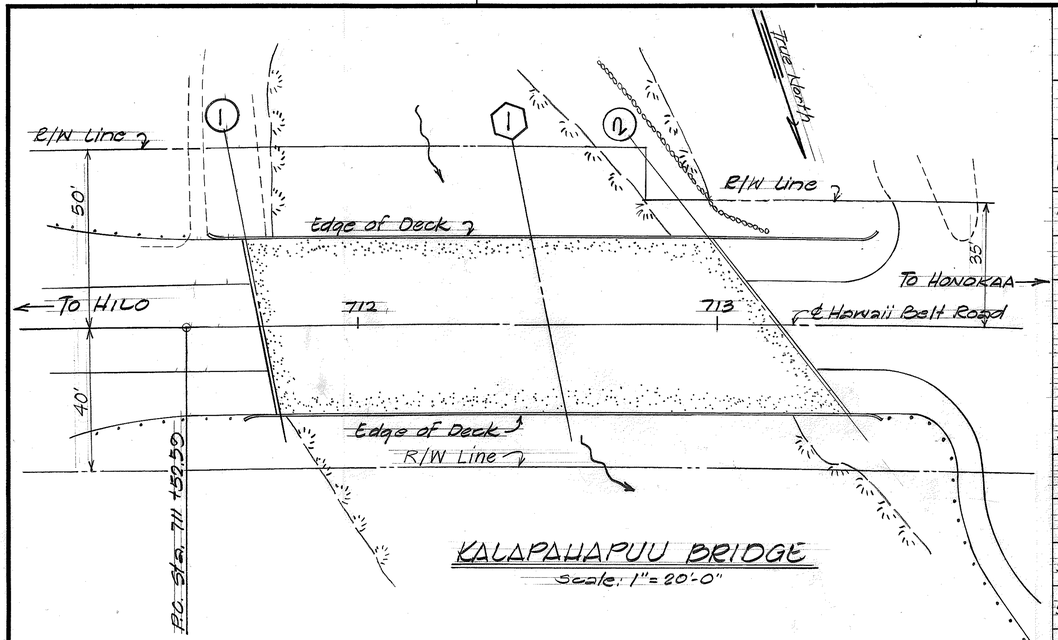
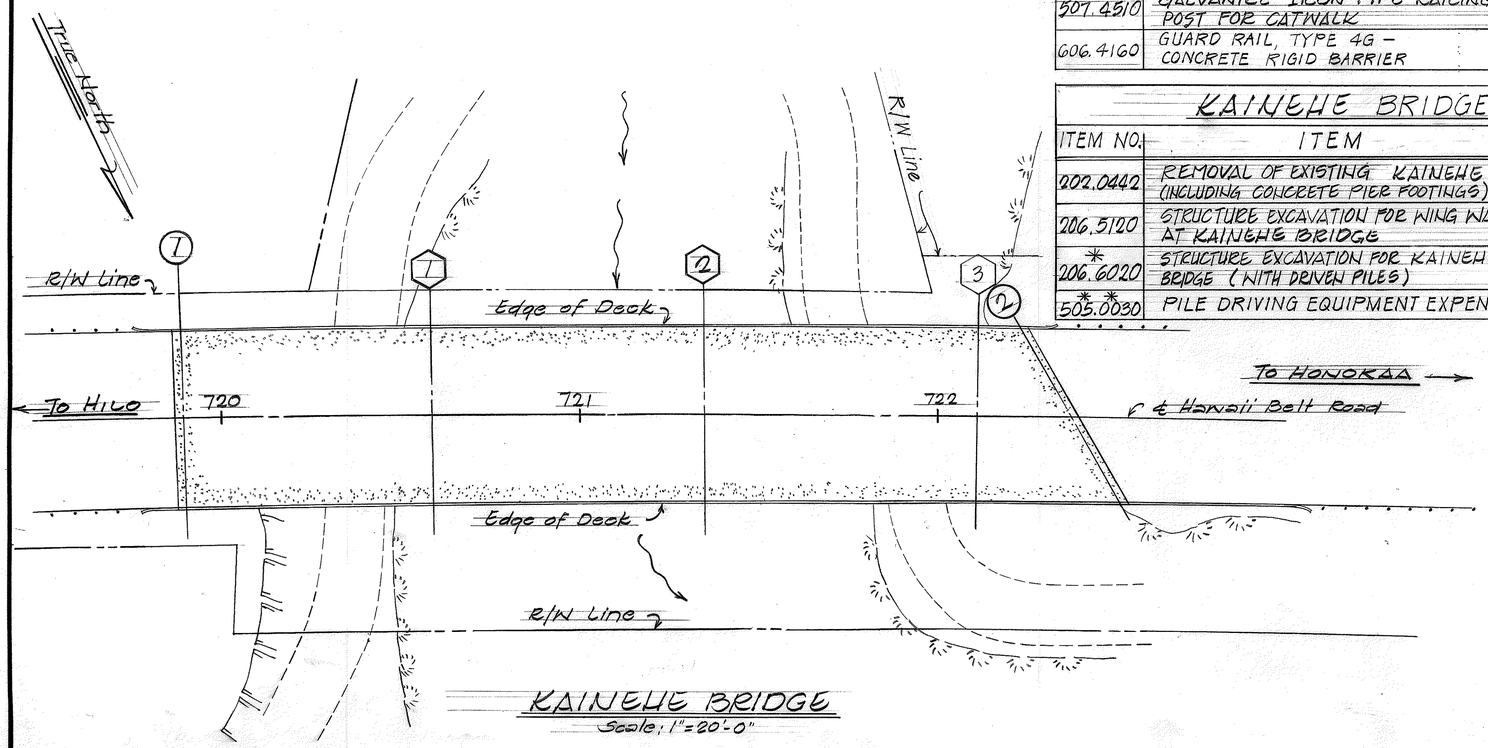


KALAPAHAPUU BRIDGE

Scale: 1"=20'-0"



KAINEHE BRIDGE

Scale: 1"=20'-0"

ESTIMATED QUANTITIES

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BRF-019-2(20)	1984	60	126

KALAPAHAPUU BRIDGE

ITEM NO.	ITEM	UNIT	QUANTITIES
202.0441	REMOVAL OF EXISTING KALAPAHAPUU BR. (INCLUDING CONCRETE PIER FOOTINGS)	Lump Sum	
206.6010	STRUCTURE EXCAVATION FOR KALAPAHAPUU BRIDGE	Cu. Yd.	1,429 C.Y.
206.7211	STRUCTURE BACKFILL FOR KALAPAHAPUU BRIDGE ABUTMENT	Cu. Yd.	384 C.Y.
206.8201	FILTER MATERIAL FOR KALAPAHAPUU BRIDGE	Cu. Yd.	27 C.Y.
501.0211	STRUCTURAL STEEL FOR KALAPAHAPUU BRIDGE CATWALK	Lump Sum	3,140 LBS.
503.1092	CONCRETE IN KALAPAHAPUU BRIDGE (EXCEPT FOOTING)	Lump Sum	464 C.Y.
503.1094	CONCRETE IN FOOTING FOR KALAPAHAPUU BRIDGE	Lump Sum	167 C.Y.
504.4110	TYPE IV PRESTRESSED CONCRETE GIRDER - KALAPAHAPUU BRIDGE	Lump Sum	1,171 L.F.
507.1100	METAL BRIDGE RAILING (ONE RAIL ON PARAPET) AT KALAPAHAPUU BRIDGE	Lin. Ft.	301 L.F.
507.7010	CONCRETE BRIDGE PARAPET INCLUDING 4 END POSTS AT KALAPAHAPUU BRIDGE	Lin. Ft.	341 L.F.
602.0091	REINFORCING STEEL IN KALAPAHAPUU BRIDGE	Lump Sum	219,000 LBS.
501.0213	STRUCTRUAL STEEL FOR PROTECTIVE NOSING OF DECK EXPANSION JOINT	Lump Sum	1,196 LBS.
507.4510	GALVANIZE IRON PIPE RAILING AND POST FOR CATWALK	Lump Sum	114 L.F.
606.4160	GUARD RAIL, TYPE 4G - CONCRETE RIGID BARRIER	Lin. Ft.	41 L.F.

KAINEHE BRIDGE

ITEM NO.	ITEM	UNIT	QUANTITIES
202.0442	REMOVAL OF EXISTING KAINEHE BRIDGE (INCLUDING CONCRETE PIER FOOTINGS)	Lump Sum	
206.5120	STRUCTURE EXCAVATION FOR WING WALL AT KAINEHE BRIDGE	Cu. Yd.	92 C.Y.
* 206.6020	STRUCTURE EXCAVATION FOR KAINEHE BRIDGE (WITH DRIVEN PILES)	Cu. Yd.	2087 ~~1,848~~ C.Y.
** 505.0030	PILE DRIVING EQUIPMENT EXPENSE	Lump Sum	

KAINEHE BRIDGE (CONTINUE)

ITEM NO.	ITEM	UNIT	QUANTITIES
* ~~206.6030~~	~~STRUCTURE EXCAVATION FOR KAINEHE BRIDGE (WITH CAST-IN-PLACE PILES)~~	~~Cu. Yd.~~	~~1,932 C.Y.~~
206.7212	STRUCTURE BACKFILL FOR KAINEHE BRIDGE ABUTMENT	Cu. Yd.	544 C.Y.
206.7242	STRUCTURE BACKFILL FOR WING WALLS AT KAINEHE BRIDGE	Cu. Yd.	70 C.Y.
206.8202	FILTER MATERIAL FOR KAINEHE BRIDGE	Cu. Yd.	25 C.Y.
206.8302	FILTER MATERIAL FOR WING WALLS AT KAINEHE BRIDGE	Cu. Yd.	2 C.Y.
501.0212	STRUCTURAL STEEL FOR KAINEHE BRIDGE CATWALK	Lump Sum	9,400 LBS.
501.0214	STRUCTURAL STEEL FOR PROTECTIVE NOSING OF DECK EXPANSION JOINT	Lump Sum	2,348 LBS.
503.1003	CONCRETE IN KAINEHE BRIDGE (EXCEPT FOOTING)	Lump Sum	886 C.Y.
* 503.1095	CONCRETE IN FOOTING FOR KAINEHE BRIDGE (WITH DRIVEN PILES)	Lump Sum	445 ~~416~~ C.Y.
* ~~503.1096~~	~~CONCRETE IN FOOTING FOR KAINEHE BRIDGE (WITH CAST-IN-PLACE PILES)~~	~~Lump Sum~~	~~439 C.Y.~~
503.1401	CONCRETE IN WING WALLS AT BRIDGE (EXCEPT FOOTING)	Lump Sum	16 C.Y.
503.1411	CONCRETE IN FOOTING FOR WING WALL AT BRIDGE	Lump Sum	13 C.Y.
504.4120	TYPE IV PRESTRESSED CONCRETE GIRDERS - KAINEHE BRIDGE	Lump Sum	1,983 L.F.
* 505.0410	TYPE I PRESTRESSED CONCRETE PILES (FURNISHED)	Lin. Ft.	2,701 ~~1,860~~ L.F.
* ~~505.0600~~	~~CAST-IN-PLACE CONCRETE PILES IN DRILLED HOLES~~	~~Lin. Ft.~~	~~1,995 L.F.~~
* 505.4100	TYPE I PRESTRESSED CONCRETE PILES (DRIVEN)	Lin. Ft.	2,308 ~~1,680~~ L.F.
* ~~505.6000~~	~~PREDRILLED HOLES FOR CAST-IN-PLACE PILES~~	~~Lin. Ft.~~	~~1,960 L.F.~~
507.1200	METAL BRIDGE RAILING (ONE RAIL ON PARAPET) AT KAINEHE BRIDGE	Lin. Ft.	516 L.F.
507.1210	METAL BRIDGE RAILING (ONE RAIL ON PARAPET) AT WING WALLS FOR KAINEHE BR.	Lin. Ft.	34 L.F.
507.4520	GALVANIZE IRON PIPE RAILING AND POST FOR CATWALK	Lump Sum	336 L.F.
507.7011	CONCRETE BRIDGE PARAPET INCLUDING 3 END POST AT KAINEHE BRIDGE	Lin. Ft.	546 L.F.
507.7021	CONCRETE BRIDGE PARAPET INCLUDE 1 END POST AT WING WALLS FOR KAINEHE BR.	Lin. Ft.	44 L.F.
602.0051	REINFORCING STEEL IN WING WALL AT BRIDGE	Lump Sum	2,700 LBS.
* 602.0092	REINFORCING STEEL IN KAINEHE BRIDGE (WITH DRIVEN PILES)	Lump Sum	425,512 ~~418,900~~ LBS.
* ~~602.0093~~	~~REINFORCING STEEL IN KAINEHE BRIDGE (WITH CAST-IN-PLACE PILES)~~	~~Lump Sum~~	~~418,400 LBS.~~

* - Items 505.0600, 505.6000, 503.1096, 602.0093 & 206.6030 are alternates to items 505.0410, 505.4100, 503.1095, 602.0092 & 206.6020.

** - Item 505.0030 to be used only with items 505.0410 & 505.4100.

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

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
LAND TRANSPORTATION FACILITIES DIVISION

KAINEHE & KALAPAHAPUU BRIDGE

LOCATION PLAN & ESTIMATED QUANTITIES

HAWAII BELT ROAD

Proj No. BRF-019-2(20)

Scale: As Shown Date: Aug 1983

SHEET No. 1 OF 29 SHEETS

INDEX

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BRF-019-2(80)	1984	61	126

KAINEHE & KALAPAHAPUU BRIDGES

SHEET NO.	DESCRIPTION
1	LOCATION PLAN & ESTIMATED QUANTITIES
2	INDEX
3	GENERAL NOTES, SYMBOLS & ABBREVIATIONS
	KALAPAHAPUU BRIDGE
4	LAYOUT PLAN, LONGITUDINAL DECK SECTION, ELEVATION - PIER (1)
5	FOUNDATION PLAN, BORING LOG
6	ABUTMENT (1) - PLAN, ELEVATION & SECTIONS
7	TYPICAL ABUTMENT (1) - SECTION TYPICAL ABUTMENT COLUMN & END POST BRACKET DETAIL
8	ABUTMENT (2) - PLAN, ELEVATION & TYPICAL SECTION
9	ABUTMENT (2) - SECTIONS & FOOTING REINFORCEMENT PLAN
10	PIER (1) - COLUMN & FOOTING DETAILS
11	DECK FRAMING PLAN, PRESTRESSED GIRDER DET., SLAB CAMBER DIAGRAM
12	BEAMS "A1", "C1" & "C2" DETAILS
13	BEAMS "A2" DETAILS

KAINEHE BRIDGE

SHEET NO.	DESCRIPTION
14	LAYOUT PLAN & LONGITUDINAL DECK SECTION
15	FOUNDATION PLAN ; PIER (1), (2) & (3) ELEVATION
16	BORING LOG ; C.R.M. WALL ELEVATION & SECTION
17	ABUTMENT (1) - PLAN, ELEVATION & SECTIONS
18	ABUTMENT (2) - PLAN, ELEVATION & SECTION
19	ABUTMENT (2) - SECTIONS
20	ABUTMENT (2) - FOOTING REINFORCEMENT PLAN & SECTIONS
21	WING WALL #1 - PLAN, ELEVATION & DETAILS
22	PIER (1) & (3) - FOOTING SECTIONS
23	PIER (2) FOOTING DETAILS - ALTERNATE "A" & ALTERNATE "B"
24	PIER (1), (2) & (3) - COLUMN DETAILS
25	DECK FRAMING PLAN, PRESTRESSED GIRDER DET., SLAB CAMBER DIAGRAM
26	BEAMS "A3" & "A4" DETAILS
27	BEAMS "C3", "C4", "C5" DETAILS
28	BEAMS "C4" & "C5" DETAILS
29	BEAMS "D" & "B" DETAILS -

KAINEHE & KALAPAHAPUU BRIDGES

SHEET NO.	DESCRIPTION
TD 1	TYPICAL DETAILS - NORMAL DECK SECTION, BAR DIAGRAM TSS-1 THRU TSS-8
TD 2	TYPICAL DETAILS - 3" D.I. WATER MAIN DETAILS, DECK REINFORCEMENT AT SKEWED END - ABUTMENT (1), PIER (1)
TD 3	TYPICAL DETAILS - DECK REINFORCEMENT AT SKEWED END - ABUTMENT (2)
TD 4	TYPICAL DETAILS - PIER CAP - PLANS, ELEVATION & SCHEDULES
TD 5	TYPICAL DETAILS - PIER CAP SECTIONS & CATWALK DETAILS
TD 6	TYPICAL DETAILS - CATWALK SAFETY GRATING DETAILS
TD 7	TYPICAL DETAILS - PLAN - GIRDER CONCRETE SEAT & MISCELLANEOUS SCHEDULES
TD 8	TYPICAL DETAILS - GIRDER CONCRETE SEATS, HINGE & CREEP BLOCK, VERTICAL RESTRAINER
TD 9	TYPICAL DETAILS - RETAINING WALL
TD 10	TYPICAL DETAILS - TYPICAL ABUTMENT & WING WALL STRUCTURE EXCAVATION & BACKFILL PAYLIMITS
TD 11	TYPICAL DETAILS - TYPICAL PRESTRESSED GIRDER - TYPE PG-IV DETAILS
TD 12	TYPICAL DETAILS - CONCRETE BRIDGE RAIL & DECK EXPANSION JOINT
TD 13	TYPICAL DETAILS - ALUMINUM BRIDGE RAILING ONE RAIL COMBINATION TYPE ON PARAPET
TD 14	TYPICAL DETAILS - METAL GUARD RAIL CONNECTION ONE RAIL COMBINATION TYPE END POST
DB-100	STANDARD DETAILS - NOTES & MISCELLANEOUS DETAILS
DB-300-1	STANDARD DETAILS - PRESTRESSED CONCRETE PILES
DB-300-2	STANDARD DETAILS - PRESTRESSED CONCRETE PILES
EB-1 THRU EB-8	EXISTING BRIDGE DRAWINGS

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

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
LAND TRANSPORTATION FACILITIES DIVISION

KAINEHE & KALAPAHAPUU BRIDGES
INDEX

HAWAII BELT ROAD
Proj. No. BRF-019-2(80)
Scale : No Scale Date : Aug 1983

SHEET No. 2 OF 29 SHEETS

GENERAL NOTES

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BRF-019-2(20)	1984	62	126

DESIGN SPECIFICATIONS AASHTO:

Standard Specifications for Highway Bridges (12th Edition) with subsequent interim specifications.

DESIGN LOADS:

HS-20-44 or Interstate loading.

DESIGN STRESSES:

1. Cast in place reinforced concrete - See AASTHO Specifications and Special Provisions except as otherwise noted.

Class A & BD	All Others
f'c = 3,000 psi	5,000 psi
fc = 1,200 psi	2,000 psi
n = 10	6.6
fs = ASTM A615,	See Special Provisions.

2. Prestressed Concrete:

Girders	f'c	= 5,500 psi at 28 days.
	fci	= 4,000 psi at transfer.
Precast Piles	f'c	= 5,000 psi at 28 days.
	fci	= 3,500 psi at transfer.

3. Prestressed strands shall be 270 KSI ultimate strength 7 wire, stress-relieved steel strands, 1/2" ϕ (area = 0.153 in²) for girders. 7-1/2" ϕ (area = 0.153 in²) strands for piles.
   Initial loss = 10% of jacking force
   Total loss other than friction = 45,000 psi

4. Pile capacity - 50 Tons. - Precast.
   - 40 Tons. - Cast in place.

MATERIALS:

1. Except as otherwise noted on plans:
   a. 1. Bridge deck slab concrete shall be Class BD.
   2. Pier footing, column pedestals and cast-in-place pile concrete shall be f'c = 5,000 psi.
   3. All other concrete shall be Class A. (Includes Abut. & Wing Wall Footings)
   b. Reinforcing steel for cast-in-place concrete shall be ASTM A615 Grade 40 or as otherwise noted.
   c. Concrete for precast prestressed concrete girders - see Standard Specifications and as noted under Design Stresses.
2. Concrete in precast prestressed concrete girders shall have a cement content of not less than 7.0 sacks but no more than 8.5 sacks per cubic yard.
3. All elastomeric bearing pads, neoprene preformed fabric bearing pads, premolded joint filler, vertical restrainer assemblages and pipe hanger inserts shall be incidental to concrete and will not be paid for separately.
4. See Specifications for admixture in concrete.
5. Piles shall be prestressed concrete piles Type I - See Standard Details sheet Nos. DB-300-1, DB-300-2 or cast-in-place see Detail Plans on sheet Nos.

CONSTRUCTION METHOD:

1. See Standard Specification for Road & Bridge Construction, 1976 Edition and Special Provisions.
2. In general, top of concrete deck of superstructure shall be constructed to follow the finish roadway vertical and horizontal curves and grades. See Highway plans.
3. For concrete finish, see Special Provisions. Girder concrete seats, hinge and creep blocks to be poured monolithically with the supporting structures. Top surfaces of concrete seats to have hard trowel finish.
4. Except as otherwise noted, all vertical dimensions are measured plumb.
5. Abutment, Wingwall and Pier Footings shall be excavated and poured neat against undisturbed ground. In case of over excavation, space between footing and ground shall be filled with concrete at the Contractors expense and as directed by the Engineer. The minimum quality of the fill concrete shall be Class D.
6. Piles shorter than 100' shall not be spliced.

REFERENCE:

1. Refer to Standard Detailed Drawings for additional details not covered by detailed and typical drawings.

GENERAL:

1. All items noted incidental will not be paid for separately.
2. The Contractor shall verify the locations of all existing utility lines and notify their respective owners before commencing with work.
3. All preformed elastomeric bearing pads and preformed fabric bearing pads shall be secured against displacement with adhesives approved by the Engineer.
4. Except as otherwise noted on plans, all exposed exterior corners 90° or less shall be chamfered 3/4" x 3/4". All exposed exterior corners greater than 90° shall not be chamfered. Round all finish corners 1/4" radius unless noted otherwise.
5. Exact location of bars shall be so arranged so that no interference will occur between vertical column reinforcement and bottom pier cap horizontal reinforcement.
6. All falsework & bracing schemes for all phases of construction shall be prepared by or under the supervision of an Engineer who is registered as a Structural Engineer in the State of Hawaii.

SYMBOLS AND ABBREVIATIONS

Detail or Section designation: Sht. no. detail is cut or det. location; F; 20/25; sht. No. detail is drawn.

Deck slab main reinforcement direction between supports.

(E) - Expansion
(F) - Fixed

① ② Location concrete sest line number.
Boring number and designation.
Pier column number
(11) - Hinged.

A Adj. - Adjacent
Abut. - Abutment
Alt. - Alternate
Alum. - Aluminum
Approx. - Approximate
Az. - Azimuth

B Bal. - Balance
Bet. - Between
Bot., bott. - Bottom
Bm, bm - Beam

C Cl. - Clear
Cont. - Continuous
Const. - Construction
Contr. - Control
Comp. - Composition
Corresp. - Corresponding
Conc. - Concrete
Col. - Column
℄ - Center Line

D Det. - Detail
Diag. - Diagonal

E Ea. - Each
Eq. - Equal
El., Elev. - Elevation
E.P. - Edge Pavement

E Exist. - Existing
Exc. - Excavation
Ext. - Exterior

F Fin. - Finish
Ftg. - Footing

G Galv. - Galvanize

H h - Height
Horiz. - Horizontal
Hwy - Highway

I Inv. - Invert
Int. - Interior

J Jt. - Joint

L Lg. - Long
Longit. - Longitudinal
Lt. - Left

M Max. - Maximum
Min. - Minimum

N No., # - Number

P P.G. IV - Prestressed Girder Type

R R - Radius
Ref. - Reference
Reinf - Reinforcement
Rt. - Right
Ret. - Retaining
Reqd - Required

S Symm. - Symmetrical
Sht. - Sheet
Sta. - Station
Stirr. - Stirrups
Sect. - Section
Std. - Standard
Struct. - Structure
Str. - Straight
Spcs. - Spaces

T Typ - Typical
T&S - Top Slab Strip Reinforcement Type

V Vert. - Vertical

W W.P. - Working Point
W.W. - Wing Wall

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

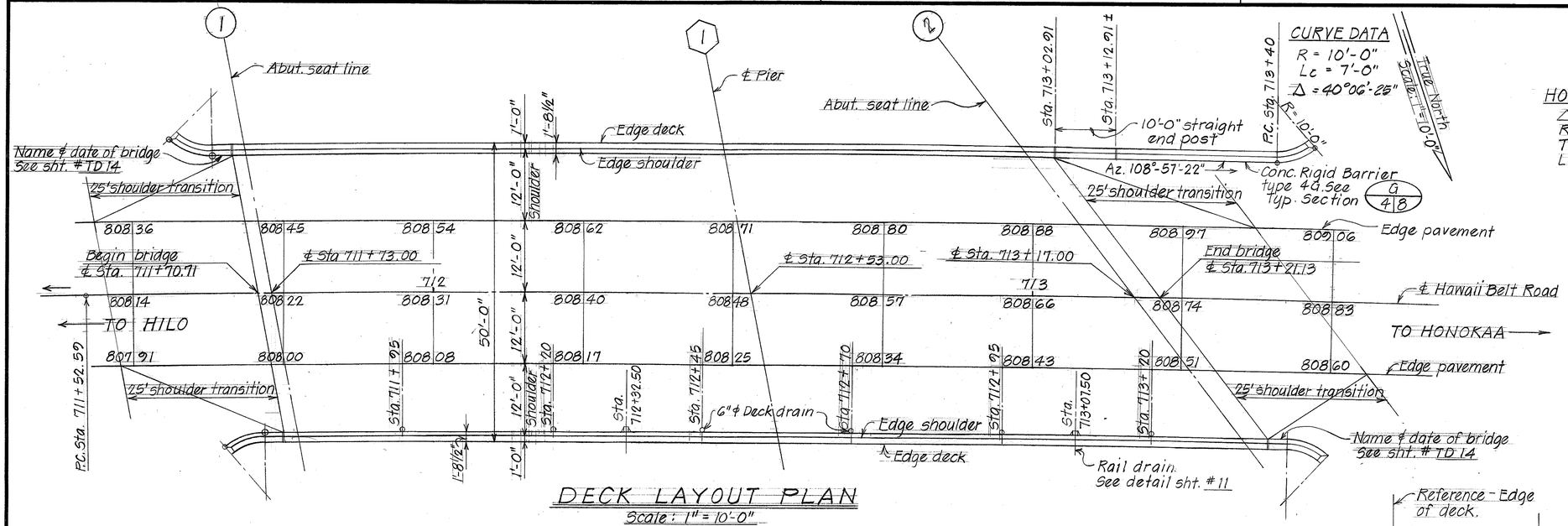
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
LAND TRANSPORTATION FACILITIES DIVISION

KAINEHE & KALAPAHAPUU BRIDGES
GENERAL NOTES, SYMBOLS AND ABBREVIATIONS
HAWAII BELT ROAD
Proj. No. BRF-019-2(20)

Scale: As Noted Date: Aug 1983

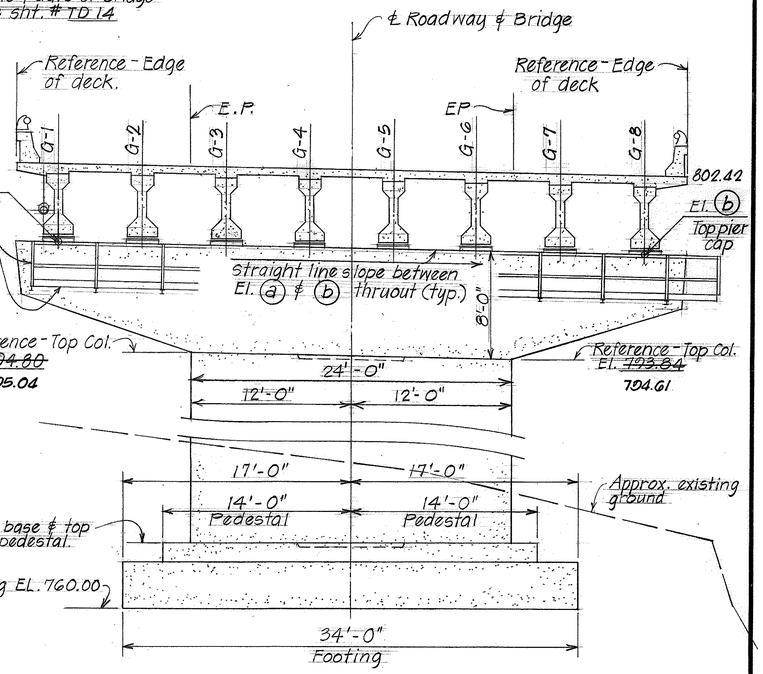
SHEET No. 3 OF 20 SHEETS

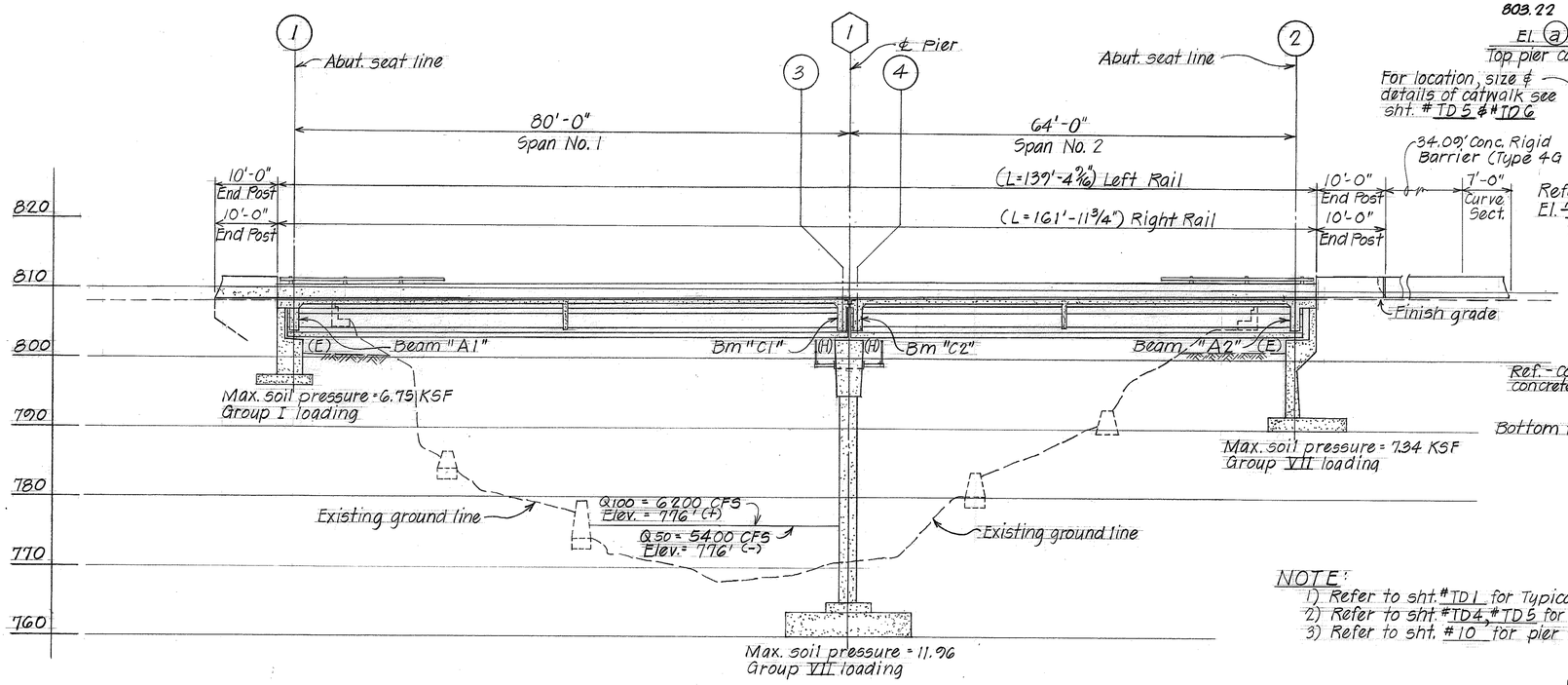
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BRF-019-2(20)	1984	63	126



DECK LAYOUT PLAN

Scale: 1" = 10'-0"





LONGITUDINAL SECTION ALONG ℄ ROADWAY

Scale: 1" = 10'-0"

ELEVATION — PIER LINE 1

Scale: 3/16" = 1'-0"

NOTE:
1) Refer to sht. # TD 1 for Typical Deck Section.
2) Refer to sht. # TD 4, # TD 5 for pier cap dimensions, reinf. details
3) Refer to sht. # 10 for pier footing & column reinf. & details.

Date	Revision
6/20/84	Added - Rail drain at Sta. 712+32.50, Sta. 713+07.50

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
LAND TRANSPORTATION FACILITIES DIVISION

KALAPAHAPUU BRIDGE
LAYOUT PLAN, LONGITUDINAL DECK SECTION, ELEVATION - PIER 1
HAWAII BELT ROAD
Proj. No. BRF-019-2(20)

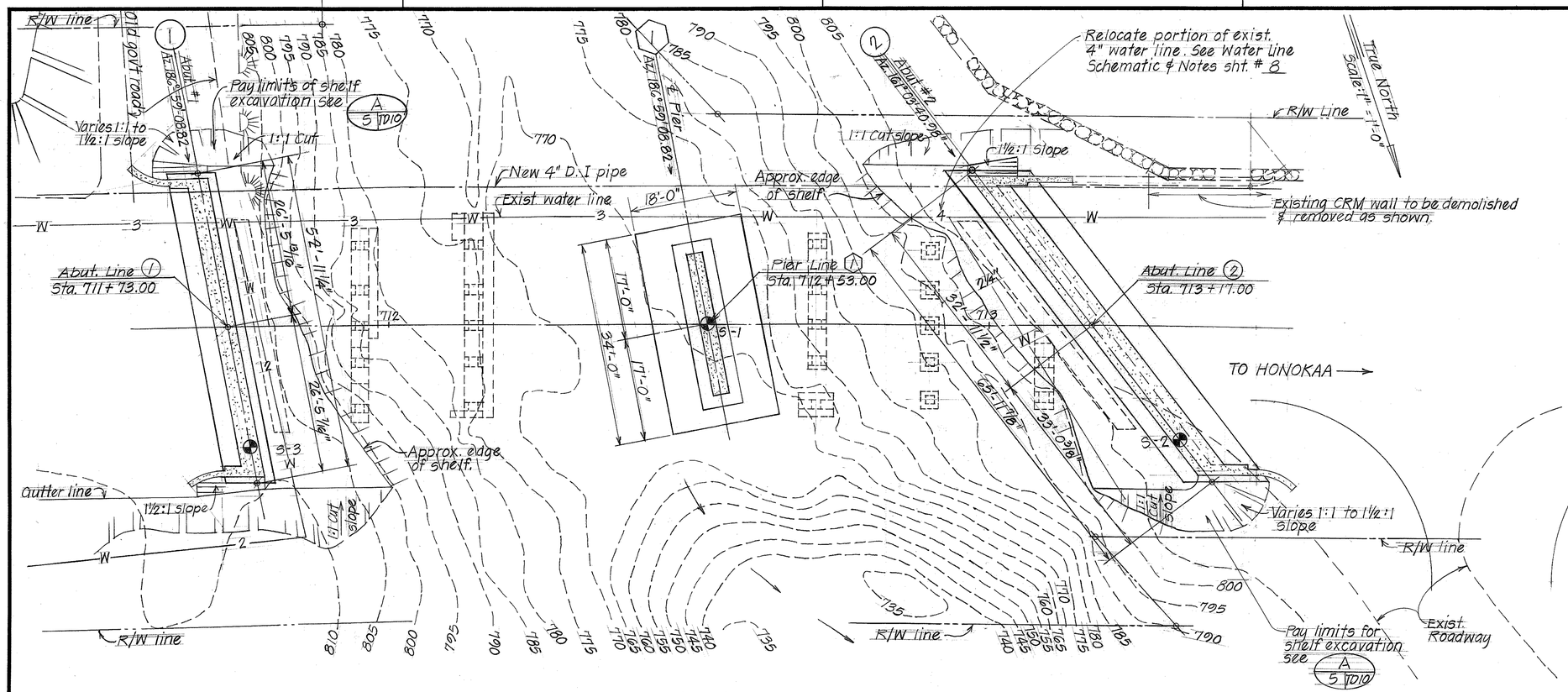
Scale: As Noted Date: Aug 1983

SHEET No. 4 OF 29 SHEETS

ORIGINAL PLAN
SURVEY PLOTTED BY:
DRAWN BY: LMA
TRACED BY:
DESIGNED BY: D.C.O.
QUANTITIES BY: LM
CHECKED BY: GKY
DATE:
NOTE BOOK
No.

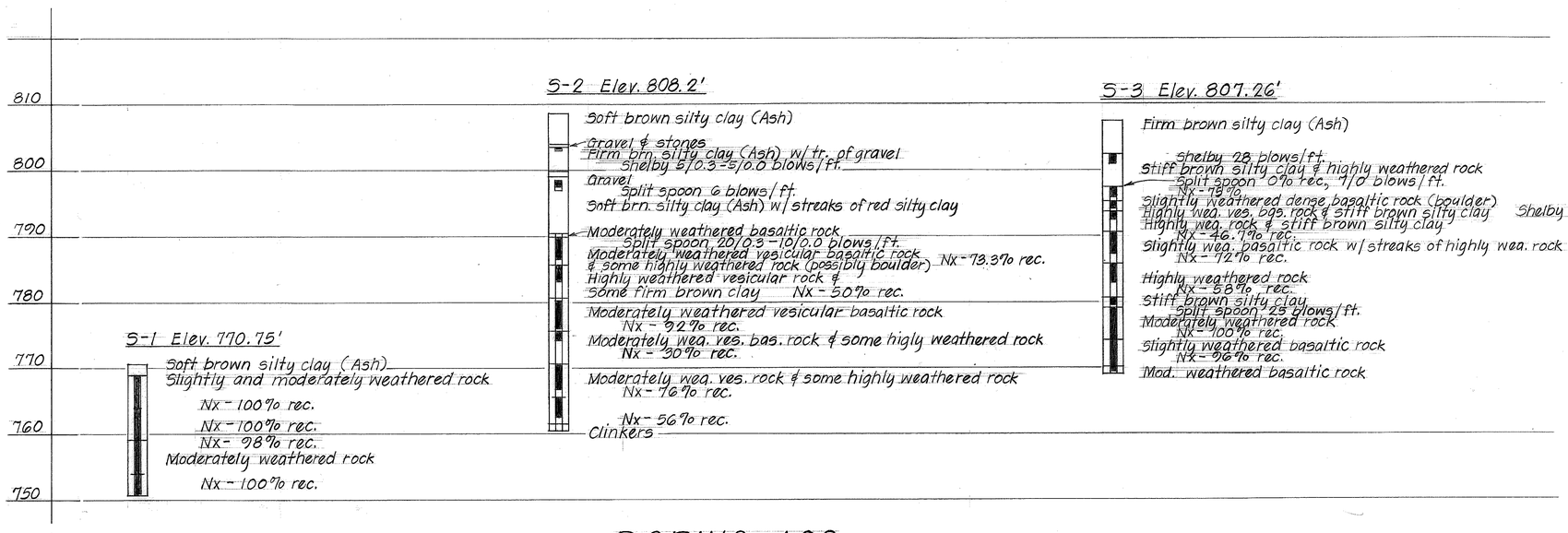
C.O. 63

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BRF-019-2(20)	1984	64	126



FOUNDATION PLAN

Scale: 1"=10'-0"



BORING LOG

NOTE:

1. The boring data furnished in these plans are the results of the facts gathered at the specific locations indicated to primarily aid in the design of the structure, and does not necessarily typify conditions at other locations.
2. The Department assumes no responsibility for sufficiency of boring data or the prevalance of conditions similar to that indicated by the boring data.

ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
	DRAWN BY LMA	"
NOTE BOOK	TRACED BY E.N., D.C.O	"
No.	DESIGNED BY LMA, LN	"
	QUANTITIES BY	"
	CHECKED BY CRY	"

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
LAND TRANSPORTATION FACILITIES DIVISION

KALAPAHAPUU BRIDGE

FOUNDATION PLAN
BORING LOG

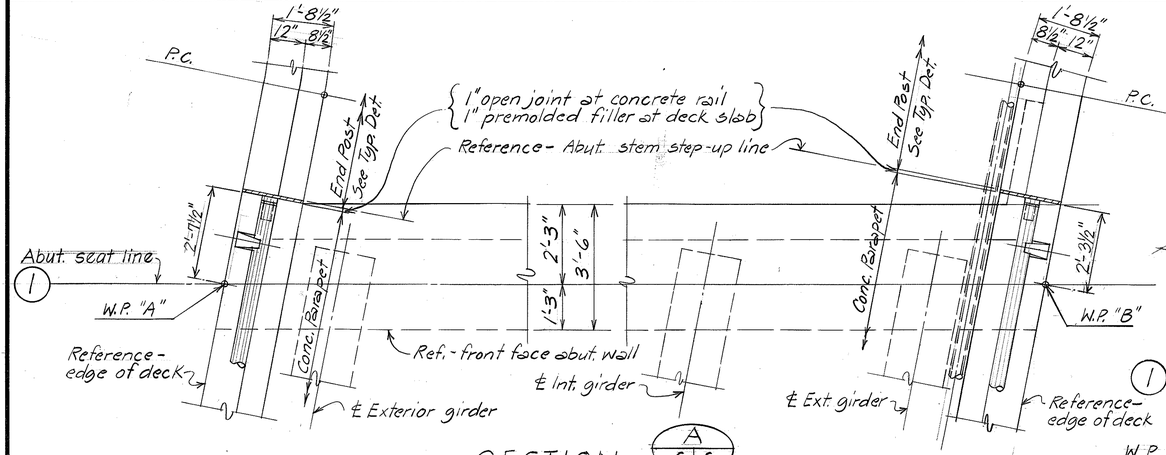
HAWAII BELT ROAD
Proj. No. BRF-019-2(20)

Scale: As Noted Date: Aug 1983

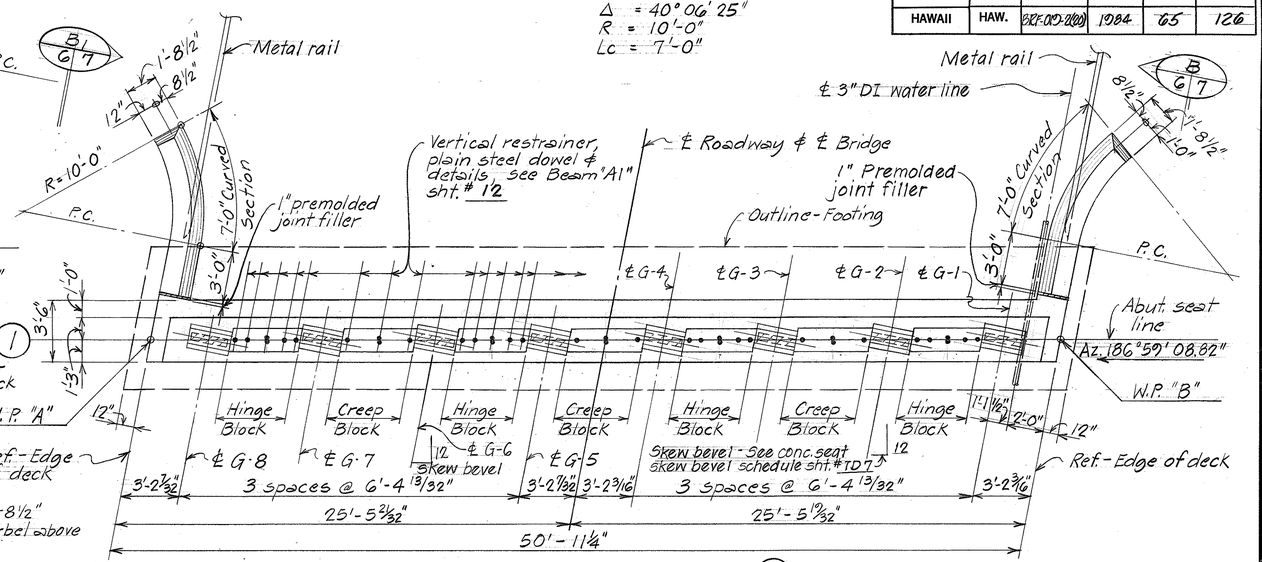
SHEET No. 5 OF 20 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BRF-019-2(80)	1984	65	126

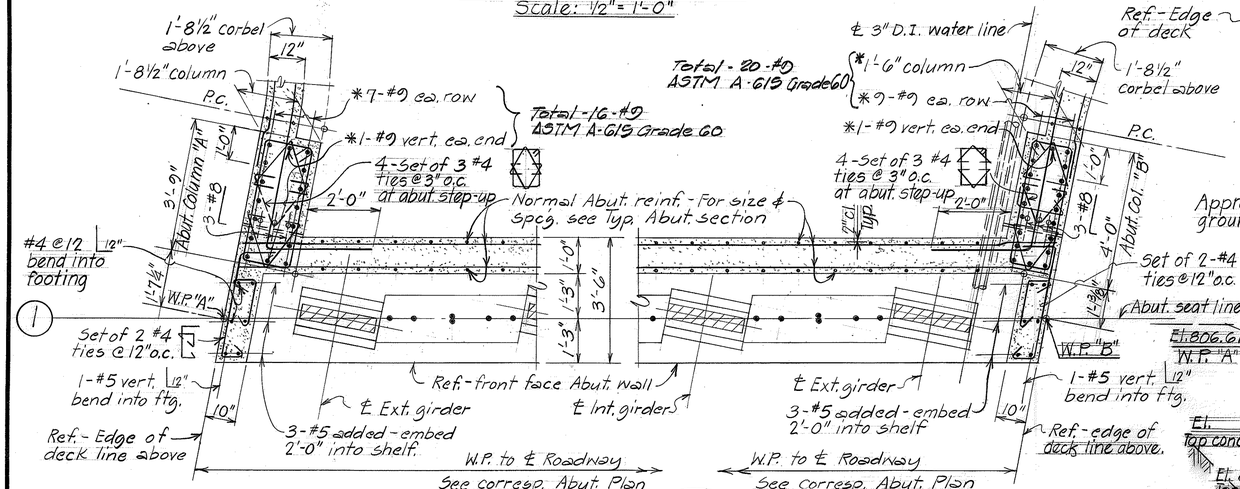
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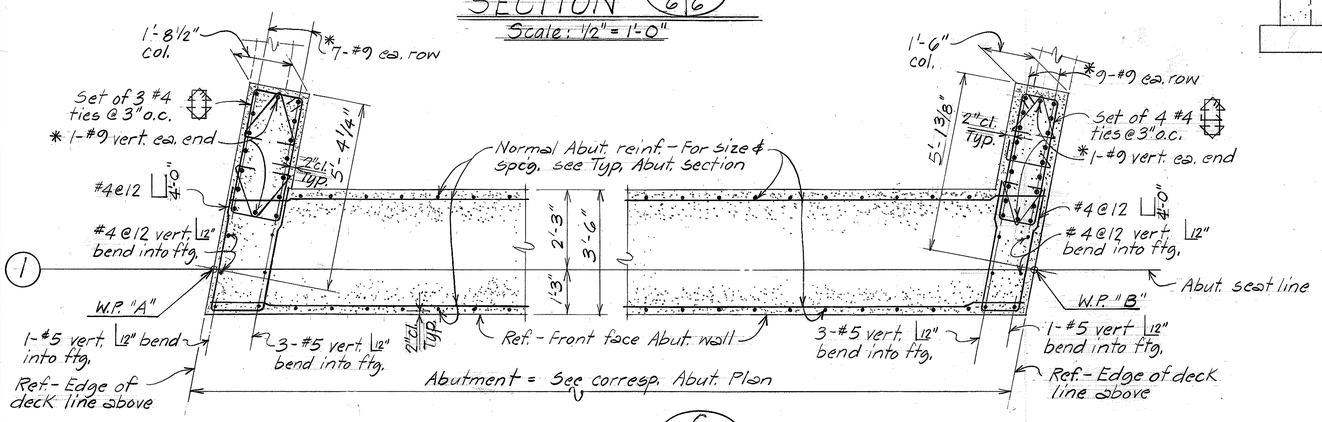
SECTION (A 6|6)
Scale: ½" = 1'-0"



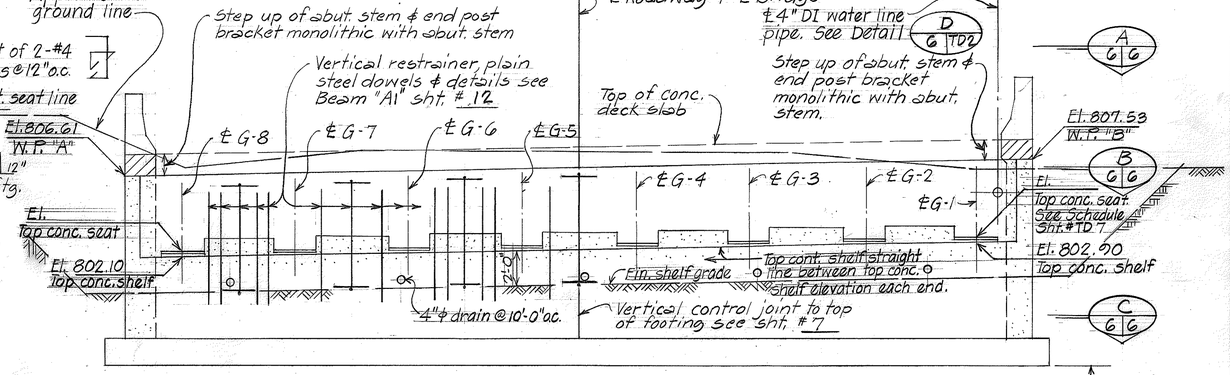
TOP PLAN - ABUTMENT (1) Scale: ¼" = 1'-0"



SECTION (B 6|6)
Scale: ½" = 1'-0"



SECTION (C 6|6)
Scale: ½" = 1'-0"



ELEVATION - ABUTMENT (1) Scale: ¼" = 1'-0"

NOTE:
1) Bridge deck & superstructure not shown.
2) For concrete seat, creep block & hinge block detail see sht. # TD 8.
* 3) Abutment No. 1 Column "A" & "B" - #9 vert. bars shall be Grade 60.

ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
NOTE BOOK	DRAWN BY L.A.	
No.	TRACED BY	
	DESIGNED BY D.C.O.	
	QUANTITIES BY	
	CHECKED BY C.R.Y.	

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
LAND TRANSPORTATION FACILITIES DIVISION

KALAPAHAPUU BRIDGE

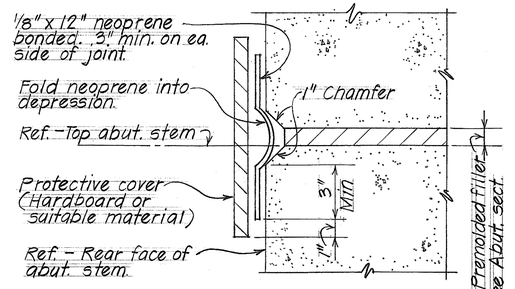
ABUTMENT (1) PLAN, ELEVATION & SECTIONS

HAWAII BELT ROAD
Proj. No BRF-019-2(80)

Scale: As Noted Date: Aug 1983

SHEET No. 6 OF 20 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BRF-019-2(20)	1984	66	126



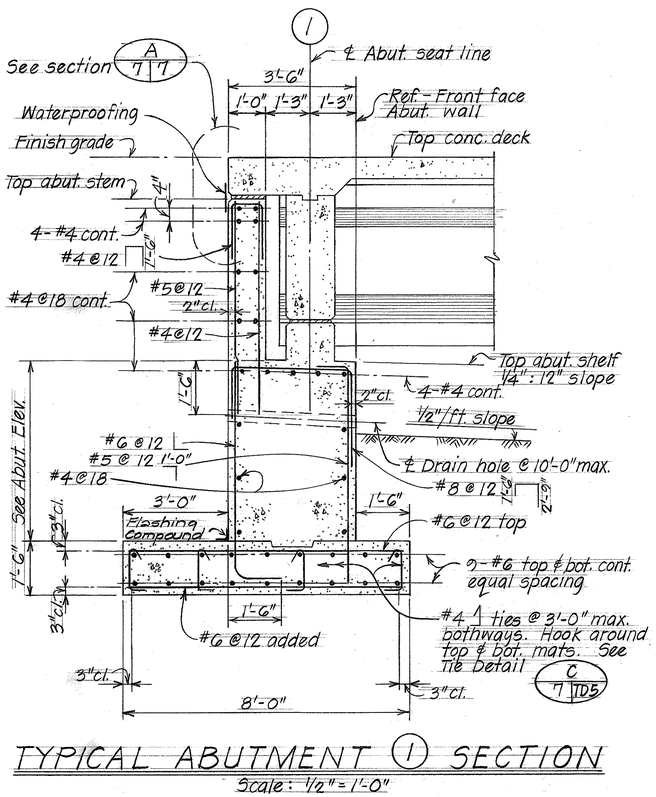
TYPICAL WATERPROOFING DETAIL

A 7|7

Not to scale

8, 12, 13, 18, 19, 26

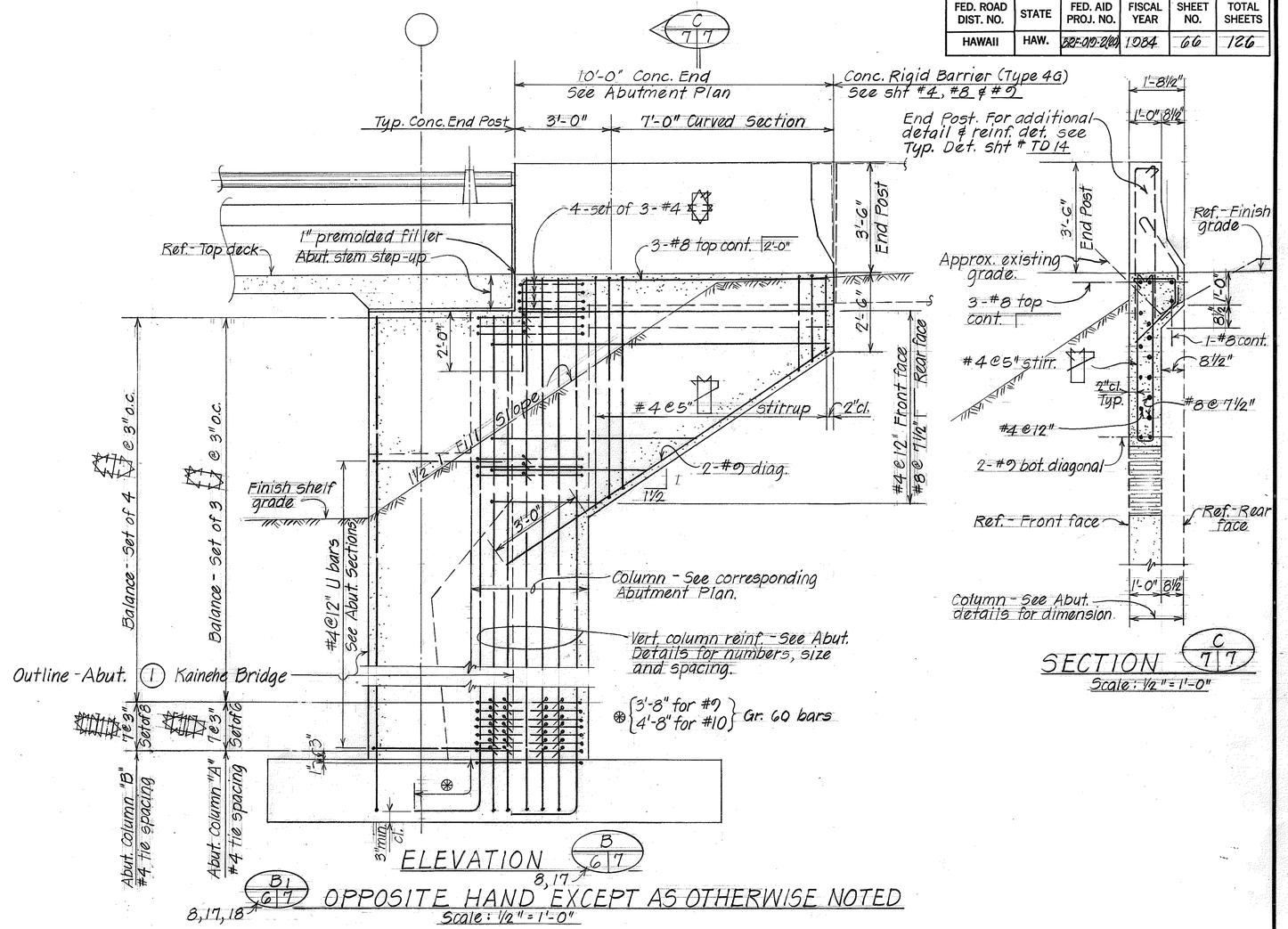
Note: Waterproofing assemblage incidental to concrete.



TYPICAL ABUTMENT (1) SECTION

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

SURVEY PLOTTED BY	DATE
DRAWN BY	L.M.A.
TRACED BY	" "
DESIGNED BY	D.C.O., S.A.
QUANTITIES BY	" "
CHECKED BY	C.R.Y.
ORIGINAL PLAN	
NOTE BOOK	
No.	



SECTION

C 7|7

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

ELEVATION

B 6|7

8, 17

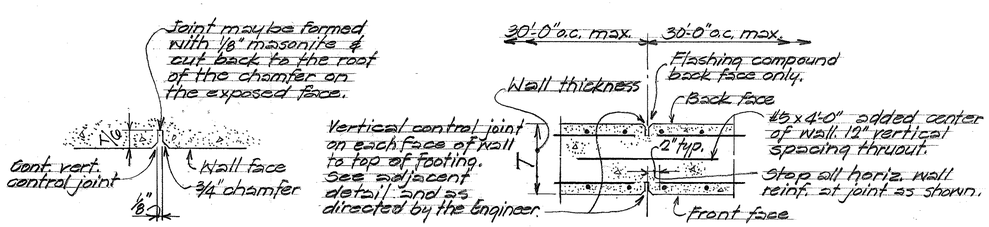
B1 6|7

8, 17, 18

OPPOSITE HAND EXCEPT AS OTHERWISE NOTED

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

TYPICAL - ABUTMENT COLUMN & END POST BRACKET DETAILS



CONTROL JOINT DETAILS

Scale: No Scale

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
LAND TRANSPORTATION FACILITIES DIVISION

KALAPAHAPUU BRIDGE

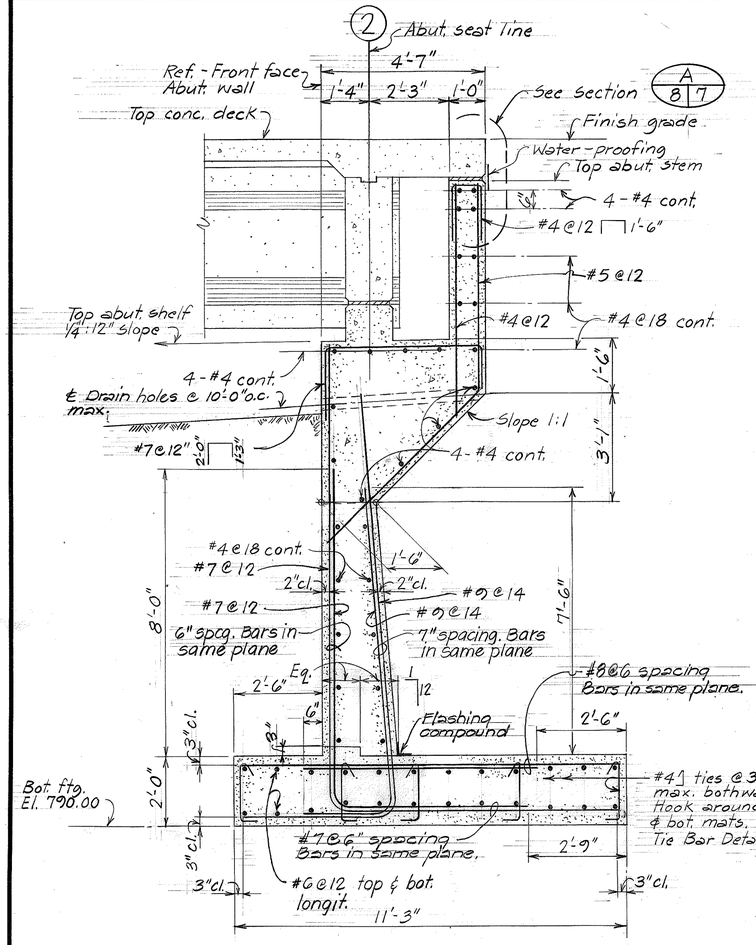
TYPICAL ABUTMENT (1) SECTION
TYPICAL - ABUT. COLUMN & END POST BRACKET DETAILS

HAWAII BELT ROAD
Proj. No. BRF-019-2(20)

Scale: As Noted Date: Aug 1983

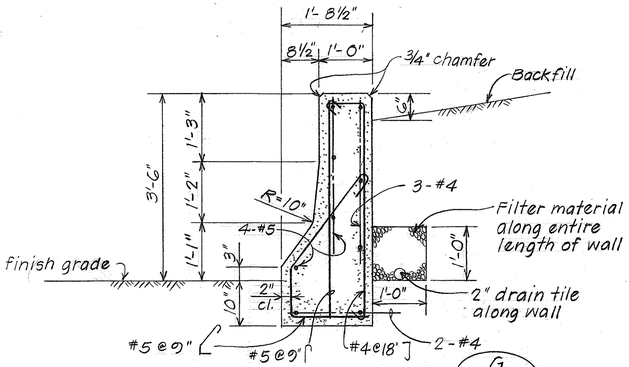
SHEET No. 7 OF 20 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BRF-019-2(60)	1984	67	126



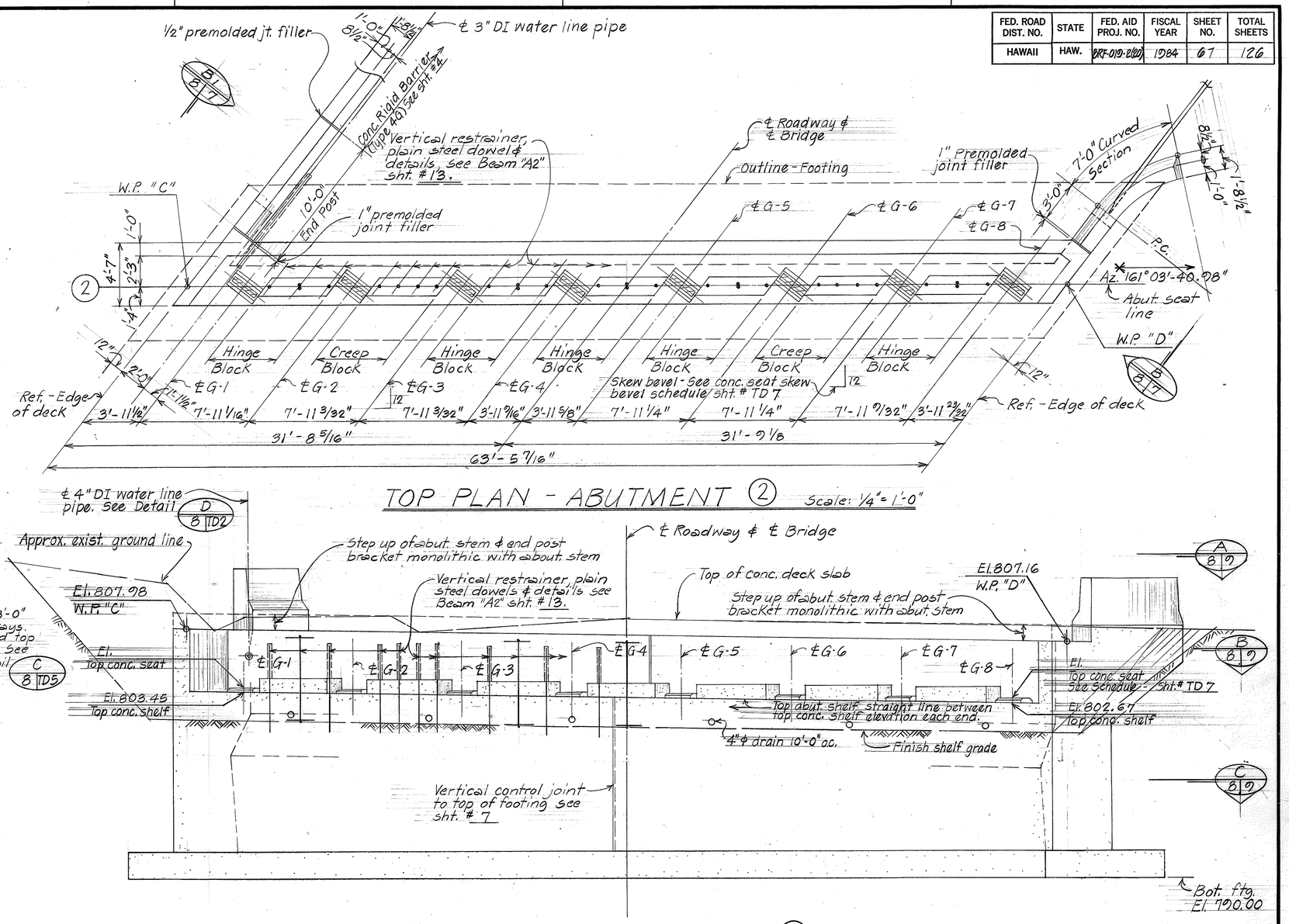
TYPICAL ABUTMENT ② SECTION

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



TYPICAL SECTION CONC. RIGID BARRIER (TYPE 4G)

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



TOP PLAN - ABUTMENT ② Scale: 1/4" = 1'-0"

ELEVATION - ABUTMENT ② Scale: 1/4" = 1'-0"

NOTES:

1. Bridge deck & superstructure not shown.
2. For concrete seat hinge block, & creep block detail see sht. # TD8 .

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

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
LAND TRANSPORTATION FACILITIES DIVISION

KALAPAHAPUU BRIDGE

ABUTMENT ②

PLAN, ELEVATION & TYP. SECTION

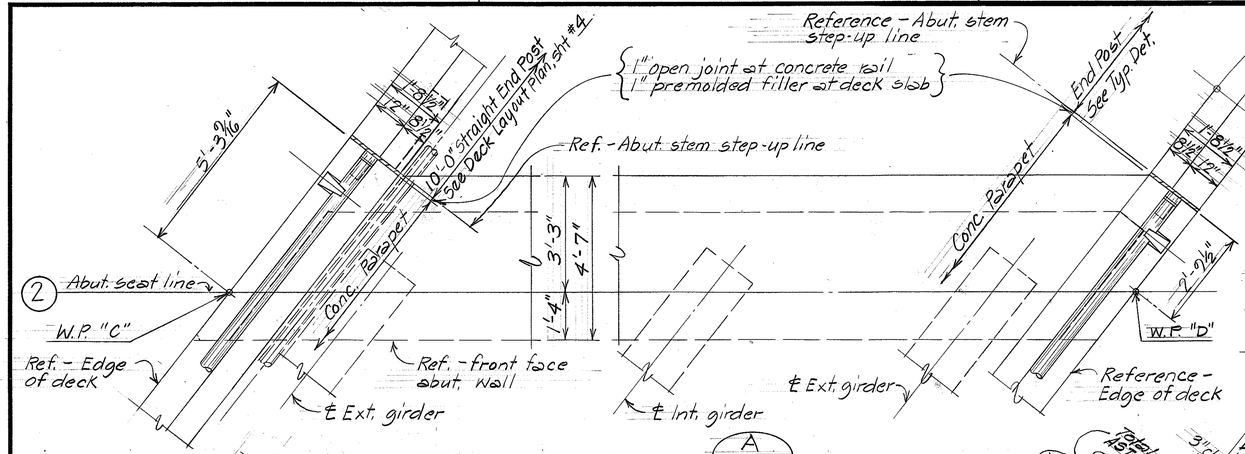
HAWAII BELT ROAD

Proj. No. BRF-019-2(60)

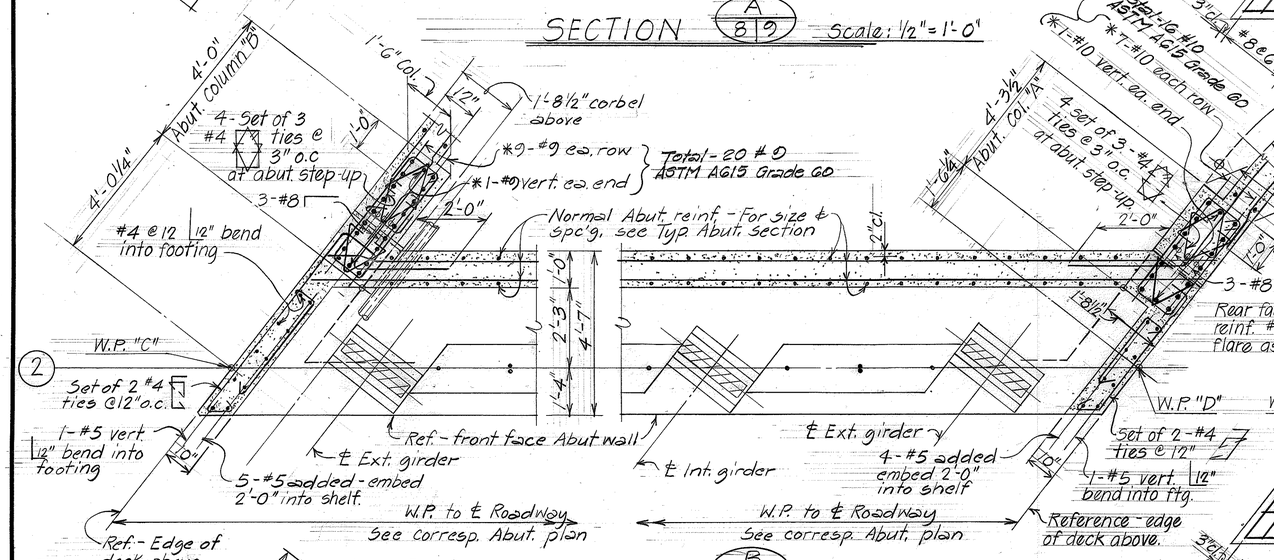
Scale: As noted Date: Aug 1983

SHEET No. 8 OF 29 SHEETS

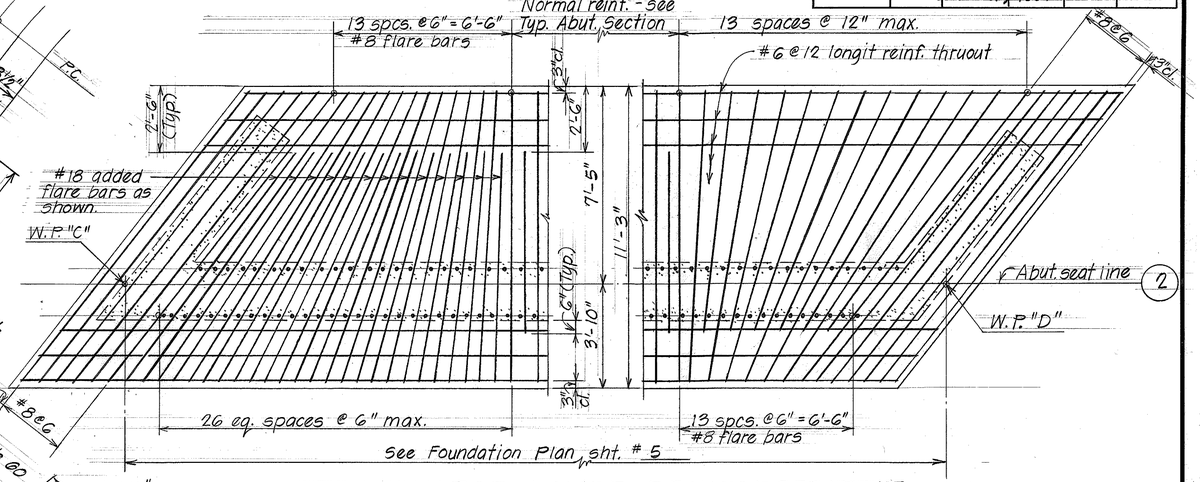
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BRF-019-2(20)	1984	68	126



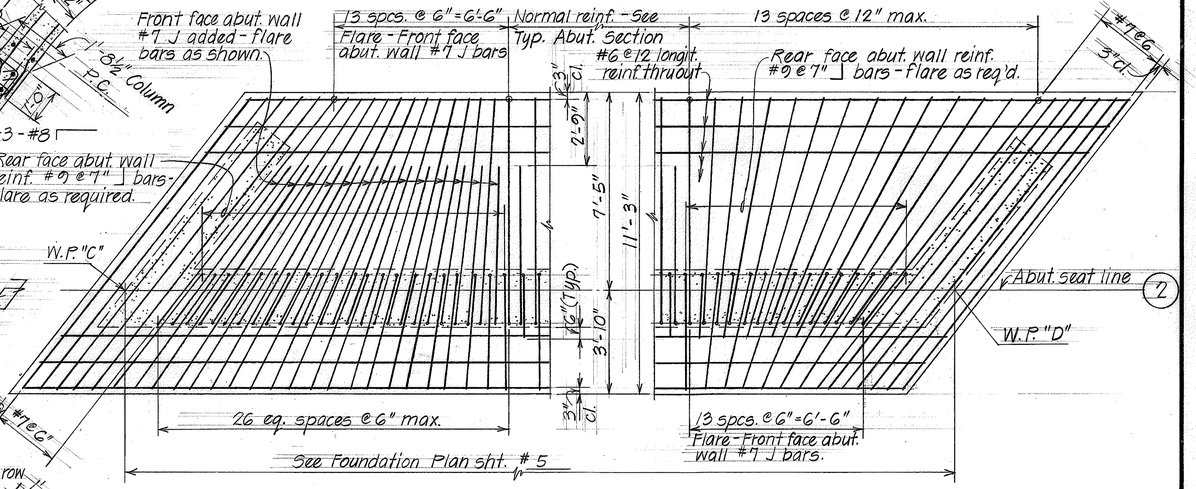
SECTION A (8|9) Scale: 1/2" = 1'-0"



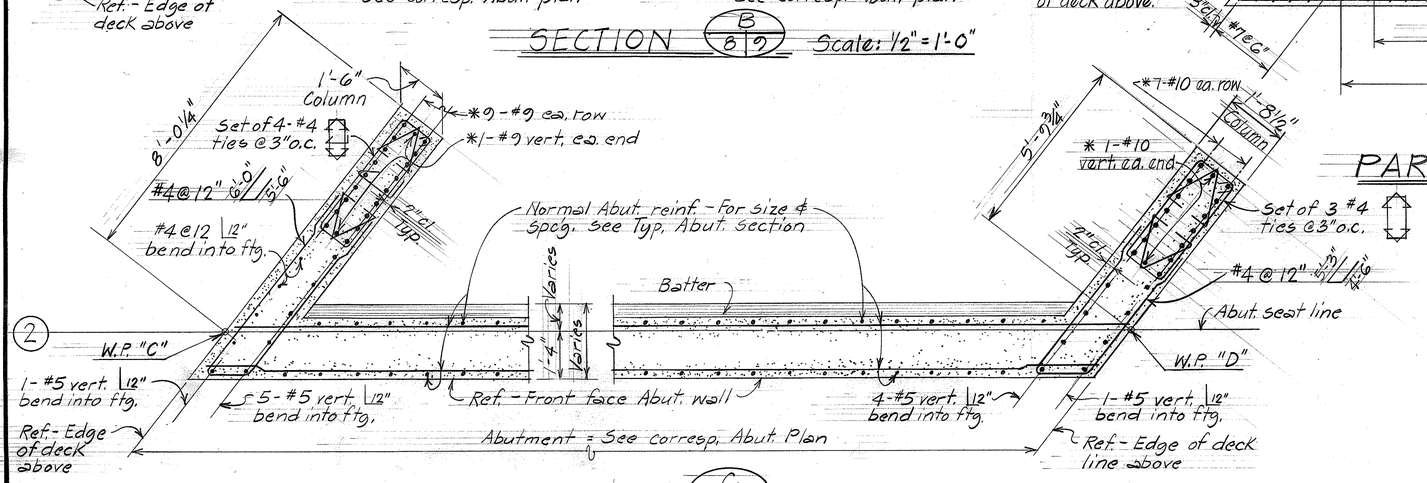
SECTION B (8|9) Scale: 1/2" = 1'-0"



TOP LAYER REINFORCEMENT



BOTTOM LAYER REINFORCEMENT



SECTION C (8|9) Scale: 1/2" = 1'-0"

PART PLAN - ABUTMENT (2) FOOTING REINFORCEMENT

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

NOTE:

*1. Abutment No. 2 Column "A" #10 vertical bars & Column "B" #9 vertical bars shall be Grade 60.

ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
	DRAWN BY L.M.	"
	TRACED BY	"
NOTE BOOK	DESIGNED BY D.C.O.	"
	QUANTITIES BY L.M.	"
No.	CHECKED BY GRY	"

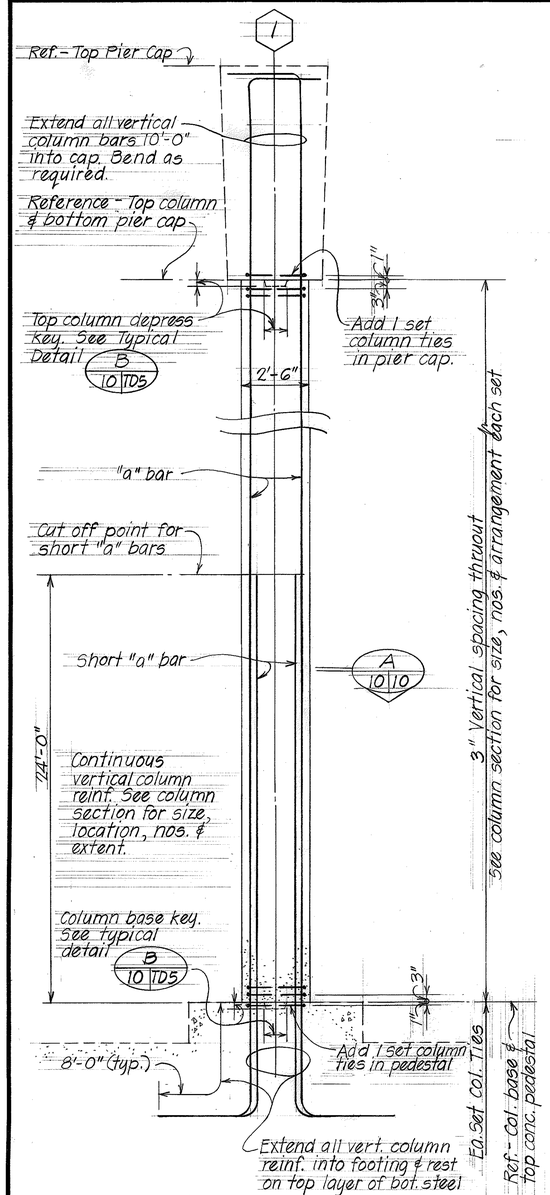
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
LAND TRANSPORTATION FACILITIES DIVISION

KALAPAHAPUU BRIDGE
ABUTMENT (2) SECTIONS & PART PLAN - FOOTING REINFORCEMENT
HAWAII BELT ROAD
Proj. No. BRF-019-2(20)

Scale: As Noted Date: Aug 1983

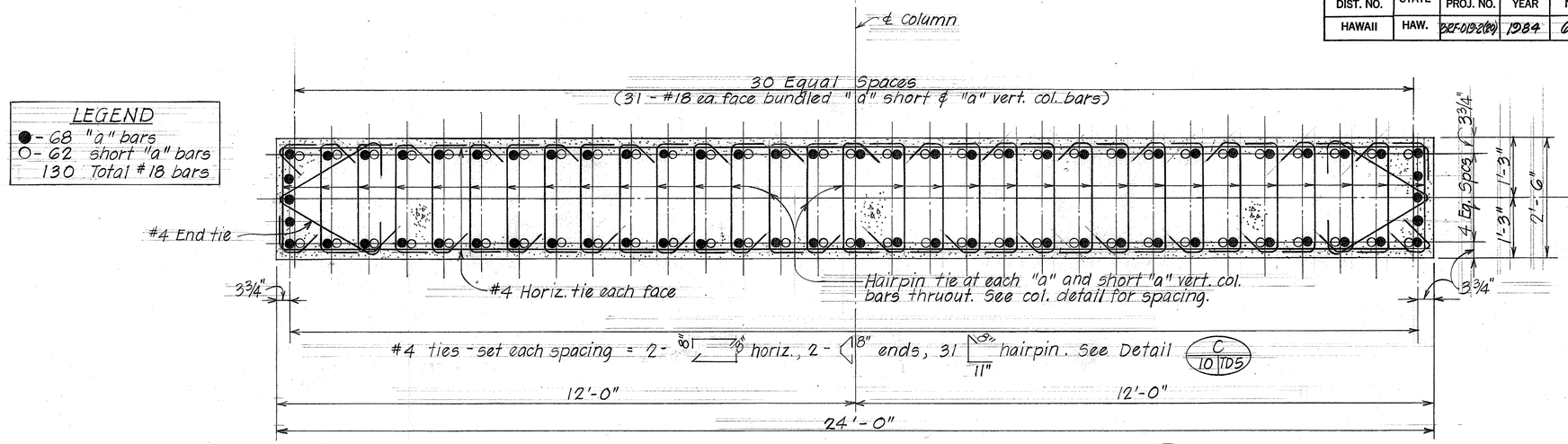
SHEET No. 9 OF 29 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BRF-0192(20)	1984	69	126



TYPICAL PIER COLUMN DETAIL

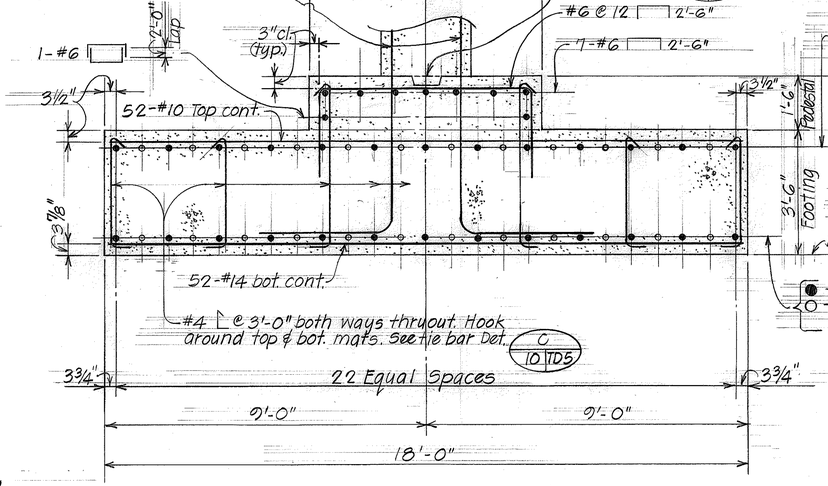
Not to scale

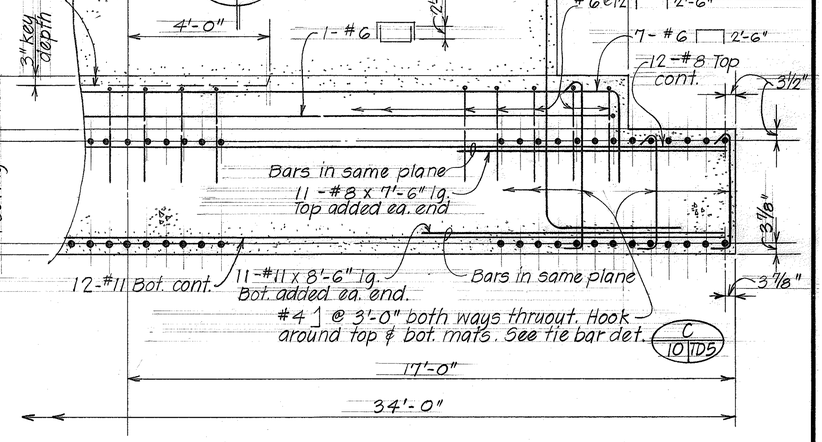


TYPICAL PIER COLUMN SECTION

A 10 10

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





ELEVATION - TYPICAL PIER FOOTING

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

NOTE:

1) Refer to sht. #TD4, #TD5 for pier cap dimensions reinforcement detail.
2) All column & footing reinforcement steel shall be ASTM A615 grade 60.
3) Alternate column ties - Hook location on opposite end each layer.
4) Pier column footing & pedestal concrete shall be f'c = 5000psi

ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
	DRAWN BY LMA	
	TRACED BY	
NOTE BOOK	DESIGNED BY D.C.O. E.N.	
No.	QUANTITIES BY LMA	
	CHECKED BY CRY	

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
LAND TRANSPORTATION FACILITIES DIVISION

KALAPAHAPUU BRIDGE

PIER 1

COLUMN & FOOTING DETAILS

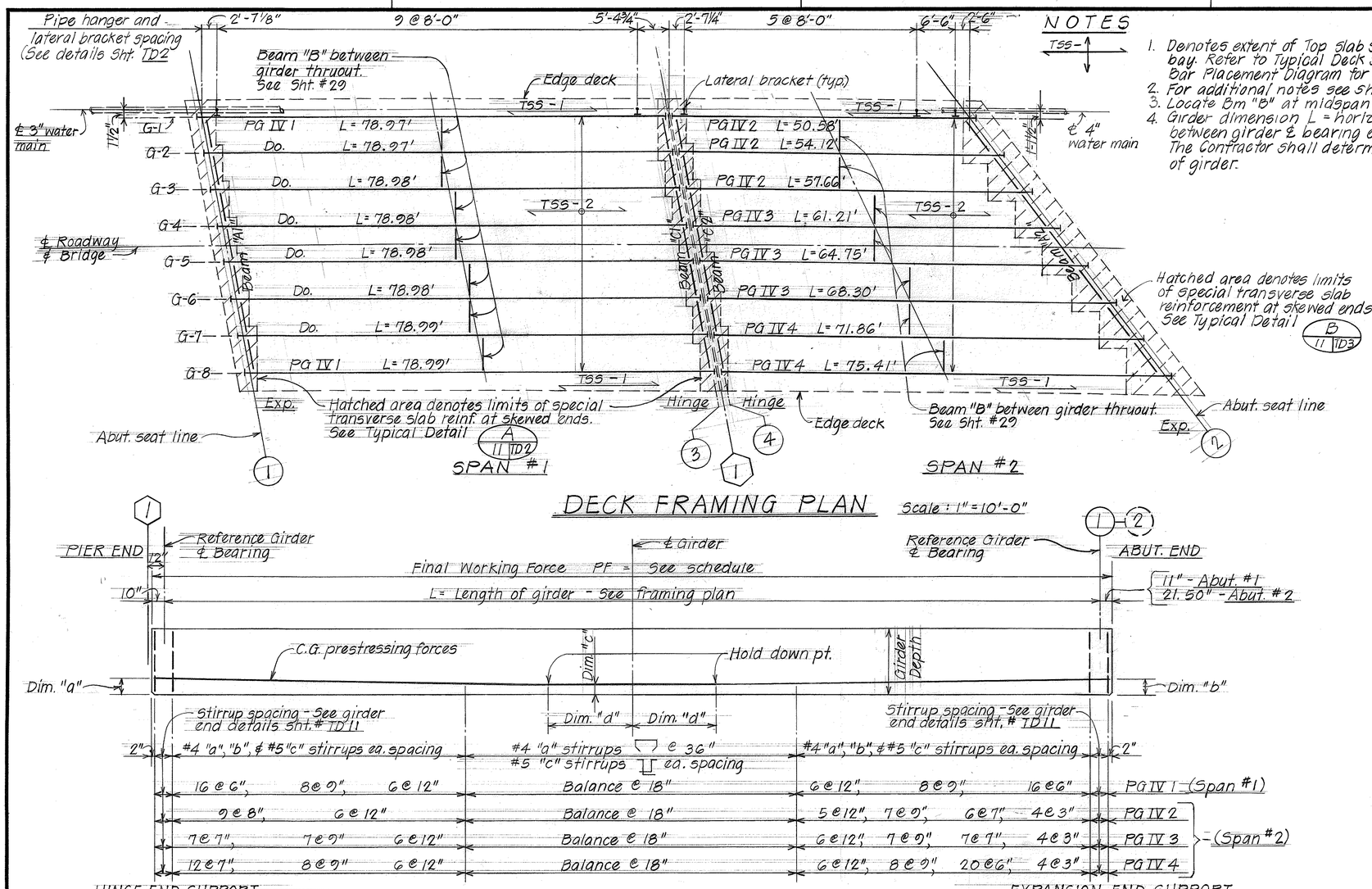
HAWAII BELT ROAD

Proj. No. BRF-019-2(20)

Scale: As Noted Date: Aug 1983

SHEET No. 10 OF 20 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BRG-019-2(20)	1984	70	126



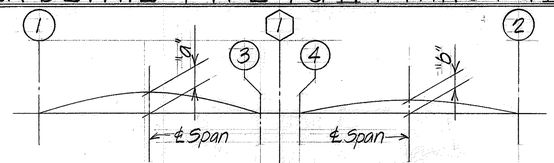
DECK FRAMING PLAN

Scale: 1" = 10'-0"

DIAGRAM - TYPICAL PRESTRESSED GIRDER DETAIL TYPE PG IV 1 THRU PG IV 4

PRESTRESSED CONCRETE GIRDER PG IV - SCHEDULE

GIRDER TYPE	DIMENSIONS "a"	"b"	"c"	"d"	FINAL WORKG FORCE PF
PG IV 1	13 1/2"	13 1/2"	5 5/8"	8'-0"	740.02
PG IV 2	13 1/2"	13 1/2"	8 1/4"	5'-0"	440.60
PG IV 3	13 1/2"	13 1/2"	7 9/16"	6'-0"	572.78
PG IV 4	13 1/2"	13 1/2"	6 3/8"	7'-6"	704.96



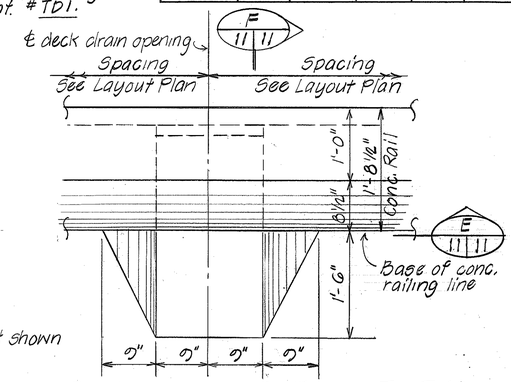
SLAB CAMBER DIAGRAM

Location \ Girders	G-1	G-2	G-3	G-4	G-5	G-6	G-7	G-8
"a"	1/2"	7/16"	7/16"	7/16"	7/16"	7/16"	7/16"	1/2"
"b"	1/8"	1/8"	1/8"	3/16"	3/16"	1/4"	5/16"	7/16"

NOTES

TSS - 1

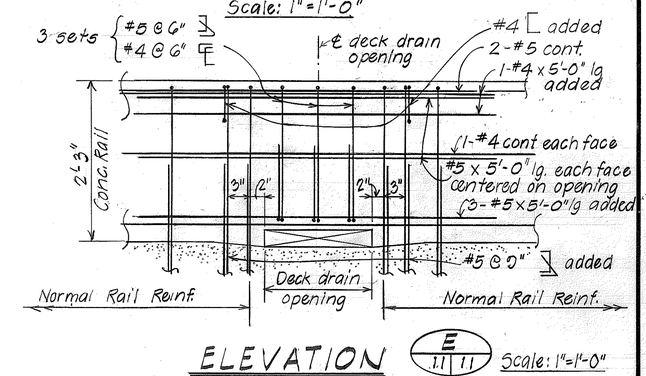
1. Denotes extent of Top Slab Strip (TSS-) between girders each bay. Refer to Typical Deck Slab Sections and corresponding Bar Placement Diagram for size and numbers sht. # TD1.
2. For additional notes see Sht. # TD1
3. Locate Bm "B" at midspan as indicated on plan.
4. Girder dimension L = horizontal measurement between girder & bearing each end of girder. The Contractor shall determine total length of girder.



NOTE:
Metal rail not shown

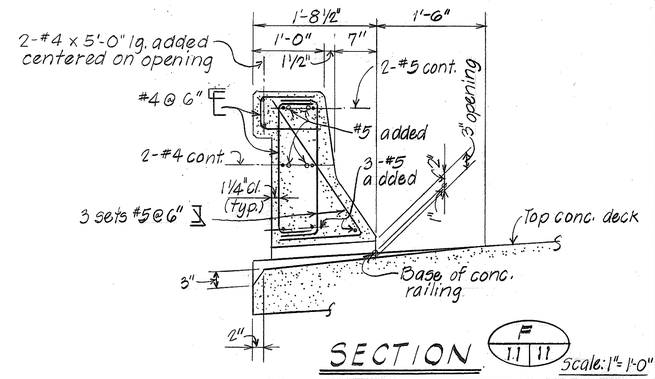
TYP PLAN - DECK DRAIN DETAIL AT RAIL

Scale: 1" = 1'-0"



ELEVATION

E 11 11 Scale: 1" = 1'-0"



SECTION

F 11 11 Scale: 1" = 1'-0"

Date	Revision
6/20/84	Added - Typ. Details - Deck Drain at Rail

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
LAND TRANSPORTATION FACILITIES DIVISION

KALAPAHAPUU BRIDGE
DECK FRAMING PLAN
PRESTRESSED GIRDER DETAIL
SLAB CAMBER DIAGRAM
HAWAII BELT ROAD
Proj. No. BRG-019-2(20)

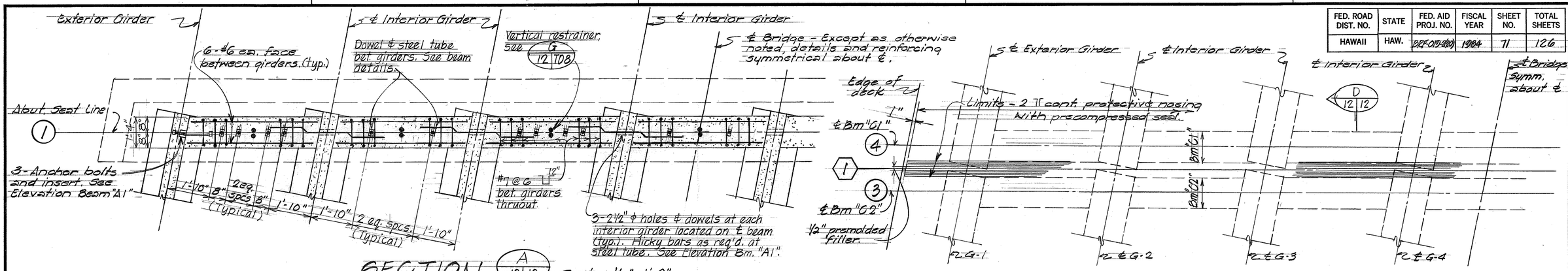
Scale: As Noted Date: Aug 1983

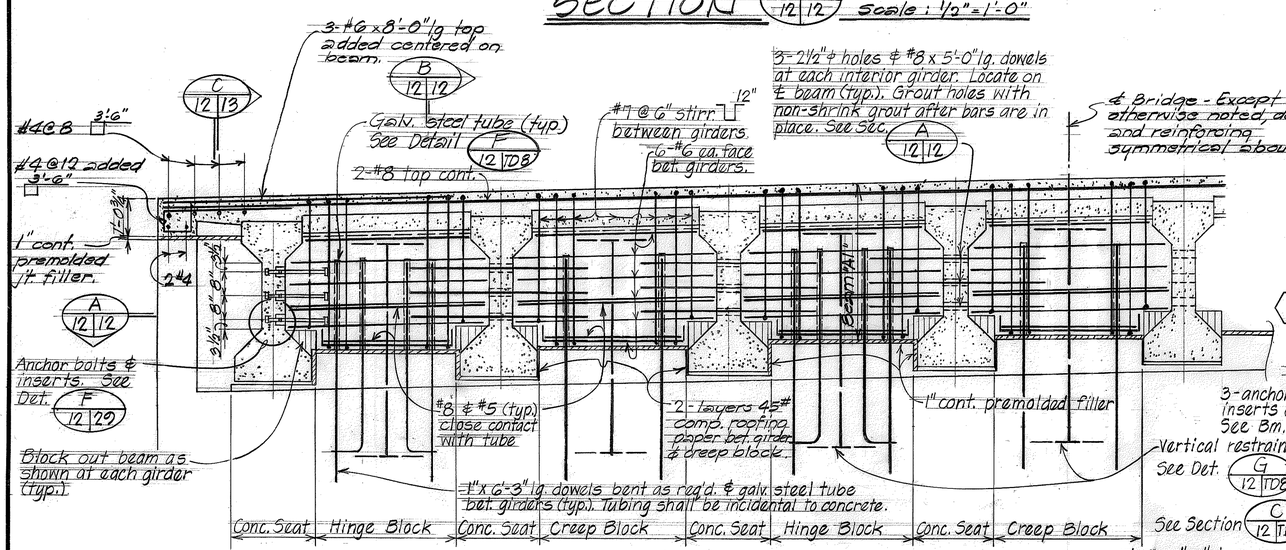
SHEET No. 11 OF 29 SHEETS

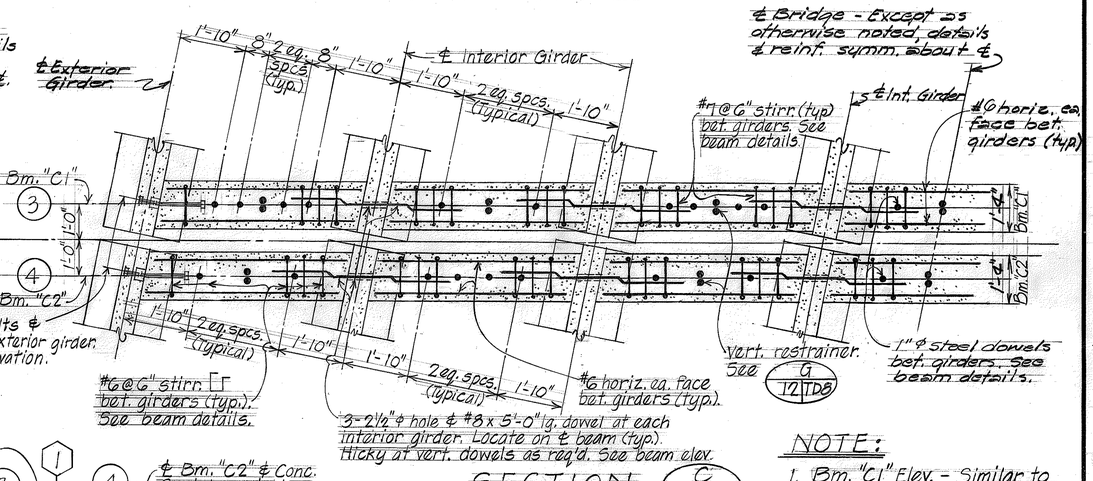
ORIGINAL PLAN
NOTE BOOK
No.
SURVEY PLOTTED BY
DRAWN BY LMA
TRACED BY
DESIGNED BY D.C.O., E.N.
QUANTITIES BY TKM
CHECKED BY CRY
DATE

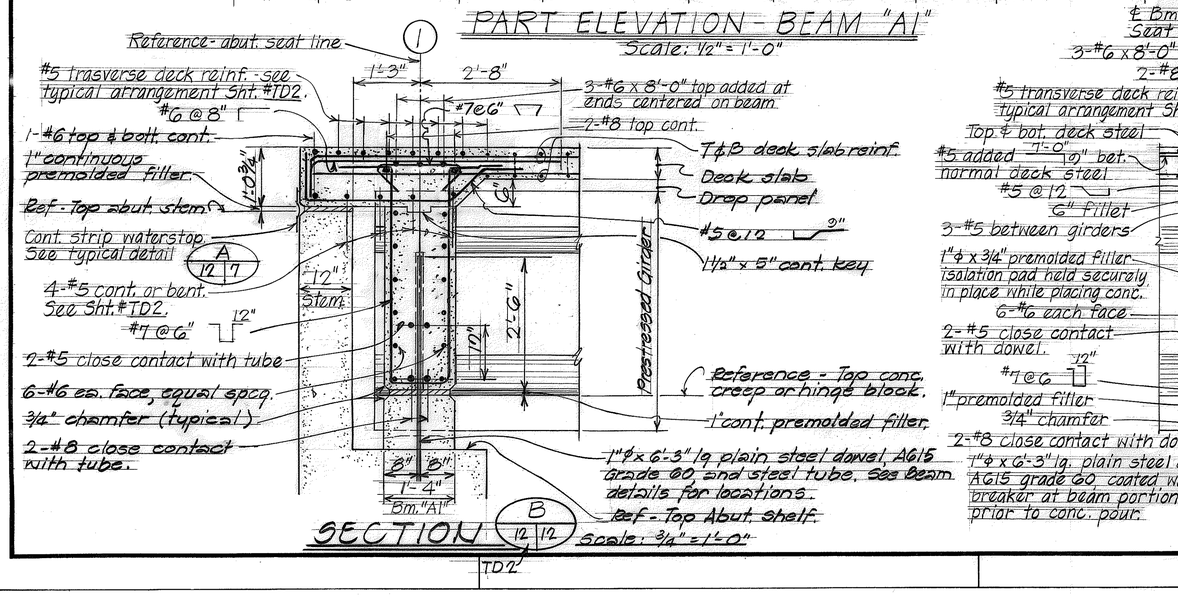
C.O. 70

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BRF-019-2(20)	1984	71	126









NOTE:

1. Bm. "C1" Elev. - Similar to Bm. "A1" Elevation except as otherwise noted.
2. Bm. "C2" Elev. - Similar to Bm. "A2" Elevation except as otherwise noted. See Sht. # 13

SECTION C 12 12 Scale: ½"=1'-0"

ORIGINAL PLAN	SURVEY PLOTTED BY	S.Y., N.Y.	DATE
	DRAWN BY	" " "	
	TRACED BY	" " "	
	NOTE BOOK	DESIGNED BY D.C.O	
		QUANTITIES BY C.R.Y.	
	No.	CHECKED BY	

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
LAND TRANSPORTATION FACILITIES DIVISION

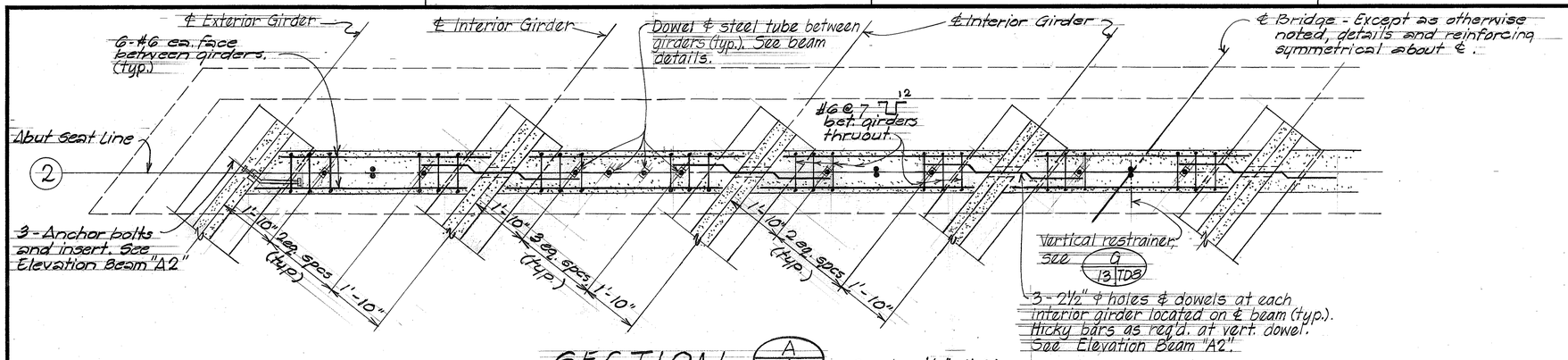
KALAPAHAPUU BRIDGE
BEAMS "A1", "C1", & "C2" DETAILS

HAWAII BELT ROAD
Proj. No. BRF-019-2(20)

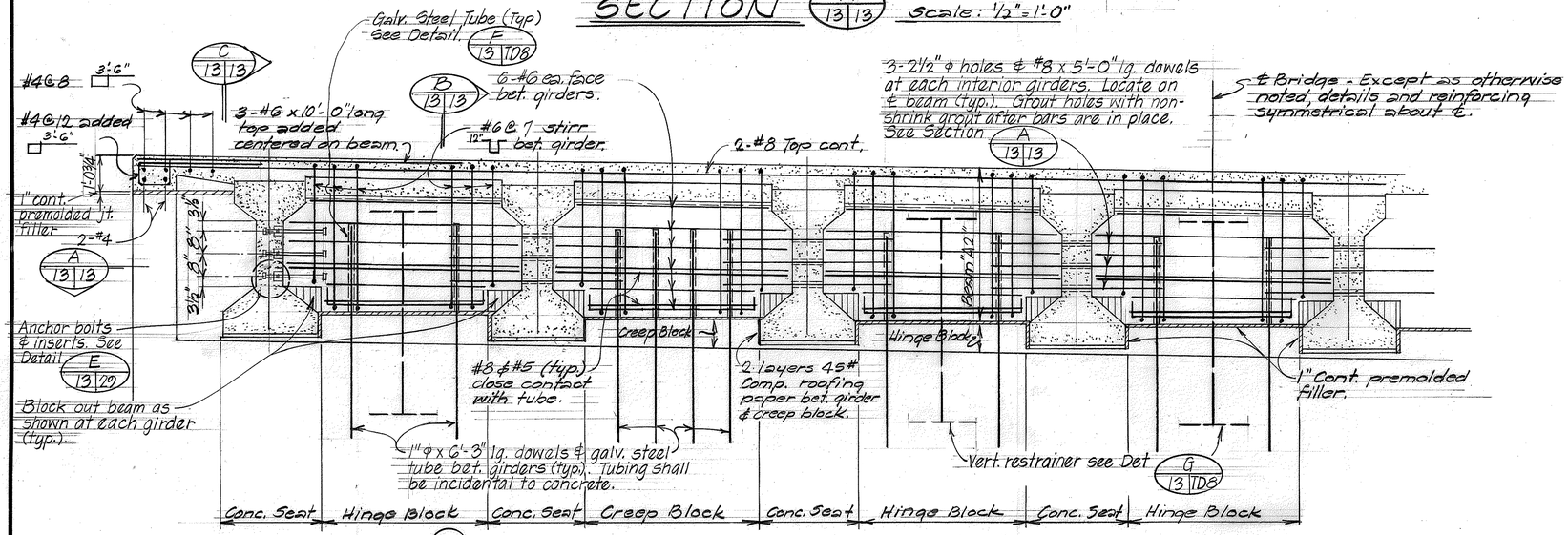
Scale: As Noted Date: Aug 1983

SHEET No. 12 OF 20 SHEETS

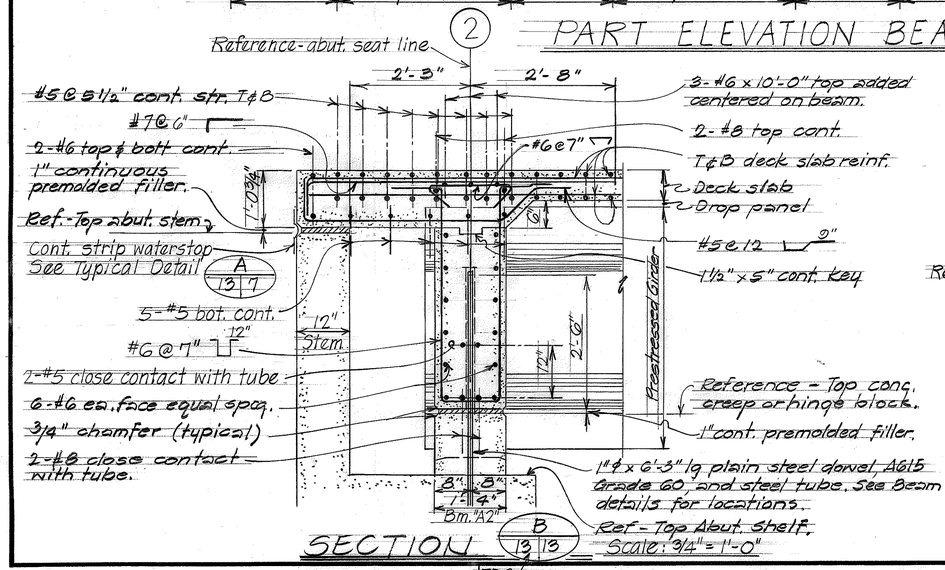
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BRF-019-2(20)	1984	72	126



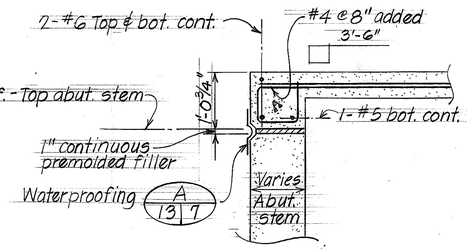
SECTION A 13|13 Scale: ½"=1'-0"



PART ELEVATION BEAM "A2" Scale: ½" = 1'-0"



SECTION B 13|13 Scale: 3/4" = 1'-0"



SECTION C 13|13 Scale: 3/4"=1'-0"

12, 26

ORIGINAL PLAN	SURVEY PLOTTED BY: S.Y. NY, LMA	DATE:
NOTE BOOK	DRAWN BY: TRACED BY: DESIGNED BY: P.C.O	
No.	QUANTITIES BY: LJM CHECKED BY: GKY	

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
LAND TRANSPORTATION FACILITIES DIVISION

KALAPAHAPUU BRIDGE

BEAM "A2" DETAILS

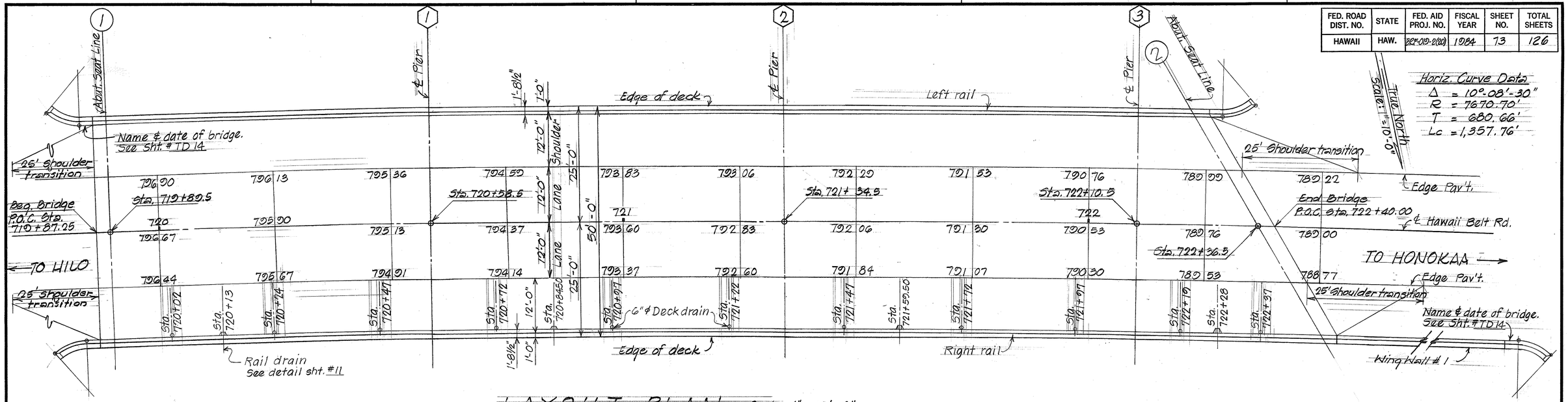
HAWAII BELT ROAD
Proj. No. BRF-019-2(20)

Scale: As Noted Date: Aug 1983

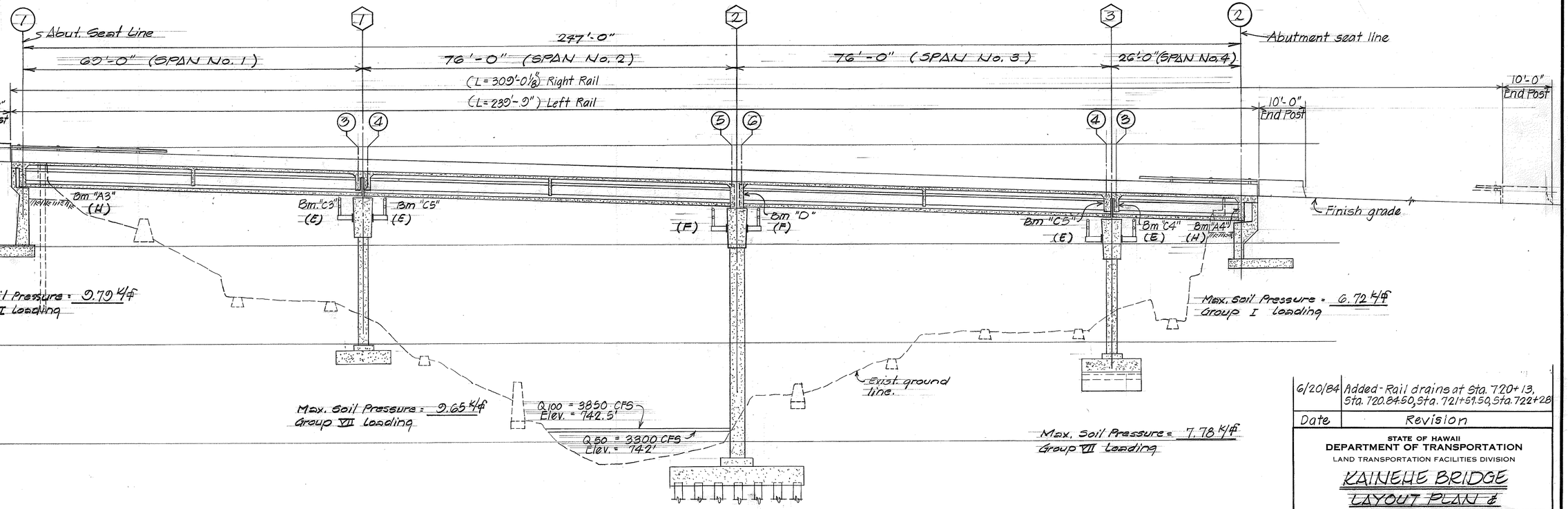
SHEET No. 13 OF 29 SHEETS

TD3

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BRF-010-2(20)	1984	73	126



LAYOUT PLAN Scale: 1" = 10'-0"



LONGITUDINAL SECTION ALONG ℄ ROADWAY Scale: 1" = 10'-0"

ORIGINAL PLANS	SURVEY PLOTTED BY	DATE
	DRAWN BY SY	"
	TRACED BY	"
NOTE BOOK	DESIGNED BY	
No.	QUANTITIES BY LM	
	CHECKED BY DKY	

Date	Revision
6/20/84	Added - Rail drains at Sta. 720+13, Sta. 720.84+50, Sta. 721+59.50, Sta. 722+28

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
LAND TRANSPORTATION FACILITIES DIVISION

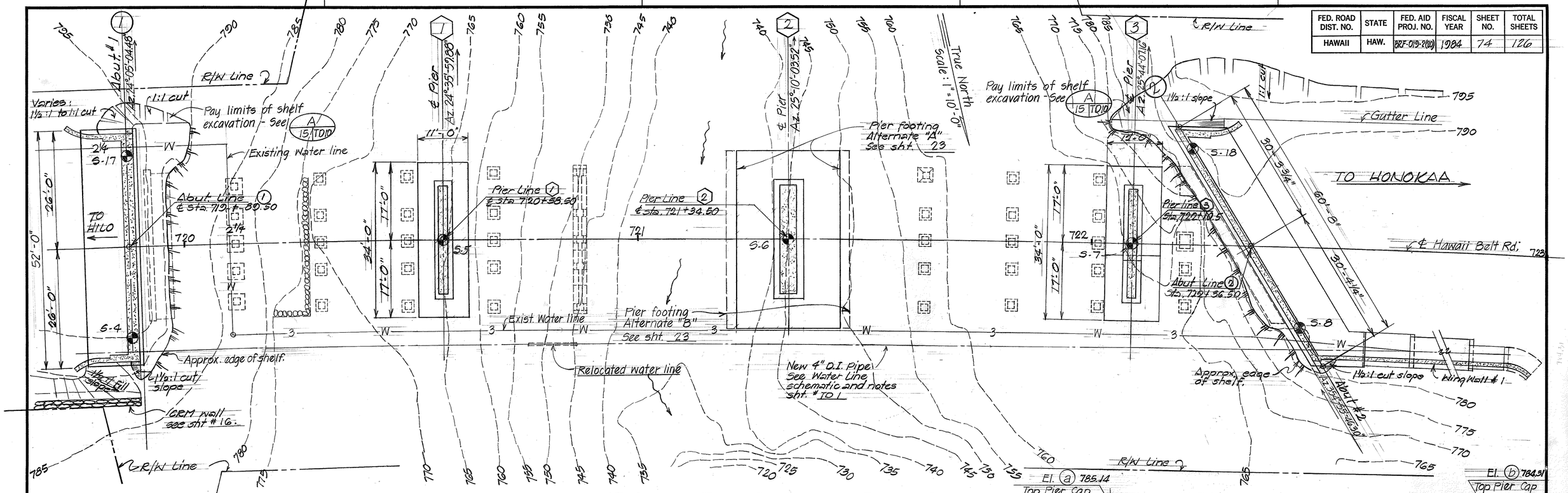
KAINEHE BRIDGE
LAYOUT PLAN & LONGITUDINAL DECK SECTION

HAWAII BELT ROAD
Proj. No. BRF-010-2(20)
Scale: As Noted Date: Aug 1983

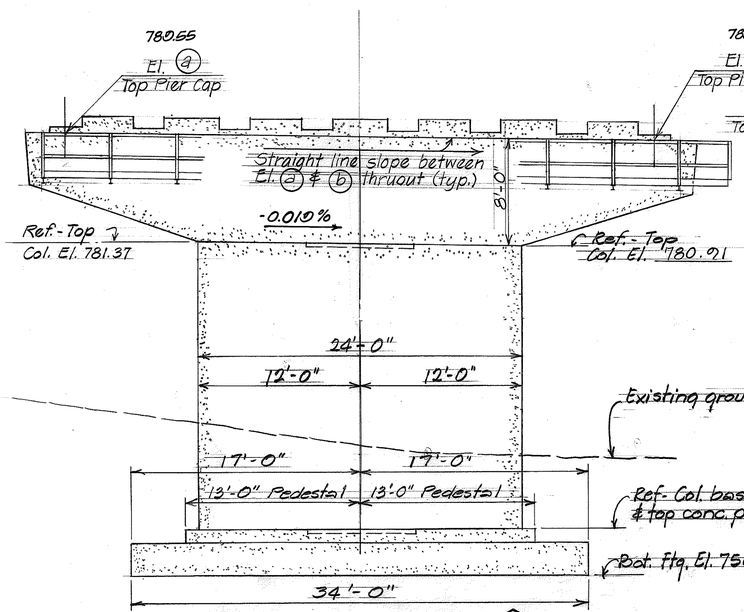
SHEET No. 14 OF 20 SHEETS

C.O. 73

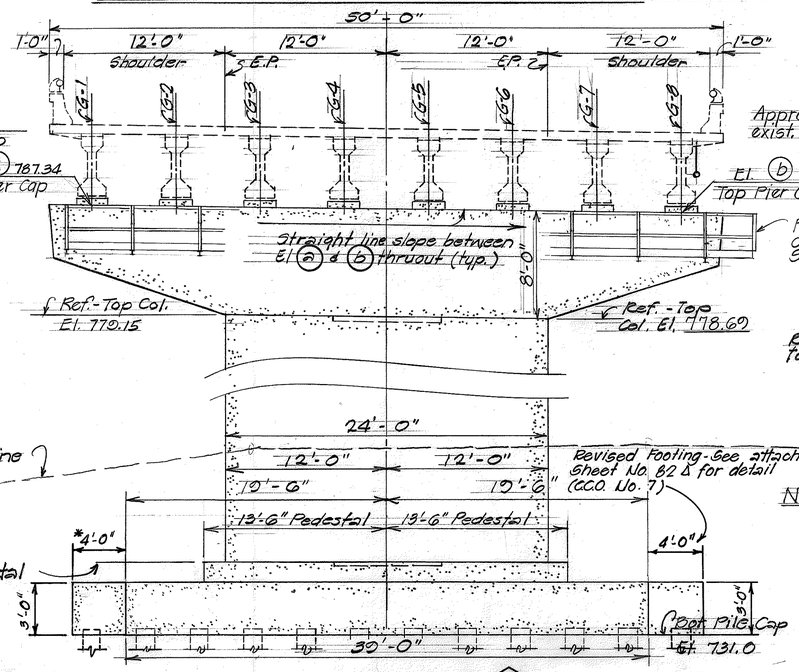
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BRF-019-2(20)	1984	74	126



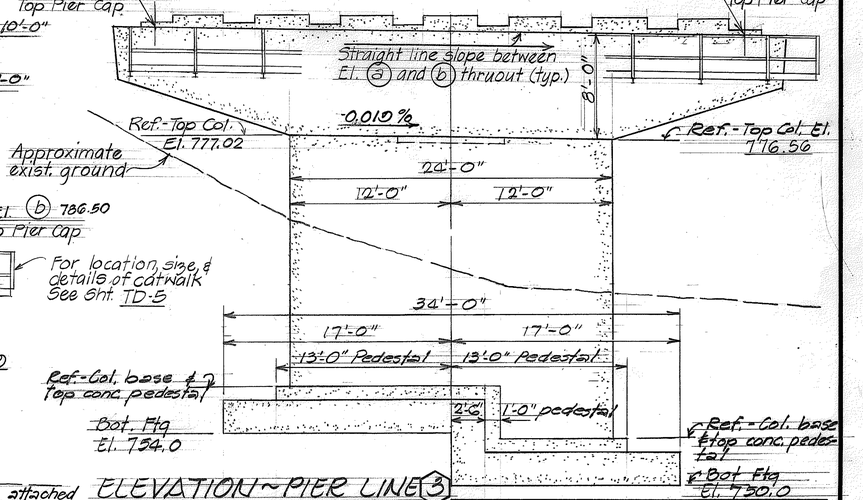
FOUNDATION PLAN Scale: 1"=10'-0"



ELEVATION ~ PIER LINE (1) Scale: 3/16"=1'-0"



ELEVATION ~ PIER LINE (2) Scale: 3/16"=1'-0"



ELEVATION ~ PIER LINE (3) Scale: 3/16"=1'-0"

NOTE:
1. Refer to sht. # TD1 for Typical Deck Section.
2. Refer to Sht. # TD4, # TD5 for pier cap dimensions & reinforcement details
3. Refer to Sht # 24 for pier column reinf. & details.
4. Refer to sht. # 22, # 23 for pier footing reinf. & details.

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
LAND TRANSPORTATION FACILITIES DIVISION

KAINEHE BRIDGE
FOUNDATION PLAN
ELEVATION - PIER (1), (2) & (3)
HINAII BELT ROAD
Proj. No. BRF-019-2(20)
Scale: As Noted Date: Aug 1983

SHEET No. 15 OF 20 SHEETS

ORIGINAL PLAN	SURVEY PLOTTED BY S.Y. DATE "
	DRAWN BY "
	TRACED BY "
NOTE BOOK	DESIGNED BY P.E.O. E.N.
	QUANTITIES BY " "
No.	CHECKED BY C.K.Y.

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BRF-019-2(20)	1984	75	126

S-4
(Elev. 795.6)

790
Soft brown silty clay
Firm brown silty clay
Shelby 12 blows/ft.
780
Stiff brown silty clay
Shelby 17 blows/ft.
Moderately weathered ves. bas. rock
Nx = 60% rec.
770
Nx = 38% rec.
Moderately & highly weathered ves. bas. rock (boulders)
Nx = 30% rec.
760
Split spoon 50/0.5 blows/ft.
Nx = 18% rec.
Nx = 26% rec.
750
Moderately weathered vesicular rock & clinker
Nx = 24% rec.
740
730

S-5
(Elev. 765.4)

Soft brown clay (ash).
Soft brn clay w/gravel, stones & boulders
Soft brown clay
Slightly weathered dense basaltic rock
Highly with some moderately weathered rock Nx = 74% rec.
Split spoon 73.3% recovery 4/5 - 16/.5 - 23/.5 blows/foot
Nx = 57.1% recovery
Nx = 40% recovery
Nx = 58.8% recovery
Nx = 50% recovery

S-7
(Elev. 766.36)

Firm brown silty clay (ash) and some mod. weathered rock (fill).
Firm brown & gray silty clay, split spoon 11 blows/ft.
Soft brown silty clay
Shelby 5 blows/ft.
Moderately weathered basaltic rock
Mod. & highly weathered rock w/streaks of stiff brown silty clay
Split spoon, 0% rec. 8/0.0 blows/foot
Mod. weathered rock & highly weathered rock w/some layers of firm brown silty clay. Nx = 44% rec.
Split spoon, 3/0.5 - 4/0.5 - 3/0.3 - 4/0.0 blows/foot
Slightly weathered dense basaltic rock
Nx = 96% rec.
Nx = 100% rec.

S-17
(Elev. 796.98)

Shelby 7 blows/ft.
Soft brown silty clay (ash) & gravel
Shelby 7 blows/ft.
Split spoon 52 blows/ft.
Nx = 34.3% rec.
Highly & moderately weathered rock
Slightly weathered ves. bas. rock
Nx = 50% rec.
Highly & mod. wea. rock w/some slighly wea. ves. bas. rock
Nx = 50% rec.
Mod. wea. ves. & HWR
Nx = 4% rec.
Firm brown clay w/specks of white clay
Split spoon 21 blows/ft.
Firm brown clay
Firm brown clay w/specks of white clay
Mod. wea. ves. bas. rock w/tr. of firm brown clay
Mod. wea. ves. bas. rock (fractured)
Shelby 30/0.5 - 5/0.0 blows/ft.
Slightly weathered ves. bas. rock Nx = 100% rec.
Nx = 100° rec.
Slightly weathered ves. bas. rock (fractured) Nx = 75% rec.
Nx = 50% rec.
Moderately & highly weathered rock
Stiff brown clay w/some HWR
Split spoon 10/0.5 - 30/0.3 - 10/0.0 blows/ft.

S-6
(Elev. 741.8)

740
Very soft brown clay (ash)
Split spoon 7 blows/ft.
Soft brown silty clay & tr. of gravel
730
Unweathered dense basaltic rock
Nx = 60% rec.
Unweathered dense bas. rock & str. of soft brown silty clay
Split spoon 8 blows/ft.
Soft brown silty clay w/few gravel.
Nx = 12% rec.
720
Soft brown silty clay w/tr. of HWR
Shelby 11 blows/ft.
Firm brown silty clay
Shelby 16 blows/ft.
710
Shelby 16 blows/ft.
Highly weathered rock
Nx = 22% rec.
700
Slightly weathered vesicular basaltic rock
Nx = 57.1% rec.
Nx = 28% rec.
Highly weathered rock
Nx = 0.0% rec.
760
Moderately weathered rock
Split spoon 48 blows/ft.
HWR & very stiff brown silty clay
Nx = 0.0% rec.
680
Nx = 4% rec.
Firm brown silty clay w/some HWR
Split spoon 15 blows/ft.
Nx = 0.0% rec.
670
Nx = 54% rec.
Highly & moderately weathered rock
660

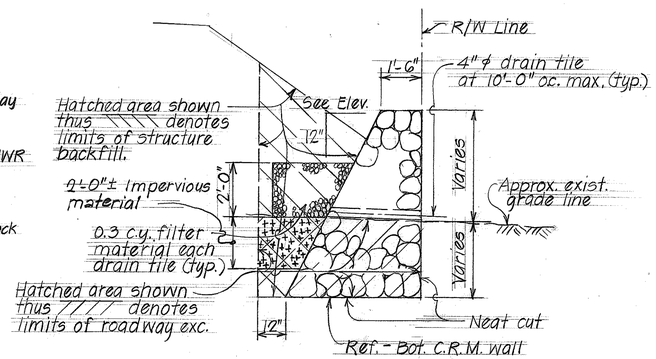
S-18
(Elev. 790.25)

790
Soft brown clay (ash) w/trace of gravel
Highly weathered rock
Split spoon 38 blows/ft.
780
Streaks of mod. wea. ves. rock, HWR & firm brown clay (ash)
Split spoon 34 blows/ft.
Streaks of HWR and very stiff brown clay
770
Stiff brown clay w/traces of HWR
Moderately wea. ves. basaltic rock
Split spoon 11/0.5 - 40/0.5 - 16/0.0 blows/ft.
Stiff brown clay w/traces of HWR & little moderately weathered basaltic rock
Moder. wea. ves. basaltic rock (boulder) and a little brown clay
760
Nx = 60% recovery
Slightly wea. ves. basaltic rock
Nx = 96% recovery
750
740

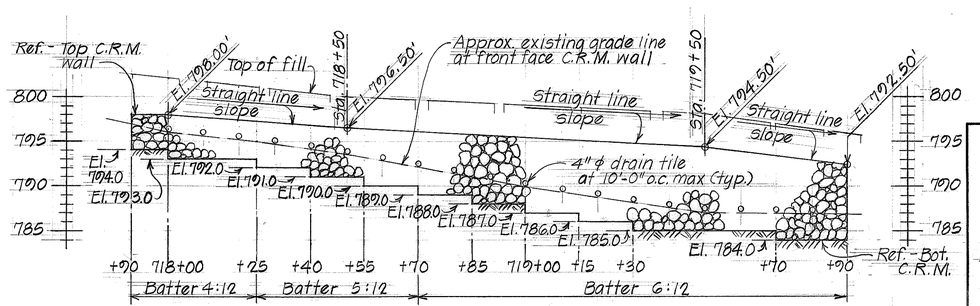
S-8
(Elev. 787.5)

Soft brown clay (ash) w/tr. of gravel & stones
Shelby 22 blows/ft.
Firm brown clay (ash) w/some HWR
Split spoon 30 blows/ft.
Highly weathered rock
Spit spoon 23 blows/ft.
HWR & some stiff brown clay
Split spoon 6 blows/ft.
Firm brown clay w/streaks of red clay
Moderately wea. ves. bas. rock
Nx = 70% rec.
Mod. & slightly wea. ves. bas. rock w/a trace of HWR
Nx = 84% rec.
Slightly wea. ves. bas. rock
Nx = 80% rec.
Moderately & highly wea. rock

NOTE:
1. The boring data furnished in these plans are the results of the facts gathered at the specific locations indicated to primarily aid in the design of the structure, and does not necessarily typify conditions at other locations.
2. The Department assumes no responsibility for sufficiency of boring data or the prevalance of conditions similar to that indicated by the boring data.



TYPICAL C.R.M. WALL SECTION
Scale: 3/8" = 1'-0"

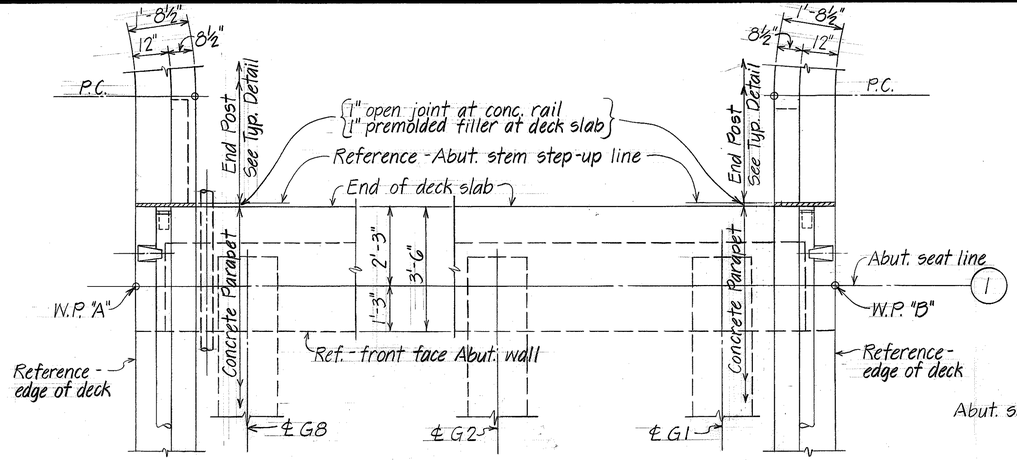


C.R.M. WALL ELEVATION
Scale: Horiz. - 1" = 20'-0"; Vert. - 1/8" = 1'-0"

ORIGINAL PLAN
SURVEY PLOTTED BY
DRAWN BY L.N. LIMA
TRACED BY D.C.O
NOTE BOOK
DESIGNED BY
QUANTITIES BY
CHECKED BY C.R.T
DATE
No.

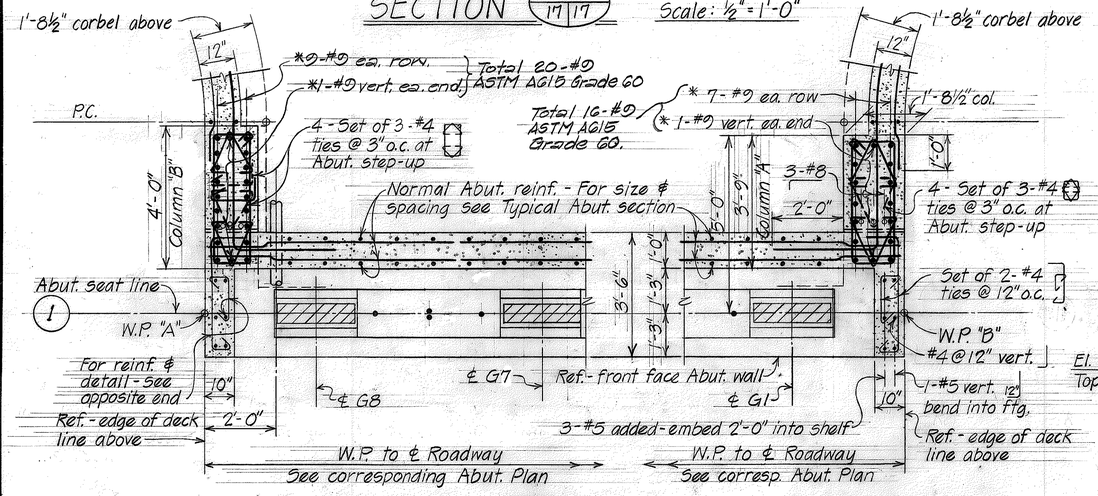
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
LAND TRANSPORTATION FACILITIES DIVISION
KAINEHE BRIDGE
BORING LOG AND
C.R.M WALL ELEVATION & SECTION
HAWAII BELT ROAD
Proj. No. BRF-019-2(20)
Scale: As Noted Date: Aug 1983
SHEET No. 16 OF 29 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BRF-019-2(20)	1984	76	126



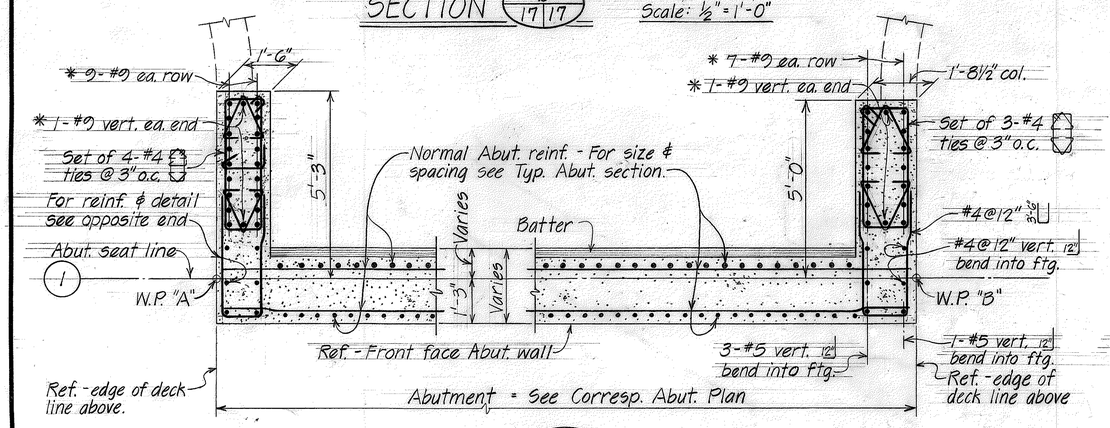
SECTION (A 17|17)

Scale: ½" = 1'-0"



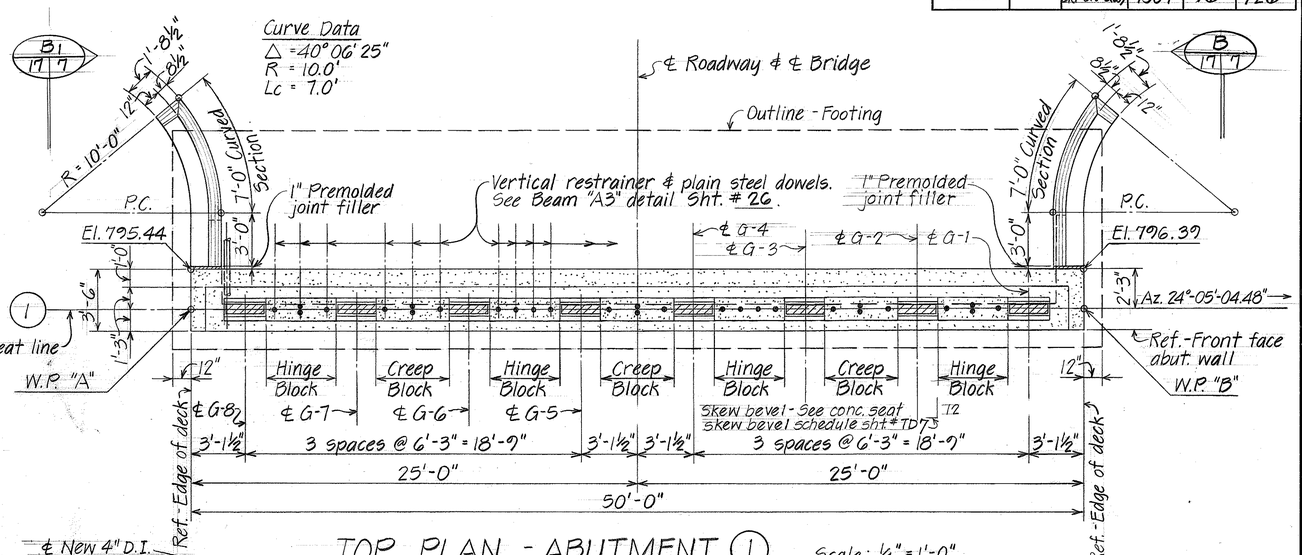
SECTION (B 17|17)

Scale: ½" = 1'-0"



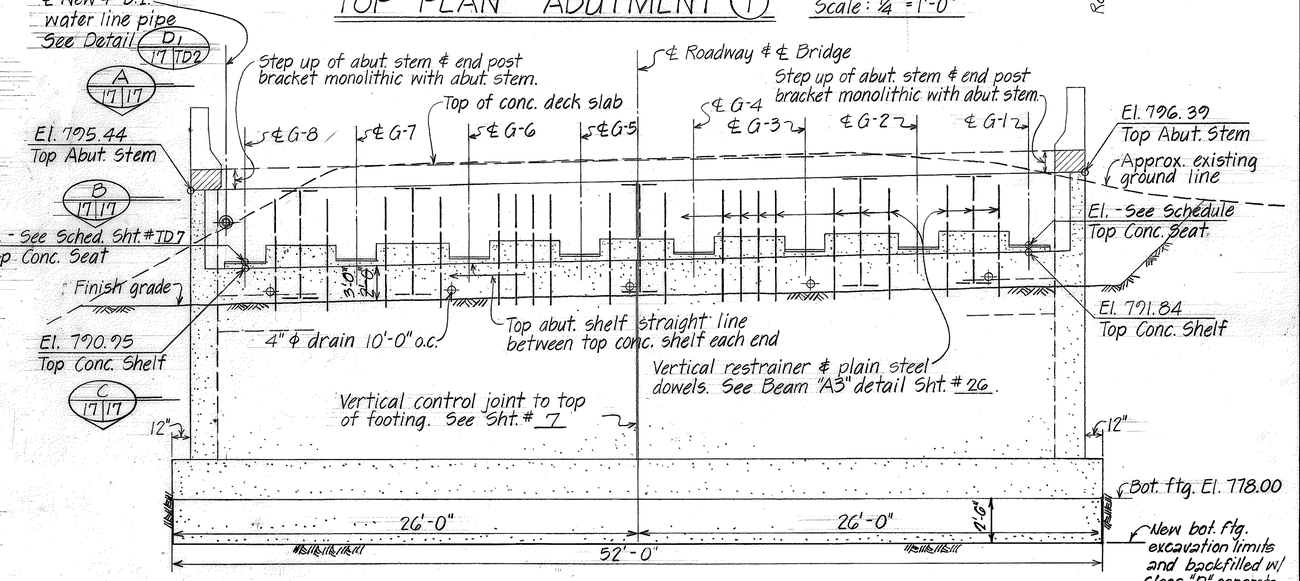
SECTION (C 17|17)

Scale: ½" = 1'-0"



TOP PLAN - ABUTMENT (1)

Scale: ¼" = 1'-0"



ELEVATION - ABUTMENT (1)

Scale: ¼" = 1'-0"

NOTE:
1. Bridge deck & superstructure not shown.
2. For concrete seat, hinge block, & creep block detail see Sht. # TD8.

* Abutment No. 1 Column "A" & "B" #9 vertical bars shall be Grade 60.

ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
	DRAWN BY LN	"
	TRACED BY	"
NOTE BOOK	DESIGNED BY D.C.O	"
No.	QUANTITIES BY LN	"
	CHECKED BY CRY	

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
LAND TRANSPORTATION FACILITIES DIVISION

KAINEHE BRIDGE

ABUTMENT (1)

PLAN, ELEVATION & SECTIONS

HAWAII BELT ROAD

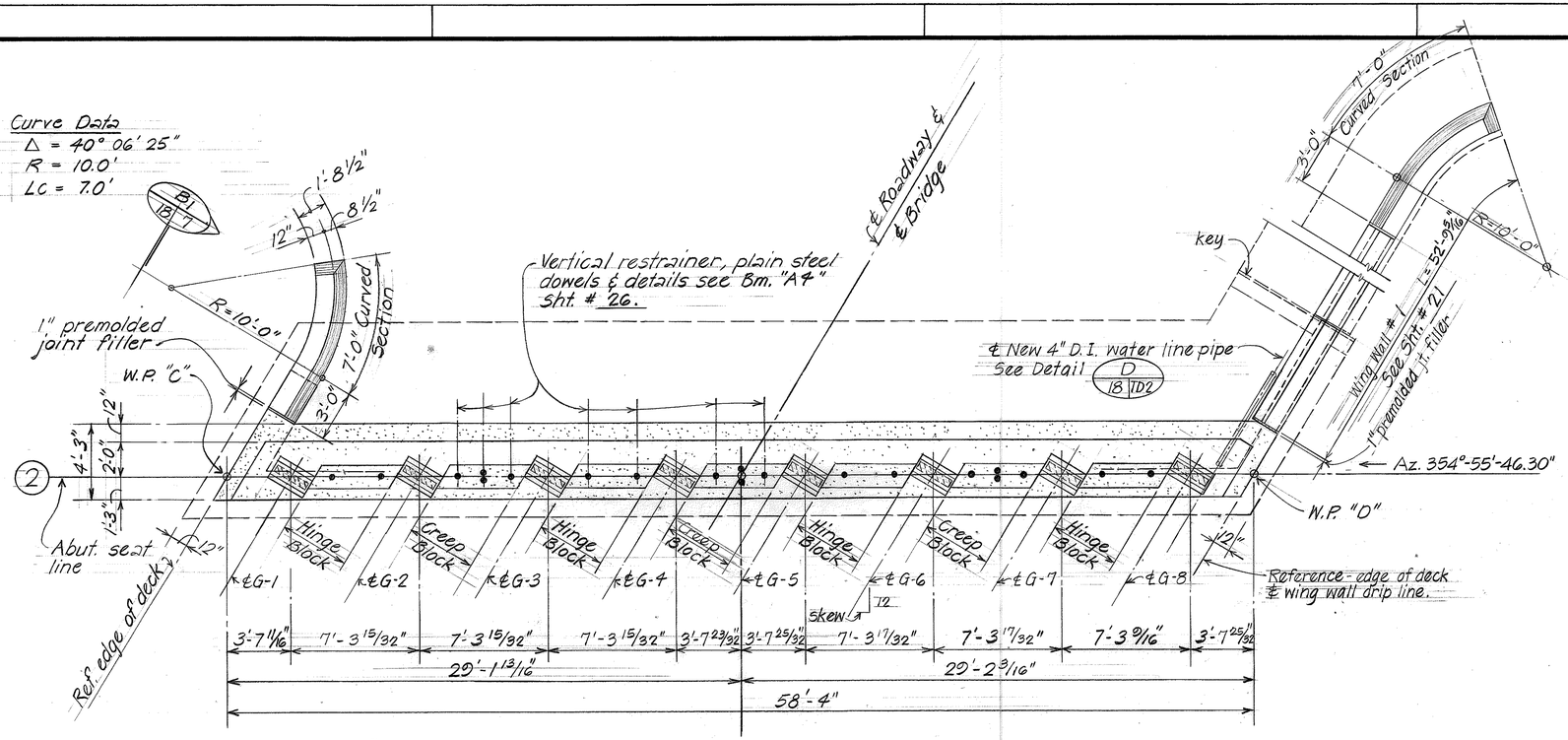
Proj. No. BRF-019-2(20)

Scale: As Noted Date: Aug 1983

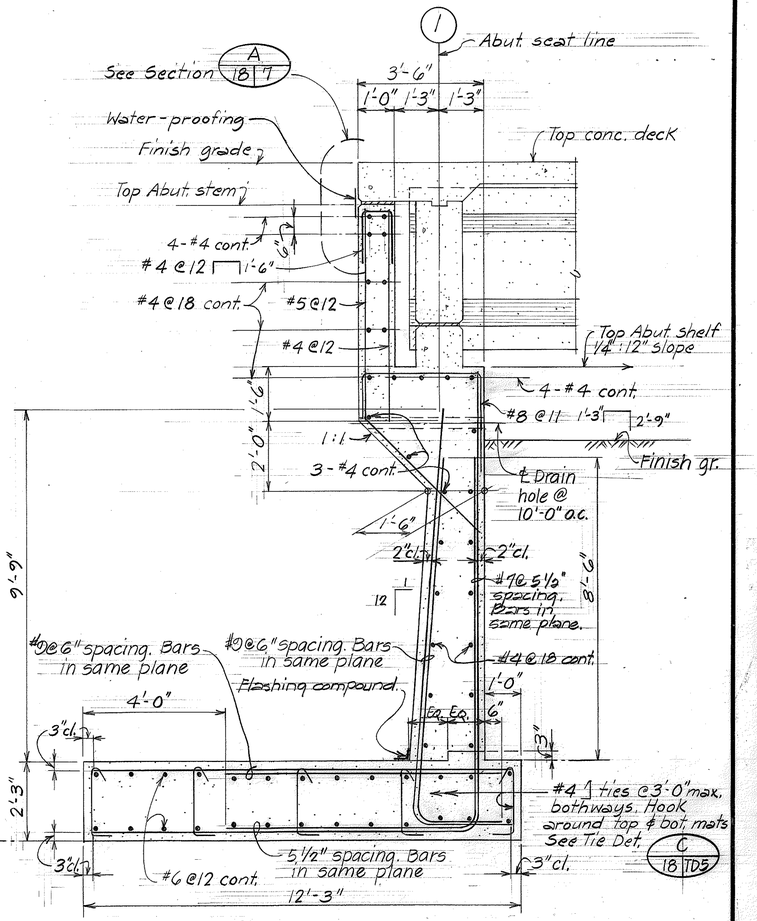
SHEET No. 17 OF 29 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BRF-010-2(20)	1984	77	126

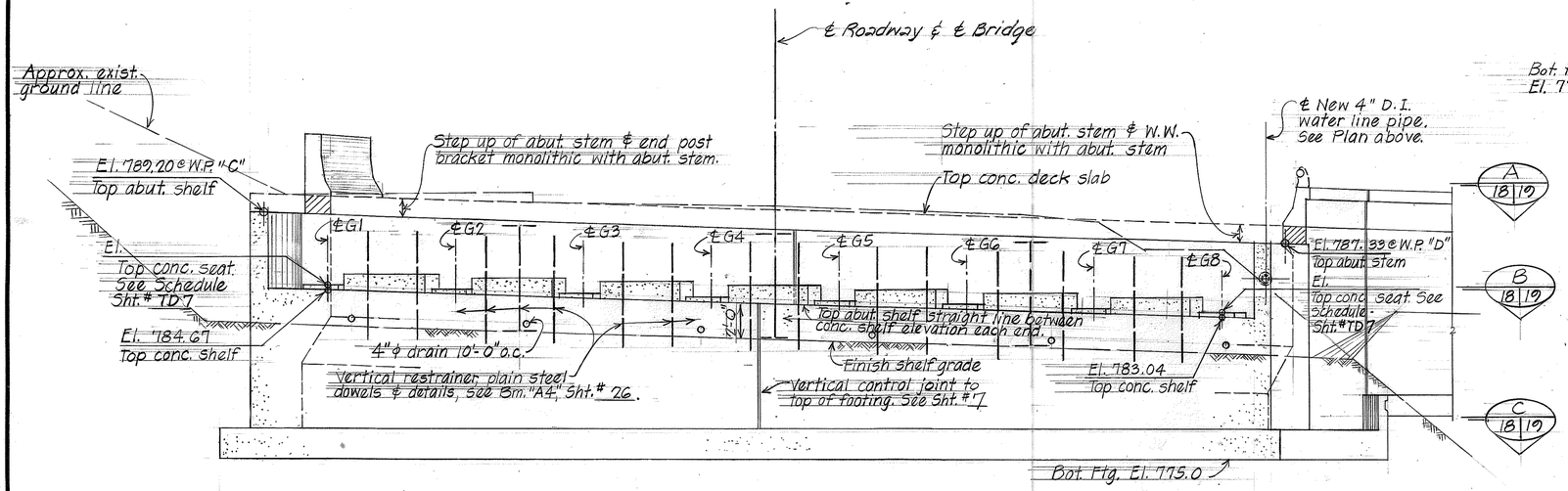
Curve Data
Δ = 40° 06' 25"
R = 10.0'
LC = 7.0'



TOP PLAN - ABUTMENT (2) Scale: 1/4" = 1'-0"



TYPICAL ABUTMENT (1) SECTION
Scale: 1/2" = 1'-0"



ELEVATION - ABUTMENT (2) Scale: 1/4" = 1'-0"

NOTE:
1. Bridge deck & superstructure not shown.
2. For concrete seat, hinge block & creep block detail see sht. # TD8.
3. For girder conc. seat skew bevel, see schedule sht. # TD6.

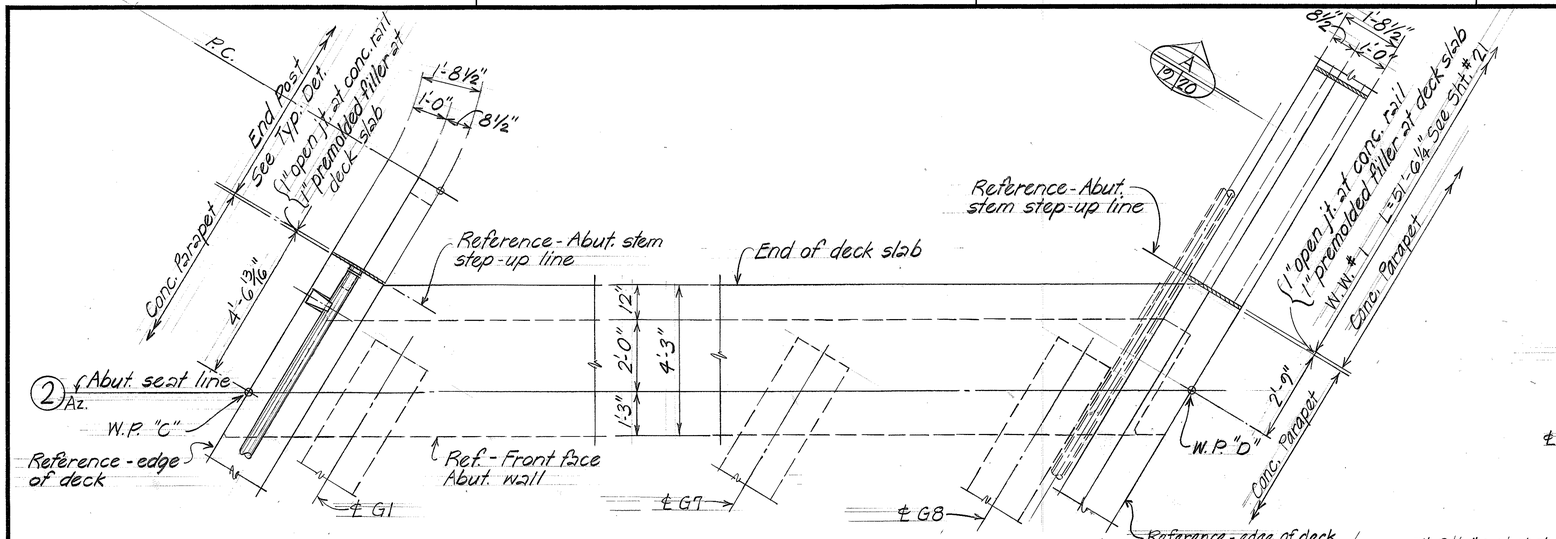
ORIGINAL PLAN	SURVEY PLOTTED BY	DRAWN BY T.K.M., N.Y., L.M.	DATE
NOTE BOOK	TRACED BY	DESIGNED BY D.E.C., S.A.	
No.	QUANTITIES BY	CHECKED BY C.R.Y.	

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
LAND TRANSPORTATION FACILITIES DIVISION

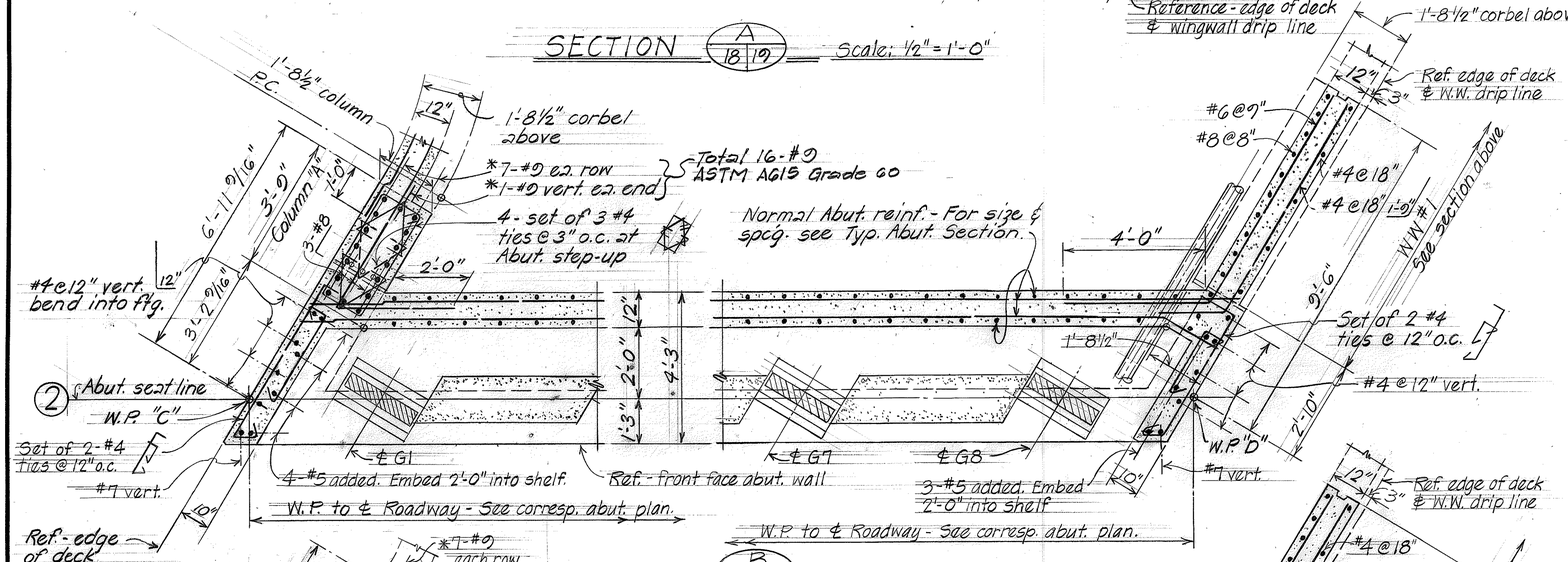
KAINEHE BRIDGE
ABUTMENT (2) - PLAN & ELEVATION
TYPICAL ABUTMENT (1) - SECTION
HAWAII BELT ROAD
Proj. No. 010-2(20)
Scale: As Noted Date: Aug 1983

SHEET No. 18 OF 20 SHEETS

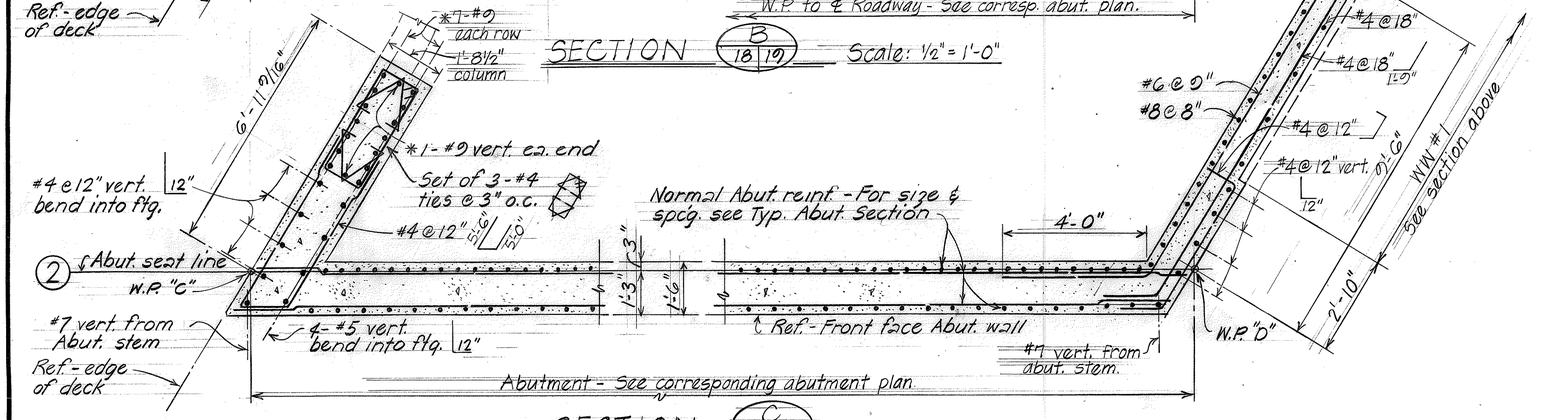
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BRF-019-2(20)	1984	78	126



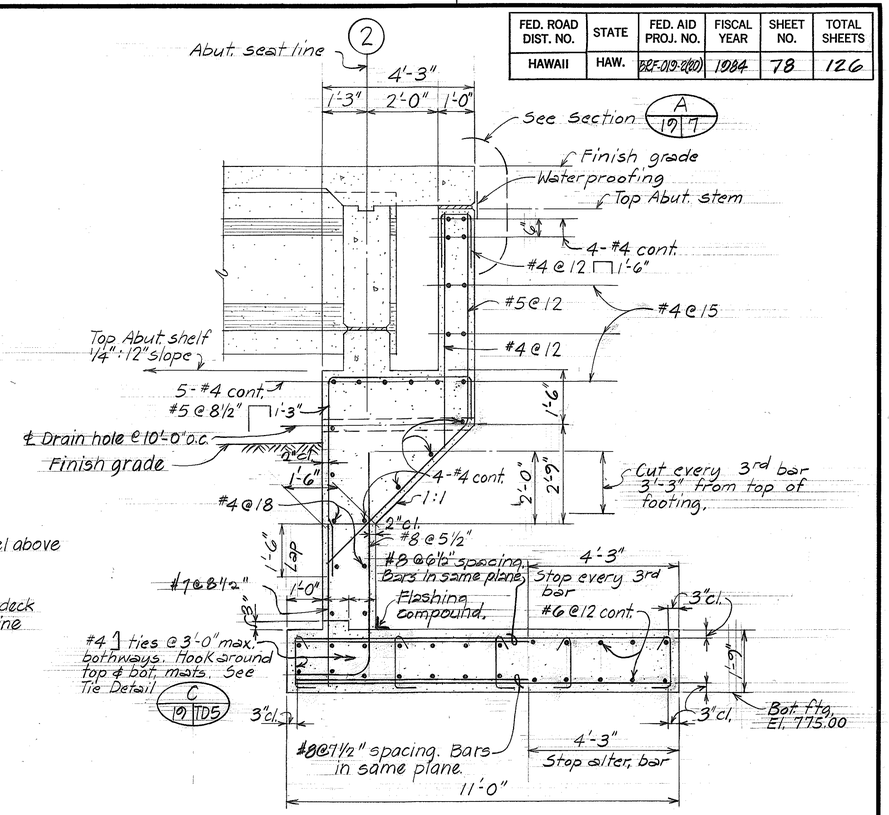
SECTION A 18 19 Scale: ½" = 1'-0"



SECTION B 18 19 Scale: ½" = 1'-0"



SECTION C 18 19 Scale: ½" = 1'-0"



TYPICAL ABUTMENT ② SECTION

Scale: ½" = 1'-0"

Note:
* Abutment No. 2 Column "A" #9 vertical bars shall be Grade 60.

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

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
LAND TRANSPORTATION FACILITIES DIVISION

KAINEHE BRIDGE

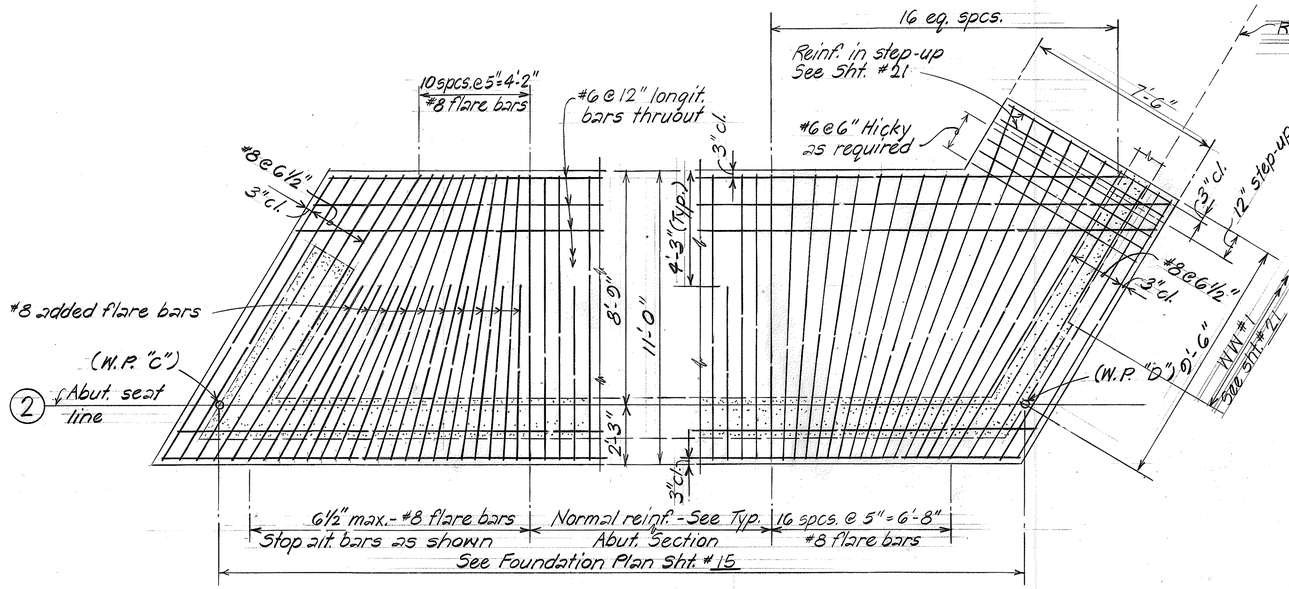
ABUTMENT ② - SECTION

HAWAII BELT ROAD
Proj. No. BRF-019-2(20)

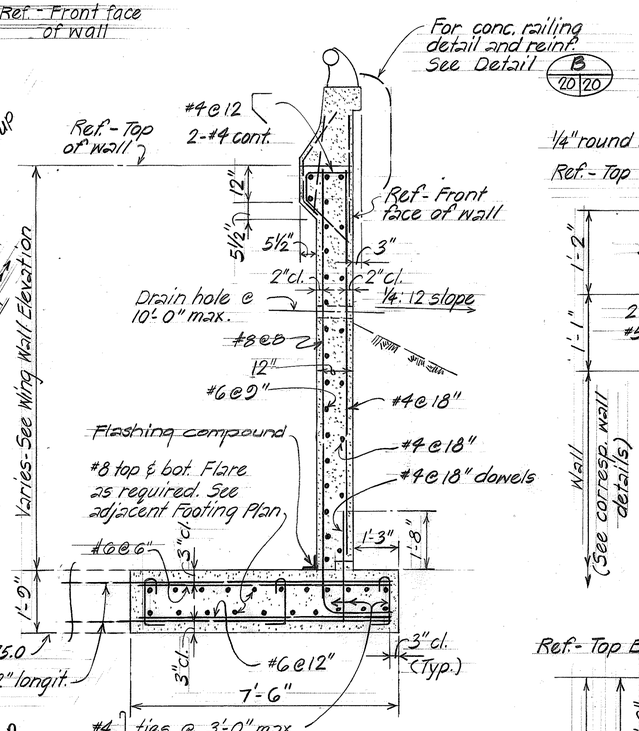
Scale: As Noted Date: Aug 1983

SHEET No. 19 OF 27 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BRF-019-2(20)	1084	79	126

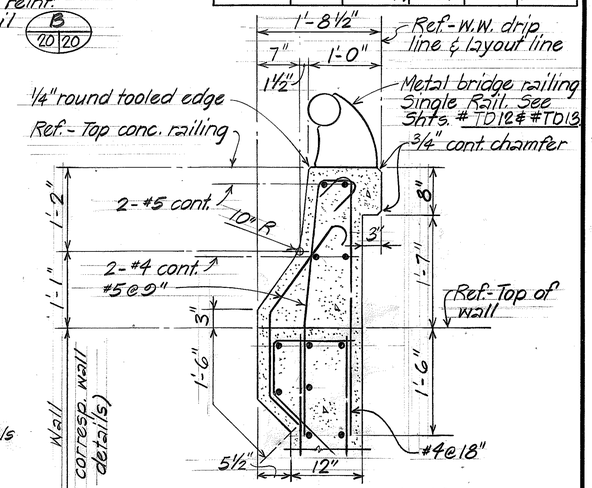


TOP LAYER REINFORCEMENT

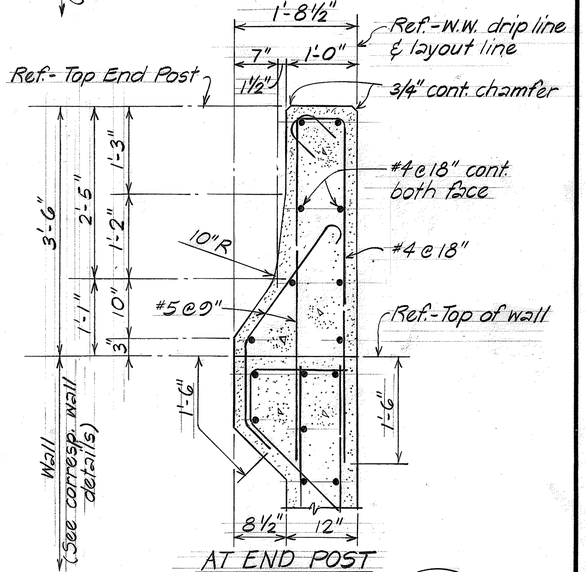


SECTION A 19 20 20

Scale: ½" = 1'-0"



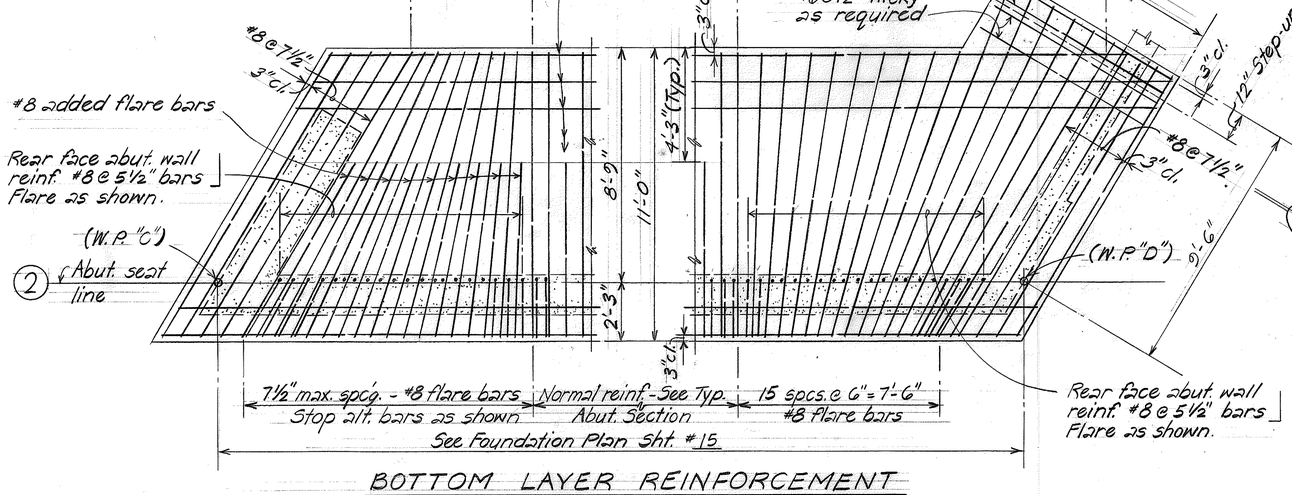
AT CONCRETE RAILING



AT END POST

TYPICAL DETAIL B 20 20

Scale: 1" = 1'-0" TD7



BOTTOM LAYER REINFORCEMENT

PART PLAN - ABUTMENT (2) FOOTING REINFORCEMENT

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

ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
	DRAWN BY K.M.	"
NOTE BOOK	DESIGNED BY E.N. / S.A.	"
	QUANTITIES BY T.K.M.	"
No.	CHECKED BY G.R.Y.	"

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
LAND TRANSPORTATION FACILITIES DIVISION

KAINEHE BRIDGE

ABUTMENT (2)

PART PLAN - FOOTING REINFORCEMENT & SECTIONS

HAWAII BELT ROAD

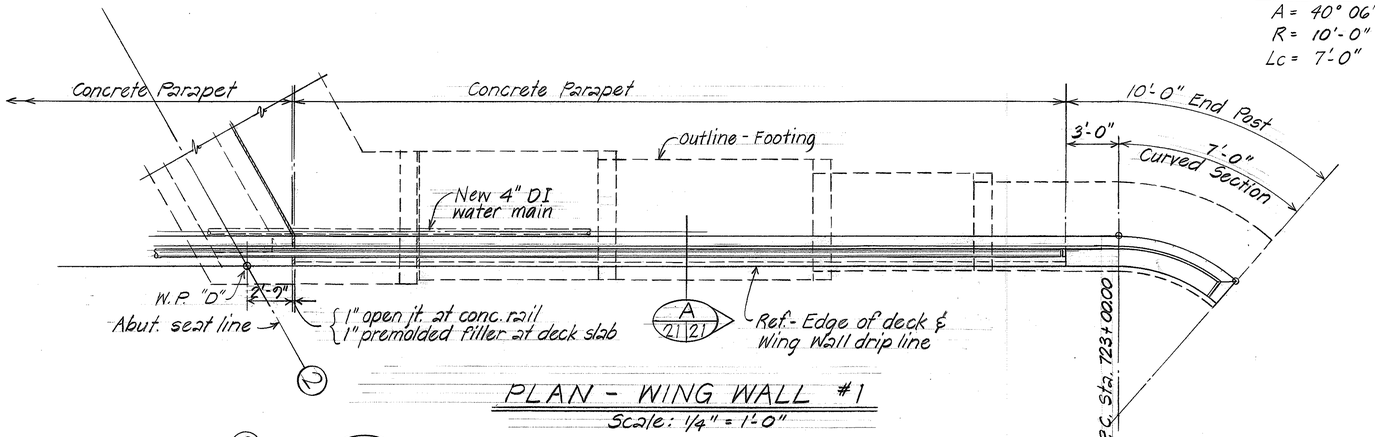
Proj. No. BRF-019-2(20)

Scale: As Noted Date: Aug 1988

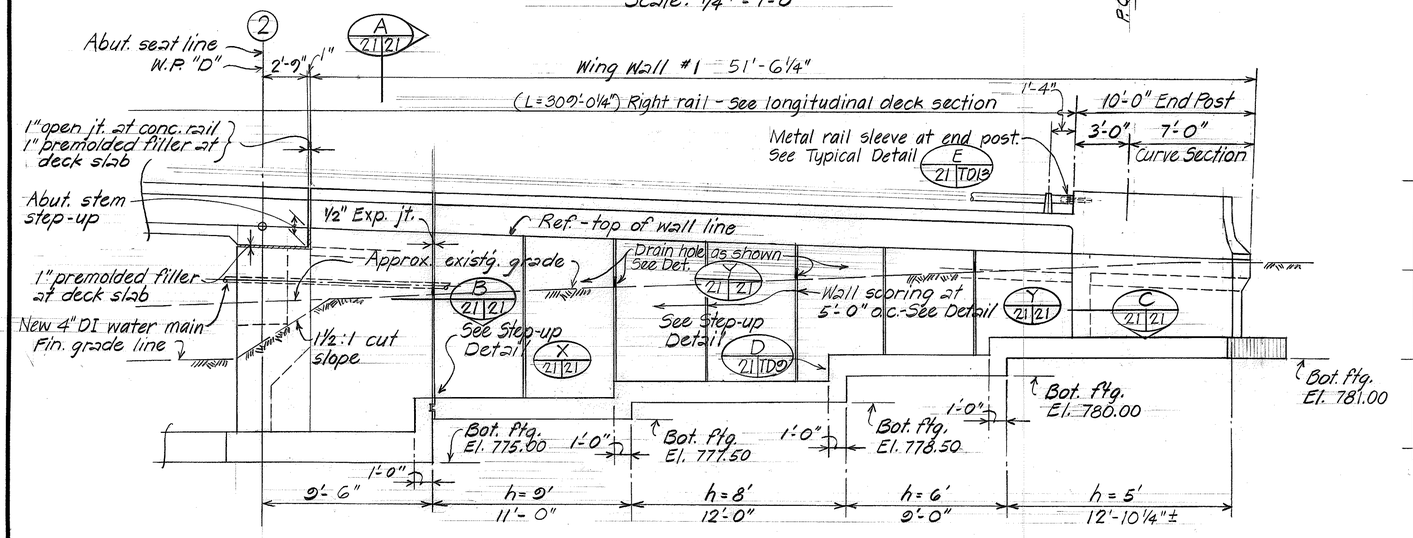
SHEET No. 20 OF 20 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BRF-019-2(20)	1984	80	126

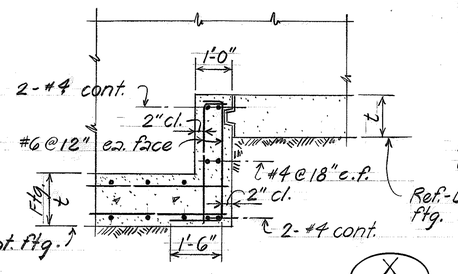
CURVE DATA
A = 40° 06' 25"
R = 10'-0"
Lc = 7'-0"



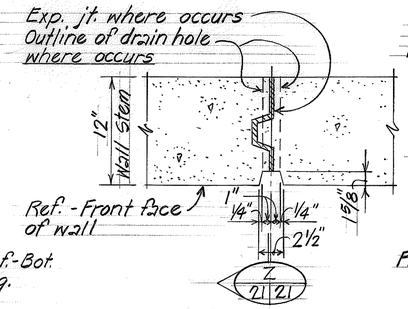
PLAN - WING WALL #1
Scale: 1/4" = 1'-0"



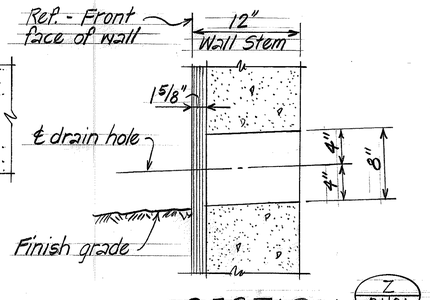
ELEVATION - WING WALL #1
Scale: 1/4" = 1'-0"



FOOTING STEP-UP DETAIL X 21|21
Scale: 1/2" = 1'-0"

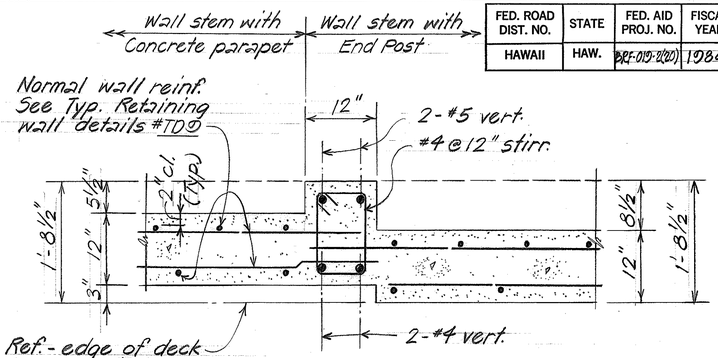


PLAN
Z 21|21

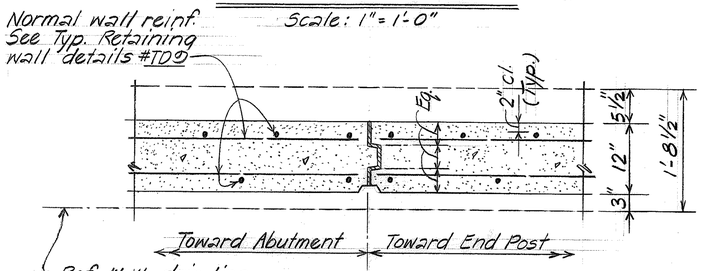


SECTION Z 21|21

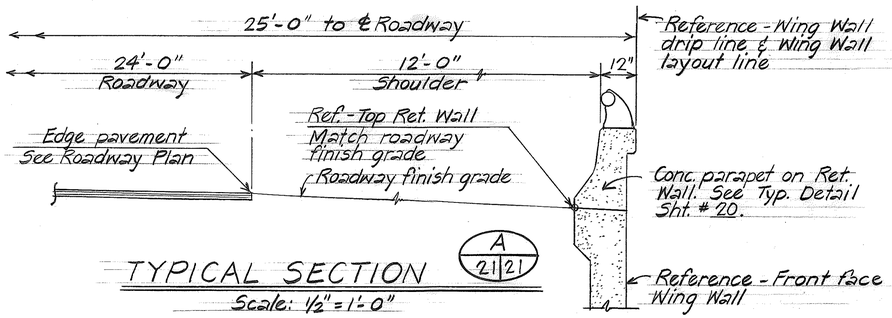
WALL SCORING DETAIL Y 21|21
Scale: 1 1/2" = 1'-0"



SECTION C 21|21
Scale: 1" = 1'-0"



SECTION B 21|21
Scale: 1" = 1'-0"



TYPICAL SECTION A 21|21
Scale: 1/2" = 1'-0"

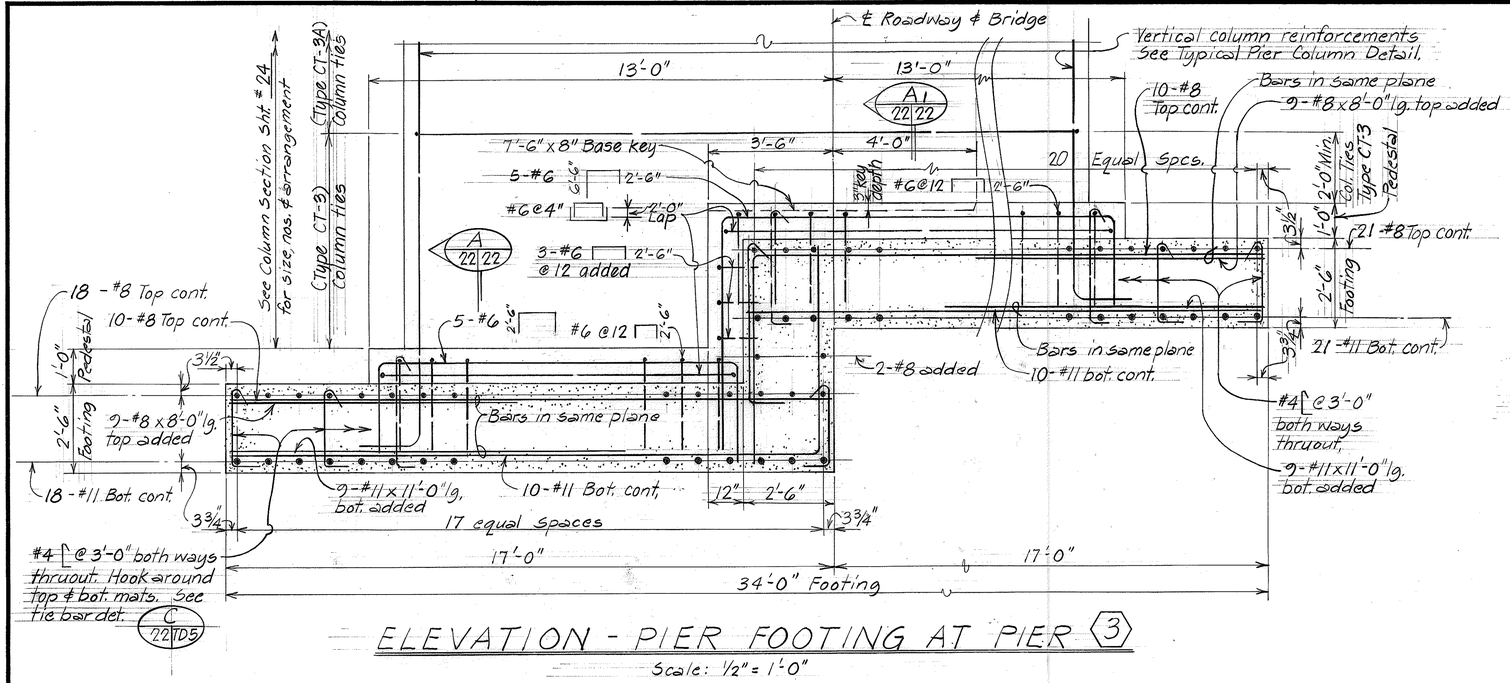
ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
	DRAWN BY TKM	
NOTE BOOK	TRACED BY S.A.	
	DESIGNED BY TKM	
No.	QUANTITIES BY CKY	
	CHECKED BY	

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
LAND TRANSPORTATION FACILITIES DIVISION

KAINEHE BRIDGE
WING WALL #1
PLAN, ELEVATION & DETAILS
HAWAII BELT ROAD
Proj. No. BRF-019-2(20)
Scale: As Noted Date: Aug 1983

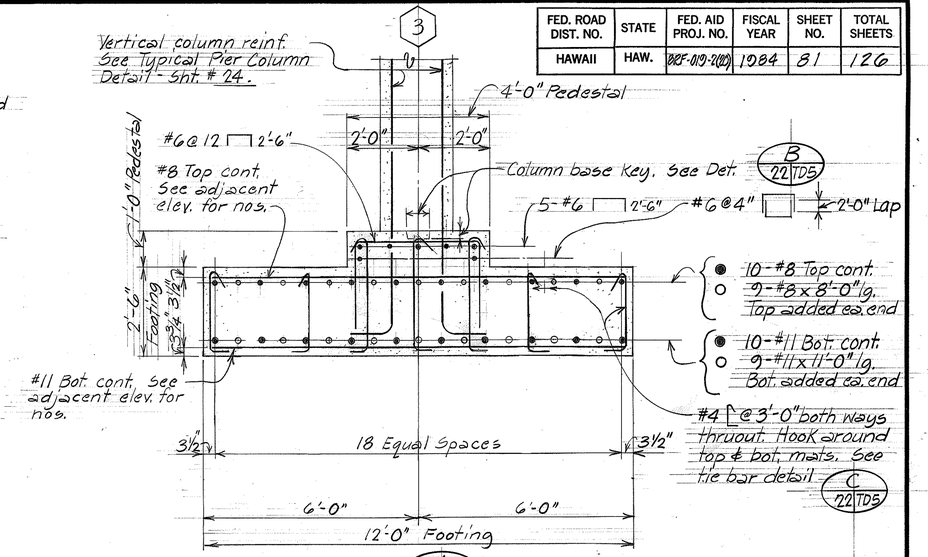
SHEET No. 21 OF 20 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BRF-019-2(20)	1984	81	126



ELEVATION - PIER FOOTING AT PIER 3

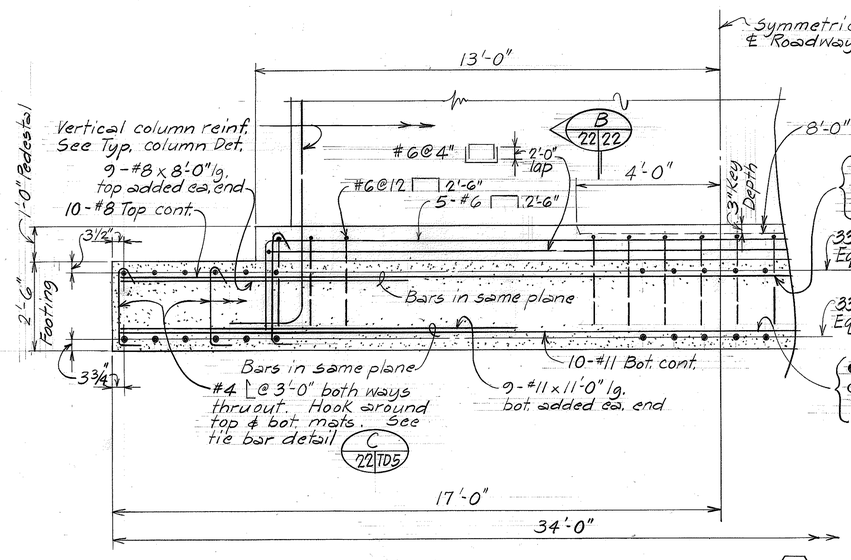
Scale: ½" = 1'-0"



SECTION A 22 22 AS SHOWN

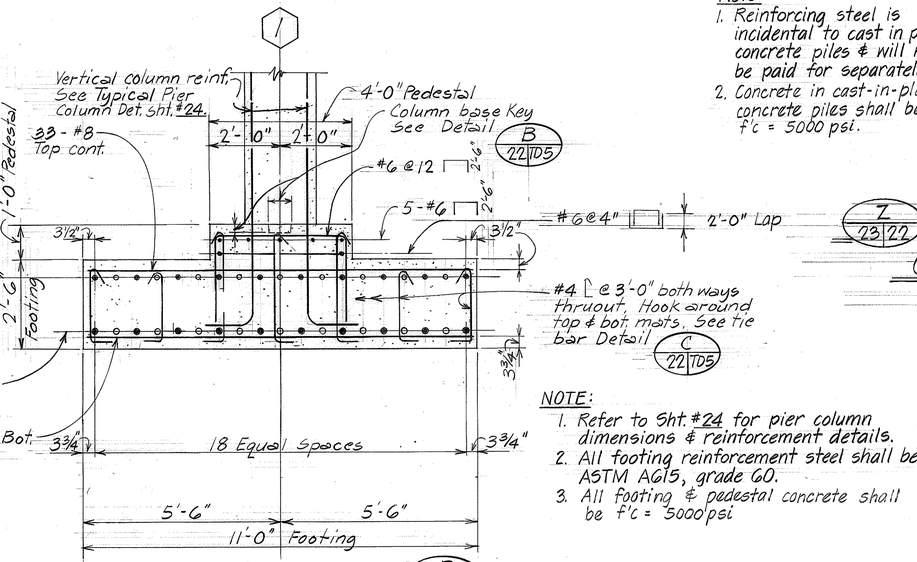
SECTION A1 22 22 SIMILAR EXCEPT AS OTHERWISE NOTED

Scale: ½" = 1'-0"



ELEVATION - PIER FOOTING AT PIER 1

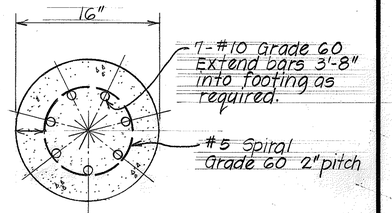
Scale: ½" = 1'-0"



TYPICAL SECTION B 22 22

Scale: ½" = 1'-0"

Note:
1. Reinforcing steel is incidental to cast in place concrete piles & will not be paid for separately.
2. Concrete in cast-in-place concrete piles shall be f'c = 5000 psi.



Z 23 22 TYP. SECTION THRU CAST IN PLACE CONC. PILES

Scale: 1½" = 1'-0"

NOTE:
1. Refer to Sht. #24 for pier column dimensions & reinforcement details.
2. All footing reinforcement steel shall be ASTM A615, grade 60.
3. All footing & pedestal concrete shall be f'c = 5000 psi

ORIGINAL PLAN	SURVEY PLOTTED BY	DATE:
	DRAWN BY LM	"
NOTE BOOK	TRACED BY	"
	DESIGNED BY E.N.	"
No.	QUANTITIES BY MA	"
	CHECKED BY GKY	"

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
LAND TRANSPORTATION FACILITIES DIVISION

KAINEHE BRIDGE

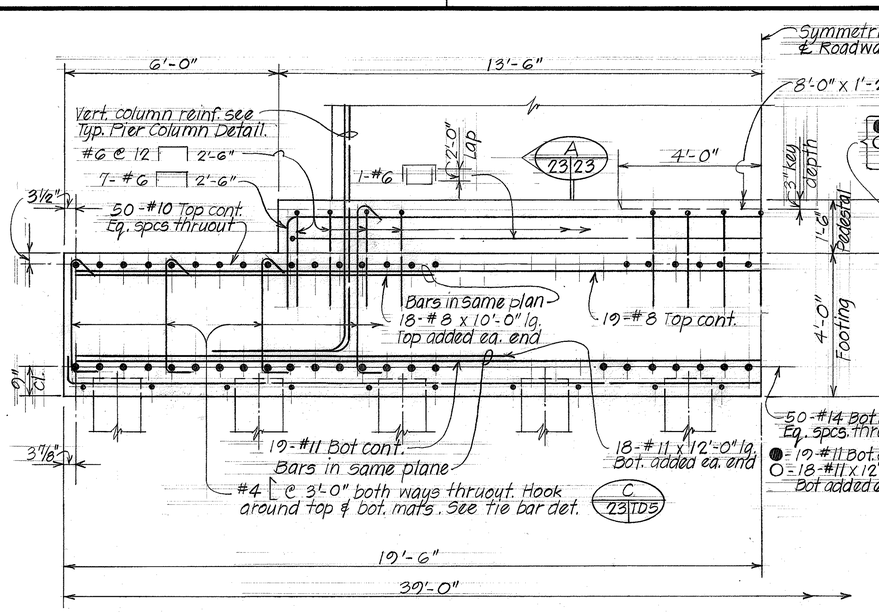
PIER 1 & 3 - FOOTING SECTIONS

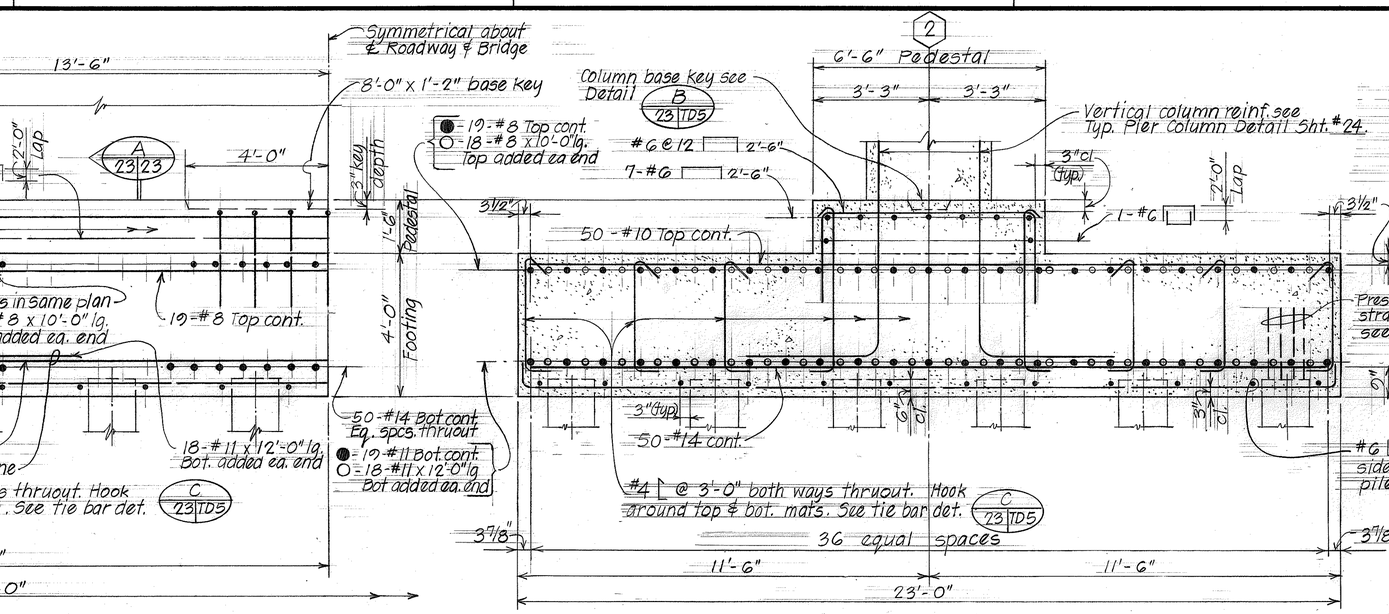
HAWAII BELT ROAD
Proj. No. BRF-019-2(20)

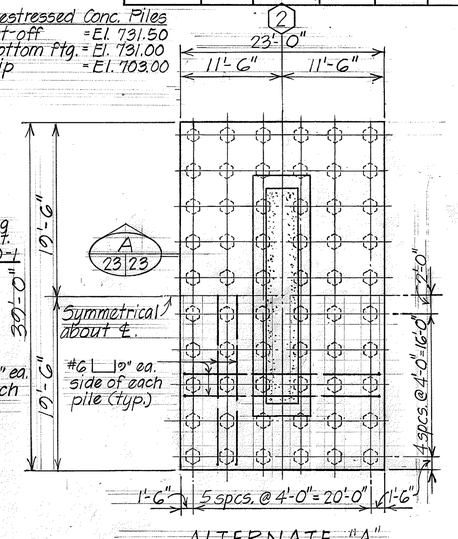
Scale: As Noted Date: Aug 1983

SHEET No. 22 OF 20 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BRF-010-2(20)	1984	82	126







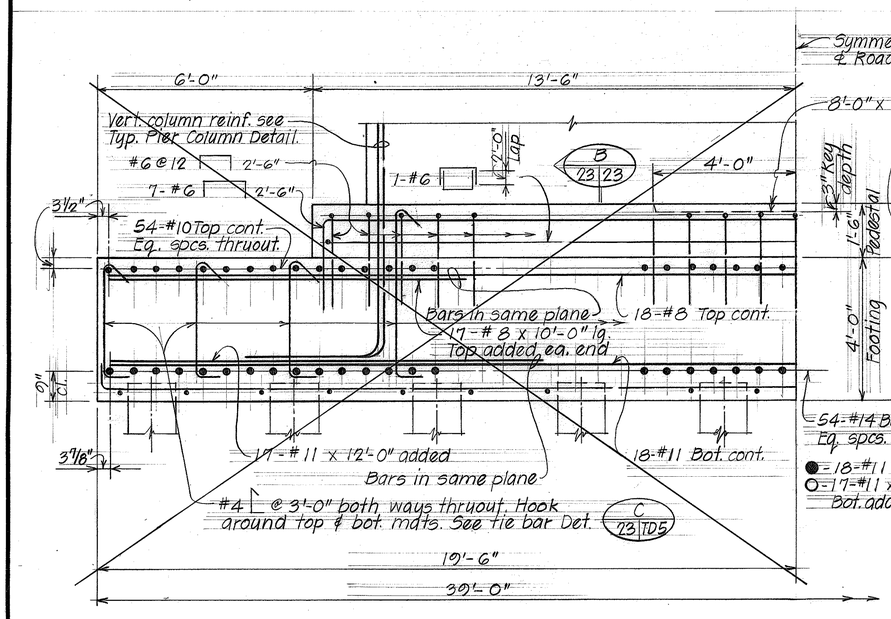
ALTERNATE "A"

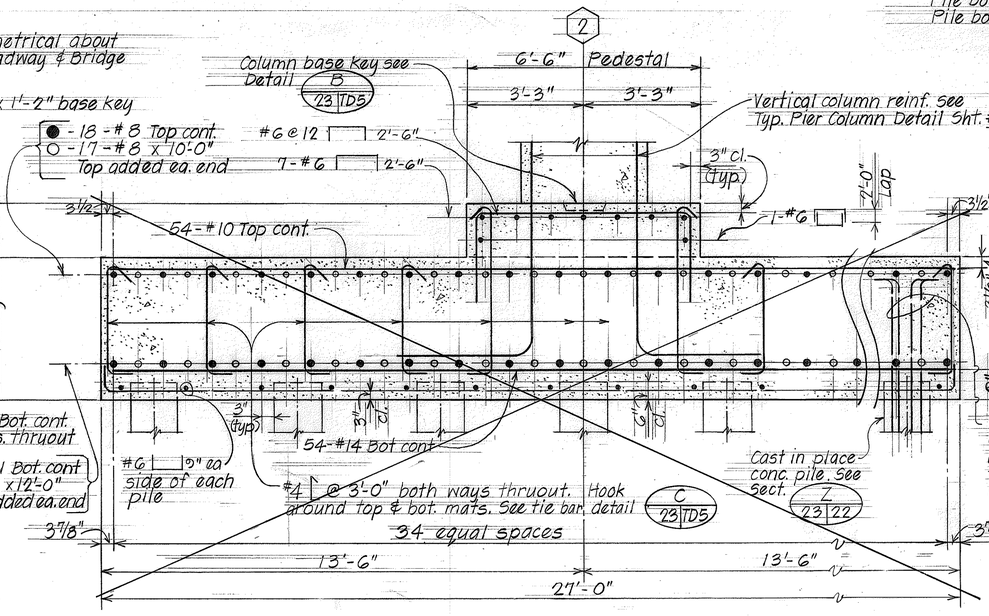
HALF ELEVATION - TYPICAL PIER FOOTING

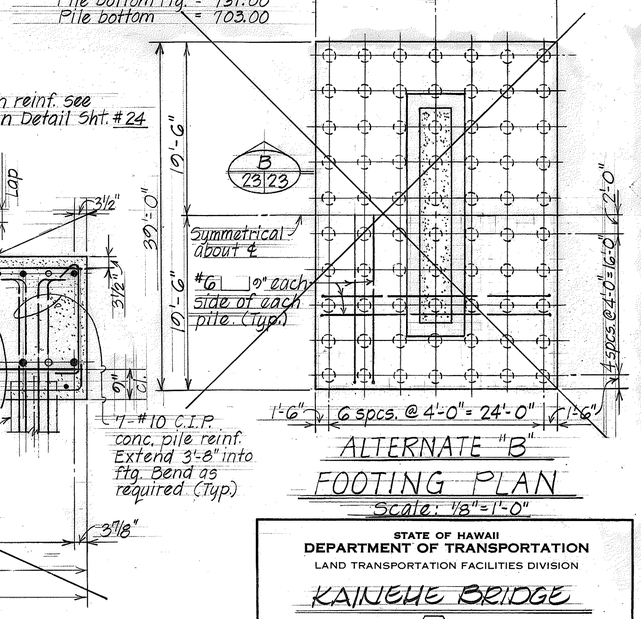
TYPICAL SECTION A 23|23

ALTERNATE "A" - PIER FOOTING

Revised Pier Footing - see attached sheet no. 82A (C.C.O. No. 7)







ALTERNATE "B"

FOOTING PLAN

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

HALF ELEVATION - TYPICAL PIER FOOTING

TYPICAL SECTION B 23|23

ALTERNATE "B" - PIER FOOTING

TYPICAL PIER (2) - FOOTING DETAIL

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

NOTE: See Sht. #22 note 1, 2, 3

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
LAND TRANSPORTATION FACILITIES DIVISION

KAINEHE BRIDGE
PIER (2) FOOTING
ALTERNATE "A" & ALTERNATE "B"
HAWAII BELT ROAD
Proj. No. BRF-010-2(20)
Scale: As Noted Date: Aug 1983

SHEET No. 23 OF 29 SHEETS

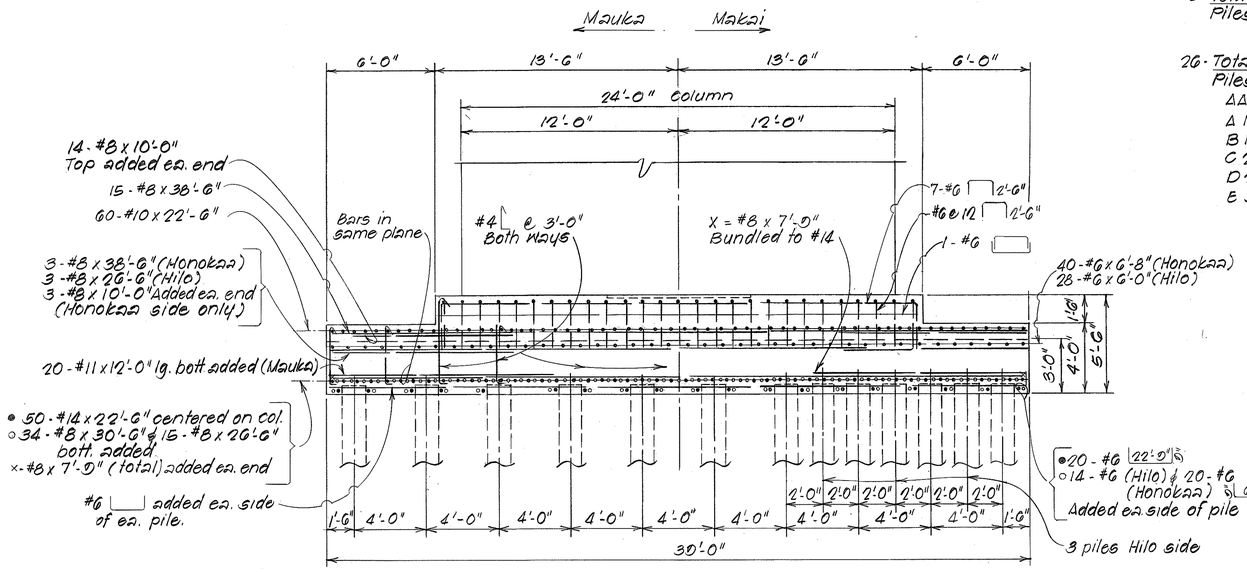
ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
	DRAWN BY L.M.A.	
NOTE BOOK	TRACED BY	
	DESIGNED BY E.H.	
No.	QUANTITIES BY L.M.A.	
	CHECKED BY G.R.Y.	

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BRF-010-2(20)	1986	82A	126

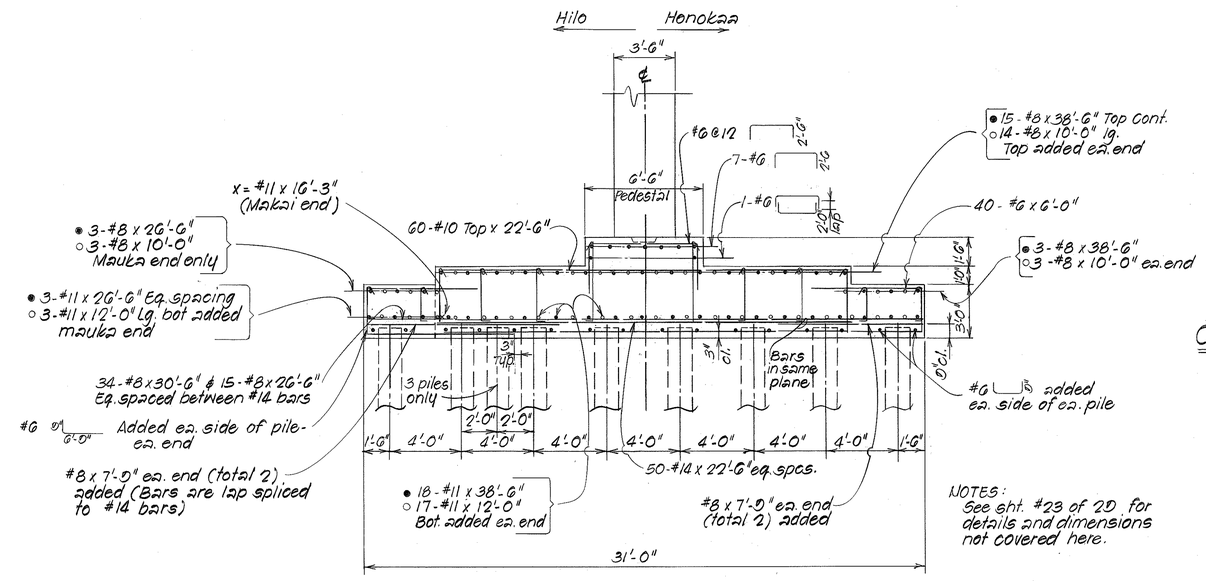
PILES

6 - Total pile splice cans
Piles - AB2, AB3, AA4
AA5, AA6, AA7

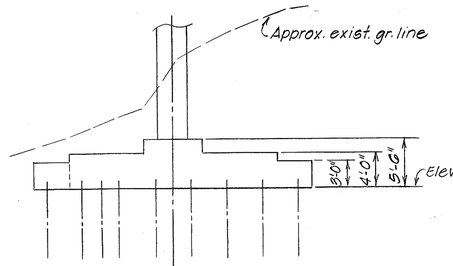
26 - Total piles built-up
Piles -
AA4
A 1, 2, 3, 5, 8
B 1, 2, 3, 4, 5, 6, 7, 8
C 2, 3, 4, 5, 8
D 2, 3, 4, 5
E 3, 4, 5

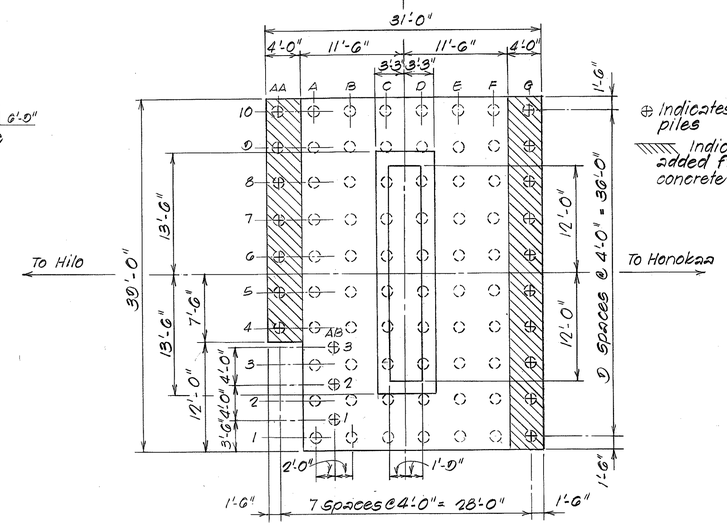


REVISED ELEVATION - TYPICAL PIER FOOTING
Scale: 1/4" = 1'-0"



REVISED TYPICAL SECTION
Scale: 1/4" = 1'-0"





REVISED ALTERNATE "A"
PLAN
Scale: 3/8" = 1'-0"

C.C.O. No. 7

NOTES:
See sht. #23 of 20 for details and dimensions not covered here.

NOTE:
THIS TRACING PREPARED DURING "AS-BUILT" POSTINGS.

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

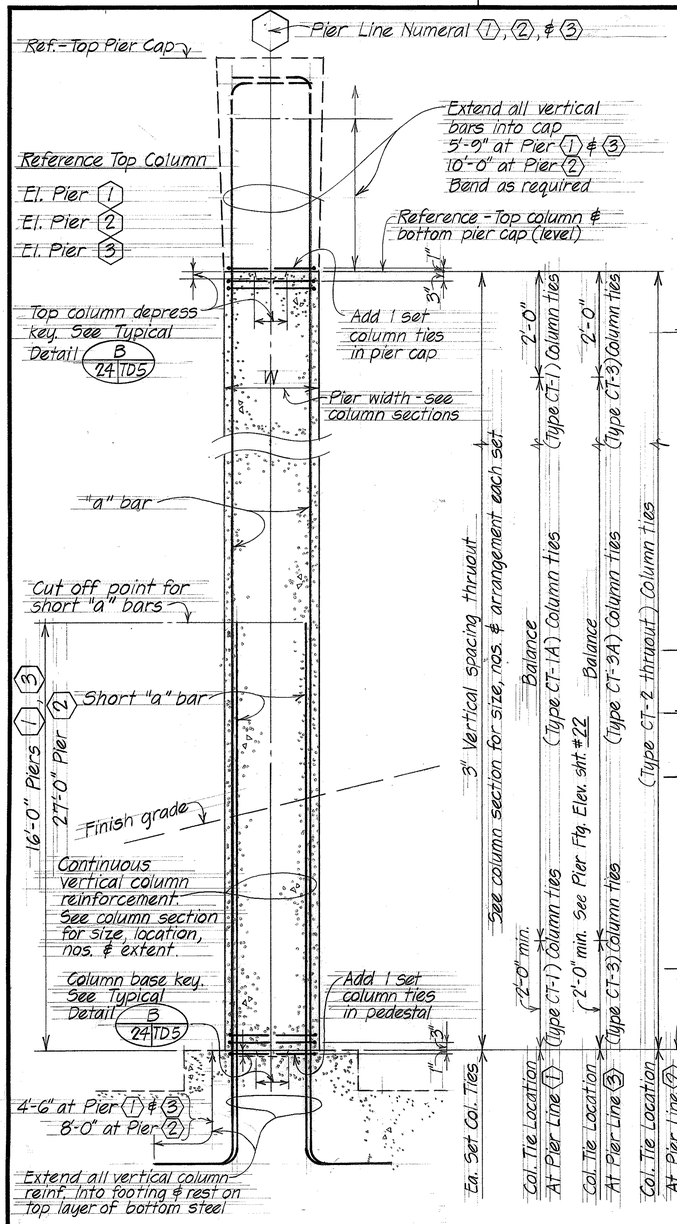
KAINEHE BRIDGE
PIER (2) FOOTING
ALTERNATE "A"
HAWAII BELT ROAD
Proj. No. BRF-010-2(20)

Scale: As Shown Date: Dec. 1984

SHEET No. 23A OF 20 SHEETS

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

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BRF-019-2(20)	1984	83	126

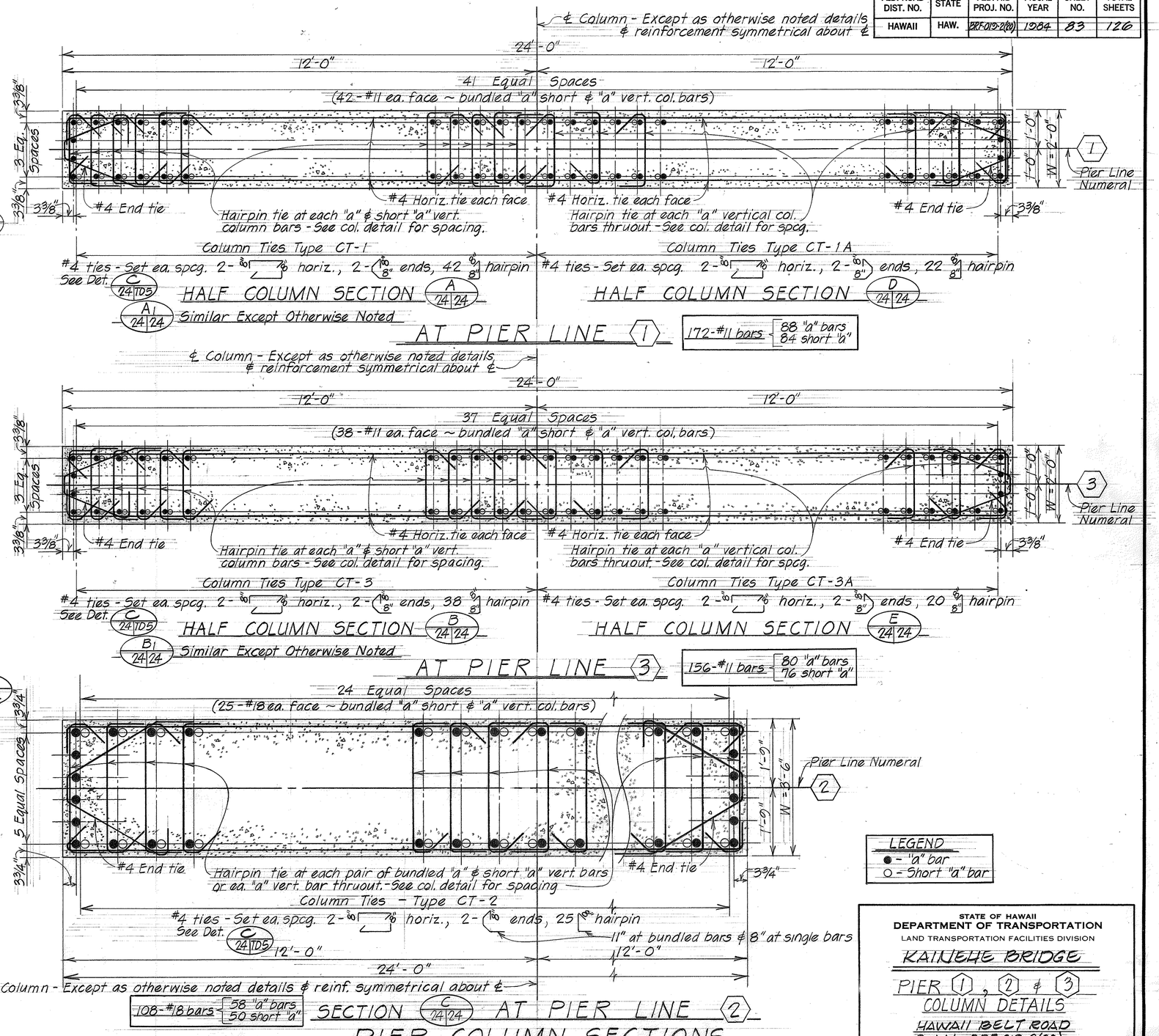


TYPICAL PIER COLUMN DETAIL

Not to scale

NOTE:

1. Refer to sht. #TD4, #TD5 for pier cap dimensions, & reinf. details.
2. All column reinforcement to be ASTM A615, Grade 60.
3. Alternate column ties - hook location on opposite end each layer.



LEGEND
● - "a" bar
○ - Short "a" bar

ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
	DRAWN BY LMA	"
	TRACED BY	"
NOTE BOOK	DESIGNED BY E.N., M.Y., D.C.O.	"
	QUANTITIES BY LMA	"
No.	CHECKED BY C.R.Y.	"

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
LAND TRANSPORTATION FACILITIES DIVISION

KAINEHE BRIDGE

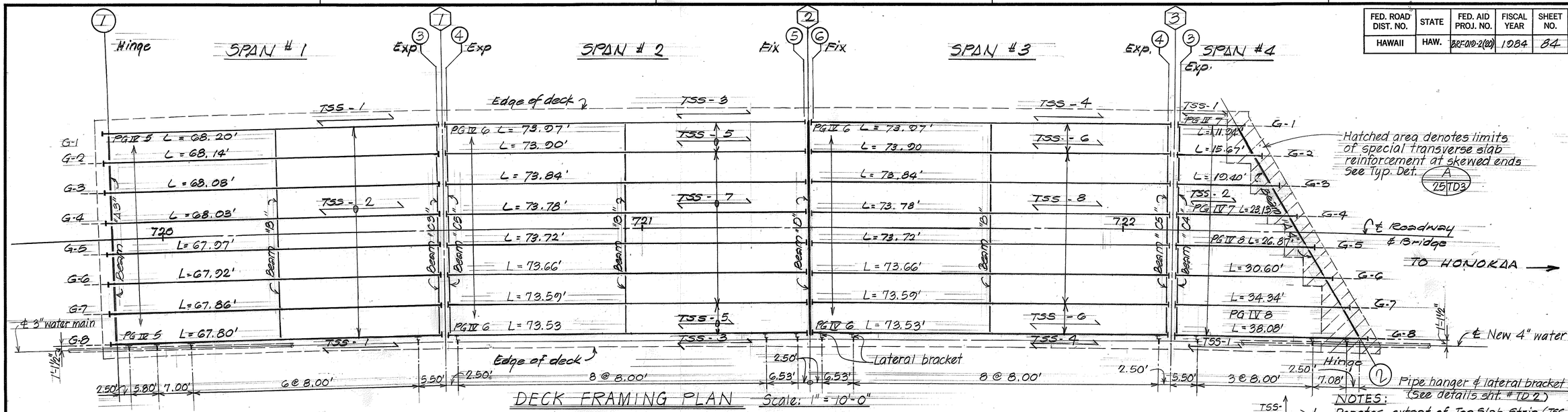
PIER (1), (2) & (3)
COLUMN DETAILS

HAWAII BELT ROAD
Proj. No. BRF-019-2(20)

Scale: As Shown Date: Aug 1983

SHEET No. 24 OF 29 SHEETS

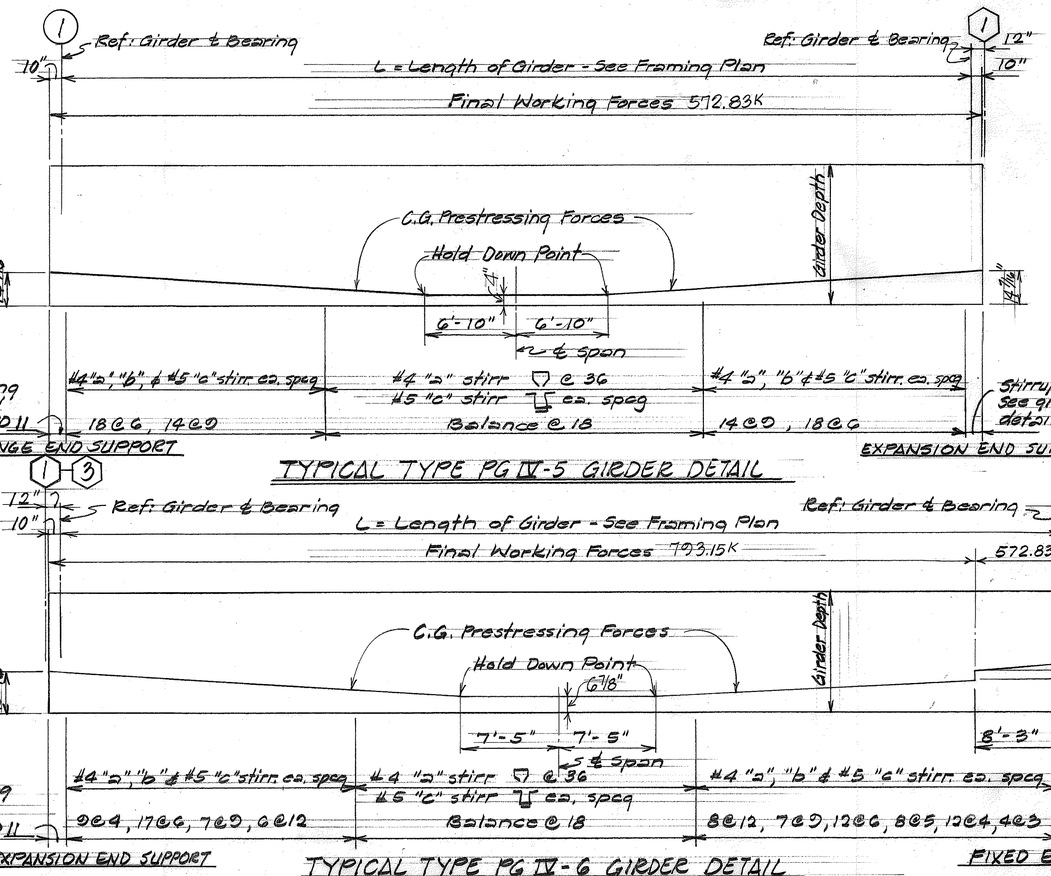
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BRF-010-2(20)	1984	84	126



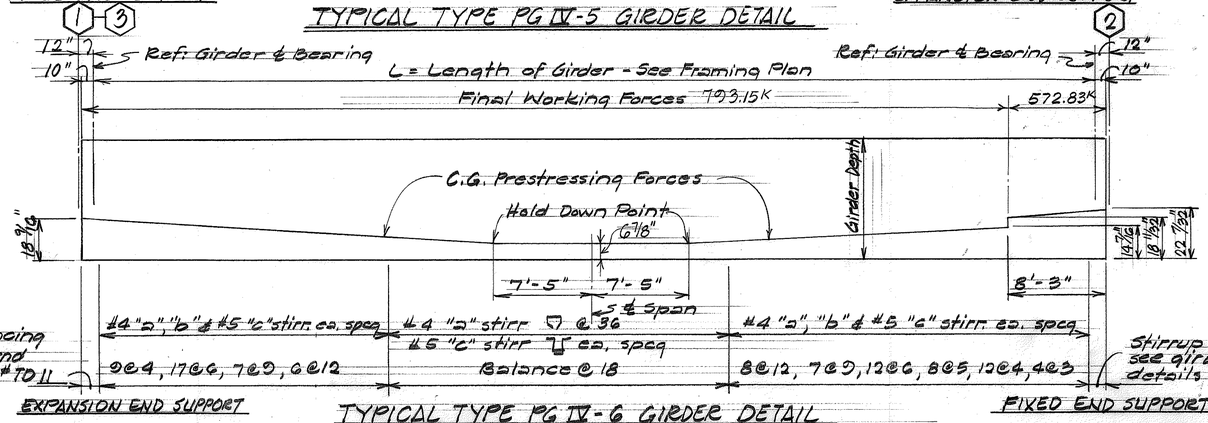
DECK FRAMING PLAN Scale: 1" = 10'-0"

NOTES:

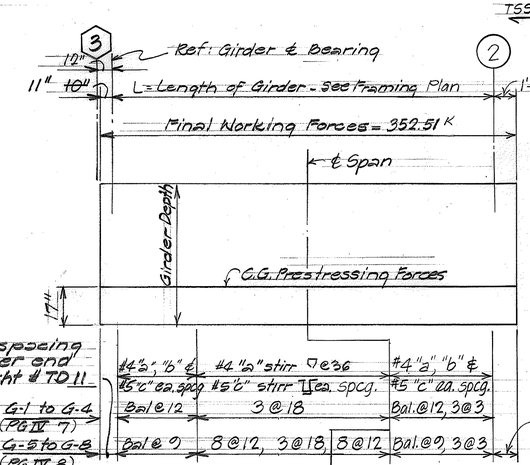
1. Denotes extent of Top Slab Strip (TSS-) between girders each bay. Refer to Typical Deck Slab sections & corresponding Bar Placement Diagram for Size & Nos., Sht # TD1
2. For additional Notes, see sht # TD1
3. Locate Bm "B" at midspan as indicated on plan.
4. Girder dimension L = horizontal measurement between girder & bearing each end of girder. The Contractor shall determine total length of girder.



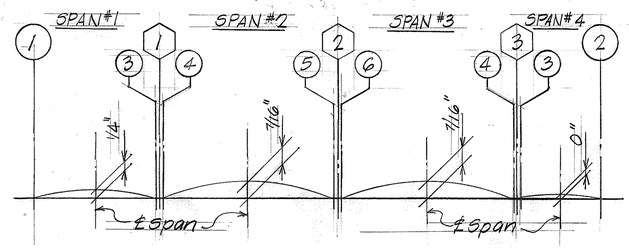
TYPICAL TYPE PG IV-5 GIRDER DETAIL



TYPICAL TYPE PG IV-6 GIRDER DETAIL



TYPICAL TYPE PG IV-7 & PG IV-8 GIRDER DETAIL



SLAB CAMBER DIAGRAM

ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
	DRAWN BY SY	
	TRACED BY	
NOTE BOOK	DESIGNED BY SA, CM, MY	
	QUANTITIES BY	
No.	CHECKED BY CRY	

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
LAND TRANSPORTATION FACILITIES DIVISION

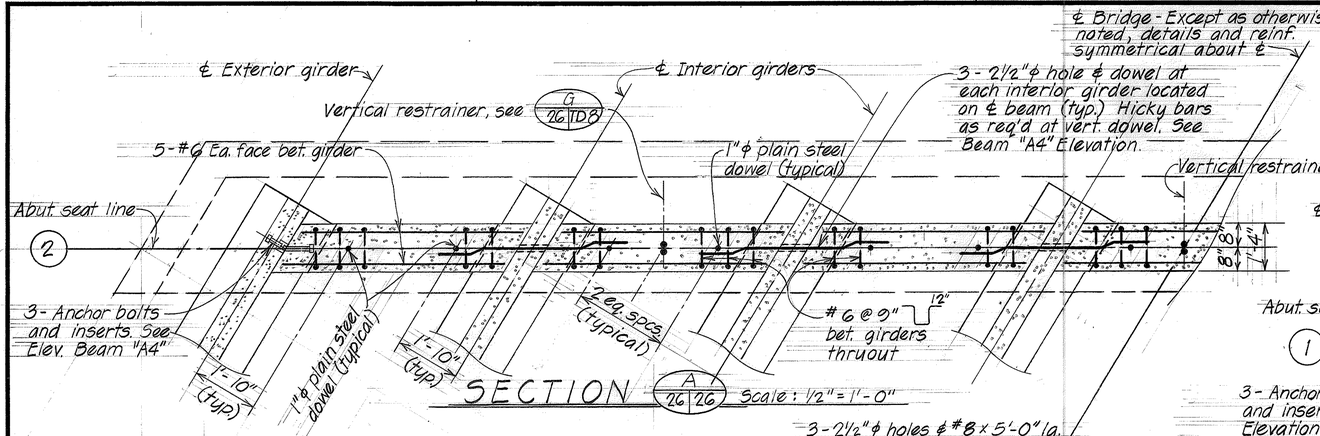
KAINEHE BRIDGE

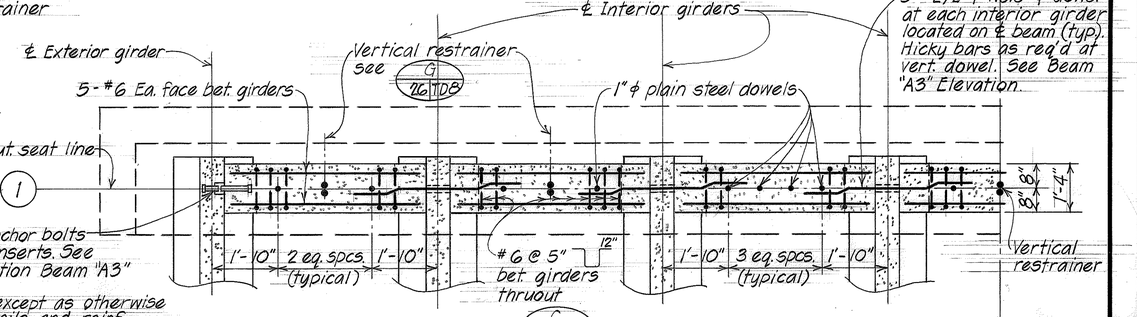
DECK FRAMING PLAN
PRESTRESSED GIRDER DETAIL
SLAB CAMBER DIAGRAM
HAWAII BELT ROAD
Proj. No. BRF-010-2(20)

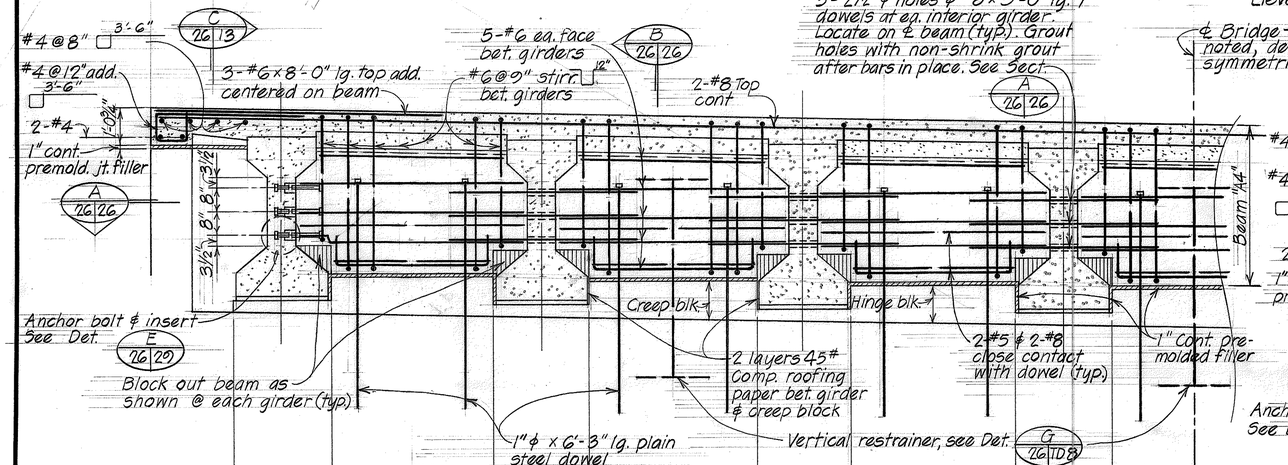
Scale: As Noted Date: Aug 1983

SHEET No. 25 OF 29 SHEETS

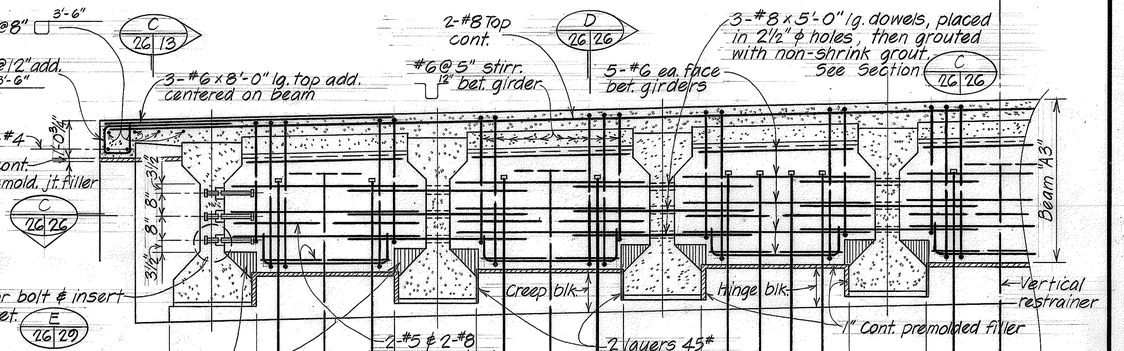
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BRF-019-2(20)	1984	85	126



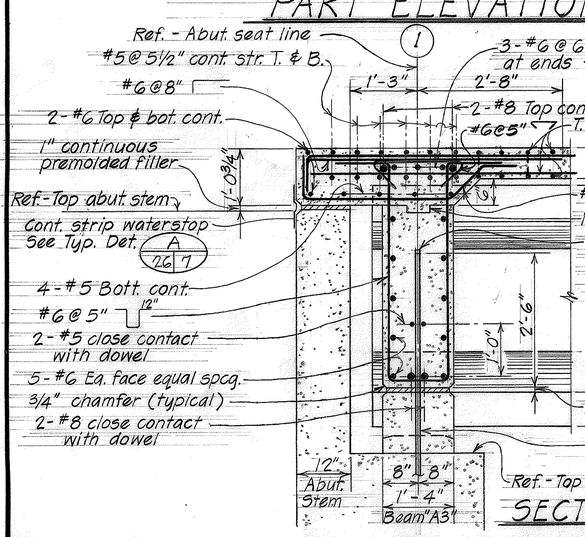


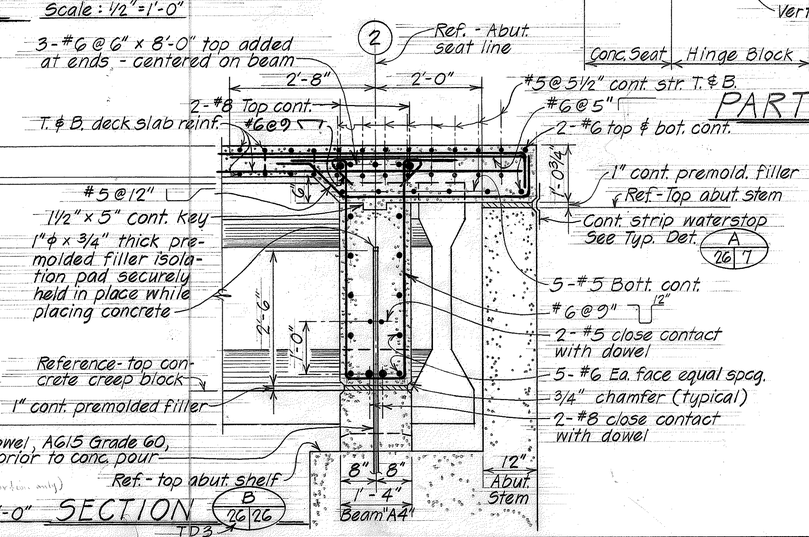


PART ELEVATION - BEAM "A4" Scale: ½"=1'-0"



PART ELEVATION - BEAM "A3" Scale: ½"=1'-0"





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

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
LAND TRANSPORTATION FACILITIES DIVISION

KAINEHE BRIDGE

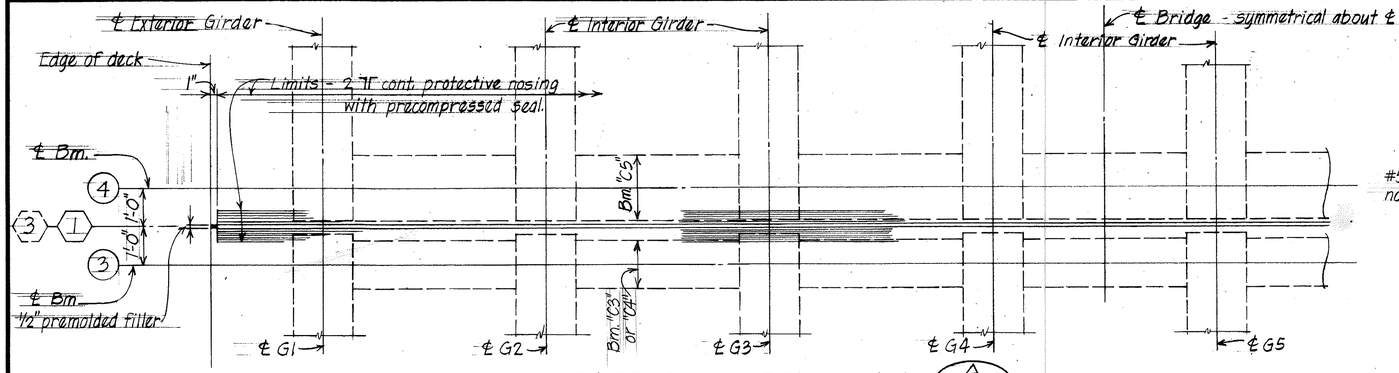
BEAMS - "A3" & "A4" DETAILS

HAWAII BELT ROAD
Proj. No. BRF-019-2(20)

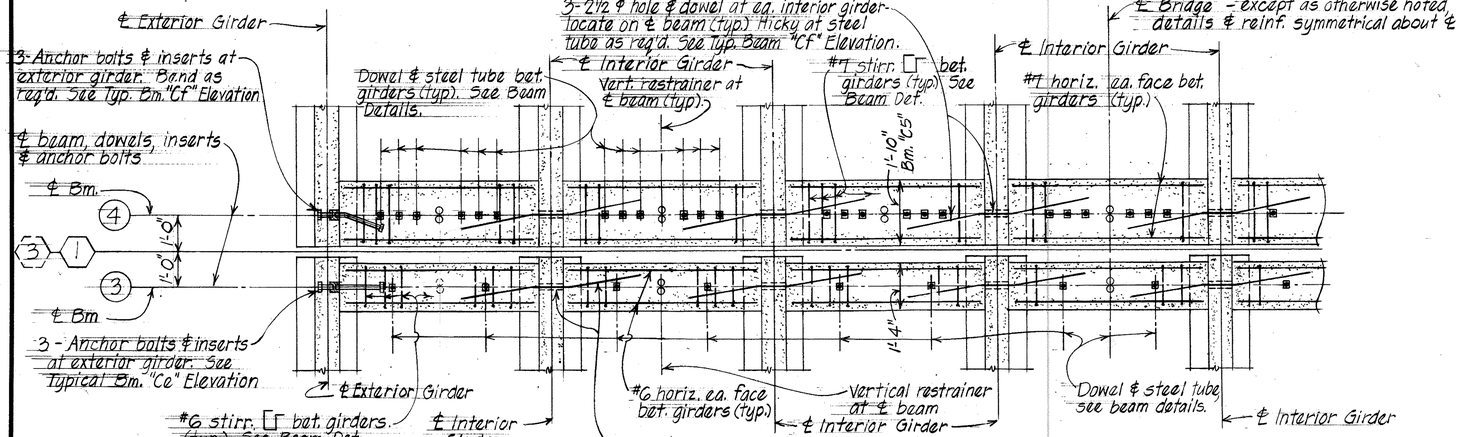
Scale: As Noted Date: Aug 1983

SHEET No. 26 OF 29 SHEETS

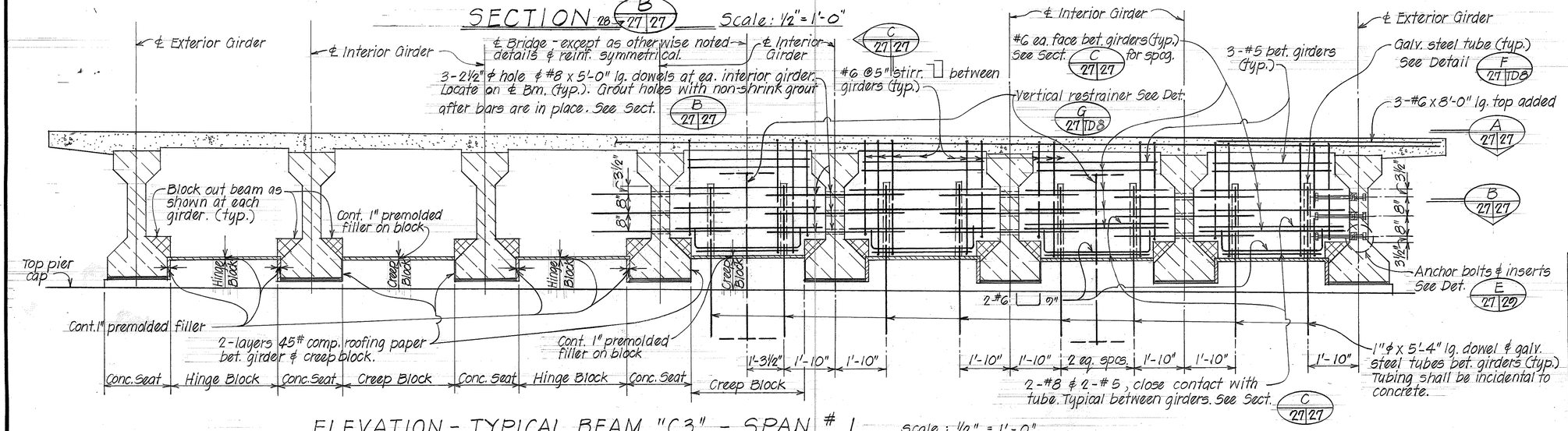
FED. ROAD DIST. NO.	STATE	~~FED. AID~~ PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BRF-019-2(20)	1974	86	126



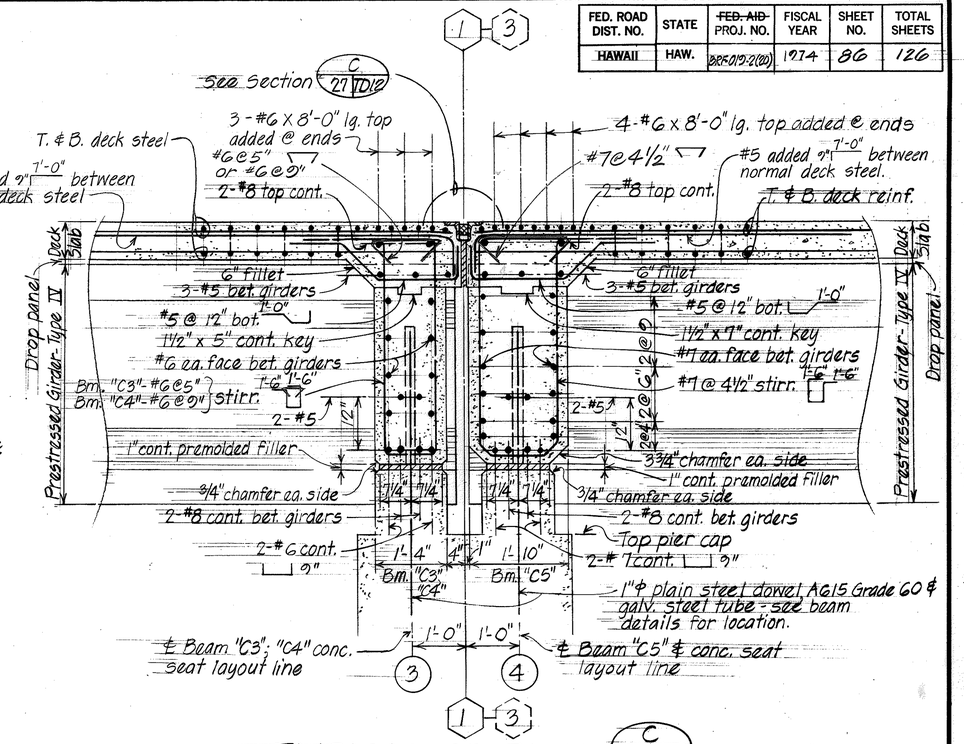
PART TOP DECK PLAN (A 27 27) Scale: 1/2" = 1'-0"



SECTION (B 28 27 27) Scale: 1/2" = 1'-0"



ELEVATION - TYPICAL BEAM "C3" - SPAN # 1 Scale: 1/2" = 1'-0"



TYPICAL SECTION (C 28 27 27) Scale: 3/4" = 1'-0"

ORIGINAL PLAN
NOTE BOOK
SURVEY PLOTTED BY
DRAWN BY M.L./M.A.
TRACED BY
DESIGNED BY D.C.O.
QUANTITIES BY E.M.
CHECKED BY C.K.Y.
DATE
" "
" "
" "

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
LAND TRANSPORTATION FACILITIES DIVISION

KAINEHE BRIDGE

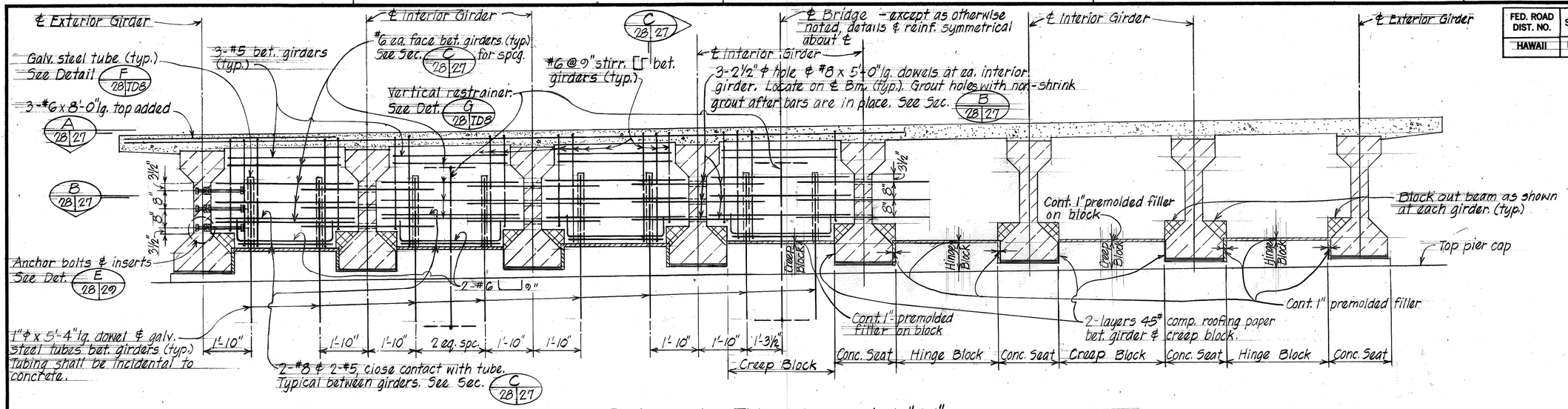
BEAMS "C3", "C4", "C5" DETAILS

HAWAII BELT ROAD
Proj. No. BRF-019-2(20)

Scale: As Noted Date Aug 1983

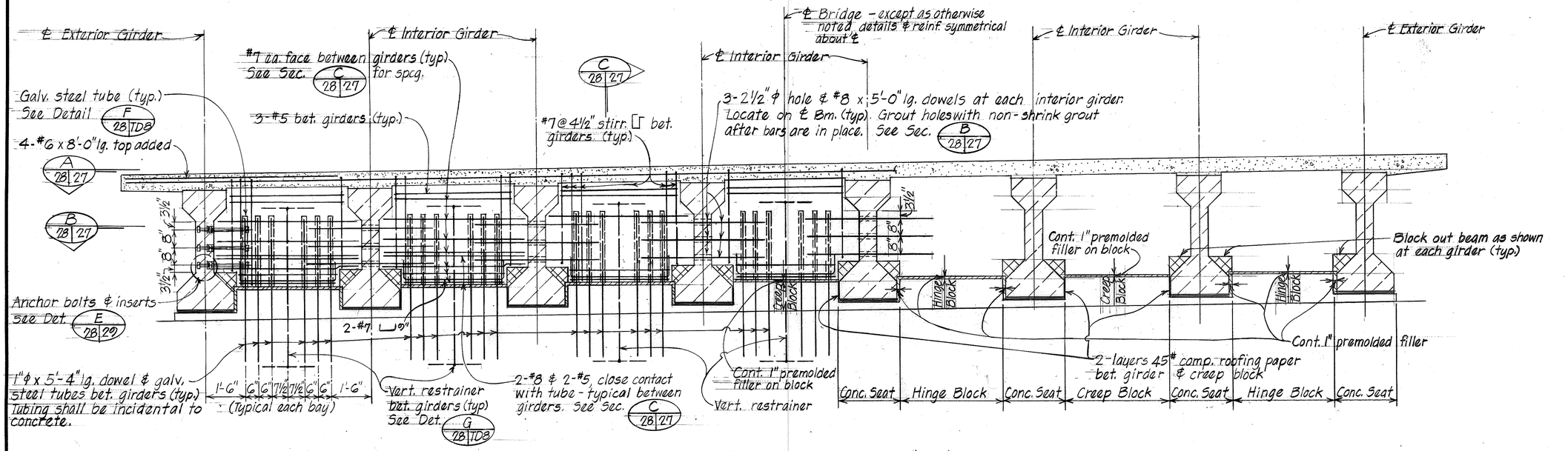
SHEET NO 27 OF 29 SHEETS

FED. ROAD DIST. NO.	STATE	~~FED. AID~~ PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BRF-019-2(20)	1984	87	126



ELEVATION - TYPICAL BEAM "C4"

Scale: ½" = 1'-0"



ELEVATION - TYPICAL BEAM "C5"

Scale: ½" = 1'-0"

ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
	DRAWN BY JY	"
	TRACED BY	"
NOTE BOOK	DESIGNED BY D.C.O.	"
	QUANTITIES BY JY	"
No.	CHECKED BY CKY	"

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
LAND TRANSPORTATION FACILITIES DIVISION

KAINEHE BRIDGE

BEAMS "C4" & "C5"

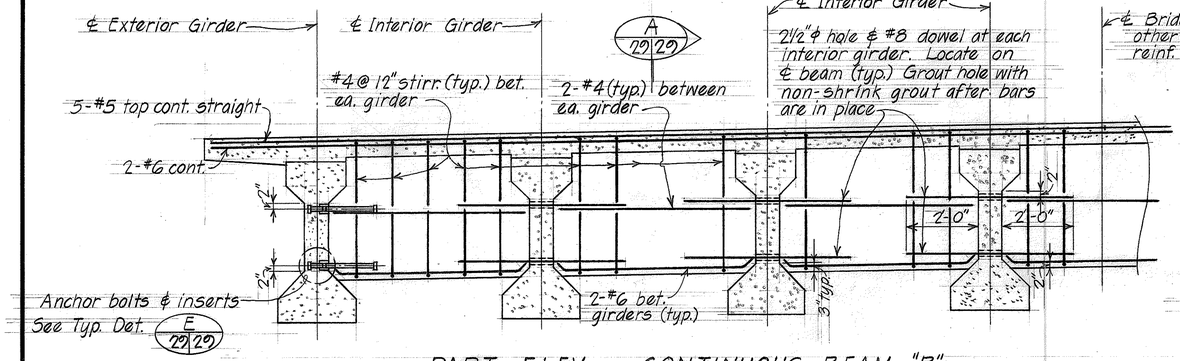
DETAILS

HAWAII BELT ROAD
Proj. No. BRF-019-2(20)

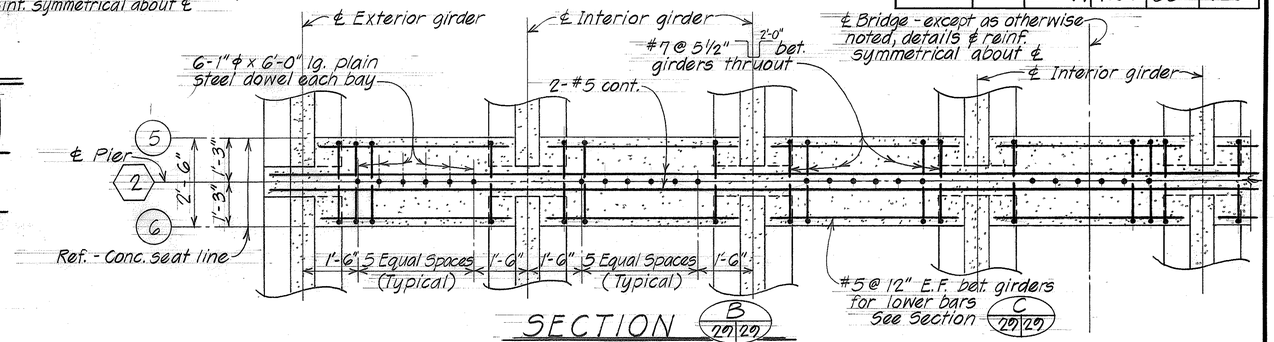
Scale: As noted Date: Aug 1983

SHEET No. 28 OF 29 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BRF-010-2(20)	1984	88	126

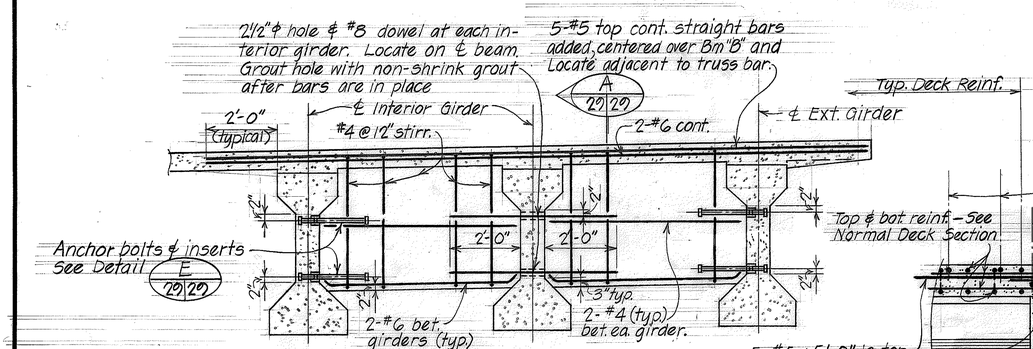


PART ELEV. - CONTINUOUS BEAM "B"

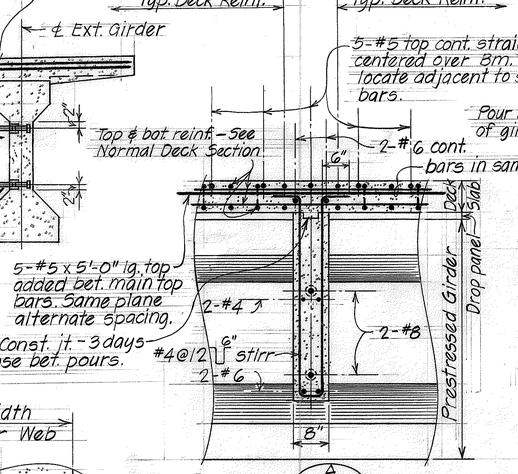


SECTION B 20 20

Scale : ½" = 1'-0"



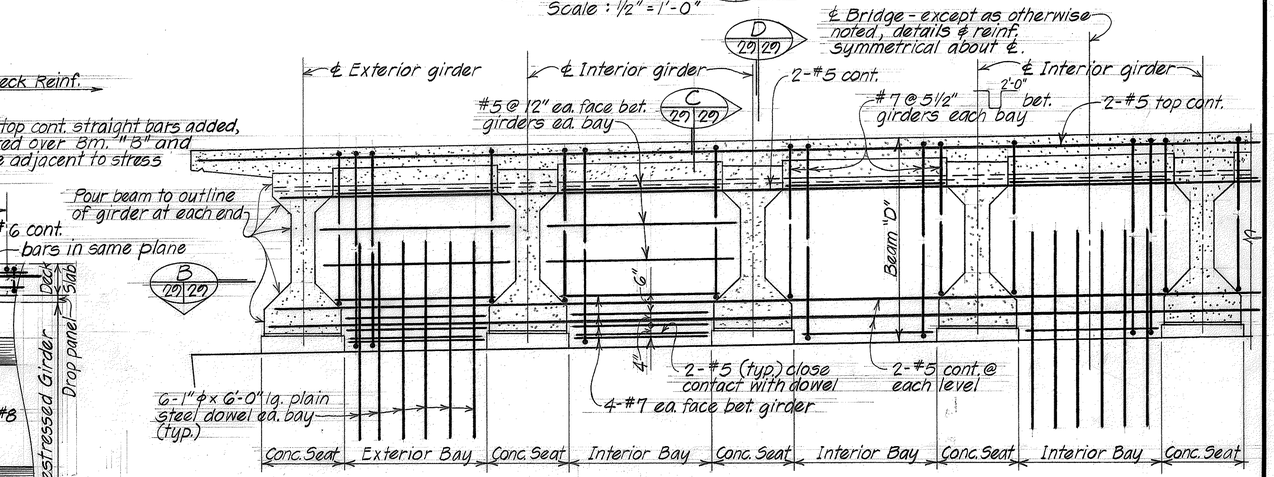
PART ELEV. - DOUBLE BEAM "B"



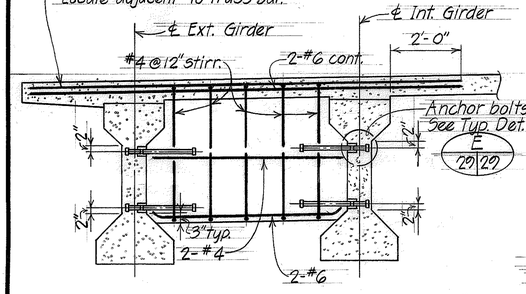
SECTION A 20 20

Scale: ¾" = 1'-0"

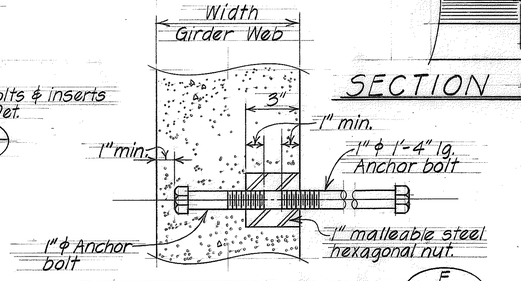
1½" x 3" const. jt - 3 days shall lapse bet. pours.



PART ELEVATION - BEAM "D" Scale: ½" = 1'-0"



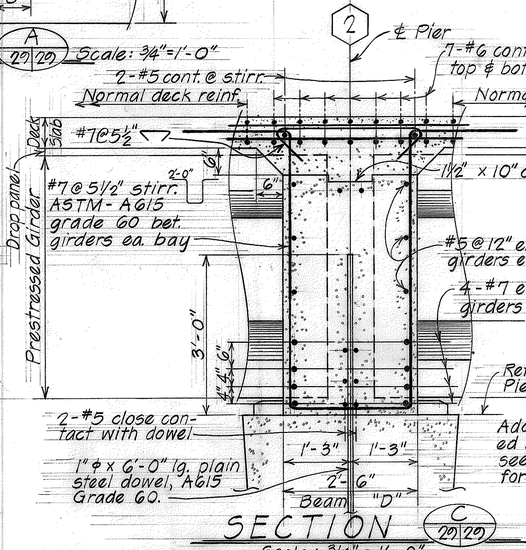
PART ELEV. - SINGLE BEAM "B"



TYPICAL INSERT DETAIL E 20 20

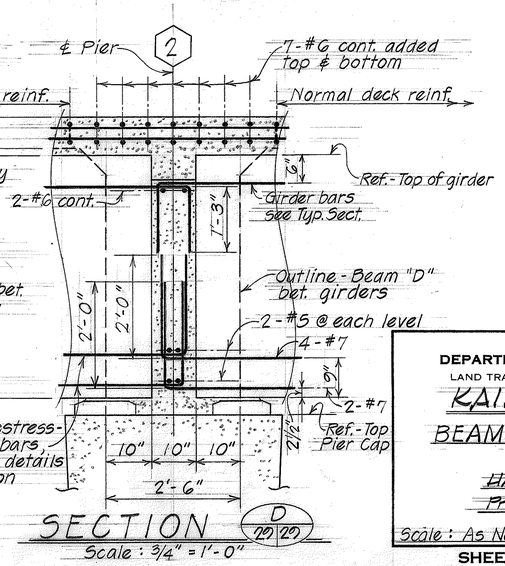
Scale : 3" = 1'-0"

12, 13, 26, 27, 28



SECTION C 20 20

Scale : ¾" = 1'-0"



SECTION D 20 20

Scale : ¾" = 1'-0"

TYPICAL BEAM "B" ELEVATIONS

Scale : ½" = 1'-0"

NOTES:

1. Elevations drawn against stations.
2. Inserts & anchor bolts to be incidental to concrete.

ORIGINAL PLAN	SURVEY PLOTTED BY	JM	DATE
	DRAWN BY	"	"
NOTE BOOK	TRACED BY	"	"
	DESIGNED BY	D.C.O.	"
No.	QUANTITIES BY	JM	"
	CHECKED BY	AKY	"

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
LAND TRANSPORTATION FACILITIES DIVISION

KAIMEHE BRIDGE

BEAMS "D" & "B" DETAILS

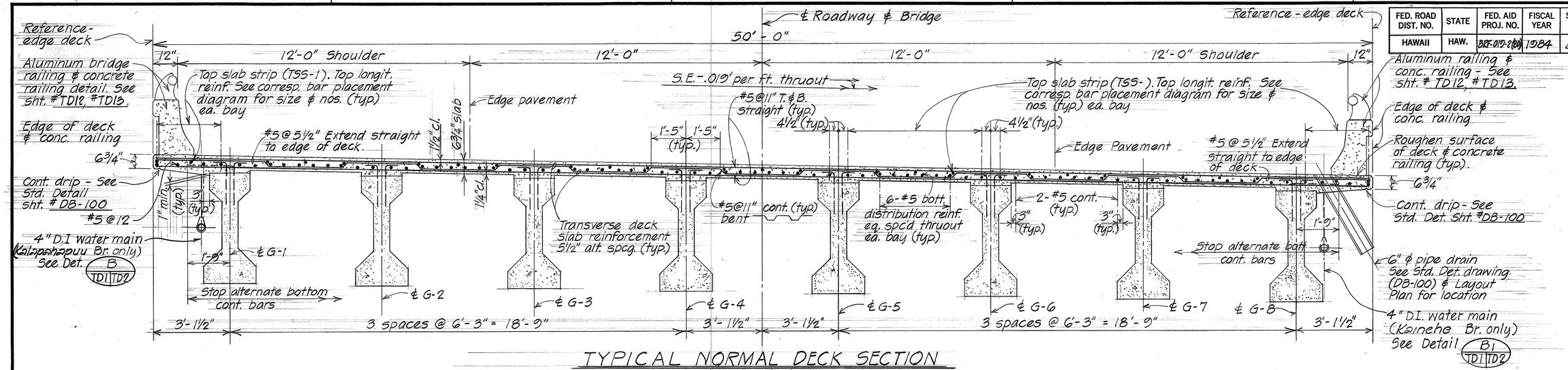
HAWAII BELT ROAD

Proj. No. BRF-010-2(20)

Scale : As Noted Date : Aug 1983

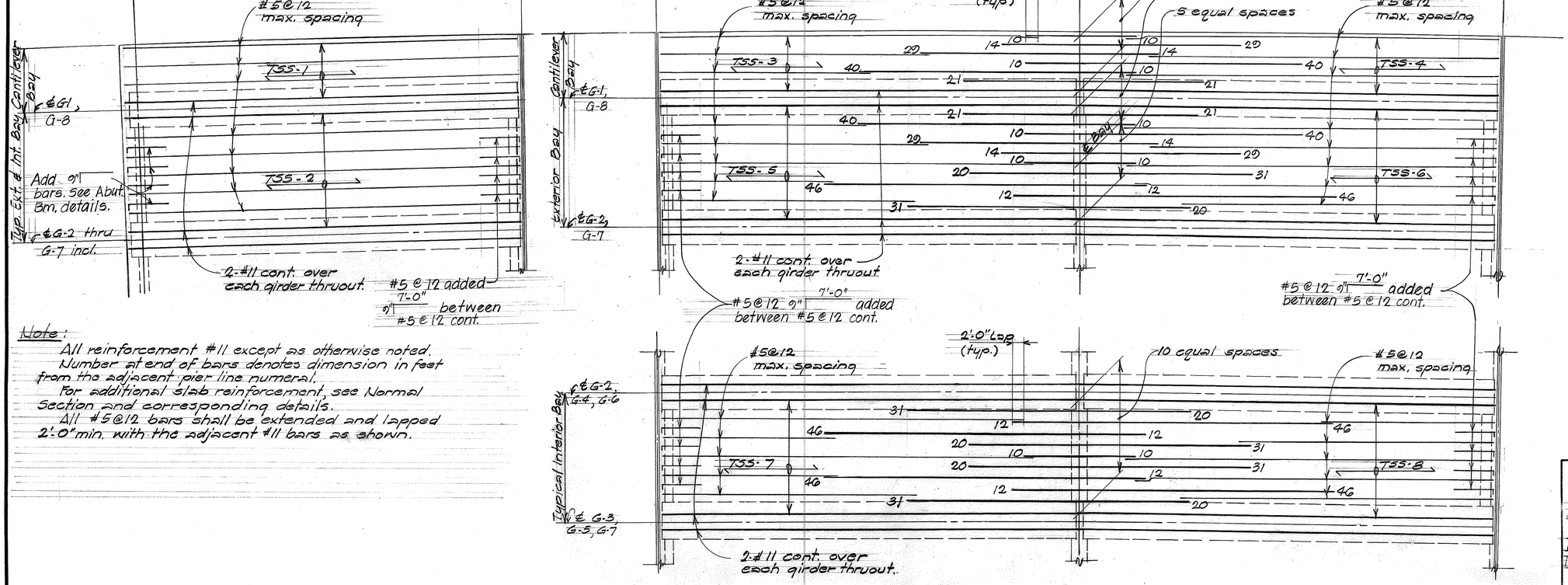
SHEET No. 20 OF 20 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BRF-019-2(20)	1984	89	126



TYPICAL NORMAL DECK SECTION

Scale : ½" = 1'-0"



Note:

All reinforcement #11 except as otherwise noted.
Number at end of bars denotes dimension in feet from the adjacent pier line numeral.
For additional slab reinforcement, see Normal Section and corresponding details.
All #5@12 bars shall be extended and lapped 2'-0" min. with the adjacent #11 bars as shown.

TYPICAL ARRANGEMENT OF REINFORCEMENT ~ TOP SLAB STRIPS TSS-1 THRU TSS-8 INCLUSIVE

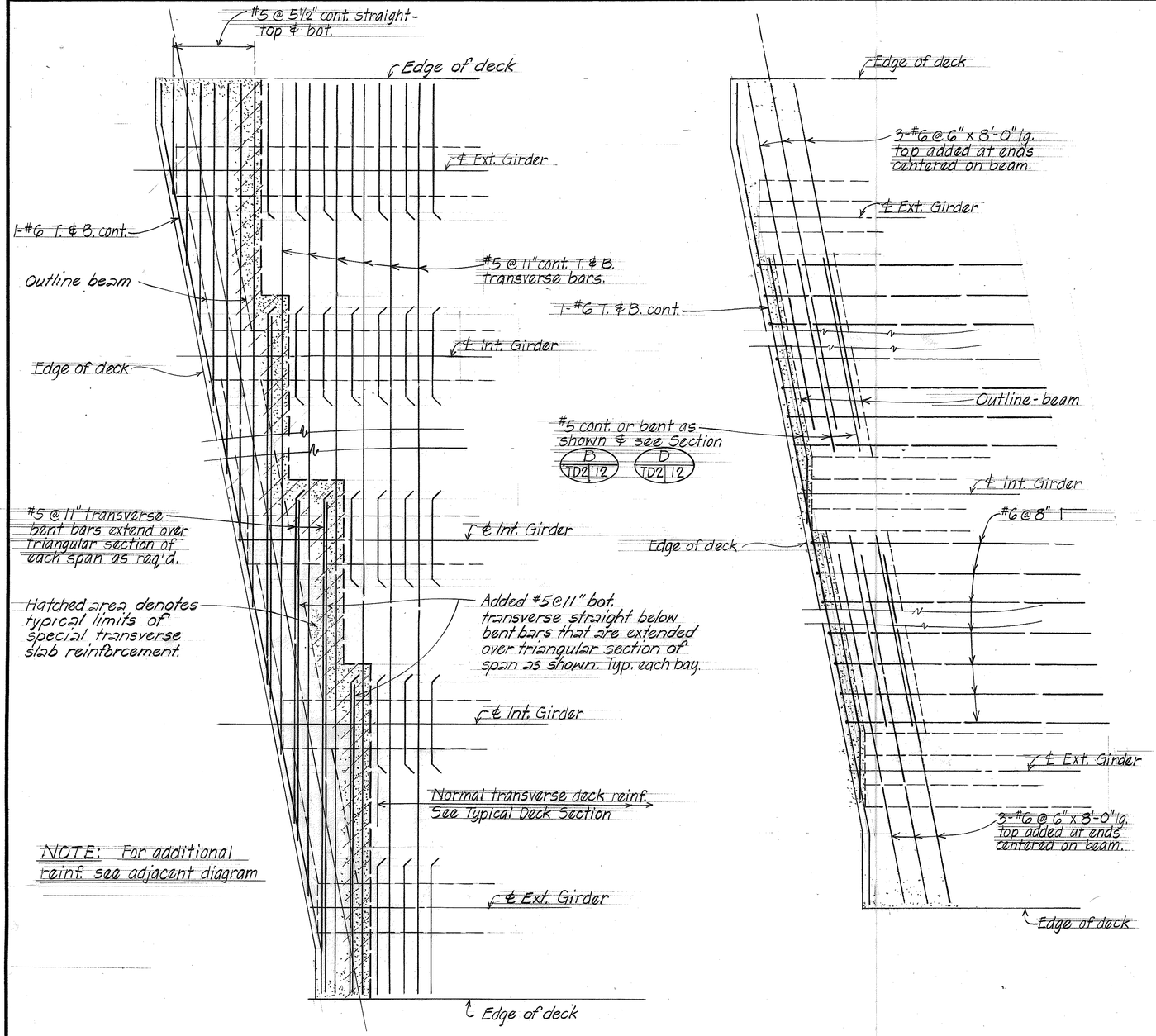
Scale : Transverse 3/8" = 1'-0"
Horizontal 1" = 10'-0"

ORIGINAL PLAN | NOTE BOOK | No.
SURVEY PLOTTED BY
DRAWN BY S.Y., G.W.
TRACED BY
DESIGNED BY
QUANTITIES BY
CHECKED BY E.R.Y.
DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
LAND TRANSPORTATION FACILITIES DIVISION

KAINEHE & KALAPAHAPUU BRIDGE
TYPICAL DETAILS
TYPICAL NORMAL DECK SECTION
TYPICAL BAR PLACEMENT DIAGRAM
TSS-1 THRU TSS-8
HAWAII BELT ROAD
Proj. No. BRF-019-2(20)
Scale: As Noted Date: Aug 1983
SHEET No. TD1 OF 14 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BRF-019-2(20)	1984	70	126

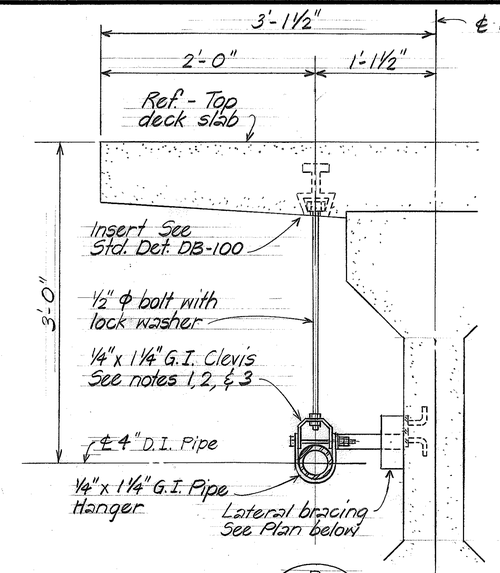


NOTE: For additional reinf. see adjacent diagram

DIAGRAM - SHOWING TRANSVERSE DECK REINFORCEMENT

DIAGRAM - SHOWING ADDED REINFORCEMENT

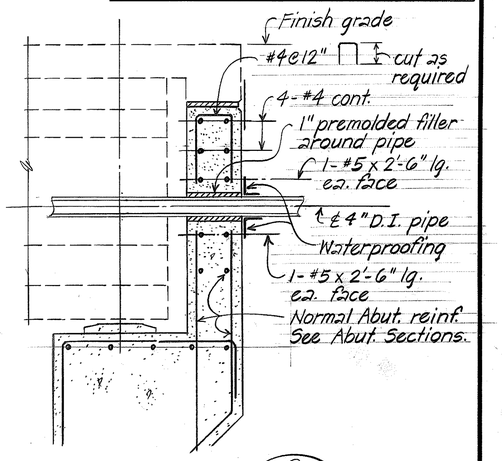
A 11 TD2 PART PLAN - TYPICAL DECK REINFORCEMENT AT SKEWED HINGED ENDS & ABUT. ①, PIER ① - KALAPAHAPUU BRIDGE ONLY



DETAIL B TD1 TD2

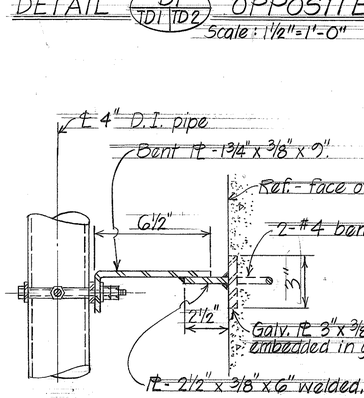
DETAIL B1 TD1 TD2 OPPOSITE HAND

Scale: 1½" = 1'-0"



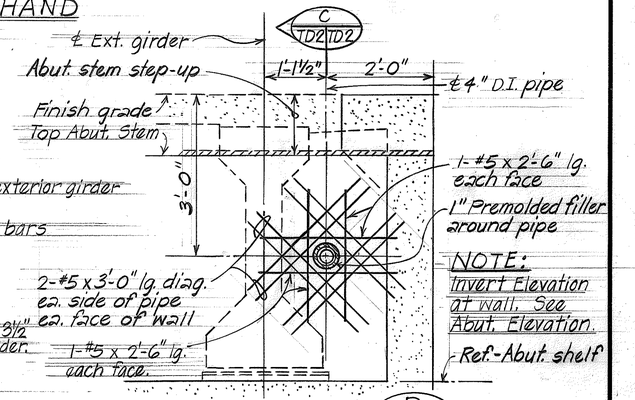
SECTION C TD2 TD2

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



PLAN - PIPE HANGER LATERAL BRACING

Scale: 3" = 1'-0"



DETAIL D 6 TD2

D1 8 TD2 17, 18 OPPOSITE HAND

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

TYPICAL - 4" D. I. WATER MAIN DETAILS

NOTES:

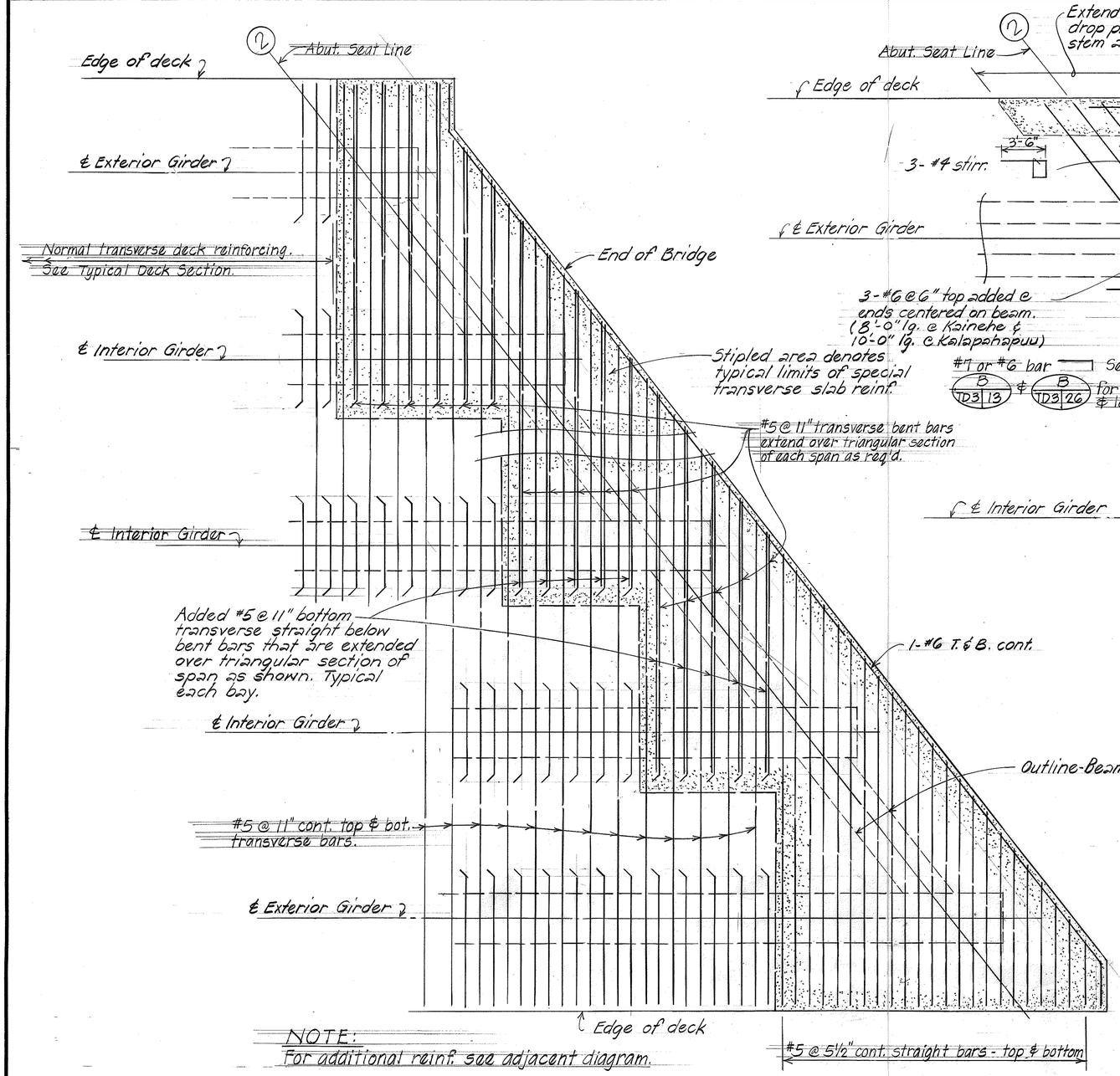
1. See Deck Framing Plan for pipe hanger insert, clevis hanger and lateral bracing spacing Sht. # 11, # 25.
2. Maximum spacing of pipe hanger shall be 8'-0". Pipe hangers shall be spaced as to keep a distance approximately 4'-0" from pipe joint.
3. All exposed metal of pipe hangers and lateral supports shall have one shop coat of approved primer coat and final coat of rust preventive. (Metal gray).
4. 1" premolded filler jt. shall be installed around pipe that are embedded in concrete abutments.

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
LAND TRANSPORTATION FACILITIES DIVISION
KAINEHE & KALAPAHAPUU BRIDGES
TYPICAL DETAILS
4" D.I. WATER MAIN DETAILS
DECK REINFORCEMENT AT SKEWED END
ABUT ①, PIER ① - KAINEHE BR. ONLY
HAWAII BELT ROAD
Proj. No. BRF-019-2(20)
Scale: As Noted Date: Aug 1983

SHEET No. TD2 OF 14 SHEETS

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

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BRF-019-2(20)	1984	91	126



NOTE:
For additional reinf. see adjacent diagram.

DIAGRAM - SHOWING TRANSVERSE DECK REINFORCEMENT

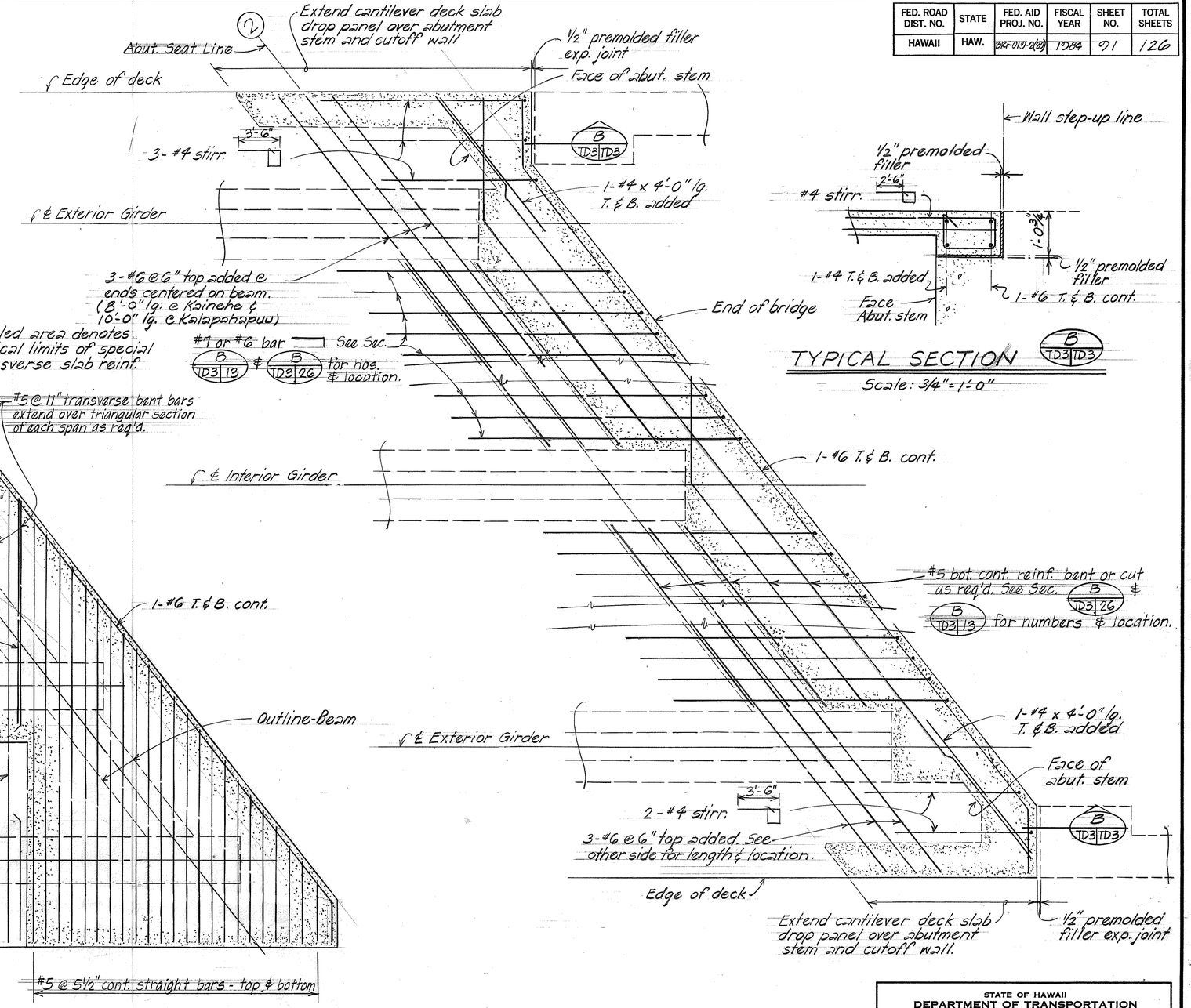


DIAGRAM - SHOWING ADDED REINFORCEMENT

TYPICAL SECTION
B TD3 TD3
Scale: 3/4" = 1'-0"

A 25 TD3 PART PLAN - TYPICAL DECK REINFORCEMENT AT SKEWED END (ABUT. ② - KAINEHE & KALAPAHAPUU BRIDGE
Not to Scale

ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
	DRAWN BY T.K.M.	"
	TRACED BY	"
NOTE BOOK	DESIGNED BY	"
No.	QUANTITIES BY	"
	CHECKED BY C.R.Y.	"

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
LAND TRANSPORTATION FACILITIES DIVISION

KAINEHE & KALAPAHAPUU BRIDGE
TYPICAL DETAILS
DECK REINFORCEMENT AT SKEWED END
ABUTMENT ②
HAWAII BELT ROAD
Proj. No. BRF-019-2(20)
Scale: Not to Scale Date: Aug 1983

SHEET No. TD3 OF 14 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BRF-010-2(20)	1084	92	126

Outline - Creep or Hinge Block where occur. See Plan for location.

℄ Bridge - except as otherwise noted details & reinf. similar about ℄.

Top concrete seat El. ℄ Girder & bearing See schedule sht. #TD7

℄ G-1 G-8 ℄ G-2 G-7 ℄ G-3 G-6 ℄ G-4 G-5

Ref. - Top pier cap

Top Pier Cap El. (a) See Plan below

8'-0" 4'-0" 4'-0" 4"

Ref. - Top col.

Pier Column See corresponding det.

8'-0" x 1'-2" Key See Det. B TD4 TD5

Top Column El.

Balance 12'-0" Balance stirrup spacing @ 18" (typ)

A TD4 TD5

#11 "b" bars added (1st layer)

7 - #5 ea. face equal spcg.

#11 "a" bars cont. (1st layer)

6'-0" 8'-0"

#11 "c" bars added (2nd layer)

#11 "d" bars cont. (2nd layer)

Same plane

Top Pier Cap El. (b)

B TD4 TD4

4 - #6 cont.

Top Column El.

3"

#5 stirrup spacing as shown

10 Spaces @ 6"	Bal. @ 8"	Pier (1) - Kalapahapuu Br.
16 Spaces @ 6"	Bal. @ 8"	Pier (1)
19 Spaces @ 5"	Bal. @ 8"	Pier (2) Kainehe Br.
12 Spaces @ 6"	Bal. @ 7"	Pier (3)

PIER DIMENSION

PIER REINFORCEMENT

TYPICAL PIER CAP ELEVATION

TOP PIER CAP ELEVATION SCHEDULE (AT ℄ PIER)			
BRIDGE	PIER	El. (a)	El. (b)
KALAPAHAPUU	(1)	803.22	807.42
KAINEHE	(1)	789.55	788.72
	(2)	787.34	786.50
	(3)	784.25 ~~784.19~~	784.12 ~~784.31~~

NOTES:

1) For concrete seat, hinge block, creep block and elastomeric bearing pad details see sht. #TD7, #TD8

2) For top concrete seat El. ℄ girder & bearing see sht. #TD7

3) For concrete seat skew bevel schedule see sht. #TD7

℄ Bridge

3 spaces @ 6'-4 9/16" = 19'-1 11/16" ℄ Girder seat spacing

3'-2 9/32" 3'-2 9/32"

3 spaces @ 6'-4 9/16" = 19'-1 11/16" ℄ Girder seat spacing

Skew bevel - see schedule (typ.)

Vertical restrainer, plain steel dowels detail see Bm. "C2" sht. # 12

Ref. - ℄ Pier

Hinge block Creep block

Top cap El. (b) at ℄ Pier. See Schedule

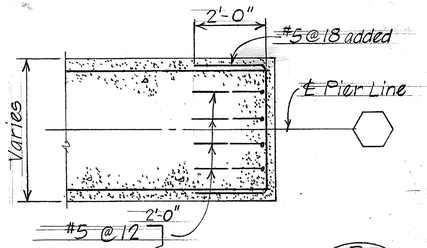
Top cap El. (a) at ℄ Pier See schedule

Vertical restrainer, plain steel dowels & detail see Bm "C1" sht. # 12

Skew bevel - See Schedule (typ.)

Ref. - Conc. Seat Line

TOP PIER (1) CAP PLAN - KALAPAHAPUU BRIDGE



B TD4 TD4

TYPICAL SECTION

℄ Bridge - except as otherwise noted, details & reinf. symmetrical about ℄.

25'-0" 25'-0"

3 spaces @ 6'-3" = 18'-0" ℄ Girder seat spacing

3'-1½" 3'-1½"

3 spaces @ 6'-3" = 18'-9" ℄ Girder seat spacing

Vertical restrainer, plain steel dowels detail see Bm "C5" sht. #27, #28

2'-4" Hinge Block 2'-3" Creep Block 2'-3" Hinge Block 2'-3" Creep Block

℄ G-1 ℄ G-2 ℄ G-3 ℄ G-4 ℄ G-5 ℄ G-6 ℄ G-7 ℄ G-8

2'-4" (typ) 2'-4" (typ)

Ref. - ℄ Pier

Ref. - Conc. Seat Line

Top Pier Cap El. (a) See Schedule

Vertical restrainer, plain steel dowels & detail see Bm. "C3" & "C4" sht. #27, #28

2'-4" Hinge Block 2'-3" Creep Block 2'-3" Hinge Block 2'-3" Creep Block

Plain steel dowels detail see Bm "D"

Conc. Seat (typ.)

Top Pier Cap El. (b) See Schedule

Ref. - ℄ Pier Line

Ref. - Conc. Seat Line

(PART PLAN - PIERS (1) & (3))

(PART PLAN - PIER (2))

TOP PIER CAP PLAN - (KAINEHE BRIDGE)

TYPICAL PIER CAP DETAILS

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

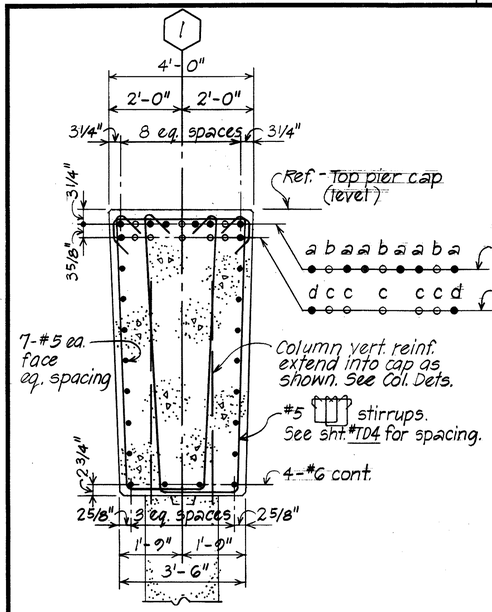
ORIGINAL PLAN	NOTE BOOK	No.	DATE
SURVEY PLOTTED BY			
DRAWN BY	J.M.A.		
TRACED BY	"		
DESIGNED BY	"		
QUANTITIES BY	"		
CHECKED BY	C.R.Y.		

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
LAND TRANSPORTATION FACILITIES DIVISION

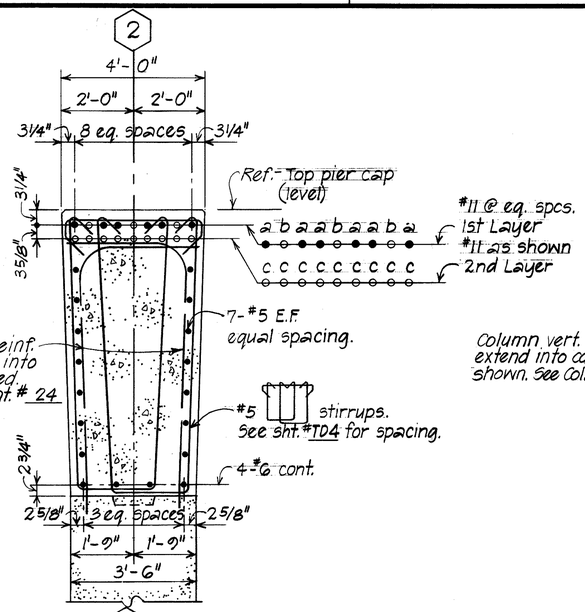
KAINEHE & KALAPAHAPUU BRIDGES
TYPICAL DETAILS
PIER CAPS - PLANS, ELEVATION & SCHEDULES
HAWAII BELT ROAD
Proj. No. BRF-010-2(20)
Scale : As Noted Date : Aug 1983

SHEET NO. TD4 OF 14 SHEETS

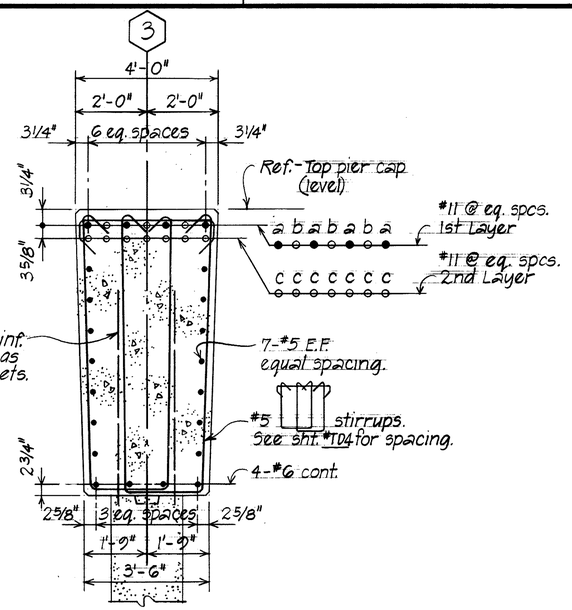
FED. ROAD DIST. NO.	STATE	~~FED. AID~~ PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BRF-019-2(20)	1984	93	126



AT PIER 1 (KAINEHE BR.)



AT PIER 2 (KAINEHE BR.)
SIMILAR - PIER 1 (KALAPAHAPUU BR.)

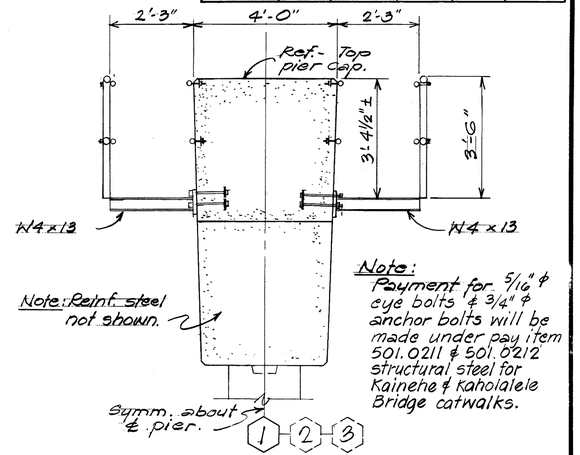


AT PIER 3 (KAINEHE BR.)

TYPICAL PIER CAP SECTION

A TD4 TD5

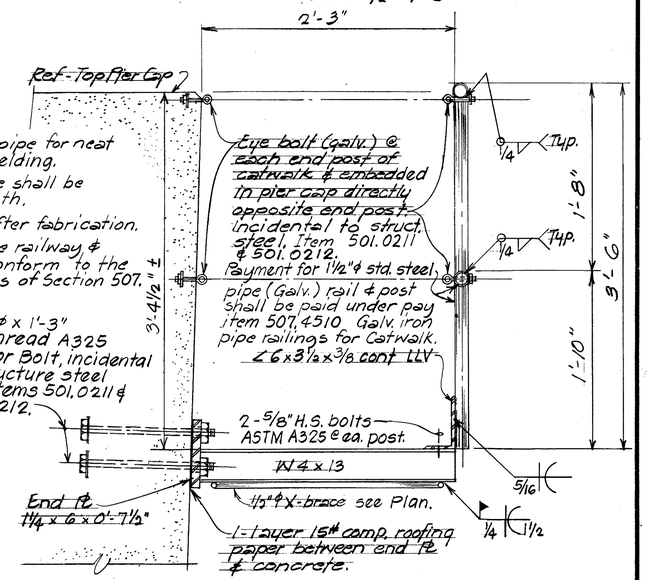
Scale : 1/2" = 1'-0"



Note: Payment for 5/16" ϕ eye bolts & 3/4" ϕ anchor bolts will be made under pay item 501.0211 & 501.0212 structural steel for Kainehe & Kaholalele Bridge catwalks.

PIER ~ CATWALK DETAIL

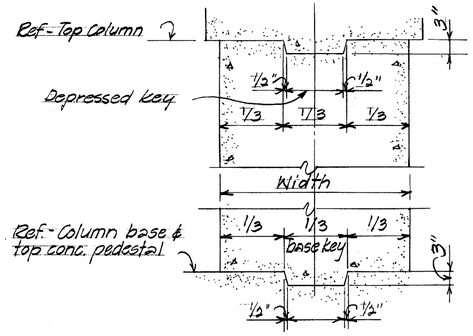
scale: 1/2" = 1'-0"



NOTE:
1. Cut & shape pipe for neat fit before welding.
2. Welds on pipe shall be ground smooth.
3. Galvanize after fabrication.
4. 1½" ϕ std. pipe railway & post shall conform to the specifications of Section 507.

TYPICAL CATWALK SECTION

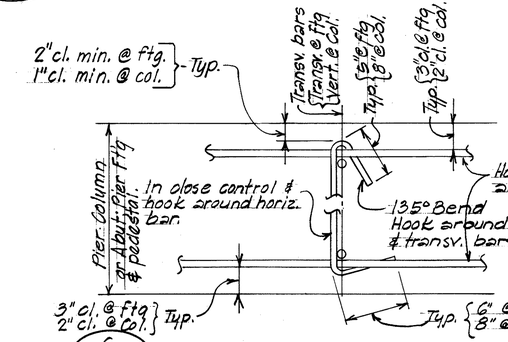
Scale : 1 1/2" = 1'-0"



TYPICAL COLUMN KEY DETAIL

B TD4 TD5

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



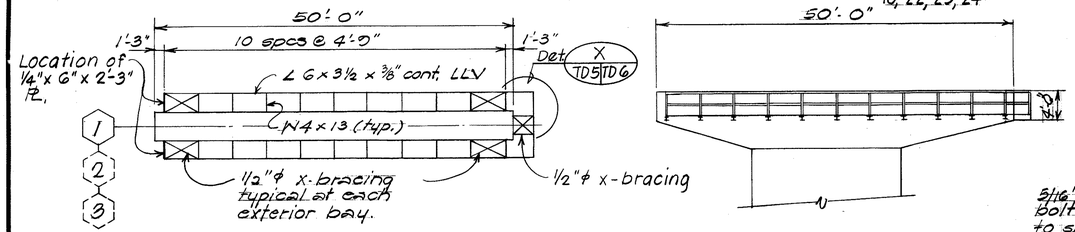
C 7 TD5

TIE BAR DETAIL

Not to scale

8, 10, 18, 19, 20, 22, 23, 24

10, 22, 23, 24

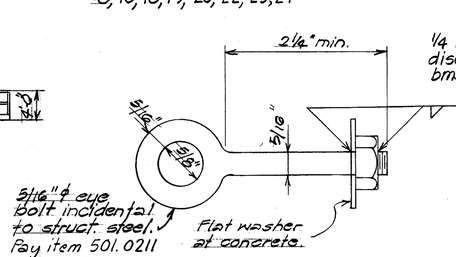


NOTE: See sht. # TD-6 for additional catwalk details.

PLAN ELEVATION

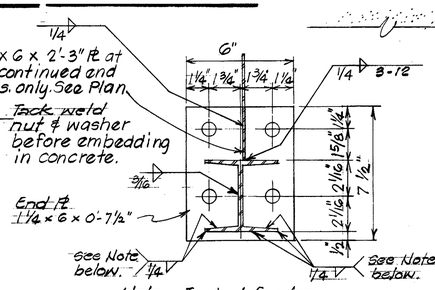
TYPICAL ~ CATWALK FOR PIERS

scale: 1" = 10'-0"



EYE BOLT DETAIL

Full Scale



Note: Typical for top and bottom flange.

END ℄ DETAIL

Scale: 3" = 1'-0"

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
LAND TRANSPORTATION FACILITIES DIVISION

KAINEHE & KALAPAHAPUU BRIDGES

TYPICAL DETAILS
PIER CAP SECTIONS & CATWALK DETAILS

HAWAII BELT ROAD
PROJ. NO. BRF-019-2(20)

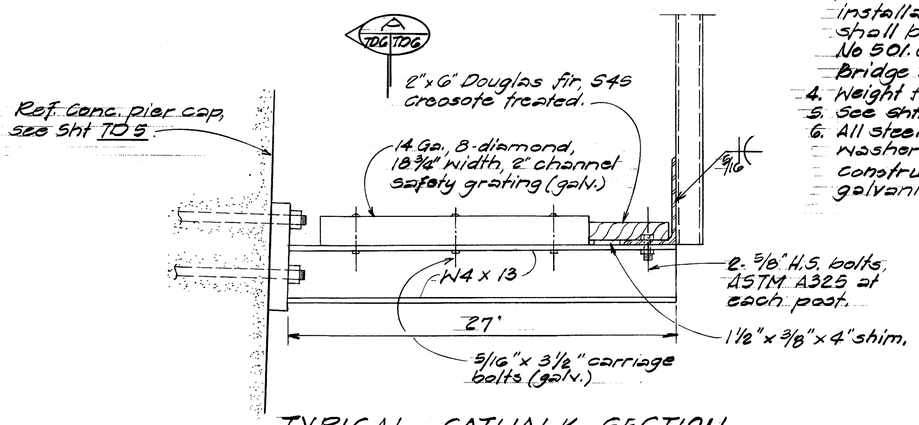
Scale: As noted Date: Aug 1978

SHEET No. TD 5 OF 14 SHEETS

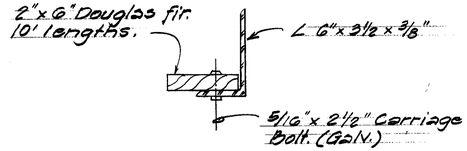
ORIGINAL PLAN | NOTE BOOK | SURVEY PLOTTED BY E.K., S.Y. | DRAWN BY " " | TRACED BY " " | DESIGNED BY " " | QUANTITIES BY " " | CHECKED BY C.R.Y. | DATE 11/82

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BRF-019-2(80)	1984	94	126

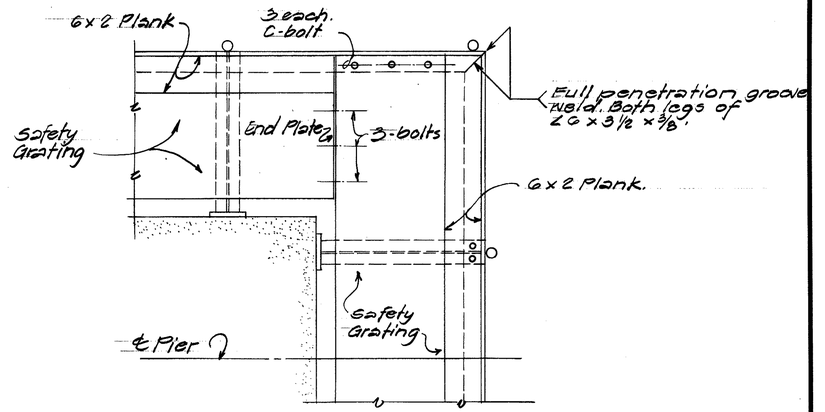
NOTE:
1. Epoxy steel shim to W4 x 13.
2. Paint shim w/Galv. paint after installation.
3. All materials and labor necessary for the installation of the Catwalk Safety Grating shall be incidental to Pay Item No. 501.0211 & No 501.0212 Structural Steel for Kainehe Bridge and Kalapahapuu Bridge.
4. Weight for grating included in estimated quantities.
5. See Sht. # TD5 for additional catwalk details.
6. All steel plates, anchor bolts, angles, rods, nuts, washers and W4 x 13 beams used in the construction of the catwalk are to be hot-dipped galvanized.



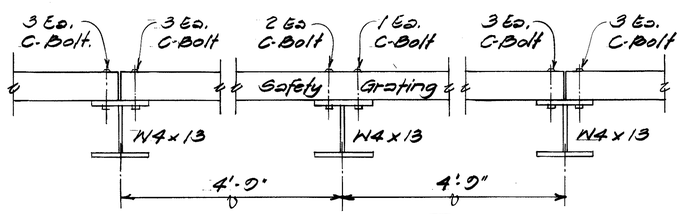
TYPICAL CATWALK SECTION
N.T.S.



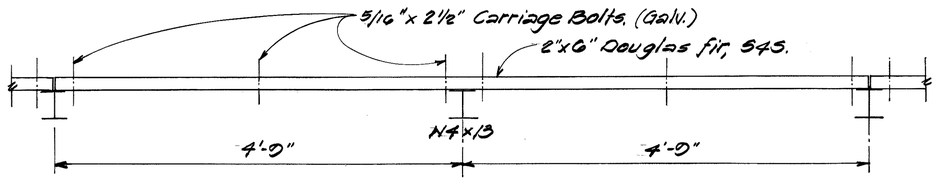
PLANK CONNECTION DETAIL
N.T.S.



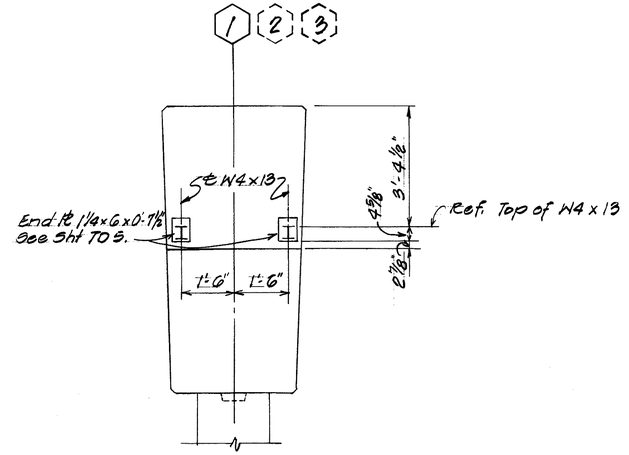
DETAIL X TD5 TDG
Scale: 1"=1'-0"



SECTION A TDG TDG
N.T.S.



TYPICAL FRONT ELEVATION SECTION
(ON FACE OF PIER)
N.T.S.



END ℄ LOCATION AT PIER CAP END
Scale: 1/2" = 1'-0"

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

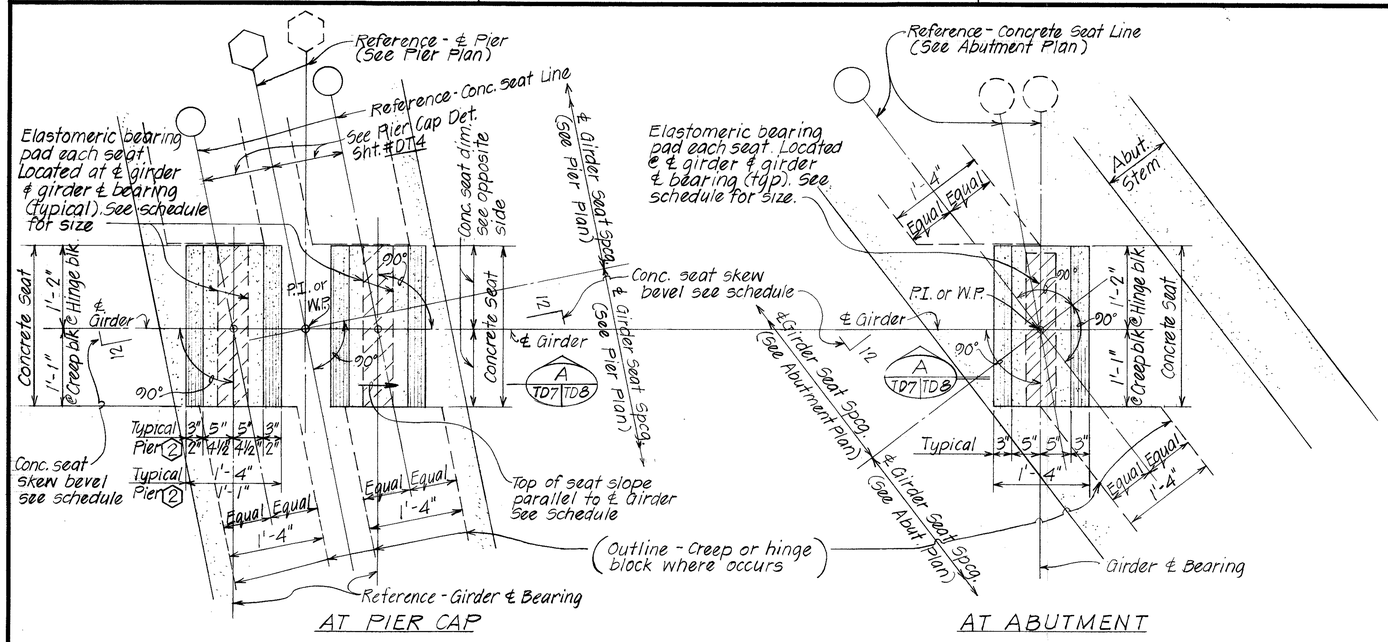
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
LAND TRANSPORTATION FACILITIES DIVISION

KAINEHE & KALAPAHAPUU BRIDGES
TYPICAL DETAILS
CATWALK SAFETY GRATING DETAILS
HAWAII BELT ROAD
Proj. No. BRF-019-2(80)

Scale: As Noted Date: Aug. 1983

SHEET NO. TDG OF 14 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BRF-012-2(20)	1084	95	126



PART PLAN - TYPICAL GIRDER CONCRETE SEAT

Scale: 1"=1'-0"

TYPICAL CONCRETE SEAT ELASTOMERIC BEARING PAD SIZE (EACH SEAT)

KALAPAHAPUU BRIDGE

LOCATION / GIRDER NO.	ABUT. (1)	ABUT. (2)	PIER (1)	
			(3)	(4)
G-1 to G-8	6½"x1½"x2'-2"lg.	6½"x1½"x2'-2"lg.	6½"x1"x2'-2"lg.	6½"x1"x2'-2"lg.

KAINEHE BRIDGE

LOCATION / GIRDER NO.	ABUT. (1)	ABUT. (2)	PIER (1)		PIER (3)		PIER (2)	
			(3)	(4)	(3)	(4)	(5)	(6)
G-1 to G-8	6½"x1"x2'-2"lg.	5"x1"x2'-2"lg.	6½"x1"x2'-2"lg.	7"x1½"x2'-2"lg.	5"x1"x2'-2"lg.	7"x1½"x2'-2"lg.	None	None

CONCRETE HINGE & CREEP BLOCK REINFORCEMENT SCHEDULE

LOCATION / REINF.	KALAPAHAPUU BRIDGE (BEAMS) A1	C1	C2	A2	KAINEHE BRIDGE (BEAMS) A3	C3	C4	C5	A4
"a"	4-#5	4-#5	4-#5	4-#5	4-#5	4-#5	4-#5	4-#5	4-#5
"b"	#5@6	#5@6	#5@8	#5@9	#5@7	#5@7	#5@12	#6@4½	#5@12

GIRDER CONCRETE SEAT SKEW BEVEL SCHEDULE

KALAPAHAPUU BRIDGE

LOCATION / GIRDER NO.	ABUTMENT SEAT LINE (1)	SPAN #1 DIRECTION BEVEL	BEVEL	(1)	(3)	(4)	SPAN #2 DIRECTION BEVEL	BEVEL	ABUTMENT SEAT LINE (2)
G-1		2 3/8 : 12	2 3/8 : 12				2½ : 12	9 9/32 : 12	
G-2		Do.	Do.				Do.	Do.	
G-3		Do.	Do.				Do.	Do.	
G-4		2 3/8 : 12	2 3/8 : 12				2½ : 12	9 9/32 : 12	
G-5		2 13/32 : 12	2 13/32 : 12				2 17/32 : 12	9 5/16 : 12	
G-6		Do.	Do.				Do.	Do.	
G-7		Do.	Do.				Do.	Do.	
G-8		2 13/32 : 12	2 13/32 : 12				2 17/32 : 12	9 5/16 : 12	

KAINEHE BRIDGE

LOCATION / GIRDER NO.	ABUTMENT SEAT LINE (1)	SPAN #1 DIRECTION BEVEL	BEVEL	(1)	(3)	(4)	SPAN #2 DIRECTION BEVEL	BEVEL	(2)	(5)	(6)	SPAN #3 DIRECTION BEVEL	BEVEL	(4)	(3)	SPAN #4 DIRECTION BEVEL	BEVEL	ABUTMENT SEAT LINE (2)
G-1		1/16 : 12	1/16 : 12				1/16 : 12	1/16 : 12				1/16 : 12	1/16 : 12			0 : 12	7 5/32 : 12	
G-2		Do.	Do.				Do.	Do.				Do.	Do.			Do.	Do.	
G-3		Do.	Do.				Do.	Do.				Do.	Do.			Do.	Do.	
G-4		Do.	Do.				Do.	Do.				Do.	Do.			0 : 12	7 5/32 : 12	
G-5		Do.	Do.				Do.	Do.				Do.	Do.			1/32 : 12	7 3/16 : 12	
G-6		Do.	Do.				Do.	Do.				Do.	Do.			Do.	Do.	
G-7		Do.	Do.				Do.	Do.				Do.	Do.			Do.	Do.	
G-8		1/16 : 12	1/16 : 12				1/16 : 12	1/16 : 12				1/16 : 12	1/16 : 12			1/32 : 12	7 3/16 : 12	

TOP CONCRETE SEAT ELEVATION AND SLOPE SCHEDULE (AT GIRDER & BEARING)

KALAPAHAPUU BRIDGE

LOCATION / GIRDER NOS	ABUTMENT LINE (1)	DIRECTION	TOP SEAT SLOPE	(1)	(3)	(4)	DIRECTION	TOP SEAT SLOPE	ABUTMENT LINE (2)
G-1	803.15	+	1/16 : 12	+	803.47	803.57	+	1/32 : 12	+ 803.70
G-2	803.12	+	Do.	+	803.44	803.54	+	Do.	+ 803.68
G-3	803.01	+	Do.	+	803.32	803.42	+	Do.	+ 803.58
G-4	802.89	+	Do.	+	803.21	803.28	+	Do.	+ 803.46
G-5	802.78	+	Do.	+	803.09	803.17	+	Do.	+ 803.35
G-6	802.66	+	Do.	+	802.98	803.06	+	Do.	+ 803.25
G-7	802.55	+	Do.	+	802.86	802.90	+	Do.	+ 803.11
G-8	802.35	+	1/16 : 12	+	802.67	802.70	+	1/32 : 12	+ 802.92

KAINEHE BRIDGE

ABUTMENT LINE (1)	DIRECTION	TOP SEAT SLOPE	(1)	(3)	(4)	DIRECTION	TOP SEAT SLOPE	(2)	(5)	(6)	DIRECTION	TOP SEAT SLOPE	(3)	(4)	(3)	DIRECTION	TOP SEAT SLOPE	ABUTMENT LINE (2)
792.09	-	3/8 : 12	-	789.94	789.80	-	11/32 : 12	-	787.66	787.59	-	3/8 : 12	-	785.20	785.29	-	3/8 : 12	- 784.92
792.00	-	Do.	-	789.91	789.77	-	Do.	-	787.63	787.55	-	Do.	-	785.16	785.25	-	Do.	- 784.77
791.88	-	Do.	-	789.79	789.65	-	Do.	-	787.51	787.43	-	Do.	-	785.04	785.13	-	Do.	- 784.54
791.76	-	Do.	-	789.67	789.53	-	Do.	-	787.39	787.31	-	Do.	-	784.93	785.02	-	Do.	- 784.31
791.64	-	Do.	-	789.55	789.41	-	Do.	-	787.27	787.19	-	Do.	-	784.81	784.90	-	Do.	- 784.07
791.52	-	Do.	-	789.43	789.29	-	Do.	-	787.15	787.07	-	Do.	-	784.69	784.78	-	Do.	- 783.84
791.40	-	Do.	-	789.32	789.17	-	Do.	-	787.03	786.96	-	Do.	-	784.57	784.66	-	Do.	- 783.60
791.20	-	3/8 : 12	-	789.11	788.97	-	11/32 : 12	-	786.83	786.75	-	3/8 : 12	-	784.37	784.46	-	3/8 : 12	- 783.29

Reference Note

1. Refer to Sht. #TD8 for concrete seat, hinge & creep block details.
2. Refer to Sht. #TD4 for pier cap details.

ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
	DRAWN BY L.M.A., L.N.	
NOTE BOOK	TRACED BY	
No.	DESIGNED BY	
	QUANTITIES BY	
	CHECKED BY C.K.Y.	

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
LAND TRANSPORTATION FACILITIES DIVISION

KAINEHE & KALAPAHAPUU BRIDGES

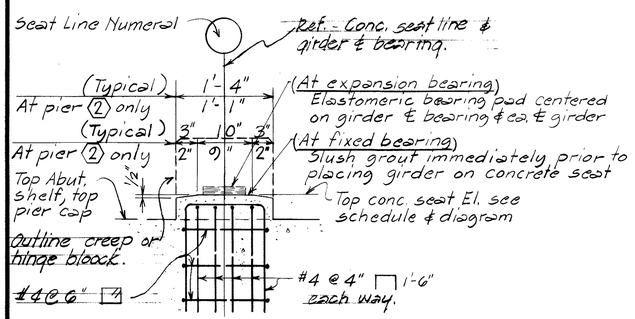
TYPICAL DETAILS
PLAN - GIRDER CONCRETE SEAT
& MISCELLANEOUS SCHEDULES

HAWAII BELT ROAD
Proj. No. BRF-012-2(20)

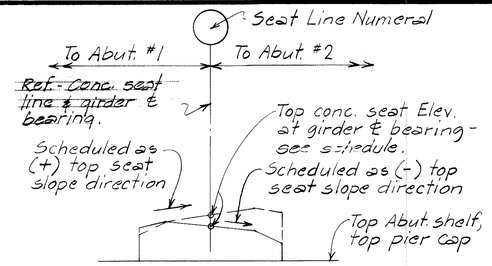
Scale: As Noted Date: Aug 1983

SHEET NO. TD7 OF 14 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BRF-019-2(20)	1984	96	126



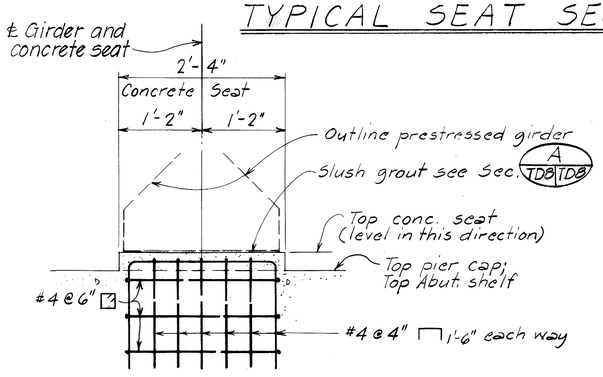
SHOWING REINFORCEMENT AND DIMENSIONS



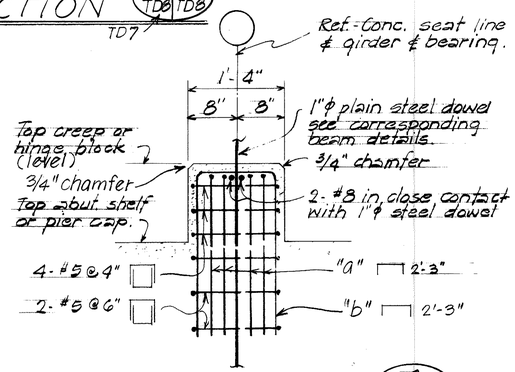
Note: Top seat slope direction normal to conc. seat line.

DIAGRAM - VARIOUS CONDITIONS OF TOP SEAT SLOPE

TYPICAL SEAT SECTION

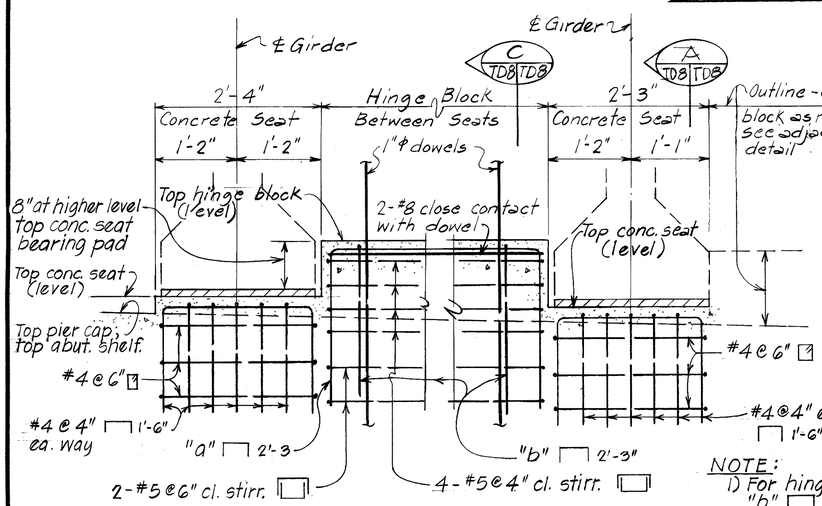


AT FIXED BEARING



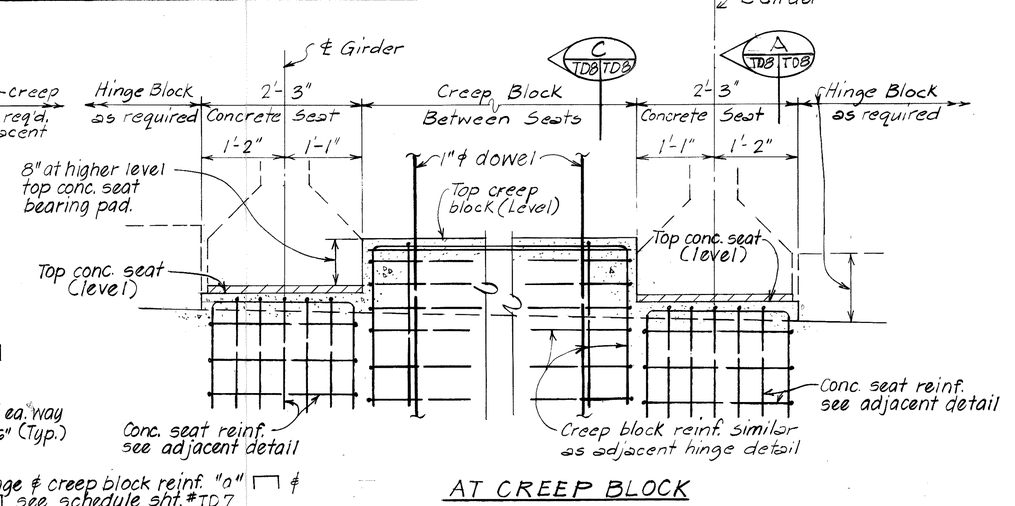
TYPICAL SECTION

C TD8 TD8 Scale: 1"=1'-0"



AT HINGE BLOCK

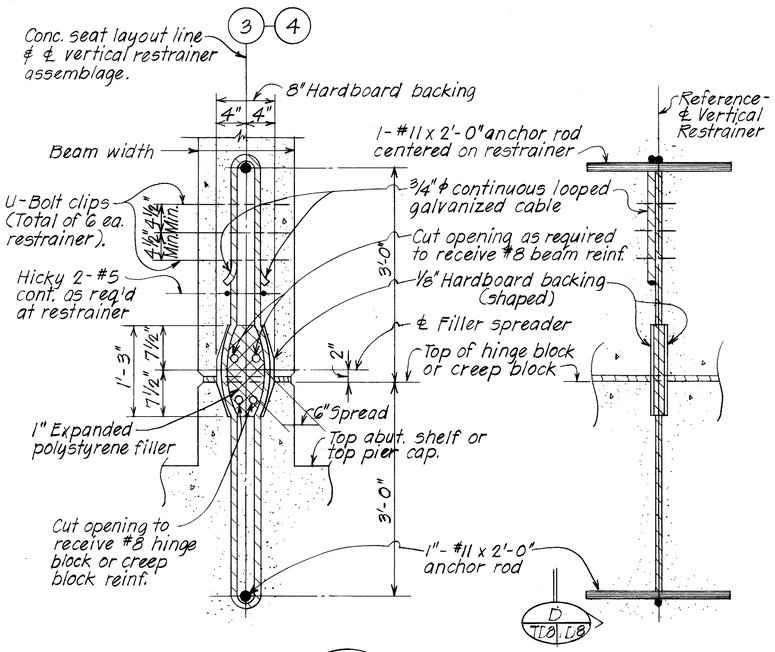
NOTE:
1) For hinge & creep block reinf. "a" & "b" see schedule sht. #TD7
2) For 1"℄ dowels spacing see corresponding beam details.



AT CREEP BLOCK

TYPICAL ELEVATION - CONCRETE SEAT, HINGE & CREEP BLOCK

Scale: 1"=1'-0"

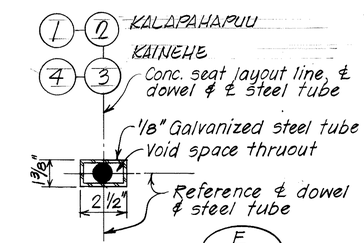


SECTION D TD8 TD8 ELEVATION

G 12 TD8 TYPICAL VERTICAL RESTRAINER DETAILS

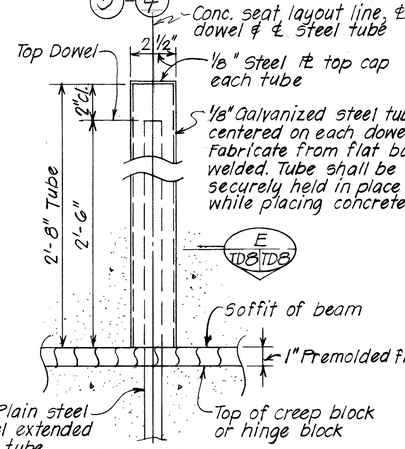
13, 26, 27, 28 Scale: 1"=1'-0"

NOTE:
1. Restrainer assemblage incidental to concrete & will not be paid for separately.
2. Restrainer assemblage shall be securely held in place while placing concrete.



SECTION E TD8 TD8

Scale: 3"=1'-0"



ELEVATION

F T2 TD8 TYPICAL DETAIL

13, 27, 28 EXPANSION END HINGE DOWEL AND METAL TUBE Scale: 3"=1'-0"

Note: Metal tube for hinge dowel shall be incidental to concrete.

ORIGINAL PLAN | SURVEY PLOTTED BY: E.L., M.A., L.M. DATE: | DRAWN BY: | TRACED BY: | DESIGNED BY: | NOTE BOOK | QUANTITIES BY: | No. | CHECKED BY: C.R.Y.

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
LAND TRANSPORTATION FACILITIES

KAINEHE & KALAPAHAPUU BRIDGES
TYPICAL DETAILS
GIRDER CONCRETE SEATS
HINGE BLOCK, CREEP BLOCK
VERTICAL RESTRAINER
HAWAII BELT ROAD
Proj. No. BRF-019-2(20)
Scale: As Noted Date: Aug. 1983

SHEET NO. TD8 OF 14 SHEETS

FED. ROAD DIST. NO.	STATE	~~FED. AID~~ PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	~~BRF-019-2(80)~~	~~1984~~	97	126

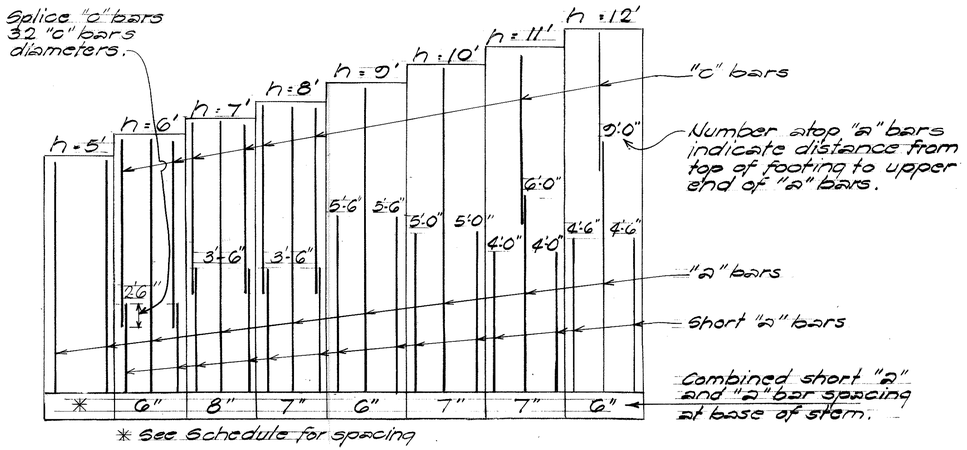
SCHEDULE OF DIMENSIONS AND REINFORCING STEEL FOR RET. WALL

WITH CONCRETE PARAPET

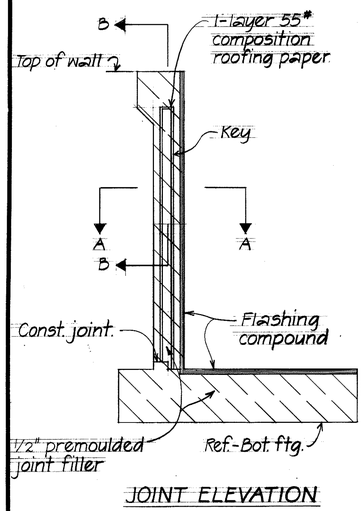
Maximum "H"	5'	6'	7'	8'	9'	10'	11'	12'
a	6"	6"	6"	1'-0"	1'-0"	1'-0"	1'-0"	1'-0"
t	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"
L	5'-0"	5'-6"	6'-0"	6'-9"	7'-3"	7'-9"	8'-6"	9'-0"
E		1'-3"	1'-6"	1'-6"	1'-9"	2'-0"	2'-3"	2'-6"
"a" bars	#5@11	#4@6	#5@8	#5@7	#5@6	#6@7	#7@7	#7@6
"c" bars		#3@12	#3@16	#3@14			#6@14	#5@12
"b" bars	#4@11	#4@8	#4@6	#5@9	#5@7	#6@7½	#6@6	#7@6

WITH END POST

Maximum "H"	5'EP	6'EP	7'EP	8'EP	9'EP	10'EP
a	6"	6"	6"	9"	9"	9"
t	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"
L	5'-3"	5'-9"	6'-3"	6'-9"	7'-3"	7'-9"
E		1'-3"	1'-6"	1'-6"	1'-9"	2'-0"
"a" bars	#5@10	#4@6	#5@8	#5@7	#5@6	#6@7
"c" bars		#3@12	#3@16	#3@14		
"b" bars	#4@10	#4@7½	#4@6	#5@6	#5@6½	#6@7½

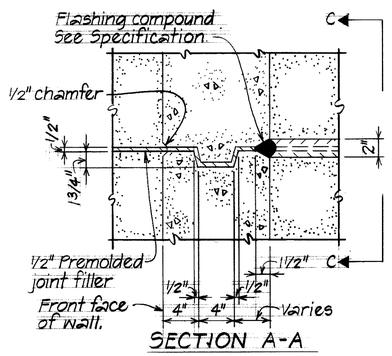


VERTICAL REINFORCING STEEL ARRANGEMENT

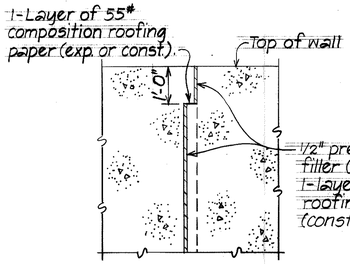


JOINT ELEVATION

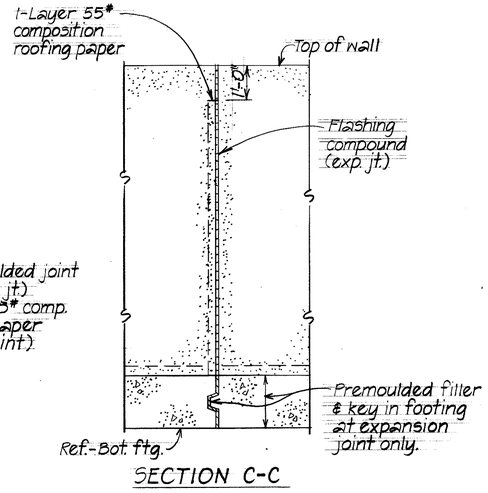
NOTE:
Spacing of joints:
Expansion - 90'-0" max.
Contraction - 30'-0" max. except where conc. railing or curb occurs, match with railing joint above.
For alternate contraction joint and control joint details - See Standard Bridge Details.



SECTION A-A



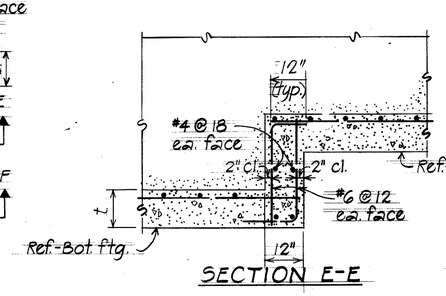
SECTION B-B



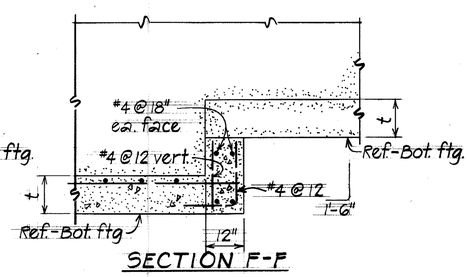
SECTION C-C

TYPICAL EXPANSION JOINT DETAILS No Scale

PLAN



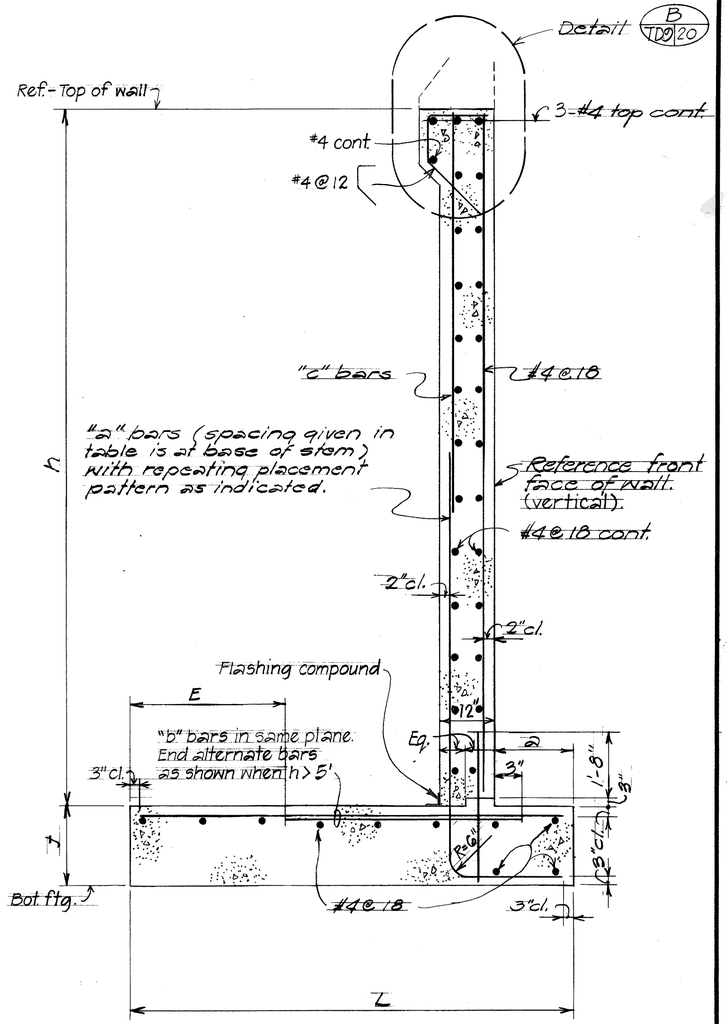
SECTION E-E



SECTION F-F

TYPICAL FOOTING STEP-UP DETAILS No Scale

D 21 TD9



WALL SECTION No Scale

ORIGINAL PLAN | NOTE BOOK | SURVEY PLOTTED BY | DRAWN BY A.Y. | TRACED BY | DESIGNED BY Dec. / 84 | QUANTITIES BY | CHECKED BY C.D.Y. | DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
LAND TRANSPORTATION FACILITIES DIVISION

KAINEHE BRIDGE

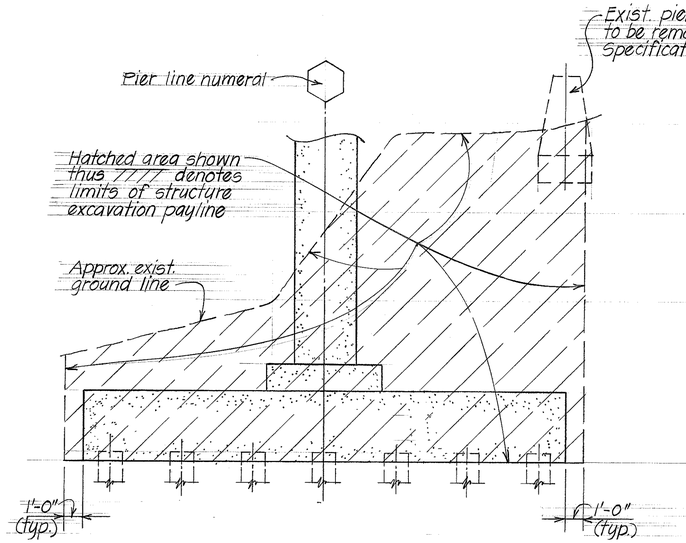
TYPICAL DETAILS
RETAINING WALL

HAWAII BELT ROAD
Proj. No. BRF-019-2(80)

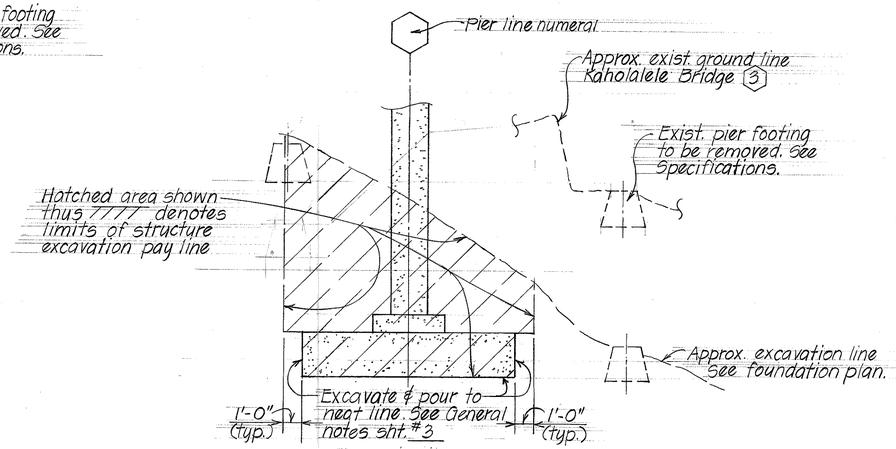
Scale: As noted Date: Aug 1983

SHEET NO. TD9 OF 14 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BRF-019-2(20)	1984	98	126

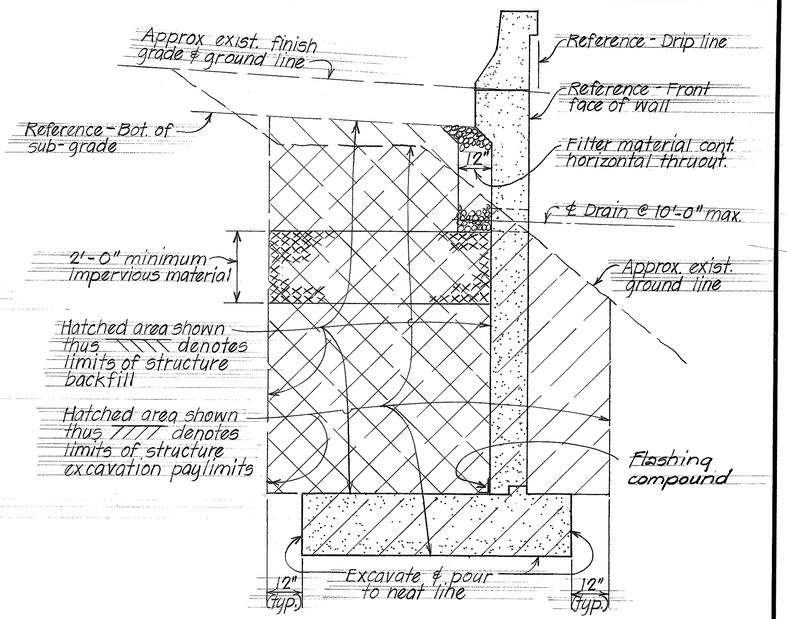


PIER (2) - KAINEHE BR.



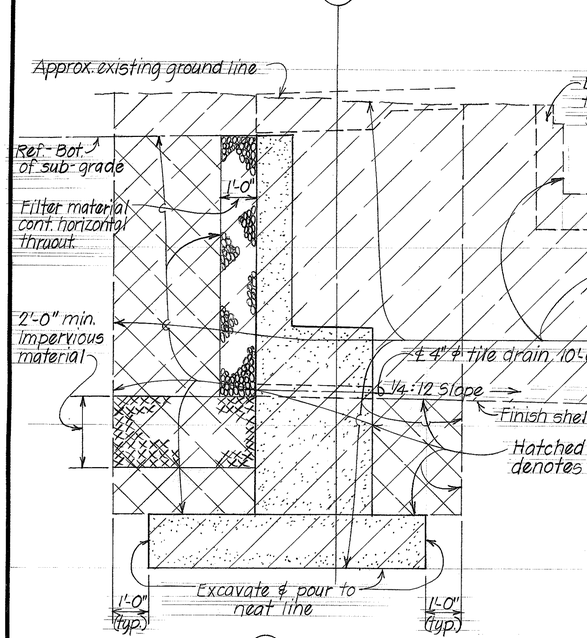
PIER (1) & (3) - KAINEHE BR

PIER (1) - KALAPAHAPUU BR.

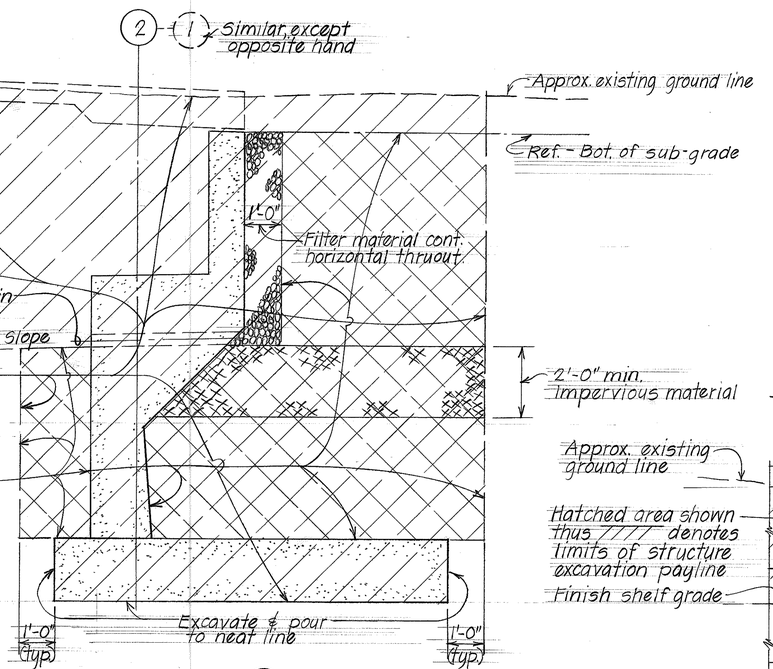


TYPICAL PIER STRUCTURE EXCAVATION PAYLIMITS No Scale

TYPICAL WING WALL STRUCTURE EXCAVATION & BACKFILL ~ PAYLIMITS No Scale

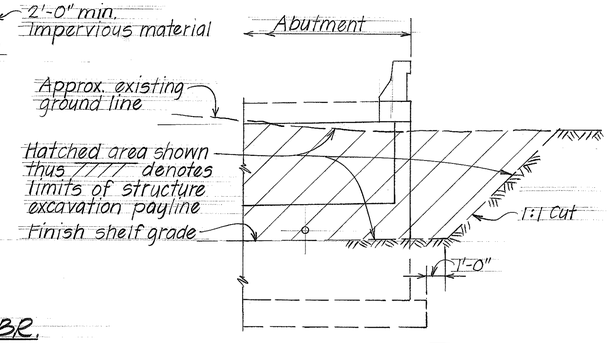


ABUTMENT (1) - KALAPAHAPUU BR.



ABUTMENT (2) - KALAPAHAPUU BR.

ABUTMENT (1) & (2) - KAINEHE BR.



ELEVATION A 5 TD10 15

TYPICAL ABUTMENT STRUCTURE EXCAVATION & BACKFILL - PAYLIMITS No Scale

ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
	DRAWN BY L.M.A.	
NOTE BOOK	TRACED BY	
No.	DESIGNED BY	
	QUANTITIES BY	
	CHECKED BY C.R.Y.	

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
LAND TRANSPORTATION FACILITIES DIVISION

KAINEHE & KALAPAHAPUU BRIDGES

TYPICAL ABUTMENT AND WING WALL STRUCTURE EXCAVATION & BACKFILL PAYLIMITS

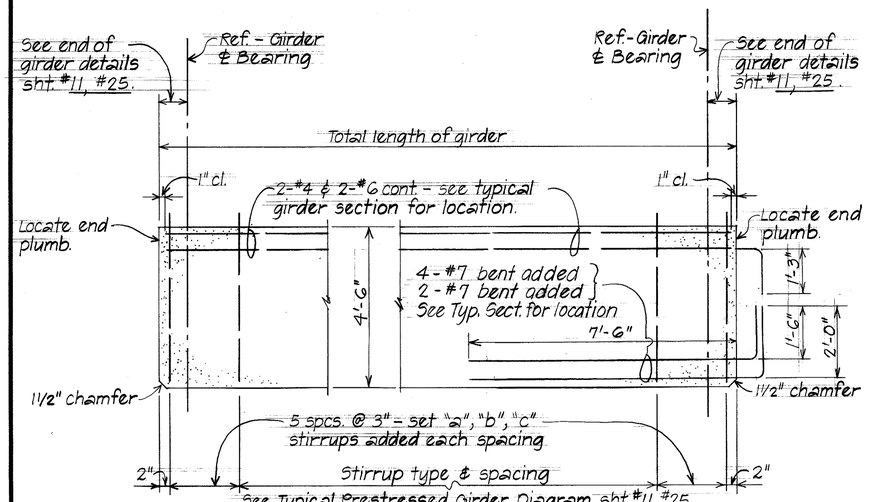
HAWAII BELT ROAD

Proj. No. BRF-019-2(20)

Scale: As noted Date: Aug 1983

SHEET No. TD10 OF 14 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BRF-010(20)	1984	99	126



HINGED OR EXPANSION END — FIXED END

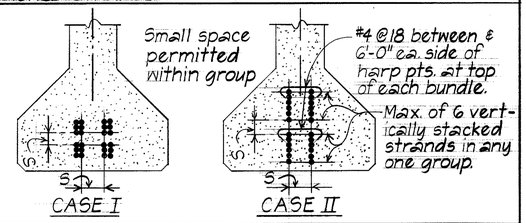
ELEVATION ~ TYPE PG - IV GIRDER END DETAILS

No Scale

BUNDLING OF PRESTRESSING REINFORCEMENT

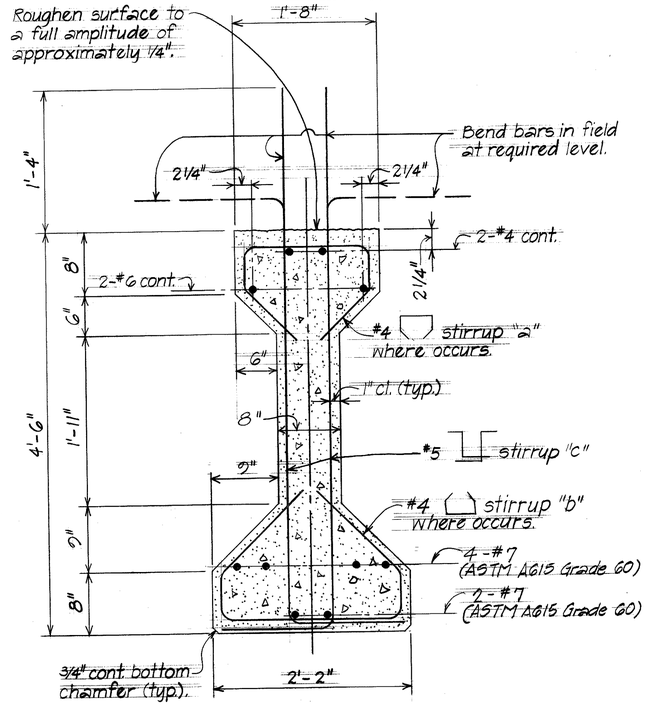
ARRANGEMENT AND CLEARANCE FOR PRETENSIONED STRANDS

1. Strands may be bundled in groups as shown.
2. The minimum distance "S" between groups or individual strands 2" for 1/2" strands.
3. "S" is measured between centers of adjacent strands.



ARRANGEMENT AND CLEARANCE FOR POST-TENSIONED STRANDS

1. Horizontal clearance between units equals 2" minimum.
2. Units may be bundled vertically in groups of 3" minimum.
3. Vertical clearance between bundled units equal 3" minimum.
4. Approval of the Engineer is required for deviation.



TYPICAL PRESTRESSED CONCRETE GIRDER TYPE PG - IV No Scale

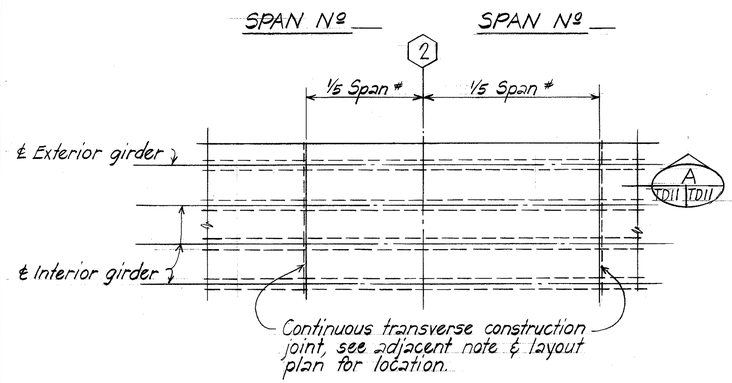
NOTE:

Transverse deck construction joint shall be used at these locations. The portion of the pour indicated between construction joints over the pier shall not be poured until the pours for the adjacent positive moment areas have been completed.

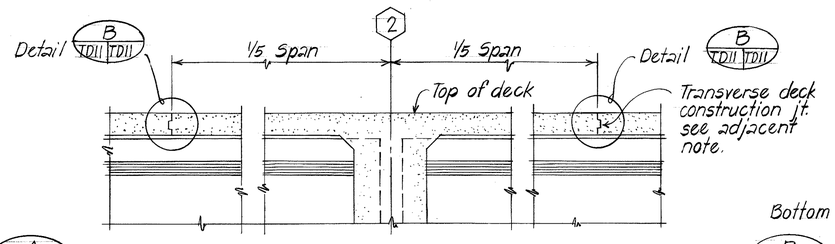
Transverse deck construction joints may be eliminated if permitted by the Engineer in writing. If the construction joints are eliminated, water reducing and retarding admixture conforming to AASHTO Designation: M194, Type D, shall be added to the deck concrete over the pier within the indicated lines. The type of the admixture shall be such that the amount of dosage used will produce the retardation required. The type and dosage of the admixture, and the method of pour shall be approved by the Engineer.

GENERAL NOTES

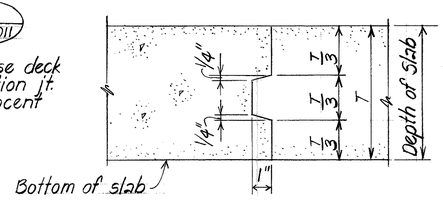
1. For design stresses refer to sht #3 and corresponding girder detail drawings.
2. Forms must be removed and the beams inspected before strands are cut.
3. For additional holes and inserts in prestressed girders for beam connections refer to corresponding beam details.
4. For additional prestressed girder details not covered by these drawings refer to corresponding detail plans.
5. All strand patterns shall be approved by the Engineer.



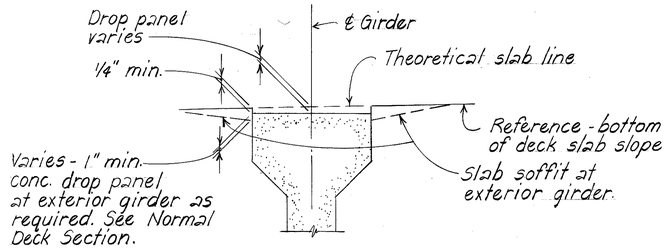
PLAN-TYPICAL TRANSVERSE DECK CONSTRUCTION JOINT LOCATION



A TD11 TD11 DETAIL OF CONTINUOUS SLAB OVER PIER



B TD11 TD11 TYPICAL SLAB CONSTRUCTION JOINT DETAIL



TYPICAL SLAB DROP PANEL DETAIL AT PRESTRESSED GIRDER

Not to Scale

ORIGINAL PLAN	SURVEY PLOTTED BY: DATE
	DRAWN BY: L.K.J., T.K.M.
NOTE BOOK	TRACED BY:
No.	DESIGNED BY: D.C.Q.
	QUANTITIES BY:
	CHECKED BY: G.R.Y.

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
LAND TRANSPORTATION FACILITIES DIVISION

KAINEHE & KALAPAHAPUU BRIDGES

TYPICAL PRESTRESSED GIRDER TYPE PG-IV DETAILS

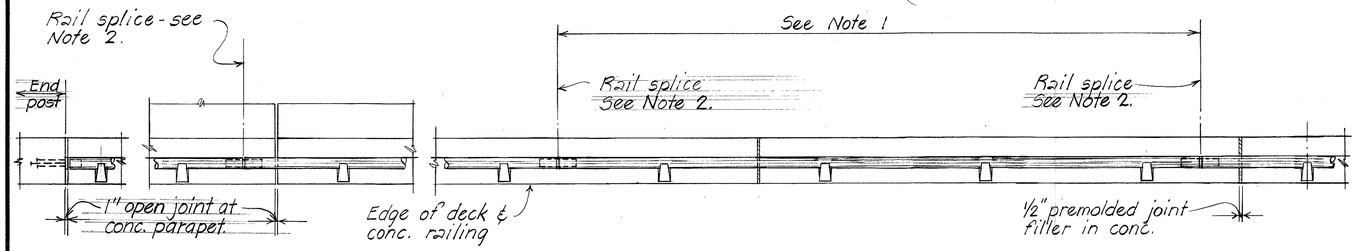
HAWAII BELT ROAD

Proj. No. BRF-010-2(20)

Scale: As noted Date: Aug 1983

SHEET NO. TD11 OF 14 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BRF-019-2(80)	1984	100	126



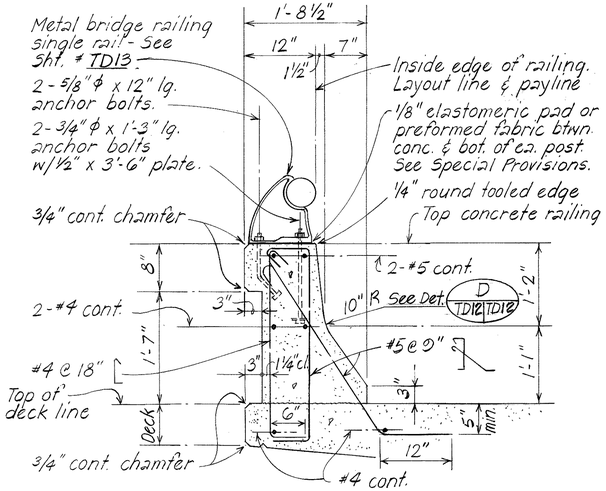
AT DECK EXPANSION JOINT — INTERMEDIATE

RAILING PLAN

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

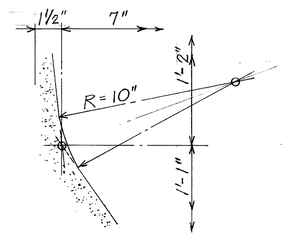
NOTE

1. Tubing shall be continuous over not less than 4 post unless noted otherwise.
2. All rails shall be spliced in the panel spanning deck exp. joints. Increase joint width between tube to 1 1/2" and increase sleeve length by 1". (See tube splice detail, sht. # TD13.)
3. Rail post shall be normal to grade.
4. No more than one tube splice per panel shall be permitted except as noted.



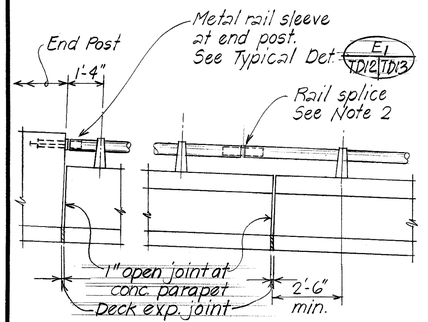
TYPICAL CONCRETE PARAPET SECTION

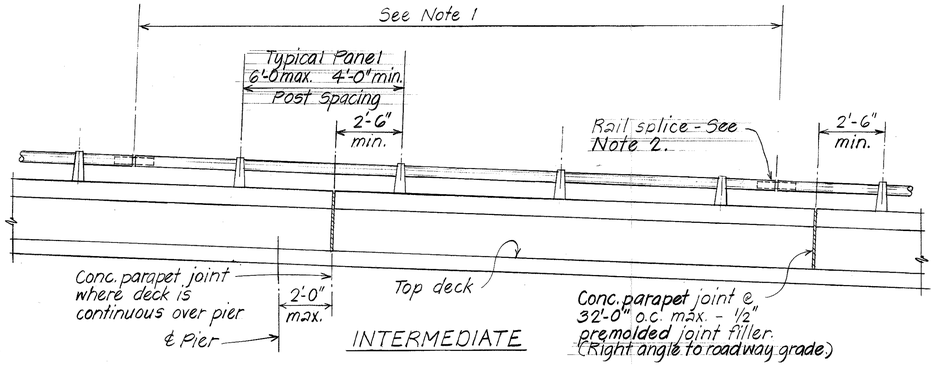
Scale: 1" = 1'-0"



DETAIL D TD12 TD12

Scale: 3" = 1'-0"

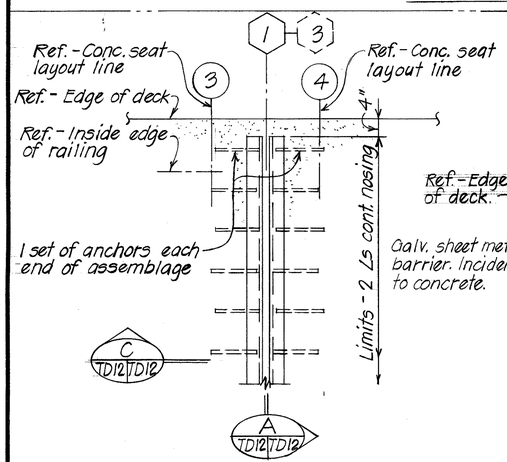




AT DECK EXPANSION JOINT — INTERMEDIATE

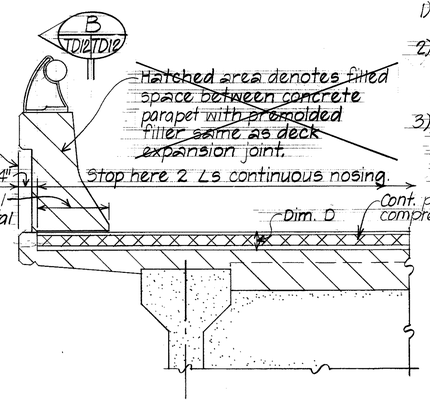
EXTERIOR RAILING ELEVATION

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



PLAN - TRANSVERSE DECK EXPANSION JOINT

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

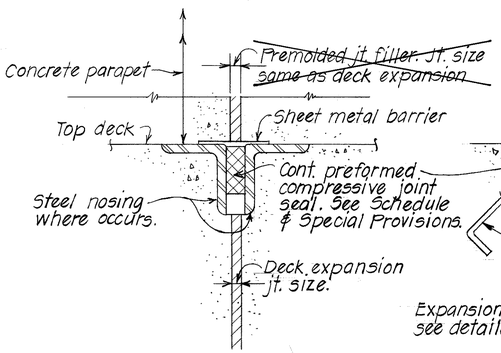


ELEVATION A TD12 TD12

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

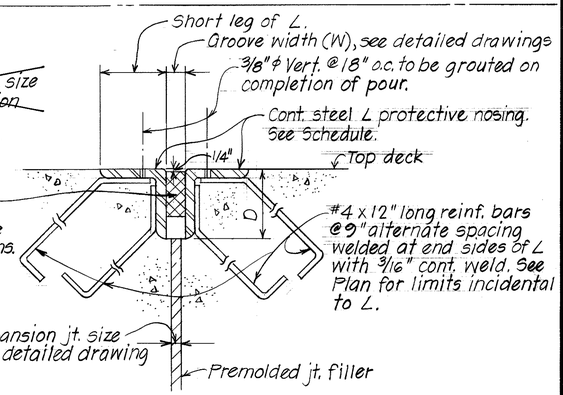
NOTE:

1) Steel angle protective nosing assemblage shall be hot-dipped galvanized after fabrication.
2) Preformed compressive joint seal and all other components of the protective nosing assemblage with the exception of the steel angles shall be incidental to concrete & will not be paid for separately.
3) Continuous steel angles of the protective nosing shall be paid for under pay items; #501.0213 for Kalapahapuu Bridge & #501.0214 for Kainehe Bridge, "Structural Steel for Protective Nosing of Deck Expansion Joints".



SECTION B TD12 TD12

No Scale



AT STEEL ANGLE PROTECTIVE NOSING

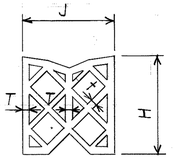
SECTION C TD12 TD12

No Scale

12, 27

EXPANSION JOINT SEALER SCHEDULE

Joint Seal Size	TYPE A - JOINT SEALER (Dimensions and Tolerances) J	H	Thickness T	t	Steel Angle Protective Nosing	Groove Dim. D
(3)	2 +3/16 -0	2 1/16 ± 1/8	1/8 +1/32 -1/64	3/32 +1/32 -1/64	4" x 3 1/2" x 1/2"	4"



TYPE A

ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
	DRAWN BY T.K.M.A.C., L.M.A.	"
NOTE BOOK	TRACED BY	"
No.	DESIGNED BY	"
	QUANTITIES BY	"
	CHECKED BY C. R.Y.	"

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
LAND TRANSPORTATION FACILITIES DIVISION

KAINEHE & KALAPAHAPUU BRIDGES

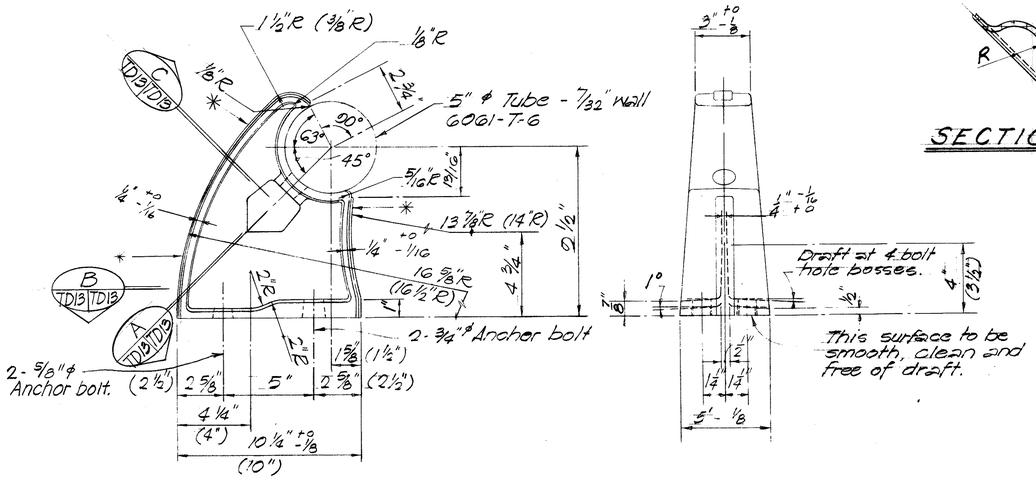
TYPICAL DETAILS
CONCRETE BRIDGE RAIL
AND DECK EXPANSION JOINT

HAWAII BELT ROAD
Proj. No. BRF-019-2(80)

Scale - As Noted Date - Aug. 1983

SHEET NO. TD12 OF 14 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BRF-012(20)	1984	101	126

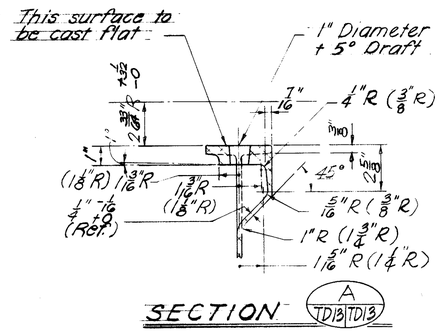


SIDE ELEVATION

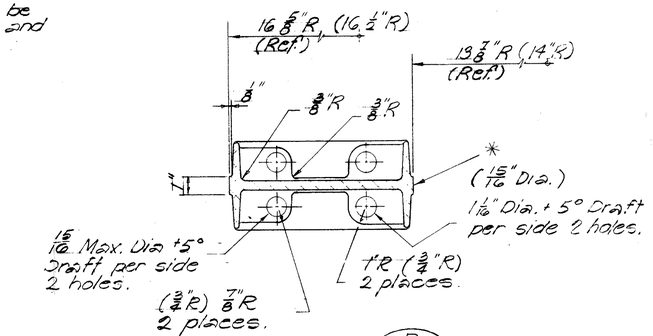
END ELEVATION



SECTION

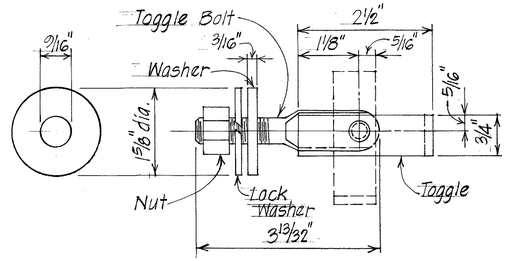


SECTION

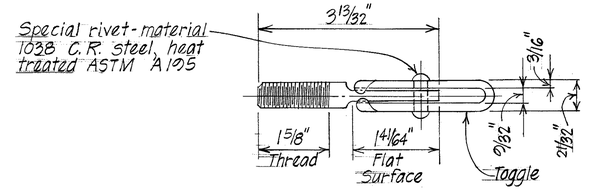


SECTION

NOTE:
Toggle Bolt - Cadmium plating on steel - Type NS 0.0005" thick ASTM - A165 (all parts).



WASHER SIDE ELEVATION ASSEMBLAGE



TOP PLAN

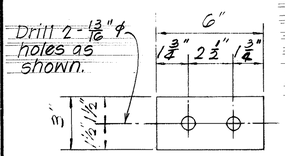
½" ϕ STEEL TOGGLE BOLT DETAIL

NOTE:

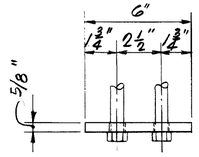
* Casting to be supplied with a standard scratch brush finish on entire gating rib surface and as indicated by an asterisk (*). Finish shall be approved by the Engineer.
Casting to be neatly trimmed and any protruding flash to be broken off.
Unless otherwise specified, draft angles to be 3° corner radii to be 3/32" R, fillet radii to be ⅜" R, casting tol. to be ±1/16", wall thickness to be ±3/32".
Dimensions may be as shown or as shown in parenthesis ( ).

TYPICAL RAIL POST DETAILS

Scale: 3" = 1'-0"



PLAN



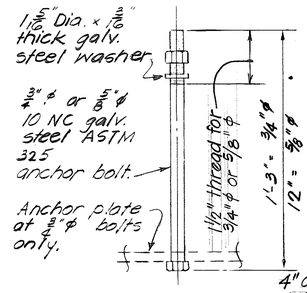
ELEVATION

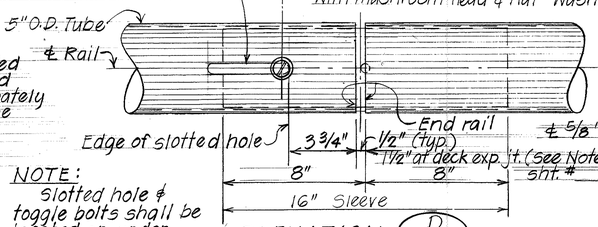
ANCHOR ℄ DETAIL ANCHOR BOLT

TYPICAL RAIL POST STEEL ANCHOR BOLT ASSEMBLY

Scale: 3" = 1'-0"

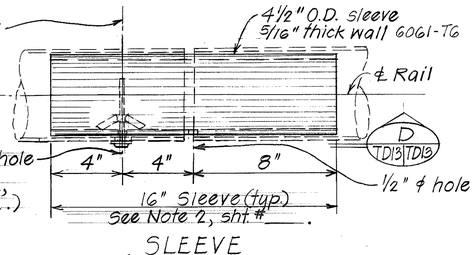
NOTE:
Anchor bolts shall be embedded such that the threads are excluded from the shear plane & approximately 2 threads are exposed above the nut.





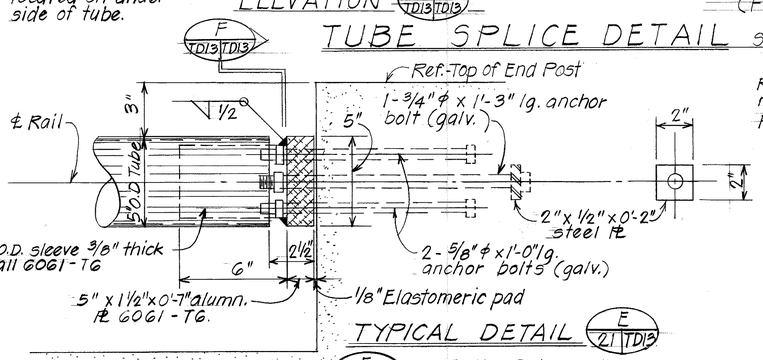
NOTE:
Slotted hole & toggle bolts shall be located on under side of tube.

ELEVATION D TD13 TD13



SLEEVE (FRONT VIEW)

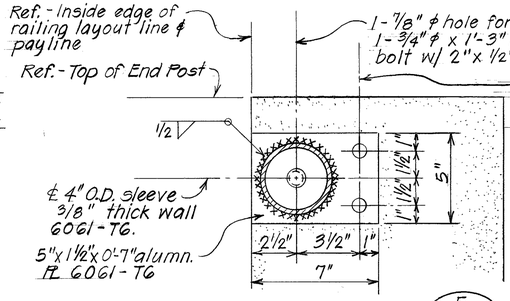
TUBE SPLICE DETAIL Scale: 3" = 1'-0"



TYPICAL DETAIL E 21 TD13

E1 TD13 TD13 DETAIL SIMILAR EXCEPT OPPOSITE HAND

METAL RAIL SLEEVE AT END POST



SECTION F TD13 TD13

Scale: 3" = 1'-0"

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

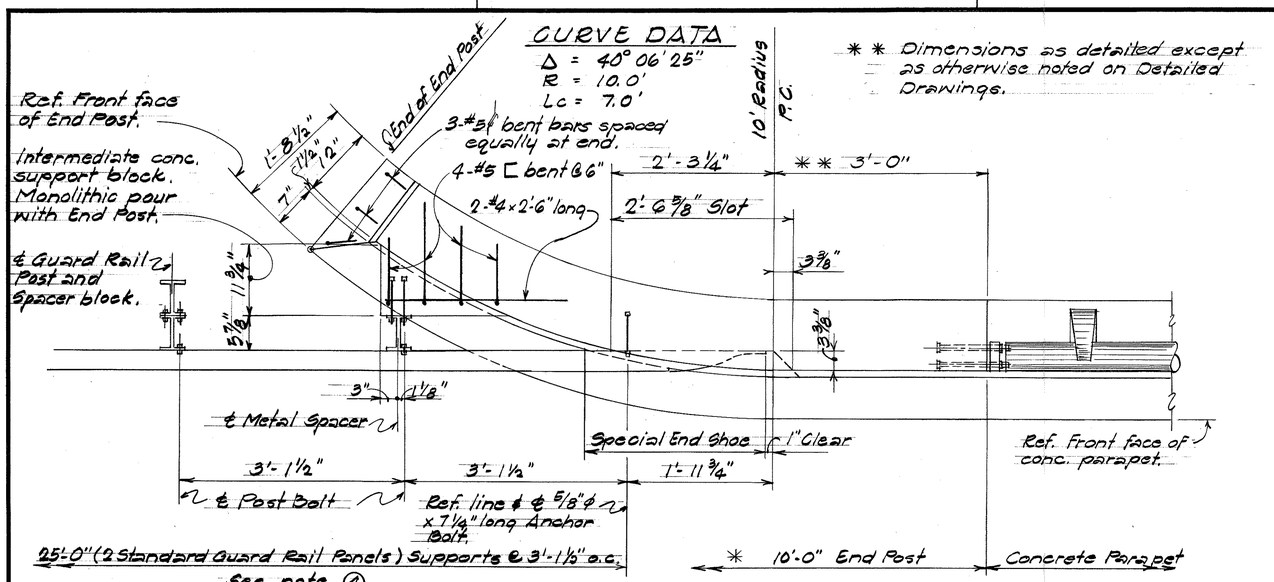
TYPICAL DETAILS
ALUMINUM BRIDGE RAILING
ONE RAIL COMBINATION TYPE ON PARAPET

HAWAII BELT ROAD
Proj. No. BRF-012-2(20)
Scale: As Noted Date: Aug 1983
SHEET No. TD13 OF 14 SHEETS

ORIGINAL PLAN	SURVEY PLOTTED BY:	DATE:
	DRAWN BY: TK, MJ, L.M.A.	
	TRACED BY:	
	DESIGNED BY:	
NOTE BOOK	QUANTITIES BY:	
No.	CHECKED BY: CRY.	

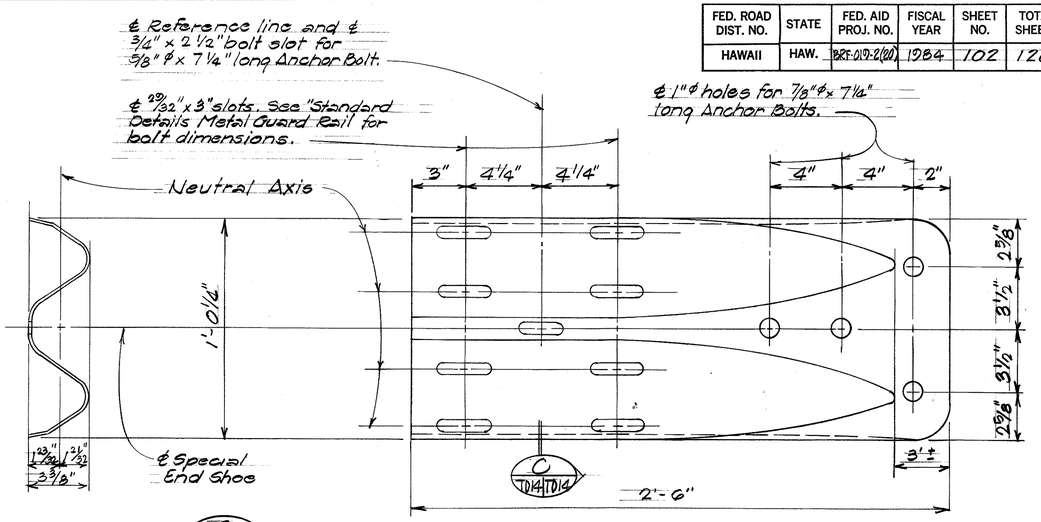
PRINTED ON NO 1000H CLEARPRINT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BRF-019-2(20)	1984	102	126



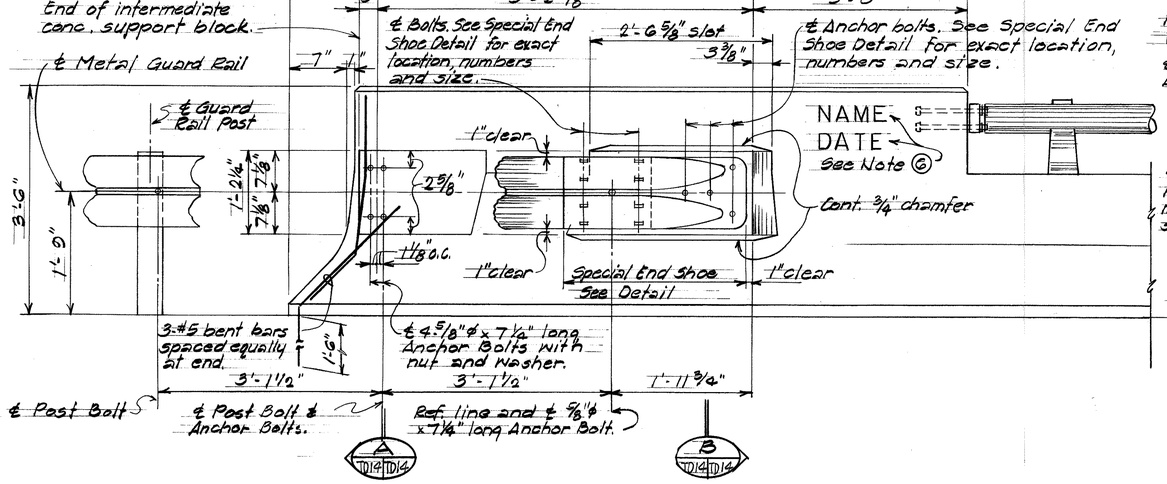
PLAN Scale: 1" = 1'-0"

* Length given along front face of parapet and end post.

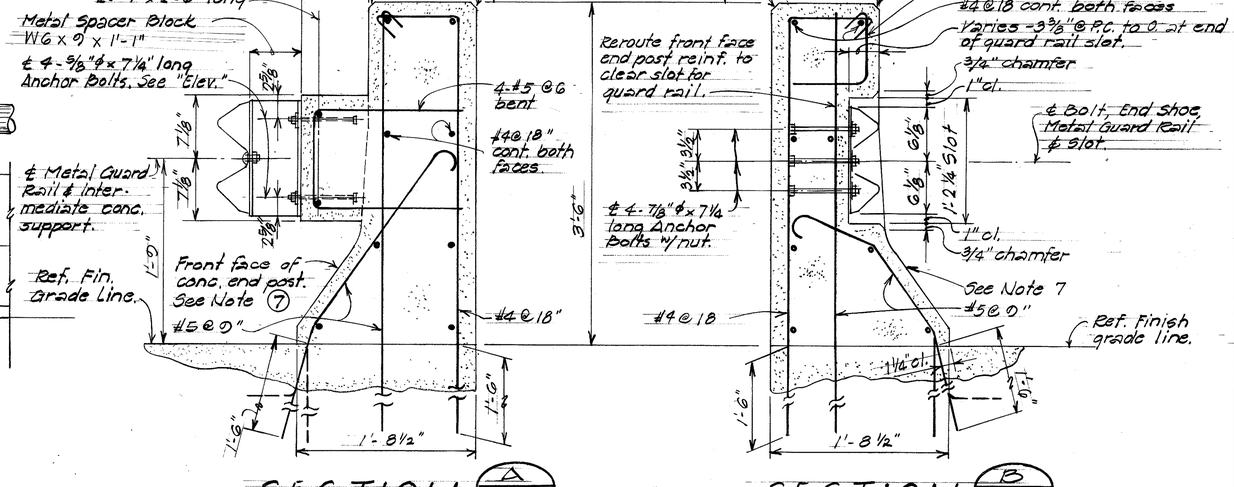


SECTION C TD14 TD14 ELEVATION

SPECIAL END SHOE DETAILS Scale: 3" = 1'-0"



ELEVATION Scale: 1" = 1'-0"



SECTION A TD14 TD14 Scale: 1 1/2" = 1'-0"

SECTION B TD14 TD14 Scale: 1 1/2" = 1'-0"

NOTES:

1. All Anchor Bolts shall be High Strength bolts conforming to the requirements of ASTM A325.
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 from under bolt head.
6. 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 DB-100.
7. Front face of End Post to match front face of typical conc. parapet.

ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
	DRAWN BY C.K.	
	TRACED BY	
NOTE BOOK	DESIGNED BY	
No.	QUANTITIES BY	
	CHECKED BY C.R.Y.	

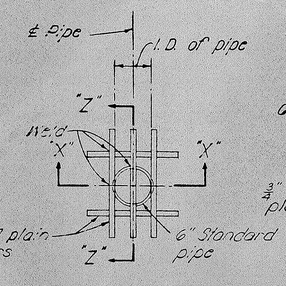
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
LAND TRANSPORTATION FACILITIES DIVISION

TYPICAL DETAILS
METAL GUARD RAIL CONNECTION
ONE RAIL COMBINATION TYPE END POST

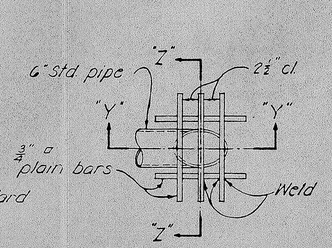
HAWAII BELT ROAD
Proj. No. BRF-019-2(20)
Scale: As shown Date: Aug 1983

SHEET No. TD14 OF 14 SHEETS

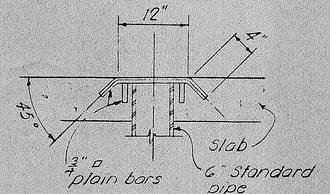
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BRF-019-2(8)	1984	103	126



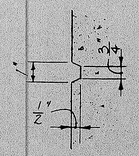
PLAN



PLAN



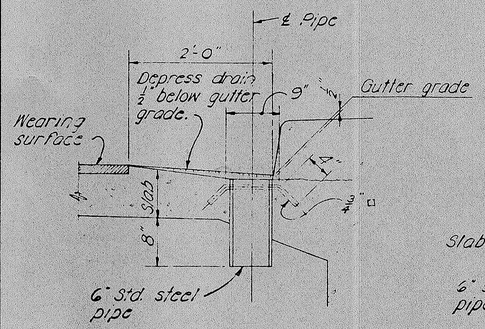
SECTION "Z-Z"



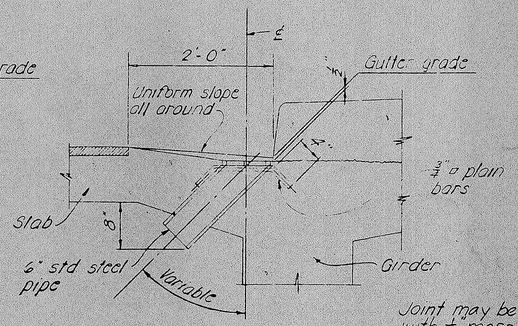
TYPICAL CONCRETE GROOVE DETAIL



DRIP DETAIL



SECTION "X-X"



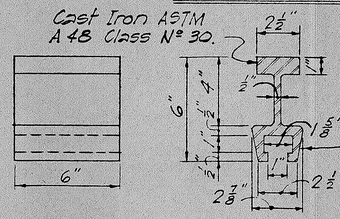
SECTION "Y-Y"

NOTE:

Metal drains shall be considered incidental to Class A Concrete in both concrete and steel bridges and will not be paid for separately.

Assemblage of grillage and pipe shall be hot-dip galvanized after all welding is completed.

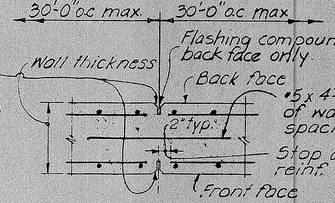
TYPICAL DRAINAGE DETAILS



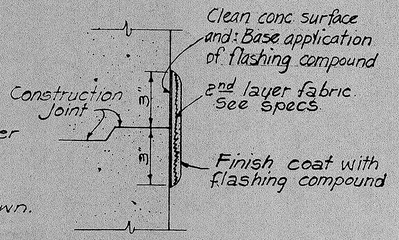
INSERT DETAIL

Contractor to take proper precautions to prevent the concrete from flowing into the opening of the inserts.

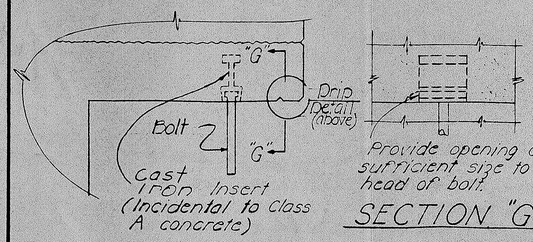
Vert. control joint on each face of wall to top of footing. See above detail and as directed by the Engineer



CONTROL JOINT DETAILS



TYP. FLASHING COMPOUND WATERPROOFING DETAIL



DETAIL of PIPE HANGERS & INSERTS

SECTION "G-G"

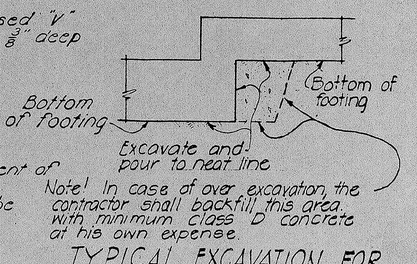
3" NAME 1½" DATE

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



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

TYPICAL EXCAVATION FOR CONTINUOUS FOOTING STEP-UP

GENERAL NOTES

1 - All concrete shall be Class A unless otherwise noted.
2 - Reinforcing shall be detailed in accordance with A.C.I. Manual of Standard Practice for Detailing Reinforced Concrete Highway Structures unless otherwise noted.
3 - Clearance for reinforcing bars shall be as follows, unless otherwise noted.
  a - 1½" For stirrups of beams & pier caps.
  b - 2" For ties of columns.
  C - 2" For formed walls.
  d - 3" For footings.
4 - Minimum spacing between parallel bars shall be 2½ times the diameter of bars, but in no case shall the clear distance between the bars be less than 1½ times the maximum size of the coarse aggregate.
5 - All dimensions relating to reinforcing are to centers of bars unless otherwise noted.
6 - 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.
7 - Vertical column bars shall be arranged in such a manner as to miss pier cap bars above as directed by the Engineer.
8 - Except as otherwise noted on drawings, all exterior corners & re-entrant angles in concrete work shall be chamfered ¾" x ¾".
9 - Concrete seats receiving steel plates, leadplates 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.
10 - 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.
11 - 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 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 either metal or plywood.
12 - Gothic letters and figures approximating dimensions shown will be acceptable if approved by the Engineer.
13 - The contractor shall verify the location of all existing utility lines and notify the reepective owners before commencing work of excavation or driving of piles.
14 - 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

APPROVAL RECOMMENDED:
Paul T. Yamashita — BRIDGE DESIGN ENGINEER — 1-23-70 DATE

APPROVED
Paul T. Yamashita — For ASSISTANT CHIEF, ENGINEERING — 1-28-70 DATE

NO.	REVISION	APPROVED BY	DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

STANDARD DETAILS
NOTES AND MISCELLANEOUS DETAILS

Scale: No Scale — Date: October 1969

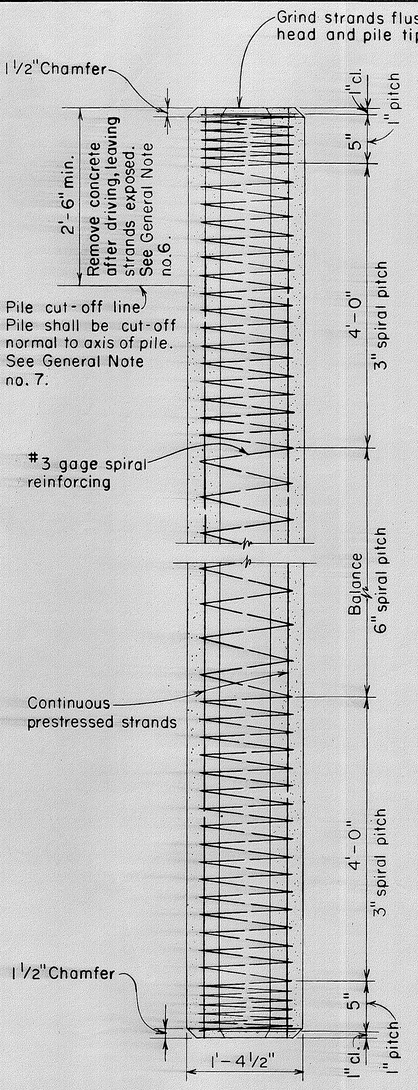
SHEET No. OF SHEETS DB-100

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

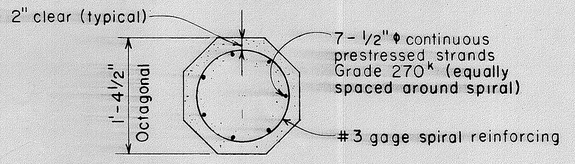
PRINTED ON NO. 1000H CLEARPRINT

103

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BRF-019-2(80)	1984	104	126



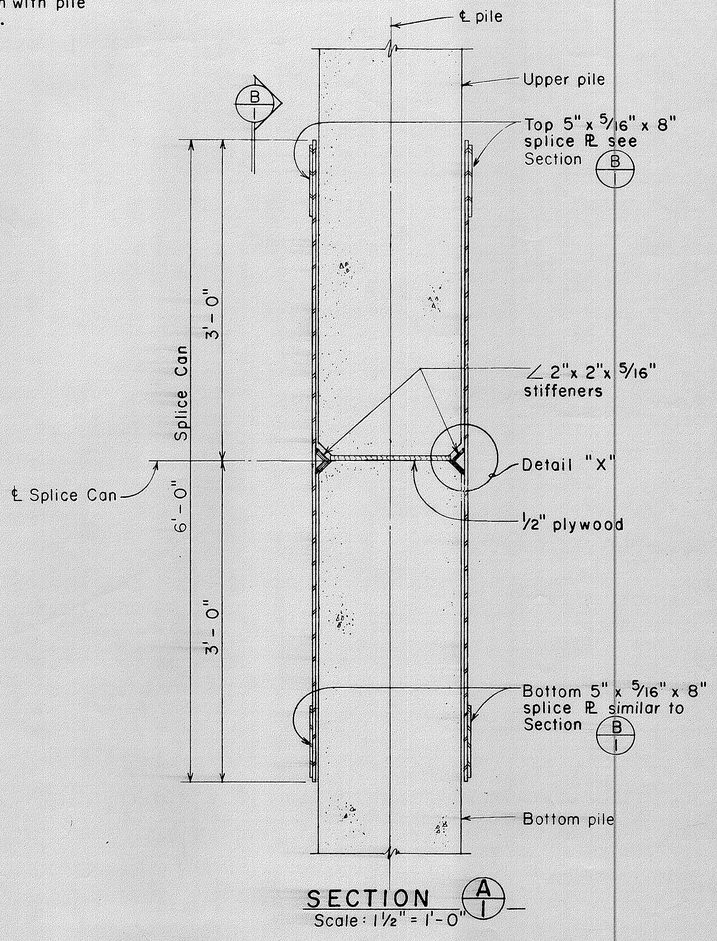
ELEVATION



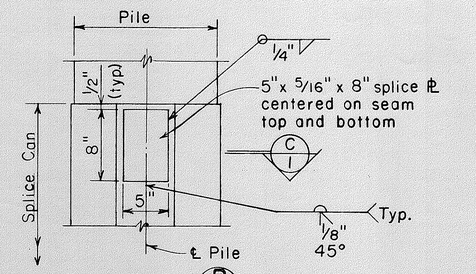
SECTION

TYPICAL PILE DETAILS

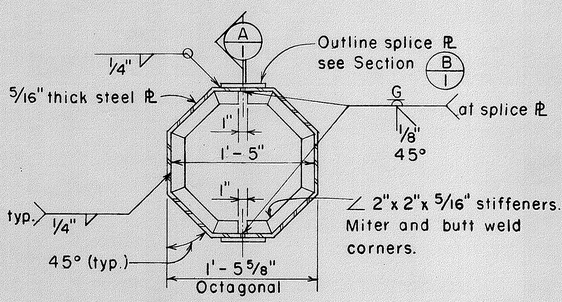
(Not to scale)



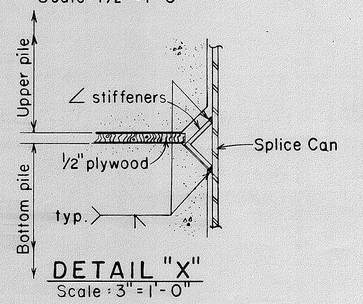
SECTION A
Scale: 1 1/2" = 1'-0"



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

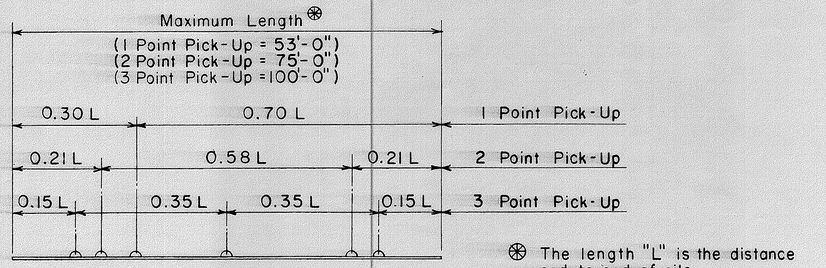


SECTION C
Scale: 1 1/2" = 1'-0"



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

TYPICAL PILE SPLICE DETAILS



⊛ The length "L" is the distance end to end of pile.

PILE PICK-UP POINTS

Not to scale

GENERAL NOTES

1. Concrete strengths:
   a. Typical pile: 28 day compressive strength f'_c = 5000 psi.
   b. Pile build-up with driving: 28 day compressive strength f'_c = 5000 psi.
   c. Pile build-up without driving: Identical 28 day f'_c as footing or pile cap.
2. Reinforcing steel shall conform to the following ASTM specifications:
   a. Bar reinforcement: ASTM A615 Grade 40
   b. Spiral reinforcement: ASTM A82
   c. Prestressing strand: ASTM A416 Grade 270
3. Splice can:
   a. Structural steel shall conform to ASTM A36
   b. All welding shall meet the requirements of Section 501 of the Standard Specification.
   c. No measurement for payment shall be made for the splice can as it shall be considered incidental to the driving of the pile.
4. The minimum working force in the prestressing steel shall be 165 kips.
5. Piles accepted by the Engineer shall be of sound concrete. Damaged piles shall be replaced or repaired by the Contractor at his expense as directed by the Engineer.
6. Work of cutting off prestress concrete piles or concrete pile build-ups shall be performed in such a manner as to avoid spalling or damaging the pile below cut-off. Damaged portions shall be removed and pile cut-off elevation lowered as required by the Engineer.
7. Top of pile at cut-off line shall be prepared as required for construction joints in Section 503 of the Standard Specifications.
8. Pile splice shall not be permitted except for pile length in excess of 100 feet unless otherwise approved by Engineer.
9. The in-place length of pile above the splice shall be approximately 50% of the total length of pile driven, unless location of splice is indicated in the plans or specifications.
10. Build-ups may be driven after the concrete attains a compressive strength of 4000 psi., but not earlier than 7 days after the concrete is poured.

APPROVAL RECOMMENDED:
Raeann K. Yamamoto — 8-13-80
BRIDGE DESIGN ENGINEER — DATE

APPROVED:
Richard Sakaishi — 8-20-80
ASSISTANT CHIEF, ENGINEERING — DATE

NO.	REVISION	APPROVED BY	DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

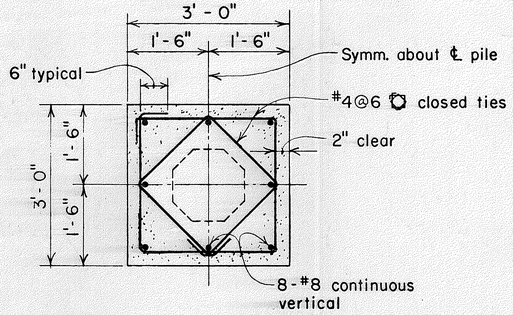
STANDARD DETAILS
PRESTRESSED CONCRETE PILES

Scale: As Noted — Date: August 1980

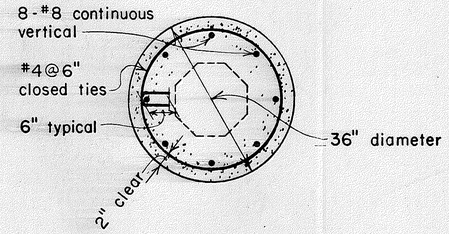
SHEET NO. 1 OF 2 SHEETS DB-300-1

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

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BRF-0102(20)	1984	105	126



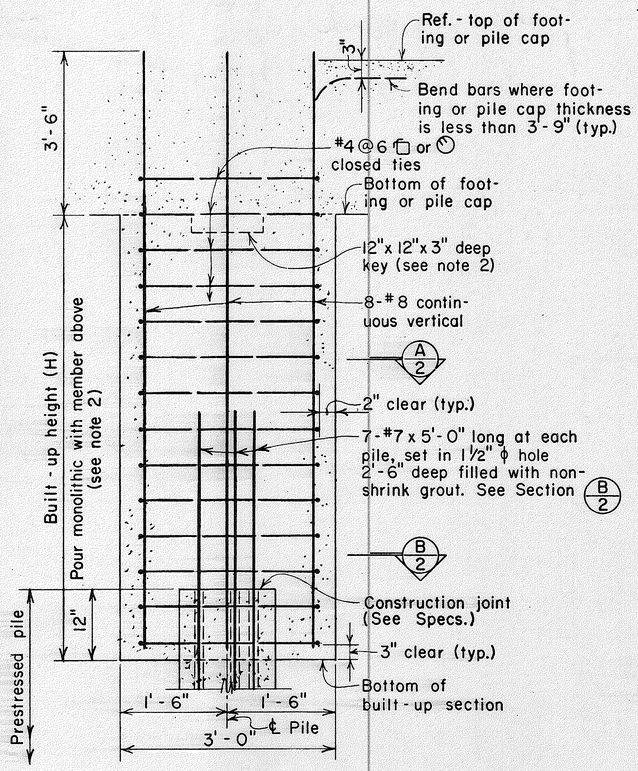
SQUARE BUILD - UP



CIRCULAR BUILD - UP

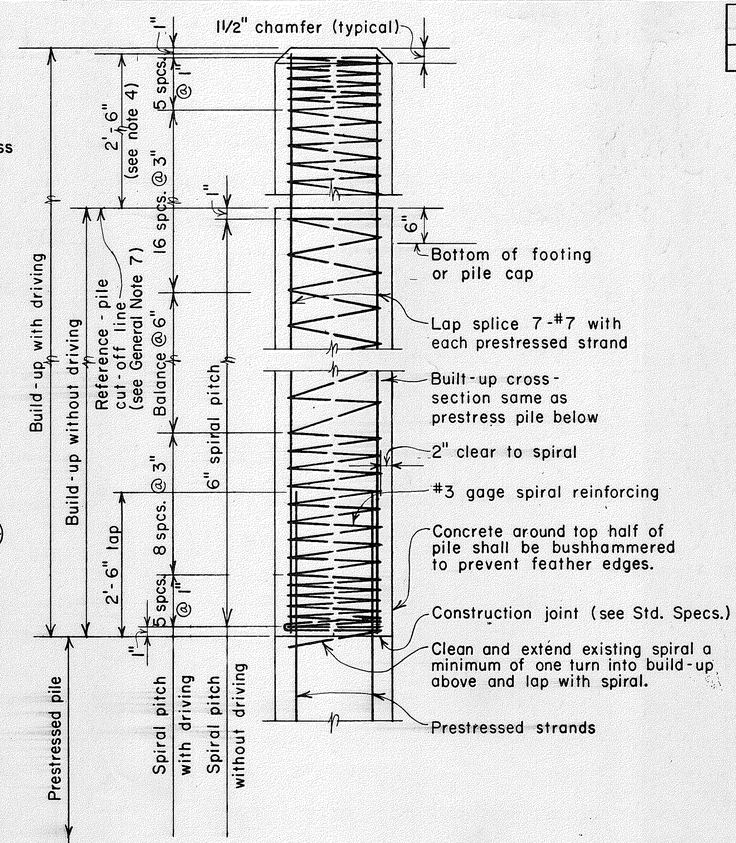
SECTION (A/2)

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



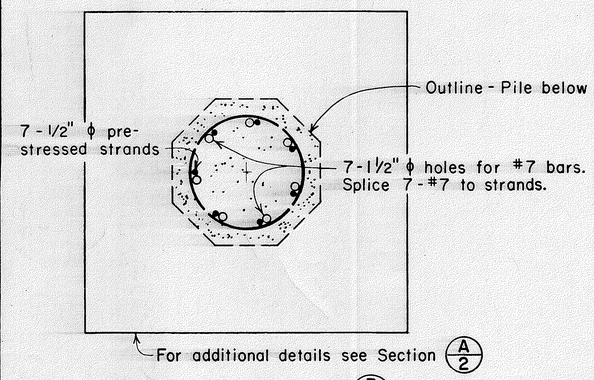
ALTERNATE PILE BUILD - UP DETAIL

Not to scale



TYPICAL PILE BUILD - UP DETAIL

Not to scale



SECTION (B/2)

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

NOTES:

1. Selection of pile build - up type without driving to be determined by the Engineer.
2. When the built - up height (H) exceeds 4' - 0", the built - up section shall be poured separately from the main body of the footing or pile cap.
3. Pile build - ups may be omitted for pile heads embedded at least 4" into footing, provided at least 90 % of the pile in each footing have the minimum embedment into footing as shown in contract plans and #7 bars are spliced to strands as shown in Section B/2.
4. For built - up pile with driving, remove concrete after driving, leaving reinforcement exposed. See General Note no. 6.
5. Circular build - up section may be used only when approved by the Engineer.
6. Alternate pile build - up detail shall apply only to pile build - up without driving.

APPROVAL RECOMMENDED:
Clarence R. Yamamoto — BRIDGE DESIGN ENGINEER — 8-13-80 DATE

APPROVED:
Gilbert Sakahira — ASSISTANT CHIEF, ENGINEERING — 8-20-80 DATE

NO.	REVISION	APPROVED BY	DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

STANDARD DETAILS PRESTRESSED CONCRETE PILES

Scale : As Noted Date : August 1980

SHEET No. 2 OF 2 SHEETS DB-300-2

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

105