

DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
MAUI	HAW.	3400A-01-20	2024	32	35

General:

- A. Workmanship and materials shall conform to the AASHTO LRFD bridge design specification, 9h edition (including most recent interims), AASHTO LRFD bridge construction specification, 4th edition (including most recent interims), and the Hawaii Standard Specifications for Road and Bridge Construction (2005 edition), and all applicable special provisions by the State of Hawaii Department of Transportation.
- B. The contractor shall compare all the contract documents with each other and report in writing to the engineer all inconsistencies and 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 work. Report in writing to the engineer all inconsistencies and omissions.
- D. The contractor shall be responsible for coordinating the work of all trades.
- E. The contractor shall be responsible for means and methods of construction, workmanship and job safety.
- F. The contractor shall provide temporary shoring and bracing as required for stability of structural members and systems.
- G. Construction loading shall not exceed design live load unless special shoring is provided. Permitted construction loads shall be properly reduced in areas where the structure has not attained full design strength.
- H. The contractor shall be responsible for protection of the adjacent properties, structures, streets and utilities during the construction period. Any damaged or deteriorated property shall be restored to the condition prior to the beginning of work or better at no cost to the State.
- I. Details noted as typical on the structural drawings shall apply in all conditions unless specifically shown or noted otherwise.
- J. A licensed geotechnical engineer in the state of Hawaii, hired by the contractor, shall monitor all excavation and backfilling requirements.

Design Criteria:

- A. Wind
1. Basic Wind Speed: 145 MPH
2. Gust Effect Factor: 1.14
3. Mean Recurrence Interval: 1700 Years
- B. Seismic
1. Mapped Spectral Response Acceleration Coefficients
- i. Short Period: 0.74g
- ii. 1-Sec Period: 0.22g
2. Site Class: D
3. Response Spectral Acceleration Coefficients
- i. Short Period: 0.6g
- ii. 1-Sec Period: 0.38g
- C. Soils
1. Allowable Bearing Pressure: 1500 Psf

Foundation:

- A. Foundation design is based on Hirata and Associates, Inc. Report Dated September 28, 2021.
- B. Contractor shall provide design and installation of all cribbing, sheeting, and shoring necessary to preserve excavations and earth banks. Shoring shall conform to OSHA regulations.
- C. Footings shall bear on undisturbed in-situ firm soils bottom of footings shall be compacted to provide a relatively firm and smooth bearing surface prior to placement of reinforcing steel and concrete. If soft and/or loose materials are encountered at the bottom of footing excavations, they shall be over-excavated to expose the underlying firm materials. The over-excavated area shall be backfilled with select granular material compacted to a minimum of 95% relative compaction or the footing bottom may be extended down to the underlying competent material. Contractor may substitute flowable concrete or the granular material upon approval from the engineer.

Foundation Continued:

- D. Excavations for structures and footings shall be approved by the licensed geotechnical engineer in State of Hawaii (provided by contractor) prior to placement of concrete and reinforcing.
- E. Engineered fill and backfill shall be in accordance with section 703.20 of the Hawaii Standard Specifications for Road and Bridge Construction, 2005 edition.
- F. Fill should be moisture conditioned to within two percent of the optimum moisture content and placed in horizontal lifts not to exceed six inches. Fill shall be compacted to minimum 90% relative density as measured by HDOT TM-100 and HDOT TM-300.
- G. Temporary non-corrugated steel casing shall be used to prevent collapse of the drilled hole. The use of permanent casing will not be allowed.

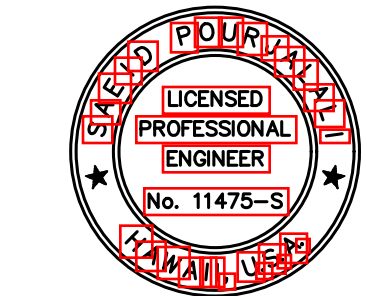
Concrete:

- A. Concrete construction shall conform to AASHTO bridge construction specifications.
- B. Concrete shall be normal weight hard rock concrete and shall have 4000 psi minimum 28 day compressive strengths:
- C. Concrete delivery tickets shall record all free water in the mix at batching plant, added for consistency by driver, and any additional request by contractor up to the maximum amount allowed by the mix design.
- D. All inserts, anchor bolts, plates, and other items to be cast in the concrete shall be hot-dipped galvanized according to ASTM A153 unless otherwise noted.
- E. Reinforcing bars, anchor bolts, inserts, and other items to be cast in the concrete shall be secured in position prior to placement of concrete.
- F. Spacers shall be used to ensure minimum clearances and tolerances. If concrete spacer blocks are used they must be of the same strength of concrete used.
- G. Use anti-wash agent for concrete poured underwater.
- H. A corrosion inhibiting admixture shall be included in the concrete mix for all concrete. The admixture shall be Rheocrete CNI corrosion inhibitor from BASF, DCIs corrosion inhibitor from grace construction products or an approved equal.
- I. Concrete w/cm ratio shall not exceed 0.45.

Reinforcing Steel:

- A. Reinforcing steel shall be deformed bars conforming to ASTM A1035/A1035M Grade 100.
- B. Reinforcing steel shall be spliced where indicated on plans. Provide lap splice length per AASHTO LRFD. Any longitudinal #4 bars in the slab that needs to be lapped for whatever reason should be lapped at least 18 inches or mechanically spliced.
- C. Mechanical splice connectors shall develop in tension 125 percent of the specified minimum yield strength of reinforcing bars.
- D. Minimum reinforcement bend diameters shall comply with AASHTO 5.10.2.3.

DATE	DESIGNED BY	CHECKED BY
ORIGINAL PLAN	DESIGNED BY	CHECKED BY
NOTE BOOK	DESIGNED BY	CHECKED BY
No.		



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Sarah Pauls

STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

GENERAL NOTES

Kahului Beach Road Intersection  
Improvements at Kanaloa Avenue  
Project No. 3400A-01-20

Scale: AS NOTED Date: July 2024

SHEET No. 50.1 OF 4 SHEETS

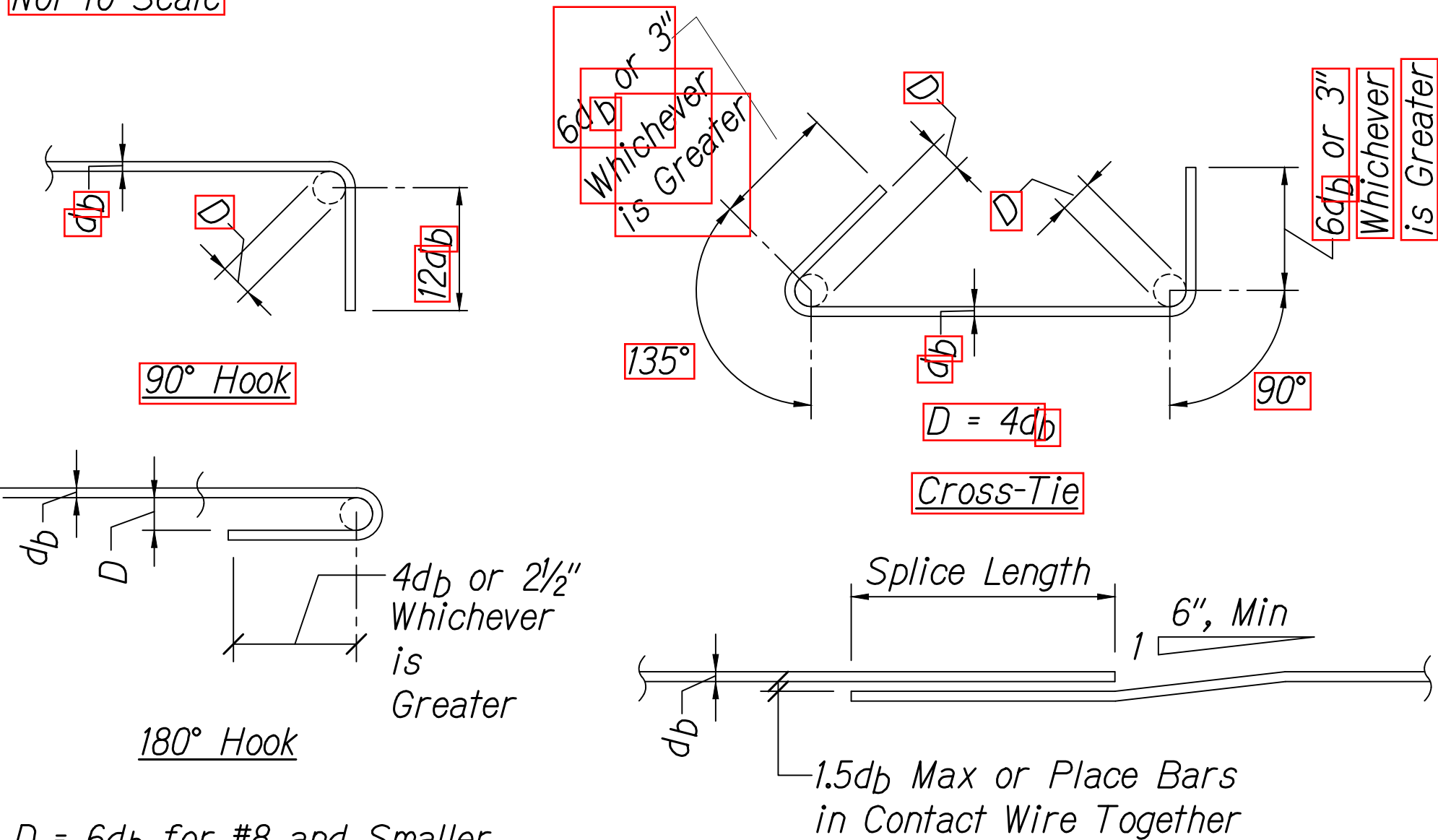


MINIMUM SPLICE & EMBEDMENT LENGTHS					
CONCRETE STRENGTH = 4,000 PSI					
BAR SIZE	LAP SPLICE		EMBEDMENT		
	OTHER BARS	TOP BAR	STRAIGHT		WITH STANDARD 90° HOOK
			OTHER BARS	TOP BAR	
#3, #4	21"	29"	12"	17"	7"
#5	26"	36"	15"	21"	9"
#6	31"	43"	18"	26"	10"
#7	39"	54"	23"	32"	12"
#8	51"	71"	30"	42"	14"
#9	64"	90"	38"	53"	15"
#10	81"	114"	48"	67"	17"
#11	100"	140"	59"	82"	19"

- Notes:
- "Top Bars" are horizontal bars with 12" or more of concrete cast below.
  - Splice lengths may be reduced by multiplying the tabulated values by 0.765 if the centerline of splice of adjacent bars are staggered 6'-0" o.c. for #9 bar and smaller and 9'-0" o.c. for #10 bar and larger.
  - Embedment lengths for straight bars may be reduced by multiplying the tabulated values by 0.80 if the bars are spaced laterally not less than 6" center-to-center, with not less than 3" clear cover measured in the direction of the spacing.
  - Embedment lengths for bars with 90° hook are bars with side cover, normal to plane of hook, of not less than 2½" and cover on bar extension beyond hook not less than 2". Increase embedment length by 43% for bars not meeting these requirements.

TYPICAL REBAR SPLICE AND EMBEDMENT LENGTH SCHEDULE

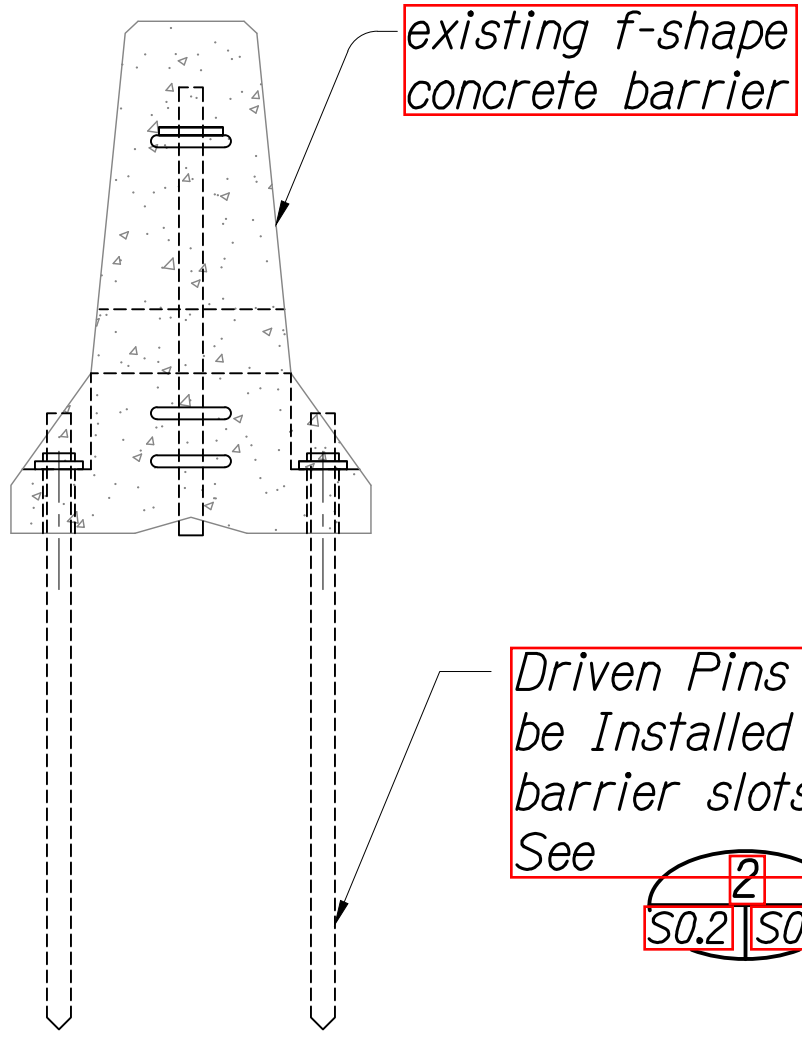
Not to Scale



D = 6db for #8 and Smaller  
D = 8db for #9 to #11

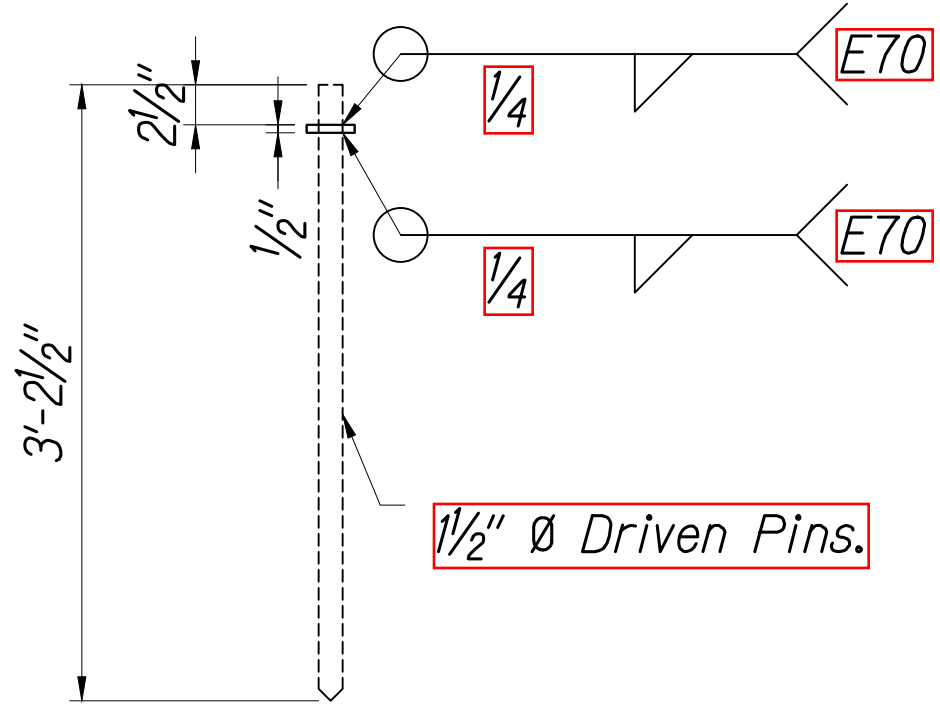
STANDARD HOOKS AND CROSS-TIE DETAIL

Not to Scale



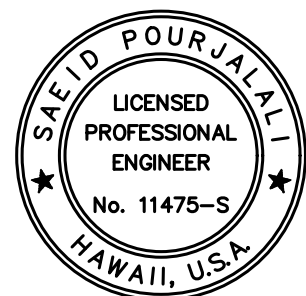
F-SHAPED PORTABLE CONCRETE BARRIER

Scale: 1" = 1'-0"



F-SHAPED PORTABLE CONCRETE BARRIER PINS

Scale: 1" = 1'-0"



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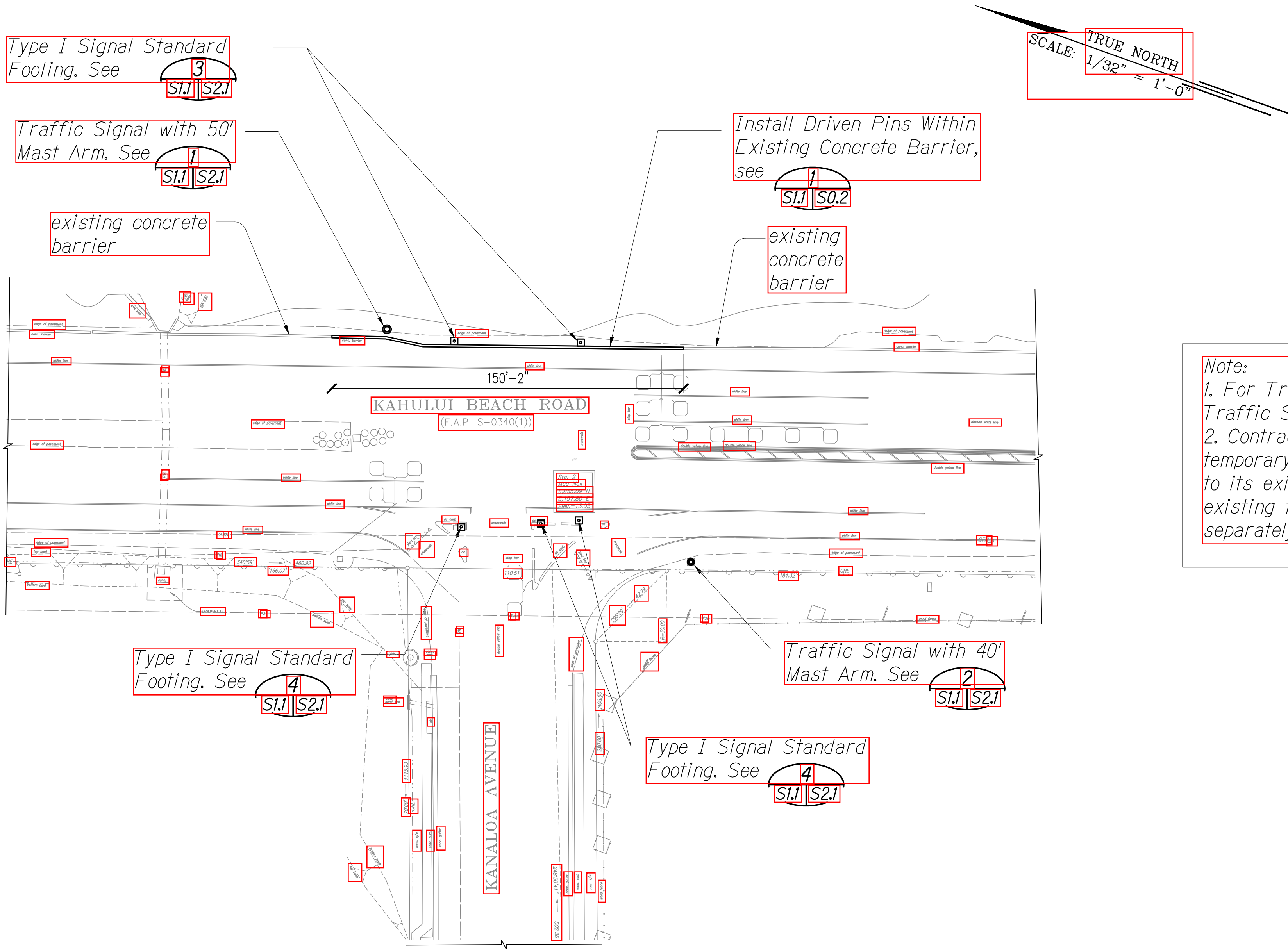
Saeid Pourfalah

STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION  
**TYPICAL DETAILS  
AND DRIVEN PIN DETAIL**  
Kahului Beach Road Intersection  
Improvements at Kanaloa Avenue  
Project No. 3400A-01-20

Scale: AS NOTED Date: July 2024

SHEET No. S0.2 OF 4 SHEETS

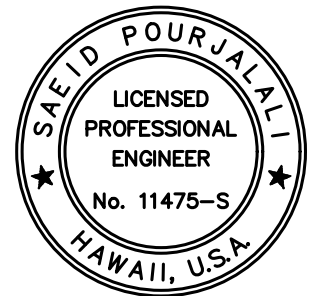
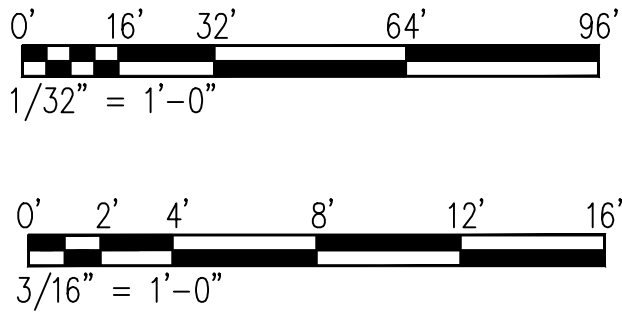
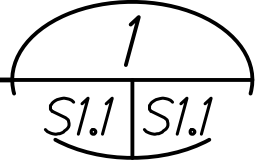
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Note:  
1. For Traffic Signal and Signal Standard Locations see Traffic Signal Drawings  
2. Contractor shall coordinate with HDOT to relocate existing temporary concrete barriers, if needed, and shall be restored to its existing location. Costs associated with the relocation of existing temporary concrete barriers shall not be paid for separately, but considered incidental to various contract items.

ORIGINAL PLAN	SURVEY LOCATED BY	DATE
NOTE BOOK	DRAWN BY	0 0 0 0 0
DESIGNED BY		
QUANTITIES BY		
CHECKED BY		
No.		

SITE PLAN  
Scale: 1/32" = 1'-0"



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Saeid Pourjaleel

STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

SITE PLAN

Kahului Beach Road Intersection  
Improvements at Kanaloa Avenue  
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SHEET No. SI.1 OF 4 SHEETS



