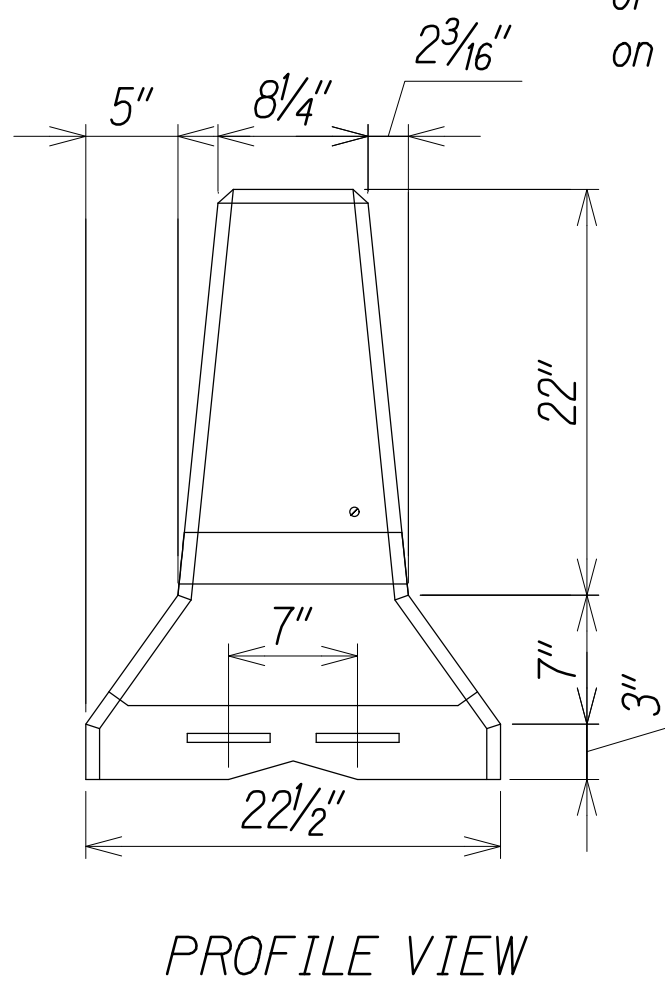
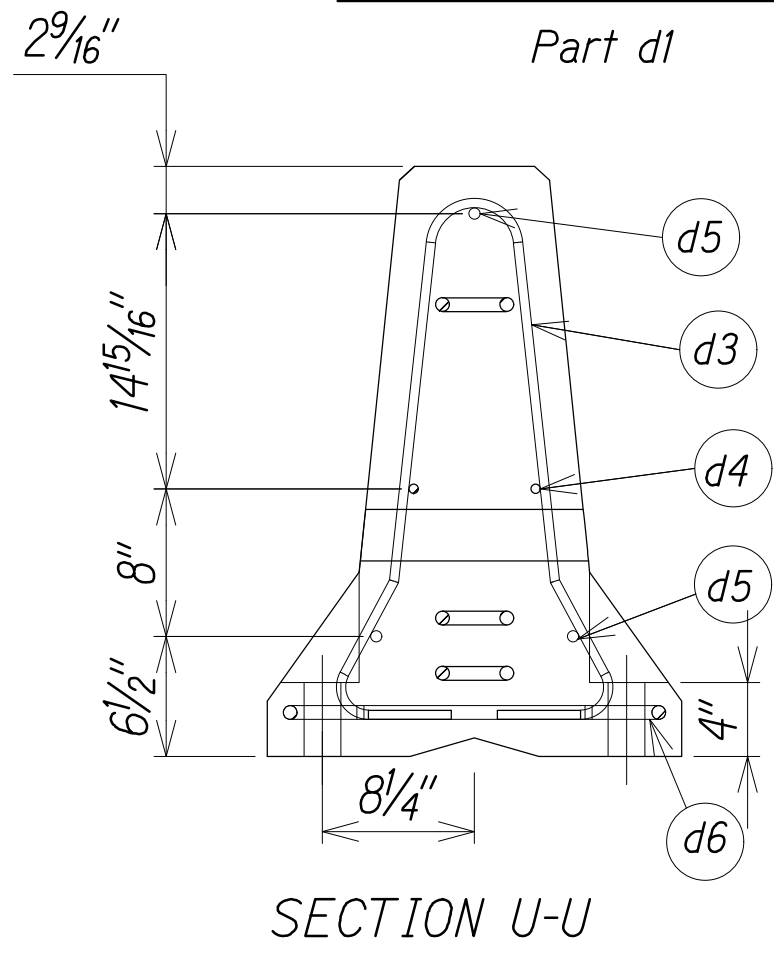
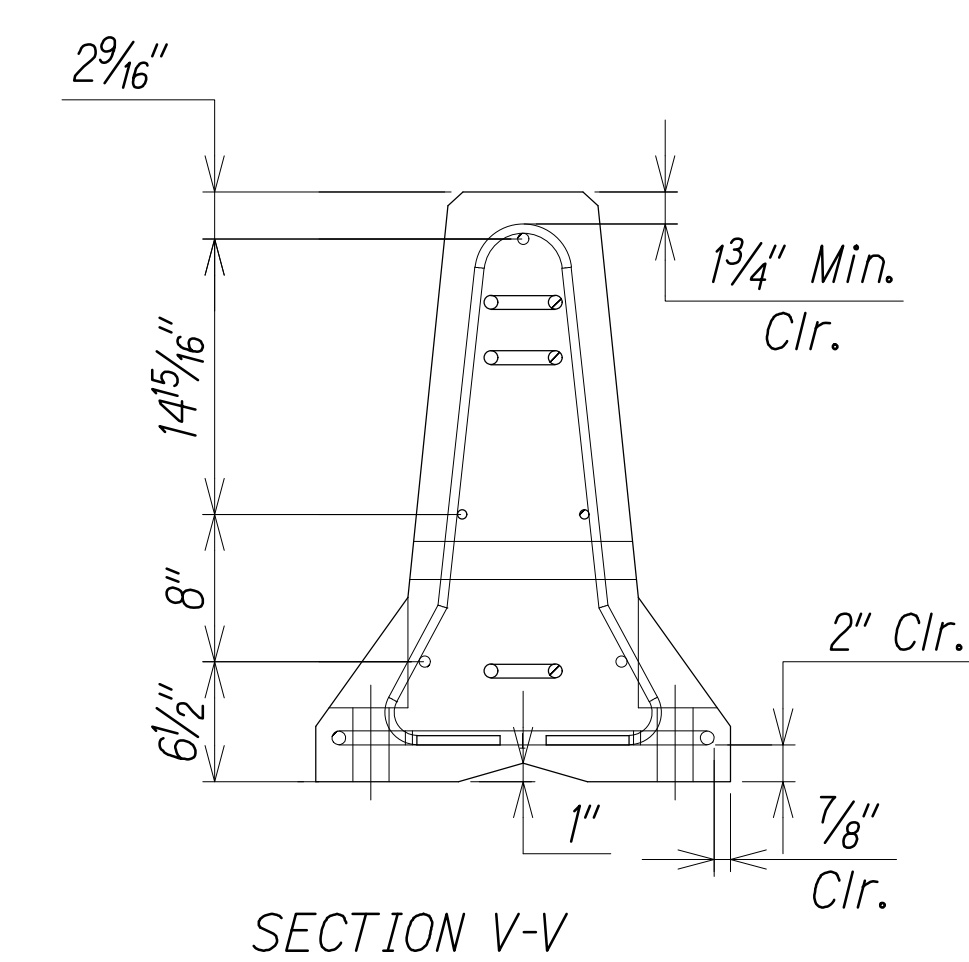
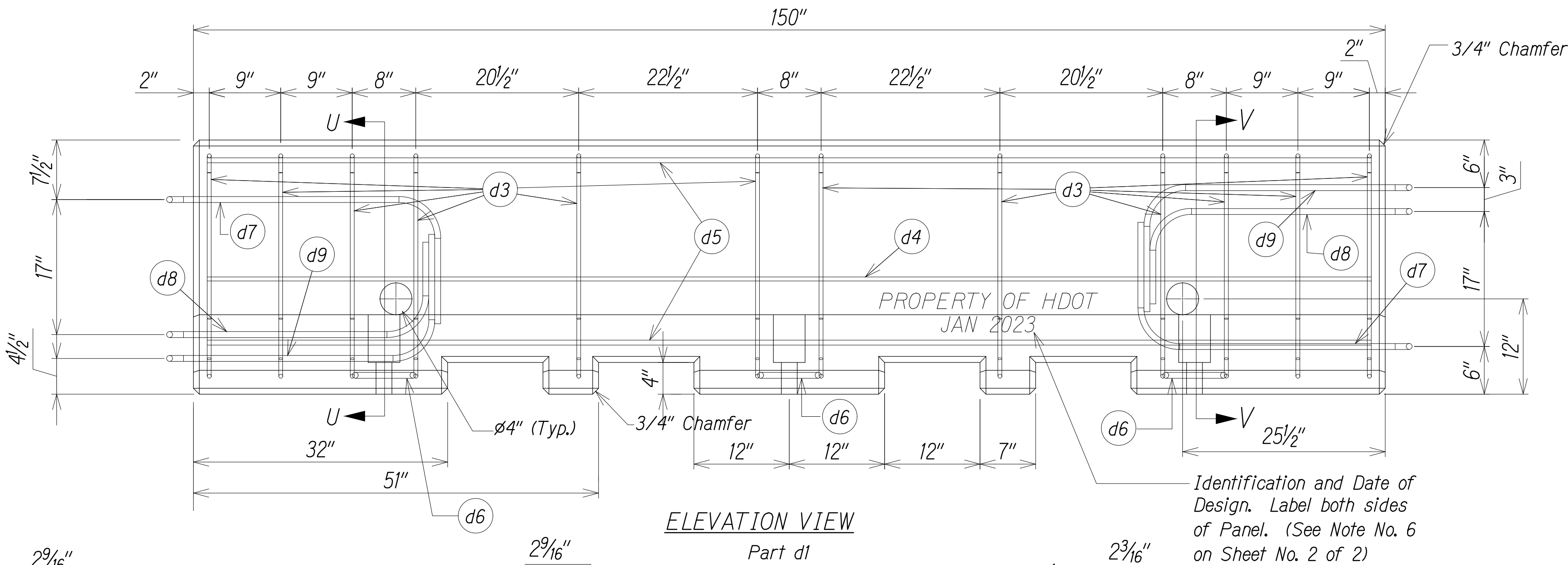
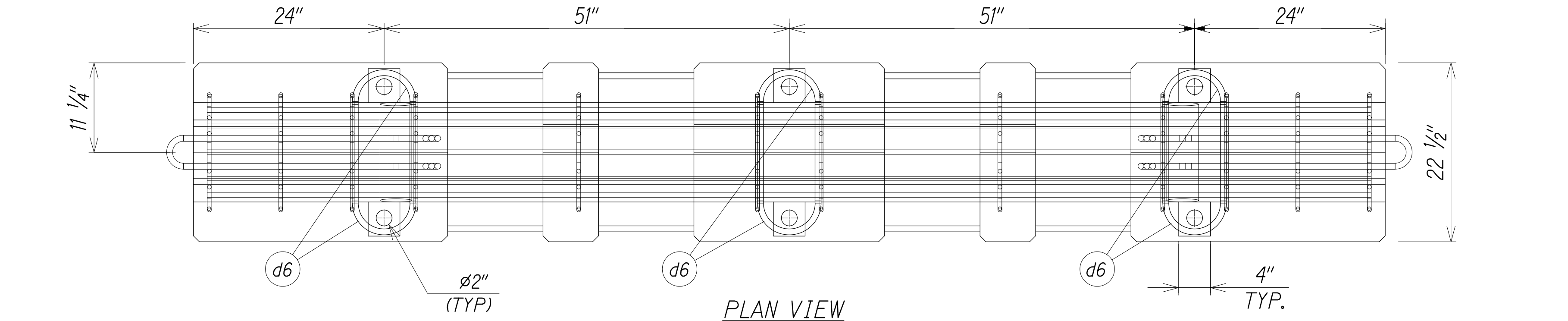
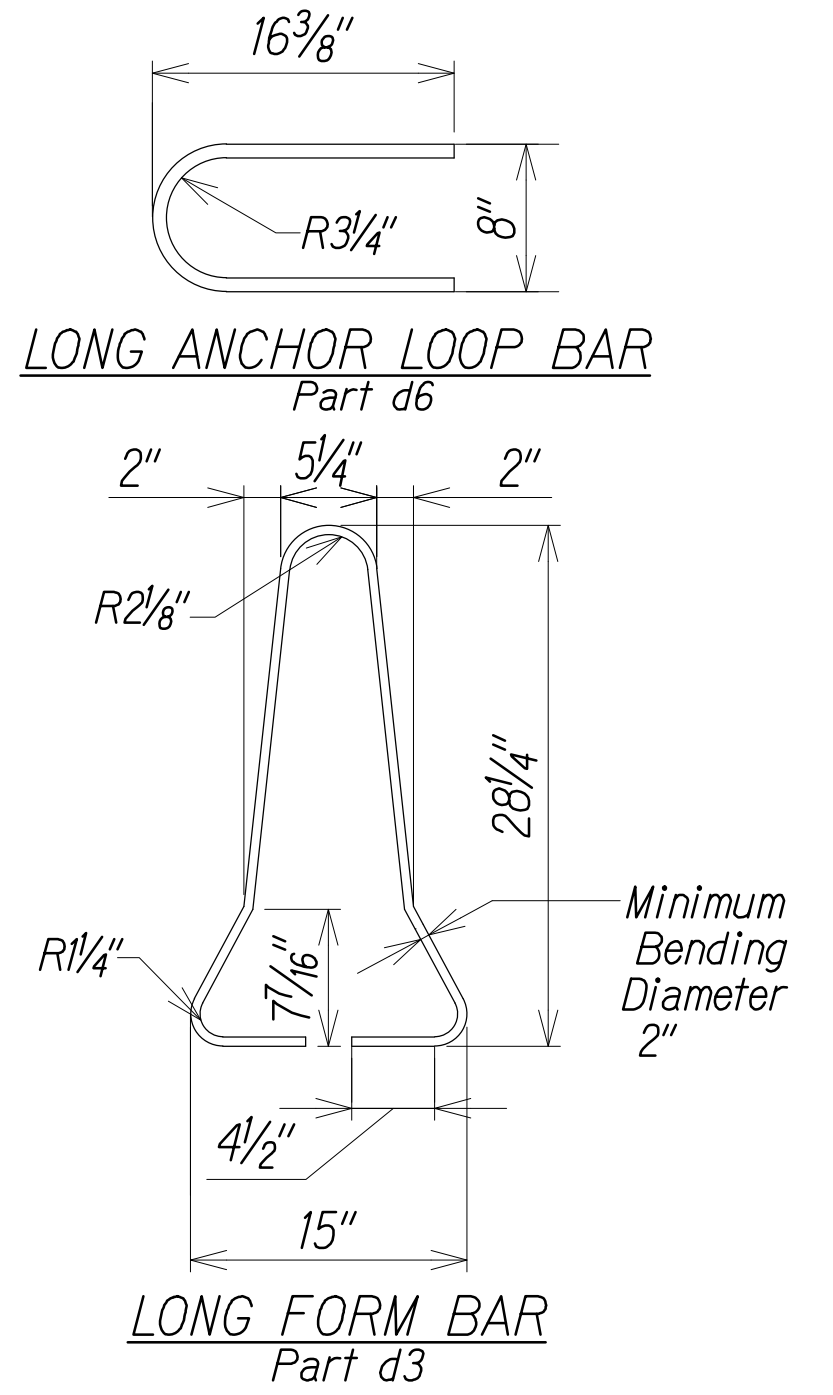
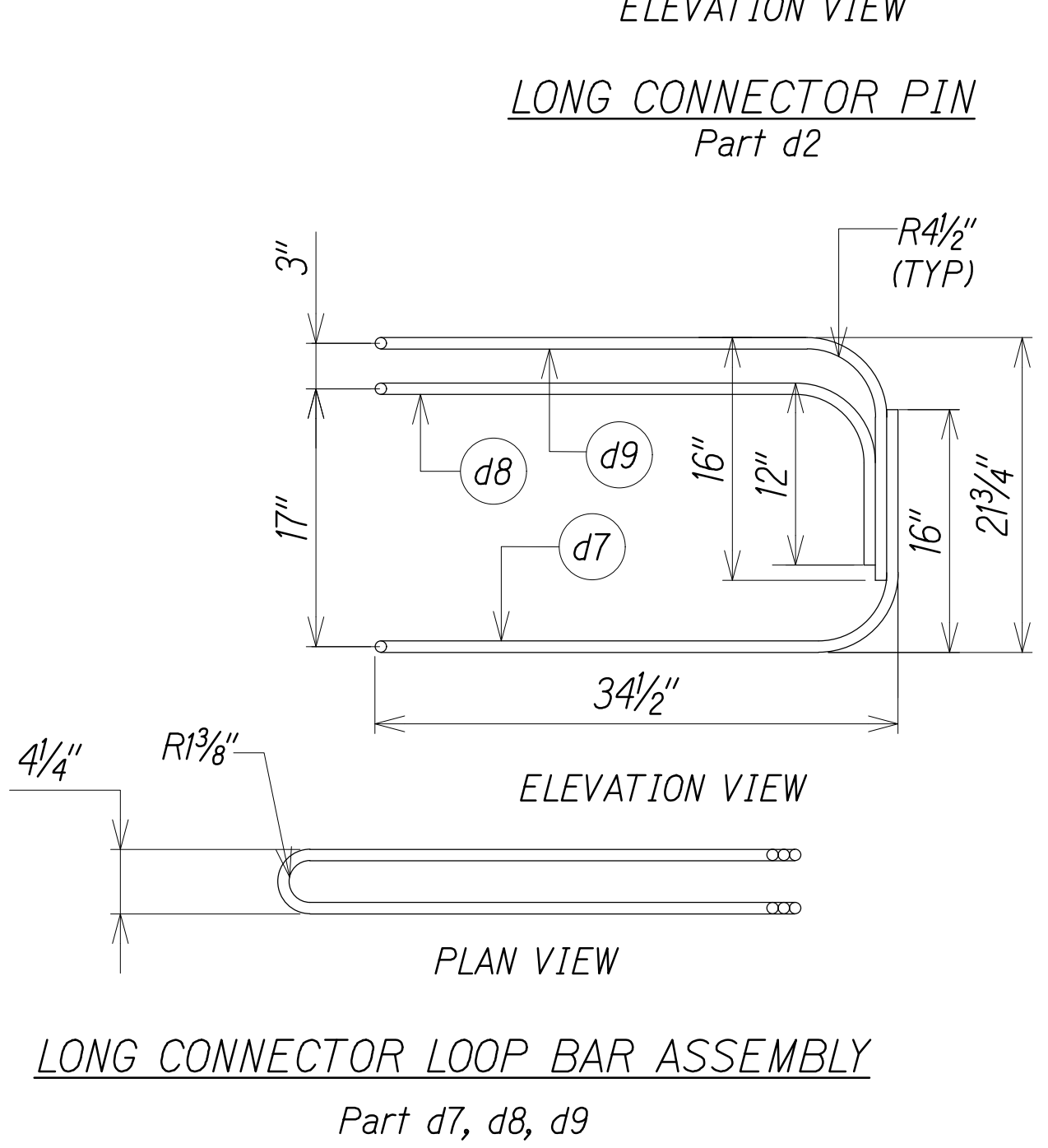
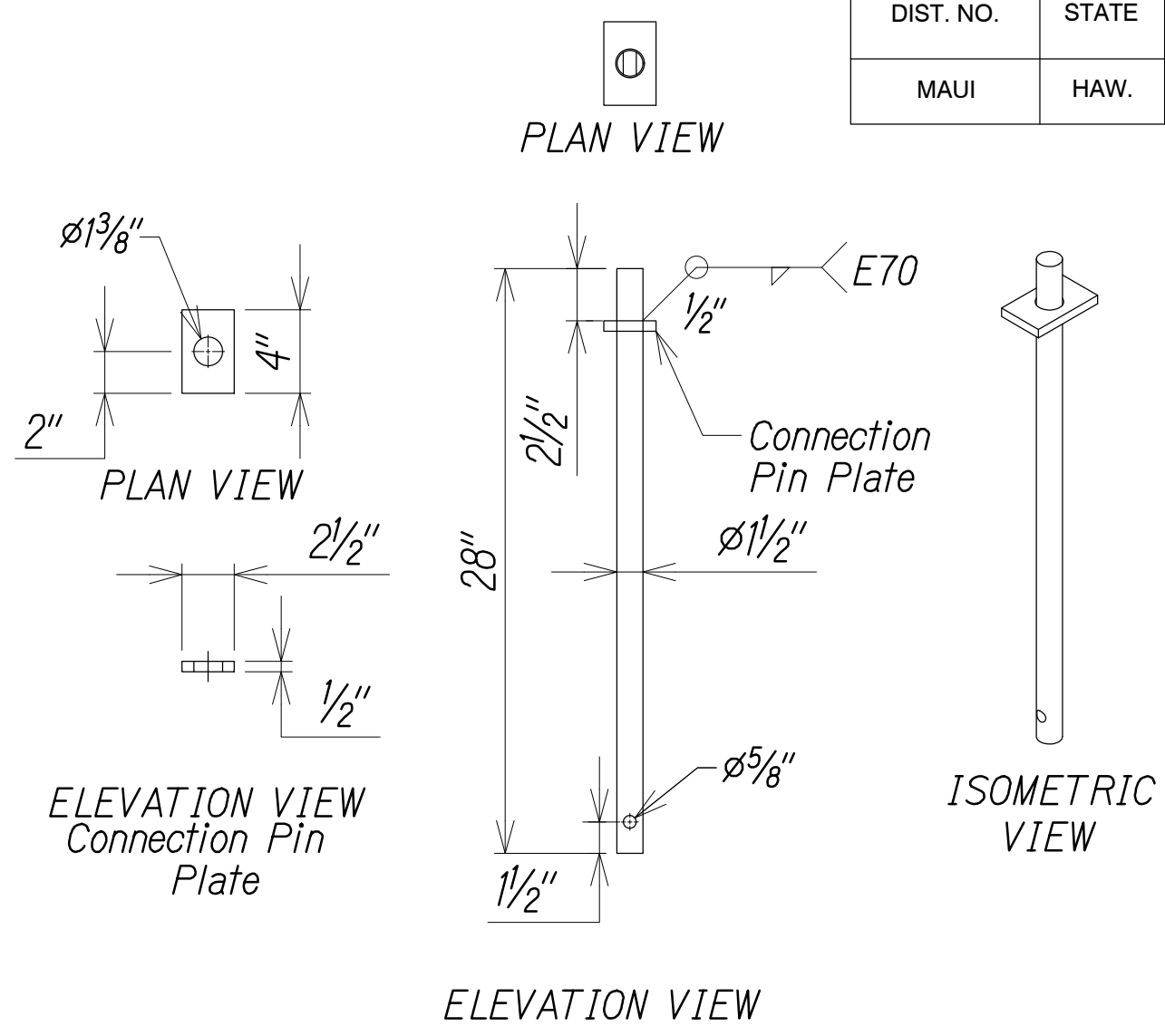


DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
MAUI	HAW.	BR-030-1(37)	2024	25	42

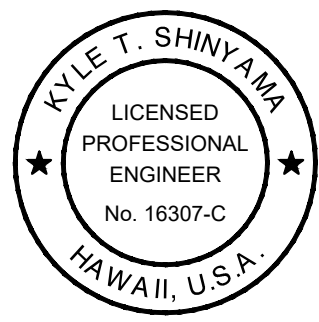
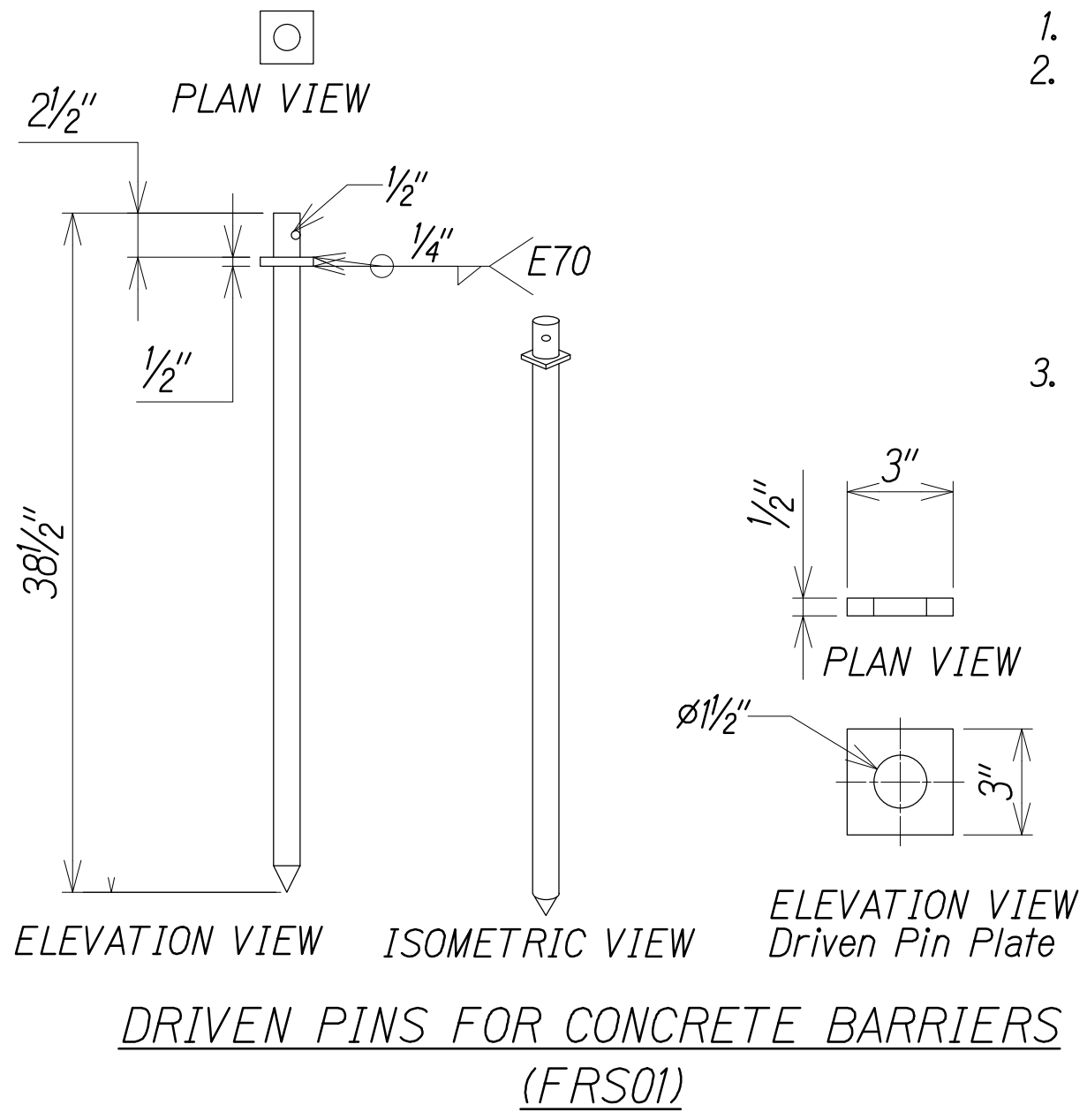


BILL OF MATERIALS				
ITEM NO.	QTY.	DESCRIPTION	MATERIAL SPECIFICATION	HARDWARE GUIDE
d1	11*	Portable Concrete Barrier	min f'c=5000 psi [34.5 MPa]	SWC09
d2	10*	1 1/4" [32] Dia., 28" [711] Long Connector Pin	ASTM A36	FMW02
d3	132	1/2" [13] Dia., 72" [1829] Long Form Bar	ASTM A615 Grade 60	-
d4	22	1/2" [13] Dia., 146" [3708] Long Longitudinal Bar	ASTM A615 Grade 60	-
d5	33	5/8" [16] Dia., 146" [3708] Long Longitudinal Bar	ASTM A615 Grade 60	-
d6	66	3/4" [19] Dia., 36" [914] Long Anchor Loop Bar	ASTM A615 Grade 60, Galvanized	-
d7	22	3/4" [19] Dia., 102" [2591] Long Connection Loop Bar	ASTM A709 Grade 70 or A706 Grade 60, Galvanized	-
d8	22	3/4" [19] Dia., 91" [2311] Long Connection Loop Bar	ASTM A709 Grade 70 or A706 Grade 60, Galvanized	-
d9	22	3/4" [19] Dia., 101" [2565] Long Connection Loop Bar	ASTM A709 Grade 70 or A706 Grade 60, Galvanized	-

\*Note: See Note 7 on Sheet 26



- NOTES:
- Concrete has minimum 28-day compressive strength of 5000 psi (34.5 MPa)
  - The steel shall be zinc-coated (galvanized) as specified below:
    - Zinc-coated (galvanized steel bars shall meet the requirements of ASTM A123, (coating grade 100, minimum coating - 2.30 oz. per square foot)
    - The bars shall be fabricated prior to galvanizing.
    - The procedures of ASTM A143 shall be observed as applicable.
    - All zinc coating damage due to fabrication or handling shall be repaired with a zinc dust (zinc-rich) formulation in accordance with ASTM A780.
  - Portable Concrete Barrier and End Treatment shall be MASH Compliant to TL-2.

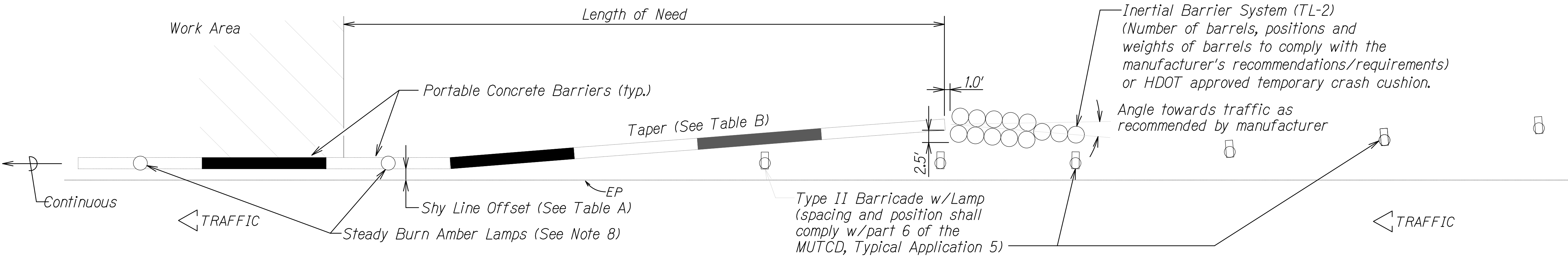


THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.  
KYLE SHINYAMA  
APRIL 30, 2026  
LIC. EXP. DATE

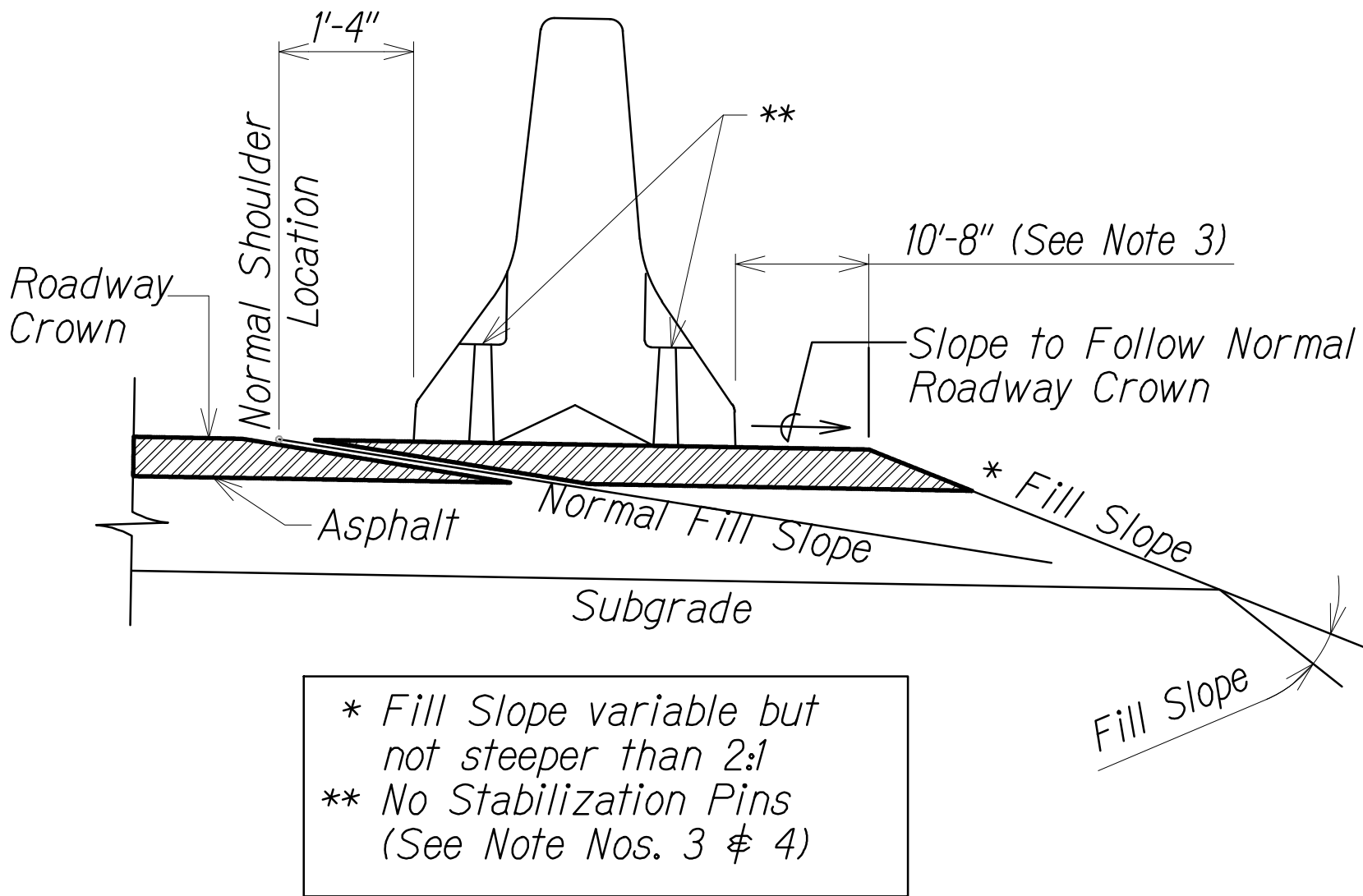
STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION  
**F-SHAPE PORTABLE  
CONCRETE BARRIER AND  
END TREATMENT DETAILS - 1**  
Honoapi'ilani Highway  
Rehabilitation of Honolua Bridge  
F.A.P No. BR-030-1(37)  
Scale: As Shown Date: August 2024  
SHEET No. C5.07 OF 42 SHEETS

SURVEY PLOTTED BY	DATE
DESIGNED BY	
TRACED BY	
QUANTITIES BY	
CHECKED BY	

ORIGINAL PLAN	No.
NOTE BOOK	



**TYPICAL DETAIL - PORTABLE CONCRETE BARRIER END TREATMENT**  
Not to Scale



**STANDARD INSTALLATION**  
(See Note No. 1)

TABLE A SHY LINE OFFSETS *	
DESIGN SPEED (mph)	SHY LINE OFFSETS
70	10.0'
65	9.0'
60	8.5'
55	7.0'
50	6.5'
45	6.0'
40	5.0'
35	4.5'
30	3.5'
≤25	2.0'

TABLE B MAXIMUM TAPERS FOR CONCRETE BARRIER		
DESIGN SPEED (mph)	TAPER	
	INSIDE SHY LINE	BEYOND SHY LINE
70	30:1	20:1
65	28:1	19:1
60	26:1	18:1
55	24:1	16:1
50	21:1	14:1
45	18:1	12:1
40	17:1	11:1
35	15:1	9:1
≤30	13:1	8:1

\* Note: Minimum shy line offset for tangent sections shall be 2'-0".

**NOTES:**

- For end treatment, layout, crash cushions and where needed see Project Plans or Special Provisions.
- Barriers must be pinned together and cannot exceed the Table of Maximum Tapers.
- The concrete barrier "Standard Installation" design allows for 10'-8" of outward lateral movement if the barrier is struck. Barrier installations that require less than the 10'-8" of outward lateral movement should have stabilization pins.
- ASTM A-36 steel shall be used for the connection pin and stabilization pins.
- Concrete shall be 5,000 psi and reinforcing shall be as indicated in the Bill of Materials (See Sheet No. 1 of 2).
- Identification and date of design will be as follows:
- Minimum tangent length for portable Concrete Barrier System shall be 11 units. This minimum does not include the required system length of the Inertial Barrier System, nor does it consider Length of Need (LON). LON shall comply with the latest edition of the AASHTO Roadside Design Guide.
- Install steady burn amber lamps on portable concrete barriers @ approximately 25' o.c. Installing, maintaining and removing each steady burn amber lamp including maintenance shall be considered incidental to applicable portable concrete barrier items.
- A 4" white PVC sleeve may be used to form the lifting hole and if used, the sleeve is to be left in place.
- Portable Concrete Barrier and End Treatment shall be MASH Compliant to TL-2.

**PROPERTY OF HDOT  
JAN 2021**

Text letters and numbers shall be shown as on Sht. No. 1 "PROPERTY OF HDOT" may be changed depending upon ownership. All Portable Concrete Barriers made for HDOT will be subject to rejection, if "PROPERTY OF HDOT" is not imprinted. The Contractor shall bear the cost of the rejected Portable Concrete Barriers.



THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.  
Kyle Shinyama  
APRIL 30, 2026  
LIC. EXP. DATE

STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION  
**F-SHAPE PORTABLE CONCRETE BARRIER AND END TREATMENT DETAILS - 2**  
Honoapiʻilani Highway  
Rehabilitation of Honolulu Bridge  
F.A.P. No. BR-030-1(37)  
Scale: As Shown Date: August 2024  
SHEET No. C-5.08 of 42 SHEETS

ORIGINAL PLAN	DATE
NO. 1	
DESIGNED BY	
CHECKED BY	
DATE	