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REFERENCE PLANS

PLAN SHEET NO.	DESCRIPTION
EB1 to EB4	EXIST. BRIDGE - KALIHI STREAM BRIDGE

GENERAL STRUCTURAL NOTES

DESIGN SPECIFICATIONS:

AASHTO, Standard Specifications for Highway Bridges (12th edition), including Interim Specifications Bridges, 1978, 1979, 1980 & 1981.

DESIGN LIVE LOAD:

HS-20-44

ALLOWABLE DESIGN STRESSES:

- Reinforced concrete : $f_c = 0.40 F'_c$
- Reinforcing steel : $f_s = 20,000$ psi
- Prestressed concrete : see Typical Detail Sht. #TD1

MATERIALS:

- Reinforced concrete - 4,500 psi (see sht. #2)
- Class BD (for bridge deck on girders)
- Class A (all others)
- Reinforcing steel - ASTM A615, Grade 40
- Prestressed concrete - see sht. #TD1
- Admixture in concrete - see Special Provisions

CONSTRUCTION METHODS:

- Refer to Standard Specifications for Road and Bridge Construction (Hawaii 1976) and Special Provisions.
- Refer to Standard Detailed Drawings for additional details not covered by details and typical drawings.
- The Contractor shall verify all grades and dimensions before commencing with any work.
- Except as otherwise noted, all vertical dimensions are measured on the plumb.
- All footings shall be excavated and poured neat against undisturbed ground. In case of over-excavation, the space between the footing and the ground shall be filled with concrete of Class D minimum quality as directed by the Engineer, at the Contractor's expense.
- Excavation for all footings and stems shall be accomplished by maintaining as near a vertical cut as possible, and it shall be the Contractor's responsibility to maintain the stability of the existing roadway prism & adjacent ground thruout the course of work.
- All items designated for removal shall be removed in such a manner as to preclude any damage to the existing structure. Large impacting or vibratory types of equipment will not be permitted in the removal operation, nor in drilling holes for dowels. Small vibratory tools, approved by the Engineer, will be permitted.
- All existing reinforcing that can be incorporated in the new work shall be cleaned and utilized as required in the new work, as directed by the Engineer.
- All existing reinforcing that cannot be incorporated in the new work shall be removed to a minimum depth of 1" beneath finish grade and the resultant depression patched with mortar.
- Unless noted otherwise, all concrete areas left exposed due to the removal of existing concrete shall be ground smooth and grooved to extend the existing roadway grade.
- See Special Provisions for concrete finish. Girder concrete seats and creep blocks shall be poured monolithically with the abutments.
- In general, new finish grade and concrete deck shall be constructed to follow the existing roadway vertical and horizontal curves and grades.
- The 15" sewer line located on Richard Lane shall be exposed and jacketed to the extent of limits shown in the plan, before commencing with the excavation of Abutment #1 footing.
- Backfill behind Abutment #2 of the Kalihi Stream Bridge shall be completely in place before the placement of the girders. Backfill behind the abutment of the rigid frame structure shall not be placed until the concrete in the rigid frame deck has attained a strength of 4,500 psi.
- The Contractor shall shore the existing exterior girder and the exterior portion of the rigid frame slab for contributory dead load and construction loads to minimize deflection. Method of shoring, including calculations and shop drawings, shall be approved by the Engineer.
- All costs involved in maintaining the integrity of the roadway and shoring or bracing shall be incidental to the respective concrete or to concrete in footing, whichever the case may be, and will not be paid for separately.
- The Contractor shall be solely responsible for the protection of the adjacent property, utilities, and existing and new structures from damage due to construction and shall repair any damage at his own expense to the satisfaction of the Engineer. He shall conduct his work in such a manner and provide such temporary shoring or other measures as may be necessary to insure the safety of all concerned.
- The Contractor shall make provisions to close lane adjacent to new deck during concrete pour. The deck pour shall be scheduled to occur during non-peak traffic hours as determined by the Engineer. The lane may be opened after the concrete has attained initial set.

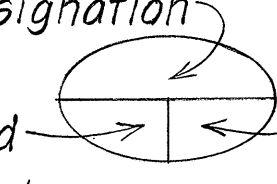
GENERAL NOTES:

- All bearing pads and premolded joint fillers shall be incidental to concrete. All items noted incidental will not be paid for separately.
- Concrete jackets and reinforcement for conduits outside of the structure will be paid for under Separate Items.

GENERAL NOTES: (cont.)

- The Contractor shall verify the locations of all existing utilities and notify their respective owners before commencing with the work.
- Refer to the "General Water Notes" for work pertaining to water systems (see sht. #18)
- All sewer construction shall be performed in accordance with the City's Standard Specifications, dated May 1975 and the latest Department of Public Works Standard Details, August 1976, current City practices and revised ordinances of Honolulu, 1978, as amended.
- The Contractor shall notify the Division of Wastewater Management 7 days prior to the commencement of work and submit 4 sets of approved construction plans.

SYMBOLS:

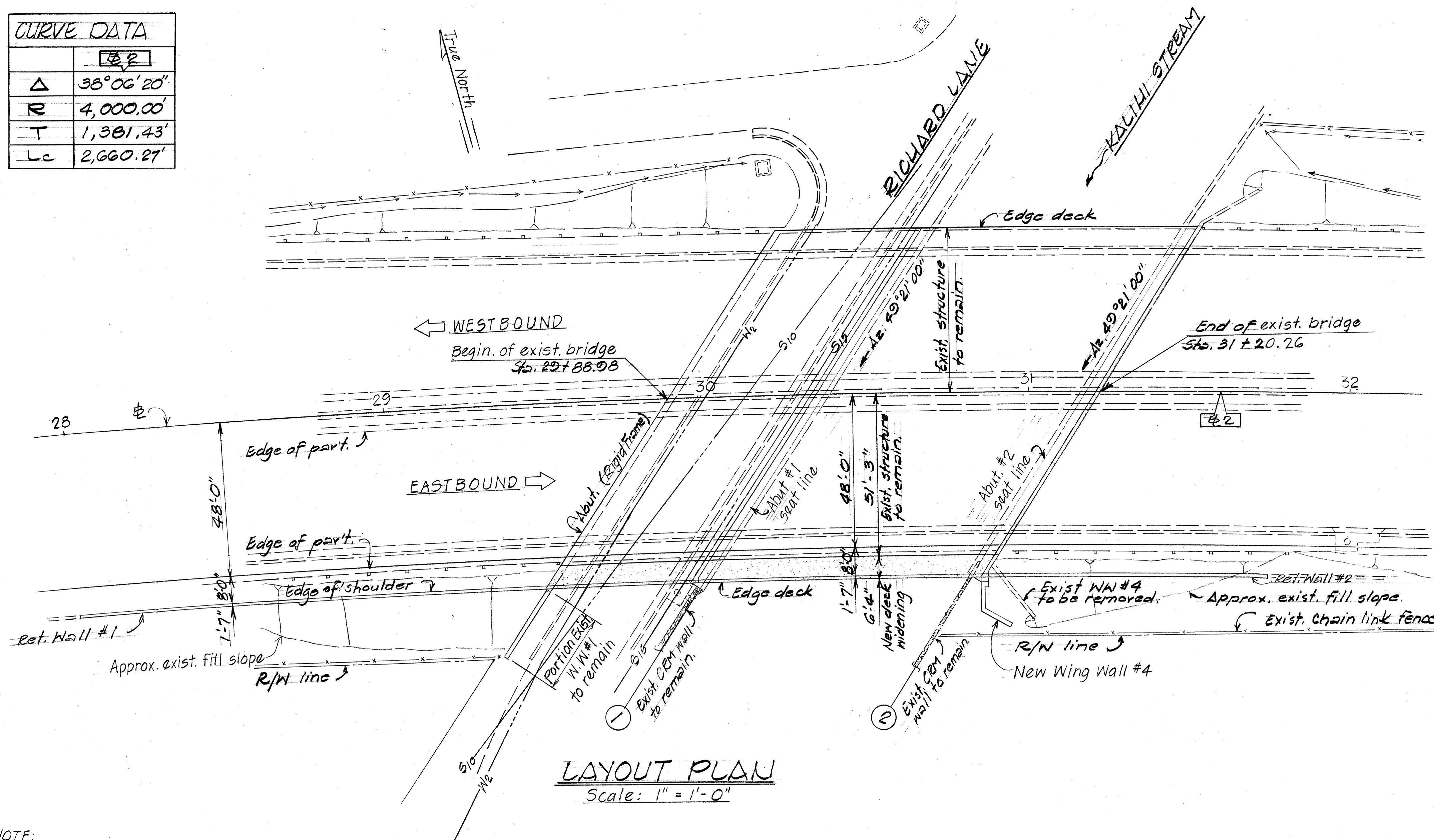
- Detail or section designation
Sht. no. section is cut or detail located  Sht. no. detail is drawn on
- ①, ② - Indicates & bearing at Abut.

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I - HI-1(178)	1982	118	165

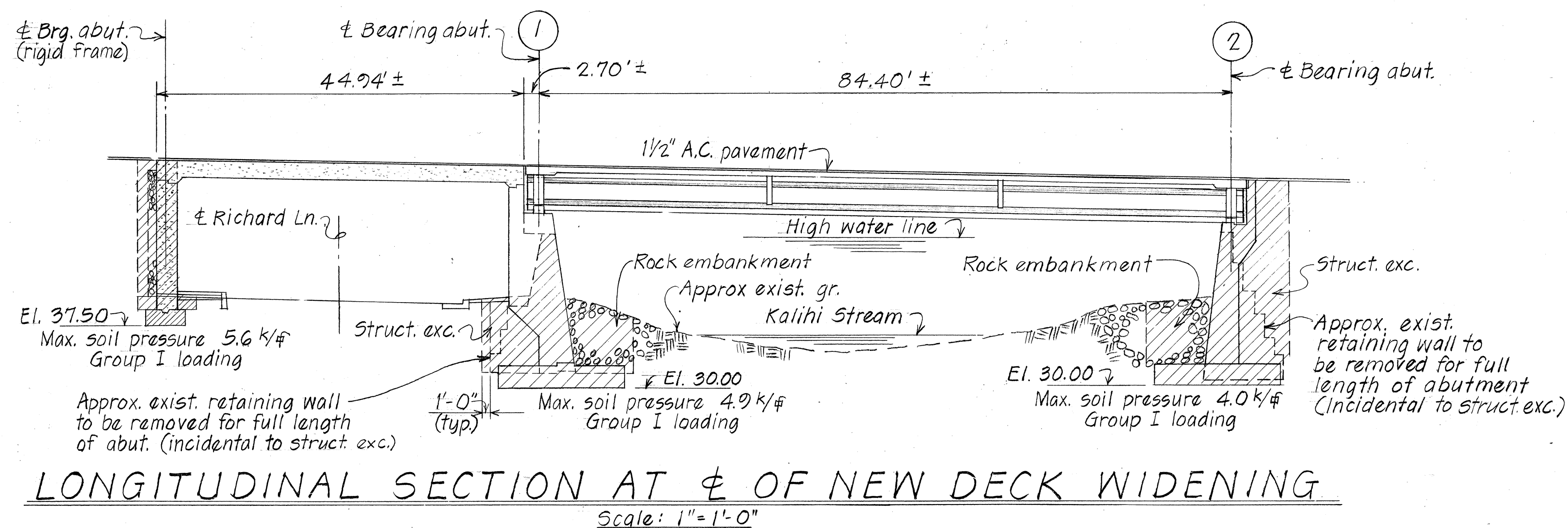
STATE OF HAWAII DEPARTMENT OF TRANSPORTATION LAND TRANSPORTATION FACILITIES DIVISION KALIHI STREAM BRIDGE WIDENING INDEX TO DRAWINGS, GENERAL NOTES INTERSTATE H-1 IMPROVEMENTS MIDDLE STREET TO KALIHI INTERCHANGE EASTBOUND LANES F.A.I. PROJ. NO. I - HI-1(178) Scale: As Shown Date: April 1982 SHEET NO. 1 OF 14 SHEETS

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

CURVE DATA	
Δ	38°06'20"
R	4,000.00'
T	1,381.43'
Lc	2,660.27'



NOTE:
 Indicates concrete of 28 day compressive strength of 4,500 psi



FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
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ESTIMATED QUANTITIES

BRIDGE WIDENING

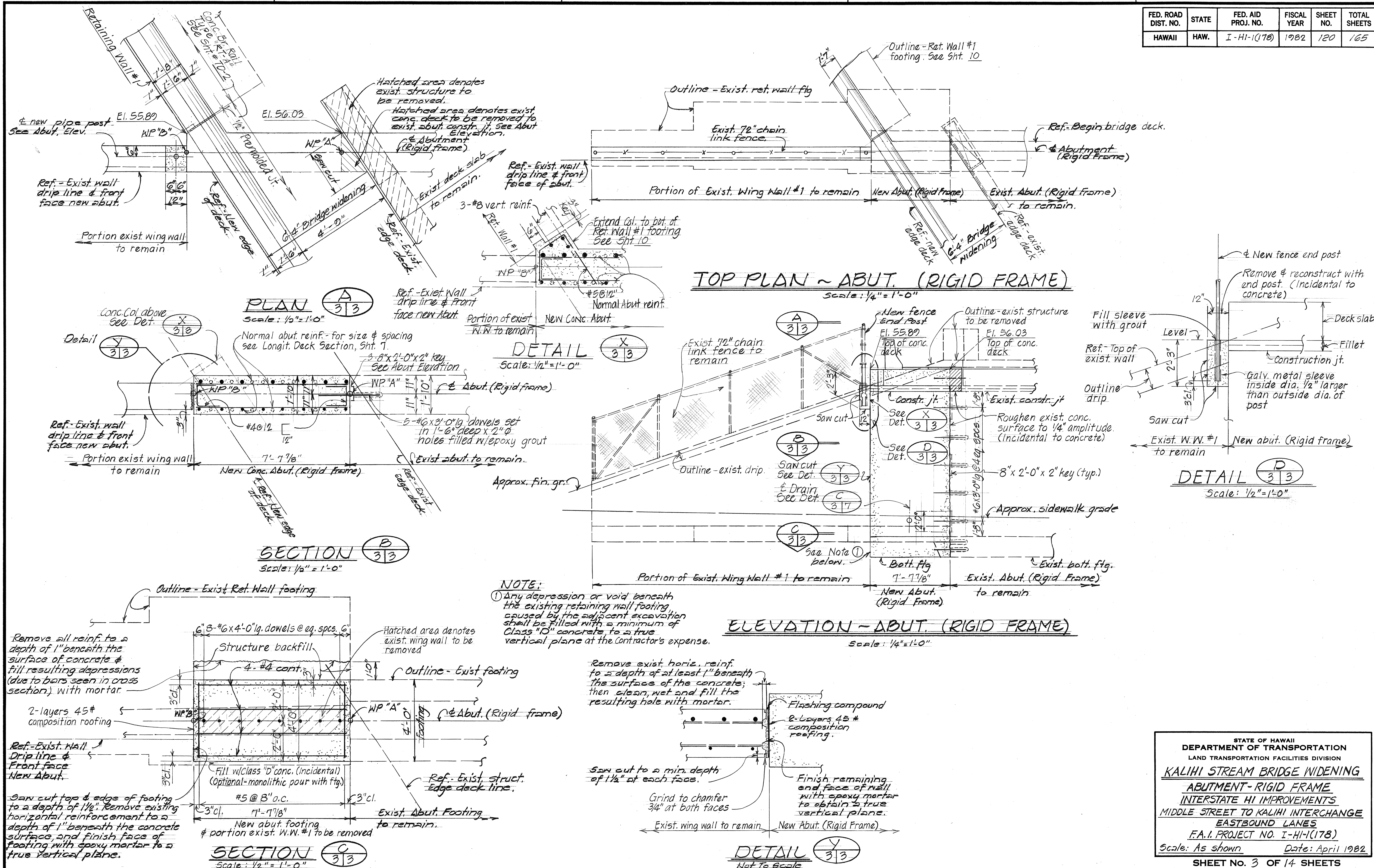
ITEM NO.	ITEM	UNIT	QUANTITY
202.0440	REMOVAL OF PORTION OF KALIHI STREAM BRIDGE	L.S.	43 C.Y.
206.6100	STRUCTURAL EXCAVATION FOR KALIHI STREAM BRIDGE	C.Y.	148 C.Y.
206.7201	STRUCTURAL BACKFILL FOR BR. ABUTS # W.W. #4	C.Y.	87 C.Y.
206.8200	FILTER MATERIAL FOR STRUCTURES	C.Y.	9 C.Y.
503.1090	CONCRETE IN KALIHI STREAM BRIDGE	L.S.	97 C.Y.
503.1091	CONCRETE IN FOOTINGS FOR KALIHI STREAM BRIDGE	L.S.	27 C.Y.
503.1095	DRILLED HOLES FOR 3/4" EXPANSION SHIELD	EA.	47 EA.
503.1096	2" ϕ DRILLED HOLES FOR DOWELS	EA.	84 EA.
504.4100	TYPE IV PRESTRESSED CONCRETE GIRDERS	L.S.	173 L.F.
507.5010	CONCRETE BRIDGE RAILING	L.F.	147 L.F.
602.0900	REINFORCING STEEL IN KALIHI STREAM BRIDGE	L.S.	16,570 LBS.
203.0300	ROCK EMBANKMENT AT KALIHI STREAM BRIDGE	C.Y.	36 C.Y.
401.0300	A.C. PAVEMENT, MIX NO. III	TON	10 TONS
407.1000	EMULSIFIED ASPHALT FOR BITUMINOUS TACK COAT	GAL.	53 GAL.
508.0100	CEMENT RUBBLE MASONRY	C.Y.	13 C.Y.

NOTES:

- Item no. 202.0440 includes, but is not limited to, rail & parapet, sidewalk, abutment, retaining wall, & footing.
- Item nos. 401.0300 & 407.1000 will be paid under Highway Item.
- Item no. 508.0100 includes the reconstruction of the stream wall.

STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 LAND TRANSPORTATION FACILITIES DIVISION
KALIHI STREAM BRIDGE WIDENING
LAYOUT PLAN & LONGITUDINAL SECTION
 INTERSTATE H-1 IMPROVEMENTS
 MIDDLE STREET TO KALIHI INTERCHANGE
 EASTBOUND LANES
 F.A.I. PROJ. NO. I-HI-1(178)
 Scale: As Shown Date: April 1982
 SHEET No. 2 OF 14 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEET
HAWAII	HAW.	I-HI-1(178)	1982	120	165

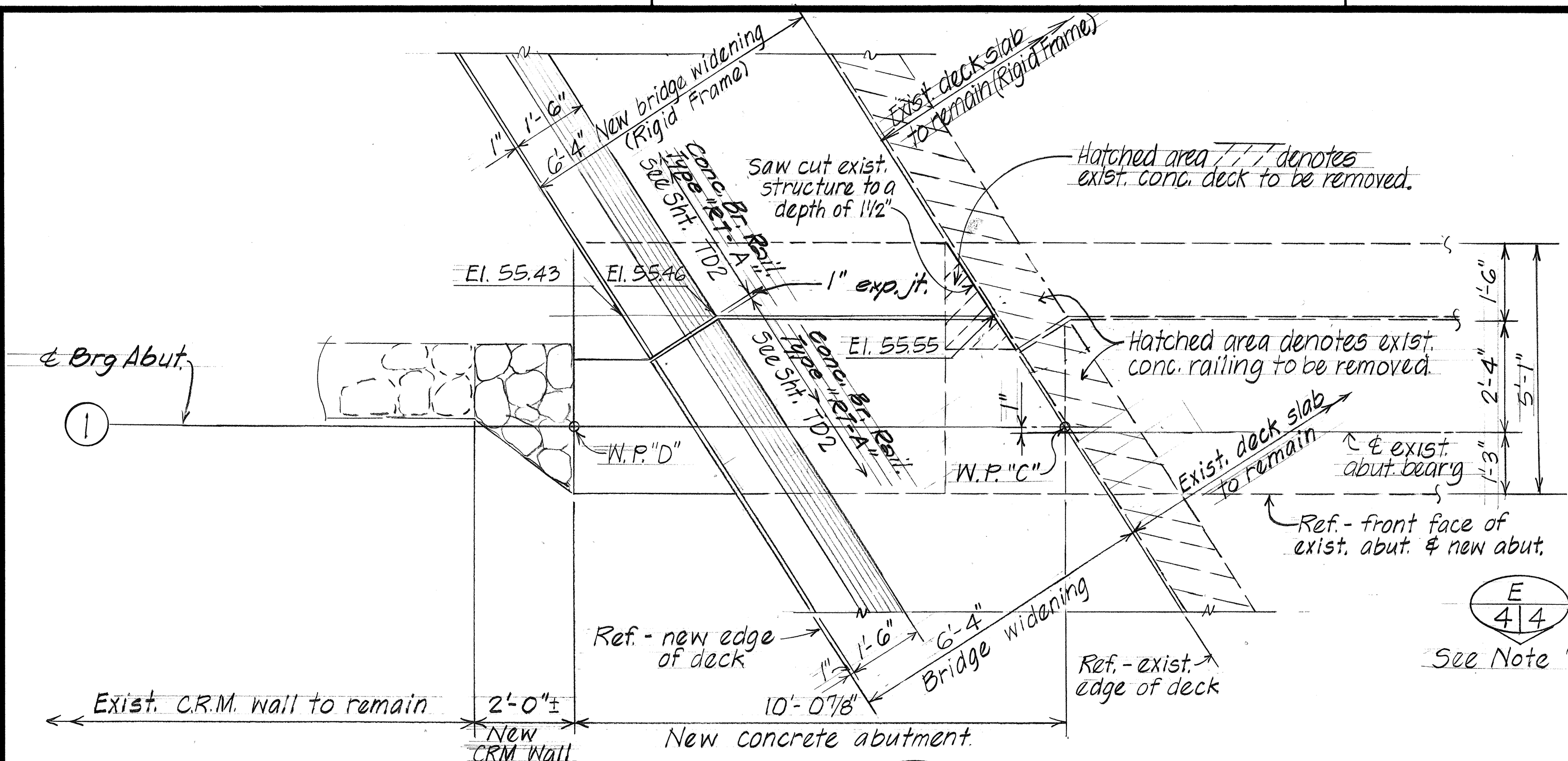


ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
	DRAWN BY S. Y.	" Mar '82
	TRACED BY	" "
NOTE BOOK	DESIGNED BY M. M. Y.	" Mar '82
	QUANTITIES BY	" "
	CHECKED BY	" Apr '82
No.		

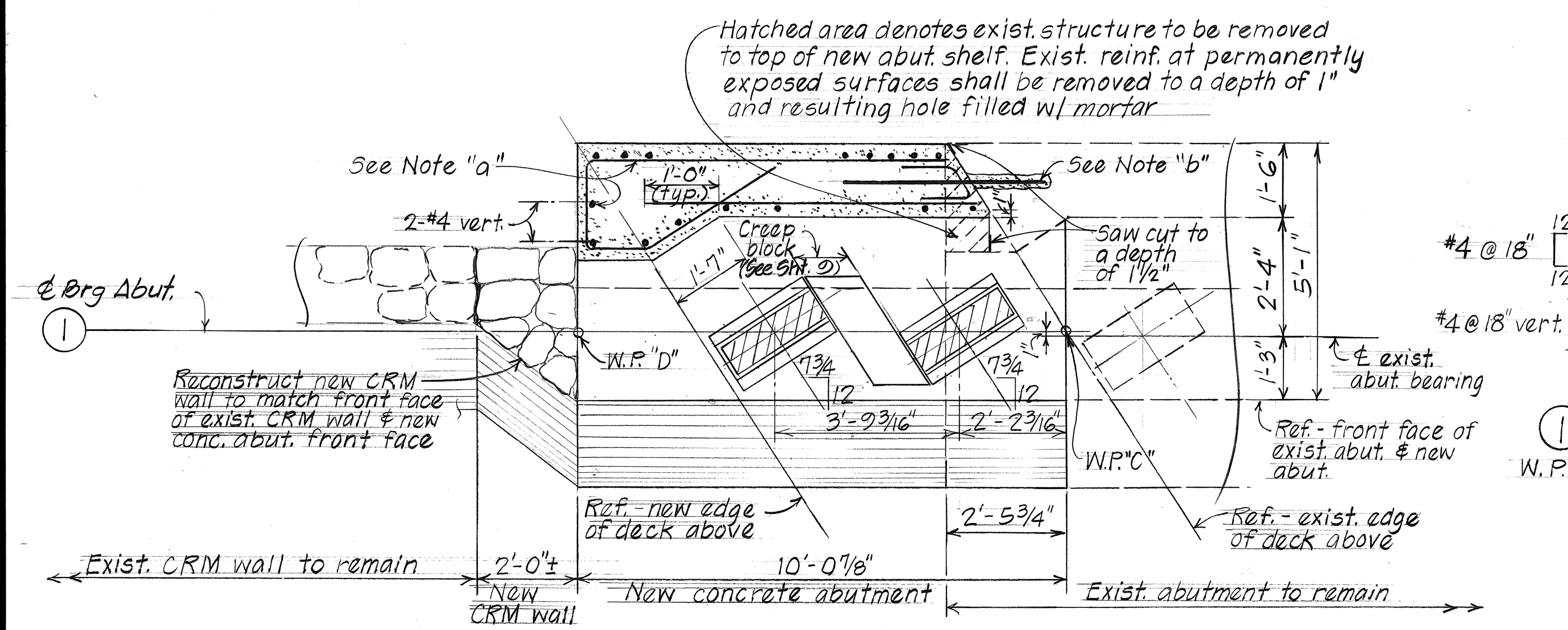
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
LAND TRANSPORTATION FACILITIES DIVISION
KALIHI STREAM BRIDGE WIDENING
ABUTMENT- RIGID FRAME
INTERSTATE HI IMPROVEMENTS
MIDDLE STREET TO KALIHI INTERCHANGE
EASTBOUND LANES
F.A.1. PROJECT NO. I-HI-1(178)
Scale: As shown Date: April 1982

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I - HI-1(178)	1982	121	165

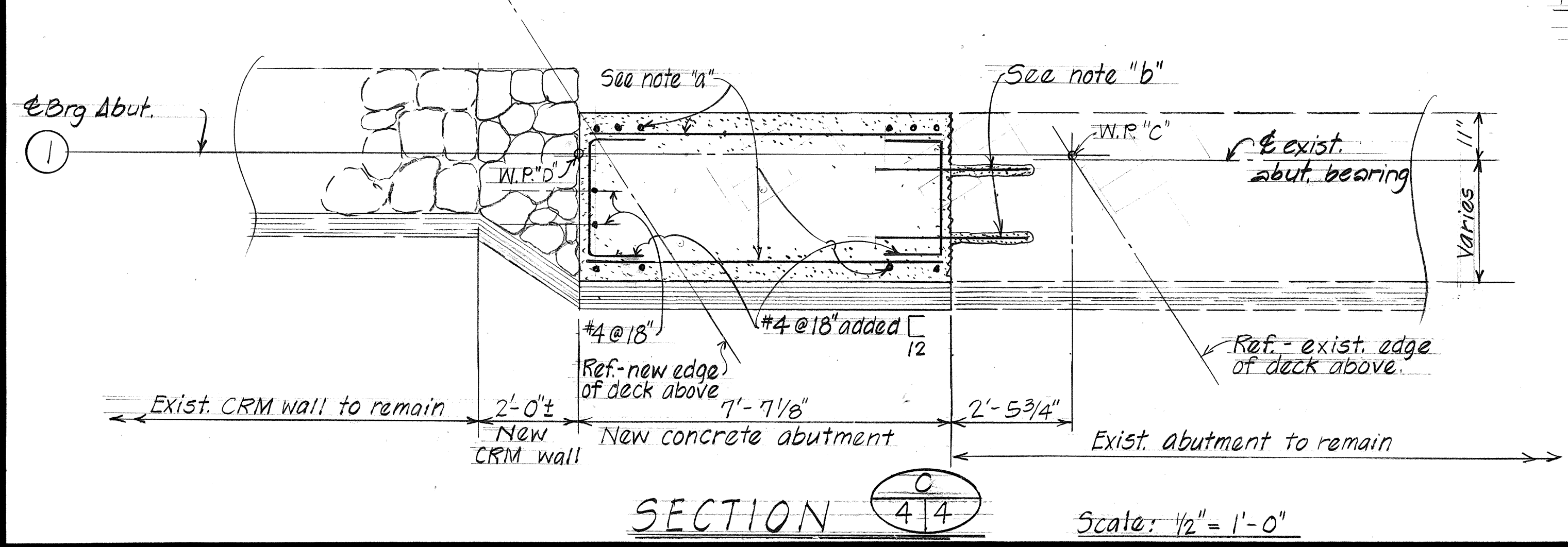
NOTE: 1. Bridge deck & superstructure not shown.
2. For conc. seat & creep block details see sht. 2.



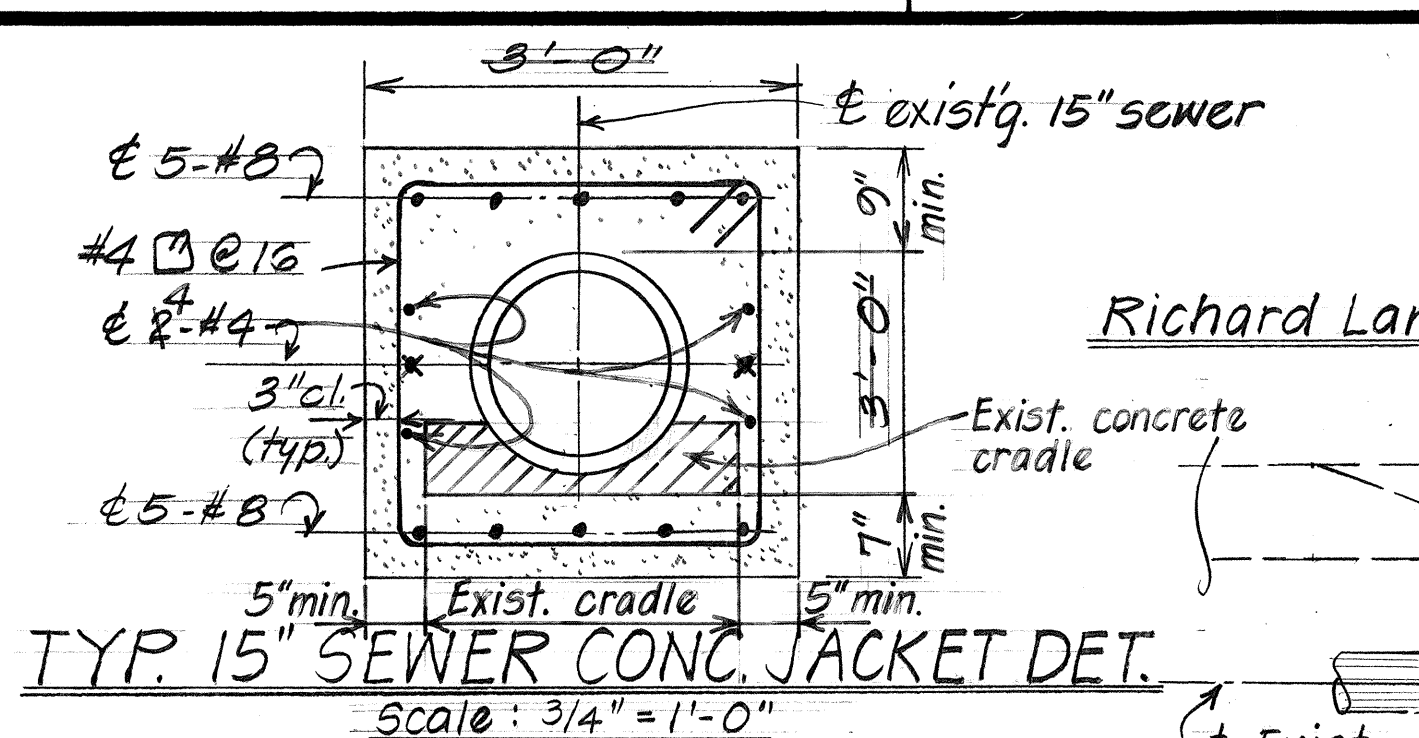
SECTION A-4-4 Scale: 1/2" = 1'-0"



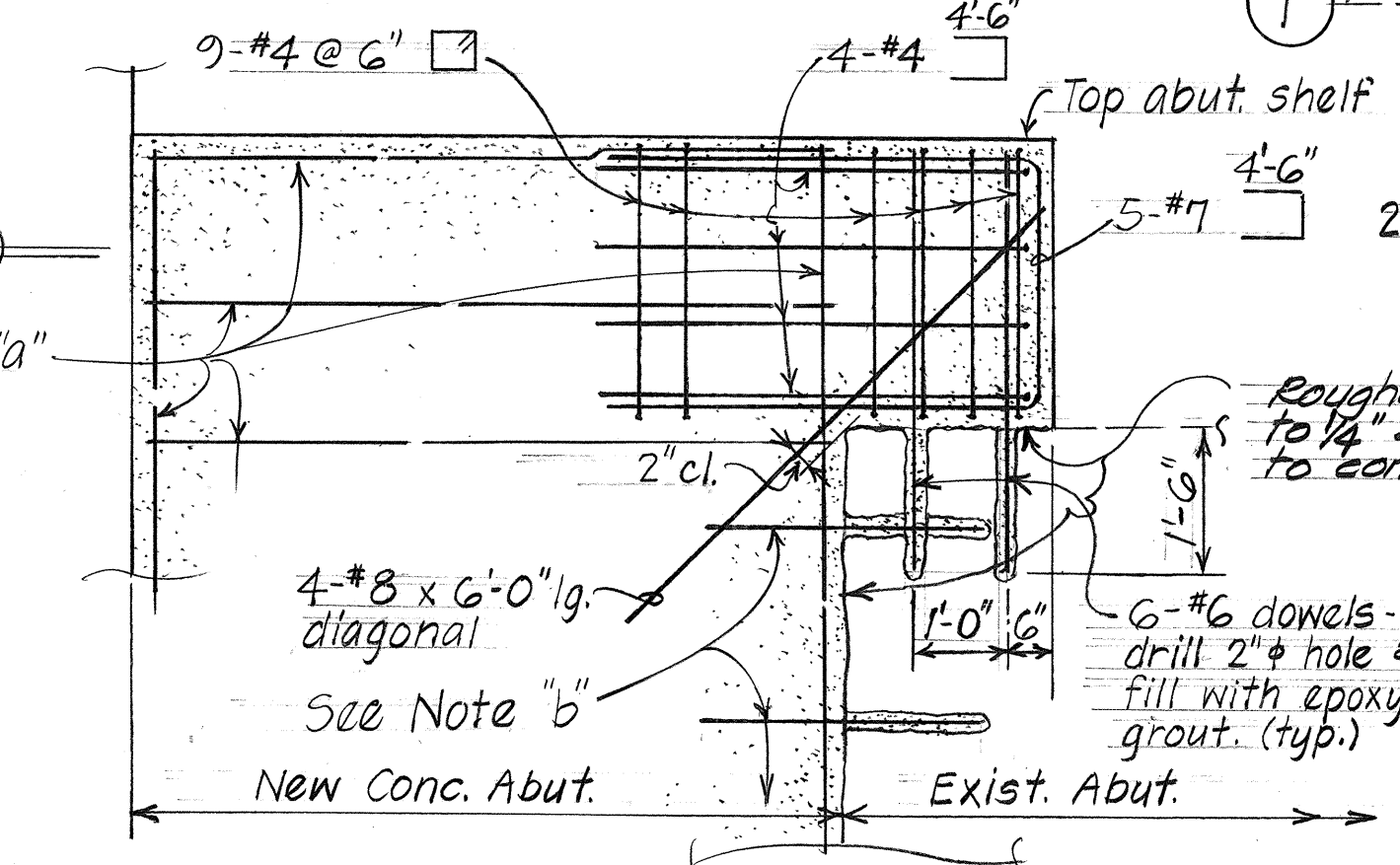
SECTION B-4-4 Scale: 1/2" = 1'-0"



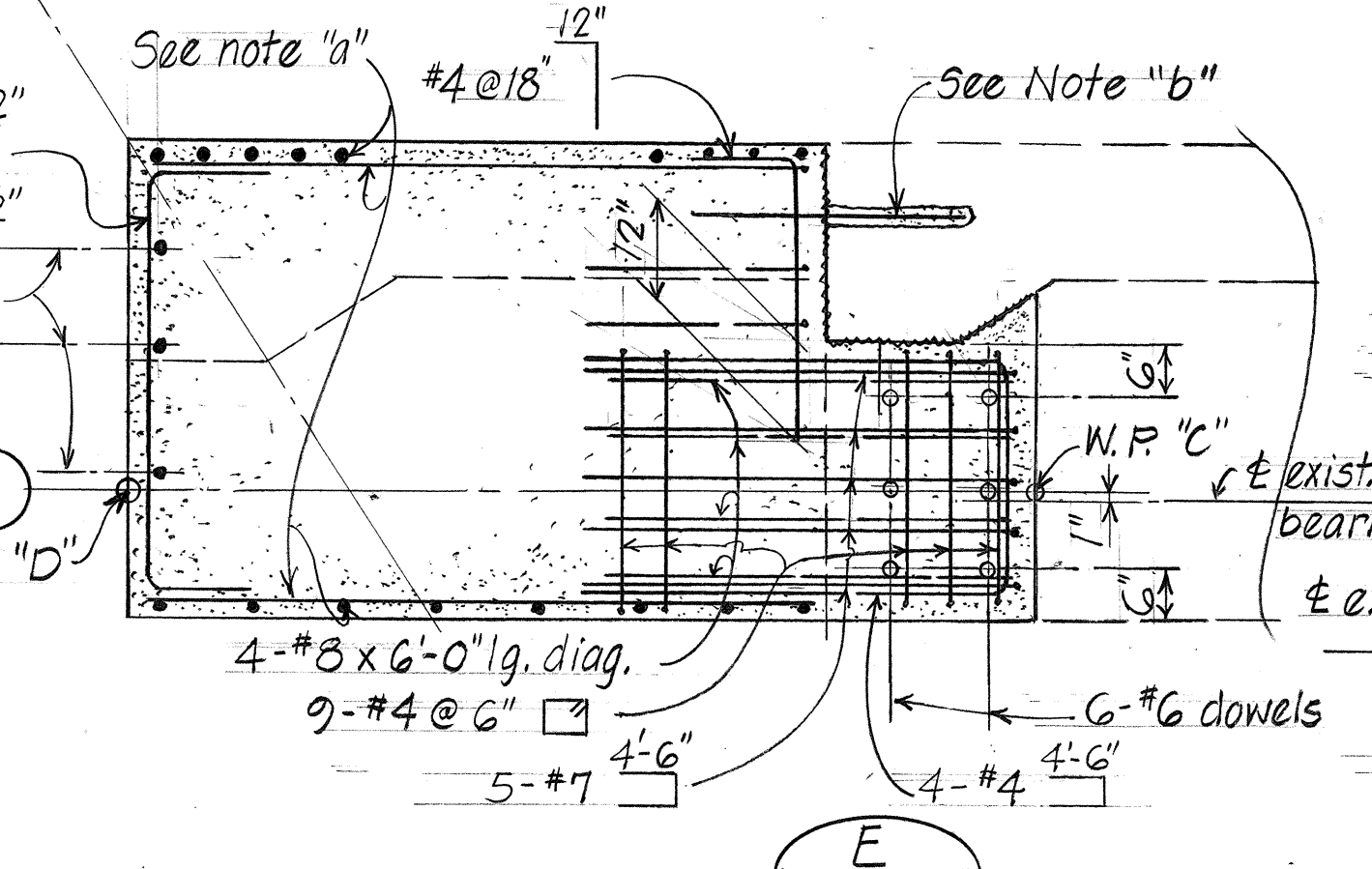
SECTION C-4-4 Scale: 1/2" = 1'-0"



NOTE: See General Notes before construction of concrete jacket at sewer line.

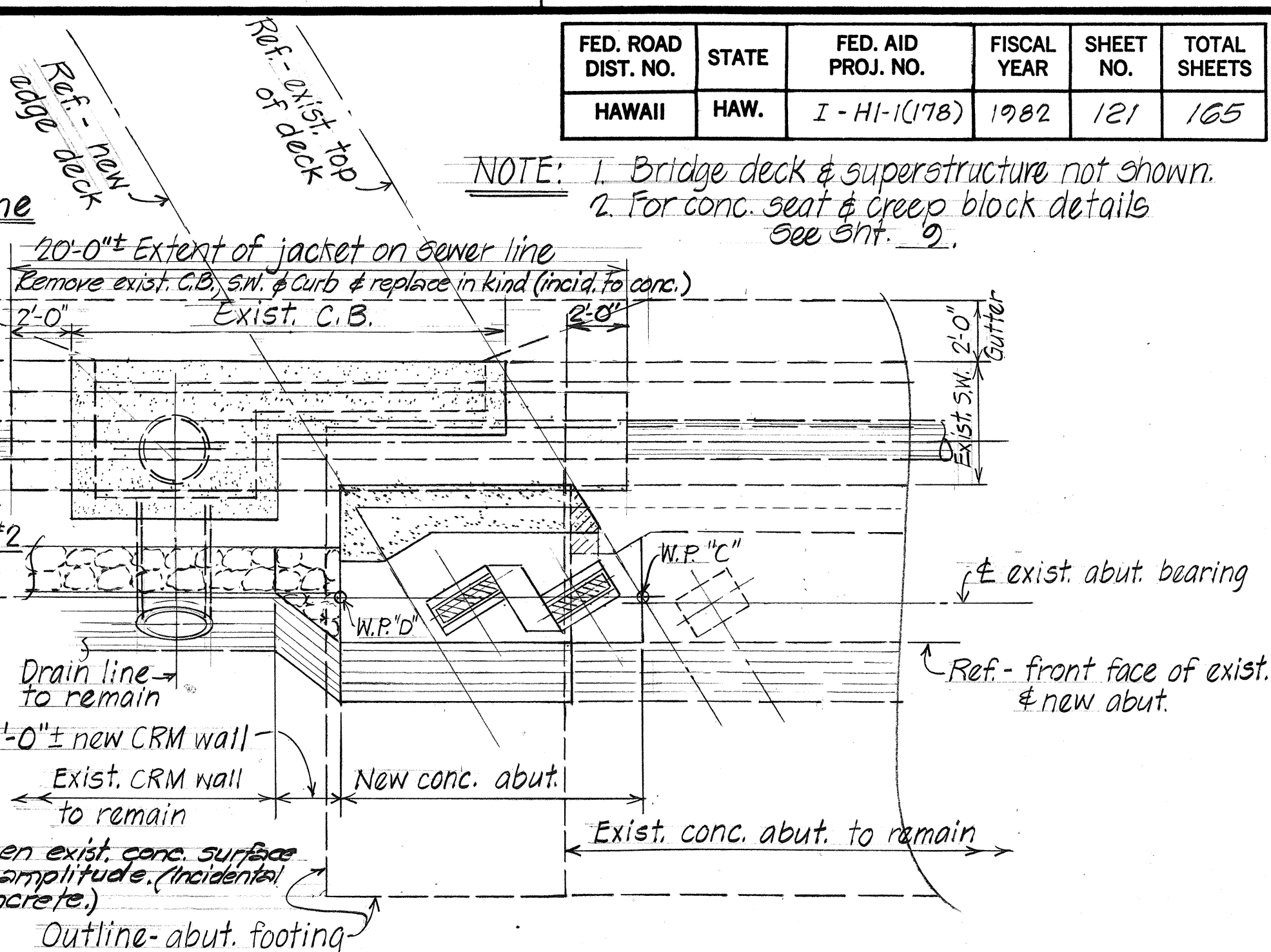


DETAIL D-4-4 Scale: 1/2" = 1'-0"

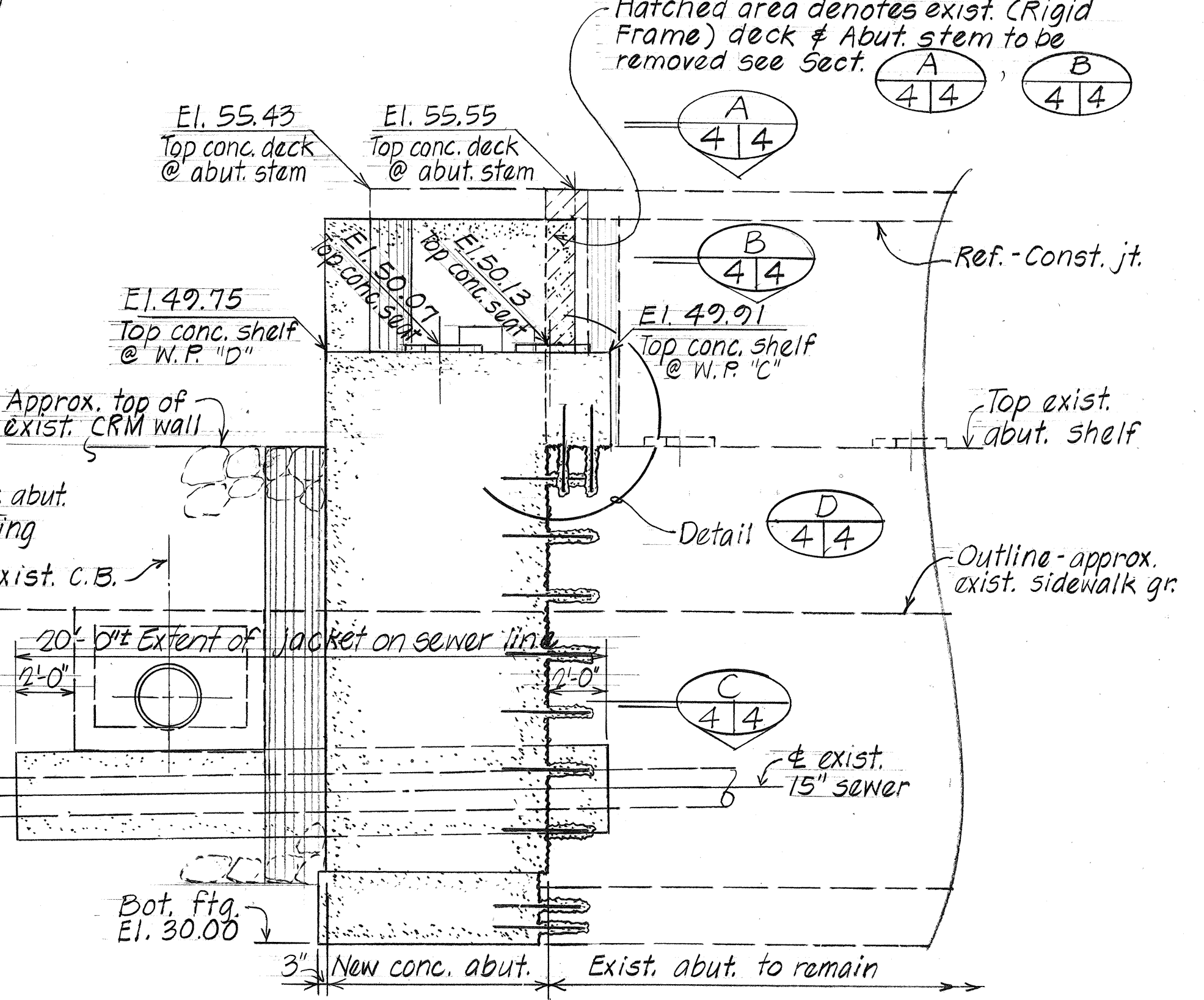


SECTION E-4-4 Scale: 1/2" = 1'-0"

NOTE:
"a" - Normal abut. reinf. - For size & spacing See Typical Abut. Section Sht. #6
"b" - #6 x 3'-0" lg. dowels @ 2'-0" o.c. set in 2" x 1'-6" deep hole and fill with epoxy grout.



TOP PLAN - ABUTMENT 1 Scale: 1/4" = 1'-0"



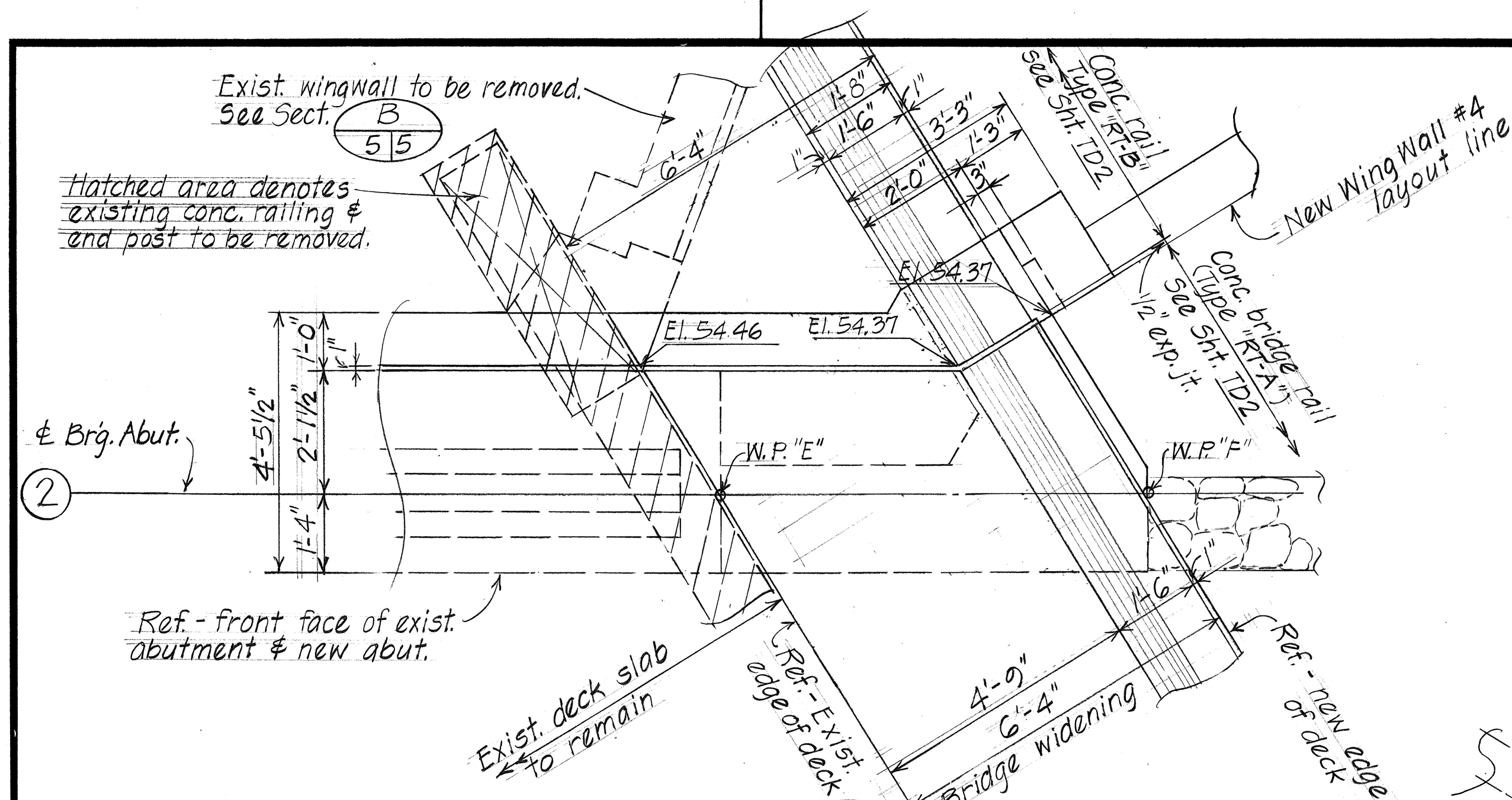
ELEVATION - ABUTMENT 1 Scale: 1/4" = 1'-0"

DATE	Mar 82
DESIGNED BY	M.M.Y.
CHECKED BY	M.M.Y.
NOTED BY	M.M.Y.
QUANTITIES BY	M.M.Y.
ORIGINAL PLAN	1/1/82
NOTE BOOK	1/1/82
NO.	1/1/82

APPROVED: Date 5/4/82
Kama K. Hanks
CHIEF, WASTEWATER MANAGEMENT

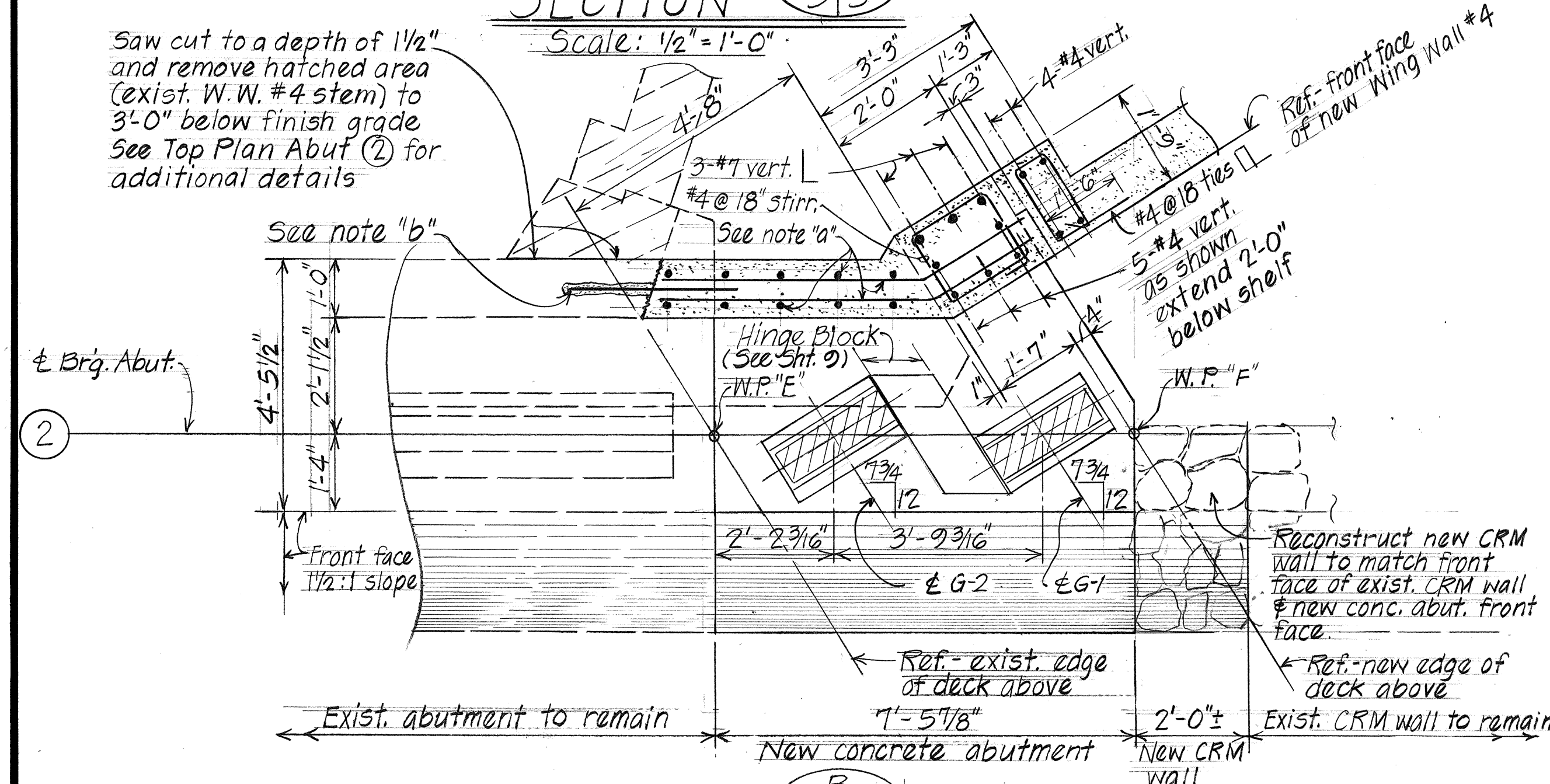
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
LAND TRANSPORTATION FACILITIES DIVISION
KALIHI STREAM BRIDGE WIDENING
ABUTMENT 1
INTERSTATE H-1 IMPROVEMENTS
MIDDLE STREET TO KALIHI INTERCHANGE
EASTBOUND LANES
F.A.I. PROJ. NO. I - HI-1(178)
Scale: As shown Date: April 1982
SHEET No. 4 OF 14 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-HI-1(178)	1982	122	165



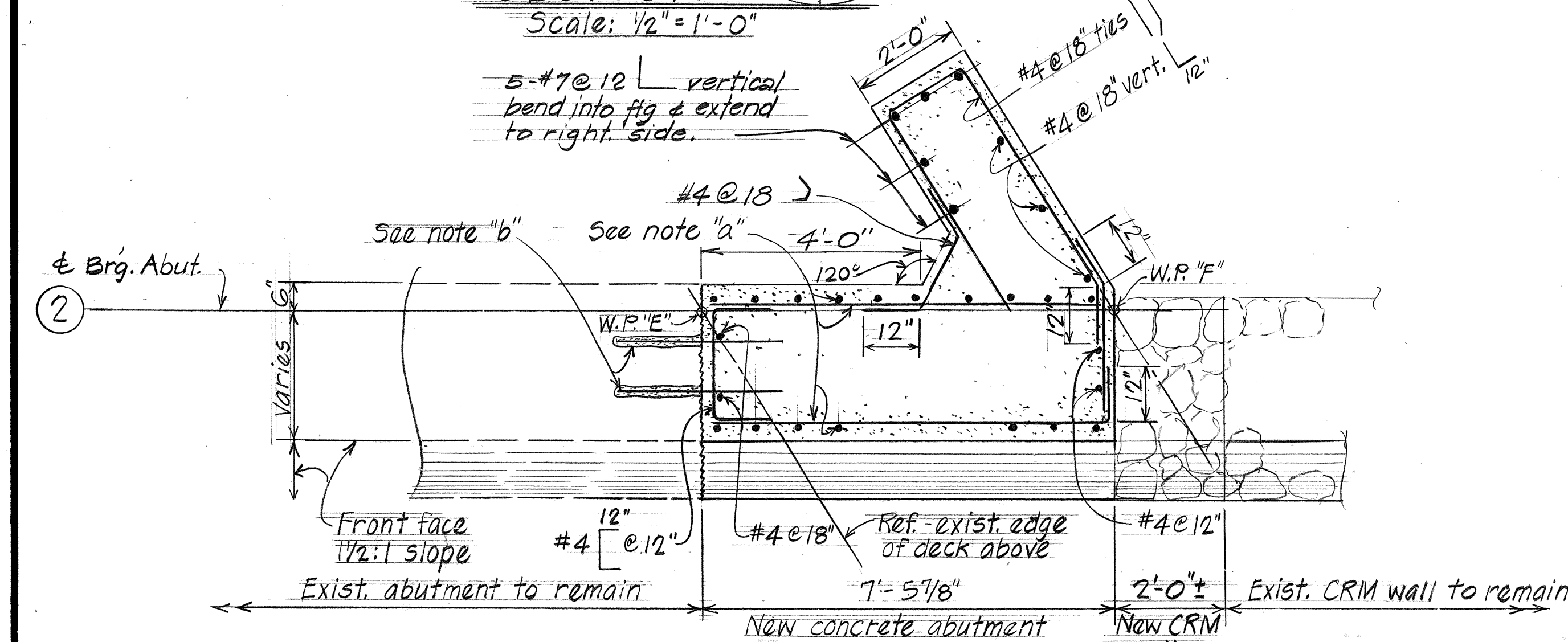
SECTION

Saw cut to a depth of 1 1/2"
and remove hatched area
(exist. W.W. #4 stem) to
3'-0" below finish grade
See Top Plan Abut (2) for
additional details



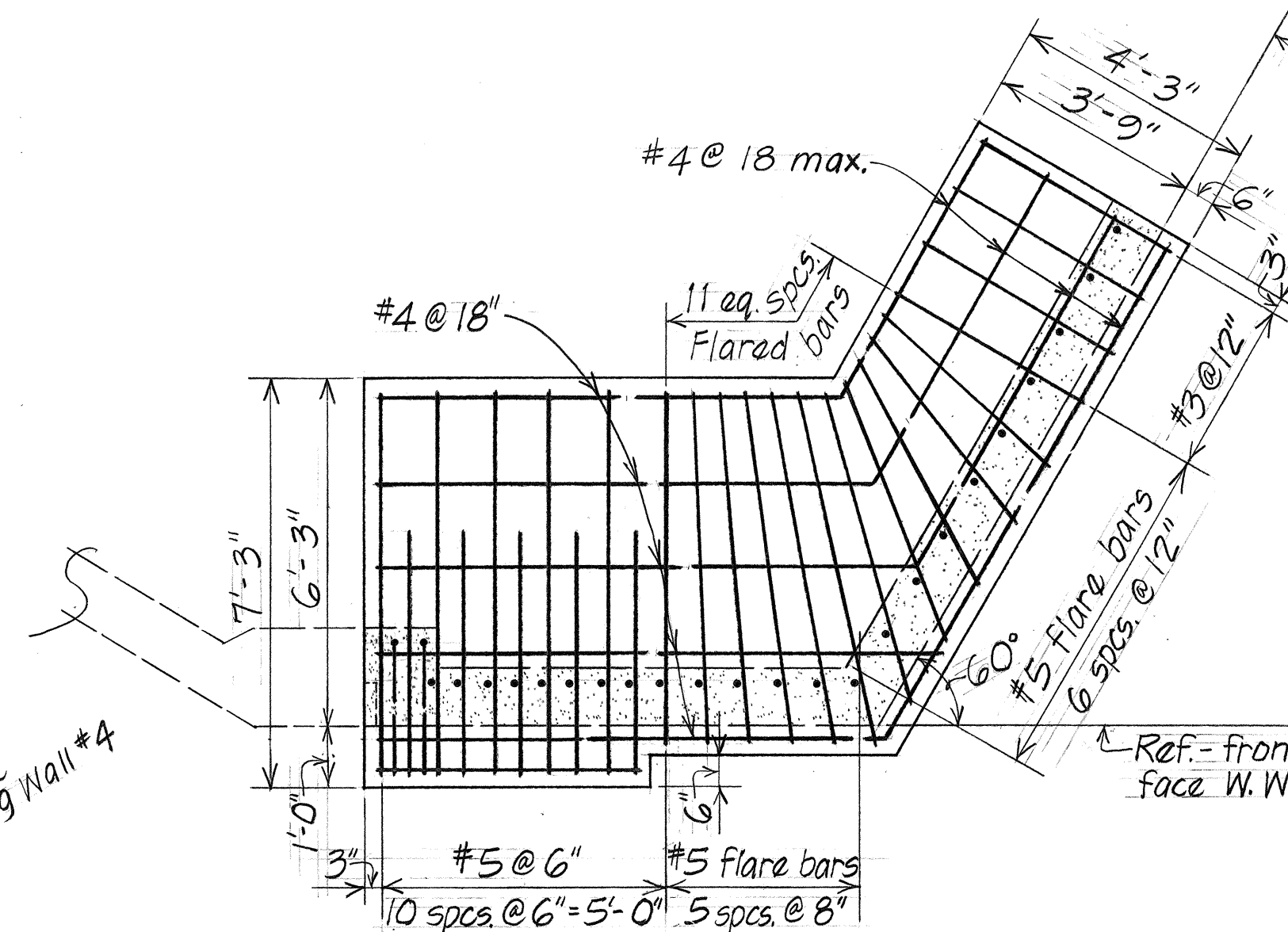
SECTION

Scale: $\frac{1}{2}" = 1' - 0"$



SECTION

Scale: $\frac{1}{2}" = 1'-0"$



SECTION (TOP FOOTING REINF. NEW WING WALL #4)

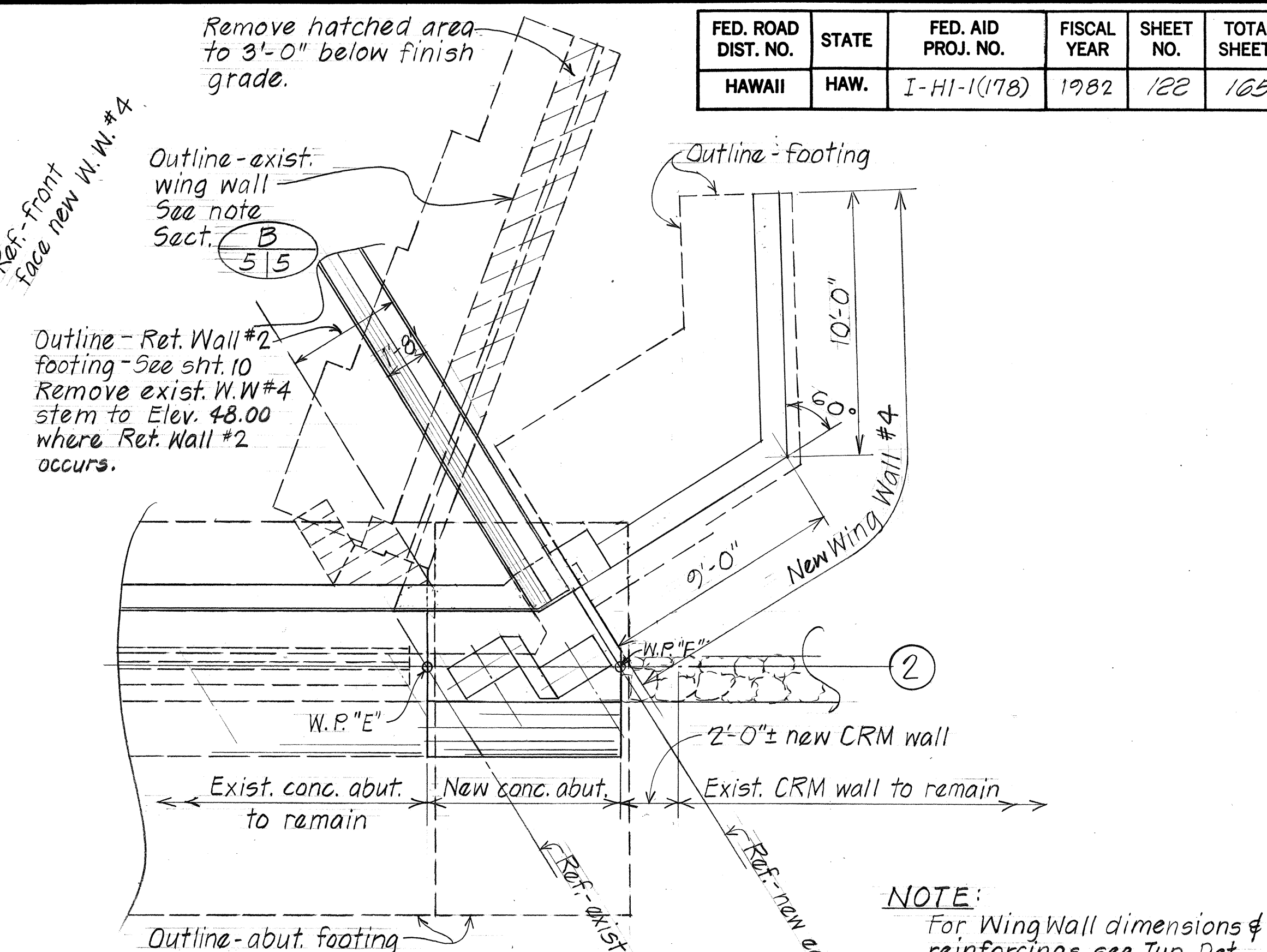
Scale: $\frac{3}{8}'' = 1'-0''$

NOTE:

"a" Normal abut. reinf. - For size & spacing see Typical Abut. Section Sht. #6

"b" #6 x 3'-0" lg dowels @ 2'-0" o.c.
set in 2" ϕ x 1'-6" deep hole
and fill with epoxy grout.

Top exist.
about shelf.

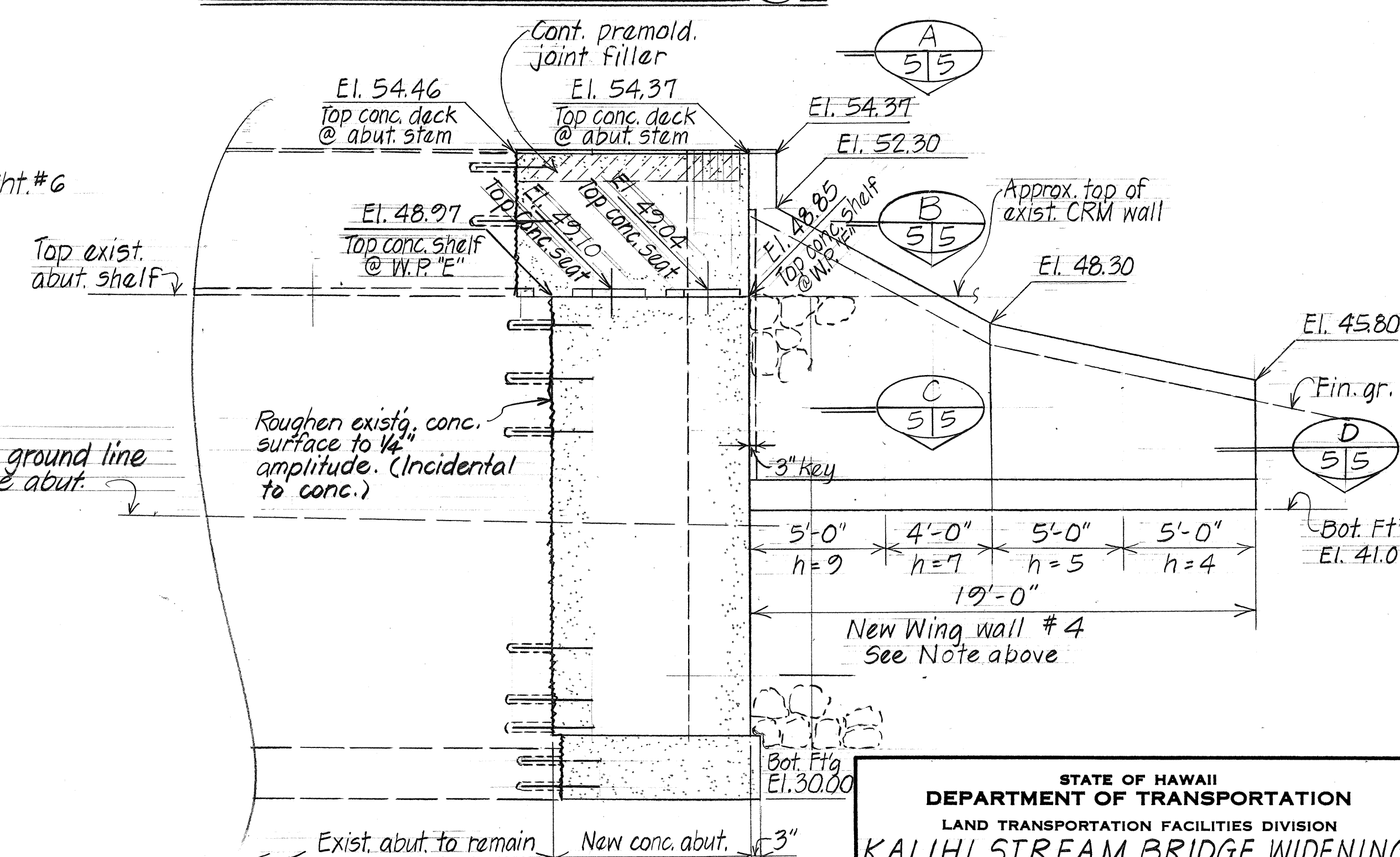


NOTE:

1. Bridge deck & superstructure not shown
2. For Conc. Seat & Hinge Block Detail see Sht. 9

TOP PLAN - ABUTMENT (2)

Scale: $\frac{1}{4}'' = 1'-0$



DEVELOPED ELEV. - ABUTMENT (2)

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

ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
	DRAWN BY <i>N.Y., G.U.</i>	" <i>Mar. '82</i>
	TRACED BY	"
	DESIGNED BY <i>M.M.Y.</i>	" <i>Mar. '82</i>
	QUANTITIES BY	"
	CHECKED BY	" <i>Apr. '82</i>
No.		

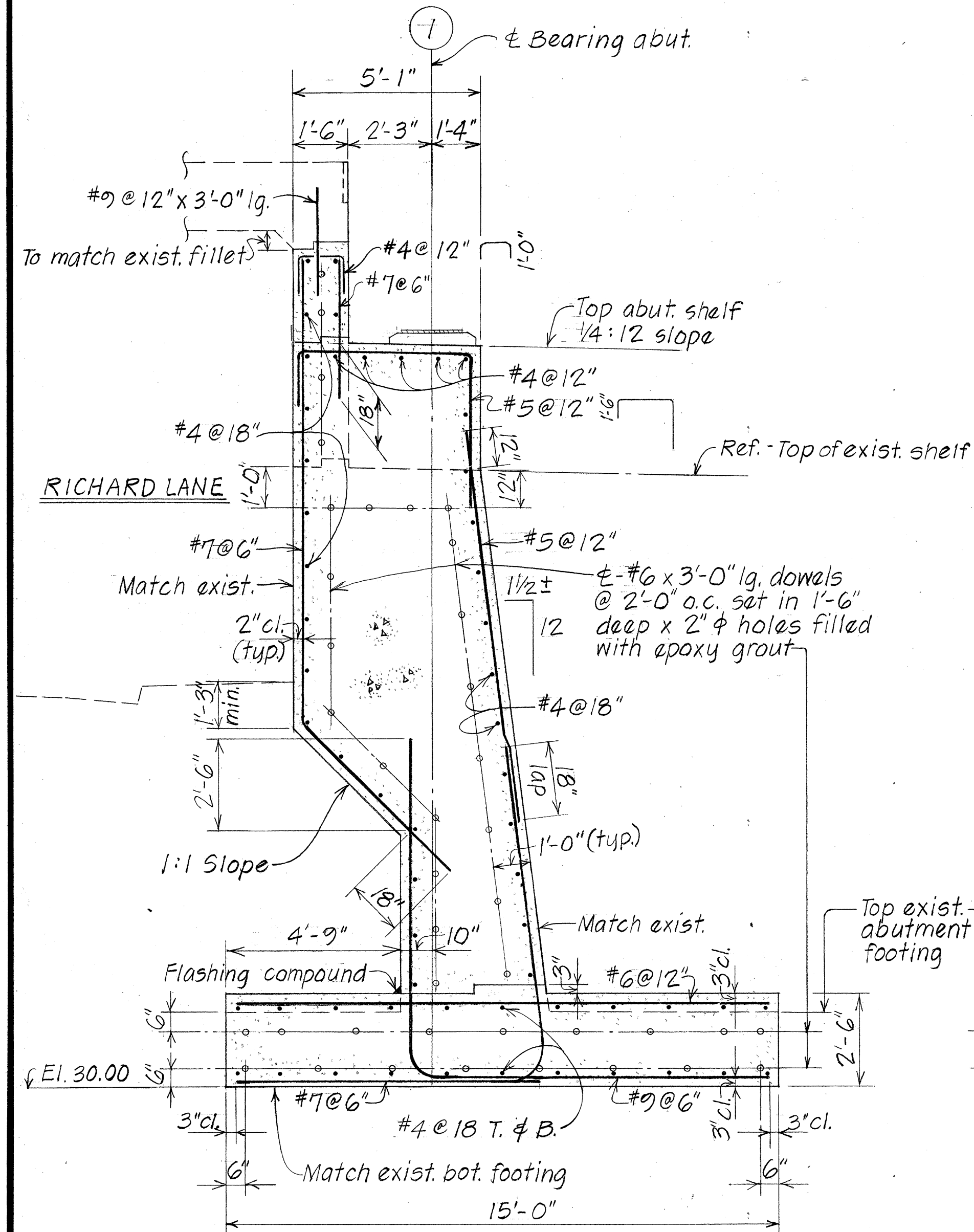
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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
LAND TRANSPORTATION FACILITIES DIVISION

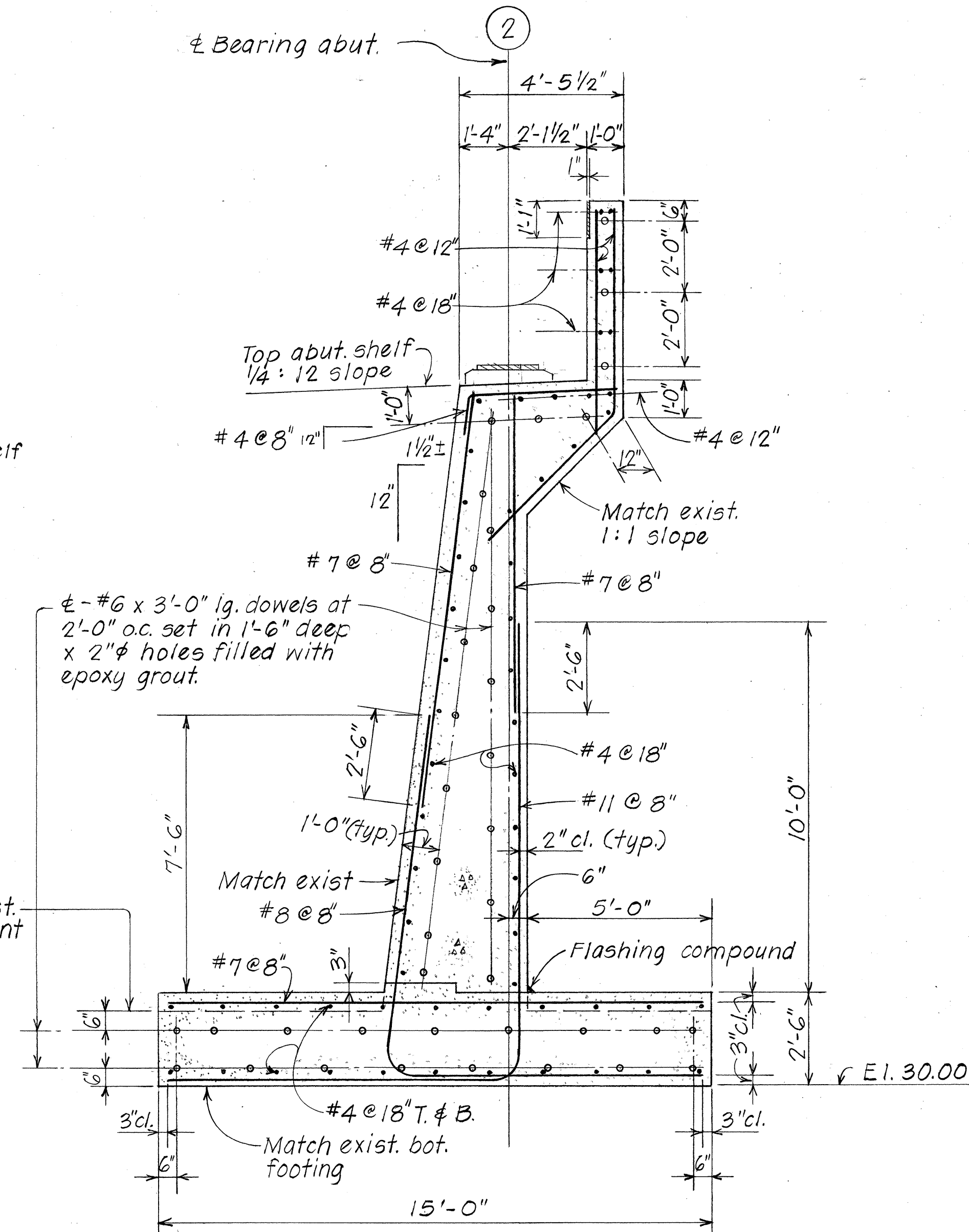
KALIHI STREAM BRIDGE WIDENING
ABUTMENT (2), NEW W.W. #4
INTERSTATE H-1 IMPROVEMENTS
MIDDLE STREET TO KALIHI INTERCHANGE
EASTBOUND LANES
F.A.I. PROJ. NO. I-HI-1(178)
Scale: As shown Date: April 1982

SHEET NO. 5 OF 14 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-HI-1(178)	1982	123	165



TYP. SECTION - ABUTMENT #1
Scale: 3/8" = 1'-0"

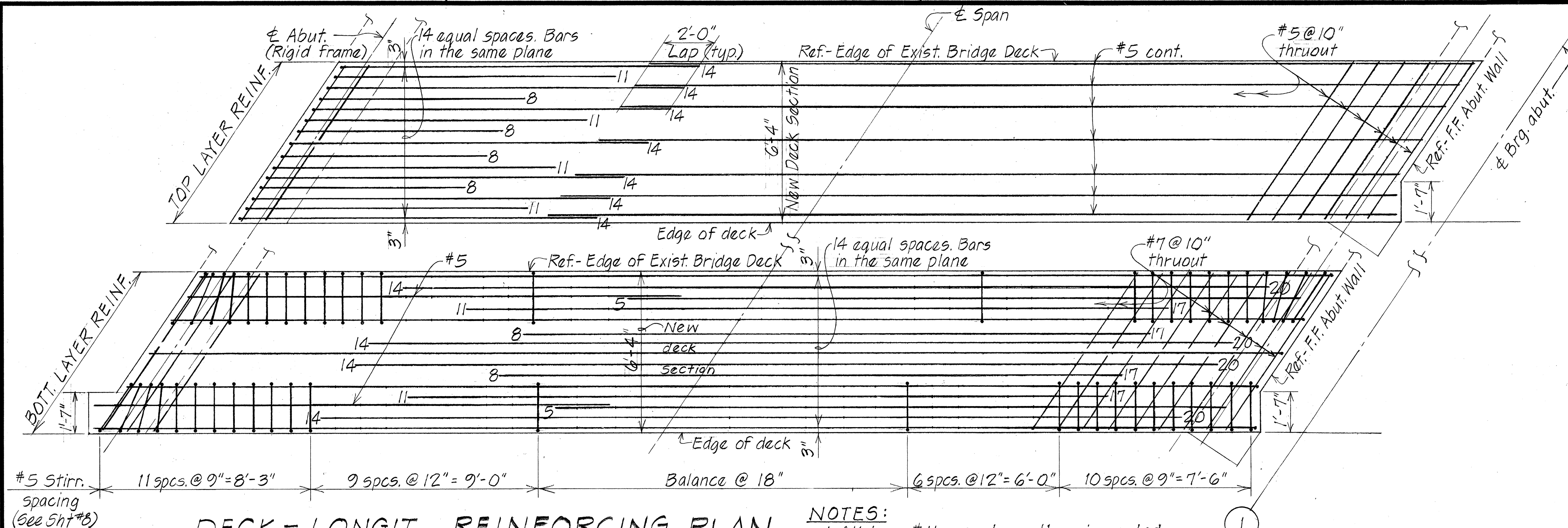


TYP. SECTION - ABUTMENT #2
Scale: 3/8" = 1'-0"

ORIGINAL PLAN	DATE
NO. 1	10/1/82
NO. 2	10/1/82
NO. 3	10/1/82
NO. 4	10/1/82
NO. 5	10/1/82
NO. 6	10/1/82
NO. 7	10/1/82
NO. 8	10/1/82
NO. 9	10/1/82
NO. 10	10/1/82
NO. 11	10/1/82
NO. 12	10/1/82
NO. 13	10/1/82
NO. 14	10/1/82
NO. 15	10/1/82
NO. 16	10/1/82
NO. 17	10/1/82
NO. 18	10/1/82
NO. 19	10/1/82
NO. 20	10/1/82
NO. 21	10/1/82
NO. 22	10/1/82
NO. 23	10/1/82
NO. 24	10/1/82
NO. 25	10/1/82
NO. 26	10/1/82
NO. 27	10/1/82
NO. 28	10/1/82
NO. 29	10/1/82
NO. 30	10/1/82
NO. 31	10/1/82
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NO. 34	10/1/82
NO. 35	10/1/82
NO. 36	10/1/82
NO. 37	10/1/82
NO. 38	10/1/82
NO. 39	10/1/82
NO. 40	10/1/82
NO. 41	10/1/82
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NO. 86	10/1/82
NO. 87	10/1/82
NO. 88	10/1/82
NO. 89	10/1/82
NO. 90	10/1/82
NO. 91	10/1/82
NO. 92	10/1/82
NO. 93	10/1/82
NO. 94	10/1/82
NO. 95	10/1/82
NO. 96	10/1/82
NO. 97	10/1/82
NO. 98	10/1/82
NO. 99	10/1/82
NO. 100	10/1/82

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
LAND TRANSPORTATION FACILITIES DIVISION
KALIHI STREAM BRIDGE WIDENING
TYPICAL ABUT. ① & ② SECTIONS
INTERSTATE H-1 IMPROVEMENTS
MIDDLE STREET TO KALIHI INTERCHANGE
EASTBOUND LANES
F.A.I. PROJ. NO. I-HI-1(178)
Scale: As Shown Date: April 1982
SHEET No. 6 OF 14 SHEETS

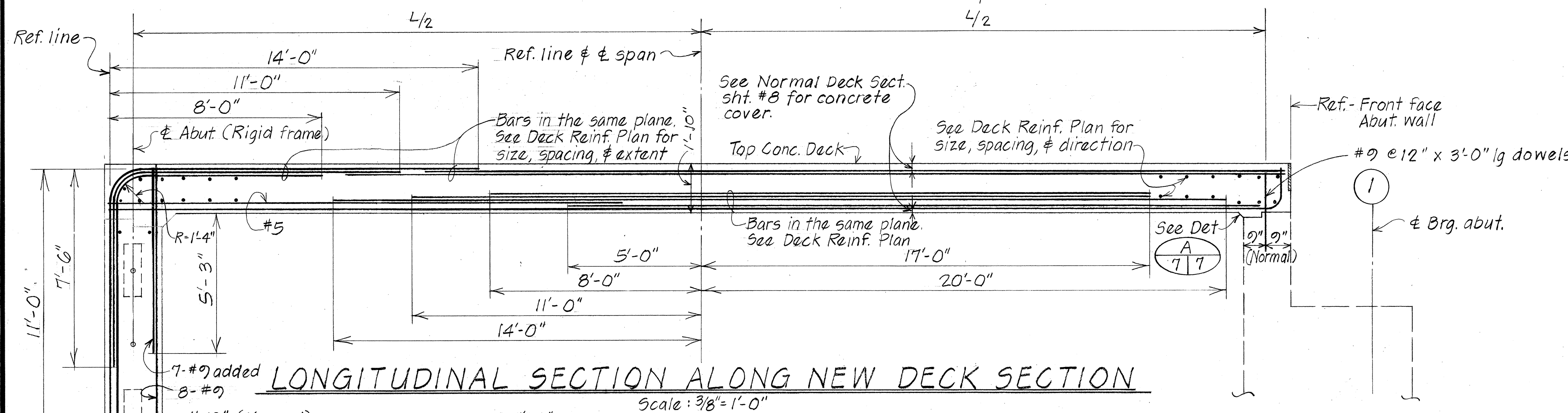
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-HI-1(178)	1982	124	165



DECK - LONGIT. REINFORCING PLAN

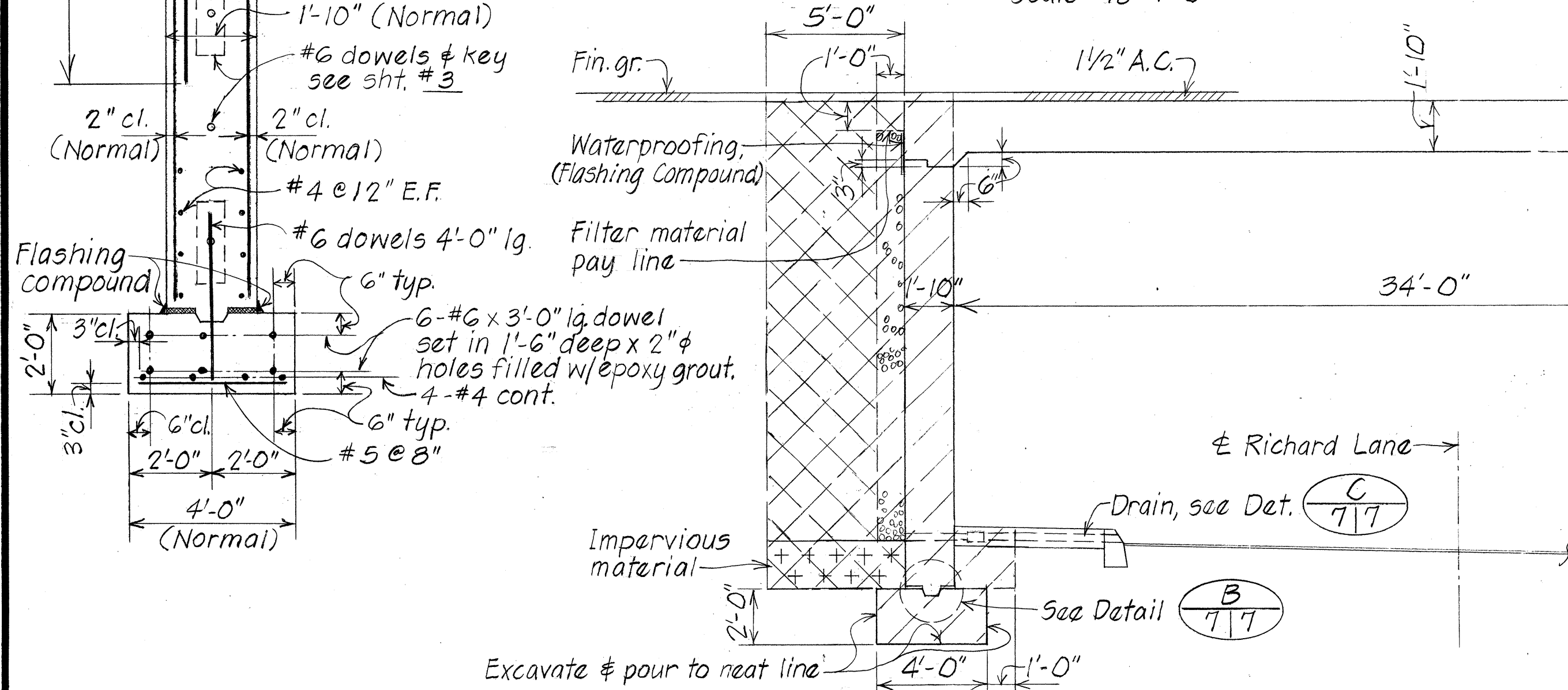
Scale: 3/8" = 1'-0"

- NOTES:**
1. All bars #11 except as otherwise noted.
 2. Numbers at end of bar denote distances from reference point shown below.



LONGITUDINAL SECTION ALONG NEW DECK SECTION

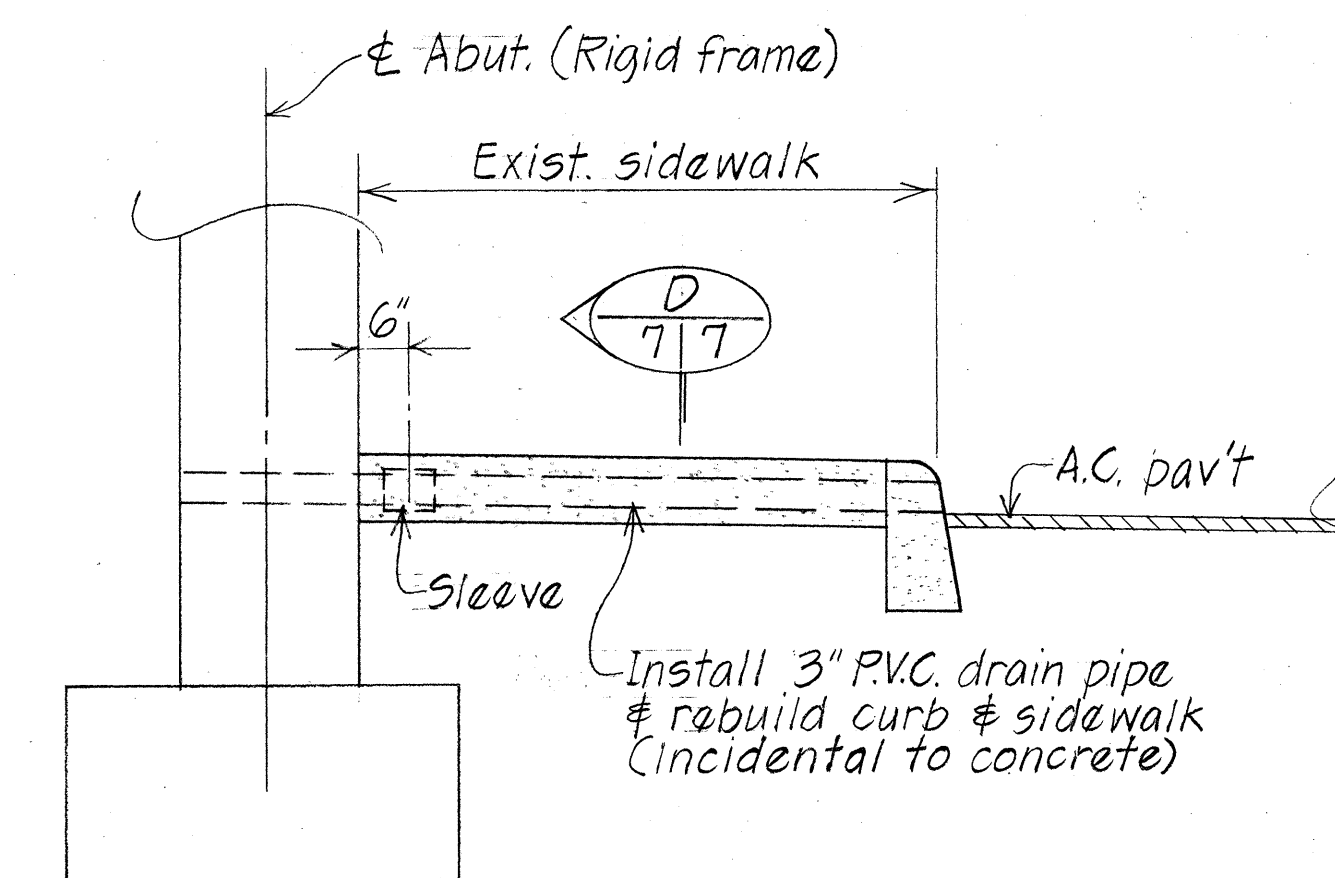
Scale: 3/8" = 1'-0"



NORMAL SECTION

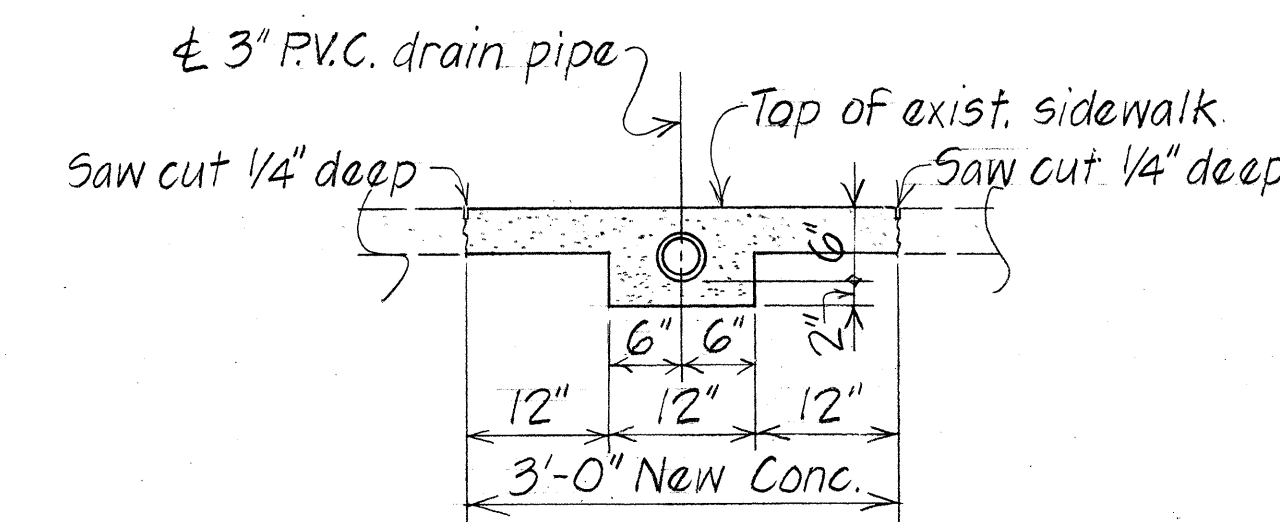
Scale: 1/4" = 1'-0"

- NOTES:**
1. Hatched Areas:
 - a. Hatched area shown thus denotes limits of structure excavation & payline. All other excavation shall be roadway excavation.
 - b. Hatched area shown thus denotes limits of structure backfill (or ordinary backfill).
 2. Reinforced Concrete:
 - a. Footing: Class A
 - b. Ewa rigid frame abut. & deck: 4,500 psi at 28 days.



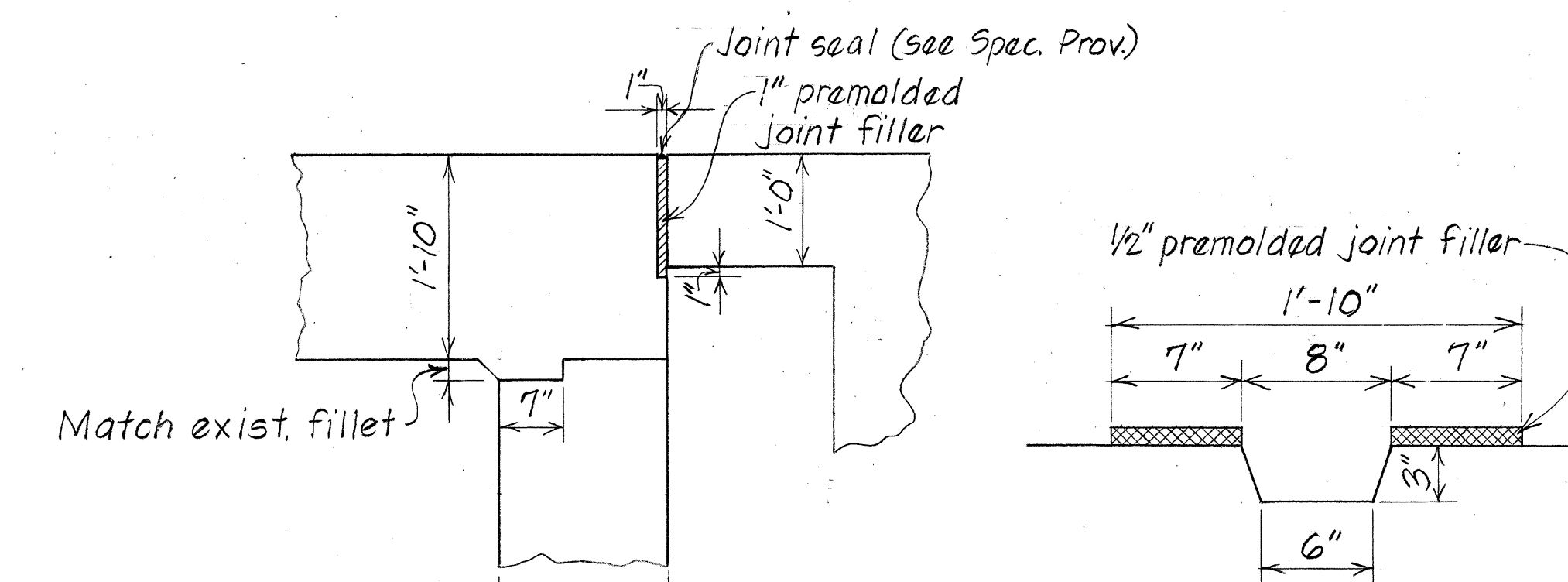
DETAIL C

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



SECTION D

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



DETAIL A

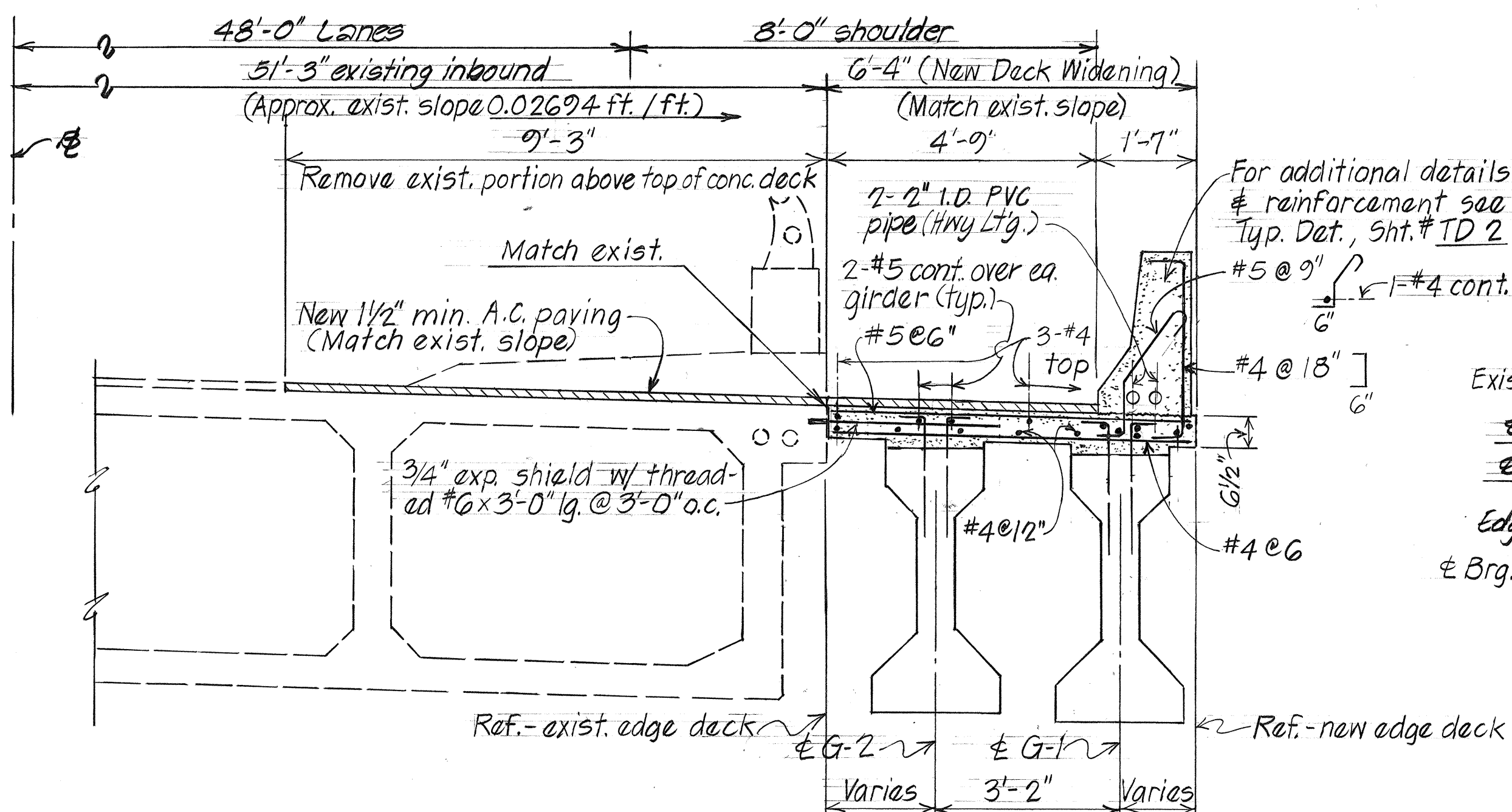
Scale: 3/4" = 1'-0"

DETAIL B

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

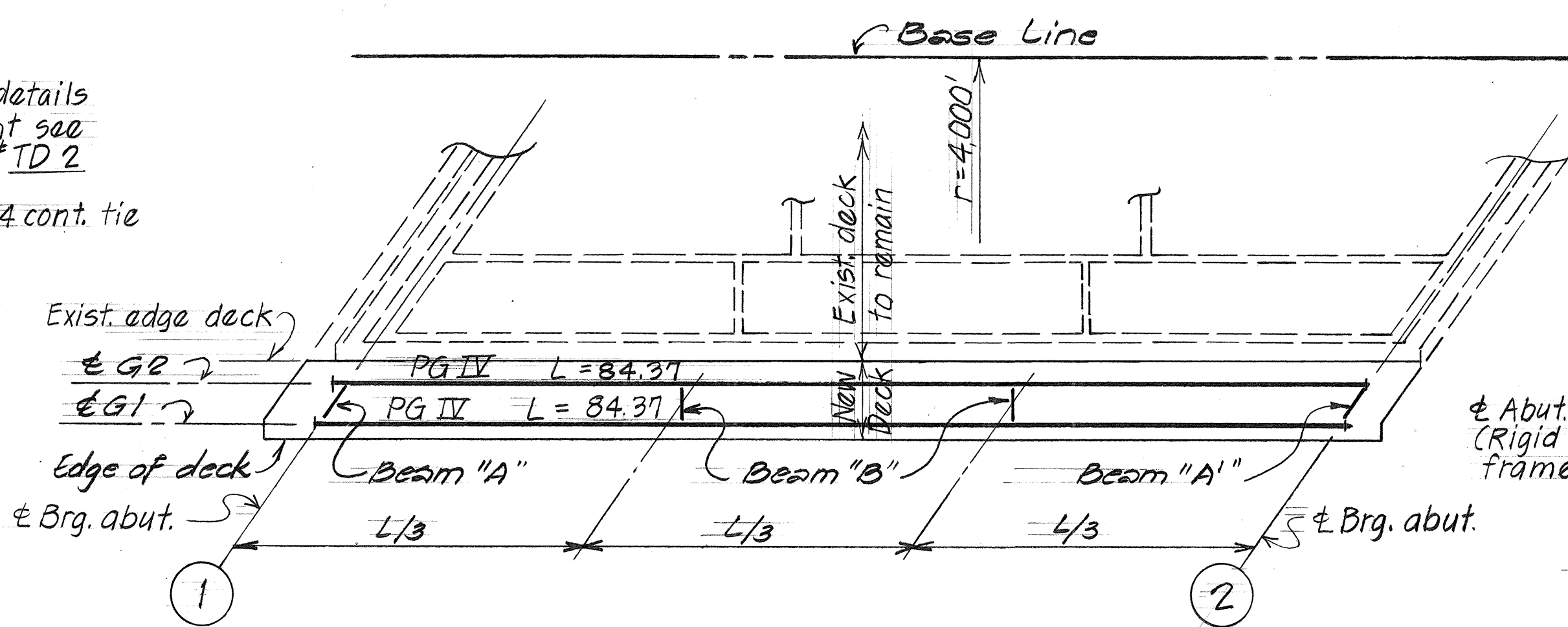
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
LAND TRANSPORTATION FACILITIES DIVISION
KALIHI STREAM BRIDGE WIDENING
RIGID FRAME - DECK REINF. PLAN, DECK SECTION
INTERSTATE H-1 IMPROVEMENTS
MIDDLE STREET TO KALIHI INTERCHANGE
EASTBOUND LANES
F.A.I. PROJ. NO. I-HI-1(178)
Scale: As Shown Date: April 1982
SHEET NO. 7 OF 14 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-HI-1(178)	1982	125	165



NORMAL DECK SECTION
Scale: 1/2" = 1'-0"

- NOTES:**
1. All longitud. #4 bars shall be placed in accord with the roadway curvature.
 2. All transverse bars shall be placed radially.

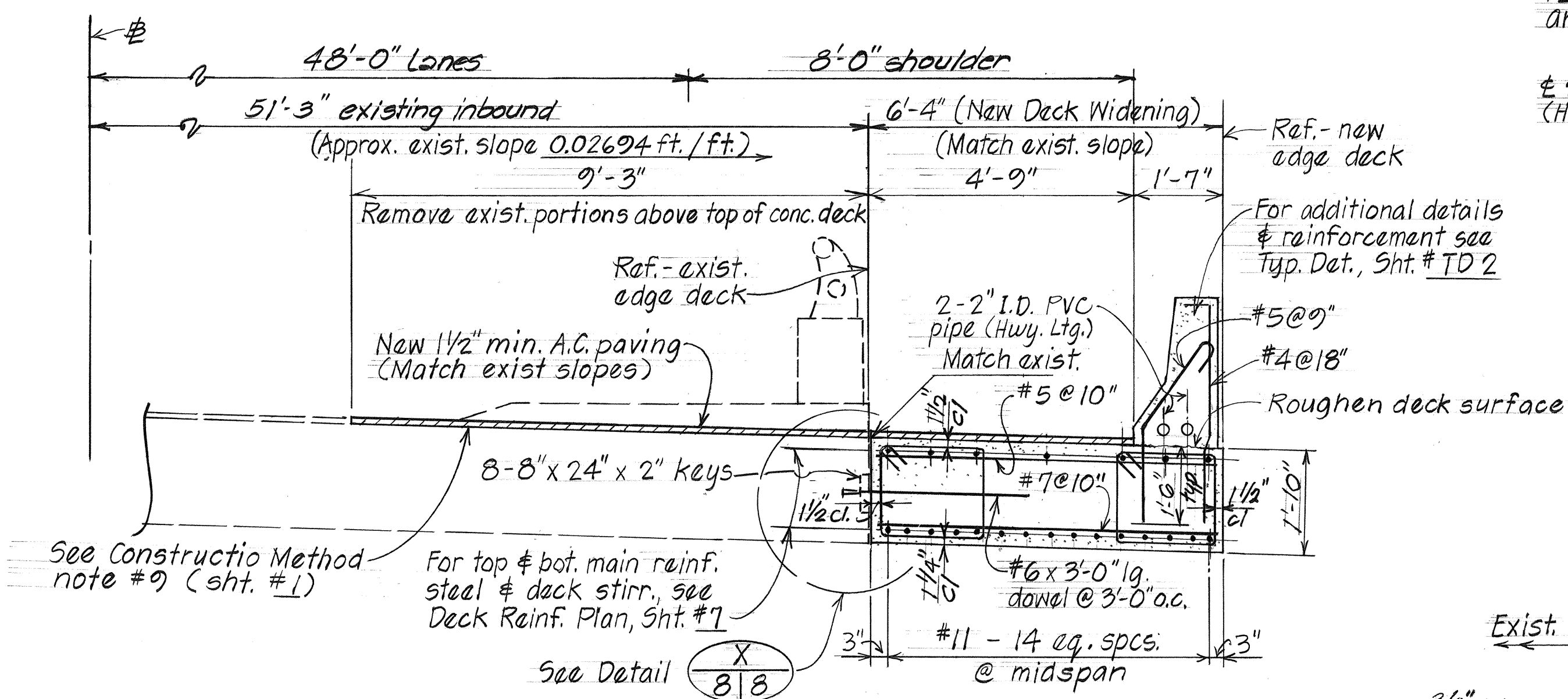


DECK FRAMING PLAN
Scale: 1" = 10'-0"

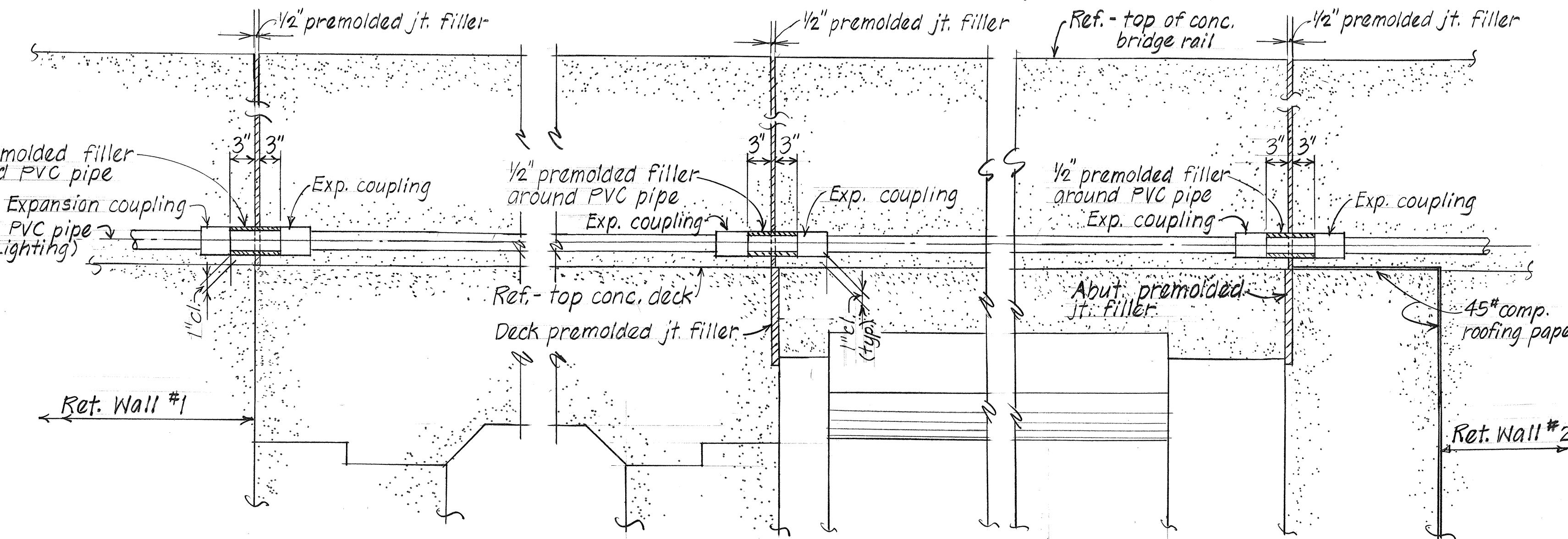
- NOTE:**
1. - Locate Bm "B" at 1/3 span as indicated on Plan
 2. - Girder dimension L = horizontal measurement between & brg. abut. The Contractor shall determine total length of girder. (See Construction Method note no. 3 on sht. 1)

NEW EDGE OF DECK CAMBER DIAGRAM

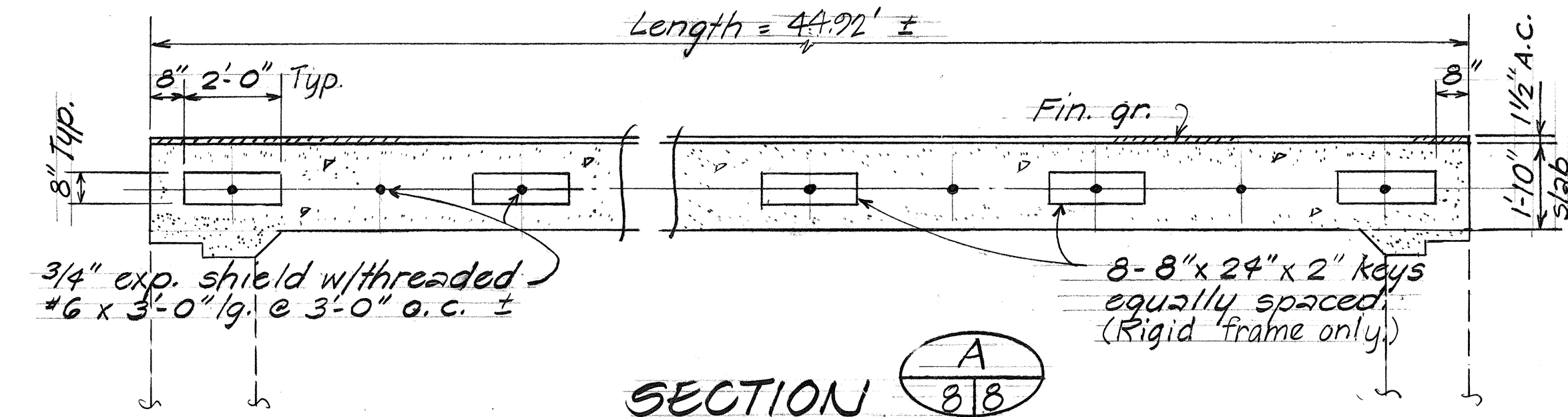
1. For use in determining screed grades during deck pour at new edge of deck.
2. Match grades at existing edge of deck.



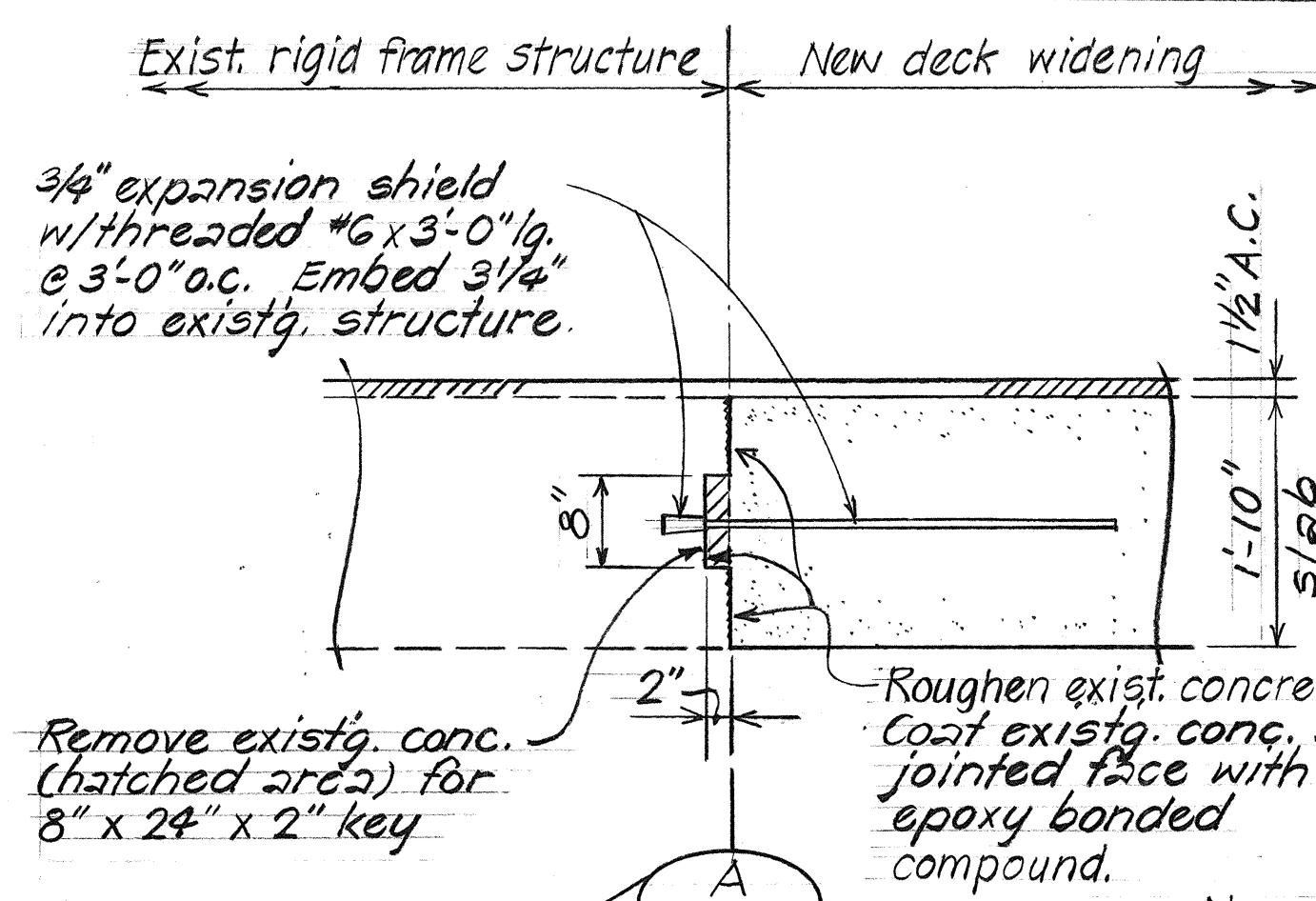
NORMAL DECK SECTION (AT RIGID FRAME)
Scale: 1/2" = 1'-0"



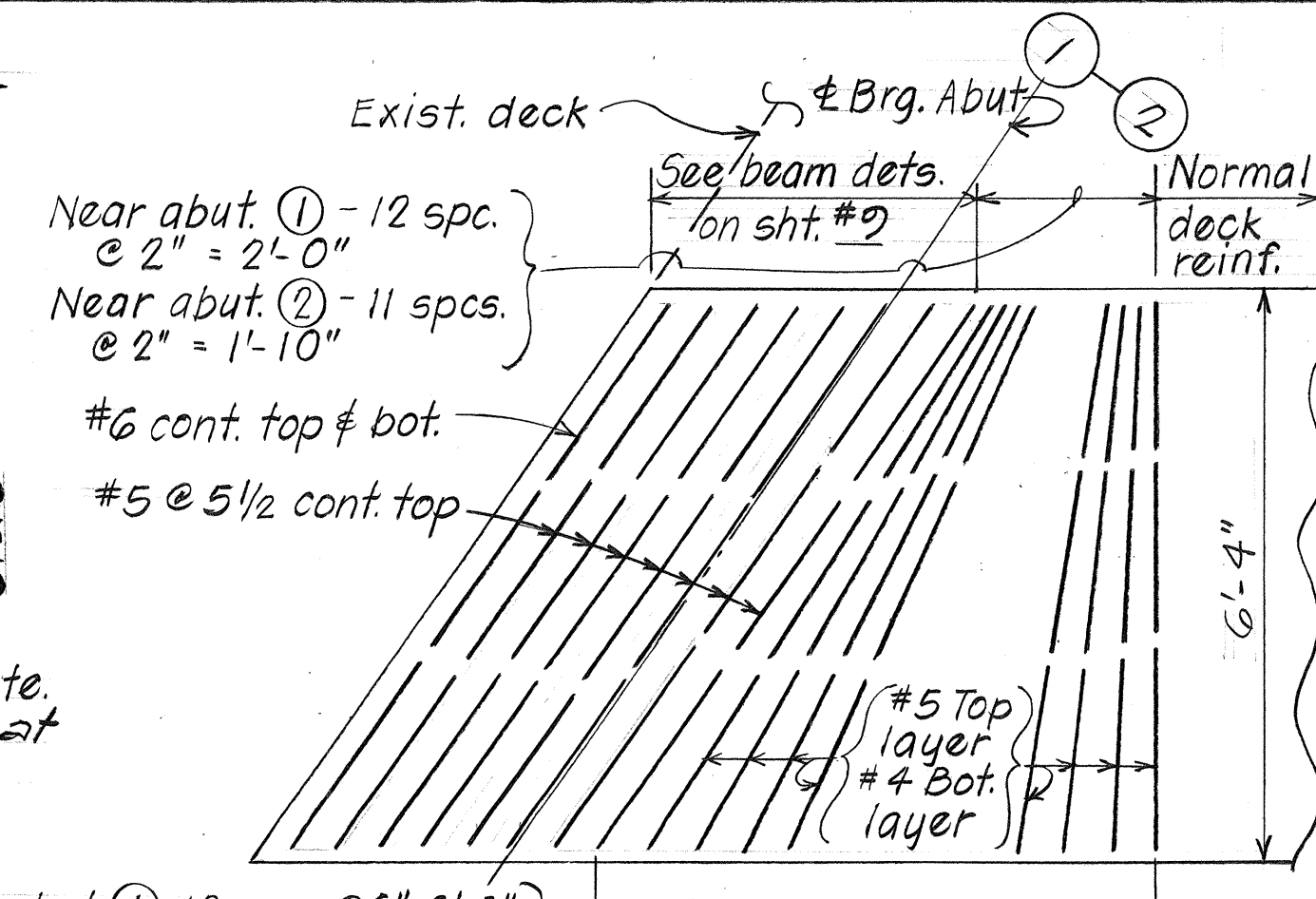
TYPICAL HIGHWAY LIGHTING DUCT DETAIL AT BRIDGE DECK SECTION
Scale: 1" = 1'-0"



SECTION A-B
Scale: 3/8" = 1'-0"



DETAIL A-B
Scale: 3/4" = 1'-0"



FLARED TRANSVERSE DECK REINF PLAN NEAR ABUT. 1
(NEAR ABUT. 2 - SIMILAR EXCEPT ROTATE PLAN 180°)
Scale: 1/2" = 1'-0"

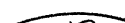
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
LAND TRANSPORTATION FACILITIES DIVISION
KALIHI STREAM BRIDGE WIDENING
NORMAL DECK SECTION
DECK FRAMING PLAN
INTERSTATE HI IMPROVEMENTS
MIDDLE STREET TO KALIHI INTERCHANGE
EASTBOUND LANES
F.A.I. PROJ. NO. I-HI-1(178)
Scale: As shown Date: April 1982
SHEET NO. 8 OF 14 SHEETS

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

ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
	DRAWN BY <i>T.K.M.</i>	" <i>Mar. '02</i>
	TRACED BY	" "
NOTE BOOK	DESIGNED BY <i>M.M.Y.</i>	" <i>Mar. '02</i>
	QUANTITIES BY	" "
No.	CHECKED BY	" <i>Apr. '02</i>

SECTION 

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

SECTION 

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

TYP. ELEV. - CONCRETE SEAT, HINGE & CREEP BLOCK
Scale: 1"=1'-0"

PART ELEVATION - BEAM "A" & BEAM "A1"
Scale: $\frac{3}{4}" = 1'-0"$

TYPICAL BEAM "B" ELEVATION
Scale: $\frac{1}{2}" = 1'-0"$

SECTION 

Scale: 1" = 1'-0"

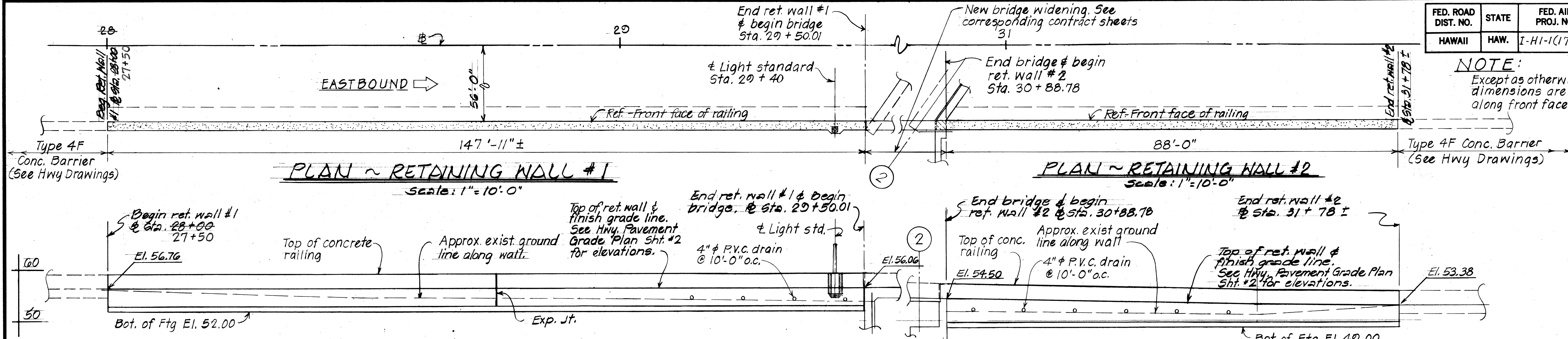
SECTION 
Scale: 1" = 1'-0"

SECTION 
Scale: $\frac{1}{2}" = 1'-0"$

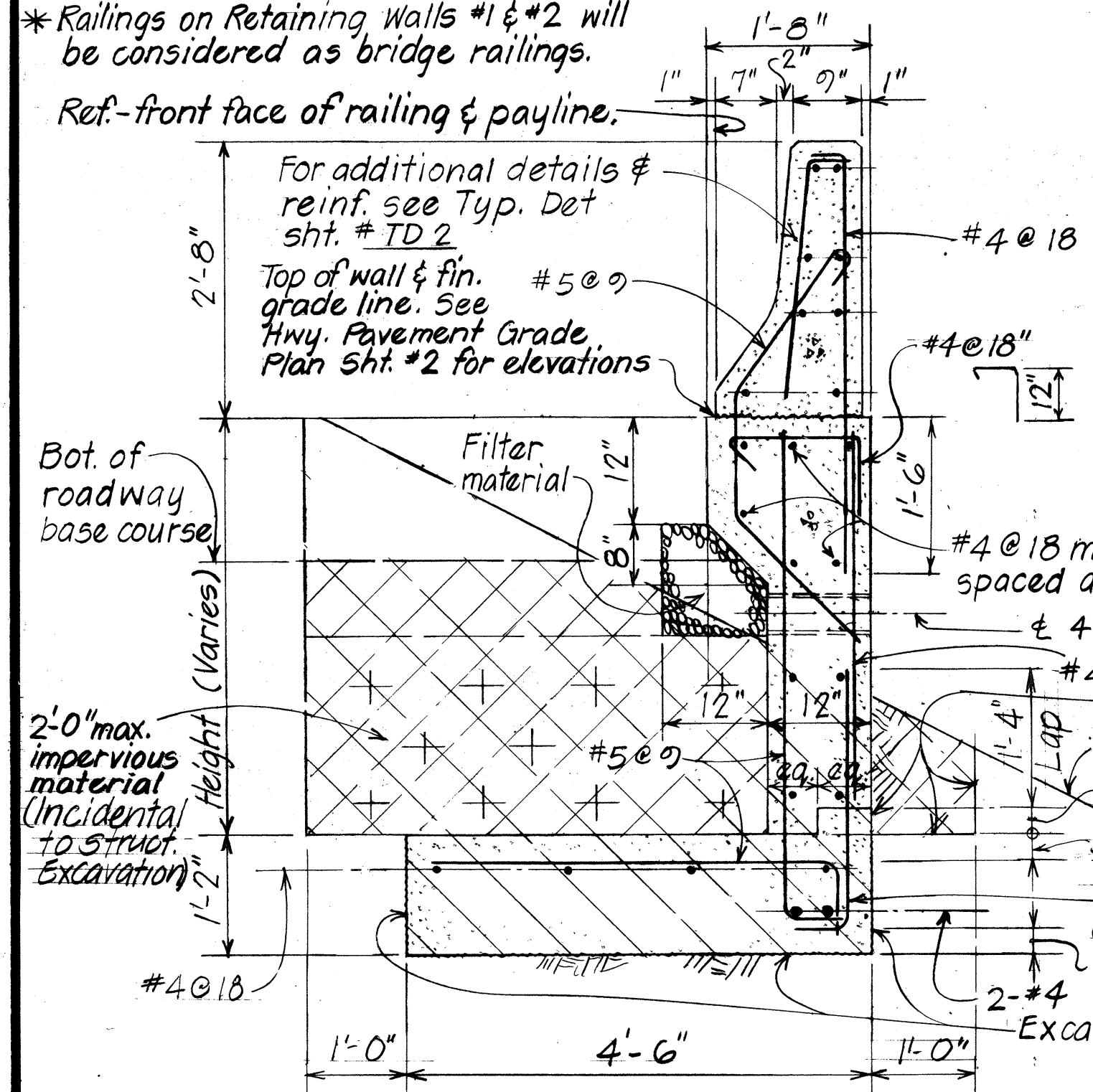
NOTE: inserts & anchor bolts to be
incidental to P/S conc. girders.
TYPICAL INSERT DETAIL
Scale: 3" = 1'-0"

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-HI-1(178)	1982	127	165

NOTE:
Except as otherwise noted all longitudinal dimensions are measured horizontal & along front face of ret. wall.



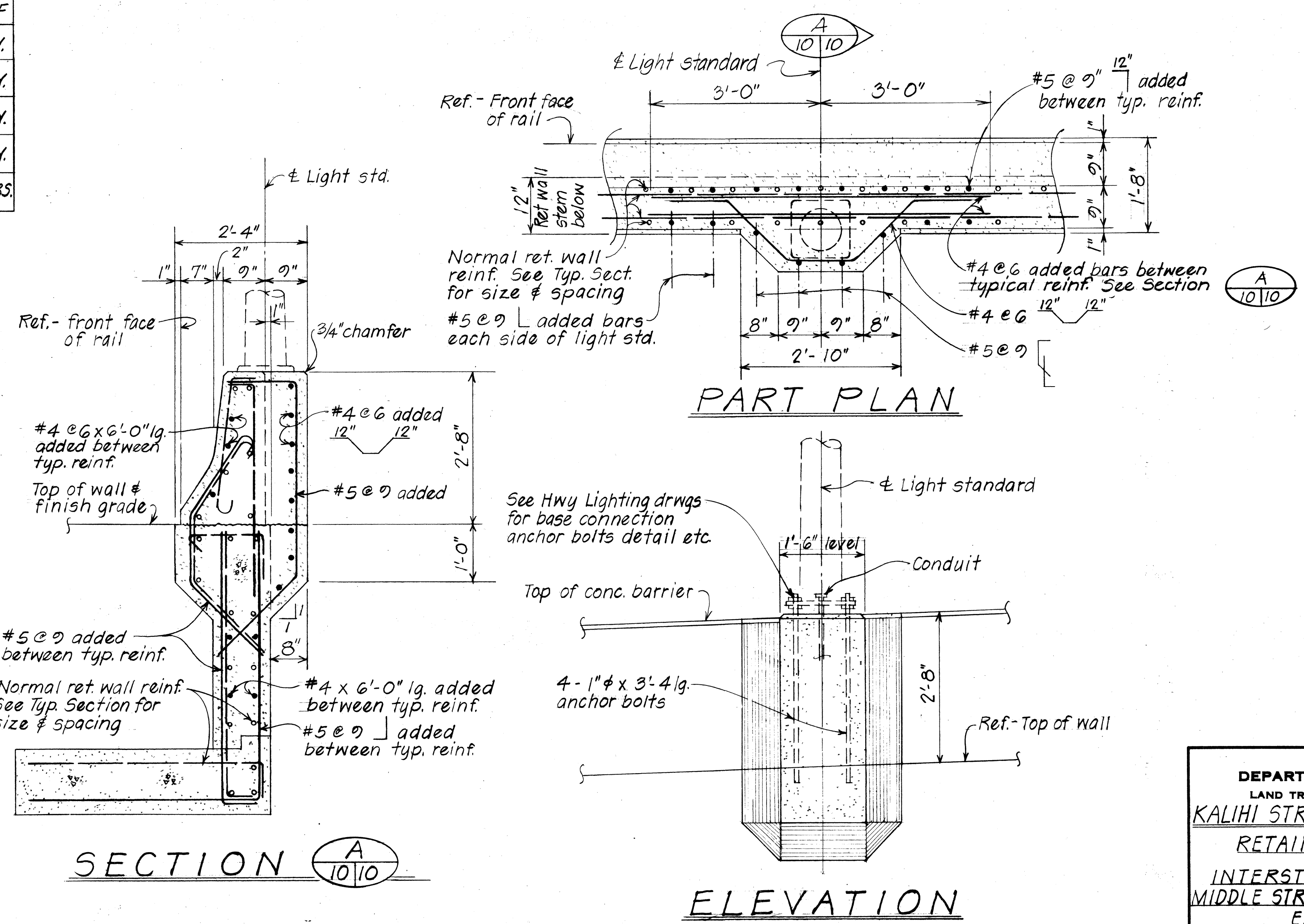
ESTIMATED QUANTITIES		RETAINING WALL #1			RETAINING WALL #2		
ITEM	ITEM NO.	UNIT	QUANTITY	ITEM NO.	UNIT	QUANTITY	
*Concrete Bridge Railing	507.5010	L.F.	150	L.F.	507.5010	L.F.	91
Structure Excavation for Retaining Wall	206.5000	C.Y.	115	C.Y.	206.5000	C.Y.	73
Structure Backfill for Retaining Wall	206.7250	C.Y.	41	C.Y.	206.7250	C.Y.	31
Filter Material for Retaining Wall	206.8200	C.Y.	3	C.Y.	206.8200	C.Y.	2
Concrete in Retaining Wall	503.1054	LumpSum	51	C.Y.	503.1055	LumpSum	32
Reinforcing steel in Retaining Wall	602.0054	LumpSum	4770	LBS	602.0055	LumpSum	2700



NOTE:
HATCHED AREA
• Hatched area shown thus denotes limits of structure excavation pay line. All other excavation shall be roadway excavation.
• Hatched area shown thus denotes limits of structure backfill.
• Barrier rail on Retaining Walls 1 & 2 shall be paid as bridge rail.

RETAINING WALL ELEVATIONS

Scale: 1"=1'-0"



SECTION A 10/10

TYPICAL LIGHT STANDARD AT RETAINING WALL #1

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

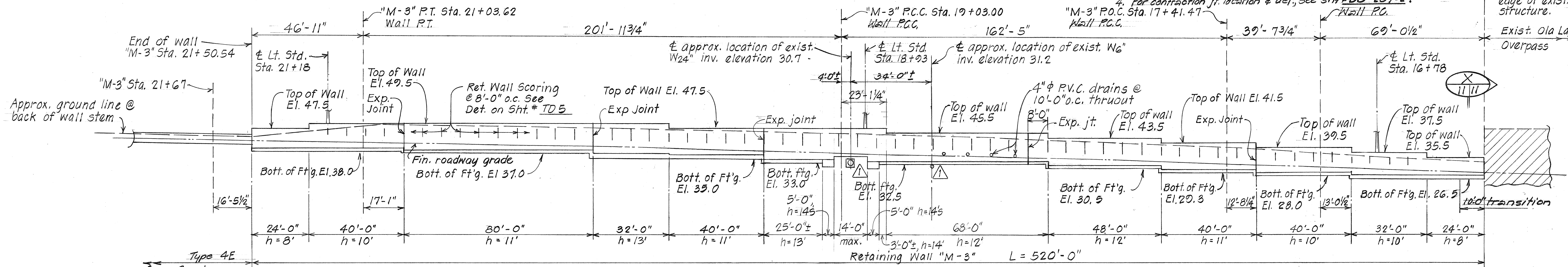
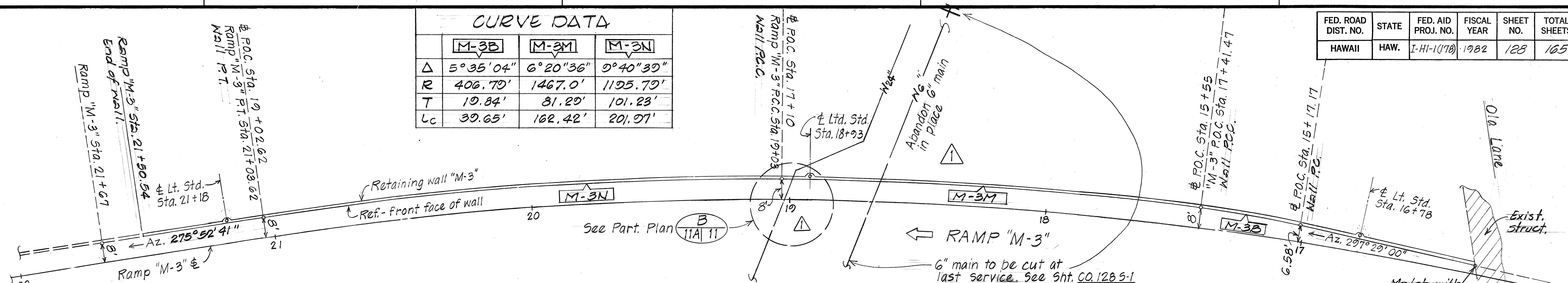
REFERENCE:
1. Expansion joint details similar to that shown on Standard Details - Retaining Wall Type T-1 sht. DB-207-2
2. For contraction joint location and detail, see Sht. DB-207-2.

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
LAND TRANSPORTATION FACILITIES DIVISION
KALIHI STREAM BRIDGE WIDENING
RETAINING WALL #1 & #2
INTERSTATE H-1 IMPROVEMENTS
MIDDLE STREET TO KALIHI INTERCHANGE
EASTBOUND LANES
F.A.I. PROJ. NO. I-HI-1(178)
Scale: As Shown Date: April 1982
SHEET NO. 10 OF 14 SHEETS

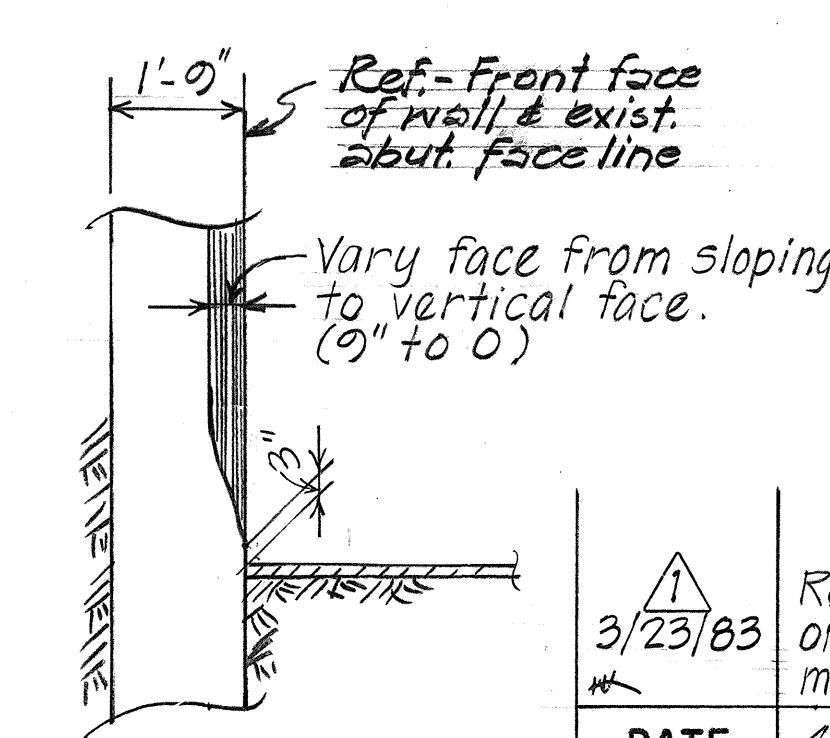
ORIGINAL PLAN
DATE: 4/1/82
DRAWN BY: S.Y. LIA
CHECKED BY: J.T.S.
NOTED BY: J.T.S.
DATE: 4/1/82

CURVE DATA			
	M-3B	M-3M	M-3N
Δ	5°35'04"	6°20'36"	9°40'39"
R	406.79'	1467.0'	1125.79'
T	19.84'	81.29'	101.23'
Lc	39.65'	162.42'	201.97'

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-HI-1(178)	1982	128	165



ESTIMATED QUANTITIES RETAINING WALL "M-3"			
ITEM NO.	ITEM	UNIT	QUANTITY
206.5000	Structure Excavation for Retaining Wall	C.Y.	493.01
206.7250	Structure Backfill for Retaining Wall	C.Y.	316.01
206.8200	Filter Material for Retaining Wall	C.Y.	115.01
503.1051	Concrete in Retaining Wall	Lump Sum	490.01
602.0051	Reinforcing Steel in Retaining Wall	Lump Sum	42,100.125



Revised footing, 24" water line opening, original quantities, and deleted water main details.

DATE 4-5-82 REVISION REN.

APPROVED: Date 4-30-82

for CHIEF, PLANNING & ENGINEERING, BWS

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
LAND TRANSPORTATION FACILITIES DIVISION

RETAINING WALL M-3

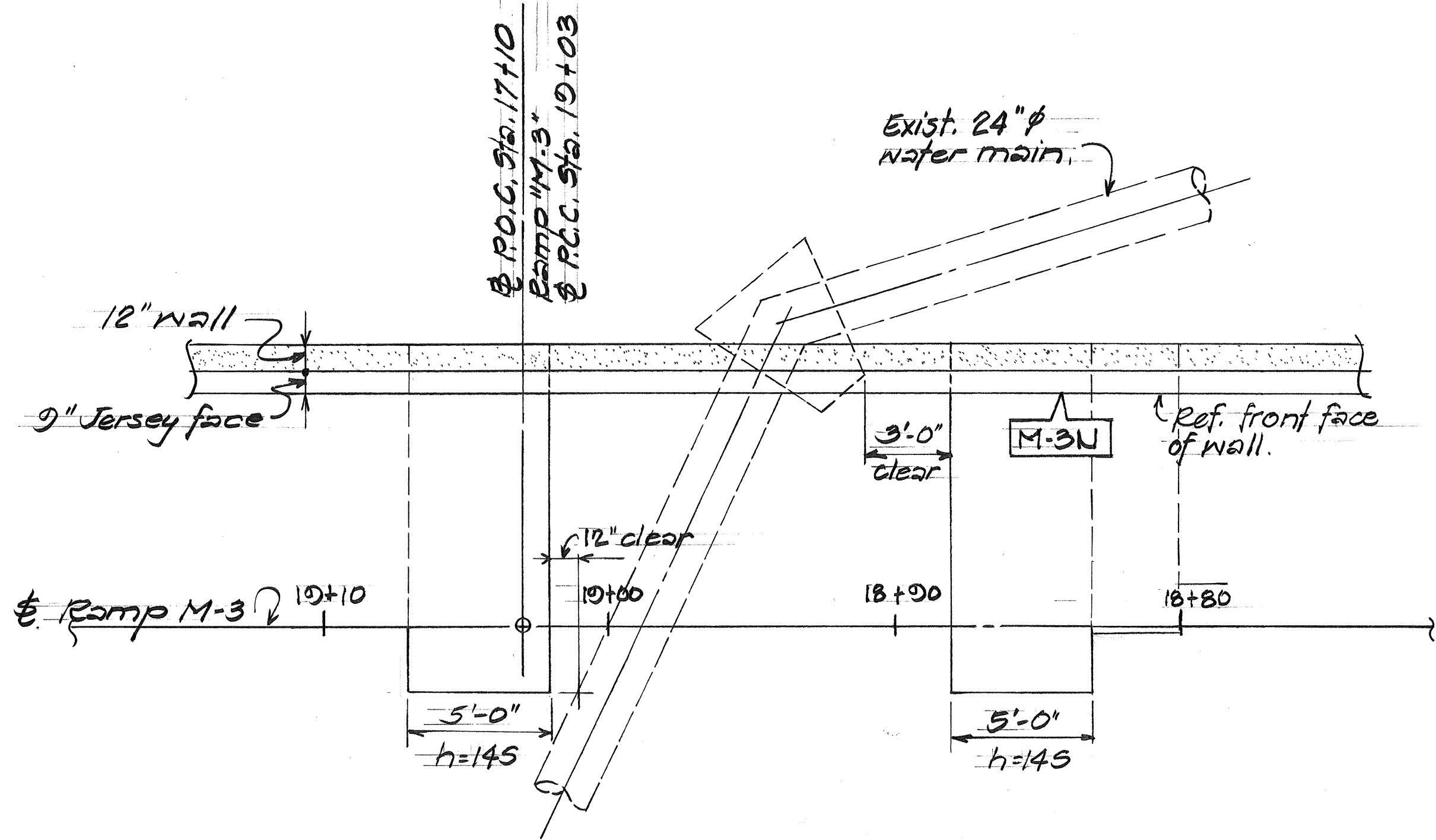
INTERSTATE HI IMPROVEMENTS
MIDDLE STREET TO KALIHI INTERCHANGE
EASTBOUND LANES

FAL PROJECT NO. I-HI-1(178)
Scale: As Noted Date: April 1982

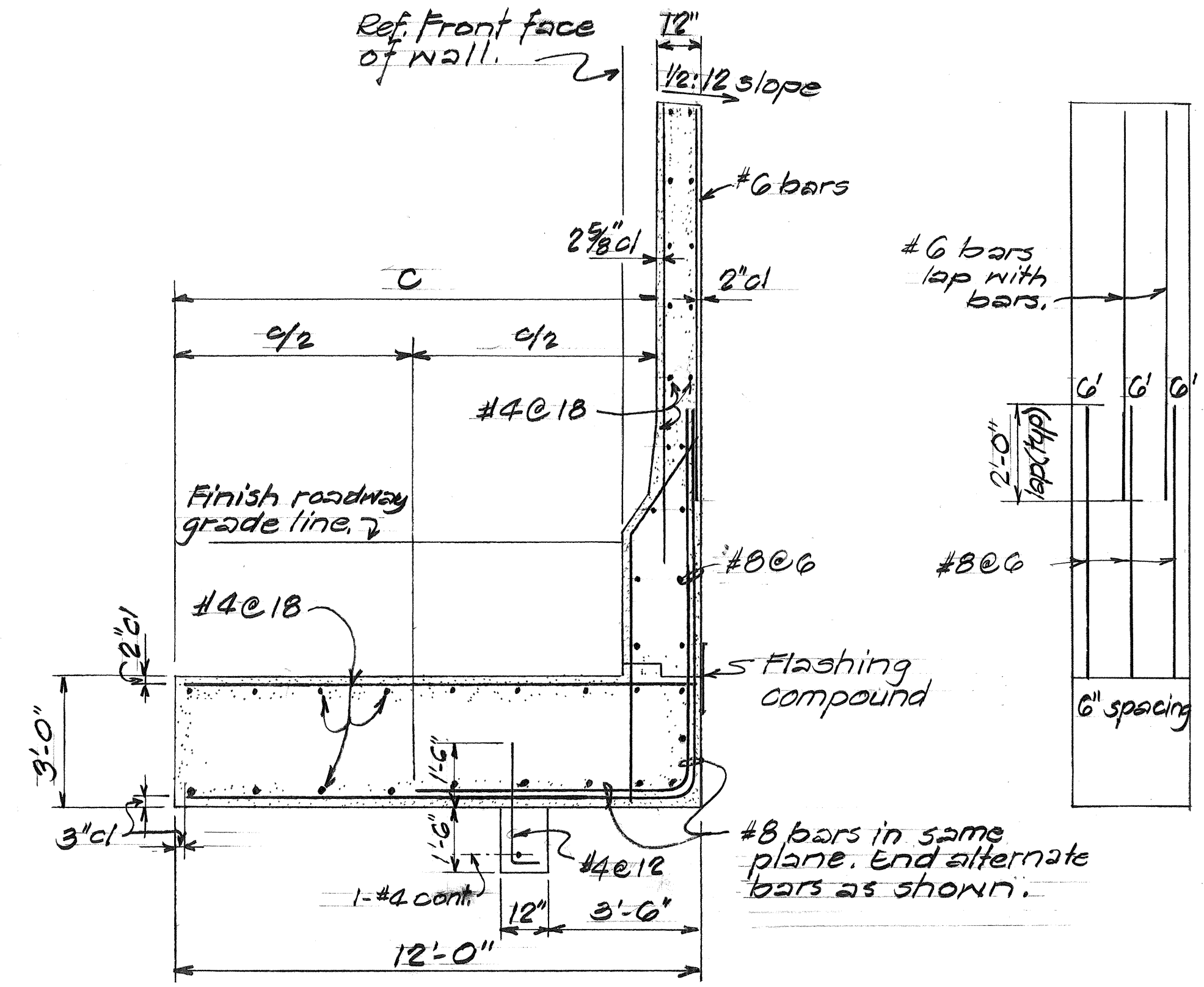
SHEET No. 11 OF 14 SHEETS

SURVEY PLOTTED BY: DATE: 4/22/82
DRAWN BY: L.H.A. S.Y.
CHECKED BY: M.C. 02
NOTE BOOK: 4/22/82

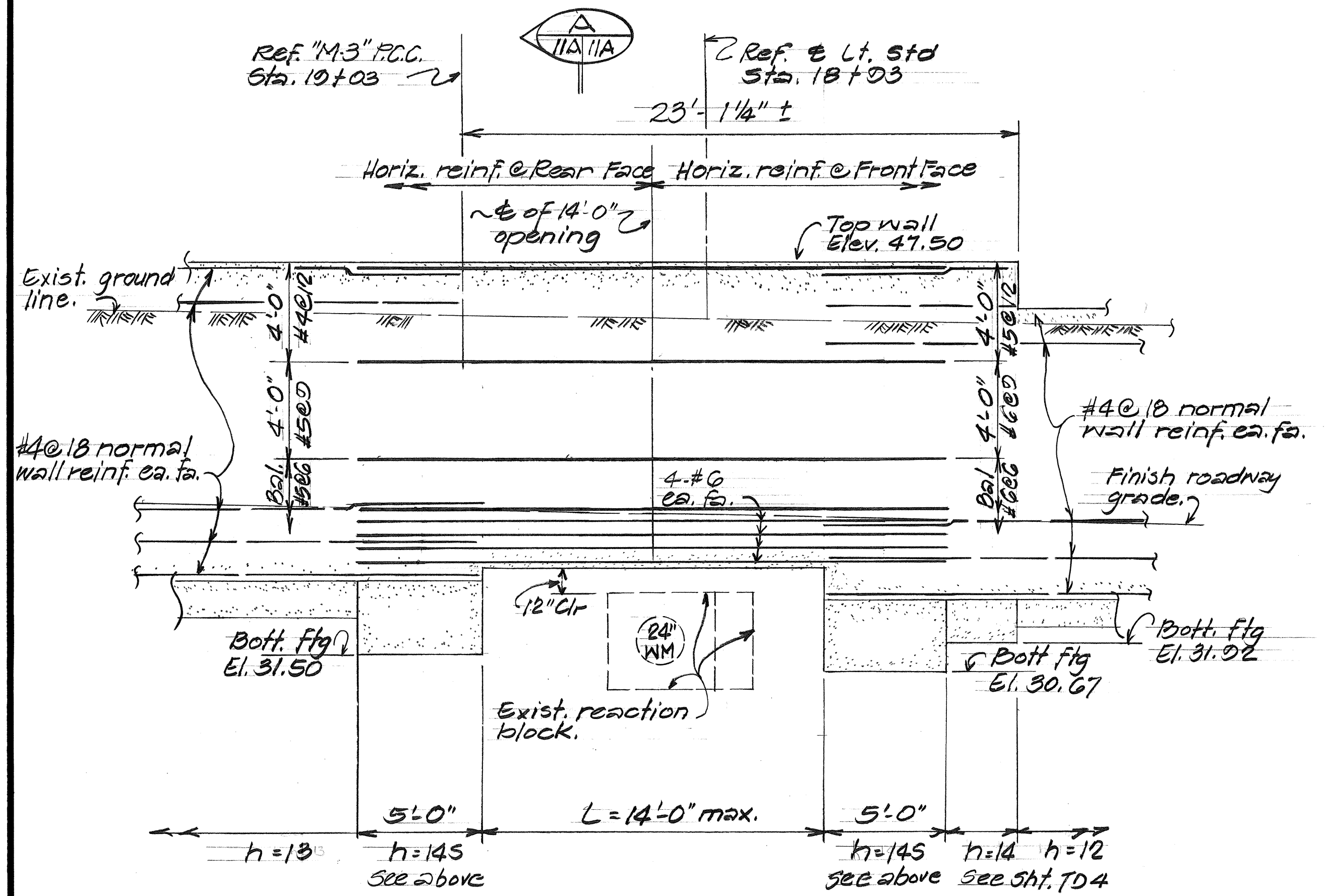
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	IHI-1(178)	1983	1285-1	165



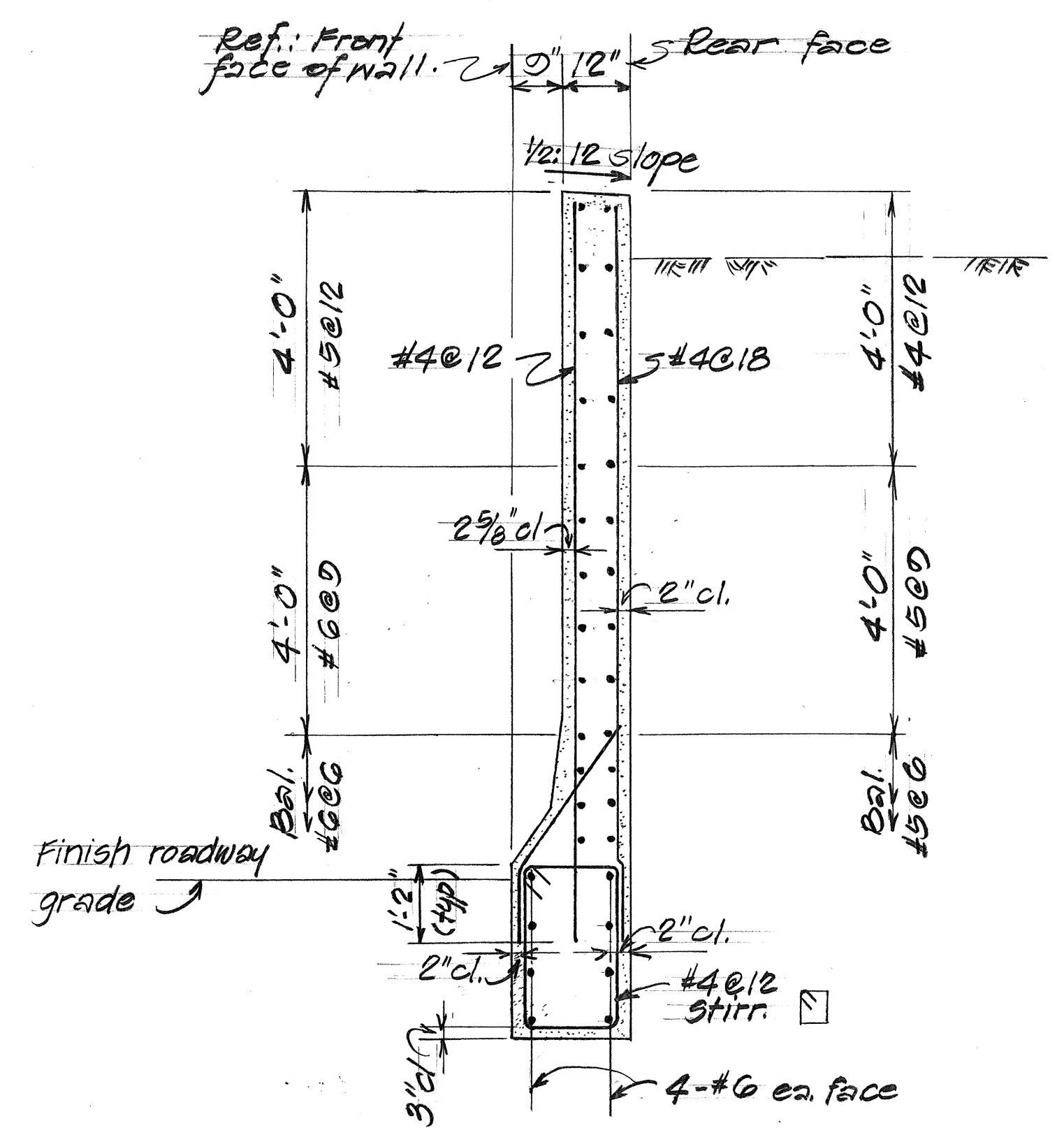
PART PLAN
Scale: 1/4" = 1'-0"



TYPICAL TYPE "L-2," h=145 WALL
Scale: 3/8" = 1'-0"

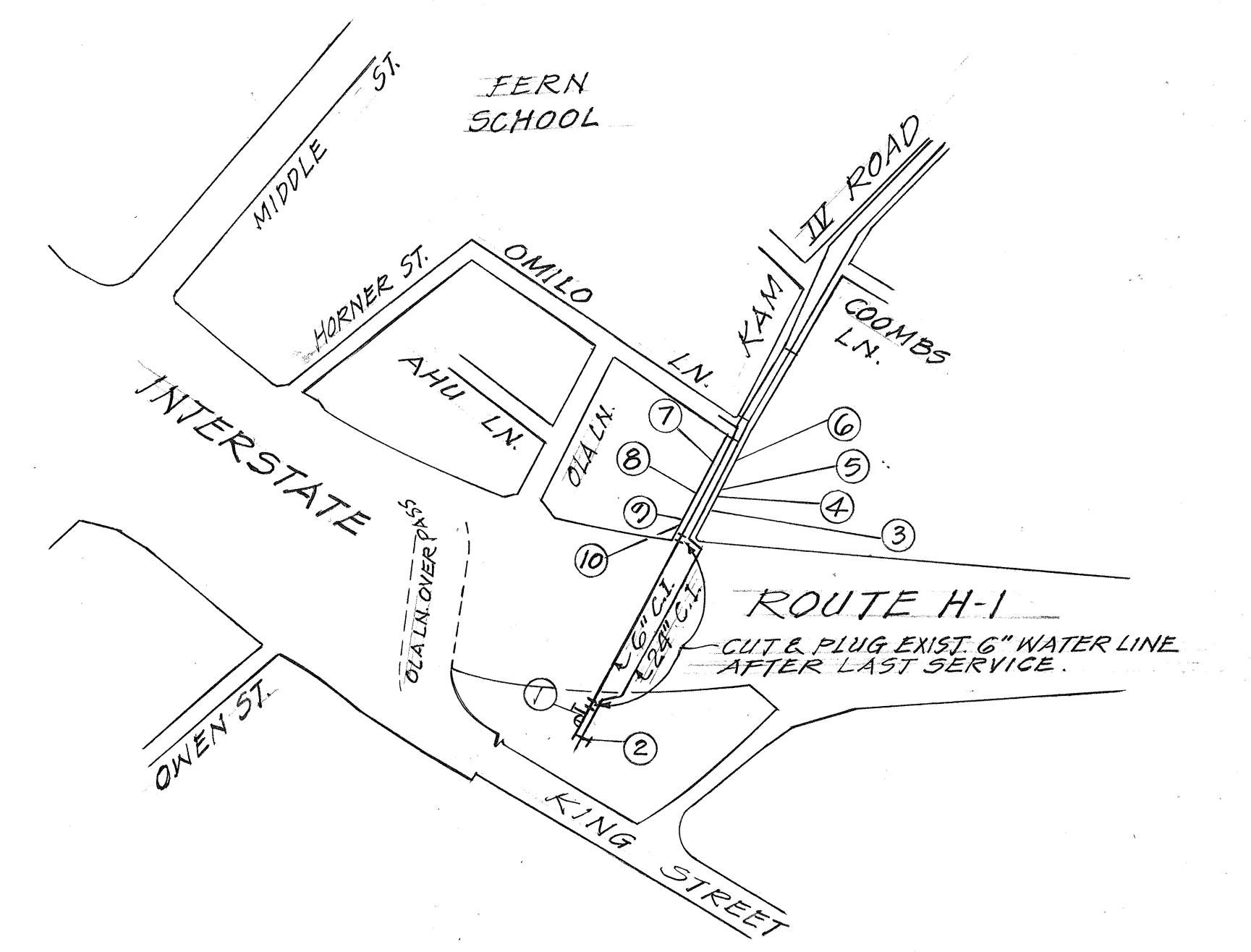


DETAIL OF OPENING IN RETAINING WALL @ 24" WATER MAIN
Scale: 1/4" = 1'-0"



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

SERVICE NUMBER	METER NUMBER	ADDRESS
① 410-44163	17315957 T 06	2308 N KING ST.
② 410-44184	21957263 T 04	1021 KAM II RD.
③ 704-11352	7305483 T 06	1031 KAM II RD.
④ 410-60700	20898013 T 03	1045 KAM II RD.
⑤ 410-60721	2036684 T 02	1049 KAM II RD.
⑥ 410-60742	20889180 T 03	1057 KAM II RD.
⑦ 410-60637	4331624 T 02	1054 KAM II RD.
⑧ 410-60658	22419835 T 02	1048A KAM II RD.
⑨ 410-60679	79033201 CN 03	1044 KAM II RD.
⑩ 0/F		



PLAN
6-INCH WATER
@ STA. 17+00±
Not to Scale

SURVEY PLOTTED BY	DATE
DRAWN BY	
NOTED BY	
CHECKED BY	

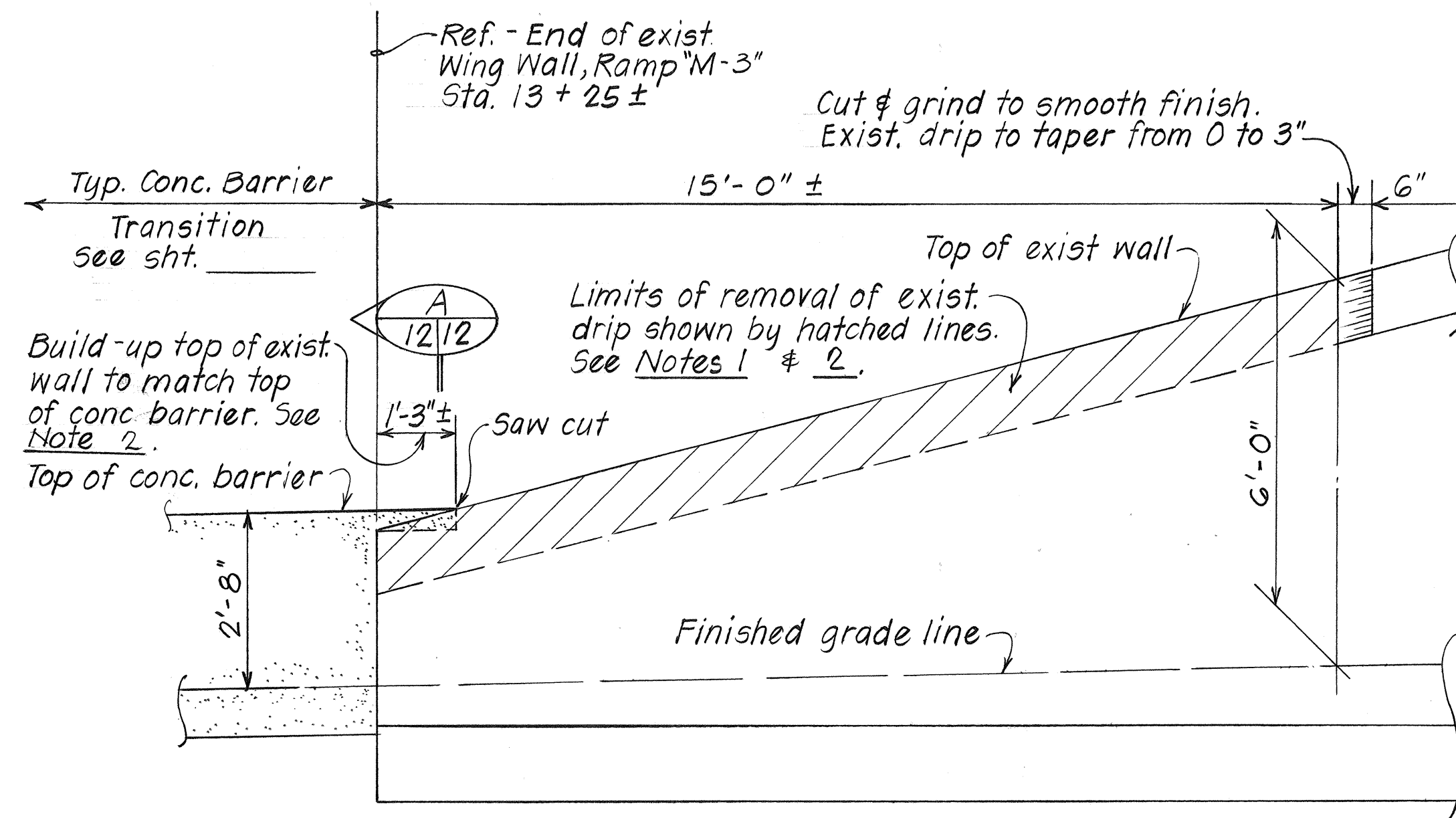
APPROVED: _____ Date 4-5-83

CHIEF, PLANNING & ENGINEERING, BWS

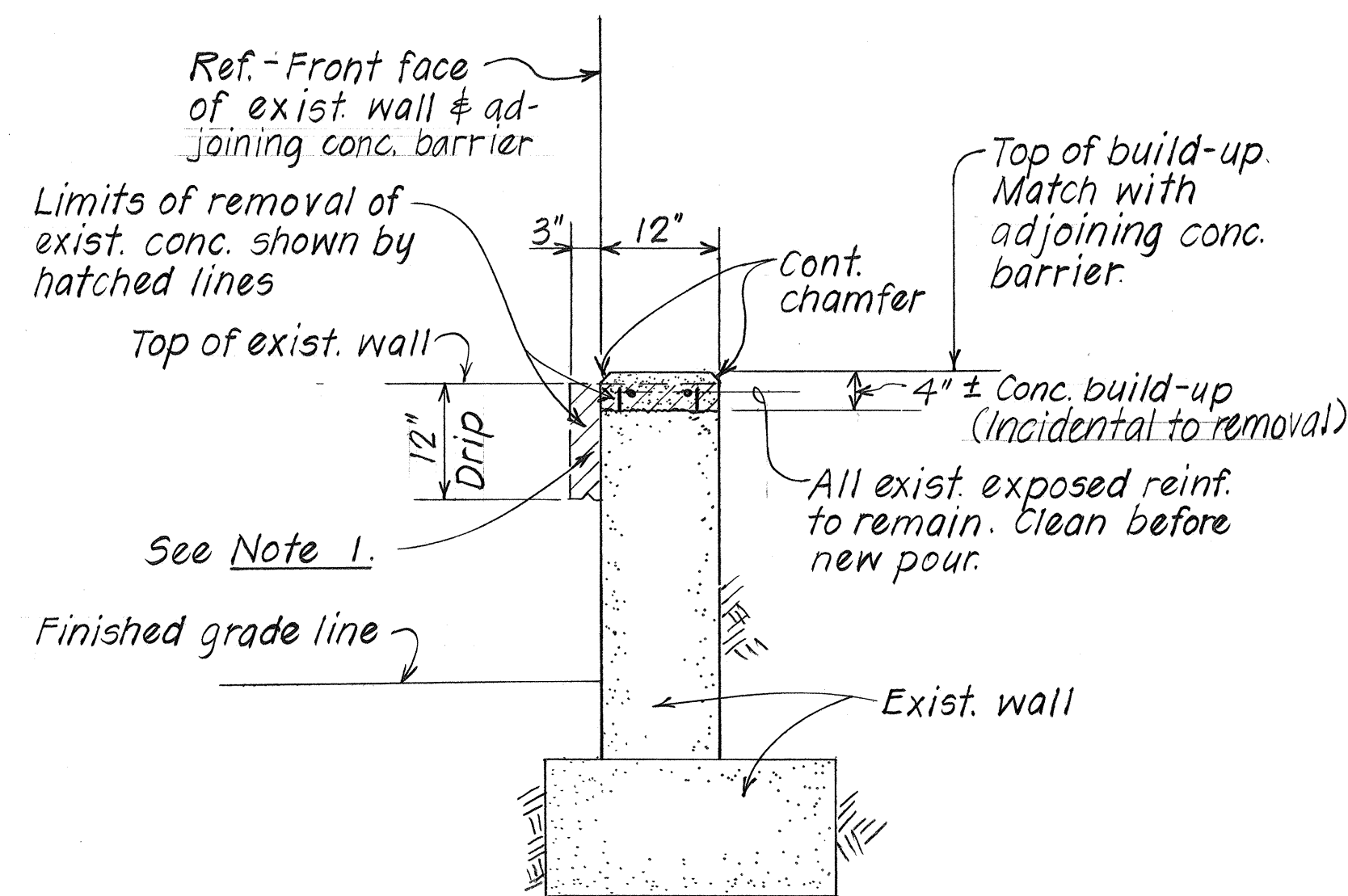
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
LAND TRANSPORTATION FACILITIES DIVISION

RETAINING WALL M-3
INTERSTATE H-1 IMPROVEMENTS
MIDDLE STREET TO KALIHI INTERCHANGE
EASTBOUND LANES
F.A.I. PROJECT NO. I-HI-1(178)
Scale: As Noted Date: Mar. 1983
SHEET NO. 11A OF 14 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-HI-1(178)	1982	129	165

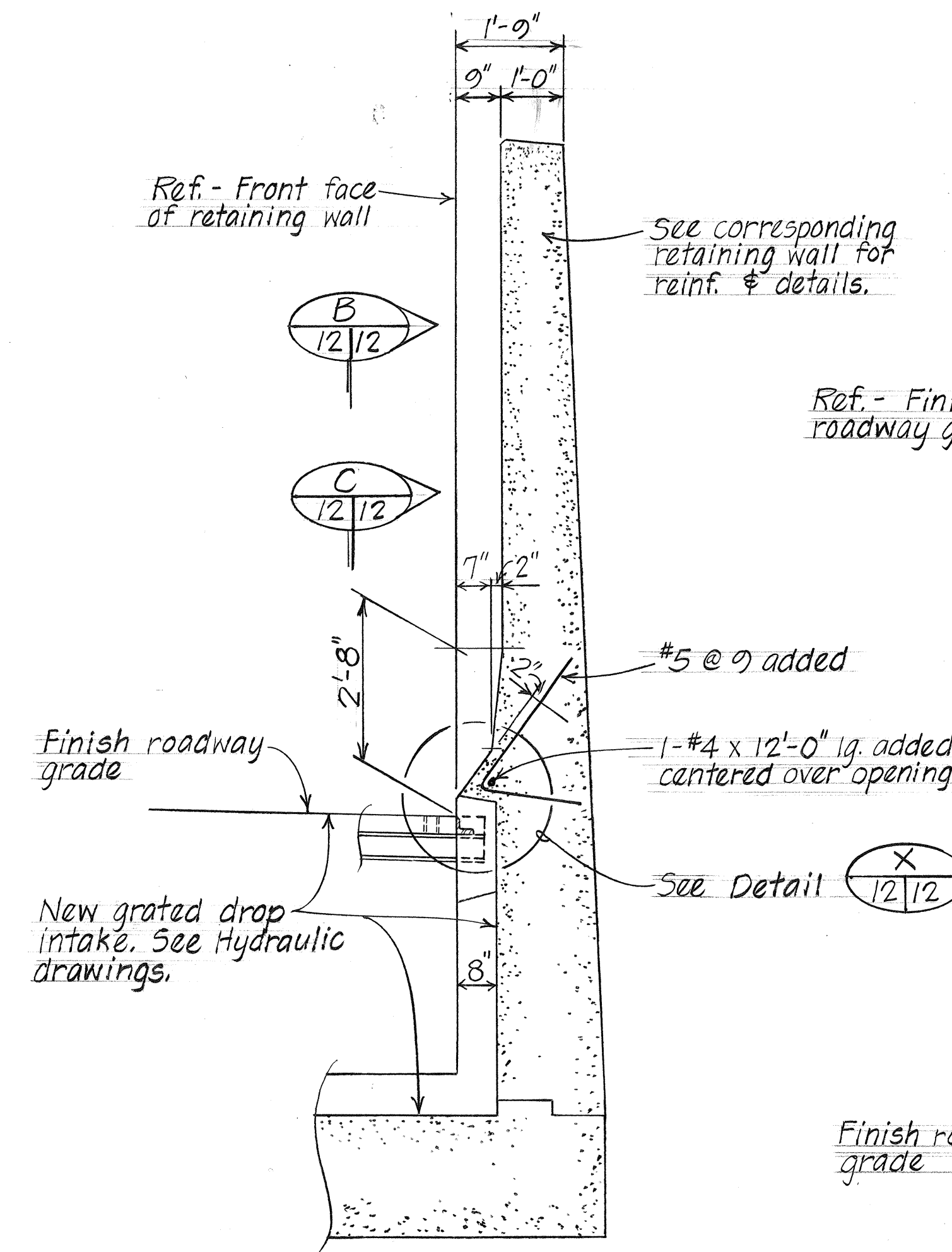


ELEVATION
DRIP MODIFICATION ON EXIST. WING WALL
AT RAMP "M-3" STA. 13 + 25 ±
 Scale: 1/2" = 1'-0"

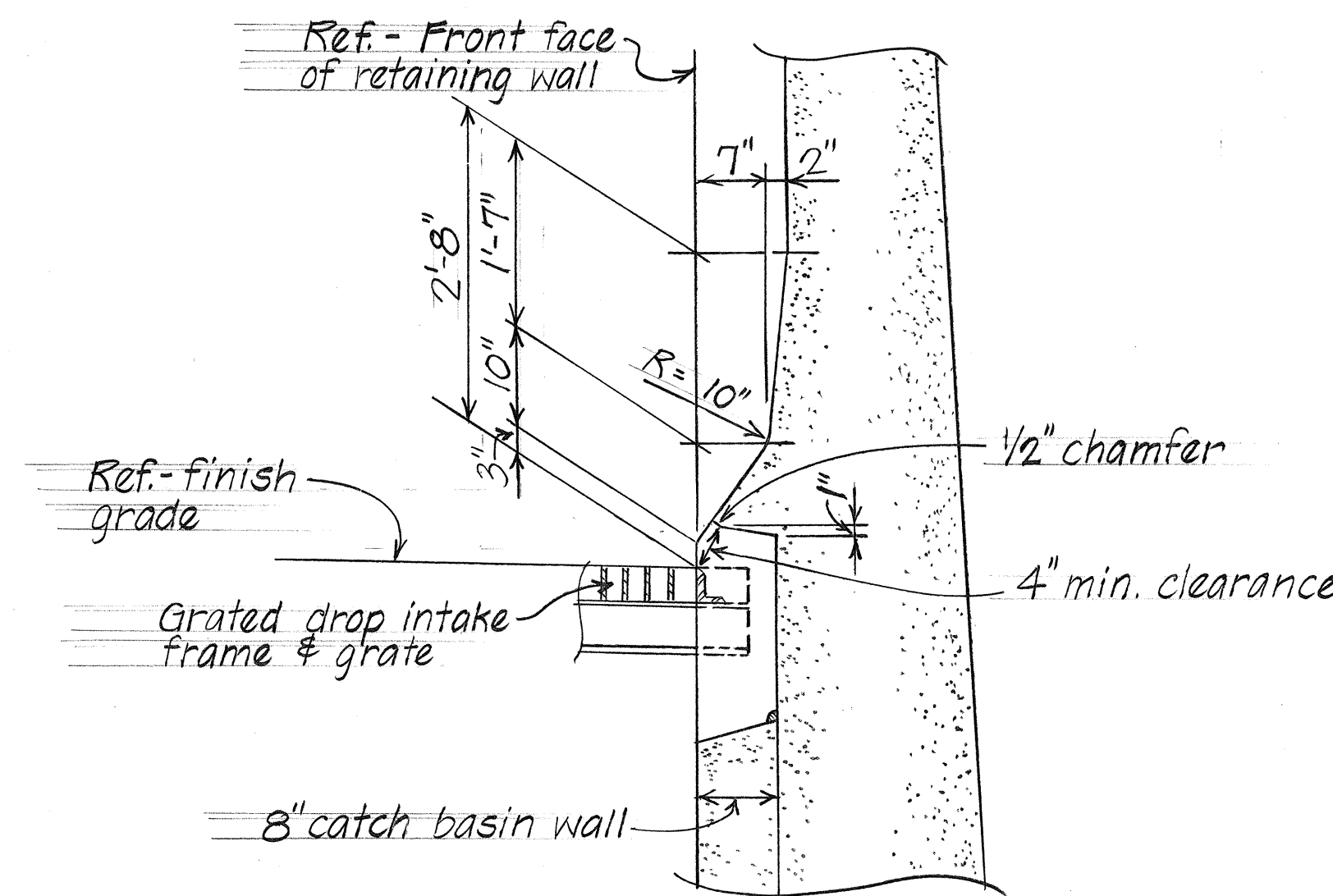


SECTION A
 Scale: 3/4" = 1'-0"

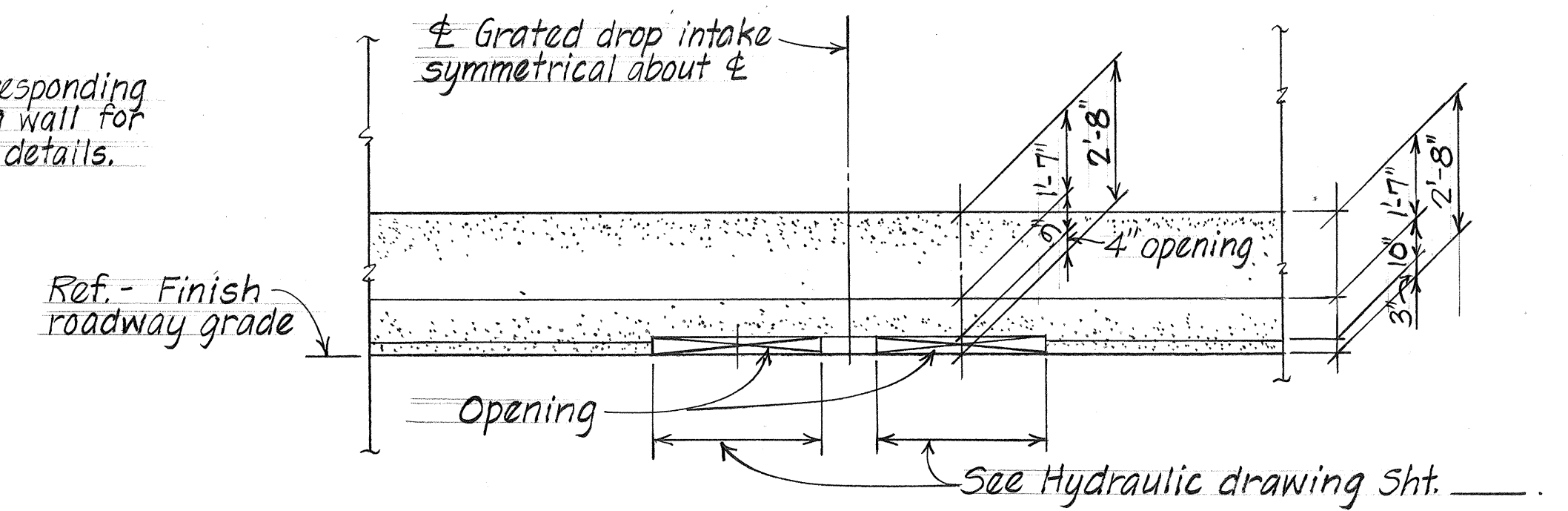
- NOTE:**
1. Saw cut and remove existing drip. Grind smooth to finish flush with existing wall face and top. At spalled areas apply neat coat of epoxy and restore with mortar. Work shall be incidental to concrete.
 2. Build-up at end of wall shall be incidental to removal and will not be paid for separately.



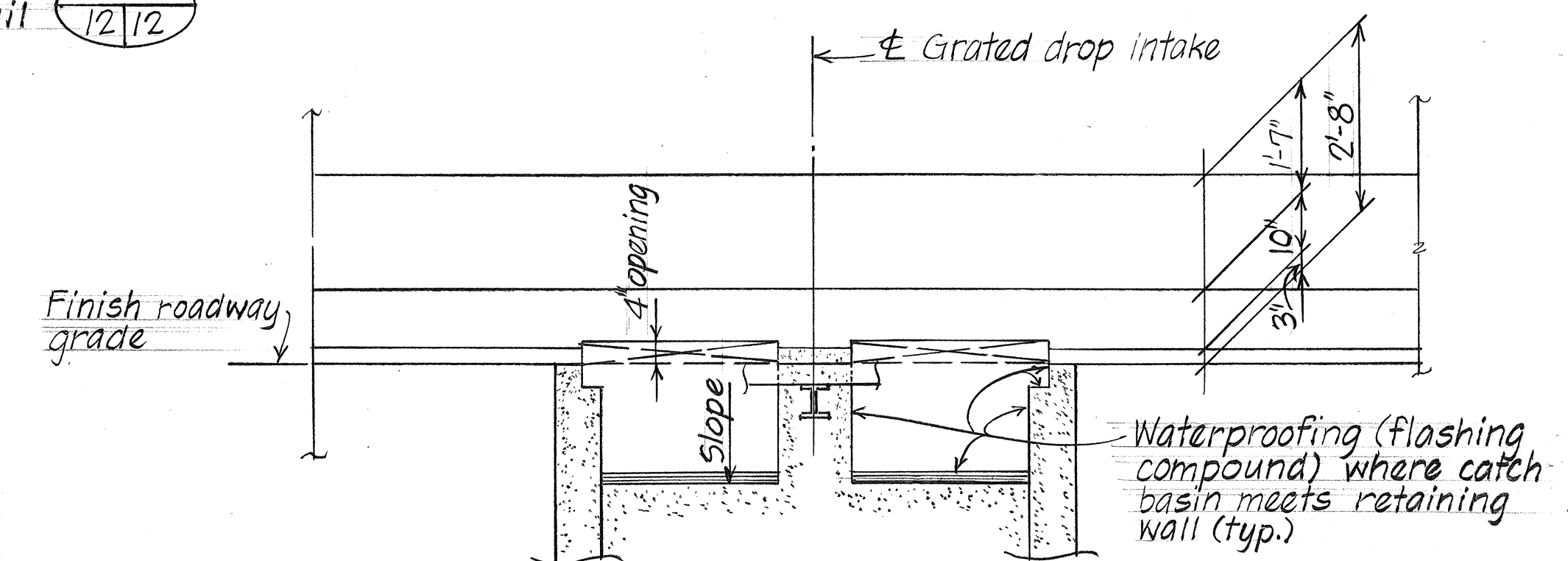
TYPICAL RETAINING WALL
AT GRATED DROP INTAKE
AT RAMP K-4 STA. 4 + 23.37 ±
AT RAMP K-4 STA. 2 + 22.3 ±
 Scale: 1/2" = 1'-0"



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



ELEVATION B
 (SHOWING WALL OPENING)
 Scale: 3/8" = 1'-0"



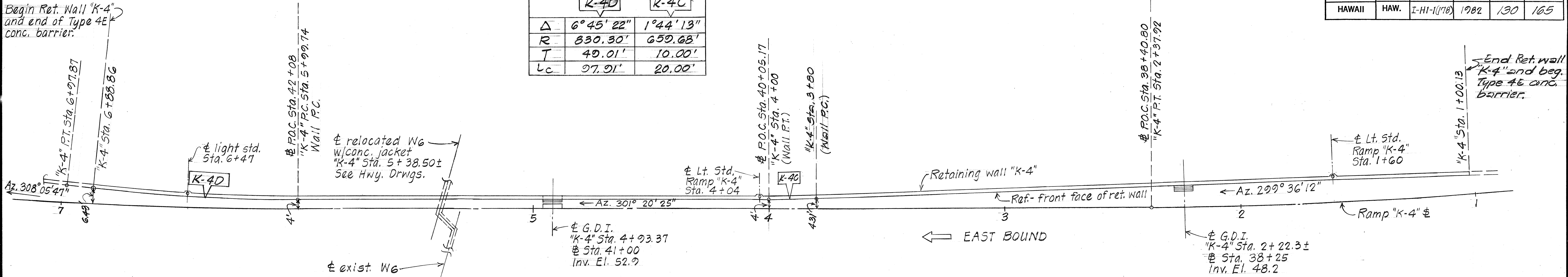
ELEVATION C
 (SHOWING WATERPROOFING)
 Scale: 1/2" = 1'-0"

STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 LAND TRANSPORTATION FACILITIES DIVISION
DRIP MODIFICATION @ RAMP "M-3" WALL
TYP. RET. WALL @ GRATED DROP INTAKE
 INTERSTATE H-1 IMPROVEMENTS
 MIDDLE STREET TO KALIHI INTERCHANGE
 EASTBOUND LANES
 F.A.I. PROJ. NO. I-HI-1(178)
 Scale: As Shown Date: April 1982
 SHEET NO. 12 OF 14 SHEETS

SURVEY PLOTTED BY	DATE
DRAWN BY	12/12
DESIGNED BY	12/12
CHECKED BY	12/12
ORIGINAL PLAN	NO.
NOTE BOOK	NO.

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-HI-1(178)	1982	130	165

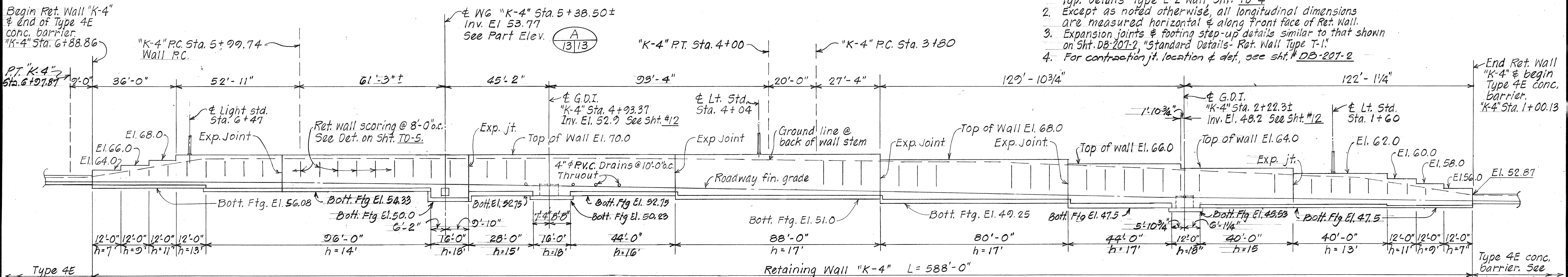
CURVE DATA		
	K-4D	K-4C
Δ	6°45'22"	1°44'13"
R	830.30'	650.68'
T	40.01'	10.00'
Lc	97.91'	20.00'



PLAN - RETAINING WALL "K-4"
Scale: 1" = 20'-0"

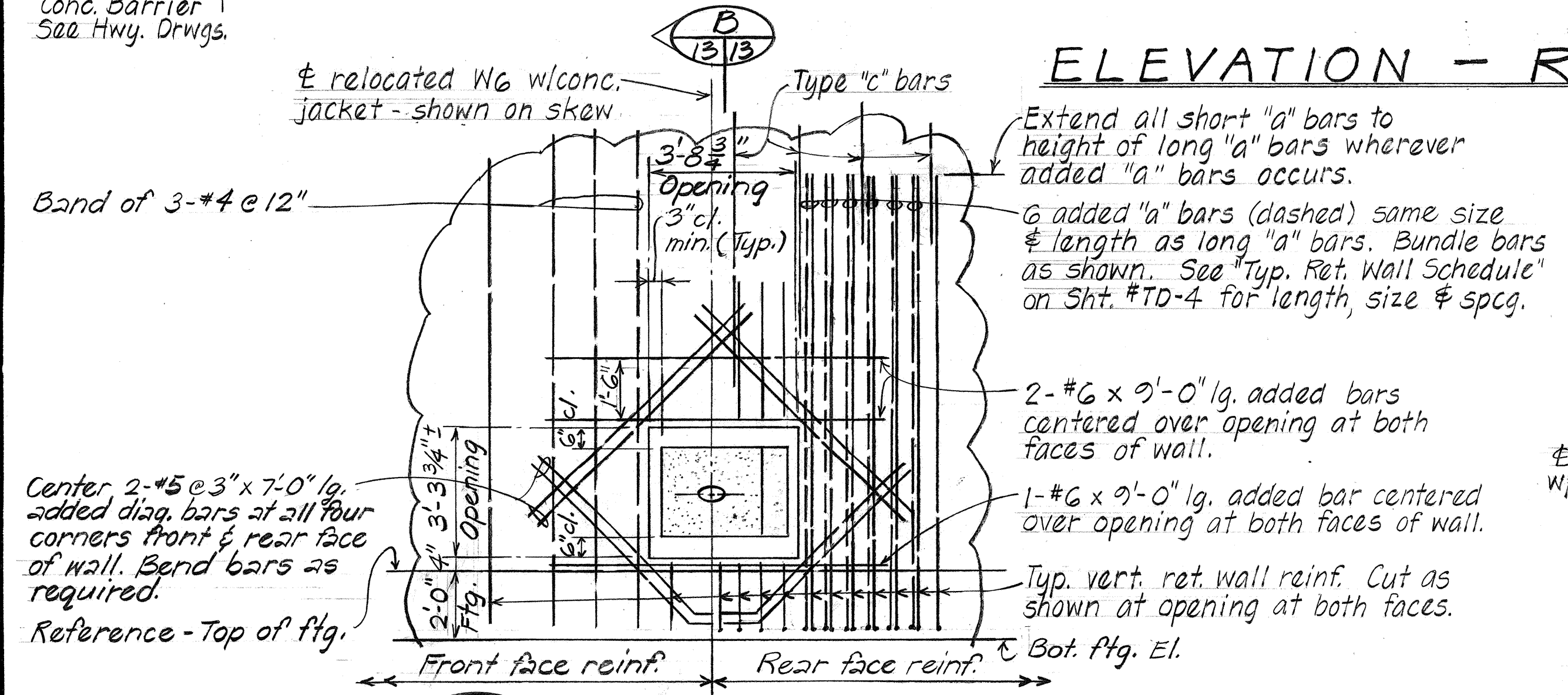
REFERENCE:

1. For Retaining Wall dimensions & reinf. see Typ. Details Type L-2 wall, Sht. ID-4
2. Except as noted otherwise, all longitudinal dimensions are measured horizontal & along front face of Ret. Wall.
3. Expansion joints & footing step-up details similar to that shown on Sht. DB-201-2, "Standard Details- Ret. Wall Type T-1"
4. For contraction jt. location & def. see Sht. DB-201-2

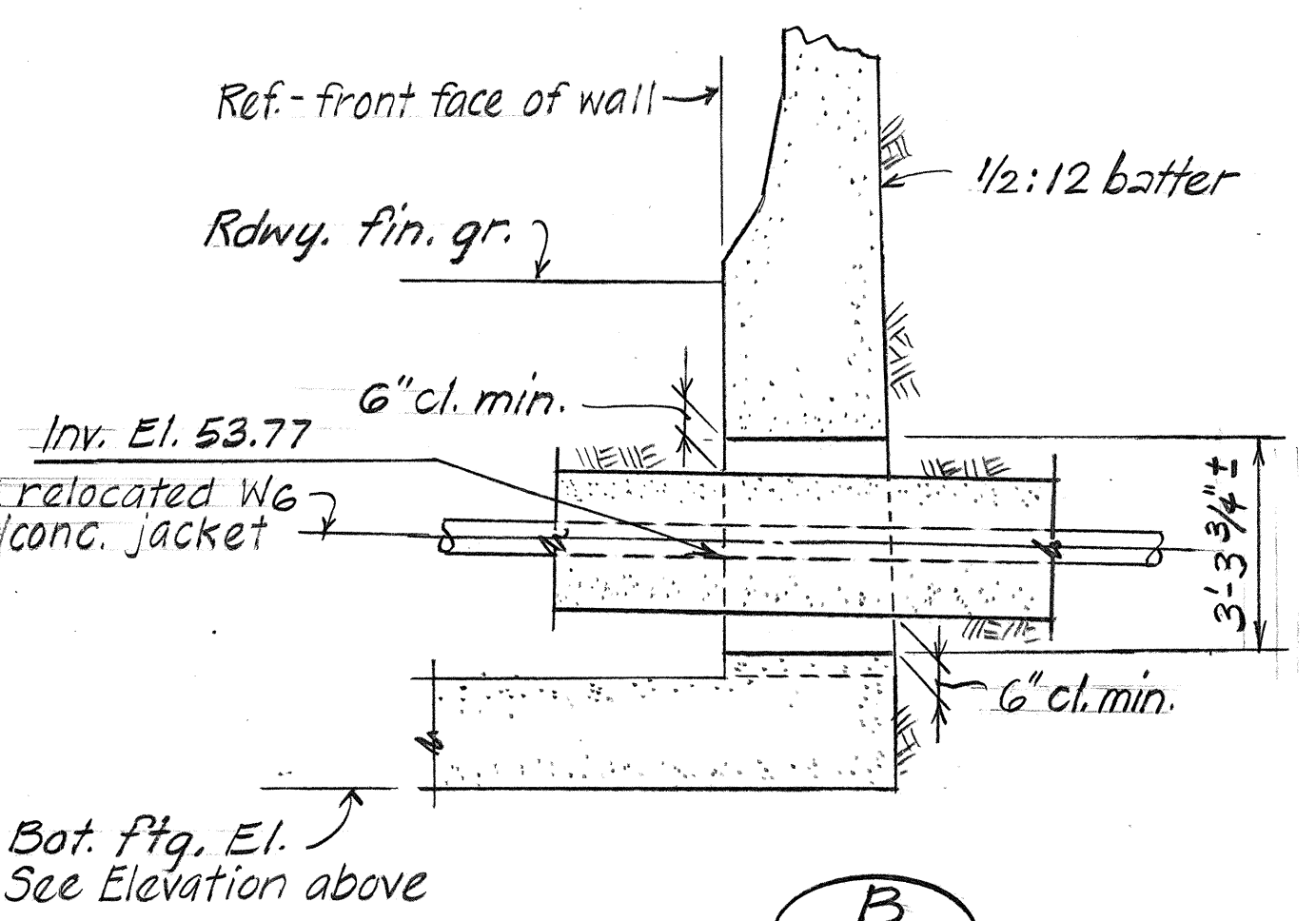


ELEVATION - RETAINING WALL "K-4"
Scale: 1" = 20'-0"

ESTIMATED QUANTITIES RETAINING WALL "K-4"			
ITEM NO.	ITEM	UNIT	QUANTITY
206.5000	Structure Excavation for Retaining Wall	C.Y.	844 C.Y.
206.7250	Structure Backfill for Retaining Wall	C.Y.	332 C.Y.
206.8200	Filter Material for Retaining Wall	C.Y.	208 C.Y.
503.1051	Concrete in Retaining Wall	LumpSum	935 C.Y.
602.0051	Reinforcing Steel in Retaining Wall	LumpSum	60,000 LBS



PART ELEV. - RELOCATED WG W/CONCRETE JACKET
Scale: 3/8" = 1'-0"

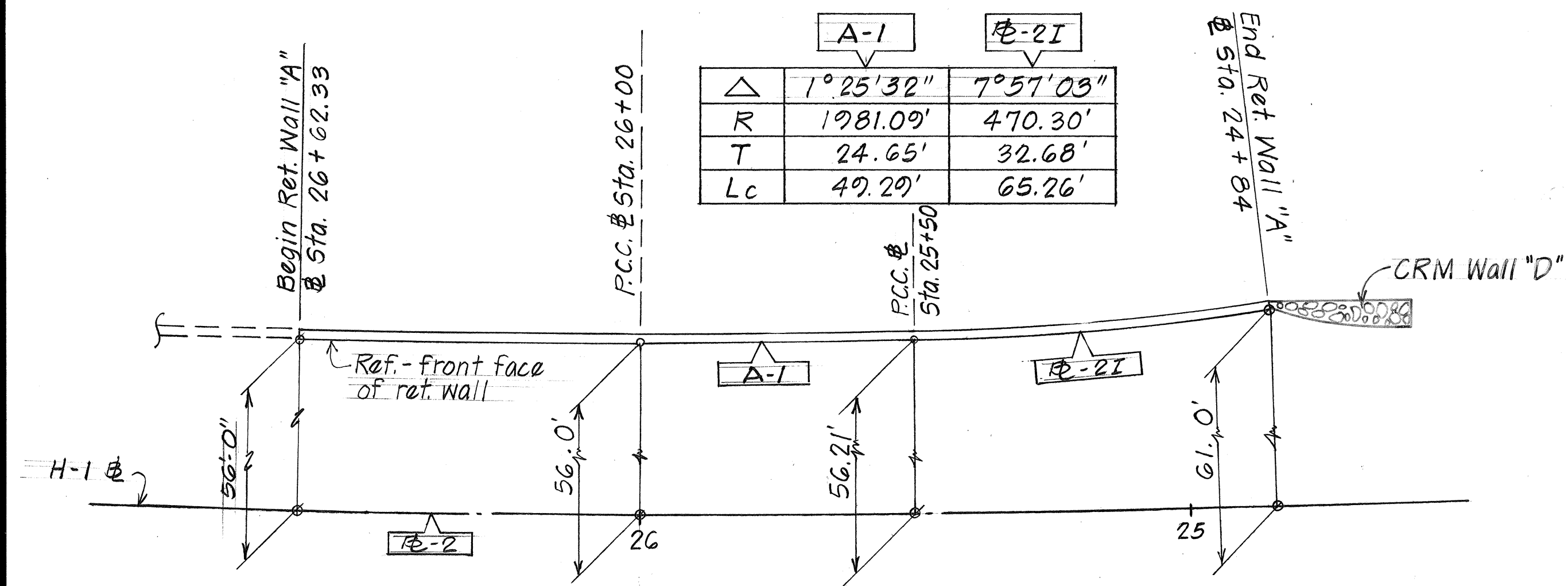


SECTION
Scale: 3/8" = 1'-0"

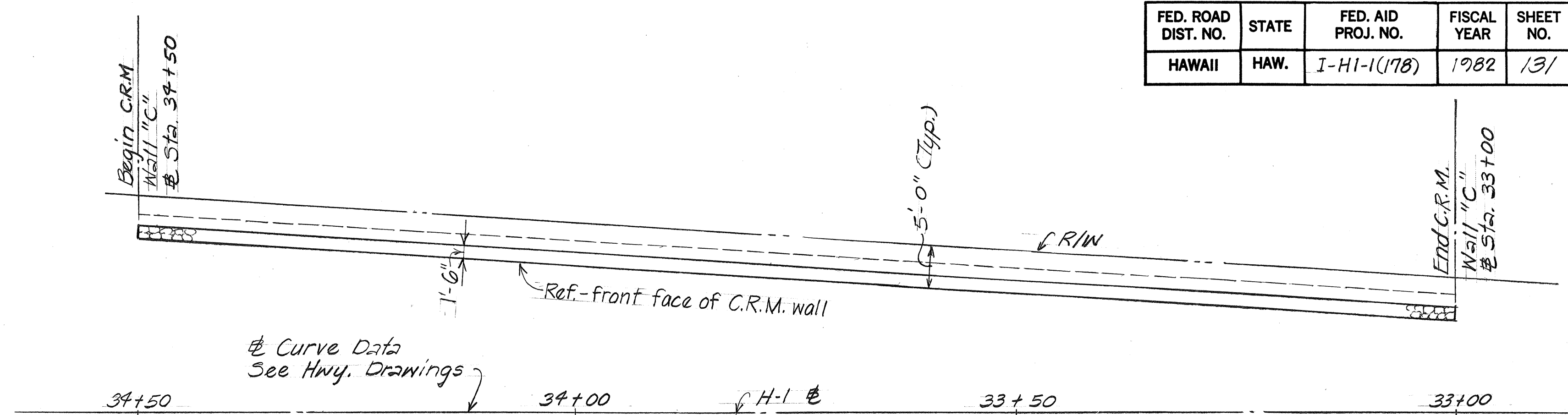
APPROVED: Date 4-30-82
R. Nagato
for CHIEF, PLANNING & ENGINEERING, BWS

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
LAND TRANSPORTATION FACILITIES DIVISION
RETAINING WALL "K-4"
INTERSTATE HI IMPROVEMENTS
MIDDLE STREET TO KALIHI INTERCHANGE
EASTBOUND LANES
FAI PROJECT NO. I-HI-1(178)
Scale: As shown Date: April 1982
SHEET No. 13 OF 14 SHEETS

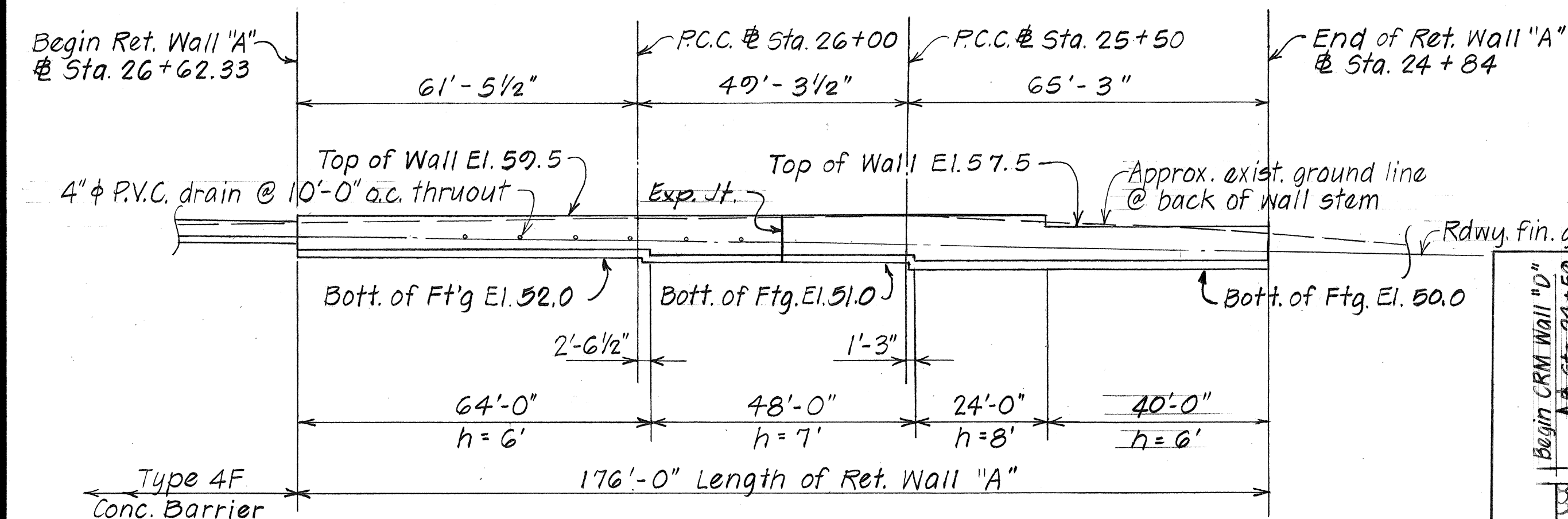
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-HI-1(178)	1982	131	165



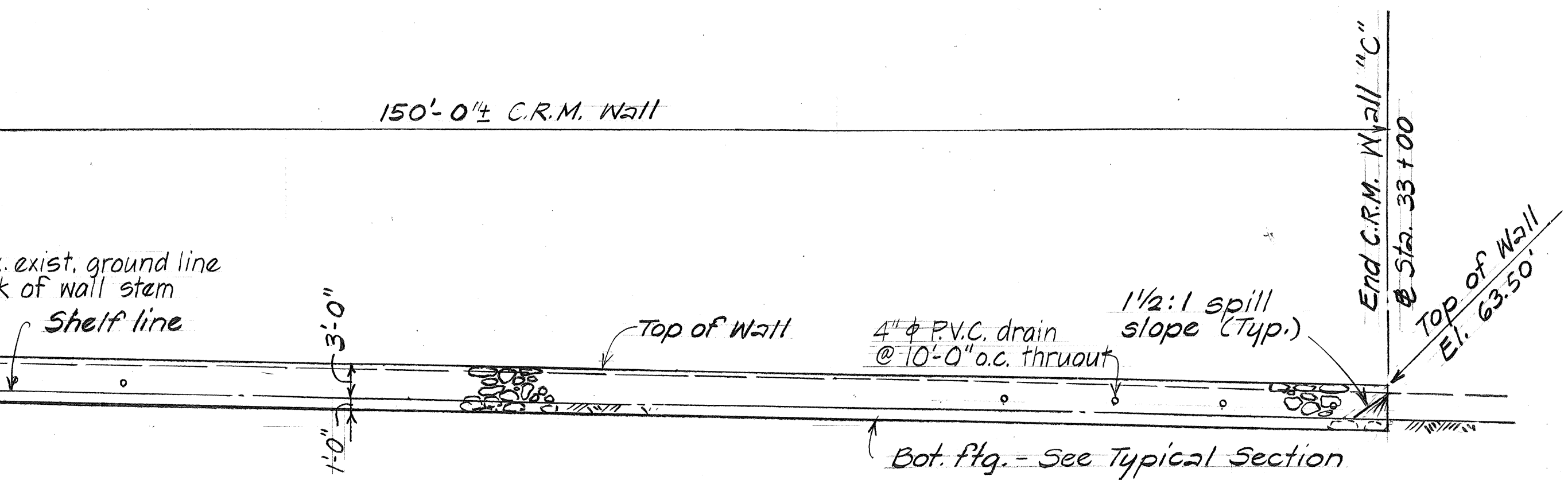
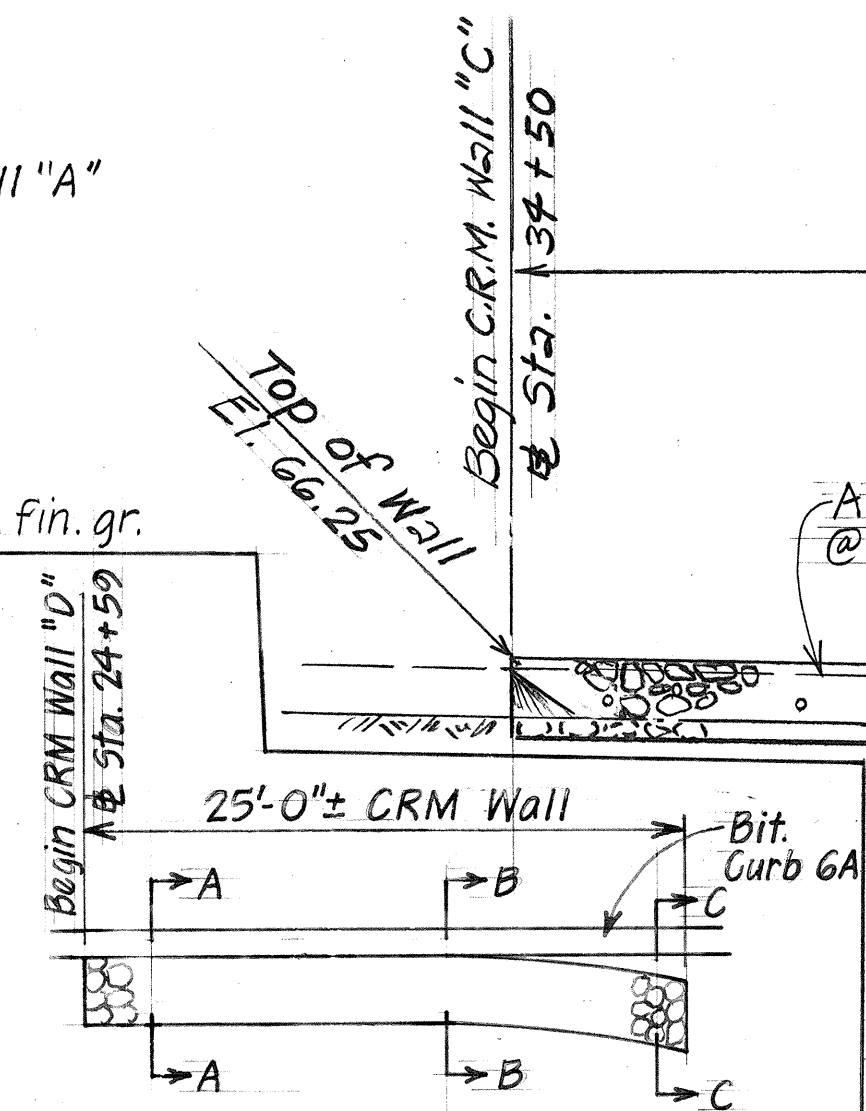
PLAN - RETAINING WALL "A"
Scale: 1" = 20'



PLAN - C.R.M. WALL "C"
Scale: 1" = 10'-0"



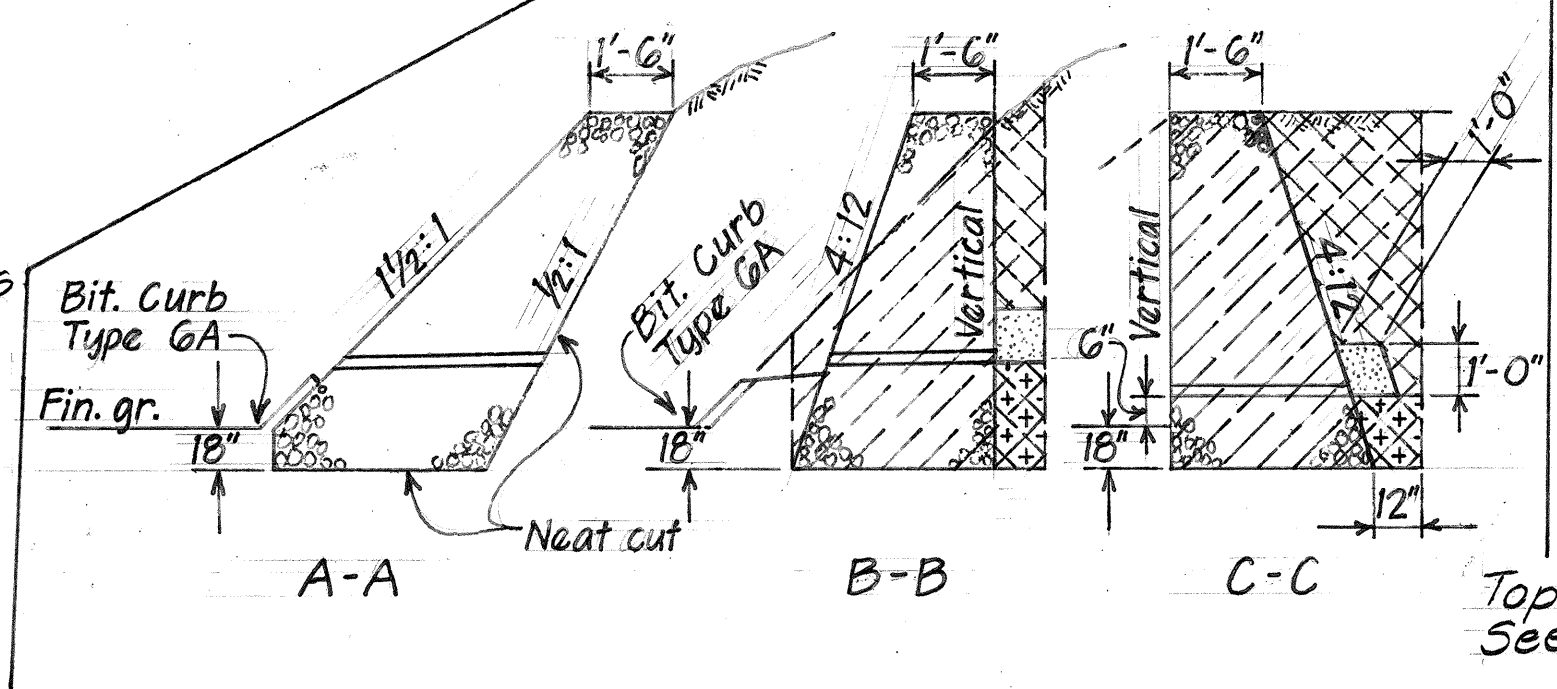
ELEVATION - RETAINING WALL "A"
Scale: 1" = 20'-0"



ELEVATION - C.R.M. WALL "C"
Scale: 1" = 10'-0"

REFERENCE:

- For retaining wall dimensions & reinforcement see Typical Detail - Type L-2 Wall, Sht. TD4.
- Except as noted otherwise all longitudinal dimensions are measured horizontal & along front face of wall.
- Expansion joint & footing step-up details are similar to those shown on Sht. #TD3 "Typical Details - Ret. Wall Type T-1".
- For contraction joint location and detail, see Sht. DB-207-2.

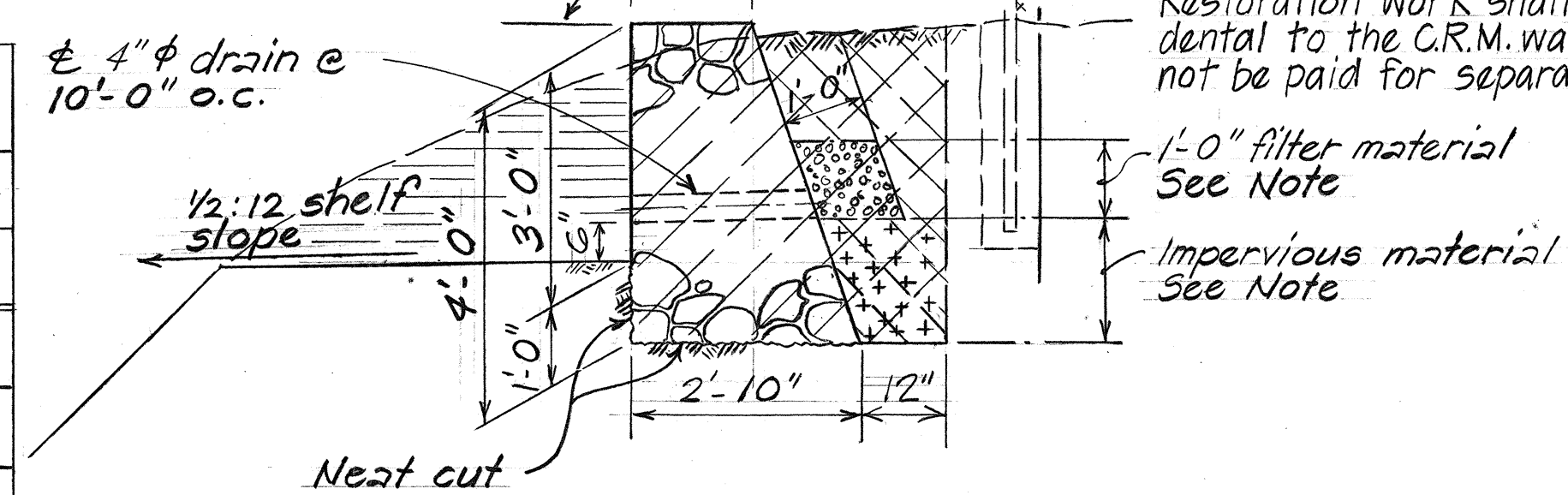


NOTE:

Provide filter & impervious materials thruout the wall length.
Impervious material as selected by the Engineer shall be made as impervious as possible by pneumatic tamping or other approved method.
Hatched area shown thus denotes limits of struct. excavation payline.
Hatched area shown thus denotes limits of ordinary backfill.
Dashed lines shown thus indicate limits of roadway excavation.

ESTIMATED QUANTITIES

RETAINING WALL "A"				C.R.M. WALL "C"			
ITEM NO.	ITEM	UNIT	QUANTITY	ITEM NO.	ITEM	UNIT	QUANTITY
206.5000	Structure Excavation for Retaining Wall	C.Y.	63 C.Y.	206.5000	Structure Excavation for Wall	C.Y.	80 C.Y.
206.7250	Structure Backfill for Retaining Wall	C.Y.	33 C.Y.	206.7250	Structure Backfill for Wall	C.Y.	28 C.Y.
206.8200	Filter Material for Retaining Wall	C.Y.	29 C.Y.	206.8200	Filter Material for Wall	C.Y.	6 C.Y.
503.1051	Concrete in Retaining Wall	LumpSum	96 C.Y.	508.0100	Cement Rubble Masonry	C.Y.	48 C.Y.
602.0051	Reinforcing Steel in Retaining Wall	LumpSum	6000 Lbs.				

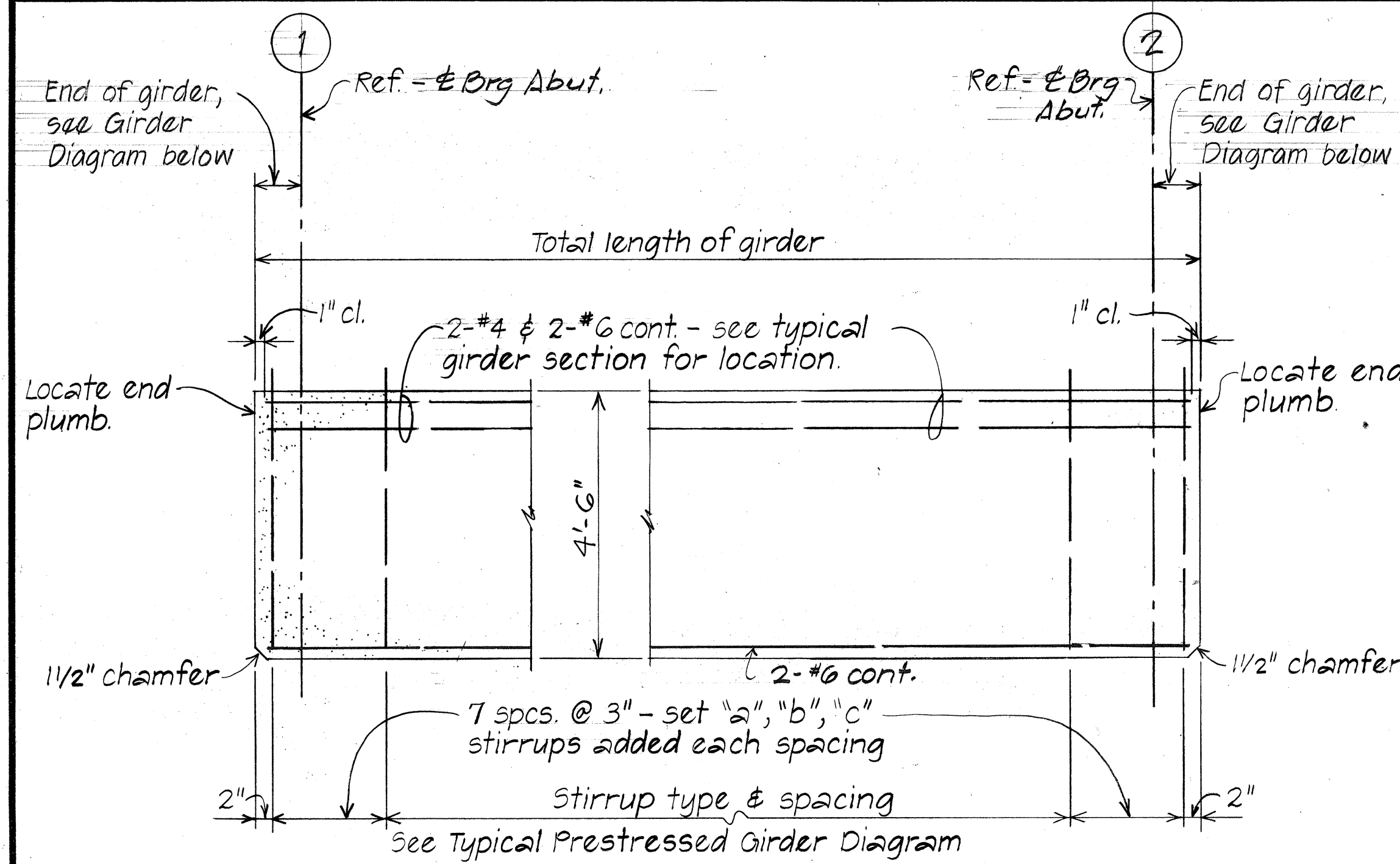


TYPICAL SECTION - C.R.M. WALL
Scale: 1/2" = 1'-0"

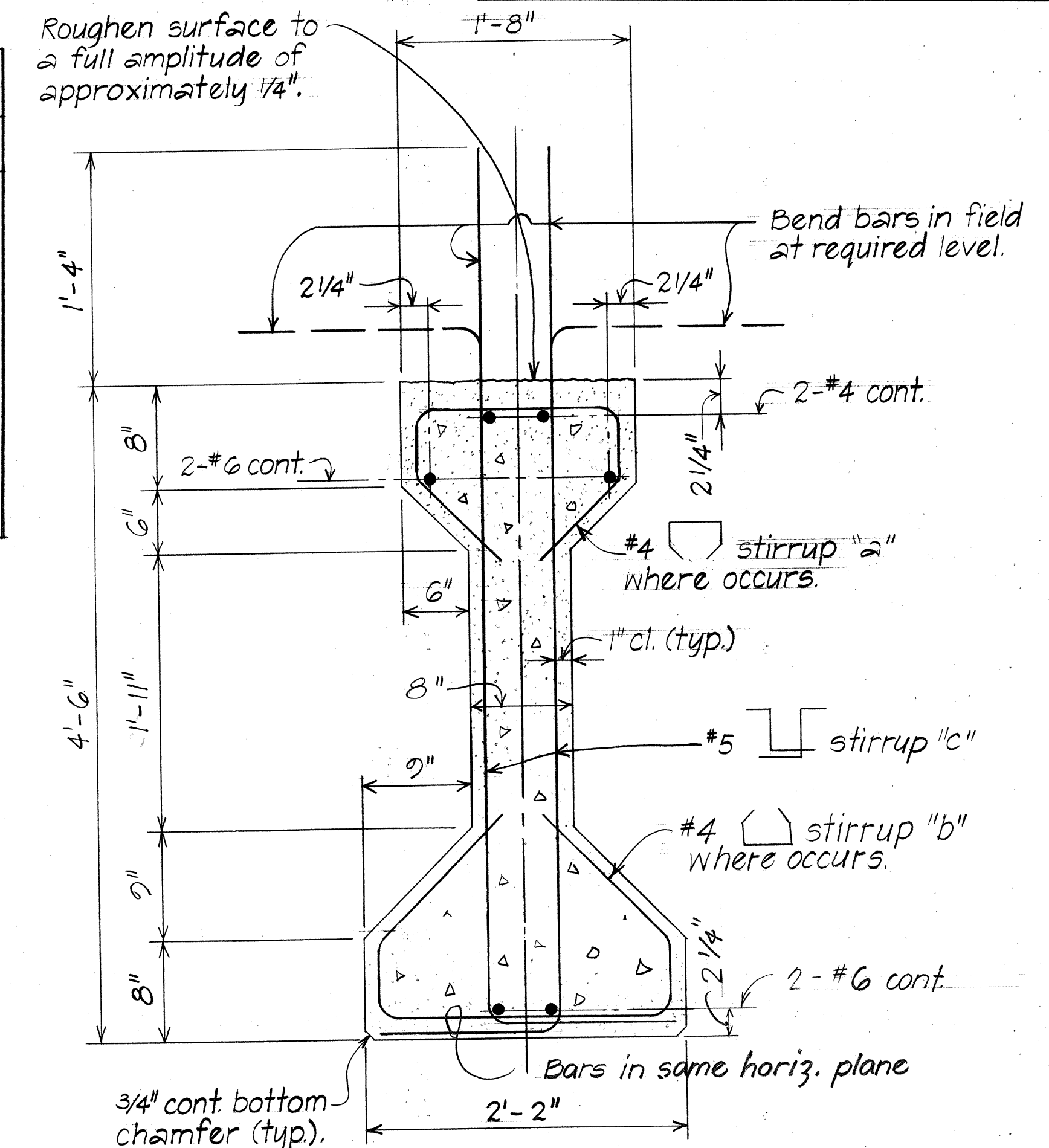
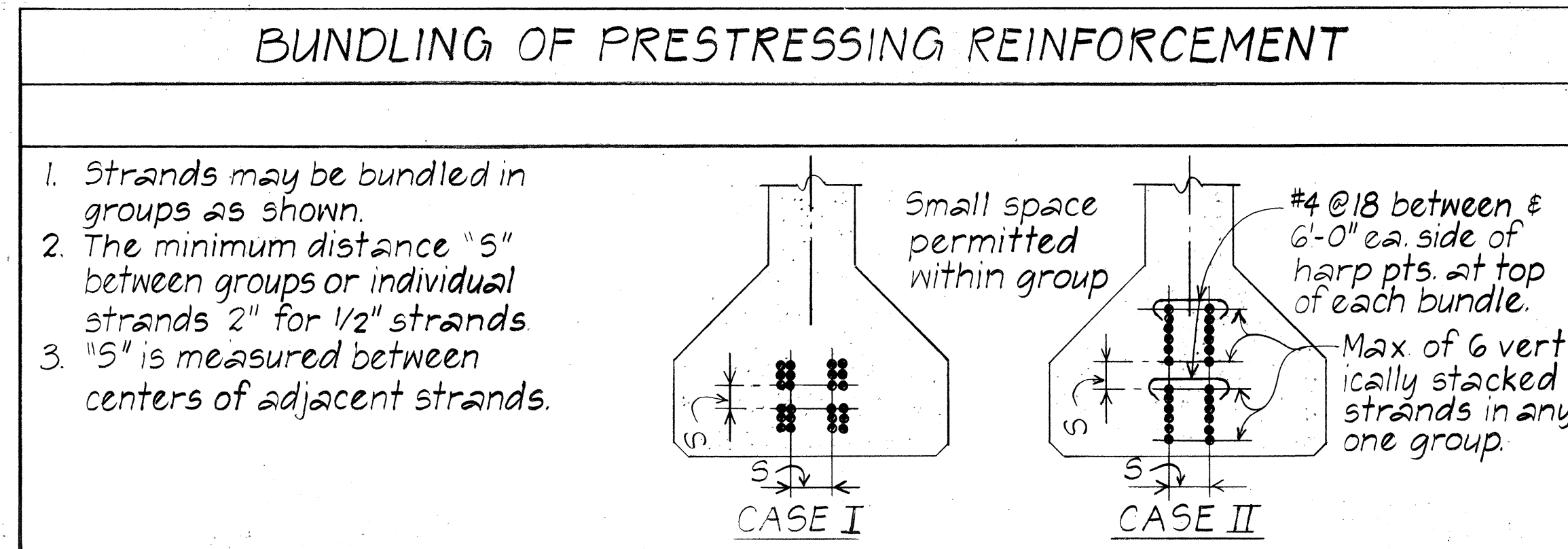
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
LAND TRANSPORTATION FACILITIES DIVISION
RETAINING WALL "A"
C.R.M. WALL "C"
INTERSTATE H-1 IMPROVEMENTS
MIDDLE STREET TO KALIHI INTERCHANGE
EASTBOUND LANES
F.A.I. PROJ. NO. I-HI-1(178)
Scale: As Shown Date: April 1982
SHEET NO. 14 OF 14 SHEETS

DATE	10/1/82
DESIGNED BY	MA
TRACED BY	MA
NOTED BY	MA
CHECKED BY	MA
ORIGINAL	MA

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-HI-1(178)	1982	132	165



ELEVATION ~ TYPE PG-IV GIRDER END DETAILS
No Scale



TYPICAL PRESTRESSED CONCRETE GIRDER TYPE PG-IV
No Scale

GENERAL NOTES

1. All strand patterns shall be approved by the Engineer.
2. Forms must be removed and the beams inspected before strands are cut.
3. For additional holes and inserts in prestressed girders for beam connections refer to corresponding beam details. See sh. #2.
4. For additional prestressed girder details not covered by these drawings refer to corresponding detail plans.
5. The calculated camber includes the effect of the initial prestress force and the weight of the girder upon removal from the stressing bed. Calculated camber values shown do not account for any camber growth of the girder. The actual camber at time of deck pour shall not exceed the calculated camber by more than 100%. Calculated midspan camber = 1.0 inch. Contractor shall submit record of cambers to the Engineer. This record shall include cambers at time of detensioning, delivery and deck pour.

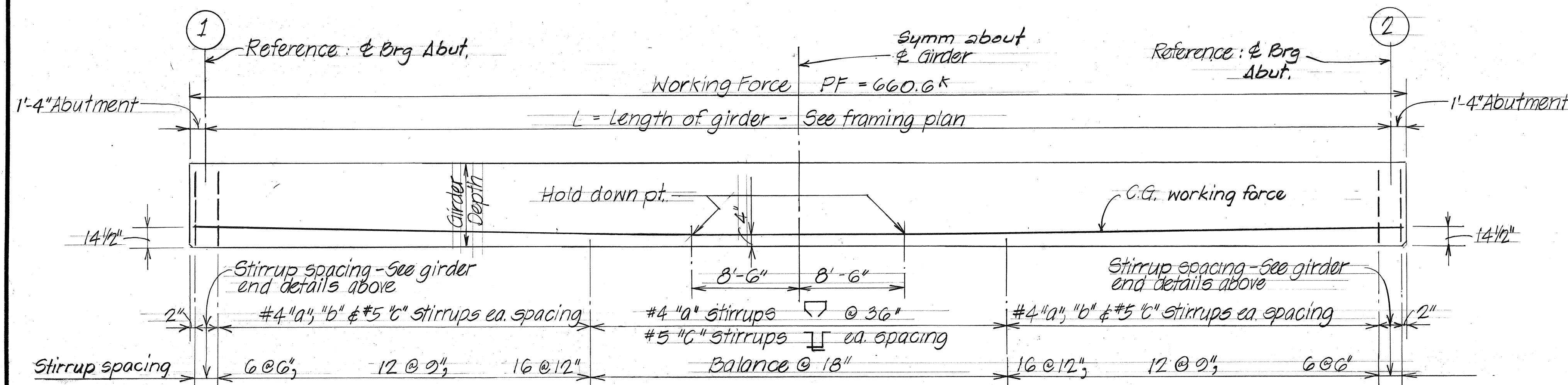


DIAGRAM - TYPICAL PRESTRESSED GIRDER DETAIL TYPE PG-IV

PRESTRESSED CONCRETE GIRDERS:

$f'_c = 5500$ psi @ 28 days
 $f_{ci} = 4,000$ psi @ transfer

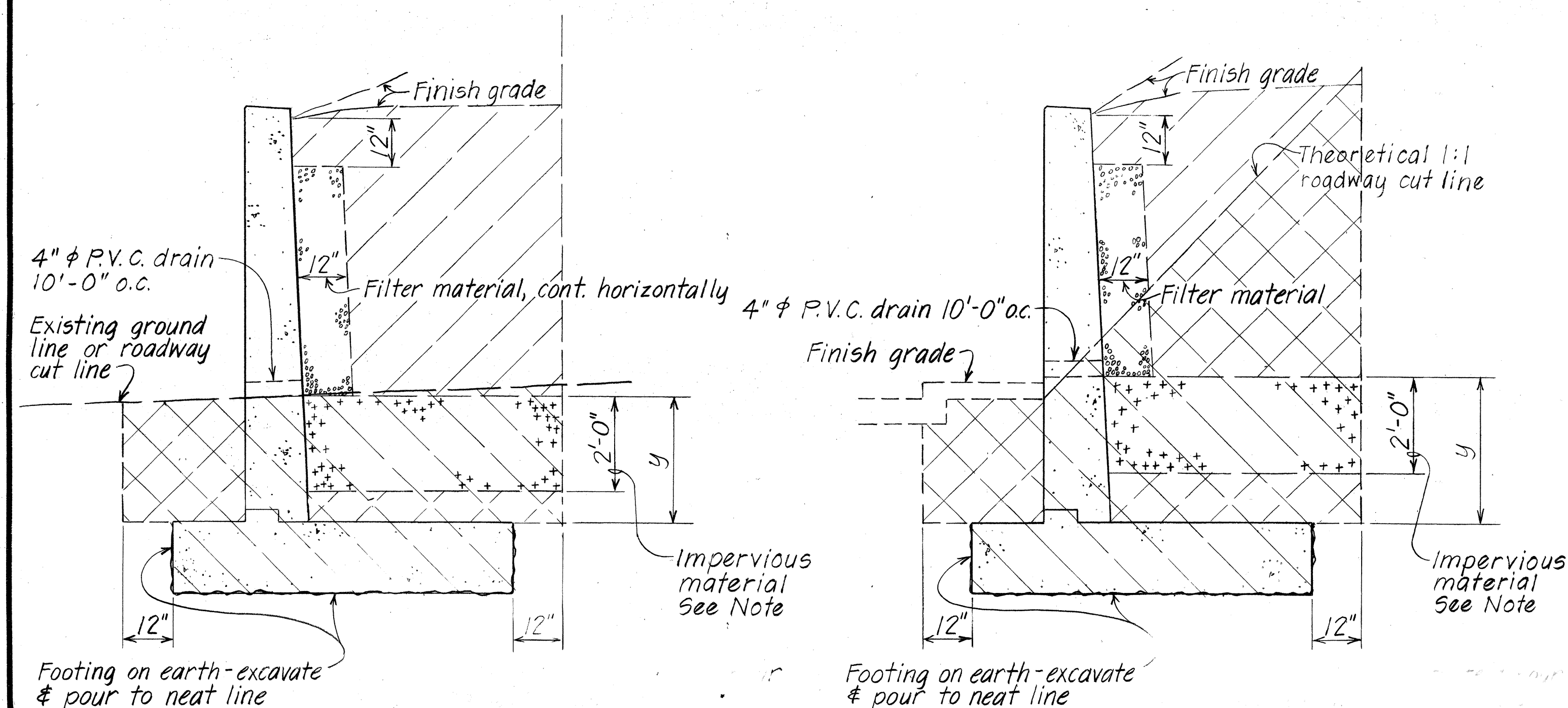
PRESTRESSED STRANDS:

1. 1/2" ϕ 270 ksi, 7 wire stressed-relieved strands (ASTM A416)
Total losses other than friction = 45,000 psi
2. Allowable stresses in strands shall be in accordance with Design Specifications. (See General Structure Notes)

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

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
LAND TRANSPORTATION FACILITIES DIVISION
TYPICAL DETAILS
PRESTRESSED GIRDER
(TYPE PG-IV)
F.A.I. PROJ. NO. I-HI-1(178)
Scale: As noted Date: April 1978
SHEET NO. 132 OF 165 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-HI-1(178)	1982	134	165



Not to scale

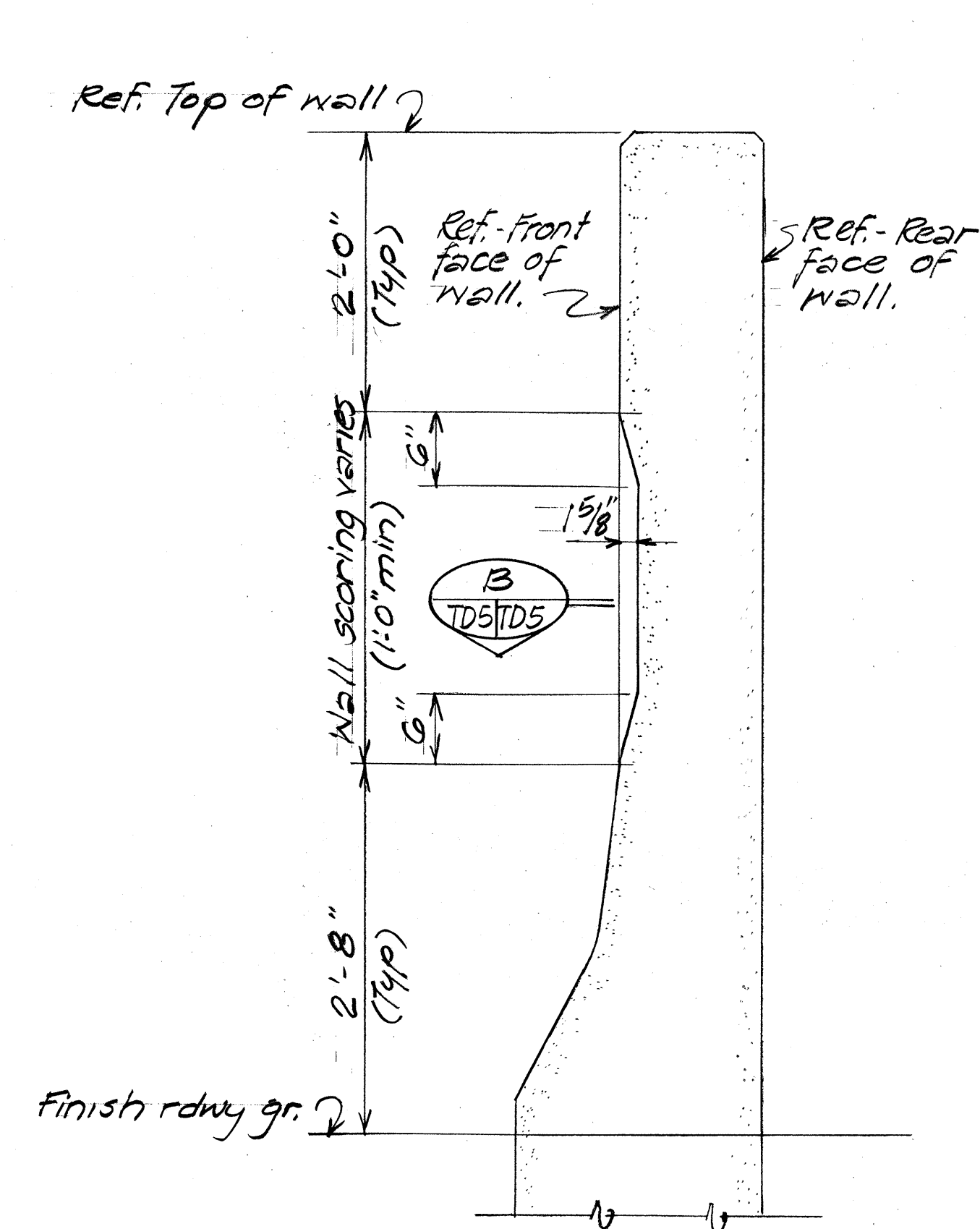


- Impervious material as selected by the Engineer shall be incidental to structure excavation. When "y" is 2'-0" or less, all backfill below weep hole level shall be impervious material.
- The subgrade upon which filter material is to be placed shall be made as impervious as possible by pneumatic tamping or other approved methods.
- Impervious material shall be incidental to roadway excavation or imported borrow when used in embankment area.

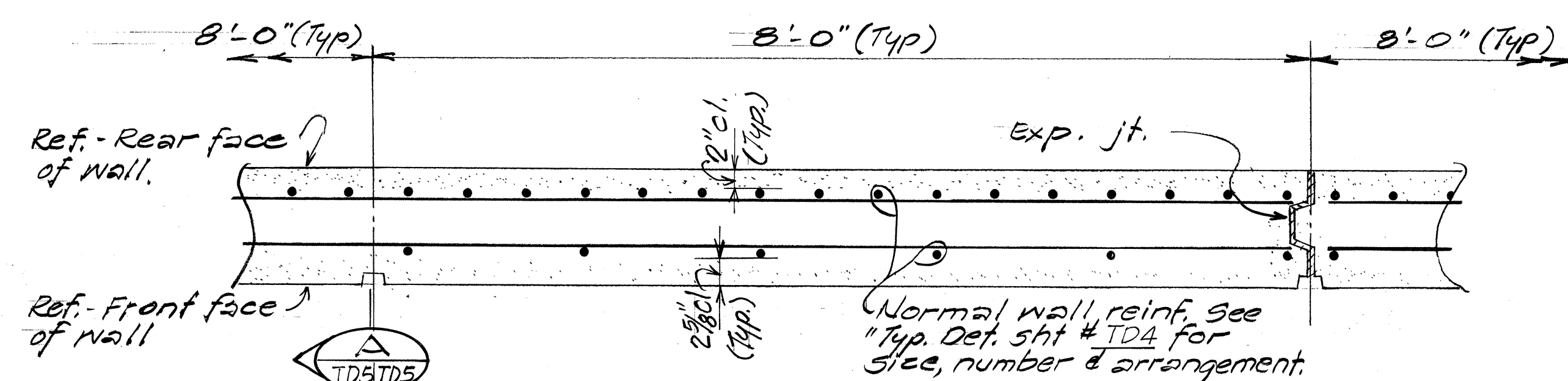
Scale: As Shown Date: April 1982

SHEET No. TD3 OF TD5 SHEETS

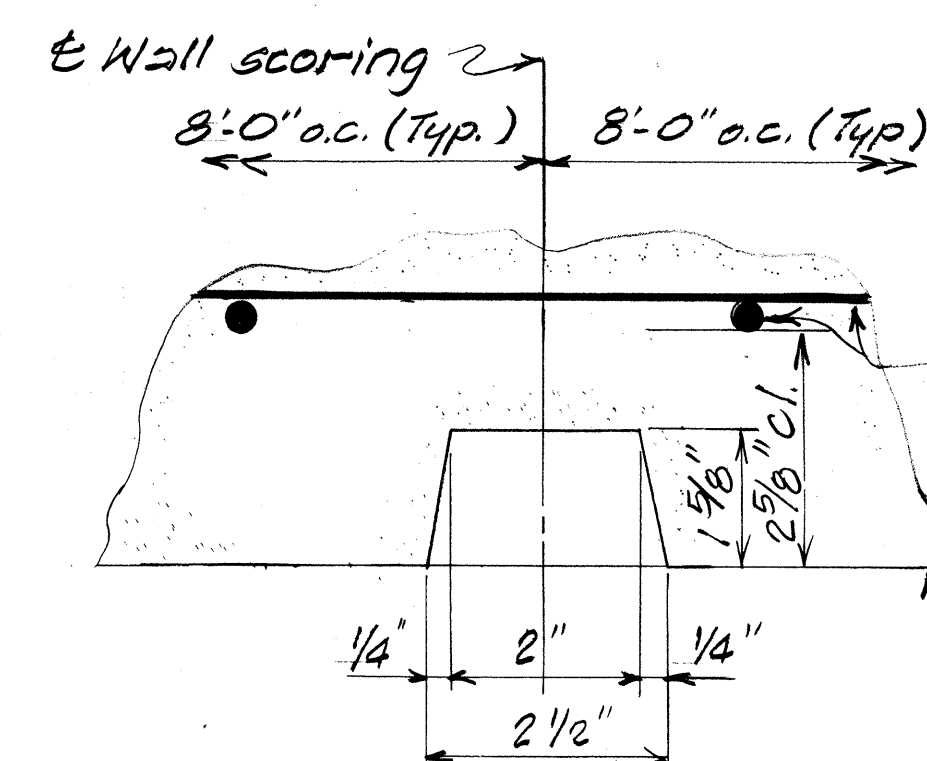
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I - HI-1(178)	1982	136	165



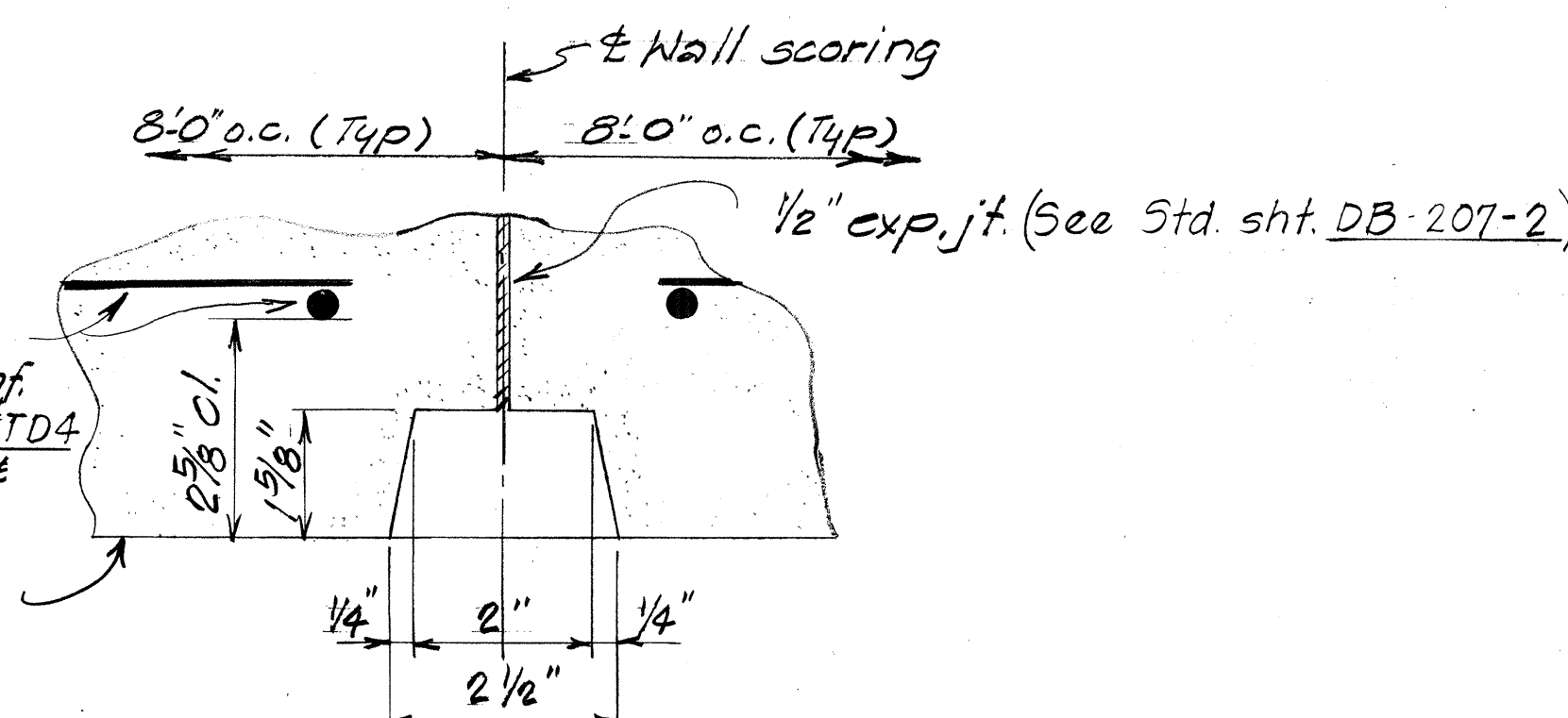
SECTION
Scale: 1" = 1'-0"



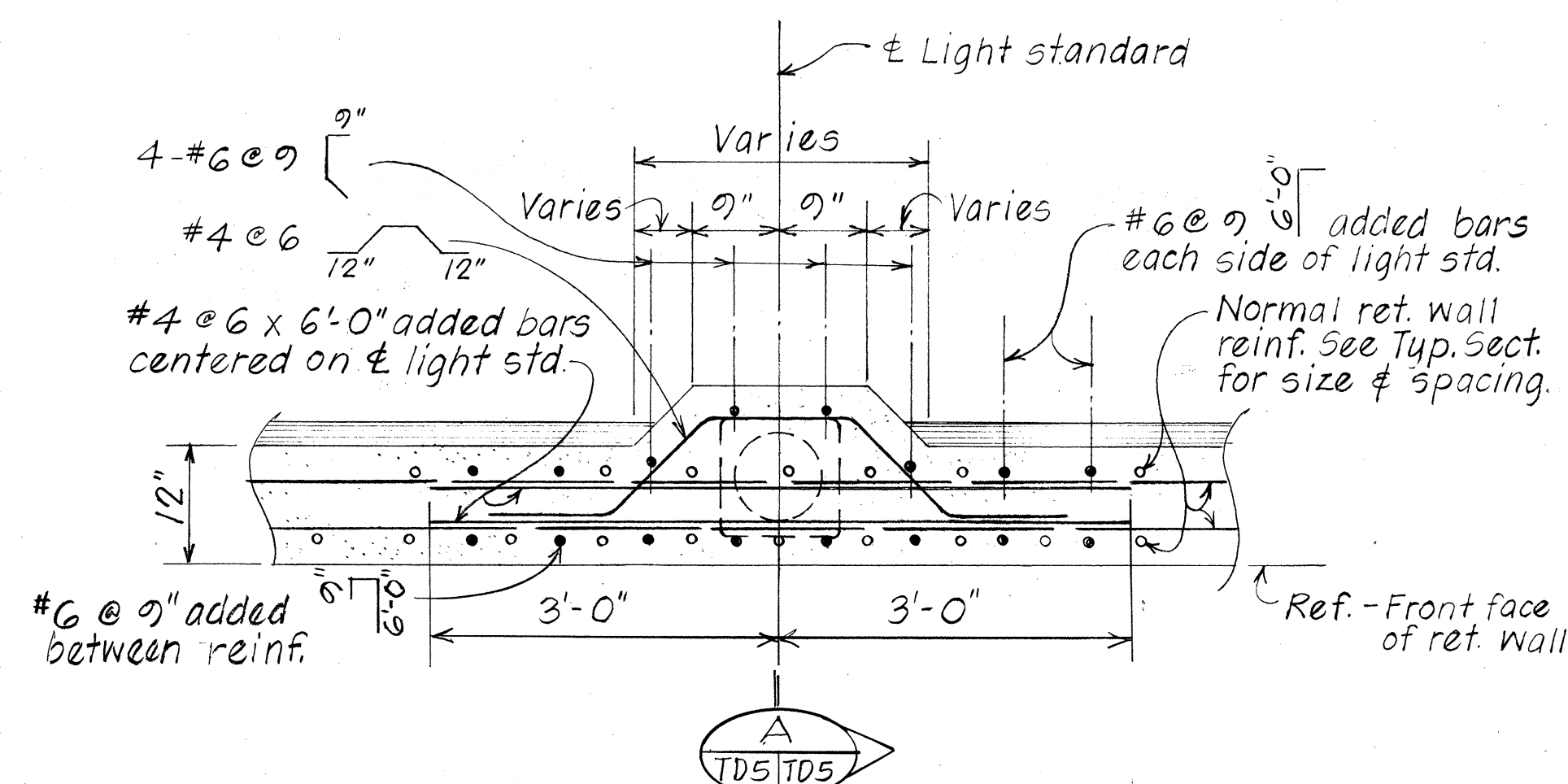
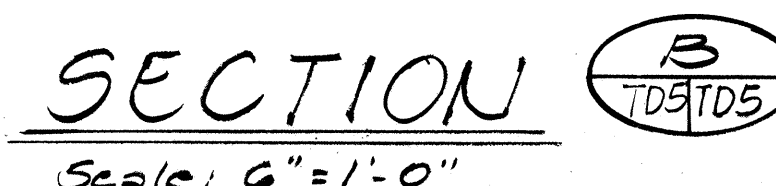
PART PLAN
Scale: 1"=1'-0"



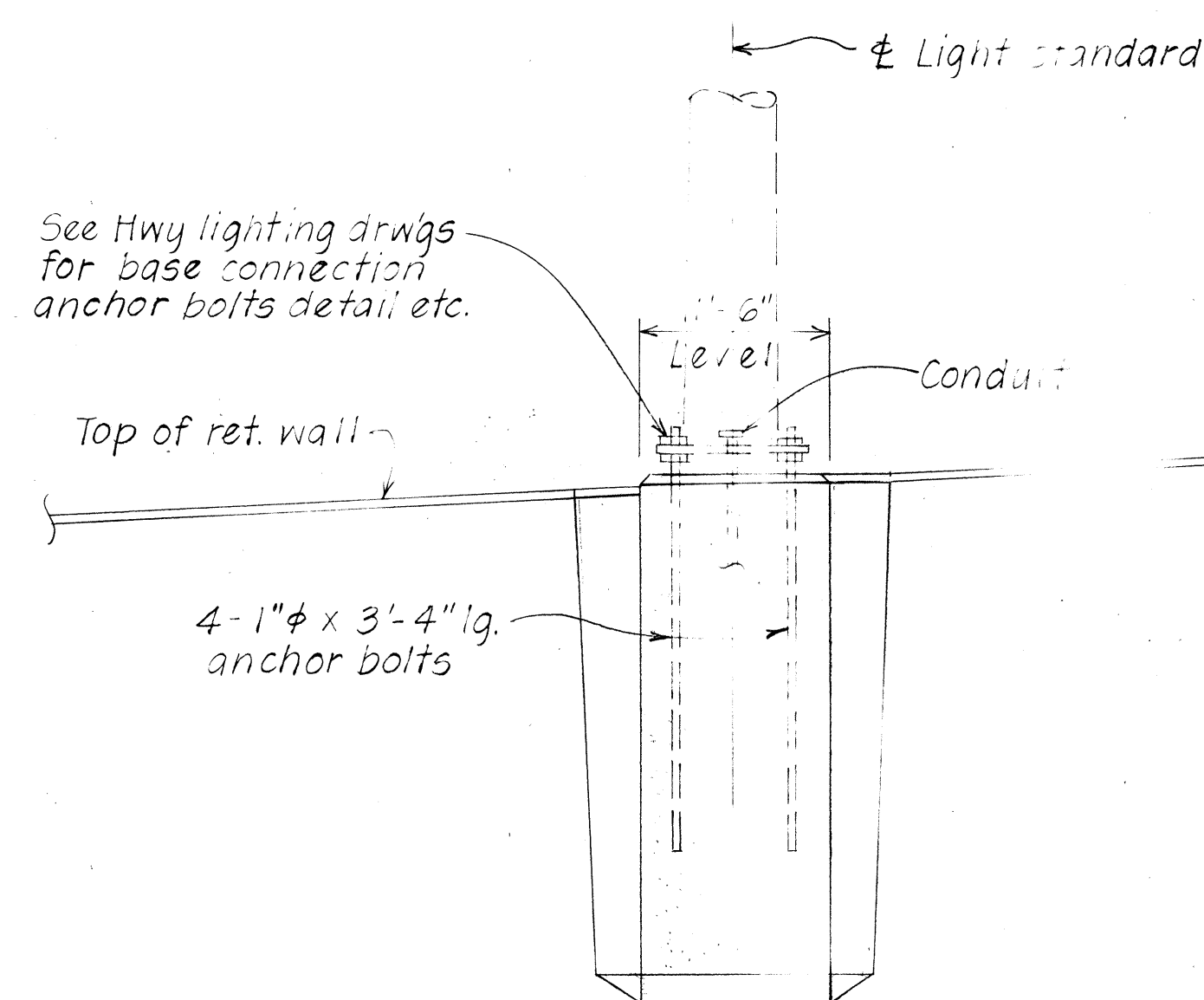
AT TYPICAL



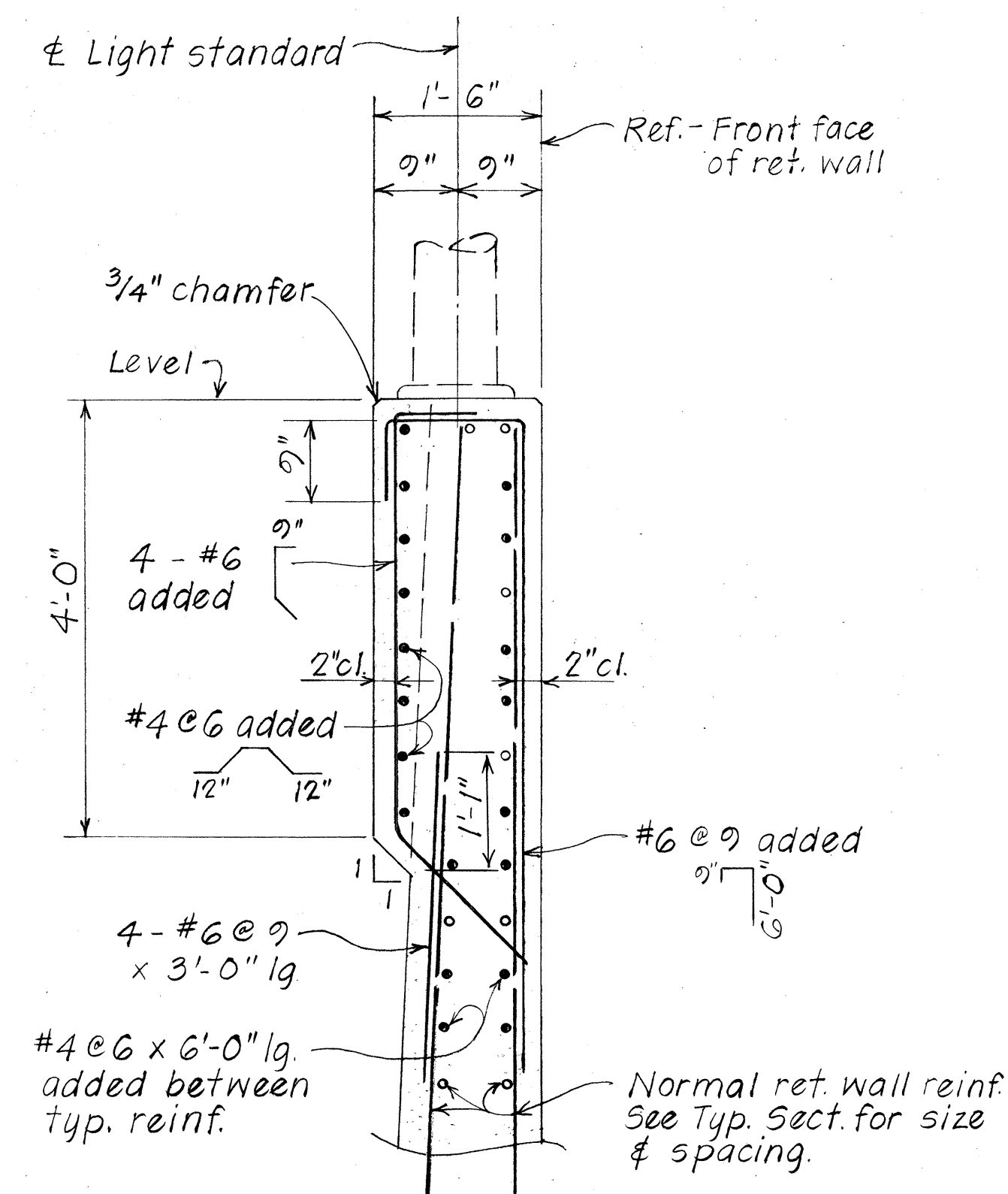
AT EXPANSION JOINT



PART PLAN



ELEVATION



SECTION 

TYP. LIGHT STANDARD DETAILS - AT RET. WALLS "M-3" & "K-4"

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

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
LAND TRANSPORTATION FACILITIES DIVISION

TYPICAL DETAILS

F.A.I. PROJECT NO. I-41-1(178)
Scale: As Shown Date: Apr. 1982
SHEET NO. 105 OF 105 SHEETS

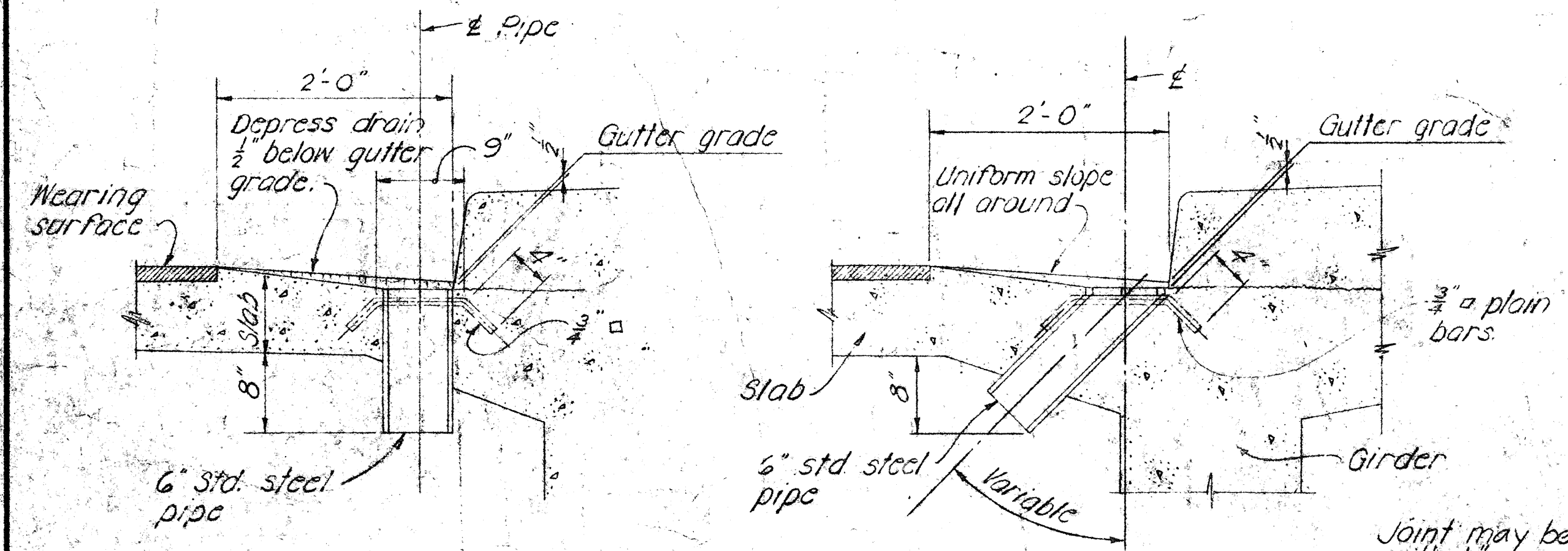
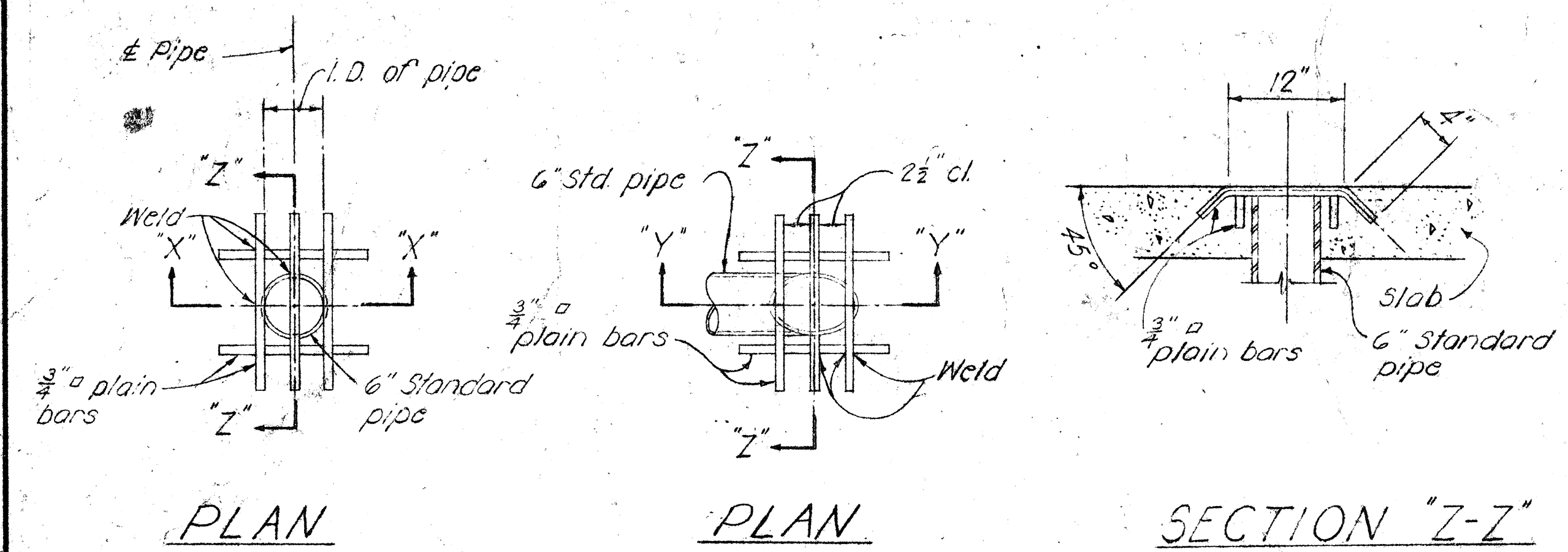
ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
	DRAWN BY <i>S.Y.</i>	" <i>Apr. '82</i>
	TRACED BY	" <i>Mar. '82</i>
NOTE BOOK	DESIGNED BY <i>T.S.</i>	" <i>Apr. '82</i>
	QUANTITIES BY	
Checked by	CHECKED BY	

GENERAL NOTES

- All concrete shall be Class A unless otherwise noted.
- Reinforcing shall be detailed in accordance with A.C.I. Manual of Standard Practice for Detailing Reinforced Concrete Highway Structures unless otherwise noted.
- Clearance for reinforcing bars shall be as follows, unless otherwise noted:
 - 1/2" for stirrups of beams & pier caps.
 - 2" for ties of columns.
 - 2" for formed walls.
 - 3" for footings.
- Minimum spacing between parallel bars shall be 2 1/2 times the diameter of bars, but in no case shall the clear distance between the bars be less than 1 1/2 times the maximum size of the coarse aggregate.
- All dimensions relating to reinforcing are to centers of bars unless otherwise noted.
- Reinforcing bars shall be securely tied at all intersections & lap splices & shall be held in place during pouring to maintain their proper locations as shown on plans.
- Vertical column bars shall be arranged in such a manner as to miss pier cap bars above as directed by the Engineer.
- Except as otherwise noted on drawings, all exterior corners & re-entrant angles in concrete work shall be chamfered 3/4" x 3/4".
- Concrete seats receiving steel plates, lead plates or neoprene pads shall be poured monolithically with supporting structures & top of concrete seats shall be finished with a steel trowel to a smooth level surface at the elevation shown on the plans.
- Elastomeric Pads: Bottom of bridge bearing pads shall be secured against displacement with adhesives approved by the Engineer. Pads shall be incidental to concrete and will not be paid for separately.
- Forms for all exposed surfaces of separation structures and surfaces of retaining walls visible from a traveled way or from a populated area shall be plywood except that metal forms may be permitted provided a surface finish satisfactory to the Engineer can be obtained and the use of such forms is approved in writing by the Engineer. Forms for round columns shall be made of materials that will give a smooth finish and true dimensions as given in the plans. Forms for prestressed concrete members shall be other metal or plywood.
- Gothic letters and figures approximating dimensions shown will be acceptable if approved by the Engineer.
- The contractor shall verify the location of all existing utility lines and notify the respective owners before commencing work of excavation or driving of piles.
- Standard Detail Drawings refer to all structures in general, except for modifications as may be required for special conditions. For such modifications refer to the corresponding detailed drawings.

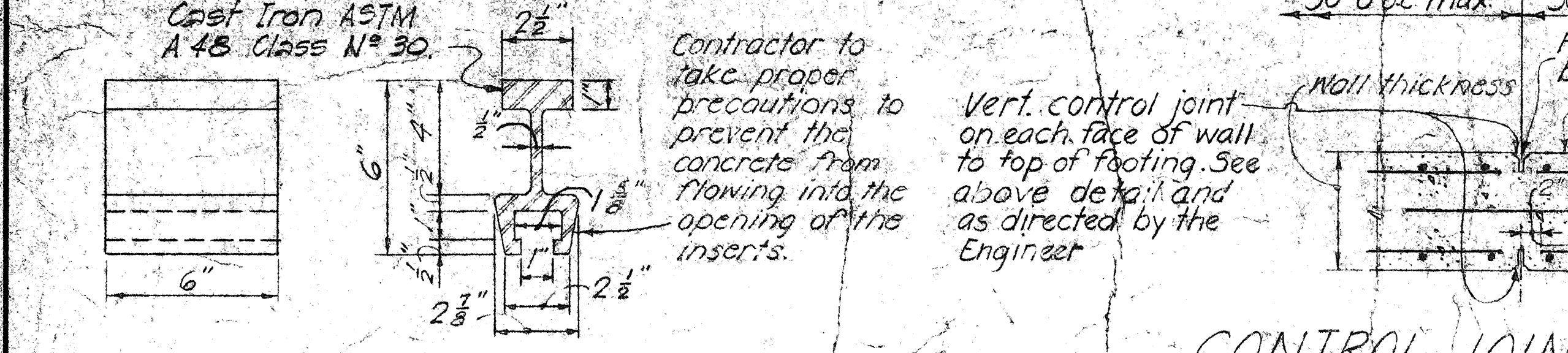
TYPICAL CONCRETE GROOVE DETAIL

D RIP DETAIL

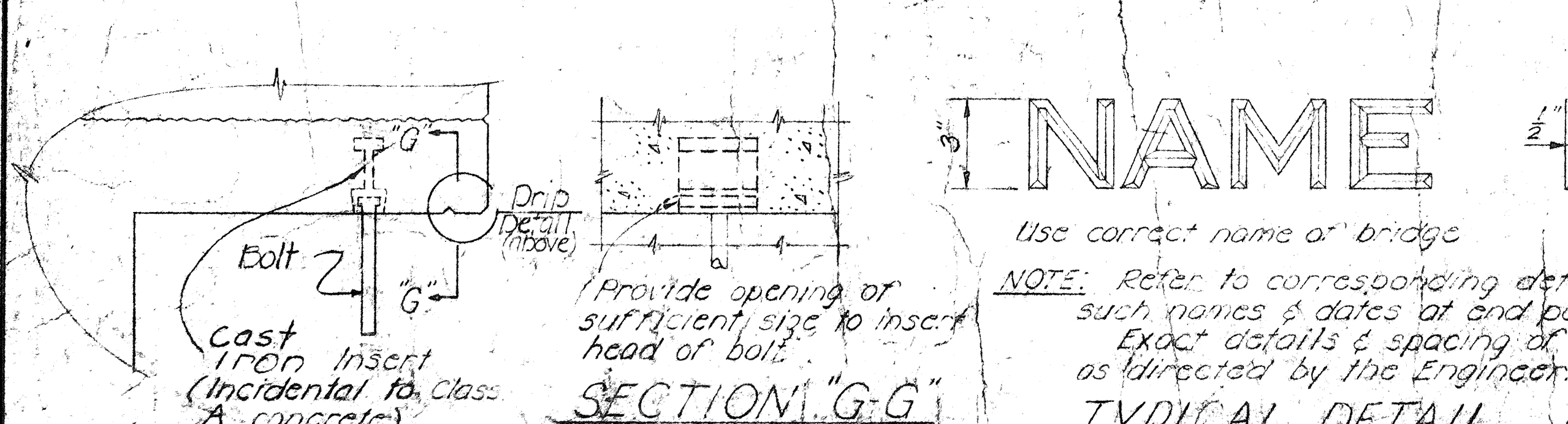


NOTE: Metal drains shall be considered incidental to Class A Concrete in both concrete and steel bridges and will not be paid for separately. Assembly of grillage and pipe shall be hot-dip galvanized after all welding is completed.

TYPICAL DRAINAGE DETAILS

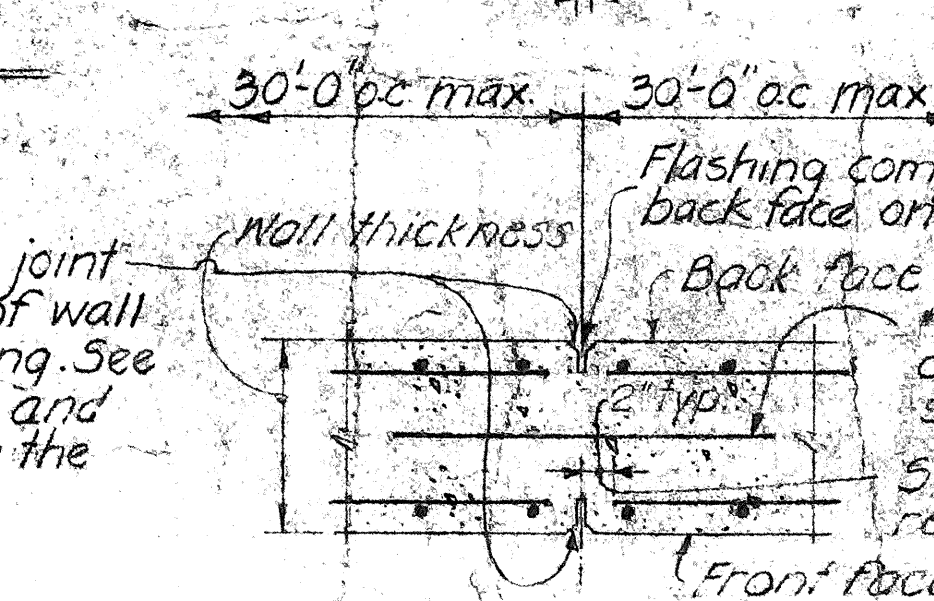


INSERT DETAIL



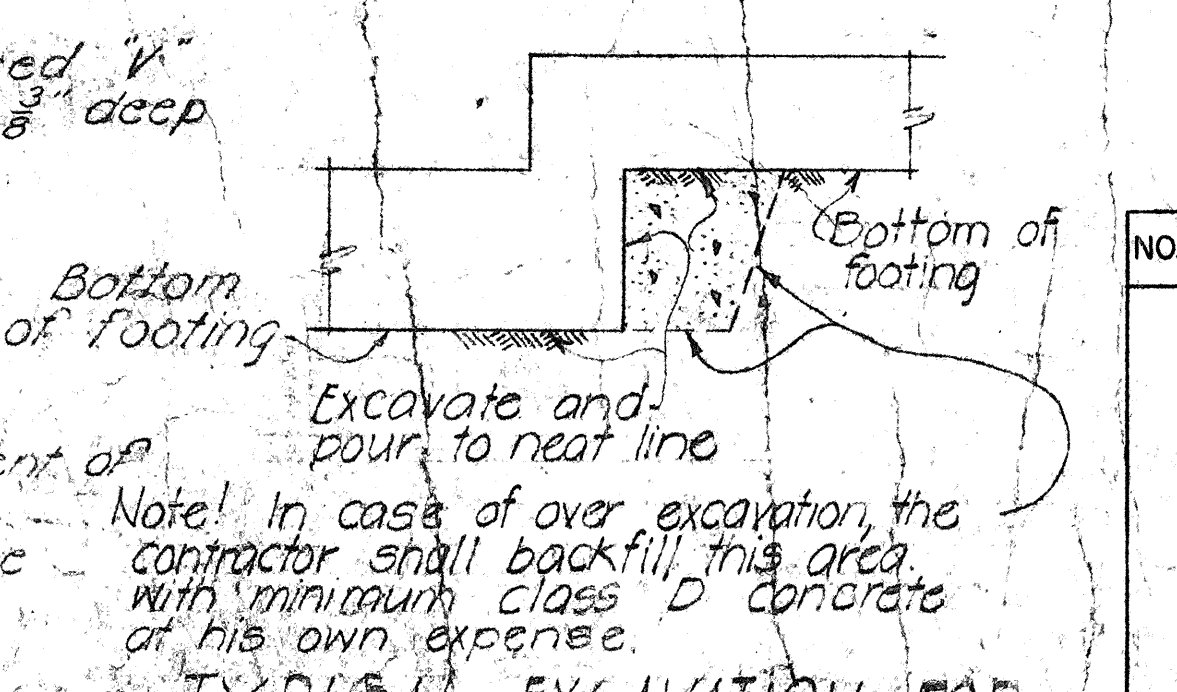
DETAIL OF PIPE HANGERS & INSERTS

Joint may be formed with a masonite & cut back to the root of the chamfer on the exposed face.



CONTROL JOINT DETAILS

TYP. FLASHING COMPOUND WATERPROOFING DETAIL



TYPICAL EXCAVATION FOR CONTINUOUS FOOTING STEP-UP

Note: In case of over excavation, the contractor shall backfill this area with minimum class D concrete at his own expense.

NAME DATE

Use correct name of bridge Date of Year built

NOTE: Refer to corresponding detail drawings for placement of such names & dates at end post. Exact details & spacing of letters & figures shall be as directed by the Engineer. See Note #12.

TYPICAL DETAIL OF LETTERS & FIGURES AT CONCRETE END POST

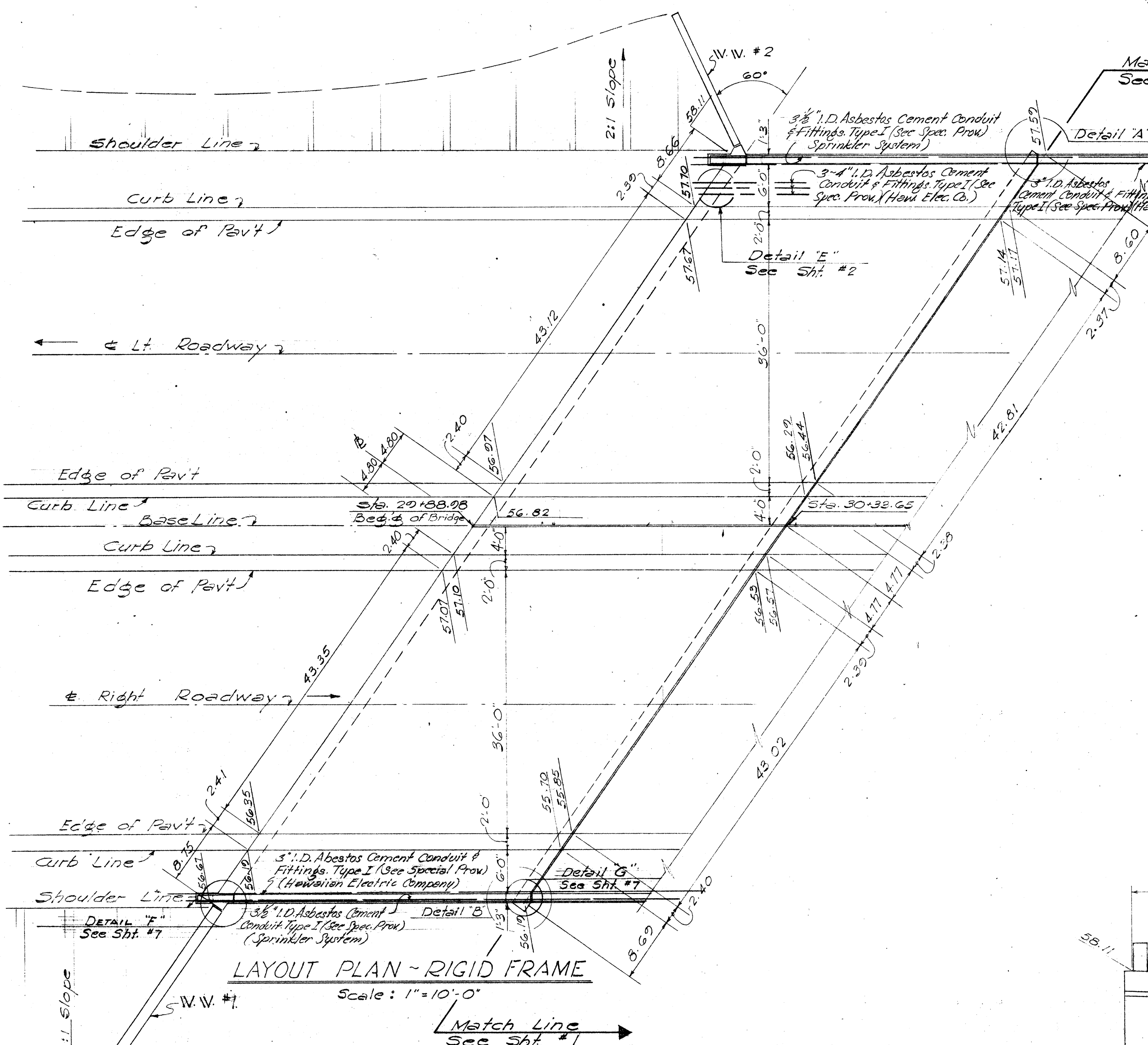
Excavate and pour to neat line

NO.	REVISION	APPROVED BY	DATE

APPROVAL RECOMMENDED:
Paul T. Vamashita
BRIDGE DESIGN ENGINEER 1-23-79
DATE

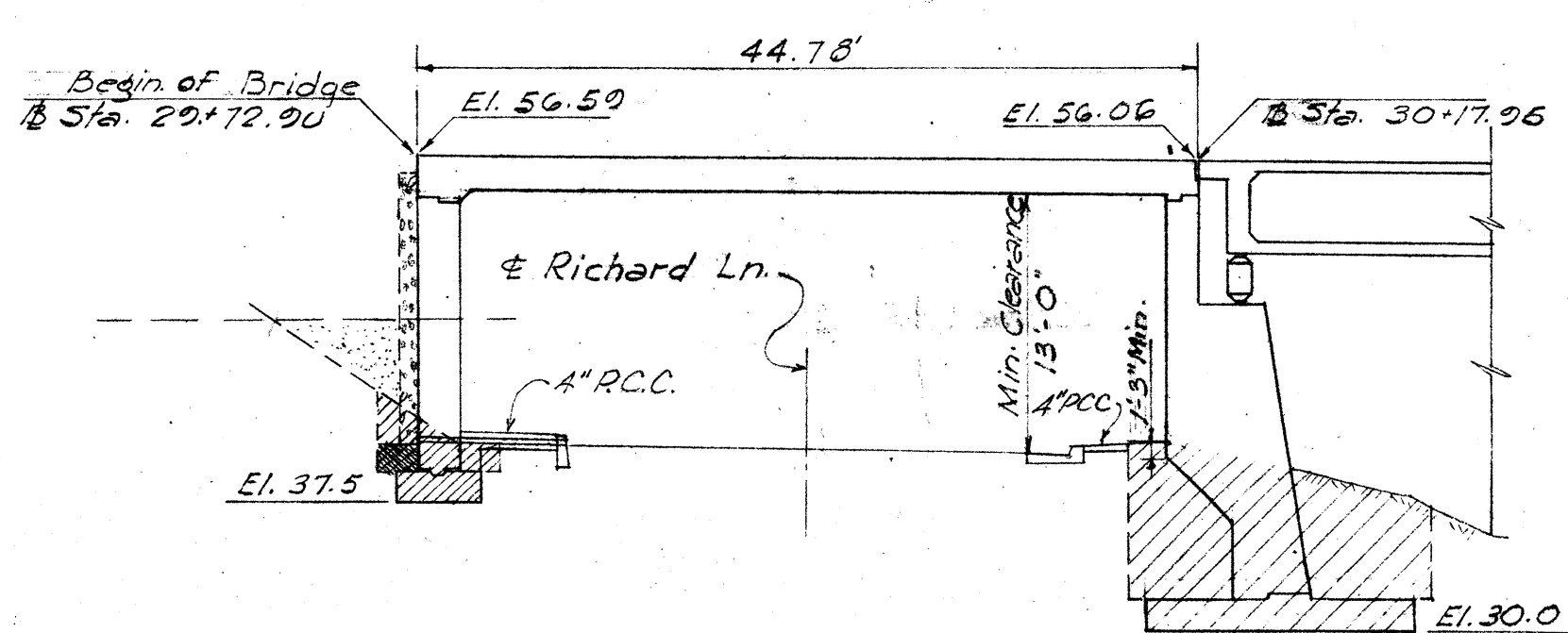
APPROVED
Paul T. Vamashita
FOR ASSISTANT CHIEF, ENGINEERING 1-28-79
DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
STANDARD DETAILS
NOTES AND MISCELLANEOUS
DETAILS
Date: October 1982
SHEET No. 1 OF 2 SHEETS DB-100



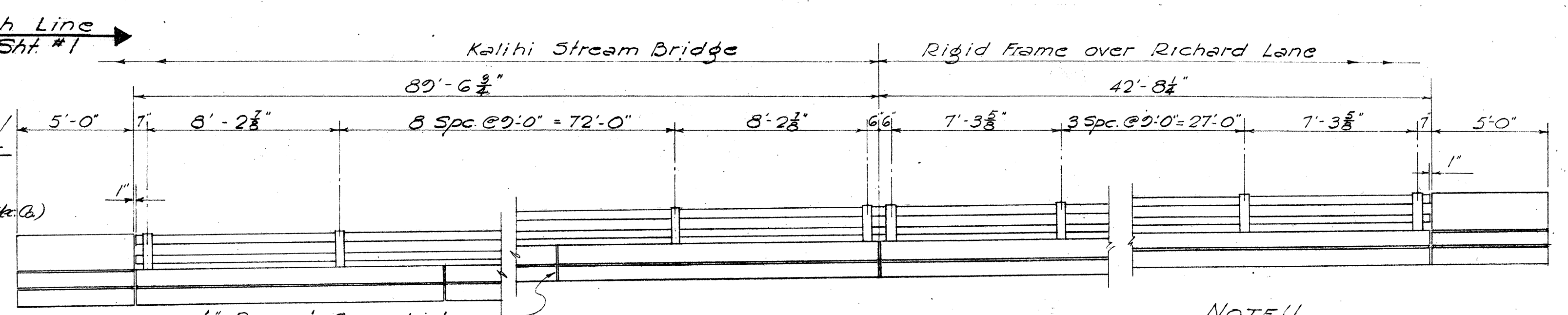
LAYOUT PLAN - RIGID FRAME

Scale: 1"=10'-0"



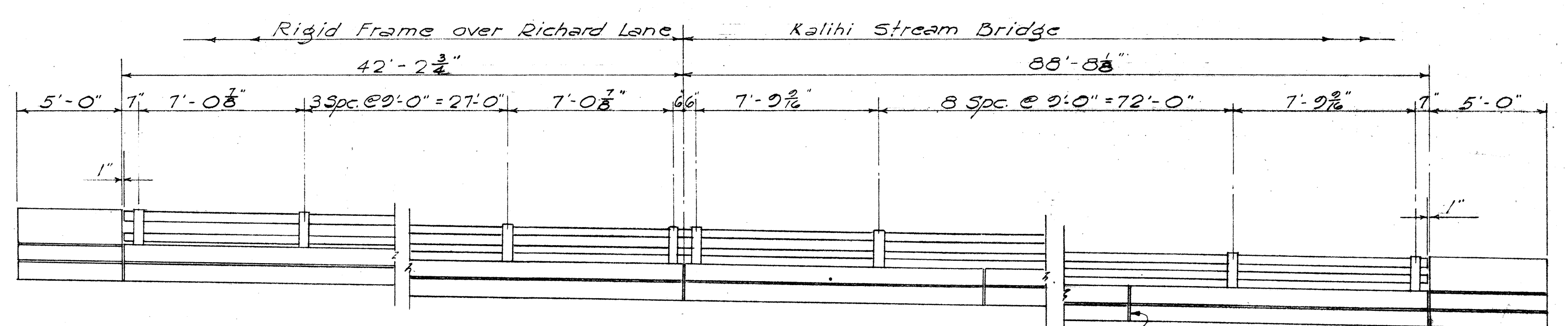
LONG. SECTION ALONG RIGHT ROADWAY

Scale: 1"=10'-0"



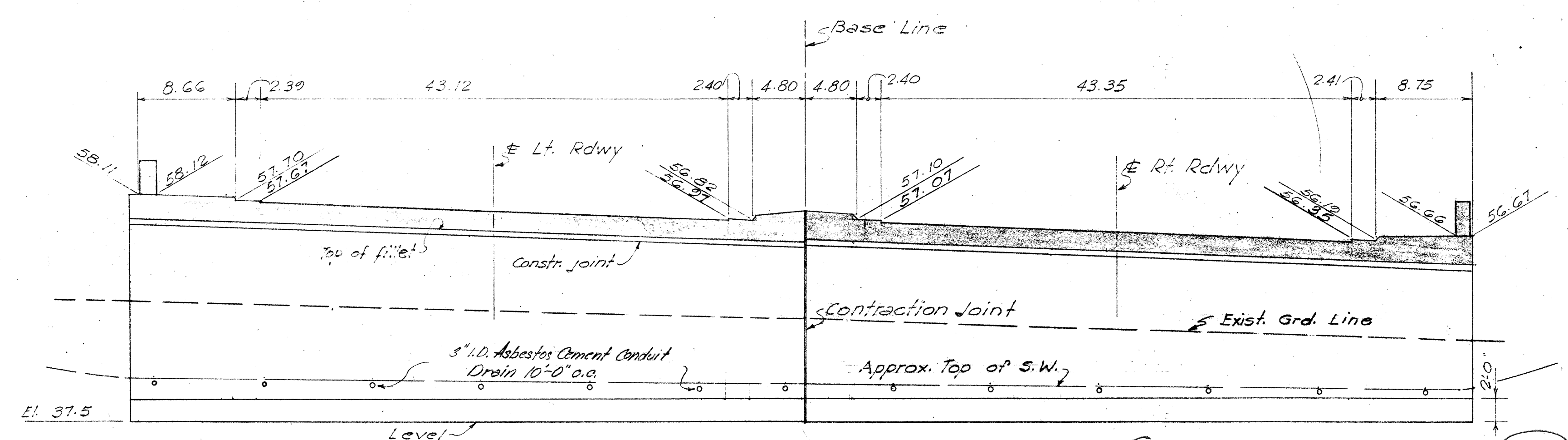
RIGHT RAILING LAYOUT

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



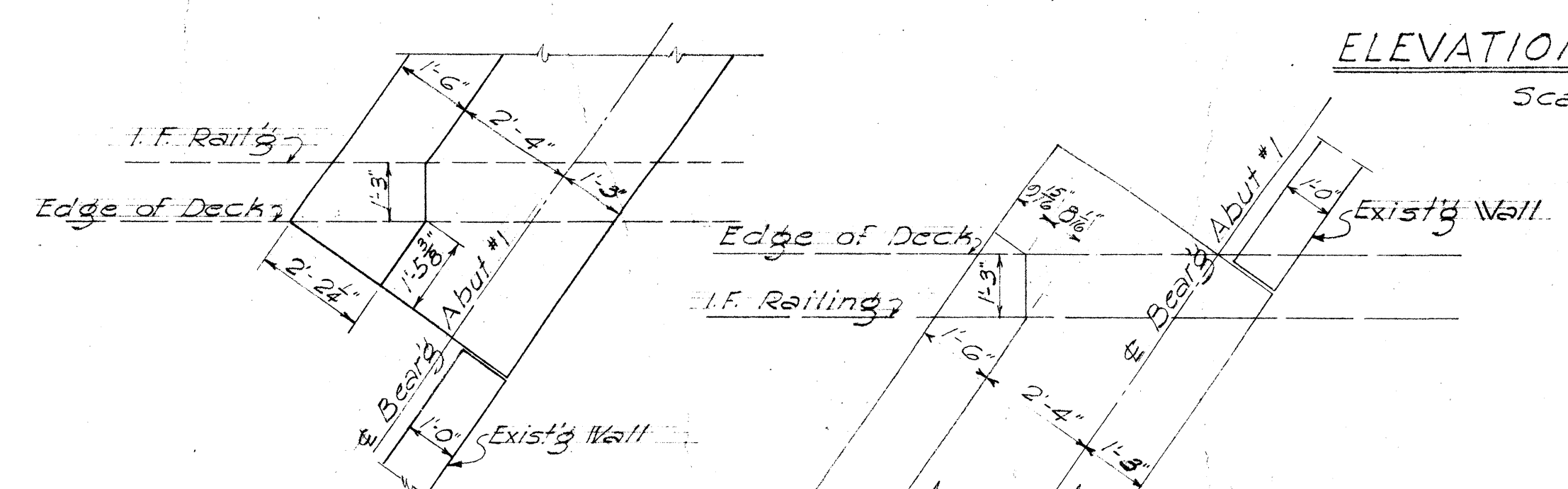
LEFT RAILING LAYOUT

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



ELEVATION - RIGID FRAME

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



DETAIL 'B'

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

DETAIL 'A'

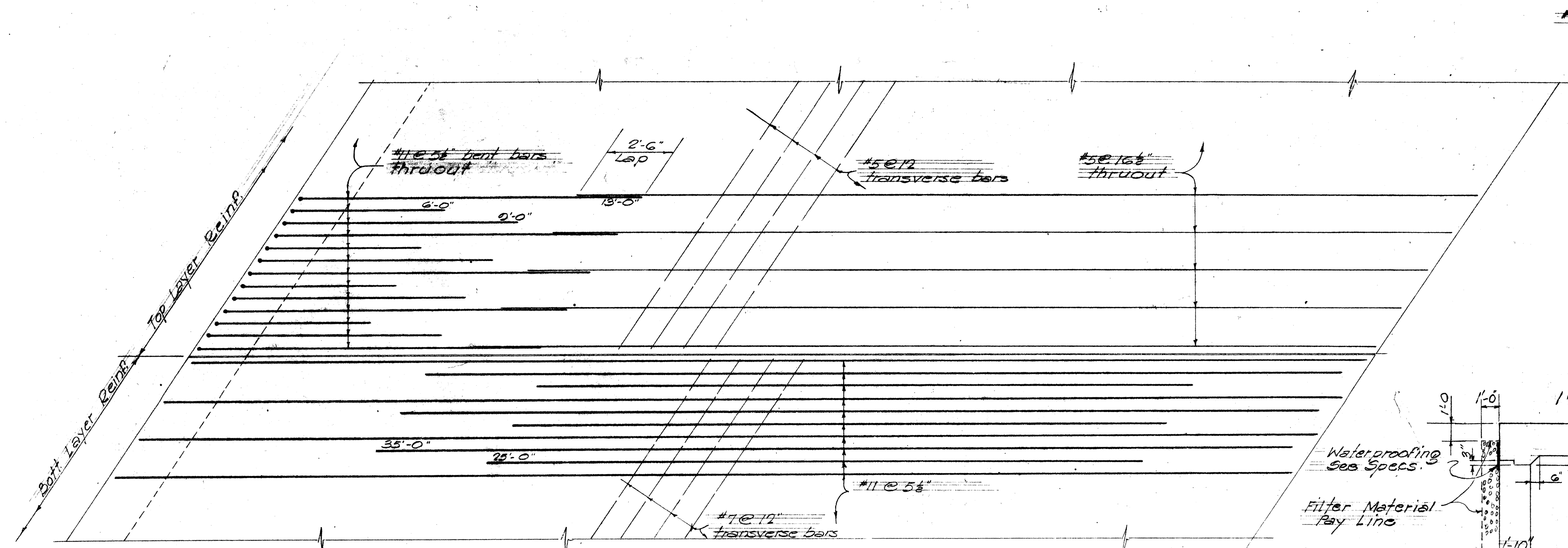
Scale: 1/8"=1'-0"

EXISTING KALIHI STREAM BR.
For information only
(Reduction not to scale)

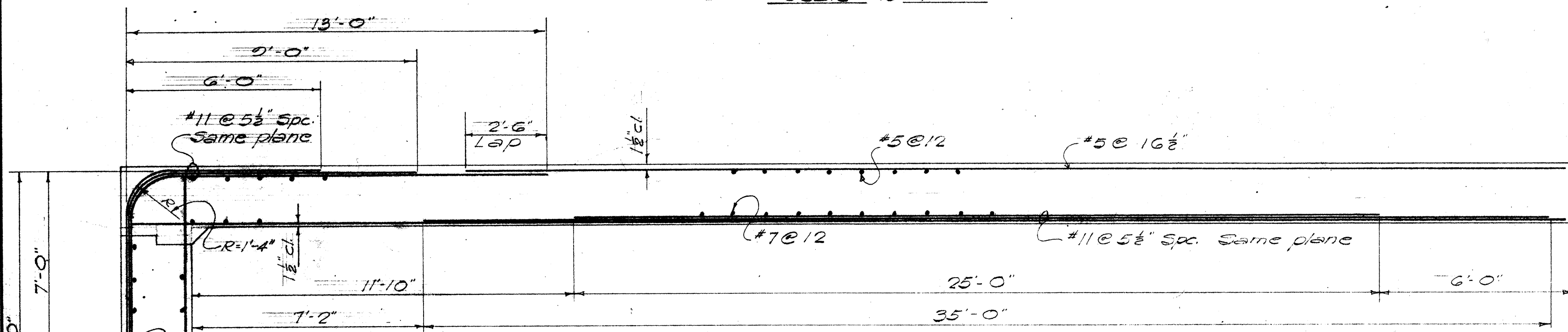
HAWAII STATE HIGHWAY DEPARTMENT
STATE OF HAWAII
KALIHI STREAM BRIDGE
PLAN-RIGID FRAME
LUNALILO FREEWAY BU-072-1 (2)
UNIT 4

SHEET NO. EB 1 OF EB 4 SHEETS

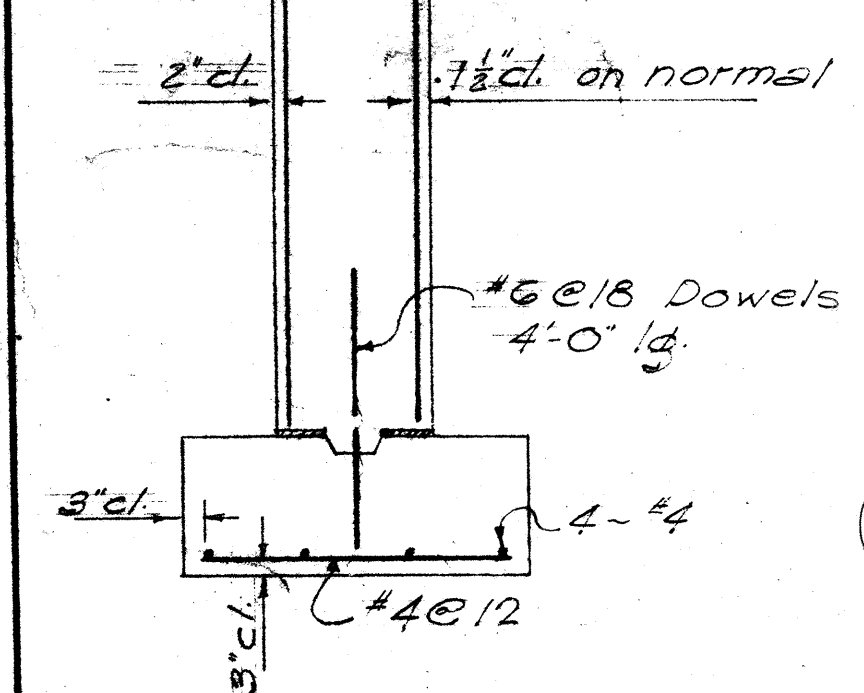
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW	J-H-1078	1982	141	165



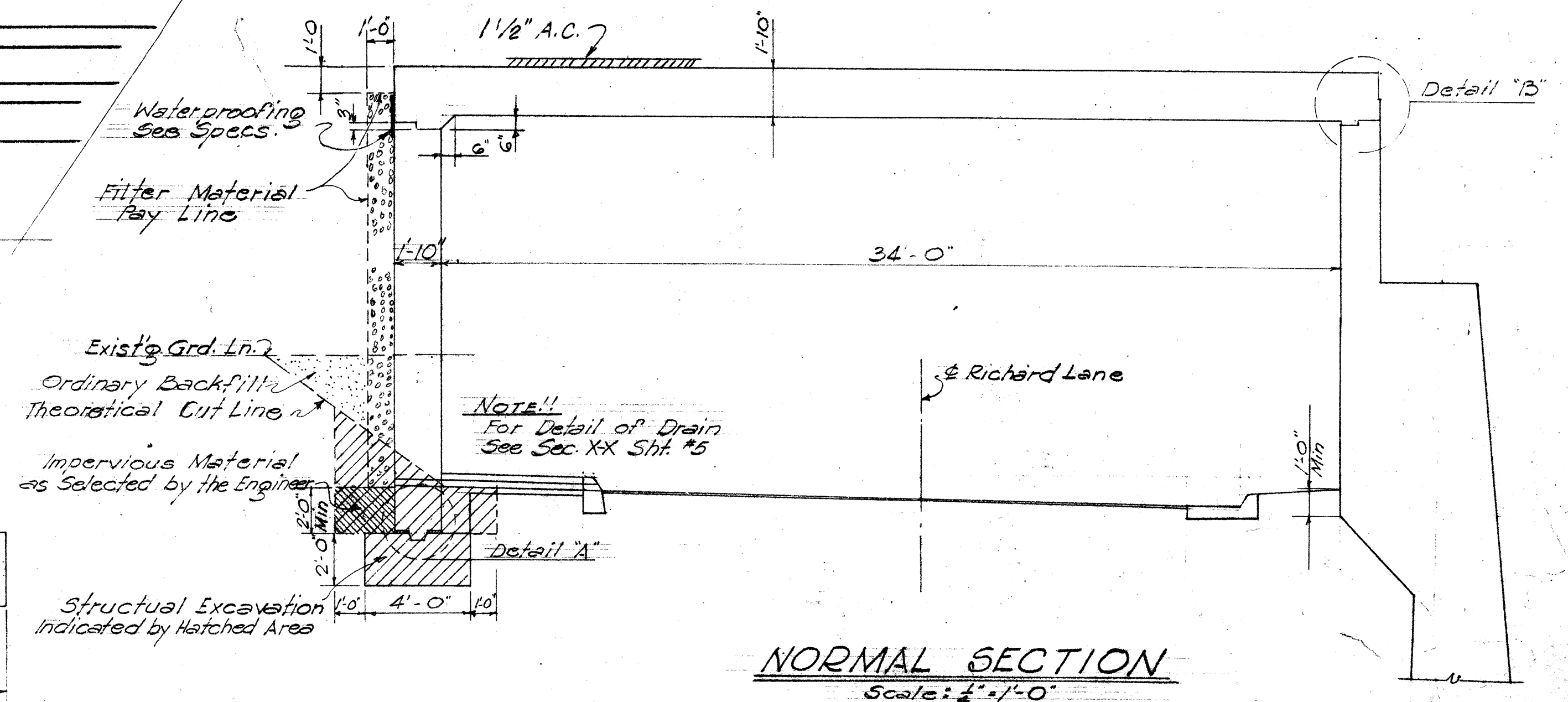
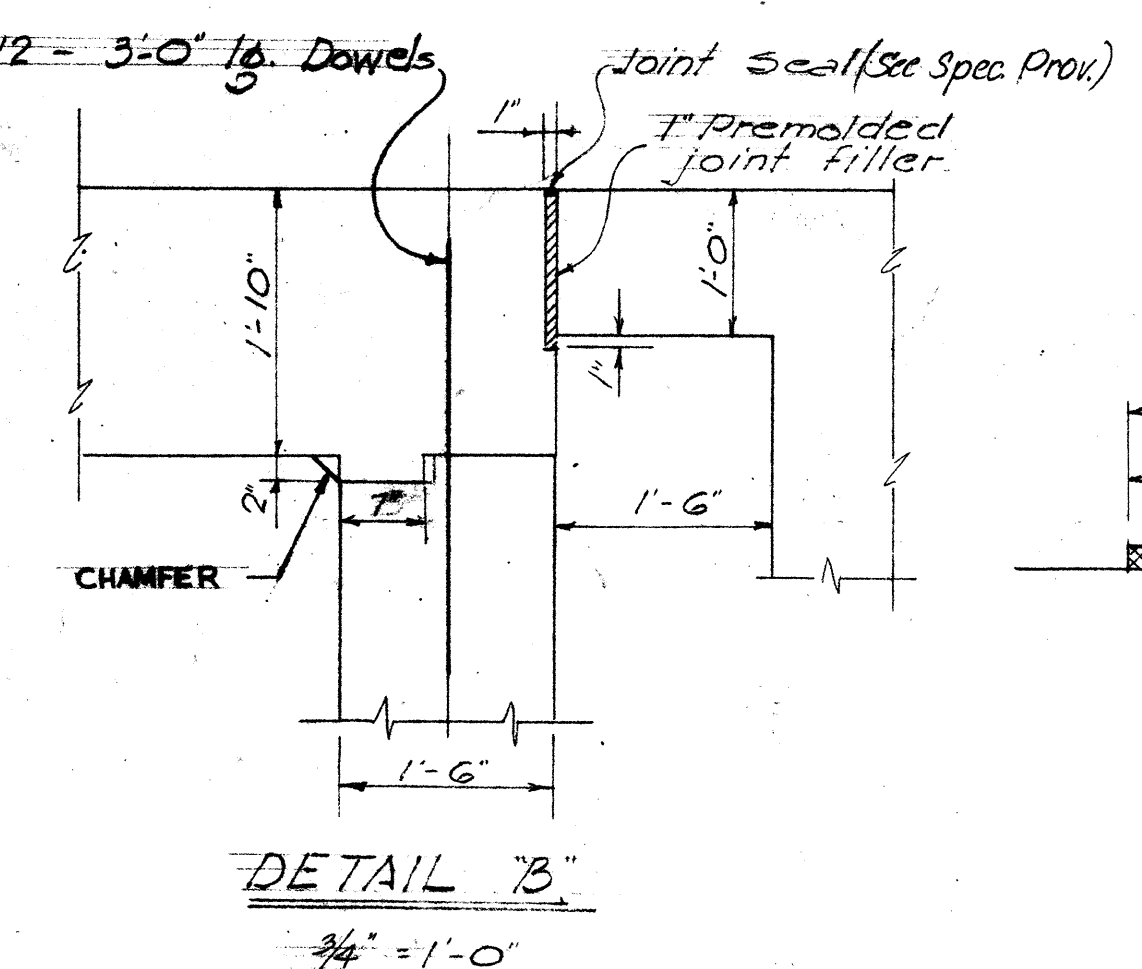
DECK ~ REINF. PLAN
Scale: 3/8" = 1'-0"



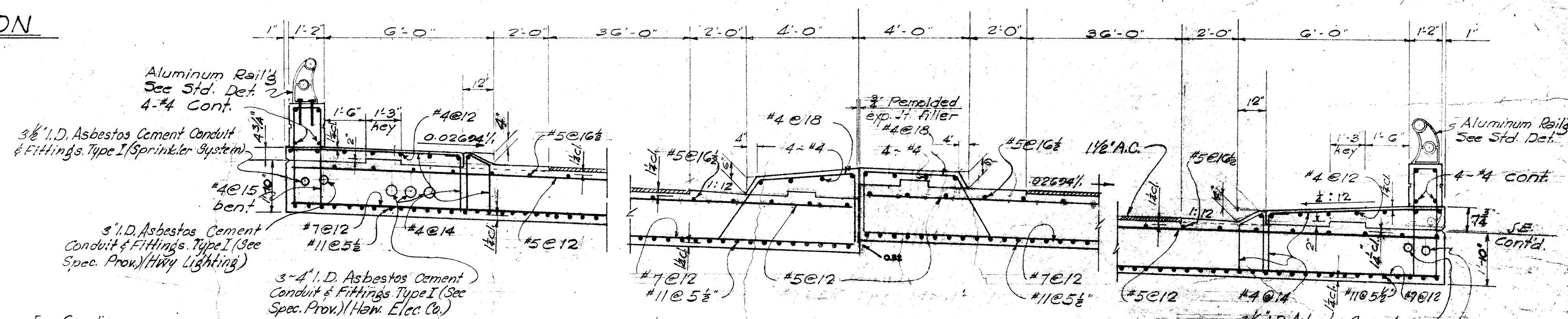
TYPICAL ~ SKEWED SECTION
Scale: 3/8" = 1'-0"



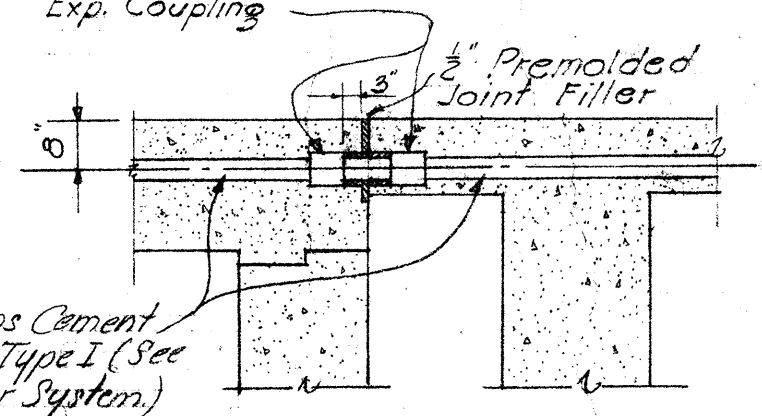
EXISTING KALIHI STREAM BRIDGE
For information only
reduction not to scale



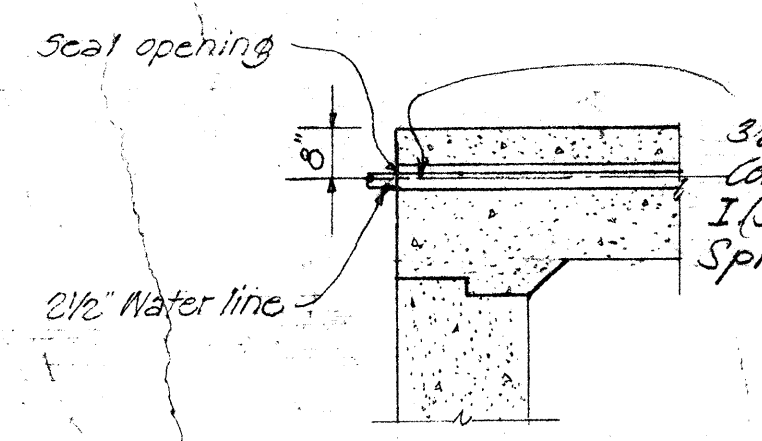
NORMAL SECTION
Scale: 1/4" = 1'-0"



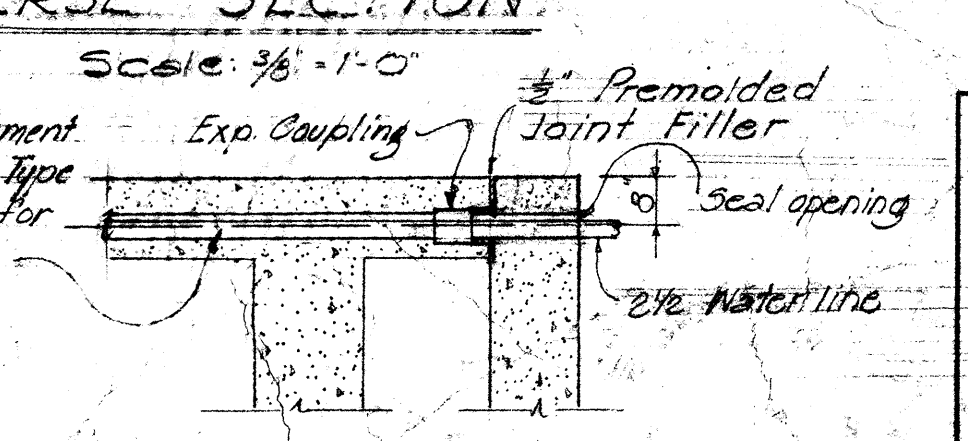
TRANSVERSE SECTION
Scale: 3/8" = 1'-0"



DETAIL 'G'



DETAIL 'F'



DETAIL 'H'

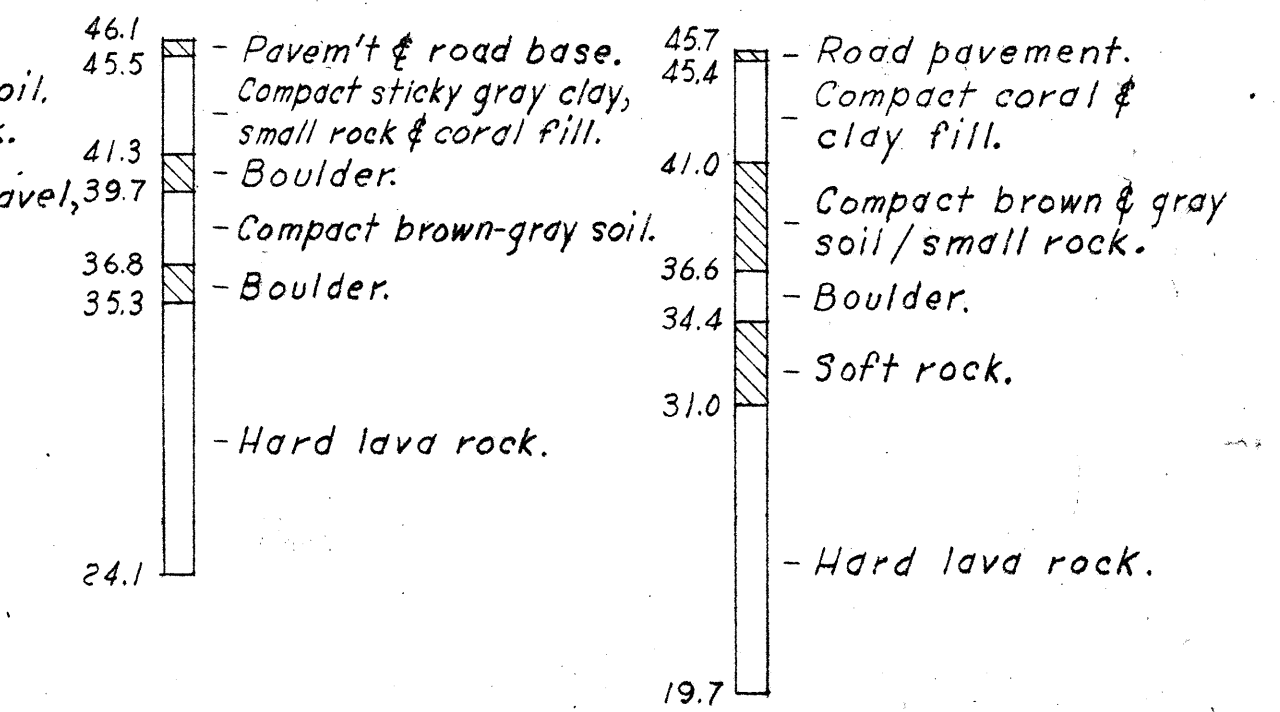
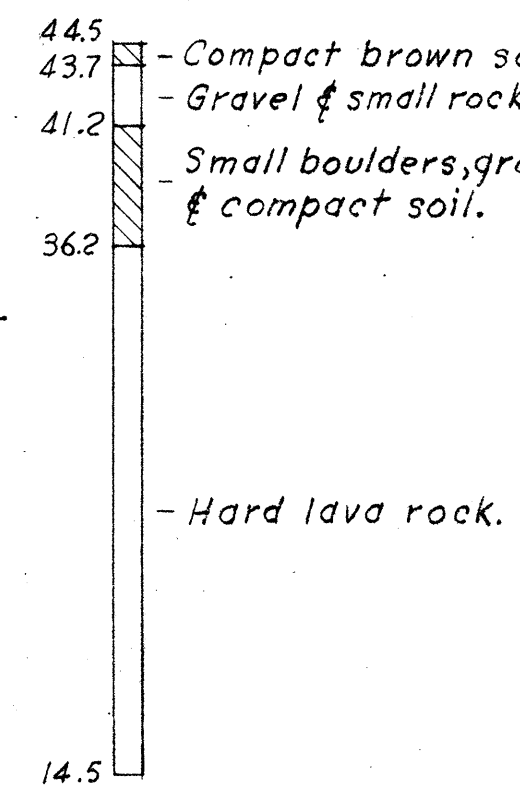
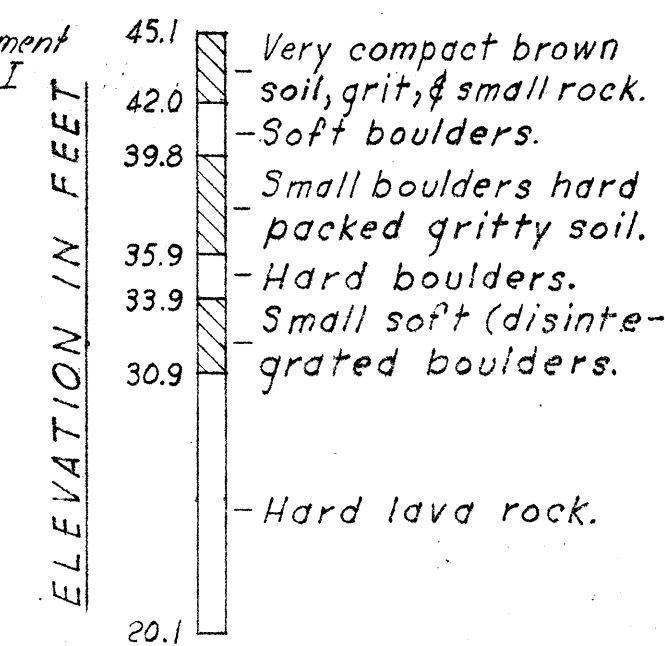
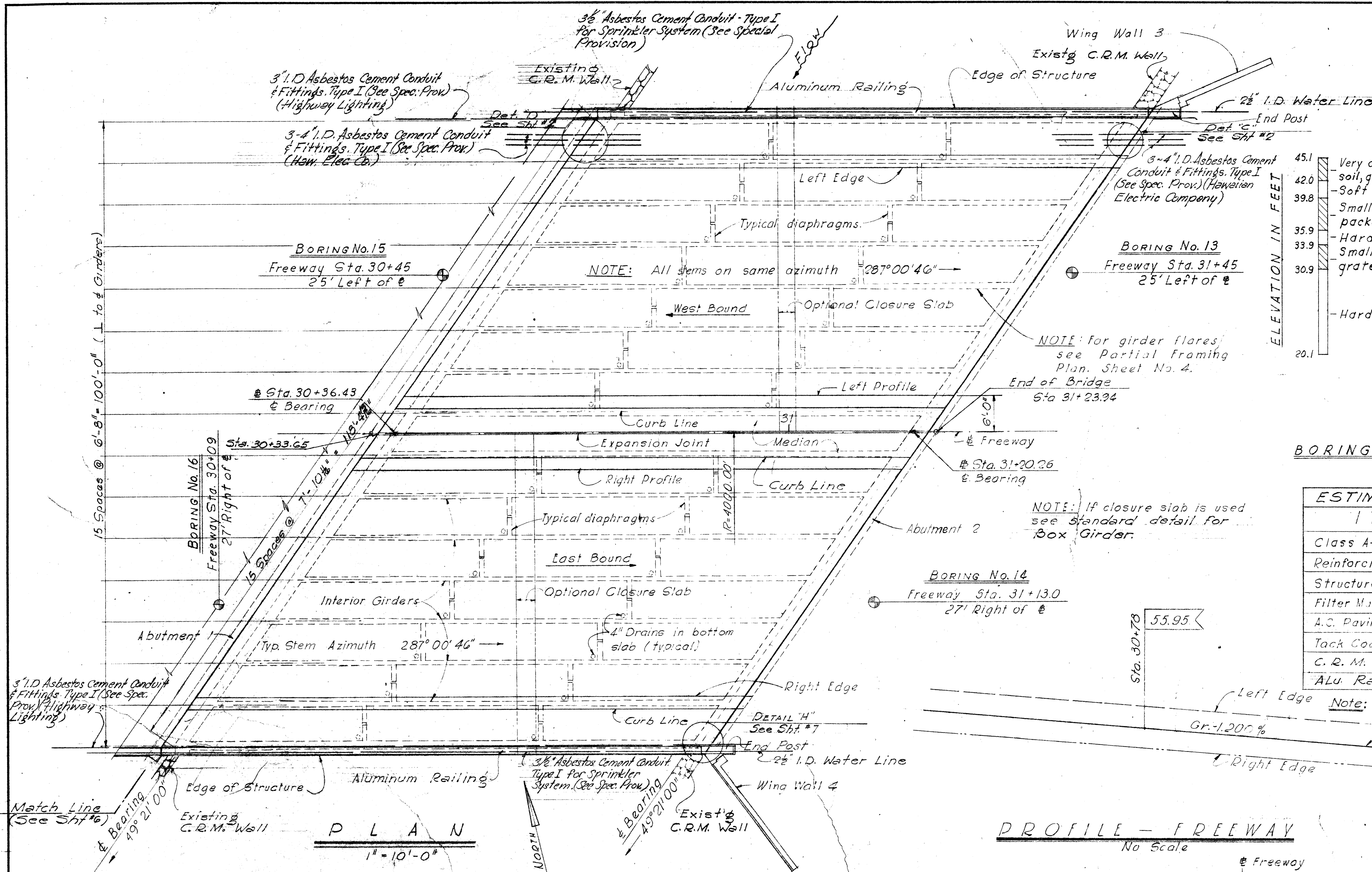
HAWAII STATE HIGHWAY DEPARTMENT
STATE OF HAWAII

KALIHI STREAM BRIDGE
SECTION-RIDGID FRAME

LUNALILO FREEWAY BU-072-1 (2) UNIT 4

SHEET NO. EB2 OF EB4 SHEETS

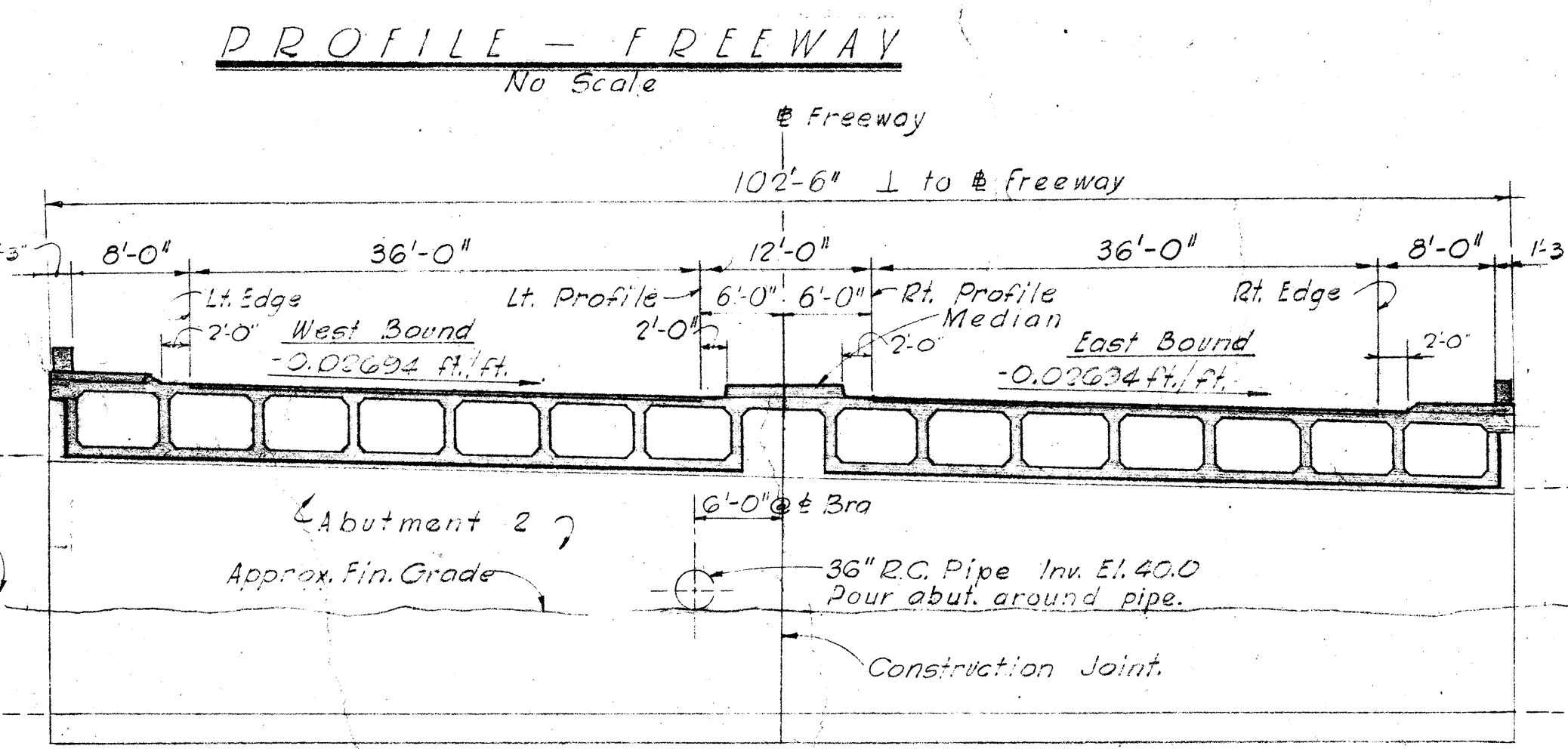
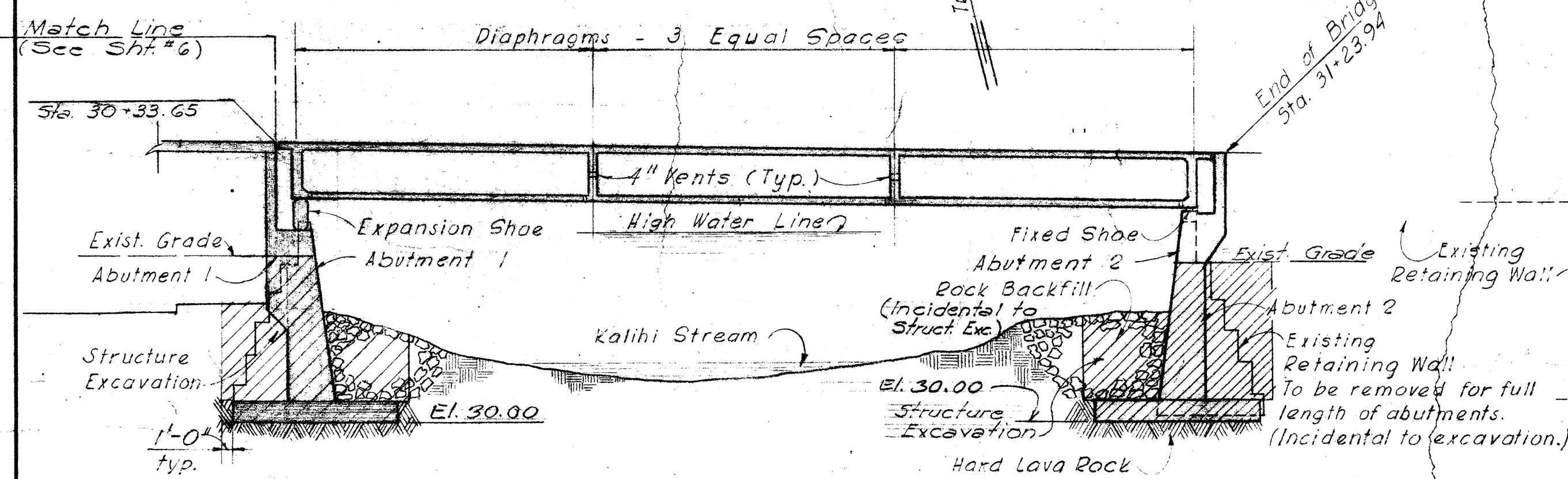
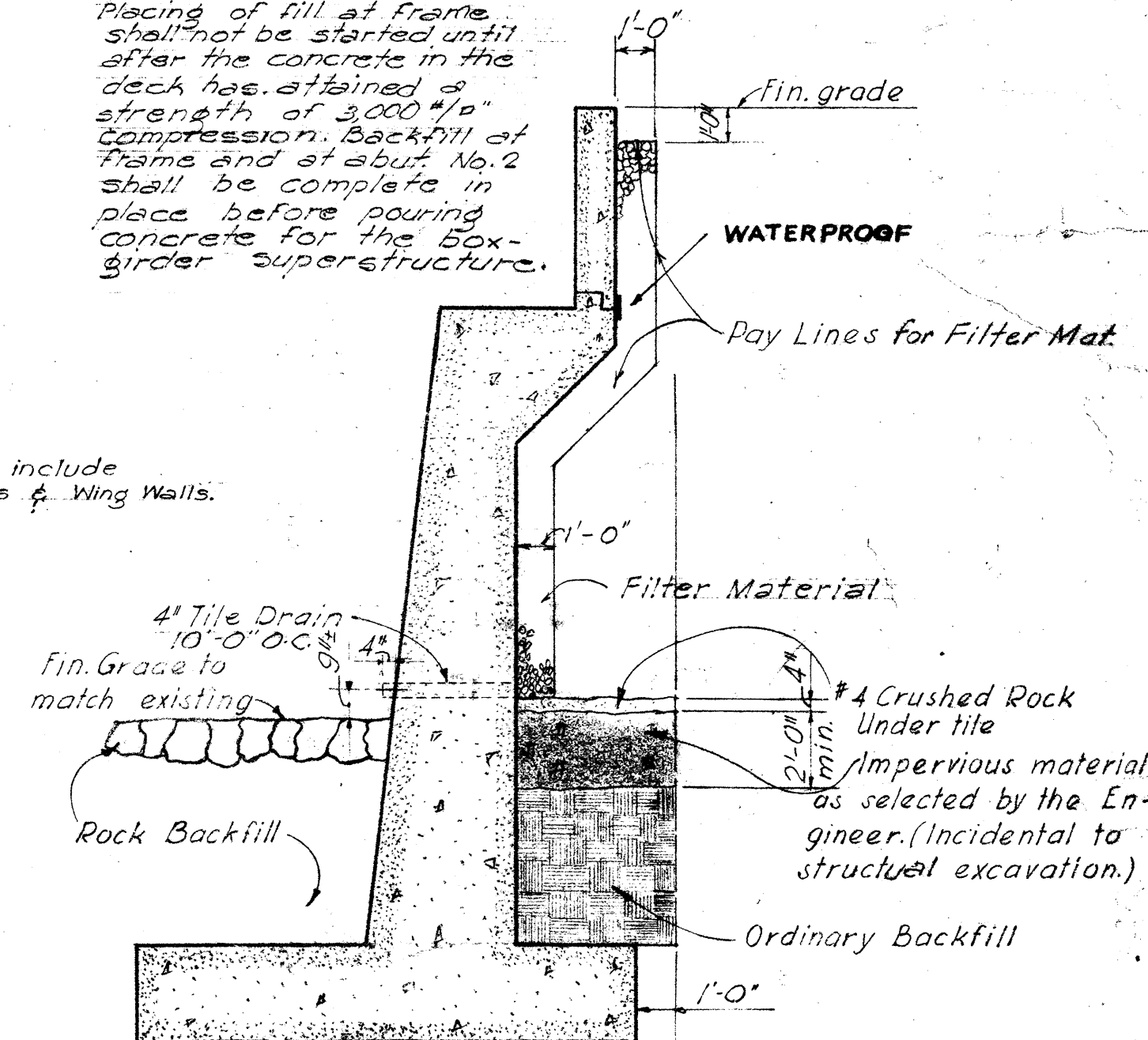
DESIGNED BY	DATE
TRACED BY	
QUANTITIES BY	
CHECKED BY	
ORIGINAL PLAN	
NOTE BOOK	
NO.	



BORING NO. 13 BORING NO. 14 BORING NO. 15 BORING NO. 16

ESTIMATED QUANTITIES	
ITEM	QUANTITY
Class A-1 Concrete	Lump Sum (2,235 CY)
Reinforcing Steel	Lump Sum (40,744 lb)
Structure Excavation	2,345 Cubic Yds.
Filter Material	156 Cubic Yds.
A.C. Paving Mix V	88 Tons
Tack Coat	265 Gals.
C.R.M.	13 Cubic Yds.
Alu. Railing	263 Lin. Ft.

CONSTRUCTION METHOD
Placing of fill at frame shall not be started until after the concrete in the deck has attained a strength of 3,000 p.s.i. Backfill of frame and at about No. 2 shall be complete in place before pouring concrete for the Box-girder superstructure.



HAWAII STATE HIGHWAY DEPARTMENT
STATE OF HAWAII
KALIHI STREAM BRIDGE
PLAN AND SECTIONS
LUNALILO FREEWAY BU-072-1 (2) UNIT 4
SHEET No. EB3 OF EB4 SHEETS

SURVEY PLOTTED BY: LUN
DRAWN BY: C. E. HIGDON
CHECKED BY: S. WILSON
NOTE BOOK NO. 11742

