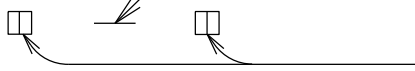
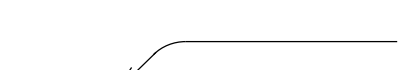
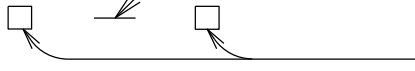



LEGEND



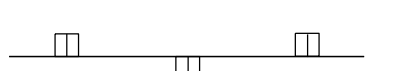
10' White Profiled Thermoplastic Stripe

Type C Raised Pavement Markers @ 40'-0" o.c.

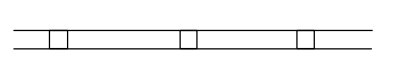


10' Yellow Profiled Thermoplastic Stripe


Type D Raised Pavement Markers @ 40'-0" o.c.




8" White Stripe with Type C Raised Pavement Markers @ 20'-0" o.c. (Tape, Type I or Thermoplastic Extrusion)




4" Double Solid Yellow Stripes with Type D Raised Pavement Markers On Both Outside Edges Of 4" Yellow Stripe @ 10'-0" o.c. (Tape, Type I Or Thermoplastic Extrusion)







4" Double Solid Yellow Stripes with Type H Raised Pavement Markers On Both Outside Edges Of 4" Yellow Stripe @ 10'-0" o.c. (Tape, Type II Or Thermoplastic Extrusion)



6" Yellow Edge Stripe with Type H Raised Pavement Markers @ 10'-0" o.c. (Tape, Type II or Thermoplastic Extrusion)



4" Double Solid White Stripes with Type C Raised Pavement Markers @ 20'-0" o.c. (Tape, Type I or Thermoplastic Extrusion)




Lane Change Restriction Marking


10' White Profiled Thermoplastic Stripe

Type C Raised Pavement Markers @ 20'-0" o.c.


4" White Stripe (Tape, Type I or Thermoplastic Extrusion)




6" or 8" White Edge Stripe with Type C Raised Pavement Markers @ 20'-0" o.c. (Tape, Type II or Thermoplastic Extrusion)




4" White or Yellow Guide Line (Tape, Type III or Thermoplastic Extrusion except for bus bays)




Transverse Median Marking (Tape, Type II or Thermoplastic Extrusion)



Transverse Shoulder Marking (Tape, Type II or Thermoplastic Extrusion)




Channelizing Island or Deceleration Lane Gore (Tape, Type II or Thermoplastic Extrusion)




②

Crosswalk and Stop Line. All Stop Lines shall be 10'-0" from Crosswalk unless otherwise noted. The circled number indicates the number of lanes for payment (Tape, Type III or Thermoplastic Extrusion)


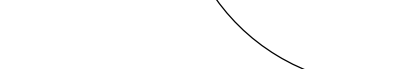
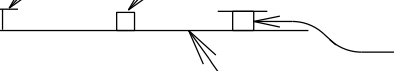



Pavement Arrow (Tape, Type III or Thermoplastic Extrusion)



STOP

Pavement Word (Tape, Type III or Thermoplastic Extrusion)




10' Yellow Profiled Thermoplastic Stripe @ 40'-0" o.c.

Type D Raised Pavement Markers on Outside Edge and Midway Between Yellow Profiled Thermoplastic Stripe @ 40'-0" o.c. (Passing Direction)

Type D Raised Pavement Markers on Outside Edge of 4" Single Solid Yellow Stripe @ 10'-0" o.c. (No-Passing Direction)

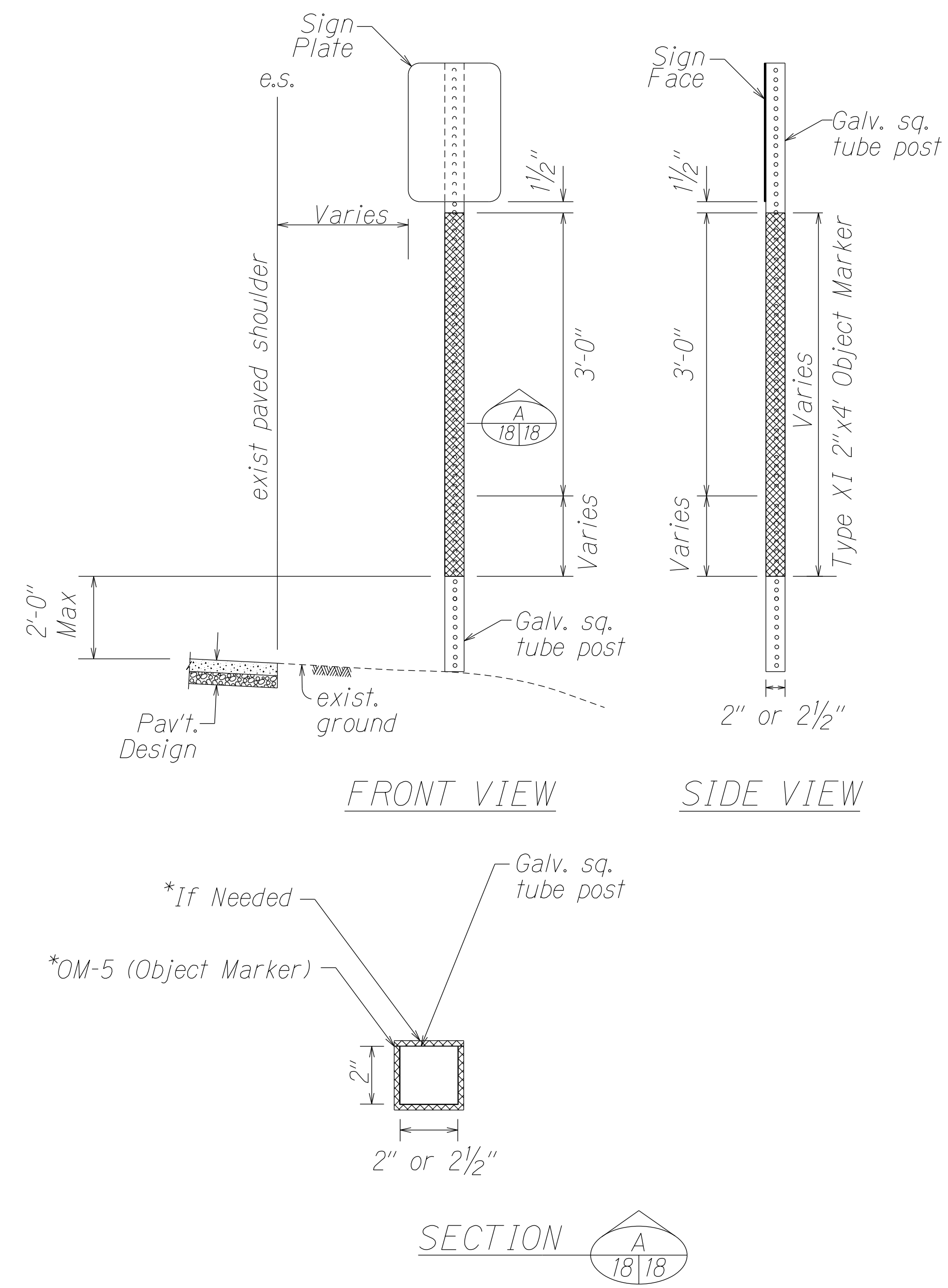
4" Single Solid Yellow Stripe (Tape, Type I or Thermoplastic Extrusion)



Extension of Edge Line, 4" Wide x 2'-0" Long White Stripe @ 10'-0" o.c. w/Type C Markers @ 40'-0" o.c. (Tape, Type III or Thermoplastic Extrusion)

NOTES

- Layout of pavement markings and striping shall be done by the Contractor and approved by the Engineer prior to any installation work.
- Existing pavement markings not incorporated in the final traffic pattern shall be removed as directed by the Engineer. Costs shall be incidental to the various pavement marking items.
- Raised pavement markers shall not be installed within crosswalks.
- Final locations of all signs shall be approved by the Engineer prior to any installation work.
- Existing signs not shown on these plans shall remain as posted unless otherwise directed by the Engineer. Removal and disposal of existing signs and/or posts as designated on these plans shall be incidental to the various signing items.
- Final locations of all stop lines shall be approved by the Engineer prior to installation.
- All pavement striping shall be as noted on the legend or plans.
- Pavement marking (Tape or Thermoplastic Extrusion) over existing and new pavement shall be applied with an approved primer as recommended by the manufacturer and as approved by the Engineer. The primer shall be allowed to dry to the tacky stage prior to tape application.
- The Contractor shall erect at the beginning of the project and at the end of the project advance construction warning signs as indicated on the plans or as directed by the Engineer. The signs shall be kept in place for the duration of the project and shall be maintained by the Contractor. These signs shall be placed in addition to the required traffic controlsigns called for in Section 645 - Work Zone Traffic Control. The advance construction warning signs shall be new and become the property of the Contractor.
- Existing signs that are to be replaced shall not be removed until new signs are installed as replacements, or the messages are no longer necessary.
- Backing for all new regulatory and warning signs shall not be spliced.
- All sign panels shall conform to Section 630 of Special Provisions and the latest editions and amendments of the following FHWA publications:
  - "Manual on Uniform Traffic Control Devices for Streets and Highways" (MUTCD)
  - "Standard Highway Signs"
  - "Standard Alphabets for Highway Signs"
- State Route Marker Symbols, borders, messages, arrows, symbols and shields shall conform to details as shown on the plans and as specified in the MUTCD.
- All new and relocated signs and markers installed on pipe posts, light standard or expressway sign post are to be mounted with band brackets and steel braces.
- Removal and disposal of existing signs and posts shall be considered incidental to various contract items.
- Object markers (OM-5) shall be installed on all existing and proposed regulatory and warning sign posts within the project limits.
- If a strip of retroreflective material is used on the sign support, it shall be at least 2 inches in width, it shall be placed for the full length of the support from the sign to within 2 feet above the edge of roadway, and its color shall match the background color of the sign, except that the color of the strip for the "YIELD" and "DO NOT ENTER" signs shall be red.
- All red OM-5 object markers shall cover 4 sides of the sign post. All other OM-5 object marker colors shall cover 3 sides of the sign post, facing all directions of traffic.
- Background of object marker shall be retrorreflectorized with Type XI retrorreflective sheeting.



\*NOTE: All red OM-5 object markers shall be 4-sided.

OBJECT MARKER (OM-5) DETAIL @ TRAFFIC SIGN POST  
Not to Scale

STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

PAVEMENT MARKING LEGEND,  
DETAILS, NOTES & SUMMARY

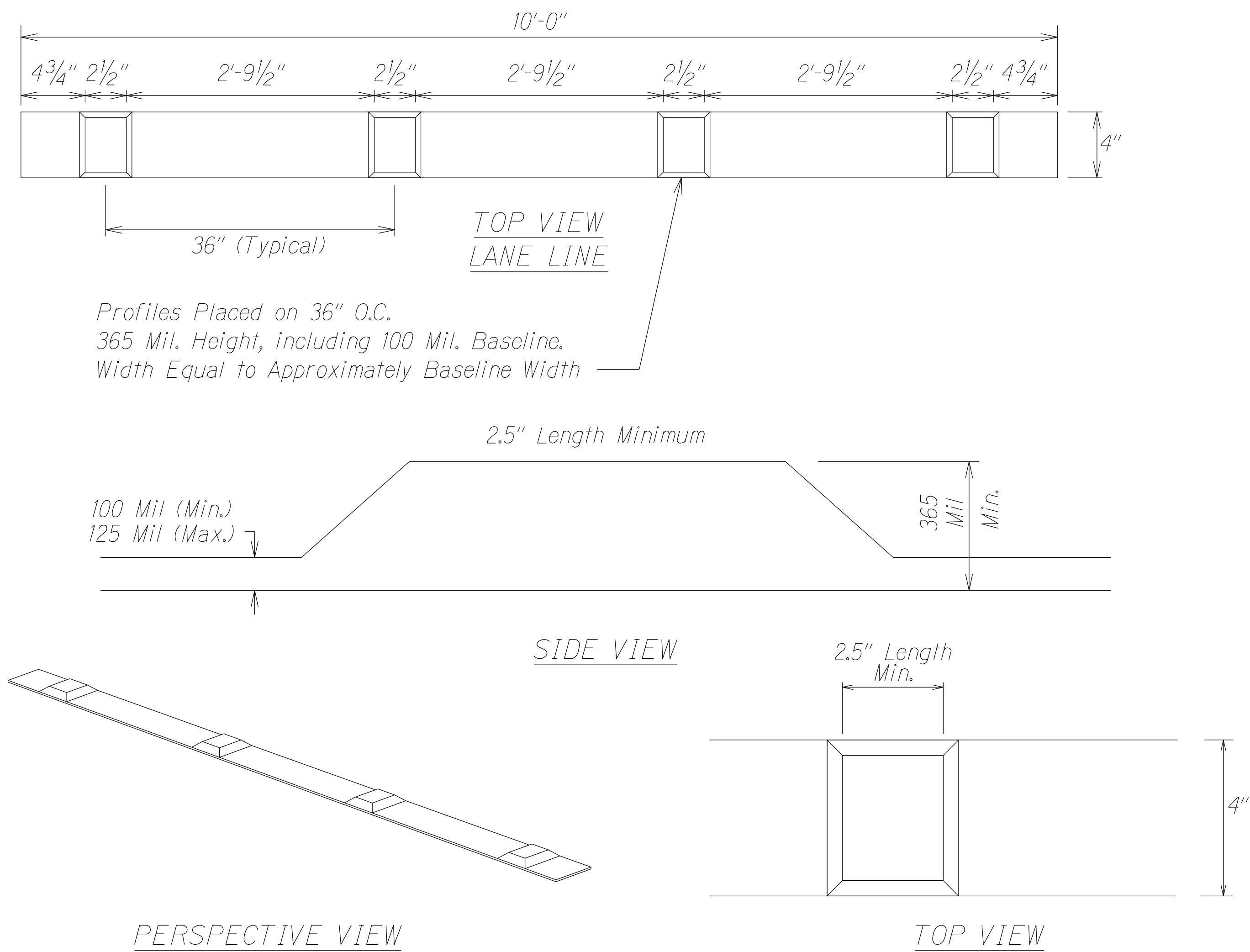
KUHIO HIGHWAY RESURFACING  
Waikaea Bridge to Mailihuna Road  
Federal-Aid Project No. NH-056-1(063)

Date: Mar. 2023

SHEET No. 1 OF 4 SHEETS

21

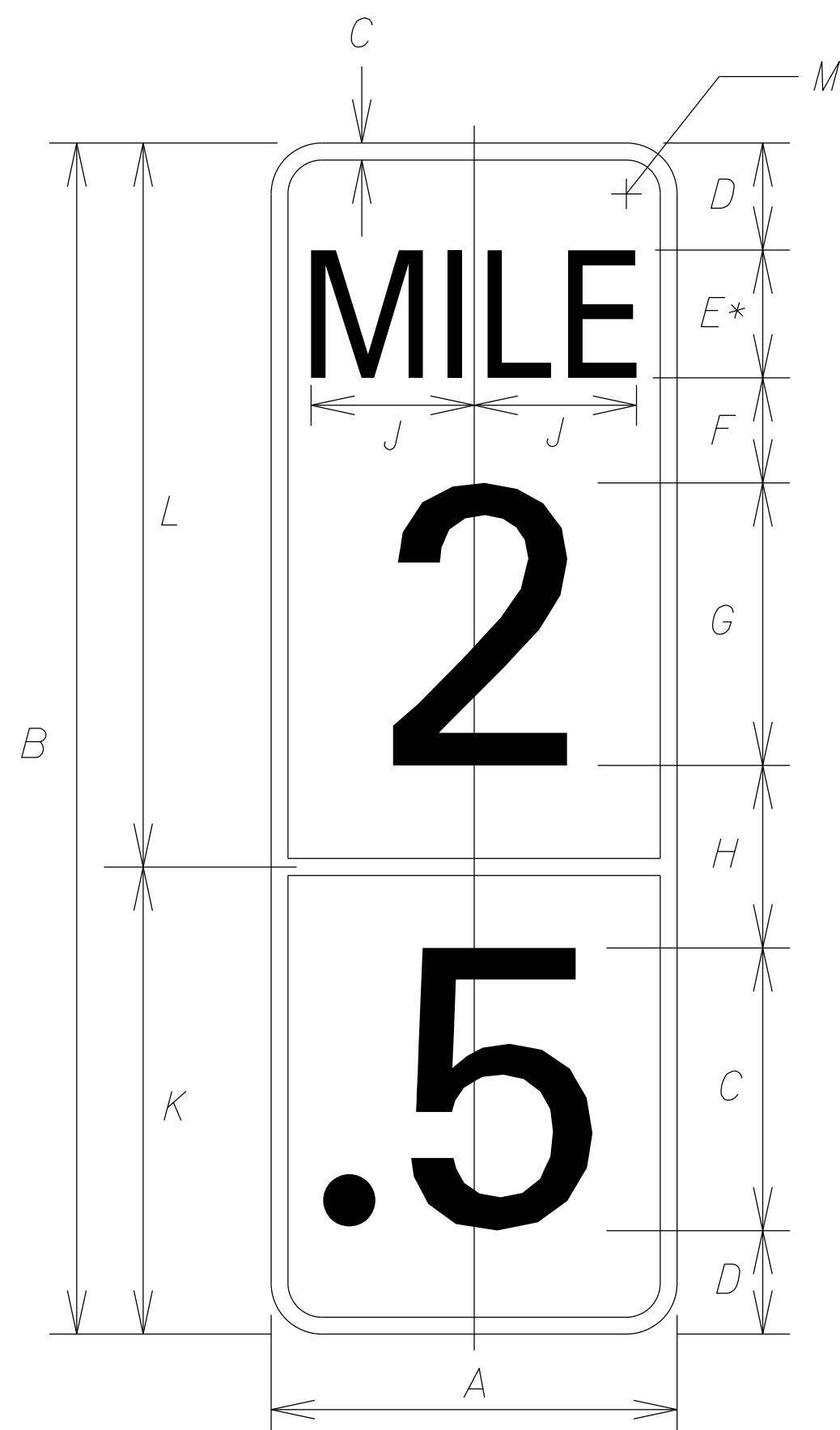
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-056-1(063)	2023	22	43



PROFILED THERMOPLASTIC STRIPING  
Not to Scale

NOTES:

- The thermoplastic material shall be a alkyd-based compound formulated for profiled pavement marking. See specs subsection 629.03 for additional requirements
- Install white profiled thermoplastic stripes as lane line.
- Install yellow profiled thermoplastic stripes for centerline passing zone.
- In areas with centerline milled rumble strips, install standard yellow thermoplastic stripes without raised profiles



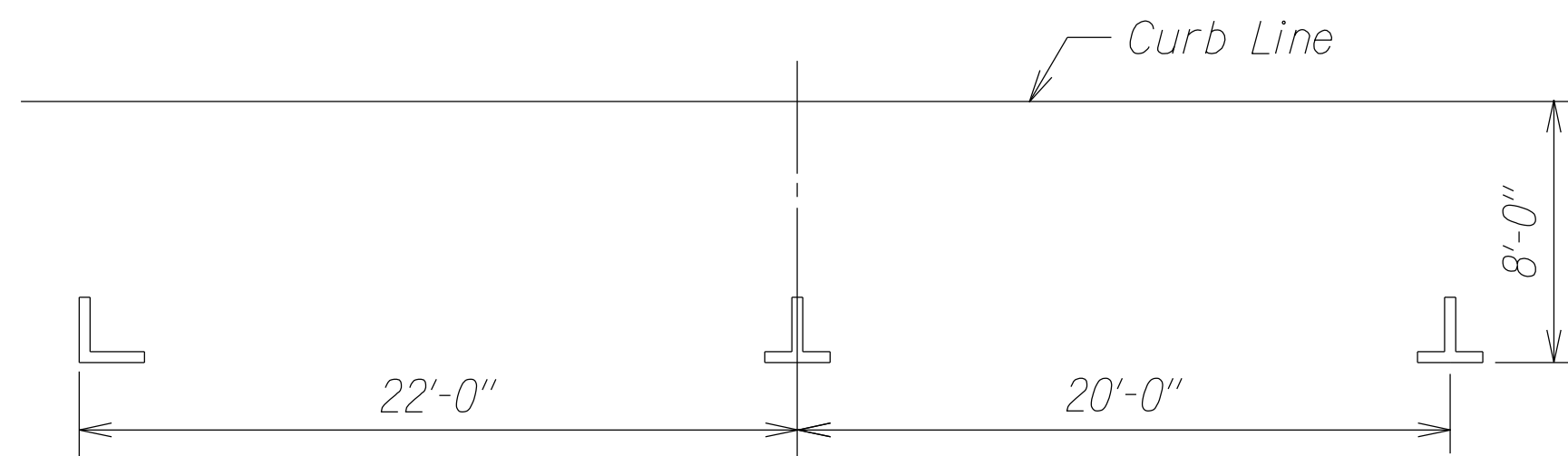
LEGEND (IN.)					
A	B	C	D	E	F
10	27	0.5	3	4B	2
12	36	0.5	3	4B	3

G	H	J	K	L	M
6D	3	3.922	10.5	16.5	1.5
10D	3	3.922	14.5	21.5	1.5

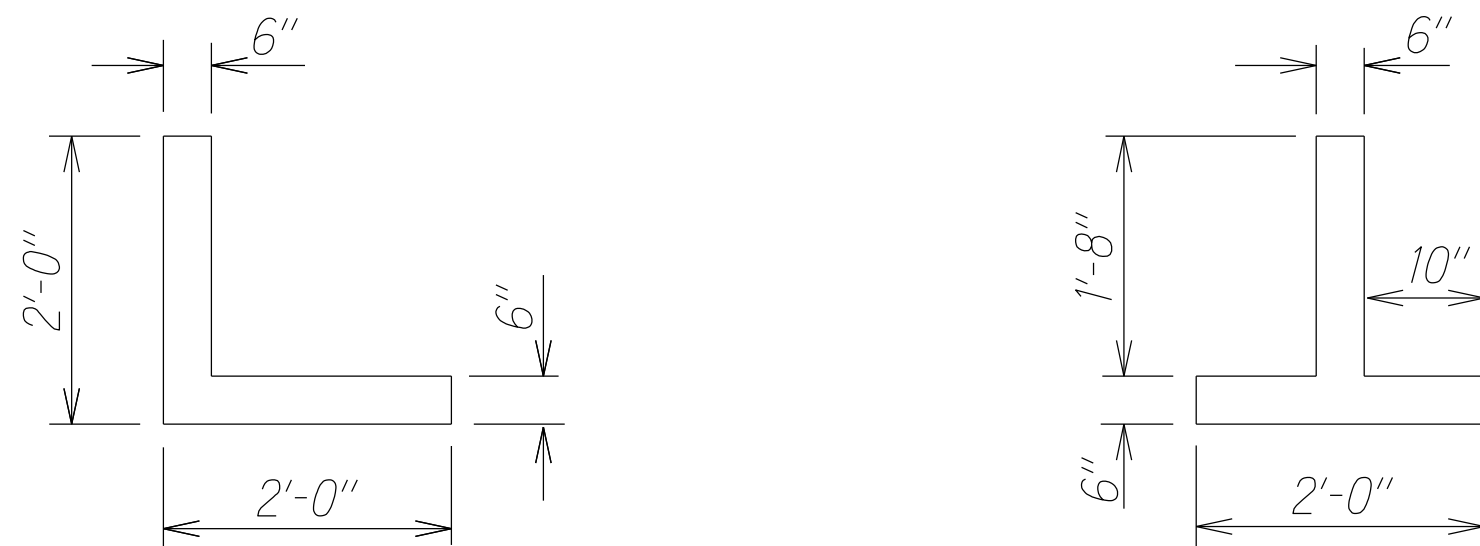
D10-1A MILEPOST SIGN  
Not to Scale

\*NOTES

- Series 2000 Standard Alphabets. Optically Locate Numerals about Centerline.
- All reference location signa at the integer mile point shall display a decimal point and a zero numeral.



PARKING SPACE LIMITS  
Not to Scale



PARKING SPACE DETAIL  
Not to Scale

TYPICAL PARKING SPACE MARKINGS

ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
NOTE BOOK	DRAWN BY	✓
DESIGNED BY	✓	✓
QUANTITIES BY	✓	✓
CHECKED BY	✓	✓
N <sub>o</sub>	4th Reg 2023	

STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

PAVEMENT MARKING LEGEND,  
DETAILS, NOTES & SUMMARY

KUHIO HIGHWAY RESURFACING  
Waikaea Bridge to Mailihuna Road  
Federal-Aid Project No. NH-056-1(063)

Date: Mar. 2023

SHEET No. 2 OF 4 SHEETS



A. STANDARD SPECIFICATIONS AND PLANS:

- Hawaii Department of Transportation (HDOT), Hawaii Standard Specifications for Road and Bridge Construction, 2005.
- HDOT Highways Division Design Branch - Standard Plans Dated 2008.

B. DESIGN SPECIFICATIONS

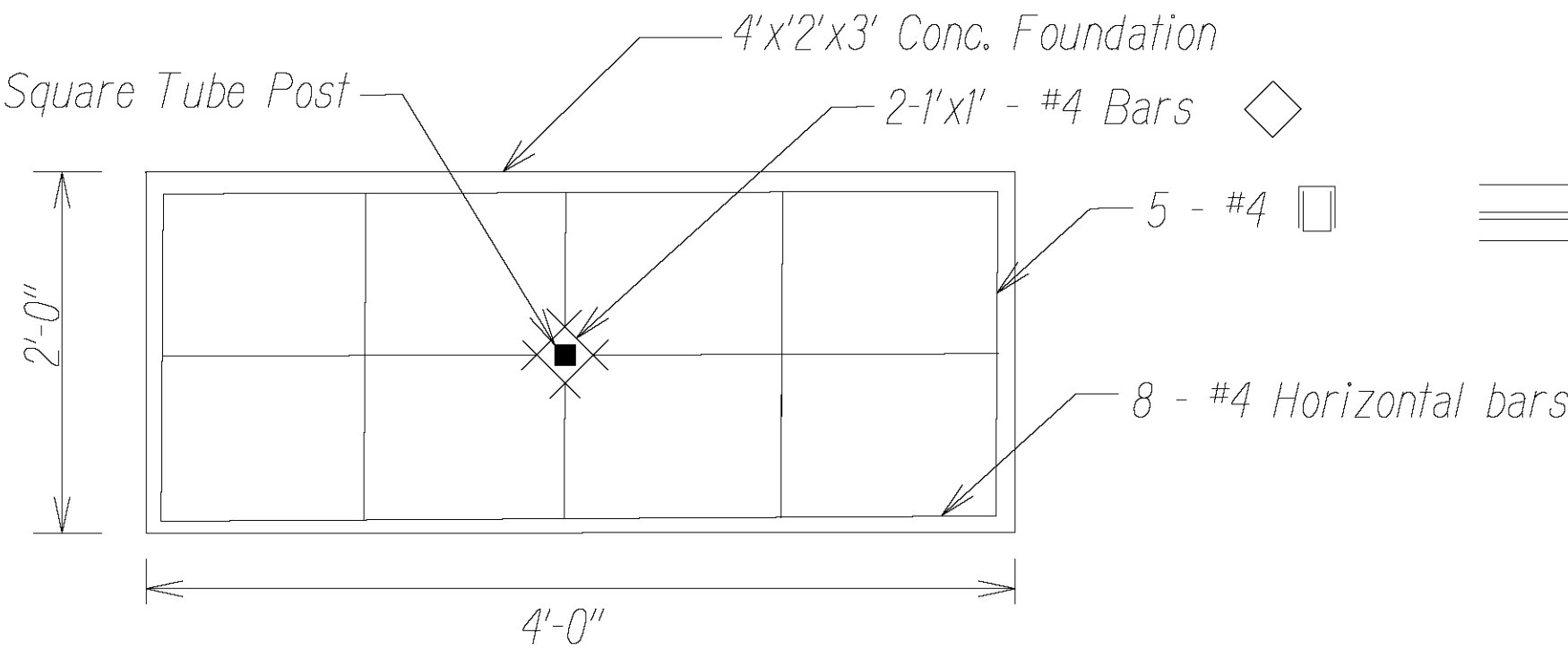
- American Association of State Highway and Transportatrn Officials (AASHTO) 2020 "LRFD Bridge Design Specifications" 9th Edition as amended by HDOT document dated August 8, 2014 with subject title "Design Criteria for Bridges and Structures".
- AASHTO LRFD Specifications for Structural Support for Highways Signs, Luminaires, and Traffic Signals, 1st Edition, including the 2017 interim Revisions.
- HDOT document dated August 8, 2014 with subject title "Design Criteria for Bridges and Structures" and HDOT memorandum dated January 8, 2018 with subject title "Changes to Design Criteria for Bridges and Structures".

NOTES:

- The Locations of The New Traffic Signal Standards with Rectangular Rapid Flashing Beacons (RRFB) And Pedestrian Push Buttons shall be staked out in the filed by the Contractor and approval of the locations shall be obtained from the Engineer prior to construction and installation.
- RRFB System Shall Conform To The Requirements Of The 2009 Edition Of The "Manual On Uniform Traffic Control Devices," Federal Highway Administration. The System Shall Conform To All Provisions Of The MUTCD, Interim Approval IA-2I.
- RRFB System Shall Be Solar-Powered With Spread Spectrum Wireless Communication. Solar Engine Shall Be Sized With Minimal Dimensions To Provide Sufficient Power Output To Operate the RRFB System.
- Each Pushbutton Shall Be Installed With An Instruction Sign R10-25 (9" (9" x 12") That Reads, "Push Button To Turn On Warning Lights". See Sht. TS-4 For More Details.
- RRFB Controller Equipment Shall Be Completely Self-Contained With No Connection To External Power Necessary.
- The W16-7P Plaque And The Rapid-Flash LED Enclosure Shall Not Extend More Than 4" Horizontally Over Any Pedestrian Facility.
- Contractor Shall Install Signs And Posts And Rectangular Rapid Flash Beacon And Push Button, Per The Manufacturer's Specifications.
- Contractor Shall Submit Product Data For Review And Approval By The Engineer Prior To Purchasing And Installation.
- The RRFB Installation Shall Comply With The Technical Conditions As Provided In The FHWA Technical Memorandum Regarding The Interim Approval For Optional Use Of Rectangular Rapid Flash Beacon.
- Each Crossing Where There Is No Median Shall Have A Minimum Of Two Poles Each With Push Button Detection. Each Pole Shall Have Signs And Beacons Facing Both Sides (Double-Sided). At Locations With A Median, Provide Two Poles With Single-Sided Sign And Beacon And Provide A Third Pole In The Median With Double -Sided Signs And Beacons.
- W11-2 Warning Signs And Supplemental Plaques W16-7P Shall Have A Fluorescent Yellow-Green Background With A Black Legend And Border. The Mixing Of Standard Yellow And Fluorescent Yellow-Green Backgrounds Is Not Allowed.

- Contractor Shall Provide An On-Board User Interface (OBUI) To Locally Troubleshoot Or Reprogram the RRFB System.
- All existing RRFB Assemblies to be replaced shall be returned to the State.
- Concrete foundation shall be 4000 psi and a maximum water cement ratio of 0.45.
- Furnishing and installation of Solar Panel, Square Tube Post, Traffic Signs, RRFB, ADA compliant push button and other hardwares shall be considered incidental to Item No. 631.0500 - RRFB Assembly and will not be paid separately.
- Excavation, backfilling and construction of concrete foundation shall be considered incidental to Item No. 631.0500 - RRFB assembly and will not be paid separately.
- Contractor shall provide shop drawings of RRFB Assembly including structural calculations that are stamped by a licensed Structural Engineer for review and approval by the Engineer. This work shall be considered incidental to Item No. 631.0500 - RRFB Assembly and will not be paid separately.
- RRFB system shall be "Camarah R920-E" or approved equal.

Table 1	
Location	Height
①	20'-0"
②	20'-0"
③	20'-0"
④	15'-0"



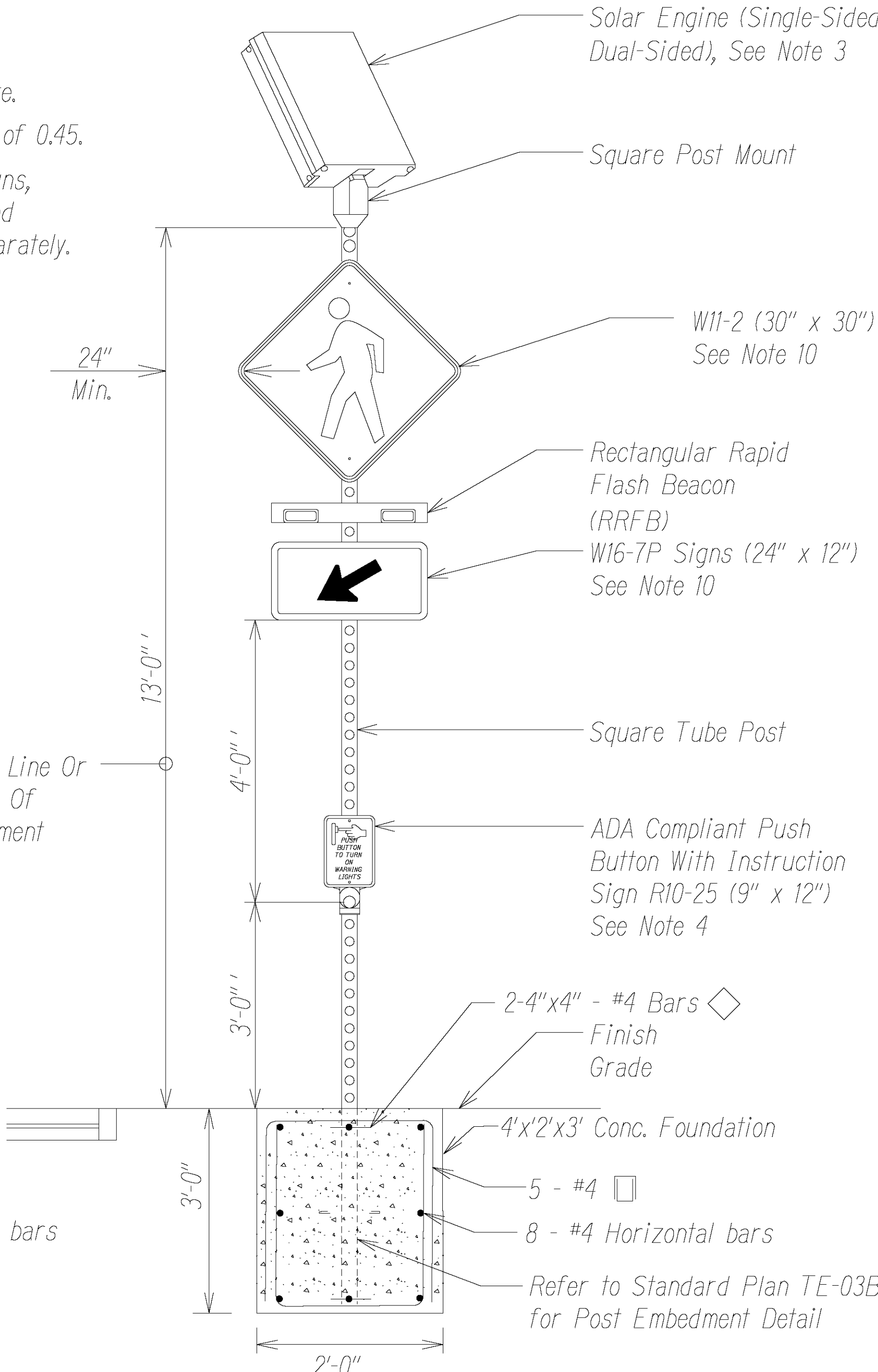
PLAN

Not To Scale



RECTANGULAR RAPID FLASHING BEACON

Not To Scale



ELEVATION

Not To Scale

4/21/23	△ - Revise Rectangular Rapid Flashing Beacon Details and Notes
DATE	REVISION
STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION <b>PAVEMENT MARKING LEGEND, DETAILS, NOTES &amp; SUMMARY</b> KUHIO HIGHWAY RESURFACING Waikaea Bridge to Maillihuna Road Federal-Aid Project No. NH-056-1(063) Date: April 2023	
SHEET No. 3 OF 4 SHEETS	



CONT. FROM PLAN SHEET. NO. AAD 23 NOTES:

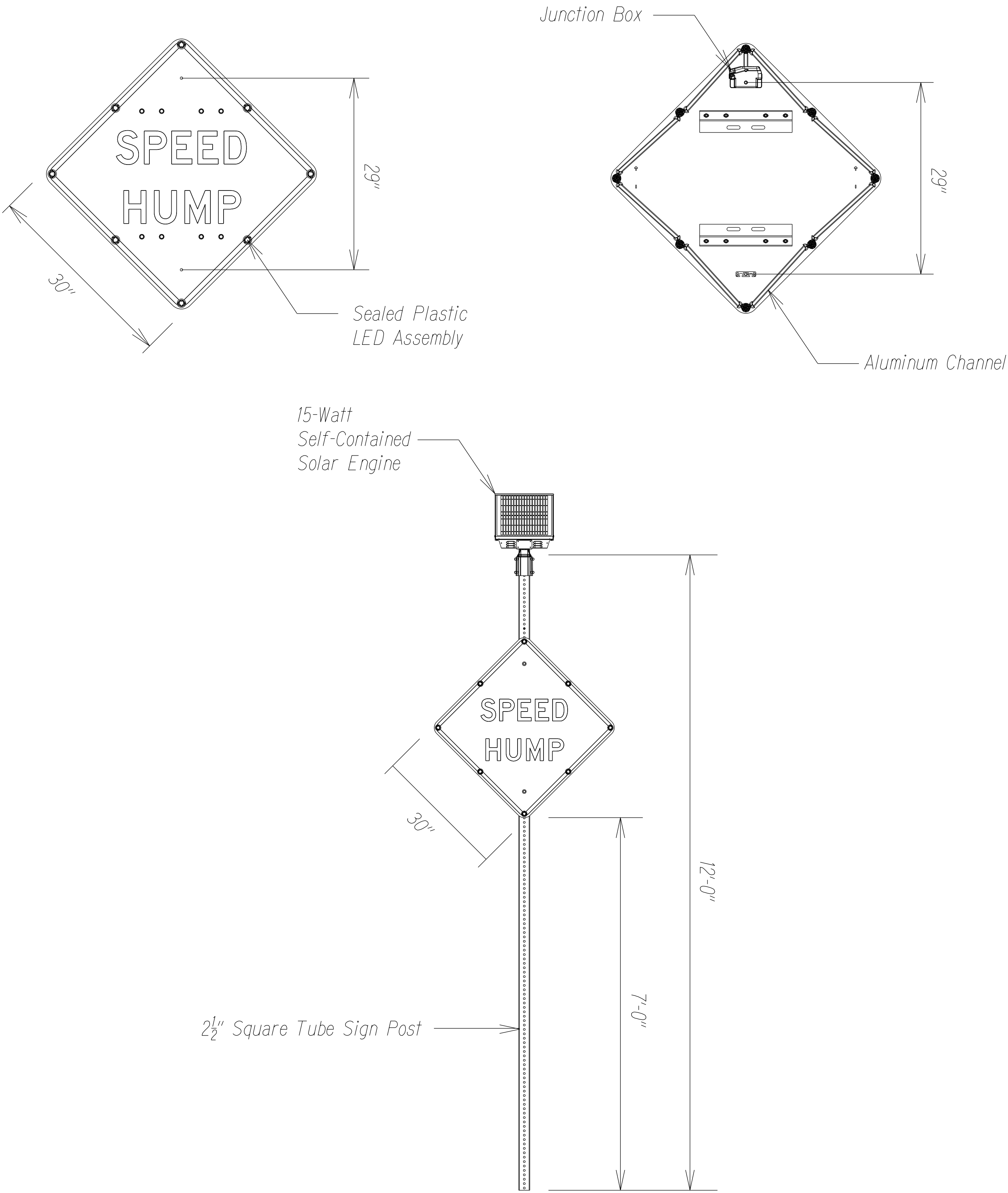
- 
- Technical drawing of a transformer base showing a cross-section and plan view.
- Labels:**
- Nut cover
  - Pole Shaft
  - Hex bolt w/ Nut & Washers
  - Breakaway Cast Aluminum Transformer Base
  - 2" Min. Grout after Plumb
  - 4" Max. (Finish Grade to Top of Bolt)
  - 1/2"  $\varnothing$  Weep Hole (Typ. for 4)
  - Finish Grade
  - Leveling Nut & Washer @ each Anchor Bolt
  - 3-#4  $\square$  @ 6"
  - (4) 1"  $\varnothing$  x 40" Anchor Bolts (Stainless Steel)
  - Concrete Foundation
  - 6" #5 Rebar
  - 3" Cl. (typ.)
  - #4 Spiral @ 3" for top 4'-0" and 9" for balance of base 1 1/2 Turns top and bottom, typ.
  - 6'-6" Minimum Round Section for sands, gravels, and stiff clays.
  - 18" Sq. Section
  - 2'-0" Min.
  - 3"
  - Curb Line Edge Of Pavement

The technical drawings illustrate the base plate for a 12-inch diameter column. The **PLAN** view shows a square base plate with a side length of 2'-0". It features six #5 reinforcement bars, equally spaced, and a central 1/2" diameter weep hole. The **SECTION A-A** view shows the circular cross-section of the column with a diameter of approximately 2'-0". It includes a #4 spiral reinforcement with a 3-inch clear spacing for the top 4'-0" and 9 inches for the remainder of the base. The **SECTION B-B** view shows a square cross-section of the base plate with a side length of 2'-0". It features three #4 reinforcement bars spaced at 6 inches, with a 2-inch clear spacing from the column face.

RECTANGULAR RAPID FLASHING BEACON WITH OVERHEAD LIGHT  
*Not To Scale*



FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-056-1(063)	2023	24	43



ORIGINAL PLAN	SURVEY PLOTTED BY	DATE	DRAWN BY $\chi$	*	$\chi$
NOTE BOOK			TRACED BY	*	
$\frac{14811}{441116904}$			DESIGNED BY $\chi$	*	
$441116904$			QUANTITIES BY	*	
N <sub>o</sub>			CHECKED BY	*	

STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

PAVEMENT MARKING LEGEND,  
DETAILS, NOTES & SUMMARY

KUHIO HIGHWAY RESURFACING  
Waikaea Bridge to Maillihuna Road  
Federal-Aid Project No. NH-056-1(063)

Date: Mar. 2023