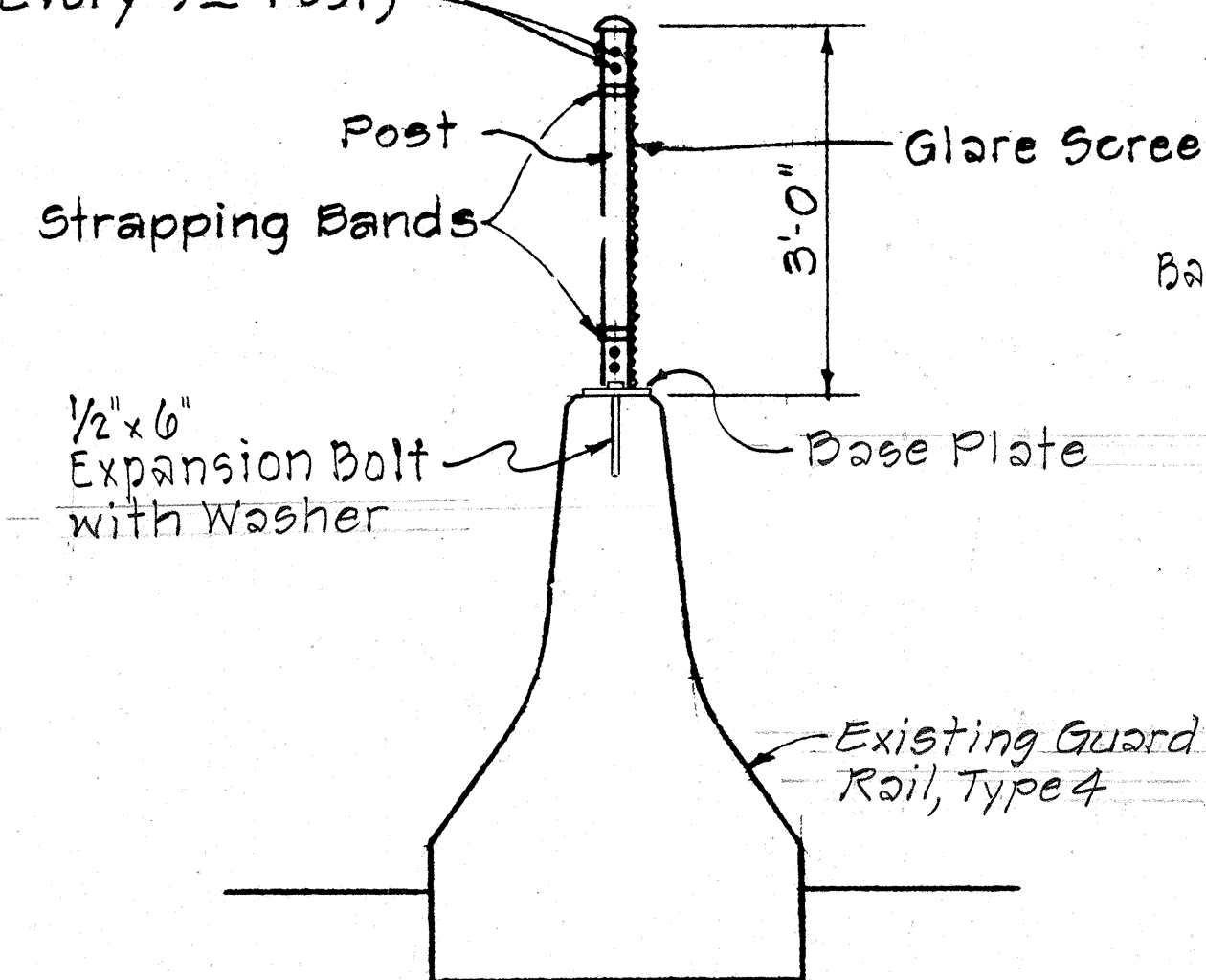
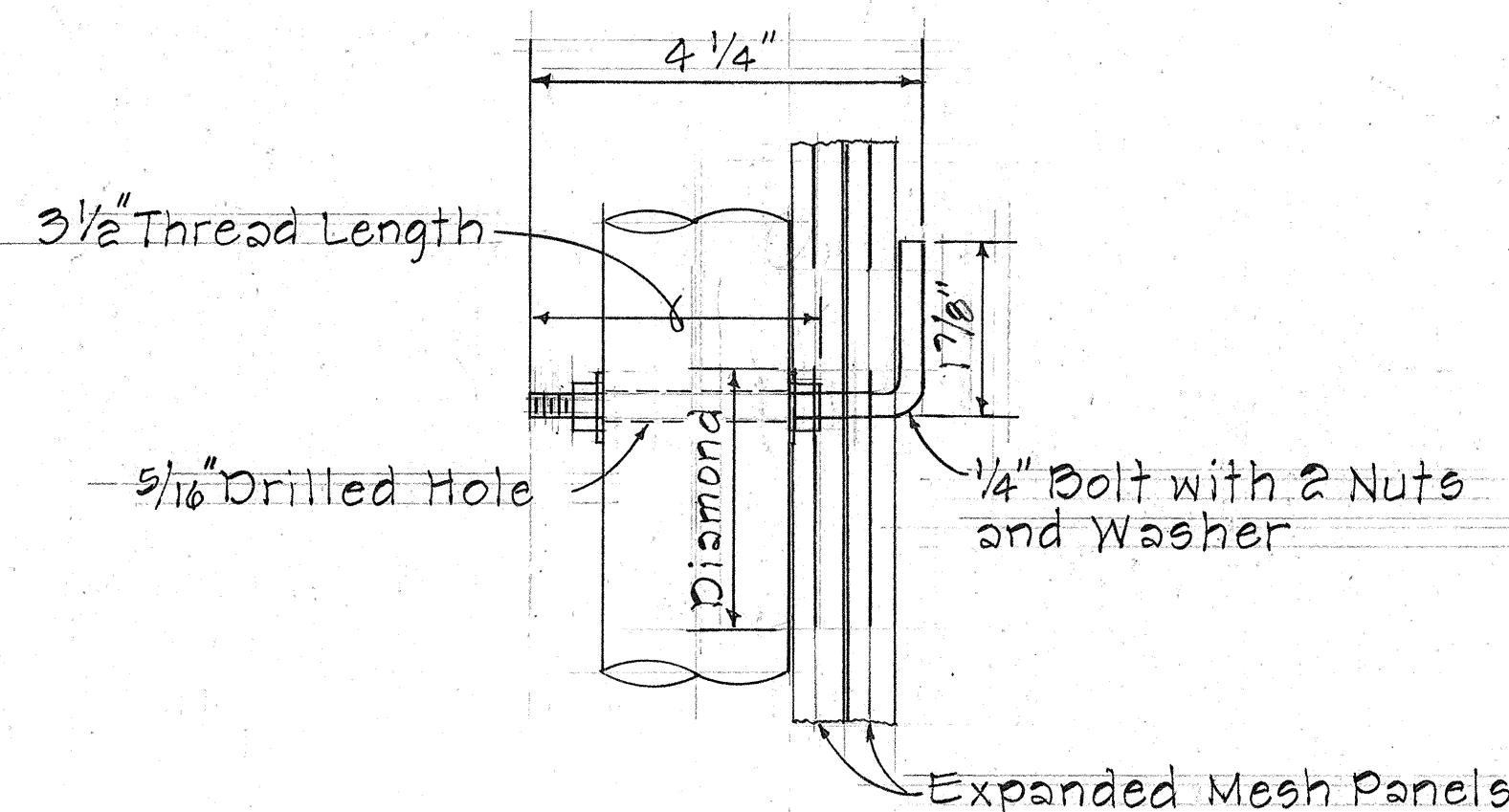


FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-HI-1(112):19	1973	23	176

3/8" Dia. Holes, 4 Holes at Anchor Posts only (Every 5th Post)



SECTION A-A
Not To Scale



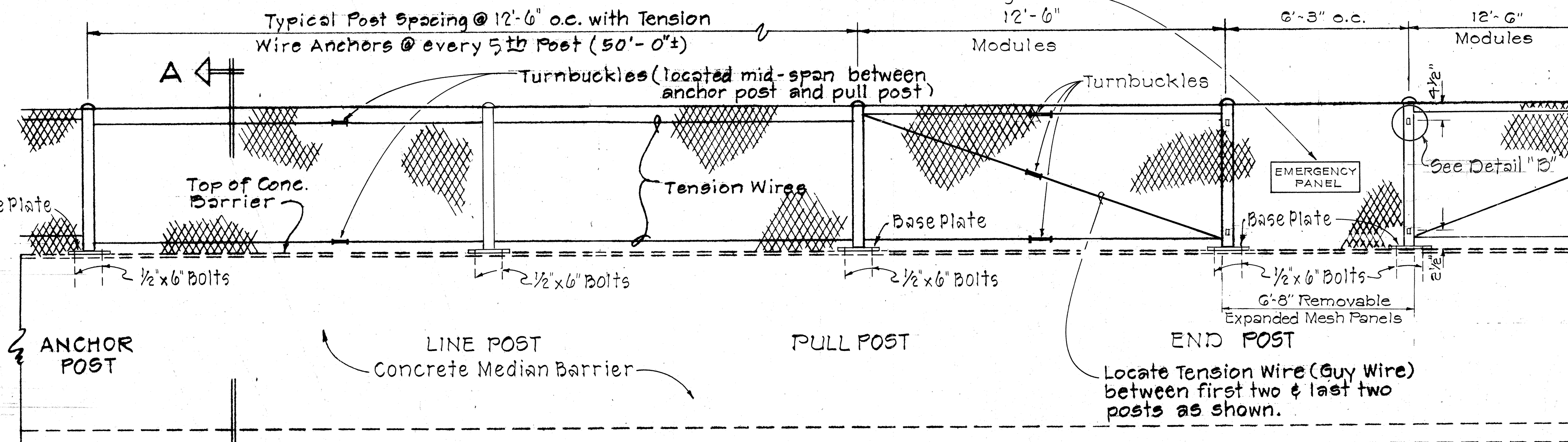
DETAIL B
Half Full Size

HEADLIGHT GLARE SCREEN SCHEDULE

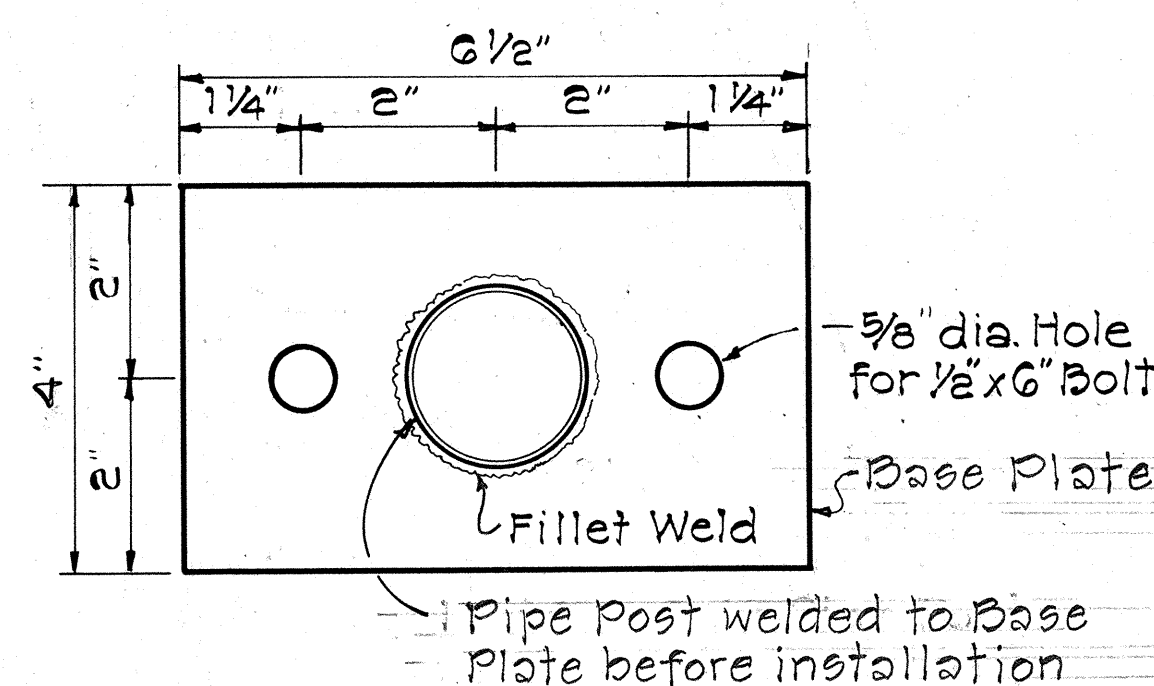
BASELINE STATION	LENGTH (LIN. FT.)
50+00 to 09+33	5,933
109+67 to 111+85	218
112+05 to 124+27	1,102
124+75 to 135+87	1,062
136+49 to 143+88	739
144+63 to 146+06	143
146+36 to 151+79	543
TOTAL	9,800

NOTE:

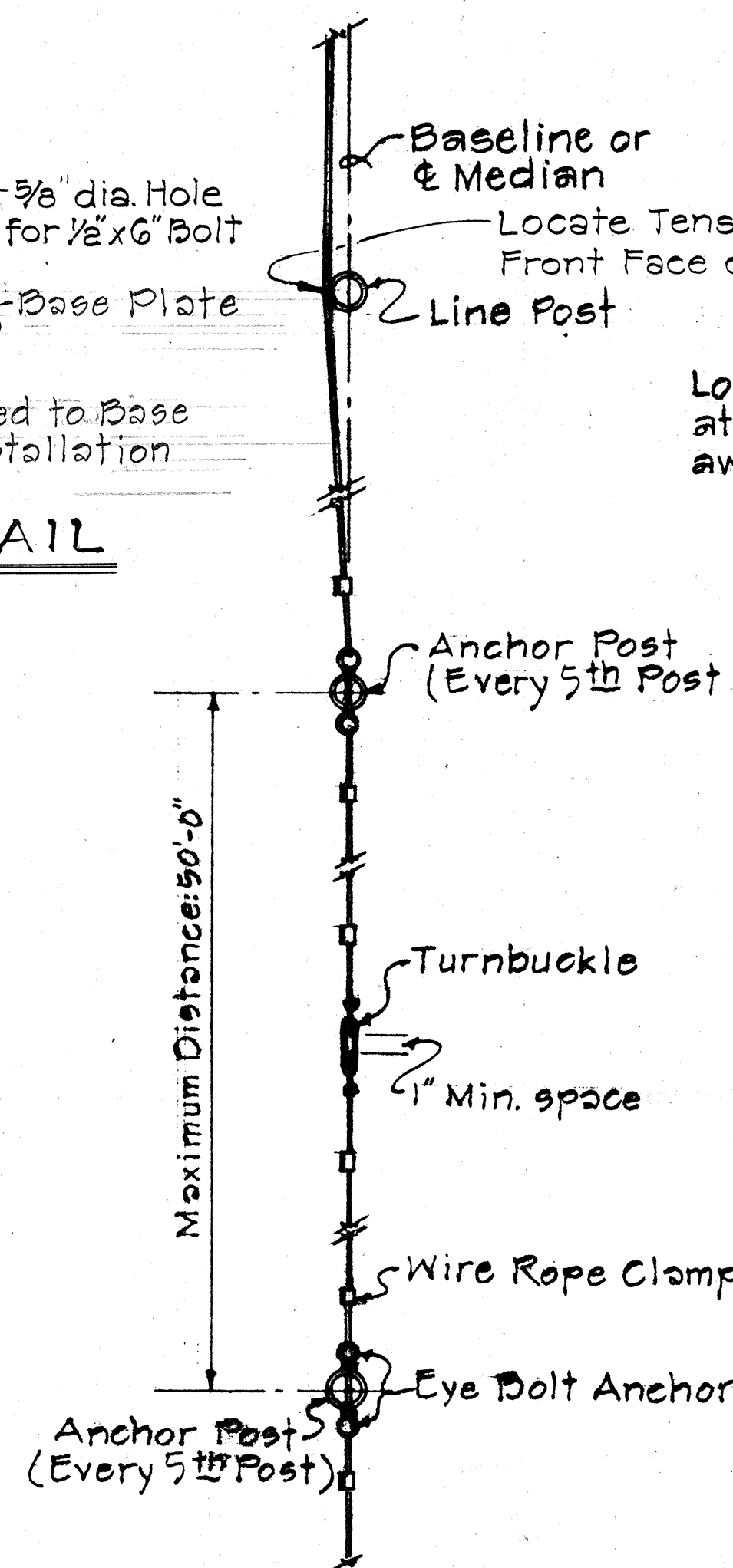
Stations and lengths shown above are approximate. The Contractor shall verify lengths.



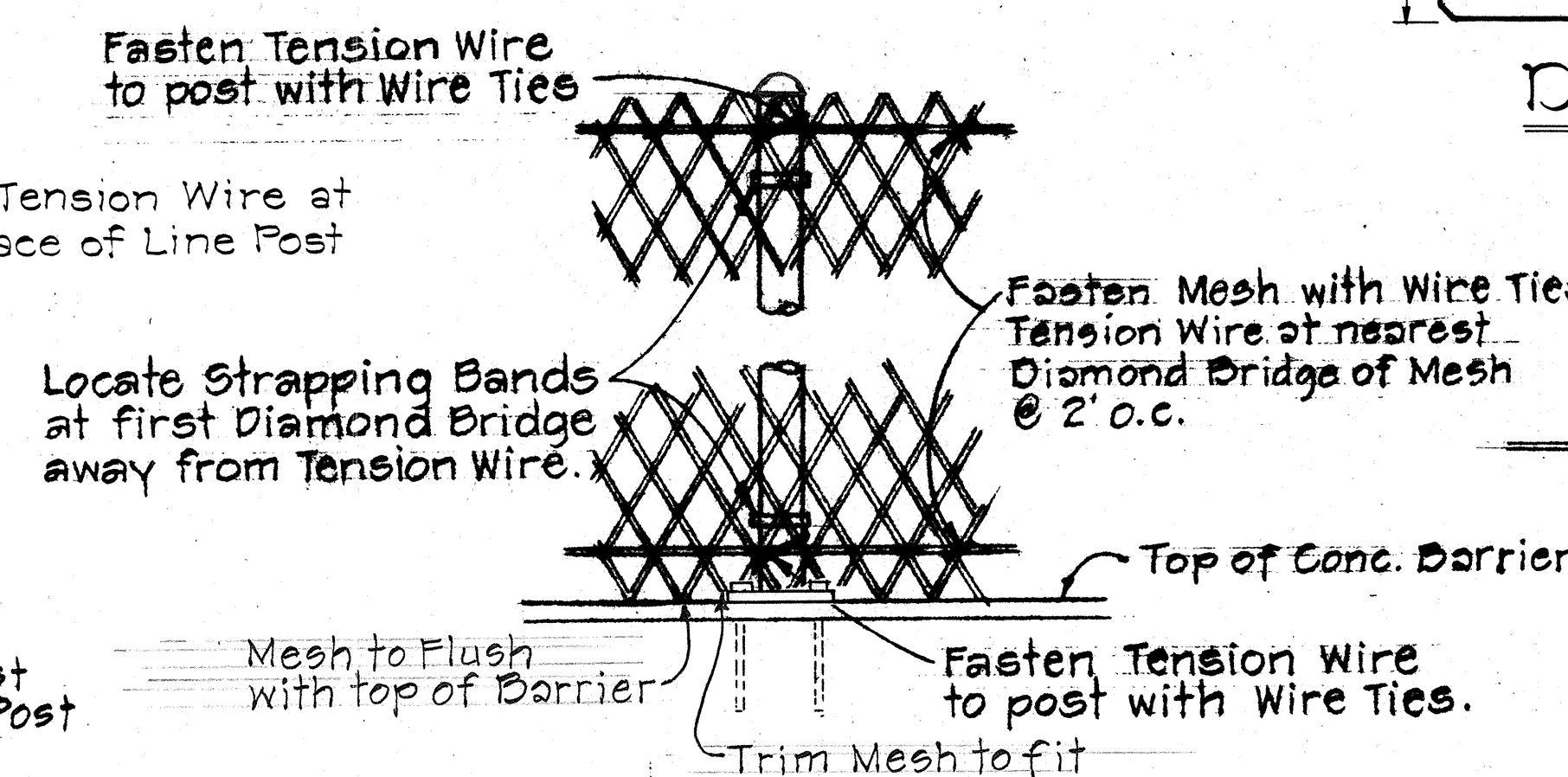
TYPICAL ELEVATION
Not to Scale



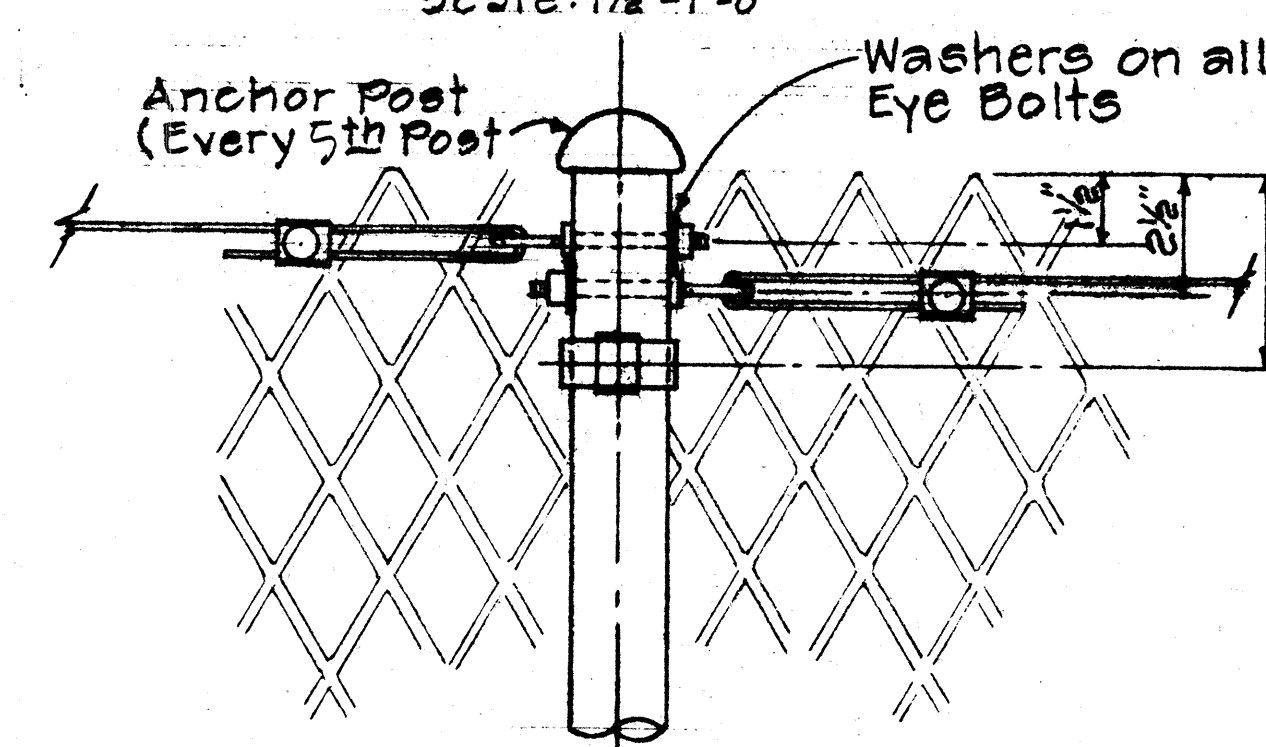
BASE PLATE DETAIL



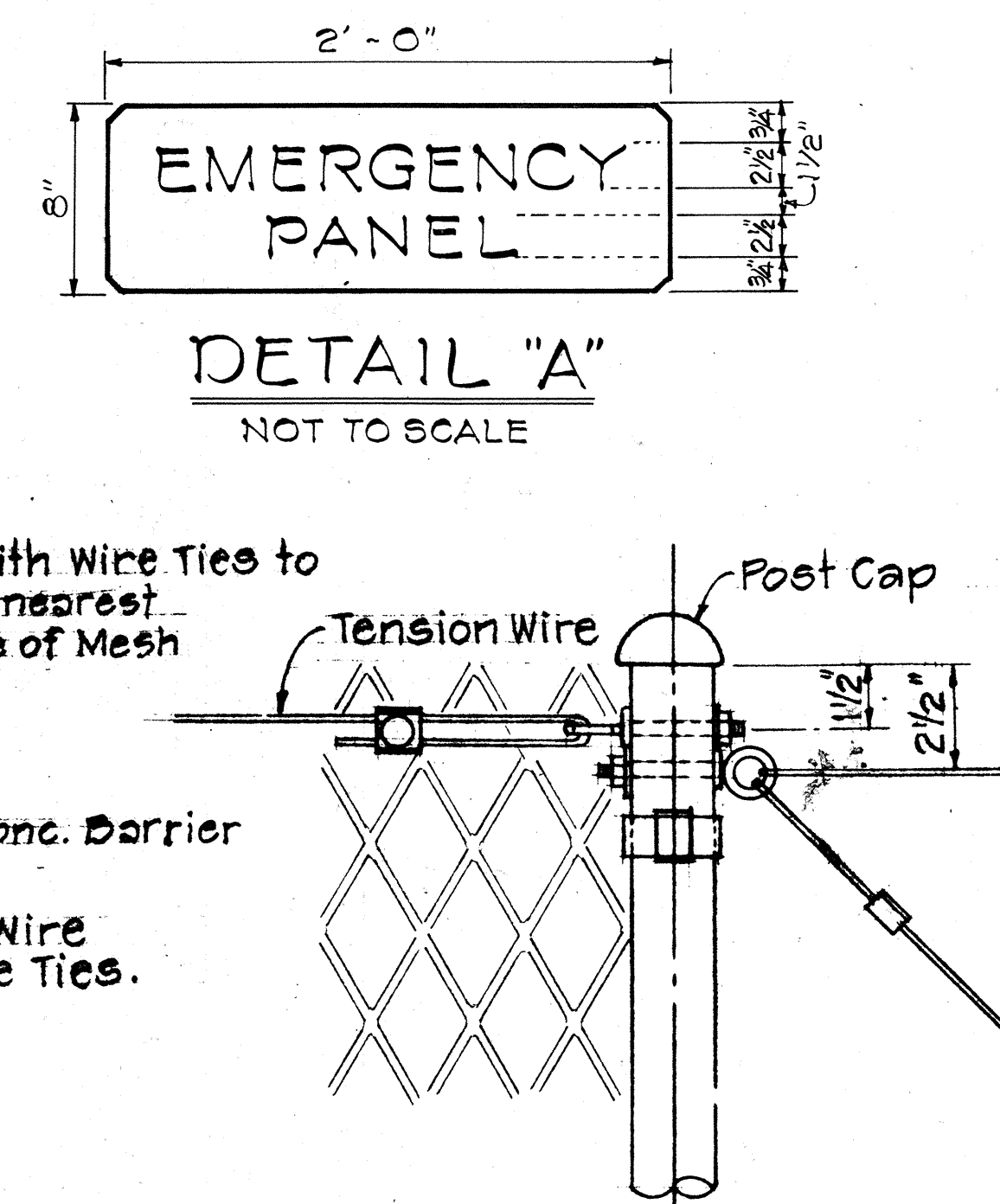
TENSION WIRE CONNECTIONS
Scale: 1 1/2" = 1'-0"



LINE POST CONNECTIONS
(Viewed From Mesh Side)
Scale: 1 1/2" = 1'-0"



TENSION WIRE ANCHOR DETAIL
Scale: 3" = 1'-0"



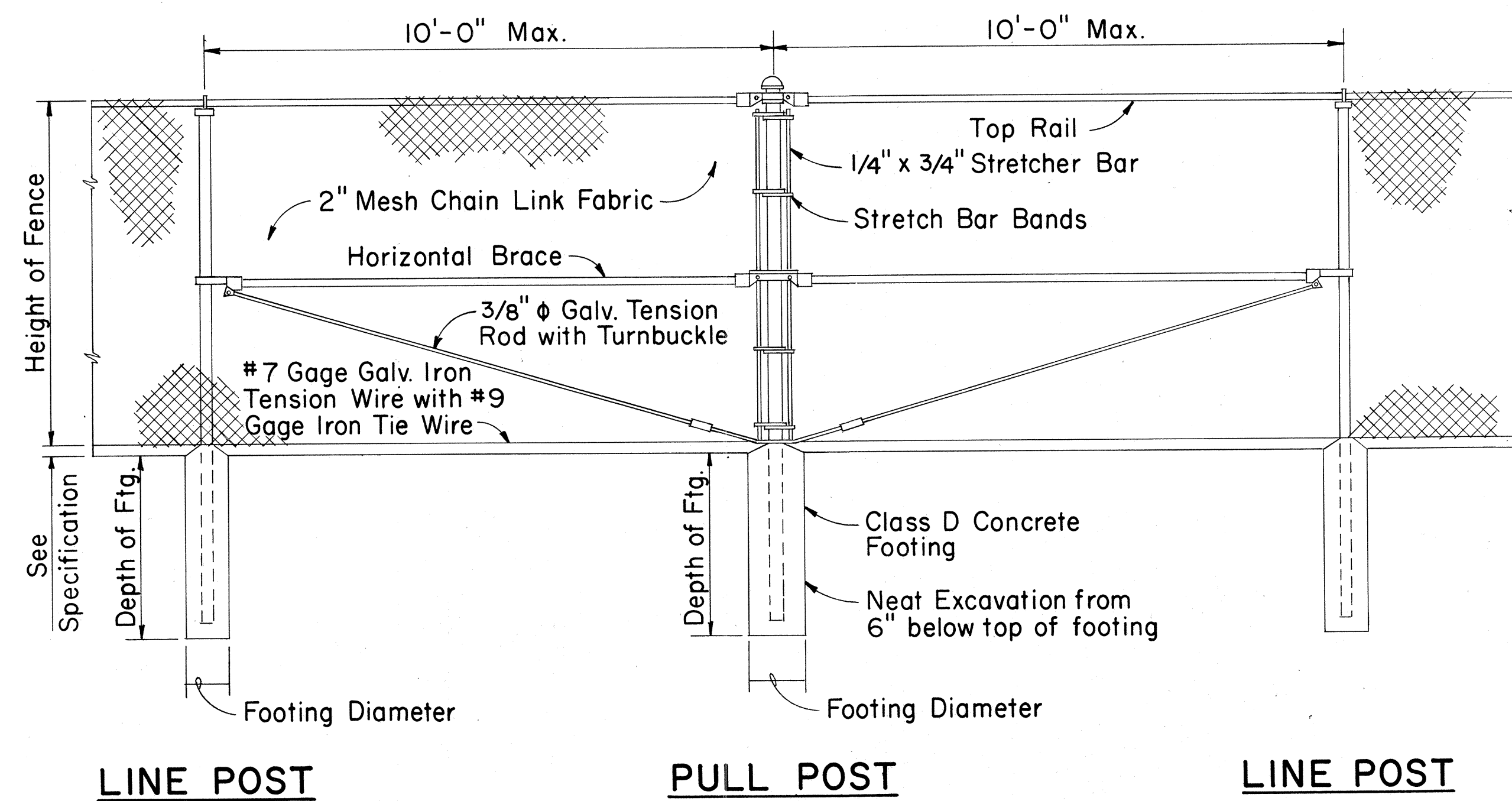
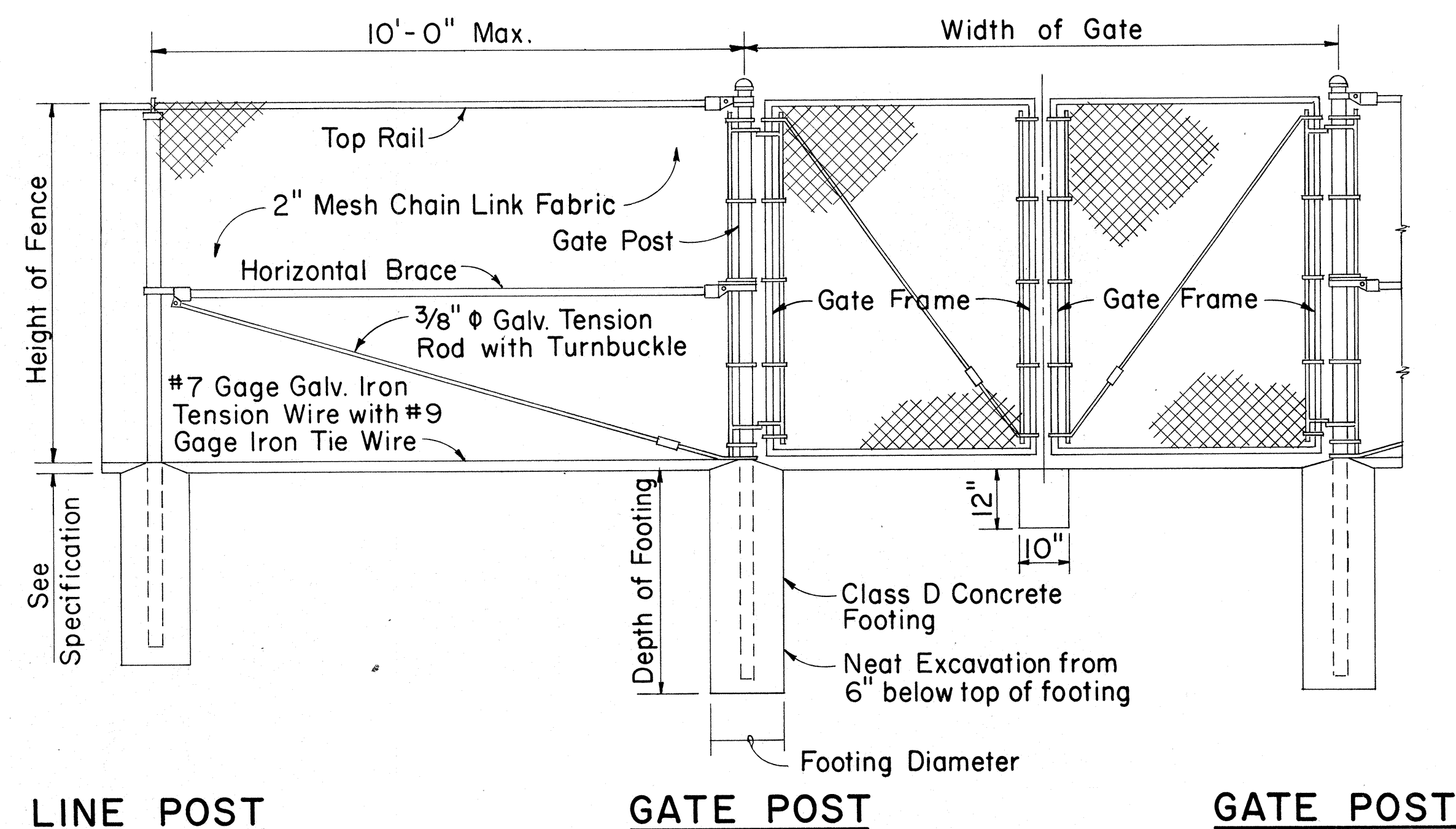
PULL POST DETAIL
Scale: 3" = 1'-0"

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

HEADLIGHT GLARE SCREEN

F.A.I. PROJ. No. I-HI-1(112):19
SCALE: AS NOTED
SHEET No. 1 OF 17 SHEETS

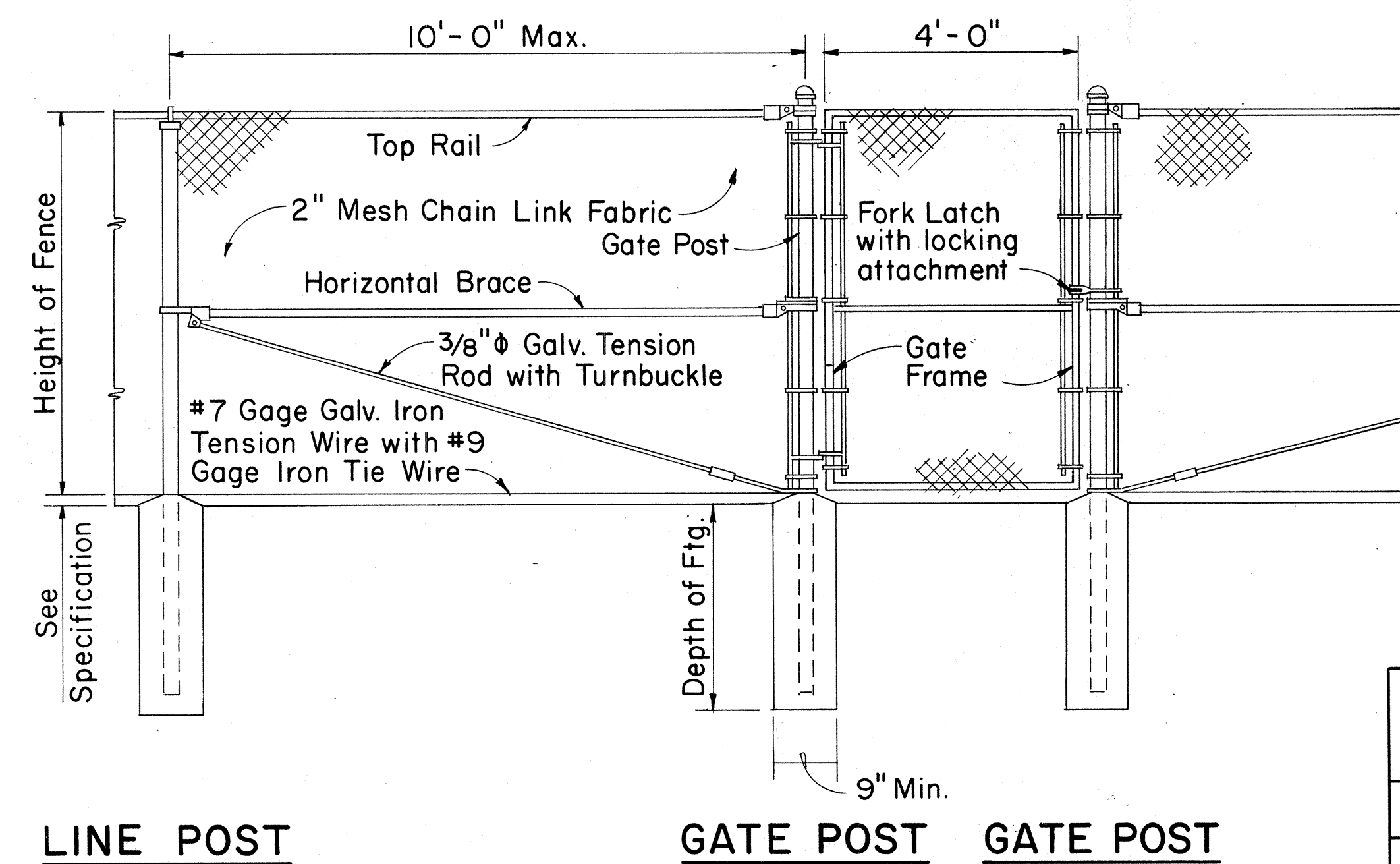
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	1-11-112-19	1973	24	176



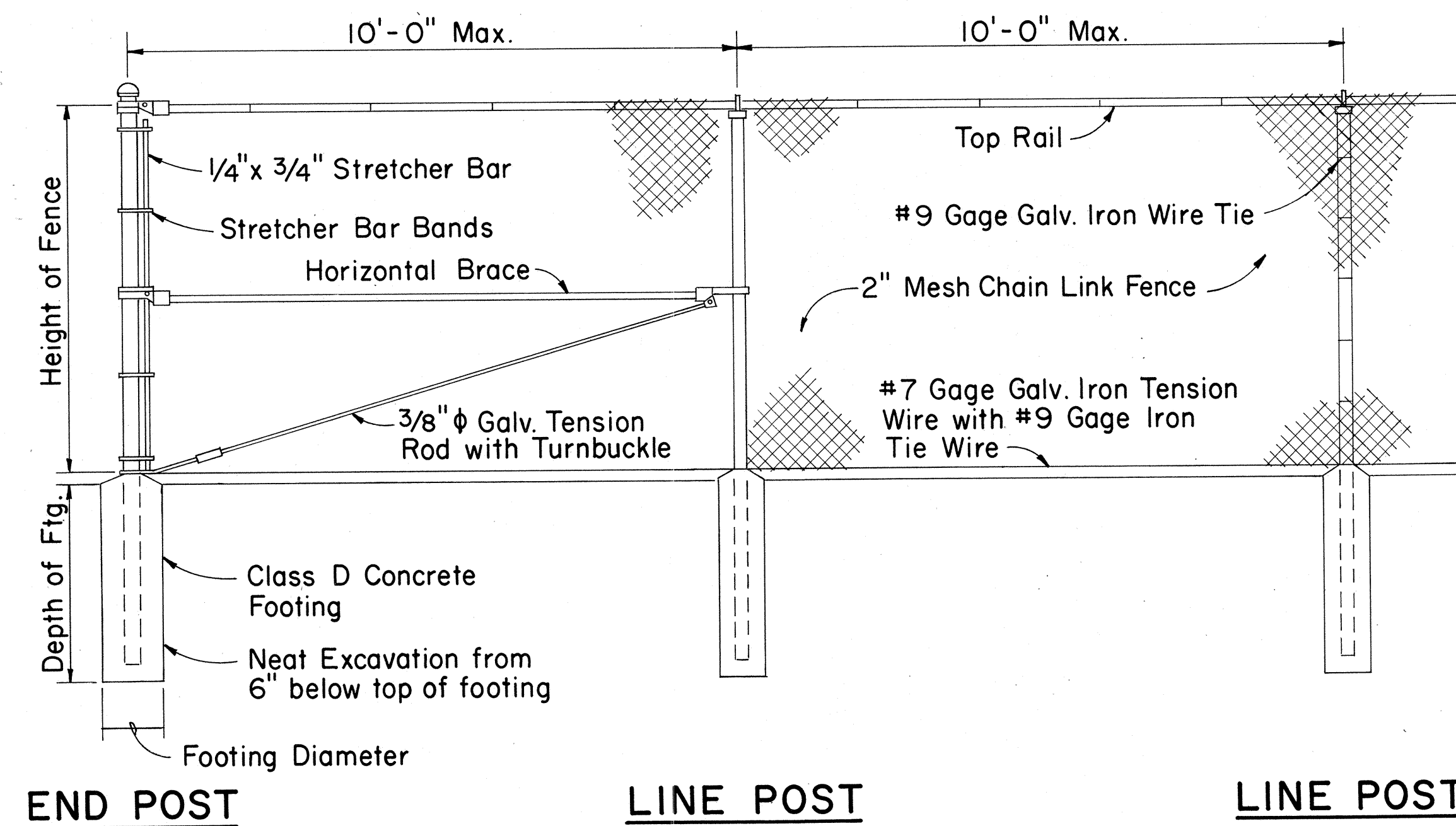
**TYPICAL SECTION
(WITH CONCRETE FOOTING)**

DETAIL OF CHAIN LINK GATE

- NOTE: 1. Gate fork latch and lock, flush plate and anchor, and plunger shall be installed with Gates, and shall be considered as incidental to Chain Link Fence Gate.
2. Gate frames shall be mitered and welded at corners.
3. Fence detail not shown shall be in accordance with the Standard Specifications.

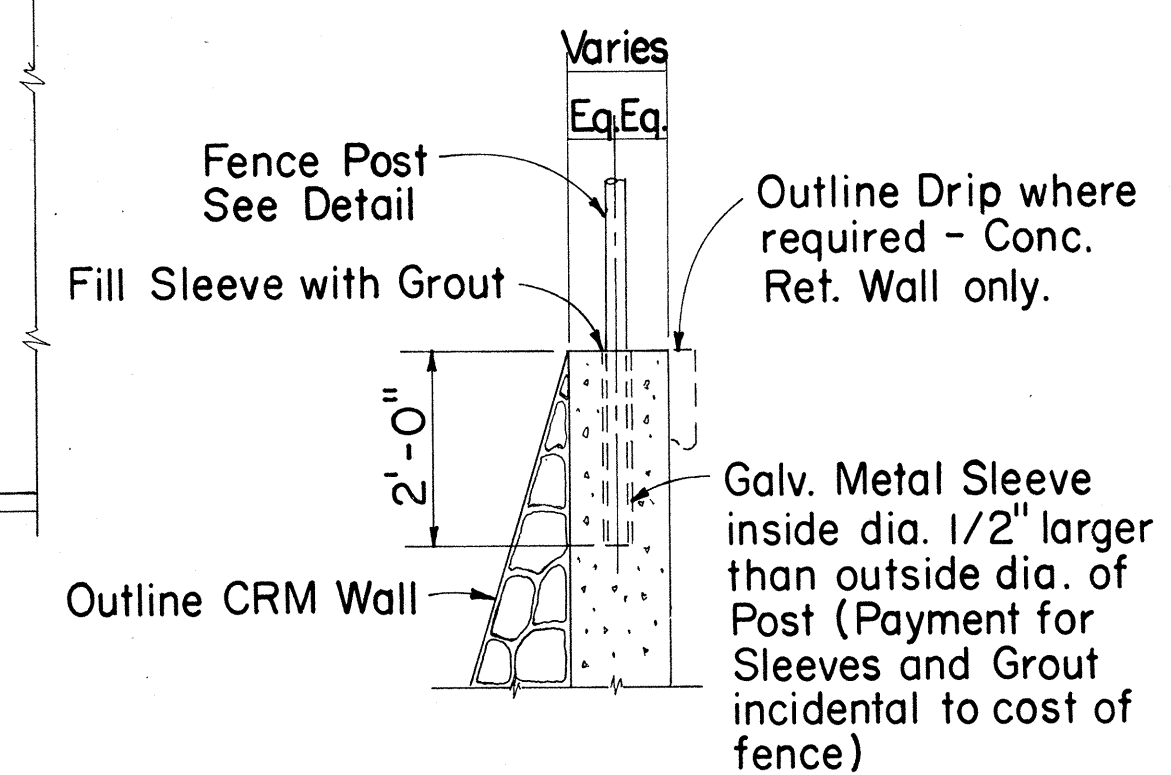


DETAIL OF 4 FT. CHAIN LINK GATE



CHAIN LINK FENCE DETAILS

Height of Fence	Minimum Depth of Footing		Minimum Footing Diameter	
	Line Post	Corner, Pull, End and Gate Posts	Line Post	Corner, Pull and End Posts
3'	2'-0"	2'-6"	8"	8"
4'	2'-6"	2'-6"	8"	8"
5'	3'-0"	3'-0"	8"	8"
6'	3'-0"	3'-0"	8"	9"



**TYPICAL SECTION
(ON CRM & CONC. RET. WALL)**

APPROVAL RECOMMENDED:

 HIGHWAY DESIGN ENGINEER 12-4-69 DATE

APPROVED:

 ASSISTANT CHIEF, ENGINEERING 12-10-69 DATE

NO.	REVISION	APPROVED BY	DATE

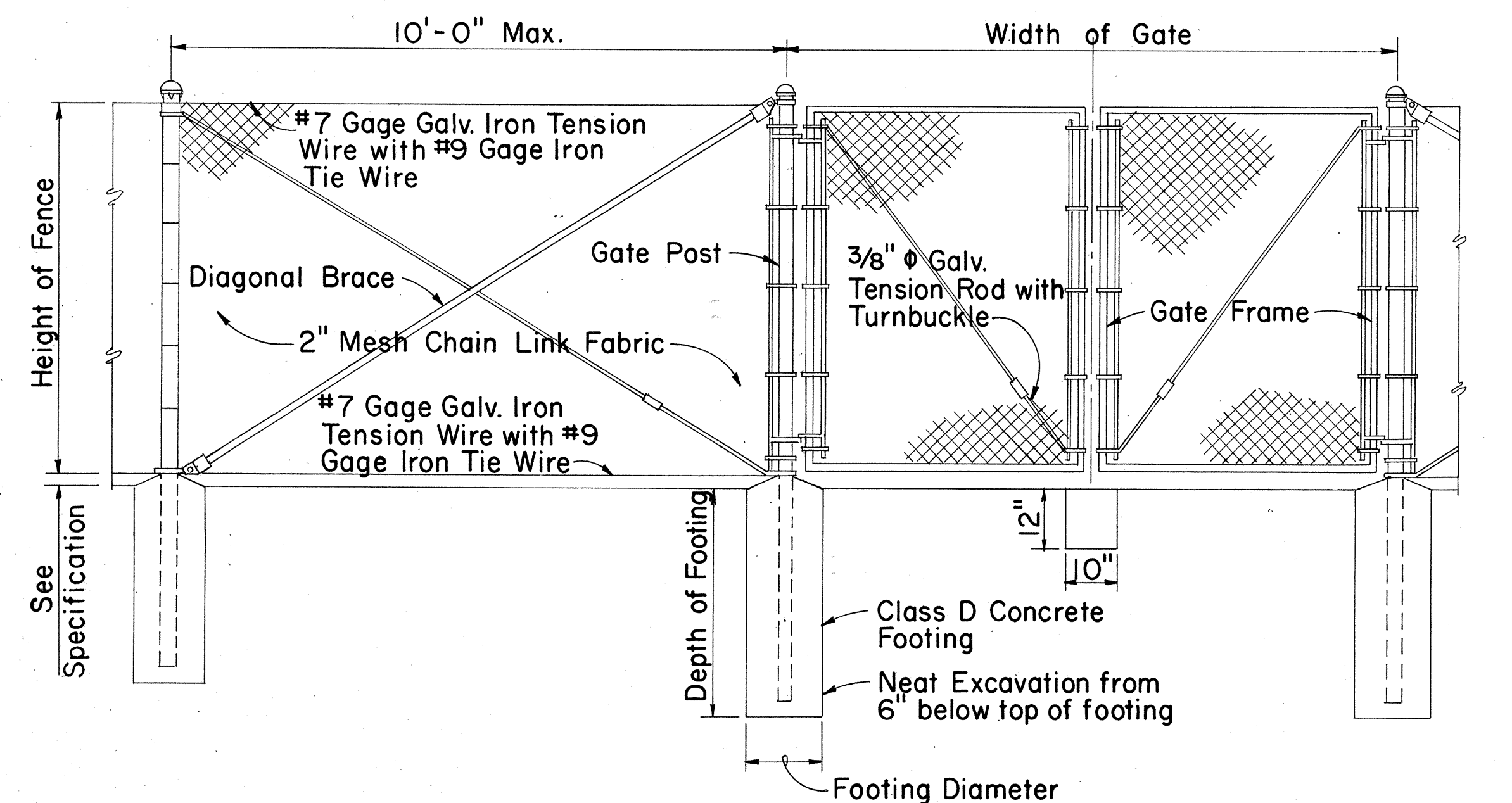
STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION

STANDARD DETAILS

**CHAIN LINK FENCE
(WITH TOPRAIL)**

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

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	1-11-1012-10	1973	25	176



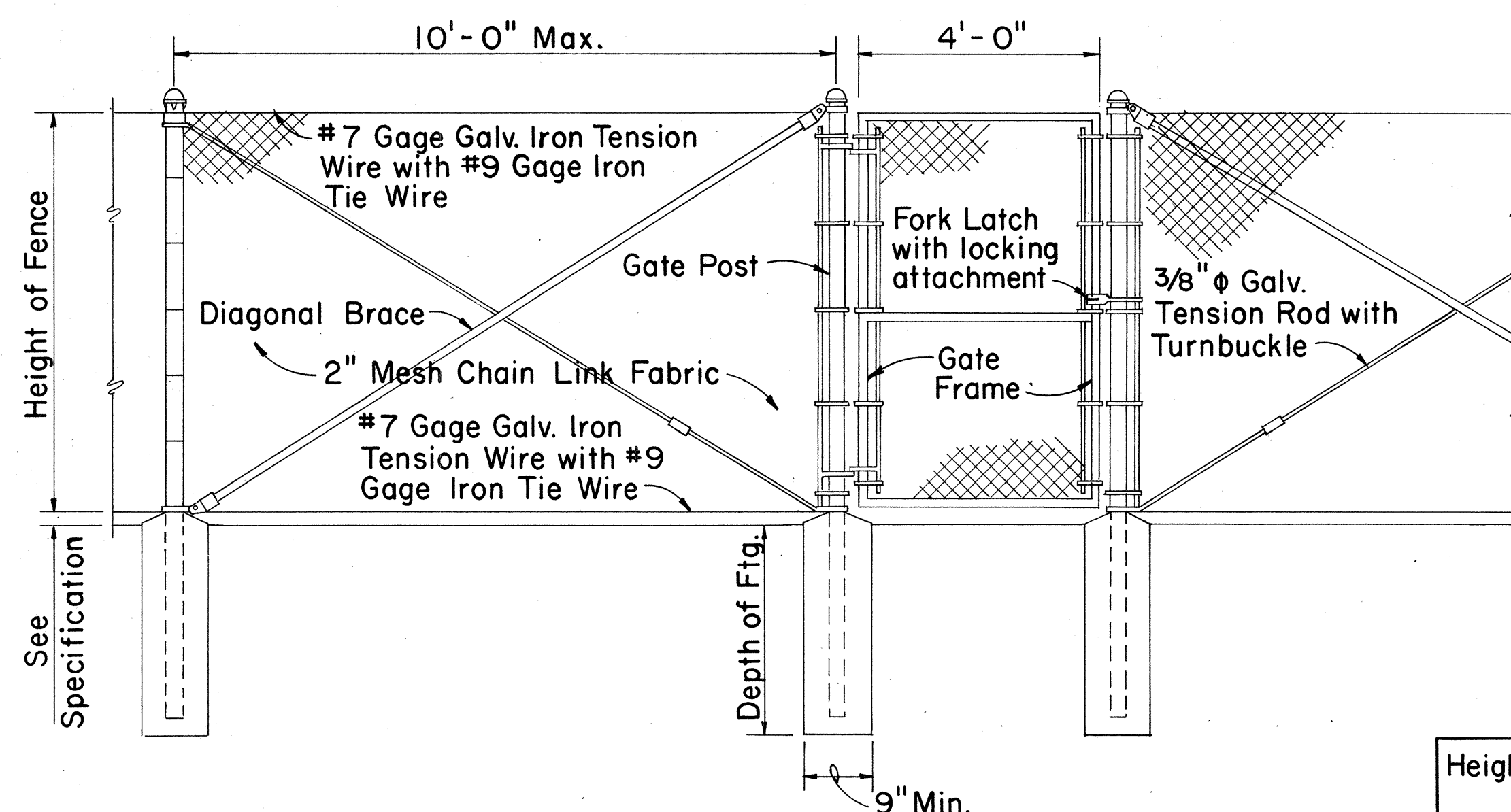
LINE POST

GATE POST

GATE POST

DETAIL OF CHAIN LINK GATE

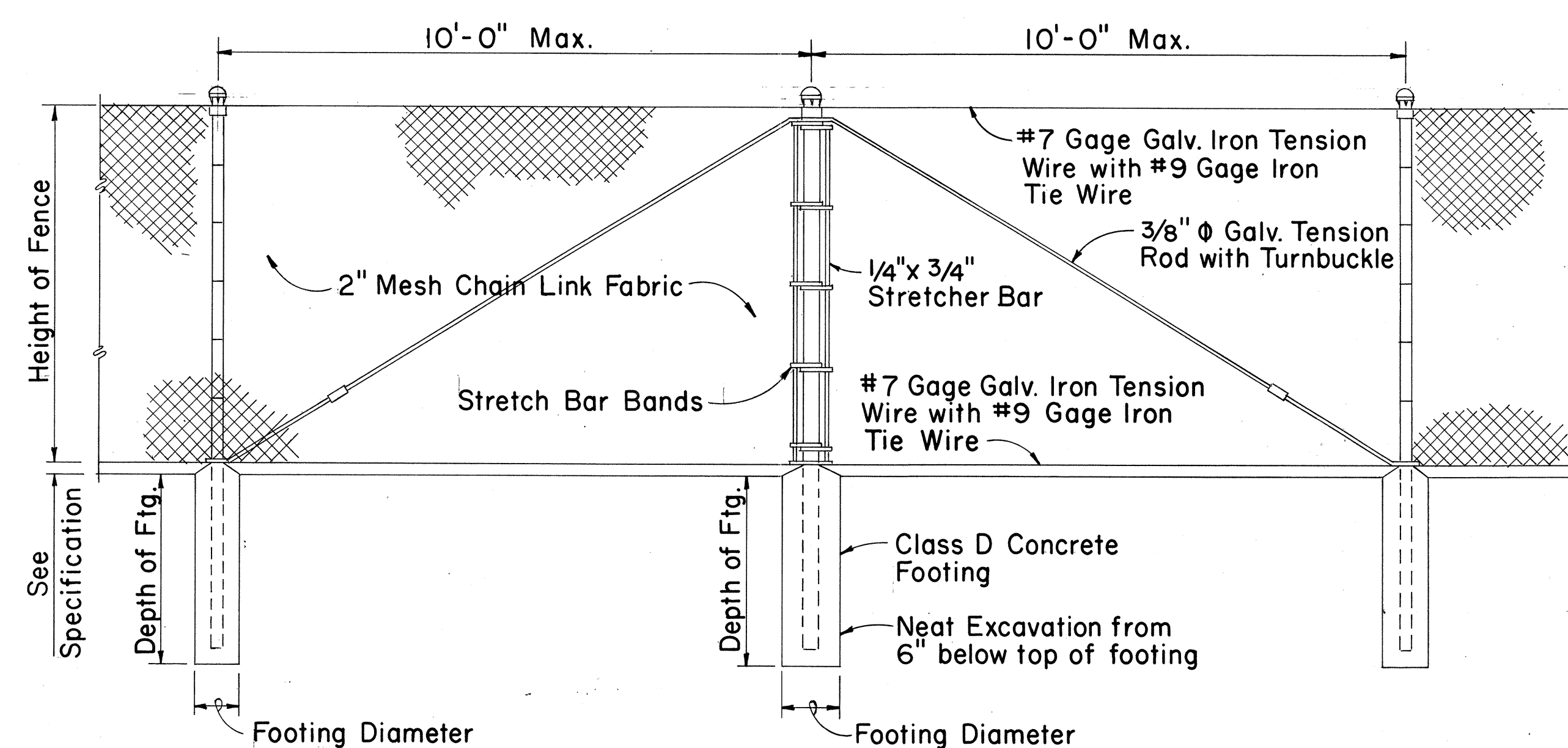
- NOTE: 1. Gate fork latch and lock, flush plate and anchor, and plunger shall be installed with Gates, and shall be considered as incidental to Chain Link Fence Gate.
2. Gate frames shall be mitered and welded at corners.
3. Fence detail not shown shall be in accordance with the Standard Specifications.



LINE POST

GATE POST GATE POST

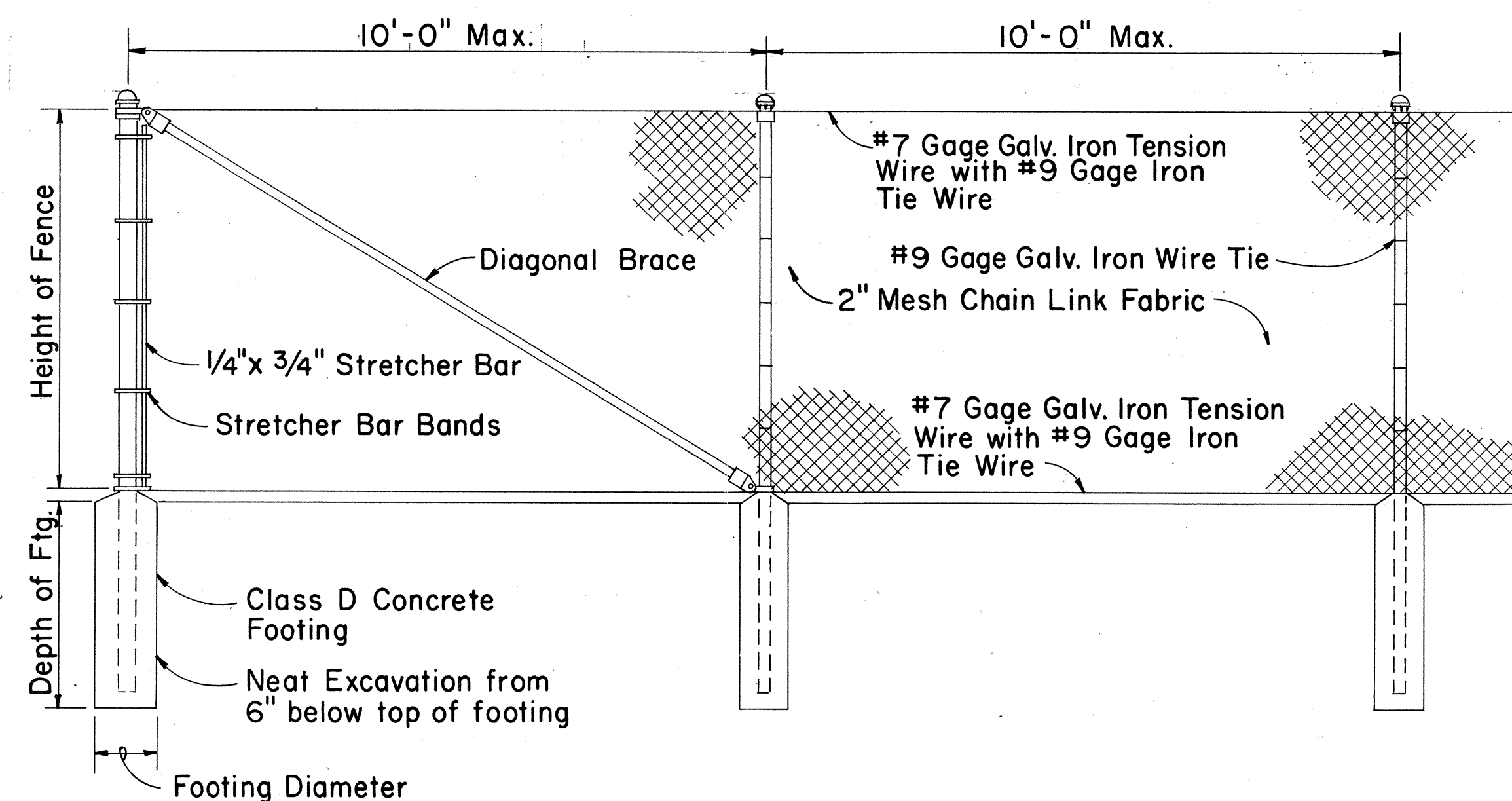
DETAIL OF 4 FT. CHAIN LINK GATE



LINE POST

PULL POST

LINE POST



END POST

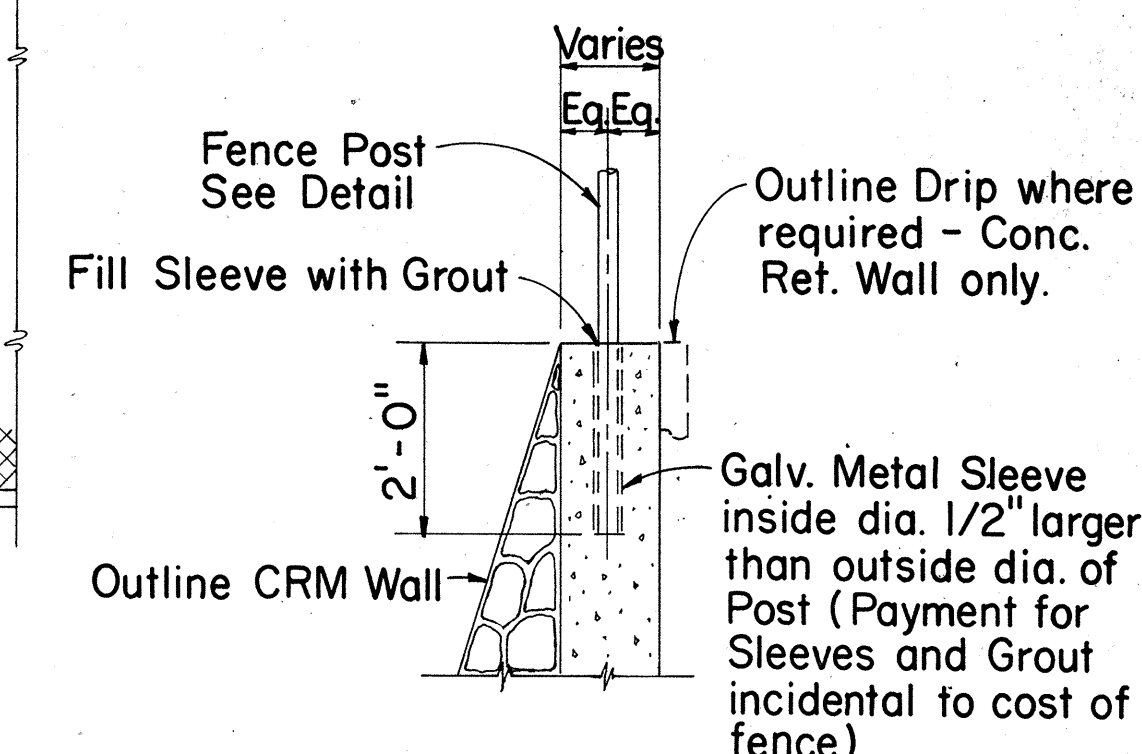
LINE POST

LINE POST

CHAIN LINK FENCE DETAILS

Height of Fence	Minimum Depth of Footing		Minimum Footing Diameter	
	Line Post	Corner, Pull, End and Gate Posts	Line Post	Corner, Pull and End Posts
3'	2'-0"	2'-6"	8"	8"
4'	2'-6"	2'-6"	8"	8"
5'	3'-0"	3'-0"	8"	8"
6'	3'-0"	3'-0"	8"	9"

TYPICAL SECTION (WITH CONCRETE FOOTING)



TYPICAL SECTION (ON CRM & CONC. RET. WALL)

APPROVAL RECOMMENDED:

HIGHWAY DESIGN ENGINEER 12-4-69
DATE

APPROVED:

ASSISTANT CHIEF, ENGINEERING 12-10-69
DATE

NO.	REVISION	APPROVED BY	DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

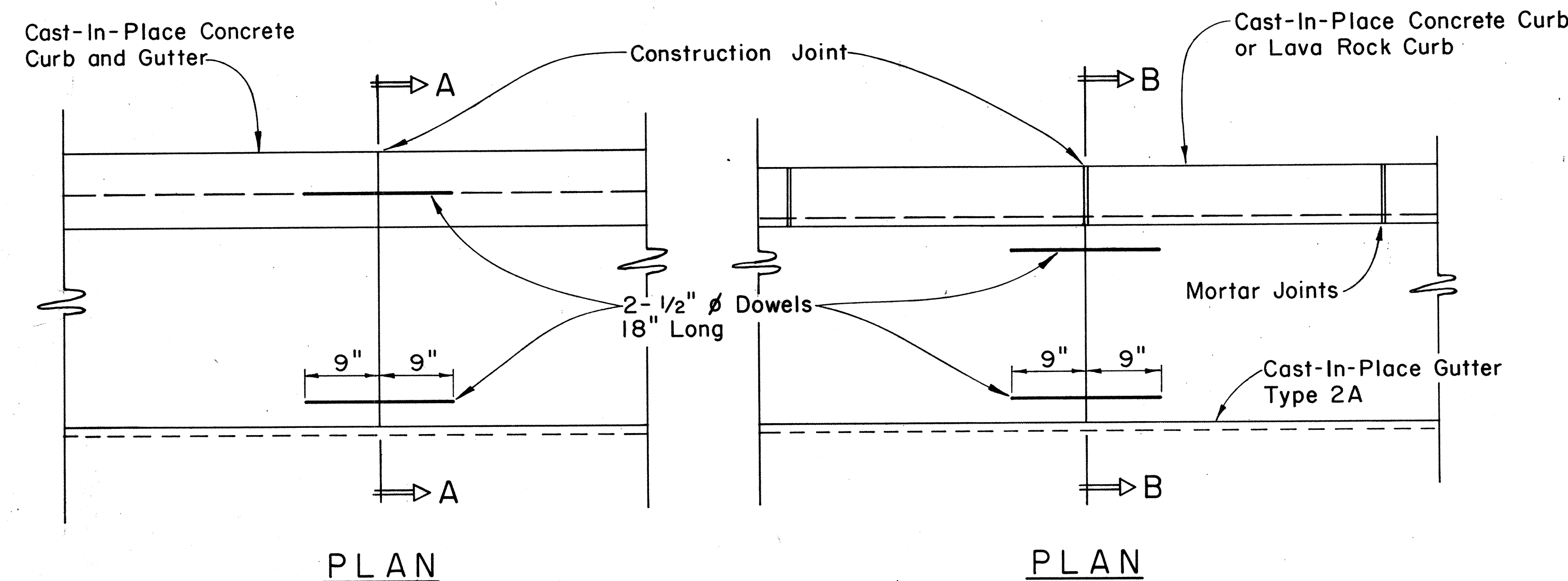
STANDARD DETAILS

CHAIN LINK FENCE
(WITHOUT TOPRAIL)

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

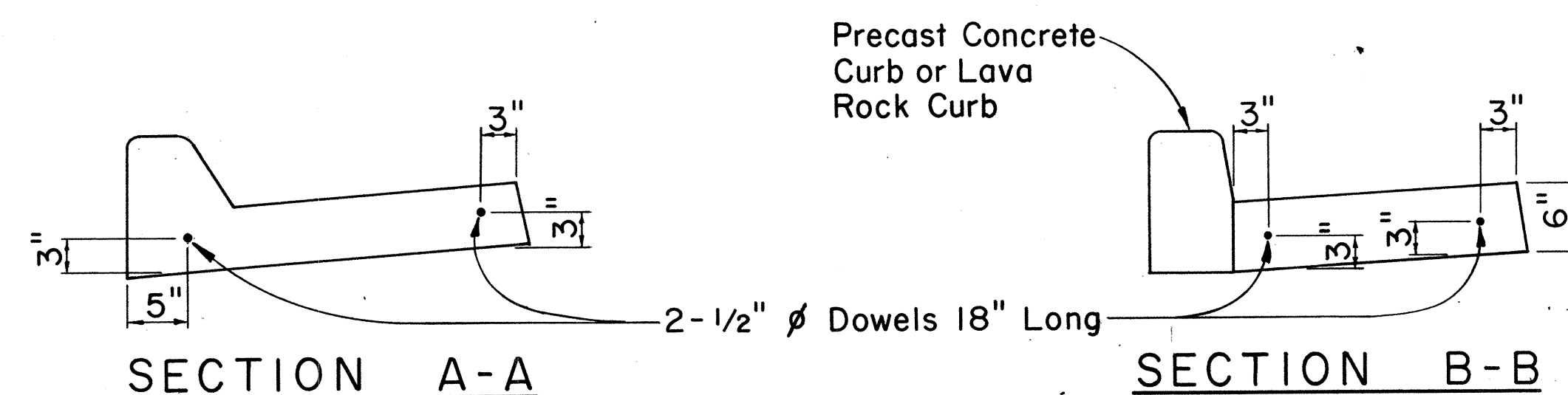
25

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	1-HI-1012-19	1973	26	176



PLAN

PLAN



SECTION A-A

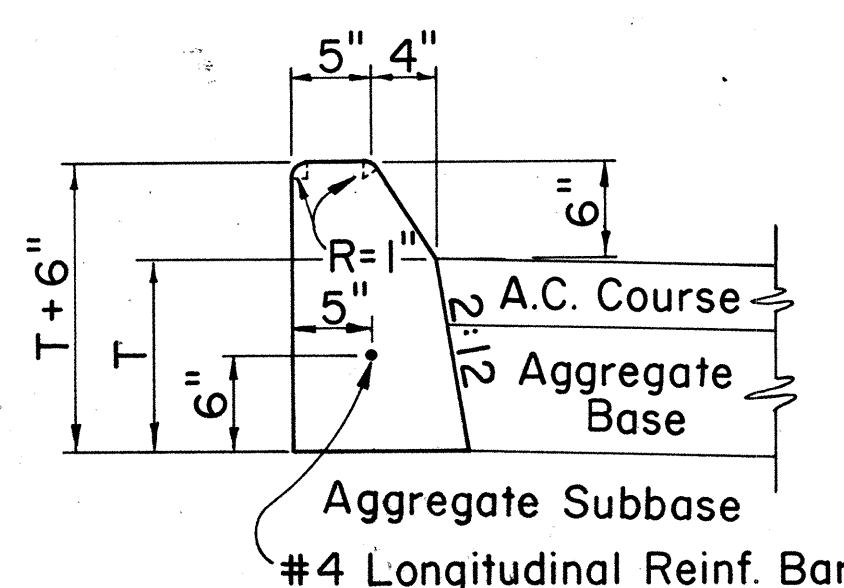
SECTION B-B

CAST-IN-PLACE CURB & GUTTER

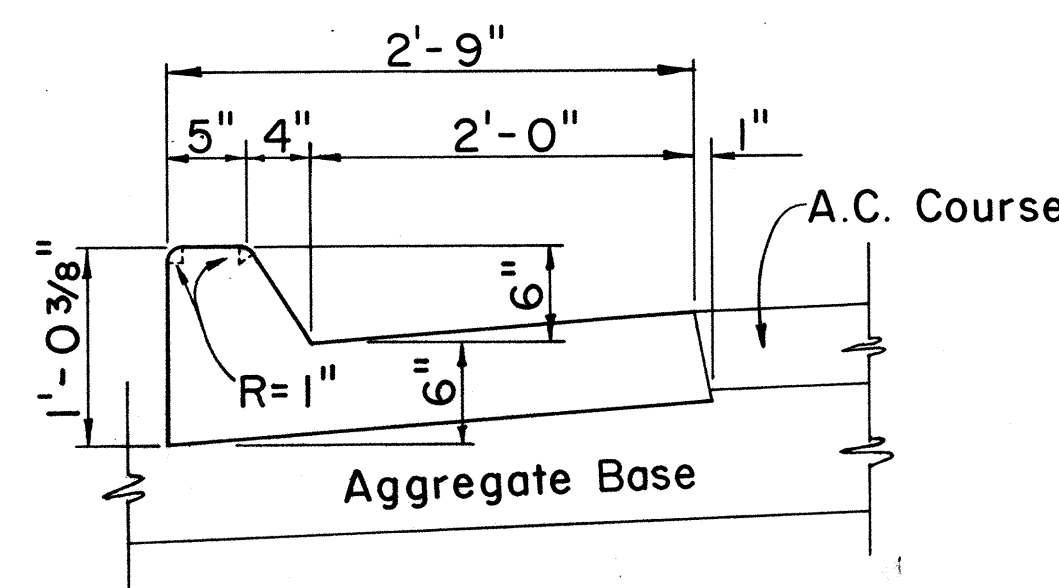
CAST-IN-PLACE GUTTER

CONSTRUCTION JOINT DETAIL

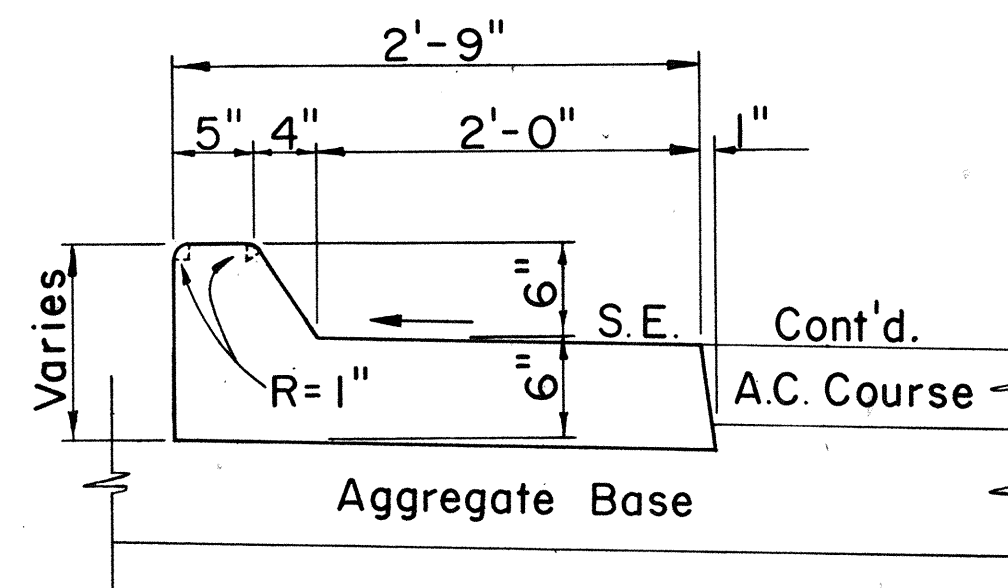
Scale: 1" = 1'-0"



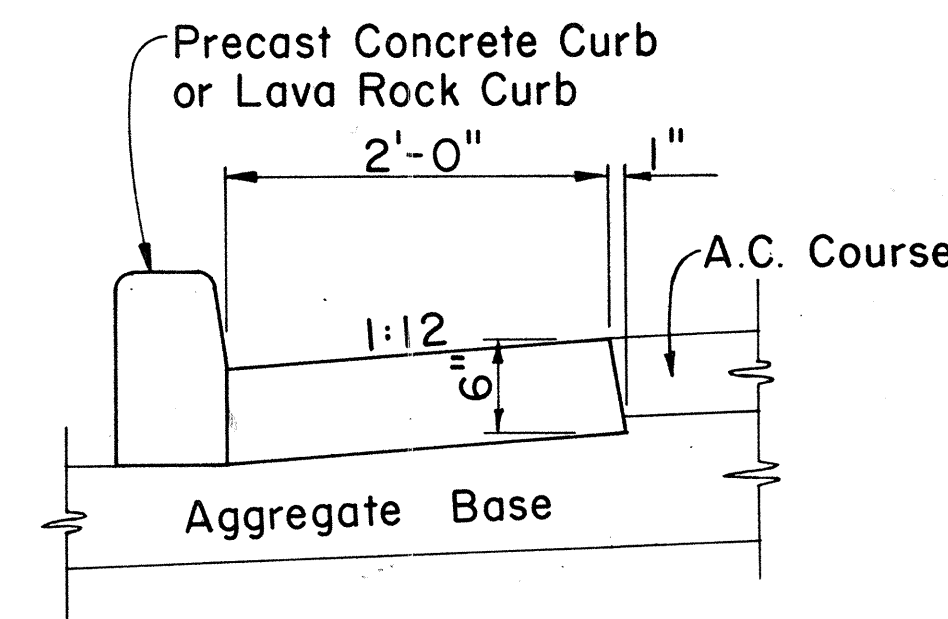
CURB, TYPE 2A



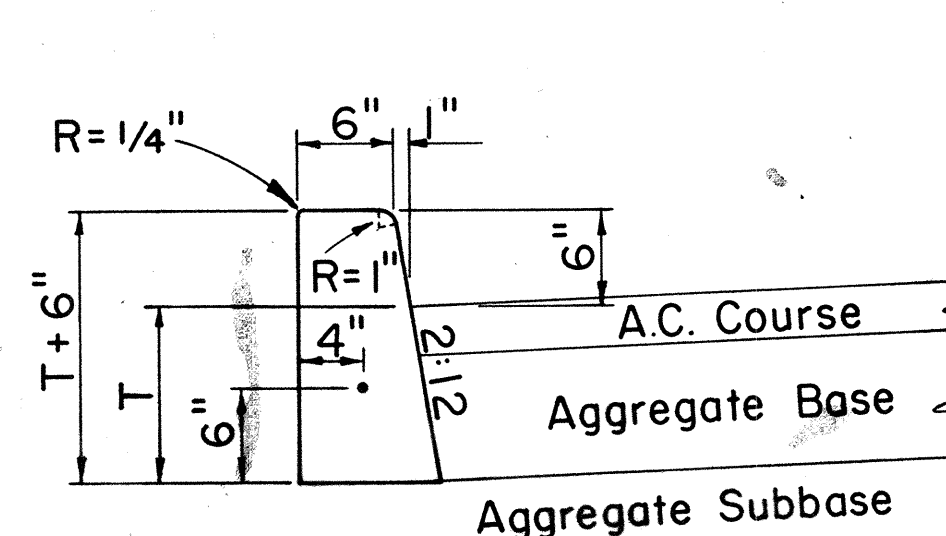
CURB & GUTTER, TYPE 2AG



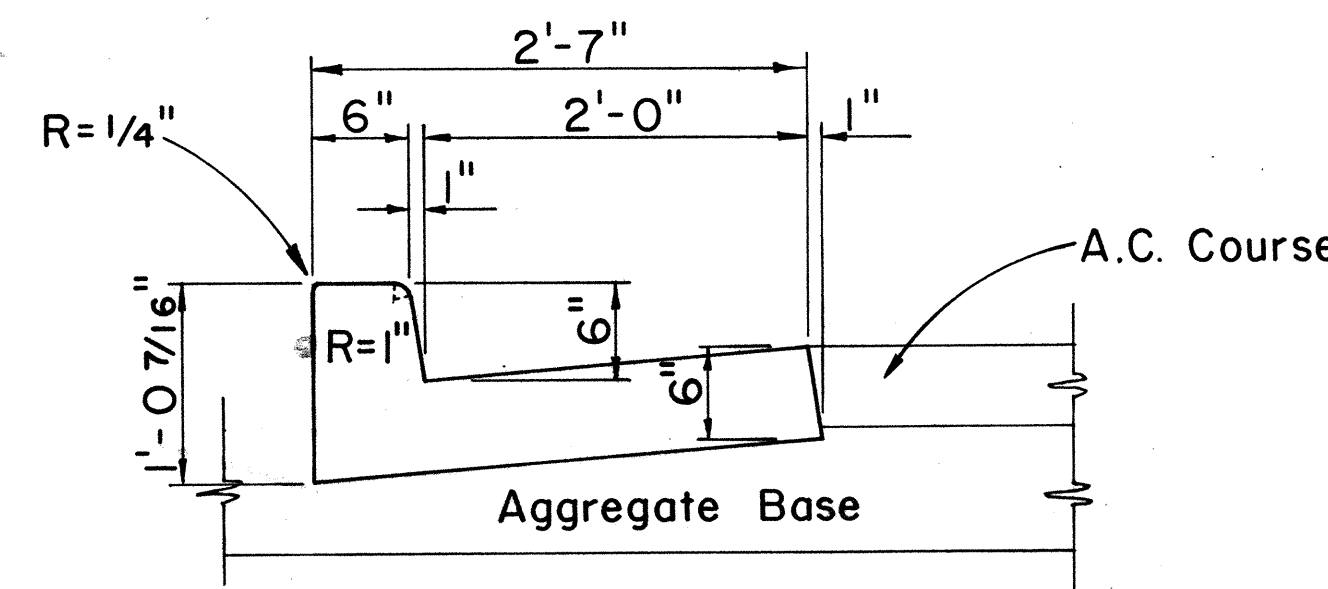
CURB & GUTTER, TYPE 2AGM



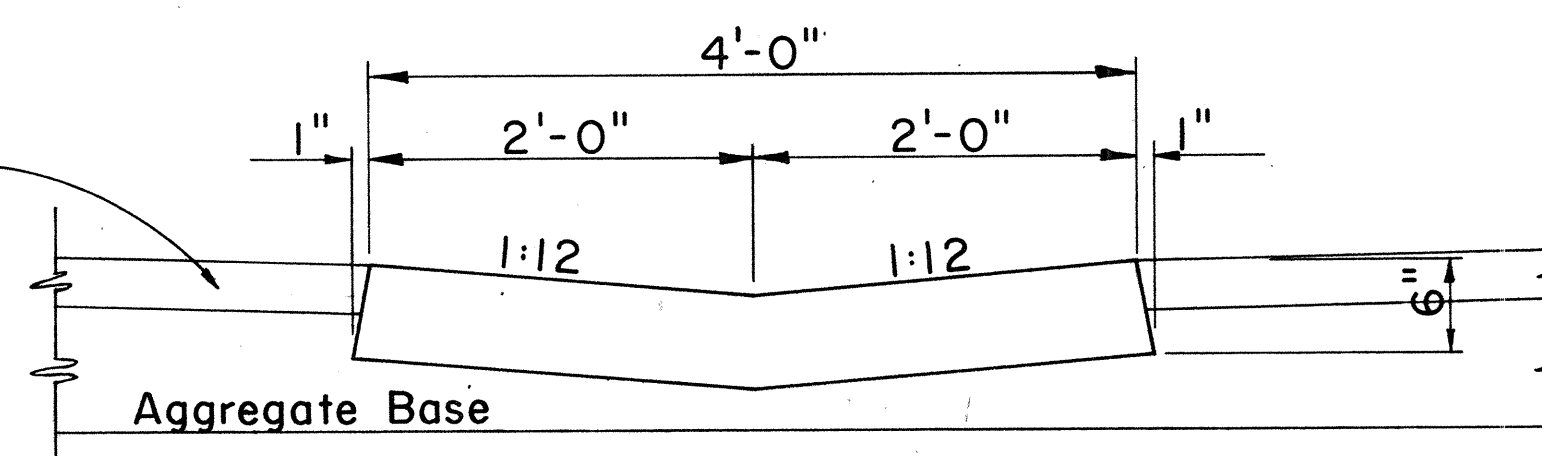
GUTTER, TYPE 2A



CURB, TYPE 2D



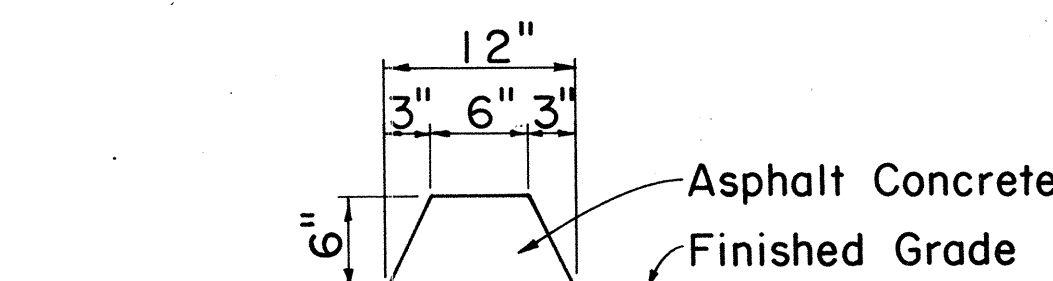
CURB & GUTTER, TYPE 2DG



GUTTER, TYPE 2G

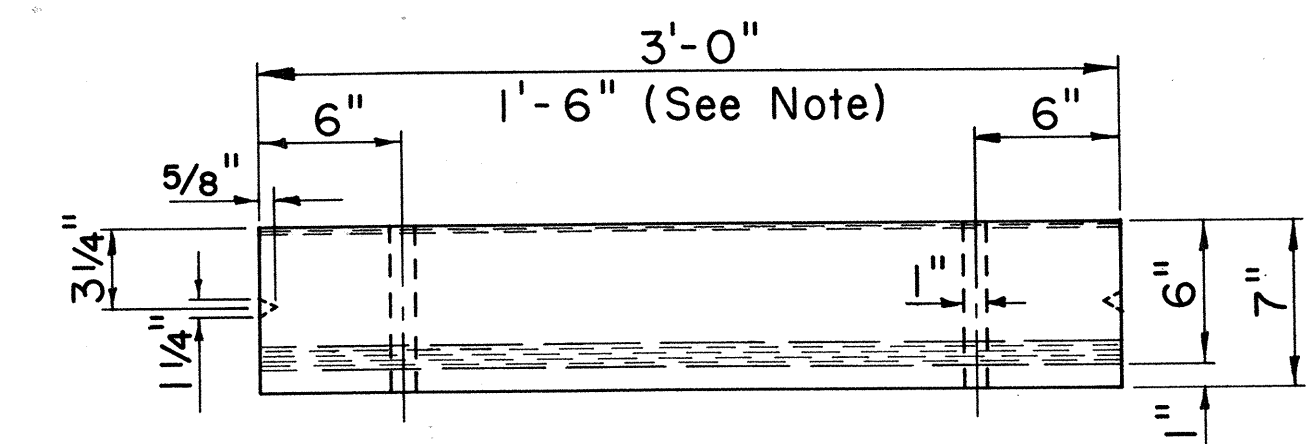
CAST-IN-PLACE CONCRETE CURBS AND/OR GUTTERS

Scale: 1" = 1'-0"

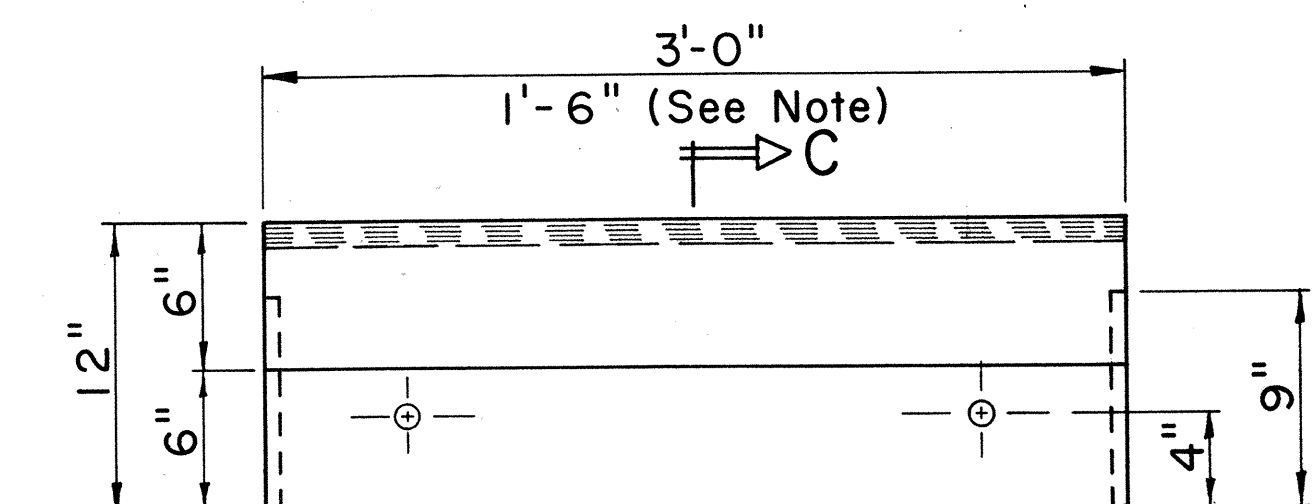


CURB, TYPE 6
BITUMINOUS CURB

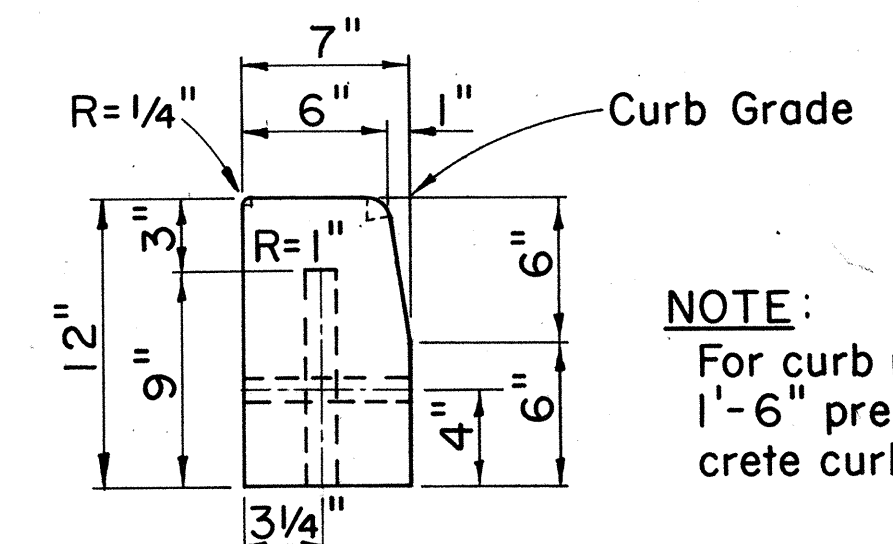
Scale: 1 1/2" = 1'-0"



PLAN



ELEVATION



SECTION C-C

CURB, TYPE 3D

PRE-CAST CONC. CURB

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

NOTE:
For curb returns use
1'-6" pre-cast concrete curbs.

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

APPROVED:
M. J. J. J. 12-10-69
ASSISTANT CHIEF, ENGINEERING DATE

NO.	REVISION	APPROVED BY	DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

STANDARD DETAILS
TYPICAL DETAILS OF CURB
AND/OR GUTTERS

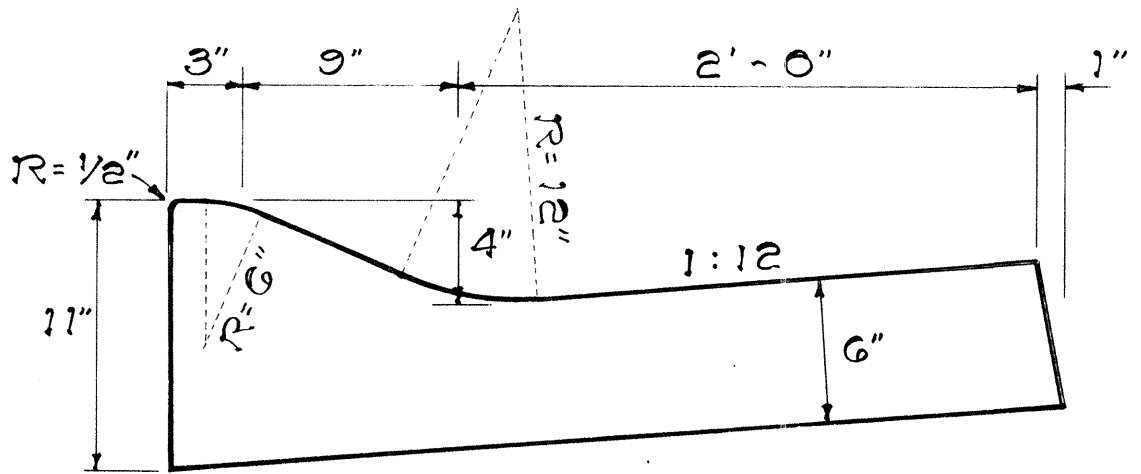
Scale: As Shown

DATE	
DESIGNED BY	
CHECKED BY	
NOTED BY	
ORIGINAL	

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-H-1(112)19	1973	27	176

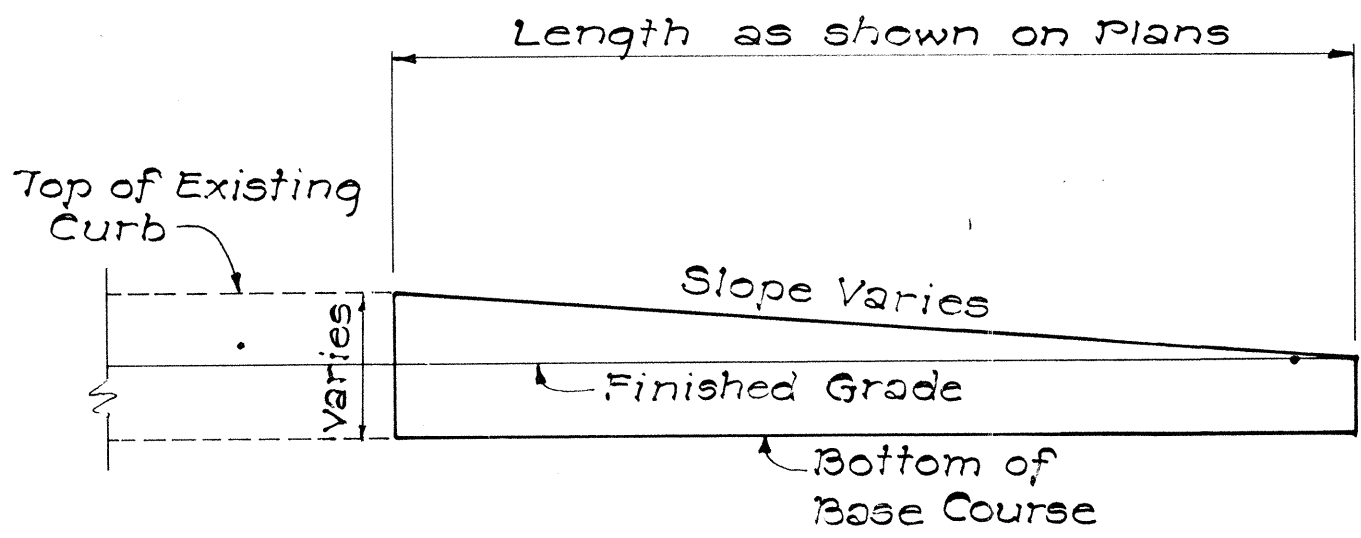
LOCATION			Type 3 Single	Reconst. Type 3 Single	Type 3 Double with Rub Rails	Type 3 Guard Rail with Spacer Block on Existing Post	Type 4B	Type 4C
	BEGIN STATION	END STATION						
FREEWAY	Sta.	Sta.						
RIGHT	56+00	64+45	62.5	225				
LEFT	56+12	64+50	337.5	500				
RIGHT	65+30	72+05	375	300				
LEFT	65+35	71+35	325	275				
RIGHT	78+28	79+78	110	40				
LEFT	80+27	81+27	60	40				
RIGHT	83+52	89+23	162.5	425				
LEFT	85+36	89+45	75	325				
RIGHT	95+05	103+60	450	400				
LEFT	102+25	102+55						30
LEFT	103+62	104+22	62.5					
RIGHT	108+55	109+55	100					
LEFT	109+40	111+82	240					
RIGHT	110+05	111+85	180					
LEFT	112+62	114+11	150					
RIGHT	123+15	124+15	100					
LEFT	124+75	125+70	95					
RIGHT	125+83	126+33	50					
LEFT	127+20	128+10	90					
LEFT	136+46	137+46	50	50				
LEFT	144+64	146+80	100	125				
LEFT	102+55	103+05					50	
RAMPS								
KALIHI ST.	4+45	6+20	175					
K-G(Lt)	4+30	6+25	200					
K-G(Rt)	3+53	4+59	87.5					
B (Rt)	0+06	0+76	70					
D (Lt)	10+90	11+30	37.5					
B (Rt)	2+75	3+75	50	50				
G (Rt)	15+62	16+87		125				
G (Lt)	18+03	19+03	100					
G (Lt)	22+57	23+57	100					
H (Lt)	10+50	1152+42	145		50			170
H (Rt)	10+70	11+75		100				
F (Rt)	20+00	23+25	175			150		
B (Rt)	10+33	11+83	150					
TOTAL			5,015	2,380	50	150	50	200

Stationing and lengths are approximate.
Contractor shall verify the exact location
of the Guard Rails.

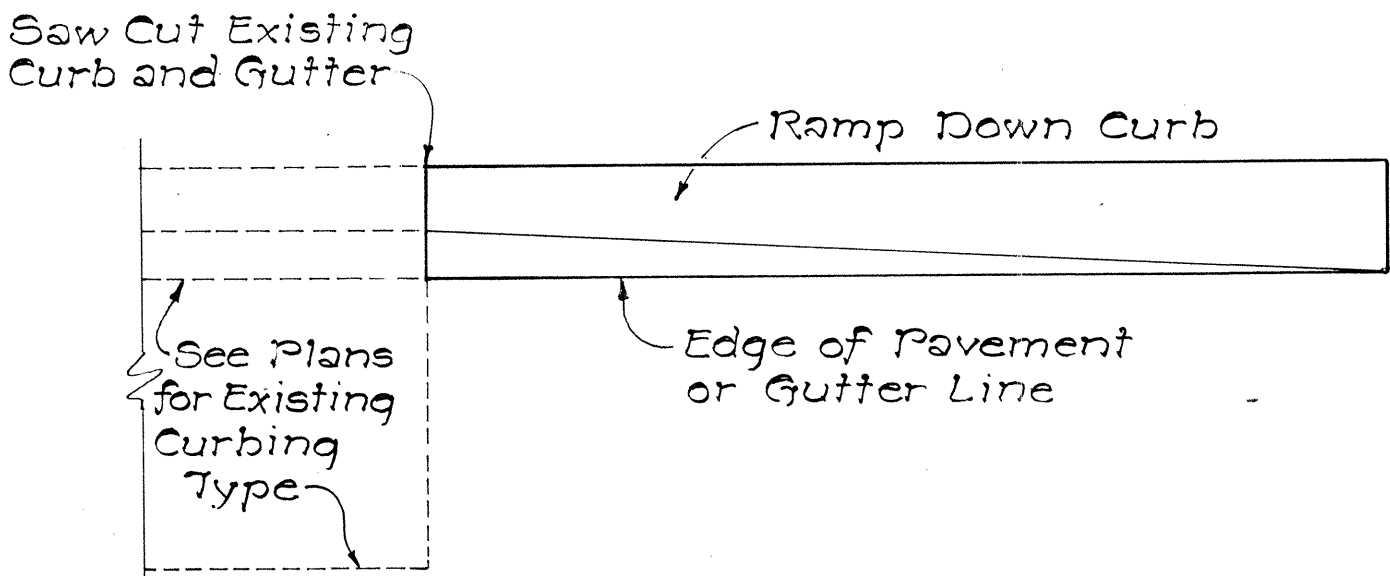


TYPE 2EG CAST-IN-PLACE
CONC. CURB & GUTTER

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



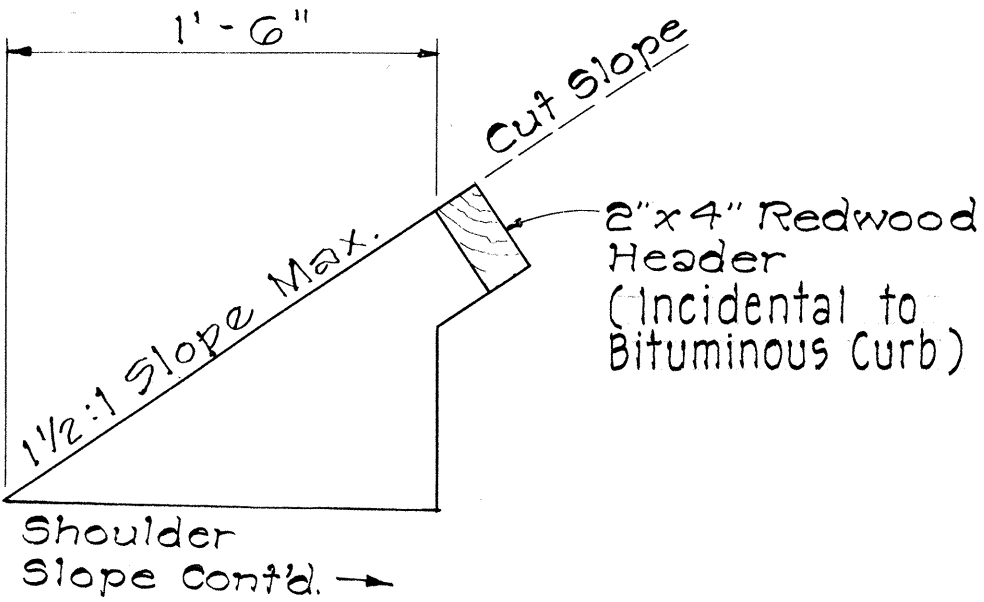
ELEVATION



PLAN

RAMP DOWN CURB DETAILS

SCALE: 3/4" = 1' - 0"



CURB, TYPE 6A
BITUMINOUS CURB

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

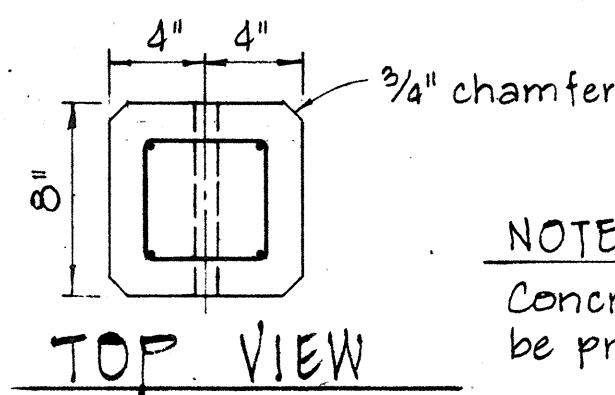
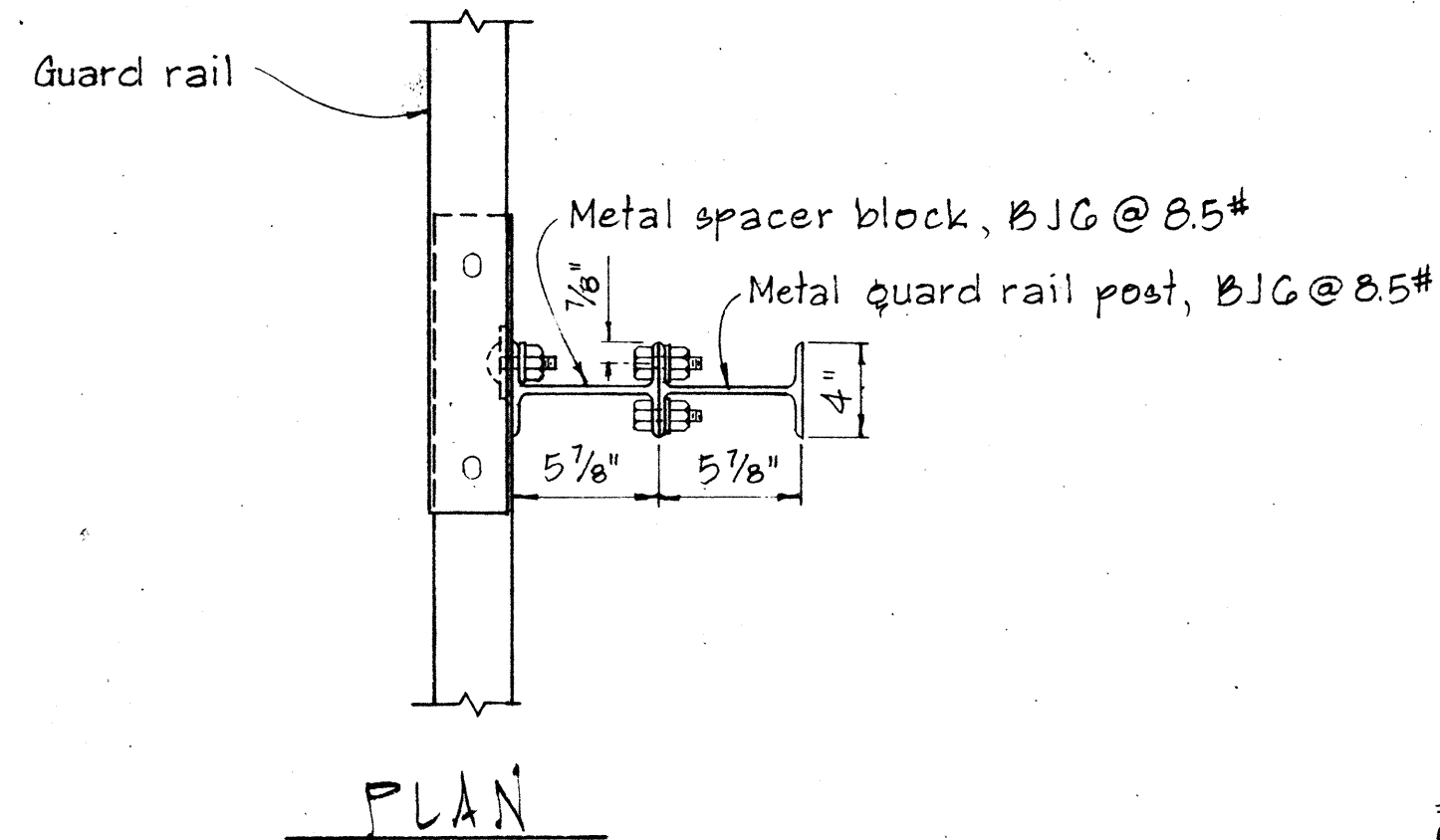
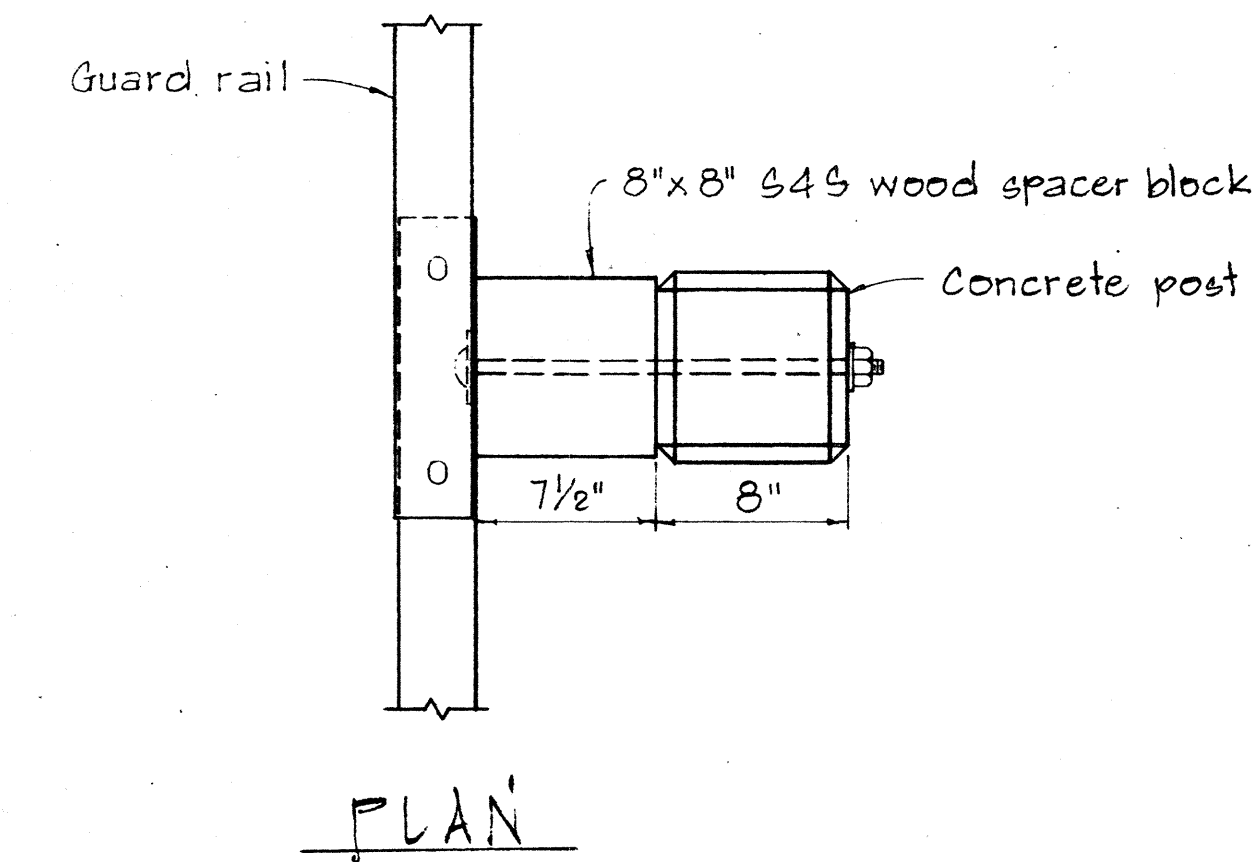
SURVEY PLOTTED BY	DATE
DRAWN BY	
TRACED BY	
CHECKED BY	
NOTED BY	
NO.	

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

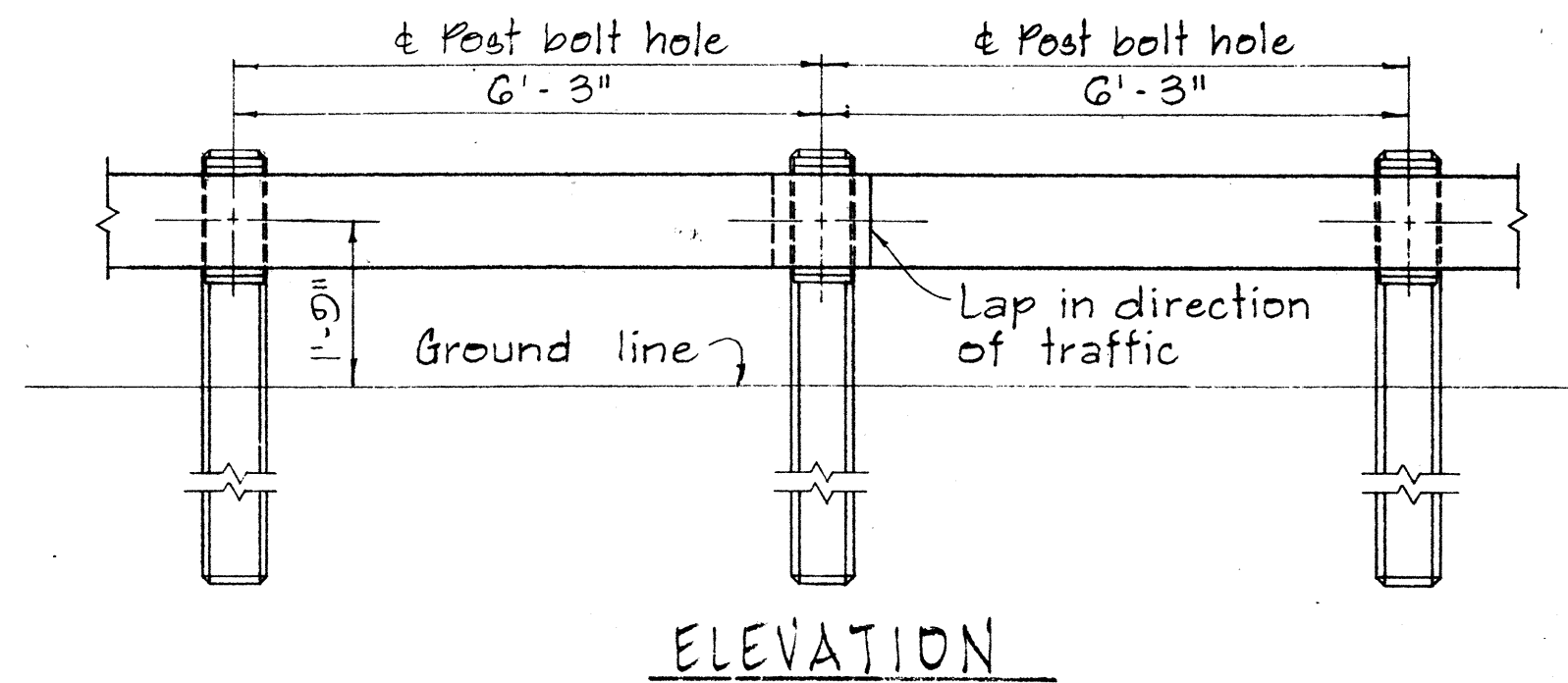
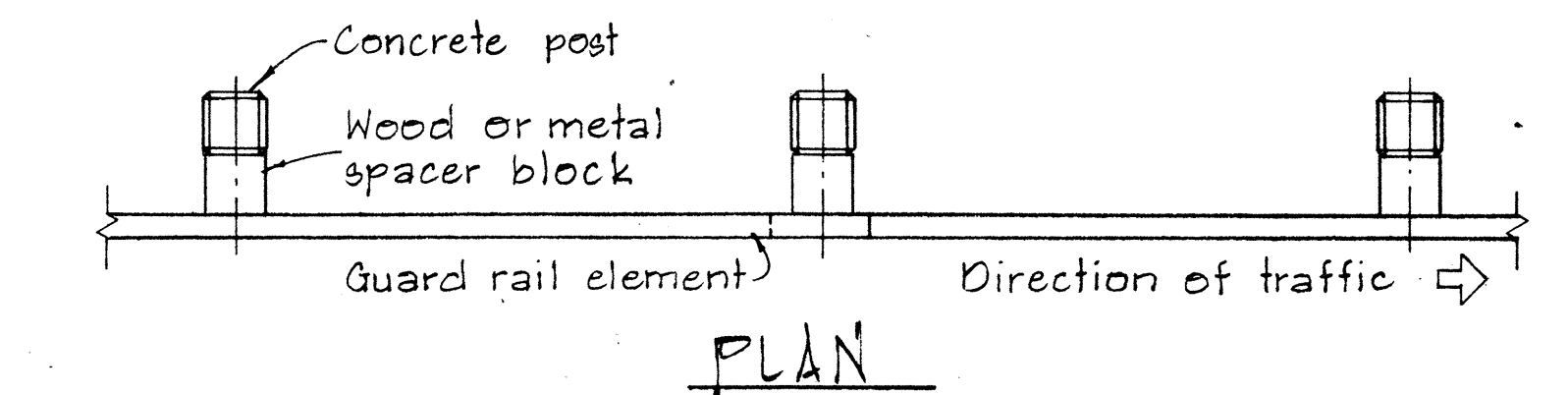
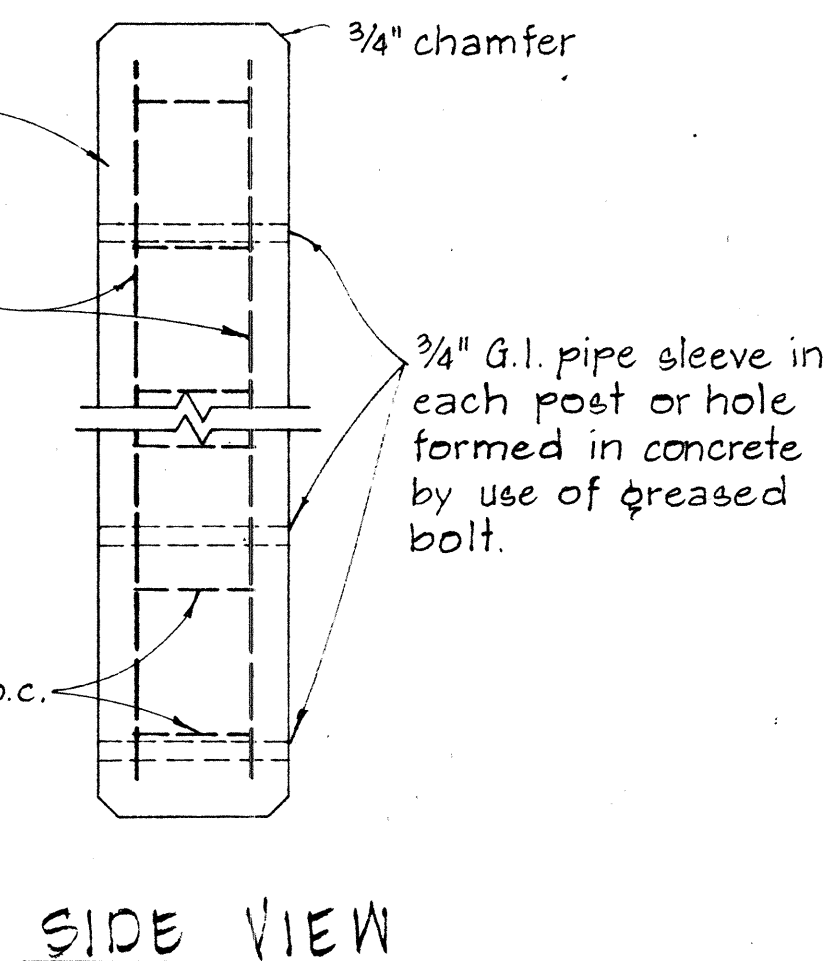
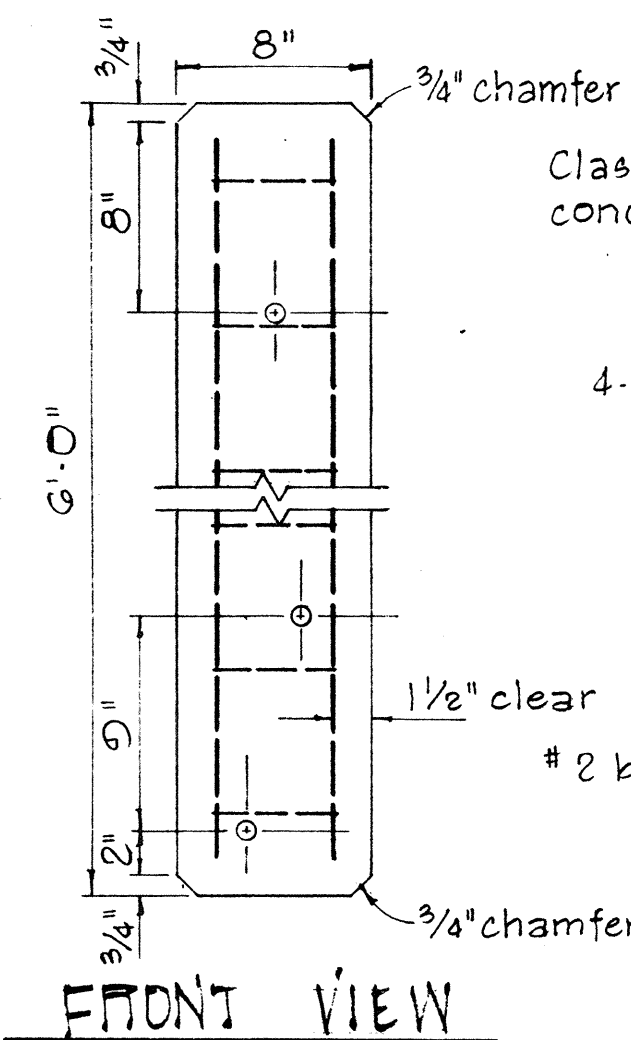
GUARD RAIL SUMMARY
AND
CURB AND GUTTER
DETAILS

SCALE: AS NOTED FEB. 1973
SHEET No. 5 OF 17 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	1-111(012)77	1973	28	176

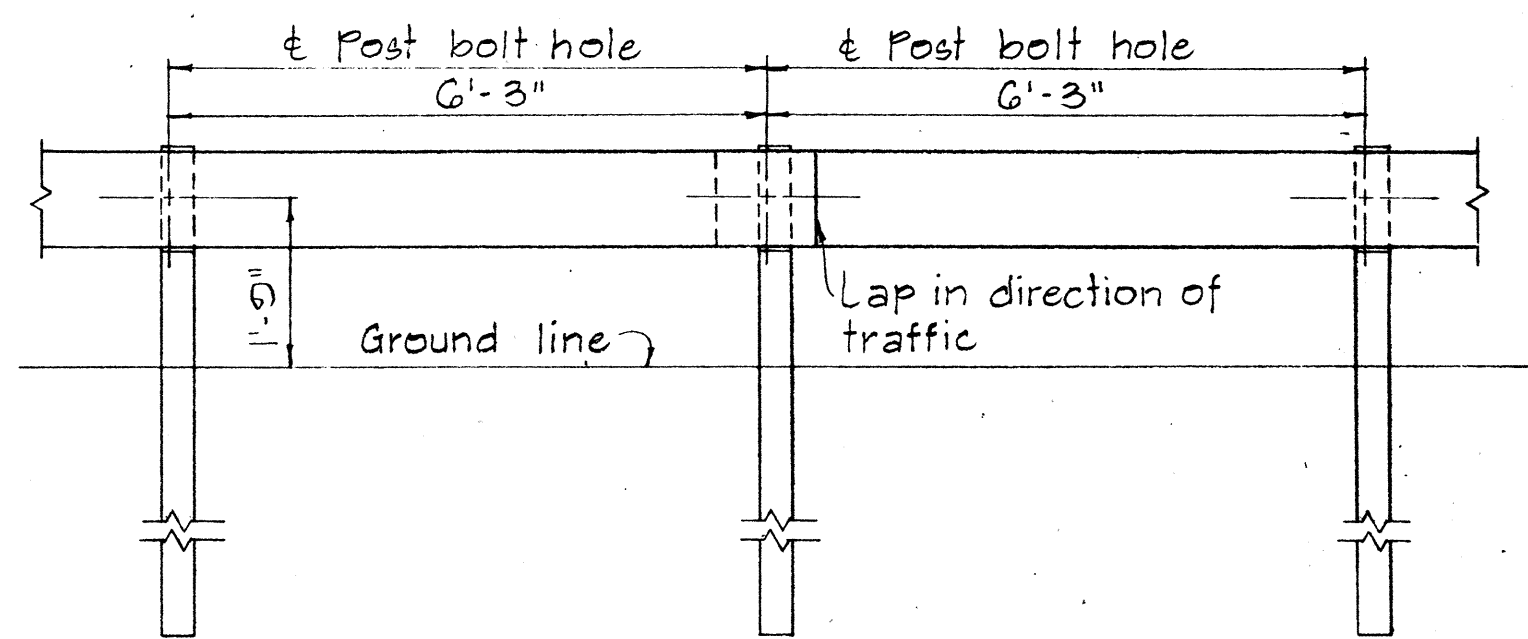
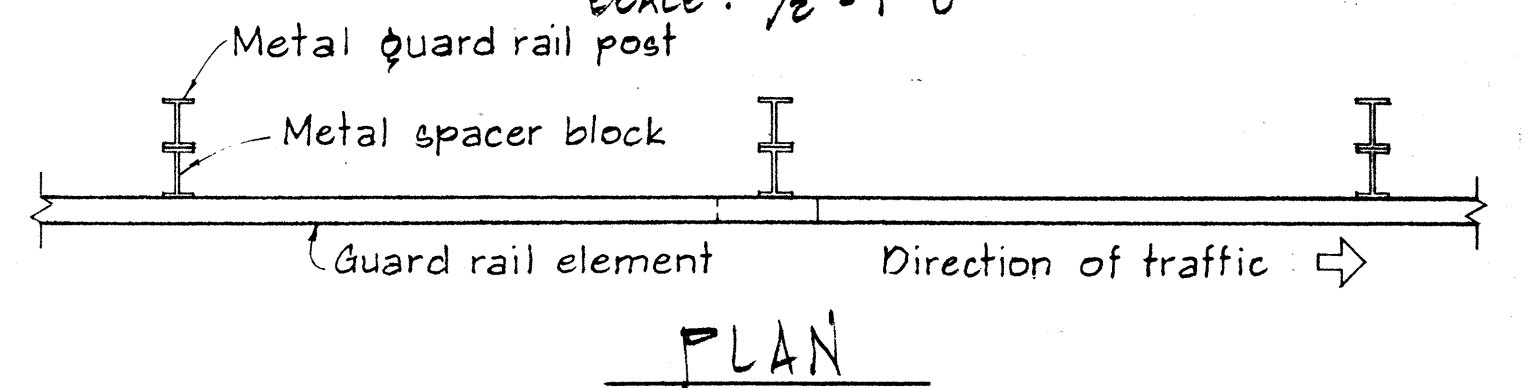


NOTE:
Concrete post shall be precast



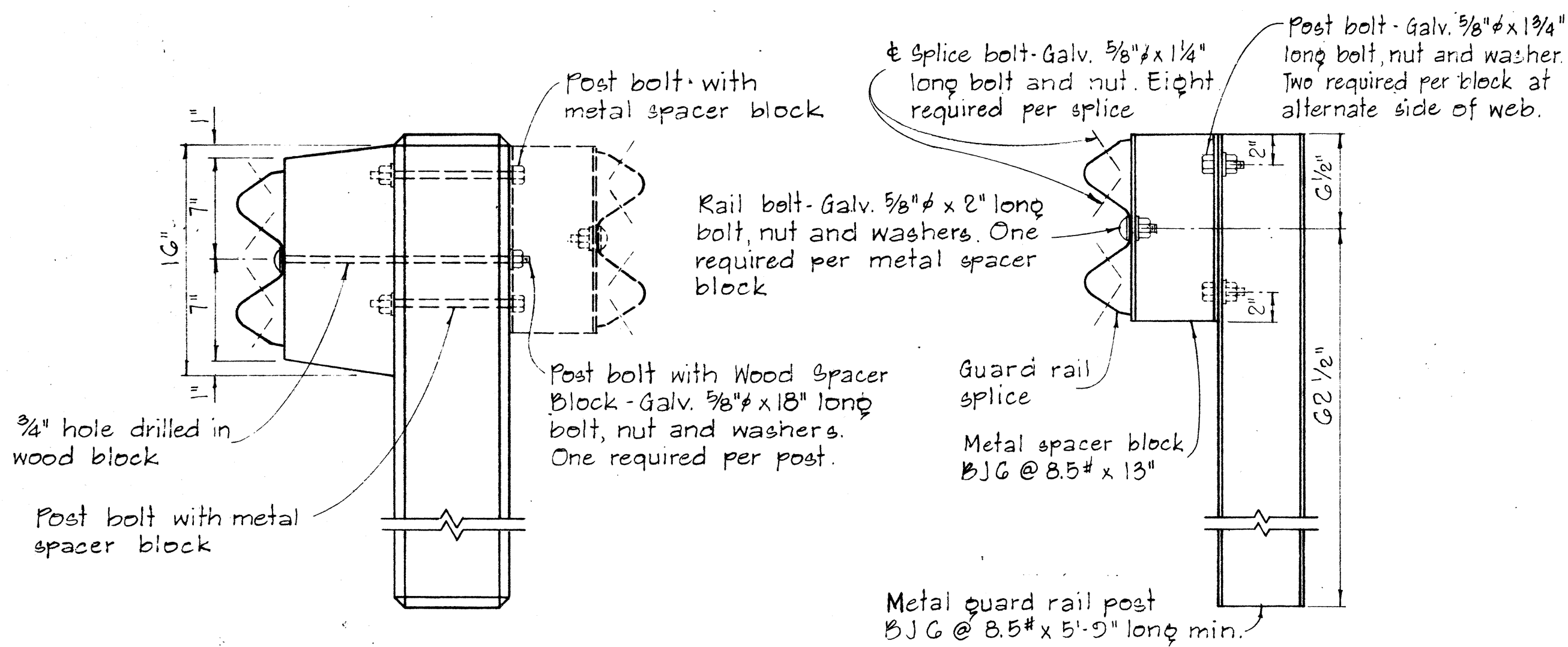
METAL GUARD RAIL ON CONCRETE POST
WITH WOOD OR METAL SPACER BLOCK

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



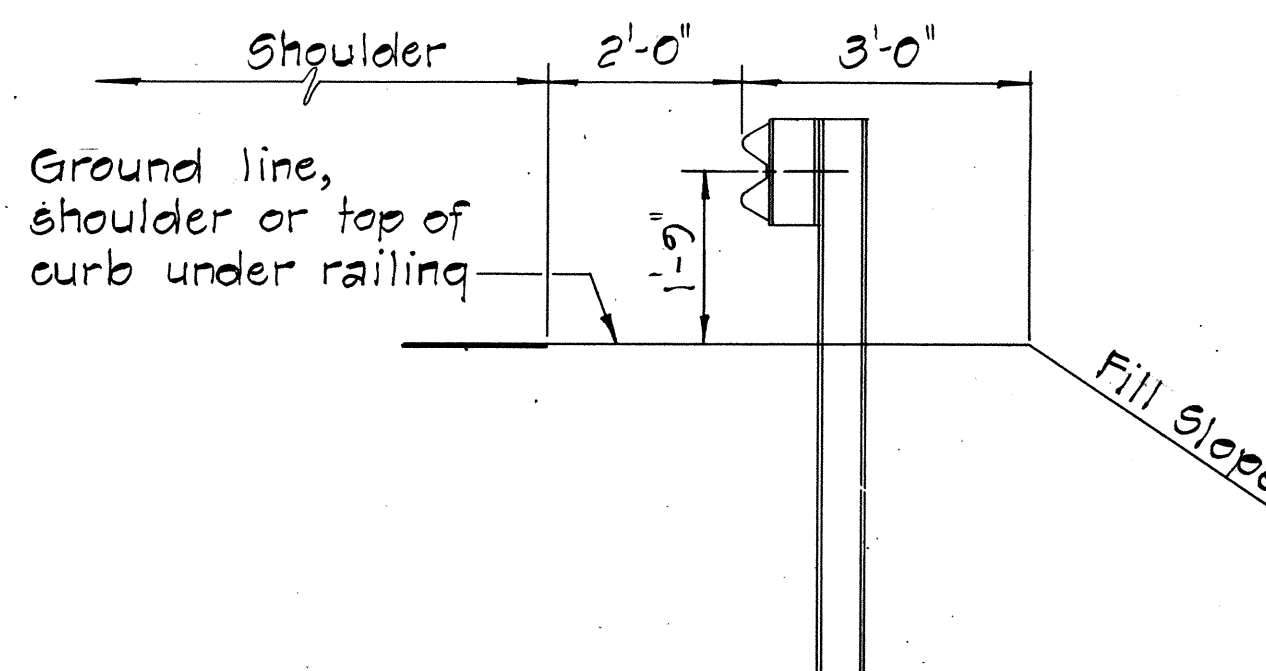
METAL GUARD RAIL ON METAL POST
WITH METAL SPACER BLOCK

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



SINGLE METAL GUARD RAIL ON METAL POST
WITH METAL SPACER BLOCK

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



AT SHOULDER SECTION

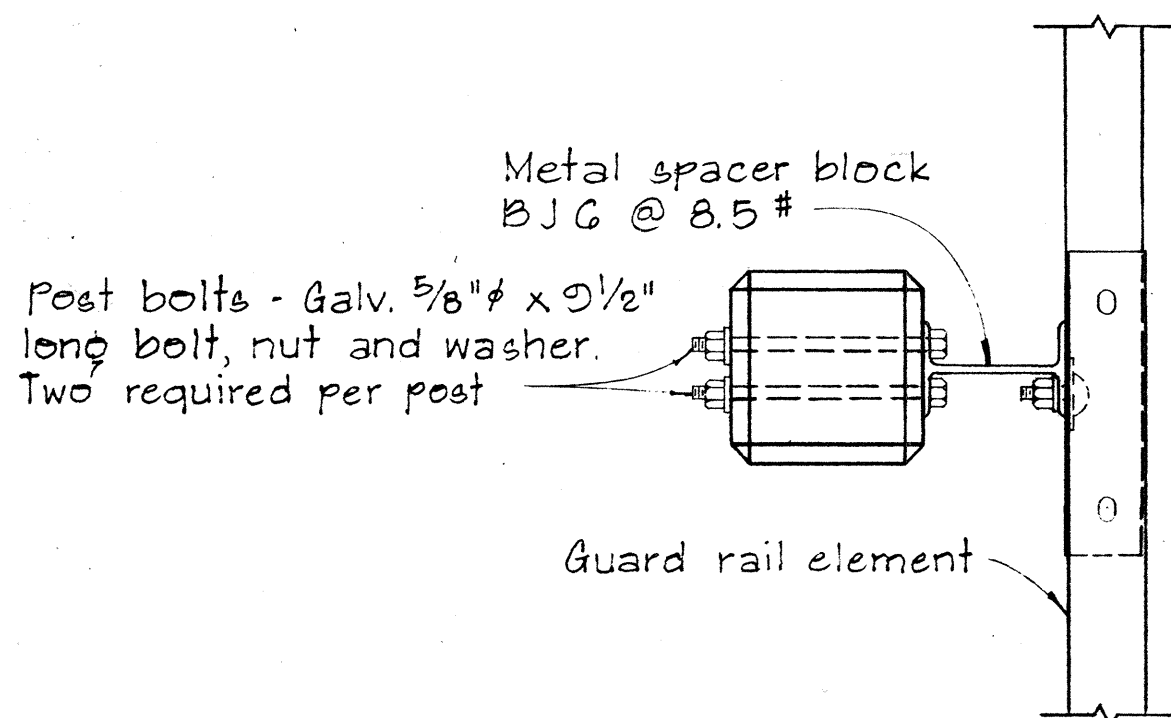
TYPICAL METAL GUARD
RAIL DETAIL

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

SINGLE METAL GUARD RAIL ON PRECAST
CONCRETE POST WITH WOOD OR METAL SPACER BLOCK

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

PLAN



DATE	REVISION	APPROVED BY	DATE
12/23/62	1	E. Tanaka	12/23/62
12/30/69	2	A. J. J. J.	12/30/69

APPROVAL RECOMMENDED:
TRAFFIC ENGINEER

12/23/62
DATE

APPROVED:
ASSISTANT CHIEF, ENGINEERING

12-30-69
DATE

NO.	REVISION	APPROVED BY	DATE
1			
2			

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

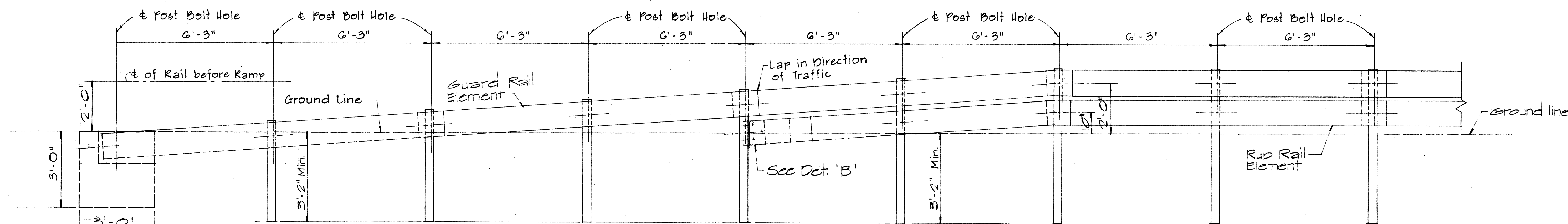
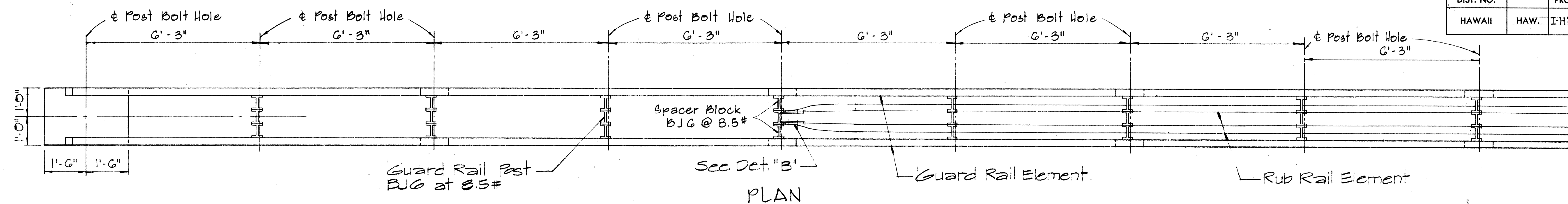
STANDARD DETAILS
METAL GUARD RAIL

SCALE: AS SHOWN

NOV. 1968

SHEET No. 6 OF 17 SHEETS DT 500

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-H-1-1(12)2	1973	30	176

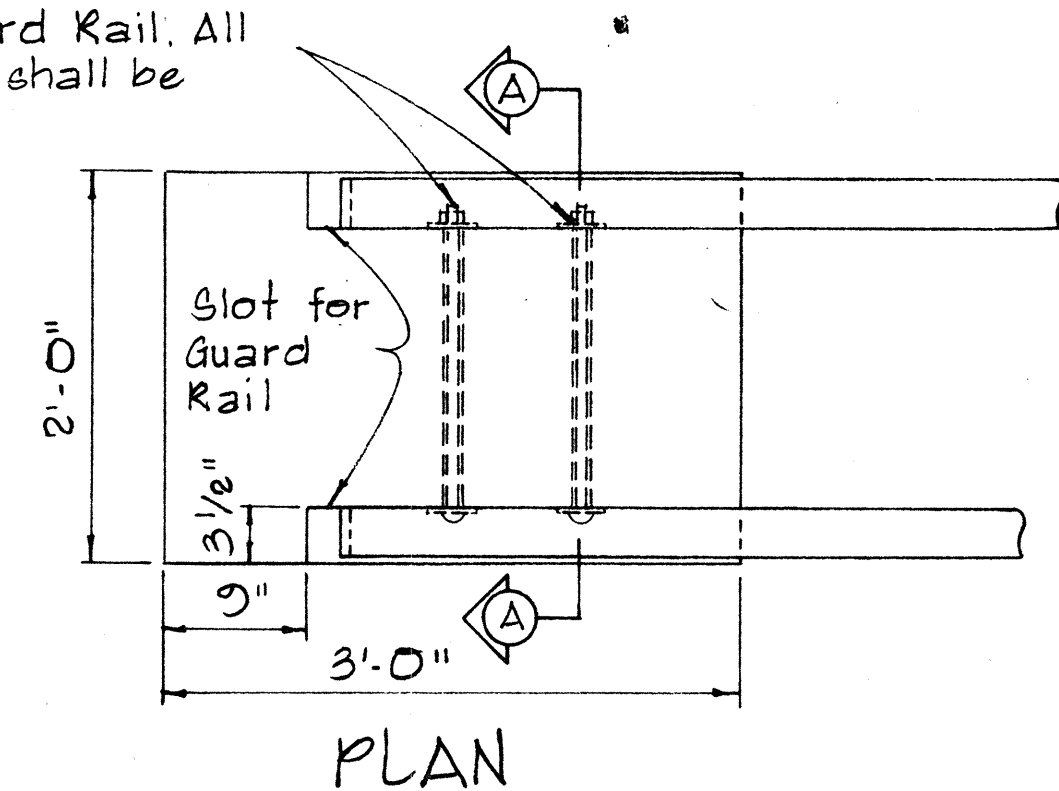


ELEVATION

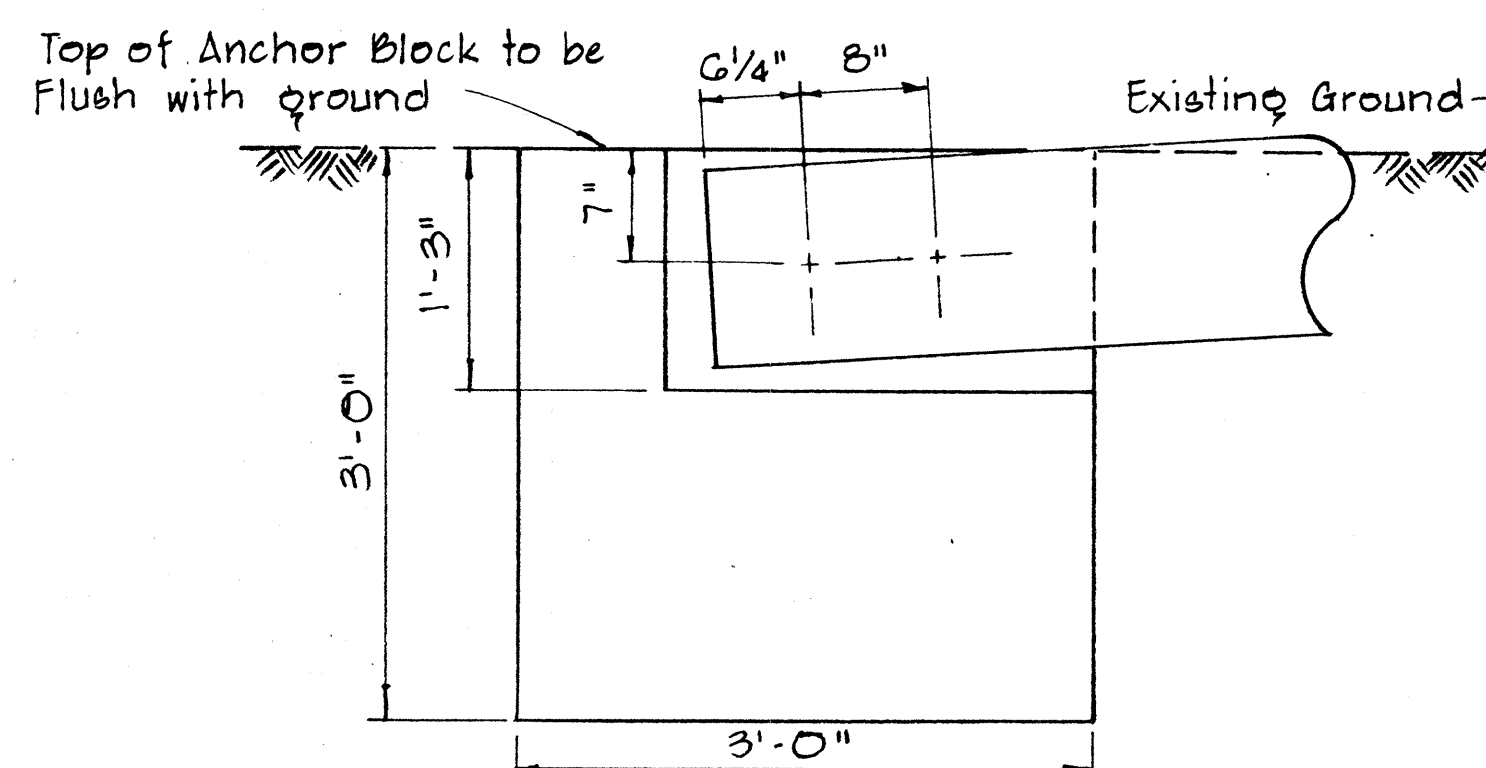
STRAIGHT APPROACH - RAMP END ANCHORAGE (MEDIAN)

Scale: 1/8" = 1'-0"

5/8" Bolts with 3/4" G.I. Pipe Sleeve in each hole. Incidental to Metal Guard Rail. All Metal Pieces shall be Galvanized.



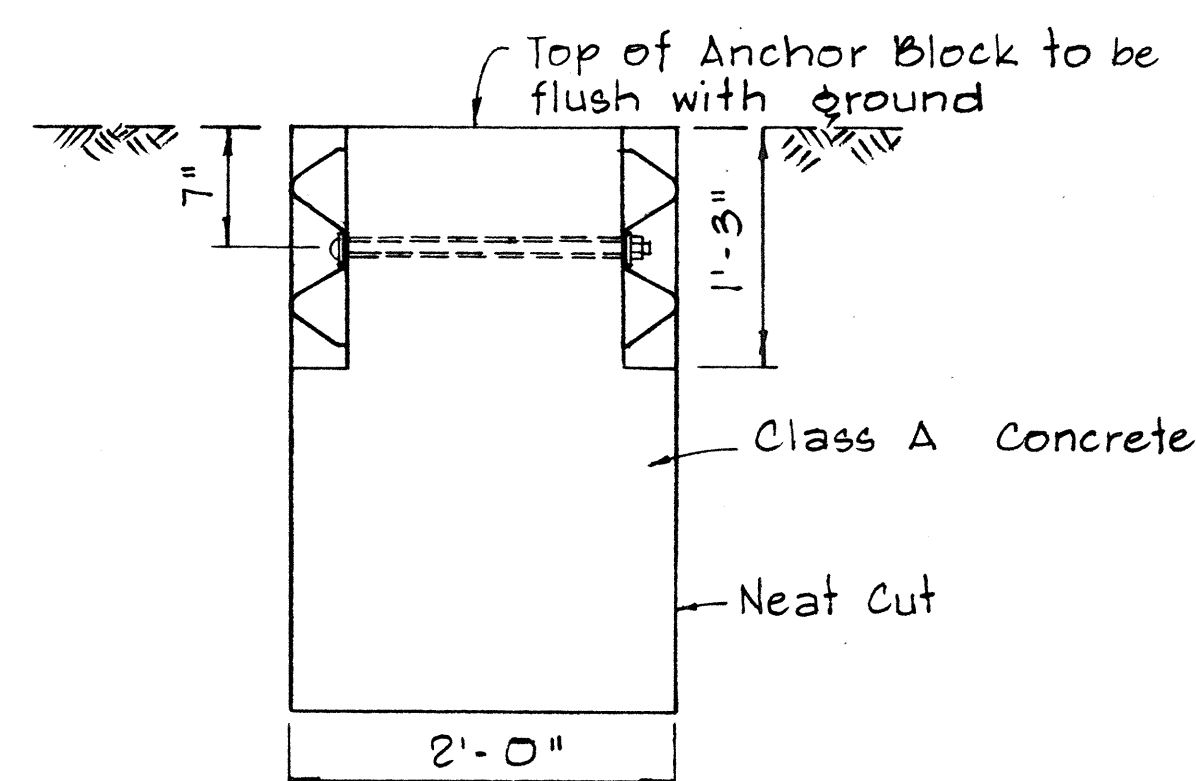
PLAN



ELEVATION

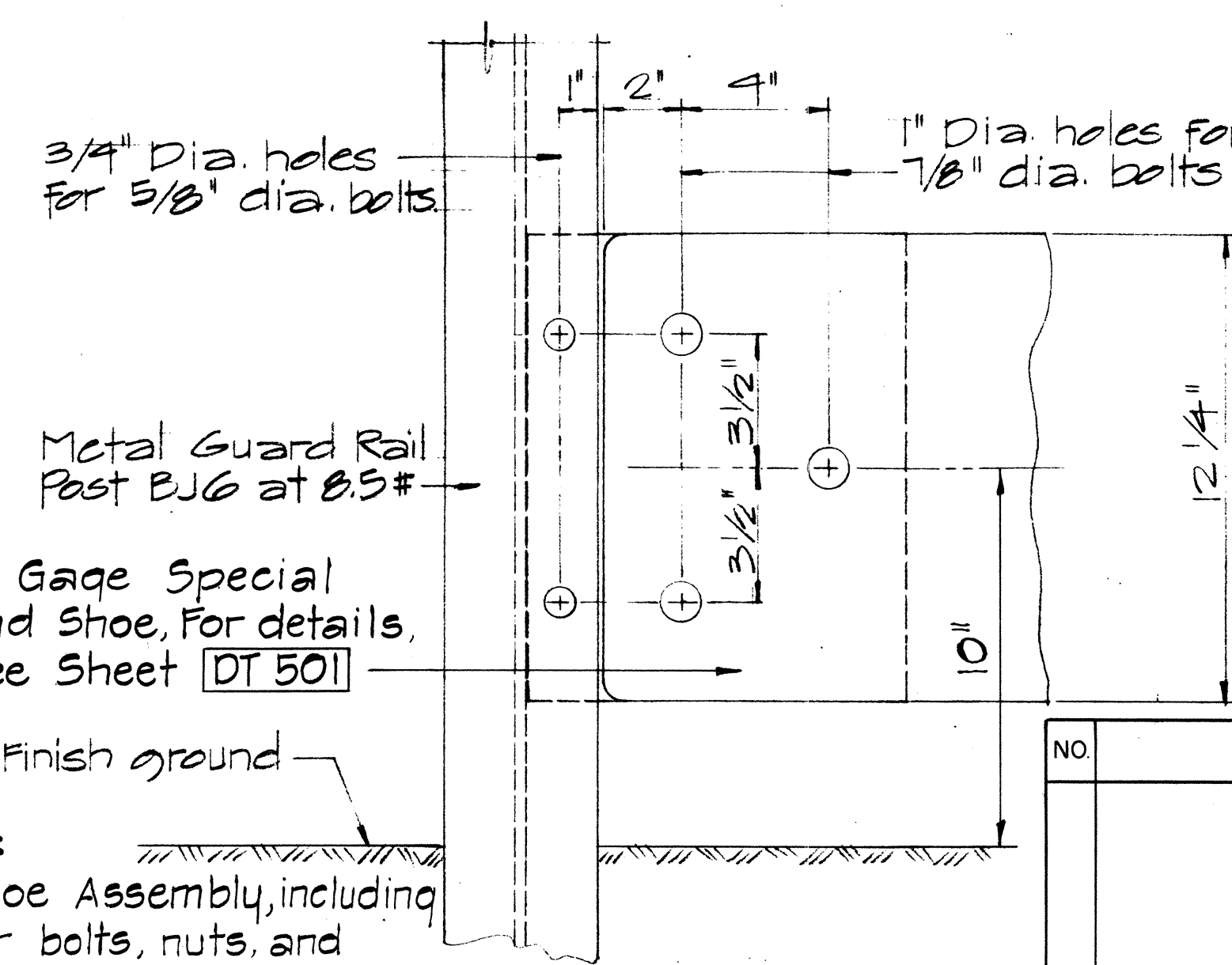
CONCRETE ANCHOR BLOCK FOR RAMP END

Scale: 1" = 1'-0"



SECTION A-A

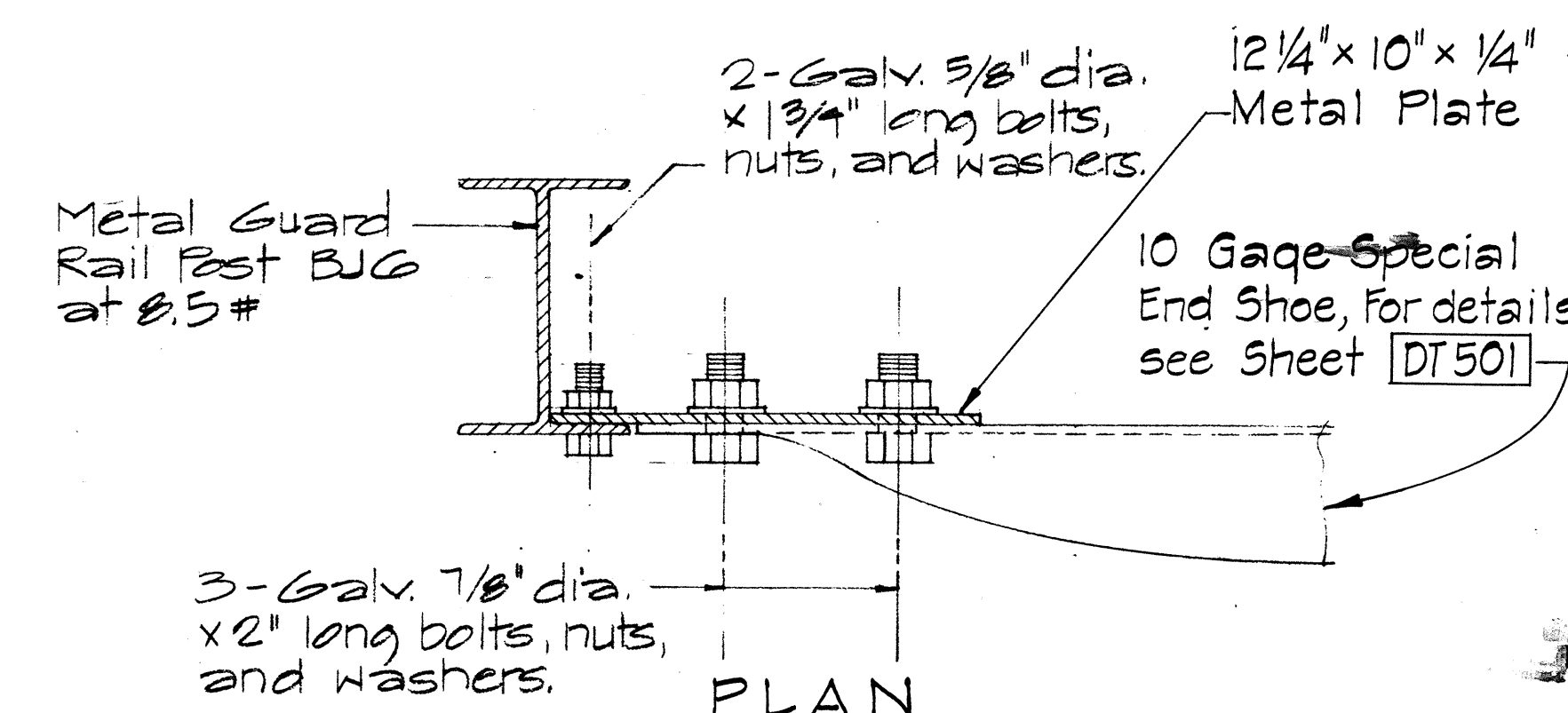
NOTE: Concrete, Excavation, and Miscellaneous Appurtenances necessary to anchor the Guard Rail Ends, shall be incidental to the Metal Guard Rail.



ELEVATION

DETAIL "B"

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



PLAN

APPROVAL RECOMMENDED:
TRAFFIC ENGINEER

APPROVED:
ASSISTANT CHIEF, ENGINEERING

DATE

DATE

NO.	REVISION	APPROVED BY	DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

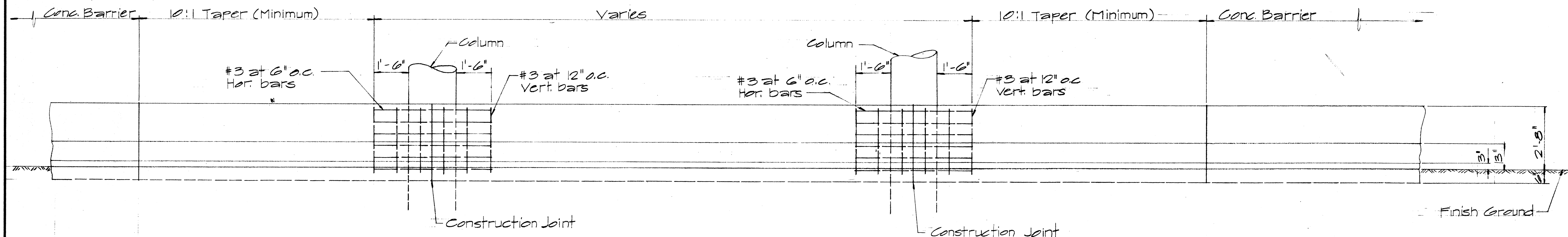
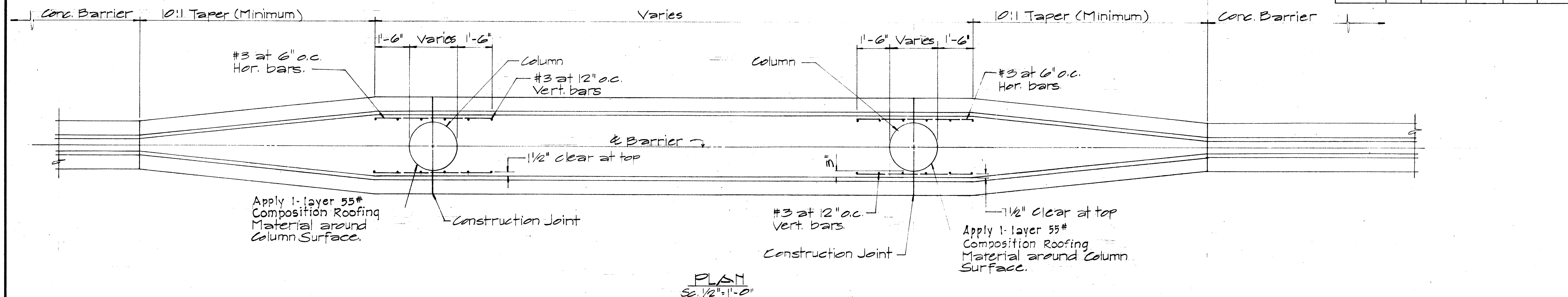
STANDARD DETAIL GUARD RAIL RAMP END ANCHORAGE

Scale: as Noted

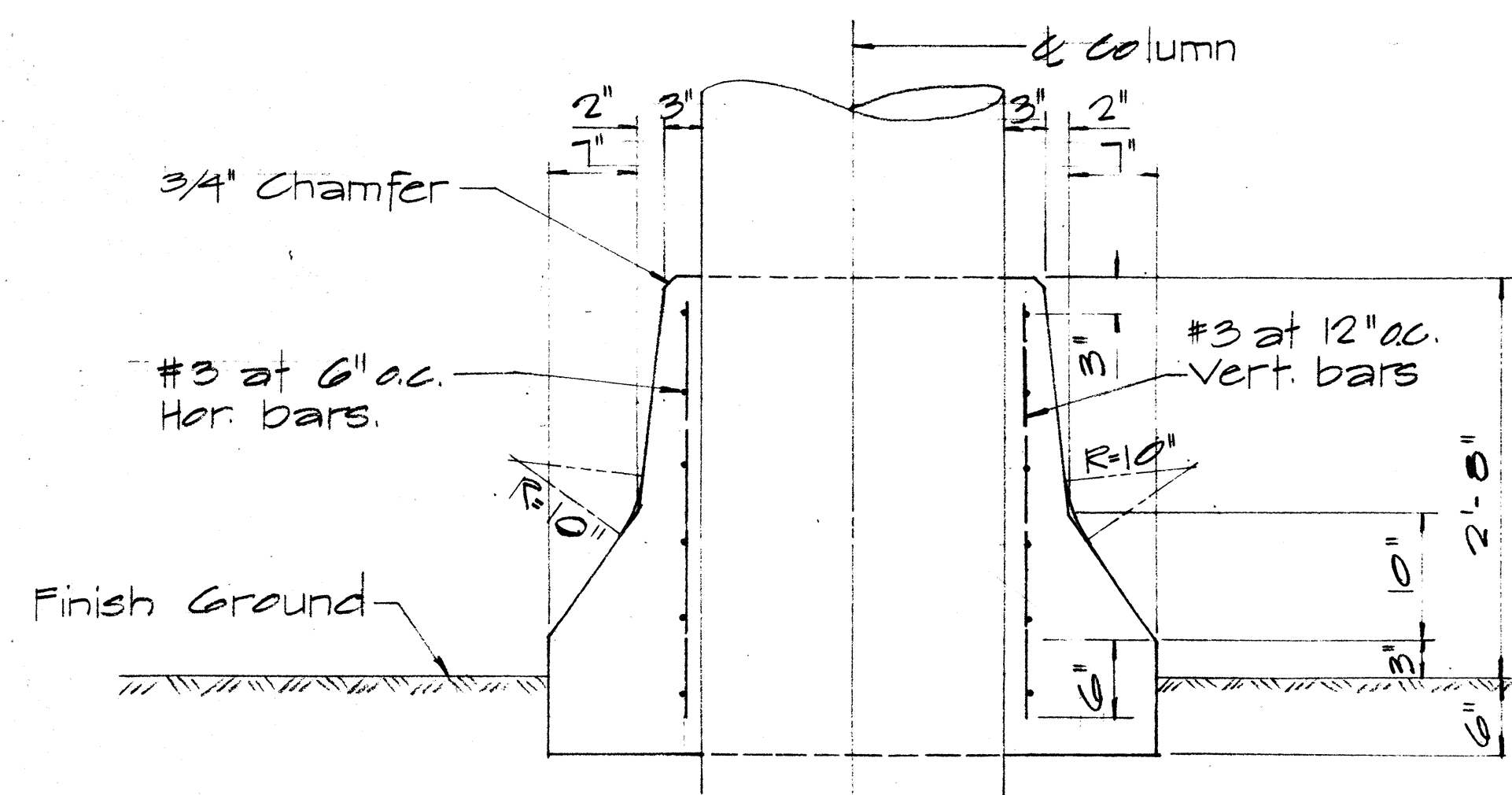
August, 1968

SHEET No. 8 OF 17 SHEETS DT 502

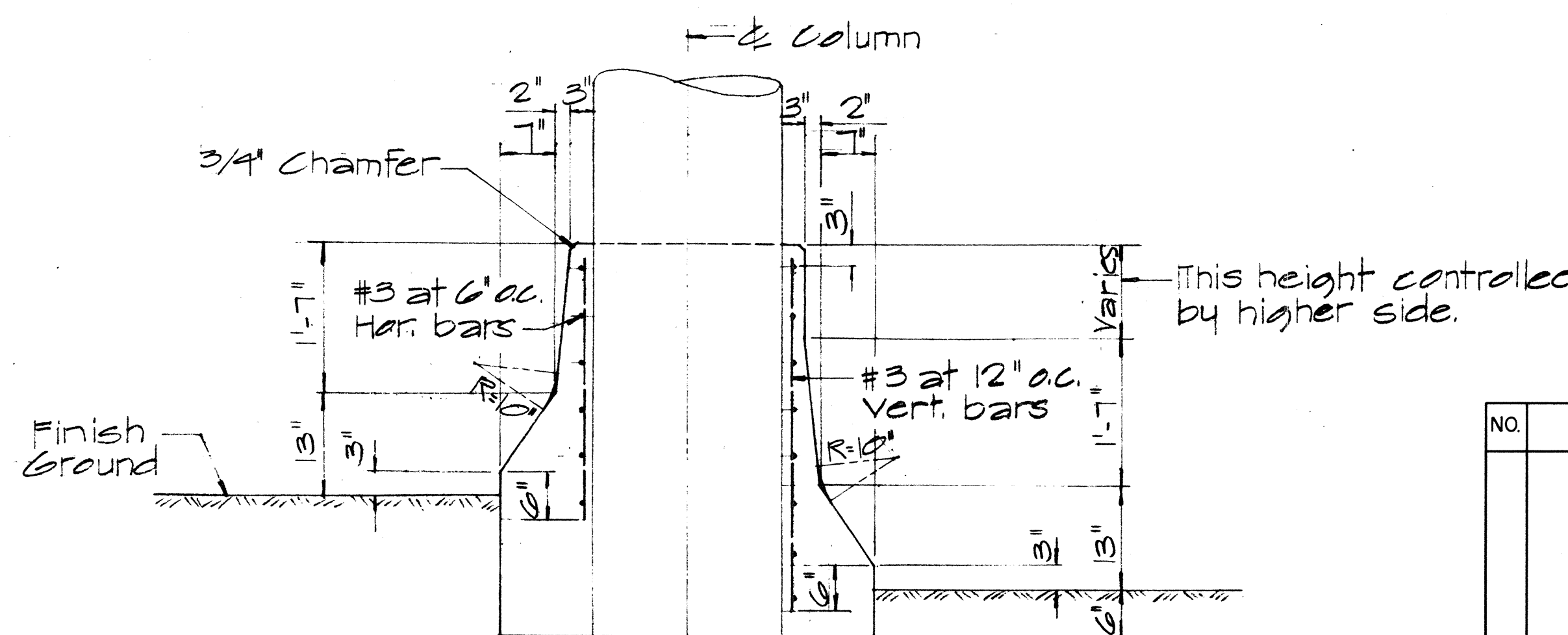
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-HH-1(12)19	1973	31	176



ELEVATION
SC. 1/2" = 1'-0"



TYP. SEC. AT TANGENT
SC. 1" = 1'-0"



TYP. SEC. AT SUPER
SC. 3/4" = 1'-0"

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

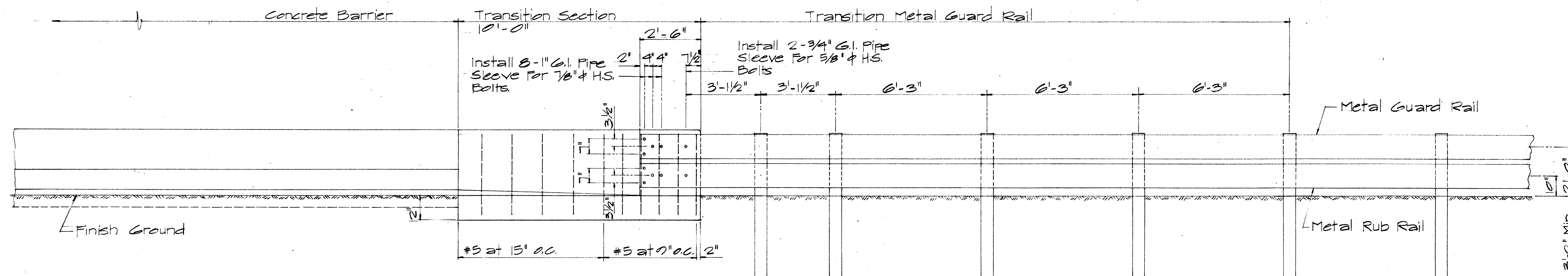
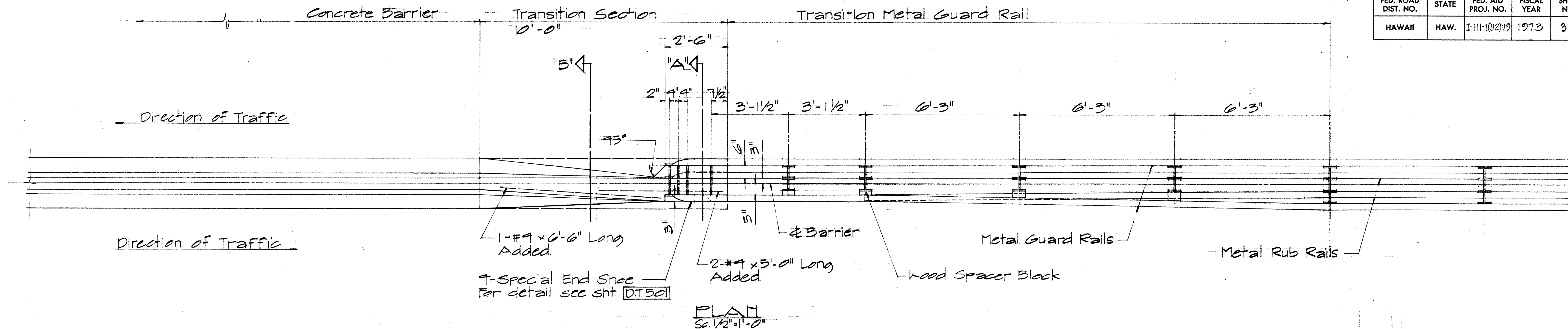
APPROVED:
John J. J. J.
ASSISTANT CHIEF, ENGINEERING
12-30-69
DATE

NO.	REVISION	APPROVED BY	DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
STANDARD DETAIL
CONCRETE BARRIER
TRANSITION
Scale As Noted
Feb. 1969
SHEET No. 9 OF 17 SHEETS DT 512

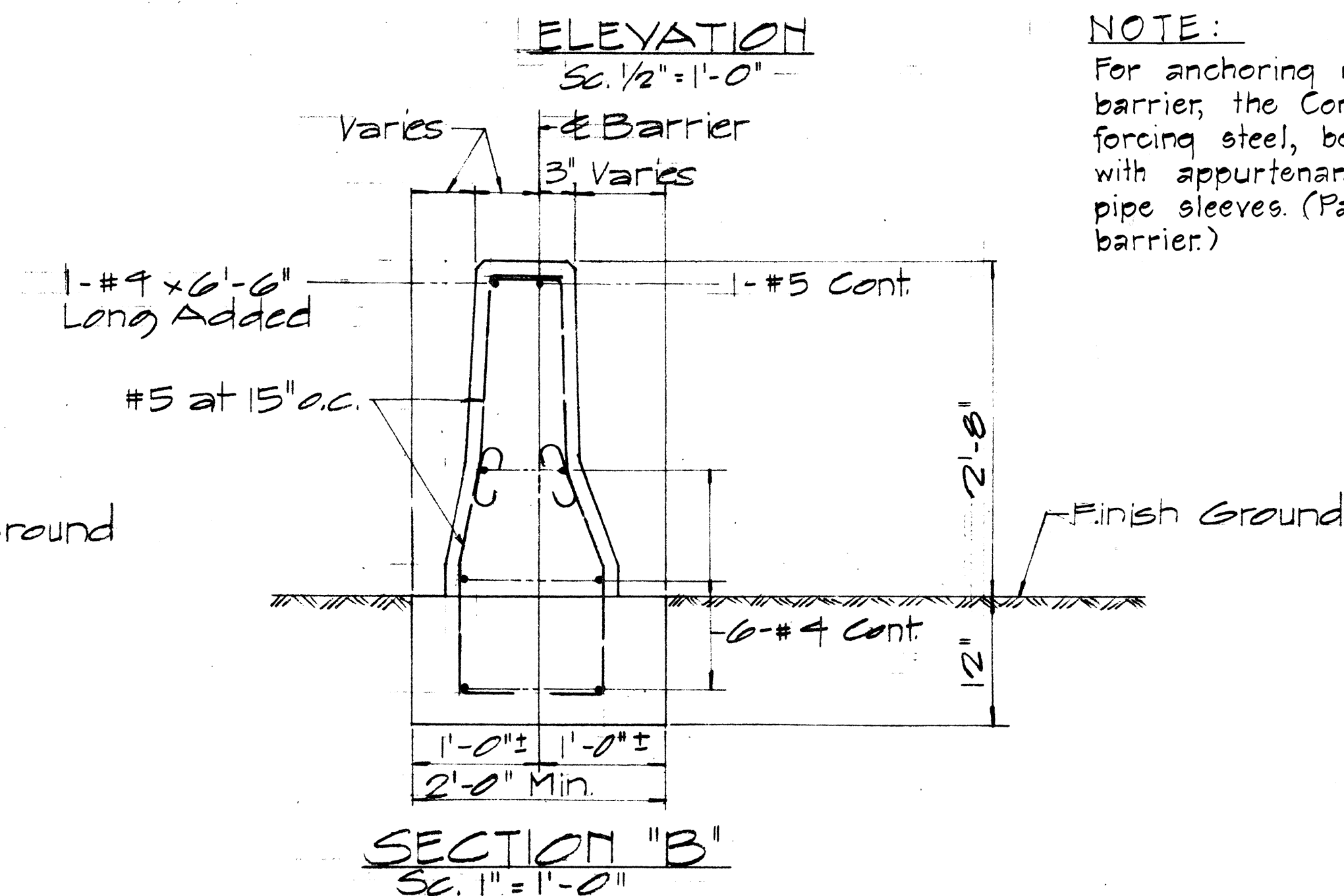
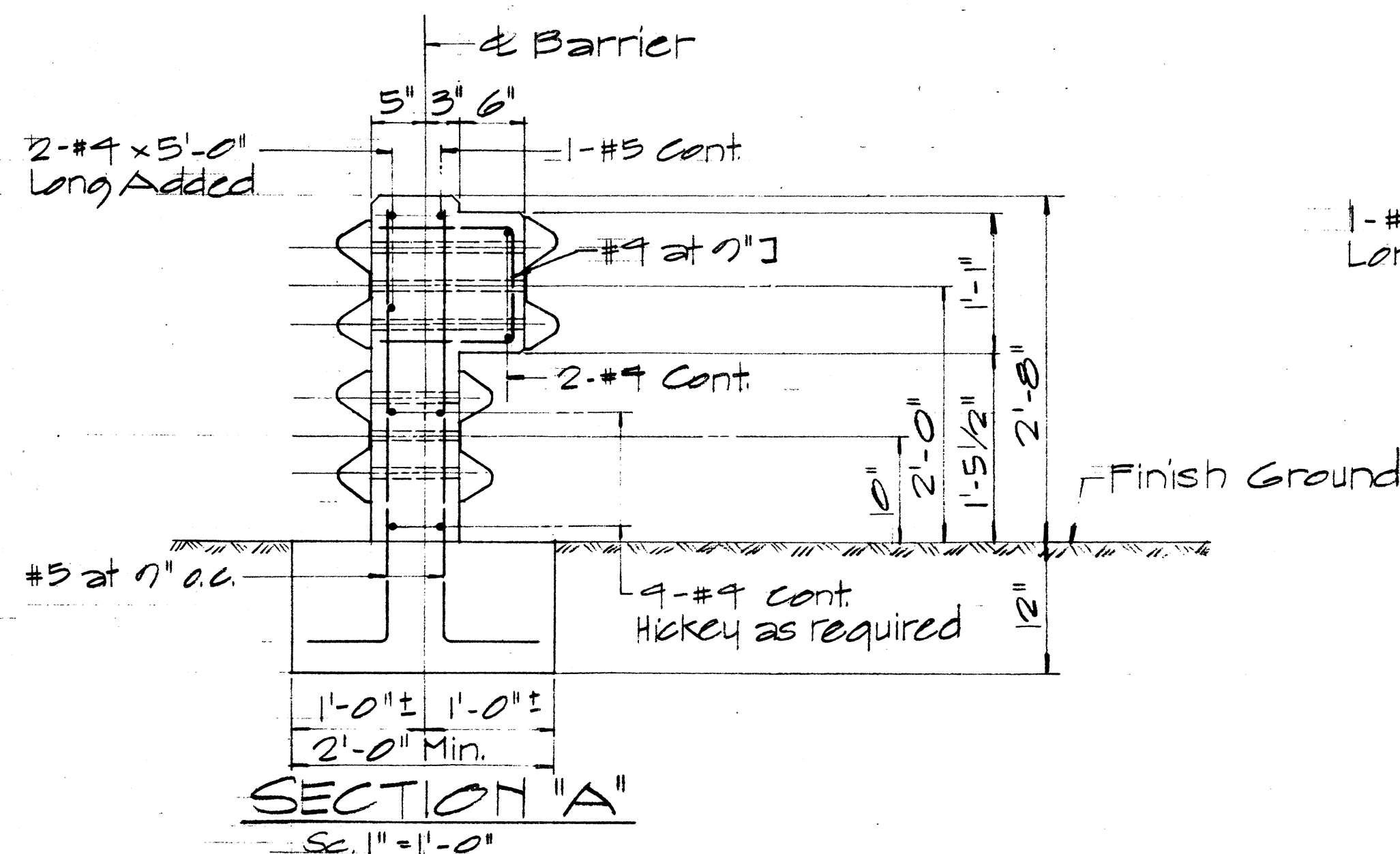
DATE	
SURVEY PLATTED BY	
DESIGNED BY	
NOTED BY	
CHECKED BY	
ORIGINAL PLAN	
NOTE BOOK	
NO.	

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-HI-1(12)12	1973	32	176



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:
Eishi Tanaka
TRAFFIC ENGINEER
12/20/69
DATE

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

NO.	REVISION	APPROVED BY	DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

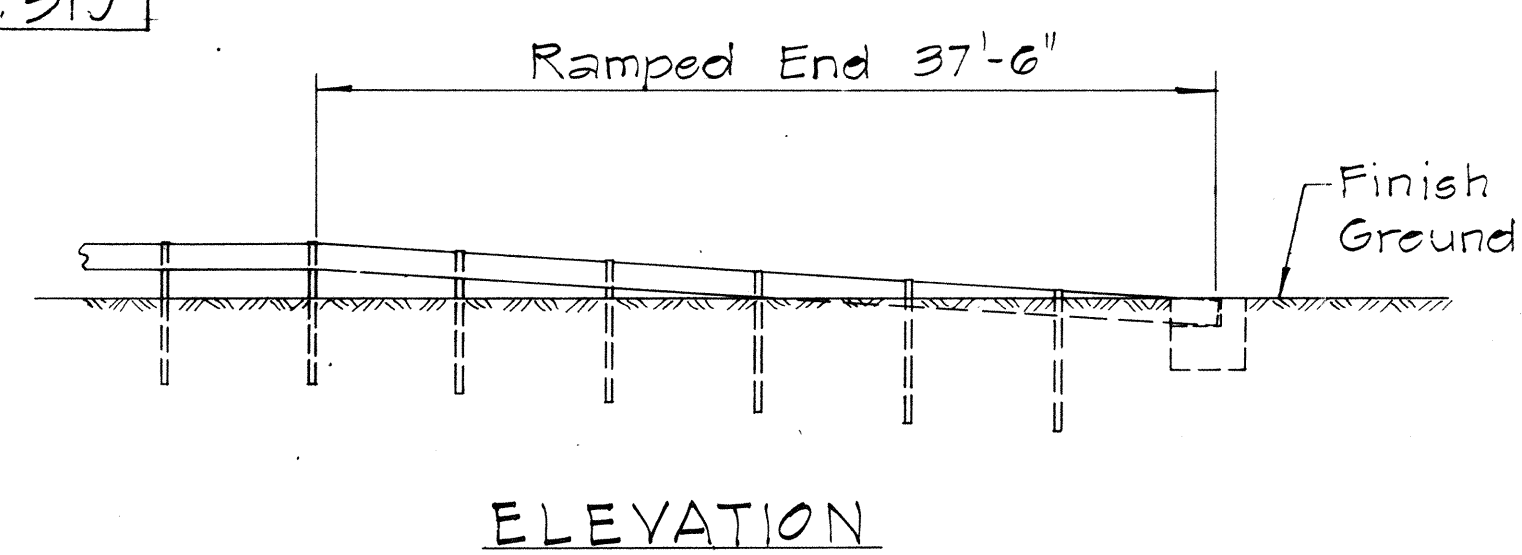
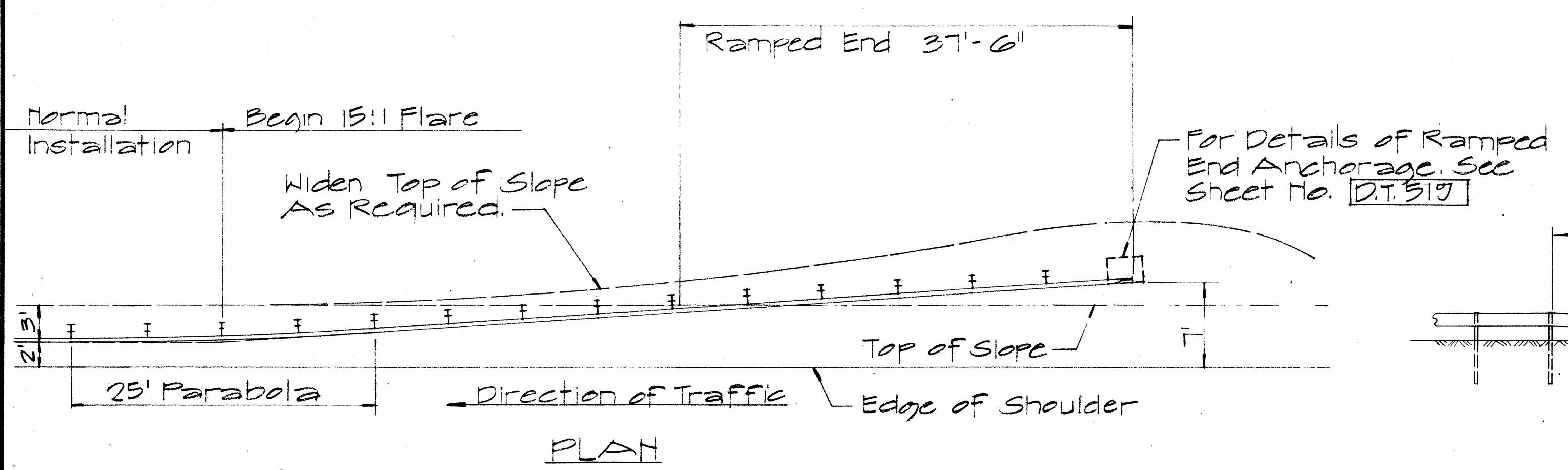
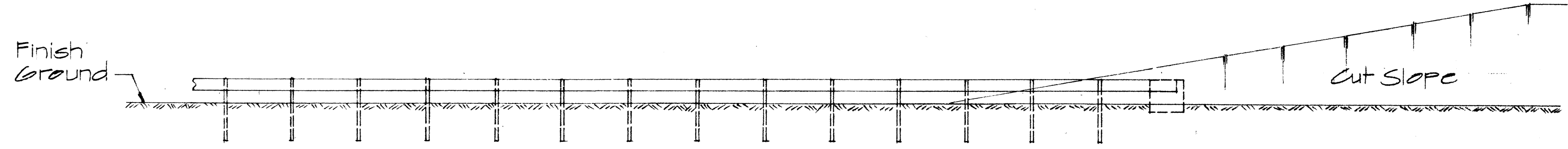
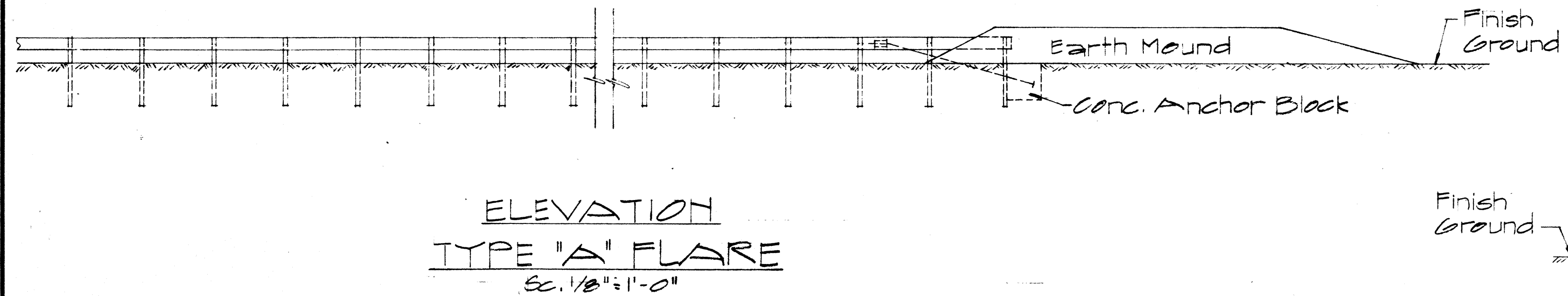
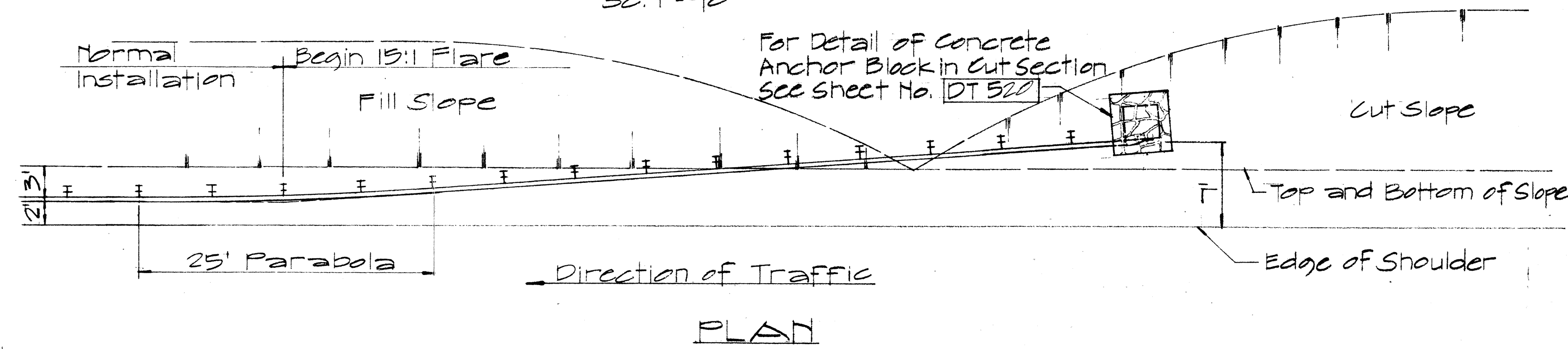
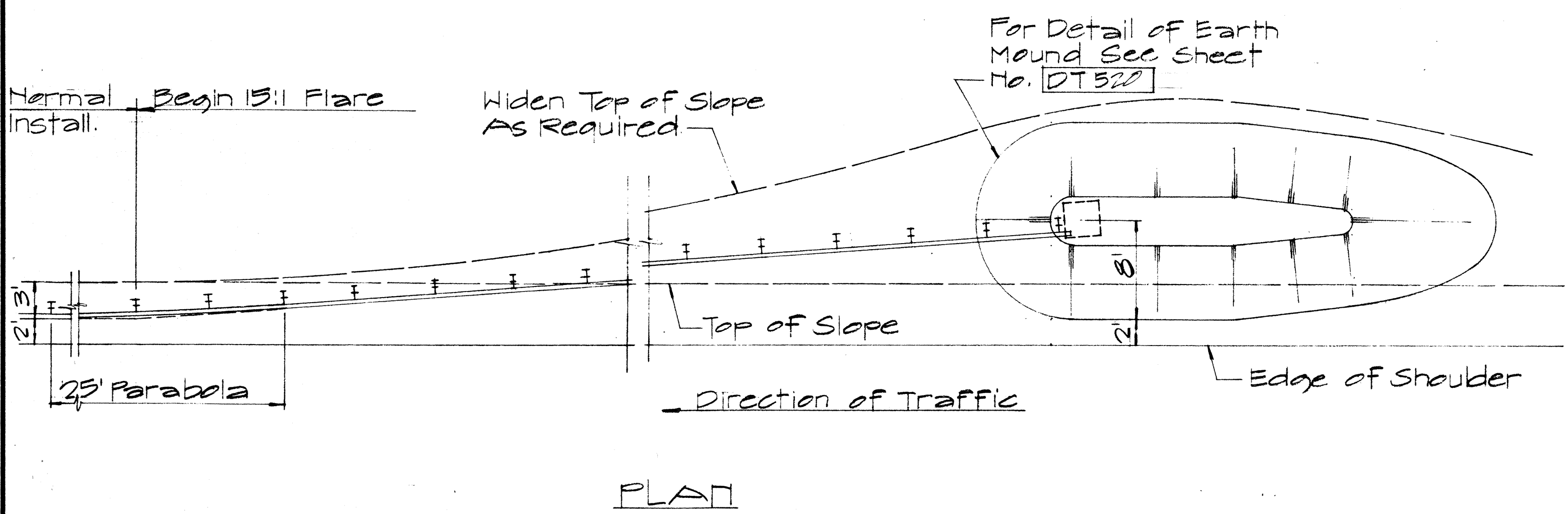
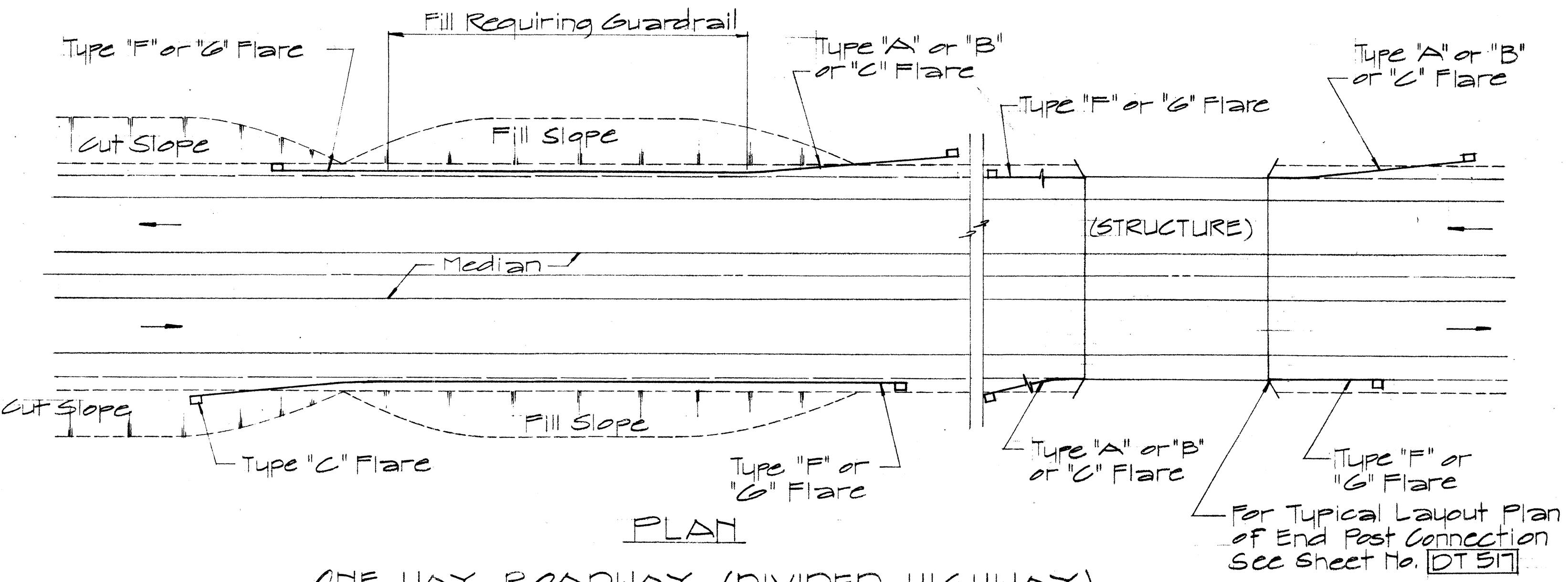
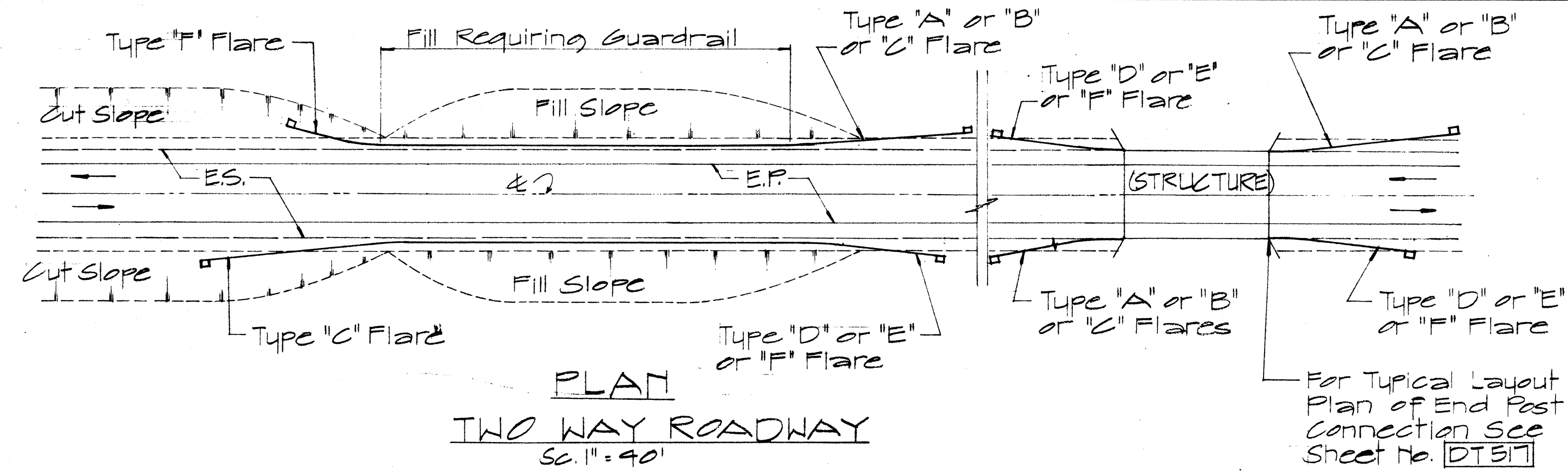
STANDARD DETAIL
METAL GUARD RAIL
CONNECTION TO CONC.
BARRIER

Scale As Noted Feb. 1969

SHEET No. 10 OF 17 SHEETS DT 513

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	1-H1-10(2)-19	1973	33	176

NOTE:
Metal guard rail connection to structures requires End Post Connection. See structure plans.



ELEVATION
TYPE "C" FLARE
Sc. 1/8" = 1'-0"

NO.	REVISION	APPROVED BY	DATE

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

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

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

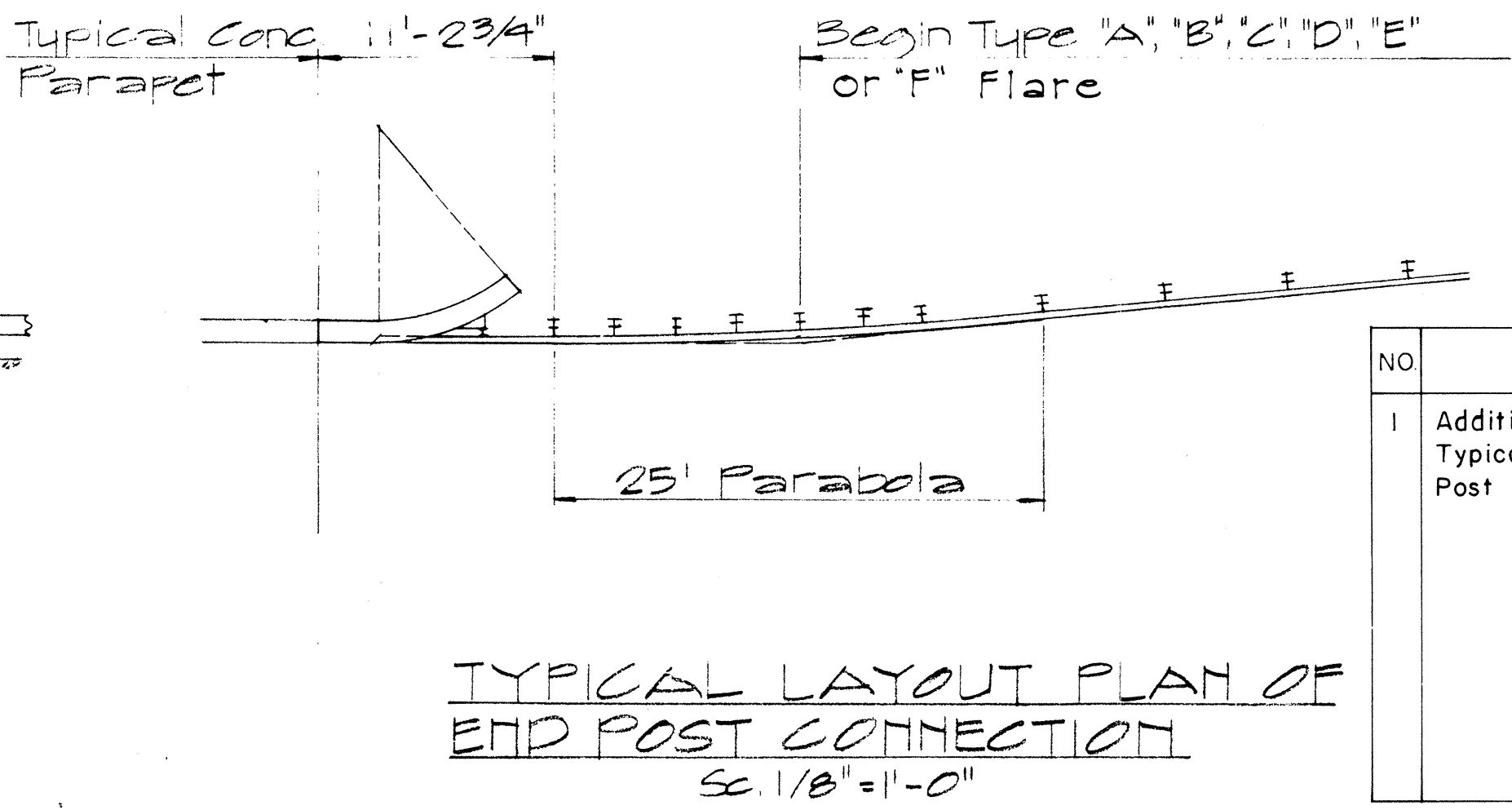
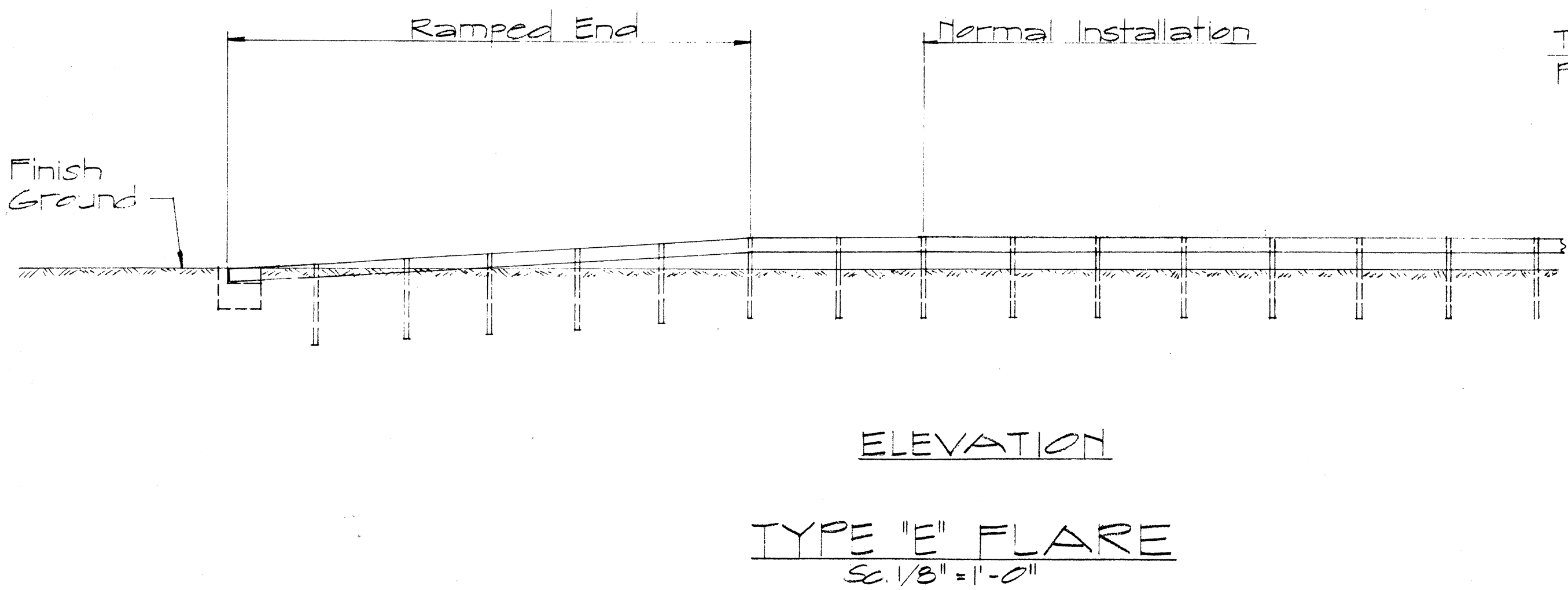
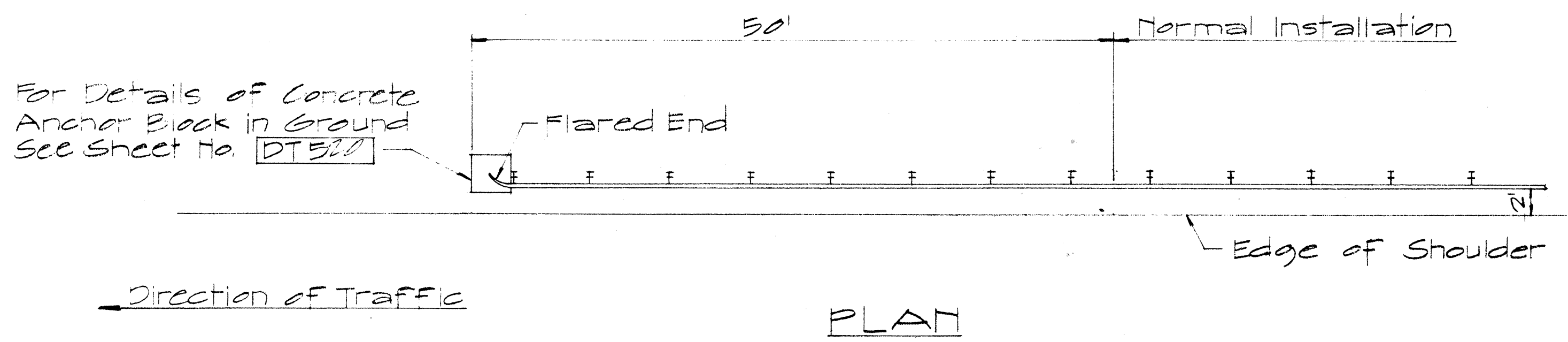
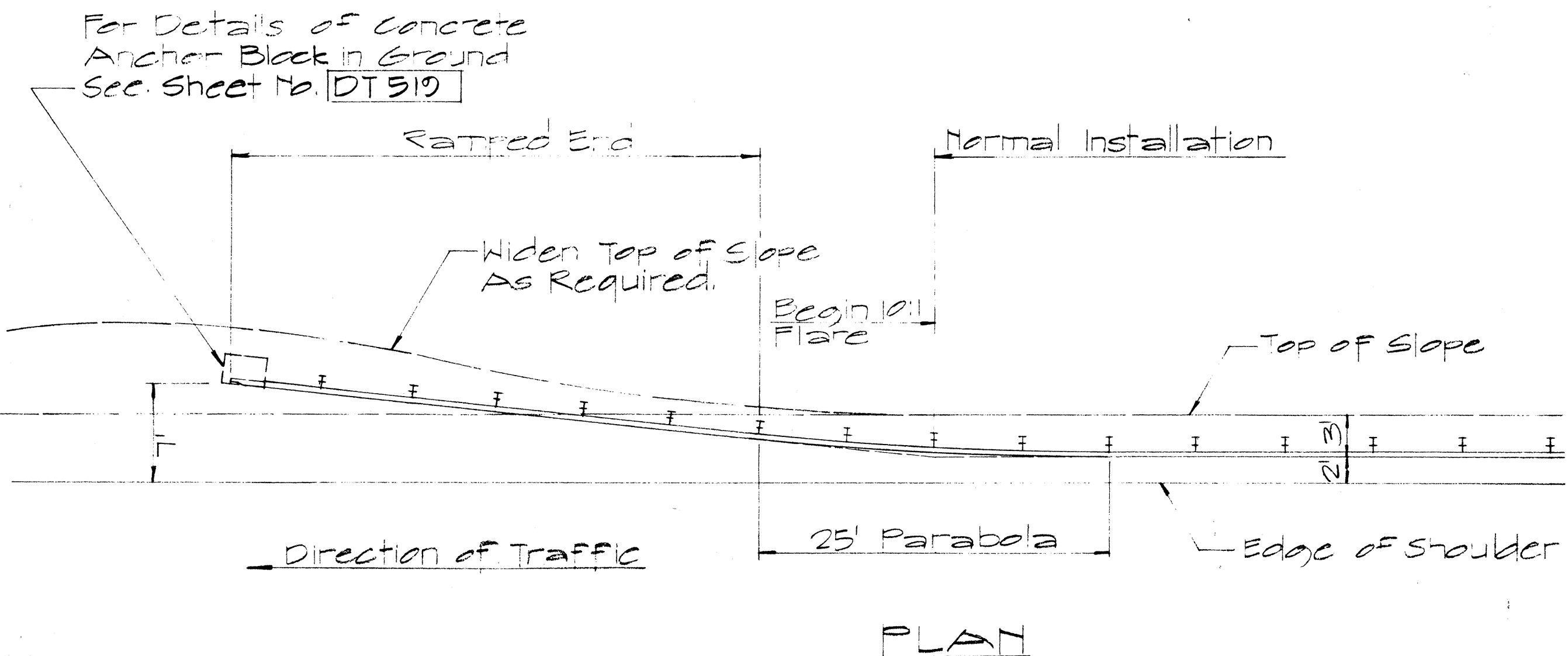
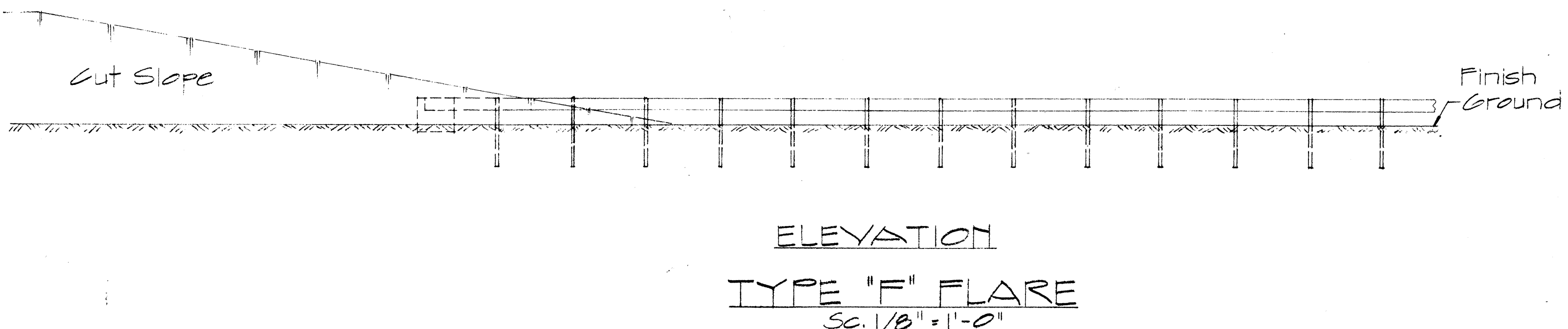
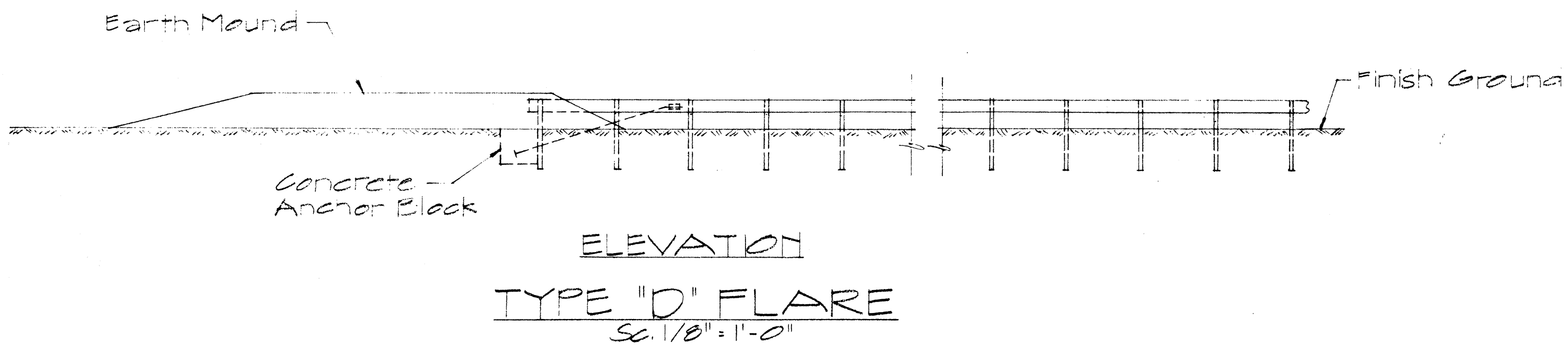
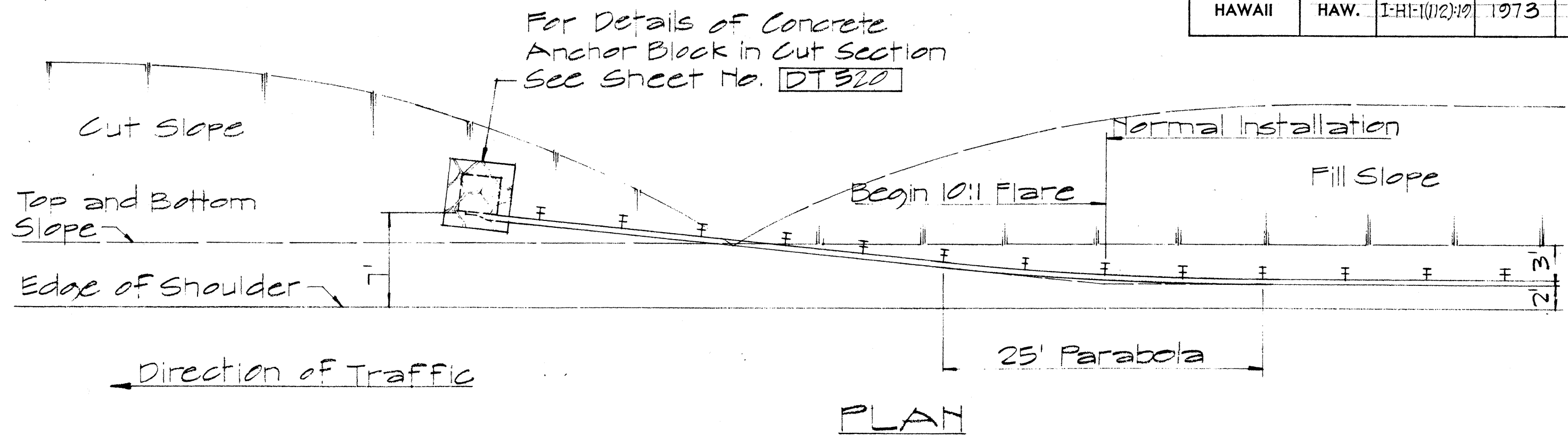
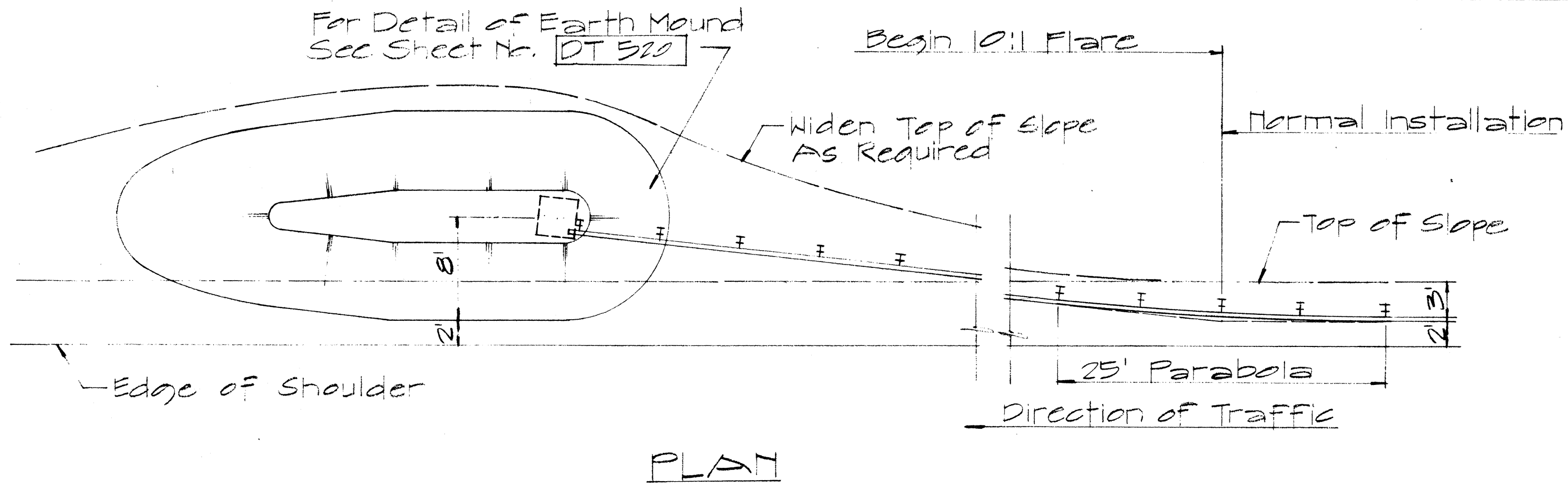
**STANDARD DETAILS
OF APPROACH END
FLARE - ONE & TWO
WAY ROADWAY**

Sc. As Noted April 1969

SHEET No. 11 OF 17 SHEETS DT 516

DATE
SURVEY PLOTTED BY
DRAWN BY
CHECKED BY
NOTE BOOK
No.

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-H-1(112)12	1973	34	176



NO	REVISION	APPROVED BY	DATE
1	Additional Posts Added to Typical Layout Plan Of End Post Connection	H.C.	4-12-72

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

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

STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION

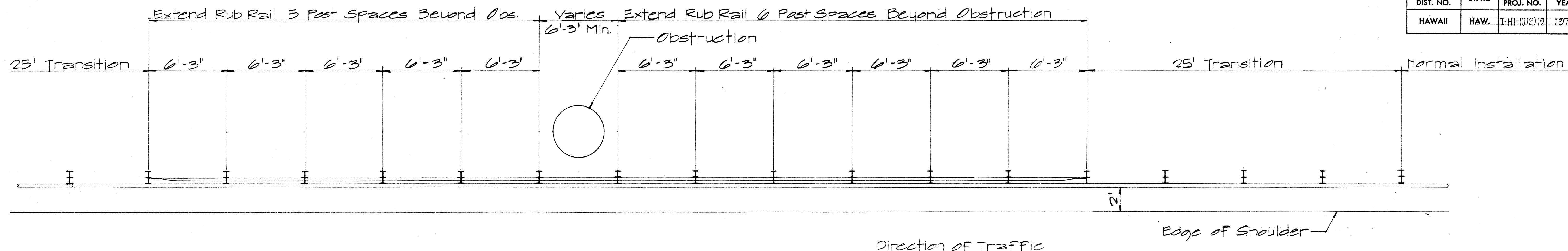
STANDARD DETAILS
 TRAILING END
 FLARE - ONE & TWO
 WAY ROADWAY

Scale: As Noted April 1969

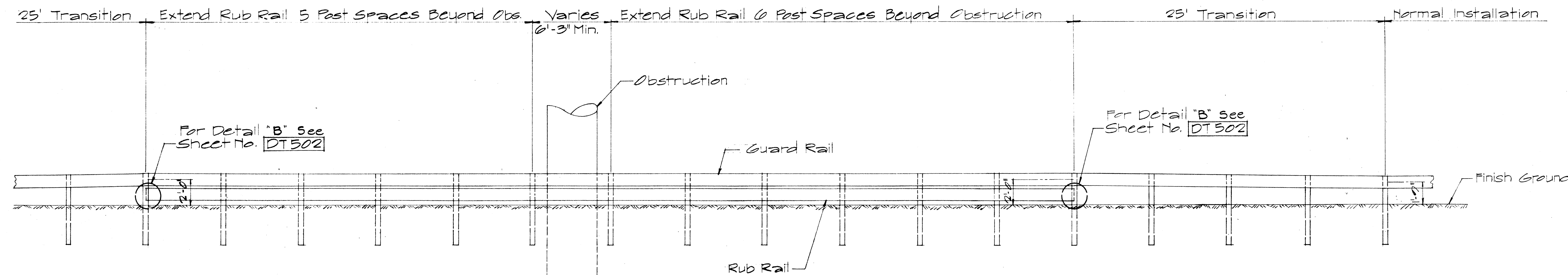
SHEET No. 12 OF 17 SHEETS DT 517

SURVEY PLOTTED BY	DATE
DESIGNED BY	
TRACED BY	
NOTED BY	
CHECKED BY	
ORIGINAL PLAN	
NOTE BOOK	
NO.	

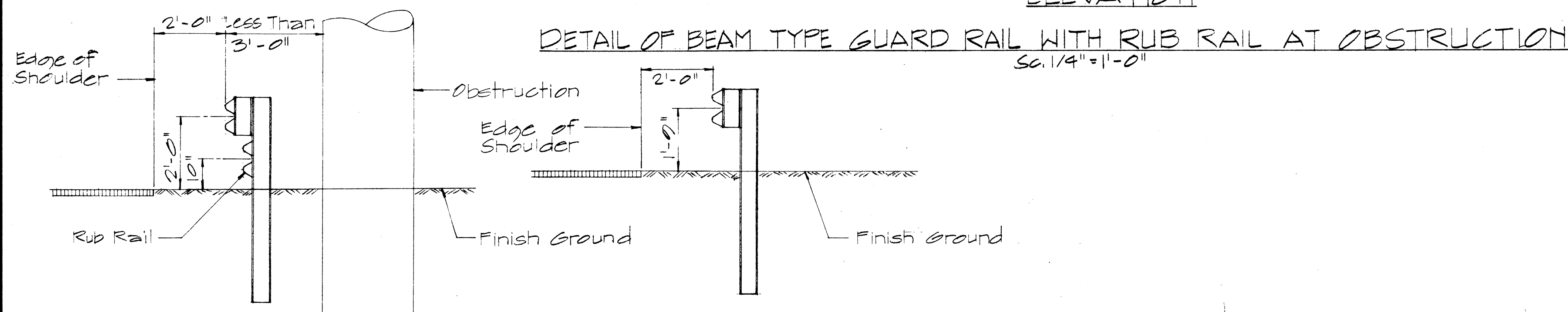
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-H-1(112)12	1973	35	176



PLAN



ELEVATION



TYP. SEC. AT OBSTRUCTION

TYP. SEC. AT NORMAL INSTALLATION

TYP. GUARD RAIL SECTIONS
Sc. 1/2" = 1'-0"

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

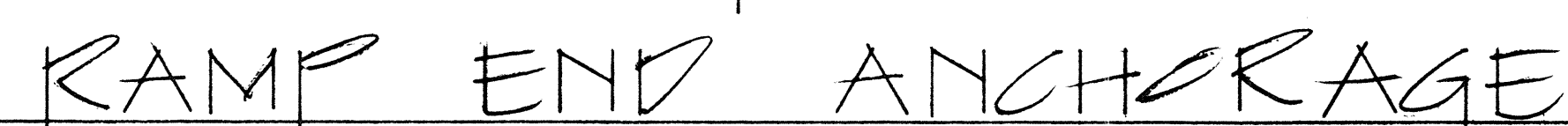
APPROVED:
Shirley S. Saito
ASSISTANT CHIEF, ENGINEERING 12-30-69
DATE

NO	REVISION	APPROVED BY	DATE

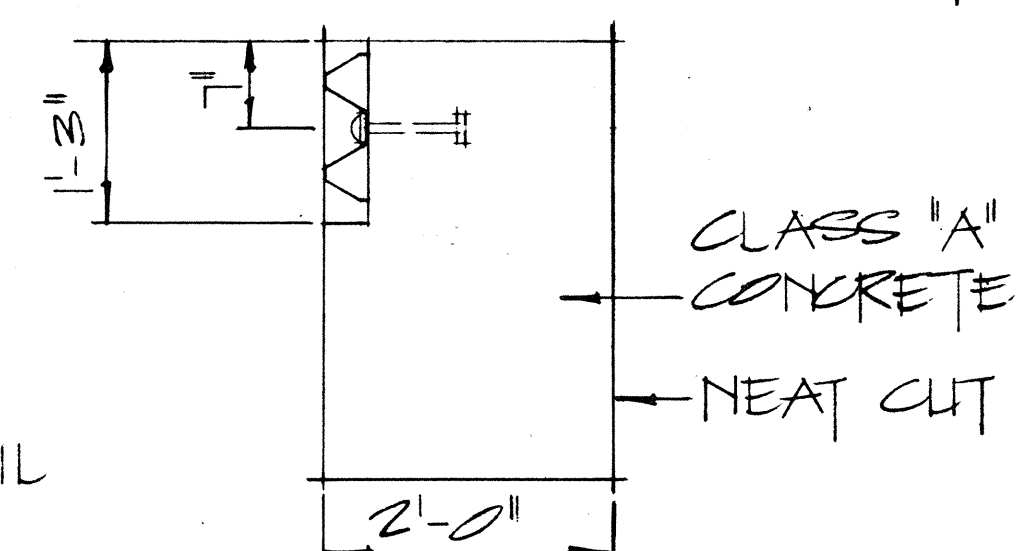
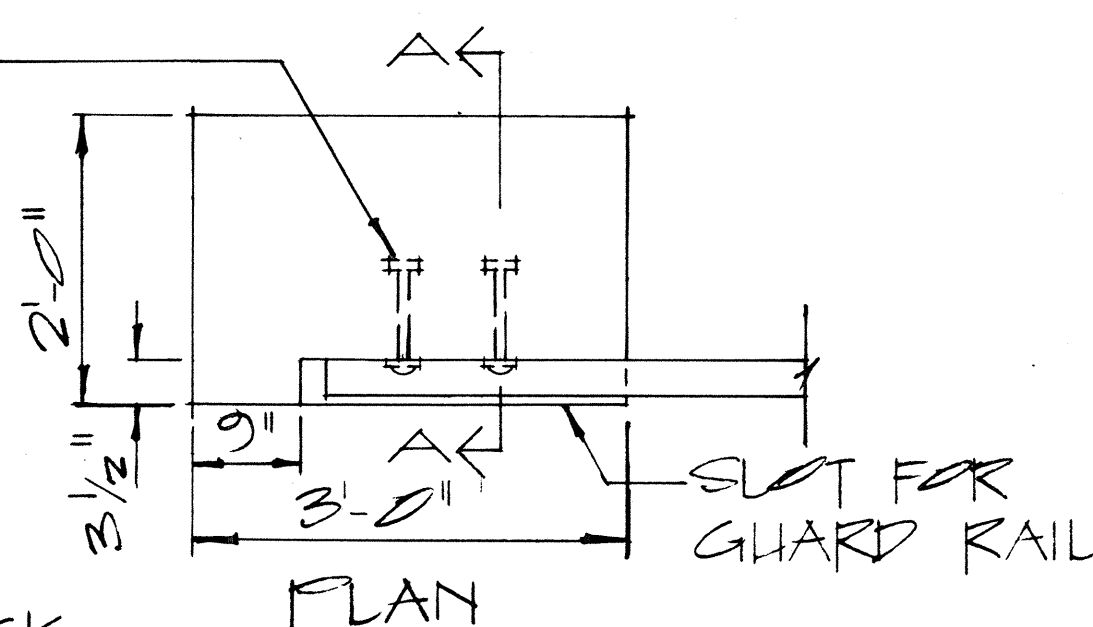
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
STANDARD DETAIL
BEAM TYPE GUARD RAIL
WITH RUB RAIL AT OB-
STRUCTION (SHOULDER INSTALL)
SC. AS SHOWN DATE: JUNE 1969
SHEET No. 13 OF 17 SHEETS DT 518

DATE	
DESIGNED BY	
DRAWN BY	
CHECKED BY	
ORIGINAL PLAN	
NOTE BOOK	
NO.	

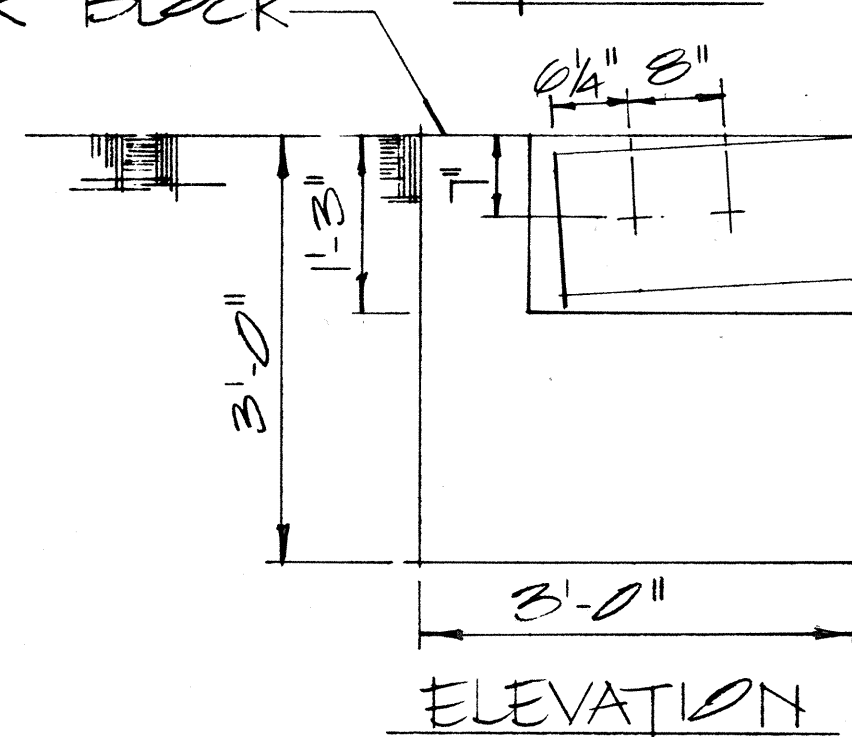
Hand-drawn plan view of a guard rail element. The diagram shows a series of vertical posts connected by a top rail and a bottom rail. The top rail is labeled with dimensions of 6'-3" between each post. The bottom rail is labeled with dimensions of 1'-0" between each post. The posts are labeled with dimensions of 1'-0" between each post. The diagram includes labels for "FAST BOLT HOLE", "GUARD RAIL POST", "SPACER BLOCK", and "GUARD RAIL ELEMENT PLAN".



2-5/8" ϕ x 7 1/4" LONG BOLTS;
w/ NUTS & WASHERS
INCIDENTAL TO METAL
GUARD RAIL. ALL
METAL PIECES SHALL
BE GALVANIZED.



TOP OF ANCHOR BLOCK
TO BE FLUSH
w/ GROUND.



GROUND
- LINE

NOTE:
CONCRETE, EXCAVATION AND
MISCELLANEOUS APPURTENANCES
NECESSARY TO ANCHOR THE GUARD
RAIL ENDS, SHALL BE INCIDENTAL
TO THE METAL GUARD RAIL.

CONCRETE ANCHOR BLOCK

SCALE: $3/4'' = 1' - 0''$

APPROVED: 24th 22d 12-30-60
ASSISTANT CHIEF, ENGINEERING DATE

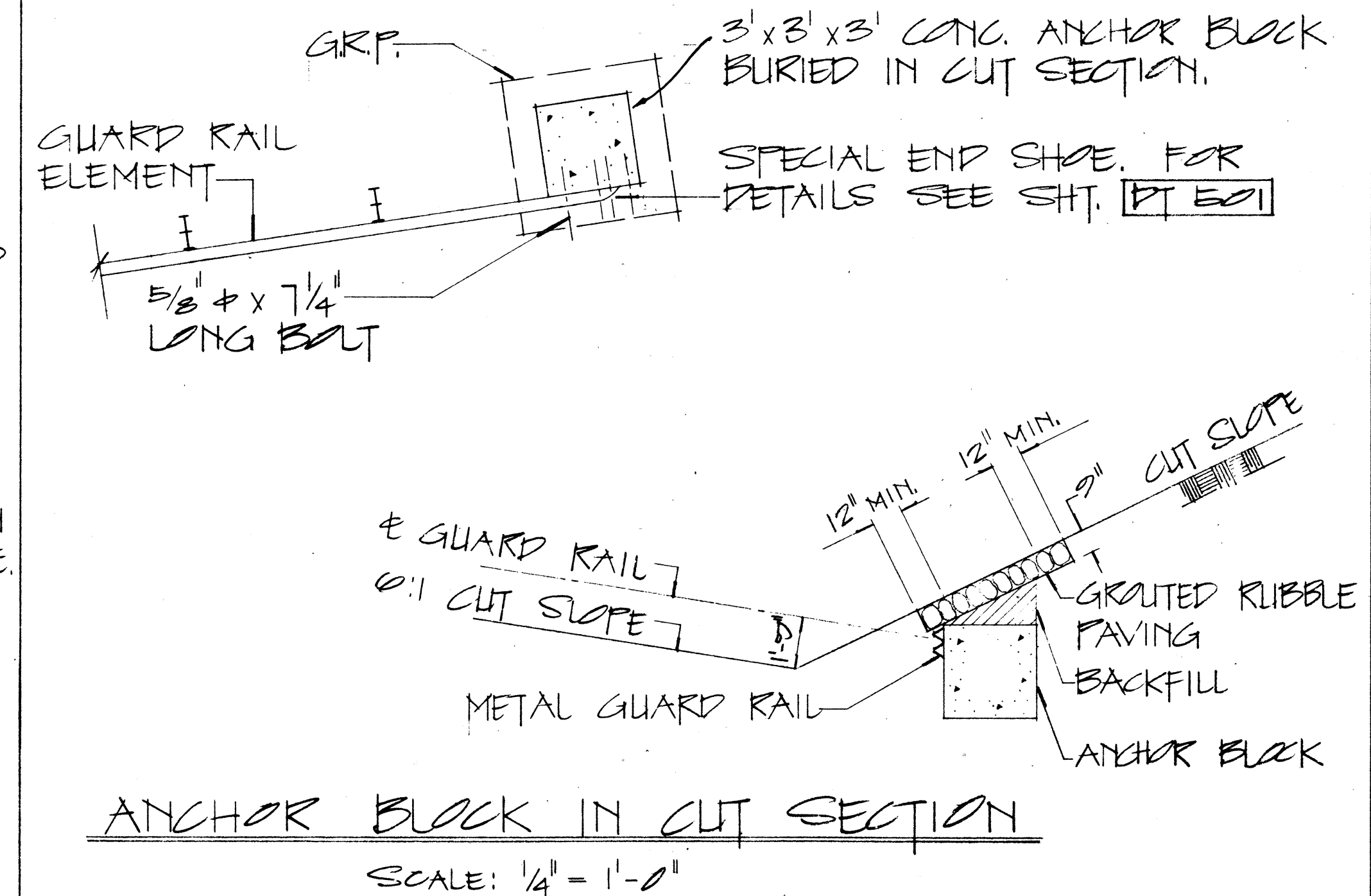
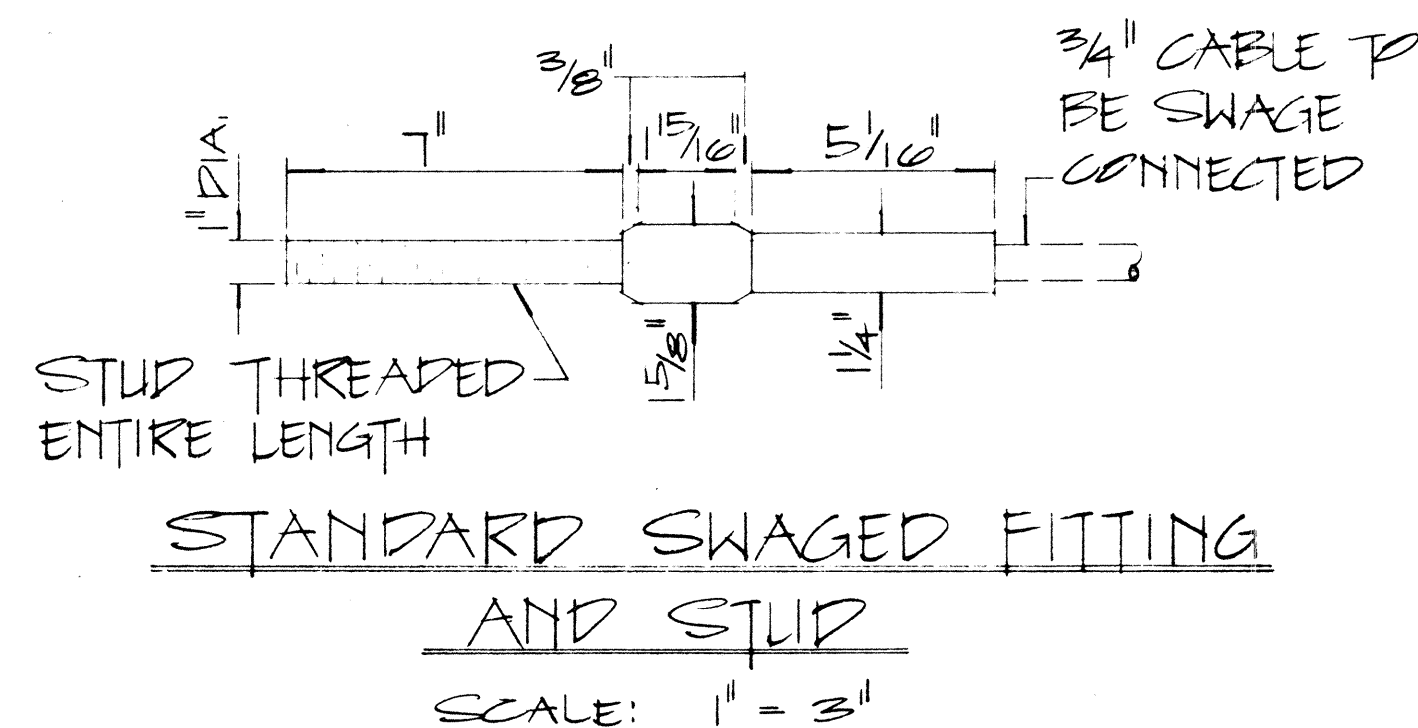
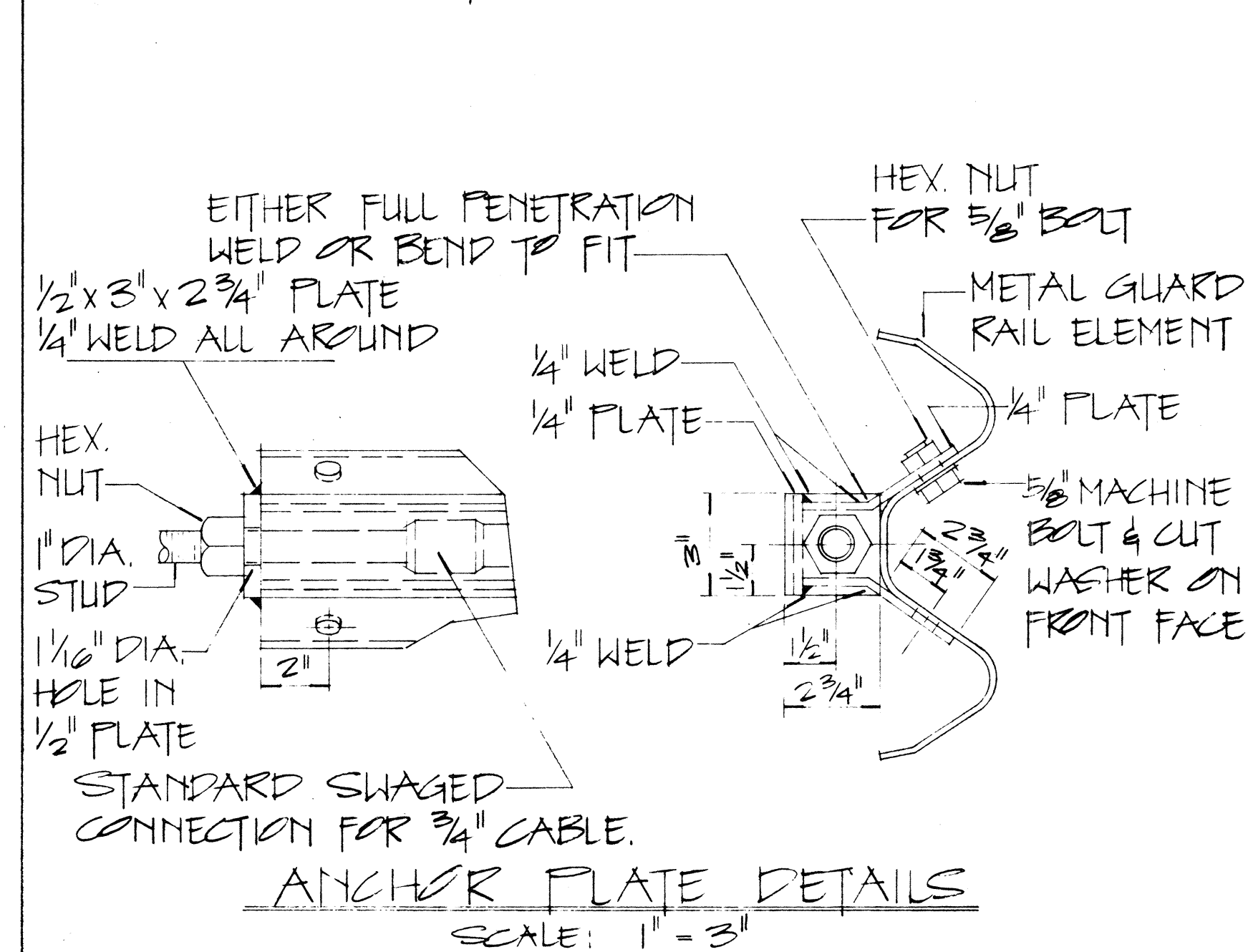
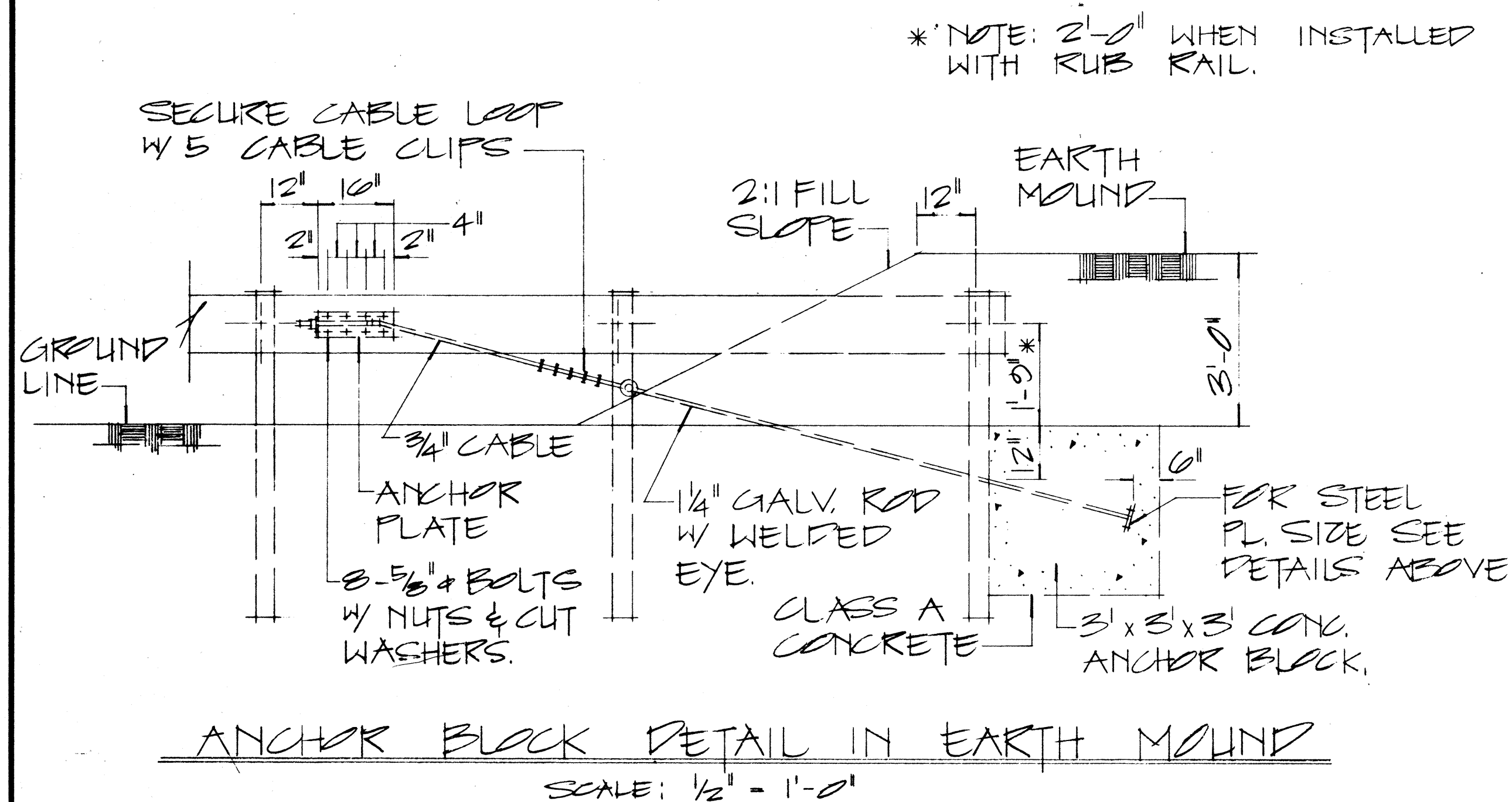
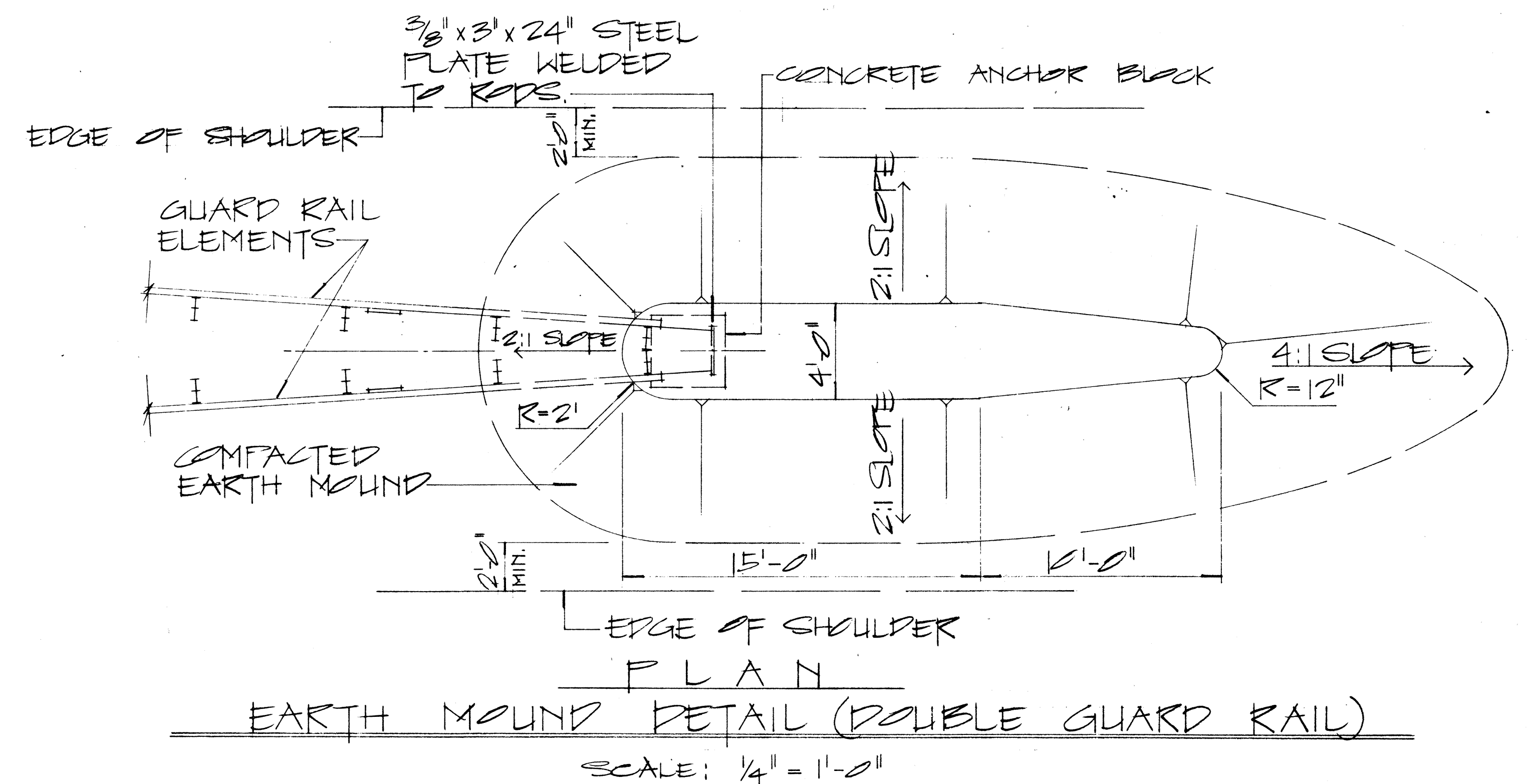
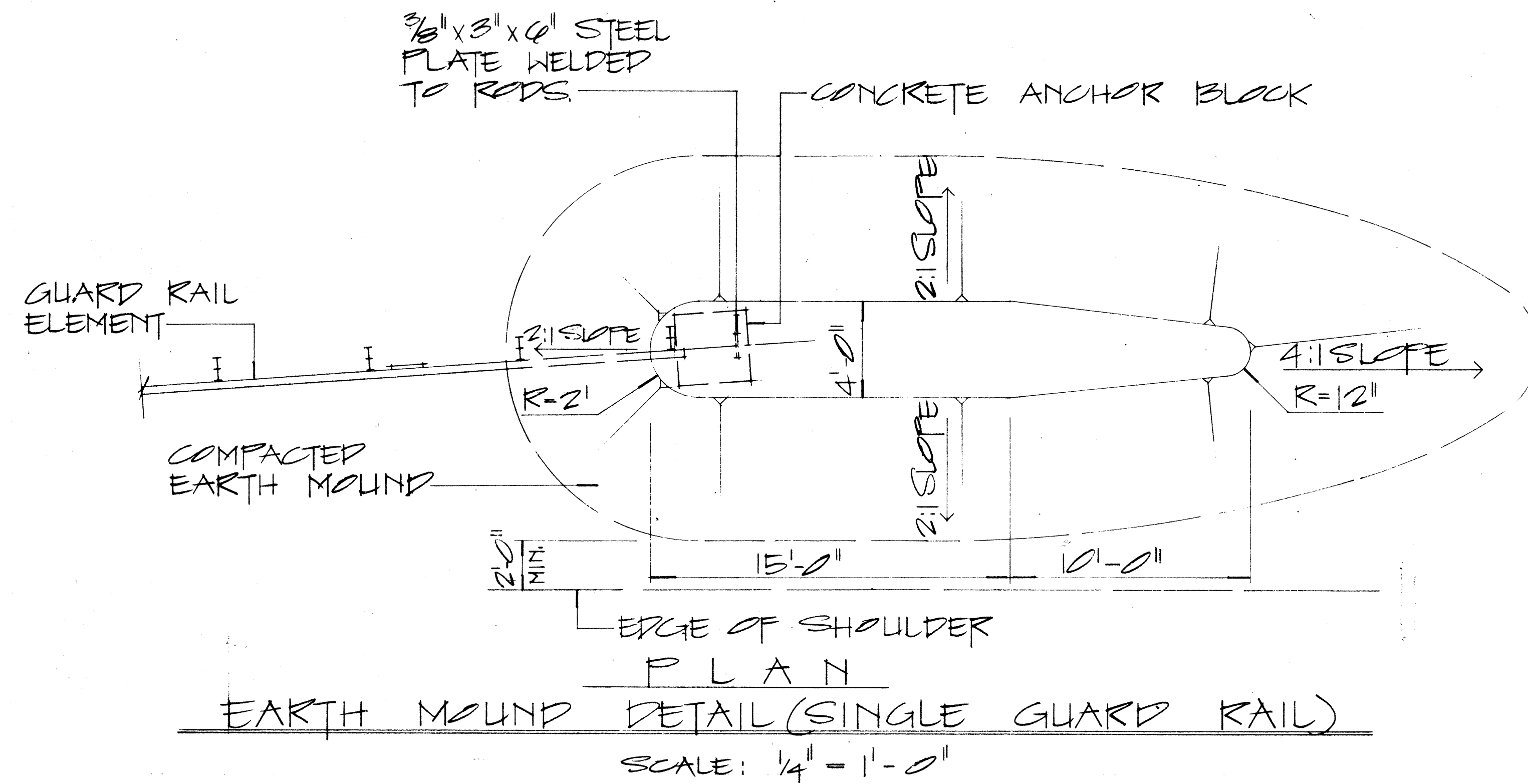
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

STANDARD DETAILS
GUARD RAIL, TYPE 3
RAMP END ANCHORAGE

SCALE: AS SHOWN

SHEET No. 14 OF 17 SHEETS DT51

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	1-11-101219	1973	97	176



APPROVAL RECOMMENDED:
Traffic Engineer
DATE 12/29/69

APPROVED:
Assistant Chief, Engineering
DATE 12-30-69

NO.	REVISION	APPROVED BY	DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

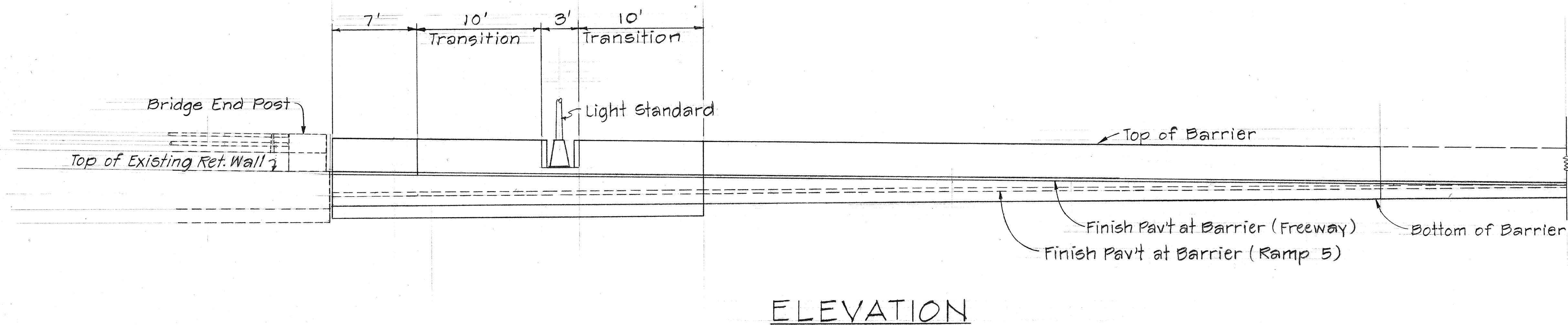
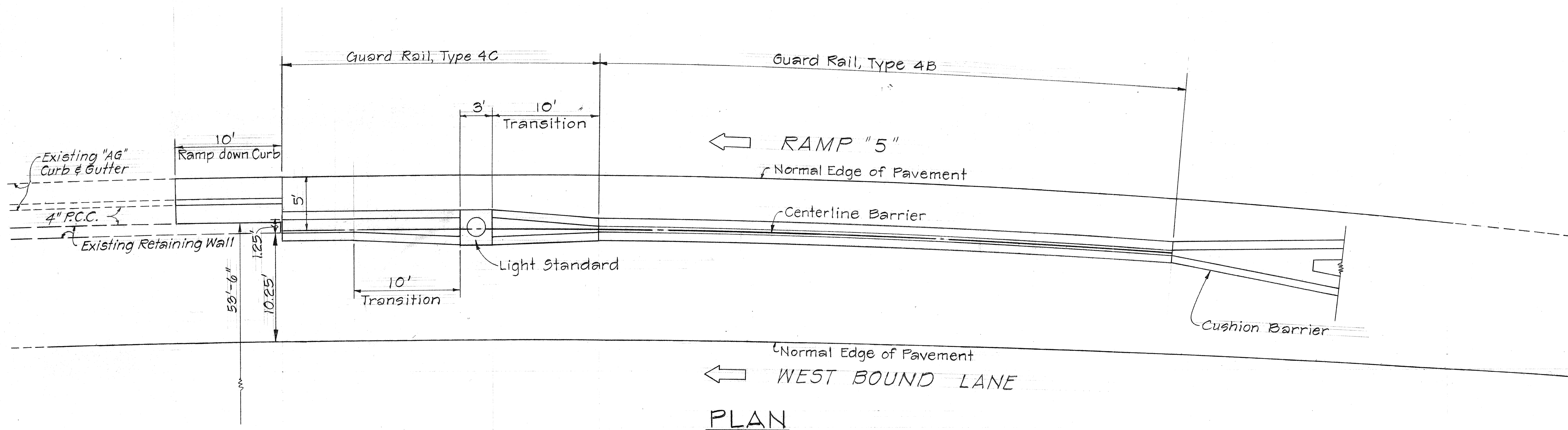
STANDARD DETAILS
EARTH MOUND AND
ANCHOR BLOCK DETAILS

SCALE: AS SHOWN

SHEET No. 15 OF 17 SHEETS

DATE
DESIGNED BY
CHECKED BY
NOTED BY
QUANTITIES BY
NO.

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-HI-1(112)17	1978	38	176



STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

**TAPERED CONCRETE
BARRIER DETAIL**

F.A.I. PROJ. NO. I-HI-1(112)17

Scale: 1"=5'

SHEET No. 16 OF 17 SHEETS

DATE	
DESIGNED BY	
CHECKED BY	
NO.	

Technical drawing of a cross-section of a bridge pier or abutment. The drawing shows a central vertical structure with a central opening. The top of the structure is labeled "Barrier". The central opening has a width of 7 inches at the top and tapers to 3 inches at the bottom. The sides of the opening are labeled with a radius $R=10"$. The bottom of the opening is labeled "3" deep key". The overall width of the structure at the base is 2'-0". The height of the structure is 1'-7". The drawing also shows "Fin. Grade" (Finished Grade) lines on both sides. Other dimensions include 2", 3", 7", 3", 7", 2", 3", 1'-9", 3", 3 1/2", 9", 3", 10", and 3/4" Chamfer.

Technical drawing of a bridge girder cross-section. The drawing shows a central web with a 3" deep key at the bottom. The top flanges have a 3/4" Chamfer and a 7" width. The web has a 3" width. The overall height is 1' - 7". The radius of the top flange is R=10". The radius of the web is R=10". The bottom flange has a 3" width. The overall width is 2' - 0". The drawing includes a note: "This height controlled by higher side." and a note: "Fin. Grade" with a 3" dimension.

The image contains four technical drawings of a concrete bridge deck:

- PLAN:** A top-down view of a 90-foot long bridge deck. It is divided into three 30-foot segments by two expansion joints. The total length is labeled "90' max." and each segment is "30' max.".
- EXPANSION JOINT:** A cross-section view showing the joint between two deck segments. It includes "1/2\" Premolded Joint Filler" and "Approved Bond Breaking Material" at the base. The top surface is labeled "Fin. Grade".
- CONTROL JOINT:** A cross-section view showing a joint between two deck segments. It includes a "Concrete Barrier" on the left and "Fin. Grade" on the right. Reinforcement bars are shown with a "3/4\" Chamfer" and a "2\" gap" between them.
- SECTION "A-A":** A cross-section view of the deck, showing the reinforcement bars and the concrete barrier. It includes a "3/4\" Chamfer" and a "2\" gap" between the bars.

Scale: 1/8" = 1'-0"

Scale: 3" = 1'-0"

Technical drawing of a rectangular column cross-section with a T-shaped base. The column is 36 inches wide and 48 inches high. It features a 3/4 inch chamfer at the top, a 3 inch deep key, and various reinforcement bars (#4, #5) at different spacings. The base is 36 inches wide and 12 inches high, with a 6 inch radius at the bottom corners. The drawing includes dimensions for width, height, and reinforcement placement.

Dimensions and Reinforcement Details:

- Column Width:** 36" (3' 0")
- Column Height:** 48" (4' 0")
- Base Width:** 36" (3' 0")
- Base Height:** 12" (1' 0")
- Reinforcement:**
 - #5 at 15" o.c. (top section)
 - #4 cont. horiz. at 18" o.c. max. (middle section)
 - #4 at 15" o.c. (bottom section)
 - 3- #4 cont. horiz. (base section)
- Other Details:**
 - 3/4" Chamfer (top corner)
 - 3" deep key (middle section)
 - R=10" (fillet radius)
 - R=6" (base corner radius)
 - 2" cl. Typ. (typical spacing)
 - 3" cl. (base section)

TYPE	DIFFERENCE IN FIN. GRADE	FOOTING	
	X	Y	Z
4C	1'-0" min., 2'-4" max.	1'-0"	4'-0"
4D	Greater than 2'-4", 4'-4" max.	1'-3"	4'-6"

Technical drawing of a cross-section of a concrete barrier wall. The wall is 2'-0" wide and 8" high. It features a "Rough Surface" on the exterior face and a "Fin. Grade" on the interior face. A "2" x 4" Key" is shown at the top. The wall is supported by "1/2" ø Anchor Bolts at 5'-0" o.c. ea. side". A "Symm." line indicates the center. Dimensions include 2" for the key height, 6" for the wall thickness, and 8" for the wall height. A note specifies "4 at 15" o.c. x 2'-0" long" for the anchor bolts. The bottom of the wall is labeled "Top of footing or bottom of rigid barrier".

Varies

5"

4"

3"

1/2"

1/2"

1/2" Premolded Joint Filler

Scale: As Shown

SHEET No. 17 OF 17 SHEETS DT 521

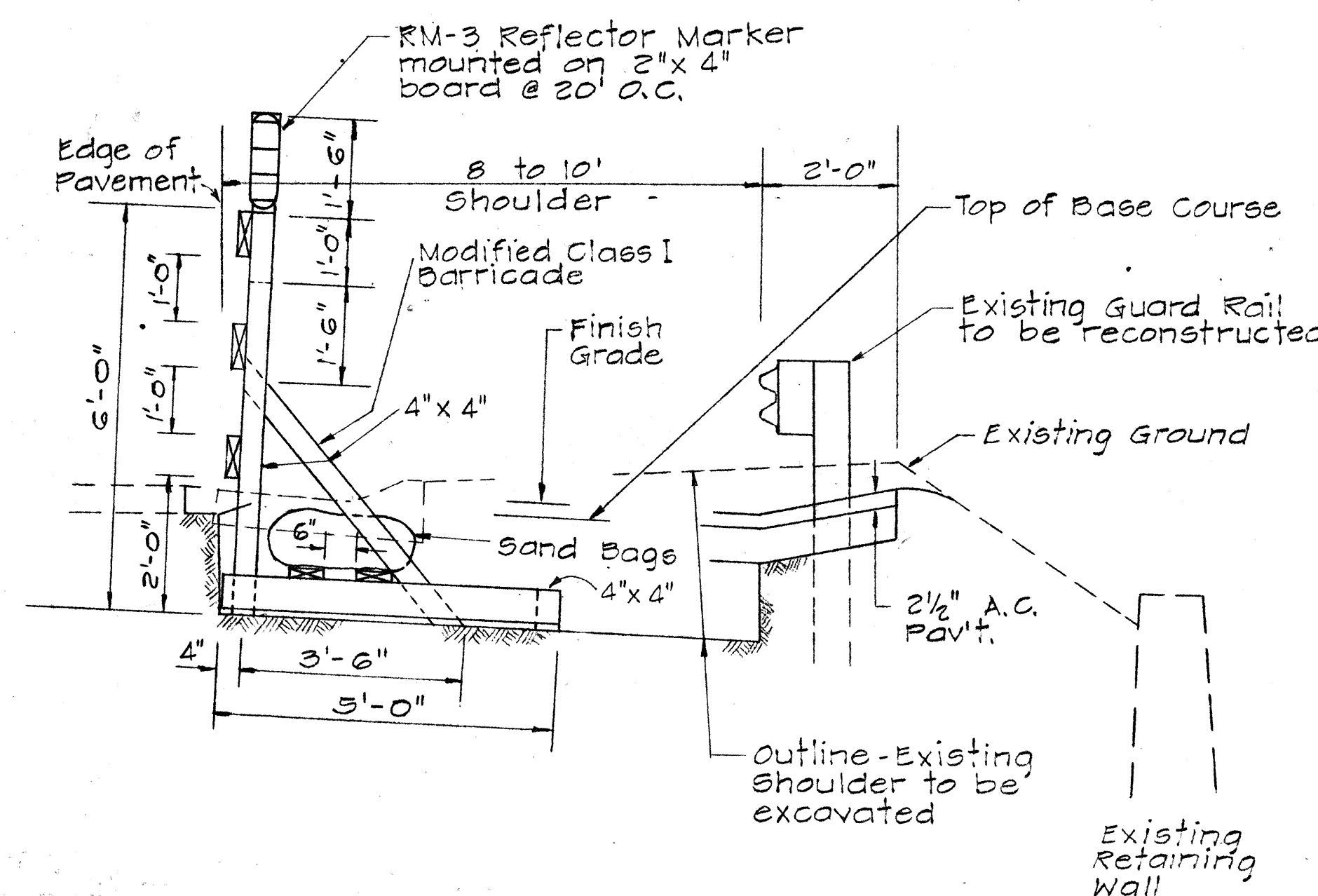
NO.	REVISION	APPROVED BY	DATE
1	Supersede Sht. DT 521 Approved 12-30-69	WT.	2/10/70

RESTRICTIONS ON RECONSTRUCTION OF EXISTING METAL GUARD RAILS

- These restrictions apply to reconstruction of existing metal guard rails at the locations listed in the table below.

WESTBOUND FREEWAY			EASTBOUND FREEWAY		
BEGIN	END	LENGTH	BEGIN	END	LENGTH
STA.	STA.		STA.	STA.	
56+00	64+50	850'	59+00	64+50	550'
65+50	68+00	250'	63+50	68+00	250'
87+50	89+00	150'	85+00	89+20	420'
95+00	98+00	300'	95+05	98+05	300'

- When reconstructing the metal guard rails at the above mentioned locations, the contractor shall not leave any segment without guard rail for more than 7 calendar days or as directed by the Engineer.
- Upon approval of the Engineer, the contractor may choose to erect temporary guard rails when reconstructing the above mentioned metal guard rails. The cost of such installation shall be at the contractor's expense and no additional compensation will be paid.

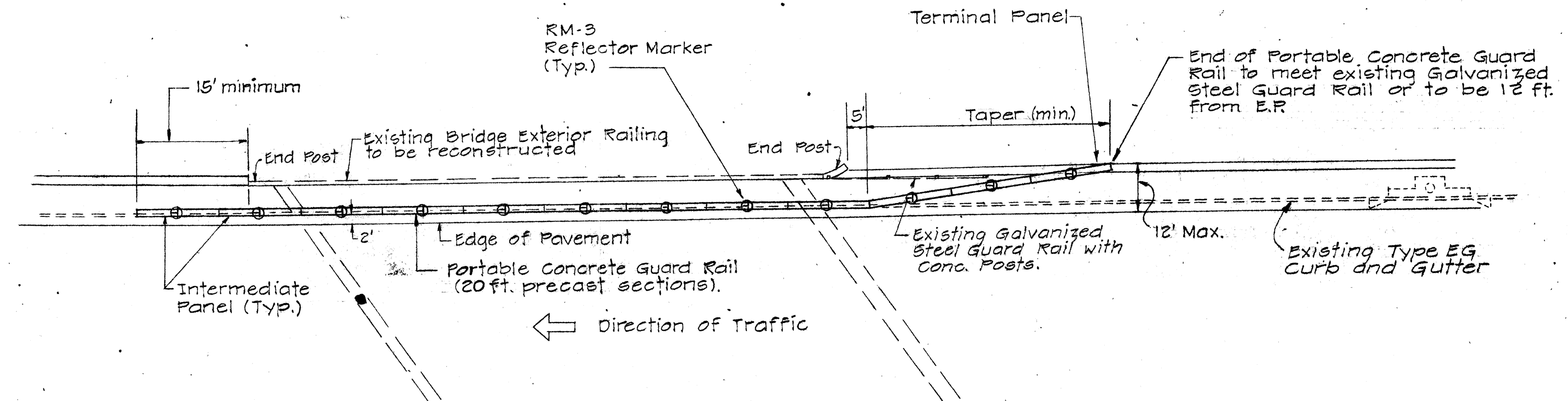


NOTES

- At the end of each work day, the contractor shall place barricades in the excavated shoulder as shown in the plan.
- The details of Modified Class I Barricade are similar to the ordinary Class I Barricade with the exception that the modified barricade is 6 ft. in height and "L" shaped. See Standard Details for other details of the barricade not shown on this page. The contractor may use other suitable barricades upon approval of the Engineer.
- The contractor shall erect necessary traffic control devices in advance of the area under excavation.
- The color, design and spacing of traffic drums, barricades, lighting devices and other traffic control devices shall be in accordance with "The Rules and Regulations governing the Use of Traffic Control Devices at Work Sites on or adjacent to Public Streets and Highways."
- Unless otherwise noted, all work required for maintenance and protection of traffic, including all labor, equipment and material, shall not be paid for separately but shall be considered incidental to the various contract items.

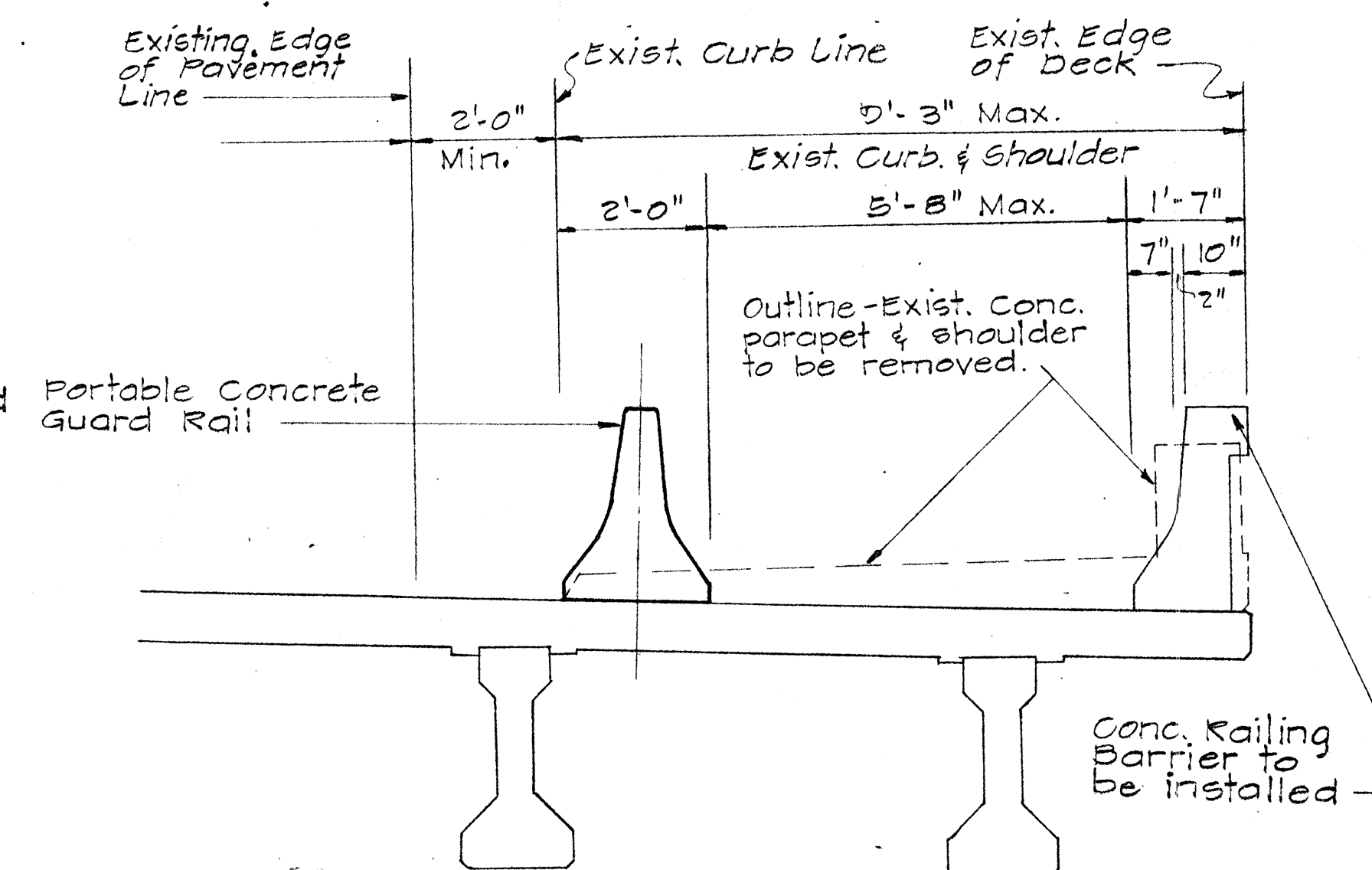
TYPICAL SHOULDER SECTION DURING CONSTRUCTION

Scale: 1" = 2'



PLAN AND APPROACH END FLARE DETAILS

Scale: 1" = 20'



PART DECK SECTION

Scale: 1" = 2'

NOTE: The contractor shall erect necessary traffic control devices along the approach area of the temporary guard rail.

- The contractor shall erect necessary traffic control devices along the approach area of the temporary guard rail.

The contractor shall erect necessary traffic control devices along the approach area of the temporary guard rail.

The contractor shall erect necessary traffic control devices along the approach area of the temporary guard rail.

The contractor shall erect necessary traffic control devices along the approach area of the temporary guard rail.

TEMPORARY GUARD RAIL INSTALLATION DETAILS

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

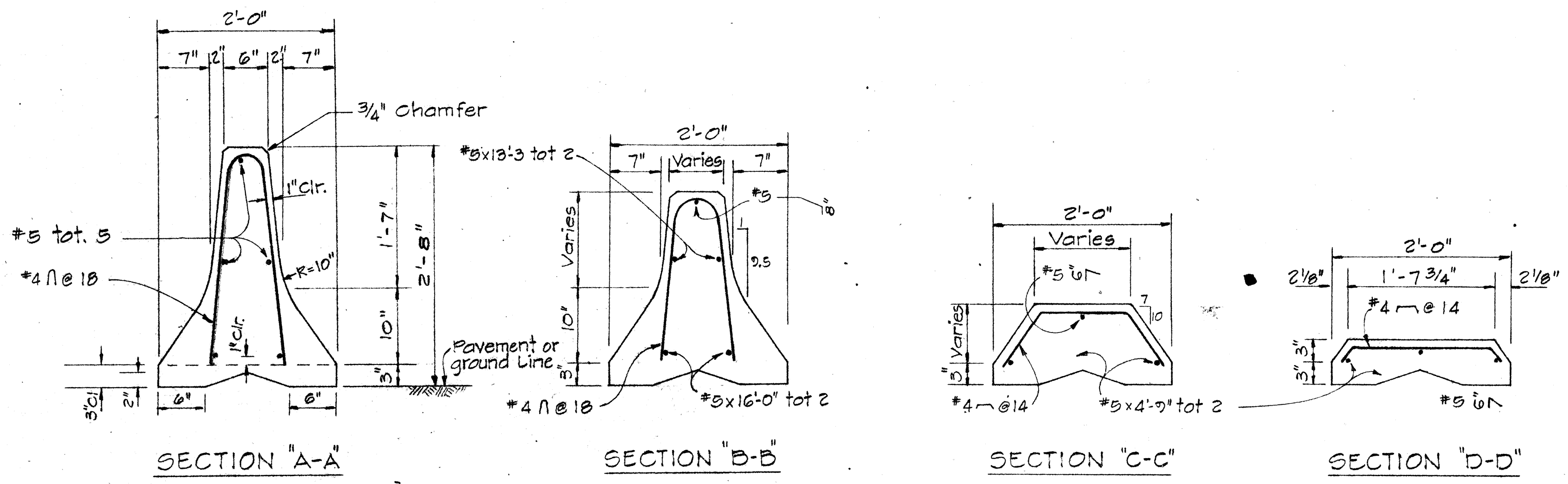
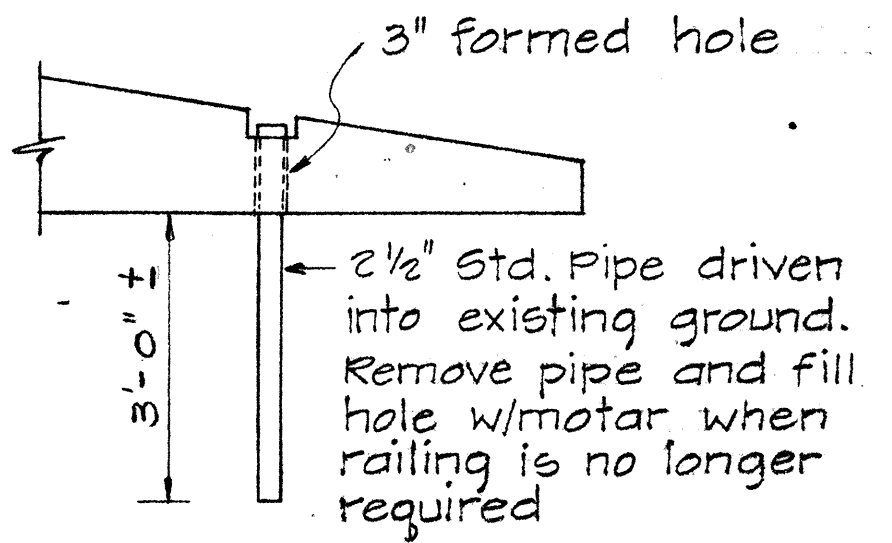
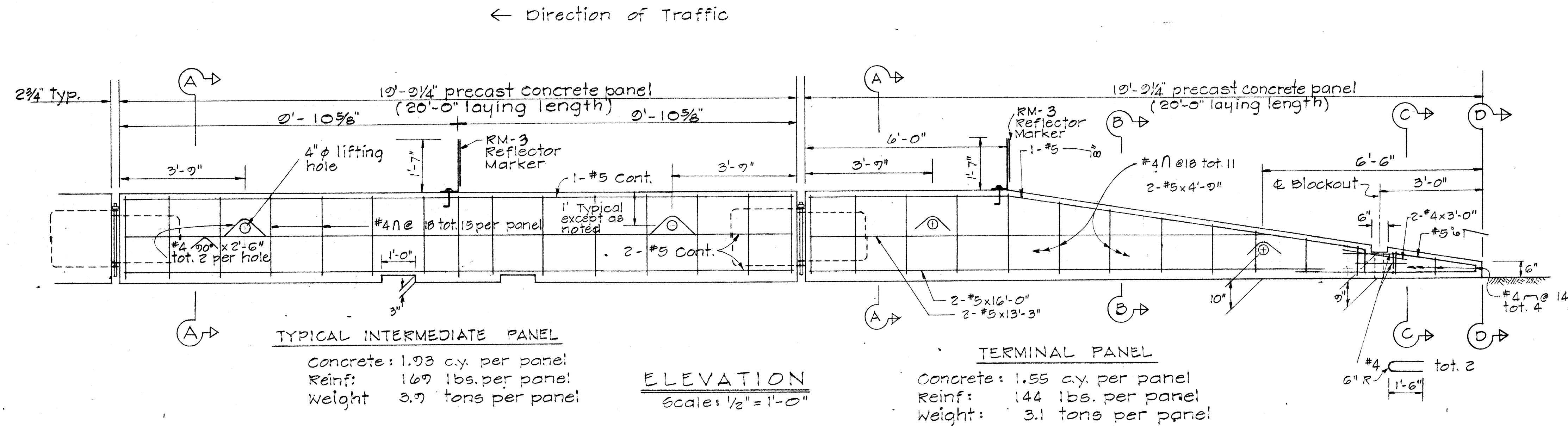
MAINTENANCE AND PROTECTION OF TRAFFIC

F.A.I. Proj. No. I-HI-10112-19

Scale: As Noted Date: 1973

SHEET No. 17A OF 17 SHEETS

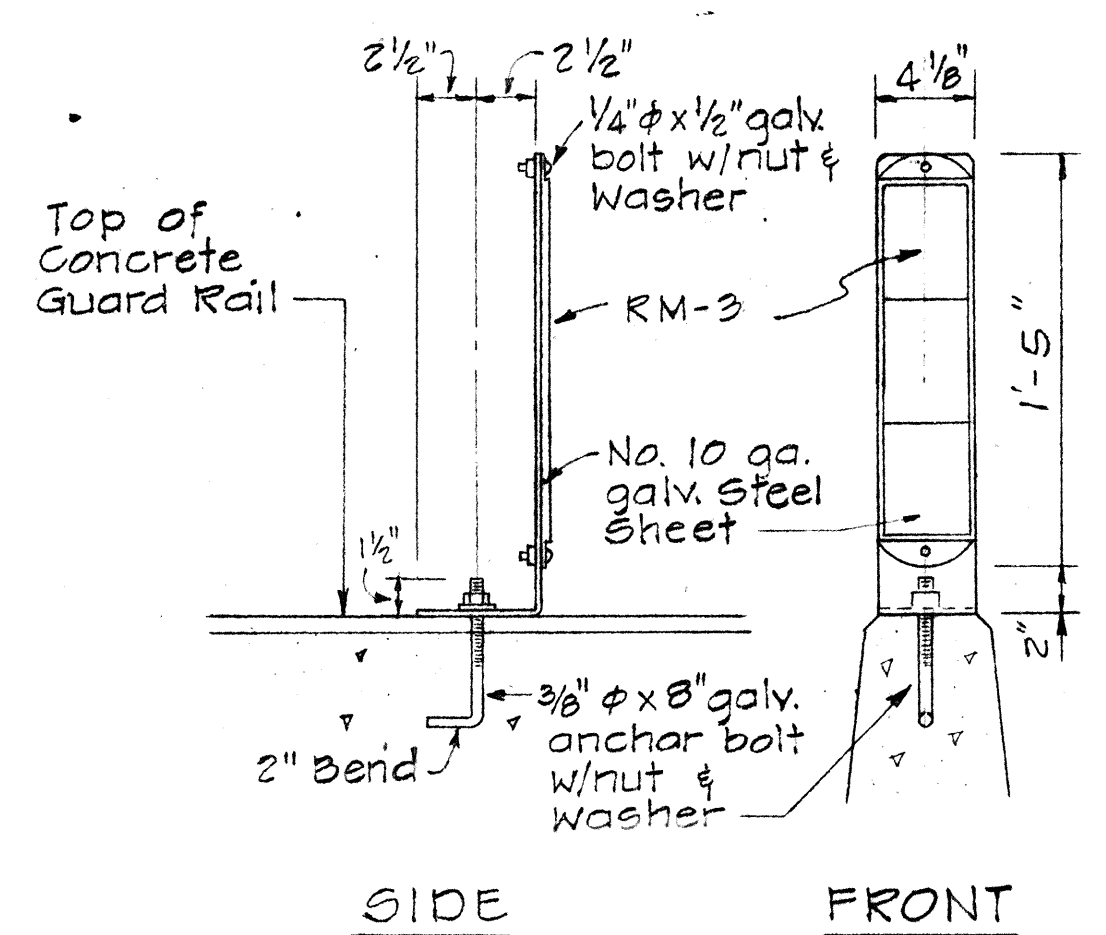
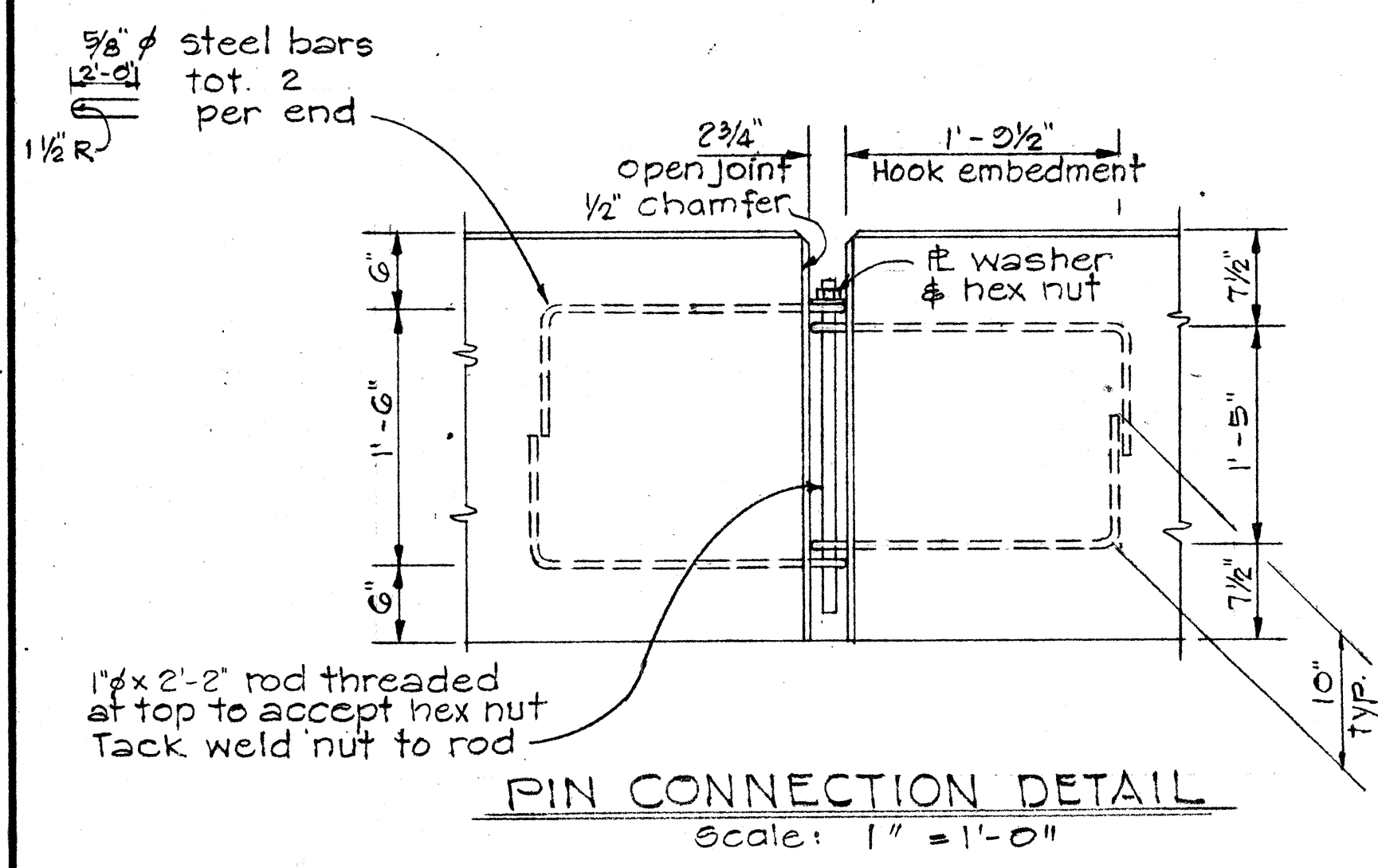
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-HI-K(112):19	1973	328	176



SECTIONS
Scale: 1" = 1'-0"

NOTES

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



STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

PORTABLE CONCRETE GUARD RAIL TYPICAL DETAILS

F.A.I. Proj. No. I-HI-K(112):19

Scale: As Noted Date: 1973

SHEET No. 178 OF 178 SHEETS

DATE	DESIGNED BY	CHECKED BY
12-2-73	W. J. B.	W. J. B.
12-2-73	W. J. B.	W. J. B.
12-2-73	W. J. B.	W. J. B.
12-2-73	W. J. B.	W. J. B.
12-2-73	W. J. B.	W. J. B.
12-2-73	W. J. B.	W. J. B.
12-2-73	W. J. B.	W. J. B.
12-2-73	W. J. B.	W. J. B.
12-2-73	W. J. B.	W. J. B.