FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-H3-1(65)	1992	287	309

GENERAL NOTES FOR SIGN SUPPORT STRUCTURES

1. DESIGN SPECIFICATIONS:

AASHTO STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES AND TRAFFIC SIGNALS, CURRENT EDITION.

2. DESIGN DATA:

WIND LOADING: DESIGN WIND SPEED = 80 MPH. FOR WIND LOAD NORMAL TO FACE OF SIGN AND TRANSVERSE TO FACE OF SIGN, SEE DESIGN SPECIFICATIONS.

WALKWAYS: SEE NOTES ON SHEET NO. SS11.

ICE LOAD: NONE

STRUCTURAL STEEL: ASTM A36

HIGH STRENGTH BOLTS: ASTM A325 (FRICTION – TYPE CONNECTION)

ALUMINUM MEMBERS: ALUMINUM ALLOY 6061–T6

STEEL PIPE: ASTM A53 TYPE E GRADE B

3. WELDING:

ALL WELDING TO BE CONTINUOUS WELDS AND AS NOTED ON THE PLANS. ALL WELDING SHALL CONFORM TO THE REQUIREMENTS OF ANSI/AASHTO/AWS D1.5–88, "BRIDGE WELDING CODE".

4. MATERIALS:

A. SIGN SUPPORT BOX TRUSS MEMBERS AND SUPPORTING POSTS; SHEET METAL SIDING AND EDGINGS; CONNECTION BOLTS; NUT AND WASHERS; TO BE STRUCTURAL STEEL. ALL SURFACES SHALL BE HOT–DIPPED GALVANIZED AFTER FABRICATION PRIOR TO PAINTING. SEE SPECIFICATIONS AND "RIBBED SHEET METAL NOTES" ON SHEET NO. SS13.

B. GALVANIZED SURFACES OF OVERHEAD SIGN SUPPORT STRUCTURES (NOTE A. ABOVE) SHALL BE PAINTED TO WARM GRAY COLOR. SEE SPECIFICATIONS.

C. CONTACT SURFACES IN HIGH STRENGTH (H.S.) BOLT CONNECTIONS SHALL NOT BE PAINTED. THE GALVANIZING ON THESE SURFACES SHALL BE LIGHTLY SCORED BY WIRE BRUSHING PRIOR TO ASSEMBLY.

D. HIGH STRENGTH BOLTS SHALL BE GALVANIZED, FURNISHED AND INSTALLED IN CONFORMANCE WITH CURRENT ASTM A325 WITH LUBRICATED NUTS.

E. LEVELING GROUT SHALL BE NON–SHRINK AND NON–METALLIC.

F. ANCHOR BOLTS TO BE ASTM A449, GALVANIZED.

G. ALUMINUM MEMBERS AND SURFACES IN CONTACT WITH STRUCTURAL STEEL SEE NOTE 3 ON SHEET NO. SS3.

5. CONSTRUCTION METHOD:

SEE HAWAII STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, 1985 EDITION, AASHTO STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES AND TRAFFIC SIGNALS, CURRENT EDITION AND SPECIAL PROVISIONS FOR THIS PROJECT.

6. GENERAL:

A. PRIOR TO FABRICATION OF THE SIGN SUPPORT STRUCTURES, THE CONTRACTOR SHALL VERIFY IN THE FIELD THE EXACT LOCATION OF EACH OF THE ANCHOR BOLTS INSTALLED AND THE POST ELEVATION AT THE TOP OF THE SUPPORTING CONCRETE.

B. PAYMENT FOR THE OVERHEAD SIGN SUPPORT STRUCTURES SHALL BE MADE AS DESCRIBED IN THE SPECIAL PROVISIONS.

C. ALL SIGN SUPPORT STRUCTURES ARE VIEWED IN THE DIRECTION OF TRAFFIC, UNLESS NOTED OTHERWISE.

D. THE CONTRACTOR SHALL PROBE TO LOCATE THE EXISTING UTILITIES AND SHALL NOTIFY THE RESPECTIVE OWNERS PRIOR TO COMMENCING WITH FOUNDATION WORK.

7. LEGEND AND ABBREVIATIONS:

&	– AND	KAL.	– KALANIANAOLE
@	– AT	KAM.	– KAMEHAMEHA
ALUM.	– ALUMINUM	LT.	– LEFT
℄	– BASELINE	MIN.	– MINIMUM
BOT.	– BOTTOM	O.C.	– ON CENTER
BRG.	– BEARING	O.D.	– OUTSIDE DIAMETER
℄	– CENTERLINE	OPNG.	– OPENING
CL.,CLR.	– CLEAR	O/S	– OFFSET
CM	– CHANGEABLE MESSAGE	℗	– PLATE
CMS	– CHANGEABLE MESSAGE SIGN	PT	– POINT OF TANGENT
CONC.	– CONCRETE	PVMT.	– PAVEMENT
CONN.	– CONNECTION	RECT.	– RECTANGULAR
CONT.	– CONTINUOUS	RELOC.	– RELOCATED
DIA.	– DIAMETER	REQ'D.	– REQUIRED
DIAG.	– DIAGONAL	RT.	– RIGHT
DO.	– DITTO	SECT.	– SECTION
E.F.	– EACH FACE	SHT.	– SHEET
EQ.	– EQUAL	S.S.	– STAINLESS STEEL
EQ. SPC.	– EQUAL SPACES	STD.	– STANDARD
EXIST.	– EXISTING	STIFF.	– STIFFENER
FLEX.	– FLEXIBLE	SYMM.	– SYMMETRICAL
FM	– FIXED MESSAGE	t., THK.	– THICK
FMS	– FIXED MESSAGE SIGN	TYP.	– TYPICAL
GALV.	– GALVANIZED	ULT.	– ULTIMATE
GR.	– GROUND	VERT.	– VERTICAL
HEX.	– HEXAGONAL	VM	– VARIABLE MESSAGE
H.S.	– HIGH STRENGTH	VMS	– VARIABLE MESSAGE SIGN
JT.	– JOINT	WP	– WEATHERPROOF
		W/	– WITH

FOR LEGEND AND ABBREVIATIONS NOT SHOWN, SEE SHEET NO. G14 & G15.

8. FOUNDATION:

A. THE WORKING CAPACITY OF 16 1/2" OCTAGONAL PRECAST PILE AT VMS 39 IS 95 KIPS, THE ULTIMATE CAPACITY IS 285 KIPS.

B. THE ALLOWABLE SOIL BEARING PRESSURE FOR SPREAD FOOTING AT VMS 34 IS 2 KSF.

C. THE CAPACITIES OF 5'–0" DIAMETER DRILLED SHAFTS ARE AS FOLLOWS:

LOCATION	WORKING CAPACITY (KIPS)	ULTIMATE CAPACITY (KIPS)
CMS 29	85	255
CMS 30	150	450
VMS 33	70	210
VMS 35	105	315
VMS 36	85	255
VMS 37	40	120
VMS 40	60	180
VMS 43	100	300

FOR DETAIL AS-BUILT INFORMATION
REFER TO CONSTRUCTION SUBMITTALS

4/10/92	REVISED NOTE 4B.
DATE	REVISION

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

GENERAL NOTES

SUPPORT STRUCTURES
INTERSTATE ROUTE H–3
F.A.I. PROJECT NO. I–H3–1(65)

SCALE: DATE: DEC. 1991

SHEET No. SS1 OF 19 SHEETS

HUI PANG CHEN
REGISTERED PROFESSIONAL ENGINEER
No. 3865-S
HAWAII, U.S.A.

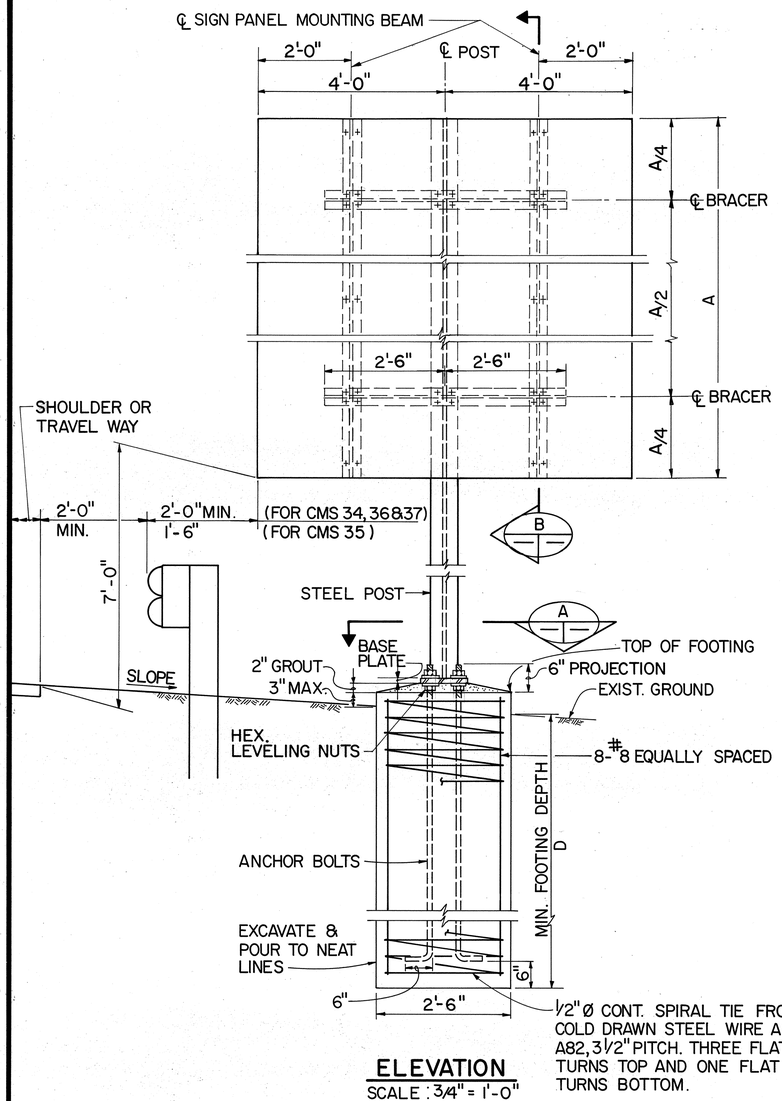
THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.
Hui Pang Chen

ORIGINAL PLAN	SURVEY PLOTTED BY: S. KIMURA	DATE 10/24/91
	DRAWN BY:	
	TRACED BY: K. WADA	6/17/91
NOTEBOOK	DESIGNED BY:	
	QUANTITIES BY: H.F. CHEN	10/24/91
No.	CHECKED BY:	

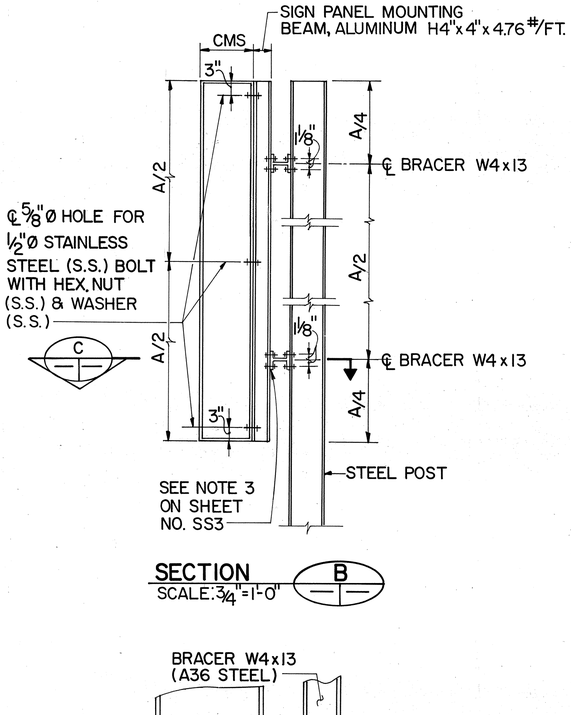
H3ADVSGN 10/24/91

ADD. 287

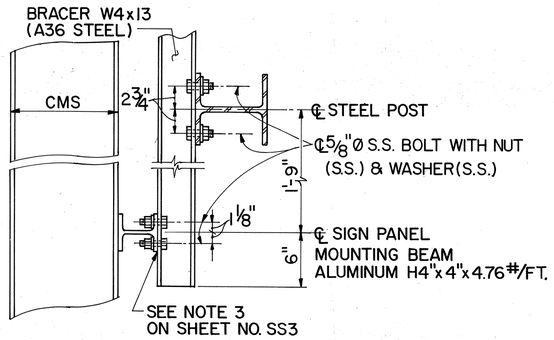
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-H3-1(65)	1992	288	309



ELEVATION
SCALE: 3/4" = 1'-0"



SECTION B
SCALE: 3/4"=1'-0"

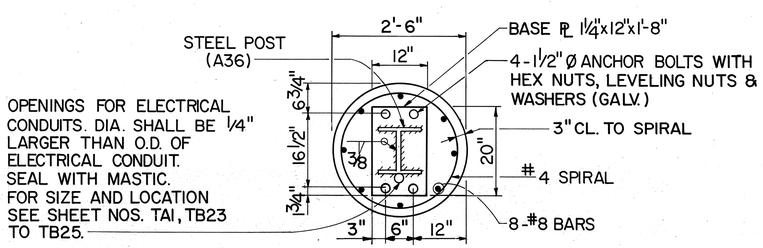


SECTION C
SCALE: 1½"=1'-0"

SIGN NUMBER	STATION & OFFSET	A	D	POST SIZE	POST HT.	TOP OF FOOTING EL.	REMARK **
CMS 34	LIKELIKE HWY. ℄ STA. 113+00, O/S=48' LT.	5'-0"	7'-9"	W8 x 31	12'-6"	126.60	NIC
CMS 35	KALANIANAOLE HWY. ℄ STA. 215+00, O/S=0'	7'-0"	8'-6"	W8 x 31	14'-0"	353.71	NIC
CMS 36	KAMEHAMEHA HWY. ℄ STA. 143+85, O/S=49' LT.	5'-0"	8'-6"	W8 x 31	14'-0"	294.40	NIC
CMS 37	HALONA ST. ℄ STA. 9+60, O/S=38' LT.	5'-0"	7'-9"	W8 x 31	12'-6"	15.50	NIC

REMARK ** – FABRICATION OF SIGN & INSTALLATION OF POST NIC

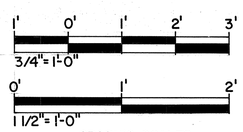
NOTES:
1. CONCRETE FOR FOOTING SHALL BE CLASS A.
2. REINFORCING STEEL SHALL BE ASTM A615 GRADE 60.



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

POST MOUNTED SIGN DETAIL

CMS 34 THROUGH CMS 37 AND ASSOCIATED SUPPORT STRUCTURES NOT INSTALLED BY THIS CONTRACT



GRAPHIC SCALES

HUI PANG CHEN REGISTERED PROFESSIONAL ENGINEER No. 3865-S HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.
Hui pang Chen

3/8/96	REV. PER DCN 65-044
DATE	REVISION

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

DETAILS FOR CMS 34 TO 37

SUPPORT STRUCTURES
INTERSTATE ROUTE H-3
F.A.I. PROJ. NO. I-H3-1(65)

SCALE: AS SHOWN DATE: DEC. 1991

SHEET NO. SS2 OF 19 SHEETS

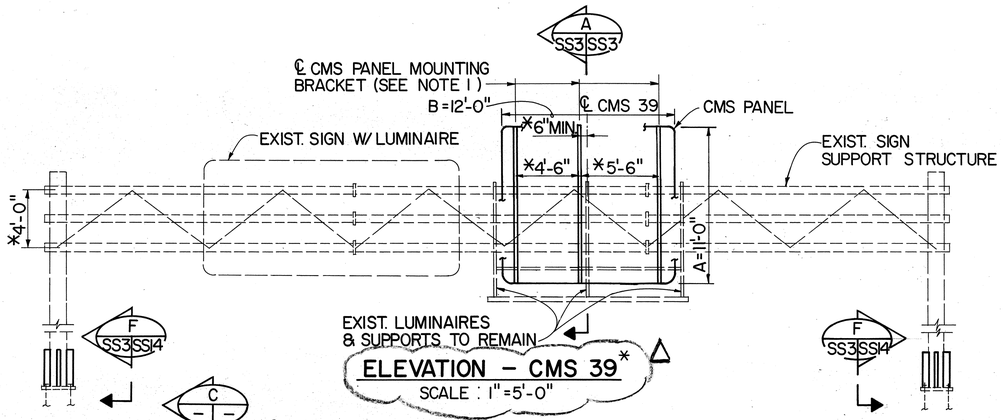
ORIGINAL PLAN		
NOTE BOOK	SURVEY PLOTTED BY	A. MALALUAN 8/91
No.	DRAWN BY	" " 8/91
	TRACED BY	I. ABE 8/91
	DESIGNED BY	" " 8/91
	QUANTITIES BY	" " 8/91
	CHECKED BY	H.P. CHEN 8/91

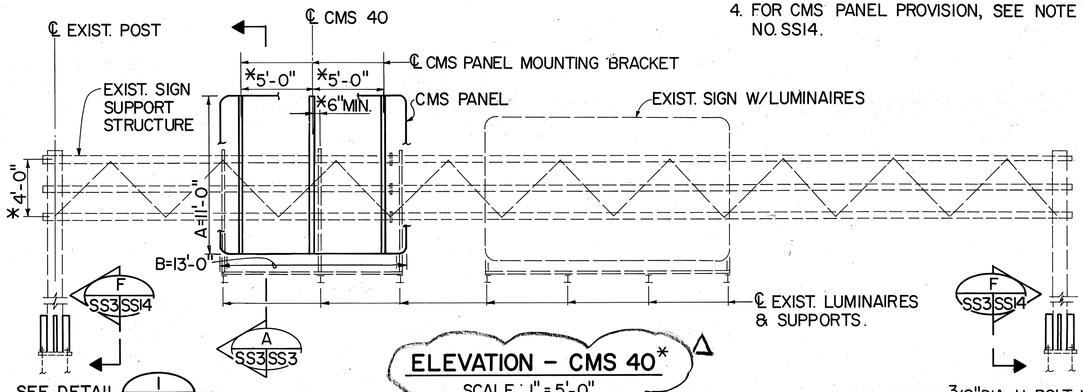
137218

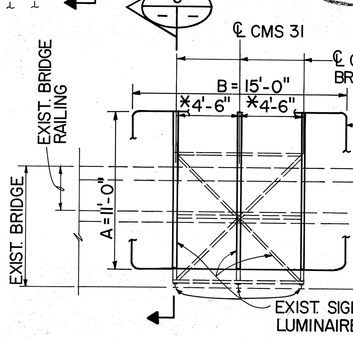
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-H3-1(65)	1992	289	309

NOTES:

1. ALL EXISTING SIGN PANEL MOUNTING BRACKETS AT THE DESIGNATED CMS LOCATIONS, IF ANY, SHALL BE REMOVED AND REPLACED BY CMS PANEL MOUNTING BRACKETS AS SHOWN.
2. * THE DIMENSIONS FOR HEIGHT OF EXISTING TRUSS AND LOCATIONS OF CMS PANEL MOUNTING BRACKETS SHALL BE VERIFIED IN FIELD PRIOR TO FABRICATION OF CMS PANEL & MOUNTING BRACKET.
3. CONTACT SURFACE BETWEEN STRUCTURAL STEEL AND ALUMINUM SHALL BE SEPARATED WITH MIN. 1/16" THICK NEOPRENE GASKET.
4. FOR CMS PANEL PROVISION, SEE NOTE 'B' ON SHEET NO. SS14.

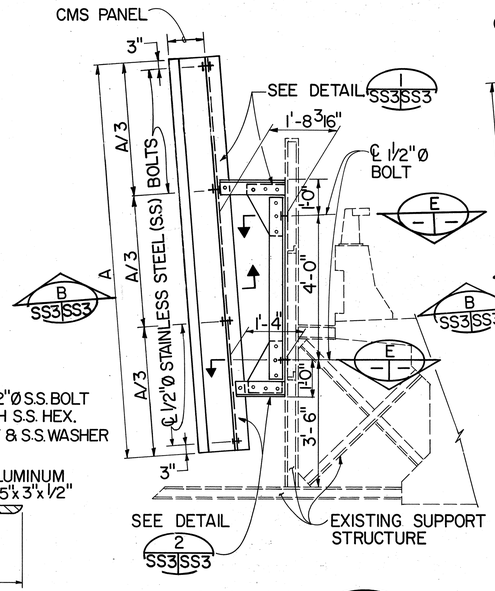


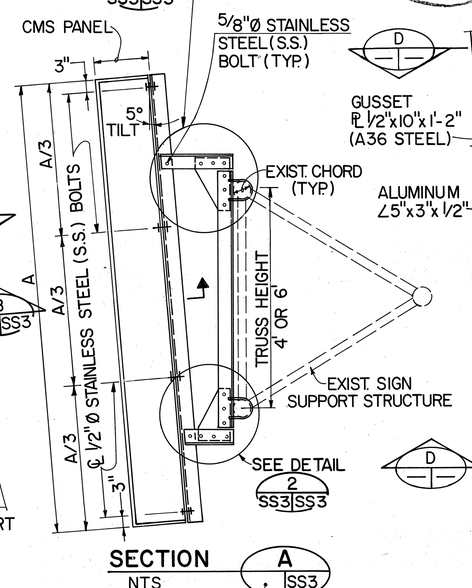




ELEVATION – CMS 31

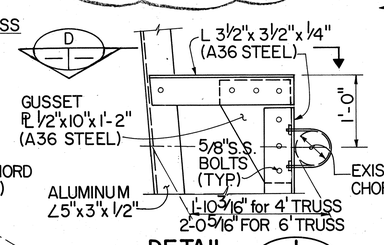
SCALE : 1"=5'-0"





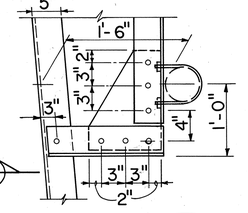
SECTION A

NTS SS3, SS4



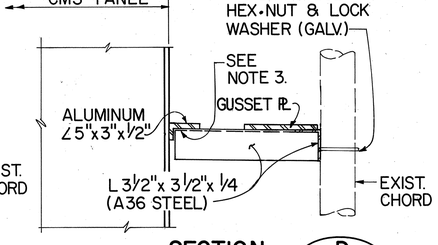
DETAIL 1

NTS SS3, SS13 SS3



DETAIL 2

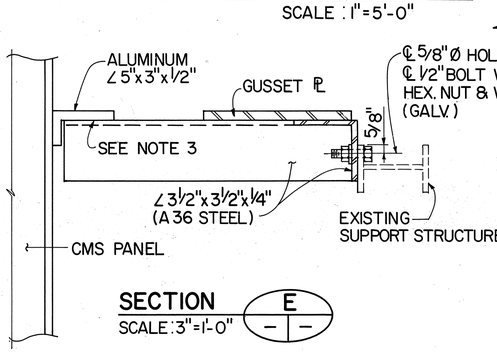
NTS SS3, SS13 SS3



SECTION D

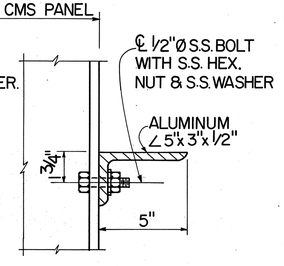
NTS

* INSTALLATION OF CMS AND PANEL MOUNTING BRACKET NIC



SECTION E

SCALE: 3"=1'-0"



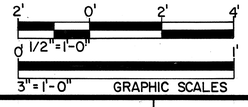
SECTION B

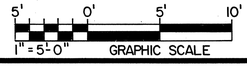
SCALE: 3"=1'-0"

SS3, SS13

SECTION C

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





CMS PANEL MOUNTING BRACKET DETAILS

ORIGINAL PLAN		DATE
	SURVEY PLOTTED BY	
	DRAWN BY G.D. TRUONG	5/91
	TRACED BY I. ABE	5/91
NOTE BOOK	DESIGNED BY	
	QUANTITIES BY	
No.	CHECKED BY H.P. CHEN	5/91

DATE	REVISION
3/8/96	REV. PER DCN 65-044
3/31/94	DELETED CMS 38 ELEVATION PER DCN 65-027

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

DETAILS FOR CMS 31, 38 TO 40

SUPPORT STRUCTURES
INTERSTATE ROUTE H-3
F.A.I. PROJ. NO. I-H3-1(65)

SCALE: AS SHOWN DATE: DEC. 1991

HUI PANG CHEN
REGISTERED PROFESSIONAL ENGINEER
No. 3865-S
HAWAII, U.S.A.

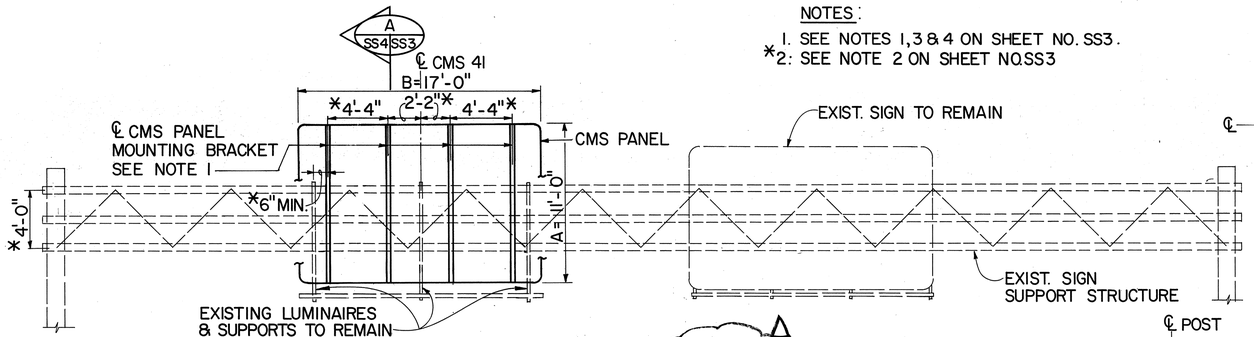
THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.
Hui Pang Chen

SHEET No. SS3 OF 19 SHEETS

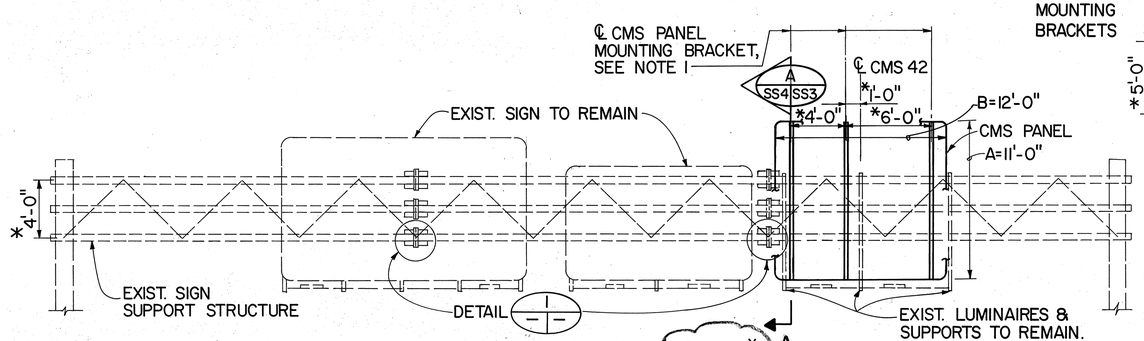
137216

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-H3-1(65)	1992	290	309

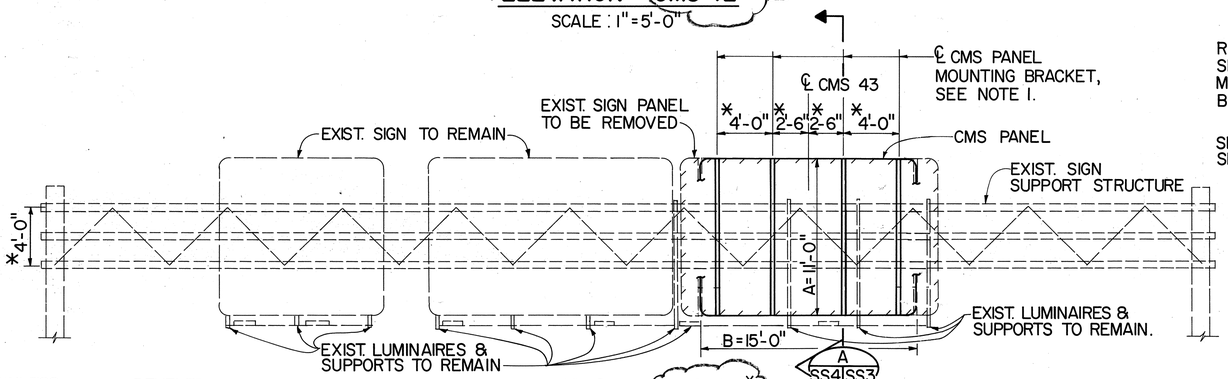
NOTES:
1. SEE NOTES 1, 3 & 4 ON SHEET NO. SS3.
*2: SEE NOTE 2 ON SHEET NO.SS3



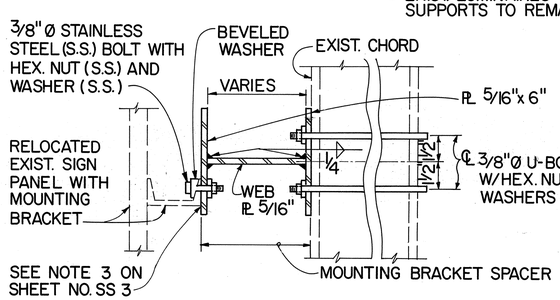
ELEVATION - CMS 41*
SCALE: 1" = 5'-0"



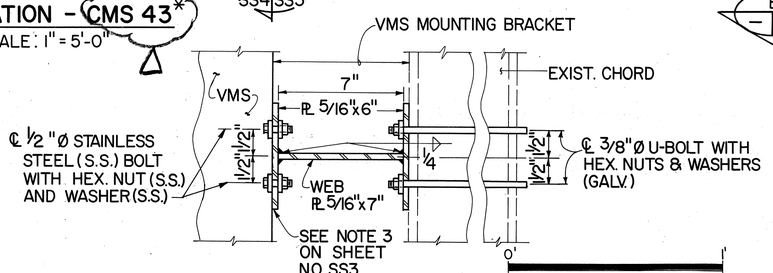
ELEVATION - CMS 42*
SCALE: 1" = 5'-0"



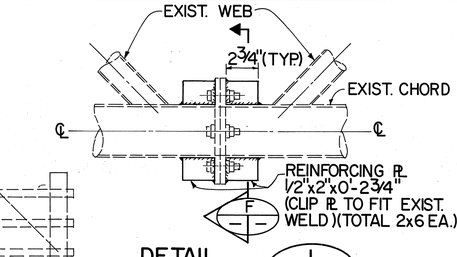
ELEVATION - CMS 43*
SCALE: 1" = 5'-0"



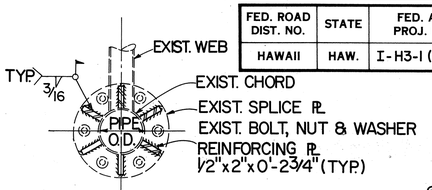
SECTION E
SCALE: 3" = 1'-0"



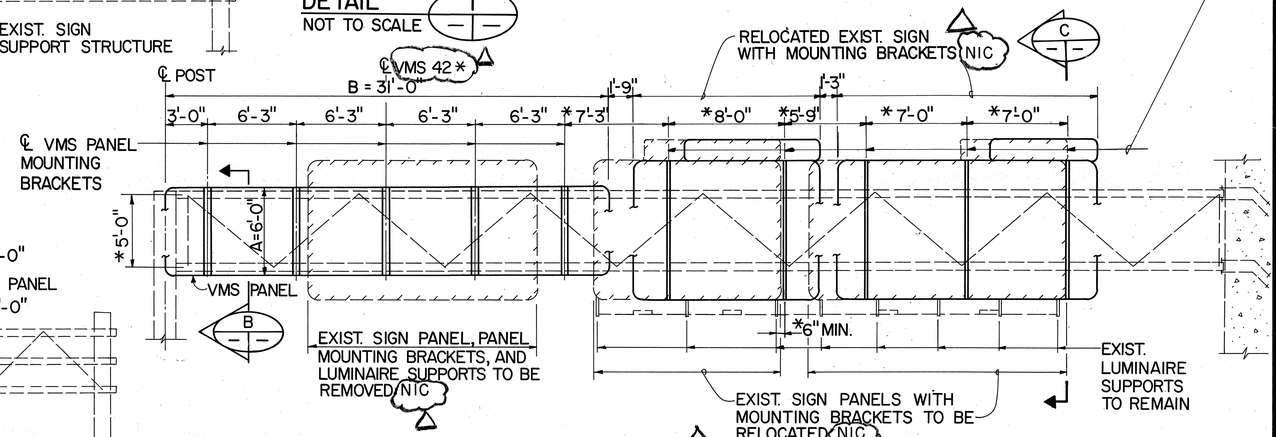
SECTION D
SCALE: 3" = 1'-0"



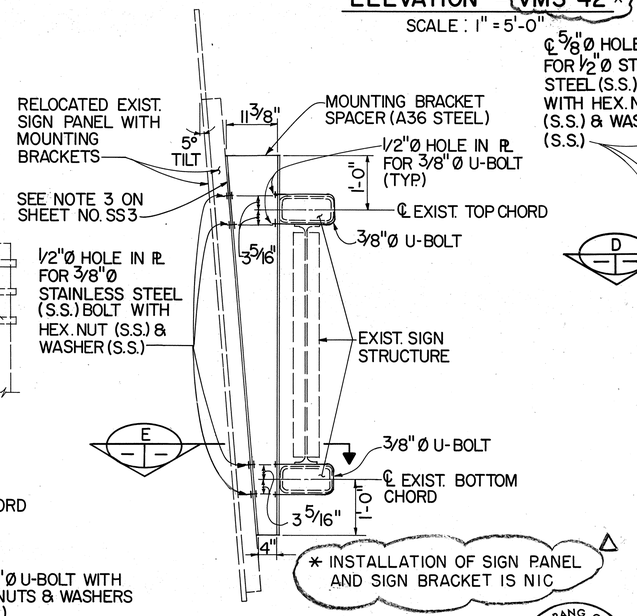
DETAIL I
NOT TO SCALE



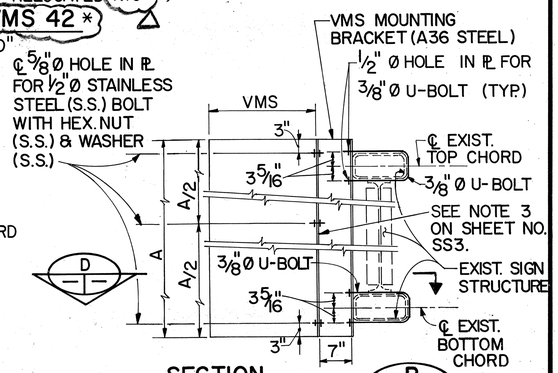
SECTION F
NOT TO SCALE



ELEVATION - VMS 42*
SCALE: 1" = 5'-0"



SECTION C
SCALE: 3/4" = 1'-0"



SECTION B
SCALE: 3/4" = 1'-0"
* INSTALLATION OF DEVICE IS NIC

3/8/96	REV. PER DCN 65-044
DATE	REVISION

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

DETAILS FOR CMS 41 TO 43 AND VMS 42

SUPPORT STRUCTURES
INTERSTATE ROUTE H-3
F.A.I. PROJ. NO. I-H3-1(65)

SCALE: AS SHOWN DATE: DEC. 1991

SHEET No. SS4 OF 19 SHEETS

ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
	DRAWN BY C.D. TRUONG	4/91
	TRACED BY	
NOTE BOOK	DESIGNED BY I. ABE	4/91
	QUANTITIES BY	
No.	CHECKED BY H.P. CHEN	4/91

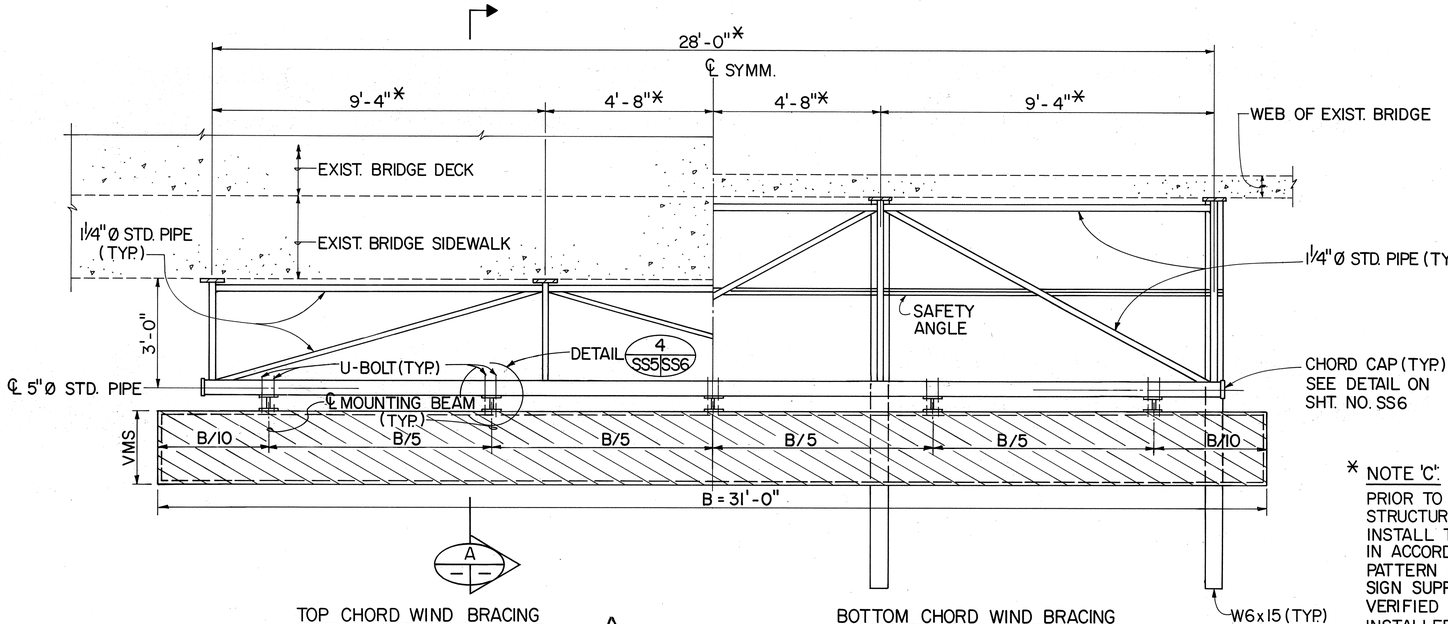
1" = 5'-0" GRAPHIC SCALES
3/4" = 1'-0" GRAPHIC SCALE

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.
Hui Pang Chen

HUI PANG CHEN
REGISTERED PROFESSIONAL ENGINEER
No. 3865-S
HAWAII, U.S.A.

137218

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-H3-1(65)	1992	291	309

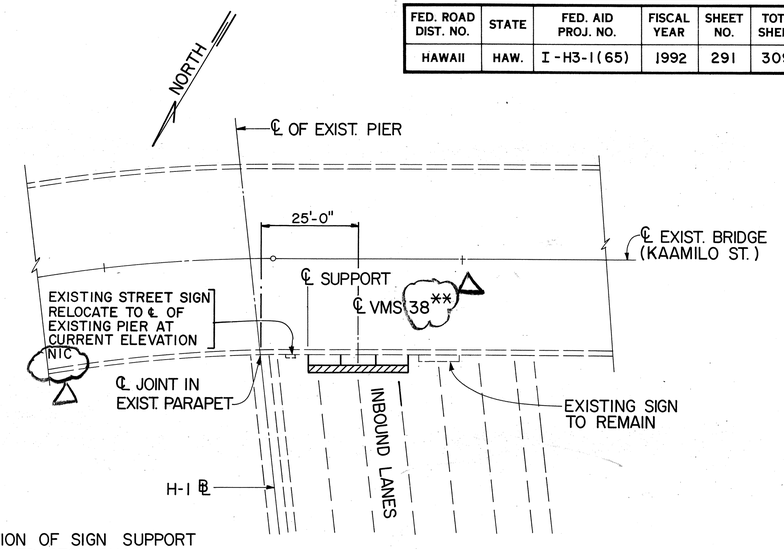


PLAN - VMS 38** MOUNTED ON EXISTING BRIDGE

SCALE: ½"=1'-0"

* NOTE 'C':

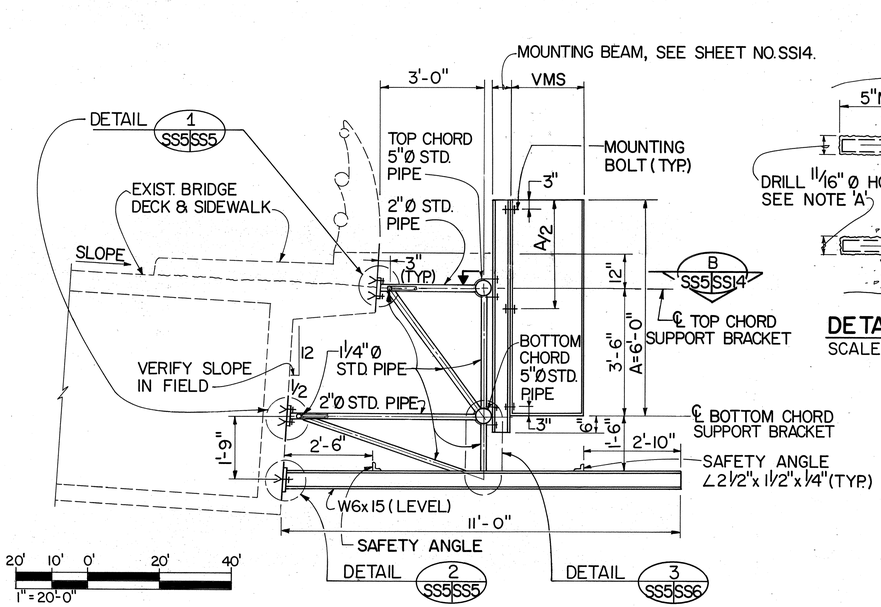
PRIOR TO FABRICATION OF SIGN SUPPORT STRUCTURE, THE CONTRACTOR SHALL INSTALL THE EXPANSION ANCHOR BOLTS IN ACCORDANCE WITH NOTE 'A' AND BOLT PATTERN AS SHOWN. THE DIMENSIONS OF SIGN SUPPORT STRUCTURE SHALL BE VERIFIED WITH THE ANCHOR BOLT INSTALLED IN FIELD (NIC)



LOCATION PLAN

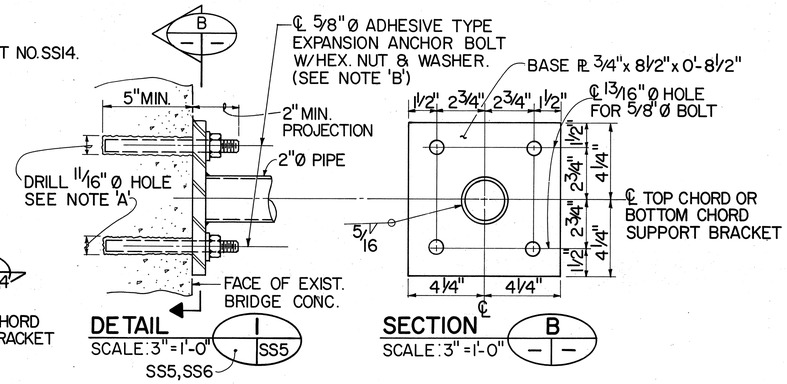
SCALE: 1" = 20'

** INSTALLATION OF SIGN AND ASSOCIATED MOUNTING HARDWARE NIC



SECTION A

SCALE: ½"=1'-0" (A — A)



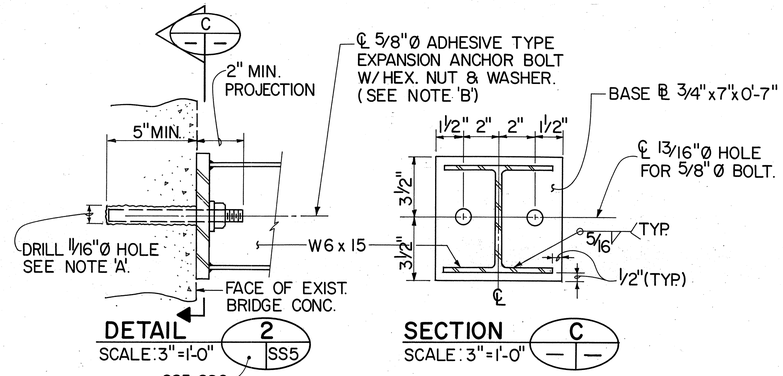
DETAIL 1 (SS5)

SCALE: 3"=1'-0"

SS5, SS6

SECTION B

SCALE: 3"=1'-0" (B — B)



DETAIL 2 (SS5)

SCALE: 3"=1'-0"

SS5, SS6

SECTION C

SCALE: 3"=1'-0" (C — C)

NOTE 'A':

DRILL 11⁄16" Ø HOLE INTO EXISTING BRIDGE CONCRETE AND INSTALL 5⁄8" Ø ADHESIVE TYPE EXPANSION ANCHOR BOLT. THE HOLES FOR EXPANSION ANCHOR BOLTS SHALL BE DRILLED PERPENDICULAR TO THE EXISTING CONCRETE SURFACES. WHEN THE DRILL CONTACTS ANY EXISTING RE-BAR, THE HOLE SHALL BE FILLED WITH EPOXY GROUT AND A REPLACEMENT HOLE SHALL BE DRILLED SO THAT THE ANCHOR BOLT PATTERN IS MAINTAINED. THE CONTRACTOR SHALL AVOID CUTTING EXISTING RE-BARS. THE ADHESIVE TYPE EXPANSION ANCHOR BOLT SHALL BE INSTALLED AS PER REQUIREMENT OF MANUFACTURER (NIC)

NOTE 'B':

5⁄8" Ø ADHESIVE TYPE EXPANSION ANCHOR BOLT SHALL BE GALVANIZED & DEVELOP A MINIMUM ULTIMATE PULLING FORCE OF 13,500 LBS AND A MINIMUM ULTIMATE SHEAR FORCE OF 11,200 LBS.

20' 10' 0' 20' 40'
1" = 20'-0"
2' 0' 2' 4'
½" = 1'-0"
0' 1'
3" = 1'-0" GRAPHIC SCALES

ORIGINAL PLAN	NOTE BOOK	No.	SURVEY PLOTTED BY	DRAWN BY	TRACED BY	DESIGNED BY	QUANTITIES BY	CHECKED BY	DATE
				G.D. TRUONG		K. WADA		H.P. CHEN	5/91

DATE	REVISION
3/8/96	REV. PER DCN 65-044
12/14/93	REVISED 'LOCATION PLAN' TO INDICATE NEW LOCATION OF VMS 38 AND RELOCATION OF EXISTING STREET SIGN PER DCN65-022

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

DETAILS FOR VMS 38

SUPPORT STRUCTURES
INTERSTATE ROUTE H-3
F.A.I. PROJ. NO. I-H3-1(65)

SCALE: AS SHOWN DATE: DEC. 1991

HUI PANG CHEN
REGISTERED PROFESSIONAL ENGINEER
No. 3865-S
HAWAII, U.S.A.

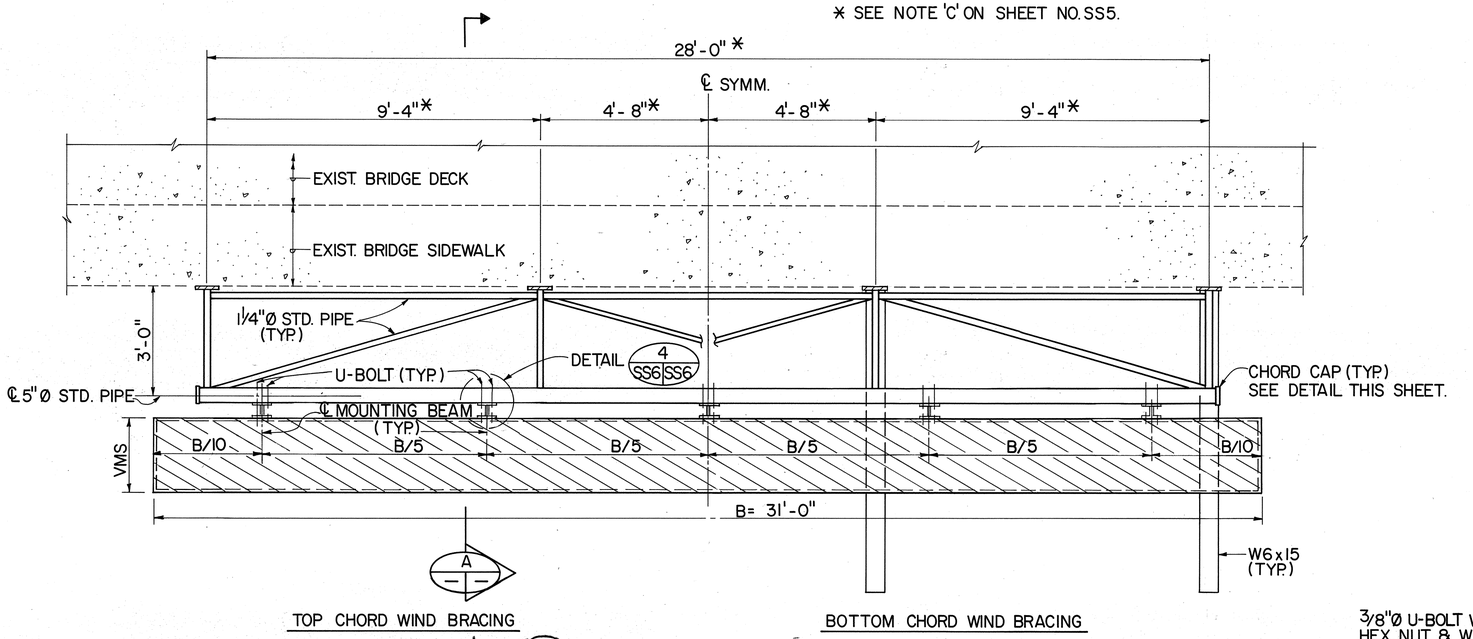
THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.

Hui Pang Chen

SHEET No. SS5 OF 19 SHEETS

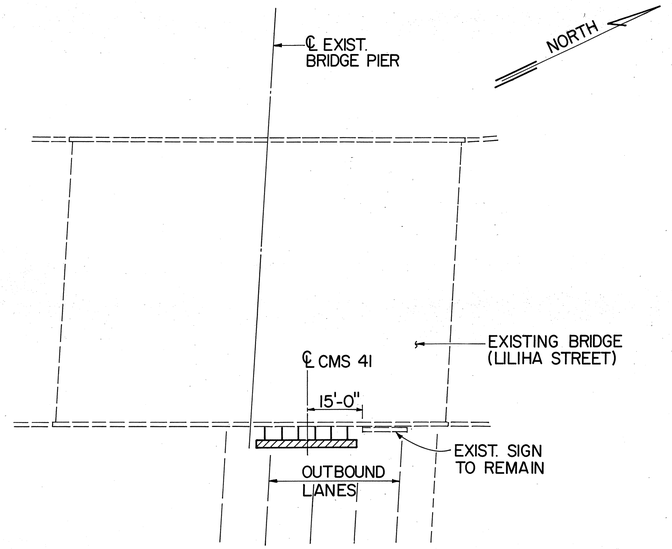
137218

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-H3-1(65)	1992	292	309



PLAN - VMS** 41 MOUNTED ON EXISTING BRIDGE

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

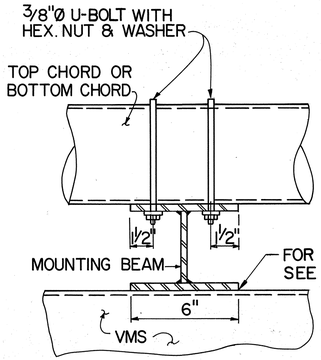


LOCATION PLAN

SCALE: 1" = 20'

CHORD CAP DETAIL

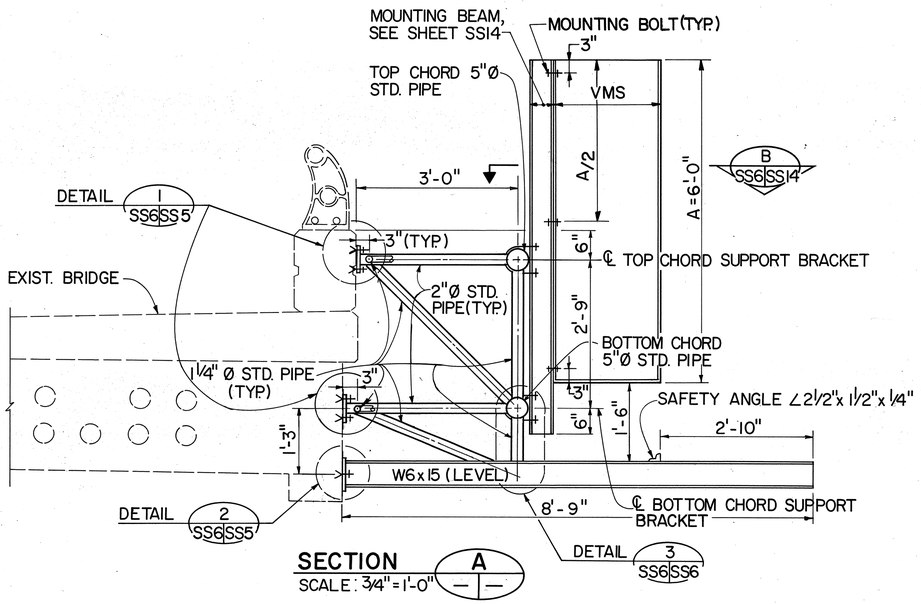
SCALE: 1½" = 1'-0"



DETAIL 4

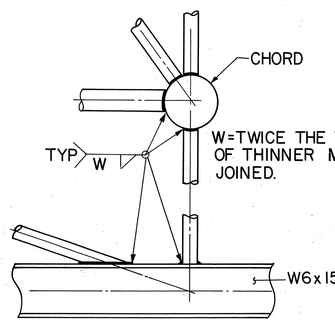
SCALE: 3"=1'-0" SS6 | SS5,SS6

** INSTALLATION OF SIGN AND ASSOCIATE MOUNTING HARDWARE NIC



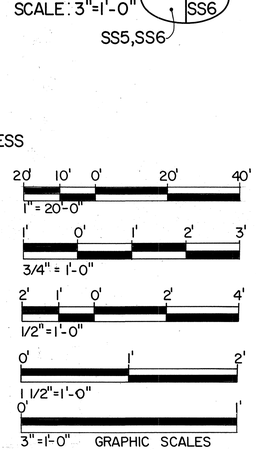
SECTION A

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



DETAIL 3

SCALE: 1½"=1'-0" SS6 | SS5,SS6



3/8/96	REV. PER DCN 65-044
DATE	REVISION

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

DETAILS FOR VMS 41

SUPPORT STRUCTURES
INTERSTATE ROUTE H-3
F.A.I. PROJ. NO. I-H3-1(65)

SCALE: AS SHOWN DATE: DEC. 1991

SHEET No. SS6 OF 19 SHEETS

HUI PANG CHEN
REGISTERED PROFESSIONAL ENGINEER
No. 3865-A
HAWAII, U.S.A.

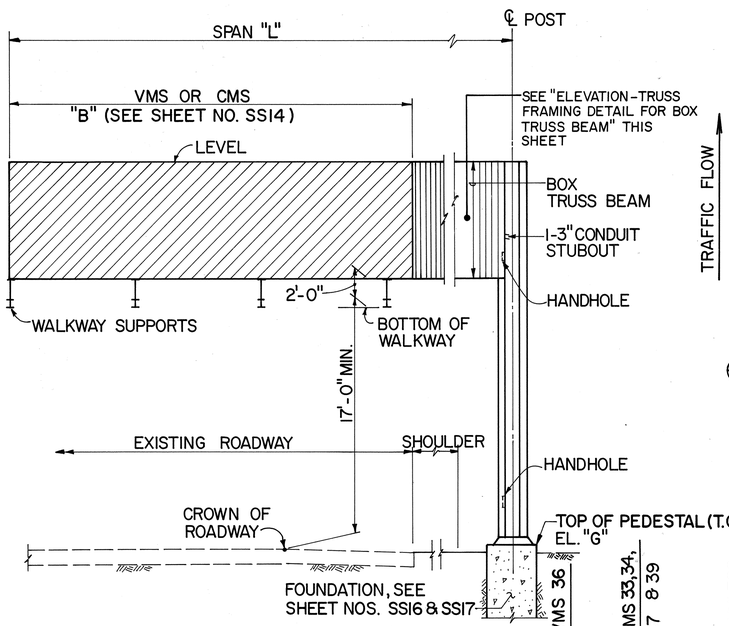
THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.

Hui pang Chen

ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
	DRAWN BY G.D. TRUONG	3/91
	TRACED BY	
NOTE BOOK	DESIGNED BY K. IIADA	3/91
	QUANTITIES BY	
No.	CHECKED BY H.P. CHEN	3/91

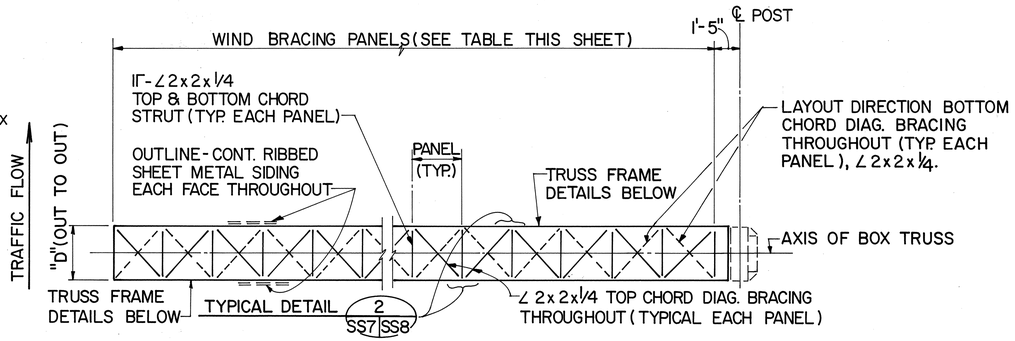
137218

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-H3-1(65)	1992	293	309



SIGN STRUCTURE

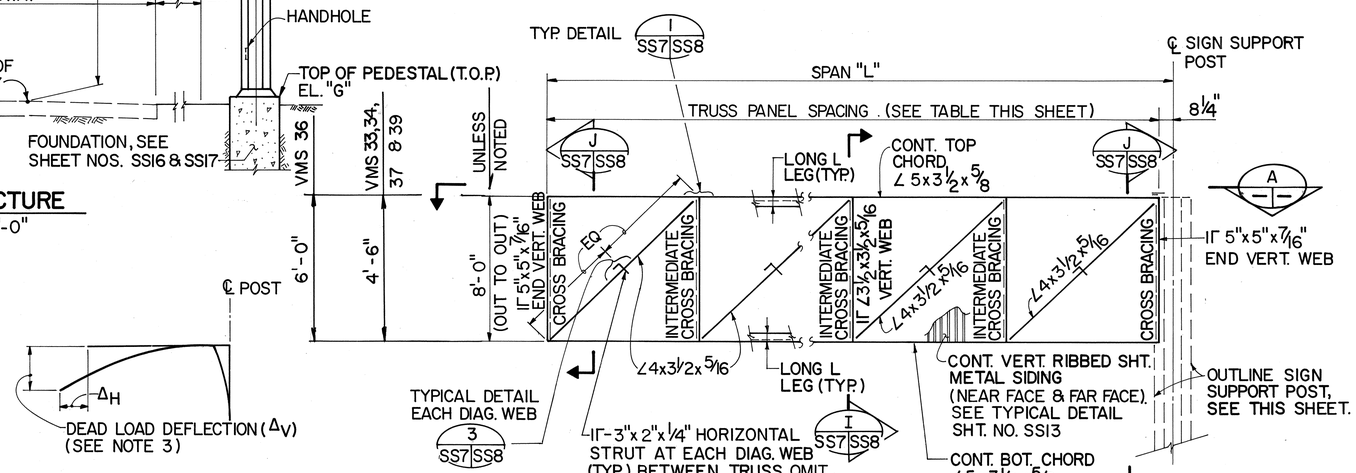
SCALE : 1" = 5'-0"



A PLAN - TOP CHORD WIND BRACE FRAMING - AS SHOWN

(BOTTOM CHORD SIMILAR EXCEPT AS OTHERWISE NOTED)

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



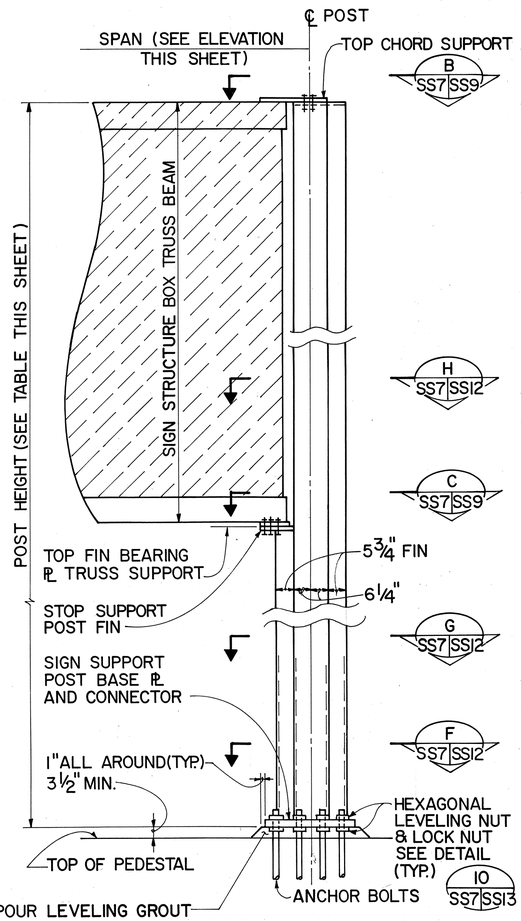
ELEVATION - TRUSS FRAMING DETAIL FOR BOX TRUSS BEAM

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

DEAD LOAD DEFLECTION

N.T.S.

REMARK ** - INSTALLATION OF SIGN AND STRUCTURE ABOVE FOUNDATION NIC



ELEVATION FOR POST

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

SIGN NUMBER	STATION & OFFSET	T.O.P. EL."G"	TRUSS PANEL SPACING	WINDBRACING PANEL SPACING	TRUSS WIDTH "D"	SPAN "L"	BASE ℄ TYPE	POST TYPE	POST HT.	D.L. DEFLECTION Δ_H	D.L. DEFLECTION Δ_V	TRUSS DEPTH	REMARK	REMARK **
CMS29	KAMEHAMEHA HWY. ℄ STA. 107+25, O/S =65' RT.	*231.20	3 EQUAL PANELS @ 8'-5 1/4" = 25'-3 3/4" ±	10 EQUAL PANELS @ 2'-5 1/2" = 24'-7" ±	2'-6"	26'-0"	I	A	28'-0"	-0.52"	-1.29"	—	CMS 29	NIC
VMS 33	KAMEHAMEHA HWY. ℄ STA. 19+15, O/S = 19' RT.	*91.23	4 EQUAL PANELS @ 5'-0 15/16" = 20'-3 3/4	8 EQUAL PANELS @ 2'-5 9/16" ± = 19'-8 3/4" ±	2'-6"	21'-0"	I	A	24'-0"	-0.18"	-0.40"	4'-6"	VMS 33	NIC
VMS 34	KANEOHE BAY DR. ℄ STA. 13+00, O/S = 2' LT.	101.55							23'-6"				VMS 34	NIC
VMS 35	H-3 FWY. ℄ STA. 601+15, O/S = 62' LT.	54.70	4 EQUAL PANELS @ 8'-6 15/16" = 34'-3 3/4" ±	12 EQUAL PANELS @ 2'-9 9/16" = 33'-7" ±	3'-0"	35'-0"	II	B	27'-6"	-0.65"	-2.27"	—	VMS 35	NIC
VMS 36	KALANIANAOLE HWY. ℄ STA. 224+00, O/S = 54' LT.	307.70	4 EQUAL PANELS @ 6'-0 15/16" = 24'-3 3/4"	10 EQUAL PANELS @ 2'-45/16" ± = 23'-7" ±	2'-6"	25'-0"	II	A	24'-6"	-0.29"	-0.79"	6'-0"	VMS 36	NIC
VMS 40	MOANALUA FWY. ℄ STA. 305+50, O/S = 0'	21.47	4 EQUAL PANELS @ 8'-6 15/16" = 34'-3 3/4" ±	12 EQUAL PANELS @ 2'-9 9/16" = 33'-7" ±	3'-0"	35'-0"	II	B	25'-0"	-0.52"	-2.06"	—	VMS 40 & VMS 43	NIC
VMS 43	H-1 FWY. ℄ STA. 57+30, O/S = 0'	42.43												
CMS 30	H-3 FWY. ℄ STA. 522+55, O/S = 67.25' LT.	323.00	6 EQUAL PANELS @ 6'-8 5/8" = 41'-3 3/4" ±	14 EQUAL PANELS @ 2'-9 15/16" = 40'-7" ±	3'-0"	42'-0"	III	B	25'-6"	-0.80"	-3.73"	—	CMS 30	NIC
VMS 39	KAMEHAMEHA HWY. ℄ STA. 330+23, O/S = 23' RT.	16.25	4 EQUAL PANELS @ 5'-0 15/16" = 20'-3 3/4"	8 EQUAL PANELS @ 2'-5 9/16" ± = 19'-8 3/4" ±	3'-0"	21'-0"	II	B	21'-0"	-0.11"	-0.29"	4'-6"	VMS 39	NIC
VMS 44	H-3 FWY. ℄ STA. 423+50, O/S = 47.08' LT.	276.16	4 EQUAL PANELS @ 8'-6 15/16" = 34'-3 3/4" ±	12 EQUAL PANELS @ 2'-9 9/16" = 33'-7" ±	3'-0"	35'-0"	II	B	27'-0"	-0.62"	-2.22"	—	VMS 44	NIC
VMS 37	KAHEKILI HWY. ℄ STA. 11+30, O/S = 3.00' LT.	135.06	4 EQUAL PANELS @ 5'-0 15/16" = 20'-3 3/4"	8 EQUAL PANELS @ 2'-5 9/16" ± = 19'-8 3/4" ±	3'-0"	21'-0"	II	B	21'-0"	-0.11"	-0.29"	4'-6"	VMS 37	NIC

NOTES:

1. FOR LOCATIONS OF SIGNS AND WALKWAY SUPPORTS, SEE SHEET NO. SS10.
2. FOR BOX TRUSS CONNECTION DETAILS, SEE SHEET NOS. SS8 & SS9.
3. THE DEAD LOAD DEFLECTION INCLUDES THE EFFECT OF THE WEIGHT OF THE TRUSS. A CAMBER SHALL BE PROVIDED TO ACCOMMODATE THIS DEFLECTION.
4. FOR POST & BASE PLATE TYPES, SEE SHEET NO. SS12.
5. SEE NOTE 17 ON SHEET NO. SS16.

5' 0' 5' 10' 1" = 5'-0"

4' 0' 4' 8' 1/4" = 1'-0"

2' 0' 2' 4' 1/2" = 1'-0" GRAPHIC SCALES

HUI PANG CHEN REGISTERED PROFESSIONAL ENGINEER No. 3865-S HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION

Hui pang Chen

DATE	REVISION
3/8/96	REV. PER DCN 65-044
12/8/93	REVISED CMS 30, VMS 33 TO 37, 39 & 44 PER DCN 65-019
4/10/92	REVISED CANTILEVER END VERT. WEB IN ELEVATION - TRUSS FRAMING DETAIL FOR BOX TRUSS BEAM.

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

DETAILS FOR VMS 33 TO 37, 39, 40, 43, 44, CMS 29 AND CMS 30

SUPPORT STRUCTURES
INTERSTATE ROUTE H-3
F.A.I. PROJ. NO. I-H3-1(65)

SCALE : AS SHOWN DATE : DEC. 1991

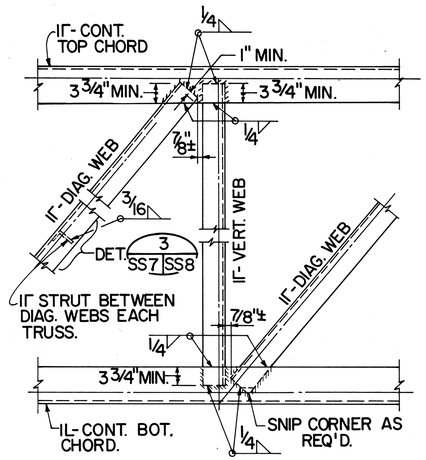
SHEET NO. SS7 OF 19 SHEETS

ORIGINAL PLAN

		DATE
SURVEY PLOTTED BY	R. MALALUAN	5/91
DRAWN BY	" " "	5/91
TRACED BY	A. YOUNG	
DESIGN BY	" " "	5/91
QUANTITIES BY	" " "	
CHECKED BY	H.P. CHEN	5/91
NOTE BOOK		
No.		

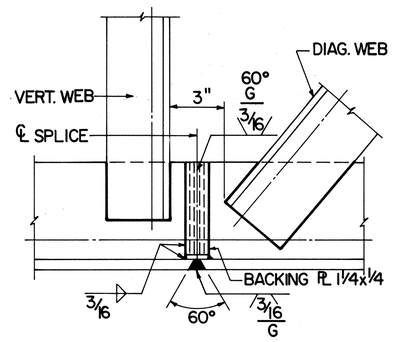
ADD. 293

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-H3-1(65)	1992	294	309



TYPICAL DETAIL 1 SS7 SS8

SCALE: 1" = 1'-0"

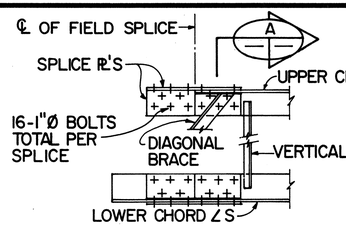


INTERIOR ELEVATION

TYPICAL TOP OR BOTTOM TRUSS CHORD SHOP SPLICE DETAILS

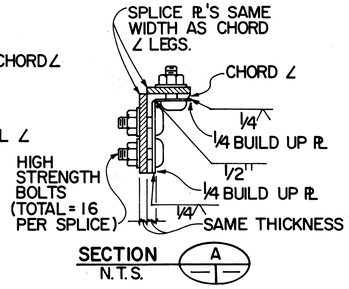
SCALE: 3" = 1'-0"

NOTE: SHOP OR FIELD SPLICE LOCATIONS OF TOP & BOTTOM CHORDS AT EACH TRUSS SHALL BE STAGGERED & AT ALTERNATE LOCATIONS. INDICATE SPLICE LOCATIONS ON SHOP FABRICATION DRAWINGS FOR APPROVAL. THE SPLICE SHALL BE LOCATED SO AS NOT TO INTERFERE WITH THE MOUNTING OF THE WALKWAY BRACKETS.



FIELD SPLICE DETAIL

N.T.S.

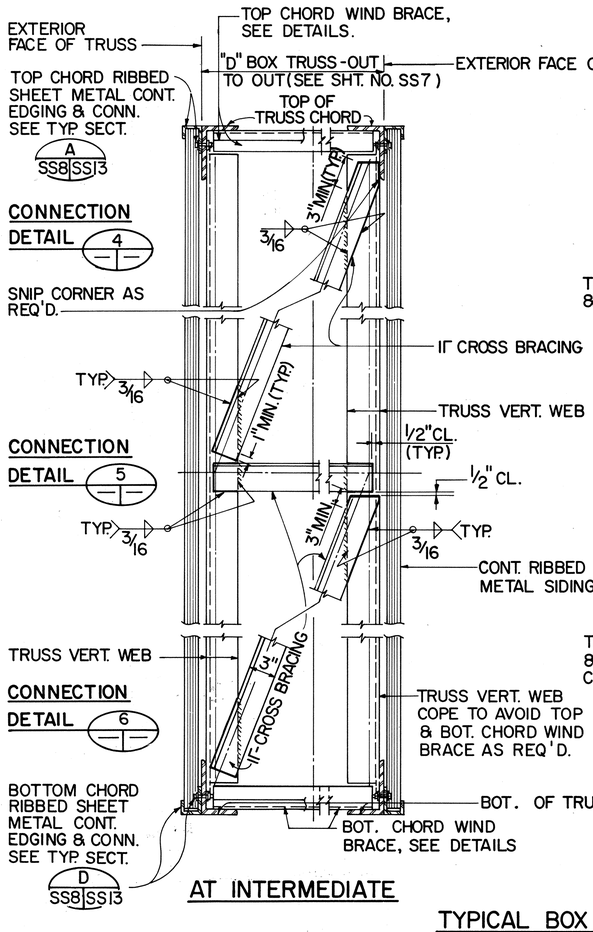


SECTION A

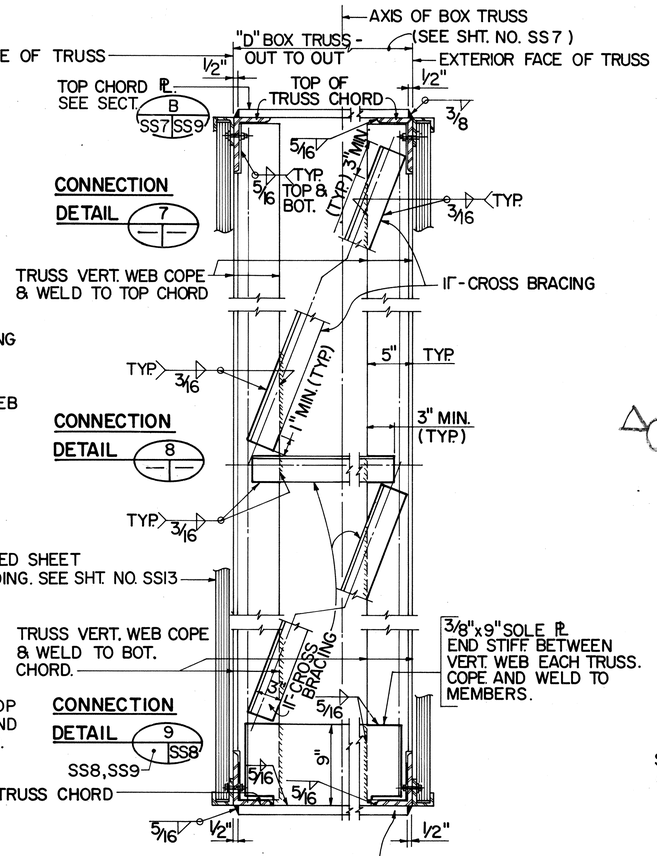
N.T.S.

BUILD UP PLATE:

THE PLATES WELDED TO THE ANGLE LEGS ON THE INSIDE SHALL BE WELDED BEFORE PUNCHING THE BOLT HOLES. THEY SHALL BE THE SAME LENGTH AS THE SPLICE PLATES.



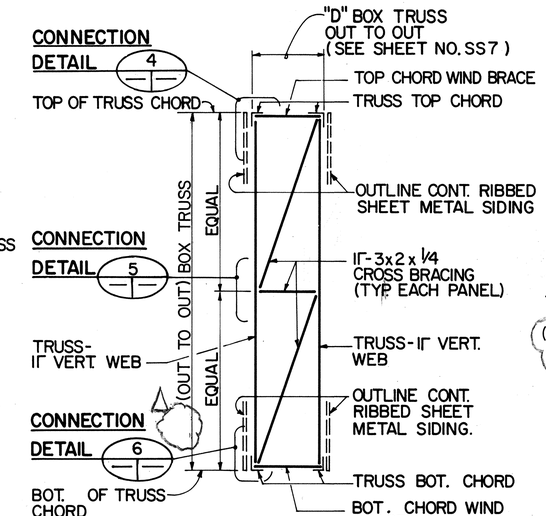
AT INTERMEDIATE



AT END

TYPICAL BOX TRUSS DETAILS

SCALE: 1 1/2" = 1'-0" (FOR 6' & 8' DEEP TRUSS, OTHERWISE SEE NOTE A)

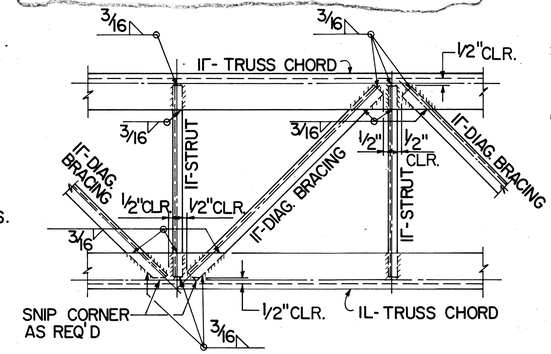


TYP. BOX TRUSS SECTION I SS7 SS8

(INTERMEDIATE CROSS BRACING DETAILS)

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

(FOR 6' & 8' DEEP TRUSS, OTHERWISE SEE NOTE A)

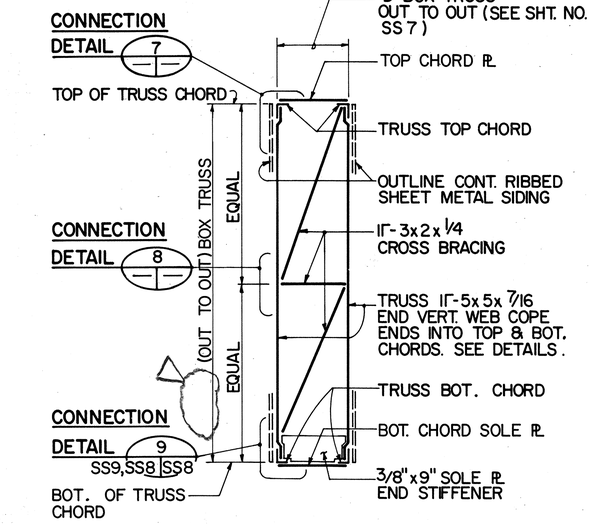


TYPICAL DETAIL 2 SS7 SS8

WIND BRACE CONNECTION

(TOP CHORD SHOWN - BOT. CHORD SIMILAR)

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

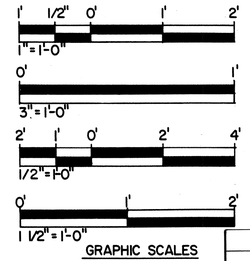


TYP. BOX TRUSS END SECTION J SS7 SS8 AS SHOWN

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

(FOR 6' & 8' DEEP TRUSS, OTHERWISE SEE NOTE A)

NOTE A: FOR DETAILS OF 4'-6" DEEP TRUSS FOR VMS 33, 34, 37 & 39 SEE SHEET NO. SS9.



GRAPHIC SCALES

DATE	REVISION
12/8/93	ADDED NOTE 'A' AND REFERENCE NOTE TO 'TYPICAL BOX TRUSS DETAILS', 'SECTION I' & 'SECTION J' PER DCN 65-019

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

BOX TRUSS CONNECTION DETAILS-1

SUPPORT STRUCTURES
INTERSTATE ROUTE H-3
F.A.I. PROJ. NO. I-H3-1(65)

SCALE: AS SHOWN DATE: DEC. 1991

SHEET No. SS8 OF 19 SHEETS

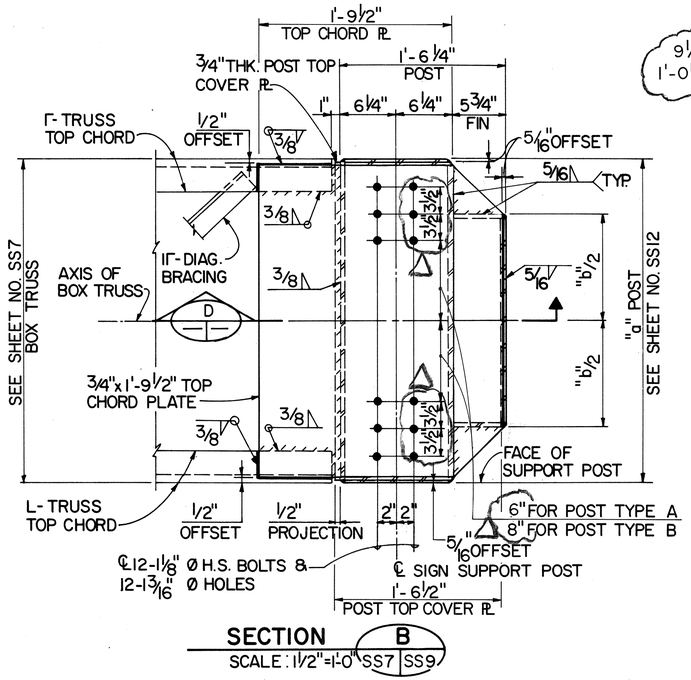
HUI PANG CHEN
REGISTERED PROFESSIONAL ENGINEER
No. 3865-S
HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.

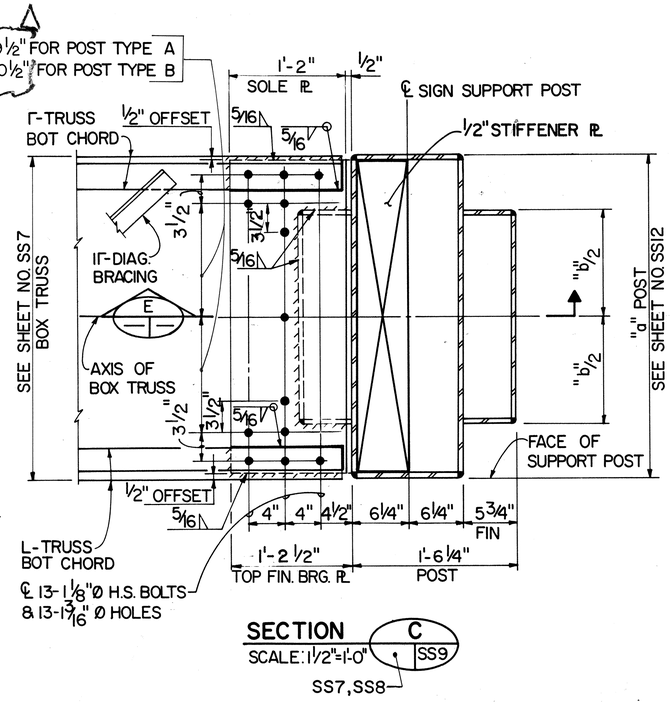
Hui pang Chen

	ORIGINAL PLAN	NOTE BOOK
SURVEY PLOTTED BY		
DRAWN BY	S.D. TRUONG	1/90
TRACED BY		
DESIGNED BY	H.P. CHEN	1/90
QUANTITIES BY		
CHECKED BY	K. WADA	1/90
No.		

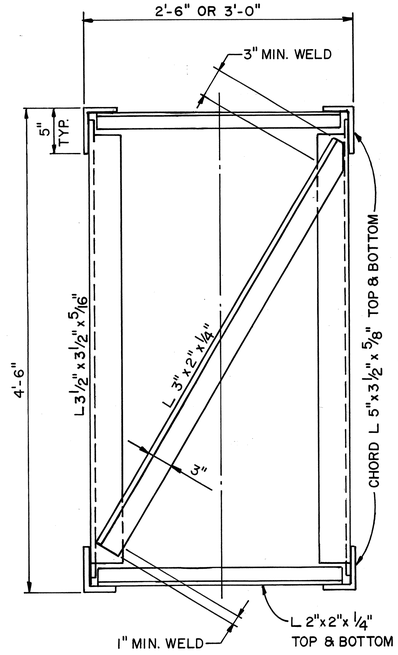
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-H3-1(65)	1992	295	309



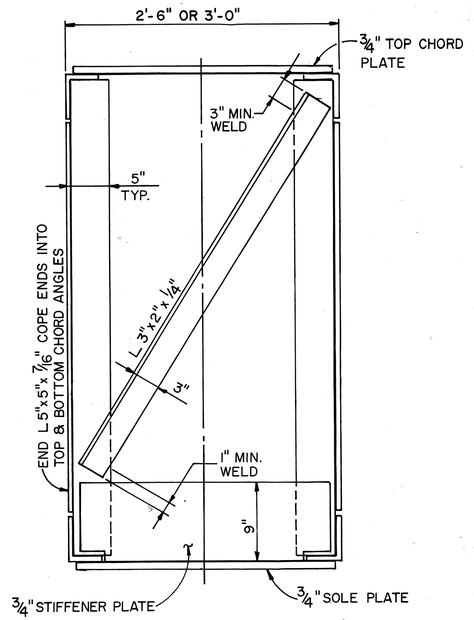
SECTION B
SCALE: 1½"=1'-0" SS7 | SS9



SECTION C
SCALE: 1½"=1'-0" SS9
SS7, SS8

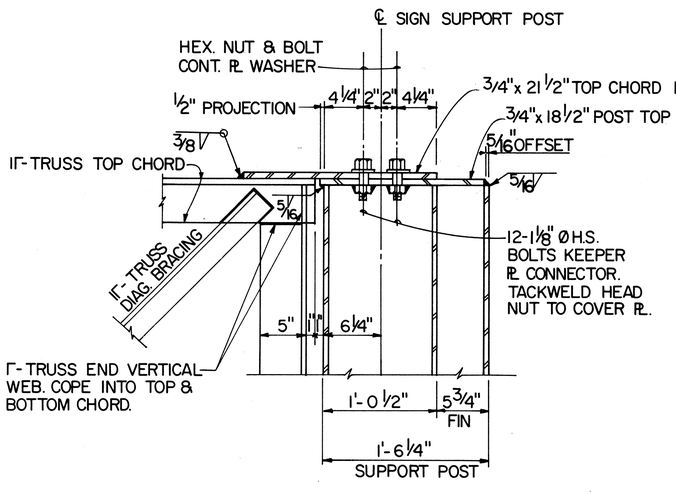


INTERMEDIATE BOX TRUSS SECTION
SCALE: 1½"=1'-0"

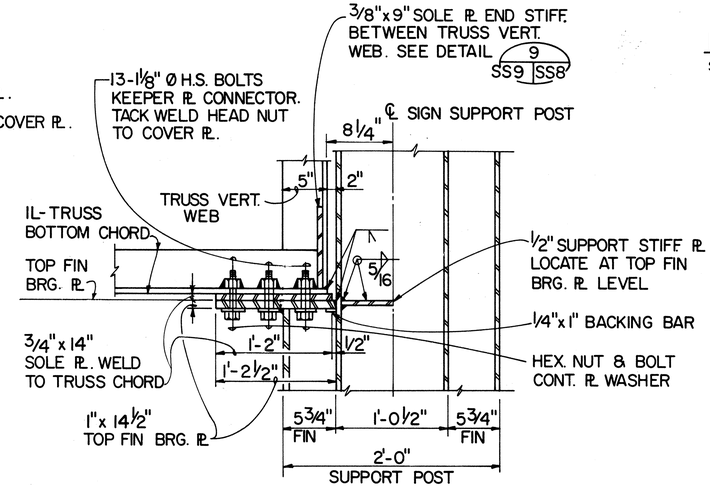


POST END BOX TRUSS SECTION
SCALE: 1½"=1'-0"

NOTE: WELDED CONNECTION SIZES AND DETAILS SIMILAR TO THOSE SHOWN FOR THE 8'-0" DEEP BOX TRUSS ON SHT. NO. SS8



SECTION D
SCALE: 1½"=1'-0"



SECTION E
SCALE: 1½"=1'-0"

ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
	DRAWN BY Q.D. TRUONG	7/90
NOTE BOOK	TRACED BY	7/90
	DESIGNED BY S. CHUN	7/90
No.	QUANTITIES BY	7/90
	CHECKED BY K. WADA	7/90

1/12/94	REV. SECTION 'B' & 'C' PER DCN 65-024
	ADD INTERMEDIATE BOX TRUSS SECTION
12/8/93	AND POST END BOX TRUSS SECTION
	PER DCN 65-019
9/28/93	REVISED PER DCN 65-012
DATE	REVISION

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

BOX TRUSS CONNECTION DETAILS-2

SUPPORT STRUCTURES
INTERSTATE ROUTE H-3
F.A.I. PROJ. NO. I-H3-1(65)

SCALE: AS SHOWN DATE: DEC. 1991

SHEET NO. SS9 OF 19 SHEETS

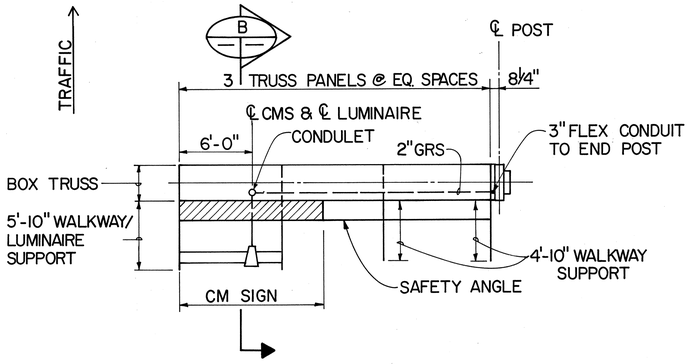
HUI PANG CHEN
REGISTERED PROFESSIONAL ENGINEER
No. 3865-S
HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.

Hui Pang Chen

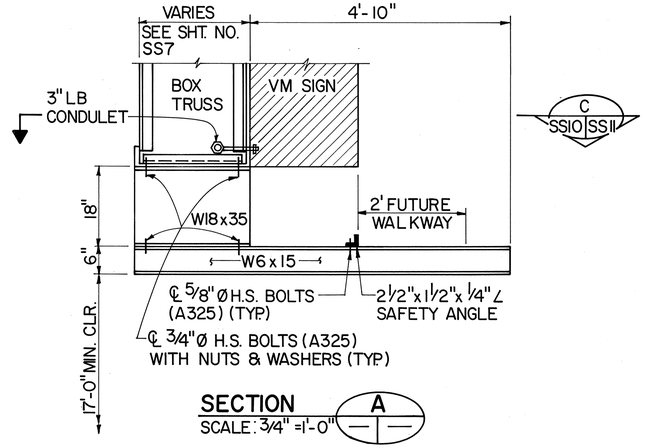
1' 0' 1' 2'
1 1/2" = 1'-0" GRAPHIC SCALE

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-H3-1(65)	1992	296	309



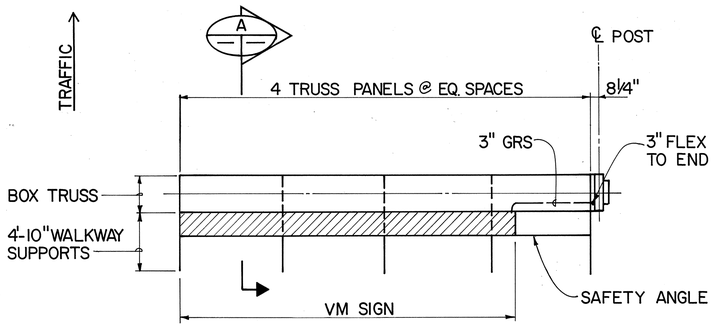
TRUSS PLAN AT CMS 29

SCALE: 1" = 6'-0"



SECTION A

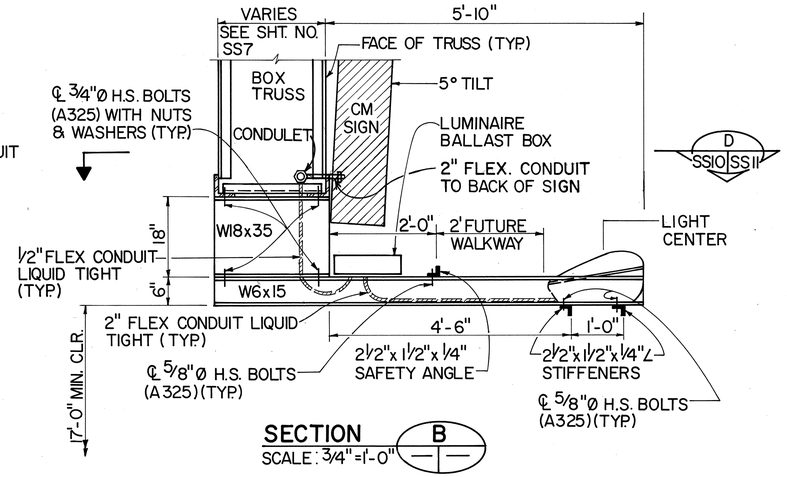
SCALE: ¾" = 1'-0"



TRUSS PLAN AT VMS 35, 36 & 44 (AS SHOWN)

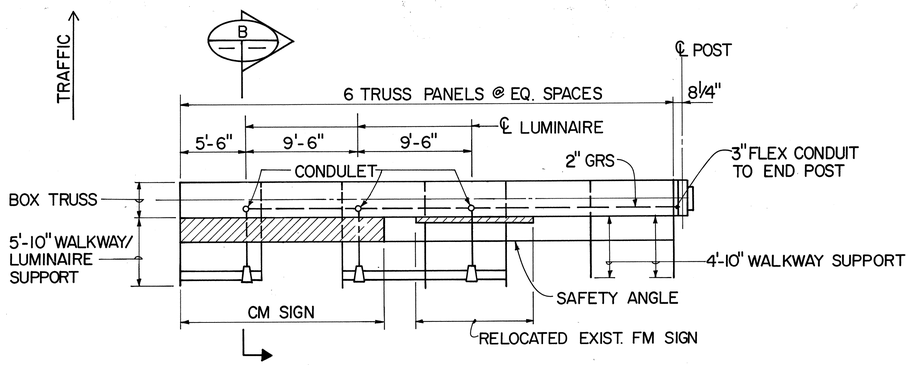
TRUSS PLAN AT VMS 33, 34, 37, 39, 40 & 43 (SIMILAR EXCEPT OPPOSITE HAND)

SCALE: 1" = 6'-0"



SECTION B

SCALE: ¾" = 1'-0"



TRUSS PLAN AT CMS 30

SCALE: 1" = 6'-0"

NOTE: INSTALLATION OF ALL SIGNS SHOWN ON THIS SHEET ARE NIC

1' 0' 1' 2' 3'
3/4" = 1'-0"

6' 0' 6' 12' 18'
1" = 6'-0" GRAPHIC SCALE

HUI PANG CHEN REGISTERED PROFESSIONAL ENGINEER No. 3865-S HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION

Hui pang Chen

ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
	DRAWN BY S.Q. TRUONG	4/91
NOTE BOOK	TRACED BY	
No.	DESIGNED BY K. IWADA	4/91
	QUANTITIES BY	
	CHECKED BY H.P. CHEN	4/91

3/8/96	REV. PER DCN 65-044
12/8/93	REVISED TITLE OF TRUSS PLAN AT
	VMS 33 THRU 37, 39, 40, 43 & 44
	PER DCN 65-019
7/20/93	REVISED SECTION B PER DCN 65-006
DATE	REVISION

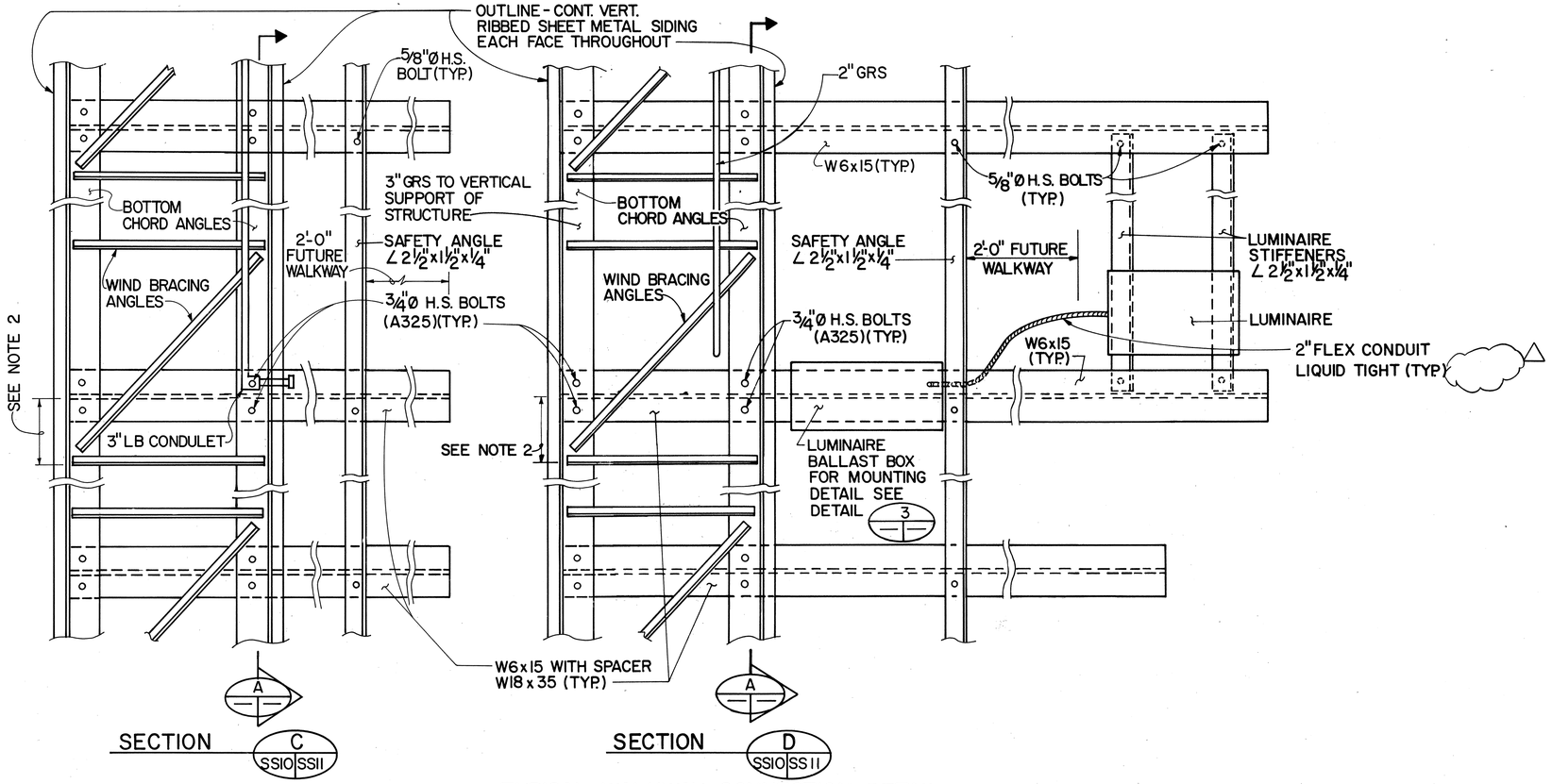
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

BOX TRUSS WALKWAY DETAILS-I

SUPPORT STRUCTURES
INTERSTATE ROUTE H-3
F.A.I. PROJ. NO. I-H3-1(65)

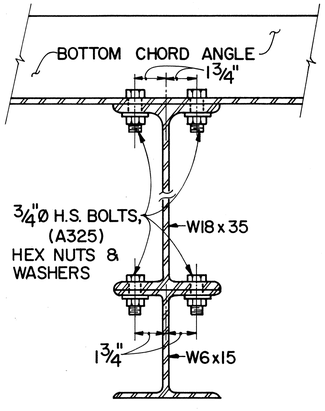
SCALE: AS SHOWN DATE: DEC. 1991

SHEET NO. SS10 OF 19 SHEETS

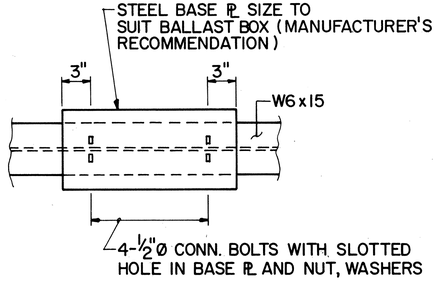


TYPICAL WALKWAY CONNECTION DETAIL

SCALE: 1½"=1'-0"



SECTION A
SCALE: 3"=1'-0"



DETAIL 3
N.T.S.

NOTES:

1. FOR GENERAL NOTES SEE SHEET NO. SS1.
2. LOCATIONS OF BOTTOM WIND BRACING MAY BE ADJUSTED TO AVOID ANY INTERFERENCE WITH SIGN LUMINAIRES & WALKWAY BRACKETS SUBJECT TO THE APPROVAL OF THE ENGINEER.
3. LOAD OF WALKWAY AND RAILING ON EACH BRACKET SHALL NOT EXCEED 375 LBS.
4. LIVE LOAD ON EACH BRACKET = 500 LBS.
5. FOR LOCATIONS OF SIGN LUMINAIRES AND WALKWAY BRACKETS, SEE SHEET NO. SS10.
6. ALL STRUCTURAL STEEL, STEEL PIPE, STEEL STRAP, CONNECTION BOLTS, WASHERS & NUTS IN WALKWAY/LUMINAIRE SUPPORTS SHALL BE HOT DIP GALVANIZED AFTER FABRICATION.

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-H3-1(65)	1992	297	309

7/20/93	REVISED (N.I.C.) FROM FLEX CONDUIT PER DCN 65-006
DATE	REVISION

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

BOX TRUSS WALKWAY DETAILS-2

SUPPORT STRUCTURES
INTERSTATE ROUTE H-3
F.A.I. PROJ. NO. I-H3-1(65)

SCALE: AS SHOWN DATE: DEC. 1991

SHEET NO. SS11 OF 19 SHEETS

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

0' 1'
3" = 1'-0" GRAPHIC SCALES

HUI PANG CHEN
REGISTERED PROFESSIONAL ENGINEER
No. 3865-S
HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.
Hui pang Chen

	DATE
SURVEY PLOTTED BY	
DRAWN BY R. MALAHIAN	11/90
TRACED BY	
DESIGNED BY K. WADA	11/90
QUANTITIES BY	
CHECKED BY S. CHUN	11/90

ORIGINAL PLAN
NOTE BOOK
No.

TABLE A			
POST TYPE	"a"	"b"	"t"
A	2'-6"	1'-5 3/4"	1/2"
B	3'-0"	1'-11 3/4"	1/2"

TABLE B					
BASE PLATE				BOLT HOLE SIZE	BOLT SIZE
TYPE	"D"	THICKNESS	"E"		
I	3'-6"	2 3/4"	1'-0"	2 5/8"	2 1/4"
II	4'-0"	3"	1'-3"	2 5/8"	2 1/4"
III	4'-0"	3 1/2"	1'-3"	2 5/8"	2 1/4"

NOTE 'B':

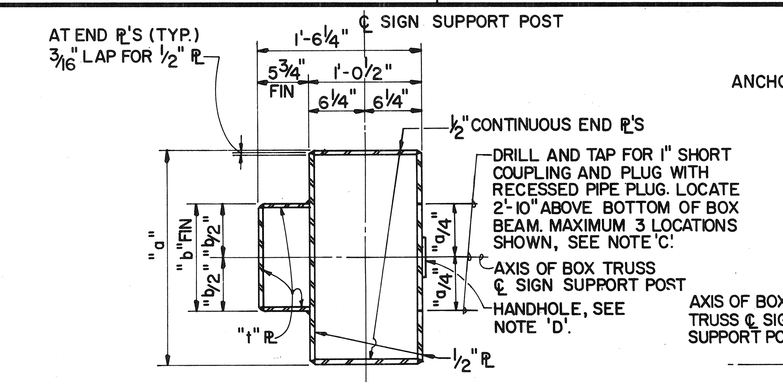
THE NUMBER AND SIZES OF CONDUITS SHOWN ON SHEET NOS. TAII to TAI3, TAI7, TAI8, TA2I, TBI9, TB20, TB22 & TB24 to TB29 SHALL BE VERIFIED IN FIELD PRIOR TO FABRICATION BY THE CONTRACTOR.

NOTE 'C':

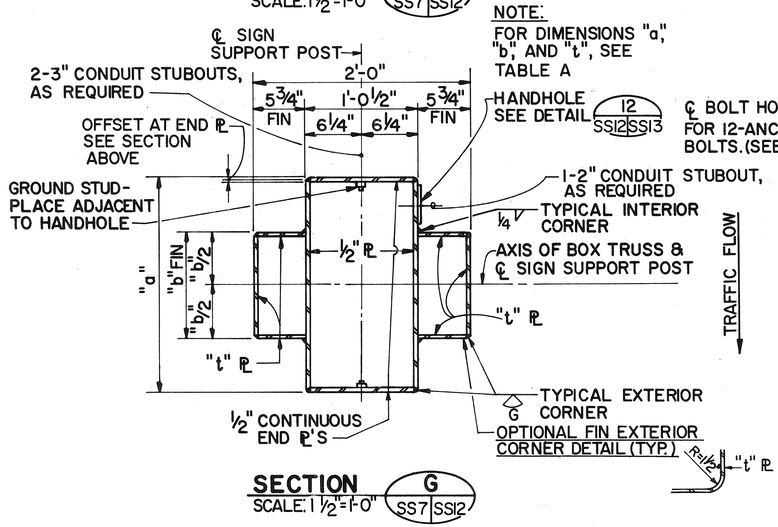
FOR NUMBER & SIZES OF CONDUIT STUBOUTS, SEE SHT. NO. SS7.

NOTE 'D':

PLACE HANDHOLE IN SUPPORT POSTS WHERE CONDUIT STUBOUTS ARE PROVIDED. LOCATE HANDHOLE SO THAT BOTTOM OF HANDHOLE COVER ℄ IS 1'-2" ABOVE BOTTOM OF BOX BEAM & CENTERED ABOUT ℄ SUPPORT POST.



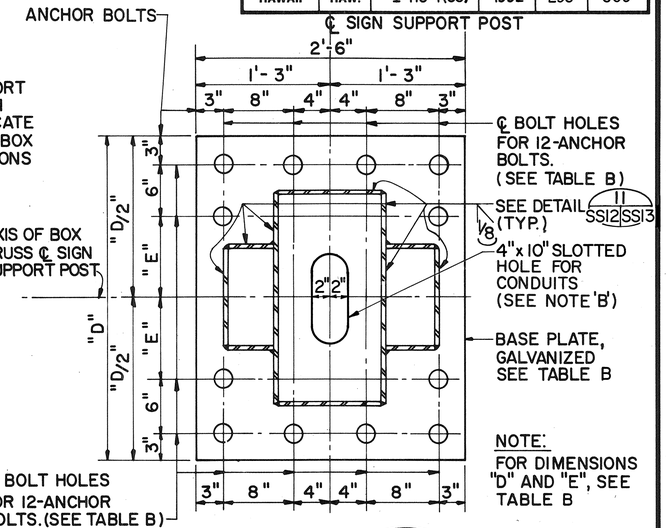
SECTION H (SS7 | SS12)
SCALE: 1 1/2"=1'-0"



NOTE:
FOR DIMENSIONS "a", "b", AND "t", SEE TABLE A

SECTION G (SS7 | SS12)
SCALE: 1 1/2"=1'-0"

SUPPORT POST



NOTE:
FOR DIMENSIONS "D" AND "E", SEE TABLE B

SECTION F (SS7 | SS12)

BASE PLATE
SCALE: 1 1/2"=1' 0"

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

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-H3-1(65)	1992	298	309

ORIGINAL PLAN	SURVEY PLOTTED BY	DATE 1/90
	DRAWN BY K. NAKAMURA	: :
NOTE BOOK	TRACED BY K. WADA	1/90
	DESIGNED BY	: :
	QUANTITIES BY	1/90
No.	CHECKED BY S. CHUN	: :

HUI PANG CHEN
REGISTERED PROFESSIONAL ENGINEER
No. 3865-S
HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.

Hui Pang Chen

DATE	REVISION

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

BOX TRUSS SUPPORT POST DETAILS

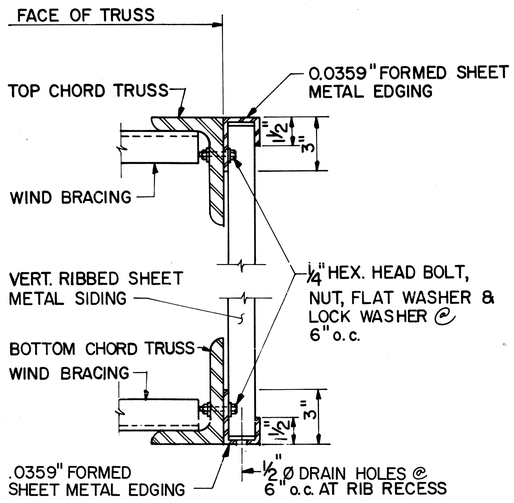
SUPPORT STRUCTURES

INTERSTATE ROUTE H-3
F.A.I PROJ. NO. I-H3-1(65)

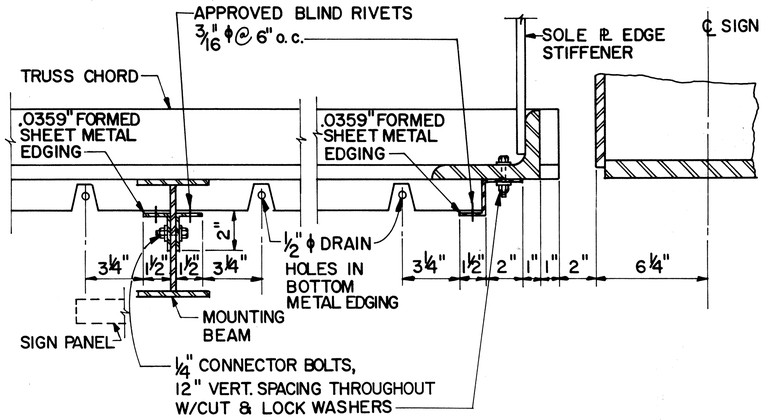
SCALE: AS SHOWN DATE: DEC. 1991

SHEET NO. SS12 OF 19 SHEETS

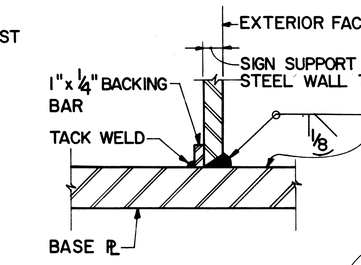
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-H3-1(65)	1992	299	309



SECTION D
SCALE: 3"=1'-0" SS8,SSI3SS13

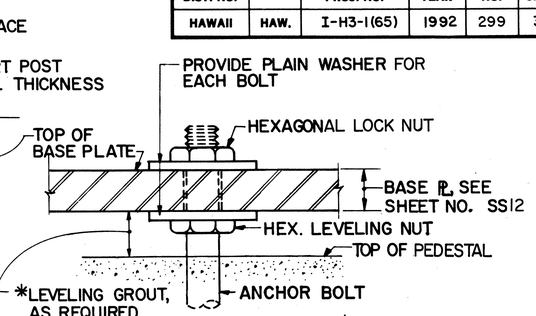


SECTION E
SCALE: 3"=1'-0"



TYPICAL SUPPORT POST BASE CONNECTION DETAILS

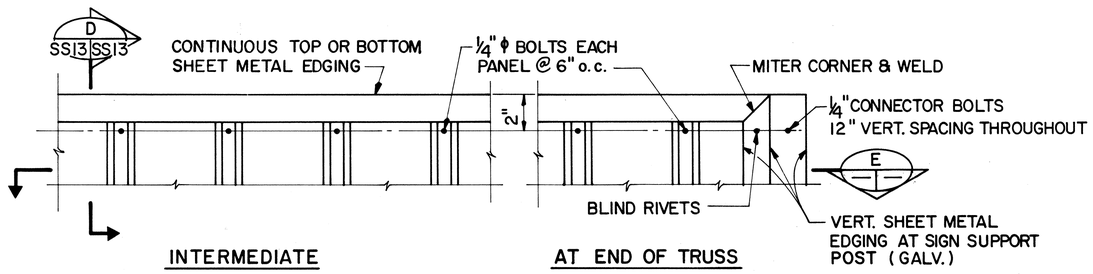
DETAIL 11
N.T.S. SS12 SS13



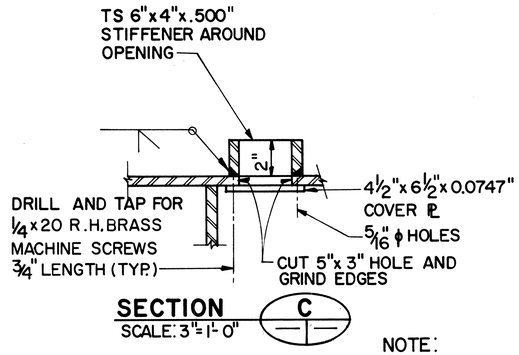
*TO BE POURED AFTER STRUCTURE IS PLUMBED

TYPICAL BASE PL ANCHOR BOLT CONNECTION DETAIL

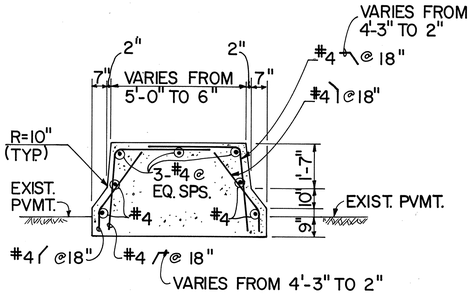
DETAIL 10
SCALE: 3"=1'-0" SS7 SSI3



INTERMEDIATE AT END OF TRUSS

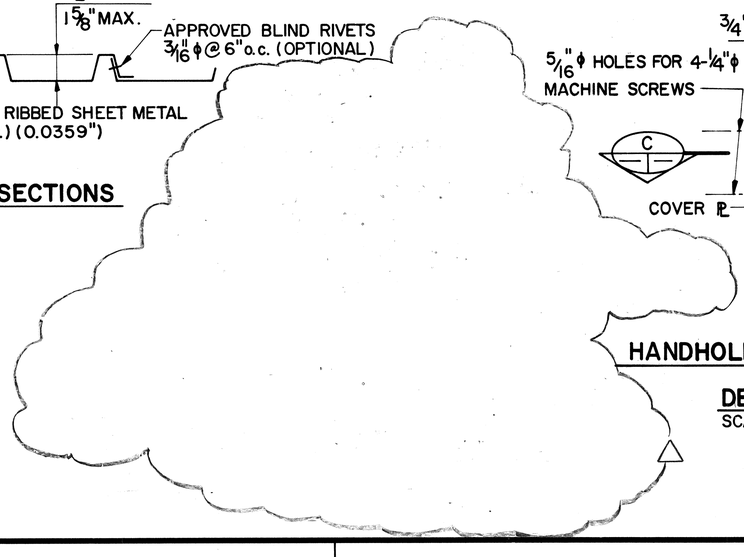


SECTION C
SCALE: 3"=1'-0"

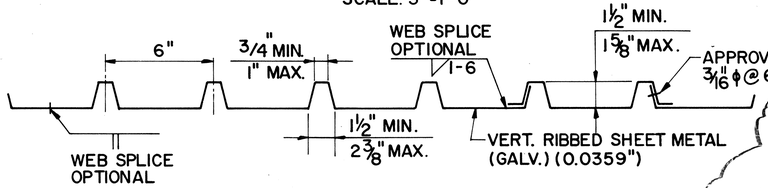


SECTION G
SCALE: 3/8"=1'-0" SSI3
CDI, SS16

NOTE:
PLACE HANDHOLES IN ALL POSTS.



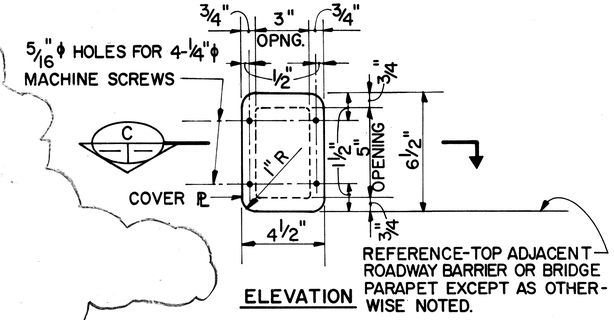
EXTERIOR ELEVATION
SCALE: 3"=1'-0"



TYPICAL RIBBED SHEET METAL SECTIONS
SCALE: 3"=1'-0"

RIBBED SHEET METAL NOTES:

1. ALL RIBBED SHEET METAL AND FORMED EDGING SHALL BE GALVANIZED STEEL CONFORMING TO ASTM DESIGNATION: A446, GRADE A; G165 COATING DESIGNATION IN CONFORMANCE WITH ASTM DESIGNATION: A525.
2. CONNECTION BOLTS, NUTS AND WASHERS TO BE GALVANIZED STEEL ASTM A307.



ELEVATION

HANDHOLE & COVER PL DETAIL

DETAIL 12
SCALE: 3"=1'-0" SSI2 SSI3

1' 0' 1' 2' 3' 4' 5' 6' 7'
3/8"=1'-0"
0' 1'
3"=1'-0" GRAPHIC SCALE

HUI PANG CHEN
REGISTERED PROFESSIONAL ENGINEER
No. 3865-S
HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.
Hui Pang Chen

DATE	REVISION
3/31/94	DELETED SECT. 'A' PER DCN 65-027

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

MISCELLANEOUS DETAILS-1

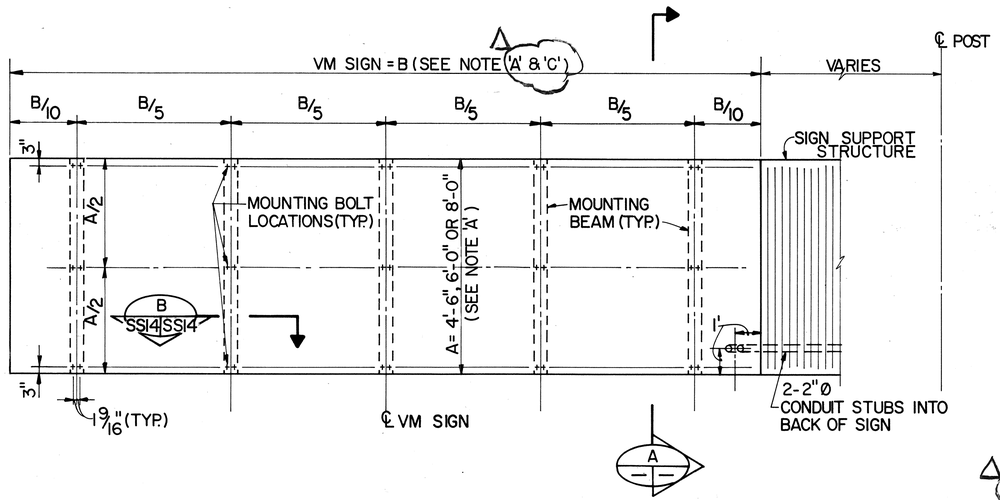
SUPPORT STRUCTURES
INTERSTATE ROUTE H-3
F.A.I. PROJ. NO. I-H3-1(65)

SCALE: AS SHOWN DATE: DEC. 1991

SHEET No. SSI3 OF 19 SHEETS

	DATE
ORIGINAL PLAN	
NOTE BOOK	
No.	
SURVEY PLOTTED BY	
DRAWN BY K.MALPELIAN	1/92
TRACED BY	1/92
DESIGNED BY H.P. CHEN	
QUANTITIES BY	1/92
CHECKED BY K. WADA	

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-H3-1(65)	1992	300	309



ELEVATION FOR VMS 35, 36 & 44 (AS SHOWN)

ELEVATION FOR VMS 33, 34, 37, 39, 40 & 43 (SIMILAR EXCEPT OPPOSITE HAND)

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

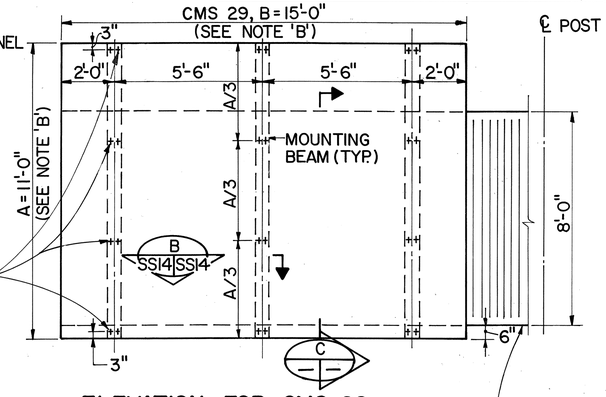
NOTE 'A': THE CONTRACTOR SHALL DESIGN THE VMS PANEL THICKNESS TO ACCOMMODATE THE DIMENSIONS & MOUNTING SPACINGS AS SHOWN AND THE REQUIREMENTS OF THE MANUFACTURER.

B = 18'-0" FOR VMS 33, 34, 37 & 39
B = 21'-0" FOR VMS 36
B = 31'-0" FOR VMS 35, 38, 40-44

A = 4'-6" FOR VMS 33, 34, 37 & 39
A = 6'-0" FOR VMS 36, 38, 41 & 42
A = 8'-0" FOR VMS 35, 40, 43 & 44

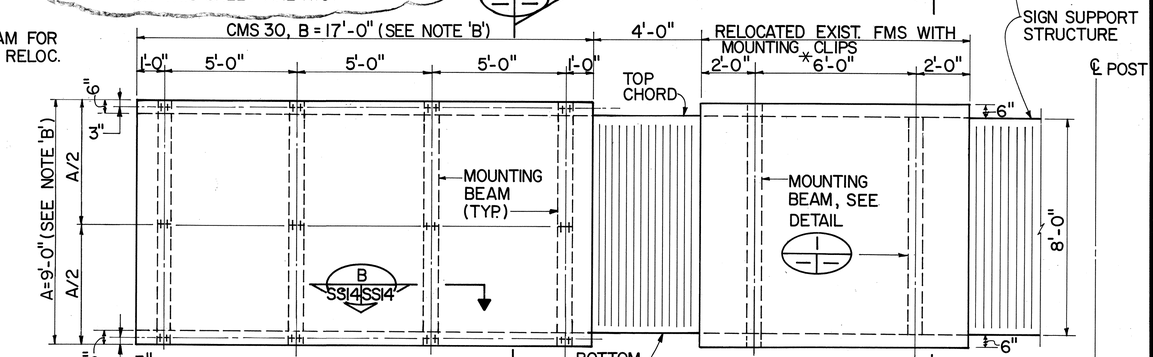
NOTE 'B': THE CONTRACTOR SHALL DESIGN THE CMS PANEL THICKNESS TO ACCOMMODATE THE DIMENSIONS & MOUNTING SPACINGS AS SHOWN AND THE REQUIREMENTS OF THE MANUFACTURER.

NOTE 'C': INSTALLATION OF ALL SIGNS SHOWN ON THIS SHEET ARE NIC.



ELEVATION FOR CMS 29

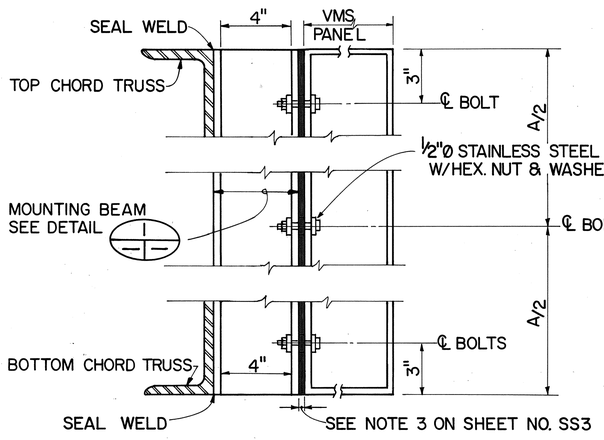
SCALE: 3/8" = 1'-0"



ELEVATION FOR CMS 30

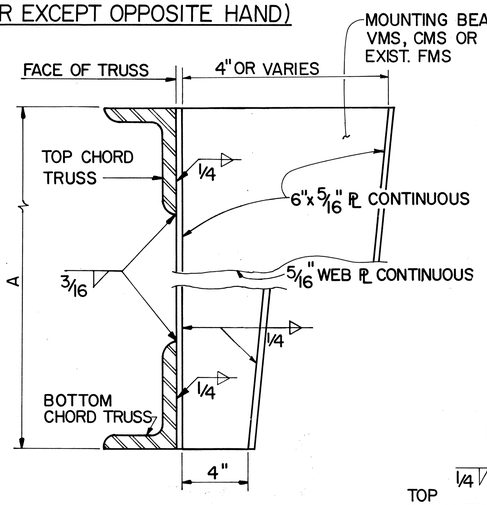
SCALE: 3/8" = 1'-0"

* THE CONTRACTOR SHALL VERIFY THE MOUNTING DIMENSION OF THE RELOCATED EXISTING FMS IN FIELD PRIOR TO FABRICATION OF SUPPORT STRUCTURE.



SECTION A

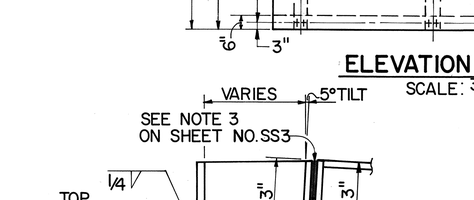
SCALE: 3" = 1'-0"



TYPICAL BUILT-UP GALVANIZED STEEL MOUNTING BEAM

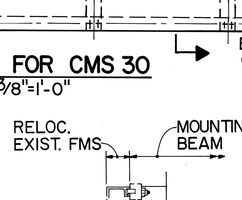
DETAIL I

SCALE: 3" = 1'-0"



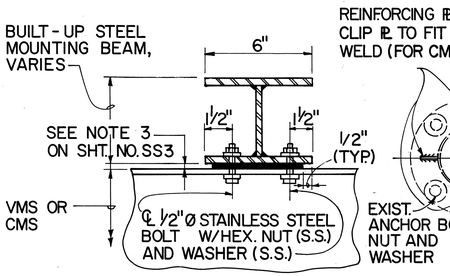
SECTION C

SCALE: 3" = 1'-0"



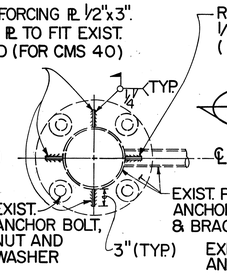
SECTION D

NOT TO SCALE



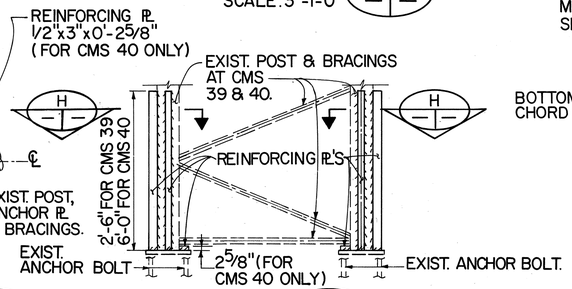
SECTION B

SCALE: 3" = 1'-0" SS5 SS6 SS14 SS14



SECTION H

NOT TO SCALE



SECTION F

SCALE: 3/8" = 1'-0" SS3 SS14

DATE	REVISION
3/8/96	REV. PER DCN 65-044
3/31/94	DELETED REF. TO CMS 38 IN SECTIONS 'H' & 'F' PER DCN 65-027
12/8/93	REVISED NOTE 'A', ELEVATION FOR VMS 33 THRU 37, 39, 40, 43 & 44, AND DETAIL 1 PER DCN 65-019

ORIGINAL PLAN | NOTE BOOK | No. ____

SURVEY PLOTTED BY: R. MALALUAN — DATE 1/90
DRAWN BY: " — " — 1/90
TRACED BY: K. IKADA — " — 1/90
DESIGNED BY: " — " — 1/90
QUANTITIES BY: " — " — 1/90
CHECKED BY: H.P. CHEN — " — 1/90

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

MISCELLANEOUS DETAILS - 2

SUPPORT STRUCTURES
INTERSTATE ROUTE H-3
F.A.I. PROJ. NO. I-H3-1(65)

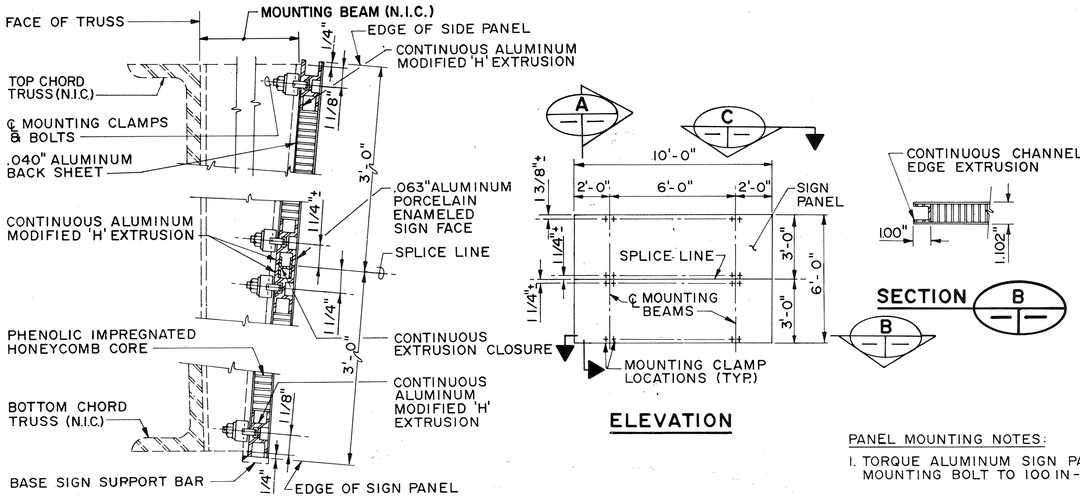
SCALE: AS SHOWN — DATE: DEC. 1991

SHEET No. SS14 OF 19 SHEETS

HUI PANG CHEN
REGISTERED PROFESSIONAL ENGINEER
No. 3865-S
HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-H3-1(65)	1992	301	309



SECTION A

ELEVATION

SECTION B

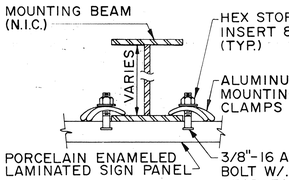
PANEL MOUNTING NOTES:

1. TORQUE ALUMINUM SIGN PANEL MOUNTING BOLT TO 100 IN-LBS.

FIXED MESSAGE SIGN (FMS) PANEL DETAIL 4

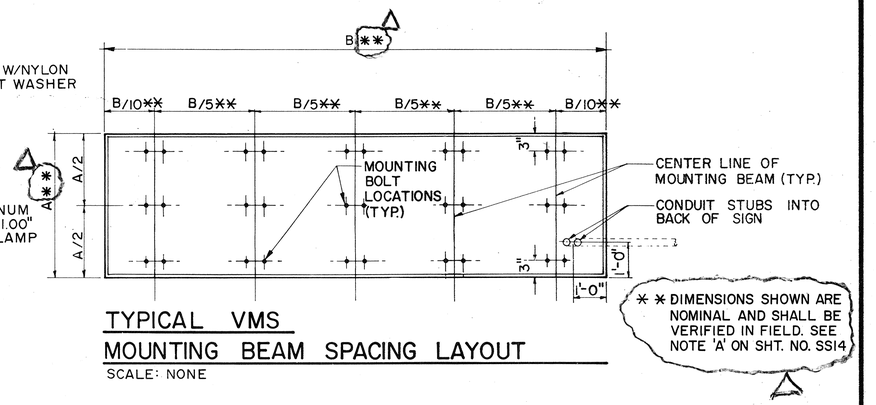
SCALE: NONE

TF11, TF15 | SS16



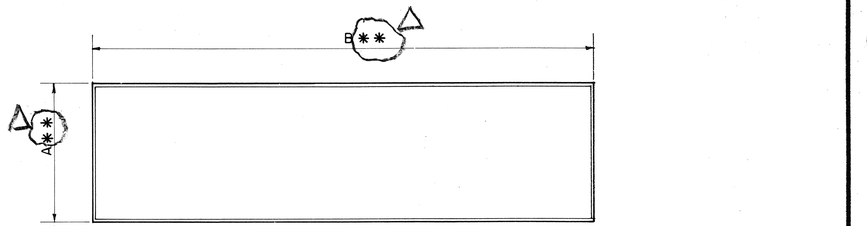
TYPICAL CONNECTION

SECTION C



TYPICAL VMS MOUNTING BEAM SPACING LAYOUT

SCALE: NONE



VMS LETTER SIZE	NO. OF CHARACTERS	A	B
12" * 1 LINE	18	18"	21'
12" * 2 LINES	15	4'-6"	18'-0"
15" * 2 LINES	15	6'-0"	21'-0"
18" * 1 LINE	18	21"	26'
18" * 2 LINES	18	8'-0"	28'
18" * 2 LINES	21	6'-0" / 8'-0"	31'

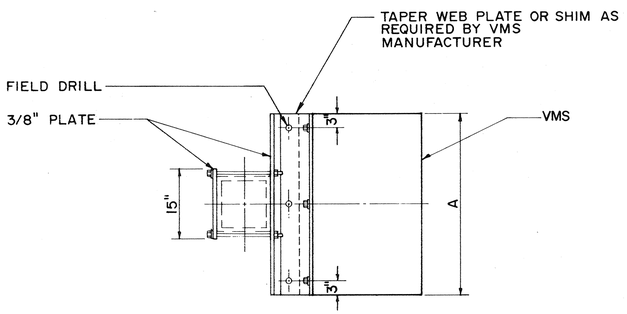
* CHARACTER EQUIVALENT

VMS DETAILS 3

SCALE: NONE

TF11, 12, 13, 14, 15 | SS15

PLAN

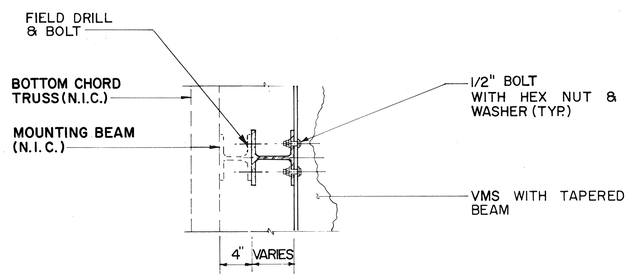


SIDE ELEVATION

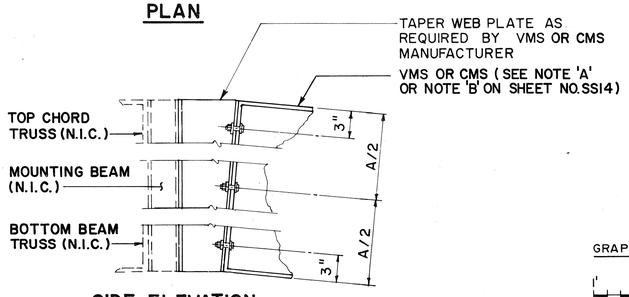
TUNNEL VMS MOUNTING BRACKET ASSEMBLY DETAIL 1

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

TF1, TF13 | SS16



PLAN



SIDE ELEVATION

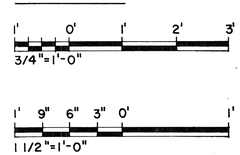
TRUSS MOUNTED VMS OR CMS MOUNTING BRACKET ASSEMBLY DETAIL 2

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

TB22, TF 11, 12, 14, 15 | SS16

(FOR VMS 02, 03, 16, 17, 30 & 31; CMS 32 & 33)

GRAPHIC SCALE



HUI PANG CHEN REGISTERED PROFESSIONAL ENGINEER No. 3865-S HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION

Hui Pang Chen

DATE	REVISION
12/8/93	REVISED NOTE ON TYPICAL VMS
	MOUNTING BEAM SPACING LAYOUT, AND
	REVISED VMS DETAILS PER DCN 65-019

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

MISCELLANEOUS DETAILS-3

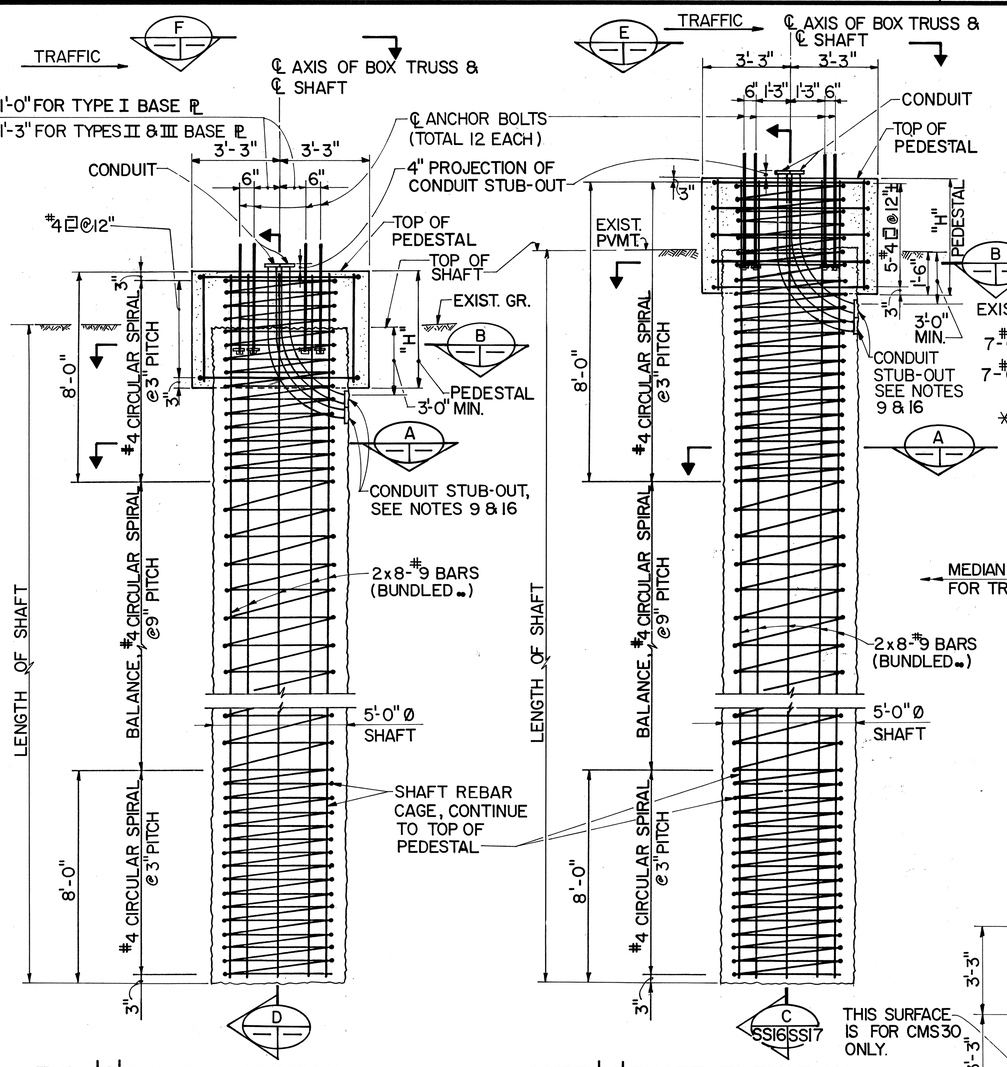
SECTIONS AND DETAILS
INTERSTATE ROUTE H-3
F.A.I. PROJ. NO. I-H3-1(65)

SCALE: AS NOTED DATE: DEC. 1991

SHEET NO. SS15 OF 19 SHEETS

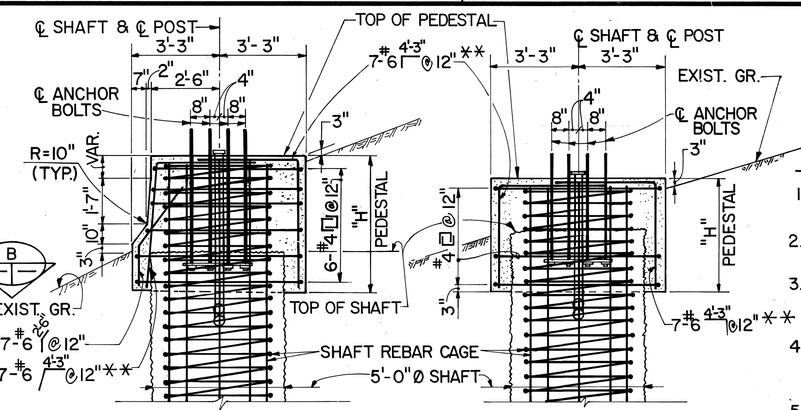
ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
	DRAWN BY T. MASS	5/28/91
NOTE BOOK	TRACED BY	
	DESIGNED BY B. NARIMATSU	5/15/91
No.	QUANTITIES BY	
	CHECKED BY D.MCCORMICK	6/10/91

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-H3-1(65)	1992	302	309



TYPE 'Z' SHAFT ELEVATION
NOT TO SCALE

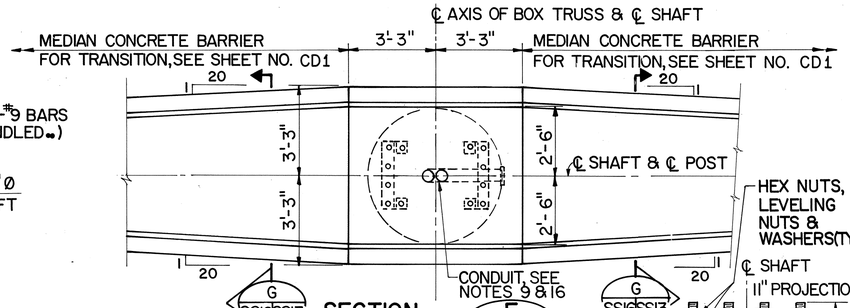
TYPE 'Y' SHAFT ELEVATION
NOT TO SCALE



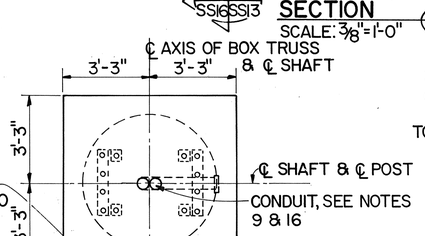
** NOTE: REBARS TO BE CUT IN FIELD TO FIT ANCHOR BOLTS

FOR CMS 30

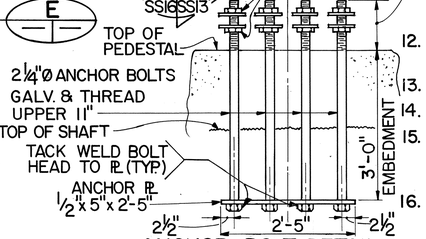
FOR CMS 29, VMS 33 VMS 35 & VMS 36



SECTION E
SCALE: 3/8"=1'-0"



SECTION F
SCALE: 3/8"=1'-0"



ANCHOR BOLT DETAIL
NOT TO SCALE

*SEE BASE ℙ DETAILS ON SHEET NO. SS12

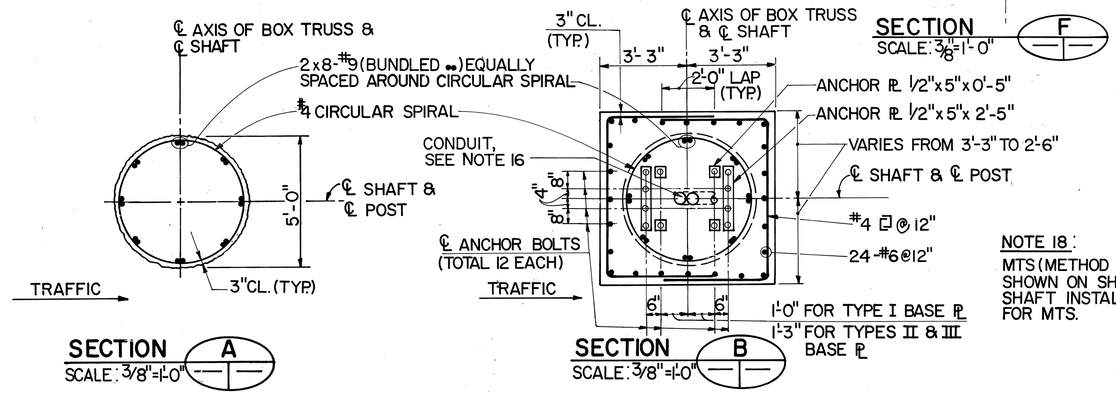
TABLE C

SIGN NUMBER	SHAFT TYPE	BASE ℙ TYPE*	SHAFT LENGTH	TOP OF SHAFT ELEV.	HT. OF PEDESTAL "H"
MTS	Z	—	30'-0"	18.80	SEE NOTE 18
VMS 33	Z	TYPE I	15'-0"	91.23	SEE NOTE 17
VMS 35	Z	TYPE II	20'-0"	53.90	2'-6"
VMS 36	Z	TYPE II	20'-0"	305.95	3'-0"
VMS 40	Y	TYPE II	18'-0"	18.80	4'-2"
VMS 43	Y	TYPE II	15'-0"	39.70	4'-2"
CMS 29	Z	TYPE I	20'-0"	231.20	SEE NOTE 17
CMS 30	Z	TYPE III	20'-0"	318.00	5'-9"

NOTE 18:
MTS (METHOD TEST SHAFT) SHALL BE CONSTRUCTED AND ACCEPTED AT THE LOCATION SHOWN ON SHEET NO. CA4 OR AS DIRECTED BY THE ENGINEER PRIOR TO ANY DRILLED SHAFT INSTALLATION. NO SQUARE PEDESTAL, ANCHOR BOLTS & CONDUITS ARE REQUIRED FOR MTS.

DRILLED SHAFT NOTES:

1. PROVIDE SIZING HOOPS AS A GUIDE FOR THE FABRICATION OF THE REBAR CAGE.
2. PROVIDE CENTERING DEVICES AS A GUIDE FOR THE PLACEMENT OF THE REBAR CAGE IN THE DRILLED HOLE.
3. PROVIDE TEMPORARY STIFFENERS TO STRENGTHEN THE REBAR CAGE DURING LIFTING. STIFFENERS ARE TO BE REMOVED PRIOR TO POURING OF CONCRETE.
4. SPLICES IN THE LONGITUDINAL STEEL, IF REQUIRED, SHOULD BE STAGGERED SO AS NOT TO OCCUR AT THE SAME HORIZONTAL PLANE ALONG THE REBAR CAGE. THE STAGGER SHALL BE 1'-0" MIN.
5. USE #4 CIRCULAR SPIRAL FOR REBAR CAGE. CIRCULAR TIES SHALL NOT BE USED IN DRILLED SHAFTS EXCEPT OTHERWISE AS NOTED.
6. THE REBAR CAGE SHALL BE FABRICATED AND STORED SO AS TO AVOID DISTORTION DURING TRANPORTATION TO THE JOB SITE AND TO AVOID CONTAMINATION WITH MUD OR OTHER DELETERIOUS MATERIAL.
7. FOR SLUMP OF CONCRETE SEE SPECIAL PROVISIONS.
8. PLACEMENT OF THE CONCRETE SHALL BE MADE BY USE OF A TREMIE OR PUMP LINE.
9. THE SPIRAL PITCH MAY BE OPENED WIDER AT THE LOCATION WHERE THE CONDUIT STUB-OUT IS REQUIRED IN THE SHAFT. DURING THE CONSTRUCTION OF THE SHAFT, THE CONTRACTOR SHALL SEAL THE END OF THE CONDUIT STUB-OUT AND PROVIDE A DEVICE TO IDENTIFY ITS LOCATION IN THE SHAFT FOR LATER CONDUIT CONNECTION.
10. FOR INSTALLATION OF ANCHOR BOLTS, THE CONTRACTOR SHALL PROVIDE RIGID TEMPLATES TO MAINTAIN THE ANCHOR BOLTS IN PROPER LOCATIONS.
11. THE ANCHOR BOLTS AND CONDUIT SHALL BE INSTALLED PRIOR TO POURING SHAFT CONCRETE AND SHALL BE PROTECTED AT ALL TIMES DURING CONSTRUCTION.
12. CONCRETE FOR DRILLED SHAFTS AND PEDESTALS SHALL HAVE A MINIMUM 28 DAYS COMPRESSIVE STRENGTH OF 4000 PSI.
13. ALL REINFORCING STEEL SHALL BE ASTM A615 GRADE 60.
14. FOR TOP OF PEDESTAL ELEVATION SEE SHEET NO. SS7.
15. FOR ALL DRILLED SHAFTS, THE CONTRACTOR SHALL PROVIDE A MINIMUM 5'-0" LONG TEMPORARY CASING TO CONTROL THE UPPER DRILLED HOLE SIZE.
16. FOR LOCATIONS OF CONDUIT STUB-OUTS, SEE SHEET NOS. TAI1 TO TAI3, TAI7, TAI8, TA21, TBI9, TB20, TB22 & TB24 TO TB29.
17. FOR VMS 33 AND CMS 29, THE SQUARE PEDESTALS ARE NOT REQUIRED & THE DRILLED SHAFTS SHALL BE CONSTRUCTED TO THE ELEVATIONS AS SHOWN. THE SHAFT ABOVE GROUND SHALL BE FORMED & TOP OF DRILLED SHAFT SHALL BE FINISHED AS REQUIRED FOR PEDESTAL.



10/31/94	DELETED VMS 37 PER DCN 65-037
DATE	REVISION

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

BOX TRUSS FOUNDATION DETAILS-1

SUPPORT STRUCTURES
INTERSTATE ROUTE H-3
F.A.I. PROJ. NO. I-H3-1(65)

SCALE: AS SHOWN DATE: DEC. 1991

HUI PANG CHEN REGISTERED PROFESSIONAL ENGINEER No. 3865-S HAWAII, U.S.A.

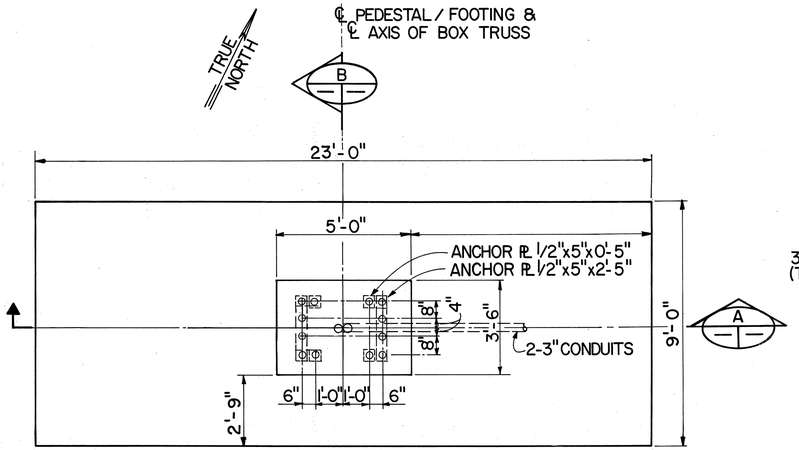
THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.

1' 0' 1' 2' 3' 4' 5' 6' 7'
3/8"=1'-0" GRAPHIC SCALE

SHEET No. SS16 OF 19 SHEETS

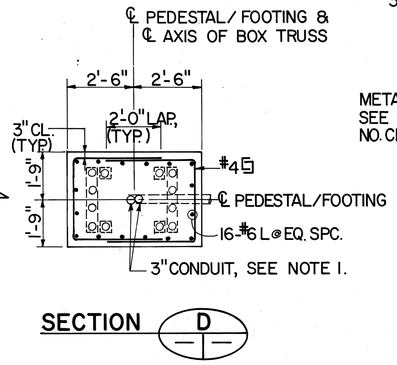
ORIGINAL PLAN	NOTE BOOK	SURVEY PLOTTED BY	DRAWN BY	TRACED BY	DESIGNED BY	QUANTITIES BY	CHECKED BY	DATE
			G.D. TRUONG	S. KUHARA			H.P. CHEN	6/91
								6/91
								6/91

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-H3-1(65)	1992	303	309

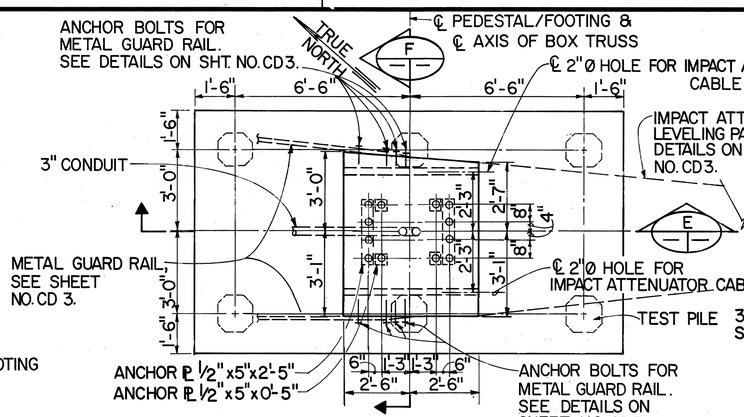


NOTE: ARMY SIGNAL CORPS CABLES ARE LOCATED IN THE VICINITY BELOW THE FOOTING OF VMS 34. THE CONTRACTOR SHALL NOT PERFORM WORK BELOW THE BOTTOM OF FOOTING SHOWN. SEE NOTE 6.

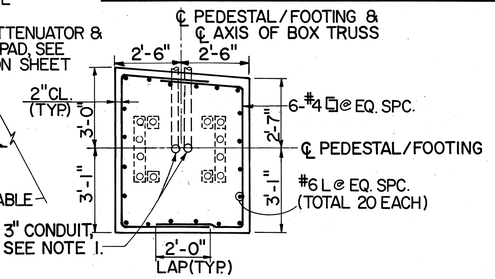
PLAN



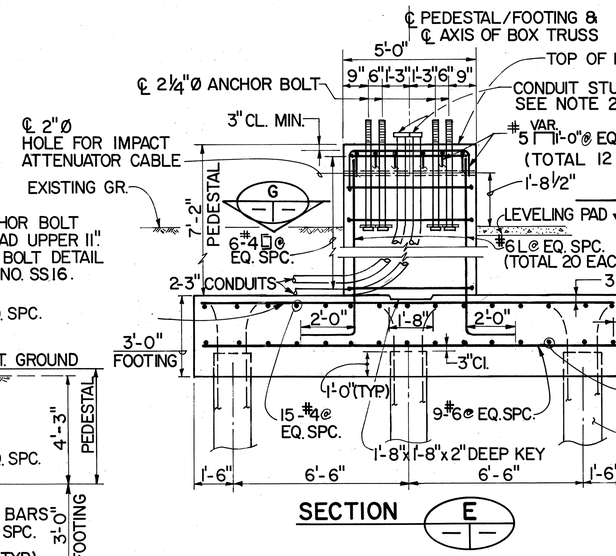
SECTION D



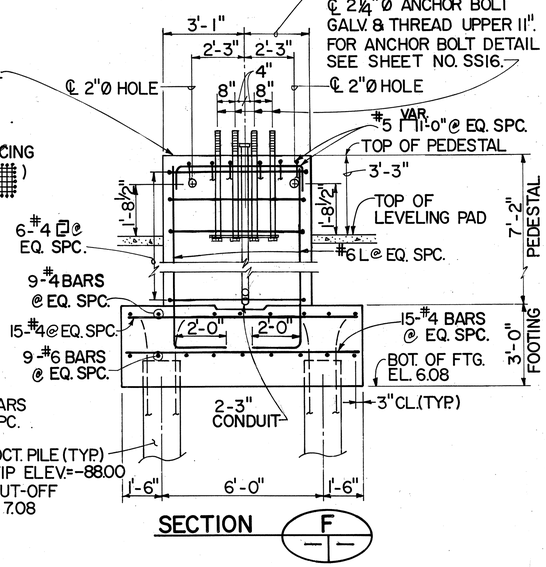
PLAN



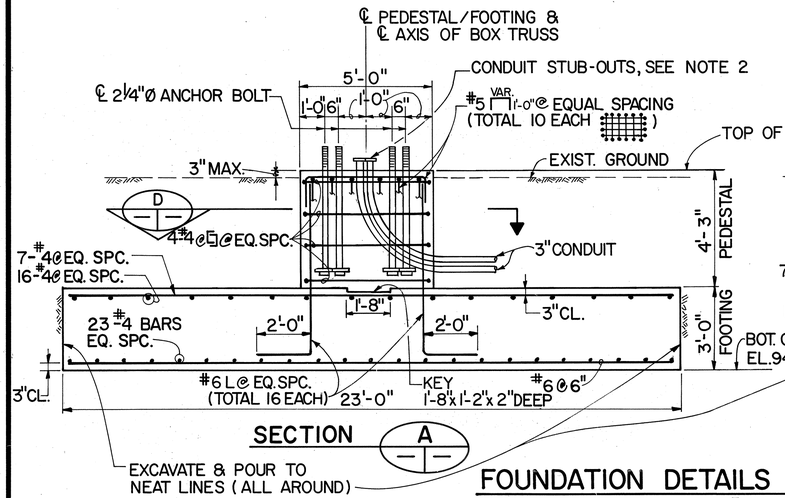
SECTION G



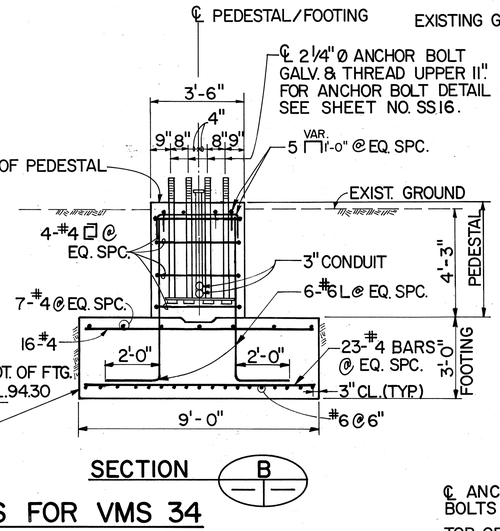
SECTION E



SECTION F



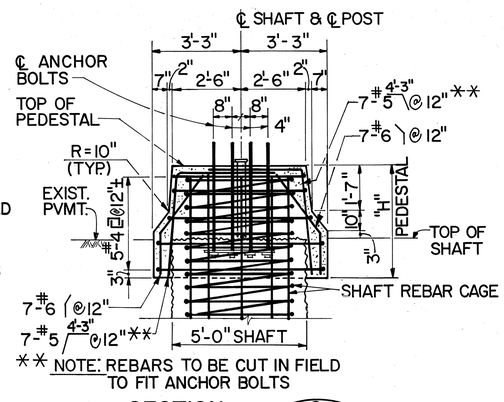
SECTION A



SECTION B

FOUNDATION DETAILS FOR VMS 34

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



** NOTE: REBARS TO BE CUT IN FIELD TO FIT ANCHOR BOLTS

SECTION C

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

SS17

CD1, SS16

FOUNDATION DETAILS FOR VMS 39

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

NOTES:

1. THE REBAR IN THE PEDESTAL SHALL BE ADJUSTED IN THE FIELD TO AVOID CONFLICT WITH THE CONDUIT STUB-OUT, AND ANCHOR BOLTS.
2. THE CONDUIT STUB-OUT SHALL PROJECT 4 INCHES ABOVE THE TOP OF THE PEDESTAL.
3. CONCRETE IN FOOTING AND PEDESTAL SHALL BE CLASS A.
4. ALL REINFORCING STEEL SHALL BE ASTM A615 GRADE 60.
5. FOR ANCHOR BOLT INSTALLATION SEE NOTE 10 ON SHEET NO. SS16.
6. THE CONTRACTOR SHALL PROVIDE TEMPORARY BRACED SHORING DURING CONSTRUCTION OF VMS 34 FOUNDATION. TEMPORARY BRACED SHORING SHALL NOT BE EXTENDED BELOW THE BOTTOM OF FOOTING SHOWN. TEMPORARY BRACED SHORING SHALL BE CONSIDERED INCIDENTAL TO VARIOUS PAY ITEMS.
7. THE CONTRACTOR SHALL PROVIDE TEMPORARY SHEETING OR SHORING DURING CONSTRUCTION OF VMS 39 FOUNDATION. THE TEMPORARY SHEETING OR SHORING SHALL BE CONSIDERED INCIDENTAL TO VARIOUS PAY ITEMS.
8. THE MEDIANS AT VMS 34 AND VMS 39 SHALL BE RESTORED TO ORIGINAL CONDITION AFTER COMPLETION OF FOUNDATIONS CONSTRUCTION.
9. FOR DETAILS OF 16½" OCTAGONAL PILES, SEE SHEET NO. SS-18 AND SS19.
10. FOR LOCATIONS OF EXISTING WATER LINES AROUND VMS 39, SEE SHEET NOS. CA3 & CU3.

ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
	DRAWN BY R. MALALUAN	5/91
NOTE BOOK	TRACED BY	
	DESIGNED BY S. KIMURA	5/91
No.	QUANTITIES BY	
	CHECKED BY H.P. CHEN	5/91

DATE	REVISION

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

BOX TRUSS FOUNDATION DETAILS-2

SUPPORT STRUCTURES
INTERSTATE ROUTE H-3
F.A.I. PROJ. NO. I-H3-1(65)

SCALE: AS SHOWN DATE: DEC. 1991

SHEET No. SS17 OF 19 SHEETS

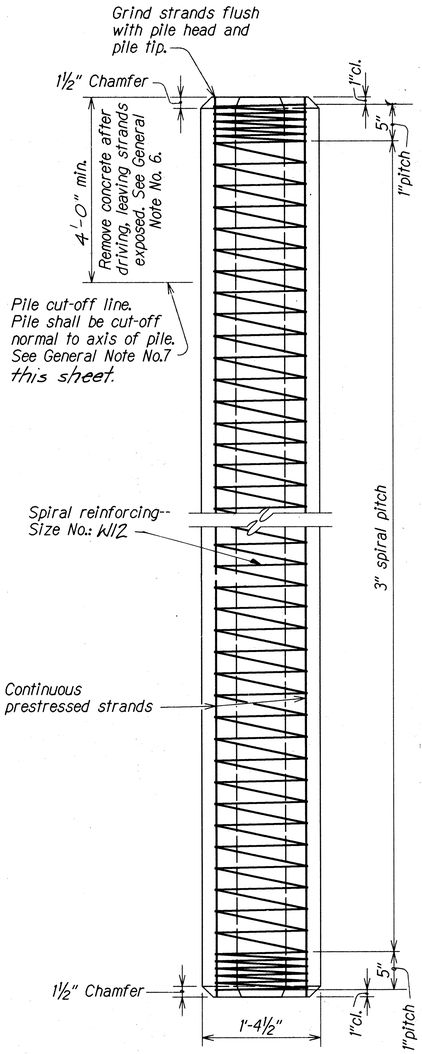
HU PANG CHEN
REGISTERED PROFESSIONAL ENGINEER
No. 3865-S
HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.

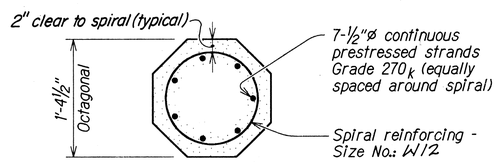
Hu Pang Chen

1' 0' 1' 2' 3' 4' 5' 6' 7'
3/8"=1'-0"

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-H3-1(65)	1992	304	309

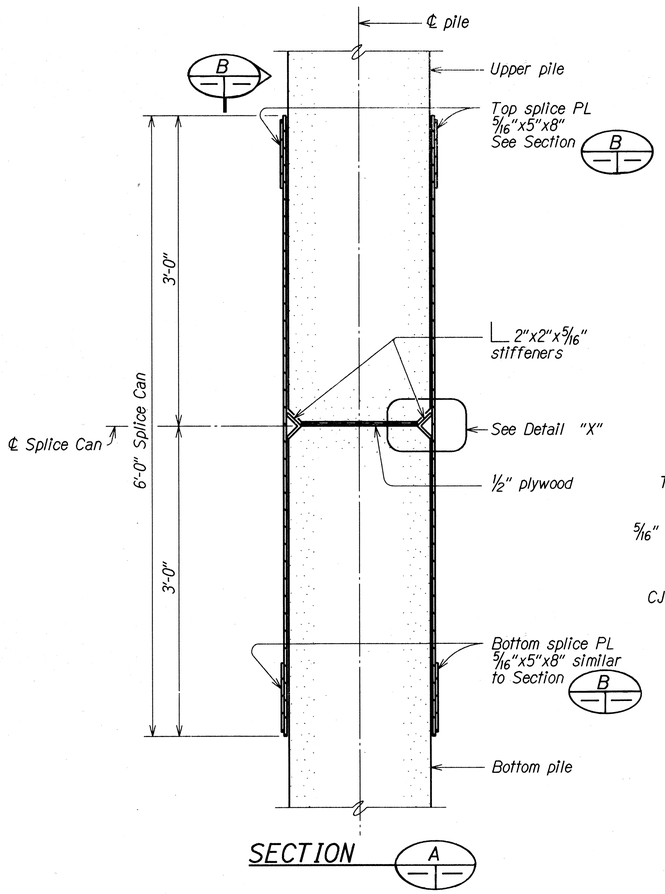


ELEVATION

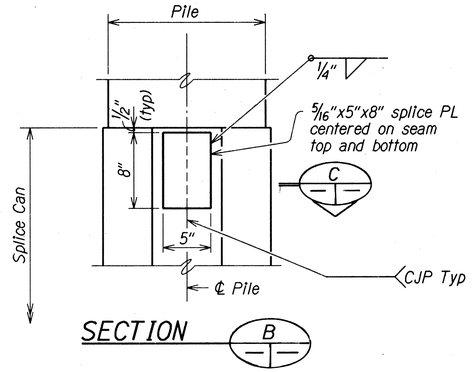


SECTION

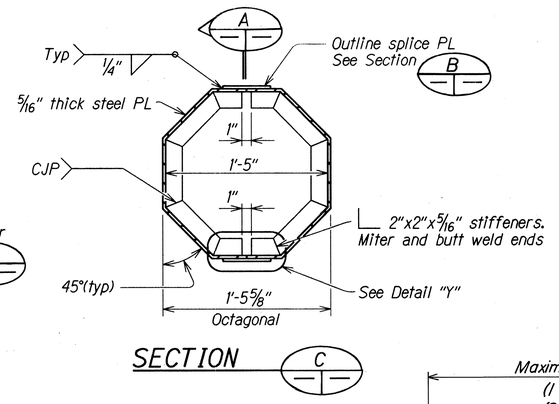
TYPICAL PILE DETAILS



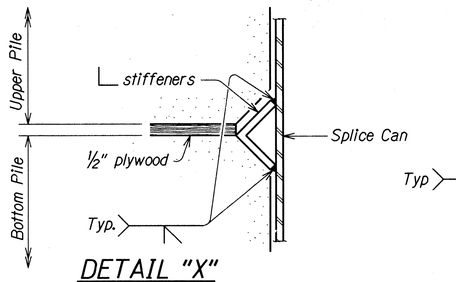
SECTION A



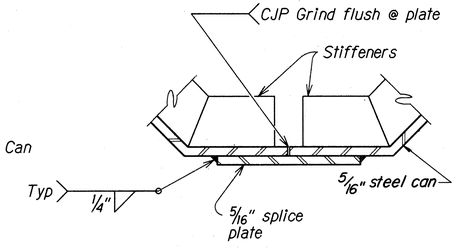
SECTION B



SECTION C



DETAIL "X"

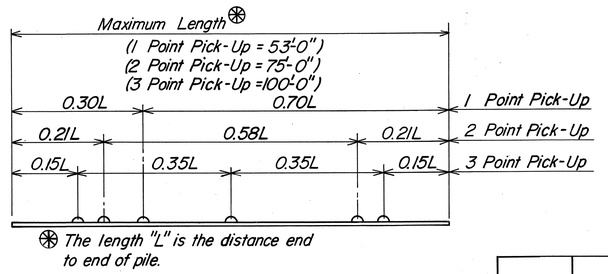


DETAIL "Y"

TYPICAL PILE SPLICE DETAILS

GENERAL NOTES FOR PILE

1. Concrete strengths (28-day compressive strength):
   a. Standard pile: f'_c =6000 psi
   b. Pile build-up with driving: f'_c =6000 psi
   c. Pile build-up without driving: f'_c identical with footing or pile cap concrete.
2. Reinforcing steel shall conform to the following ASTM specifications:
   a. Bar reinforcement: ASTM A615, Grade 60
   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 will be made for the splice can as it shall be considered incidental to the driving of the pile.
   d. CJP = Complete Joint Penetration groove weld.
4. The minimum working force in the prestressing steel shall be 165 kips (after all losses).
5. Piles accepted by the Engineer shall be of sound concrete. Damaged piles shall be replaced or repaired as directed by the Engineer, at the Contractor's expense.
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 of the pile below cut-off. Damaged portions shall be removed and pile cut-off elevation lowered as directed 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 will not be permitted, except for pile length in excess of 100 feet, unless otherwise approved by the Engineer.
9. The in-place length of pile above the splice shall be approximately 50 percent 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.



PILE PICK-UP POINTS

ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
	K.MALALUAN	7/91
	DRAWN BY	
	TRACED BY	
DESIGN FILE	DESIGNED BY S. KIMURA	7/91
	QUANTITIES BY	
No.	CHECKED BY H.P. CHEN	7/91

HUI PANG CHEN
REGISTERED PROFESSIONAL ENGINEER
No. 3865-S
HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.

Hui Pang Chen

DATE	REVISION

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

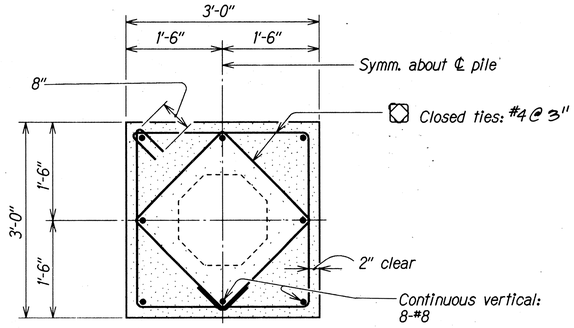
PRESTRESSED CONCRETE PILE DETAILS-1

SUPPORT STRUCTURES
INTERSTATE ROUTE H-3
F.A.I. PROJ. NO. I-H3-1(65)

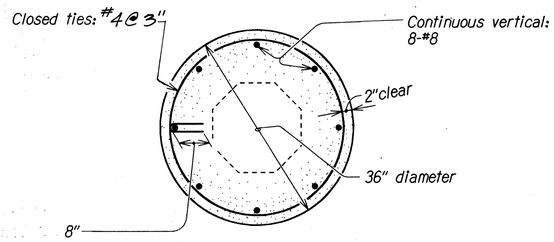
SCALE: NOT TO SCALE DATE: DEC. 1991

SHEET No. SS18 OF 19 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-H3-1(65)	1992	305	309

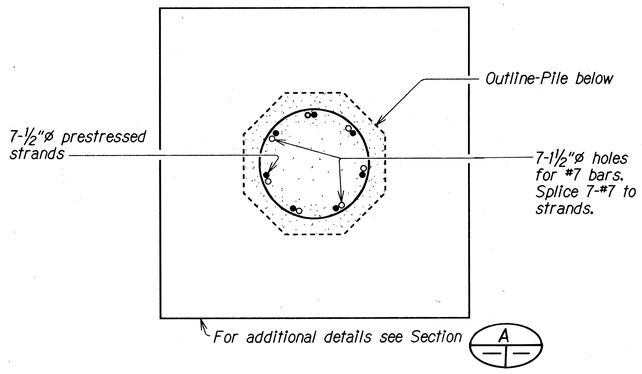


SQUARE BUILD-UP

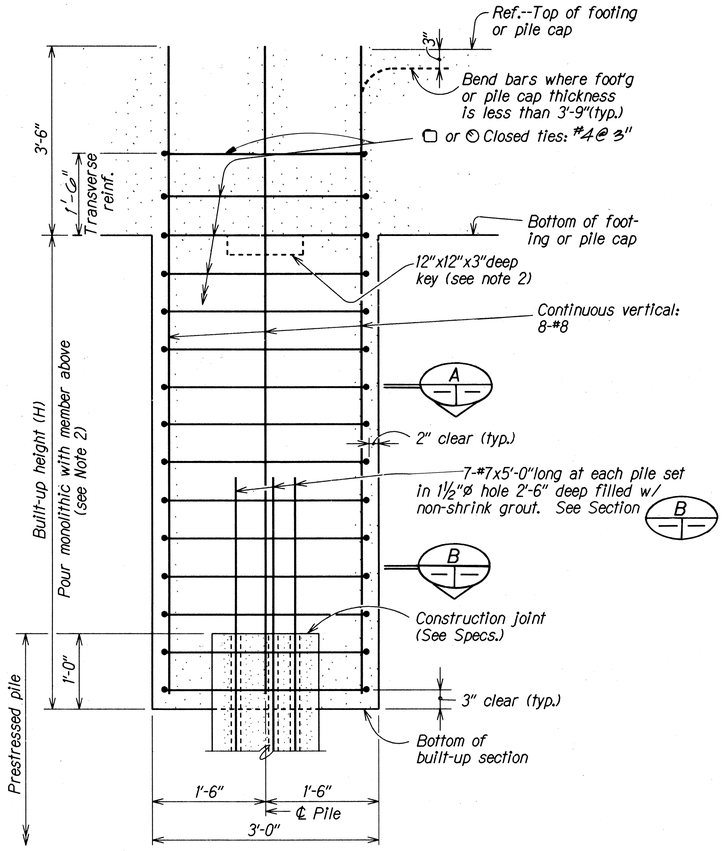


CIRCULAR BUILD-UP

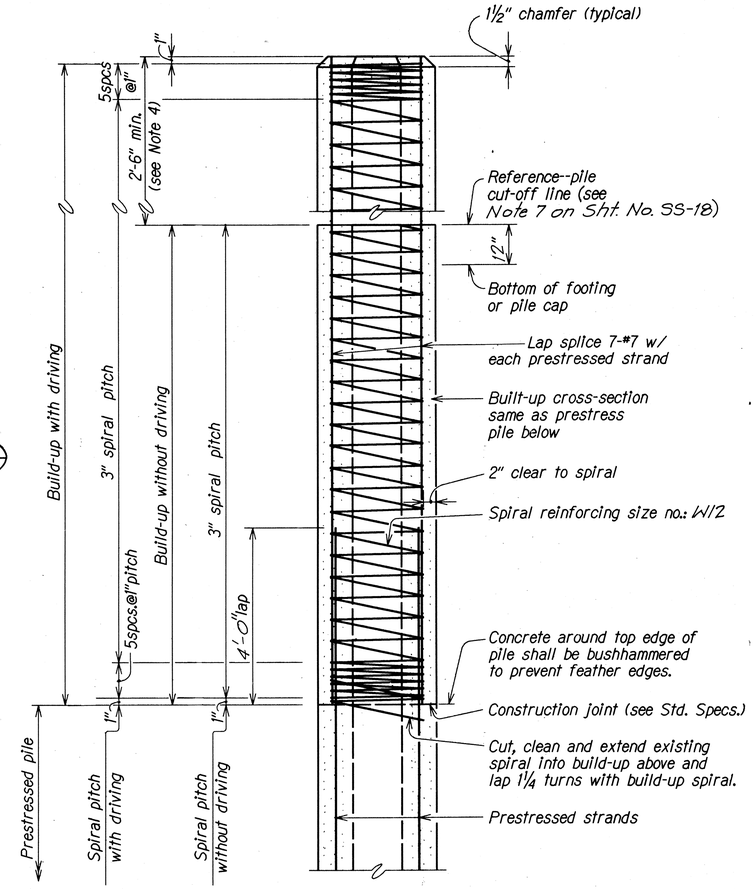
SECTION A



SECTION B



ALTERNATE PILE BUILD-UP DETAIL



TYPICAL PILE BUILD-UP DETAIL

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 percent 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.
4. For built-up pile with driving, remove concrete after driving, leaving reinforcement exposed. See General Note 6 on Sht. No. SS-18.
5. Circular built-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.

ORIGINAL PLAN	SURVEY PLOTTED BY K. KALALIAN	DATE 7/91
	DRAWN BY	
	TRACED BY S. KIMURA	7/91
DESIGN FILE	DESIGNED BY	
	QUANTITIES BY	
No.	CHECKED BY H.P. CHEN	7/91

DATE	REVISION

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

PRESTRESSED CONCRETE PILE DETAILS-2

SUPPORT STRUCTURES
INTERSTATE ROUTE H-3
F.A.I. PROJ. NO. I-H3-1(65)
SCALE : NOT TO SCALE DATE : DEC. 1991
SHEET No. SS19 OF 19 SHEETS

HUI PANG CHEN
REGISTERED PROFESSIONAL ENGINEER
No. 3865-S
HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.

Hui pang Chen