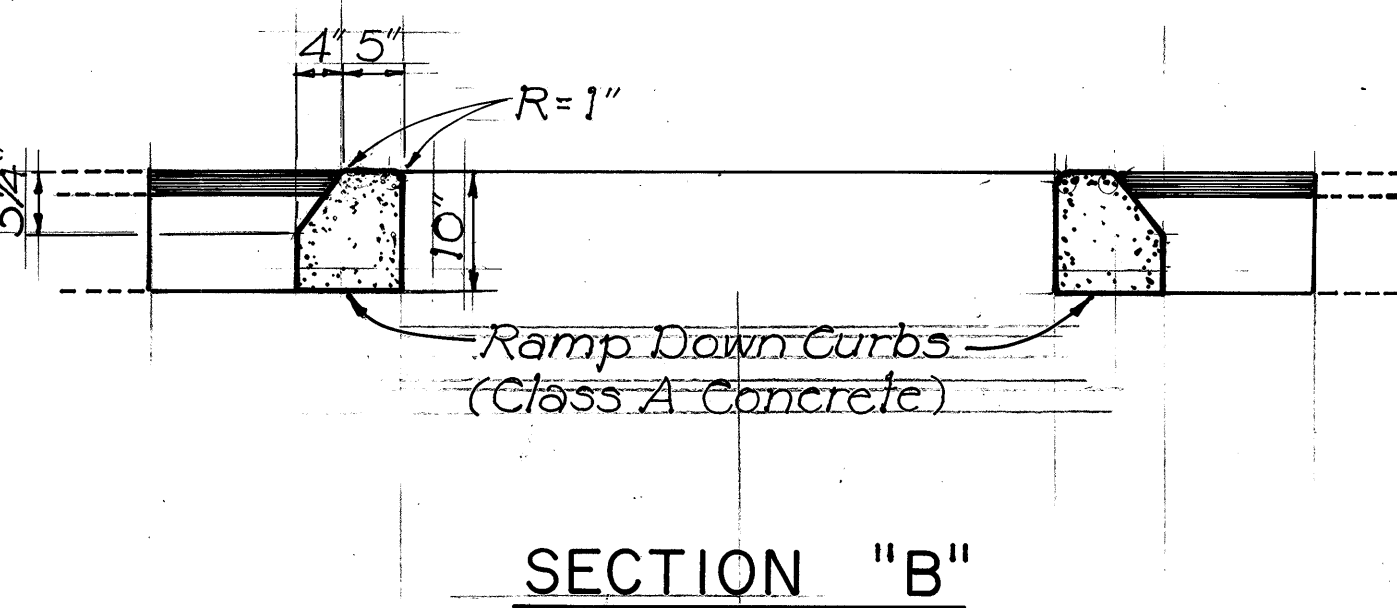
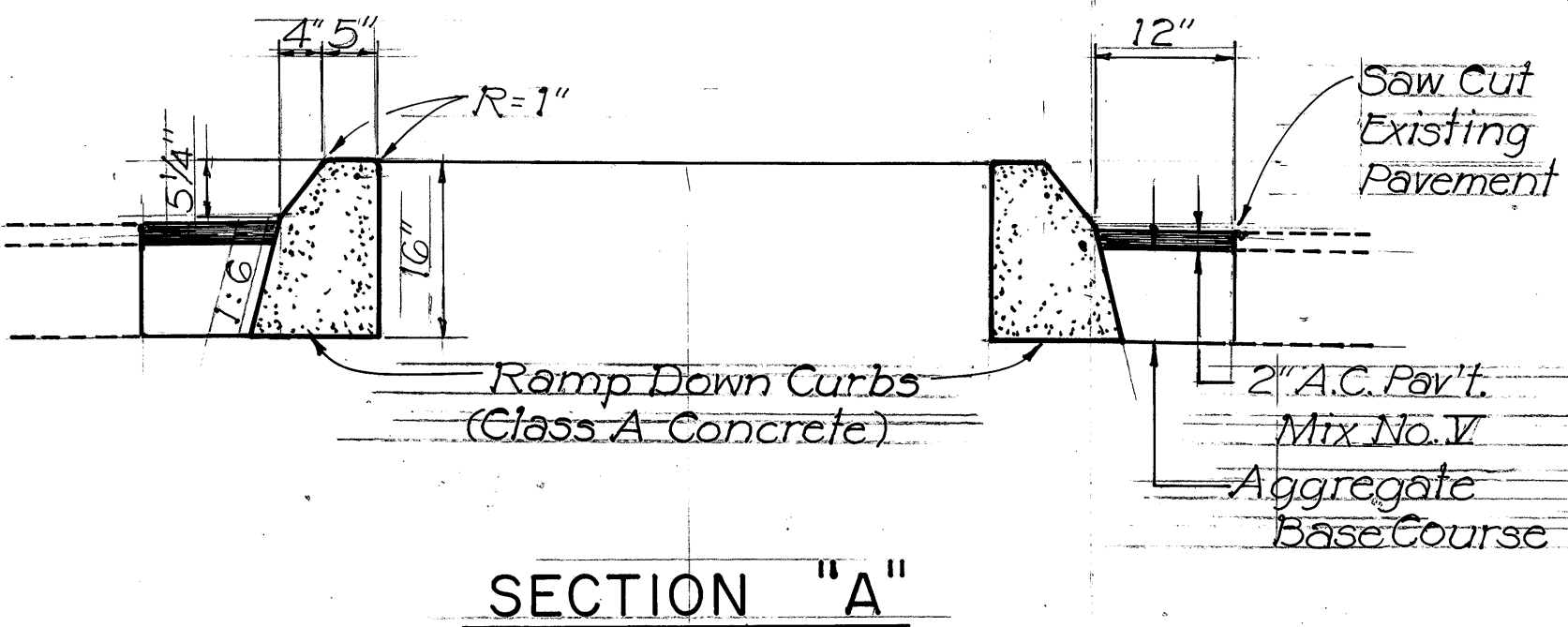


FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HES-R05-061-1(22)	1982	9	51

NOTE:

- Contractor shall reset existing signs if required for the proper installation of the G.R.E.A.T. system as directed by the Engineer. This work shall be considered incidental to the installation of the G.R.E.A.T. system and will not be measured for payment.
- See Signing and Lighting Plans for complete Highway Lighting System.

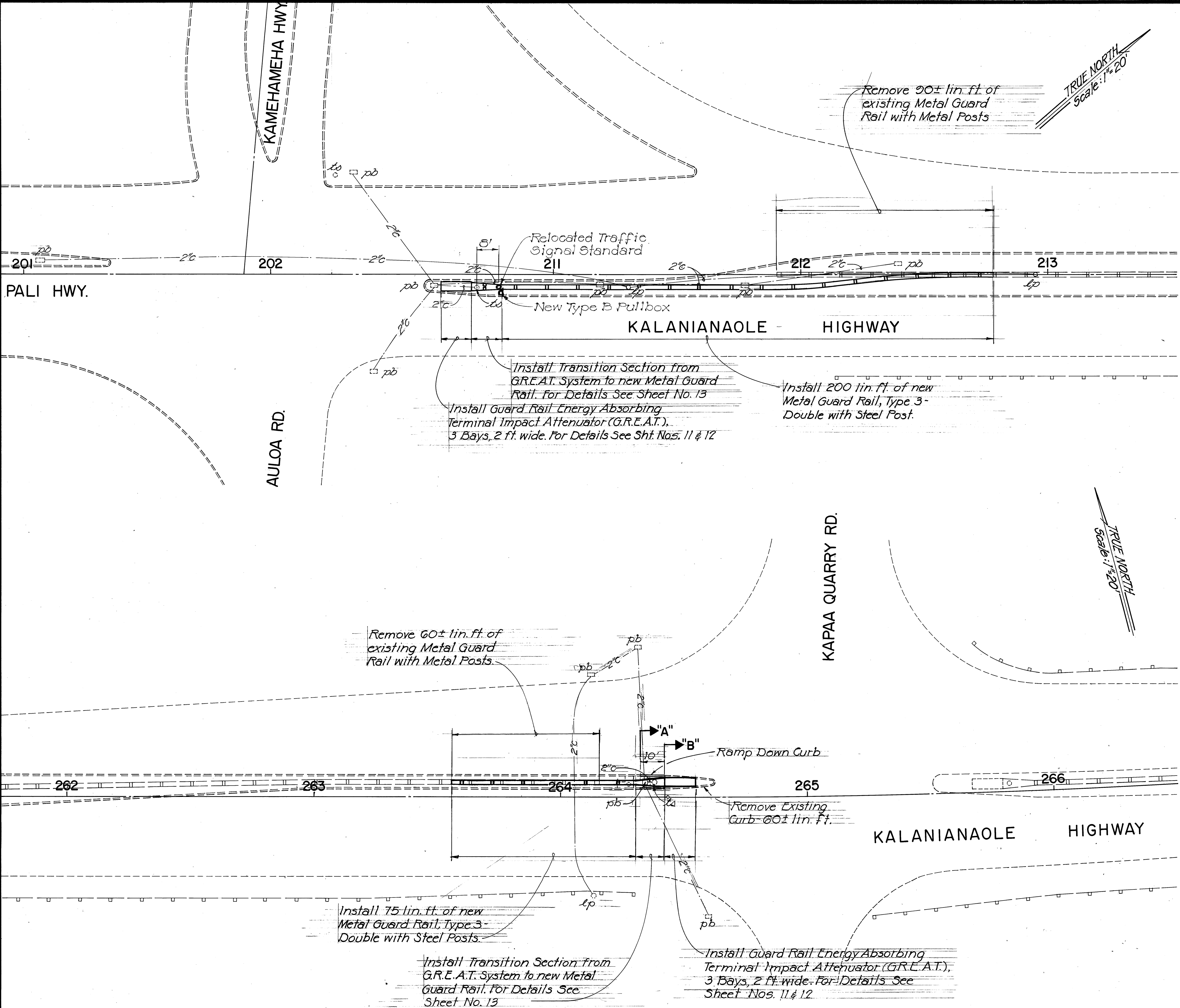


RAMP DOWN CURBS

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

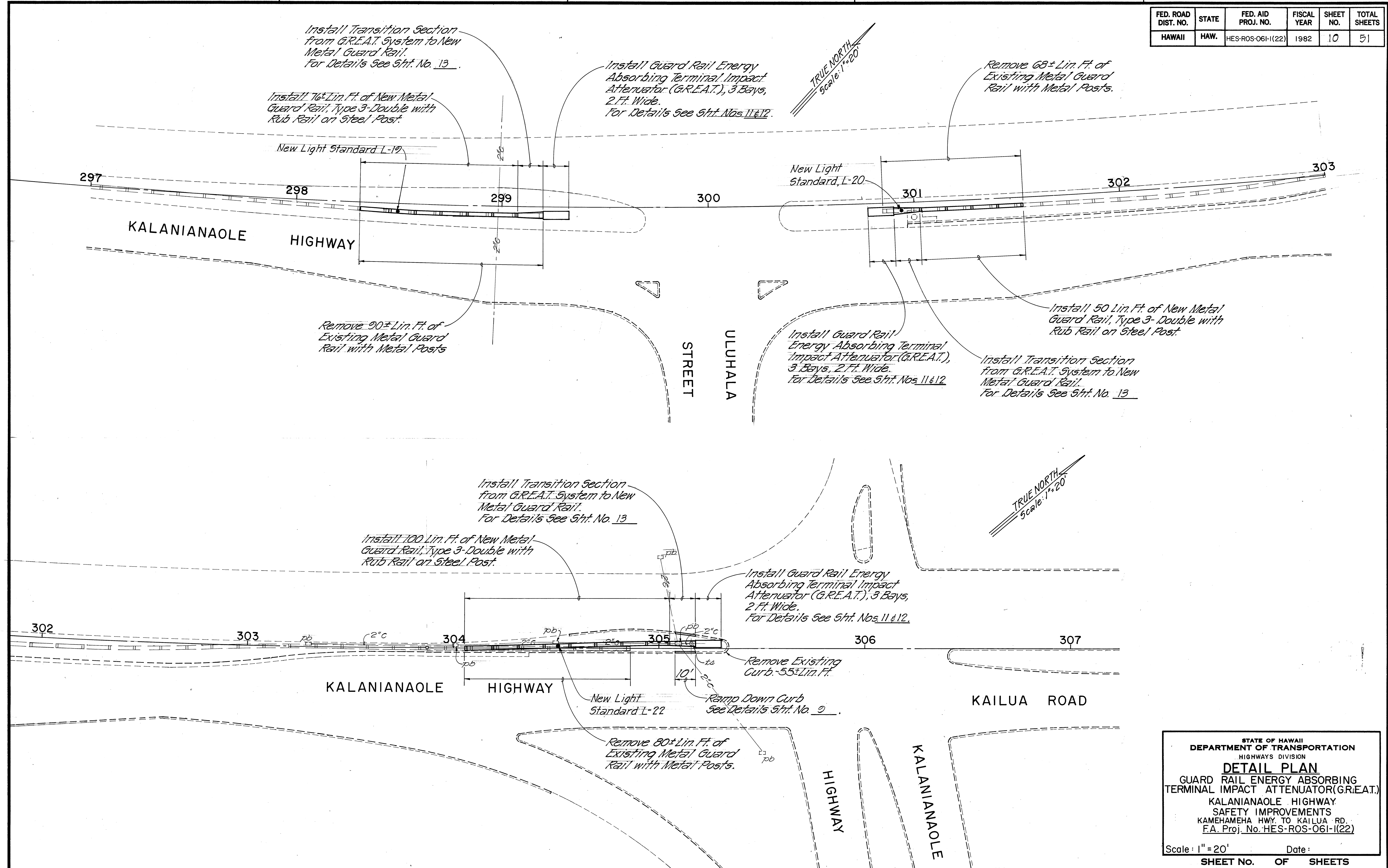
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
DETAIL PLAN
GUARD RAIL ENERGY ABSORBING
TERMINAL IMPACT ATTENUATOR (G.R.E.A.T.)
KALANIANA'OLE HIGHWAY
SAFETY IMPROVEMENTS
KAMEHAMEHA HWY. TO KAILUA RD.
F.A. Proj. No. HES-R05-061-1(22)

Scale as noted Date:
SHEET No. OF SHEETS



ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
NO.	DRAWN BY	
	TRACED BY	
	DESIGNED BY	
	QUANTITIES BY	
	CHECKED BY	

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HES-ROS-061-I(22)	1982	10	51



STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

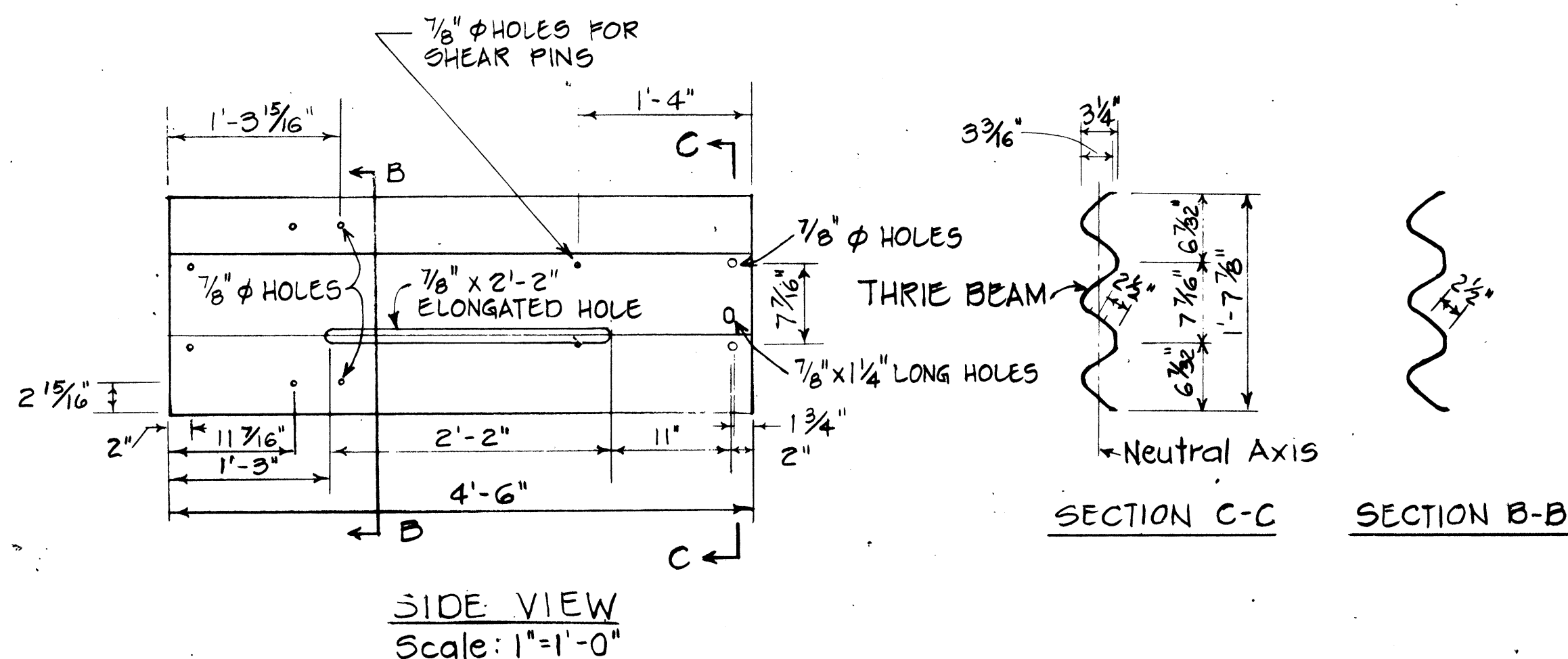
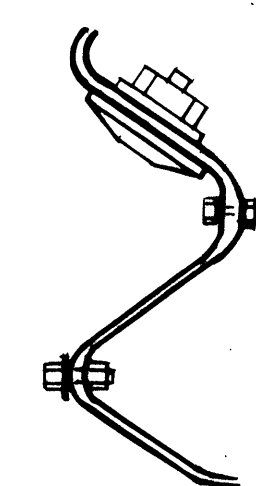
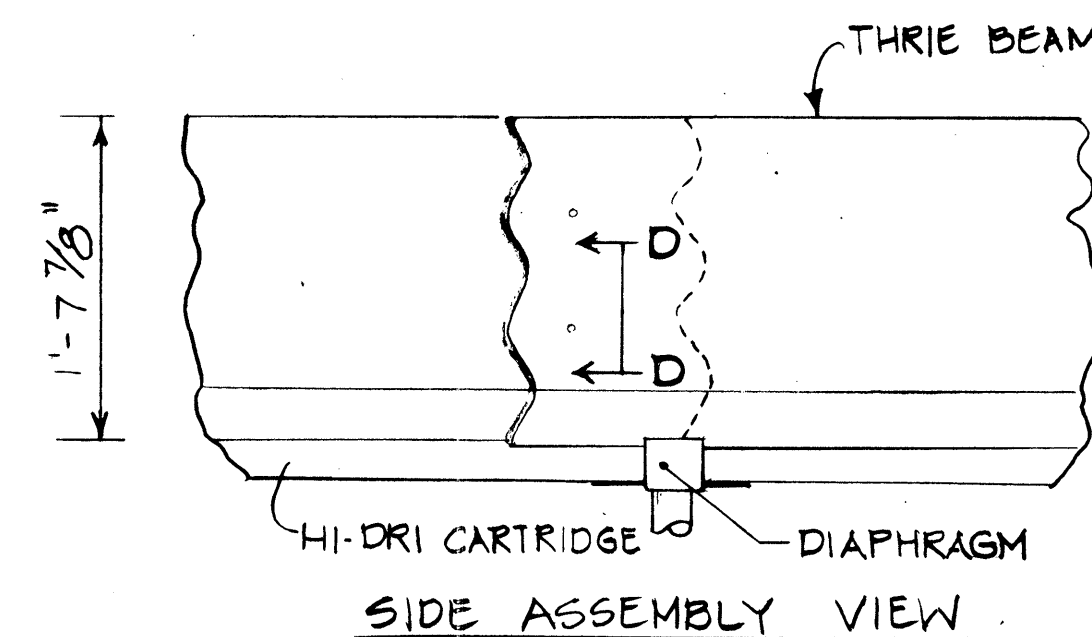
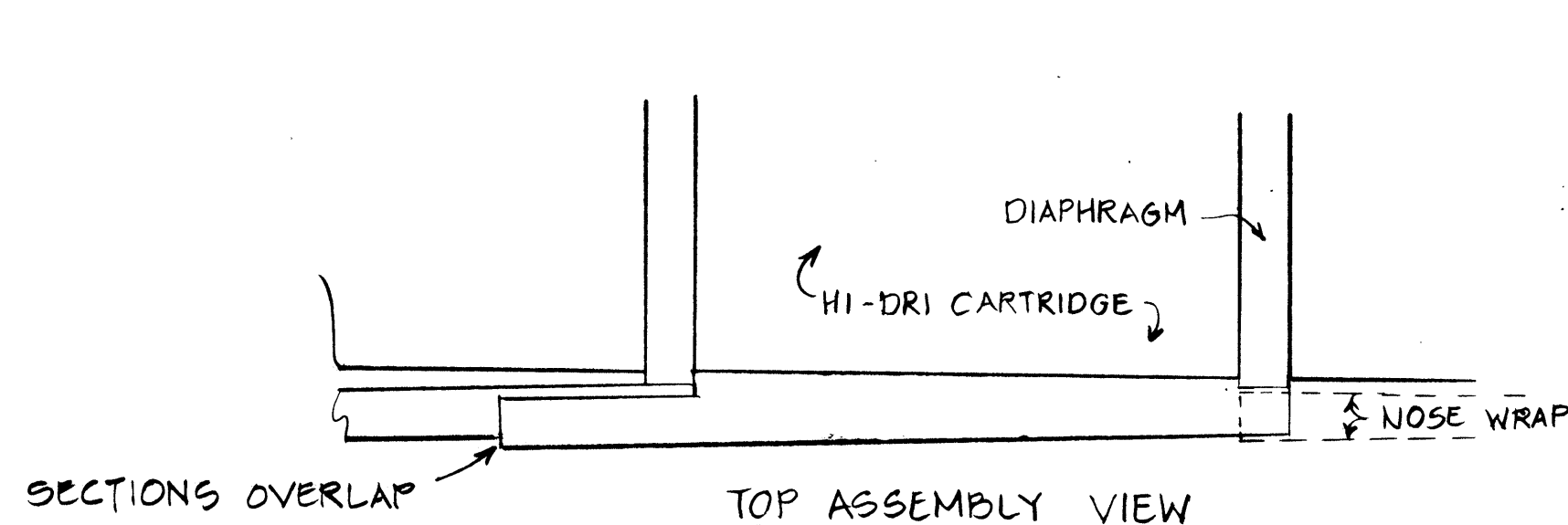
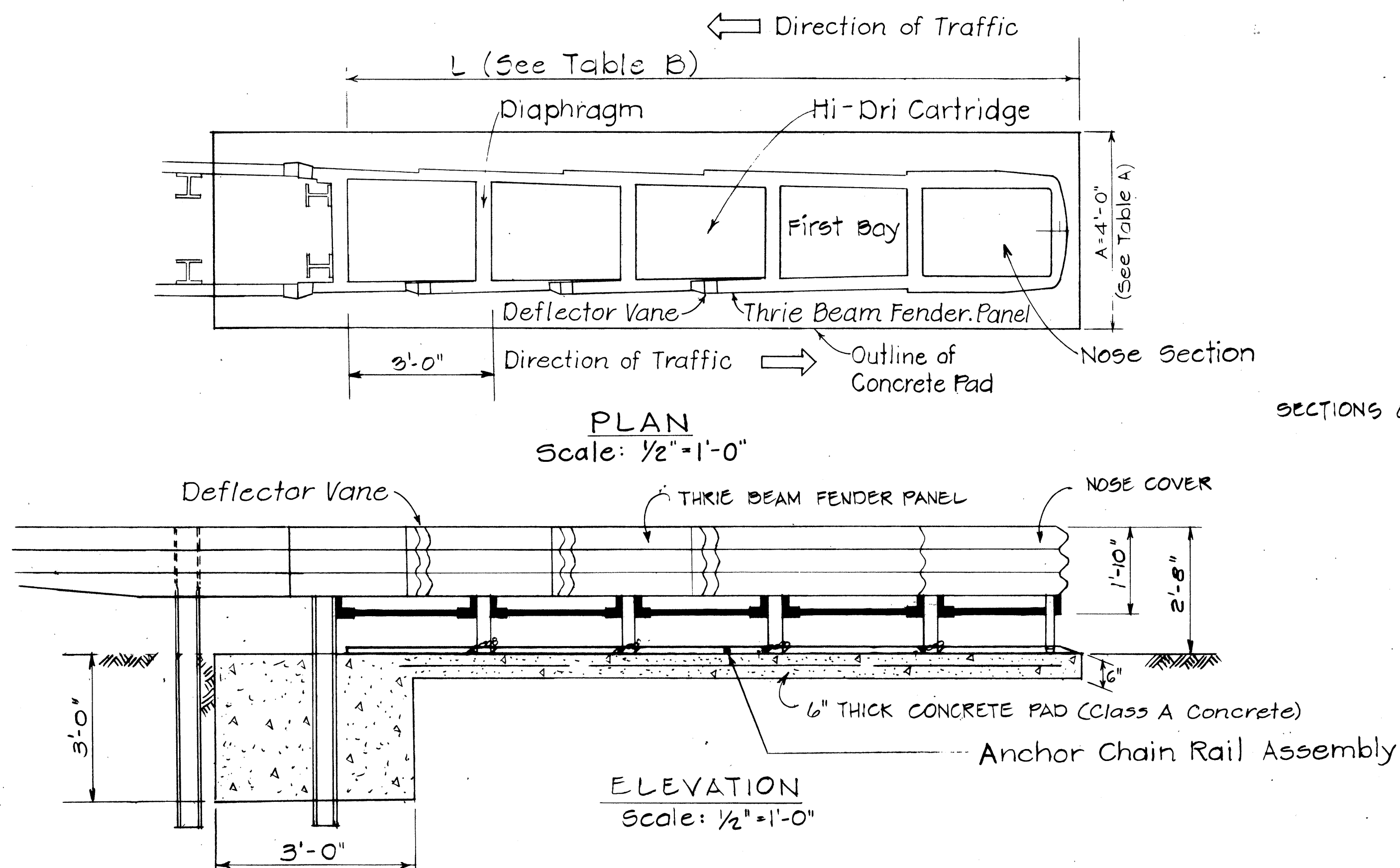
DETAIL PLAN

GUARD RAIL ENERGY ABSORBING
TERMINAL IMPACT ATTENUATOR (G.R.E.A.T.)
KALANIANA'OLE HIGHWAY
SAFETY IMPROVEMENTS
KAMEHAMEHA HWY. TO KAILUA RD.
F.A. Proj. No. HES-ROS-061-I(22)

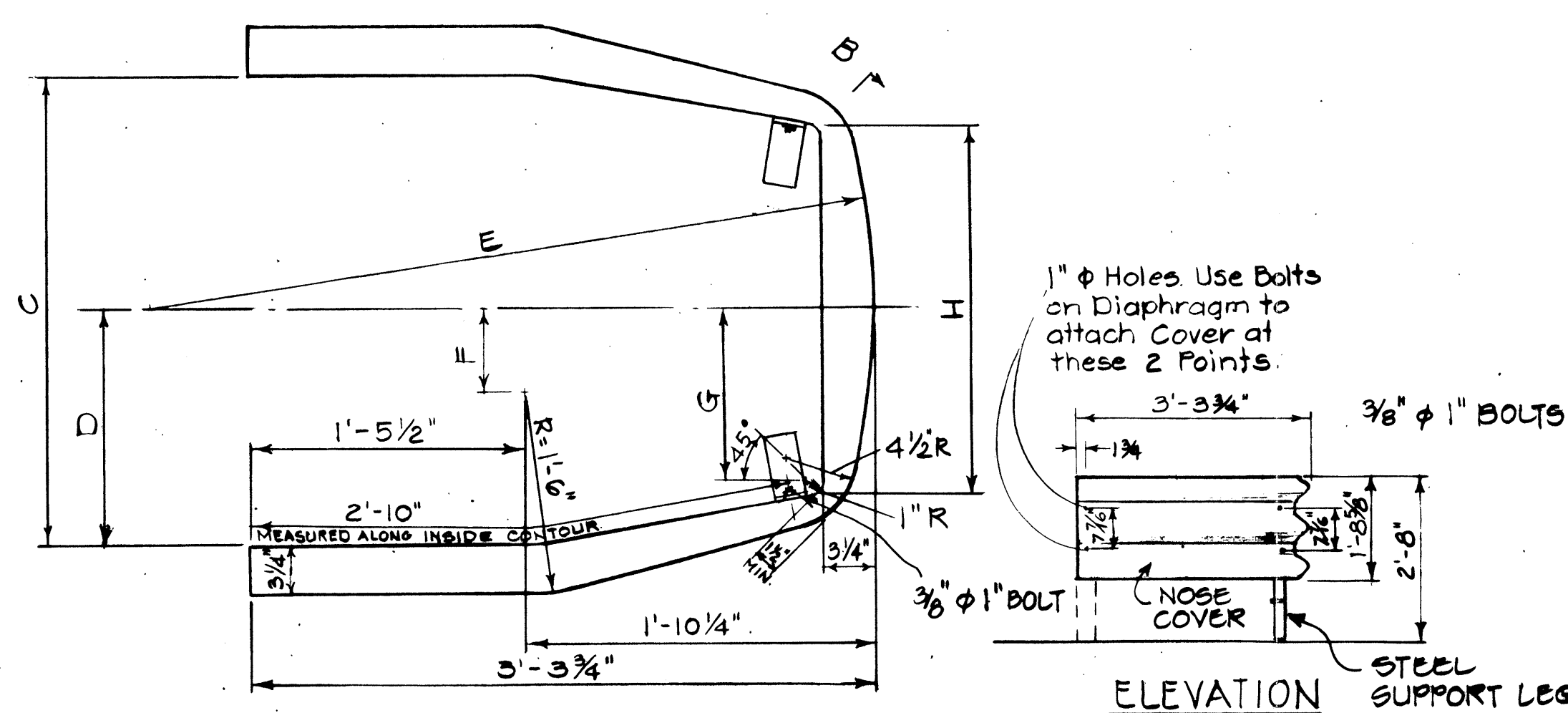
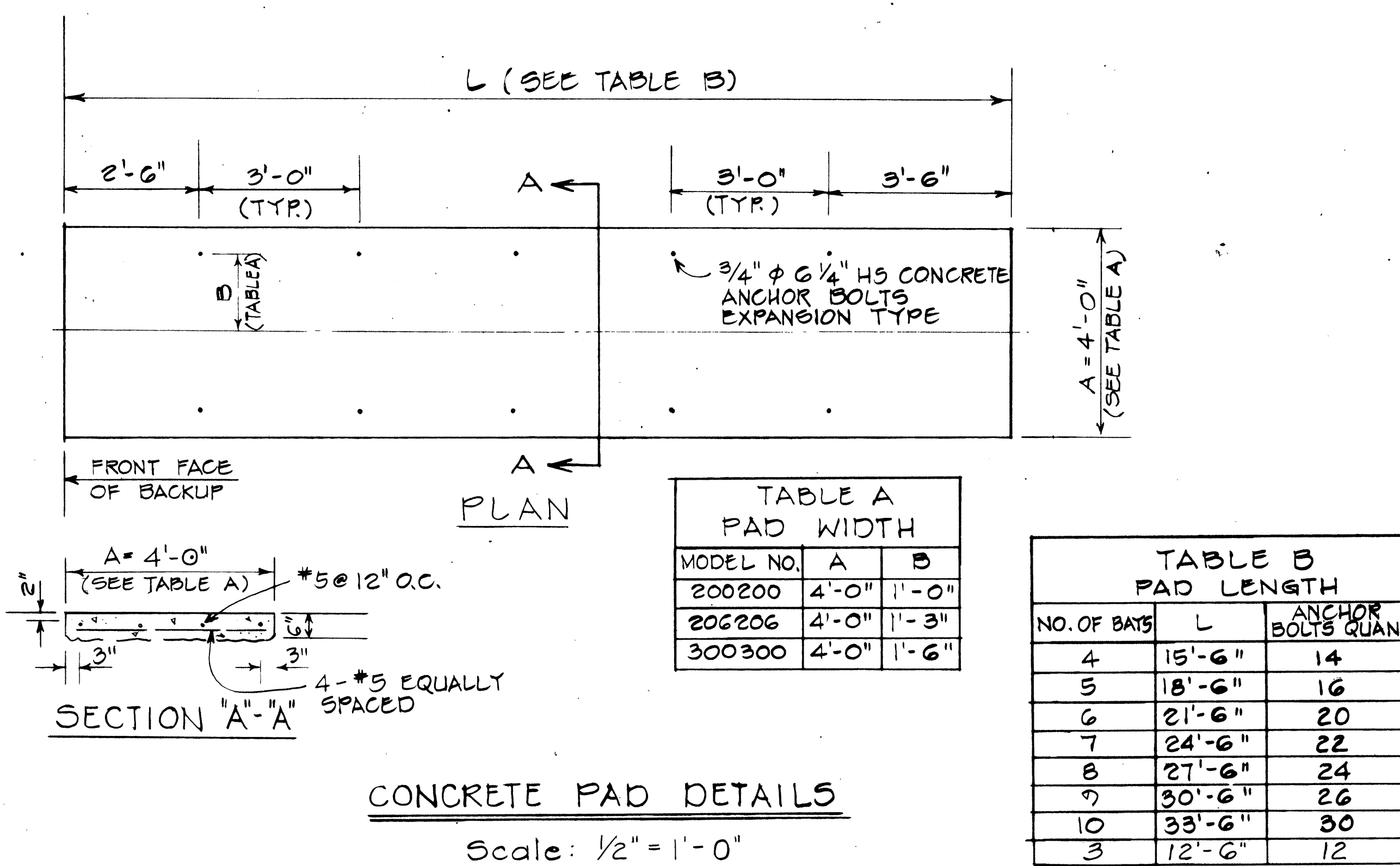
Scale: 1"=20' Date: _____

SHEET No. 10 OF 51 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HES-ROS-061-1(22)	1982	11	51



- 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.



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 1/4"	8"	1'-6"
2'-6"	35-02-032	2'-6"	1'-3"	3'-10"	6 1/4"	11"	2'-0"
3'-0"	35-02-032	2'-6"	1'-3"	3'-10"	6 1/4"	11"	2'-0"

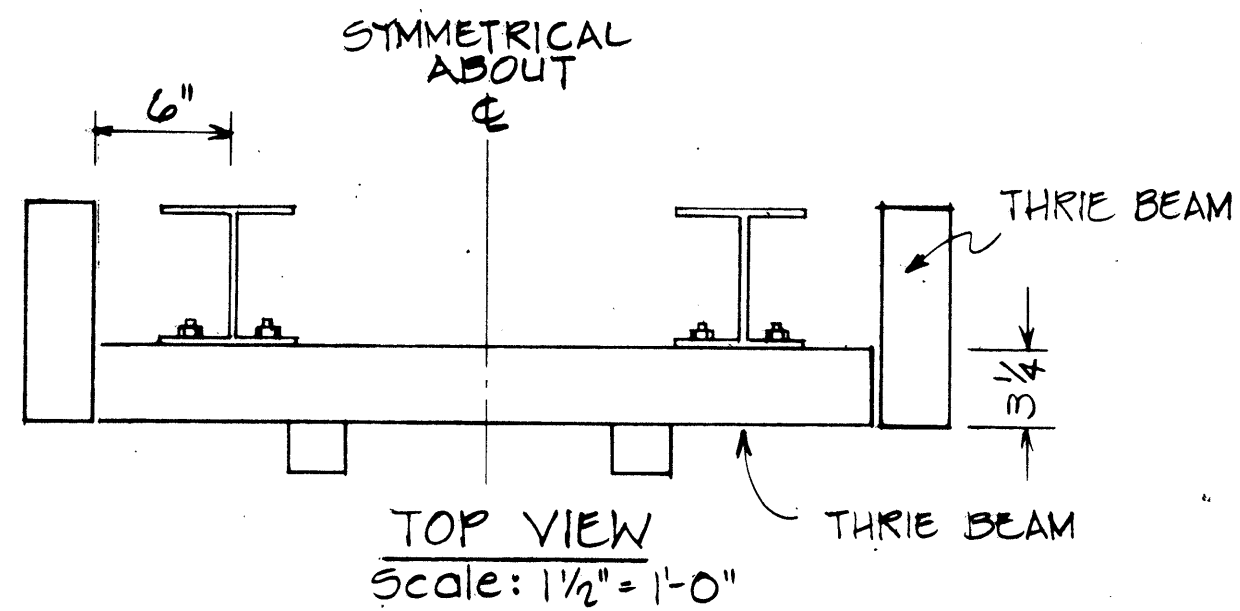
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

DETAILS OF GUARD RAIL
ENERGY ABSORBING TERMINAL

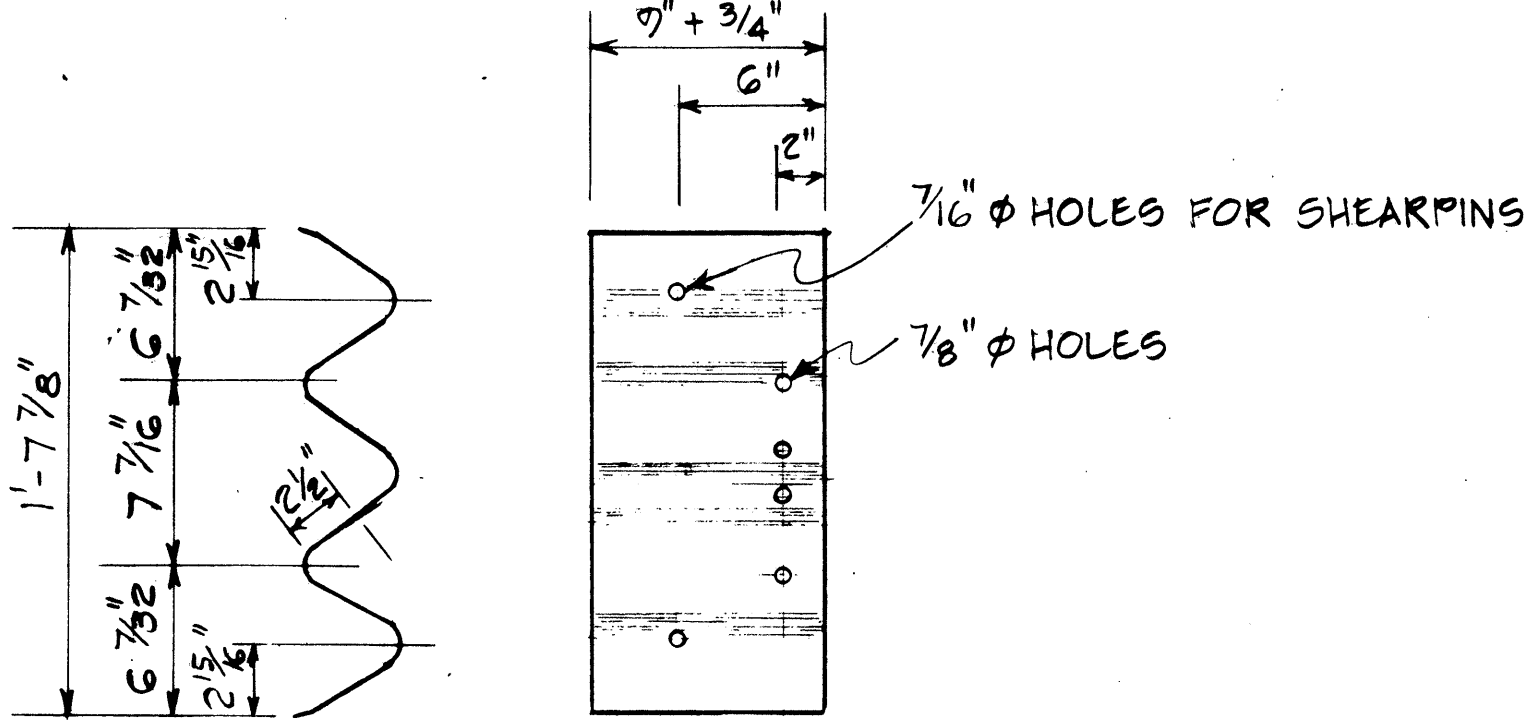
Scale: As Shown Date: 1978

SHEET NO. 1 OF 2 SHEETS

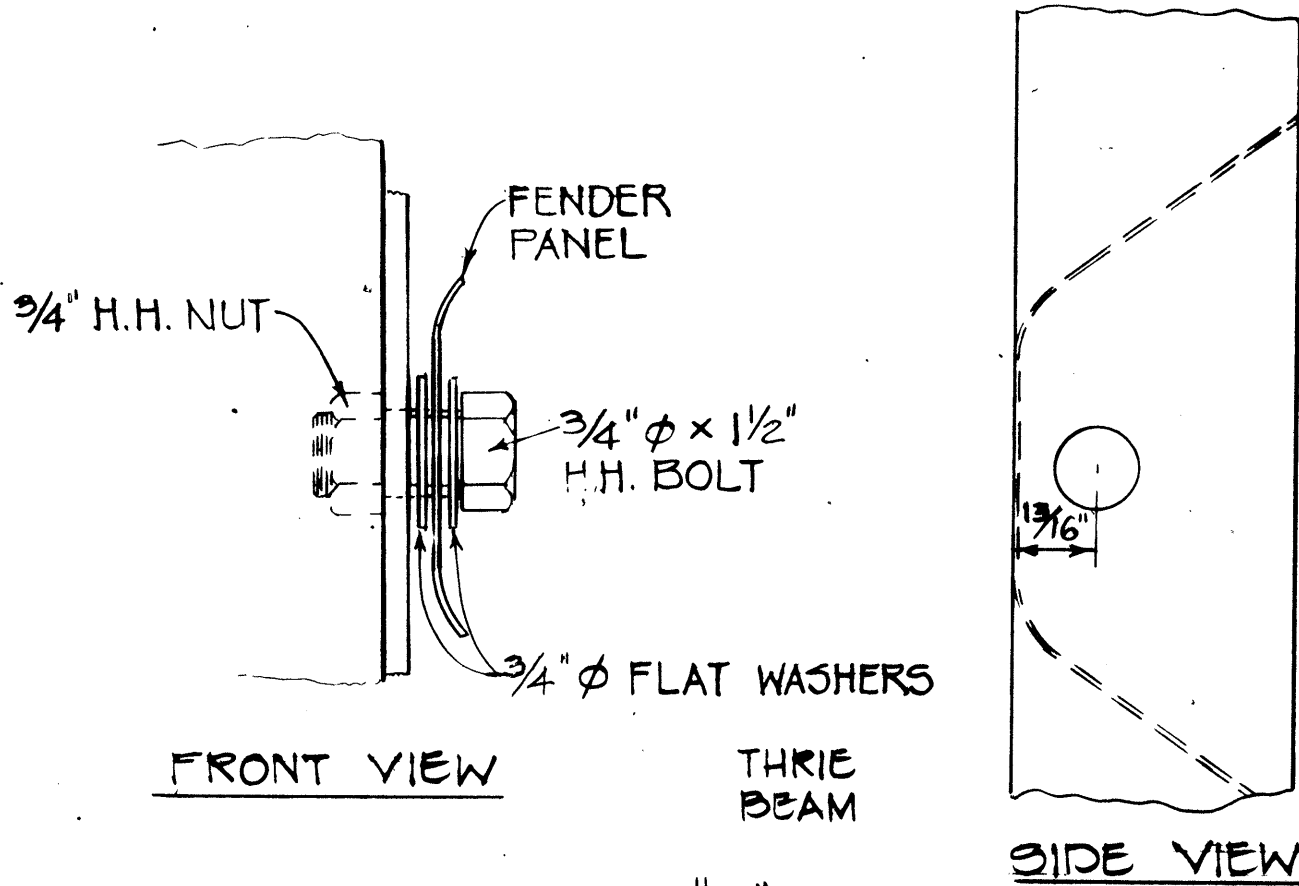
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HES-ROS-061-1(22)	1982	12	51



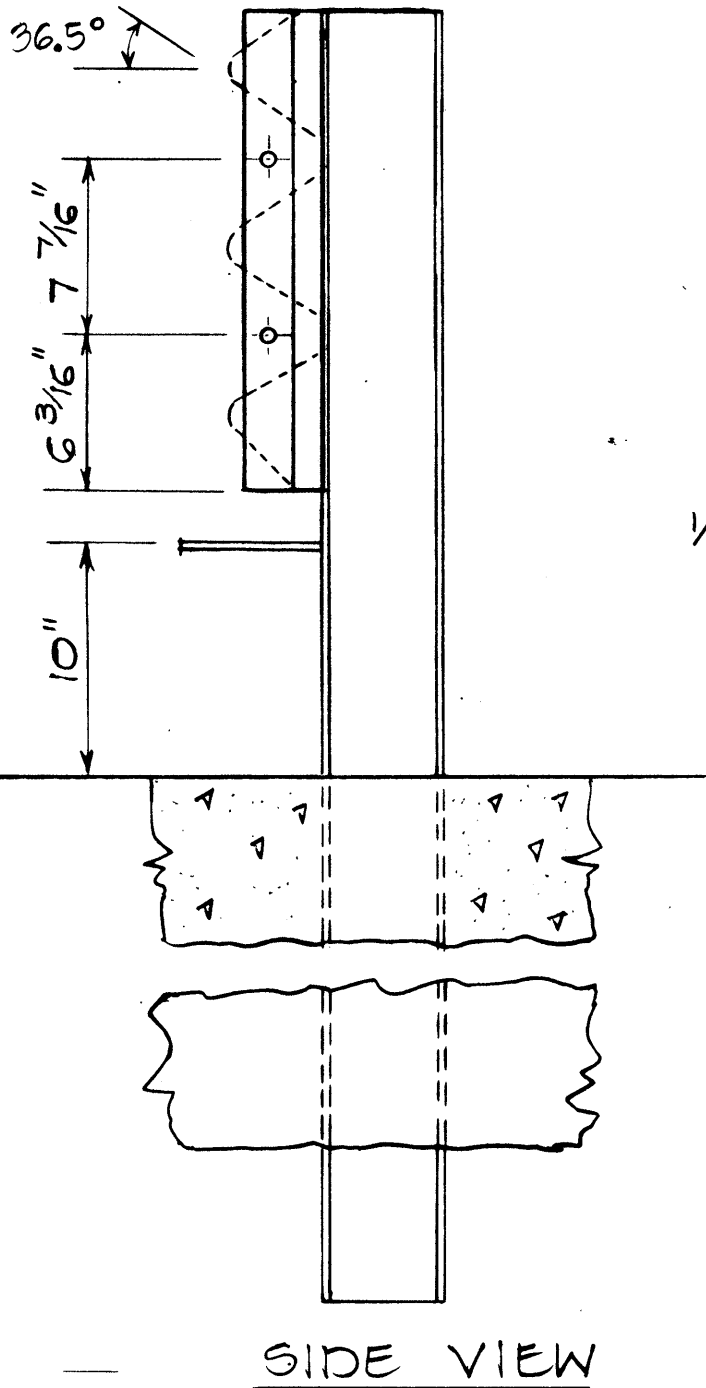
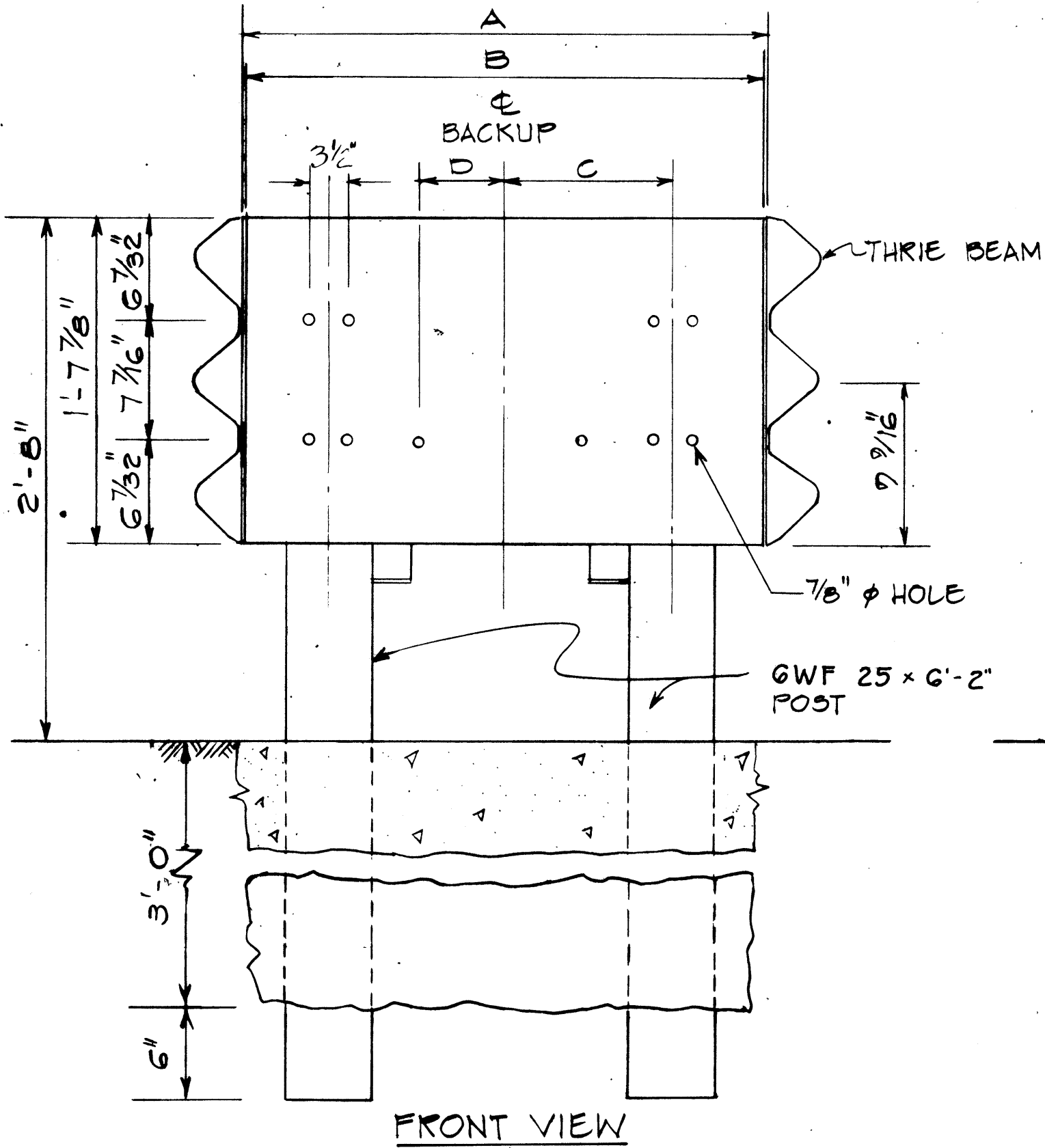
UNIT WIDTH	A	B	C	D
2'-0"	2'-0"	1'-11 1/2"	0'-6"	2"
2'-6"	2'-6"	2'-5 1/2"	0'-9"	5"
3'-0"	3'-0"	2'-11 1/2"	1'-0"	8"



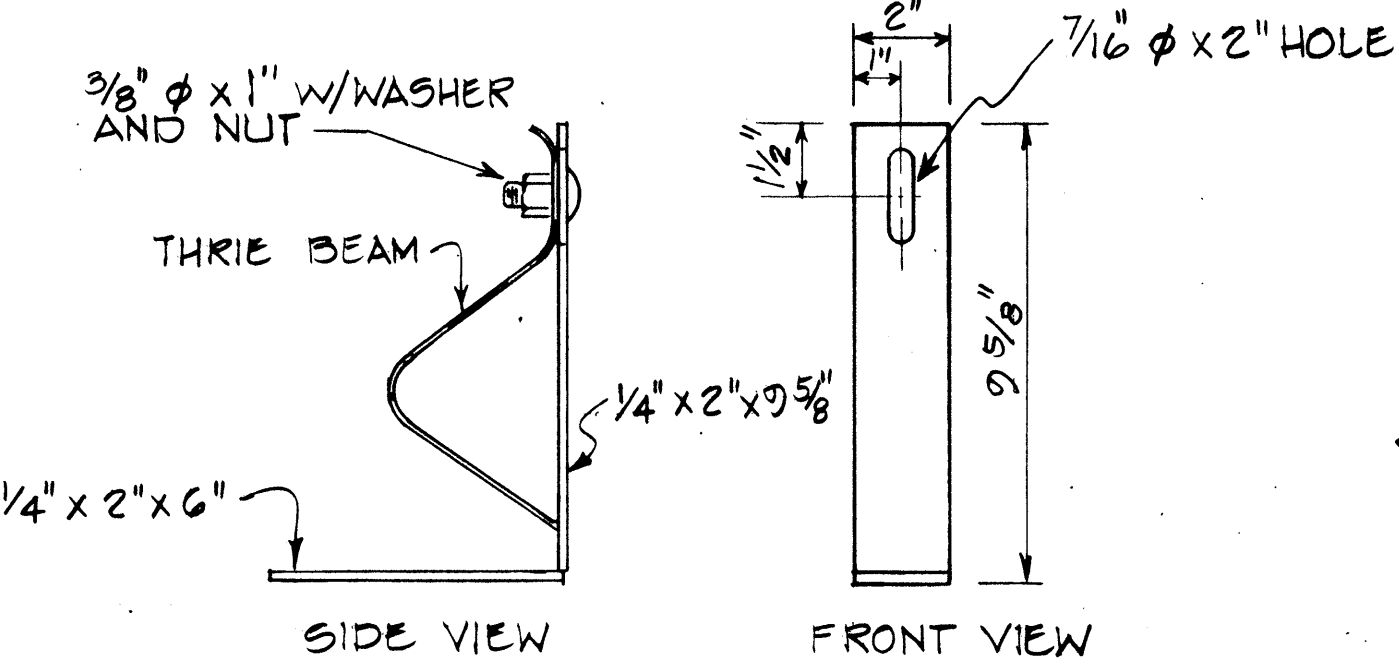
DETAIL OF THRIE BEAM
LEFT SIDE PANEL SHOWN
RIGHT SIDE OPPOSITE



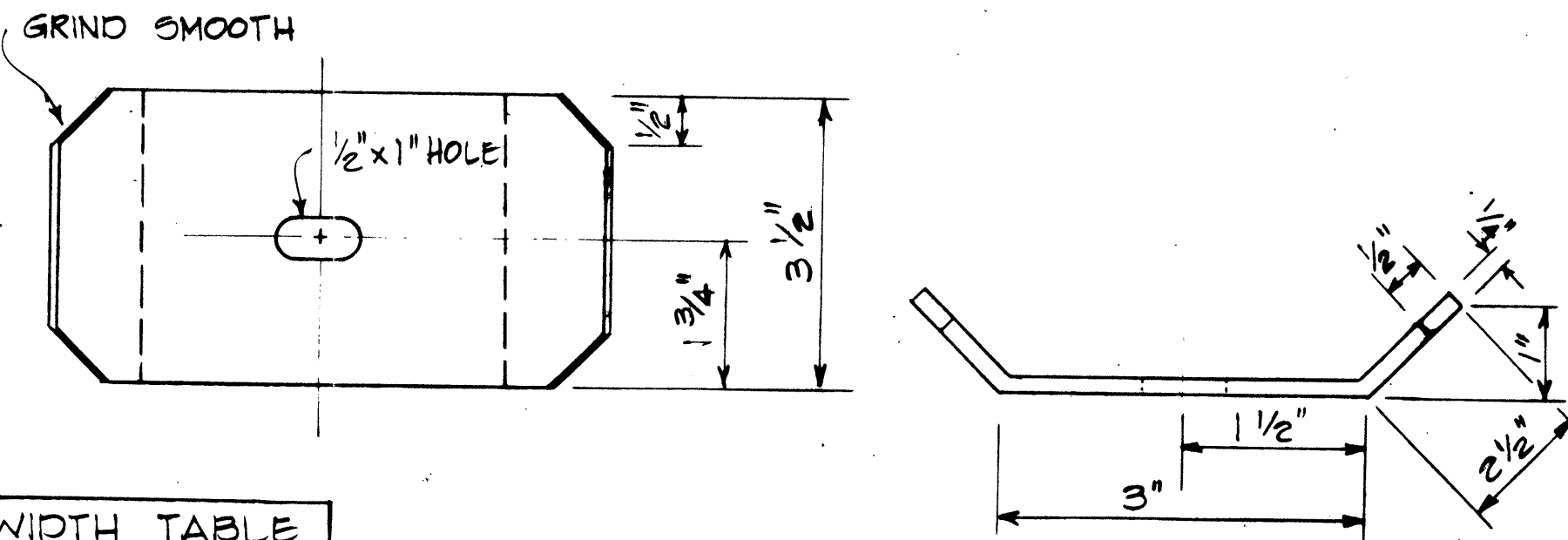
DETAIL "A"
Scale: 1/2" = 1'



WIDE FLANGE BACKUP
(FOR NARROW UNITS)
Scale: 1 1/2" = 1'-0"

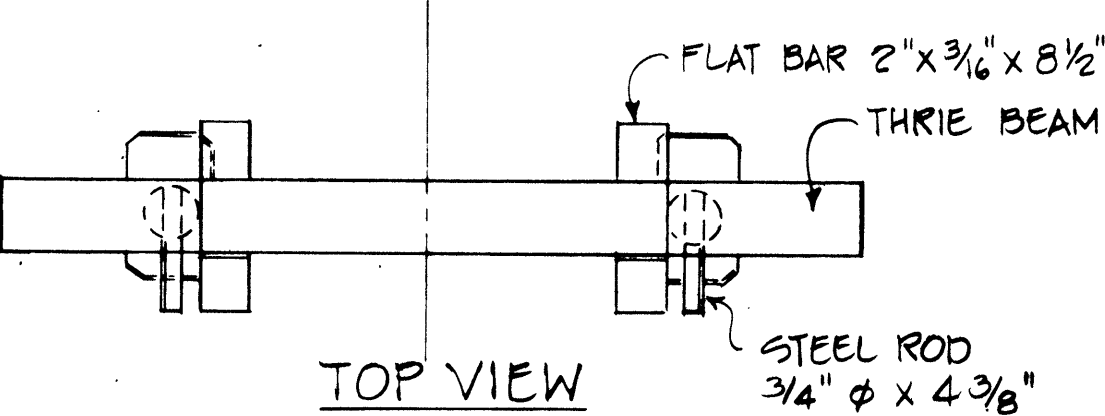


CARTRIDGE CLIP DETAIL
Scale: 3" = 1'-0"

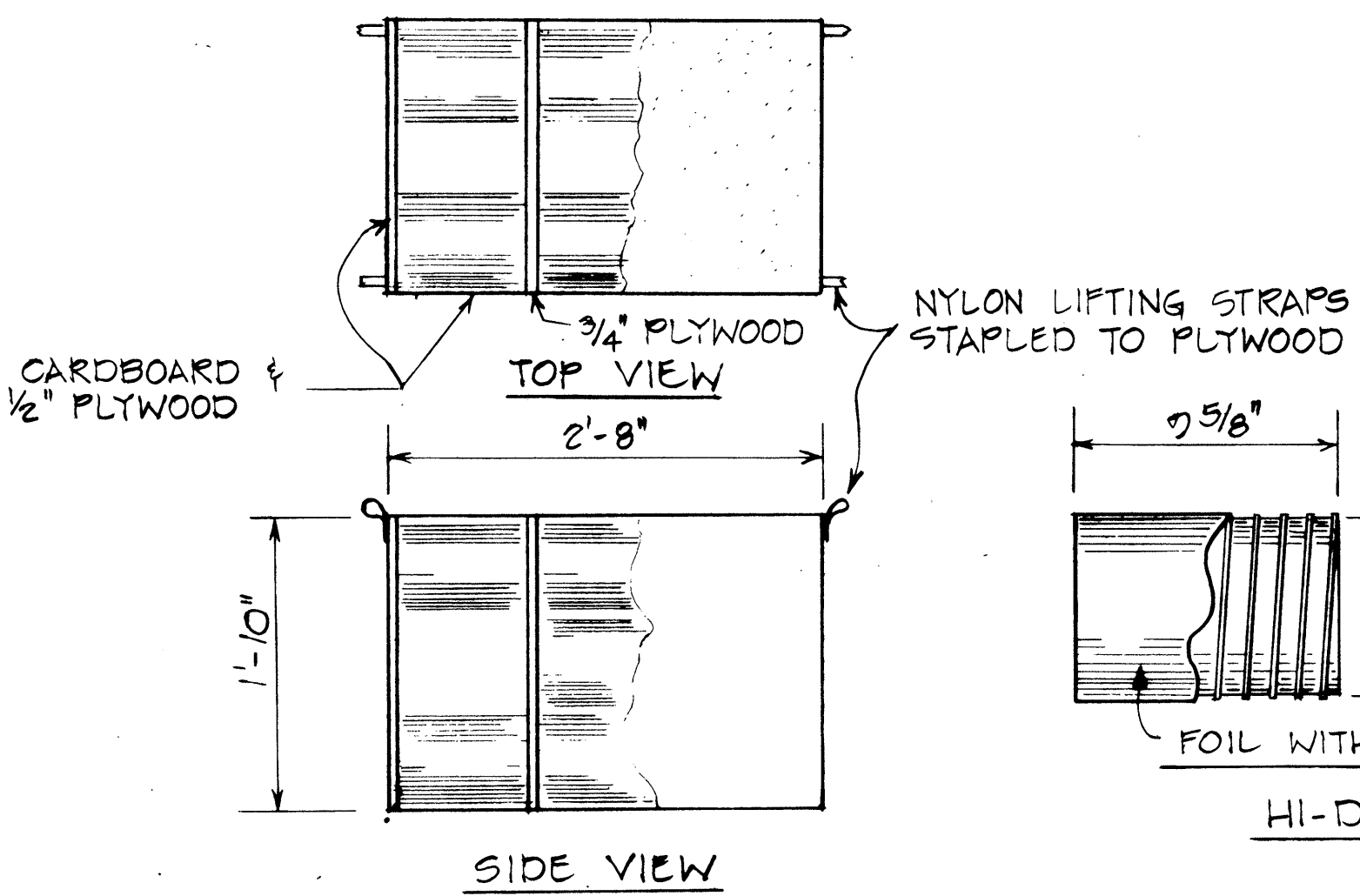


DETAIL B
Scale: 6" = 1'-0"

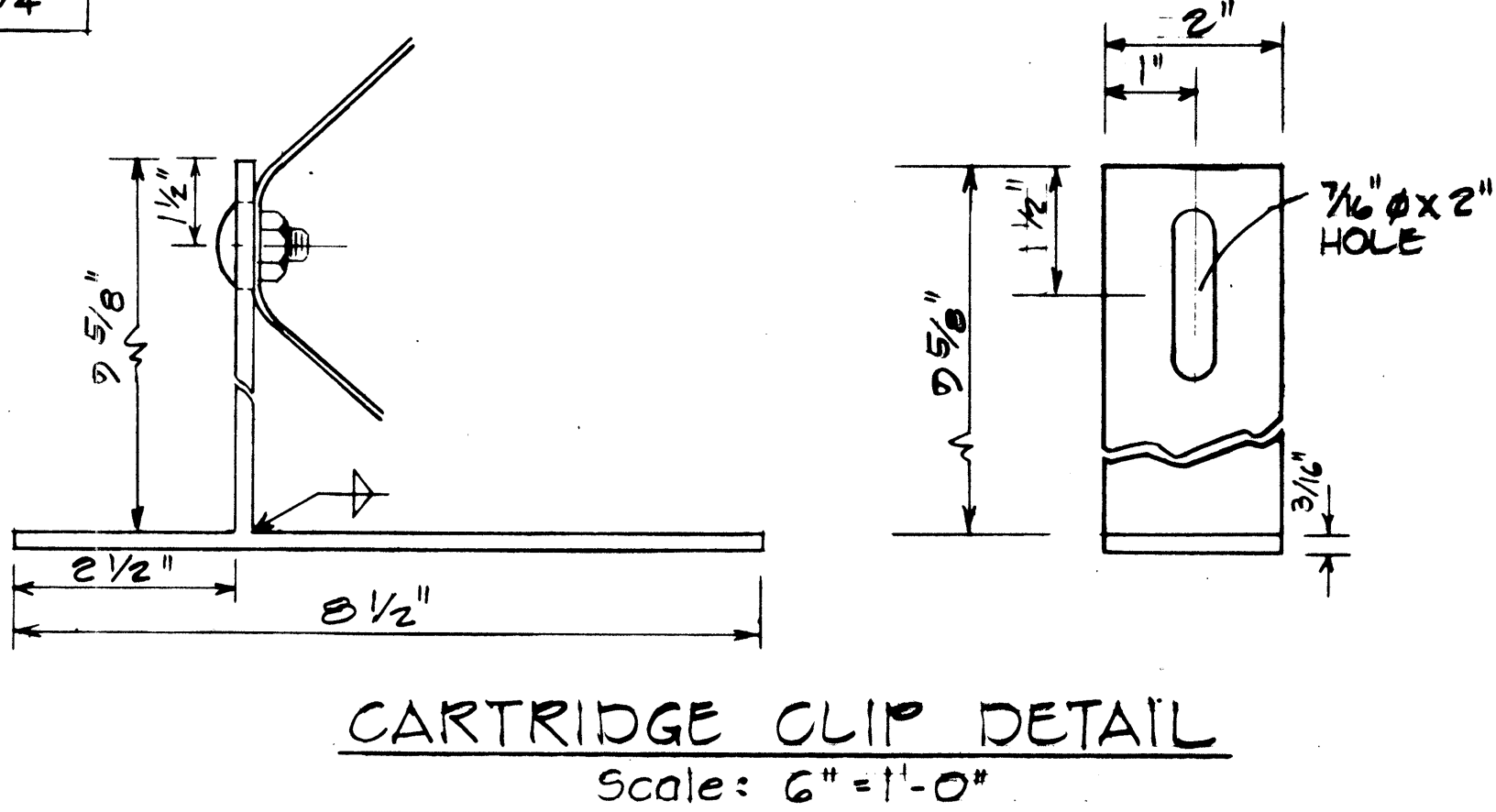
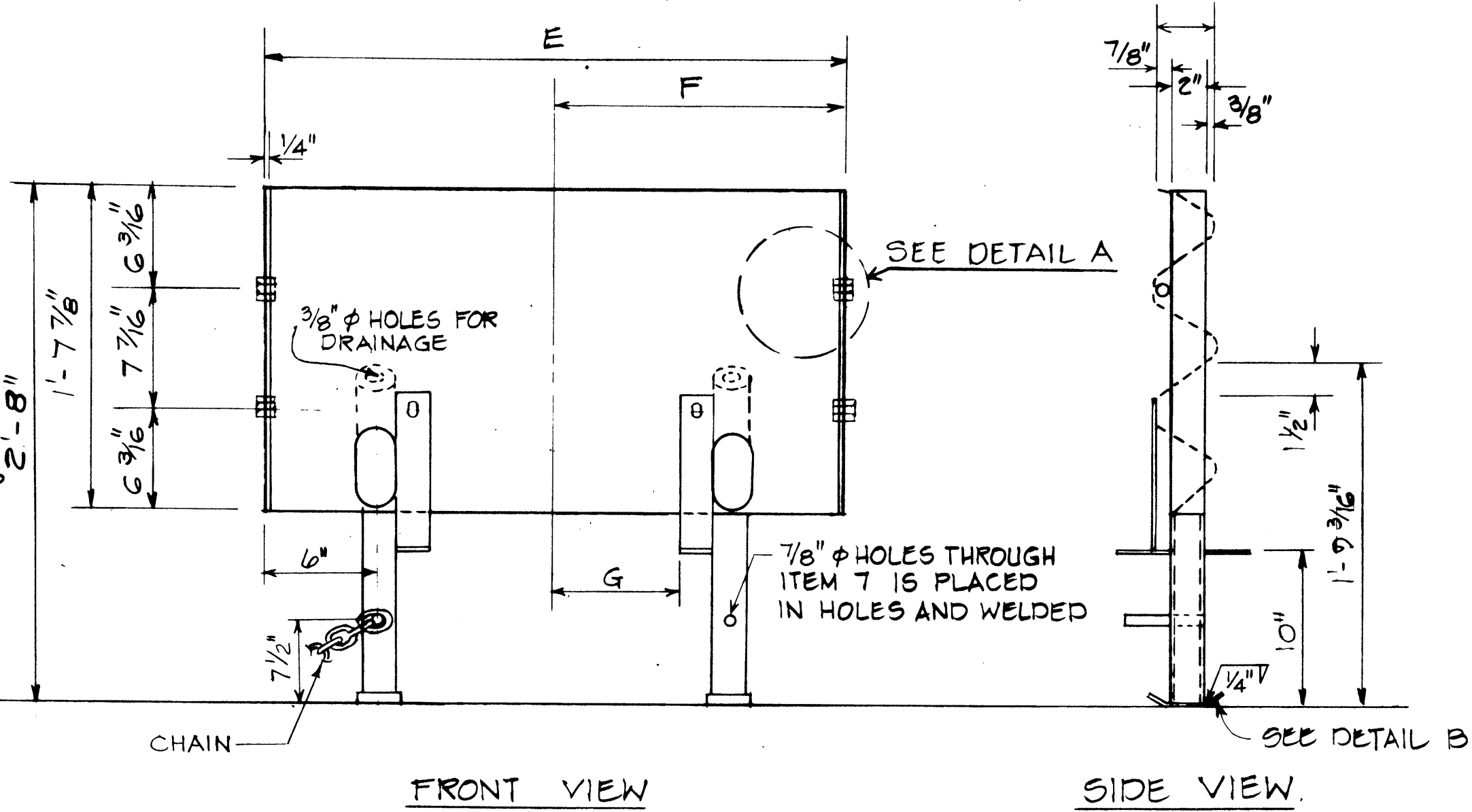
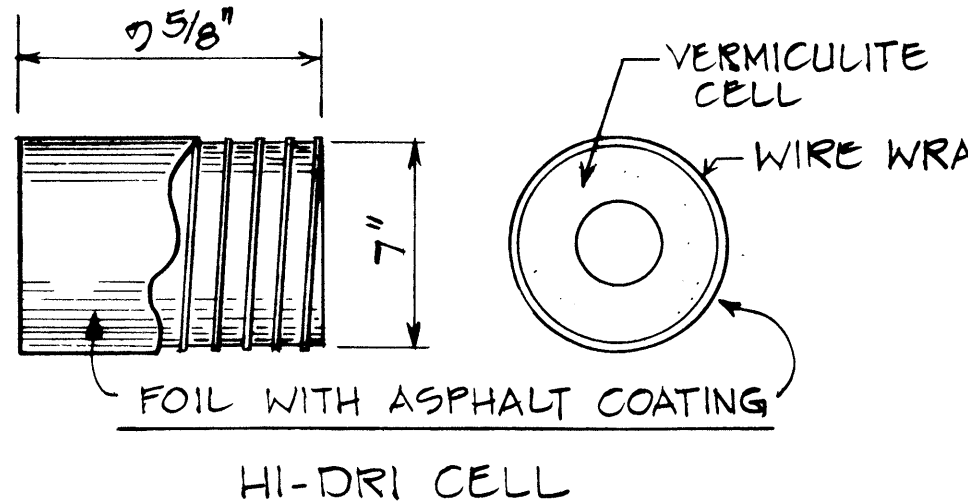
MODEL NO	E	F	G
2002005	2'-0"	1'-0"	
2062063	2'-6"	1'-3"	5 3/4"
3003005	3'-0"	1'-6"	8 3/4"



THRIE BEAM DIAPHRAGM DETAILS
Scale: 1 1/2" = 1'-0"



HI-DRI CARTRIDGE
Not to Scale



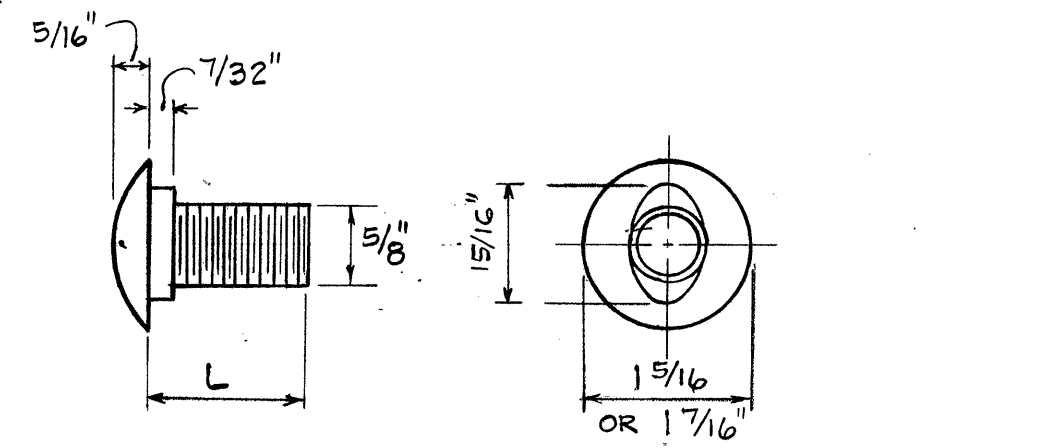
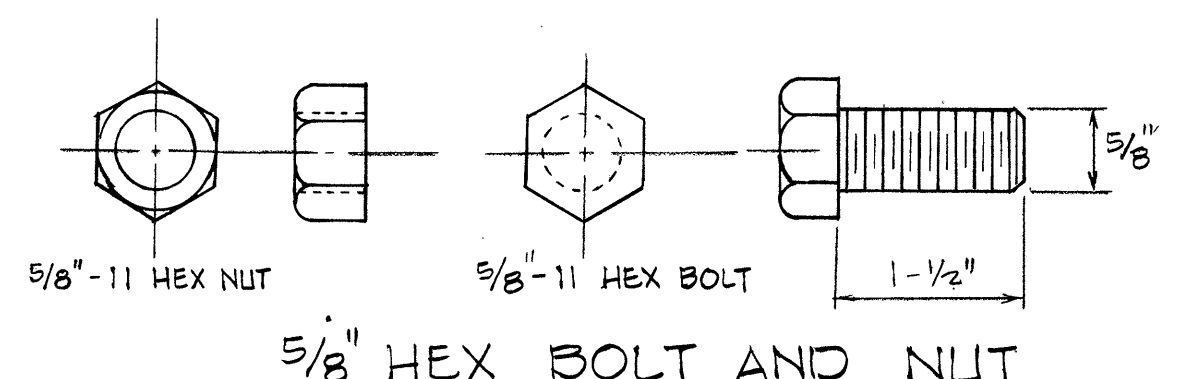
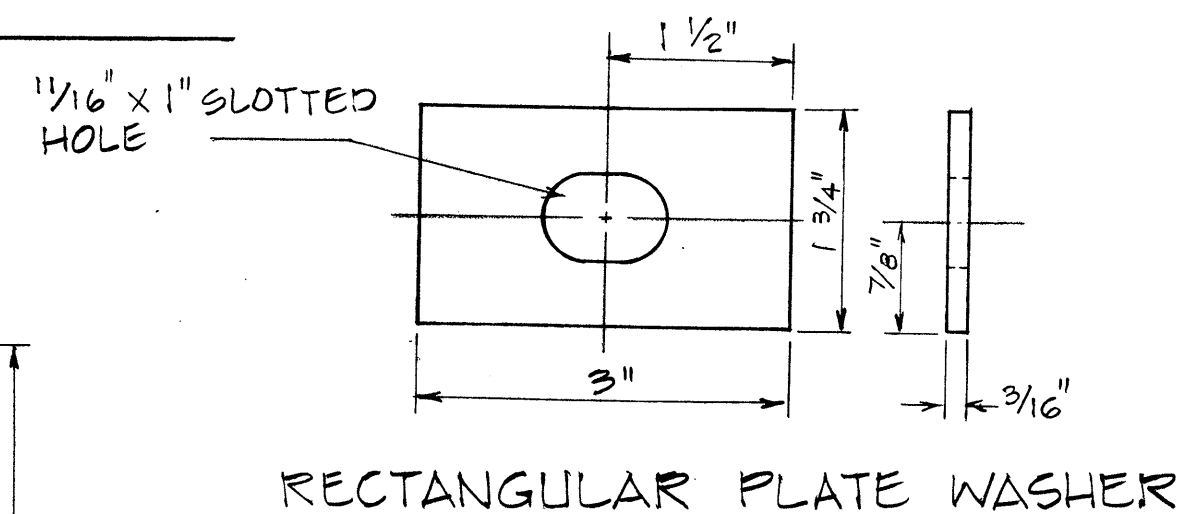
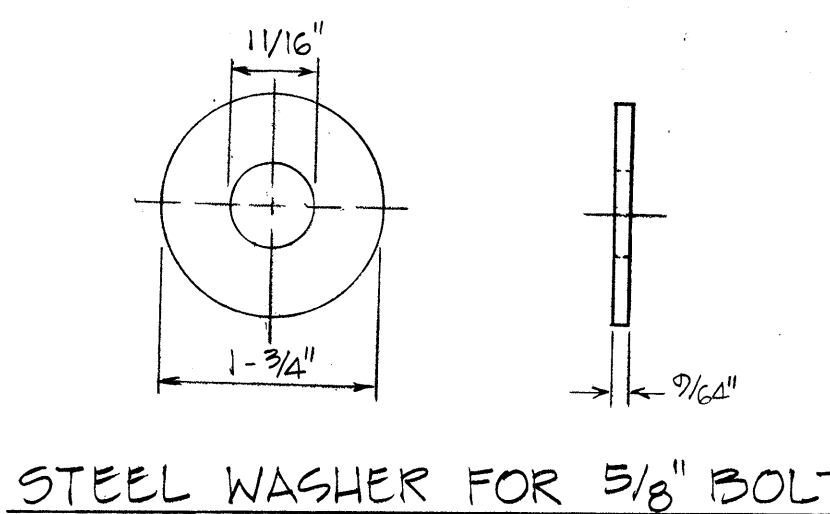
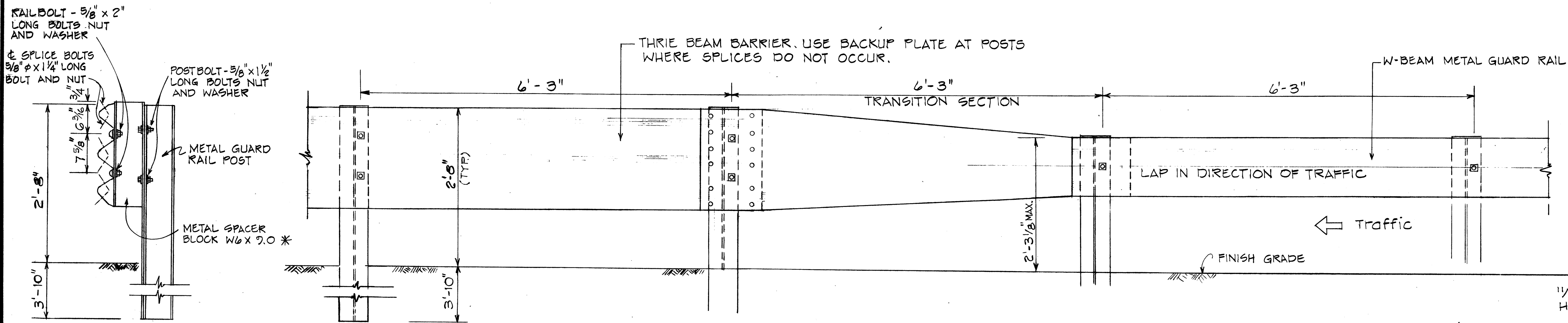
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

DETAILS OF GUARD RAIL
ENERGY ABSORBING TERMINAL

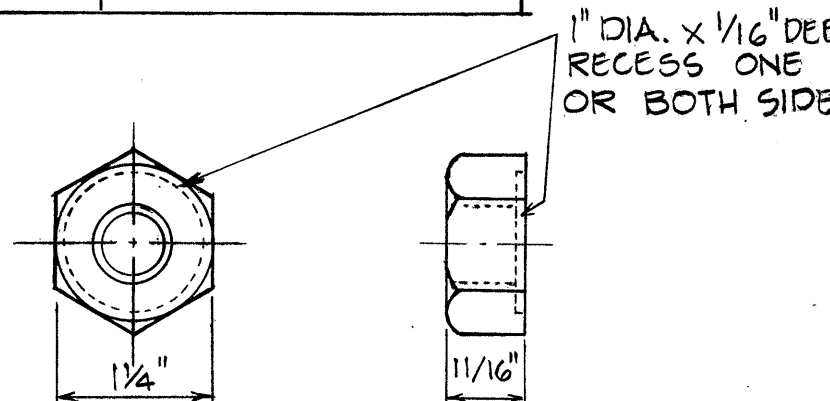
Scale: As Shown Date: 1978
SHEET No. 2 OF 2 SHEETS

ORIGINAL PLAN	DATE
SURVEY PLOTTED BY	
DRAWN BY	
DESIGNED BY	
NOTED BY	
CHECKED BY	

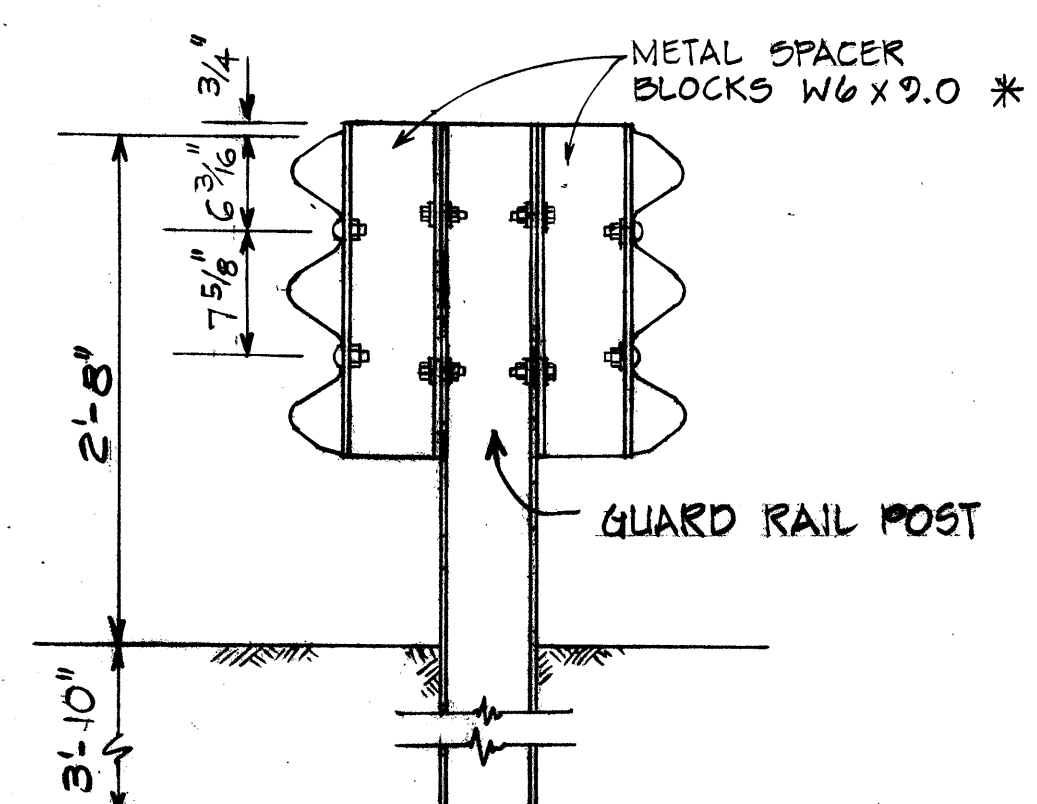
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HES-ROS-061-1(22)	1982	13	51



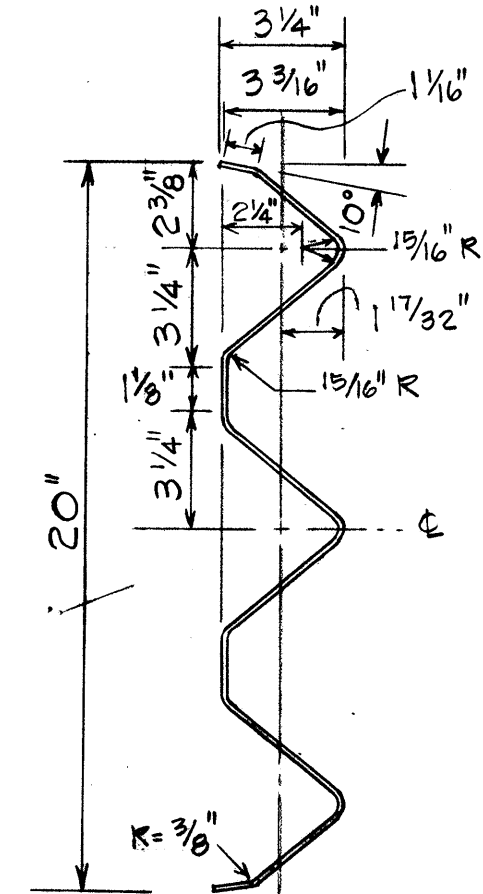
L	THREAD LENGTH
1 1/4"	FULL THREAD
2"	1/2" MIN THREAD LENGTH



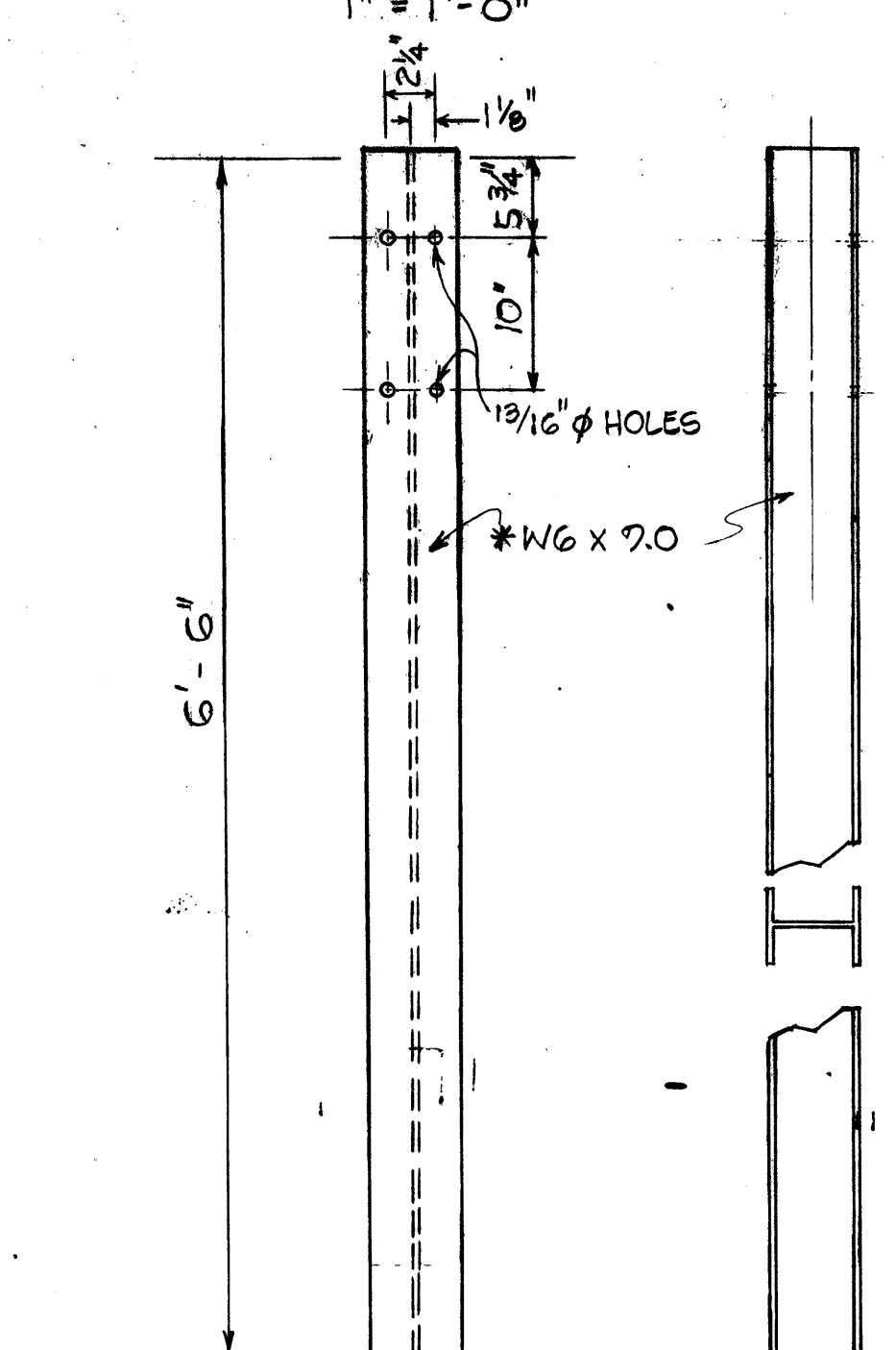
SINGLE METAL GUARD RAIL ON METAL POST W/METAL SPACER BLK.



SECTION THRU RAIL ELEMENT Not to scale

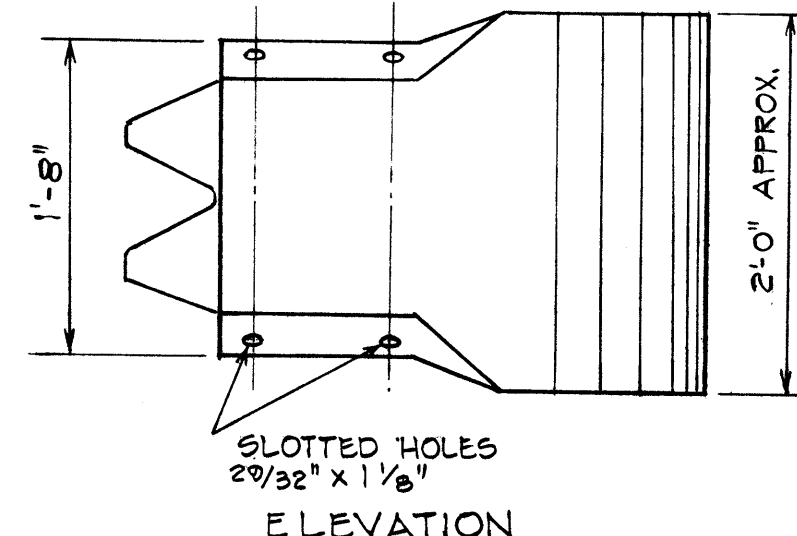
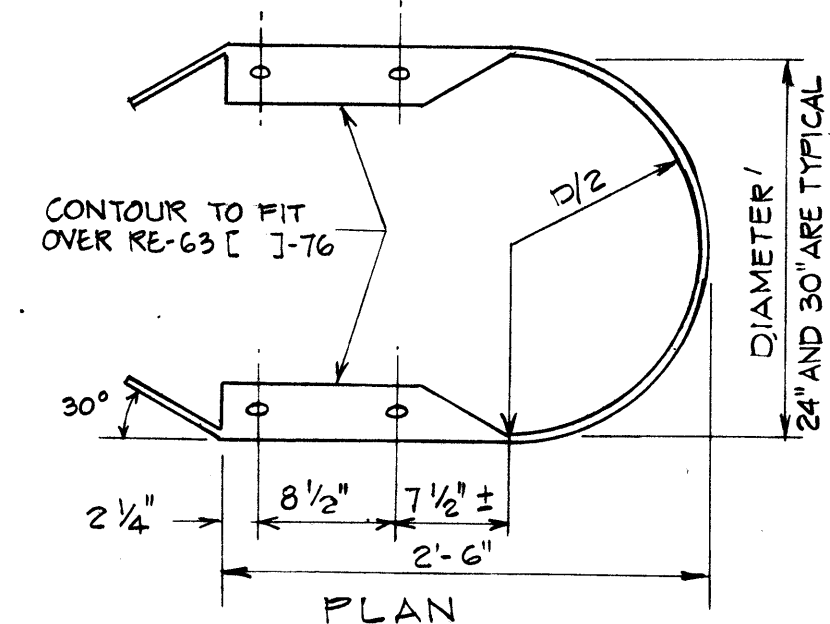
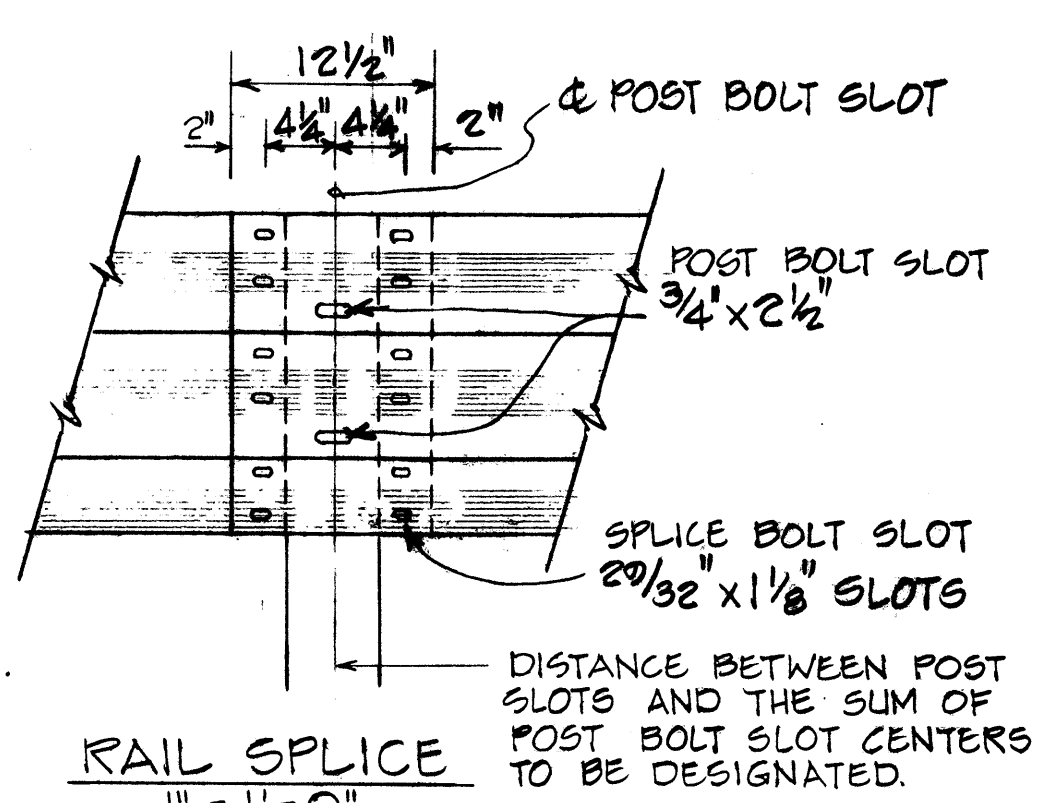


DOUBLE METAL GUARD RAIL ON METAL POST WITH METAL SPACER BLOCK



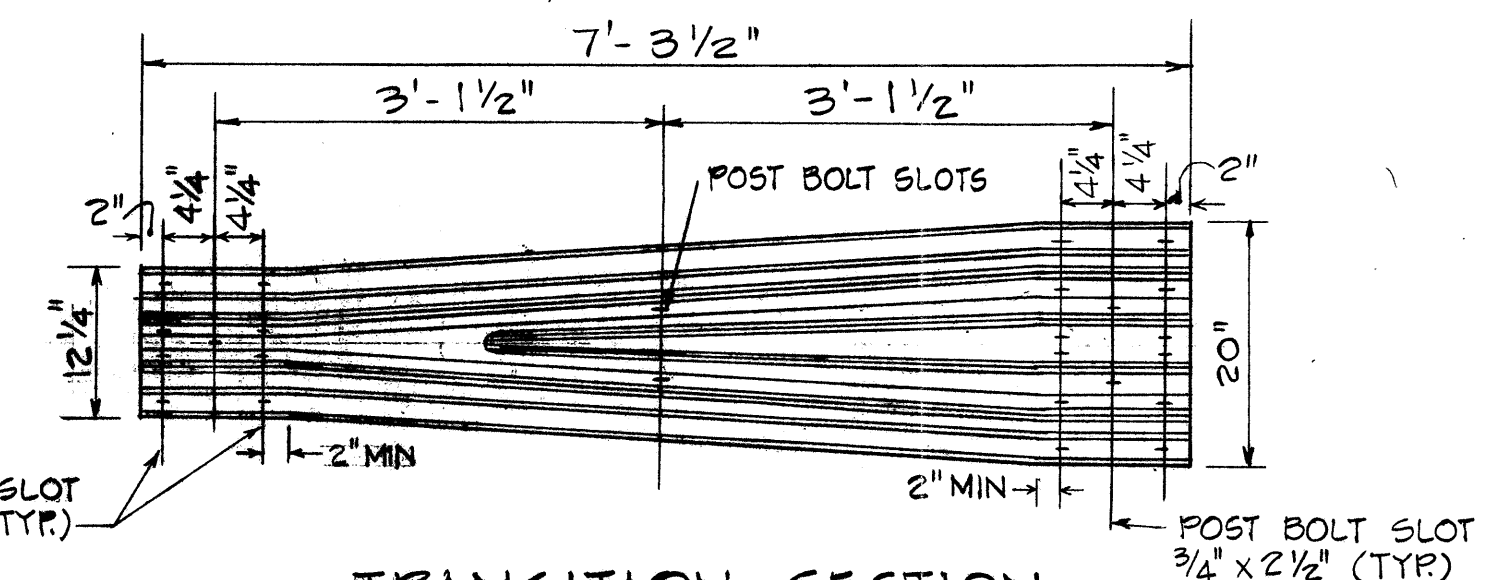
POST DETAILS 1" = 1'-0"

TRANSITION SECTION Scale: 1" = 1'-0"

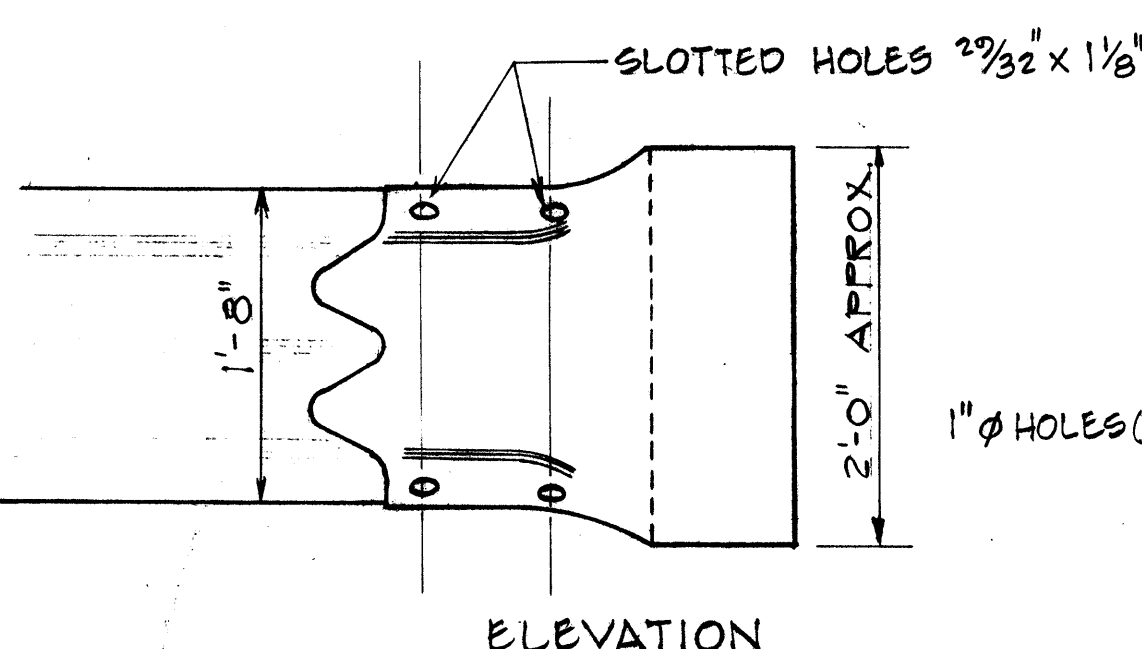


END SECTION (BUFFER) Scale: 1" = 1'-0"

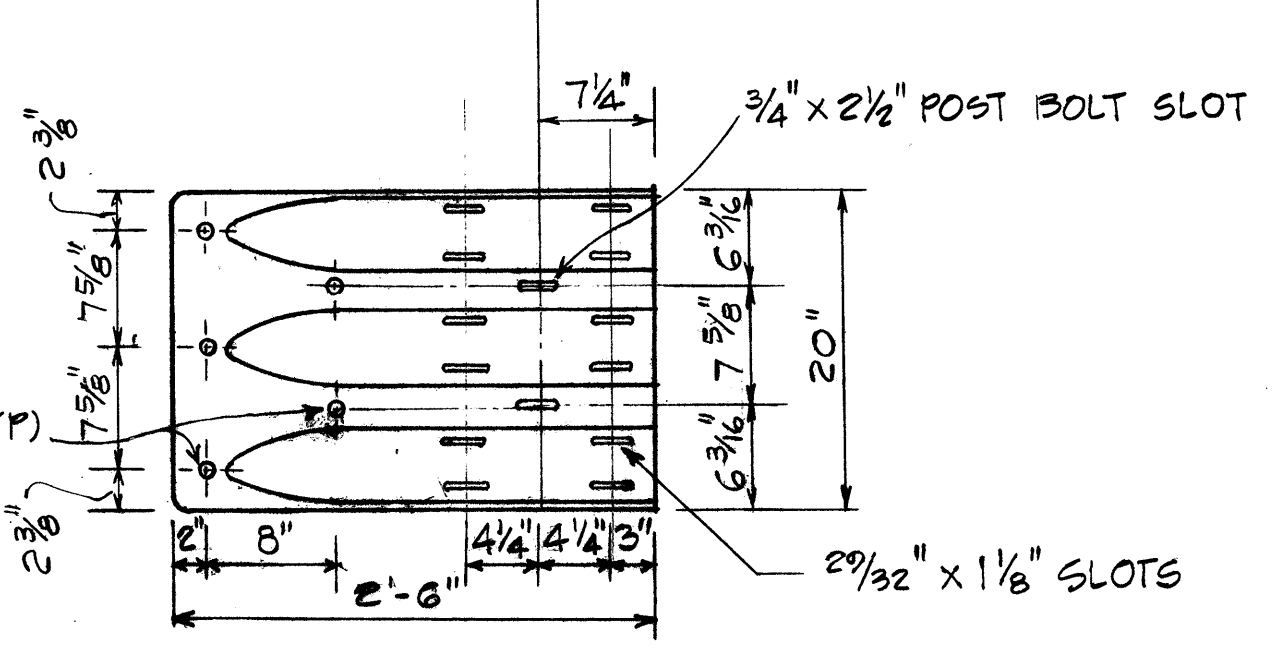
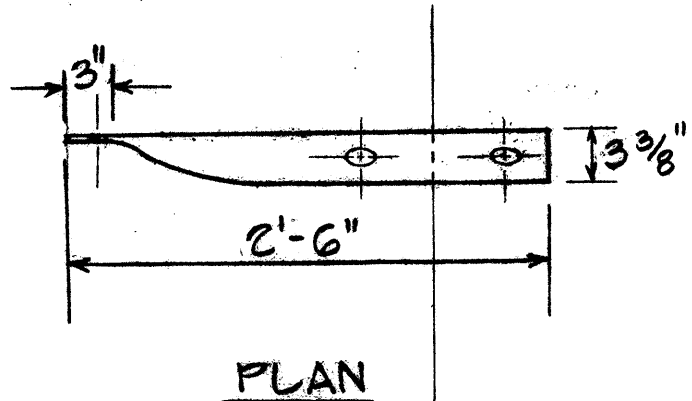
BACKUP PLATE



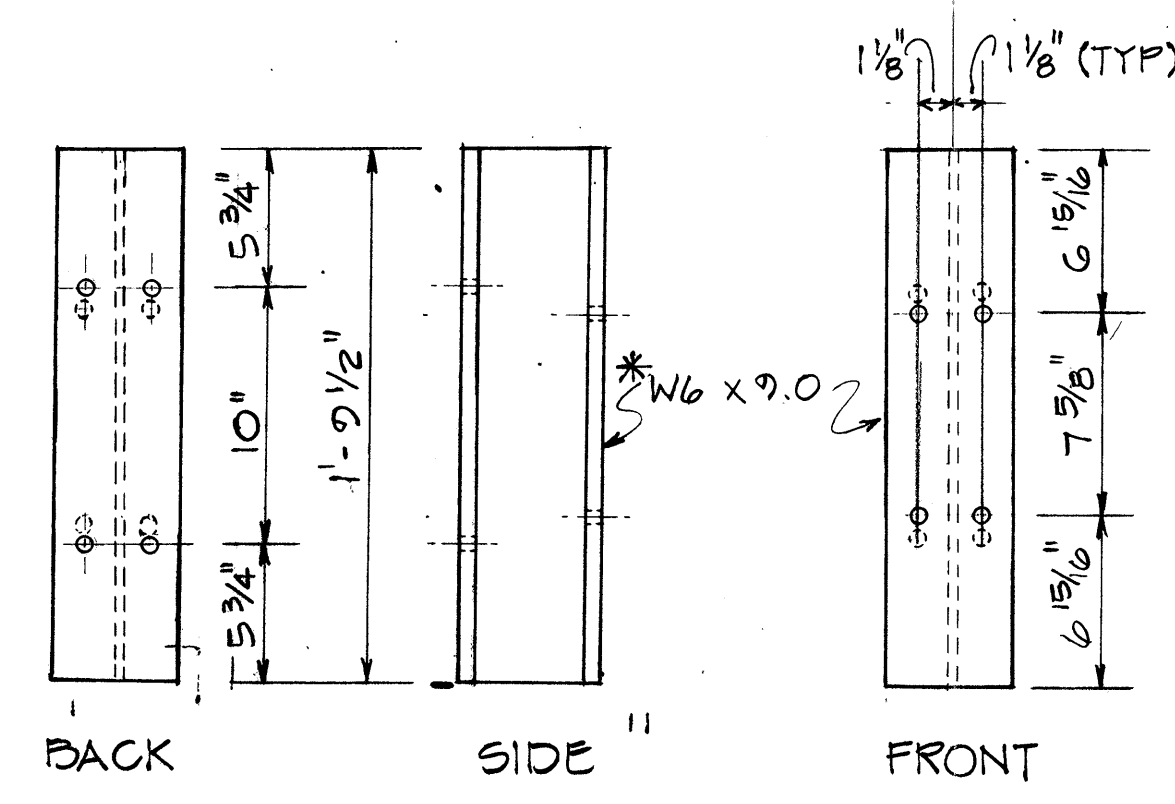
TRANSITION SECTION



END SECTION (ROUNDED) 1" = 1'-0"



TERMINAL CONNECTOR 1" = 1'-0"



SPACER BLOCK

* REPLACED W6 x 8.5, WHICH IS ACCEPTABLE AS AN ALTERNATE.

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
LAND TRANSPORTATION FACILITIES DIVISION

TYPICAL DETAIL
GUARD RAIL TYPE 3
THRE BEAM

Scale: As Shown Date: April, 1980
SHEET No. 1 OF 1 SHEETS