FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-IM-0300(75)	2012	4	138

	DESTINATION SIGN NO.	ROUTE NUMBER	MILE POST	DISTURBED AREA (SQ FT)	SIGN FRAME TYPE (See notes 1)	SPAN LENGTH	SIGN SUPPORT POST LENGTH (See notes 2 & 3)	DESTINATION SIGN PANEL SIZE (Width X Depth)	NEW FOUNDATION TYPE	LOCATION MAP	STRUCTURAL DRAWINGS				ELECTRICAL DRAWINGS	TRAFFIC CONTROL DRAWINGS	TEMPORARY SIGN (See notes 5)
											CONSTR. SEQUENCE (See note 4)	DEMOLITION	SIGN GENERAL ARRANGEMENT	DESTINATION SIGN PANEL LAYOUT			
1	H1EB-103	H1	3.52	365	A	37'-7¼"	24.2'	18'-0"x12'-0"	Spread Footing	S1.1	S4.1	S3.1	S4.1	S4.25	E3.1	C1.1 - C1.2	None
2	H1EB-205	H1	14.94	200	A	44'-7¼"	30.0'	40'-0"x12'-6"	Drilled Shaft	S1.2	S4.5	S3.1	S4.5	S4.26	E3.5	C5.1 - C5.7	C0.2
3	H1EBR-351	H1	RAMP	135	A	24'-7¼"	29.1'	17'-6"x10'-0"	Spread Footing	S1.2	S4.7	S3.2	S4.7	S4.26	E3.6	C7.1 - C7.3	None
4	H1WB-407	H1	24.58	100	A	29'-7¼"	22.5'	14'-0"x10'-0"	Spread Footing	S1.3	S4.9	S3.2	S4.9	S4.27	E3.8	C9.1 - C9.4	None
5	H1WB-411	H1	22.38	410	A	24'-7¼"	24.7'	22'-6"x10'-0"	Drilled Shaft	S1.3	S4.10	S3.3	S4.10	S4.27	E3.9	C10.1 - C10.9	None
6	H1WB-415	H1	21.48	360	A	31'-7¼"	24.3'	12'-0"x10'-0"	Spread Footing	S1.3	S4.11	S3.3	S4.11	S4.27	E3.10	C11.1 - C11.6	C0.2
7	H1WB-416	H1	21.08	135	A	24'-7¼"	26.4'	23'-0"x10'-0"	Spread Footing	S1.3	S4.12	S3.3	S4.12	S4.27	E3.10	C12.1 - C12.3	C0.2
8	H1WB-417	H1	20.68	280	B	22'-7¼" (L); 18'-7¼" (R)	27.0'	21'x10' (L); 18'x10' (R)	Drilled Shaft	S1.4	S4.13	S3.4	S4.13	S4.27/S4.28	E3.11	C13.1 - C13.3	C0.2 - C0.3
C1 9	H1WB-420	H1	19.86	235	A	22'-7¼"	29.8'	17'-6"x12'-0"	Spread Footing	S1.4	S4.15	S3.4	S4.15	S4.28	E3.12	C15.1 - C15.3	C0.3
10	H1WBR-452*	H1	RAMP	235	N/A	N/A	N/A	(2) 6'-6"x4'-6"	N/A	S1.5	S4.17	S3.5	S4.17	S4.29	E3.13	C17.1 - C17.2	None
11	H1WBR-453	H1	RAMP	100	A	24'-7¼"	24.5'	13'-0"x10'-0"	Spread Footing	S1.5	S4.18	S3.5	S4.18	S4.29	E3.14	C18.1 - C18.7	C0.3

TOTAL DISTURBED AREA
= 4000 SQ FT = 0.09 ACRE

C1 * Interim destination signs are used for Sign H1WBR-452 due to buried utility lines along the roadway.

NOTES:

1. TYPE "A": Cantilever Destination Sign
   TYPE "B": Cantilever Destination Sign on both sides
2. The Contractor shall verify final field elevations prior to fabrication of posts and set final post lengths.
3. The length provided is from top of concrete pedestal to top of the sign truss panel.
4. The construction sequence as listed on sheet S4.1 to S4.18 is for informational purposes only. The actual construction sequence is at the discretion of the Contractor.
5. Where new sign structures are to be located at the same locations as the existing structure, the existing foundation shall be completely removed prior to constructing new foundation. For the signs that have important direction information, temporary signs is required to be erected prior to commencement of demolition work. See the sheet listed for the detail layout of the temporary sign panel.

DATE	REVISION
06/16/14	C1 Revised Design of the Sign H1WBR-452

KEN KAZUO HAYASHIDA
LICENSED PROFESSIONAL ENGINEER
No. 6818-S
HAWAII, U.S.A.

EXPIRATION DATE OF THE LICENSE 4/30/2014
THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

SUMMARY CHART OF DESTINATION SIGNS

INTERSTATE ROUTE H-1, H-2 AND H201
DESTINATION SIGN UPGRADE / REPLACEMENT, PHASE 1
Federal Aid Project NO. - NH-IM-0300(75)
Scale: As Shown Date: Sept 21, 2012

SHEET No. S0.3 OF 138 SHEETS

C.O. 4

C:\Drawings\15-12-13 2239 Change Under 34-2012\14-06-16 2239_CHANGE ORDER_04.dwg, 6/16/2014 3:47:31 PM, tamanaka

STANDARD PLANS SUMMARY

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-IM-0300(75)	2012	5	138

STANDARD PLAN NO.		TITLE	DATE
B-01	●	NOTES & MISCELLANEOUS DETAILS	05/31/07
B-03	·	BACKFILL DETAILS AT EARTH RETAINING STRUCTURES	05/31/07
B-12	·	PRESTRESSED CONCRETE PILES & COMPRESSION SPLICE	05/31/07
		CAN DETAILS	
B-12A	·	PRESTRESSED CONCRETE PILES, PILE & COMPRESSION	05/31/07
		SPLICE CAN DETAILS & NOTES	
B-12B	·	PILE INTERACTION DIAGRAM	05/31/07
B-13	·	PRESTRESSED CONCRETE PILE BUILD-UP DETAILS	05/31/07

D-01	·	CATTLE GATE	05/31/07
D-02	·	CHAIN LINK FENCE WITH TOPRAIL	05/31/07
D-03	●	CHAIN LINK FENCE WITHOUT TOPRAIL	05/31/07
D-04	·	WIRE FENCE WITH METAL POSTS	05/31/07
D-05	·	TYPICAL DETAILS OF CURBS AND/OR GUTTERS	05/31/07
D-06	·	TYPICAL DETAIL OF REINFORCED CONCRETE DROP DRIVEWAY	05/31/07
D-07	·	CENTERLINE AND REFERENCE SURVEY MONUMENTS	05/31/07
D-08	·	STREET SURVEY MONUMENT	05/31/07
D-15	·	CONCRETE SIDEWALK	05/31/07
D-16	·	P.C.C. BUS PAD	05/31/07
D-17	·	P.C.C. BUS PAD	05/31/07
D-18	·	P.C.C. PAVEMENT LAYOUT	05/31/07
D-19	·	P.C.C. PAVEMENT W/ PERMEABLE BASE JOINT DETAILS	05/31/07
D-20	·	P.C.C. PAVEMENT W/ PERMEABLE BASE JOINT DETAILS	05/31/07
D-21	·	P.C.C. LONGITUDINAL JOINT DETAILS	05/31/07
D-22	·	P.C.C. CONNECTION TO CURBS AND GUTTERS	05/31/07
D-23	·	JOINTS	05/31/07

L-01	·	TREE PLANTING	08/16/06
L-02	·	TREE PLANTING	08/16/06
L-03	·	TREE TRANSPLANTING	08/16/06
L-04	·	PALM PLANTING	08/16/06
L-05	·	SHRUB PLANTING	08/16/06
L-06	·	LANDSCAPE DETAILS	08/16/06
L-07	·	LANDSCAPE DETAILS	08/16/06
L-08	·	LANDSCAPE DETAILS	08/16/06
L-09	·	LANDSCAPE DETAILS	08/16/06
L-10	·	LANDSCAPE DETAILS	08/16/06
L-11	·	PLANTING NOTES	08/16/06
L-12	·	IRRIGATION DETAILS	08/16/06
L-13	·	IRRIGATION DETAILS	08/16/06
L-14	·	IRRIGATION DETAILS	08/16/06
L-15	·	IRRIGATION DETAILS	08/16/06
L-16	·	IRRIGATION DETAILS	08/16/06
L-17	·	IRRIGATION DETAILS	08/16/06
L-18	·	IRRIGATION DETAILS	08/16/06
L-19	·	IRRIGATION DETAILS	08/16/06
L-20	·	IRRIGATION DETAILS	08/16/06
L-21	·	IRRIGATION DETAILS	08/16/06
L-22	·	IRRIGATION DETAILS	08/16/06
L-23	·	IRRIGATION DETAILS	08/16/06
L-24	·	IRRIGATION NOTES	08/16/06

STANDARD PLAN NO.		TITLE	DATE
H-01A	·	TYPE A CATCH BASIN	05/31/07
H-01B	·	TYPE B CATCH BASIN	05/31/07
H-01C	·	TYPE C CATCH BASIN	05/31/07
H-01D	·	TYPE D CATCH BASIN	05/31/07
H-01E	·	CATCH BASIN SECTIONS	05/31/07
H-02A	·	TYPE A1 CATCH BASIN	05/31/07
H-02B	·	TYPE B2 CATCH BASIN	05/31/07
H-02C	·	TYPE C1 CATCH BASIN	05/31/07
H-02D	·	TYPE D1 CATCH BASIN	05/31/07
H-02E	·	CATCH BASIN SECTION	05/31/07
H-03	·	TYPE A,B, AND C STORM DRAIN MANHOLE	05/31/07
H-04	·	TYPE D STORM DRAIN MANHOLE	05/31/07
H-05	·	TYPICAL REINFORCING DETAILS FOR DRAINAGE STRUCTURES	05/31/07
H-06	·	TYPICAL REINFORCING DETAILS FOR DRAINAGE STRUCTURES	05/31/07
H-07	·	CATCH BASIN AND MANHOLE CASTINGS	05/31/07
H-08	·	TYPE 1A-9 AND 1A-9P GRATED DROP INLET	05/31/07
H-09	·	TYPE 2A-9 AND 2A-9P GRATED DROP INLET	05/31/07
H-10	·	TYPE A-9 OR A-9P STEEL FRAMES	05/31/07
H-11	·	TYPE A-9 AND A-9P STEEL GRATES	05/31/07
H-12	·	TYPE 61614P AND 1211214P GRATED DROP INLET	05/31/07
H-13	·	TYPE 61616P AND 1211216P GRATED DROP INLET	05/31/07
H-14	·	TYPE 61214P GRATED DROP INLET	05/31/07
H-15	·	TYPE 1211214, 1211214P, 1211216, 1211216P STEEL	05/31/07
		FRAME AND GRATES	
H-16	·	TYPE 61614, 61614P, 61616, 61616P STEEL FRAME	05/31/07
		AND GRATES	
H-17	·	TYPE 61214 STEEL FRAMES AND GRATES	05/31/07
H-18	·	TYPE 61214P STEEL GRATES	05/31/07
H-19	·	TYPE 61614B STEEL FRAME AND GRATES	05/31/07
H-20	·	CEMENT RUBBLE MASONRY STRUCTURES	05/31/07
H-21	·	CONCRETE AND CEMENT RUBBLE MASONRY STRUCTURES	05/31/07
H-22	·	INLET/OUTLET STRUCTURE	05/31/07
H-23	·	INLET/OUTLET STRUCTURE	05/31/07
H-24	·	FLARED END SECTION FOR CULVERTS	05/31/07
H-25	·	FLARED END SECTION FOR CULVERTS	05/31/07
H-26	·	CONCRETE SPILLWAY INLET	05/31/07
H-27	·	CAP COUPLING DETAILS STANDARD JOINT	05/31/07
H-28	·	REINFORCED CONCRETE COLLAR & JACKET	05/31/07
H-29	·	UNDERDRAIN CLEANOUT STEEL FRAME AND COVER	05/31/07
H-30	·	UNDERDRAIN CONNECTION TO DRAINAGE STRUCTURE	05/31/07

TE-01	●	SIGN HEIGHT AND LOCATION	07/11/08
TE-1A	●	SIGN INSTALLATION	07/11/08
TE-02A	●	GALVANIZED FLANGED CHANNEL SIGN POST MOUNTING	05/31/07
TE-02B	●	GALVANIZED FLANGED CHANNEL SIGN POST MOUNTING	05/31/07
TE-02C	●	GALVANIZED FLANGED CHANNEL SIGN POST MOUNTING	05/31/07
TE-03A	●	GALVANIZED SQUARE TUBE SIGN POST MOUNTING	05/31/07
TE-03B	●	GALVANIZED SQUARE TUBE SIGN POST MOUNTING	05/31/07
TE-04	●	REGULATORY SIGNS	07/11/08
TE-05	●	WARNING SIGNS	07/11/08
TE-06	●	MISCELLANEOUS SIGNS	07/11/08
TE-07	·	CONSTRUCTION SIGNS	07/11/08
TE-08	·	MISCELLANEOUS INTERSECTION SIGNS	07/11/08

STANDARD PLAN NO.		TITLE	DATE
TE-09	·	BIKE ROUTE SIGN & SUPPLEMENTARY PLATES	07/11/08
TE-10	●	INTERSTATE ROUTE MARKER	07/11/08
TE-11	·	STATE ROUTE MARKER AND AUXILIARY MARKERS	07/11/08
TE-12	●	STATE ROUTE MARKER AND BORDER DETAIL FOR	07/11/08
	·	GUIDE SIGNS	
TE-12A	·	ROUTE SIGN ASSEMBLIES	07/11/08
TE-13	·	STREET NAME SIGN ON MAST ARM	07/11/08
TE-14	·	MISCELLANEOUS REFLECTOR MARKERS	07/11/08
TE-15	·	OBJECT MARKERS	07/11/08
TE-16	·	MILE POSTS	07/11/08
TE-17A	·	CANTILEVER OVERHEAD SIGN ELEVATION & DETAILS	05/31/07
TE-17B	·	CANTILEVER SIGN FRAME DETAIL AND SECTION	05/31/07
TE-17C	·	CANTILEVER SIGN FRAME DETAIL	05/31/07
TE-17D	·	CANTILEVER SIGN FRAME SECTION	05/31/07
TE-17E	·	CANTILEVER SIGN FRAME DETAILS	05/31/07
TE-18A	·	TWO POST OVERHEAD SIGN FRAME ELEVATIONS	05/31/07
TE-18B	·	TWO POST SIGN FRAMING PLAN SECTION	05/31/07
TE-18C	·	TWO POST SIGN FRAMING SECTIONS AND DETAILS	05/31/07
TE-18D	·	TWO POST SIGN FRAME DETAILS	05/31/07
TE-18E	·	TWO POST SIGN FRAME DETAILS	05/31/07
TE-19A	·	OVERHEAD SIGN FRAMING SCHEDULE	05/31/07
TE-19B	·	SIGN POST DRILLED SHAFT FOUNDATION	05/31/07
TE-19C	·	SPREAD FOOTING	05/31/07
TE-19D	·	SIGN FRAME FOUNDATION SCHEDULE	05/31/07
TE-19D.1	·	SIGN FRAME FOUNDATION SCHEDULE	05/31/07
TE-19D.2	·	SIGN FRAME FOUNDATION SCHEDULE	05/31/07
TE-19D.3	·	SIGN FRAME FOUNDATION SCHEDULE	05/31/07
TE-19D.4	·	SIGN FRAME FOUNDATION SCHEDULE	05/31/07
TE-19D.5	·	SIGN FRAME FOUNDATION SCHEDULE	05/31/07
TE-19E	·	ANCHORAGE DETAILS	05/31/07
TE-19F	·	ANCHORAGE DETAILS	05/31/07
TE-19G	·	MISCELLANEOUS SIGN FRAME DETAILS	05/31/07
TE-19H	·	LUMINAIRE WALKWAY SUPPORT	05/31/07
TE-19J	·	FIXED MESSAGE LUMINAIRE SUPPORT	05/31/07
TE-19K	·	MISCELLANEOUS SIGN DETAILS	05/31/07
TE-19L	·	MISCELLANEOUS SIGN DETAILS	05/31/07
TE-19M	·	MISCELLANEOUS SIGN FRAME DETAILS	05/31/07
TE-20	·	SUPPORTS FOR GROUND MOUNTED GUIDE SIGN	05/31/07
TE-20A	·	SUPPORTS FOR GROUND MOUNTED GUIDE SIGN	05/31/07
TE-20B	·	SUPPORTS FOR GROUND MOUNTED GUIDE SIGN	05/31/07
TE-20C	·	SUPPORTS FOR GROUND MOUNTED GUIDE SIGN	05/31/07
TE-21A	·	SIGN BREAKAWAY MOUNTS	05/31/07
TE-21B	·	SIGN BREAKAWAY MOUNTS	05/31/07
TE-22	·	LAMINATED ALUMINUM SIGN PANELS (OVERHEAD)	05/31/07
TE-23	·	LAMINATED ALUMINUM SIGN PANELS (GROUND MOUNTED)	07/11/08
TE-24	·	SOLID ALUMINUM EXTRUDED SIGN PANEL AND	05/31/07
		ACCESSORY DETAILS	
TE-25	·	GUIDE SIGNS LUMINAIRE MOUNTINGS	05/31/07
TE-26	●	RAISED PAVEMENT MARKERS AND STRIPING	07/11/08
TE-27	●	RAISED PAVEMENT MARKERS AND STRIPING	07/11/08
TE-28	●	ENTRANCE AND EXIT PAVEMENT MARKINGS	07/11/08
TE-28A	·	MISCELLANEOUS PAVEMENT MARKINGS	07/11/08
TE-29	·	PAVEMENT ARROWS AND SYMBOLS	07/11/08
TE-30	·	PAVEMENT ALPHABETS, NUMBERS & SYMBOLS	07/11/08
TE-31	·	PAVEMENT ALPHABETS, NUMBERS & SYMBOLS	07/11/08

STANDARD PLAN NO.		TITLE	DATE
TE-32	·	TYPE I & II TRAFFIC SIGNAL SYSTEM MISC. DETAILS	05/31/07
TE-33	·	TYPE II TRAFFIC SIGNAL SYSTEM	08/16/06
TE-33A.1	·	TYPE II TRAFFIC SIGNAL STANDARD	05/31/07
TE-33A.2	·	TYPE II TRAFFIC SIGNAL STANDARD	05/31/07
TE-34	·	LOOP DETECTOR DETAILS	07/11/08
TE-35	·	LOOP DETECTORS & DUCT DETAILS	07/11/08
TE-36	·	TRAFFIC SIGNAL DETAILS	07/11/08
TE-37	·	PULLBOX & COVER DETAILS	07/11/08
TE-37A	·	TYPE "A" TRAFFIC PULLBOX	05/31/07
TE-37B	·	TYPE "A" TRAFFIC PULLBOX REINFORCING	05/31/07
TE-37C	·	TYPE "B" TRAFFIC PULLBOX	05/31/07
TE-37D	·	TYPE "B" TRAFFIC PULLBOX REINFORCING	05/31/07
TE-37E	·	TYPE "B" TRAFFIC PULLBOX FOUNDATION	05/31/07
TE-37F	·	TYPE "C" TRAFFIC PULLBOX	05/31/07
TE-37G	·	TYPE "C" TRAFFIC PULLBOX REINFORCING	05/31/07
TE-37H	·	TYPE "C" TRAFFIC PULLBOX FOUNDATION	05/31/07
TE-37J	·	TRAFFIC PULLBOX COVER AND DETAILS	05/31/07
TE-38	·	TYPE III TRAFFIC SIGNAL STANDARD	05/31/07
TE-38A.1	·	TYPE III TRAFFIC SIGNAL STANDARD	05/31/07
TE-38A.2	·	TYPE III TRAFFIC SIGNAL STANDARD	05/31/07
TE-39	·	METAL GUARDRAIL CONNECTION TO CONCRETE BARRIER	07/11/08
TE-40	·	CONCRETE BARRIER TRANSITION	05/31/07
TE-40A	·	CONCRETE BARRIER TRANSITION SECTIONS	05/31/07
TE-41	·	GUARDRAIL TYPE 4 (RIGID BARRIER)	05/31/07
TE-42	·	PORTABLE CONCRETE BARRIER	05/31/07
TE-43	·	PORTABLE CONCRETE BARRIER	05/31/07
TE-44	·	GUARDRAIL TYPE 4 MISCELLANEOUS DETAILS	07/11/08
TE-45	·	BARRICADES	07/11/08
TE-46	·	DELINEATION & PAVEMENT MARKINGS AT NARROW BRIDGES	07/11/08
TE-47	·	HIGHWAY LIGHT STANDARD	05/31/07

NOTE:
STANDARD PLANS APPLICABLE TO THIS PROJECT ARE INDICATED BY A "●" NEXT TO THE STANDARD PLAN NO.
(FOR EXAMPLE: TE-01 ●)

KEN KAZUO HAYASHIDA
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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

STANDARD PLANS SUMMARY

INTERSTATE ROUTE H-1, H-2 AND H201
DESTINATION SIGN UPGRADE / REPLACEMENT, PHASE 1
Federal Aid Project NO. - NH-IM-0300(75)
Scale: As Shown Date: Sept 21, 2012

SHEET No. S0.4 OF 138 SHEETS

ID:A-AUG08-09-29-SS03-sheet2201 05.30

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-IM-0300(75)	2012	6	138

ABBREVIATIONS

A.C.	Asphalt Concrete	Max	Maximum
BC	Bottom of Curb	Mech	Mechanical
Blvd.	Boulevard	MH	Manhole
Bot	Bottom	Min	Minimum
Btwn	Between	Misc	Miscellaneous
BW	Bottom of Wall	MH	Manhole
℄	Centerline	M.P.	Mile Post
CJ	Construction Joint	MPH	Miles Per Hour
Cir.	Circular	N/A	Not Applicable
Clr	Clear	No. or #	Number
CMP	Corrugated Metal Pipe	N.I.C.	Not In Contract
Conc	Concrete	NTS	Not To Scale
Cont	Continuous	O.C.	On Center
Dbl	Double	O.D.	Outside Diameter
Dia (D)	Diameter	Opng	Opening
Dwg	Drawing	Opp	Opposite
Ea	Each	Rad	Radius
E.F.	Each Face	Pav't	Pavement
Elev or El	Elevation	PL or ℙ	Plate
Eq	Equal	Ref	Reference
E.W.	Each Way	Reinf.	Reinforced or Reinforcing
Exist or (E)	Existing	Req'd	Required
Ext	Exterior	R.O.W.	Right-of-Way
Fin	Finish	R.O.W.	Right-of-Way
Ft	Foot or Feet	Rt or (R)	Right
Ftg	Footing	SF	Square Feet
Galv	Galvanize	Sht	Sheet
Gnd	Ground	Sp	Spaces or Spacing
Grd	Grade	Sta.	Station
Horiz	Horizontal	TC	Top of Curb
Ht	Height	Temp	Temporary
Hwy	Highway	Thru	Through
I.D.	Inside Diameter	TW	Top of Wall
Lt (L)	Left	Typ	Typical
		UNO	Unless Noted Otherwise
		Vert	Vertical

LEGEND

- Demolition Area
- Existing Concrete
- New Concrete
- New Destination Sign Panel
- Ribbed Sheet Metal
- Existing Sign Posts
- Existing Chain Link Fence
- SLB — Existing Concrete Slab
- Existing Guardrail
- New Guardrail
- TREE — Existing Tree

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LEGEND AND ABBREVIATIONS

INTERSTATE ROUTE H-1, H-2 AND H201
DESTINATION SIGN UPGRADE / REPLACEMENT, PHASE 1
Federal Aid Project NO. - NH-IM-0300(75)

Scale: As Shown Date: Sept 21, 2012

SHEET No. S0.5 OF 138 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-IM-0300(75)	2012	7	138



LOCATION MAP - H1EB-103, M.P. 3.52

NTS

1
S1.1 | S1.1

Legend:



The location and direction from which the photo of the existing sign was taken

KEN KAZUO HAYASHIDA
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DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

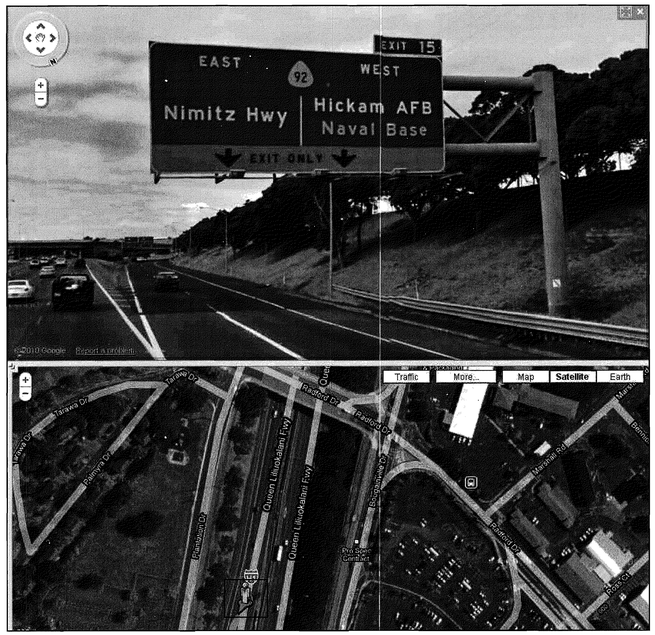
LOCATION MAPS - 1

INTERSTATE ROUTE H-1, H-2 AND H201
DESTINATION SIGN UPGRADE / REPLACEMENT, PHASE 1
Federal Aid Project NO. - NH-IM-0300(75)

Scale: As Shown Date: Sept 21, 2012

SHEET No. S1.1 OF 138 SHEETS

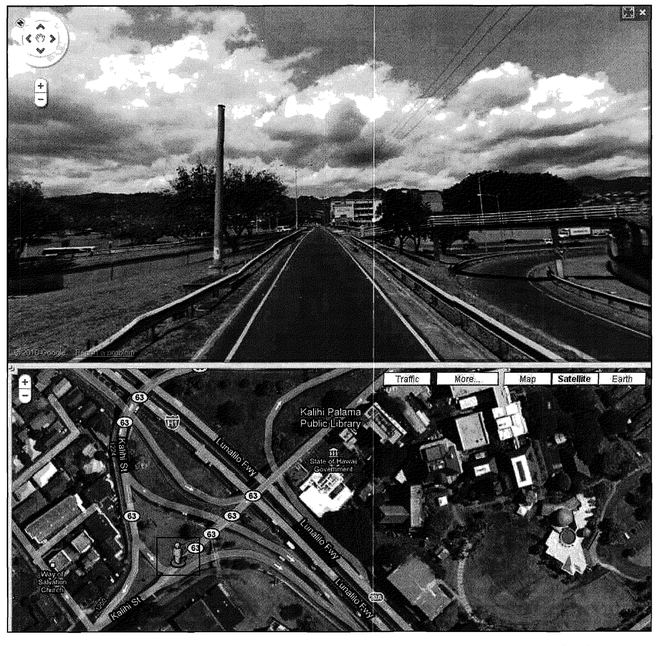
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-IM-0300(75)	2012	8	138



LOCATION MAP - H1EB-205, M.P. 14.94

NTS

1
S1.2 | S1.2



LOCATION MAP - H1EBR-351, M.P. RAMP

NTS

3
S1.2 | S1.2

Legend:



The location and direction from which the photo of the existing sign was taken

Note:

The sign panel of H1EBR-351 was removed during the time the photo was taken

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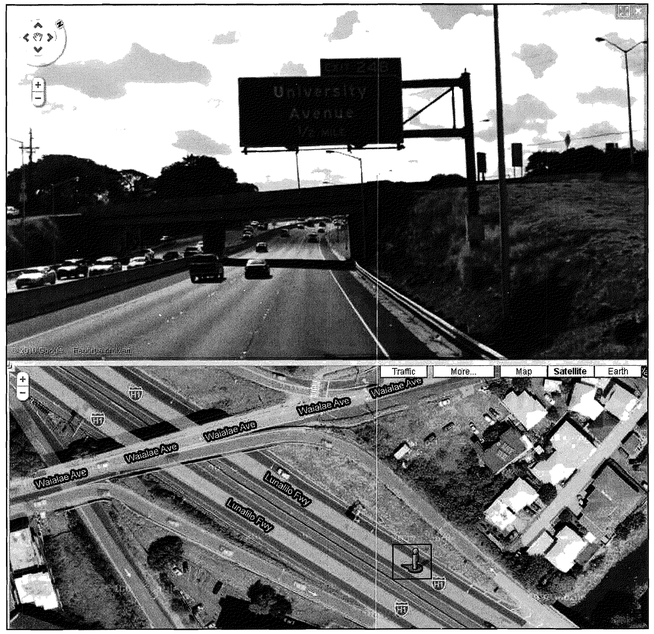
LOCATION MAPS - 2

INTERSTATE ROUTE H-1, H-2 AND H201
DESTINATION SIGN UPGRADE / REPLACEMENT, PHASE 1
Federal Aid Project NO. - NH-IM-0300(75)

Scale: As Shown Date: Sept 21, 2012

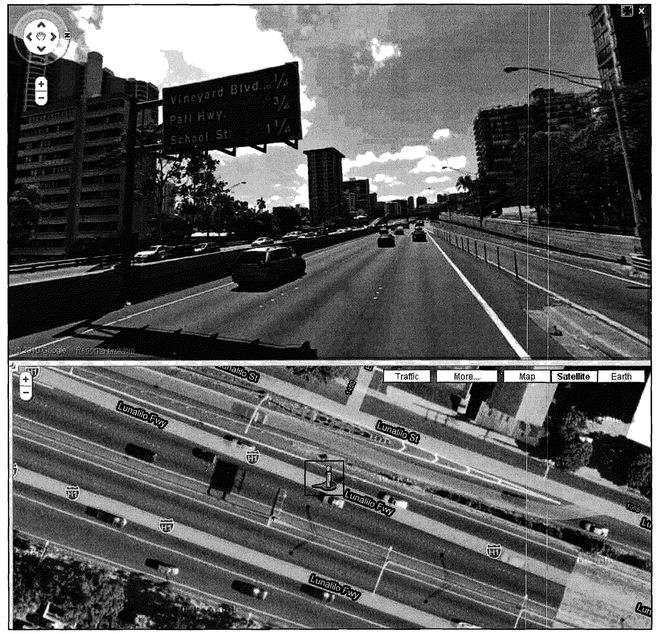
SHEET No. S1.2 OF 138 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-IM-0300(75)	2012	9	138



LOCATION MAP - H1WB-407, M.P. 24.58 — 1 / SI.3 | SI.3

NTS



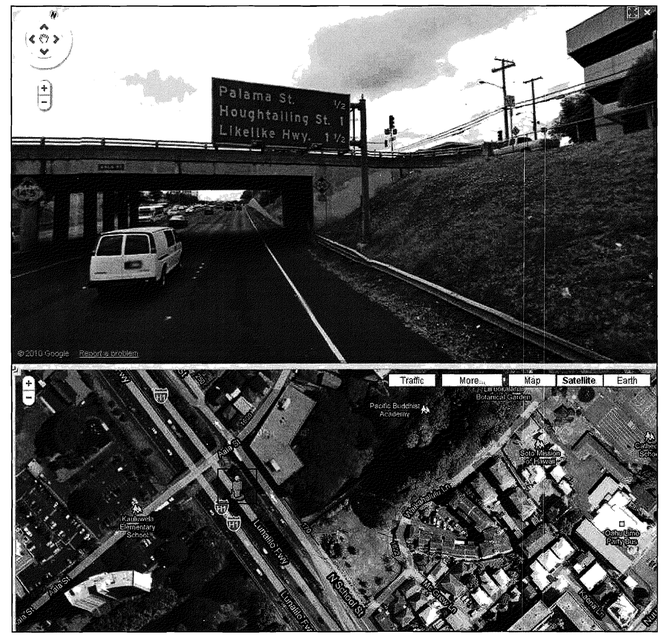
LOCATION MAP - H1WB-411, M.P. 22.38 — 2 / SI.3 | SI.3

NTS



LOCATION MAP - H1WB-415, M.P. 21.48 — 3 / SI.3 | SI.3

NTS



LOCATION MAP - H1WB-416, M.P. 21.08 — 4 / SI.3 | SI.3

NTS

Legend:



The location and direction from which the photo of the existing sign was taken

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LOCATION MAPS - 3

INTERSTATE ROUTE H-1, H-2 AND H201
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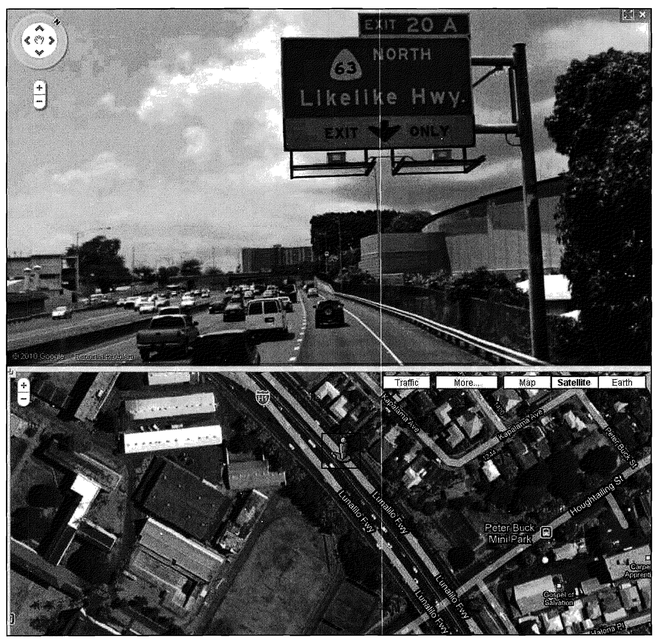
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-IM-0300(75)	2012	10	138



LOCATION MAP - H1WB-417, M.P. 20.68

NTS

1
S1.4 | S1.4



LOCATION MAP - H1WB-420, M.P. 19.86

NTS

3
S1.4 | S1.4

Legend:



The location and direction from which the photo of the existing sign was taken

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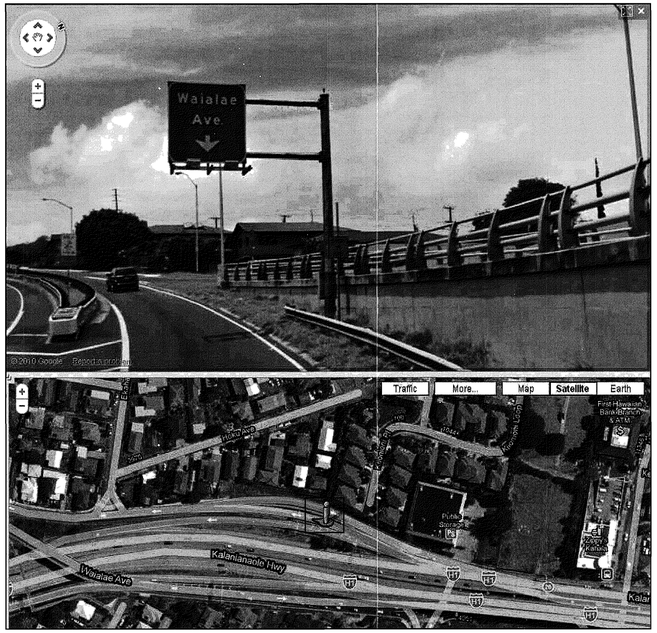
LOCATION MAPS - 4

INTERSTATE ROUTE H-1, H-2 AND H201
DESTINATION SIGN UPGRADE / REPLACEMENT, PHASE 1
Federal Aid Project NO. - NH-IM-0300(75)

Scale: As Shown Date: Sept 21, 2012

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FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-IM-0300(75)	2012	11	138



LOCATION MAP - H1WBR-452, M.P. RAMP 1
NTS S1.5 S1.5



LOCATION MAP - H1WBR-453, M.P. RAMP 2
NTS S1.5 S1.5

Legend:



The location and direction from which the photo of the existing sign was taken

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HIGHWAYS DIVISION

LOCATION MAPS - 5

INTERSTATE ROUTE H-1, H-2 AND H201
DESTINATION SIGN UPGRADE / REPLACEMENT, PHASE 1
Federal Aid Project NO. - NH-IM-0300(75)
Scale: As Shown Date: Sept 21, 2012

SHEET No. S1.5 OF 138 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-IM-0300(75)	2012	12	138

General Notes:

1. The scope of work for this project consists of but not limited to removal of eleven (11) existing sign structures and/or concrete foundations and construction of eleven (11) new sign structures, including new drilled hafts/spread footings, new sign posts and frames, new destination sign panels, new guardrails at selected locations and remove/revise existing electrical lines.

2. The Contractor shall perform all applicable construction work in accordance with the "Department of Transportation, Highways Division, Standard Plans", as amended and "Hawaii Standard Specifications for Road and Bridge Construction, 2005", as amended for the State of Hawaii.

3. The Contractor shall verify the location of all existing utilities, whether shown on the plans or not, and shall be responsible for the repair or replacement of the same in the event of damages due to his/her construction practices, at no cost to the State.

4. All dimensions and details shown on the drawings shall be checked and verified prior to the start of construction, and any discrepancies shall be immediately brought to the attention of the Engineer for clarifications.

5. The Contractor shall provide, install, and maintain all necessary signs, lights, flares, barricades, markers, cones and other protective facilities and shall take all necessary precautions for the protection and for the convenience and safety of public traffic. All such protective facilities and precautions to be taken shall conform with the "Administrative Rules of Hawaii Governing the Use of Traffic Control Devices at Work Sites on or Adjacent to Public Streets and Highways" adopted by the Director of Transportation, and the current U.S. Federal Highway Administration "Manual on Uniform Traffic Control Devices for Streets and Highway, Part VI Traffic Controls for Street and Highway Construction and Maintenance. A traffic control plan is incorporated into the construction plans and must be approved by the Division prior to the issuance of the permit. In the event that the Contractor requires alternate lane closures, the Contractor is responsible for preparing traffic control plans and submitting said plans to HWY-T for approval before beginning work at that location.

6. Unless relocation is called for on the plans, existing utilities shall remain in-service and in place. If relocation of existing utilities is required for the Contractor's convenience, interruption of service shall be kept to a minimum and shall be done at the Contractor's expense and only with the approval of the Engineer, and shall be coordinated with the utility agency.

7. The Contractor's attention is directed to the following Sections: Subsection 104.09 - Maintenance of Traffic; Subsection 104.11 - Utilities and Services; Subsection 107.06 - Contractor Duty Regarding Public Convenience; and Section 645 - Work Zone Traffic Control.

8. The Contractor is reminded of the requirements of Subsection 105.16 - Subcontracts, which requires him to perform work not less than 30 percent of the total contract cost less deductible items. Non-compliance with the Subsection may be grounds for rejection of bid.

9. At the end of each day's work, the Contractor shall remove all equipment and other obstructions to permit free and safe passage of public traffic.

10. The existence and location of underground utilities, manholes, monuments and structures as shown on the plans are from the latest available data, but the accuracy is not guaranteed. The encountering of other obstacles during the course of work is possible. The Contractor shall tone for the exact locations and depths of all underground facilities, either shown on or omitted from the plans, in areas where work, such as placement of sign posts, traffic signal conduits, etc. may affect these properties. Toning shall be considered incidental to the various contract items and will not be paid for separately. The Contractor shall be held liable for any damages incurred to the existing facilities and/or improvements as a result of his operations.

11. The Contractor shall notify the Engineer in writing two (2) weeks prior to starting construction operations.

12. The Contractor shall indemnify and be solely responsible for the protection of adjacent properties, utilities and existing structures from damages due to construction. Repairing any damage shall be at the Contractor's own expense and to the satisfaction of the Engineer.

13. Pursuant to Section 6E, HRS, in the event any artifacts or human remains are uncovered during the construction operations, the Contractor shall immediately suspend work and notify the Honolulu Police Department, The State Department of Land and Natural Resources-Historic Preservation Branch (692-8015). In addition, for non-city projects, the Contractor shall inform the Civil Engineering Branch, D.D.P. (768-8084).

14. Smooth riding connections shall be constructed at all limits of project, including the beginning and end of project, connecting approaches and roadways as shown on the plans and/or as directed by the Engineer. This work shall be considered incidental to asphalt concrete and will be paid for separately.

15. The Contractor shall clean and remove any accumulation of aggregates along the roadside within 10 feet of the edge of pavement. This work shall be considered incidental to bulk of work or the various contract items and will not be paid for separately.

16. Removal and disposal of existing asphalt concrete pavement, sign structures/footings, guardrail parapets and any debris shall be considered incidental to their respective bid items.

17. All saw cutting work shall be considered incidental to demolition of existing sign structures/footings or various contract items or their respective bid items.

18. Prior to placement of new aggregate subbase course, the existing subbase shall be compacted to a relative compaction greater than or equal to 95%.

19. The top of the Plant Mix Glassphalt Concrete Base Course prior to placement of the new A.C. pavement, Mix No. IV shall comply with the ten-foot straight edge requirement. The variation of the surface from a straight edge with two contacts with the surface shall not exceed 3/16".

20. No blasting shall be permitted on this project.

21. Contractor shall be responsible for providing adequate temporary shoring and bracing of the existing structures at all times during demolition and erection. Phasing of work is permitted to prevent section failure during excavation. Contractor shall take all precautions to avoid damage to existing structure.

22. After the project is completed, the Contractor shall restore grades and ground cover in the project limits to a condition equal or better than existing before such damage or injury was done.

23. The Contractor shall remove and dispose of all existing raised pavement markers, thermoplastic line markings, traffic tape, and epoxy adhesives prior to the overlaying of Asphalt Concrete. This work shall be considered incidental to Asphalt Concrete Pavement, Mix No. V and will not be paid for separately.

24. No material and/or equipment shall be stockpiled or otherwise stored within the Highway Right-of-Way except at locations designated in writing and approved by the Engineer. If use of location is approved by the Engineer, the Contractor shall obtain a permit to use the property within the Highway Right-of-Way from the Oahu District Office.

25. Except during actual working hours, all signs which do not pertain to the construction activity, such as "MEN WORKING" and "FLAGMEN AHEAD" shall be covered or laid down. However, all signs necessary for the safety of the public shall be maintained.

26. The Contractor shall employ a Hawaii Registered Professional Surveyor to perform all construction stakeouts, the cost of which shall be borne by the Contractor.

27. The Contractor shall make his own arrangements for, and pay for all temporary utilities required for his work.

28. The Contractor shall procure and pay for all licenses and permits and shall give all notices necessary and incidental to the due and lawful prosecution of the work.

29. The Contractor shall remove and dispose all silt and debris deposited in drainage facilities, roadways and other areas resulting from his work. The cost incurred for any necessary remedial action ordered by the Engineer shall be paid for by the Contractor.

30. The Contractor shall notify the Oahu District Permit Section, at 831-6712 to arrange for inspectional services and submit four (4) sets of approved construction plans seven (7) days prior to commencement of construction work.

31. Trimming and dressing of shoulder and embankments shall consist of grading, reshaping and compacting the unpaved shoulders with suitable material as shown on the plans and/or as directed by the Engineer. Suitable materials shall include top soil. All disturbed soil areas shall be mulched by the Contractor. This work shall be considered incidental to various contract items.

32. The Contractor shall prepare and submit a site specific BMP plan for each location for review and approval.

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HIGHWAYS DIVISION

CONSTRUCTION NOTES - 1

INTERSTATE ROUTE H-1, H-2 AND H201
DESTINATION SIGN UPGRADE / REPLACEMENT, PHASE 1
Federal Aid Project NO. - NH-IM-0300(75)
Scale: As Shown Date: Sept 21, 2012

SHEET No. S2.1 OF 138 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-IM-0300(75)	2012	13	138

General Notes (Cont.):

33. For benchmarks see sheets S4.1 thru S4.24. Elevations shown on these plans are referenced to Mean Sea Level (MSL). Azimuths shown are based on Hawaii State plane coordinate grid system. North American DATUM (NAD) 83 HARN (DACOO), Zone 3.

34. Pavement and marking, traffic control regulatory, warning, and miscellaneous signs shall be restored to original condition. All restoration shall comply the Standard Plan TE-26 to TE-28, TE-04 to TE-06.

35. All sign structures included in this project are coated with a paint system that contains lead. The Contractor shall follow Section 621 - Lead Based Paint for the dismantling, hauling and disposal of the structural steel members.

Public Health, Safety and Convenience Notes:

1. The Contractor shall observe and comply with all Federal, State and local laws required for the protection of public health and safety and environmental quality.

2. The Contractor, at his own expense, shall keep the project and it's surrounding areas free from dust nuisance. The work shall be in conformance with the Air Pollution Standards of the State Department of Health. The State may require supplementary measures as necessary.

3. The Contractor shall submit a Noise Pollution Control Plan when applying for a construction permit.

Noise Variance Notes:

The noise variance request has been GRANTED with the following restrictions and conditions:

1. Use of jackhammers, rail saws and rock drills shall be prohibited after 1:00 a.m. at the following locations: HIWB-411, HIWB-417, HIWB-420, HIWBR-452.

2. The applicant shall make every effort to minimize noise emanating from the project.

3. The use of the reverse signal alarms shall be prohibited during the variance hours before 7:00 a.m. and after 8:00 p.m. Alternative methods such as utilizing a ground guide for signaling shall be employed.

4. Traffic noise from heavy vehicles travelling to and from the construction site shall be minimized near residences.

5. The applicant shall have a job-site inspector to whom immediate complaints can be forwarded for prompt response, and who shall have the general responsibility of monitoring quiet work procedures.

6. Residents that may be impacted by the nighttime activity shall be given sufficient notice regarding the project. The notification for the planned nighttime activity shall also contain the name and telephone number of the job-site inspector. In addition, a copy of any notifications, as well as progress reports, shall also he sent to the Indoor and Radiological Health Branch.

7. If the noise level is such that numerous complaints are received by the Department, the applicant shall cease operation upon receipt of an order and complete the project during hours on weekdays and weekends as directed.

8. The applicant shall notify the Indoor and Radiological Health Branch, State Department of Health, as to the date and time of any variance hour activity as soon as the dates are confirmed and also when the project is completed.

9. Should the duration of the project continue beyond the expiration date, the applicant shall submit a request for extension along with an updated work schedule prior to August 31, 2013.

10. Pursuant to Section 342F-5(dX3), H.R.S., the applicant shall be required to perform noise sampling during the variance hours and report the results of such sampling to the Indoor and Radiological Health Branch of the Department of Health.

Grading Notes:

1. All grading and stockpiling work shall be in accordance with State of Hawaii 2005 Standard Specifications for Road and Bridge Construction.

2. No contractor shall perform any grading operation so as to cause falling rocks, soil or debris in any form to fall, slide or flow onto adjoining properties, streets or natural waretcourses. Should such violations occur, the Contractor may be cited and the Contractor shall immediately make all remedial actions necessary.

3. The Contractor, at the Contractor's own expense, shall keep the project area and surrounding area free from dust nuisance. The work shall be in conformance with the air pollution control standards contained in the Hawaii Administrative Rules, Title 11, Chapter 60.1, "Air Pollution Control".

4. The underground pipes, cables or ductlines known to exist by the Design Engineer from his/her search of records are indicated on the plans. The Contractor shall verify the locations and depths of the facilities and exercise proper care in excavating ih the area. Wherever connections of new utilities are shown on the plans, the Contractor shall expose the existing lines at the proposed connections to verify their locations and depths prior to excavation for the new lines.

5. Surface waters shall not damage the cut face of an excavation or the sloped surfaces of a fill. Furthermore, sediment-laden runoff shall not leave the site.

6. All slopes and exposed areas shall be sodded, planted or hydro-mulched, as soon as final grades have been established. Planting shall not be delayed until all grading has been completed. Grading to final grade shall be continuous, and any area within which work has been interrupted or delayed shall be planted.

7. Fills on slopes steeper than 5:1 shall be keyed.

8. No grading work shall be done on Saturdays, Sundays and holidays at any time without prior notice and acceptance by the Engineer, provided such grading work is also in conformance with the community noise control standards contained in the Hawaii Administrative Rules, Title 11, Chapter 46, "Community Noise Control".

9. The limits of the area to be graded shall be flagged before the commencement of the grading work.

10. All grading operations shall be performed in conformance with the applicable provisions of the water quality and water pollution control standards contained in Hawaii Admini9strative Rules, Title 11, Chapter 54, "Water Quality Standards", and Title 11, Chapter 55, "Water Pollution Control" and if applicable, the NPDES permit for the project.

11. The measures to control erosion and other pollutants shall be in place before any earth-moving phase of the grading is initiated.

12. Temporary erosion controls shall not be removed before permanent erosion controls are in-place and established.

13. Temporary erosion control procedures shall be submitted for approval prior to application for permit.

14. If the grading work involves contaminated soil, then all grading work shall be done in conformance with applicable State and Federal requirements.

15. The Contractor shall obtain a grading permit from the Civil Engineering Branch, Department of Planning and Permitting at 768-8219, at least two (2) weeks

State Historic Preservation Division Requirements Notes:

1. Should Historic Sites such as walls, platforms, pavements, and mounds, or remains such as artifacts, burials, concentration of charcoal or shells be encountered during construction work, work shall cease in the immediate vicinity of the find and the find shall be protected from further damage. The Contractor shall immediately contact the State Historic Preservation Division at 692-8015, which will assess the significance of the find and recommend an appropriate mitigation measure, if necessary.

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CONSTRUCTION NOTES - 2

INTERSTATE ROUTE H-1, H-2 AND H201
DESTINATION SIGN UPGRADE / REPLACEMENT, PHASE 1
Federal Aid Project NO. - NH-IM-0300(75)
Scale: As Shown Date: Sept 21, 2012

SHEET No. S2.2 OF 138 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
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Traffic Notes for Traffic Control Plan:

1. All lane closures shall occur at night. Allowable lane closure times are shown in Section 645 - Work Zone Traffic Control of the Special Provisions. No daytime lane closures are allowed at any sign location. Daytime shoulder closure will be allowed during the day between the hours of 9:00 am to 3:00 pm, Monday through Friday. All shoulders shall be clear of barricades, equipment, materials before 9:00 am and after 3:00 pm.
2. The permittee shall make minor adjustments at intersections, driveways, bridges, structures, etc, to fit field conditions.
3. Cones or delineators shall be extended to a point where they are visible to approaching traffic.
4. Traffic control devices shall be installed such that the sign or device farthest from the work area is placed first. The others shall then be placed progressively toward the work area.
5. Regulatory and warning signs within the construction zone that are in conflict with the traffic control plans shall be removed or covered.
6. Flagger and/or police officers shall be in sight of each other or in direct communications at all times.
7. When required by the issuing office, the permittee shall install a flashing arrow signal as shown on the traffic control plans.
8. All traffic lanes shall be minimum of 11 feet wide unless noted otherwise.
9. All construction warning signs shall be promptly removed or covered whenever the message is not applicable or not in use.
10. The backs of all signs used for traffic control shall be appropriately covered to preclude the display of inapplicable sign message (i.e., when signs have messages on both faces).
11. Lane closure shall be limited only to the extent of accomplishing each day's work. As soon as each day's work is completed, the permittee shall remove all traffic control devices no longer needed to permit free and safe passage of public traffic. Removal shall be in the reverse order of installation. Existing faded or obliterated pavement markings that are necessary for safe traffic flow in the construction area shall be replaced with temporary or permanent markings before opening the roadway to public traffic each day.
12. Permanent pavement markings and traffic signs shall be placed upon completion of each phase of work.
13. Buffer and taper areas on approach to any work shall be kept clear of vehicles and equipment.
14. A high level warning device (Flag Tree) shall be installed on approach to all work areas.
15. All work zone traffic control devices shall comply with the "State Wide Guideline for Work Zone Traffic Control Devices", Dated September 13, 2000.
16. The Contractor shall limit the removal/erection of sign frame to one hour and the work shall only occur between the hours of 10:00 PM and 4:00 AM. Traffic control plans for lane closure during the removal/erection are provided.

Signs and Markings Notes:

1. All traffic sign and pavement marking installations shall be done in accordance with the "Manual on Uniform Traffic Control Devices for Streets and Highways," 2003 Edition, as amended, the latest specifications from the Traffic Review Branch, Department of Planning and Permitting, and as shown on the plans.
2. Contractor shall submit material brochures for all signs and paint materials.
3. The signing and/or striping Contractor shall keep one (1) set of approved plans at the project site at all times during construction work.
4. Contractor shall paint temporary guidelines and outline of arrows, legends, and crosswalks with a Two inch (2") wide brushed line and reflective pavement markers on the day the roadway is opened to traffic.
5. Within Ten (10) days following notification of award of contract, the Contractor shall submit to a list of any signing and pavement marking material which he proposes to install. The list shall be complete as to the name of manufacturer, catalog number, and shall be supplemented with material brochures.
6. Upon final inspection of the project, the Contractor shall submit a letter of certification for all traffic signing and pavement marking materials installed.
7. Signs shall be attached to brackets with 5/16" zinc plated steel bolts, nuts and washers. Signs 48" wide or larger than 10 sq. ft. in area shall be mounted on two (2) galvanized pipe posts. The sign shall be installed with at least (1) one foot clearance from the sign edge to the curb face.
8. Raised pavement markers shall be installed in accordance with the State Department of Transportation Standards.
9. Pavement work and symbol markings shall be in accordance with the State Department of Transportation Standards.
10. The Contractor shall use thermoplastic material for all crosswalks, stop bars, pavement arrows, center lines, lane lines, arc lines channelized traffic islands, and legends.

Stockpiling Notes:

1. All stockpiling work shall be done in accordance with Chapter 14, Article 13, 14, 15 and 16, as related to stockpiling, erosion and sediment control of the revised Ordinances of Honolulu, 1990, As Amended.
2. Contractor shall not perform any stockpiling operation so as to cause falling rocks, soil or debris in any form to fall, slide or flow into adjoining properties, streets or natural watercourses. Should such violations occur, the Contractor shall immediately make all remedial actions necessary.
3. No stockpiling work shall be done on Saturdays, Sundays and Holidays at any time without prior notice to the Director, Department of Transportation, provided such stockpiling work is also in conformance with Hawaii Administrative Rules, Title 11, Chapter 46, "Community Noise Control".
4. The limits of the area to be stockpiled shall be flagged before the commencement of the stockpiling work.
5. All stockpiling operations shall be performed in conformance with the applicable provisions of the Water Quality and Water Pollution Control Standards contained in the Hawaii Administrative Rules, Title 11, Chapter 54, "Water Quality Standards" and Title 11, Chapter 55, "Water Pollution Control" and if applicable, the NPDES Permit for the project.
6. Temporary erosion control procedures shall be submitted for approval prior to application for stockpiling permit.
7. If the stockpiling work involves contaminated soil and/or hazardous materials, then all stockpiling work shall be done in conformance with applicable state and federal requirements. Contact the Solid and Hazardous Waste Branch of the State Department of Health for more information (phone number: 586-4226).
8. Adequate provisions shall be made to prevent surface waters from damaging the cut face of an excavation or the sloped surfaces of a fill. Furthermore, adequate provisions shall be made to prevent sediment-laden runoff from leaving the site.
9. Where applicable and feasible the measures to control erosion and other pollutants shall be in place before any stockpiling work is initiated. Temporary erosion controls shall not be removed before permanent erosion controls are in-place and established.
10. Non-compliance to any of the above requirements shall mean immediate suspension of all work and remedial work should commence immediately. All costs incurred shall be billed to the permitee. Furthermore, violators shall be subjected to administrative, civil and/or criminal penalties.

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CONSTRUCTION NOTES - 3

INTERSTATE ROUTE H-1, H-2 AND H201
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Scale: As Shown Date: Sept 21, 2012

SHEET No. S2.3 OF 138 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-IM-0300(75)	2012	15	138

Utility Notes:

HECO Notes:

1. The Contractor shall verify in the field the locations of the facilities and shall exercise proper care in working in the area. The Contractor shall be responsible for any damages to HECO's facilities whether shown or not shown on the plans.
2. State law requires that a worker and the longest object he or she may contact cannot come closer than a minimum radial clearance of 10 feet when working close to or under any overhead lines rated 50kv and below. For each additional 1kv above 50kv, an additional 0.4 inch shall be added to the 10-foot clearance requirement. The proceeding information on line clearance requirements is provided as a convenience and it is the contractor's responsibility to be informed of and comply with any revisions or amendments to the law.
3. Should the Contractor anticipate that his work will result in the need to encroach within the minimum required clearance at any time, the Contractor shall notify HECO at least four (4) weeks prior to the planned encroachment so that, if feasible, the necessary protections (e.g. Relocate, de-energize, or blanket HECO lines) can be put in place. Contact HECO's customer installations department at 543-7846 for assistance in identifying and safeguarding overhead power lines.
4. Any work required to relocate or modify HECO facilities shall be done by HECO, or by the Contractor under HECO's supervision. The Contractor shall be responsible for all coordination, and shall provide necessary support for HECO's work, which may include, but not to be limited to, excavation and backfill, permits and traffic control, and restoration of pavement, sidewalks and other facilities.
5. The Contractor acknowledges that HECO is not responsible for any delay or damage that may arise as a result of any conflicts discovered or identified with respect to the location or construction of HECO's electrical facilities in the field, regardless of whether the Contractor has met the requested minimum advance notices. In order to minimize any delay or impact arising from such conflicts, the Contractor shall notify HECO immediately upon discovery or identification of such conflict.
6. The Contractor shall be responsible for the protection of all HECO surface and subsurface utilities and shall be responsible for any damages to HECO's facilities as a result of his operations. The Contractor shall immediately report such damages to HECO's trouble dispatch at 548-7961. Repair work shall be done by HECO or by the Contractor under HECO's supervision. Costs for damages to HECO's facilities shall be borne by the contractor.

Construction Notes for Gas Facilities:

1. The Gas Company's gas pipelines in the project area may be plastic coated and cathodically protected. The Contractor shall be extremely careful when working near these gas pipelines.
2. Written clearances must be obtained from The Gas Company's map and records department, 515 Kamakee Street, at least five (5) working days prior to starting work near these gas pipelines.
3. Since gas line locations on field maps are approximate, the Contractor, after obtaining written clearance, shall call Hawaii One Call Center a minimum of five (5) working days before starting excavation to arrange for field location of the existing gas pipelines. The telephone number is 811 or 1-866-423-7287.
4. The Contractor shall excavate and backfill around gas pipelines in the presence of a representative of The Gas Company. All backfill within six inches of any gas pipeline shall be select cushion material approved by The Gas Company.
5. For relocation of any gas pipeline, the Contractor shall notify the Gas Company five (5) working days before starting work. The telephone number is 594-5574. The Contractor shall provide the necessary excavation and backfill, obtain traffic permits and restore pavement, sidewalks and other facilities. Any relocation of gas facilities shall be done by The Gas Company and paid for by the Contractor.
6. The Contractor shall notify The Gas Company immediately after any damage has been caused to existing gas pipelines, coatings or it's cathodic protection devices. The telephone number is 535-5933, 24 hours a day. The Contractor shall be liable for any damage to The Gas Company facilities. Repair work on such damage shall be done by The Gas Company with payments for this work to be borne by the Contractor.
7. Minimum vertical and horizontal clearance between the gas pipelines and other pipelines, conduits, ductlines, or other facilities shall be 12 inches. Adequate support and protection for gas pipelines exposed in the trench shall be provided by the Contractor and approved by The Gas Company.
8. The Contractor shall work in an expeditious manner in order to keep the uncovered gas pipelines exposed for as short a period of time as possible.

Hawaiian Telcom General Construction / Design Notes :

1. The Contractor shall procure and pay for all licenses and permits and shall give all notices necessary and incident to the due and lawful prosecution of the work.
2. The Contractor shall obtain an excavation permit and toning request from Hawaiian Telcom's Excavation Permit Section, located at 1177 Bishop Street, two weeks prior to the start of construction. Hours of business are 8:00 a.m. to 11:00 a.m. and 12:00 p.m. to 3:00 p.m. Monday through Friday, except holidays.
3. Prior to the excavation of the ductline, the contractor shall request Hawaiian Telcom to locate existing ductline wherever required. For underground cable locating and marking, five (5) working days advance notice is required. Three (3) working days advance notice is required for any inspection by a designated representative.
4. The locations of existing utilities are approximate only. The Contractor shall exercise extreme caution and shall maintain proper clearances whenever construction crosses or is in close proximity of Hawaiian Telcom facilities. The Contractor shall verify their locations and shall be liable for any damages to Hawaiian Telcom facilities. Any damages shall be reported immediately to Hawaiian Telcom's repair section at #611 (24 hours) or to the excavation permit section at 546-7746 (normal working hours, Monday through Friday, except holidays). As a result of his operations, adjustments to the new ductline alignment, if required, shall be made to provide the required clearances.
5. The Contractor shall take necessary precaution not to damage existing cables or ducts. A Hawaiian Telcom inspector or designated representative is required to be at any job site whenever there will be a breakage into or entry into any structure that contain Hawaiian Telcom facilities. Temporary cable and duct supports shall be provided wherever necessary.
6. The Contractor shall notify Hawaiian Telcom's inspector or designated representative a minimum of 72 hours prior to excavation, bracing, or backfilling of Hawaiian Telcom's structures or facilities.
7. All applicable construction work shall be done in accordance with the "Hawaiian Telcom Standard Specifications for Placing Telephone Systems" dated January 2007, all subsequent amendments and additions, and all other pertinent standards for telephone construction. Contractor shall familiarize his personnel by obtaining applicable specifications.
8. When excavation is adjacent to or beneath Hawaiian Telcom's existing structures or facilities, the contractor shall:
   a) Sheet and/or brace the excavation to prevent slides, cave-ins, or settlements to ensure no movement to Hawaiian Telcom's structures or facilities.
   b) Protect existing structures and/or facilities with beams, struts, or underpinning while excavating beneath them to ensure no movement to Hawaiian Telcom's structures or facilities.
9. The Contractor shall brace all poles or light standards near the new ductline, manhole, or handhole during his operations.
10. The Contractor shall saw-cut A.C. pavement and concrete gutter wherever new manholes, handholes, or ductlines are to be placed and shall restore to existing condition or better.
11. The Contractor shall comply with the policy adopted by the Department of Planning and Permitting, City and County of Honolulu, concerning the replacement of concrete sidewalks after excavation work.
12. The underground pipes, cables, or ductlines known to exist by the engineer from his search of records are indicated on the plans. The Contractor shall verify the locations and depths of the facilities and exercise proper care in excavating in the area. Wherever connections of new utilities to existing utilities are shown on the plans, the Contractor shall expose the existing lines at the proposed connections to verify their locations and depths prior to excavation for the new lines.
13. Wherever connections to existing utilities are shown on the plans, the contractor shall expose the existing lines prior to excavation of the main trenches to verify their locations and depths.
14. The Contractor, at his own expense, shall keep the project and surrounding area free from dust nuisance. The cost for supplementary measures, which will be required by the City and County, shall be borne by the Contractor.
15. The Contractor shall pump all manholes dry during final inspection.
16. The Contractor shall notify Hawaiian Telecom inspector 24 hours prior to the pouring of concrete or backfilling.
17. When connecting to manhole walls, all existing reinforcing bars shall be left intact. Ducts shall be adjusted in the field in order to clear reinforcing.
18. The Contractor shall be responsible for laying out all required lines and grades and shall preserve all bench marks and working points necessary to layout the work correctly. The new ductline shall be adjusted by the Contractor to suit the existing conditions and the details as described in the plans.
19. Minimum concrete strength shall be:
    For ductline 2500 psi at 28 days
    For manhole 3000 psi at 28 days or as specified in design notes
20. Bends in the duct alignment, due to changes in grade shall have a minimum radius of 25 feet. All 90 degree C-bends at a pole or at the building floor slab penetration, shall have a bend radius of ten times the diameter of the duct or greater.
21. After ductline has been completed, a mandrel with a square front not less than 12" long and having a diameter of 1/4" less than the inside diameter of the duct, shall be pulled through each duct after which a brush with stiff bristles shall be pulled through to make certain that no particles of earth, sand, or gravel have been left inside. Ducts shall be completely dry and clean.
22. All ducts and conduits shall have an 1800# polyester mule-tape (NEPTCO. WP 1800P, Hawaiian Telcom Material Code No. 571154) installed throughout its entire length. All ducts shall be capped to prevent entry of foreign material during construction and at the completion of installation.

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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

UTILITY NOTES - 1

INTERSTATE ROUTE H-1, H-2 AND H201
DESTINATION SIGN UPGRADE / REPLACEMENT, PHASE 1
Federal Aid Project NO. - NH-IM-0300(75)
Scale: As Shown Date: Sept 21, 2012

SHEET No. S2.4 OF 138 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-IM-0300(75)	2012	16	138

Water Notes:

1. Unless otherwise specified, all materials and construction of water system facilities and appurtenances shall be in accordance with the City and County of Honolulu Board of Water Supply's "Water System Standards", Dated 2002, the "Water System External Corrosion Control Standards", Volume 3, Dated 1991, and all subsequent amendments and additions.

2. All plans approved by the Board of Water Supply are based solely on the adequacy of the water supply. All other features of the water system, such as lines, grades, fittings, drainage, etc., and other features of improvements shall not be the responsibility of the Board of Water Supply.

3. The Contractor shall notify BWS Capital Projects Division, Construction Section in writing one week prior to commencing work on the water system.

4. Re-approval shall be required if this project is not under construction within a period of two years.

5. The existence and location of underground utilities and structures as shown on the plans are from the latest available data but is not guaranteed as to the accuracy or the encountering of other obstacles during the course of work. The Contractor shall be responsible and pay for all damages to existing utilities. The Contractor shall not assume that where no utilities are shown, that none exist.

6. The Contractor shall be responsible for the protection of all water lines during construction. The Contractor shall be especially careful when excavating behind water lines, tees, and bends wherever there is a possibility of water line movement due to the removal of the supporting earth beyond existing reaction blocks. The Contractor shall take whatever measure necessary to protect the water lines, such as constructing special reaction blocks (with BWS approval) and/or modifying his construction method.

7. Prior to any excavating, the Contractor shall verify in the field the location of existing water mains and appurtenances.

8. Any adjustments to the existing water system required during construction to to meet requirements of the Board of Water Supply Standards, whether shown on the plans of not, shall be done by the Contractor at no cost to the board.

9. The Contractor shall have existing water mains toned before construction of work in vicinity of water mains, call the Investigation Section at 748-5381 for toning services. Guardrail post locations are to be kept to a minimum clear distance of 18 inches to any water lines and meter boxes. No post driving will be allowed when post is to be installed closer than 3 feet from water main. Excavated areas shall be restored to their original conditions.

10. The Contractor shall verify all existing service lateral locations whether shown or not shown on the plans prior to commencing with any of the work and shall not assume that where no services are shown none exists.

Sewer Notes:

1. The underground pipes, cables or ductlines known to exist by the engineer from his research of records are indicated on the plans. The Contractor shall verify the location and depth of the facilities, including and affecting sewerlines, in the presence of the wastewater inspector and exercise proper care in excavating the area. The Contractor shall be responsible and shall pay for all damaged utilities.

2. The Contractor shall excavate a test pit at the location of the new west abutment to locate the existing 8" sewer force main. The sewerline shall be located and shored, if necessary, prior to drilling for shafts.

3. The Contractor shall notify the inspection section, wastewater branch, DPP, at 768-8197 to arrange for inspection services seven (7) days prior to commencement of the foundation excavation and submit 4 sets of approved construction plans. The Contractor shall pay for all inspection costs.

4. The Contractor shall be responsible for maintaining continuous sewer service to all affected areas during construction.

5. The Contractor shall be responsible for any sewage spills caused during construction. The Contractor shall notify the state department of health and utilize appropriate sampling and analyzing procedures. The Contractor shall be responsible for all public notifications and press releases.

Free Service For Locating Underground Utilities

1. A free service is available to Contractors for locating underground utilities. Service is provided by Underground Service Alert North, at toll free telephone no. 1-800-227-2600. Call Underground Service Alert North at least two days prior to the start of any excavation work.

Glenn S. Hirayama 04/02/2012

for Manager and Chief Engineer, BWS — Date

(For Work Affecting BWS Facilities in City/State R/W and BWS Easements Only)

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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

UTILITY NOTES - 2

H-1 AND H-2 UPGRADE/REPLACEMENT OF DESTINATION SIGNS
Federal Aid Project NO. - NH-IM-0300(75)

Scale: As Shown Date: Feb. 7, 2012

SHEET No. S2.5 OF 138 SHEETS

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FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-IM-0300(75)	2012	17	138

WATER POLLUTION AND EROSION CONTROL NOTES:

A. GENERAL:

1. See Section 209 - Water Pollution and Erosion Control. Section 209 describes but is not limited to: submittal requirements; scheduling of a water pollution and erosion control conference with the Engineer; construction requirements; method of measurement; and basis of payment.

2. Effective October 1, 2008, follow the guidelines in the "Construction Best Management Practices Field Manual", dated January 2008 in developing, installing and maintaining the Best Management Practices (BMP) for the project.

3. The Engineer may assess liquidated damages of up to $27,500 for non-compliance of each BMP requirement and each requirement stated in Section 209, for every day of non-compliance. There is no maximum limit on the amount assessed per day.

4. The Engineer will deduct the cost from the progress payment for all citations received by the Department for non-compliance, or the Contractor shall reimburse the State for the full amount of the outstanding cost incurred by the State.

5. For projects that require an NPDES Permit from the Department of Health, install a rain gage prior to any field work including the installation of any site-specific best management practices. The rain gage shall have a tolerance of at least 0.05 inches of rainfall, and have an opening of at least one-inch in diameter. Install the rain gage on the project site in an area that will not deter rainfall from entering the gage opening. The rain gage installation shall be stable and plumbed. Do not begin field work until the rain gage is installed and site-specific best management practices are in-place.

B. WASTE DISPOSAL:

1. Waste Materials Collect and store all waste materials in a securely lidded metal dumpster. The dumpster shall meet all local and State solid waste management regulations. Deposit all trash and construction debris from the site in the dumpster. Empty the dumpster a minimum of twice per week or as often as is deemed necessary. Do not bury construction waste materials onsite. The Contractor's supervisory personnel shall be instructed regarding the correct procedure for waste disposal. Post notices stating these practices in the office trailer and the Contractor shall be responsible for seeing that these procedures are followed.

2. Hazardous Waste: Dispose all hazardous waste materials in the manner specified by local or State regulations and by the manufacturer. The Contractor's site personnel shall be instructed in these practices and shall be responsible for seeing that the practices are followed.

3. Sanitary Waste: Collect all sanitary waste from the portable units a minimum of once per week, or as required.

C. EROSION AND SEDIMENT CONTROL INSPECTION AND MAINTENANCE PRACTICES:

1. Inspect all control measures at least once each week and within 24 hours of any rainfall event of 0.5 inches or greater within a 24 hour period.

2. Maintain all measures in good working order. If repair is necessary, it shall be initiated within 24 hours after the inspection.

3. Remove built-up sediment from silt fence when it has reached one-third the height of the fence.

4. Inspect silt screen or fence for depth of sediment, tears, to verify that the fabric is securely attached to the fence posts or concrete slab and to verify that the fence posts are firmly in the ground. Inspect and verify the bottom of the silt screen is buried a minimum of 6 inches below the existing ground.

5. Inspect temporary and permanent seeding and planting for bare spots, washouts and healthy growth.

6. Make a maintenance inspection report promptly after each inspection. Submit a copy to the Engineer no later than one week from the date of the inspection.

7. Include designated Concrete Washout Area(s) in the Water Pollution, Dust, and Erosion Control submittals.

8. Submit the name of a specific individual designated responsible for inspections, maintenance and repair activities and filling out the inspection and maintenance report.

9. Personnel selected for the inspection and maintenance responsibilities shall receive training from the Contractor. They shall be trained in all the inspection and maintenance practices necessary for keeping the erosion and sediment controls used onsite in good working order.

D. GOOD HOUSEKEEPING BEST MANAGEMENT PRACTICES:

1. Materials Pollution Prevention Plan
   a. Applicable materials or substances listed below are expected to be present onsite during construction. Other materials and substances not listed below shall be added to the inventory.

Concrete	Fertilizers
Detergents	Petroleum Based Products
Paints (enamel and latex)	Cleaning Solvents
Metal Studs	Wood
Tar	Masonry Block

   b. Use Material Management Practices to reduce the risk of spills or other accidental exposure of materials and substances to storm water runoff. Make an effort to store only enough product as is required to do the job.
   c. Store all materials stored onsite in a neat, orderly manner in their appropriate containers and if possible under a roof or other enclosure.
   d. Keep products in their original containers with the original manufacturer's label.
   e. Do not mix substances with one another unless recommended by the manufacturer.
   f. Whenever possible, use a product up completely before disposing of the container.
   g. Follow manufacturer's recommendations for proper use and disposal.
   h. Conduct a daily inspection to ensure proper use and disposal of materials onsite.

2. Hazardous Material Pollution Prevention Plan
   a. Keep products in original containers unless they are not resealable.
   b. Retain original labels and material safety data sheets (MSDS).
   c. Dispose of surplus products according to manufacturers' instructions and local and State regulations.

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HIGHWAYS DIVISION

WATER POLLUTION AND EROSION CONTROL NOTES - 1

INTERSTATE ROUTE H-1, H-2 AND H201
DESTINATION SIGN UPGRADE / REPLACEMENT, PHASE 1
Federal Aid Project NO. - NH-IM-0300(75)

Scale: As Shown Date: Sept 21, 2012

SHEET No. S2.6 OF 138 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-IM-0300(75)	2012	18	138

WATER POLLUTION AND EROSION CONTROL NOTES: -Cont.

D. GOOD HOUSEKEEPING BEST MANAGEMENT PRACTICES: -Cont.

3. Onsite and Offsite Product Specific Plan

The following product specific practices shall be followed onsite:

a. Petroleum Based Products: Monitor all onsite vehicles for leaks and perform regular preventive maintenance to reduce the chance of leakage. Store petroleum products in tightly sealed containers which are clearly labeled. Apply asphalt substances used onsite according to the manufacturer's recommendation.

b. Fertilizers: Apply fertilizers used only in the minimum amounts recommended by the manufacturer. Once applied, work fertilizer into the soil to limit exposure to storm water. Storage shall be in a covered shed. Transfer the contents of any partially used bags of fertilizer to a sealable plastic bin to avoid spills.

c. Paints: Seal and store all containers when not required for use. Do not discharge excess paint to the highway drainage system. Dispose properly according to manufacturers' instructions or State and local regulations.

d. Concrete Trucks: Wash out or discharge concrete truck drum wash water only at a designated site. Do not discharge water in the highway drainage system or waters of the United States. Contact Drinking Water Branch, Department of Health at 586-4258 to receive permission to designate a disposal site. Clean disposal site as required or as requested by the Owner's representative

4. Spill Control Plan

a. Post a spill prevention plan to include measures to prevent and clean up each spill.

b. The Contractor shall be the spill prevention and cleanup coordinator. Designate at least three site personnel who shall receive spill prevention and cleanup training. These individuals shall each become responsible for a particular phase of prevention and cleanup. Post the names of responsible spill personnel in the material storage area and in the office trailer onsite.

c. Clearly post manufacturers' recommended methods for spill cleanup. Make site personnel aware of the procedures and the location of the information and cleanup supplies.

d. Keep materials and equipment necessary for spill cleanup in the material storage area onsite.

e. Clean up all spills immediately after discovery.

f. Keep the spill area well ventilated. Personnel shall wear appropriate protective clothing to prevent injury from contact with a hazardous substance.

g. Report spills of toxic hazardous material to the appropriate State or local government agency, regardless of the size.

E. PERMIT REQUIREMENTS:

1. If a National Pollutant Discharge Elimination System (NPDES) Permit is required for Construction Activities of one acre or more, submit to the Engineer six sets of the Water Pollution and Erosion Control Submittals as detailed in Subsection 209.03 of the specifications.

2. If an NPDES Permit for Construction Dewatering is required, the Contractor shall be responsible to obtain the Permit from the Department of Health, Clean Water Branch.

3. Comply with all applicable State and Federal Permit conditions.

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WATER POLLUTION AND EROSION CONTROL NOTES - 2

INTERSTATE ROUTE H-1, H-2 AND H201
DESTINATION SIGN UPGRADE / REPLACEMENT, PHASE 1
Federal Aid Project NO. - NH-IM-0300(75)
Scale: As Shown Date: Sept 21, 2012

SHEET No. S2.7 OF 138 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-IM-0300(75)	2012	19	138

WATER POLLUTION AND EROSION CONTROL NOTES: -Cont.

F. Silt Fence Notes:

1. The height of the silt fences shall not exceed 36 inches (higher fences may be impound volumes of water sufficient to cause failure of the structure).

2. The filter fabric shall be purchased in a continuous roll, cut to the length of the barrier to avoid the use of joints. When joints are necessary, filter cloth shall be spliced together only at a support post, with a minimum 6-inch overlap and securely sealed.

3. Posts shall be spaced a maximum 10 feet apart and driven securely into the ground (minimum of 18 inches). When extra strength fabric is used without the wire support fence, post spacing shall not exceed 6 feet.

4. A trench shall be excavated approximately 6 inches wide and 6 inches deep along the line of posts and upslope from the barrier.

5. When standard strength filter fabric is used, a wire mesh support fence shall be fastened securely to the upslope side of the posts using heavy duty wire staples at least 1 inch long, tiewires or hog rings. The wire shall extend into the trench a minimum of 2 inches and shall not extend more than 36 inches above the original ground surface.

6. The standard strength filter fabric shall be stapled or wired to the fence, and 8 inches of the fabric shall be extended into the trench. The fabric shall not extend more than 36 inches above the original ground surface. Filter fabric shall not be stapled to existing trees.

7. When extra strength filter fabric and closer spacing are used, the wire mesh support fence may be eliminated. In such a case, the filter fabric is stapled or wired directly to the posts with all other provisions of item No. 6 applying.

8. The trench shall be backfilled and the soil compacted over the filter fabric.

9. Silt fences shall be removed when they have served their useful purpose, but not before the upslope area has been permanently stabilized.

10. Filter fabric shall be Mifari silt fence, Amoco silt stop (width 3'-6") #1380 or approved equal.

G. Silt Fence Maintenance:

1. Silt fences shall be inspected immediately after each rainfall and at least daily during the prolonged rainfall. Any required repairs shall be made immediately.

2. Should the fabric on a silt fence decompose or become ineffective prior to the end of the expected, usable life and the barrier still be necessary, the fabric shall be replaced promptly.

3. Sediment deposits should be removed after each storm event. They must be removed when deposits reach approximately one-half the height of the barrier.

4. Any sediment remaining in place after the silt fence or filter barrier is no longer required shall be dressed to conform with the existing grade, prepared and seeded.

H. BMP Notes:

1. The Contractor shall prepare and submit a site specific BMP for each location for review and approval.

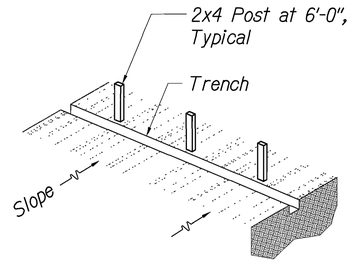
2. Construct temporary silt fence as shown on the plans and maintain throughout project duration. See detail this sheet.

3. Remove BMP measures and clean site upon stabilization of area and completion of project.

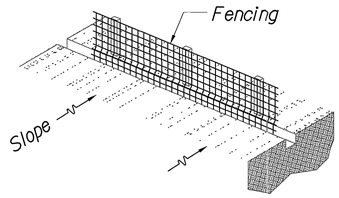
4. Silt fences to be adjusted as necessary after the demolition of the existing bridge decks.

I. Groundwater in Drilled Shaft Holes:

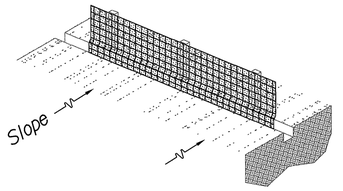
1. Ground water removed from the drilled shafts shall be temporarily stored in a retention basin or other appropriate containers. The water shall be allowed to seep into the soil, or shall be removed from the site in a manner in accordance with all appropriate regulatory agencies.



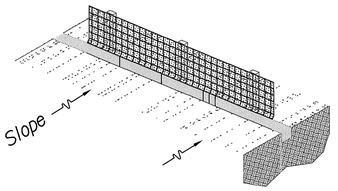
1. Set posts and excavate a 6"x6" trench upslope along the line of posts.



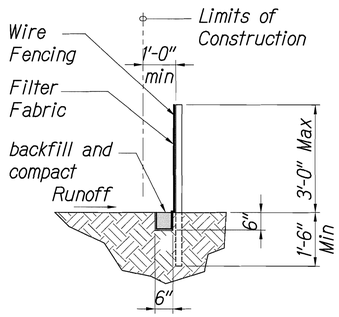
2. Staple wire fencing to the posts.



3. Attach the filter fabric to the wire fence and extend it into the trench.



4. Attach the filter fabric to the wire



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WATER POLLUTION AND EROSION CONTROL NOTES - 3

INTERSTATE ROUTE H-1, H-2 AND H201
DESTINATION SIGN UPGRADE / REPLACEMENT, PHASE 1
Federal Aid Project NO. - NH-IM-0300(75)

Scale: As Shown Date: Sept 21, 2012

SHEET No. S2.8 OF 138 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-IM-0300(75)	2012	20	138

STRUCTURAL NOTES:

1. General:
   - A. Workmanship and materials shall conform to the AASHTO LRFD Bridge Design Specification, 5th Edition, 2010 including its subsequent interim specifications, AASHTO A Policy on Geometric Design of Highway and Streets 2004 and subsequent revisions, AASHTO Roadside Design Guide, AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaries and Traffic Signals, 5th Edition 2009 and subsequent revisions, Hawaii Department of Transportation, Highways Division, Design Branch, Design Criteria for Bridges and Structures, dated October 20, 2010, Manual on Uniform Traffic Control Devices 2004 and the Hawaii Standard Specifications for Bridge and Road Construction, 2005 as modified by the State of Hawaii Department of Transportation.
   - B. The Contractor shall compare the Electrical and Structural drawings with each other and report in writing to the Engineer, inconsistencies or omissions.
   - C. The Contractor shall take field measurements and verify field conditions and shall compare such field measurements and conditions with the drawings before commencing the work. Report in writing to the Engineer all inconsistencies or omissions.
   - D. The Contractor shall be responsible for methods of construction, workmanship and job safety. The Contractor shall provide temporary shoring and bracing as required for stability of structural members and systems.
   - E. Details noted as typical on structural drawings shall apply in all conditions unless specifically shown or noted otherwise.
   - F. The Contractor shall be responsible for coordinating the work of all trades.
   - G. The Contractor shall be responsible for protection of the adjacent properties, retaining walls, structures, streets, and utilities during the construction period. Any damage or deteriorated property shall be restored to the same or better condition at no cost to the State.
   - H. All sign support posts shall be outside of the clear zone or shielded by an appropriate traffic barrier system. The traffic barrier system shall be submitted to the Engineer for his approval.

2. Design Criteria:
   - A. Basic Wind Speed ——— 105 MPH
   - B. Recurrence Interval ——— 100 Years
   - C. Fatigue Category ——— I
   - D. Maximum Posted Speed ——— 60 MPH
   - E. Galloping force is considered for cantilevered sign structures.
   - F. Sign structures are designed for a truck induced gust based on a truck speed of 20 MPH over the maximum posted speed.
   - G. Natural wind gusts are considered for all sign structures.
   - H. Foundation Design:

     Spread Footings (Strength Condition State):
     - a. Sign H1WB-420
       - Bearing Capacity ——— 3,000 psf
       - Coefficient of Friction ——— 0.4
       - Passive Earth Pressure ——— 300 pcf
     - b. Sign H1WBR-452
       - Bearing Capacity ——— 2,500 psf
       - Coefficient of Friction ——— 0.4
       - Passive Earth Pressure ——— 300 pcf

     Drilled Shaft (Strength Condition State):
     - a. Sign H1WB-417
       - Bearing Capacity ——— 6,000 psf
       - Frictional Resistance ——— 2,000 psf (Weathered Basalt)
         1,000 psf (Overlaying Soil)
       - Passive Earth Pressure ——— 500 pcf (Weathered Basalt)
         300 pcf (Overlying Soil))

3. Foundation:
   - A. Except for the special design signs listed in item 3.B, all the other sign foundations are determined according to the State of Hawaii Standard Plan (2007), with appropriate assumption based on field investigation. For the locations with rock outcropping, rock condition is assumed; for the rest of signs, stiff clay is assumed. Field adjustment is allowed per DOT approval if conditions otherwise are encountered during the excavation.
   - C1 B. Special design for the foundation of H1WB-417 and H1WB-420 is based on Foundation Investigation H-1 Freeway Sign Project Various Locations, Oahu, Hawaii by Hirata & Associates, Inc., dated September 28, 2011.
   - C. Contractor shall provide for de-watering of excavation from either surface water, ground water or seepage. NPDES permit required for discharging water into state waters or City and County of Honolulu sewer or stormwater drainage systems.
   - D. Contractor shall provide for design and installation of all cribbing, sheeting, and shoring necessary for personnel safety and to preserve excavations and earth banks, and adjacent structures and property for damage.
   - E. Excavation boundaries and grade elevations for footing shall be approved by the Engineer prior to placing the concrete and reinforcing.
   - F. Unless noted otherwise, backfill shall be Type A structure backfill in accordance to Section 703.20, the 2005 State of Hawaii Standard Specifications. Backfill shall be placed in uniform lifts of no more than 8 inches in loose thickness and uniformly compacted to at least 95 percent relative compaction.

4. Concrete:
   - A. Concrete shall be regular weight concrete and shall have the following minimum 28-day compressive strengths:
     - a. Drilled Shaft Foundation ——— 4,500 psi
     - b. All other concrete ——— 4,500 psi

     All concrete shall have maximum w/c ratio of 0.45.
   - B. All inserts, anchor bolts, plates, etc. embedded in concrete shall be hot-dip galvanized unless otherwise noted.
   - C. Conduits, pipes, and sleeves passing through a wall not conforming to typical details shall be located and submitted to the Engineer for approval.
   - D. Non-shrink grouts shall be a premixed compound consisting of non-staining non-metallic aggregate, cement, water reducing and plasticizing agents capable of developing minimum compressive strength of 4,000 psi in 3 days and 7,000 psi in 28 days.
   - E. Unless otherwise noted, chamfer all concrete edges 3/4".
   - F. Concrete delivery tickets shall record all free water in the mix: at batching by plant, for consistency by driver, and any additional request by Contractor if permitted by the mix design.
   - G. Reinforcing bars, anchor bolts, inserts and other items to be cast in the concrete shall be secured in position prior to placement of concrete.

5. Reinforcing Steel:
   - A. Reinforcing steel shall be deformed bars conforming to ASTM A615, Grade 60.
   - B. Clear concrete coverage for reinforcing bars shall be as follows, unless otherwise noted:
     - a. Drilled Shaft Foundation ——— 3"
     - b. Bridge Mounted Sign Post Support ——— 3"
     - b. All Others ——— 2"
   - C. Splices:
     - a. Reinforcing steel shall be spliced only where indicated on plans. Provide lap splice length per typical details and schedule, Sheet S2.11 unless otherwise noted.
   - D. Bar bends and hook shall be "standard hooks" in accordance with Typical Details, Sheet S2.11.

6. Existing Concrete
   - A. The Contractor shall review as-built drawings prior to performing the work. These drawings are available at the Department of Transportation, Highways Division. Verify location of existing reinforcement with an electromagnetic rebar locator before drilling holes into existing concrete. Holes may need to be adjusted to avoid existing reinforcement.
   - B. Contractor shall not damage, cut or drill through existing reinforcing that is to remain and as noted on plans. If reinforcing is damaged, the Contractor shall inform the Engineer immediately and shall be responsible for repairing the damage at Contractor's sole expense and to the satisfaction of the Engineer.
   - C. All holes which need to be abandoned due to the presence of reinforcing, shall be filled with non-shrink grout.
   - D. The Contractor will not be paid for the holes which need to be filled and abandoned. The Engineer shall review and approve all relocated holes prior to installing dowels.
   - E. All drilled holes for anchors shall be brushed to remove loose material then cleaned with compressed air, prior to injecting the epoxy.
   - F. Anchoring adhesive shall be a two-component 100% solids epoxy based system supplied in manufacturer's standard side-by-side cartridge and dispensed through a static-mixing nozzle supplied by the manufacturer. Epoxy shall meet the minimum requirements of ASTM C-881 specification for Type IV, Grade 3, Class C and must develop a minimum of 12,650 PSI compressive yield strength after 7 day cure. Epoxy must have a heat deflection temperature of a minimum 136°F (58°C). Epoxy shall be formulated for optimum performance in both cracked and uncracked concrete (Simpson Set-XP or approved equal).

06/16/14	C1 Revised Design of the Sign H1WBR-452
DATE	REVISION

KEN KAZUO HAYASHIDA
LICENSED PROFESSIONAL ENGINEER
No. 6818-S
HAWAII, U.S.A.

EXPIRATION DATE OF THE LICENSE 4/30/2014
THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

STRUCTURAL NOTES - 1

INTERSTATE ROUTE H-1, H-2 AND H201
DESTINATION SIGN UPGRADE / REPLACEMENT, PHASE 1
Federal Aid Project NO. - NH-IM-0300(75)
Scale: As Shown Date: Sept 21, 2012

SHEET No. S2.9 OF 138 SHEETS

C.O. 20

I:\drawings\H1-1213 2239 Change Order 34-20140410-16 2239_CHANGE ORDER_S2.dwg, 16, 6/16/2014 3:47:03 PM, tamanaha

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-IM-0300(75)	2012	21	138

6. Structural Steel:
   A. Fabrication and erection of structural steel shall conform to the American Institute of Steel Construction, Manual of Steel Construction, 13th Edition. See Section 512 - Sign Structural Steel Construction for the qualifications for Fabricator and Erector.
   B. Structural steel shall conform to ASTM A36, unless otherwise noted.
   C. Steel wide flange sections shall conform to ASTM A992. Steel tubes shall conform to ASTM A500, Grade B.
   D. All steel members shall be hot-dipped galvanized after fabrication.
   E. All connection bolts shall be ASTM 325 bolts and anchor bolts shall be ASTM F1554, Grade 105 bolts. All bolts shall be hot-dipped galvanized.
   F. Welds and welding procedures shall conform to the structural welding code AWS D1.1 of the American Welding Society.
   G. Welding shall be performed by welders that are prequalified for applicable welding procedures.
   H. Welding electrodes shall be E70XX.
   I. Unless otherwise noted all truss members shall be welded all around at joints with 3/16" fillet welds.
   J. Aluminum members and surfaces in contact with structural steel shall be isolated with neoprene material as approved by the Engineer. The Contractor shall submit isolation product for review and approval.
   K. The contractor shall use templates while installing the anchor bolts. Anchor bolts shall be vertical.
   L. Plumbness of Anchor Bolts: Anchor bolts shall be installed with misalignment of less than 1:40 from vertical. After installation, firm contact shall exist between the anchor bolt nuts, washers, and base plate on any anchor bolt installed in a misaligned position. All anchor bolts not within tolerance shall be removed and replaced at no cost to the State. Any anchor bolts that are not plumb shall be removed and new anchor bolts cast into the concrete foundation. the design of the new anchor bolts and modified concrete foundation shall be provided by the contractor to the engineer for review

Painting Notes:
1. Contractor shall shop coat all members. Field coating shall consist of touch up only.
2. The touch up paint shall consist of the following:
   a. prepare surface per SSPC-SP1, solvent cleaning.
   b. apply first and second coat according to paint schedule
3. Color for top coat shall be dark green, as proposed by the contractor and approved by the Engineer. Intermediate coat shall have contrasting light color. Finish for top coat shall not be gloss or high gloss.
4. Multiple coats may be required to obtain minimum dry film thickness (DFT).
5. All hot-dip galvanized coating that is damaged shall be repaired. The repairs shall consist of the following:
   a. Prepare surface per SSPC-SP1, solvent cleaning.
   b. Apply (2) coats of cold applied, galvanizing compound containing 95% metallic zinc content by weight in dry film and 52% solids content by volume.
   c. Application rate shall be 1.5 mils dry film thickness per coat.
   d. Rust scale shall be cleaned per SSPC-SP3.
   e. The coating shall be applied at sufficient wet film thickness to achieve a minimum dry film.
   f. The coating shall be well stirred before use so that it is completely homogeneous during application.
   g. Minimum dry film build is 3 mils, using manufacturer's recoat time directions.
   h. After galvanizing repairs are complete, apply touch-up paint system according to paint schedule.
6. Cost of galvanizing and painting is incidental to the structural steel.
7. The preparation of newly-galvanized steel surfaces shall conform to ASTM D6386. If the paint is to be applied beyond 48 hours after galvanizing the surface preparation of the galvanized surface shall be according to the paint schedule. All galvanized surfaces shall be lightly abraded and the surfaces roughened before following surface preparation instructions in paint schedule.

PAINT SCHEDULE *

SPECIAL COATING SCHEDULE FOR ZINC COATED SIGN STRUCTURES

	OPTION 1	OPTION 2	OPTION 3	OPTION 4
PREPARATION:	Carboline thinner #2 or surface cleaner #3, per SSPC-SP1, Apply Rustbond Penetrating Sealer.	Solvent clean per SSPC-SP1, and as recommended by the manufacturer	Solvent clean per SSPC-SP1, and as recommended by the manufacturer	Solvent clean per SSPC- SP1. Apply Galvanized Zinc Treatment (Acid Etching)
1ST COAT:	Carboline Carboguard 890 epoxy DFT 5 mil (min) WFT 7 mil (min)	Tnemec High-Build Epoxoline II Series N69 DFT 5 mil (min) WFT 7 mil (min)	Sherwin Williams Tile Clad High Solids B62 Series DFT 4 mil (min) WFT 7 mil (min)	Ameron Amercoat 385 epoxy DFT 5 mil (min) WFT 8 mil (min)
RECOATING TIME:	8 HRS (min) 2 Days (max)	10 HRS (min) 2 Days (max)	8 HRS (min) 2 Days (max)	8 HRS (min) 2 Days (max)
TOP COAT:	Carboline Carbothane 133HB Alyphatic polyurethane DFT 5 mil (min) WFT 7 mil (max)	Tnemec Endura-Shield Series 75 DFT 4 mil (min) WFT 7 mil (min)	Sherwin Williams Corothane II B65 W200 Series/B60V2 DFT 4 mil (min) WFT 7 mil (min)	Ameron Amercoat 450 SA Polyurethane DFT 4 mil WFT 7 mil
TOP COAT COLOR:	Dark Green, submit color chips for approval.			

* For paint schedule, use the brand names listed, or equal as approved by the Engineer.

KEN KAZUO HAYASHIDA LICENSED PROFESSIONAL ENGINEER No. 6818-S HAWAII, U.S.A.

EXPIRATION DATE OF THE LICENSE 4/30/2014
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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

STRUCTURAL NOTES - 2

INTERSTATE ROUTE H-1, H-2 AND H201
DESTINATION SIGN UPGRADE / REPLACEMENT, PHASE 1
Federal Aid Project NO. - NH-IM-0300(75)
Scale: As Shown Date: Sept 21, 2012

SHEET No. S2.10 OF 138 SHEETS

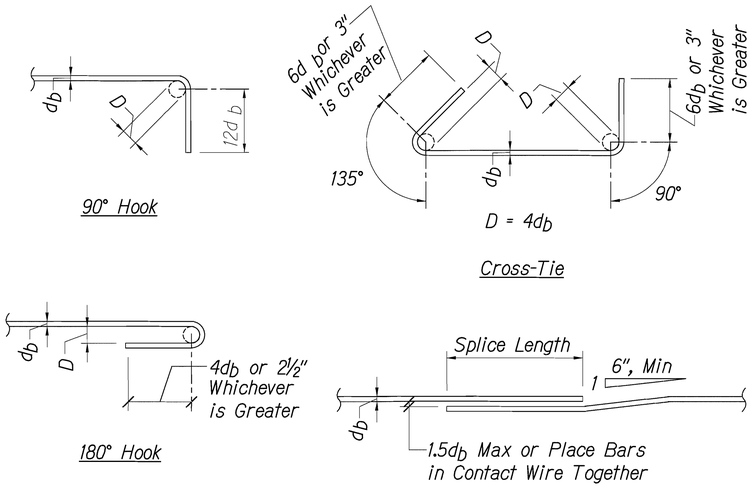
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-IM-0300(75)	2012	22	138

MINIMUM SPLICE AND EMBEDMENT LENGTHS

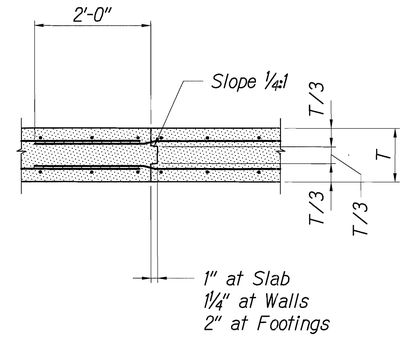
Bar Size	Concrete Strength = 4,500 PSI				
	Lap Splice		Embedment		
			Straight		With Standard 90° Hook
	Other Bars	Top Bar	Other Bars	Top Bar	
#3, #4	21"	29"	12"	17"	10"
#5	26"	36"	15"	21"	12"
#6	31"	43"	18"	26"	16"
#7	39"	54"	23"	32"	18"
#8	51"	71"	30"	42"	20"
#9	64"	90"	38"	53"	22"
#10	81"	114"	48"	67"	26"
#11	100"	140"	59"	82"	28"

Note:
"Top Bars" are Horizontal Bars with 12" or more of Concrete cast below.

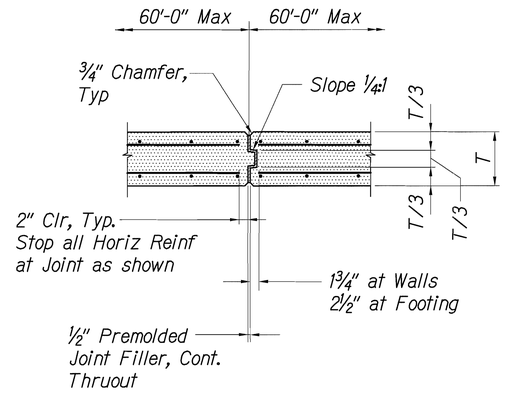
TYPICAL REBAR
SPLICE AND EMBEDMENT LENGTH SCHEDULE — 1 — S2.11 | S2.11
No Scale



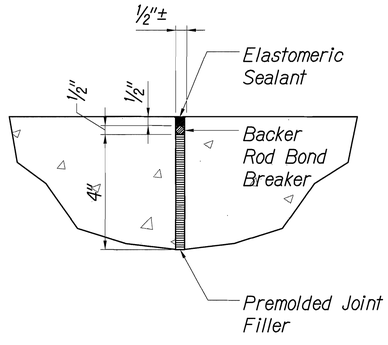
STANDARD HOOKS AND CROSS-TIE DETAIL — 2 — S2.11 | S2.11
Not to Scale



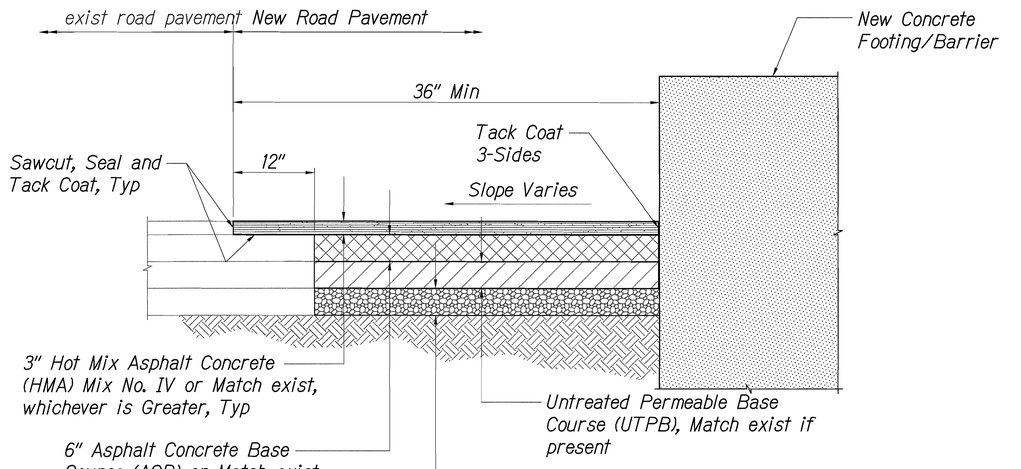
TYPICAL REBAR
CONSTRUCTION JOINT DETAIL — 3 — S2.11 | S2.11
No Scale



TYPICAL REBAR
EXPANSION JOINT DETAIL — 4 — S2.11 | S2.11
No Scale



EXPANSION JOINT DETAIL — 5 — S5.10, S5.12 | S2.11
No Scale



TYPICAL
PAVEMENT REPAIR DETAIL — 6 — S4.10, S4.13, S4.15, S5.12 | S2.11
No Scale

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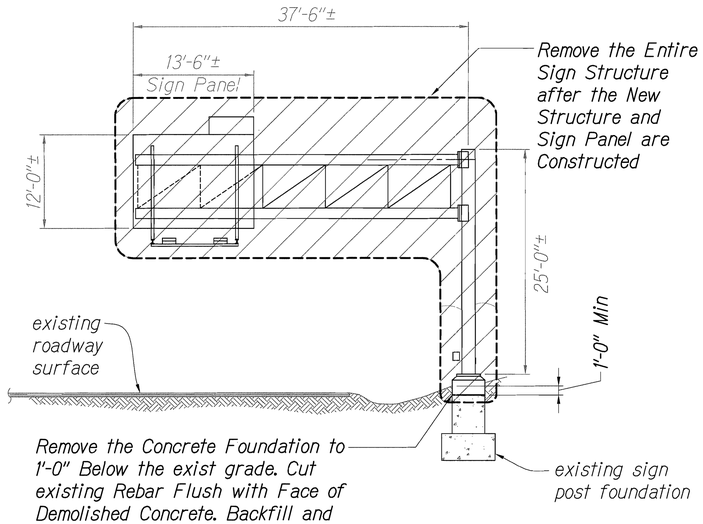
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TYPICAL DETAILS

INTERSTATE ROUTE H-1, H-2 AND H201
DESTINATION SIGN UPGRADE / REPLACEMENT, PHASE 1
Federal Aid Project NO. - NH-IM-0300(75)
Scale: As Shown — Date: Sept 21, 2012

SHEET No. S2.11 OF 138 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-IM-0300(75)	2012	23	138

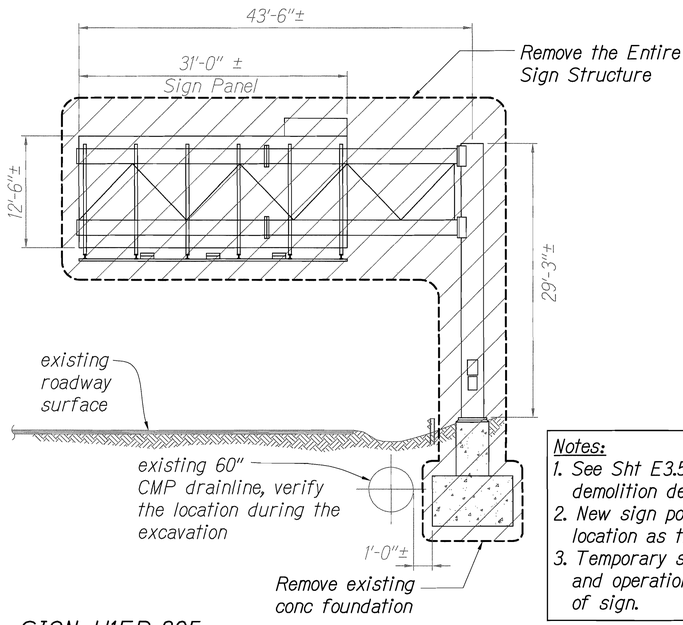


Note:
See Sht E3.1 Electrical demolition details.

SIGN H1EB-103
DEMOLITION DETAIL - ELEVATION

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

1
S3.1 | S3.1



Notes:
1. See Sht E3.5 Electrical demolition details.
2. New sign post shall be the same location as the existing.
3. Temporary sign shall be set up and operational before demolition of sign.

SIGN H1EB-205
DEMOLITION DETAIL - ELEVATION

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

5
S3.1 | S3.1

Legend:

Demolition Area

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DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

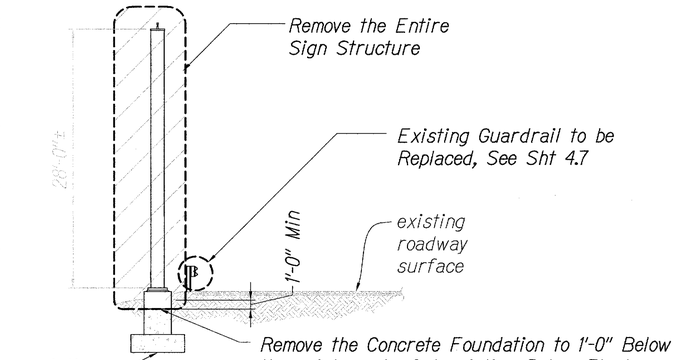
DEMOLITION PLAN - 1

INTERSTATE ROUTE H-1, H-2 AND H201
DESTINATION SIGN UPGRADE / REPLACEMENT, PHASE 1
Federal Aid Project NO. - NH-IM-0300(75)

Scale: As Shown Date: Sept 21, 2012

SHEET No. S3.1 OF 138 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-IM-0300(75)	2012	24	138

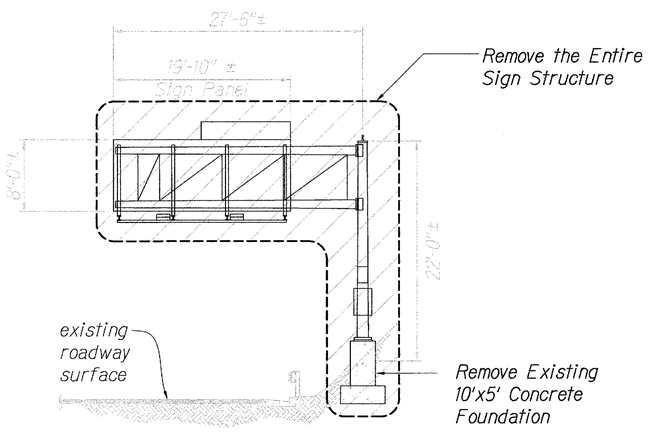


Notes:
1. See Sht E3.6 Electrical demolition details.
2. The existing sign truss/panel was removed by the time of design.

SIGN H1EBR-351
DEMOLITION DETAIL - ELEVATION
Scale: 1/8" = 1'-0"

2 | S3.2 | S3.2

C1



Notes:
1. See Sht E3.8 Electrical demolition details.
2. New sign post shall be the same location as the existing.

SIGN H1WB-407
DEMOLITION DETAIL - ELEVATION
Scale: 1/8" = 1'-0"

4 | S3.2 | S3.2

Legend:

Demolition Area

DATE	REVISION
05/20/14	C1 Revised Design of the Footing of Sign H1EBR-351

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HIGHWAYS DIVISION

DEMOLITION PLAN - 2

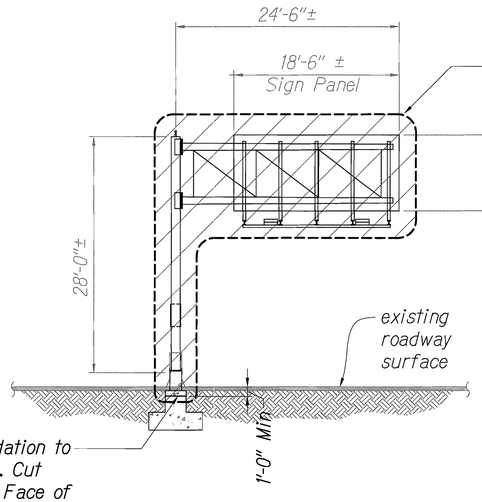
INTERSTATE ROUTE H-1, H-2 AND H201
DESTINATION SIGN UPGRADE / REPLACEMENT, PHASE 1
Federal Aid Project NO. - NH-IM-0300(75)
Scale: As Shown Date: Sept 21, 2012

SHEET No. S3.2 OF 138 SHEETS

C.O. 24

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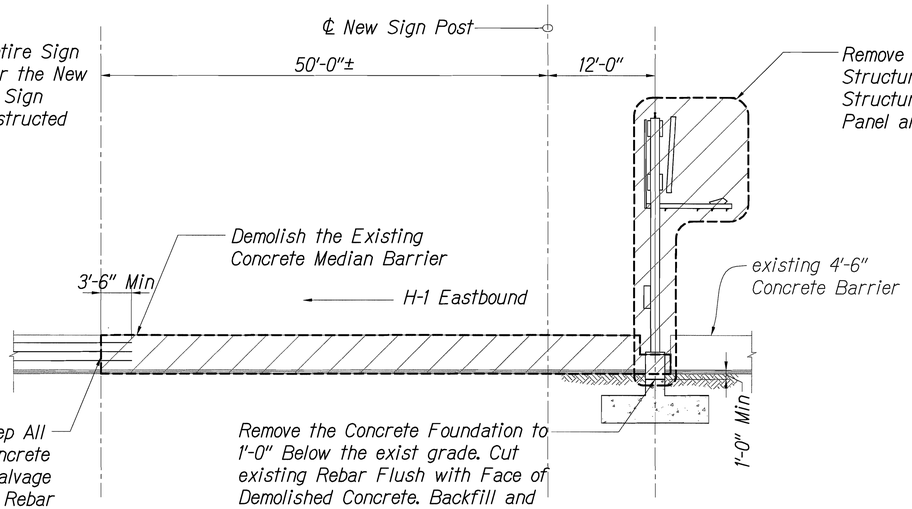
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-IM-0300(75)	2012	25	138



Remove the Entire Sign Structure after the New Structure and Sign Panel are Constructed

Remove the Concrete Foundation to 1'-0" Below the exist grade. Cut existing Rebar Flush with Face of Demolished Concrete. Backfill and Restore the Disturbed Grade to Original Condition.

FRONT ELEVATION



Remove the Entire Sign Structure after the New Structure and Sign Panel are Constructed

Saw cut 1" Deep All Around the Concrete Barrier and Salvage the Horizontal Rebar (3'-6" Long Min.) to be Embedded into the New Barrier Section, Typ.

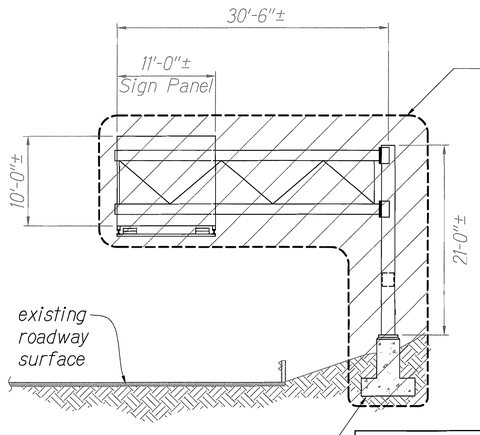
Remove the Concrete Foundation to 1'-0" Below the exist grade. Cut existing Rebar Flush with Face of Demolished Concrete. Backfill and Restore the Disturbed Grade to Original Condition.

SIDE ELEVATION

Notes:
1. See Sht E3.9 Electrical demolition details.
2. See Sht S5.10 for the details of the restoration of concrete barrier.

SIGN H1WB-411
DEMOLITION DETAIL - ELEVATION
Scale: 1/8" = 1'-0"

1
S3.3 | S3.3



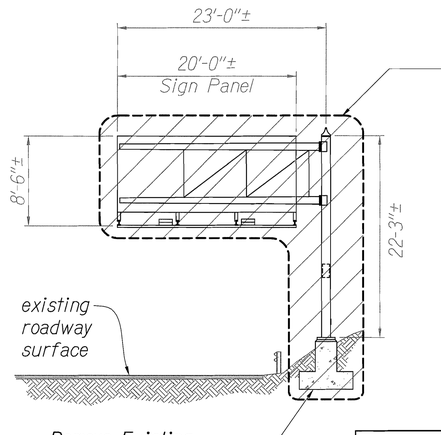
Remove the Entire Sign Structure

Remove Existing 12'x6' Concrete Foundation

Notes:
1. See Sht E3.10 Electrical demolition details.
2. New sign post shall be the same location as the existing.
3. Temporary sign shall be set up and operational before demolition of sign.

SIGN H1WB-415
DEMOLITION DETAIL - ELEVATION
Scale: 1/8" = 1'-0"

2
S3.3 | S3.3



Remove the Entire Sign Structure

Remove Existing 12'x6' Concrete Foundation

Notes:
1. See Sht E3.10 Electrical demolition details.
2. New sign post shall be the same location as the existing.
3. Temporary sign shall be set up and operational before demolition of sign.

SIGN H1WB-416
DEMOLITION DETAIL - ELEVATION
Scale: 1/8" = 1'-0"

3
S3.3 | S3.3

Legend:

Demolition Area

KEN KAZUO HAYASHIDA
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HAWAII, U.S.A.

EXPIRATION DATE OF THE LICENSE 4/30/2014
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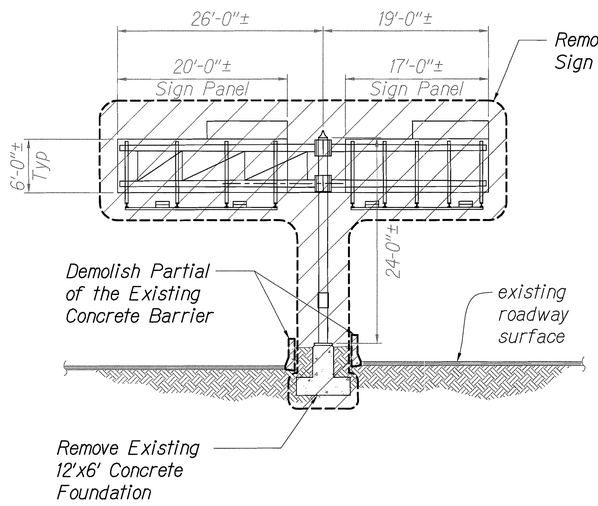
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

DEMOLITION PLAN - 3

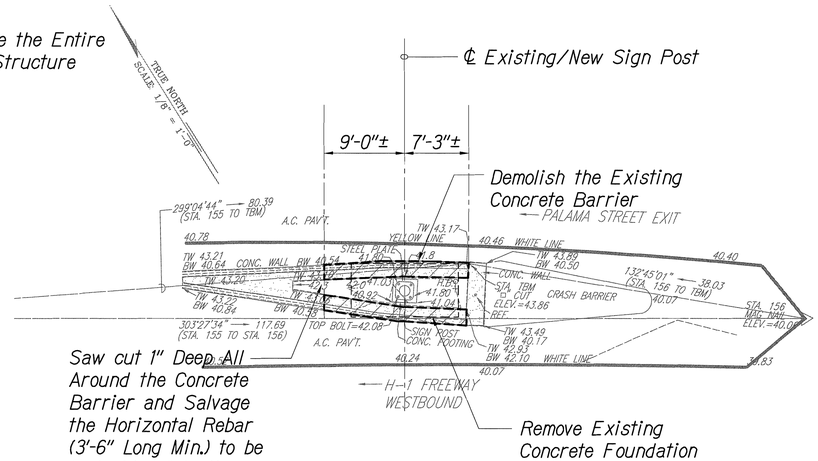
INTERSTATE ROUTE H-1, H-2 AND H201
DESTINATION SIGN UPGRADE / REPLACEMENT, PHASE 1
Federal Aid Project NO. - NH-IM-0300(75)
Scale: As Shown Date: Sept 21, 2012

SHEET No. S3.3 OF 138 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-IM-0300(75)	2012	26	138



FRONT ELEVATION

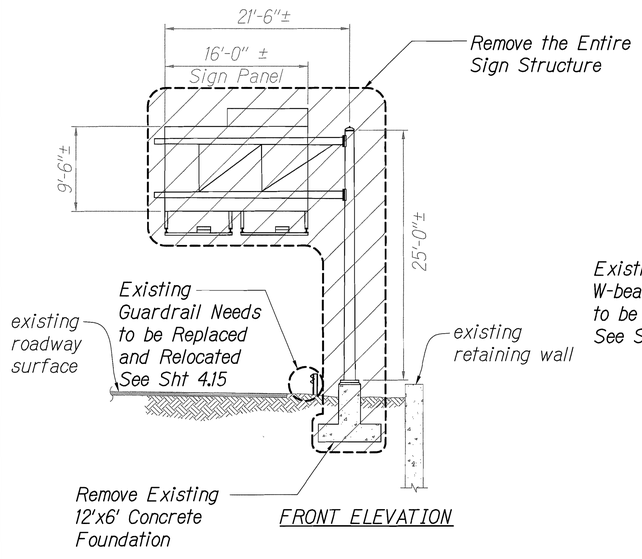


PLAN

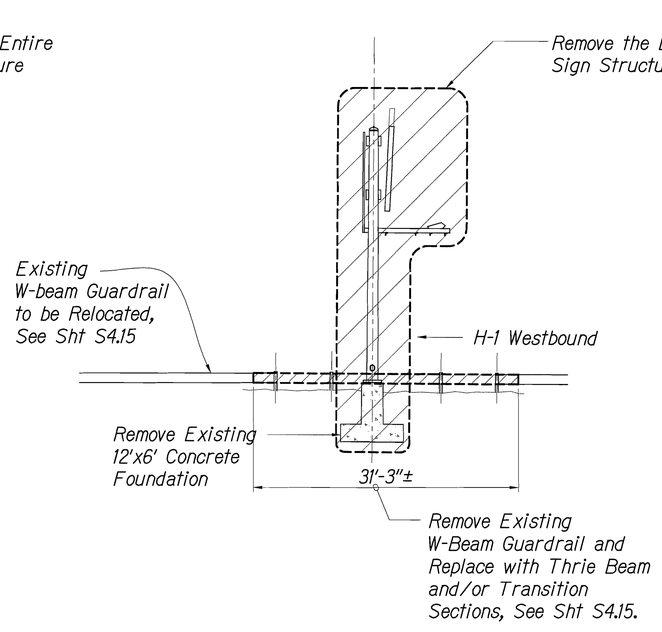
Notes:
1. See Sht E3.11 Electrical demolition details.
2. New sign post shall be the same location as the existing.
3. Temporary sign shall be set up and operational before the demolition.
4. See Sht S5.12 for the details of the restoration of concrete barrier.

SIGN H1WB-417
DEMOLITION DETAIL - ELEVATION
Scale: 1/8" = 1'-0"

1
S3.4 | S3.4



FRONT ELEVATION



SIDE ELEVATION

Notes:
1. See Sht E3.12 Electrical demolition details.
2. The existing sign truss/panel was removed by the time of design.
3. The new sign structure shall be at the same location as the existing.
4. The existing Concrete Retaining Wall shall not be damaged during the construction. If damage occurs, the contractor shall inform the Engineer immediately and shall be responsible for repairing the damage at no cost to the State and to the satisfaction of the Engineer. Avoid placing heavy loads on ground adjacent to existing retaining wall. do not stockpile any materials adjacent to wall.

SIGN H1WB-420
DEMOLITION DETAIL - ELEVATION
Scale: 1/8" = 1'-0"

3
S3.4 | S3.4

Legend:

Demolition Area

KEN KAZUO HAYASHIDA
LICENSED PROFESSIONAL ENGINEER
No. 6818-S
HAWAII, U.S.A.

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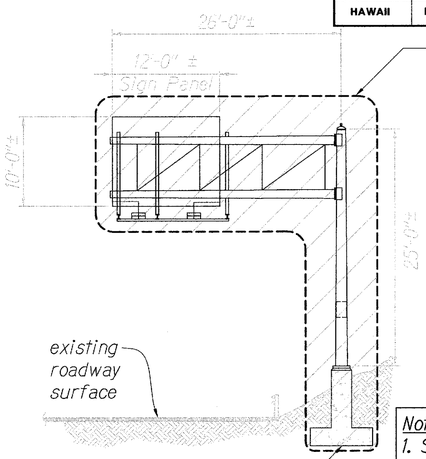
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

DEMOLITION PLAN - 4

INTERSTATE ROUTE H-1, H-2 AND H201
DESTINATION SIGN UPGRADE / REPLACEMENT, PHASE 1
Federal Aid Project NO. - NH-IM-0300(75)
Scale: As Shown Date: Sept 21, 2012

SHEET No. S3.4 OF 138 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-IM-0300(75)	2012	27	138

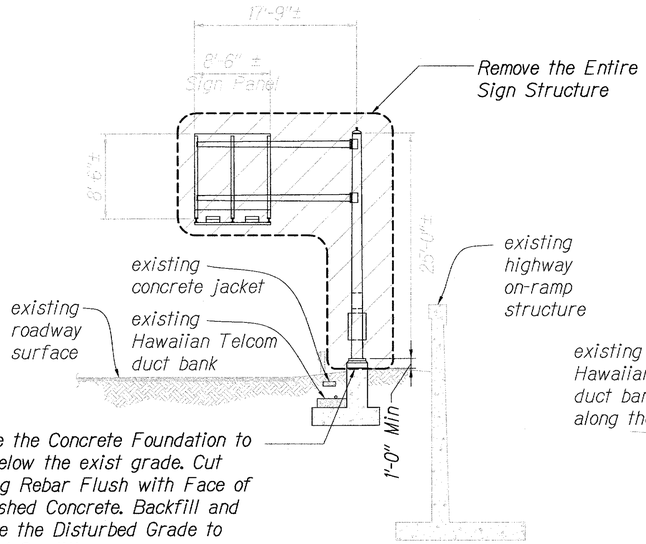


Notes:
1. See Sht E3.14 Electrical demolition details.
2. New sign post shall be the same location as the existing.
3. Temporary sign shall be set up and operational before demolition of sign.

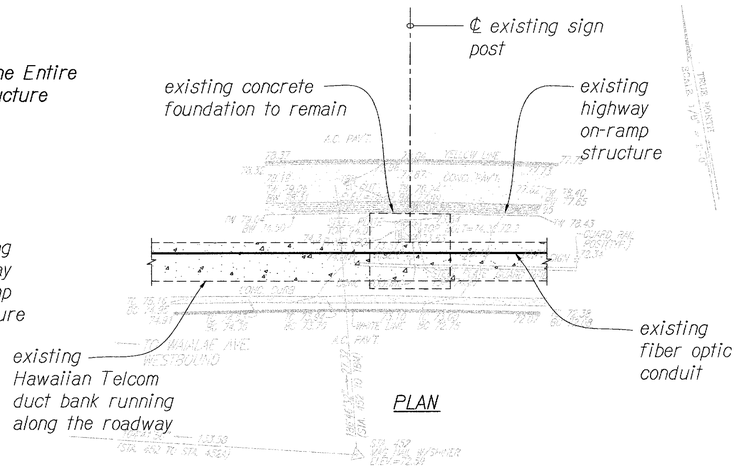
SIGN H1WBR-452
DEMOLITION DETAIL - ELEVATION

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

2
S3.5 | S3.5



FRONT ELEVATION



PLAN

Note:
1. See Sht E3.13 Electrical demolition details.
2. The existing Concrete on-ramp Structure shall not be damaged during construction. If damage occurs, the contractor shall inform the Engineer immediately and shall be responsible for repairing the damage at no cost to the State and to the satisfaction of the Engineer.

SIGN H1WBR-452
DEMOLITION DETAIL - ELEVATION

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

C1

3
S3.5 | S3.5

Legend:

Demolition Area

DATE	REVISION
06/16/14	C1 Revised Design of the Sign H1WBR-452

KEN KAZUO HAYASHIDA
LICENSED PROFESSIONAL ENGINEER
No. 6818-S
HAWAII, U.S.A.

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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

DEMOLITION PLAN - 5

INTERSTATE ROUTE H-1, H-2 AND H201
DESTINATION SIGN UPGRADE / REPLACEMENT, PHASE 1
Federal Aid Project NO. - NH-IM-0300(75)

Scale: As Shown Date: Sept 21, 2012

SHEET No. S3.5 OF 138 SHEETS

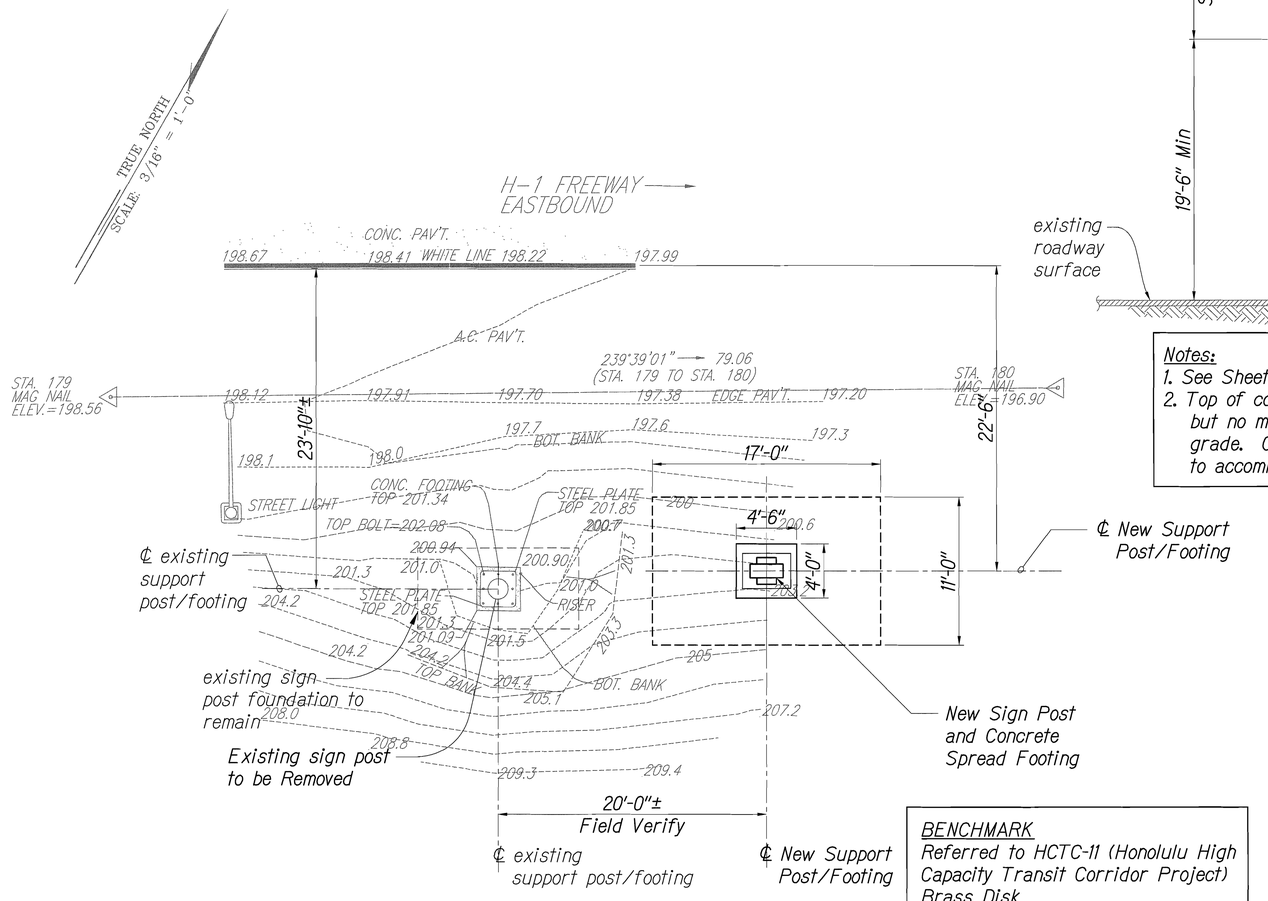
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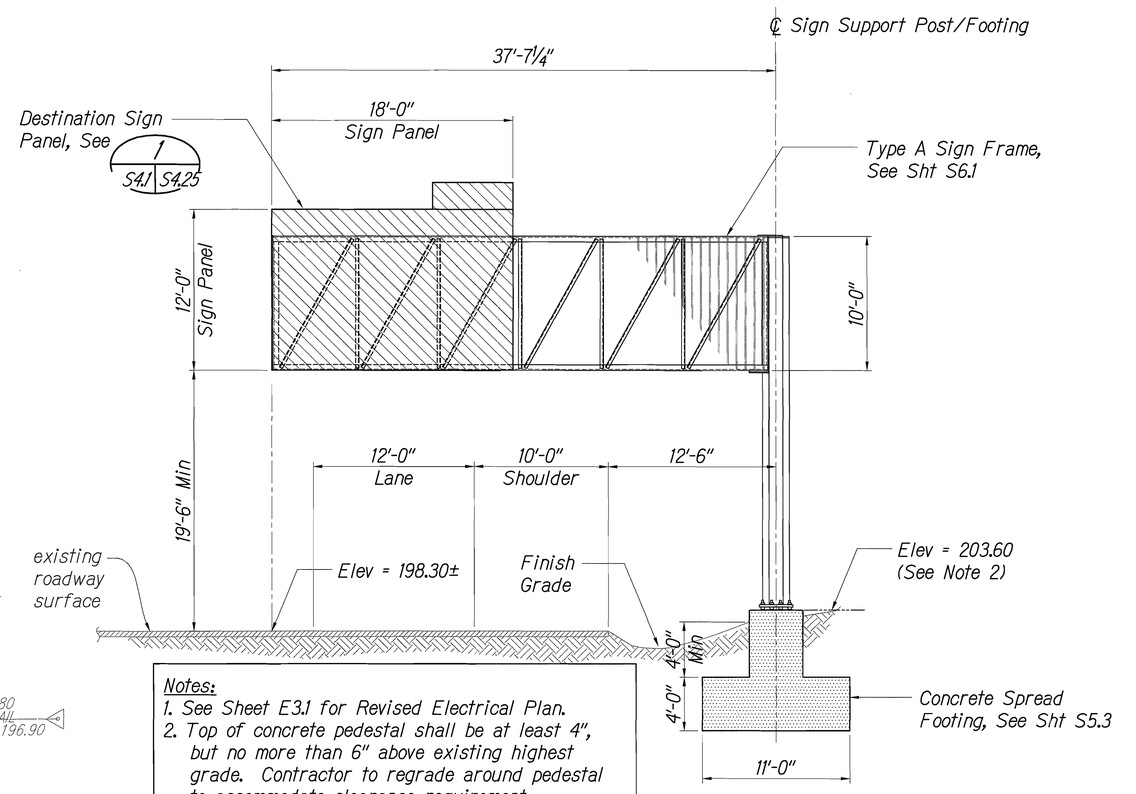
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-IM-0300(75)	2012	28	138

Construction Sequence:

1. Installation of traffic control.
2. Installation of site specific BMP.
3. Excavate and construct new concrete spread footing and backfill.
4. Erection of new sign structure and sign panel.
5. Remove entire existing sign structure.
6. Remove concrete foundation to 1'-0" below the existing grade.
7. Backfill and restore disturbed grade to original condition.
8. Remove site specific BMP.
9. Remove traffic control.



H1EB-103 - PLAN
Scale: 3/16" = 1'-0"
2 S4.1 | S4.1



Notes:
1. See Sheet E3.1 for Revised Electrical Plan.
2. Top of concrete pedestal shall be at least 4", but no more than 6" above existing highest grade. Contractor to regrade around pedestal to accommodate clearance requirement.

H1EB-103 - ELEVATION
Scale: 3/16" = 1'-0"
1 S4.1 | S4.1

BENCHMARK
Referred to HCTC-11 (Honolulu High Capacity Transit Corridor Project)
Brass Disk
Elev. = 84.25, MSL

KEN KAZUO HAYASHIDA
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HAWAII, U.S.A.

EXPIRATION DATE OF THE LICENSE 4/30/2014
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DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

SIGN H1EB-103
GENERAL ARRANGEMENT

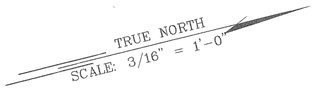
INTERSTATE ROUTE H-1, H-2 AND H201
DESTINATION SIGN UPGRADE / REPLACEMENT, PHASE 1
Federal Aid Project NO. - NH-IM-0300(75)
Scale: As Shown Date: Sept 21, 2012

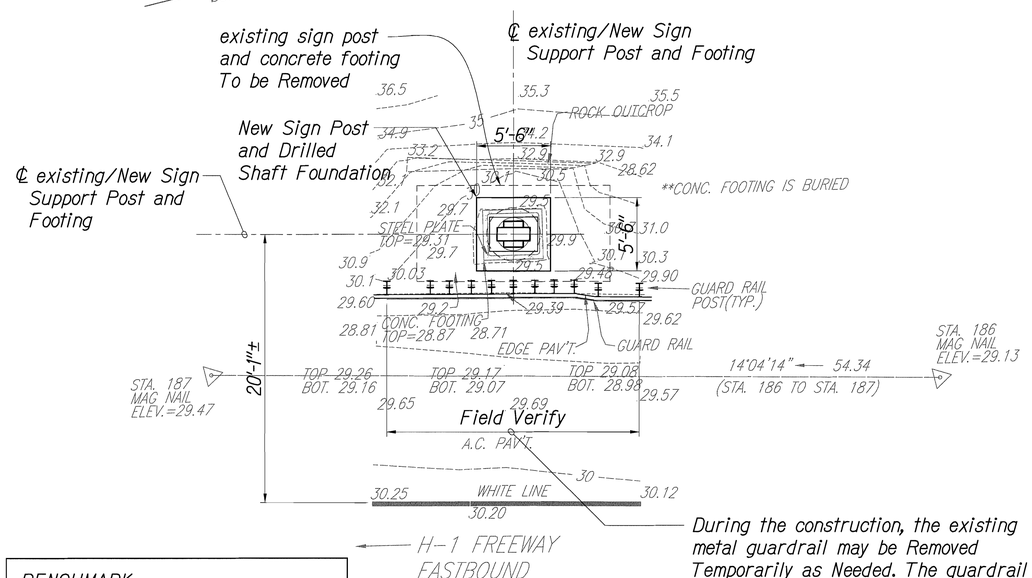
SHEET No. S4.1 OF 138 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-IM-0300(75)	2012	29	138

Construction Sequence:

1. Installation of traffic control.
2. Set up temporary sign.
3. Installation of site specific BMP.
4. Remove existing guardrail temporarily.
5. Remove entire existing sign structure.
6. Exploratory work at structure footing for existing 60" CMP
6. Remove existing concrete foundation.
7. Construct new drilled shaft foundation.
8. Erection of new sign structure and sign panel.
9. Backfill and restore disturbed grade to original condition.
10. Restore guardrail to original condition.
11. Remove site specific BMP.
12. Remove traffic control.

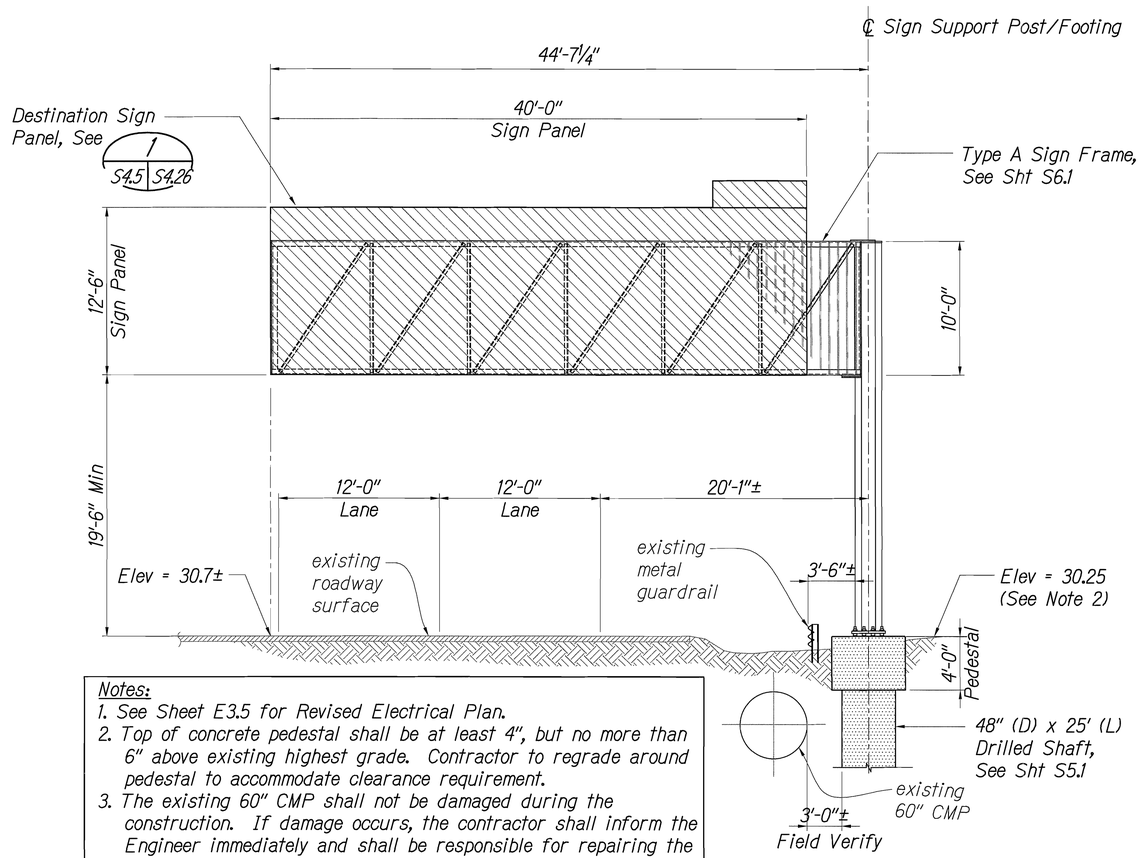




BENCHMARK
Referred to SS9-19H (Honolulu High Capacity Transit Corridor Project)
Brass Disk
Elev. = 36.32, MSL

H1EB-205 - PLAN
Scale: 3/16" = 1'-0"
2 S4.5 | S4.5

During the construction, the existing metal guardrail may be Removed Temporarily as Needed. The guardrail shall be Restored to Original Condition or Better as soon as the New Sign Structure is Erected.



Notes:
1. See Sheet E3.5 for Revised Electrical Plan.
2. Top of concrete pedestal shall be at least 4", but no more than 6" above existing highest grade. Contractor to regrade around pedestal to accommodate clearance requirement.
3. The existing 60" CMP shall not be damaged during the construction. If damage occurs, the contractor shall inform the Engineer immediately and shall be responsible for repairing the damage at no cost to the State and to the satisfaction of the Engineer.
4. Rock condition is assumed for this sign location based on field observation. The contractor shall inform the Engineer immediately if otherwise is encountered during the excavation.

H1EB-205 - ELEVATION
Scale: 3/16" = 1'-0"
1 S4.5 | S4.5

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DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

SIGN H1EB-205
GENERAL ARRANGEMENT

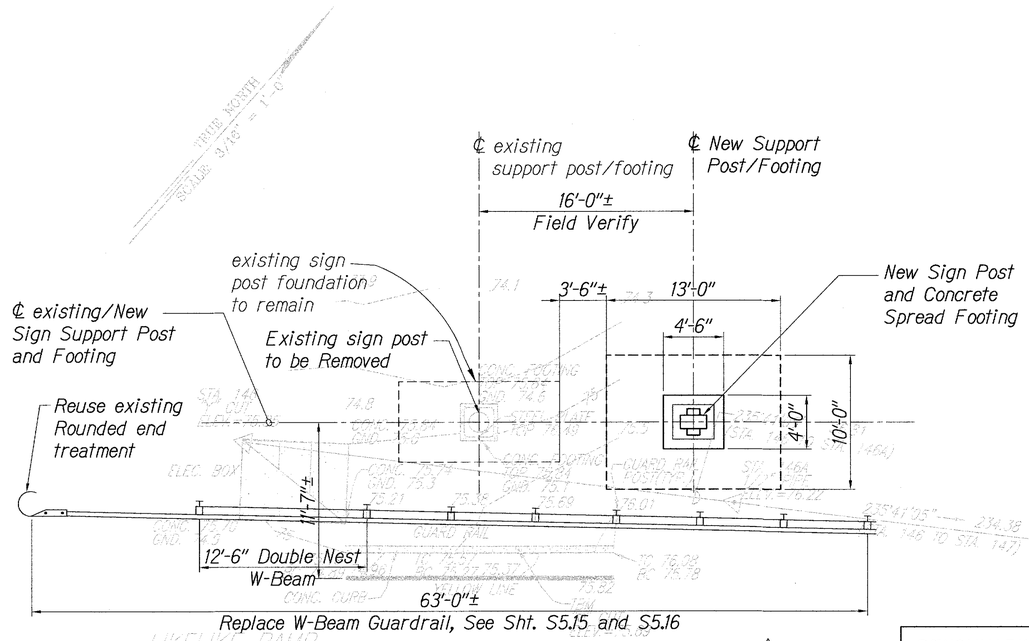
INTERSTATE ROUTE H-1, H-2 AND H201
DESTINATION SIGN UPGRADE / REPLACEMENT, PHASE 1
Federal Aid Project NO. - NH-IM-0300(75)
Scale: As Shown Date: Sept 21, 2012

SHEET No. S4.5 OF 138 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-IM-0300(75)	2012	30	138

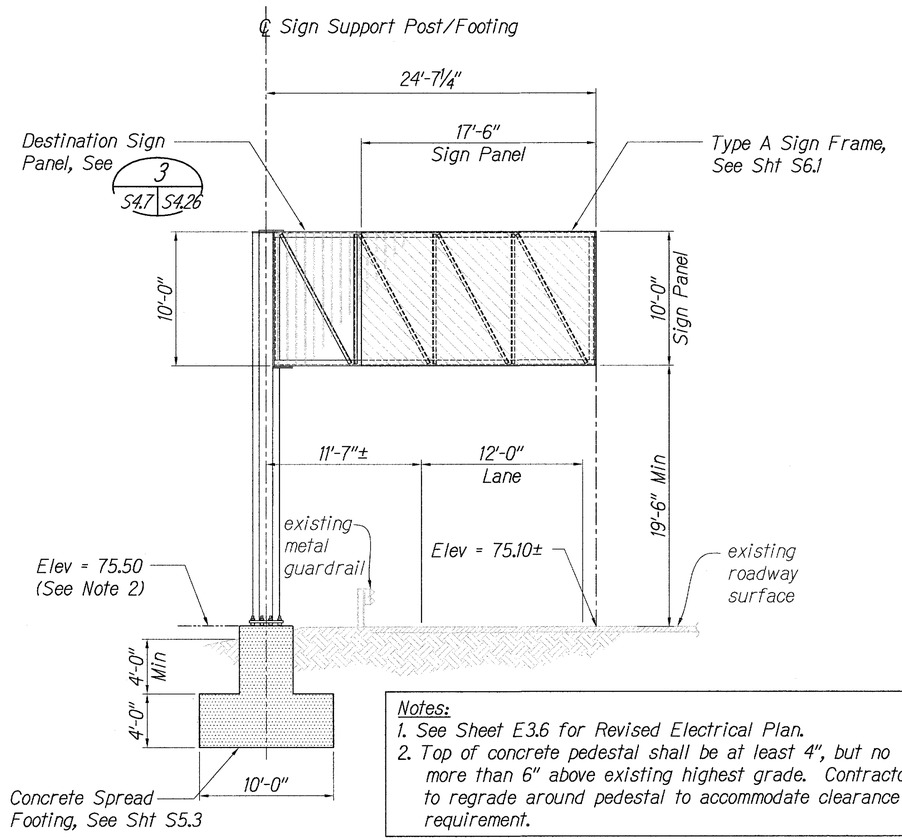
Construction Sequence:

1. Installation of traffic control.
2. Installation of site specific BMP.
3. Remove entire existing sign structure.
4. Remove existing concrete foundation.
5. Construct new concrete spread footing and backfill.
6. Erection of new sign structure and sign panel.
7. Restore disturbed grade to original condition.
8. Remove site specific BMP.
9. Remove traffic control.



H1EBR-351 - PLAN (2 / S4.7 | S4.7)
Scale: 3/16" = 1'-0"

C1



Notes:
1. See Sheet E3.6 for Revised Electrical Plan.
2. Top of concrete pedestal shall be at least 4", but no more than 6" above existing highest grade. Contractor to regrade around pedestal to accommodate clearance requirement.

H1EBR-351 - ELEVATION (1 / S4.7 | S4.7)
Scale: 3/16" = 1'-0"

BENCHMARK
Referred to HCTC-55 (Honolulu High Capacity Transit Corridor Project)
Brass Disk
Elev. = 16.68, MSL

05/20/14	C1 Revised Design of the Footing of Sign H1EBR-351
DATE	REVISION

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

SIGN H1EBR-351 GENERAL ARRANGEMENT

INTERSTATE ROUTE H-1, H-2 AND H201
DESTINATION SIGN UPGRADE / REPLACEMENT, PHASE 1
Federal Aid Project NO. - NH-IM-0300(75)
Scale: As Shown Date: Sept 21, 2012

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SHEET No. S4.7 OF 138 SHEETS

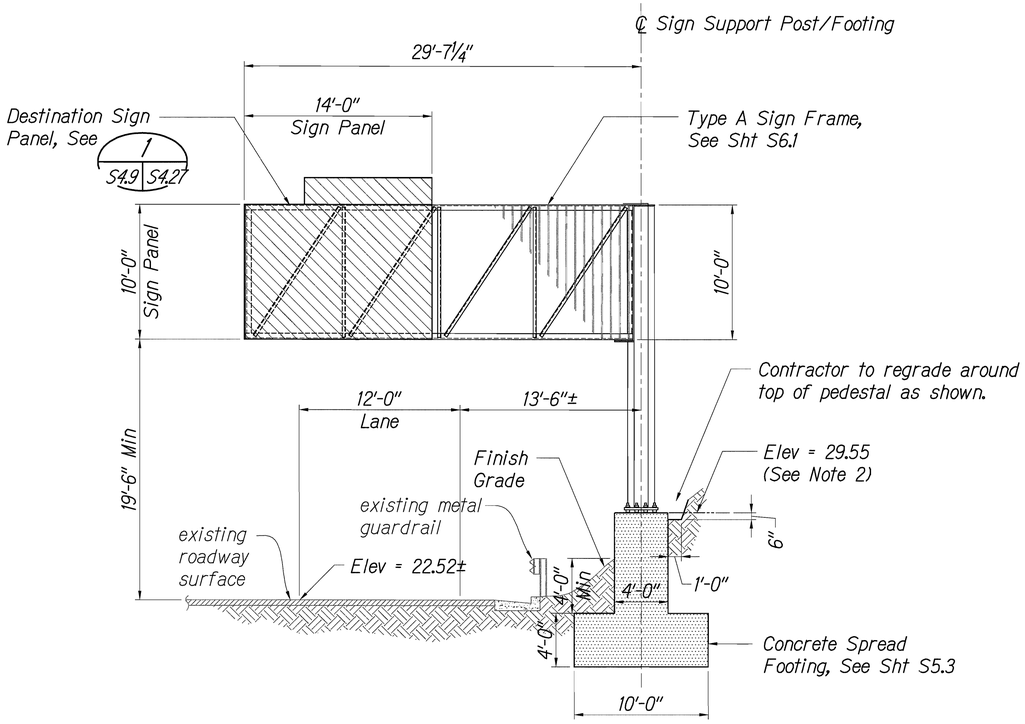
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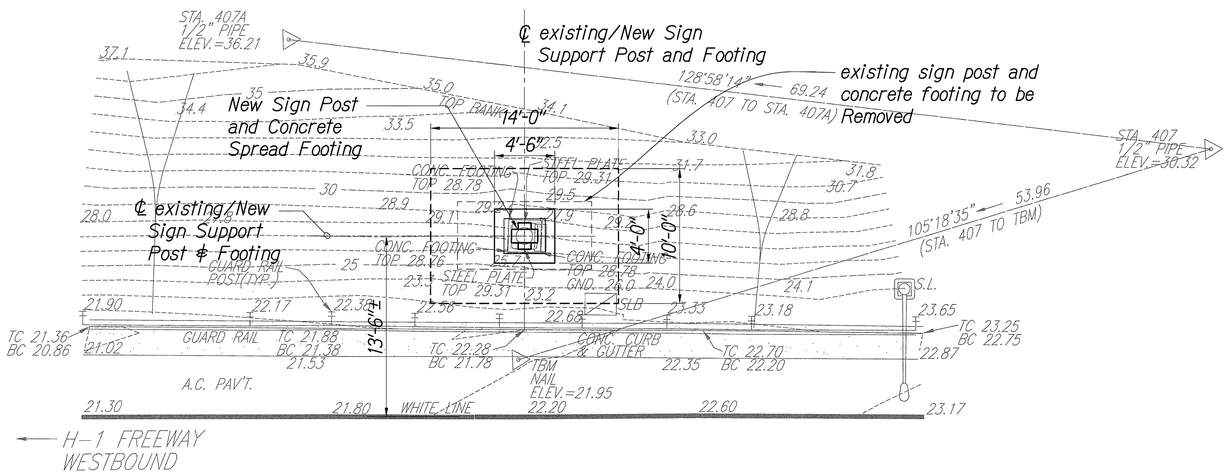
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FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-IM-0300(75)	2012	31	138

Construction Sequence:

1. Installation of traffic control.
2. Installation of site specific BMP.
3. Remove entire existing sign structure.
4. Remove existing concrete foundation.
5. Construct new concrete spread footing.
6. Erection of new sign structure and sign panel.
7. Restore disturbed grade to original condition.
8. Remove site specific BMP.
9. Remove traffic control.





H1WB-407 - PLAN (2 / S4.9 | S4.9)
Scale: 3/16" = 1'-0"

BENCHMARK
Referred to Z 4
Brass Disk
Elev. = 412.90, MSL

Notes:
1. See Sheet E3.8 for Revised Electrical Plan.
2. Top of concrete pedestal shall be at least 4", but no more than 6" above existing highest grade. Contractor to regrade around pedestal to accommodate clearance requirement.
3. Rock condition is assumed for this sign location based on field observation. The contractor shall inform the Engineer immediately if otherwise is encountered during the excavation.
4. Hard rock excavation is anticipated. Concrete for footing foundation should be placed against clean excavated rock faces. (Soil backfills around formed footing foundations are not allowed since the design parameters are based on rock conditions).

H1WB-407 - ELEVATION (1 / S4.9 | S4.9)
Scale: 3/16" = 1'-0"



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SIGN H1WB-407 GENERAL ARRANGEMENT

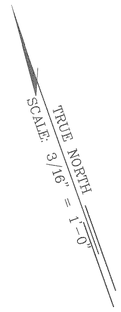
INTERSTATE ROUTE H-1, H-2 AND H201
DESTINATION SIGN UPGRADE / REPLACEMENT, PHASE 1
Federal Aid Project NO. - NH-IM-0300(75)
Scale: As Shown Date: Sept 21, 2012

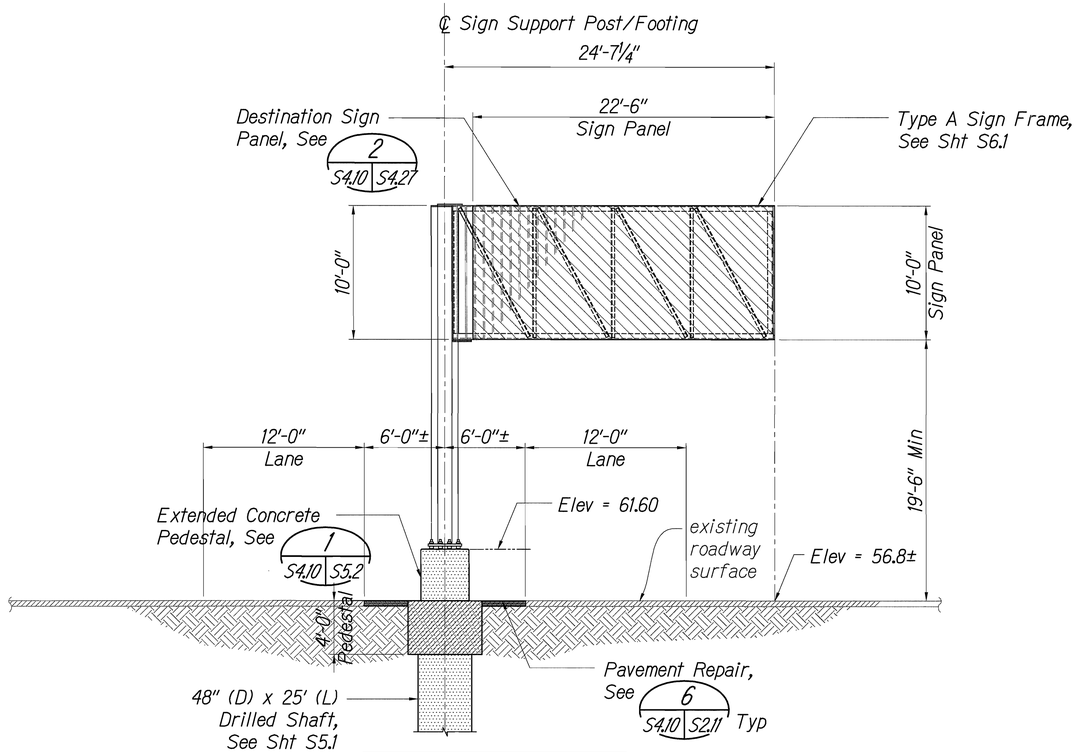
SHEET No. S4.9 OF 138 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-IM-0300(75)	2012	32	138

Construction Sequence:

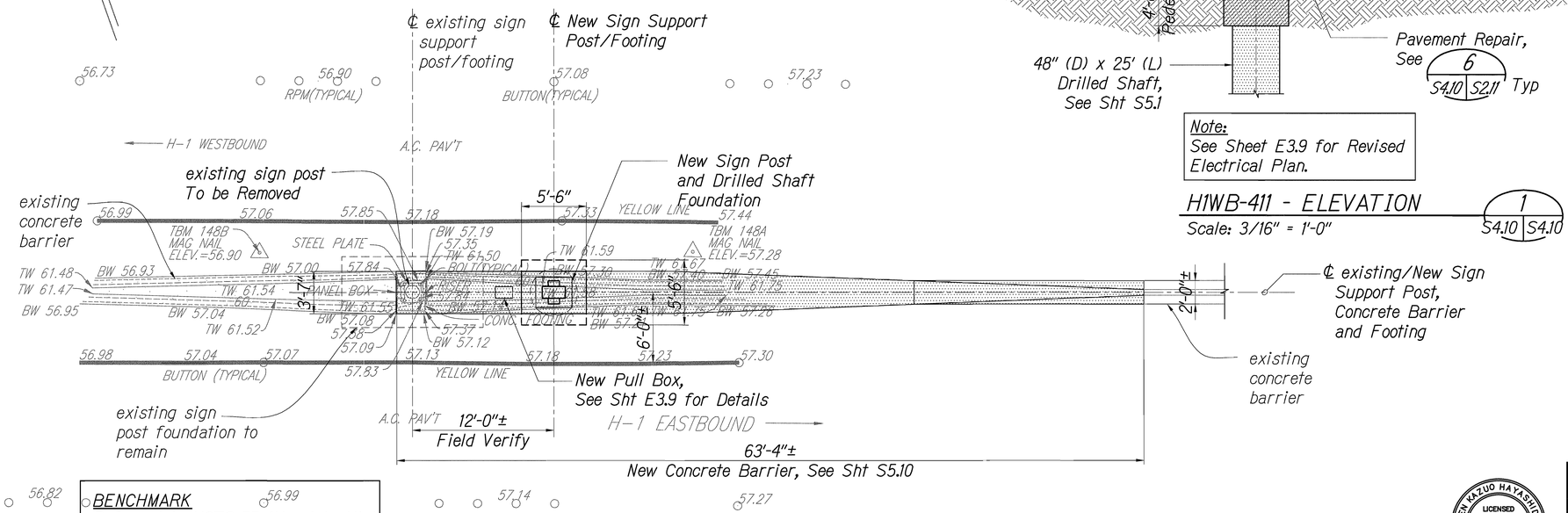
1. Installation of traffic control.
2. Installation of site specific BMP.
3. Demolition portion of existing concrete barrier.
4. Construct new concrete drilled shaft and pedestal.
5. Erection of new sign structure and sign panel.
6. Remove entire existing sign structure.
7. Remove concrete foundation to 1'-0" below the existing grade.
8. Construct new concrete barrier.
9. Repair pavement.
10. Remove site specific BMP.
11. Remove traffic control.





Note:
See Sheet E3.9 for Revised Electrical Plan.

H1WB-411 - ELEVATION 1 S4.10 | S4.10
Scale: 3/16" = 1'-0"



H1WB-411 - PLAN 2 S4.10 | S4.10
Scale: 3/16" = 1'-0"

BENCHMARK
Referred to HCTC-55 (Honolulu High Capacity Transit Corridor Project)
Brass Disk
Elev. = 16.68, MSL

KEN KAZUO HAYASHIDA
LICENSED PROFESSIONAL ENGINEER
No. 6818-S
HAWAII, U.S.A.

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HIGHWAYS DIVISION

SIGN H1WB-411 GENERAL ARRANGEMENT

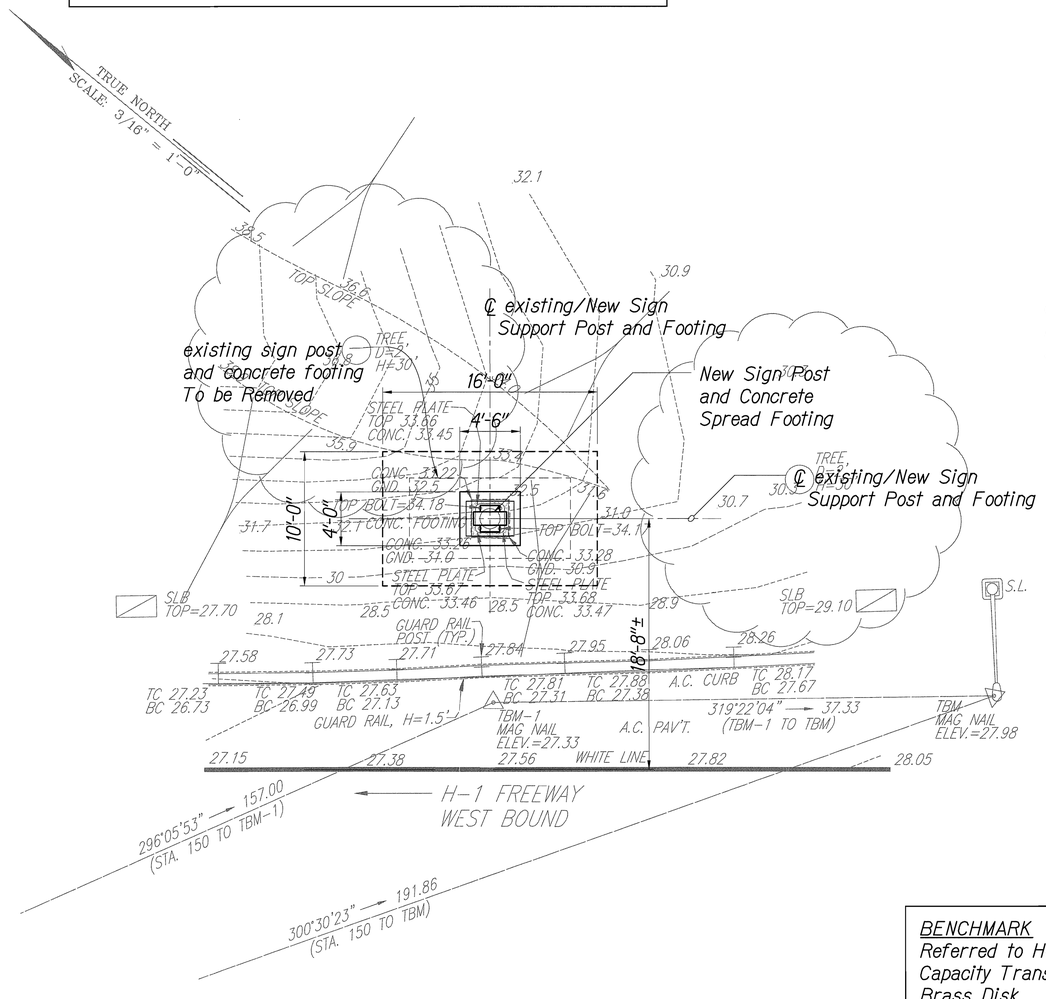
INTERSTATE ROUTE H-1, H-2 AND H201
DESTINATION SIGN UPGRADE / REPLACEMENT, PHASE 1
Federal Aid Project NO. - NH-IM-0300(75)
Scale: As Shown Date: Sept 21, 2012

SHEET No. S4.10 OF 138 SHEETS

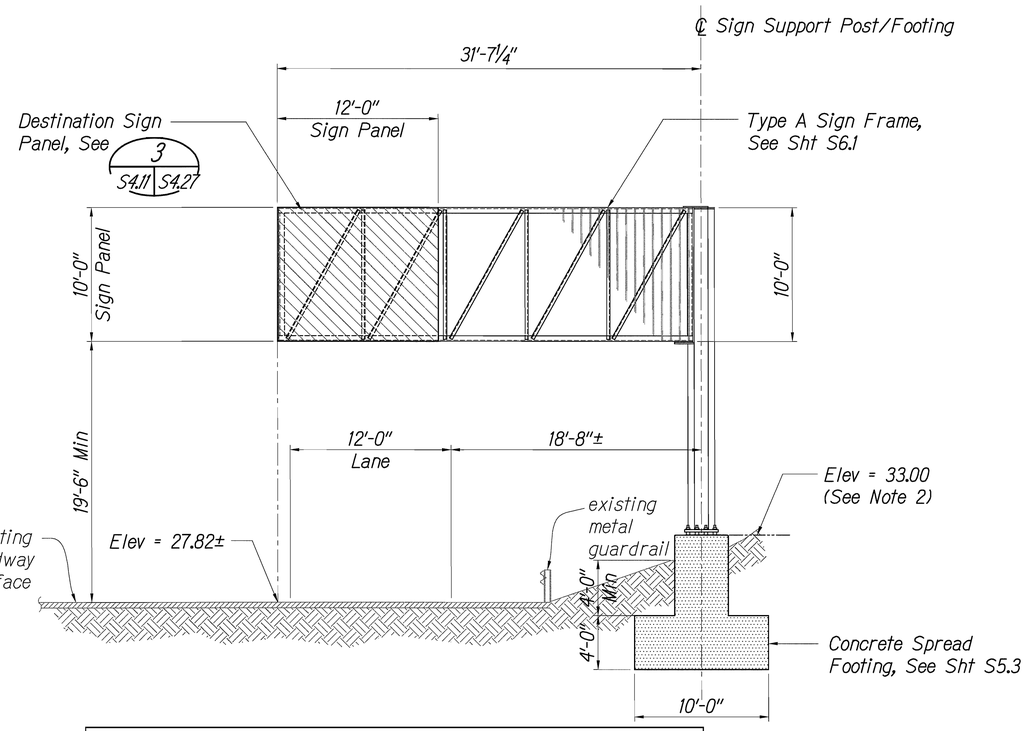
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-IM-0300(75)	2012	33	138

Construction Sequence:

1. Installation of traffic control.
2. Set up temporary sign.
3. Installation of site specific BMP.
4. Remove entire existing sign structure.
5. Remove existing concrete foundation.
6. Construct new concrete spread footing and backfill.
7. Erection of new sign structure and sign panel.
8. Restore disturbed grade to original condition.
9. Remove site specific BMP.
10. Remove traffic control.



H1WB-415 - PLAN 2
Scale: 3/16" = 1'-0" S4.11 | S4.11



Notes:
1. See Sheet E3.10 for Revised Electrical Plan.
2. Top of concrete pedestal shall be at least 4", but no more than 6" above existing highest grade. Contractor to regrade around pedestal to accommodate clearance requirement.

H1WB-415 - ELEVATION 1
Scale: 3/16" = 1'-0" S4.11 | S4.11

BENCHMARK
Referred to HCTC-55 (Honolulu High Capacity Transit Corridor Project)
Brass Disk
Elev. = 16.68, MSL

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LICENSED PROFESSIONAL ENGINEER
No. 6818-S
HAWAII, U.S.A.

EXPIRATION DATE OF THE LICENSE 4/30/2014
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DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

SIGN H1WB-415 GENERAL ARRANGEMENT

INTERSTATE ROUTE H-1, H-2 AND H201
DESTINATION SIGN UPGRADE / REPLACEMENT, PHASE 1
Federal Aid Project NO. - NH-IM-0300(75)

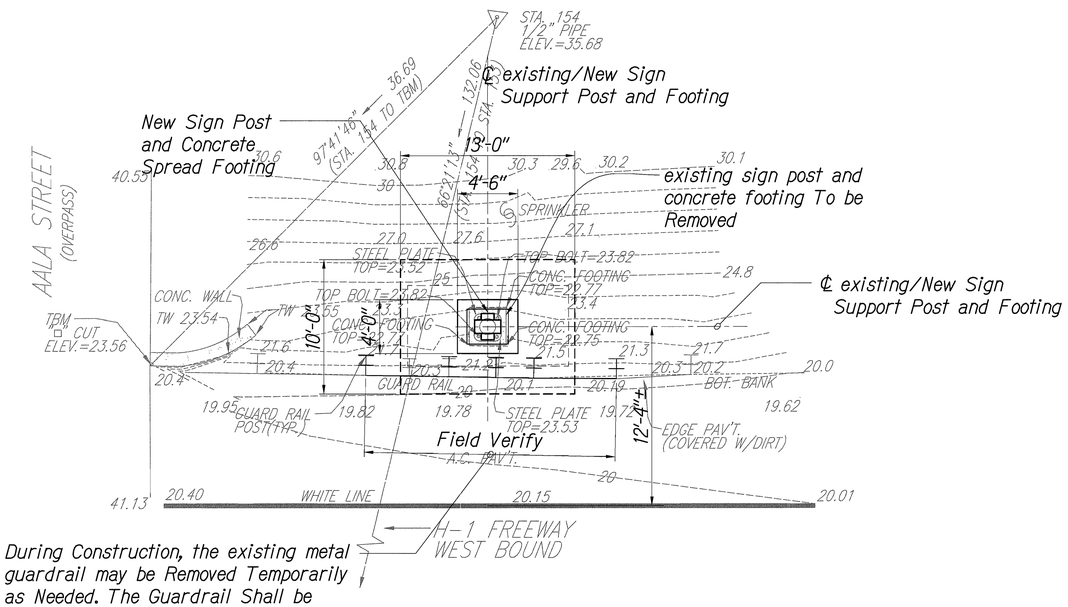
Scale: As Shown Date: Sept 21, 2012

SHEET No. S4.11 OF 138 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-IM-0300(75)	2012	34	138

Construction Sequence:

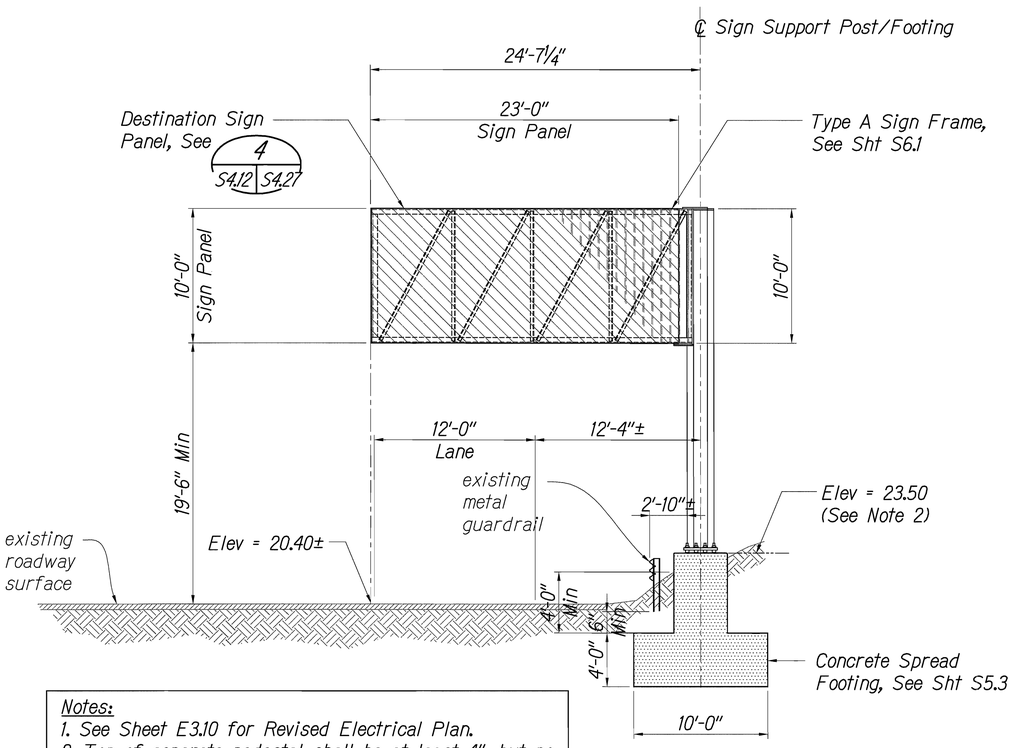
1. Installation of traffic control.
2. Set up temporary sign.
3. Installation of site specific BMP.
4. Remove existing guardrail temporarily.
5. Remove entire existing sign structure.
6. Remove existing concrete foundation.
7. Construct new concrete spread footing and backfill.
8. Erection of new sign structure and sign panel.
9. Restore disturbed grade to original condition.
10. Restore guardrail to original condition.
11. Remove site specific BMP.
12. Remove traffic control.



During Construction, the existing metal guardrail may be Removed Temporarily as Needed. The Guardrail Shall be replaced as soon as the New Sign Structure is Erected.

H1WB-416 - PLAN (2 / S4.12 | S4.12)
Scale: 3/16" = 1'-0"

BENCHMARK
Referred to HCTC-55 (Honolulu High Capacity Transit Corridor Project)
Brass Disk
Elev. = 16.68, MSL



Notes:
1. See Sheet E3.10 for Revised Electrical Plan.
2. Top of concrete pedestal shall be at least 4", but no more than 6" above existing highest grade. Contractor to regrade around pedestal to accommodate clearance requirement.

H1WB-416 - ELEVATION (1 / S4.12 | S4.12)
Scale: 3/16" = 1'-0"

KEN KAZUO HAYASHIDA
LICENSED PROFESSIONAL ENGINEER
No. 6818-S
HAWAII, U.S.A.

EXPIRATION DATE OF THE LICENSE 4/30/2014
THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

SIGN H1WB-416
GENERAL ARRANGEMENT

INTERSTATE ROUTE H-1, H-2 AND H201
DESTINATION SIGN UPGRADE / REPLACEMENT, PHASE 1
Federal Aid Project NO. - NH-IM-0300(75)
Scale: As Shown Date: Sept 21, 2012

SHEET No. S4.12 OF 138 SHEETS

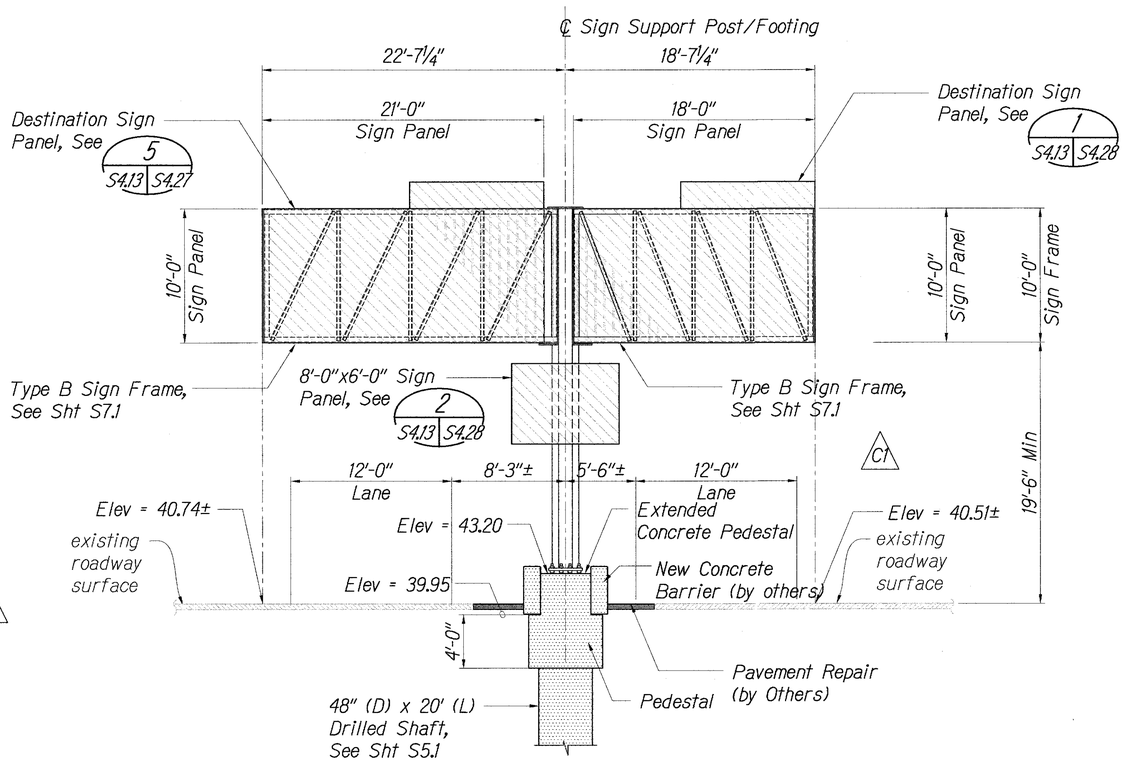
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-IM-0300(75)	2012	35	138

Construction Sequence:

1. Installation of traffic control.
2. Set up temporary sign.
3. Installation of site specific BMP.
4. Demolition portion of existing concrete barrier.
5. Remove entire existing sign structure.
6. Remove existing concrete foundation.
7. Construct new concrete drilled shaft and pedestal.
8. Erection of new sign structure and sign panel.
9. Restore concrete barrier.
10. Repair pavement.
11. Remove site specific BMP.
12. Remove traffic control.

Notes:

1. The Contractor shall coordinate with the construction with the project of "Interstate Route H1 Rehabilitation, Middle Street to Vicinity of Ward Avenue F.A.I.P No.: IM-H1-1(269)" (H-1 Resurfacing Project), and ensure the new barrier (by others) will be installed immediately after the construction of the new sign foundation.
2. The Contractor shall coordinate with Hawaiian Dredging Construction Company Inc. and to ensure temporary barrier is provided between the time the existing concrete barrier is demolished and the new barrier is constructed.

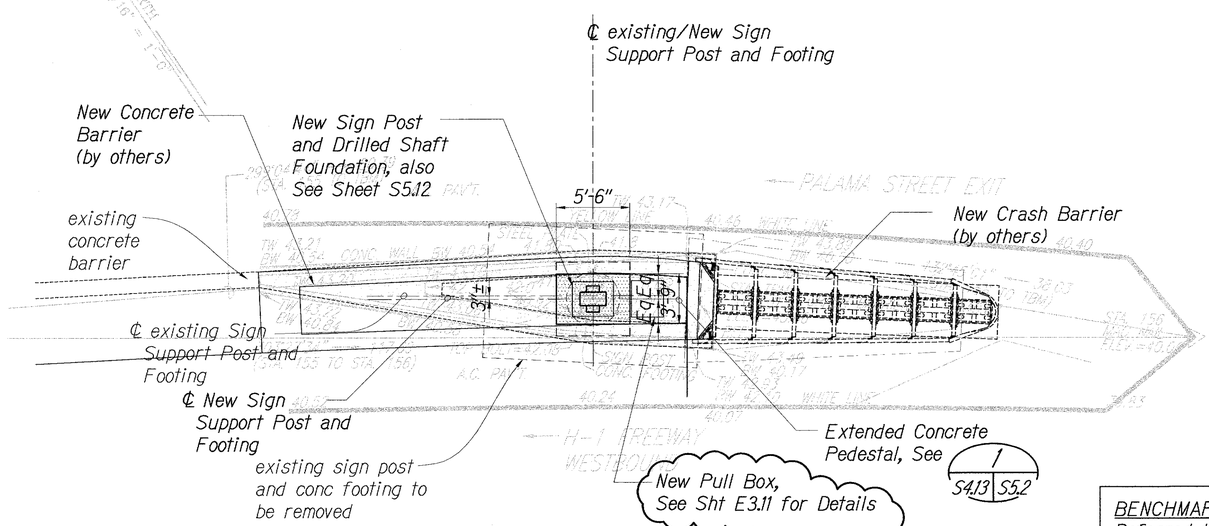


Notes:

1. See Sheet E3.11 for Revised Electrical Plan.
2. For Sign Mounted on the Post Detail, see State STD plan TE-01 and TE-01A.
3. There shall be no construction joint between the Extended Concrete Pedestal and the Drilled Shaft Pedestal so as to ensure the embedment of anchor bolts

H1WB-417 - ELEVATION (1 / S4.13 | S4.13)

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



H1WB-417 - PLAN (2 / S4.13 | S4.13)

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

BENCHMARK
Referred to HCTC-55 (Honolulu High Capacity Transit Corridor Project)
Brass Disk
Elev. = 16.68, MSL

DATE	REVISION
10/10/13	C2 Revised location of Pullbox
09/20/13	C1 Revised design of sign foundation

KEN KAZUO HAYASHIDA
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HAWAII, U.S.A.

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DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

SIGN H1WB-417 GENERAL ARRANGEMENT

INTERSTATE ROUTE H-1, H-2 AND H201
DESTINATION SIGN UPGRADE / REPLACEMENT, PHASE 1
Federal Aid Project NO. - NH-IM-0300(75)
Scale: As Shown Date: Sept 21, 2012

SHEET No. S4.13 OF 138 SHEETS

C.O. 35

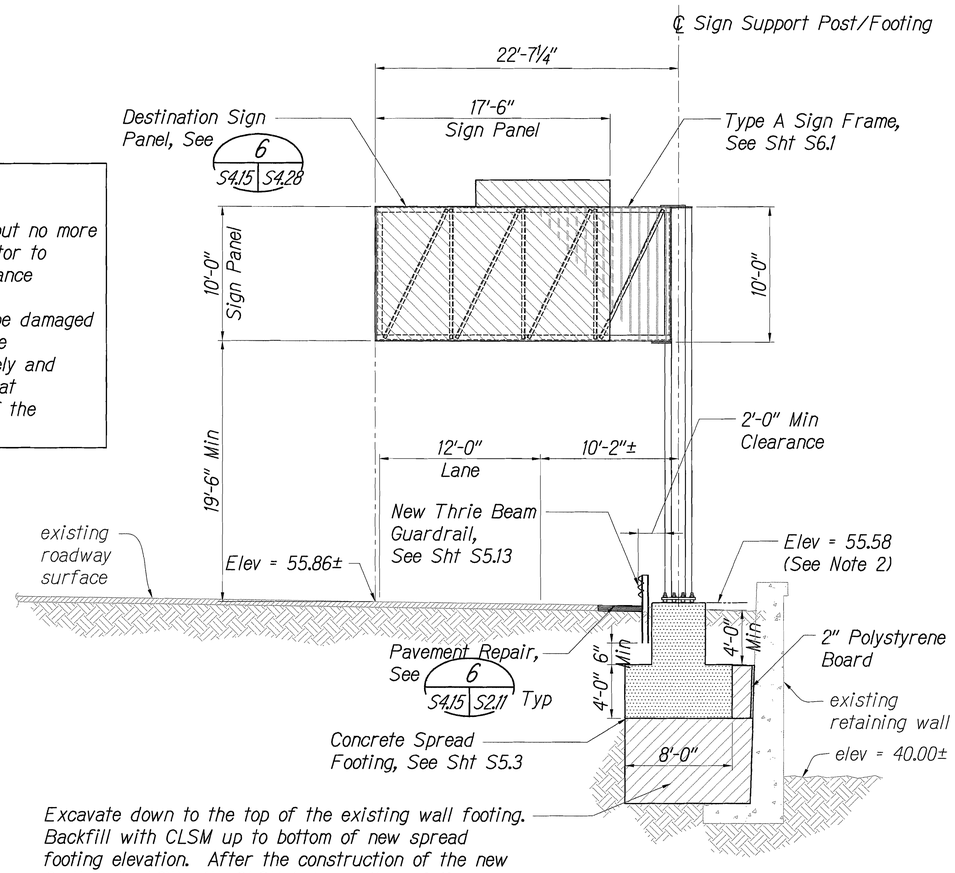
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	WH-IM-0300(75)	2012	36	138

Construction Sequence:

1. Installation of traffic control.
2. Set up temporary sign.
3. Installation of site specific BMP.
4. Remove existing guardrail temporarily.
5. Remove entire existing sign structure.
6. Remove existing concrete foundation.
7. Exploratory work for existing retaining wall footing.
8. Excavation and backfill with CLSM.
9. Construct new concrete spread footing.
10. Erection of new sign structure and sign panel.
11. Backfill and restore disturbed grade to original condition.
12. Restore/relocate guardrail.
13. Remove site specific BMP.
14. Remove traffic control.

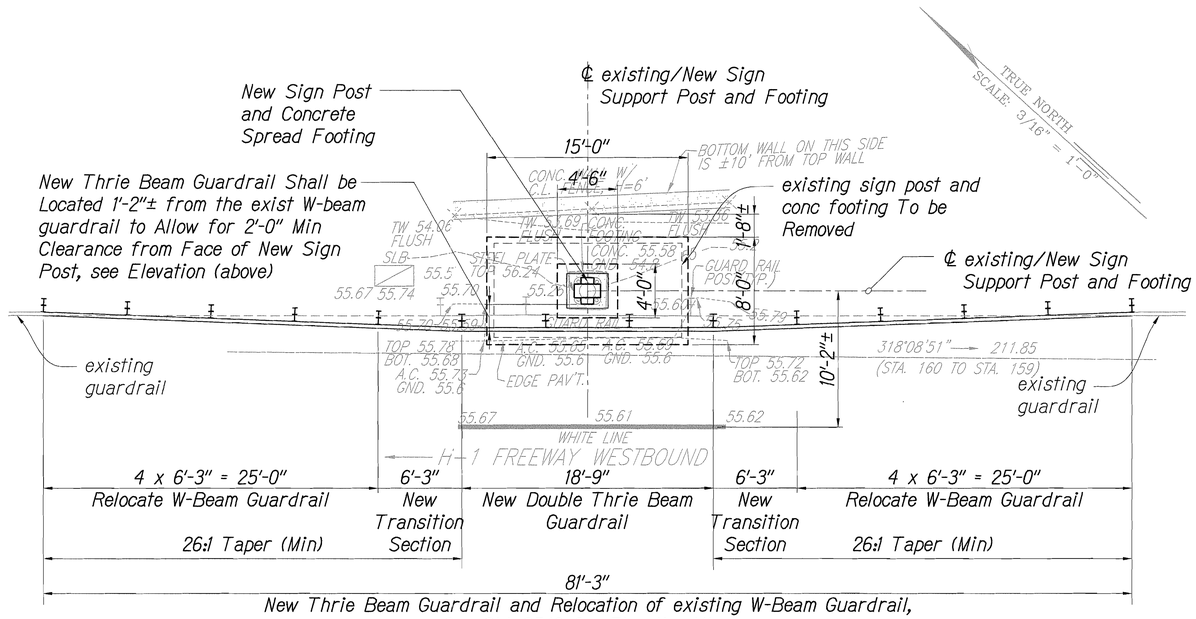
Notes:

1. See Sheet E3.12 for Revised Electrical Plan.
2. Top of concrete pedestal shall be at least 4", but no more than 6" above existing highest grade. Contractor to regrade around pedestal to accommodate clearance requirement.
3. The existing concrete retaining wall shall not be damaged during the construction. If damage occurs, the Contractor shall inform the Engineer immediately and shall be responsible for repairing the damage at no cost to the State and to the satisfaction of the Engineer.



Excavate down to the top of the existing wall footing. Backfill with CLSM up to bottom of new spread footing elevation. After the construction of the new footing, backfill with CLSM between the existing retaining wall. The CLSM shall be place in uniform lifts of no more than 4 feet in height. The next lift shall not be poured until the previous lift has cured for 8 hours minimum. Cost for CLSM backfill shall be incidental to Section 205-Standard Excavation for New Spread Footing.

H1WB-420 - ELEVATION (1 / S4.15 | S4.15)
Scale: 3/16" = 1'-0"



H1WB-420 - PLAN (2 / S4.15 | S4.15)
Scale: 3/16" = 1'-0"

BENCHMARK
Referred to HCTC-55 (Honolulu High Capacity Transit Corridor Project)
Brass Disk
Elev. = 16.68, MSL

KEN KAZUO HAYASHIDA
LICENSED PROFESSIONAL ENGINEER
No. 6818-S
HAWAII, U.S.A.

EXPIRATION DATE OF THE LICENSE 4/30/2014
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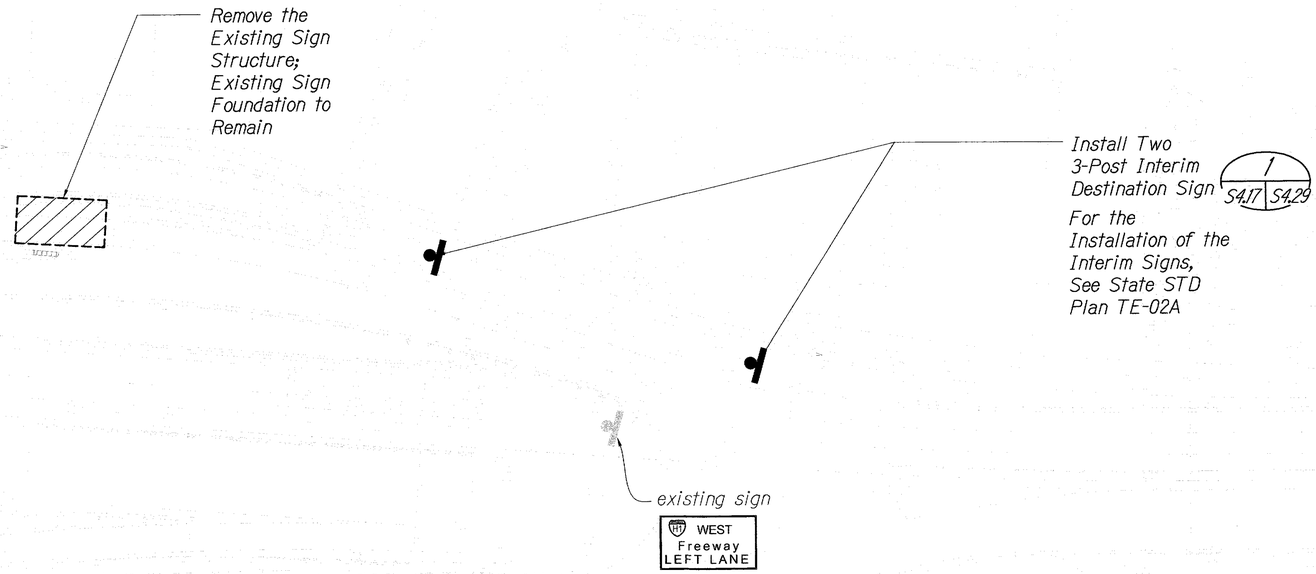
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

SIGN H1WB-420 GENERAL ARRANGEMENT

INTERSTATE ROUTE H-1, H-2 AND H201
DESTINATION SIGN UPGRADE / REPLACEMENT, PHASE 1
Federal Aid Project NO. - NH-IM-0300(75)
Scale: As Shown Date: Sept 21, 2012

SHEET No. S4.15 OF 138 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-IM-0300(75)	2012	37	138



C1

H1WBR-452 - PLAN

Scale: 1" = 80'

1
S4.17 S4.17

Construction Sequence:

1. Installation of traffic control.
2. Installation of site specific BMP.
3. Pre-construction survey and proper documentation
4. Remove existing guardrail temporarily.
5. Remove entire existing sign structure.
9. Backfill and restore disturbed grade to original condition.
10. Restore/relocate guardrail.
11. Install Interim destination signs.
11. Remove site specific BMP.
12. Remove traffic control.

Notes:

1. See Sheet E3.12 for Revised Electrical Plan.
2. The existing concrete retaining wall shall not be damaged during the construction. If damage occurs, the Contractor shall inform the Engineer immediately and shall be responsible for repairing the damage at no cost to the State and to the satisfaction of the Engineer.

DATE	REVISION
06/16/14	C1 Revised Design of the Sign H1WBR-452

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HAWAII, U.S.A.

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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

SIGN H1WBR-452
GENERAL ARRANGEMENT

INTERSTATE ROUTE H-1, H-2 AND H201
DESTINATION SIGN UPGRADE / REPLACEMENT, PHASE 1

Federal Aid Project NO. - NH-IM-0300(75)

Scale: As Shown Date: Sept 21, 2012

SHEET No. S4.17 OF 138 SHEETS

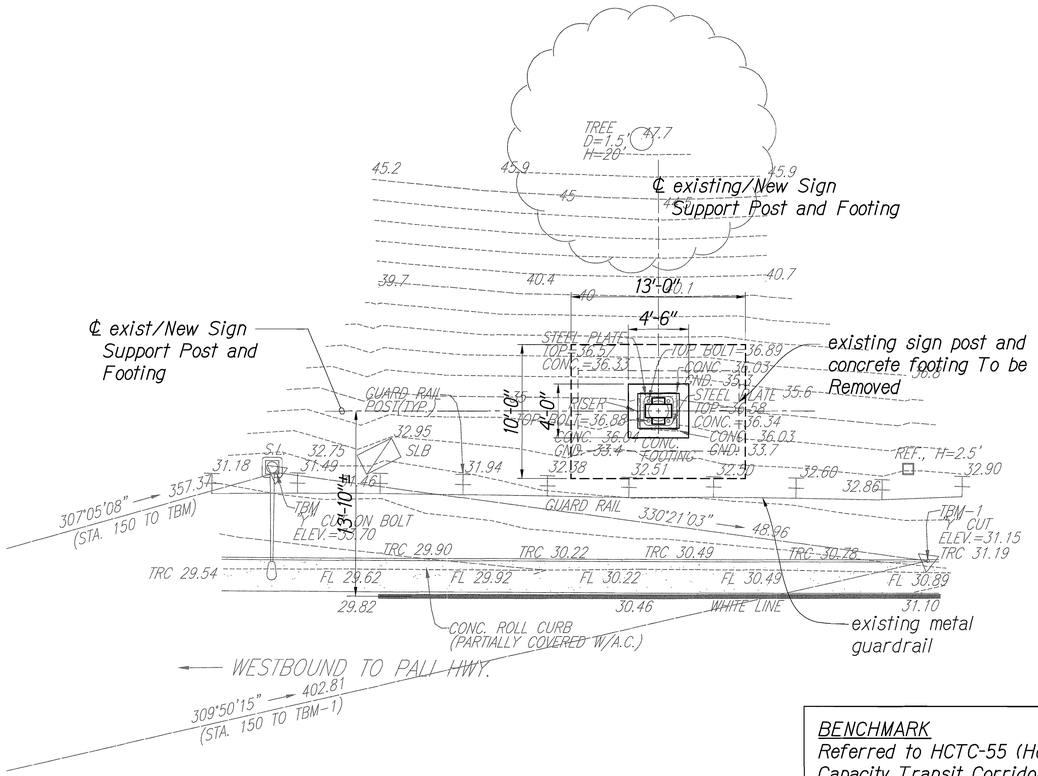
C.O. 37

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FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-IM-0300(75)	2012	38	138

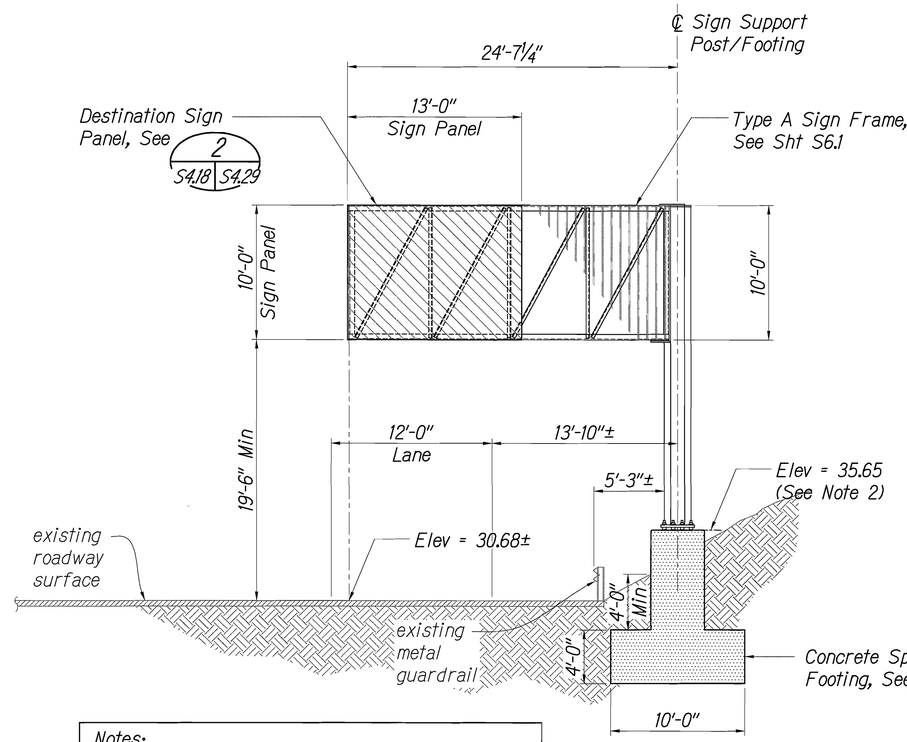
Construction Sequence:

1. Installation of traffic control.
2. Set up temporary sign.
3. Installation of site specific BMP.
4. Remove entire existing sign structure.
5. Remove existing concrete foundation.
6. Construct new concrete spread footing.
7. Erection of new sign structure and sign panel.
8. Backfill and restore disturbed grade to original condition.
9. Remove site specific BMP.
10. Remove traffic control.



H1WBR-453 - PLAN (2) S4.18 | S4.18

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



Notes:

1. See Sheet E3.14 for Revised Electrical Plan.
2. Top of concrete pedestal shall be at least 4", but no more than 6" above existing highest grade. Contractor to regrade around pedestal to accommodate clearance requirement.

H1WBR-453 - ELEVATION (1) S4.18 | S4.18

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

BENCHMARK
Referred to HCTC-55 (Honolulu High Capacity Transit Corridor Project)
Brass Disk
Elev. = 16.68, MSL

KEN KAZUO HAYASHIDA
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No. 6818-S
HAWAII, U.S.A.

EXPIRATION DATE OF THE LICENSE 4/30/2014
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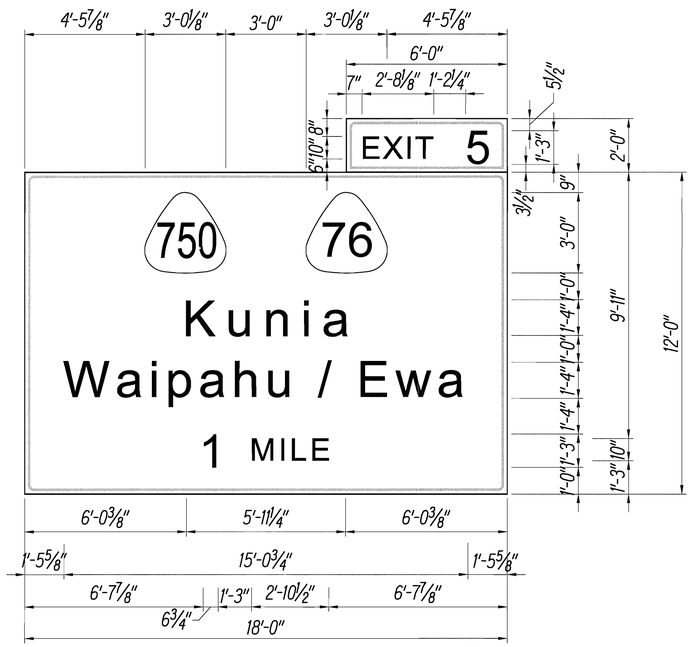
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

SIGN H1WBR-453 GENERAL ARRANGEMENT

INTERSTATE ROUTE H-1, H-2 AND H201
DESTINATION SIGN UPGRADE / REPLACEMENT, PHASE 1
Federal Aid Project NO. - NH-IM-0300(75)
Scale: As Shown Date: Sept 21, 2012

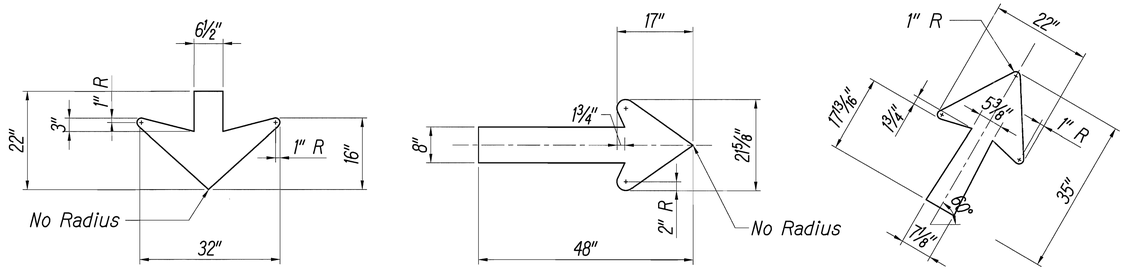
SHEET No. S4.18 OF 138 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-IM-0300(75)	2012	39	138



6.000" Radius, 2.000" Border, White on Green
"EXIT 5" ClearviewHwy-5-W;
12.000" Radius, 2.000" Border, White on Green;
"Kunia" ClearviewHwy-5-W; "Waipahu/Ewa" ClearviewHwy-5-W;
"1 Mile" ClearviewHwy-5-W;

H1EB-103 — Not to Scale — 1 / S4.1 | S4.25



TYPICAL ARROW DETAILS — Scale: 3/4" = 1'-0" — 5 / S4.25 | S4.25

NOTES:
1. For Interstate Route Marker, see State STD Plan TE-10.
2. For State Route Markers and Border details, see State STD Plan TE-12.
3. For Typical Arrow Details, see Detail 5 on sheet S4.25
4. Above Notes are applicable to sheets S4.26 thru S4.30.

KEN KAZUO HAYASHIDA
LICENSED PROFESSIONAL ENGINEER
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HAWAII, U.S.A.

EXPIRATION DATE OF THE LICENSE 4/30/2014
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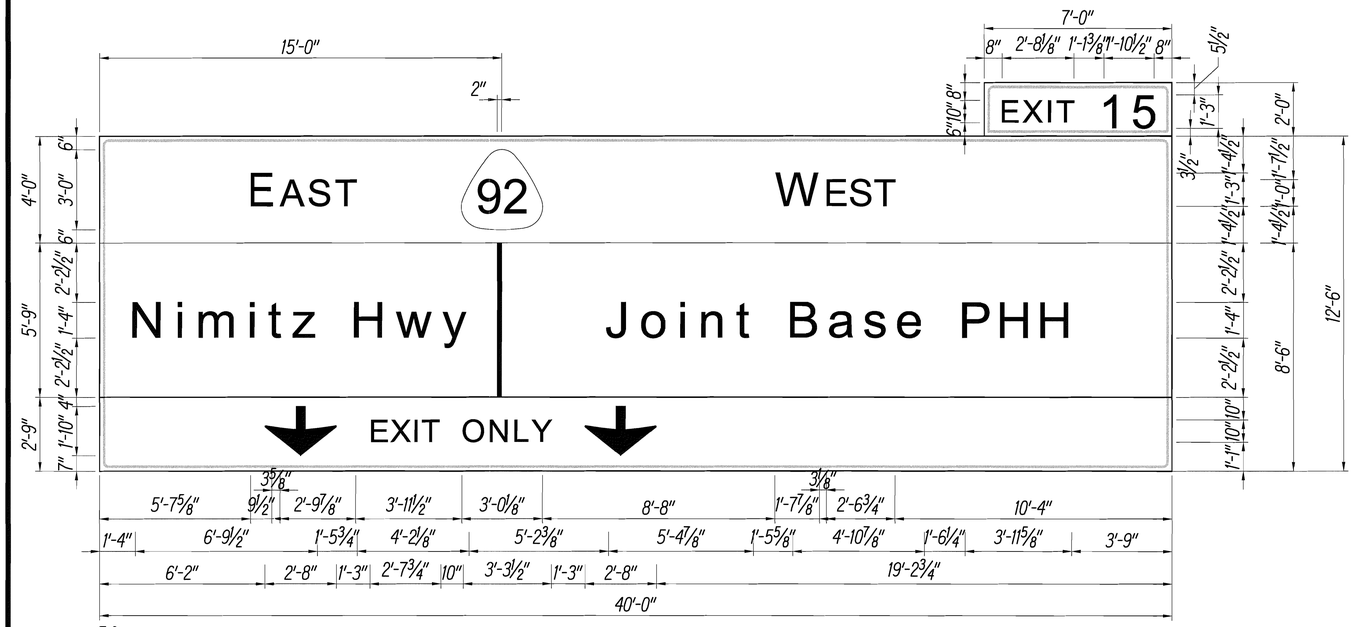
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

DESTINATION SIGN PANEL LAYOUT - 1

INTERSTATE ROUTE H-1, H-2 AND H201
DESTINATION SIGN UPGRADE / REPLACEMENT, PHASE 1
Federal Aid Project NO. - NH-IM-0300(75)
Scale: As Shown Date: Sept 21, 2012

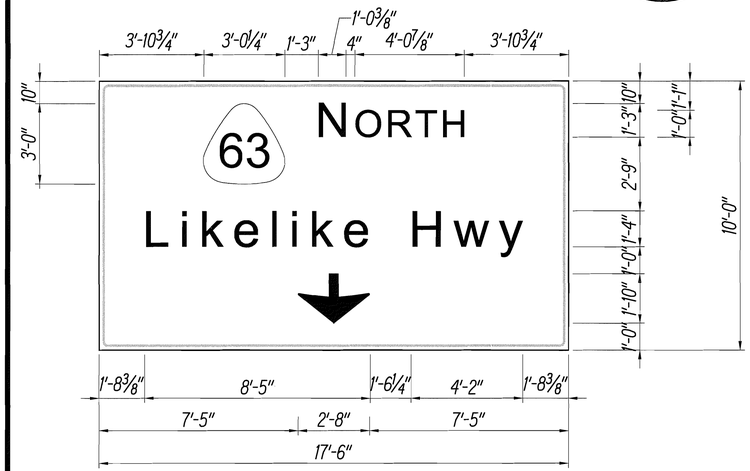
SHEET No. S4.25 OF 138 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-IM-0300(75)	2012	40	138



E-6;
6.000" Radius, 2.000" Border, White on Green
"EXIT 15" ClearviewHwy-5-W;
12.000" Radius, 2.000" Border, White on Green;
"E AST" ClearviewHwy-5-W; "W EST" ClearviewHwy-5-W;
12.000" Radius, 2.000" Border, White on Green
"Nimitz Hwy" ClearviewHwy-5-W;
12.000" Radius, 2.000" Border, White on Green;
"Joint Base PHH" ClearviewHwy-5-W;
12.000" Radius, 2.000" Border, Black on Yellow;
Down Arrow 22.000" 270°; "EXIT ONLY" E Mod; Down Arrow 22.000" 270°;

H1EB-205 — Not to Scale — 1 / S4.5 | S4.26



12.000" Radius, 2.000" Border, White on Green
"N ORTH" ClearviewHwy-5-W; "Likelike Hwy" ClearviewHwy-5-W; Down Arrow 22.000" 270°

H1EBR-351 — Not to Scale — 3 / S4.7 | S4.26

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EXPIRATION DATE OF THE LICENSE 4/30/2014
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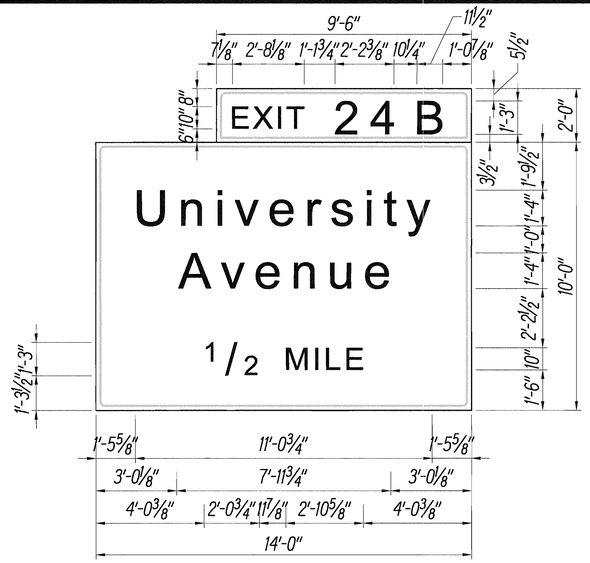
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

DESTINATION SIGN PANEL LAYOUT - 2

INTERSTATE ROUTE H-1, H-2 AND H201
DESTINATION SIGN UPGRADE / REPLACEMENT, PHASE 1
Federal Aid Project NO. - NH-IM-0300(75)
Scale: As Shown — Date: Sept 21, 2012

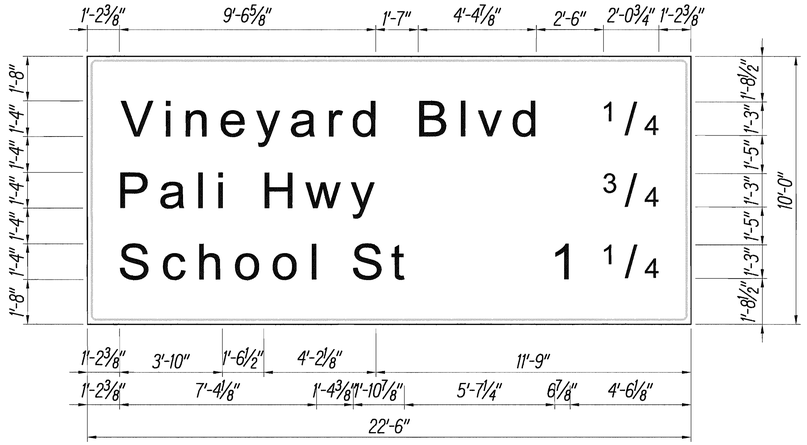
SHEET No. S4.26 OF 138 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-IM-0300(75)	2012	41	138



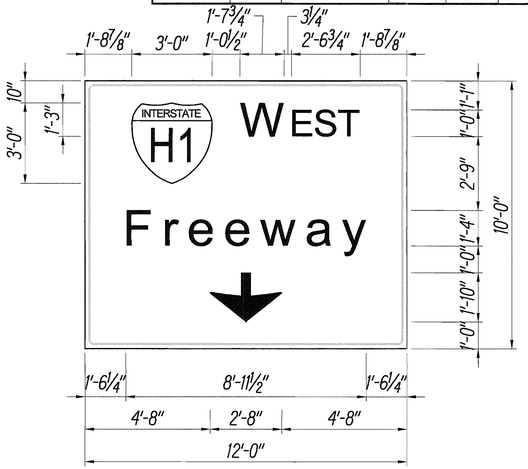
6.000" Radius, 2.000" Border, White on Green
"EXIT 24 B" ClearviewHwy-5-W;
12.000" Radius, 2.000" Border, White on Green;
"University" ClearviewHwy-5-W; "Avenue" ClearviewHwy-5-W;
"½ MILE" ClearviewHwy-5-W;

H1WB-407 — Not to Scale — 1 — S4.9 | S4.27



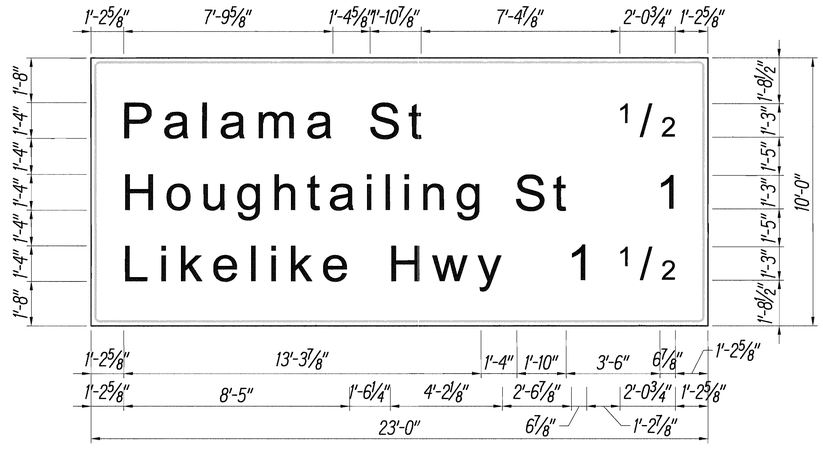
12.000" Radius, 2.000" Border, White on Green
"Vineyard Blvd." ClearviewHwy-5-W; "¼" ClearviewHwy-5-W; "Pali Hwy." ClearviewHwy-5-W;
"¾" ClearviewHwy-5-W; "School St"ClearviewHwy-5-W; "1 ¼" ClearviewHwy-5-W;

H1WB-411 — Not to Scale — 2 — S4.10 | S4.27



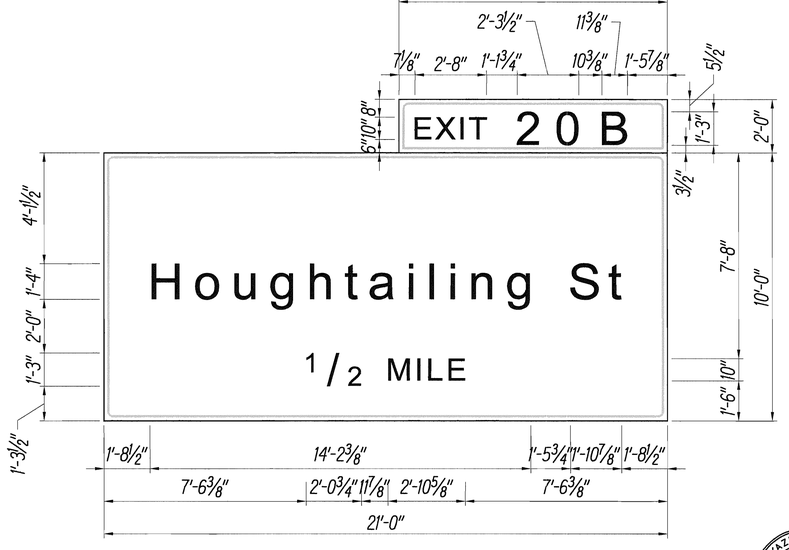
12.000" Radius, 2.000" Border, White on Green
"W EST" ClearviewHwy-5-W; "Freeway" ClearviewHwy-5-W;
Down Arrow 22.000" 270°

H1WB-415 — Not to Scale — 3 — S4.11 | S4.27



12.000" Radius, 2.000" Border, White on Green
"Palama St" ClearviewHwy-5-W; "½" ClearviewHwy-5-W; "Houghtailing St" ClearviewHwy-5-W;
"1" ClearviewHwy-5-W; "Likelike Hwy" ClearviewHwy-5-W; "1½" ClearviewHwy-5-W;

H1WB-416 — Not to Scale — 4 — S4.12 | S4.27



6.000" Radius, 2.000" Border, White on Green
"EXIT 20 B" ClearviewHwy-5-W;
12.000" Radius, 2.000" Border, White on Green;
"Houghtailing St" ClearviewHwy-5-W; "½ MILE" ClearviewHwy-5-W;

H1WB-417 LEFT — Not to Scale — 5 — S4.13 | S4.27

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

DESTINATION SIGN PANEL LAYOUT - 3

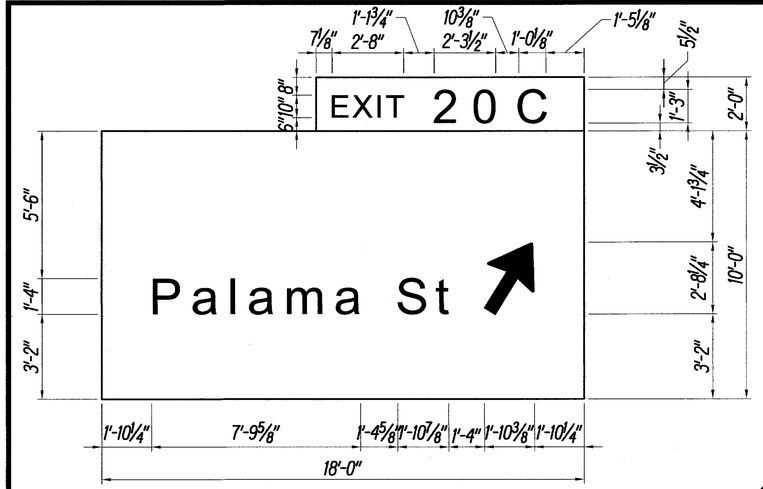
INTERSTATE ROUTE H-1, H-2 AND H201
DESTINATION SIGN UPGRADE / REPLACEMENT, PHASE I
Federal Aid Project NO. - NH-IM-0300(75)
Scale: As Shown — Date: Sept 21, 2012

KEN KAZUO HAYASHIDA — LICENSED PROFESSIONAL ENGINEER — No. 6818-S — HAWAII, U.S.A.

EXPIRATION DATE OF THE LICENSE 4/30/2014
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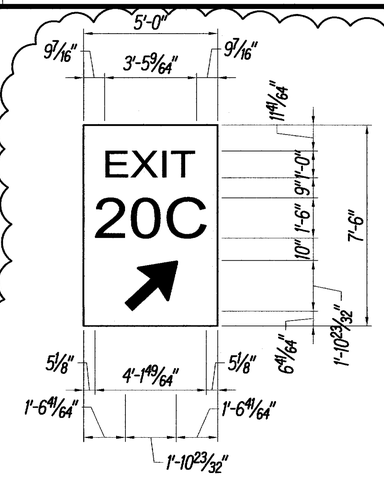
SHEET No. S4.27 OF 138 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-IM-0300(75)	2012	42	138



6.000" Radius, 2.000" Border, White on Green
"EXIT 20 C" ClearviewHwy-5-W;
12.000" Radius, 2.000" Border, White on Green;
"Palama St" ClearviewHwy-5-W; Arrow 160 - 35.000" 60°

H1WB-417 RIGHT (1) S4.13 | S4.28
Not to Scale

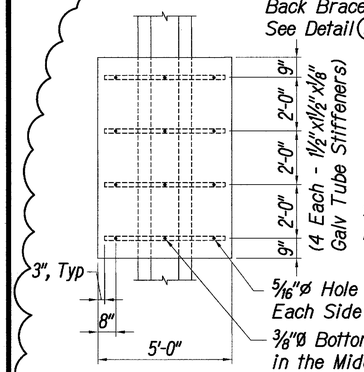


6.00" Radius, 1.50" Border, White on Green
"EXIT" E 150% spacing; "20 C" E 75% spacing;
Standard Arrow Custom 29.25" X 18.25" 45°;

H1WB-417 (SIGN ON POST) (2) S4.13 | S4.28
Not to Scale

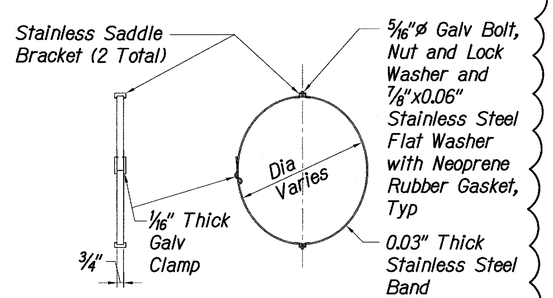
Notes:
1. *The vertical distance from the bottom of the sign to the finish grade of roadway shall be 7 feet minimum.*
2. *See detail (3) S4.28 | S4.28 for mounting installation for the new sign.*

C1



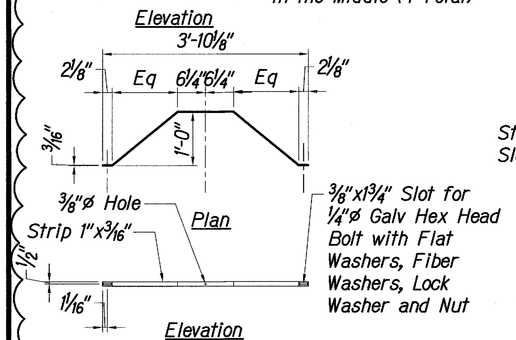
Plan View

Elevation



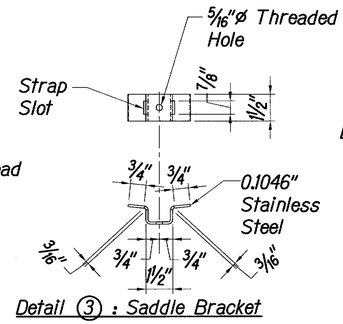
Left Side View Plan

Detail (1) : Band Bracket

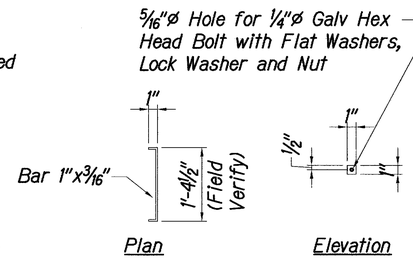


Elevation

Detail (2) : Back Brace Details



Detail (3) : Saddle Bracket

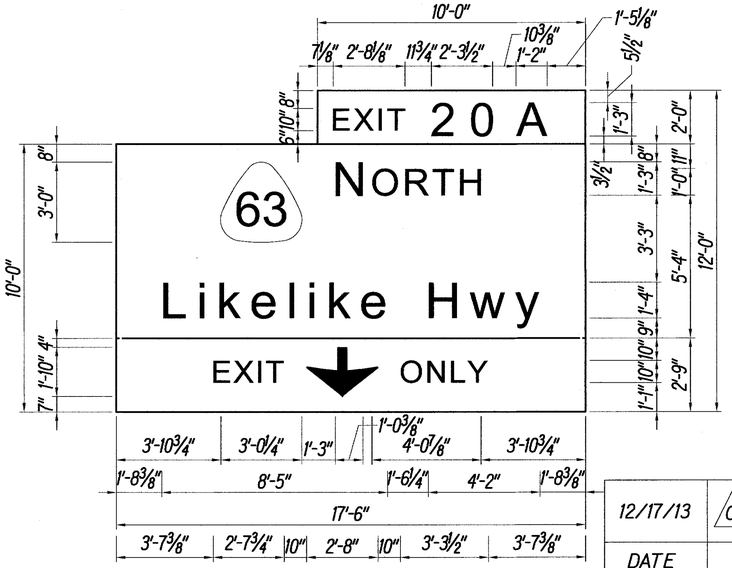


Plan Elevation

Detail (4) : Special Bracket

Note:
1. *See HDOT STD Plan TE-01 and TE-01A for additional information.*
2. *All steel members shall be hot-dipped galvanized after fabrication.*

H1WB-417 EXIT SIGN MOUNTING INSTALLATION (3) S4.28 | S4.28
Not to Scale



6.000" Radius, 2.000" Border, White on Green
"EXIT 20 A" ClearviewHwy-5-W;
12.000" Radius, 2.000" Border, White on Green;
"N ORTH" ClearviewHwy-5-W; "Likelike Hwy." ClearviewHwy-5-W;
12.000" Radius, 2.000" Border, Black on Yellow
"EXIT" E Mod; Down Arrow 22.000" 270°; "ONLY" E Mod;

H1WB-420 (6) S4.15 | S4.28
Not to Scale

KEN KAZUO HAYASHIDA — LICENSED PROFESSIONAL ENGINEER — No. 6818-S — HAWAII, U.S.A.

EXPIRATION DATE OF THE LICENSE 4/30/2014
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DATE	REVISION
12/17/13	C1 Revised Design of Exit 20C Sign

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

DESTINATION SIGN PANEL LAYOUT - 4

INTERSTATE ROUTE H-1, H-2 AND H201
DESTINATION SIGN UPGRADE / REPLACEMENT, PHASE 1
Federal Aid Project NO. - NH-IM-0300(75)
Scale: As Shown Date: Sept 21, 2012

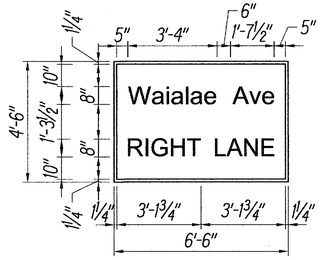
SHEET No. S4.28 OF 138 SHEETS

C.O. 42

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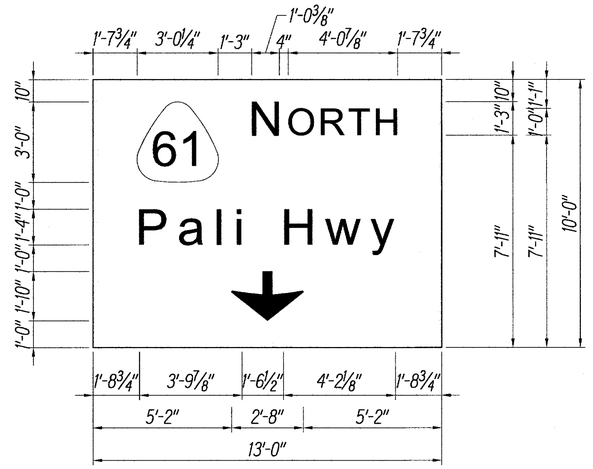
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-IM-0300(75)	2012	43	138

C1



NOTES:
1. The Interim Destination Sign for H1WBR-452 shall be done in accordance with the "Manual on Uniform Traffic Control Devices for Streets and Highways", 2003 edition. Type E text shall be used for the lettering.
2. The sign sheeting shall conform to ASTM D-4956, TYPE XI.
3. See Sheet S4.17 for Interim Destination Sign locations (Total 2 locations).

H1WBR-452 — 1
Not to Scale — S4.17 | S4.29



12.000" Radius, 2.000" Border, White on Green
"N ORTH" ClearviewHwy-5-W; "Pali Hwy" ClearviewHwy-5-W;
Down Arrow 22.000" 270°;

H1WBR-453 — 2
Not to Scale — S4.18 | S4.29

06/16/14	C1 Revised Design of the Sign H1WBR-452
DATE	REVISION

KEN KAZUO HAYASHIDA
LICENSED PROFESSIONAL ENGINEER
No. 6818-S
HAWAII, U.S.A.

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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

DESTINATION SIGN PANEL LAYOUT - 5

INTERSTATE ROUTE H-1, H-2 AND H201
DESTINATION SIGN UPGRADE / REPLACEMENT, PHASE 1
Federal Aid Project NO. - NH-IM-0300(75)
Scale: As Shown — Date: Sept 21, 2012

SHEET No. S4.29 OF 138 SHEETS

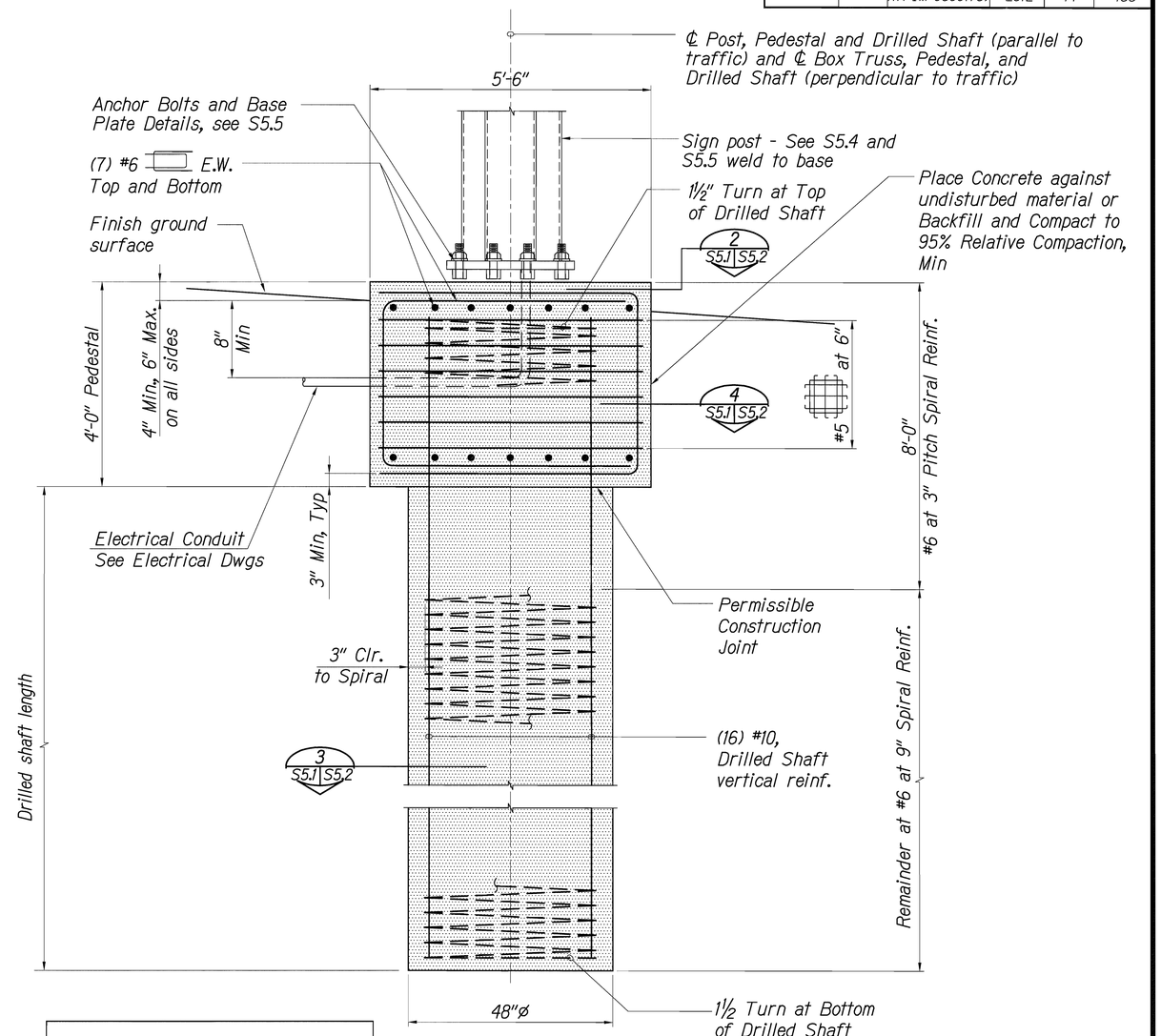
C.O. 43

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FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-IM-0300(75)	2012	44	138

Sign Frame Foundation Notes:

1. Concrete for drilled shafts shall have a minimum 28-day compressive strength of 4,500 psi.
2. Reinforcing steel shall be deformed bars conforming to ASTM A615, Grade 60.
3. For the location and size of each sign frame foundation (Drilled Shaft foundation or Spread Footing), see Sht S4.1 to S4.18 - Sign General Arrangement.
4. See Sht S2.9 - Structural General Notes, for additional notes related to foundation.
5. The conduits into the sign frame foundation is reserved for future use. Conduit shall slope away from pole foundation. Conduit shall stub out 5'-0" minimum.
6. Grounding conductor shall be attached to sign support.
7. Drilled shaft/Spread footing vertical and horizontal reinforcing shall be placed so that it does not conflict with the anchor bolts and anchor plates.
8. Drilled shaft shall be constructed with the use of temporary casing to prevent caving.
9. A minimum 5 foot head of concrete above the bottom of the casing or adequate concrete head to counter hydrostatic pressure shall be maintained during removal of the casing to reduce the potential for "necking" of the drilled shaft.
10. In anticipation of existence of shallow ground water during drilled shaft excavations, concrete placement by tremie methods will be required during construction of the drilled shafts under such conditions.
11. The Contractor shall exercise care in drilling the shaft holes and placing concrete into the holes. Drilling by methods utilizing drilling fluids is not allowed. A low-shrink concrete mix with high slump (7 to 9-inch range) shall be used to provide close contact between the drilled shafts and the surrounding soils. Concrete shall be placed in a suitable manner to reduce the potential for segregation of the aggregates from the concrete mix.
12. Excavations for drilled shaft shall be observed by the Geotechnical Engineer prior to placement of concrete and reinforcing.
13. For sign H1WB-417, drilled shafts are designed to be embedded into moderately weathered basalt encountered at depth of 18 feet. Coring into the moderately weathered basalt will be required.
14. Rock condition is assumed for the sign location of H1EB-205 and H1WB-407 based on field observation. The Contractor shall inform the Engineer immediately if material other than rock is encountered during the excavation.
15. Any soft and/or loose materials encountered at the bottom of the footing excavations should be over-excavated to expose firm material. The over-excavation should be backfilled with lean concrete, or granular material compacted to a minimum of 95% relative compaction.
16. Bottom of all footing excavations bearing on the in-situ soils and engineered fills shall be compacted to a minimum of 95% relative compaction.
17. The vertical reinforcing of drilled shaft, concrete pedestal and/or spread footing shall be placed so that it does not conflict with the anchor bolts and anchor plates.
18. Crosshole Sonic Log (CSL) is required for every drilled shaft. The access tubes shall not interfere with anchor bolt installation.



Note:
For the Signs with a New Concrete Pedestal on the Top of Drilled Shaft Foundation, see 1 S5.1 S5.2

ELEVATION - TYPICAL SIGN POST
DRILLED SHAFT FOUNDATION DETAIL 1

Not to Scale

S4.5, S4.6, S4.10, S4.13, S5.2 S5.1

KEN KAZUO HAYASHIDA
LICENSED PROFESSIONAL ENGINEER
No. 6818-S
HAWAII, U.S.A.

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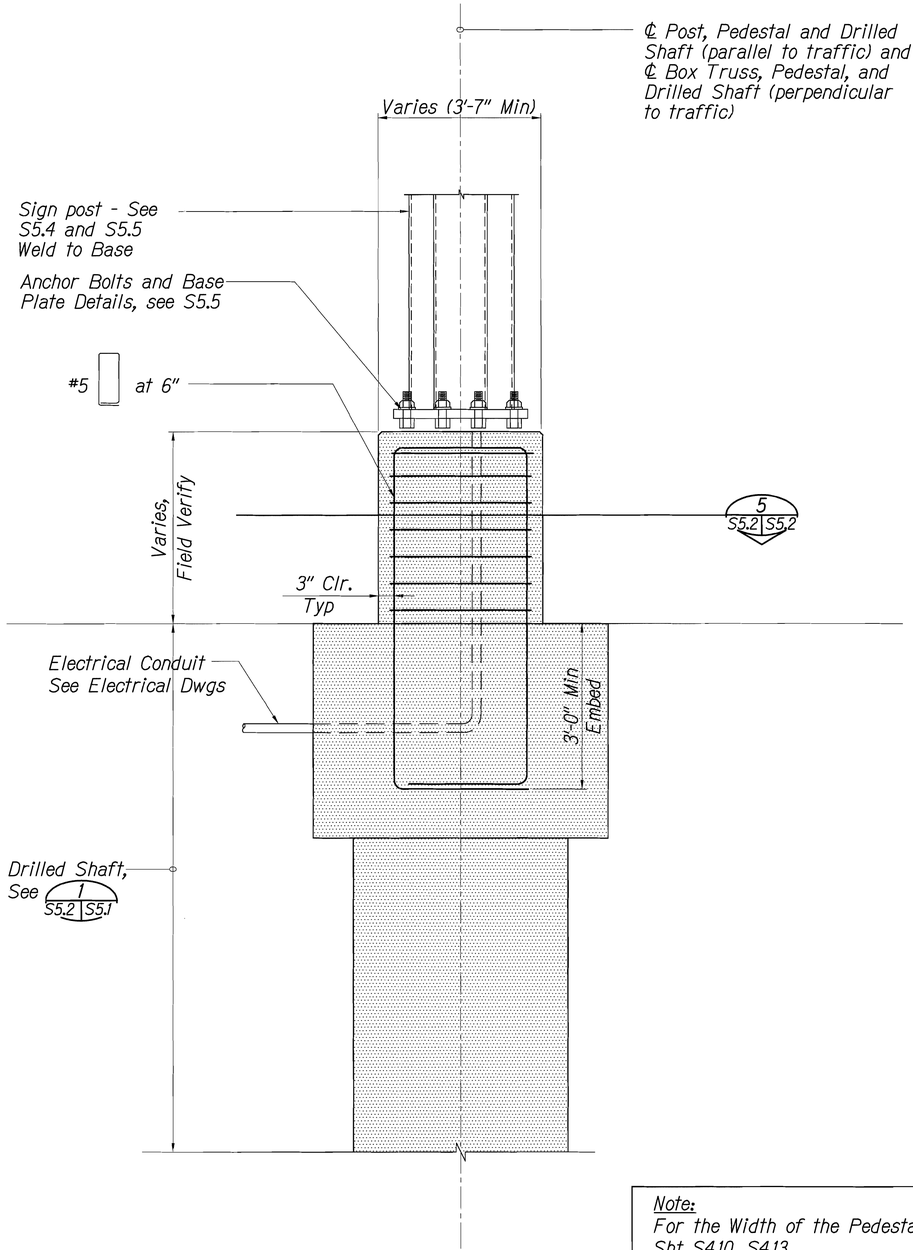
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

SIGN FRAME FOUNDATION NOTES & DRILLED SHAFT

INTERSTATE ROUTE H-1, H-2 AND H201
DESTINATION SIGN UPGRADE / REPLACEMENT, PHASE 1
Federal Aid Project NO. - NH-IM-0300(75)
Scale: As Shown Date: Sept 21, 2012

SHEET No. S5.1 OF 138 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	WH-IM-0300(75)	2012	45	138

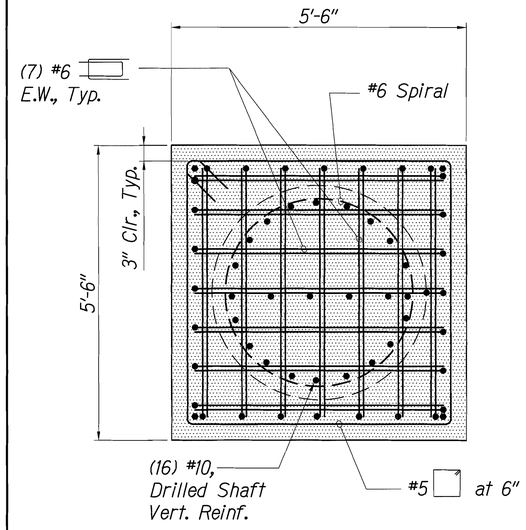


ELEVATION - NEW CONCRETE PEDESTAL ON DRILLED SHAFT FOUNDATION DETAIL

Not to Scale

1 S4.10, S4.13, S4.16, S5.1, S5.10, S5.12 | S5.2

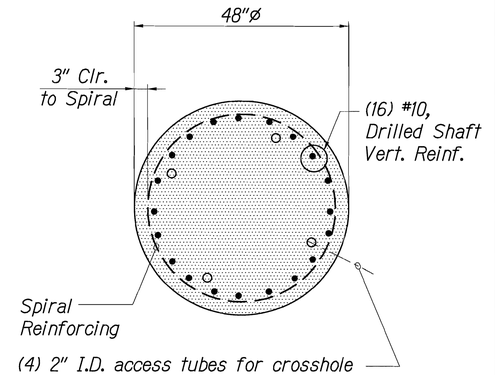
Note:
For the Width of the Pedestal, see Sht S4.10, S4.13.



SECTION

Not to Scale

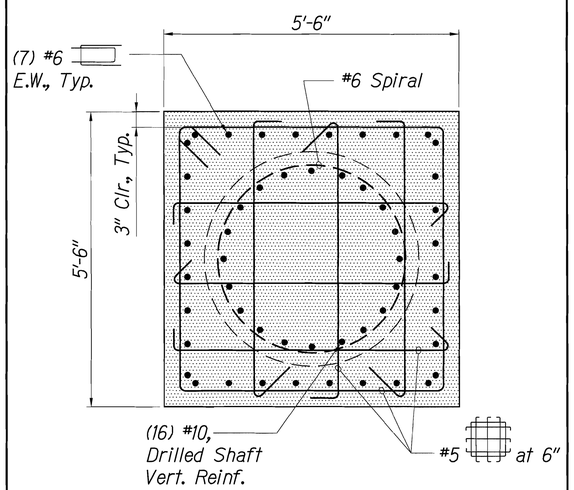
2 S5.1 | S5.2



SECTION

Not to Scale

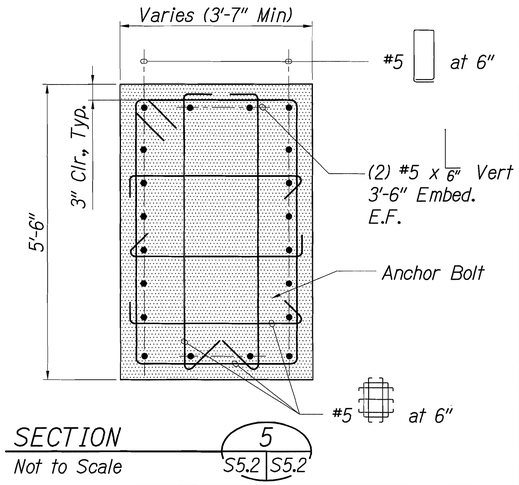
3 S5.1 | S5.2



SECTION

Not to Scale

4 S5.1 | S5.2



SECTION

Not to Scale

5 S5.2 | S5.2

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EXPIRATION DATE OF THE LICENSE 4/30/2014
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HIGHWAYS DIVISION

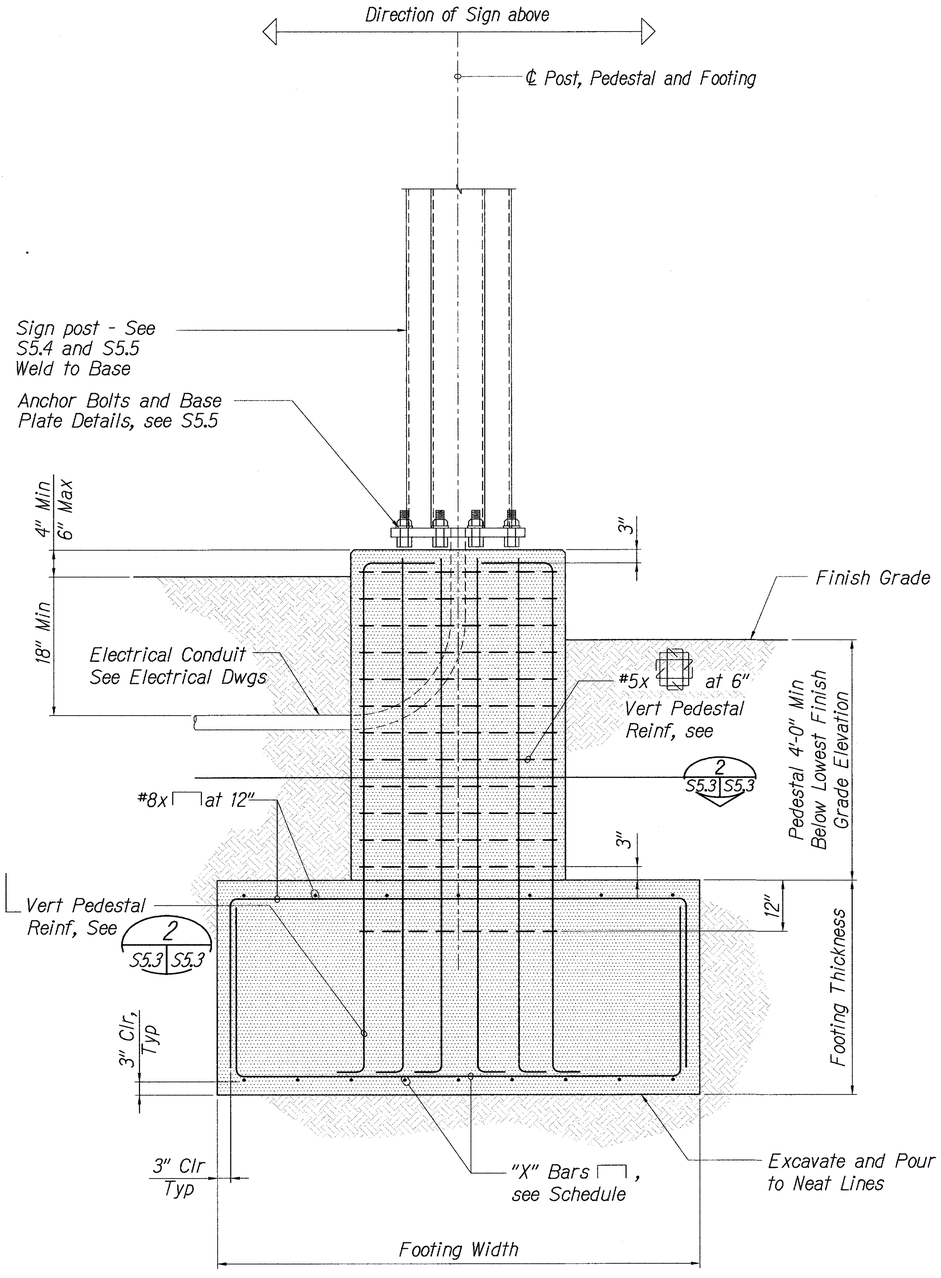
SIGN FRAME FOUNDATION- DRILLED SHAFT DETAILS

INTERSTATE ROUTE H-1, H-2 AND H201
DESTINATION SIGN UPGRADE / REPLACEMENT, PHASE 1
Federal Aid Project NO. - NH-IM-0300(75)

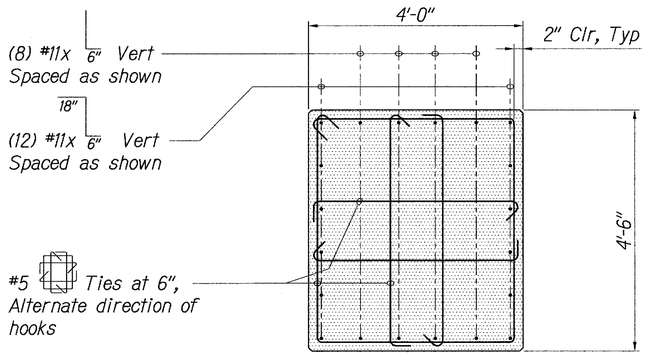
Scale: As Shown Date: Sept 21, 2012

SHEET No. S5.2 OF 138 SHEETS

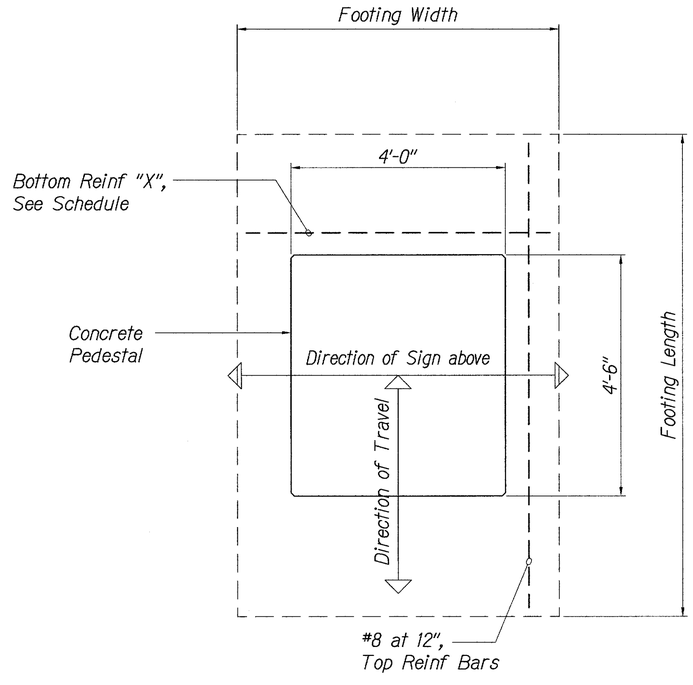
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-IM-0300(75)	2012	46	138



TYPICAL SIGN POST SPREAD FOOTING DETAIL 1
Scale: 3/4" = 1'-0"
S4.1, S4.7, S4.9, S4.11, S4.12, S4.15, S4.18 | S5.3



SECTION 2
Scale: 3/4" = 1'-0"
S5.3 | S5.3



PLAN - TYPICAL FOOTING DETAIL 3
Not to Scale
S5.3 | S5.3

REBAR SCHEDULE		
	Destination Sign No.	"X" Bars
1.	H1EBR-351, H1WB-416, H1WBR-453	# 9 at 12"
C1 2.	H1WB-407, H1WB-415, H1WB-420	# 9 at 9"
3.	H1EB-103	# 9 at 6"

C1 Note:
For the Location and Size of each Sign Frame Concrete Spread Footing, see Sht S4.1, S4.7, S4.9, S4.11, S4.12, S4.14, S4.15, S4.18 - Sign General Arrangement.

DATE	REVISION
06/16/14	C1 Revised Design of the Sign H1WBR-452

KEN KAZUO HAYASHIDA
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HIGHWAYS DIVISION

SIGN FRAME FOUNDATION CONCRETE SPREAD FOOTING

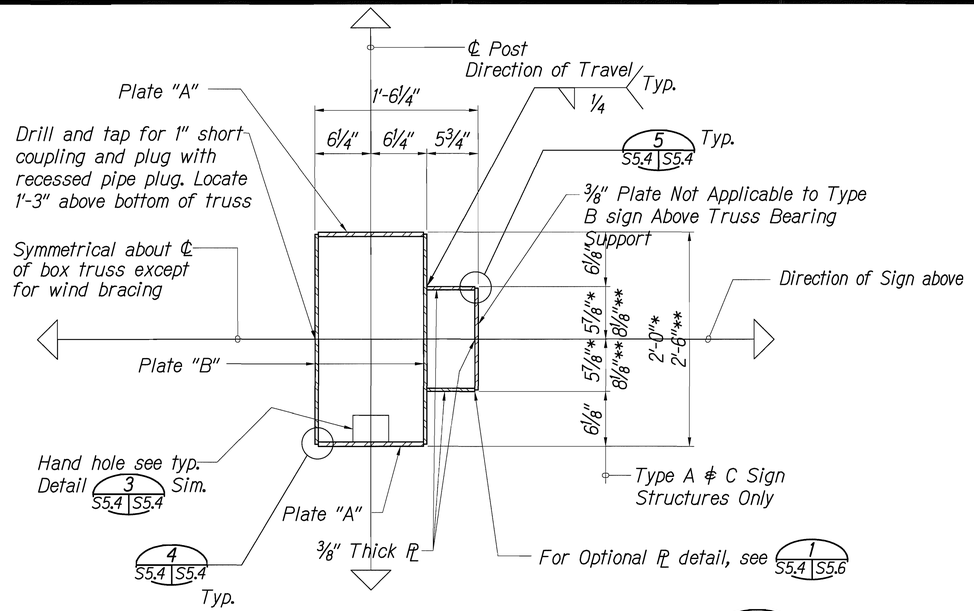
INTERSTATE ROUTE H-1, H-2 AND H201
DESTINATION SIGN UPGRADE / REPLACEMENT, PHASE 1
Federal Aid Project NO. - NH-IM-0300(75)
Scale: As Shown Date: Sept 21, 2012

SHEET No. S5.3 OF 138 SHEETS

C.O. 46

Plotted by: Tamanaha 3-14-15 2239 Change Order 24-2012 14-06-16 2239_CHANGE ORDER_46.dwg, 16, 6/16/2014 3:40:25 PM, tamanaha

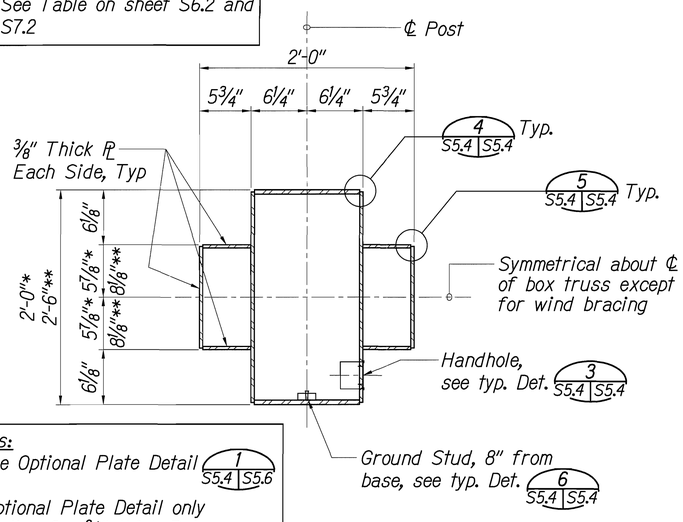
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-IM-0300(75)	2012	47	138



TYPICAL COLUMN SECTION ABOVE BEARING SUPPORT 1
S6.1, S7.1 | S5.4
Not to Scale

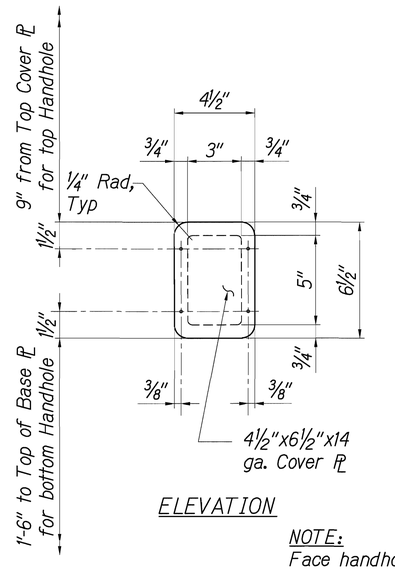
* For "W" = 2'-0"
** For "W" = 2'-6"
"W" = wind bracing support. See Table on sheet S6.2 and S7.2

Note: For balance of information, see 4 S5.4 | S5.6

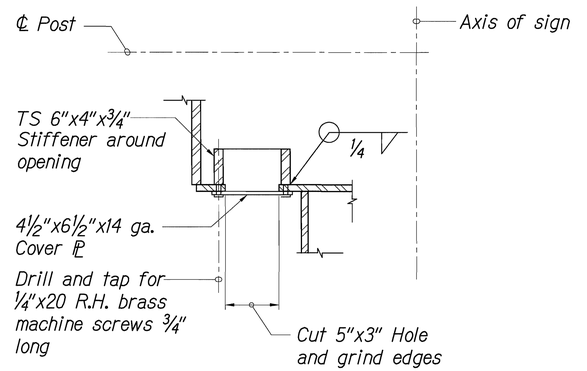


Notes:
1. See Optional Plate Detail 1 S5.4 | S5.6
2. Optional Plate Detail only applies for 3/8" thick PL.

TYPICAL COLUMN SECTION BELOW BEARING SUPPORT 2
S6.1, S7.1 | S5.4
Not to Scale



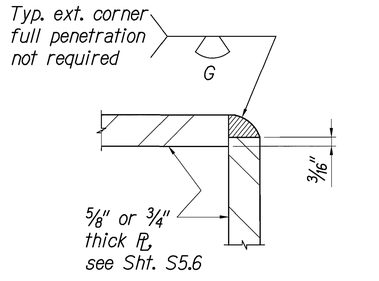
ELEVATION



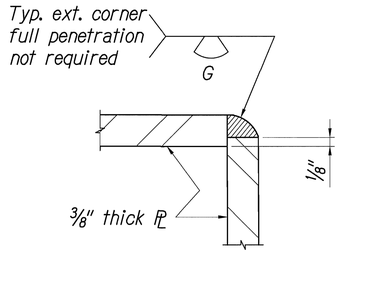
SECTION

NOTE:
Face handhole and cover plate away from travelway except as shown. Submit location to Engineer for approval.

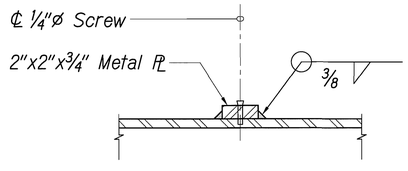
TYPICAL HANDHOLE AND COVER PLATE DETAIL 3
S5.4 | S5.4
Not to Scale



CONN. DETAIL 4
S5.4 | S5.4
Not to Scale



CONN. DETAIL 5
S5.4 | S5.4
Not to Scale



TYPICAL GROUND STUD DETAIL 6
S5.4 | S5.4
Not to Scale

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HAWAII, U.S.A.

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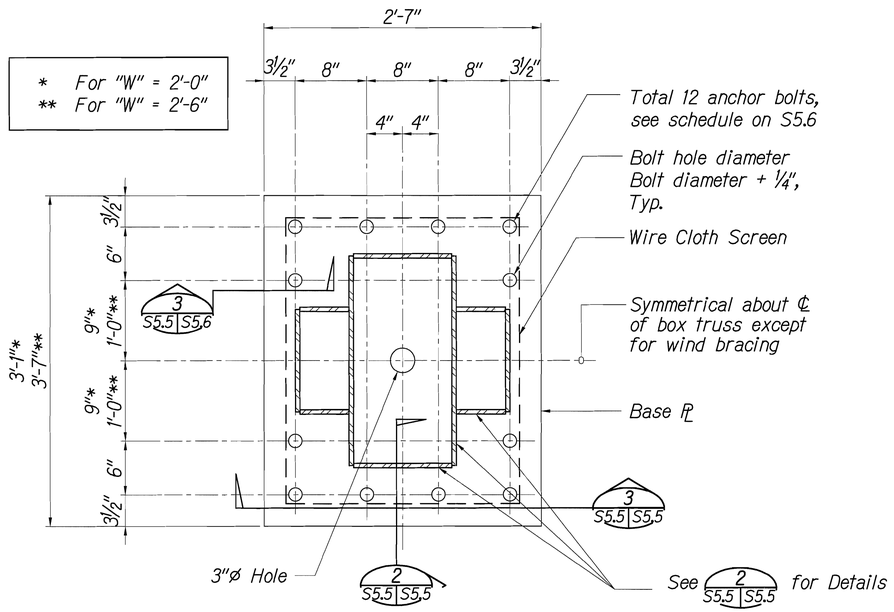
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TYPICAL ANCHORAGE DETAILS - 1

INTERSTATE ROUTE H-1, H-2 AND H201
DESTINATION SIGN UPGRADE / REPLACEMENT, PHASE 1
Federal Aid Project NO. - NH-IM-0300(75)
Scale: As Shown Date: Sept 21, 2012

SHEET No. S5.4 OF 138 SHEETS

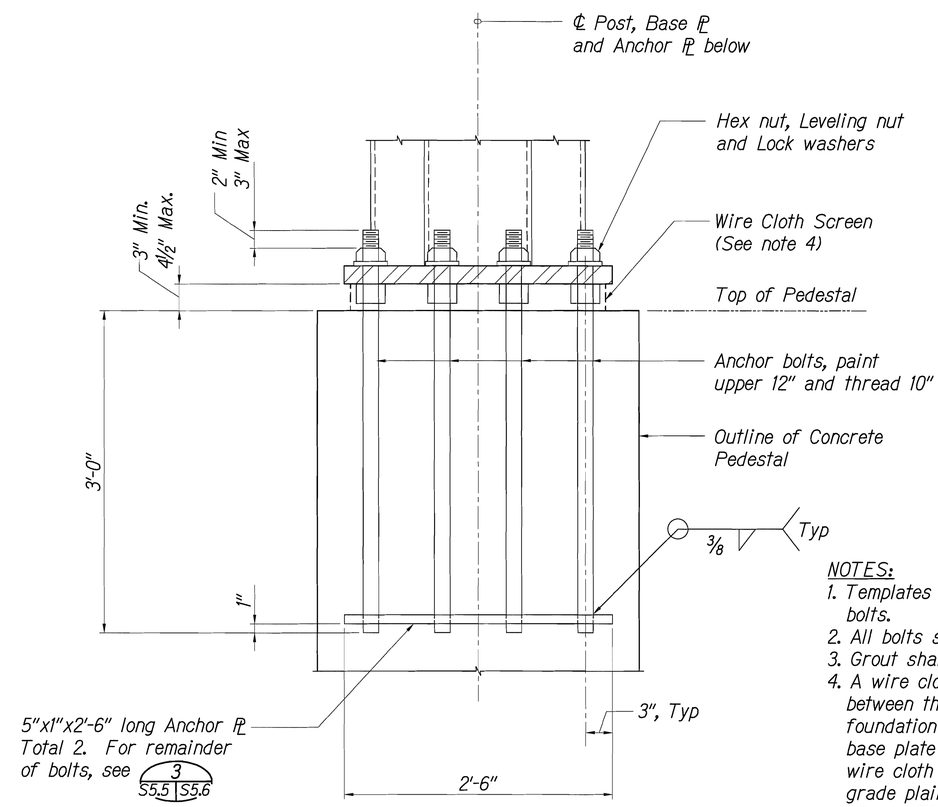
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-IM-0300(75)	2012	48	138



PLAN

Notes:
1. Anchor plate may be retained with hex nut or formed head.
2. "W" = Wind bracing width, see table on sheet S6.2, S7.2 and S8.2.

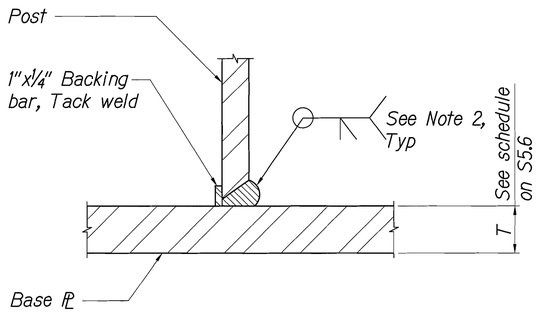
TYPICAL BASE PLATE DETAIL — 1 | S6.1, S7.1 | S5.5
Not to Scale



ELEVATION

TYPICAL ANCHORAGE DETAIL — 3 | S5.5 | S5.5
Not to Scale

NOTES:
1. Templates shall be used to correctly align the bolts.
2. All bolts shall be vertical.
3. Grout shall not be placed under base plate.
4. A wire cloth screen shall be placed vertically between the base plate and the top of the foundation and wrapped horizontally around the base plate with a 3 inches maximum lap. The wire cloth shall be galvanized steel standard grade plain weave 2X2 mesh 0.063 inch diameter wires. The screen shall be attached to the base plate with stainless steel self tapping ¼" inch diameter screws with stainless steel washers spaced at 9 inches on centers. This is to prevent debris from getting under the plate.
5. Plumbness of anchor bolts: See note 6(L) on sheet S2.10. If the anchor bolts are installed such that they are not plumb after pouring the concrete, the entire pedestal shall be removed and reconstructed.



Notes:
1. For Base Plate, Anchor Bolt Schedule, See 4 S5.5 | S5.6
2. Weld size shall Match PL thickness, for balance of PL A or B information, See 4 S5.5 | S5.6

TYPICAL POST TO BASE PLATE WELDING DETAIL — 2 | S5.5 | S5.5
Not to Scale

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HAWAII, U.S.A.

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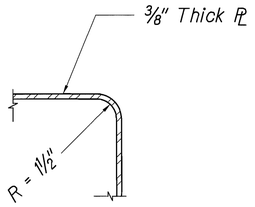
STATE OF HAWAII
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HIGHWAYS DIVISION

TYPICAL ANCHORAGE DETAILS - 2

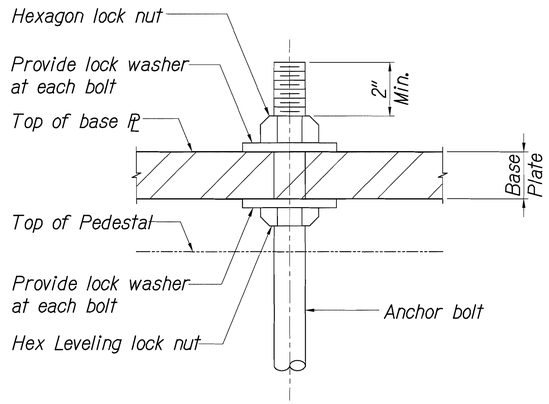
INTERSTATE ROUTE H-1, H-2 AND H201
DESTINATION SIGN UPGRADE / REPLACEMENT, PHASE 1
Federal Aid Project NO. - NH-IM-0300(75)
Scale: As Shown Date: Sept 21, 2012

SHEET No. S5.5 OF 138 SHEETS

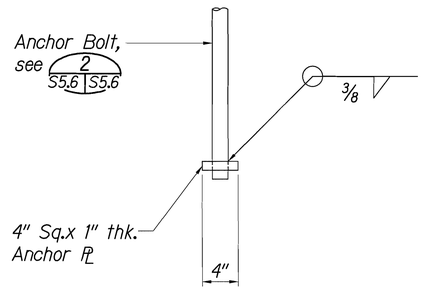
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-IM-0300(75)	2012	49	138



OPTIONAL PLATE DETAIL (1) S5.4 | S5.6
Not to Scale



TYPICAL BASE PLATE ANCHOR BOLT CONNECTION DETAIL (2) S5.6 | S5.6
Not to Scale



SINGLE SIDE BOLT (3) S5.5 | S5.6
Not to Scale

SIGN POST, BASE PLATE AND ANCHOR BOLT SCHEDULE				
SIGN DESIGNATION	POST PLATE "A"	POST PLATE "B"	BASE PLATE "T"	ANCHOR BOLT
H1EB-103, H1EB-205, H1WB-417	3/4"	3/4"	3"	(12) 2 1/2"ø
ALL OTHERS	5/8"	5/8"	2"	(12) 1 1/2"ø

SIGN POST, BASE PLATE AND ANCHOR BOLT SCHEDULE (4) S5.4, S5.5 | S5.6
Not to Scale

KEN KAZUO HAYASHIDA
LICENSED PROFESSIONAL ENGINEER
No. 6818-S
HAWAII, U.S.A.

EXPIRATION DATE OF THE LICENSE 4/30/2014
THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION

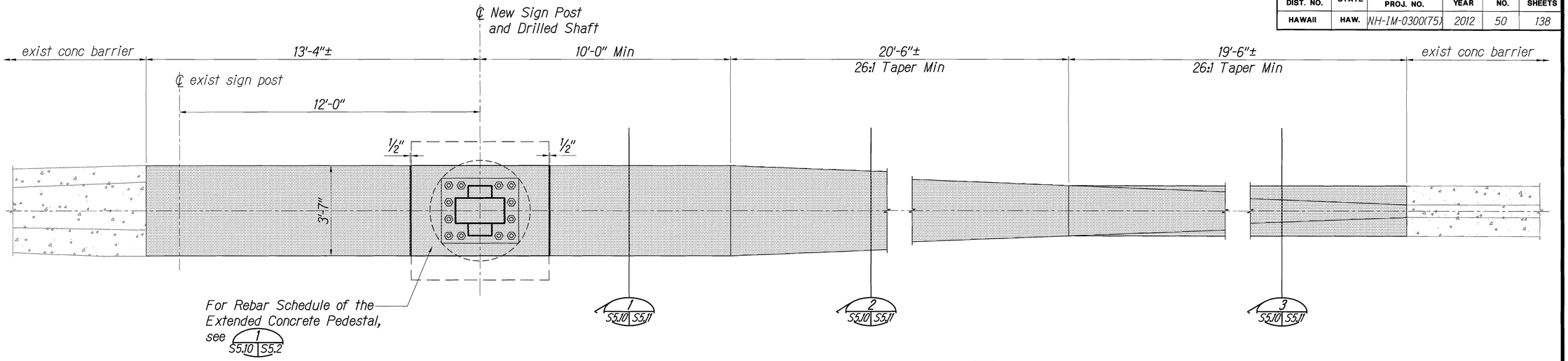
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TYPICAL ANCHORAGE DETAILS - 3

INTERSTATE ROUTE H-1, H-2 AND H201
DESTINATION SIGN UPGRADE / REPLACEMENT, PHASE 1
Federal Aid Project NO. - NH-IM-0300(75)
Scale: As Shown Date: Sept 21, 2012

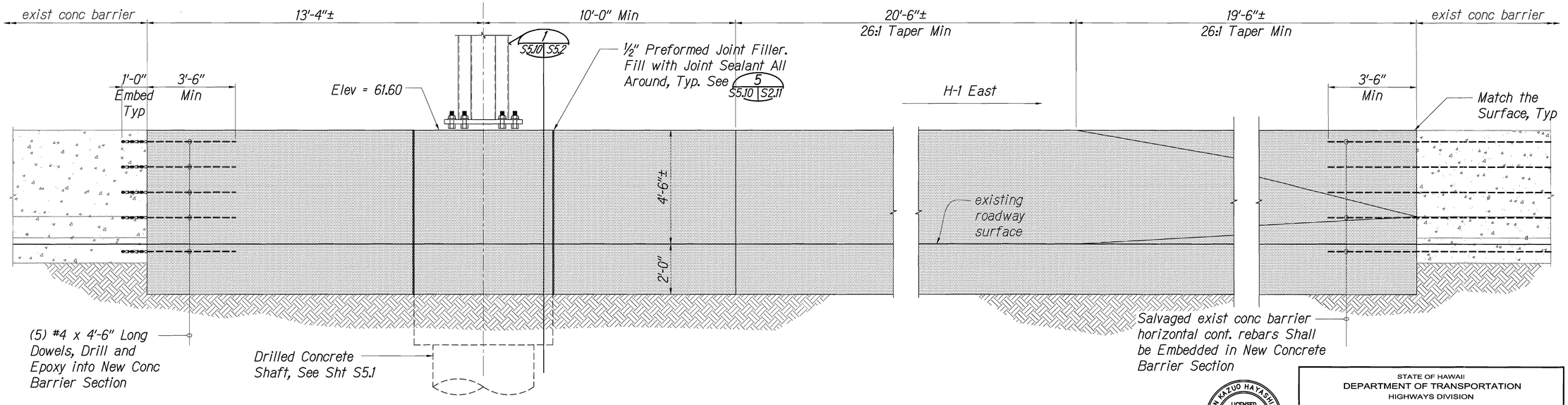
SHEET No. S5.6 OF 138 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-IM-0300(75)	2012	50	138



PLAN - CONCRETE BARRIER TRANSITION 1 S5.10 S5.10

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



ELEVATION - CONCRETE BARRIER TRANSITION B S5.10 S5.10

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

KEN KAZUO HAYASHIDA
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EXPIRATION DATE OF THE LICENSE 4/30/2014
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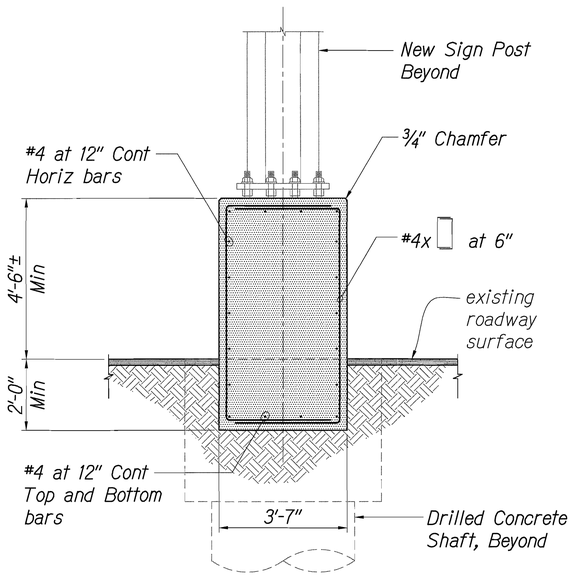
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

H1WB-411 NEW CONCRETE BARRIER PLAN & ELEV.

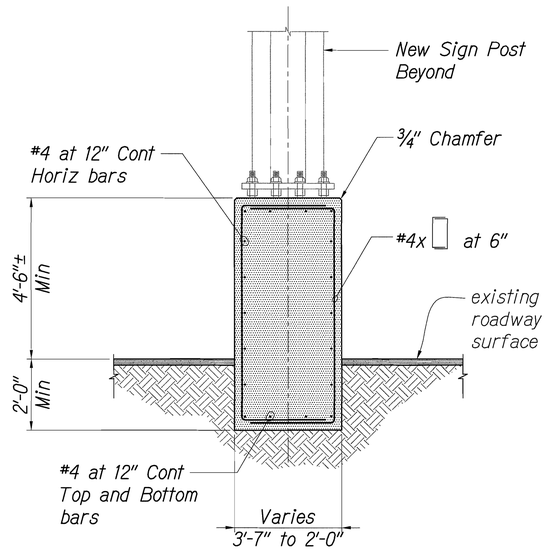
INTERSTATE ROUTE H-1, H-2 AND H201
DESTINATION SIGN UPGRADE / REPLACEMENT, PHASE 1
Federal Aid Project NO. - NH-IM-0300(75)
Scale: As Shown Date: Sept 21, 2012

SHEET No. S5.10 OF 138 SHEETS

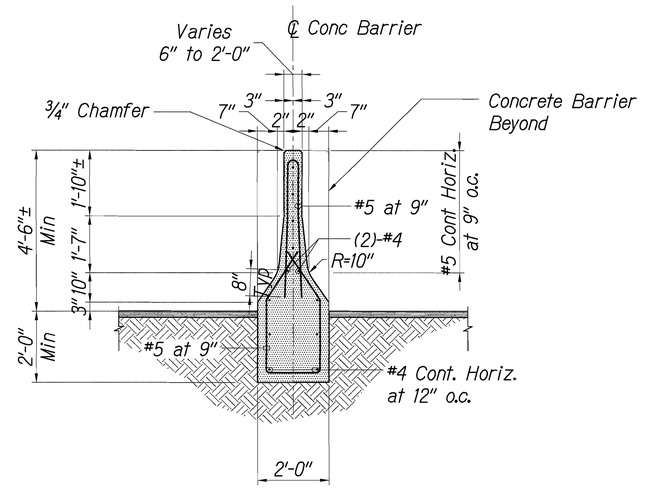
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-IM-0300(75)	2012	51	138



SECTION 1 — S5.10 | S5.11
Scale: 1/2" = 1'-0"



SECTION 2 — S5.10 | S5.11
Scale: 1/2" = 1'-0"



SECTION 3 — S5.10 | S5.11
Scale: 1/2" = 1'-0"

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DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

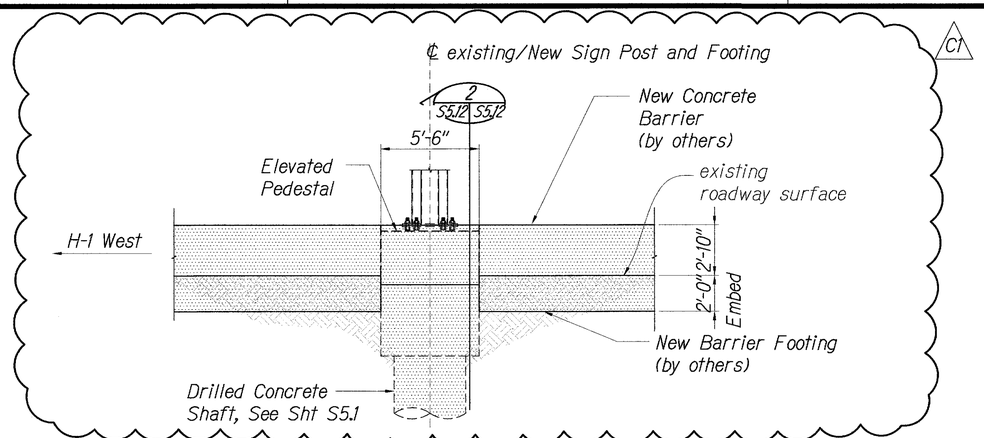
H1WB-411 NEW CONCRETE BARRIER DETAILS

INTERSTATE ROUTE H-1, H-2 AND H201
DESTINATION SIGN UPGRADE / REPLACEMENT, PHASE 1
Federal Aid Project NO. - NH-IM-0300(75)

Scale: As Shown — Date: Sept 21, 2012

SHEET No. S5.11 OF 138 SHEETS

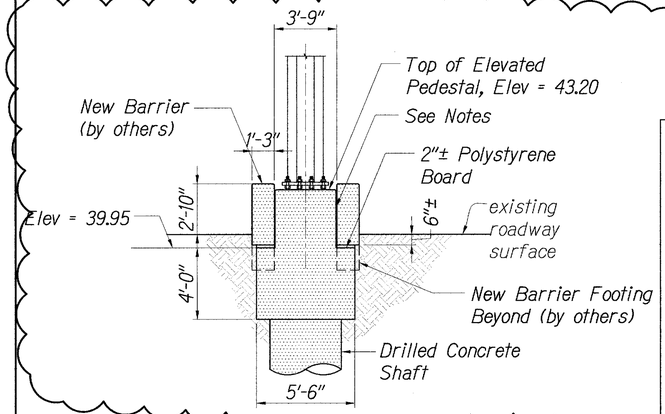
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-IM-0300(75)	2012	52	138



H1WB-417 - RESTORE CONCRETE BARRIER - ELEVATION VIEW

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

1
S4.13 S5.12



SECTION

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

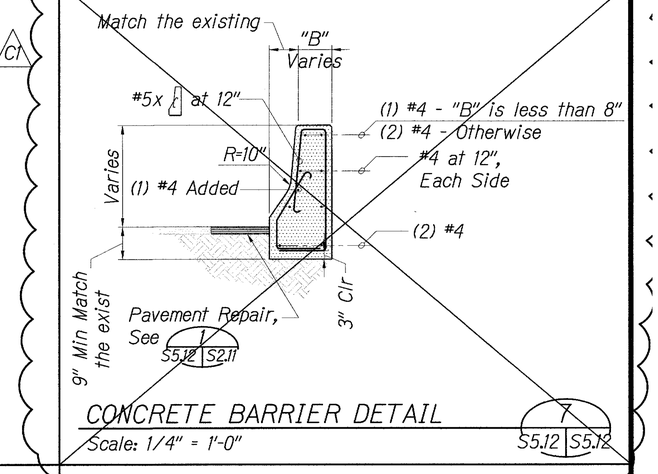
2
5.12 S5.12

C1

Notes:

1. The Contractor shall coordinate with Hawaiian Dredging Construction Company Inc. (H-1 Resurfacing Project) regarding the layout and construction of the new concrete barrier with respect to elevated pedestal of the new sign foundation. The new concrete barrier may have to form around the new sign footing pedestal, depending on the accuracy of the TOPO file and the skew of the road. The gap (if any) between the new concrete barrier and the elevated sign pedestal shall not be greater than 2" and shall be filled by Polystyrene Board after the construction so that no debris will collect in the gap.

C1



CONCRETE BARRIER DETAIL

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

1
S5.12 S5.12

DATE	REVISION
09/20/13	C1 Revised design of sign foundation

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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

RESTORATION OF CONCRETE BARRIER AND MISC. DETAILS

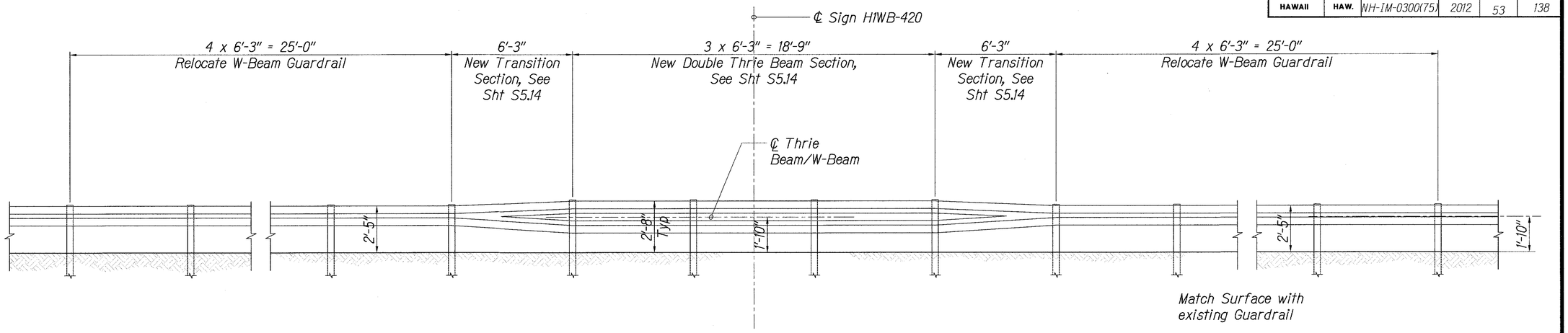
INTERSTATE ROUTE H-1, H-2 AND H201
DESTINATION SIGN UPGRADE / REPLACEMENT, PHASE 1
Federal Aid Project NO. - NH-IM-0300(75)

Scale: As Shown Date: Sept 21, 2012

SHEET No. S5.12 OF 138 SHEETS

C.O. 52

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-IM-0300(75)	2012	53	138



ELEVATION - SIGN H1WB-420
NEW THRIE BEAM GUARDRAIL AND RELOCATION OF W-BEAM GUARDRAIL

1
S5.13 | S5.13

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

C1

DATE	REVISION
06/16/14	C1 Revised Design of the Sign H1WBR-452

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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

H1WB-420 AND H1WBR-452 GUARDRAIL ELEVATIONS

INTERSTATE ROUTE H-1, H-2 AND H201
DESTINATION SIGN UPGRADE / REPLACEMENT, PHASE 1
Federal Aid Project NO. - NH-IM-0300(75)
Scale: As Shown Date: Sept 21, 2012

SHEET No. S5.13 OF 138 SHEETS

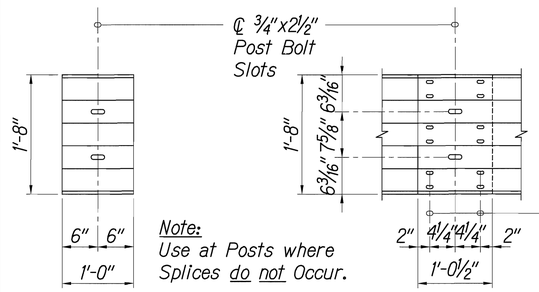
C.O. 53

\\Drawings\H1-2-15 2239 Change Under 34-2012\14-06-16 2239_CHANGE UNDER_33.dwg, 36, 6/16/2014 3:40:27 PM, tamahana

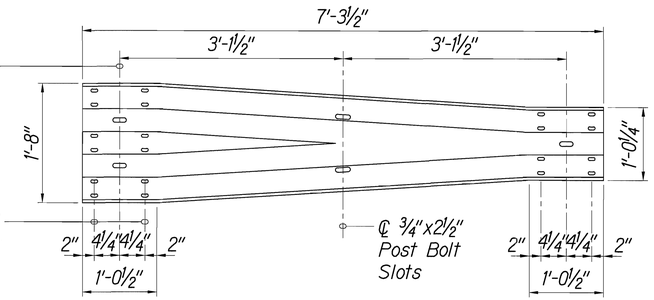
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-IM-0300(75)	2012	54	138

Notes:

1. The work necessary to connect Thrie Beam section, transition section and W-beam section guardrail to posts shall include all labor, materials, tools, equipment and incidentals necessary to complete the work and will not be paid for separately.
2. Lap rail element in direction of traffic to prevent snagging.
3. All anchor bolts shall be high strength bolts conforming to the requirements of ASTM 325 and Standard Specification, Section 713.04.
4. Anchor bolt length shall be such that a snug fit of the elements and full thread engagement plus 130" (max) is attained.
5. Thrie beam and "Transition Section" shall be fabricated from 10 gauge steel conforming to the requirements of AASHTO M 180, Type II, Class B.
6. All hardware, posts and fasteners shall be hot-dip zinc coated galvanized after fabrication. No punching, drilling or cutting will be permitted after galvanizing.
7. Where conditions require, special post lengths in increments of 6 inches may be specified.
8. All fasteners, posts, and rail elements shall conform to the latest edition and amendments of "A Guide to Standardized Highway Barrier Rail Hardware," a report prepared and approved by the AASHTO-AGC-ARTBA Joint Cooperative Committee, Subcommittee On New Highway Materials, Task Force 13 Report. Dimensions of fastners, posts and rail elements have been converted from metric units into their present form.
9. Where double (nested) beam occur, 12" "back-up plate" not required.
10. Heads of through anchor bolts shall be placed on the traffic side of the rail.
11. All steel shapes, rails and plates shall conform to ASTM A 36 specifications.
12. After the guardrail posts are installed in the paved area, the Contractor shall grout around the guardrail post and seal all cracks in the paved area that was caused during the guardrail post installation. If required by the inspector/Engineer, the contractor shall tamper the paved area around the guardrail post prior to grouting. The cost for this work shall not be paid for separately, but shall be considered incidental to the various guardrail items.



ELEVATION - BACKUP PLATE ELEVATION - RAIL SPLICE

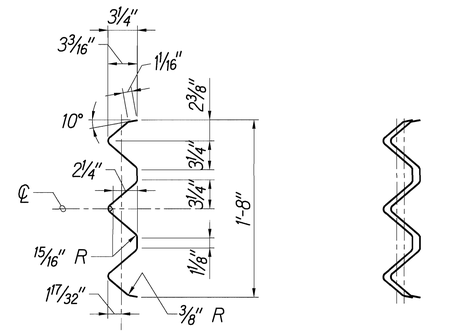


ELEVATION - TRANSIT SECTION

TYPICAL STRONG POST THRIE BEAM GUARDRAIL DETAILS

1 / S5.14 | S5.14

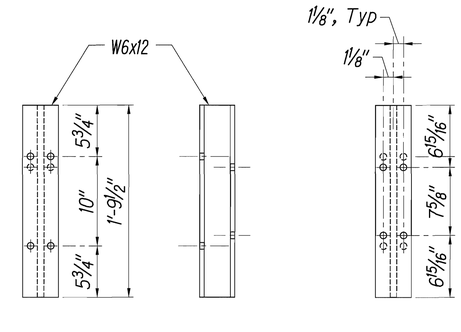
Scale: 1/2" = 1'-0"



SINGLE DOUBLE

SECTION THRU RAIL ELEMENT (THRIE BEAM)

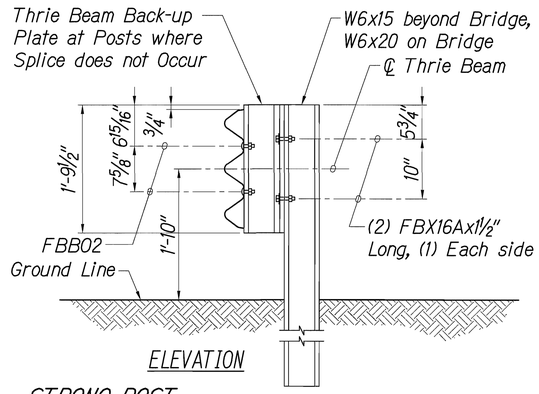
Not to Scale 2 / S5.14 | S5.14



BACK SIDE FRONT

SPACER BLOCK

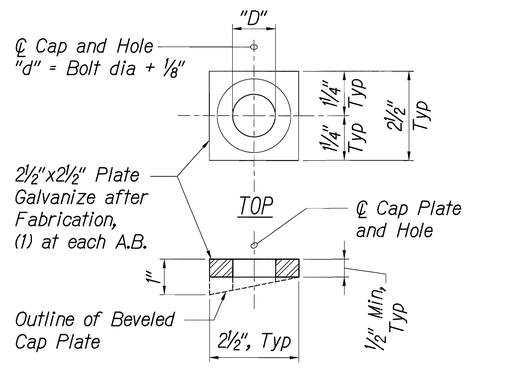
Not to Scale 3 / S5.14 | S5.14



ELEVATION

STRONG POST THRIE BEAM GUARDRAIL

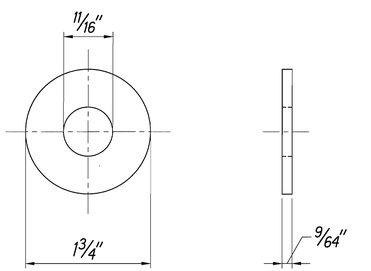
Not to Scale 4 / S5.14 | S5.14



SECTION

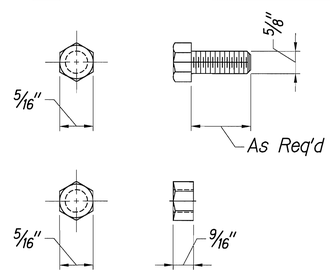
CAP (BEARING) PLATE DETAIL

Not to Scale 5 / S5.14 | S5.14



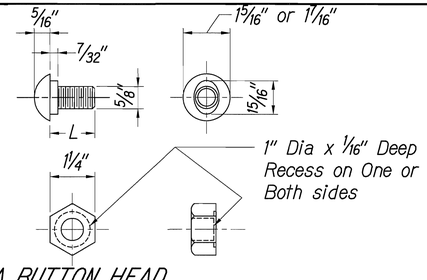
STEEL WASHER FOR 5/8" BOLT

Not to Scale 6 / S5.14 | S5.14



HEX BOLT AND NUT (FBX16a)

Not to Scale 7 / S5.14 | S5.14



5/8" DIA BUTTON HEAD BOLT AND RECESS NUT

Not to Scale 8 / S5.14 | S5.14

L	Thread Length
1¼"	Full Thread
2"	1½" Min Thread Length

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MODIFIED THRIE BEAM SECTIONS AND DETAILS

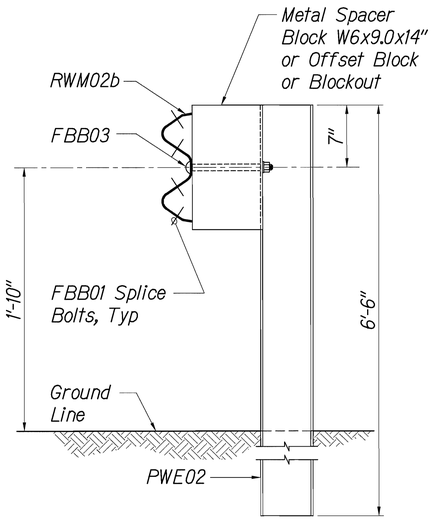
INTERSTATE ROUTE H-1, H-2 AND H201
DESTINATION SIGN UPGRADE / REPLACEMENT, PHASE 1
Federal Aid Project NO. - NH-IM-0300(75)

Scale: As Shown Date: Sept 21, 2012

SHEET No. S5.14 OF 138 SHEETS

\Default\2012 COPS 2009 Projects\2009 34-54\ 55-14-55-15\ 55-14.dwg, 9/29/2012 11:02:34 AM, kenneth

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-IM-0300(75)	2012	55	138



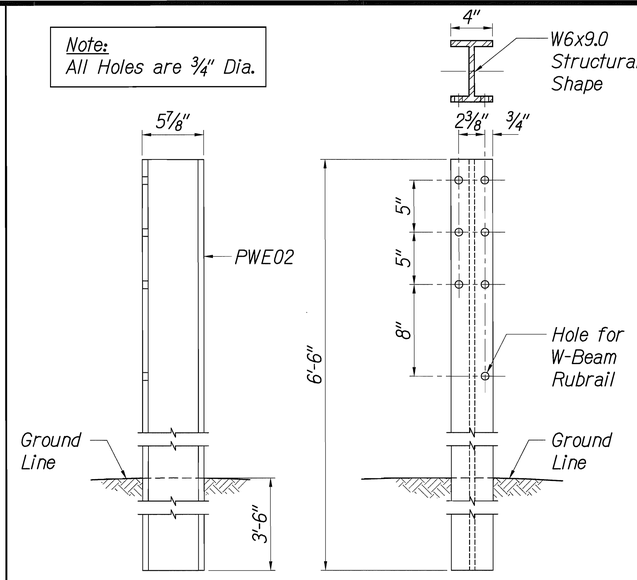
ELEVATION

STRONG POST RUBRAIL (W-BEAM) GUARDRAIL

Not to Scale

1 | S5.15 | S5.15

Note:
All Holes are ¾" Dia.

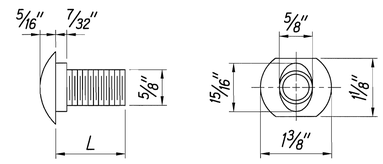


SIDE FRONT

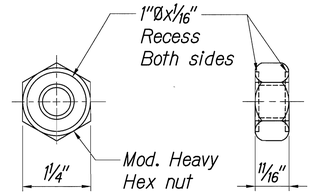
W-BEAM STRONG POST (PWE02)

Not to Scale

2 | S5.15 | S5.15



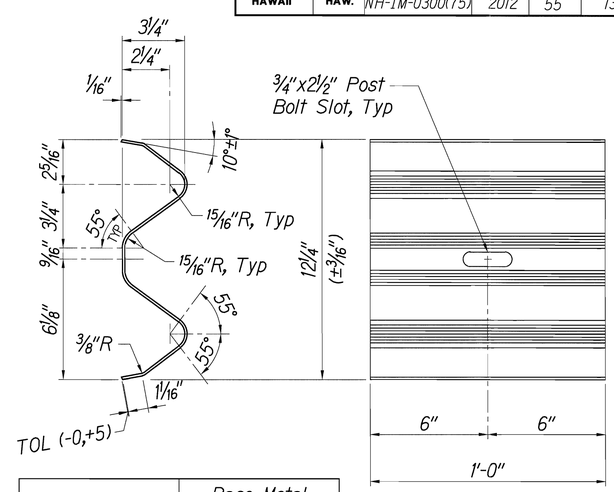
Designator	L
FBB01	1⅜"
FBB02	2"
FBB03	10"



GUARDRAIL BOLTS AND RECESSED NUTS

Not to Scale

3 | S5.15 | S5.15

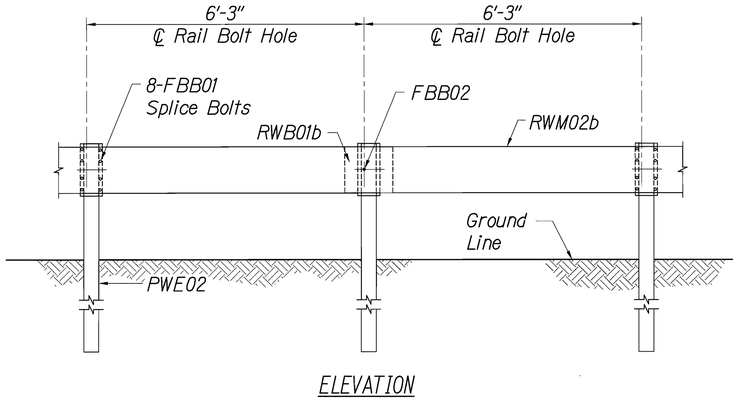


Designator	Base Metal Thickness
RWB01b	17/128"

W-BEAM BACK-UP PLATE (RWB01b)

Not to Scale

4 | S5.15 | S5.15

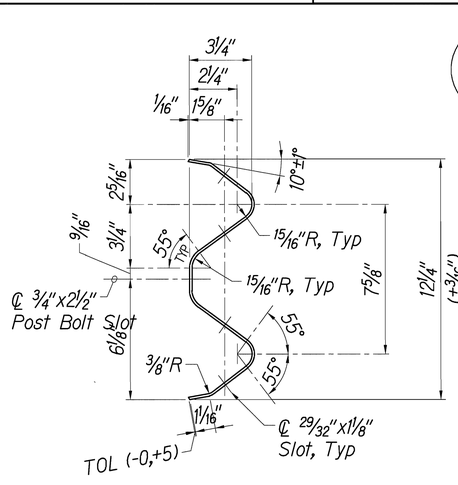


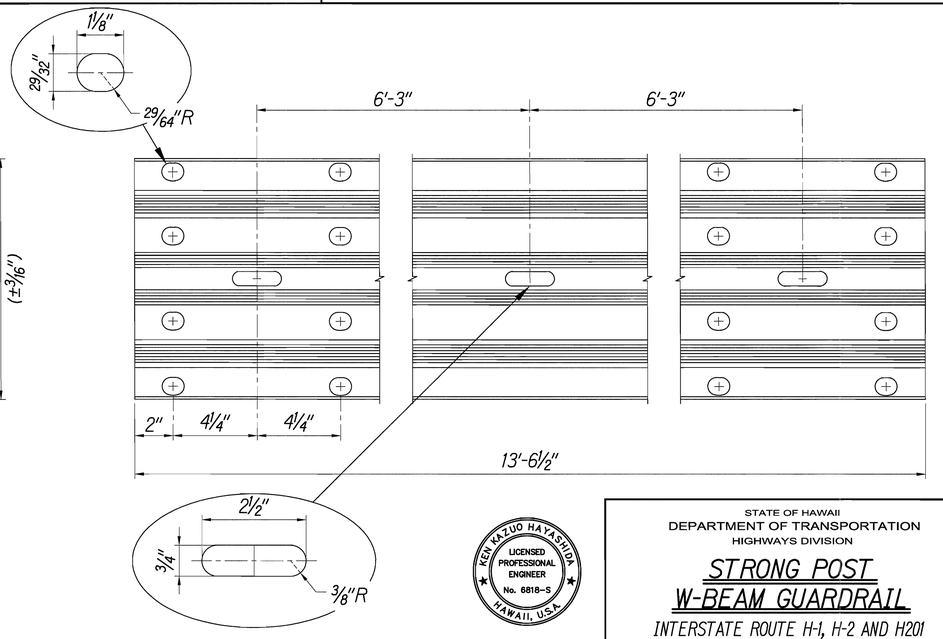
ELEVATION

STRONG POST RUBRAIL (W-BEAM) GUARDRAIL WITH RECYCLED OFFSET BLOCK OR PLASTIC BLOCKOUT

Not to Scale

5 | S5.15 | S5.15





Designator	Base Metal Thickness
RWB01b	17/128"

2 SPACE W-BEAM GUARDRAIL (RWM02b)

Not to Scale

6 | S5.15 | S5.15

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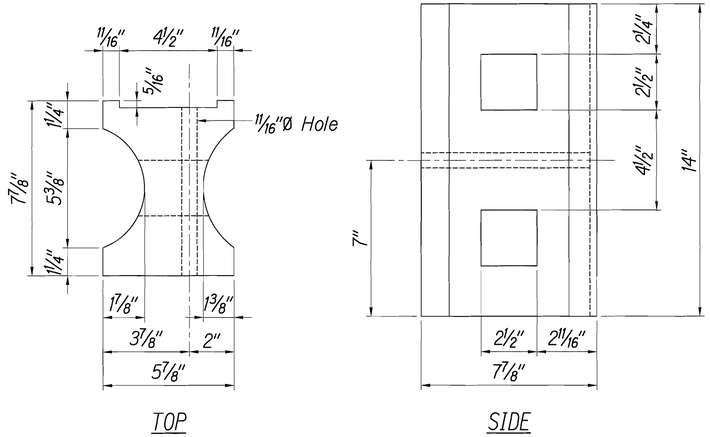
STRONG POST W-BEAM GUARDRAIL

INTERSTATE ROUTE H-1, H-2 AND H201
DESTINATION SIGN UPGRADE / REPLACEMENT, PHASE 1
Federal Aid Project NO. - NH-IM-0300(75)
Scale: As Shown Date: Sept 21, 2012

SHEET No. S5.15 OF 138 SHEETS

\\Honfsp001\ Job No. 22317 Task 22317-54-56

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-IM-0300(75)	2012	56	138

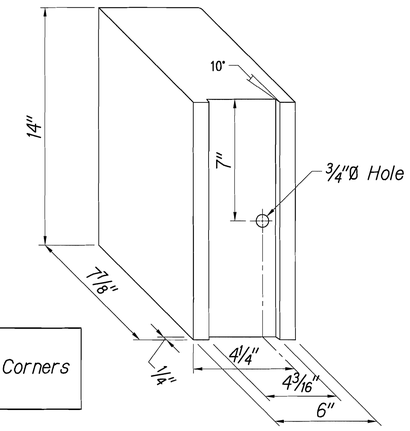


TOP SIDE

RECYCLED PLASTIC BLOCKOUT (TYPE I)

1 — S5.16 | S5.16

Not to Scale

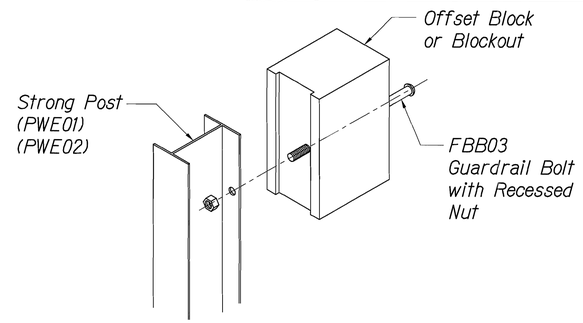


Note:
All Exterior Corners
1/2" Radius.

RECYCLED POLYETHELENE OFFSET BLOCK (TYPE II)

2 — S5.16 | S5.16

Not to Scale

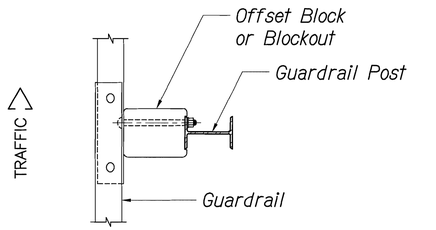


EXPLODED VIEW
(Rail and Washer Not Shown)

STEEL POST AND BLOCK DETAIL

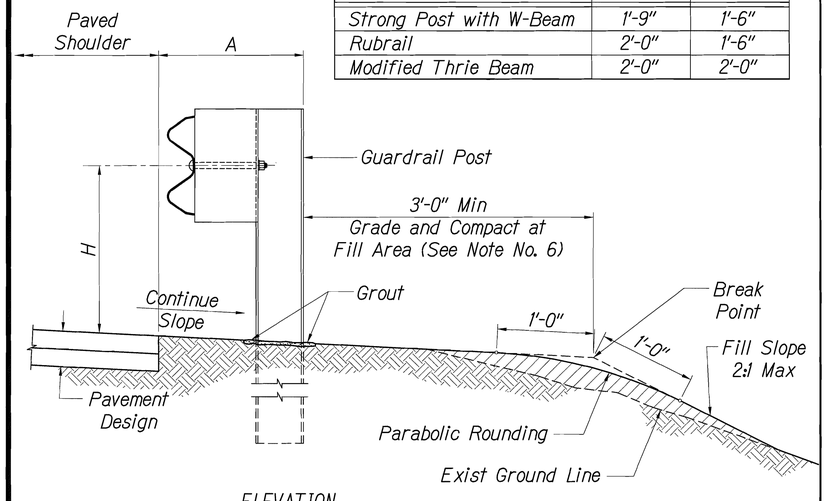
3 — S5.16 | S5.16

Not to Scale



PLAN VIEW

Guardrail Type	Dimension	
	H	A
Strong Post with W-Beam	1'-9"	1'-6"
Rubrail	2'-0"	1'-6"
Modified Thrie Beam	2'-0"	2'-0"

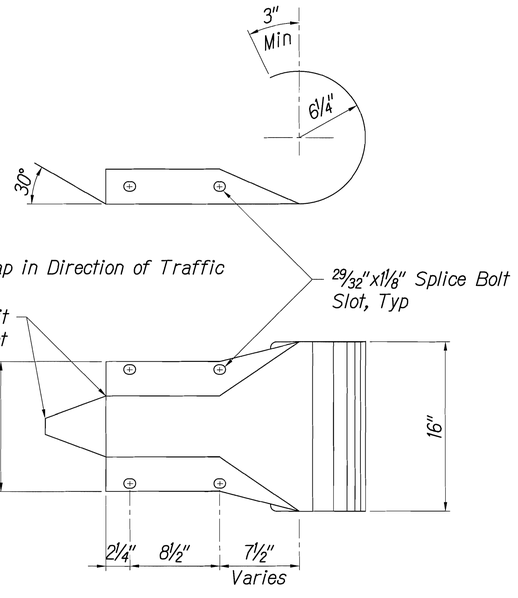


ELEVATION

TYPICAL GUARDRAIL INSTALLATION

4 — S5.16 | S5.16

Not to Scale



Note:
The Cross-sectional Dimensions for this Part are to Fit Over Part RWM02b.

Designator	Base Metal Thickness
RWE03a	7/64"

W-BEAM END SECTION (ROUNDED RWE03a)

5 — S5.16 | S5.16

Not to Scale

KEN KAZUO HAYASHIDA
LICENSED PROFESSIONAL ENGINEER
No. 6818-S
HAWAII, U.S.A.

EXPIRATION DATE OF THE LICENSE: 4/30/2014
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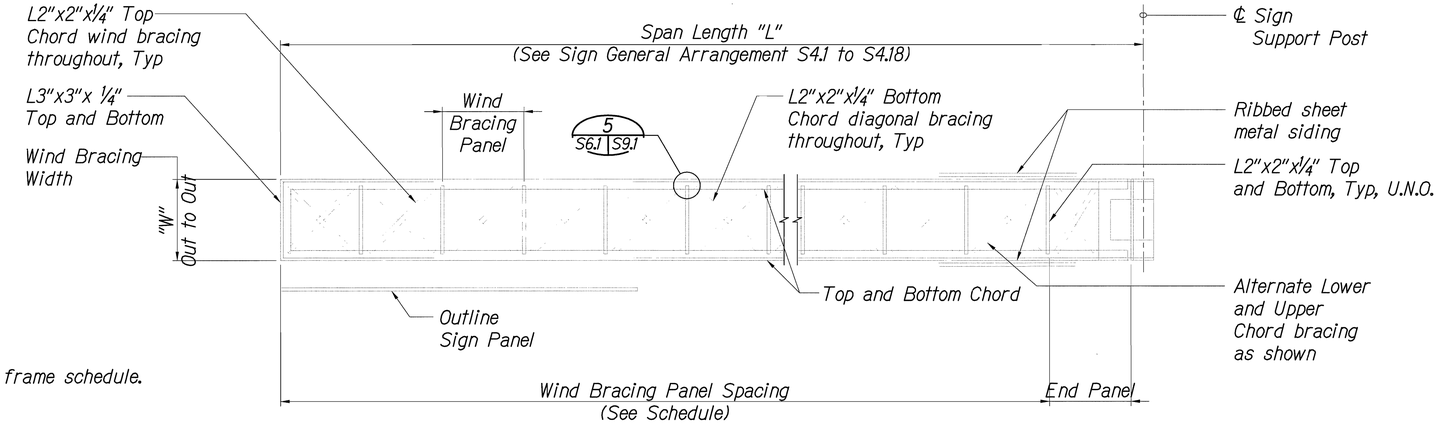
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

GUARDRAIL DETAILS

INTERSTATE ROUTE H-1, H-2 AND H201
DESTINATION SIGN UPGRADE / REPLACEMENT, PHASE 1
Federal Aid Project NO. - NH-IM-0300(75)
Scale: As Shown Date: Sept 21, 2012

SHEET No. S5.16 OF 138 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-IM-0300(75)	2012	57	138

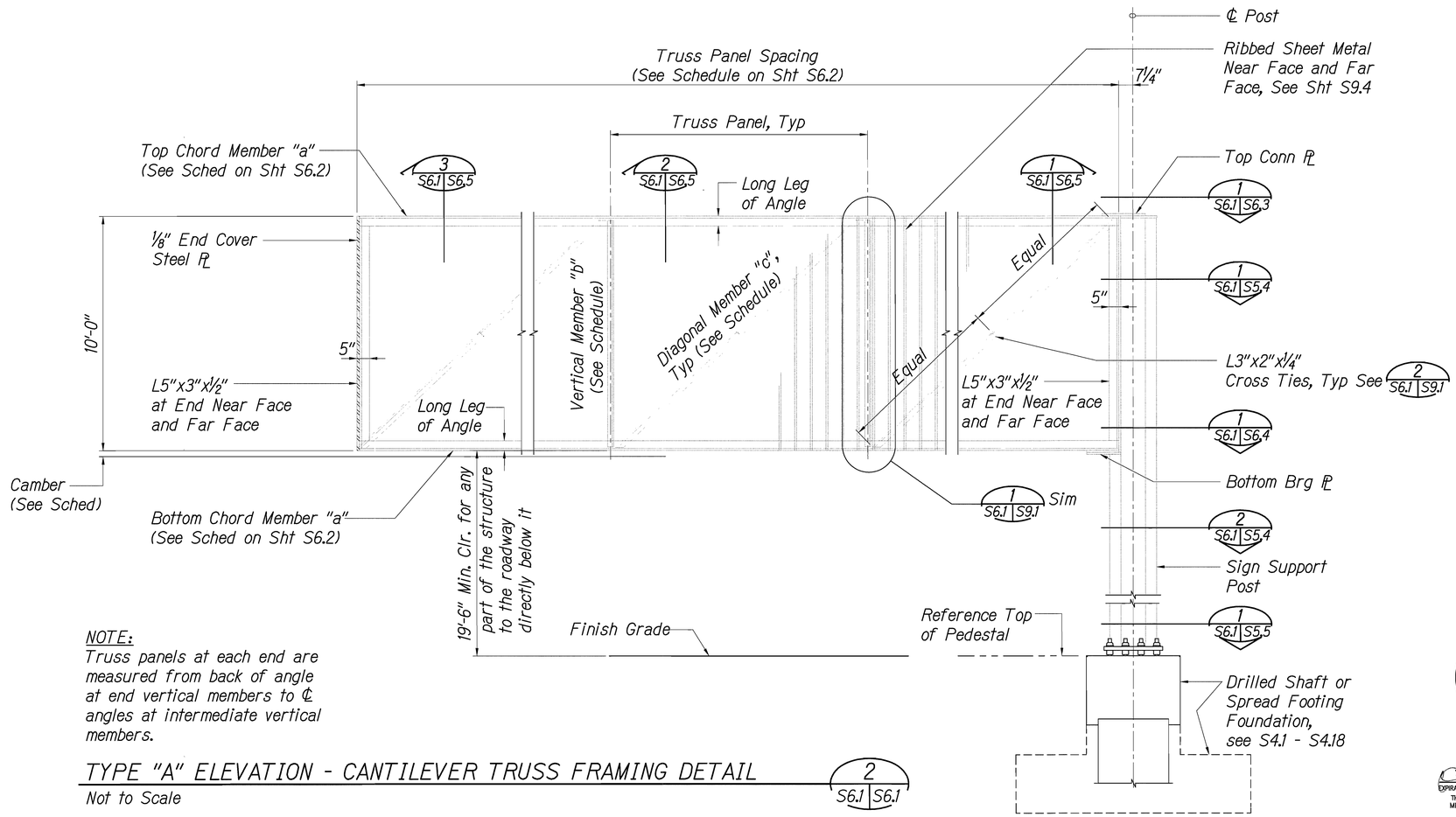


Note:
See S6.2 for sign frame schedule.

TYPE "A" TYPICAL PLAN - TOP AND BOTTOM WIND BRACE FRAMING

1 S6.1 | S6.1

Not to Scale



NOTE:
Truss panels at each end are measured from back of angle at end vertical members to ℄ angles at intermediate vertical members.

TYPE "A" ELEVATION - CANTILEVER TRUSS FRAMING DETAIL

2 S6.1 | S6.1

Not to Scale

KEN KAZUO HAYASHIDA
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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TYPE "A" DESTINATION SIGN FRAMING PLAN AND ELEVATION

INTERSTATE ROUTE H-1, H-2 AND H201
DESTINATION SIGN UPGRADE / REPLACEMENT, PHASE 1
Federal Aid Project NO. - NH-IM-0300(75)
Scale: As Shown Date: Sept 21, 2012

SHEET No. S6.1 OF 138 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-IM-0300(75)	2012	58	138

TYPE "A" DESTINATION SIGN FRAMING SCHEDULE

Sign Destination	Truss Panels		Wind Panels		Framing Sizes				Camber
	No.	Spacing	No.	Spacing	Wind Bracing Width "W"	Member "a" - T&B Chords	Member "b" - Vertical	Member "c" - Diagonal	
C1 H1EBR-351, H1WB-411, H1WB-416, H1WB-420, H1WBR-453	4	Equal spaces	12	Equal spaces	2'-0"	L 5 x 3½ x ⅝	L 3 x 3x ¼	L 3 x 3 x ¼	2"
H1WB-407	4	Equal spaces	12	Equal spaces	2'-0"	L 5 x 3½ x ¾	L 3 x 3x ¼	L 3 x 3 x ¼	2½"
H1WB-415	5	Equal spaces	15	Equal spaces	2'-6"	L 6 x 4 x ¾	L 3½ x 3x ¼	L 3 x 3 x ¼	2¾"
H1EB-103	6	Equal spaces	18	Equal spaces	2'-6"	L 6 x 4 x ⅞	L 3½ x 3x ¼	L 3 x 3 x ¼	4"
H1EB-205	6	Equal spaces	18	Equal spaces	2'-6"	L 6 x 4 x ⅞	L 3½ x 3 x ¼	L 3 x 3 x ¼	5"

Notes:

1. Camber shown is equivalent to the maximum calculated vertical dead load displacement of the truss.
2. The Contractor shall precamber the truss panels to account for the vertical dead load deflection.
3. Truss panels and wind panels including the end panels shall be equally spaced thruout the entire span length.

TYPE "A" DESTINATION SIGN FRAMING SCHEDULE
Not to Scale

1
S6.2 | S6.2

DATE	REVISION
06/16/14	C1 Revised Design of the Sign H1WBR-452

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DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TYPE "A" DESTINATION SIGN FRAMING SCHEDULE

INTERSTATE ROUTE H-1, H-2 AND H201
DESTINATION SIGN UPGRADE / REPLACEMENT, PHASE 1

Federal Aid Project NO. - NH-IM-0300(75)

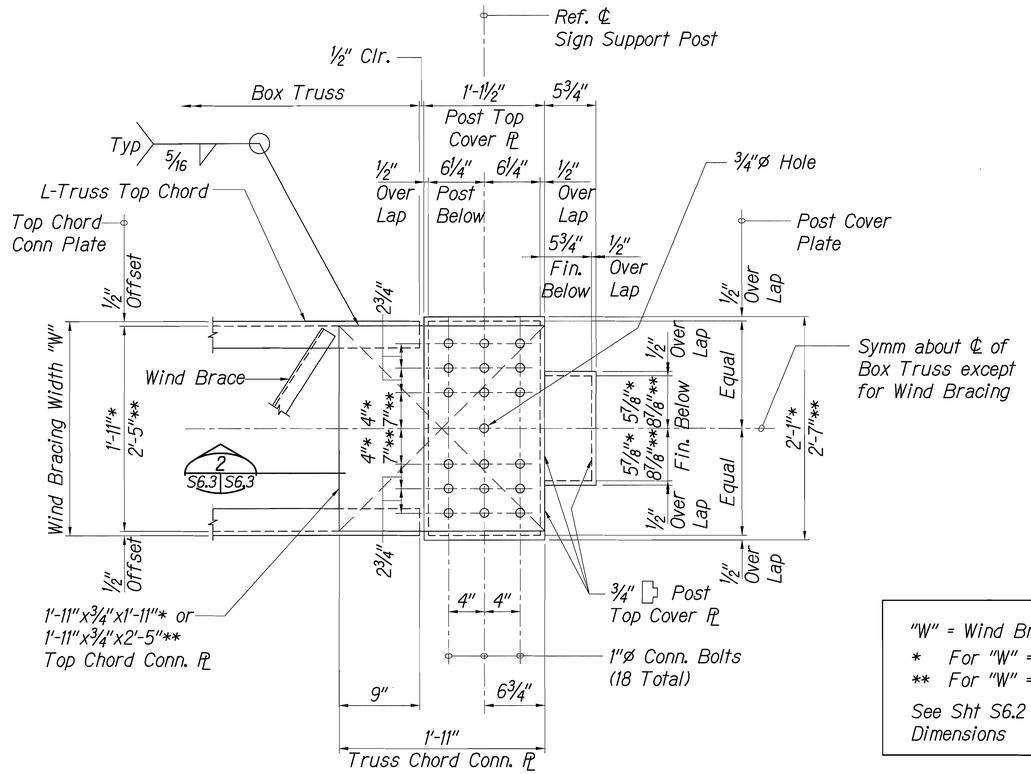
Scale: As Shown Date: Sept 21, 2012

SHEET No. S6.2 OF 138 SHEETS

C.O. 58

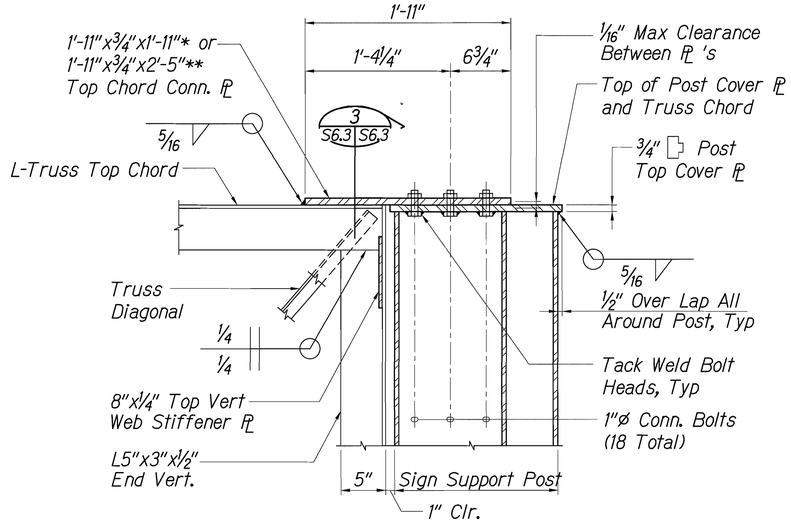
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FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-IM-0300(75)	2012	59	138

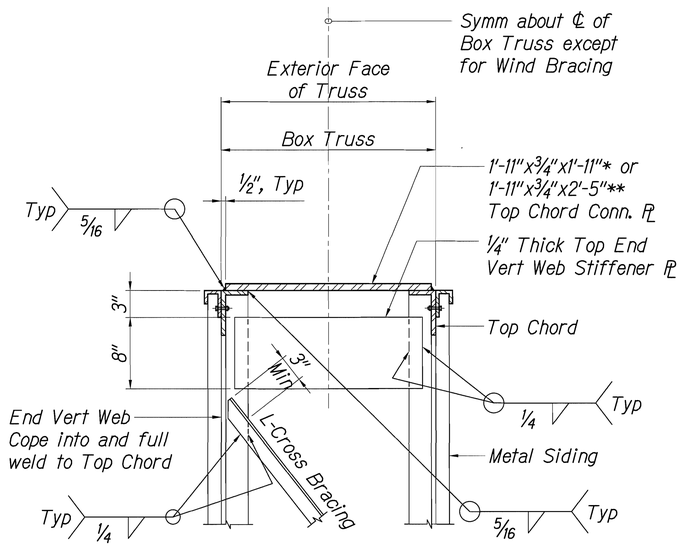


"W" = Wind Bracing Width
* For "W" = 2'-0"
** For "W" = 2'-6"
See Sht S6.2 for "W" Dimensions

PLAN - DETAIL AT TOP OF COLUMN — 1 — S6.1, S6.3 | S6.3
Not to Scale



SECTION — 2 — S6.3 | S6.3
Not to Scale



SECTION — 3 — S6.3 | S6.3
Not to Scale

KEN KAZUO HAYASHIDA
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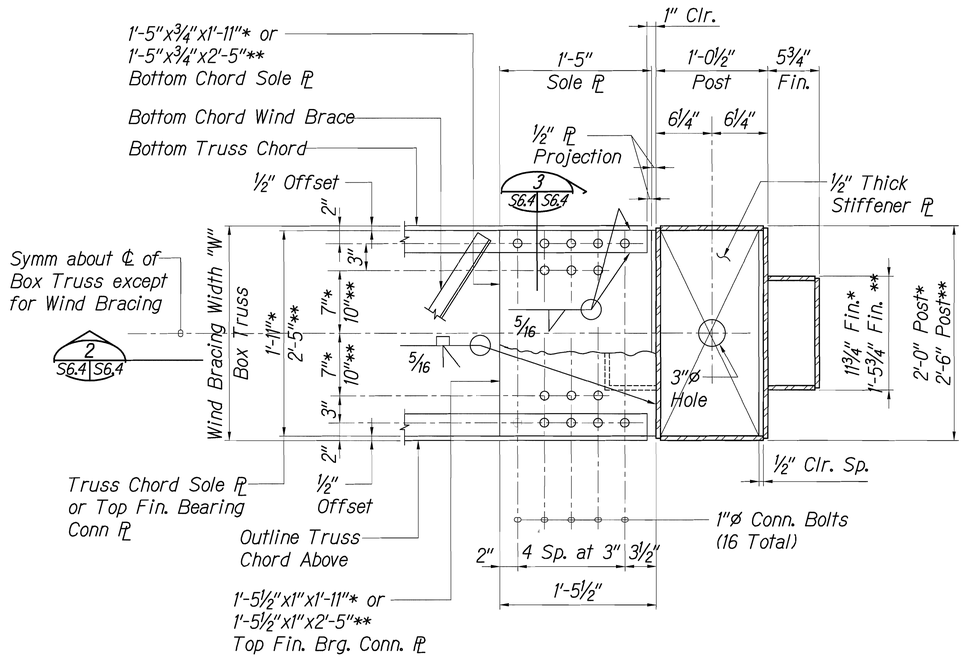
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TYPE "A" DESTINATION SIGN FRAME DETAILS AND SECTIONS

INTERSTATE ROUTE H-1, H-2 AND H201
DESTINATION SIGN UPGRADE / REPLACEMENT, PHASE 1
Federal Aid Project NO. - NH-IM-0300(75)
Scale: As Shown Date: Sept 21, 2012

SHEET No. S6.3 OF 138 SHEETS

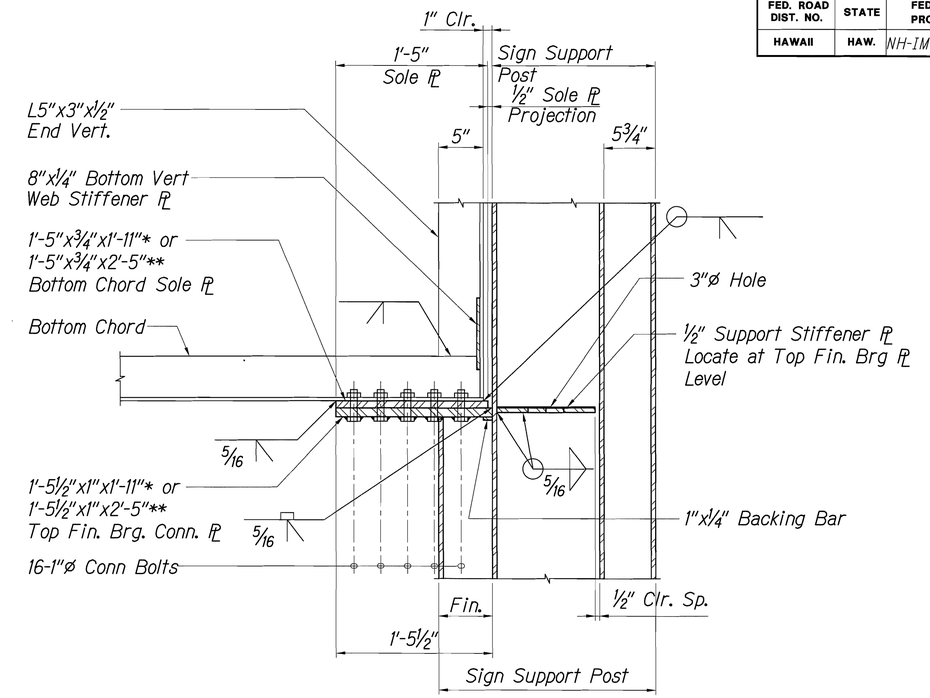
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-IM-0300(75)	2012	60	138



PLAN - DETAIL AT TRUSS BEARING SUPPORT

Not to Scale

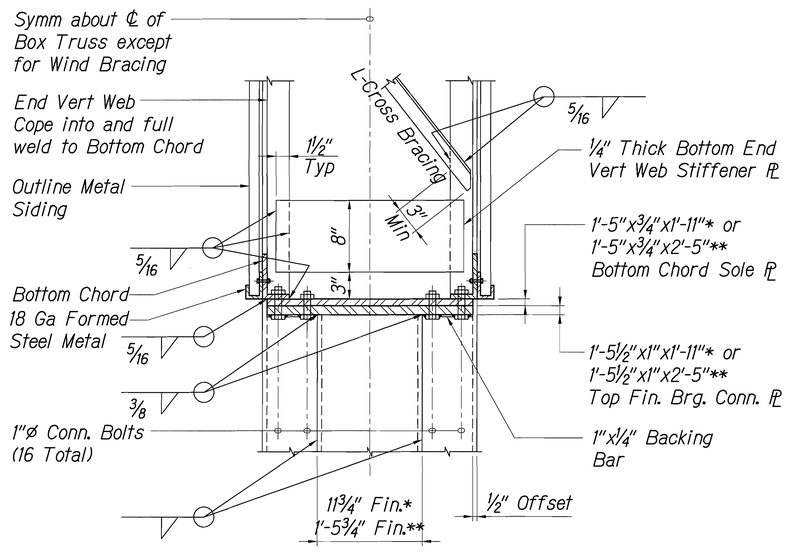
1 S6.1 | S6.4



SECTION

Not to Scale

2 S6.4 | S6.4



SECTION

Not to Scale

3 S6.4 | S6.4

* For "W" = 2'-0"
** For "W" = 2'-6"

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DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

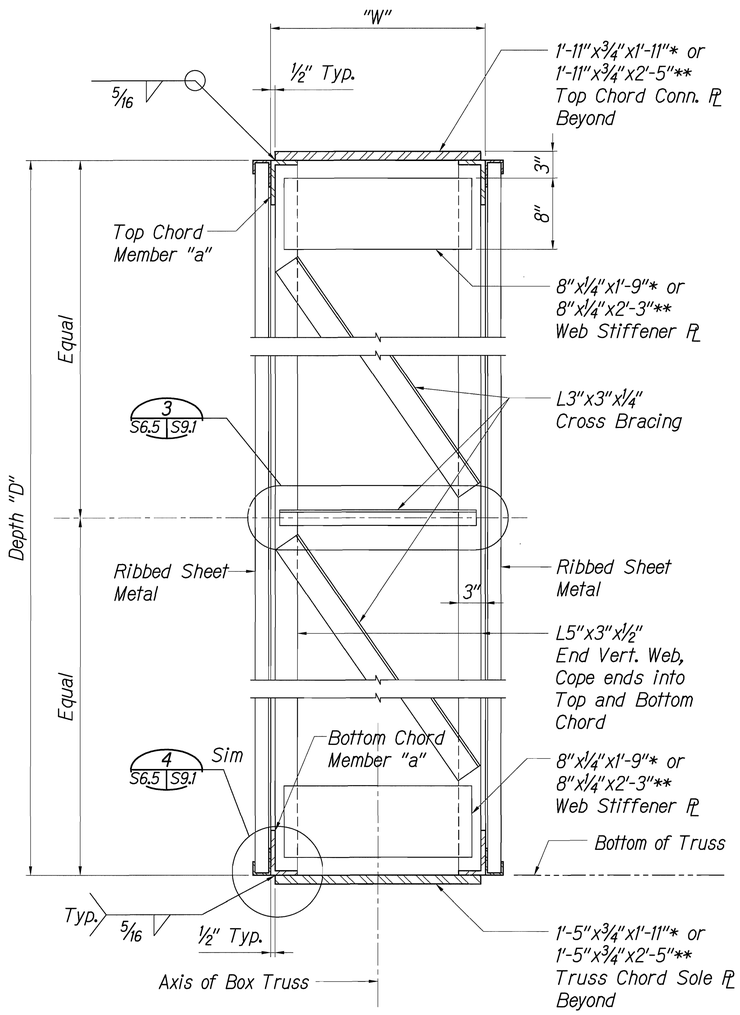
TYPE "A" DESTINATION SIGN FRAME DETAILS AND SECTIONS

INTERSTATE ROUTE H-1, H-2 AND H201
DESTINATION SIGN UPGRADE / REPLACEMENT, PHASE 1
Federal Aid Project NO. - NH-IM-0300(75)

Scale: As Shown Date: Sept 21, 2012

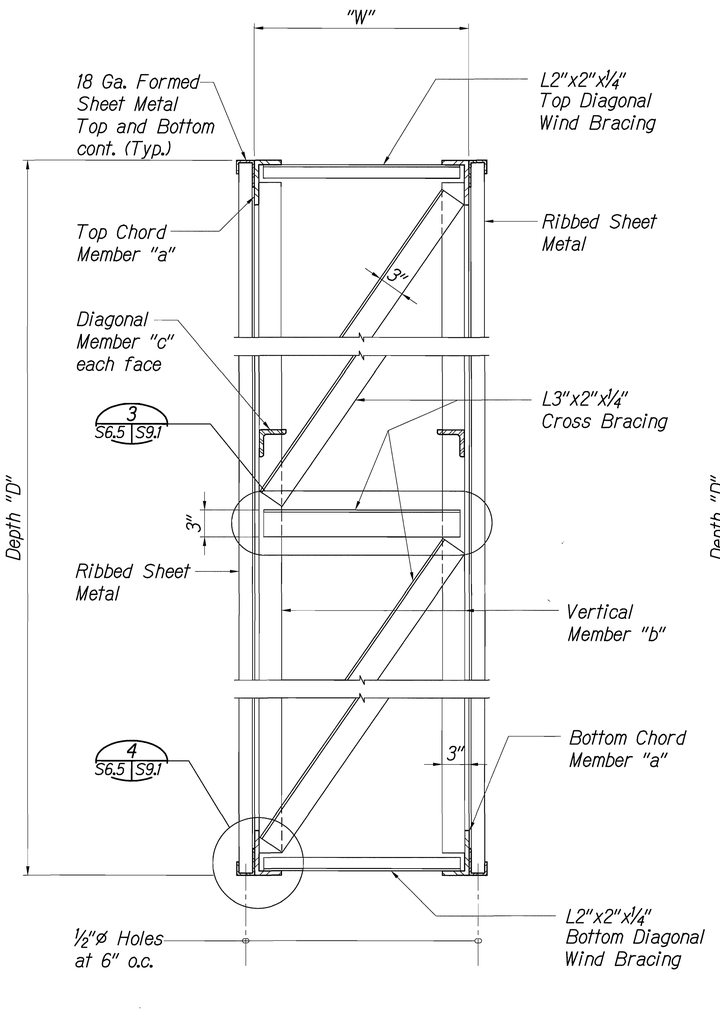
SHEET No. S6.4 OF 138 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-IM-0300(75)	2012	61	138



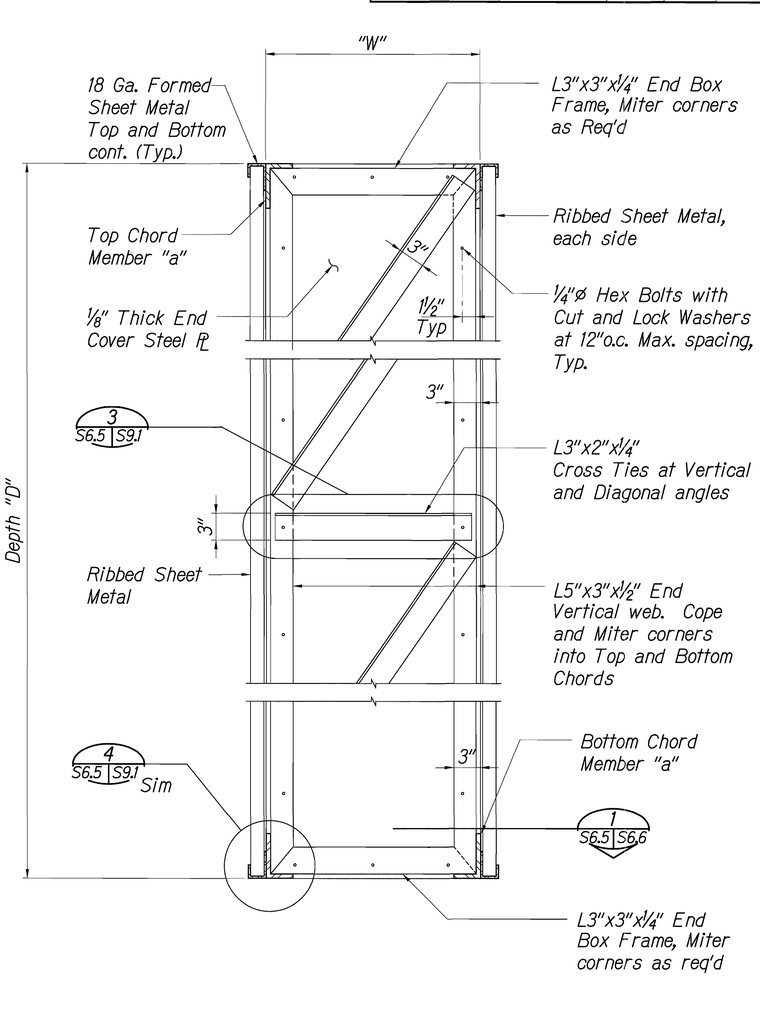
SECTION AT COLUMN END — 1 / S6.1 | S6.5

Not to Scale



TYPICAL SECTION — 2 / S6.1 | S6.5

Not to Scale



SECTION AT FREE END — 3 / S6.1 | S6.5

Not to Scale

* For "W" = 2'-0"
** For "W" = 2'-6"

KEN KAZUO HAYASHIDA
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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TYPE "A" DESTINATION SIGN FRAME DETAILS AND SECTIONS

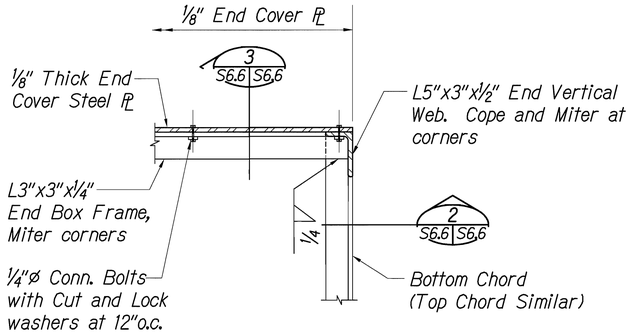
INTERSTATE ROUTE H-1, H-2 AND H201
DESTINATION SIGN UPGRADE / REPLACEMENT, PHASE 1

Federal Aid Project NO. - NH-IM-0300(75)

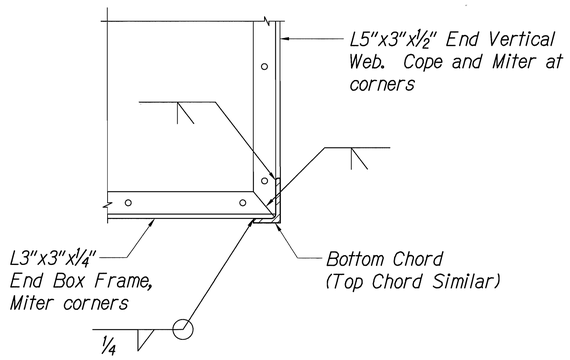
Scale: As Shown Date: Sept 21, 2012

SHEET No. S6.5 OF 138 SHEETS

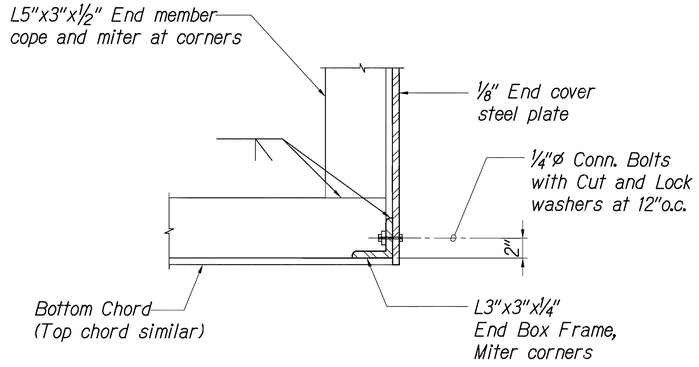
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-IM-0300(75)	2012	62	138



PLAN AT FREE END — 1 S6.5 S6.6
Not to Scale



SECTION — 2 S6.6 S6.6
Not to Scale



SECTION — 3 S6.6 S6.6
Not to Scale

KEN KAZUO HAYASHIDA
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No. 6818-S
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EXPIRATION DATE OF THE LICENSE-4/30/2014
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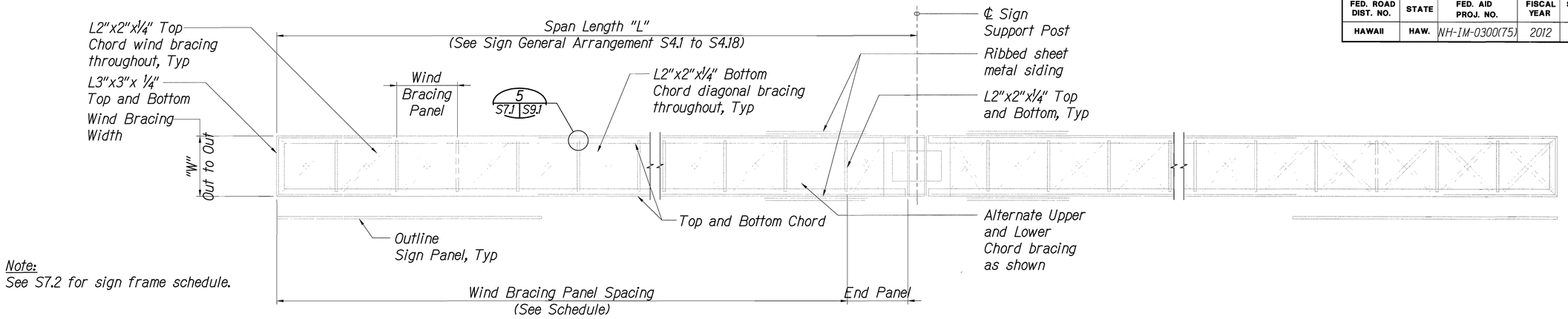
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TYPE "A" DESTINATION SIGN FRAME DETAILS AND SECTIONS

INTERSTATE ROUTE H-1, H-2 AND H201
DESTINATION SIGN UPGRADE / REPLACEMENT, PHASE 1
Federal Aid Project NO. - NH-IM-0300(75)
Scale: As Shown Date: Sept 21, 2012

SHEET No. S6.6 OF 138 SHEETS

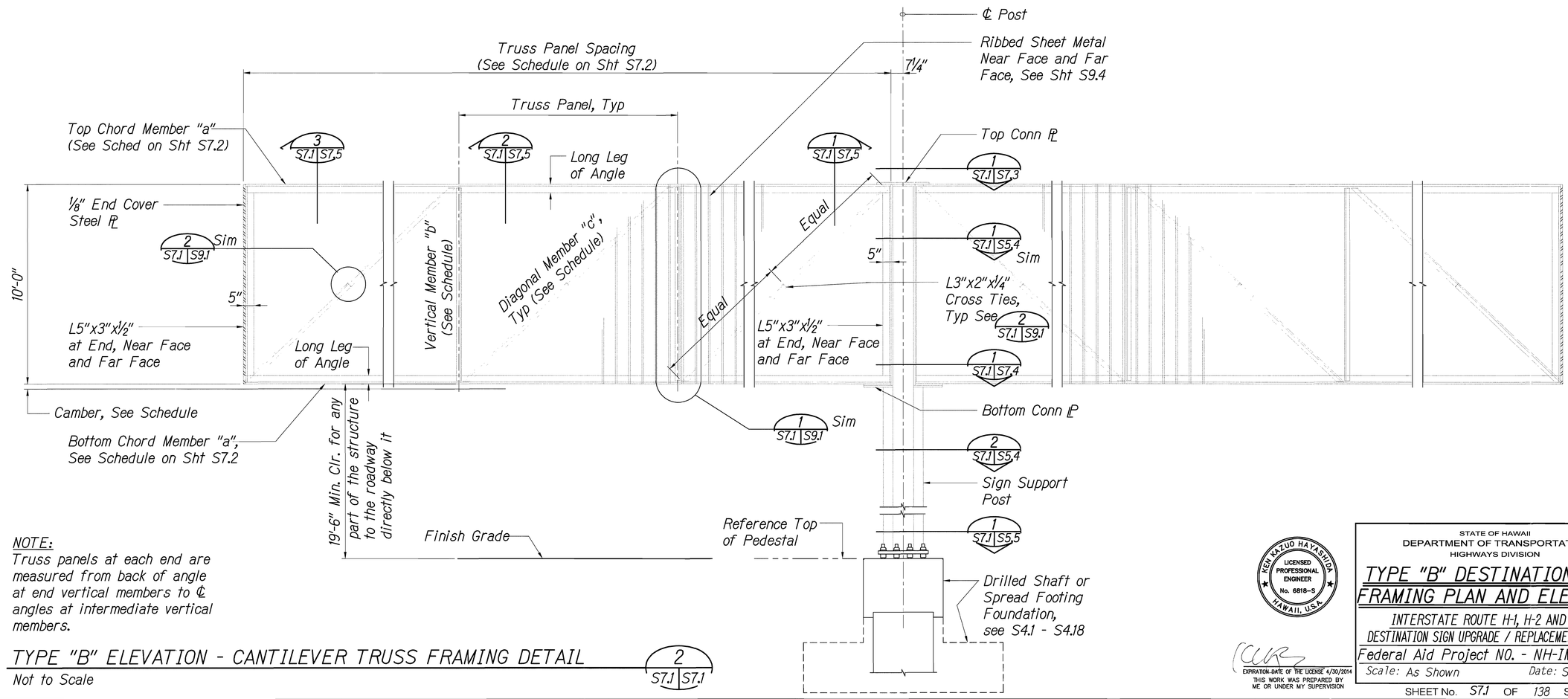
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-IM-0300(75)	2012	63	138



Note:
See S7.2 for sign frame schedule.

TYPE "B" TYPICAL PLAN - TOP AND BOTTOM WIND BRACE FRAMING (1 S7.1 S7.1)

Not to Scale



NOTE:
Truss panels at each end are measured from back of angle at end vertical members to ℄ angles at intermediate vertical members.

TYPE "B" ELEVATION - CANTILEVER TRUSS FRAMING DETAIL (2 S7.1 S7.1)

Not to Scale

KEN KAZUO HAYASHIDA
LICENSED PROFESSIONAL ENGINEER
No. 6818-S
HAWAII, U.S.A.

EXPIRATION DATE OF THE LICENSE 4/30/2014
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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TYPE "B" DESTINATION SIGN FRAMING PLAN AND ELEVATION

INTERSTATE ROUTE H-1, H-2 AND H201
DESTINATION SIGN UPGRADE / REPLACEMENT, PHASE 1
Federal Aid Project NO. - NH-IM-0300(75)
Scale: As Shown Date: Sept 21, 2012

SHEET No. S7.1 OF 138 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-IM-0300(75)	2012	64	138

TYPE "B" DESTINATION SIGN FRAMING SCHEDULE

Sign Destination	Truss Panels		Wind Panels		Framing Sizes				Camber
	No.	Spacing	No.	Spacing	Wind Bracing Width "W"	Member "a" - T&B Chords	Member "b" - Vertical	Member "c" - Diagonal	
H1WB-417 (Left or Right Side)	4	Equal spaces	12	Equal spaces	2'-0"	L 5 x 3½ x ⅝	L 3 x 3x ¼	L 3 x 3x ¼	2"

Notes:

1. Camber shown is equivalent to the maximum calculated vertical dead load displacement of the truss.
2. The Contractor shall precamber the truss panels to account for the vertical dead load deflection.
3. Truss panels and wind panels including the end panels shall be equally spaced thruout the entire span length.

TYPE "B" DESTINATION SIGN FRAMING SCHEDULE — 1 / S7.2 | S7.2

Not to Scale

KEN KAZUO HAYASHIDA
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DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TYPE "B" DESTINATION SIGN FRAMING SCHEDULE

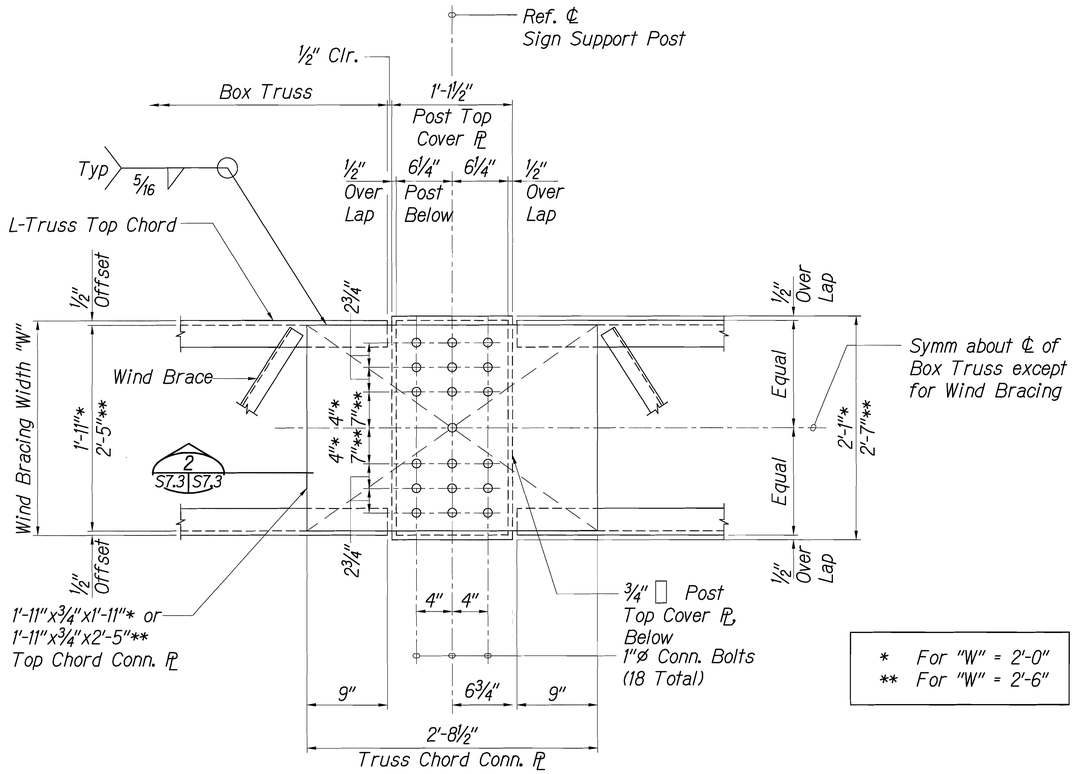
INTERSTATE ROUTE H-1, H-2 AND H201
DESTINATION SIGN UPGRADE / REPLACEMENT, PHASE 1

Federal Aid Project NO. - NH-IM-0300(75)

Scale: As Shown Date: Sept 21, 2012

SHEET No. S7.2 OF 138 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-IM-0300(75)	2012	65	138

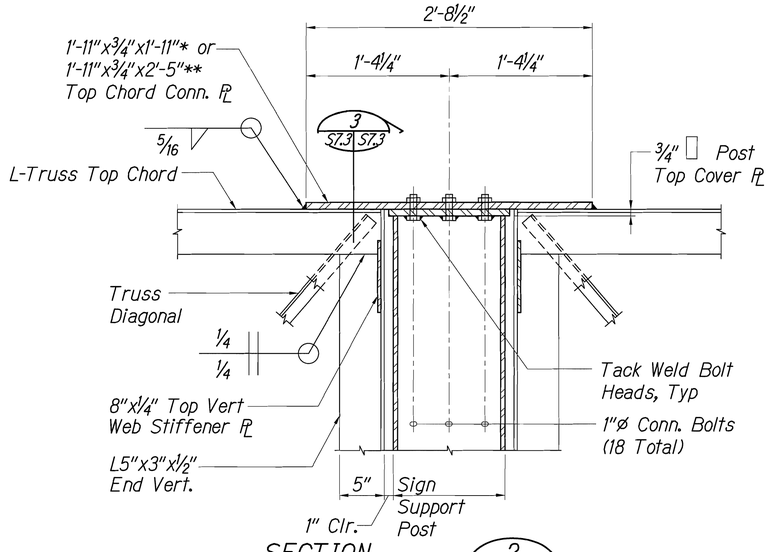


* For "W" = 2'-0"
** For "W" = 2'-6"

PLAN - DETAIL AT TOP OF COLUMN

Not to Scale

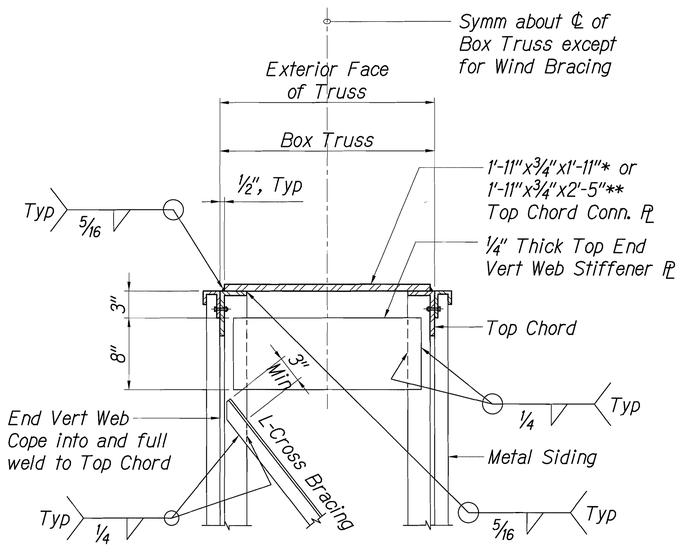
1 (S7.1 | S7.3)



SECTION

Not to Scale

2 (S7.3 | S7.3)



SECTION

Not to Scale

3 (S7.3 | S7.3)

KEN KAZUO HAYASHIDA
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EXPIRATION DATE OF THE LICENSE 4/30/2014
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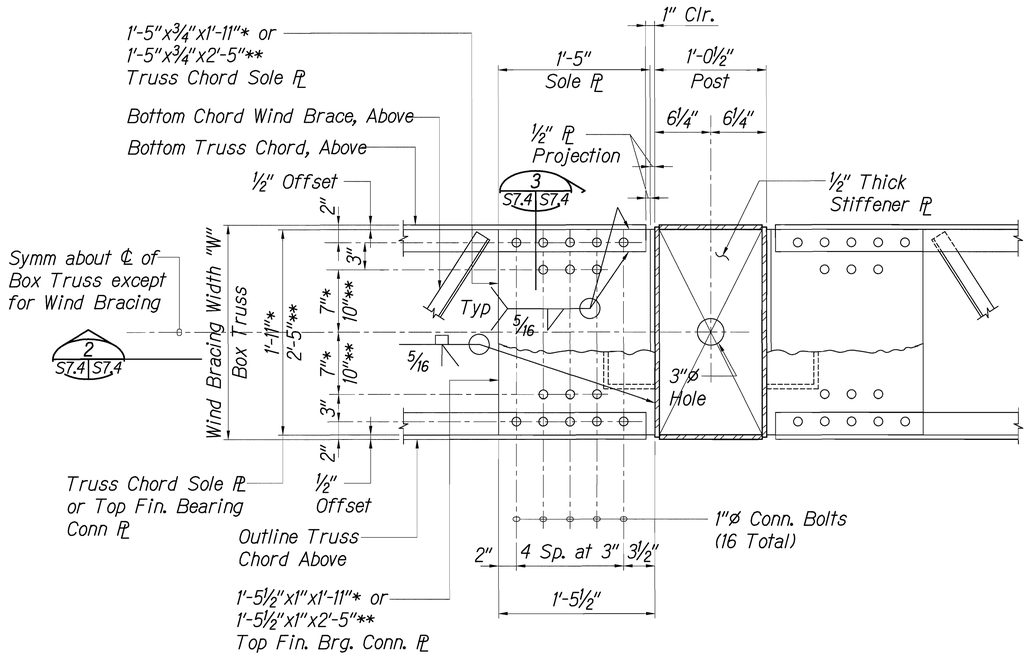
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TYPE "B" DESTINATION SIGN FRAME DETAILS AND SECTIONS

INTERSTATE ROUTE H-1, H-2 AND H201
DESTINATION SIGN UPGRADE / REPLACEMENT, PHASE 1
Federal Aid Project NO. - NH-IM-0300(75)
Scale: As Shown Date: Sept 21, 2012

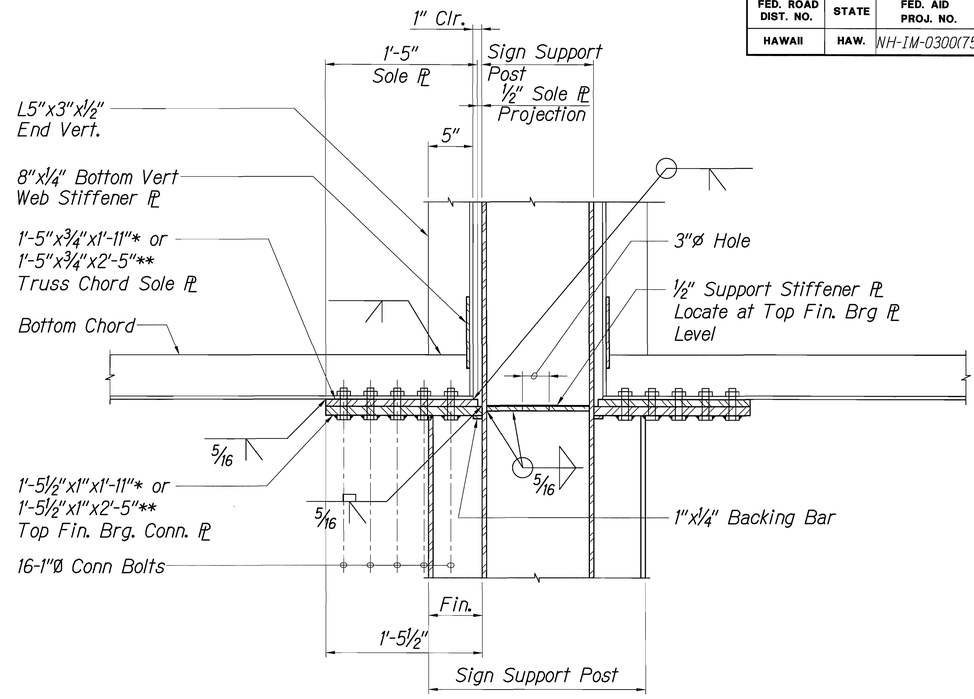
SHEET No. S7.3 OF 138 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-IM-0300(75)	2012	66	138



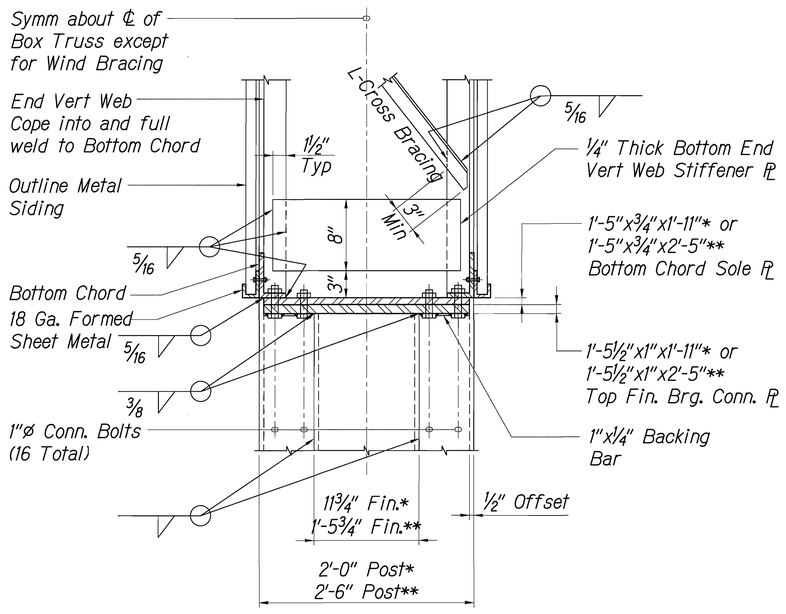
PLAN - DETAIL AT TRUSS BEARING SUPPORT — 1 S7.1 S7.4

Not to Scale



SECTION — 2 S7.4 S7.4

Not to Scale



SECTION — 3 S7.4 S7.4

Not to Scale

* For "W" = 2'-0"
** For "W" = 2'-6"

KEN KAZUO HAYASHIDA
LICENSED PROFESSIONAL ENGINEER
No. 6818-S
HAWAII, U.S.A.

EXPIRATION DATE OF THE LICENSE 4/30/2014
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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

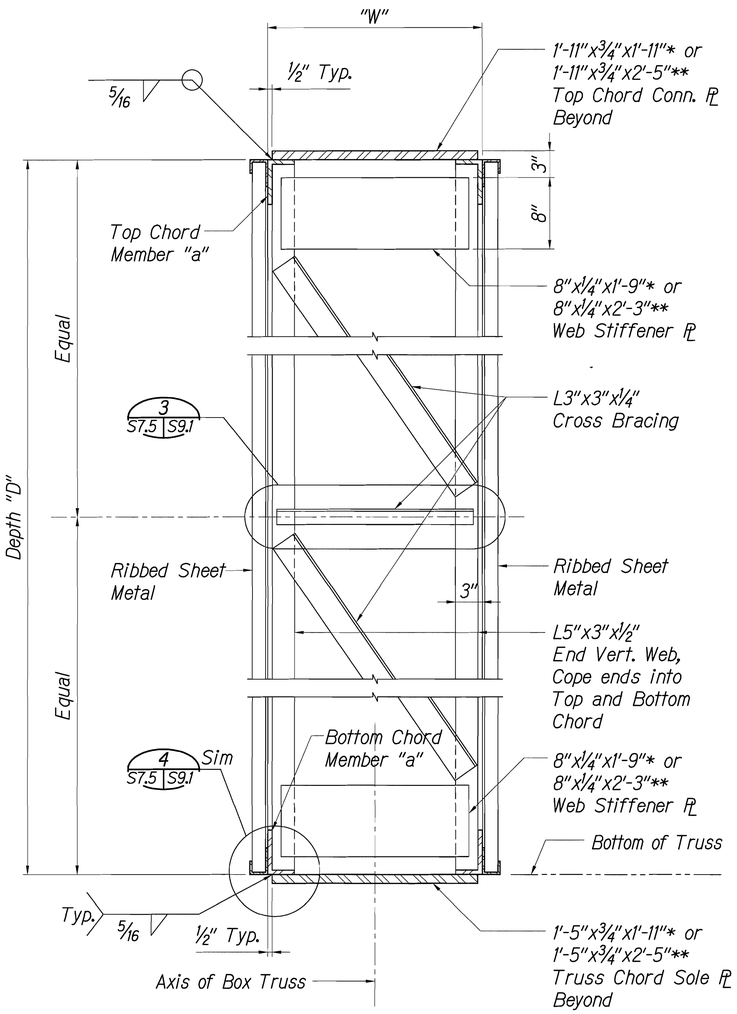
TYPE "B" DESTINATION SIGN FRAME DETAILS AND SECTIONS

INTERSTATE ROUTE H-1, H-2 AND H201
DESTINATION SIGN UPGRADE / REPLACEMENT, PHASE 1
Federal Aid Project NO. - NH-IM-0300(75)

Scale: As Shown Date: Sept 21, 2012

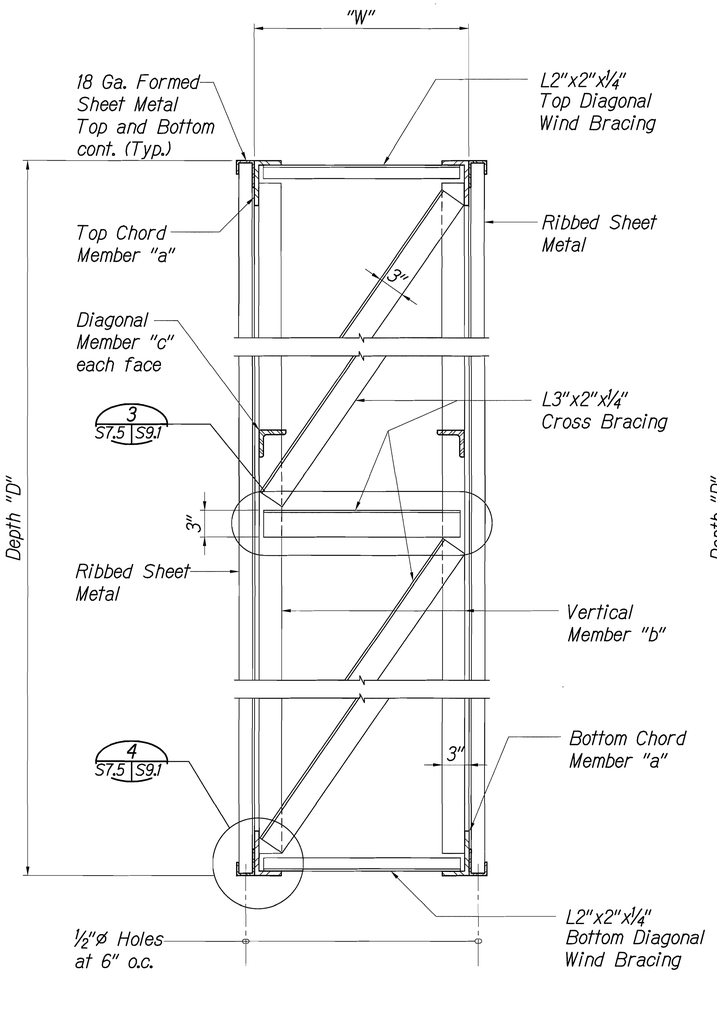
SHEET No. S7.4 OF 138 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-IM-0300(75)	2012	67	138



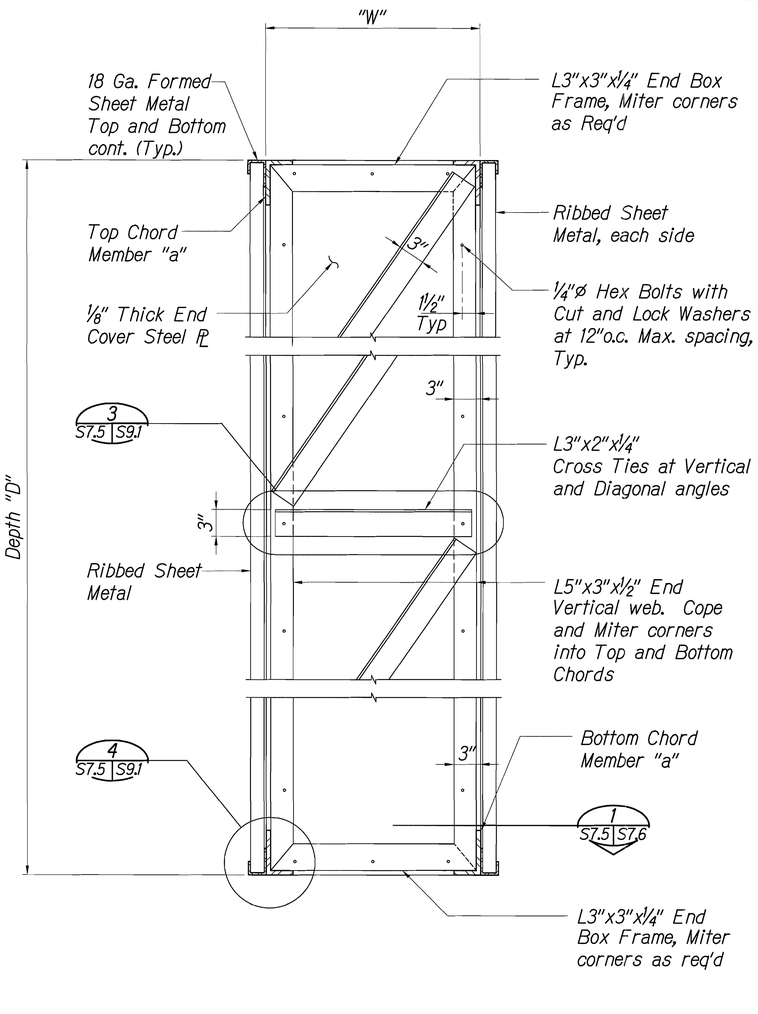
SECTION AT COLUMN END — 1 / S7.1 | S7.5

Not to Scale



TYPICAL SECTION — 2 / S7.1 | S7.5

Not to Scale



SECTION AT FREE END — 3 / S7.1 | S7.5

Not to Scale

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** For "W" = 2'-6"

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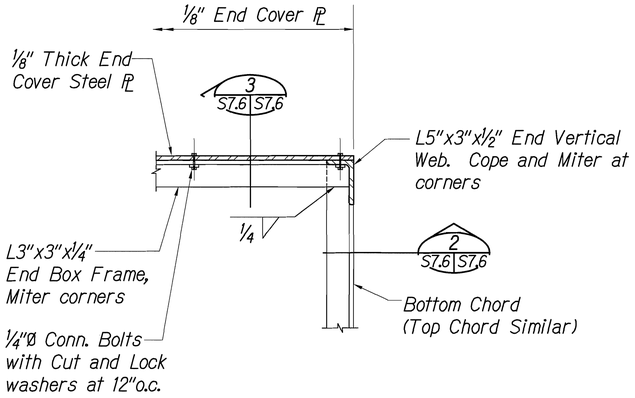
TYPE "B" DESTINATION SIGN FRAME DETAILS AND SECTIONS

INTERSTATE ROUTE H-1, H-2 AND H201
DESTINATION SIGN UPGRADE / REPLACEMENT, PHASE 1
Federal Aid Project NO. - NH-IM-0300(75)

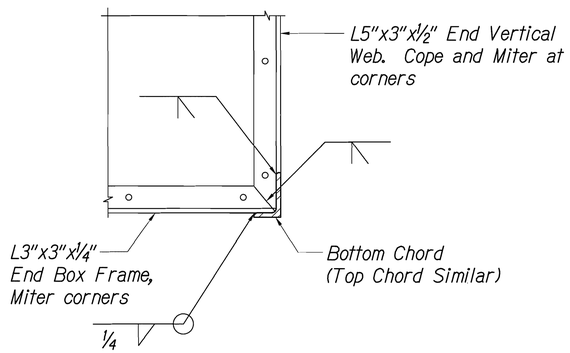
Scale: As Shown Date: Sept 21, 2012

SHEET No. S7.5 OF 138 SHEETS

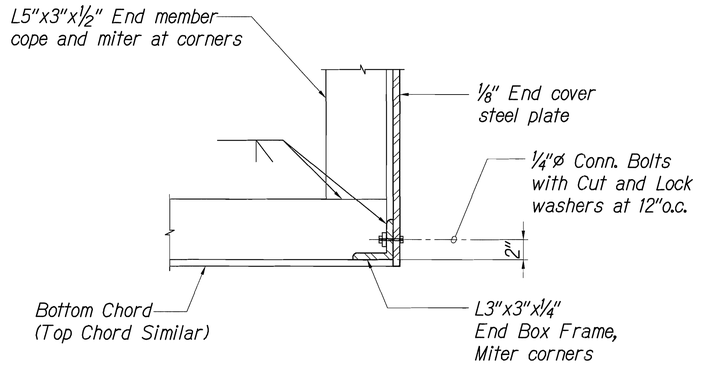
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-IM-0300(75)	2012	68	138



PLAN AT FREE END — 1 S7.5 S7.6
Not to Scale



SECTION — 2 S7.6 S7.6
Not to Scale



SECTION — 3 S7.6 S7.6
Not to Scale

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HIGHWAYS DIVISION

TYPE "B" DESTINATION SIGN FRAME DETAILS AND SECTIONS

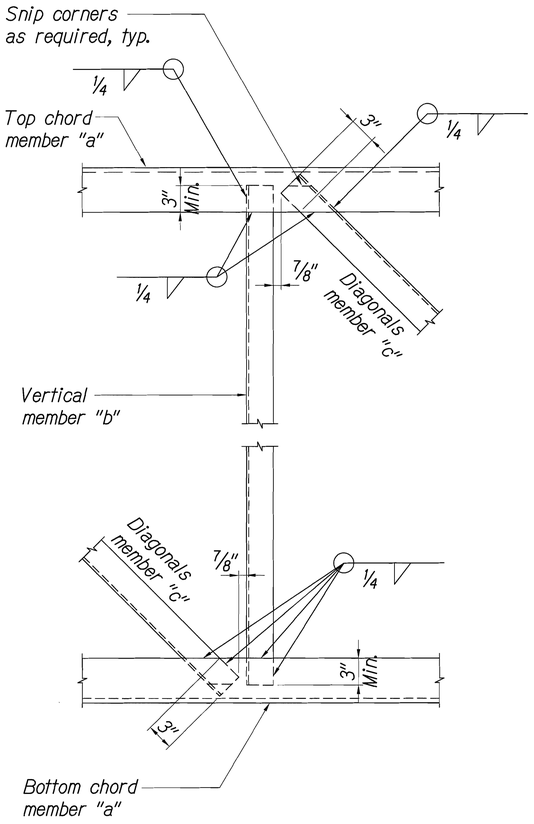
INTERSTATE ROUTE H-1, H-2 AND H201
DESTINATION SIGN UPGRADE / REPLACEMENT, PHASE 1
Federal Aid Project NO. - NH-IM-0300(75)

Scale: As Shown Date: Sept 21, 2012

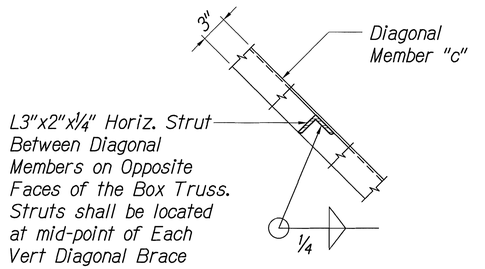
SHEET No. S7.6 OF 138 SHEETS

10-4-apprd-2012-03-30-2014 apvd2232-04-S

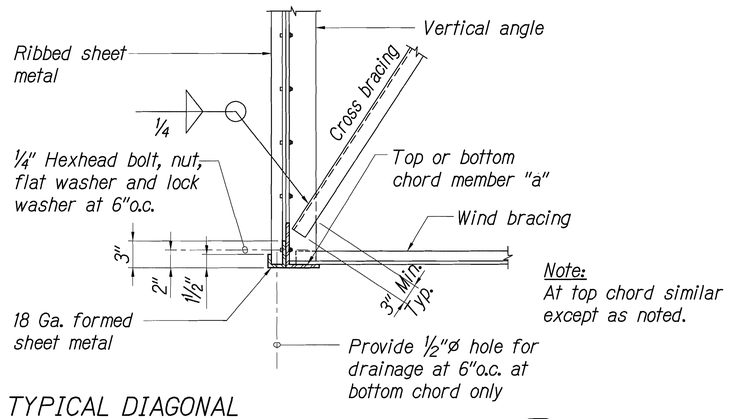
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-IM-0300(75)	2012	69	138



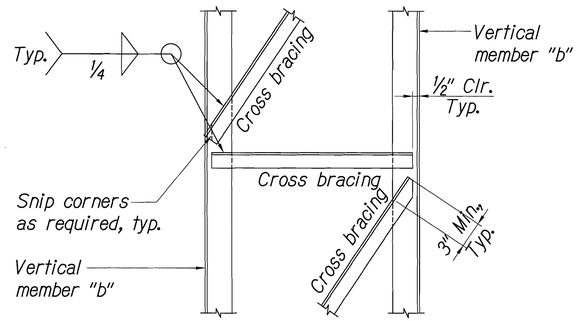
TYPICAL SECTION 1
Not to Scale S6.1, S7.1, S9.1



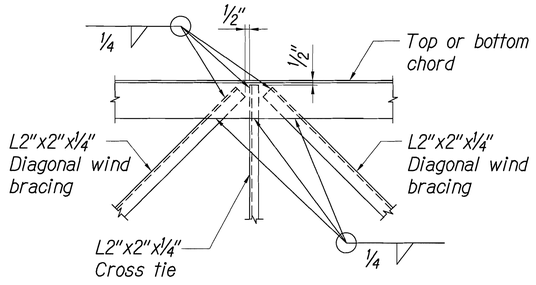
TYPICAL CONNECTION DETAIL 2
Not to Scale S6.1, S7.1, S9.1



TYPICAL DIAGONAL CROSS BRACING CONNECTION DETAIL 4
Not to Scale S6.5, S7.5, S9.1



TYPICAL DETAIL 3
Not to Scale S6.5, S7.5, S9.1



TYPICAL TOP AND BOTTOM WIND BRACING CONNECTION DETAIL 5
Not to Scale S6.1, S7.1, S9.1

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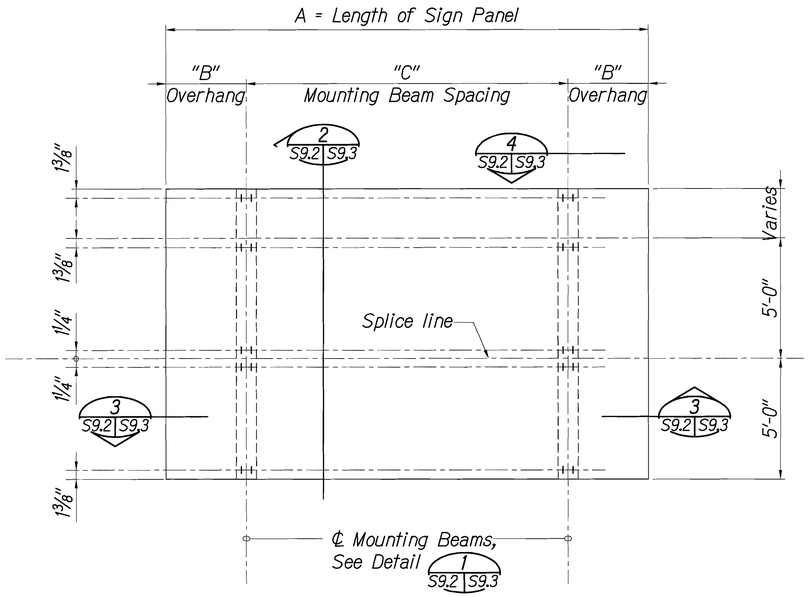
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

MISCELLANEOUS SIGN FRAME DETAILS

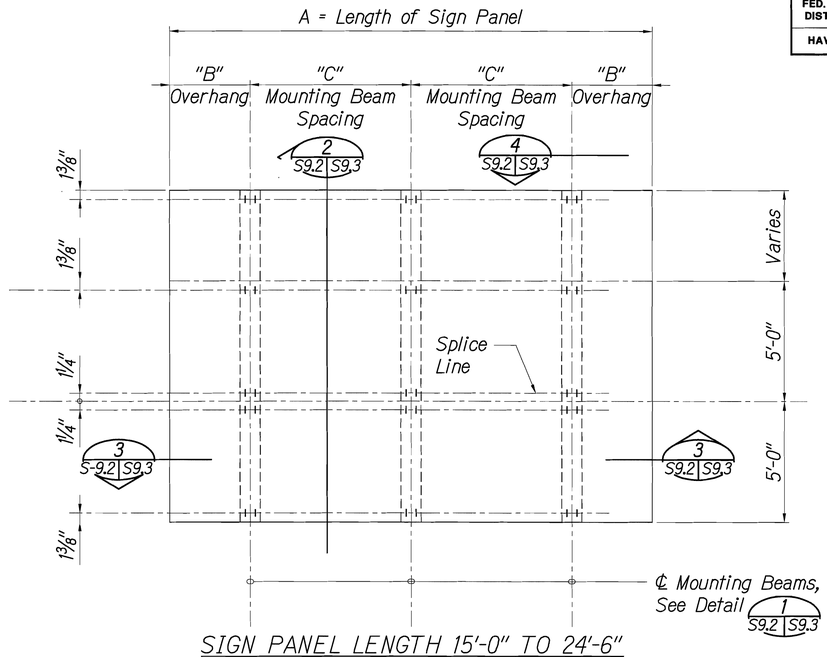
INTERSTATE ROUTE H-1, H-2 AND H201
DESTINATION SIGN UPGRADE / REPLACEMENT, PHASE 1
Federal Aid Project NO. - NH-IM-0300(75)
Scale: As Shown Date: Sept 21, 2012

SHEET No. S9.1 OF 138 SHEETS

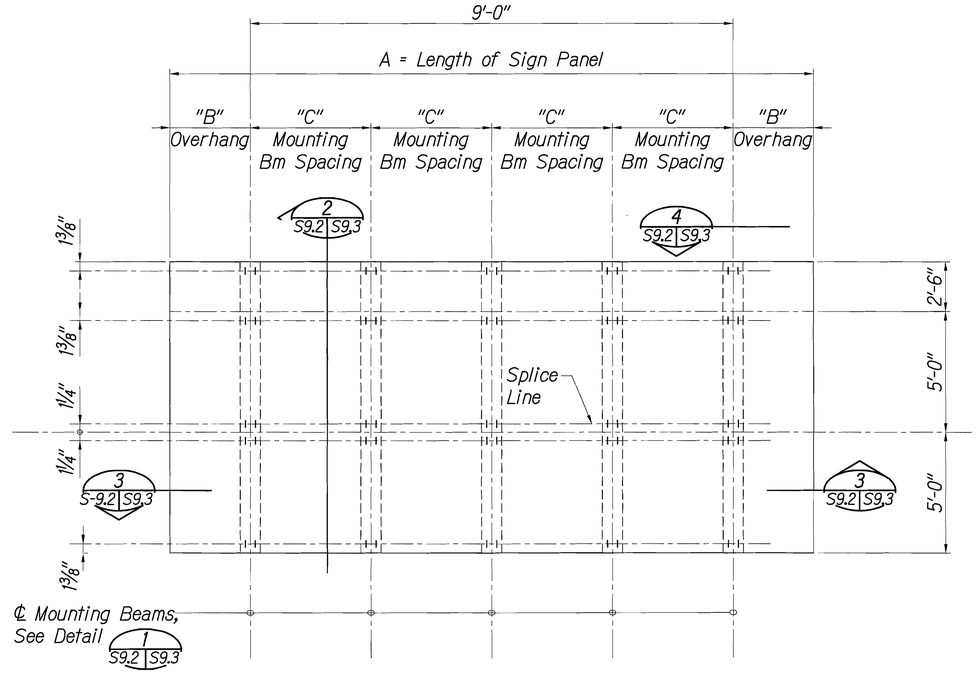
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-IM-0300(75)	2012	70	138



SIGN PANEL LENGTH 10'-6" TO 14'-0"



SIGN PANEL LENGTH 15'-0" TO 24'-6"



SIGN PANEL LENGTH 40'-0"

NOTES:
1. For sign panel length, See S4.1 to S4.18.
2. See schedule on sheet S9.3 for "A", "B" and "C" dimensions.

TYPICAL SIGN PANEL ELEVATIONS — 1 S9.2 | S9.2

Not to Scale

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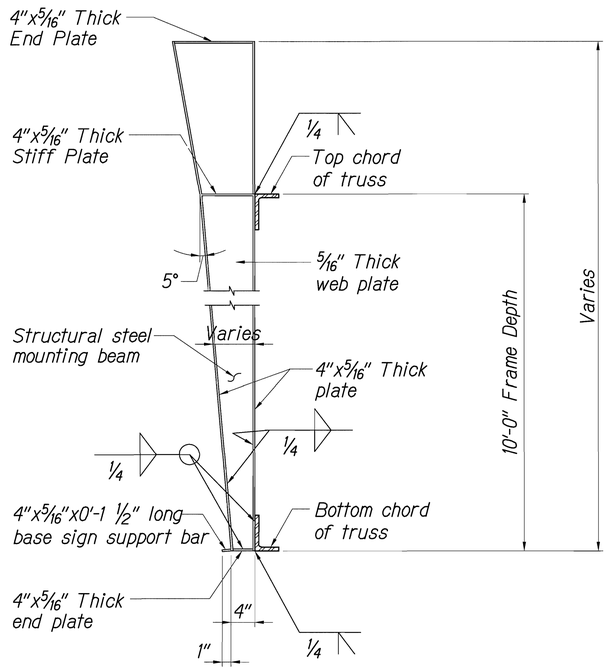
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

SIGN PANEL ELEVATIONS

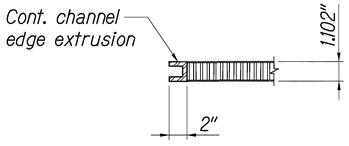
INTERSTATE ROUTE H-1, H-2 AND H201
DESTINATION SIGN UPGRADE / REPLACEMENT, PHASE 1
Federal Aid Project NO. - NH-IM-0300(75)
Scale: As Shown Date: Sept 21, 2012

SHEET No. S9.2 OF 138 SHEETS

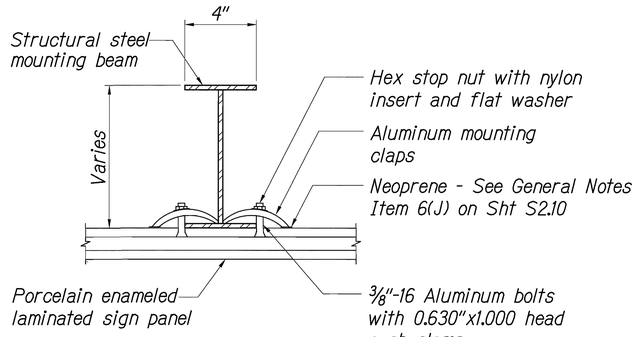
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-IM-0300(75)	2012	71	138



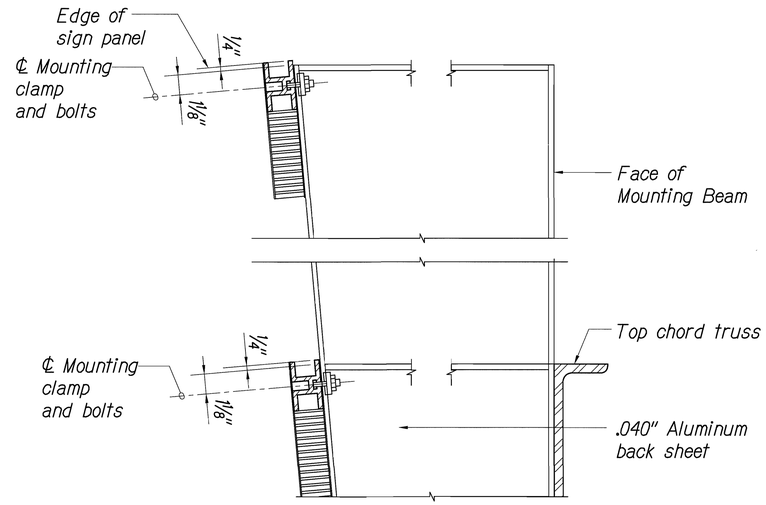
TYPICAL MOUNTING BEAM DETAIL — 1 — S9.3 | S9.3
Not to Scale

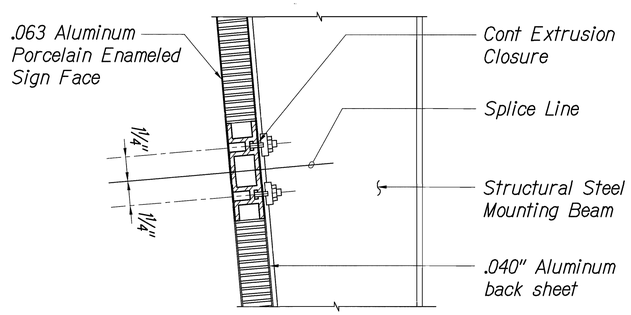


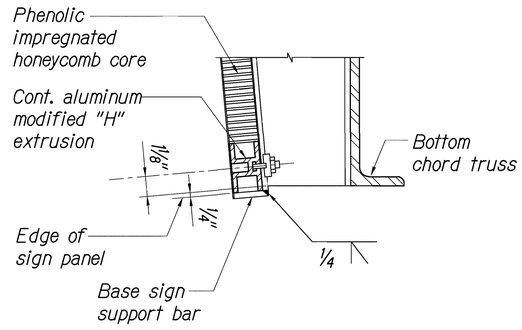
SECTION — 3 — S9.3 | S9.3
Not to Scale



SECTION — 4 — S9.3 | S9.3
Not to Scale







SECTION — 2 — S9.3 | S9.3
Not to Scale

MOUNTING BEAM SCHEDULE

Sign Panel Length "A"	Number Mounting Beams	Overhang "B"	Mounting Beam Spacing "C"
10'-6"	2	15"	8'-0"
11'-6"	2	21"	8'-0"
12'-0"	2	24"	8'-0"
12'-6"	2	21"	9'-0"
13'-0"	2	24"	9'-0"
14'-0"	2	24"	10'-0"
14'-6"	3	3"	7'-0"
16'-0"	3	6"	7'-6"
17'-6"	3	9"	8'-0"
18'-0"	3	12"	8'-0"
19'-0"	3	12"	8'-6"
20'-0"	3	18"	8'-6"
21'-0"	3	18"	9'-0"
22'-6"	3	21"	9'-6"
23'-0"	3	24"	9'-6"
24'-6"	3	24"	10'-3"
40'-0"	5	12"	9'-6"

Note:
Refer to Sht S9.2 for definitions of "A", "B", and "C".

NOTES:

1. Laminated panel sign depths more than 60" require additional mounting clamps located 1 1/4"± each side of panel splice line. Exact location is dependent on sign panel manufacturer. Follow manufacturer's recommendations.
2. Torque aluminum sign panel mounting bolt to 100 inch-lbs.
3. All steel and aluminum members including clamps, bolts and other connections shall be able to resist the loads described in the general notes on Sht S2.9. Details and calculations shall be submitted to the Engineer for this approval.

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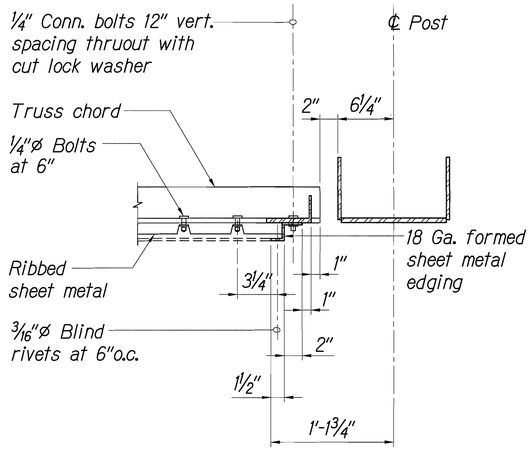
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

SIGN PANEL DETAILS

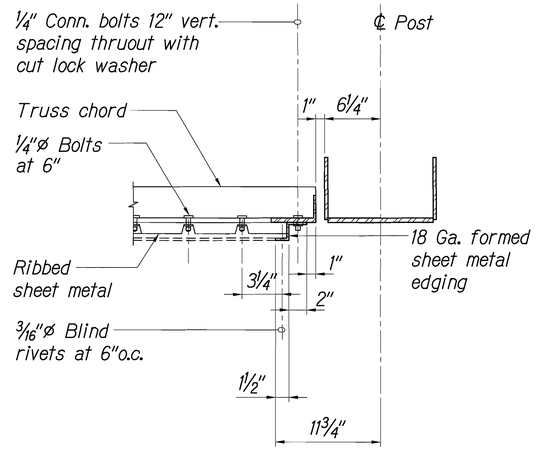
INTERSTATE ROUTE H-1, H-2 AND H201
DESTINATION SIGN UPGRADE / REPLACEMENT, PHASE 1
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Scale: As Shown — Date: Sept 21, 2012

SHEET No. S9.3 OF 138 SHEETS

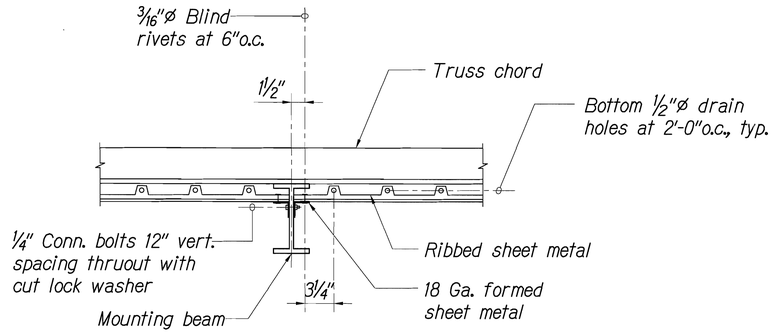
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-IM-0300(75)	2012	72	138



END AT SIGN SUPPORT FOR TWO POST SIGN STRUCTURE



END AT SIGN SUPPORT FOR CANTILEVER SIGN STRUCTURE

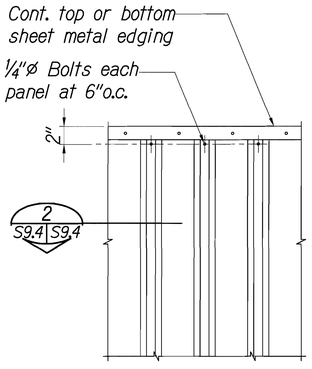


AT MOUNTING BEAM

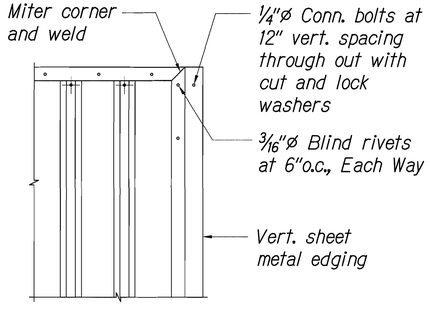
TYPICAL HORIZONTAL SECTION AT POST

Not to Scale

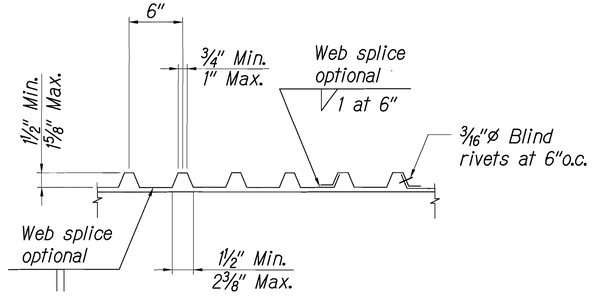
2 | S9.4 | S9.4



INTERMEDIATE



AT END OF TRUSS



SECTION

TYPICAL RIBBED SHEET METAL DETAIL

Not to Scale

1 | S6.1, S7.1 | S9.4

RIBBED SHEET METAL NOTES:

1. All ribbed sheet metal formed edging and the connections shall be capable of resisting the loads described on S2.9. The ribbed sheet metal shall span from top chord to bottom chord, shop drawings and calculations shall be submitted to the Engineer for approval.
2. All ribbed sheet metal and formed edging shall be galvanized steel with a minimum 18 gage thickness conforming to A.S.T.M. designation A653-SS, grade 33 with a minimum yield of 38 ksi, G165. Coating designation shall conform to A.S.T.M. designation: A653, G60.
3. Connection bolts, nuts and washers to be hot-dip galvanized steel A.S.T.M. A307.
4. Blind rivets shall be galvanized and submitted to the Engineer for approval.

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RIBBED SHEET METAL DETAILS

INTERSTATE ROUTE H-1, H-2 AND H201
DESTINATION SIGN UPGRADE / REPLACEMENT, PHASE 1
Federal Aid Project NO. - NH-IM-0300(75)

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SHEET No. S9.4 OF 138 SHEETS