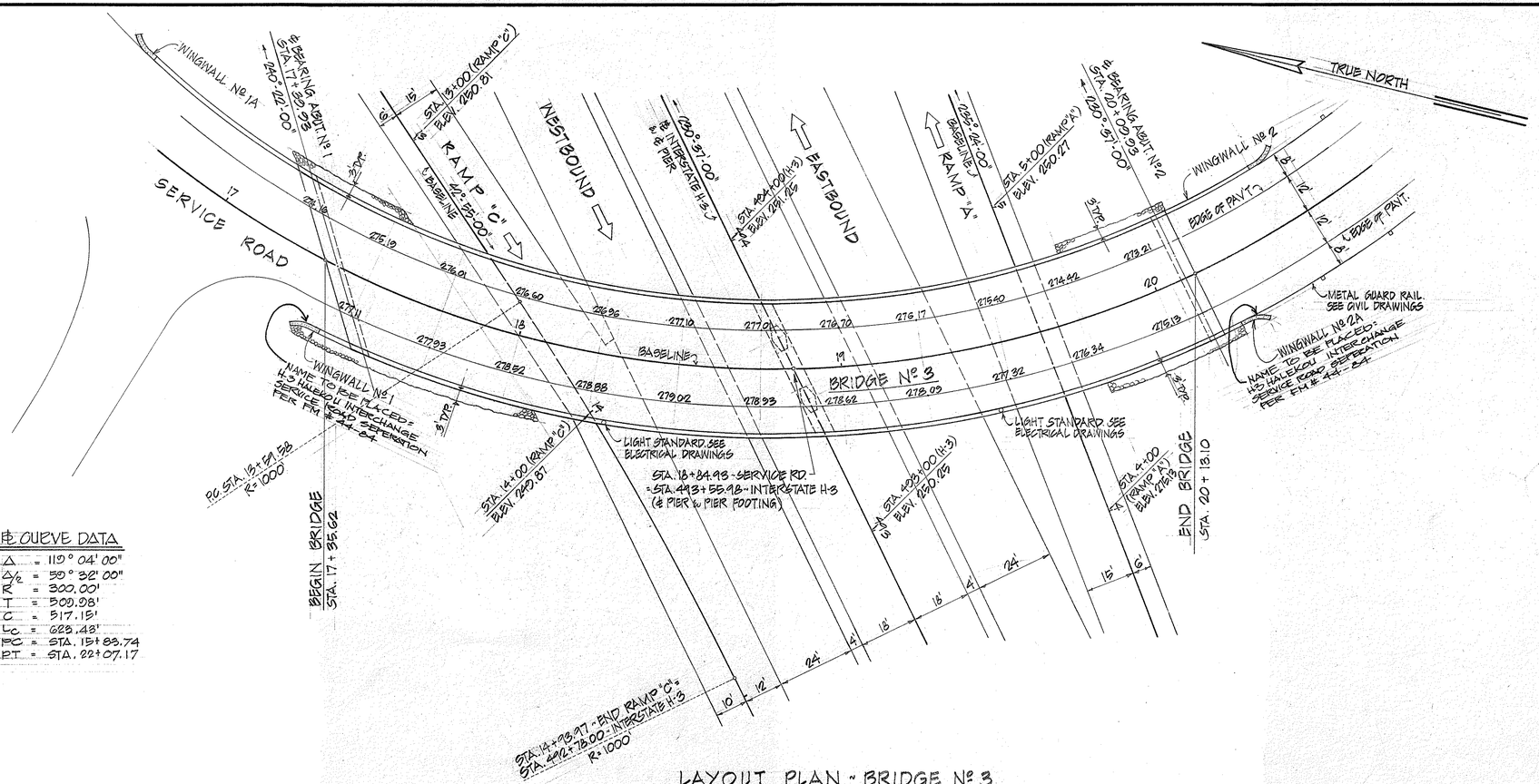
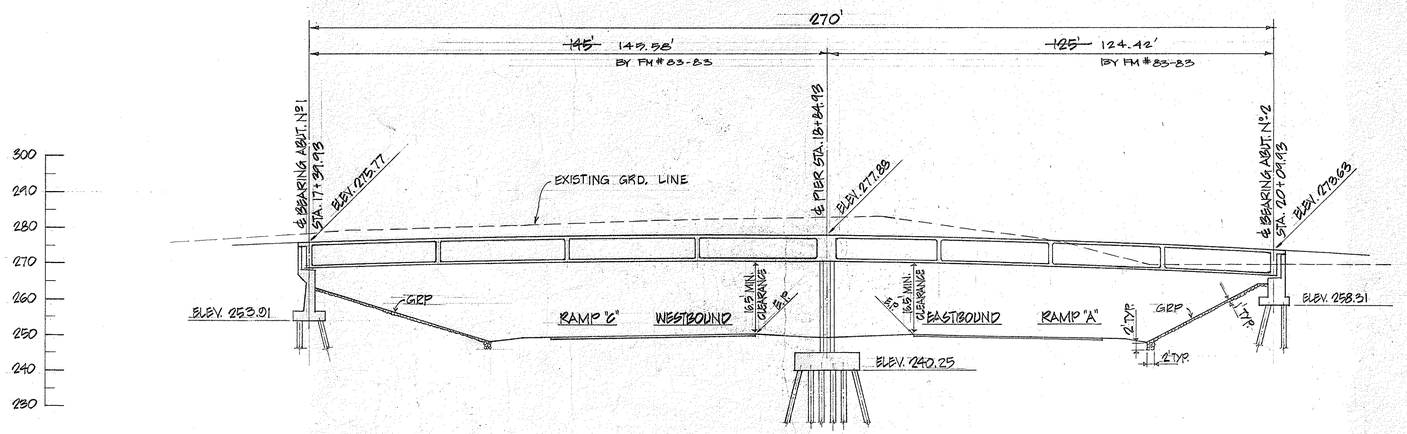
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-H3-1(24):11	1983	202	328



LAYOUT PLAN - BRIDGE No. 3
SCALE: 1" = 20'

℄ CURVE DATA
- Δ = 119° 04' 00"
- Δ/2 = 59° 32' 00"
- R = 300.00'
- T = 309.98'
- C = 517.15'
- Lc. = 623.48'
- PC = STA. 15+83.74
- PT = STA. 22+07.17



PROFILE ALONG BASELINE - BRIDGE No. 3
SCALE: 1" = 20'

DESIGN SPECIFICATIONS:

STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES (AASHTO 12th EDITION) INCL. SUBSEQUENT INTERIM SPECIFICATIONS.

DESIGN LIVE LOAD:

HS 20-44

MATERIALS:

POST-TENSIONED CONC. GIRDER - f'_c = 5,000 P.S.I.
(TENSIONING STRENGTH) f'_c = 4,000 P.S.I.
TRANSVERSE BEAM, PIER COLUMNS - f'_c = 5,000 P.S.I.
FOOTINGS, ABUTMENTS & WALLS - f'_c = 3,000 P.S.I.

REINFORCING STEEL SHALL CONFORM TO ASTM A615.
FOR GIRDER, TRANSVERSE BEAM & PIER COLUMNS - BARS #8 & LARGER f_y = 60 KS.I., BARS #7 & SMALLER OR AS OTHERWISE NOTED f_y = 40 KS.I.
FOR FOOTINGS, ABUTMENTS & WINGWALLS - ALL BARS f_y = 40 KS.I.

ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
	DRAWN BY	"
	TRACED BY	"
NOTE BOOK	DESIGNED BY	"
No.	QUANTITIES BY	"
	CHECKED BY	"

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

PLAN & PROFILE
BRIDGE No. 3

HALEKOU INTERCHANGE
F.A.I. Proj. No. I-H3-1(24):11

Scale: As Noted Date: SEPT. 1982

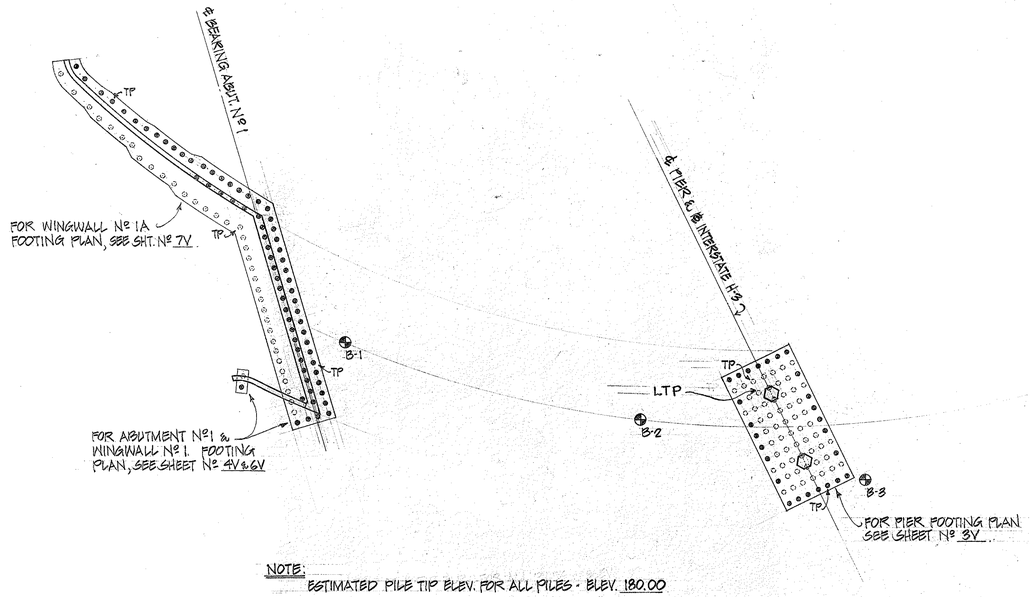
SHEET No. 17 OF 20 SHEETS

K-E CRYSTALGRID LA 3888 TRACING PAPER

"AS BUILT"

202

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-H3-1(24):11	1983	203	328



NOTE:
ESTIMATED PILE TIP ELEV. FOR ALL PILES - ELEV. 180.00

FOUNDATION PLAN

SCALE: 1" = 20'

SEQUENCE OF CONSTRUCTION FOR PILE DRIVING IN ABUTMENT EMBANKMENT

1. DRIVE PILE DOWN TO FINAL TIP ELEVATION.
2. FILL VOID AROUND PILE WITH LOOSE DRY SAND, SEE STANDARD SPECS.

LEGEND

○ VERTICAL PILE
◎ BATTER PILE
TP TEST PILE - TO DETERMINE ORDER LENGTHS
⊕ B-1 BORING Nº 1 - SEE SHT. Nº 15V FOR LOG OF BORINGS.
LTP LOAD TEST PILE - SEE SPECS.

ESTIMATED QUANTITIES - BRIDGE Nº 3

ITEM NO.	ITEM	UNIT	QUANTITY
206.6000	STRUCTURAL EXCAVATION FOR BRIDGE	C.Y.	1,399
206.7010	STRUCTURAL BACKFILL FOR BRIDGE	C.Y.	943
206.8200	FILTER MATERIAL FOR STRUCTURE	C.Y.	73
503.1093	CONCRETE IN BRIDGE NO. 3 (EXCEPT FOOTING)	L.S.	(1,270 C.Y.)
505.0410	TYPE I - PRESTRESSED CONC. PILES, FURNISHED	L.F.	18,342
505.4100	TYPE I - PRESTRESSED CONC. PILES, DRIVEN	L.F.	16,817
507.1500	METAL BRIDGE RAILING, TWO RAILS ON PARAPET	L.F.	660
507.7010	CONCRETE BRIDGE PARAPET INCLUDING END POST - BRIDGE NO. 3	L.F.	700
602.0092	REINFORCING STEEL IN BRIDGE NO. 3	L.S.	(433,000 LBS)
504.5100	POST-TENSIONING OPERATION FOR CAST-IN-PLACE STRUCTURES BRIDGE NO. 3	L.S.	(80,000 LBS)
612.0200	GROUTED RUBBLE PAVING, SLOPE PROTECTION	C.Y.	272
505.9100	PILE DRIVING EQUIPMENT EXPENSE (NOT TO EXCEED $8,000)	L.S.	
505.1091	CONCRETE IN FOOTINGS FOR BRIDGE NO. 3	L.S.	462
505.0012	PILE LOAD TESTS, BRIDGE NO. 3	EA.	1
505.0022	TEST PILES, DRIVEN - BRIDGE NO. 3	L.F.	666

ORIGINAL PLAN
NOTE BOOK
No.

SURVEY PLOTTED BY
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DESIGNED BY
QUANTITIES BY
CHECKED BY
DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

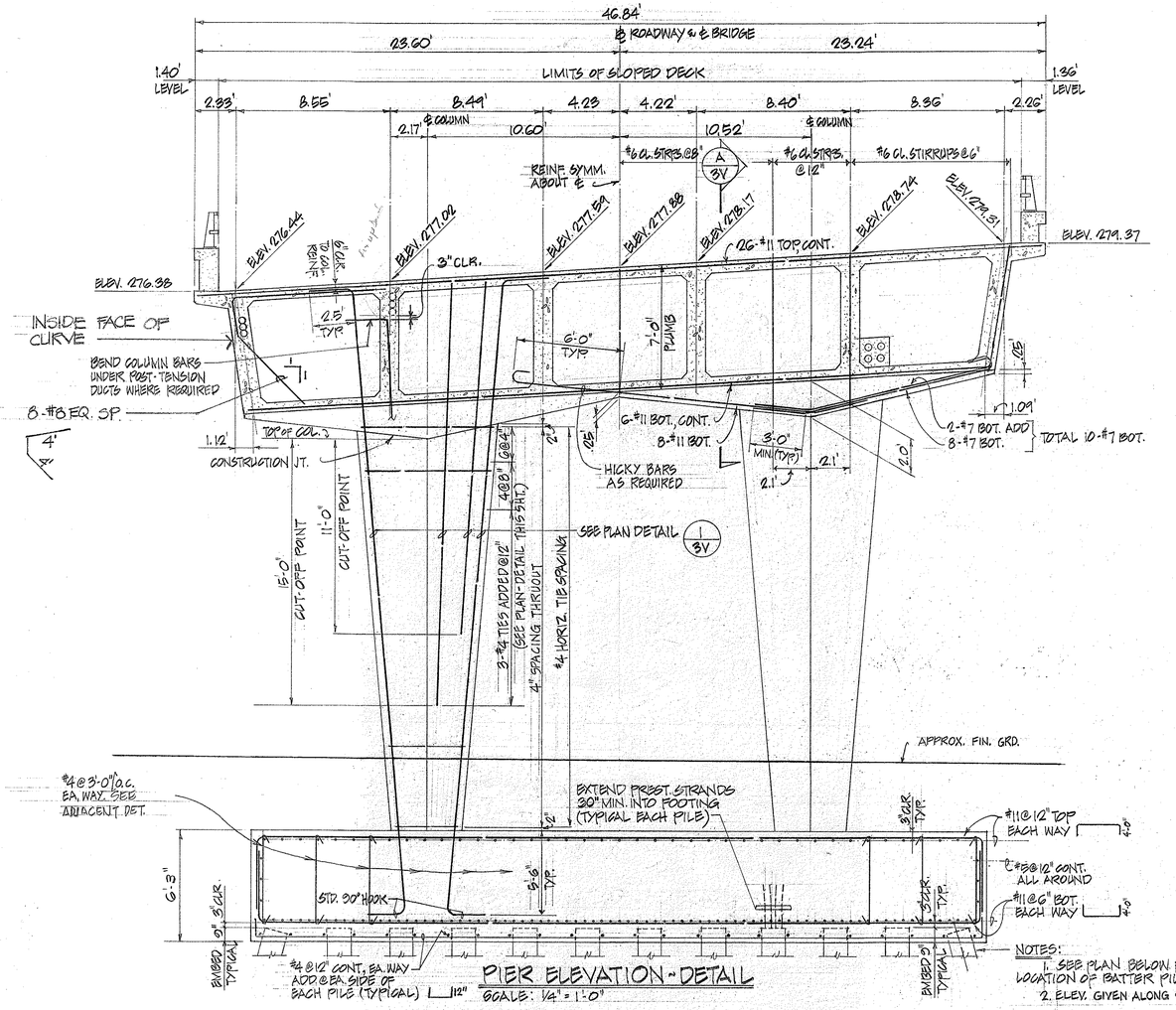
FOUNDATION PLAN
BRIDGE Nº 3

HALEKOU INTERCHANGE
F.A.I. Proj. No. I-H3-1(24):11

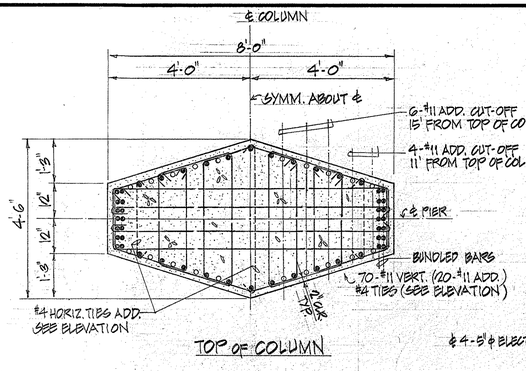
Scale: As Noted Date: SEPT. 1982

SHEET No. 2V OF 20 SHEETS

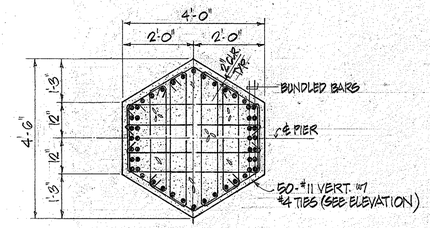
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-HS-1(24):11	1983	204	328



PIER ELEVATION - DETAIL
SCALE: 1/4" = 1'-0"

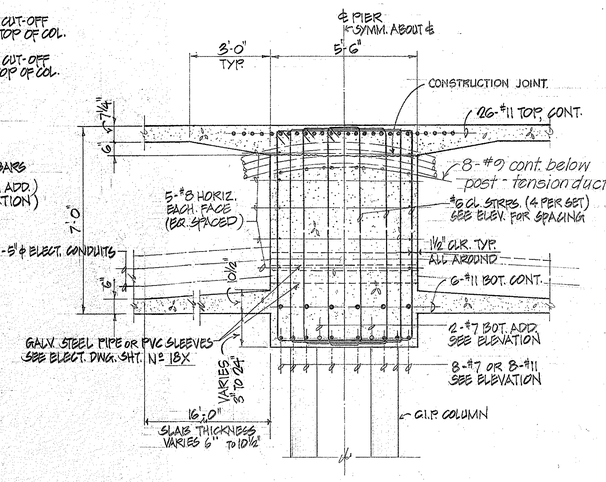


TOP OF COLUMN

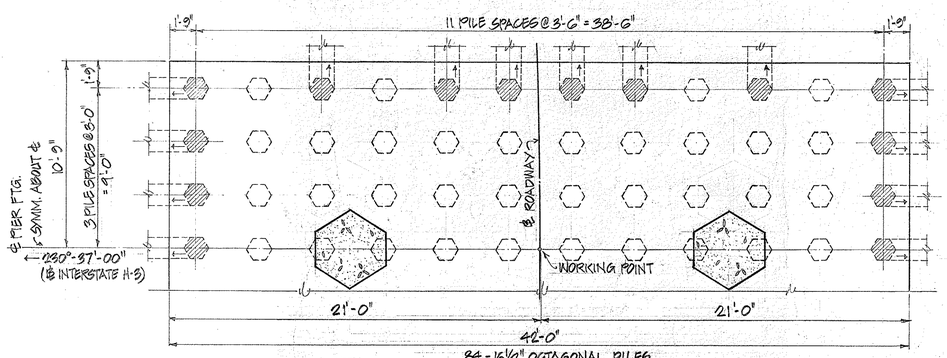


BOTTOM OF COLUMN

PIER COLUMN PLAN - DETAIL 1 3V
SCALE: 1/2" = 1'-0"



TYPICAL PIER CAP SECTION A 3V
SCALE: 3/8" = 1'-0"

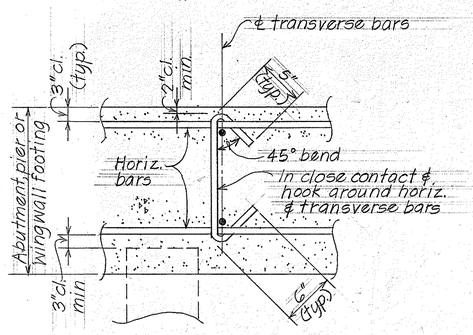


84-16 1/2" OCTAGONAL PILES
(58 VERTICAL & 26 BATTER)

PIER FOOTING PARTIAL PLAN
SCALE: 1/4" = 1'-0"

NOTE:
BATTER PILES ONLY AS SHOWN ON PLAN (⊘). ARROW (→) INDICATES DIRECTION OF BATTER. SEE SECTION & ELEVATION FOR BATTERS (TYPICAL)

LEGEND:
⬡ VERTICAL PILE (NO BATTER)
⬡ BATTER PILE 3:12



TIE BAR DETAIL
Not to scale

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

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

PIER ELEVATION & DETAILS
BRIDGE № 3
HALEKOU INTERCHANGE
F.A.I. Proj. No. I-H3-1(24):11

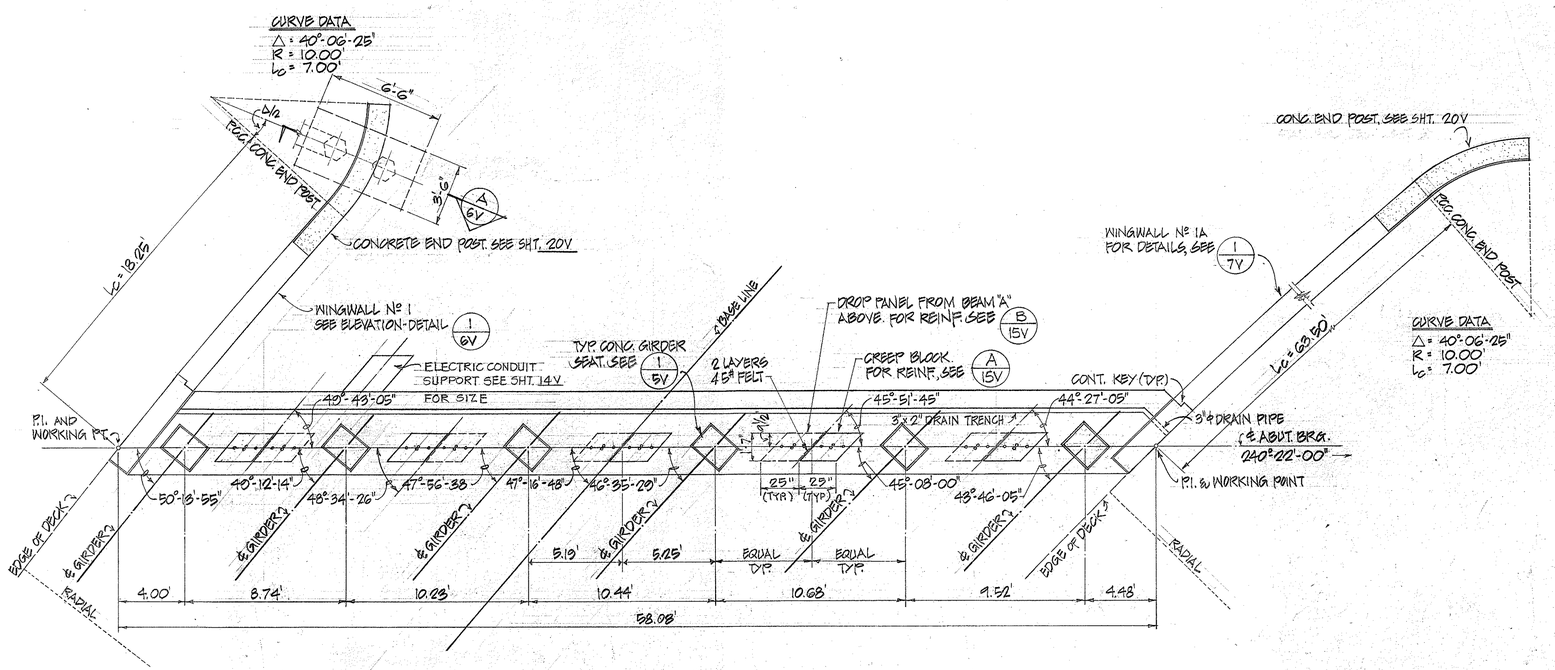
Scale: As Noted
Date: SEPT. 1982

SHEET No. 3V OF 20 SHEETS

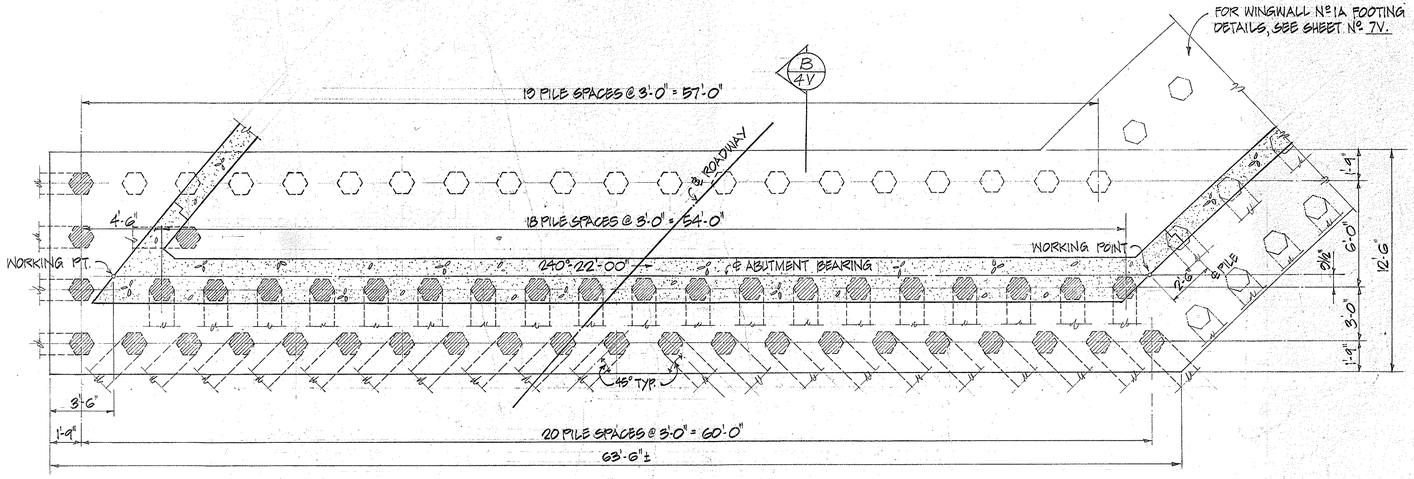
204

K&E CRYSTALENE® TRACING PAPER L.A. 3888

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-H3-1(24):11	1983	205	328



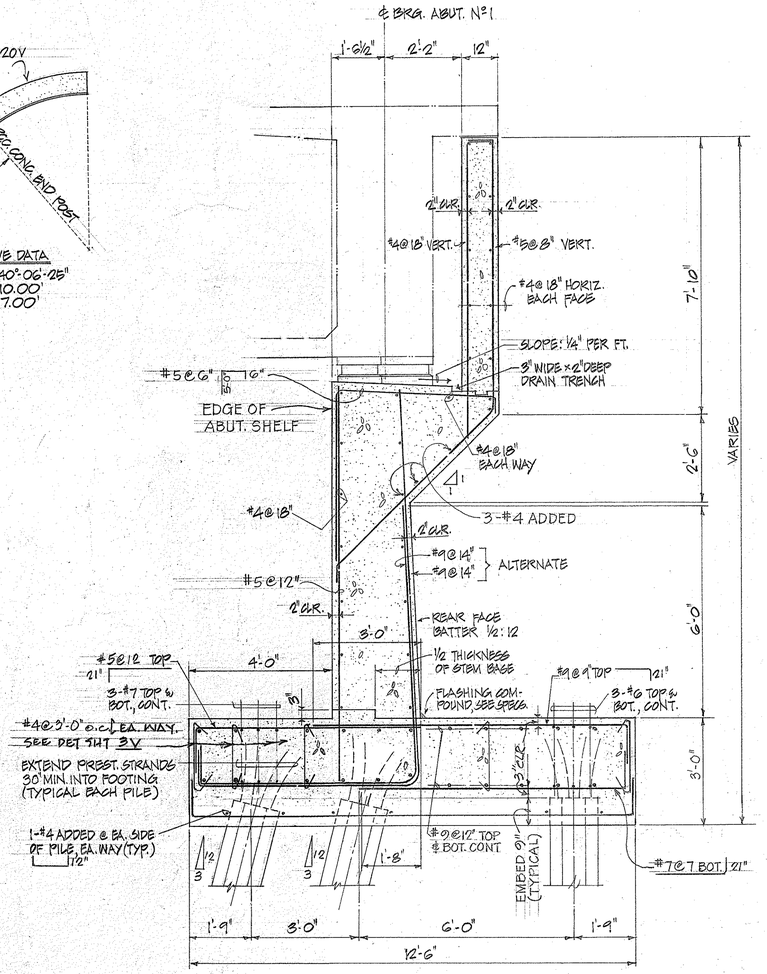
PLAN - ABUTMENT Nº 1
SCALE: 1/4" = 1'-0"



63: 16½" OCTAGONAL PILES
(19 VERTICAL & 44 BATTER)

ABUTMENT Nº 1 FOUNDATION PLAN - SECTION A 4V
SCALE: 1/4" = 1'-0"

LEGEND:
- VERTICAL PILE (NO BATTER)
- BATTER PILE 3:12 IN DIRECTION SHOWN ON PLAN



TYPICAL SECTION - ABUTMENT Nº 1 B 4V
SCALE: 1/2" = 1'-0"

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

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

PLAN & DETAILS - ABUTMENT Nº 1
BRIDGE Nº 3
HALEKOU INTERCHANGE
F.A.I. Proj. No. I-H3-1(24):11

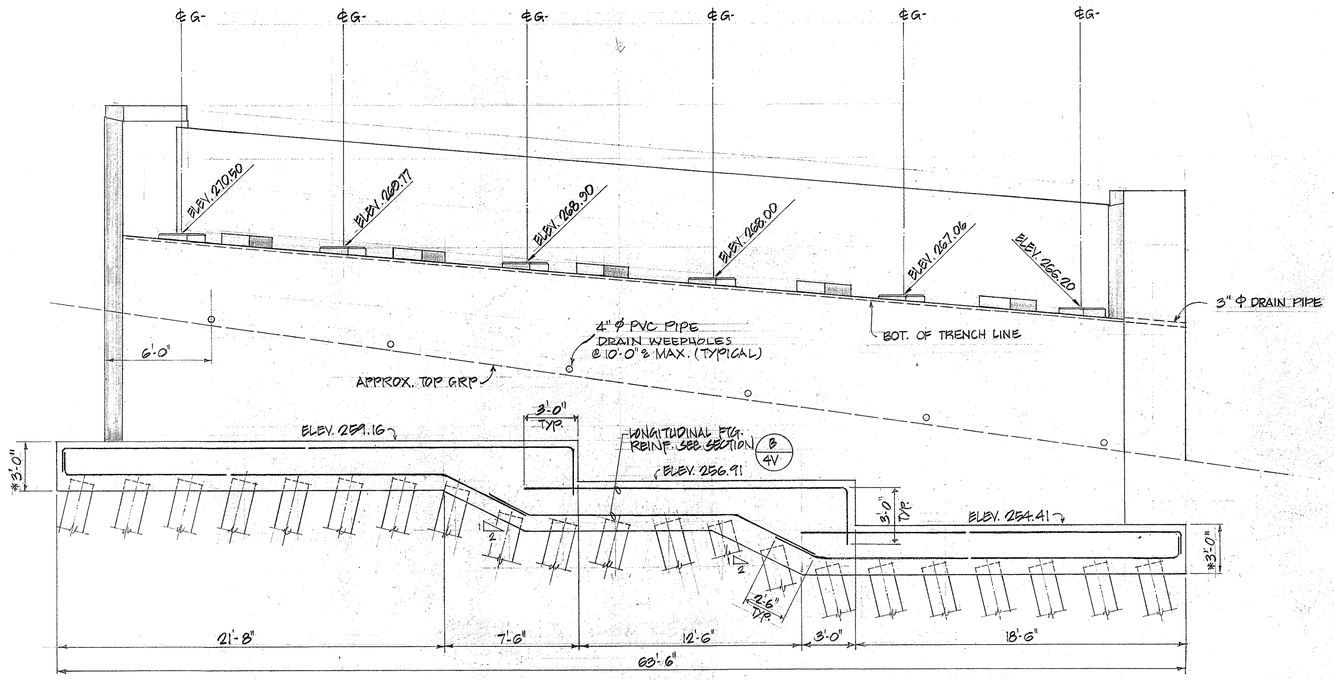
Scale: As Noted Date: SEPT. 1982

SHEET No. 4V OF 20 SHEETS

205

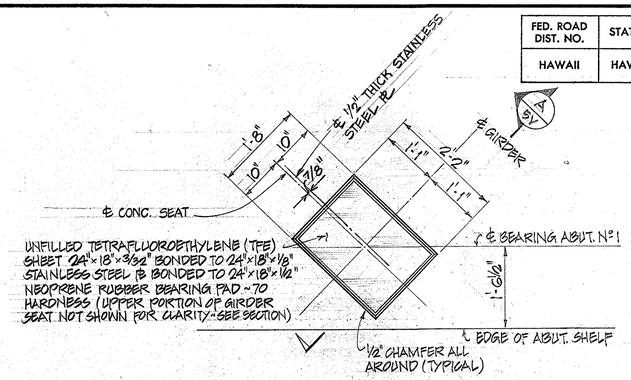
K&E 42 YSTALENE® LA 3888 TRACING PAPER

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-H3-1(24):11	1983	206	328

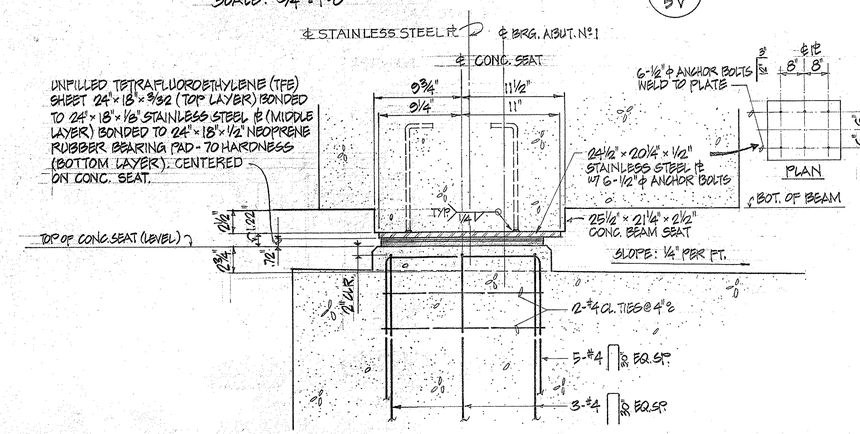


* NOT TO SCALE

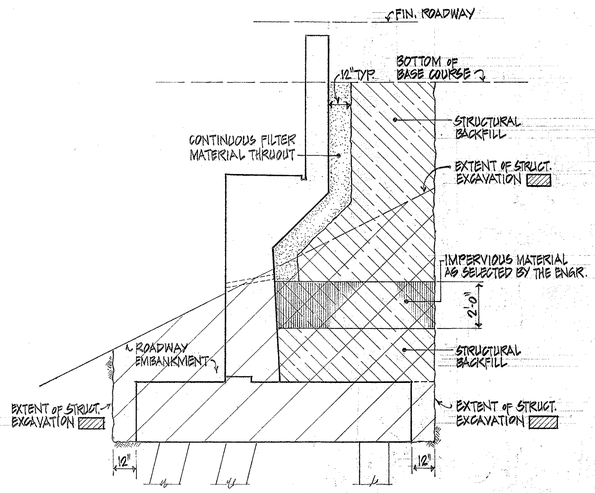
ELEVATION ~ ABUTMENT Nº 1
SCALE: 1/4" = 1'-0"



PLAN ~ DETAIL TYP. CONC. GIRDER SEAT (1 / 5V)
SCALE: 3/4" = 1'-0"



SECTION (A / 5V)
SCALE: 1½" = 1'-0"



TYPICAL ABUTMENT Nº 1 BACKFILL (ABUTMENT Nº 2 SIMILAR)
NO SCALE

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

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

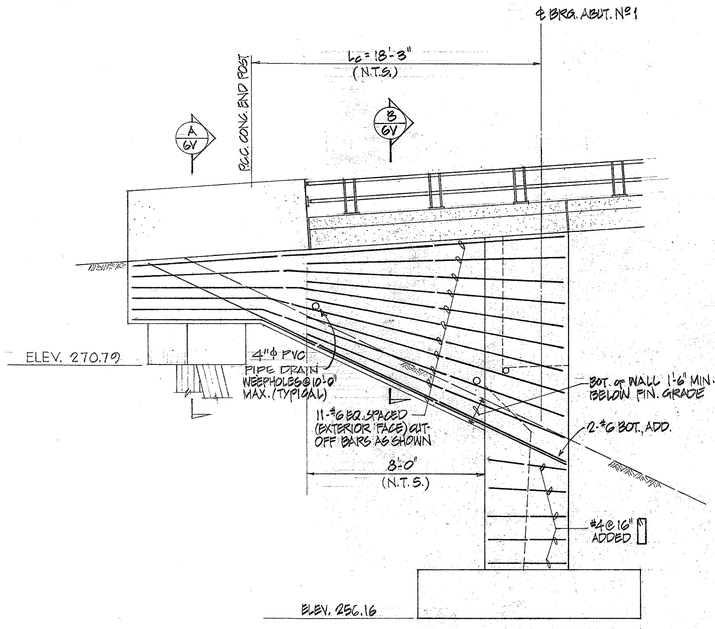
ELEVATION ~ ABUTMENT Nº 1
BRIDGE Nº 3

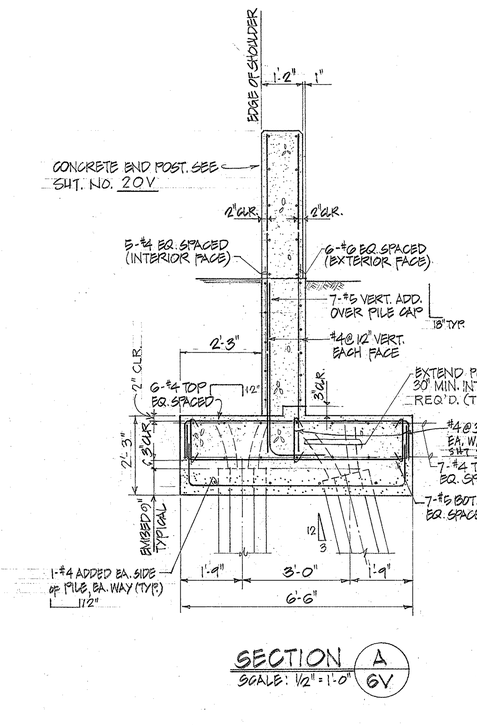
HALEKOU INTERCHANGE
F.A.I. Proj. No. I-H3-1(24):11

Scale: As Noted Date: SEPT. 1982

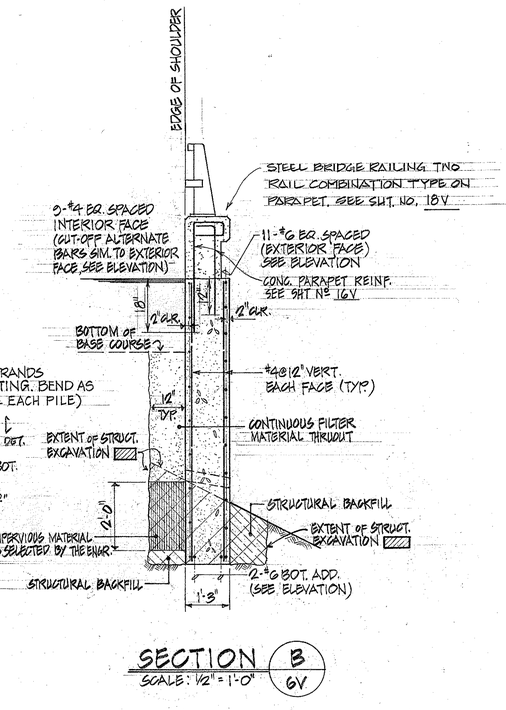
SHEET No. 5V OF 20 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-H3-1(24):11	1983	207	328





SECTION A (6V)
SCALE: 1/2" = 1'-0"



SECTION B (6V)
SCALE: 1/2" = 1'-0"

WINGWALL Nº 1 ELEVATION - DETAIL (1/6V)
SCALE: 1/4" = 1'-0"

ORIGINAL PLAN
NOTE BOOK
No.
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DESIGNED BY
QUANTITIES BY
CHECKED BY
DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

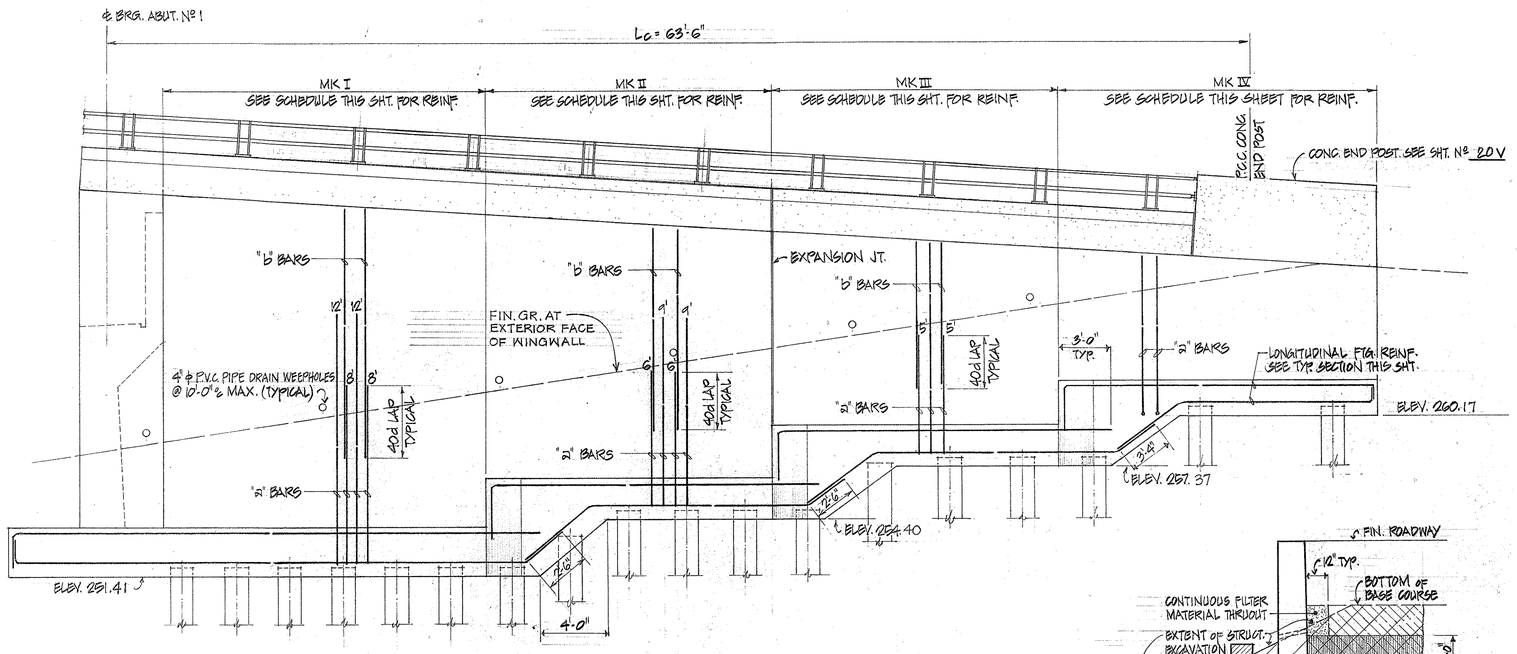
WINGWALL Nº 1 DETAILS
BRIDGE Nº 8
HALEKOU INTERCHANGE
F.A.I. Proj. No. I-H3-1(24):11

Scale: As Noted
Date: SEPT. 1982

SHEET No. 6V OF 20 SHEETS

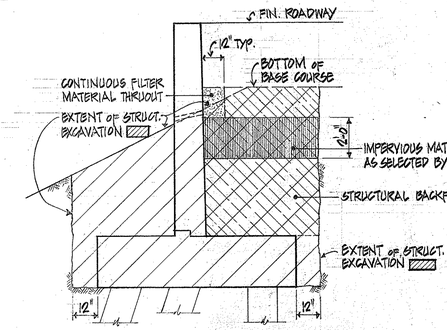
207

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-H3-1(24):11	1983	208	328



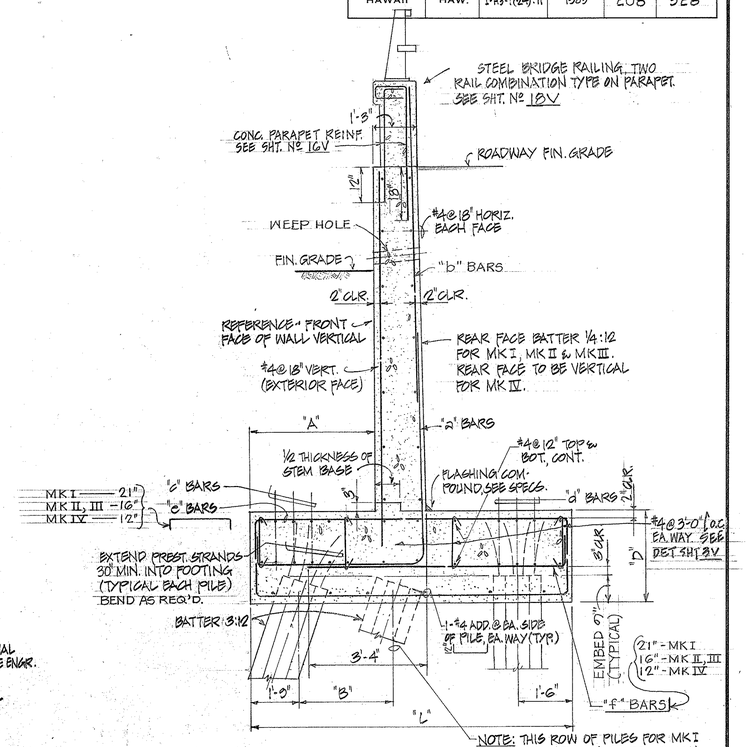
WINGWALL Nº 1A ELEVATION ~ DETAIL (1/7V)

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



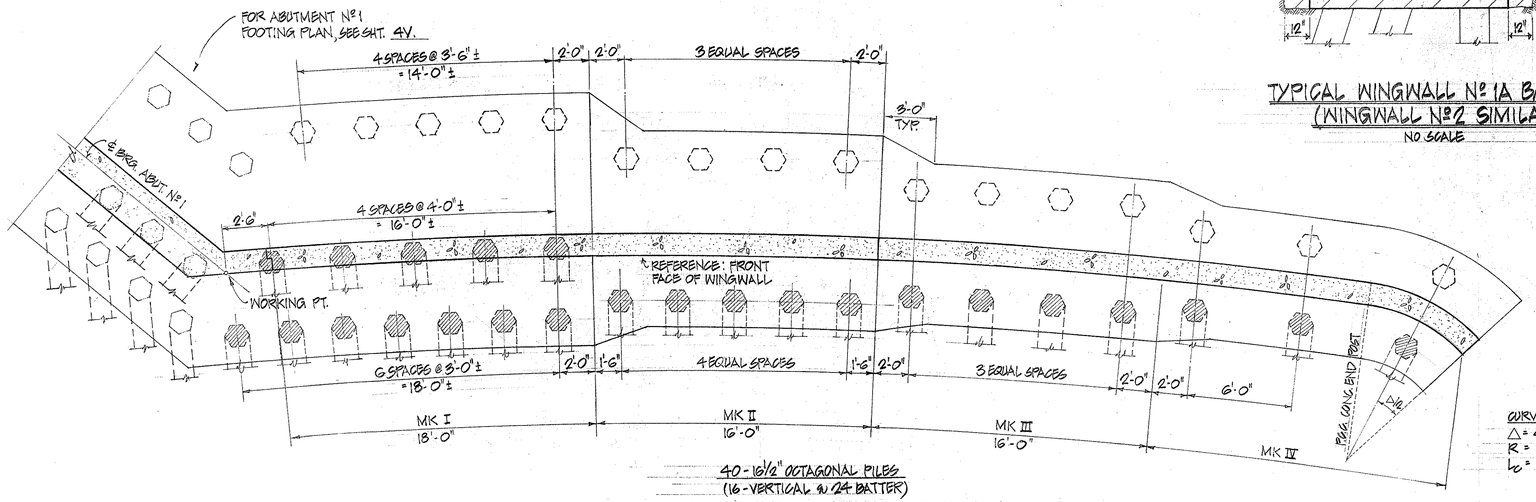
TYPICAL WINGWALL Nº 1A BACKFILL (WINGWALL Nº 2 SIMILAR)

NO SCALE



TYPICAL SECTION ~ WINGWALL Nº 1A

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



40 - 16 1/2" OCTAGONAL PILES
(16 - VERTICAL & 24 BATTER)

WINGWALL Nº 1A FOOTING PLAN

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

CURVE DATA
Δ = 40°-06'-25"
R = 10.00'
Lc = 7.00'

LEGEND:
- VERTICAL PILE (NO BATTER)
- BATTER PILE 3:12

~WINGWALL Nº 1A SCHEDULE~

	"L"	"A"	"B"	"D"	"a" BARS	"b" BARS	"c" BARS	"d" BARS	"e" BARS	"f" BARS
MK I	14'-0"	5'-7"	4'-3"	36"	#10@6"	#8@12"	6-#6	6-#6	#10@9"	#9@9"
MK II	11'-3"	4'-3"	"	31"	#8@6"	#7@12"	6-#6	6-#6	#8@12"	#7@12"
MK III	9'-3"	3'-9"	"	31"	#7@8½"	#7@17"	8-#6	6-#6	#6@12"	#5@12"
MK IV	7'-9"	3'-3"	"	27"	#6@10"		8-#8	6-#8	#5@12"	#5@12"

ORIGINAL PLAN
SURVEY PLOTTED BY: DATE:
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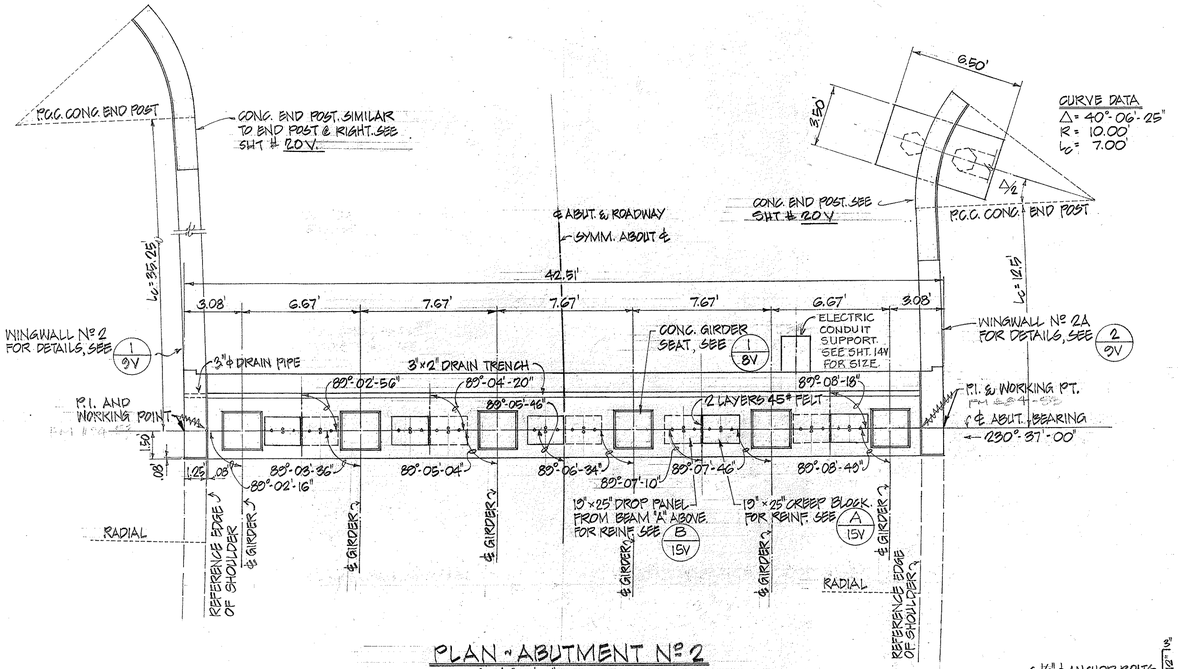
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

WINGWALL Nº 1A DETAILS
BRIDGE Nº 8
HALEKOU INTERCHANGE
F.A.I. Proj. No. I-H3-1(24):11

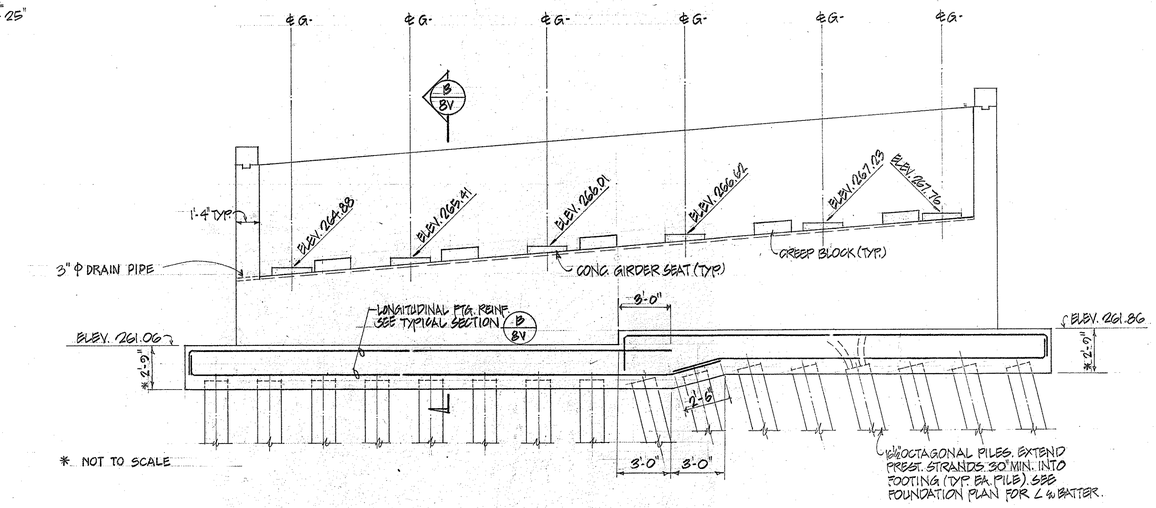
Scale: As Noted Date: SEPT. 1982

SHEET No. 7V OF 20 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-H3-1(24):11	1983	209	328

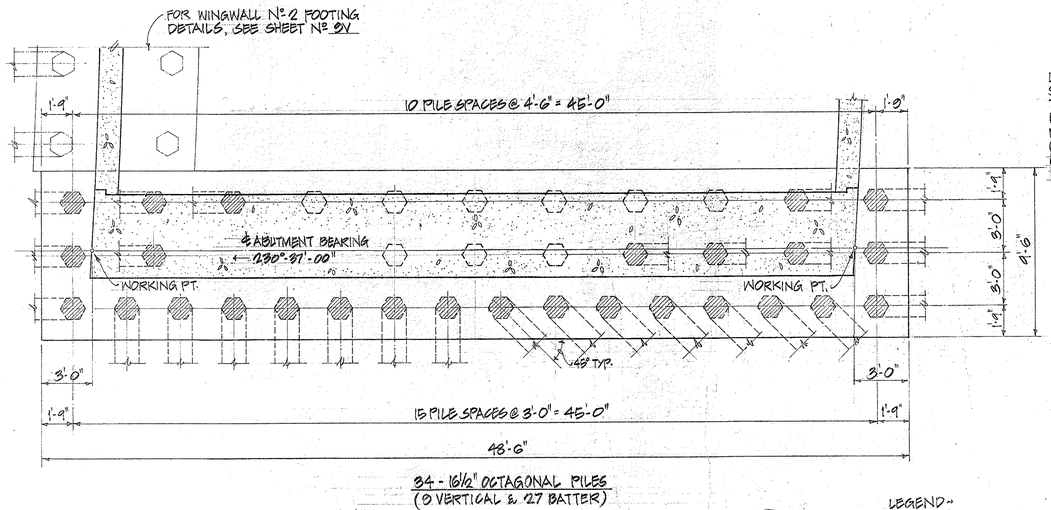


PLAN - ABUTMENT Nº 2
SCALE: 1/4" = 1'-0"



*. NOT TO SCALE

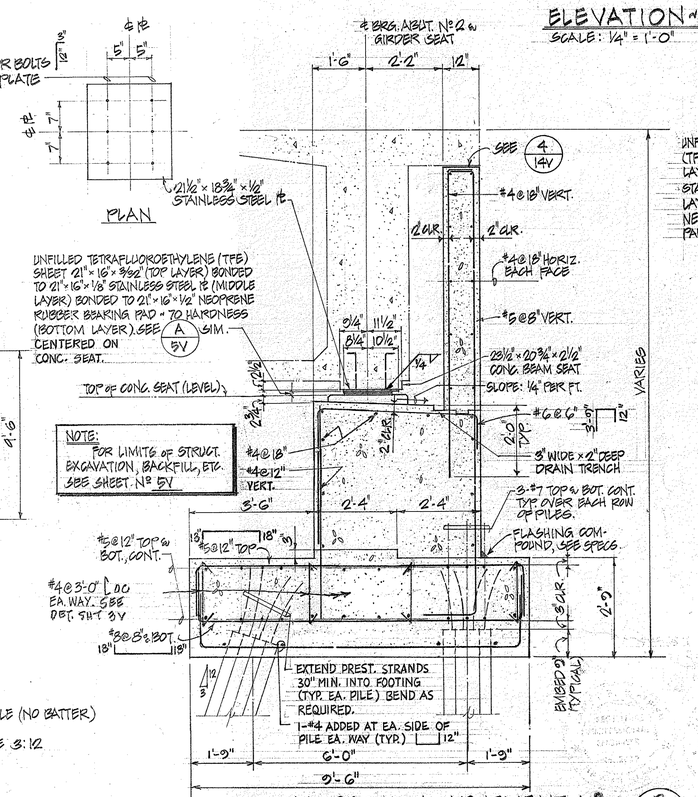
ELEVATION - ABUTMENT Nº 2
SCALE: 1/4" = 1'-0"



34 - 16½" OCTAGONAL PILES
(9 VERTICAL & 27 BATTER)

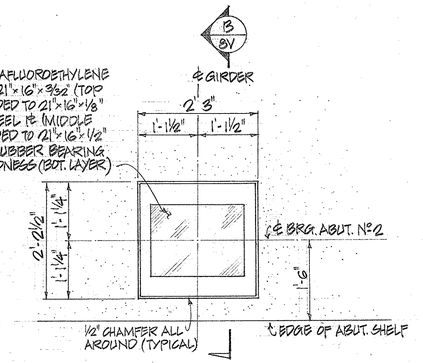
ABUTMENT Nº 2 FOUNDATION PLAN - SECTION A/8V
SCALE: 1/4" = 1'-0"

LEGEND -
VERTICAL PILE (NO BATTER)
BATTER PILE 3:12



NOTE: FOR LIMITS OF STRUCT. EXCAVATION, BACKFILL, ETC. SEE SHEET. Nº 5V

TYPICAL SECTION - ABUTMENT Nº 2 B/8V
SCALE: 1/2" = 1'-0"



PLAN - DETAIL CONC. GIRDER SEAT 1/8V
SCALE: 3/4" = 1'-0"

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

PLAN & DETAILS - ABUTMENT Nº 2
BRIDGE Nº 3

HALEKOU INTERCHANGE
F.A.I. Proj. No. I-H3-1(24):11

Scale: As Noted Date: SEPT. 1982

SHEET No. 8V OF 20 SHEETS

ORIGINAL PLAN
NOTE BOOK No.
SURVEY PLOTTED BY DATE
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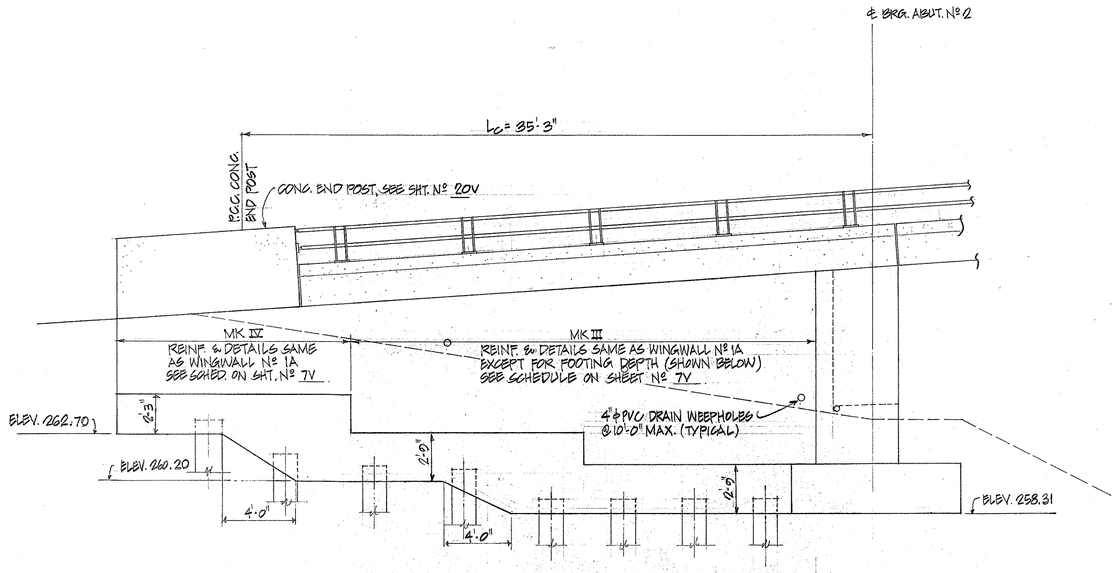
CHECKED BY

K&E CRYSTALGRID LA 3888

"AS BUILT"

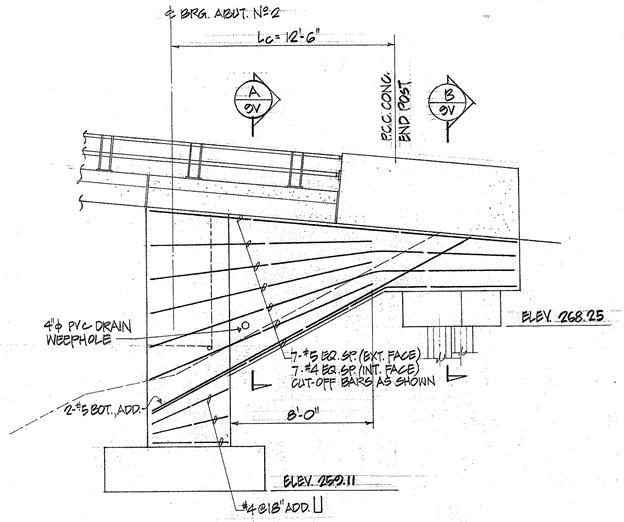
209

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-H3-1(24):11	1983	210	328



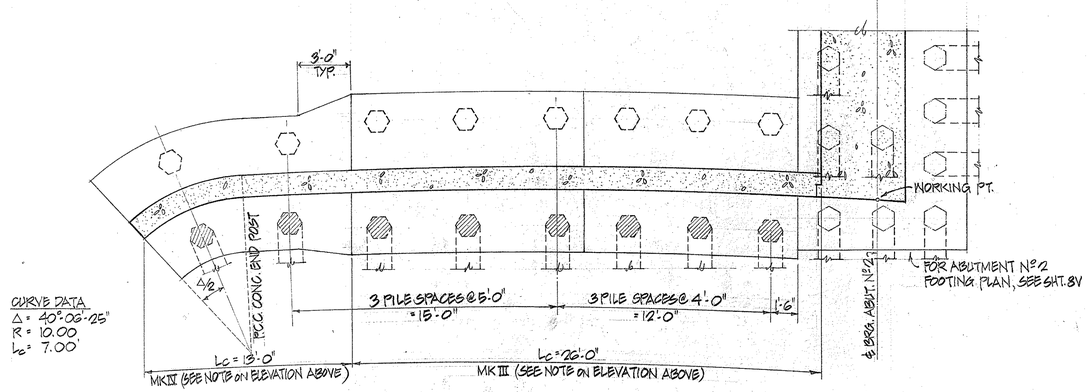
WINGWALL Nº 2 ELEVATION - DETAIL (1/9V)

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



WINGWALL Nº 2A ELEVATION - DETAIL (2/9V)

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



CURVE DATA
Δ = 40°-06'-25"
R = 10.00'
L_c = 7.00'

16-16½" OCTAGONAL PILES
(8 VERTICAL & 8 BATTER)

WINGWALL Nº 2 FOOTING PLAN

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

LEGEND:
- VERTICAL PILE (NO BATTER)
- BATTER PILE 3:12

SECTION A (9V)

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

SECTION B (9V)

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

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

WINGWALL Nº 2 & 2A DETAILS
BRIDGE Nº 3

HALEKOU INTERCHANGE
F.A.I. Proj. No. I-H3-1(24):11

Scale: As Noted
Date: SEPT. 1982

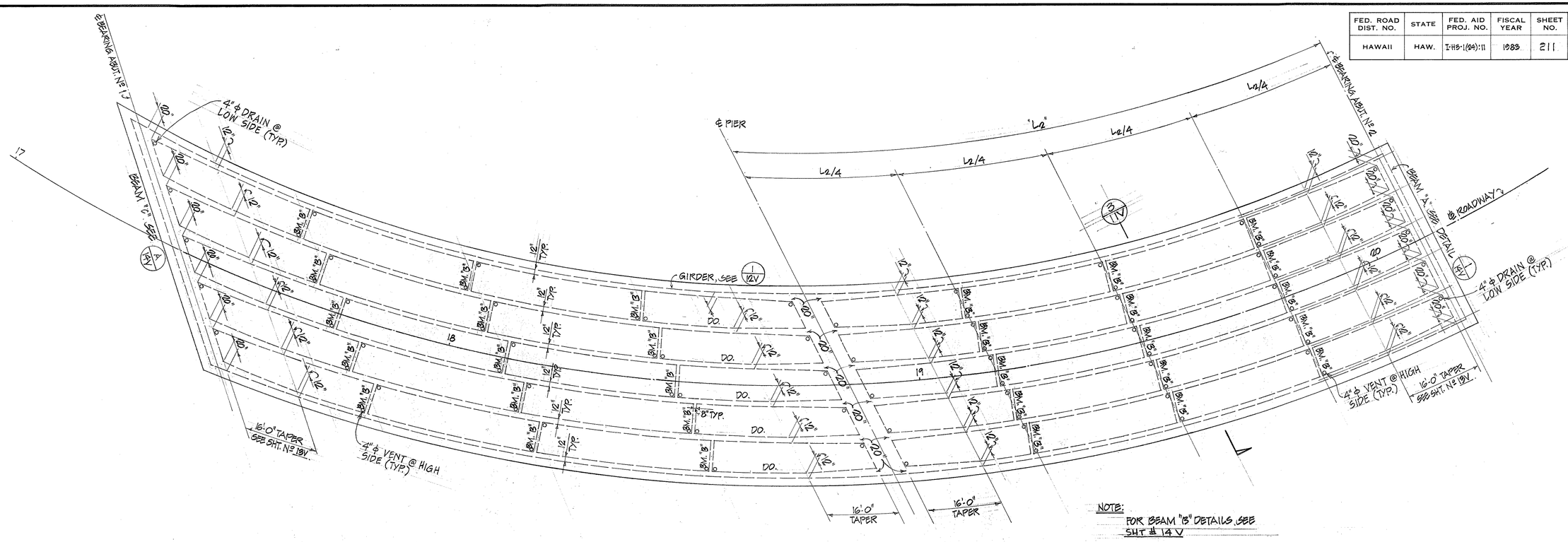
SHEET No. 9V OF 20 SHEETS

210

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

PRINTED ON NO. 1000H CLEARPRINT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-HS-1(24):11	1983	211	328



NOTE:
FOR BEAM "B" DETAILS SEE SHT # 14 V

FRAMING PLAN

SCALE: 3/32" = 1'-0"

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

FRAMING PLAN
BRIDGE Nº 3

HALEKOU INTERCHANGE
F.A.I. Proj. No. I-HS-1(24):11

Scale: As Noted Date: SEPT. 1982

SHEET No. 10V OF 20 SHEETS

211

ORIGINAL PLAN
NOTE BOOK
No.

SURVEY PLOTTED BY
DRAWN BY
TRACED BY
DESIGNED BY
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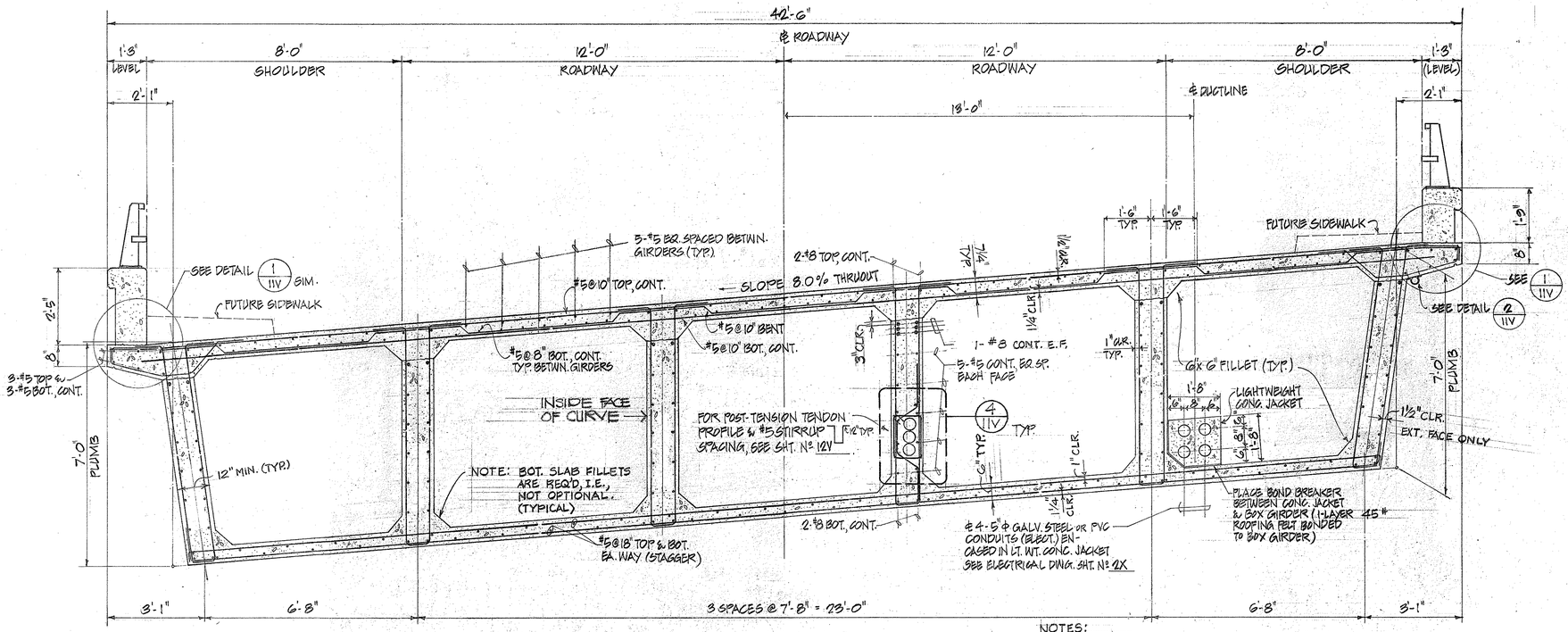
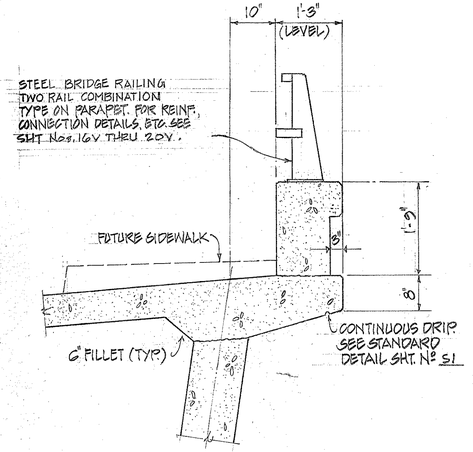
DATE

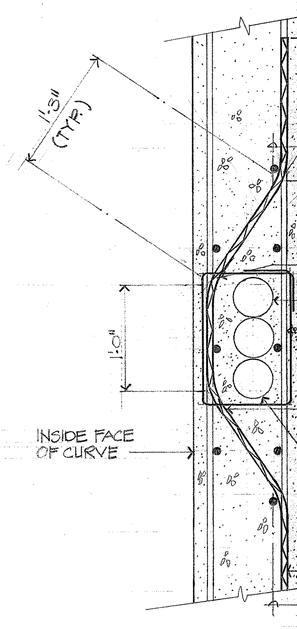
PRINTED ON NO. 1000H CLEARPRINT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-H3-1(24):11	1983	212	328





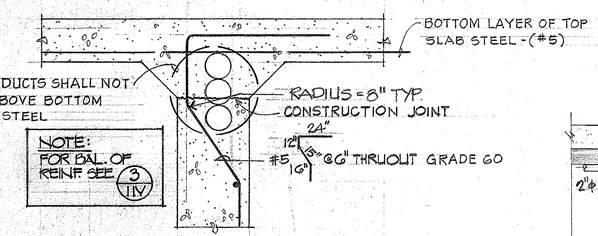
BRIDGE RAIL CURB DETAIL 1/11V
SCALE: 3/4" = 1'-0"



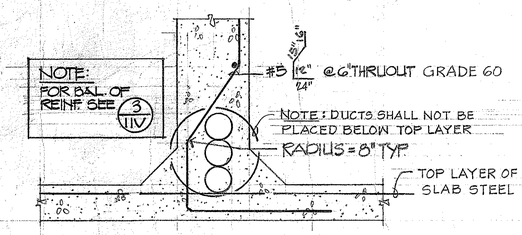
TYPICAL DETAIL 4/11V
SCALE 1½" = 1'-0"

NORMAL DECK SECTION 3/11V
SCALE: ½" = 1'-0"

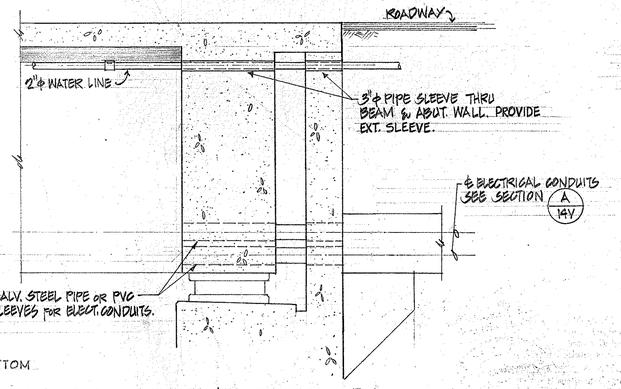
NOTES:
1. TRANSVERSE REINF. SHALL BE PLACED RADIALLY, SPACINGS SHOWN ARE MAX.
2. LONGITUDINAL REINF. TO FOLLOW HORIZ. CURVE.
3. SEE SHT. 10J FOR DET. AT SKEWED ABUT. & PIER (SIMILAR)



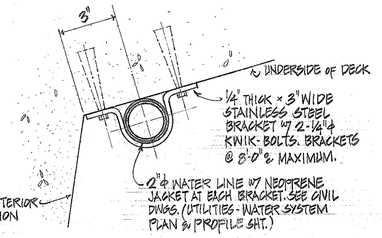
CONDITION AT TOP SLAB
NOT TO SCALE



CONDITION AT BOTTOM SLAB
SCALE: 1" = 1'-0"



SLEEVE THRU ABUT. WALL & DIAPHRAM BEAM
SCALE: ½" = 1'-0"



PIPE HANGER DETAIL 2/11V
SCALE: 3" = 1'-0"

DATE	REVISION
12/22/82	Revised reinf. steel in Detail 4/11V, per Addendum No. 1.

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

NORMAL DECK SECTION
BRIDGE Nº 8

HALEKOU INTERCHANGE
F.A.I. Proj. No. I-H3-1(24):11

Scale: As Noted Date: SEPT. 1982

SHEET No. 11V OF 20 SHEETS

APPROVED:
HAWAIIAN ELECTRIC CO., INC. DATE

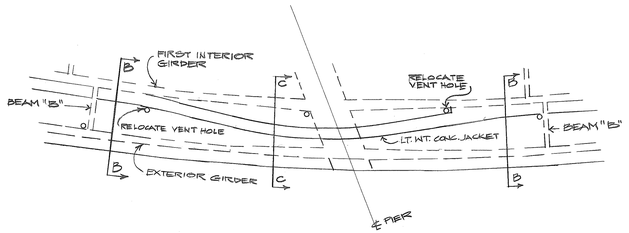
APPROVED
ASSISTANT CHIEF ENGINEER, B.H.S. 9/8/82

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

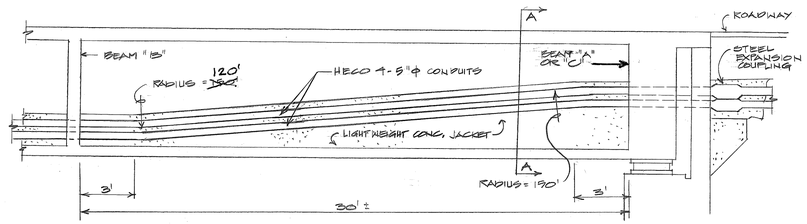
PRINTED ON NO. 1000H CLEARPRINT

212R

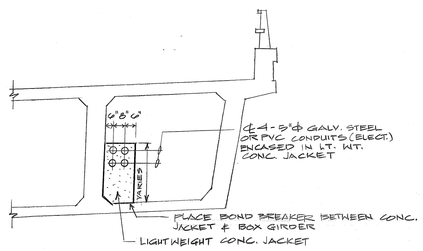
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-H3-1(24):11	1983	212AR	328



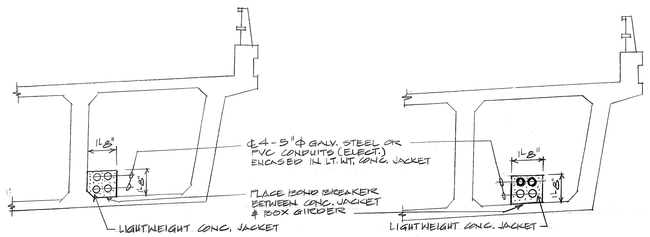
PLAN VIEW AT PIER
SCALE: 3/32" = 1'-0"



PROFILE AT ABUTMENTS
SCALE: 1" = 40'-0"



SECTION "A-A"
SCALE: 1/4" = 1'-0"



SECTION "B-B"
SCALE: 1/4" = 1'-0"

SECTION "C-C"
SCALE: 1/4" = 1'-0"

Note: This tracing prepared during "As Built" posting.

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

ELECTRICAL CONDUITS @ BRIDGE No 3

HALEKOU INTERCHANGE

F.A.I. Proj. No. I-H3-1(24):11

Scale: As Noted DATE: JAN. 83

SHEET No. 11AY OF 21 SHEETS

ORIGINAL PLAN

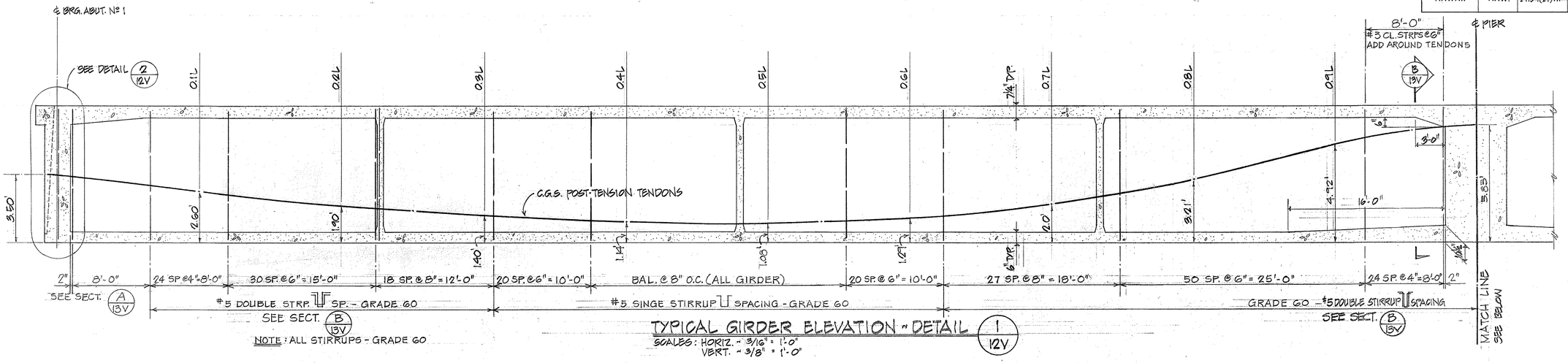
NOTE BOOK No. ____

SURVEY PLOTTED BY ____ DATE
DRAWN BY ____
TRACED BY ____
DESIGNED BY ____
QUANTITIES BY ____
CHECKED BY ____

"AS-BUILT"

212AR

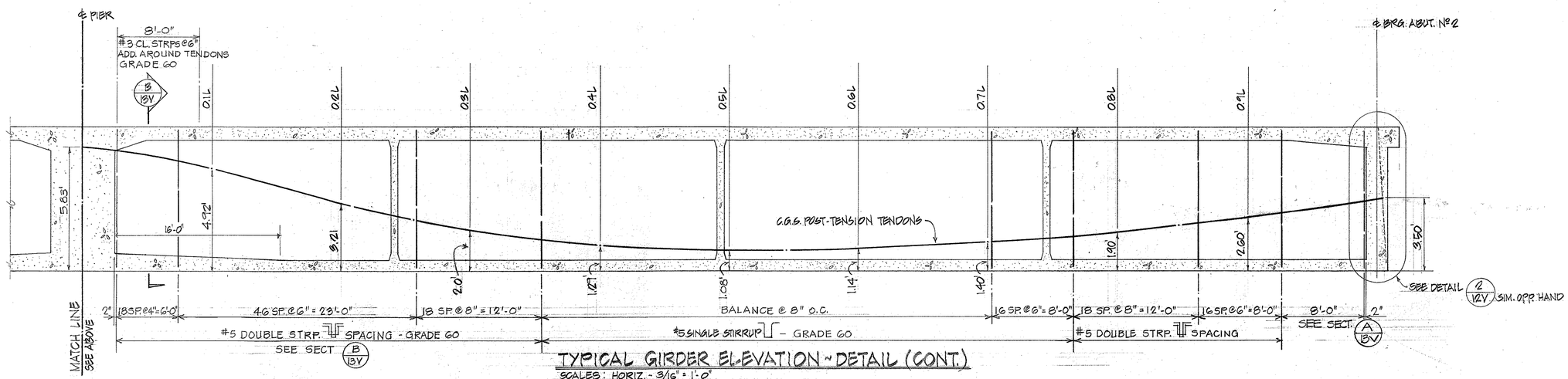
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-H3-1(24):11	1983	213	328



NOTE: ALL STIRRUPS - GRADE 60

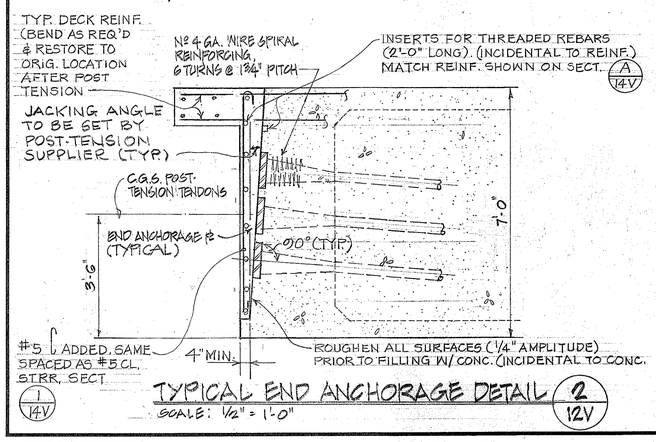
TYPICAL GIRDER ELEVATION - DETAIL 1 12V

SCALES: HORIZ. - 3/16" = 1'-0"
VERT. - 3/8" = 1'-0"



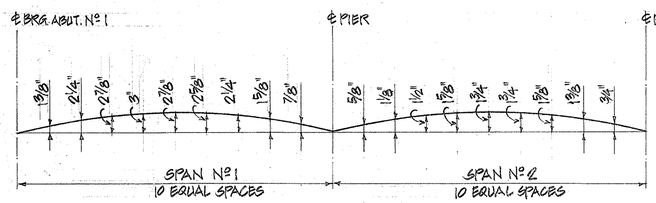
TYPICAL GIRDER ELEVATION - DETAIL (CONT.)

SCALES: HORIZ. - 3/16" = 1'-0"
VERT. - 3/8" = 1'-0"



TYPICAL END ANCHORAGE DETAIL 2 12V

SCALE: ½" = 1'-0"



REFERENCE TO BOTTOM SOFFIT OF GIRDER.

CAMBER DIAGRAM

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

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TYPICAL GIRDER ELEVATION
BRIDGE Nº 3

HALEKOU INTERCHANGE
F.A.I. Proj. No. I-H3-1(24):11

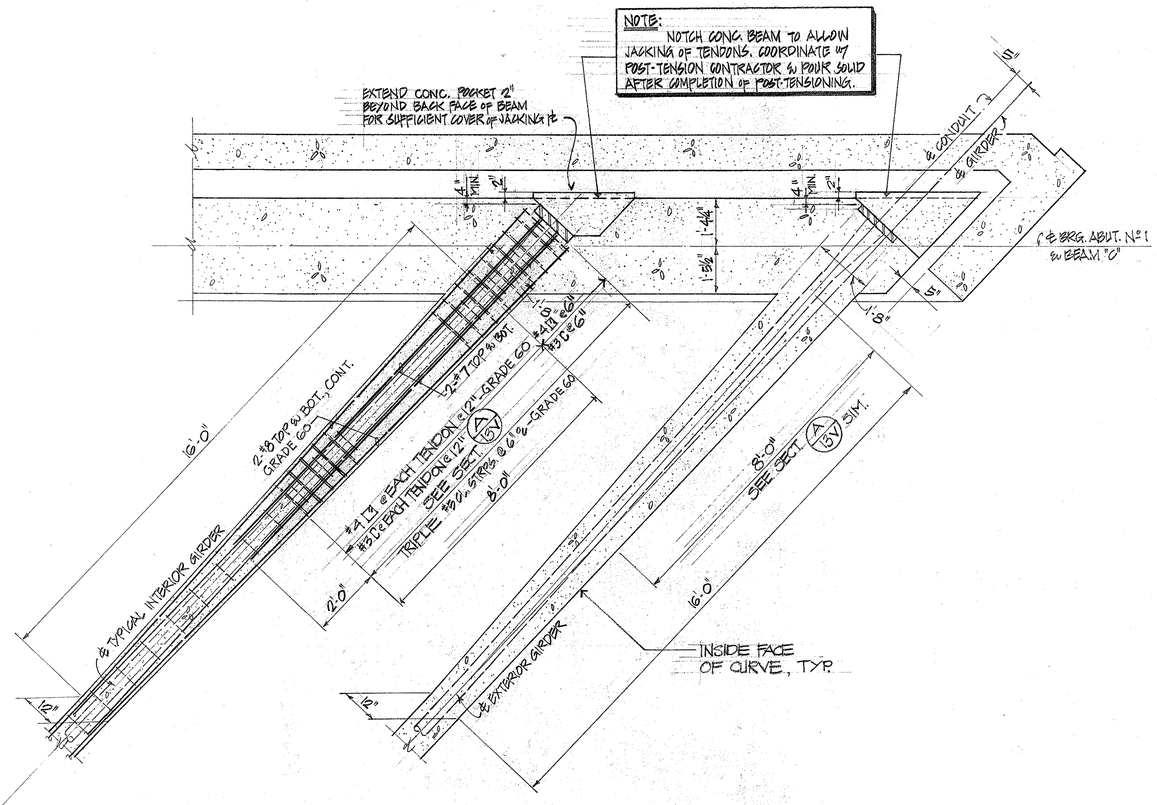
Scale: As Noted Date: SEPT. 1982

SHEET No. 12V OF 20 SHEETS

213

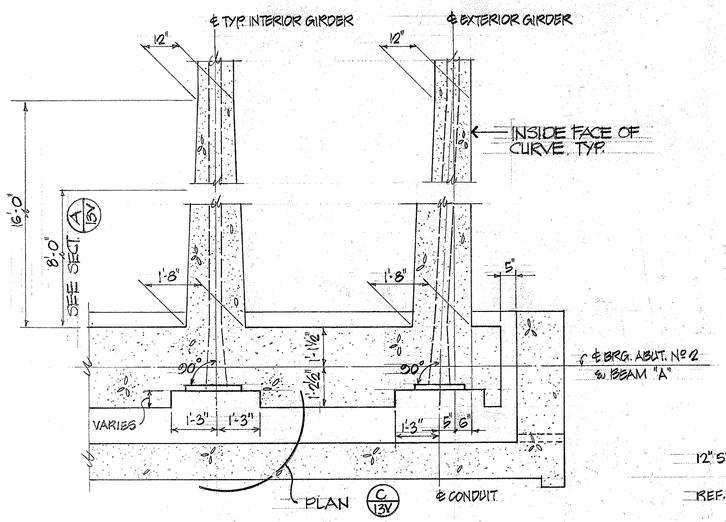
PRINTED ON NO. 1000H CLEARPRINT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-H3-1(24):11	1983	214	328



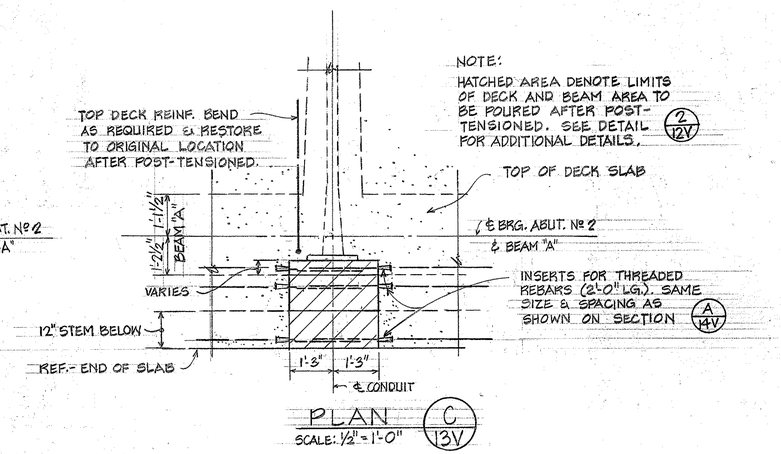
PLAN - DETAIL OF GIRDER @ ABUTMENT Nº 1

SCALE: 1/2" = 1'-0" — 1 / 13V



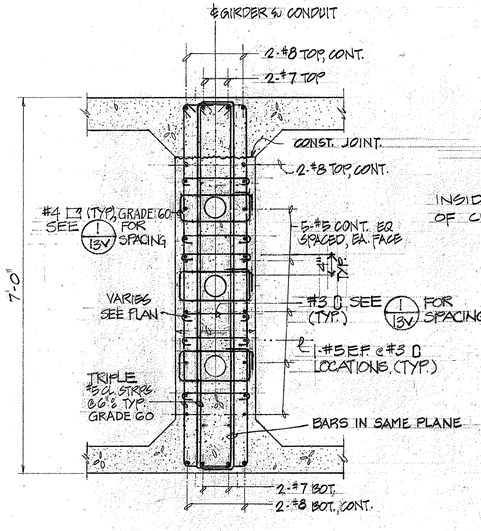
PLAN - DETAIL OF GIRDER @ ABUTMENT Nº 2

SCALE: 1/2" = 1'-0" — 2 / 13V



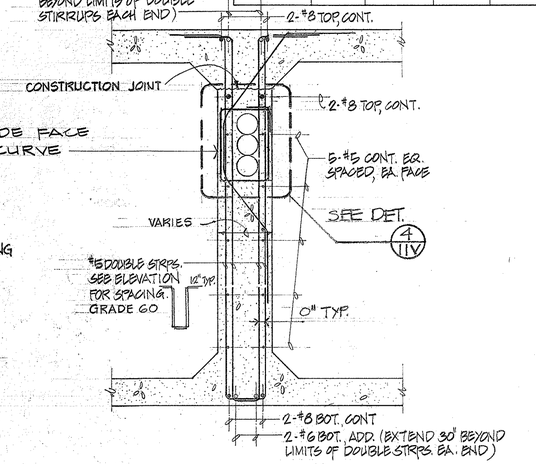
PLAN - DETAIL OF GIRDER @ ABUTMENT Nº 2

SCALE: 1/2" = 1'-0" — 2 / 13V



SECTION A

SCALE: 3/4" = 1'-0" — A / 13V



TYPICAL DOUBLE STIRRUP SECTION

SCALE: 3/4" = 1'-0" — B / 13V

"POST-TENSIONED GIRDER NOTES"

1. THE TOTAL WORKING FORCE SHALL BE:

INTERIOR GIRDER -	SPAN 1	.5L	= 1960 KIPS
		& BENT	= 1760 "
	SPAN 2	.5L	= 1960 "
EXTERIOR GIRDER -	SPAN 1	.5L	= 1635 "
		& BENT	= 1505 "
	SPAN 2	.5L	= 1635 "

} LONG TERM LOSSES EXCLUDING FRICTION ASSUMED TO BE 33,000 PSI.

2. THE STRESS IN THE PRESTRESSING STEEL AFTER SEATING OF THE ANCHOR SHALL NOT AT ANY LOCATION EXCEED .7 f'_s.
3. STRANDS SHALL BE 1/2" DIA. 270^K CONFORMING TO ASTM A-416
4. TENDONS SHALL BE ALTERNATELY JACKED FROM BOTH ENDS OF THE BRIDGE.
5. THE CONTRACTOR SHALL SUBMIT FOR APPROVAL WORKING FORCE, ELONGATION & JACKING COMPUTATIONS BASED ON VERIFIED FRICTION & SEATING LOSSES. DESIGN SHALL BE IN ACCORDANCE WITH AASHTO STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES.
6. THE MIN. COMPRESSIVE STRESS IN CONCRETE @ PRESTRESSING SHALL BE 4500 P.S.I. THE MIN. 28 DAY COMPRESSIVE STRESS SHALL BE 5000 PSI.
7. THE CONTRACTOR SHALL JACK THE TENDONS IN SUCH A MANNER THAT NO MORE THAN A DIFFERENTIAL OF 1/3 OF THE JACKING FORCE EXISTS BETWEEN TWO WEBS & THAT AT NO TIME DURING STRESSING SHALL A FORCE OF 1/6 THE TOTAL JACKING FORCE BE APPLIED ECCENTRICALLY ABOUT THE LONGITUDINAL CENTERLINE OF THE ROADWAY.
8. DUCTS SHALL NOT BE LARGER THAN 4½" O.D. AND SHALL BE AGAINST THE GIRDER STIRRUPS WHICH IS PLACED ON THE OUTSIDE FACE OF CURVE AS SHOWN.
9. BAR REINFORCING INTERFERING WITH TENDON ALIGNMENT SHALL BE ADJUSTED AS APPROVED 13V THE ENGINEER.
10. CONDUIT SIZE, END PLATE ARRANGEMENT & GIRDER FLARE AT ABUTMENT MAY BE REVISED BY CONTRACTOR TO ACCOMODATE A PARTICULAR POST-TENSIONING SYSTEM, CONTR. SHALL SUBMIT ANY REVISIONS FOR APPROVAL.
11. VERTICAL & HORIZONTAL CURVE PLUS TENDON OFFSET SHALL BE ACCOUNTED FOR IN FRICTION CALCULATIONS.

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TYPICAL GIRDER DETAILS
BRIDGE Nº 3

HALEKOU INTERCHANGE
F.A.I. Proj. No. I-H3-1(24):11

Scale: As Noted — Date: SEPT. 1982

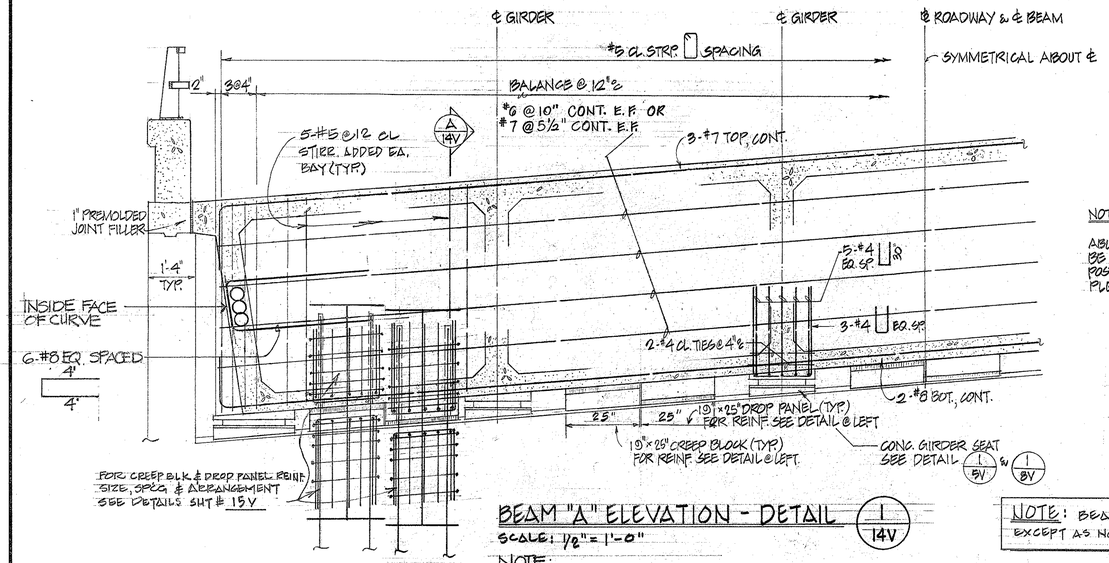
SHEET No. 13V OF 20 SHEETS

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

PRINTED ON NO. 1000H CLEARPRINT

214

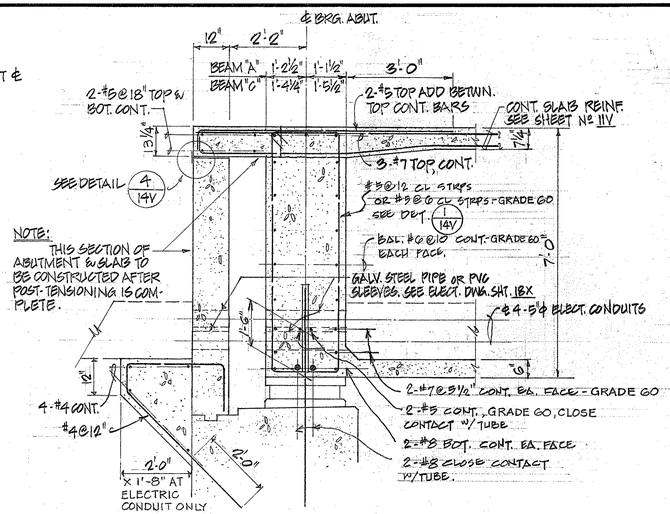
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-H3-1(24):11	1983	215	328



BEAM "A" ELEVATION - DETAIL (1/14V)

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

NOTE:
BEAM "C" SIM.

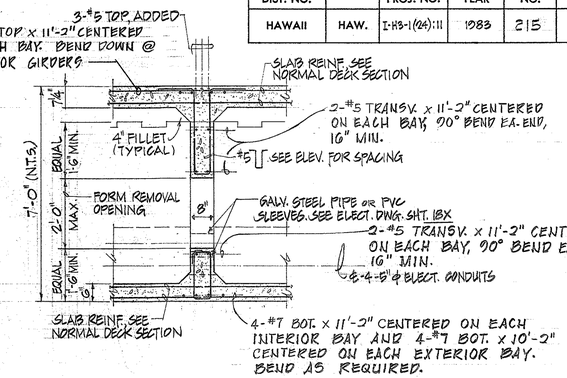


NOTE: BEAM "C" SIMILAR EXCEPT AS NOTED.

BEAM "A" - TYPICAL SECTION (A/14V)

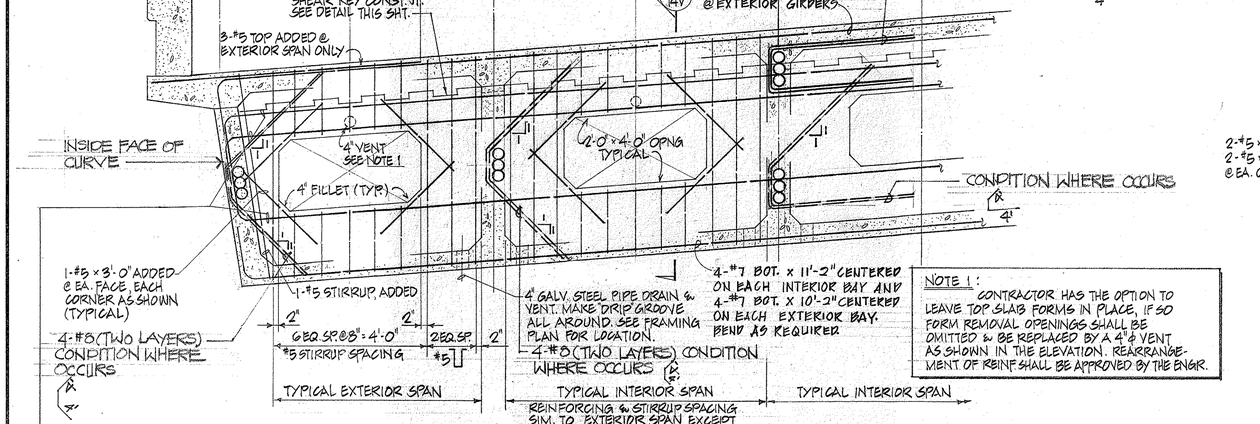
SCALE: 1/2" = 1'-0"

NOTE:
BEAM "C" SIM.



BEAM "B" - TYPICAL SECTION (B/14V)

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

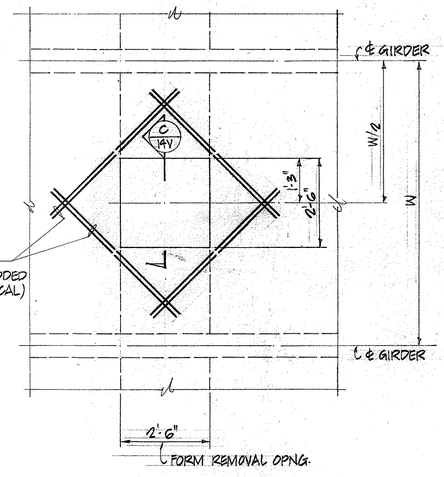


NOTE 1:
CONTRACTOR HAS THE OPTION TO LEAVE TOP SLAB FORMS IN PLACE. IF SO FORM REMOVAL OPENINGS SHALL BE OMITTED & BE REPLACED BY A 4" ℄ VENT AS SHOWN IN THE ELEVATION. REARRANGEMENT OF REINF SHALL BE APPROVED BY THE ENGR.

NOTE: SEE BOX GIRDER STANDARD FOR DETAILS NOT SHOWN.

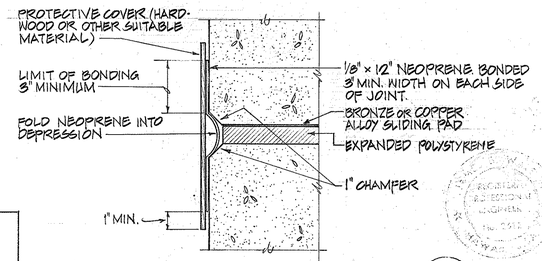
BEAM "B" ELEVATION - DETAIL (2/14V)

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



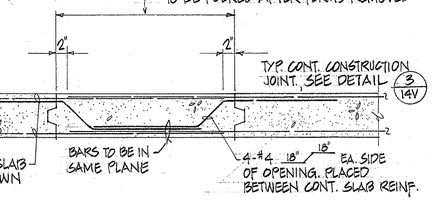
PLAN - FORM REMOVAL OPNG. IN TOP SLAB

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



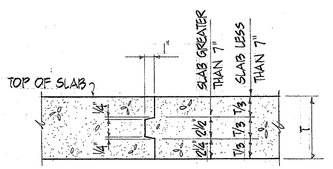
STRIP WATERSTOP DETAIL (4/14V)

SCALE: 3" = 1'-0"



SECTION (C/14V)

SCALE: 1" = 1'-0"



TYPICAL CONSTRUCTION JOINT DETAIL (3/14V)

SCALE: 1½" = 1'-0"

DATE	REVISION
12/22/82	Revised reinf. steel in Details 1/14V 2/14V A/14V & B/14V per Addendum No. 1.

APPROVED:

HAWAIIAN ELECTRIC CO., INC. DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

BEAM "A" & "B" ELEVATION & DETAILS
BRIDGE № 3

HALEKOU INTERCHANGE
F.A.I. Proj. No. I-H3-1(24):11

Scale: As Noted Date: SEPT. 1982

SHEET No. 14V OF ~~20~~ SHEETS

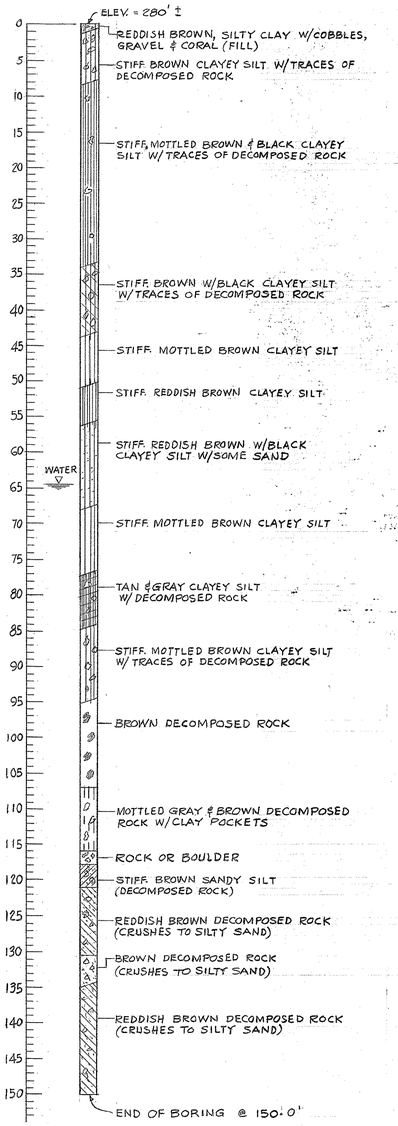
ORIGINAL PLAN		DATE
	SURVEY PLOTTED BY	
	DRAWN BY	
	TRACED BY	
NOTE BOOK	DESIGNED BY	
	QUANTITIES BY	
No.	CHECKED BY	

PRINTED ON NO. 1000H CLEARPRINT

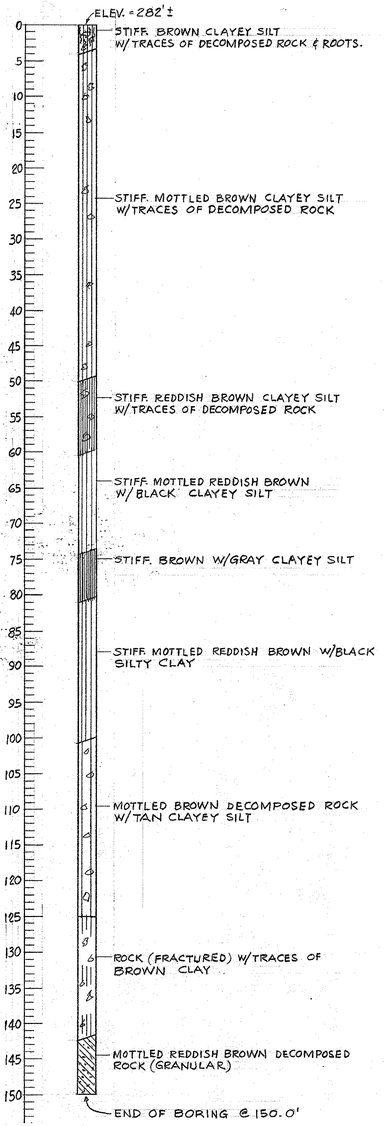
215R

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-H3-1(24):11	1983	216	328

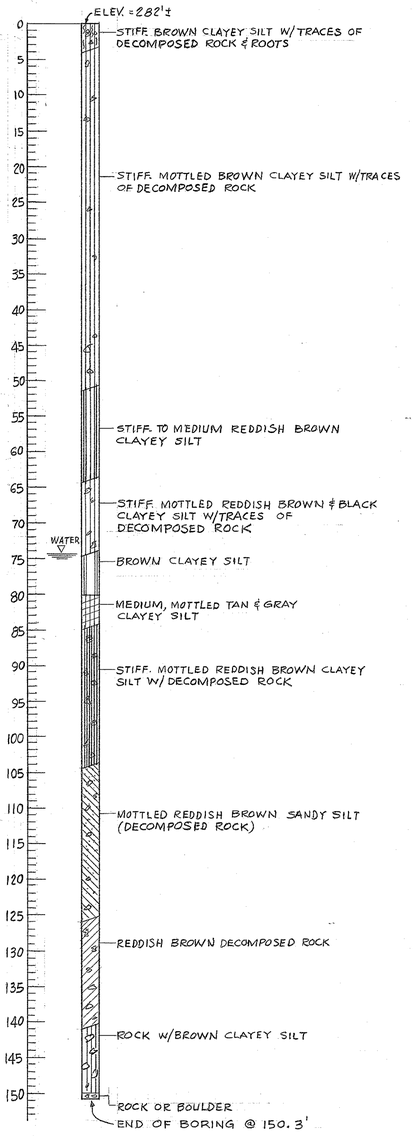
BORING Nº 1



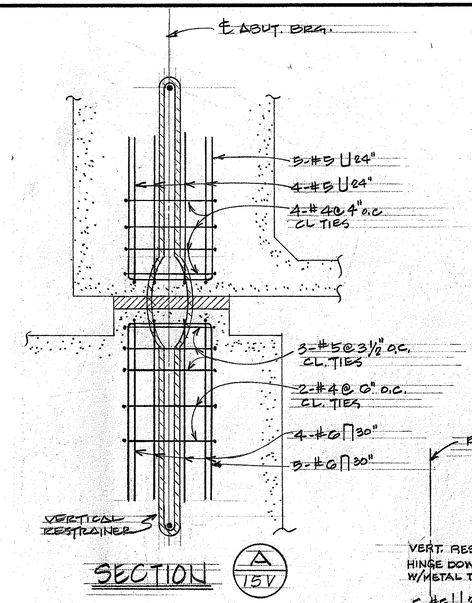
BORING Nº 2



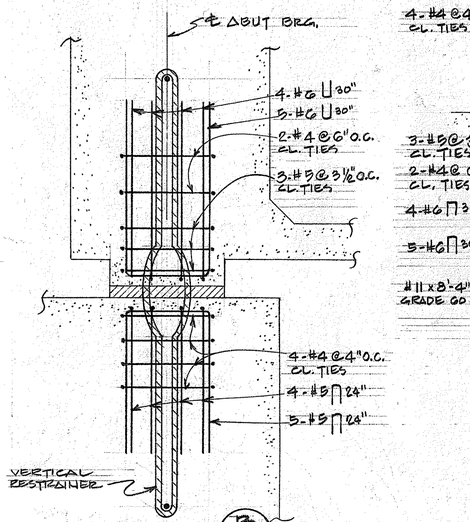
BORING Nº 3

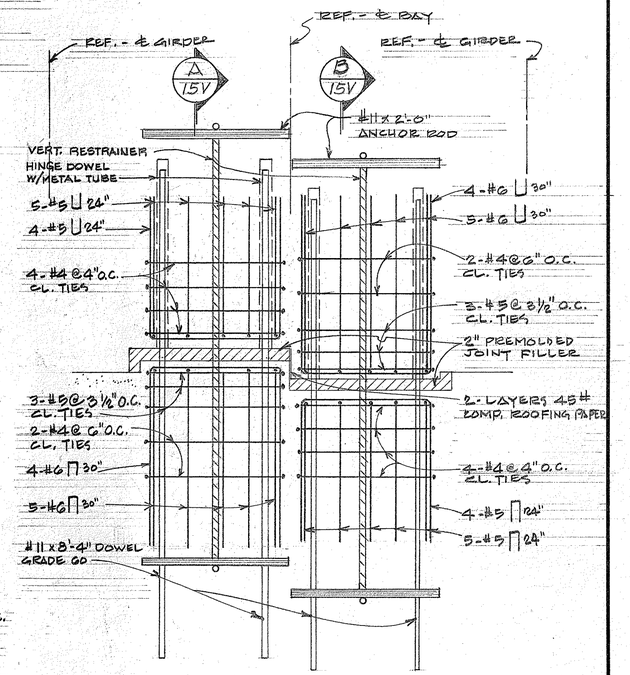


NOTE!
COMPLETE SOIL REPORT AVAILABLE AT STATE OF HAWAII DOT MATERIALS TESTING OFFICE.



NOTE:
FOR VERTICAL RESTRAINER AND HINGE DOWEL W/METAL TUBE DETAILS, SEE SHT. TD1.





CREEP BLOCK REINFORCING DETAIL AT BEAM "A" & "C"

SCALE: 1" = 1'-0"

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

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

BORING LOG
BRIDGE Nº 3

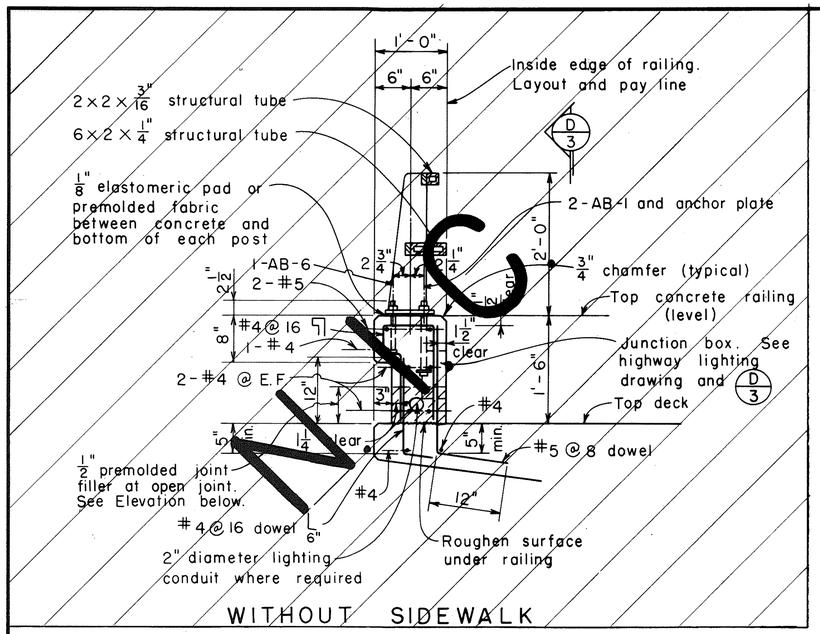
HALEKOU INTERCHANGE
F.A.I. Proj. No. I-H3-1(24):11

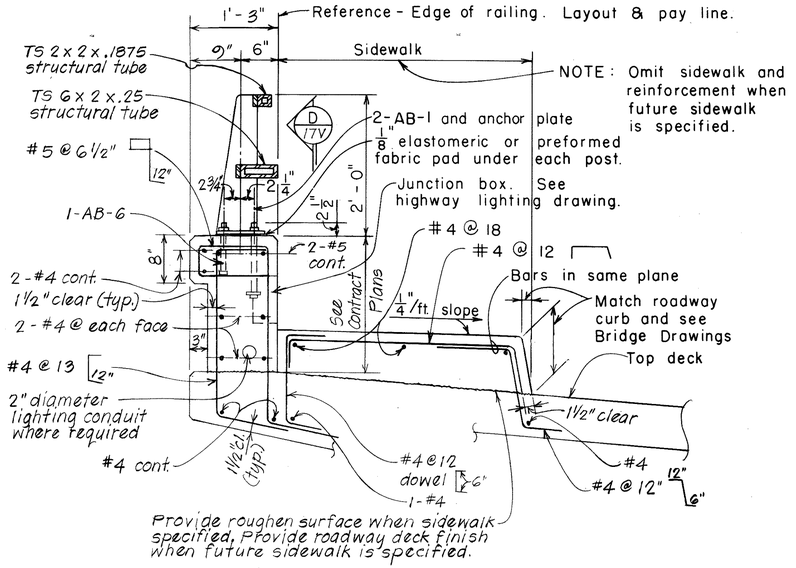
Scale: As Noted | Date: SEPT. 1982

SHEET No. 15V OF 20 SHEETS

216

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-H3-1(24):11	1983	217	328



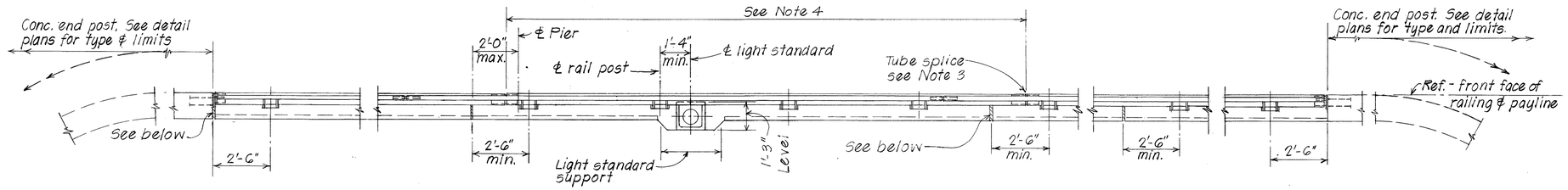


TYPICAL SECTION

Scale: 1" = 1'-0"

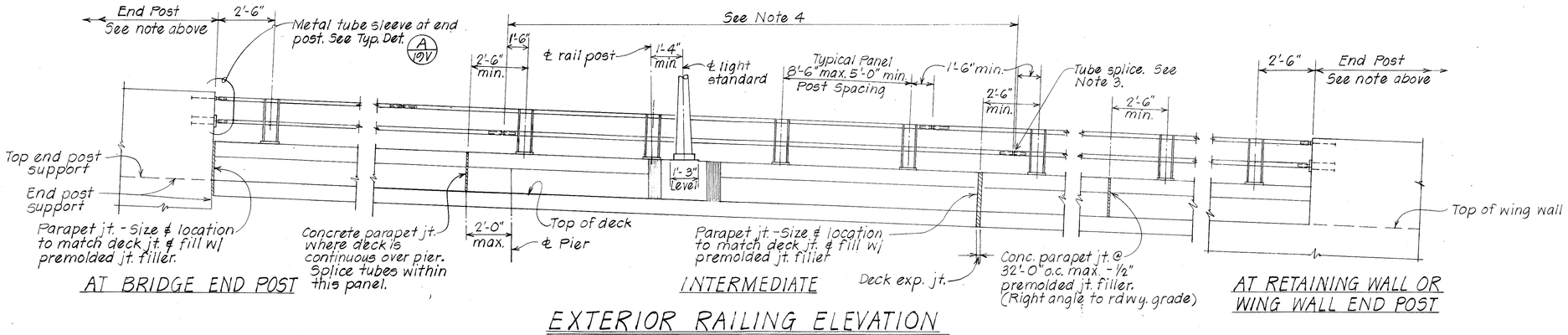
NOTES

1. Tubing shall be shop bent to fit horizontal curve when radius is less than 950 ft.
2. Post shall be normal to grade.
3. All tubes shall be spliced in the panel spanning deck expansion joints. Increase joint width between tube to 1 1/2" and increase sleeve length by 1". (See Tube Splice Det.)
4. Tubing shall be continuous over not less than 3 posts except as noted on plans.
5. All exposed corner of metal railing shall be ground smooth.
6. Rail assemblage shall be galvanized after fabrication.
7. All anchor bolts, bolts, nuts, plates and washers shall be galvanized.
8. Welding shall meet the requirement of Section 501 of the Standard Specification.
9. Material shall conform to the following requirements:
   a. Tubular steel rails ASTM A500 Grade B.
   b. Steel posts ASTM A36.
   c. Sleeves for tubular rails ASTM A36.
   d. Stud bolts ASTM A108 Grades 1015 to 1020.
   e. Anchor bolts, bolts, nuts and washers ASTM A325.
   f. Shims commercial quality galvanized steel.
   g. Sleeve bolts and nuts ASTM A108 Grades 1015 to 1020.



RAILING PLAN

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



EXTERIOR RAILING ELEVATION

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

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

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

STEEL BRIDGE RAILING (TUBULAR)
TWO RAIL COMBINATION TYPE ON PARAPET

BRIDGE NO. 3
HALEKOU INTERCHANGE
F.A.I. Proj. No. I-H3-1(24):11

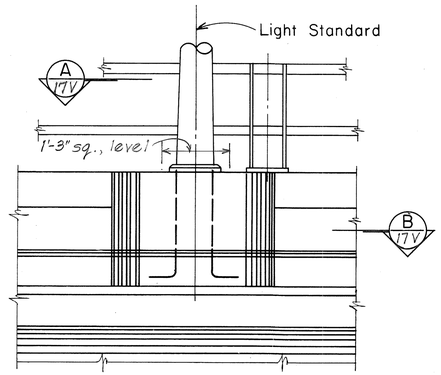
Scale: As Noted Date: Sept. 1982

SHEET No. 16 V OF 20 SHEETS

217

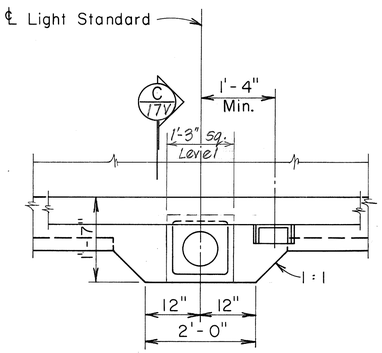
K+E IMPERIAL™ TRACING CLOTH LA 3207

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-H3-1(24):11	1983	218	328



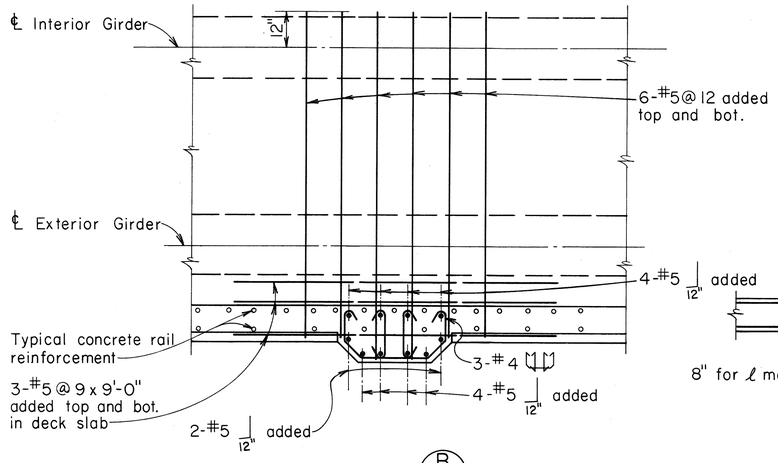
EXTERIOR ELEVATION

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



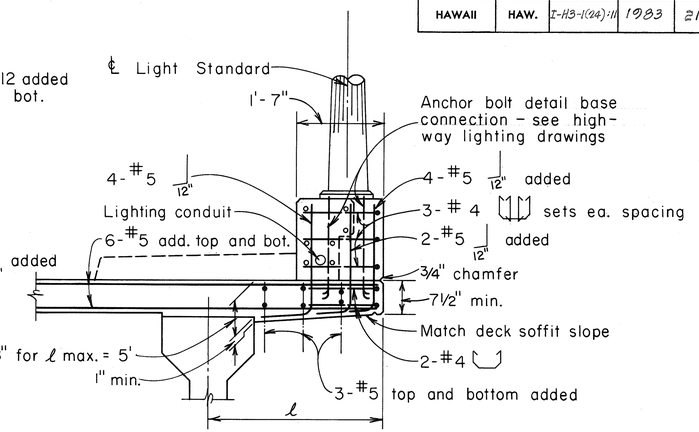
PLAN (A 17V)

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



SECTION (B 17V)

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

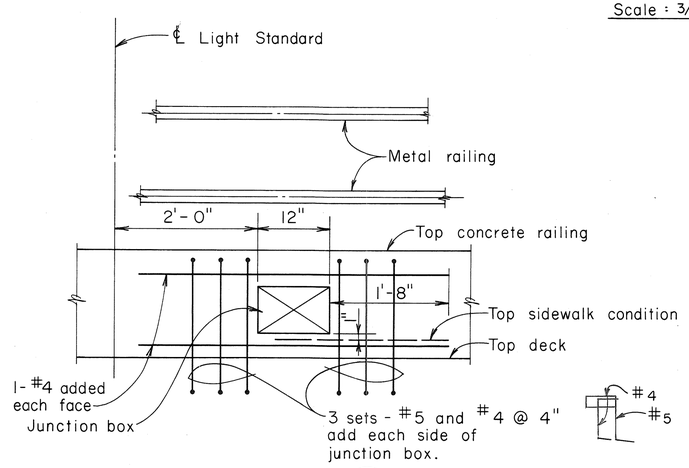


SECTION (C 17V)

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

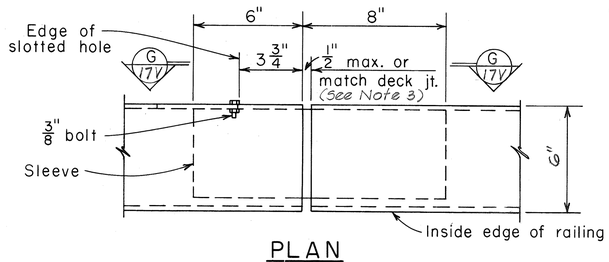
DETAILS AT LIGHT STANDARD

Scale : As Noted

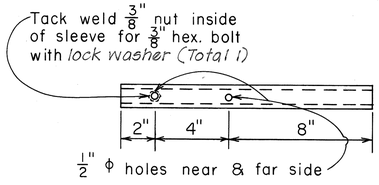


ELEVATION (D 17V) ADDED REINFORCEMENT AT JUNCTION BOX

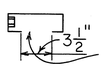
Scale : 1" = 1'-0"



PLAN

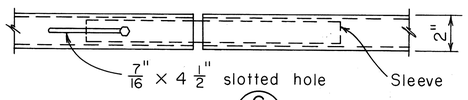


Sleeve formed of 3/16" ℄, bent thus : for sliding fit inside of rail tube.

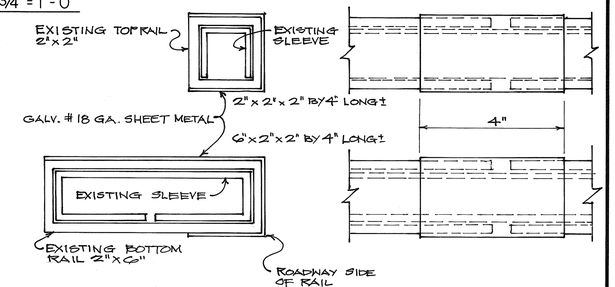


Locate opening of bottom surface of tubing.

SLEEVE



VIEW (G 17V)



NOTE: #18 GA. SHEET METAL COVER
1. GALVANIZED AFTER FABRICATION.
2. TO BE ATTACHED TO ONE END OF RAIL ONLY WITH EPOXY. (ALLOWS FOR EXPANSION/CONTRACTION OF RAIL ELEMENTS)

TUBULAR STEEL BRIDGE RAILING CORRECTION DETAIL @ RAIL JOINT SPLICE

FM # 3-86

6x2 TUBE SPLICE DETAILS

Scale : 3"=1'-0"

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

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

STEEL BRIDGE RAILING (TUBULAR)
TWO RAIL COMBINATION TYPE ON PARAPET
BRIDGE NO. 3
HALEKOU INTERCHANGE
F.A.I. Proj. No. I-H3-1(24):11

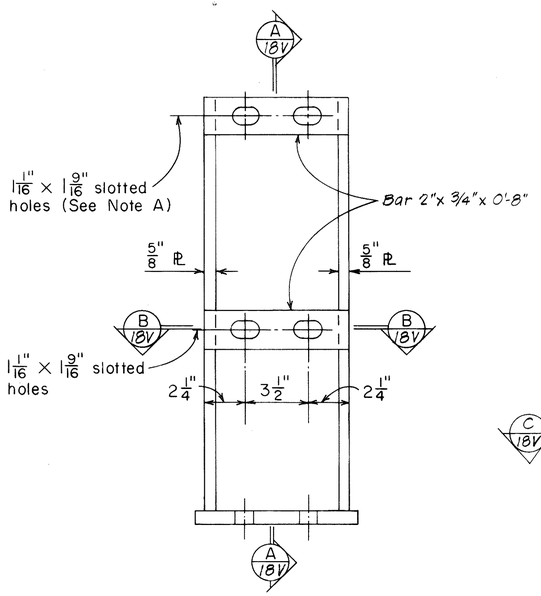
Scale : As Noted Date : Sept. 1982

SHEET No. 17V OF 20 SHEETS

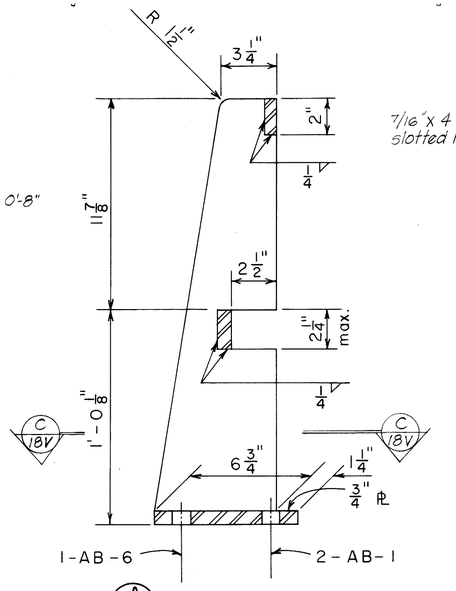
"AS-BUILT"

218

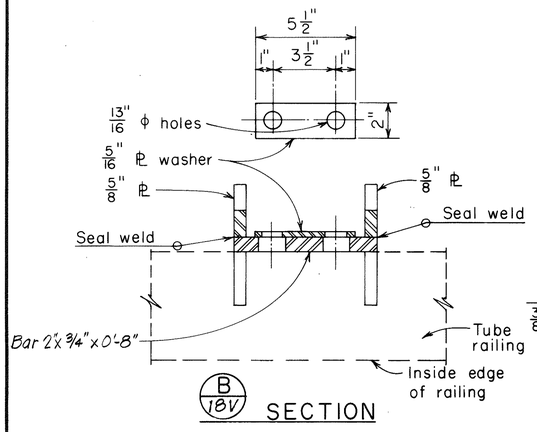
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-H3-1(24):11	1983	219	328



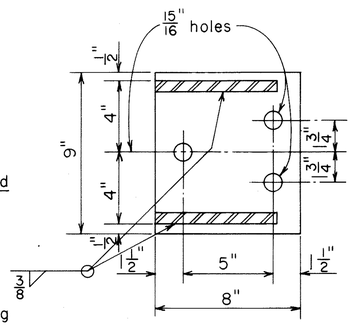
ELEVATION



SECTION



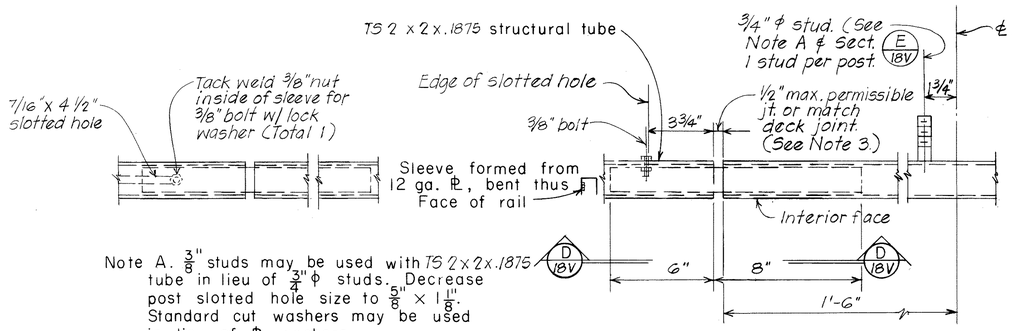
SECTION



SECTION

RAIL POST DETAILS

Scale: 3" = 1'-0"



Note A. 3/4" studs may be used with TS 2 x 2 x .1875 tube in lieu of 3/4" ϕ studs. Decrease post slotted hole size to 5/8" x 1 1/8". Standard cut washers may be used in lieu of ℙ washers.

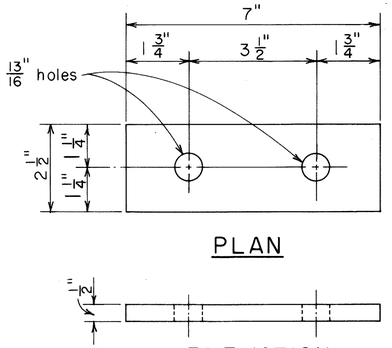
D 18V

VIEW

PLAN

2 x 2 TUBE SPLICE DETAILS

Scale: 3"=1'-0"

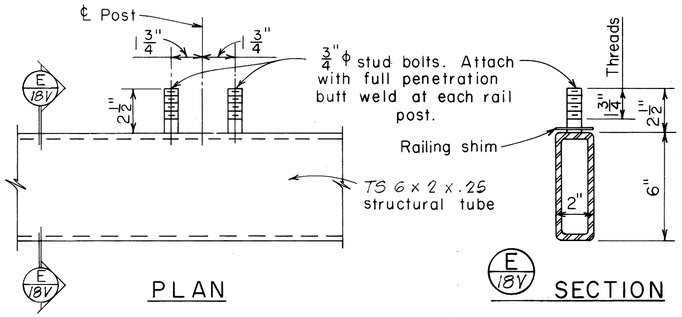


PLAN

ELEVATION

TYPICAL ANCHOR ℙ DETAIL

Scale: 6" = 1'-0"



PLAN

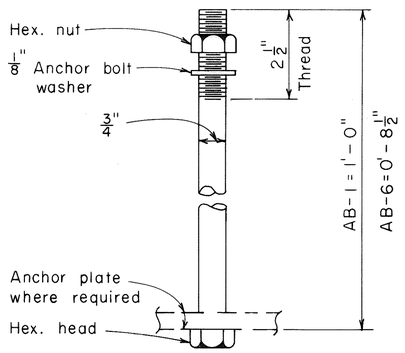
E 18V SECTION

6 x 2 TUBE RAIL DETAILS (2 x 2 TUBE RAIL SIMILAR)

Scale: 3"= 1'-0"

RAILING SHIM DETAIL

Scale: 3" = 1'-0"



TYPICAL ANCHOR BOLT (AB) ASSEMBLY

Scale: 6"= 1'-0"

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

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

STEEL BRIDGE RAILING (TUBULAR)
TWO RAIL COMBINATION TYPE ON PARAPET

BRIDGE NO. 3
HALEKOU INTERCHANGE
F.A.I. Proj. No. I-H3-1(24):11

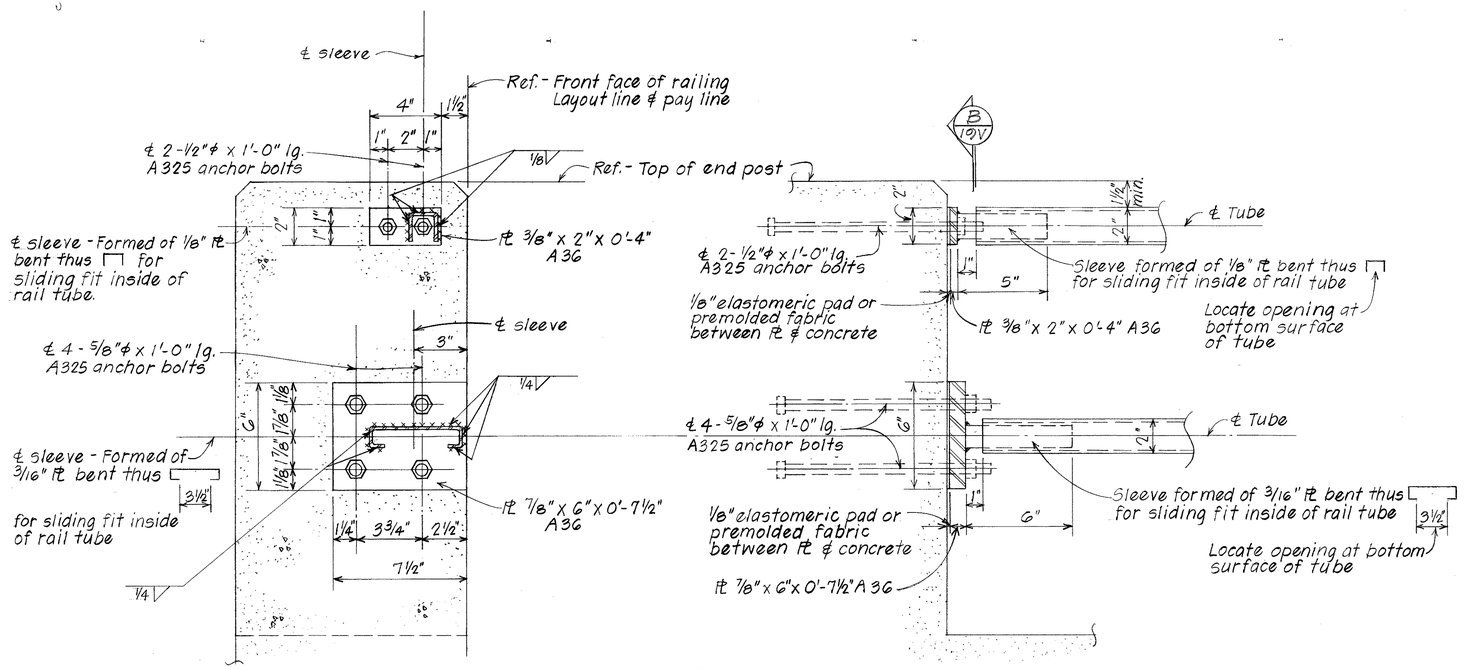
Scale: As Noted Date: Sept. 1982

SHEET No. 18V OF 20 SHEETS

219

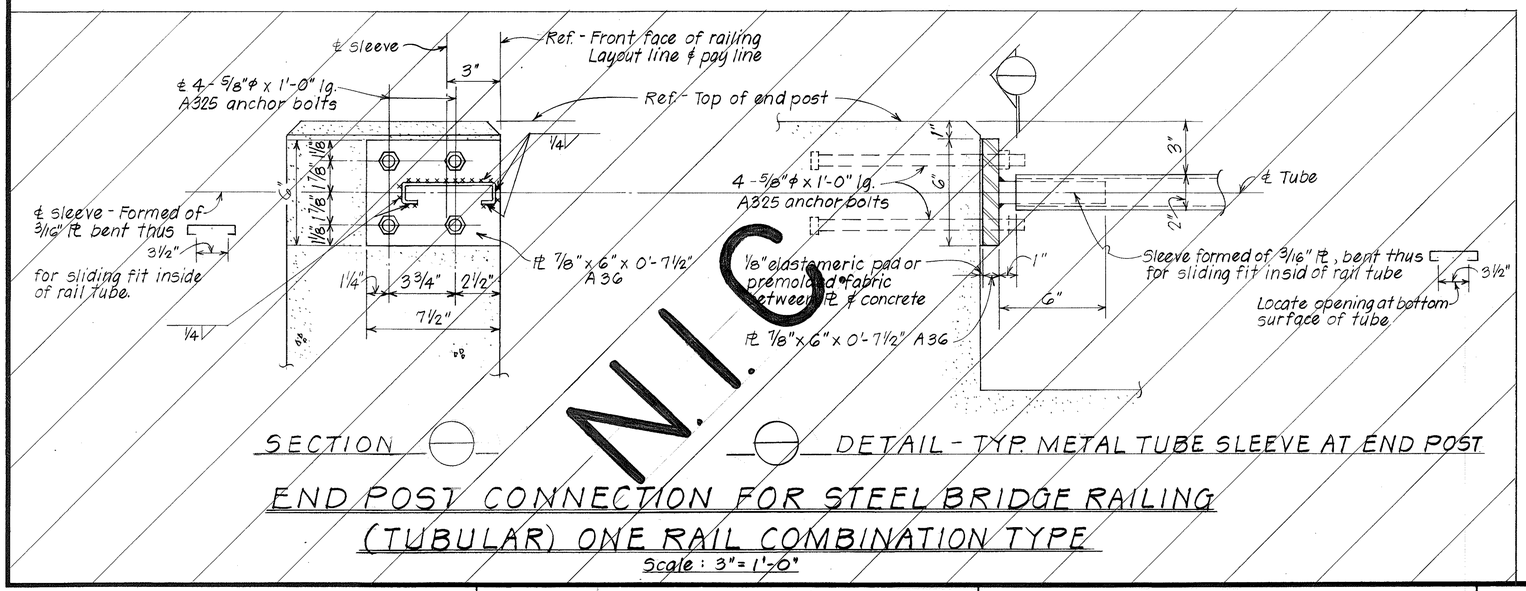
K&E IMPERIAL™ LA 3207

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-H3-1(24):11	1963	220	328



END POST CONNECTION FOR STEEL BRIDGE RAILING (TUBULAR) TWO RAIL COMBINATION TYPE

Scale : 3" = 1'-0"



SECTION ⊖ ⊖ DETAIL - TYP. METAL TUBE SLEEVE AT END POST

END POST CONNECTION FOR STEEL BRIDGE RAILING (TUBULAR) ONE RAIL COMBINATION TYPE

Scale : 3" = 1'-0"

ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
	DRAWN BY	"
	TRACED BY	"
NOTE BOOK	DESIGNED BY	"
	QUANTITIES BY	"
No.	CHECKED BY	"

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
LAND TRANSPORTATION FACILITIES DIVISION

STEEL BRIDGE RAILING (TUBULAR)
TWO RAIL COMBINATION TYPE ON PARAPET

BRIDGE NO. 3
HALEKOU INTERCHANGE
F.A.I. Proj. No. I-H3-1(24):11

Scale : As noted Date : Sept. 1982

SHEET No. 19V OF 20 SHEETS

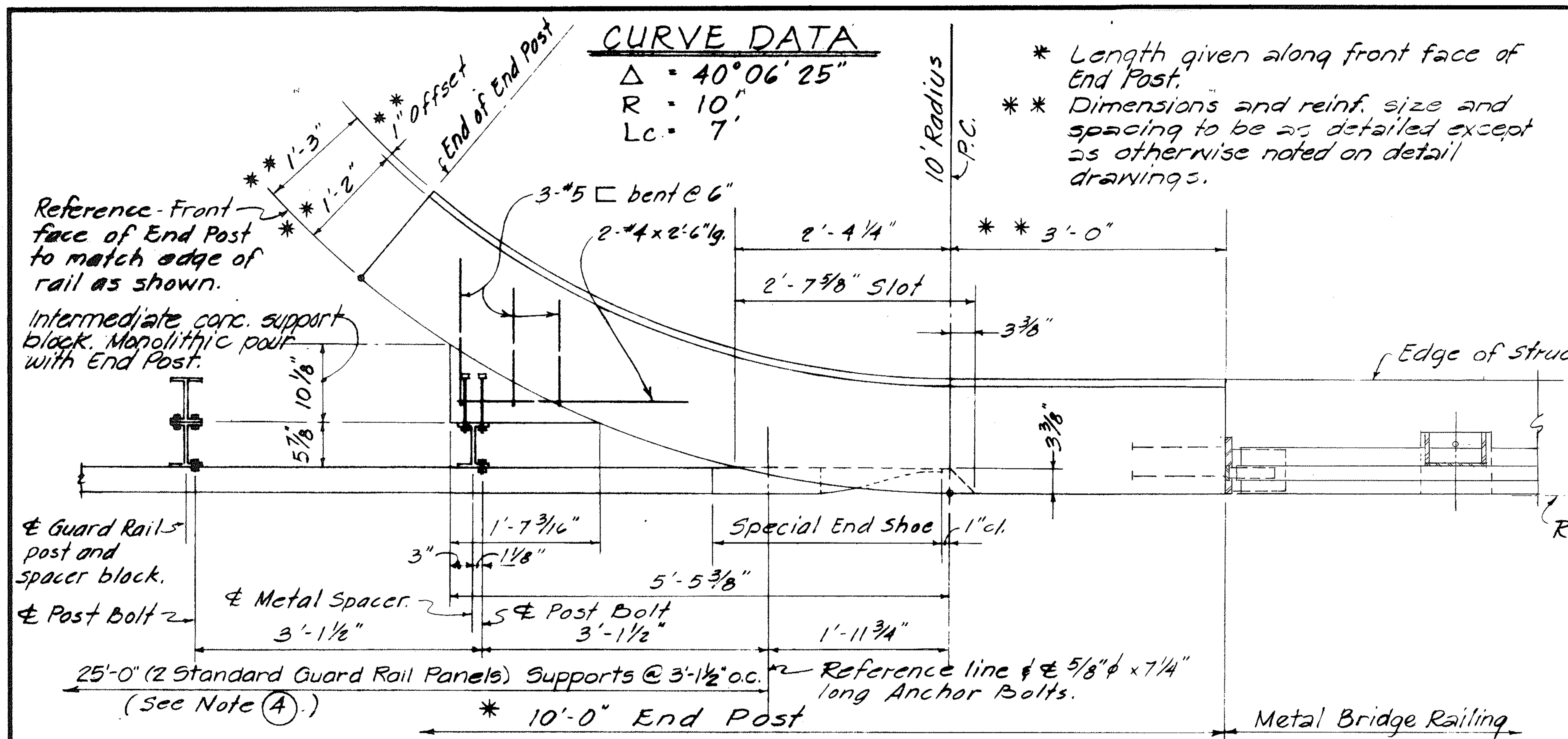
220

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-H3-1(24):11	1983	221	328

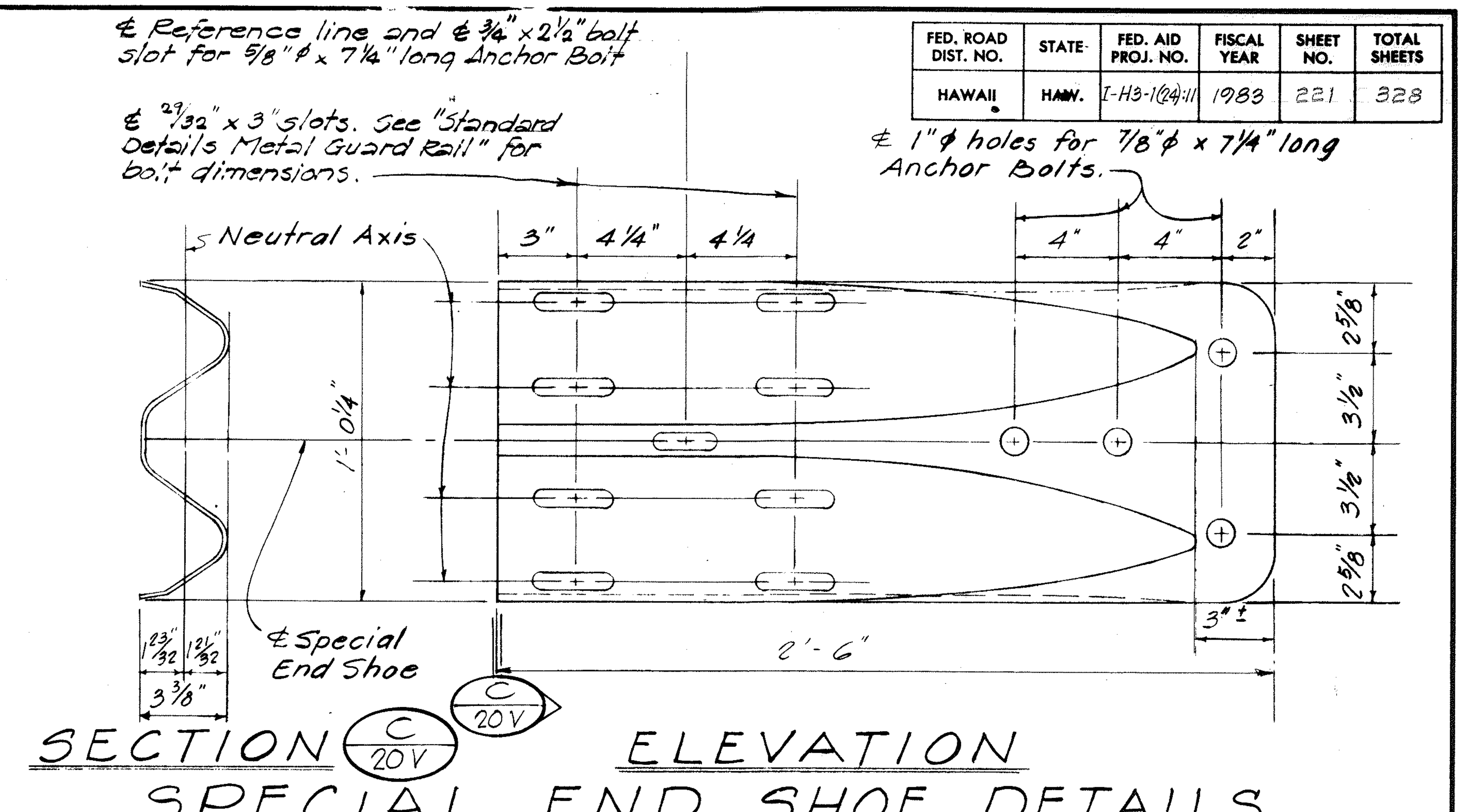
CURVE DATA

Δ = 40°06'25"
R = 10'
Lc = 7'

* Length given along front face of End Post.
** Dimensions and reinf. size and spacing to be as detailed except as otherwise noted on detail drawings.



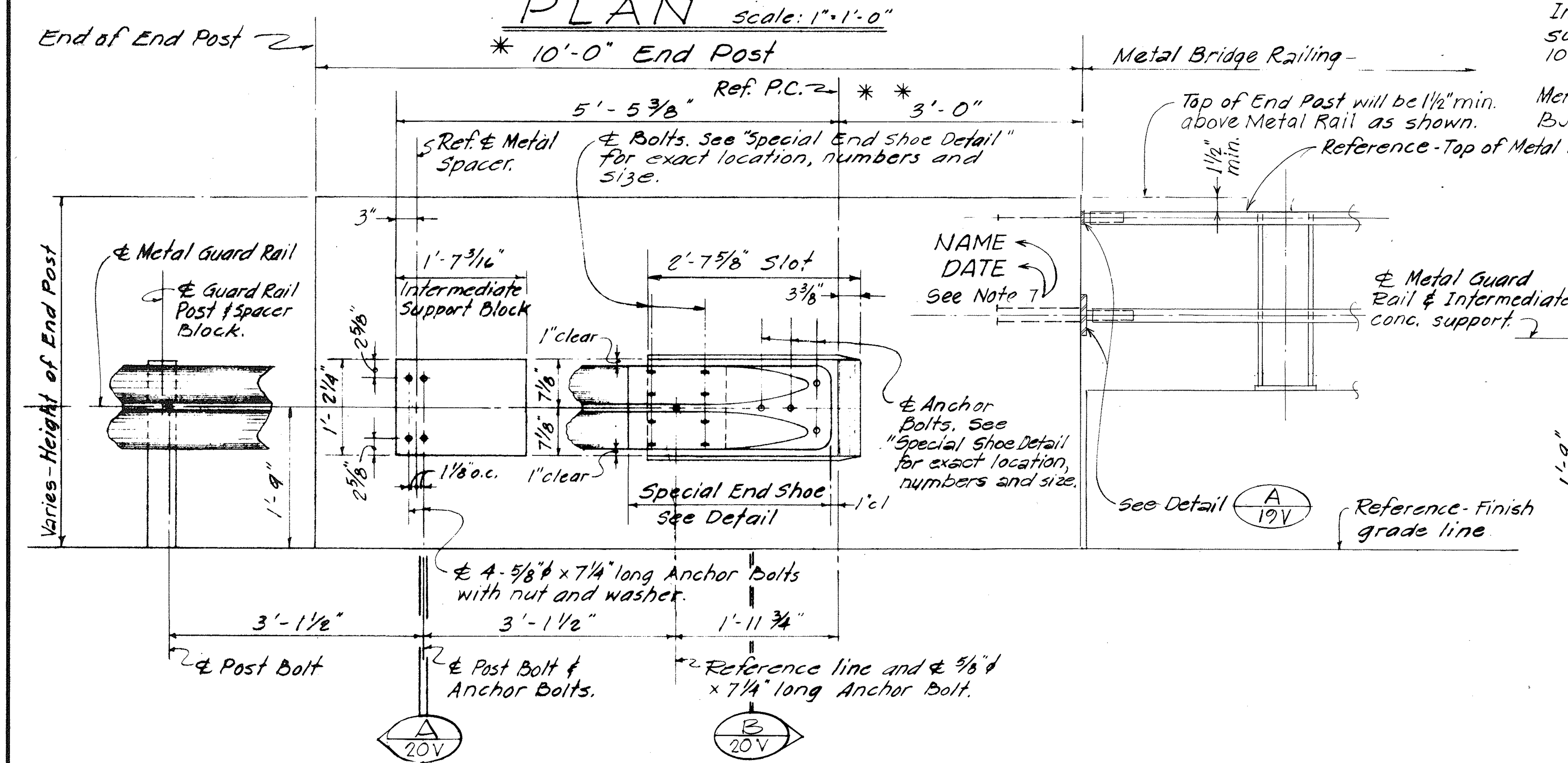
PLAN Scale: 1" = 1'-0"



SECTION C/20V ELEVATION

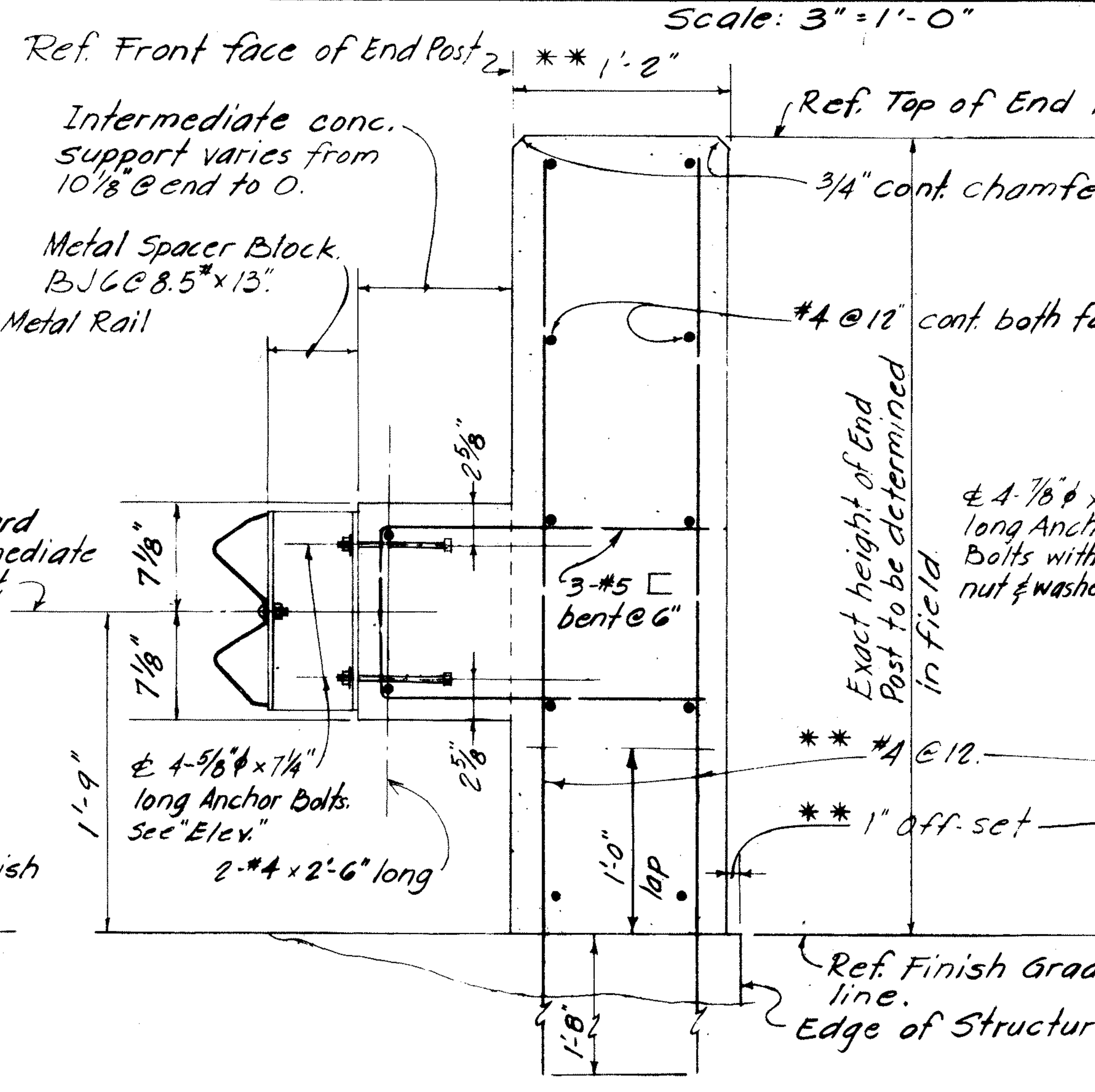
SPECIAL END SHOE DETAILS

Scale: 3" = 1'-0"

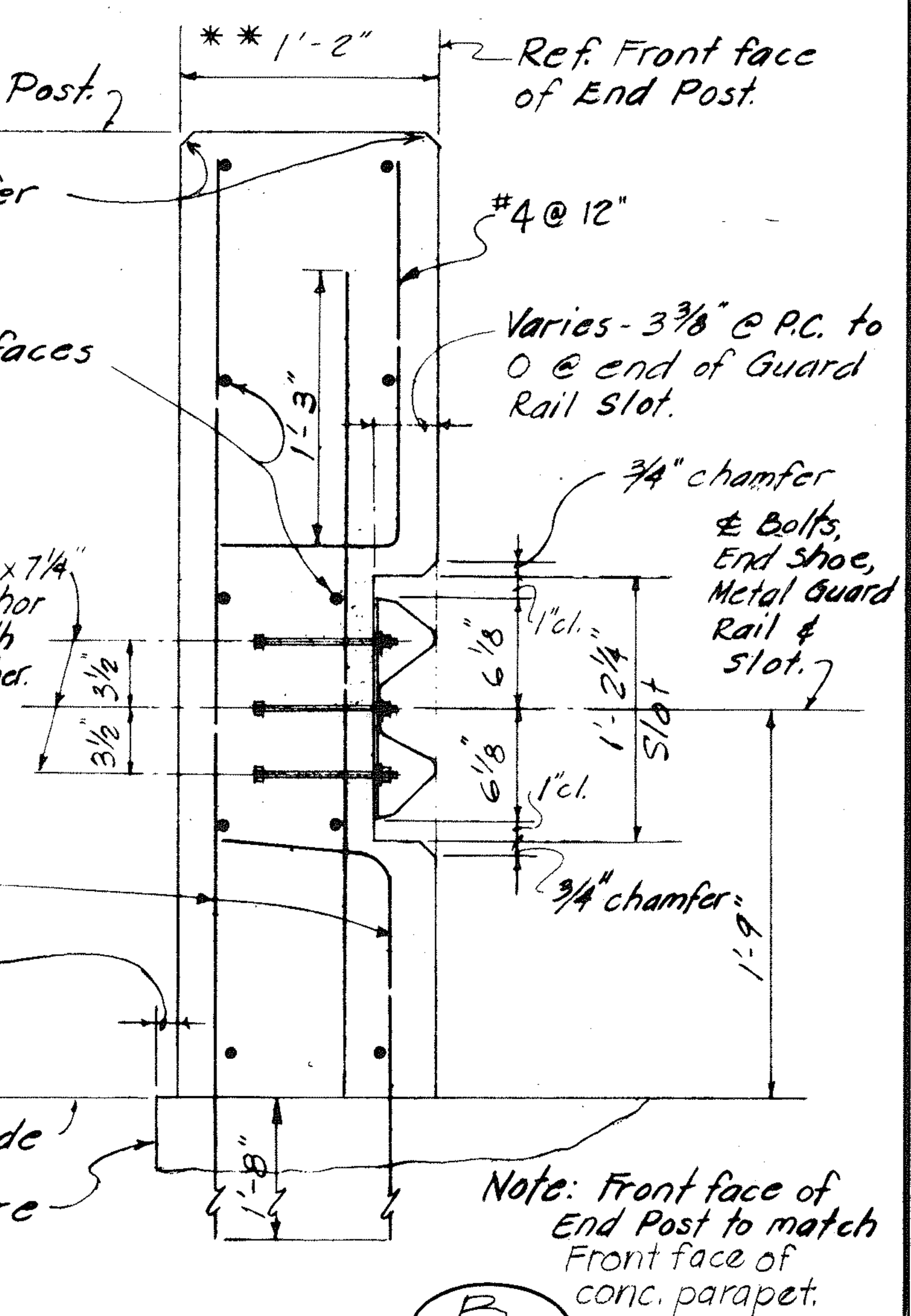


ELEVATION

Scale: 1" = 1'-0"



SECTION A/20V Scale: 1 1/2" = 1'-0"



SECTION B/20V Scale: 1 1/2" = 1'-0"

NOTES:

1. All Anchor Bolts shall be High Strength bolts conforming to the requirements of ASTM A-325.
2. All shoe assembly, including anchor bolts, nuts and washers, shall be galvanized.
3. Special End Shoe shall be Fabricated from 10 gage steel conforming to the requirements of AASHO 180.
4. First 25'-0" of guard rail adjoining "Special End Shoe" shall be galvanized steel.
5. Anchor Bolt length given under bolt head.
6. These details are applicable for Connections to Retaining walls also.
7. Place name of structure as shown. For location, see "Plan" on Contract Drawing. Date shown will be year structure is completed. Letter size and detail see standard drawing sht. 51.

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

METAL GUARD RAIL CONNECTION AT VERTICAL FACE TYPE END POST

BRIDGE NO. 3
HALEKOU INTERCHANGE
F.A.I. Proj. No. I-H3-1(24):11

Scale: As shown Date: Sept. 1982

SHEET No. 20V OF 20 SHEETS

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

K+E CRYSTALENE LA 2920