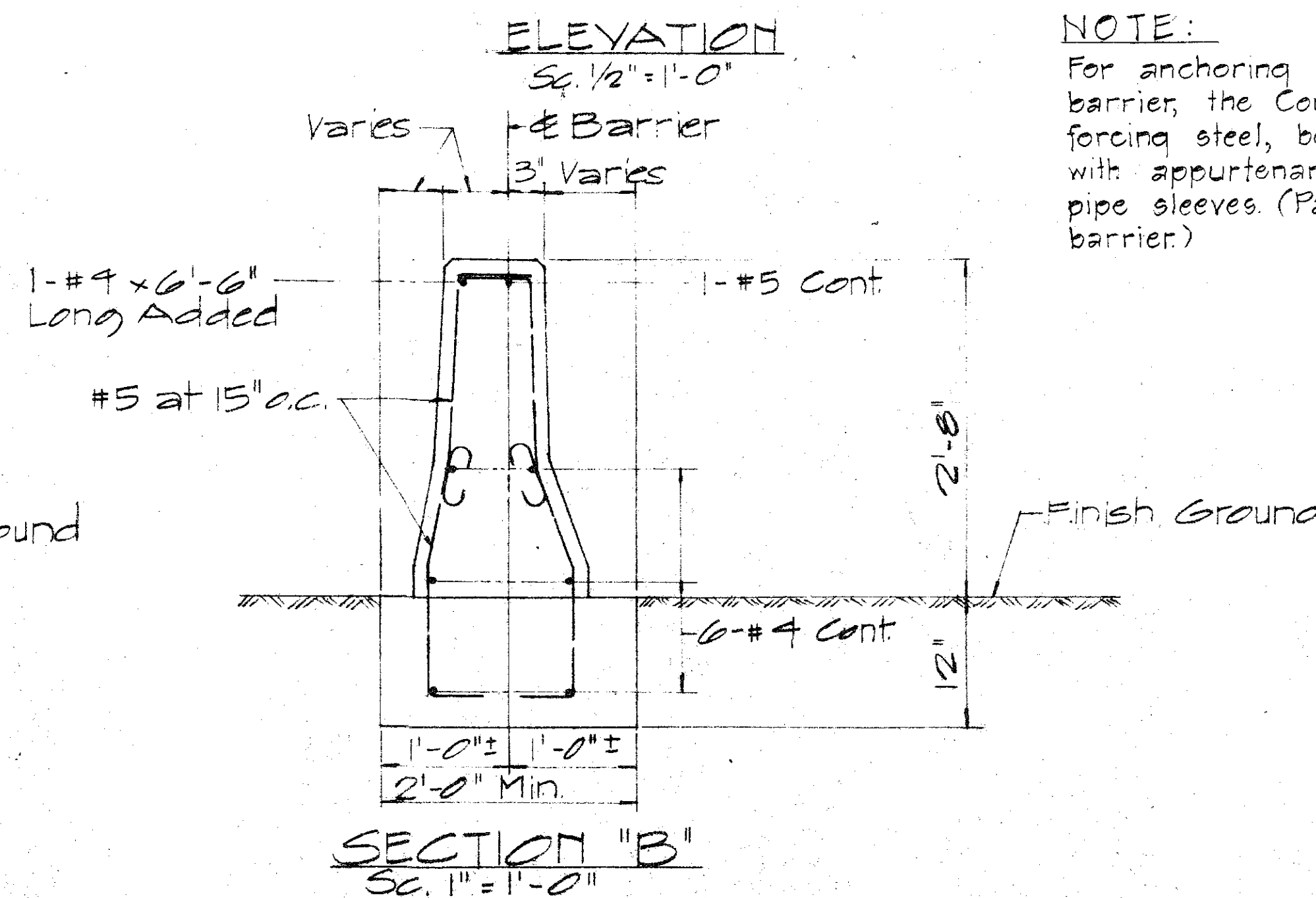
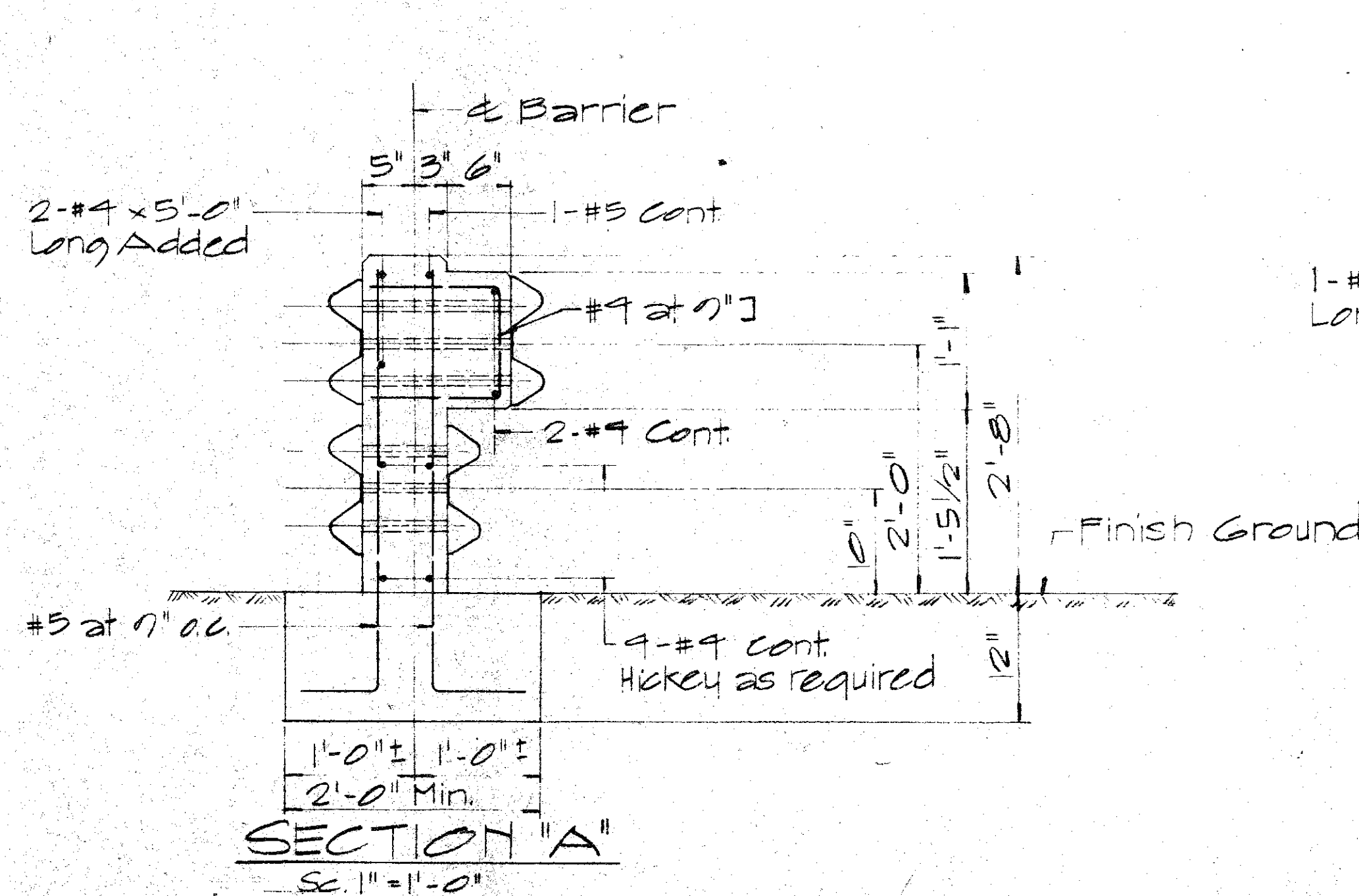
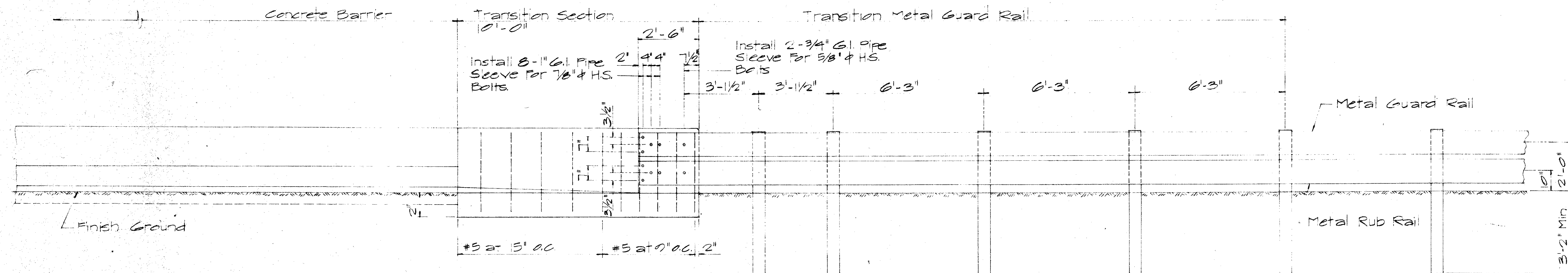
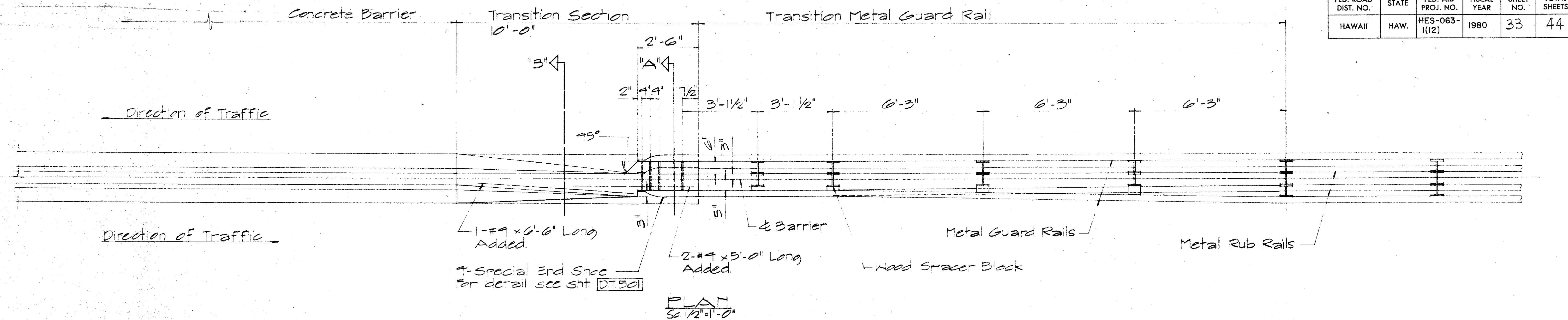
STANDARD DETAILS
RAISED PAVEMENT MARKERS AND STRIPING

Not to Scale July 1978.

SHEET No. 14 OF 19 SHEETS DT 300

FILE	POCKET	FOLDER	NO.
9	13	2	32

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HES-063-1(12)	1980	33	44



NOTE:
For anchoring metal guard rail elements to concrete barrier, the Contractor shall furnish and install reinforcing steel, bolts of appropriate lengths and size with appurtenant washers, nuts, wooden blocks and pipe sleeves. (Payments shall be incidental to concrete barrier.)

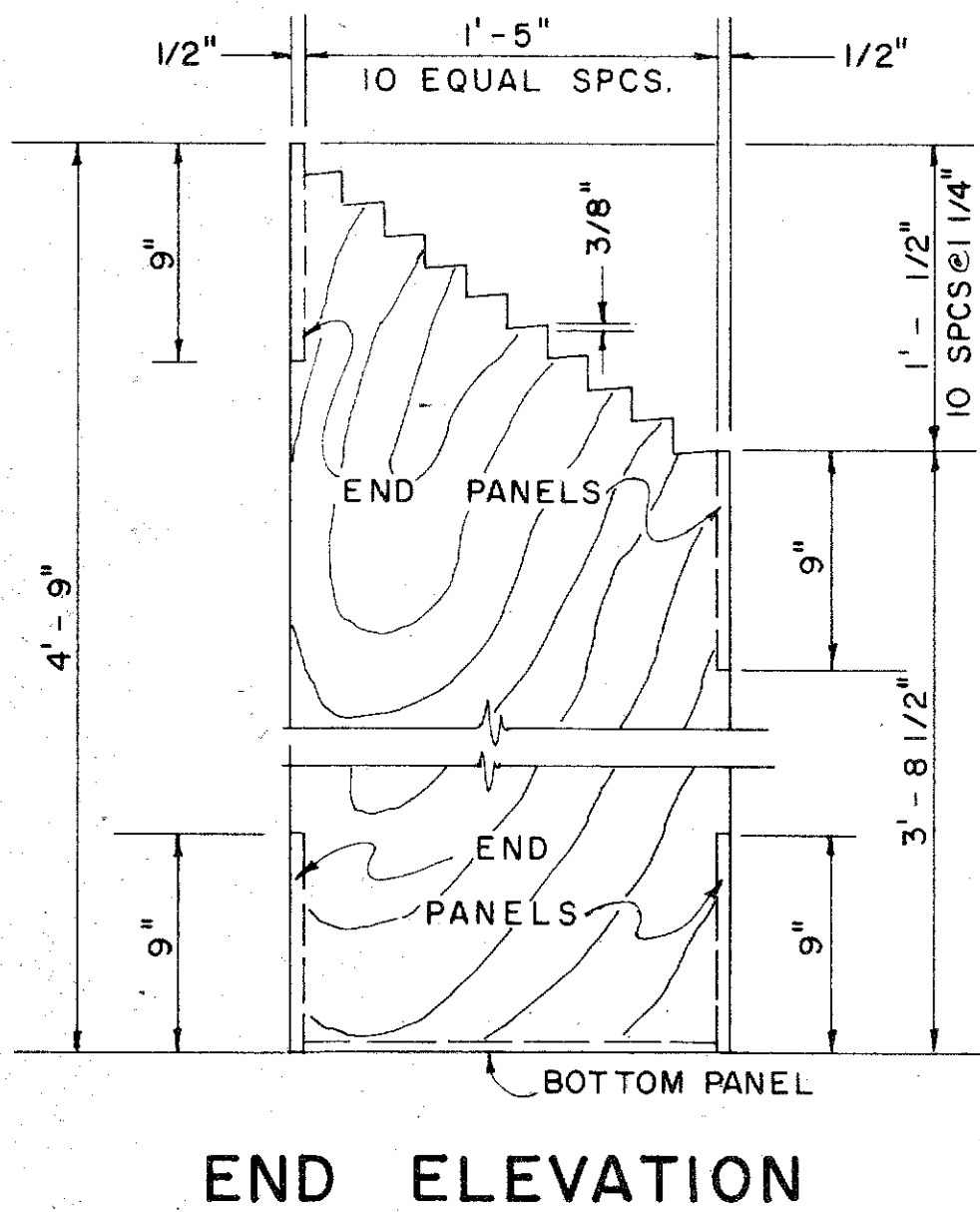
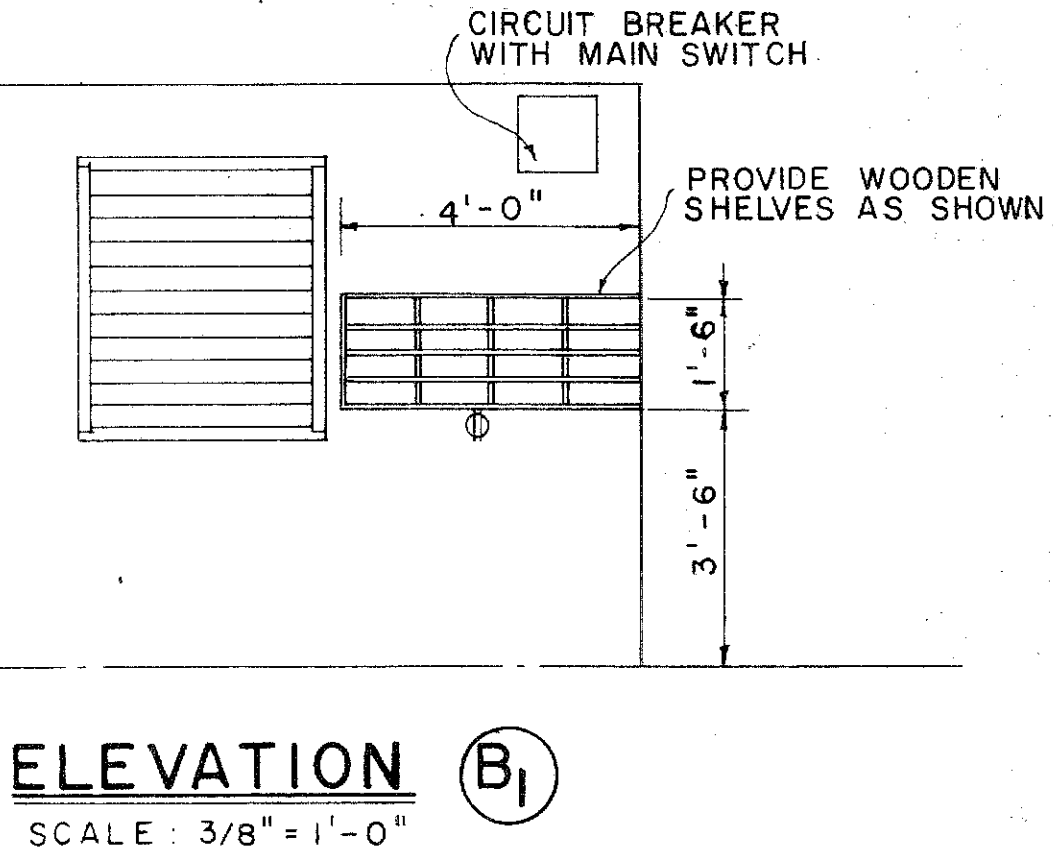
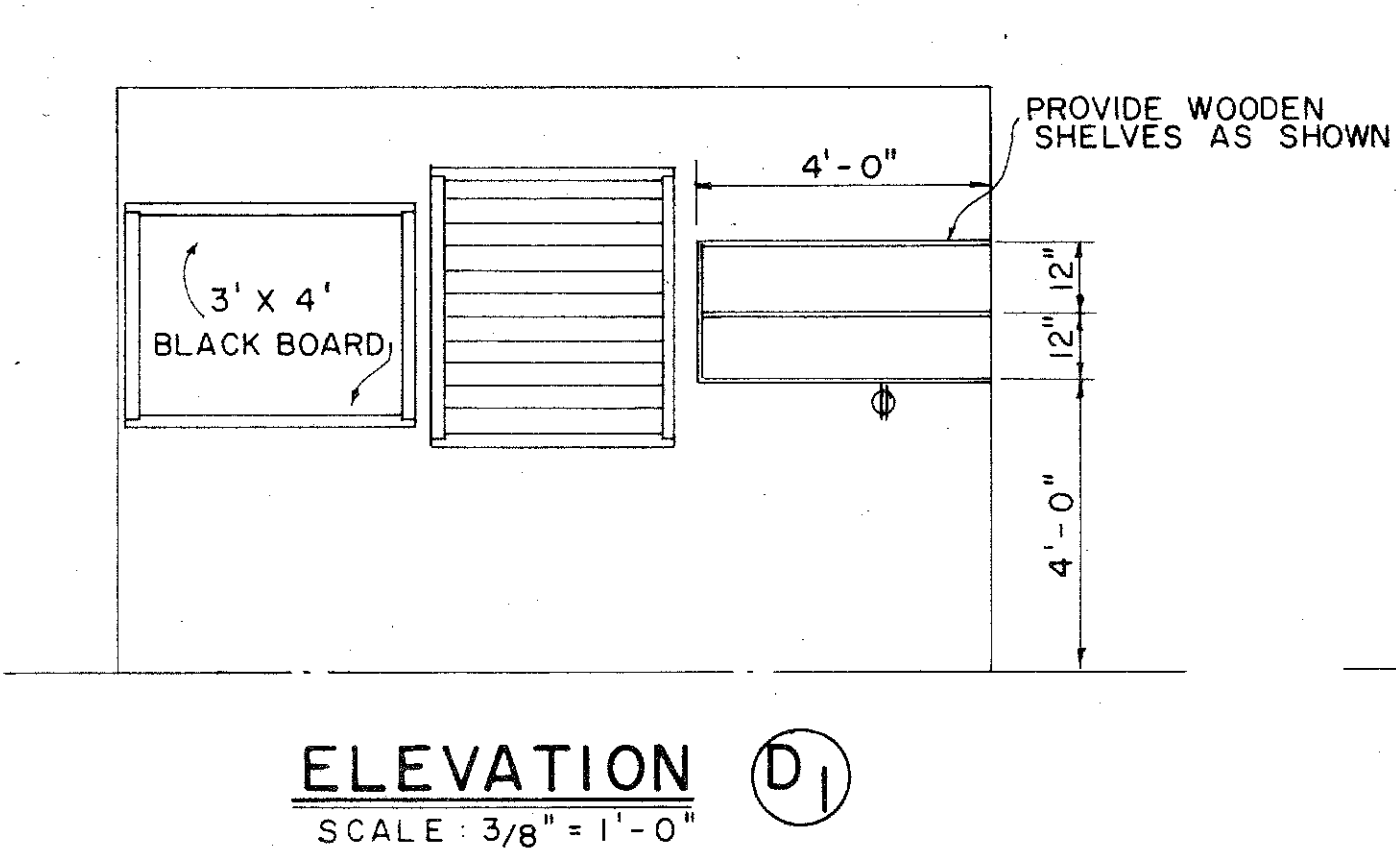
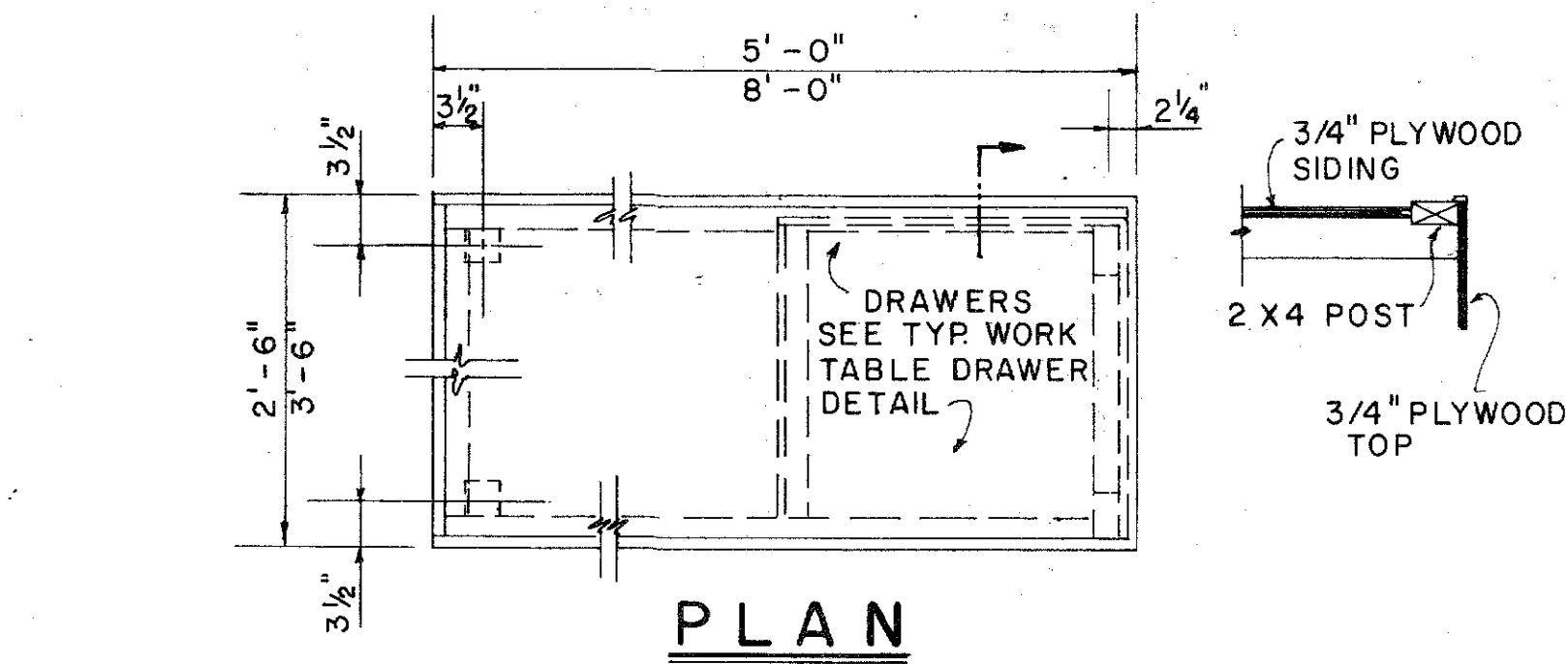
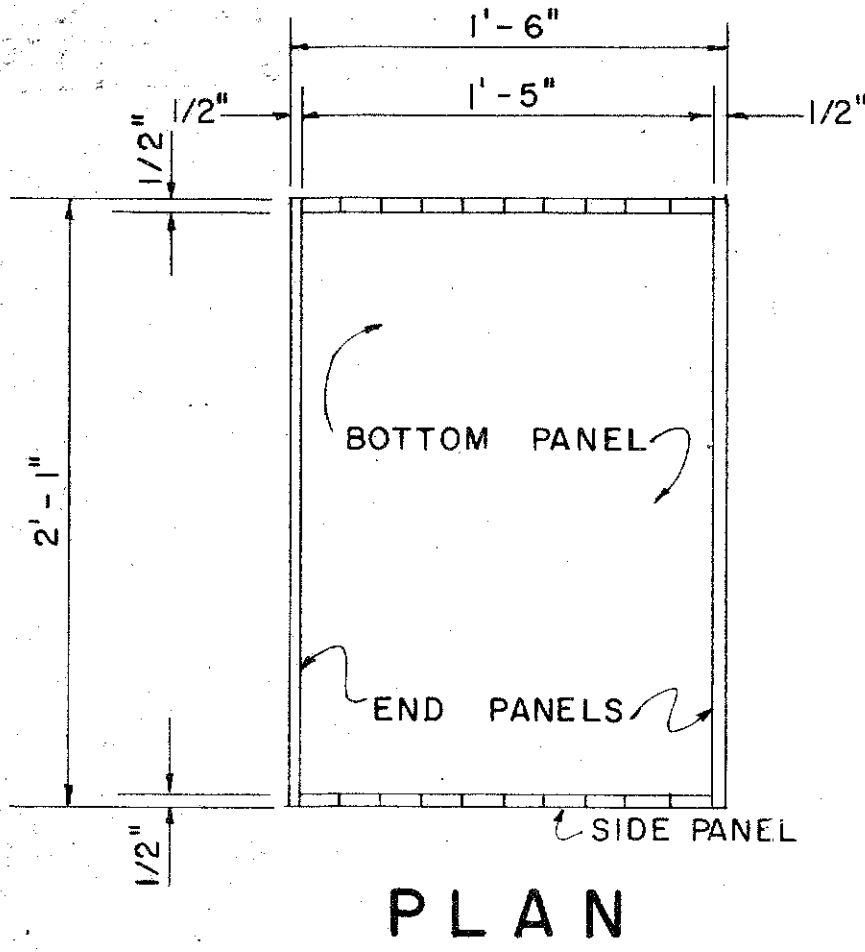
APPROVAL RECOMMENDED:
Euchi Tanaka
TRAFFIC ENGINEER
12/29/69
DATE

APPROVED:
Walter S. S. S.
ASSISTANT CHIEF, ENGINEERING
12-30-69
DATE

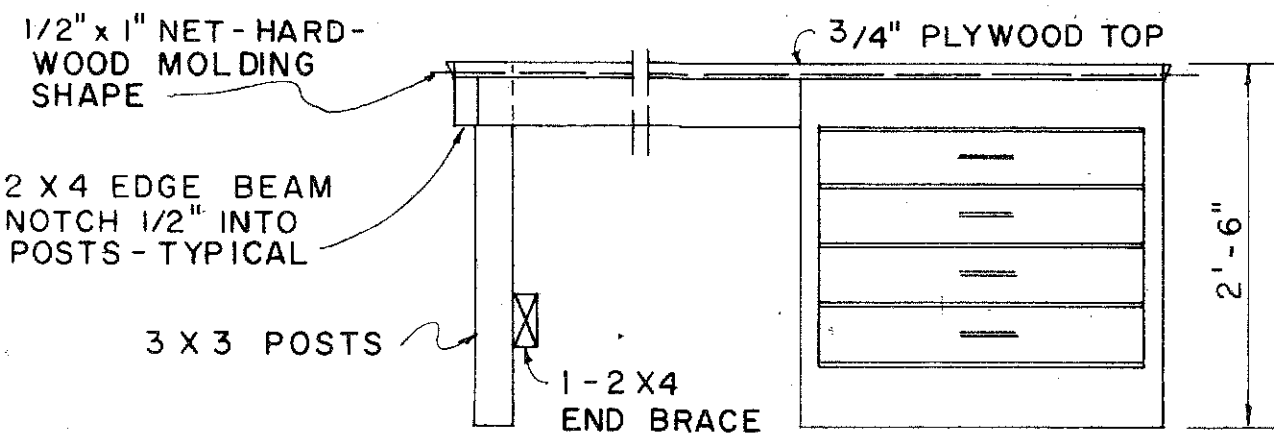
NO.	REVISION	APPROVED BY	DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
LAND TRANSPORTATION FACILITIES DIVISION
**STANDARD DETAIL
METAL GUARD RAIL
CONNECTION TO CONC.
BARRIER**
Scale As Noted Feb. 1967
SHEET No. 15 OF 19 SHEETS DT 513

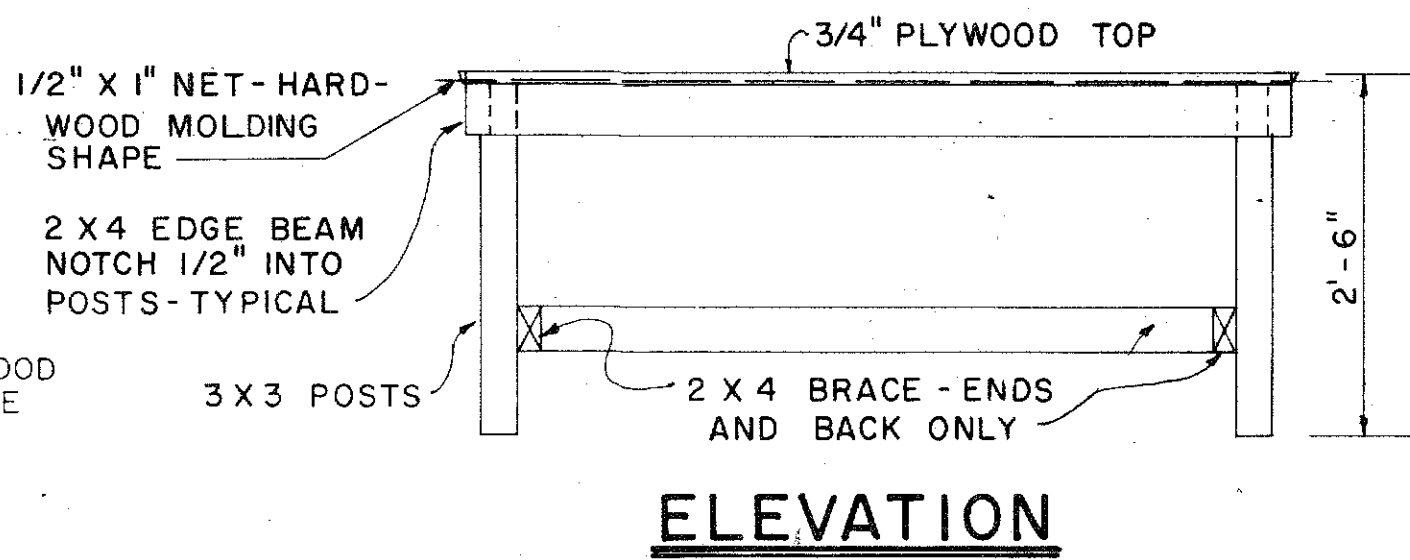
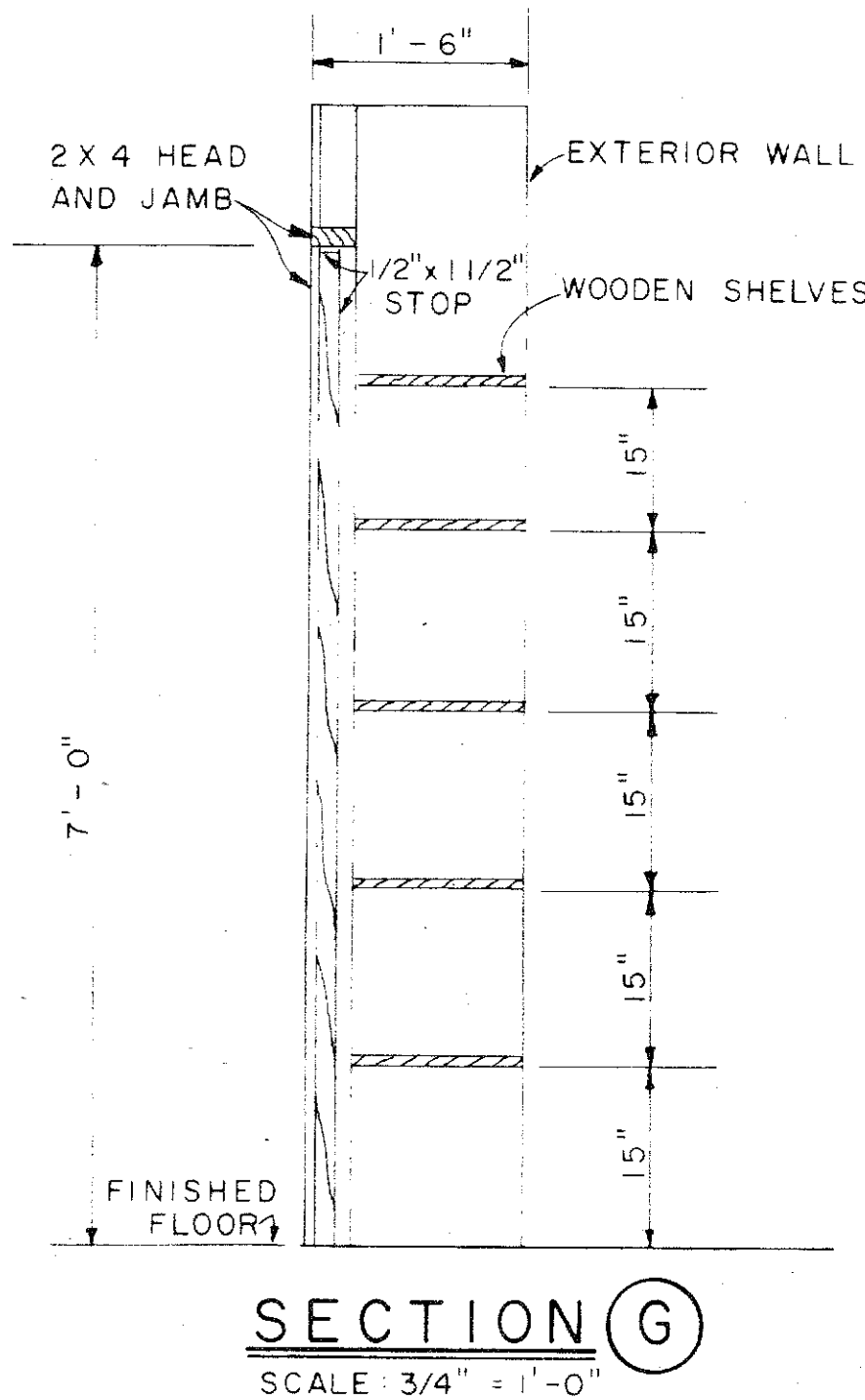
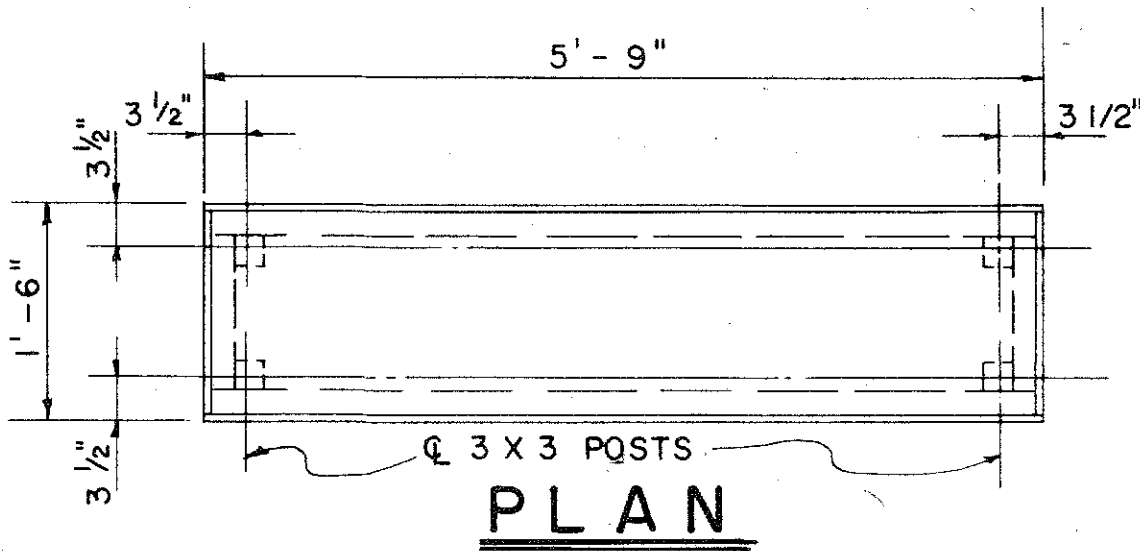
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	HES-063-1(12)	1980	35	44



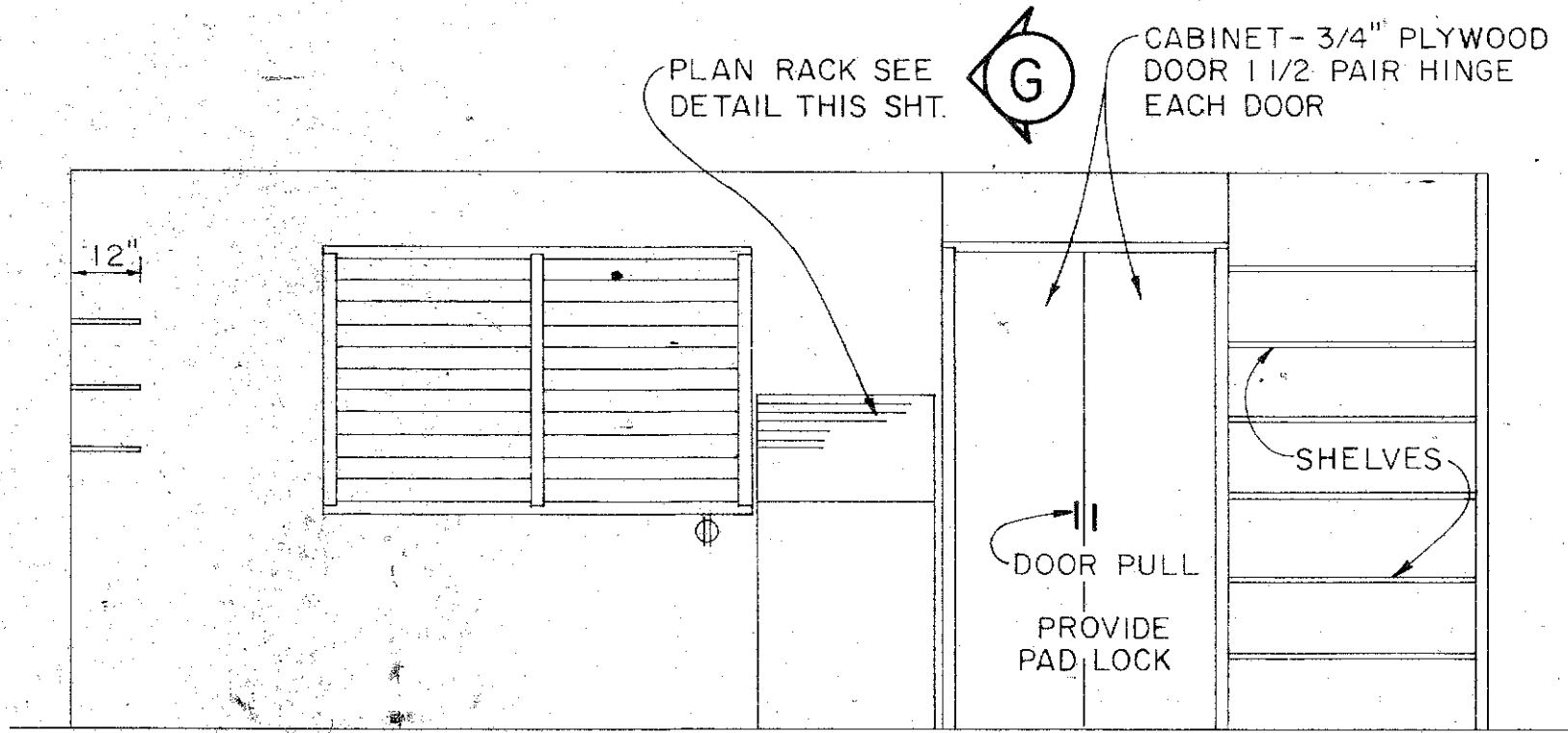
PLAN RACK DETAIL
SCALE: 1 1/2" = 1'-0"
(ONE REQUIRED)



PORTABLE WORK
TABLE DETAIL
SCALE: 3/4" = 1'-0"



1'-6" x 5'-9" PORTABLE
WORK TABLE DETAIL
SCALE: 3/4" = 1'-0"



APPROVAL RECOMMENDED:
HIGHWAY DESIGN ENGINEER
DATE: 12-4-69

APPROVED:
ASSISTANT CHIEF, ENGINEERING
DATE: 12-10-69

NO.	REVISION	APPROVED BY	DATE

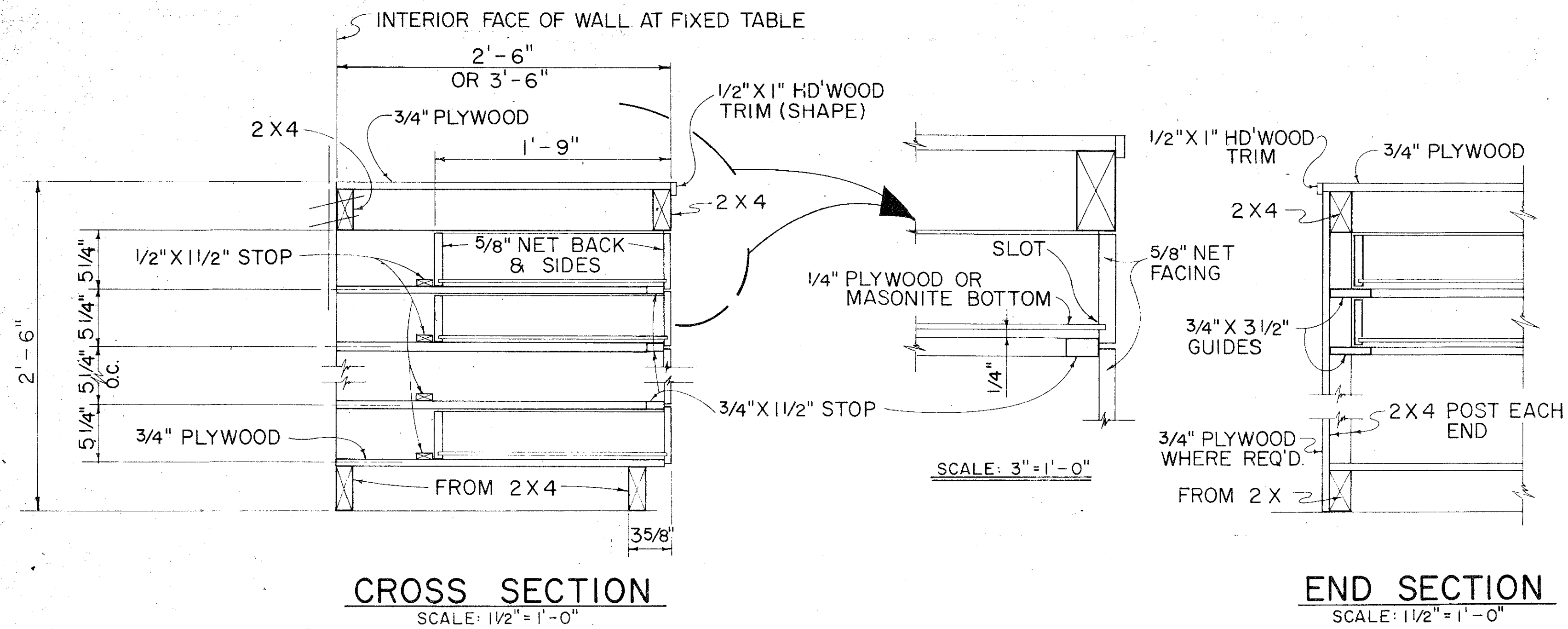
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

FIELD OFFICE

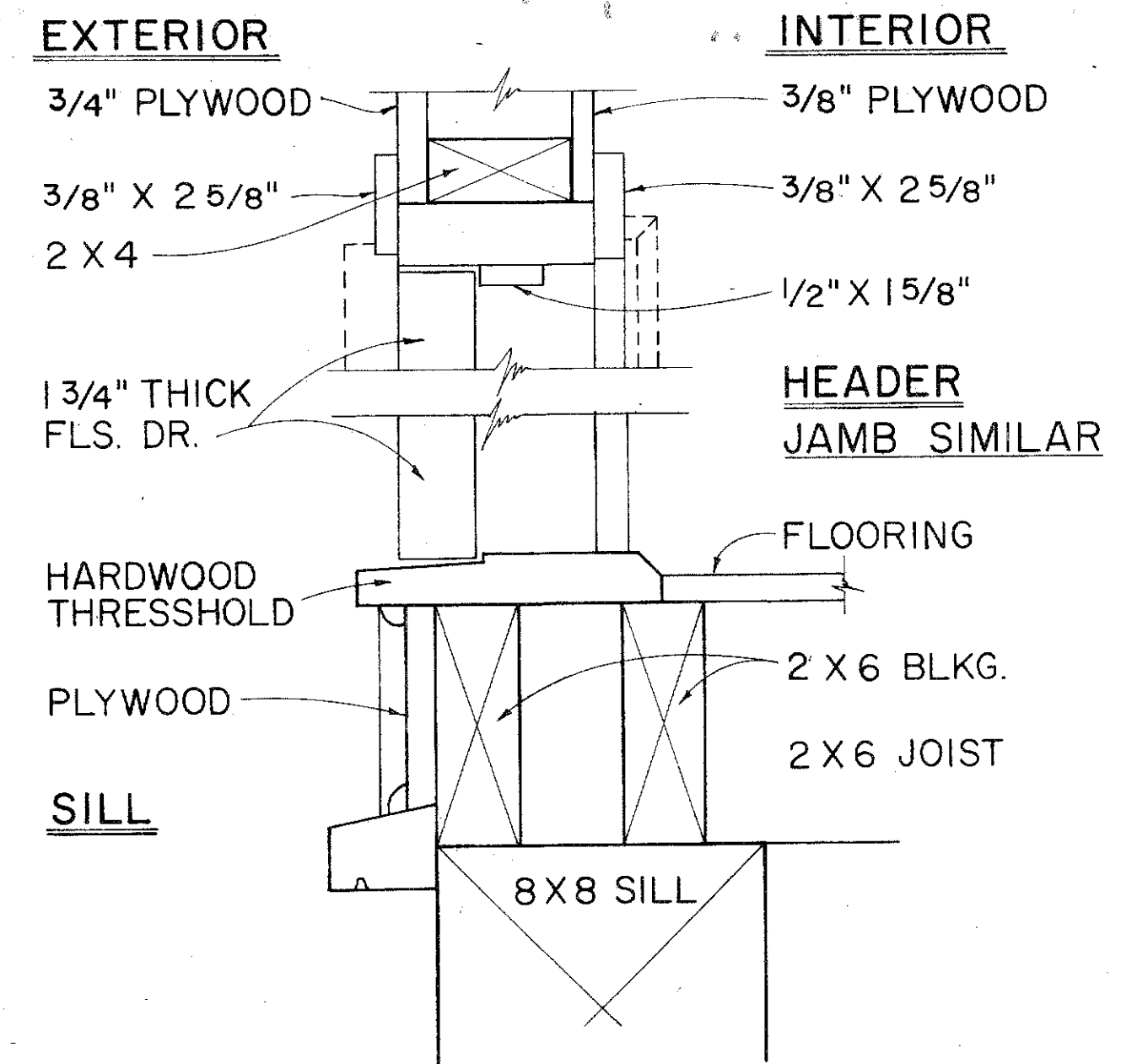
Scale: As Noted

SHEET No. 17 OF 19 SHEETS DD 636.2

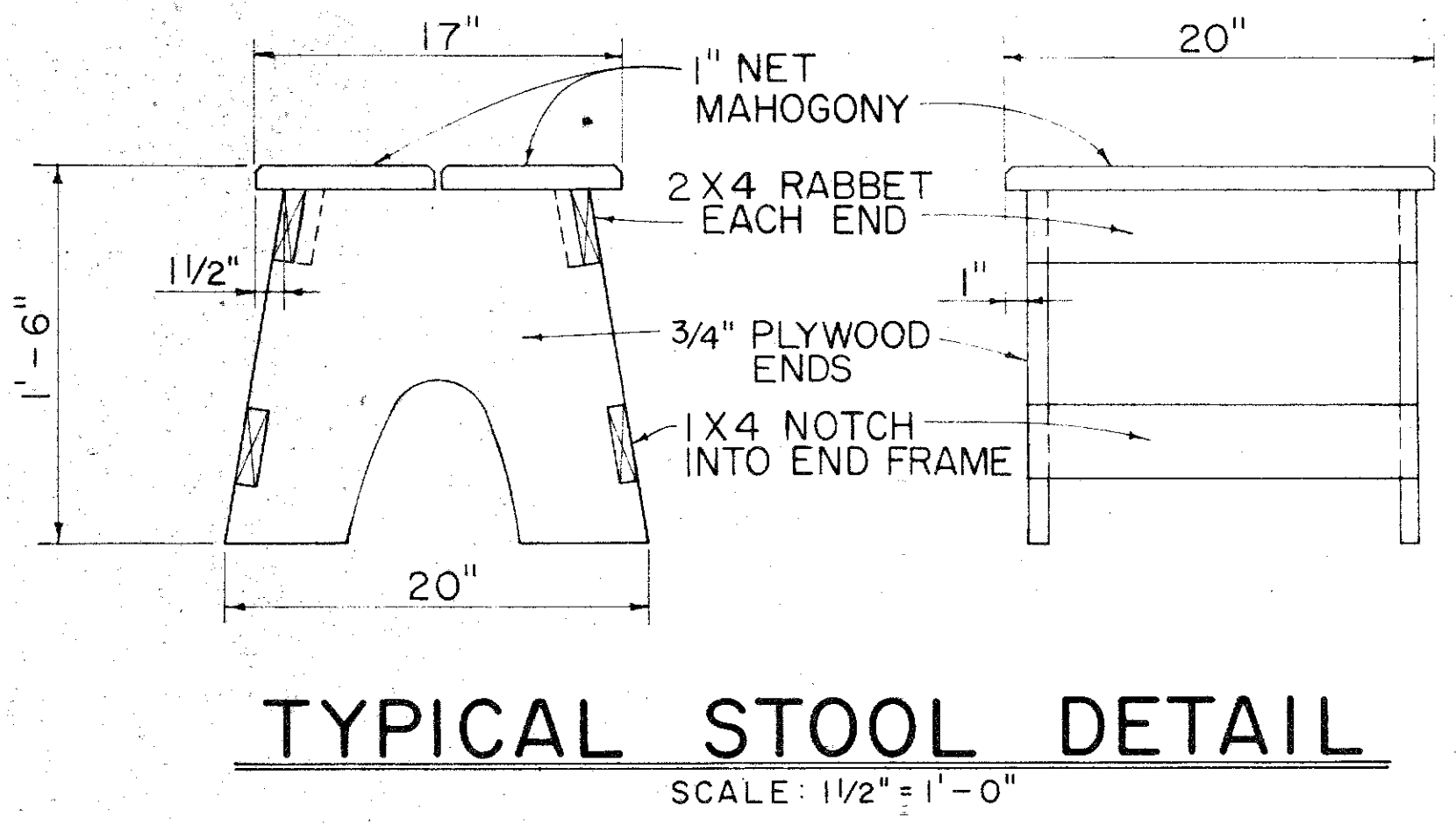
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	HES-063-1(12)	1980	36	44



TYPICAL WORK TABLE DRAWER DETAIL

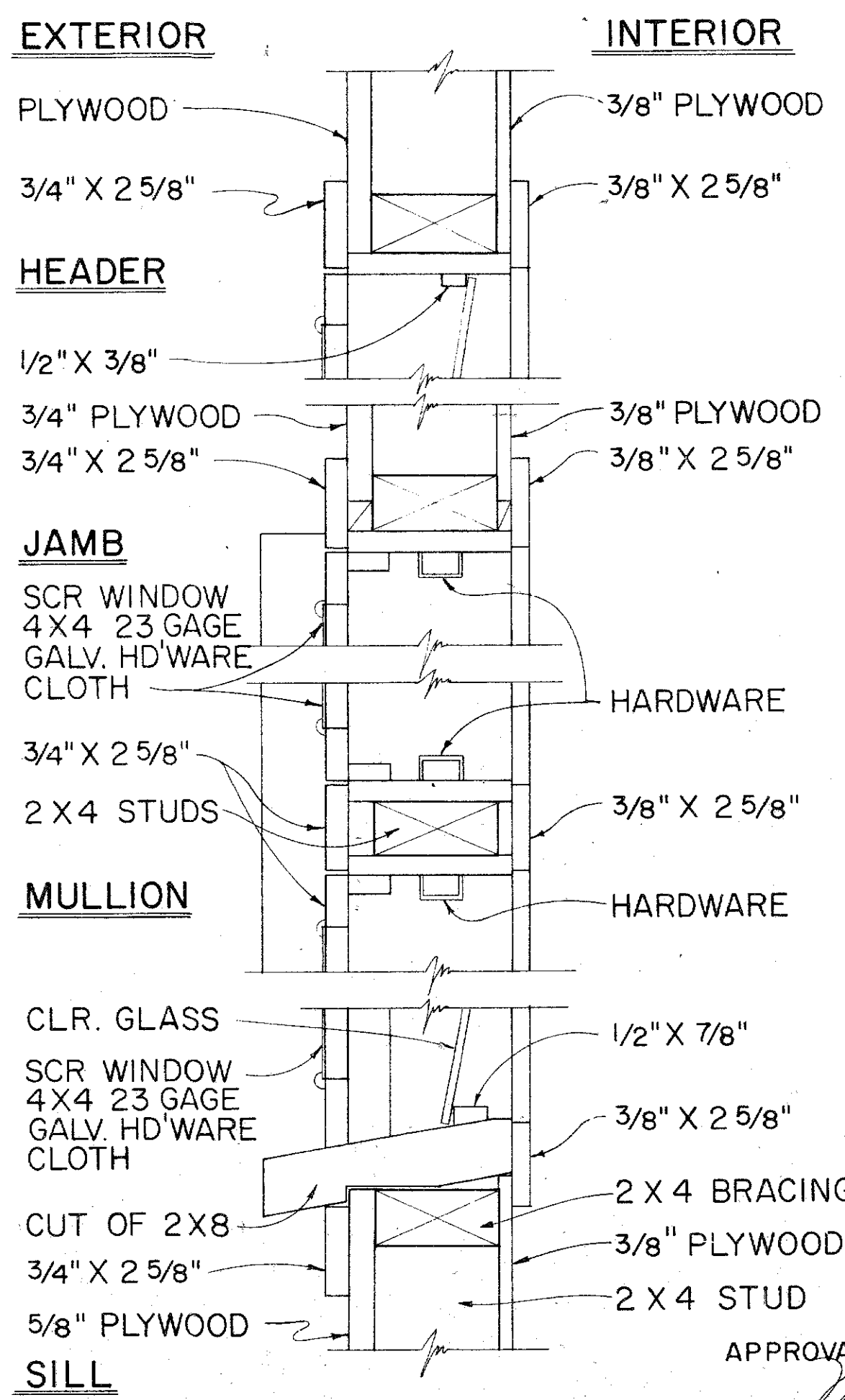


TYP. SWING OUT DOOR
TYPICAL SINGLE OR DOUBLE EXTERIOR DOOR DETAIL



TYPICAL STOOL DETAIL
SCALE: 1 1/2" = 1'-0"

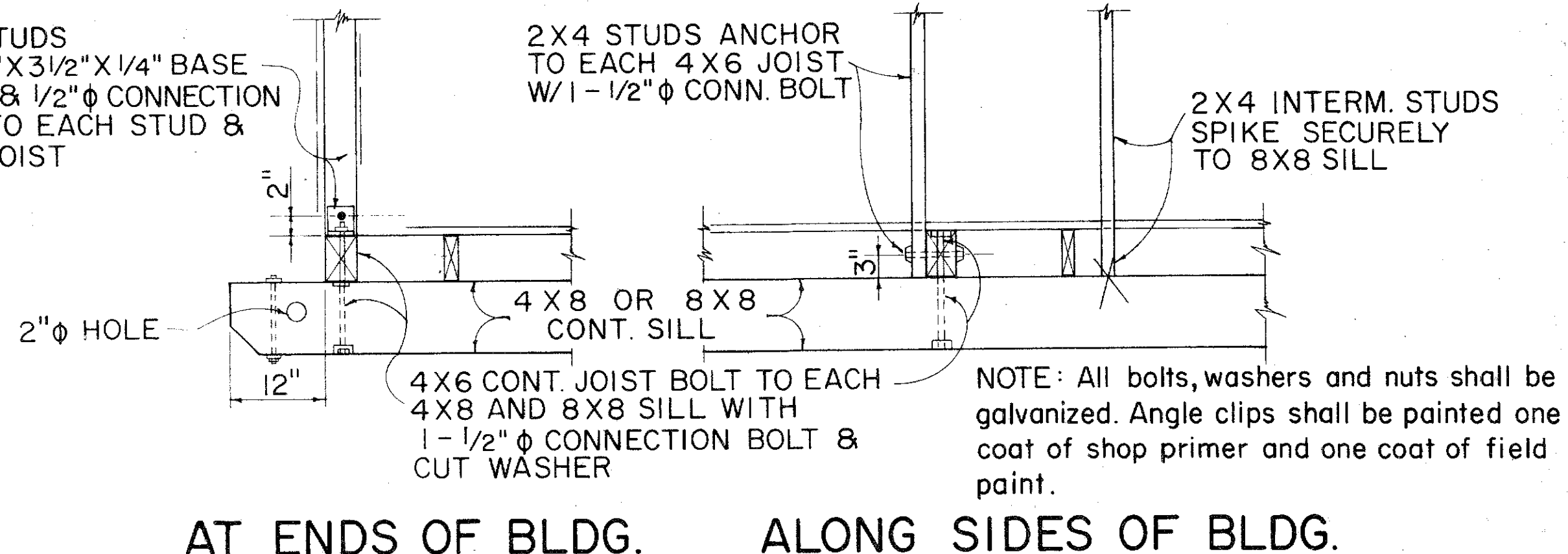
NOTE: CONTRACTOR MAY WITH THE APPROVAL OF THE ENGINEER FURNISH THE FIELD OFFICE OR PROJECT SITE LABORATORY WITH STOOLS OTHER THAN THE TYPE SHOWN IN THE DETAIL.



TYPICAL DETAIL JALOUSIES WINDOWS
SCALE: 3" = 1'-0"

APPROVAL RECOMMENDED: *M. Hironaka* 12-4-69 DATE
HIGHWAY DESIGN ENGINEER

APPROVED: *Arthur J. Soble* 12-10-69 DATE
ASSISTANT CHIEF, ENGINEERING



TYPICAL 2 X 4 STUD & 4 X 6 FLOOR JOIST BASE CONNECTION DETAILS

NO.	REVISION	APPROVED BY	DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

FIELD OFFICE
&
PROJECT SITE LABORATORY

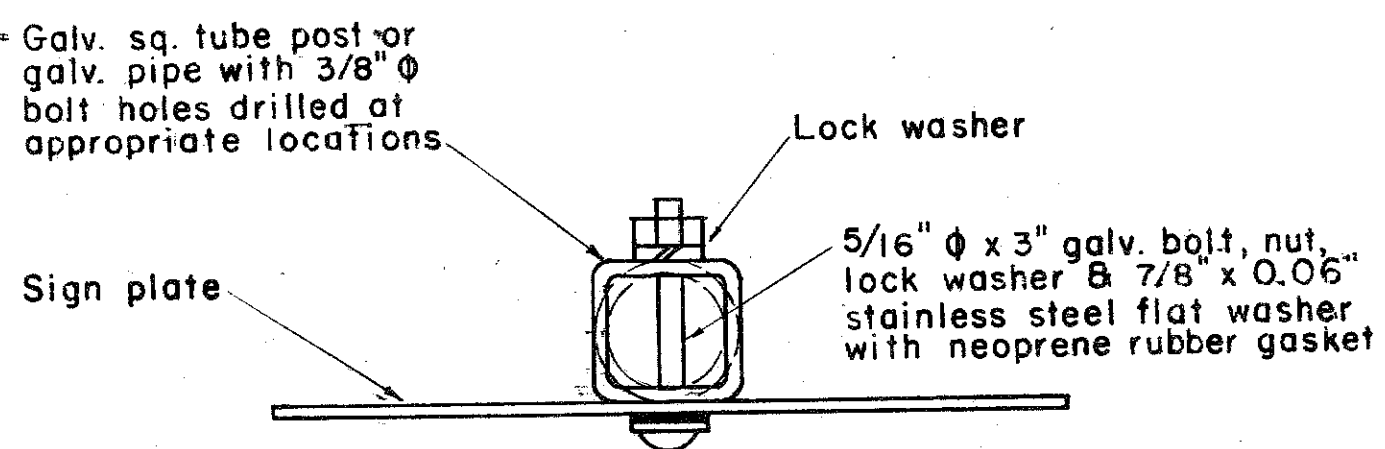
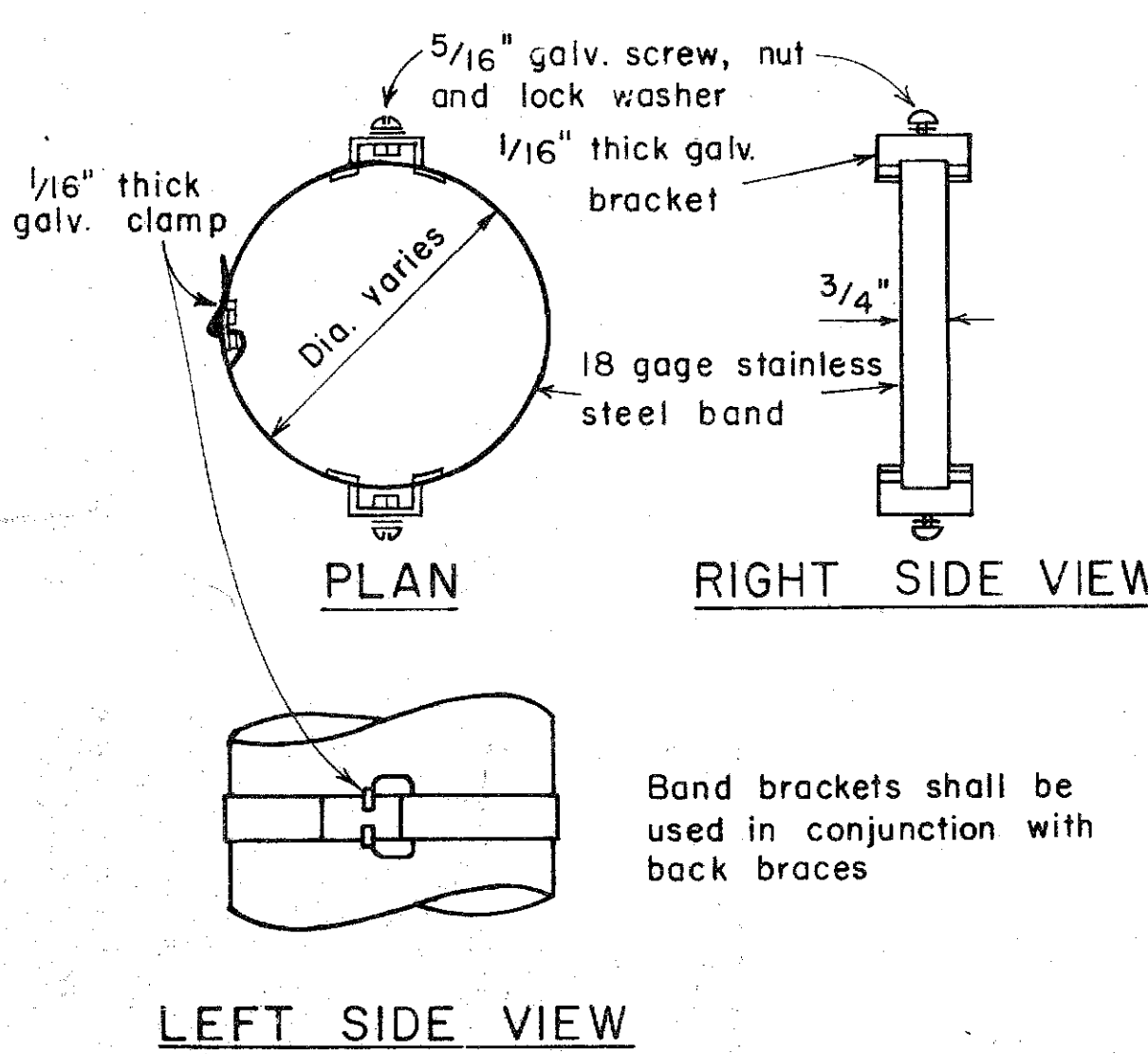
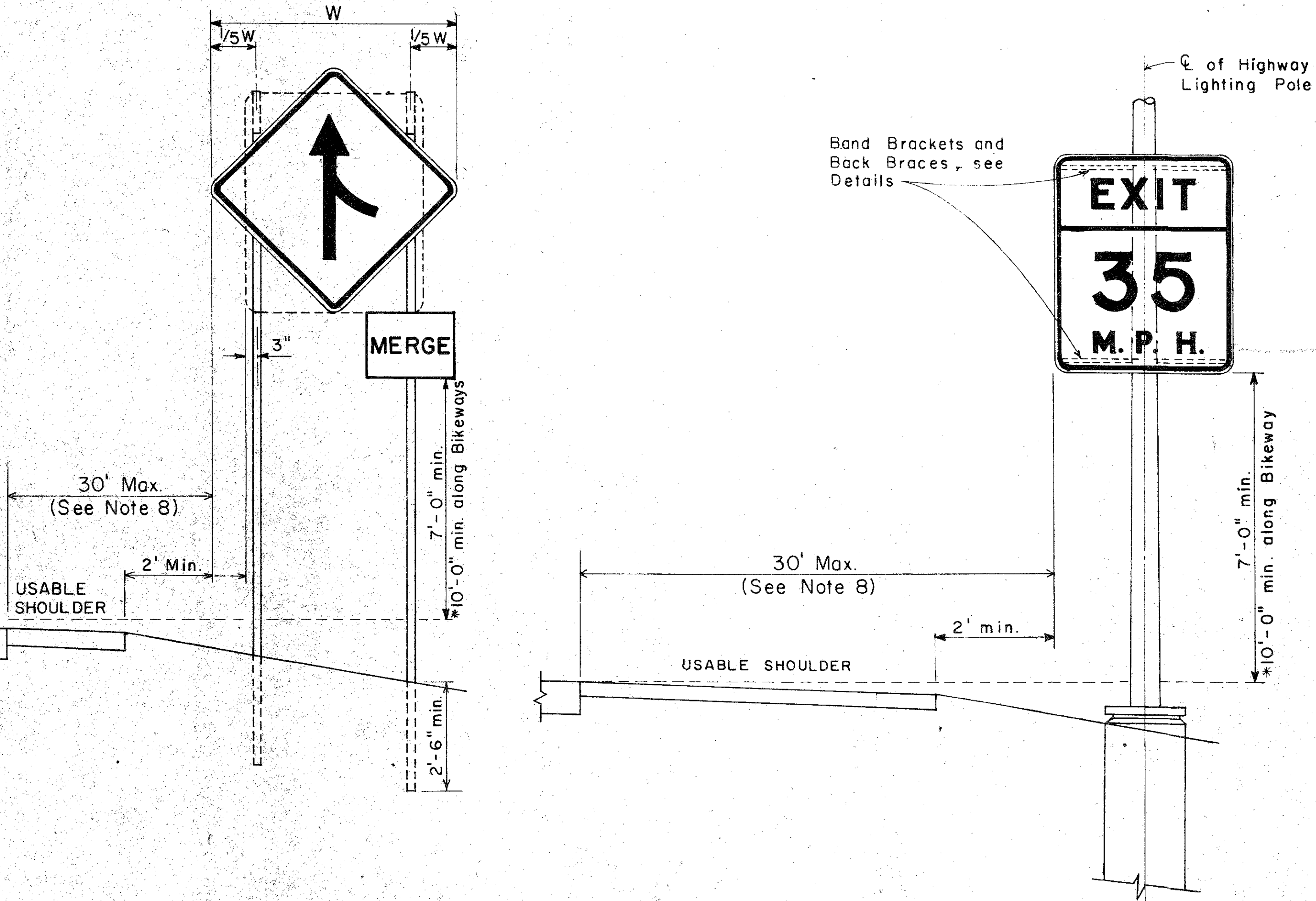
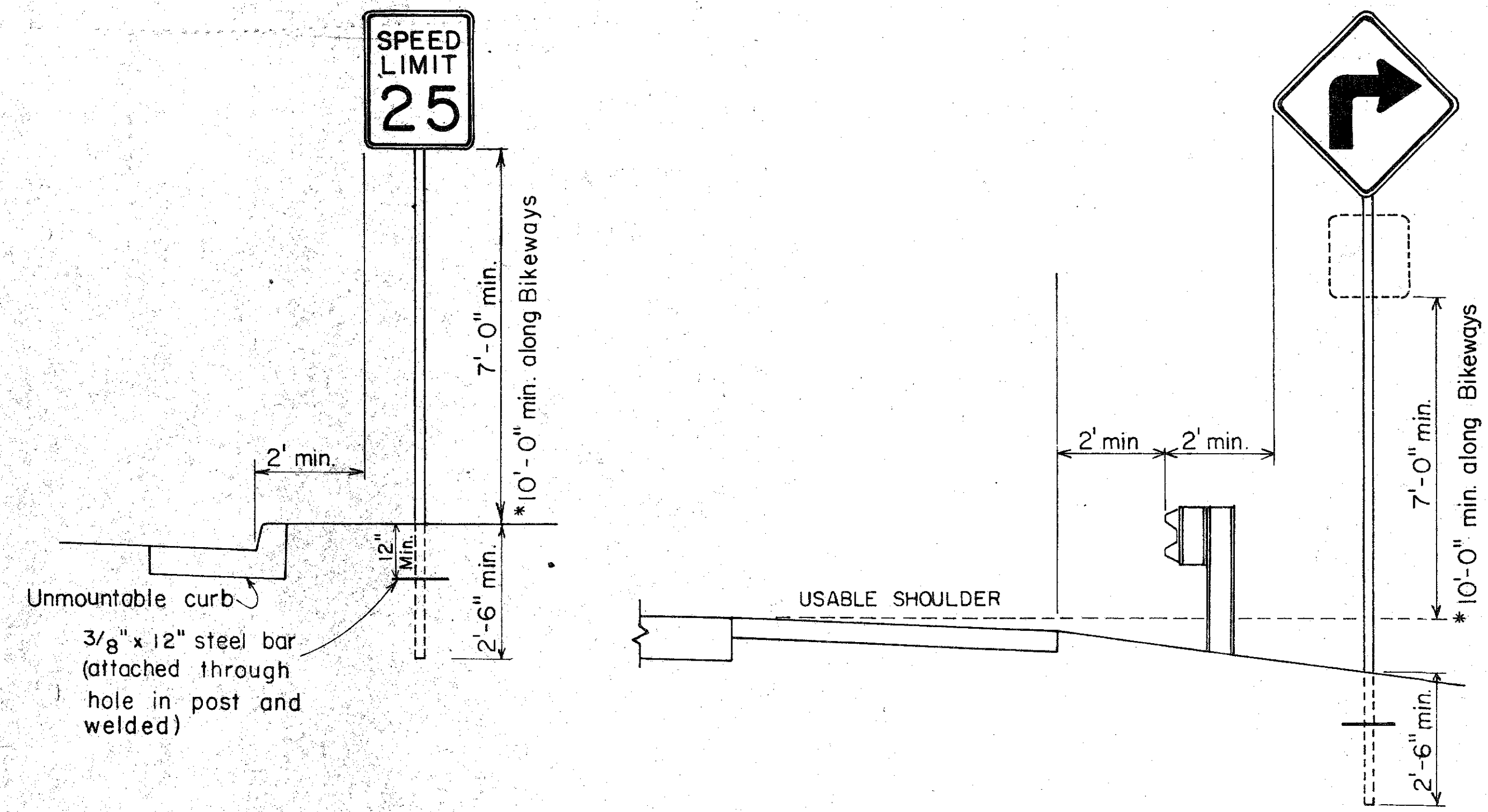
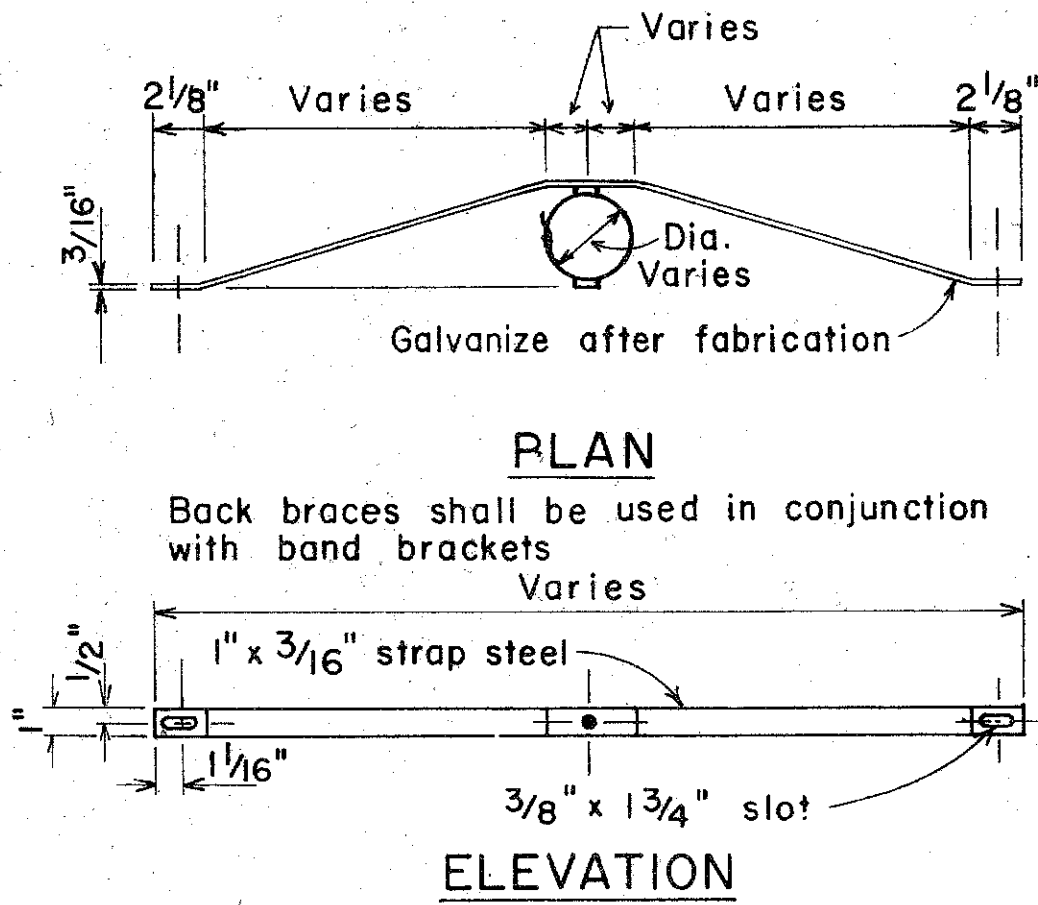
Scale: As Noted

FILE	POCKET	FOLDER	NO.
9	13	2	36

GENERAL NOTES

- Signs 48" and wider or larger than 10 sq. ft. in area shall be mounted on two sign posts.
- All signs larger than 10 sq. ft. in area or 48" inches and wider, and mounted on other than two posts supports (i.e., on highway lighting poles) shall have at least two sets of band brackets and back braces.
- All signs 28 sq. ft. in area or larger and mounted on other than two posts supports (i.e., on highway lighting poles) shall have at least three sets of band brackets and back braces.
- All parking restriction signs with arrows shall be mounted 45° to the line of traffic flow.
- Sign posts shall extend 3 1/2" above sign where required for City and County street name signs.
- (R) or (L) indicates right or left and shall be as shown on the plans.
- See plans for special details.
- When clear roadside recovery areas are provided, Signs shall be placed as far from the edge of traveled way as possible up to a maximum of 30 feet. When possible they shall be placed in protected locations.
- Signs in medians shall be placed at midpoint of median up to a maximum distance of 30 feet from the edge of traveled way. When appropriate, signs for opposing directions shall be placed back to back.

BACK BRACE DETAILS FOR BALANCED SIGN INSTALLATION



GALVANIZED SQUARE TUBE POST (OR GALVANIZED PIPE)

BAND BRACKET TYPICAL MOUNTING DETAILS NOT TO SCALE

NO.	REVISION	APPROVED BY	DATE
1	Supersedes Sht. DT-100 approved 12/30/69	H.T.	11/15/77
2	Revised depth of signpost	H.T.	5/21/79
3	Added Notes No. 8 & No. 9	H.T.	5/12/79
4	Revised Gen. Note #4 & Mounting Details	H.T.	4/23/80

APPROVAL RECOMMENDED:
Etschi Tanaka
TRAFFIC ENGINEER 11/10/77 DATE

APPROVED:
Harbert S. Sakaishi
ASSISTANT CHIEF, ENGINEERING 11/15/77 DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

STANDARD DETAILS
MISCELLANEOUS SIGN DETAILS

Not to scale
June, 1977