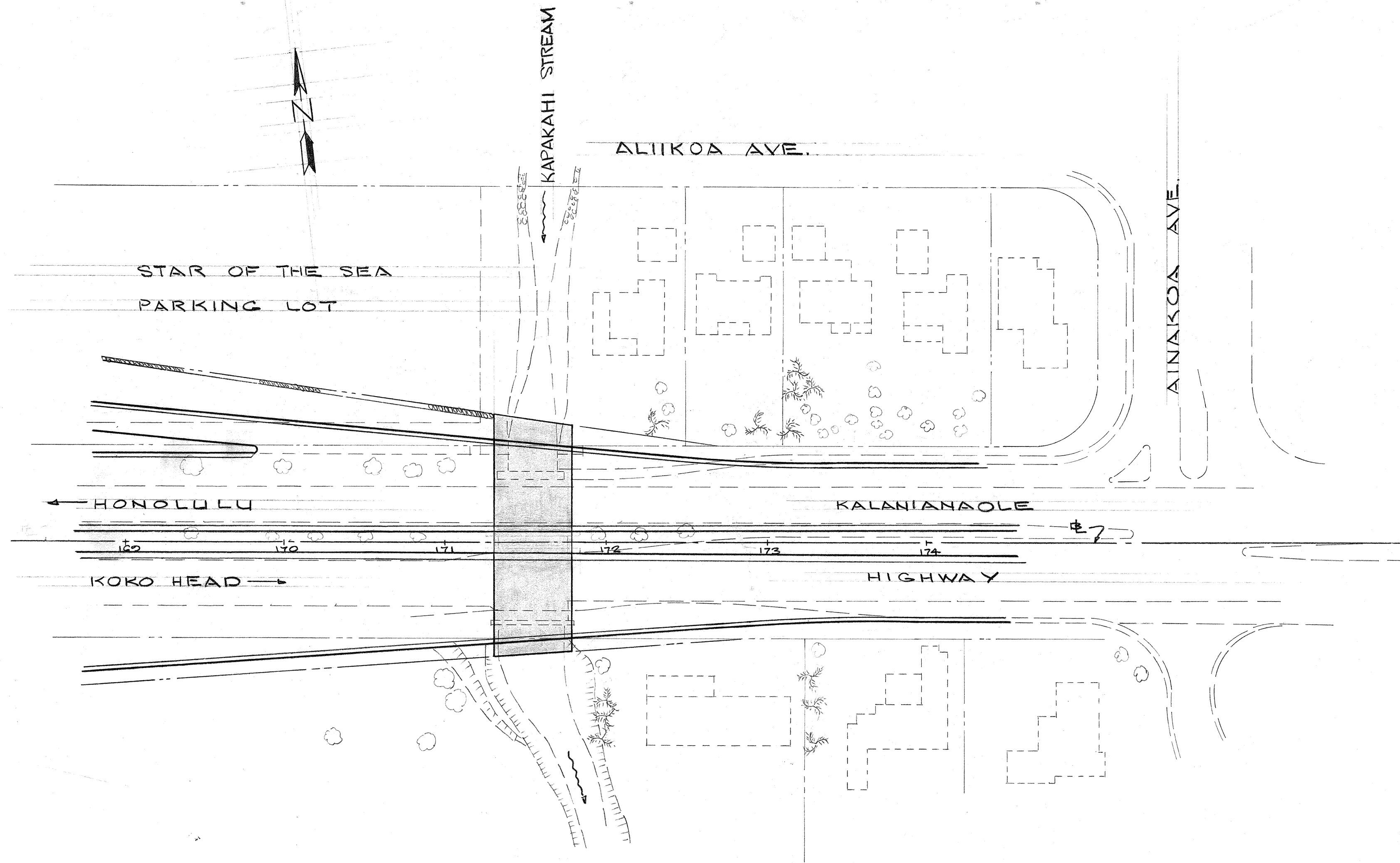




LOCATION PLAN

SCALE: 1" = 50'

ESTIMATED QUANTITY STRUCTURE NO. 23

CLASS A-1 CONCRETE	688 C.Y.
REINFORCING STEEL	96,130 LBS.
STRUCTURAL EXCAVATION	2,402 C.Y.
FILTER MATERIAL	104 C.Y.
PREST. CONCRETE GIRDER	1,130 L.F.
CONCRETE PARAPET	153 L.F.

ESTIMATED QUANTITY CHANNEL IMPROVEMENT

CLASS A-1 CONCRETE	164 C.Y.
REINFORCING STEEL	3,134 LBS.
STRUCTURAL EXCAVATION	29 C.Y.
CHANNEL EXCAVATION	81 C.Y.
CRM	15 C.Y.

GENERAL NOTES

DESIGN DATA:

H & 20-44 LOADING
 $f_s = 20,000$ PSI
 $f_c = 3,000$ PSI
 $n = 10$

MATERIALS:

ALL CONCRETE SHALL BE CLASS A-1 UNLESS OTHERWISE NOTED ON THE PLAN.
 ALL REINFORCING STEEL SHALL BE INTERMEDIATE GRADE.

CONSTRUCTION METHODS:

CURB AND SIDEWALK ON BRIDGE SHALL NOT BE POURED UNTIL AFTER RELEASE OF FALSEWORK.
 ALL SURFACES OF RAILING PARAPETS AND END POSTS ABOVE SIDEWALK, ALL OTHER SURFACES SEEN IN ELEVATION AND ALL EXPOSED SURFACES OF ABUTMENT WALLS AND RETAINING WALLS SHALL BE GIVEN "CLASS 2 SURFACE FINISH".
 FOOTINGS SHALL BE POURED TO NEAT LINES AS SHOWN. IN CASE OF OVER EXCAVATION, SPACE BETWEEN FOOTING LINE AND GROUND SHALL BE FILLED WITH CONCRETE AT THE CONTRACTOR'S EXPENSE. THIS FILL CONCRETE SHALL HAVE A MIN. QUALITY OF CLASS D-1.
 REINFORCING COVER - DECK SLAB $1\frac{1}{4}$ " MINIMUM. ABUTMENT WALLS AND RETAINING WALLS 2" MINIMUM. FOOTINGS 3" MINIMUM.

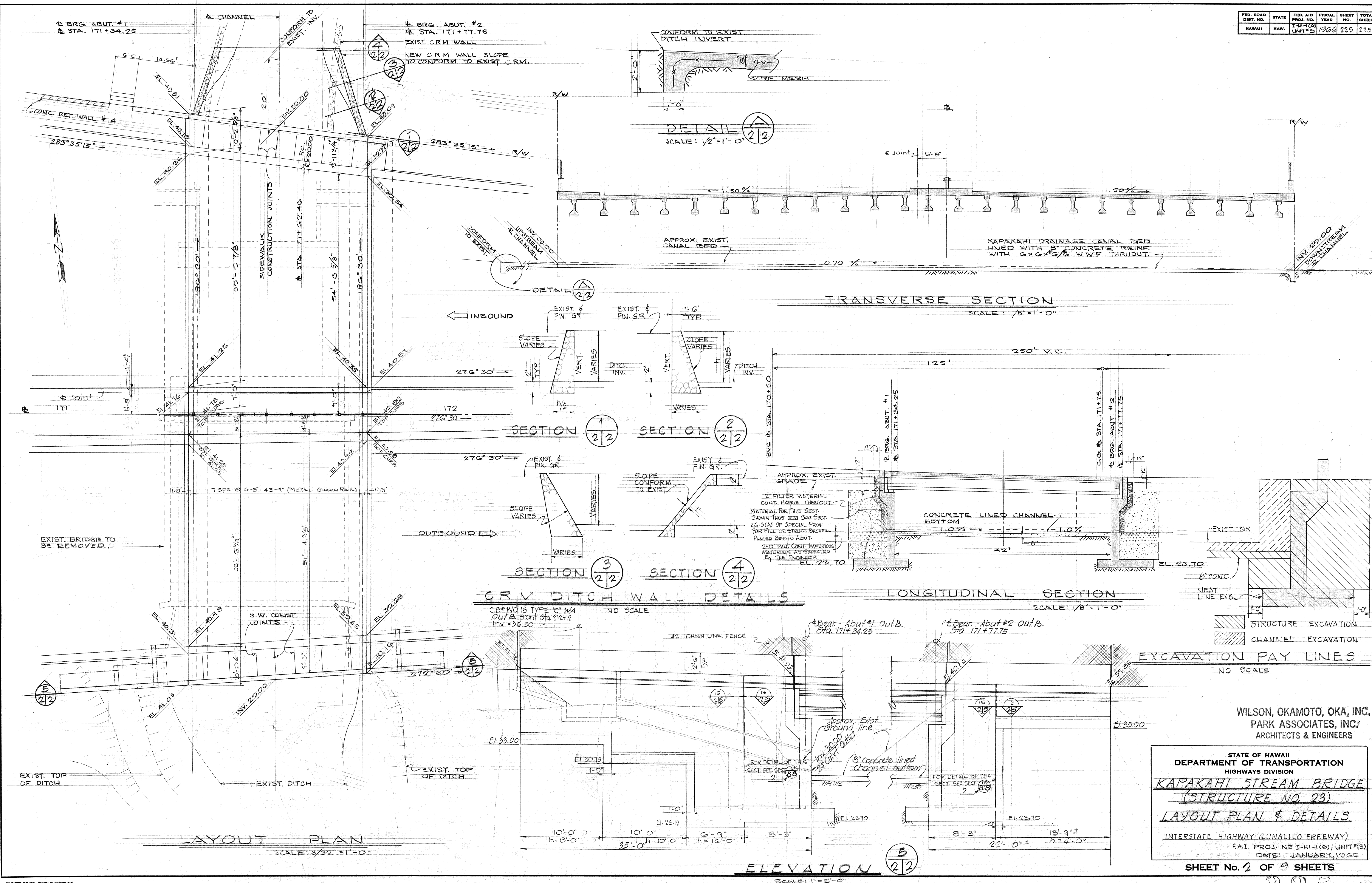
Section designation
 Sheet no. where section is cut or detail is located.
 5/6

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

WILSON, OKAMOTO, OKA, INC.
 PARK ASSOCIATES, INC.
 ARCHITECTS & ENGINEERS

STATE OF HAWAII	
DEPARTMENT OF TRANSPORTATION	
HIGHWAYS DIVISION	
KAPAKAHI STREAM BRIDGE	
(STRUCTURE NO. 23)	
LOCATION PLAN	
INTERSTATE HIGHWAY (LUNALILO FWY)	
F.A.I. PROJ. NO. I-HI-1(6) UNIT #3	DATE: JANUARY, 1968
SHEET No. / OF 9 SHEETS	

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEET
HAWAII	HAW.	I-H-1(6) UNIT # 3	1966	225	235



WILSON, OKAMOTO, OKA, INC.
PARK ASSOCIATES, INC.
ARCHITECTS & ENGINEERS

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

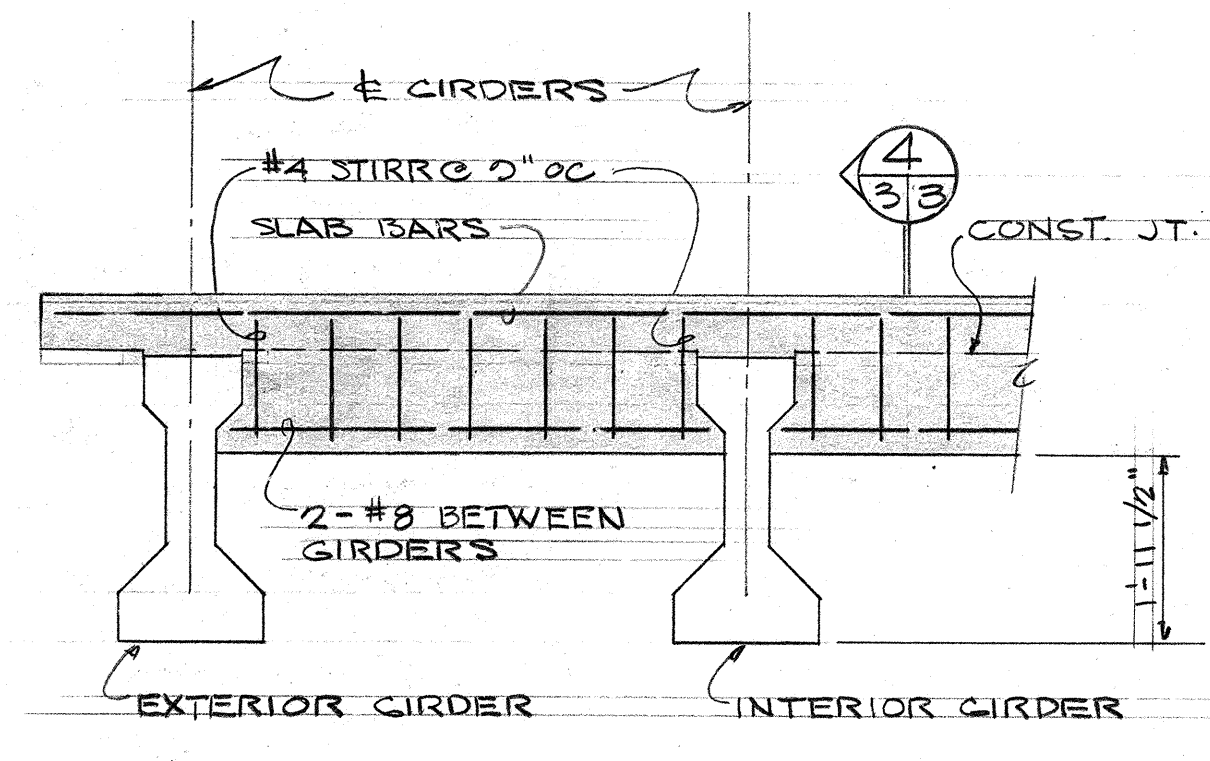
KAPAKAHI STREAM BRIDGE
(STRUCTURE NO. 23)
LAYOUT PLAN & DETAILS

INTERSTATE HIGHWAY (LUNALILO FREEWAY)

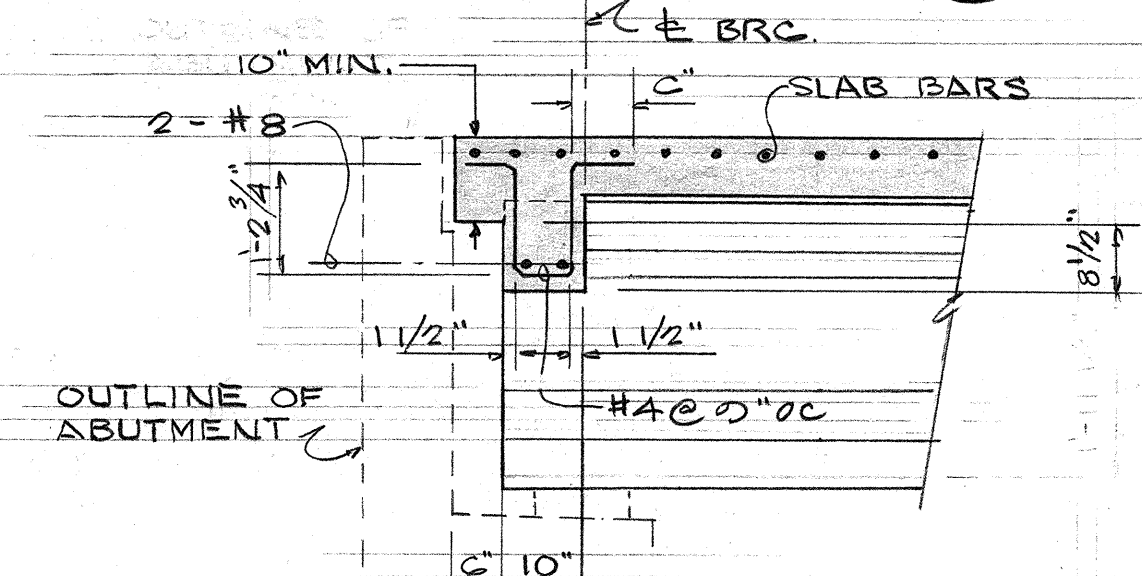
F.A.I. PROJ. NO. I-H-11-(6), UNIT#(3)
DATE: JANUARY, 1966

SHEET NO. 2 OF 9 SHEETS

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



SECTION 2
3 3

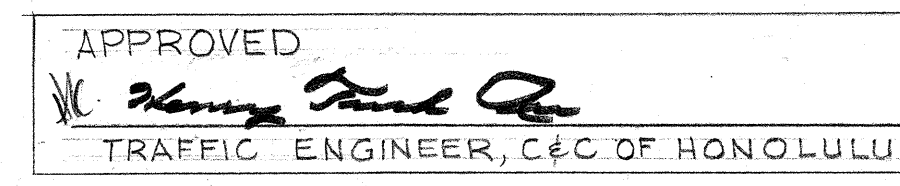


SECTION

4
33

TYPICAL END BEAM

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

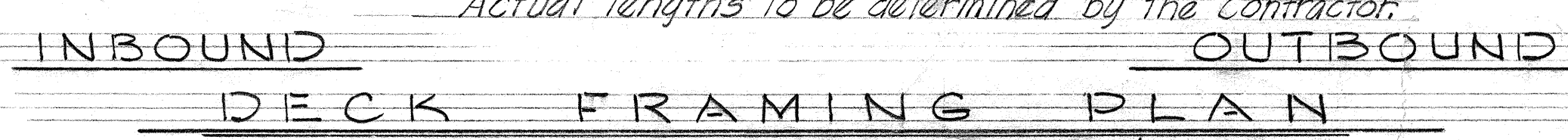


WILSON, OKAMOTO, OKA, INC.
PARK ASSOCIATES, INC.
ARCHITECTS & ENGINEERS

KAPAKAHI STREAM BRIDGE
(STRUCTURE NO. 23)

INTERSTATE HIGHWAY (LUNALILO FREEWAY)
F.A.I. PROJ. NO I-HI-1(6) UNIT #3
DATE: JANUARY, 1965

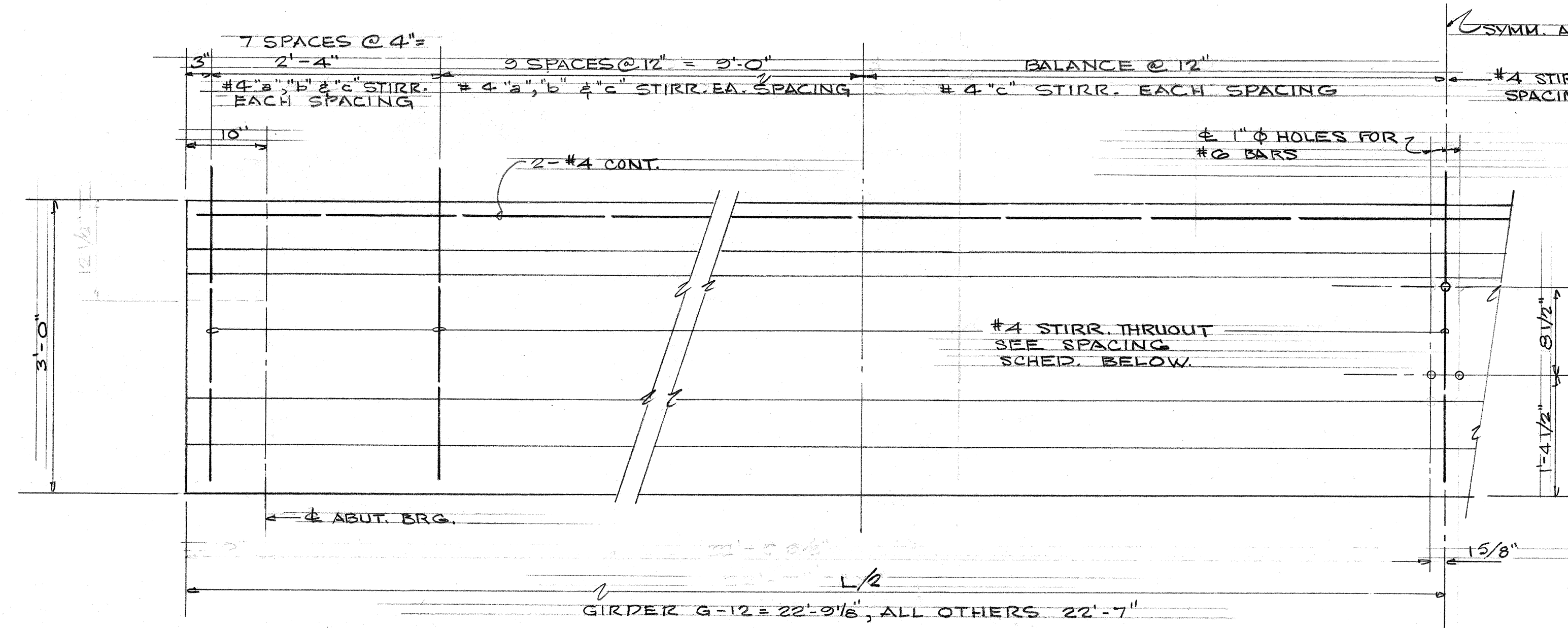
SHEET No. 3 OF 9 SHEETS



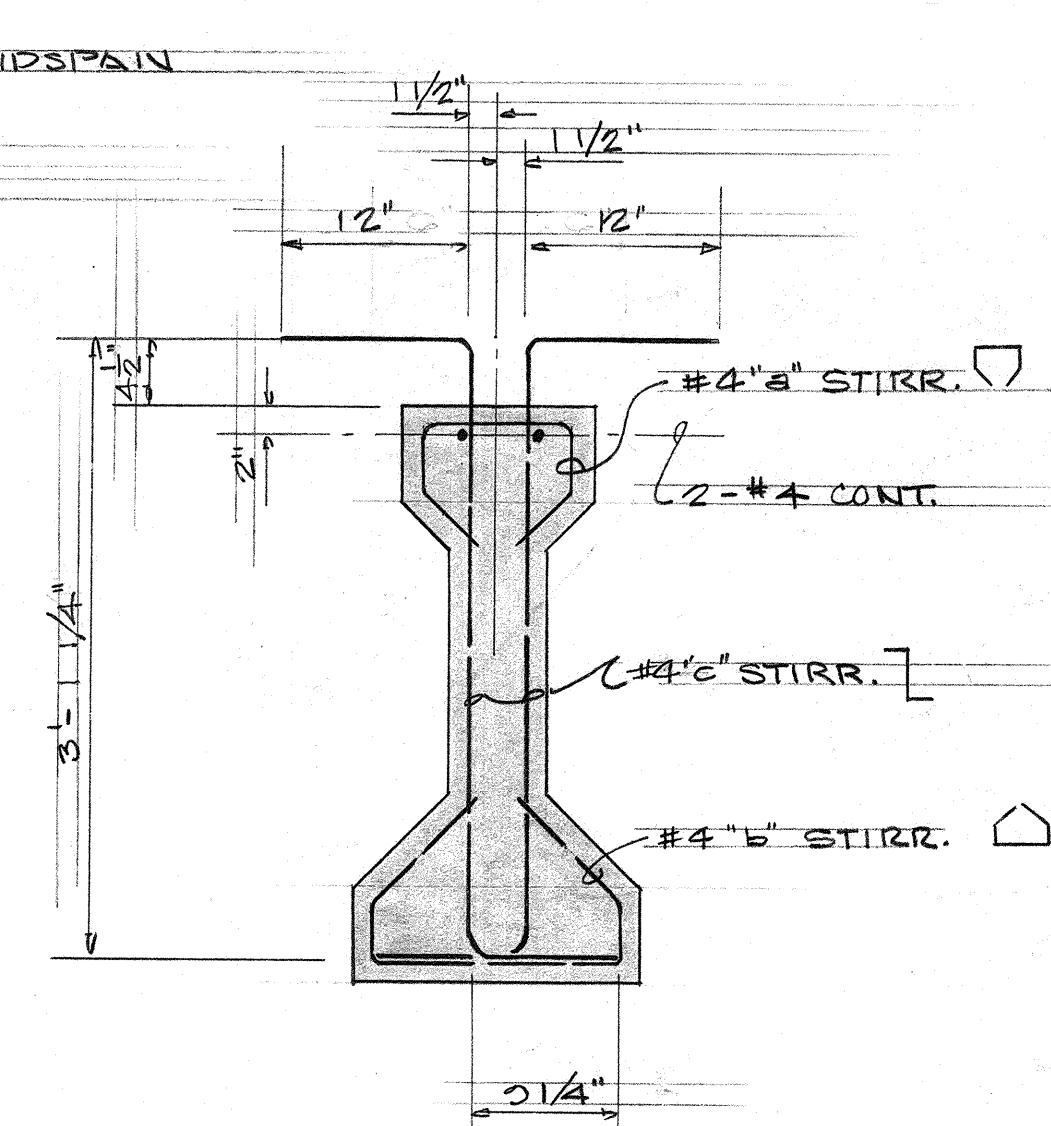
Note: Girder lengths are horizontal measurements.
Actual lengths to be determined by the Contractor.

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

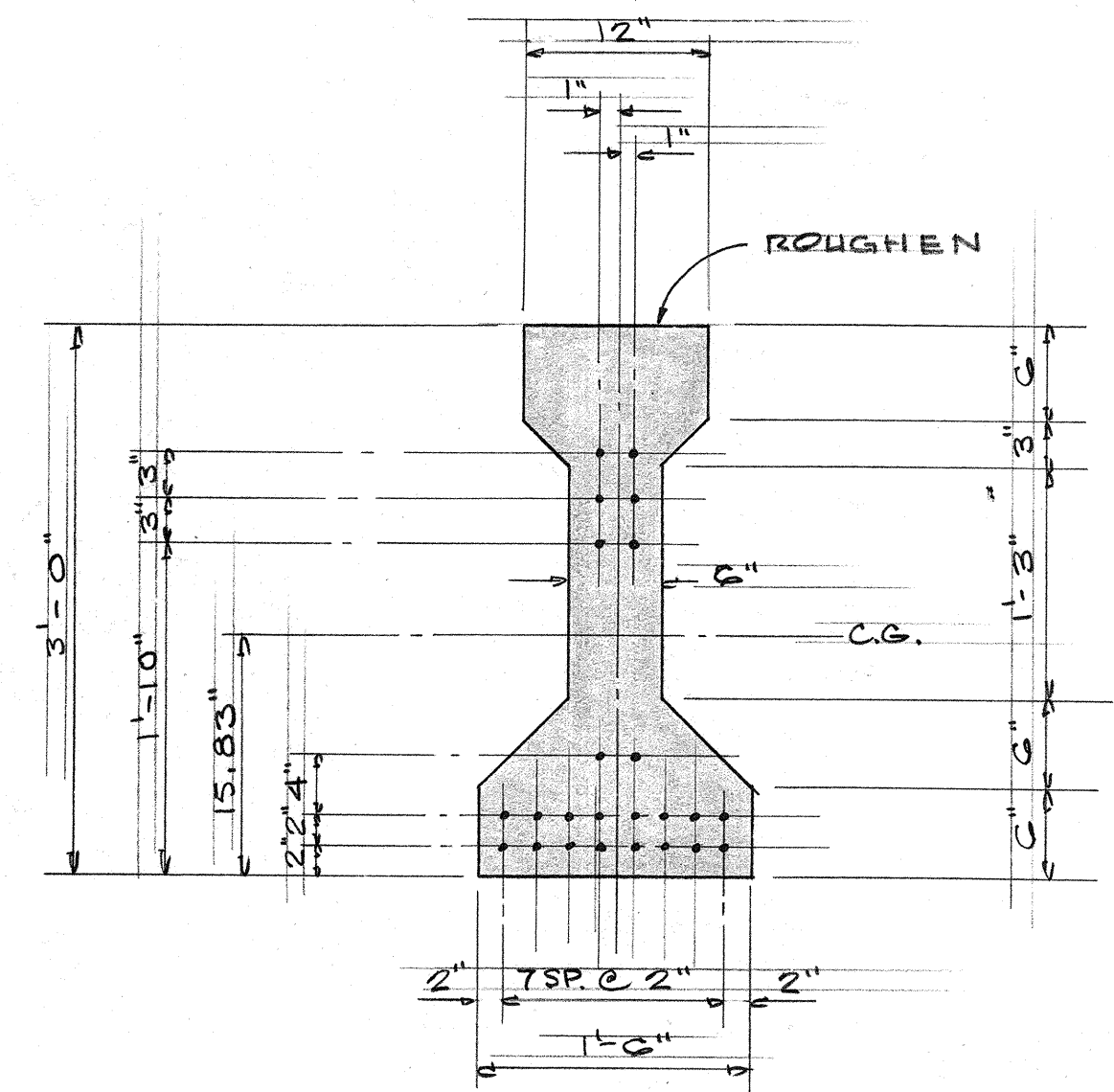
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NOTE BOOK	DRAWN BY	"
	TRACED BY	"
	DESIGNED BY	"
	QUANTITIES BY	"
No.	CHECKED BY	"



ELEVATION



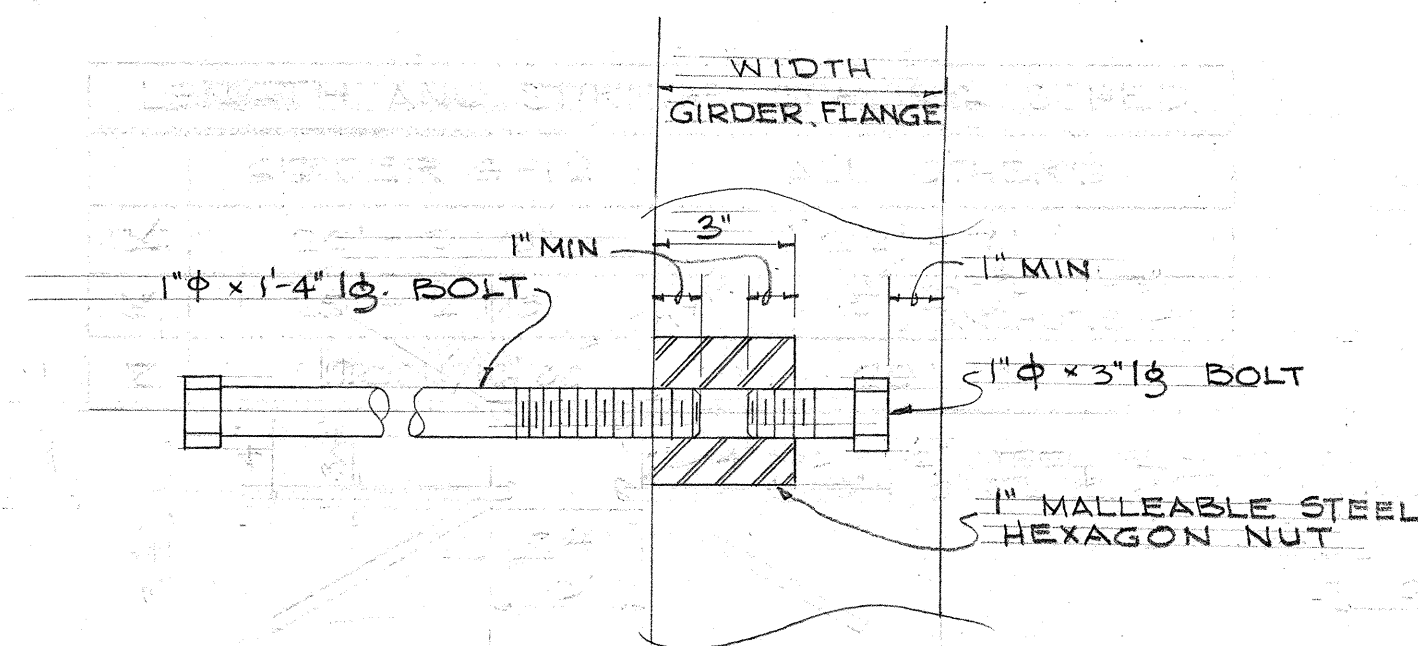
SECTION SHOWING STIRRUPS



SECTION SHOWING PRESTRESS STRANDS

PRECAST PRESTRESSED CONCRETE GIRDER DETAILS

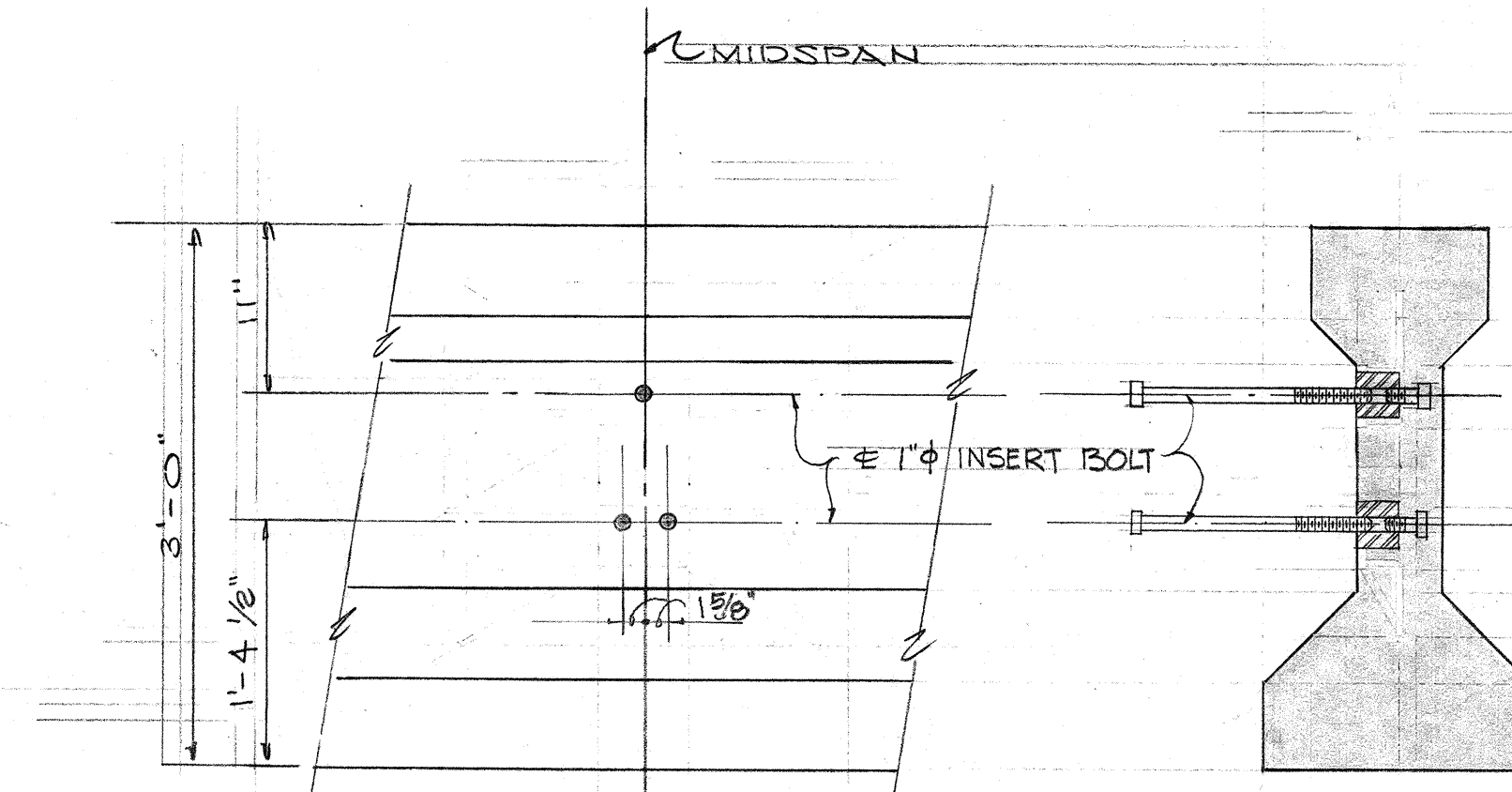
SCALE: 1" = 1'-0"



INSERT ASSEMBLY DETAIL

(12 REQUIRED)

SCALE: 3" = 1'-0"



ELEVATION

SECTION

INSERT ASSEMBLY LOCATION DETAIL

SCALE: 1" = 1'-0"

INSERT ASSEMBLY TO BE CAST INTO GIRDERS AS SHOWN IN PLACE OF THE 4" x 1/4" x 1/8" HOLES FOR GIRDERS G-18 & G-12 OF INBOUND AND G-15 & G-11 OF OUTBOUND. (TOTAL OF 4)

PRESTRESS NOTES

LIVE LOAD: H20-S16-44

PRETENSIONING STEEL: INDIVIDUAL TENDONS IN PRETENSIONED SECTIONS SHALL BE SEVEN WIRE, UNCOATED, STRESS RELIEVED STEEL STRANDS WHICH HAVE A NOMINAL DIAMETER OF 7/16" AND A MINIMUM ULTIMATE STRENGTH OF 250,000 P.S.I. AN INITIAL FORCE OF 18,000 LB. SHALL BE APPLIED TO EACH STRAND.

PRECAST PRESTRESSED CONCRETE: ALL PRESTRESSED CONCRETE SHALL ATTAIN A MINIMUM COMPRESSIVE STRENGTH OF 5,000 P.S.I. AT THE AGE OF 28 DAYS. THE MINIMUM COMPRESSIVE STRENGTH OF CONCRETE AT THE TRANSFER OF PRESTRESS SHALL BE 4,000 P.S.I.

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

KAPAKAHI STREAM BRIDGE
(STRUCTURE NO. 23)

PRESTRESSED CONCRETE
GIRDER DETAILS

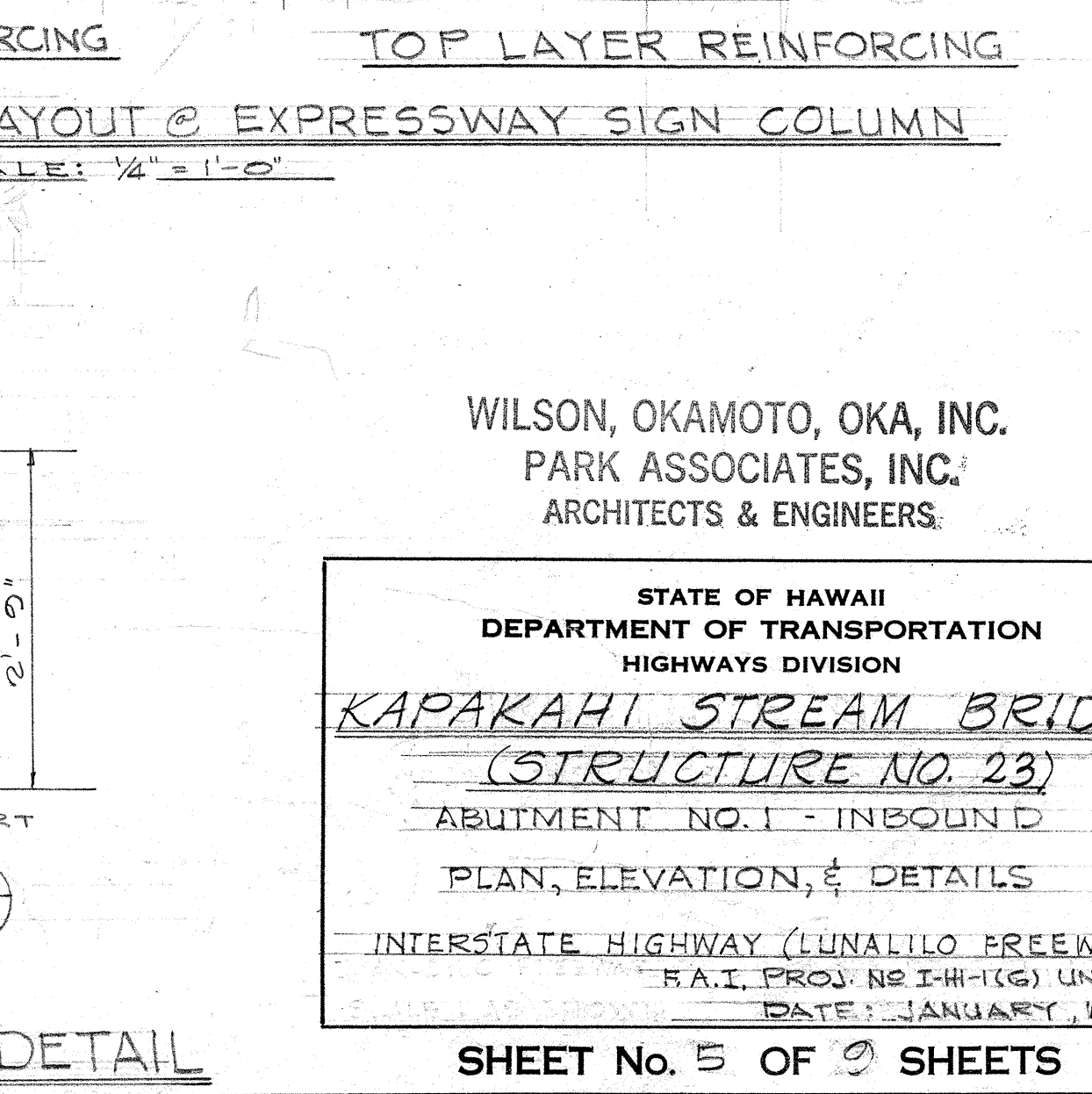
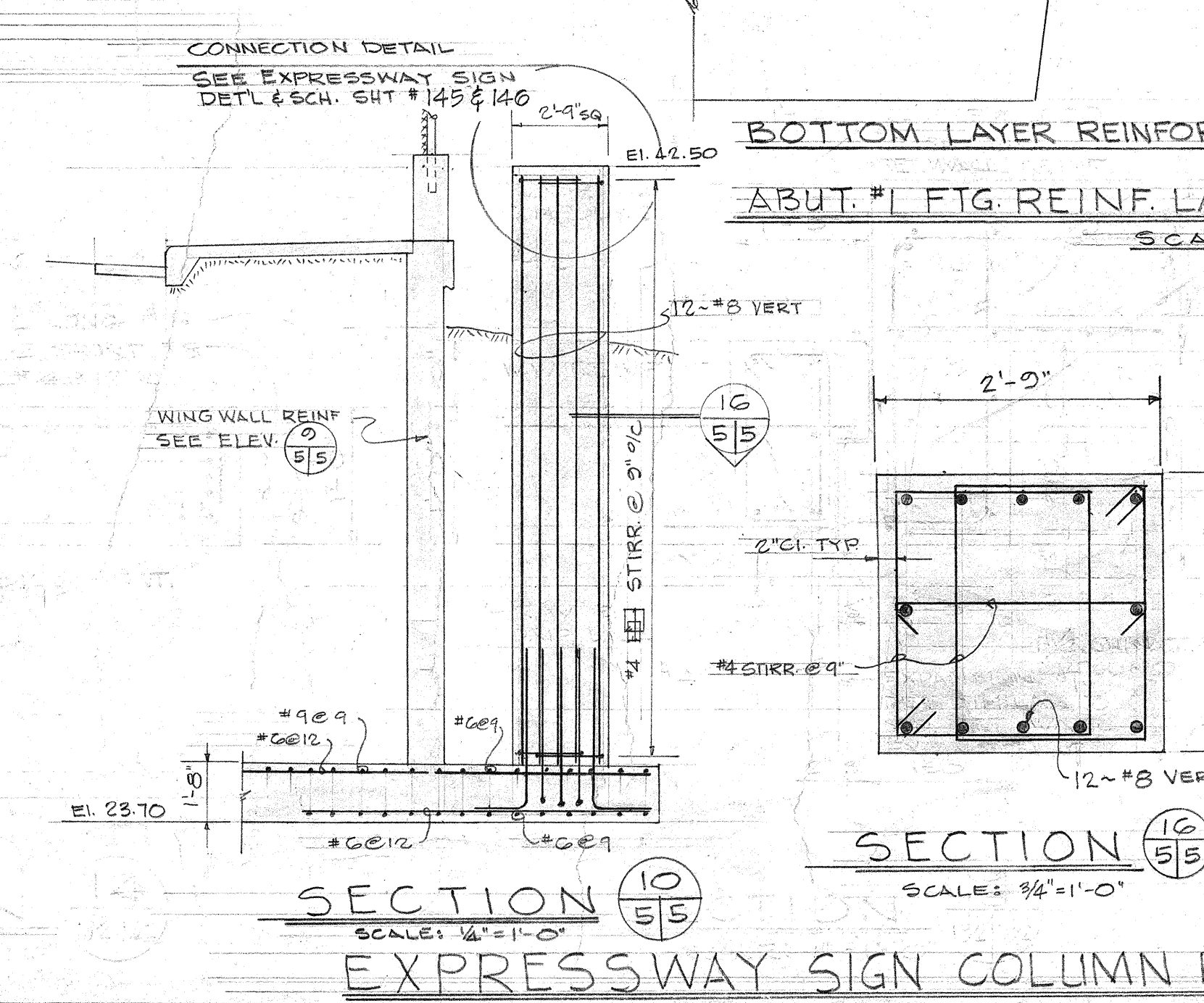
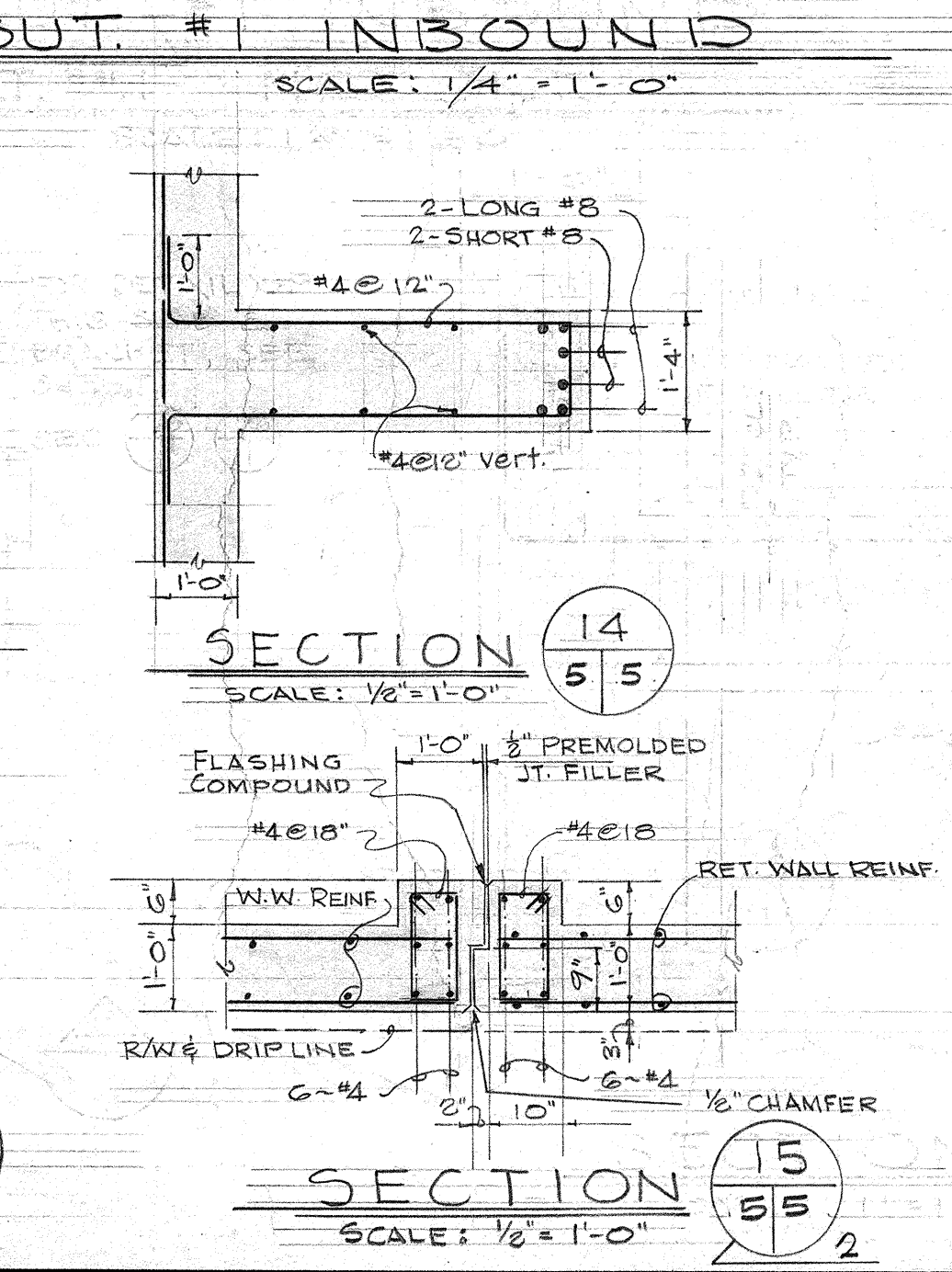
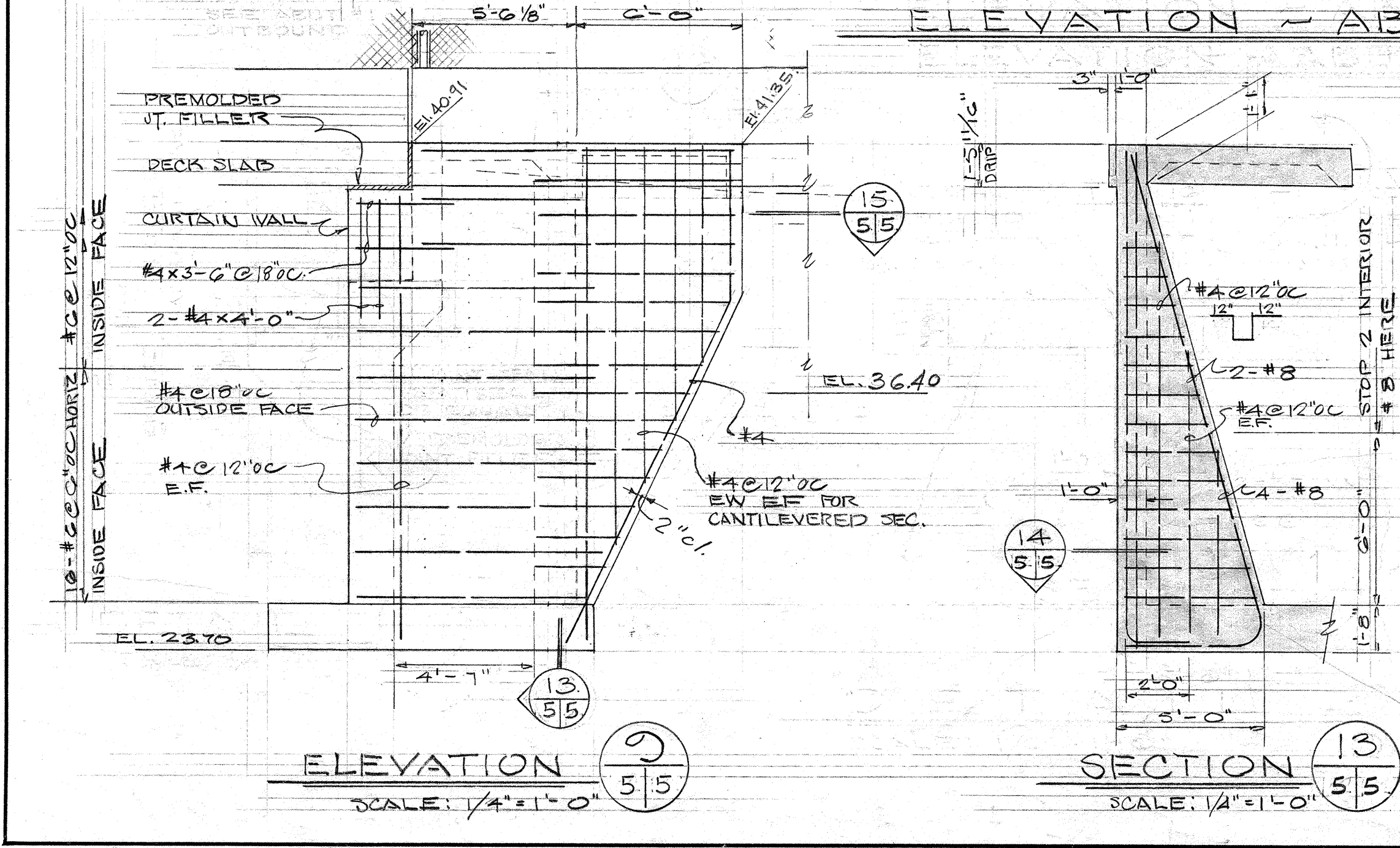
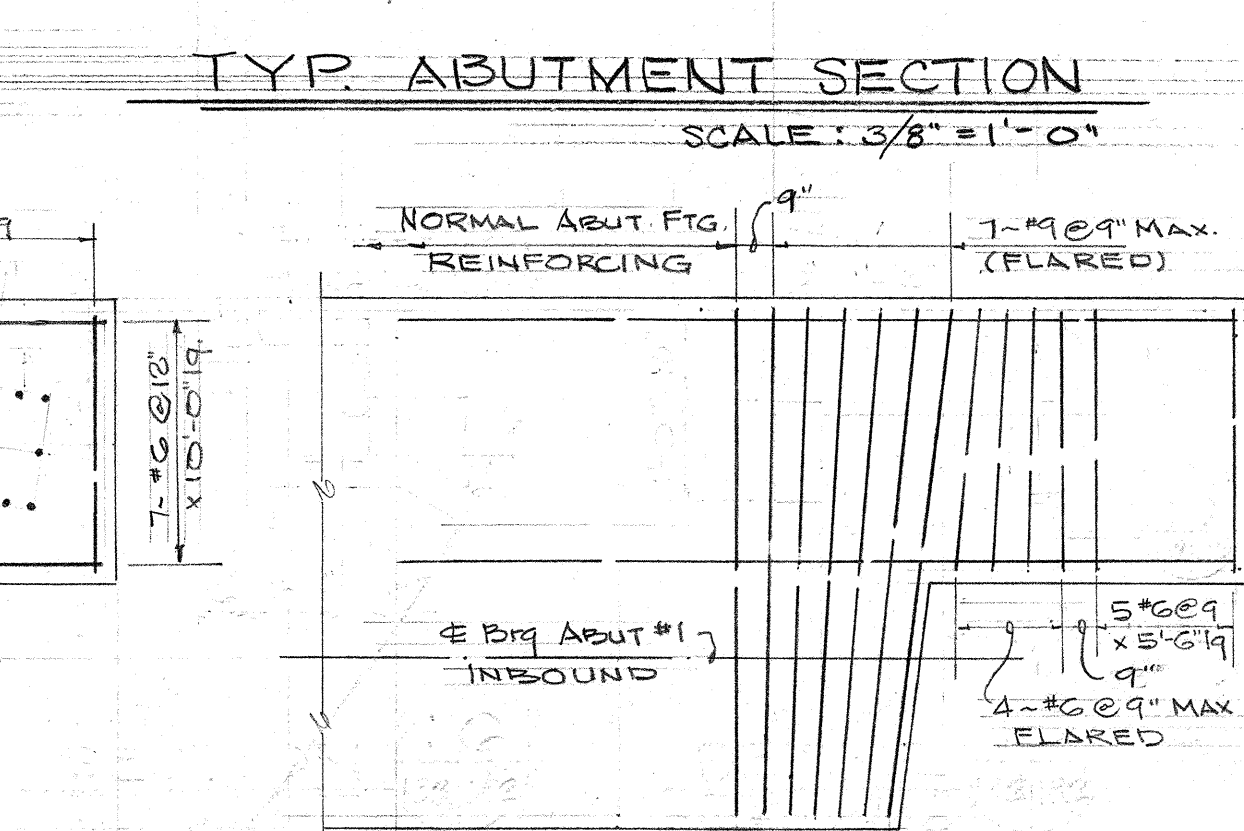
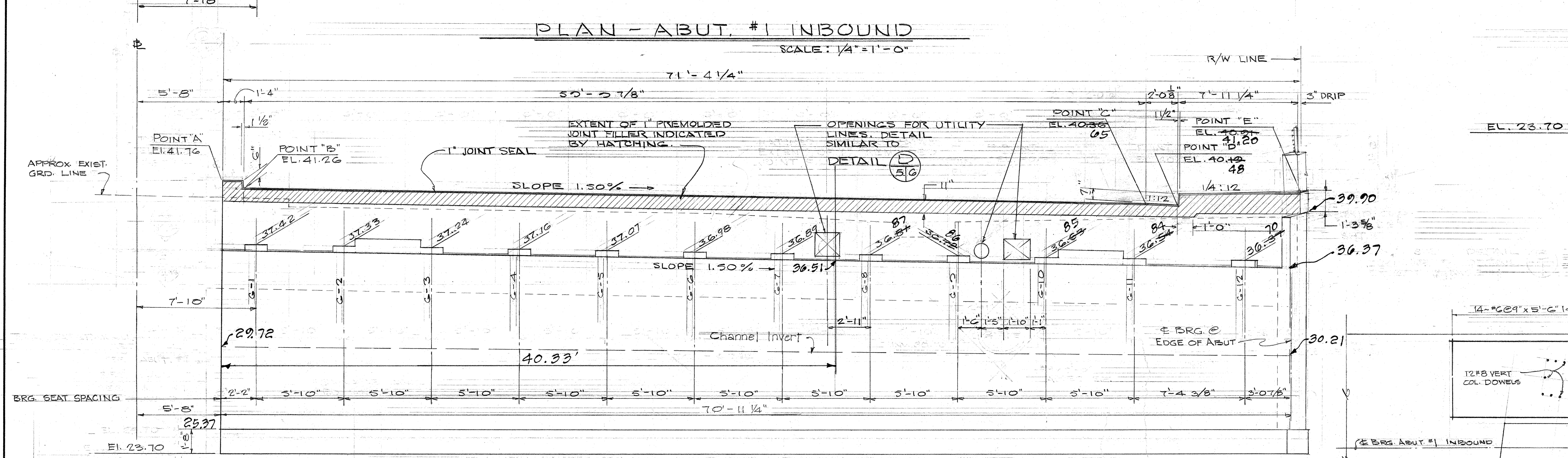
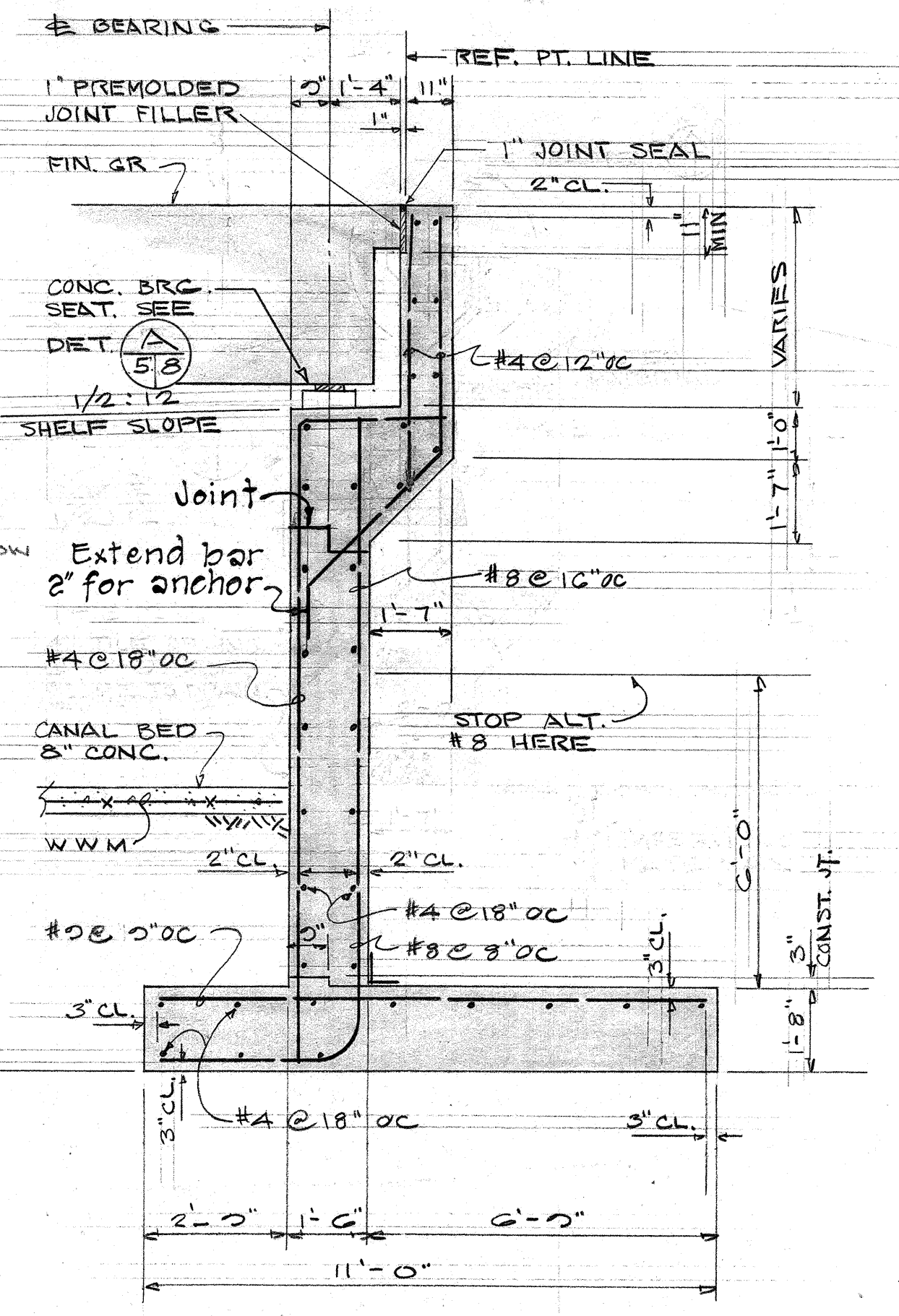
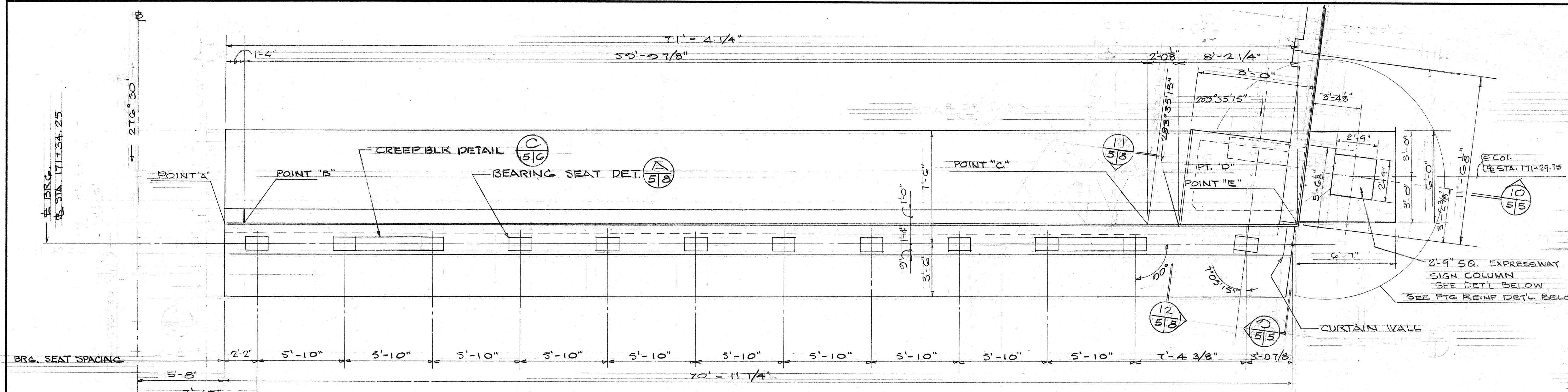
INTERSTATE HIGHWAY (LUALUO FREEWAY)
F.A.T. PROJECT NO. I-41-1(6) UNIT 3
JANUARY 1965

SHEET No. 4 OF 9 SHEETS

WILSON, OKAMOTO, OKA, INC.
PARK ASSOCIATES, INC.
ARCHITECTS & ENGINEERS

227

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



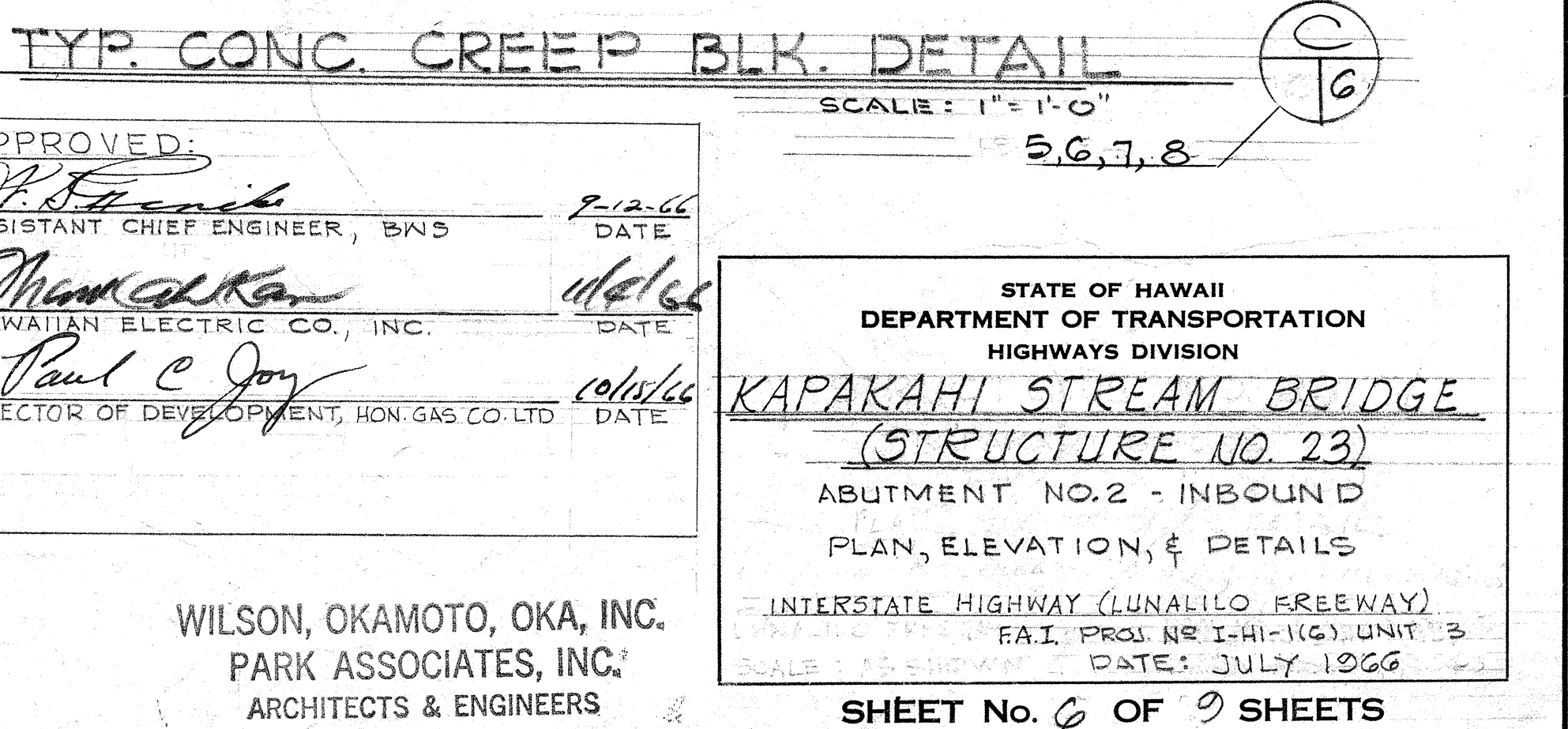
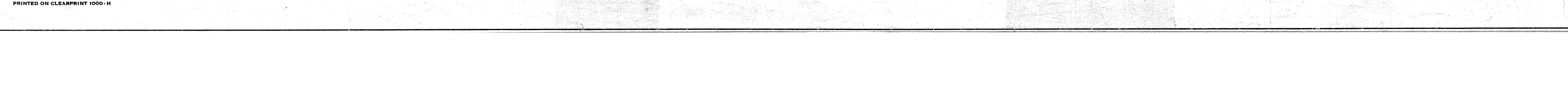
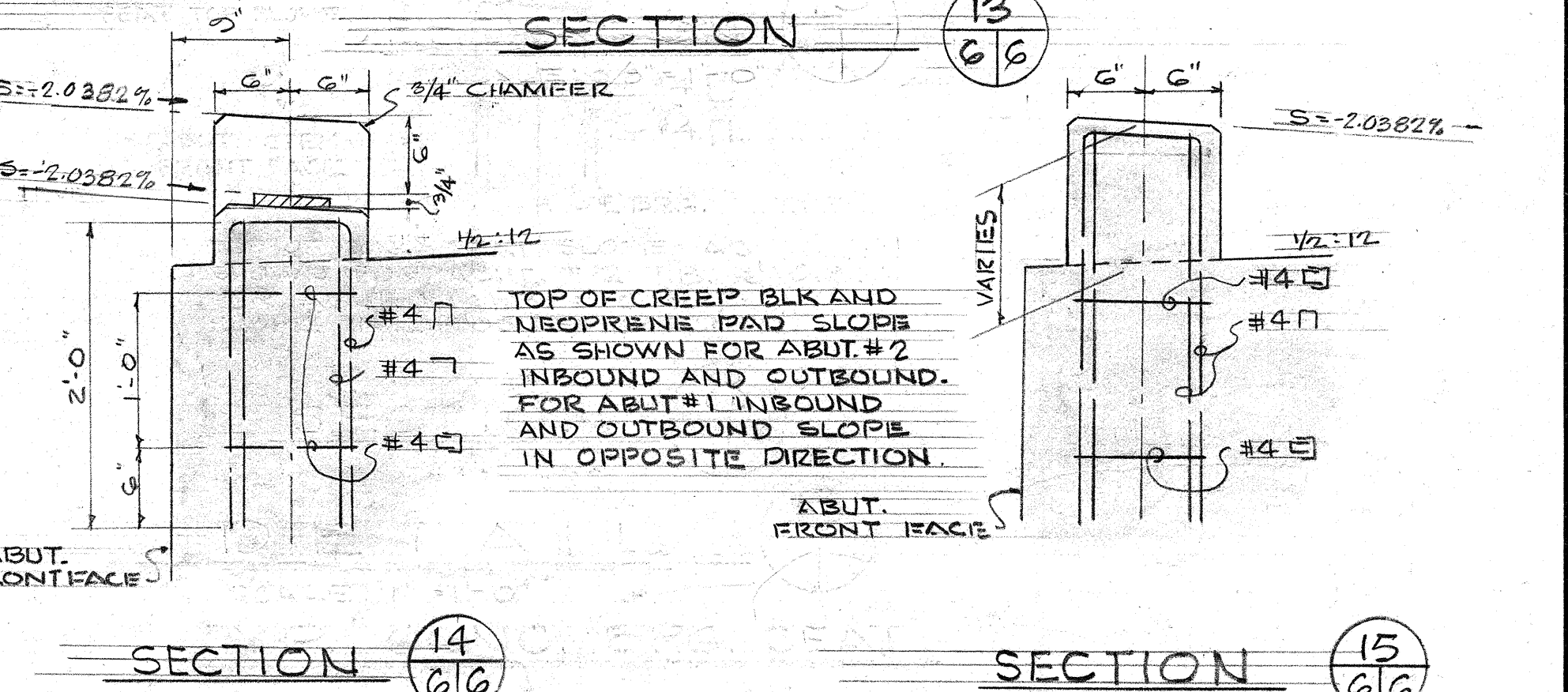
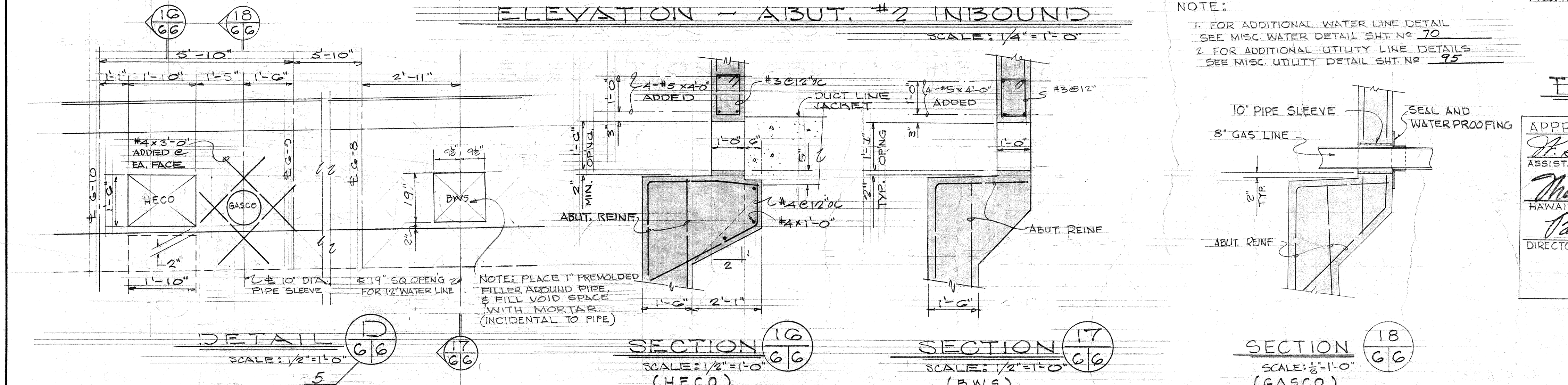
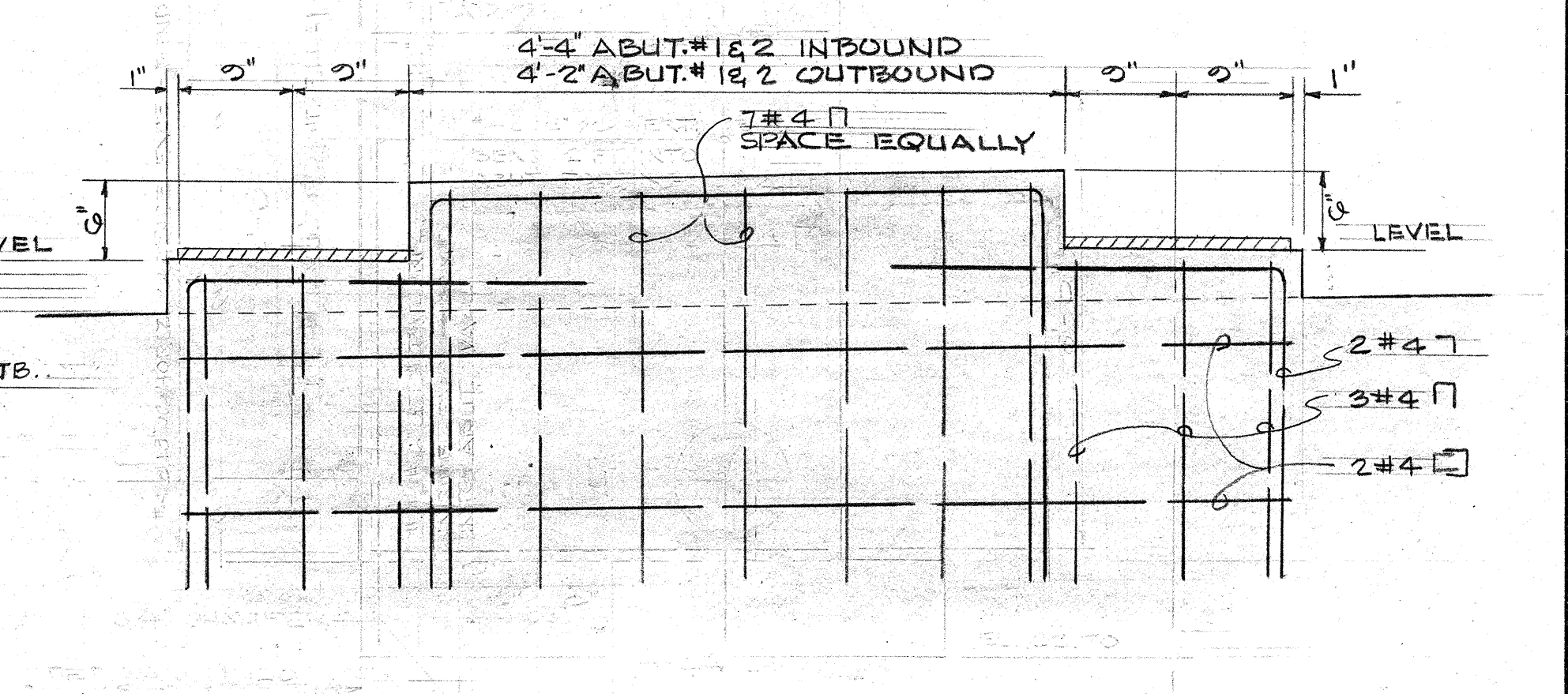
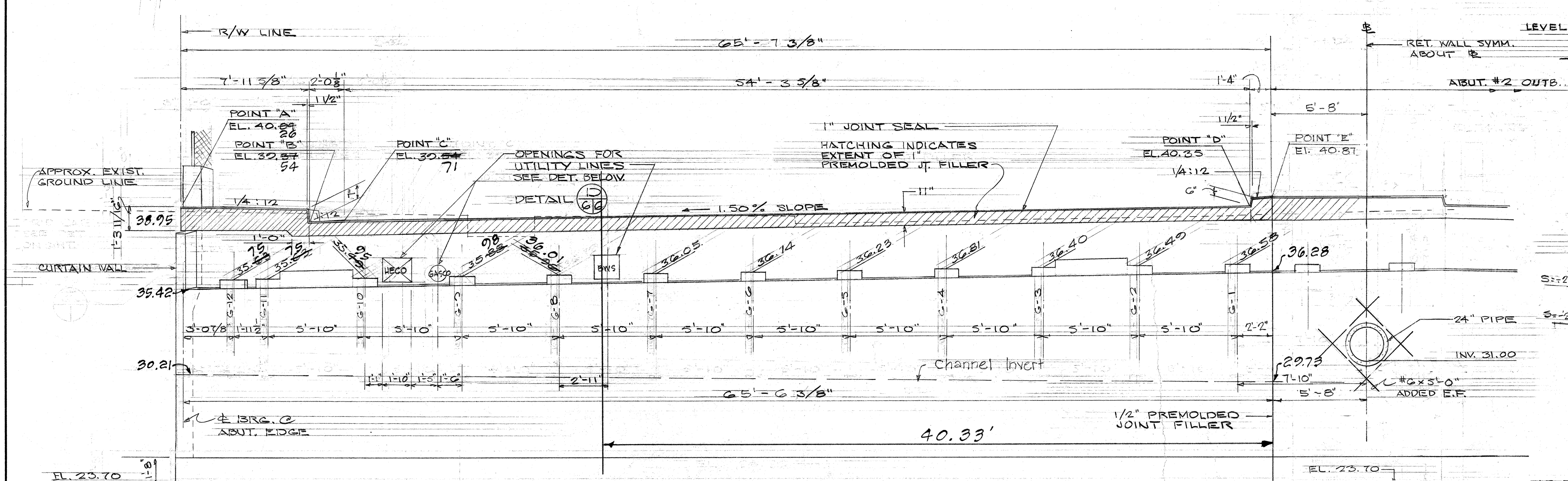
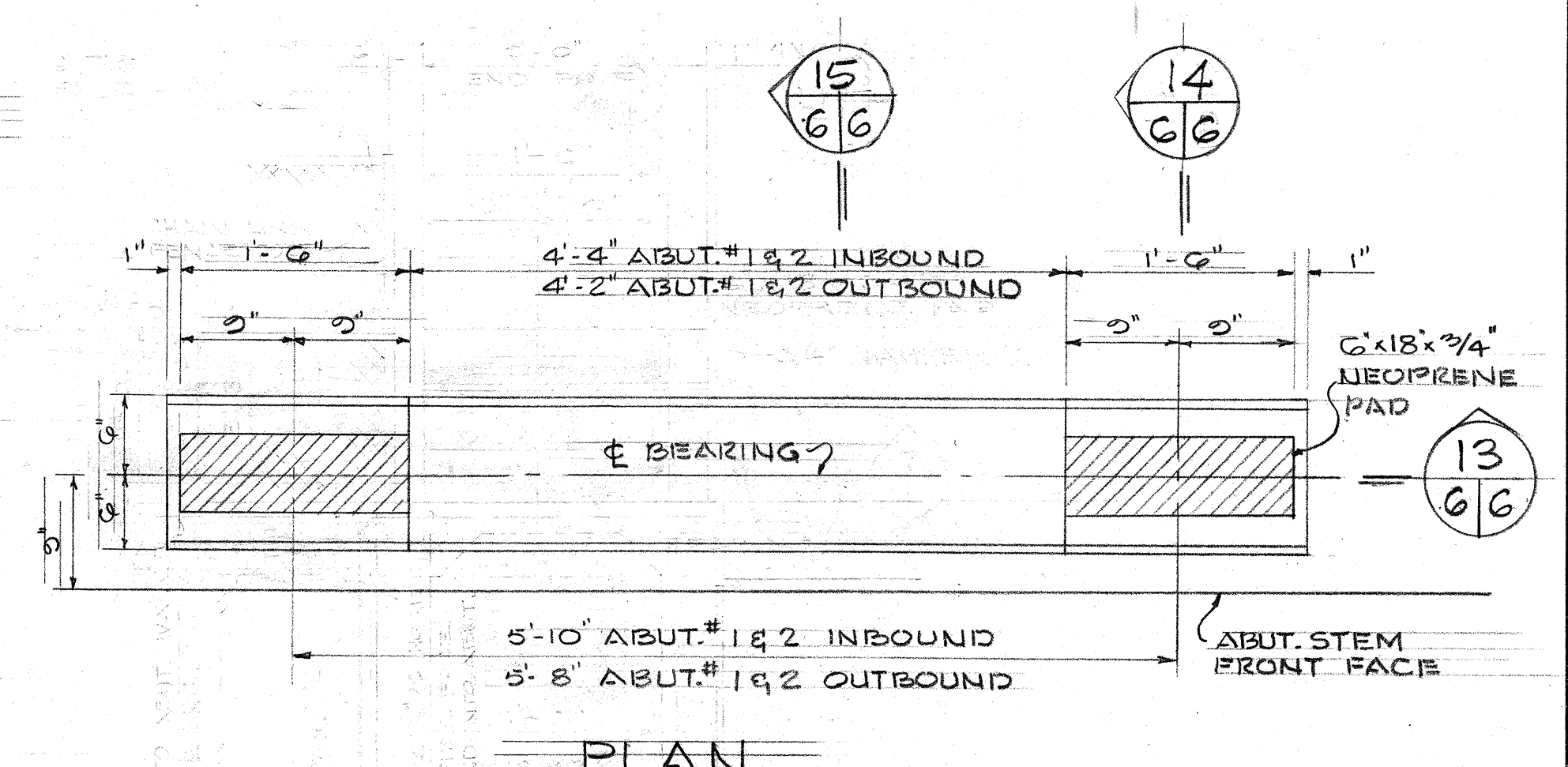
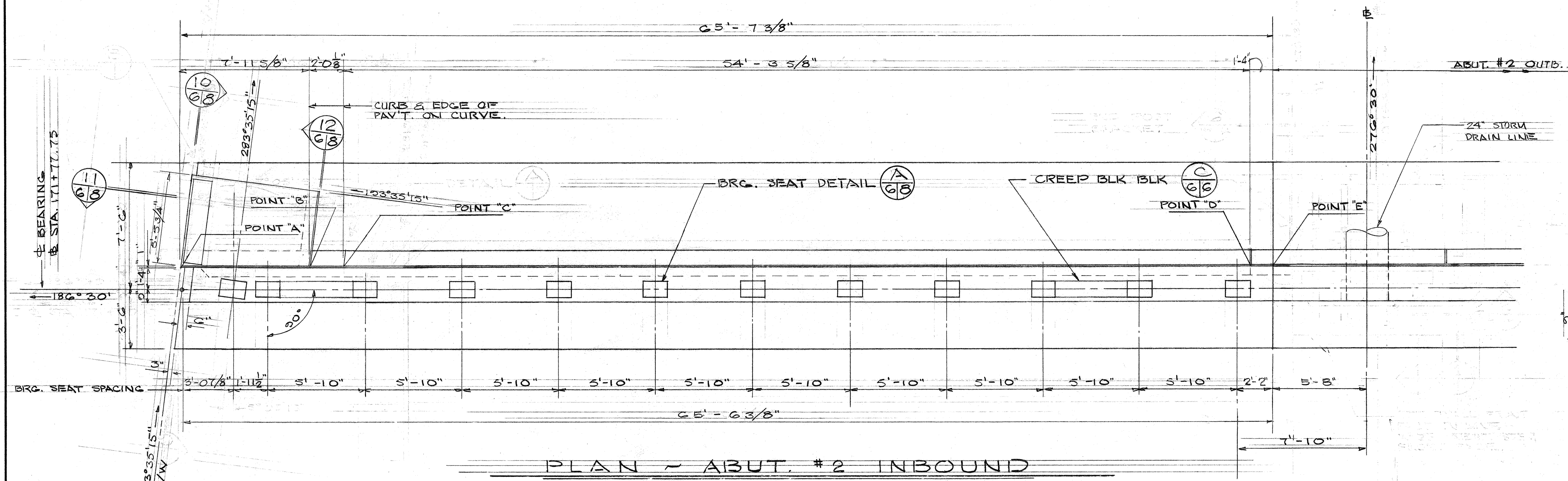
WILSON, OKAMOTO, OKA, INC.
PARK ASSOCIATES, INC.
ARCHITECTS & ENGINEERS

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

KAPAKAHI STREAM BRIDGE
(STRUCTURE NO. 23)
ABUTMENT NO. 1 - INBOUND
PLAN, ELEVATION, & DETAILS
INTERSTATE HIGHWAY (LUALILU FREEWAY)
S.A.I. PROJ. NO. I-H-1(6) UNIT #3
DATE: JANUARY, 1966

SHEET No. 5 OF 9 SHEETS

ORIGINAL PLAN
DRAWN BY
CHECKED BY
DATE



NOTE:
1. FOR ADDITIONAL WATER LINE DETAIL SEE MISC. WATER DETAIL SHT. NO. 70
2. FOR ADDITIONAL UTILITY LINE DETAILS SEE MISC. UTILITY DETAIL SHT. NO. 75

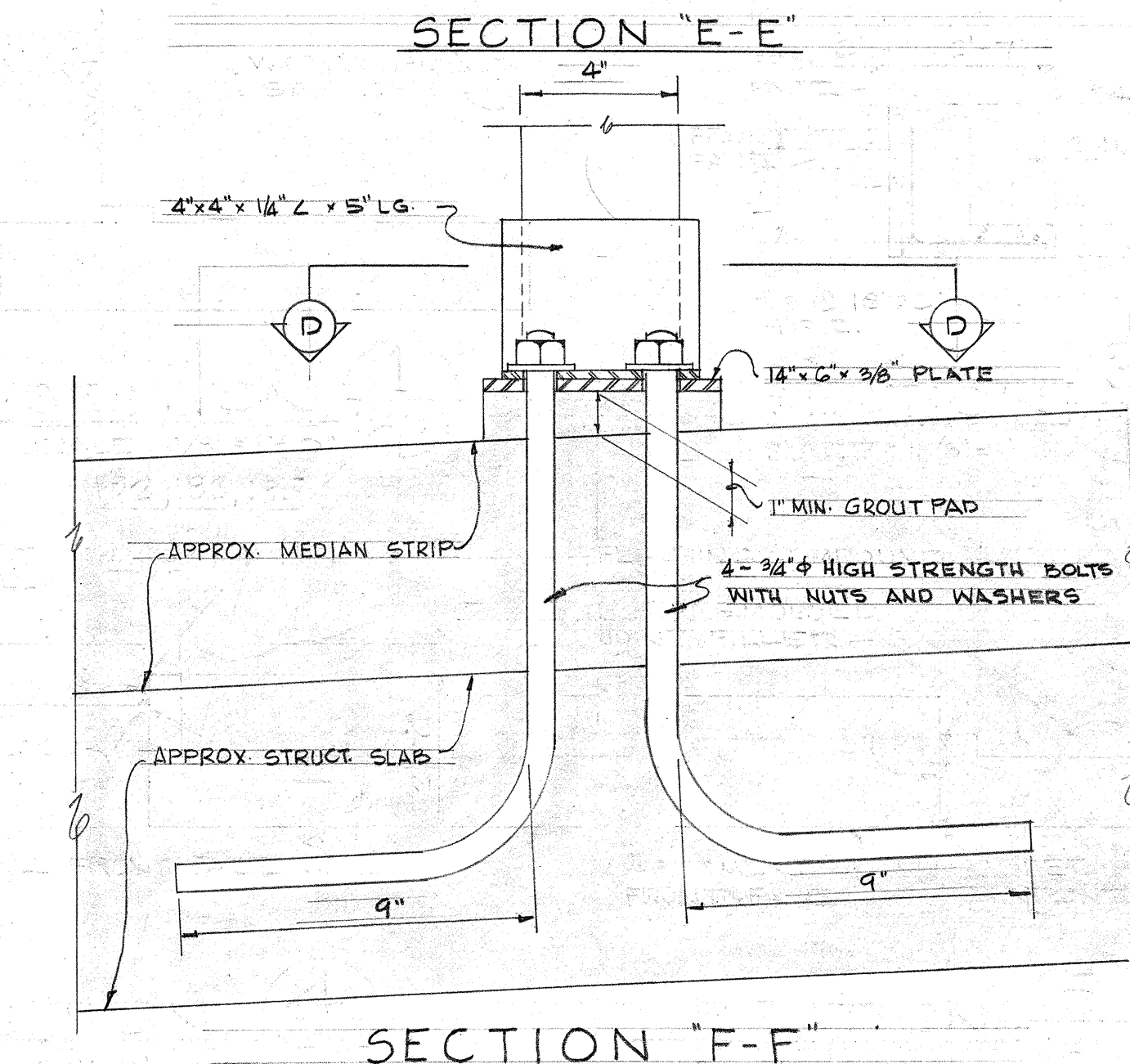
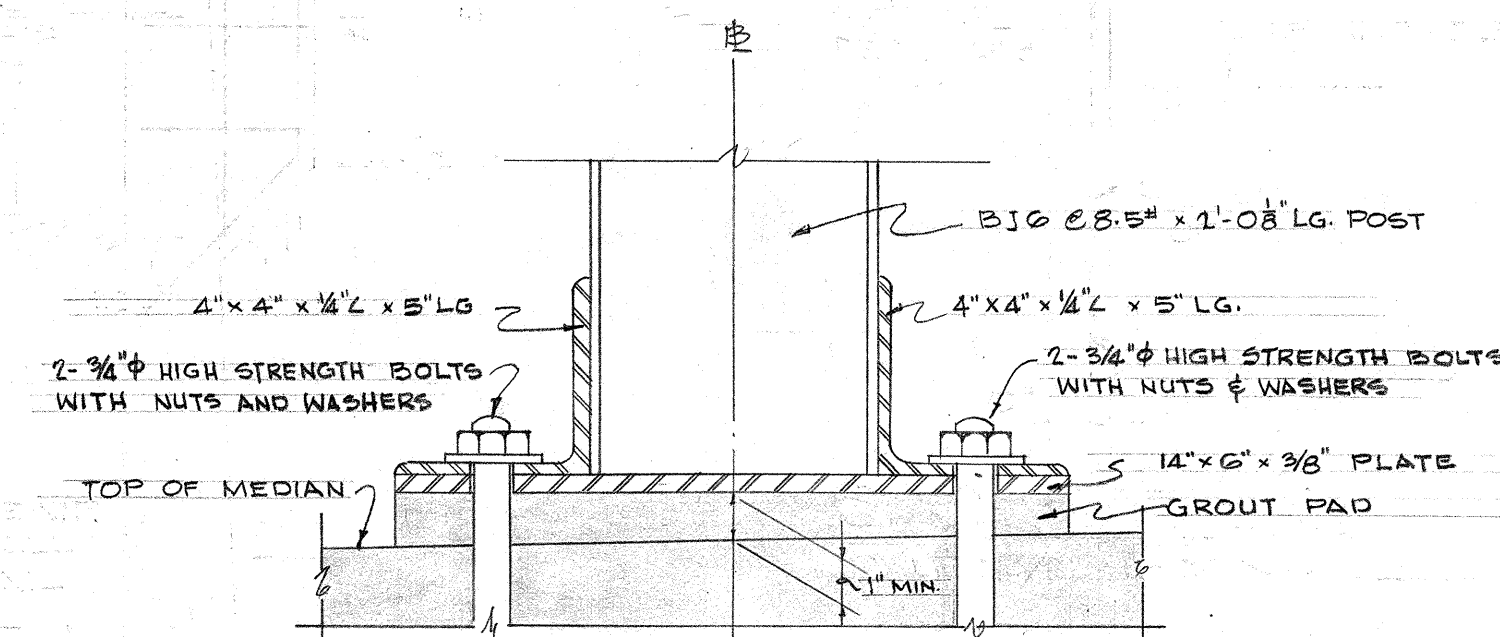
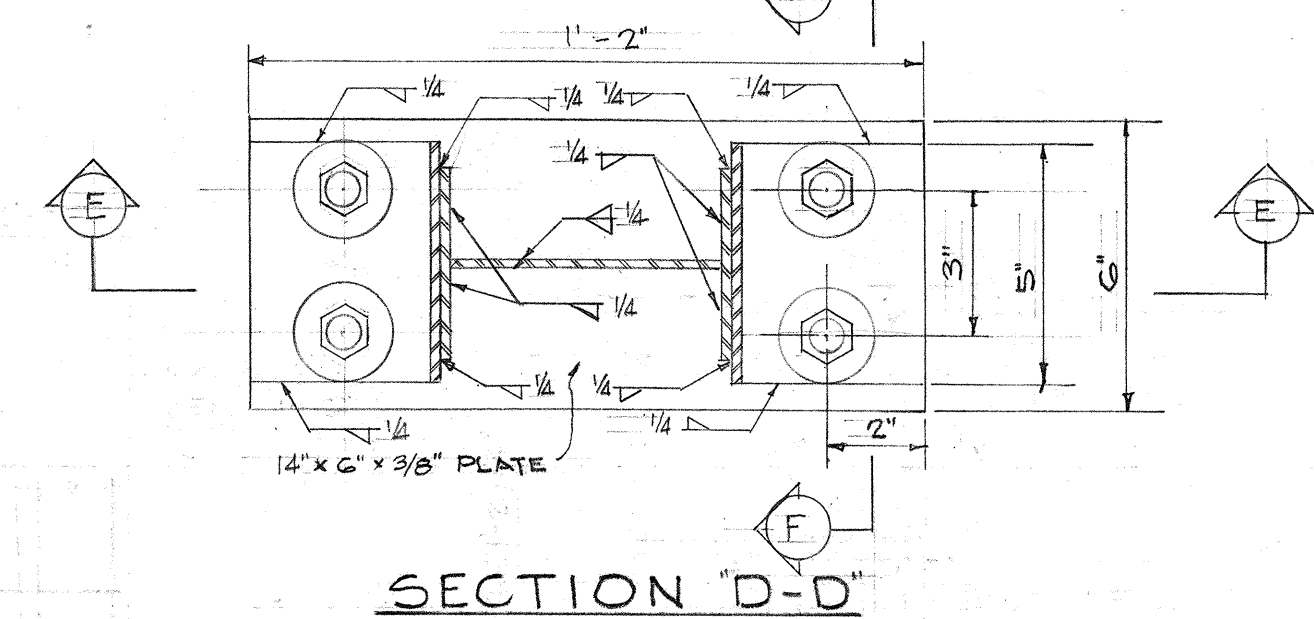
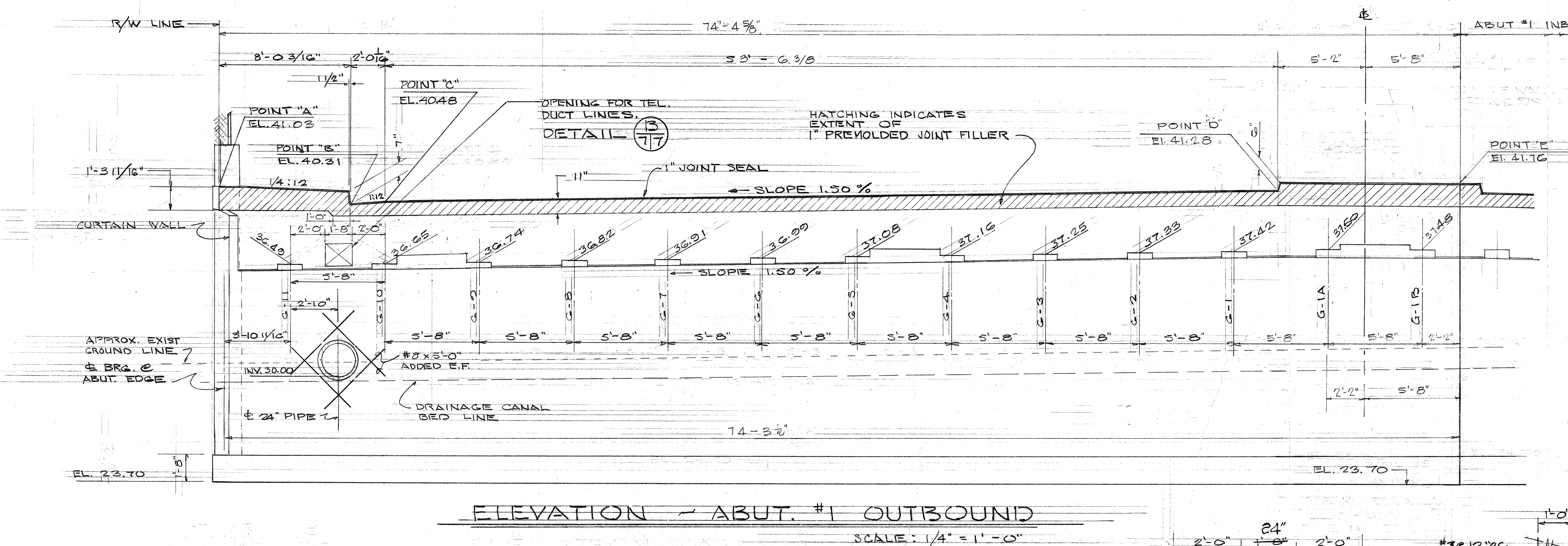
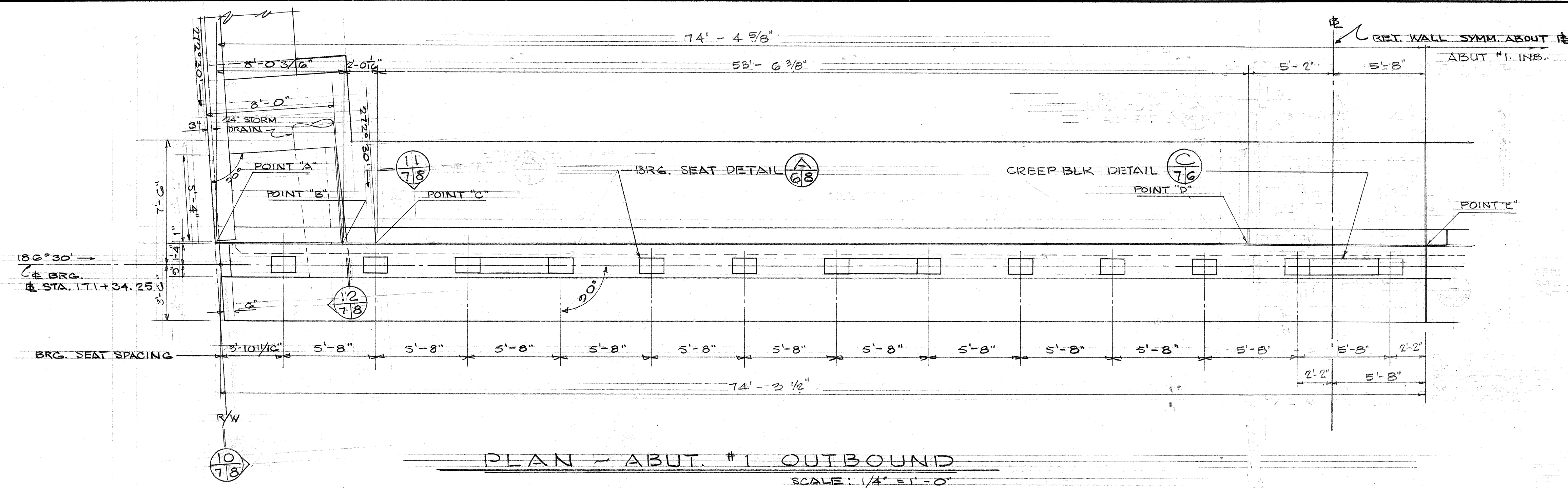
APPROVED:
Assistant Chief Engineer, BWS
HAWAIIAN ELECTRIC CO., INC.
DIRECTOR OF DEVELOPMENT, HON. GAS CO. LTD.

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
KAPAKAHI STREAM BRIDGE
(STRUCTURE NO. 23)
ABUTMENT NO. 2 - INBOUND
PLAN, ELEVATION, & DETAILS
INTERSTATE HIGHWAY (LUNALILO FREEWAY)
F.A.I. PROJ. NO. I-H-1(6) UNIT 13
DATE: JULY 1966
SHEET No. 6 OF 9 SHEETS

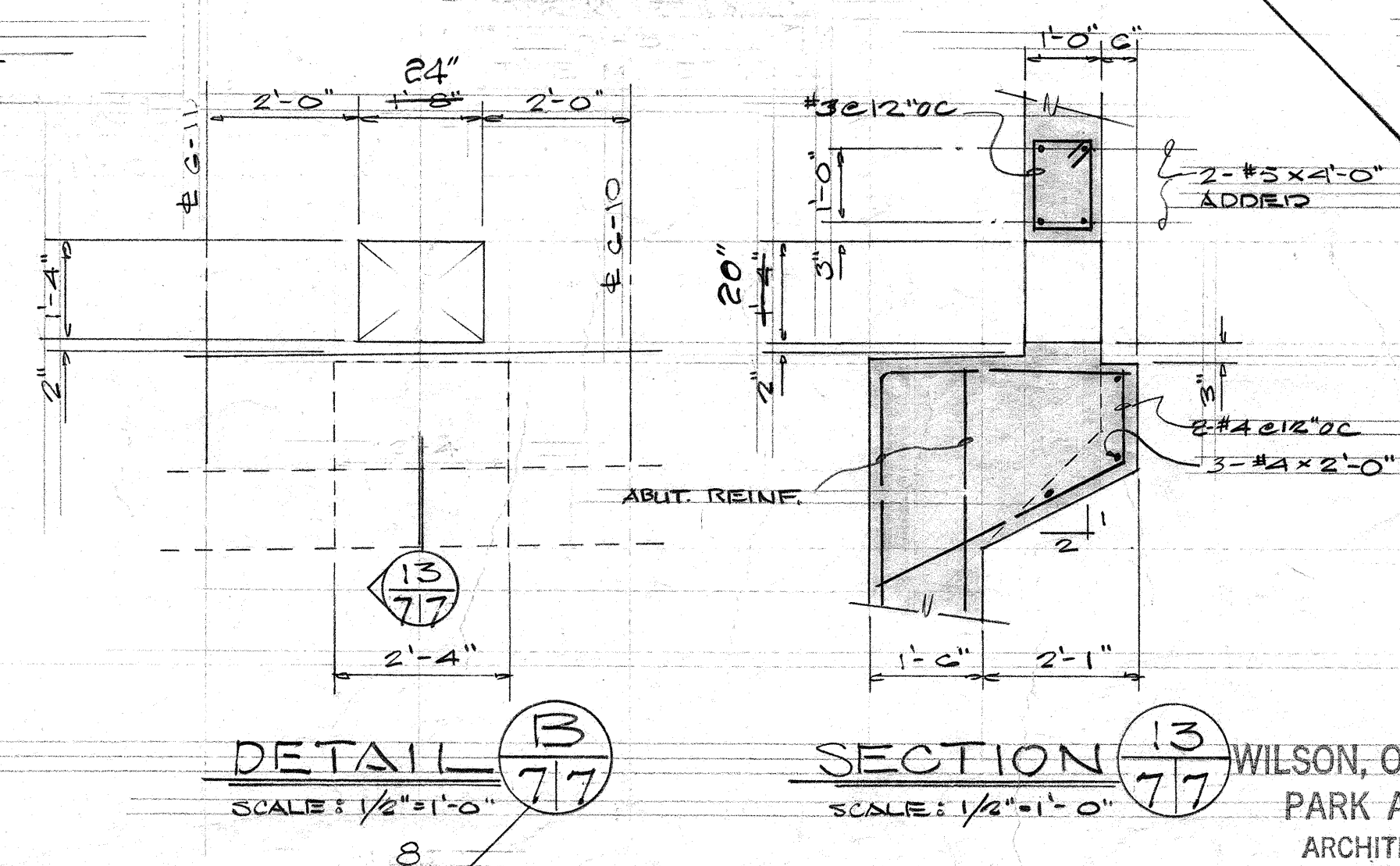
WILSON, OKAMOTO, OKA, INC.
PARK ASSOCIATES, INC.
ARCHITECTS & ENGINEERS

DATE: _____
SURVEY PLOTTED BY: _____
DESIGNED BY: _____
CHECKED BY: _____
ORIGINAL PLAN: _____
NOTES: _____
QUANTITIES BY: _____
NO. _____

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	1-11-1(6) UNIT #3	1966	230	235



TYPICAL DETAIL FOR METAL GUARD RAIL POST ON BRIDGE MEDIAN
SCALE: 3" = 1'-0"
NOTE: FOR GUARD RAIL CONN. DETAIL SEE SHT. # 52



SECTION 13 77
SCALE: 1/2" = 1'-0"

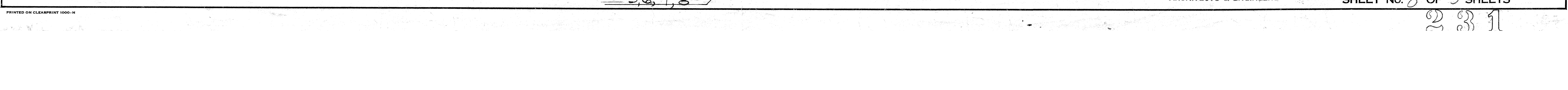
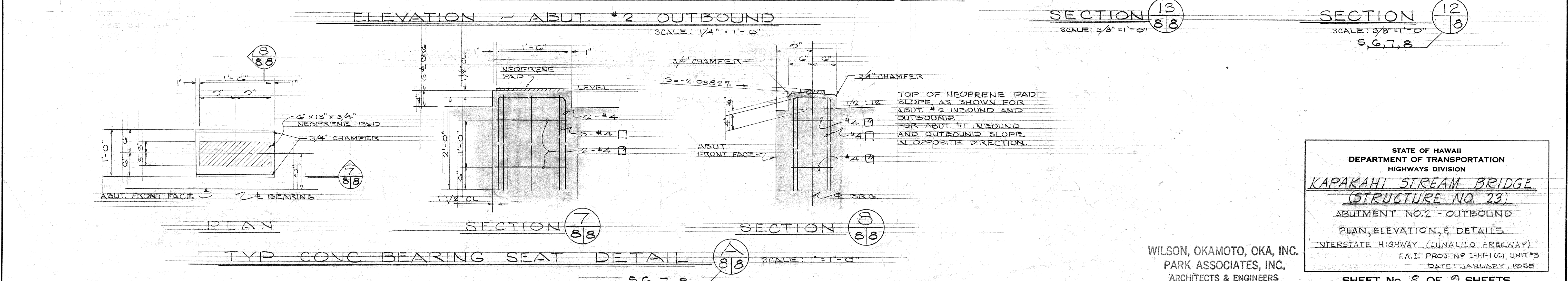
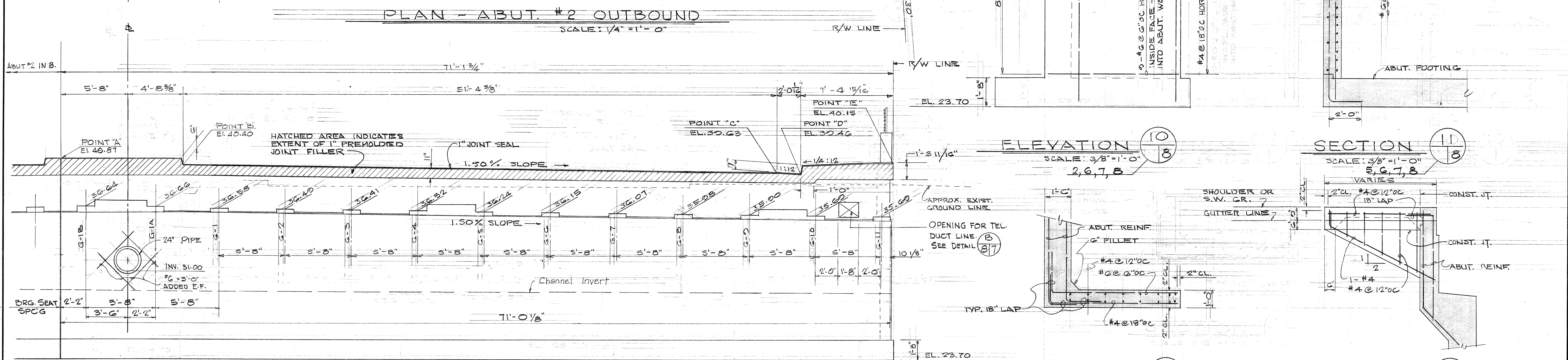
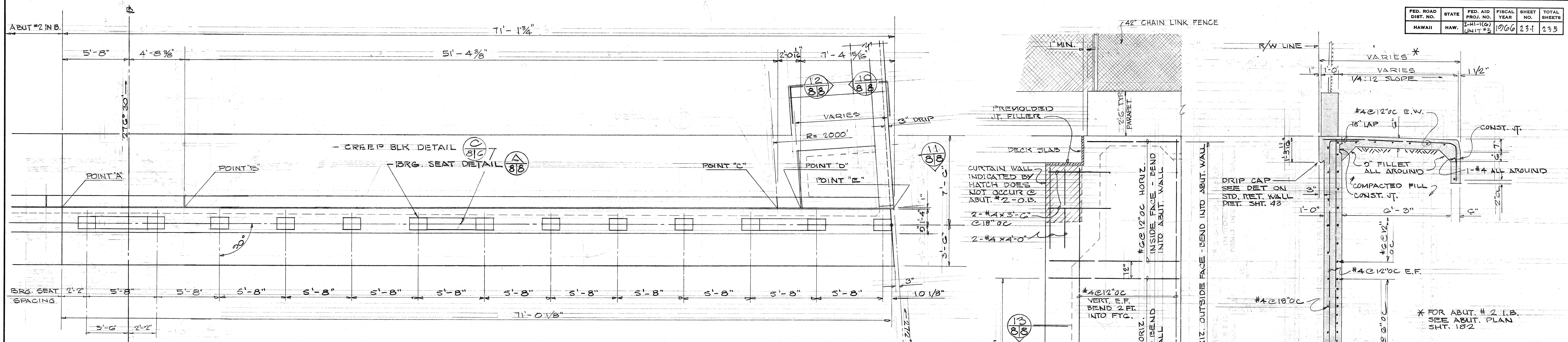
APPROVED
OUTSIDE PLANT ENGINEER, H.T.CO. LTD. 1-7-66
DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
KAPAKAHI STREAM BRIDGE
(STRUCTURE NO. 23)
ABUTMENT NO. 1 - OUTBOUND
PLAN, ELEVATION & DETAILS
INTERSTATE HIGHWAY (LUALILU FREEWAY)
F.A.I. PROJ. NO. I-11-1(6) UNIT #3
DATE: JANUARY, 1966
SHEET No. 7 OF 9 SHEETS

WILSON, OKAMOTO, OKA, INC.
PARK ASSOCIATES, INC.
ARCHITECTS & ENGINEERS

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
101	HAW.	101	1966	231	235



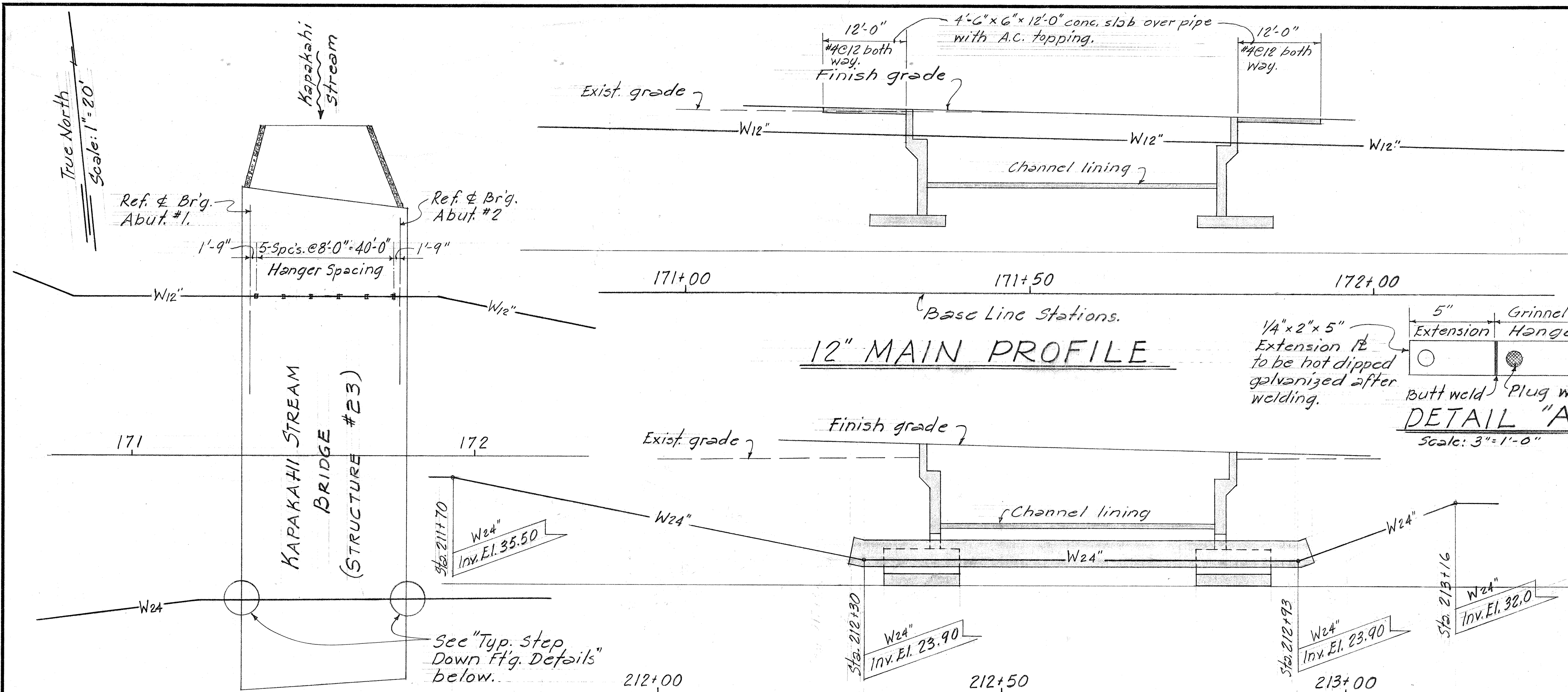
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
KAPAKAHI STREAM BRIDGE
(STRUCTURE NO. 23)
ABUTMENT NO. 2 - OUTBOUND
PLAN, ELEVATION, & DETAILS
INTERSTATE HIGHWAY (LUNALILO FREEWAY)
F.A.I. PROJ. NO. I-H-1(G) UNIT #3
DATE: JANUARY, 1965
SHEET No. 8 OF 9 SHEETS

WILSON, OKAMOTO, OKA, INC.
PARK ASSOCIATES, INC.
ARCHITECTS & ENGINEERS

ORIGINAL PLAN	DATE
DRAWN BY	
DESIGNED BY	
QUANTITIES BY	
CHECKED BY	

PRINTED ON CLEARPRINT 1000-H

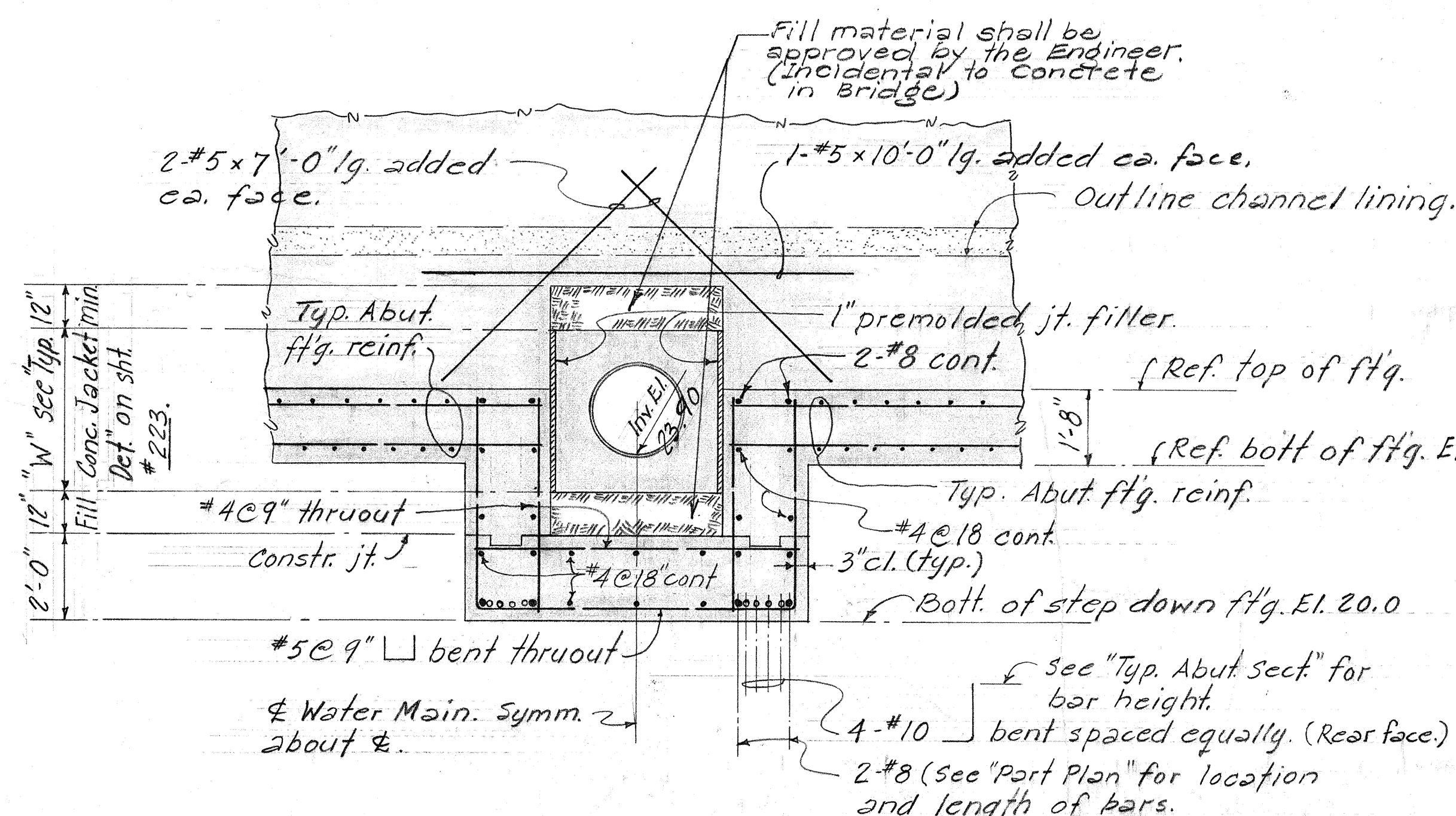
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	1-H-1(3)	1966	232	235



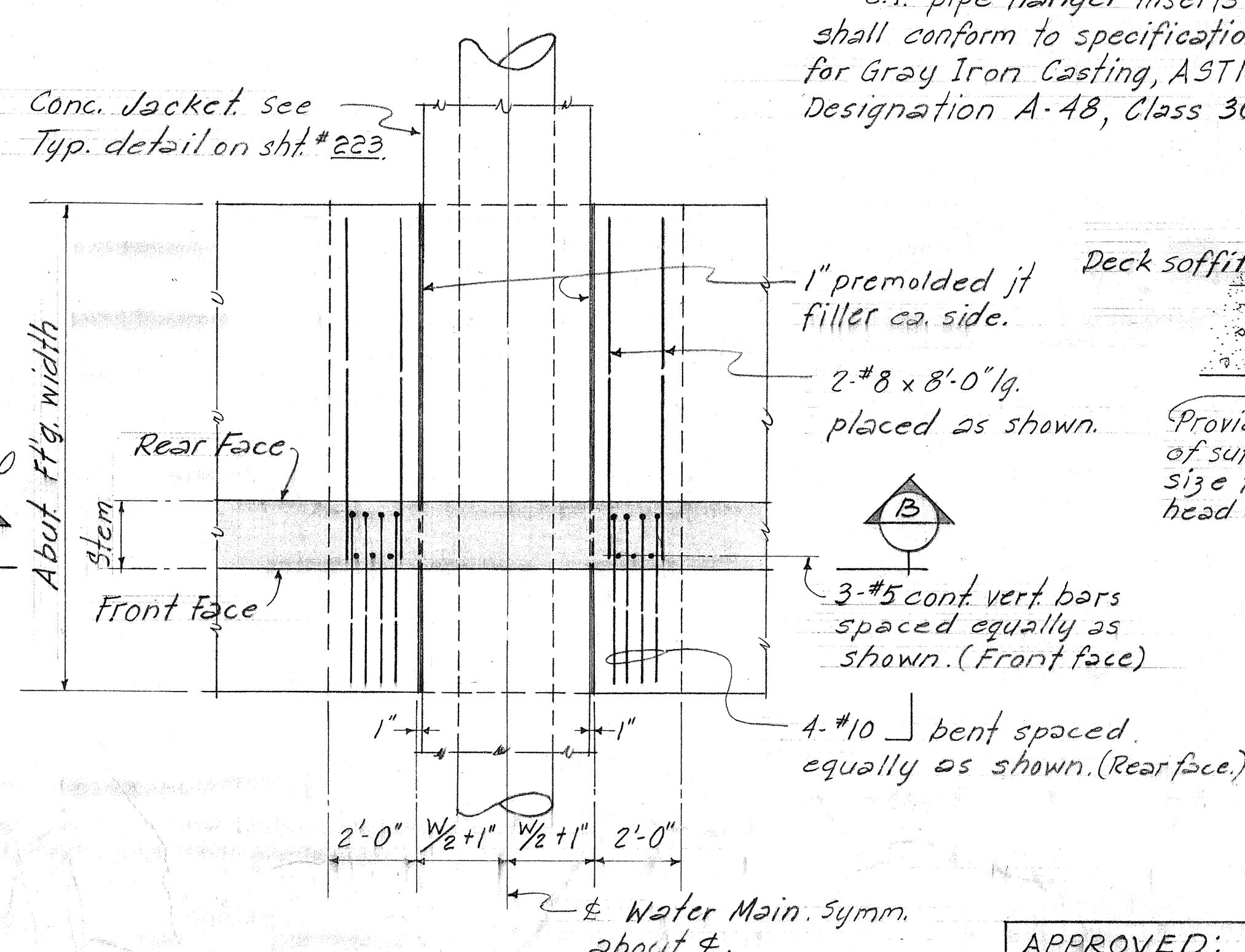
LAYOUT PLAN

12" MAIN PROFILE

24" MAIN PROFILE



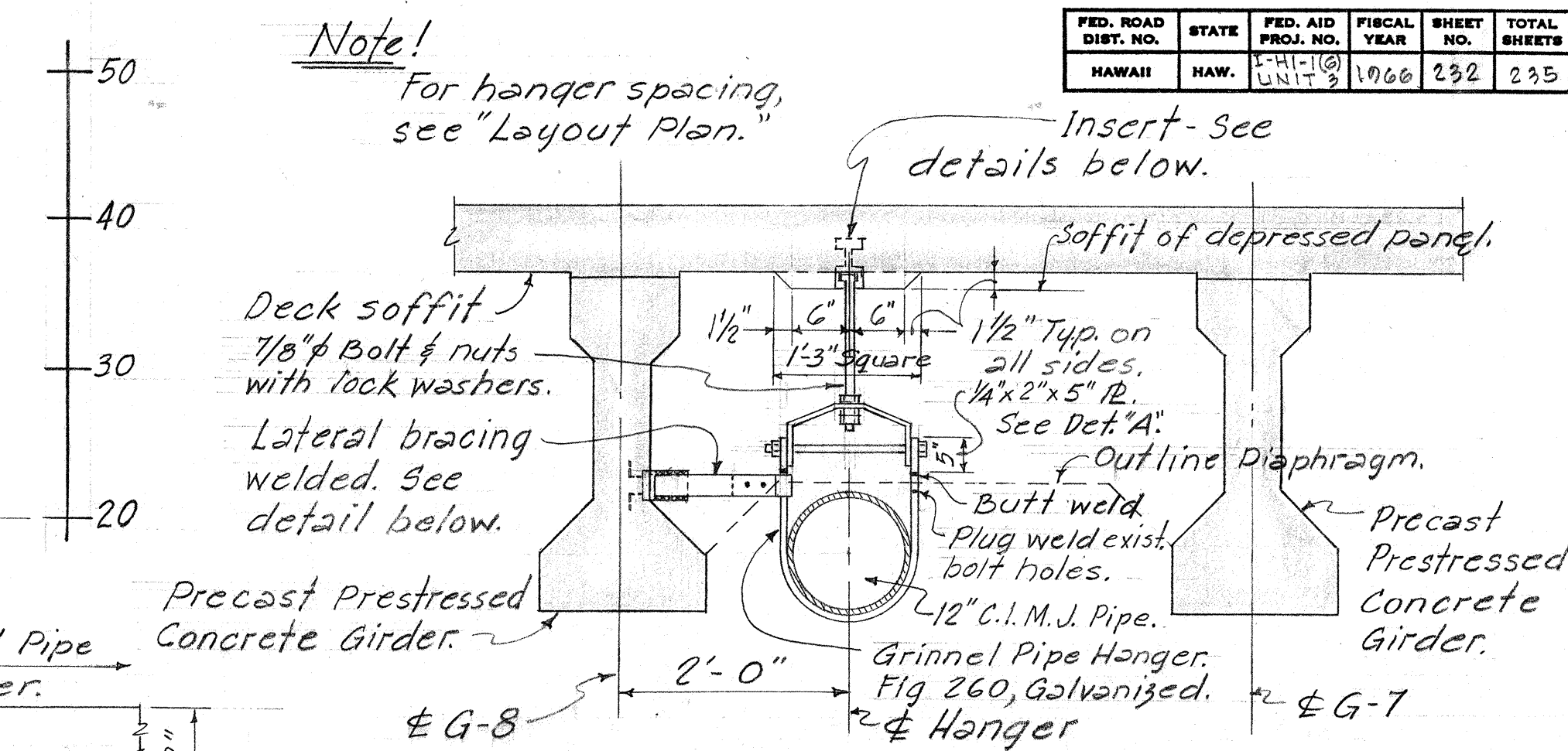
SECTION (B)



PART PLAN

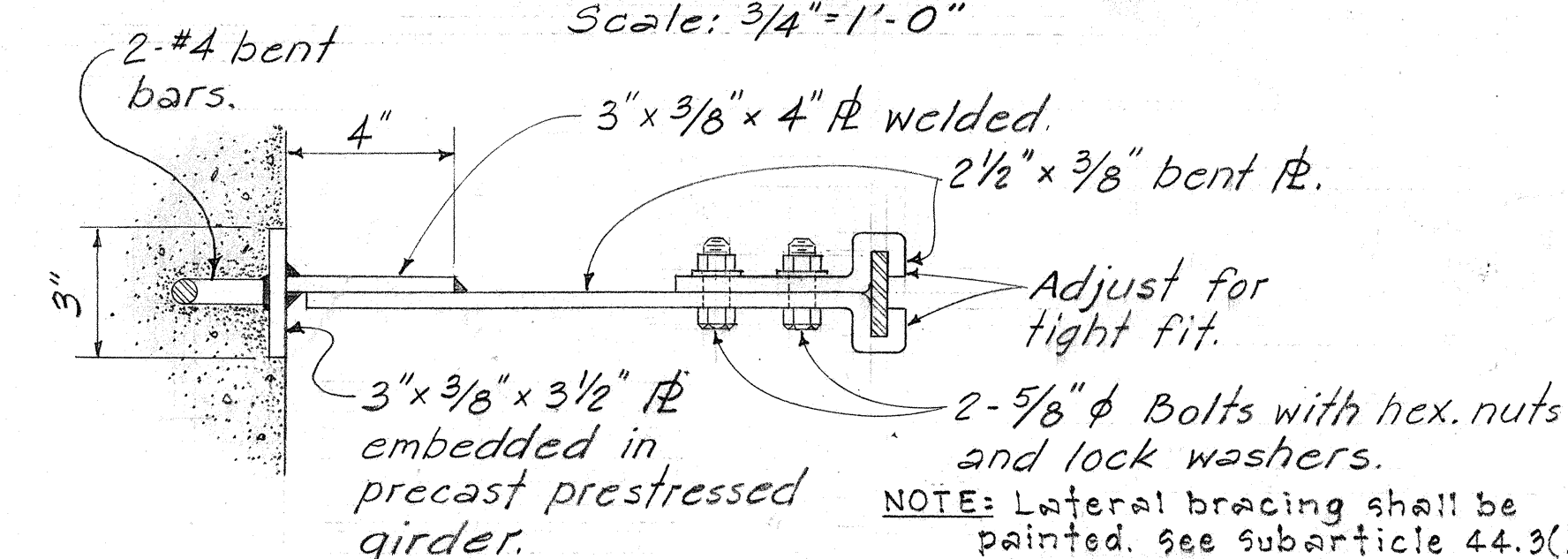
TYPICAL STEP DOWN FT'G. DETAILS

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



W12" MAIN HANGER DETAIL

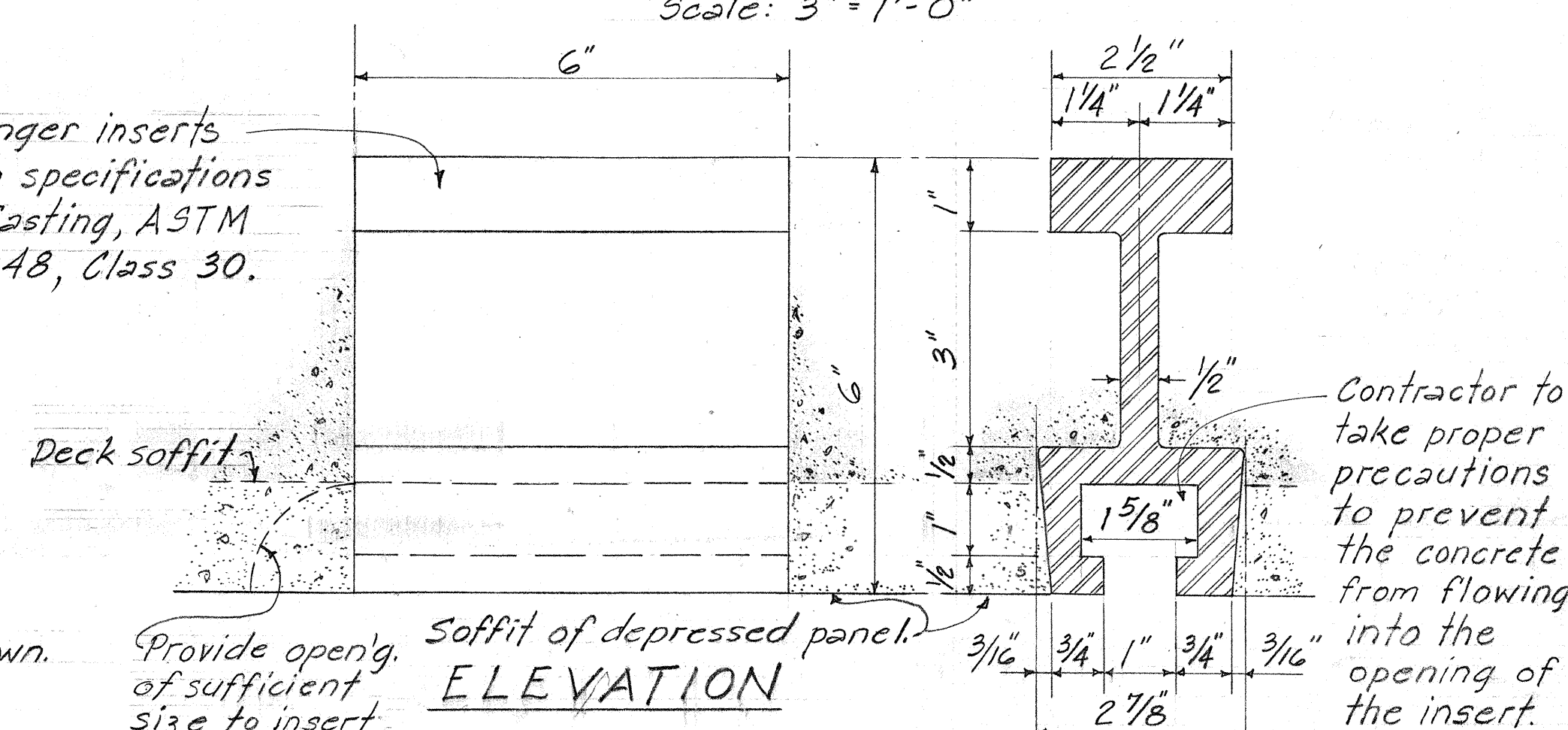
Scale: 3/4" = 1'-0"



PLAN VIEW OF LATERAL BRACING

Scale: 3" = 1'-0"

C.I. pipe hanger inserts shall conform to specifications for Gray Iron Casting, ASTM Designation A-48, Class 30.



NORMAL SECTION INSERT DETAILS

Half Size

APPROVED:

Assistant Chief Engr. BWS DATE 9-12-66

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

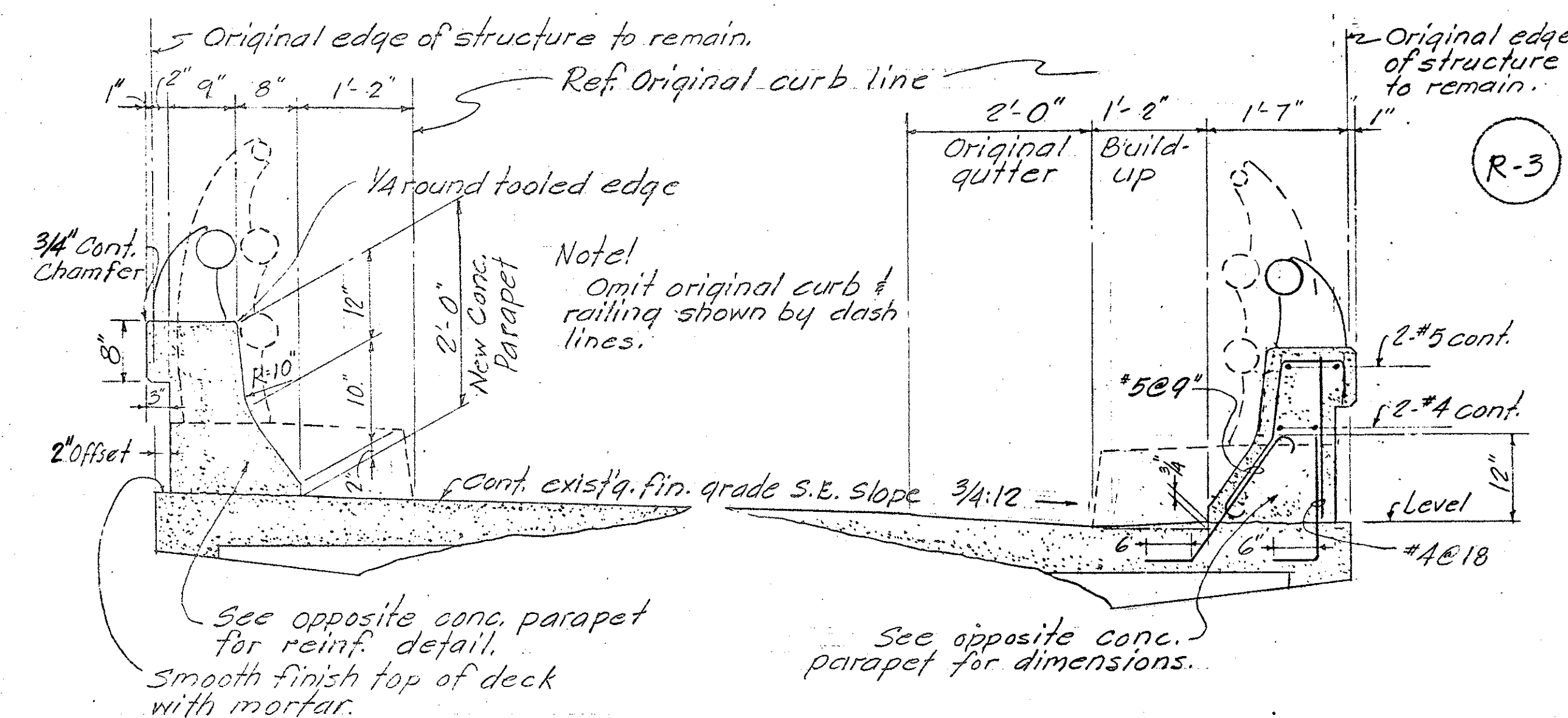
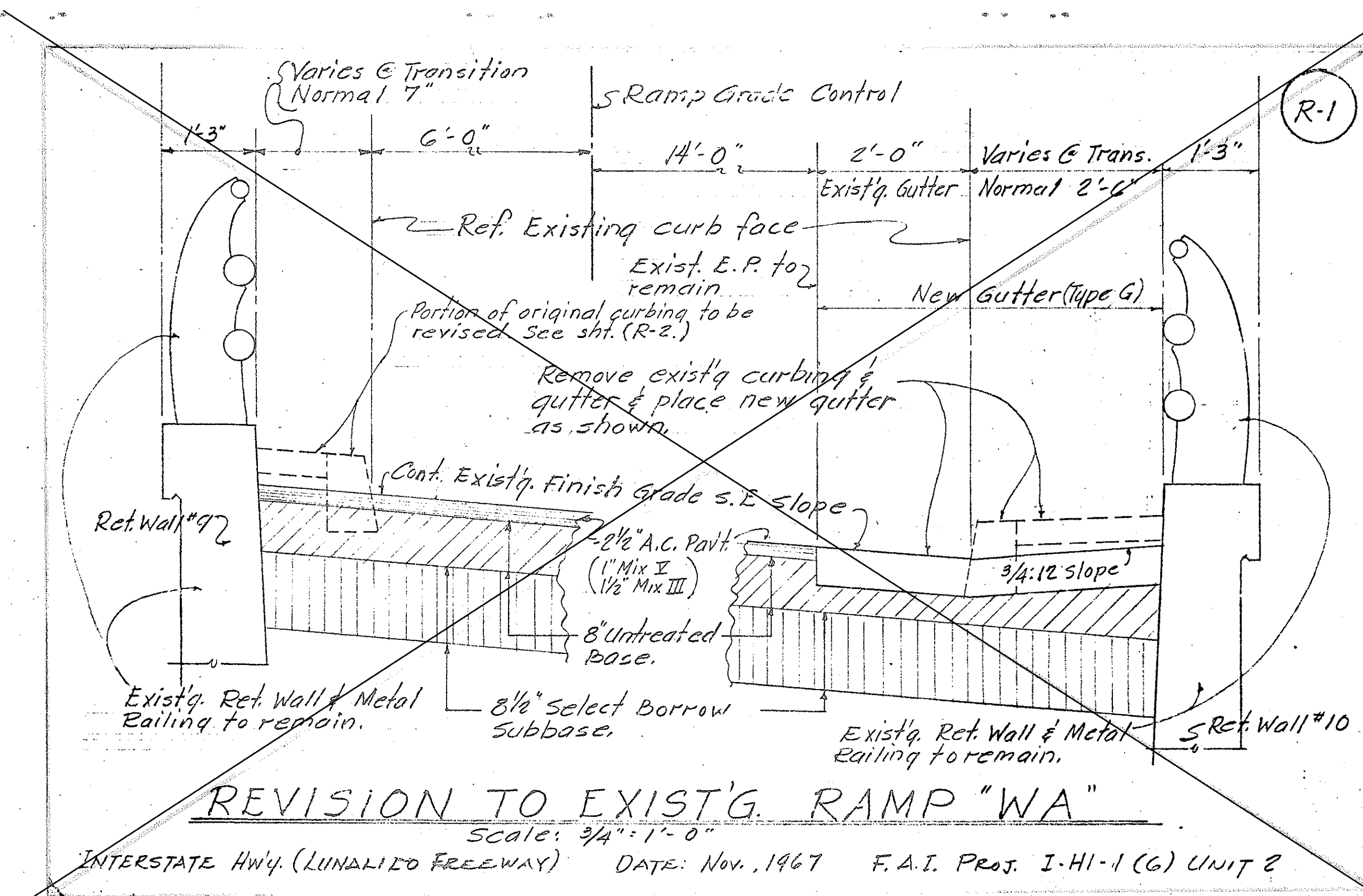
DETAILS FOR 12" & 24"
WATER MAINS FOR
KAPAKAHI STREAM BR.

INTERSTATE HIGHWAY
Date: June, 1966 Proj. No. I-H-1(3)

SHEET No. 9 OF 9 SHEETS

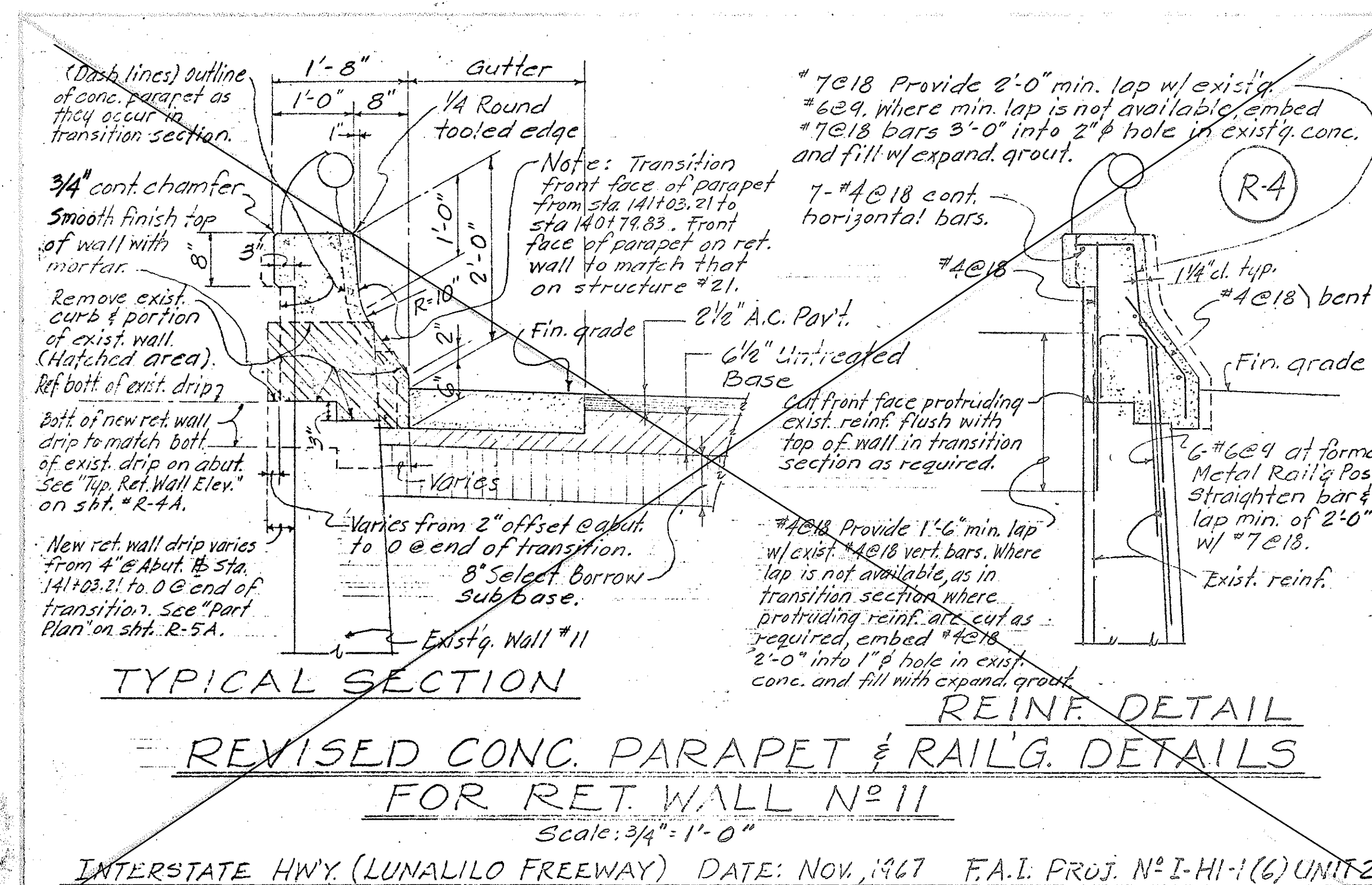
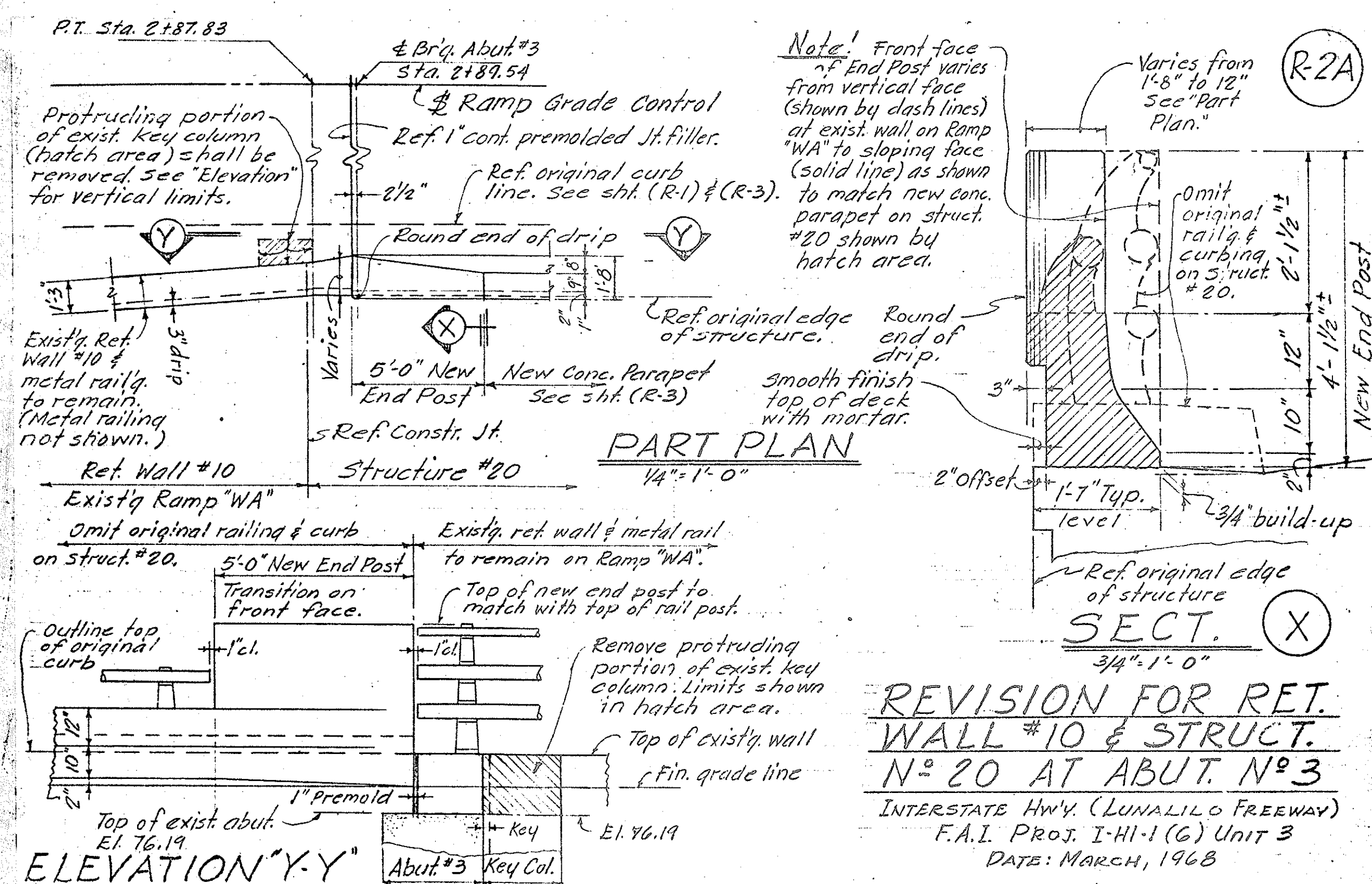
2 3 2

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	E-HI-1(G), Unit 3	1985	C.O. 2225-1	235



REVISED NORMAL PART SECTION
Scale: $3/4" = 1'-0"$
STRUCTURE NO 20

INTERSTATE HW'Y. (LUNALILO FREEWAY) DATE: Nov., 1967 F.A.I. PROJ. I-HI-1(6) UNIT 3



STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

CHANGE ORDER
DETAILS R-1, R-2A, R-3, & R-4

F.A.I. PROJ. NO. I-HI-1(6) ~~UNIT 2~~
UNIT 3

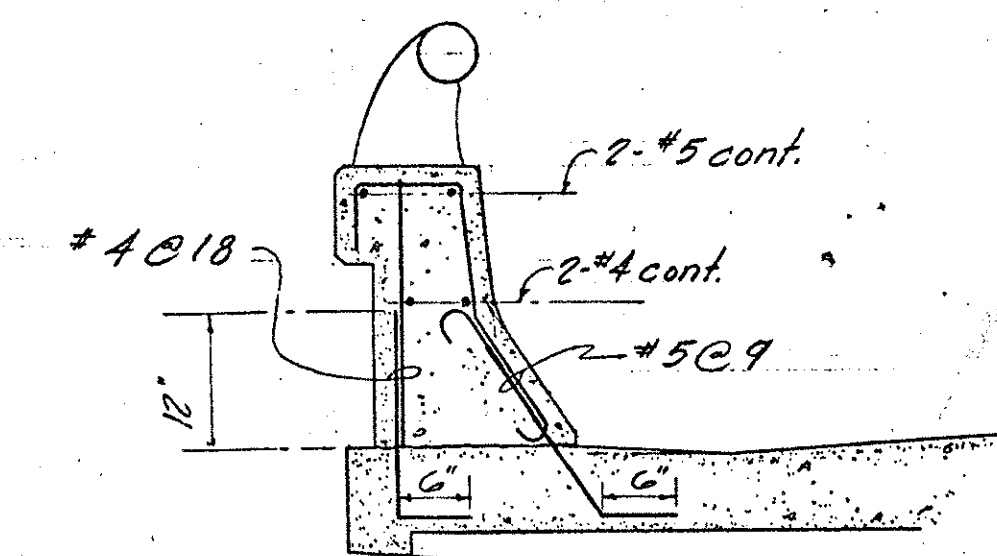
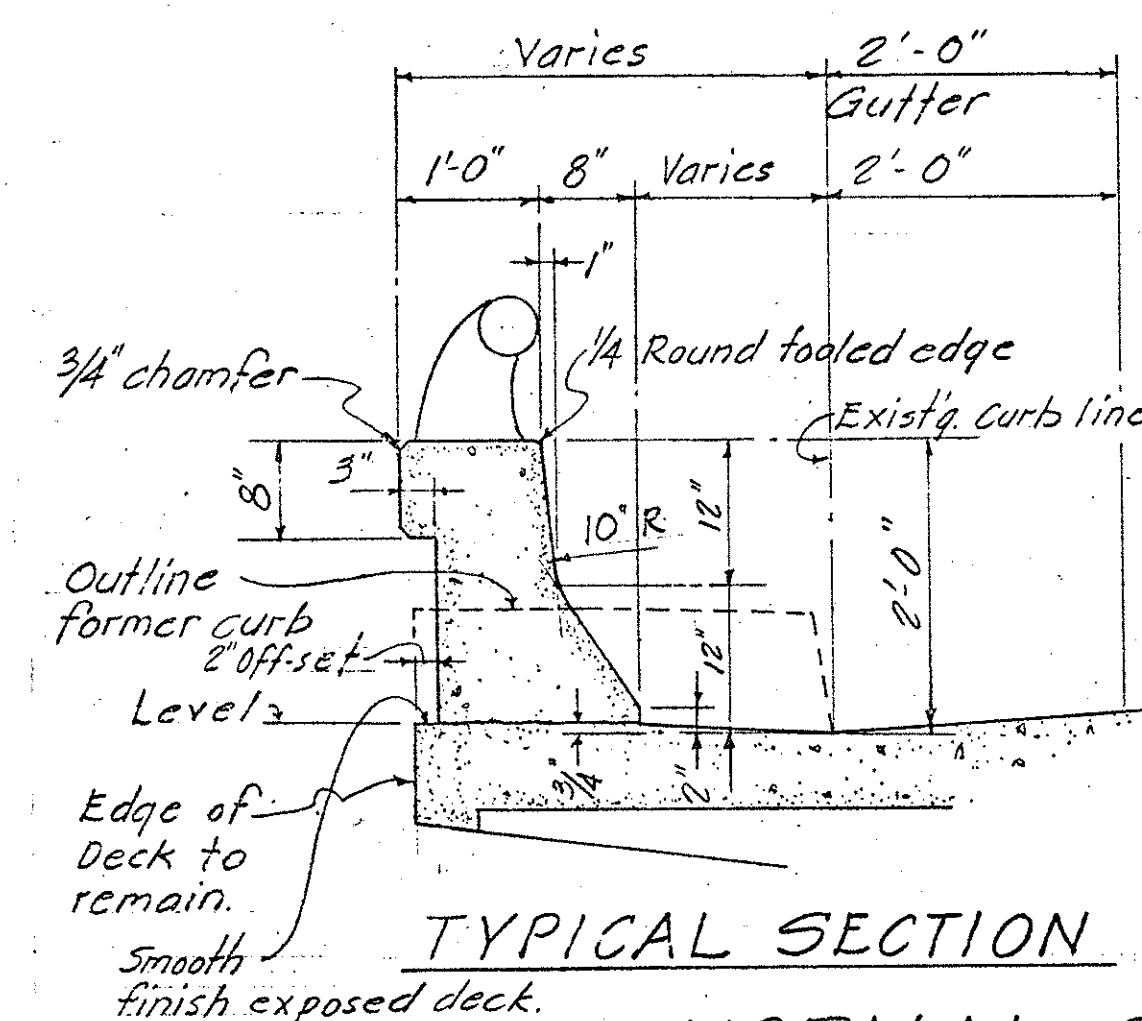
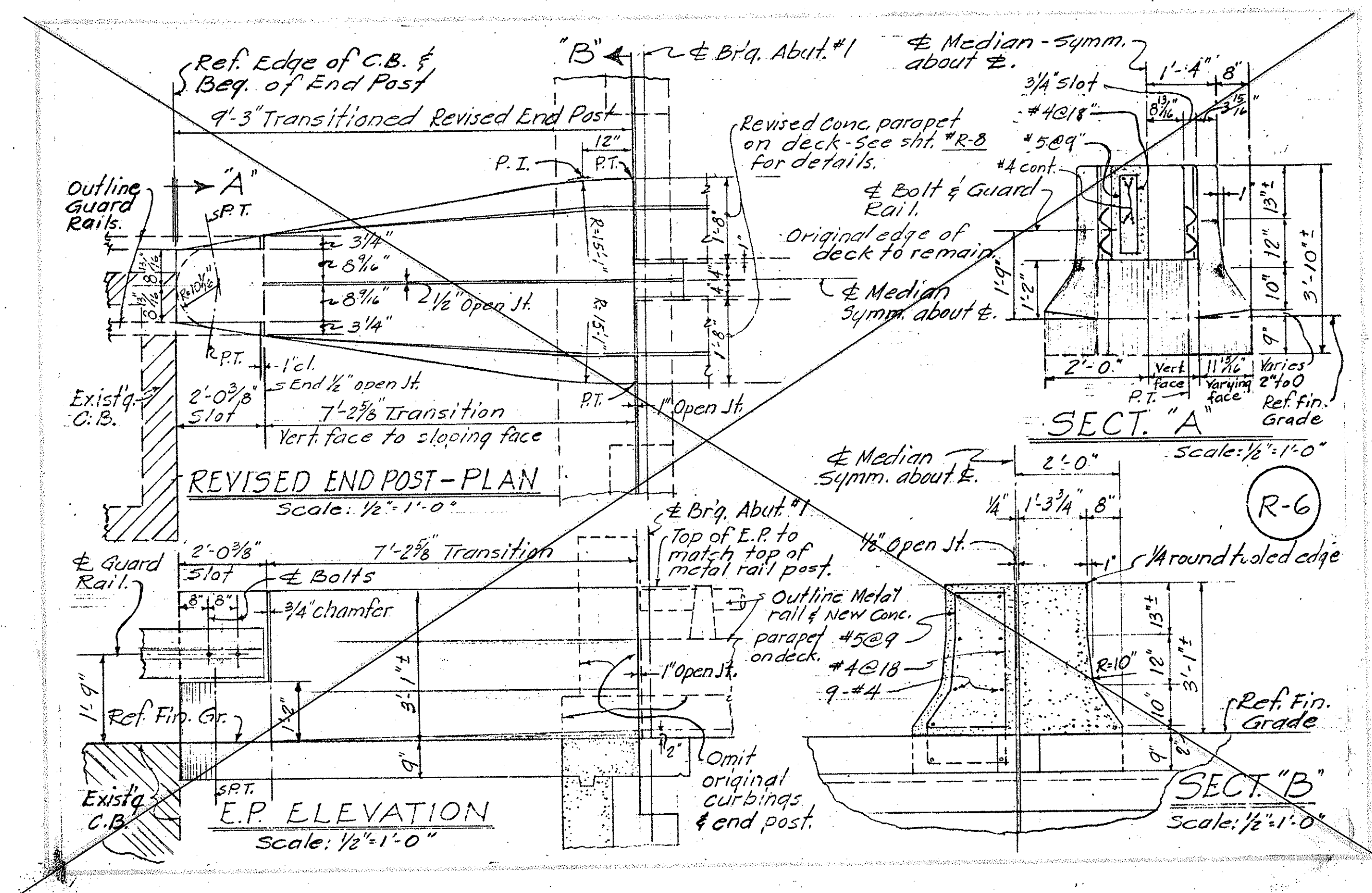
SHEET No. 1 OF 6 SHEETS

C.O. 232S-4

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-H1-1(6), UNIT 3	1985	C.O. 232S-2	235

SHT. # 1 OF # 7

(R-7



TYPICAL SECTION

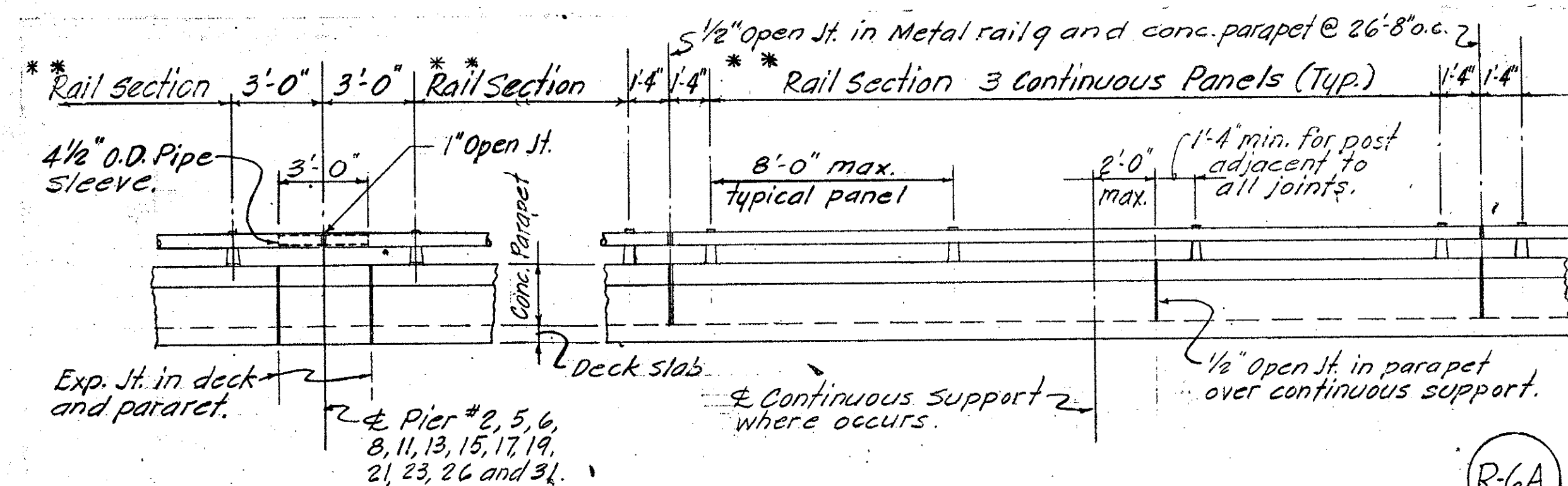
REINF DETAIL

deck. NORMAL SECTION AT
EXTERIOR END OF STRUCTURE

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

STRUCTURE N° 21

INTERSTATE HIGHWAY (LUNALILO FREEWAY)
F.A.I. PROJ. I-HI-1 (6) UNIT 3 DATE: Nov., 1967



AT DECK EXP. JOINT INTERMEDIATE
EXTERIOR RAILING ELEVATION

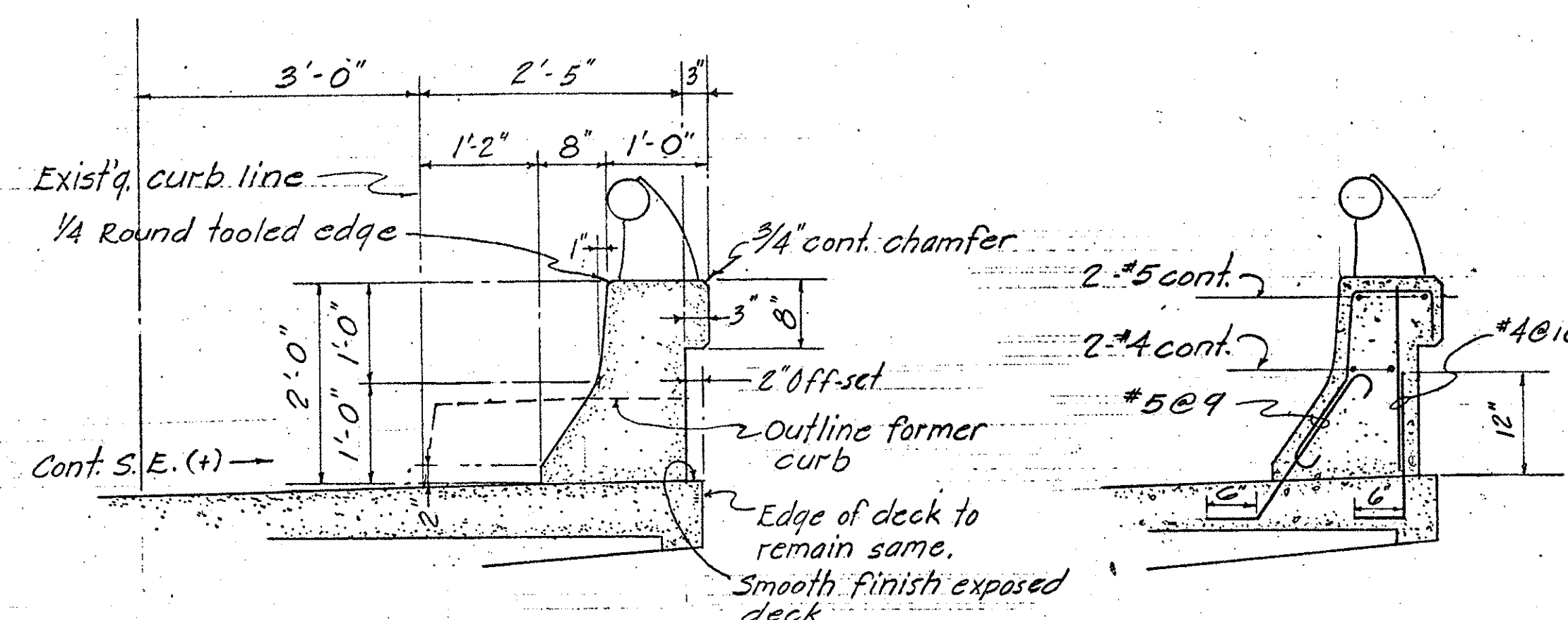
* * NOTE:

NOTE: The Contractor shall layout the railing to provide 3 continuous panels; whenever possible, 2 or 4 cont. panels will be permitted to complete the layout when 3 cont. panels cannot be made. Single panel will not be permitted.

Rail posts shall be normal to grade. Provide double posts at each parapet expansion joint except where joint occurs at continuous support, use single post as shown on detail drawing above. Also, use single post at deck expansion joint as shown on detail above..

STANDARD RAIL SPACING DETAILS

INTERSTATE HWY. (LUNALILO FREEWAY) DATE: MARCH, 1968 F.A.I. PROJ. I-41-1(6) UNIT 3



TYPICAL SECTION

REINF. DETAIL

NORMAL SECTION AT
MEDIAN END OF STRUCTURE

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

STRUCTURE N° 21

INTERSTATE HIGHWAY (LUNALILO FREEWAY)
F.A.I. PROJ. I-HI-1(6) UNIT 3 DATE: Nov. 1967

ORIGINAL PLAN	SURVEY PLOTTED BY _____ DATE _____
NOTE BOOK	DRAWN BY _____
	TRACED BY _____
	DESIGNED BY _____
	QUANTITIES BY _____
	CHECKED BY _____

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

CHANGE ORDER

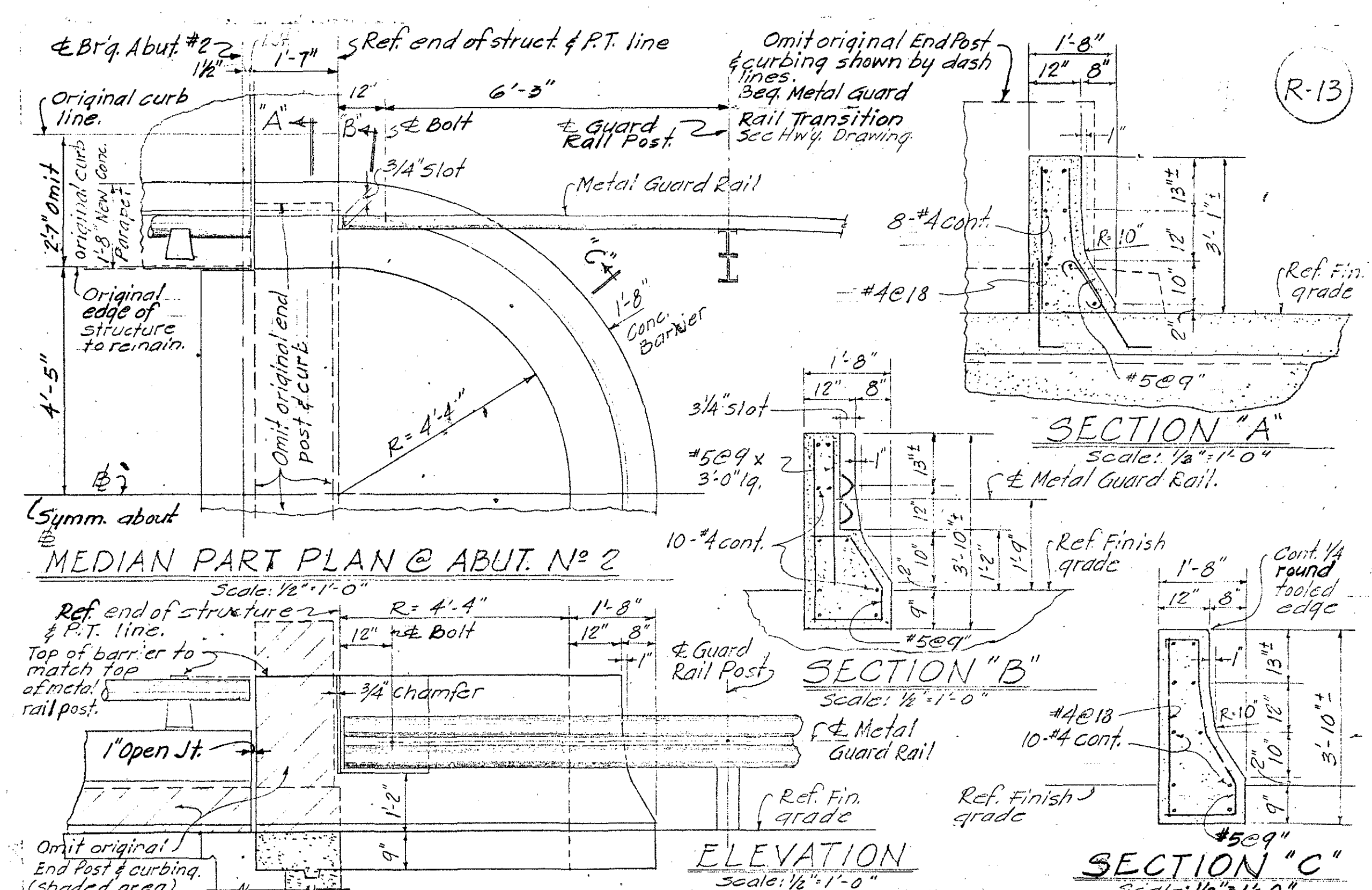
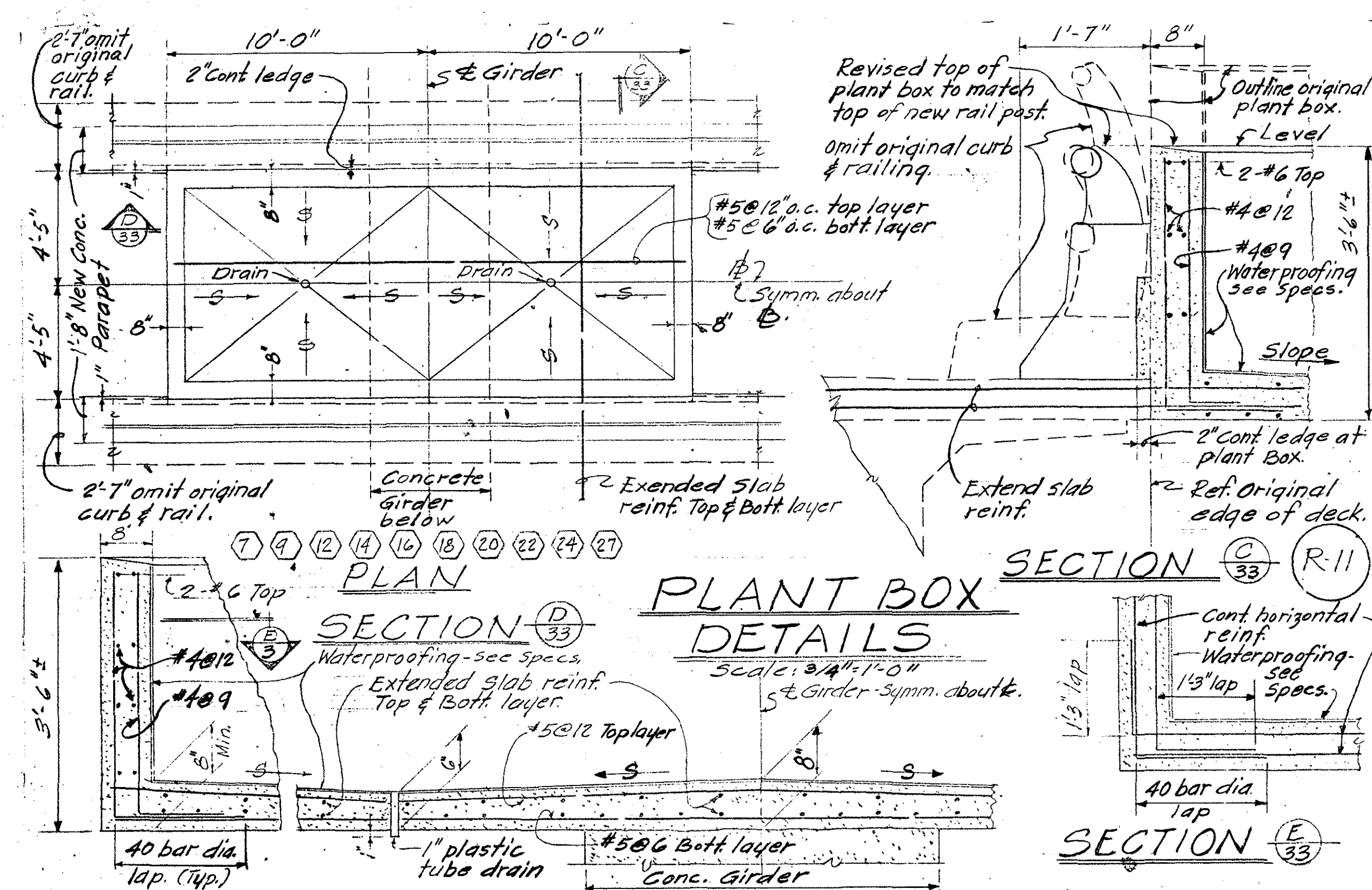
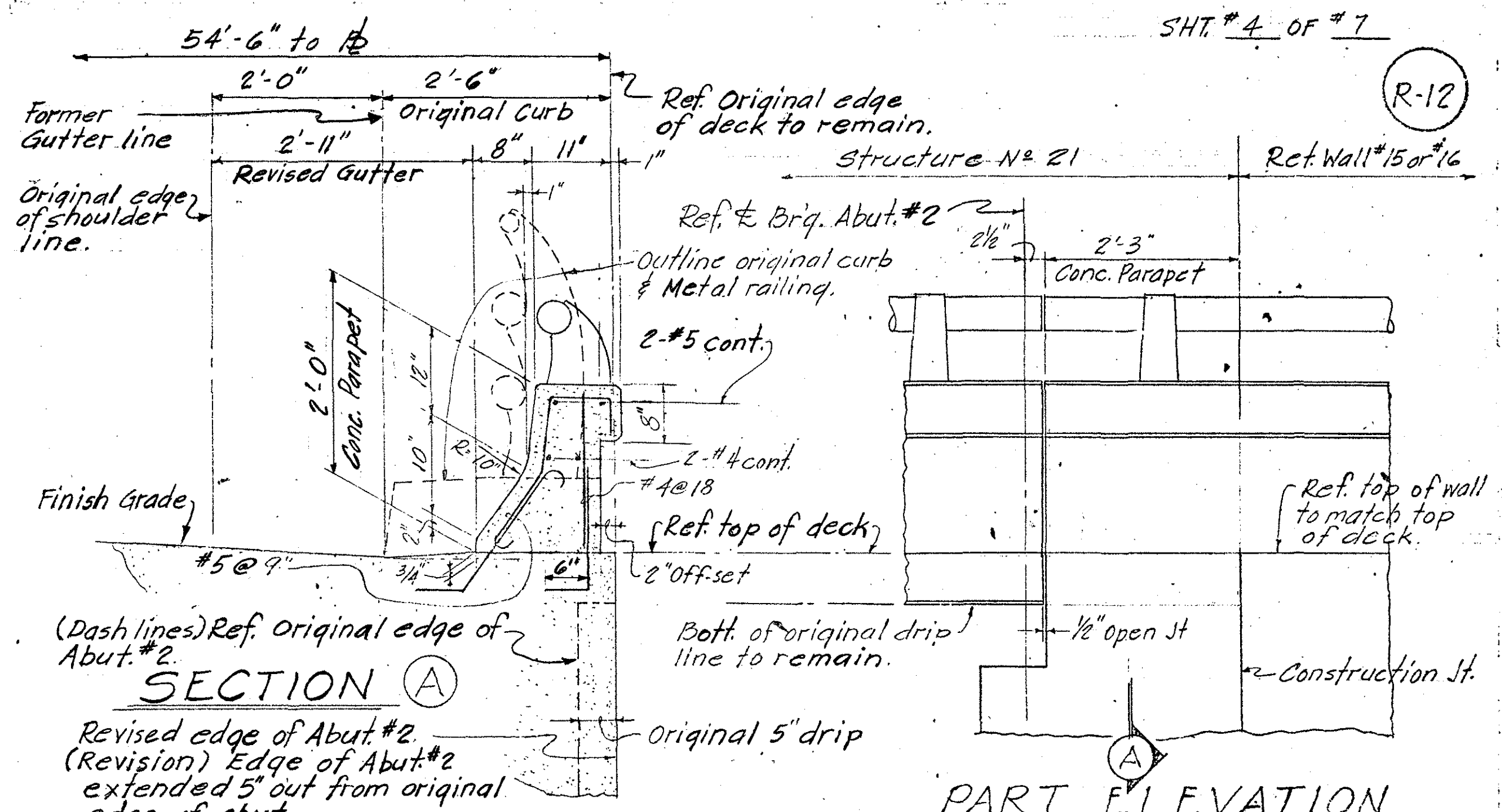
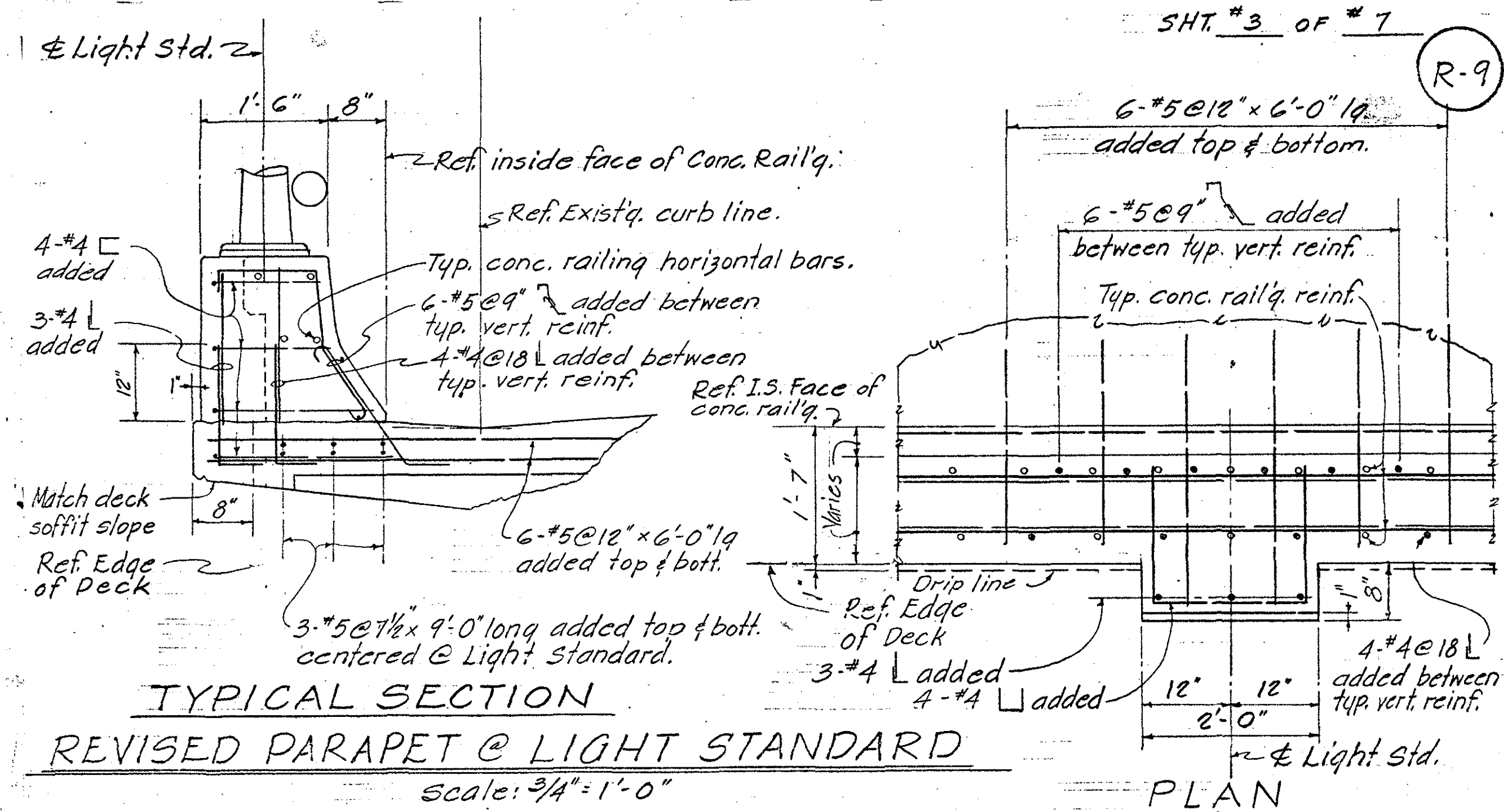
DETAILS R-6, R-6A, R-7 & R-8

F.A.I. PROJ. NO. I-H1-1(6) UNIT 3

SHEET No. 2 OF 6 SHEETS

C.O. 232S-2

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-H1-1(6), UNIT 3	1985	C.O. 232S-3	235



STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION

CHANGE ORDER

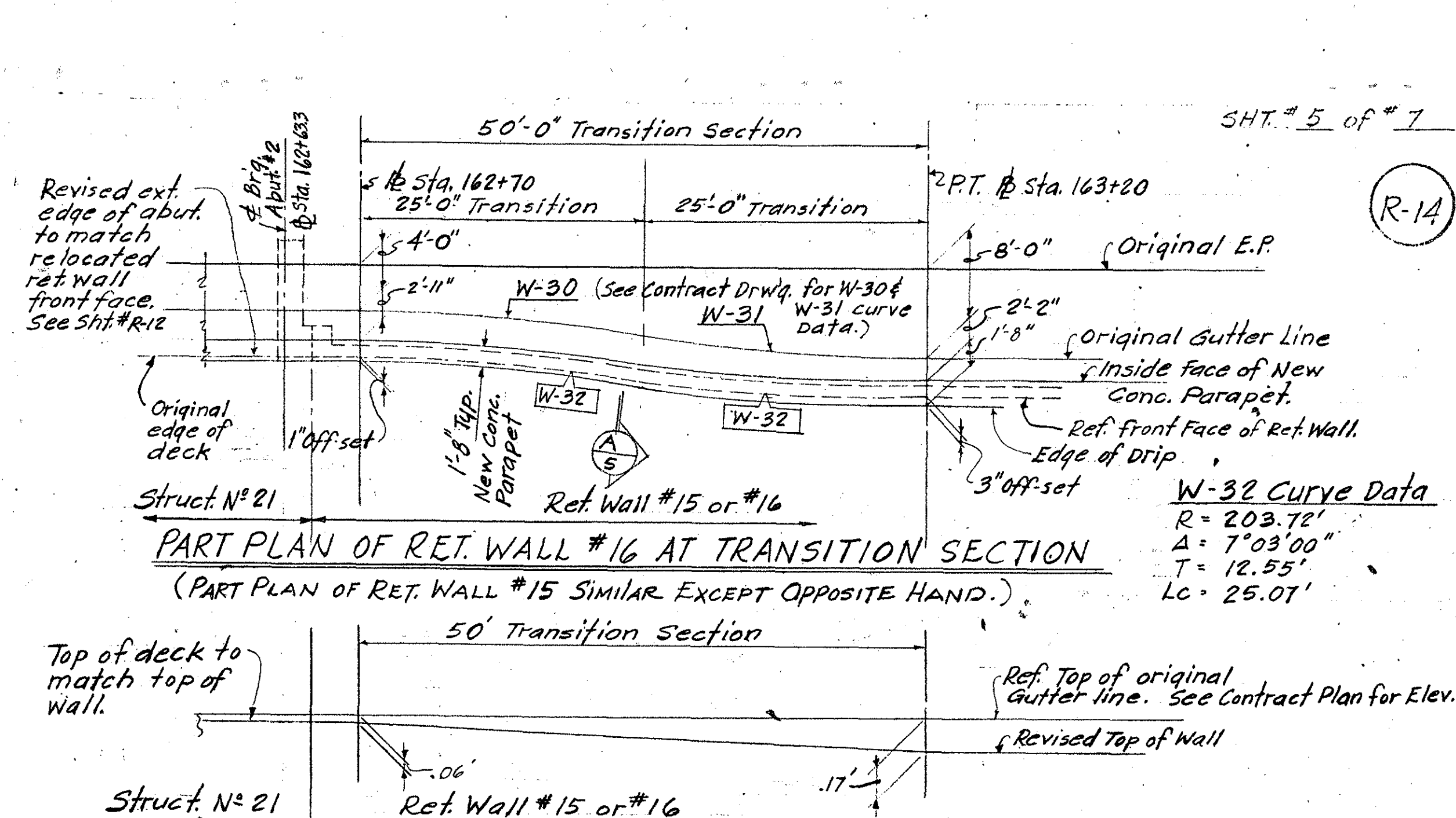
DETAILS R-9, R-11, R-12 & R-13

F.A.I. PROJ. NO. I-H1-1(6) UNIT 3

SHEET No. 3 OF 6 SHEETS

C.O. 232 S-3

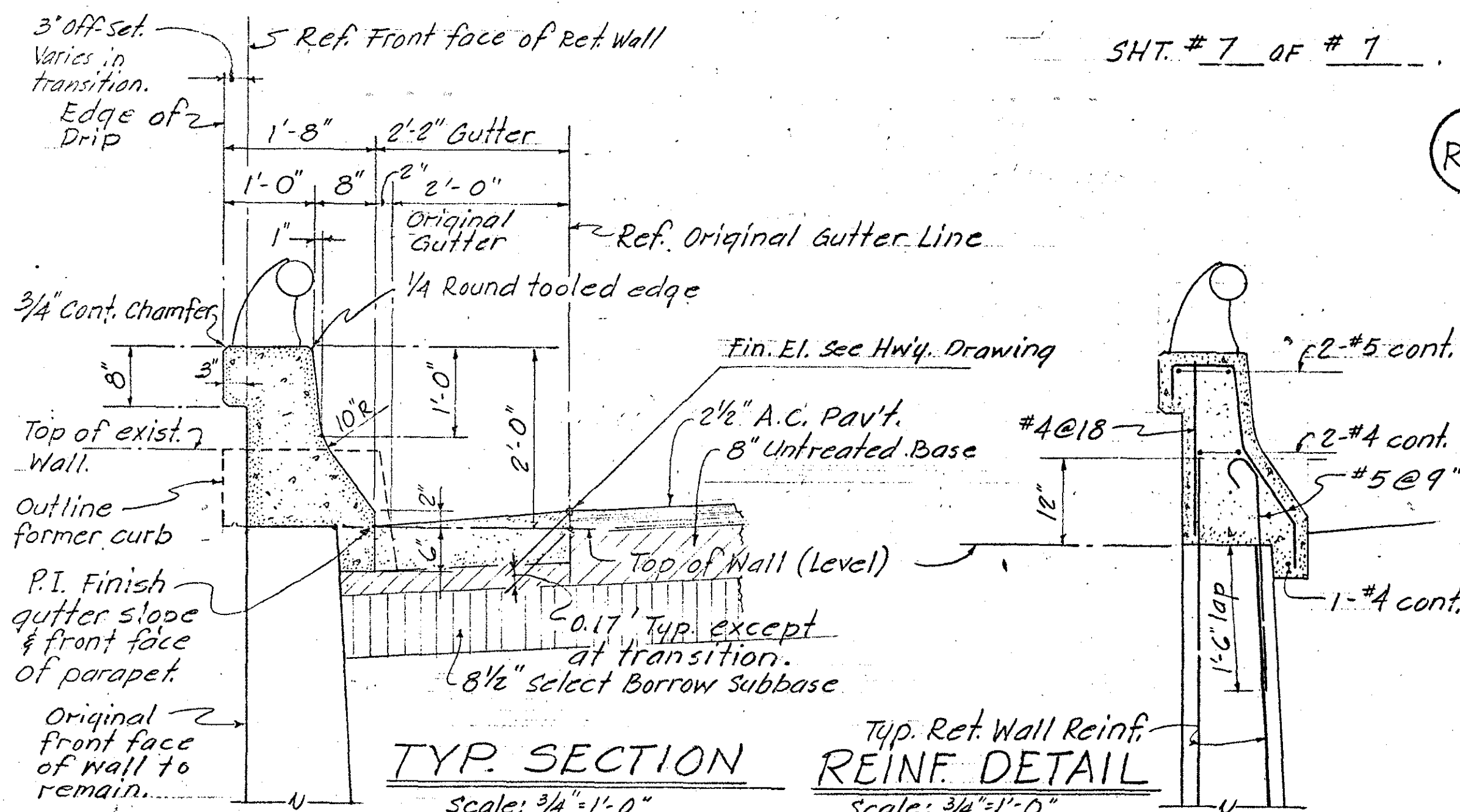
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-H1-1(6), Unit 3	1985	C.O. 232 S-4	235



REVISED TOP OF WALL-PROFILE ALONG FRONT FACE OF WALL

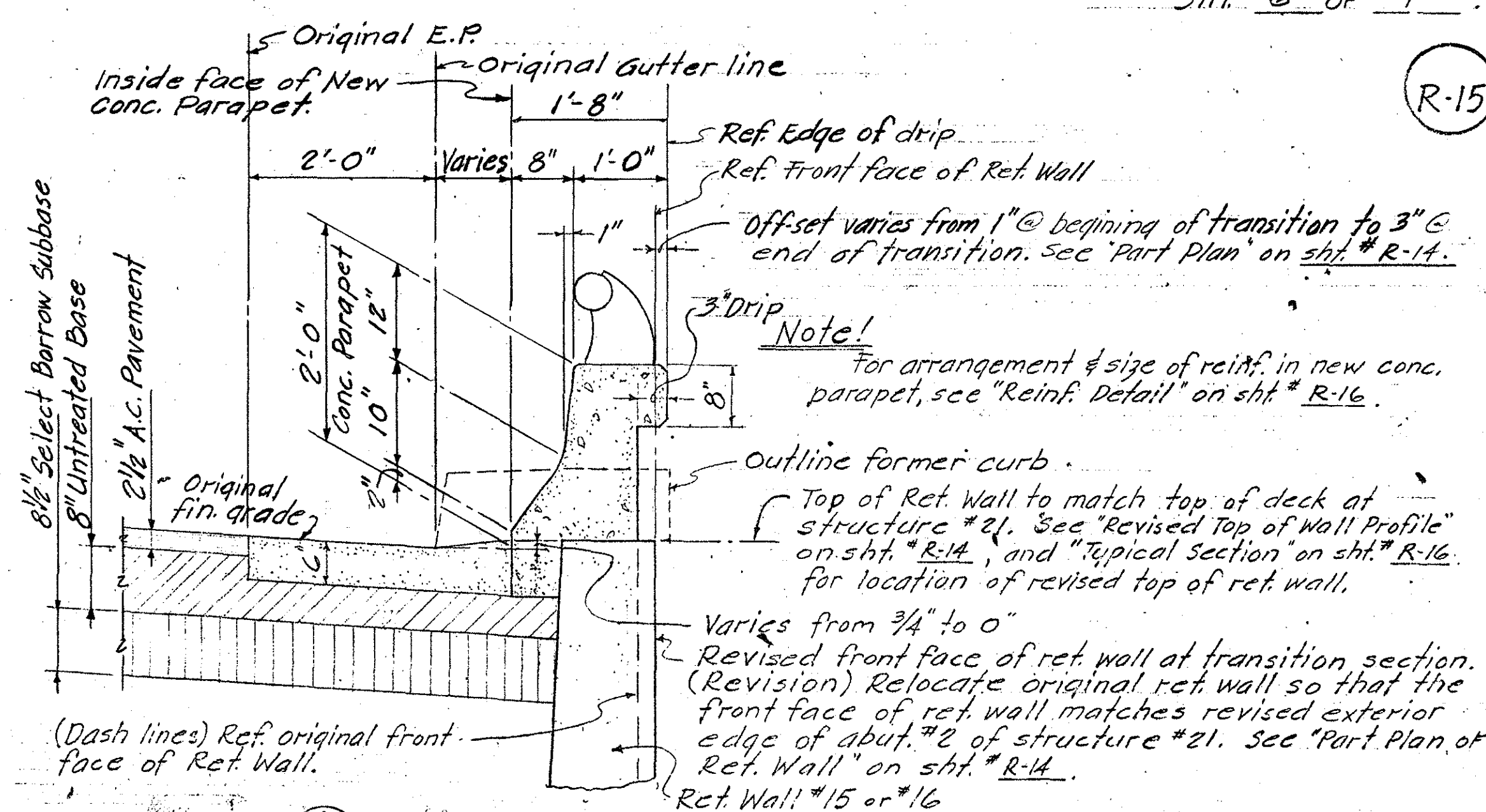
RET. WALLS N°15 & 16 AT TRANSITION SECTION

INTERSTATE HWY. (LUNALILO FREEWAY) F.A.I. PROJ. N° I-H1-1(6) UNIT 3 DATE: Nov, 1967 SCALE: No Scale



RET. WALL N°15 & 16 AT NORMAL SECTION

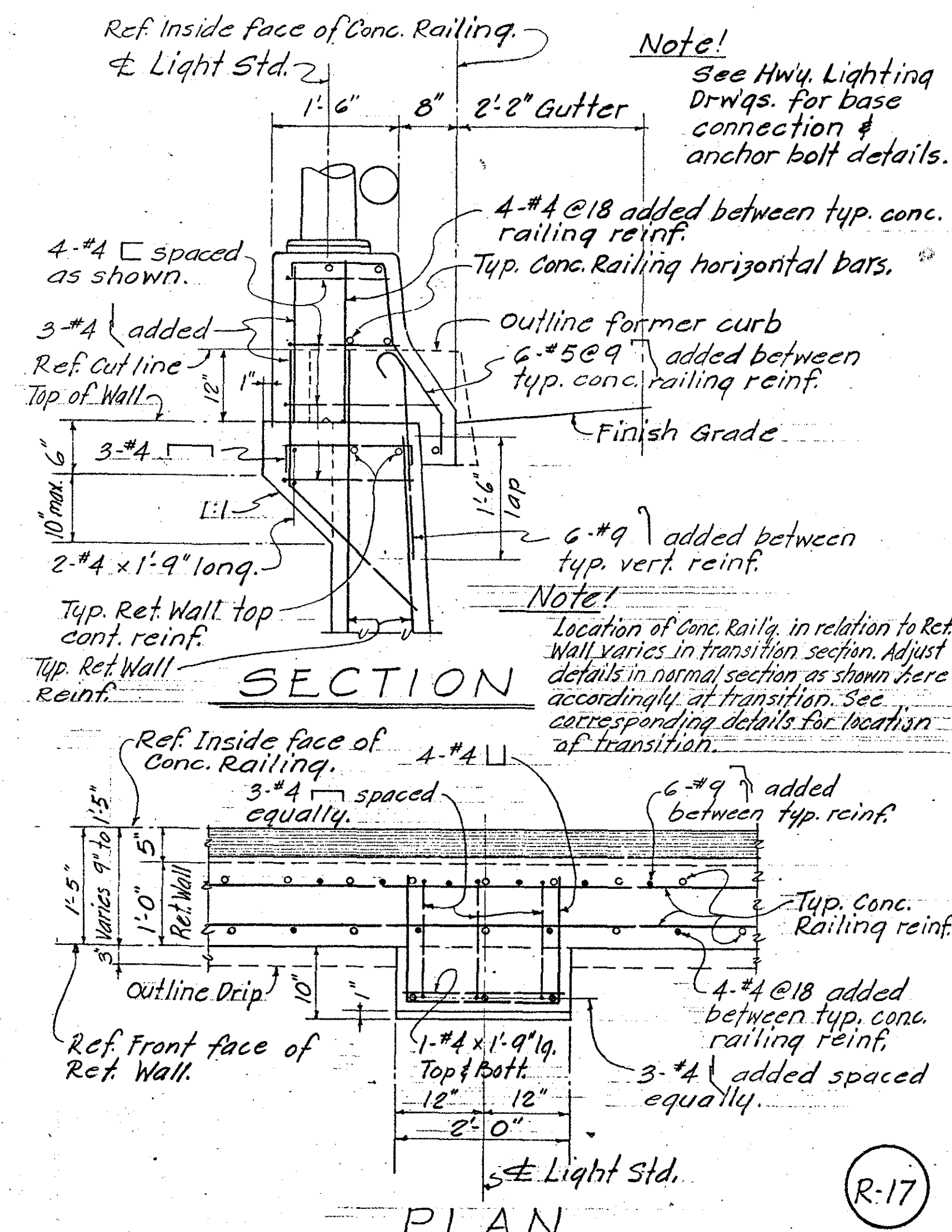
INTERSTATE HWY. (LUNALILO FREEWAY) DATE: Nov, 1967 F.A.I. PROJ. N° I-H1-1(6) UNIT 3



SECTION (A) TYP. SECTION AT TRANSITION SECTION

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

INTERSTATE HWY. (LUNALILO FREEWAY) DATE: Nov, 1967 F.A.I. PROJ. N° I-H1-1(6) UNIT 3



REVISED PARAPET & LIGHT STAND. FOR RET. WALL N°11, 15 & 16

INTERSTATE HWY. (LUNALILO FREEWAY) F.A.I. PROJ. N° I-H1-1(6) UNIT 3

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

CHANGE ORDER
DETAILS R-14, R-15, R-16 & R-17

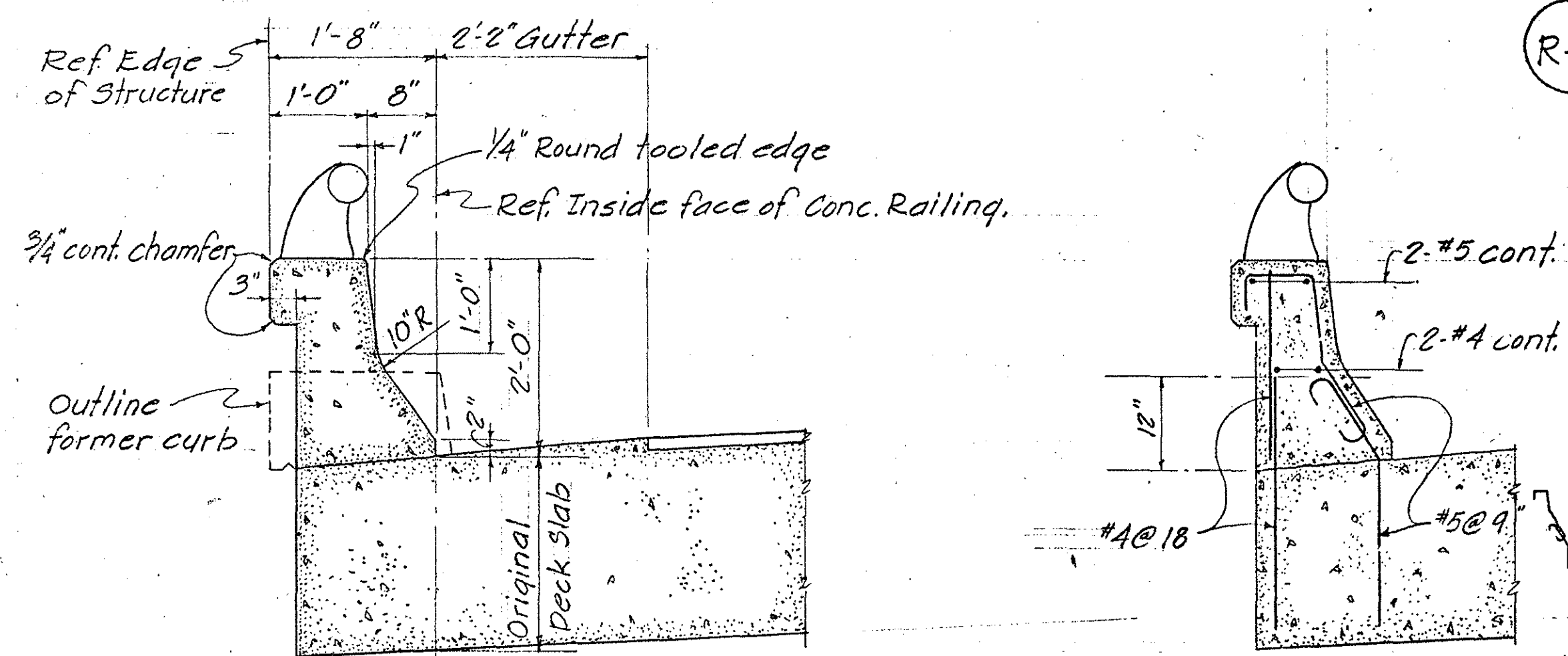
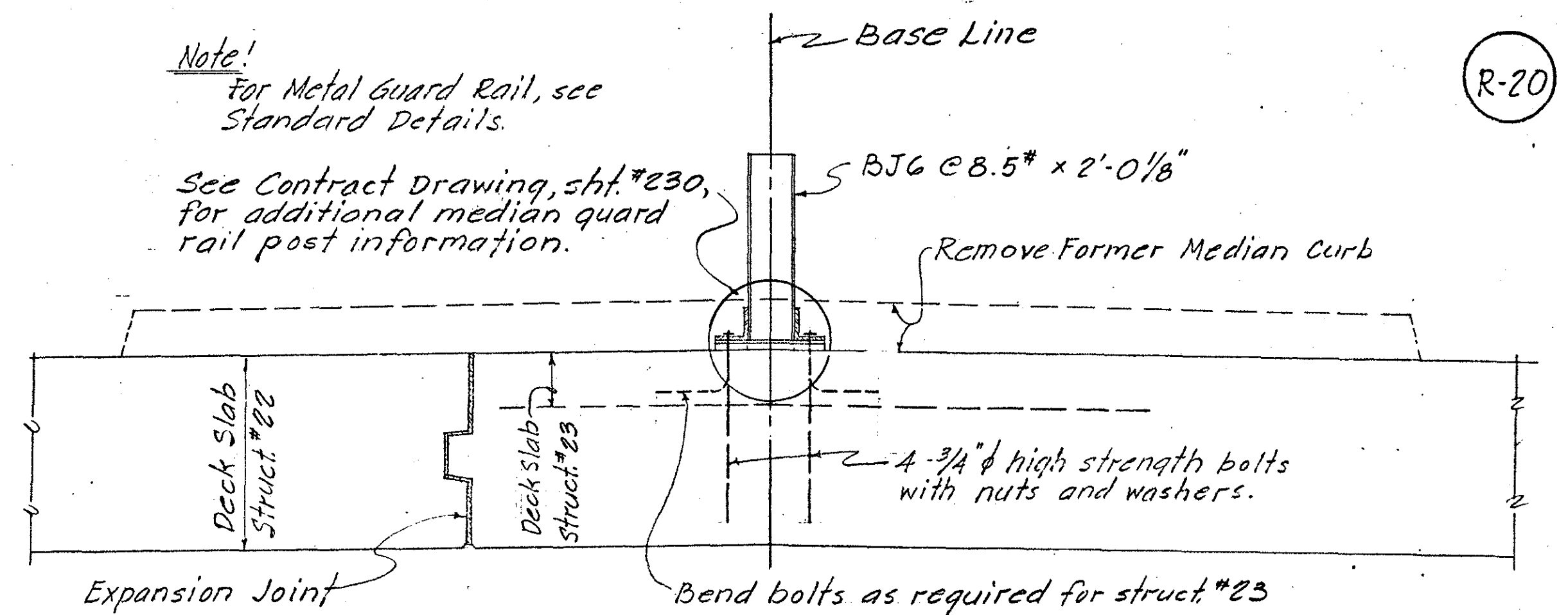
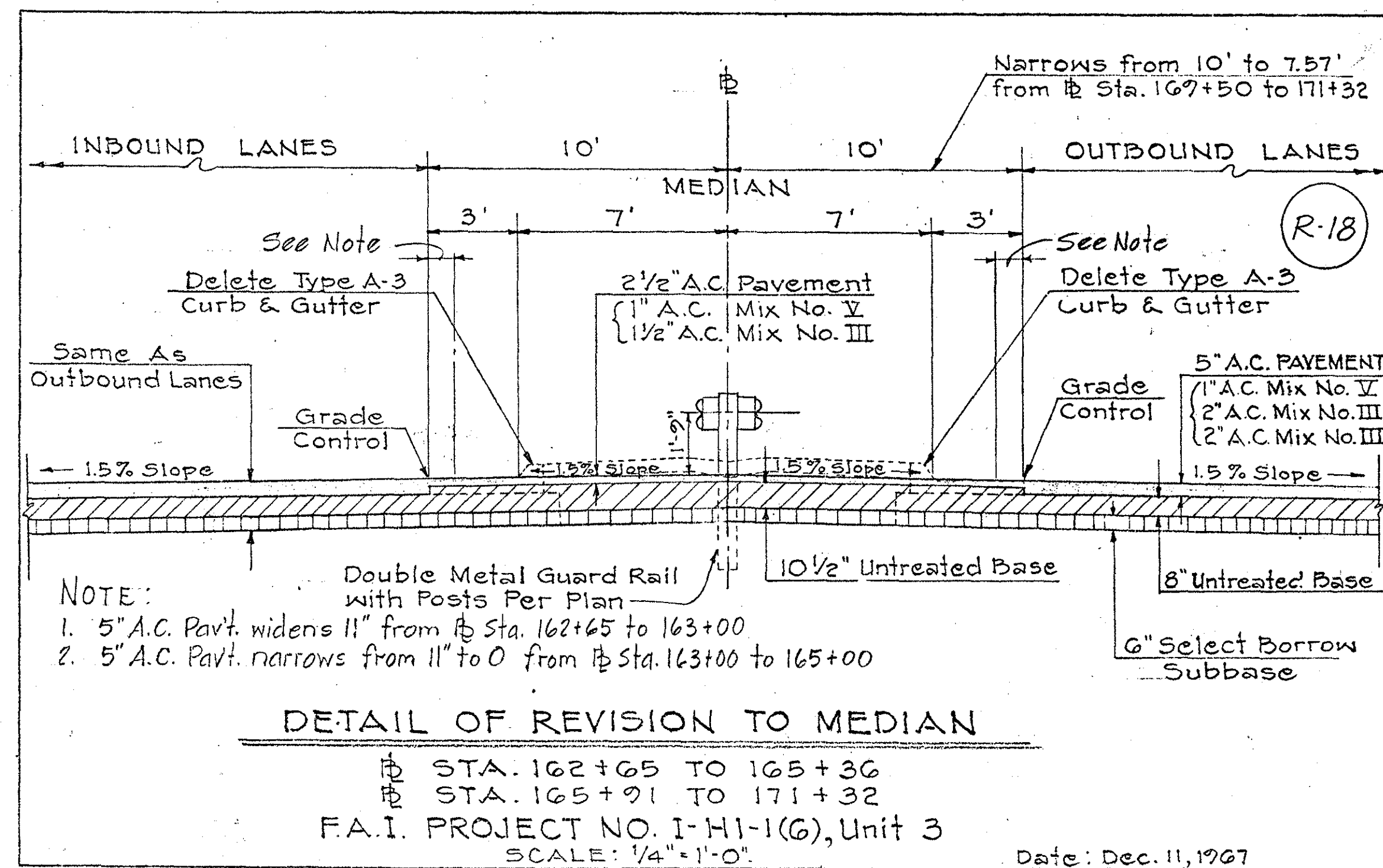
F.A.I. PROJ. NO. I-H1-1(6) UNIT 3

SHEET No. 4 OF 6 SHEETS

C.O. 232 S-4

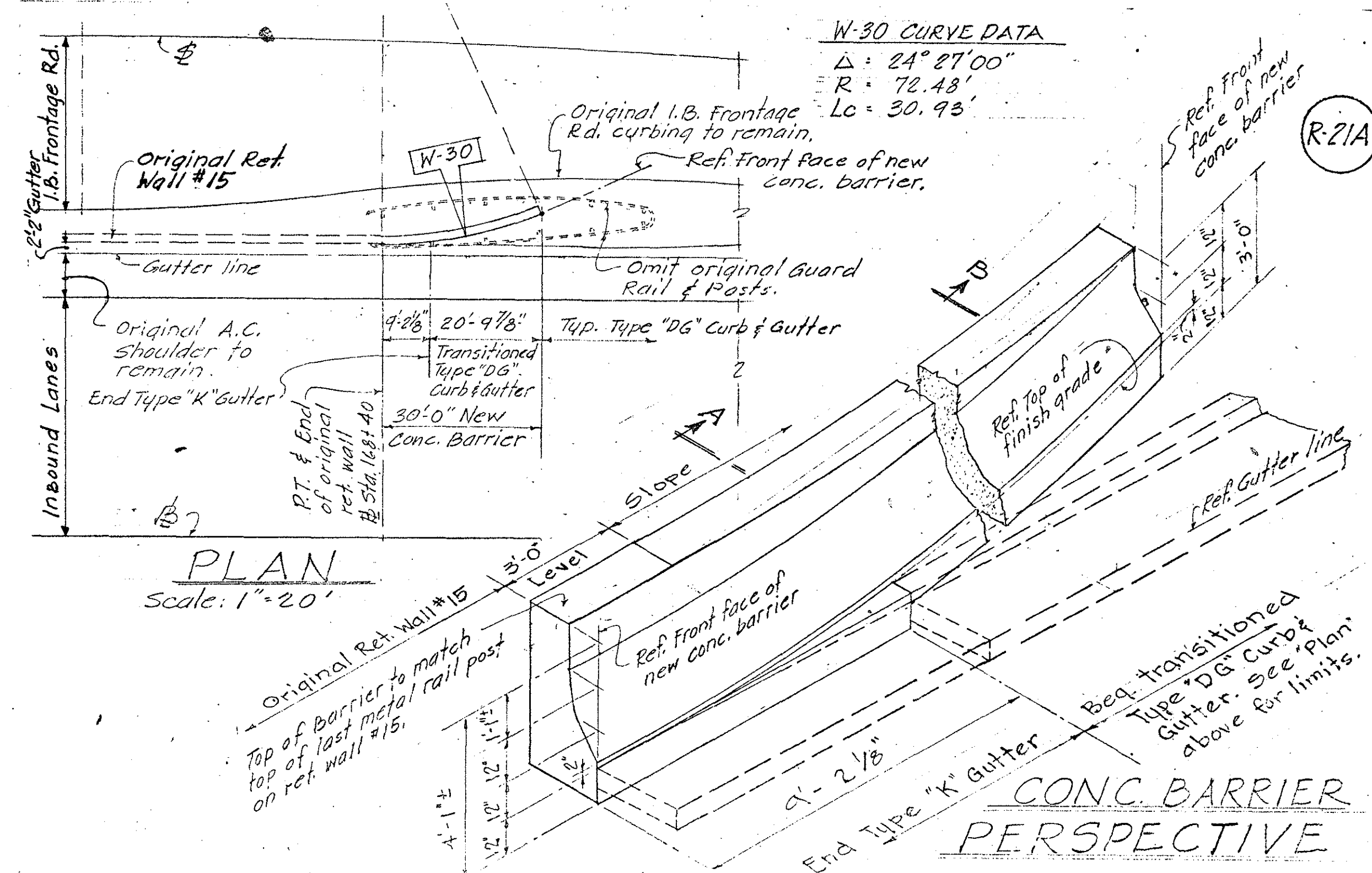
DATE	
SURVEY PLOTTED BY	
PLAN	
DESIGNED BY	
TRACED BY	
NOTED BY	
CHECKED BY	
.....	

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-H1-1(6) Unit 3	1985	C.O. 232S-5	235



**TYPICAL SECTION REINF. DETAIL
REVISED PARAPET
FOR INTERSTATE STRUCTURE N° 22**

INTERSTATE HIGHWAY (LUNALILO FREEWAY) F.A.I. PROJ. N° I-H1-1(6) UNIT 3



STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

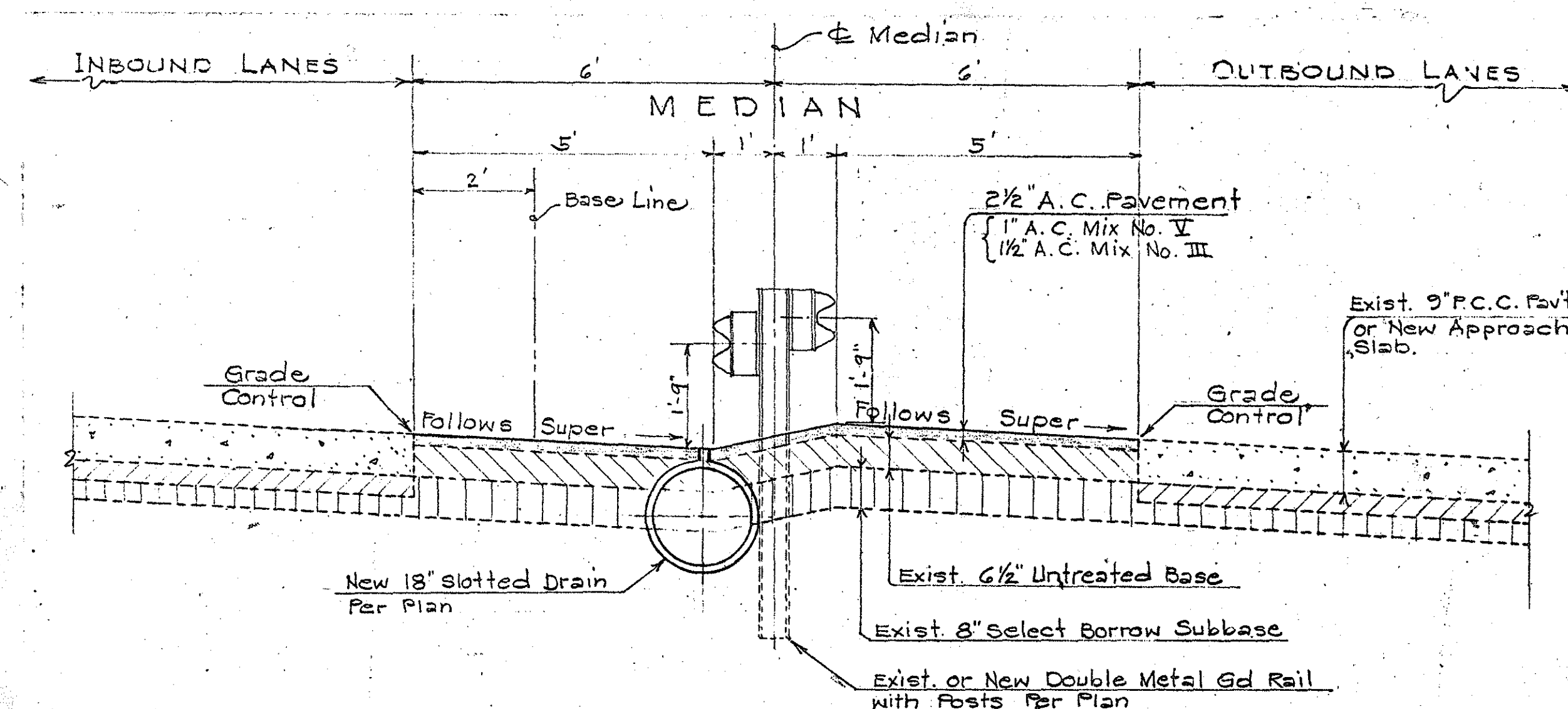
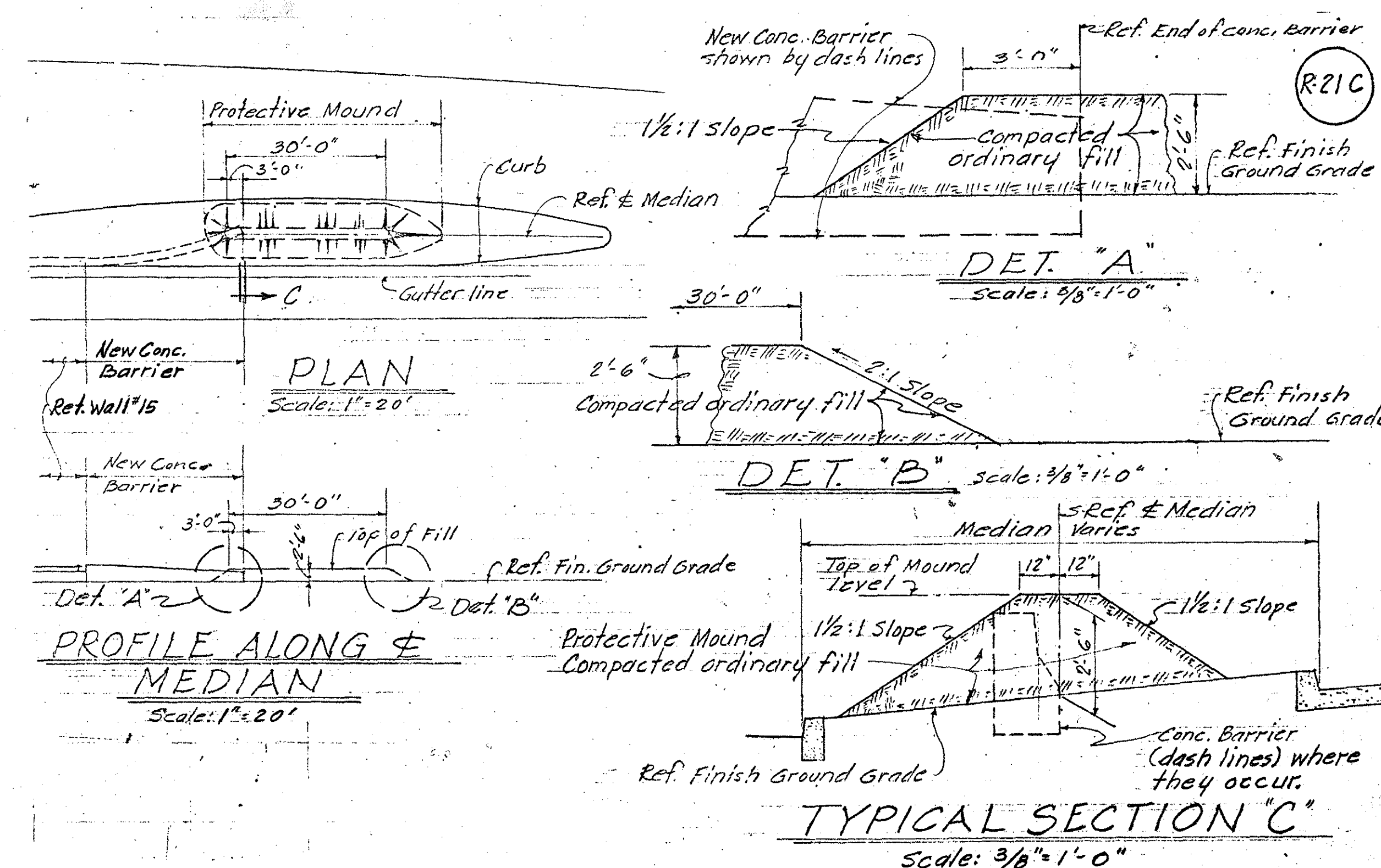
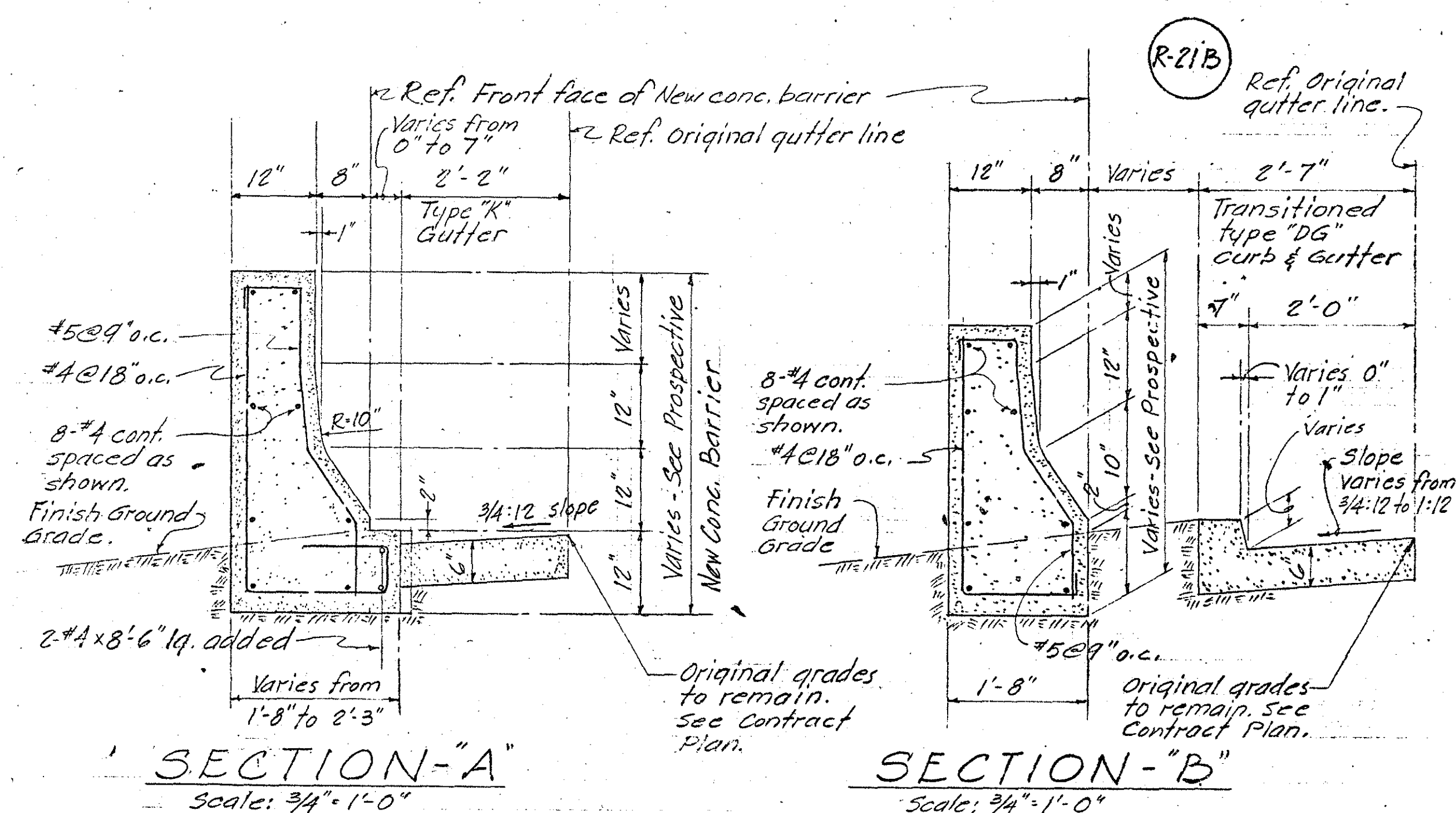
CHANGE ORDER

DETAILS R-18, R-19, R-20 & R-21A

F.A.I. PROJ. NO. I-H1-1(6) UNIT 3

SHEET No. 5 OF 6 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-H1-1(6), Unit 3	1985	C.O. 232S-1	235



DETAIL OF REVISION TO MEDIAN

电 STA. 138 + 53 TO 141 + 03 ±
F.A.I. PROJ. NO. I-HI-1(6), UNIT 3
SCALE: 1/2" = 1'-0"

(R-2)

DATE: JAN. 11, 1968

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

CHANGE ORDER

DETAILS R-21B, R-21C, & R-22

F.A.I. PROJ. NO. I-H1-1(6) UNIT 3

SHEET No. 6 OF 6 SHEETS

C.O. 232S-6