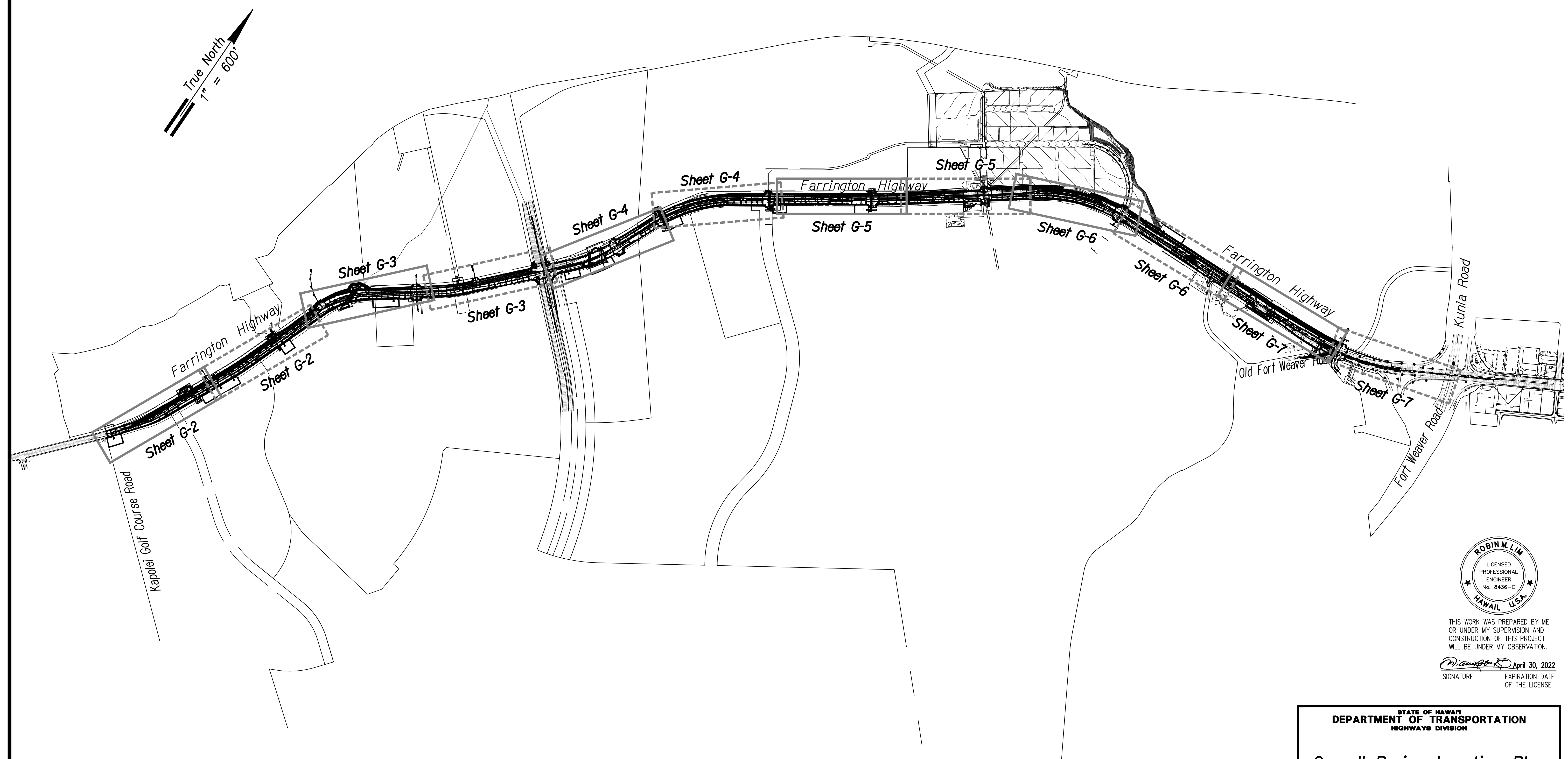
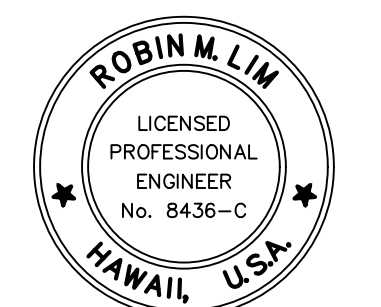
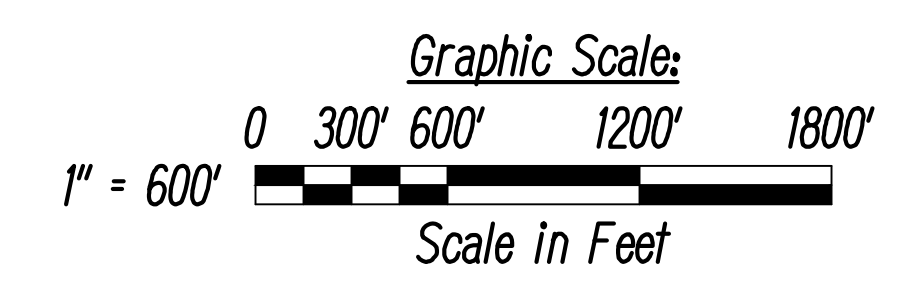


FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	7101A-01-20	2021	300	-



ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
NOTE BOOK	DRAWN BY	
No. _____	DESIGNED BY	
	QUANTITIES BY	
	CHECKED BY	

**NOTE:**  
For boring locations, refer to Sheets G-2 through G-7.



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 EXPIRATION DATE OF THE LICENSE

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 HIGHWAYS DIVISION

**Overall Boring Location Plan**

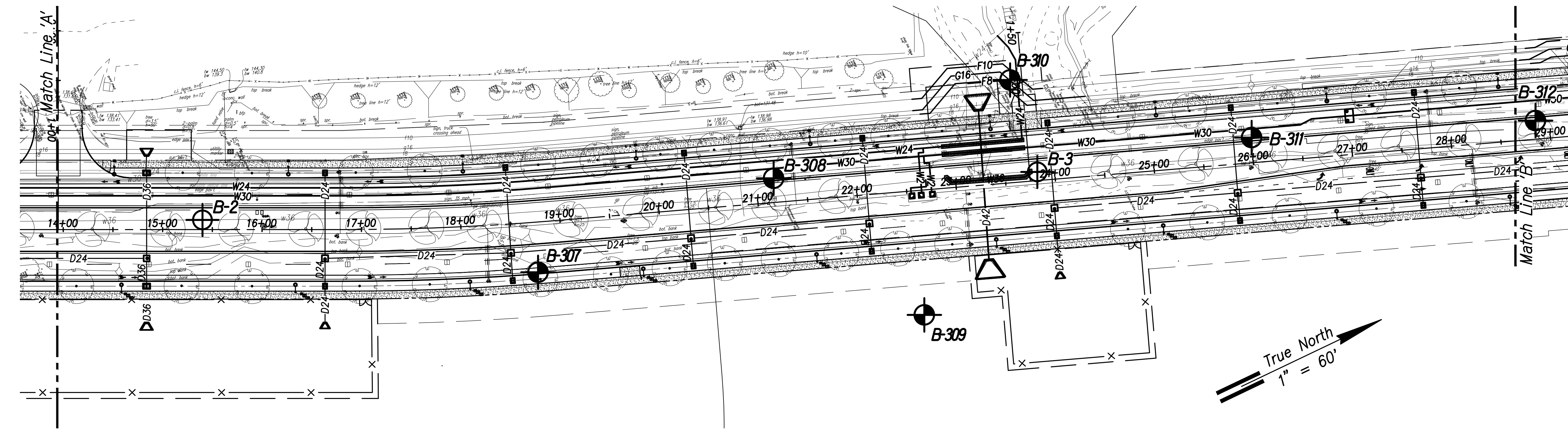
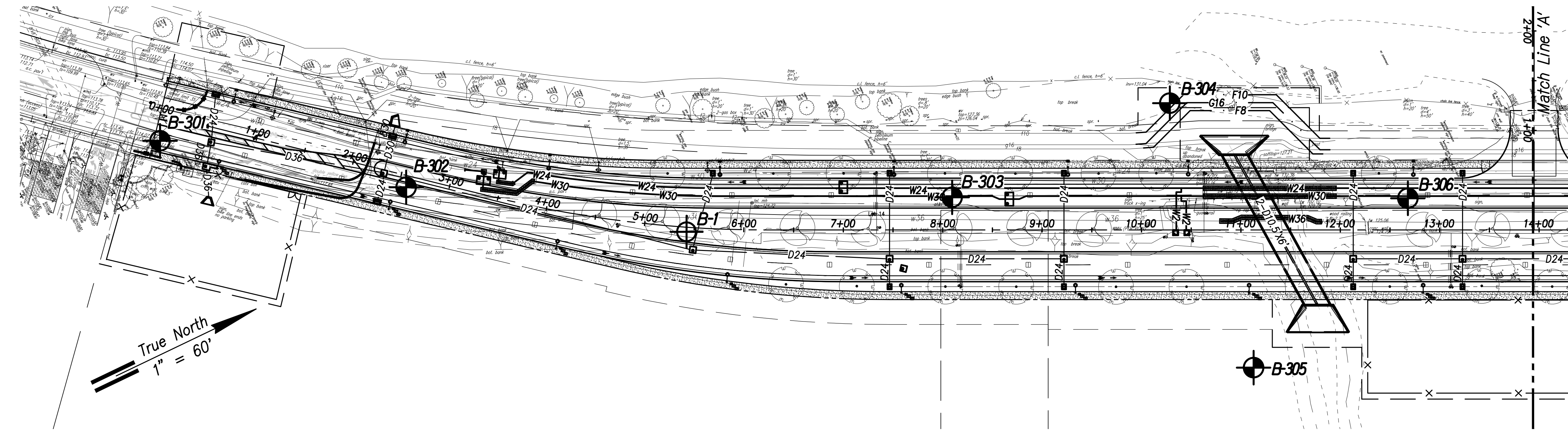
FARRINGTON HIGHWAY WIDENING  
Kapolei Golf Course Road  
to Fort Weaver Road

Scale: As Shown Date: May 2021

**SHEET No. G-1 OF - SHEETS**



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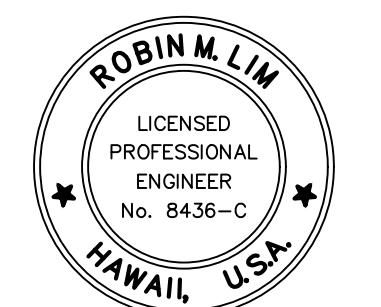
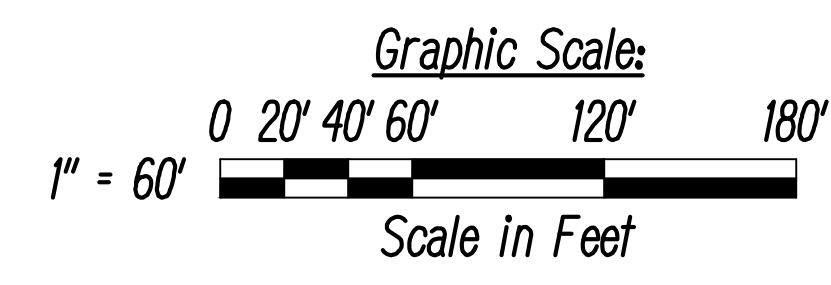
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HAWAII	HAW.	7101A-01-20	2021	301	-



ORIGINAL PLAN	DATE
DRAWN BY	
DESIGNED BY	
QUANTITIES BY	
CHECKED BY	
No.	

**LEGEND:**

-  Approximate Boring Location
-  Approximate Boring Location (From report by Geolabs, Inc., W.O. 4190-00(B), dated March 29, 2000)



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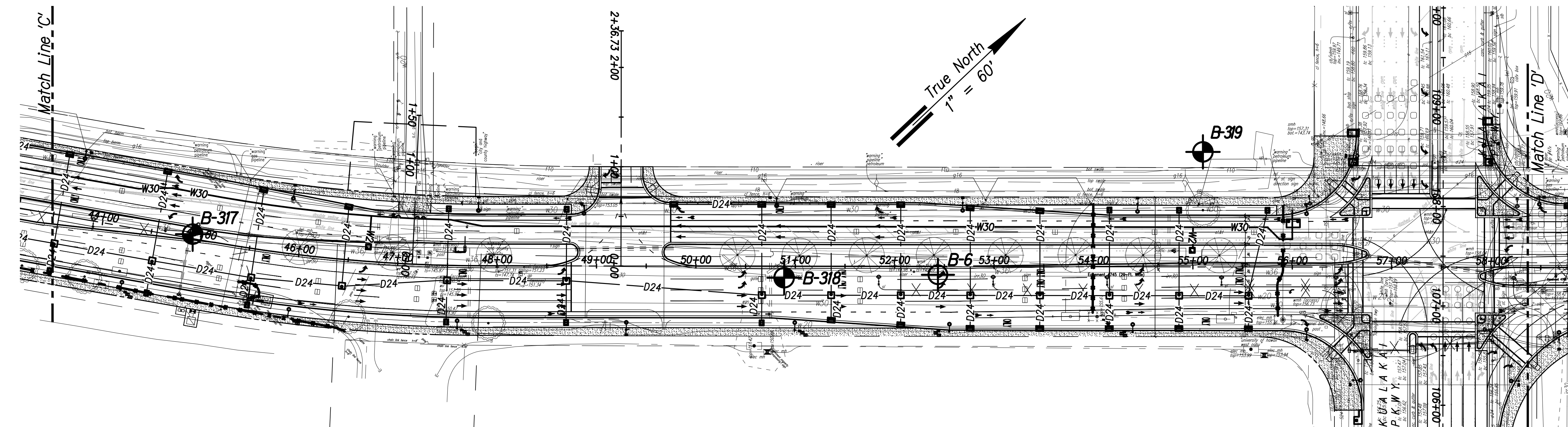
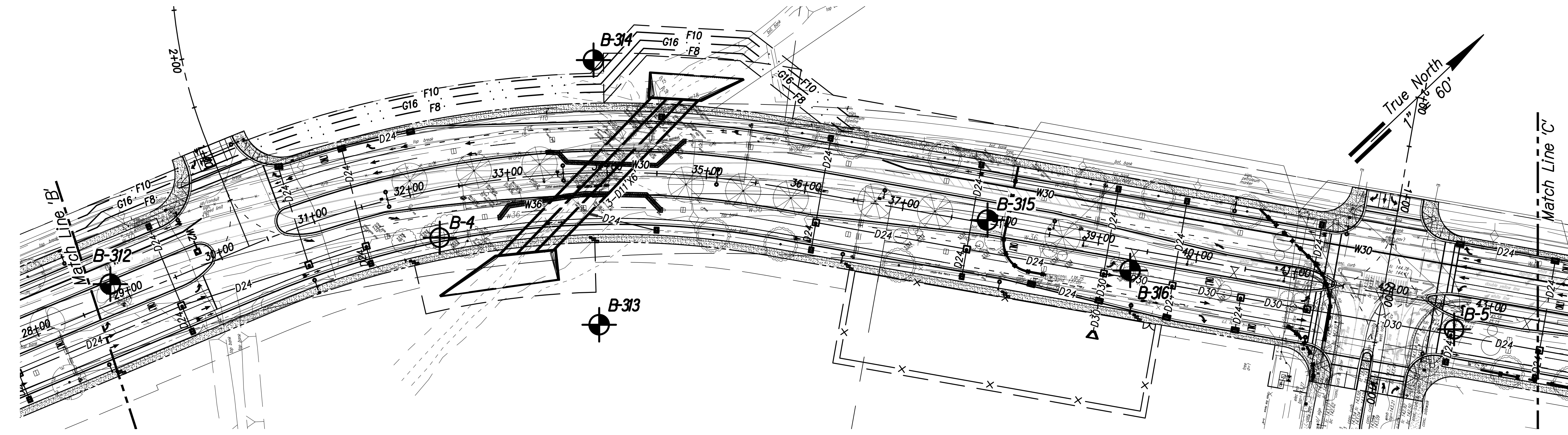
**Boring Location Plan - 1**

FARRINGTON HIGHWAY WIDENING  
Kapolei Golf Course Road  
to Fort Weaver Road

Scale: As Shown      Date: May 2021



**SHEET No. G-2 OF - SHEETS**

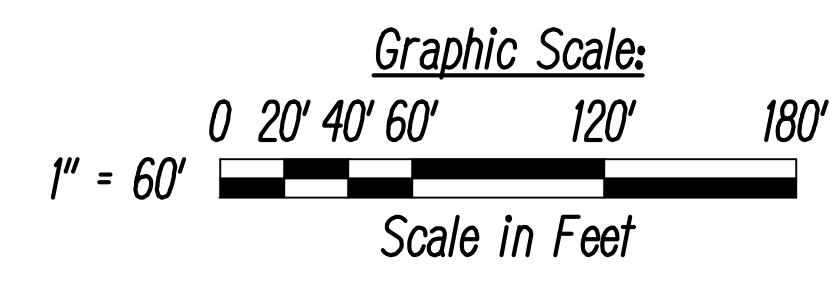
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HAWAII	HAW.	7101A-01-20	2021	302	-



ORIGINAL PLAN	DATE
SURVEY PLOTTED BY	
DRAWN BY	
DESIGNED BY	
QUANTITIES BY	
CHECKED BY	
No.	

**LEGEND:**

-  Approximate Boring Location
-  Approximate Boring Location (From report by Geolabs, Inc., W.O. 4190-00(B), dated March 29, 2000)



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 DEPARTMENT OF TRANSPORTATION  
 HIGHWAYS DIVISION

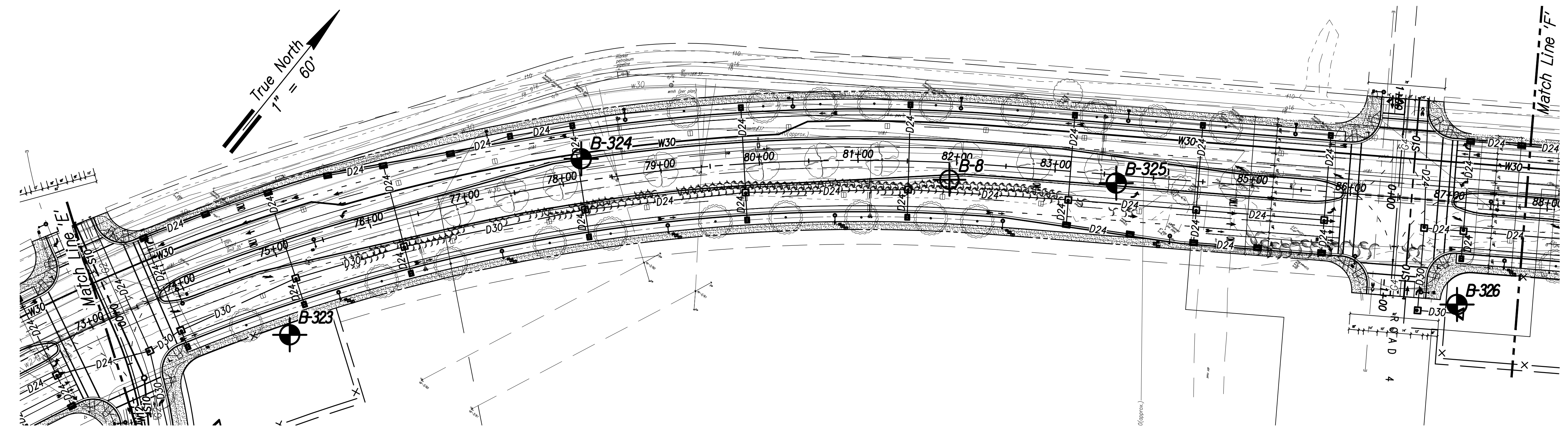
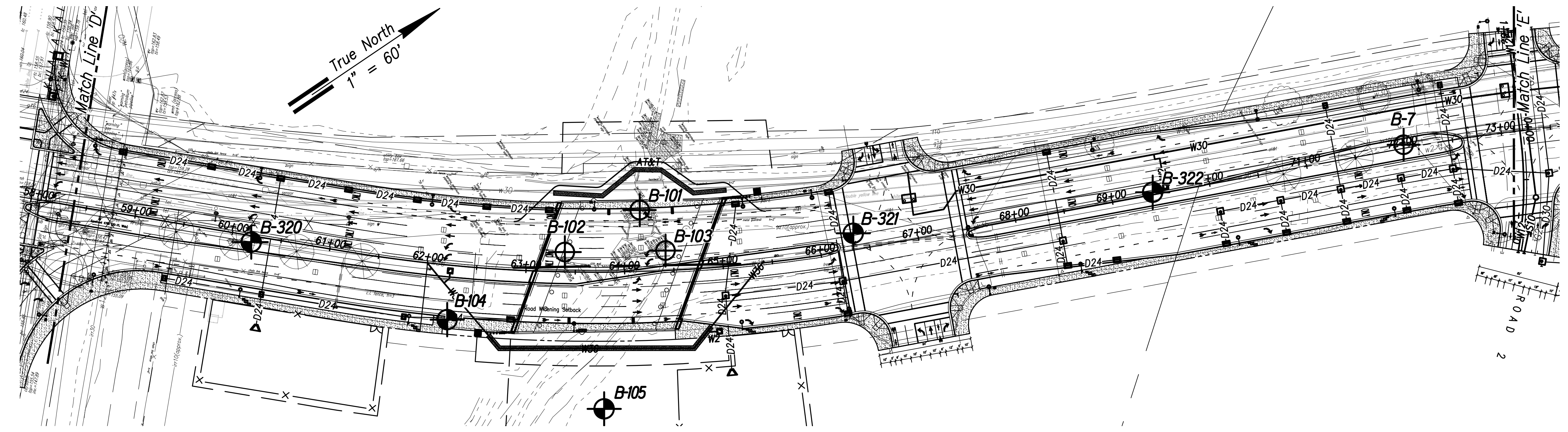
**Boring Location Plan - 2**

FARRINGTON HIGHWAY WIDENING  
Kapolei Golf Course Road  
to Fort Weaver Road

Scale: As Shown      Date: May 2021



**SHEET No. G-3 OF - SHEETS**

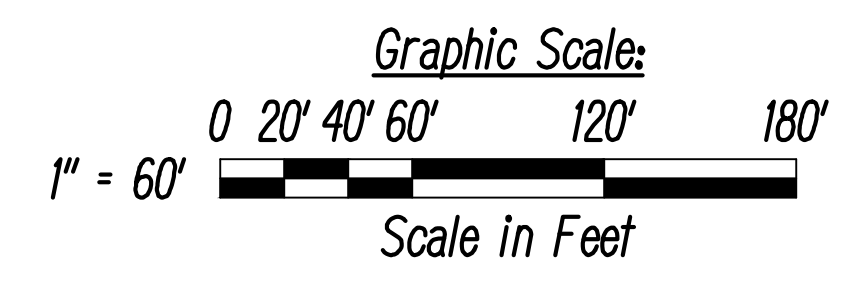
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HAWAII	HAW.	7101A-01-20	2021	303	-



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

**LEGEND:**

-  Approximate Boring Location
-  Approximate Boring Location (From report by Geolabs, Inc., W.O. 4190-00(B), dated March 29, 2000)



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 EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII  
 DEPARTMENT OF TRANSPORTATION  
 HIGHWAYS DIVISION

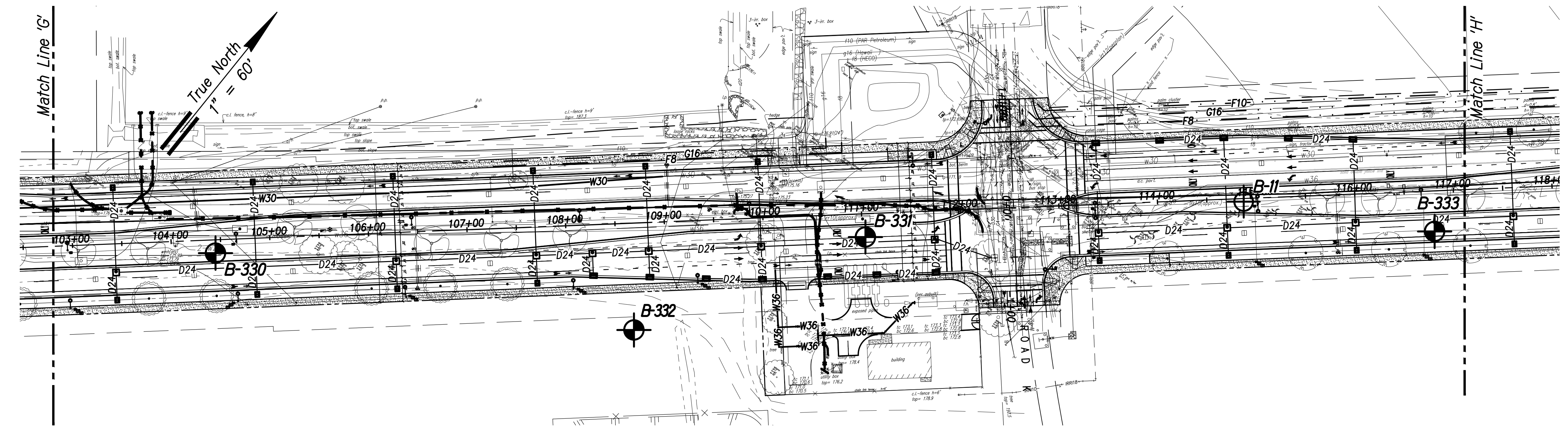
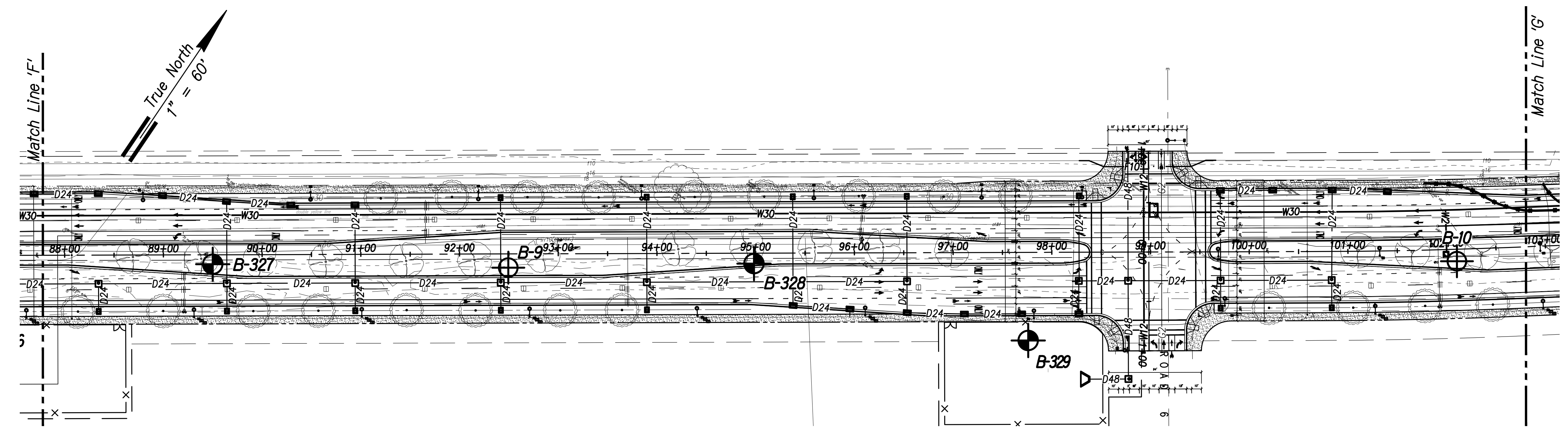
**Boring Location Plan - 3**

FARRINGTON HIGHWAY WIDENING  
 Kapolei Golf Course Road  
 to Fort Weaver Road

Scale: As Shown Date: May 2021

SHEET No. G-4 OF - SHEETS

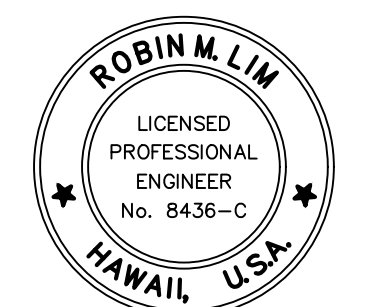
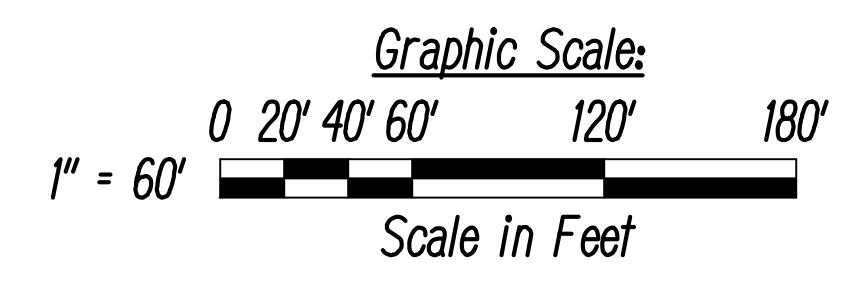
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HAWAII	HAW.	7101A-01-20	2021	304	-



ORIGINAL PLAN	DATE
SURVEY PLOTTED BY	
DRAWN BY	
DESIGNED BY	
QUANTITIES BY	
CHECKED BY	

**LEGEND:**

- Approximate Boring Location
- Approximate Boring Location (From report by Geolabs, Inc., W.O. 4190-00(B), dated March 29, 2000)



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 DEPARTMENT OF TRANSPORTATION  
 HIGHWAYS DIVISION

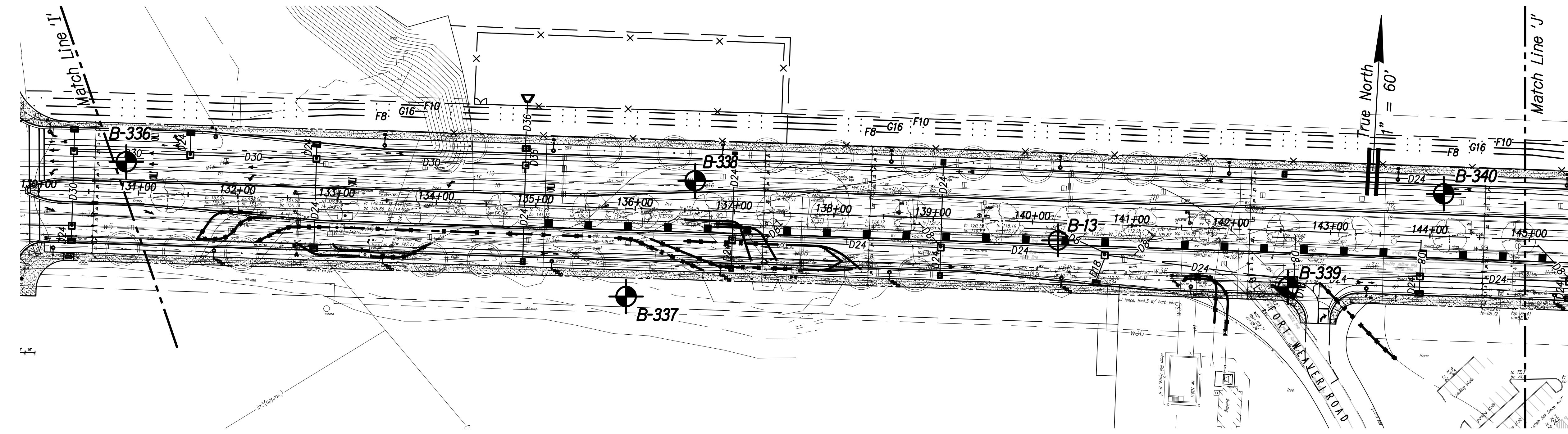
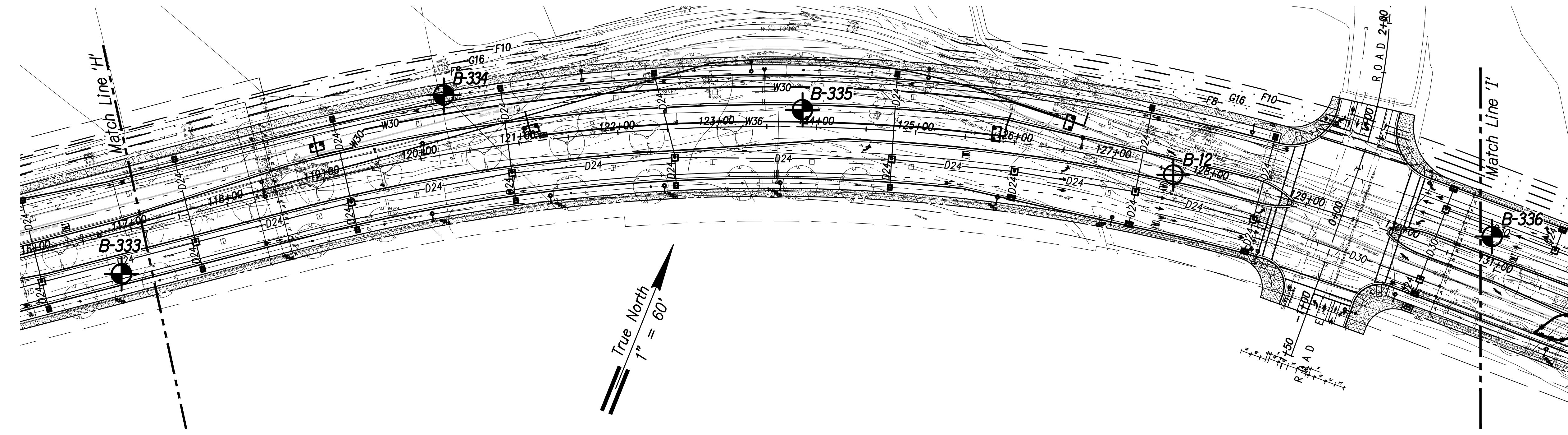
**Boring Location Plan - 4**

FARRINGTON HIGHWAY WIDENING  
Kapolei Golf Course Road  
to Fort Weaver Road

Scale: As Shown Date: May 2021



**SHEET No. G-5 OF - SHEETS**

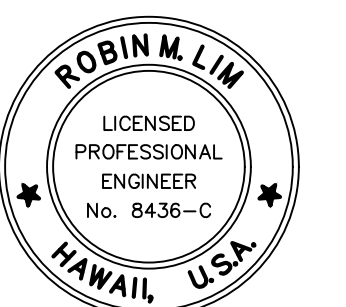
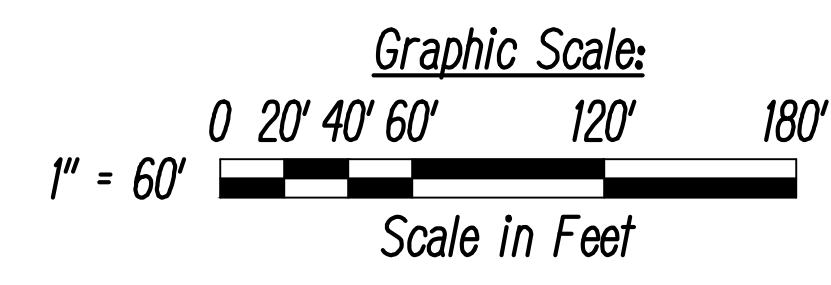
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HAWAII	HAW.	7101A-01-20	2021	305	-



ORIGINAL PLAN	DATE
SURVEY PLOTTED BY	
DRAWN BY	
DESIGNED BY	
QUANTITIES BY	
CHECKED BY	
No.	

**LEGEND:**

-  Approximate Boring Location
-  Approximate Boring Location (From report by Geolabs, Inc., W.O. 4190-00(B), dated March 29, 2000)



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 EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII  
 DEPARTMENT OF TRANSPORTATION  
 HIGHWAYS DIVISION

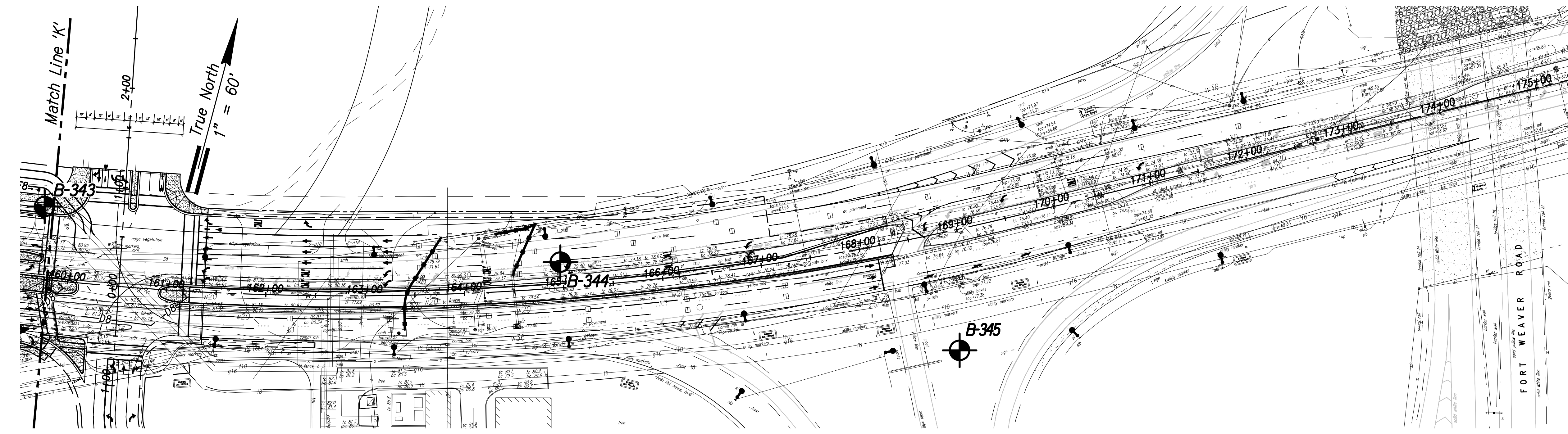
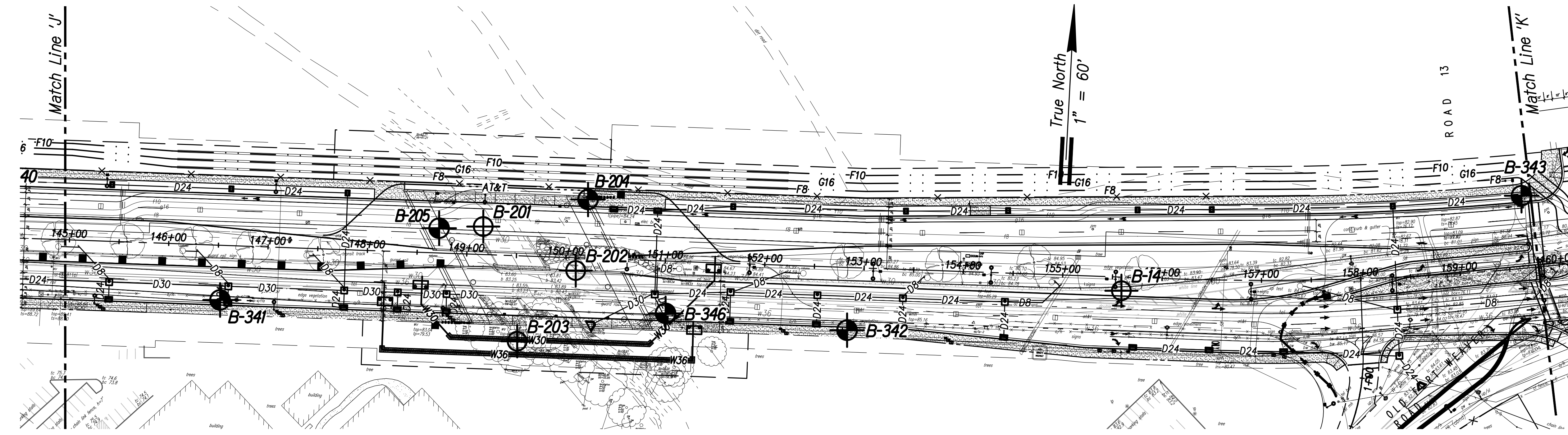
**Boring Location Plan - 5**

FARRINGTON HIGHWAY WIDENING  
 Kapolei Golf Course Road  
 to Fort Weaver Road

Scale: As Shown Date: May 2021



**SHEET No. G-6 OF - SHEETS**

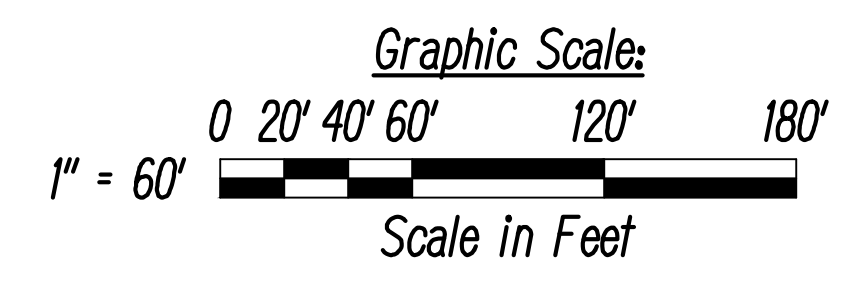
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HAWAII	HAW.	7101A-01-20	2021	306	-



ORIGINAL PLAN	DATE
SURVEY PLOTTED BY	
DRAWN BY	
DESIGNED BY	
QUANTITIES BY	
CHECKED BY	
No.	

**LEGEND:**

-  Approximate Boring Location
-  Approximate Boring Location (From report by Geolabs, Inc., W.O. 4190-00(B), dated March 29, 2000)



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STATE OF HAWAII  
 DEPARTMENT OF TRANSPORTATION  
 HIGHWAYS DIVISION

**Boring Location Plan - 6**

FARRINGTON HIGHWAY WIDENING  
 Kapolei Golf Course Road  
 to Fort Weaver Road

Scale: As Shown Date: May 2021

**SHEET No. G-7 OF - SHEETS**

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	7101A-01-20	2021	307	-

**GEOLABS, INC.**  
Geotechnical Engineering

**Soil Log Legend**

UNIFIED SOIL CLASSIFICATION SYSTEM (USCS)			
MAJOR DIVISIONS		USCS	TYPICAL DESCRIPTIONS
COARSE-GRAINED SOILS	GRAVELS <small>MORE THAN 50% OF COARSE FRACTION RETAINED ON NO. 4 SIEVE</small>	CLEAN GRAVELS	GW WELL-GRADED GRAVELS, GRAVEL-SAND MIXTURES, LITTLE OR NO FINES
		LESS THAN 5% FINES	GP POORLY-GRADED GRAVELS, GRAVEL-SAND MIXTURES, LITTLE OR NO FINES
		GRAVELS WITH FINES	GM SILTY GRAVELS, GRAVEL-SAND-SILT MIXTURES
	SANDS <small>50% OR MORE OF COARSE FRACTION PASSING THROUGH NO. 4 SIEVE</small>	CLEAN SANDS	SW WELL-GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES
		LESS THAN 5% FINES	SP POORLY-GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES
		SANDS WITH FINES	SM SILTY SANDS, SAND-SILT MIXTURES
FINE-GRAINED SOILS <small>50% OR MORE OF MATERIAL PASSING THROUGH NO. 200 SIEVE</small>	SILTS AND CLAYS <small>LIQUID LIMIT LESS THAN 50</small>	ML	INORGANIC SILTS AND VERY FINE SANDS, ROCK FLOUR, SILTY OR CLAYEY FINE SANDS OR CLAYEY SILTS WITH SLIGHT PLASTICITY
		CL	INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS, LEAN CLAYS
		OL	ORGANIC SILTS AND ORGANIC SILTY CLAYS OF LOW PLASTICITY
	SILTS AND CLAYS <small>LIQUID LIMIT 50 OR MORE</small>	MH	INORGANIC SILT, MICACEOUS OR DIATOMACEOUS FINE SAND OR SILTY SOILS
		CH	INORGANIC CLAYS OF HIGH PLASTICITY
		OH	ORGANIC CLAYS OF MEDIUM TO HIGH PLASTICITY, ORGANIC SILTS
HIGHLY ORGANIC SOILS		PT	PEAT, HUMUS, SWAMP SOILS WITH HIGH ORGANIC CONTENTS

NOTE: DUAL SYMBOLS ARE USED TO INDICATE BORDERLINE SOIL CLASSIFICATIONS

**LEGEND**

<ul style="list-style-type: none"> <li> (2-INCH) O.D. STANDARD PENETRATION TEST</li> <li> (3-INCH) O.D. MODIFIED CALIFORNIA SAMPLE</li> <li> SHELBY TUBE SAMPLE</li> <li> GRAB SAMPLE</li> <li> CORE SAMPLE</li> <li> WATER LEVEL OBSERVED IN BORING AT TIME OF DRILLING</li> <li> WATER LEVEL OBSERVED IN BORING AFTER DRILLING</li> <li> WATER LEVEL OBSERVED IN BORING OVERNIGHT</li> </ul>	<ul style="list-style-type: none"> <li>LL LIQUID LIMIT (NP=NON-PLASTIC)</li> <li>PI PLASTICITY INDEX (NP=NON-PLASTIC)</li> <li>TV TORVANE SHEAR (tsf)</li> <li>UC UNCONFINED COMPRESSION OR UNIAXIAL COMPRESSIVE STRENGTH</li> <li>TXUU UNCONSOLIDATED UNDRAINED TRIAXIAL COMPRESSION (ksf)</li> </ul>
------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

Plate  
**A-0.1**

**GEOLABS, INC.**  
Geotechnical Engineering

**Soil Classification Log Key**  
(with deviations from ASTM D2488)

GEOLABS, INC. CLASSIFICATION*						
GRANULAR SOIL (- #200 <50%)			COHESIVE SOIL (- #200 ≥ 50%)			
<ul style="list-style-type: none"> <li>PRIMARY constituents are composed of the largest percent of the soil mass. Primary constituents are capitalized and bold (i.e., GRAVEL, SAND)</li> <li>SECONDARY constituents are composed of a percentage less than the primary constituent. If the soil mass consists of 12 percent or more fines content, a cohesive constituent is used (SILTY or CLAYEY); otherwise, a granular constituent is used (GRAVELLY or SANDY) provided that the secondary constituent consists of 20 percent or more of the soil mass. Secondary constituents are capitalized and bold (i.e., SANDY GRAVEL, CLAYEY SAND) and precede the primary constituent.</li> <li>accessory descriptions compose of the following: with some: &gt;12% with a little: 5 - 12% with traces of: &lt;5% accessory descriptions are lower cased and follow the Primary and Secondary Constituents (i.e., SILTY GRAVEL with a little sand)</li> </ul>			<ul style="list-style-type: none"> <li>PRIMARY constituents are based on plasticity. Primary constituents are capitalized and bold (i.e., CLAY, SILT)</li> <li>SECONDARY constituents are composed of a percentage less than the primary constituent, but more than 20 percent of the soil mass. Secondary constituents are capitalized and bold (i.e., SANDY CLAY, SILTY CLAY, CLAYEY SILT) and precede the primary constituent.</li> <li>accessory descriptions compose of the following: with some: &gt;12% with a little: 5 - 12% with traces of: &lt;5% accessory descriptions are lower cased and follow the Primary and Secondary Constituents (i.e., SILTY CLAY with some sand)</li> </ul>			
EXAMPLE: Soil Containing 60% Gravel, 25% Sand, 15% Fines. Described as: SILTY GRAVEL with some sand						
RELATIVE DENSITY / CONSISTENCY						
Granular Soils			Cohesive Soils			
N-Value (Blows/Foot)		Relative Density	N-Value (Blows/Foot)		PP Readings (tsf)	Consistency
SPT	MCS		SPT	MCS		
0 - 4	0 - 7	Very Loose	0 - 2	0 - 4	< 0.5	Very Soft
4 - 10	7 - 18	Loose	2 - 4	4 - 7	0.5 - 1.0	Soft
10 - 30	18 - 55	Medium Dense	4 - 8	7 - 15	1.0 - 2.0	Medium Stiff
30 - 50	55 - 91	Dense	8 - 15	15 - 27	2.0 - 4.0	Stiff
> 50	> 91	Very Dense	15 - 30	27 - 55	> 4.0	Very Stiff
			> 30	> 55		

**MOISTURE CONTENT DEFINITIONS**

Dry: Absence of moisture, dry to the touch

Moist: Damp but no visible water

Wet: Visible free water

**GRAIN SIZE DEFINITION**

Description	Sieve Number and / or Size
Boulders	> 12 inches (305-mm)
Cobbles	3 to 12 inches (75-mm to 305-mm)
Gravel	3-inch to #4 (75-mm to 4.75-mm)
Coarse Gravel	3-inch to 3/4-inch (75-mm to 19-mm)
Fine Gravel	3/4-inch to #4 (19-mm to 4.75-mm)
Sand	#4 to #200 (4.75-mm to 0.075-mm)
Coarse Sand	#4 to #10 (4.75-mm to 2-mm)
Medium Sand	#10 to #40 (2-mm to 0.425-mm)
Fine Sand	#40 to #200 (0.425-mm to 0.075-mm)

**ABBREVIATIONS**

WOH: Weight of Hammer

WOR: Weight of Drill Rods

SPT: Standard Penetration Test Split-Spoon Sampler

MCS: Modified California Sampler

PP: Pocket Penetrometer

Plate  
**A-0.2**

\*Soil descriptions are based on ASTM D2488-09a, Visual-Manual Procedure, with the above modifications by Geolabs, Inc. to the Unified Soil Classification System (USCS).

SURVEY PLOTTED BY _____ DATE _____ DRAWN BY _____ DESIGNED BY _____ QUANTITIES BY _____ CHECKED BY _____	ORIGINAL PLAN _____ NOTE BOOK _____ No. _____
----------------------------------------------------------------------------------------------------------------------	-----------------------------------------------------

LOG-LEGEND FOR SOIL #135-00.GPJ GEOLABS.GDT, 11/9/20

SOIL CLASS LOG KEY #135-00.GPJ GEOLABS.GDT, 11/9/20



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STATE OF HAWAII  
**DEPARTMENT OF TRANSPORTATION**  
HIGHWAYS DIVISION

**Boring Log Legends**


FARRINGTON HIGHWAY WIDENING  
Kapolei Golf Course Road  
to Fort Weaver Road

Scale: As Shown Date: May 2021

**SHEET No. G-8 OF - SHEETS**



FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	7101A-01-20	2021	308	-



**GEOLABS, INC.**  
Geotechnical Engineering

**Rock Log Legend**

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ROCK DESCRIPTIONS

	BASALT		CONGLOMERATE
	BOULDERS		LIMESTONE
	BRECCIA		SANDSTONE
	CLINKER		SILTSTONE
	COBBLES		TUFF
	CORAL		VOID/CAVITY

ROCK DESCRIPTION SYSTEM

ROCK FRACTURE CHARACTERISTICS

The following terms describe general fracture spacing of a rock:

Massive:	Greater than 24 inches apart
Slightly Fractured:	12 to 24 inches apart
Moderately Fractured:	6 to 12 inches apart
Closely Fractured:	3 to 6 inches apart
Severely Fractured:	Less than 3 inches apart

DEGREE OF WEATHERING

The following terms describe the chemical weathering of a rock:

Unweathered:	Rock shows no sign of discoloration or loss of strength.
Slightly Weathered:	Slight discoloration inwards from open fractures.
Moderately Weathered:	Discoloration throughout and noticeably weakened though not able to break by hand.
Highly Weathered:	Most minerals decomposed with some corestones present in residual soil mass. Can be broken by hand.
Extremely Weathered:	Saprolite. Mineral residue completely decomposed to soil but fabric and structure preserved.

HARDNESS

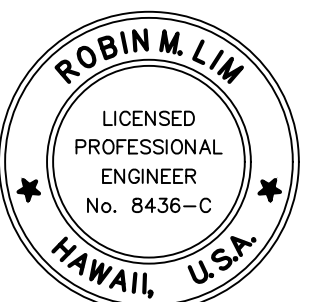
The following terms describe the resistance of a rock to indentation or scratching:

Very Hard:	Specimen breaks with difficulty after several "pinging" hammer blows. Example: Dense, fine grain volcanic rock
Hard:	Specimen breaks with some difficulty after several hammer blows. Example: Vesicular, vugular, coarse-grained rock
Medium Hard:	Specimen can be broken by one hammer blow. Cannot be scraped by knife. SPT may penetrate by ~25 blows per inch with bounce. Example: Porous rock such as clinker, cinder, and coral reef
Soft:	Can be indented by one hammer blow. Can be scraped or peeled by knife. SPT can penetrate by ~100 blows per foot. Example: Weathered rock, chalk-like coral reef
Very Soft:	Crumbles under hammer blow. Can be peeled and carved by knife. Can be indented by finger pressure. Example: Saprolite

Plate  
**A-0.3**

GEOTECHNICAL NOTES:

1. A geotechnical engineering report entitled "Geotechnical Engineering Exploration, Farrington Highway Improvements, Kapolei Golf Course Road, To Fort Weaver Road, Ewa, Oahu, Hawaii" dated November 16, 2020 has been prepared by Geolabs, Inc. A copy of the report is on file at the office of the Engineer for review by the Contractor.
2. For boring locations, see Sheets 301 through 307.
3. The information presented in the logs of borings depict the subsurface conditions encountered at that specified location and at the time of the field exploration only. Variations of subsoil conditions from those depicted in the logs of borings may occur between and beyond the borings.
4. The penetration resistance shown on the logs of borings indicate the number of blows required for the specific sampler type used. The blow counts may need to be factored to obtain the Standard Penetration Test (SPT) blow counts.
5. The data given is for general information only. Bidders shall examine the site and the boring data and draw their own conclusions therefrom as to the character of materials to be encountered. The Engineer will not assume responsibility for variations of subsoil quality or conditions other than at the boring locations shown and at the time the borings were taken.



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April 30, 2022  
 SIGNATURE      EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

Rock Log Legends & Notes

FARRINGTON HIGHWAY WIDENING  
Kapolei Golf Course Road  
to Fort Weaver Road

Scale: As Shown      Date: May 2021

SHEET No. **G-9** OF - SHEETS

ORIGINAL PLAN	DATE
SURVEY PLOTTED BY	
DRAWN BY	
DESIGNED BY	
QUANTITIES BY	
CHECKED BY	
No.	

LOG LEGEND FOR ROCK 8135-00.GPJ, GEOLABS.GDT 11/20/20

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	7101A-01-20	2021	309	-

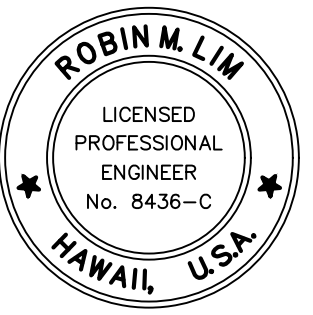
G GEOLABS, INC. Geotechnical Engineering		FARRINGTON HWY. WIDE., KAPOLEI GOLF COURSE RD. TO FORT WEAVER RD. EWA, OAHU, HAWAII			Log of Boring 1					
Other Tests	Moisture Content (%)	Dry Unit Weight (pcf)	Core Recovery (%)	RQD (%)	Penetration Resistance (blows/foot)	Pocket Pen. (tsf)	Depth (feet)	Sample Graphic	USCS	Approximate Ground Surface Elevation (feet): 123.5 *
										Description
	32	67			49				MH	Reddish brown CLAYEY SILT with sand, hard, dry to damp (fill) grades with gravel grades with traces of basalt fragments BOULDER
	15				67		5			
	19	75			50/3" Ref.					
	15				50/3" Ref.		10		CL	Reddish brown SILTY CLAY with gravel, hard, damp (residual)
	18				50/3" Ref.		15			Boring terminated at 15.8 feet
* Elevations estimated from Preliminary Site Plan provided by Belt Collins Hawaii in July 1999.										
Date Started: August 20, 1999					Water Level: ∇ Not Encountered					
Date Completed: August 20, 1999										
Logged By: N. Mitchell					Drill Rig: MOBILE B-80					
Total Depth: 15.8 feet					Drilling Method: 4" Auger					
Work Order: 4190-00(B)					Driving Energy: 140 lb. wt., 30 in. drop					

G GEOLABS, INC. Geotechnical Engineering		FARRINGTON HWY. WIDE., KAPOLEI GOLF COURSE RD. TO FORT WEAVER RD. EWA, OAHU, HAWAII			Log of Boring 3					
Other Tests	Moisture Content (%)	Dry Unit Weight (pcf)	Core Recovery (%)	RQD (%)	Penetration Resistance (blows/foot)	Pocket Pen. (tsf)	Depth (feet)	Sample Graphic	USCS	Approximate Ground Surface Elevation (feet): 132 *
										Description
	11	79			25	1.0			MH	Reddish brown CLAYEY SILT with sand and gravel, stiff, dry (fill) grades to very stiff to hard
	8				47		5			
	8	96			39	>4.5			CL	Reddish brown SILTY CLAY with sand and gravel, very stiff, damp (residual)
	21				28		10			grades with gravel and traces of sand
	18				11/6" +40/1" Ref.	>4.5	15			grades to hard
Boring terminated at 16.1 feet										
Date Started: August 30, 1999					Water Level: ∇ Not Encountered					
Date Completed: August 30, 1999										
Logged By: N. Mitchell					Drill Rig: CME-75					
Total Depth: 16.1 feet					Drilling Method: 4" Auger					
Work Order: 4190-00(B)					Driving Energy: 140 lb. wt., 30 in. drop					

G GEOLABS, INC. Geotechnical Engineering		FARRINGTON HWY. WIDE., KAPOLEI GOLF COURSE RD. TO FORT WEAVER RD. EWA, OAHU, HAWAII			Log of Boring 2					
Other Tests	Moisture Content (%)	Dry Unit Weight (pcf)	Core Recovery (%)	RQD (%)	Penetration Resistance (blows/foot)	Pocket Pen. (tsf)	Depth (feet)	Sample Graphic	USCS	Approximate Ground Surface Elevation (feet): 128 *
										Description
	13	79			12				MH	Reddish brown CLAYEY SILT with some sand and gravel and traces of roots, medium stiff to stiff, damp (fill) grades with gravel
	8				15		5			
	17	95			35/6" Ref.				CL	Brown SILTY CLAY with gravel, stiff, damp (residual)
					50/0" Ref.		10		GW	Gray SANDY GRAVEL with some sand, very dense, damp
	4				50/5" Ref.		15			Boring terminated at 15.4 feet
Boring terminated at 15.4 feet										
Date Started: August 30, 1999					Water Level: ∇ Not Encountered					
Date Completed: August 30, 1999										
Logged By: N. Mitchell					Drill Rig: CME-75					
Total Depth: 15.4 feet					Drilling Method: 4" Auger					
Work Order: 4190-00(B)					Driving Energy: 140 lb. wt., 30 in. drop					

G GEOLABS, INC. Geotechnical Engineering		FARRINGTON HWY. WIDE., KAPOLEI GOLF COURSE RD. TO FORT WEAVER RD. EWA, OAHU, HAWAII			Log of Boring 4					
Other Tests	Moisture Content (%)	Dry Unit Weight (pcf)	Core Recovery (%)	RQD (%)	Penetration Resistance (blows/foot)	Pocket Pen. (tsf)	Depth (feet)	Sample Graphic	USCS	Approximate Ground Surface Elevation (feet): 138.7 *
										Description
	16	90			47	>4.5			CH	Reddish brown SILTY CLAY with traces of sand, very stiff to hard, damp (fill)
	15				42		5			
	16	90			76	>4.5			CL	Reddish brown SILTY CLAY with traces of sand, hard, damp (residual)
	17				57		10			
	17	91			25/6" +30/1" Ref.		15			Boring terminated at 16.1 feet
Boring terminated at 16.1 feet										
Date Started: August 30, 1999					Water Level: ∇ Not Encountered					
Date Completed: August 30, 1999										
Logged By: N. Mitchell					Drill Rig: CME-75					
Total Depth: 16.1 feet					Drilling Method: 4" Auger					
Work Order: 4190-00(B)					Driving Energy: 140 lb. wt., 30 in. drop					

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



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*Robin M. Lim* April 30, 2022  
SIGNATURE EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

**Boring Logs - 1**

FARRINGTON HIGHWAY WIDENING  
Kapolei Golf Course Road  
to Fort Weaver Road

Scale: As Shown Date: May 2021

SHEET No. G-10 OF - SHEETS

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	7101A-01-20	2021	310	-

		<b>GEOLABS, INC.</b> Geotechnical Engineering		FARRINGTON HWY. WIDE., KAPOLEI GOLF COURSE RD. TO FORT WEAVER RD. EWA, OAHU, HAWAII				Log of Boring 5			
Other Tests	Moisture Content (%)	Dry Unit Weight (pcf)	Core Recovery (%)	RQD (%)	Penetration Resistance (blows/foot)	Pocket Pen. (tsf)	Depth (feet)	Sample Graphic	USCS	Description	
	14	79			27	3.8	0		CL	Approximate Ground Surface Elevation (feet): 144 *	
LL=47 PI=29	16	109			31	>4.5	5		CL	Reddish brown SILTY CLAY with sand, very stiff, damp (fill)	
	16				65		5		CL	grades to hard	
	18				50/3" Ref.		10		CL	Reddish brown SILTY CLAY with fine sand, hard, damp (residual)	
LL=33 PI=11	22	94			53	>4.5	15		CL	grades to very stiff to hard	
							16.5			Boring terminated at 16.5 feet	
Date Started: August 30, 1999				Water Level: ∇ Not Encountered							
Date Completed: August 30, 1999				Drill Rig: CME-75							
Logged By: N. Mitchell				Drilling Method: 4" Auger							
Total Depth: 16.5 feet				Driving Energy: 140 lb. wt., 30 in. drop							
Work Order: 4190-00(B)											

		<b>GEOLABS, INC.</b> Geotechnical Engineering		FARRINGTON HWY. WIDE., KAPOLEI GOLF COURSE RD. TO FORT WEAVER RD. EWA, OAHU, HAWAII				Log of Boring 7			
Other Tests	Moisture Content (%)	Dry Unit Weight (pcf)	Core Recovery (%)	RQD (%)	Penetration Resistance (blows/foot)	Pocket Pen. (tsf)	Depth (feet)	Sample Graphic	USCS	Description	
	15	126			17		0		CL	Approximate Ground Surface Elevation (feet): 166.5 *	
	14				5		5		CL	Brown SILTY CLAY with sand and gravel, stiff, damp (fill)	
	15	100			68	>4.5	5		CH	Brown SANDY CLAY with traces of gravel, soft, damp (fill)	
							10		CH	Brown SILTY CLAY with traces of sand, hard, damp (residual)	
							15			BOULDER	
							15.2			Boring terminated at 15.2 feet	
Date Started: September 3, 1999				Water Level: ∇ Not Encountered							
Date Completed: September 3, 1999				Drill Rig: CME-75							
Logged By: N. Mitchell				Drilling Method: 4" Auger							
Total Depth: 15.2 feet				Driving Energy: 140 lb. wt., 30 in. drop							
Work Order: 4190-00(B)											

		<b>GEOLABS, INC.</b> Geotechnical Engineering		FARRINGTON HWY. WIDE., KAPOLEI GOLF COURSE RD. TO FORT WEAVER RD. EWA, OAHU, HAWAII				Log of Boring 6			
Other Tests	Moisture Content (%)	Dry Unit Weight (pcf)	Core Recovery (%)	RQD (%)	Penetration Resistance (blows/foot)	Pocket Pen. (tsf)	Depth (feet)	Sample Graphic	USCS	Description	
	14	83			45/3" Ref.	>4.5	0		CL	Approximate Ground Surface Elevation (feet): 155.5 *	
	18				22	>4.5	5		CL	Brown SILTY CLAY with sand and roots, hard, damp (fill)	
	16	107			53		5		CL	grades to stiff to very stiff	
							10		CL	Brown SILTY CLAY with traces of gravel, hard, damp (residual)	
					46		10		CL	grades with sand, very stiff to hard, slightly moist	
					50/3" Ref.	>4.5	15		ML	Brown SANDY SILT with gravel, hard, damp (residual)	
	11	96					15.8			Boring terminated at 15.8 feet	
Date Started: August 30, 1999				Water Level: ∇ Not Encountered							
Date Completed: August 30, 1999				Drill Rig: CME-75							
Logged By: N. Mitchell				Drilling Method: 4" Auger							
Total Depth: 15.8 feet				Driving Energy: 140 lb. wt., 30 in. drop							
Work Order: 4190-00(B)											

		<b>GEOLABS, INC.</b> Geotechnical Engineering		FARRINGTON HWY. WIDE., KAPOLEI GOLF COURSE RD. TO FORT WEAVER RD. EWA, OAHU, HAWAII				Log of Boring 8			
Other Tests	Moisture Content (%)	Dry Unit Weight (pcf)	Core Recovery (%)	RQD (%)	Penetration Resistance (blows/foot)	Pocket Pen. (tsf)	Depth (feet)	Sample Graphic	USCS	Description	
	16	85			37	>4.5	0		CL	Approximate Ground Surface Elevation (feet): 168 *	
	16				24		5		MH	Reddish brown SILTY CLAY with sand, very stiff, damp (fill)	
	16	94			44		5		MH	Reddish brown CLAYEY SILT with sand, stiff, damp (residual)	
							10		SM	grades to very stiff	
					50/2" Ref.		10		SM	Brown SILTY SAND with gravel, very dense, slightly moist to moist (residual)	
					43/6" +50/3" Ref.		15			Boring terminated at 16.3 feet	
Date Started: September 3, 1999				Water Level: ∇ Not Encountered							
Date Completed: September 3, 1999				Drill Rig: CME-75							
Logged By: N. Mitchell				Drilling Method: 4" Auger							
Total Depth: 16.3 feet				Driving Energy: 140 lb. wt., 30 in. drop							
Work Order: 4190-00(B)											

SURVEY PLOTTED BY	DATE
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THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.

*Robin M. Lim* April 30, 2022  
SIGNATURE EXPIRATION DATE OF THE LICENSE

**STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION**

**Boring Logs - 2**

**FARRINGTON HIGHWAY WIDENING  
Kapolei Golf Course Road  
to Fort Weaver Road**

Scale: As Shown Date: May 2021

**SHEET No. G-11 OF - SHEETS**

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	7101A-01-20	2021	311	-

G GEOLABS, INC. Geotechnical Engineering		FARRINGTON HWY. WIDE., KAPOLEI GOLF COURSE RD. TO FORT WEAVER RD. EWA, OAHU, HAWAII			Log of Boring 9					
Other Tests	Moisture Content (%)	Dry Unit Weight (pcf)	Core Recovery (%)	RQD (%)	Penetration Resistance (blows/foot)	Pocket Pen. (tsf)	Depth (feet)	Sample Graphic	USCS	Approximate Ground Surface Elevation (feet): 170 *
										Description
LL=38 PI=18	14	78			16	3.8			CL	Reddish brown SANDY CLAY with silt, medium stiff to stiff, damp (fill) grades with traces of gravel
	8				14		5		MH	Yellowish brown CLAYEY SILT with sand, stiff to very stiff, damp (residual)
	16	81			29		10		CL	Brown SILTY CLAY with traces of sand and gravel, hard, damp (residual)
	13				62		15		SM	Brown SILTY SAND with gravel, medium dense, damp (residual)
	7				14					Boring terminated at 16.5 feet
							20			
							25			
							30			
							35			

Date Started: September 3, 1999  
Date Completed: September 3, 1999  
Logged By: N. Mitchell  
Total Depth: 16.5 feet  
Work Order: 4190-00(B)

Water Level: ∇ Not Encountered  
Drill Rig: CME-75  
Drilling Method: 4" Auger  
Driving Energy: 140 lb. wt., 30 in. drop

G GEOLABS, INC. Geotechnical Engineering		FARRINGTON HWY. WIDE., KAPOLEI GOLF COURSE RD. TO FORT WEAVER RD. EWA, OAHU, HAWAII			Log of Boring 11					
Other Tests	Moisture Content (%)	Dry Unit Weight (pcf)	Core Recovery (%)	RQD (%)	Penetration Resistance (blows/foot)	Pocket Pen. (tsf)	Depth (feet)	Sample Graphic	USCS	Approximate Ground Surface Elevation (feet): 173.5 *
										Description
	1				50/3" Ref.				GW	4-inch ASPHALT CONCRETE
	18	85			54				ML	Gray SANDY GRAVEL, very dense, dry (fill)
	18				35		5			Brown CLAYEY SILT with sand, very stiff to hard, damp (residual) grades to hard
	11				40/3" Ref.		10		SM	Brown SILTY SAND, very dense, damp (residual)
	20				50/5" Ref.		15			grades to moist
										Boring terminated at 15.9 feet
							20			
							25			
							30			
							35			

Date Started: August 25, 1999  
Date Completed: August 25, 1999  
Logged By: N. Mitchell  
Total Depth: 15.9 feet  
Work Order: 4190-00(B)

Water Level: ∇ Not Encountered  
Drill Rig: MOBILE B-80  
Drilling Method: 4" Auger  
Driving Energy: 140 lb. wt., 30 in. drop

G GEOLABS, INC. Geotechnical Engineering		FARRINGTON HWY. WIDE., KAPOLEI GOLF COURSE RD. TO FORT WEAVER RD. EWA, OAHU, HAWAII			Log of Boring 10					
Other Tests	Moisture Content (%)	Dry Unit Weight (pcf)	Core Recovery (%)	RQD (%)	Penetration Resistance (blows/foot)	Pocket Pen. (tsf)	Depth (feet)	Sample Graphic	USCS	Approximate Ground Surface Elevation (feet): 176 *
										Description
	15	79			27	>4.5			ML	Brown CLAYEY SILT with sand, stiff, damp (fill)
	15				28					
	17	88			48	>4.5	5		CL	Reddish brown SILTY CLAY with sand, very stiff, damp (residual)
	22				32		10			grades to slightly moist
	20	89			40/3" Ref.		15		SM	Brown SILTY SAND with gravel, dense to very dense, damp (residual)
										Boring terminated at 15.8 feet
							20			
							25			
							30			
							35			

Date Started: September 3, 1999  
Date Completed: September 3, 1999  
Logged By: N. Mitchell  
Total Depth: 15.8 feet  
Work Order: 4190-00(B)

Water Level: ∇ Not Encountered  
Drill Rig: CME-75  
Drilling Method: 4" Auger  
Driving Energy: 140 lb. wt., 30 in. drop

G GEOLABS, INC. Geotechnical Engineering		FARRINGTON HWY. WIDE., KAPOLEI GOLF COURSE RD. TO FORT WEAVER RD. EWA, OAHU, HAWAII			Log of Boring 12					
Other Tests	Moisture Content (%)	Dry Unit Weight (pcf)	Core Recovery (%)	RQD (%)	Penetration Resistance (blows/foot)	Pocket Pen. (tsf)	Depth (feet)	Sample Graphic	USCS	Approximate Ground Surface Elevation (feet): 162.5 *
										Description
LL=44 PI=23	17	79			58	>4.5			CL	Brown SILTY CLAY with sand, hard, damp (fill)
	17				28				ML	Reddish brown CLAYEY SILT with sand, very stiff, damp (fill)
	20	98			37	>4.5	5		CL	Brown SILTY CLAY, very stiff, slightly moist (residual)
					50/0" Ref.		10			
	19				50/3" Ref.		15			grades with sand, hard
										Boring terminated at 15.8 feet
							20			
							25			
							30			
							35			

Date Started: August 25, 1999  
Date Completed: August 25, 1999  
Logged By: N. Mitchell  
Total Depth: 15.8 feet  
Work Order: 4190-00(B)

Water Level: ∇ Not Encountered  
Drill Rig: MOBILE B-80  
Drilling Method: 4" Auger  
Driving Energy: 140 lb. wt., 30 in. drop

SURVEY PLOTTED BY	DATE
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*Robin M. Lim* April 30, 2022  
SIGNATURE EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION


**Boring Logs - 3**


FARRINGTON HIGHWAY WIDENING  
Kapolei Golf Course Road  
to Fort Weaver Road

Scale: As Shown Date: May 2021

SHEET No. G-12 OF - SHEETS

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	7101A-01-20	2021	312	-

		<b>GEOLABS, INC.</b> Geotechnical Engineering		FARRINGTON HWY. WIDE., KAPOLEI GOLF COURSE RD. TO FORT WEAVER RD. EWA, OAHU, HAWAII		Log of Boring 13					
Other Tests	Moisture Content (%)	Dry Unit Weight (pcf)	Core Recovery (%)	RQD (%)	Penetration Resistance (blows/foot)	Pocket Pen. (tsf)	Depth (feet)	Sample Graphic	USCS	Approximate Ground Surface Elevation (feet) : 119 *	Description
	11				50/5" Ref.		5		SM		6-inch ASPHALT CONCRETE
	11	58			50/3" Ref.		5		SM		Brown SILTY SAND with coral and basalt gravel, very dense, damp (fill)
	14				50/3" Ref.		10				Brown SILTY SAND, very dense, damp (residual) grades with gravel
	17				50/5" Ref.		15				
	20				37/6" +50/3" Ref.		15				Boring terminated at 16.3 feet
							20				
							25				
							30				
							35				
Date Started: August 25, 1999				Water Level: ∇ Not Encountered							
Date Completed: August 25, 1999											
Logged By: N. Mitchell				Drill Rig: MOBILE B-80							
Total Depth: 16.3 feet				Drilling Method: 4" Auger							
Work Order: 4190-00(B)				Driving Energy: 140 lb. wt., 30 in. drop							

		<b>GEOLABS, INC.</b> Geotechnical Engineering		FARRINGTON HWY. WIDE., KAPOLEI GOLF COURSE RD. TO FORT WEAVER RD. EWA, OAHU, HAWAII		Log of Boring 14					
Other Tests	Moisture Content (%)	Dry Unit Weight (pcf)	Core Recovery (%)	RQD (%)	Penetration Resistance (blows/foot)	Pocket Pen. (tsf)	Depth (feet)	Sample Graphic	USCS	Approximate Ground Surface Elevation (feet) : 95 *	Description
	14	89			50/5" Ref.		5		GP		5-inch ASPHALT CONCRETE
	21				50/5" Ref.		5		SM		Brownish gray SANDY GRAVEL with silt, damp (base material)
	20				50/5" Ref.		10		ML		Grayish brown SILTY SAND with traces of gravel, very dense, damp (fill)
	20	92			50/5" Ref.	>4.5	10				Brown SILTY SAND, very dense, moist (residual) grades with traces of gravel at 5 feet
	41				50/3" Ref.	38	15		SM		Brown CLAYEY SILT with sand, hard, slightly moist (residual)
							15				Grayish brown SILTY SAND, dense, slightly moist (residual)
							20				Boring terminated at 16.5 feet
							25				
							30				
							35				
Date Started: August 25, 1999				Water Level: ∇ Not Encountered							
Date Completed: August 25, 1999											
Logged By: N. Mitchell				Drill Rig: MOBILE B-80							
Total Depth: 16.5 feet				Drilling Method: 4" Auger							
Work Order: 4190-00(B)				Driving Energy: 140 lb. wt., 30 in. drop							

SURVEY PLOTTED BY	DATE
DRAWN BY	
DESIGNED BY	
QUANTITIES BY	
CHECKED BY	
ORIGINAL PLAN	
NOTE BOOK	
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*Robin M. Lim*  
SIGNATURE      EXPIRATION DATE OF THE LICENSE: April 30, 2022

STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

**Boring Logs - 4**

*FARRINGTON HIGHWAY WIDENING  
Kapolei Golf Course Road  
to Fort Weaver Road*

Scale: As Shown      Date: May 2021

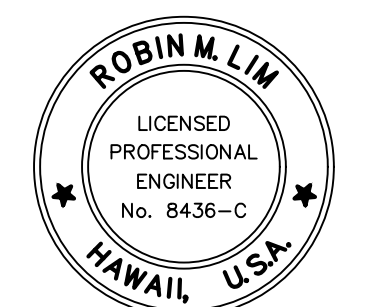
SHEET No. G-13 OF - SHEETS

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	7101A-01-20	2021	313	-

GEOLABS, INC. Geotechnical Engineering		FARRINGTON HWY. WIDE., KAPOLEI GOLF COURSE RD. TO FORT WEAVER RD. EWA, OAHU, HAWAII			Log of Boring 101						
Other Tests	Moisture Content (%)	Dry Unit Weight (pcf)	Core Recovery (%)	RQD (%)	Penetration Resistance (blows/foot)	Pocket Pen. (tsf)	Depth (feet)	Sample Graphic	USCS	Description	
										Approximate Ground Surface Elevation (feet): 163 *	
										(Continued from previous plate)	
										Description	
	21	96			45	>4.5			GW	6-inch ASPHALT CONCRETE	
	20				37				MH	Brownish gray SANDY GRAVEL with silt, medium dense to dense, damp	
	25	92			61	>4.5	5		CL	Reddish brown CLAYEY SILT with sand, very stiff, slightly moist (fill) grades to hard at 3 feet	
	18				32		10		MH	Reddish brown SILTY CLAY with sand, hard, slightly moist (residual)	
	17	85			38	>4.5	15		MH	Reddish brown CLAYEY SILT with sand, hard, slightly moist (residual) grades with gravel, very stiff	
	9				36/6" +50/3" Ref.		20		GM	Brown SILTY GRAVEL with sand, very dense, slightly moist (residual)	
	16	89			30/3" Ref.	>4.5	25		MH	Reddish brown CLAYEY SILT with some sand, hard, slightly moist (residual)	
	21				50/5" Ref.		30			grades with traces of sand	
	22	97			50/3" Ref.	>4.5	35				
	23				37		40				
	20	95			50/3" Ref.		45		ML	Reddish brown SANDY SILT with gravel, hard, slightly moist (residual)	
	21				45/6" +50/3" Ref.		50		MH	Reddish brown CLAYEY SILT with some sand, hard, slightly moist (residual)	
	21	100			50/3" Ref.		55			grades with traces of sand	
	22				48/6" +50/3" Ref.	4.3	60		CH	Reddish brown SILTY CLAY with traces of sand, hard, slightly moist (residual)	
	27	104			40/6" +50/4" Ref.	>4.5	65				
	30				28		70			grades to very stiff, moist	
							75		MH	Reddish brown CLAYEY SILT with some sand, hard, moist (residual)	
Date Started: August 23, 1999		Date Completed: August 24, 1999		Water Level: ∇ Not Encountered		Drill Rig: MOBILE B-80		Drilling Method: 4" Auger		Driving Energy: 140 lb. wt., 30 in. drop	

GEOLABS, INC. Geotechnical Engineering		FARRINGTON HWY. WIDE., KAPOLEI GOLF COURSE RD. TO FORT WEAVER RD. EWA, OAHU, HAWAII			Log of Boring 101						
Other Tests	Moisture Content (%)	Dry Unit Weight (pcf)	Core Recovery (%)	RQD (%)	Penetration Resistance (blows/foot)	Pocket Pen. (tsf)	Depth (feet)	Sample Graphic	USCS	Description	
										(Continued from previous plate)	
										Description	
	30	95			20/6" +30/3" Ref.	>4.5			MH		
	24				39/6" +50/4" Ref.		80		CH	Reddish brown SILTY CLAY with traces of sand, hard, slightly moist (residual)	
	23	97			50/5" Ref.	>4.5	85				
	24				37/6" +50/3" Ref.		90			grades with more sand	
	22	97			50/5" Ref.	>4.5	95				
	32				72		100		MH	Reddish brown CLAYEY SILT with some sand, hard, moist (residual)	
										Boring terminated at 101.5 feet	
Date Started: August 23, 1999		Date Completed: August 24, 1999		Water Level: ∇ Not Encountered		Drill Rig: MOBILE B-80		Drilling Method: 4" Auger		Driving Energy: 140 lb. wt., 30 in. drop	

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*Robin M. Lim* April 30, 2022  
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STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

**Boring Logs - 5**

FARRINGTON HIGHWAY WIDENING  
Kapolei Golf Course Road  
to Fort Weaver Road

Scale: As Shown Date: May 2021

SHEET No. G-14 OF - SHEETS

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	7101A-01-20	2021	314	-

GEOLABS, INC. Geotechnical Engineering		FARRINGTON HWY. WIDE., KAPOLEI GOLF COURSE RD. TO FORT WEAVER RD. EWA, OAHU, HAWAII				Log of Boring 102					
Other Tests	Moisture Content (%)	Dry Unit Weight (pcf)	Core Recovery (%)	RQD (%)	Penetration Resistance (blows/foot)	Pocket Pen. (tsf)	Depth (feet)	Sample Graphic	USCS	Approximate Ground Surface Elevation (feet): 161 *	Description
LL=43 PI=25	14	75			29	>4.5	5		ML	161 *	Reddish brown SANDY SILT with gravel and cobbles, soft to medium stiff, dry
							CL		Brownish gray COBBLES with gravelly sand, medium dense to dense, damp (fill)		
							CL		Brown SILTY CLAY with sand and gravel, very stiff, damp (fill)		
		17				6		10	ML		Reddish brown CLAYEY SILT with sand, soft to medium stiff, damp (fill)
		7	112			95		15	GM		Reddish brown mottled with gray SILTY GRAVEL with sand and cobbles, very dense, damp (fill)
						30/3" Ref.		20			
		17	98			15/0" Ref.		25	ML		Reddish brown SANDY SILT, hard, damp (residual)
		18				59/6"		30	CH		Reddish brown mottled with black SILTY CLAY with traces of sand, hard, damp (residual)
		19				61/6" Ref.		35			
		20				39		40	MH		Reddish brown CLAYEY SILT with sand, hard, damp (residual)
		18	100			71/6" +10/0" Ref.	>4.5	45			
		22				41		50	CH		Reddish brown SILTY CLAY with gravel and traces of sand, hard, slightly moist (residual)
	20	104			60/6" +50/3" Ref.	>4.5	55				
	24				50		60			grades with white mottled seams with traces of sand	
	24	95			76	>4.5	65	MH		Reddish brown CLAYEY SILT with sand and gravel, hard, slightly moist (residual)	
	27				26		70			grades to very stiff, moist	
							75	CH			
Date Started: September 1, 1999		Date Completed: September 2, 1999		Water Level: ∇ Not Encountered		Drill Rig: CME-75		Drilling Method: 6.25" Hollow-Stem Auger		Driving Energy: 140 lb. wt., 30 in. drop	

GEOLABS, INC. Geotechnical Engineering		FARRINGTON HWY. WIDE., KAPOLEI GOLF COURSE RD. TO FORT WEAVER RD. EWA, OAHU, HAWAII				Log of Boring 102					
Other Tests	Moisture Content (%)	Dry Unit Weight (pcf)	Core Recovery (%)	RQD (%)	Penetration Resistance (blows/foot)	Pocket Pen. (tsf)	Depth (feet)	Sample Graphic	USCS	(Continued from previous plate)	Description
	23				32		80		CH		
	24				42		85				
	24				41		90				
	23				56		95				
	22				45		100				grades to yellow mottled, moist
	29				34		105				Boring terminated at 101.5 feet
							110				
							115				
							120				
							125				
							130				
							135				
							140				
							145				
							150				
Date Started: September 1, 1999		Date Completed: September 2, 1999		Water Level: ∇ Not Encountered		Drill Rig: CME-75		Drilling Method: 6.25" Hollow-Stem Auger		Driving Energy: 140 lb. wt., 30 in. drop	

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STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

**Boring Logs - 6**

FARRINGTON HIGHWAY WIDENING  
Kapolei Golf Course Road  
to Fort Weaver Road

Scale: As Shown Date: May 2021

SHEET No. G-15 OF - SHEETS

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	7101A-01-20	2021	315	-

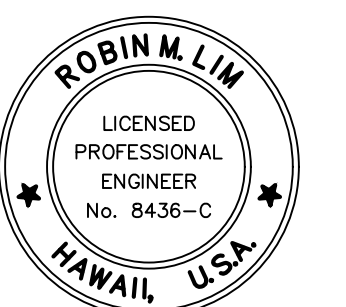
GEOLABS, INC. Geotechnical Engineering		FARRINGTON HWY. WIDE., KAPOLEI GOLF COURSE RD. TO FORT WEAVER RD. EWA, OAHU, HAWAII			Log of Boring 103						
Other Tests	Moisture Content (%)	Dry Unit Weight (pcf)	Core Recovery (%)	RQD (%)	Penetration Resistance (blows/foot)	Pocket Pen. (tsf)	Depth (feet)	Sample Graphic	USCS	Approximate Ground Surface Elevation (feet): 160 *	Description
	8	103			40/2" Ref.	>4.5	4.5		CL		Reddish brown SILTY CLAY with sand and gravel, hard, dry (fill) grades to stiff, damp
	14				16		5				
	17	82			9/6" +35/3" Ref.	1.0	5				
	15	98			66	>4.5	10		CL		Reddish brown SILTY CLAY with sand, hard, damp (residual)
	16				18		15				grades with traces of gravel, stiff
	5				40/3" Ref.		20		GP		Gray GRAVEL with sand, very dense, damp (boulder)
	16	84			50/3" Ref.	>4.5	25		CL		Reddish brown SILTY CLAY with sand and traces of gravel, hard, damp
	18				30/0" Ref.		30				grades with traces of sand and no gravel
	8				41/6" +50/3" Ref.		35		GP		Gray BASALT GRAVEL with sand and traces of silt, very dense, damp (boulder)
	18				50/0" Ref.		40				
	18				50/5" Ref.		45		SM		Reddish brown SILTY SAND with gravel, very dense, slightly moist (residual)
	19				58		50		CH		Reddish brown SILTY CLAY with sand and traces of gravel, hard, slightly moist (residual)
	22				44		55				grades with sand
	24				43		60				grades with traces of sand
	24				33		65				
	25				28		70				grades with sand, very stiff
							75				

Date Started:	August 31, 1999	Water Level:	∇ Not Encountered
Date Completed:	September 1, 1999		
Logged By:	Mitchell & Shinsato	Drill Rig:	CME-75
Total Depth:	101.5 feet	Drilling Method:	6.25" Hollow-Stem Auger
Work Order:	4190-00(B)	Driving Energy:	140 lb. wt., 30 in. drop

GEOLABS, INC. Geotechnical Engineering		FARRINGTON HWY. WIDE., KAPOLEI GOLF COURSE RD. TO FORT WEAVER RD. EWA, OAHU, HAWAII			Log of Boring 103						
Other Tests	Moisture Content (%)	Dry Unit Weight (pcf)	Core Recovery (%)	RQD (%)	Penetration Resistance (blows/foot)	Pocket Pen. (tsf)	Depth (feet)	Sample Graphic	USCS	(Continued from previous plate)	Description
	28				18		18		CH		grades with traces of sand, stiff
	22	105			78	>4.5	80				grades to hard, slightly moist
	21				90		85				grades to brown
	26				16		90		ML		Reddish brown SANDY SILT with traces of gravel, stiff, moist (residual)
	21				93		95		CH		Reddish brown SILTY CLAY with traces of sand and gravel, hard, slightly moist (residual)
	24				30	>4.5	100		MH		Reddish brown CLAYEY SILT with sand, very stiff, damp (residual) Boring terminated at 101.5 feet
							105				
							110				
							115				
							120				
							125				
							130				
							135				
							140				
							145				
							150				

Date Started:	August 31, 1999	Water Level:	∇ Not Encountered
Date Completed:	September 1, 1999		
Logged By:	Mitchell & Shinsato	Drill Rig:	CME-75
Total Depth:	101.5 feet	Drilling Method:	6.25" Hollow-Stem Auger
Work Order:	4190-00(B)	Driving Energy:	140 lb. wt., 30 in. drop

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STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

**Boring Logs - 7**

FARRINGTON HIGHWAY WIDENING  
Kapolei Golf Course Road  
to Fort Weaver Road

Scale: As Shown Date: May 2021

SHEET No. G-16 OF - SHEETS

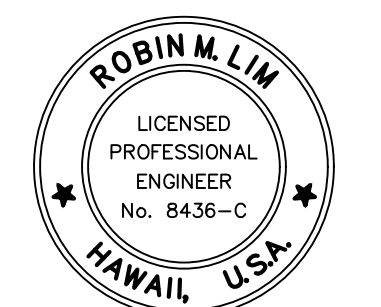


FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	7101A-01-20	2021	316	-

GEOLABS, INC. Geotechnical Engineering		FARRINGTON HIGHWAY IMPROVEMENTS KAPOLEI GOLF COURSE ROAD TO FORT WEAVER ROAD EWA, OAHU, HAWAII				Log of Boring 104					
Other Tests	Moisture Content (%)	Dry Unit Weight (pcf)	Core Recovery (%)	RQD (%)	Penetration Resistance (blows/foot)	Pocket Pen. (tsf)	Depth (feet)	Sample Graphic	USCS	Approximate Ground Surface Elevation (feet): 156 *	Description
	17	93			43				MH		Brown CLAYEY SILT with some sand and traces of gravel (coralline), very stiff to hard, moist (fill)
	18				35				ML		Brown SANDY SILT, hard, moist (older alluvium)
	17	99			80		5				grades with black mottling
Sieve #200 = 52.3%	17				93		10				grades with some boulders
	16	99			25/3"		15		CL		Reddish brown SANDY CLAY, hard, moist (older alluvium)
	16				10/1"		20				
	20	109	0		50/4"	>4.5	25				grades to very stiff
	31		0		18		30				
	20	109	0		73	>4.5	35				
LL=36 PI=16	25		0		17		40				
TXUU Su=11.8 ksf	29	100	13		63	>4.5	45				
	28		14		32		50				
TXUU Su=9.3 ksf	24	105	24		62	>4.5	55				grades with a little fine gravel
	31		19		21		60				
TXUU Su=2.1 ksf	30	93	14		32	>4.5	65				
	34		12		10		70				grades with a little sand
			12				75				
Date Started: September 14, 2020		Date Completed: September 16, 2020		Water Level: Not Encountered							
Logged By: B. Aiu		Drill Rig: CME-75DG2		Drilling Method: 4" Solid-Stem Auger & PQ Coring							
Total Depth: 121.08 feet		Driving Energy: 140 lb. wt., 30 in. drop									
Work Order: 8135-00											

GEOLABS, INC. Geotechnical Engineering		FARRINGTON HIGHWAY IMPROVEMENTS KAPOLEI GOLF COURSE ROAD TO FORT WEAVER ROAD EWA, OAHU, HAWAII				Log of Boring 104					
Other Tests	Moisture Content (%)	Dry Unit Weight (pcf)	Core Recovery (%)	RQD (%)	Penetration Resistance (blows/foot)	Pocket Pen. (tsf)	Depth (feet)	Sample Graphic	USCS	(Continued from previous plate)	Description
TXUU Su=7.6 ksf	24	104	29		81	3.8			CL		Brown SANDY CLAY, very stiff, moist (older alluvium)
LL=40 PI=20	24		24		86		80				
	22	115	21		56/6" +25/1"	>4.5	85		SM		Brown SILTY SAND (BASALTIC) with some rounded gravel, dense, moist (older alluvium)
Sieve #200 = 37.1%	25		0		31		90				
Sieve #200 = 10.4%	13	134	23		24/6" +75/5"		95		SW-SM		Brown GRAVELLY SAND (BASALTIC) with a little silt, dense, moist (older alluvium)
	20		48		53		100				grades with some cobbles
	27		0		55		105				grades with small boulders
	36	84	85	100	35/2"		110				Gray BASALT, slightly fractured, slightly weathered, hard (basalt formation)
	41		100	71	39		115		SM		Gray with multi-color mottling SILTY SAND (BASALTIC), dense, moist (saprolite)
							120				Gray BASALT, slightly fractured, slightly weathered, hard (basalt formation)
							120				Boring terminated at 121.08 feet
							125				
							130				
							135				
							140				
							145				
							150				
Date Started: September 14, 2020		Date Completed: September 16, 2020		Water Level: Not Encountered							
Logged By: B. Aiu		Drill Rig: CME-75DG2		Drilling Method: 4" Solid-Stem Auger & PQ Coring							
Total Depth: 121.08 feet		Driving Energy: 140 lb. wt., 30 in. drop									
Work Order: 8135-00											

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STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

**Boring Logs - 8**

FARRINGTON HIGHWAY WIDENING  
Kapolei Golf Course Road  
to Fort Weaver Road

Scale: As Shown Date: May 2021

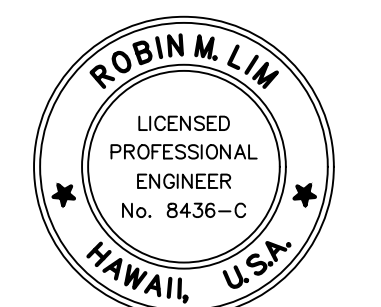
SHEET No. G-17 OF - SHEETS

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	7101A-01-20	2021	317	-

GEOLABS, INC. Geotechnical Engineering		FARRINGTON HIGHWAY IMPROVEMENTS KAPOLEI GOLF COURSE ROAD TO FORT WEAVER ROAD EWA, OAHU, HAWAII				Log of Boring 105					
Other Tests	Moisture Content (%)	Dry Unit Weight (pcf)	Core Recovery (%)	RQD (%)	Penetration Resistance (blows/foot)	Pocket Pen. (tsf)	Depth (feet)	Sample Graphic	USCS	Description	
										Approximate Ground Surface Elevation (feet): 150 *	
										(Continued from previous plate)	
										Description	
										grades with clayey silt pockets locally	
LL=35 PI=25 Sieve #200 = 44.1% Sieve #200 = 83.5%	28 26 26	85 88			49 21 15	4.5 4.0	5		CH CL	Brown SILTY CLAY with a little cobbles (basaltic), very stiff to hard, moist (older alluvium) Brown SANDY CLAY with traces of gravel (basaltic), very stiff, moist (older alluvium) grades to silty sand	
	29				45		10		CL	Reddish brown SANDY CLAY, hard, moist (older alluvium)	
	38	87			20/1"	4.5	15				
LL=35 PI=12	22				47/6" +50/4"		20				
	19	98			25/1"	4.5	25				
	20		0		52		30				
	29	95	21		55/3"		35			grades with cemented siltstone gravel locally	
	23		60		75		40				
TXUU Su=6.1 ksf	26	102	79		26	4.3	45				
	26		24		78		50				
TXUU Su=1.9 ksf	35	87	33		11	1.0	55		CL	grades with clay pockets locally Brown SANDY CLAY with traces of rounded gravel (basaltic), stiff, moist (older alluvium) grades with clayey silt	
LL=34 PI=18	32		29		15		60			grades to very stiff	
TXUU Su=2.0 ksf	30	91	38		14	2.5	65				
	27		36		35		70		CL	Reddish brown SANDY CLAY, hard, moist (older alluvium)	
							75				
Date Started: September 8, 2020		Water Level: ▼ Not Encountered									
Date Completed: September 10, 2020		Drill Rig: CME-75DR									
Logged By: S. Latronic		Drilling Method: 4" Solid-Stem Auger & PQ Coring									
Total Depth: 120 feet		Driving Energy: 140 lb. wt., 30 in. drop									
Work Order: 8135-00											

GEOLABS, INC. Geotechnical Engineering		FARRINGTON HIGHWAY IMPROVEMENTS KAPOLEI GOLF COURSE ROAD TO FORT WEAVER ROAD EWA, OAHU, HAWAII				Log of Boring 105					
Other Tests	Moisture Content (%)	Dry Unit Weight (pcf)	Core Recovery (%)	RQD (%)	Penetration Resistance (blows/foot)	Pocket Pen. (tsf)	Depth (feet)	Sample Graphic	USCS	Description	
										(Continued from previous plate)	
										Description	
										grades with clayey silt pockets locally	
LL=40 PI=25	24 26	110 88	0 57		51/6" +50/5"	4.5	5		CL	grades with clayey silt pockets locally	
TXUU Su=7.6 ksf	23	108	63		40/6" +50/4"	4.5	85				
	38		43		14		90		SM	Brown SILTY SAND (BASALTIC) with a little gravel, medium dense, moist (older alluvium)	
	22	115	0		50/5"	4.5	95		ML SM	grades with cobbles (basaltic) Brown SANDY SILT with a little rounded gravel (basaltic) and traces of clay, very stiff to hard (older alluvium)	
	17	56	0		50/3"		100		MH	Brown SILTY SAND (BASALTIC) with some decomposed gravel, medium dense to dense, moist (saprolite)	
			23				105			Gray vesicular BASALT, closely fractured, slightly to moderately weathered, medium hard to hard (pahoehoe basalt)	
	36	88	81	81	27		110			Reddish brown to brown CLAYEY SILT with some sand and a little gravel (basaltic), very stiff, moist (weathered clinker)	
			97	70			115			Gray and brown cemented BASALT, moderately fractured, slightly to moderately weathered, medium hard to hard (welded clinker)	
							120			Gray vugular BASALT, moderately fractured, unweathered to slightly weathered, hard to very hard (a'a basalt)	
										Boring terminated at 120 feet	
							125				
							130				
							135				
							140				
							145				
							150				
Date Started: September 8, 2020		Water Level: ▼ Not Encountered									
Date Completed: September 10, 2020		Drill Rig: CME-75DR									
Logged By: S. Latronic		Drilling Method: 4" Solid-Stem Auger & PQ Coring									
Total Depth: 120 feet		Driving Energy: 140 lb. wt., 30 in. drop									
Work Order: 8135-00											

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*Robin M. Lim* April 30, 2022  
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STATE OF HAWAII  
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HIGHWAYS DIVISION

**Boring Logs - 9**

FARRINGTON HIGHWAY WIDENING  
Kapolei Golf Course Road  
to Fort Weaver Road

Scale: As Shown Date: May 2021

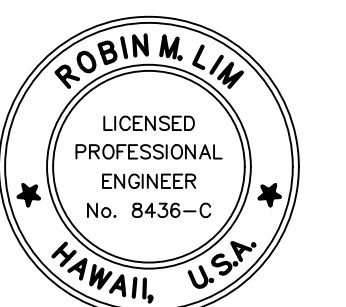
SHEET No. G-18 OF - SHEETS

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	7101A-01-20	2021	318	-

GEOLABS, INC. Geotechnical Engineering		FARRINGTON HWY. WIDE., KAPOLEI GOLF COURSE RD. TO FORT WEAVER RD. EWA, OAHU, HAWAII			Log of Boring 201						
Other Tests	Moisture Content (%)	Dry Unit Weight (pcf)	Core Recovery (%)	RQD (%)	Penetration Resistance (blows/foot)	Pocket Pen. (tsf)	Depth (feet)	Sample Graphic	USCS	Approximate Ground Surface Elevation (feet): 74 *	Description
	10	93			34				MH		Brown CLAYEY SILT with sand, gravel and roots, medium stiff, dry grades to stiff at 1 foot grades to very stiff, damp
	12				24						
	10	88			30/3" Ref.		5				
	6				28		10		SM		Grayish brown SILTY SAND with basalt gravel, medium dense, damp grades with cobbles
	18	111			56	>4.5	15		CL		Reddish brown SILTY CLAY with sand, very stiff, damp (saprolite)
	26				41		20				grades to mottled with black, without sand, hard, moist
	84						25		GC		grades with sand and traces of gravel Grayish brown CLAYEY GRAVEL with sand, very dense, moist (saprolite)
	32				35		30		MH		Grayish brown CLAYEY GRAVEL with sand, hard, moist (saprolite)
	39	77			50		35		GC		Grayish brown CLAYEY GRAVEL with sand, dense, wet (saprolite)
	42	75					40		GM		Dark brown SILTY GRAVEL with sand and clay seams, dense, wet (saprolite)
	35				21		50				grades to medium dense
					15/0" Ref.		55				Gray BASALT, moderately fractured, moderately weathered, hard
					100	100	60				
					100	100	65				grades to slightly fractured, slightly weathered
					100	100	70				grades to massive
					100	100	75				
Date Started: September 29, 1999		Date Completed: October 1, 1999		Water Level: ∇ Not Encountered							
Logged By: E. Shinsato		Drill Rig: CME-75		Drilling Method: 4" Auger & HQ Coring							
Total Depth: 125.5 feet		Driving Energy: 140 lb. wt., 30 in. drop									
Work Order: 4190-00(B)											

GEOLABS, INC. Geotechnical Engineering		FARRINGTON HWY. WIDE., KAPOLEI GOLF COURSE RD. TO FORT WEAVER RD. EWA, OAHU, HAWAII			Log of Boring 201						
Other Tests	Moisture Content (%)	Dry Unit Weight (pcf)	Core Recovery (%)	RQD (%)	Penetration Resistance (blows/foot)	Pocket Pen. (tsf)	Depth (feet)	Sample Graphic	USCS	(Continued from previous plate)	Description
							80				Gray vesicular BASALT, moderately fractured, highly weathered, medium hard
							85				
							90				grades to slightly fractured, moderately weathered, hard
							95				grades to massive, slightly weathered
							100				
							105				Gray vesicular BASALT, moderately fractured, highly weathered, medium hard
							110				Gray vugular BASALT, slightly fractured, slightly weathered, hard
							115				grades to massive
							120				Gray vesicular BASALT, moderately fractured, moderately weathered, medium hard
							125				Boring terminated at 125.5 feet
							130				
							135				
							140				
							145				
							150				
Date Started: September 29, 1999		Date Completed: October 1, 1999		Water Level: ∇ Not Encountered							
Logged By: E. Shinsato		Drill Rig: CME-75		Drilling Method: 4" Auger & HQ Coring							
Total Depth: 125.5 feet		Driving Energy: 140 lb. wt., 30 in. drop									
Work Order: 4190-00(B)											

SURVEY PLOTTED BY	DATE
DRAWN BY	
DESIGNED BY	
QUANTITIES BY	
CHECKED BY	
ORIGINAL PLAN	
NOTE BOOK	
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*Robin M. Lim* April 30, 2022  
SIGNATURE EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

**Boring Logs - 10**

*FARRINGTON HIGHWAY WIDENING  
Kapolei Golf Course Road  
to Fort Weaver Road*

Scale: As Shown      Date: May 2021

SHEET No. G-19 OF - SHEETS

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	7101A-01-20	2021	319	-

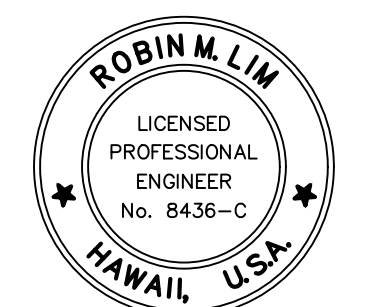
GEOLABS, INC. Geotechnical Engineering		FARRINGTON HWY. WIDE., KAPOLEI GOLF COURSE RD. TO FORT WEAVER RD. EWA, OAHU, HAWAII				Log of Boring 202					
Other Tests	Moisture Content (%)	Dry Unit Weight (pcf)	Core Recovery (%)	RQD (%)	Penetration Resistance (blows/foot)	Pocket Pen. (tsf)	Depth (feet)	Sample Graphic	USCS	Approximate Ground Surface Elevation (feet): 90 *	Description
	11				26				SM		8-inch ASPHALT CONCRETE
	14	89			26						Brown SILTY SAND with gravel, medium dense, damp (fill)
	12				16		5				
	11	90			31		10				
	11				23		15				
	22				13		20		CL		Brown SILTY CLAY with sand and gravel, stiff, slightly moist (residual)
	14	97			40/5" Ref.	>4.5	25				grades to hard, damp
	20				50/3" Ref.		30				grades to slightly moist
	20	101			40/1" Ref.	>4.5	35		CH		Reddish brown SILTY CLAY with traces of sand, hard, slightly moist (residual)
	26						40		SM		Reddish brown SILTY SAND, medium dense, wet (residual)
	32						45		GW		Reddish brown mottled with gray SANDY GRAVEL with silt, medium dense, wet (decomposed rock/saprolite)
	37	83			50/3" Ref.	>4.5	50				grades to dense
	21						55		SM		Grayish brown mottled with orange SILTY SAND with gravel, very dense, wet (saprolite)
	43						60		GM		Reddish brown SILTY GRAVEL with sand, medium dense, moist (saprolite)
	27	100	98		50/3" Ref.		65		SM		Dark gray SILTY SAND with gravel, dense, wet (saprolite)
							70				Gray BASALT GRAVEL with sand and some silt, very dense (saprolite/rock formation)
							75				Gray vesicular BASALT, slightly fractured, slightly to moderately weathered, hard

Date Started:	August 26, 1999	Water Level: ∇	68.5 ft. 08/27/1999 1645 HRS
Date Completed:	August 27, 1999		
Logged By:	N. Mitchell	Drill Rig:	CME-75
Total Depth:	88.8 feet	Drilling Method:	4" Auger & HQ Coring
Work Order:	4190-00(B)	Driving Energy:	140 lb. wt., 30 in. drop

GEOLABS, INC. Geotechnical Engineering		FARRINGTON HWY. WIDE., KAPOLEI GOLF COURSE RD. TO FORT WEAVER RD. EWA, OAHU, HAWAII				Log of Boring 202					
Other Tests	Moisture Content (%)	Dry Unit Weight (pcf)	Core Recovery (%)	RQD (%)	Penetration Resistance (blows/foot)	Pocket Pen. (tsf)	Depth (feet)	Sample Graphic	USCS	(Continued from previous plate)	Description
							80				
							85				grades to massive, slightly weathered
							90				Boring terminated at 88.8 feet
							95				
							100				
							105				
							110				
							115				
							120				
							125				
							130				
							135				
							140				
							145				
							150				

Date Started:	August 26, 1999	Water Level: ∇	68.5 ft. 08/27/1999 1645 HRS
Date Completed:	August 27, 1999		
Logged By:	N. Mitchell	Drill Rig:	CME-75
Total Depth:	88.8 feet	Drilling Method:	4" Auger & HQ Coring
Work Order:	4190-00(B)	Driving Energy:	140 lb. wt., 30 in. drop

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



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 Signature: [Signature] April 30, 2022  
 EXPIRATION DATE OF THE LICENSE

**STATE OF HAWAII**  
**DEPARTMENT OF TRANSPORTATION**  
**HIGHWAYS DIVISION**

**Boring Logs - 11**

**FARRINGTON HIGHWAY WIDENING**  
**Kapolei Golf Course Road**  
**to Fort Weaver Road**

Scale: As Shown      Date: May 2021

**SHEET No. G-20 OF - SHEETS**

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	7101A-01-20	2021	320	-

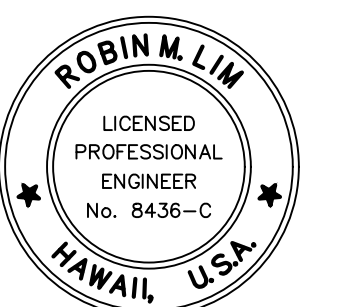
GEOLABS, INC. Geotechnical Engineering		FARRINGTON HWY. WIDE., KAPOLEI GOLF COURSE RD. TO FORT WEAVER RD. EWA, OAHU, HAWAII				Log of Boring 203					
Other Tests	Moisture Content (%)	Dry Unit Weight (pcf)	Core Recovery (%)	RQD (%)	Penetration Resistance (blows/foot)	Pocket Pen. (tsf)	Depth (feet)	Sample Graphic	USCS	Approximate Ground Surface Elevation (feet): 74.5 *	Description
	25	96			39				SM		Brown SILTY SAND with traces of clay, medium dense, moist (fill)
	25				9						grades to loose to medium dense
					41	3.8	5				grades to grayish brown with gravel, medium dense, slightly moist
							10				Gray vesicular BASALT, moderately fractured, slightly weathered, hard
		79	62				15		ML		Reddish brown CLAYEY SILT with some sand, very stiff, wet (saprolite)
					40/2" Ref.		20				
	28				46	>4.5	20		SM		Reddish brown mottled with light gray SILTY SAND with gravel, very dense, wet
	39				20/6" +50/3" Ref.		25				
	32				31/6" +50/3" Ref.		30				grades to grayish brown mottled with red
	20				50/5" Ref.		35				Gray vesicular BASALT with pockets of sandy silt, moderately to closely fractured, moderately to highly weathered, medium hard to soft
	40				22		40				grades to moderately to highly fractured
	33				50/3" Ref.		45				grades with pockets of sand, highly fractured, highly weathered, soft
	10				50/2" Ref.		50				grades to slightly fractured, slightly to moderately weathered
							55				grades to moderately fractured, moderately to highly weathered, hard
							60				grades to highly fractured
							65				grades to slightly fractured, slightly to moderately weathered
							70				grades to slightly to moderately fractured, moderately weathered
							75				grades to slightly fractured, slightly to moderately weathered

Date Started:	August 18, 1999	Water Level:	∇ Not Encountered
Date Completed:	August 20, 1999	Drill Rig:	MOBILE B-80
Logged By:	N. Mitchell	Drilling Method:	4" Auger & HQ Coring
Total Depth:	75 feet	Driving Energy:	140 lb. wt., 30 in. drop
Work Order:	4190-00(B)		

GEOLABS, INC. Geotechnical Engineering		FARRINGTON HWY. WIDE., KAPOLEI GOLF COURSE RD. TO FORT WEAVER RD. EWA, OAHU, HAWAII				Log of Boring 203					
Other Tests	Moisture Content (%)	Dry Unit Weight (pcf)	Core Recovery (%)	RQD (%)	Penetration Resistance (blows/foot)	Pocket Pen. (tsf)	Depth (feet)	Sample Graphic	USCS	(Continued from previous plate)	Description
											Boring terminated at 75 feet

Date Started:	August 18, 1999	Water Level:	∇ Not Encountered
Date Completed:	August 20, 1999	Drill Rig:	MOBILE B-80
Logged By:	N. Mitchell	Drilling Method:	4" Auger & HQ Coring
Total Depth:	75 feet	Driving Energy:	140 lb. wt., 30 in. drop
Work Order:	4190-00(B)		

SURVEY PLOTTED BY	DATE
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STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

**Boring Logs - 12**

FARRINGTON HIGHWAY WIDENING  
Kapolei Golf Course Road  
to Fort Weaver Road

Scale: As Shown Date: May 2021

SHEET No. G-21 OF - SHEETS

**GEOLABS, INC.**  
Geotechnical Engineering

FARRINGTON HIGHWAY IMPROVEMENTS  
KAPOLEI GOLF COURSE ROAD  
TO FORT WEAVER ROAD  
EWA, OAHU, HAWAII

Log of Boring  
204

Other Tests	Moisture Content (%)	Dry Unit Weight (pcf)	Core Recovery (%)	RQD (%)	Penetration Resistance (blows/foot)	Pocket Pen. (tsf)	Depth (feet)	Sample Graphic	USCS	Description
										Approximate Ground Surface Elevation (feet): 87 *
										(Continued from previous plate)
										Description
									CH	Dark brown SILTY CLAY with some cobbles (basaltic), very stiff, moist (fill)
	15				33				CH	Brown SILTY CLAY, very stiff to hard, moist (older alluvium)
	6	118			49		5		SM	Gray subrounded SILTY SAND (BASALTIC) with some gravel and cobbles, medium dense to dense, dry to moist (river channel deposit)
Sieve #200 = 21.2%	4				40		10		CL	Brown SANDY CLAY, hard, moist (older alluvium)
	16	94			50/4"	4.5	15			grades with sandy silt locally
	23				50/3"		20			grades to very stiff to hard
	21	101			50/2"	4.5	25			grades to reddish brown
Sieve #200 = 78.8%	21		22		70		30		CL	Reddish brown SANDY CLAY, very stiff to hard, moist (residual soil)
TXUU Su=4.4 ksf	29	95	43		42	4.3	35			grades with remnant vesicular structure locally
Sieve #200 = 76.1% LL=39 PI=15 TXUU Su=5.3 ksf	32		67		36		40		CL	Gray vesicular BASALT, moderately fractured, slightly weathered, medium hard to hard (pahoehoe basalt)
	39	78	60		22		45			grades to highly weathered locally
	29		90	28	66		50		SM	Gray and brown SILTY SAND (BASALTIC) with some gravel, very dense, moist (weathered basalt)
UC= 6910 psi			88	70		3.5	55			Gray GRAVEL (BASALTIC) with some cobbles and traces of sand and silt, medium dense to dense, moist (clinker)
UC= 5240 psi			85	50			60			
			8				65			
Sieve	15	36			29/6" +50/4"		70		GP	
							75			

Date Started: August 31, 2020  
Date Completed: September 1, 2020  
Logged By: S. Latronic  
Total Depth: 101.5 feet  
Work Order: 8135-00

Water Level: 75.1 ft. 08/01/2020 0850 HRS  
Drill Rig: CME-75DG1  
Drilling Method: 4" Solid-Stem Auger  
Driving Energy: 140 lb. wt., 30 in. drop

**GEOLABS, INC.**  
Geotechnical Engineering

FARRINGTON HIGHWAY IMPROVEMENTS  
KAPOLEI GOLF COURSE ROAD  
TO FORT WEAVER ROAD  
EWA, OAHU, HAWAII

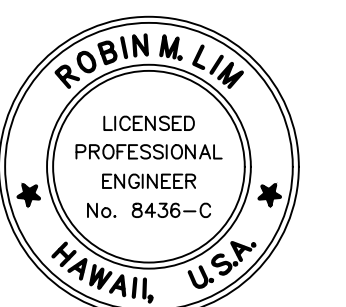
Log of Boring  
204

Other Tests	Moisture Content (%)	Dry Unit Weight (pcf)	Core Recovery (%)	RQD (%)	Penetration Resistance (blows/foot)	Pocket Pen. (tsf)	Depth (feet)	Sample Graphic	USCS	Description
										(Continued from previous plate)
										Description
									GP	Gray vugular BASALT, slightly to moderately fractured, unweathered to slightly weathered, very hard (a'a basalt)
#200 = 0.4%			97	40			80			
UC= 6080 psi			100	95			85			
UC= 10180 psi			100	90			90			
UC= 10030 psi			100	80			95			
			85	72			100			
							101.5			Boring terminated at 101.5 feet
							105			
							110			
							115			
							120			
							125			
							130			
							135			
							140			
							145			
							150			

Date Started: August 31, 2020  
Date Completed: September 1, 2020  
Logged By: S. Latronic  
Total Depth: 101.5 feet  
Work Order: 8135-00

Water Level: 75.5 ft. 08/01/2020 0850 HRS  
Drill Rig: CME-75DG1  
Drilling Method: 4" Solid-Stem Auger  
Driving Energy: 140 lb. wt., 30 in. drop

SURVEY PLOTTED BY	DATE
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STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

**Boring Logs - 13**

FARRINGTON HIGHWAY WIDENING  
Kapolei Golf Course Road  
to Fort Weaver Road

Scale: As Shown Date: May 2021

SHEET No. G-22 OF SHEETS

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	7101A-01-20	2021	322	-

GEOLABS, INC. Geotechnical Engineering		FARRINGTON HIGHWAY IMPROVEMENTS KAPOLEI GOLF COURSE ROAD TO FORT WEAVER ROAD EWA, OAHU, HAWAII				Log of Boring 205					
Other Tests	Moisture Content (%)	Dry Unit Weight (pcf)	Core Recovery (%)	RQD (%)	Penetration Resistance (blows/foot)	Pocket Pen. (tsf)	Depth (feet)	Sample Graphic	USCS	Description	
										Approximate Ground Surface Elevation (feet): 70 *	
	13				50/5"				MH	Brown CLAYEY SILT with some gravel (basaltic), very stiff to very stiff, moist (fill)	
	17				8		5		CL	Gray BOULDERS (BASALTIC), very dense, dry (fill) Brown SANDY CLAY, stiff, moist (older alluvium)	
Direct Shear Sieve #200 = 18.8%	7	117			45		10		SM	Brown SILTY SAND (BASALTIC) with traces of gravel, medium dense, moist (older alluvium)	
Sieve #200 = 25.0%	24				35		15		SC	Brown CLAYEY SAND with a little gravel, very stiff to hard, moist (residual soil)	
	28	93			50/2"	4.5	20		SM	Brownish gray SILTY SAND with some gravel (basaltic), hard, moist (residual soil)	
Sieve #200 = 18.6%	29				45		25				
LL=55 PI=22 TXUU Su=6.3 ksf UC=4200 psi	34	71			44	4.5	30		MH	Grayish brown CLAYEY SILT with some decomposed gravel and remnant vesicular structure, hard, moist (saprolite)	
	35				32		35			grades to highly weathered basalt	
			100	54			40		GW	Brownish gray to gray vesicular BASALT, moderately fractured, slightly to moderately weathered, medium hard to hard (pahoehoe basalt)	
			50	0			45			Gray subangular SANDY GRAVEL (BASALTIC) with some cobbles, medium dense to dense, moist (clinker)	
UC=10280 psi			97	52			50			Gray vugular BASALT, slightly to moderately fractured, unweathered to slightly weathered, hard to very hard (a'a basalt)	
UC=12270 psi			100	85			55				
UC=8250 psi			100	52			60				
			100	87			65				
UC=14950 psi			100	93			70				
			98	92			75				
Date Started: August 25, 2020		Date Completed: August 26, 2020		Water Level: 52.2 ft. 08/26/2020 1308 HRS		Drill Rig: CME-75DG1		Total Depth: 101 feet		Work Order: 8135-00	
Logged By: S. Latronic		Drilling Method: 4" Solid-Stem Auger & PQ Coring		Driving Energy: 140 lb. wt., 30 in. drop							

GEOLABS, INC. Geotechnical Engineering		FARRINGTON HIGHWAY IMPROVEMENTS KAPOLEI GOLF COURSE ROAD TO FORT WEAVER ROAD EWA, OAHU, HAWAII				Log of Boring 205					
Other Tests	Moisture Content (%)	Dry Unit Weight (pcf)	Core Recovery (%)	RQD (%)	Penetration Resistance (blows/foot)	Pocket Pen. (tsf)	Depth (feet)	Sample Graphic	USCS	Description	
										(Continued from previous plate)	
UC=1490 psi			95	67			80		GW	Brownish gray SANDY GRAVEL (BASALTIC), medium dense, wet (clinker)	
			100	70			85			Brownish gray to gray vesicular BASALT, moderately fractured, slightly to moderately weathered, medium hard to hard (pahoehoe basalt)	
			100	45			90			grades to dense and very hard locally	
			100	53			95				
			100	27			100			Boring terminated at 101 feet	
Date Started: August 25, 2020		Date Completed: August 26, 2020		Water Level: 52.2 ft. 08/26/2020 1308 HRS		Drill Rig: CME-75DG1		Total Depth: 101 feet		Work Order: 8135-00	
Logged By: S. Latronic		Drilling Method: 4" Solid-Stem Auger & PQ Coring		Driving Energy: 140 lb. wt., 30 in. drop							

SURVEY PLOTTED BY	DATE
DRAWN BY	
DESIGNED BY	
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ORIGINAL PLAN	
NOTE BOOK	
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*Robin M. Lim* April 30, 2022  
SIGNATURE EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

**Boring Logs - 14**

FARRINGTON HIGHWAY WIDENING  
Kapolei Golf Course Road  
to Fort Weaver Road

Scale: As Shown Date: May 2021

SHEET No. G-23 OF - SHEETS

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	7101A-01-20	2021	323	-

GEOLABS, INC. Geotechnical Engineering		FARRINGTON HIGHWAY IMPROVEMENTS KAPOLEI GOLF COURSE ROAD TO FORT WEAVER ROAD EWA, OAHU, HAWAII				Log of Boring 301				
Other Tests	Moisture Content (%)	Dry Unit Weight (pcf)	Core Recovery (%)	RQD (%)	Penetration Resistance (blows/foot)	Pocket Pen. (tsf)	Depth (feet)	Sample Graphic	USCS	Description
										Approximate Ground Surface Elevation (feet): 114 *
										4-inch ASPHALTIC CONCRETE
	9	112			22/6"	3.0			GM	Brownish gray SILTY GRAVEL (BASALTIC), dense, moist (base course)
	16	116			50/5"	4.5	5		MH	Brown CLAYEY SILT with some sand (coralline) and a little gravel (basaltic) with a little gravel (basaltic), very stiff, moist (fill)
	14				32/6"		10		MH	grades with construction debrisgrades with construction debris
TXUU Su=3.3 ksf	30	90			61/6"	4.5	15			Brown CLAYEY SILT, hard, moist (older alluvium)
	16				50/5"		20			Gray and brown subrounded SILTY GRAVEL (BASALTIC), dense, moist (river channel deposit)
LL=43 PI=20	20	105			50/3"	4.5	25		CL	Brown CLAYEY SILT, hard, moist (older alluvium)
	46				30/6"		30			grades with some gravel (basaltic) grades with cobbles (basaltic) grades with some gravel (basaltic) Reddish brown SANDY CLAY, hard, moist (older alluvium)
							35			
Date Started: September 14, 2020		Date Completed: September 14, 2020		Water Level: Not Encountered						
Logged By: S. Latronic		Total Depth: 31.4 feet		Work Order: 8135-00		Drill Rig: CME-75DR (Energy Transfer Ratio = 77.3%)		Drilling Method: 4" Solid-Stem Auger		Driving Energy: 140 lb. wt., 30 in. drop

GEOLABS, INC. Geotechnical Engineering		FARRINGTON HIGHWAY IMPROVEMENTS KAPOLEI GOLF COURSE ROAD TO FORT WEAVER ROAD EWA, OAHU, HAWAII				Log of Boring 302				
Other Tests	Moisture Content (%)	Dry Unit Weight (pcf)	Core Recovery (%)	RQD (%)	Penetration Resistance (blows/foot)	Pocket Pen. (tsf)	Depth (feet)	Sample Graphic	USCS	Description
										Approximate Ground Surface Elevation (feet): 120 *
										6-inch ASPHALTIC CONCRETE
	7	111							GM	Gray SILTY GRAVEL (BASALTIC) with a little sand, dense, moist (base course)
	20				33		5		SM	Tan SILTY SAND (CORALLINE) with some gravel, medium dense, moist (fill)
					38		10		CL	Reddish brown SANDY CLAY with traces of gravel (basaltic), hard, moist (older alluvium)
							15			Boring terminated at 5 feet
							20			
							25			
							30			
							35			
Date Started: September 14, 2020		Date Completed: September 14, 2020		Water Level: Not Encountered						
Logged By: S. Latronic		Total Depth: 5 feet		Work Order: 8135-00		Drill Rig: CME-75DR (Energy Transfer Ratio = 77.3%)		Drilling Method: 4" Solid-Stem Auger		Driving Energy: 140 lb. wt., 30 in. drop

GEOLABS, INC. Geotechnical Engineering		FARRINGTON HIGHWAY IMPROVEMENTS KAPOLEI GOLF COURSE ROAD TO FORT WEAVER ROAD EWA, OAHU, HAWAII				Log of Boring 301				
Other Tests	Moisture Content (%)	Dry Unit Weight (pcf)	Core Recovery (%)	RQD (%)	Penetration Resistance (blows/foot)	Pocket Pen. (tsf)	Depth (feet)	Sample Graphic	USCS	Description
										(Continued from previous plate)
										Boring terminated at 31.4 feet
							40			* Elevations estimated from Topographic Survey Map downloaded from R. M. Towill Corporation website on June 23, 2020.
							45			
							50			
							55			
							60			
							65			
							70			
Date Started: September 14, 2020		Date Completed: September 14, 2020		Water Level: Not Encountered						
Logged By: S. Latronic		Total Depth: 31.4 feet		Work Order: 8135-00		Drill Rig: CME-75DR (Energy Transfer Ratio = 77.3%)		Drilling Method: 4" Solid-Stem Auger		Driving Energy: 140 lb. wt., 30 in. drop

GEOLABS, INC. Geotechnical Engineering		FARRINGTON HIGHWAY IMPROVEMENTS KAPOLEI GOLF COURSE ROAD TO FORT WEAVER ROAD EWA, OAHU, HAWAII				Log of Boring 303				
Other Tests	Moisture Content (%)	Dry Unit Weight (pcf)	Core Recovery (%)	RQD (%)	Penetration Resistance (blows/foot)	Pocket Pen. (tsf)	Depth (feet)	Sample Graphic	USCS	Description
										Approximate Ground Surface Elevation (feet): 126 *
										8-inch ASPHALTIC CONCRETE
LL=50 PI=30	24	103			21	4.0			GW	Gray SANDY GRAVEL (BASALTIC), dense, moist (base course)
	22				13		5		MH	Dark brown CLAYEY SILT with some gravel (basaltic), very stiff, moist (fill)
							10		CL	Reddish brown SANDY CLAY, very stiff to hard, moist (older alluvium)
							15			Boring terminated at 5 feet
							20			
							25			
							30			
							35			
Date Started: September 14, 2020		Date Completed: September 14, 2020		Water Level: Not Encountered						
Logged By: S. Latronic		Total Depth: 5 feet		Work Order: 8135-00		Drill Rig: CME-75DR (Energy Transfer Ratio = 77.3%)		Drilling Method: 4" Solid-Stem Auger		Driving Energy: 140 lb. wt., 30 in. drop

SURVEY PLOTTED BY	DATE
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DESIGNED BY	
QUANTITIES BY	
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Signature: *Robin M. Lim* April 30, 2022  
EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

**Boring Logs - 15**

FARRINGTON HIGHWAY WIDENING  
Kapolei Golf Course Road  
to Fort Weaver Road

Scale: As Shown Date: May 2021

SHEET No. G-24 OF - SHEETS



FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	7101A-01-20	2021	324	-

GEOLABS, INC. Geotechnical Engineering		FARRINGTON HIGHWAY IMPROVEMENTS KAPOLEI GOLF COURSE ROAD TO FORT WEAVER ROAD EWA, OAHU, HAWAII			Log of Boring 304					
Other Tests	Moisture Content (%)	Dry Unit Weight (pcf)	Core Recovery (%)	RQD (%)	Penetration Resistance (blows/foot)	Pocket Pen. (tsf)	Depth (feet)	Sample Graphic	USCS	Description
	12	97			19				SM	Approximate Ground Surface Elevation (feet): 134 *
	16				13				CL	Grayish brown SILTY SAND with some gravel (basaltic), medium dense, moist (fill)
	16	72			29/6"		5			Reddish brown SANDY CLAY with a little gravel, medium stiff, moist (older alluvium)
			80		25/1"		10			Gray with brown subrounded COBBLES (BASALTIC) with some sand and silt, dense, moist (older alluvium)
	35	94	57	50	25/1"		15			
			97	12	10/0" Ref.		20			Gray BASALT, closely to moderately fractured, slightly weathered, hard (basalt formation)
			95	13			25			
							30			
							35			Boring terminated at 31 feet
Date Started: September 18, 2020		Date Completed: September 18, 2020		Water Level: Not Encountered						
Logged By: B. Aiu		Drill Rig: CME-75DG2 (Energy Transfer Ratio = 91.5%)		Drilling Method: 4" Solid-Stem Auger & PQ Coring						
Total Depth: 31 feet		Work Order: 8135-00		Driving Energy: 140 lb. wt., 30 in. drop						

GEOLABS, INC. Geotechnical Engineering		FARRINGTON HIGHWAY IMPROVEMENTS KAPOLEI GOLF COURSE ROAD TO FORT WEAVER ROAD EWA, OAHU, HAWAII			Log of Boring 306					
Other Tests	Moisture Content (%)	Dry Unit Weight (pcf)	Core Recovery (%)	RQD (%)	Penetration Resistance (blows/foot)	Pocket Pen. (tsf)	Depth (feet)	Sample Graphic	USCS	Description
	20	105			32	4.5			GP	Approximate Ground Surface Elevation (feet): 129 *
	21				8				MH	7-inch ASPHALTIC CONCRETE
	22	105			20	4.5	5		CL	Gray coarse GRAVEL (BASALTIC) with traces of silt, moist (base course)
							10			Reddish brown CLAYEY SILT with traces of fine gravel, very stiff to hard, moist (fill)
							15			Reddish brown SANDY CLAY, very stiff to hard, moist (older alluvium)
							20			Boring terminated at 6.5 feet
							25			
							30			
							35			
Date Started: September 15, 2020		Date Completed: September 15, 2020		Water Level: Not Encountered						
Logged By: S. Latronic		Drill Rig: CME-75DR (Energy Transfer Ratio = 77.3%)		Drilling Method: 4" Solid-Stem Auger						
Total Depth: 6.5 feet		Work Order: 8135-00		Driving Energy: 140 lb. wt., 30 in. drop						

GEOLABS, INC. Geotechnical Engineering		FARRINGTON HIGHWAY IMPROVEMENTS KAPOLEI GOLF COURSE ROAD TO FORT WEAVER ROAD EWA, OAHU, HAWAII			Log of Boring 305					
Other Tests	Moisture Content (%)	Dry Unit Weight (pcf)	Core Recovery (%)	RQD (%)	Penetration Resistance (blows/foot)	Pocket Pen. (tsf)	Depth (feet)	Sample Graphic	USCS	Description
	12	87			29	4.5			CH	Approximate Ground Surface Elevation (feet): 118 *
	15				19				CL	Reddish brown SILTY CLAY with some sand, gravel, and traces of organic material, very stiff, dry (cultivation zone)
	29	80			46		5			Reddish brown SANDY CLAY with traces of gravel, very stiff, dry (older alluvium)
	18				61		10			grades to very hard
					50/4"		15			
	16				45/6"		20			+40/2"
	17	106			75/6"		25			
	21				70/6"		30		CH	Reddish brown SILTY CLAY, very hard, dry (older alluvium)
							35			Boring terminated at 31 feet
Date Started: September 12, 2020		Date Completed: September 12, 2020		Water Level: Not Encountered						
Logged By: D. Gremminger		Drill Rig: CME-75DG1 (Energy Transfer Ratio = 80.3%)		Drilling Method: 4" Solid-Stem Auger						
Total Depth: 31 feet		Work Order: 8135-00		Driving Energy: 140 lb. wt., 30 in. drop						

GEOLABS, INC. Geotechnical Engineering		FARRINGTON HIGHWAY IMPROVEMENTS KAPOLEI GOLF COURSE ROAD TO FORT WEAVER ROAD EWA, OAHU, HAWAII			Log of Boring 307					
Other Tests	Moisture Content (%)	Dry Unit Weight (pcf)	Core Recovery (%)	RQD (%)	Penetration Resistance (blows/foot)	Pocket Pen. (tsf)	Depth (feet)	Sample Graphic	USCS	Description
	16	79			35	4.5			MH	Approximate Ground Surface Elevation (feet): 127 *
	15				15				CL	Reddish brown CLAYEY SILT with a little sand and traces of organic material, very stiff, dry (cultivation zone)
	29	74			15	2.5	5			Reddish brown SANDY CLAY, medium stiff to stiff, dry (older alluvium)
	17				43		10			grades to very stiff to hard
					65/4"		15			grades to very hard
	17				25/1"		20			
	17	93			25/1"	4.5	25			
	13				100		30			grades with a little sand and gravel (basaltic)
							35			Boring terminated at 31.5 feet
Date Started: September 12, 2020		Date Completed: September 12, 2020		Water Level: Not Encountered						
Logged By: D. Gremminger		Drill Rig: CME-75DG1 (Energy Transfer Ratio = 80.3%)		Drilling Method: 4" Solid-Stem Auger						
Total Depth: 31.5 feet		Work Order: 8135-00		Driving Energy: 140 lb. wt., 30 in. drop						

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*Robin M. Lim* April 30, 2022  
SIGNATURE EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

**Boring Logs - 16**

FARRINGTON HIGHWAY WIDENING  
Kapolei Golf Course Road  
to Fort Weaver Road

Scale: As Shown Date: May 2021

SHEET No. G-25 OF - SHEETS

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	7101A-01-20	2021	325	-

G		GEOLABS, INC. Geotechnical Engineering		FARRINGTON HIGHWAY IMPROVEMENTS KAPOLEI GOLF COURSE ROAD TO FORT WEAVER ROAD EWA, OAHU, HAWAII			Log of Boring 308			
Other Tests	Moisture Content (%)	Dry Unit Weight (pcf)	Core Recovery (%)	RQD (%)	Penetration Resistance (blows/foot)	Pocket Pen. (tsf)	Depth (feet)	Sample Graphic	USCS	Approximate Ground Surface Elevation (feet): 133 *
	Description									
	19 11	98			59 21	4.5	5	GP MH	6.5-inch ASPHALTIC CONCRETE Gray medium to coarse GRAVEL (BASALTIC), dense to very dense, moist (base course) Reddish brown CLAYEY SILT with some gravel (basaltic), very stiff to hard, moist (fill) grades with more gravel Boring terminated at 5 feet	
							10			
							15			
							20			
							25			
							30			
							35			
Date Started: September 15, 2020				Water Level: ▼ Not Encountered						
Date Completed: September 15, 2020										
Logged By: S. Latronic				Drill Rig: CME-75DR (Energy Transfer Ratio = 77.3%)						
Total Depth: 5 feet				Drilling Method: 4" Solid-Stem Auger						
Work Order: 8135-00				Driving Energy: 140 lb. wt., 30 in. drop						

G		GEOLABS, INC. Geotechnical Engineering		FARRINGTON HIGHWAY IMPROVEMENTS KAPOLEI GOLF COURSE ROAD TO FORT WEAVER ROAD EWA, OAHU, HAWAII			Log of Boring 310			
Other Tests	Moisture Content (%)	Dry Unit Weight (pcf)	Core Recovery (%)	RQD (%)	Penetration Resistance (blows/foot)	Pocket Pen. (tsf)	Depth (feet)	Sample Graphic	USCS	Approximate Ground Surface Elevation (feet): 138 *
	Description									
	8 15	101			75/4" 22		5	GP CH	Brown and gray SANDY GRAVEL (BASALTIC), very dense, moist (fill) Brown SILTY CLAY with some sand (basaltic), stiff, moist (alluvium)	
	23	103			35		10	ML	Gray with brown mottling SANDY SILT, very stiff, moist (saprolite)	
	19				36/6" +50/5"		15			Gray BASALT, closely fractured, slightly weathered, hard (basalt formation)
				100	23		20			
				70	44		25		SP	Grayish brown GRAVELLY SAND (BASALTIC), medium dense, moist (clinker)
				61	0		30		GP	Brownish gray BASALT, severely to closely fractured, highly weathered, medium hard to hard (basalt formation)
	13				40		35			Reddish brown SANDY GRAVEL (BASALTIC), medium dense, moist (clinker) Boring terminated at 31.5 feet
Date Started: September 17, 2020				Water Level: ▼ Not Encountered						
Date Completed: September 17, 2020										
Logged By: B. Aiu				Drill Rig: CME-75DG2 (Energy Transfer Ratio = 91.5%)						
Total Depth: 31.5 feet				Drilling Method: 4" Solid-Stem Auger & PQ Coring						
Work Order: 8135-00				Driving Energy: 140 lb. wt., 30 in. drop						

G		GEOLABS, INC. Geotechnical Engineering		FARRINGTON HIGHWAY IMPROVEMENTS KAPOLEI GOLF COURSE ROAD TO FORT WEAVER ROAD EWA, OAHU, HAWAII			Log of Boring 309			
Other Tests	Moisture Content (%)	Dry Unit Weight (pcf)	Core Recovery (%)	RQD (%)	Penetration Resistance (blows/foot)	Pocket Pen. (tsf)	Depth (feet)	Sample Graphic	USCS	Approximate Ground Surface Elevation (feet): 125 *
	Description									
	16 17	88			27 45	4.0	5	MH CH	Brown CLAYEY SILT with some agricultural debris, stiff to very stiff, moist (fill) Reddish brown SILTY CLAY, very stiff to hard, moist (older alluvium)	
	23	97			82	4.5	10	CL	Reddish brown SANDY CLAY, very stiff to hard, moist (older alluvium)	
	18				49/6" +50/3"		15			grades to brown
	18				50/1"		20			
	21 21	77			50/5" 50/6" +10/0" Ref. 85	4.5	25			
	20						30			
	21	88			50/6"	4.5	35			Boring terminated at 31 feet
Date Started: September 11, 2020				Water Level: ▼ Not Encountered						
Date Completed: September 11, 2020										
Logged By: J. cline				Drill Rig: CME-75DG1 (Energy Transfer Ratio = 80.3%)						
Total Depth: 31 feet				Drilling Method: 4" Solid-Stem Auger						
Work Order: 8135-00				Driving Energy: 140 lb. wt., 30 in. drop						

G		GEOLABS, INC. Geotechnical Engineering		FARRINGTON HIGHWAY IMPROVEMENTS KAPOLEI GOLF COURSE ROAD TO FORT WEAVER ROAD EWA, OAHU, HAWAII			Log of Boring 311			
Other Tests	Moisture Content (%)	Dry Unit Weight (pcf)	Core Recovery (%)	RQD (%)	Penetration Resistance (blows/foot)	Pocket Pen. (tsf)	Depth (feet)	Sample Graphic	USCS	Approximate Ground Surface Elevation (feet): 135 *
	Description									
	23 21	118			48 29	4.5	5	GP CH CL	7.5-inch ASPHALTIC CONCRETE Gray medium to coarse GRAVEL (BASALTIC), dense, moist (base course) Reddish brown SILTY CLAY with traces of gravel (basaltic), very stiff to hard, moist (fill) Reddish brown SANDY CLAY with traces of gravel (basaltic), very stiff to hard, moist (older alluvium)	
							10			Boring terminated at 5 feet
							15			
							20			
							25			
							30			
							35			
Date Started: September 15, 2020				Water Level: ▼ Not Encountered						
Date Completed: September 15, 2020										
Logged By: S. Latronic				Drill Rig: CME-75DR (Energy Transfer Ratio = 77.3%)						
Total Depth: 5 feet				Drilling Method: 4" Solid-Stem Auger						
Work Order: 8135-00				Driving Energy: 140 lb. wt., 30 in. drop						

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*Robin M. Lim* April 30, 2022  
SIGNATURE EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

**Boring Logs - 17**

FARRINGTON HIGHWAY WIDENING  
Kapolei Golf Course Road  
to Fort Weaver Road

Scale: As Shown Date: May 2021

SHEET No. G-26 OF - SHEETS



FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	7101A-01-20	2021	327	-

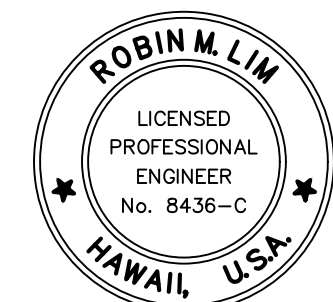
GEOLABS, INC. Geotechnical Engineering		FARRINGTON HIGHWAY IMPROVEMENTS KAPOLEI GOLF COURSE ROAD TO FORT WEAVER ROAD EWA, OAHU, HAWAII			Log of Boring 316						
Other Tests	Moisture Content (%)	Dry Unit Weight (pcf)	Core Recovery (%)	RQD (%)	Penetration Resistance (blows/foot)	Pocket Pen. (tsf)	Depth (feet)	Sample Graphic	USCS	Approximate Ground Surface Elevation (feet): 141 *	
	Description										
LL=34 PI=13	15	99			53	4.5			CH	Brown SILTY CLAY with a little gravel (basaltic), very stiff to hard, moist (fill)	
	16				34				CH	Brown SILTY CLAY with traces of gravel (basaltic), very stiff to hard, moist (older alluvium)	
	23	89			46	4.5	5		CL	Brown SANDY CLAY, hard, moist (older alluvium)	
	21				62		10				
	21	106			50/5"	4.5	15				
	22				34/6" +50/5"		20				
	19	107			50/3"	4.5	25				
	23				54		30				Boring terminated at 31.5 feet
Date Started: September 22, 2020		Water Level: ▼ Not Encountered		Date Completed: September 22, 2020		Drill Rig: CME-45C TRUCK (Energy Transfer Ratio = 78%)		Total Depth: 31.5 feet		Driving Energy: 140 lb. wt., 30 in. drop	
Logged By: S. Latronic		Drilling Method: 4" Solid-Stem Auger		Work Order: 8135-00		Driving Energy: 140 lb. wt., 30 in. drop					

GEOLABS, INC. Geotechnical Engineering		FARRINGTON HIGHWAY IMPROVEMENTS KAPOLEI GOLF COURSE ROAD TO FORT WEAVER ROAD EWA, OAHU, HAWAII			Log of Boring 318						
Other Tests	Moisture Content (%)	Dry Unit Weight (pcf)	Core Recovery (%)	RQD (%)	Penetration Resistance (blows/foot)	Pocket Pen. (tsf)	Depth (feet)	Sample Graphic	USCS	Approximate Ground Surface Elevation (feet): 155 *	
	Description										
Sieve #200 = 25.8%	9	119			54				GW	5-inch ASPHALTIC CONCRETE	
	24				13		5		GM	Gray SANDY GRAVEL (BASALTIC), dense, moist (base course)	
									CL	Tan SILTY GRAVEL (CORALLINE) with some sand, medium dense to dense, moist (fill)	
										Brown SANDY CLAY, very stiff, moist (older alluvium)	
										Boring terminated at 5 feet	
Date Started: September 16, 2020		Water Level: ▼ Not Encountered		Date Completed: September 16, 2020		Drill Rig: CME-75DR (Energy Transfer Ratio = 77.3%)		Total Depth: 5 feet		Driving Energy: 140 lb. wt., 30 in. drop	
Logged By: S. Latronic		Drilling Method: 4" Solid-Stem Auger		Work Order: 8135-00		Driving Energy: 140 lb. wt., 30 in. drop					

GEOLABS, INC. Geotechnical Engineering		FARRINGTON HIGHWAY IMPROVEMENTS KAPOLEI GOLF COURSE ROAD TO FORT WEAVER ROAD EWA, OAHU, HAWAII			Log of Boring 317						
Other Tests	Moisture Content (%)	Dry Unit Weight (pcf)	Core Recovery (%)	RQD (%)	Penetration Resistance (blows/foot)	Pocket Pen. (tsf)	Depth (feet)	Sample Graphic	USCS	Approximate Ground Surface Elevation (feet): 148 *	
	Description										
	24	90			40	3.0			GW	8-inch ASPHALTIC CONCRETE	
	23				12		5		CH	Gray SANDY GRAVEL (BASALTIC), dense, moist (base course)	
									CL	Brown SILTY CLAY with some gravel (basaltic), very stiff, moist (fill)	
								10			Brown SANDY CLAY, very stiff, moist (older alluvium)
								15			Boring terminated at 5 feet
Date Started: September 16, 2020		Water Level: ▼ Not Encountered		Date Completed: September 16, 2020		Drill Rig: CME-75DR (Energy Transfer Ratio = 77.3%)		Total Depth: 5 feet		Driving Energy: 140 lb. wt., 30 in. drop	
Logged By: S. Latronic		Drilling Method: 4" Solid-Stem Auger		Work Order: 8135-00		Driving Energy: 140 lb. wt., 30 in. drop					

GEOLABS, INC. Geotechnical Engineering		FARRINGTON HIGHWAY IMPROVEMENTS KAPOLEI GOLF COURSE ROAD TO FORT WEAVER ROAD EWA, OAHU, HAWAII			Log of Boring 319						
Other Tests	Moisture Content (%)	Dry Unit Weight (pcf)	Core Recovery (%)	RQD (%)	Penetration Resistance (blows/foot)	Pocket Pen. (tsf)	Depth (feet)	Sample Graphic	USCS	Approximate Ground Surface Elevation (feet): 157 *	
	Description										
LL=57 PI=24 TXUU Su=8.5 ksf	17	103			46	4.5			CH	Brown SILTY CLAY, very stiff to hard, moist (older alluvium)	
	13				35		5			grades with some gravel (basaltic)	
	8				51				MH	Brown CLAYEY SILT, very stiff to hard, moist (older alluvium)	
	22	102			44/6" +50/5"	4.0	10			grades with silty sand	
	19				41		15		SM	Brown SILTY SAND (BASALTIC) with a little gravel, dense, moist (older alluvium)	
	4		20		25/1"		20			Gray subrounded GRAVELLY COBBLES (BASALT), very dense, dry (river channel deposit)	
	27		61		50/5"		25		ML	Reddish brown SANDY SILT with some siltstone cobbles, hard, moist (older alluvium)	
	24				36/6" +50/2"		30			Boring terminated at 32.2 feet	
Date Started: August 27, 2020		Water Level: ▼ Not Encountered		Date Completed: August 27, 2020		Drill Rig: CME-75DG1 (Energy Transfer Ratio = 80.3%)		Total Depth: 32.2 feet		Driving Energy: 140 lb. wt., 30 in. drop	
Logged By: S. Latronic		Drilling Method: 4" Solid-Stem Auger & PQ Coring		Work Order: 8135-00		Driving Energy: 140 lb. wt., 30 in. drop					

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Signature: *Robin M. Lim* April 30, 2022  
EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

**Boring Logs - 19**

FARRINGTON HIGHWAY WIDENING  
Kapolei Golf Course Road  
to Fort Weaver Road

Scale: As Shown Date: May 2021



FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	7101A-01-20	2021	329	-

GEOLABS, INC. Geotechnical Engineering		FARRINGTON HIGHWAY IMPROVEMENTS KAPOLEI GOLF COURSE ROAD TO FORT WEAVER ROAD EWA, OAHU, HAWAII			Log of Boring 324						
Other Tests	Moisture Content (%)	Dry Unit Weight (pcf)	Core Recovery (%)	RQD (%)	Penetration Resistance (blows/foot)	Pocket Pen. (tsf)	Depth (feet)	Sample Graphic	USCS	Description	
	10	92			58				GW	9-inch ASPHALTIC CONCRETE	
	14				16		5		GM	Gray medium to coarse SANDY GRAVEL (BASALTIC), very dense, moist (base course)	
									CL	Brownish gray SILTY GRAVEL (BASALTIC), medium dense to dense, moist (fill)	
							10			Brown SANDY CLAY with traces of gravel (basaltic), stiff to very stiff, moist (older alluvium)	
							15			Boring terminated at 4.75 feet	
							20				
							25				
							30				
							35				
Date Started: September 17, 2020						Water Level: Not Encountered					
Date Completed: September 17, 2020											
Logged By: S. Latronic						Drill Rig: CME-75DR (Energy Transfer Ratio = 77.3%)					
Total Depth: 4.75 feet						Drilling Method: 4" Solid-Stem Auger					
Work Order: 8135-00						Driving Energy: 140 lb. wt., 30 in. drop					

GEOLABS, INC. Geotechnical Engineering		FARRINGTON HIGHWAY IMPROVEMENTS KAPOLEI GOLF COURSE ROAD TO FORT WEAVER ROAD EWA, OAHU, HAWAII			Log of Boring 326						
Other Tests	Moisture Content (%)	Dry Unit Weight (pcf)	Core Recovery (%)	RQD (%)	Penetration Resistance (blows/foot)	Pocket Pen. (tsf)	Depth (feet)	Sample Graphic	USCS	Description	
	25	94			17	4.5			MH	Brown CLAYEY SILT, very stiff to hard, moist (fill)	
	25				12		5		CL	Brown SANDY CLAY, very stiff to hard, moist (older alluvium)	
	26	97			27	4.5				grades with clayey silt pockets locally	
LL=39 PI=19	22				57		10				
	26	87			69	4.5	15			grades to hard	
Su=3.2 ksf	20				45/6" +50/5"		20				
	21	81			50/6" +10/0" Ref. 10/0"	4.5	25				
	17						30			Boring terminated at 30.5 feet	
							35				
Date Started: September 4, 2020						Water Level: Not Encountered					
Date Completed: September 4, 2020											
Logged By: Joy Cline						Drill Rig: CME-75DG1 (Energy Transfer Ratio = 80.3%)					
Total Depth: 30.5 feet						Drilling Method: 4" Solid-Stem Auger					
Work Order: 8135-00						Driving Energy: 140 lb. wt., 30 in. drop					

GEOLABS, INC. Geotechnical Engineering		FARRINGTON HIGHWAY IMPROVEMENTS KAPOLEI GOLF COURSE ROAD TO FORT WEAVER ROAD EWA, OAHU, HAWAII			Log of Boring 325						
Other Tests	Moisture Content (%)	Dry Unit Weight (pcf)	Core Recovery (%)	RQD (%)	Penetration Resistance (blows/foot)	Pocket Pen. (tsf)	Depth (feet)	Sample Graphic	USCS	Description	
	22	99			22	4.5			GW	8-inch ASPHALTIC CONCRETE	
	22				10		5		CL	Gray coarse SANDY GRAVEL (BASALTIC), very dense, moist (base course)	
										Brown SANDY CLAY, very stiff to hard, moist (older alluvium)	
							10			Boring terminated at 6 feet	
							15				
							20				
							25				
							30				
							35				
Date Started: September 17, 2020						Water Level: Not Encountered					
Date Completed: September 17, 2020											
Logged By: S. Latronic						Drill Rig: CME-75DR (Energy Transfer Ratio = 77.3%)					
Total Depth: 6 feet						Drilling Method: 4" Solid-Stem Auger					
Work Order: 8135-00						Driving Energy: 140 lb. wt., 30 in. drop					

GEOLABS, INC. Geotechnical Engineering		FARRINGTON HIGHWAY IMPROVEMENTS KAPOLEI GOLF COURSE ROAD TO FORT WEAVER ROAD EWA, OAHU, HAWAII			Log of Boring 327						
Other Tests	Moisture Content (%)	Dry Unit Weight (pcf)	Core Recovery (%)	RQD (%)	Penetration Resistance (blows/foot)	Pocket Pen. (tsf)	Depth (feet)	Sample Graphic	USCS	Description	
	20	90			34	3.5			GW	7.5-inch ASPHALTIC CONCRETE	
	43				13		5		SM	Gray coarse SANDY GRAVEL (BASALTIC), very dense, moist (base course)	
									CH	Brownish gray SILTY SAND (BASALTIC), medium dense, moist (fill)	
									CL	Brown SILTY CLAY, very stiff, moist (older alluvium)	
							10			Brown SANDY CLAY, very stiff, moist (older alluvium)	
							15			Boring terminated at 5.5 feet	
							20				
							25				
							30				
							35				
Date Started: September 17, 2020						Water Level: Not Encountered					
Date Completed: September 17, 2020											
Logged By: S. Latronic						Drill Rig: CME-75DR (Energy Transfer Ratio = 77.3%)					
Total Depth: 5.5 feet						Drilling Method: 4" Solid-Stem Auger					
Work Order: 8135-00						Driving Energy: 140 lb. wt., 30 in. drop					

SURVEY PLOTTED BY	DATE
DRAWN BY	
DESIGNED BY	
QUANTITIES BY	
CHECKED BY	
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NOTE BOOK	
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SIGNATURE: *Robin M. Lim* EXPIRATION DATE OF THE LICENSE: April 30, 2022

STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

**Boring Logs - 21**

**FARRINGTON HIGHWAY WIDENING**  
**Kapolei Golf Course Road**  
**to Fort Weaver Road**

Scale: As Shown Date: May 2021

SHEET No. G-30 OF - SHEETS

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	7101A-01-20	2021	330	-

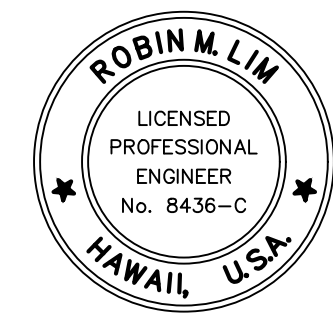
		<b>GEOLABS, INC.</b> Geotechnical Engineering		FARRINGTON HIGHWAY IMPROVEMENTS KAPOLEI GOLF COURSE ROAD TO FORT WEAVER ROAD EWA, OAHU, HAWAII		Log of Boring 328
Other Tests	Moisture Content (%)	Dry Unit Weight (pcf)	Core Recovery (%)	RQD (%)	Penetration Resistance (blows/foot)	Pocket Pen. (tsf)
	19 19	101			68 36	4.5
Approximate Ground Surface Elevation (feet): 174.5 *						
Description						
						5
						10
						15
						20
						25
						30
						35
Date Started: September 17, 2020						
Date Completed: September 17, 2020						
Logged By: S. Latronic						
Total Depth: 6 feet						
Work Order: 8135-00						
Water Level: Not Encountered						
Drill Rig: CME-75DR (Energy Transfer Ratio = 77.3%)						
Drilling Method: 4" Solid-Stem Auger						
Driving Energy: 140 lb. wt., 30 in. drop						

		<b>GEOLABS, INC.</b> Geotechnical Engineering		FARRINGTON HIGHWAY IMPROVEMENTS KAPOLEI GOLF COURSE ROAD TO FORT WEAVER ROAD EWA, OAHU, HAWAII		Log of Boring 330
Other Tests	Moisture Content (%)	Dry Unit Weight (pcf)	Core Recovery (%)	RQD (%)	Penetration Resistance (blows/foot)	Pocket Pen. (tsf)
	19 20	83			73 21	4.5
Approximate Ground Surface Elevation (feet): 174.5 *						
Description						
						5
						10
						15
						20
						25
						30
						35
Date Started: September 17, 2020						
Date Completed: September 17, 2020						
Logged By: S. Latronic						
Total Depth: 6 feet						
Work Order: 8135-00						
Water Level: Not Encountered						
Drill Rig: CME-75DR (Energy Transfer Ratio = 77.3%)						
Drilling Method: 4" Solid-Stem Auger						
Driving Energy: 140 lb. wt., 30 in. drop						

		<b>GEOLABS, INC.</b> Geotechnical Engineering		FARRINGTON HIGHWAY IMPROVEMENTS KAPOLEI GOLF COURSE ROAD TO FORT WEAVER ROAD EWA, OAHU, HAWAII		Log of Boring 329
Other Tests	Moisture Content (%)	Dry Unit Weight (pcf)	Core Recovery (%)	RQD (%)	Penetration Resistance (blows/foot)	Pocket Pen. (tsf)
	18 22 29	87 93			38 23 35	4.5 4.5
Approximate Ground Surface Elevation (feet): 173 *						
Description						
						5
						10
						15
						20
						25
						30
						35
Date Started: September 3, 2020						
Date Completed: September 3, 2020						
Logged By: Joy Cline						
Total Depth: 30.9 feet						
Work Order: 8135-00						
Water Level: Not Encountered						
Drill Rig: CME-75DG1 (Energy Transfer Ratio = 80.3%)						
Drilling Method: 4" Solid-Stem Auger						
Driving Energy: 140 lb. wt., 30 in. drop						

		<b>GEOLABS, INC.</b> Geotechnical Engineering		FARRINGTON HIGHWAY IMPROVEMENTS KAPOLEI GOLF COURSE ROAD TO FORT WEAVER ROAD EWA, OAHU, HAWAII		Log of Boring 331
Other Tests	Moisture Content (%)	Dry Unit Weight (pcf)	Core Recovery (%)	RQD (%)	Penetration Resistance (blows/foot)	Pocket Pen. (tsf)
	21 24	93			55 32	4.5
Approximate Ground Surface Elevation (feet): 174 *						
Description						
						5
						10
						15
						20
						25
						30
						35
Date Started: September 21, 2020						
Date Completed: September 21, 2020						
Logged By: S. Latronic						
Total Depth: 5 feet						
Work Order: 8135-00						
Water Level: Not Encountered						
Drill Rig: CME-45C TRUCK (Energy Transfer Ratio = 78%)						
Drilling Method: 4" Solid-Stem Auger						
Driving Energy: 140 lb. wt., 30 in. drop						

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*Robin M. Lim* April 30, 2022  
SIGNATURE EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

**Boring Logs - 22**

FARRINGTON HIGHWAY WIDENING  
Kapolei Golf Course Road  
to Fort Weaver Road

Scale: As Shown Date: May 2021

SHEET No. G-31 OF - SHEETS

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	7101A-01-20	2021	331	-

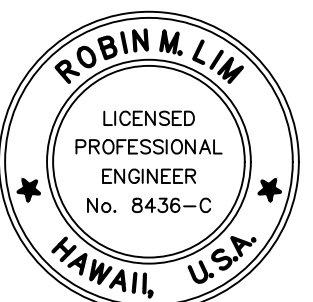
GEOLABS, INC. Geotechnical Engineering		FARRINGTON HIGHWAY IMPROVEMENTS KAPOLEI GOLF COURSE ROAD TO FORT WEAVER ROAD EWA, OAHU, HAWAII				Log of Boring 332				
Other Tests	Moisture Content (%)	Dry Unit Weight (pcf)	Core Recovery (%)	RQD (%)	Penetration Resistance (blows/foot)	Pocket Pen. (tsf)	Depth (feet)	Sample Graphic	USCS	Description
										Approximate Ground Surface Elevation (feet): 170 *
										Description
LL=46 PI=30 TXUU Su=9.9 ksf	19 17	106 100			49 35	4.5 4.5	5 5		MH CL	Brown CLAYEY SILT with some gravel (basaltic), very stiff, moist (fill) Dark brown SANDY CLAY, hard, moist (older alluvium) grades to brown grades to clayey silt locally grades with cemented siltstone gravel locally grades with more sand Boring terminated at 31.5 feet
	16				50/5"		10			
	18	82			65/5"		15			
	18				89		20			
	17	87			50/4"	4.5	25			
	17				103		30			
							35			
Date Started: August 28, 2020		Date Completed: August 28, 2020		Water Level: Not Encountered						
Logged By: Joy Cline		Drill Rig: CME-75DG1 (Energy Transfer Ratio = 80.3%)		Drilling Method: 4" Solid-Stem Auger						
Total Depth: 31.5 feet		Driving Energy: 140 lb. wt., 30 in. drop								
Work Order: 8135-00										

GEOLABS, INC. Geotechnical Engineering		FARRINGTON HIGHWAY IMPROVEMENTS KAPOLEI GOLF COURSE ROAD TO FORT WEAVER ROAD EWA, OAHU, HAWAII				Log of Boring 334				
Other Tests	Moisture Content (%)	Dry Unit Weight (pcf)	Core Recovery (%)	RQD (%)	Penetration Resistance (blows/foot)	Pocket Pen. (tsf)	Depth (feet)	Sample Graphic	USCS	Description
										Approximate Ground Surface Elevation (feet): 173.5 *
										Description
LL=65 PI=47 TXUU Su=2.4 ksf	24 25	98 100			15 8	4.0 2.5	5 5		MH CH CH	Brown CLAYEY SILT with traces of organic matter, very stiff, moist (fill) Brown SILTY CLAY, very stiff, moist (fill) Brown SILTY CLAY, very stiff, moist (older alluvium)
	22				19/6" +50/4"		10		CL	Brown SANDY CLAY with a little fine gravel, hard, moist (older alluvium)
	18	91			20/0"	4.5	15			
LL=29 PI=8	18				50/2"		20			grades with more sand locally
	16	92			50/3"	4.5	25			grades with very dense silty sand pockets locally
	8				85		30		MH	Brown CLAYEY SILT, hard, moist (older alluvium)
							35			
Date Started: August 24, 2020		Date Completed: August 24, 2020		Water Level: Not Encountered						
Logged By: S. Latronic		Drill Rig: CME-45C TRUCK (Energy Transfer Ratio = 78%)		Drilling Method: 4" Solid-Stem Auger						
Total Depth: 31.5 feet		Driving Energy: 140 lb. wt., 30 in. drop								
Work Order: 8135-00										

GEOLABS, INC. Geotechnical Engineering		FARRINGTON HIGHWAY IMPROVEMENTS KAPOLEI GOLF COURSE ROAD TO FORT WEAVER ROAD EWA, OAHU, HAWAII				Log of Boring 333				
Other Tests	Moisture Content (%)	Dry Unit Weight (pcf)	Core Recovery (%)	RQD (%)	Penetration Resistance (blows/foot)	Pocket Pen. (tsf)	Depth (feet)	Sample Graphic	USCS	Description
										Approximate Ground Surface Elevation (feet): 172.5 *
										Description
LL=127 PI=101	24 29	98			16 6	3.0	5 5		GW CL	8-inch ASPHALTIC CONCRETE Gray medium to coarse SANDY GRAVEL (BASALTIC), very dense, moist (base course) Brown SANDY CLAY, very stiff, moist (older alluvium) grades with some gravel (basaltic) Boring terminated at 6 feet
							10			
							15			
							20			
							25			
							30			
							35			
Date Started: September 21, 2020		Date Completed: September 21, 2020		Water Level: Not Encountered						
Logged By: S. Latronic		Drill Rig: CME-45C TRUCK (Energy Transfer Ratio = 78%)		Drilling Method: 4" Solid-Stem Auger						
Total Depth: 6 feet		Driving Energy: 140 lb. wt., 30 in. drop								
Work Order: 8135-00										

GEOLABS, INC. Geotechnical Engineering		FARRINGTON HIGHWAY IMPROVEMENTS KAPOLEI GOLF COURSE ROAD TO FORT WEAVER ROAD EWA, OAHU, HAWAII				Log of Boring 334				
Other Tests	Moisture Content (%)	Dry Unit Weight (pcf)	Core Recovery (%)	RQD (%)	Penetration Resistance (blows/foot)	Pocket Pen. (tsf)	Depth (feet)	Sample Graphic	USCS	Description
										(Continued from previous plate)
										Description
							40			Boring terminated at 31.5 feet
							45			
							50			
							55			
							60			
							65			
							70			
Date Started: August 24, 2020		Date Completed: August 24, 2020		Water Level: Not Encountered						
Logged By: S. Latronic		Drill Rig: CME-45C TRUCK (Energy Transfer Ratio = 78%)		Drilling Method: 4" Solid-Stem Auger						
Total Depth: 31.5 feet		Driving Energy: 140 lb. wt., 30 in. drop								
Work Order: 8135-00										

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SIGNATURE: *Robin M. Lim* EXPIRATION DATE OF THE LICENSE: April 30, 2022

STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

**Boring Logs - 23**

FARRINGTON HIGHWAY WIDENING  
Kapolei Golf Course Road  
to Fort Weaver Road

Scale: As Shown Date: May 2021

SHEET No. G-32 OF - SHEETS



FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	7101A-01-20	2021	332	-

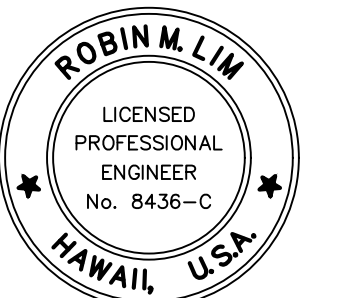
		<b>GEOLABS, INC.</b> Geotechnical Engineering		FARRINGTON HIGHWAY IMPROVEMENTS KAPOLEI GOLF COURSE ROAD TO FORT WEAVER ROAD EWA, OAHU, HAWAII		Log of Boring 335
Other Tests	Moisture Content (%)	Dry Unit Weight (pcf)	Core Recovery (%)	RQD (%)	Penetration Resistance (blows/foot)	Pocket Pen. (tsf)
	17	147			50/2"	
Approximate Ground Surface Elevation (feet): 163.5 *						
Description						
8-inch ASPHALTIC CONCRETE						
Brown SILTY CLAY with some gravel (basaltic), very stiff, moist (fill)						
Gray GRAVELLY COBBLES (BASALTIC), dense to very dense, moist (fill)						
Boring terminated at 4 feet						
Date Started:	September 21, 2020		Water Level: ▼ Not Encountered			
Date Completed:	September 21, 2020					
Logged By:	S. Latronic		Drill Rig: CME-45C TRUCK (Energy Transfer Ratio = 78%)			
Total Depth:	4 feet		Drilling Method: 4" Solid-Stem Auger			
Work Order:	8135-00		Driving Energy: 140 lb. wt., 30 in. drop			

		<b>GEOLABS, INC.</b> Geotechnical Engineering		FARRINGTON HIGHWAY IMPROVEMENTS KAPOLEI GOLF COURSE ROAD TO FORT WEAVER ROAD EWA, OAHU, HAWAII		Log of Boring 337
Other Tests	Moisture Content (%)	Dry Unit Weight (pcf)	Core Recovery (%)	RQD (%)	Penetration Resistance (blows/foot)	Pocket Pen. (tsf)
	18 19	110			114 67	4.5
Approximate Ground Surface Elevation (feet): 146 *						
Description						
4.5-inch ASPHALTIC CONCRETE						
Gray SANDY GRAVEL (BASALTIC), medium dense, moist (base course)						
Brown SANDY CLAY, hard, moist (older alluvium)						
Boring terminated at 4.25 feet						
Date Started:	September 21, 2020		Water Level: ▼ Not Encountered			
Date Completed:	September 21, 2020					
Logged By:	S. Latronic		Drill Rig: CME-45C TRUCK (Energy Transfer Ratio = 78%)			
Total Depth:	4.25 feet		Drilling Method: 4" Solid-Stem Auger			
Work Order:	8135-00		Driving Energy: 140 lb. wt., 30 in. drop			

		<b>GEOLABS, INC.</b> Geotechnical Engineering		FARRINGTON HIGHWAY IMPROVEMENTS KAPOLEI GOLF COURSE ROAD TO FORT WEAVER ROAD EWA, OAHU, HAWAII		Log of Boring 336
Other Tests	Moisture Content (%)	Dry Unit Weight (pcf)	Core Recovery (%)	RQD (%)	Penetration Resistance (blows/foot)	Pocket Pen. (tsf)
	17 16 21	98 106			49 29 47	4.5 4.5
Approximate Ground Surface Elevation (feet): 155.5 *						
Description						
Brown SANDY CLAY, very stiff to hard, moist (older alluvium)						
Brown SANDY SILT, hard, moist (older alluvium)						
grades with clayey silt						
Brown SILTY SAND (BASALTIC) with some gravel, very dense, moist (older alluvium)						
Brown SANDY CLAY, hard, moist (older alluvium)						
Boring terminated at 30.4 feet						
Date Started:	August 24, 2020		Water Level: ▼ Not Encountered			
Date Completed:	August 24, 2020					
Logged By:	S. Latronic		Drill Rig: CME-45C TRUCK (Energy Transfer Ratio = 78%)			
Total Depth:	30.4 feet		Drilling Method: 4" Solid-Stem Auger			
Work Order:	8135-00		Driving Energy: 140 lb. wt., 30 in. drop			

		<b>GEOLABS, INC.</b> Geotechnical Engineering		FARRINGTON HIGHWAY IMPROVEMENTS KAPOLEI GOLF COURSE ROAD TO FORT WEAVER ROAD EWA, OAHU, HAWAII		Log of Boring 338
Other Tests	Moisture Content (%)	Dry Unit Weight (pcf)	Core Recovery (%)	RQD (%)	Penetration Resistance (blows/foot)	Pocket Pen. (tsf)
	15 17 16	97 102			23/6" +50/3" 44 50/5"	4.5
Approximate Ground Surface Elevation (feet): 124 *						
Description						
Brown CLAYEY SILT, stiff to very stiff, moist (fill)						
Gray COBBLES (BASALTIC), dense, dry (fill)						
Brown SILTY CLAY, hard, moist (older alluvium)						
Gray COBBLES (BASALTIC), dense, dry (river channel deposit)						
Brown SANDY GRAVEL (BASALTIC) with a little silt and some cobbles (basaltic), medium dense to dense, moist (river channel deposit)						
grades with more silt locally						
Reddish brown to brown SANDY CLAY, very stiff, moist (older alluvium)						
Boring terminated at 31.5 feet						
Date Started:	August 28, 2020		Water Level: ▼ Not Encountered			
Date Completed:	August 28, 2020					
Logged By:	Joy Cline		Drill Rig: CME-75DG1 (Energy Transfer Ratio = 80.3%)			
Total Depth:	31.5 feet		Drilling Method: 4" Solid-Stem Auger			
Work Order:	8135-00		Driving Energy: 140 lb. wt., 30 in. drop			

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*Robin M. Lim* April 30, 2022  
SIGNATURE EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

**Boring Logs - 24**

FARRINGTON HIGHWAY WIDENING  
Kapolei Golf Course Road  
to Fort Weaver Road

Scale: As Shown Date: May 2021

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	7101A-01-20	2021	333	-

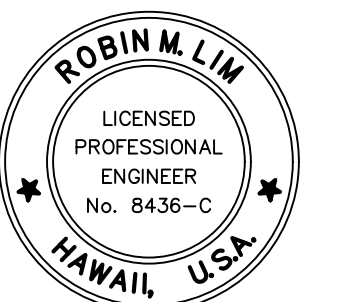
GEOLABS, INC. Geotechnical Engineering		FARRINGTON HIGHWAY IMPROVEMENTS KAPOLEI GOLF COURSE ROAD TO FORT WEAVER ROAD EWA, OAHU, HAWAII				Log of Boring 339				
Other Tests	Moisture Content (%)	Dry Unit Weight (pcf)	Core Recovery (%)	RQD (%)	Penetration Resistance (blows/foot)	Pocket Pen. (tsf)	Depth (feet)	Sample Graphic	USCS	Description
	18 20	109			37 19	4.5			MH	Approximate Ground Surface Elevation (feet): 103.5 * 3.5-inch ASPHALTIC CONCRETE 7-inch CONCRETE
							5		MH	Brown CLAYEY SILT with a little fine gravel, very stiff to hard, moist (fill) Brown CLAYEY SILT, very stiff to hard, moist (older alluvium) Boring terminated at 4.75 feet
							10			
							15			
							20			
							25			
							30			
							35			
Date Started: September 21, 2020		Date Completed: September 21, 2020		Water Level: Not Encountered						
Logged By: S. Latronic		Drill Rig: CME-45C TRUCK (Energy Transfer Ratio = 78%)		Drilling Method: 4" Solid-Stem Auger		Driving Energy: 140 lb. wt., 30 in. drop				
Total Depth: 4.75 feet		Work Order: 8135-00								

GEOLABS, INC. Geotechnical Engineering		FARRINGTON HIGHWAY IMPROVEMENTS KAPOLEI GOLF COURSE ROAD TO FORT WEAVER ROAD EWA, OAHU, HAWAII				Log of Boring 341				
Other Tests	Moisture Content (%)	Dry Unit Weight (pcf)	Core Recovery (%)	RQD (%)	Penetration Resistance (blows/foot)	Pocket Pen. (tsf)	Depth (feet)	Sample Graphic	USCS	Description
	12 16	106			82 22	4.5			GW CL	Approximate Ground Surface Elevation (feet): 81 * 7.25-inch ASPHALTIC CONCRETE Light tannish white SANDY GRAVEL (CORALLINE), medium dense to dense, moist (fill) Brown SANDY CLAY with a little gravel (basaltic), hard, moist (fill) Boring terminated at 4.5 feet
							5			
							10			
							15			
							20			
							25			
							30			
							35			
Date Started: September 21, 2020		Date Completed: September 21, 2020		Water Level: Not Encountered						
Logged By: S. Latronic		Drill Rig: CME-45C TRUCK (Energy Transfer Ratio = 78%)		Drilling Method: 4" Solid-Stem Auger		Driving Energy: 140 lb. wt., 30 in. drop				
Total Depth: 4.5 feet		Work Order: 8135-00								

GEOLABS, INC. Geotechnical Engineering		FARRINGTON HIGHWAY IMPROVEMENTS KAPOLEI GOLF COURSE ROAD TO FORT WEAVER ROAD EWA, OAHU, HAWAII				Log of Boring 340				
Other Tests	Moisture Content (%)	Dry Unit Weight (pcf)	Core Recovery (%)	RQD (%)	Penetration Resistance (blows/foot)	Pocket Pen. (tsf)	Depth (feet)	Sample Graphic	USCS	Description
	13 14	101			36 35	4.0			CH	Approximate Ground Surface Elevation (feet): 84 * Brown SILTY CLAY with traces of gravel (basaltic), very stiff, moist (fill)
Sieve #200 = 5.3%	4	114			50/2"		5		CH GP-GM	Brown SILTY CLAY, hard, moist (older alluvium) Gray subrounded GRAVEL (BASALTIC) with some sand and a little silt, dense to very dense, dry (river channel deposit)
Sieve #200 = 10.2%	7	14			56		10		GP-GM	Gray COBBLY BOULDERS (BASALTIC), very dense, dry (river channel deposit)
	22	90			50/1"		15		GP-GM	Gray SANDY GRAVEL (BASALTIC) with some cobbles and a little silt, dense to very dense, dry to moist (older alluvium)
					50/1"	3.5	20		CH	Dark brown SILTY CLAY, very stiff to hard, moist (older alluvium)
LL=37 PI=17	22				50		25		CL	Reddish brown SANDY CLAY, very stiff to hard, moist (older alluvium)
TXUU Su=7.3 ksf	27	101			96	4.5	30			Boring terminated at 31.5 feet
							35			
Date Started: August 28, 2020		Date Completed: August 28, 2020		Water Level: Not Encountered						
Logged By: Joy Cline		Drill Rig: CME-75DG1 (Energy Transfer Ratio = 80.3%)		Drilling Method: 4" Solid-Stem Auger		Driving Energy: 140 lb. wt., 30 in. drop				
Total Depth: 31.5 feet		Work Order: 8135-00								

GEOLABS, INC. Geotechnical Engineering		FARRINGTON HIGHWAY IMPROVEMENTS KAPOLEI GOLF COURSE ROAD TO FORT WEAVER ROAD EWA, OAHU, HAWAII				Log of Boring 342				
Other Tests	Moisture Content (%)	Dry Unit Weight (pcf)	Core Recovery (%)	RQD (%)	Penetration Resistance (blows/foot)	Pocket Pen. (tsf)	Depth (feet)	Sample Graphic	USCS	Description
	21 20	89			53 42	4.5			GW CH CL	Approximate Ground Surface Elevation (feet): 90 * 7-25-inch ASPHALTIC CONCRETE White SANDY GRAVEL (CORALLINE), dense, moist (base course) Brown SILTY CLAY with a little gravel (basaltic), very stiff to hard, moist (fill) Brown SANDY CLAY, hard, moist (older alluvium) Boring terminated at 5 feet
							5			
							10			
							15			
							20			
							25			
							30			
							35			
Date Started: September 18, 2020		Date Completed: September 18, 2020		Water Level: Not Encountered						
Logged By: M Hassani		Drill Rig: CME-75DR (Energy Transfer Ratio = 77.3%)		Drilling Method: 4" Solid-Stem Auger		Driving Energy: 140 lb. wt., 30 in. drop				
Total Depth: 5 feet		Work Order: 8135-00								

SURVEY PLOTTED BY	DATE
DRAWN BY	
DESIGNED BY	
QUANTITIES BY	
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Signature: *Robin M. Lim* April 30, 2022  
EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

**Boring Logs - 25**

FARRINGTON HIGHWAY WIDENING  
Kapolei Golf Course Road  
to Fort Weaver Road

Scale: As Shown Date: May 2021

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	7101A-01-20	2021	334	-

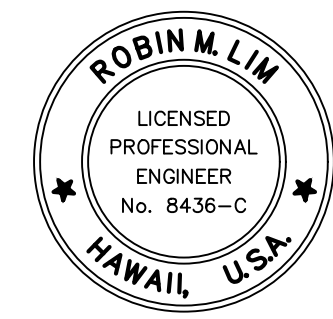
GEOLABS, INC. Geotechnical Engineering		FARRINGTON HIGHWAY IMPROVEMENTS KAPOLEI GOLF COURSE ROAD TO FORT WEAVER ROAD EWA, OAHU, HAWAII				Log of Boring 343					
Other Tests	Moisture Content (%)	Dry Unit Weight (pcf)	Core Recovery (%)	RQD (%)	Penetration Resistance (blows/foot)	Pocket Pen. (tsf)	Depth (feet)	Sample Graphic	USCS	Description	
										Approximate Ground Surface Elevation (feet): 90 *	
										Description	
TXUU Su=8.0 ksf	18 20	95			37 18	4.5	5		CH	Brown SILTY CLAY, very stiff to hard, moist (older alluvium)	
	22	106			61	4.5	5				
	18				24/6" +50/4"		10		MH	Brown CLAYEY SILT with a little gravel (basaltic), very stiff to hard, moist (older alluvium)	
	17	109			50/4"	4.5	15		ML	Brown SANDY SILT, hard, moist (older alluvium)	
LL=40 PI=20	22				60		20		CL	Dark brown SANDY CLAY, hard, moist (older alluvium)	
TXUU Su=5.1 ksf	21	103			49/6" +50/4"	4.5	25			grades to very stiff	
	20				24		30				
							35			Boring terminated at 31.5 feet	
Date Started: August 24, 2020						Water Level: Not Encountered					
Date Completed: August 24, 2020											
Logged By: S. Latronic						Drill Rig: CME-45C TRUCK (Energy Transfer Ratio = 78%)					
Total Depth: 31.5 feet						Drilling Method: 4" Solid-Stem Auger					
Work Order: 8135-00						Driving Energy: 140 lb. wt., 30 in. drop					

GEOLABS, INC. Geotechnical Engineering		FARRINGTON HIGHWAY IMPROVEMENTS KAPOLEI GOLF COURSE ROAD TO FORT WEAVER ROAD EWA, OAHU, HAWAII				Log of Boring 345					
Other Tests	Moisture Content (%)	Dry Unit Weight (pcf)	Core Recovery (%)	RQD (%)	Penetration Resistance (blows/foot)	Pocket Pen. (tsf)	Depth (feet)	Sample Graphic	USCS	Description	
										Approximate Ground Surface Elevation (feet): 75 *	
										Description	
	16 16	96			41 34	4.5	5		MH	Brown CLAYEY SILT, stiff to very stiff, dry to moist (fill)	
	16	104			71	4.5	5		CH	Brown CLAYEY SILT, hard, moist (older alluvium)	
Sieve #200 = 16.7%	15				68/5"		10		SM	Brown SILTY CLAY with a little gravel (basaltic), hard, moist (older alluvium)	
					75/3"		15			Brown SILTY SAND (BASALTIC) with some gravel, very dense, moist (older alluvium)	
LL=44 PI=24	19				109		20		CL	Dark brown SANDY CLAY, hard, moist (older alluvium)	
TXUU Su=4.8 ksf	33	75			22	4.5	25			grades with more sand locally	
	23				23		30			grades to clayey silt	
							35			Boring terminated at 31.5 feet	
Date Started: September 18, 2020						Water Level: Not Encountered					
Date Completed: September 18, 2020											
Logged By: M Hassani						Drill Rig: CME-75DR (Energy Transfer Ratio = 77.3%)					
Total Depth: 31.5 feet						Drilling Method: 4" Solid-Stem Auger					
Work Order: 8135-00						Driving Energy: 140 lb. wt., 30 in. drop					

GEOLABS, INC. Geotechnical Engineering		FARRINGTON HIGHWAY IMPROVEMENTS KAPOLEI GOLF COURSE ROAD TO FORT WEAVER ROAD EWA, OAHU, HAWAII				Log of Boring 344					
Other Tests	Moisture Content (%)	Dry Unit Weight (pcf)	Core Recovery (%)	RQD (%)	Penetration Resistance (blows/foot)	Pocket Pen. (tsf)	Depth (feet)	Sample Graphic	USCS	Description	
										Approximate Ground Surface Elevation (feet): 78.5 *	
										Description	
	13 24	111			30 12	3.0	5		GW CH	7-inch ASPHALTIC CONCRETE	
							5			Dark gray subangular SANDY GRAVEL (BASALTIC) with traces of silt, medium dense, moist (base course)	
							10			Brown SILTY CLAY, very stiff, moist (older alluvium)	
							15			Boring terminated at 5 feet	
							20				
							25				
							30				
							35				
Date Started: September 18, 2020						Water Level: Not Encountered					
Date Completed: September 18, 2020											
Logged By: M Hassani						Drill Rig: CME-75DR (Energy Transfer Ratio = 77.3%)					
Total Depth: 5 feet						Drilling Method: 4" Solid-Stem Auger					
Work Order: 8135-00						Driving Energy: 140 lb. wt., 30 in. drop					

GEOLABS, INC. Geotechnical Engineering		FARRINGTON HIGHWAY IMPROVEMENTS KAPOLEI GOLF COURSE ROAD TO FORT WEAVER ROAD EWA, OAHU, HAWAII				Log of Boring 346					
Other Tests	Moisture Content (%)	Dry Unit Weight (pcf)	Core Recovery (%)	RQD (%)	Penetration Resistance (blows/foot)	Pocket Pen. (tsf)	Depth (feet)	Sample Graphic	USCS	Description	
										Approximate Ground Surface Elevation (feet): 50.5 *	
										Description	
Sieve #200 = 40.5%	12 8	86			90 75/5"	4.5	5		ML SM	10-inch ASPHALTIC CONCRETE	
	6				75/6"		5			Brown SANDY SILT (fill)	
							10			Brown SILTY SAND with traces of gravel, dense, moist (older alluvium)	
TXUU Su=7.1 ksf LL=NP PI=NP	22	82			60/6" +60/0" Ref. 60/6"	4.5	15		ML	Brown SANDY SILT with organic matter, very stiff to hard, moist (older alluvium)	
	20						20				
	20	86			75/6"	4.5	25				
	23				82		30		MH	Reddish brown with black mottling SANDY SILT, very stiff to hard, moist (older alluvium)	
							35				
Date Started: September 29, 2020						Water Level: Not Encountered					
Date Completed: September 29, 2020											
Logged By: Joy						Drill Rig: CME-45C2					
Total Depth: 50.5 feet						Drilling Method: 4" Solid-Stem Auger					
Work Order: 8135-00						Driving Energy: 140 lb. wt., 30 in. drop					

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



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Signature: *Robin M. Lim* April 30, 2022  
EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION


### Boring Logs - 26

FARRINGTON HIGHWAY WIDENING  
Kapolei Golf Course Road  
to Fort Weaver Road

Scale: As Shown Date: May 2021

SHEET No. G-35 OF - SHEETS

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	7101A-01-20	2021	335	-

 <b>GEOLABS, INC.</b> Geotechnical Engineering	<b>FARRINGTON HIGHWAY IMPROVEMENTS</b> KAPOLEI GOLF COURSE ROAD TO FORT WEAVER ROAD EWA, OAHU, HAWAII								Log of Boring <b>346</b>
	Other Tests	Moisture Content (%)	Dry Unit Weight (pcf)	Core Recovery (%)	RQD (%)	Penetration Resistance (blows/foot)	Pocket Pen. (tsf)	Depth (feet)	USCS
TXUU Su=7.3 ksf LL=38 PI=12	24	80			75/5"	4.5	30	MH	
	32				39		40		
	27	82			75/6"	4.5	45		
	13				60/0"		50		Boring terminated at 50.5 feet

Date Started:	September 29, 2020	Water Level:	∇ Not Encountered
Date Completed:	September 29, 2020		
Logged By:	Joy	Drill Rig:	CME-45C2
Total Depth:	50.5 feet	Drilling Method:	4" Solid-Stem Auger
Work Order:	8135-00	Driving Energy:	140 lb. wt., 30 in. drop

BORING LOG DOT-HAWAII DOT-8135-00-00 FARRINGTON HIGHWAY IMPROVEMENTS GEOLABS DOT 11/2020

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



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*Robin M. Lim*  
 SIGNATURE      EXPIRATION DATE OF THE LICENSE: April 30, 2022

STATE OF HAWAII  
 DEPARTMENT OF TRANSPORTATION  
 HIGHWAYS DIVISION

**Boring Logs - 27**

**FARRINGTON HIGHWAY WIDENING**  
*Kapolei Golf Course Road  
 to Fort Weaver Road*

Scale: As Shown      Date: May 2021

**SHEET No. G-36 OF - SHEETS**

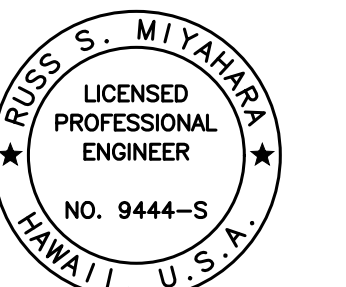
# INDEX TO STRUCTURAL DRAWINGS

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	7101A-01-20	2021	340	

SHEET NO.	DESCRIPTION	SHEET NO.	DESCRIPTION
S0.1	INDEX TO STRUCTURAL DRAWINGS	SA5.1	HONOULIULI STREAM BRIDGE TYPE I PRESTRESSED GIRDER
S0.2	INDEX TO STRUCTURAL DRAWINGS	SA5.2	HONOULIULI STREAM BRIDGE TYPE I PRESTRESSED GIRDER SECTIONS
S0.3	INDEX TO STRUCTURAL DRAWINGS	SA5.3	HONOULIULI STREAM BRIDGE PRESTRESSED GIRDER NOTES AND DETAIL
S0.4	INDEX TO STRUCTURAL DRAWINGS		
S0.5	STRUCTURAL GENERAL NOTES	SA6.1	HONOULIULI STREAM BRIDGE DIAPHRAGM ELEVATION, SECTION, AND DETAIL
S0.6	STRUCTURAL GENERAL NOTES		
S0.7	STRUCTURAL GENERAL NOTES	SA7.1	HONOULIULI STREAM BRIDGE ABUTMENT NO. 1 PLAN
S0.8	STRUCTURAL GENERAL NOTES	SA7.2	HONOULIULI STREAM BRIDGE ABUTMENT NO. 1 ELEVATION
S0.9	STRUCTURAL GENERAL NOTES	SA7.3	HONOULIULI STREAM BRIDGE ABUTMENT NO. 2 PLAN
S0.10	SYMBOLS AND ABBREVIATIONS	SA7.4	HONOULIULI STREAM BRIDGE ABUTMENT NO. 2 ELEVATION
		SA7.5	HONOULIULI STREAM BRIDGE ABUTMENT REINFORCING PLAN
		SA7.6	HONOULIULI STREAM BRIDGE ABUTMENT REINFORCING PLAN
	<u>HONOULIULI STREAM BRIDGE</u>	SA7.7	HONOULIULI STREAM BRIDGE ABUTMENT REINFORCING PLAN
SA1.1	HONOULIULI STREAM BRIDGE LAYOUT PLAN	SA7.8	HONOULIULI STREAM BRIDGE ABUTMENT REINFORCING PLAN
SA1.2	HONOULIULI STREAM BRIDGE FOUNDATION PLAN	SA7.9	HONOULIULI STREAM BRIDGE ABUTMENT REINFORCING PLAN
SA1.3	HONOULIULI STREAM BRIDGE DECK FRAMING PLAN	SA7.10	HONOULIULI STREAM BRIDGE ABUTMENT REINFORCING PLAN
SA1.4	HONOULIULI STREAM BRIDGE FINISH GRADE PLAN	SA7.11	HONOULIULI STREAM BRIDGE ABUTMENT REINFORCING PLAN
		SA7.12	HONOULIULI STREAM BRIDGE ABUTMENT REINFORCING PLAN
SA2.1	HONOULIULI STREAM BRIDGE UPSTREAM ELEVATION	SA7.13	HONOULIULI STREAM BRIDGE ABUTMENT REINFORCING PLAN
SA2.2	HONOULIULI STREAM BRIDGE SECTION AT BASELINE	SA7.14	HONOULIULI STREAM BRIDGE ABUTMENT SECTIONS
SA2.3	HONOULIULI STREAM BRIDGE DOWNSTREAM ELEVATION	SA7.15	HONOULIULI STREAM BRIDGE ABUTMENT SECTIONS
SA2.4	HONOULIULI STREAM BRIDGE TYPICAL TRANSVERSE SECTION	SA7.16	HONOULIULI STREAM BRIDGE ABUTMENT SECTION
SA2.5	HONOULIULI STREAM BRIDGE EXCAVATION AND BACKFILL PAY LIMITS	SA7.17	HONOULIULI STREAM BRIDGE ABUTMENT CLOSURE POUR SECTION
SA2.6	HONOULIULI STREAM BRIDGE EXCAVATION AND BACKFILL PAY LIMITS	SA7.18	HONOULIULI STREAM BRIDGE ABUTMENT DETAILS
		SA7.19	HONOULIULI STREAM BRIDGE CONCRETE SEAT DETAIL AND SECTION
SA3.1	HONOULIULI STREAM BRIDGE DEMOLITION PLAN AND SECTION	SA7.20	HONOULIULI STREAM BRIDGE DRAIN PIPE PENETRATION DETAILS
SA3.2	HONOULIULI STREAM BRIDGE DEMOLITION ELEVATIONS		
SA3.3	HONOULIULI STREAM BRIDGE DEMOLITION SECTIONS AND DETAIL	SA8.1	HONOULIULI STREAM BRIDGE WINGWALL REINFORCING ELEVATIONS
		SA8.2	HONOULIULI STREAM BRIDGE KEYWALL REINFORCING ELEVATIONS
SA4.1	HONOULIULI STREAM BRIDGE DECK REINFORCING PLAN	SA8.3	HONOULIULI STREAM BRIDGE WINGWALL REINFORCING ELEVATIONS
SA4.2	HONOULIULI STREAM BRIDGE DECK REINFORCING SECTION	SA8.4	HONOULIULI STREAM BRIDGE WINGWALL AND KEYWALL SECTIONS
SA4.3	HONOULIULI STREAM BRIDGE DECK REINFORCING SECTION	SA8.5	HONOULIULI STREAM BRIDGE WINGWALL DETAILS
SA4.4	HONOULIULI STREAM BRIDGE SIDEWALK JOINT DETAILS		
		SA9.1	HONOULIULI STREAM BRIDGE DRILLED SHAFT SCHEDULE
		SA9.2	HONOULIULI STREAM BRIDGE PRODUCTION AND TRIAL DRILLED SHAFT
		SA9.3	HONOULIULI STREAM BRIDGE LOAD TEST SHAFT

ORIGINAL PLAN	DATE
SURVEY PLOTTED BY	
DRAWN BY	
DESIGNED BY	
QUANTITIES BY	
CHECKED BY	

DRAWING NAME: Z:\100 ONGOING\20-013-FARR-HWY-KAPOLEI-GC-10-ET-WIP-EMTC\01-GAD\04-06-22-BID-SET\FHWS-50001-INDEX.DWG PLOT TIME: 04-07-22, 4:20 PM



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*Russ S. Miyahara* April 30, 2024  
SIGNATURE EXPIRATION DATE OF THE LICENSE

**STATE OF HAWAII**  
**DEPARTMENT OF TRANSPORTATION**  
**HIGHWAYS DIVISION**

*Index to Structural Drawings*

FARRINGTON HIGHWAY WIDENING  
Kapolei Golf Course Road to Fort Weaver Road  
Project No. 7101A-01-20

Scale: None Date: Apr. 2022

**SHEET No. S0.1 OF 10 SHEETS**

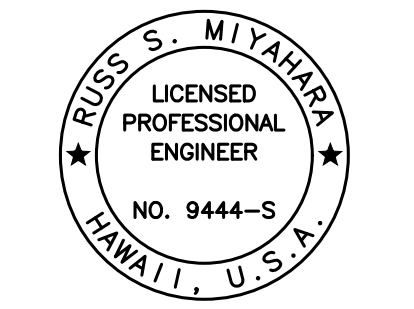
## INDEX TO STRUCTURAL DRAWINGS

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	7101A-01-20	2021	341	

<u>SHEET NO.</u>	<u>DESCRIPTION</u>	<u>SHEET NO.</u>	<u>DESCRIPTION</u>
SA10.1	HONOULIULI STREAM BRIDGE RAILING SECTIONS		<u>KALOI GULCH BRIDGE</u>
SA10.2	HONOULIULI STREAM BRIDGE BRIDGE IDENTIFICATION DETAIL	SB1.1	KALOI GULCH BRIDGE LAYOUT PLAN
SA10.3	HONOULIULI STREAM BRIDGE LIGHT PEDESTAL PLANS AND DETAIL	SB1.2	KALOI GULCH BRIDGE FOUNDATION PLAN
SA10.4	HONOULIULI STREAM BRIDGE LIGHT PEDESTAL ELEVATION AND SECTION	SB1.3	KALOI GULCH BRIDGE DECK FRAMING PLAN
		SB1.4	KALOI GULCH BRIDGE FINISH GRADE PLAN
SA11.1	HONOULIULI STREAM BRIDGE APPROACH SLAB AND SLEEPER SLAB SECTION	SB1.5	KALOI GULCH BRIDGE SIDEWALK JOINTING PLAN
SA11.2	HONOULIULI STREAM BRIDGE APPROACH SLAB AND SLEEPER SLAB SECTIONS		
SA11.3	HONOULIULI STREAM BRIDGE APPROACH SLAB AND SLEEPER SLAB SECTIONS	SB2.1	KALOI GULCH BRIDGE LONGITUDINAL SECTION
SA11.4	HONOULIULI STREAM BRIDGE APPROACH SLAB AND SLEEPER SLAB SECTIONS	SB2.2	KALOI GULCH BRIDGE UPSTREAM ELEVATION
		SB2.3	KALOI GULCH BRIDGE DOWNSTREAM ELEVATION
SA12.1	HONOULIULI STREAM BRIDGE RETAINING WALL PROFILES	SB2.4	KALOI GULCH BRIDGE TYPICAL TRANSVERSE SECTION
SA12.2	HONOULIULI STREAM BRIDGE RETAINING WALL PROFILES	SB2.5	KALOI GULCH BRIDGE EXCAVATION AND BACKFILL PAY LIMITS
SA12.3	HONOULIULI STREAM BRIDGE RETAINING WALL SECTION		
SA12.4	HONOULIULI STREAM BRIDGE JOINTING DETAILS	SB3.1	KALOI GULCH BRIDGE DEMOLITION PLAN
SA12.5	HONOULIULI STREAM BRIDGE TYPICAL DETAILS	SB3.2	KALOI GULCH BRIDGE FOOTING DEMOLITION PLAN
		SB3.3	KALOI GULCH BRIDGE ABUTMENT DEMOLITION ELEVATIONS
SA13.1	HONOULIULI STREAM BRIDGE CONSTRUCTION SEQUENCE	SB3.4	KALOI GULCH BRIDGE DEMOLITION SECTIONS
SA13.2	HONOULIULI STREAM BRIDGE CONSTRUCTION SEQUENCE	SB3.5	KALOI GULCH BRIDGE ARCH AND CRM WALL DEMOLITION
SA13.3	HONOULIULI STREAM BRIDGE CONSTRUCTION SEQUENCE NOTES		
		SB4.1	KALOI GULCH BRIDGE DECK REINFORCING PLAN
		SB4.2	KALOI GULCH BRIDGE PARTIAL DECK SECTION
		SB4.3	KALOI GULCH BRIDGE PARTIAL DECK SECTION
		SB4.4	KALOI GULCH BRIDGE SIDEWALK JOINT DETAILS
		SB5.1	KALOI GULCH BRIDGE TYPE II PRESTRESSED GIRDER
		SB5.2	KALOI GULCH BRIDGE TYPE II PRESTRESSED GIRDER SECTIONS
		SB5.3	KALOI GULCH BRIDGE PRESTRESSED GIRDER NOTES AND DETAIL
		SB6.1	KALOI GULCH BRIDGE DIAPHRAGM ELEVATION, SECTION, AND DETAIL

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

DRAWING NAME: 2A100 UNDESIGNED-013-FARR-HWY-KAPOLEI GC ID: FT-WP6-EMT(C)01-CA01 04-06-22 BID: SET(FHW3-05001) INDEX.DWG PLOT TIME: 04-07-22, 4:21 PM



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April 30, 2024  
 SIGNATURE                      EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

Index to Structural Drawings

FARRINGTON HIGHWAY WIDENING  
Kapolei Golf Course Road to Fort Weaver Road  
Project No. 7101A-01-20

Scale: None                      Date: Apr. 2022

SHEET No. S02 OF 10 SHEETS

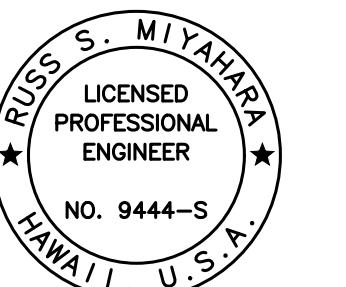
# INDEX TO STRUCTURAL DRAWINGS

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	7101A-01-20	2021	342	

<u>SHEET NO.</u>	<u>DESCRIPTION</u>	<u>SHEET NO.</u>	<u>DESCRIPTION</u>
SB7.1	KALOI GULCH BRIDGE ABUTMENT NO. 1 PLAN		<u>BOX CULVERTS</u>
SB7.2	KALOI GULCH BRIDGE ABUTMENT NO. 1 ELEVATION	SC1.1	BOX CULVERT TYPICAL DETAILS
SB7.3	KALOI GULCH BRIDGE ABUTMENT NO. 2 PLAN	SC1.2	BOX CULVERT TYPICAL DETAILS
SB7.4	KALOI GULCH BRIDGE ABUTMENT NO. 2 ELEVATION	SC1.3	BOX CULVERT TYPICAL SECTIONS
SB7.5	KALOI GULCH BRIDGE ABUTMENT SECTION	SC1.4	BOX CULVERT TYPICAL DETAILS
SB7.6	KALOI GULCH BRIDGE ABUTMENT SECTION	SC1.5	BOX CULVERT TYPICAL SECTIONS
SB7.7	KALOI GULCH BRIDGE ABUTMENT SECTION	SC1.6	BOX CULVERT TYPICAL SECTIONS
SB7.8	KALOI GULCH BRIDGE ABUTMENT SECTION	SC1.7	BOX CULVERT PAY LIMITS
SB7.9	KALOI GULCH BRIDGE ABUTMENT SECTION	SC1.8	PIPE CULVERT INLET/OUTLET PAY LIMITS
SB7.10	KALOI GULCH BRIDGE ABUTMENT SECTION		
SB7.11	KALOI GULCH BRIDGE CONCRETE SEAT DETAIL AND SECTION	SC2.1	HUNEHUNE GULCH BOX CULVERT LAYOUT PLAN
		SC2.2	HUNEHUNE GULCH BOX CULVERT LONGITUDINAL SECTION
SB8.1	KALOI GULCH BRIDGE WINGWALL ELEVATION	SC2.3	HUNEHUNE GULCH BOX CULVERT TYPICAL BOX CULVERT SECTION
SB8.2	KALOI GULCH BRIDGE WINGWALL ELEVATION	SC2.4	HUNEHUNE GULCH BOX CULVERT BOX CULVERT SECTION AT SKEW
SB8.3	KALOI GULCH BRIDGE WINGWALL SECTION AND DETAIL	SC2.5	HUNEHUNE GULCH BOX CULVERT INLET BOTTOM SLAB PLAN AND DETAILS
SB8.4	KALOI GULCH BRIDGE WINGWALL ELEVATION AND SECTION	SC2.6	HUNEHUNE GULCH BOX CULVERT INLET TOP SLAB PLAN AND DETAILS
SB8.5	KALOI GULCH BRIDGE WINGWALL ELEVATION AND SECTION	SC2.7	HUNEHUNE GULCH BOX CULVERT OUTLET BOTTOM SLAB PLAN AND DETAILS
		SC2.8	HUNEHUNE GULCH BOX CULVERT OUTLET TOP SLAB PLAN AND DETAILS
SB9.1	KALOI GULCH BRIDGE DRILLED SHAFT SCHEDULE	SC2.9	HUNEHUNE GULCH BOX CULVERT HEADWALL PLANS
SB9.2	KALOI GULCH BRIDGE PRODUCTION AND TRIAL DRILLED SHAFT	SC2.10	HUNEHUNE GULCH BOX CULVERT HEADWALL DETAILS
SB9.3	KALOI GULCH BRIDGE LOAD TEST SHAFT	SC2.11	HUNEHUNE GULCH BOX CULVERT INLET PLAN AND DETAILS
		SC2.12	HUNEHUNE GULCH BOX CULVERT OUTLET PLAN AND DETAILS
SB10.1	KALOI GULCH BRIDGE RAILING ELEVATIONS	SC2.13	HUNEHUNE GULCH BOX CULVERT TYPICAL INLET/OUTLET SECTION
SB10.2	KALOI GULCH BRIDGE RAILING SECTION, PLAN, AND DETAILS	SC2.14	HUNEHUNE GULCH BOX CULVERT INLET/OUTLET WALL ELEVATION
SB10.3	KALOI GULCH BRIDGE LIGHT PEDESTAL PLANS AND DETAIL	SC2.15	HUNEHUNE GULCH BOX CULVERT INLET/OUTLET LONGITUDINAL SECTION
SB10.4	KALOI GULCH BRIDGE LIGHT PEDESTAL ELEVATION AND SECTION	SC2.16	HUNEHUNE GULCH BOX CULVERT DEMOLITION PLAN
		SC2.17	HUNEHUNE GULCH BOX CULVERT DEMOLITION SECTIONS
SB11.1	KALOI GULCH BRIDGE APPROACH SLAB AND SLEEPER SLAB SECTION	SC2.18	HUNEHUNE GULCH BOX CULVERT CONSTRUCTION SEQUENCE
SB11.2	KALOI GULCH BRIDGE APPROACH SLAB AND SLEEPER SLAB SECTIONS	SC2.19	HUNEHUNE GULCH BOX CULVERT CONSTRUCTION SEQUENCE
SB11.3	KALOI GULCH BRIDGE APPROACH SLAB AND SLEEPER SLAB SECTIONS	SC2.20	HUNEHUNE GULCH BOX CULVERT CONSTRUCTION SEQUENCE
		SC2.21	HUNEHUNE GULCH BOX CULVERT CONSTRUCTION SEQUENCE
SB12.1	KALOI GULCH BRIDGE CONSTRUCTION SEQUENCE	SC2.22	HUNEHUNE GULCH BOX CULVERT CONSTRUCTION SEQUENCE
SB12.2	KALOI GULCH BRIDGE LAYOUT PLAN DURING CONSTRUCTION	SC2.23	HUNEHUNE GULCH BOX CULVERT CONSTRUCTION SEQUENCE
SB12.3	KALOI GULCH BRIDGE SECTION DURING CONSTRUCTION		
SB12.4	KALOI GULCH BRIDGE SECTION DURING CONSTRUCTION		

ORIGINAL PLAN	DATE
SURVEY PLOTTED BY	
DRAWN BY	
DESIGNED BY	
QUANTITIES BY	
CHECKED BY	

DRAWING NAME: KALOI GULCH BRIDGE - 013-FARR-HWY-KAPOLEI GC ID: ET-WR-EMTC-01-GA-04-06-22 BID: SET-FHW-50501 INDEX-DWG PLOT TIME: 04-07-22, 4:21 PM



THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.  
 Signature: *Russ S. Miyahara* April 30, 2024  
 EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII  
**DEPARTMENT OF TRANSPORTATION**  
 HIGHWAYS DIVISION

*Index to Structural Drawings*

FARRINGTON HIGHWAY WIDENING  
 Kapolei Golf Course Road to Fort Weaver Road  
 Project No. 7101A-01-20

Scale: None Date: Apr. 2022

INDEX TO STRUCTURAL DRAWINGS

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	7101A-01-20	2021	343	

<u>SHEET NO.</u>	<u>DESCRIPTION</u>	<u>SHEET NO.</u>	<u>DESCRIPTION</u>
			<u>DRILLED SHAFT FOUNDATION</u>
SC3.1	PALEHUA STREAM BOX CULVERT LAYOUT PLAN	SD1.1	TRAFFIC SIGNAL FOUNDATION NOTES AND SECTIONS
SC3.2	PALEHUA STREAM BOX CULVERT LONGITUDINAL SECTION	SD1.2	TRAFFIC SIGNAL FOUNDATION SCHEDULE
SC3.3	PALEHUA STREAM BOX CULVERT TYPICAL BOX CULVERT SECTION		
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SC4.7	42-INCH CULVERT OUTLET SECTIONS	SD5.3	SPECIAL GRATED DROP INLET B2 AND D2
SC4.8	42-INCH CULVERT DEMOLITION PLAN		

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DRAWING NAME: Z:\00 UNDESIGNED\20-013-FARR-HWY-KAPOLEI GC ID: IT-WR-EMTC\01-CA\04-06-22 BID-SET\FHW3-S0001-INDEX.DWG PLOT TIME: 04-07-22, 4:21 PM



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 Signature: *Russ S. Miyahara* April 30, 2024  
 SIGNATURE EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII  
**DEPARTMENT OF TRANSPORTATION**  
 HIGHWAYS DIVISION

*Index to Structural Drawings*

FARRINGTON HIGHWAY WIDENING  
 Kapolei Golf Course Road to Fort Weaver Road  
 Project No. 7101A-01-20

Scale: None Date: Apr. 2022

**SHEET No. S04 OF 10 SHEETS**



STRUCTURAL GENERAL NOTES:

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	7101A-01-20	2021	344	

1. General Specifications:

A. Hawaii Department of Transportation (HDOT) 2005 "Standard Specifications for Road and Bridge Construction", together with Special Provisions prepared for this project.

2. Design Specifications:

A. American Association of State Highway and Transportation 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".

B. 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".

C. AASHTO 2015 "LRFD Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals", 1st Edition including all subsequent interim revisions and editions as amended by the HDOT document dated August 8, 2014 with subject title "Design Criteria for Bridge and Structures".

3. Design Loads:

A. **Dead Load:** A weight of 25 psf for future wearing surface from curb to curb has been provided for in the design.

B. **Utility Load:** An allowance of 150 plf on each side of the bridge for utility loads has been provided for in the design.

C. **Railing Test Level:** TL-3

D. **Live Load:** AASHTO HL-93 Vehicular Live Loading

E. **Seismic Loads:**

*Honouliuli Stream Bridge*

$PGA = 0.166\ g$        $F_{PGA} = 1.20$        $A_s = 0.199\ g$   
 $S_s = 0.378\ g$        $F_a = 1.20$        $S_{DS} = 0.453\ g$   
 $S_1 = 0.104\ g$        $F_v = 1.70$        $S_{DI} = 0.176\ g$   
 Site Class = C      Seismic Zone = 2.

*Kaloii Gulch Bridge*

$PGA = 0.164\ g$        $F_{PGA} = 1.20$        $A_s = 0.197\ g$   
 $S_s = 0.375\ g$        $F_a = 1.20$        $S_{DS} = 0.450\ g$   
 $S_1 = 0.103\ g$        $F_v = 1.70$        $S_{DI} = 0.174\ g$   
 Site Class = C      Seismic Zone = 2

F. **Combined Scour Elevations:**

*Honouliuli Stream Bridge*

Abutment No. 1: 200 - year scour Elev. = +53.3  
 500 - year scour Elev. = +41.9

Abutment No. 2: 200 - year scour Elev. = +63.3  
 500 - year scour Elev. = +62.2

ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
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No. _____	DESIGNED BY	
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DRAWING NAME: Z:\A\00\ONDONG\20-013-FARR-HWY-KAPOLEI-GC-10-11-WR-EMTC\01-CAD\04-06-22-BID-SET\FHW3-50005-STRUCT-GENNOTES.DWG PLOT TIME: 04-07-22, 4:22 PM

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.

*Rugo S. Miyahara*  
 SIGNATURE      EXPIRATION DATE OF THE LICENSE: April 30, 2024

STATE OF HAWAII  
 DEPARTMENT OF TRANSPORTATION  
 HIGHWAYS DIVISION

**Structural General Notes**

FARRINGTON HIGHWAY WIDENING  
 Kapolei Golf Course Road to Fort Weaver Road  
 Project No. 7101A-01-20

Scale: None      Date: Apr. 2022

**SHEET No. S0.5 OF 10 SHEETS**

**STRUCTURAL GENERAL NOTES:**

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	7101A-01-20	2021	345	

4. Concrete:

A. All concrete strengths shall be as noted below:

Honouliuli Stream Bridge

Item No.	Structural Parts	Compressive Strength, f'c (28 Days)	Maximum Water/Cementitious (W/C)	Maximum Cementitious Material Content (lbs./cy)	Included Admixtures (See Notes Below in This Section)
(1)	Drilled Shafts	5,000 psi	0.45	720	C
(2)	Drilled Shaft Cap Beam, Concrete Seats, End Beams, Corbels, Wingwalls, Keywalls	6,000 psi	0.40	670	C, D, E
(3)	Precast Prestressed Girders	10,000 psi	0.35	740	C
(4)	Bridge Deck, Diaphragms, Approach Slabs, Sleeper Slabs	(SBD, See Section 601)			
(5)	Bridge Deck Closure Pour, End Beam Closure Pour, Corbel Closure Pour	(VESLMC, See Section 540)			
(6)	Railings, End Posts, Thickened Railing at Light Pedestal	6,000 psi	0.40	670	C, D, E
(7)	Retaining Walls and Footings.	6,000 psi	0.40	670	C, D, E
(8)	Sidewalks	5,000 psi	0.45	620	C, F
(9)	Except as noted otherwise, all others	6,000 psi	0.40	670	C

Kaloii Gulch Bridge

Item No.	Structural Parts	Compressive Strength, f'c (28 Days)	Maximum Water/Cementitious (W/C)	Maximum Cementitious Material Content (lbs./cy)	Included Admixtures (See Notes Below in This Section)
(1)	Drilled Shafts	5,000 psi	0.45	720	C
(2)	Drilled Shaft Cap Beam, Concrete Seats, End Beams, Corbels, Wingwalls	6,000 psi	0.40	670	C, D, E
(3)	Precast Prestressed Girders	10,000 psi	0.35	740	C
(4)	Bridge Deck, Diaphragms, Approach Slabs, Sleeper Slabs	(SBD, See Section 601)			
(5)	Railings, End Posts, Thickened Railing at Light Pedestal	6,000 psi	0.40	670	C, D, E
(6)	Sidewalks	5,000 psi	0.45	620	C, F
(7)	Except as noted otherwise, all others	6,000 psi	0.40	670	C

4. Concrete (Continued):

Box Culverts, Inlet and Outlet Structures, Special GDIs, Modified GDIs, Manhole Adjustments, Retaining Walls, and Retaining Wall Footings

Item No.	Structural Parts	Compressive Strength, f'c (28 Days)	Maximum Water/Cementitious (W/C)	Maximum Cementitious Material Content (lbs./cy)	Included Admixtures (See Notes Below in This Section)
(1)	Box Culverts, Headwalls, Cutoff Walls,	6,000 psi	0.40	670	C, D, E
(2)	Inlet/Outlet Slab, Inlet/Outlet Walls	6,000 psi	0.40	670	C, D, E
(3)	Special GDIs, Modified GDIs, and Manhole Adjustments	5,000 psi	0.45	620	C
(4)	Retaining Walls and Footings	6,000 psi	0.40	670	C, D, E
(5)	Shotcrete	5,000 psi	0.45	752	D, F
(6)	Except as noted otherwise, all others	5,000 psi	0.45	620	C

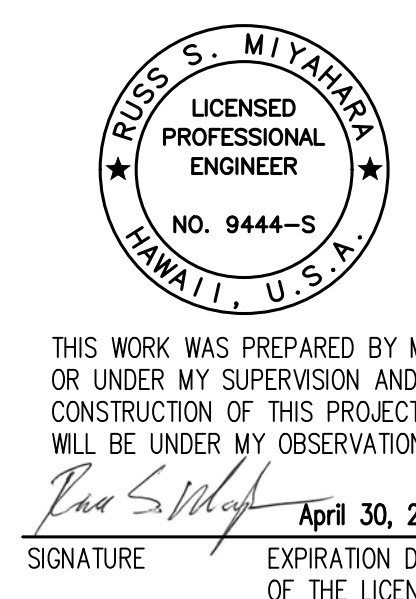
- B. The use of calcium chloride in any concrete is prohibited.
- C. Amine carboxylate corrosion inhibiting water-based admixture such as Cortec MCI 2005 NS or approved equal shall be added at a dosage of 24 ounces per cubic yard of concrete.
- D. Shrinkage reducing admixture such as Masterlife SRA 35 or approved equal shall be added at a dosage of 128 ounces per cubic yard of concrete or as recommended by the manufacturer.
- E. Alkali resistant structural glass fiber such as CEMFIL, ANTI-CRAK HP67/36 or approved equal shall be added to the concrete mix. The dosage rate shall be 15 lbs. per cubic yard of concrete for CEMFIL or the equivalent amount of approved equal to achieve similar properties as the glass dosage. The fiber shall be added to the concrete as recommended by the manufacturer during the mixing process.
- F. A 1 1/2" long macro synthetic fiber such as Forta Ferro, Strux 90/40, Masterfiber Mac Matrix or approved equal shall be added to the concrete mix. The dosage shall be 7.5 lbs. per cubic yard of concrete or the equivalent amount of approved equal to achieve similar properties.
- G. Contractor is not limited to only adding admixtures listed on these notes. Other admixtures may be added upon approval of the Engineer.
- H. If formwork is removed/stripped exposing concrete within 7 days of placement then concrete shall be cured. All exposed concrete shall be cured using Sinak Lithium Cure 1000 or approved equal at per manufacturer's recommendations.

4. Concrete (Continued):

- I. Cure concrete as specified in the Contract documents. Remove curing that may affect binding from all areas requiring future bonding unless a curing agent such as Sinak Lithium Cure or accepted equal that does not affect bond and provide equal or better curing is used.
- J. The Contractor has the option to design the concrete for all items to be pumpable and flowable. All concrete shall be designed for minimum segregation and separation.
- K. All concrete shall include at least one of the three methods stated in Section 601 of the Special Provisions, or approved equal, to reduce the embodied carbon footprint in concrete.
- L. Temperature of shotcrete shall not exceed 90°F at time of placement.

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DRAWING NAME: Z:\A00\ONDONGM\20-013-FARR-HWY-KAPOLEI-GC-10-ET-WRQ-EMTC\01-GAD\04-13-22-20-RVSD-SHRS\FHWK-50005-STRUCT-GENNOTES.DWG PLOT TIME: 04-13-22 8:04 PM



STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

**Structural General Notes**

FARRINGTON HIGHWAY WIDENING  
Kapolei Golf Course Road to Fort Weaver Road  
Project No. 7101A-01-20

Scale: None Date: Apr. 2022

**SHEET No. S0.8 OF 10 SHEETS**

**STRUCTURAL GENERAL NOTES:**

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
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5. Materials:

- A. Non-shrink grout shall be a pre-mixed product consisting of non-staining, non-metallic aggregate cement, water reducing and plasticizing agents capable of developing a minimum compressive strength of 4,000 psi in 3 days and 7,000 psi in 28 days. The non-shrink grout shall contain at least 10 grams of migrating amine carboxylate corrosion inhibiting admixture per 0.4 to 0.5 cubic feet of non-shrink grout.
- B. Premolded joint filler shall be ASTM D1751 with a minimum compressive strength of 100 psi at 50% deformation.
- C. Bonding agent shall be a three-component, preproportioned, water based epoxy modified Portland cement bonding agent and anti-corrosion coating. 14-day bond strength shall exceed 2,400 psi in accordance with ASTM C882.
- D. A rust primer such as CorrVerter MCI or approved equal shall be used on all rebar extensions in the closure pour for the bridge deck, end beams, and corbels and on all rebar extensions at the drilled shaft cap beam construction joint. A rust primer shall be used at other locations as indicated on the structural drawings. Manufacturer's recommendations shall be followed. The Contractor shall perform routine inspections on rebar extensions and reapply rust primer as required.

6. Reinforcement:

- A. All reinforcing steel shall be ASTM A 615, Grade 60 unless otherwise noted.
- B. Reinforcing steel shall be ASTM A 706, Type W, Grade 60 for drilled shaft vertical bars and where welded connections are required.
- C. Reinforcing steel shall be ASTM A1035 Type CS Grade 100 where noted on the plans.
- D. Epoxy-coated reinforcing steel shall be ASTM A775 where noted on the plans.
- E. Reinforcing bars shall be placed and installed in accordance with the CRSI Manual of Standard Practice and CRSI Placing Reinforcing Bars, unless otherwise noted.
- F. The covering measured from the surface of the concrete to the face of any reinforcing bars shall be as follows, except as otherwise shown:
  - (1) Top of bridge deck, top of approach slab, top of sleeper slab = 2 3/4"
  - (2) Railings, end posts, wingwalls, drill shaft cap beam = 2", unless otherwise noted.
  - (3) Concrete cast against and permanently exposed to earth = 3"
  - (4) Drilled shafts = 4"

6. Reinforcement (Continued):

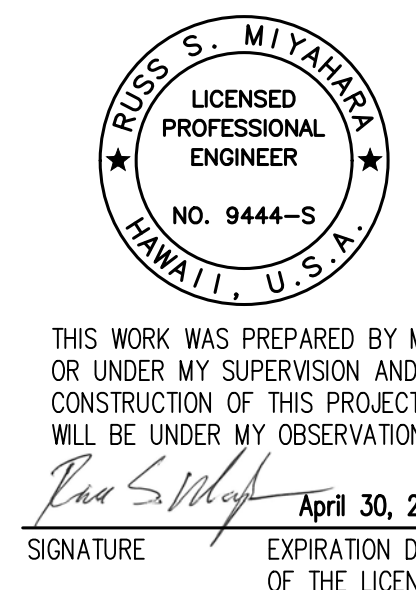
- (5) Prestressed girder = 1 1/2", unless otherwise noted.
- (6) Box culvert
  - (a) Top Slab Top Reinforcing = 2"
  - (b) Top Slab Bottom Reinforcing = 2"
  - (c) Walls = 2"
  - (d) Bottom Slab Top Reinforcing = 2"
  - (e) Bottom Slab Bottom Reinforcing = 3"
- (7) All others unless otherwise noted = 2"
- G. Minimum lap splice length for steel reinforcing shall be 40 bar diameters or 2'-0", whichever is greater, for #8 bars or smaller. Minimum lap splice length for #9 bars or larger shall be 50 bar diameters. Increase lap length by multiplying the minimum lap splice length by 1.3 for bars having more than 12" of fresh concrete below bars. Increase lap length by 1.25 for ASTM A1035 reinforcing. Lap splices for bundled bars shall consist of individual bar splices within a bundle that do not overlap. Entire bundles shall not be lap spliced.
- H. Unless otherwise noted, reinforcing splices shall be staggered. Minimum distance between staggered lap splice shall be equal to the length required for the lap splice. Number of bars spliced at sections normal to axis of member shall not exceed 50 percent of the total main reinforcing in the member.
- I. Minimum clear spacing between parallel bars shall be 1 1/2 times the diameter of bars (for non bundled bars). In no case shall the clear distance between the bars be less than 1 1/2 times the maximum size of the coarse aggregate or 1 1/2".
- J. All dimensions relating to reinforcing bars are to centers of bars unless otherwise noted.
- K. Reinforcing bars shall be securely tied at all intersections and lap splices except where the spacing of intersections is less than 1 foot in each direction, in which case alternate intersections shall be tied.
- L. Strands for prestressing shall be Grade 270, seven wire low relaxation type conforming to ASTM A416.
- M. Dissimilar metals in contact shall be avoided where possible. If unavoidable, wrap contact surface with several layers of a dielectric tape such as Teflon or polypropylene. Any type of reinforcing steel or prestressing strand in contact with stainless steel shall be considered a dissimilar metal contact.

6. Reinforcement (Continued):

- N. Formsaver taper threaded couplers shall be capable of developing both 125% of the reinforcing steel yield strength and 100% of the ultimate strength such as Lenton SA type coupler or approved equal.
- O. Screw type couplers shall be capable of developing both 125% of the reinforcing steel yield strength and 100% of the ultimate strength such as Dayton Superior D250L Bar Lock L-series type coupler or approved equal.

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DRAWING NAME: Z:\000\000000\20-013-FARR-HW-KAPOLEI-GC-10-11-WP-RM(C)1-GA01-04-06-22-BID-SET\PH03-50005-STRUCT-GENNOTES.DWG PLOT TIME: 04-07-22, 4:23 PM



STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

**Structural General Notes**

FARRINGTON HIGHWAY WIDENING  
Kapolei Golf Course Road to Fort Weaver Road  
Project No. 7101A-01-20

Scale: None Date: Apr. 2022

**SHEET No. S07 OF 10 SHEETS**

**STRUCTURAL GENERAL NOTES:**

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	7101A-01-20	2021	347	

7. Glass Fiber Reinforced Polymer Rebar (ASTM D7957):
- A. Glass Fiber Reinforced Polymer (GFRP) rebar shall conform to ASTM D7957.
  - B. Concrete cover for the GFRP rebars shall be 1 1/2" unless otherwise noted.
  - C. Minimum lap splice lengths for the GFRP rebars shall be 42 bar diameter unless otherwise noted.
  - D. All GFRP rebars shall be securely tied in place. Tie wire shall be alloy 302 or 304 stainless steel or non-metallic.
  - E. The GFRP rebars may be cut in the field with a masonry or diamond blade.
  - F. All work including materials and bends shall follow manufacturer's recommendations.

8. General Construction Notes:
- A. The Contractor shall be responsible for obtaining As-Builts of the existing structures. As-built plans of the existing structures are available for review from the City & County of Honolulu, Department of Design and Construction, Civil Division, Bridge & Structures Section, 650 S. King Street, Honolulu, HI 96813. The Contractor shall verify all dimensions and site conditions and shall report any discrepancies in writing to the Engineer before commencing work or ordering materials.
  - B. The Contractor shall verify all site conditions and not rely upon these plans for existing elevations and azimuths, stream channel location, roads, roadway gutters, curbs and sidewalks, etc. Conditions may differ from those shown.
  - C. The Contractor shall verify the location of all utility lines and notify the respective owners before commencing with excavation, and any temporary piling or sheeting.
  - D. The Contractor shall be solely responsible for the protection of adjacent properties, utilities and existing and new structures from damage due to construction. Repairing any damage shall be at the Contractor's own expense, to the satisfaction of the Engineer.
  - E. Except as otherwise noted, all vertical dimensions are measured plumb.
  - F. Construction joints may be relocated or additional ones added subject to the approval of the Engineer.
  - G. Unless otherwise noted, all exposed concrete edges shall be chamfered 3/4"x3/4".

8. General Construction Notes (Continued):
- H. The Contractor shall submit working drawings and calculations for the proposed bracing/shoring details needed to protect the existing structures when subjected to loading from equipment, drilled shaft rigs, cranes, vehicles and fresh concrete, etc. The Contractor shall also submit working drawings and calculations for the proposed launching system (if required). All drawings and calculations shall be stamped by a State of Hawaii licensed Structural Engineer and a licensed Civil Engineer specializing in geotechnical engineering. The above work, including working drawings and calculations, shall be incidental to any structure excavation. The drawings and calculations shall be found acceptable by the Engineer before any construction work is to proceed.
  - I. No construction work, including falsework, shall be performed in any portion of the existing channel unless otherwise permitted by the Engineer.
  - J. Construction joints between separate pours shall not be feather edged, unless otherwise noted. All joints shall be made square and vertical for the entire thickness of the new pour prior to pouring, except as directed by the Engineer.
  - K. Construction joints shall be cleaned and roughened to 1/4" amplitude and saturated surface dry (SSD) prior to second concrete pour.
  - L. For the installation of anchor bolts for lighting standards, the Contractor shall provide rigid templates to maintain the proper locations and shall protect such anchor bolts at all times during the period constructions.
  - M. Girder concrete seats shall be poured monolithically with the drilled shaft cap beam. Top of concrete seats shall be finished with a steel trowel to a smooth level surface to the elevation shown on the plans. Grind down high spots as needed to provide an even bearing surface to 1/16"+ tolerance.
  - N. The Contractor shall provide a template including details showing exact location of rebar so that no interference will occur between vertical drilled shaft reinforcement and horizontal reinforcement in the drilled shaft cap beam.
  - O. CLSM backfill behind Honouliuli Stream Bridge Abutments shall be placed in lifts not exceeding 2'-0".

ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
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DRAWING NAME: Z:\A00\ONDONGM\20-013-FARR-HWY-KAPOLEI-GC-10-ET-WRP-EM(C)101-CAD\04-06-22-BID-SET\PH03-50005-STRUCT-GENNOTES.DWG PLOT TIME: 04-07-22: 4:23 PM

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.

*Rugo S. Miyahara*  
 SIGNATURE      April 30, 2024  
 EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII  
**DEPARTMENT OF TRANSPORTATION**  
 HIGHWAYS DIVISION

**Structural General Notes**

FARRINGTON HIGHWAY WIDENING  
 Kapolei Golf Course Road to Fort Weaver Road  
 Project No. 7101A-01-20

Scale: None      Date: Apr. 2022

**SHEET No. S0.8 OF 10 SHEETS**

STRUCTURAL GENERAL NOTES:

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	7101A-01-20	2021	348	

9. Foundation Notes:

A. The Foundation Design is based upon recommendations contained in the geotechnical engineering report prepared by Geolabs, Inc. with subject title "Geotechnical Engineering Exploration, Farrington Highway Improvements, Kapolei Golf Course Road to Fort Weaver Road, Ewa, Oahu, Hawaii" dated August 4, 2021. The report shall be considered as a part of the construction documents and its recommendations shall be implemented unless otherwise directed by the Engineer. The Contractor may obtain a copy of the report at the State of Hawaii, Department of Transportation, Highway Division, upon written request to the Engineer.

B. Design Soil Parameters

(1) Bearing pressure

- (a) Extreme event limit state = 12.0 ksf
- (b) Strength limit state = 5.4 ksf
- (c) Service limit state = 4.0 ksf

(2) Passive resistance

- (a) Extreme event limit state = 360 pcf
- (b) Strength limit state = 180 pcf

(3) Coefficient of friction

- (a) Extreme event limit state = 0.46
- (b) Strength limit state = 0.39

(4) Static lateral earth pressure (above groundwater)

- (a) Active condition
  - = 40 pcf (level backfill)
  - = 65 pcf Horizontal (2H:1V sloping backfill)
  - = 32 pcf Vertical (2H:1V sloping backfill)
- (b) At-rest condition
  - = 60 pcf (level backfill)
  - = 80 pcf Horizontal (2H:1V sloping backfill)
  - = 40 pcf Vertical (2H:1V sloping backfill)

9. Foundation Notes (Continued):

(5) Dynamic lateral earth pressure

- (a) Active condition, level backfill =  $4.0H$ \* psf (rectangular distribution)
- (b) At-rest condition, level backfill =  $7.4H$ \* psf (rectangular distribution)

\*where H = Height of Wall in feet

10. Load Rating:

A. Honouliuli Stream Bridge governing load rating results are as follows:

		Rating Factor	Live Load Distribution Factor	Load Effect	Controlling Member
Design	HL-93 (Inv)	1.28	0.755	Shear	Int. Girder
	HL-93 (Opr)	1.74	0.755	Shear	Int. Girder

B. Kaloi Gulch Bridge governing load rating results are as follows:

		Rating Factor	Live Load Distribution Factor	Load Effect	Controlling Member
Design	HL-93 (Inv)	1.48	0.743	Shear	Int. Girder
	HL-93 (Opr)	1.92	0.743	Shear	Int. Girder

C. Hunehune Gulch Box Culvert governing load rating results are as follows:

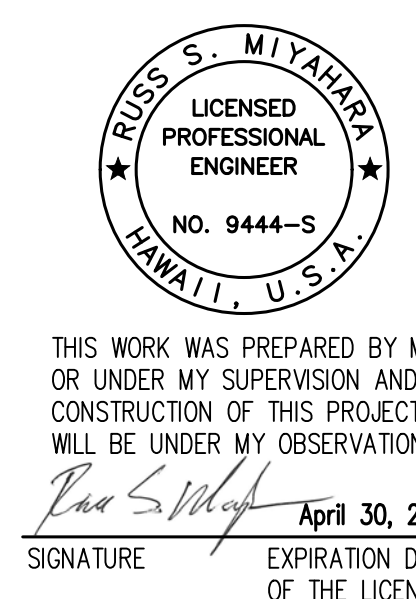
		Rating Factor	Live Load Distribution Factor	Load Effect	Controlling Member
Design	HL-93 (Inv)	2.31	0.065	Pos. Moment	Top Slab
	HL-93 (Opr)	3.00	0.065	Pos. Moment	Top Slab

D. Palehua Stream Box Culvert governing load rating results are as follows:

		Rating Factor	Live Load Distribution Factor	Load Effect	Controlling Member
Design	HL-93 (Inv)	1.68	0.088	Pos. Moment	Top Slab
	HL-93 (Opr)	2.18	0.088	Pos. Moment	Top Slab

ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
NOTE BOOK	DRAWN BY	
No. _____	DESIGNED BY	
	QUANTITIES BY	
	CHECKED BY	

DRAWING NAME: Z:\100\_050505\20-013-FARR-HW-KAPOLEI-GC-10-ET-WRP-RMTC\01-GAD\04-06-22-BID-SET\FH03-50505\_STRUCT\_GENNOTES.DWG PLOT TIME: 04-07-22, 4:24 PM



STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

**Structural General Notes**

FARRINGTON HIGHWAY WIDENING  
Kapolei Golf Course Road to Fort Weaver Road  
Project No. 7101A-01-20

Scale: None Date: Apr. 2022

**SHEET No. S0.9 OF 10 SHEETS**

## SYMBOLS AND ABBREVIATIONS

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	7101A-01-20	2021	349	

<p> <math>\\$</math> And  <math>@</math> At  <math>\emptyset</math> Diameter  <math>\geq</math> Greater Than or Equal to  <math>\leq</math> Less Than or Equal to  <math>\#</math> Number  <math>\#</math> Baseline  <math>\oplus</math> Center line  <math>L</math> Angle                    AB Anchor Bolt                  Abut. Abutment                  Abbr. Abbreviation                  AC Asphaltic Concrete                  Add. Additional                  Alt. Alternate                  Approx. Approximate                  Az. Azimuth                    Bal. Balance                  Bet. Between                  BF Both Faces                  BFE Bottom of Footing Elevation                  Bk. Back                  Blt. Bolt                  Bm. Beam                  BOF Bottom of Footing                  Bot., Bott., B Bottom                  Br. Bridge                  Brg., Brgs. Bearings                  BVC Beginning of Vertical Curve                  BW Both Ways                    Cant. Cantilever                  CBW Concrete Barrier Wall                  cc Center to Center                  CF Cubic Feet                  CFCW Continuous Flashing Compound                      Waterproofing                  CG Center of Gravity                  CIP Cast Iron Pipe, Cast in Place                  CJ Construction Joint                  Cl. Class                  Clr. Clearance                  CLSM Controlled Low Strength                      Material                  CMU Concrete Masonry Unit                  Cntl. Jt. Control Joint                  CO Clean Out                  Col. Column                  Conc. Concrete                  Conn. Connection                  Const. Construction                  Cont. Continuous                  CSL Crosshole Sonic Logging                  CRM Cement Rubble Masonry                  CY, Cu. Yd. Cubic Yard                    Dbl. Double             </p>	<p>                 Demol. Demolition                  Det. Detail                  DI Drain Inlet, Ductile Iron                  Dia. Diameter                  Diaph. Diaphragm                  Dim. Dimension                  Dist. Distance                  Dn. Down                  DO Ditto                  DS Drilled Shaft                  Dwg., Dwgs. Drawing, Drawings                  Dwls. Dowels                    e Existing                  E East                  EA, Ea., ea. Each                  EF Each Face                  EFH Each Face Horizontal                  EFV Each Face Vertical                  EJ Expansion Joint                  El., Elev. Elevation                  Elec. Electrical                  Emb. Embankment                  EMH Electrical Manhole                  EPE Existing Edge of Pavement                  EPS Expanded Polystyrene                  Eq. Equal                  ES Edge of Shoulder                  Est. Estimated                  EVC End of Vertical Curve                  EW Each Way                  Exc. Excavation                  Excl. Excluding                  Exist., Ex. Existing                  Exp., (E) Expansion                  Ext. Exterior                    (F) Fixed                  FA Force account                  FB Flat Bar                  FC Compression Stresses                  f'c Specified Compressive Strength                      of Concrete at 28 days                  f'ci Specified Compressive Strength                      of Concrete at Time of Initial                      Prestress                  FF Far Face, Front Face                  Fig. Figure                  Fin. Gr. Finish Grade                  FRP Fiberglass Reinforced Polymer                  FT Tensile Stresses                  Ft. Feet, Foot                  Ftg. Footing                    G, Gir. Girder                  Ga. Gage, Gauge                  Galv. Galvanized                  GDI Grated Drain Inlet             </p>	<p>                 GFRP Glass Fiber Reinforced                      Polymer Rebar                  Gr. Grade                  Grd. Ground                  GRP Grouted Rubble Pavement                    (H) Hinge                  HDPE High Density Polyethylene                  HDOT State of Hawaii Department                      of Transportation                  HECO Hawaiian Electric Company                  Horiz., H Horizontal                  Ht. Height                  HS High strength                  Hwy. Highway                    IB Inbound                  ID Inside Diameter                  IF Inside Face                  In. Inch                  Int. Interior                  Inv. Invert                    Jt. Joint                    K Kips                  KF Kip Foot                  KLF Kips Per Linear Foot                  KSF Kips Per Square Foot                  KSI, ksi Kips Per Square Inch                    L Length                  lb., lbs., LBS. Pound, Pounds                  LF, Lin. Ft. Linear Feet/Foot                  Longit. Longitudinal                  LS Lump Sum                  Ltg. Std. Lighting Standard                    M Modified                  Max. Maximum                  Mech. Mechanical                  MH Manhole                  Min. Minimum                  Misc. Miscellaneous                  MPH Miles Per Hour                  MSL Mean Sea Level                    N North                  NF Near Face                  NIC Not in Contract                  No. Number                  NTS Not to Scale                    OB Outbound                  oc, o.c. On Center                  OD Outside Diameter                  OG Outside Girder,                      Outbound Girder             </p>	<p>                 Opr'g Opening                  O/S Offset                  OHWM Ordinary High Water Mark                    PB Pull Box                  PL Plate                  PCCP Portland Cement Concrete                  Pavement                  PC Point of Curvature                  PCF Pounds per Cubic Foot                  P(e) Effective Prestress Force                      After All Losses                  Perf. Perforated                  PI Point of Intersection                      of Tangents                  PIVC Point of Intersection of                      Vertical Curve                  PLF, plf Pounds per Linear Foot                  PPM Parts Per Million                  PRC Point of Reverse Curvature                  PVC Polyvinyl Chloride                  Prestr. Prestressed                  P/S Prestressed Strands                  PSF, psf Pounds per Square Foot                  PSI, psi Pounds per Square Inch                    PT Point of Tangency                  Pt., Pts. Point, Points                  R, Rad. Radius                  Rebar Reinforcing Bar                  Ref. Reference                  Reinf. Reinforced, Reinforcing,                      Reinforcement                  Req'd. Required                  Ret. Retaining                  RF Rear Face                  ROW Right of Way                  Rdwy. Roadway                    S South                  SBD Special Bridge Deck Mix                  SE Super Elevation                  Sect. Section                  SF, sq. ft. Square Feet                  Sht. Sheet                  Sim. Similar                  Sl. Slope                  Spcs., Spg. Spaces, Spacing                  Spec. Specification                  Sprd. Spread                  SRW Segmental Retaining Wall                  SS Stainless Steel                  Std. Standard                  Sta. Station                  Stiff. Stiffener                  Stirr. Stirrup                  Stl. Steel                  Str. Straight             </p>	<p>                 Struct. Structure                  SY Square Yard                  Symm. Symmetrical                    T Top                  T&amp;B Top and Bottom                  Tan. Tangent                  TCE Top of Column                      (and Bent Cap Soffit) Elevation                  Temp. Temporary                  Term. Terminal                  TFE Top of Footing Elevation                  Thk. Thick                  TOD Top of Deck                  TOP Top of Pier                  Tot. Total                  Transv. Transverse                  TS Structural Tubing                  TSS Tendon For Girder in Simply                      Supported Condition                  Typ. Typical                  Undergrd. Underground                    Var. Varies                  VC Vertical Curve                  VESLMC Very Early Strength Latex                      Modified Concrete                  Vert., V Vertical                    W West                  w/ With                  W/C Water/Cementitious                  WP Work Point, Working Point                  WS Water Surface                  WW Wingwall                  WWF Welded Wire Fabric                    Yr. Year             </p>
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SURVEY PLOTTED BY _____ DATE _____ DRAWN BY _____ DESIGNED BY _____ QUANTITIES BY _____ CHECKED BY _____	ORIGINAL PLAN _____ NOTE BOOK _____ No. _____
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DRAWING NAME: Z:\001\00000000\20-013-FARR-HW-KAPOLEI-GO-10-11-WIDENING\01-CAD\04-06-22-BID-SET\7101A-01-20-STATE-ABBRVDWG PLOT TIME: 04-07-22, 4:25 PM



THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.  
 Signature: *Russ S. Miyahara* April 30, 2024  
 EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

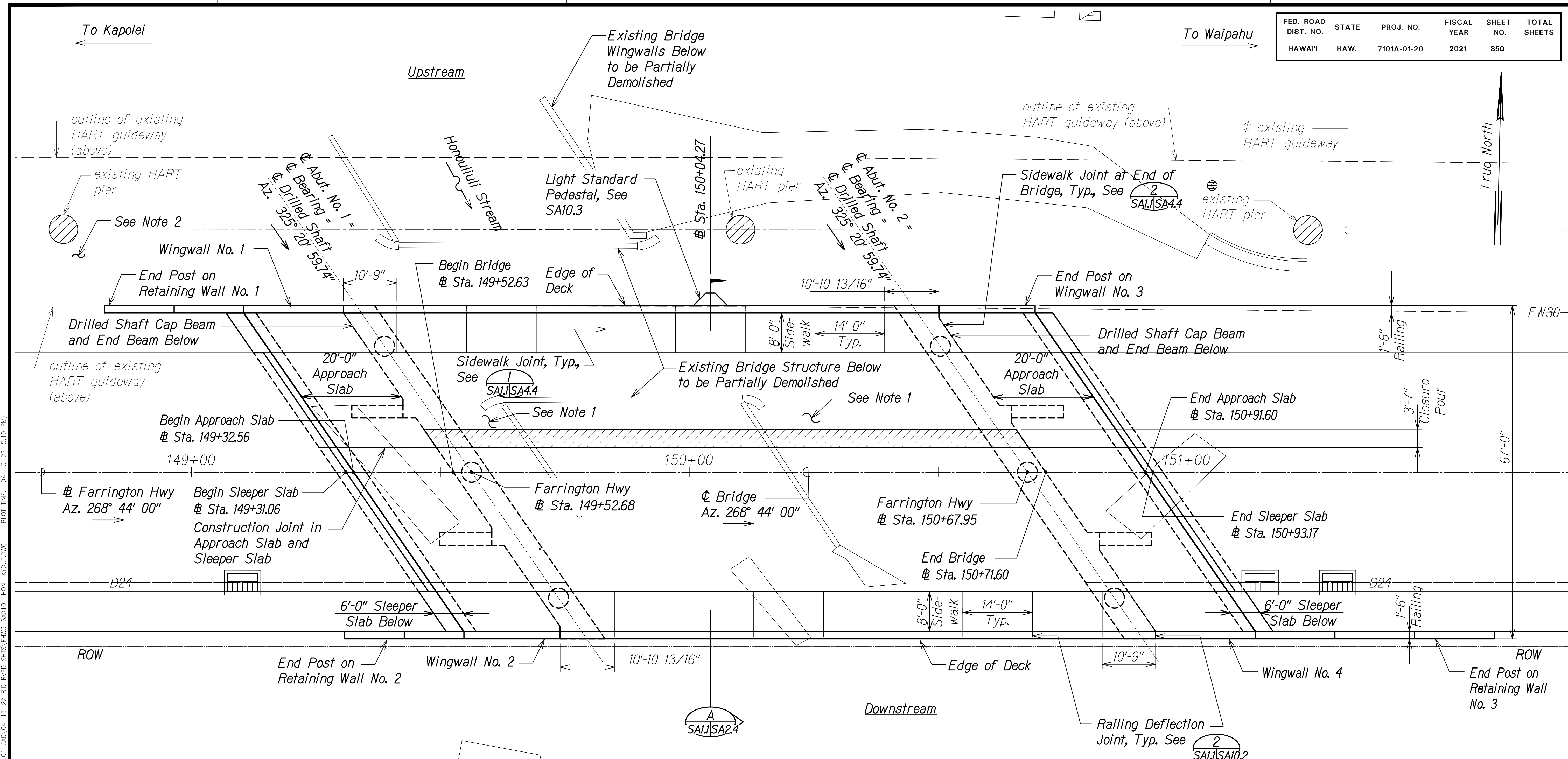
### Symbols and Abbreviations

FARRINGTON HIGHWAY WIDENING  
Kapolei Golf Course Road to Fort Weaver Road  
Project No. 7101A-01-20

Scale: None Date: Apr. 2022

SHEET No. 00.10 OF 10 SHEETS

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	7101A-01-20	2021	350	



**Notes:**

- Contractor is responsible for determining the limits and providing all necessary earthwork shoring to facilitate the staged construction requirements of the bridge. Shoring design shall take in to account grade differences between the staged backfilling operations as well as the location of and load imposed by the nearby existing metal guardrails.
- Earthwork shoring near existing HART piers may be required during structure excavation work
- The Contractor shall submit drawings and calculations for the shoring design. The drawings and calculations shall be stamped by a licensed Structural Engineer and a licensed Civil Engineer specializing in Geotechnical Engineering in the State of Hawaii. The drawings and calculations shall be reviewed by the Engineer before any construction work is to proceed.
- Dimensions for approach slab and sleeper slab are measured parallel with  $\phi$  bridge.

**LAYOUT PLAN**  
Scale: 1" = 10'-0"

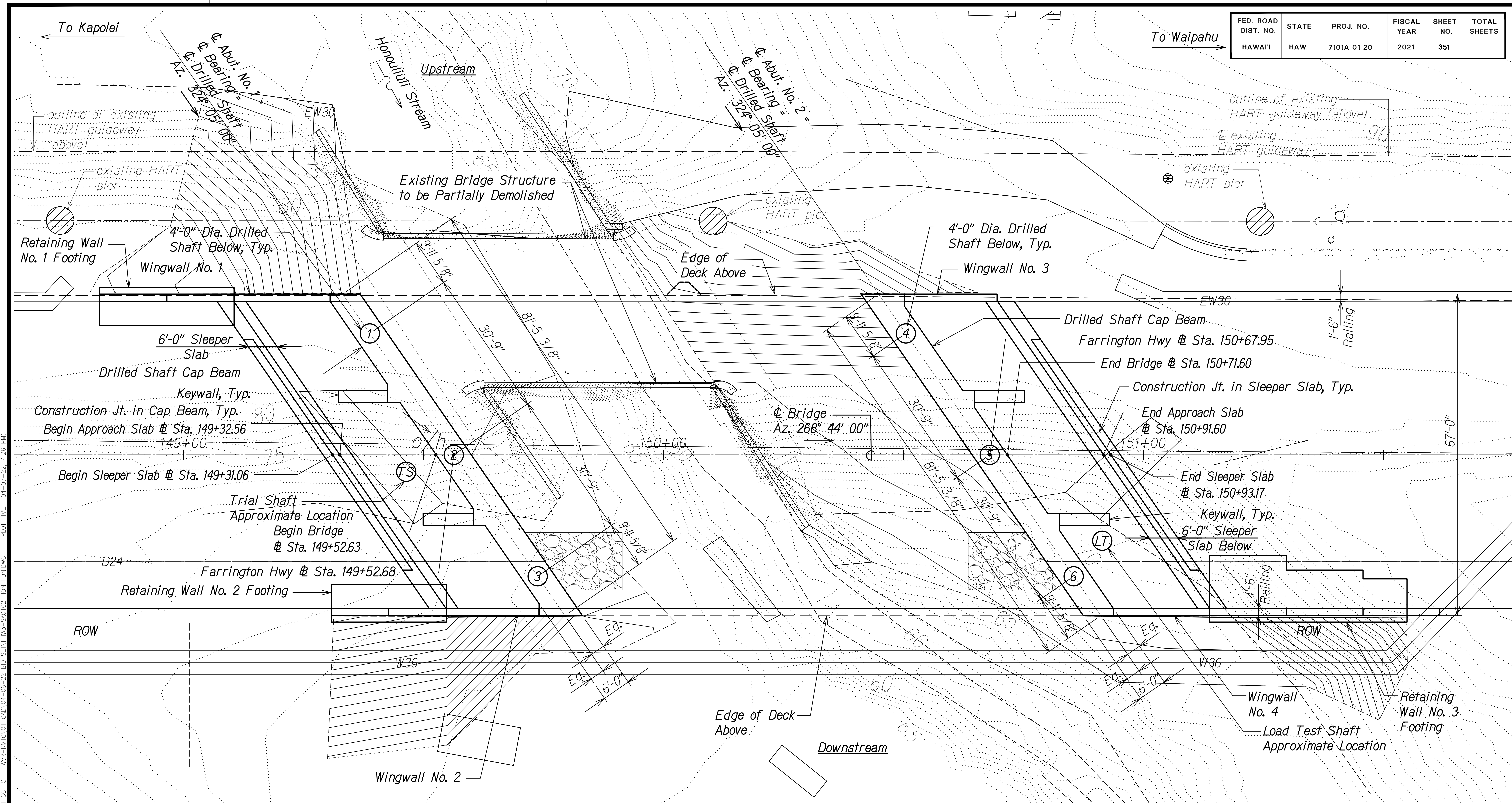
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DESIGNED BY	
QUANTITIES BY	
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ORIGINAL PLAN	No.
NOTE BOOK	

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 Signature: *Russ S. Miyahara*  
 April 30, 2024  
 EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII  
 DEPARTMENT OF TRANSPORTATION  
 HIGHWAYS DIVISION  
**Honouliuli Stream Bridge**  
 Layout Plan  
 FARRINGTON HIGHWAY WIDENING  
 Kapolei Golf Course Road to Fort Weaver Road  
 Project No. 7101A-01-20  
 Scale: As Shown Date: Apr. 2022  
 SHEET No. SA11 OF 4 SHEETS

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	7101A-01-20	2021	351	



**Notes:**

- Existing structures are shown for reference only and are to be partially demolished. See sheets SA3.1 to SA3.3.
- Locations for trial shaft and load test shaft are approximate. For additional requirements, see Special Provisions 511.
- For drilled shaft details, see sheets SA9.1 to SA9.3.

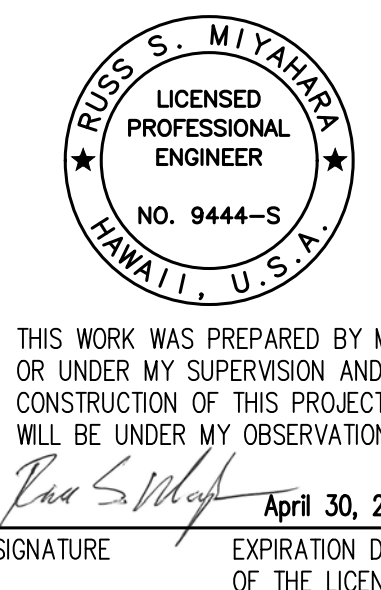
**Legend:**

- # Drilled Shaft Number
- TS Trial Shaft
- LT Load Test Shaft

**FOUNDATION PLAN**  
 Scale: 1" = 10'-0"  
 A  
 SA1.2 SA1.2

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

DRAWING NAME: SA102 FOUNDATIONS-20-013-FARR-HWY-KAPOLEI GC ID: ET-WRP-PRM3-SA0102-HON-ENGLING PLOT TIME: 04-07-22, 4:28 PM



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 Signature: [Signature]  
 April 30, 2024  
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STATE OF HAWAII  
 DEPARTMENT OF TRANSPORTATION  
 HIGHWAYS DIVISION

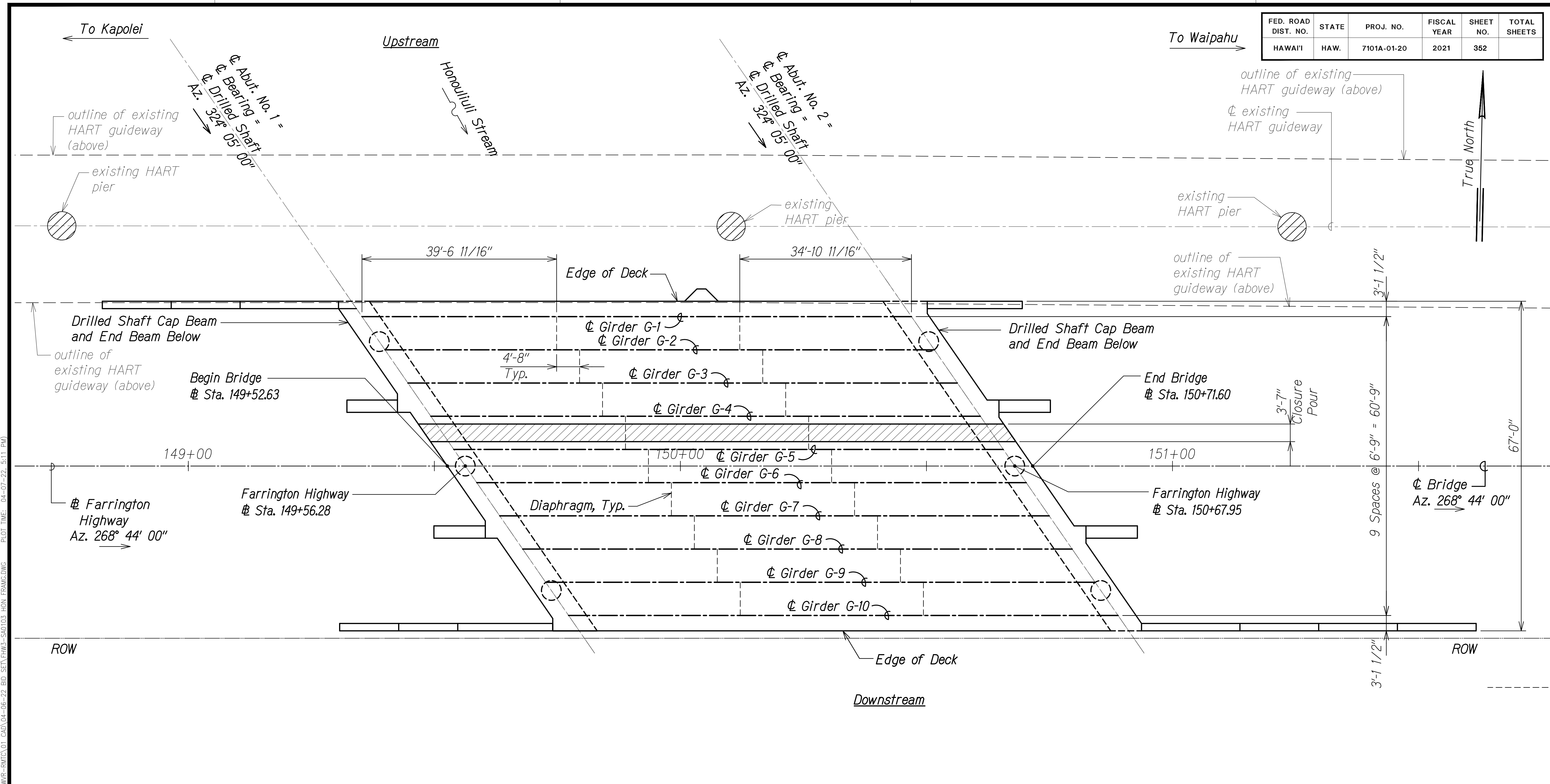
**Honouliuli Stream Bridge  
 Foundation Plan**

FARRINGTON HIGHWAY WIDENING  
 Kapolei Golf Course Road to Fort Weaver Road  
 Project No. 7101A-01-20

Scale: As Shown Date: Apr. 2022  
 SHEET No. SA1.2 OF 4 SHEETS



FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	7101A-01-20	2021	352	



DRAWING NAME: SA103 UNDESIGNED-013-FARR-HW KAPOLEI GC ID: ET WPG-BMT(C)01 CAD: 04-06-22 BID: SET/FH03-SA0103-HON FRAMING PLAN TIME: 04-07-22: 5:11 PM

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

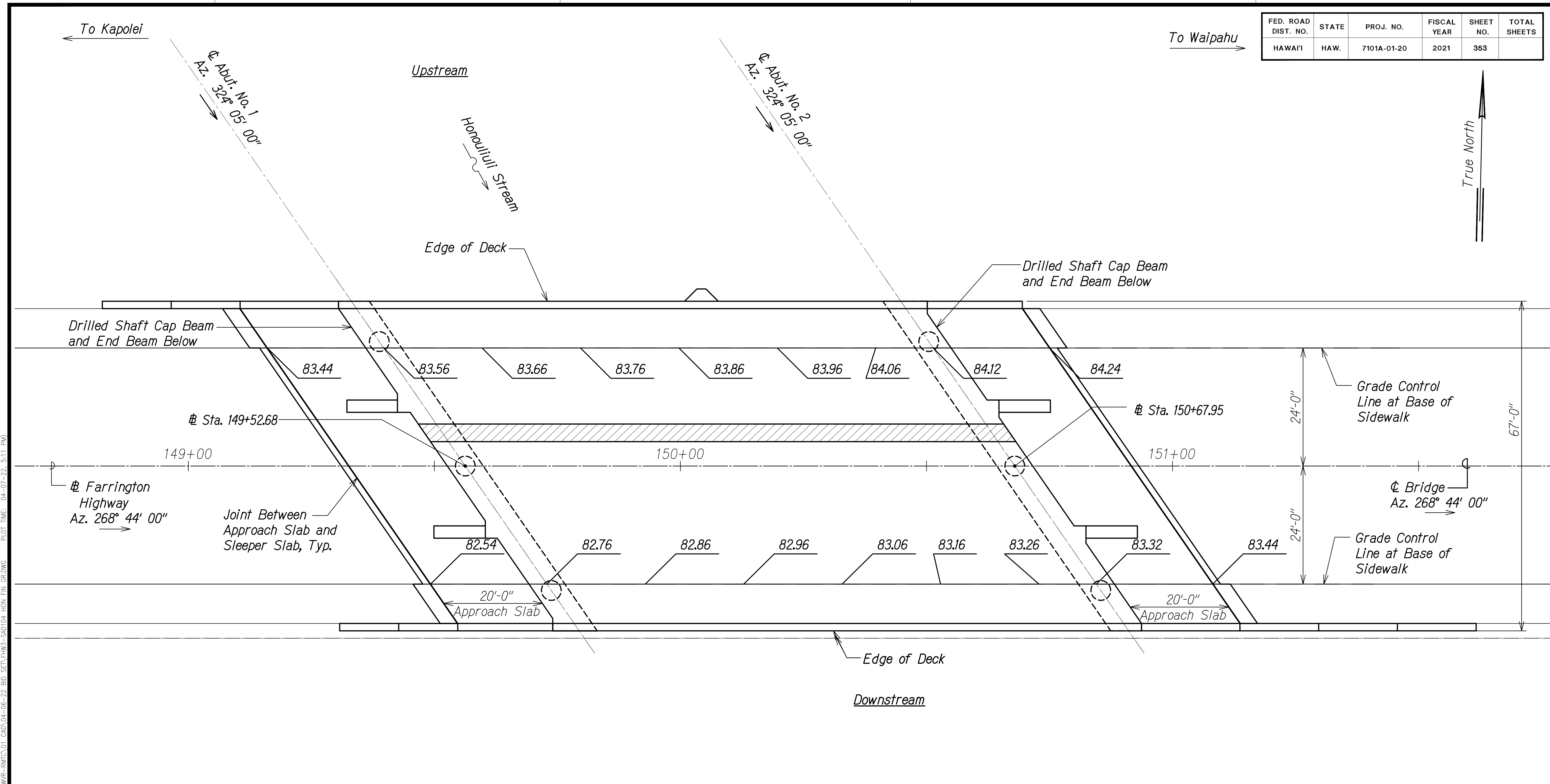
- Notes:**
- See sheets SA5.1 through SA5.3 for girders.
  - See sheet SA6.1 for diaphragms.

**DECK FRAMING PLAN**  
 Scale: 1" = 10'-0" A  
SA1.3 SA1.3

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.  
 Signature: *Rugo S. Miyahara*  
 April 30, 2024  
 EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII  
 DEPARTMENT OF TRANSPORTATION  
 HIGHWAYS DIVISION  
**Honouliuli Stream Bridge**  
**Deck Framing Plan**  
 FARRINGTON HIGHWAY WIDENING  
 Kapolei Golf Course Road to Fort Weaver Road  
 Project No. 7101A-01-20  
 Scale: As Shown Date: Apr. 2022  
**SHEET No. SA1.3 OF 4 SHEETS**

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	7101A-01-20	2021	353	



DRAWING NAME: Z:\A\00\ONDONGS\20-013-FARR-HW-KAPOLEI\04-06-22 BD SET\FIN\3-SA0104-HON FIN GR.DWG PLOT TIME: 04-07-22: 5:11 PM

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QUANTITIES BY	
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ORIGINAL PLAN	
NOTE BOOK	
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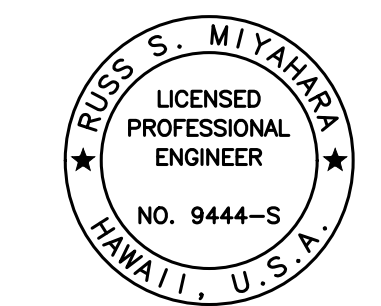
**Legend:**

Closure Pour in Bridge Deck, End Beam and Corbel

**Note:**

Off the bridge, finish grades are given at the joint between the approach slab and sleeper slab. On the bridge deck, finish grades are given at each centerline abutment and at 20 foot intervals measured parallel to Farrington Highway baseline along the bottom of sidewalk starting at centerline Abutment No. 1.

**FINISH GRADE PLAN**  
Scale: 1" = 10'-0" A  
SA1.4 SA1.4



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*Rugo S. Miyahara*  
 SIGNATURE      April 30, 2024  
 EXPIRATION DATE OF THE LICENSE

**STATE OF HAWAII**  
**DEPARTMENT OF TRANSPORTATION**  
 HIGHWAYS DIVISION

**Honouliuli Stream Bridge**  
**Finish Grade Plan**

FARRINGTON HIGHWAY WIDENING  
 Kapolei Golf Course Road to Fort Weaver Road  
 Project No. 7101A-01-20

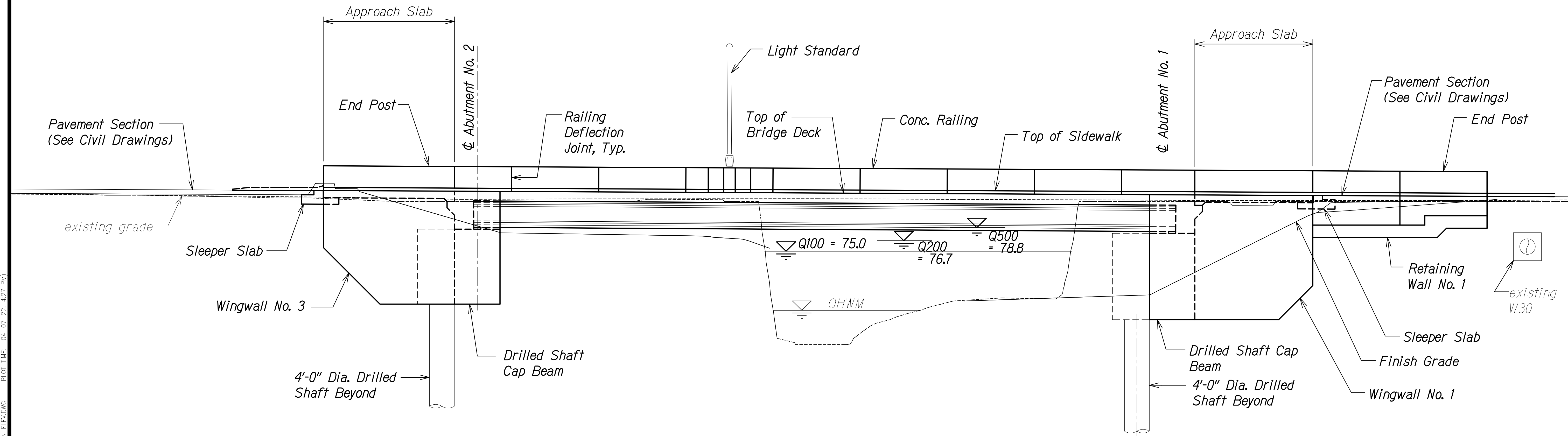
Scale: As Shown      Date: Apr. 2022

**SHEET No. SA1.4 OF 4 SHEETS**

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	7101A-01-20	2021	354	

To Waipahu ←

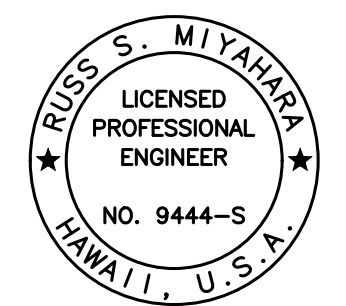
→ To Kapolei



UPSTREAM ELEVATION A  
 Scale: 1/8" = 1'-0" SA2.1 | SA2.1

SURVEY PLOTTED BY	DATE
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DESIGNED BY	
QUANTITIES BY	
CHECKED BY	
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NOTE BOOK	
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DRAWING NAME: Z:\100 ONGOING\20-013-FARR-HWY-KAPOLEI\GC\_ID\_ET\_WPG-EMTC\01\_GAD\04-06-22 BID SET\FHW3-SK0201-HON ELEV.DWG PLOT TIME: 04-07-22, 4:27 PM



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 Signature: *Russ S. Miyahara*  
 April 30, 2024  
 EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII  
 DEPARTMENT OF TRANSPORTATION  
 HIGHWAYS DIVISION

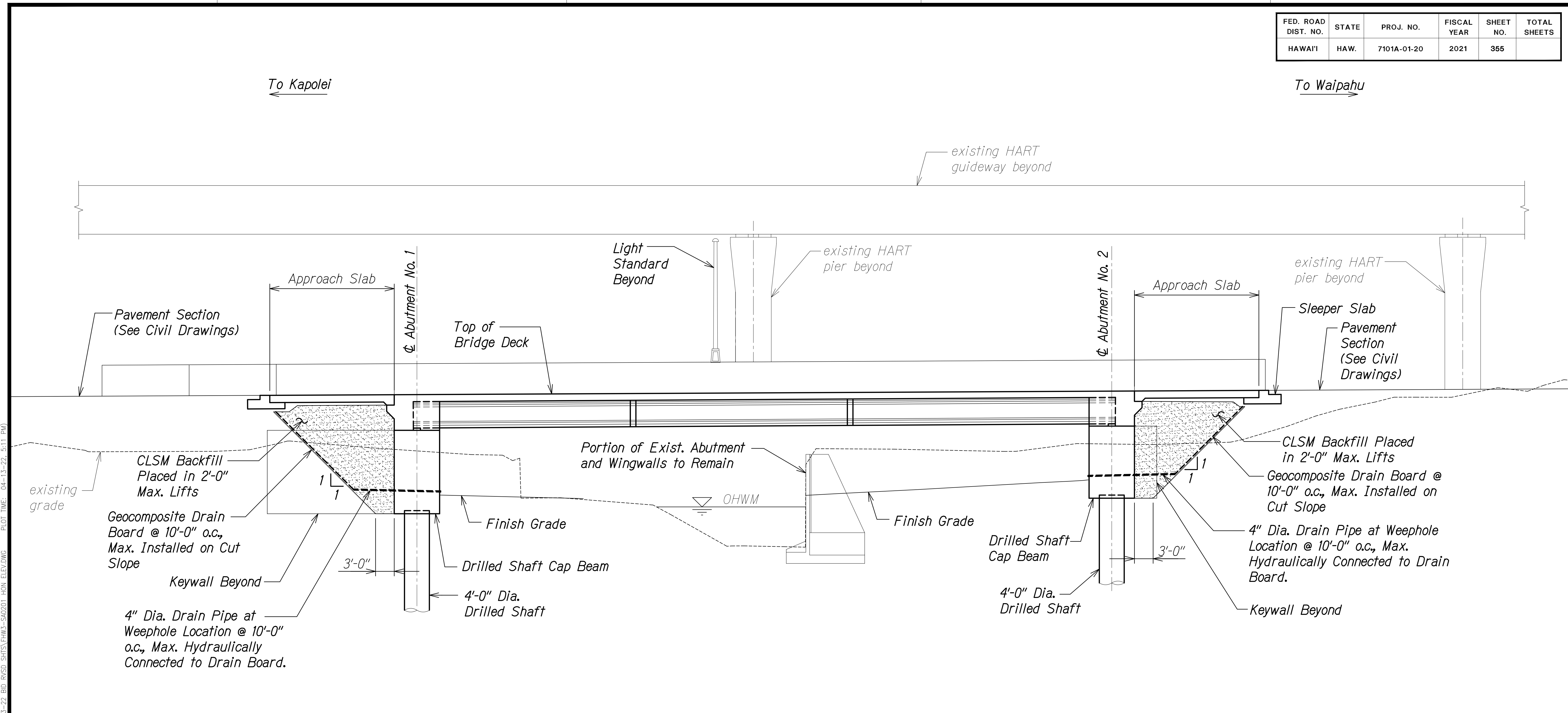
**Honouliuli Stream Bridge  
 Upstream Elevation**

FARRINGTON HIGHWAY WIDENING  
 Kapolei Golf Course Road to Fort Weaver Road  
 Project No. 7101A-01-20

Scale: As Shown Date: Apr. 2022

**SHEET No. SA2.1 OF 6 SHEETS**

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	7101A-01-20	2021	355	



**SECTION AT FARRINGTON HWY BASELINE**  
 Scale: 1/8" = 1'-0" A  
SA2.2 | SA2.2

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

DRAWING NAME: Z:\00\_ONGOING\20-013-FARR-HWY-KAPOLEI.GC.ID.IT.WIP-EMTC\01-CAD\04-13-22-BD-RVSD-SHRS\FHW3-SAG201-HIGH-ELEV.DWG PLOT TIME: 04-13-22, 5:11 PM

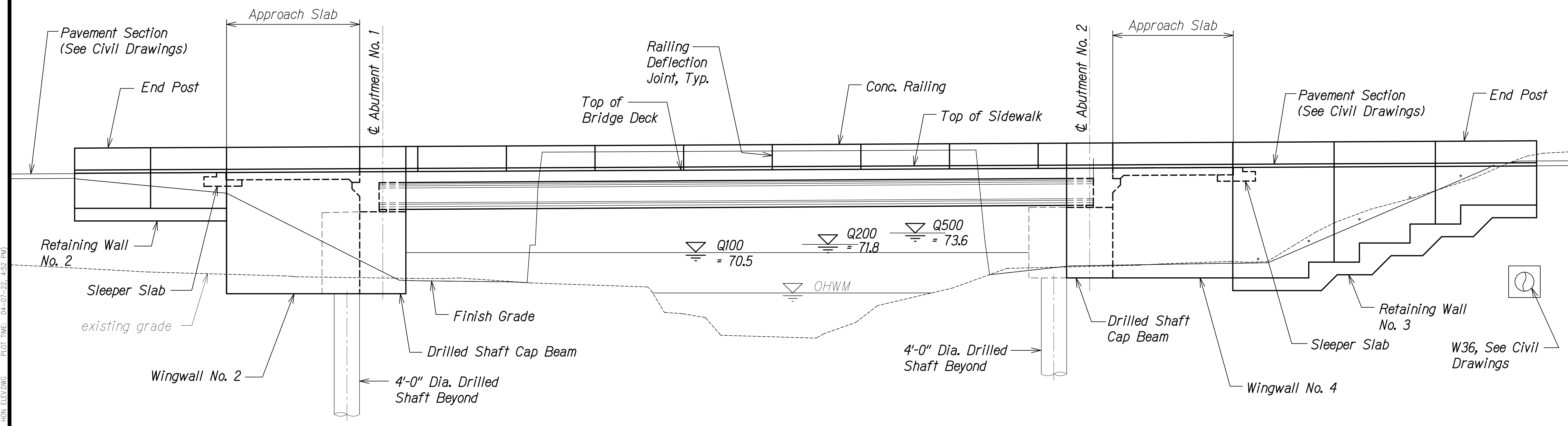
THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.  
*Russ S. Miyahara*  
 SIGNATURE      April 30, 2024  
 EXPIRATION DATE OF THE LICENSE

**STATE OF HAWAII**  
**DEPARTMENT OF TRANSPORTATION**  
**HIGHWAYS DIVISION**  
**Honouliuli Stream Bridge**  
**Section at Baseline**  
**FARRINGTON HIGHWAY WIDENING**  
**Kapolei Golf Course Road to Fort Weaver Road**  
**Project No. 7101A-01-20**  
 Scale: As Shown      Date: Apr. 2022  
**SHEET No. SA2.2 OF 6 SHEETS**

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	7101A-01-20	2021	356	

To Kapolei ←

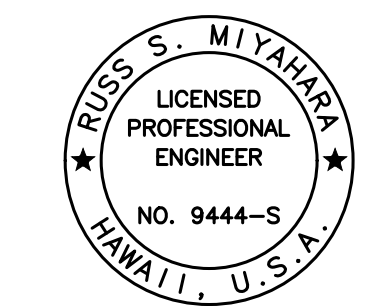
→ To Waipahu



**DOWNSTREAM ELEVATION**  
 Scale: 1/8" = 1'-0"  
 A  
 SA2.3 SA2.3

SURVEY PLOTTED BY	DATE
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DESIGNED BY	
QUANTITIES BY	
CHECKED BY	
ORIGINAL PLAN	
NOTE BOOK	
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DRAWING NAME: Z:\100\_ONGOING\20-013-FARR-HWY-KAPOLEI\04-06-22 BID SET\FHW3-SA2001-HON ELEV.DWG PLOT TIME: 04-07-22 4:52 PM



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 Signature: *Rugo S. Miyakawa*  
 April 30, 2024  
 EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII  
 DEPARTMENT OF TRANSPORTATION  
 HIGHWAYS DIVISION

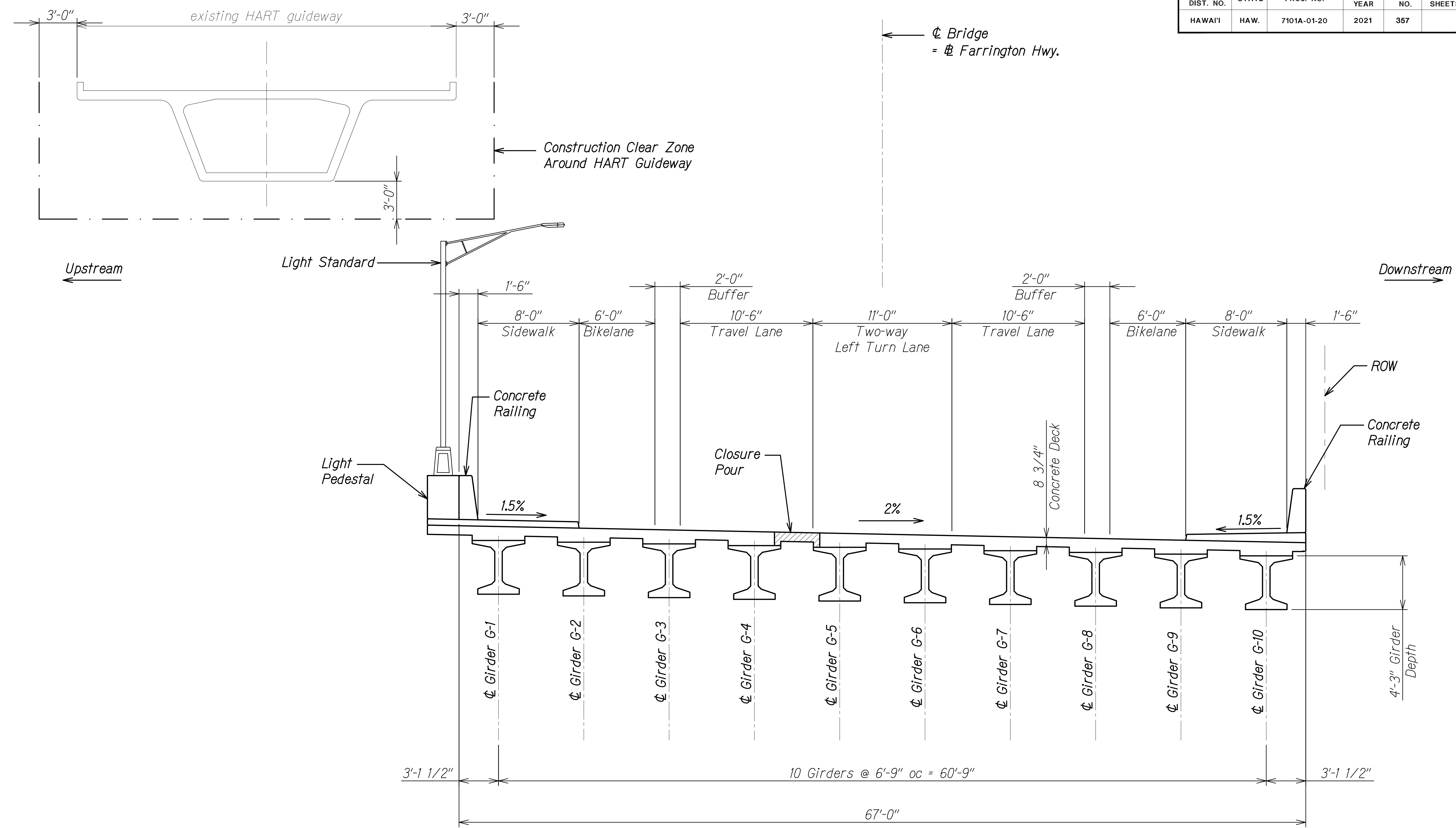
**Honouliuli Stream Bridge**  
**Downstream Elevation**

FARRINGTON HIGHWAY WIDENING  
 Kapolei Golf Course Road to Fort Weaver Road  
 Project No. 7101A-01-20

Scale: As Shown Date: Apr. 2022

**SHEET No. SA2.3 OF 6 SHEETS**

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	7101A-01-20	2021	357	



ORIGINAL PLAN	DATE
NOTE BOOK	
No.	

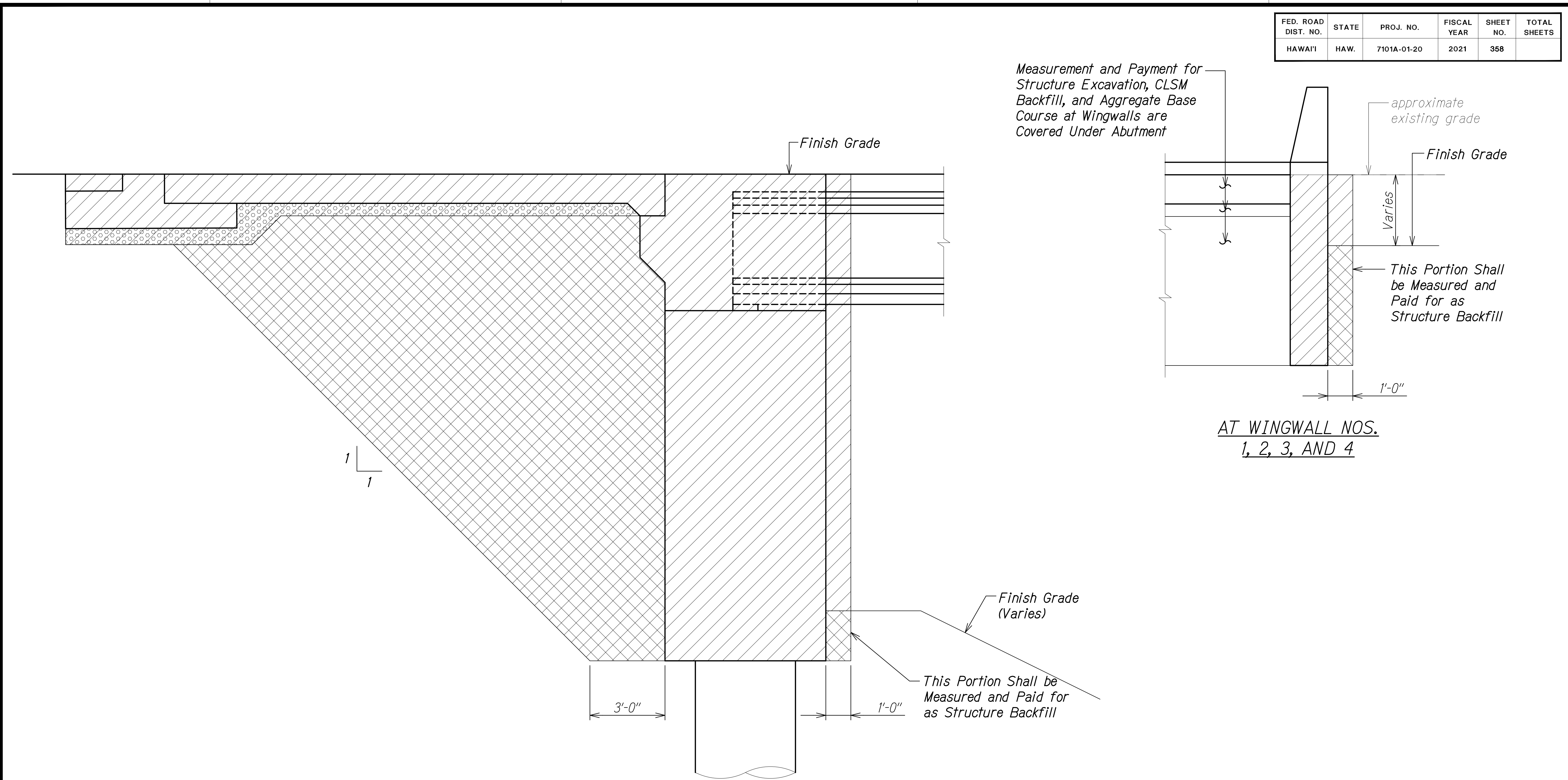
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**TYPICAL TRANSVERSE SECTION A**  
 Scale: 3/16" = 1'-0"  
 SA2.1 SA2.4

**RUCS S. MIYAKAWA**  
 LICENSED PROFESSIONAL ENGINEER  
 NO. 9444-S  
 HAWAII, U.S.A.  
 THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.  
 SIGNATURE: *RUCS S. Miyakawa* EXPIRATION DATE OF THE LICENSE: April 30, 2024

STATE OF HAWAII  
 DEPARTMENT OF TRANSPORTATION  
 HIGHWAYS DIVISION  
**Honouliuli Stream Bridge**  
 Typical Transverse Section  
 FARRINGTON HIGHWAY WIDENING  
 Kapolei Golf Course Road to Fort Weaver Road  
 Project No. 7101A-01-20  
 Scale: As Shown Date: Apr. 2022  
**SHEET No. SA24 OF 6 SHEETS**

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	7101A-01-20	2021	358	



DRAWING NAME: Z:\00\_ONGOING\20-013-FARR-HWY-KAPOLEI-GC-10-ET-WR-EMTC\01-CAD\04-08-22-BD-RVSD-SHRS\FHWG-SAD\208\_EXC&BACKFILL.DWG PLOT TIME: 04-08-22 3:58 PM

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

- Legend:**
- Structure Excavation
  - CLSM Backfill
  - Aggregate Base Course

**Note:**  
All horizontal dimensions are measured perpendicular to the vertical face.

**STRUCTURE EXCAVATION AND BACKFILL PAY LIMITS SECTIONS**  
Scale: 1/2" = 1'-0"



THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.  
*Rugen S. Miyahara*  
 SIGNATURE      April 30, 2024  
 EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

**Honouliuli Stream Bridge  
Excavation and Backfill Pay Limits**

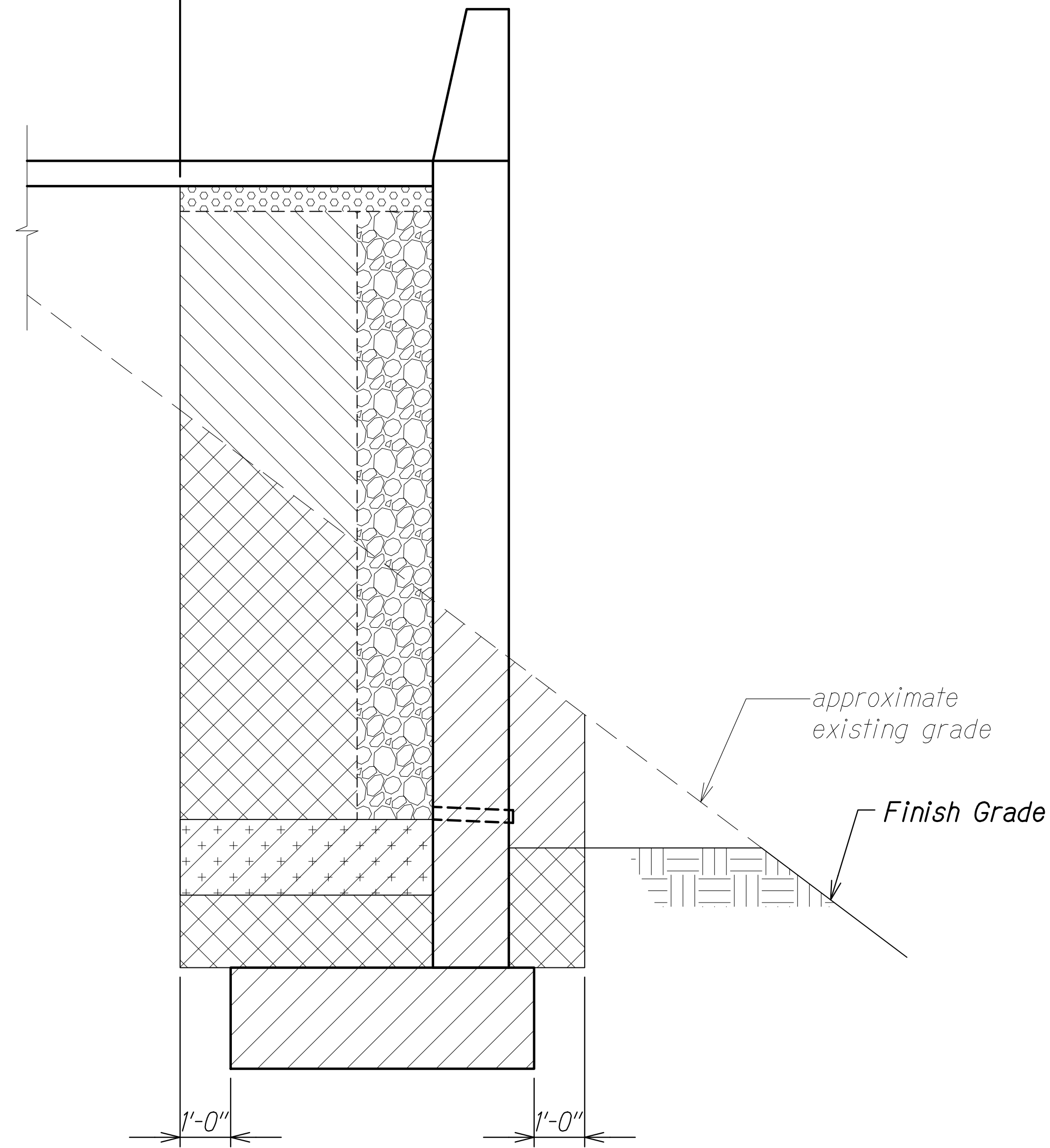
FARRINGTON HIGHWAY WIDENING  
Kapolei Golf Course Road to Fort Weaver Road  
Project No. 7101A-01-20

Scale: As Shown      Date: Apr. 2022

**SHEET No. SA25 OF 6 SHEETS**

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	7101A-01-20	2021	359	

Pay Limits for Roadway  
Excavation and Backfill  
(See Civil Drawings)



AT RETAINING WALL NOS. 1, 2, AND 3



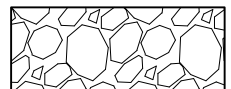
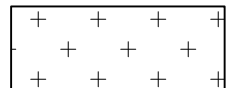
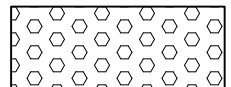
**STRUCTURE EXCAVATION AND  
BACKFILL PAY LIMITS SECTION**  
Scale: 1/2" = 1'-0"

A  
SA2.6 SA2.6

**Notes:**

1. All horizontal dimensions are measured perpendicular to the vertical face.
2. Impervious material shall be incidental to the measurement and payment for Structure Backfill for Honouliuli Retaining Walls.

**Legend:**

-  Structure Excavation
-  Structure Backfill
-  Filter Material w/ Filter Fabric
-  Impervious Material
-  Aggregate Base Course

ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
NOTE BOOK	DRAWN BY	
No. _____	DESIGNED BY	
	QUANTITIES BY	
	CHECKED BY	

DRAWING NAME: Z:\00\_ONGOING\20-013-FARR-HWY-KAPOLEI\GC\_ID\_ET\_W\2-EMTC\01\_GAD\04-08-22\_BID\_R\SD\_S\15\FHWG-SA0206\_EXC&BACKFILL.DWG PLOT TIME: 04-08-22 3:58 PM

**RUGO S. MIYAKAWA**  
LICENSED PROFESSIONAL ENGINEER  
NO. 9444-S  
HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.  
Signature: *Rugo S. Miyakawa*  
April 30, 2024  
EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

**Honouliuli Stream Bridge  
Excavation and Backfill Pay Limits**

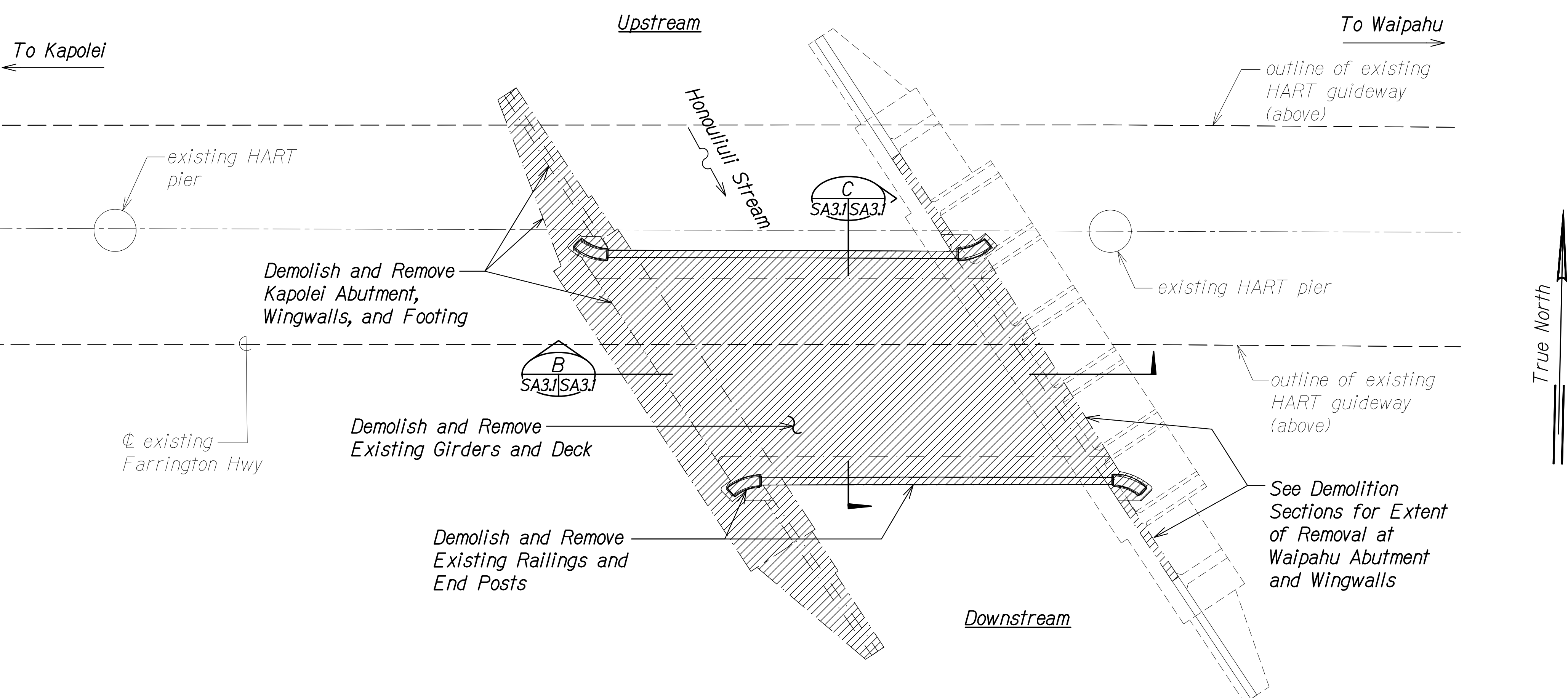
FARRINGTON HIGHWAY WIDENING  
Kapolei Golf Course Road to Fort Weaver Road  
Project No. 7101A-01-20

Scale: As Shown Date: Apr. 2022

**SHEET No. SA2.6 OF 6 SHEETS**



FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	7101A-01-20	2021	360	



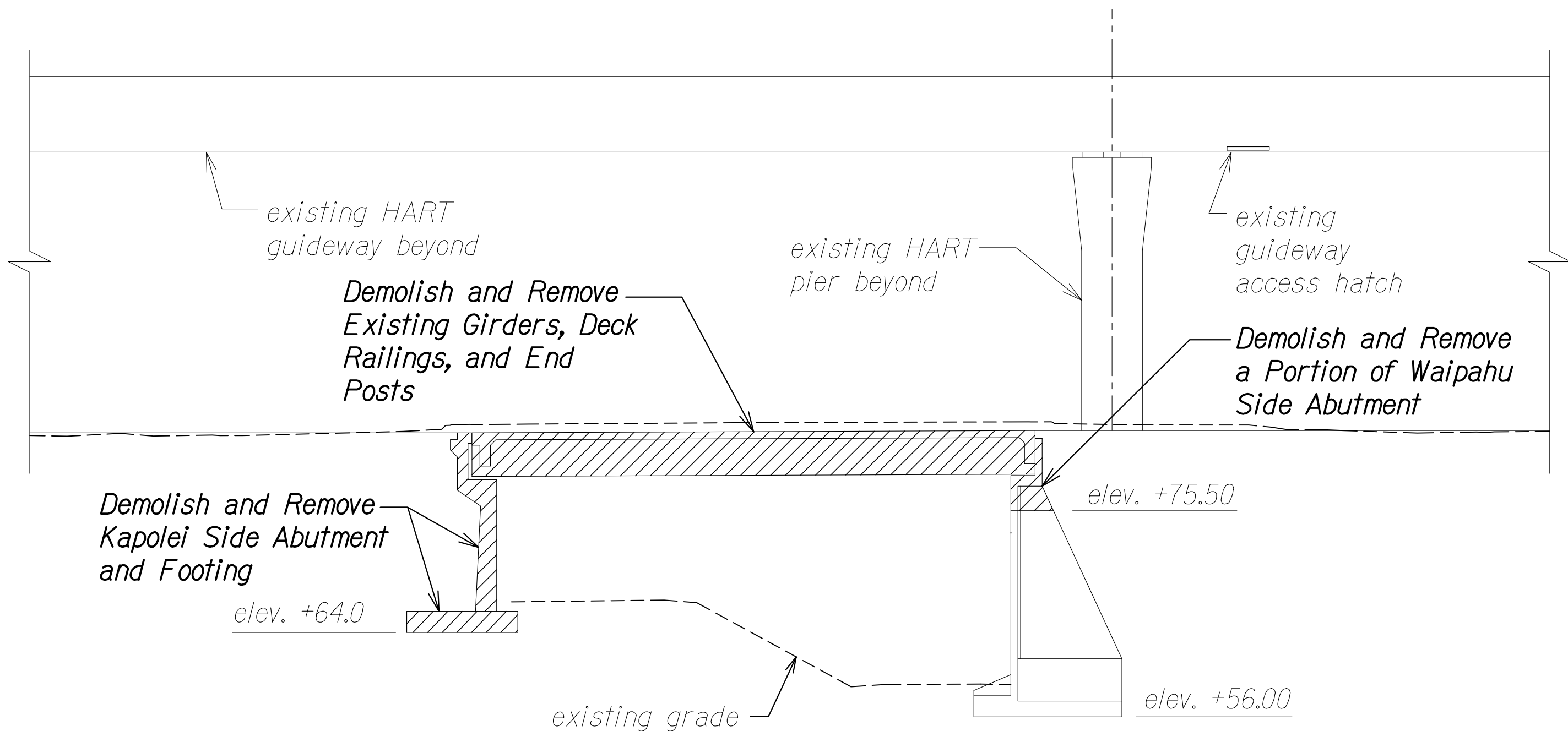
**Legend:**

Demolish and Remove

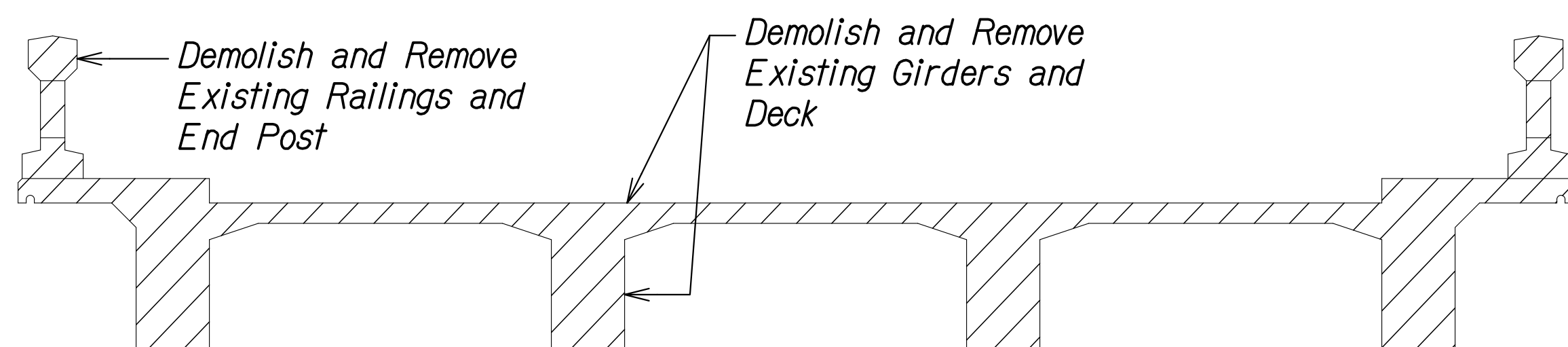
**Notes:**

1. Blasting is prohibited.
2. Demolition work shall comply with the Specifications, AASHTO "Guide Design Specifications for Bridge Temporary Works" and AASHTO "Construction Handbook for Bridge Temporary Works", including all subsequent interim revisions. The most stringent requirements shall govern.
3. Follow Best Management Practices (BMP) required when performing demolition work.
4. Contractor shall submit demolition plan to Engineer for review and approval. Demolition plan shall contain intended BMP measures to prevent debris and dust from entering the surrounding stream.
5. For as-built plans of the existing Honouliuli Stream bridge, see Structural General Notes 8.A.

**EXISTING BRIDGE DEMOLITION PLAN** A  
 Scale: 1" = 10'-0" SA3.1 SA3.1



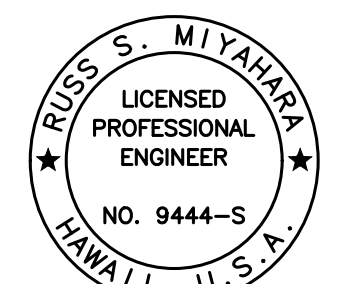
**EXISTING BRIDGE DEMOLITION SECTION** B  
 Scale: 1" = 10'-0" SA3.1 SA3.1



**EXISTING BRIDGE DEMOLITION SECTION** C  
 Scale: 3/8" = 1'-0" SA3.1 SA3.1

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

DRAWING NAME: Z:\100 ONGOING\20-013-FARR-HWY-KAPOLEI-GC-10-ET-WIP-EMT\01-GAD\04-06-22-BID-SET\FHWS-SA0301-HON-DEMOL.DWG PLOT TIME: 04-07-22 4:29 PM



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 Signature: *Russ S. Miyahara*  
 April 30, 2024  
 EXPIRATION DATE OF THE LICENSE

**STATE OF HAWAII**  
**DEPARTMENT OF TRANSPORTATION**  
**HIGHWAYS DIVISION**

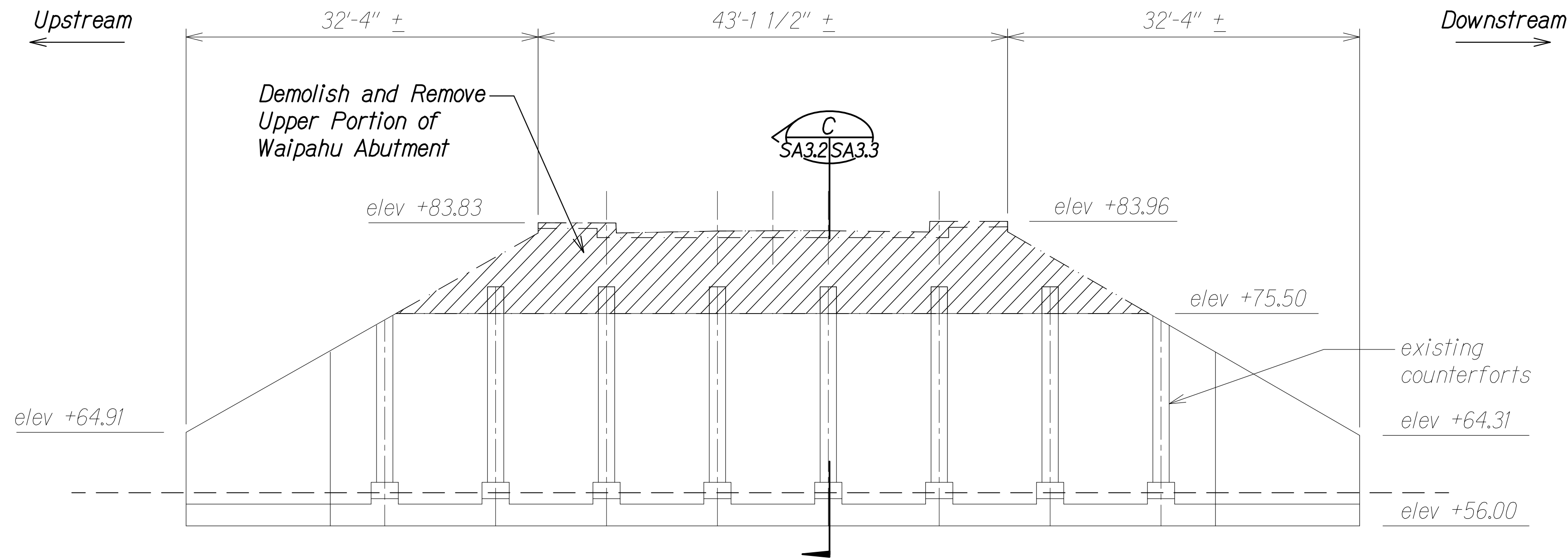
**Honouliuli Stream Bridge**  
**Demolition Plan and Section**

**FARRINGTON HIGHWAY WIDENING**  
**Kapolei Golf Course Road to Fort Weaver Road**  
**Project No. 7101A-01-20**

Scale: As Shown      Date: Apr. 2022

**SHEET No. SA3.1 OF 3 SHEETS**

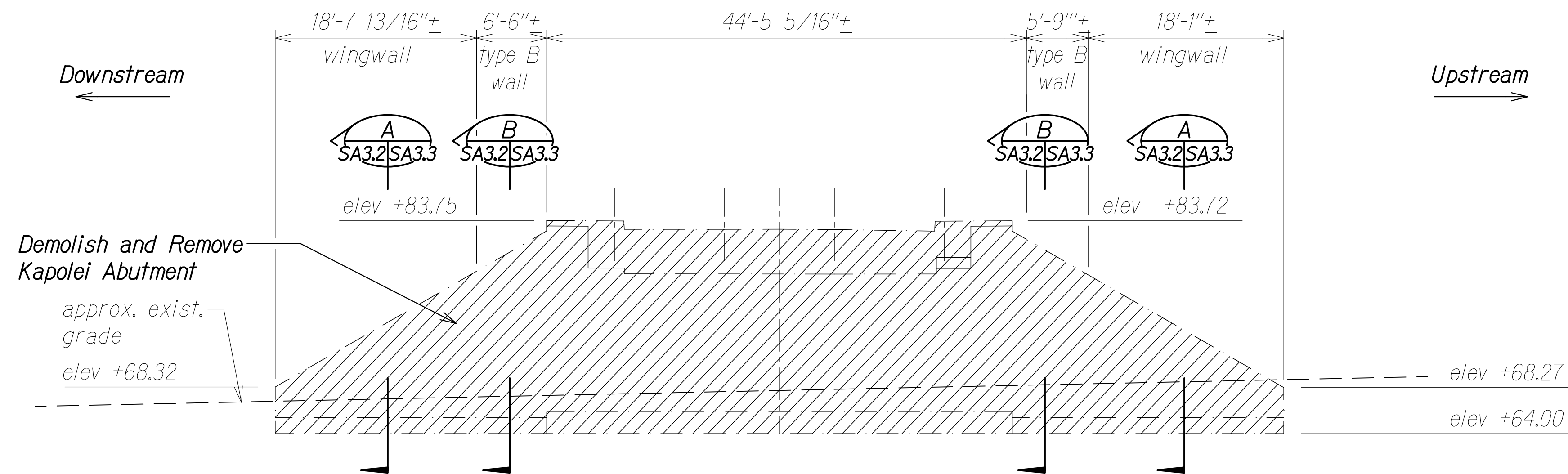
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	7101A-01-20	2021	361	



Legend:

 Demolish and Remove

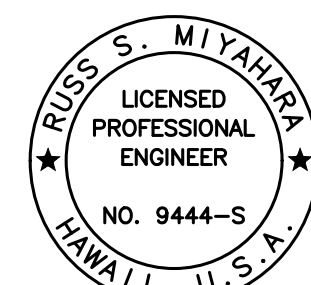
**EXISTING BRIDGE**  
**DEMOLITION ELEVATION AT WAIPAHU ABUTMENT** A  
 Scale: 1/8" = 1'-0" SA3.2 SA3.2



**EXISTING BRIDGE**  
**DEMOLITION ELEVATION AT KAPOLEI ABUTMENT** B  
 Scale: 1/8" = 1'-0" SA3.2 SA3.2

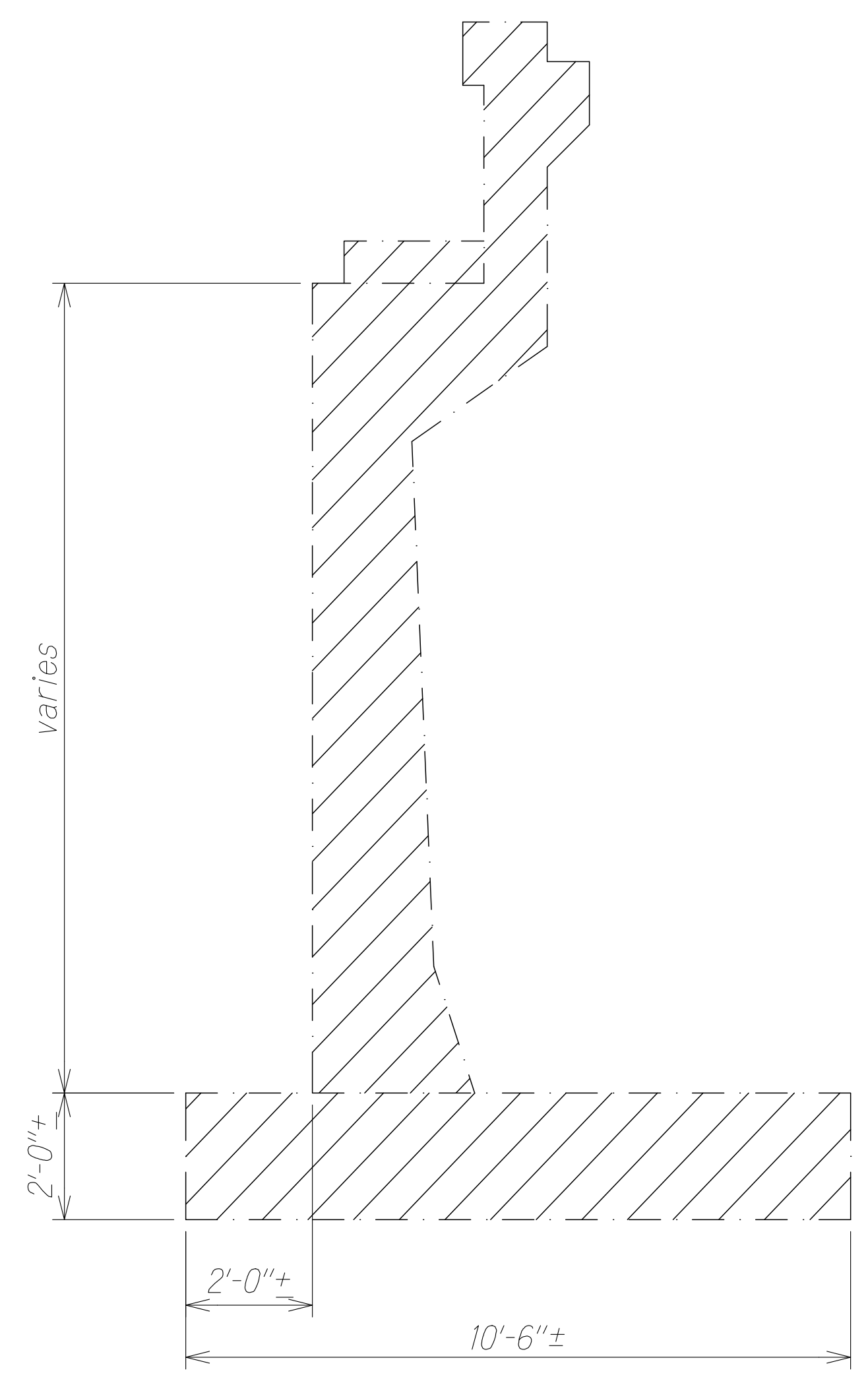
SURVEY PLOTTED BY	DATE
DRAWN BY	
DESIGNED BY	
QUANTITIES BY	
CHECKED BY	
ORIGINAL PLAN	
NOTE BOOK	
No.	

DRAWING NAME: Z:\A\00\ONDONGS\20-013-FARR-HWY-KAPOLEI.GC.ID.IT.WIP-EMTC\01-CAD\04-13-22-BID-RVSD-SHRS\FHW3-SAB301-HON-DEM.DWG PLOT TIME: 04-13-22 5:12 PM

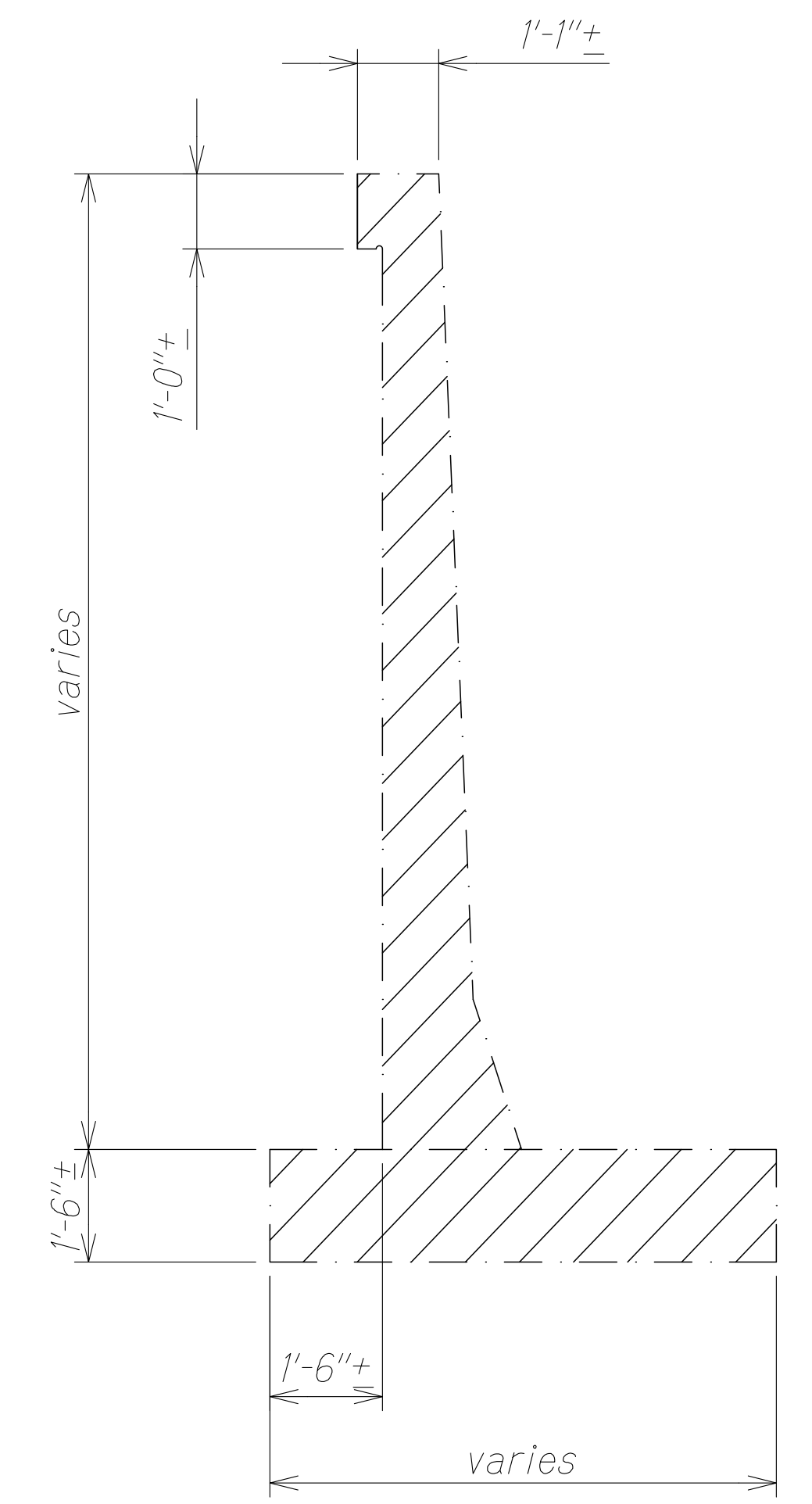
  
 THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.  
*Rugs S. Miyahara*  
 SIGNATURE      April 30, 2024  
 EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII  
 DEPARTMENT OF TRANSPORTATION  
 HIGHWAYS DIVISION  
**Honouliuli Stream Bridge**  
**Demolition Elevations**  
 FARRINGTON HIGHWAY WIDENING  
 Kapolei Golf Course Road to Fort Weaver Road  
 Project No. 7101A-01-20  
 Scale: As Shown      Date: Apr. 2022  
**SHEET No. SA3.2 OF 3 SHEETS**

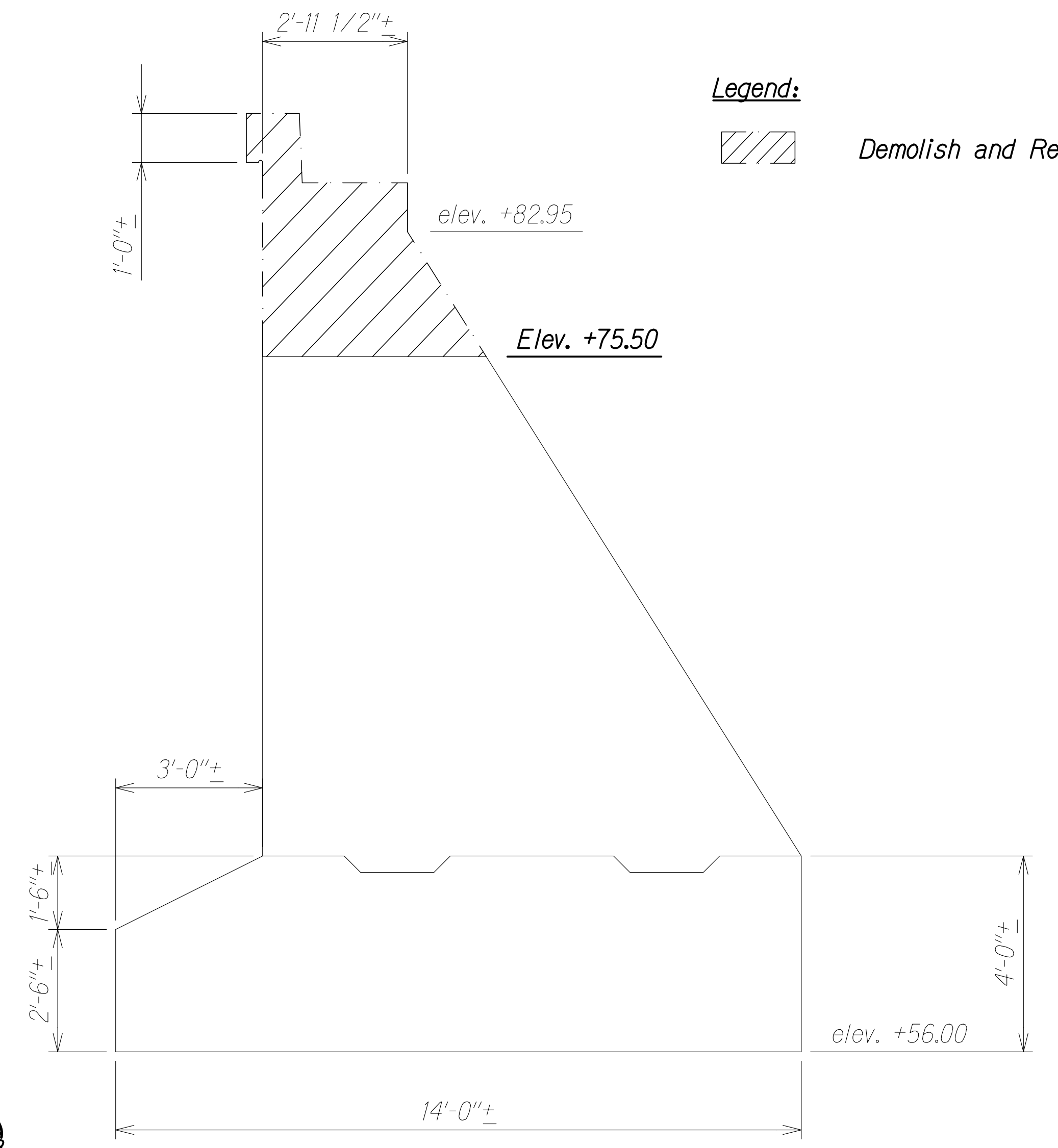
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	7101A-01-20	2021	362	



**KAPOLEI ABUTMENT DEMOLITION SECTION A**  
 Scale: 1/2" = 1'-0"  
 SA3.2 SA3.3

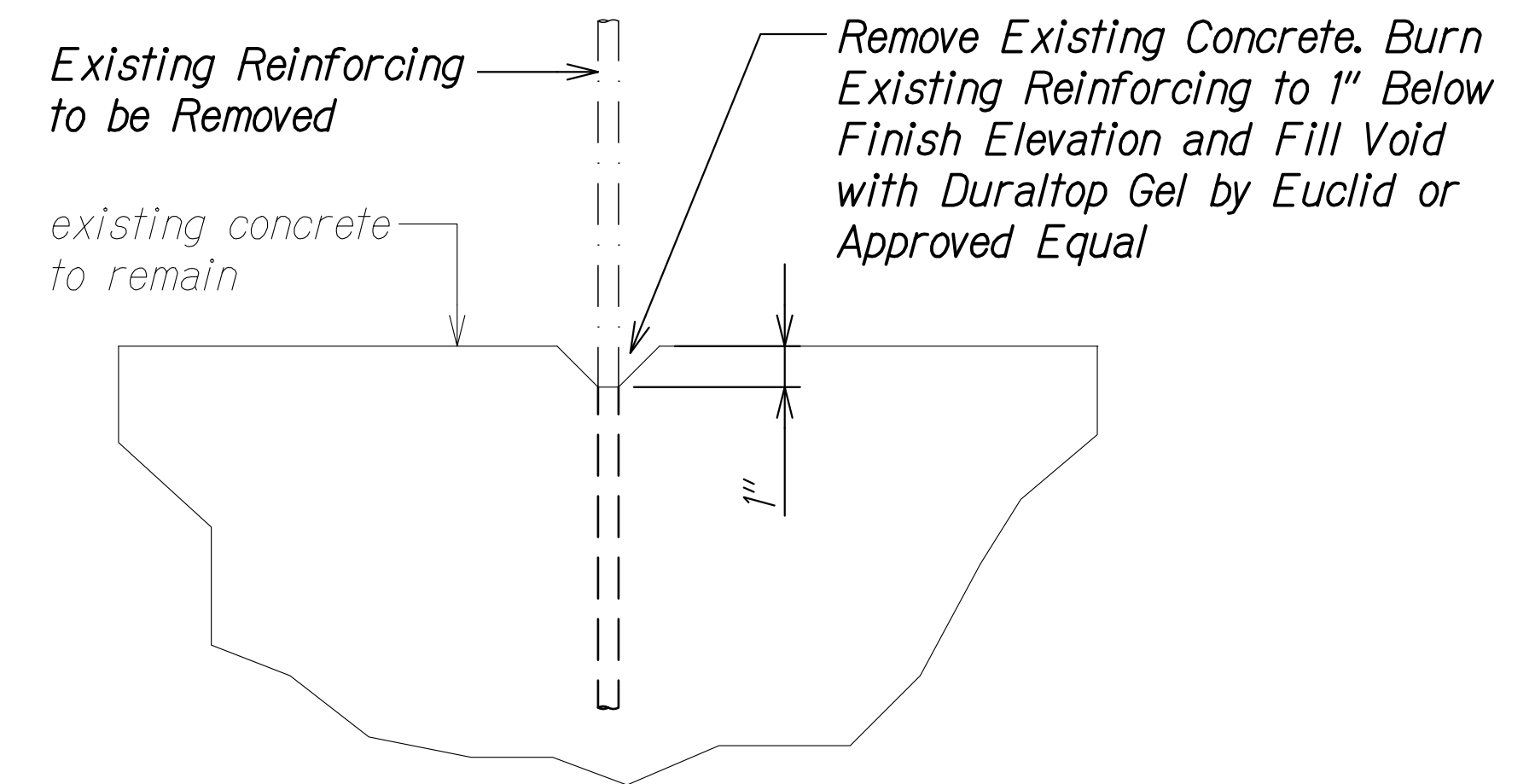


**KAPOLEI ABUTMENT DEMOLITION SECTION B**  
 Scale: 1/2" = 1'-0"  
 SA3.2 SA3.3



**WAIPAHU ABUTMENT DEMOLITION SECTION C**  
 Scale: 1/2" = 1'-0"  
 SA3.2 SA3.3

**Legend:**  
 Demolish and Remove



**REINFORCING REMOVAL DETAIL 1**  
 Scale: 3" = 1'-0"  
 SA3.3 SA3.3

ORIGINAL PLAN	DATE
SURVEY PLOTTED BY	
DRAWN BY	
DESIGNED BY	
QUANTITIES BY	
CHECKED BY	
No.	

DRAWING NAME: Z:\100 ONGOING\20-013-FARR-HWY-KAPOLEI.GC.ID.IT.WIP-EMT\01.GA\04-13-22 BID R\SD SH\SH\FHW-SA0301.HGN DEMO.DWG PLOT TIME: 04-13-22 5:13 PM

**RUGO S. MIYAKAWA**  
 LICENSED PROFESSIONAL ENGINEER  
 NO. 9444-S  
 HAWAII, U.S.A.  
 THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.  
 Signature: *Rugo S. Miyakawa*  
 April 30, 2024  
 EXPIRATION DATE OF THE LICENSE

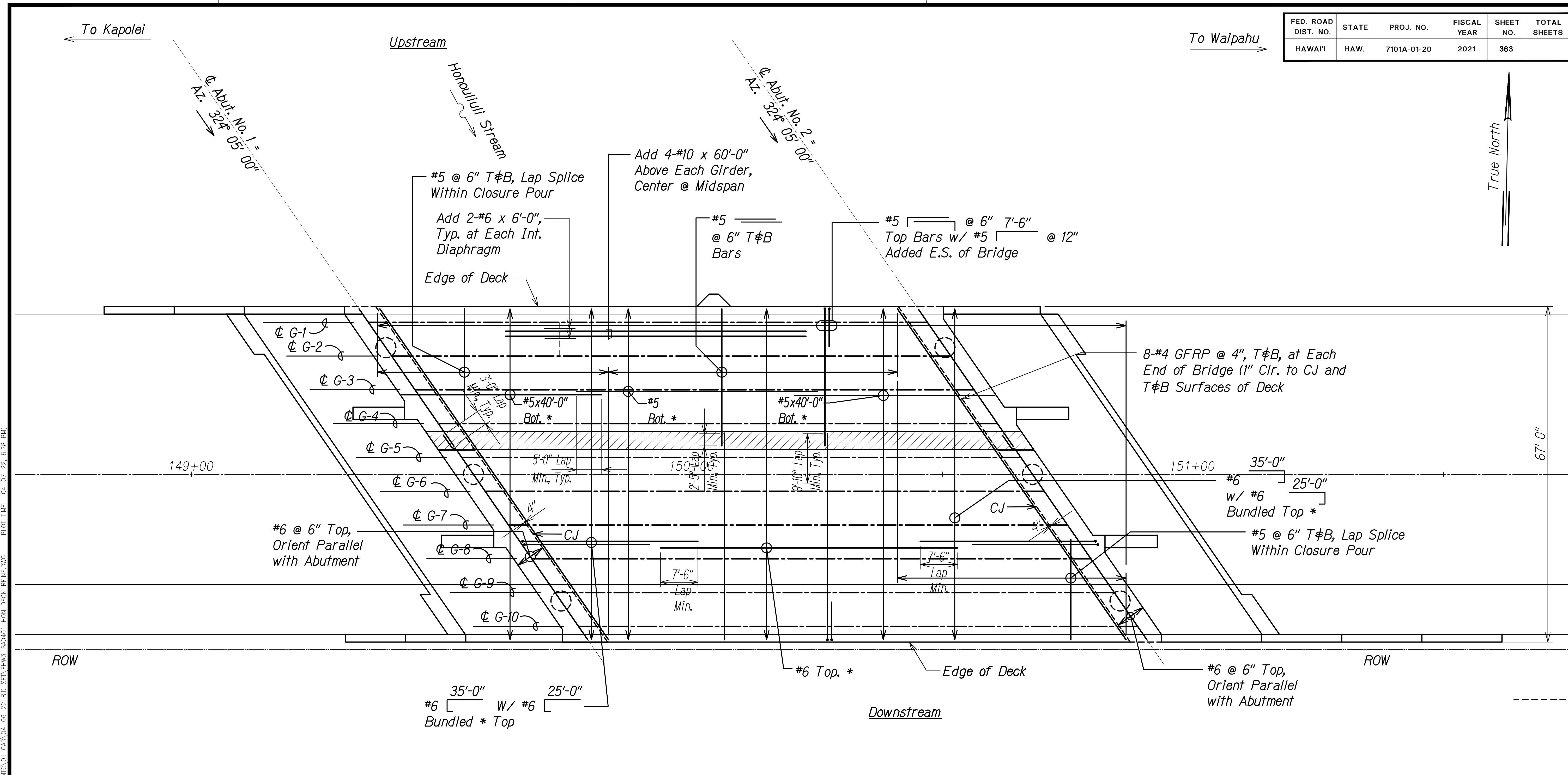
STATE OF HAWAII  
 DEPARTMENT OF TRANSPORTATION  
 HIGHWAYS DIVISION

**Honouliuli Stream Bridge  
 Demolition Sections and Detail**

FARRINGTON HIGHWAY WIDENING  
 Kapolei Golf Course Road to Fort Weaver Road  
 Project No. 7101A-01-20

Scale: As Shown Date: Apr. 2022  
**SHEET No. SA3.3 OF 3 SHEETS**

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	7101A-01-20	2021	363	



**Notes:**

- \* See sheets SA4.2 and SA4.3 for spacing of longitudinal reinforcing.
- See sheet SA10.3 and SA10.4 for reinforcing at light standard.

**DECK REINFORCING PLAN**  
 Scale: 1" = 10'-0"  
A  
SA4.1 SA4.1

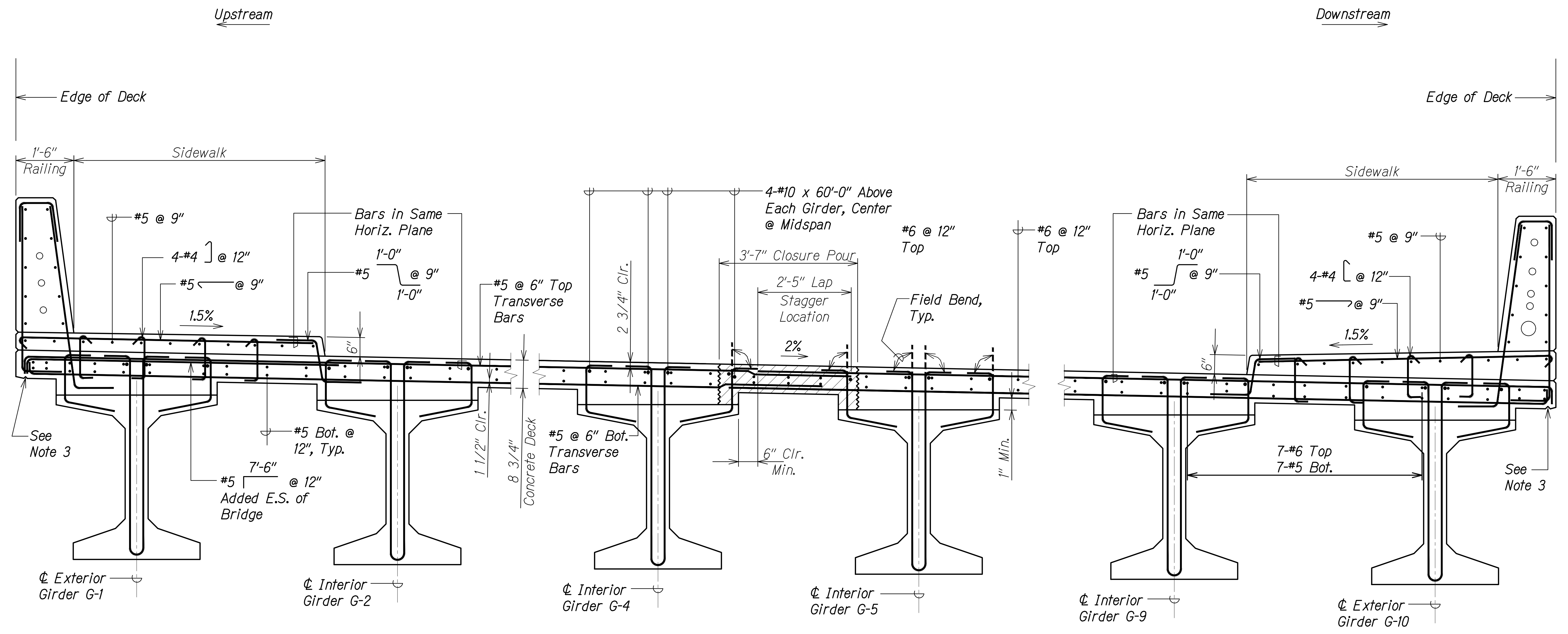
SURVEY PLOTTED BY	DATE
DRAWN BY	
DESIGNED BY	
QUANTITIES BY	
CHECKED BY	
ORIGINAL PLAN No.	

DRAWING NAME: Z:\A00\ONDONGS\20-013-FARR-HWY-KAPOLEI\GC\10-ET\WRG-RMT\01-CAD\04-06-22-BID-SET\FH03-SA401-HON DECK REINF.DWG PLOT TIME: 04-07-22, 6:28 PM

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 Signature: *Ruges S. Miyahara*  
 April 30, 2024  
 EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII  
 DEPARTMENT OF TRANSPORTATION  
 HIGHWAYS DIVISION  
**Honouliuli Stream Bridge  
 Deck Reinforcing Plan**  
 FARRINGTON HIGHWAY WIDENING  
 Kapolei Golf Course Road to Fort Weaver Road  
 Project No. 7101A-01-20  
 Scale: As Shown Date: Apr. 2022  
**SHEET No. SA4.1 OF 4 SHEETS**

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	7101A-01-20	2021	364	



**DECK REINFORCING SECTION  
AT MID-SPAN (NORMAL TO CL BRIDGE)**  
Scale: 3/4" = 1'-0"

A  
SA4.2 SA4.2

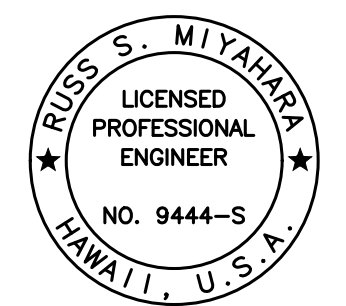
**Notes:**

1. See sheet SA10.4 for railing reinforcing.
2. See sheets SA5.1 through SA5.3 for girder details.
3. See HDOT Standard Plans sheet B-01. Stop drip 6" from face of abutment.

ORIGINAL PLAN	DATE
SURVEY PLOTTED BY	
DRAWN BY	
DESIGNED BY	
QUANTITIES BY	
CHECKED BY	
No.	

DRAWING NAME: Z:\100 ONGOING\20-013-FARR-HWY-KAPOLEI GC.ID ET.WRK-EMTC\01 CAD\04-08-22 BID RVS\SHR\SHR\SA0402 PARTIAL DECK SECT.DWG PLOT TIME: 04-08-22 3:37 PM

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 Signature: *Russ S. Miyahara*  
 April 30, 2024  
 EXPIRATION DATE OF THE LICENSE



STATE OF HAWAII  
 DEPARTMENT OF TRANSPORTATION  
 HIGHWAYS DIVISION

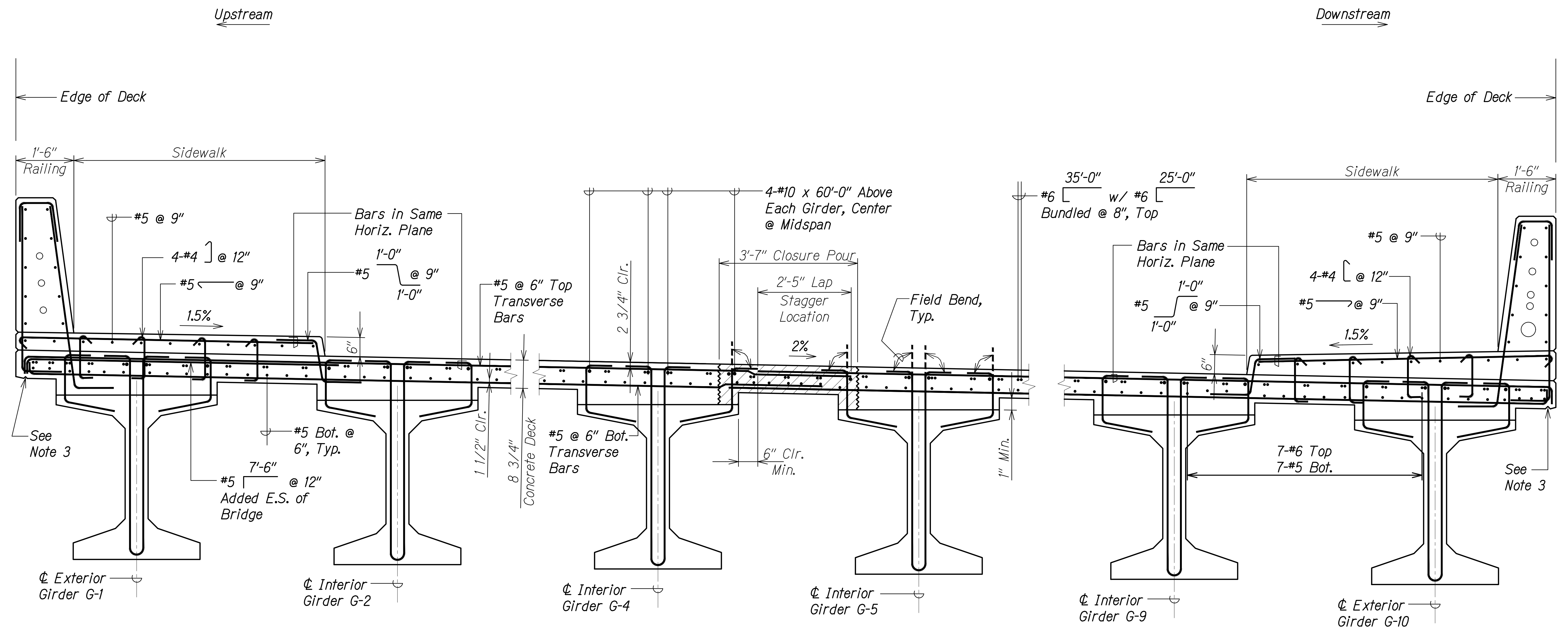
**Honouliuli Stream Bridge  
Deck Reinforcing Section**

FARRINGTON HIGHWAY WIDENING  
 Kapolei Golf Course Road to Fort Weaver Road  
 Project No. 7101A-01-20

Scale: As Shown Date: Apr. 2022

SHEET No. SA4.2 OF 4 SHEETS

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	7101A-01-20	2021	365	



**DECK REINFORCING SECTION  
NEAR ABUTMENT (NORMAL TO  $\phi$  BRIDGE)**  
Scale: 3/4" = 1'-0" A  
SA4.3 SA4.3

**Notes:**

1. See sheet SA10.4 for railing reinforcing.
2. See sheets SA5.1 through SA5.3 for girder details.
3. See HDOT Standard Plans sheet B-01. Stop drip 6" from face of abutment.

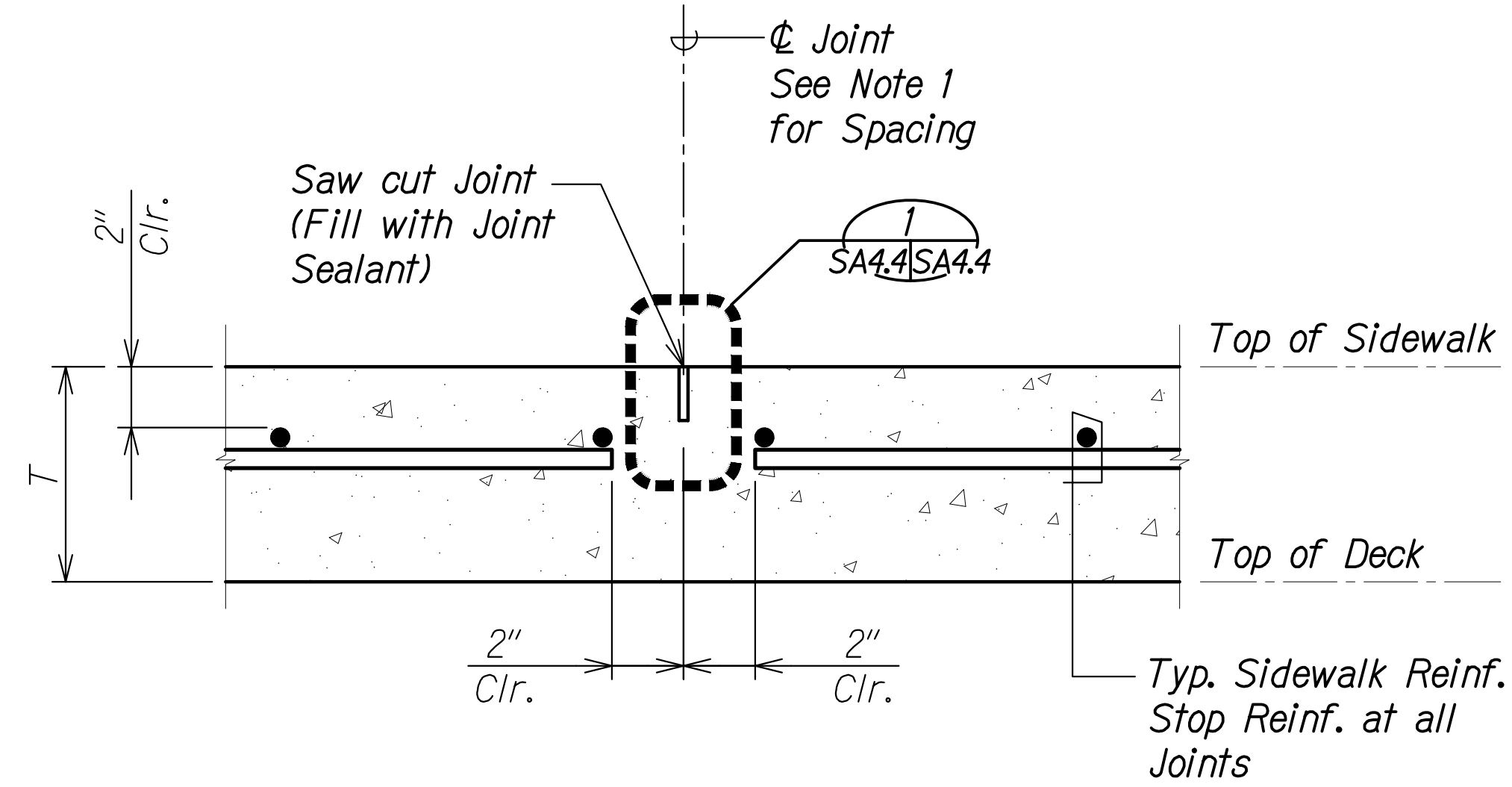
SURVEY PLOTTED BY	DATE
DRAWN BY	
DESIGNED BY	
QUANTITIES BY	
CHECKED BY	
ORIGINAL PLAN	
NOTE BOOK	
No.	

DRAWING NAME: Z:\100 UNDOINGS\20-013-FARR-HWY-KAPOLEI GC ID: ET WPK-BMT\01 CAD\04-08-22 BID RVS\SHR\SHR-FHW-504042 PARTIAL DECK SECT.DWG PLOT TIME: 04-08-22 3:38 PM

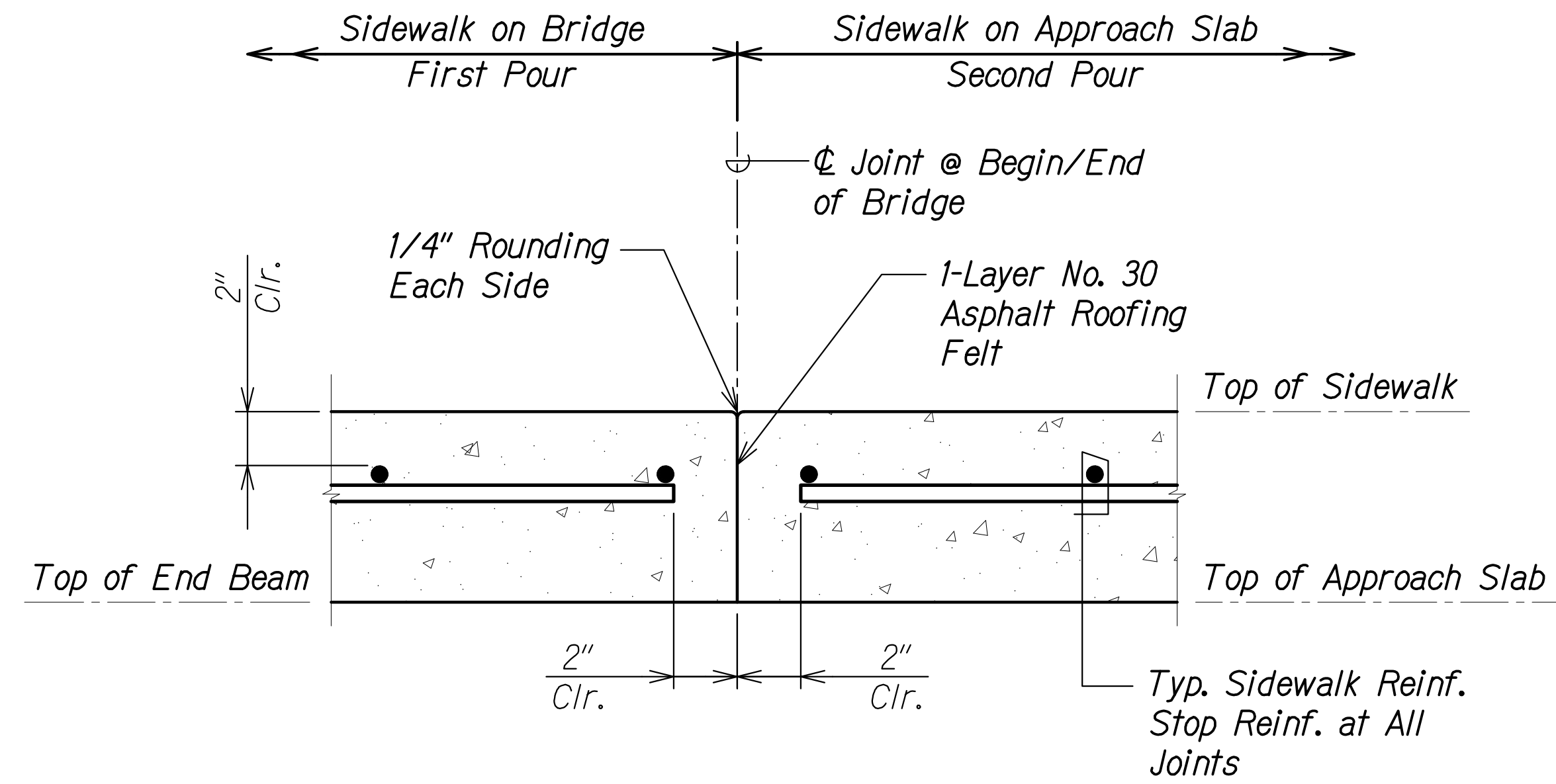
THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.  
 Signature: *Rugs S. Miyahara*  
 April 30, 2024  
 EXPIRATION DATE OF THE LICENSE

**STATE OF HAWAII**  
**DEPARTMENT OF TRANSPORTATION**  
**HIGHWAYS DIVISION**  
**Honouliuli Stream Bridge**  
**Deck Reinforcing Section**  
**FARRINGTON HIGHWAY WIDENING**  
**Kapolei Golf Course Road to Fort Weaver Road**  
**Project No. 7101A-01-20**  
 Scale: As Shown      Date: Apr. 2022  
**SHEET No. SA4.3 OF 4 SHEETS**

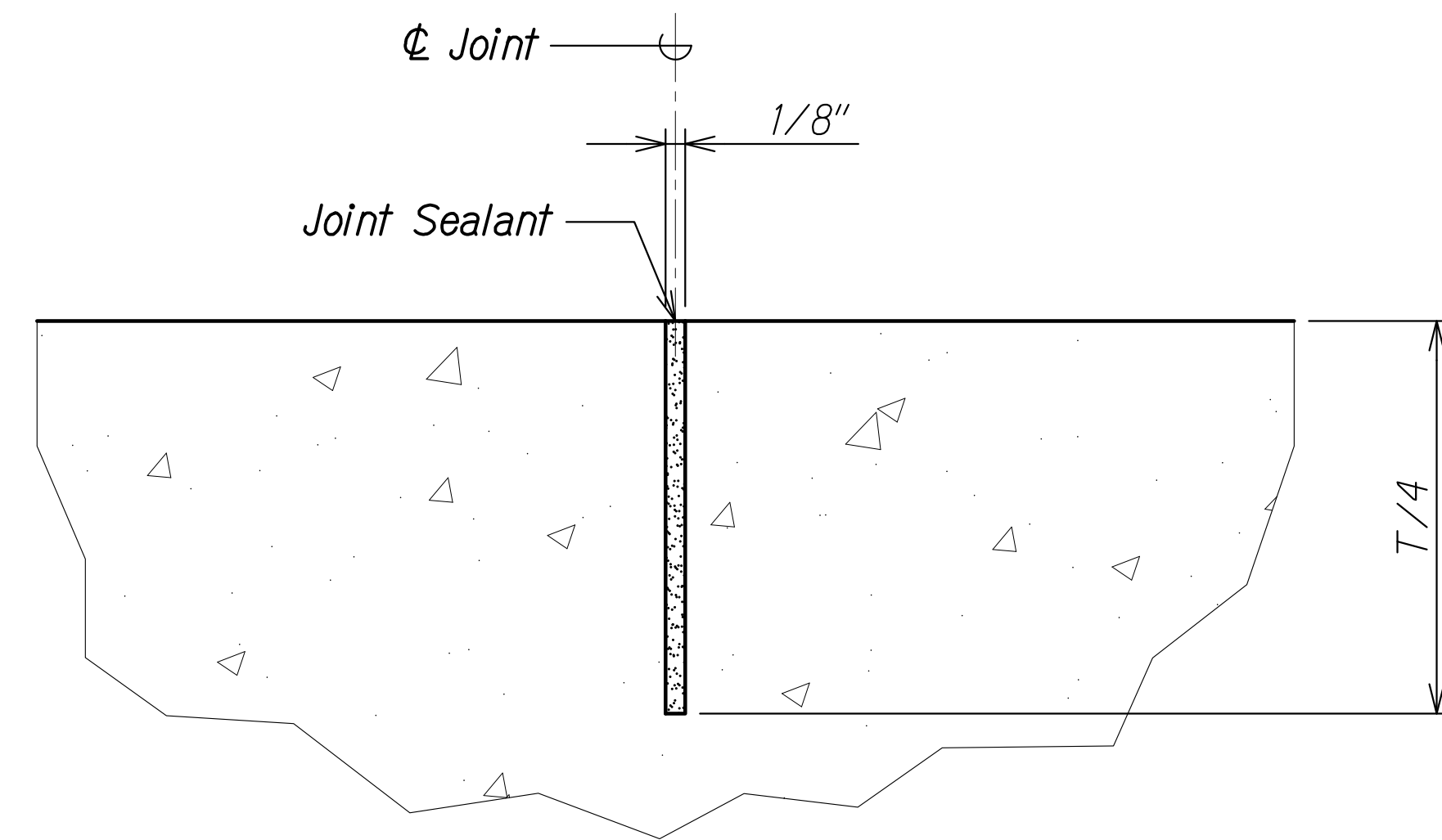
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	7101A-01-20	2021	366	



**TYPICAL SIDEWALK JOINT DETAIL** 1  
Scale: 3" = 1'-0" SA1.1 SA4.4



**SIDEWALK JOINT DETAIL AT BEGIN/END OF BRIDGE** 2  
Scale: 3" = 1'-0" SA1.1 SA4.4



**SIDEWALK JOINT DETAIL** 3  
Full Scale SA4.4 SA4.4

**Notes:**

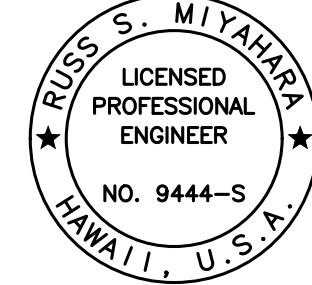
1. Sidewalk joints shall be located as shown on sheet SA1.1. Typical sidewalk joints shall be placed perpendicular to  $\phi$  bridge. Sidewalk joints at begin/end of bridge shall follow the skew of the abutment. Sidewalk joints shall match locations of deflection joints in bridge railing.
2. For sidewalk section above approach slab and sleeper slab, see sheets SA11.2 and SA11.3.
3. Joint sealant shall be a semi-rigid epoxy or polyurea material. Filler shall not become brittle in service. Joint filler shall be 100% solids with a minimum shore hardness of A-80 as measure in accordance with ASTM D2240. The material shall be installed full depth in joint without a backer rod, and flush with the finish surface.
4. Saw cut sidewalk joints as soon as possible without raveling concrete but no later than 6 hours after pouring concrete.

**Legend:**

T = Thickness of sidewalk

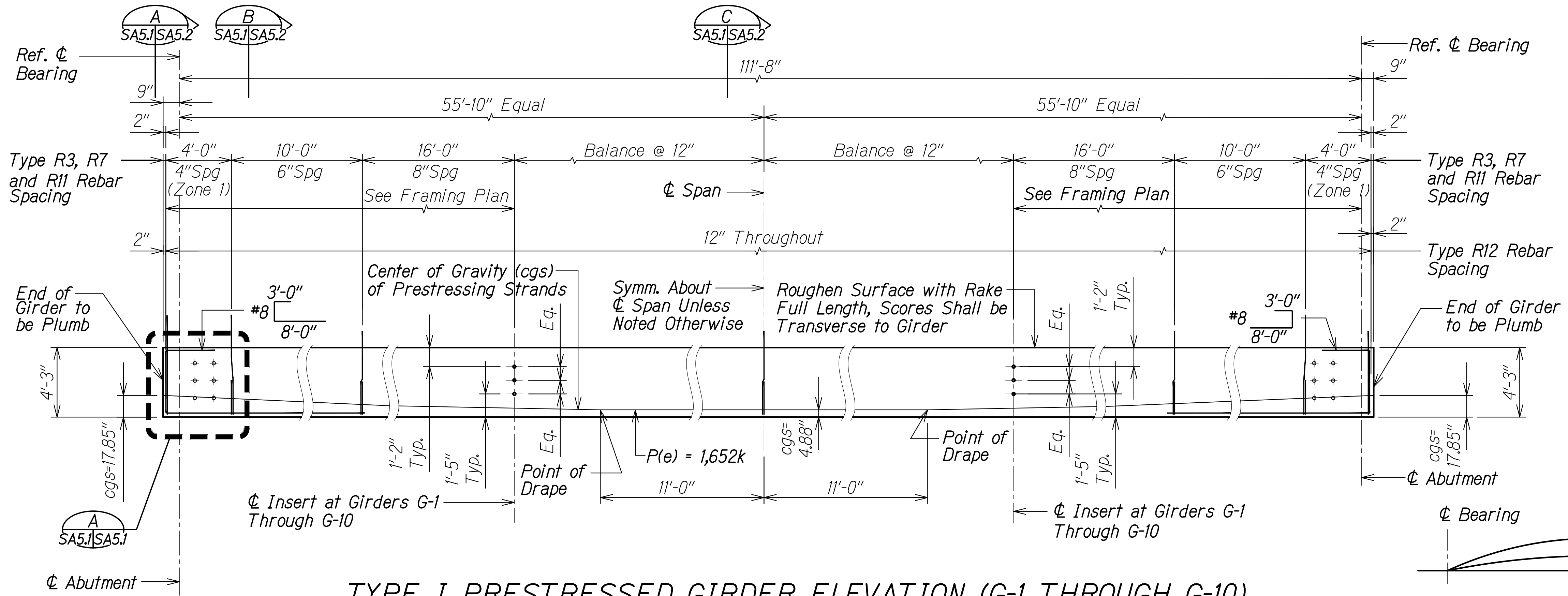
ORIGINAL PLAN	DATE
DRAWN BY	
DESIGNED BY	
QUANTITIES BY	
CHECKED BY	
No.	

DRAWING NAME: Z:\100 UNDOINGS\20-013-FARR-HWY-KAPOLEI GC.DWG ID: ET-WRP-EMTC\01-CAD\04-06-22 BID-SET\FHWS-SA404 SIDEWALK DETAILS.DWG PLOT TIME: 04-07-22 4:33 PM

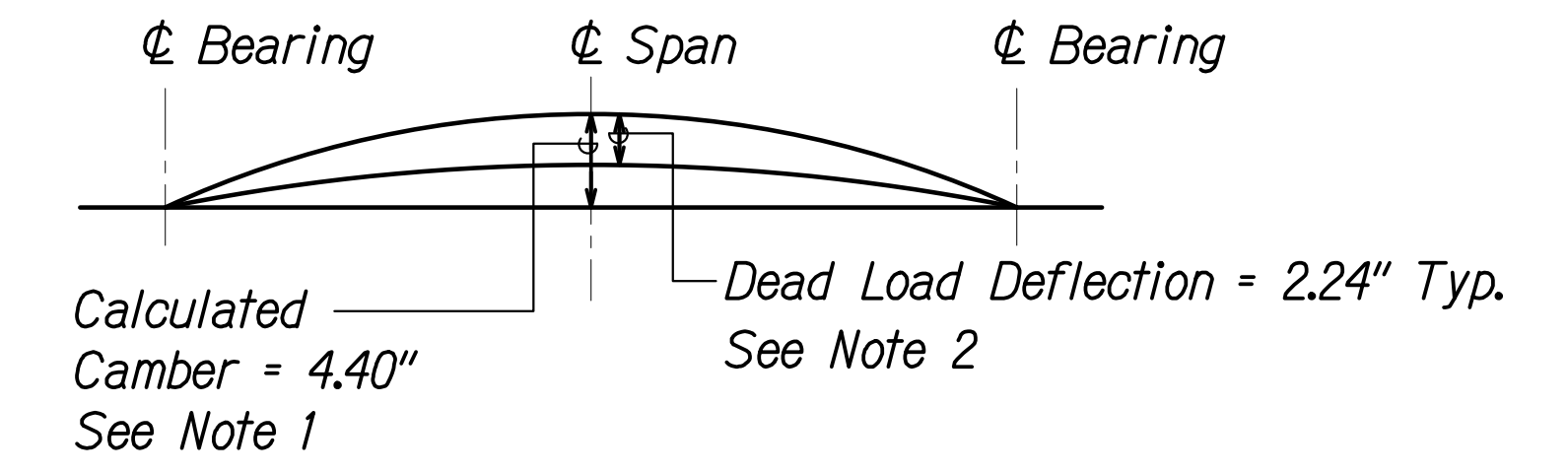
  
 THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.  
*Rugo S. Miyahara*  
 SIGNATURE      April 30, 2024  
 EXPIRATION DATE OF THE LICENSE

**STATE OF HAWAII**  
**DEPARTMENT OF TRANSPORTATION**  
**HIGHWAYS DIVISION**  
**Honouliuli Stream Bridge**  
**Sidewalk Joint Details**  
**FARRINGTON HIGHWAY WIDENING**  
**Kapolei Golf Course Road to Fort Weaver Road**  
**Project No. 7101A-01-20**  
 Scale: As Shown      Date: Apr. 2022  
**SHEET No. SA4.4 OF 4 SHEETS**

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	7101A-01-20	2021	367	



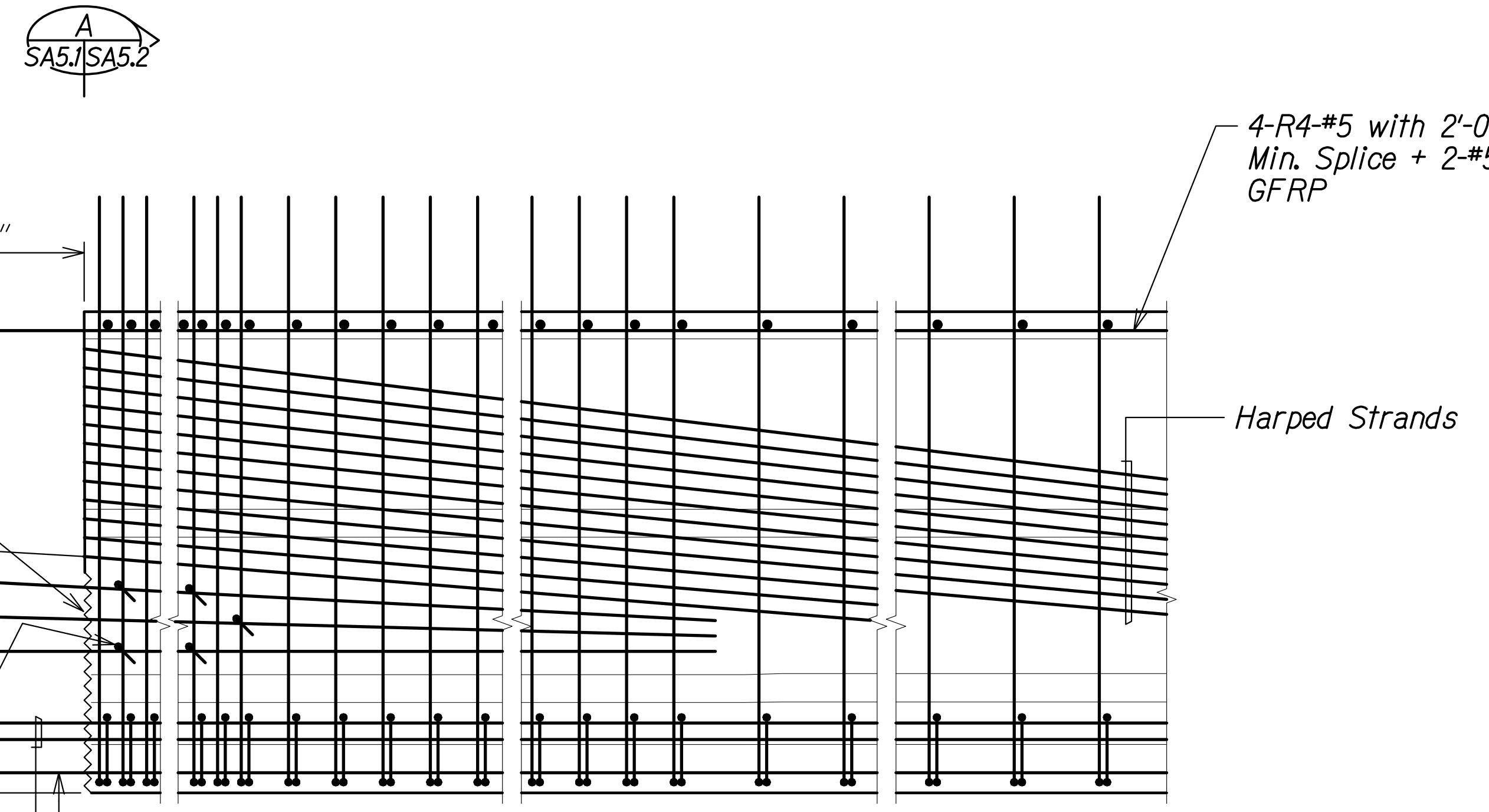
**TYPE I PRESTRESSED GIRDER ELEVATION (G-1 THROUGH G-10)**  
Scale: None



**GIRDER CAMBER DIAGRAM**  
Scale: None

**GIRDER CAMBER NOTES:**

1. The initial camber (2.96") includes the effect of the initial prestress force and the weight of the girder after removal from the bed. The calculated camber value at 60 days is the initial camber multiplied by creep factor to approximate the effect of camber growth and concrete creep. Positive values shown for calculated camber indicate a net upward deflection. Maximum camber immediately prior to erection of girders shall not exceed the calculated camber by more than 1 inch. Girders with cambers exceeding the maximum camber will not be accepted.
2. The dead load deflection includes the combined effects of the weight of slab, drop panels, and diaphragms.
3. Contractor shall camber the deck form work as required to account for the calculated dead load deflection in order to provide the specified finish deck elevations.
4. All cambers and deflections are in inches.
5. Working force is designated as  $P(e)$  = Effective prestress force after all losses.



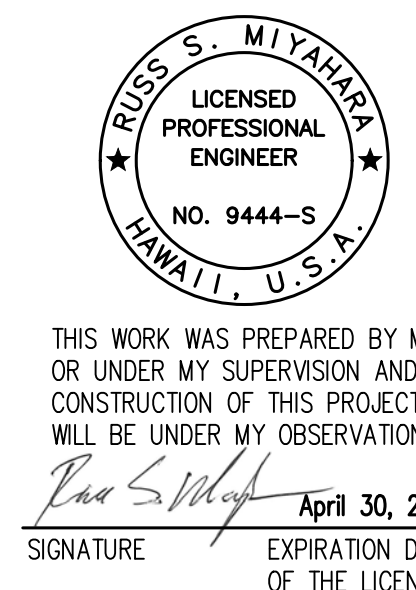
- Notes:**
1. #8  $\square$  and 1 1/8" dia. holes are not shown for clarity.
  2. See sheet SA5.2 for additional information.

**TYPICAL END ELEVATION**  
Scale: None

ORIGINAL PLAN	DATE
DRAWN BY	
DESIGNED BY	
QUANTITIES BY	
CHECKED BY	

(3) R5-#5 - 2 Eq. Spaces Embed 10'-0" into Girder Splay to Clear Harped Strands

R6-#3 Ties - Stagger Spacing on Alternate Stirrup as Shown in Zone 1



STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

**Honouliuli Stream Bridge**  
**Type I Prestressed Girder**

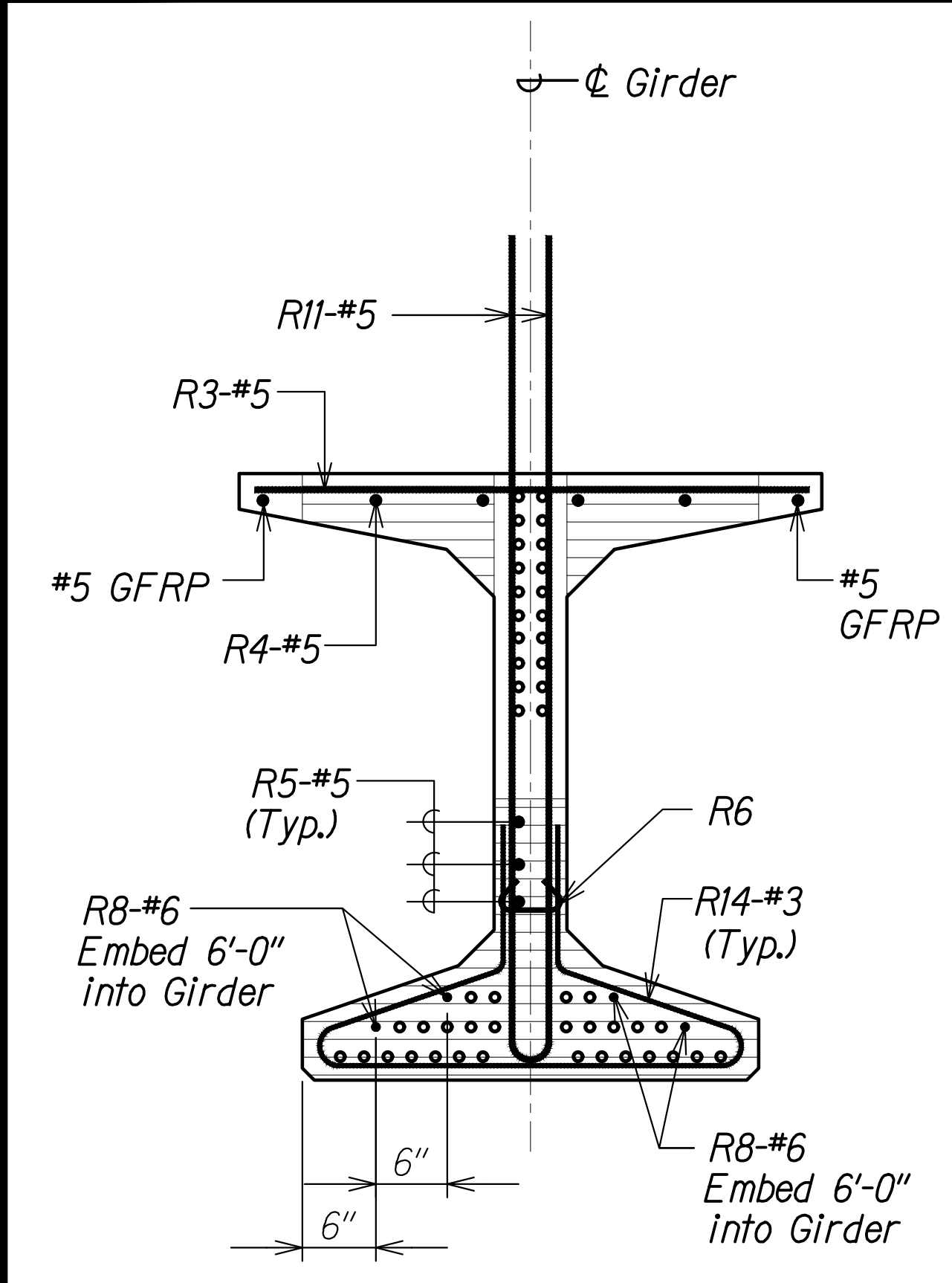
FARRINGTON HIGHWAY WIDENING  
Kapolei Golf Course Road to Fort Weaver Road  
Project No. 7101A-01-20

Scale: As Shown Date: Apr. 2022

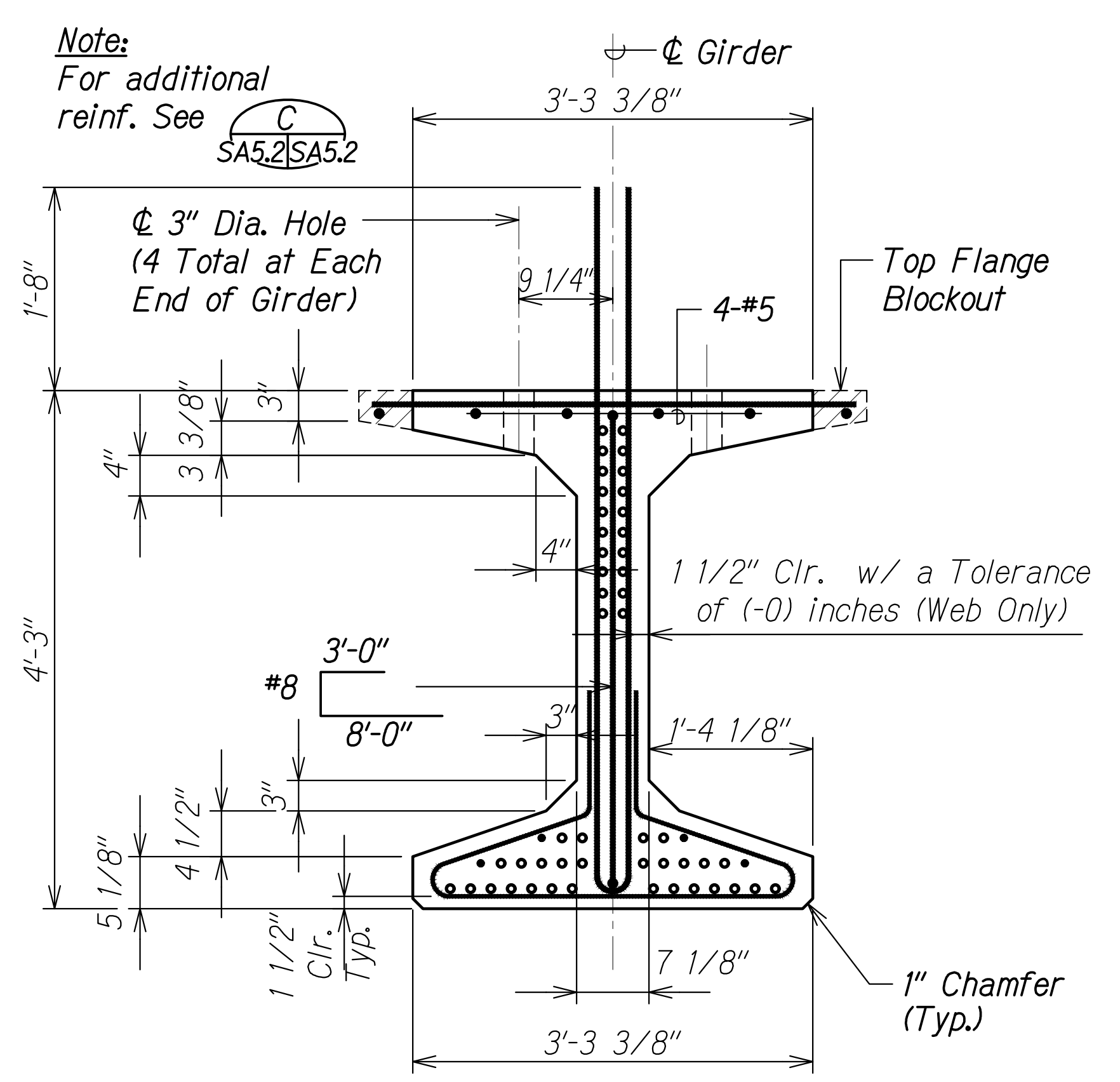
SHEET No. SA5.1 OF 3 SHEETS



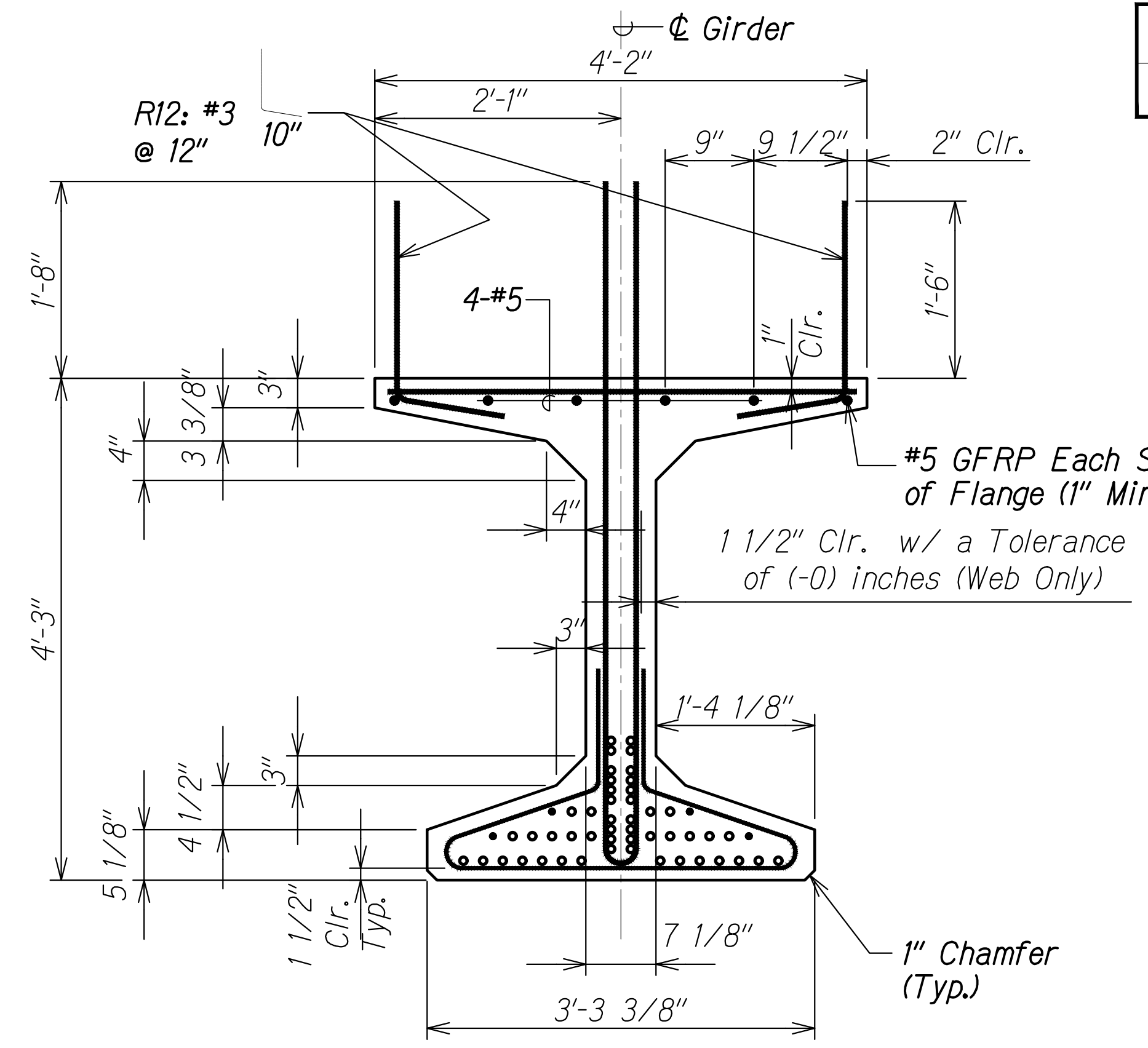
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	7101A-01-20	2021	368	



**END ELEVATION A**  
Scale: 1" = 1'-0"  
SA5.1 SA5.2

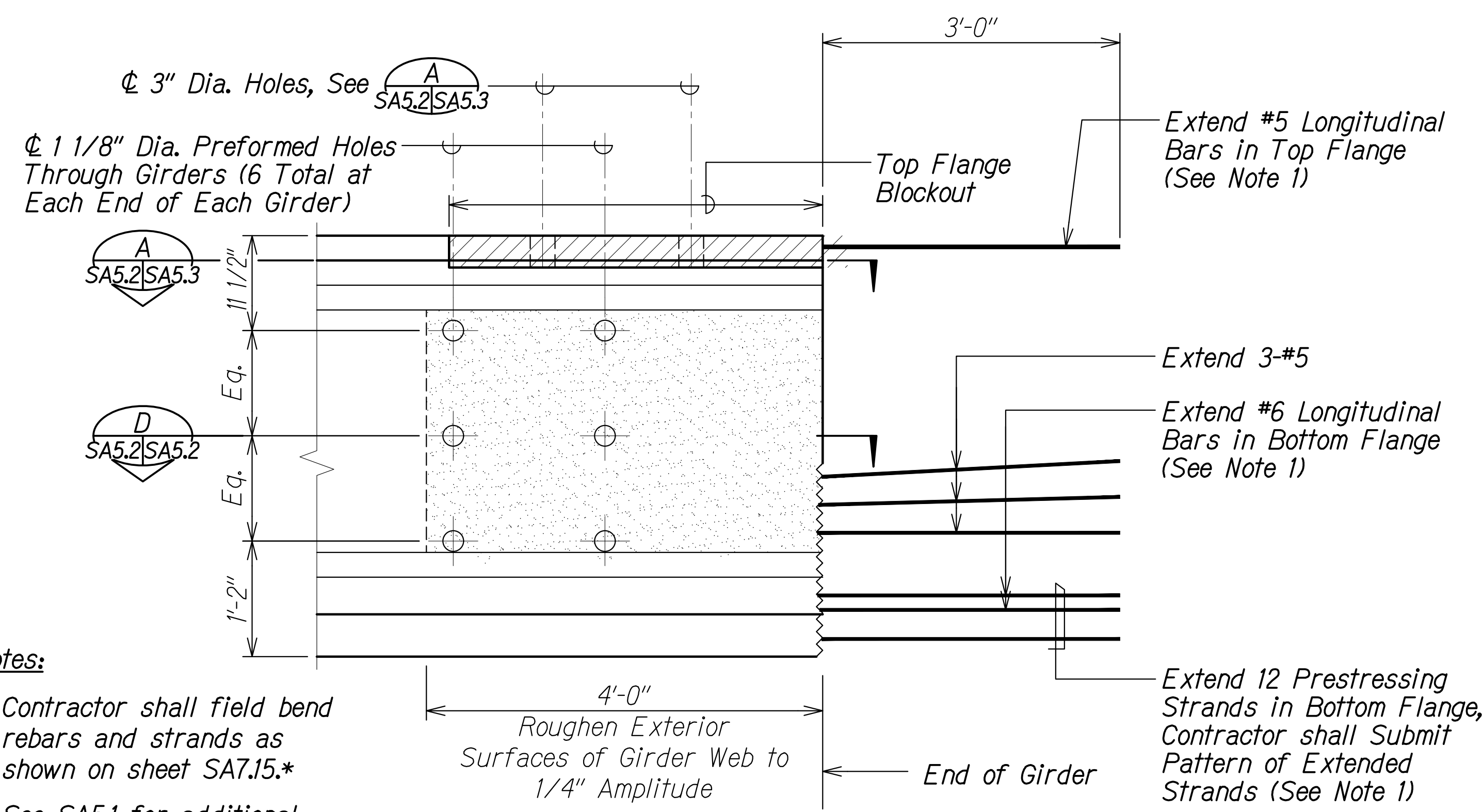


**SECTION WITHIN END BEAM B**  
Scale: 1" = 1'-0"  
SA5.1 SA5.2



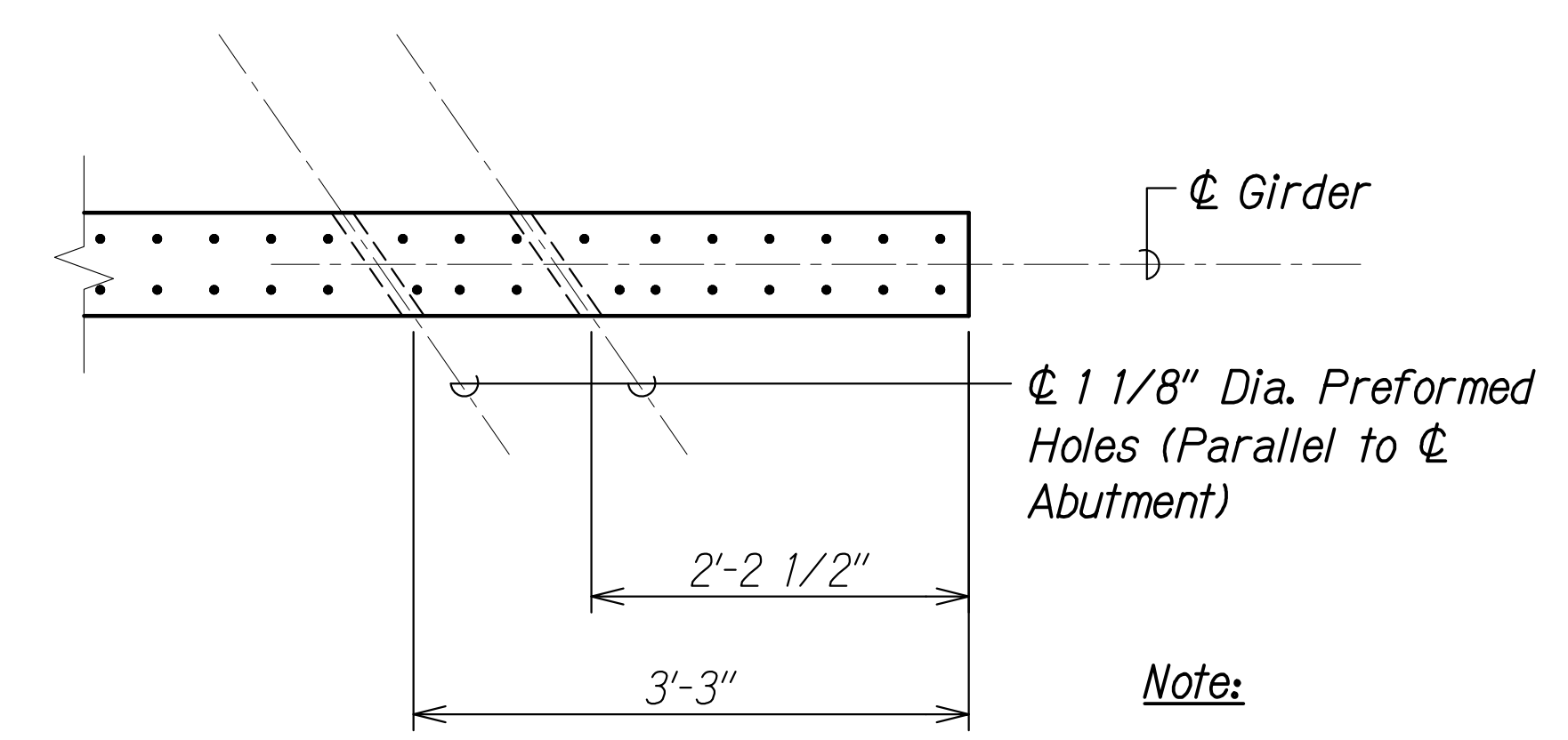
**TYPICAL SECTION C**  
Scale: 1" = 1'-0"  
SA5.1 SA5.2

- Notes:**
- Sawteeth shown by hatched area
  - Strands are shown for illustrative purposes only.
  - Type I girders (G-1 Through G-10)
  - For R Type reinforcing see sht. SA5.3
  - See sheet SA5.1 for stirrup spacing.



- Notes:**
- Contractor shall field bend rebars and strands as shown on sheet SA7.15.\*
  - See SA5.1 for additional reinforcing details.

**TYPE I GIRDER END DETAIL 1**  
Scale: 1" = 1'-0"  
SA5.2 SA5.2



**SECTION D**  
Scale: 1" = 1'-0"  
SA5.2 SA5.2

- Note:**
- Rebars adjacent to 1 1/8" Dia. preformed holes may be adjusted a maximum of 1/2" along <math>\phi</math> girder to accommodate the holes.

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

DRAWING NAME: 2A100 UNDOINGS-20-013-FARR-HWY-KAPOLEI-GC-10-ET-WRP-RMT(C)01-CA01-04-06-22 BID-SET-FH03-SA501-HON-GIRDER-BELOW PLOT TIME: 04-07-22 4:34 PM

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.

*Paul S. Miyahara*  
April 30, 2024  
SIGNATURE EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

**Honouliuli Stream Bridge**  
**Type I Prestressed Girder Sections**

FARRINGTON HIGHWAY WIDENING  
Kapolei Golf Course Road to Fort Weaver Road  
Project No. 7101A-01-20

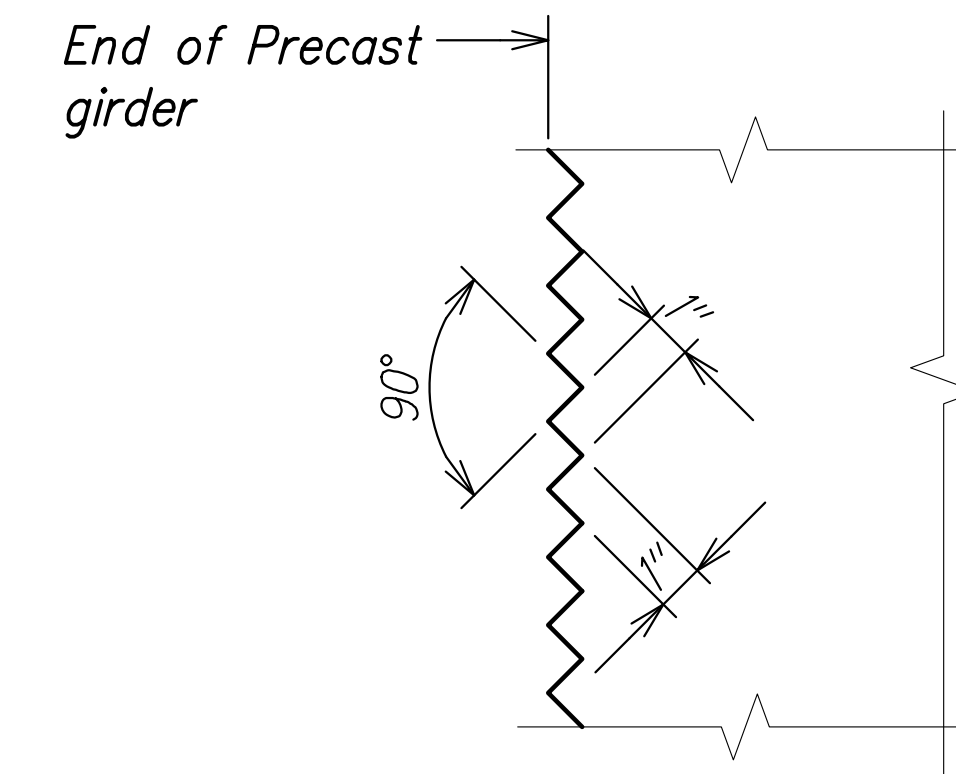
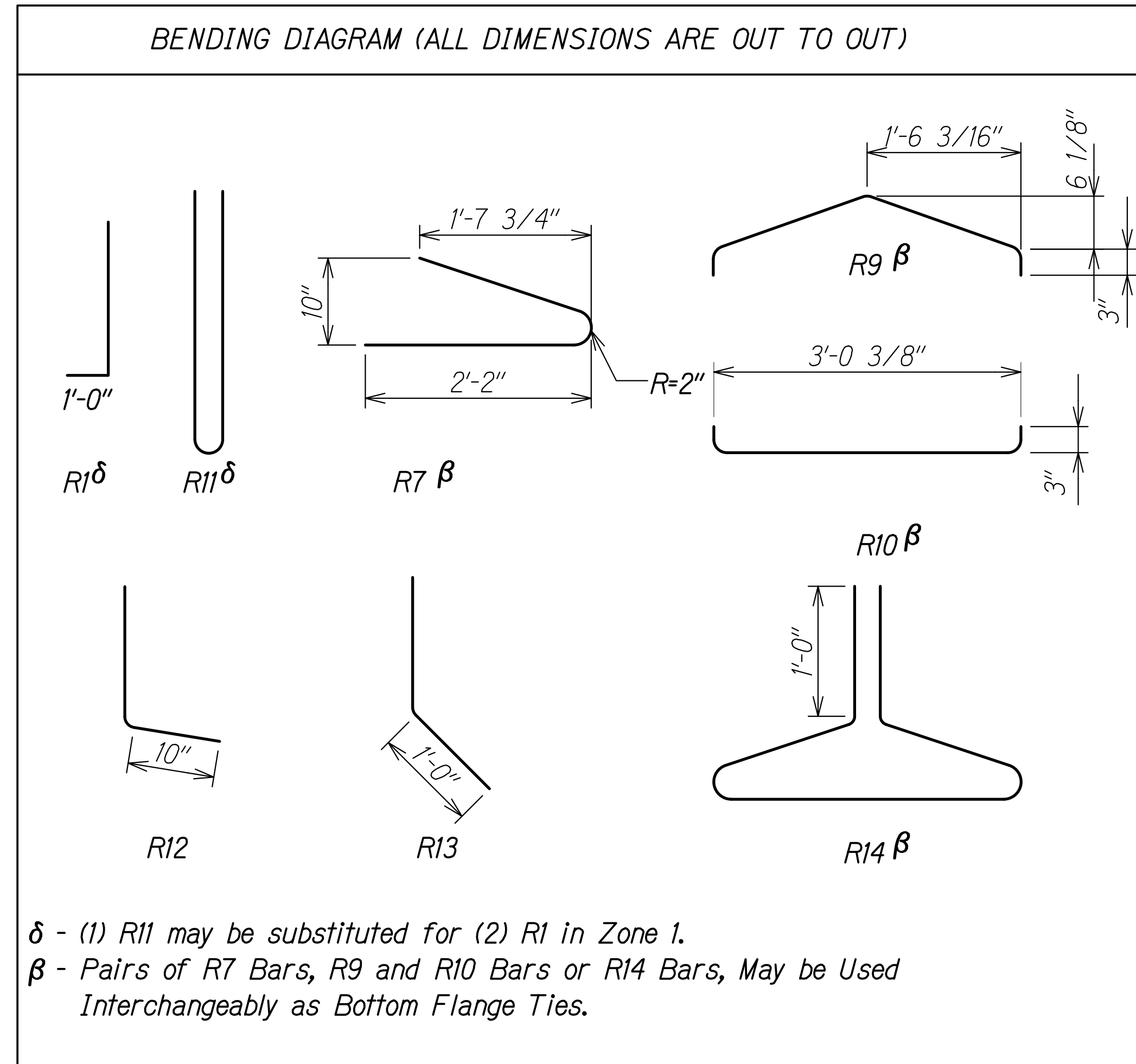
Scale: As Shown Date: Apr. 2022

**SHEET No. SA52 OF 3 SHEETS**

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	7101A-01-20	2021	369	

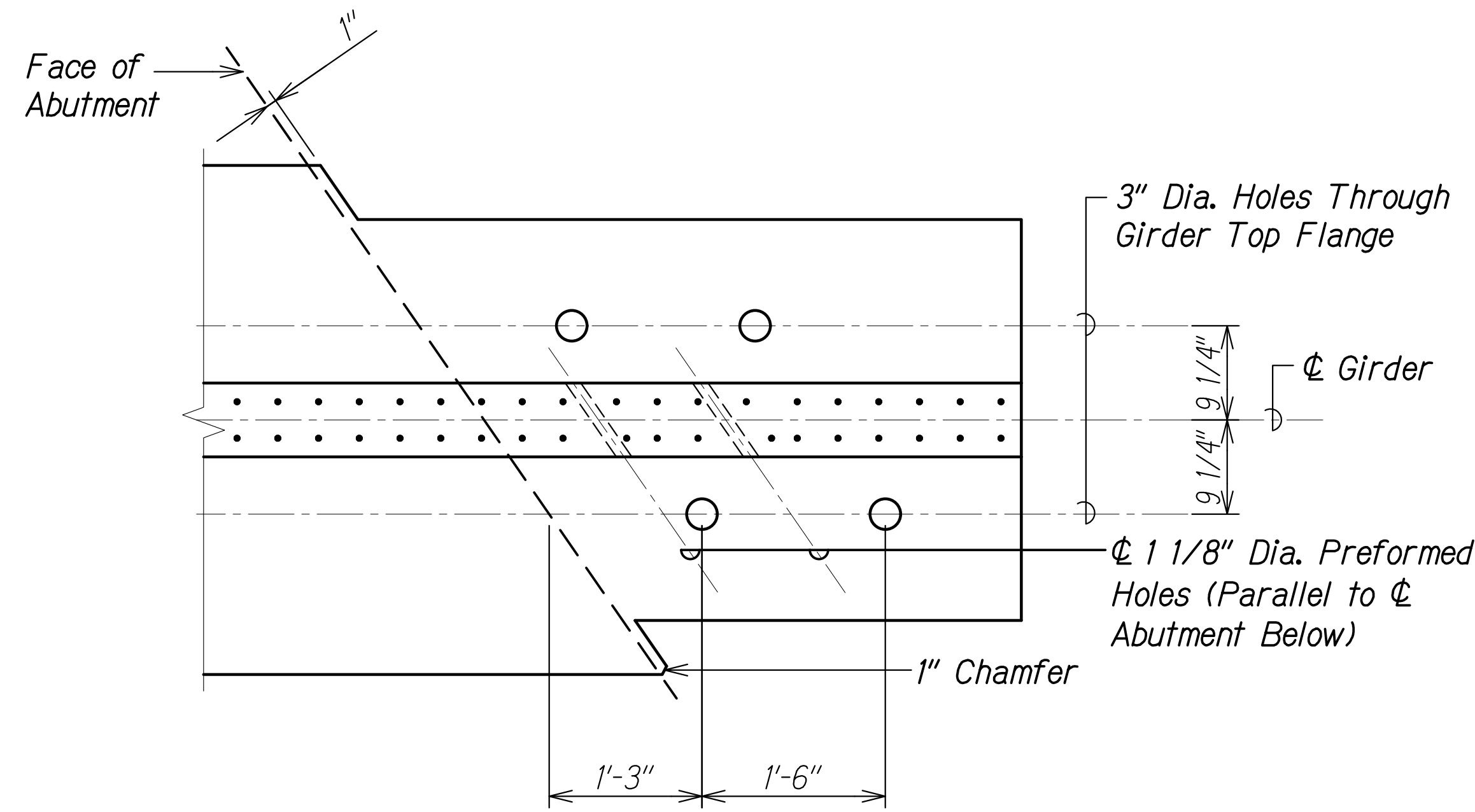
**PRESTRESSED GIRDER NOTES:**

- Prestressed steel shall be 7-wire 0.6-inch diameter ASTM A416 Grade 270 low-relaxation strand.
- See framing plans for location of diaphragms, bearing to bearing, and girder spacing.
- Strand pattern shall be symmetrical about the longitudinal centerline of the girder.
- Strand release sequence shall not induce any lateral deflection of the girder.
- Contractor shall submit shop drawings indicating proposed strand pattern, holes, inserts, releasing sequence, reinforcing details and hold down device details to the Engineer prior to fabrication.
- The Contractor shall incorporate all holes, inserts, and other embedded items required in girders during fabrication of the girders.
- Lifting devices shall be placed as close as possible to the center line bearing of the girder. Details and locations of lifting devices shall be submitted to the Engineer for approval. Such approval does not relieve the Contractor of his responsibilities if the girder is damaged due to failure of lifting device.
- Prior to casting girder Contractor shall field verify span lengths at each abutment.
- Contractor shall inspect all lifting devices for damage prior to delivery and immediately before installation.
- Contractor shall submit alternative method to lift girder if lifting devices are damaged for review and acceptance.
- Roughen top surface of girder to 1/4" min. amplitude.
- The compressive strength of the girder at strand release shall be at least 6,500 psi.
- The compressive strength of the girder at 28 Days shall be at least 10,000 psi.
- See sheet SA5.2 for rebar and strand extensions.
- Contractor may adjust locations of holes and inserts with the approval of the Engineer.



Sawteeth are full width

**SAWTEETH DETAIL**  
 Not to Scale SA5.3 SA5.3



**SECTION A**  
 Scale: 1" = 1'-0" SA5.2 SA5.3

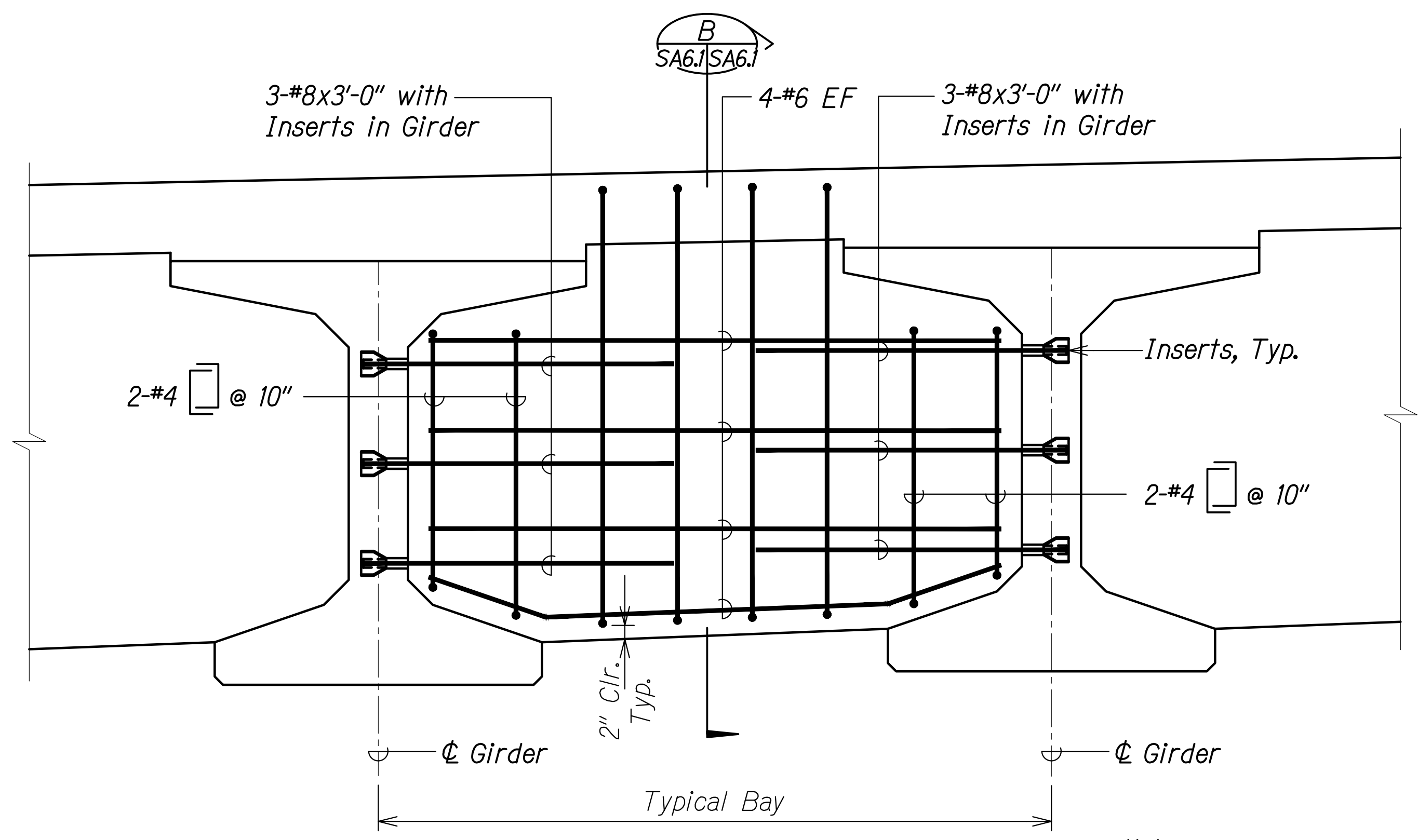
SURVEY PLOTTED BY	DATE
DRAWN BY	
DESIGNED BY	
QUANTITIES BY	
CHECKED BY	
ORIGINAL PLAN	
NOTE BOOK	
No.	

DRAWING NAME: SA5.03 UNIFORMS 20-013-FARR HWY KAPOLEI GC TO RT WYBE-BRIDGE OF CA04-04-06-22 BID SET (PH03-SA0501-HON GIRDER BELDWG) PLOT TIME: 04-07-22 4:34 PM

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 Signature: *Ruges S. Miyahara*  
 April 30, 2024  
 EXPIRATION DATE OF THE LICENSE

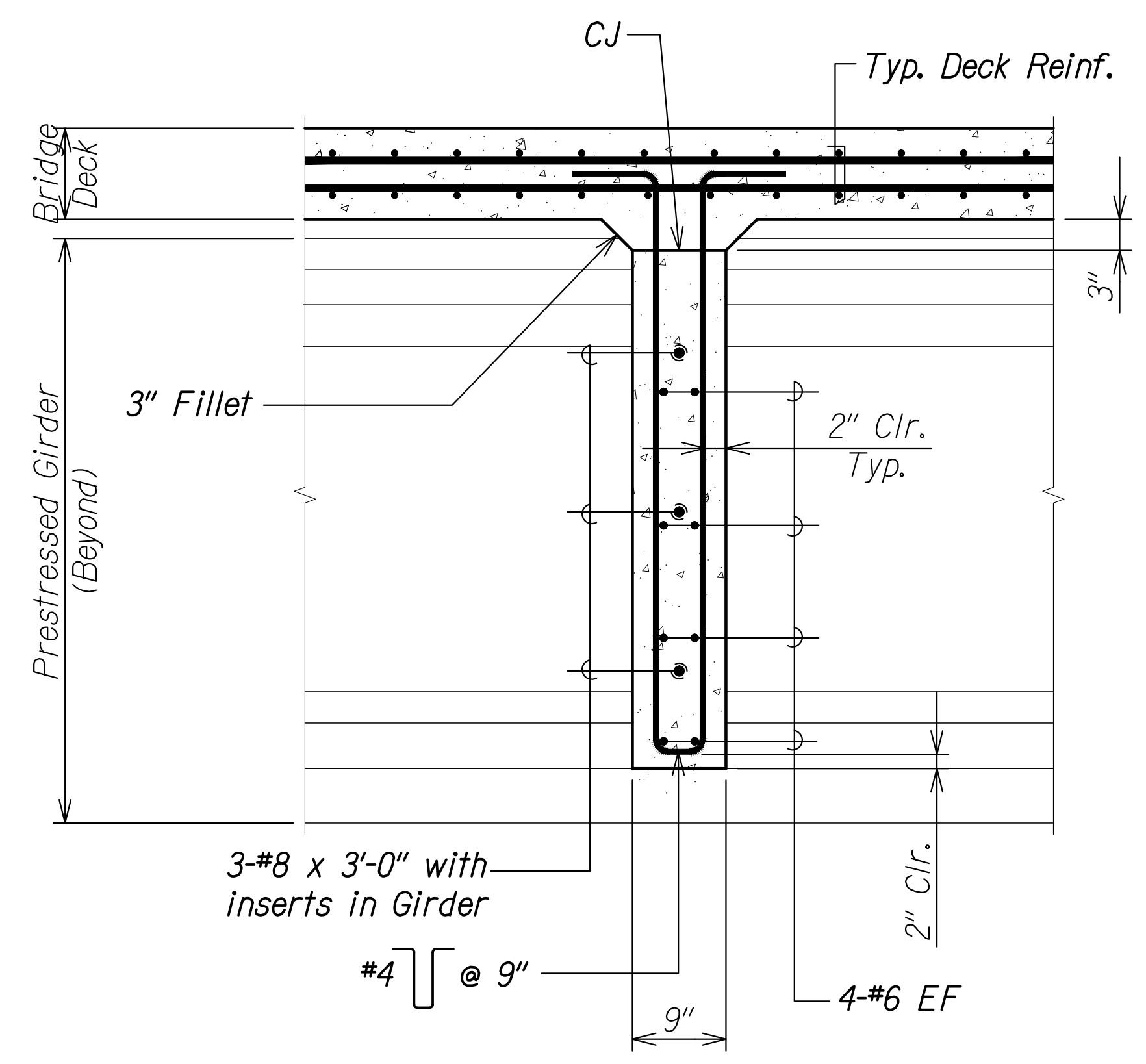
STATE OF HAWAII  
 DEPARTMENT OF TRANSPORTATION  
 HIGHWAYS DIVISION  
**Honouliuli Stream Bridge**  
**Prestressed Girder Notes and Detail**  
 FARRINGTON HIGHWAY WIDENING  
 Kapolei Golf Course Road to Fort Weaver Road  
 Project No. 7101A-01-20  
 Scale: As Shown Date: Apr. 2022  
**SHEET No. SA5.3 OF 3 SHEETS**

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	7101A-01-20	2021	370	

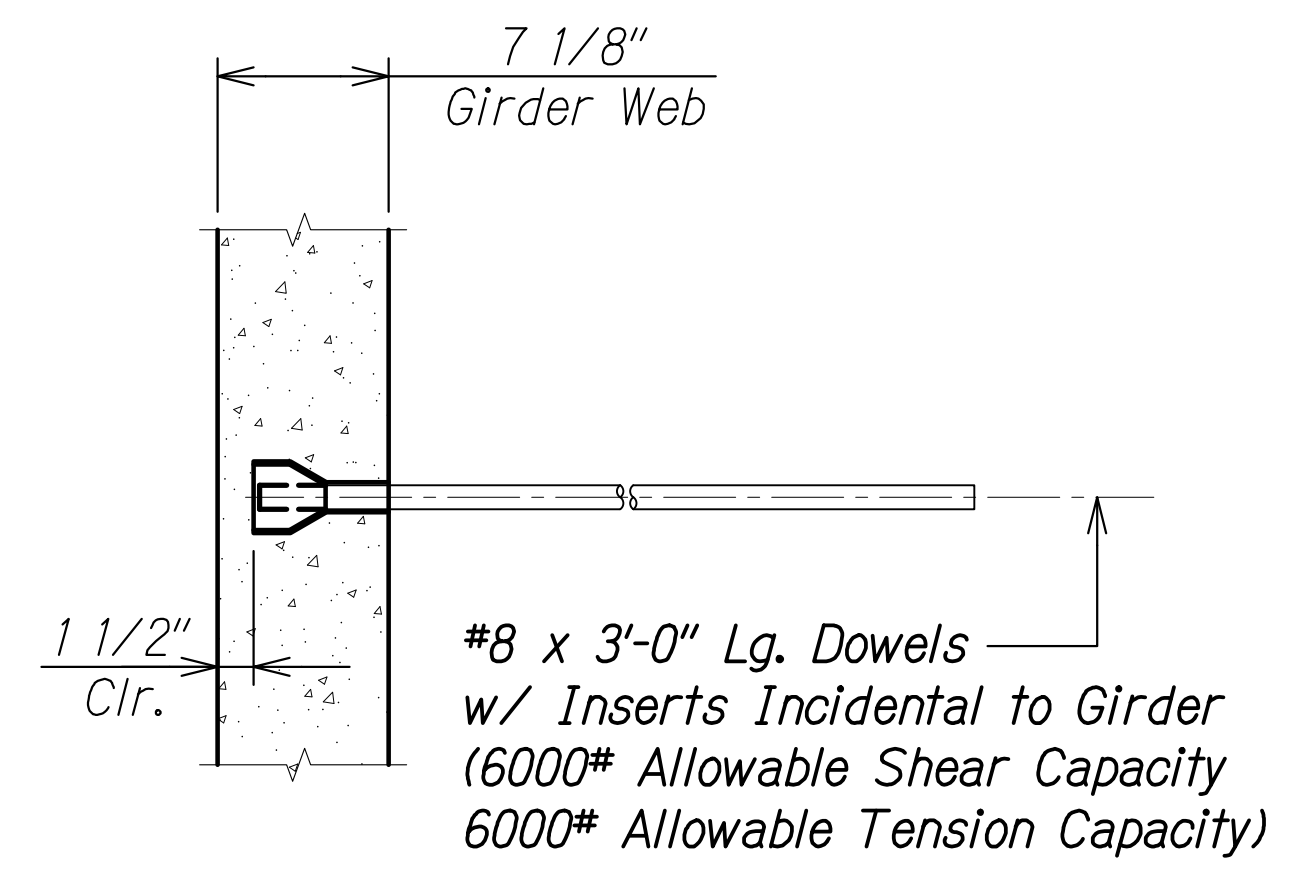


**DIAPHRAGM ELEVATION  
BETWEEN GIRDERS**  
Scale: 1" = 1'-0"  
SA6.1 SA6.1

**Note:**  
Adjacent diaphragm reinforcing and inserts not shown for clarity.



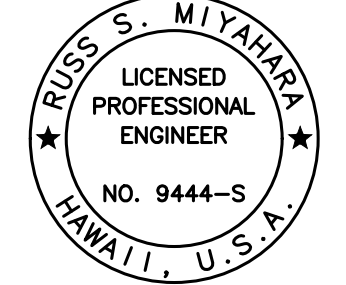
**DIAPHRAGM SECTION**  
Scale: 1" = 1'-0"  
SA6.1 SA6.1



**TYPICAL INSERT DETAIL**  
Scale: 1 1/2" = 1'-0"  
SA6.1 SA6.1

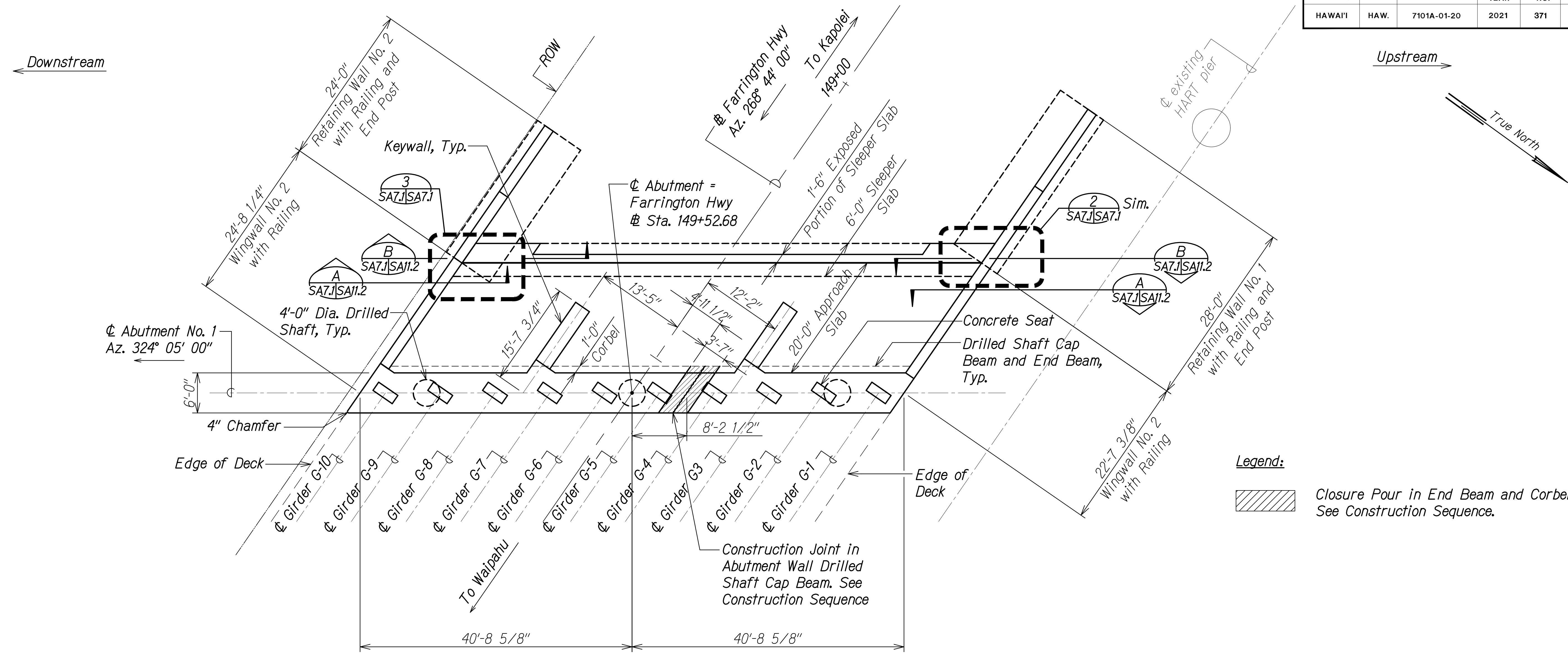
ORIGINAL PLAN	DATE
SURVEY PLOTTED BY	
DRAWN BY	
DESIGNED BY	
QUANTITIES BY	
CHECKED BY	

DRAWING NAME: Z:\100 ONGOING\20-013-FARR-HWY-KAPOLEI GC ID: ET WPR-EMTC\01 CAD\04-06-22 BID SET\FHW3-SAG601 DIAPHR SECT.DWG PLOT TIME: 04-07-22 4:59 PM

  
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 Signature: *Rugs S. Miyahara*  
 April 30, 2024  
 EXPIRATION DATE OF THE LICENSE

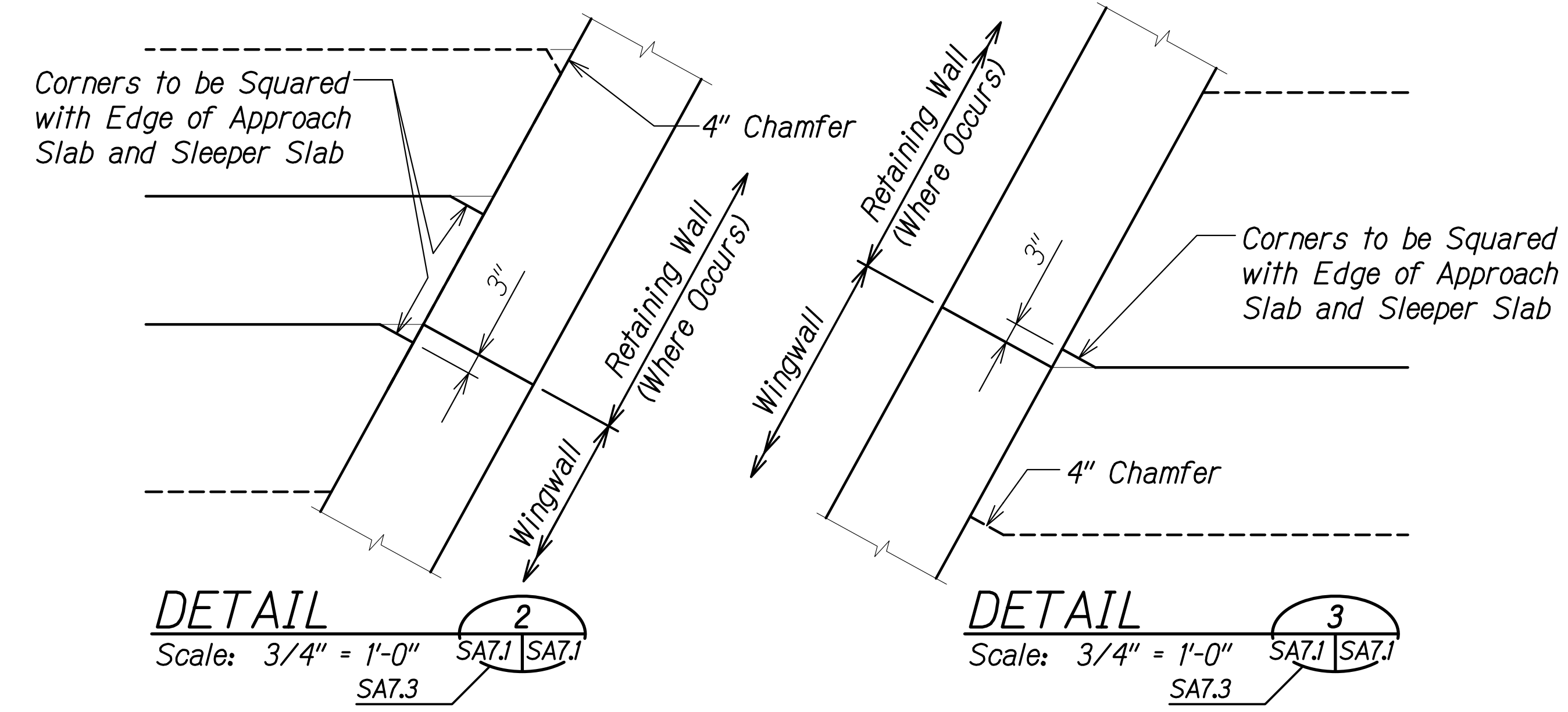
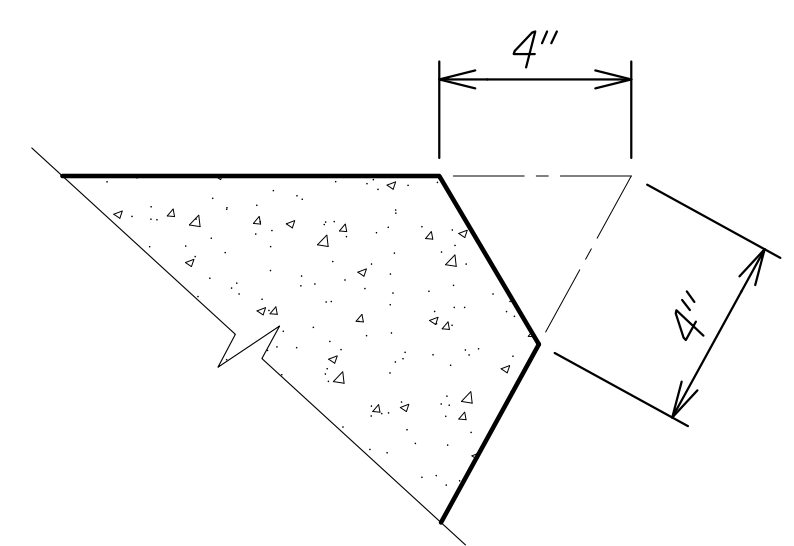
STATE OF HAWAII  
 DEPARTMENT OF TRANSPORTATION  
 HIGHWAYS DIVISION  
**Honouliuli Stream Bridge**  
 Diaphragm Elevation, Section, and Detail  
 FARRINGTON HIGHWAY WIDENING  
 Kapolei Golf Course Road to Fort Weaver Road  
 Project No. 7101A-01-20  
 Scale: As Shown Date: Apr. 2022  
**SHEET No. SA6.1 OF 1 SHEETS**

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	7101A-01-20	2021	371	



**Legend:**  
 Closure Pour in End Beam and Corbel. See Construction Sequence.

**ABUTMENT NO. 1 PLAN**  
 Scale: 1/8" = 1'-0"  
 SA7.1 SA7.1



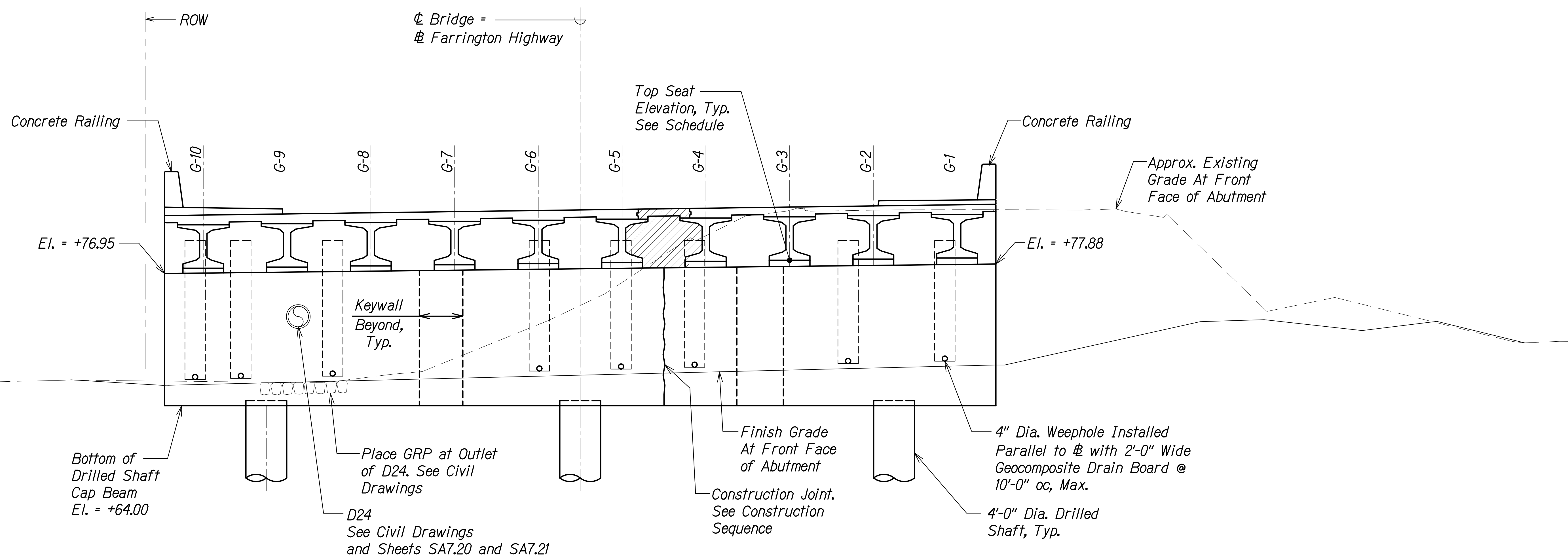
SURVEY PLOTTED BY	DATE
DRAWN BY	
DESIGNED BY	
QUANTITIES BY	
CHECKED BY	
ORIGINAL PLAN	
NOTE BOOK	
No.	

DRAWING NAME: ZA100 CONDUITS/20-013-FARR-HW KAPOLEI GC ID: ET WPG-BRICK/01 CAD/04-06-22 BID: SET/FH03-SA0701-ABUT1-PLAN.DWG PLOT TIME: 04-07-22 4:35 PM

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.  
 RUS S. MIYAHARA  
 LICENSED PROFESSIONAL ENGINEER  
 NO. 9444-S  
 HAWAII, U.S.A.  
 April 30, 2024  
 SIGNATURE EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII  
 DEPARTMENT OF TRANSPORTATION  
 HIGHWAYS DIVISION  
**Honouliuli Stream Bridge**  
**Abutment No. 1 Plan**  
 FARRINGTON HIGHWAY WIDENING  
 Kapolei Golf Course Road to Fort Weaver Road  
 Project No. 7101A-01-20  
 Scale: As Shown Date: Apr. 2022  
**SHEET No. SA7.1 OF 20 SHEETS**

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	7101A-01-20	2021	372	



Abutment No. 1										
Girder #	1	2	3	4	5	6	7	8	9	10
Top of Seat Elevation	+78.16	+78.06	+77.97	+77.88	+77.78	+77.69	+77.59	+77.50	+77.41	+77.31

See sheet SA7.19 for concrete seat details. Seat Elevations are shown as + MSL

- Notes:**
- Contractor shall not encroach within construction clear zone around HART Guideway at any time during construction.
  - Top of Drilled Shaft Cap Elevations are measured at ⊕ of abutment.
  - Geocomposite Drain Boards and Drain Pipes shall be incidental to the measurement and payment for CLSM Backfill for Honouliuli Abutments and Wingwalls.

**Legend:**

Closure Pour in End Beam, Corbel, and Deck. See Construction Sequence

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

DRAWING NAME: SA7.00 UNDOINGS-20-013-FARR-HWY-KAPOLEI GC ID: ET-WP8-EMTC(01-GAD) 04-08-22 BID: RYSD-SHRS\FHWG-SA0702-100N-ABUT1-ELONG PLOT TIME: 04-08-22 3:38 PM

**ABUTMENT NO. 1 ELEVATION LOOKING TOWARDS KAPOLEI**

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

A  
SA7.2

RUGO S. MIYAHARA  
LISCENED PROFESSIONAL ENGINEER  
NO. 9444-S  
HAWAII, U.S.A.

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Signature: *Rugo S. Miyahara*  
April 30, 2024  
EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

**Honouliuli Stream Bridge  
Abutment No. 1 Elevation**

FARRINGTON HIGHWAY WIDENING  
Kapolei Golf Course Road to Fort Weaver Road  
Project No. 7101A-01-20

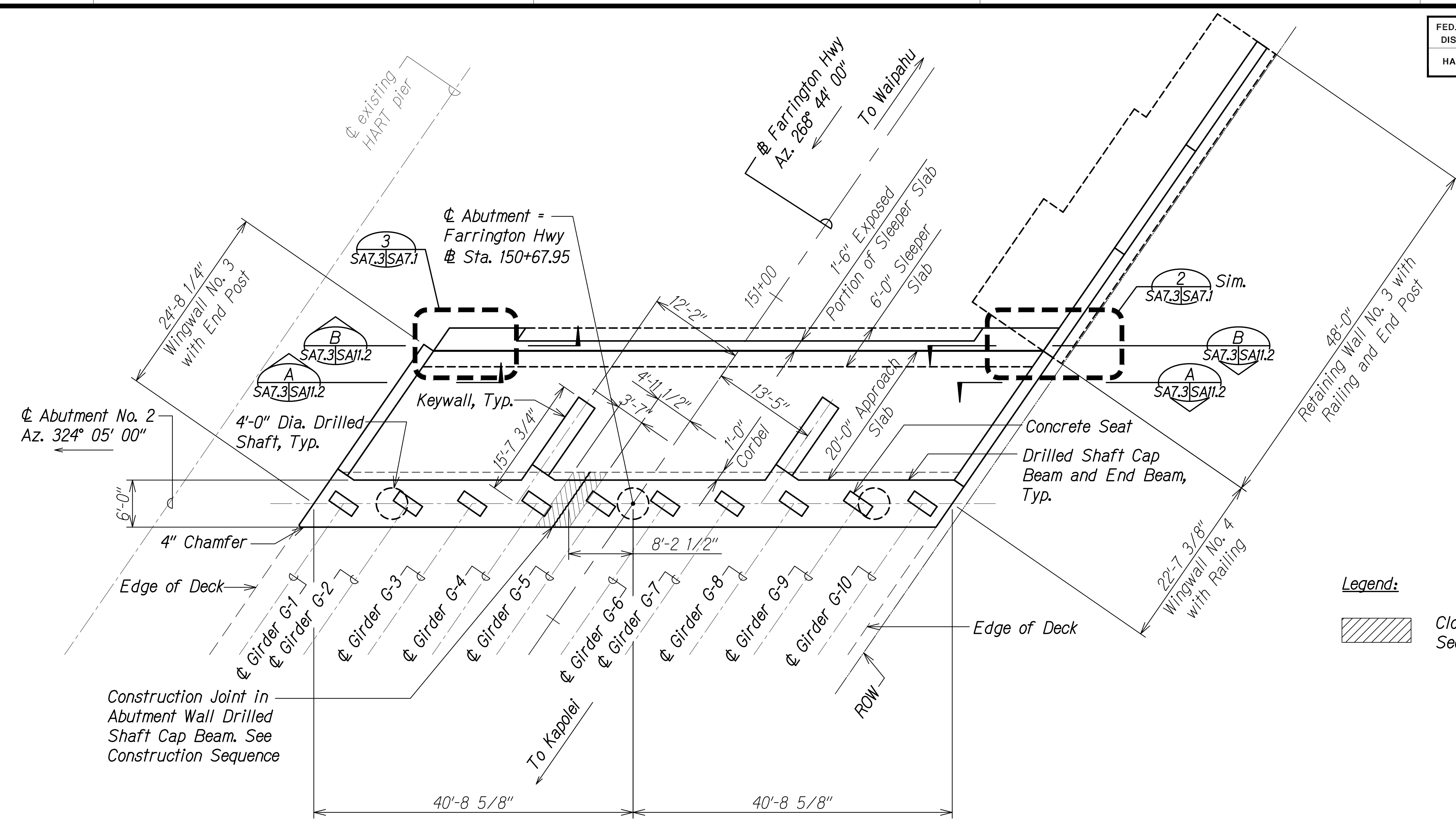
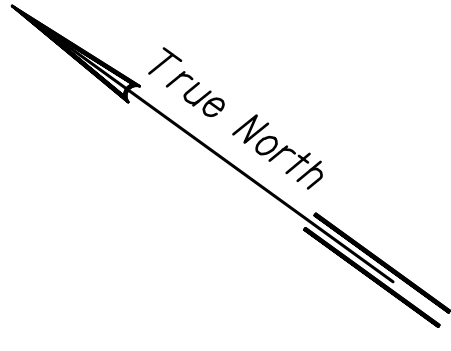
Scale: As Shown Date: Apr. 2022

**SHEET No. SA7.2 OF 20 SHEETS**

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	7101A-01-20	2021	373	

← Upstream

Downstream →



Legend:

Closure Pour in End Beam and Corbel. See Construction Sequence.

**ABUTMENT NO. 2 PLAN**  
 Scale: 1/8" = 1'-0"  
 SA7.3 SA7.3

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

DRAWING NAME: Z:\100 ONGOING\20-013-FARR-HWY-KAPOLEI GC ID: ET WIP-BMT\01 CAD\04-06-22 BID SET\FHW3-SA0703-ABUT2 PLAN.DWG PLOT TIME: 04-07-22 4:36 PM

**RUGS S. MIYAHARA**  
 LICENSED PROFESSIONAL ENGINEER  
 NO. 9444-S  
 HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.

*Rugs S. Miyahara*  
 SIGNATURE  
 April 30, 2024  
 EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII  
 DEPARTMENT OF TRANSPORTATION  
 HIGHWAYS DIVISION

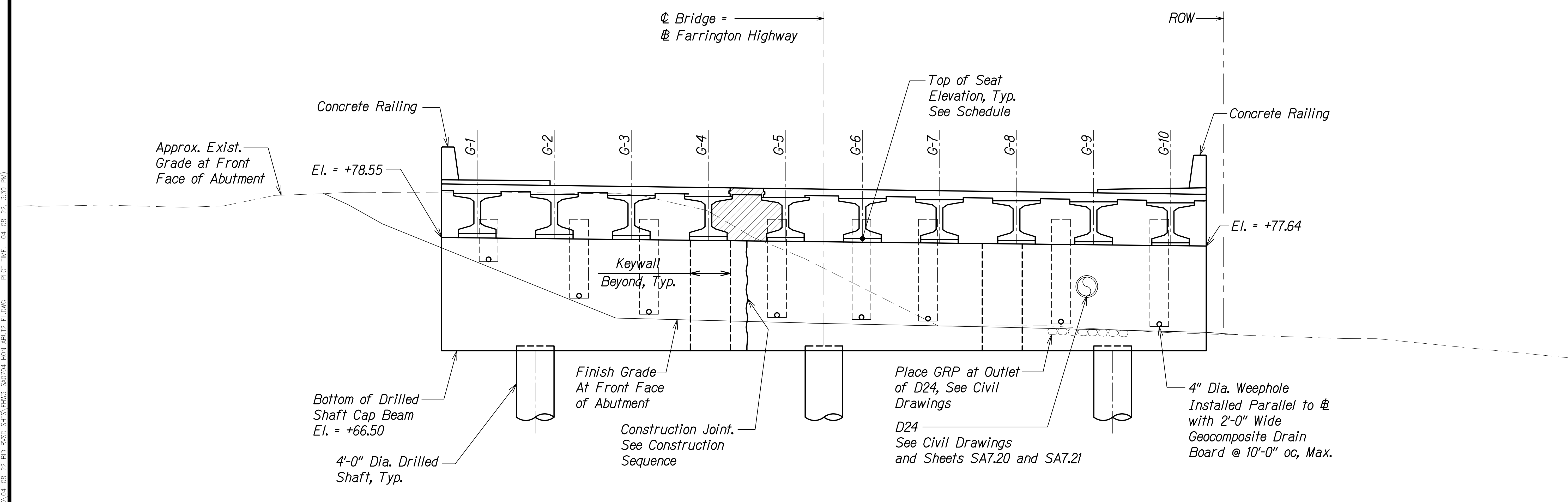
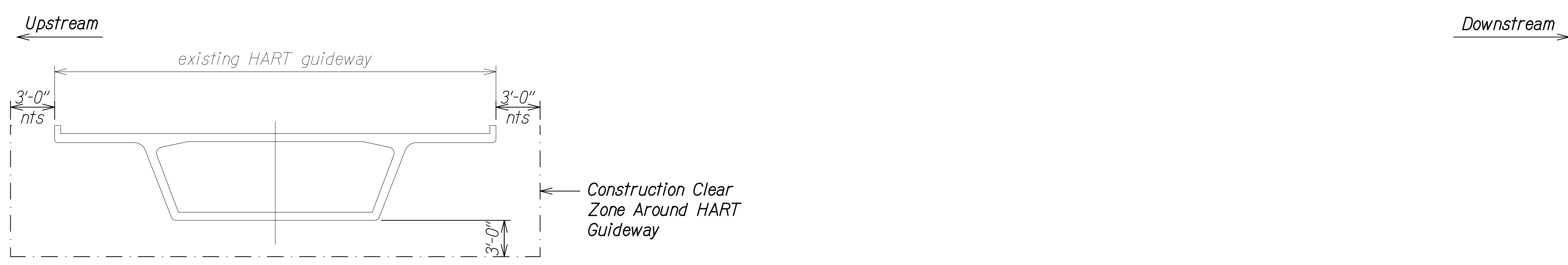
**Honouliuli Stream Bridge**  
**Abutment No. 2 Plan**

FARRINGTON HIGHWAY WIDENING  
 Kapolei Golf Course Road to Fort Weaver Road  
 Project No. 7101A-01-20

Scale: As Shown Date: Apr. 2022

**SHEET No. SA7.3 OF 20 SHEETS**

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	7101A-01-20	2021	374	



Abutment No. 2										
Girder #	1	2	3	4	5	6	7	8	9	10
Top of Seat Elevation	+78.84	+78.74	+78.65	+78.56	+78.46	+78.37	+78.27	+78.18	+78.09	+77.99

See sheet SA7.19 for concrete seat details.  
Seat Elevations are shown as + MSL

**Notes:**

- Contractor shall not encroach within construction clear zone around HART Guideway at any time during construction.
- Top of Drilled Shaft Cap Elevations are measured at  $\phi$  of abutment.
- Geocomposite Drain Boards and Drain Pipes shall be incidental to the measurement and payment for CLSM Backfill for Honouliuli Abutments and Wingwalls.

**Legend:**

Closure Pour in End Beam and Deck.  
See Construction Sequence.

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

DRAWING NAME: Z:\100 ONGOING\20-013-FARR HWY KAPOLEI GC TO FT WEAVER HWY SA7.4\01 CAD\04-08-22 BID RVD\SRIS\ENR\SA0704.HDR ABUT2 ELEV.DWG PLOT TIME: 04-08-22 3:39 PM

**ABUTMENT NO. 2 ELEVATION LOOKING TOWARDS WAIPAHO**  
Scale: 3/16" = 1'-0" A  
SA7.4

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*Rugo S. Miyahara*  
SIGNATURE April 30, 2024  
EXPIRATION DATE OF THE LICENSE

**STATE OF HAWAII**  
**DEPARTMENT OF TRANSPORTATION**  
HIGHWAYS DIVISION

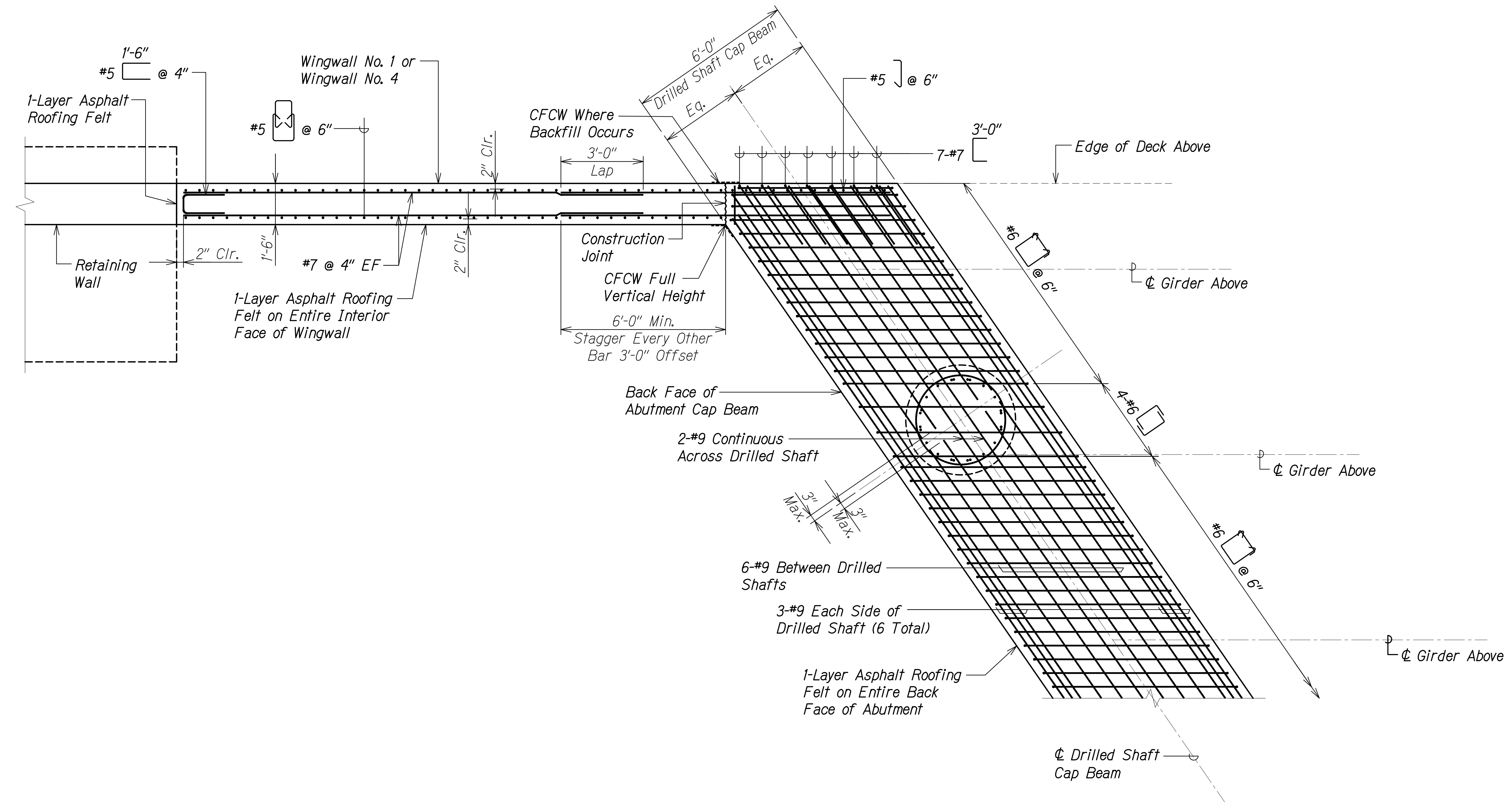
**Honouliuli Stream Bridge**  
**Abutment No. 2 Elevation**

FARRINGTON HIGHWAY WIDENING  
Kapolei Golf Course Road to Fort Weaver Road  
Project No. 7101A-01-20

Scale: As Shown Date: Apr. 2022

**SHEET No. SA7.4 OF 20 SHEETS**

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	7101A-01-20	2021	375	

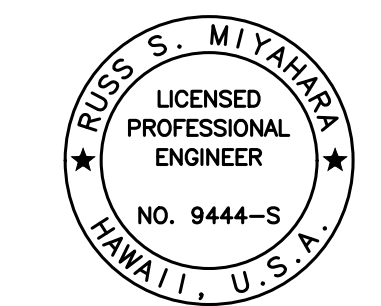


SURVEY PLOTTED BY	DATE
DRAWN BY	
DESIGNED BY	
QUANTITIES BY	
CHECKED BY	
ORIGINAL PLAN	
NOTE BOOK	
No.	

DRAWING NAME: Z:\100\_050505\20-013-FARR-HWY-KAPOLEI-GC-10-ET-WR-EMTC\01-GAD\04-06-22-BID-SET\FHWS-SK0705-ABUT1-PLAN.DWG PLOT TIME: 04-07-22 4:37 PM

**TYPICAL DRILLED SHAFT CAP BEAM  
BOTTOM REINFORCING PLAN**

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



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 Signature: *Russ S. Miyahara*  
 April 30, 2024  
 EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII  
 DEPARTMENT OF TRANSPORTATION  
 HIGHWAYS DIVISION

**Honouliuli Stream Bridge  
 Abutment Reinforcing Plan**

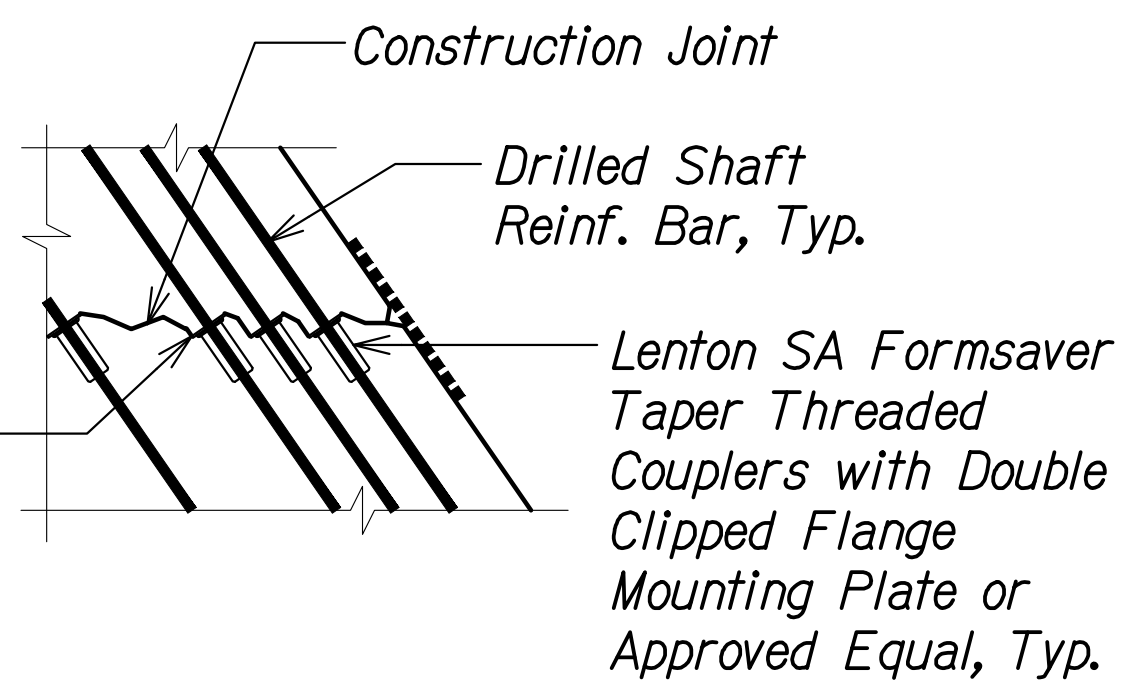
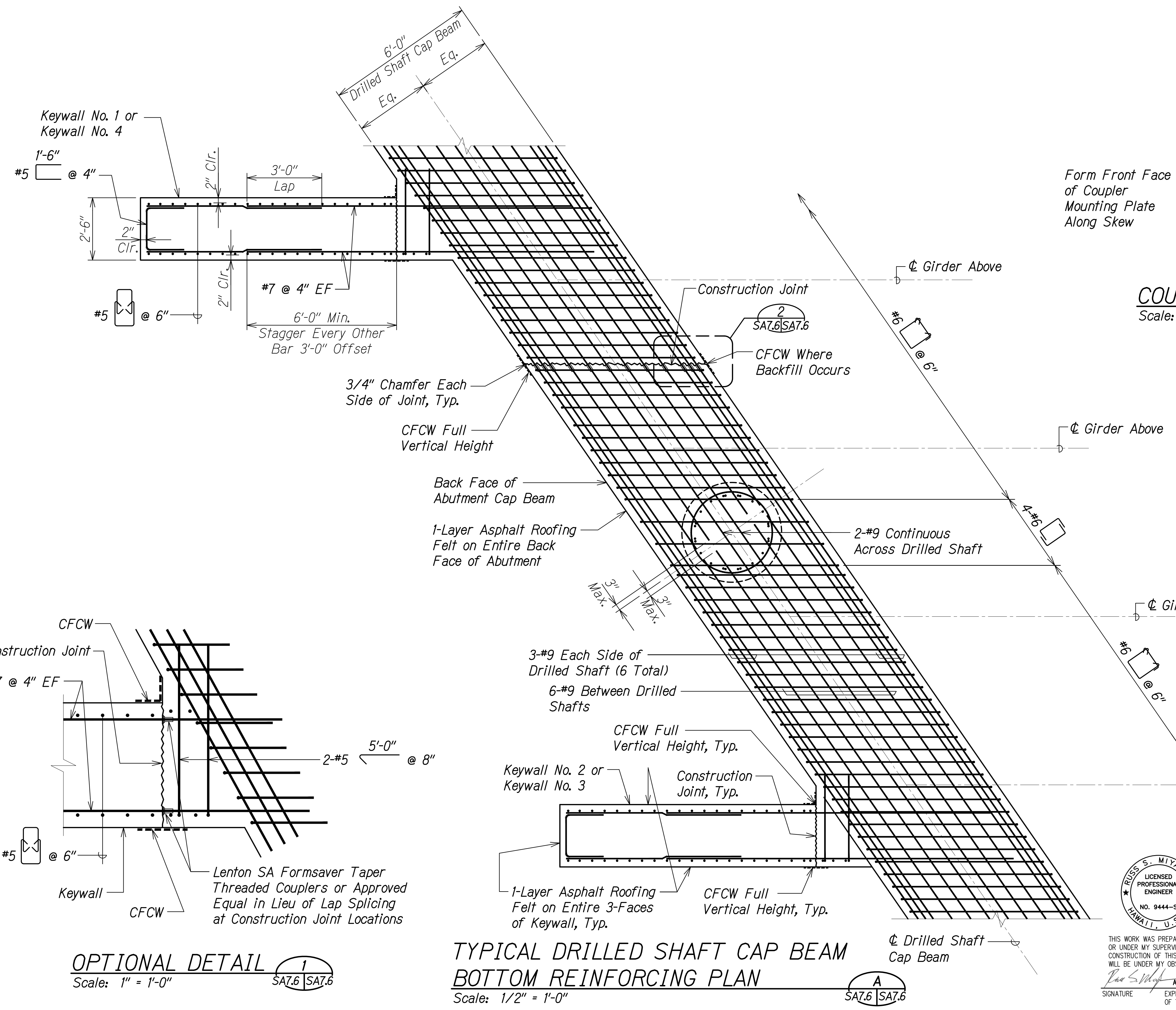
FARRINGTON HIGHWAY WIDENING  
 Kapolei Golf Course Road to Fort Weaver Road  
 Project No. 7101A-01-20

Scale: As Shown Date: Apr. 2022

**SHEET No. SA7.5 OF 20 SHEETS**

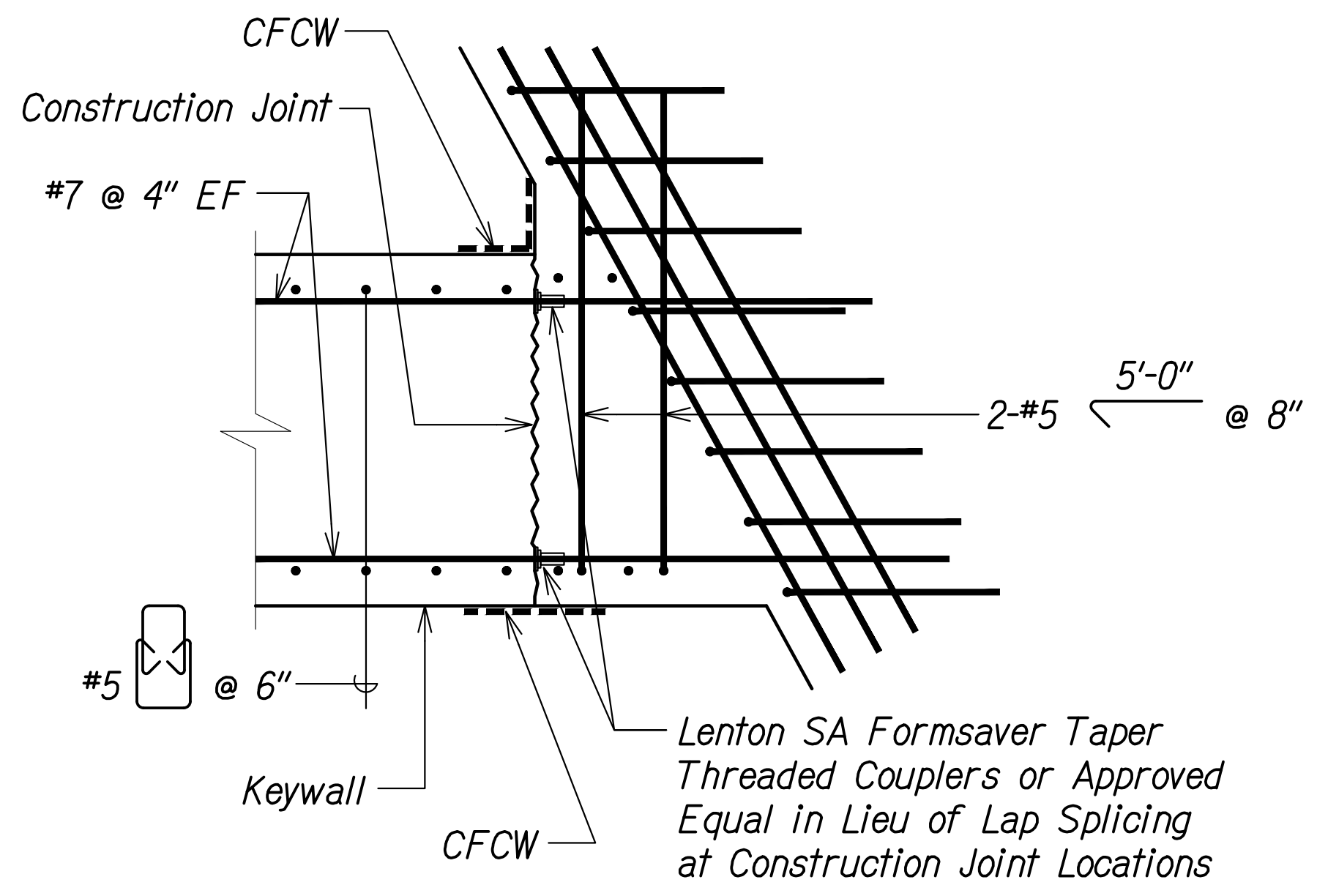


FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	7101A-01-20	2021	376	



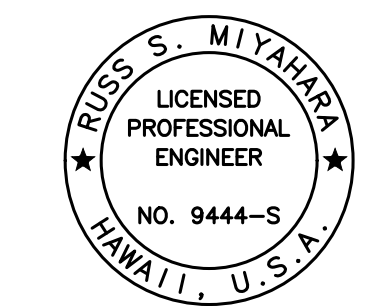
Form Front Face of Coupler Mounting Plate Along Skew

**COUPLER DETAIL** 2  
Scale: 1" = 1'-0" SA7.6 SA7.6



**OPTIONAL DETAIL** 1  
Scale: 1" = 1'-0" SA7.6 SA7.6

**TYPICAL DRILLED SHAFT CAP BEAM BOTTOM REINFORCING PLAN** A  
Scale: 1/2" = 1'-0" SA7.6 SA7.6



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Signature: *Russ S. Miyahara*  
April 30, 2024  
EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII  
**DEPARTMENT OF TRANSPORTATION**  
HIGHWAYS DIVISION

**Honouliuli Stream Bridge**  
**Abutment Reinforcing Plan**

FARRINGTON HIGHWAY WIDENING  
Kapolei Golf Course Road to Fort Weaver Road  
Project No. 7101A-01-20

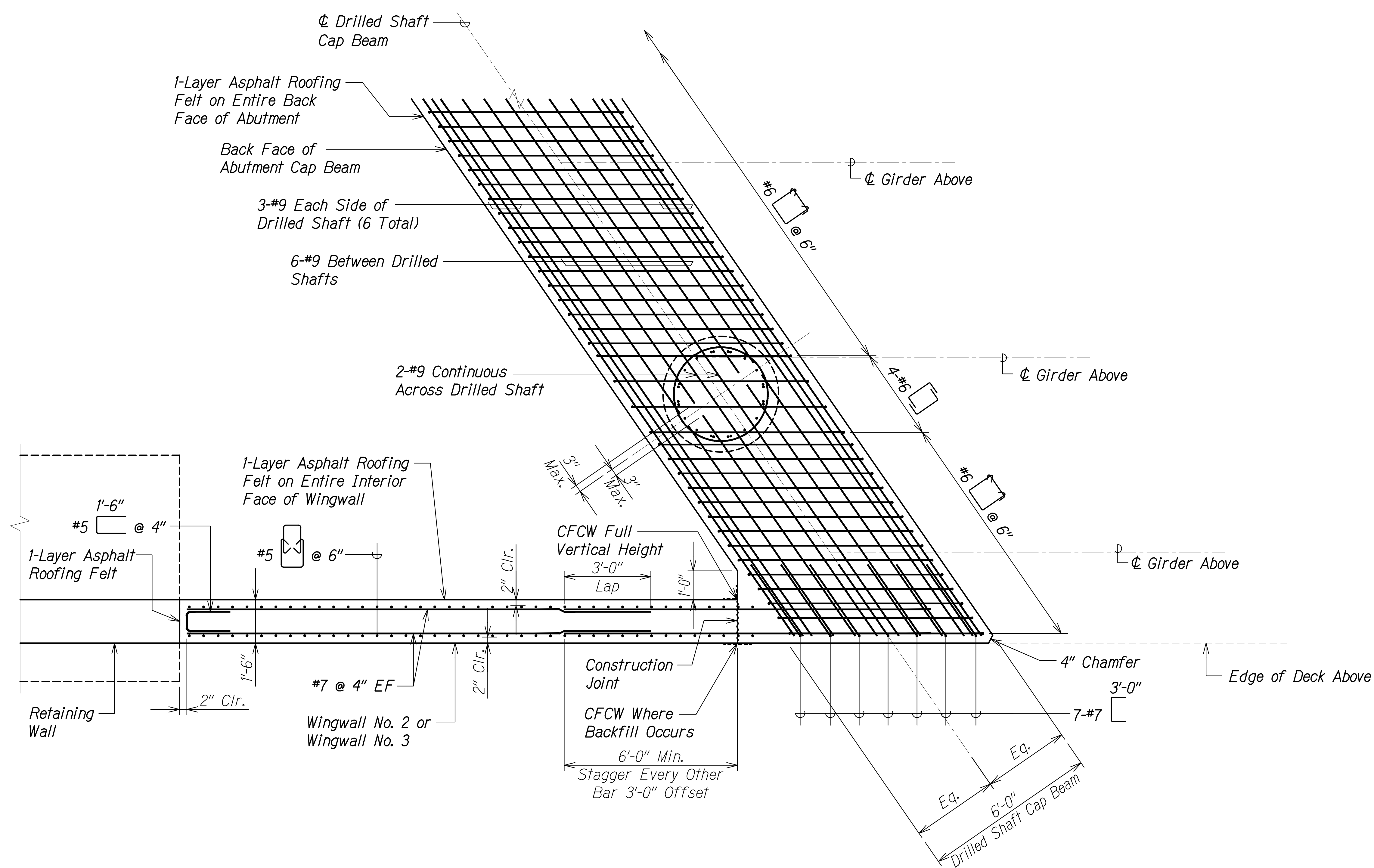
Scale: As Shown      Date: Apr. 2022

**SHEET No. SA7.6 OF 20 SHEETS**

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

DRAWING NAME: ZA100 UNDOINGS-20-013-FARR-HW-KAPOLEI GC ID: ET-WR-EMTCV01 CAD: 04-06-22 BID: SET-FH03-SAD005-ABUT1-PLAN.DWG PLOT TIME: 04-07-22: 4:38 PM

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	7101A-01-20	2021	377	



**TYPICAL DRILLED SHAFT CAP BEAM  
BOTTOM REINFORCING PLAN**

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

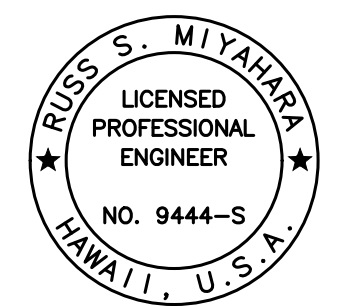


SURVEY PLOTTED BY	DATE
DRAWN BY	
DESIGNED BY	
QUANTITIES BY	
CHECKED BY	
ORIGINAL PLAN	
NOTE BOOK	
No.	

DRAWING NAME: Z:\100 ONGOING\20-013-FARR-HWY-KAPOLEI\04-04-06-22 BID SET\FHWS-SA0705-ABUTT-PLAN.DWG PLOT TIME: 04-07-22 4:38 PM

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.

*Paul S. Miyahara*  
 SIGNATURE      EXPIRATION DATE OF THE LICENSE: April 30, 2024



STATE OF HAWAII  
 DEPARTMENT OF TRANSPORTATION  
 HIGHWAYS DIVISION

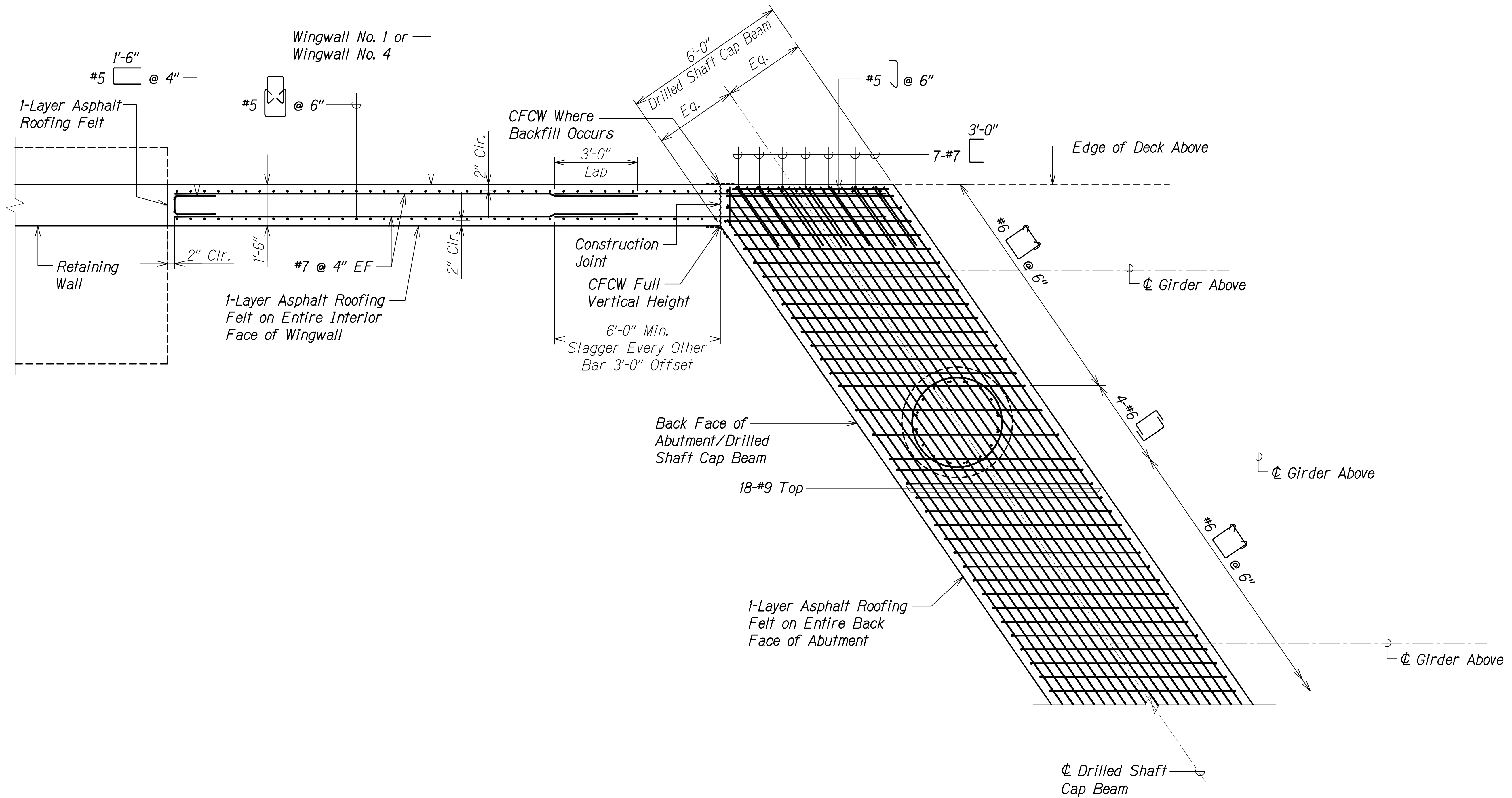
**Honouliuli Stream Bridge  
 Abutment Reinforcing Plan**

FARRINGTON HIGHWAY WIDENING  
 Kapolei Golf Course Road to Fort Weaver Road  
 Project No. 7101A-01-20

Scale: As Shown      Date: Apr. 2022

**SHEET No. SA7.7 OF 20 SHEETS**

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	7101A-01-20	2021	378	



DRAWING NAME: Z:\100 ONGOING\20-013-FARR-HWY-KAPOLEI\GE.IDE.IT.WORK\BIM\01-CAD\04-06-22 BID SET\PHW3-SADT08-ABUT1-PLAN.DWG PLOT TIME: 04-07-22 4:38 PM

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

### TYPICAL DRILLED SHAFT CAP BEAM TOP REINFORCING PLAN

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



THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.  
 Signature: *Russ S. Miyahara*  
 April 30, 2024  
 EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII  
 DEPARTMENT OF TRANSPORTATION  
 HIGHWAYS DIVISION

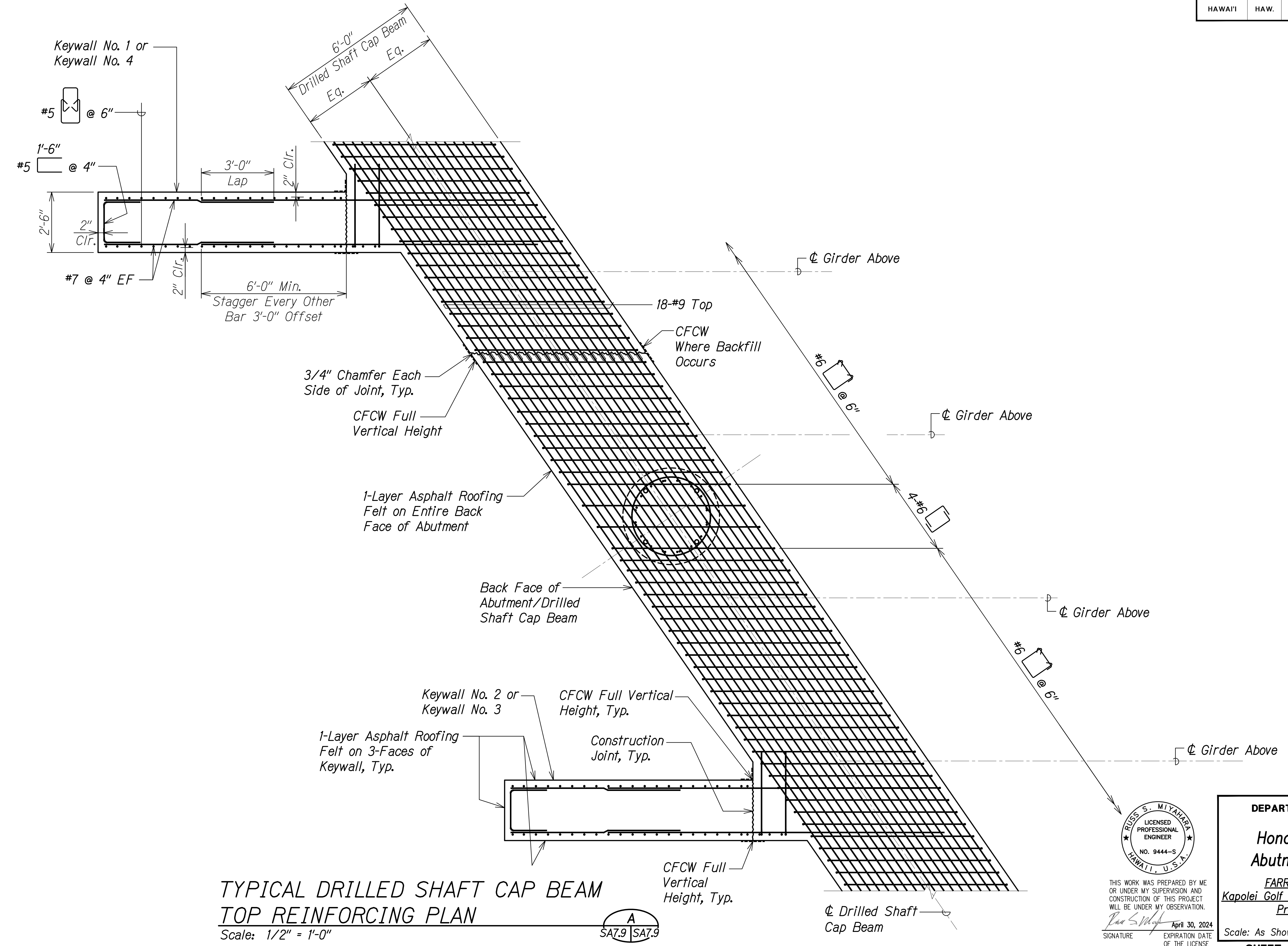
**Honouliuli Stream Bridge  
 Abutment Reinforcing Plan**

FARRINGTON HIGHWAY WIDENING  
 Kapolei Golf Course Road to Fort Weaver Road  
 Project No. 7101A-01-20

Scale: As Shown Date: Apr. 2022

**SHEET No. SA7.8 OF 20 SHEETS**

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	7101A-01-20	2021	379	

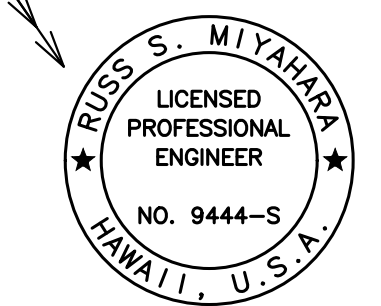


**TYPICAL DRILLED SHAFT CAP BEAM TOP REINFORCING PLAN**  
 Scale: 1/2" = 1'-0"

A  
 SA7.9 | SA7.9

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

DRAWING NAME: Z:\100 UNDOINGS\20-013-FARR-HW-KAPOLEI GC ID: ET WPR-BMT\01 CAD\04-06-22 BID SET\FH03-SK0708 ABUTT PLAN.DWG PLOT TIME: 04-07-22 4:38 PM



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 Signature: *Rugo S. Miyahara*  
 April 30, 2024  
 EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII  
 DEPARTMENT OF TRANSPORTATION  
 HIGHWAYS DIVISION

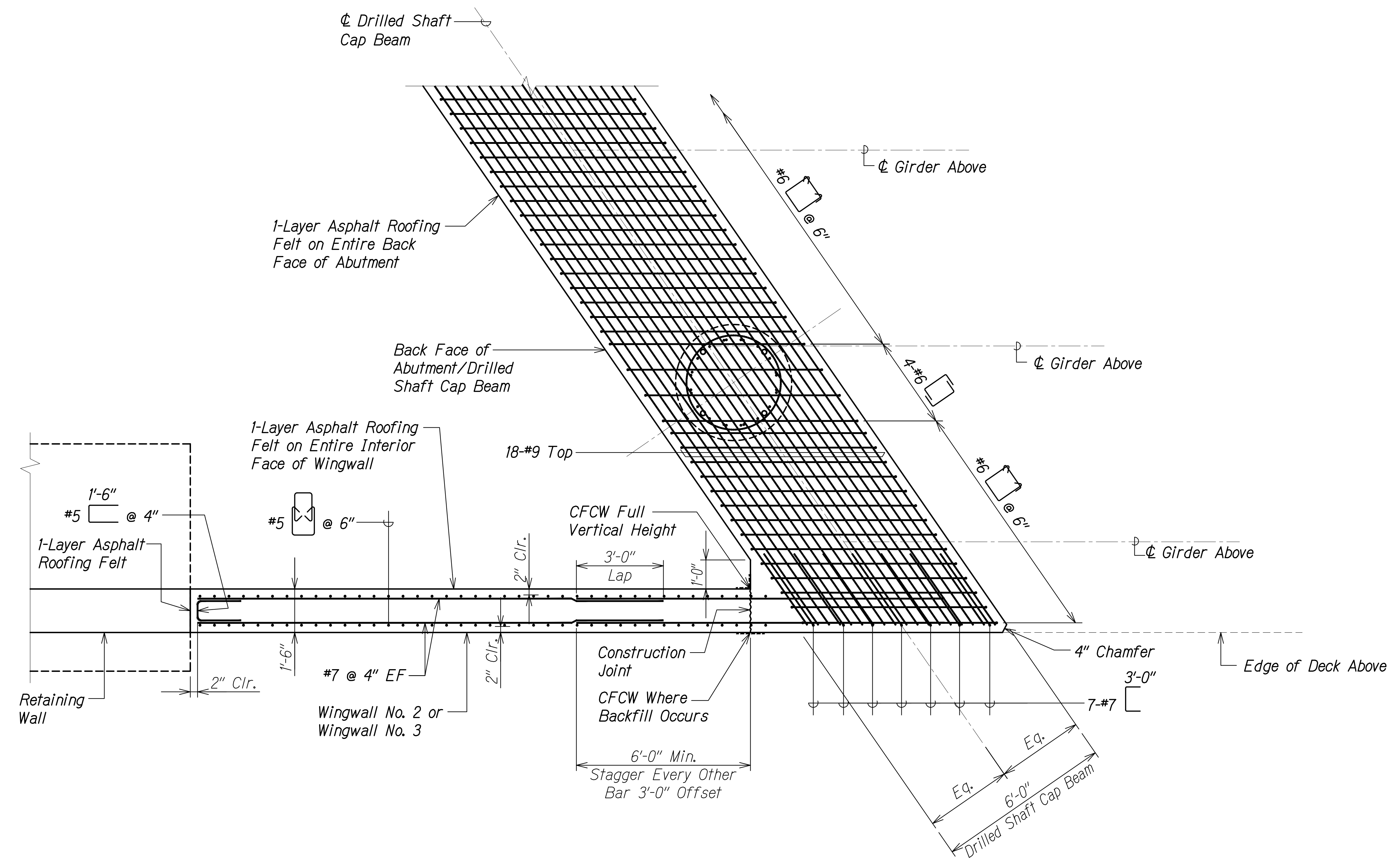
**Honouliuli Stream Bridge Abutment Reinforcing Plan**

FARRINGTON HIGHWAY WIDENING  
 Kapolei Golf Course Road to Fort Weaver Road  
 Project No. 7101A-01-20

Scale: As Shown Date: Apr. 2022

SHEET No. SA7.9 OF 20 SHEETS

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	7101A-01-20	2021	380	



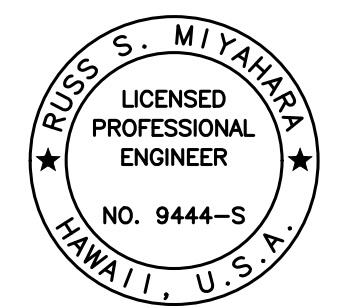
**TYPICAL DRILLED SHAFT CAP BEAM  
TOP REINFORCING PLAN**  
Scale: 1/2" = 1'-0"



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

DRAWING NAME: Z:\100 UNDOINGS\20-013-FARR-HWY-KAPOLEI-GC-10-ET-WR-EMTC\01-GAD\04-06-22-BID-SET\FIGS-SAD\08-ABUTT-PLAN.DWG PLOT TIME: 04-07-22 4:39 PM

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*Paul S. Miyahara*  
SIGNATURE  
April 30, 2024  
EXPIRATION DATE OF THE LICENSE



STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

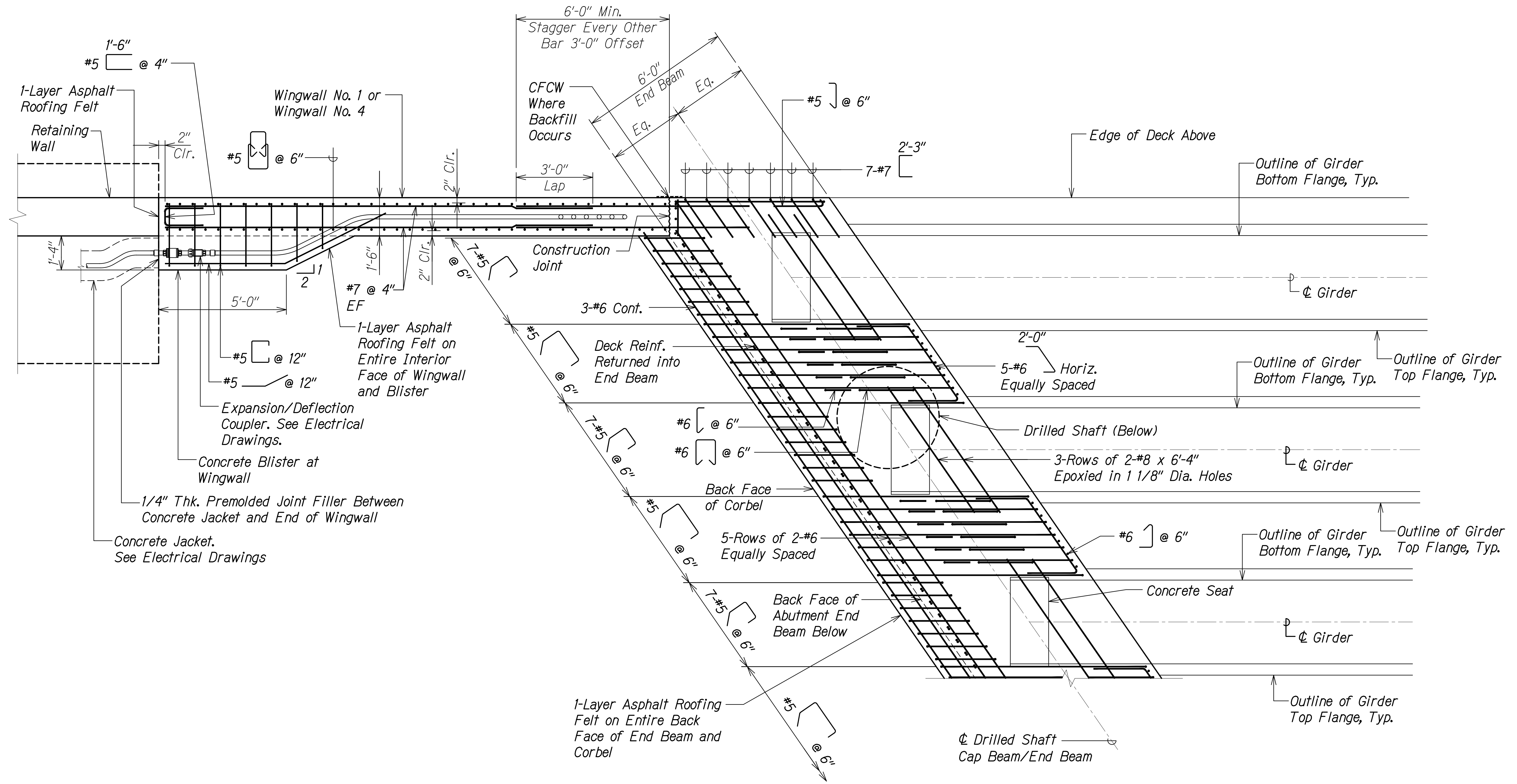
**Honouliuli Stream Bridge  
Abutment Reinforcing Plan**

FARRINGTON HIGHWAY WIDENING  
Kapolei Golf Course Road to Fort Weaver Road  
Project No. 7101A-01-20

Scale: As Shown Date: Apr. 2022

SHEET No. SA7.10 OF 20 SHEETS

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	7101A-01-20	2021	381	



DRAWING NAME: Z:\100 DESIGN\20-013-FARR-HWY-KAPOLEI\04-04-06-22 BID SET\PH03-SA0711-ABUTT-PLAN.DWG PLOT TIME: 04-07-22 4:39 PM

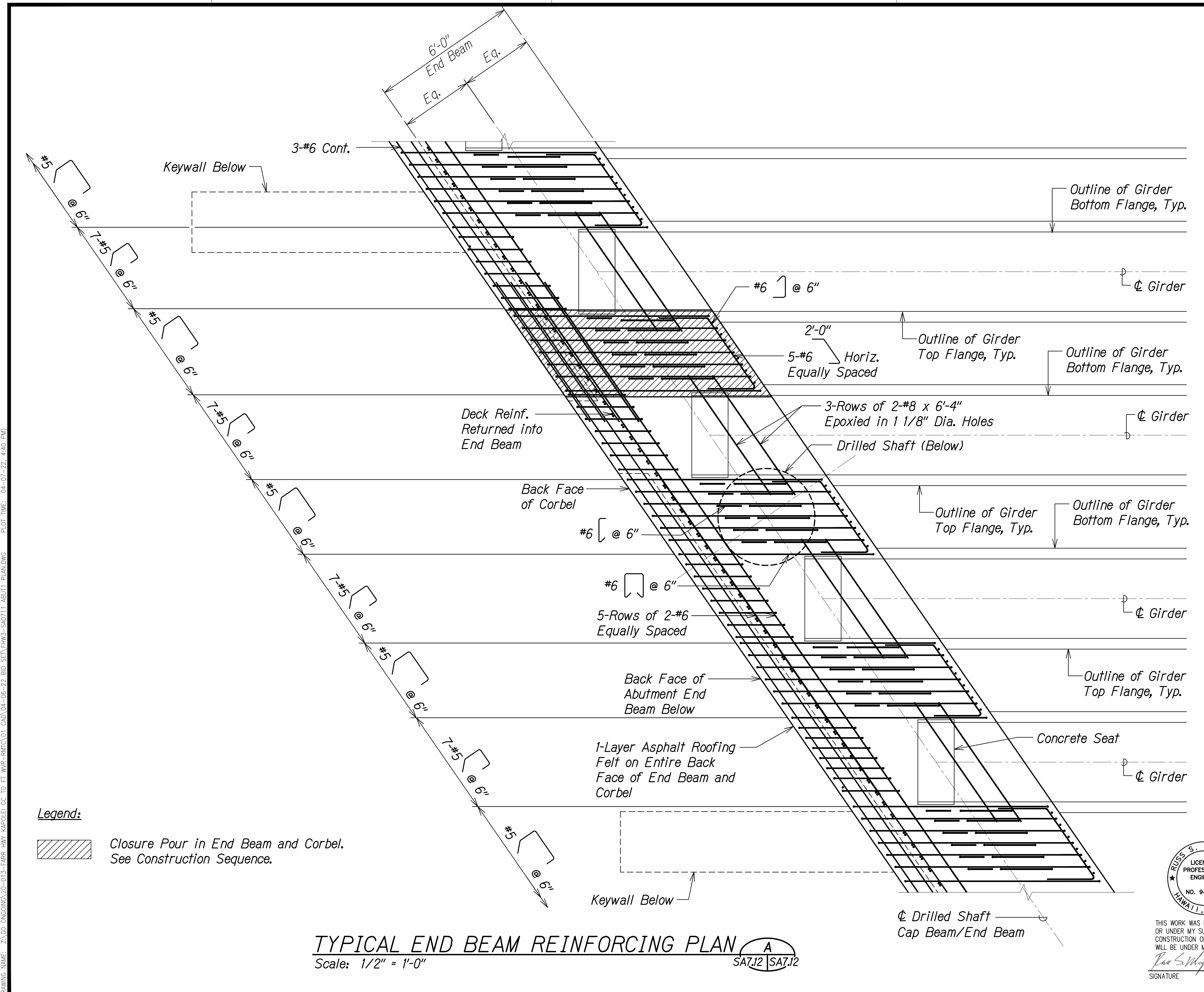
SURVEY PLOTTED BY	DATE
DRAWN BY	
DESIGNED BY	
QUANTITIES BY	
CHECKED BY	
ORIGINAL PLAN	
NOTE BOOK	
No.	

**TYPICAL END BEAM REINFORCING PLAN** A  
 Scale: 1/2" = 1'-0" SA7.11 SA7.11

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*Russ S. Miyahara*  
 SIGNATURE      April 30, 2024      EXPIRATION DATE OF THE LICENSE

**STATE OF HAWAII**  
**DEPARTMENT OF TRANSPORTATION**  
**HIGHWAYS DIVISION**  
**Honouliuli Stream Bridge**  
**Abutment Reinforcing Plan**  
**FARRINGTON HIGHWAY WIDENING**  
**Kapolei Golf Course Road to Fort Weaver Road**  
**Project No. 7101A-01-20**  
 Scale: As Shown      Date: Apr. 2022  
**SHEET No. SA7.11 OF 20 SHEETS**

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	7101A-01-20	2021	382	



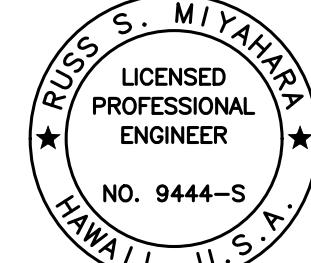
**Legend:**

 Closure Pour in End Beam and Corbel. See Construction Sequence.

**TYPICAL END BEAM REINFORCING PLAN** A  
 Scale: 1/2" = 1'-0" SA7.12 | SA7.12

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

DRAWING NAME: Z:\A\00\CONCRETE\20-013-FARR-HWY-KAPOLEI\GC\_ID.IT\WIP-REINFORCING\01-CAD\04-06-22 BID SET\FHW3-SA0711-ABUT1-PLAN.DWG PLOT TIME: 04-07-22: 4:40 PM

  
 THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.  
 Signature: *Russ S. Miyahara* April 30, 2024  
 EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII  
 DEPARTMENT OF TRANSPORTATION  
 HIGHWAYS DIVISION

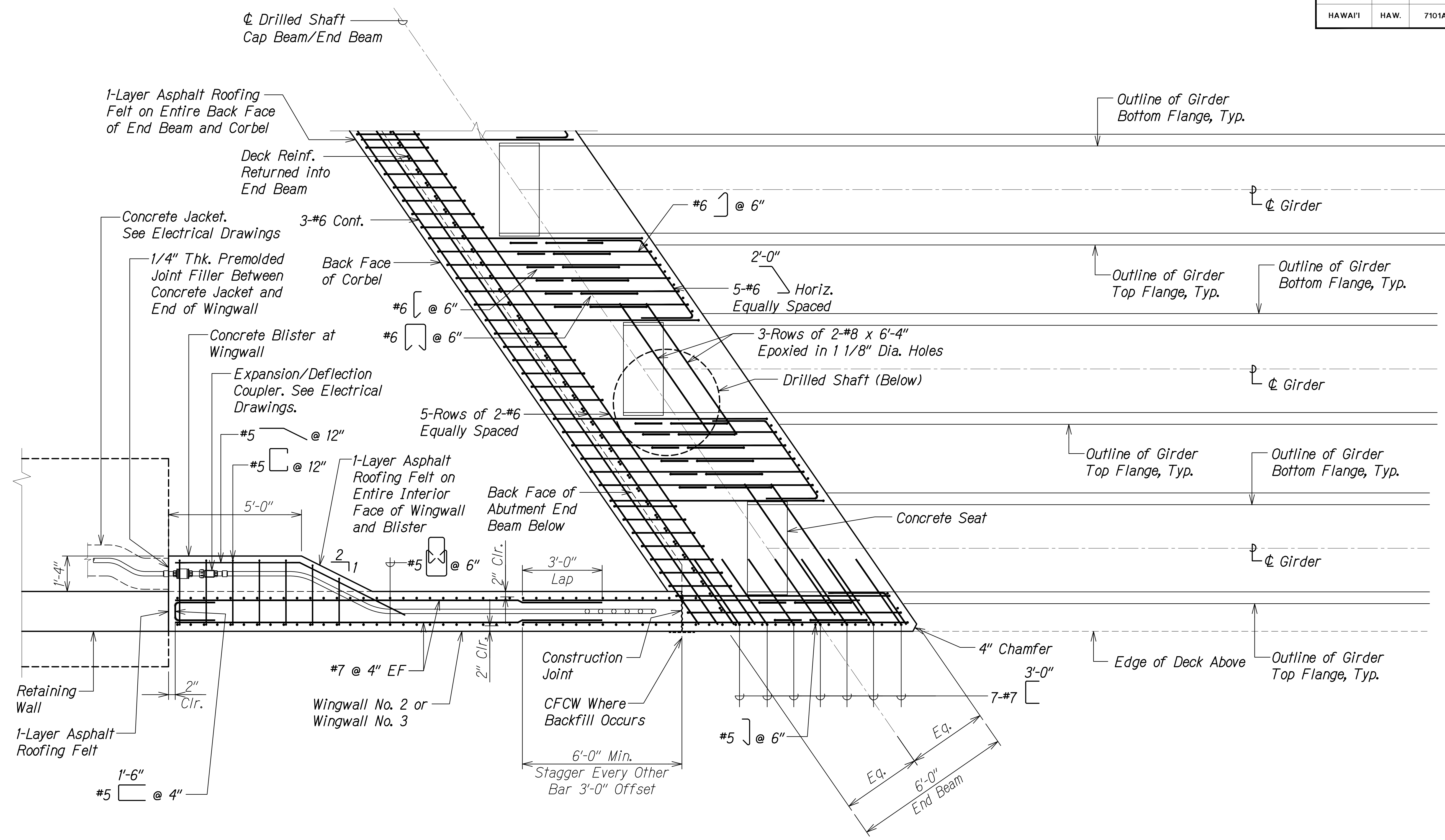
**Honouliuli Stream Bridge  
 Abutment Reinforcing Plan**

FARRINGTON HIGHWAY WIDENING  
 Kapolei Golf Course Road to Fort Weaver Road  
 Project No. 7101A-01-20

Scale: As Shown Date: Apr. 2022

**SHEET No. SA7.12 OF 20 SHEETS**

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	7101A-01-20	2021	383	



DRAWING NAME: Z:\A\00\ONDONGS\20-013-FARR-HWY-KAPOLEI\GE.ID.IT.WP2-EMTC\01.GAO\04-06-22.BID.SET\FH03-SA0711-ABUTT-PLAN.DWG PLOT TIME: 04-07-22 4:40 PM

ORIGINAL PLAN	DATE
SURVEY PLOTTED BY	
DRAWN BY	
DESIGNED BY	
QUANTITIES BY	
CHECKED BY	
No.	

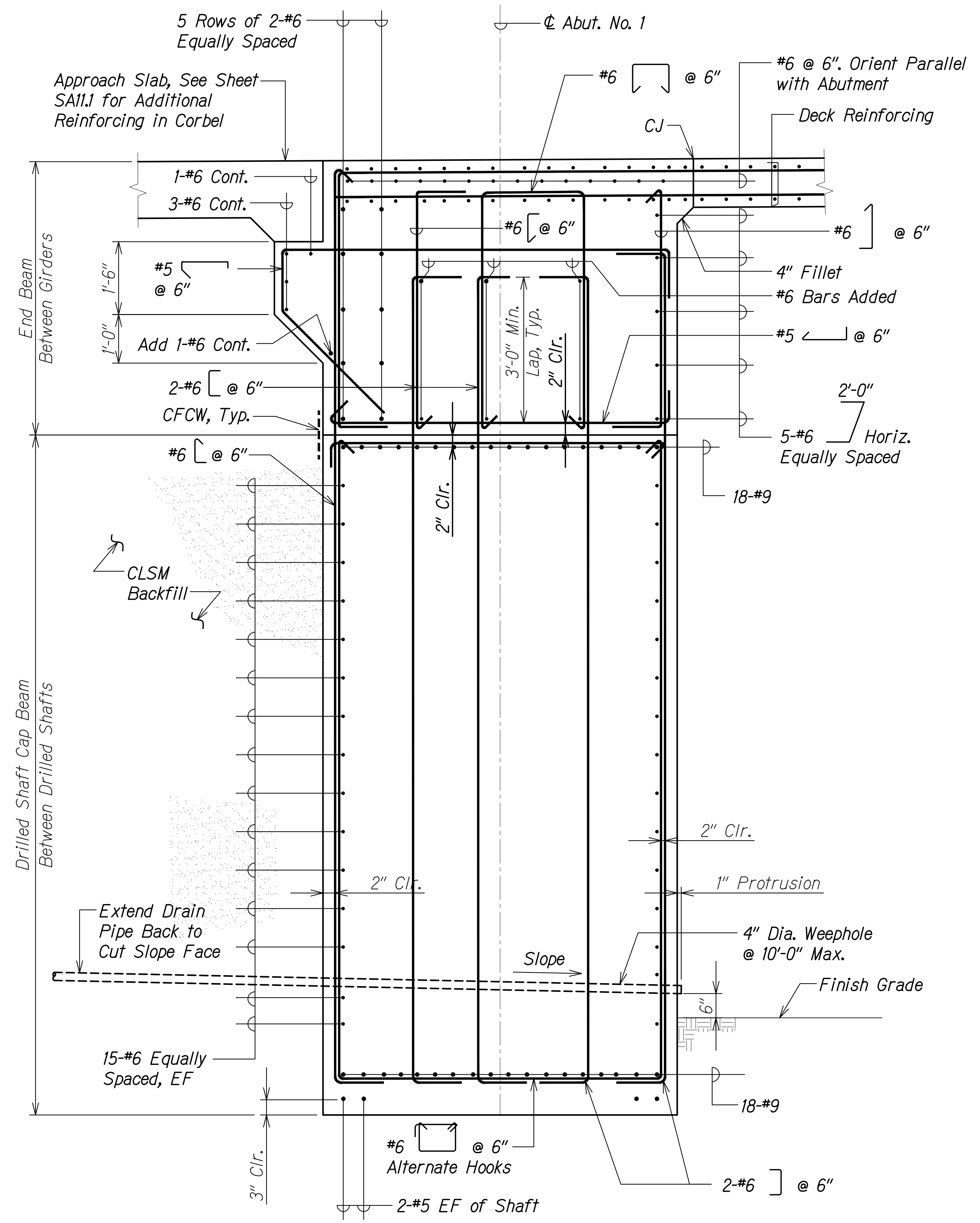
**TYPICAL END BEAM REINFORCING PLAN** A  
 Scale: 1/2" = 1'-0" SA7.13 | SA7.13

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 Signature: *Rugo S. Miyahara*  
 April 30, 2024  
 EXPIRATION DATE OF THE LICENSE

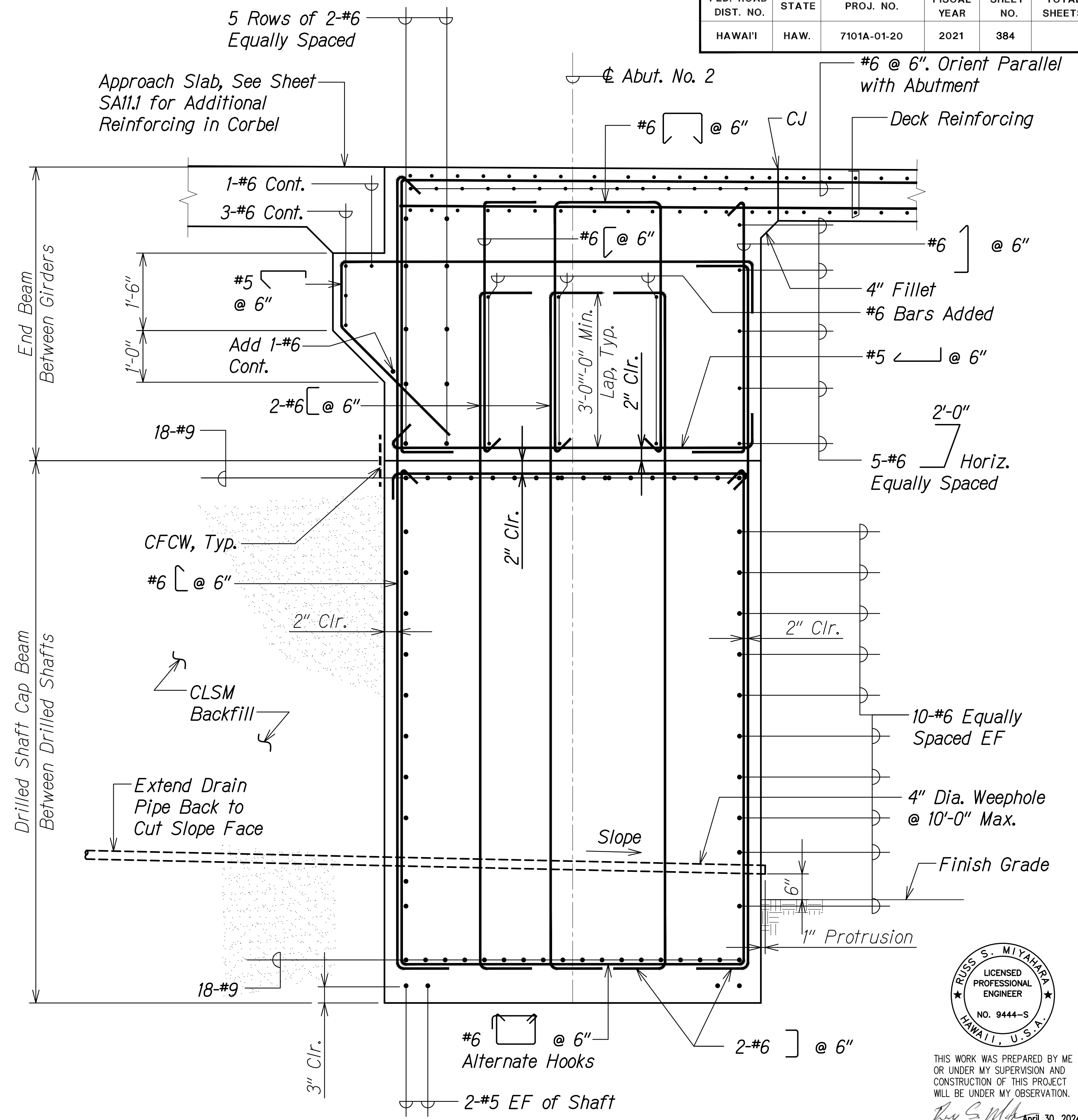
**STATE OF HAWAII**  
**DEPARTMENT OF TRANSPORTATION**  
**HIGHWAYS DIVISION**  
**Honouliuli Stream Bridge**  
**Abutment Reinforcing Plan**  
**FARRINGTON HIGHWAY WIDENING**  
**Kapolei Golf Course Road to Fort Weaver Road**  
**Project No. 7101A-01-20**  
 Scale: As Shown Date: Apr. 2022  
**SHEET No. SA7.13 OF 20 SHEETS**



FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	7101A-01-20	2021	384	



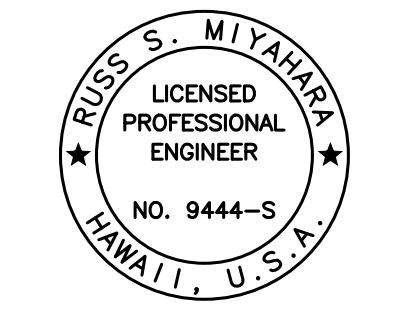
**SECTION - ABUTMENT NO. 1**  
 Scale: 3/4" = 1'-0"  
 SA7.14 SA7.14



**SECTION - ABUTMENT NO. 2**  
 Scale: 3/4" = 1'-0"  
 SA7.14 SA7.14

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

DRAWING NAME: SA100-00000000-013-FARR-HW-KAPOLEI-GC-ID-ET-WR-RMT(C)01-GAD-04-06-22-BD-SET-FH03-SA0714-HON-ABUT-SECTIONAL-DWG PLOT TIME: 04-07-22, 4:40 PM



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 Signature: Russ S. Miyahara  
 April 30, 2024  
 EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII  
 DEPARTMENT OF TRANSPORTATION  
 HIGHWAYS DIVISION

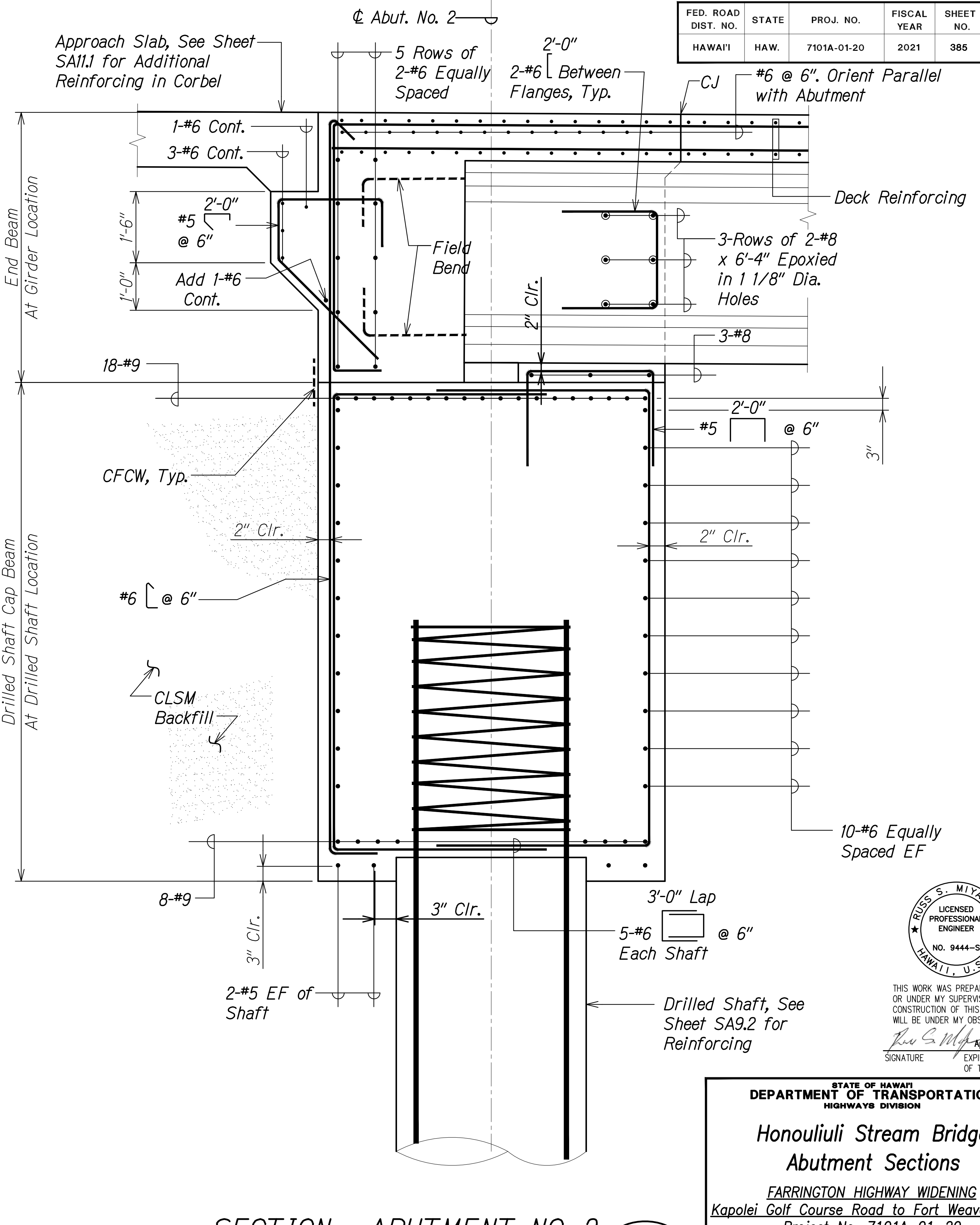
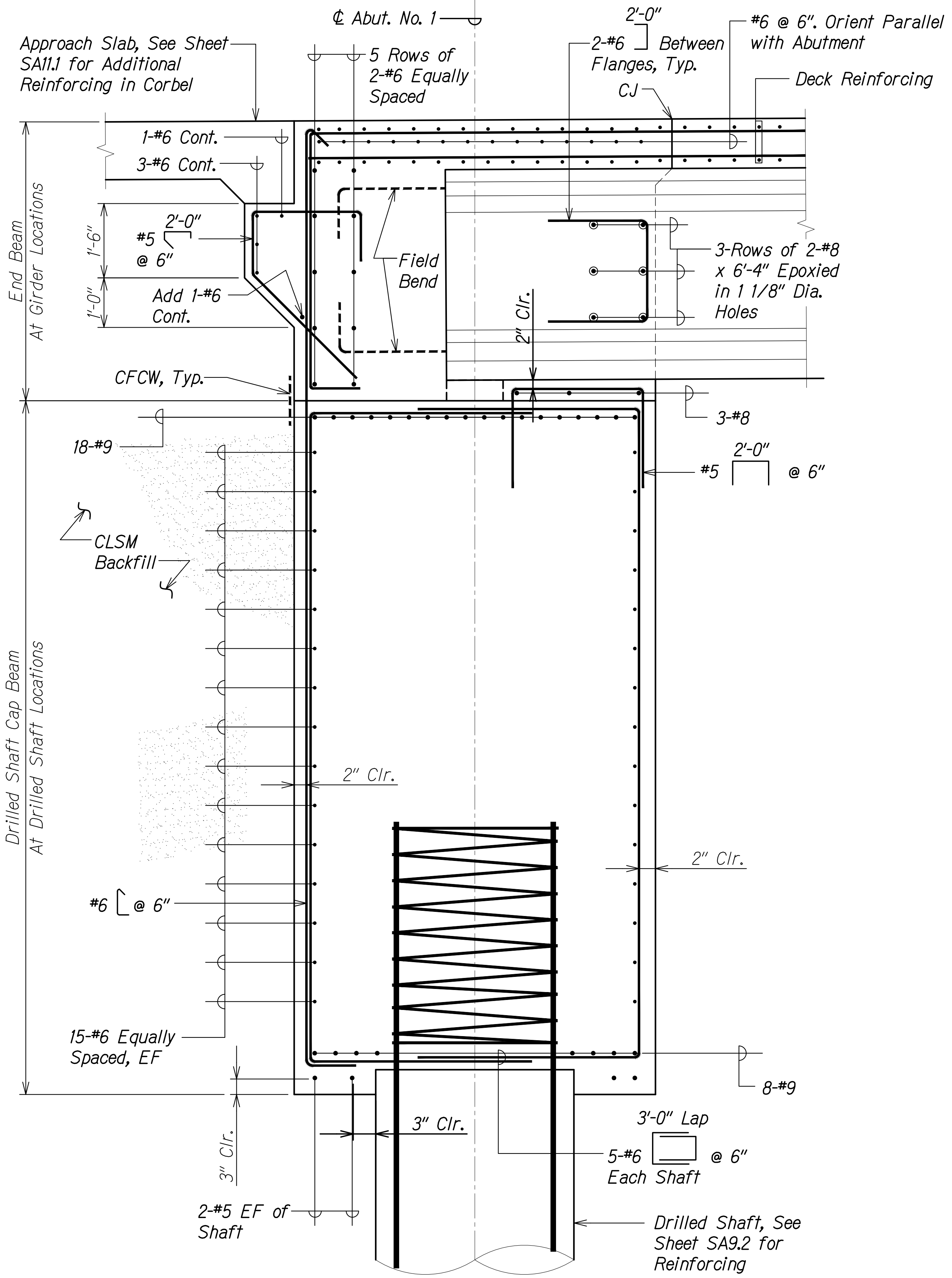
**Honouliuli Stream Bridge  
 Abutment Sections**

FARRINGTON HIGHWAY WIDENING  
 Kapolei Golf Course Road to Fort Weaver Road  
 Project No. 7101A-01-20

Scale: As Shown Date: Apr. 2022

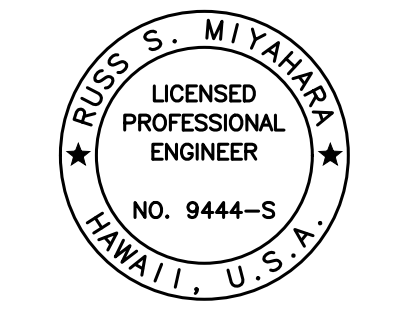
**SHEET No. SA7.14 OF 20 SHEETS**

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	7101A-01-20	2021	385	



SURVEY PLOTTED BY	DATE
DRAWN BY	
DESIGNED BY	
QUANTITIES BY	
CHECKED BY	
ORIGINAL PLAN No.	

DRAWING NAME: Z:\100 ONGOING\20-013-FARR-HWY-KAPOLEI-GC-ID-ET-WP2-RMT(C)1.GRD 04-06-22 BID SET\PH3-SA0714-HON-ABUT-SECTIONAL.DWG PLOT TIME: 04-07-22, 4:40 PM



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 Signature: Russ S. Miyahara  
 April 30, 2024  
 EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII  
 DEPARTMENT OF TRANSPORTATION  
 HIGHWAYS DIVISION

**Honouliuli Stream Bridge  
 Abutment Sections**

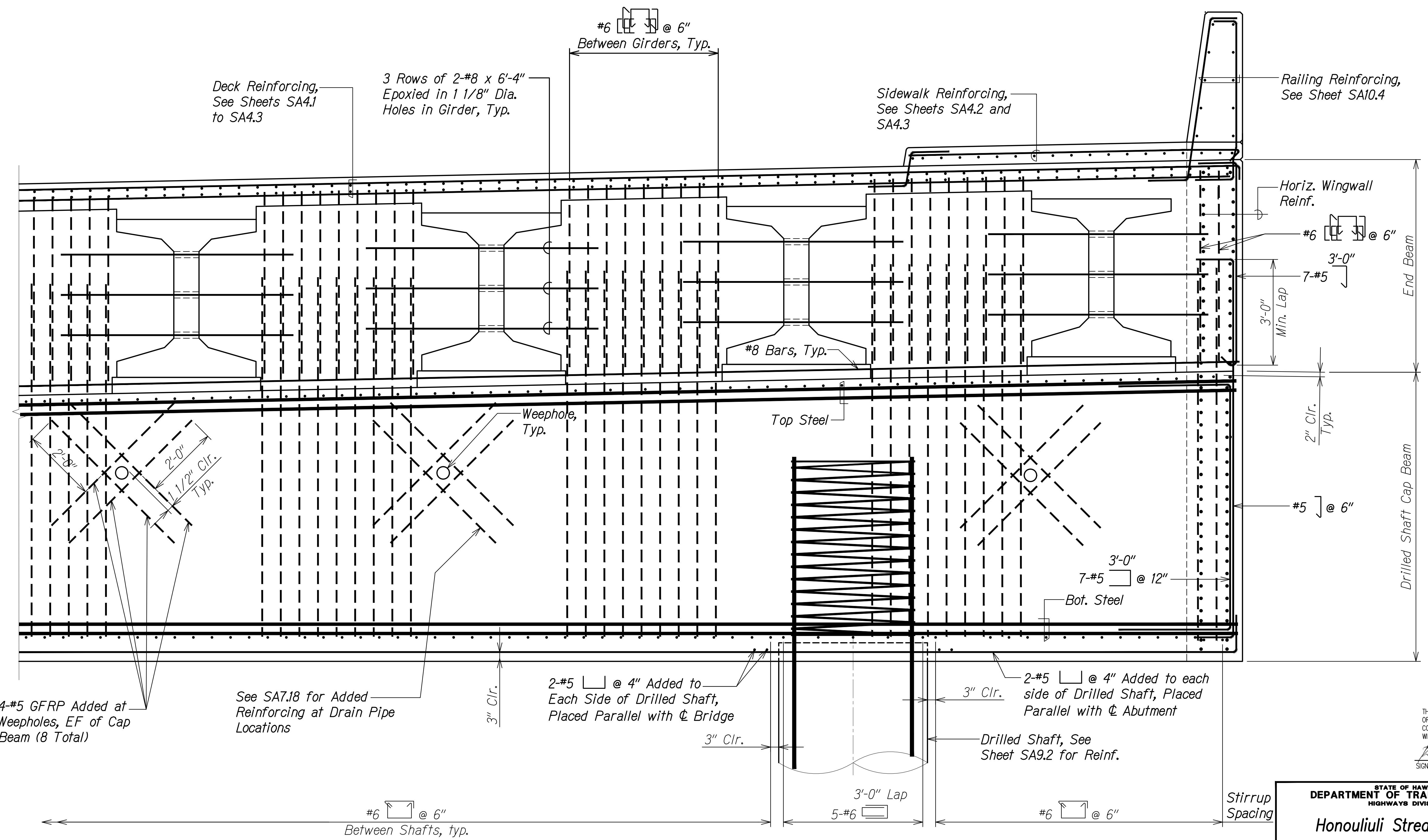
FARRINGTON HIGHWAY WIDENING  
 Kapolei Golf Course Road to Fort Weaver Road  
 Project No. 7101A-01-20

Scale: As Shown Date: Apr. 2022

SHEET No. SA7.15 OF 20 SHEETS

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	7101A-01-20	2021	386	

DRAWING NAME: SA7.16 HON ABUT SECTION; PLOT TIME: 04-07-22, 4:41 PM



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

4-#5 GFRP Added at Weepholes, EF of Cap Beam (8 Total)

See SA7.18 for Added Reinforcing at Drain Pipe Locations

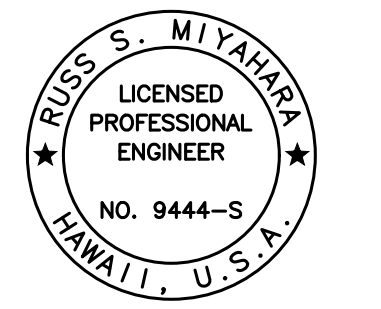
2-#5 @ 4" Added to Each Side of Drilled Shaft, Placed Parallel with  $\phi$  Bridge

2-#5 @ 4" Added to each side of Drilled Shaft, Placed Parallel with  $\phi$  Abutment

Drilled Shaft, See Sheet SA9.2 for Reinf.

**SECTION A**  
Scale: 3/4" = 1'-0" SA7.16 SA7.16

- Note:**
1. Reinforcing for railings and sidewalks shall be placed parallel with  $\phi$  abutment.



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Signature: Russ S. Miyahara  
EXPIRATION DATE OF THE LICENSE: April 30, 2024

STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

**Honouliuli Stream Bridge  
Abutment Section**

FARRINGTON HIGHWAY WIDENING  
Kapolei Golf Course Road to Fort Weaver Road  
Project No. 7101A-01-20

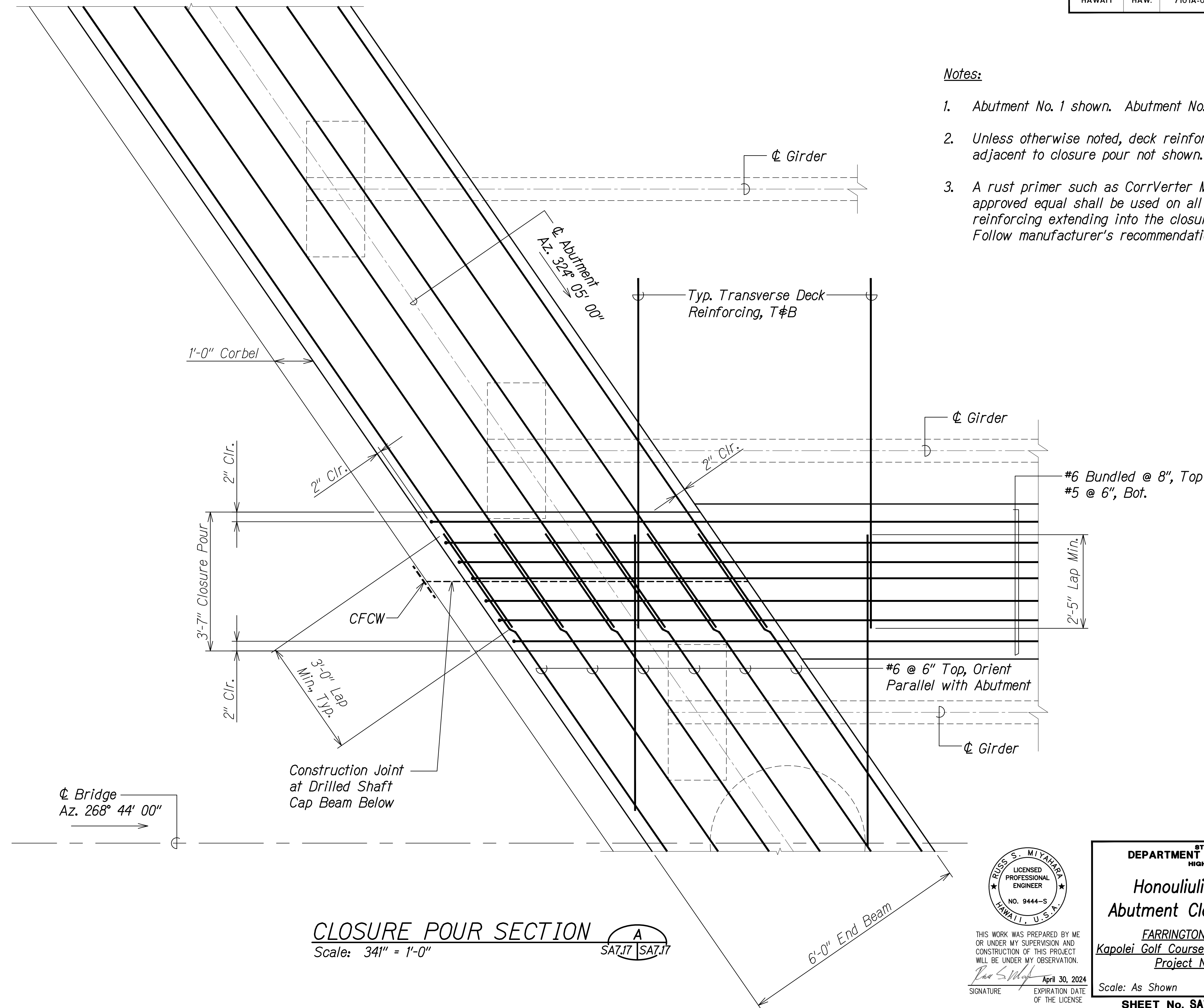
Scale: As Shown Date: Apr. 2022

**SHEET No. SA7.16 OF 20 SHEETS**

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	7101A-01-20	2021	387	

**Notes:**

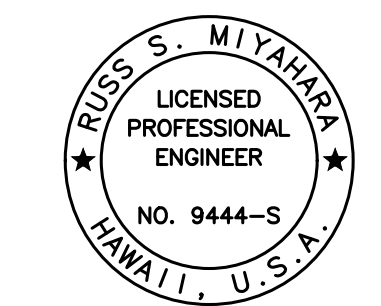
1. Abutment No. 1 shown. Abutment No. 2 Similar.
2. Unless otherwise noted, deck reinforcing adjacent to closure pour not shown.
3. A rust primer such as CorrVerter MCI or approved equal shall be used on all horizontal reinforcing extending into the closure pour. Follow manufacturer's recommendations.



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

DRAWING NAME: Z:\100\_ONGOING\20-013-FARR-HWY-KAPOLEI\GC\_ID\_ET\_WIP-EMTC\01\_GAD\04-06-22\_BID\_SET\FHWS-SA0717\_HON\_CLOSE\_POUR.DWG PLOT TIME: 04-07-22 4:41 PM

**CLOSURE POUR SECTION**  
Scale: 3/4" = 1'-0"



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 Russ S. Miyahara  
 April 30, 2024  
 SIGNATURE EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII  
 DEPARTMENT OF TRANSPORTATION  
 HIGHWAYS DIVISION

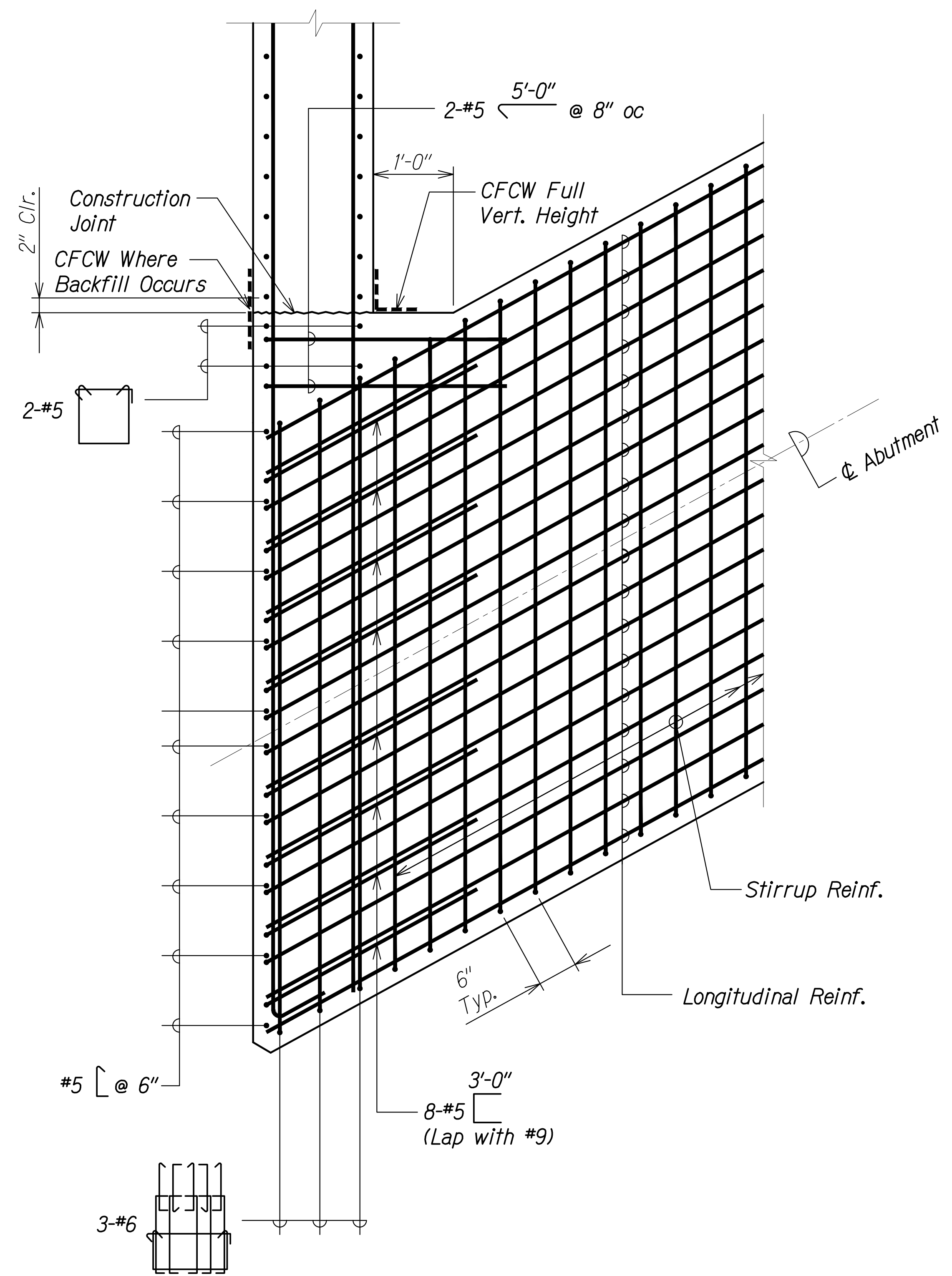
**Honouliuli Stream Bridge  
 Abutment Closure Pour Section**

FARRINGTON HIGHWAY WIDENING  
 Kapolei Golf Course Road to Fort Weaver Road  
 Project No. 7101A-01-20

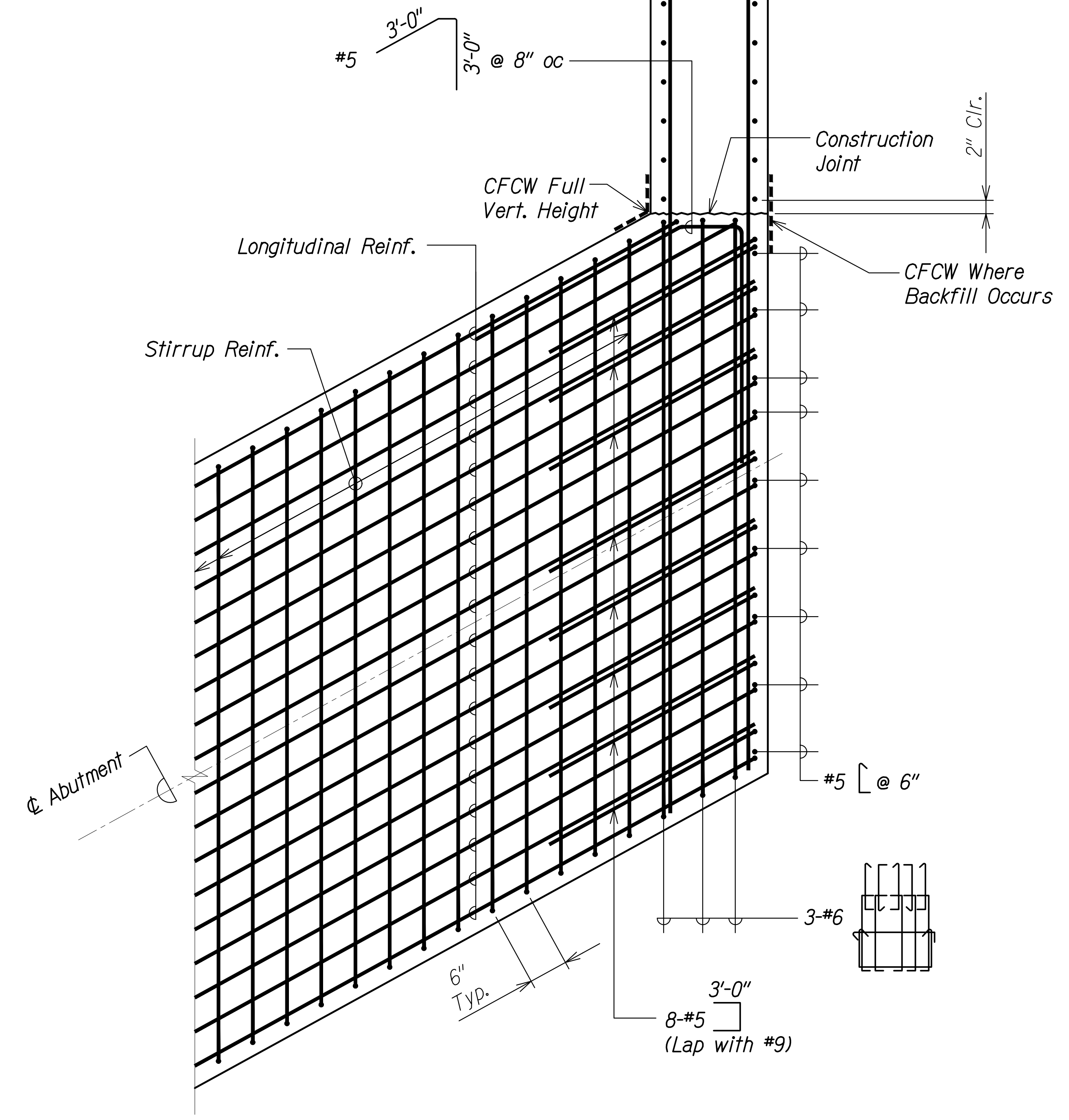
Scale: As Shown Date: Apr. 2022

**SHEET No. SA7.17 OF 20 SHEETS**

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	7101A-01-20	2021	388	




**DETAIL 1**  
 Scale: 1" = 1'-0"  
 SA7.1 SA7.18  
 SA7.3



**DETAIL 2**  
 Scale: 1" = 1'-0"  
 SA7.1 SA7.18  
 SA7.3

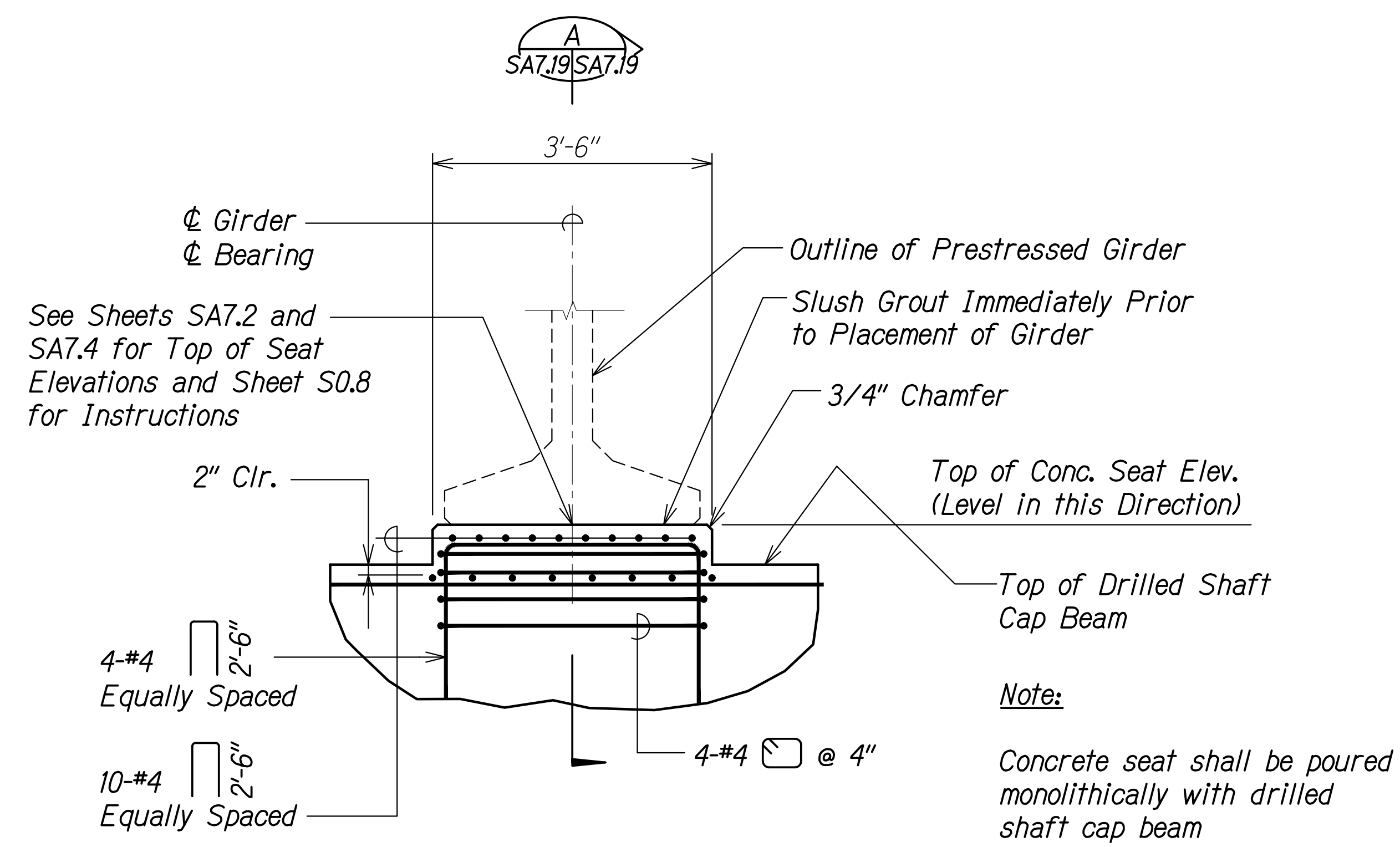
SURVEY PLOTTED BY	DATE
DRAWN BY	
DESIGNED BY	
QUANTITIES BY	
CHECKED BY	
ORIGINAL PLAN	
NOTE BOOK	
No.	

DRAWING NAME: SA7.00 CONCRETE-20-013-FARR-HWY-KAPOLEI GC ID: ET-WR-EMTC(01-GA) 04-06-22 BID SET: FHWS-SA0718-HON-ABUT-REINFORC PLOT TIME: 04-07-22 4:41 PM

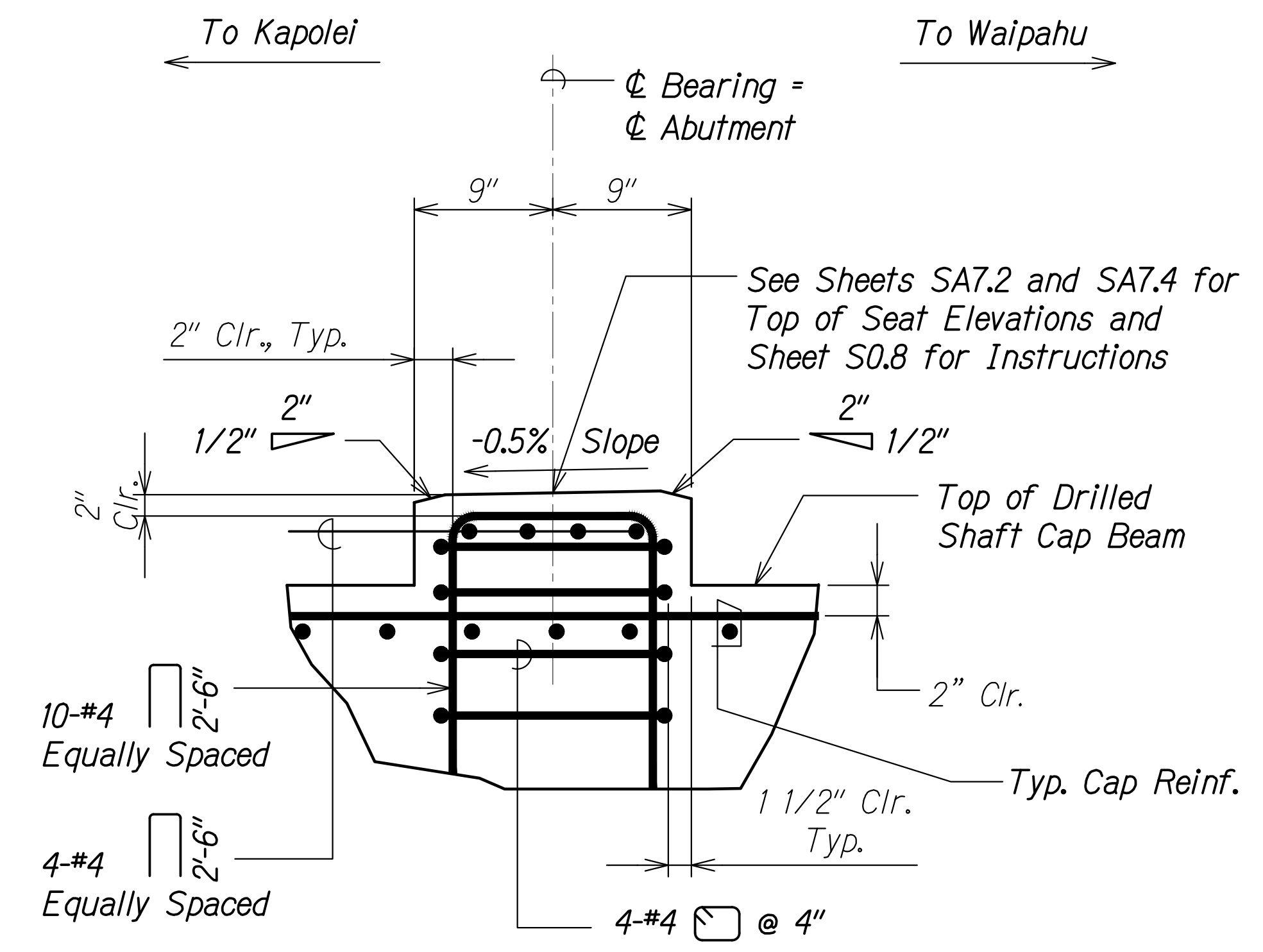
  
 THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.  
 SIGNATURE: *Russ S. Miyahara*  
 EXPIRATION DATE OF THE LICENSE: April 30, 2024

STATE OF HAWAII  
 DEPARTMENT OF TRANSPORTATION  
 HIGHWAYS DIVISION  
**Honouliuli Stream Bridge**  
**Abutment Details**  
 FARRINGTON HIGHWAY WIDENING  
 Kapolei Golf Course Road to Fort Weaver Road  
 Project No. 7101A-01-20  
 Scale: As Shown Date: Apr. 2022  
**SHEET No. SA7.18 OF 20 SHEETS**

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	7101A-01-20	2021	389	



**TYPICAL CONCRETE SEAT DETAIL**  
Scale: 3/4" = 1'-0"



**SECTION A**  
Scale: 1 1/2" = 1'-0"

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

DRAWING NAME: Z:\100 ONGOING\20-013-FARR-HWY-KAPOLEI\04-04-06-22 BID SET\FHW3-SA0719 CONC. SEATING - PLOT TIME: 04-07-22, 4:42 PM

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*Russ S. Miyahara*  
SIGNATURE

April 30, 2024  
EXPIRATION DATE OF THE LICENSE



STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

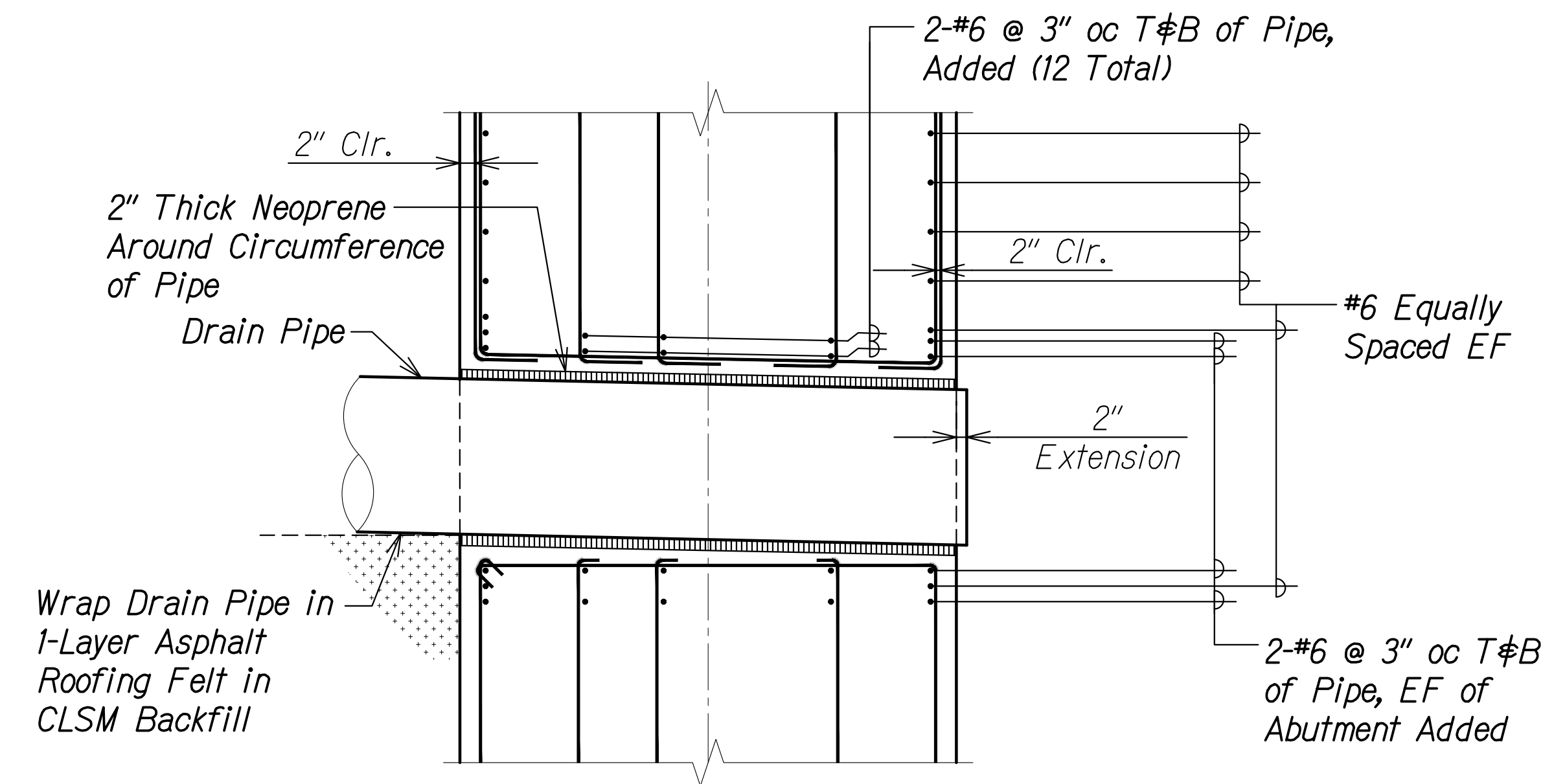
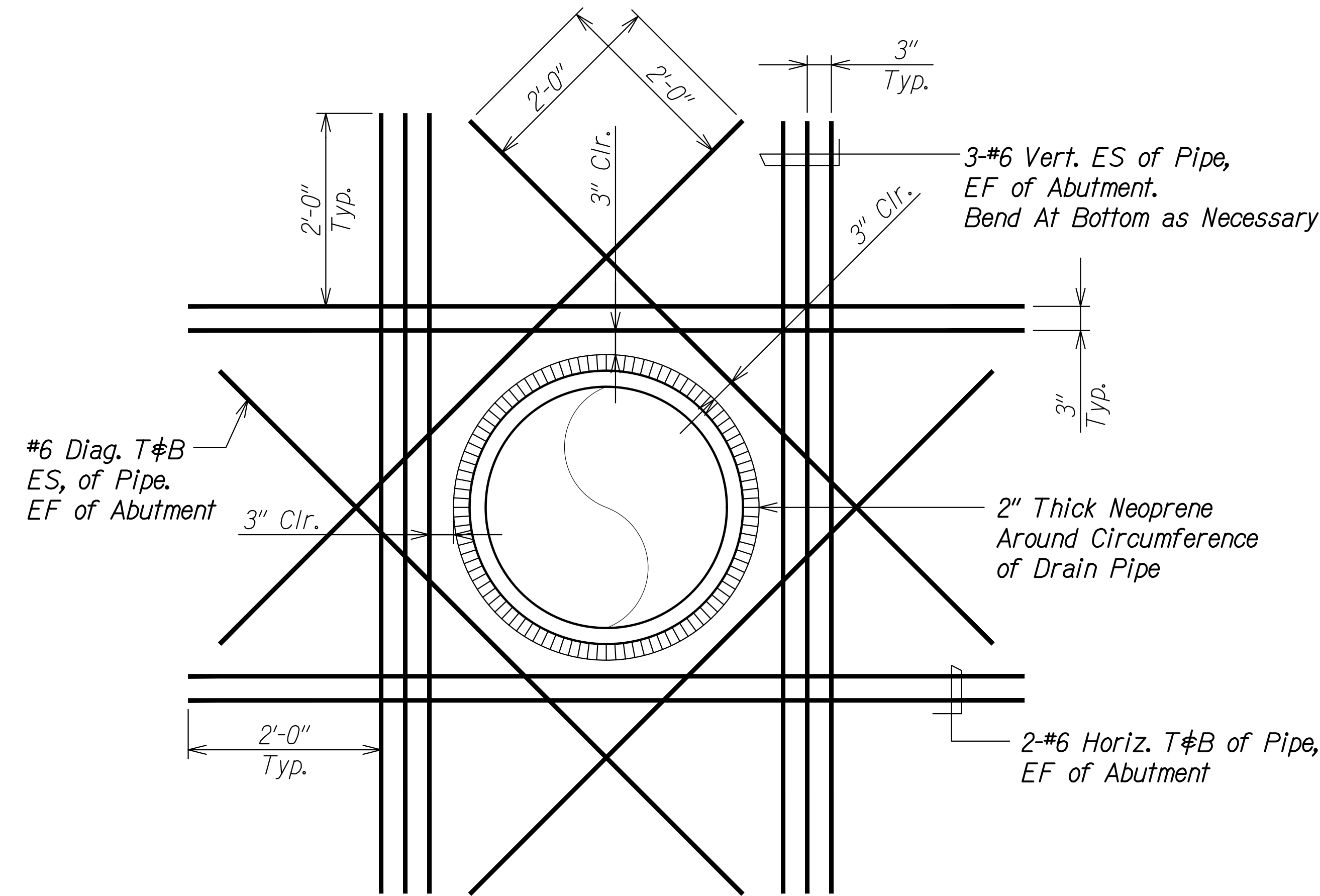
**Honouliuli Stream Bridge**  
**Concrete Seat Detail and Section**

FARRINGTON HIGHWAY WIDENING  
Kapolei Golf Course Road to Fort Weaver Road  
Project No. 7101A-01-20

Scale: As Shown Date: Apr. 2022

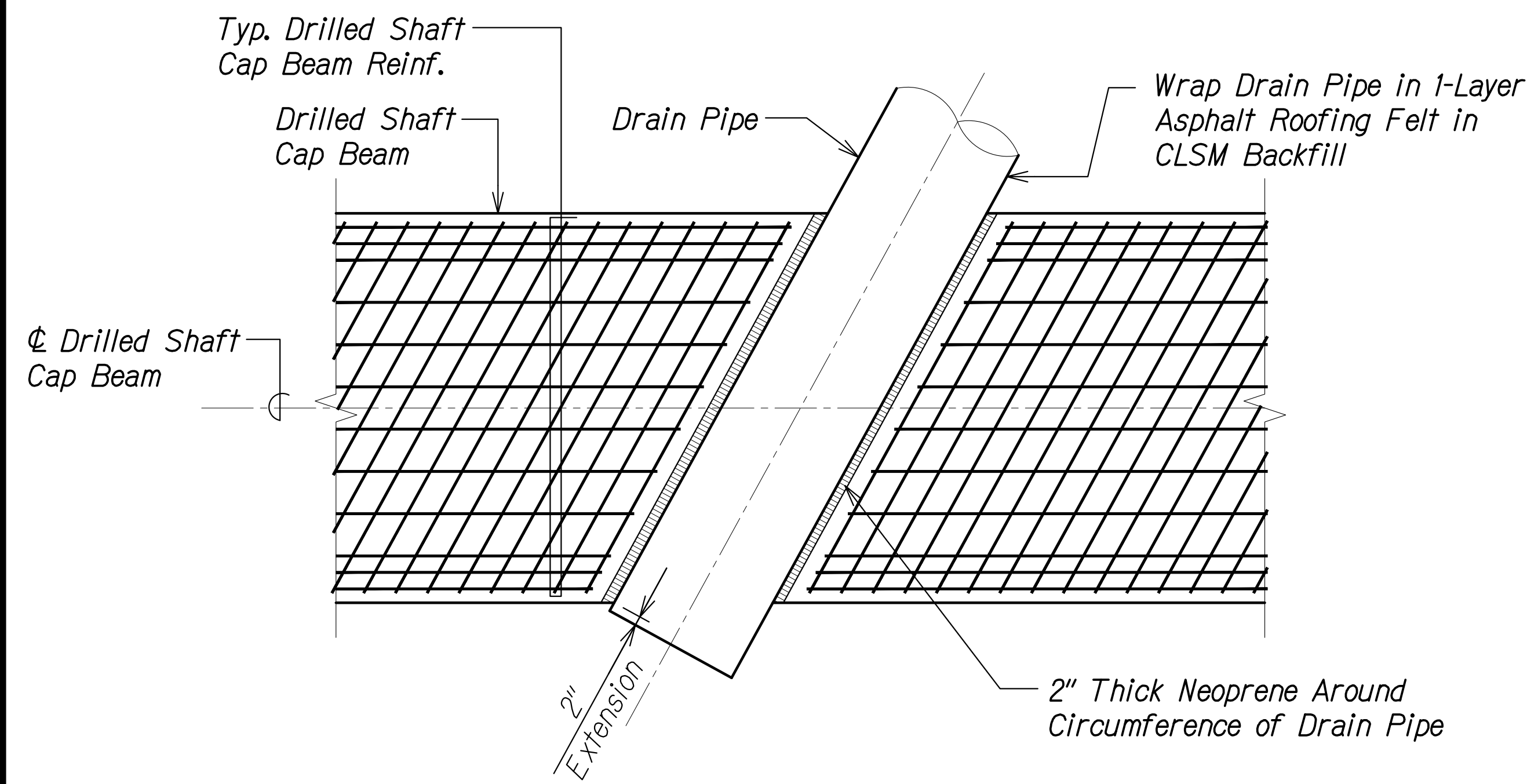
**SHEET No. SA7.19 OF 20 SHEETS**

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	7101A-01-20	2021	390	



**ADDED REINFORCING AT DRAIN PIPE PENETRATION DETAIL** 1  
 Scale: 1" = 1'-0" SA7.20 SA7.20

**DRAIN PIPE PENETRATING DETAIL** 2  
 Scale: 1/2" = 1'-0" SA7.20 SA7.20



**DRAIN DETAIL THROUGH ABUTMENT** 3  
 Scale: 1/2" = 1'-0" SA7.20 SA7.20

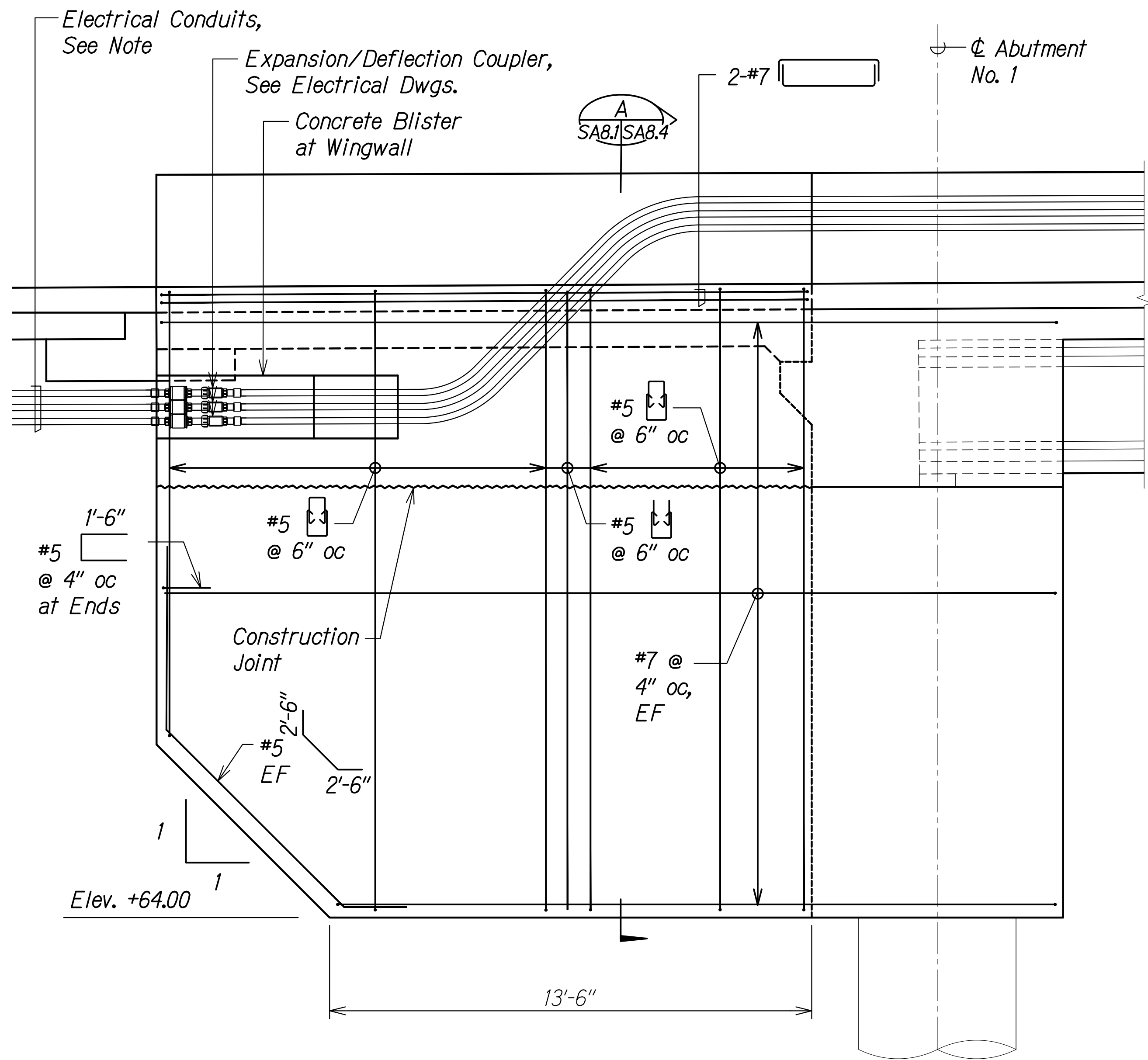
SURVEY PLOTTED BY	DATE
DRAWN BY	
DESIGNED BY	
QUANTITIES BY	
CHECKED BY	
ORIGINAL PLAN	
NOTE BOOK	
No.	

DRAWING NAME: 2A100 UNDOINGS-20-013-FARR-HWY-KAPOLEI-GC-ID-ET-WRP-EMTC(01-GAD) 04-06-22 BID SET-FH03-SA0720 DRAIN DETAILWG PLOT TIME: 04-07-22 4:56 PM

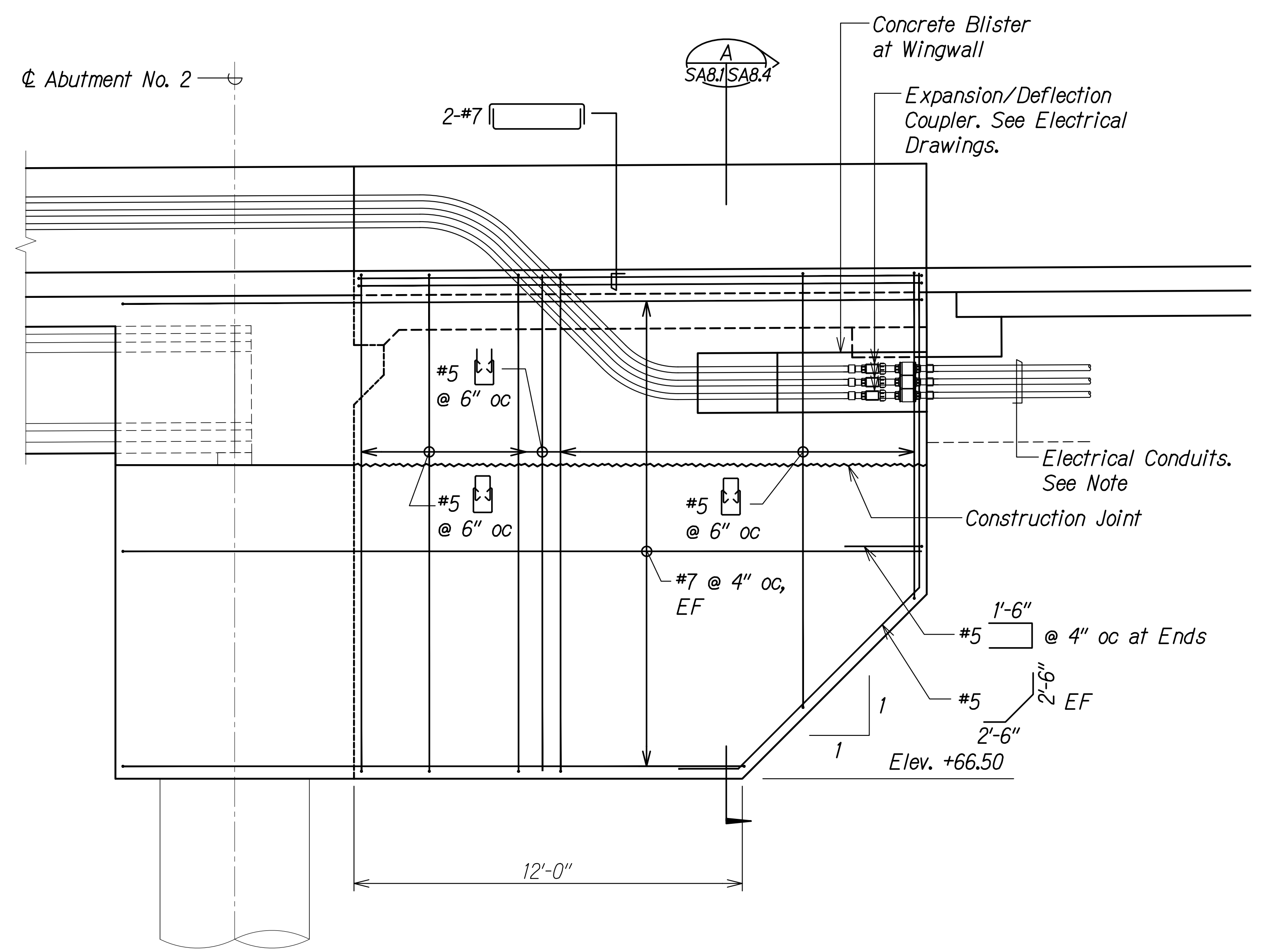
THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.  
 Signature: *Rugs S. Miyahara*  
 April 30, 2024  
 EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII  
 DEPARTMENT OF TRANSPORTATION  
 HIGHWAYS DIVISION  
**Honouliuli Stream Bridge**  
**Drain Pipe Penetration Details**  
 FARRINGTON HIGHWAY WIDENING  
 Kapolei Golf Course Road to Fort Weaver Road  
 Project No. 7101A-01-20  
 Scale: As Shown Date: Apr. 2022  
**SHEET No. SA7.20 OF 20 SHEETS**

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	7101A-01-20	2021	391	



**WINGWALL NO. 1**  
**REINFORCING ELEVATION** A  
 Scale: 3/8" = 1'-0" SAB.1 SAB.1



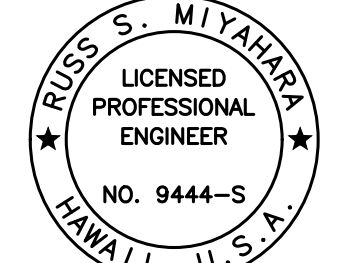
**WINGWALL NO. 3**  
**REINFORCING ELEVATION** B  
 Scale: 3/8" = 1'-0" SAB.1 SAB.1

**Note:**

- (2) 2" Dia. conduits in Wingwall Nos. 1 and 3.

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

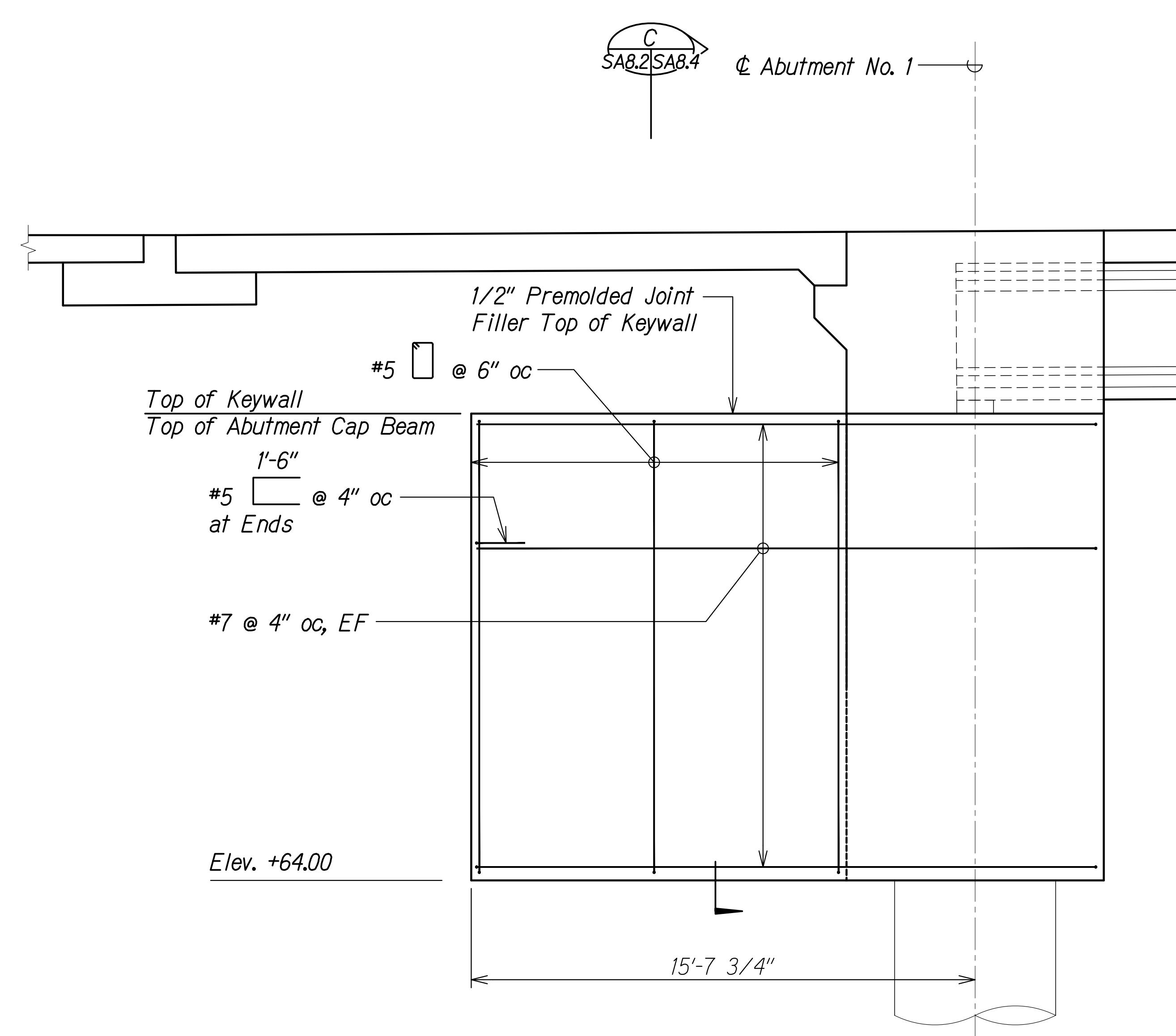
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 THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.  
*Russ S. Miyahara*  
 SIGNATURE      April 30, 2024  
 EXPIRATION DATE OF THE LICENSE

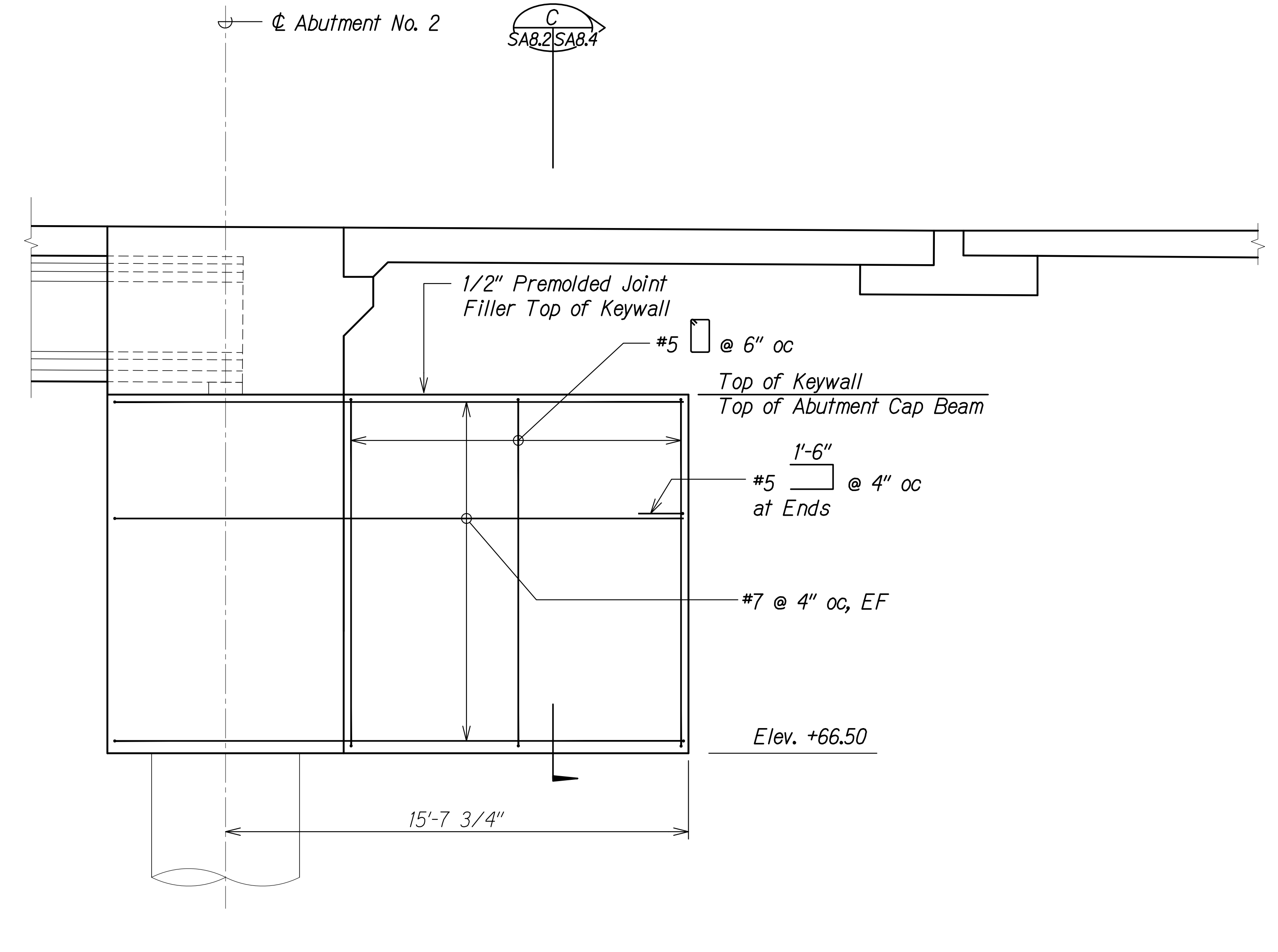
**STATE OF HAWAII**  
**DEPARTMENT OF TRANSPORTATION**  
**HIGHWAYS DIVISION**  
**Honouliuli Stream Bridge**  
**Wingwall Reinforcing Elevations**  
**FARRINGTON HIGHWAY WIDENING**  
**Kapolei Golf Course Road to Fort Weaver Road**  
**Project No. 7101A-01-20**  
 Scale: As Shown      Date: Apr. 2022  
**SHEET No. SA8.1 OF 5 SHEETS**



FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	7101A-01-20	2021	392	



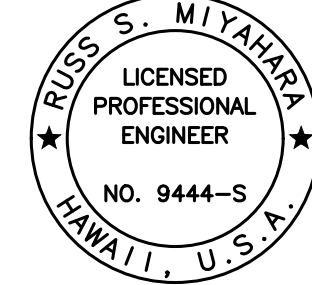
**KEYWALL  
REINFORCING ELEVATION** **A**  
Scale: 3/8" = 1'-0" SA8.2 SA8.2



**KEYWALL  
REINFORCING ELEVATION** **B**  
Scale: 3/8" = 1'-0" SA8.2 SA8.2

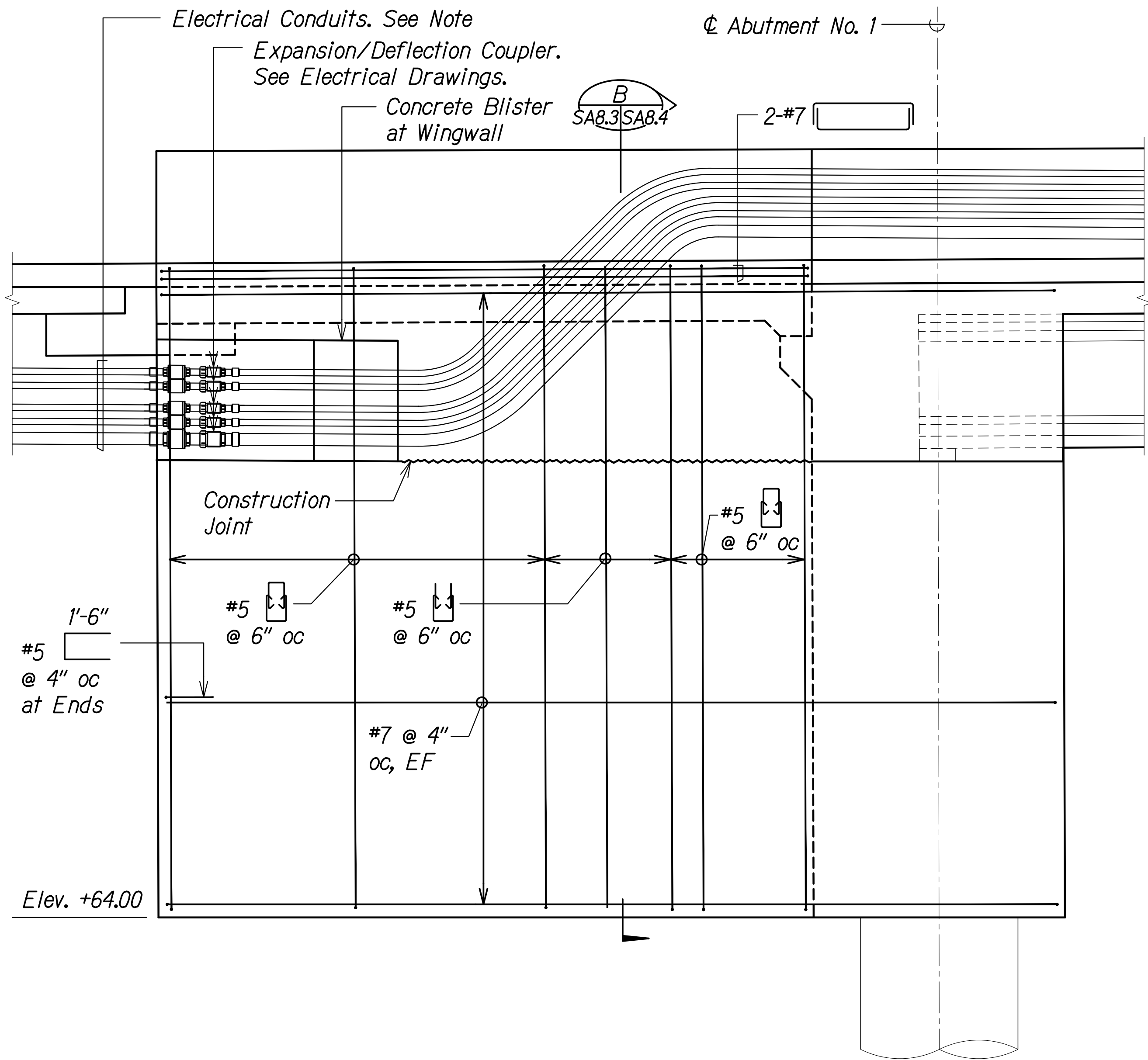
ORIGINAL PLAN	DATE
DRAWN BY	
DESIGNED BY	
QUANTITIES BY	
CHECKED BY	

DRAWING NAME: Z:\100 ONGOING\20-013-FARR-HWY-KAPOLEI GC ID: ET-WR-EMTC\01-CAD\04-06-22 BID SET\FHW3-SA0602-HON-WWALLING PLOT TIME: 04-07-22: 4:45 PM

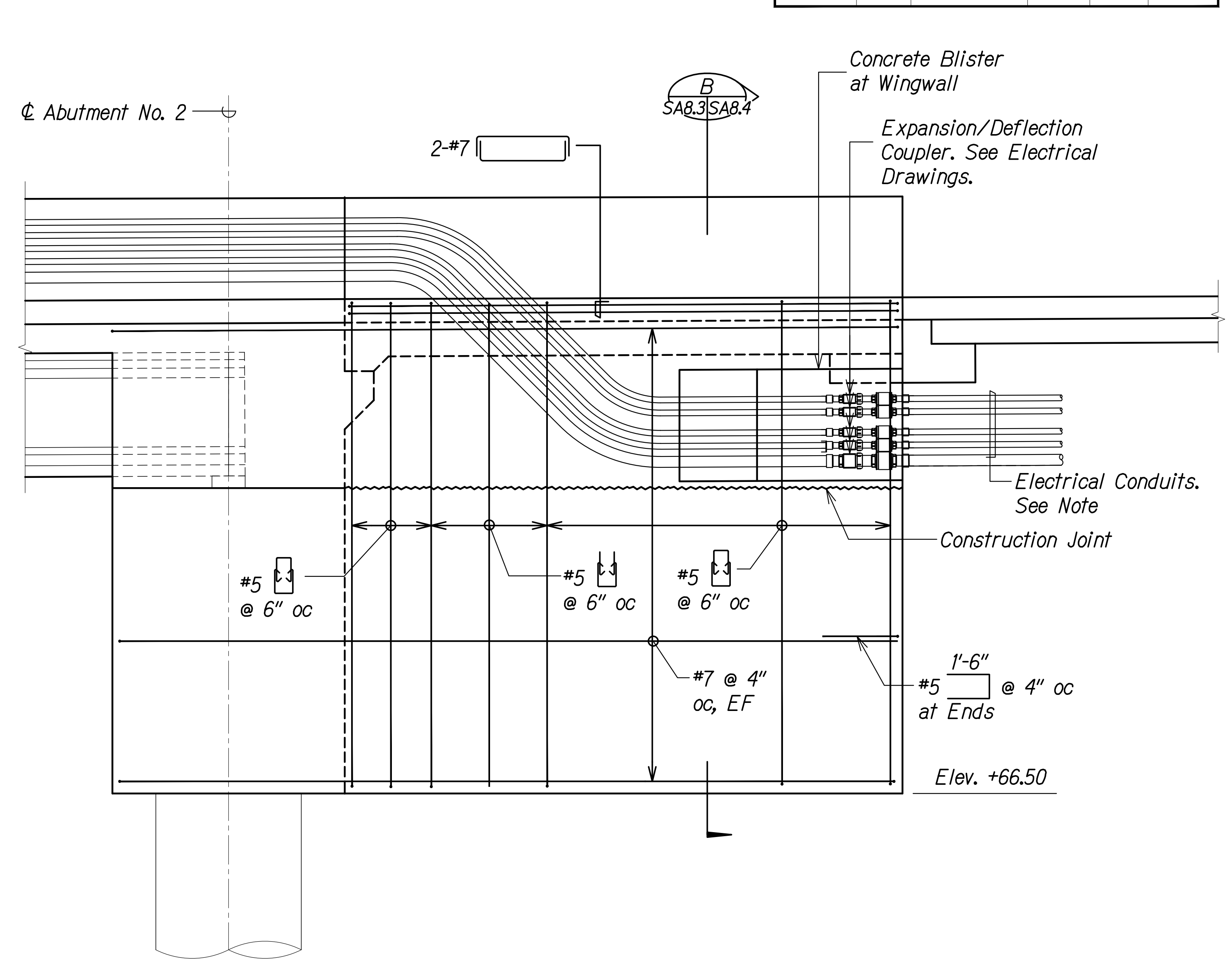
  
 THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.  
 Signature: *Rugo S. Miyakawa*  
 April 30, 2024  
 EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII  
 DEPARTMENT OF TRANSPORTATION  
 HIGHWAYS DIVISION  
**Honouliuli Stream Bridge**  
**Keywall Reinforcing Elevations**  
 FARRINGTON HIGHWAY WIDENING  
 Kapolei Golf Course Road to Fort Weaver Road  
 Project No. 7101A-01-20  
 Scale: As Shown Date: Apr. 2022  
**SHEET No. SA8.2 OF 5 SHEETS**

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	7101A-01-20	2021	393	



WINGWALL NO. 2  
 REINFORCING ELEVATION  
 Scale: 3/8" = 1'-0"  
 A  
 SA8.3 SA8.3



WINGWALL NO. 4  
 REINFORCING ELEVATION  
 Scale: 3/8" = 1'-0"  
 B  
 SA8.3 SA8.3

- Note:
- (1) 4" Dia. conduit and (4) 2" dia. conduits in Wingwall Nos. 2 and 4.

ORIGINAL PLAN	DATE
DRAWN BY	
DESIGNED BY	
QUANTITIES BY	
CHECKED BY	
No.	

DRAWING NAME: Z:\100 ONGOING\20-013-FARR-HWY-KAPOLEI GC ID: ET-WR-EMTC\01 CAD\04-06-22 BID SET\FHW3-SAB03-HDN-WALLING PLOT TIME: 04-07-22: 4:43 PM

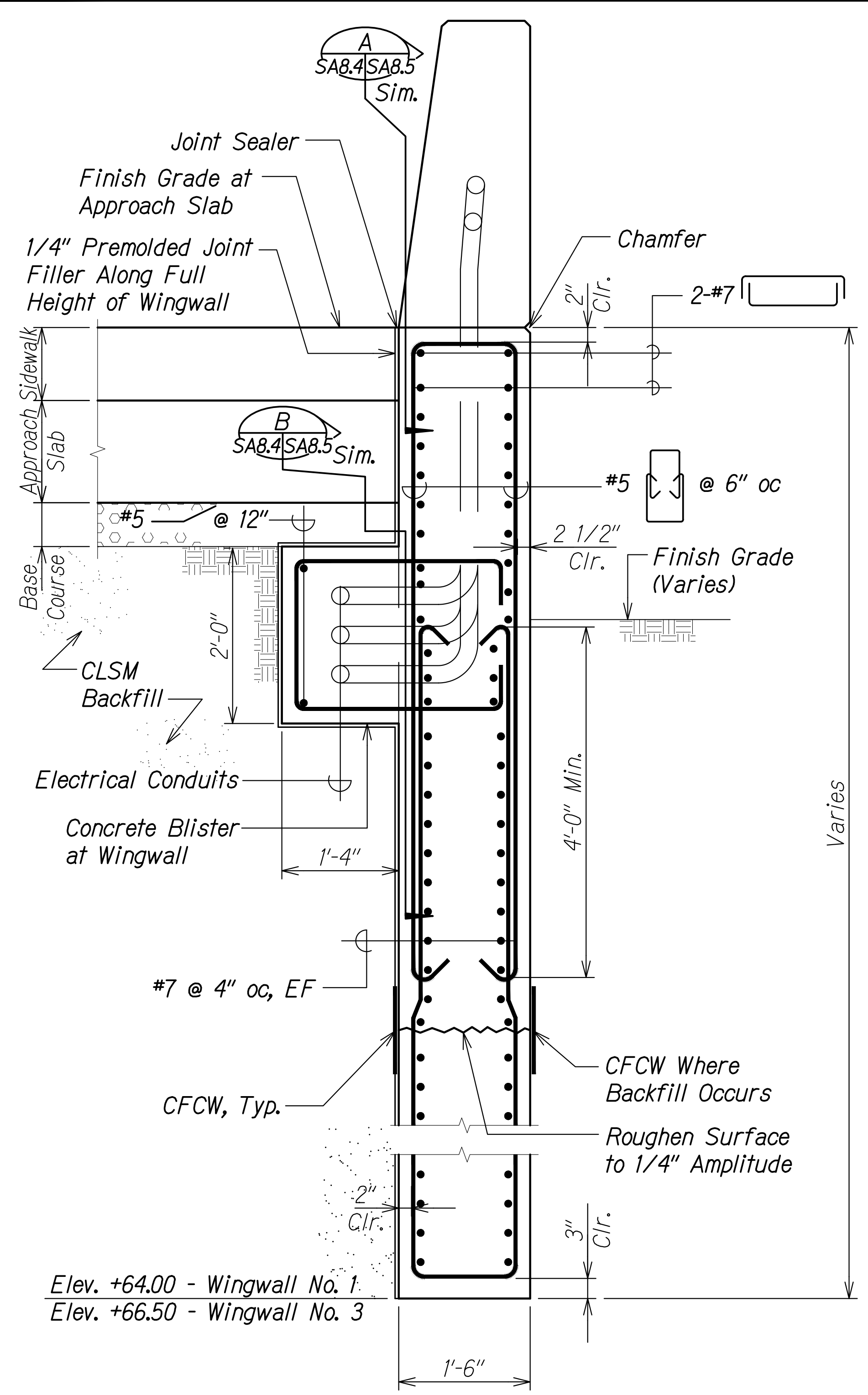
THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.  
 Signature: [Signature]  
 April 30, 2024  
 EXPIRATION DATE OF THE LICENSE



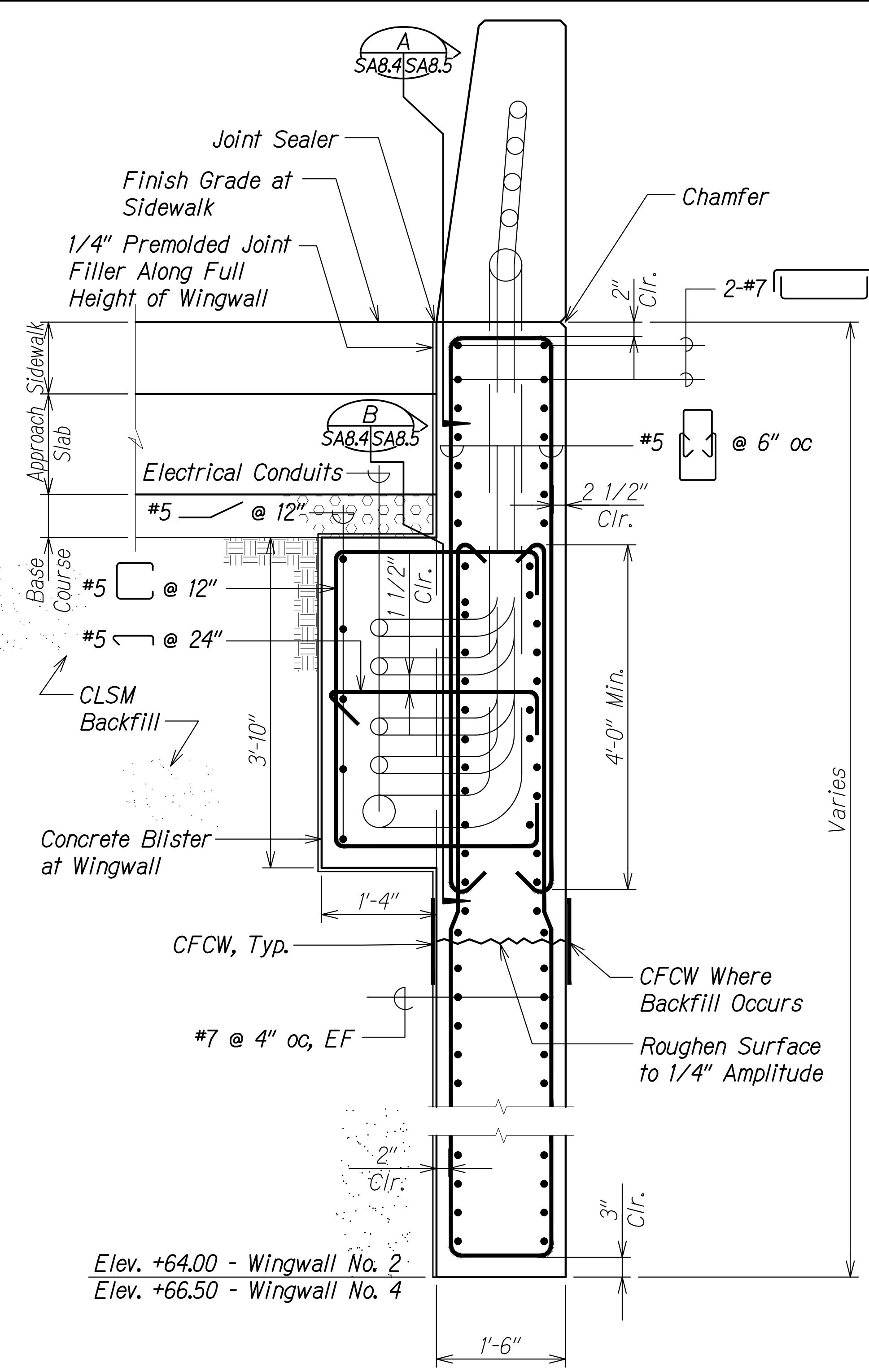
STATE OF HAWAII  
 DEPARTMENT OF TRANSPORTATION  
 HIGHWAYS DIVISION  
**Honouliuli Stream Bridge**  
**Wingwall Reinforcing Elevations**  
 FARRINGTON HIGHWAY WIDENING  
 Kapolei Golf Course Road to Fort Weaver Road  
 Project No. 7101A-01-20  
 Scale: As Shown Date: Apr. 2022  
 SHEET No. SA8.3 OF 5 SHEETS

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	7101A-01-20	2021	394	

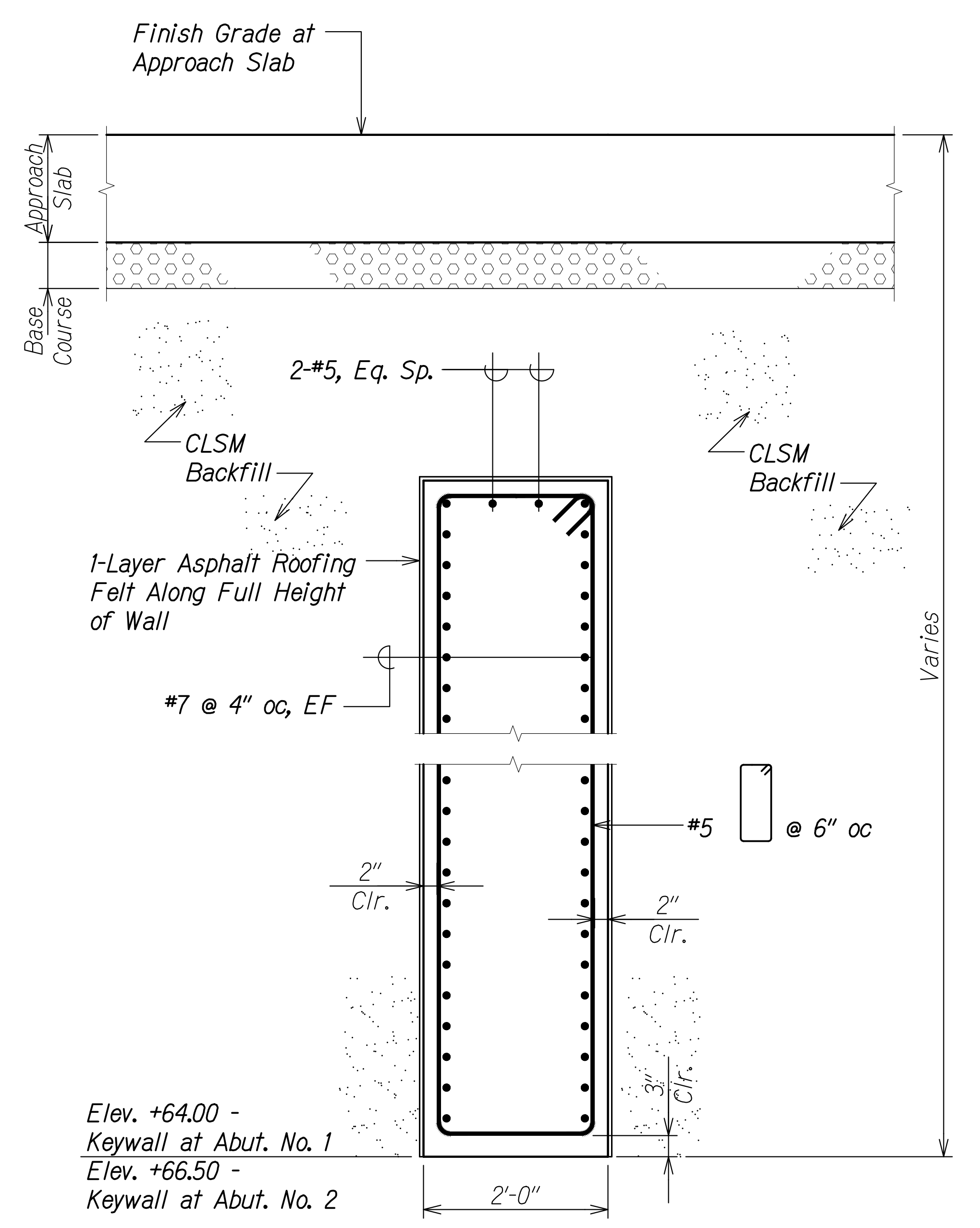
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**WINGWALLS NO. 1 AND 3 SECTION A**  
Scale: 1" = 1'-0"  
SA8.1 SA8.4



**WINGWALLS NO. 2 AND 4 SECTION B**  
Scale: 1" = 1'-0"  
SA8.3 SA8.4

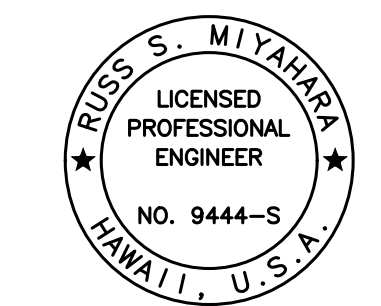


**TYPICAL KEYWALLS SECTION C**  
Scale: 1" = 1'-0"  
SA8.2 SA8.4

SURVEY PLOTTED BY	DATE
DRAWN BY	
DESIGNED BY	
QUANTITIES BY	
CHECKED BY	
ORIGINAL PLAN No.	

**Notes:**

- Elevations at bottom of wingwall are taken at the lowest point. Bottom of wingwall elevation changes along the length.
- Conduits are located at Wingwalls No. 1, 3, 4 and 6.



THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.  
 Signature: *Russ S. Miyahara*  
 April 30, 2024  
 EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII  
 DEPARTMENT OF TRANSPORTATION  
 HIGHWAYS DIVISION

**Honouliuli Stream Bridge  
 Wingwall and Keywall Sections**

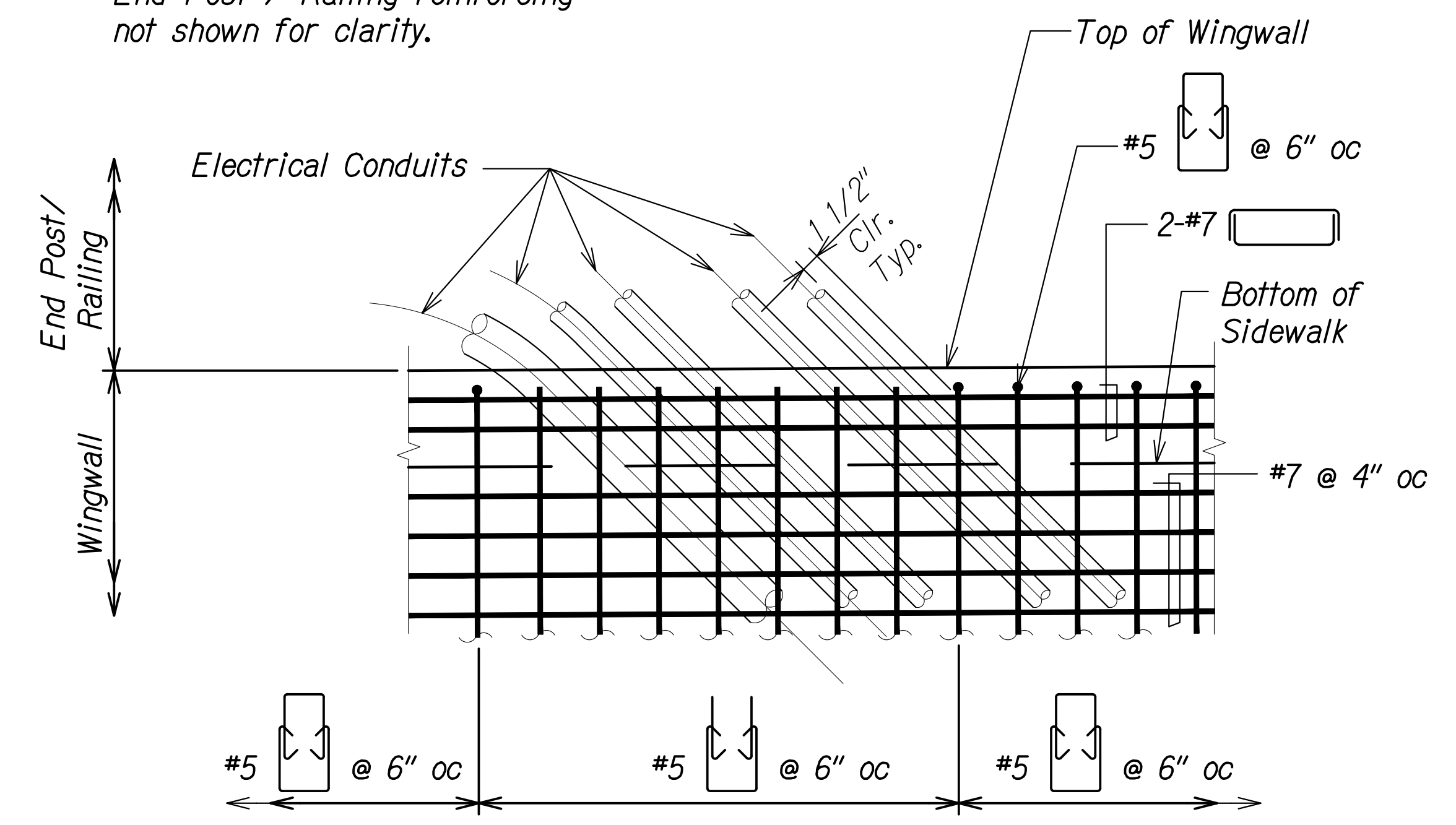
FARRINGTON HIGHWAY WIDENING  
 Kapolei Golf Course Road to Fort Weaver Road  
 Project No. 7101A-01-20

Scale: As Shown Date: Apr. 2022  
**SHEET No. SA8.4 OF 5 SHEETS**

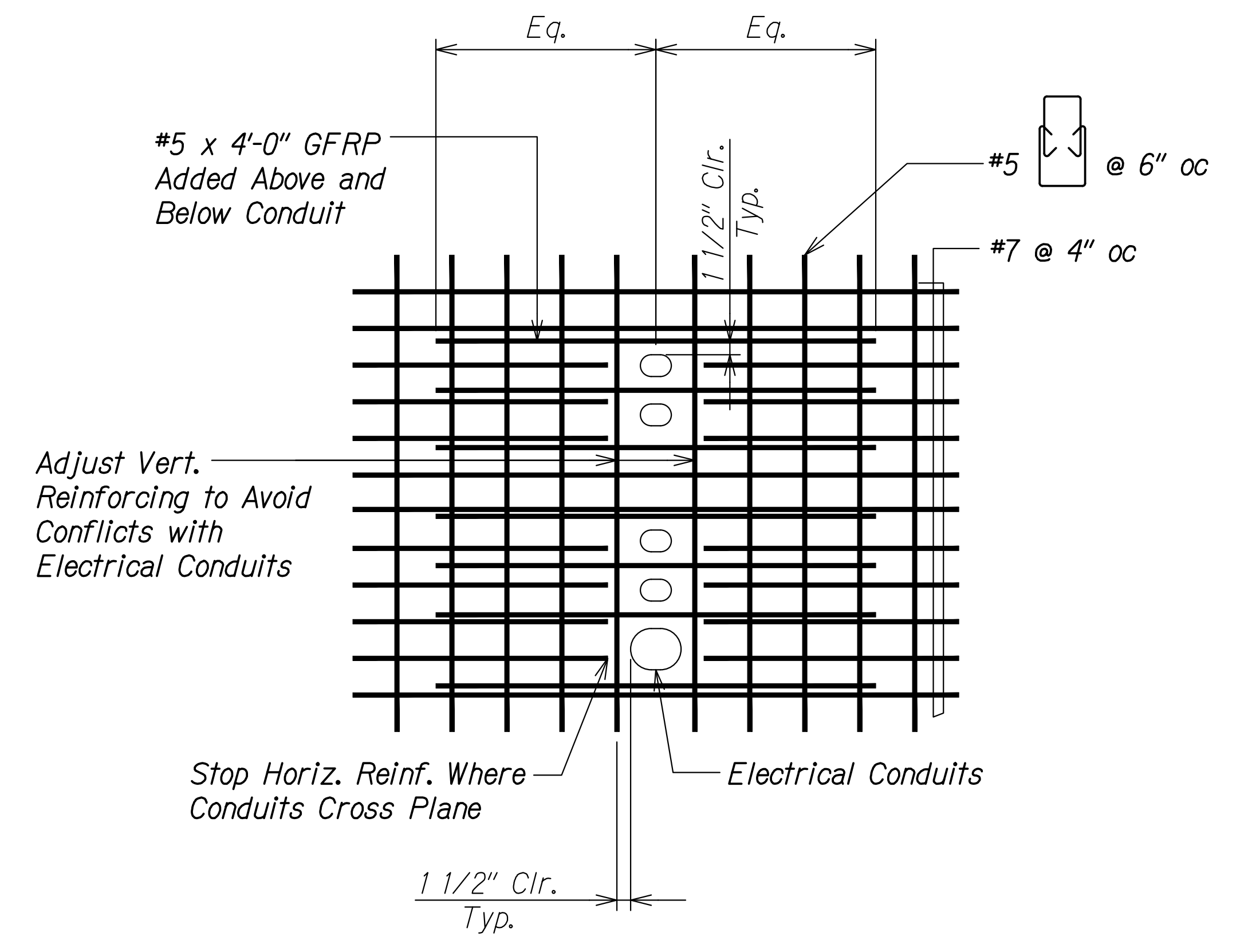
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	7101A-01-20	2021	395	

**Note:**

End Post / Railing reinforcing not shown for clarity.



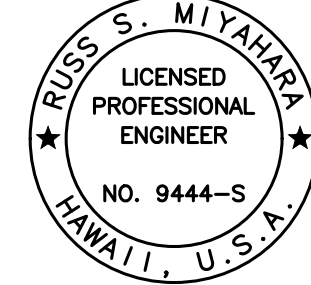
**WINGWALL REINFORCING SECTION A**  
 Scale: 1" = 1'-0"  
 SA8.4 SA8.5



**WINGWALL REINFORCING SECTION B**  
 Scale: 1" = 1'-0"  
 SA8.4 SA8.5

ORIGINAL PLAN	DATE
DRAWN BY	
DESIGNED BY	
QUANTITIES BY	
CHECKED BY	
No.	

DRAWING NAME: Z:\100 ONGOING\20-013-FARR-HWY-KAPOLEI GC ID: ET-WR-EMTC\01-CA\04-06-22 BID SET\FHW3-SA0804-HDN-WALL.DWG PLOT TIME: 04-07-22: 4:44 PM

  
 THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.  
 Signature: *Rugo S. Miyakawa*  
 April 30, 2024  
 EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII  
 DEPARTMENT OF TRANSPORTATION  
 HIGHWAYS DIVISION  
**Honouliuli Stream Bridge**  
**Wingwall Details**  
 FARRINGTON HIGHWAY WIDENING  
 Kapolei Golf Course Road to Fort Weaver Road  
 Project No. 7101A-01-20  
 Scale: As Shown Date: Apr. 2022  
**SHEET No. SA8.5 OF 5 SHEETS**

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	7101A-01-20	2021	396	

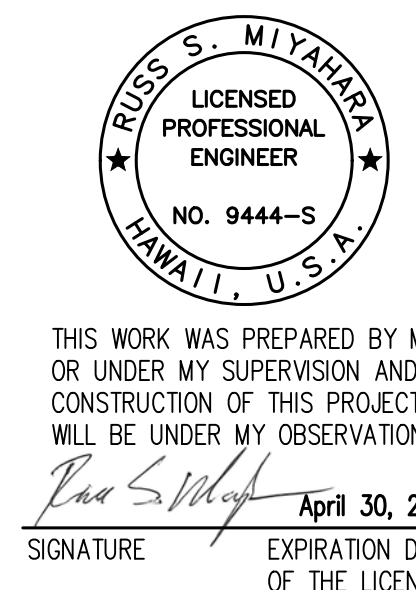
DRILLED SHAFT SCHEDULE							
Drilled Shaft	①	②	③	④	⑤	⑥	TS
Drilled Shaft Cutoff Elevation	+64.50	+64.50	+64.50	+67.00	+67.00	+67.00	+69.00
Drilled Shaft Tip Elevation	-22.00	-22.00	-22.00	-15.50	-15.50	-15.50	-21.00
Drilled Shaft Pay Length ("L")	86'-6"	86'-6"	86'-6"	82'-6"	82'-6"	82'-6"	90'-0"
Strength Limit State Compression Demand (Kips)	2200	1850	1825	2200	1850	1825	-
Strength Limit State Compression Capacity (Kips)	2900	2900	2900	2900	2900	2900	-
Extreme Event Limit State Compression Demand (Kips)	1800	1600	1800	1800	1600	1800	-
Extreme Event Limit State Compression Capacity (Kips)	4200	4200	4200	4200	4200	4200	-

**Notes:**

1. See sheet SA9.2 for drilled shaft details.
2. See sheet SA1.2 for foundation plan.
3. All excavation and drilling operations for foundations shall be monitored by the Engineer.
4. Drilled shaft tip elevations are estimated. The actual length of the shaft and drilled shaft tip elevations will be determined by the Engineer.
5. Drilled shaft tip elevations shall be verified by the Engineer prior to placing reinforcement and concrete. Concrete shall be placed within 24 hours after drilling but shall not be placed without prior approval of the Engineer.

ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
NOTE BOOK	DRAWN BY	
No. _____	DESIGNED BY	
	QUANTITIES BY	
	CHECKED BY	

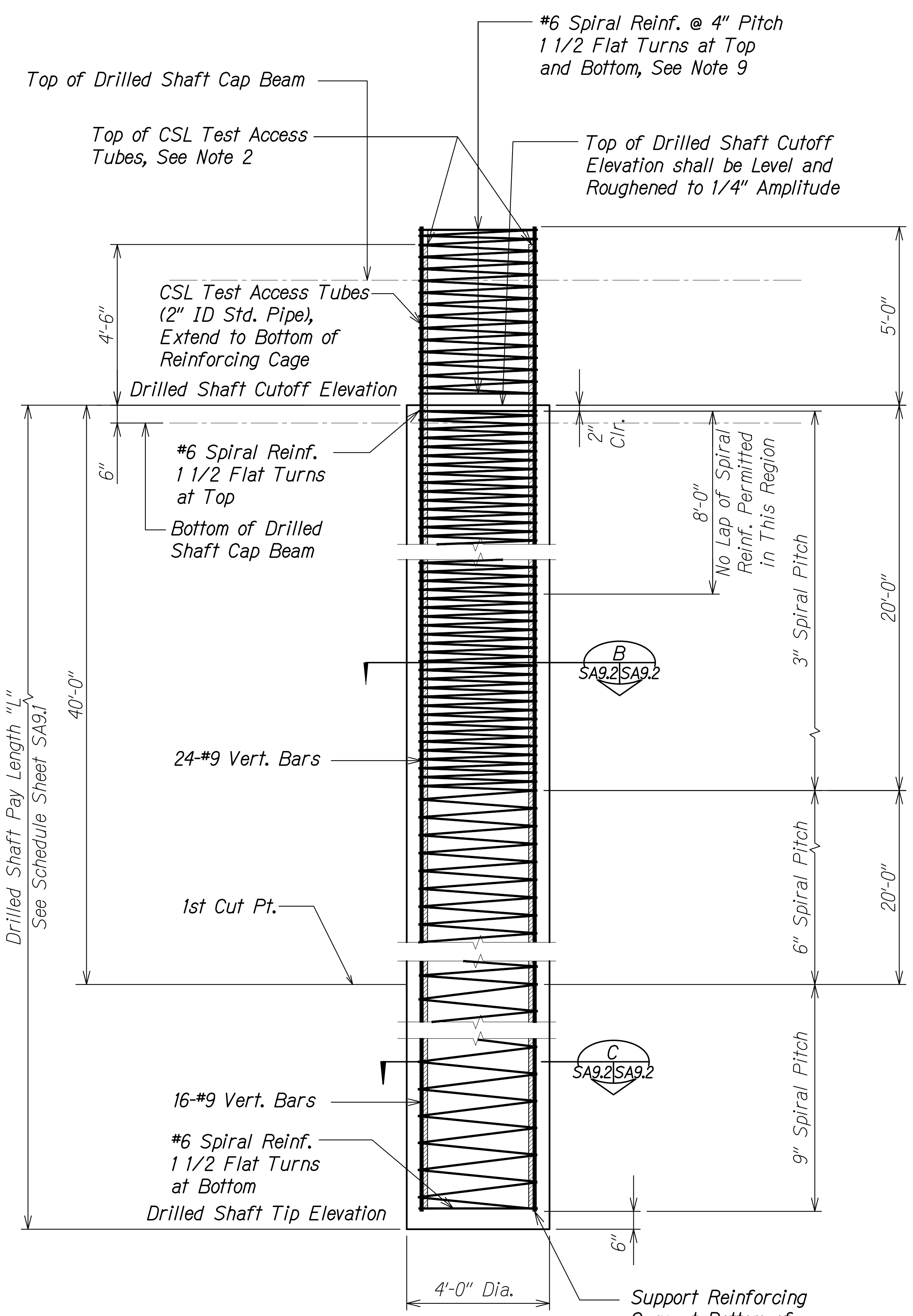
DRAWING NAME: Z:\100 ONGOING\20-013-FARR-HWY-KAPOLEI\GE.ID.IT\WRP-EMT\01-CAD\04-06-22 BID SET\FHW3-SA901-HON-DSHAFT SCHED.DWG PLOT TIME: 04-07-22, 6:34 PM



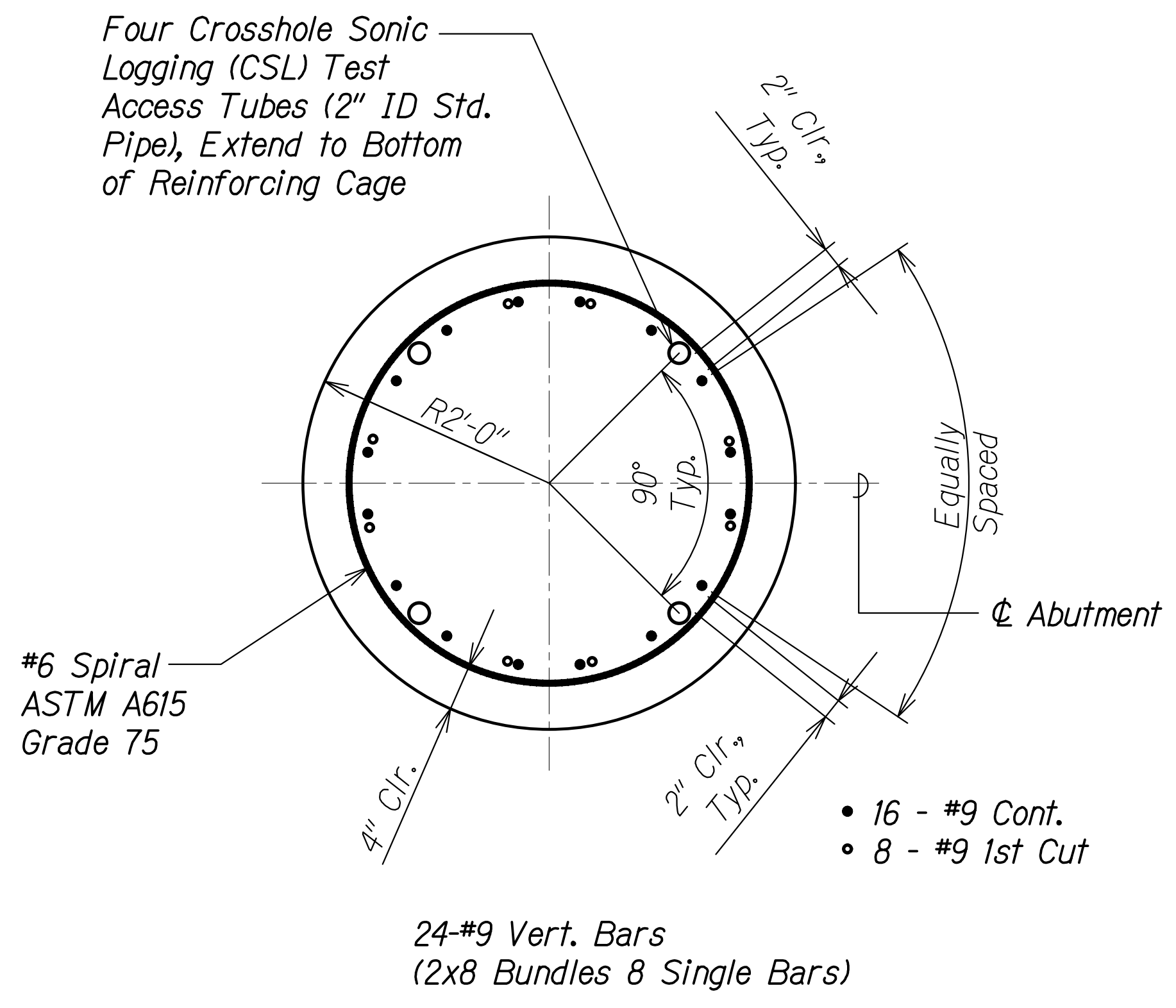
THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.  
*Rugo S. Miyakawa*  
 SIGNATURE      April 30, 2024  
 EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION	
<b>Honouliuli Stream Bridge Drilled Shaft Schedule</b>	
FARRINGTON HIGHWAY WIDENING Kapolei Golf Course Road to Fort Weaver Road Project No. 7101A-01-20	
Scale: As Shown	Date: Apr. 2022
<b>SHEET No. SA9.1 OF 3 SHEETS</b>	

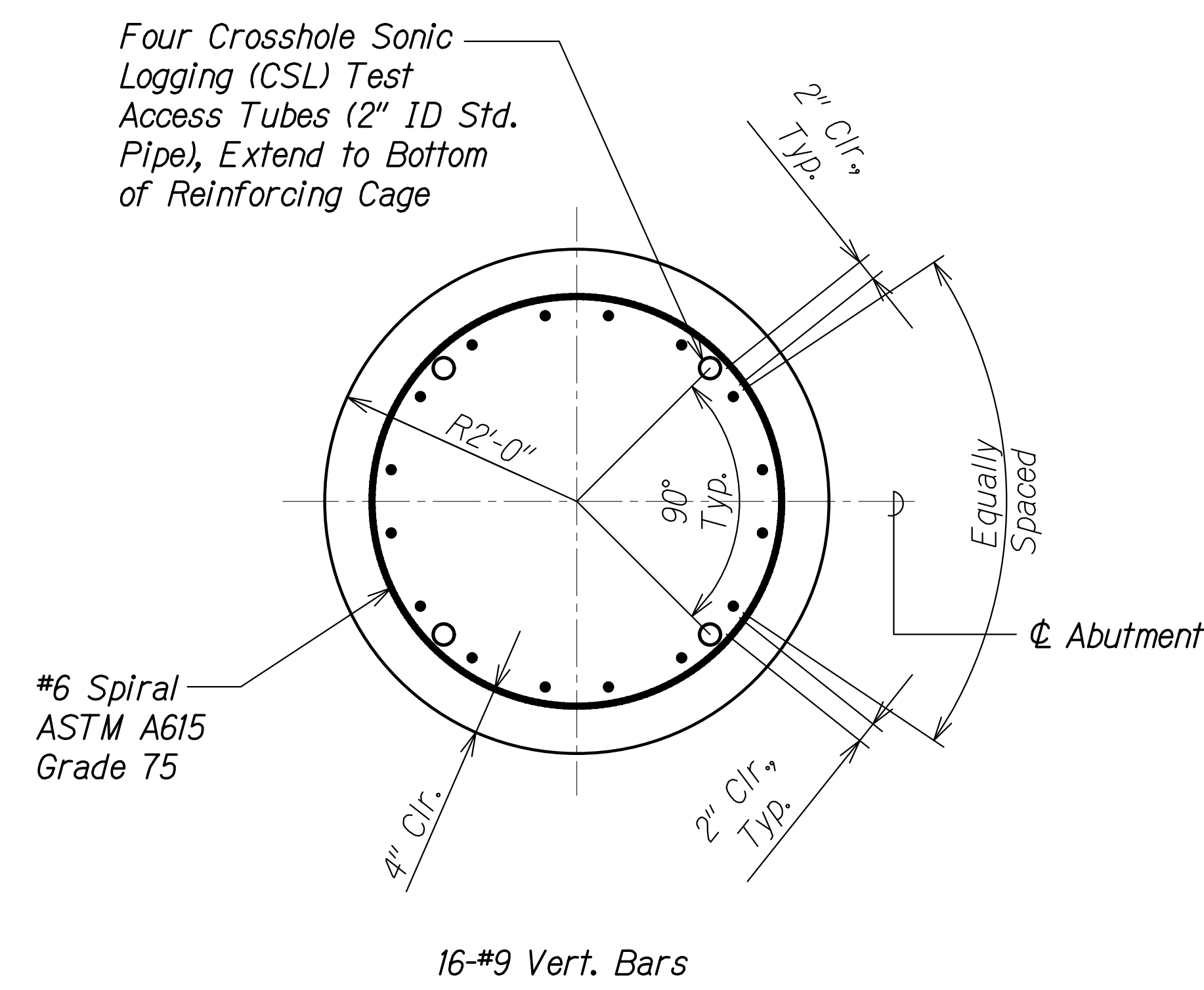
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	7101A-01-20	2021	397	



**PRODUCTION AND TRIAL DRILLED SHAFT ELEVATION**  
 Scale: 1/2" = 1'-0"



**SECTION B**  
 Scale: 1" = 1'-0"



**SECTION C**  
 Scale: 1" = 1'-0"

**NOTES:**

- Crosshole Sonic Logging (CSL) testing shall be performed on every drilled shaft. Shafts indicating irregular CSL readings may be subjected to additional testing.
- After CSL testing, a portion of the CSL test access tubes shall be removed in the drilled shaft cap beam to one inch above top of the drilled shaft cutoff elevation. Tubes shall be completely filled with non-shrink, non-metallic, cementitious grout of at least equal strength as drilled shaft prior to pouring the drilled shaft cap beam. See Structural General Notes for material requirements.
- Lap splice length for #9 vert. bar shall be 5'-6". No lap splices of vert. bars are allowed in the upper 40'-0" of the drilled shaft.
- Lapped splices shall have a minimum of 2'-0" vertically between splice points.
- Staggered splice points for longitudinal reinforcing shall not be more than 50% of the total at any section normal to the axis of the shaft.
- Lap splice length for #6 spirals shall be 4'-5" min. with a 135° hook bend at each end.
- Each end of the spiral shall have 1 1/2 extra turns with a 135° hook around a vertical reinforcing bar.
- Concrete or other non-corrosive spacing devices shall be used to maintain the reinforcement cage in position within the shaft.
- #6 Spiral reinforcing in drilled shaft cap beam may be installed prior to drilled shaft cap beam pour. See sheet SA7.12 for details.
- Vertical shaft reinforcing shall be arranged with a template to avoid interference with horizontal reinforcing in the drilled shaft cap beam.

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

DRAWING NAME: SA9.02 DRILLED SHAFT ELEVATION; PROJECT: FARRINGTON HIGHWAY WIDENING; SHEET: SA9.02 OF 3 SHEETS; DATE: 04-07-22; 4:44 PM

**RUS S. MIYAHARA**  
 LICENSED PROFESSIONAL ENGINEER  
 NO. 9444-S  
 HAWAII, U.S.A.  
 THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.  
 Signature: *Rus S. Miyahara*  
 April 30, 2024  
 EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII  
 DEPARTMENT OF TRANSPORTATION  
 HIGHWAYS DIVISION

**Honouliuli Stream Bridge**  
 Production and Trial Drilled Shaft

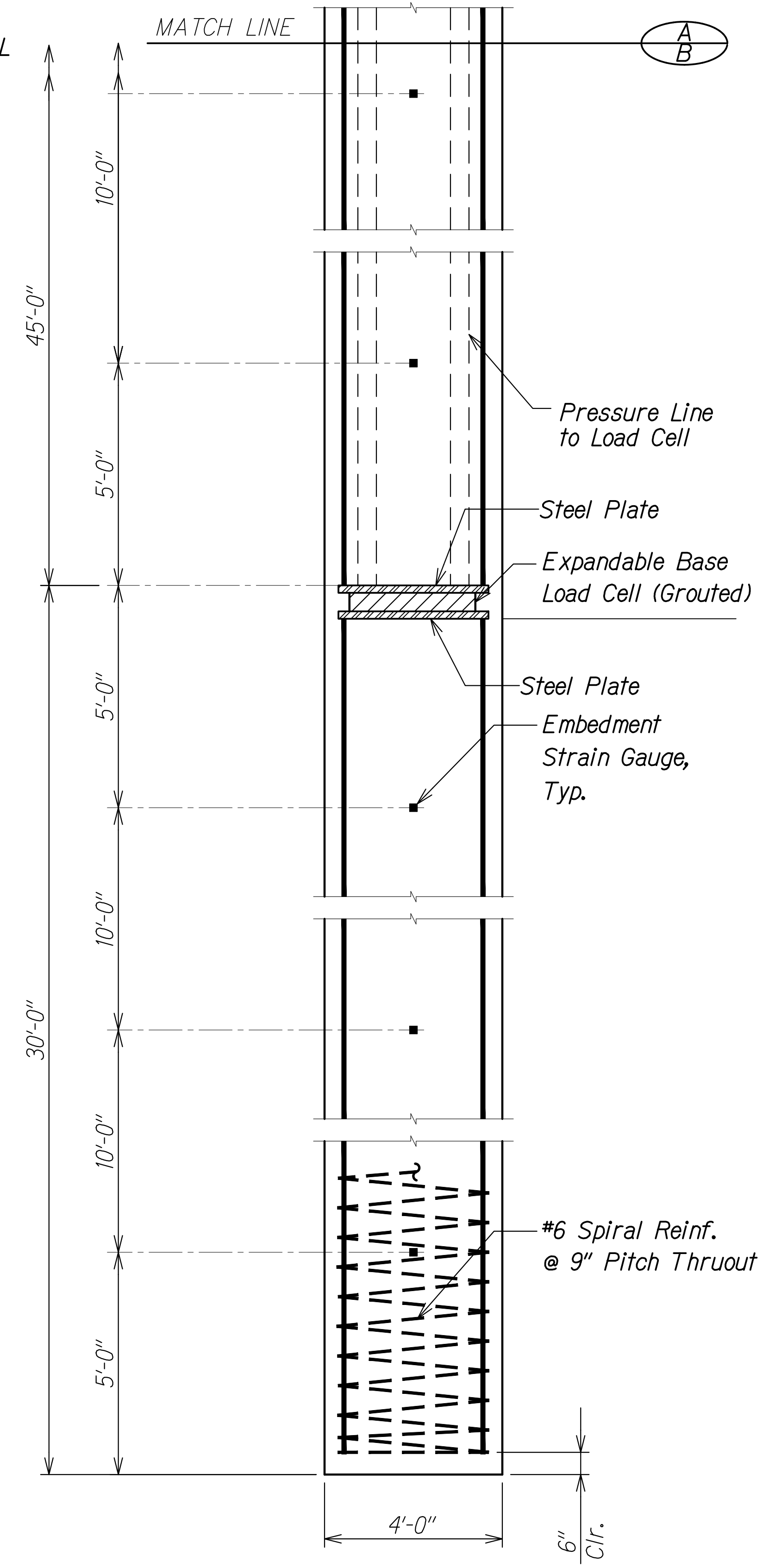
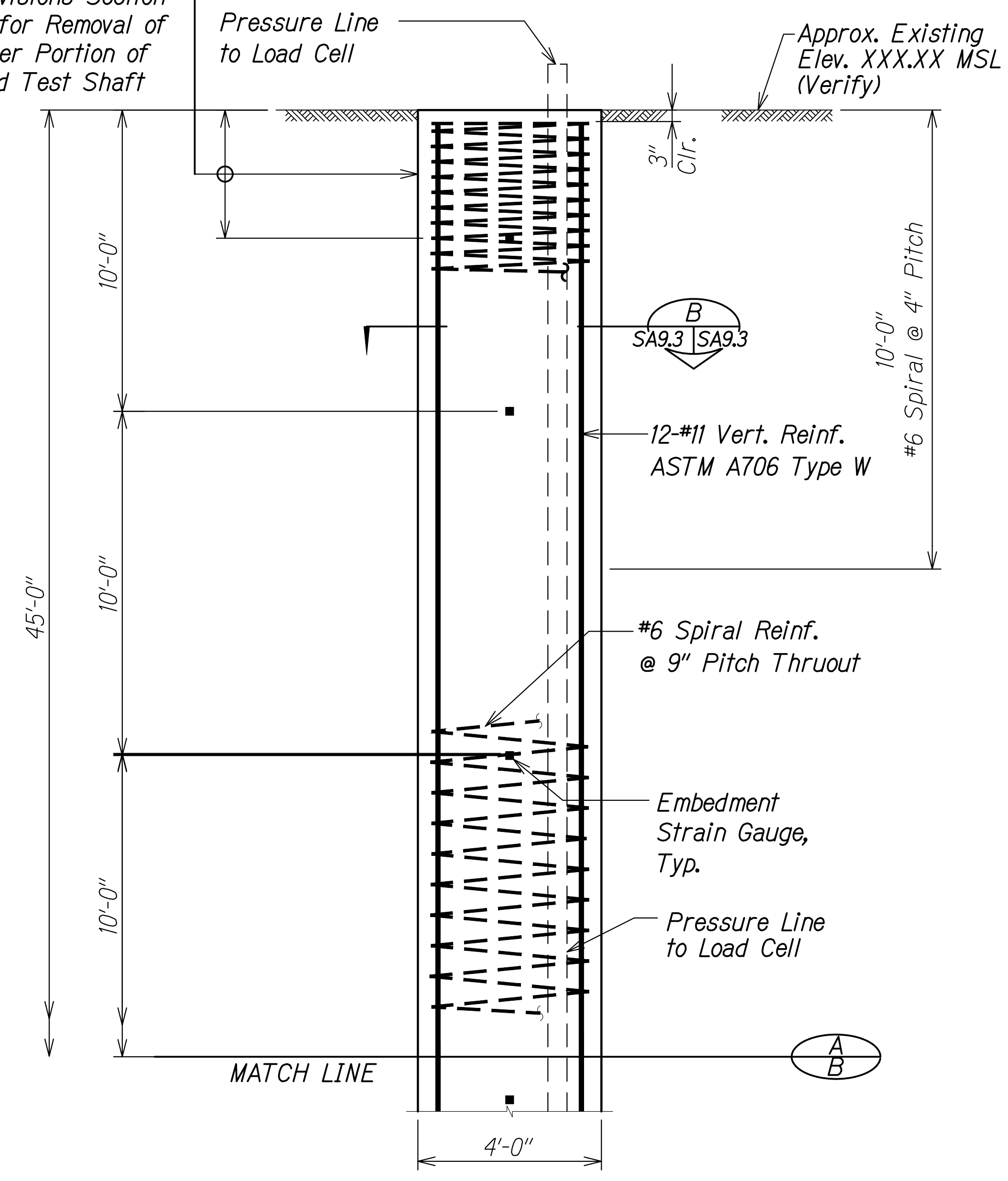
FARRINGTON HIGHWAY WIDENING  
 Kapolei Golf Course Road to Fort Weaver Road  
 Project No. 7101A-01-20

Scale: As Shown Date: Apr. 2022

**SHEET No. SA9.02 OF 3 SHEETS**

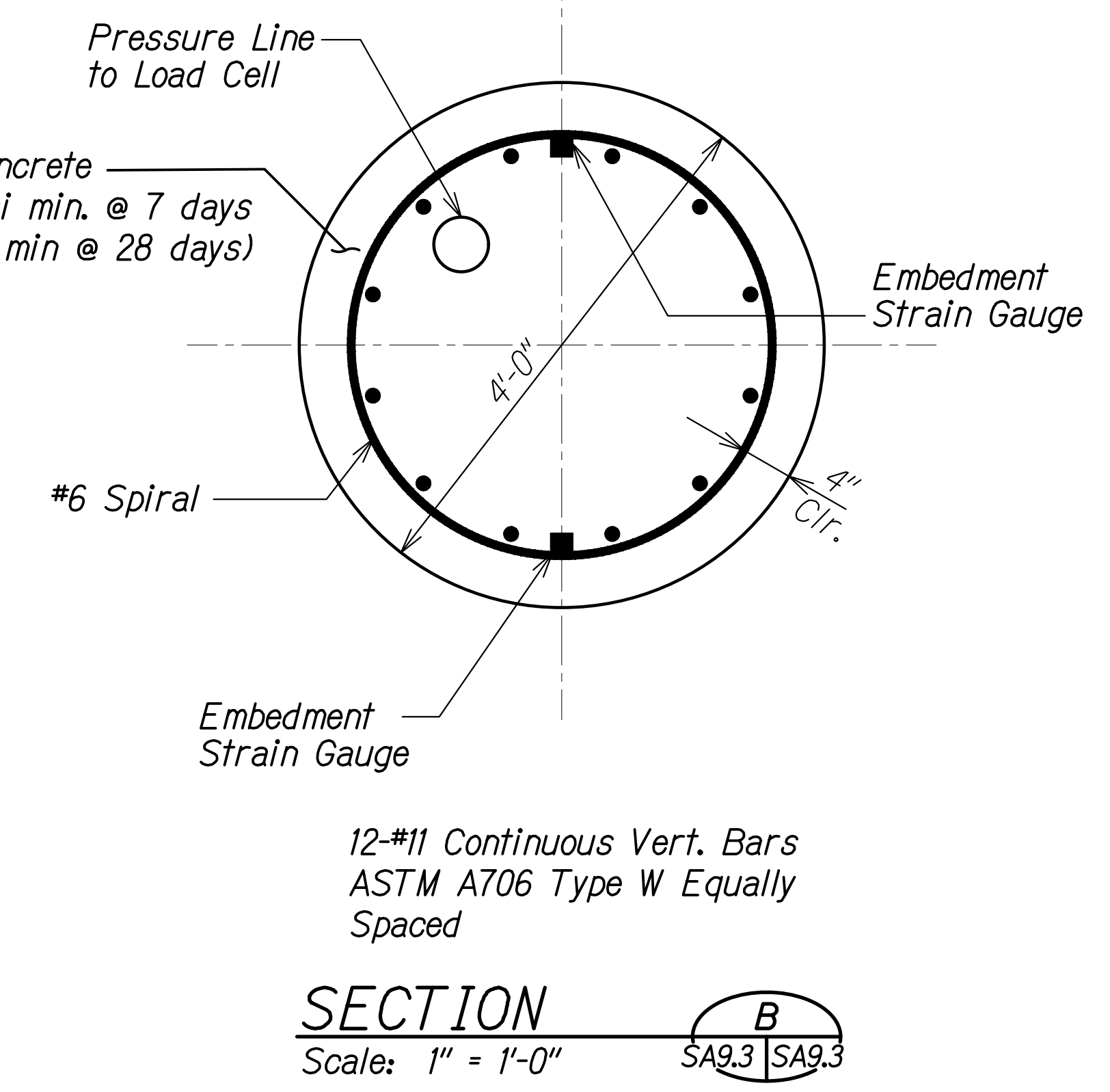
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	7101A-01-20	2021	398	

See Special Provisions Section 511 for Removal of Upper Portion of Load Test Shaft



**4'-0" DIAMETER LOAD TEST SHAFT ELEVATION**  
Scale: 1/2" = 1'-0"

A  
SA9.3 | SA9.3



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

DRAWING NAME: Z:\100 ONGOING\20-013-FARR-HWY-KAPOLEI GC ID: ET-WPR-EMTC\01-CAD\04-06-22 BID SET\FHW3-SA9803 DRILLED-SHAFT-DETDWG PLOT TIME: 04-07-22, 4:45 PM

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.

*Russ S. Miyahara*  
April 30, 2024  
SIGNATURE EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

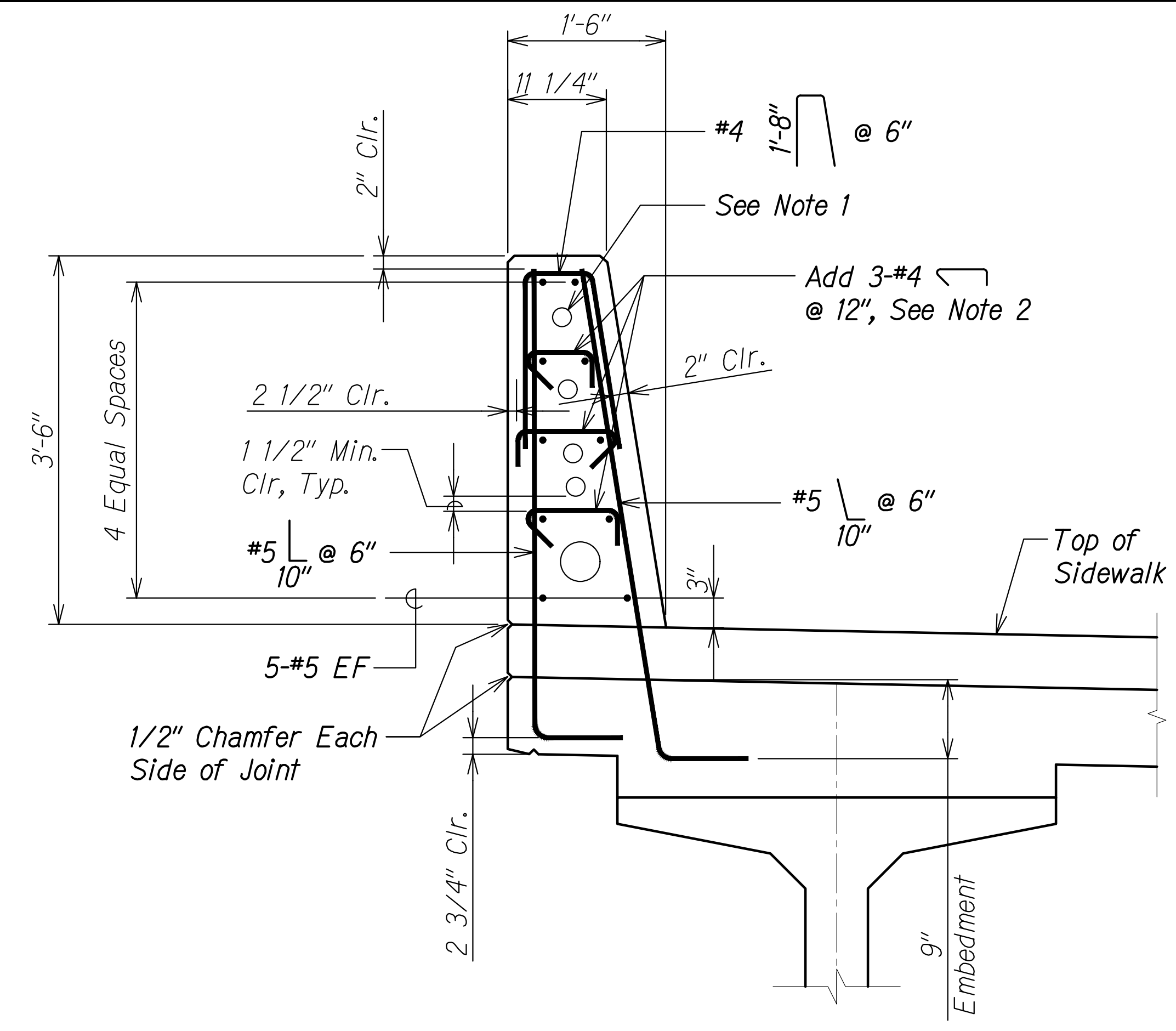
**Honouliuli Stream Bridge Load Test Shaft**

FARRINGTON HIGHWAY WIDENING  
Kapolei Golf Course Road to Fort Weaver Road  
Project No. 7101A-01-20

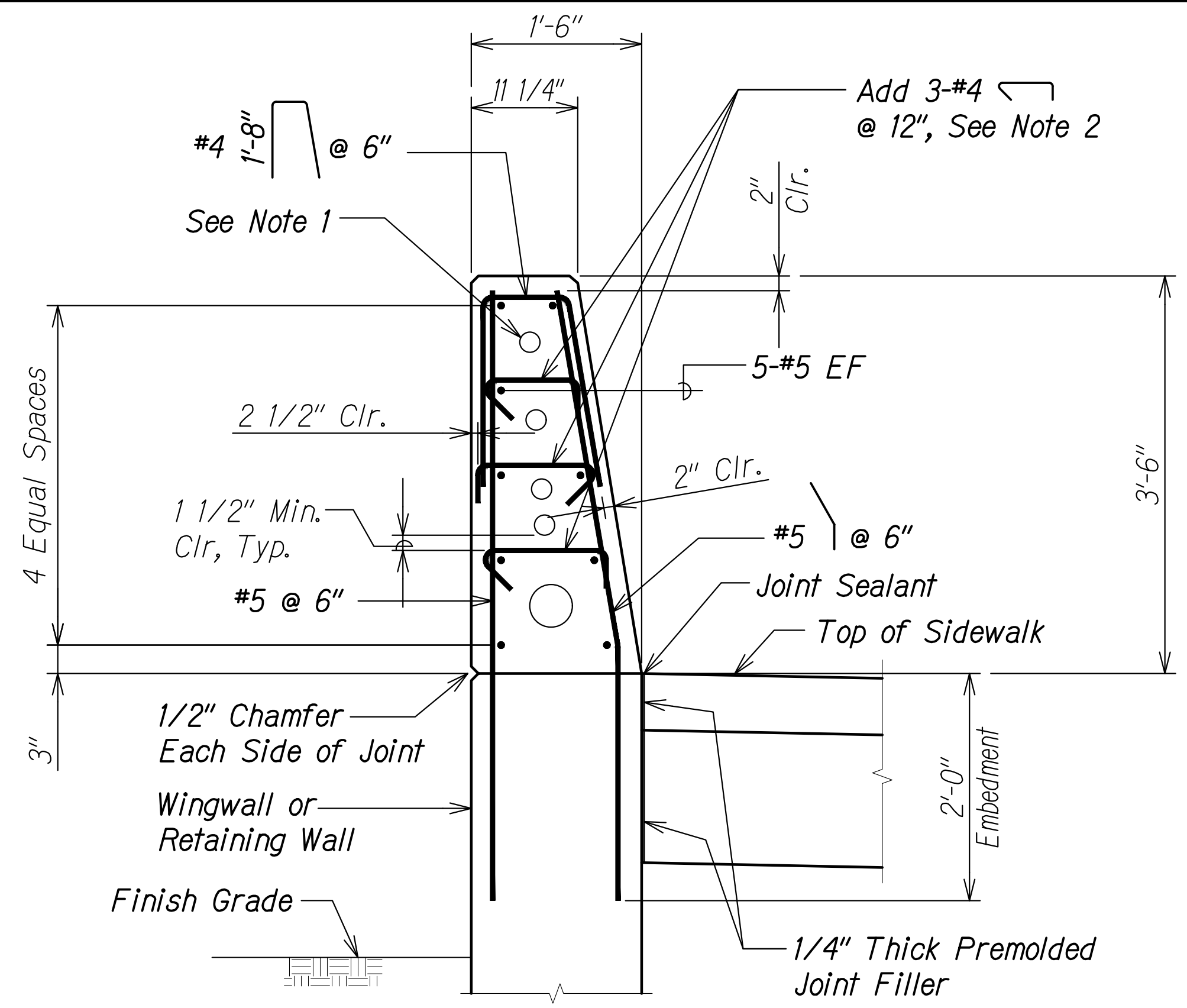
Scale: As Shown Date: Apr. 2022

**SHEET No. SA9.3 OF 3 SHEETS**

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	7101A-01-20	2021	399	



**BRIDGE RAILING SECTION** A  
 Scale: 1" = 1'-0" SA10.1 SA10.1



**END POST / RAILING SECTION** B  
 Scale: 1" = 1'-0" SA10.1 SA10.1

- Notes:**
- (1) 4" dia. conduit and (4) 2" dia. conduits in downstream railing shown. (3) 2" dia. conduit in upstream railing not shown.
  - 3-#4 @ 12" shall be ASTM A1035 Type CS Grade 100. Extend 3-#4 @ 12" into end post and terminate at location where conduits bend and enter the underlying wingwall.
  - Deflection joints shall be placed perpendicular to  $\phi$  bridge

ORIGINAL PLAN	DATE
DRAWN BY	
DESIGNED BY	
QUANTITIES BY	
CHECKED BY	
No.	

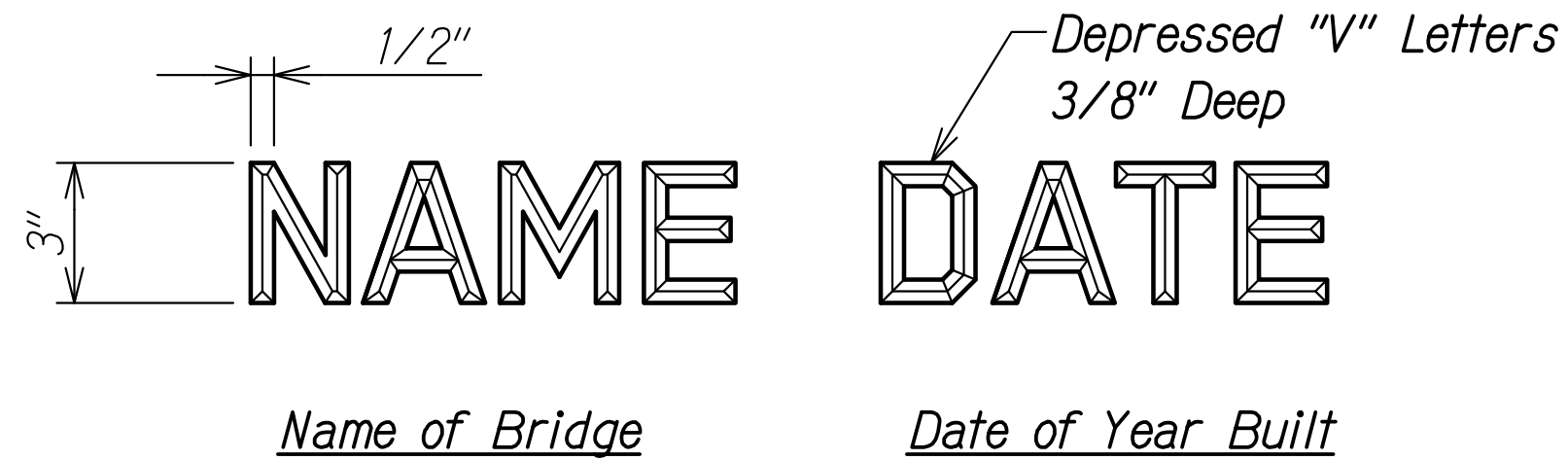
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THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.  
*Rugo S. Miyahara*  
 SIGNATURE      April 30, 2024  
 EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII  
 DEPARTMENT OF TRANSPORTATION  
 HIGHWAYS DIVISION  
**Honouliuli Stream Bridge**  
**Railing Sections**  
 FARRINGTON HIGHWAY WIDENING  
 Kapolei Golf Course Road to Fort Weaver Road  
 Project No. 7101A-01-20  
 Scale: As Shown      Date: Apr. 2022  
**SHEET No. SA10.1 OF 4 SHEETS**



FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	7101A-01-20	2021	400	

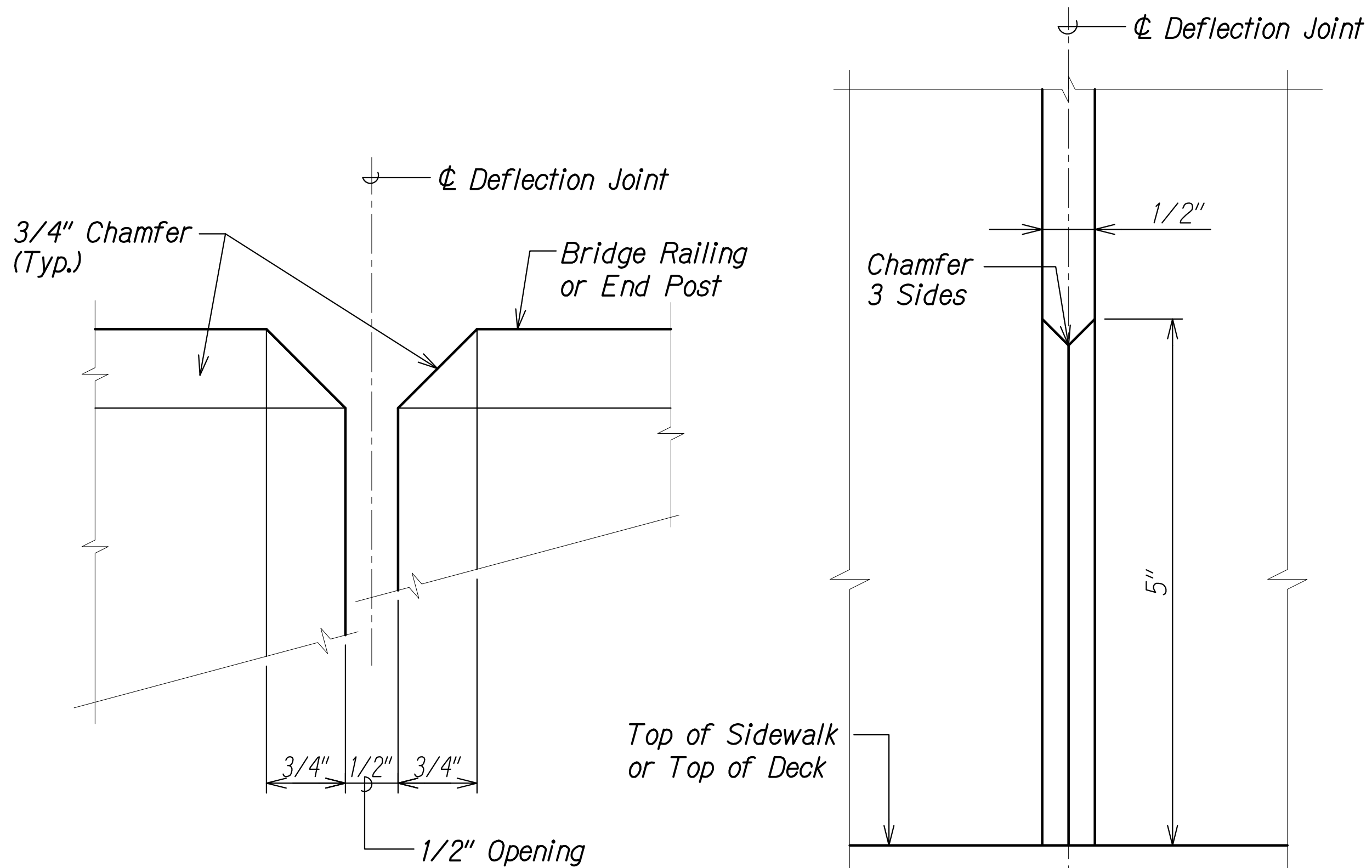


**NOTES:**

1. Exact details and spacing of letter and figures and location shall be as directed by the Engineer. Gothic letters and figures approximating the dimensions shown will be acceptable if approved by the Engineer.
2. Name & date shall be place on the trailing (exit) end post on each side of bridge.
3. Unless otherwise directed by the Engineer, The name of the bridge shall be "HONOULIULI STREAM BRIDGE". The year shall be the year at completion.

TYPICAL DETAIL OF LETTERS AND FIGURES

BRIDGE IDENTIFICATION DETAIL 1  
Scale: 3" = 1'-0" SA10.2 SA10.2

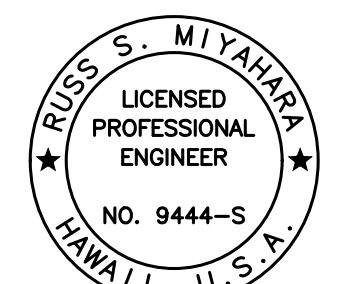


DEFLECTION JOINT DETAIL 2  
Scale: 1" = 1" SA10.2 SA10.2

DEFLECTION JOINT DETAIL 3  
Scale: 1" = 1" SA10.2 SA10.2

ORIGINAL PLAN	DATE
DRAWN BY	
DESIGNED BY	
QUANTITIES BY	
CHECKED BY	
No.	

DRAWING NAME: Z:\100 ONGOING\20-013-FARR-HWY-KAPOLEI GC ID: ET-WP2-EMTC\01 CAD\04-06-22 BID SET\FHW3-SA1001-HON EXPOSITION.DWG PLOT TIME: 04-07-22 4:46 PM



THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.  
 Signature: *Rugo S. Miyahara*  
 April 30, 2024  
 EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII  
 DEPARTMENT OF TRANSPORTATION  
 HIGHWAYS DIVISION

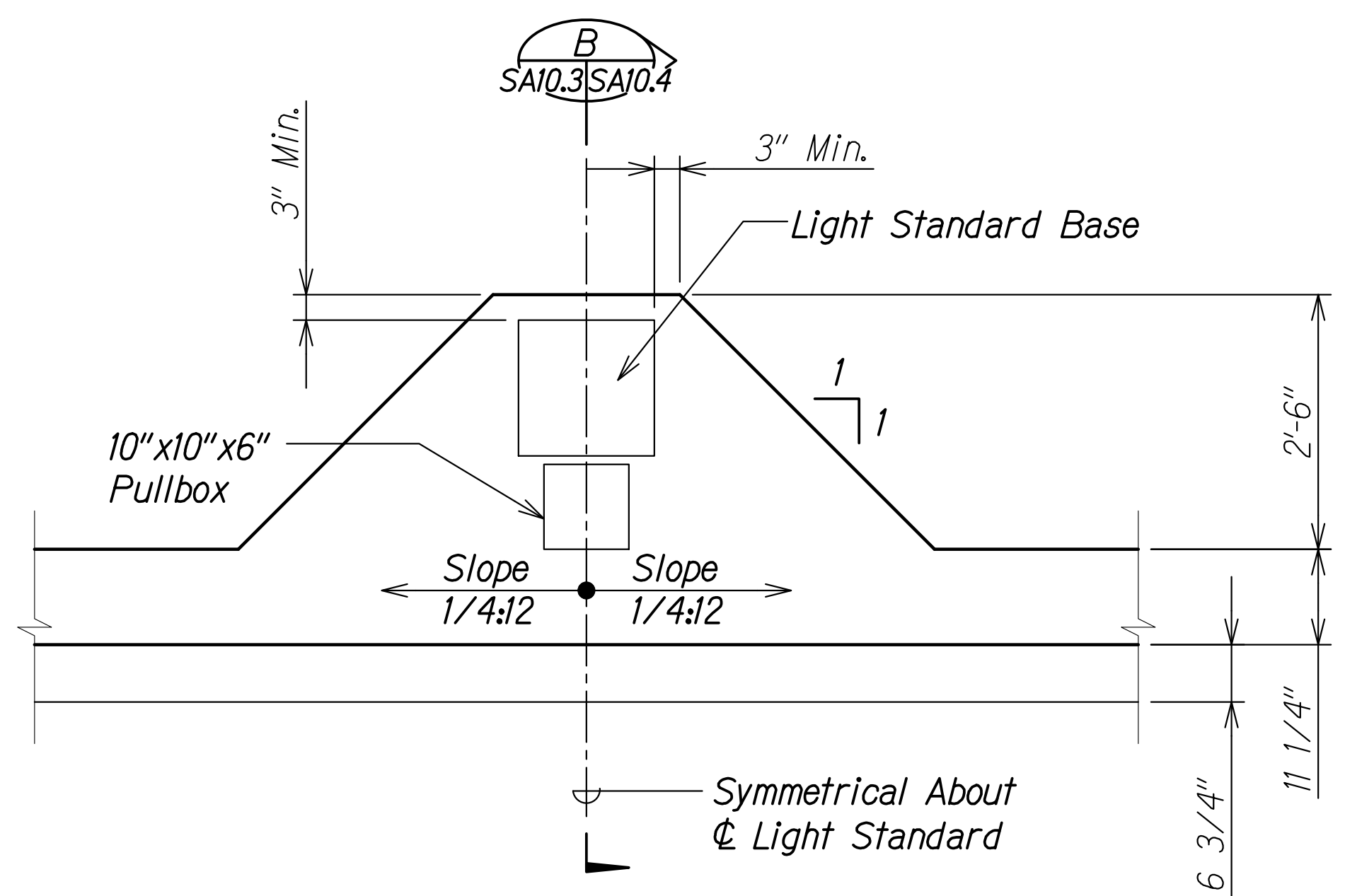
**Honouliuli Stream Bridge  
 Bridge Identification Detail**

FARRINGTON HIGHWAY WIDENING  
 Kapolei Golf Course Road to Fort Weaver Road  
 Project No. 7101A-01-20

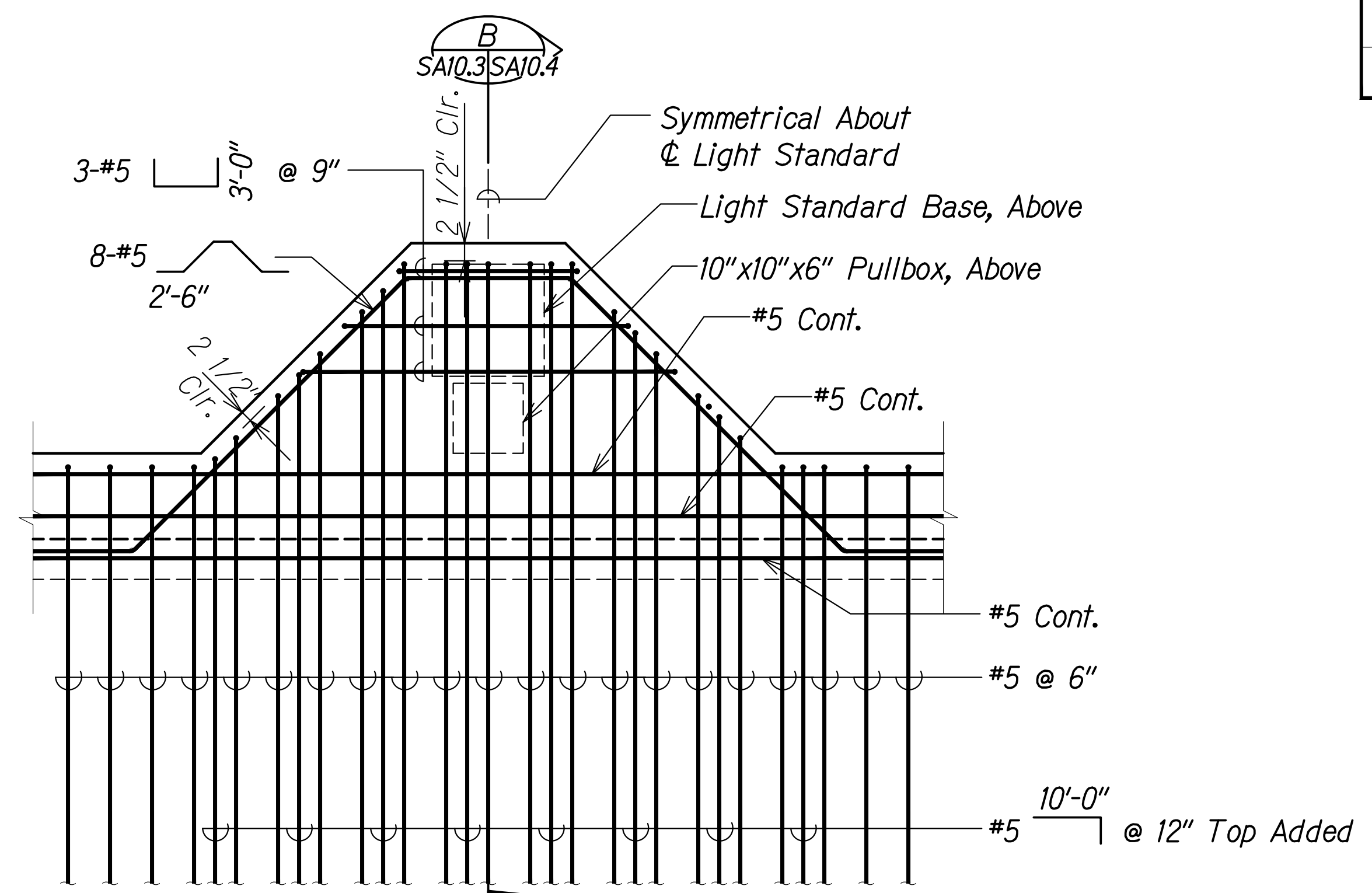
Scale: As Shown Date: Apr. 2022

**SHEET No. SA10.2 OF 4 SHEETS**

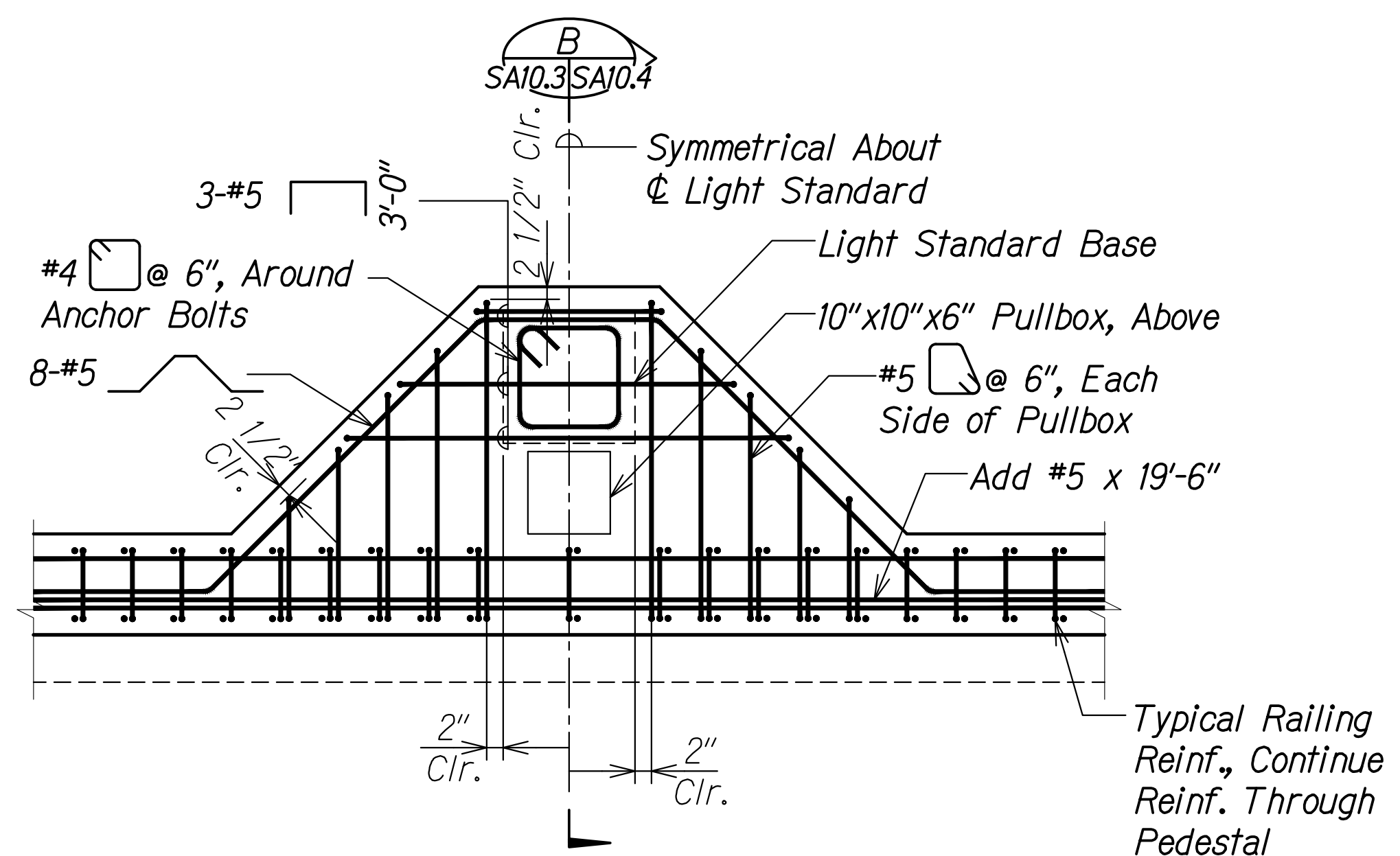
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	7101A-01-20	2021	401	



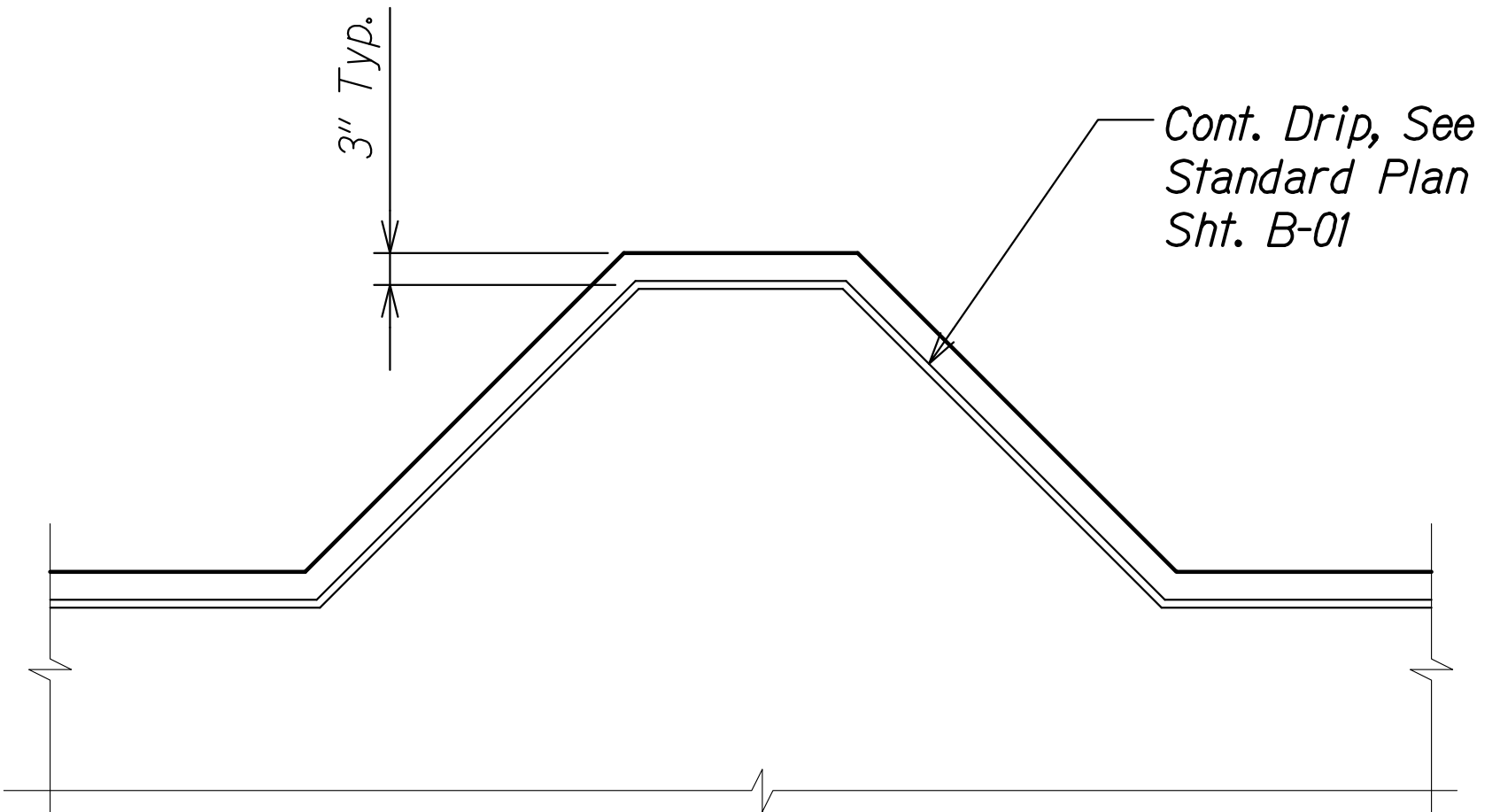
**PLAN - LIGHT PEDESTAL** (A)  
Scale: 3/4" = 1'-0" SAI0.3 SAI0.4



**PLAN - DECK REINFORCING AT LIGHT PEDESTAL** (B)  
Scale: 3/4" = 1'-0" SAI0.3 SAI0.3



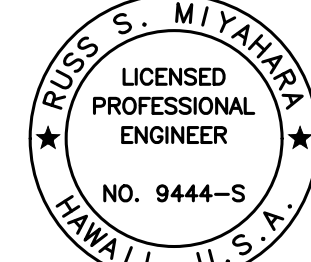
**PLAN - REINFORCING AT TOP OF LIGHT PEDESTAL** (C)  
Scale: 3/4" = 1'-0" SAI0.3 SAI0.3



**DRIP STRIP DETAIL AT LIGHT PEDESTAL (LOOKING AT SOFFIT)** (1)  
Scale: 3/4" = 1'-0" SAI0.3 SAI0.3

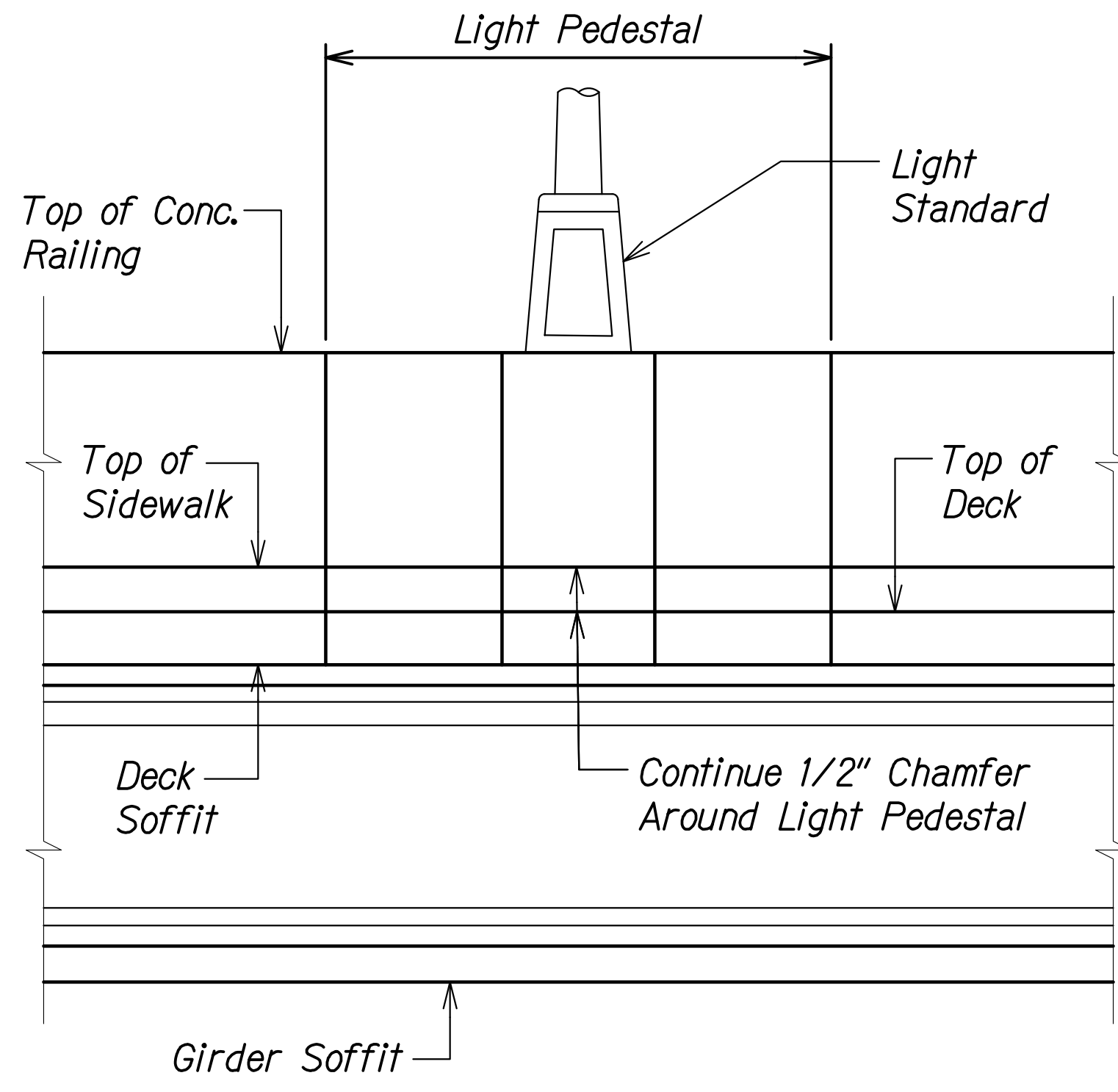
ORIGINAL PLAN	DATE
SURVEY PLOTTED BY	
DRAWN BY	
DESIGNED BY	
QUANTITIES BY	
CHECKED BY	
No.	

DRAWING NAME: SA10.3 UNDOING 20-013-FARR-HWY KAPOLEI GC. ID: ET-WR-EMTCV01-CA01-04-06-22 BID SET-FH03-SA1001-HON. EMBROIDING PLOT TIME: 04-07-22, 6:50 PM

  
 THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.  
 Signature: *Rugo S. Miyahara*  
 April 30, 2024  
 EXPIRATION DATE OF THE LICENSE

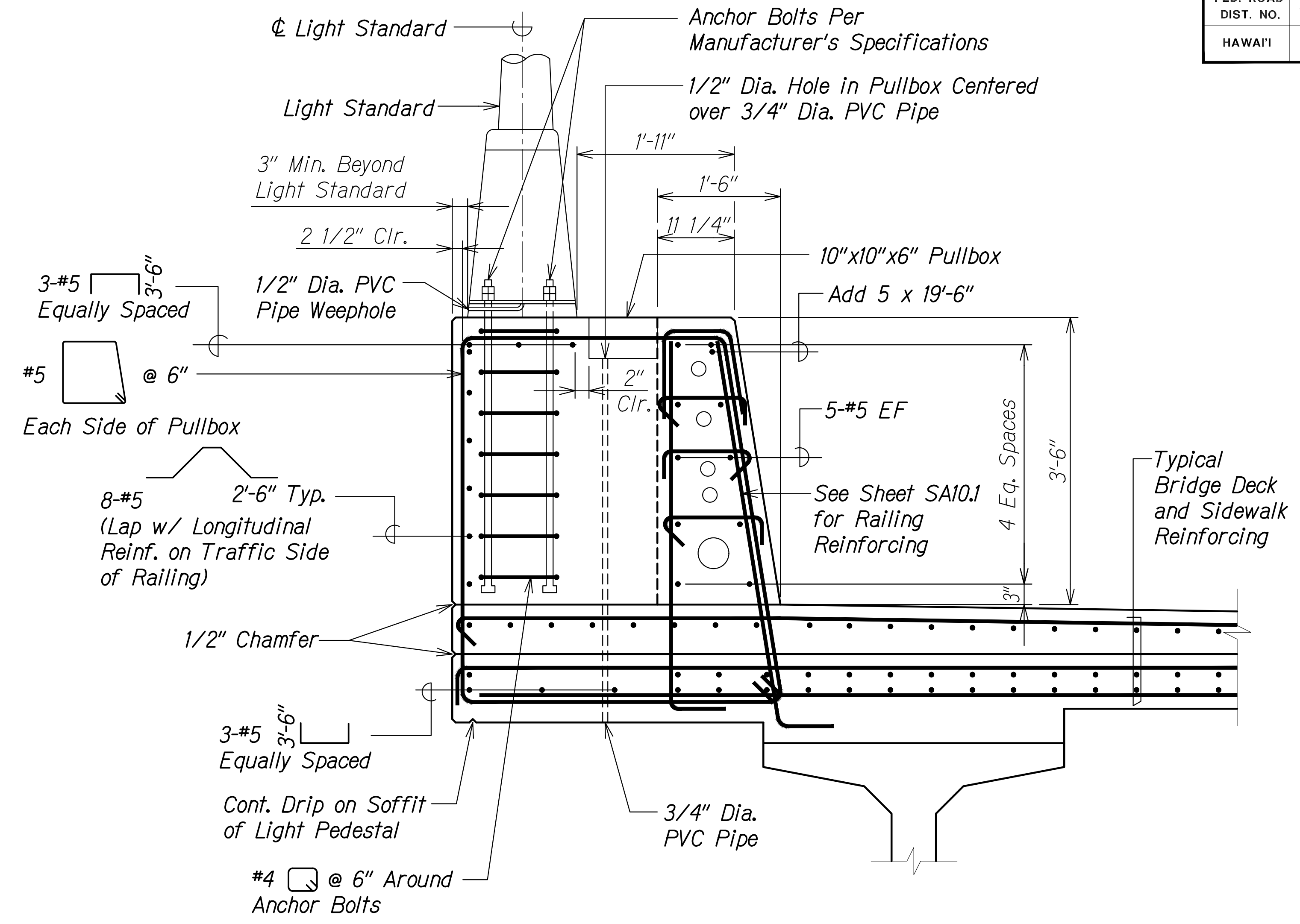
STATE OF HAWAII  
 DEPARTMENT OF TRANSPORTATION  
 HIGHWAYS DIVISION  
**Honouliuli Stream Bridge**  
**Light Pedestal Plans and Detail**  
 FARRINGTON HIGHWAY WIDENING  
 Kapolei Golf Course Road to Fort Weaver Road  
 Project No. 7101A-01-20  
 Scale: As Shown Date: Apr. 2022  
**SHEET No. SA10.3 OF 4 SHEETS**

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	7101A-01-20	2021	402	



**ELEVATION - LIGHT PEDESTAL AT LIGHT STANDARD**  
 Scale: 1/2" = 1'-0"

**A**  
 SAI0.4 | SAI0.4



**LIGHT PEDESTAL SECTION**  
 Scale: 1" = 1'-0"

**B**  
 SAI0.3 | SAI0.4

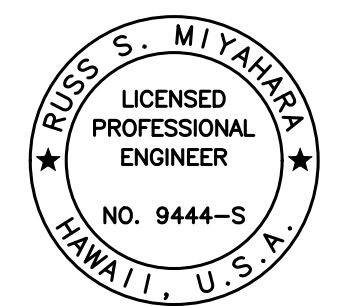
**Note:**  
 Thickened railing at light pedestal location shall be incidental to the measurement and payment for Bridge Concrete Railing for Honouliuli.

ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
NOTE BOOK	DRAWN BY	
No. _____	DESIGNED BY	
	QUANTITIES BY	
	CHECKED BY	

DRAWING NAME: Z:\100 ONGOING\20-013-FARR-HWY-KAPOLEI GC.ID.IT.WPR-EMTC\01 CAD\04-08-22 BID RYSD-SHRS\FHWB-SA1001-HON-EMPOST.DWG PLOT TIME: 04-08-22 3:39 PM

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.

*Russ S. Miyahara*  
 SIGNATURE  
 April 30, 2024  
 EXPIRATION DATE OF THE LICENSE



STATE OF HAWAII  
 DEPARTMENT OF TRANSPORTATION  
 HIGHWAYS DIVISION

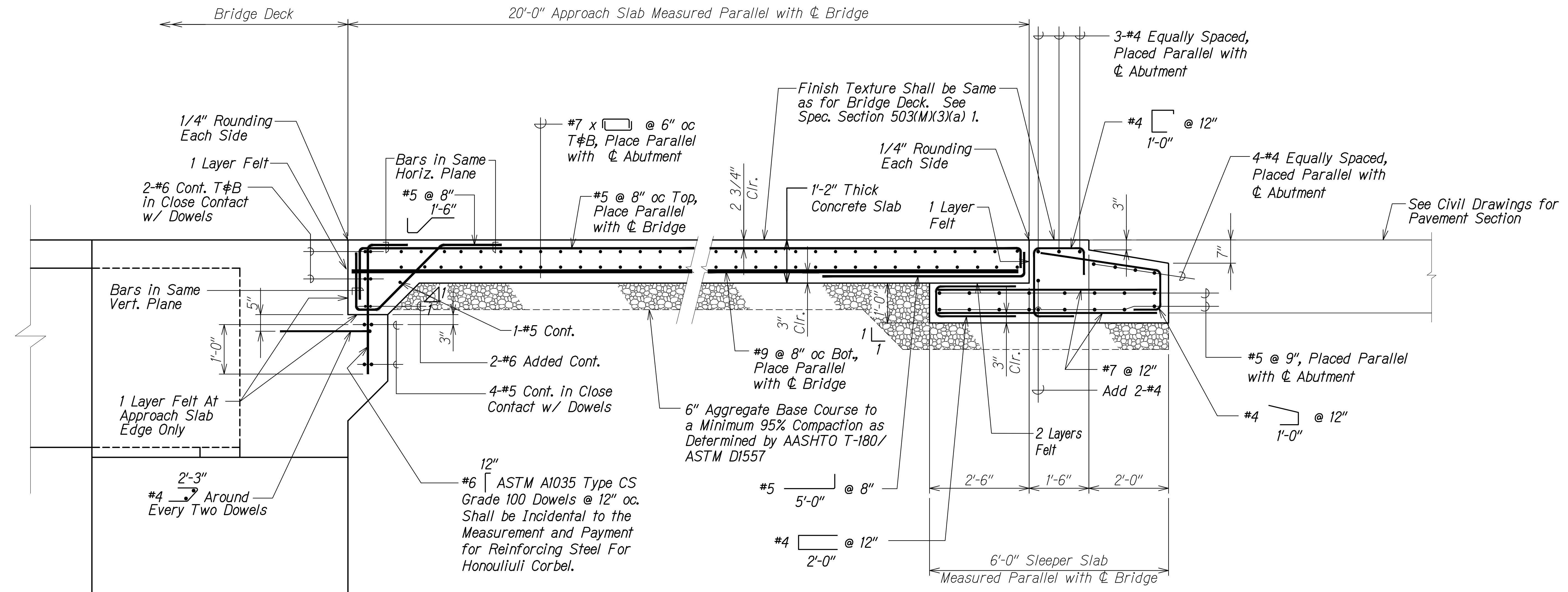
**Honouliuli Stream Bridge  
 Light Pedestal Elevation and Section**

FARRINGTON HIGHWAY WIDENING  
 Kapolei Golf Course Road to Fort Weaver Road  
 Project No. 7101A-01-20

Scale: As Shown Date: Apr. 2022

**SHEET No. SA10.4 OF 4 SHEETS**

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	7101A-01-20	2021	403	



**TYPICAL APPROACH SLAB AND SLEEPER SLAB SECTION**

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

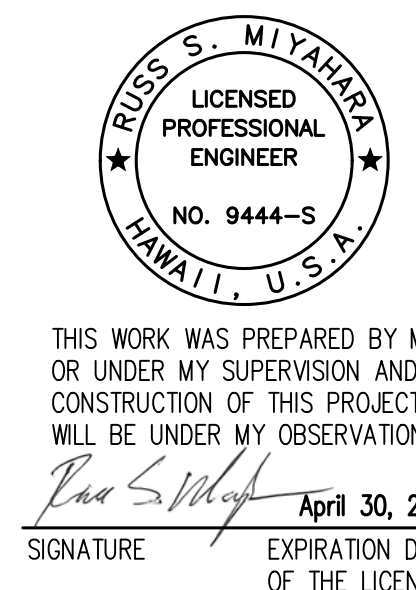


**Notes:**

1. Approach slab and sleeper slab finish texture shall be the same as the bridge deck finish texture.
2. 6" Aggregate base course shall be incidental to the measurement and payment for Concrete for Honouliuli Approach Slabs and Sleeper Slabs.

ORIGINAL PLAN	DATE
DRAWN BY	
DESIGNED BY	
QUANTITIES BY	
CHECKED BY	

DRAWING NAME: Z:\100 ONGOING\20-013-FARR-HWY-KAPOLEI GC ID: ET WPR-BMT\01 CAD\04-08-22 BID RVS\SHR\SHR\SHR\SABLING PLOT TIME: 04-08-22 3:40 PM



THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.  
 Russ S. Miyahara  
 April 30, 2024  
 SIGNATURE EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII  
 DEPARTMENT OF TRANSPORTATION  
 HIGHWAYS DIVISION

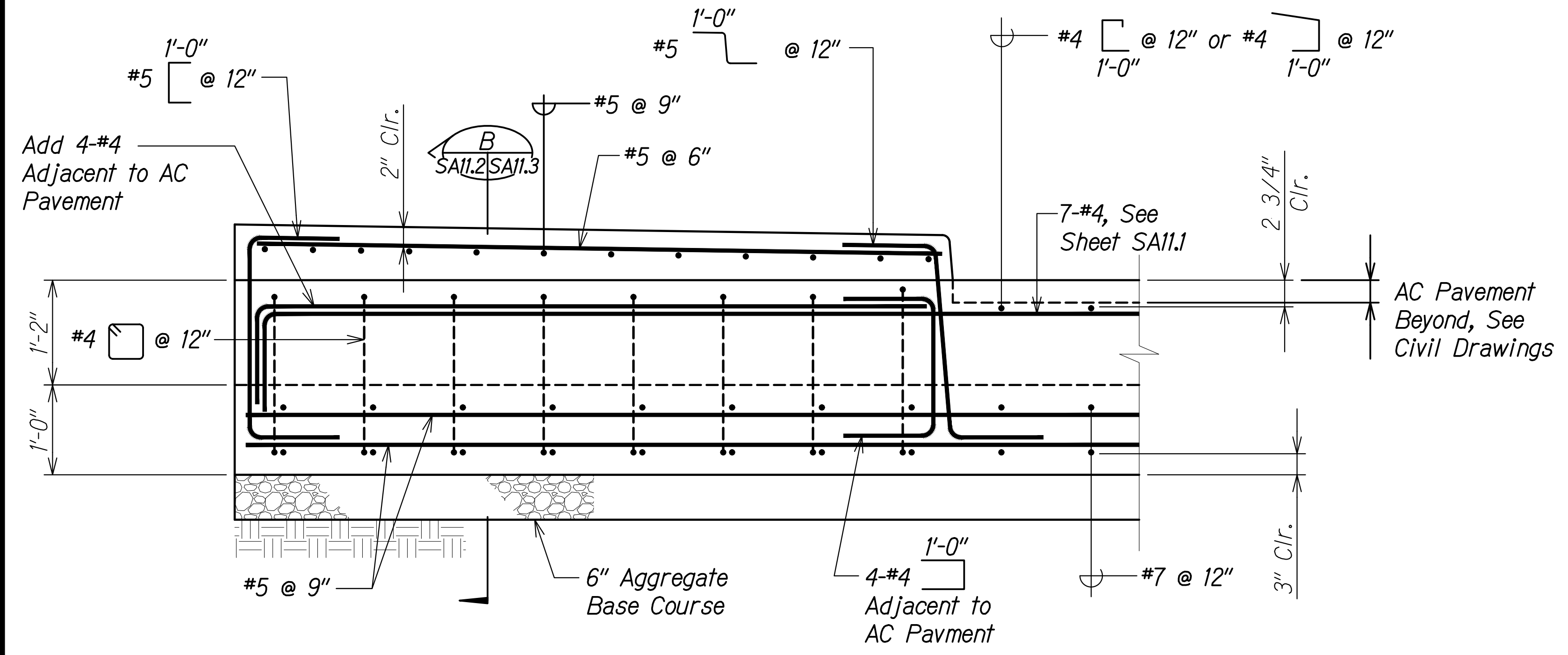
**Honouliuli Stream Bridge**  
**Approach Slab and Sleeper Slab Section**

FARRINGTON HIGHWAY WIDENING  
 Kapolei Golf Course Road to Fort Weaver Road  
 Project No. 7101A-01-20

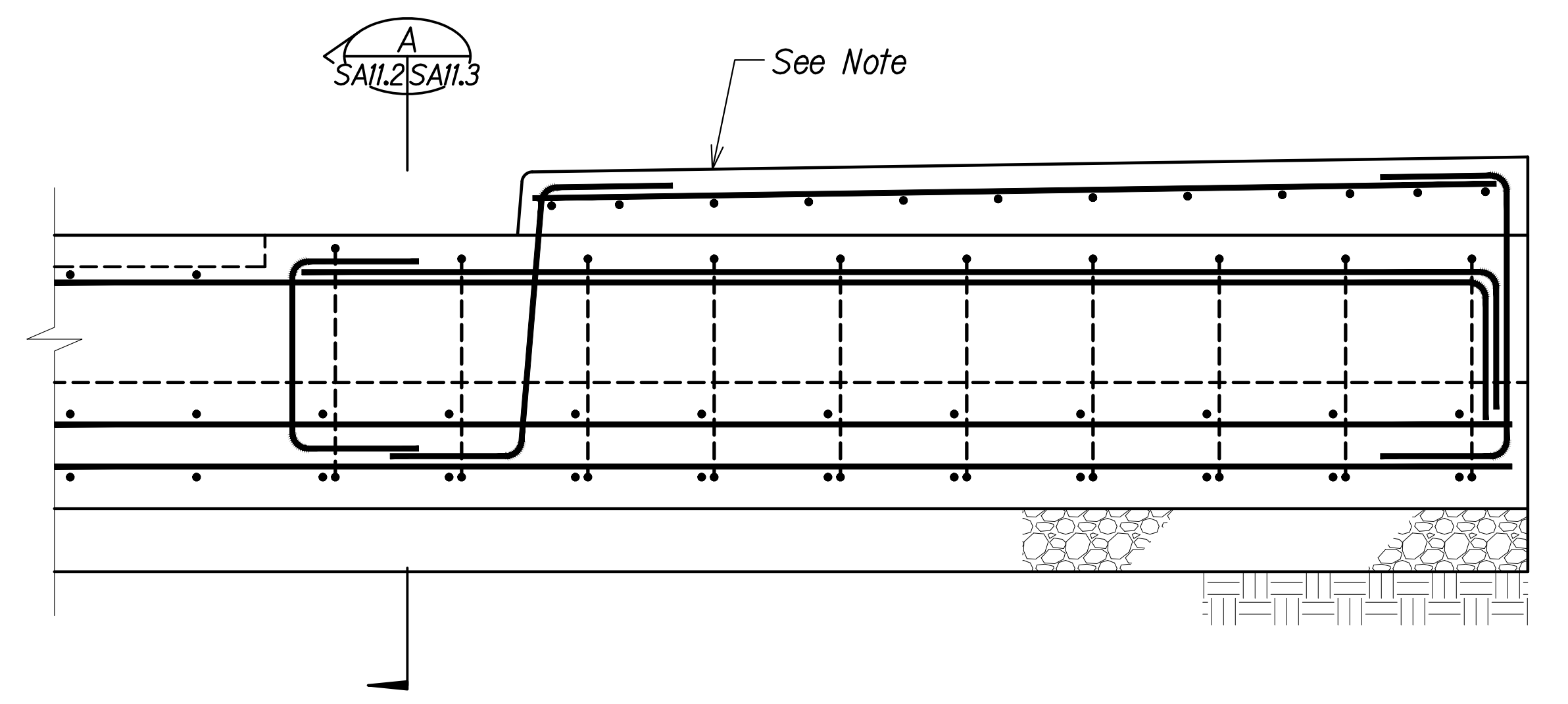
Scale: As Shown Date: Apr. 2022

SHEET No. SA111 OF 4 SHEETS

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	7101A-01-20	2021	404	

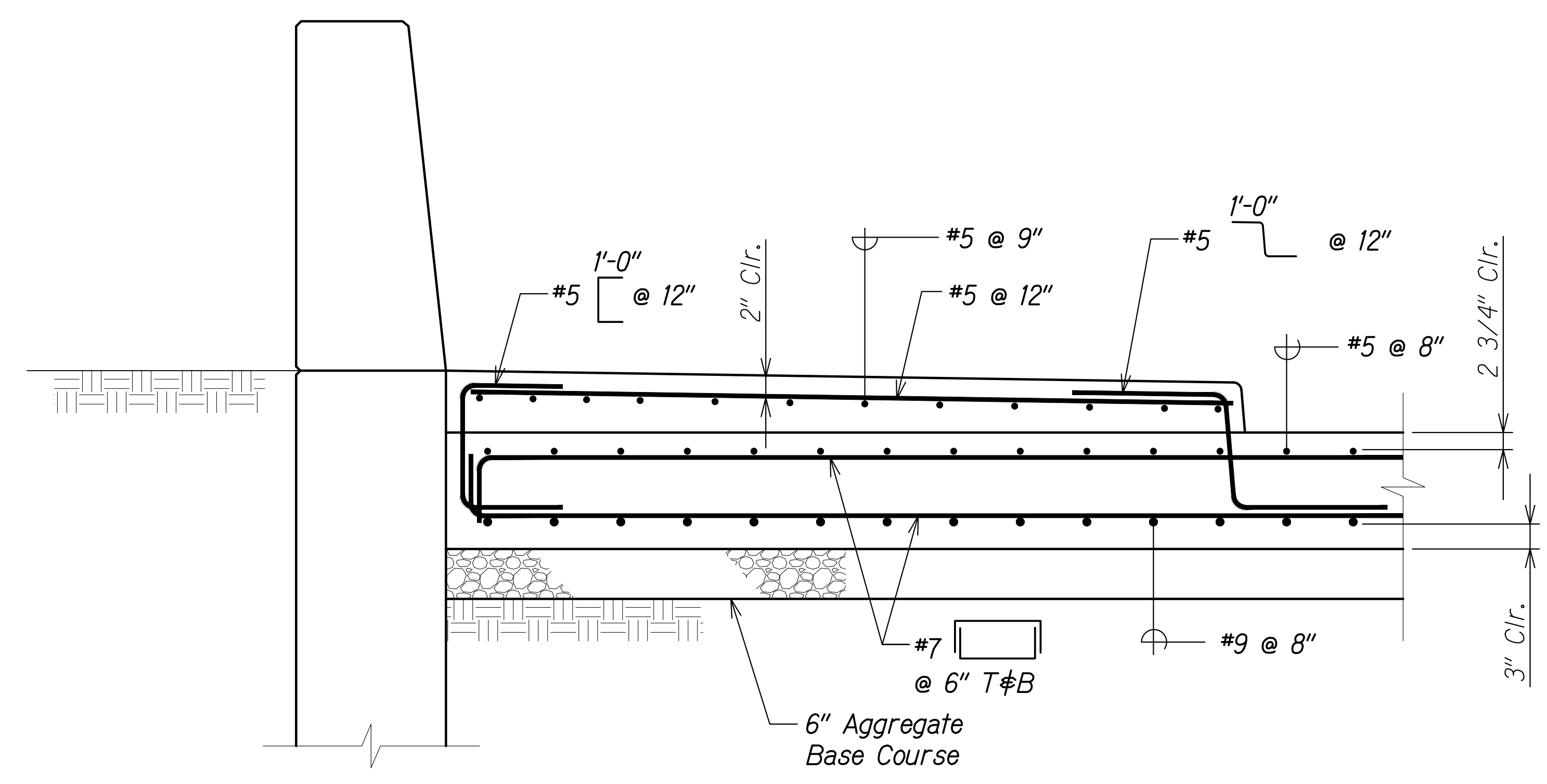


**SLEEPER SECTION AT SIDEWALK**  
 Scale: 1" = 1'-0"  
 SA7.3 SA7.1 SA11.2



**SLEEPER SECTION AT SIDEWALK**  
 Scale: 1" = 1'-0"  
 SA7.3 SA7.1 SA11.2

**Note:**  
 Reinforcing in section B is similar to section A. Section B is provided to show the condition of the sleeper slab at the gutter.



**APPROACH SECTION AT SIDEWALK**  
 Scale: 1" = 1'-0"  
 SA7.3 SA7.1 SA11.2

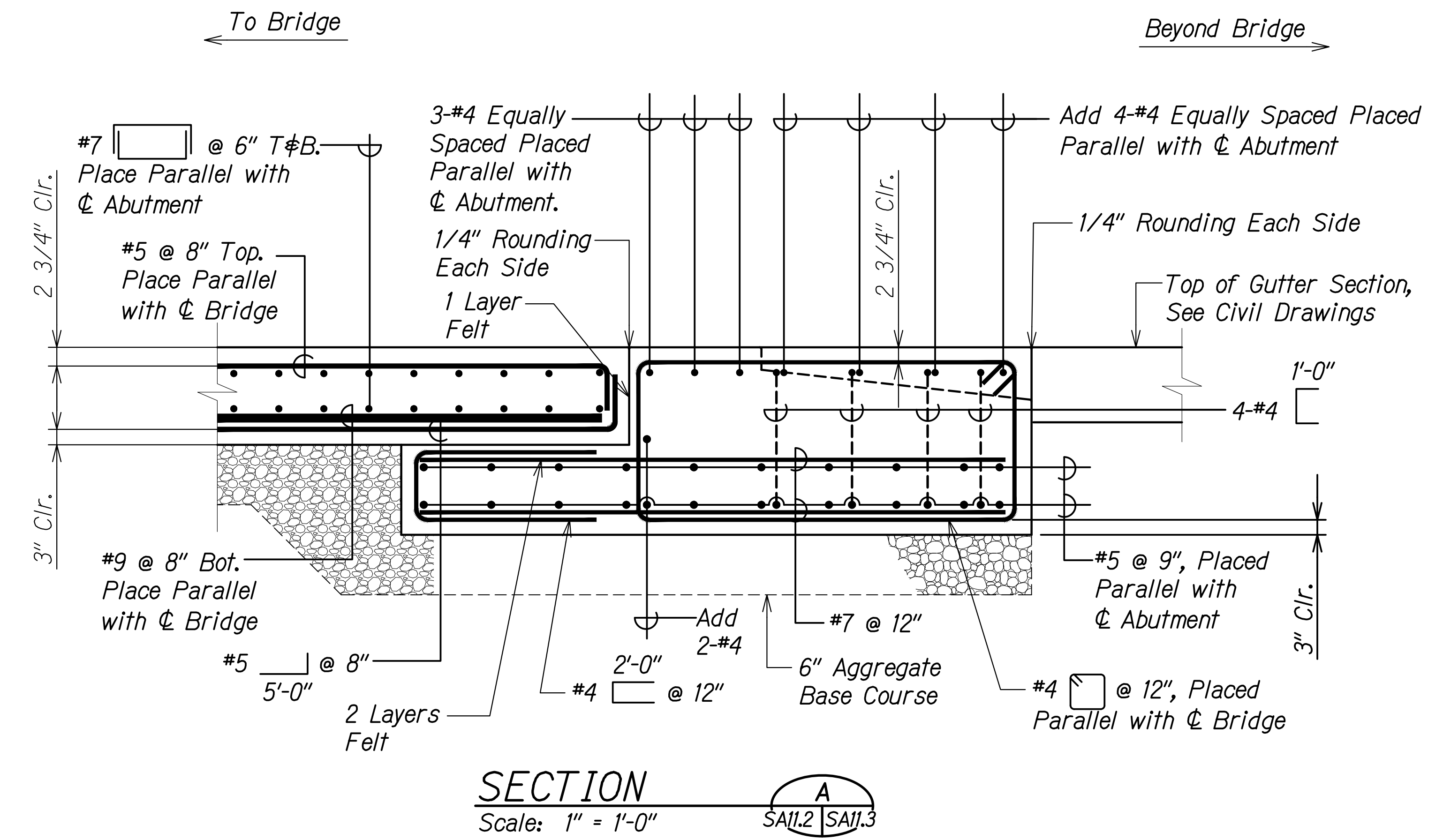
SURVEY PLOTTED BY	DATE
DRAWN BY	
DESIGNED BY	
QUANTITIES BY	
CHECKED BY	
ORIGINAL PLAN	
NOTE BOOK	
No.	

DRAWING NAME: SA1102 ONDONGS-20-013-FARR-HWY-KAPOLEI GC ID: ET-WP2-RMT(C)01 CAD: 04-06-22 BID: SET\FHW3-SA1102 APPROACH SECTIONS PLOT TIME: 04-07-22, 4:49 PM

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.  
 RUGO S. MIYAHARA  
 LICENSED PROFESSIONAL ENGINEER  
 NO. 9444-S  
 HAWAII, U.S.A.  
 SIGNATURE: *Rugo S. Miyahara*  
 EXPIRATION DATE OF THE LICENSE: April 30, 2024

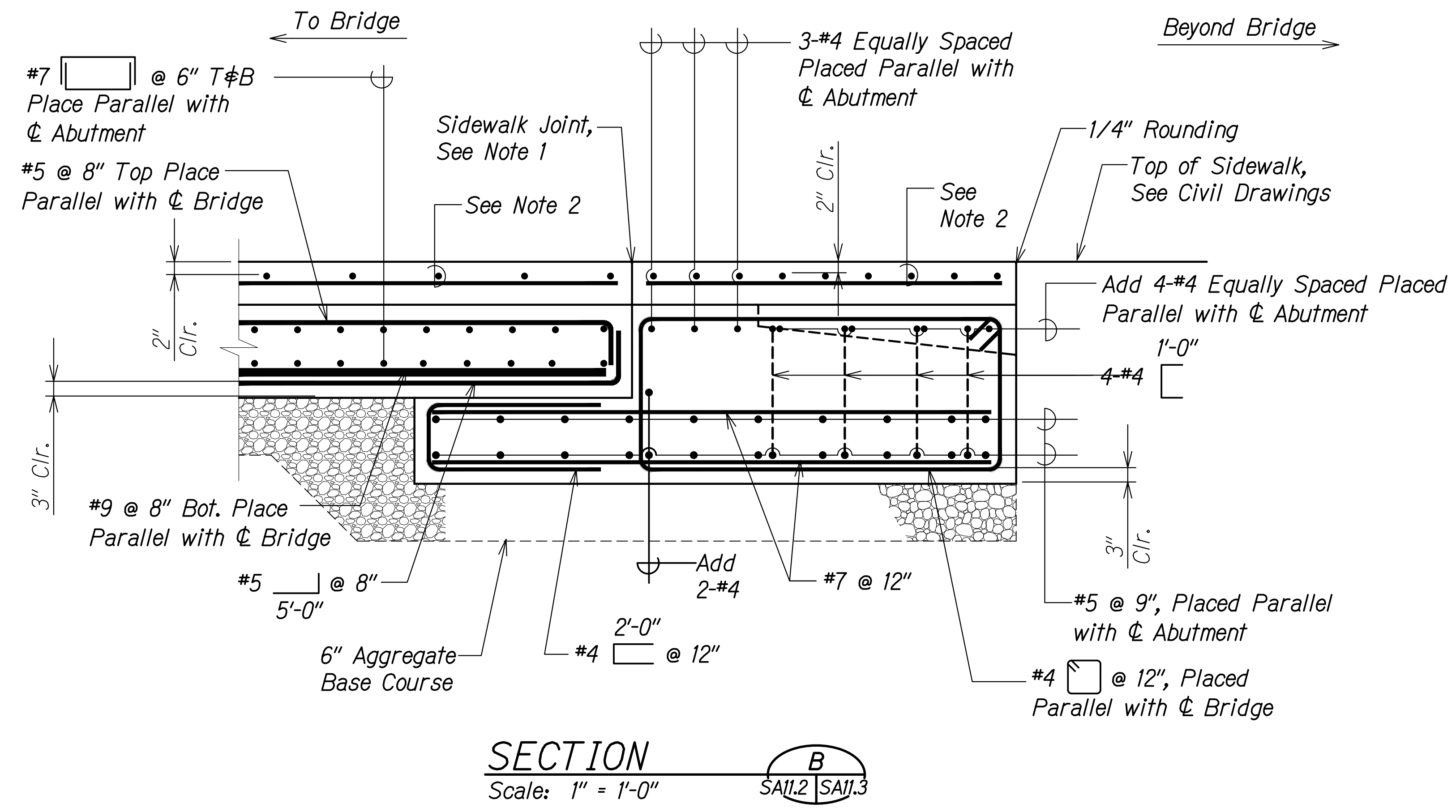
STATE OF HAWAII  
 DEPARTMENT OF TRANSPORTATION  
 HIGHWAYS DIVISION  
**Honouliuli Stream Bridge**  
 Approach Slab and Sleeper Slab Sections  
 FARRINGTON HIGHWAY WIDENING  
 Kapolei Golf Course Road to Fort Weaver Road  
 Project No. 7101A-01-20  
 Scale: As Shown Date: Apr. 2022  
**SHEET No. SA112 OF 4 SHEETS**

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	7101A-01-20	2021	405	



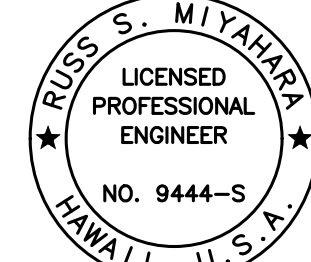
**Notes:**

1. Joint shall be placed parallel with  $\phi$  abutment. See  $\frac{2}{SA11.3 SA4.4}$  sim.
2. For reinforcing in sidewalks, see sheet SA11.2.



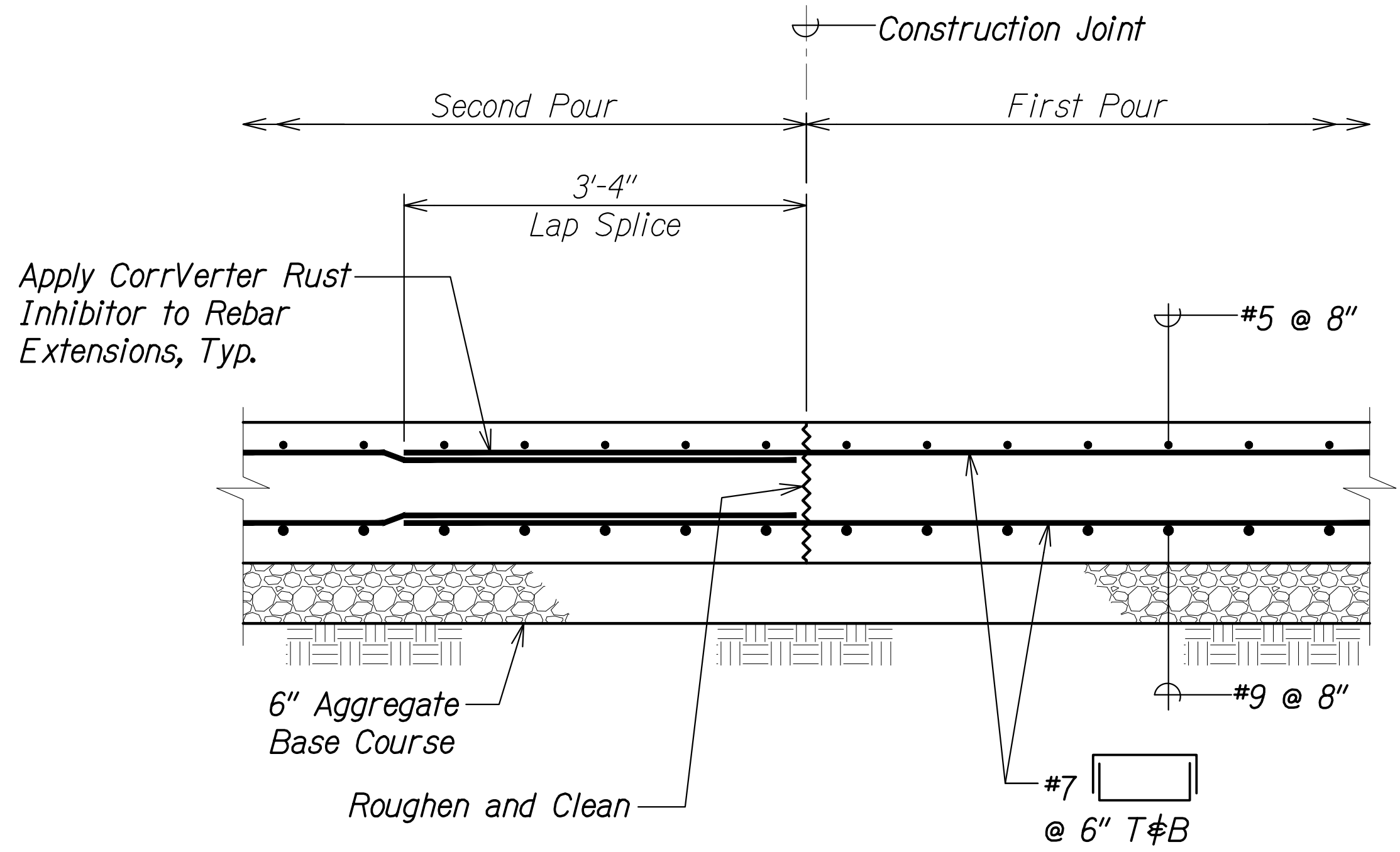
SURVEY PLOTTED BY	DATE
DRAWN BY	
DESIGNED BY	
QUANTITIES BY	
CHECKED BY	
ORIGINAL PLAN No.	

DRAWING NAME: Z:\100 ONGOING\20-013-FARR-HWY-KAPOLEI\GC\_ID\_ET\_WIP-EMTC\01\_GAD\04-06-22\_BID\_SET\FHW3-SA11.02\_APPROACH\_SECTION.DWG PLOT TIME: 04-07-22, 6:24 PM

  
 THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.  
 Signature: *Rugs S. Miyahara*  
 April 30, 2024  
 EXPIRATION DATE OF THE LICENSE

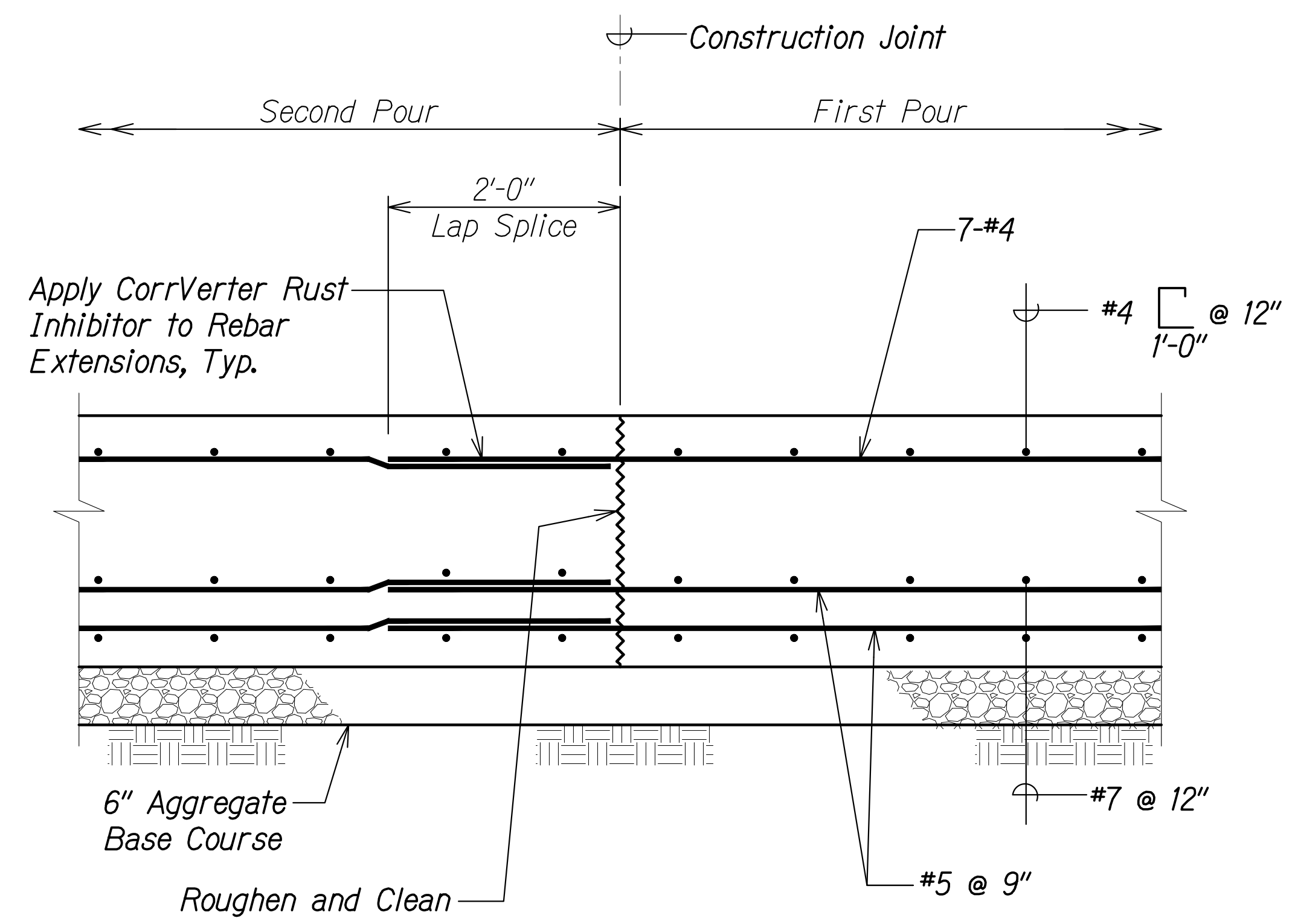
STATE OF HAWAII  
 DEPARTMENT OF TRANSPORTATION  
 HIGHWAYS DIVISION  
**Honouliuli Stream Bridge**  
**Approach Slab and Sleeper Slab Sections**  
 FARRINGTON HIGHWAY WIDENING  
 Kapolei Golf Course Road to Fort Weaver Road  
 Project No. 7101A-01-20  
 Scale: As Shown Date: Apr. 2022  
**SHEET No. SA11.3 OF 4 SHEETS**

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	7101A-01-20	2021	406	



**APPROACH SLAB SECTION AT CONSTRUCTION JOINT**  
 Scale: 1" = 1'-0"  
 SA11.4 | SA11.4

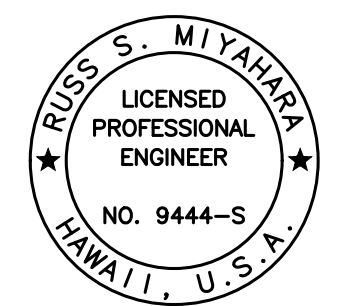
Note:  
 Contractor has the option of using formsaver couplers.



**SLEEPER SLAB SECTION AT CONSTRUCTION JOINT**  
 Scale: 1" = 1'-0"  
 SA11.4 | SA11.4

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

DRAWING NAME: Z:\100 ONGOINGS\20-013-FARR-HWY-KAPOLEI\GE.ID.IT.WPG-BMT\01-CAD\04-06-22 BID SET\FH03-SA1104-APPROACH SECT.DWG PLOT TIME: 04-07-22 4:59 PM



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*Rugo S. Miyahara*  
 SIGNATURE April 30, 2024  
 EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII  
 DEPARTMENT OF TRANSPORTATION  
 HIGHWAYS DIVISION

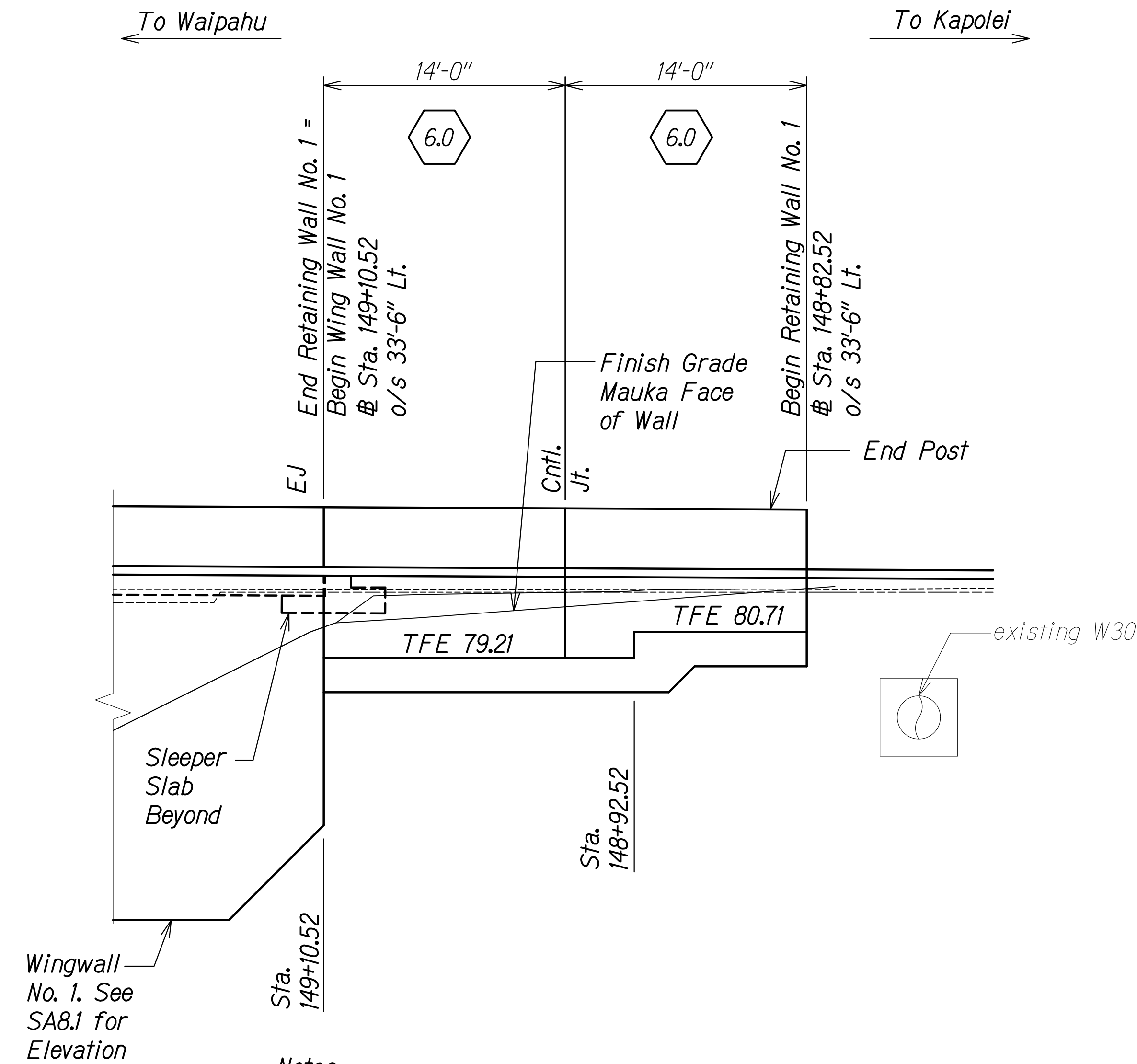
**Honouliuli Stream Bridge**  
**Approach Slab and Sleeper Slab Sections**

FARRINGTON HIGHWAY WIDENING  
 Kapolei Golf Course Road to Fort Weaver Road  
 Project No. 7101A-01-20

Scale: As Shown Date: Apr. 2022

SHEET No. SA11.4 OF 4 SHEETS

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	7101A-01-20	2021	407	

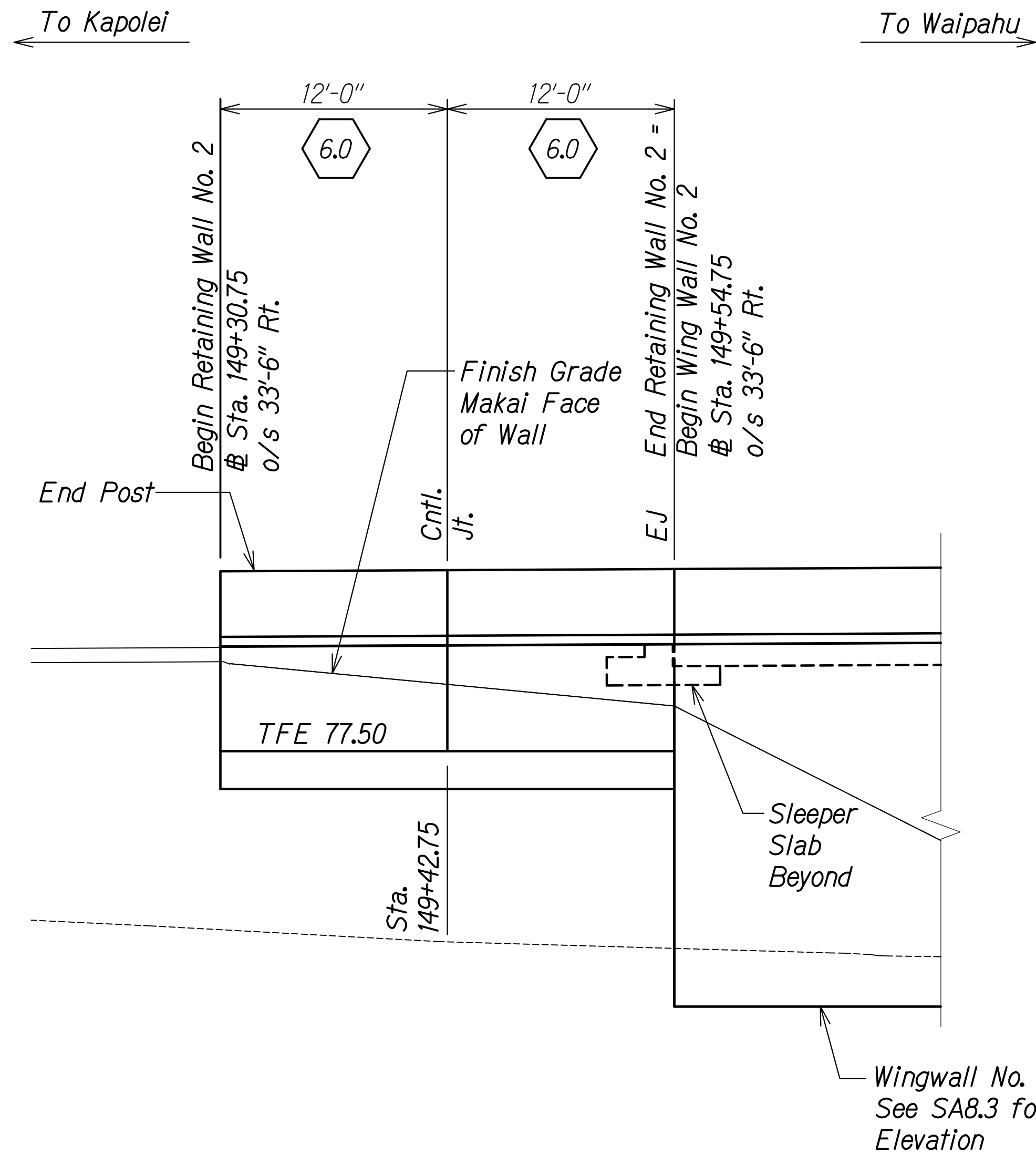
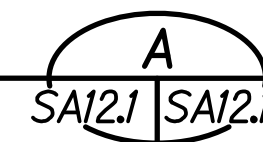


**Notes:**

1. Wall profile is shown looking (makai) toward roadway.
2. Stationing references Farrington Highway Baseline.
3. Station offsets are measured to mauka (outside) face of retaining wall.

**RETAINING WALL NO. 1  
PROFILE**

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



**Notes:**

1. Wall profiles are shown looking (mauka) toward roadway.
2. Stationing references Farrington Highway Baseline.
3. Station offsets are measured to makai (outside) face of retaining wall.

**RETAINING WALL NO. 2  
PROFILE**

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



ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
NOTE BOOK	DRAWN BY	
No. _____	DESIGNED BY	
	QUANTITIES BY	
	CHECKED BY	

DRAWING NAME: Z:\100 ONGOING\20-013-FARR-HWY-KAPOLEI GC ID: ET-WR-EMTC\01-GAD\04-06-22 BID SET\FHW3-SA1201-RET WALL.DWG PLOT TIME: 04-07-22, 4:50 PM

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.

*Paul S. Miyahara*  
 SIGNATURE      April 30, 2024  
 EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII  
 DEPARTMENT OF TRANSPORTATION  
 HIGHWAYS DIVISION

**Honouliuli Stream Bridge  
 Retaining Wall Profiles**

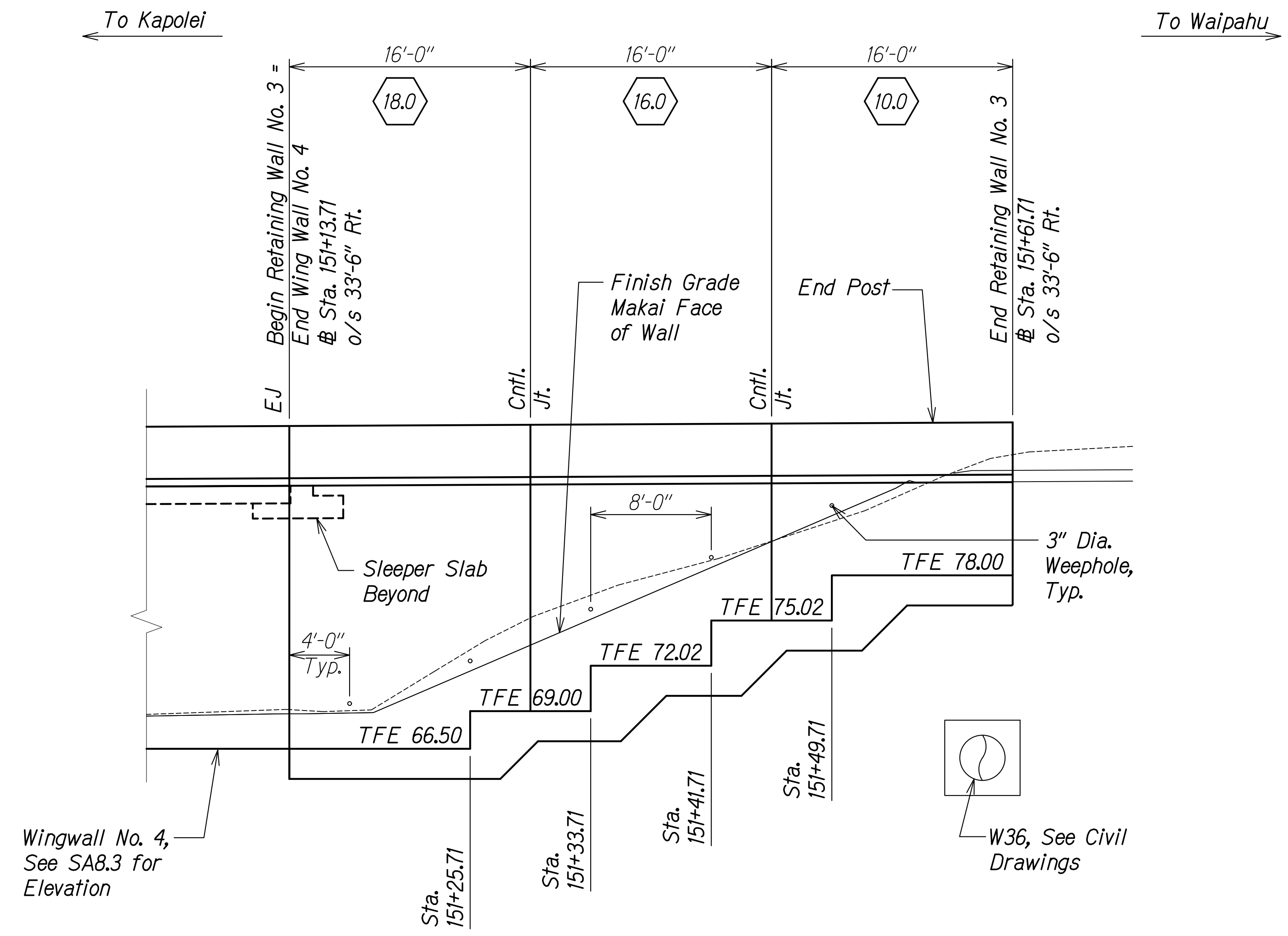
FARRINGTON HIGHWAY WIDENING  
 Kapolei Golf Course Road to Fort Weaver Road  
 Project No. 7101A-01-20

Scale: As Shown      Date: Apr. 2022

**SHEET No. SA12.1 OF 5 SHEETS**



FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	7101A-01-20	2021	408	



Wingwall No. 4,  
See SA8.3 for  
Elevation

**Notes:**

1. Wall profiles are shown looking (mauka) toward roadway.
2. Stationing references Farrington Highway Baseline.
3. Station offsets are measured to makai (outside) face of retaining wall.

**RETAINING WALL NO. 3  
PROFILE**  
Scale: 3/16" = 1'-0"  
A  
SA12.2 | SA12.2

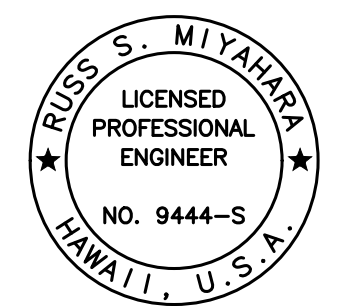
SURVEY PLOTTED BY	DATE
DRAWN BY	
DESIGNED BY	
QUANTITIES BY	
CHECKED BY	
ORIGINAL PLAN	
NOTE BOOK	
No.	

DRAWING NAME: Z:\100 ONGOING\20-013-FARR-HWY-KAPOLEI\04-04-06-22 BID SET\FHW3-SA1201-RET WALL.DWG PLOT TIME: 04-07-22, 4:50 PM

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.

*Russ S. Miyahara*  
SIGNATURE

April 30, 2024  
EXPIRATION DATE OF THE LICENSE



STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

**Honouliuli Stream Bridge  
Retaining Wall Profiles**

FARRINGTON HIGHWAY WIDENING  
Kapolei Golf Course Road to Fort Weaver Road  
Project No. 7101A-01-20

Scale: As Shown Date: Apr. 2022

**SHEET No. SA12.2 OF 5 SHEETS**

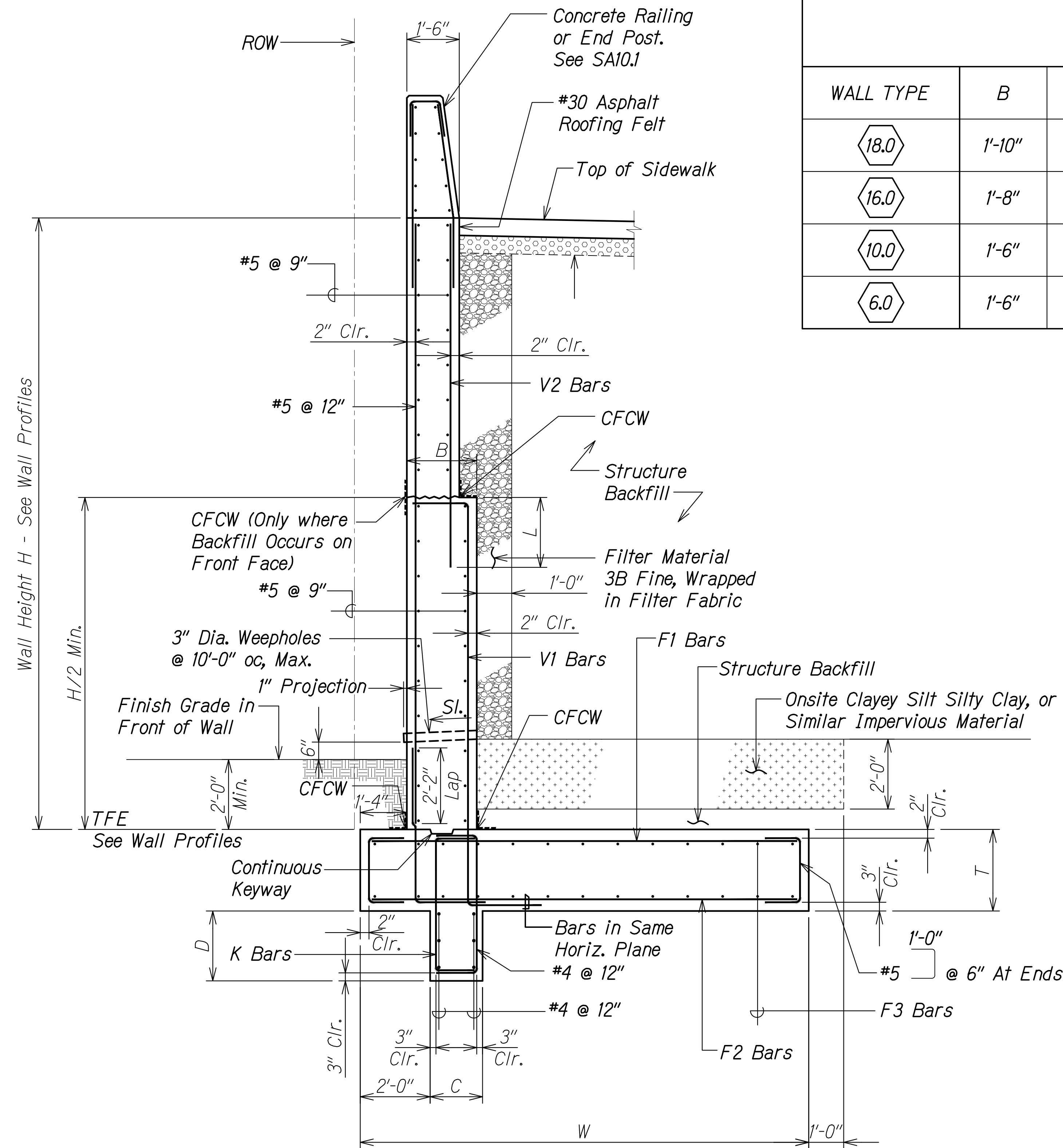
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	7101A-01-20	2021	409	

### RETAINING WALL SCHEDULE

WALL TYPE	B	C (IN)	D	W	T	F1	F2	F3	V1	V2	K	L (IN)
18.0	1'-10"	18	2'-6"	13'-10"	2'-4"	#9 @ 6"	#6 @ 12"	#6 @ 9"	#7 @ 6"	#6 @ 6"	#5 @ 9"	31
16.0	1'-8"	18	2'-6"	10'-10"	2'-0"	#7 @ 6"	#6 @ 12"	#5 @ 9"	#6 @ 6"	#6 @ 6"	#5 @ 9"	31
10.0	1'-6"	18	2'-0"	9'-0"	1'-8"	#7 @ 6"	#6 @ 12"	#5 @ 9"	#6 @ 6"	-	#5 @ 12"	-
6.0	1'-6"	12	1'-6"	7'-10"	1'-6"	#6 @ 6"	#5 @ 12"	#5 @ 9"	#6 @ 6"	-	#5 @ 12"	-

**Notes:**

- If V2 is not specified in retaining wall schedule, then V1 extends to finish grade.
- If B is equal to 1'-6", no construction joint at midheight of wall exists.
- $\text{H}$  is used for wall designation only and is an approximate maximum wall height not to be used for detailing or measurement purposes. See wall profile and civil drawings for actual wall height.



**RETAINING WALL SECTION A**  
Scale: 1/2" = 1'-0"  
SAI2.3 | SAI2.3

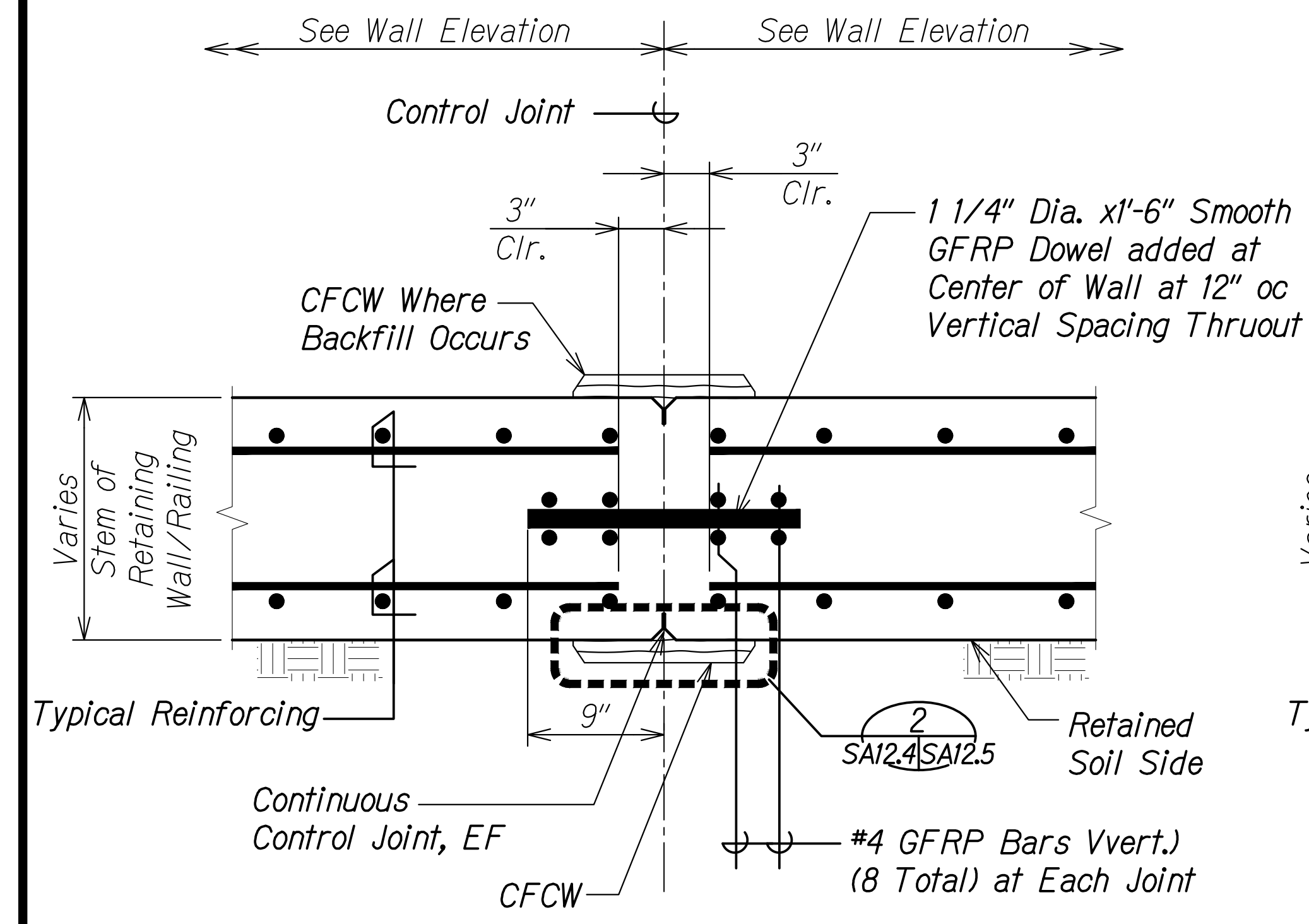
SURVEY PLOTTED BY	DATE
DRAWN BY	
DESIGNED BY	
QUANTITIES BY	
CHECKED BY	
ORIGINAL PLAN	
NOTE BOOK	
No.	

DRAWING NAME: SA100 ONONDONGS-20-013-FARR-HWY-KAPOLEI GC ID: ET-WR-EMTCV01 CAD: 04-06-22 BID: SET-FH03-SA1201 RET: WALL-DWG PLOT TIME: 04-07-22: 4:50 PM

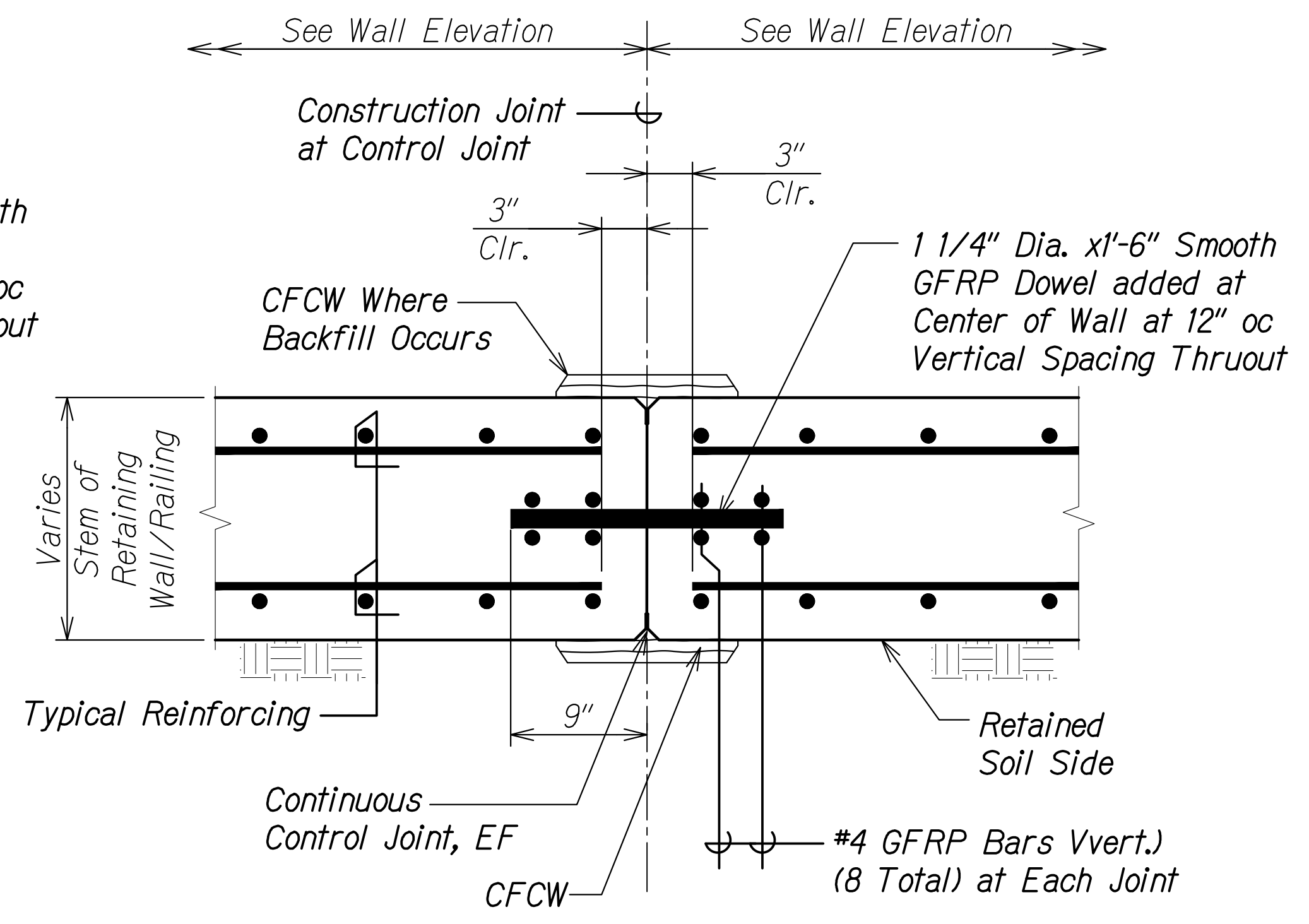
THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.  
  
 Signature: *Rugo S. Miyahara*  
 April 30, 2024  
 EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII  
 DEPARTMENT OF TRANSPORTATION  
 HIGHWAYS DIVISION  
**Honouliuli Stream Bridge**  
**Retaining Wall Section**  
 FARRINGTON HIGHWAY WIDENING  
 Kapolei Golf Course Road to Fort Weaver Road  
 Project No. 7101A-01-20  
 Scale: As Shown Date: Apr. 2022  
**SHEET No. SA123 OF 5 SHEETS**

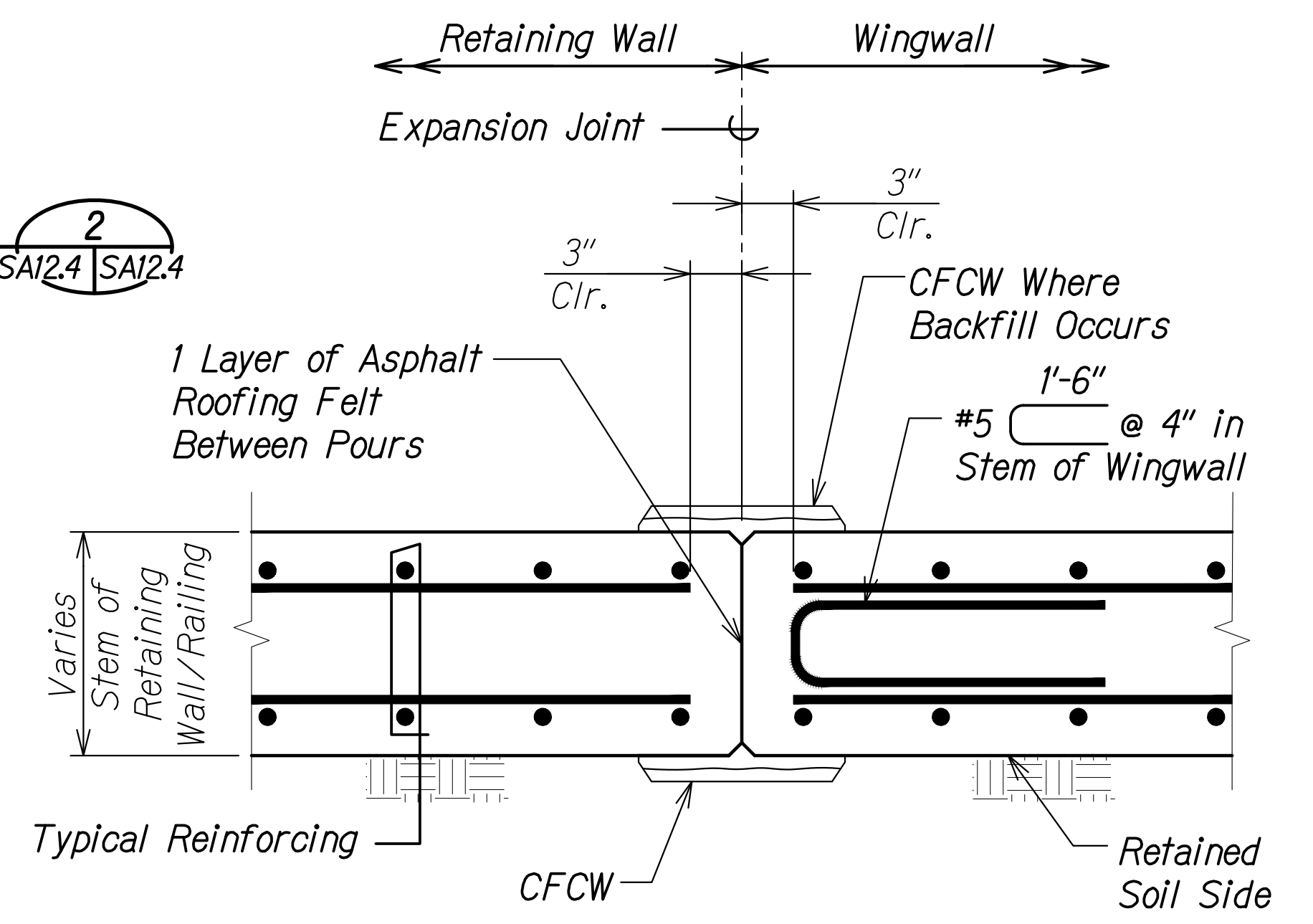
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	7101A-01-20	2021	410	



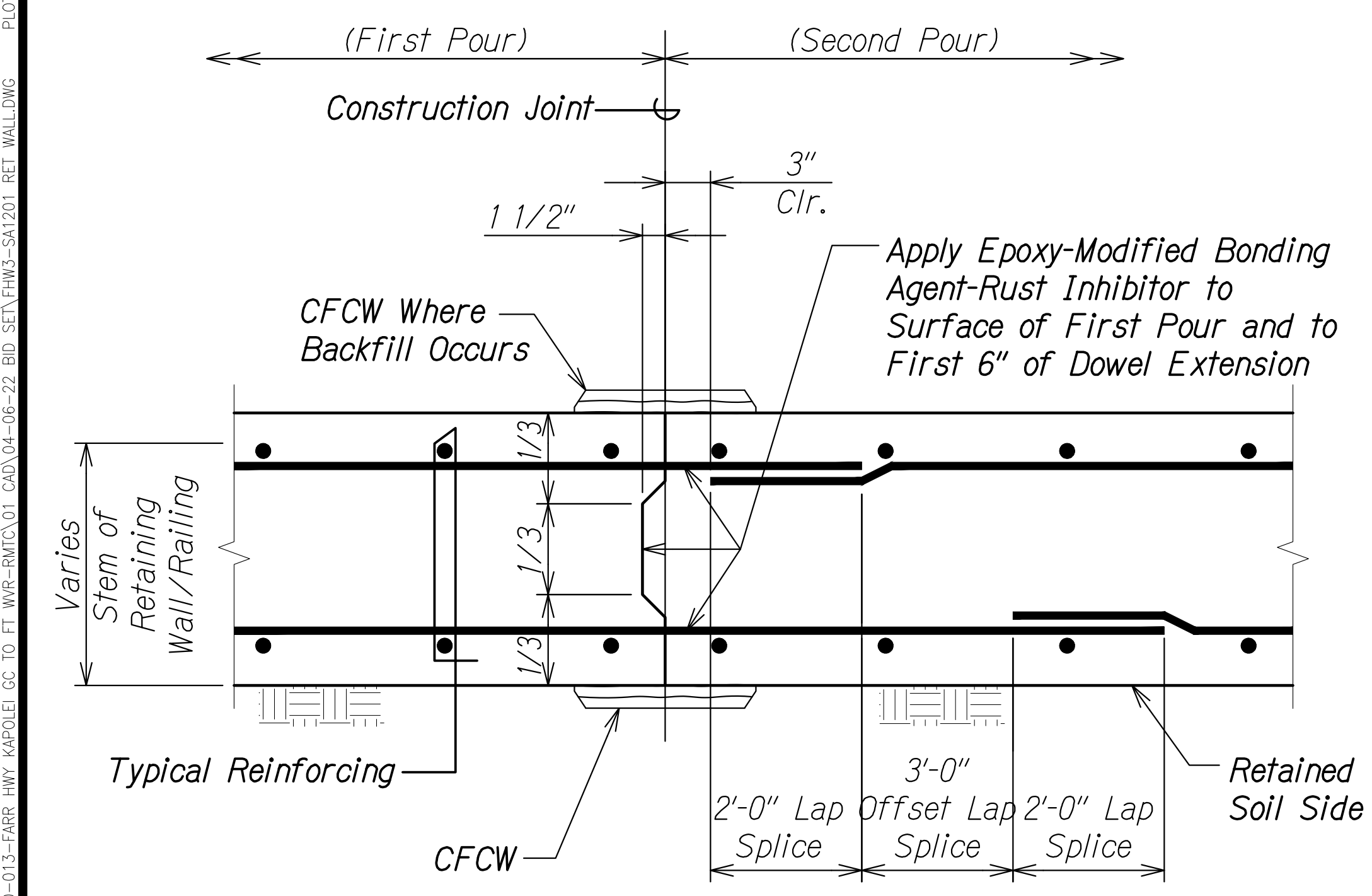
**TYP. CONTROL JOINT DETAIL IN STEM OF RETAINING WALL/RAILING**  
 Scale: 1 1/2" = 1'-0"  
 SAI2.4 SAI2.5



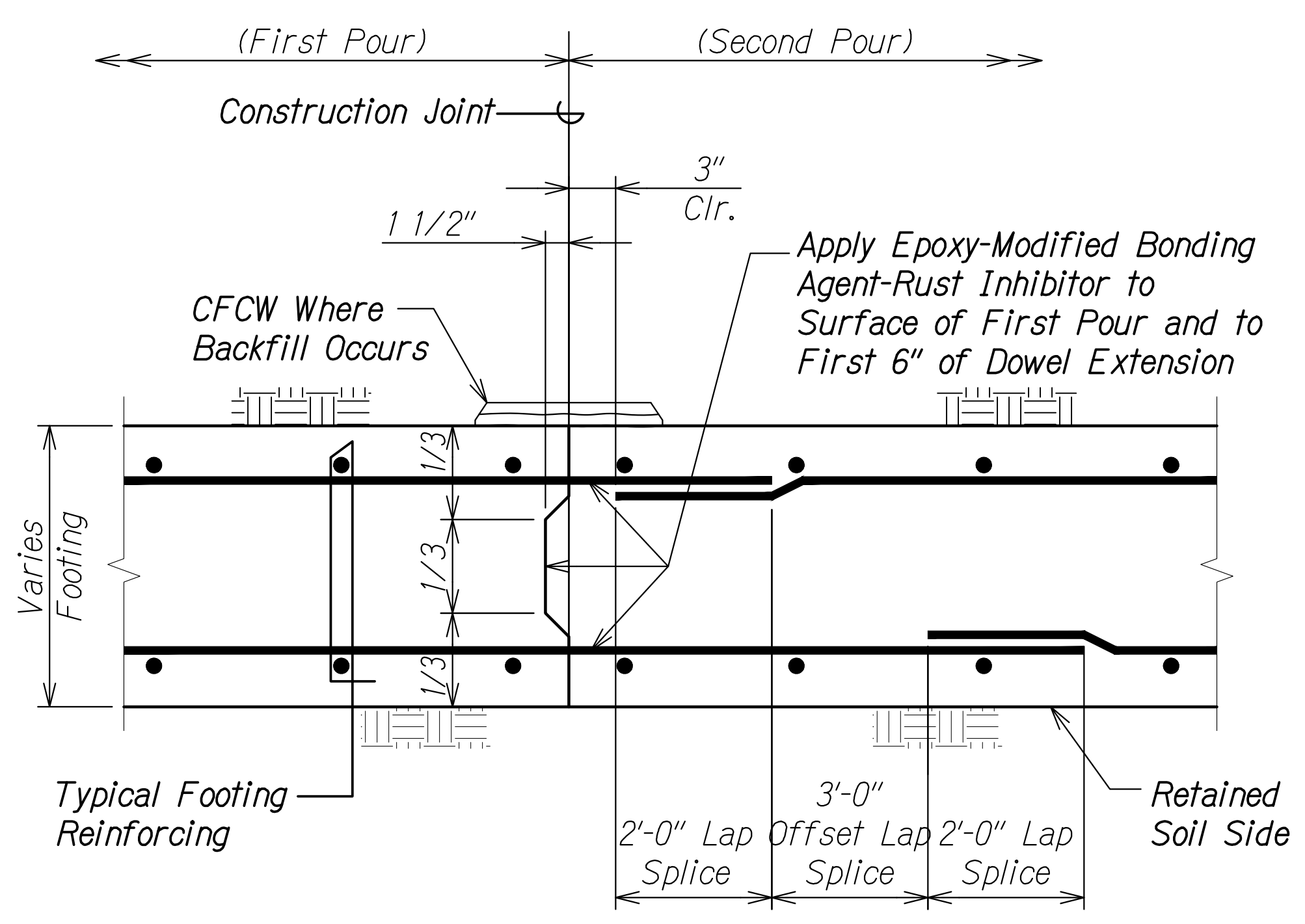
**TYP. CONSTRUCTION JOINT DETAIL AT CONTROL LOCATION IN STEM OF RETAINING WALL/RAILING**  
 Scale: 1 1/2" = 1'-0"  
 SAI2.4 SAI2.4



**TYP. EXPANSION JOINT DETAIL IN STEM OF RETAINING WALL/RAILING**  
 Scale: 1 1/2" = 1'-0"  
 SAI2.4 SAI2.4



**TYP. CONSTRUCTION JOINT DETAIL IN STEM OF RETAINING WALL/RAILING**  
 Scale: 1 1/2" = 1'-0"  
 SAI2.4 SAI2.4



**TYP. CONSTRUCTION JOINT IN RETAINING WALL FOOTING**  
 Scale: 1 1/2" = 1'-0"  
 SAI2.4 SAI2.4

SURVEY PLOTTED BY	DATE
DRAWN BY	
DESIGNED BY	
QUANTITIES BY	
CHECKED BY	
ORIGINAL PLAN No.	

DRAWING NAME: SA100-00000000-013-FARR-HW-KAPOLEI GC ID: ET-WR-RTM(C)01-CA01-04-06-22 BID: SET-FH03-SA1201-RET-WALL-DWG PLOT TIME: 04-07-2024 4:50 PM

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.  
 Signature: *Rao S. Mijangar*  
 April 30, 2024  
 EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII  
 DEPARTMENT OF TRANSPORTATION  
 HIGHWAYS DIVISION

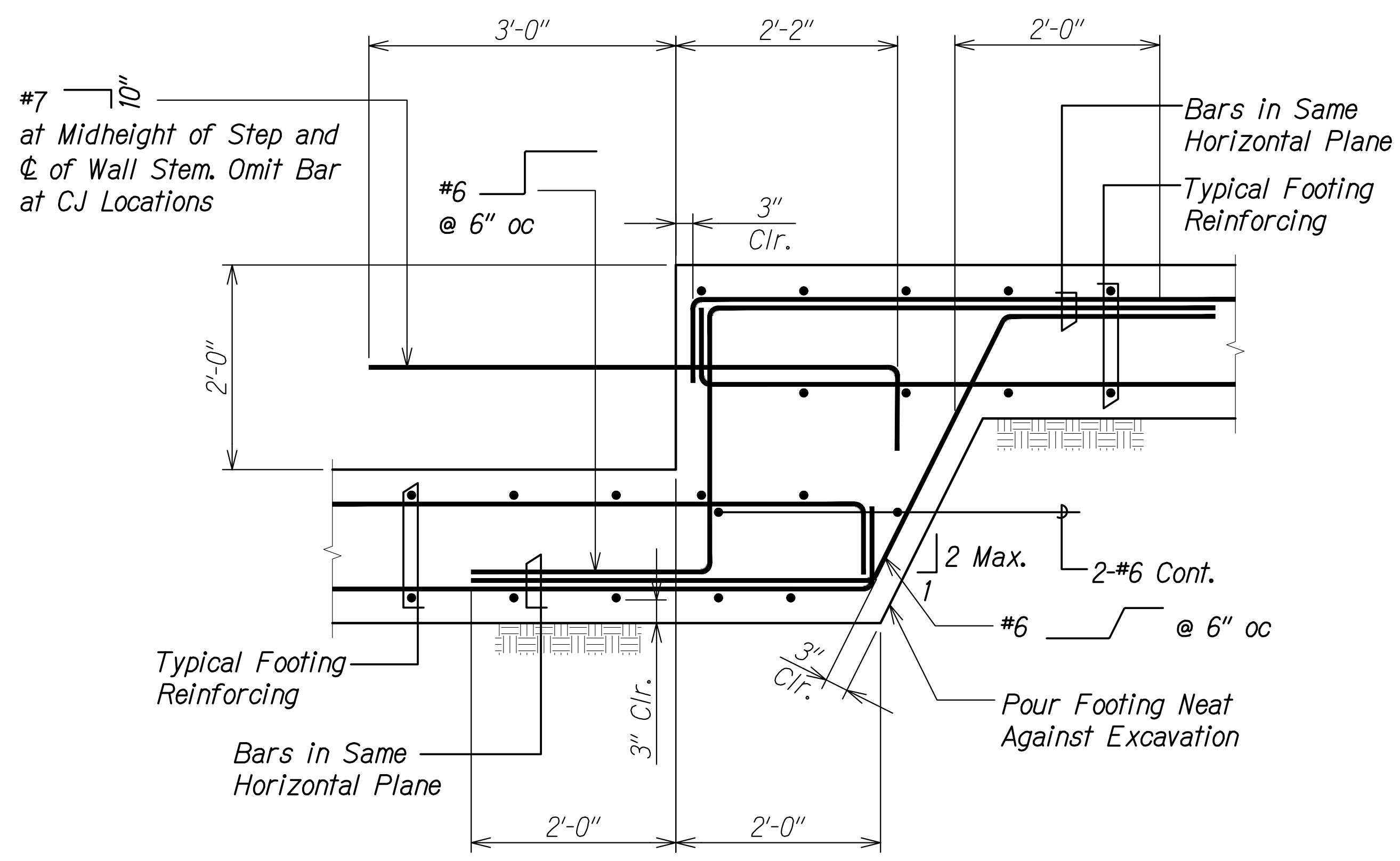
**Honouliuli Stream Bridge Jointing Details**

FARRINGTON HIGHWAY WIDENING  
 Kapolei Golf Course Road to Fort Weaver Road  
 Project No. 7101A-01-20

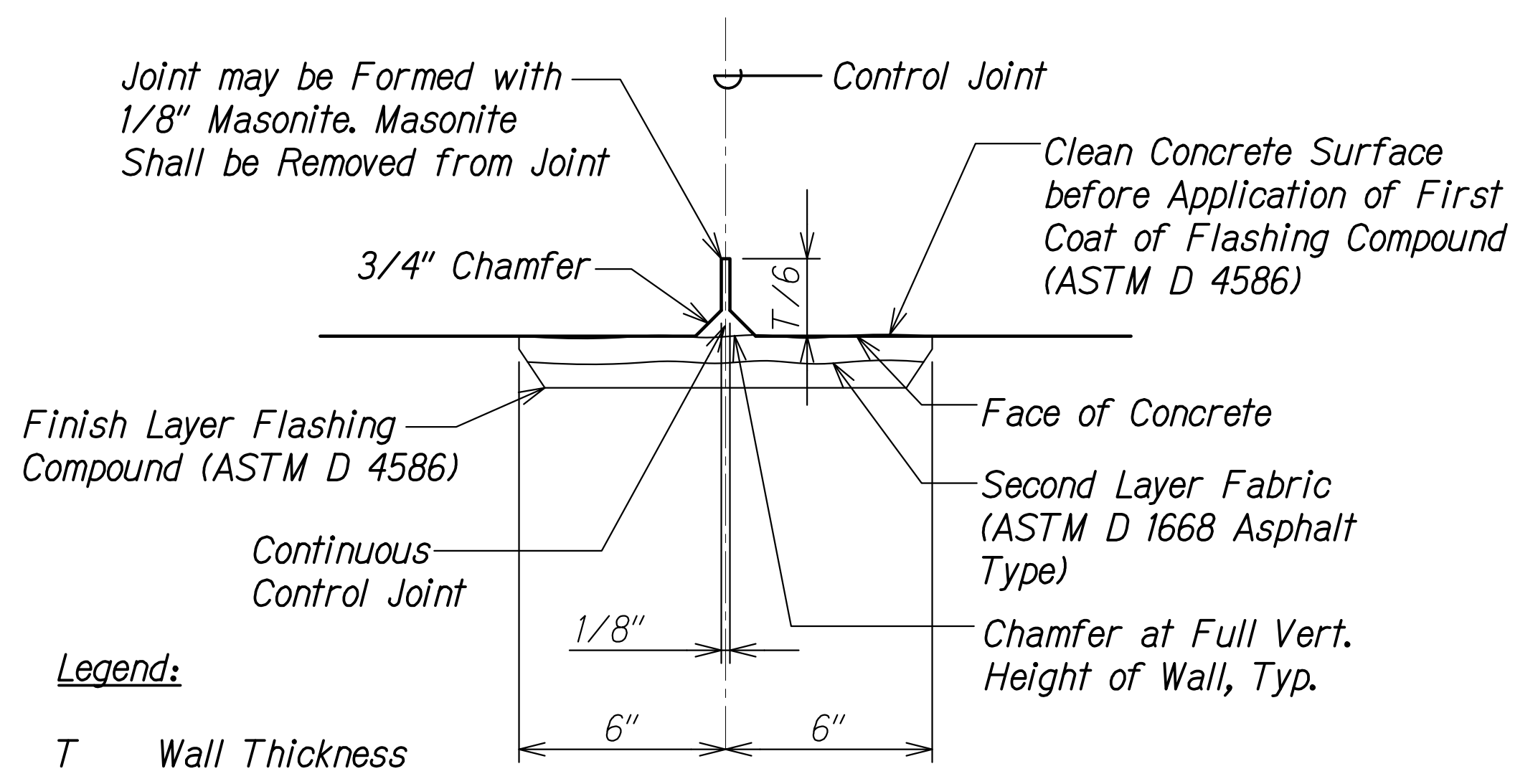
Scale: As Shown Date: Apr. 2022

SHEET No. SA12.4 OF 5 SHEETS

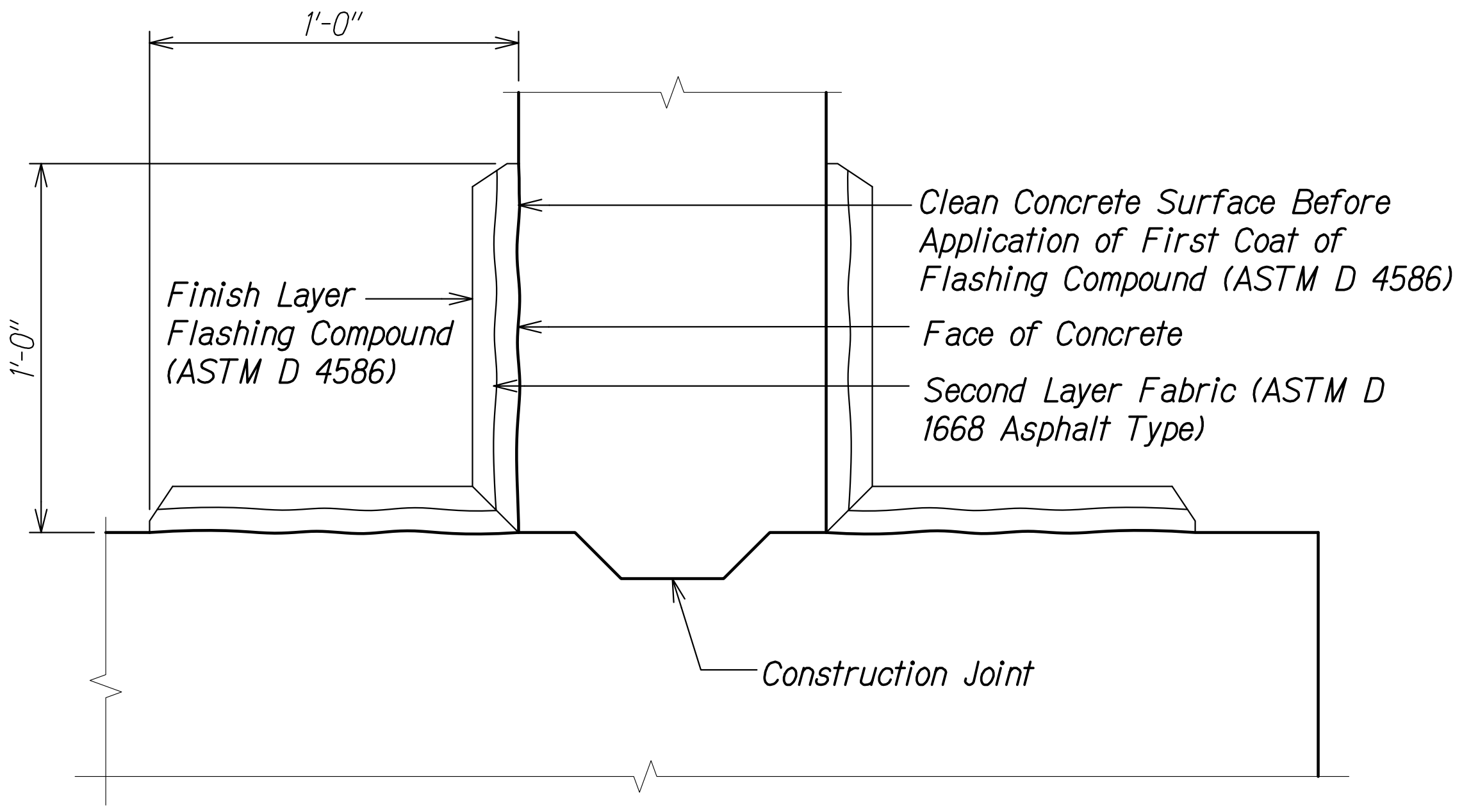
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	7101A-01-20	2021	411	



**TYPICAL FOOTING STEP DETAIL**  
 Scale: 1" = 1'-0"  
 SAI2.5 SAI2.5



**CONTROL JOINT DETAIL WITH CFCW**  
 Scale: 3" = 1'-0"  
 SAI2.4 SAI2.5

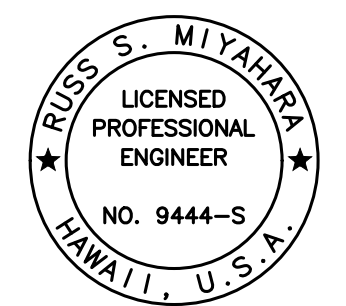


**CONTROL JOINT DETAIL WITH CFCW**  
 Scale: 3" = 1'-0"  
 SAI2.5 SAI2.5

SURVEY PLOTTED BY	DATE
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QUANTITIES BY	
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ORIGINAL PLAN	
NOTE BOOK	
No.	

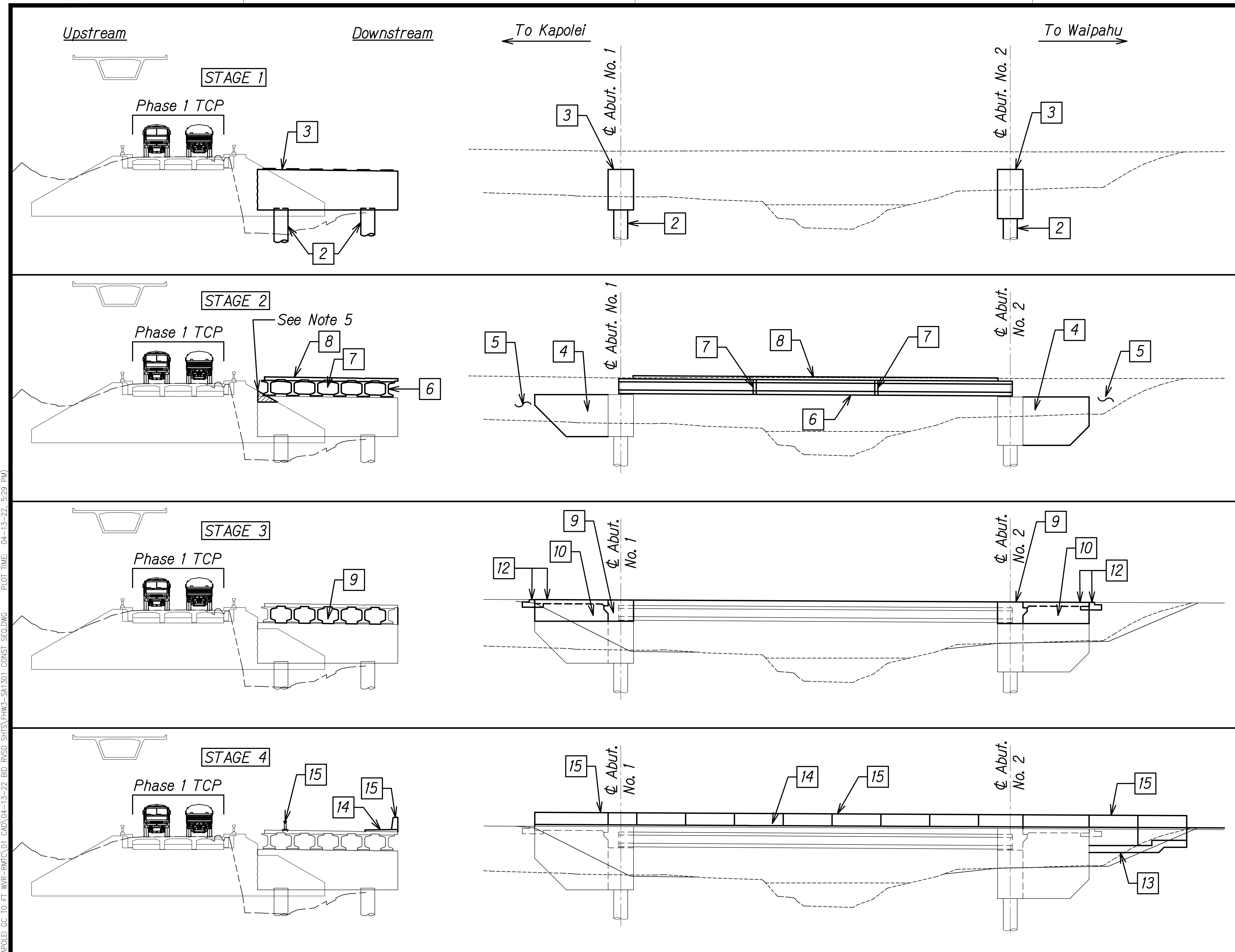
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 Signature: *Russ S. Miyahara*  
 April 30, 2024  
 EXPIRATION DATE OF THE LICENSE



STATE OF HAWAII  
 DEPARTMENT OF TRANSPORTATION  
 HIGHWAYS DIVISION  
**Honouliuli Stream Bridge**  
 Typical Details  
 FARRINGTON HIGHWAY WIDENING  
 Kapolei Golf Course Road to Fort Weaver Road  
 Project No. 7101A-01-20  
 Scale: As Shown Date: Apr. 2022  
 SHEET No. SAI2.5 OF 5 SHEETS

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	7101A-01-20	2021	412	



**CONSTRUCTION STAGE 1 - MAKAI BRIDGE**

- 1 Install trial and load test shaft.
- 2 Excavate to bottom of drilled shaft cap beam and install production drilled shafts ②, ③, ⑤, and ⑥.
- 3 Construct drilled shaft cap beams including seats, See Note 3.

**CONSTRUCTION STAGE 2 - MAKAI BRIDGE**

- 4 Construct wingwalls 2 and 4 and keywalls to top of drilled shaft cap beam, see Note 4.
- 5 Backfill behind abutment to 1'-0" below top of drilled shaft cap beam. Do not exceed 2-ft lifts for CLSM placement.
- 6 Erect girders G-5 through G-10, see Note 5.
- 7 Construct intermediate diaphragms.
- 8 Pour concrete deck, see Note 6.

**CONSTRUCTION STAGE 3 - MAKAI BRIDGE**

- 9 Pour end beams and corbel a minimum of 30 days after step 8. Concrete pour shall occur between 1:00 am and 4:00 am.
- 10 Construct remainder of wingwalls, see Note 7.
- 11 Backfill behind abutment to bottom of approach slab and sleeper slab.
- 12 Construct sleeper slab and approach slab, see Note 8.

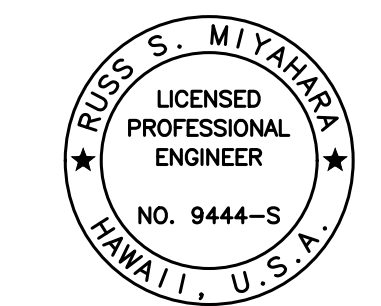
**CONSTRUCTION STAGE 4 - MAKAI BRIDGE**

- 13 Construct retaining walls, see Note 9.
- 14 Pour sidewalk on downstream side of bridge, see Note 10.
- 15 Construct bridge railings, end posts, and temporary construction barriers.
- 16 Blanket grind and mechanically groove bridge deck, approach slabs, and sleeper slabs, see Note 11.

SEE PHASE 1 TCP - SHEET TC-12

ORIGINAL PLAN	DATE
NOTE BOOK	
No.	

DRAWING NAME: Z:\00\_ONGOING\20-013-FARR-HWY-KAPOLEI\04-13-22\_BID-RVSD\_SHTS\FHWY-SAI31-01-CAD\04-13-22\_04-13-22\_5:29 PM\CONST\_SED.DWG PLOT TIME: 04-13-22 5:29 PM



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STATE OF HAWAII  
 DEPARTMENT OF TRANSPORTATION  
 HIGHWAYS DIVISION

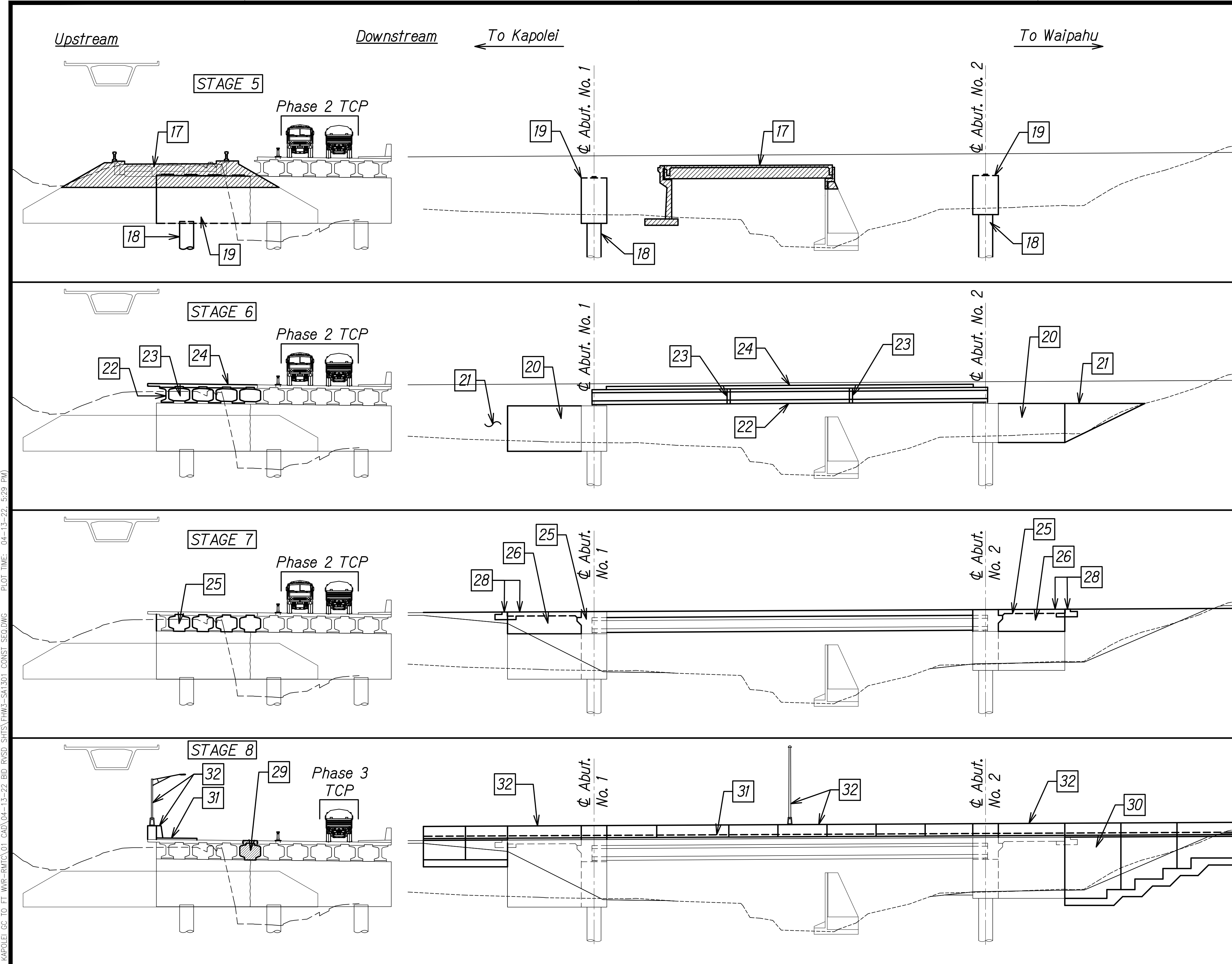
**Honouliuli Stream Bridge  
 Construction Sequence**

FARRINGTON HIGHWAY WIDENING  
 Kapolei Golf Course Road to Fort Weaver Road  
 Project No. 7101A-01-20

Scale: As Shown Date: Apr. 2022

**SHEET No. SA13.1 OF 3 SHEETS**

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	7101A-01-20	2021	413	



**CONSTRUCTION STAGE 5 - MAUKA BRIDGE**

- 17 Demolish existing bridge superstructure and substructure.
- 18 Excavate to bottom of drilled shaft cap beam and install production drilled shafts (1) and (4).
- 19 Construct drilled shaft cap beams including seats, see Note 12.

**CONSTRUCTION STAGE 6 - MAUKA BRIDGE**

- 20 Construct wingwalls 1 and 3 and keywalls to top of drilled shaft cap beam, see Note 13.
- 21 Backfill behind abutment to 1'-0" below top of drilled shaft cap. Do not exceed 2-ft lifts for CLSM placement.
- 22 Erect girders G-1 through G-4, see Note 14.
- 23 Construct intermediate diaphragms.
- 24 Pour concrete deck, see Note 15.

**CONSTRUCTION STAGE 7 - MAUKA BRIDGE**

- 25 Pour end beams and corbel a minimum of 30 days after step 24. Concrete pour shall occur between 1:00 am and 4:00 am.
- 26 Construct remainder of wingwalls, see Note 16.
- 27 Backfill behind abutment to bottom of approach slab and sleeper slab.
- 28 Construct sleeper slab and approach slab, see Note 17.

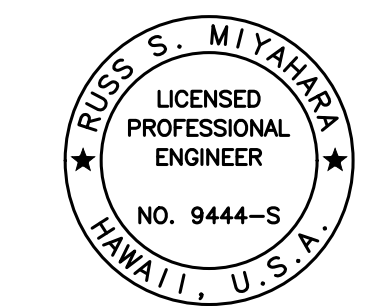
**CONSTRUCTION STAGE 8 - MAUKA BRIDGE**

- 29 Place closure pour at end beams, corbel, deck, and diaphragm locations between Mauka and Makai bridge. Concrete pour shall occur between 1:00 am and 4:00 am.
- 30 Construct retaining walls, see Note 18.
- 31 Pour sidewalk on upstream side of bridge, see Note 19.
- 32 Construct bridge railings, end posts, and light standards.
- 33 Blanket grind and mechanically groove bridge deck, approach slabs, and sleeper slabs, see Note 20.

SEE PHASE 2 TCP - SHEET TC-13  
SEE PH. 2 TCP SEE PH. 3 TCP SHEET TC-13  
SEE PH. 3 TCP SEE PH. 3 TCP SHEET TC-14

ORIGINAL PLAN	DATE
NO. _____	_____
SURVEY PLOTTED BY _____	
DRAWN BY _____	
DESIGNED BY _____	
QUANTITIES BY _____	
CHECKED BY _____	

DRAWING NAME: Z:\A00\ONDONGS\20-013-FARR-HW-KAPOLEI\G0101-WIP-EMT\01-GAD\04-13-22-810-RVSD-SHRS\FHW-541301.CONST-550.DWG PLOT TIME: 04-13-22 5:29 PM



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STATE OF HAWAII  
 DEPARTMENT OF TRANSPORTATION  
 HIGHWAYS DIVISION

**Honouliuli Stream Bridge  
 Construction Sequence**

FARRINGTON HIGHWAY WIDENING  
 Kapolei Golf Course Road to Fort Weaver Road  
 Project No. 7101A-01-20

Scale: As Shown Date: Apr. 2022

**SHEET No. SA132 OF 3 SHEETS**

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	7101A-01-20	2021	414	

CONSTRUCTION SEQUENCE NOTES:

1. The order of the Construction Sequence shall not be changed unless approved by the Engineer.
2. Each sequence stage shall be completely finished before proceeding to the next stage unless otherwise noted. The Engineer will be the sole judge of whether the sequence stage is complete, and may direct the Contractor to stop work on a sequence stage to complete work on the preceding sequence stage.
3. Perform [3] at least 7 days after the final drilled shaft has been poured and after the drilled shaft concrete has attained a minimum compressive strength of 4,000 psi.
4. Perform [4] at least 8 days after [3].
5. Perform [6] at least 15 days after [3]. A portion of the downstream existing wingwalls may need to be partially demolished to set girders. Contractor to verify.
6. Perform [8] at least 7 days after [7] and after diaphragms have attained a minimum compressive strength of 5,000 psi.
7. Perform [10] at least 8 days after [9] and after end beams have attained a minimum compressive strength of 5,000 psi.
8. Construct approach slab at least 7 days after construction of sleeper slab.
9. [13] may be performed simultaneously with [4].
10. Perform [14] at least 7 days after construction of approach slab and after approach slab has attained a minimum compressive strength of 4,000 psi.
11. Perform [16] at least 7 days after construction of bridge railings. Blanket grind and mechanically groove no greater than 1'-0" away from edge of deck.
12. Perform [19] at least 7 days after the final drilled shaft has been poured and after the drilled shaft concrete has attained a minimum compressive strength of 4,000 psi.
13. Perform [20] at least 8 days after [19].
14. Perform [22] at least 15 days after [19].
15. Perform [24] at least 7 days after [23] and after diaphragms have attained a minimum compressive strength of 5,000 psi.
16. Perform [26] at least 8 days after [25] and after end beams have attained a minimum compressive strength of 5,000 psi.
17. Construct approach slab at least 7 days after construction of sleeper slab.
18. [30] may be performed simultaneously with [20].
19. Perform [31] at least 7 days after construction of approach slab and after approach slab has attained a minimum compressive strength of 4,000 psi.

20. Perform [33] at least 7 days after construction of bridge railings. Blanket grind and mechanically groove remainder of bridge up to the limits of [16].

21. See Structural General Note 8.H.

ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
NOTE BOOK	DRAWN BY	
No. _____	DESIGNED BY	
	QUANTITIES BY	
	CHECKED BY	

DRAWING NAME: Z:\A00\_000000\20-013-FARR-HWY-KAPOLEI\GC\_ID.IT\WP-EMT\01\_GAD\04-13-22\_BID-RVSD\_SRTS\FHWY-SA1301\_CONST\_SEQ.DWG PLOT TIME: 04-13-22 5:29 PM

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*Rugo S. Miyahara*  
SIGNATURE      April 30, 2024  
EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

**Honouliuli Stream Bridge  
Construction Sequence Notes**

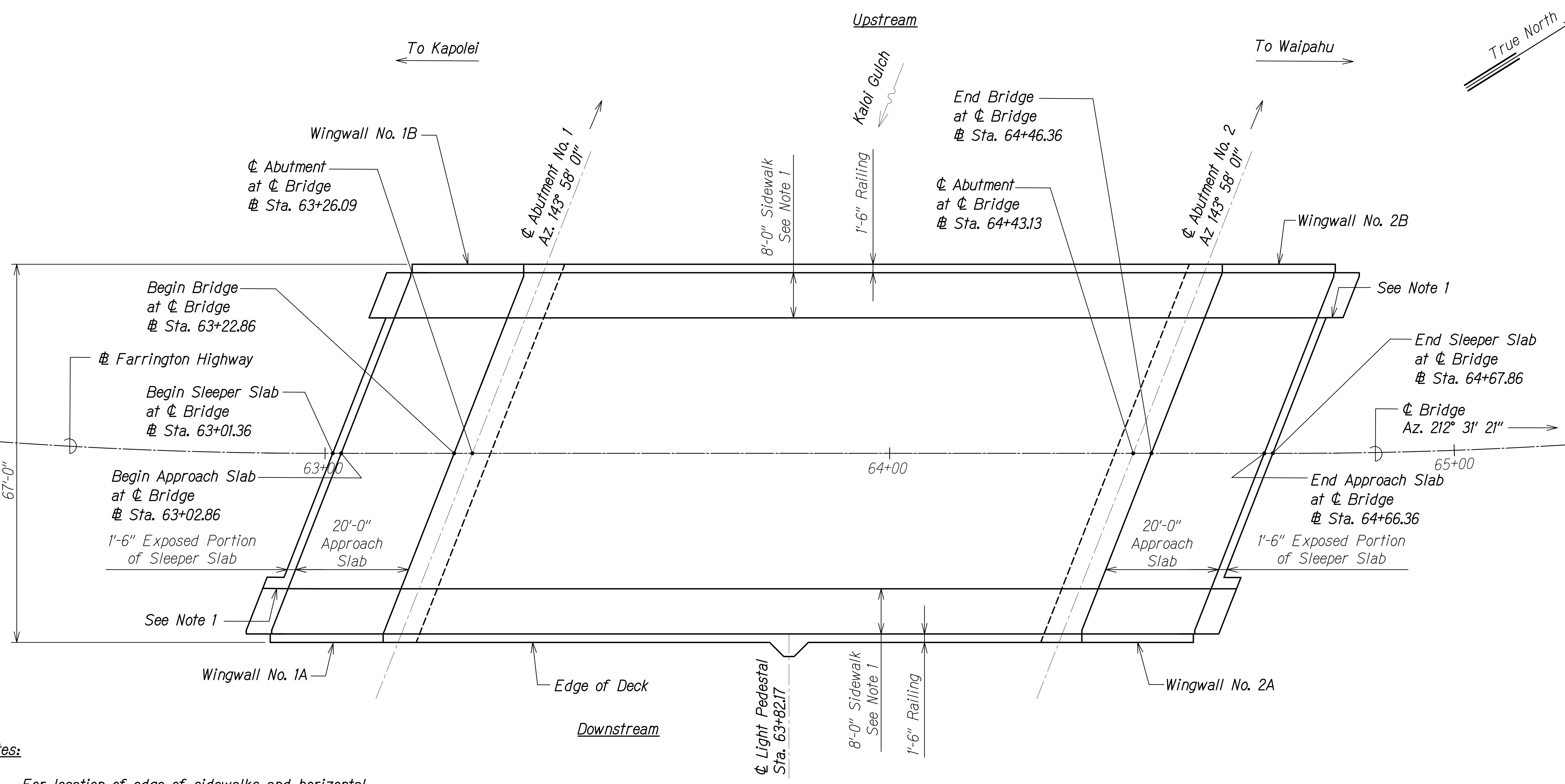
FARRINGTON HIGHWAY WIDENING  
Kapolei Golf Course Road to Fort Weaver Road  
Project No. 7101A-01-20

Scale: As Shown      Date: Apr. 2022

**SHEET No. SA13.3 OF 3 SHEETS**

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	7101A-01-20	2021	415	

DRAWING NAME: Z:\100 ONGOING\20-013-FARR-HWY-KAPOLEI\04-06-22 BID SET\FHWS-SB0101 KAL LAYOUT.DWG PLOT TIME: 04-07-22 5:02 PM



**Notes:**

1. For location of edge of sidewalks and horizontal curves, see civil sheets. Sidewalk width will vary at location of horizontal curves.
2. Dimensions for approach slab and sleeper slabs are measured parallel with  $\phi$  bridge.

**LAYOUT PLAN** A  
 Scale: 1" = 10'-0" SBI1 SBI1

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CHECKED BY	
ORIGINAL PLAN	No.

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 SIGNATURE      April 30, 2024  
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STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

**Kaloj Gulch Bridge  
Layout Plan**

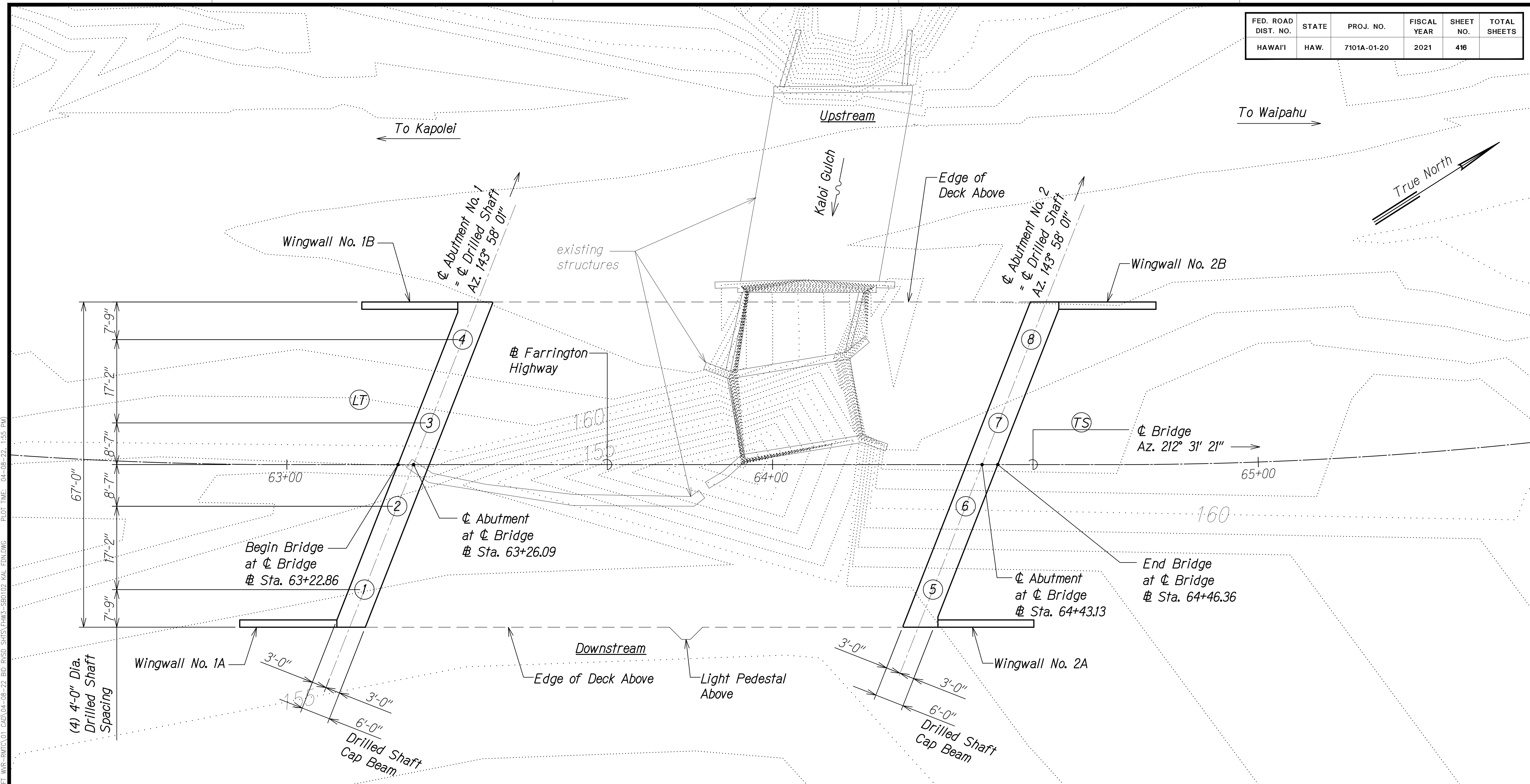
FARRINGTON HIGHWAY WIDENING  
Kapolei Golf Course Road to Fort Weaver Road  
Project No. 7101A-01-20

Scale: As Shown      Date: Apr. 2022

SHEET No. SB11 OF 5 SHEETS



FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	7101A-01-20	2021	416	



DRAWING NAME: Z:\A\00\CONDOING\20-013-FARR-HW-KAPOLEI.GC.IDE.TT.WPG-BRITC\01.GAO\04-08-22 BD-RVSD-SHRS\ENWG-SB0102.KAL.FDN.FWING PLOT TIME: 04-08-22 1:55 PM

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QUANTITIES BY	
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ORIGINAL PLAN	
NOTE BOOK	
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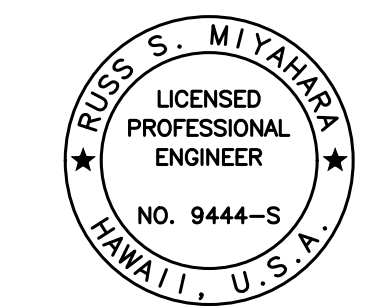
**FOUNDATION PLAN**  
Scale: 1" = 10'

**Legend:**

- ⊛ Drilled Shaft Number
- ⊙ Trial Shaft
- ⊙ Load Test Shaft

**Notes:**

1. Existing structures are shown for reference only, see sheets SB3.1 to SB3.5 and SB12.1 to SB12.4 for demolition phasing.
2. Drilled shaft number does not indicate drilling sequence. Contractor shall submit a drilling sequence plan.
3. Locations for trial shaft and load test shaft are approximate. For additional requirements, see Special Provisions 511.
4. For drilled shaft details, see sheets SB9.1 to SB9.3.



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STATE OF HAWAII  
 DEPARTMENT OF TRANSPORTATION  
 HIGHWAYS DIVISION

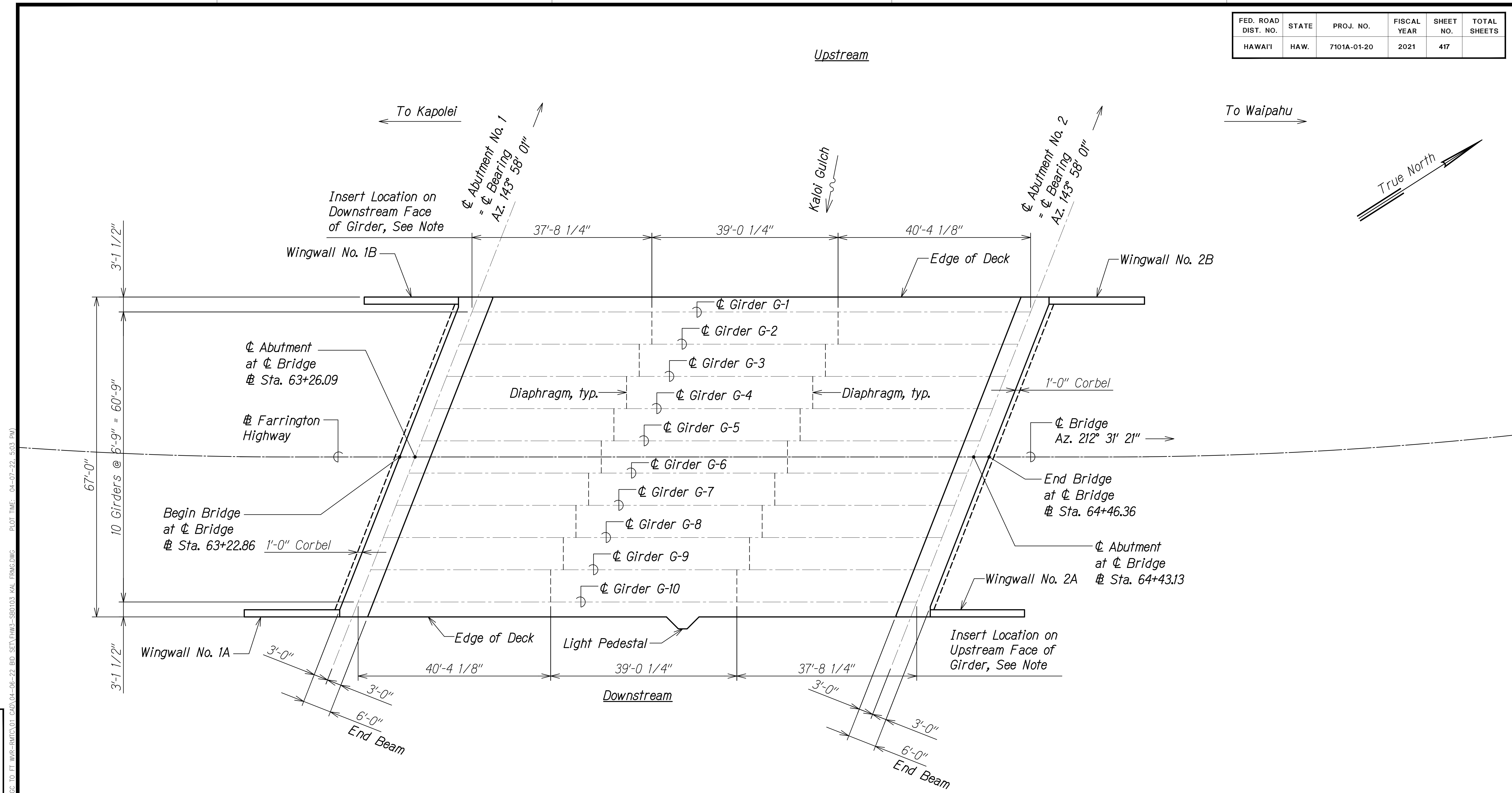
**Kaloi Gulch Bridge  
 Foundation Plan**

FARRINGTON HIGHWAY WIDENING  
 Kapolei Golf Course Road to Fort Weaver Road  
 Project No. 7101A-01-20

Scale: As Shown      Date: Apr. 2022

**SHEET No. SB12 OF 5 SHEETS**

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	7101A-01-20	2021	417	



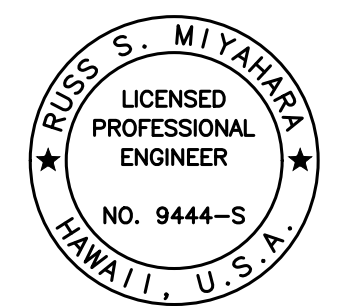
**Note:**  
Locations of inserts for diaphragm shown.  
See sheets SB5.1 and SB6.1.

**DECK FRAMING PLAN**  
Scale: 1" = 10'  
A  
SBI.3 SBI.3

ORIGINAL PLAN	DATE
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No.	

DRAWING NAME: Z:\100 ONGOING\20-013-FARR-HWY-KAPOLEI\04-06-22-BID-SET\FHW3-SB0103-KAL\_FRMG.DWG PLOT TIME: 04-07-22, 5:03 PM

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SIGNATURE  
April 30, 2024  
EXPIRATION DATE OF THE LICENSE



STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

**Kaloi Gulch Bridge  
Deck Framing Plan**

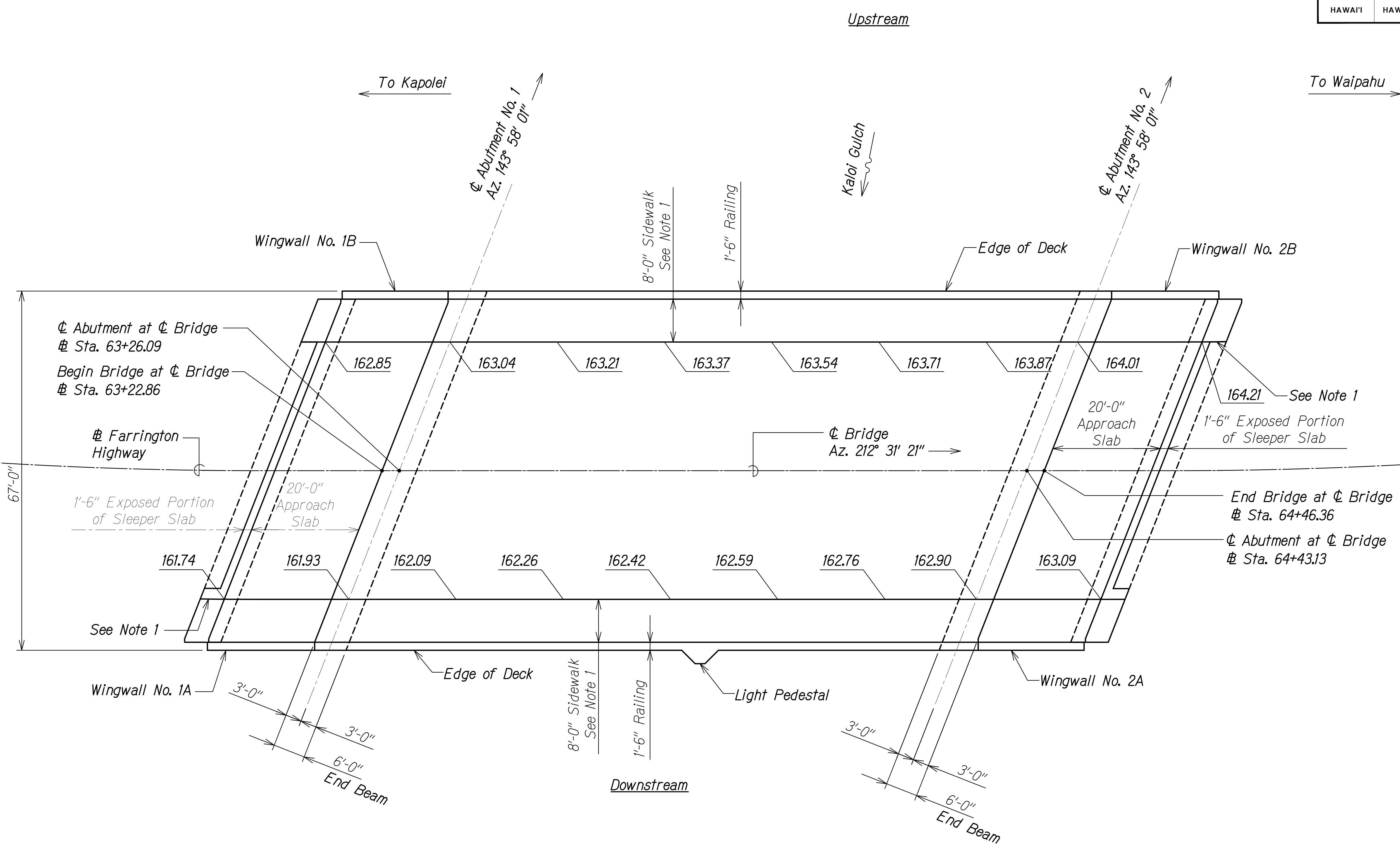
FARRINGTON HIGHWAY WIDENING  
Kapolei Golf Course Road to Fort Weaver Road  
Project No. 7101A-01-20

Scale: As Shown Date: Apr. 2022

SHEET No. SB13 OF 5 SHEETS

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	7101A-01-20	2021	418	

DRAWING NAME: Z:\A\00\CONDOINGS\20-013-FARR-HWY-KAPOLEI\GC\10-ET-WP8-EMTC\01-CAD\04-06-22-BID-SET\FINIS-SB0104-KAL-ETN-GRAD-PLAN.DWG PLOT TIME: 04-07-22: 5:03 PM



- Notes:**
- For location of edges of sidewalks and horizontal curve, see Civil sheets. Sidewalk width will vary at locations of horizontal curve.
  - Finish grades are given at the top of the bridge deck, end beam, and approach slab along the edges of sidewalks as shown. Off the bridge, finish grades are given at begin approach slab and end approach slab. On the bridge, finish grades are given at each  $\phi$  abutment and at 20 feet interval measured along the baseline starting at  $\phi$  Abutment No. 1.
  - Dimensions for approach slab and sleeper slab are measured parallel with  $\phi$  bridge.

**FINISH GRADE PLAN**  
Scale: 1" = 10'

ORIGINAL PLAN	DATE
DRAWN BY	
DESIGNED BY	
QUANTITIES BY	
CHECKED BY	
No.	

**RUGO S. MIYAHARA**  
LICENSED PROFESSIONAL ENGINEER  
NO. 9444-S  
HAWAII, U.S.A.

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STATE OF HAWAII  
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HIGHWAYS DIVISION

**Kaloi Gulch Bridge  
Finish Grade Plan**

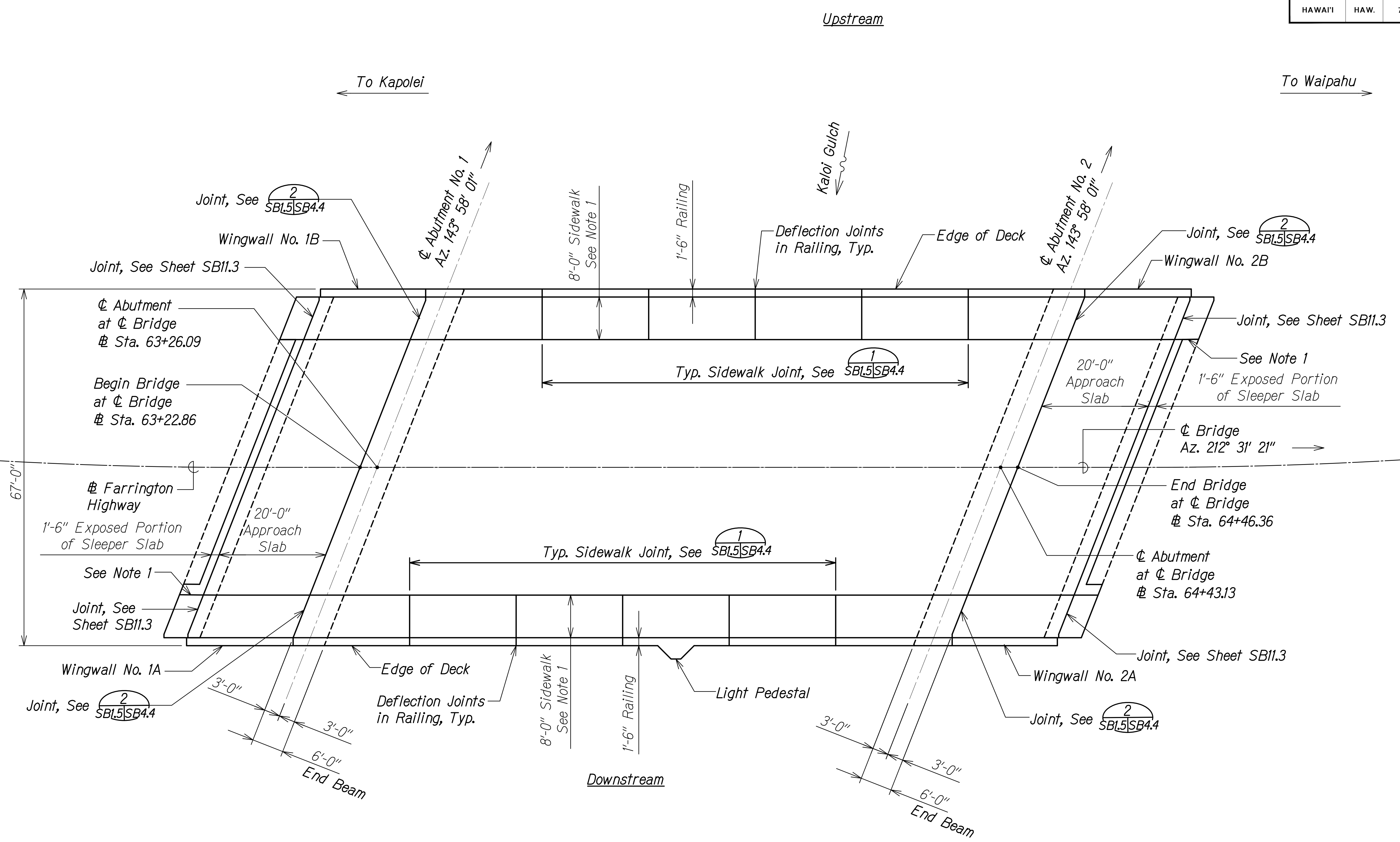
FARRINGTON HIGHWAY WIDENING  
Kapolei Golf Course Road to Fort Weaver Road  
Project No. 7101A-01-20

Scale: As Shown      Date: Apr. 2022

**SHEET No. SB14 OF 5 SHEETS**

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	7101A-01-20	2021	419	

DRAWING NAME: Z:\A00\DRAWINGS\20-013-FARR-HW-KAPOLEI\04-06-22-BID-SET\PRINT\01-CAD\04-06-22-BID-SET\PRINT\01-KAL\_JOINT\_PLAN.DWG PLOT TIME: 04-07-22, 5:04 PM



**Notes:**

1. For location of edges of sidewalks and horizontal curves, see civil sheets. Sidewalk width will vary at location of horizontal curves.
2. Dimensions for approach slab and sleeper slab are measured parallel with  $\phi$  Bridge.
3. For details and spacing of sidewalk joints on bridge, see sheets SB4.4 and SB10.1.

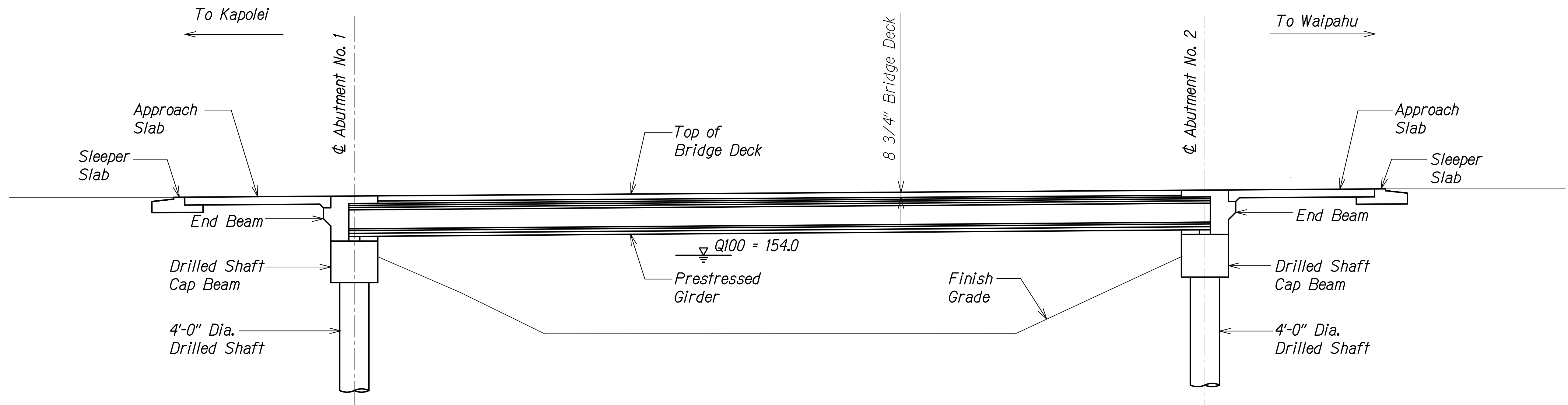
**SIDEWALK JOINTING PLAN**  
Scale: 1" = 10'

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DRAWN BY	
DESIGNED BY	
QUANTITIES BY	
CHECKED BY	
ORIGINAL PLAN	
NOTE BOOK	
No.	

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STATE OF HAWAII  
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 HIGHWAYS DIVISION  
**Kaloi Gulch Bridge**  
**Sidewalk Jointing Plan**  
 FARRINGTON HIGHWAY WIDENING  
 Kapolei Golf Course Road to Fort Weaver Road  
 Project No. 7101A-01-20  
 Scale: As Shown Date: Apr. 2022  
**SHEET No. SB15 OF 5 SHEETS**

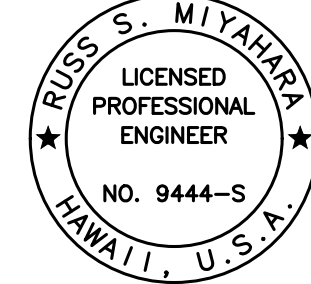
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	7101A-01-20	2021	420	



**LONGITUDINAL SECTION**  
 Scale: 1/8" = 1'-0"  
 A  
 SB2.1 SB2.1

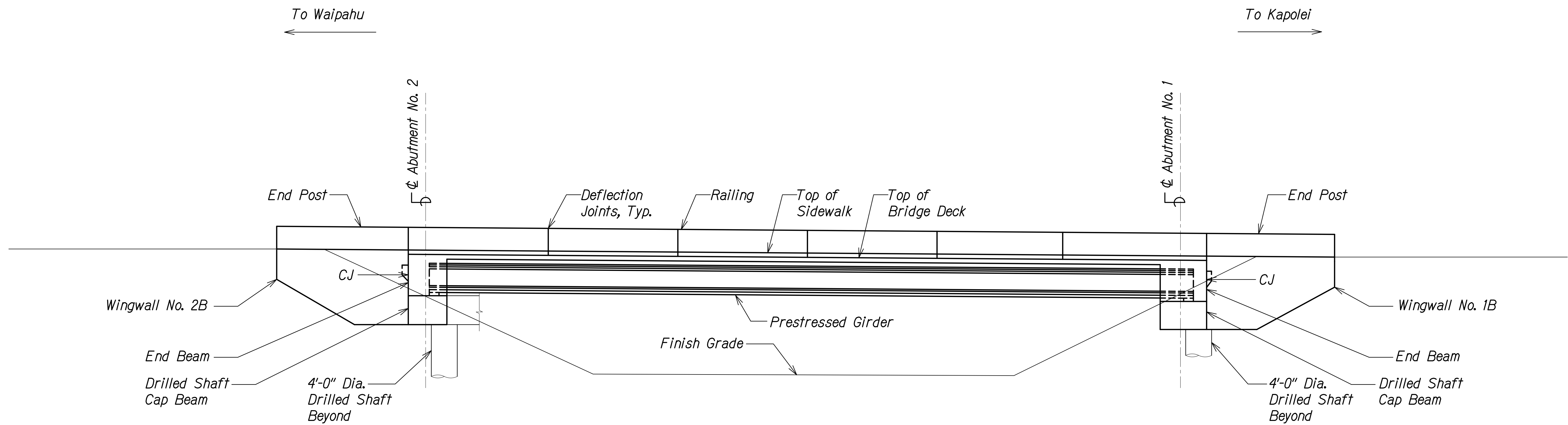
ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
NOTE BOOK	DRAWN BY	
No. _____	DESIGNED BY	
	QUANTITIES BY	
	CHECKED BY	

DRAWING NAME: Z:\100 ONGOING\20-013-FARR-HWY-KAPOLEI GC ID: FT-WR-EMTC\01 CAD\04-06-22 BID SET\FH\3-SB2021 LONG-SECTION.DWG PLOT TIME: 04-07-22 5:04 PM

  
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STATE OF HAWAII  
 DEPARTMENT OF TRANSPORTATION  
 HIGHWAYS DIVISION  
**Kaloi Gulch Bridge**  
**Longitudinal Section**  
 FARRINGTON HIGHWAY WIDENING  
 Kapolei Golf Course Road to Fort Weaver Road  
 Project No. 7101A-01-20  
 Scale: As Shown      Date: Apr. 2022  
**SHEET No. SB2.1 OF 5 SHEETS**

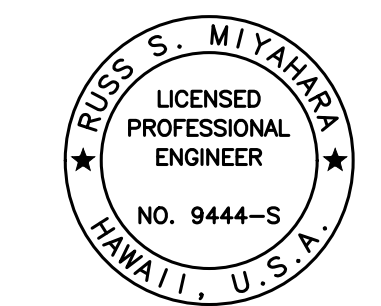
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	7101A-01-20	2021	421	



**UPSTREAM ELEVATION** A  
 Scale: 1/8" = 1'-0" SB2.2 SB2.2

ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
NOTE BOOK	DRAWN BY	
No. _____	DESIGNED BY	
	QUANTITIES BY	
	CHECKED BY	

DRAWING NAME: Z:\100\_ONGOING\20-013-FARR-HWY-KAPOLEI\GE.IDE.IT\WRG-EMTC\01\_GAD\04-06-22\_BID\_SET\FHW3-SB2022\_US\_ELEV.DWG PLOT TIME: 04-07-22: 5:04 PM



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STATE OF HAWAII  
 DEPARTMENT OF TRANSPORTATION  
 HIGHWAYS DIVISION

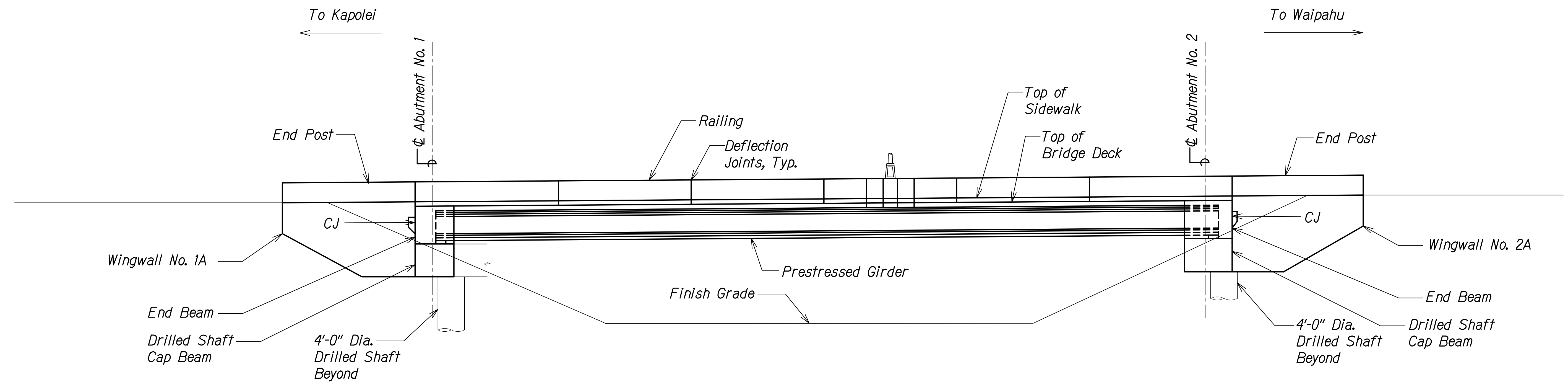
**Kaloi Gulch Bridge  
 Upstream Elevation**

FARRINGTON HIGHWAY WIDENING  
 Kapolei Golf Course Road to Fort Weaver Road  
 Project No. 7101A-01-20

Scale: As Shown      Date: Apr. 2022

**SHEET No. SB2.2 OF 5 SHEETS**

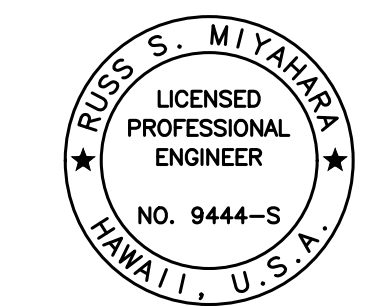
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	7101A-01-20	2021	422	



**DOWNSTREAM ELEVATION** A  
 Scale: 1/8" = 1'-0" SB2.3 SB2.3

ORIGINAL PLAN	DATE
SURVEY PLOTTED BY	
DRAWN BY	
DESIGNED BY	
QUANTITIES BY	
CHECKED BY	
No.	

DRAWING NAME: Z:\100 ONGOING\20-013-FARR-HWY-KAPOLEI\GE.IDE.IT.WORK\BIM\01.GAD\04-06-22 BID SET\FHW3-SB2023-DS-ELEV.DWG PLOT TIME: 04-07-22: 5:05 PM



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 DEPARTMENT OF TRANSPORTATION  
 HIGHWAYS DIVISION

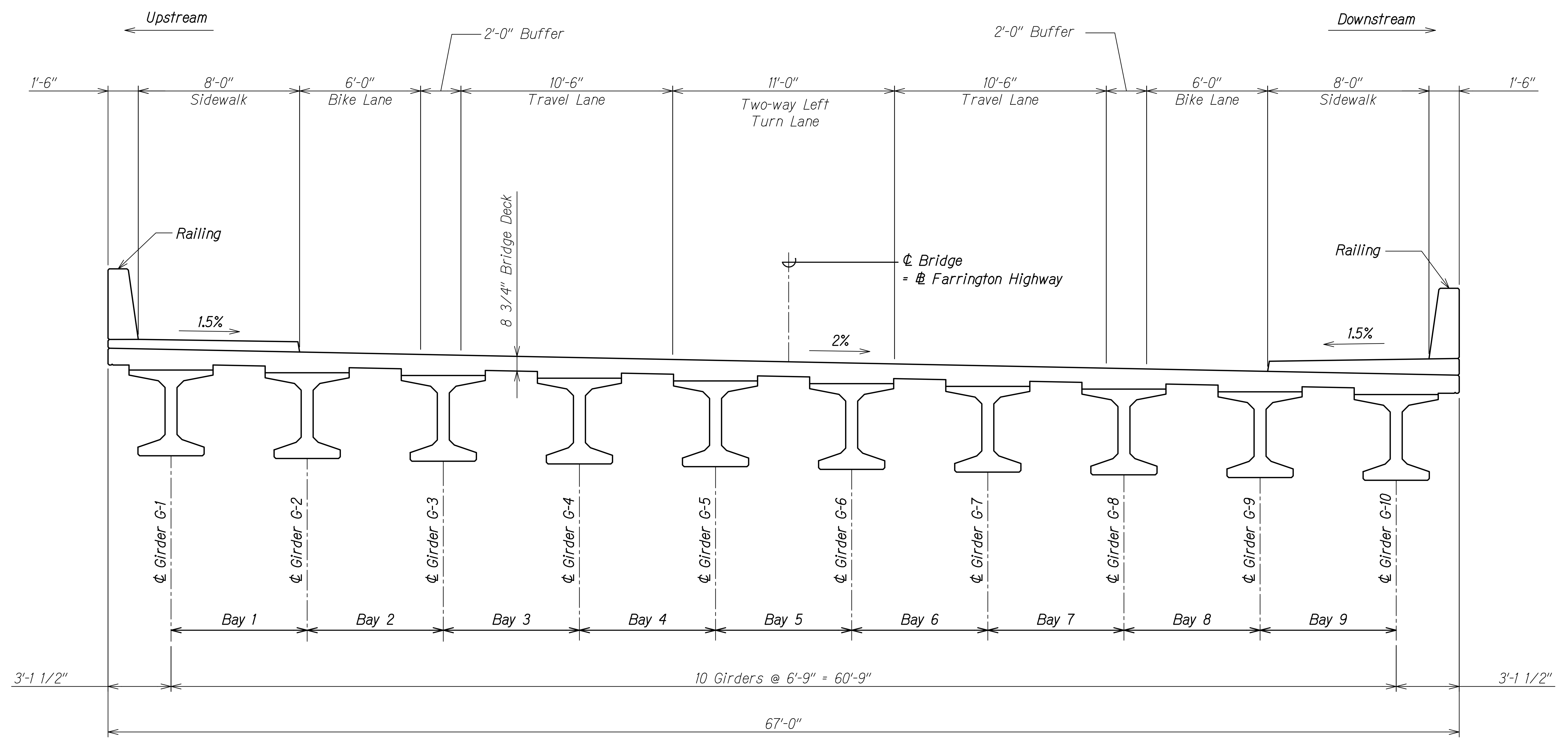
**Kaloi Gulch Bridge**  
**Downstream Elevation**

FARRINGTON HIGHWAY WIDENING  
 Kapolei Golf Course Road to Fort Weaver Road  
 Project No. 7101A-01-20

Scale: As Shown      Date: Apr. 2022

**SHEET No. SB2.3 OF 5 SHEETS**

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	7101A-01-20	2021	423	

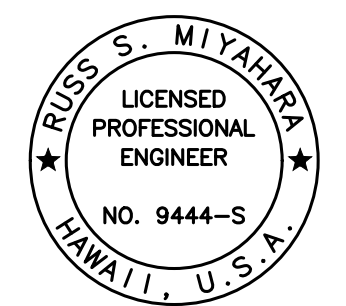


**TYPICAL TRANSVERSE SECTION**  
 Scale: 3/8" = 1'-0"  
 SB24 SB2.4

ORIGINAL PLAN	DATE
DRAWN BY	
DESIGNED BY	
QUANTITIES BY	
CHECKED BY	

DRAWING NAME: Z:\100\_ONGOING\20-013-FARR-HWY-KAPOLEI\GE.IDE.TE.WORK\BIM\01\_GAD\04-06-22\_BID\_SET\FHWS-SB0204\_KAL\_TYP\_TRANS\_SECTION.DWG PLOT TIME: 04-07-22, 5:05 PM

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.  
 Signature: *Russ S. Miyahara*  
 April 30, 2024  
 EXPIRATION DATE OF THE LICENSE



STATE OF HAWAII  
 DEPARTMENT OF TRANSPORTATION  
 HIGHWAYS DIVISION

**Kaloi Gulch Bridge**  
 Typical Transverse Section

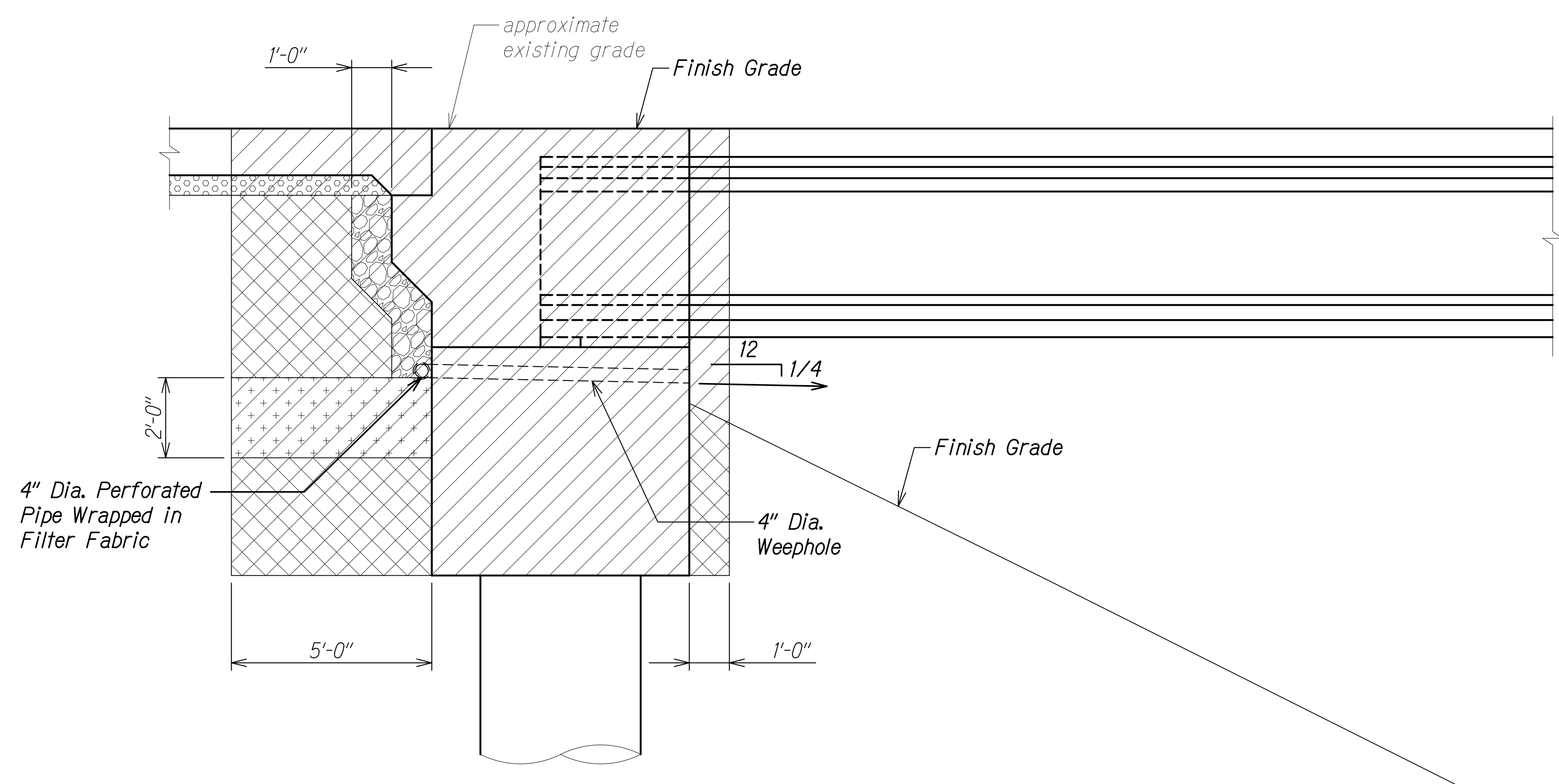
FARRINGTON HIGHWAY WIDENING  
 Kapolei Golf Course Road to Fort Weaver Road  
 Project No. 7101A-01-20

Scale: As Shown Date: Apr. 2022

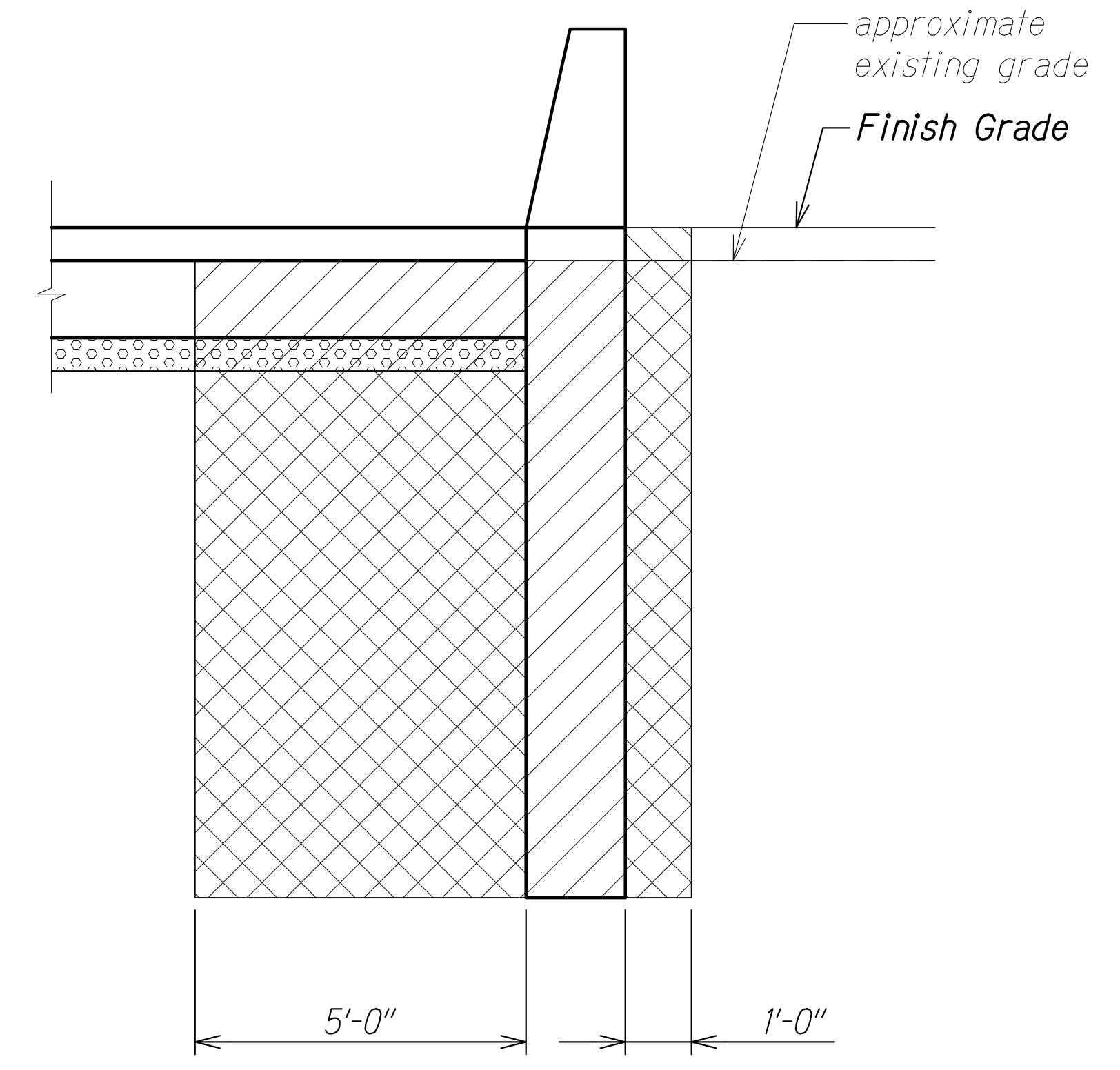
SHEET No. SB2.4 OF 5 SHEETS



FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	7101A-01-20	2021	424	





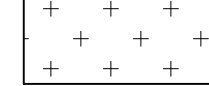


AT ABUTMENT



AT WINGWALL

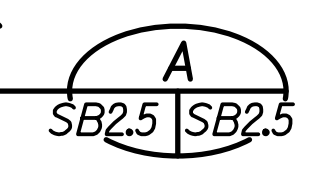
**Legend:**

-  Structure Excavation
-  Structure Backfill
-  Filter Material Wrapped in Filter Fabric
-  Impervious Material
-  Aggregate Base Course. See Sheet SB11.1 for Measurement and Payment.

**Notes:**

1. For location of weepholes, see sheets SB7.2 and SB7.4.
2. All horizontal dimensions are measured perpendicular to the vertical face.
3. Impervious material shall be incidental to the measurement and payment for Structural Backfill for Kaloi Abutments and Wingwalls.

**STRUCTURE EXCAVATION AND BACKFILL PAY LIMITS SECTIONS**  
 Scale: 1/2" = 1'-0"



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

DRAWING NAME: Z:\A\00\CONDOINGS\20-013-FARR HWY KAPOLEI GC ID: ET WIP-EMTC\01 CAD\04-06-22 BID SET\FHW3-SB0205-EXC&BACKFILL.DWG PLOT TIME: 04-07-22, 5:05 PM

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.  
 Signature: *Ruges S. Miyahara*  
 April 30, 2024  
 EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII  
 DEPARTMENT OF TRANSPORTATION  
 HIGHWAYS DIVISION

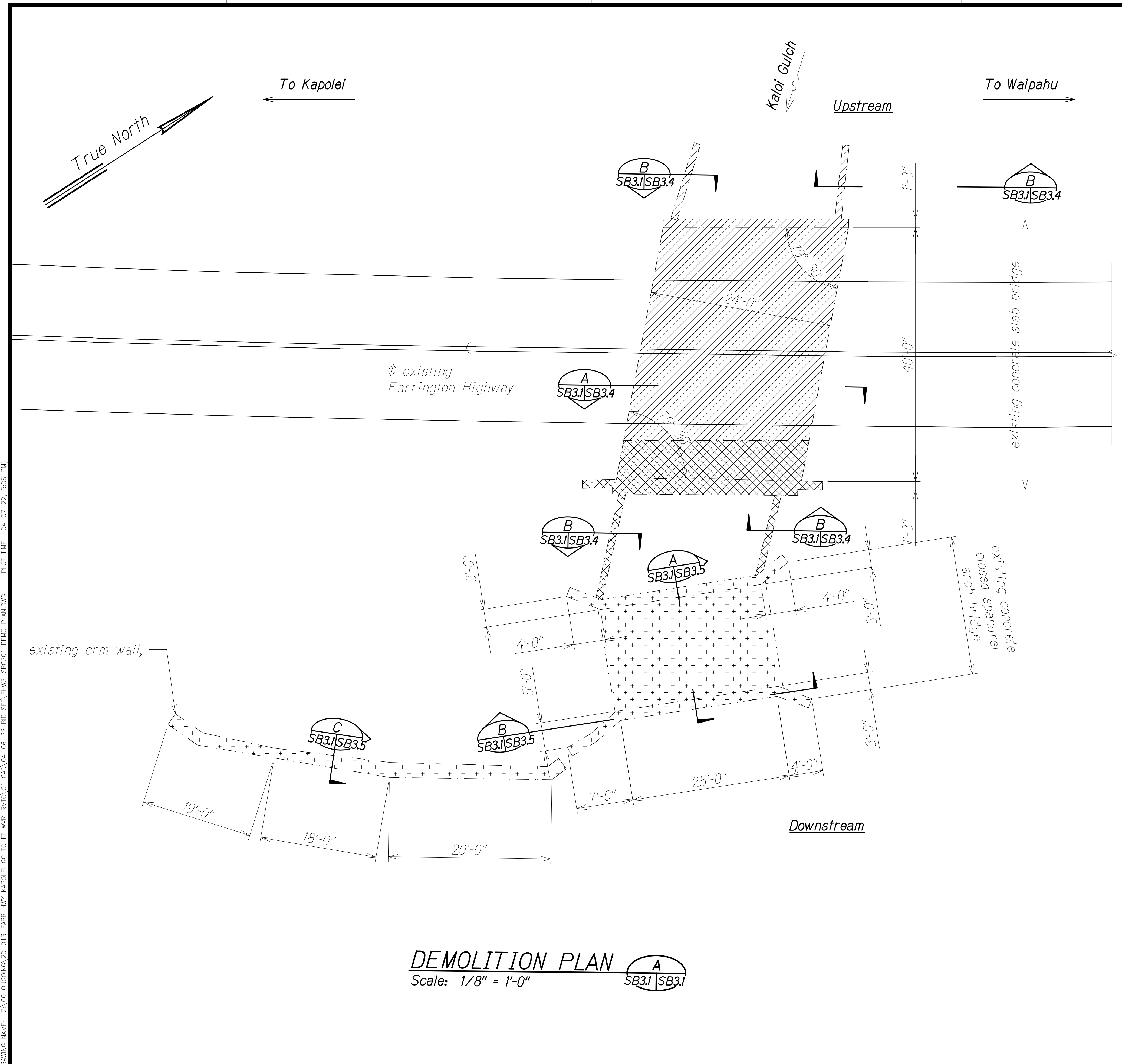
**Kaloi Gulch Bridge**  
 Excavation and Backfill Pay Limits

FARRINGTON HIGHWAY WIDENING  
 Kapolei Golf Course Road to Fort Weaver Road  
 Project No. 7101A-01-20

Scale: As Shown      Date: Apr. 2022

**SHEET No. SB2.5 OF 5 SHEETS**

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	7101A-01-20	2021	425	



**Notes:**

- Blasting is prohibited.
- Demolition work shall comply with the Specifications, AASHTO "Guide Design Specifications for Bridge Temporary Works" and AASHTO "Construction Handbook for Bridge Temporary Works", including all subsequent interim revisions. The most stringent requirements shall govern.
- Follow Best Management Practices (BMP) required when performing demolition.
- Existing concrete closed spandrel arch bridge and CRM wall does not have as-builts. Demolition of existing structures shall include all railings, end posts, walls, and footings unless otherwise noted.
- For as-built plans of the existing concrete slab bridge, see Structural General Notes 8.A.
- Contractor shall submit demolition plan to Engineer for review and approval. Demolition plan shall include intended BMP measures to prevent debris and dust from entering the surrounding stream.

**Legend:**

- Extent of Demolition Phase 1, unless noted otherwise
- Extent of Demolition Phase 2, unless noted otherwise
- See sheet SB3.3. Portion of existing wingwall, abutment wall, and concrete slab bridge to be demolished and removed at Demolition Phase 1. Remaining portion of structures to be demolished and removed at Demolition Phase 2.

ORIGINAL PLAN	DATE
SURVEY PLOTTED BY	
DRAWN BY	
DESIGNED BY	
QUANTITIES BY	
CHECKED BY	
No.	

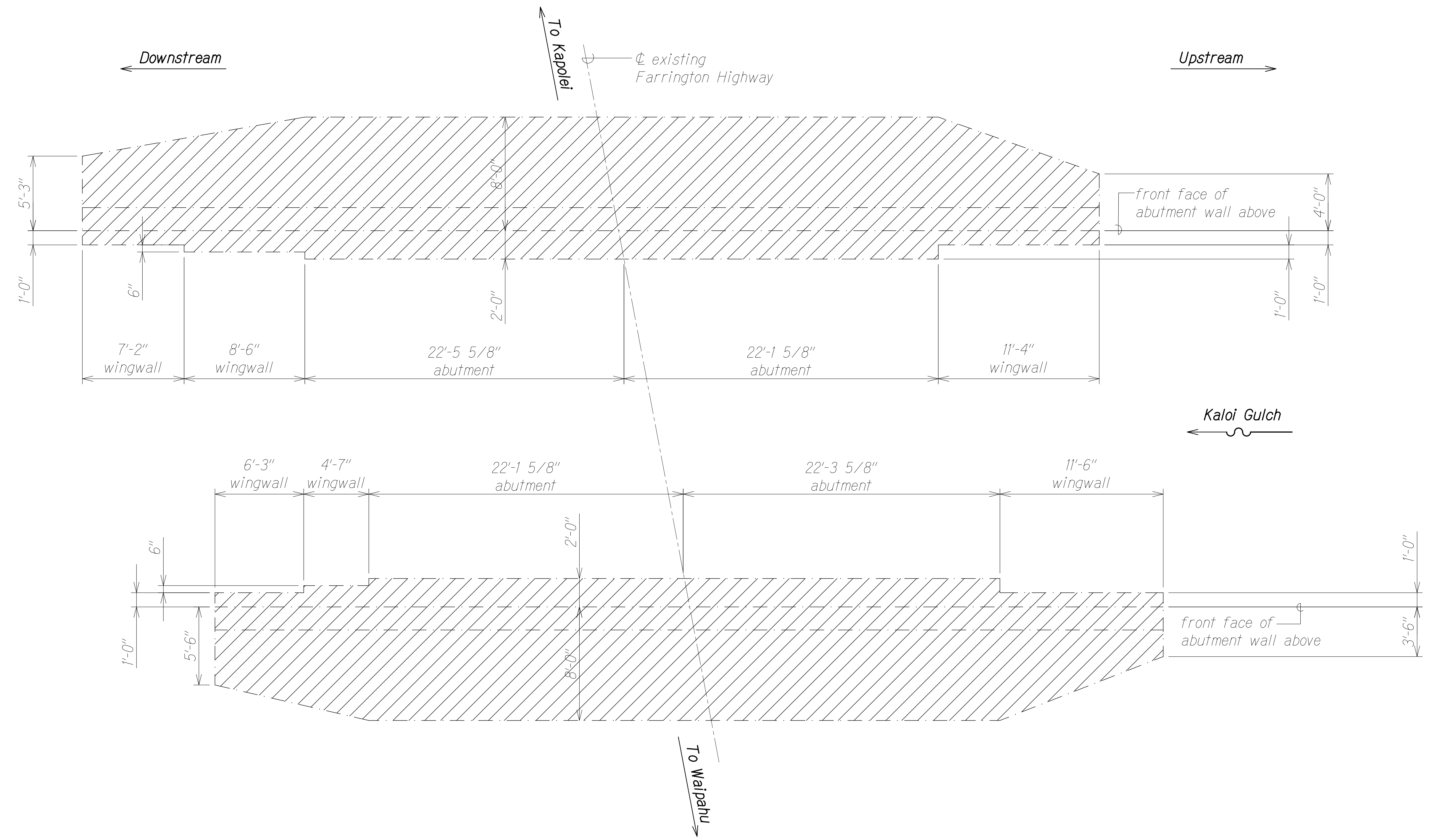
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**DEMOLITION PLAN** A  
 Scale: 1/8" = 1'-0" SB3.1/SB3.1

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 Signature: *Rugo S. Miyahara* April 30, 2024  
 EXPIRATION DATE OF THE LICENSE

**STATE OF HAWAII**  
**DEPARTMENT OF TRANSPORTATION**  
**HIGHWAYS DIVISION**  
**Kaloi Gulch Bridge**  
**Demolition Plan**  
**FARRINGTON HIGHWAY WIDENING**  
**Kapolei Golf Course Road to Fort Weaver Road**  
**Project No. 7101A-01-20**  
 Scale: As Shown Date: Apr. 2022  
**SHEET No. SB3.1 OF 5 SHEETS**

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	7101A-01-20	2021	426	



**FOOTING DEMOLITION PLAN**  
 Scale: 1/4" = 1'-0" A  
SB3.2 | SB3.2

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

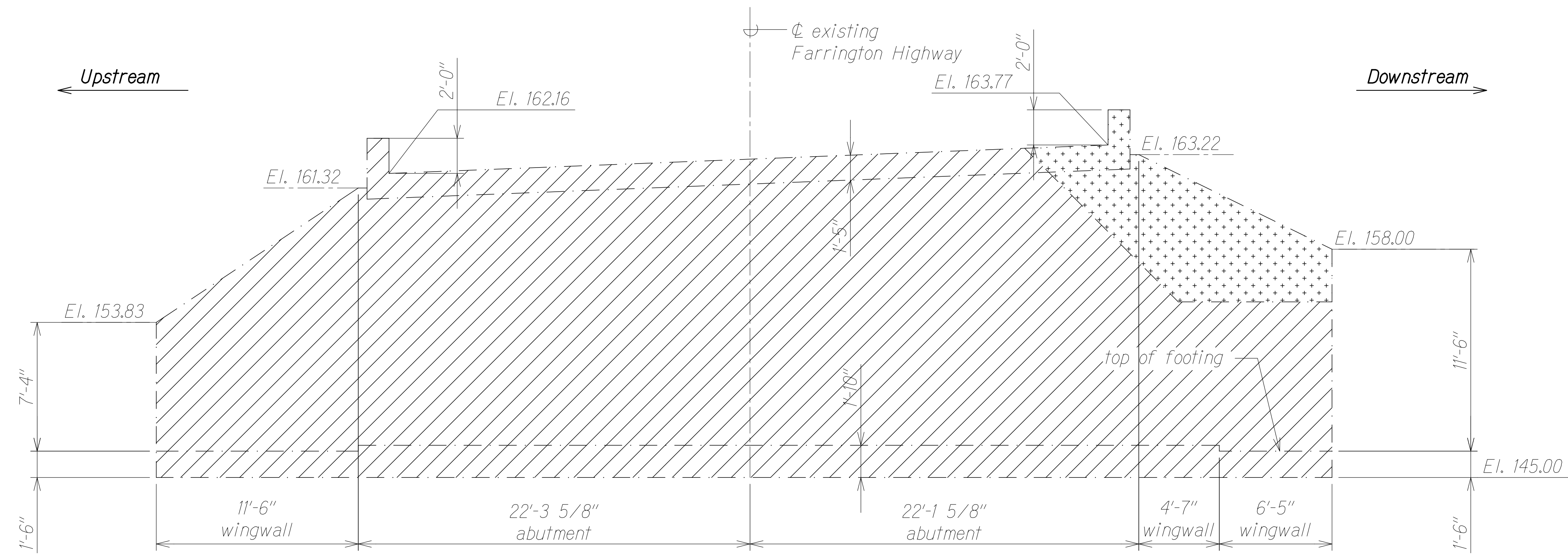
**Legend:**  
 Extent of Demolition Phase 2

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 Signature: *Rugo S. Miyakawa* April 30, 2024  
 EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII  
 DEPARTMENT OF TRANSPORTATION  
 HIGHWAYS DIVISION  
**Kalo Gulch Bridge**  
**Footings Demolition Plan**  
 FARRINGTON HIGHWAY WIDENING  
 Kapolei Golf Course Road to Fort Weaver Road  
 Project No. 7101A-01-20  
 Scale: As Shown Date: Apr. 2022  
**SHEET No. SB3.2 OF 5 SHEETS**

DRAWING NAME: Z:\100 ONGOING\20-013-FARR-HWY-KAPOLEI GC.ID.IT.WIP-EMTC\01 CAD\04-06-22 BID SET\FHW3-SB0302 DEMO-SECTIONING PLOT TIME: 04-07-22: 5:06 PM)

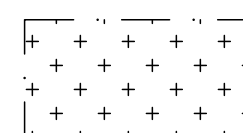
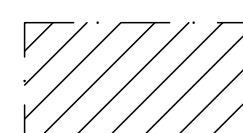
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	7101A-01-20	2021	427	



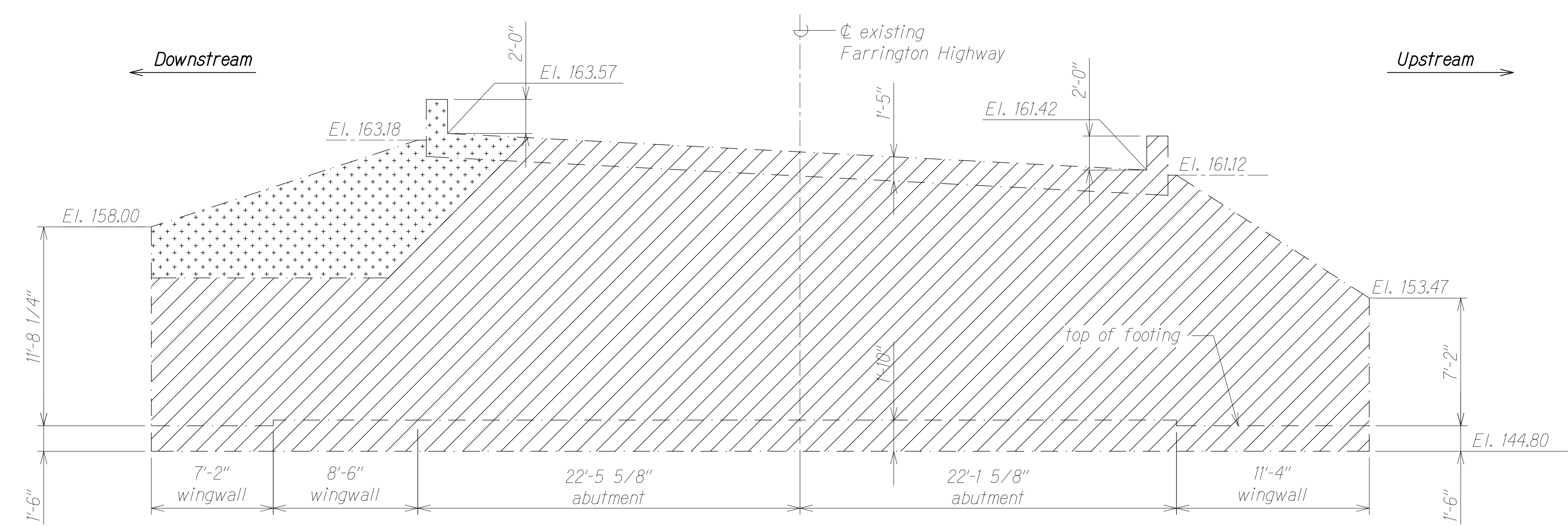
**Notes:**

1. For portion of existing concrete slab bridge to be demolished at demolition phase 1, see sheet SB12.3.
2. Extent of demolition phase 1 shown is schematic. The Contractor shall submit working drawings for the limits of excavation and demolition to the Engineer for approval. The working drawings shall show all proposed bracing and shoring as needed to protect the existing roadway and detour road. See sheets SB12.2 to SB12.4. Demolition and excavation shall be coordinated with any temporary shoring, detour road, and construction of the new bridge.

**Legend:**

-  Extent of Demolition Phase 1
-  Extent of Demolition Phase 2

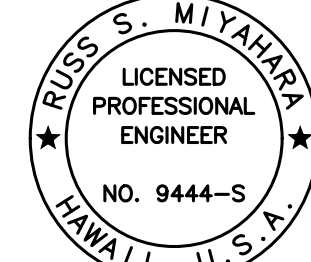
**WAIPAHU ABUTMENT DEMOLITION ELEVATION**  
Scale: 1/4" = 1'-0" A  
SB3.3 | SB3.3



**KAPOLEI ABUTMENT DEMOLITION ELEVATION**  
Scale: 1/4" = 1'-0" B  
SB3.3 | SB3.3

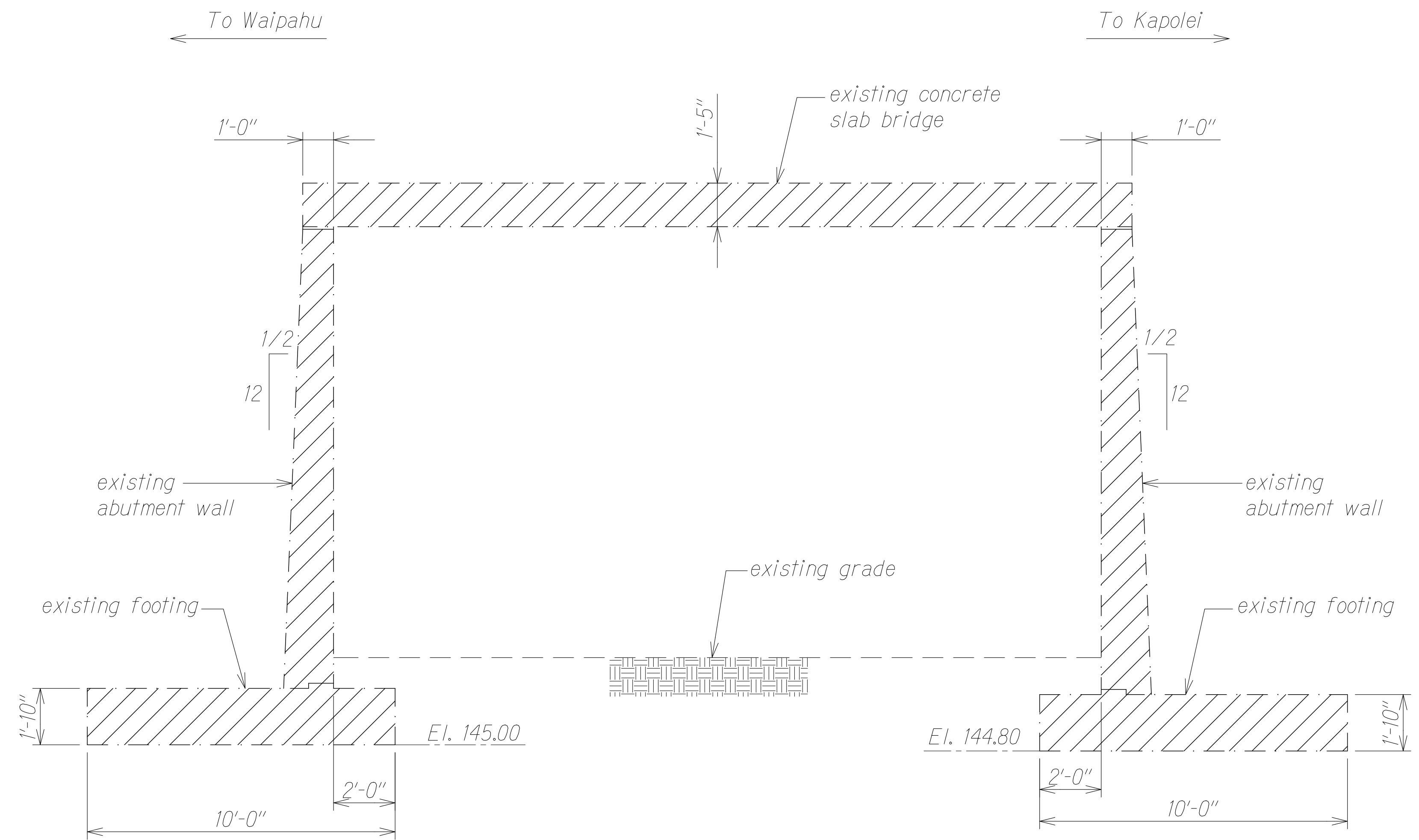
SURVEY PLOTTED BY	DATE
DRAWN BY	
DESIGNED BY	
QUANTITIES BY	
CHECKED BY	
ORIGINAL PLAN No.	

DRAWING NAME: Z:\100 ONGOING\20-013-FARR-HWY-KAPOLEI.GC.ID.IT.WIP-EMT\01.GAO\04-06-22 BID SET\FHW3-SB0302 DEMO-SECTIONING PLOT TIME: 04-07-22: 5:06 PM

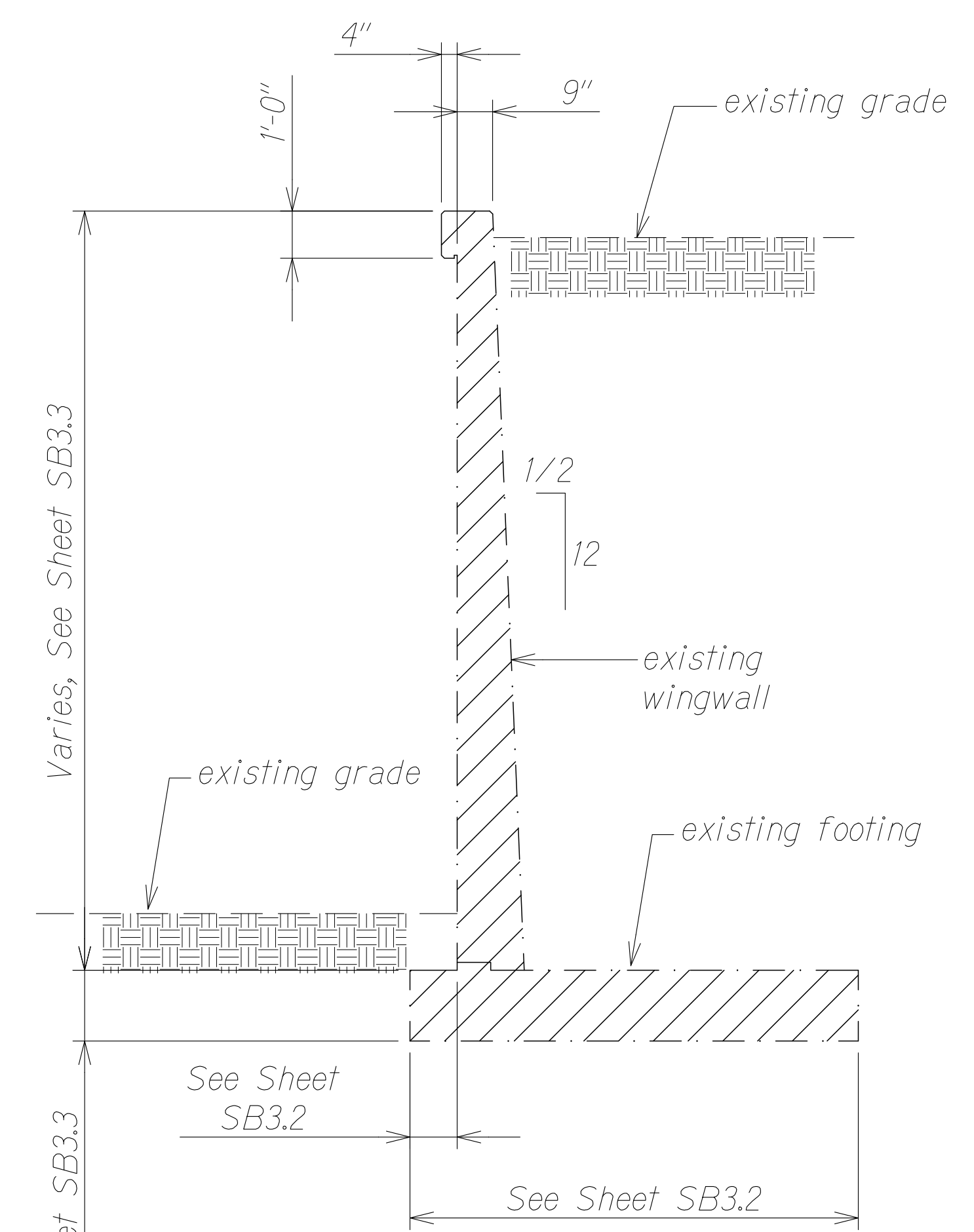
  
 THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.  
 Signature: *Rugs S. Miyahara*  
 April 30, 2024  
 EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII  
 DEPARTMENT OF TRANSPORTATION  
 HIGHWAYS DIVISION  
**Kaloi Gulch Bridge**  
**Abutment Demolition Elevations**  
 FARRINGTON HIGHWAY WIDENING  
 Kapolei Golf Course Road to Fort Weaver Road  
 Project No. 7101A-01-20  
 Scale: As Shown      Date: Apr. 2022  
**SHEET No. SB3.3 OF 5 SHEETS**

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	7101A-01-20	2021	428	



**SECTION (LOOKING DOWNSTREAM) A**  
 Scale: 3/8" = 1'-0"  
 SB3.1 | SB3.4

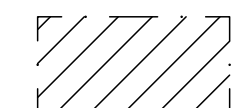


**SECTION B**  
 Scale: 3/8" = 1'-0"  
 SB3.1 | SB3.4

**Note:**

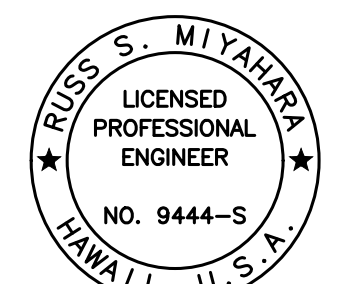
Portion of existing abutment wall and wingwall demolished and removed at demolition phase 1 not shown. See sheet SB3.3.

**Legend:**

 Extent of demolition phase 2, unless noted otherwise

ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
NOTE BOOK	DRAWN BY	
No. _____	DESIGNED BY	
	QUANTITIES BY	
	CHECKED BY	

DRAWING NAME: Z:\100 ONGOING\20-013-FARR-HWY-KAPOLEI GC ID: ET-WR-EMTC\01-GAD\04-06-22 BID-SET\FHW3-SB0302 DEMO-SECTIONG PLOT TIME: 04-07-22: 5:07 PM

  
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 Signature: *Rugo S. Miyakawa*  
 April 30, 2024  
 EXPIRATION DATE OF THE LICENSE

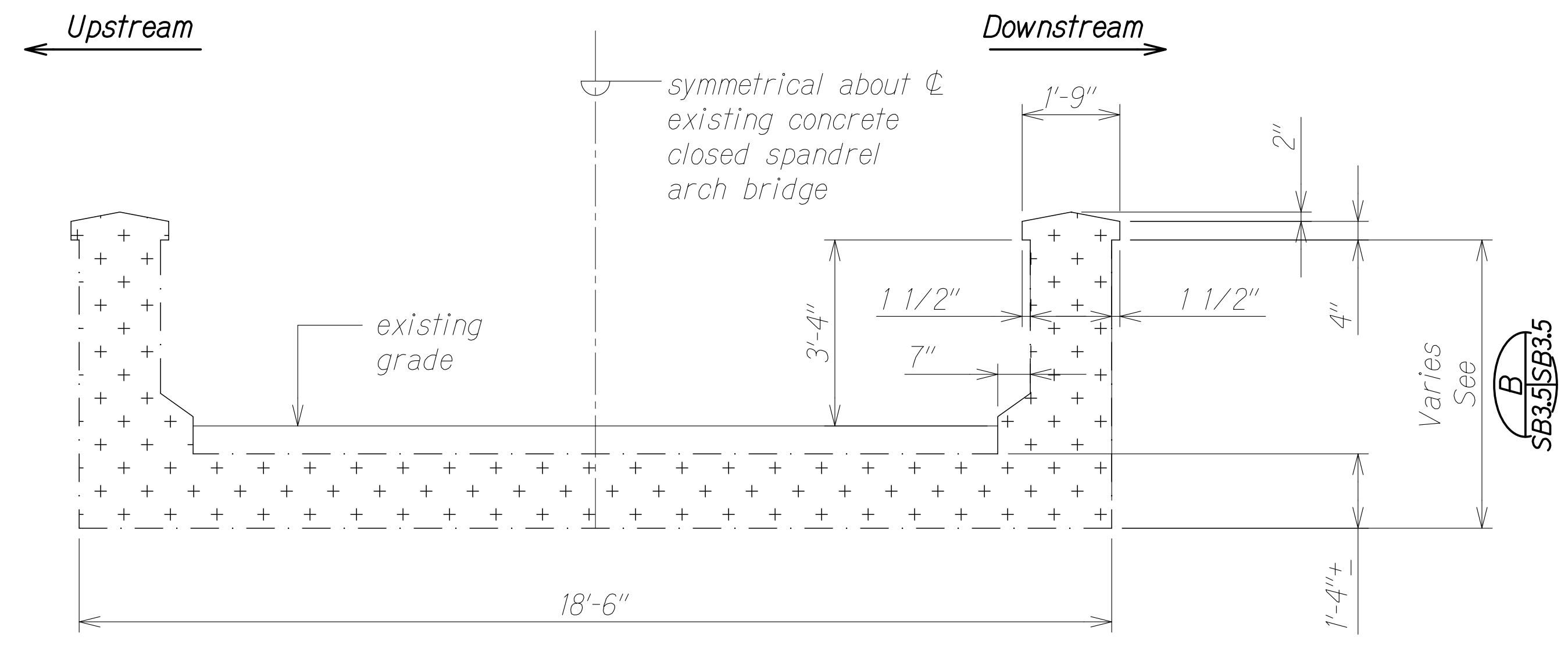
STATE OF HAWAII  
 DEPARTMENT OF TRANSPORTATION  
 HIGHWAYS DIVISION

**Kaloi Gulch Bridge  
 Demolition Sections**

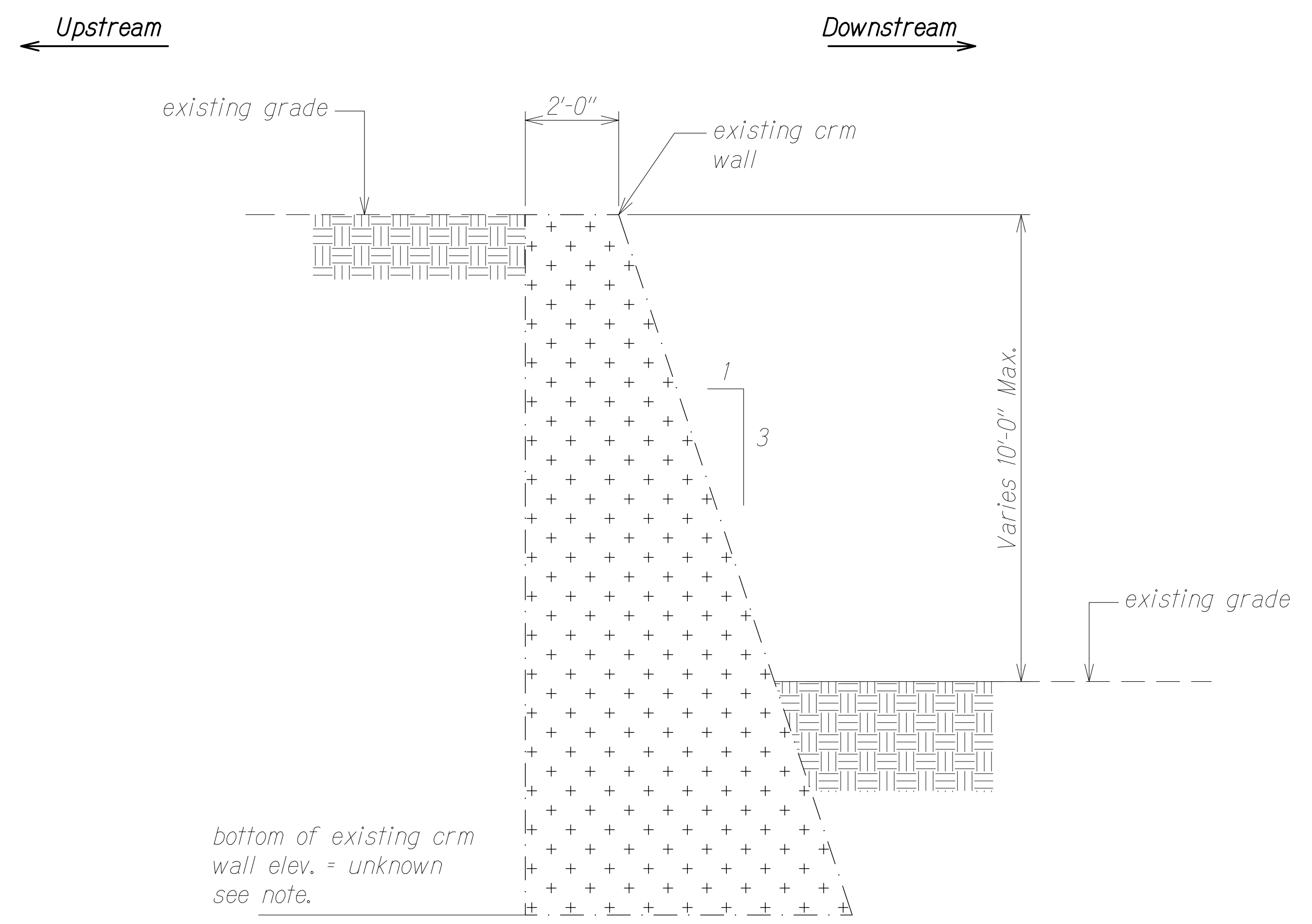
FARRINGTON HIGHWAY WIDENING  
 Kapolei Golf Course Road to Fort Weaver Road  
 Project No. 7101A-01-20

Scale: As Shown Date: Apr. 2022  
 SHEET No. SB3.4 OF 5 SHEETS

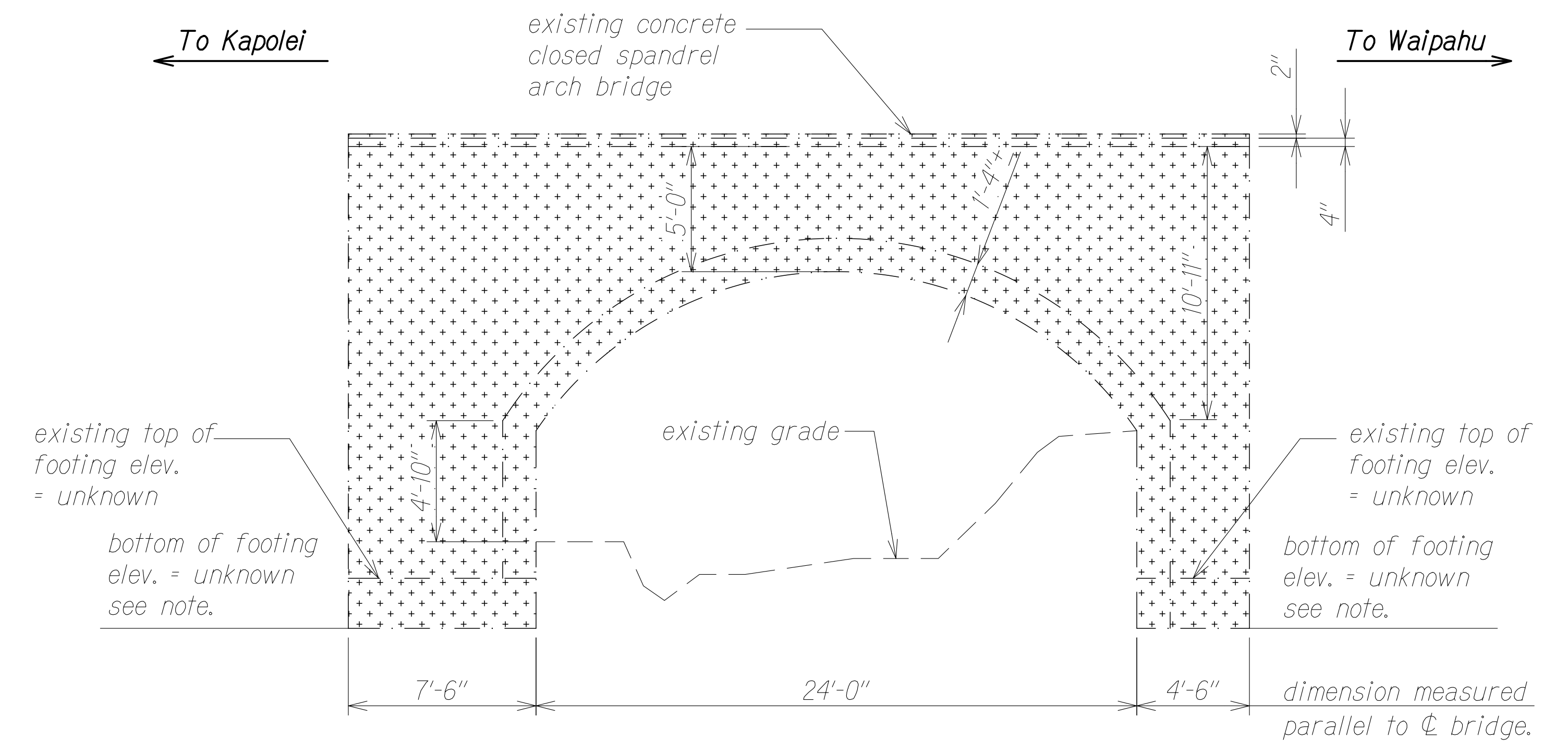
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	7101A-01-20	2021	429	



**SECTION A**  
Scale: 1/2" = 1'-0" SB3.1 | SB3.5



**SECTION C**  
Scale: 1/2" = 1'-0" SB3.1 | SB3.5



**DOWNSTREAM ELEVATION (UPSTREAM ELEVATION SIMILAR)**  
Scale: 1/4" = 1'-0" SB3.1 | SB3.5

**Note:**  
Excavation and demolition of existing CRM wall shall be terminated at elevation 143.00 if bottom of CRM wall is not uncovered.  
Excavation and demolition of existing concrete closed spandrel arch bridge shall be terminated at elevation 143.00 if top of footing of arch bridge is not uncovered.

**Legend:**  
[Cross-hatched pattern] Extent of Demolition phase 1

SURVEY PLOTTED BY	DATE
DRAWN BY	
DESIGNED BY	
QUANTITIES BY	
CHECKED BY	
ORIGINAL PLAN No.	

DRAWING NAME: Z:\100 ONGOING\20-013-FARR-HWY-KAPOLEI GC ID: ET WPG-RMTC\01 CAD\04-06-22 BID SET\FHW3-SB0302 DEMO-SECTIONING PLOT TIME: 04-07-22: 5:07 PM

**RUCS S. MIYAHARA**  
LICENSED PROFESSIONAL ENGINEER  
NO. 9444-S  
HAWAII, U.S.A.  
THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.  
Signature: [Signature]  
April 30, 2024  
EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

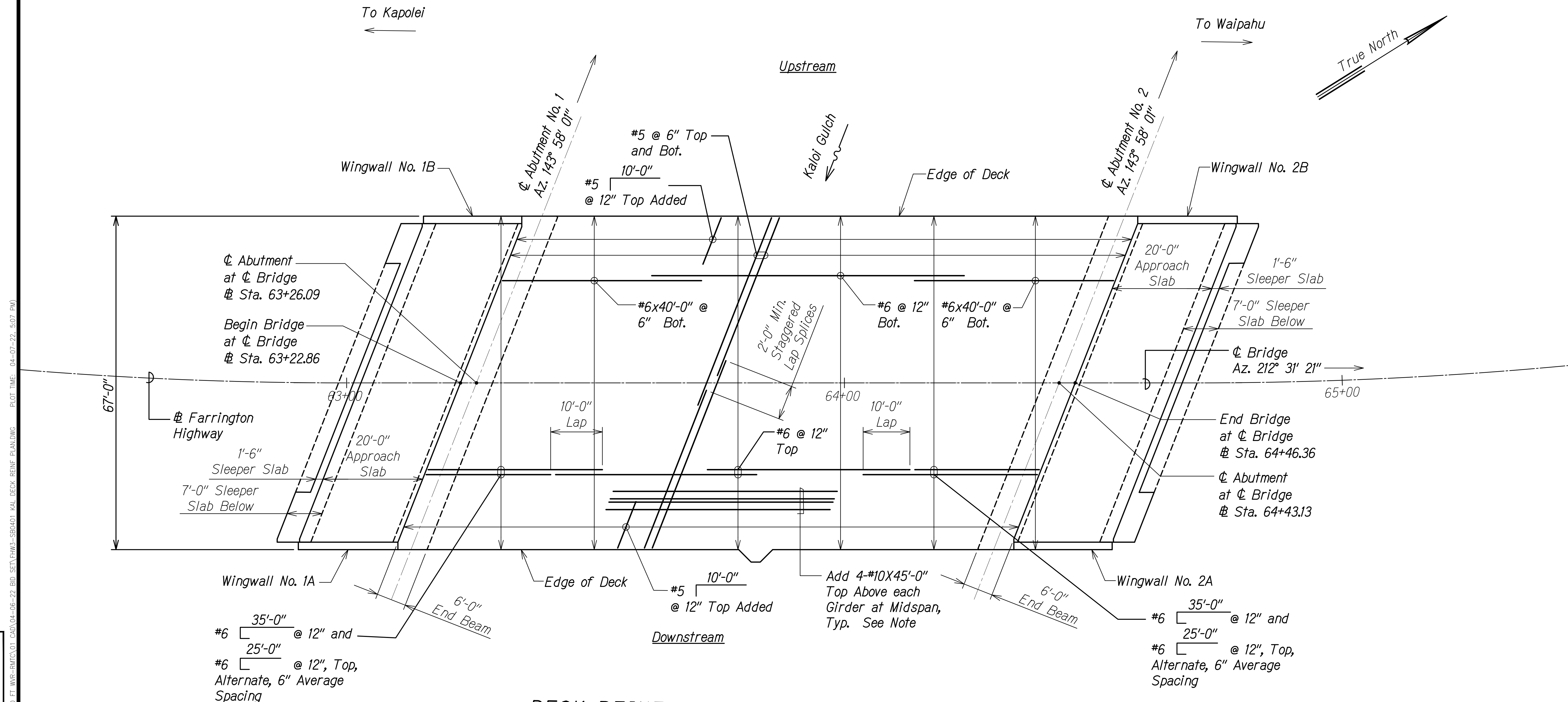
**Kaloi Gulch Bridge  
Arch and CRM Wall Demolition**

FARRINGTON HIGHWAY WIDENING  
Kapolei Golf Course Road to Fort Weaver Road  
Project No. 7101A-01-20

Scale: As Shown Date: Apr. 2022

**SHEET No. SB3.5 OF 5 SHEETS**

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	7101A-01-20	2021	430	



**Notes:**  
 For location of added 4-#10x45'-0" top above each girder, see sheets SB4.2 to SB4.3.

**DECK REINFORCING PLAN**  
 Scale: 1" = 10'-0"  
 SB4.1 SB4.1

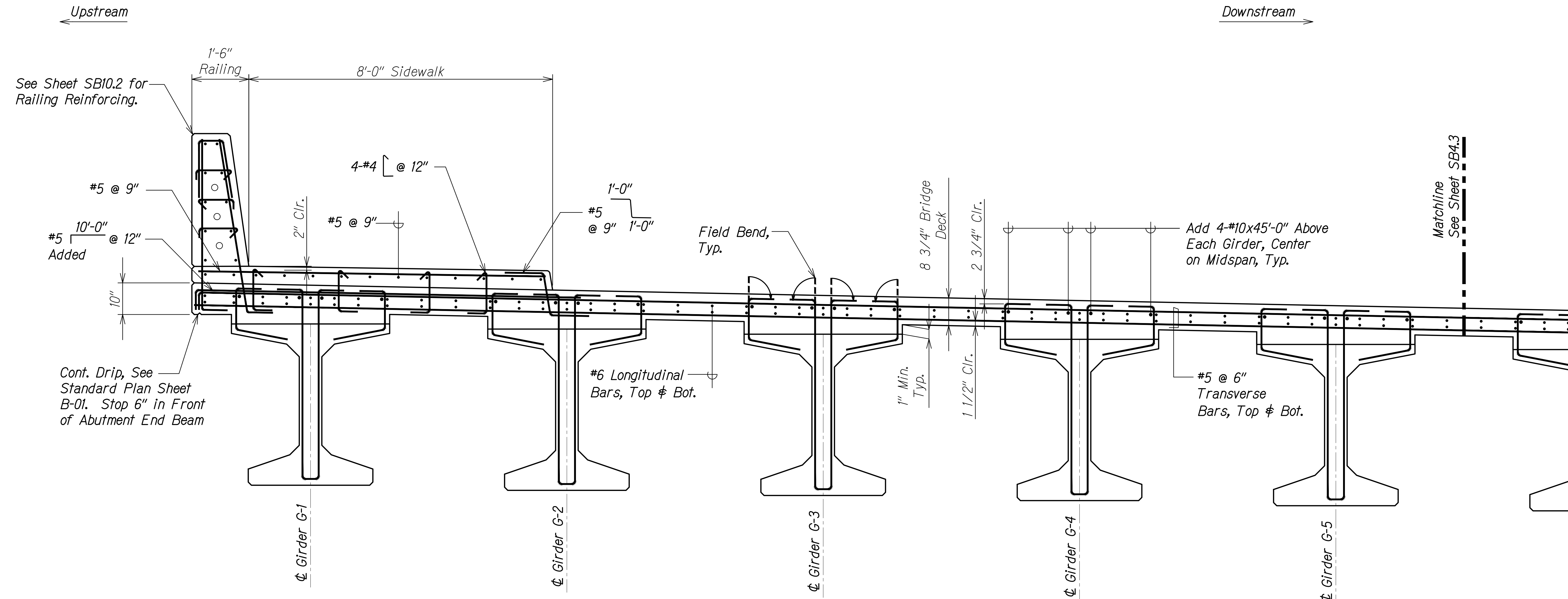
SURVEY PLOTTED BY	DATE
DRAWN BY	
DESIGNED BY	
QUANTITIES BY	
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ORIGINAL PLAN No.	

DRAWING NAME: Z:\000\CONSTR\20-013-FARR-HW-KAPOLEI\GC\10-ET-WRK-EMT\01-CAD\04-06-22-22-BID-SET\FIN3-SB401-KAL-DECK-REINF-PLAN.DWG PLOT TIME: 04-07-22 5:07 PM

RUSS S. MIYAHARA  
 LICENSED PROFESSIONAL ENGINEER  
 NO. 9444-S  
 HAWAII, U.S.A.  
 THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.  
 Signature: *Russ S. Miyahara*  
 April 30, 2024  
 EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII  
 DEPARTMENT OF TRANSPORTATION  
 HIGHWAYS DIVISION  
**Kaloi Gulch Bridge**  
**Deck Reinforcing Plan**  
 FARRINGTON HIGHWAY WIDENING  
 Kapolei Golf Course Road to Fort Weaver Road  
 Project No. 7101A-01-20  
 Scale: As Shown Date: Apr. 2022  
**SHEET No. SB4.1 OF 4 SHEETS**

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	7101A-01-20	2021	431	



See Sheet SB10.2 for Railing Reinforcing.

#5 @ 9"  
#5 10'-0" @ 12"  
10"

Cont. Drip, See Standard Plan Sheet B-01. Stop 6" in Front of Abutment End Beam

1'-6" Railing  
8'-0" Sidewalk

4-#4 @ 12"

#5 @ 9"

#5 @ 9" 1'-0"

Field Bend, Typ.

8 3/4" Bridge Deck  
2 3/4" Clr.

Add 4-#10x45'-0" Above Each Girder, Center on Midspan, Typ.

#6 Longitudinal Bars, Top & Bot.

1" Min. Typ.  
1 1/2" Clr.

#5 @ 6" Transverse Bars, Top & Bot.

Matchline See Sheet SB4.3

⊕ Girder G-1

⊕ Girder G-2

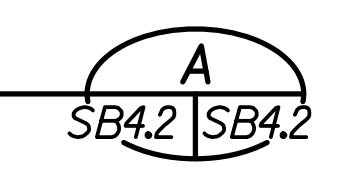
⊕ Girder G-3

⊕ Girder G-4

⊕ Girder G-5

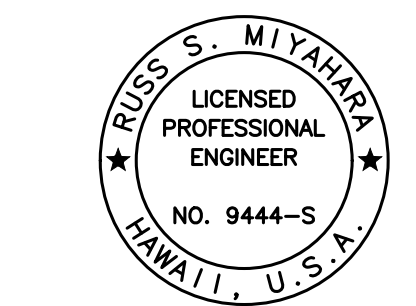
SECTION AT MIDSPAN  
(NORMAL TO ⊕ BRIDGE)

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



ORIGINAL PLAN	DATE
NOTE BOOK	
DESIGNED BY	
QUANTITIES BY	
CHECKED BY	

DRAWING NAME: Z:\100\_ONGOING\20-013-FARR-HWY-KAPOLEI\GE.ID.IT.WPG-EMTC\01-CAD\04-06-22-BID-SET\FHWS-SB402-KAL\_DECK\_SECT.DWG PLOT TIME: 04-07-22, 5:07 PM



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 Signature: Russ S. Miyahara  
 April 30, 2024  
 EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII  
 DEPARTMENT OF TRANSPORTATION  
 HIGHWAYS DIVISION

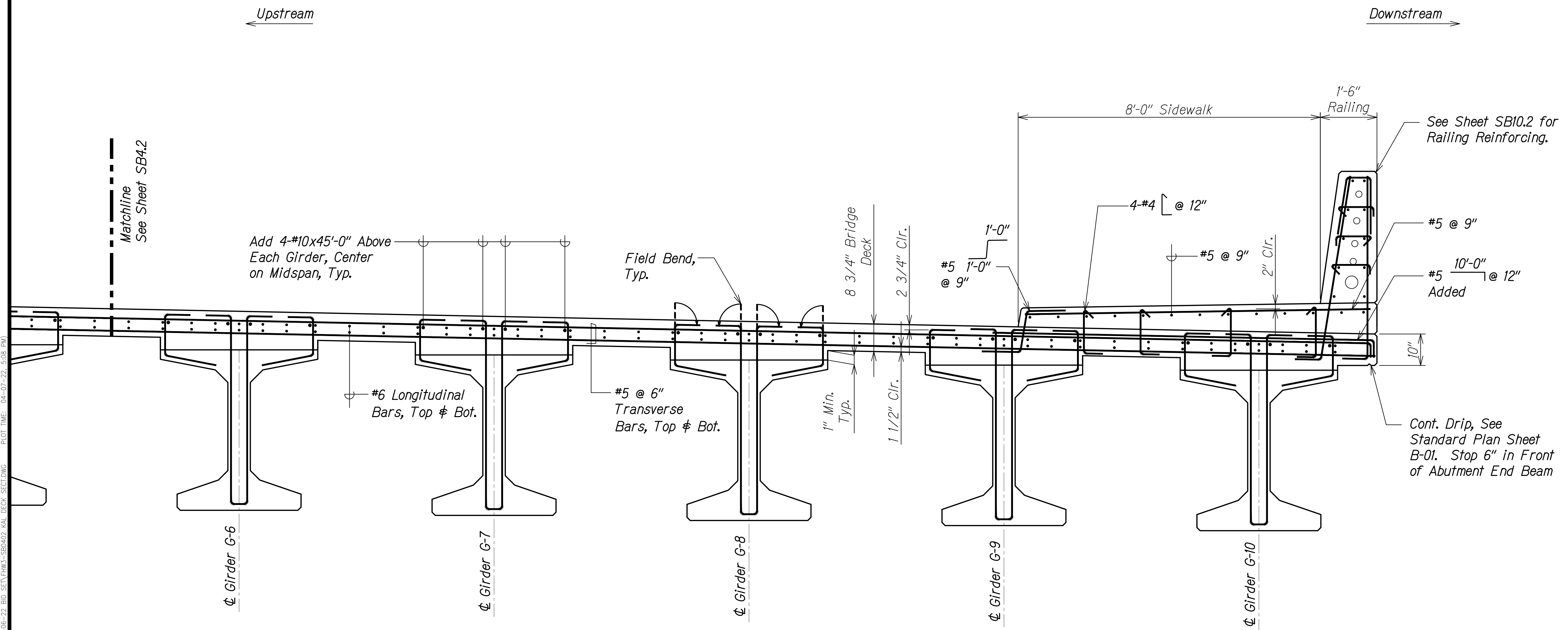
**Kaloi Gulch Bridge**  
**Partial Deck Section**

FARRINGTON HIGHWAY WIDENING  
 Kapolei Golf Course Road to Fort Weaver Road  
 Project No. 7101A-01-20

Scale: As Shown Date: Apr. 2022



FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	7101A-01-20	2021	432	



SECTION AT MIDSPAN  
(NORMAL TO ⊕ BRIDGE)

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

A  
SB4.3 | SB4.3

ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
NOTE BOOK	DRAWN BY	
No. _____	DESIGNED BY	
	QUANTITIES BY	
	CHECKED BY	

DRAWING NAME: Z:\100 ONGOING\20-013-FARR-HWY-KAPOLEI GC ID: FT-WR-EMTC\01-GAD\04-06-22 BID SET\PH3-SB402 KAL DECK SEC.DWG. PLOT TIME: 04-07-22, 5:08 PM

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.

*Russ S. Miyahara*  
SIGNATURE

April 30, 2024  
EXPIRATION DATE OF THE LICENSE



STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

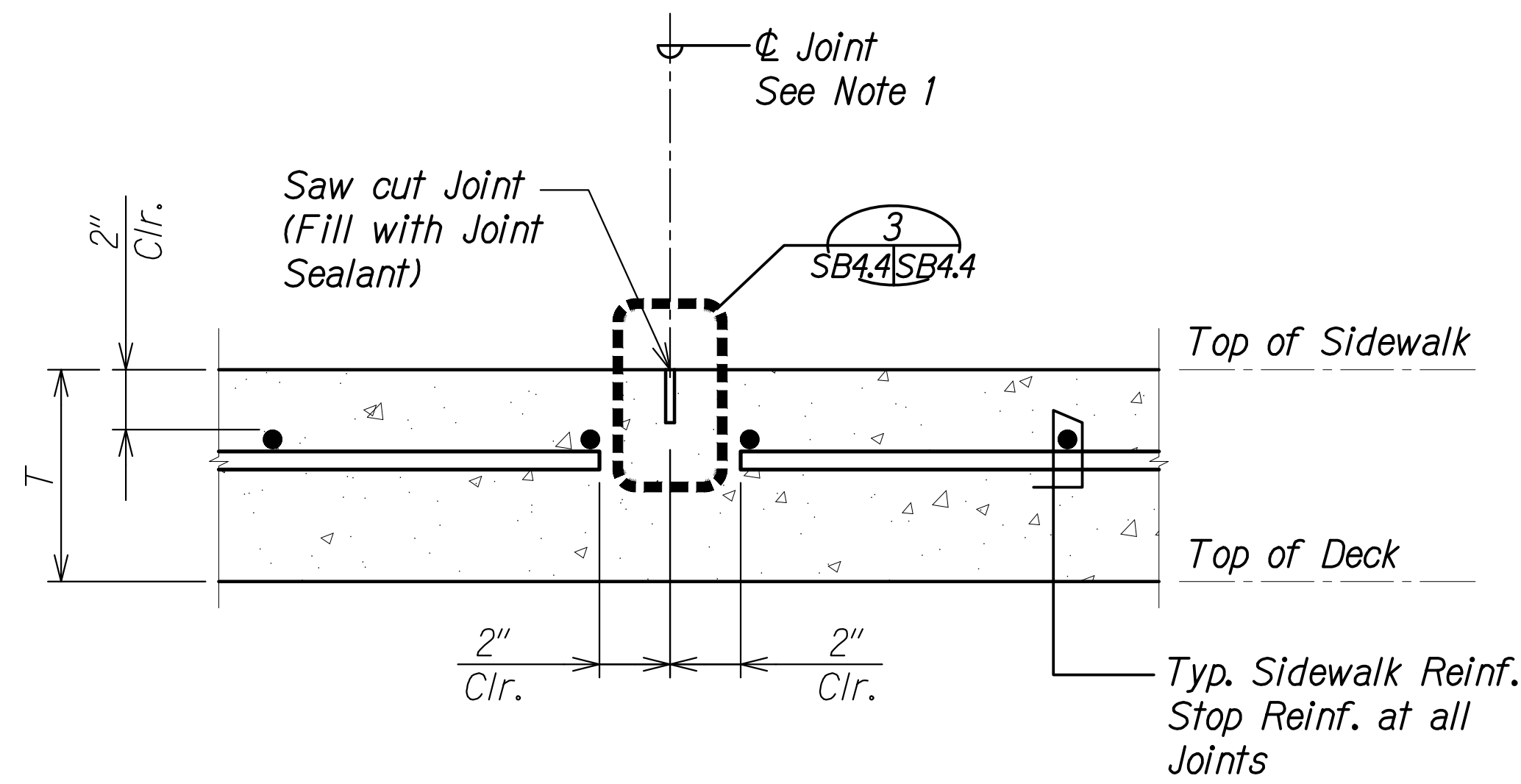
**Kaloi Gulch Bridge**  
Partial Deck Section

FARRINGTON HIGHWAY WIDENING  
Kapolei Golf Course Road to Fort Weaver Road  
Project No. 7101A-01-20

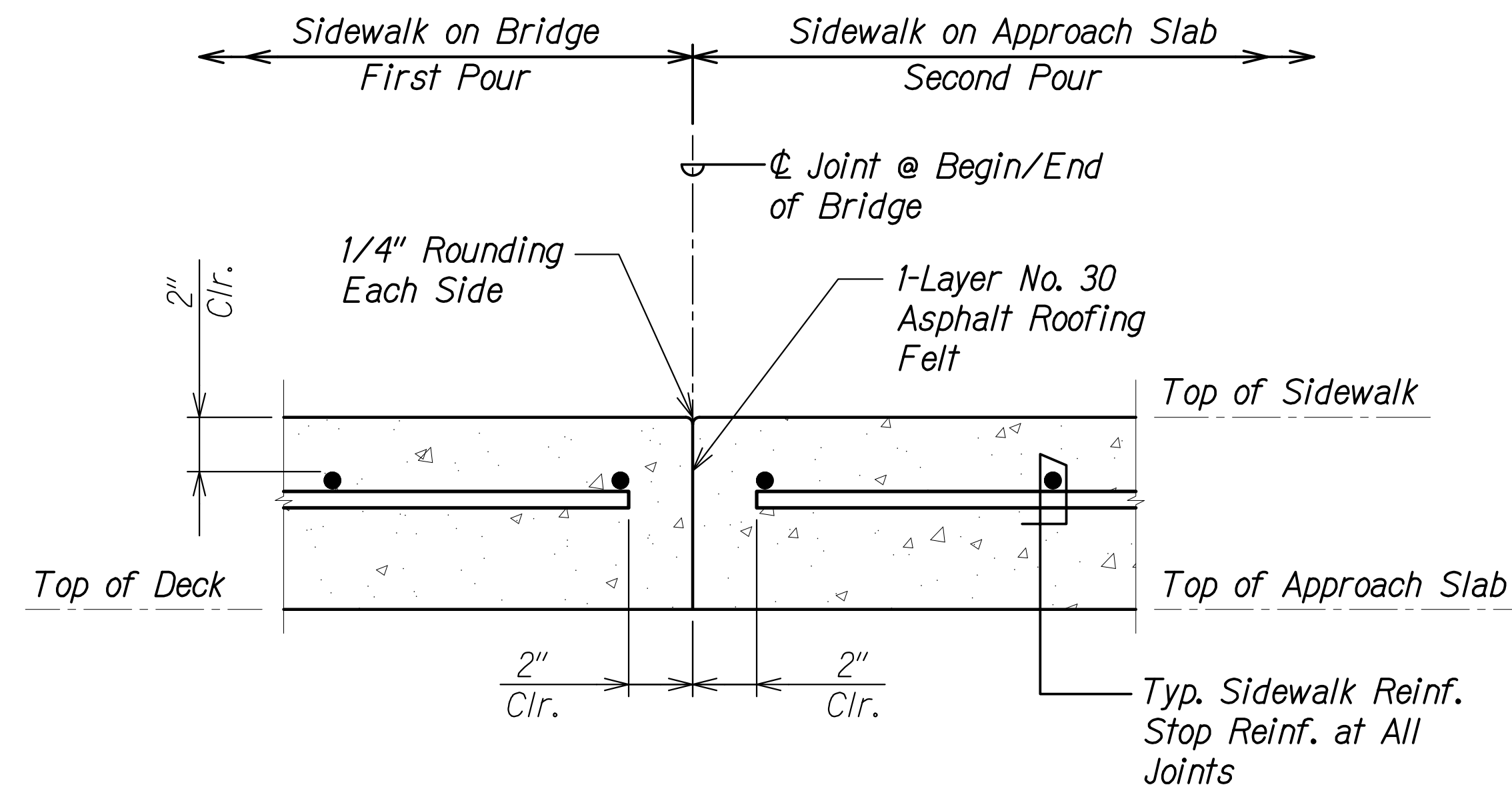
Scale: As Shown Date: Apr. 2022

SHEET No. SB4.3 OF 4 SHEETS

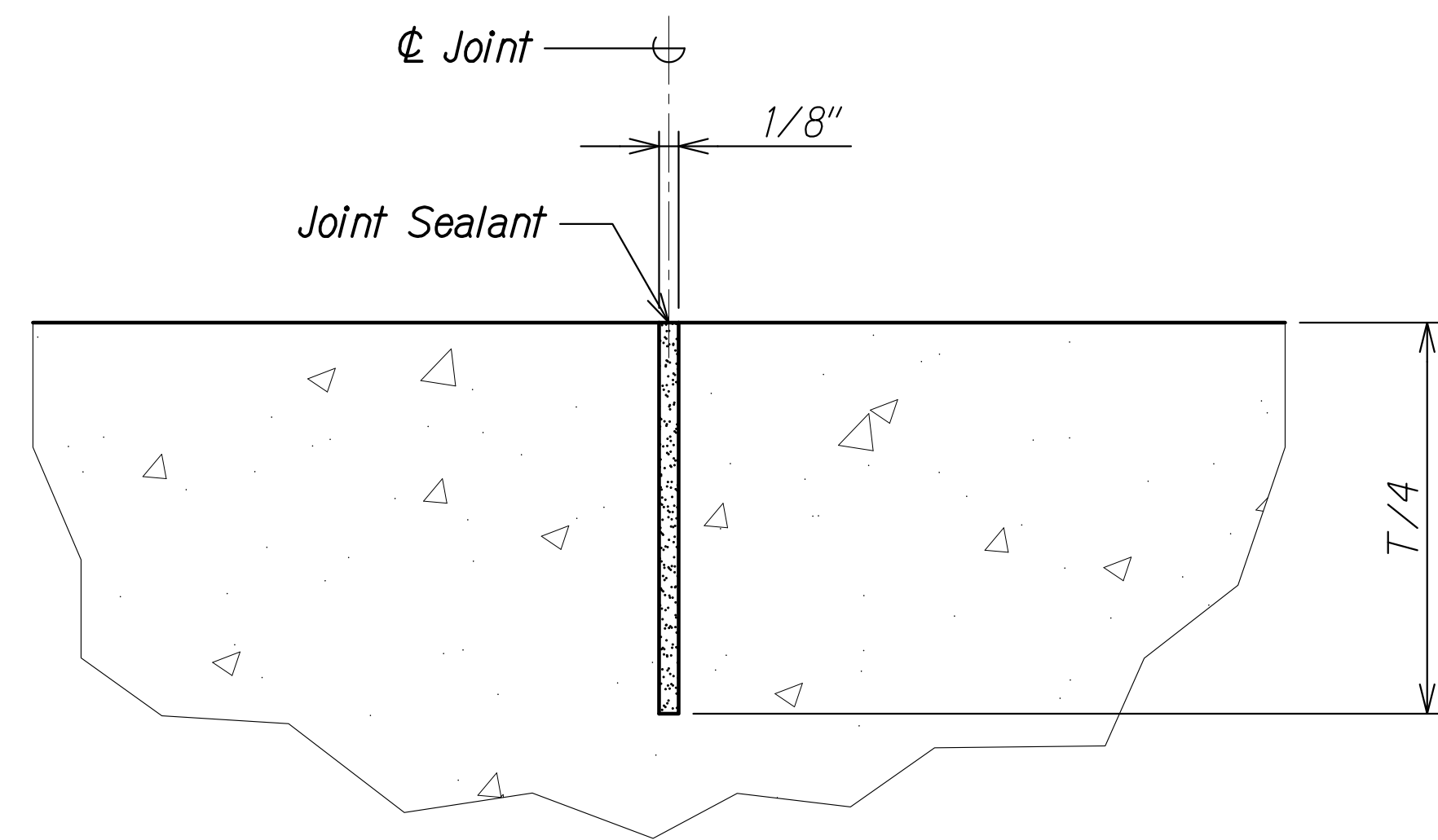
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	7101A-01-20	2021	433	



**TYPICAL SIDEWALK JOINT DETAIL** 1  
 Scale: 3" = 1'-0" SB4.4 SB4.4



**SIDEWALK JOINT DETAIL AT BEGIN/END OF BRIDGE** 2  
 Scale: 3" = 1'-0" SB4.4 SB4.4



**SIDEWALK JOINT DETAIL** 3  
 Full Scale SB4.4 SB4.4

**Notes:**

1. Sidewalk joints shall be located as shown on sheet SB1.5. Typical sidewalk joints shall be placed perpendicular to  $\phi$  bridge. Sidewalk joints at begin/end of bridge shall follow the skew of the abutment. Sidewalk joints shall match locations of deflection joints in bridge railing. See sheet SB10.1.
2. For sidewalk section above approach slab and sleeper slab, see sheets SB11.2 to SB11.3.
3. Joint sealant shall be a semi-rigid epoxy or polyurea material. Sealant shall not become brittle in service. Joint sealant shall be 100% solids with a minimum shore hardness of A-80 as measured in accordance with ASTM D2240. The material shall be installed full depth in joint without a backer rod, and flush with the finish surface.
4. Saw cut sidewalk joints as soon as possible without raveling concrete but no later than 6 hours after pouring concrete.

**Legend:**

T = Thickness of sidewalk

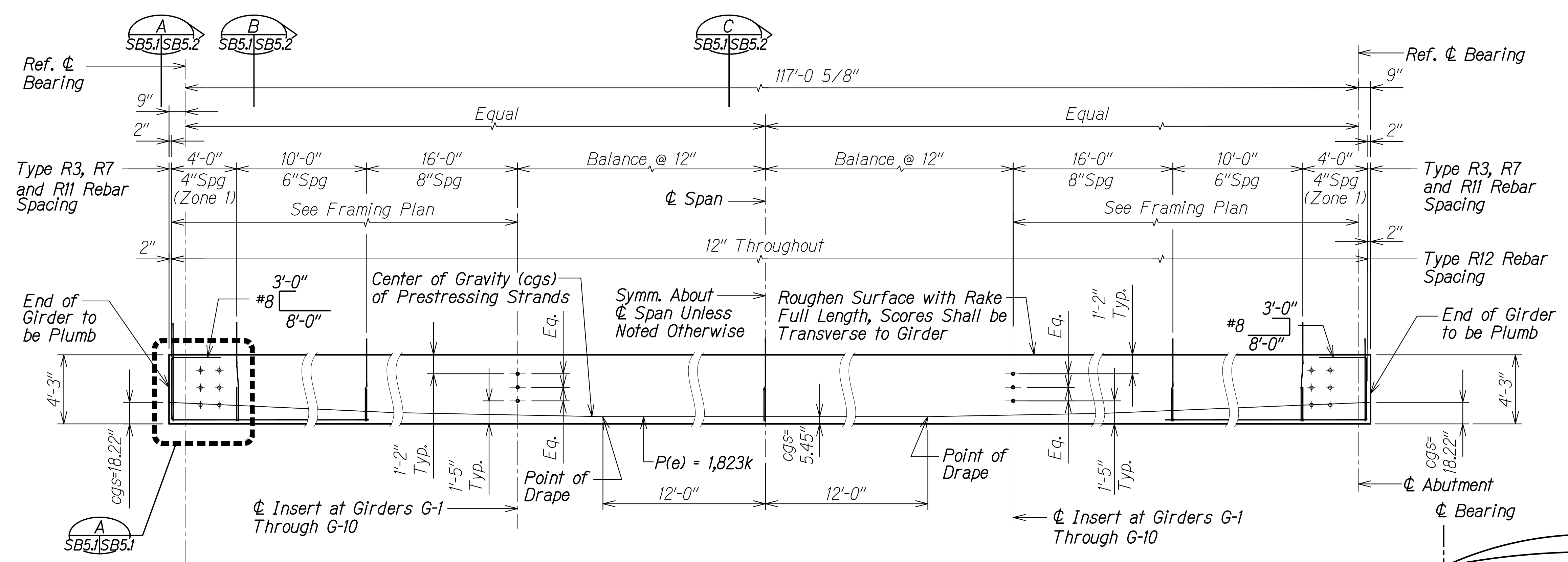
ORIGINAL PLAN	DATE
SURVEY PLOTTED BY	
DRAWN BY	
DESIGNED BY	
QUANTITIES BY	
CHECKED BY	
No.	

DRAWING NAME: Z:\100 ONGOING\20-013-FARR-HWY-KAPOLEI\GC\_ID\_ET\_WIP-EMTC\01\_GAD\04-06-22\_BID\_SET\FIN3-SB4.4-SIDEWALK\_DETAILS.DWG PLOT TIME: 04-07-22: 5:08 PM

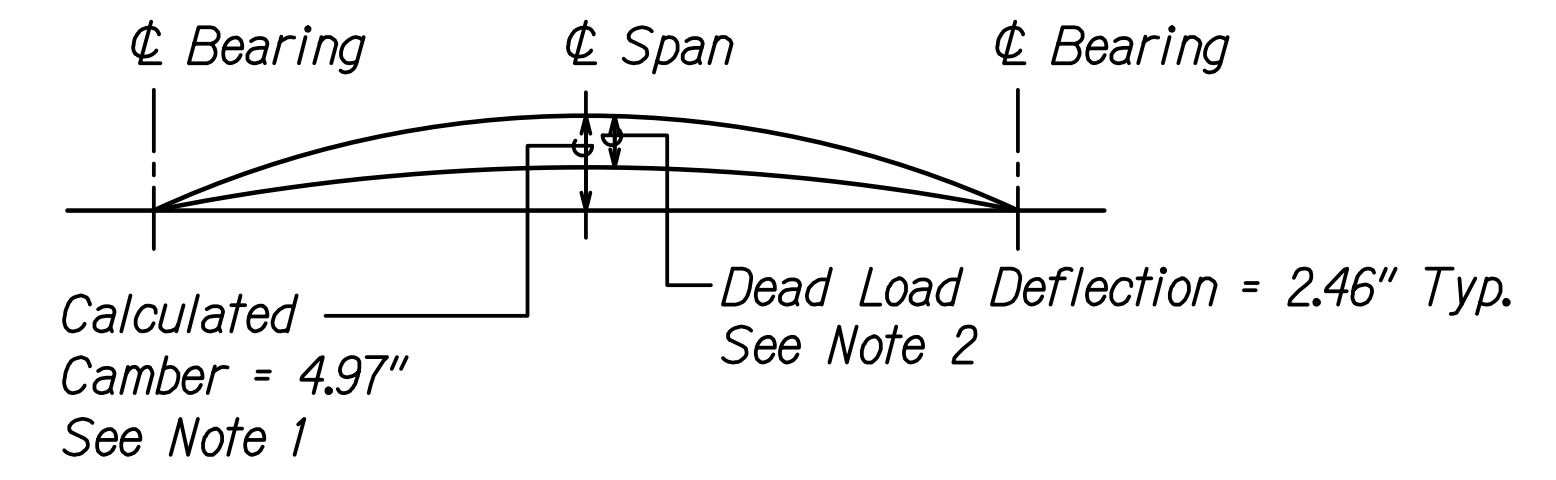
THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.  
 Signature: *Rugo S. Miyahara*  
 April 30, 2024  
 EXPIRATION DATE OF THE LICENSE

**STATE OF HAWAII**  
**DEPARTMENT OF TRANSPORTATION**  
**HIGHWAYS DIVISION**  
  
**Kaloie Gulch Bridge**  
**Sidewalk Joint Details**  
  
**FARRINGTON HIGHWAY WIDENING**  
**Kapoleie Golf Course Road to Fort Weaver Road**  
**Project No. 7101A-01-20**  
  
 Scale: As Shown      Date: Apr. 2022  
**SHEET No. SB4.4 OF 4 SHEETS**

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	7101A-01-20	2021	434	



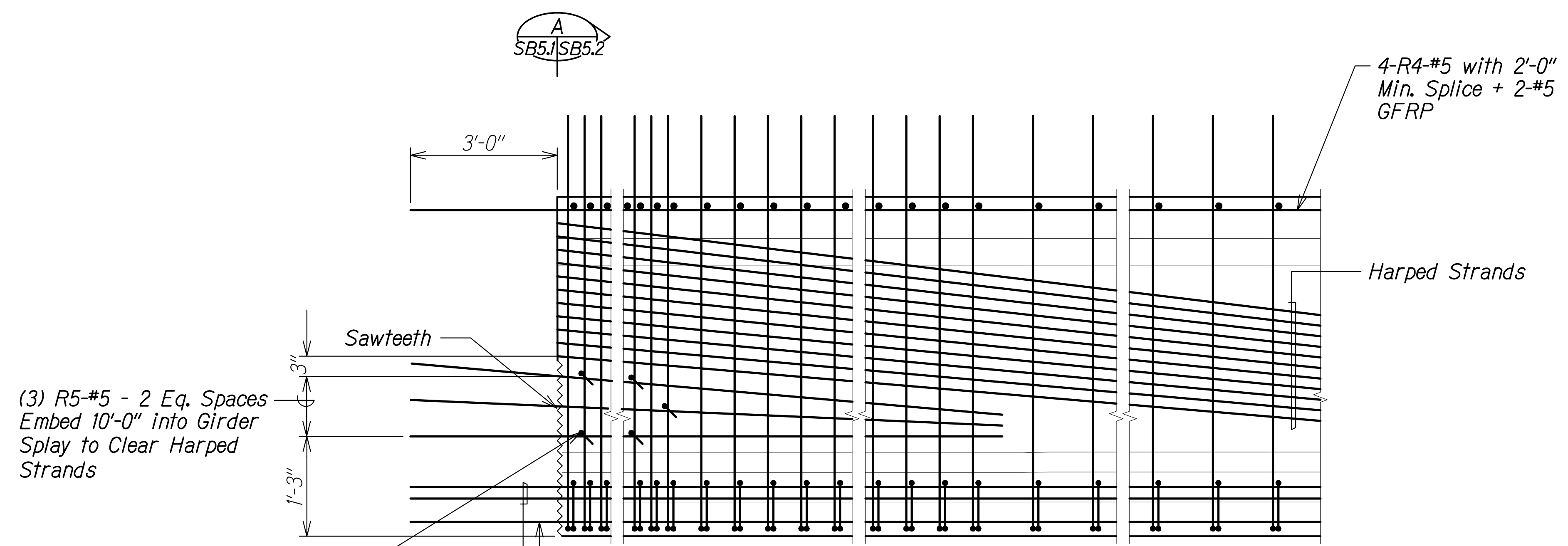
**TYPE II PRESTRESSED GIRDER ELEVATION (G-1 THROUGH G-10)**  
Scale: None



**GIRDER CAMBER DIAGRAM**  
Scale: None

**GIRDER CAMBER NOTES:**

1. The initial camber (3.41") includes the effect of the initial prestress force and the weight of the girder after removal from the bed. The calculated camber value at 60 days is the initial camber multiplied by creep factor to approximate the effect of camber growth and concrete creep. Positive values shown for calculated camber indicate a net upward deflection. Maximum camber immediately prior to erection of girders shall not exceed the calculated camber by more than 1 inch. Girders with cambers exceeding the maximum camber will not be accepted.
2. The dead load deflection includes the combined effects of the weight of slab, drop panels, and diaphragms.
3. Contractor shall camber the deck form work as required to account for the calculated dead load deflection in order to provide the specified finish deck elevations.
4. All cambers and deflections are in inches.
5. Working force is designated as  $P(e)$  = Effective prestress force after all losses.



- Notes:**
1. #8 and 1 1/8" dia. holes are not shown for clarity.
  2. See sheet SB5.2 for additional information.

**TYPICAL END ELEVATION**  
Scale: None

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ORIGINAL PLAN	
NOTE BOOK	
No.	

DRAWING NAME: Z:\00\_ONGOING\20-013-FARR-HW-KAPOLEI GC TO FT WEAVER\HW-KAPOLEI GC\04-06-22 BID SET\PH03-SB0501 GIRDER DET.DWG PLOT TIME: 04-07-22 5:09 PM

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 Signature: *Paul S. Miyahara*  
 April 30, 2024  
 EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII  
 DEPARTMENT OF TRANSPORTATION  
 HIGHWAYS DIVISION

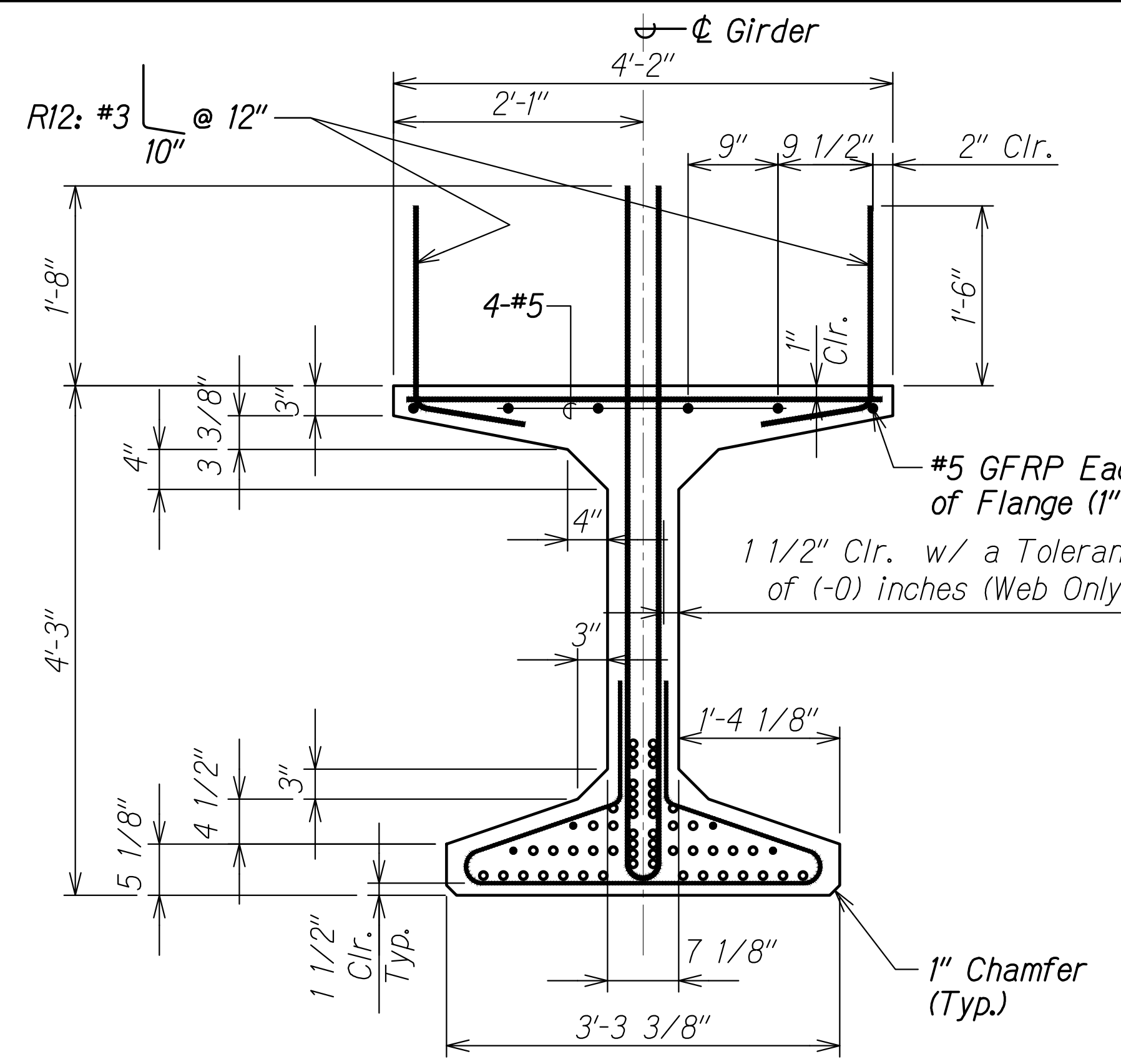
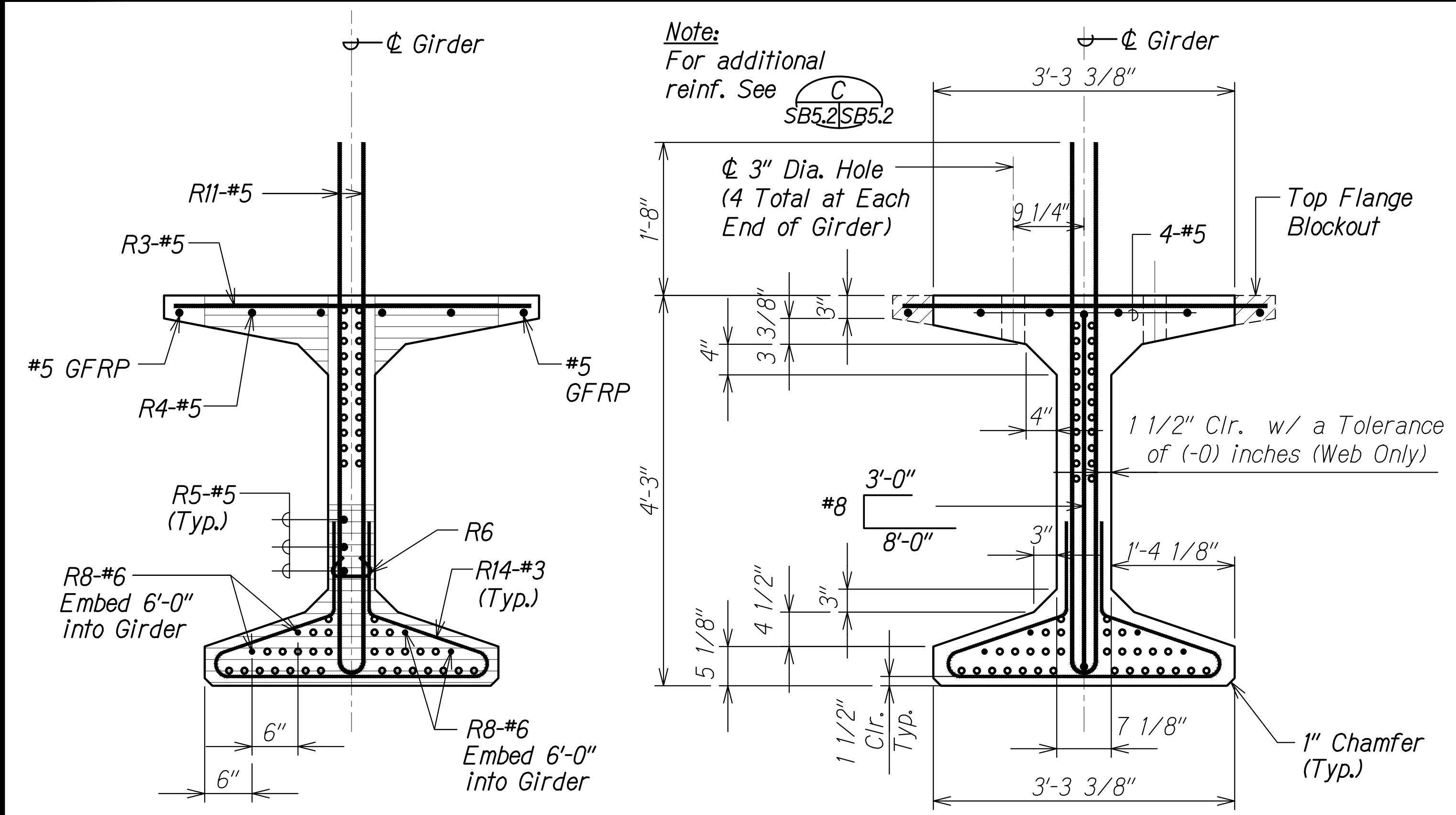
**Kaloie Gulch Bridge**  
 Type II Prestressed Girder

FARRINGTON HIGHWAY WIDENING  
 Kapolei Golf Course Road to Fort Weaver Road  
 Project No. 7101A-01-20

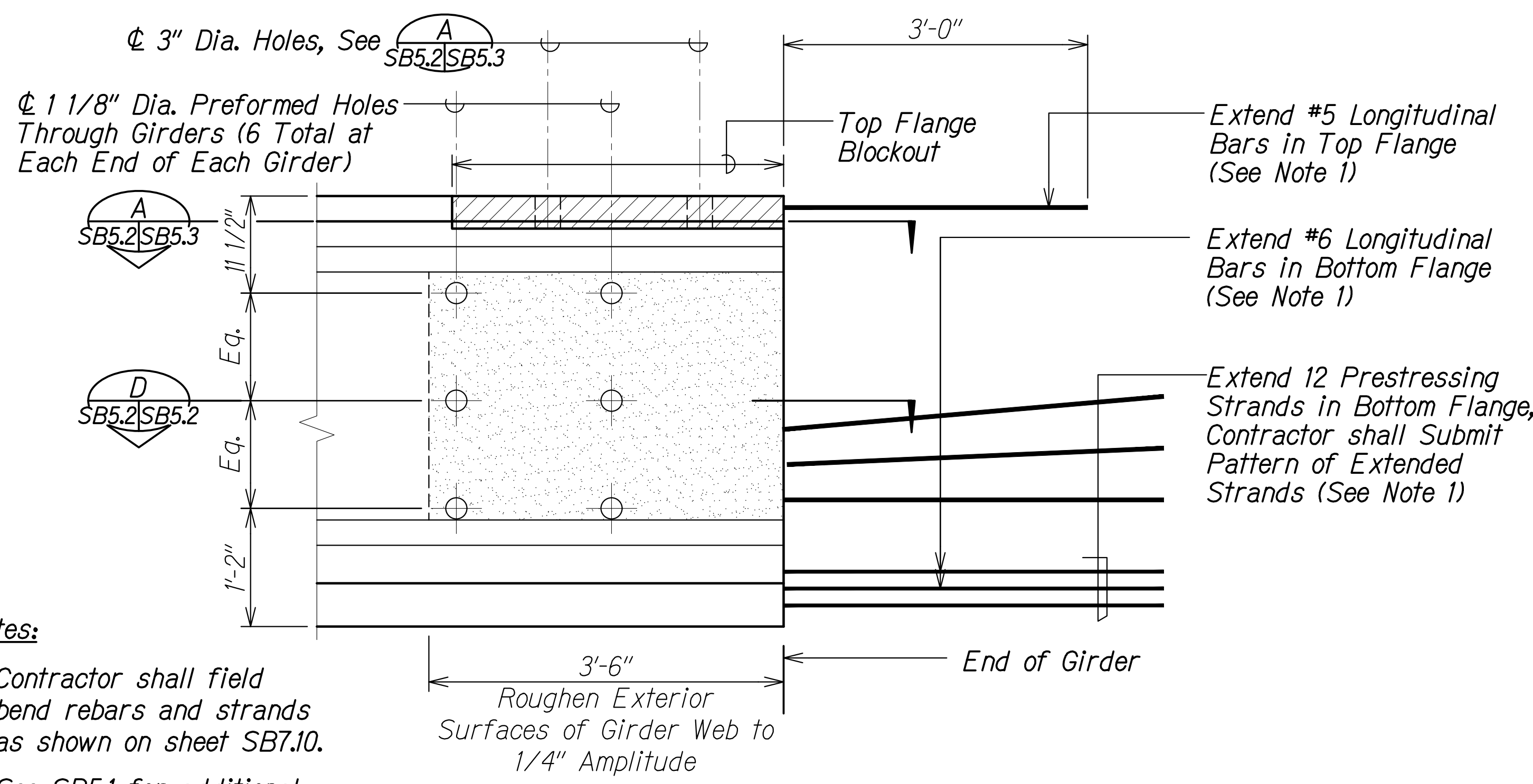
Scale: As Shown Date: Apr. 2022

SHEET No. SB5.1 OF 3 SHEETS

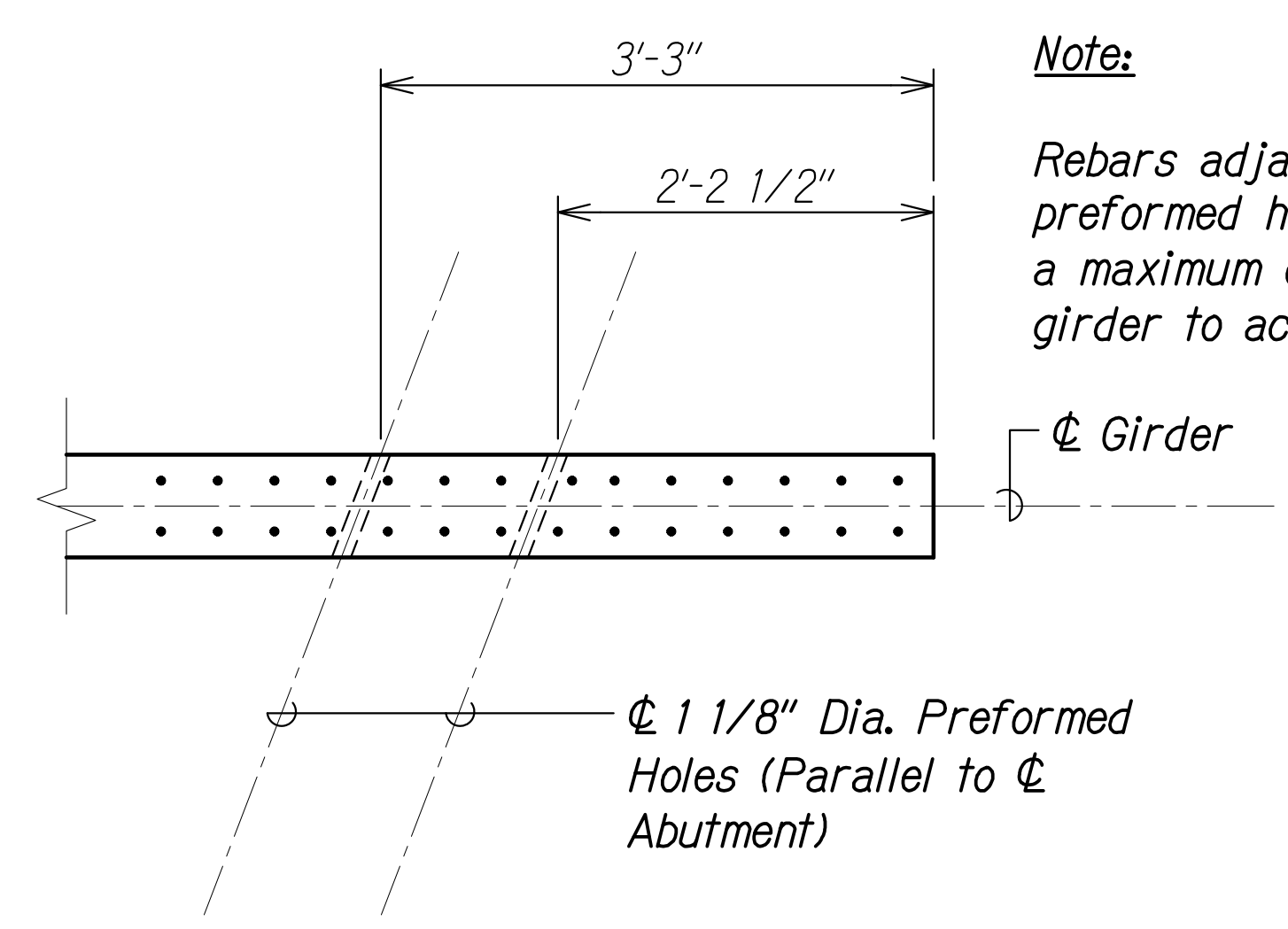
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	7101A-01-20	2021	435	



- Notes:**
- Sawteeth shown by hatched area
  - Strands are shown for illustrative purposes only.
  - Type II girders (G-1 Through G-10)
  - For R Type reinforcing see sht. SB5.3
  - See sheet SB5.1 for stirrup spacing.



- Notes:**
- Contractor shall field bend rebars and strands as shown on sheet SB7.10.
  - See SB5.1 for additional reinforcing details.



- Note:**
- Rebars adjacent to 1 1/8" Dia. preformed holes may be adjusted a maximum of 1/4" along  $\phi$  girder to accommodate the hole

SURVEY PLOTTED BY	DATE
DRAWN BY	
DESIGNED BY	
QUANTITIES BY	
CHECKED BY	
ORIGINAL PLAN No.	

DRAWING NAME: 2A100 UNDOINGS-20-013-FARR-HWY-KAPOLEI GC ID: ET-WP-RMT(C)01 CAD: 04-06-22 BID: SET-FH03-SB0501 GIRDER DETAILING PLOT TIME: 04-07-22: 5:09 PM

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.

*Paul S. Miyahara*  
APR 30, 2024  
SIGNATURE EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

**Kaloie Gulch Bridge**  
Type II Prestressed Girder Sections

FARRINGTON HIGHWAY WIDENING  
Kapolei Golf Course Road to Fort Weaver Road  
Project No. 7101A-01-20

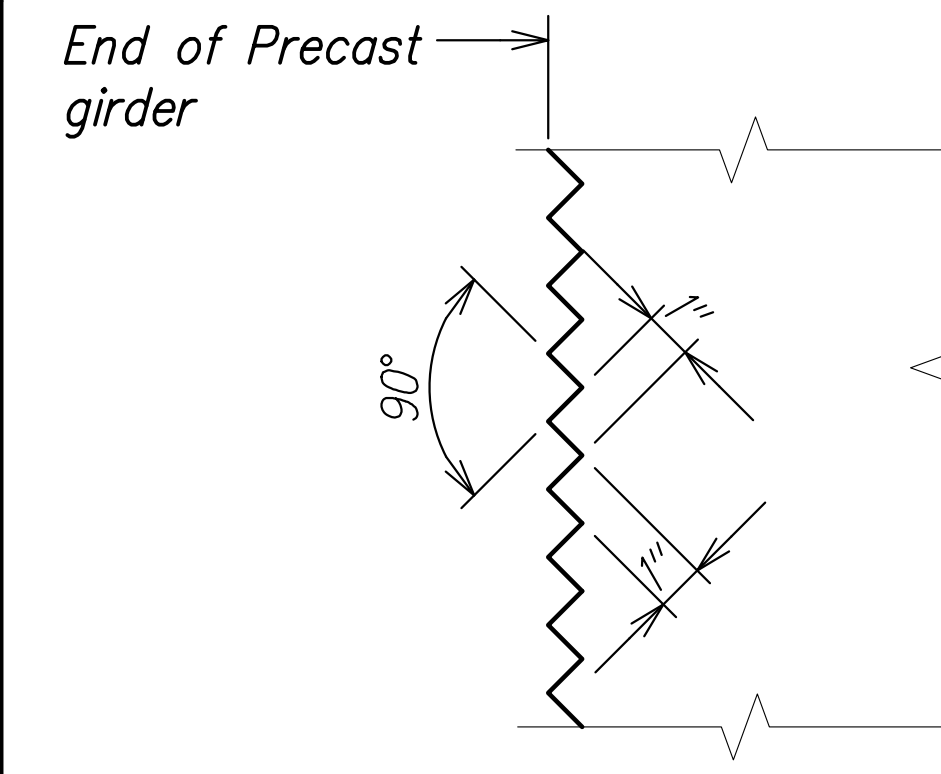
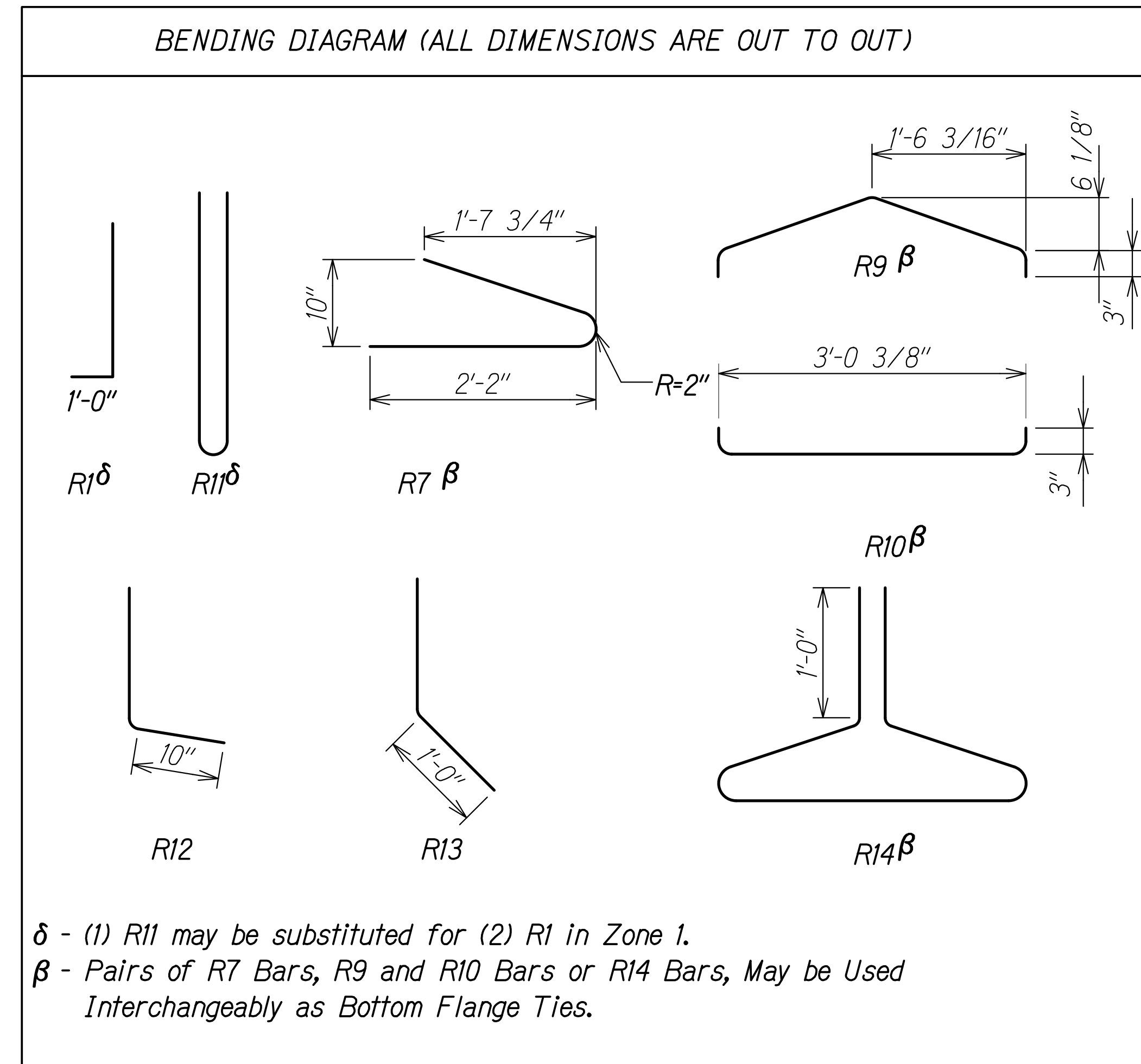
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SHEET No. SB5.2 OF 3 SHEETS

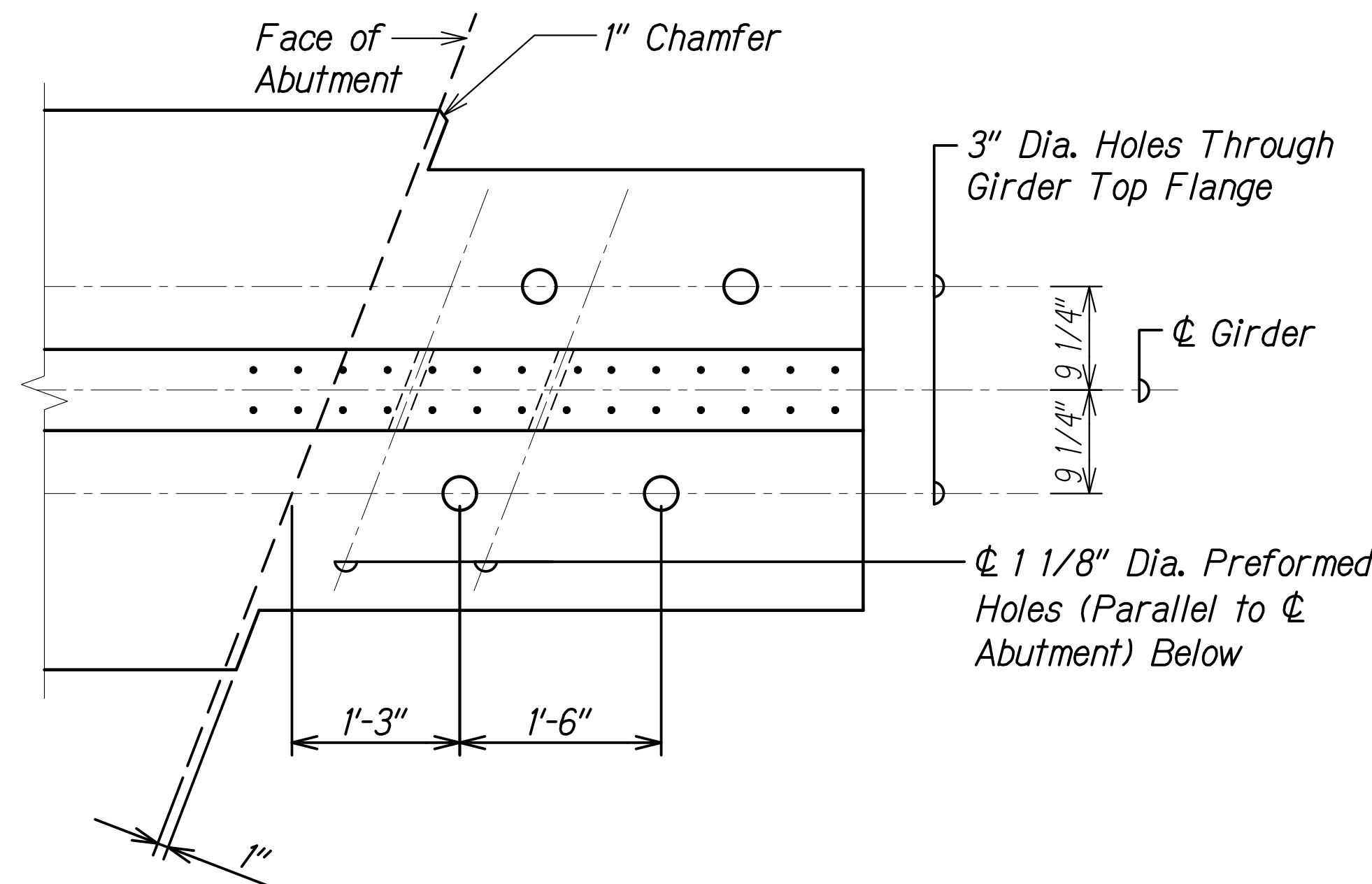
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	7101A-01-20	2021	436	

**PRESTRESSED GIRDER NOTES:**

- Prestressed steel shall be 7-wire 0.6-inch diameter ASTM A416 Grade 270 low-relaxation strand.
- See framing plans for location of diaphragms,  $\phi$  bearing to  $\phi$  bearing, and girder spacing.
- Strand pattern shall be symmetrical about the longitudinal  $\phi$  of the girder.
- Strand release sequence shall not induce any lateral deflection of the girder.
- Contractor shall submit shop drawings indicating proposed strand pattern, holes, inserts, releasing sequence, reinforcing details and hold down device details to the Engineer prior to fabrication.
- The Contractor shall incorporate all holes, inserts, and other embedded items required in girders during fabrication of the girders.
- Lifting devices shall be placed as close as possible to the center line bearing of the girder. Details and locations of lifting devices shall be submitted to the Engineer for approval. Such approval does not relieve the Contractor of his responsibilities if the girder is damaged due to failure of lifting device.
- Prior to casting girder Contractor shall field verify span lengths at each abutment.
- Contractor shall inspect all lifting devices for damage prior to delivery and immediately before installation.
- Contractor shall submit alternative method to lift girder if lifting devices are damaged for review and acceptance.
- Roughen top surface of girder to 1/4" min. amplitude.
- The compressive strength of the girder at strand release shall be at least 6,500 psi.
- The compressive strength of the girder at 28 Days shall be at least 10,000 psi.
- See sheet SB5.2 for rebar  $\phi$  strand extensions.
- Contractor may adjust locations of holes  $\phi$  inserts with the approval of the Engineer.



**SAWTEETH DETAIL** 1  
Not to Scale SB5.3 | SB5.3



**SECTION A**  
Scale: 1" = 1'-0" A  
SB5.2 | SB5.3

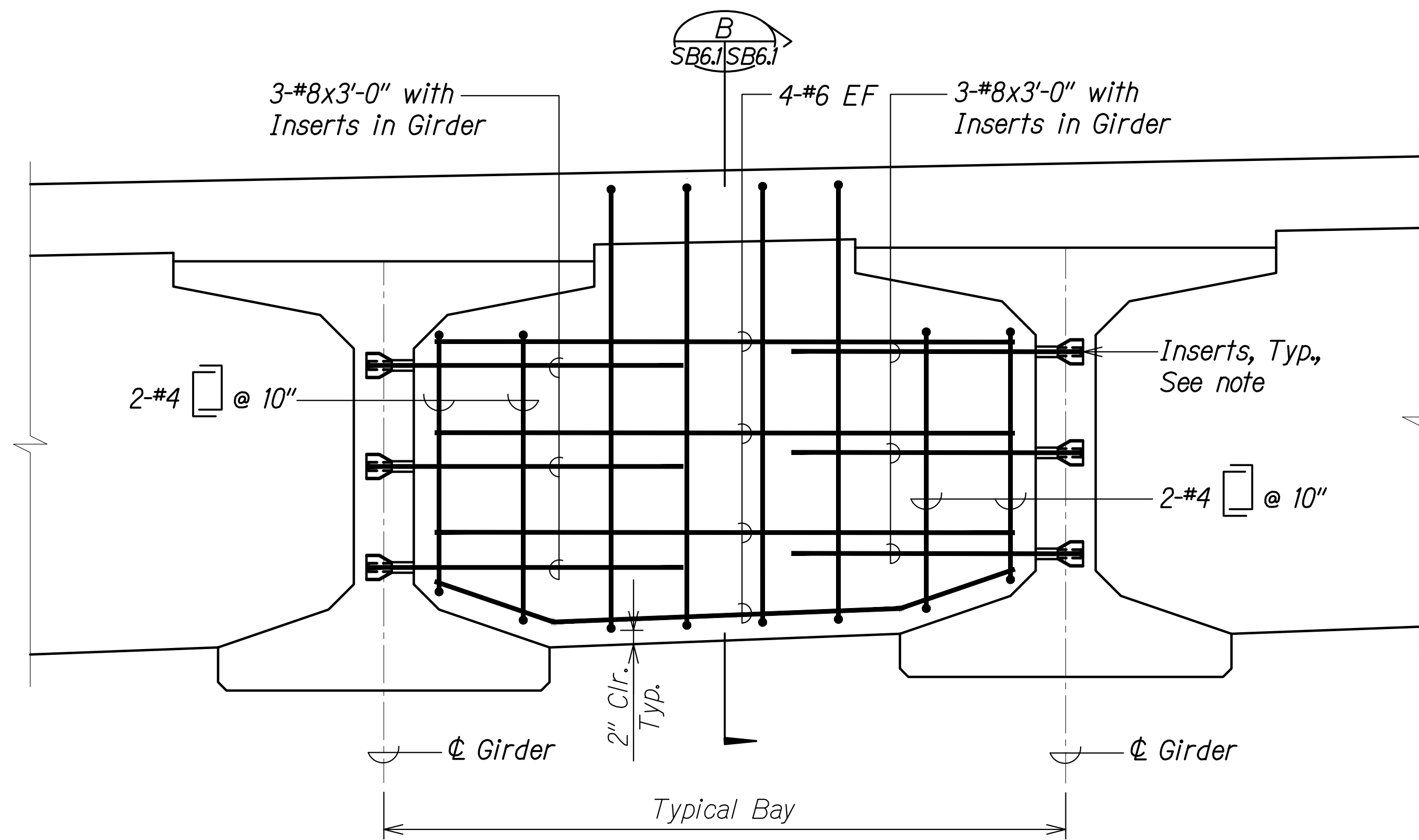
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DESIGNED BY	
QUANTITIES BY	
CHECKED BY	
ORIGINAL PLAN	No.
NOTE BOOK	

DRAWING NAME: 2A100-000000000-013-FARR-HW-KAPOLEI-GC-ID-ET-WP-RMT(C)1-GAD\04-06-22-BID-SET\PH03-SB0501-GIRDER-DETAIL.DWG PLOT TIME: 04-07-22: 5:09 PM

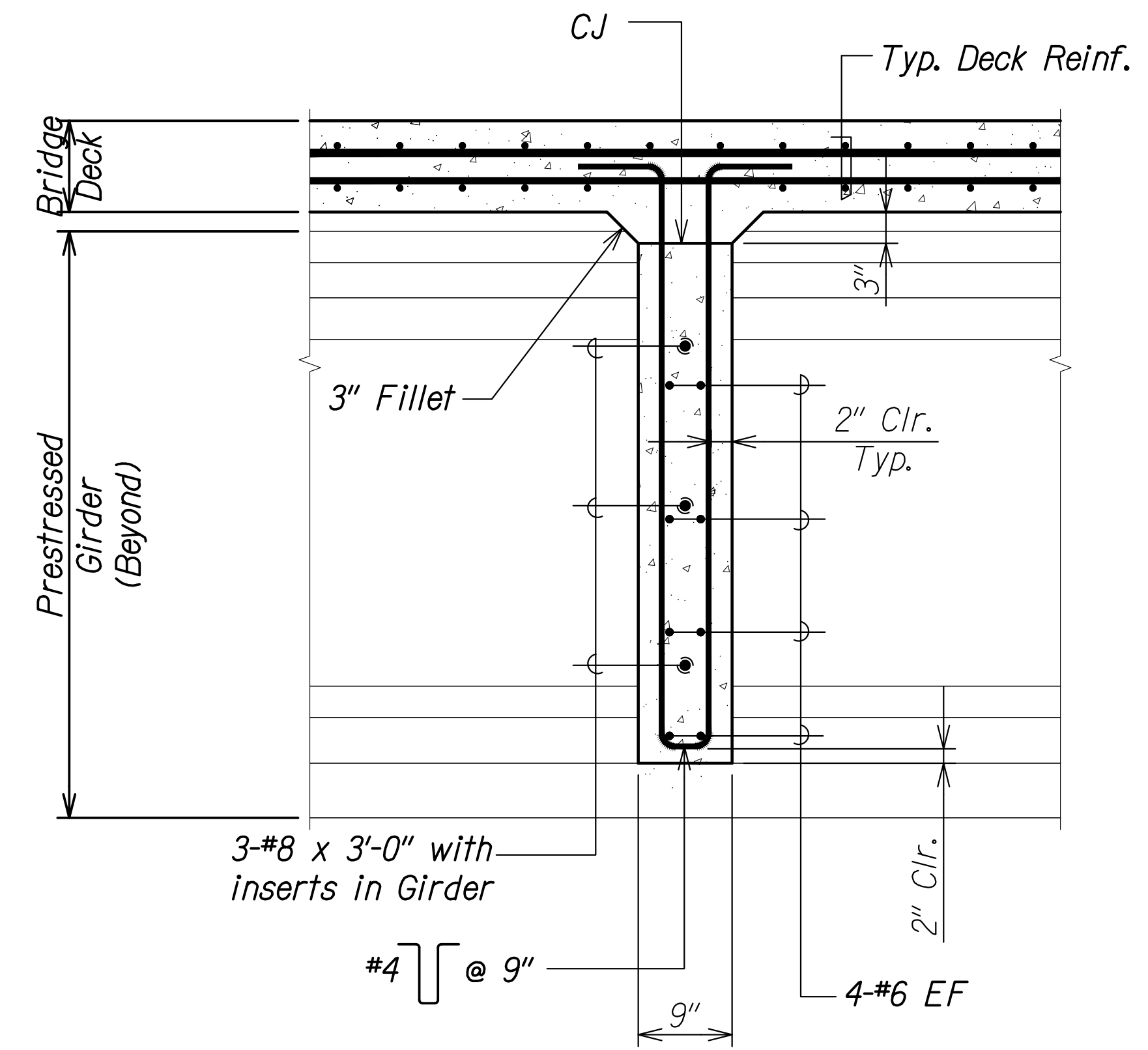
THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.  
*Rugo S. Miyahara*  
 SIGNATURE April 30, 2024  
 EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII  
 DEPARTMENT OF TRANSPORTATION  
 HIGHWAYS DIVISION  
**Kaloi Gulch Bridge**  
**Prestressed Girder Notes and Detail**  
 FARRINGTON HIGHWAY WIDENING  
 Kapolei Golf Course Road to Fort Weaver Road  
 Project No. 7101A-01-20  
 Scale: As Shown Date: Apr. 2022  
**SHEET No. SB5.3 OF 3 SHEETS**

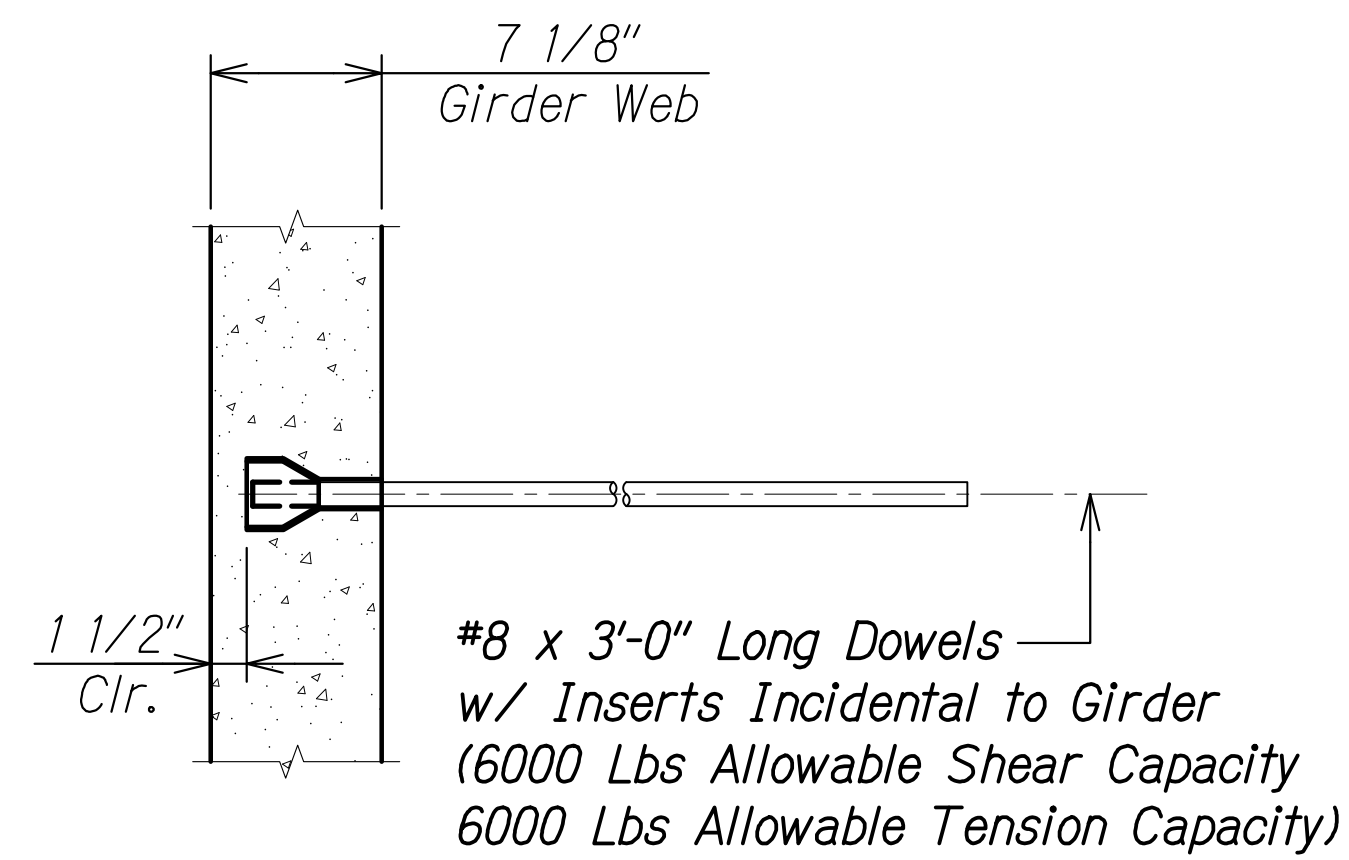
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	7101A-01-20	2021	437	



**DIAPHRAGM ELEVATION  
BETWEEN GIRDERS** B  
Scale: 1" = 1'-0" SB6.1 | SB6.1



**DIAPHRAGM SECTION** CJ  
Scale: 1" = 1'-0" SB6.1 | SB6.1



**TYPICAL INSERT DETAIL** 1  
Scale: 1 1/2" = 1'-0" SB6.1 | SB6.1

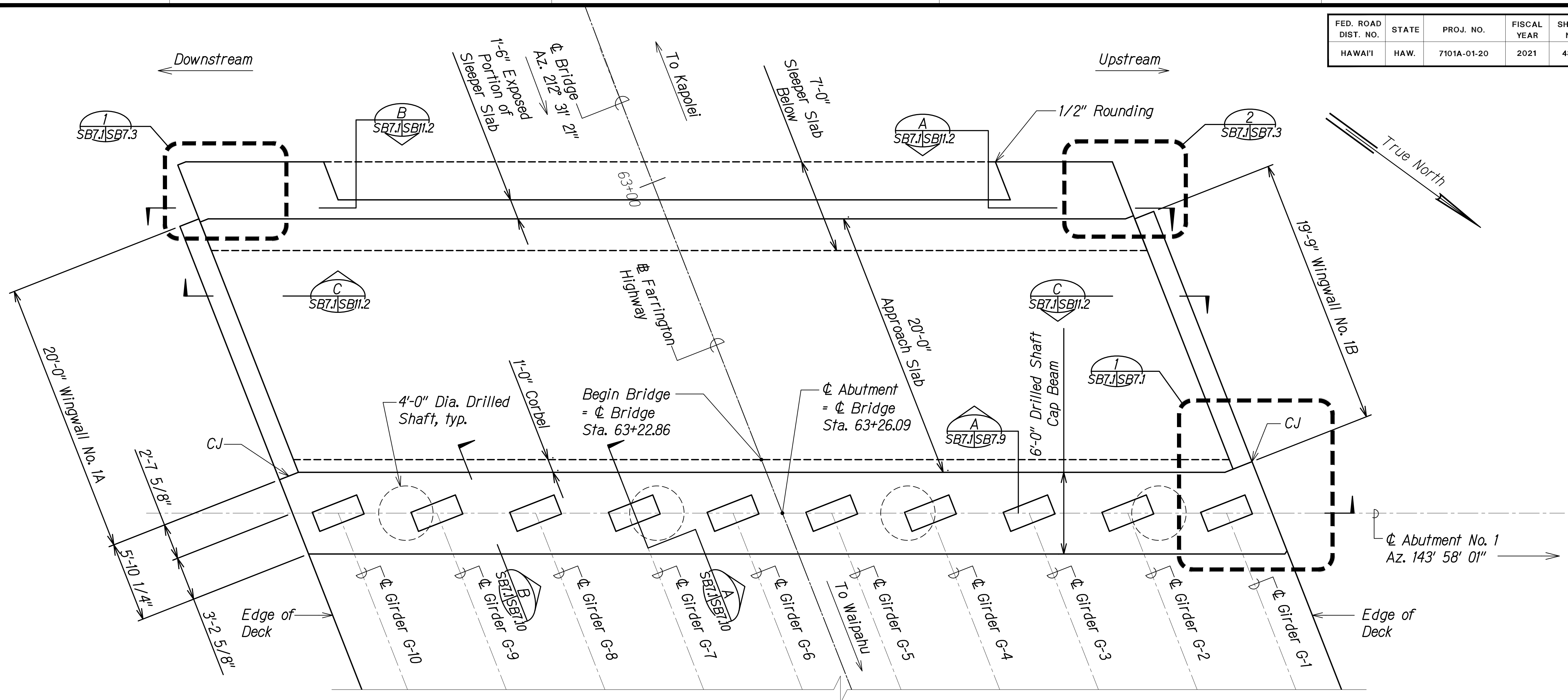
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NOTE BOOK	DRAWN BY	
No.	DESIGNED BY	
	QUANTITIES BY	
	CHECKED BY	

DRAWING NAME: Z:\100 ONGOING\20-013-FARR-HWY-KAPOLEI GC ID: ET-WP2-EMTC\01 CAD\04-06-22 BID SET\FHW3-SB6.01 DIAPHR SECT.DWG PLOT TIME: 04-07-22, 5:09 PM

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 Signature: *Ruges S. Miyahara*  
 April 30, 2024  
 EXPIRATION DATE OF THE LICENSE

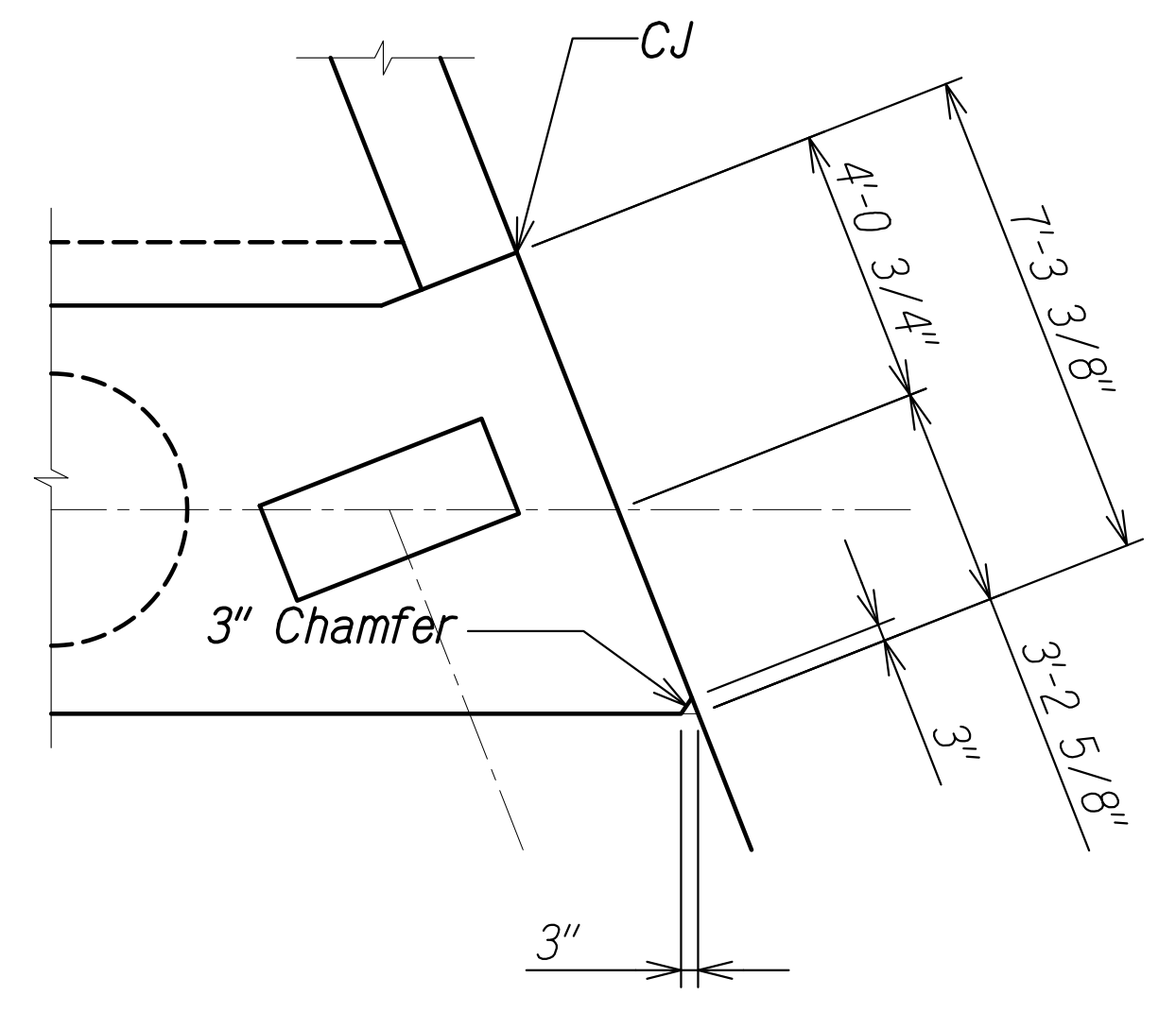
**STATE OF HAWAII**  
**DEPARTMENT OF TRANSPORTATION**  
**HIGHWAYS DIVISION**  
**Kaloi Gulch Bridge**  
**Diaphragm Elevation, Section, and Detail**  
**FARRINGTON HIGHWAY WIDENING**  
**Kapolei Golf Course Road to Fort Weaver Road**  
**Project No. 7101A-01-20**  
 Scale: As Shown      Date: Apr. 2022  
**SHEET No. SB6.1 OF 1 SHEETS**

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	7101A-01-20	2021	438	



**ABUTMENT NO. 1 PLAN** A  
 Scale: 1/4" = 1'-0" SB7.1 SB7.1

**Notes:**  
 For bridge layout plan, drilled shaft spacing, and girder spacing, see sheets SB1.1 to SB1.3.



**DETAIL** 1  
 Scale: 3/8" = 1'-0" SB7.1 SB7.1  
SB7.3

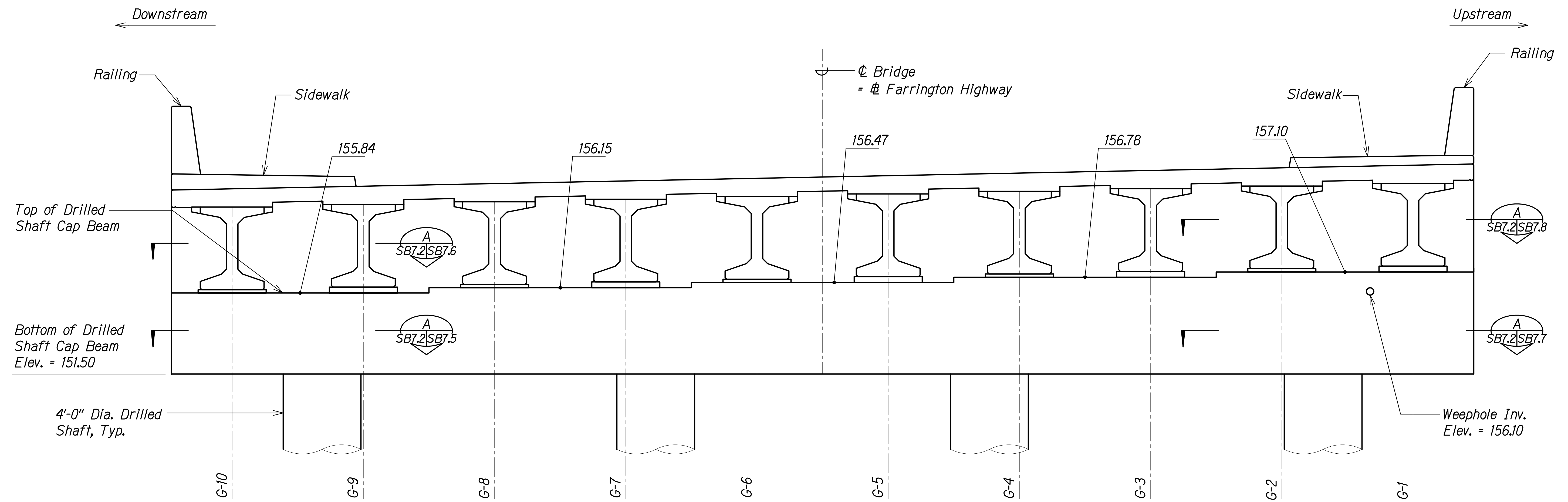
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ORIGINAL PLAN	
NOTE BOOK	
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DRAWING NAME: Z:\100 ONGOING\20-013-FARR-HWY-KAPOLEI GC.DWG PLOT TIME: 04-07-22 5:12 PM

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 April 30, 2024  
 EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII  
 DEPARTMENT OF TRANSPORTATION  
 HIGHWAYS DIVISION  
**Kaloii Gulch Bridge**  
**Abutment No. 1 Plan**  
 FARRINGTON HIGHWAY WIDENING  
 Kapolei Golf Course Road to Fort Weaver Road  
 Project No. 7101A-01-20  
 Scale: As Shown Date: Apr. 2022  
**SHEET No. SB7.1 OF 11 SHEETS**

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	7101A-01-20	2021	439	



**ABUTMENT NO. 1 ELEVATION**  
 Scale: 3/8" = 1'-0"  
 A  
 SB7.2 | SB7.2

ABUTMENT NO. 1										
Girder	G-1	G-2	G-3	G-4	G-5	G-6	G-7	G-8	G-9	G-10
Top of Seat Elevation	157.75	157.60	157.44	157.28	157.12	156.97	156.81	156.65	156.50	156.34

**Notes:**

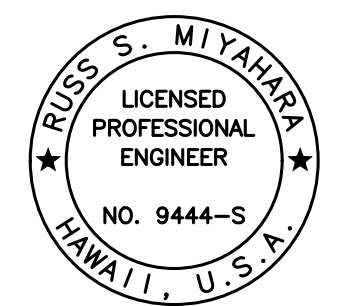
- Elevations are taken at the top of drilled shaft cap beam, unless otherwise noted.
- Top of drilled shaft cap beam shall be stepped with steps located halfway between adjacent girder lines. Steps shall be aligned parallel with  $\phi$  bridge.
- For concrete seat elevation, reinforcing, and details, see sheet SB7.11.
- For top of concrete deck finish grades, see sheet SB1.4.
- Weephole invert elevations shown are taken at the front face of the drilled shaft cap beam. For details, see sheets SB2.5, SB7.5, and SB7.7.

ORIGINAL PLAN	DATE
SURVEY PLOTTED BY	
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DESIGNED BY	
QUANTITIES BY	
CHECKED BY	
No.	

DRAWING NAME: Z:\100 ONGOING\20-013-FARR-HW-KAPOLEI GC ID: ET WPG-BMT\01 CAD\04-06-22 BID SET\FH\3-SB702 KAL ABUT1 ELEV.DWG PLOT TIME: 04-07-22 5:12 PM

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STATE OF HAWAII  
 DEPARTMENT OF TRANSPORTATION  
 HIGHWAYS DIVISION

**Kaloi Gulch Bridge  
 Abutment No. 1 Elevation**

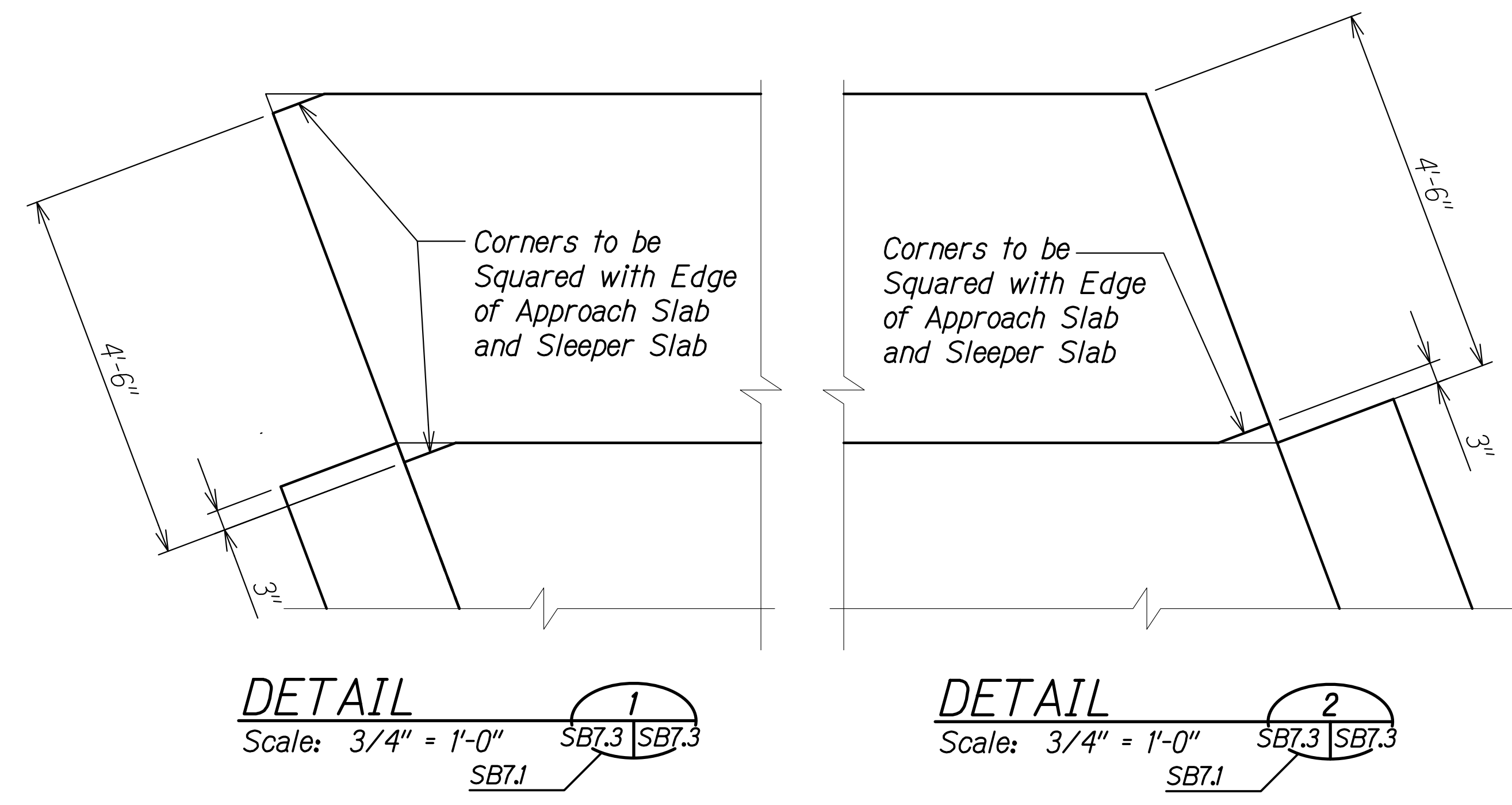
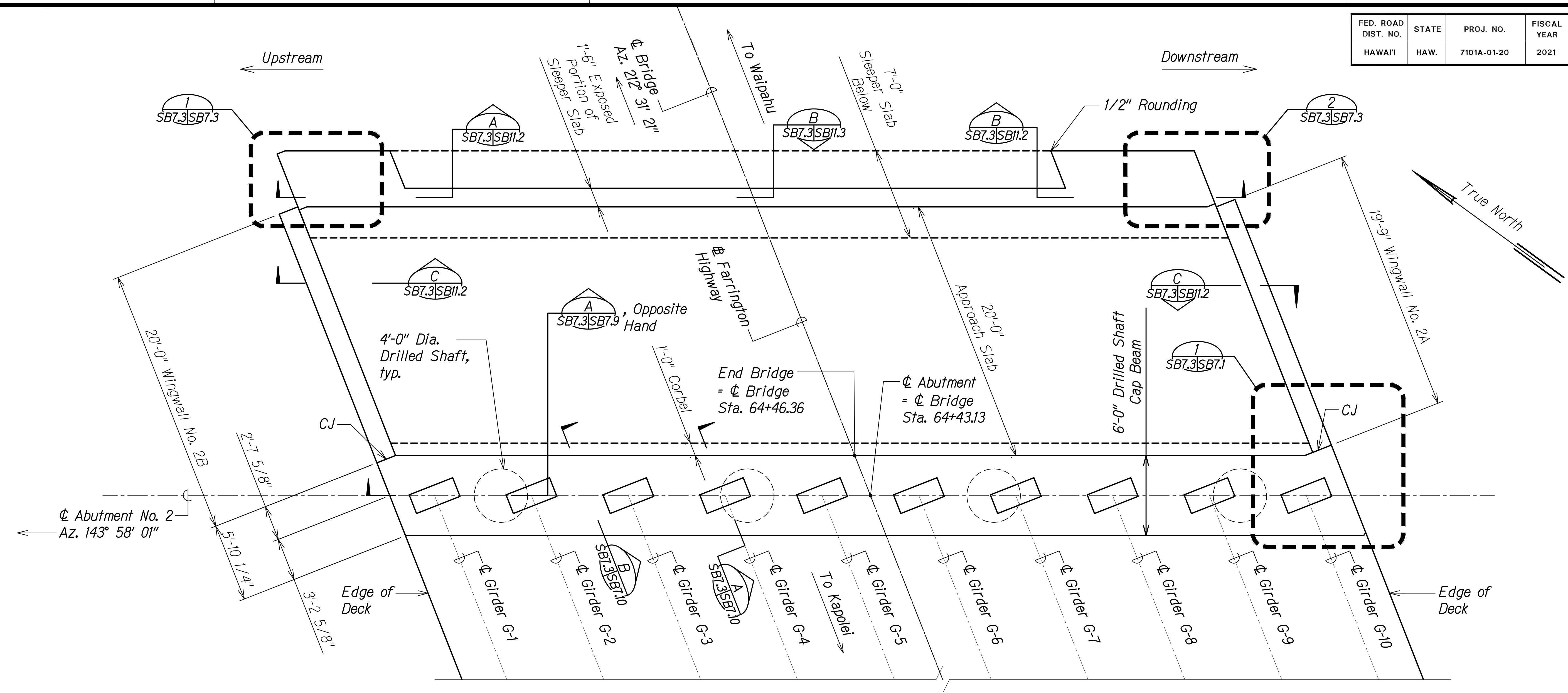
FARRINGTON HIGHWAY WIDENING  
 Kapolei Golf Course Road to Fort Weaver Road  
 Project No. 7101A-01-20

Scale: As Shown Date: Apr. 2022

**SHEET No. SB7.2 OF 11 SHEETS**



FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	7101A-01-20	2021	440	



**ABUTMENT NO. 2 PLAN** A  
Scale: 1/4" = 1'-0" SB7.3 | SB7.3

**Notes:**  
For bridge layout plan, drilled shaft spacing, and girder spacing, see sheets SB1.1 to SB1.3.

SURVEY PLOTTED BY	DATE
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DESIGNED BY	
QUANTITIES BY	
CHECKED BY	
ORIGINAL PLAN	
NOTE BOOK	
No.	

DRAWING NAME: Z:\00\_ONGOING\20-013-FARR-HW-KAPOLEI\GC\04-06-22\_BID\_SET\PHW3-SB0703-KAL\_ABUT2-PLAN.DWG PLOT TIME: 04-07-22 5:13 PM



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 SIGNATURE: *Russ S. Miyahara* EXPIRATION DATE: April 30, 2024  
 OF THE LICENSE

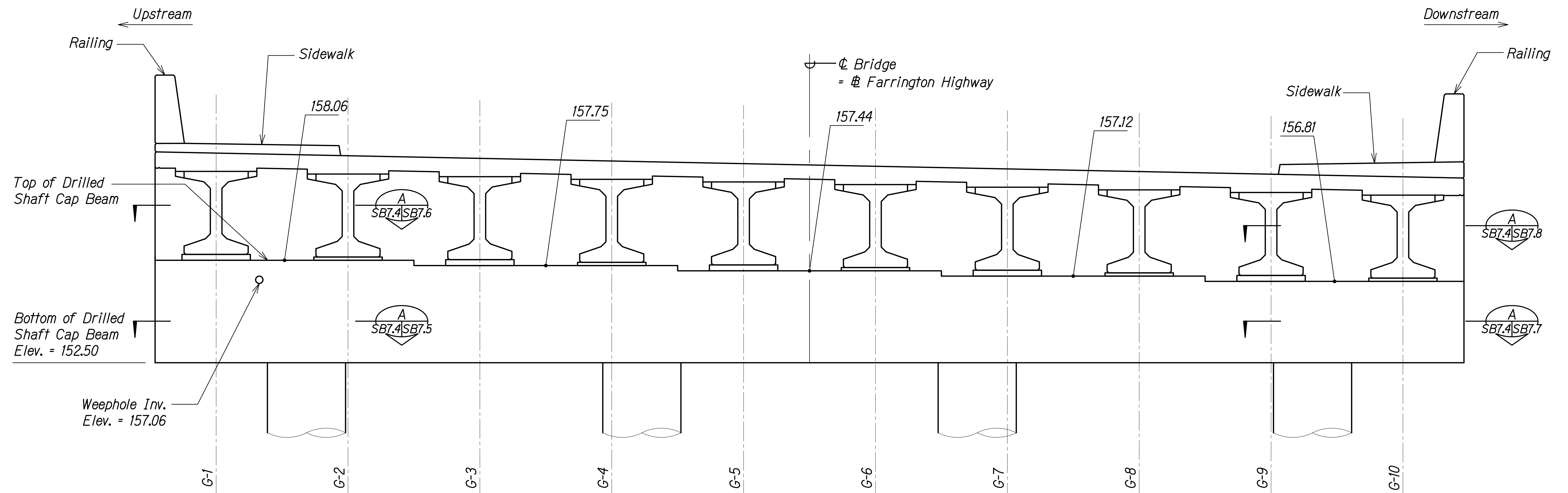
STATE OF HAWAII  
 DEPARTMENT OF TRANSPORTATION  
 HIGHWAYS DIVISION

**Kaloi Gulch Bridge**  
**Abutment No. 2 Plan**  
 FARRINGTON HIGHWAY WIDENING  
 Kapolei Golf Course Road to Fort Weaver Road  
 Project No. 7101A-01-20

Scale: As Shown Date: Apr. 2022

**SHEET No. SB7.3 OF 11 SHEETS**

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	7101A-01-20	2021	441	



**ABUTMENT NO. 2 ELEVATION**  
 Scale: 3/8" = 1'-0"  
 SB7.3 | SB7.3

ABUTMENT NO. 2										
Girder	G-1	G-2	G-3	G-4	G-5	G-6	G-7	G-8	G-9	G-10
Top of Seat Elevation	158.72	158.56	158.41	158.25	158.09	157.94	157.78	157.62	157.42	157.31

**Notes:**

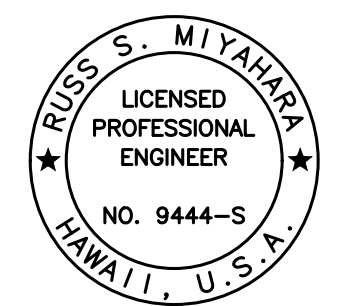
- Elevations are taken at the top of drilled shaft cap beam, unless otherwise noted.
- Top of drilled shaft cap beam shall be stepped with steps located halfway between adjacent girder lines. Steps shall be aligned parallel with  $\phi$  bridge.
- For concrete seat elevation, reinforcing, and details, see sheet SB7.11.
- For top of concrete deck finish grades, see sheet SB1.4.
- Weephole invert elevation shown are taken at the front face of the drilled shaft cap beam. For details, see sheets SB2.5, SB7.5, and SB7.7.

ORIGINAL PLAN	DATE
SURVEY PLOTTED BY	
DRAWN BY	
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QUANTITIES BY	
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No.	

DRAWING NAME: Z:\A\00\CONDOINGS\20-013-FARR-HWY-KAPOLEI\GC\04-06-22\BID-SET\FHW3-SB0704-KAL-ABUT2-ELEV.DWG PLOT TIME: 04-07-22 5:13 PM

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 SIGNATURE  
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 EXPIRATION DATE OF THE LICENSE



STATE OF HAWAII  
 DEPARTMENT OF TRANSPORTATION  
 HIGHWAYS DIVISION

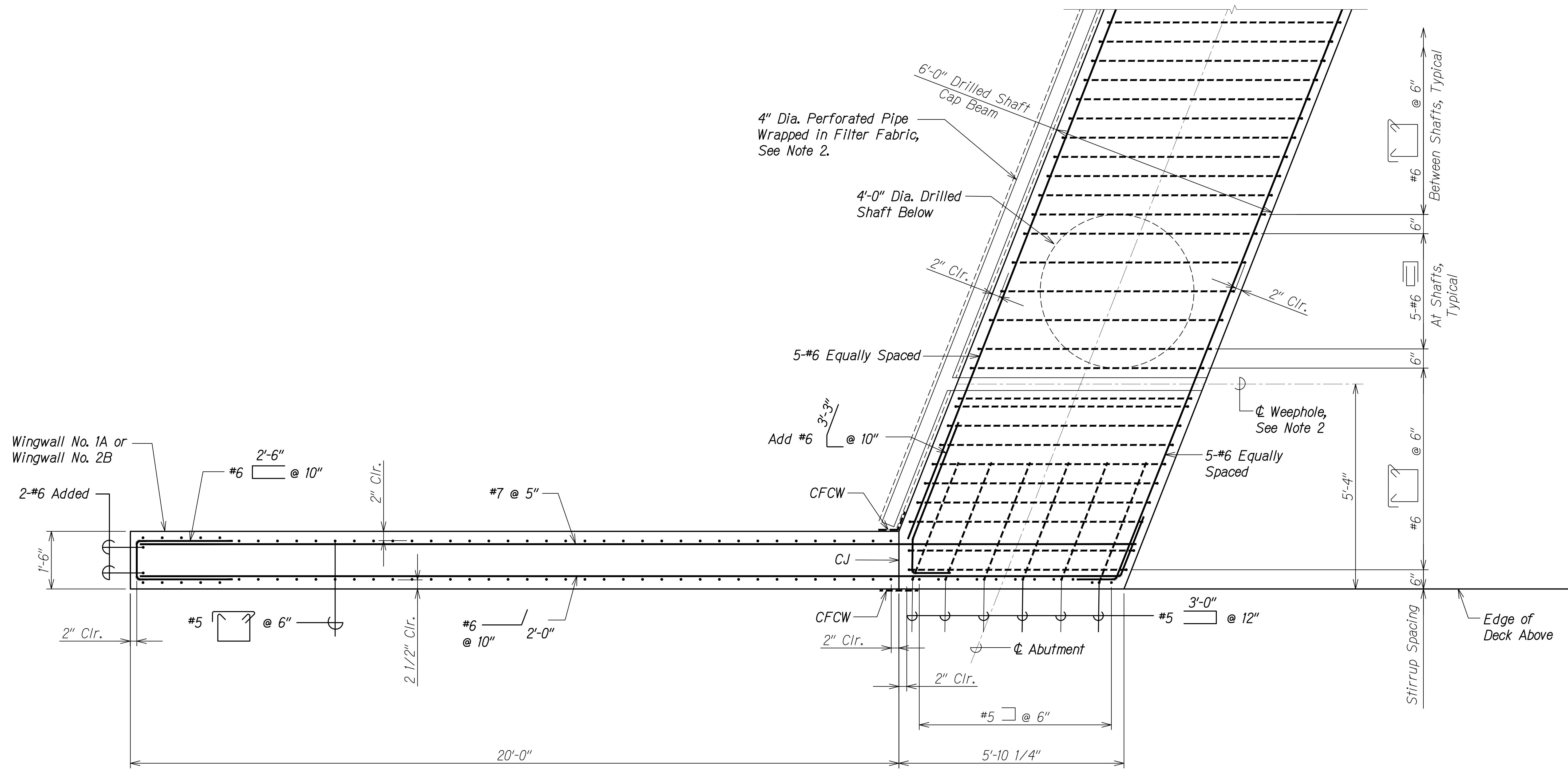
**Kaloie Gulch Bridge  
 Abutment No. 2 Elevation**

FARRINGTON HIGHWAY WIDENING  
 Kapolei Golf Course Road to Fort Weaver Road  
 Project No. 7101A-01-20

Scale: As Shown Date: Apr. 2022

**SHEET No. SB7.4 OF 11 SHEETS**

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	7101A-01-20	2021	442	



**Notes:**

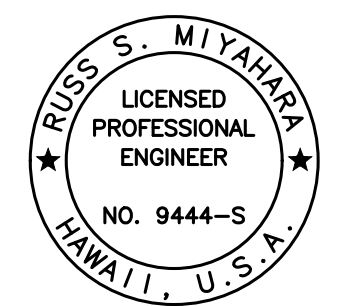
1. Drilled shaft reinforcing not shown for clarity. Vertical reinforcing extending into end beam not shown for clarity. See sheet SB7.10.
2. Weepholes located on upstream end of abutment. See sheets SB7.2 and SB7.4. Connect weephole to 4" dia. perforated pipe wrapped in filter fabric. Perforated pipe shall be placed directly behind the abutment and extend from wingwall to wingwall. Slope perforated pipe to weephole.

**SECTION**  
Scale: 3/4" = 1'-0"  
SB7.2 | SB7.5  
A  
SB7.4

ORIGINAL PLAN	DATE
DRAWN BY	
DESIGNED BY	
QUANTITIES BY	
CHECKED BY	
No.	

DRAWING NAME: Z:\100 UNDOINGS\20-013-FARR-HWY-KAPOLEI\GC\_ID\_ET\_WIP-EMTC\01-CAD\04-06-22 BID SET\FHWS-SB0705-SB0707 WING WALL SECTION.PLOT TIME: 04-07-22 5:14 PM

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*Russ S. Miyahara*  
April 30, 2024  
SIGNATURE EXPIRATION DATE OF THE LICENSE



STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

**Kaloi Gulch Bridge  
Abutment Section**

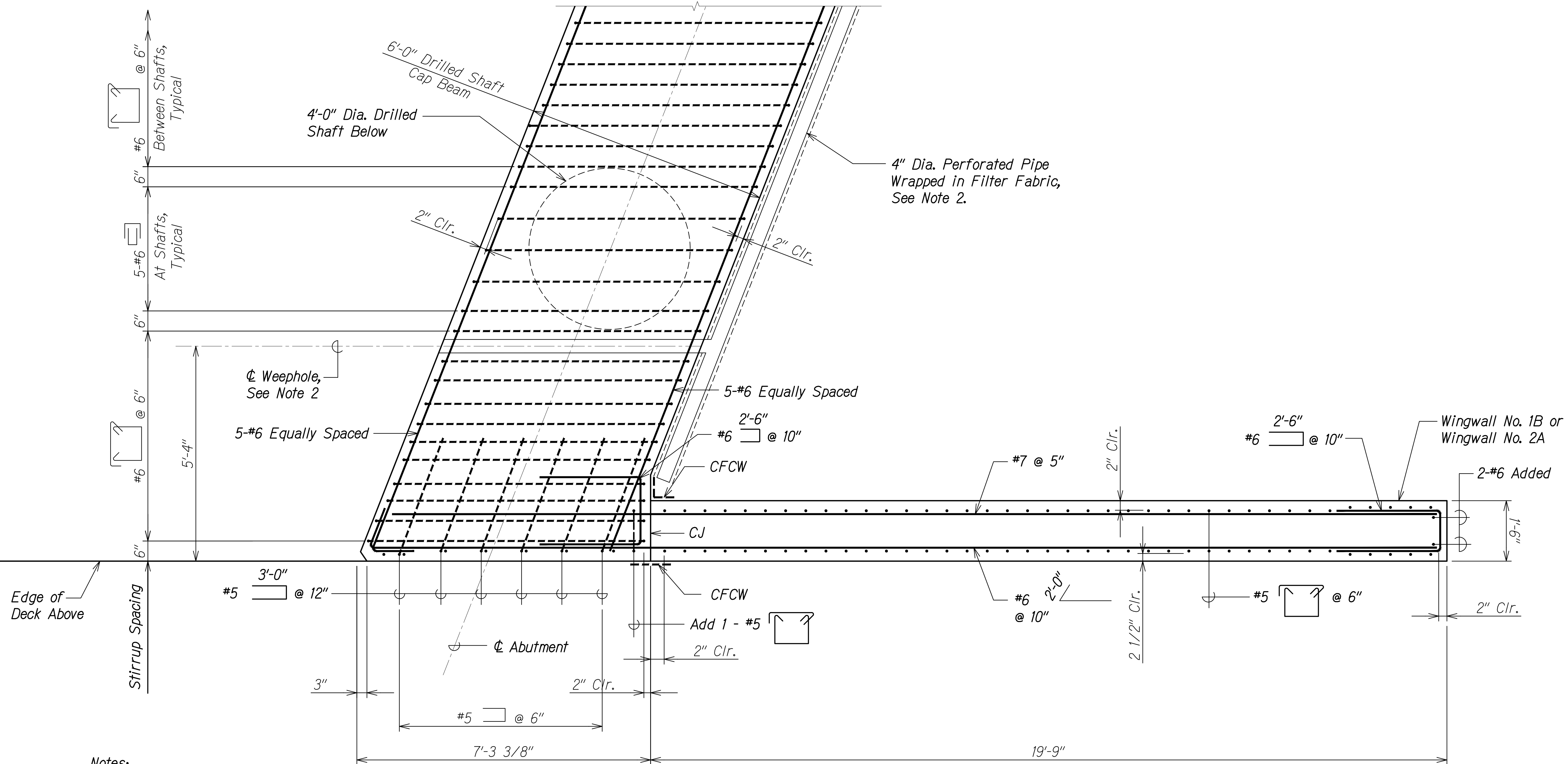
FARRINGTON HIGHWAY WIDENING  
Kapolei Golf Course Road to Fort Weaver Road  
Project No. 7101A-01-20

Scale: As Shown Date: Apr. 2022

SHEET No. SB7.5 OF 11 SHEETS



FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	7101A-01-20	2021	444	



**Notes:**

1. Drilled shaft reinforcing not shown for clarity. Vertical reinforcing extending into end beam not shown for clarity. See sheet SB7.10.
2. Weepholes located on upstream end of abutment. See sheets SB7.2 and SB7.4. Connect weephole to 4" dia. perforated pipe wrapped in filter fabric. Perforated pipe shall be placed directly behind the abutment and extend from wingwall to wingwall. Slope perforated pipe to weephole.

**SECTION A**  
 Scale: 3/4" = 1'-0"  
 SB7.2 | SB7.7  
 SB7.4

ORIGINAL PLAN	DATE
DRAWN BY	
DESIGNED BY	
QUANTITIES BY	
CHECKED BY	
No.	

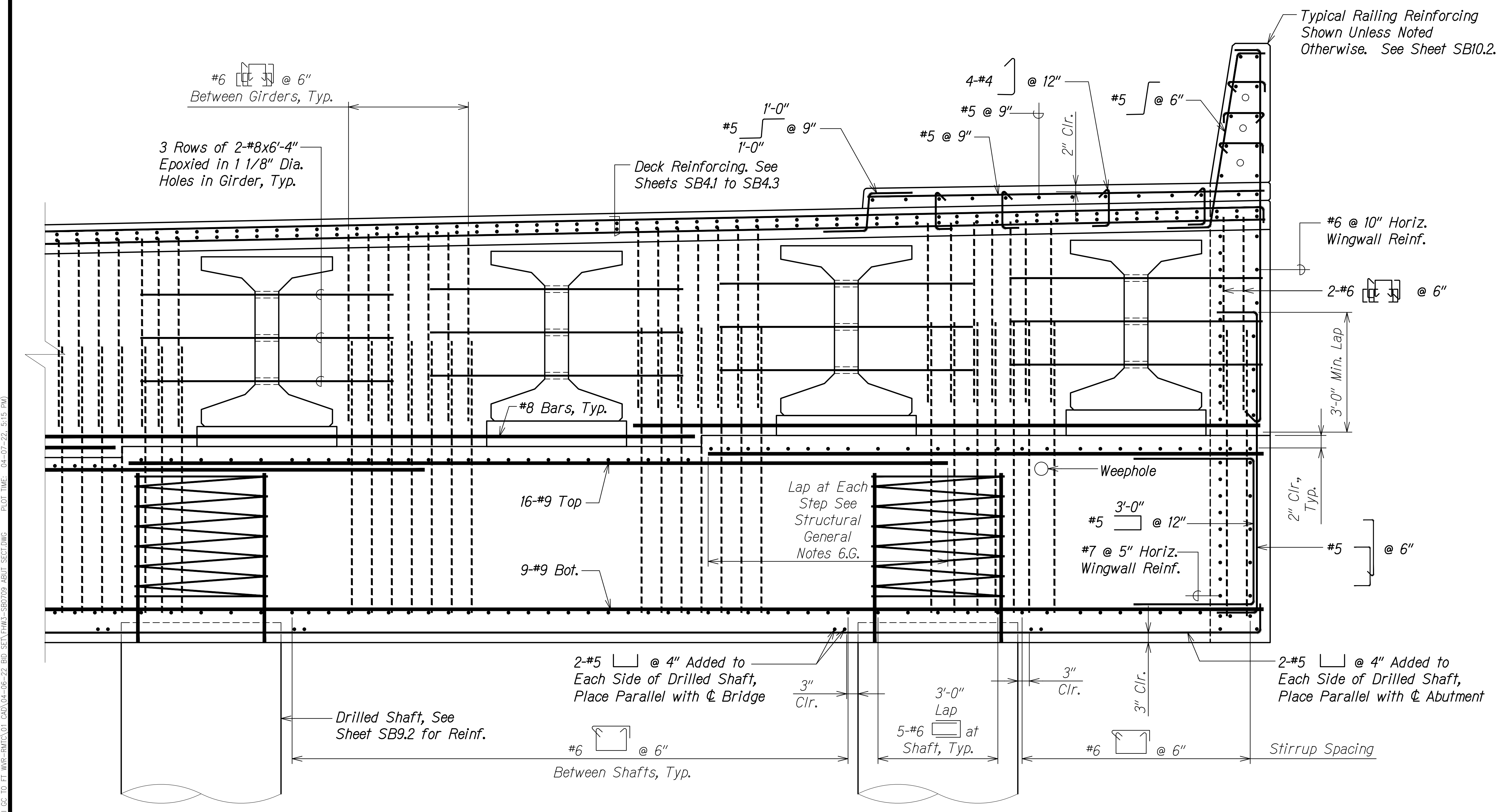
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STATE OF HAWAII  
 DEPARTMENT OF TRANSPORTATION  
 HIGHWAYS DIVISION  
**Kaloi Gulch Bridge**  
**Abutment Section**  
 FARRINGTON HIGHWAY WIDENING  
 Kapolei Golf Course Road to Fort Weaver Road  
 Project No. 7101A-01-20  
 Scale: As Shown Date: Apr. 2022  
**SHEET No. SB7.7 OF 11 SHEETS**



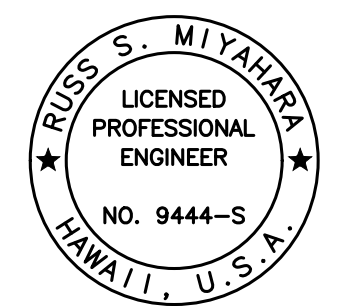
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	7101A-01-20	2021	446	



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

DRAWING NAME: Z:\100 ONGOING\20-013-FARR-HWY-KAPOLEI GC.DWG PLOT TIME: 04-07-22 5:15 PM

**SECTION A**  
 Scale: 3/4" = 1'-0"  
 SB7.1 SB7.9  
 SB7.3



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 Signature: *Russ S. Miyahara*  
 April 30, 2024  
 EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII  
 DEPARTMENT OF TRANSPORTATION  
 HIGHWAYS DIVISION

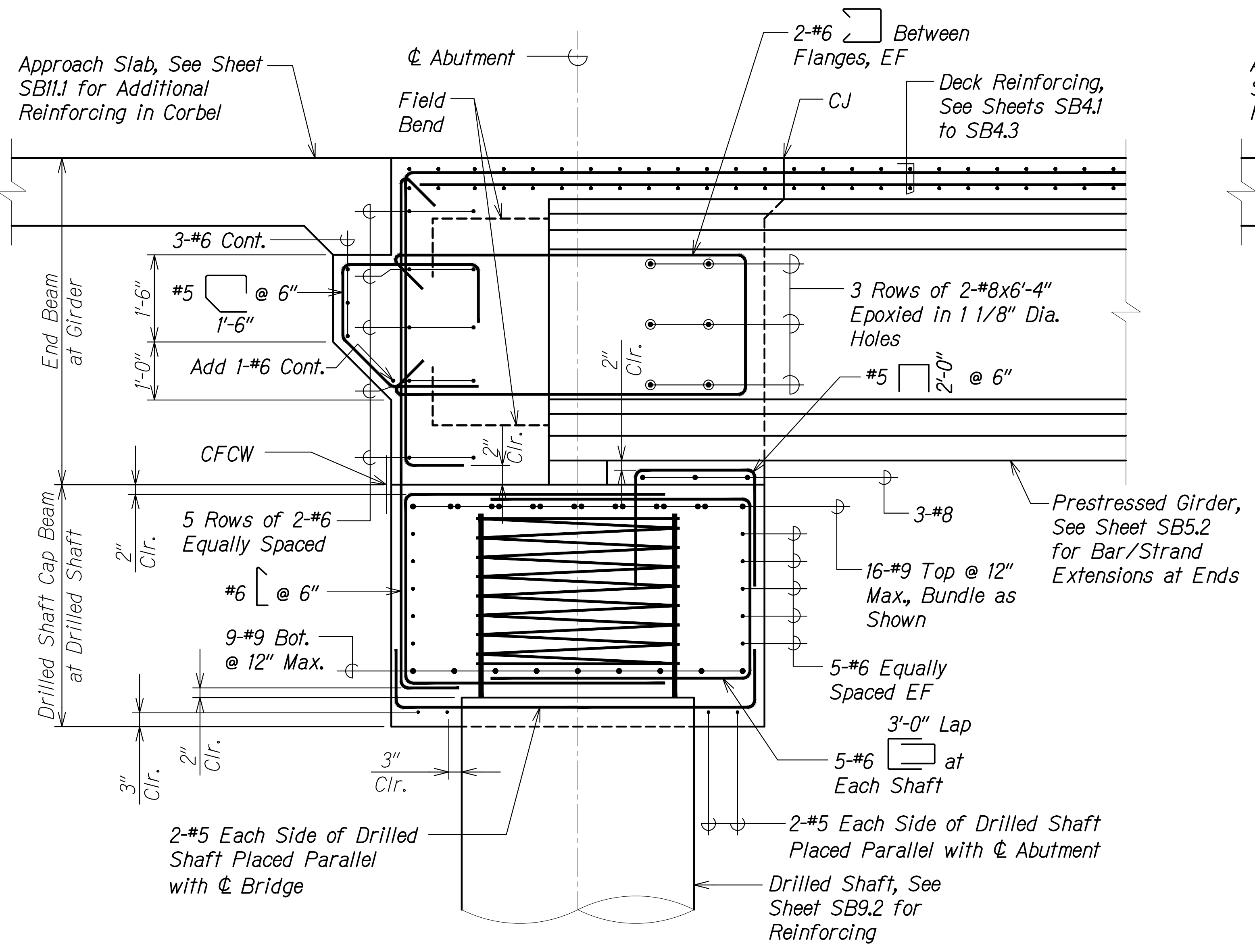
**Kaloi Gulch Bridge  
 Abutment Section**

FARRINGTON HIGHWAY WIDENING  
 Kapolei Golf Course Road to Fort Weaver Road  
 Project No. 7101A-01-20

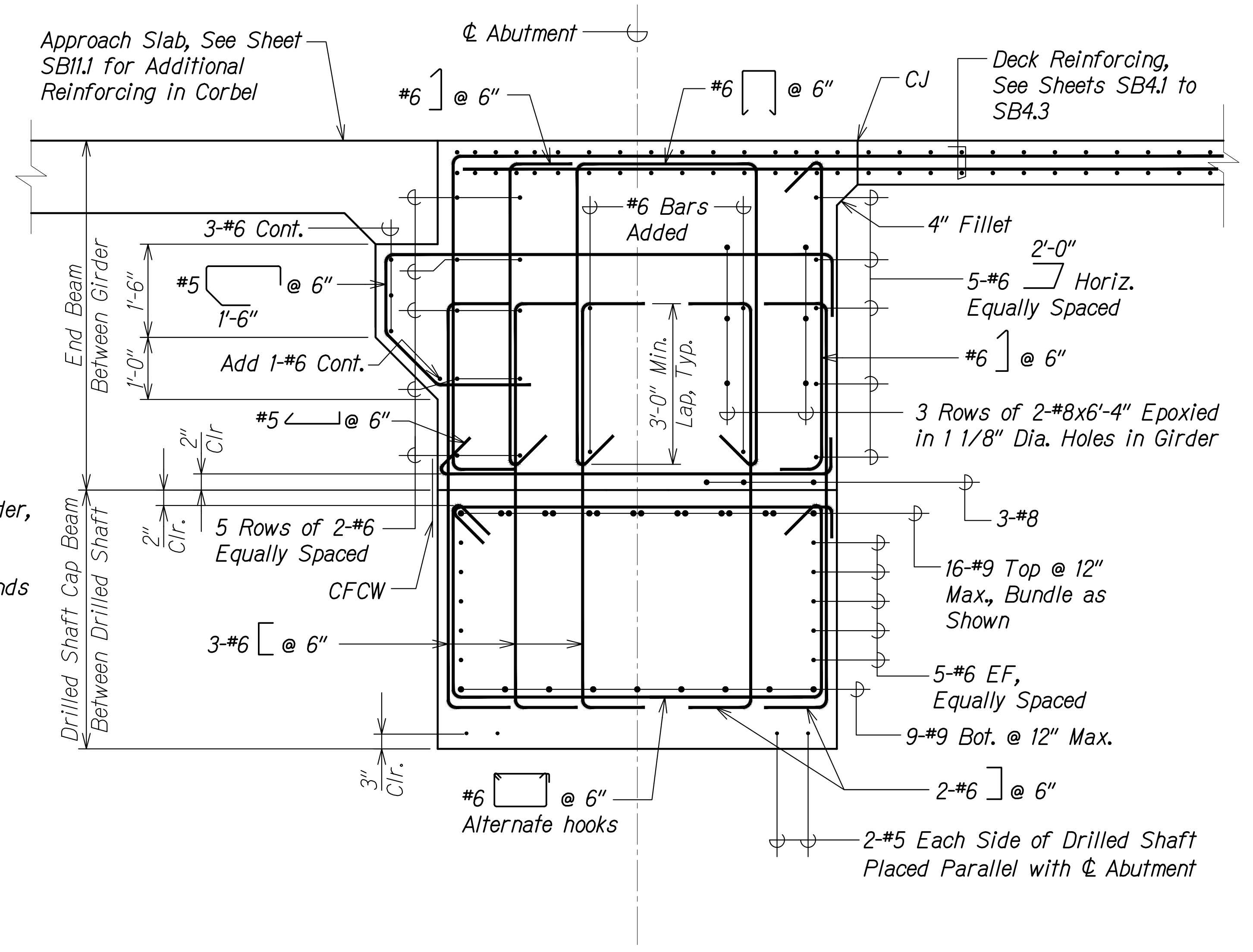
Scale: As Shown Date: Apr. 2022

SHEET No. SB7.9 OF 11 SHEETS

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	7101A-01-20	2021	447	



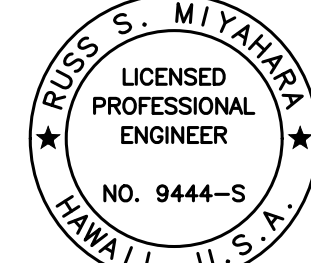
**SECTION A**  
Scale: 3/4" = 1'-0"  
SB7.1 | SB7.10  
SB7.3



**SECTION B**  
Scale: 3/4" = 1'-0"  
SB7.1 | SB7.10  
SB7.3

ORIGINAL PLAN	DATE
DRAWN BY	
DESIGNED BY	
QUANTITIES BY	
CHECKED BY	
No.	

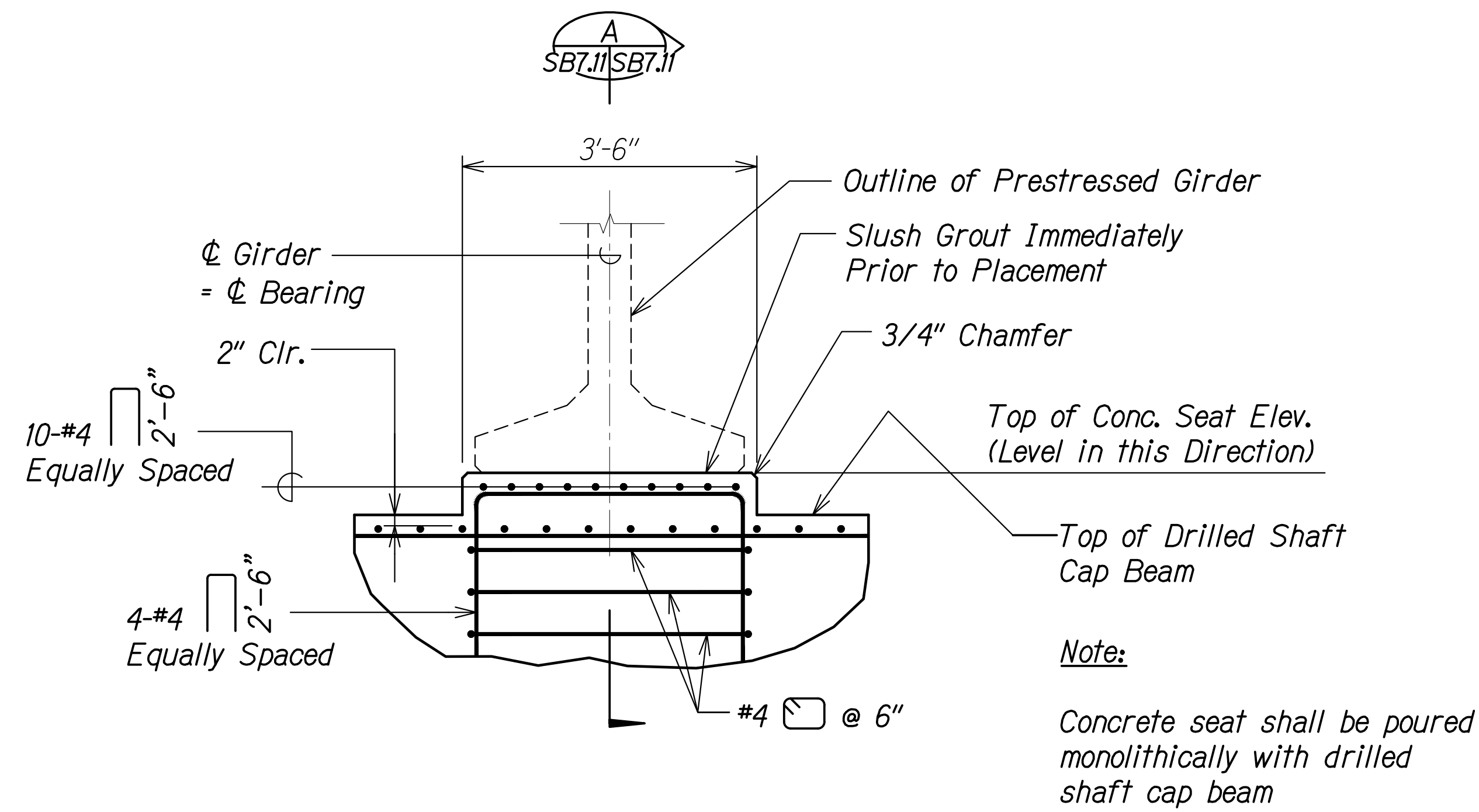
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 THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.  
 Signature: *Rugs S. Miyahara*  
 April 30, 2024  
 EXPIRATION DATE OF THE LICENSE

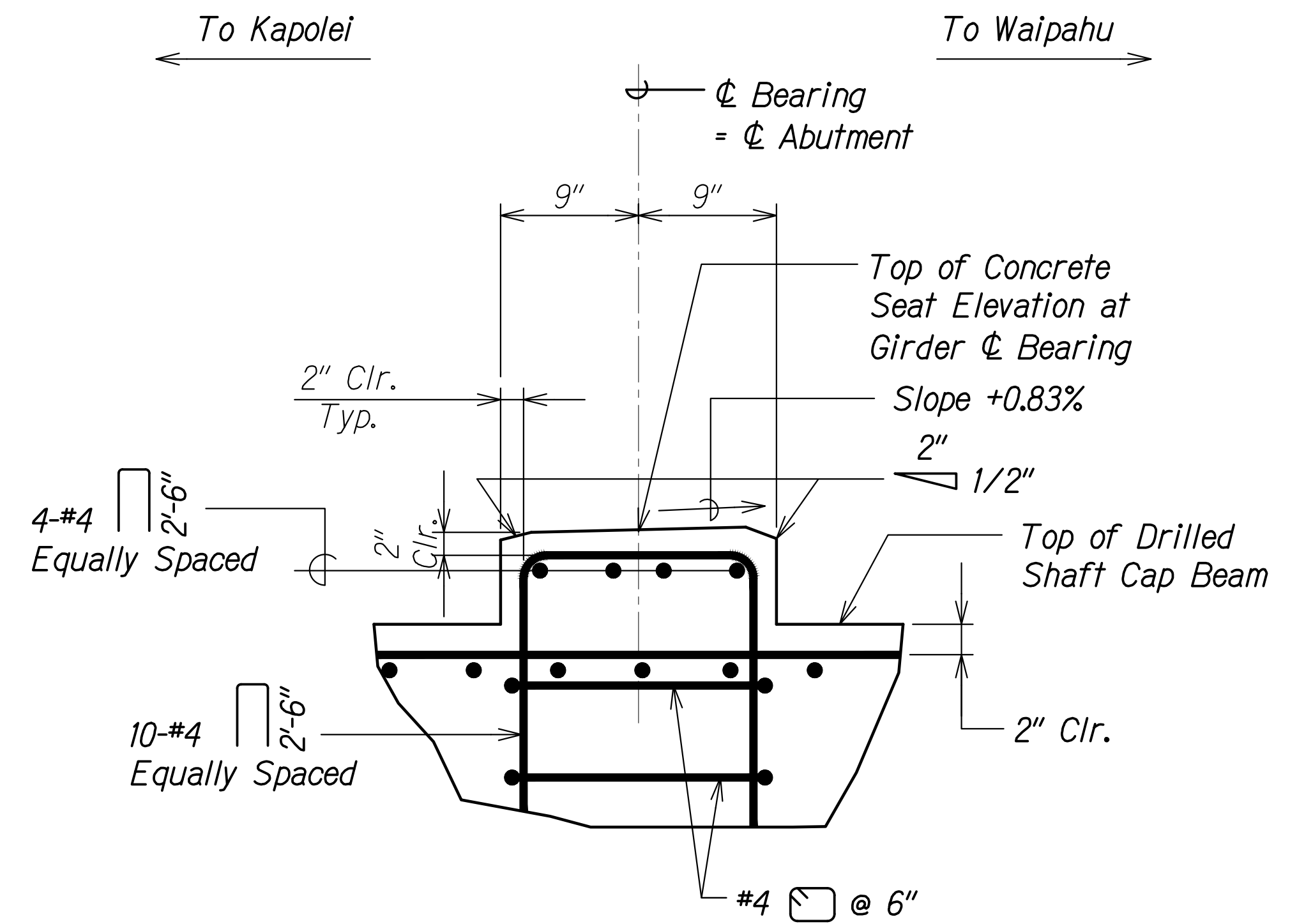
STATE OF HAWAII  
 DEPARTMENT OF TRANSPORTATION  
 HIGHWAYS DIVISION  
**Kaloi Gulch Bridge**  
**Abutment Section**  
 FARRINGTON HIGHWAY WIDENING  
 Kapolei Golf Course Road to Fort Weaver Road  
 Project No. 7101A-01-20  
 Scale: As Shown Date: Apr. 2022  
**SHEET No. SB7.10 OF 11 SHEETS**



FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	7101A-01-20	2021	448	



**TYPICAL CONCRETE SEAT DETAIL**  
 Scale: 3/4" = 1'-0"  
 1  
 SB7.11 SB7.11



**SECTION A**  
 Scale: 1 1/2" = 1'-0"  
 SB7.11 SB7.11

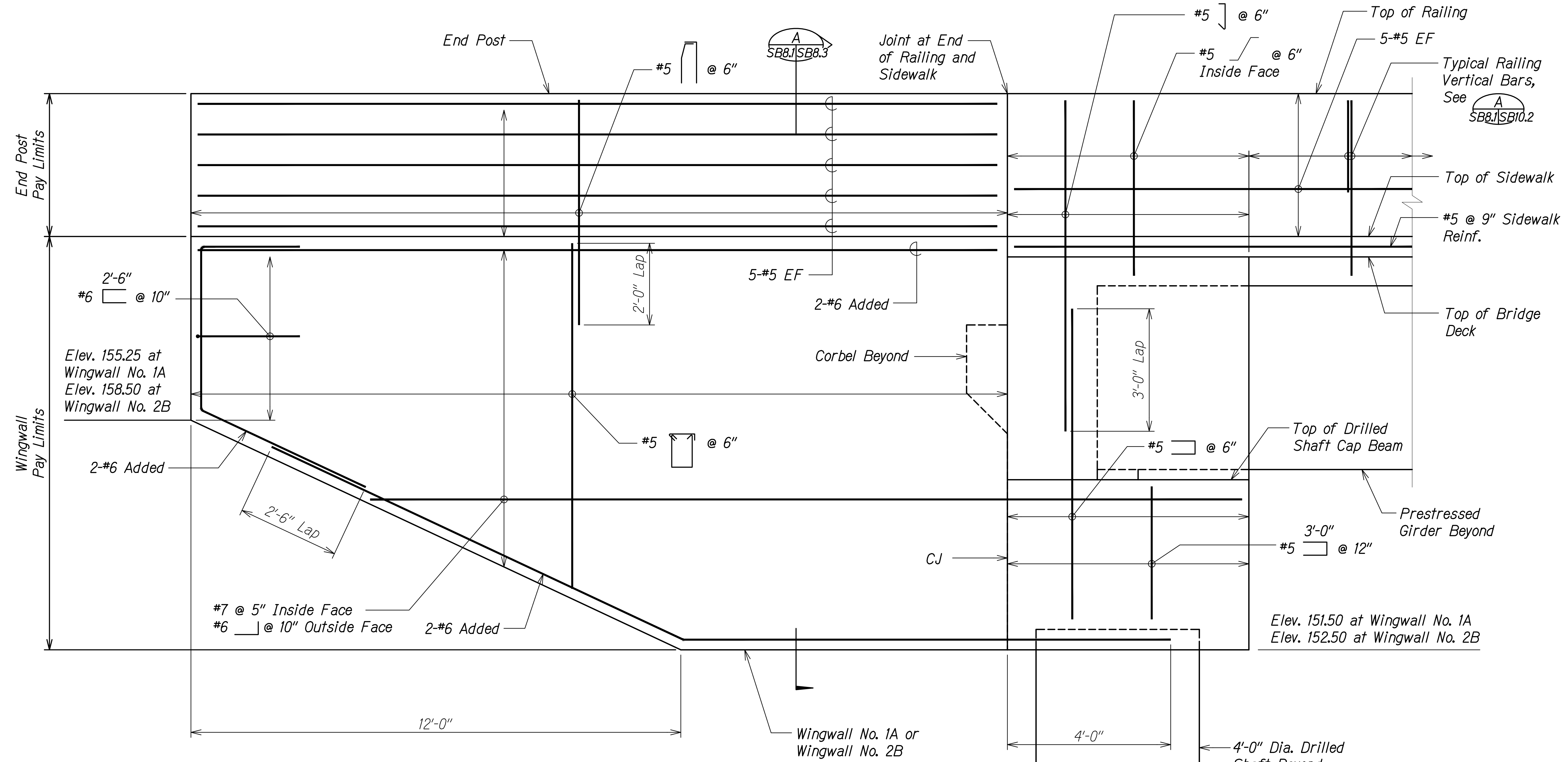
ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
NOTE BOOK	DRAWN BY	
No.	DESIGNED BY	
	QUANTITIES BY	
	CHECKED BY	

DRAWING NAME: Z:\100 ONGOING\20-013-FARR-HWY-KAPOLEI GC ID: ET WPK-EMTC\01 CAD\04-06-22 BID SET\FHW3-SB0711 CONC SEATING PLOT TIME: 04-07-22 5:15 PM

RUGO S. MIYAKAWA  
 LICENSED PROFESSIONAL ENGINEER  
 NO. 9444-S  
 HAWAII, U.S.A.  
 THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.  
 Signature: *Rugo S. Miyakawa*  
 April 30, 2024  
 EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII  
 DEPARTMENT OF TRANSPORTATION  
 HIGHWAYS DIVISION  
**Kaloi Gulch Bridge**  
**Concrete Seat Detail and Section**  
 FARRINGTON HIGHWAY WIDENING  
 Kapolei Golf Course Road to Fort Weaver Road  
 Project No. 7101A-01-20  
 Scale: As Shown Date: Apr. 2022  
**SHEET No. SB7.11 OF 11 SHEETS**

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	7101A-01-20	2021	449	



**Note:**  
For blister sections not shown, see sheets SB8.4 and SB8.5.

**SECTION** A  
Scale: 3/4" = 1'-0" SB8.1 SB8.1

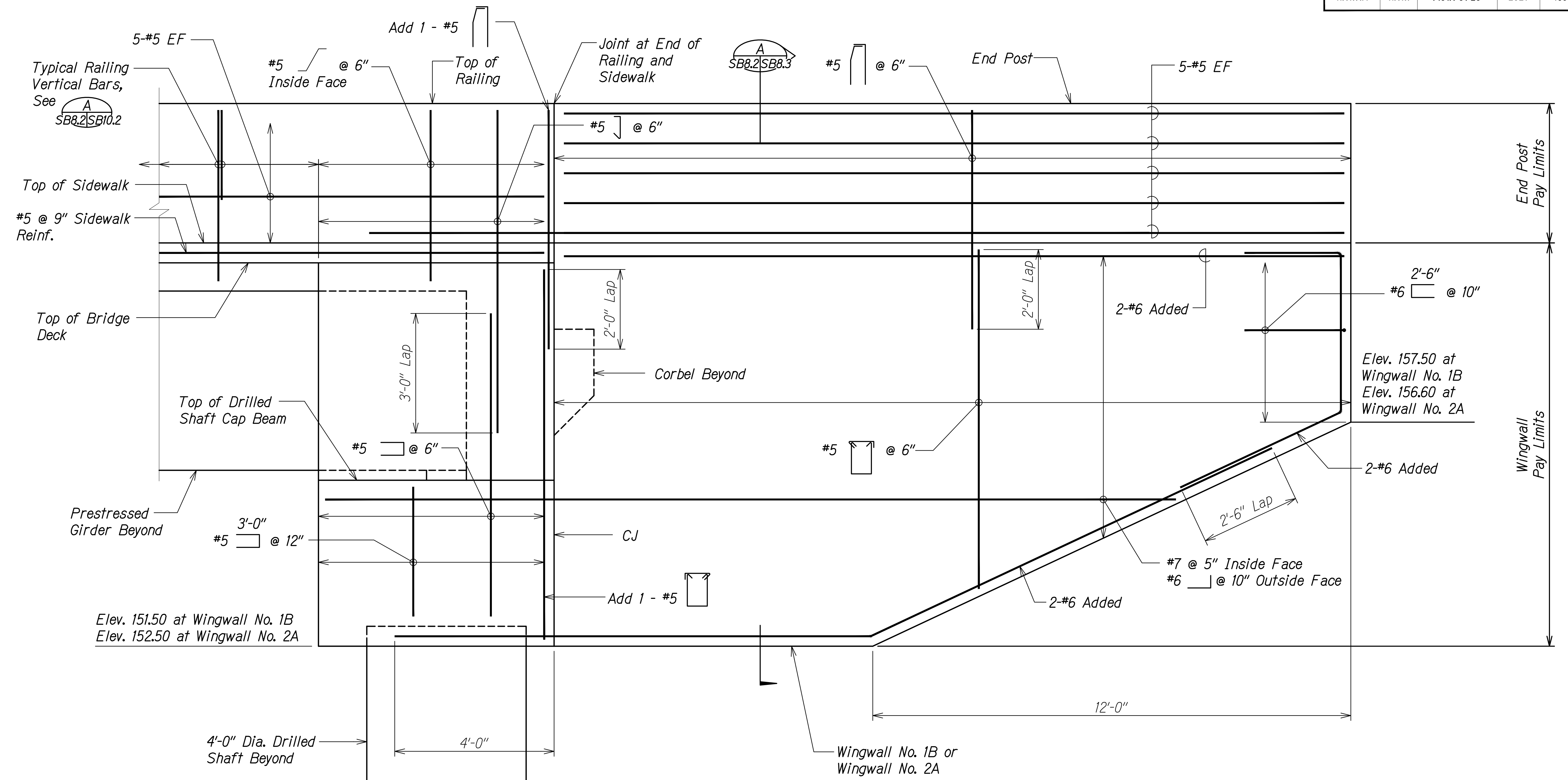
SURVEY PLOTTED BY	DATE
DRAWN BY	
DESIGNED BY	
QUANTITIES BY	
CHECKED BY	
ORIGINAL PLAN	No.

DRAWING NAME: Z:\100 ONGOING\20-013-FARR-HWY-KAPOLEI\04-04-06-22 BID SET\PH03-SB0801-WINGWALL ELEV.DWG PLOT TIME: 04-07-22: 5:19 PM

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.  
 Signature: *Rugo S. Miyahara*  
 April 30, 2024  
 EXPIRATION DATE OF THE LICENSE

**STATE OF HAWAII**  
**DEPARTMENT OF TRANSPORTATION**  
**HIGHWAYS DIVISION**  
**Kaloi Gulch Bridge**  
**Wingwall Elevation**  
**FARRINGTON HIGHWAY WIDENING**  
**Kapolei Golf Course Road to Fort Weaver Road**  
**Project No. 7101A-01-20**  
 Scale: As Shown      Date: Apr. 2022  
**SHEET No. SB8.1 OF 5 SHEETS**

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	7101A-01-20	2021	450	



**Note:**  
For blister sections not shown, see sheets SB8.4 and SB8.5.

ORIGINAL PLAN	DATE
SURVEY PLOTTED BY	
DRAWN BY	
DESIGNED BY	
QUANTITIES BY	
CHECKED BY	
No.	

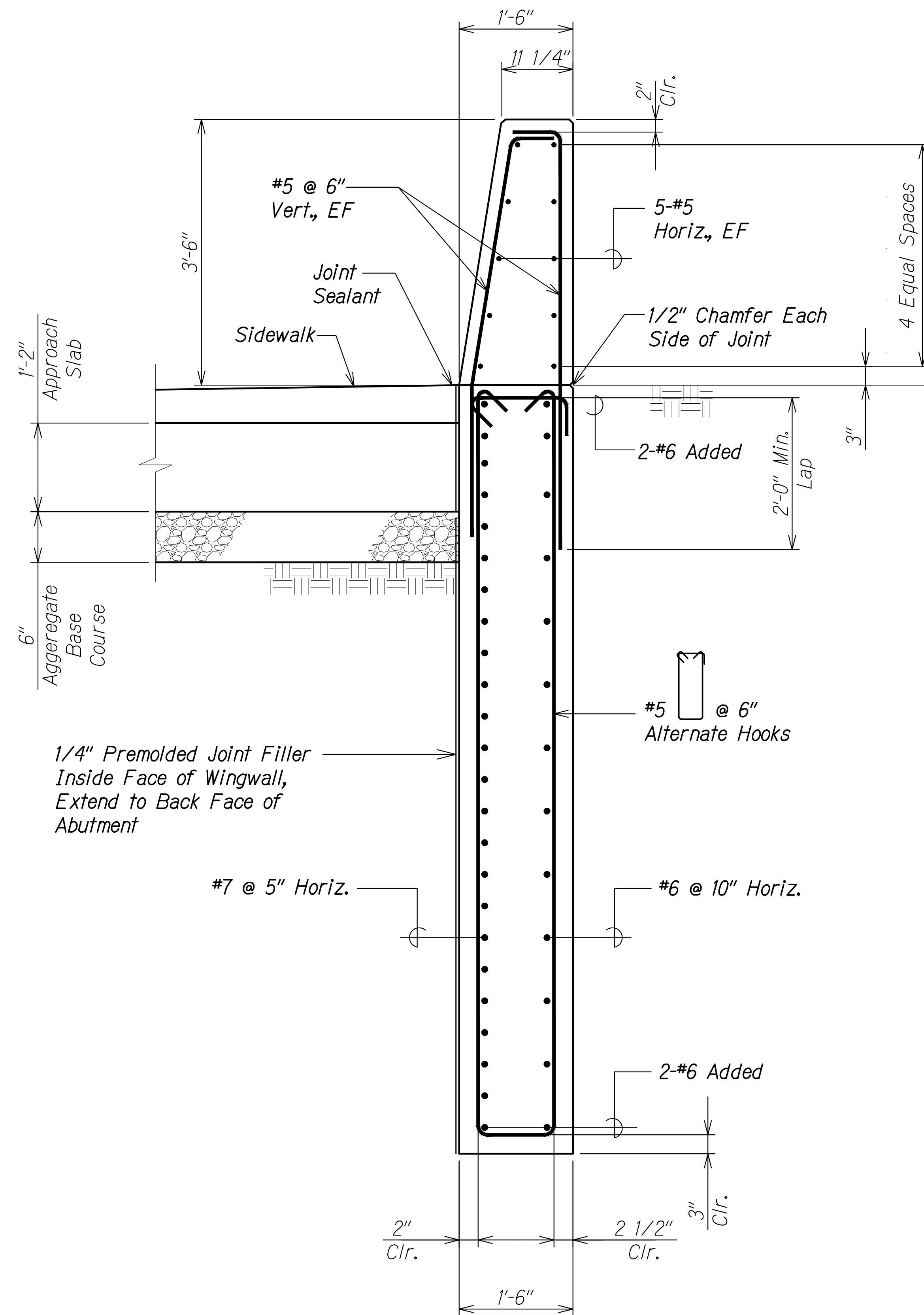
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**SECTION**  
Scale: 3/4" = 1'-0" A SB8.2 | SB8.2

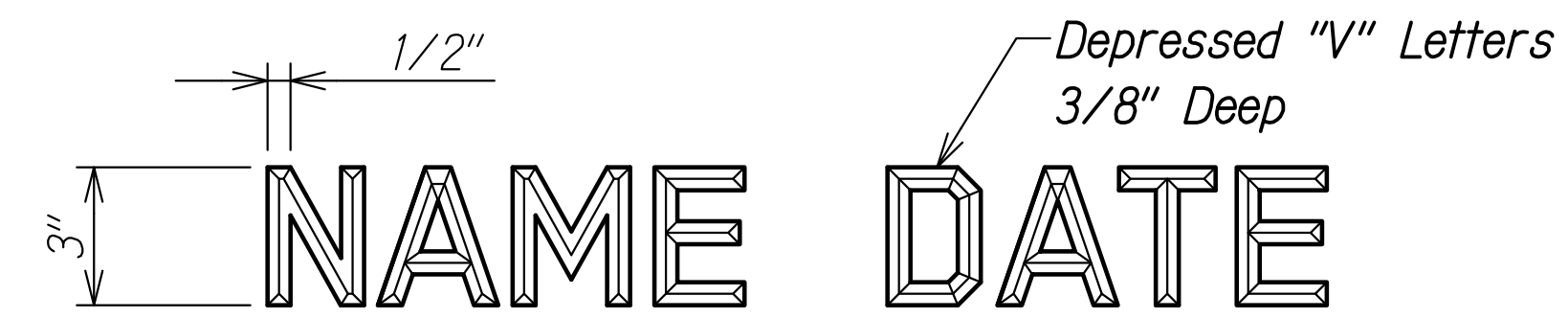
THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.  
 Signature: *Rugo S. Miyakawa* April 30, 2024  
 EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII  
 DEPARTMENT OF TRANSPORTATION  
 HIGHWAYS DIVISION  
**Kaloi Gulch Bridge**  
**Wingwall Elevation**  
 FARRINGTON HIGHWAY WIDENING  
 Kapolei Golf Course Road to Fort Weaver Road  
 Project No. 7101A-01-20  
 Scale: As Shown Date: Apr. 2022  
**SHEET No. SB8.2 OF 5 SHEETS**

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	7101A-01-20	2021	451	



**SECTION A**  
Scale: 1" = 1'-0"  
SB8.1 | SB8.3  
SB8.2



Name of Bridge      Date of Year Built

**NOTES:**

1. Exact details and spacing of letter and figures and location shall be as directed by the Engineer. Gothic letters and figures approximating the dimensions shown will be acceptable if approved by the Engineer.
2. Name & date shall be place on the trailing (exit) end post on each side of bridge.
3. Unless otherwise directed by the Engineer, The name of the bridge shall be "KALOI GULCH BRIDGE". The year shall be the year at completion.

TYPICAL DETAIL OF LETTERS AND FIGURES

**BRIDGE IDENTIFICATION DETAIL** 1  
Scale: 3" = 1'-0"      SB8.3 | SB8.3

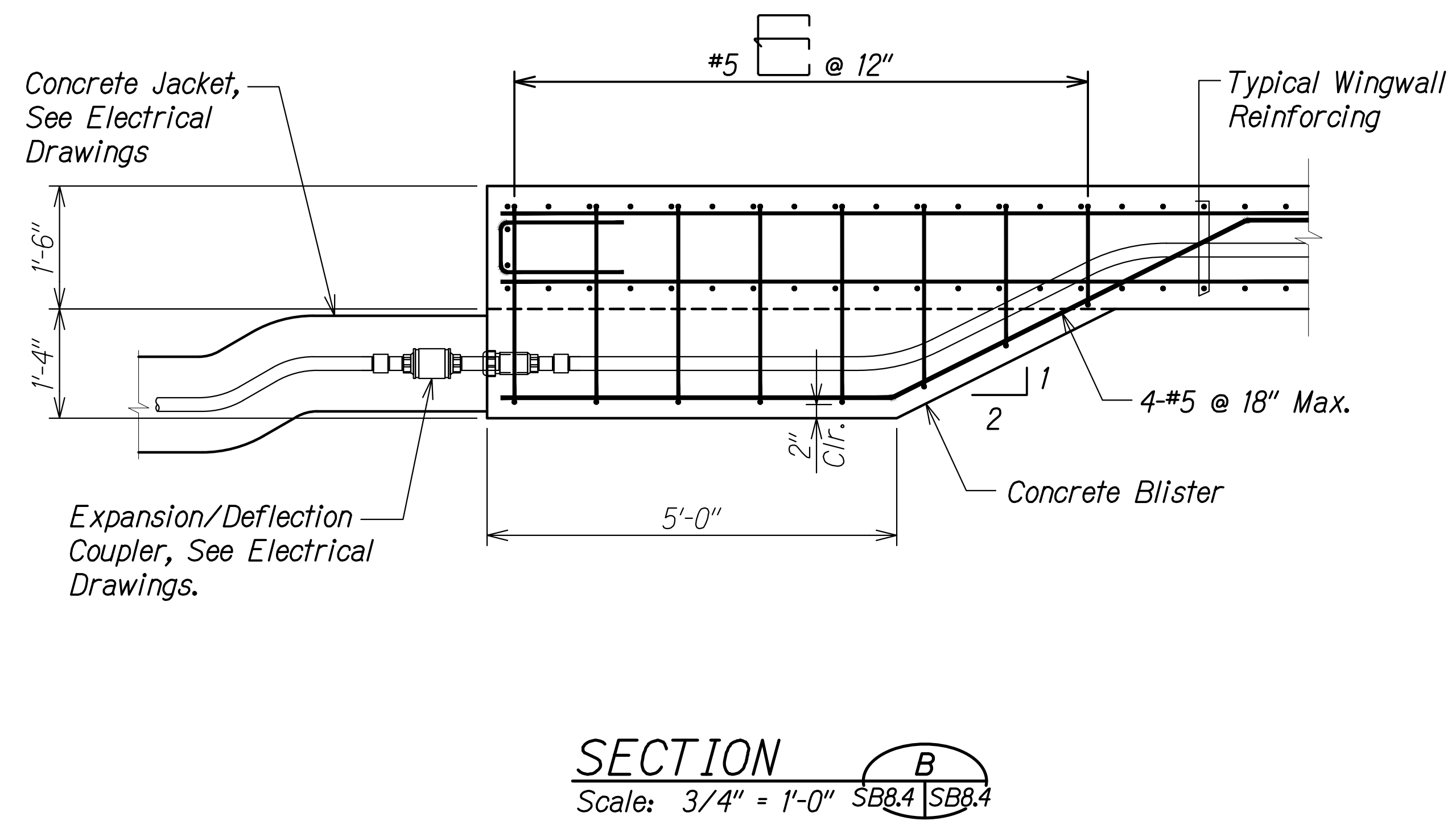
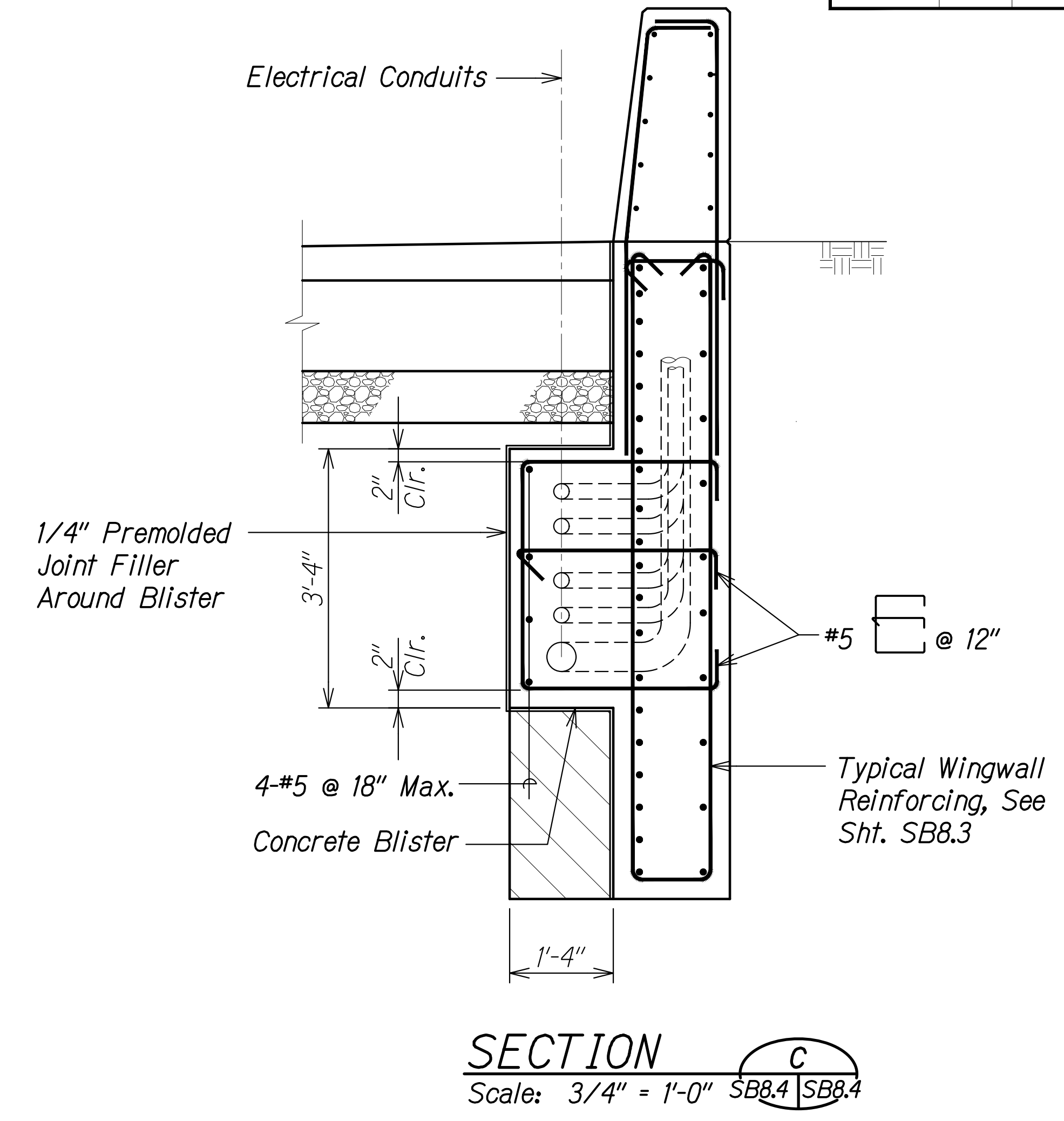
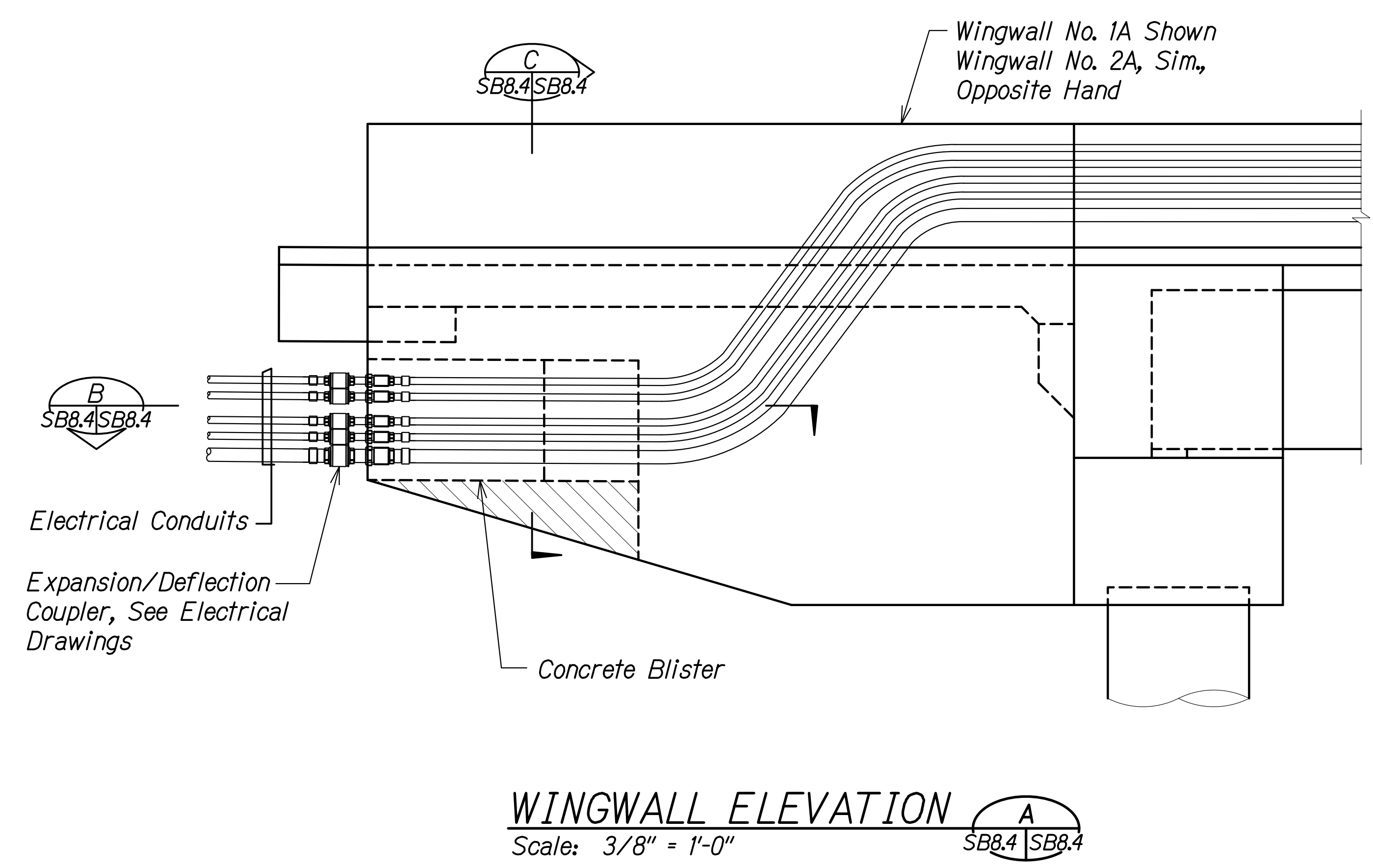
SURVEY PLOTTED BY	DATE
DRAWN BY	
DESIGNED BY	
QUANTITIES BY	
CHECKED BY	
ORIGINAL PLAN No.	

DRAWING NAME: Z:\100 ONGOING\20-013-FARR-HWY-KAPOLEI\GE.IDE.IT.WIP-EMTC\01-CAD\04-06-22 BID-SET\FHW3-SB8001-WINGWALL ELEV.DWG PLOT TIME: 04-07-22 5:20 PM

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*Rugo S. Miyahara*
  
 SIGNATURE      April 30, 2024      EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII  
 DEPARTMENT OF TRANSPORTATION  
 HIGHWAYS DIVISION  
  
**Kaloie Gulch Bridge**  
**Wingwall Section and Detail**  
 FARRINGTON HIGHWAY WIDENING  
 Kapoleie Golf Course Road to Fort Weaver Road  
 Project No. 7101A-01-20  
 Scale: As Shown      Date: Apr. 2022  
**SHEET No. SB8.3 OF 5 SHEETS**

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	7101A-01-20	2021	452	



**Legend:**

Extent of CLSM backfill. CLSM backfill shall be incidental to the measurement and payment for Structure Backfill for Kaloie Abutments and Wingwalls.

ORIGINAL PLAN	DATE
DRAWN BY	
DESIGNED BY	
QUANTITIES BY	
CHECKED BY	
No.	

DRAWING NAME: Z:\100 ONGOING\20-013-FARR-HWY-KAPOLEI GC ID: ET-WP2-EMTC\01 CAD\04-06-22 BID-SET\FH03-SB0804 WINGWALL ELEV AND SECTIONG PLOT TIME: 04-07-22, 5:20 PM

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.

*Paul S. Miyahara*  
SIGNATURE

APR 30, 2024  
EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

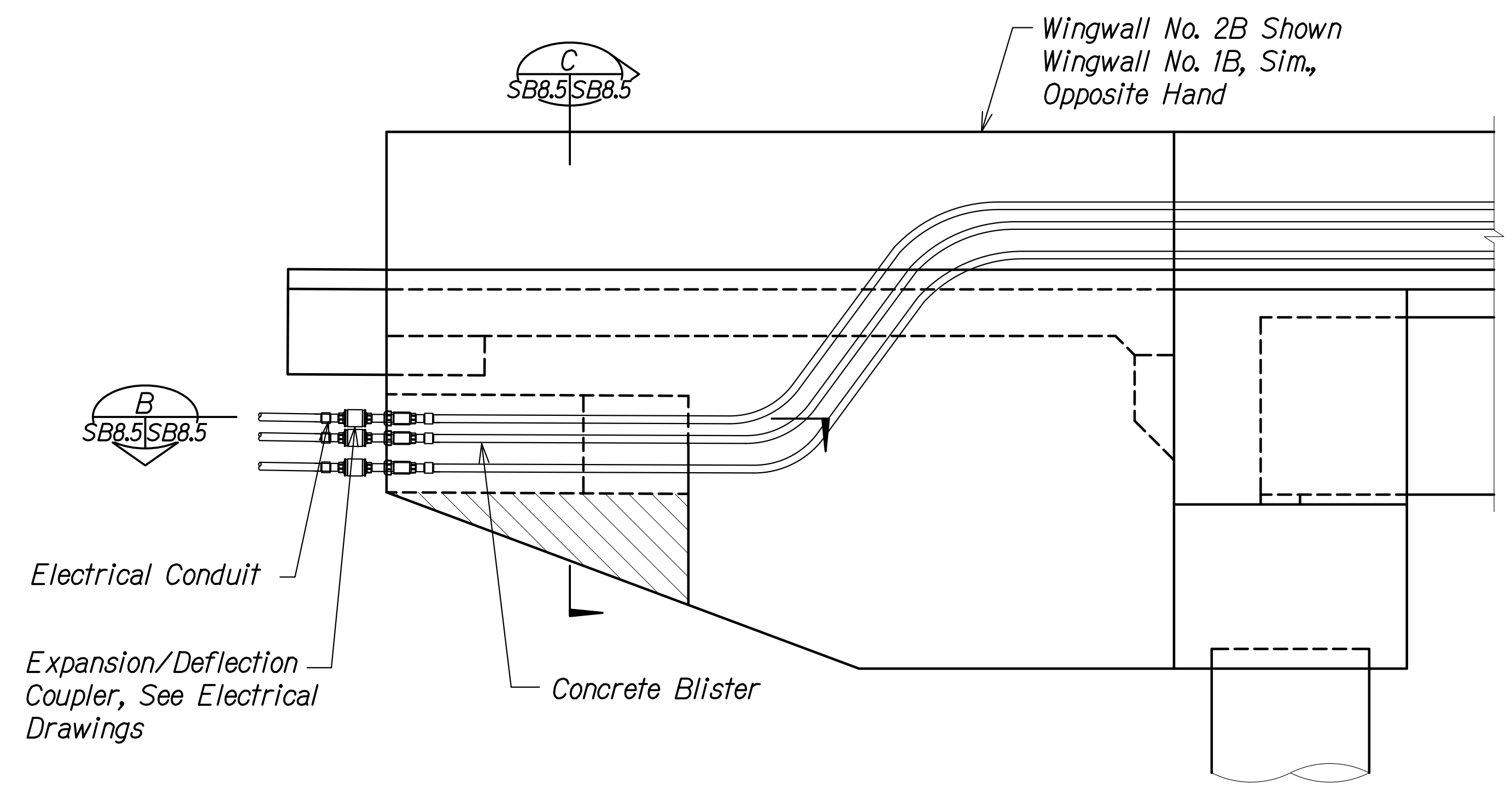
**Kaloie Gulch Bridge**  
Wingwall Elevation and Section

FARRINGTON HIGHWAY WIDENING  
Kapolei Golf Course Road to Fort Weaver Road  
Project No. 7101A-01-20

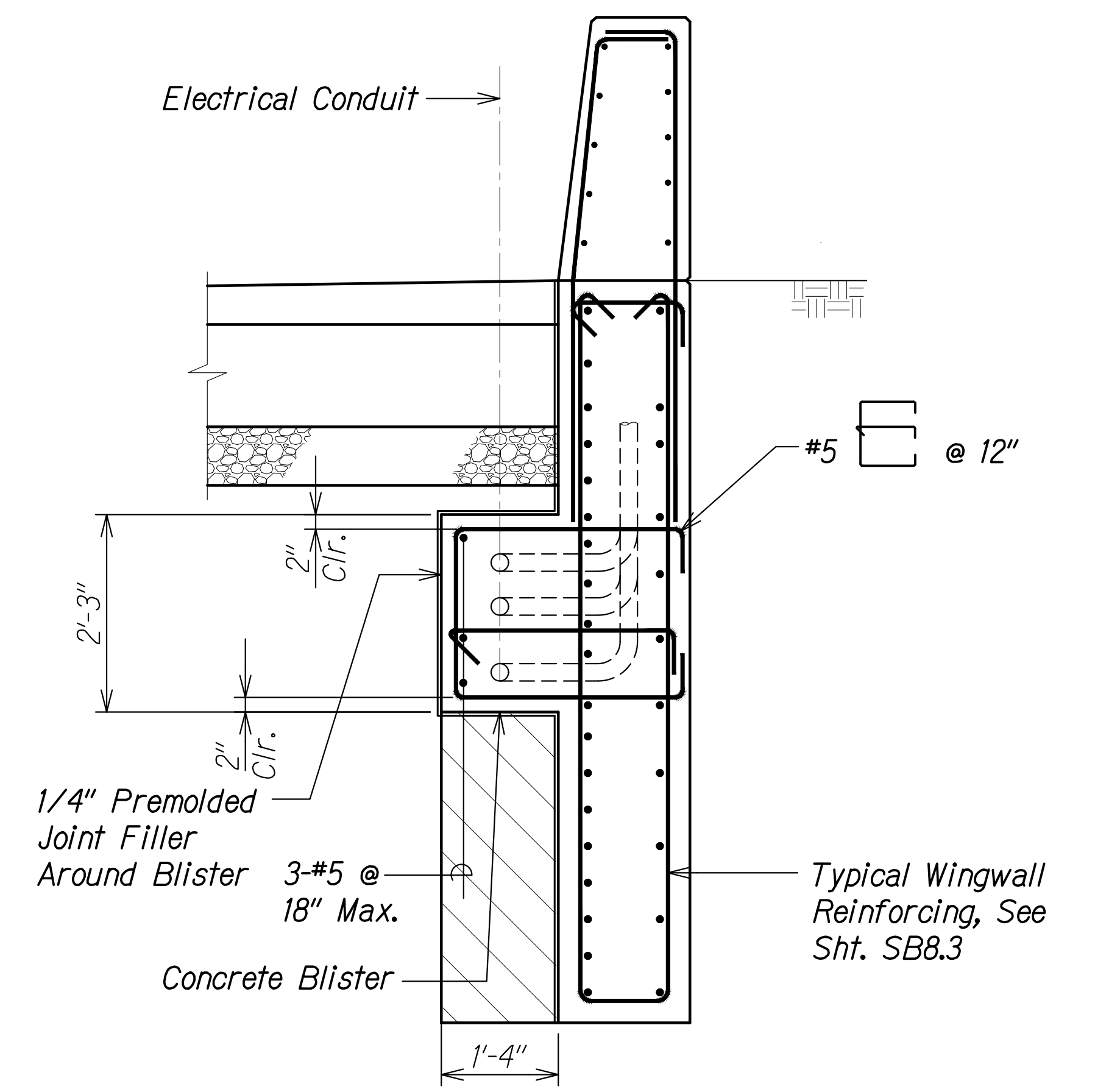
Scale: As Shown Date: Apr. 2022

**SHEET No. SB8.4 OF 5 SHEETS**

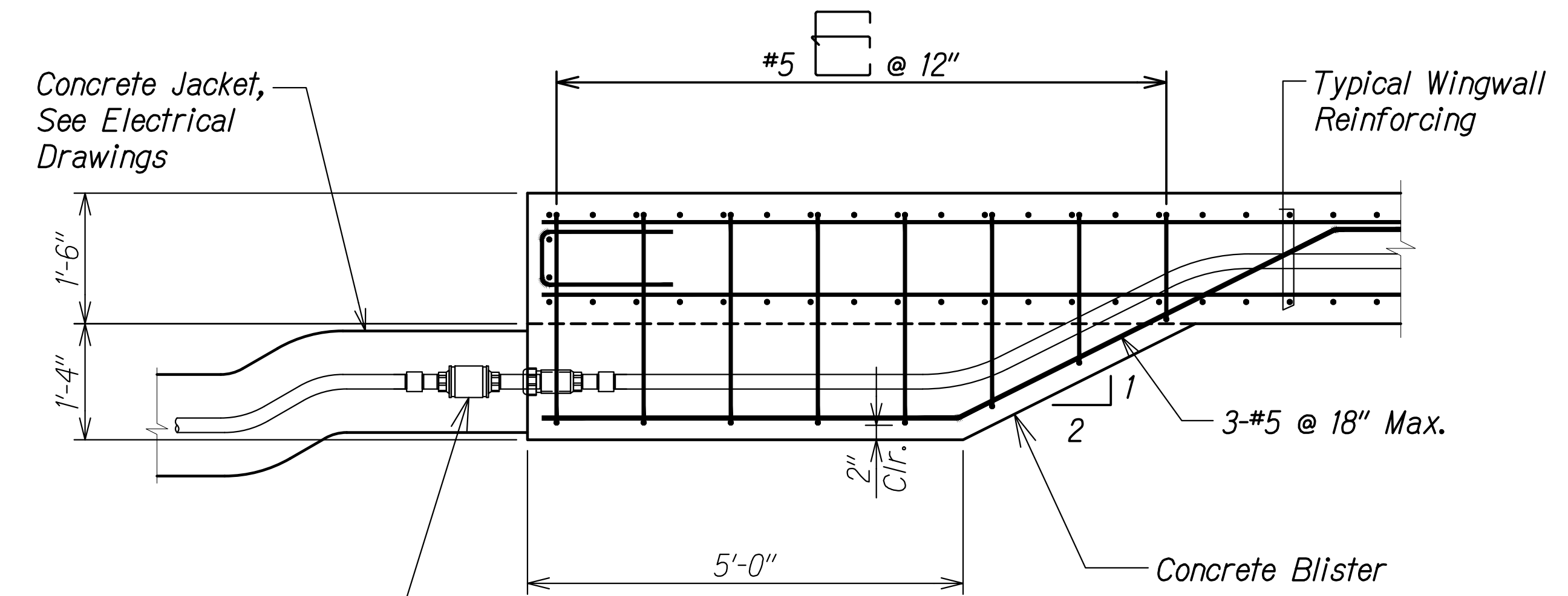
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	7101A-01-20	2021	453	



**WINGWALL ELEVATION**  
Scale: 3/8" = 1'-0"  
SB8.5 SB8.5



**SECTION C**  
Scale: 3/4" = 1'-0"  
SB8.5 SB8.5



**SECTION B**  
Scale: 3/4" = 1'-0"  
SB8.5 SB8.5

Legend:

Extent of CLSM backfill. CLSM backfill shall be incidental to the measurement and payment for Structure Backfill for Kaloi Abutments and Wingwalls.

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

DRAWING NAME: Z:\100\ONDONGS\20-013-FARR-HWY-KAPOLEI-GC-10-ET-WP2-EMT\01-CAD\04-06-22-BID-SET\FH03-SB0804-WINGWALL ELEV AND SECTION.dwg PLOT TIME: 04-07-22, 5:20 PM

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Signature: *Ruges S. Miyahara*  
April 30, 2024  
EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

**Kaloi Gulch Bridge**  
Wingwall Elevation and Section

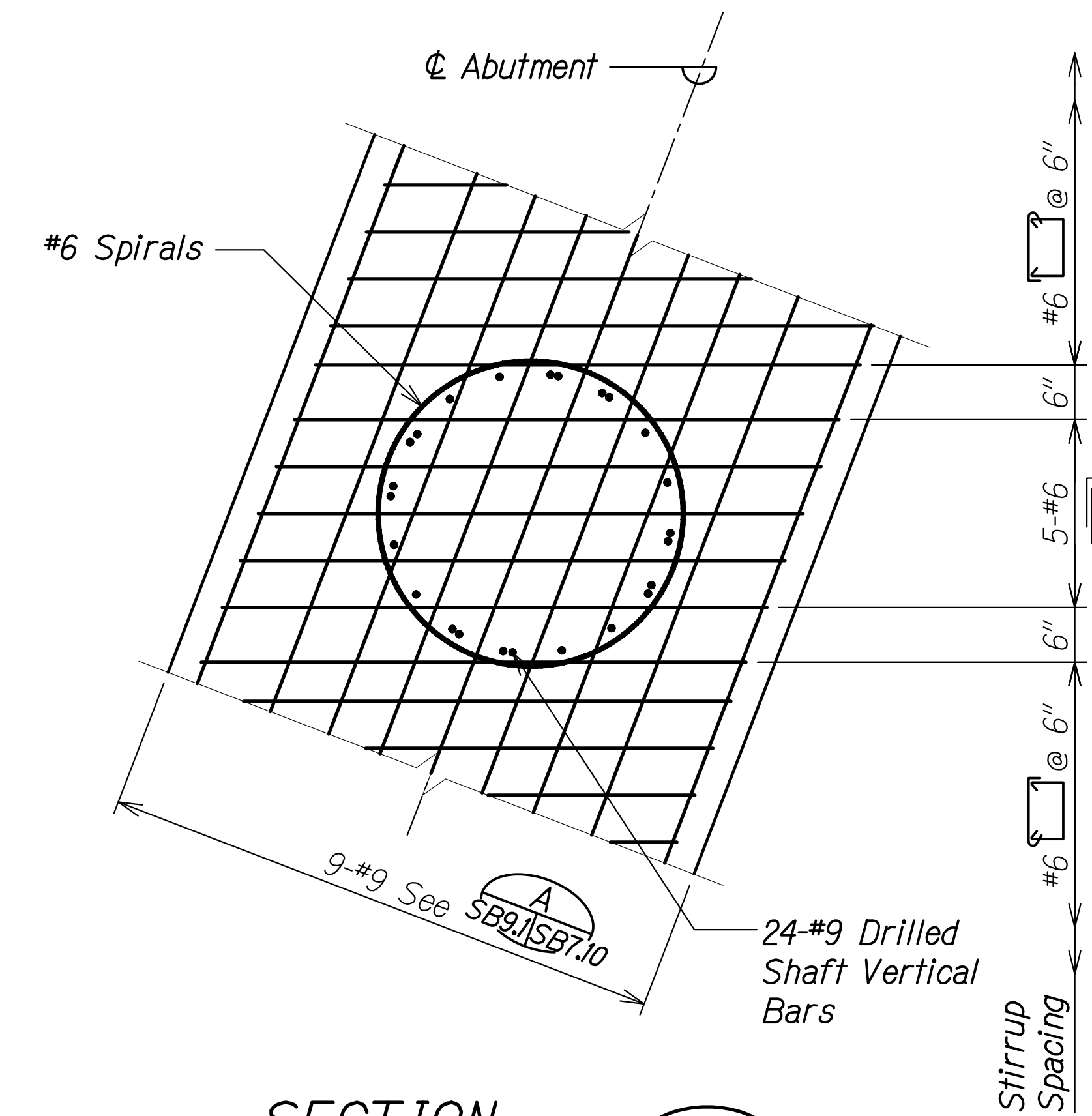
FARRINGTON HIGHWAY WIDENING  
Kapolei Golf Course Road to Fort Weaver Road  
Project No. 7101A-01-20

Scale: As Shown Date: Apr. 2022

SHEET No. SB8.5 OF 5 SHEETS

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	7101A-01-20	2021	454	

DRILLED SHAFT SCHEDULE			
Drilled Shaft	Abutment No. 1	Abutment No. 2	Trial Shaft
Drilled Shaft Tip Elevation	+71.50	+77.50	+71.00
Drilled Shaft Pay Length ("L")	80'-6"	75'-6"	90'-0"
Strength Limit State Compression Demand (Kips)	1200	1200	-
Strength Limit State Compression Capacity (Kips)	1500	1500	-
Extreme Event Limit State Compression Demand (Kips)	900	900	-
Extreme Event Limit State Compression Capacity (Kips)	2200	2200	-



**SECTION A**  
Scale: 3/4" = 1'-0" SB9.2 | SB9.1

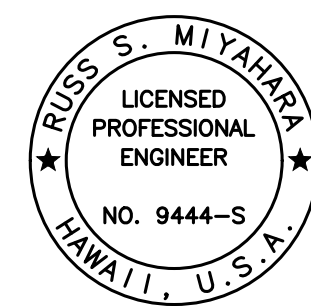
**Notes:**

1. See sheet SB9.2 for drilled shaft details.
2. See sheet SB1.2 for foundation plan.
3. All excavation and drilling operations for foundations shall be monitored by the Engineer.
4. Drilled shaft tip elevations are estimated. The actual length of the shaft and drilled shaft tip elevations will be determined by the Engineer.
5. Drilled shaft tip elevations shall be verified by the Engineer prior to placing reinforcement and concrete. Concrete shall be placed within 24 hours after drilling but shall not be placed without prior approval of the Engineer.

ORIGINAL PLAN	DATE
DRAWN BY	
DESIGNED BY	
QUANTITIES BY	
CHECKED BY	
No.	

DRAWING NAME: Z:\100 ONGOING\20-013-FARR-HWY-KAPOLEI GC.ID.IT.WPG-EMTC\01 CAD\04-06-22 BID SET\FHW3-SB9001 DRILLED SHAFT SCHEDULE.DWG PLOT TIME: 04-07-22 9:51 PM

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 Signature: *Russ S. Miyahara*  
 April 30, 2024  
 EXPIRATION DATE OF THE LICENSE



STATE OF HAWAII  
 DEPARTMENT OF TRANSPORTATION  
 HIGHWAYS DIVISION

**Kaloi Gulch Bridge  
 Drilled Shaft Schedule**

FARRINGTON HIGHWAY WIDENING  
 Kapolei Golf Course Road to Fort Weaver Road  
 Project No. 7101A-01-20

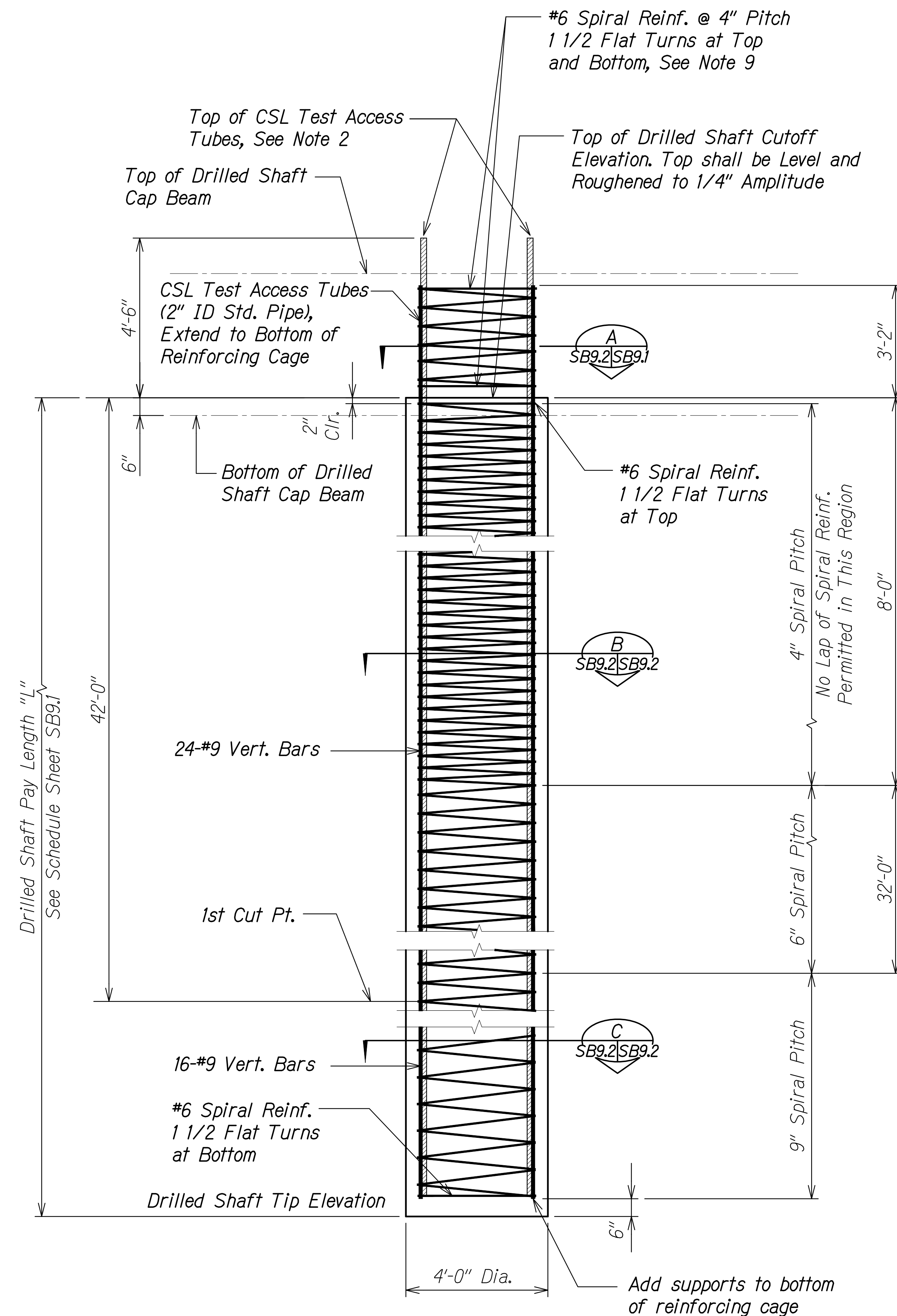
Scale: None Date: Apr. 2022

**SHEET No. SB9.1 OF 3 SHEETS**

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	7101A-01-20	2021	455	

**NOTES:**

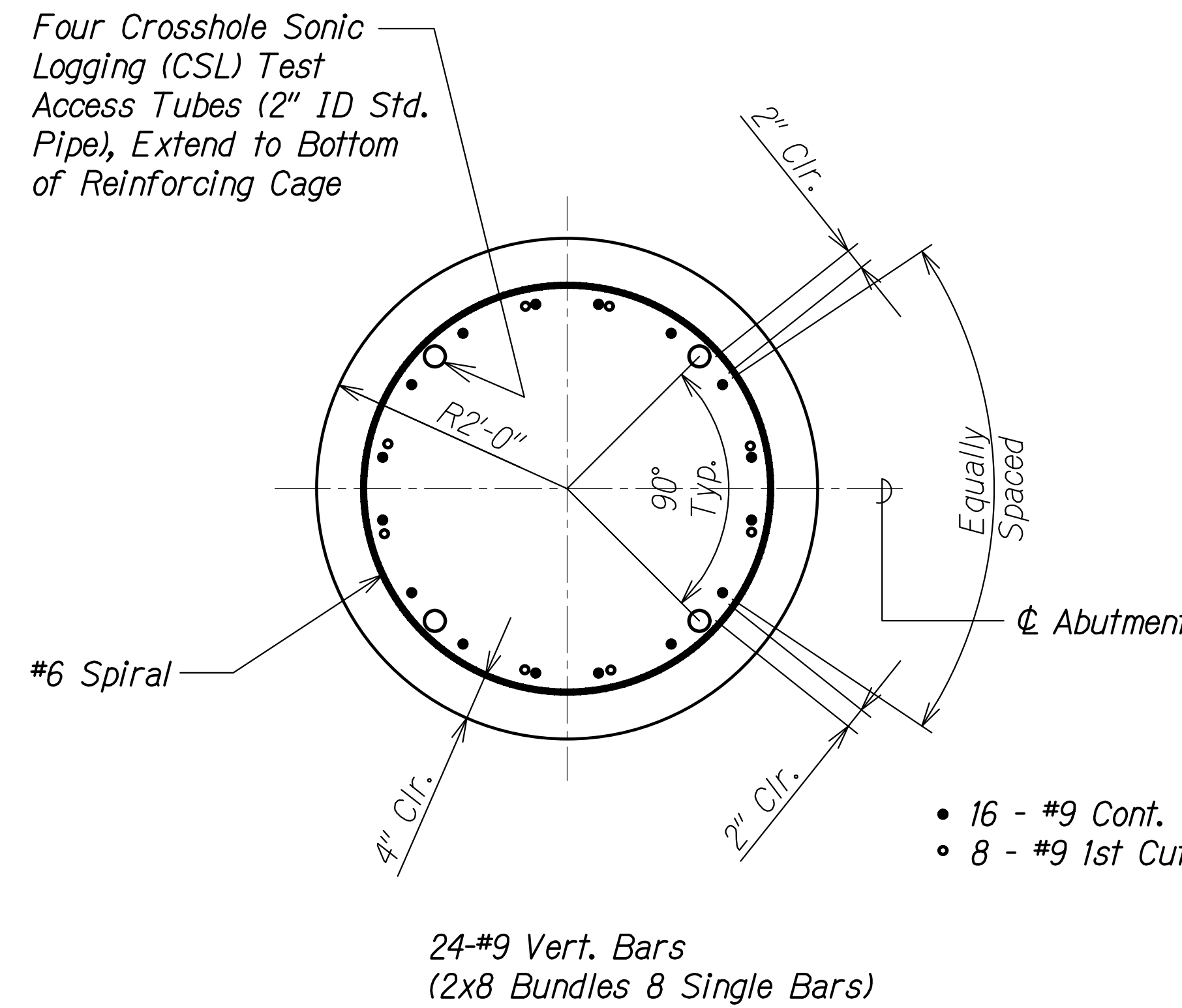
- Crosshole Sonic Logging (CSL) testing shall be performed on every drilled shaft. Shafts indicating irregular CSL readings may be subjected to additional testing.
  - After CSL testing, a portion of the CSL test access tubes shall be removed in the drilled shaft cap beam to one inch above top of the drilled shaft cutoff elevation. Tubes shall be completely filled with non-shrink, non-metallic, cementitious grout of at least equal strength as drilled shaft prior to pouring the drilled shaft cap beam. See Structural General Notes for material requirements.
  - Lap splice length for #9 vert. bar shall be 5'-6". No lap splices of vert. bars are allowed in the upper 42'-0" of the drilled shaft.
  - Lapped splices shall have a minimum of 2'-0" vertically between splice points.
  - Staggered splice points for longitudinal reinforcing shall not be more than 50% of the total at any section normal to the axis of the shaft.
  - Lap splice length for #6 spirals shall be 3'-6" min. with a 135° hook bend at each end.
  - Each end of the spiral shall have 1 1/2 extra turns with a 135° hook around a vertical reinforcing bar.
  - Concrete or other non-corrosive spacing devices shall be used to maintain the reinforcement cage in position within the shaft.
  - #6 Spiral reinforcing in drilled shaft cap beam may be installed prior to drilled shaft cap beam pour. See sheets SB7.9 and SB7.10 for details.
  - Vertical shaft reinforcing shall be arranged with a template to avoid interference with horizontal reinforcing in the drilled shaft cap beam.
- SB9.2|SB9.1 has been drawn for schematic purpose.*



**PRODUCTION AND TRIAL  
DRILLED SHAFT ELEVATION**

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

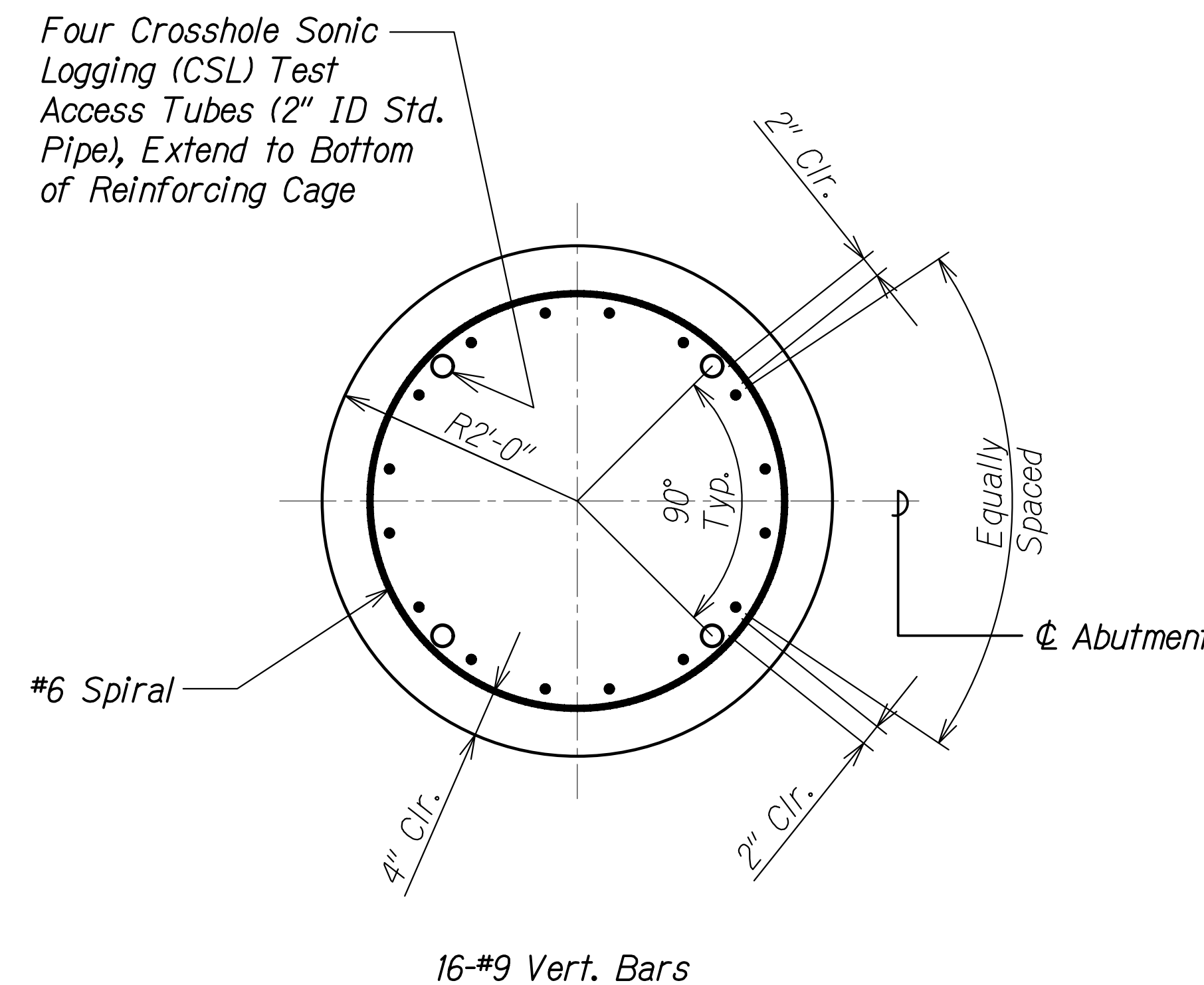
**A**  
SB9.2|SB9.1



**SECTION B**

Scale: 1" = 1'-0"

**B**  
SB9.2|SB9.2



**SECTION C**

Scale: 1" = 1'-0"

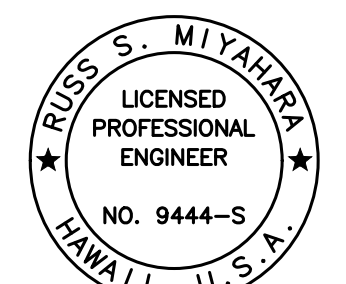
**C**  
SB9.2|SB9.2

SURVEY PLOTTED BY	DATE
DRAWN BY	
DESIGNED BY	
QUANTITIES BY	
CHECKED BY	
ORIGINAL FILE No.	

DRAWING NAME: Z:\00 UNDOINGS\20-013-FARR-HW-KAPOLEI GC ID: ET WPK-RMTC\01 CAD\04-06-22 BID SET\FH03-SB9002 DRILLED SHAFT BEING PLOT TIME: 04-07-22 9:51 PM

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.

*Russ S. Miyahara*  
APR 30, 2024  
EXPIRATION DATE OF THE LICENSE



STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

**Kaloie Gulch Bridge  
Production and Trial Drilled Shaft**

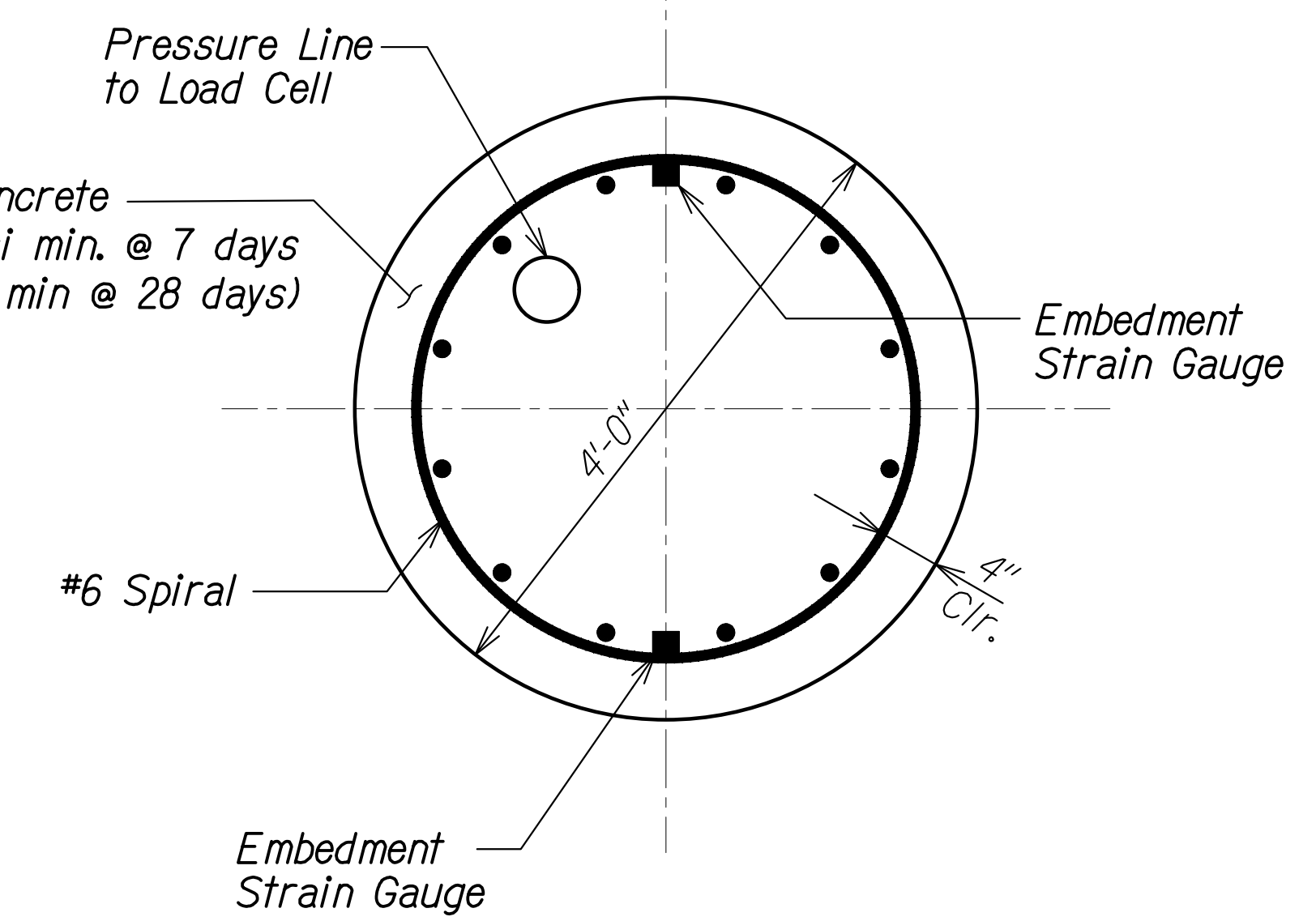
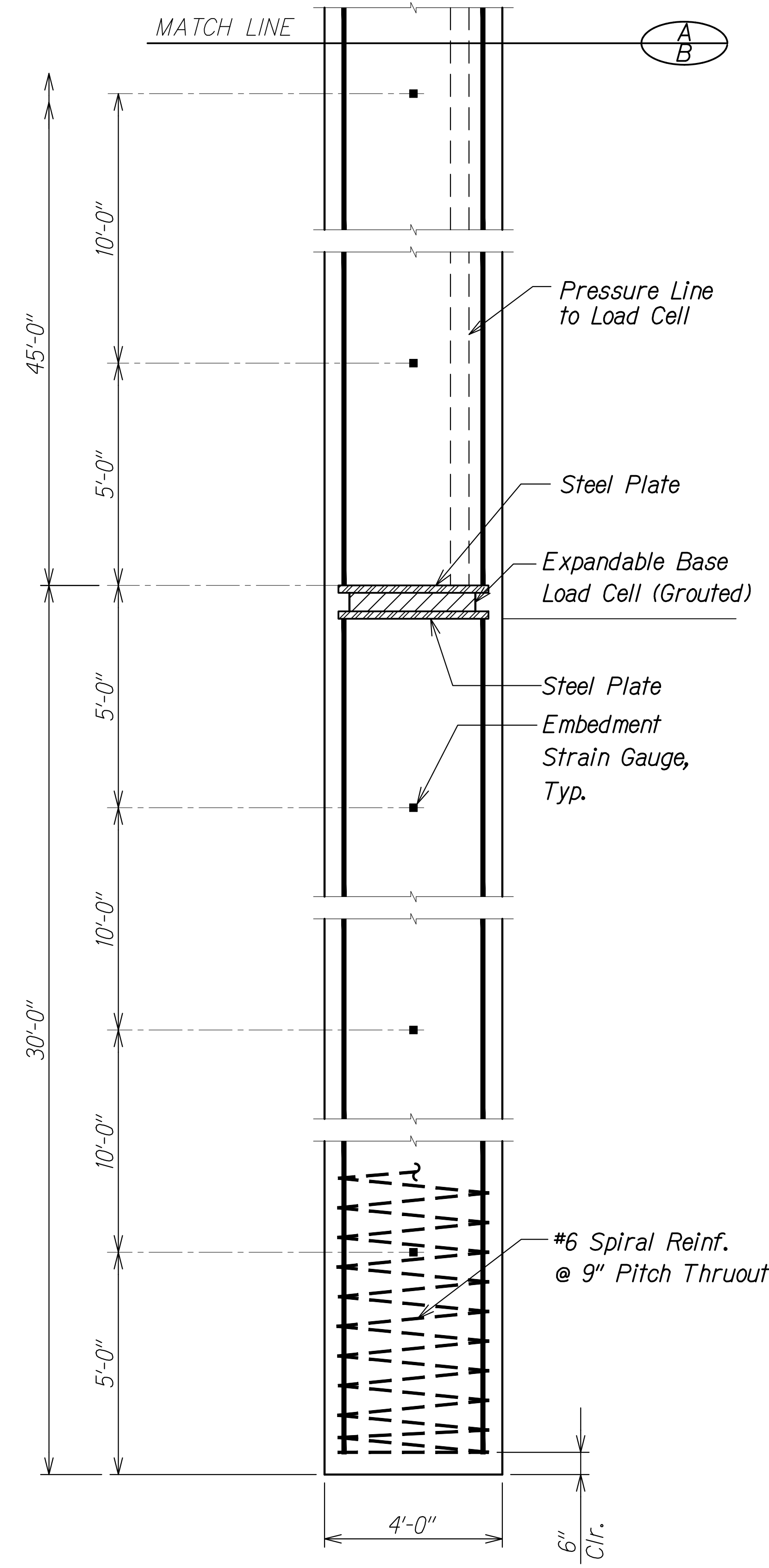
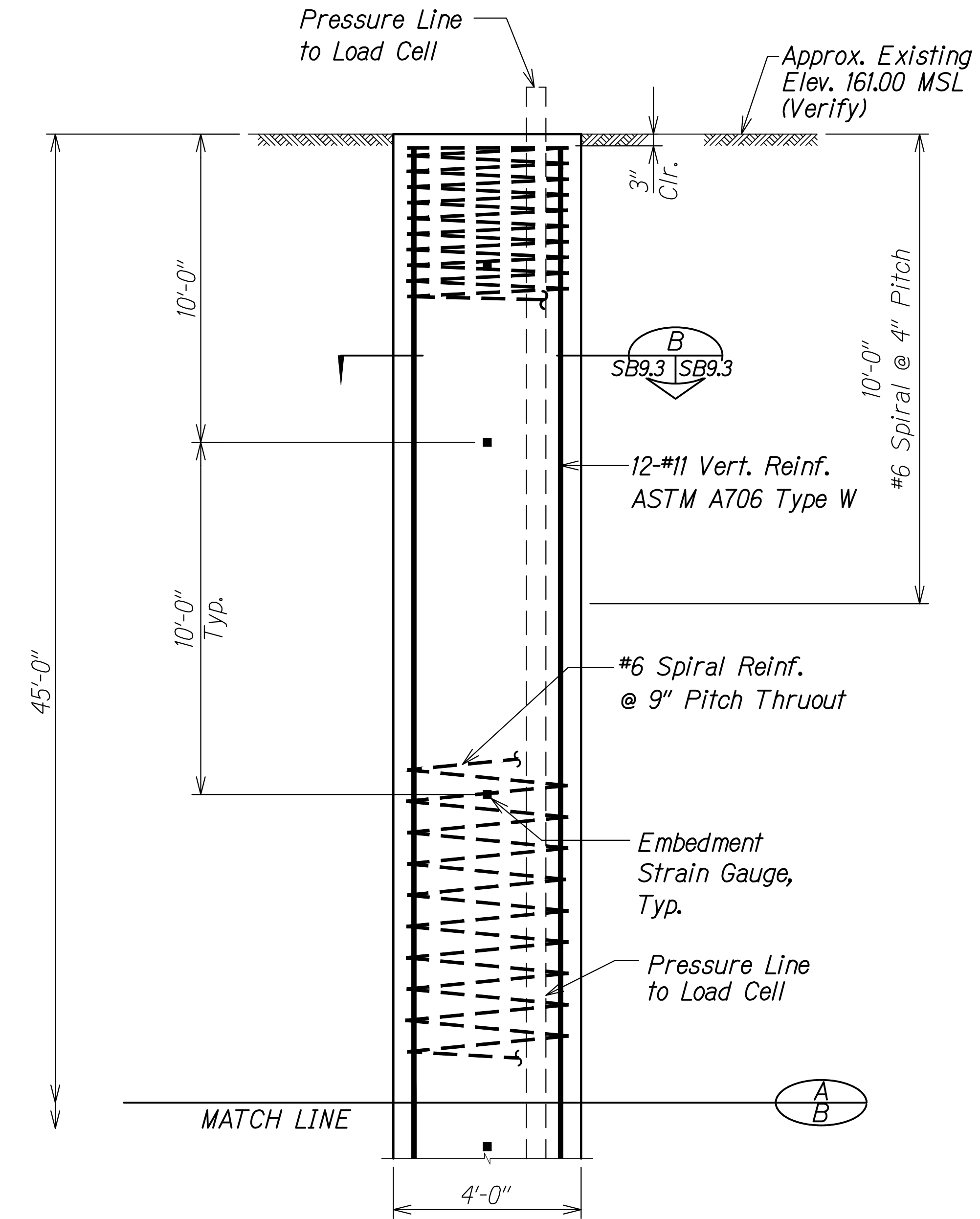
FARRINGTON HIGHWAY WIDENING  
Kapolei Golf Course Road to Fort Weaver Road  
Project No. 7101A-01-20

Scale: As Shown Date: Apr. 2022

**SHEET No. SB9.2 OF 3 SHEETS**



FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	7101A-01-20	2021	456	



12-#11 Continuous Vert. Bars  
ASTM A706 Type W Equally  
Spaced

**SECTION** B  
Scale: 1" = 1'-0" SB9.3 | SB9.3

**4'-0" DIAMETER LOAD  
TEST SHAFT ELEVATION**  
Scale: 1/2" = 1'-0" A  
SB9.3 | SB9.3

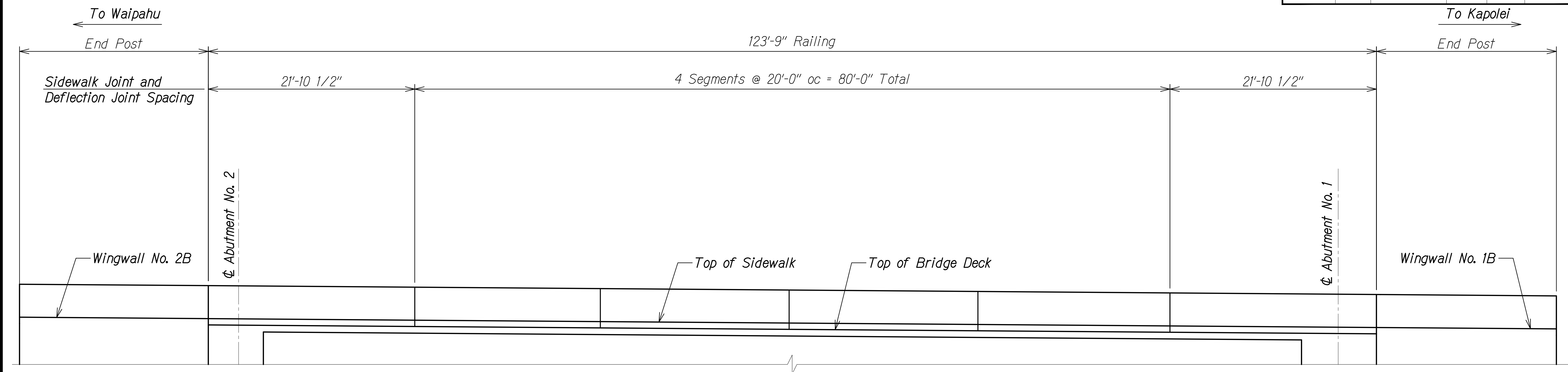
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DRAWN BY	
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NOTE BOOK	
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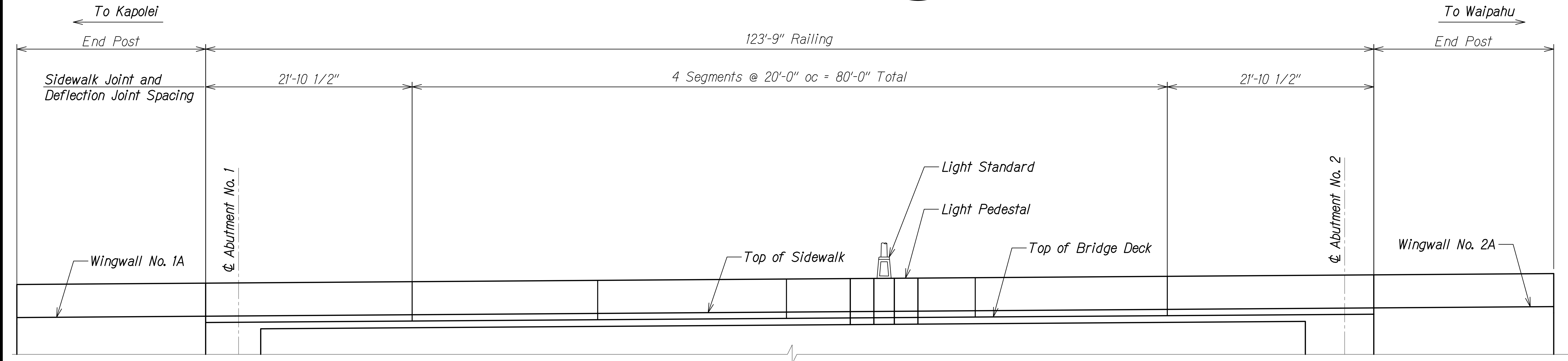
THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.  
 Signature: *Rugo S. Miyahara*  
 April 30, 2024  
 EXPIRATION DATE OF THE LICENSE

**STATE OF HAWAII**  
**DEPARTMENT OF TRANSPORTATION**  
**HIGHWAYS DIVISION**  
**Kaloi Gulch Bridge**  
**Load Test Shaft**  
**FARRINGTON HIGHWAY WIDENING**  
**Kapolei Golf Course Road to Fort Weaver Road**  
**Project No. 7101A-01-20**  
 Scale: As Shown Date: Apr. 2022  
**SHEET No. SB9.3 OF 3 SHEETS**

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	7101A-01-20	2021	457	



**UPSTREAM ELEVATION**  
Scale: 3/16" = 1'-0"  
A  
SB10.1 | SB10.1



**DOWNSTREAM ELEVATION**  
Scale: 3/16" = 1'-0"  
B  
SB10.1 | SB10.1

**Note:**  
Sidewalk joints shall be placed at same location as deflection joints in railing.

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

DRAWING NAME: Z:\100\_ONGOING\20-013-FARR-HWY-KAPOLEI\04-04-06-22-BID-SET\FHWS-SB1001-RAIL JOINT ELEV.DWG PLOT TIME: 04-07-22, 5:22 PM

**RUGGS S. MIYAKAWA**  
LICENSED PROFESSIONAL ENGINEER  
NO. 9444-S  
HAWAII, U.S.A.

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*Ruggs S. Miyakawa*  
SIGNATURE  
April 30, 2024  
EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

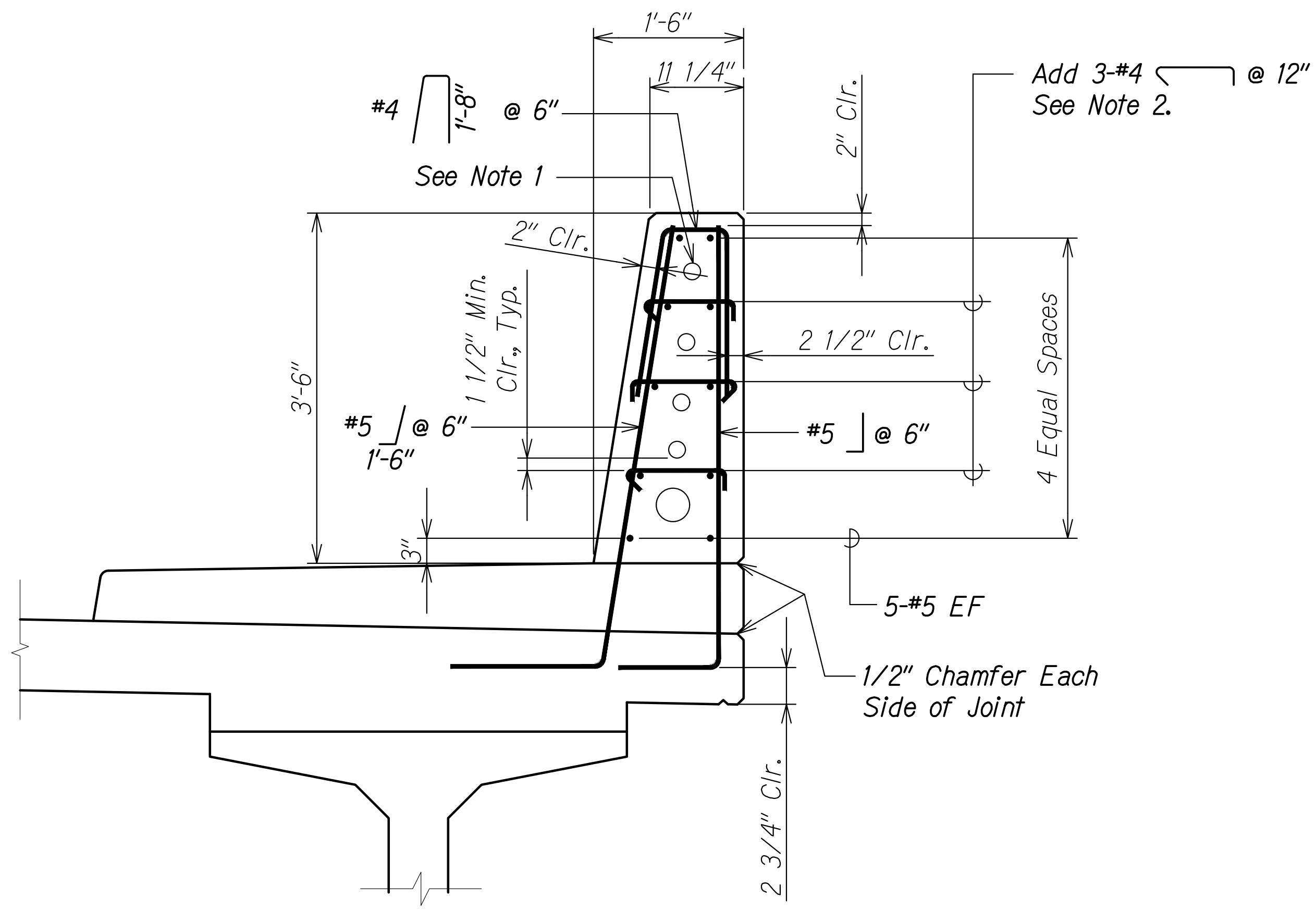
**Kaloi Gulch Bridge  
Railing Elevations**

FARRINGTON HIGHWAY WIDENING  
Kapolei Golf Course Road to Fort Weaver Road  
Project No. 7101A-01-20

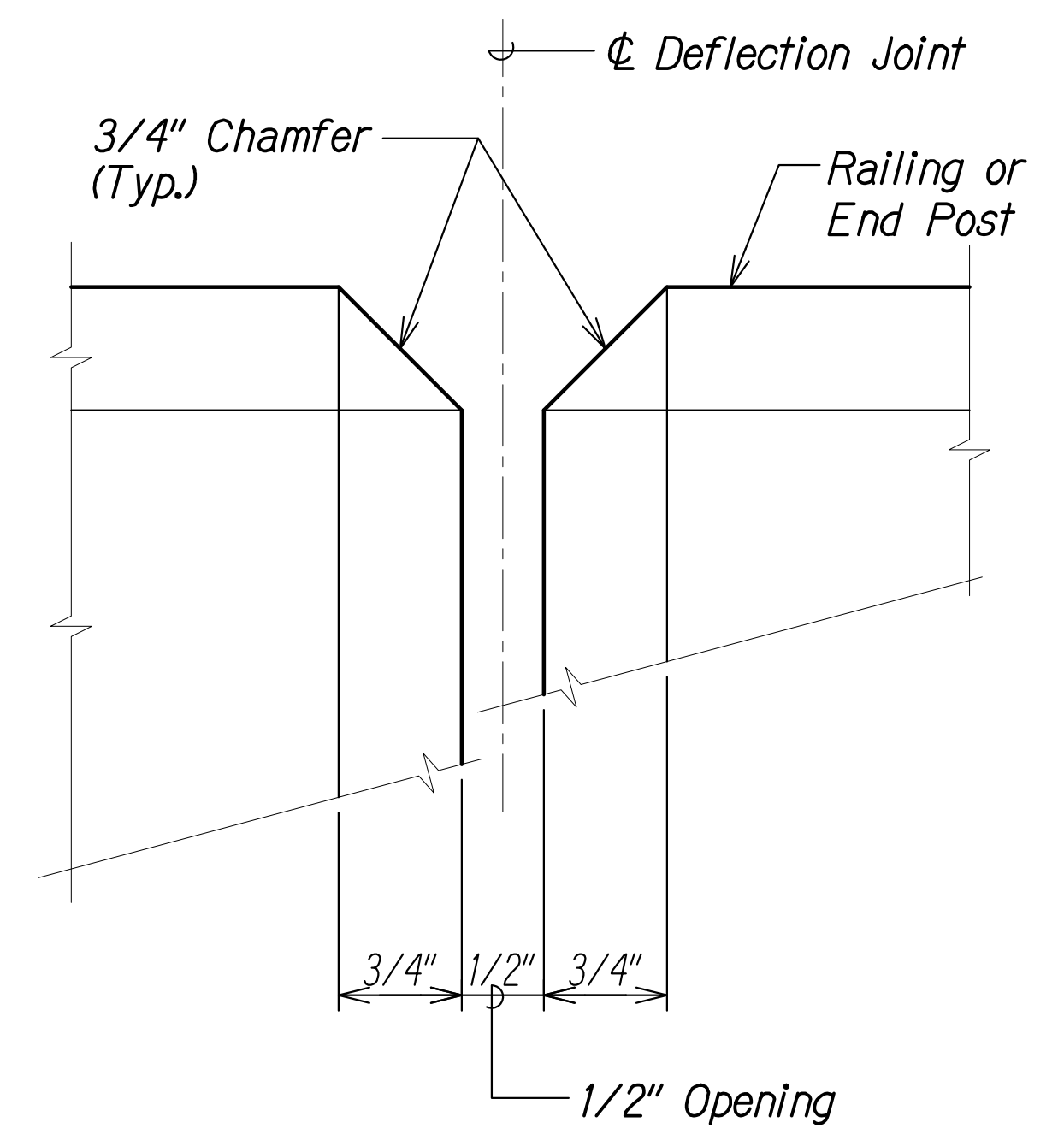
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**SHEET No. SB10.1 OF 4 SHEETS**

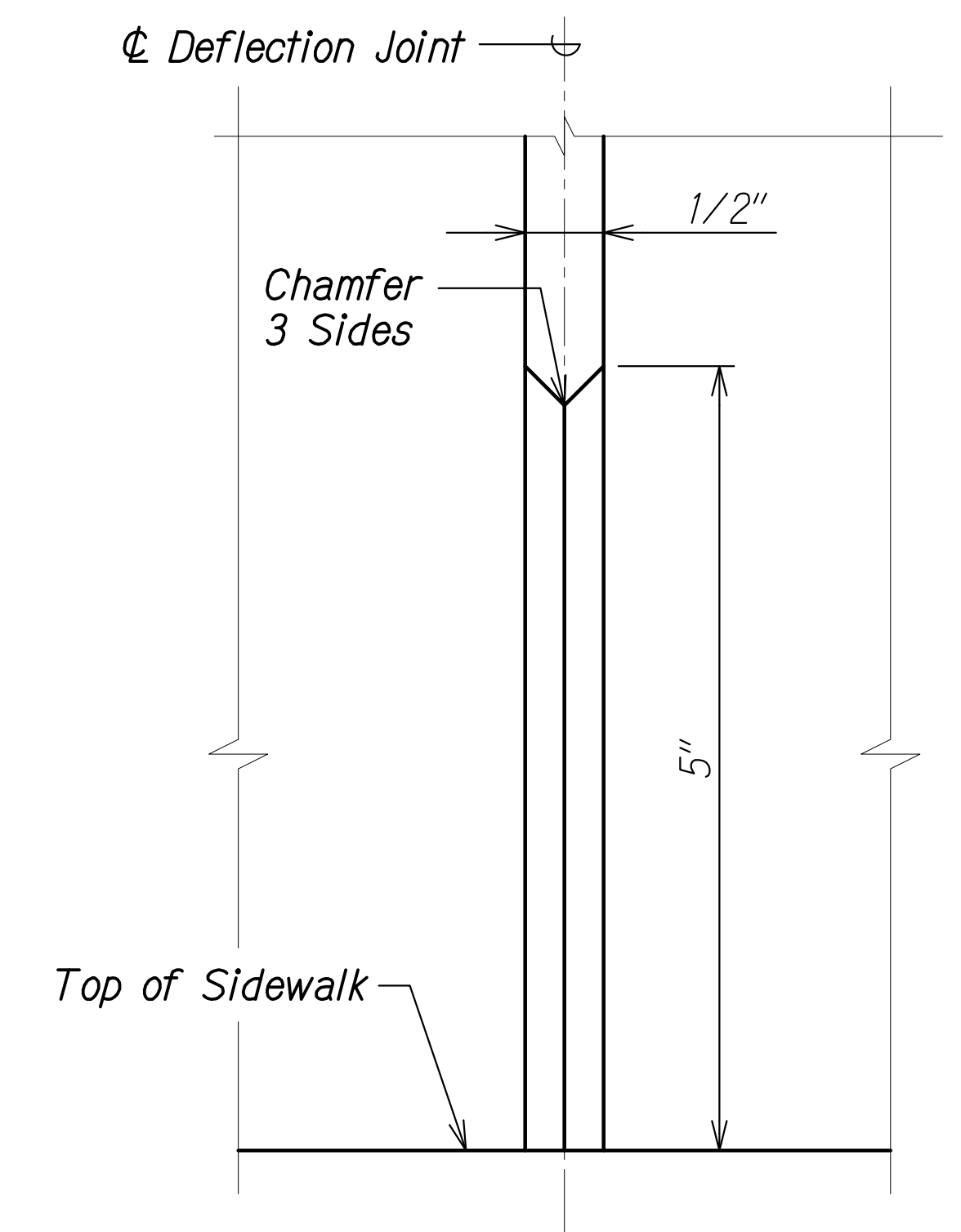
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	7101A-01-20	2021	458	



**RAILING SECTION**  
Scale: 1" = 1'-0"  
SB10.2 | SB10.2



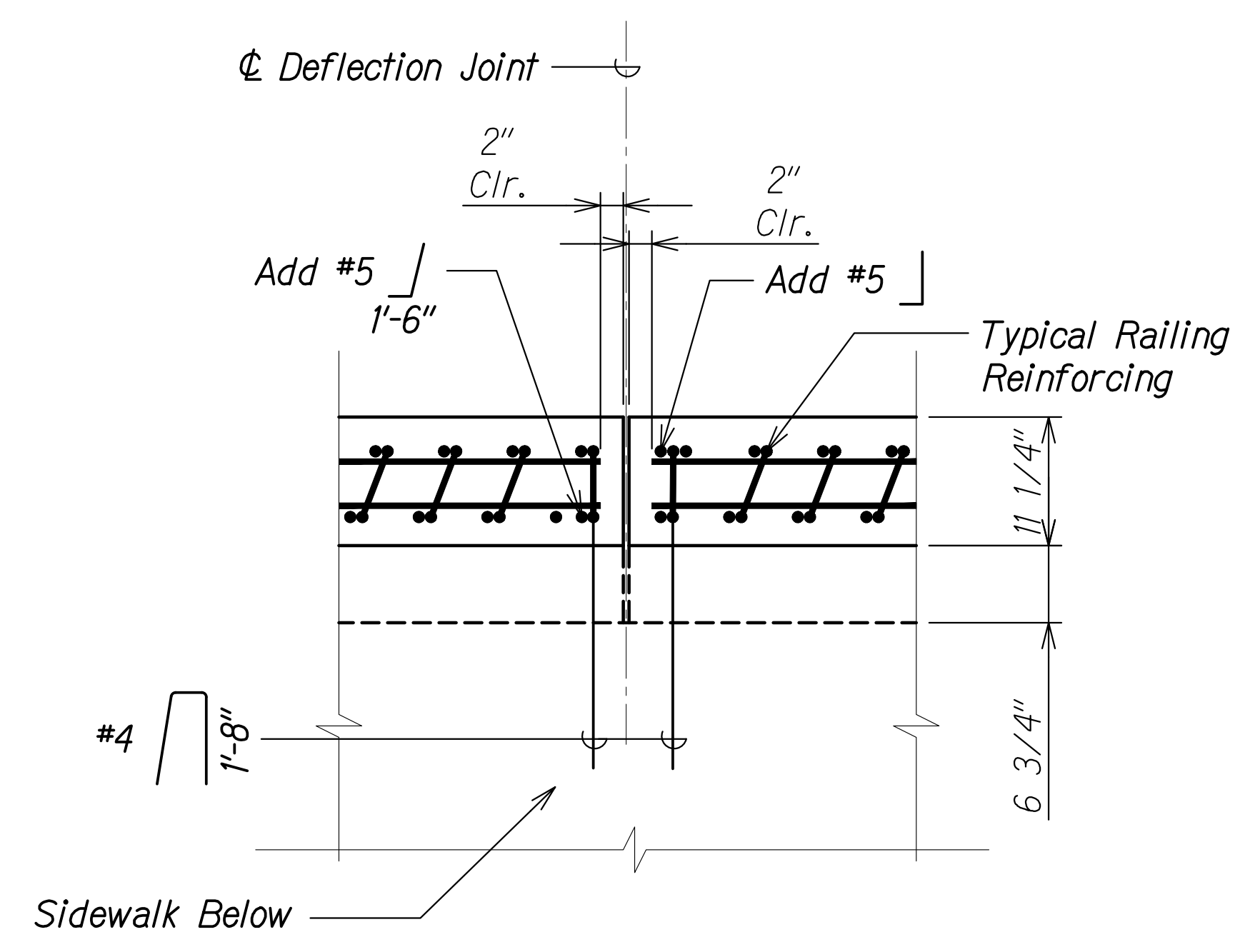
**DEFLECTION JOINT DETAIL 1**  
Scale: 1" = 1"  
SB10.2 | SB10.2



**DEFLECTION JOINT DETAIL 2**  
Scale: 1" = 1"  
SB10.2 | SB10.2

**Notes:**

- (1) 4" dia. conduit and (4) 2" dia. conduits in downstream railing shown. (3) 2" dia. conduit in upstream railing not shown.
- 3-#4 @ 12" shall be ASTM A1035 Type CS Grade 100. Extend 3-#4 @ 12" into end post and terminate at location where conduits bend and enter the underlying wingwall. See sheets SB8.4 and SB8.5.
- Deflection joints shall be placed perpendicular to centerline of bridge



**PLAN - REINFORCING AT TOP OF RAILING**  
Scale: 1" = 1'-0"  
SB10.2 | SB10.2



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Signature: Russ S. Miyahara  
Date: April 30, 2024  
Expiration Date of License

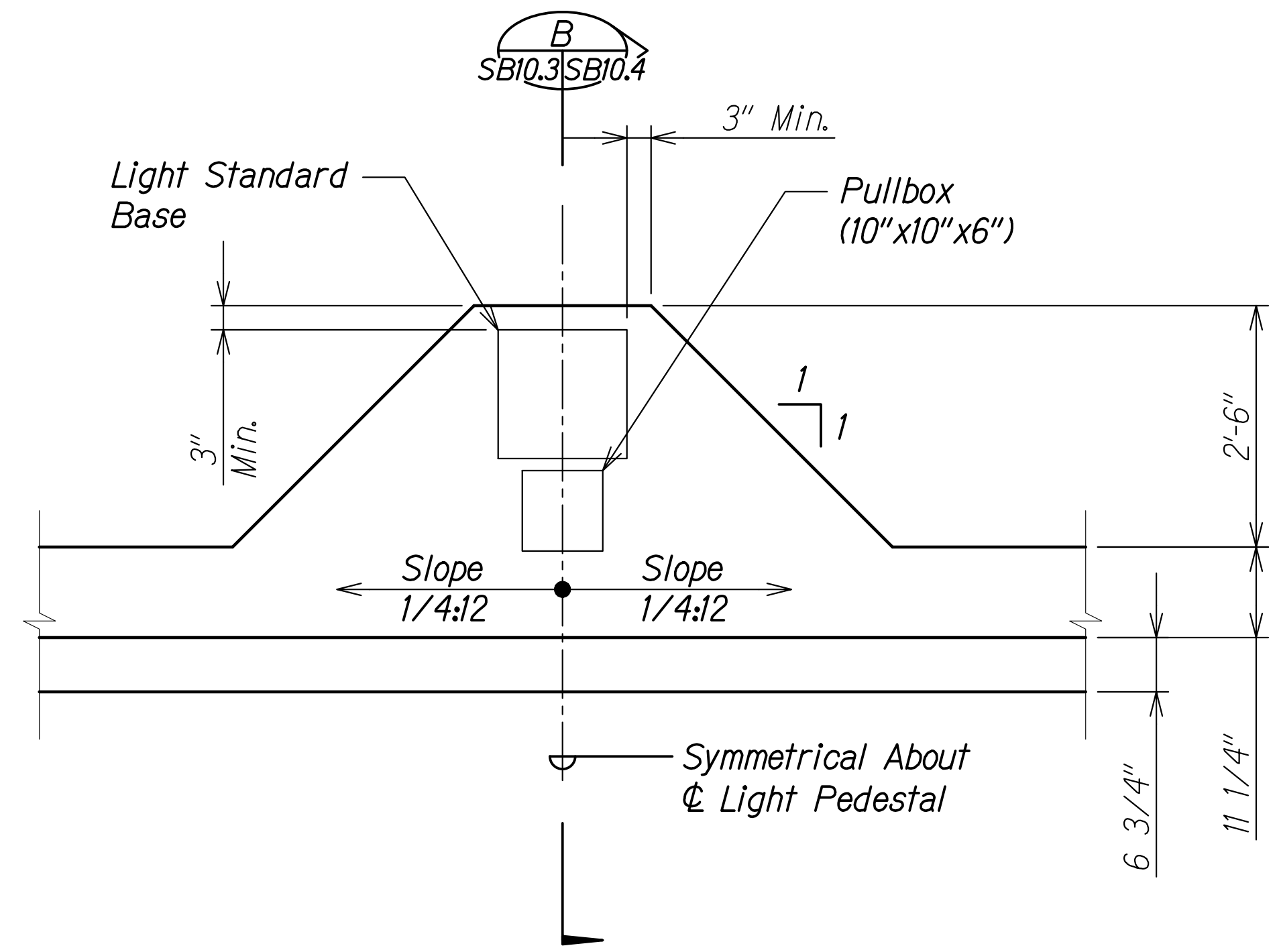
STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION  
**Kaloie Gulch Bridge**  
Railing Section, Plan, and Details  
FARRINGTON HIGHWAY WIDENING  
Kapolei Golf Course Road to Fort Weaver Road  
Project No. 7101A-01-20

Scale: As Shown Date: Apr. 2022  
SHEET No. SB10.2 OF 4 SHEETS

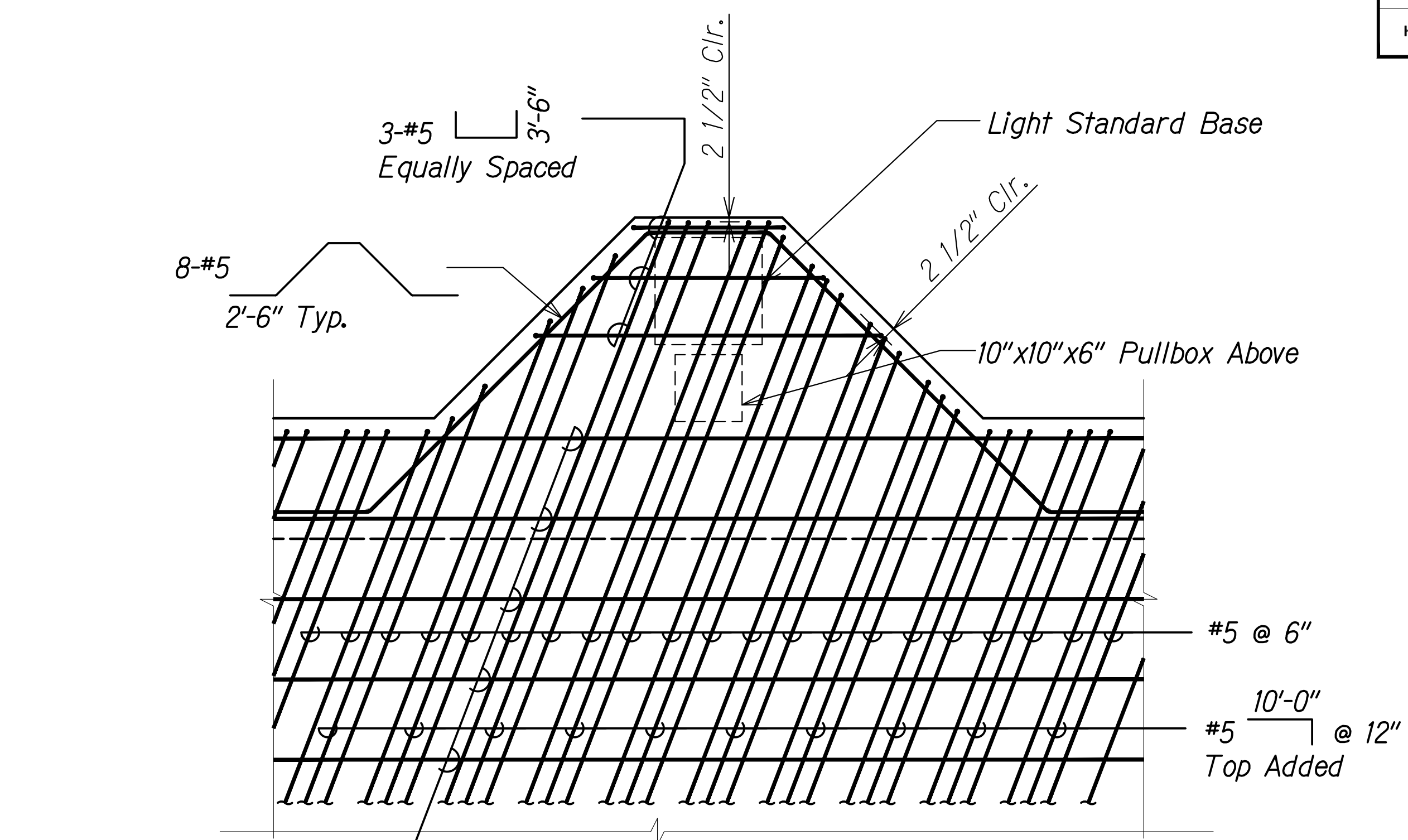
ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
NOTE BOOK	DRAWN BY	
No.	DESIGNED BY	
	QUANTITIES BY	
	CHECKED BY	

DRAWING NAME: Z:\100 ONGOING\20-013-FARR-HW-KAPOLEI GC.DWG PLOT TIME: 04-07-22, 5:22 PM

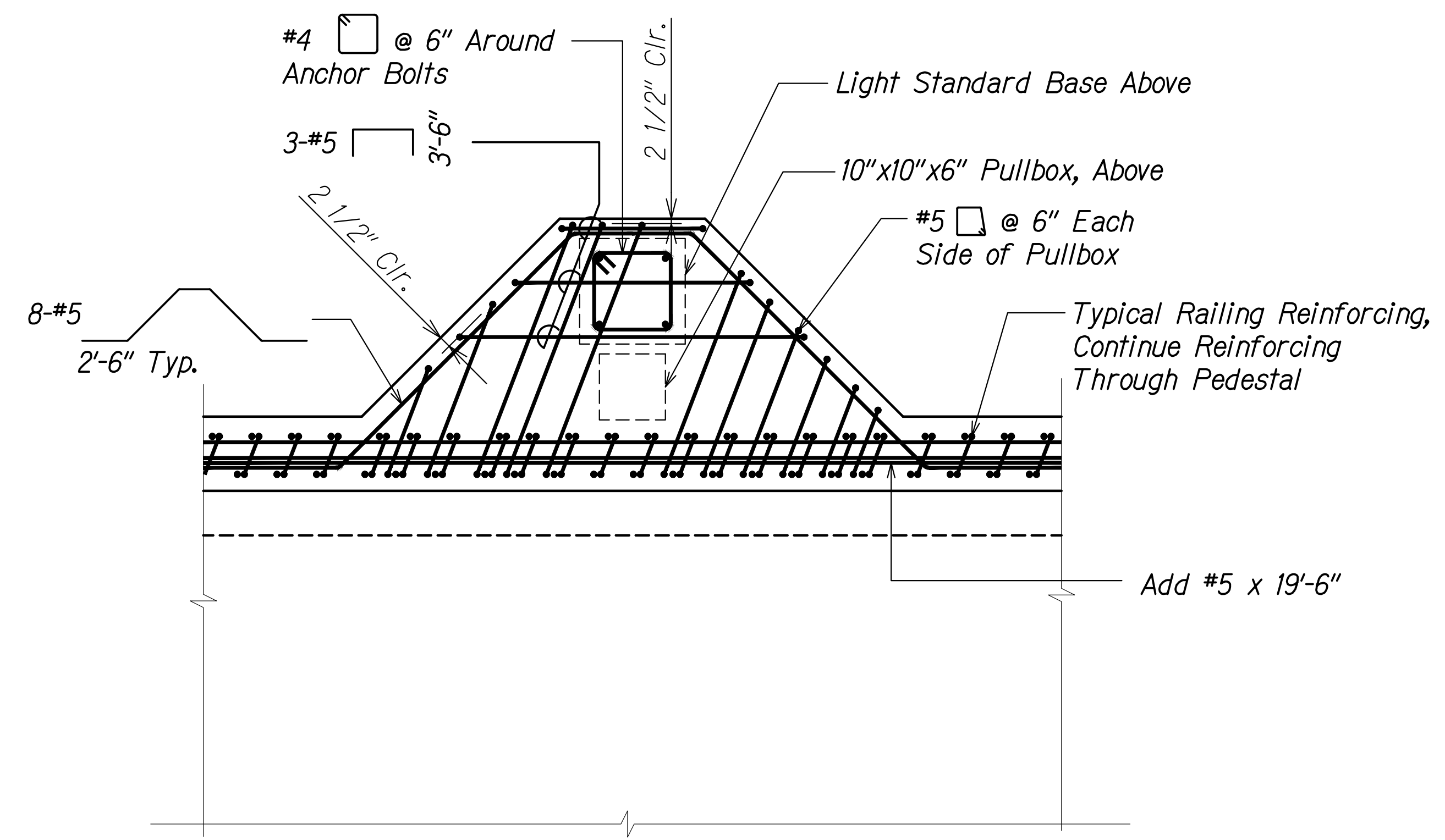
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	7101A-01-20	2021	459	



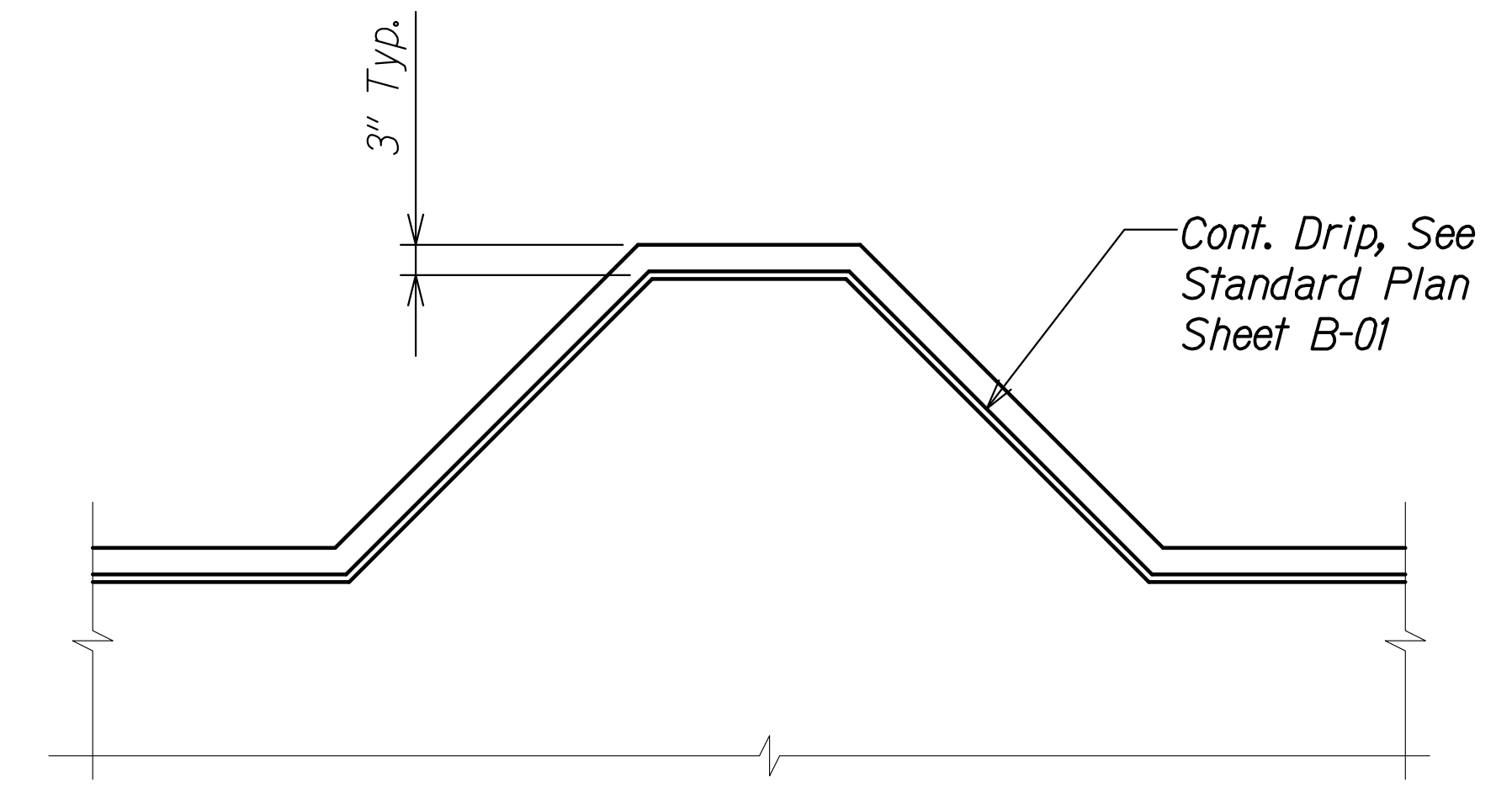
**PLAN - LIGHT PEDESTAL**  
Scale: 3/4" = 1'-0"  
SB10.3 SB10.4



**PLAN - DECK REINFORCING AT LIGHT PEDESTAL**  
Scale: 3/4" = 1'-0"  
SB10.3 SB10.3



**PLAN - REINFORCING AT TOP OF LIGHT PEDESTAL**  
Scale: 3/4" = 1'-0"  
SB10.3 SB10.3



**DRIP STRIP DETAIL AT LIGHT PEDESTAL (LOOKING AT SOFFIT)**  
Scale: 3/4" = 1'-0"  
SB10.3 SB10.3

ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
NOTE BOOK	DRAWN BY	
No. _____	DESIGNED BY	
	QUANTITIES BY	
	CHECKED BY	

DRAWING NAME: Z:\100 ONGOINGS\20-013-FARR-HWY-KAPOLEI GC.ID.IT.WIP-RMT(CAD) 04-06-22 BID SET\FHWS-SB1003-KALOI LIGHT PEDDING PLOT TIME: 04-07-22: 5:23 PM



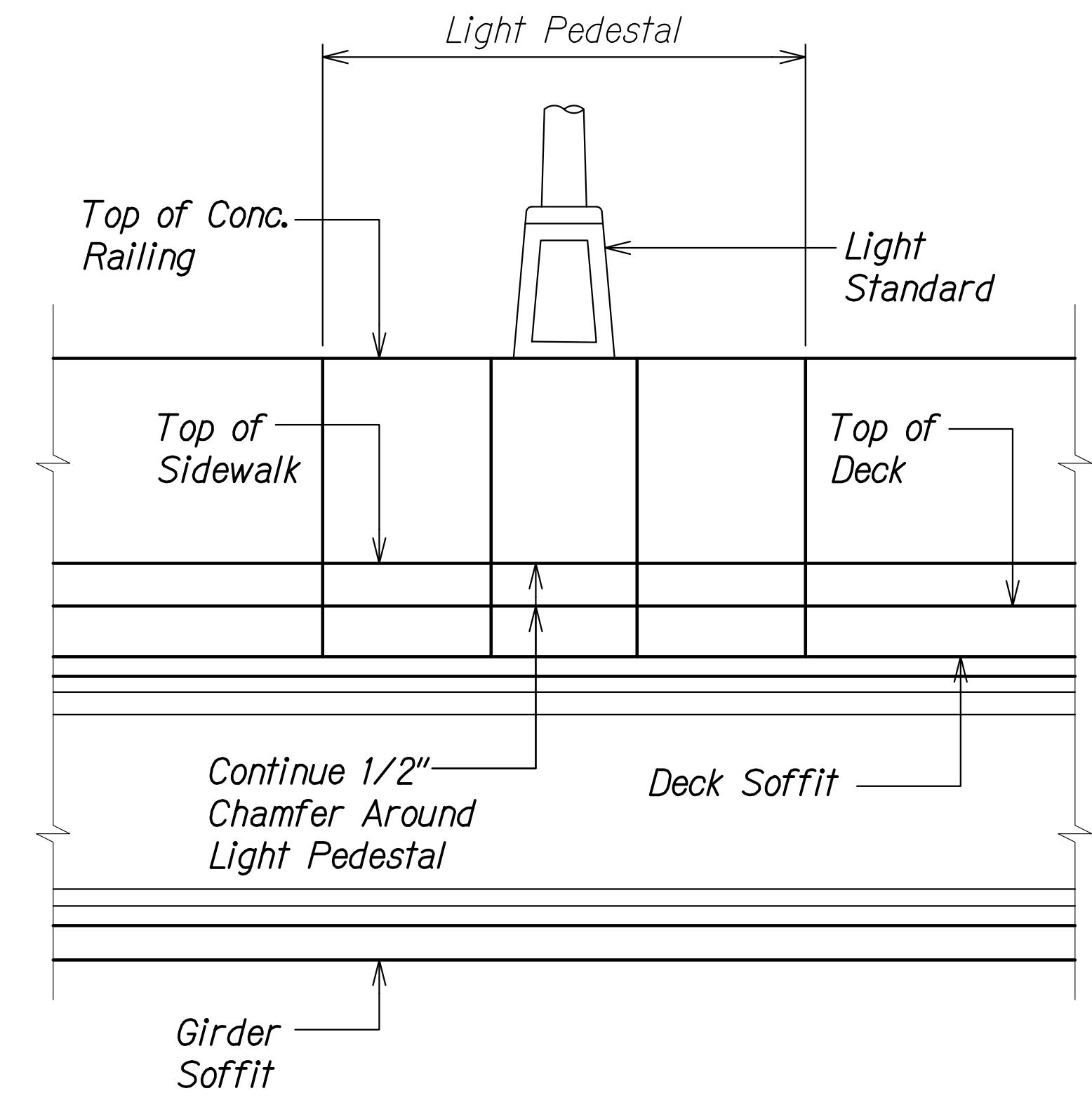
THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.  
 Signature: *Russ S. Miyahara* April 30, 2024  
 EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII  
 DEPARTMENT OF TRANSPORTATION  
 HIGHWAYS DIVISION

**Kaloii Gulch Bridge**  
**Light Pedestal Plans and Detail**  
 FARRINGTON HIGHWAY WIDENING  
 Kapolei Golf Course Road to Fort Weaver Road  
 Project No. 7101A-01-20

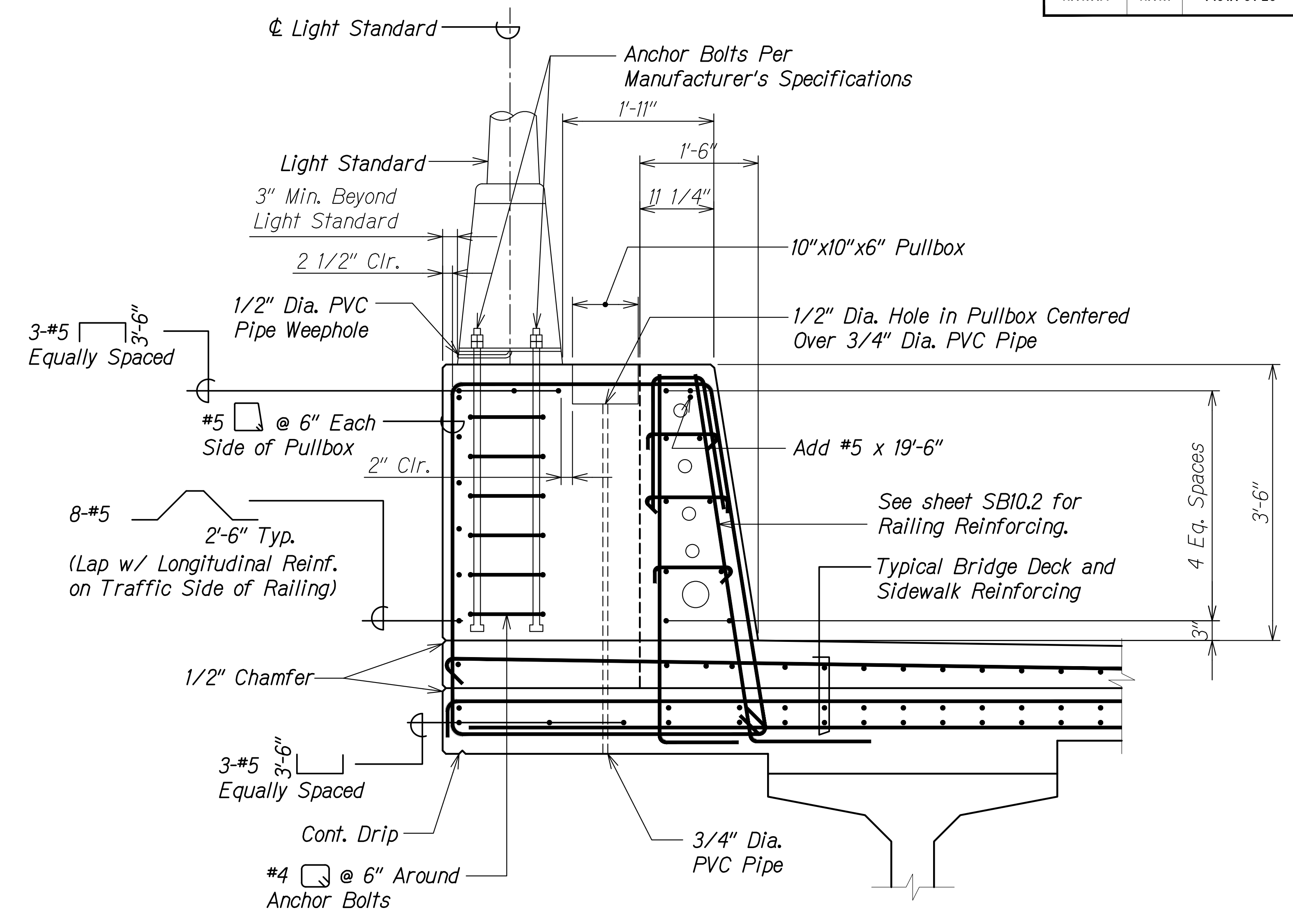
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**SHEET No. SB10.3 OF 4 SHEETS**

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	7101A-01-20	2021	460	



**ELEVATION - LIGHT PEDESTAL AT LIGHT STANDARD**  
 Scale: 1/2" = 1'-0"

A  
 SBI0.4 | SBI0.4



**LIGHT PEDESTAL SECTION**  
 Scale: 1" = 1'-0"

B  
 SBI0.3 | SBI0.4

**Note:**

Thickened railing at light pedestal location shall be incidental to the measurement and payment for Bridge Concrete Railing for Kalo.



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 Signature: *Russ S. Miyahara* April 30, 2024  
 EXPIRATION DATE OF THE LICENSE

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

DRAWING NAME: Z:\100\_ONGOING\20-013-FARR-HWY-KAPOLEI-GC-10-IT-WIP-EMTC\01-CAD\04-08-22-BID-RVSD-SHRS\FHWG-SBI0.4-KALO-LIGHT-PEDESTAL.PLOT TIME: 04-08-22, 2:09 PM

STATE OF HAWAII  
 DEPARTMENT OF TRANSPORTATION  
 HIGHWAYS DIVISION

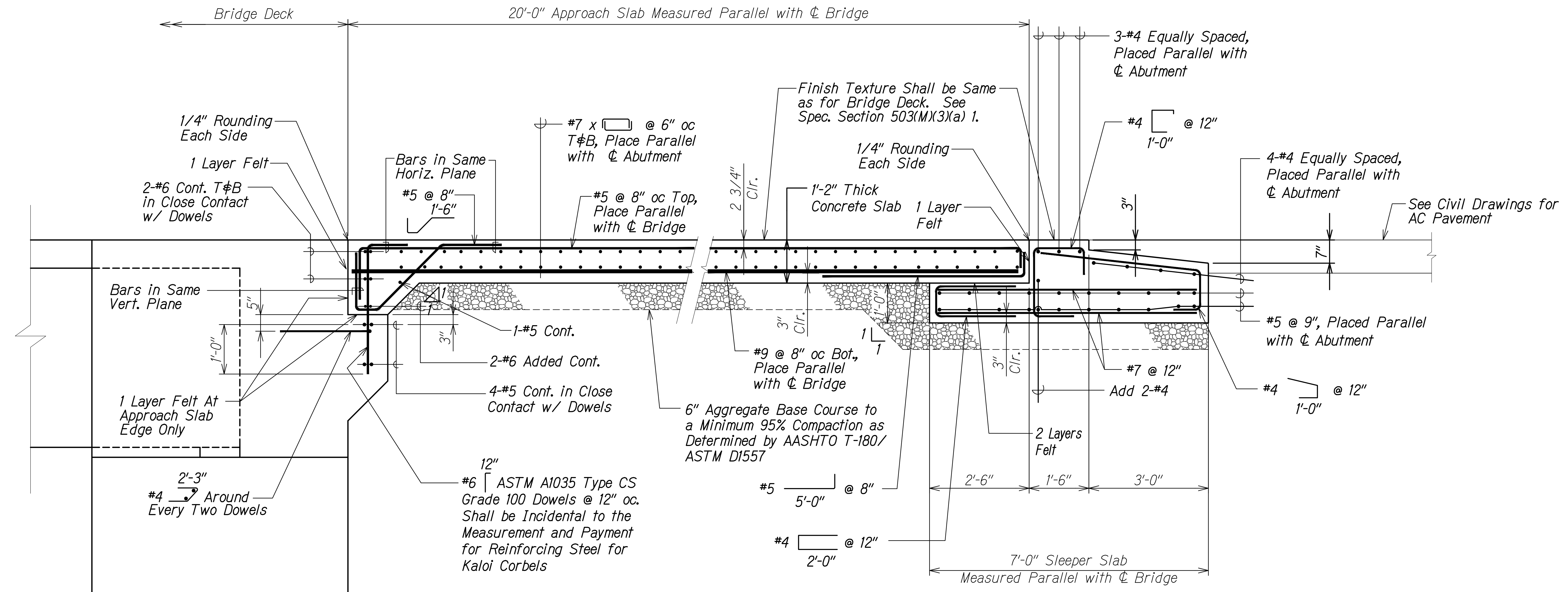
**Kaloie Gulch Bridge**  
 Light Pedestal Elevation and Sections

FARRINGTON HIGHWAY WIDENING  
 Kapolei Golf Course Road to Fort Weaver Road  
 Project No. 7101A-01-20

Scale: As Shown Date: Apr. 2022

SHEET No. SBI0.4 OF 4 SHEETS

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	7101A-01-20	2021	461	



**TYPICAL APPROACH SLAB AND SLEEPER SLAB SECTION**

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



**Notes:**

1. Approach slab and sleeper slab finish texture shall be the same as the bridge deck finish texture.
2. 6" Aggregate base course shall be incidental to the measurement and payment for Concrete for Kaloi Approach Slabs and Sleeper Slabs.

ORIGINAL PLAN	DATE
DRAWN BY	
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QUANTITIES BY	
CHECKED BY	

DRAWING NAME: Z:\100 ONGOING\20-013-FARR-HWY-KAPOLEI GC.ID.IT.WIP-EMTC\01 CAD\04-08-22 BID RVS\SHR\S\FHW3-SB1101 APPROACH SLAB.DWG PLOT TIME: 04-08-22 2:01 PM

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*Russ S. Miyahara*  
 SIGNATURE  
 April 30, 2024  
 EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII  
 DEPARTMENT OF TRANSPORTATION  
 HIGHWAYS DIVISION

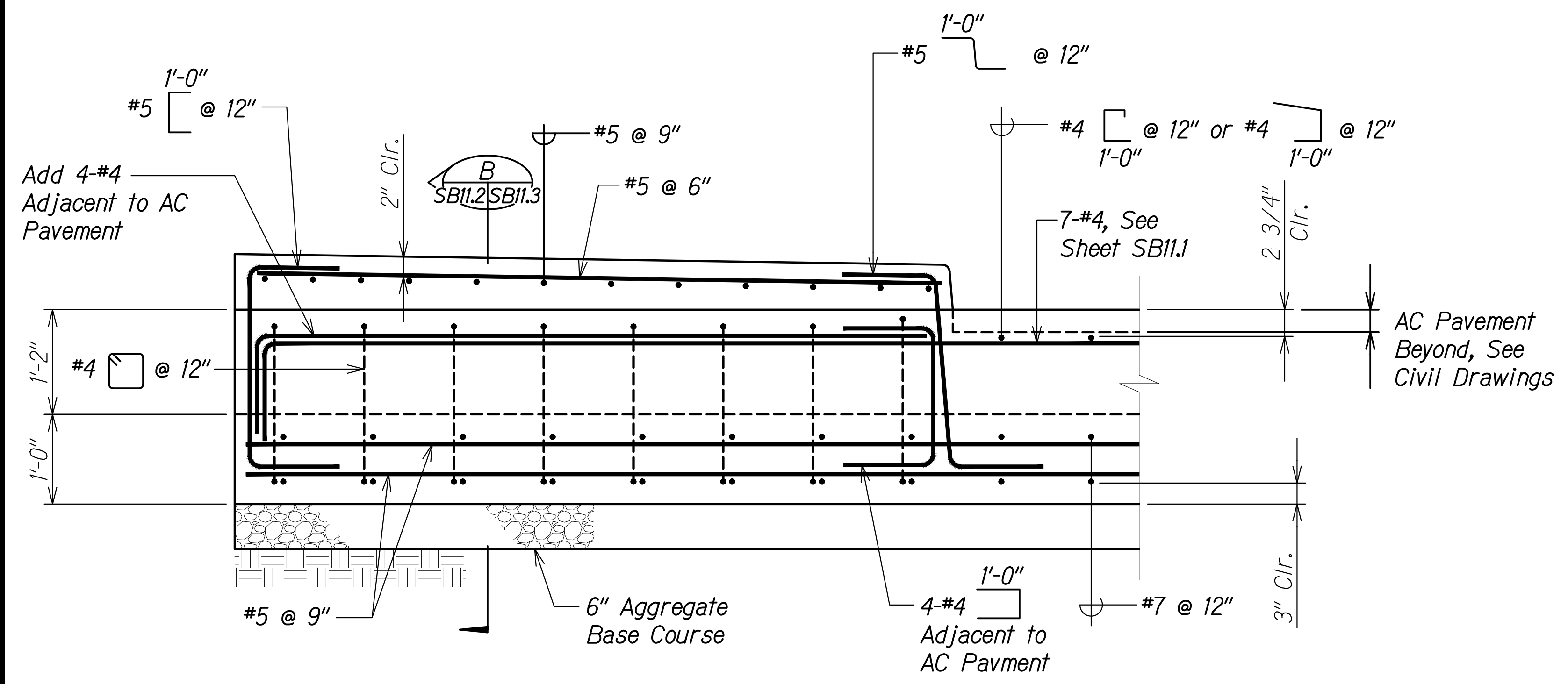
**Kaloi Gulch Bridge**  
 Approach Slab and Sleeper Slab Section

FARRINGTON HIGHWAY WIDENING  
 Kapolei Golf Course Road to Fort Weaver Road  
 Project No. 7101A-01-20

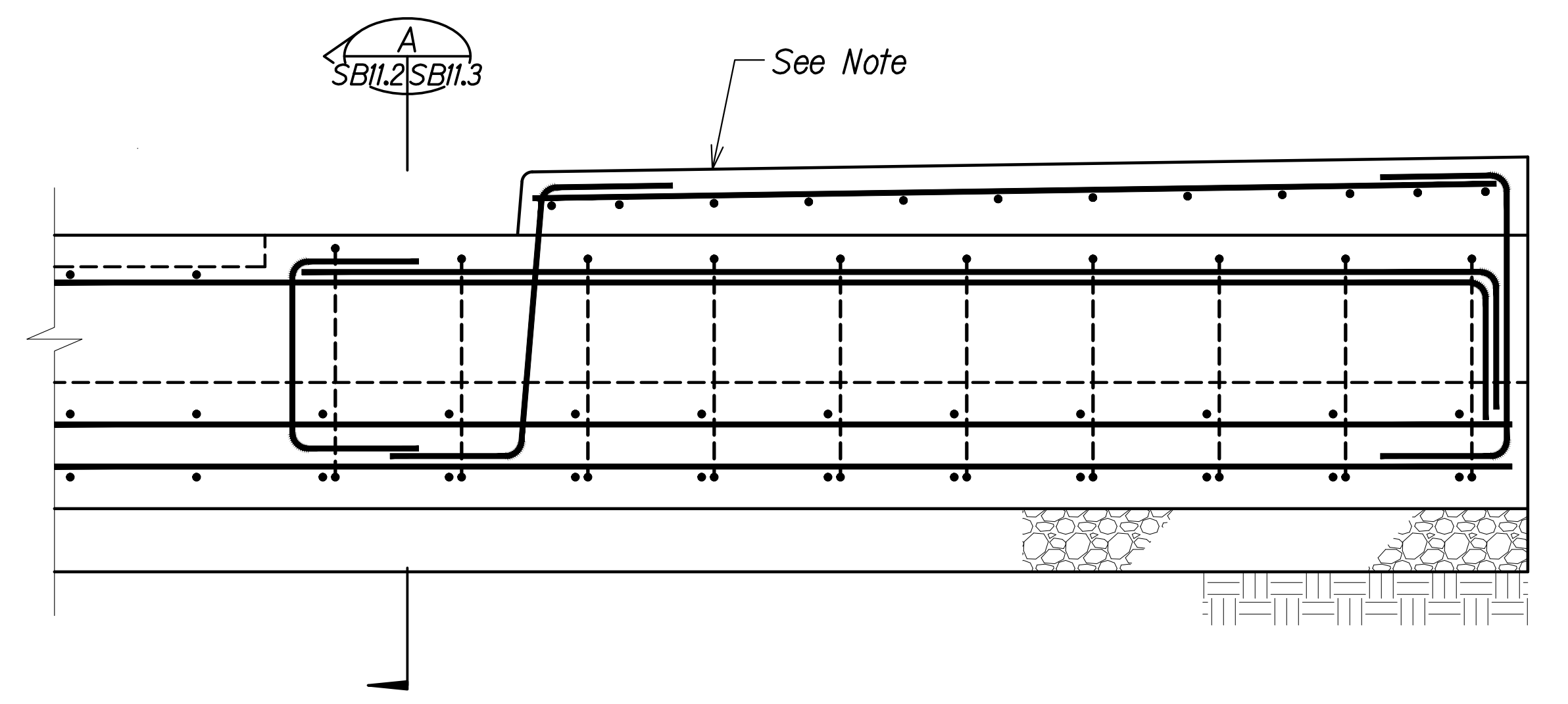
Scale: As Shown Date: Apr. 2022

SHEET No. SB111 OF 3 SHEETS

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
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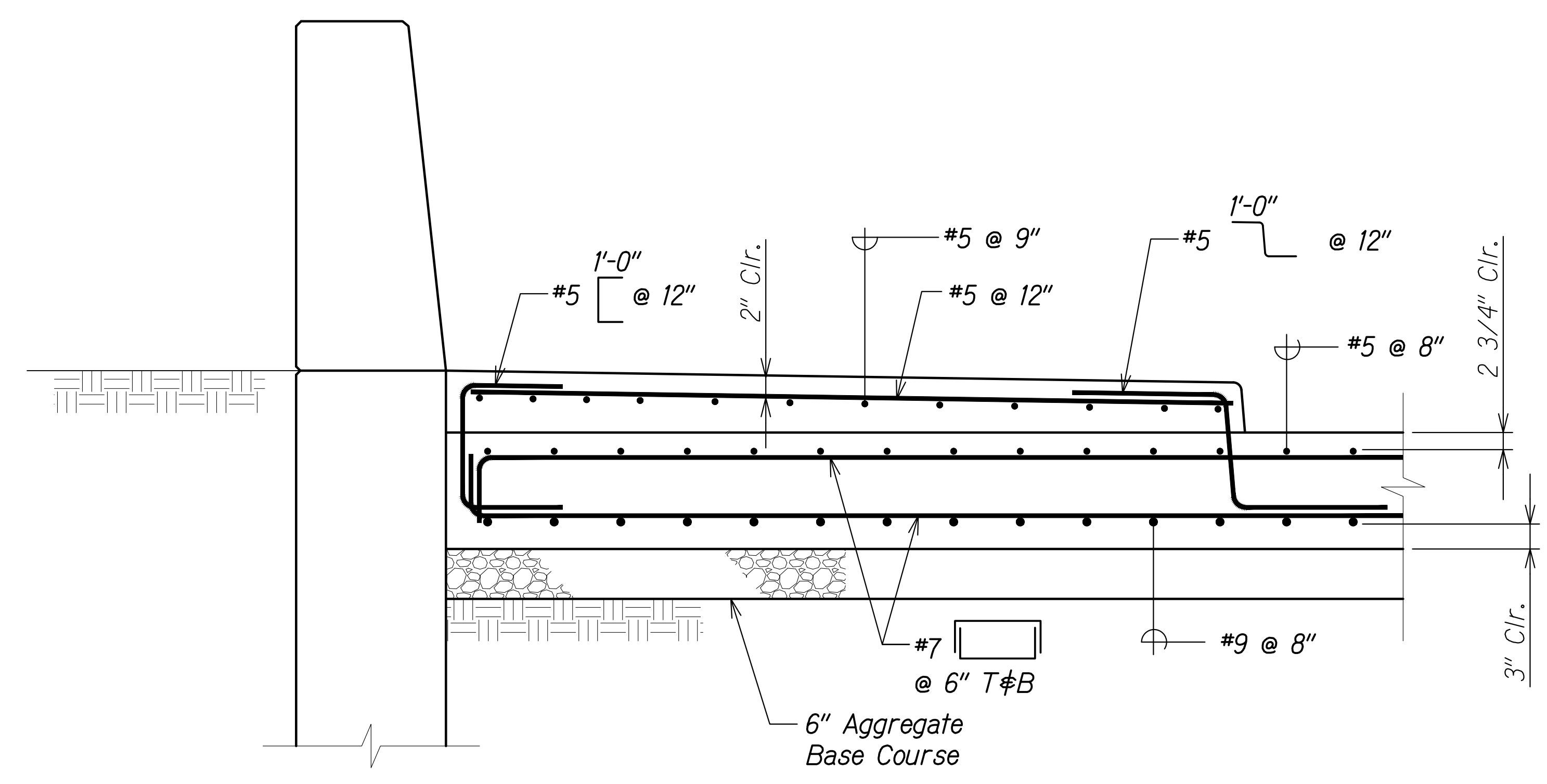


**SLEEPER SECTION AT SIDEWALK**  
 Scale: 1" = 1'-0"  
 SB7.1 SB7.2  
 SB7.3



**SLEEPER SECTION AT SIDEWALK**  
 Scale: 1" = 1'-0"  
 SB7.1 SB7.2  
 SB7.3

**Note:**  
 Reinforcing in section B is similar to section A. Section B is provided to show the condition of the sleeper slab at the gutter.

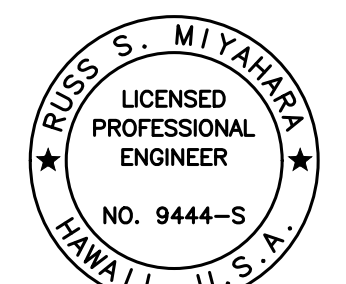


**APPROACH SECTION AT SIDEWALK**  
 Scale: 1" = 1'-0"  
 SB7.1 SB7.2  
 SB7.3

ORIGINAL PLAN	DATE
SURVEY PLOTTED BY	
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DRAWING NAME: Z:\100 ONGOING\20-013-FARR-HWY-KAPOLEI GC.ID ET WPK-RMTC\01 CAD\04-06-22 BID SET\FHWS-SB1102 APPROACH SECT.DWG PLOT TIME: 04-07-22, 5:24 PM

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 April 30, 2024  
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STATE OF HAWAII  
 DEPARTMENT OF TRANSPORTATION  
 HIGHWAYS DIVISION

**Kaloi Gulch Bridge**  
 Approach Slab and Sleeper Slab Sections

FARRINGTON HIGHWAY WIDENING  
 Kapolei Golf Course Road to Fort Weaver Road  
 Project No. 7101A-01-20

Scale: As Shown Date: Apr. 2022

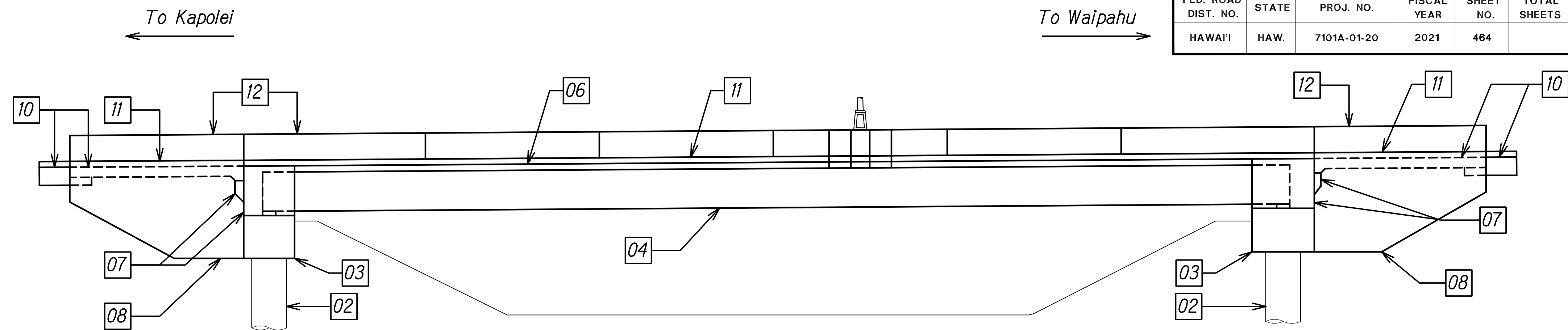
SHEET No. SB112 OF 3 SHEETS



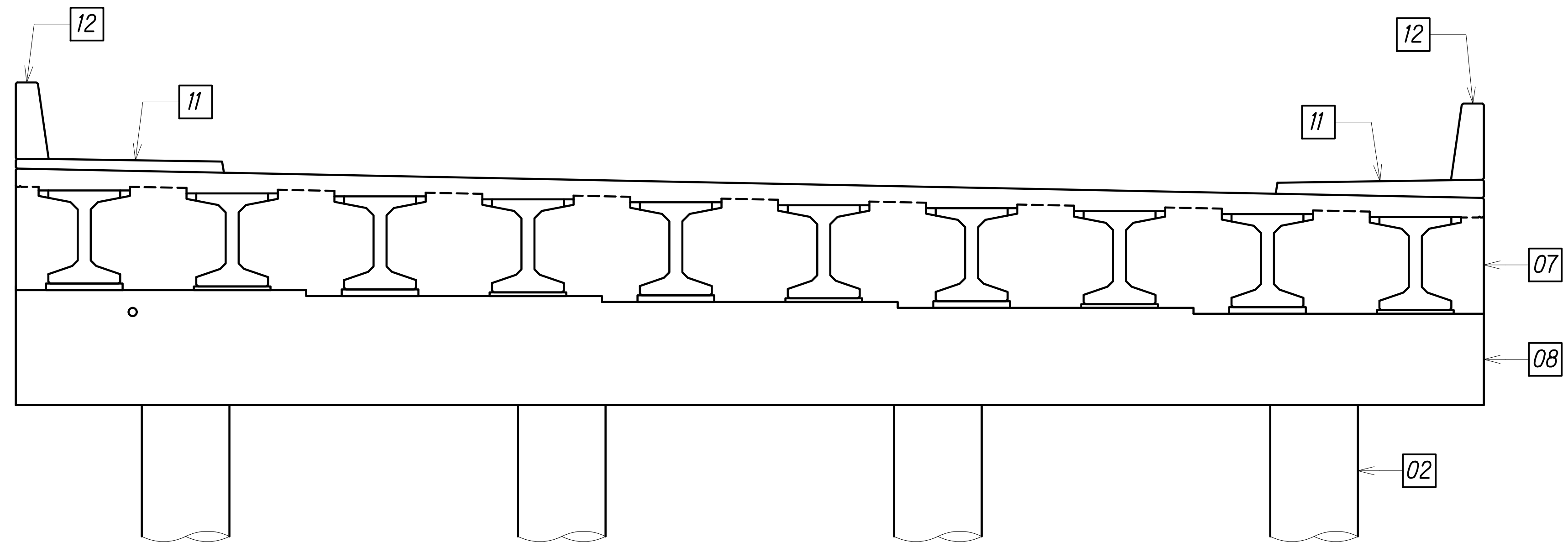


**CONSTRUCTION SEQUENCE**

- 01 Construct trial shaft and load test shaft.
- 02 Construct drilled shafts. Excavation to bottom of drilled shaft cap beam shall be completed before drilled shaft construction can begin. Demolition phase 1 of existing structures can occur concurrently. See sheet SB3.1 for extent of demolition phase 1. Note location of temporary shoring, as required, as shown on sheet SBI2.2.
- 03 Cast drilled shaft cap beam and girder seats a minimum of 7 days after the final drilled shaft has been poured and after the concrete in the drilled shaft has attained a compressive strength of 4,000 psi.
- 04 Erect girders. Concrete for the drilled shaft cap beam shall have aged a minimum of 15 days and attained a compressive strength of 5,000 psi before erecting girders. Casting of girders may be done concurrently with stages 01 through 03. Prior to erecting girders G-1 and G-2, demolition of a portion of the existing downstream wingwalls as shown on sheet SB3.3 must be completed.
- 05 Cast diaphragms
- 06 Pour bridge deck a minimum of 7 days after casting diaphragms and after the concrete in the diaphragm has attained a compressive strength of 5,000 psi. Work platforms used to pour the bridge deck shall be installed after the demolition of a portion of the existing concrete slab bridge has been completed as shown on sheet SBI2.2.
- 07 Pour end beams and corbel a minimum of 30 days after bridge deck pour. Concrete pour shall occur between 2:00 am and 5:00 am.
- 08 Construct wingwall a minimum of 8 days after casting end beams and after the concrete in the end beams has attained a compressive strength of 5,000 psi.
- 09 Backfill to bottom of approach slab and sleeper slab.
- 10 Construct sleeper slab. Construct approach slab a minimum of 7 days after casting sleeper slab and after the concrete in the sleeper slab has attained a compressive strength of 4,000 psi.
- 11 Pour sidewalk on bridge, approach slab, and sleeper slab a minimum of 7 days after casting the approach slab and after the concrete in the approach slab has attained a compressive strength of 4,000 psi.
- 12 Pour railings on bridge and pour end posts on top of wingwalls.
- 13 Blanket grind and mechanically groove bridge deck, approach slab, and sleeper slab a minimum of 14 days after casting approach slab and after the concrete in the approach slab has attained a compressive strength of 4,000 psi.
- 14 Complete civil roadway sections and connect to the completed bridge structure. Use new roadway section and completed bridge structure as the detour road. Proceed with demolition phase 2 as shown on sheet SB3.1.



DOWNSTREAM ELEVATION



ABUTMENT NO. 2 ELEVATION

Notes:

1. Order of construction sequence shall not be changed unless otherwise approved by the Engineer.
2. Each stage shall be completely finished before proceeding to the next stage unless otherwise noted. The Engineer will be the sole judge of whether the stage is complete and may direct the Contractor to stop work on a stage to complete work on the preceeding stage.
3. Contractor shall submit overweight vehicular details for approval prior to their use.
4. See structural general notes 8.H.

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	7101A-01-20	2021	464	

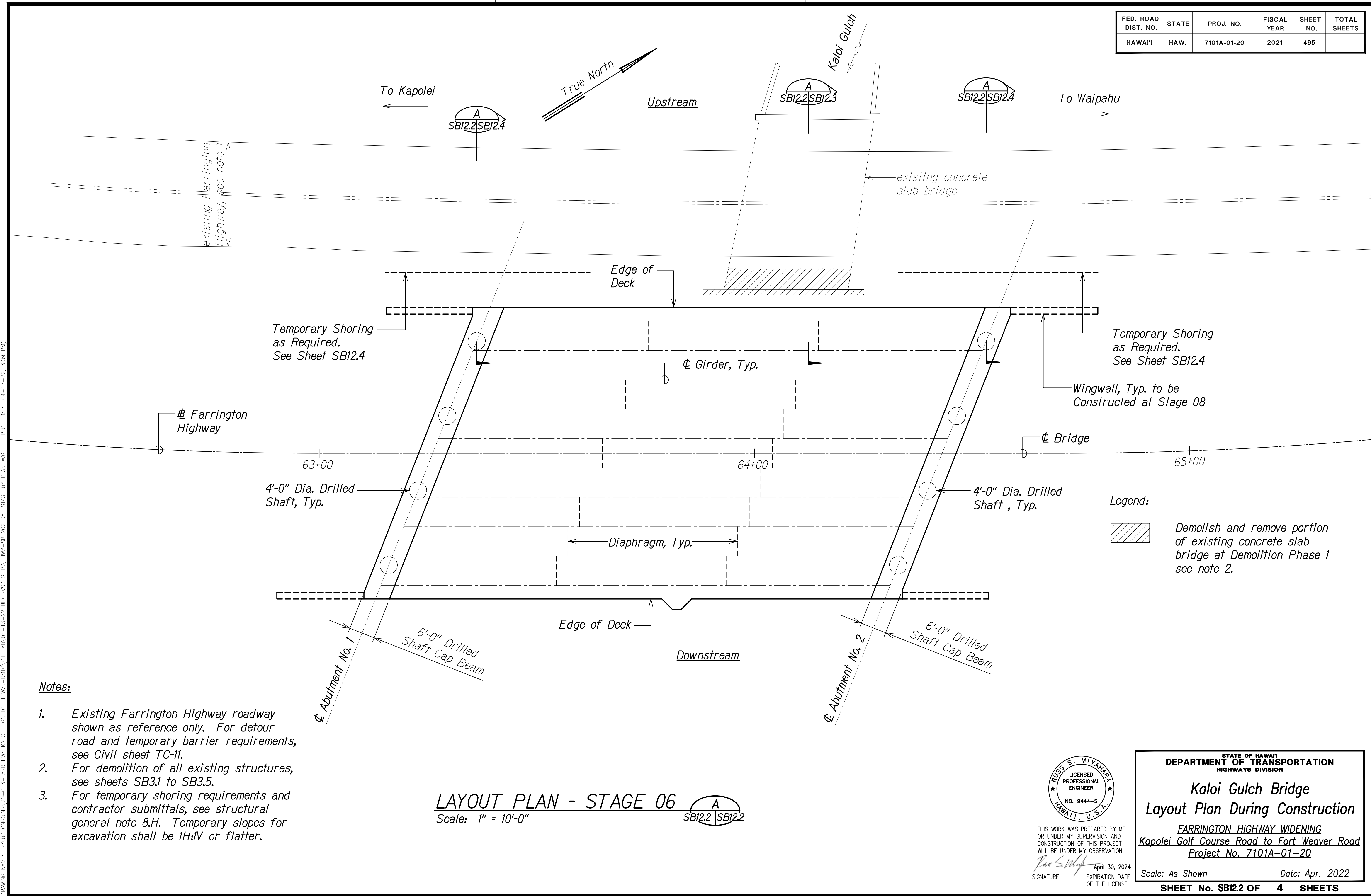
ORIGINAL PLAN	DATE
DRAWN BY	
DESIGNED BY	
QUANTITIES BY	
CHECKED BY	

DRAWING NAME: Z:\000\000000\20-013-FARR-HW-KAPOLEI-GC-10-ET-WIP-EM(C)1.GXD 04-06-22 8:05:56 AM SET: F:\03-SBI201-CONS1-SEC.DWG PLOT TIME: 04-07-22: 5:24 PM

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*Ruges S. Miyakawa*
  
 SIGNATURE      April 30, 2024      EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII  
 DEPARTMENT OF TRANSPORTATION  
 HIGHWAYS DIVISION  
**Kaloi Gulch Bridge**  
**Construction Sequence**  
 FARRINGTON HIGHWAY WIDENING  
 Kapolei Golf Course Road to Fort Weaver Road  
 Project No. 7101A-01-20  
 Scale: None      Date: Apr. 2022  
**SHEET No. SB12.1 OF 4 SHEETS**

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	7101A-01-20	2021	465	

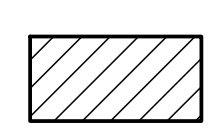


**Notes:**

- Existing Farrington Highway roadway shown as reference only. For detour road and temporary barrier requirements, see Civil sheet TC-11.
- For demolition of all existing structures, see sheets SB3.1 to SB3.5.
- For temporary shoring requirements and contractor submittals, see structural general note 8.H. Temporary slopes for excavation shall be 1H:1V or flatter.

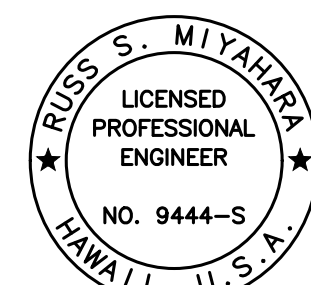
**LAYOUT PLAN - STAGE 06**  
 Scale: 1" = 10'-0"  
 A  
 SBI2.2 | SBI2.2

**Legend:**

 Demolish and remove portion of existing concrete slab bridge at Demolition Phase 1 see note 2.

SURVEY PLOTTED BY	DATE
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DESIGNED BY	
QUANTITIES BY	
CHECKED BY	
ORIGINAL PLAN	
NOTE BOOK	
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DRAWING NAME: Z:\A\00\ONDOD\20-013-FARR-HWY-KAPOLEI-GC-10-ET-WRP-EMTC\01-GAD\04-13-22-BD-RVSD-SHRS\FHW-SBI202-KAL-STAGE-06-PLAN\DWG PLOT TIME: 04-13-22, 3:59 PM

  
 THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.  
 Signature: *Rugo S. Miyahara*  
 April 30, 2024  
 EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII  
 DEPARTMENT OF TRANSPORTATION  
 HIGHWAYS DIVISION

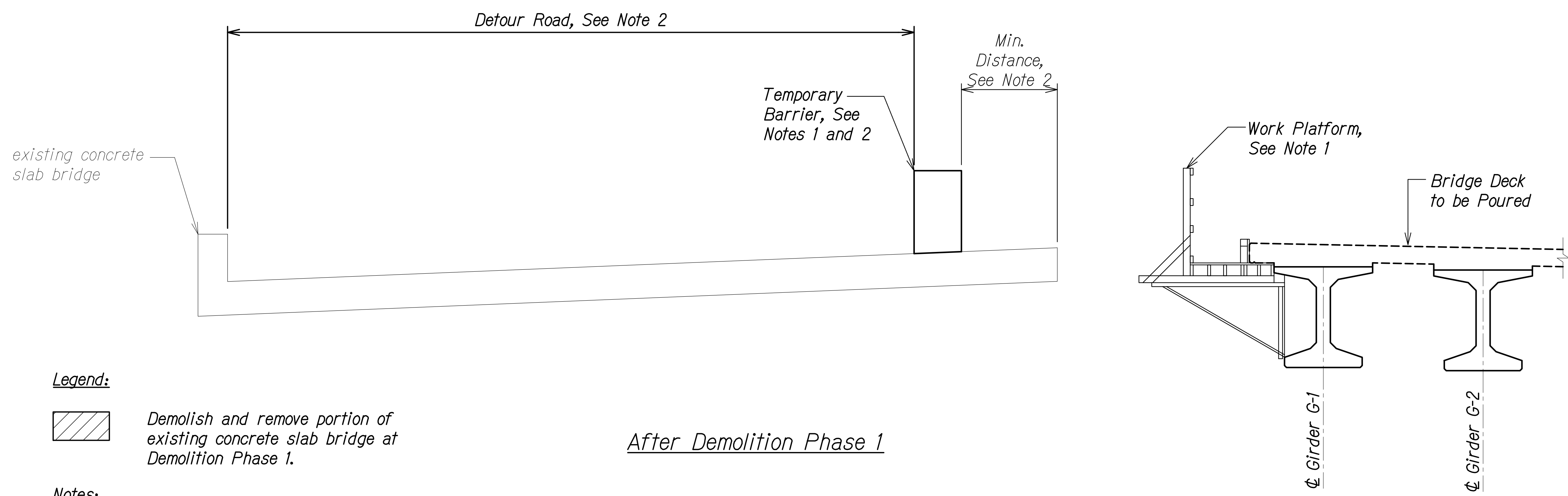
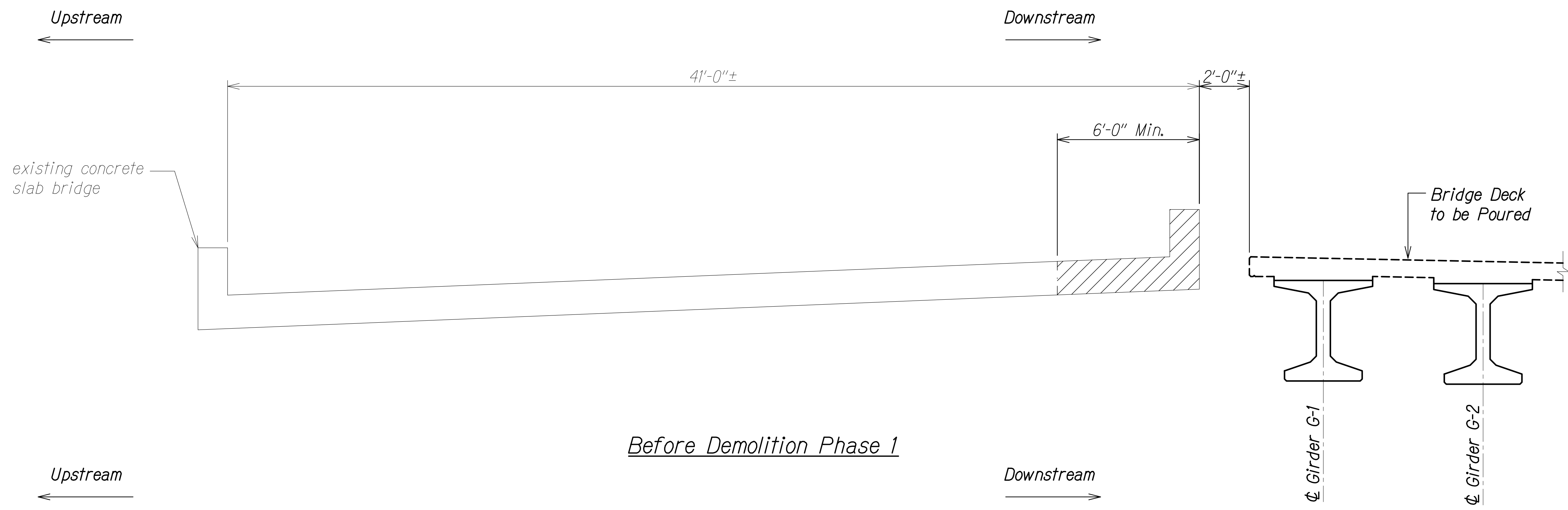
**Kaloi Gulch Bridge**  
 Layout Plan During Construction

FARRINGTON HIGHWAY WIDENING  
 Kapolei Golf Course Road to Fort Weaver Road  
 Project No. 7101A-01-20

Scale: As Shown Date: Apr. 2022

**SHEET No. SB12.2 OF 4 SHEETS**

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	7101A-01-20	2021	466	



**Legend:**

Demolish and remove portion of existing concrete slab bridge at Demolition Phase 1.

**Notes:**

1. Work platform and temporary barrier are shown for schematic purposes.
2. For detour road and temporary barrier requirements, see Civil sheet TC-11.
3. Horizontal distances shown are measured perpendicular to Farrington Highway.

After Demolition Phase 1

**SECTION AT STREAM** A  
 Scale: 3/8" = 1'-0" SB12.2 | SB12.3

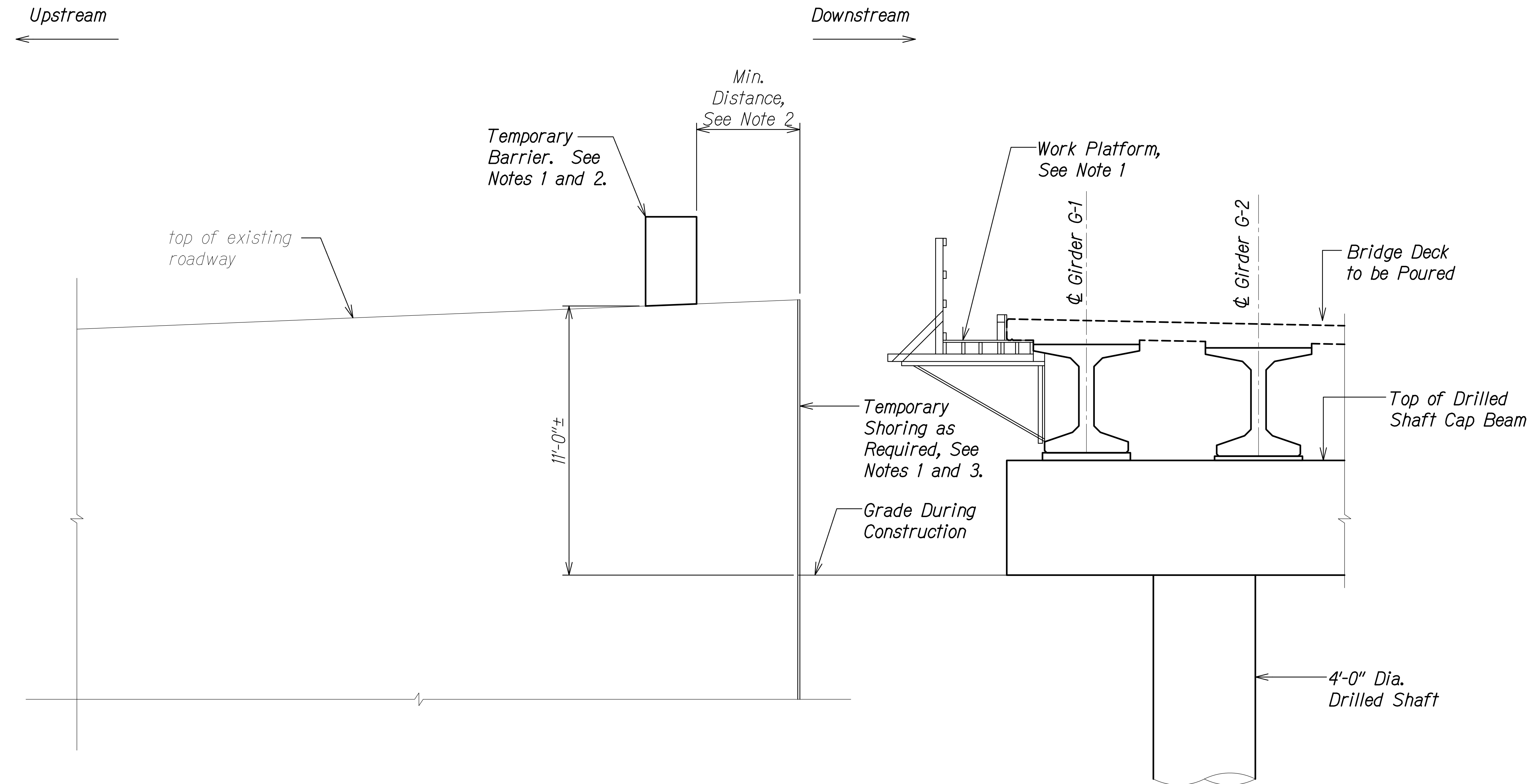
SURVEY PLOTTED BY	DATE
DRAWN BY	
DESIGNED BY	
QUANTITIES BY	
CHECKED BY	
ORIGINAL PLAN	
NOTE BOOK	
No.	

DRAWING NAME: Z:\100 ONGOING\20-013-FARR-HWY-KAPOLEI GC ID: FT-WR-EMTC\01-CAD\04-13-22 BD-RVSD-SHRS\FHWG-SB1203 KAL STAGE SECT.DWG PLOT TIME: 04-13-22 3:11 PM

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*Rugo S. Miyakawa*  
 SIGNATURE      April 30, 2024  
 EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII  
 DEPARTMENT OF TRANSPORTATION  
 HIGHWAYS DIVISION  
**Kaloi Gulch Bridge**  
**Section During Construction**  
 FARRINGTON HIGHWAY WIDENING  
 Kapolei Golf Course Road to Fort Weaver Road  
 Project No. 7101A-01-20  
 Scale: As Shown      Date: Apr. 2022  
**SHEET No. S12.3 OF 4 SHEETS**

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	7101A-01-20	2021	467	

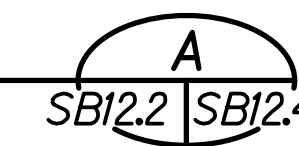


**Notes:**

1. Work platform, temporary barrier, and temporary shoring are shown for schematic purposes.
2. For detour road and temporary barrier requirements, see Civil sheet TC-11.
3. For temporary shoring requirements and contractor submittals, see structural general note 8.H. Temporary slopes for excavation shall be 1H:1V or flatter.

**SECTION AT NEW ABUTMENT**

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



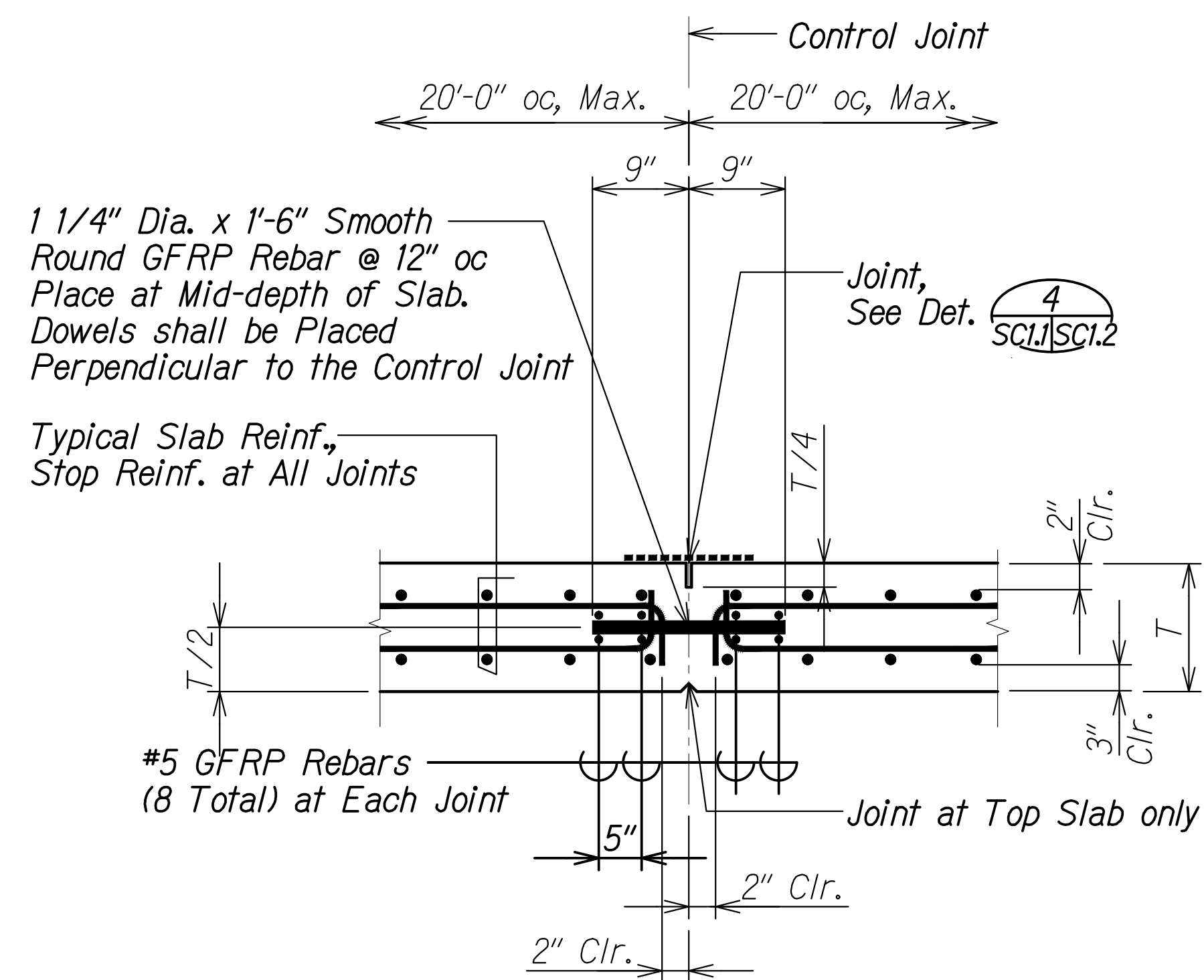
SURVEY PLOTTED BY	DATE
DRAWN BY	
DESIGNED BY	
QUANTITIES BY	
CHECKED BY	
ORIGINAL PLAN	
NOTE BOOK	
No.	

DRAWING NAME: Z:\00\_ONGOING\20-013-FARR-HWY-KAPOLEI-GC-10-ET-WRP-EMTC\01-GAD\04-13-22-BID-RVSD-SHRS\FHWG-SBI203-KAL-STAGE-SECT.DWG PLOT TIME: 04-13-22, 3:11 PM

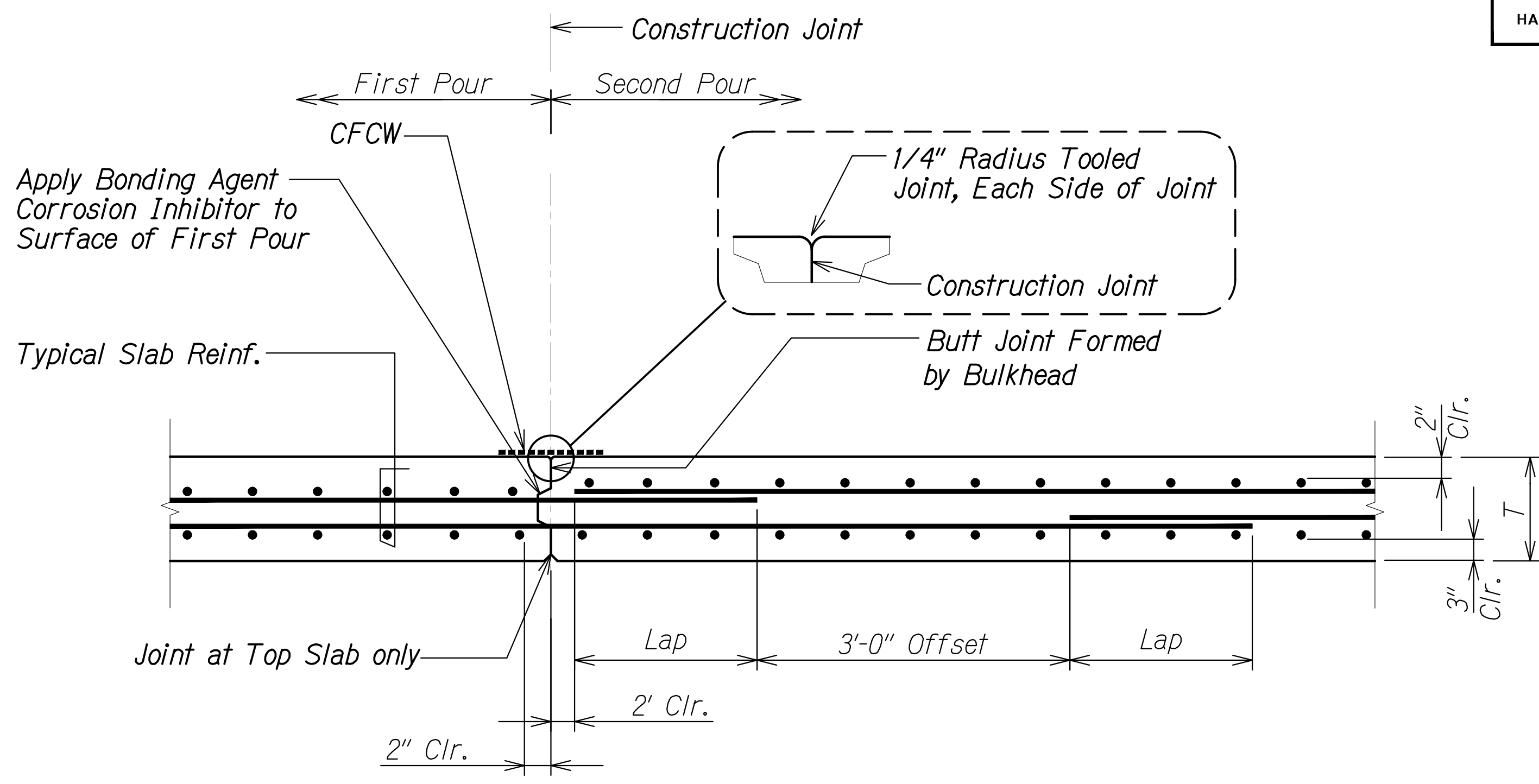
THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.
   
*Rugo S. Miyakawa*
  
 SIGNATURE      April 30, 2024      EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII  
 DEPARTMENT OF TRANSPORTATION  
 HIGHWAYS DIVISION  
  
**Kaloii Gulch Bridge**  
**Section During Construction**  
 FARRINGTON HIGHWAY WIDENING  
 Kapolei Golf Course Road to Fort Weaver Road  
 Project No. 7101A-01-20  
 Scale: As Shown      Date: Apr. 2022  
**SHEET No. SBI2.4 OF 4 SHEETS**

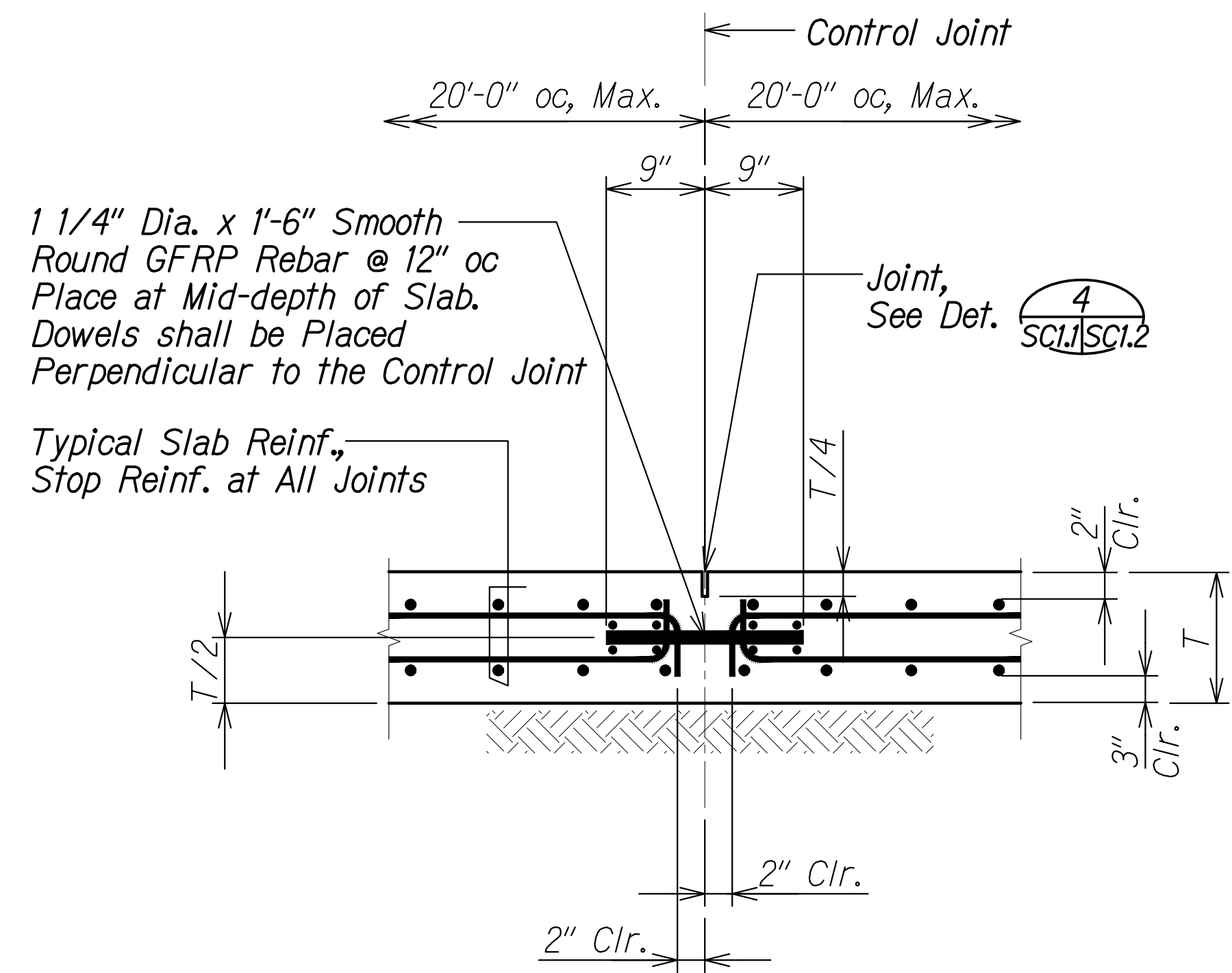
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	7101A-01-20	2021	468	



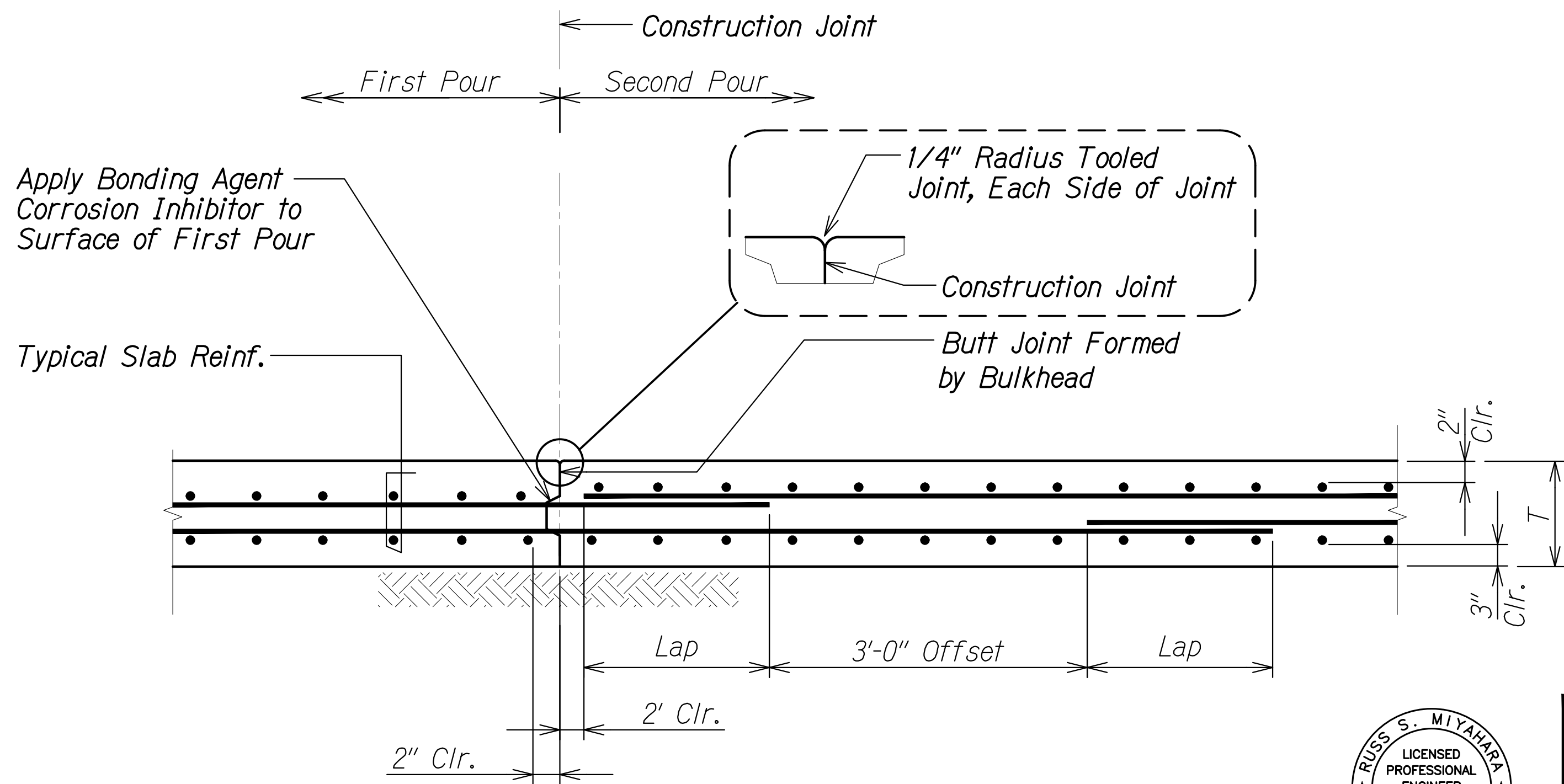
**CONTROL JOINT OR CONST. JT. DETAIL AT CONTROL JT. LOCATION AT TOP SLAB** 1  
 Scale: 1" = 1'-0" SCL1 | SCL1



**CONSTRUCTION JOINT DETAIL AT TOP SLAB** 2  
 Scale: 1" = 1'-0" SCL1 | SCL1



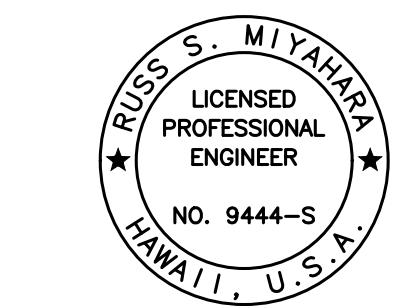
**CONTROL JOINT OR CONST. JT. DETAIL AT CONTROL JT. LOCATION AT BOT. SLAB** 3  
 Scale: 1" = 1'-0" SCL1 | SCL1



**CONSTRUCTION JOINT DETAIL AT BOT. SLAB** 4  
 Scale: 1" = 1'-0" SCL1 | SCL1

ORIGINAL PLAN	DATE
SURVEY PLOTTED BY	
DRAWN BY	
DESIGNED BY	
QUANTITIES BY	
CHECKED BY	
No.	

DRAWING NAME: Z:\A00\_000000\20-013-FARR-HW-KAPOLEI GC ID: ET-WR-EMT\01 CAD\04-06-22 BID SET\FH03-SCL01.DWG PLOT TIME: 04-07-22 5:52 PM



THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.  
 Signature: *Ruges S. Miyahara*  
 April 30, 2024  
 EXPIRATION DATE OF THE LICENSE

**STATE OF HAWAII**  
**DEPARTMENT OF TRANSPORTATION**  
 HIGHWAYS DIVISION

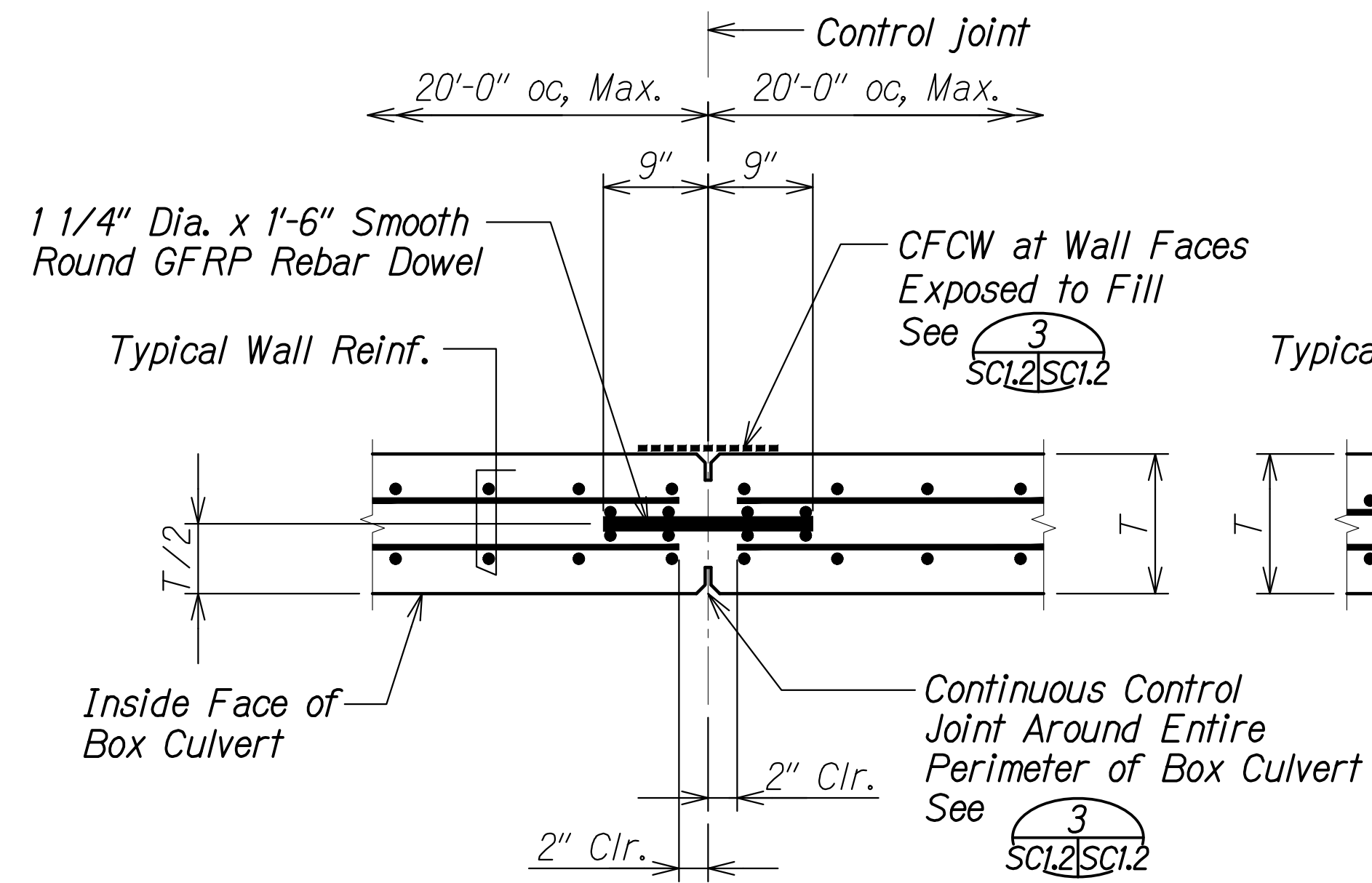
**Box Culvert Typical Details**

FARRINGTON HIGHWAY WIDENING  
 Kapolei Golf Course Road to Fort Weaver Road  
 Project No. 7101A-01-20

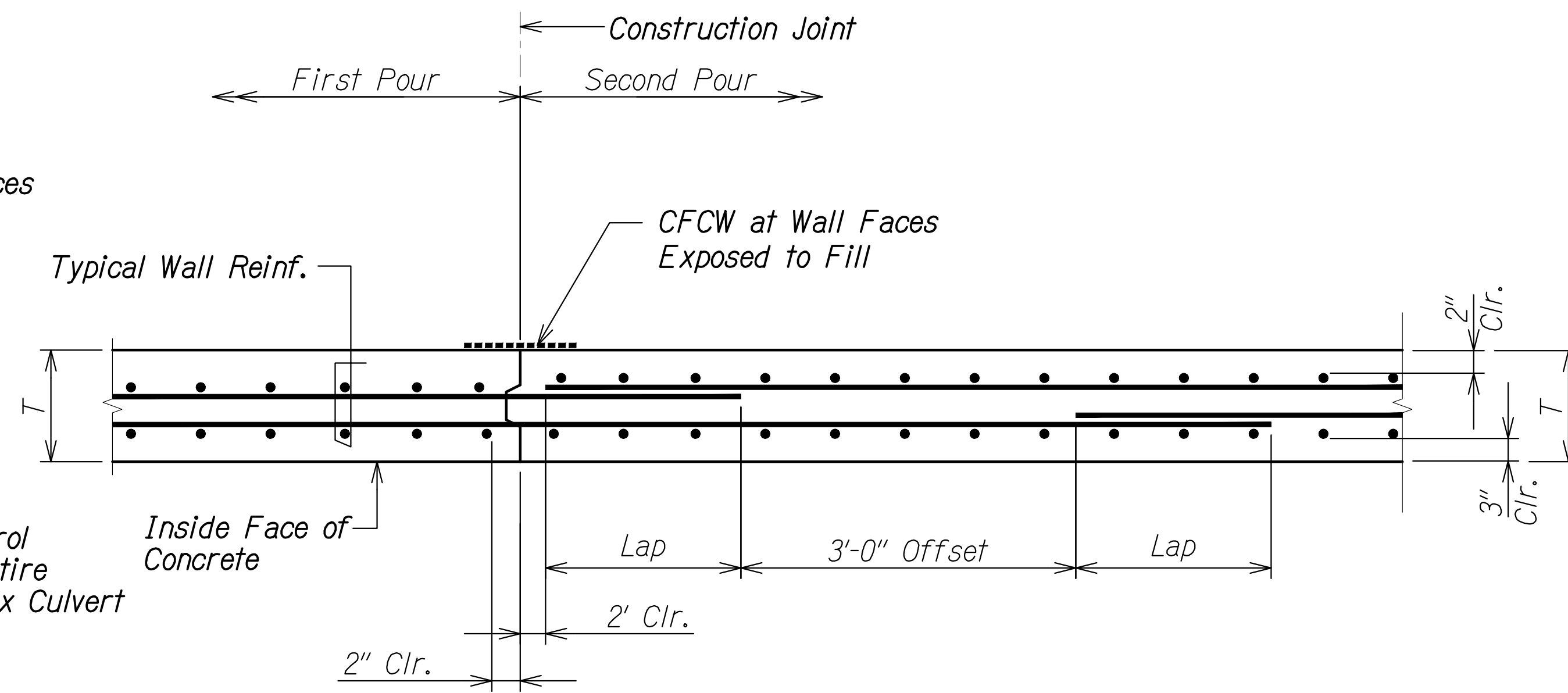
Scale: As Shown Date: Apr. 2022

**SHEET No. SCL1 OF 8 SHEETS**

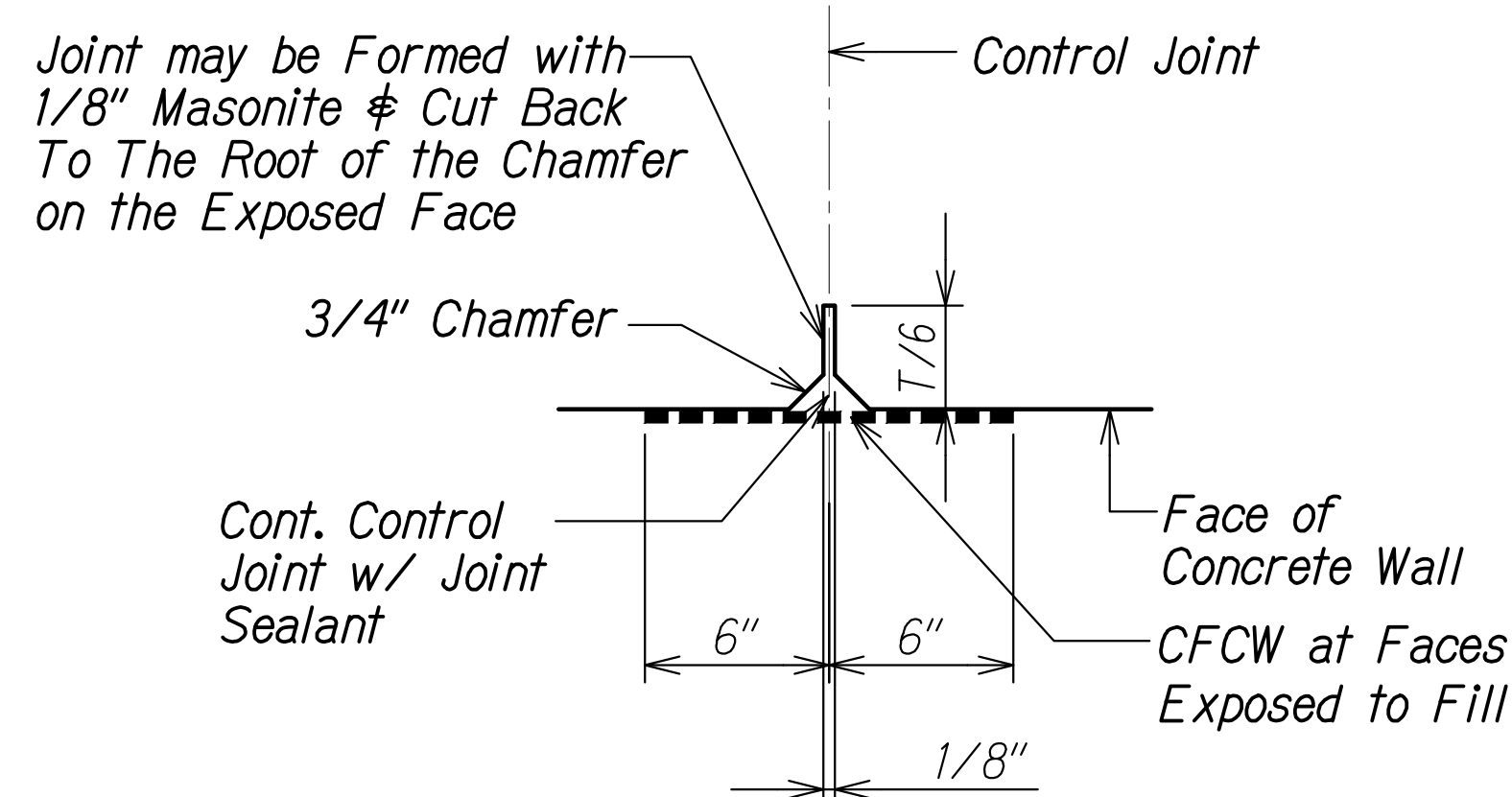
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	7101A-01-20	2021	469	



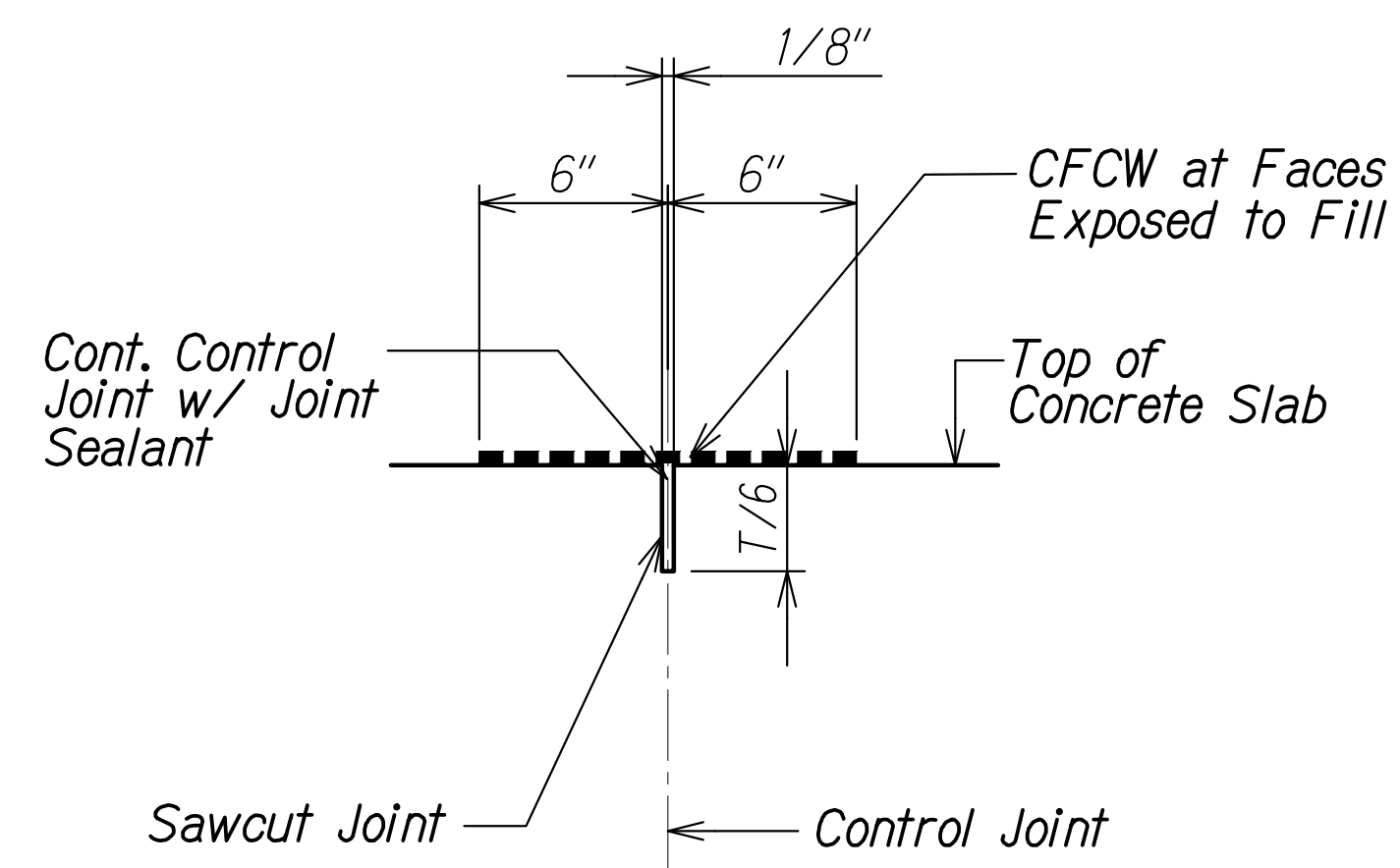
**CONTROL JT. OR CONST. JT. DETAIL AT CONTROL JT. LOCATION AT WALL**  
 Scale: 1" = 1'-0"  
 Callout: 3  
 Reference: SC2.10, SC3.10



**CONSTRUCTION JOINT DETAIL AT WALL**  
 Scale: 1" = 1'-0"  
 Callout: 2



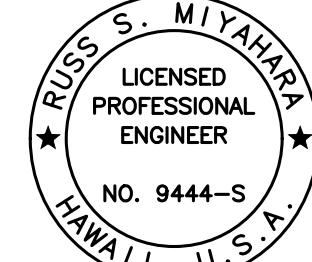
**WALL CONTROL JOINT DETAIL**  
 Scale: 3" = 1'-0"  
 Callout: 3  
 Reference: SC1.2, SC1.2



**SLAB CONTROL JOINT DETAIL**  
 Scale: 3" = 1'-0"  
 Callout: 4  
 Reference: SC1.1, SC1.2

ORIGINAL PLAN	DATE
SURVEY PLOTTED BY	
DRAWN BY	
DESIGNED BY	
QUANTITIES BY	
CHECKED BY	
No.	

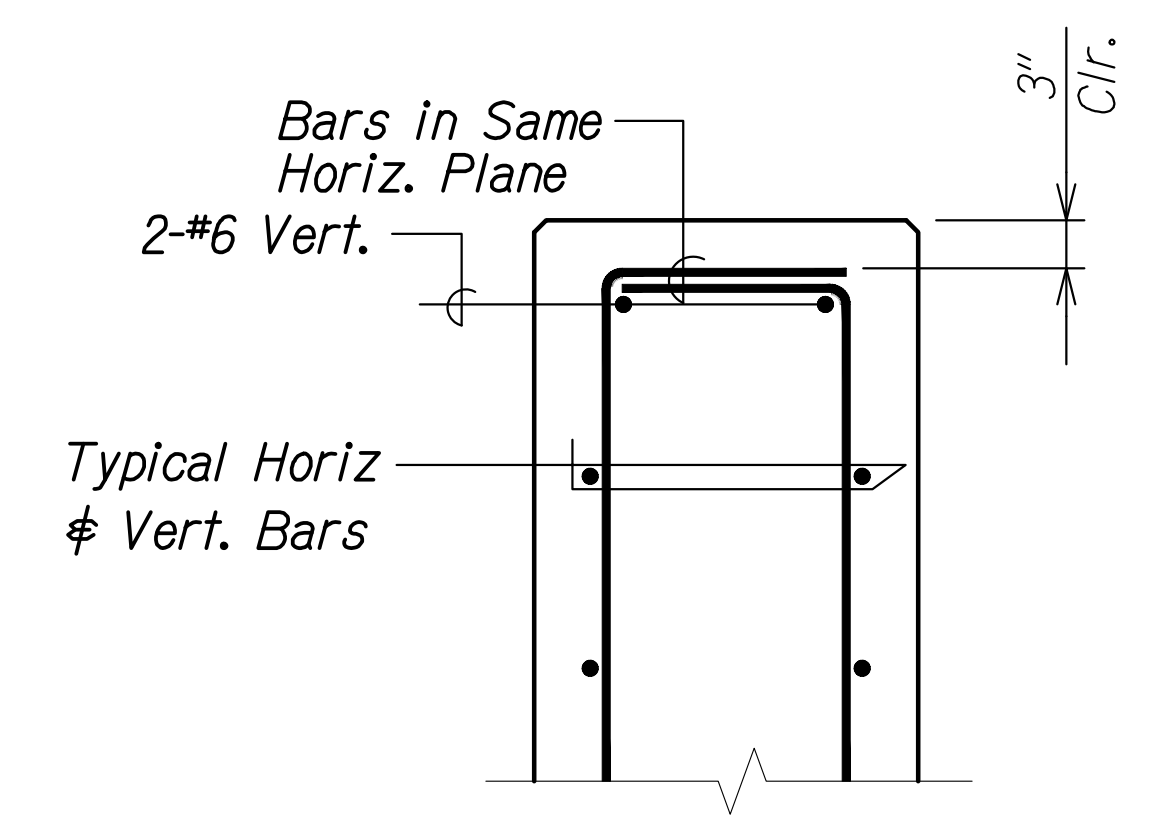
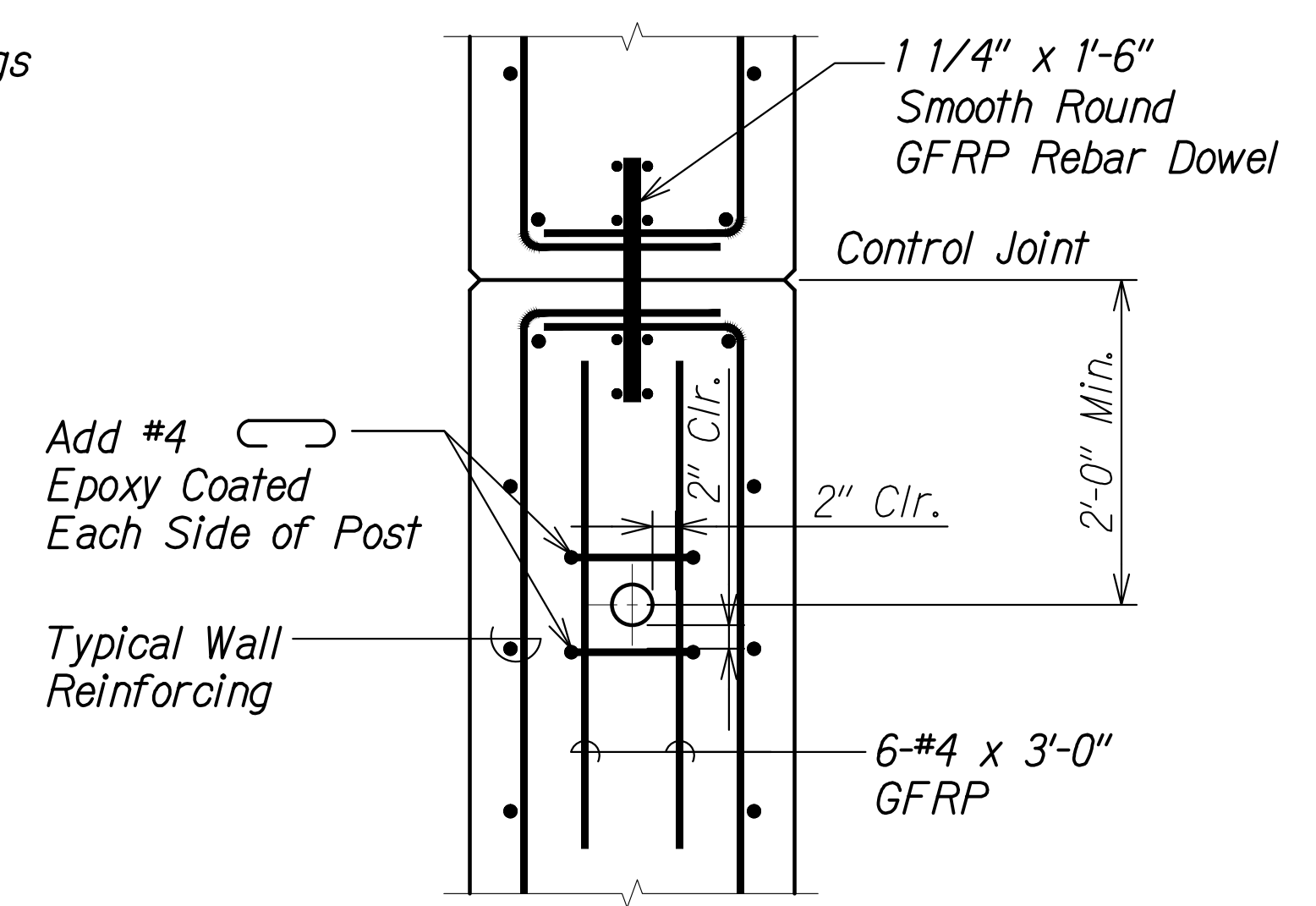
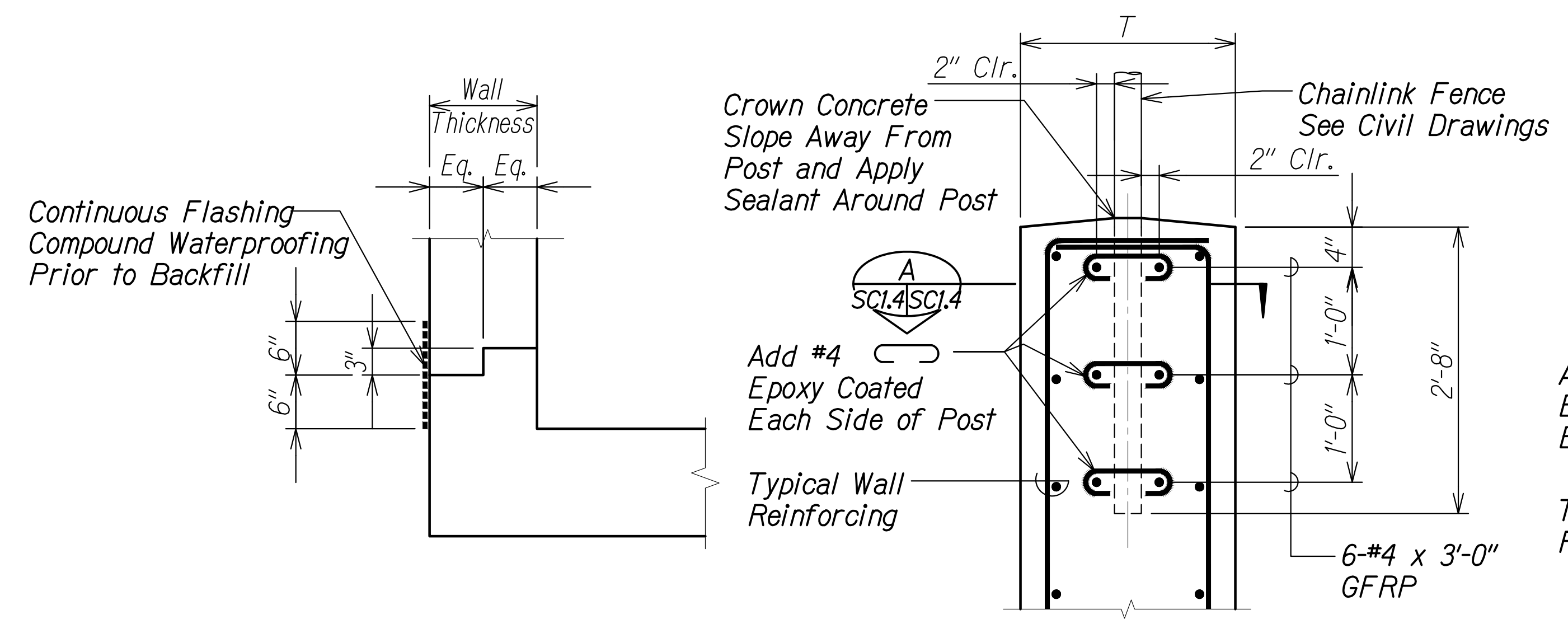
DRAWING NAME: Z:\100 ONGOING\20-013-FARR-HWY-KAPOLEI\04-10-ET-WR-EMT\01-CA\04-06-22-BID-SET\FHWS-SC0101.DWG PLOT TIME: 04-07-22 5:52 PM

  
 THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.  
 Signature: *Rugs S. Miyakawa*  
 April 30, 2024  
 EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII  
 DEPARTMENT OF TRANSPORTATION  
 HIGHWAYS DIVISION  
**Box Culvert Typical Details**  
 FARRINGTON HIGHWAY WIDENING  
 Kapolei Golf Course Road to Fort Weaver Road  
 Project No. 7101A-01-20  
 Scale: As Shown Date: Apr. 2022  
**SHEET No. SC12 OF 8 SHEETS**



FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	7101A-01-20	2021	471	

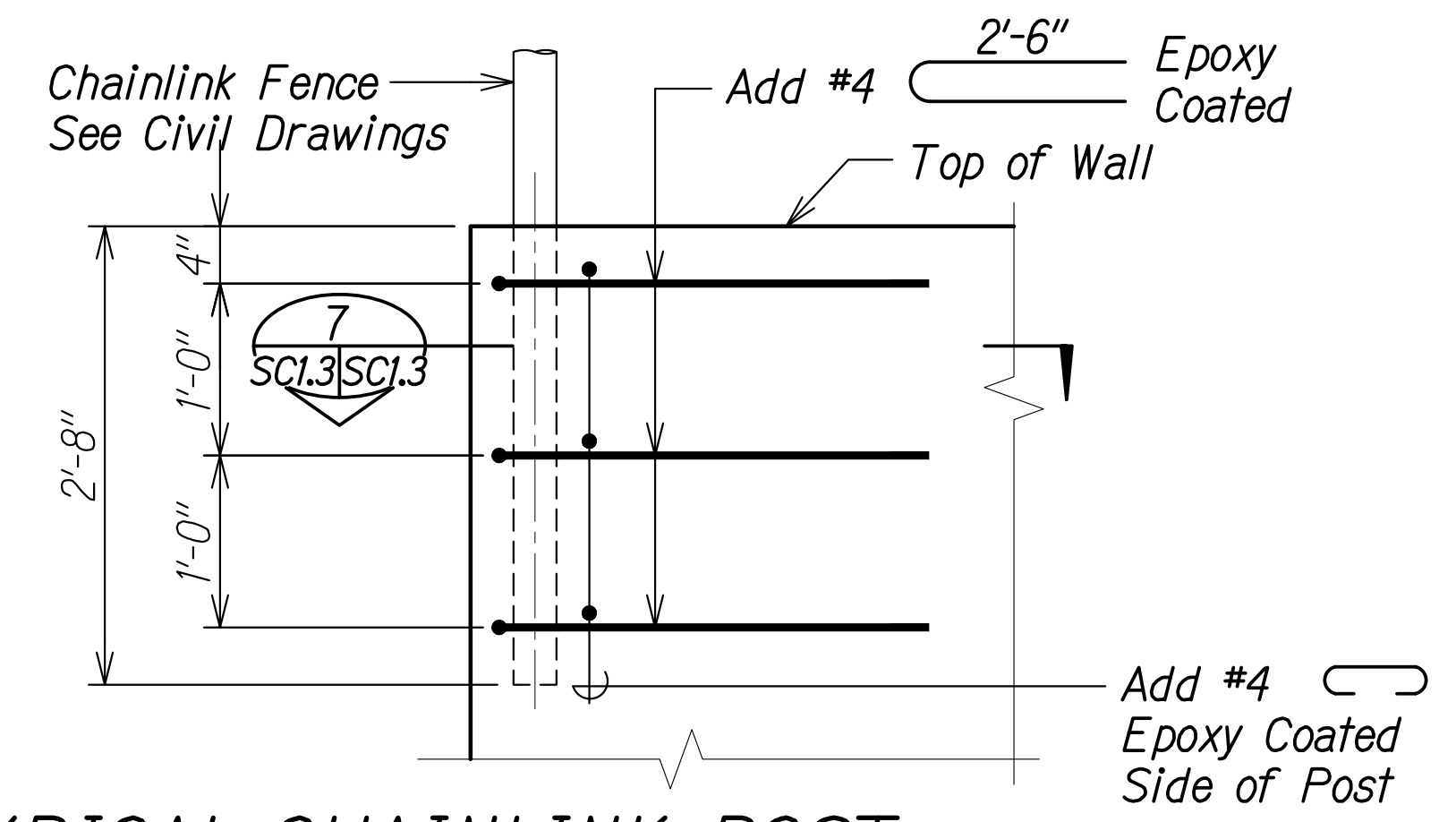
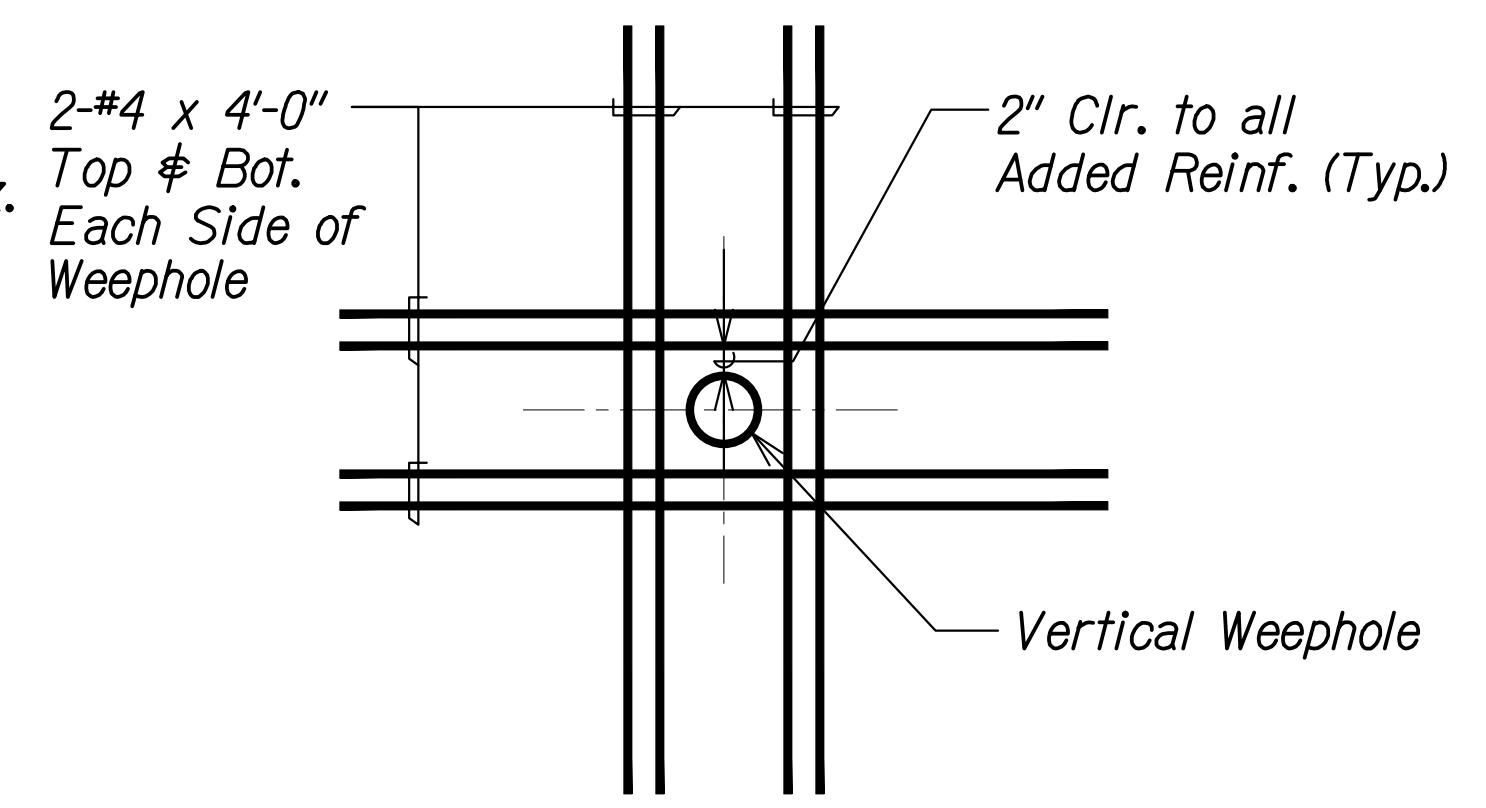
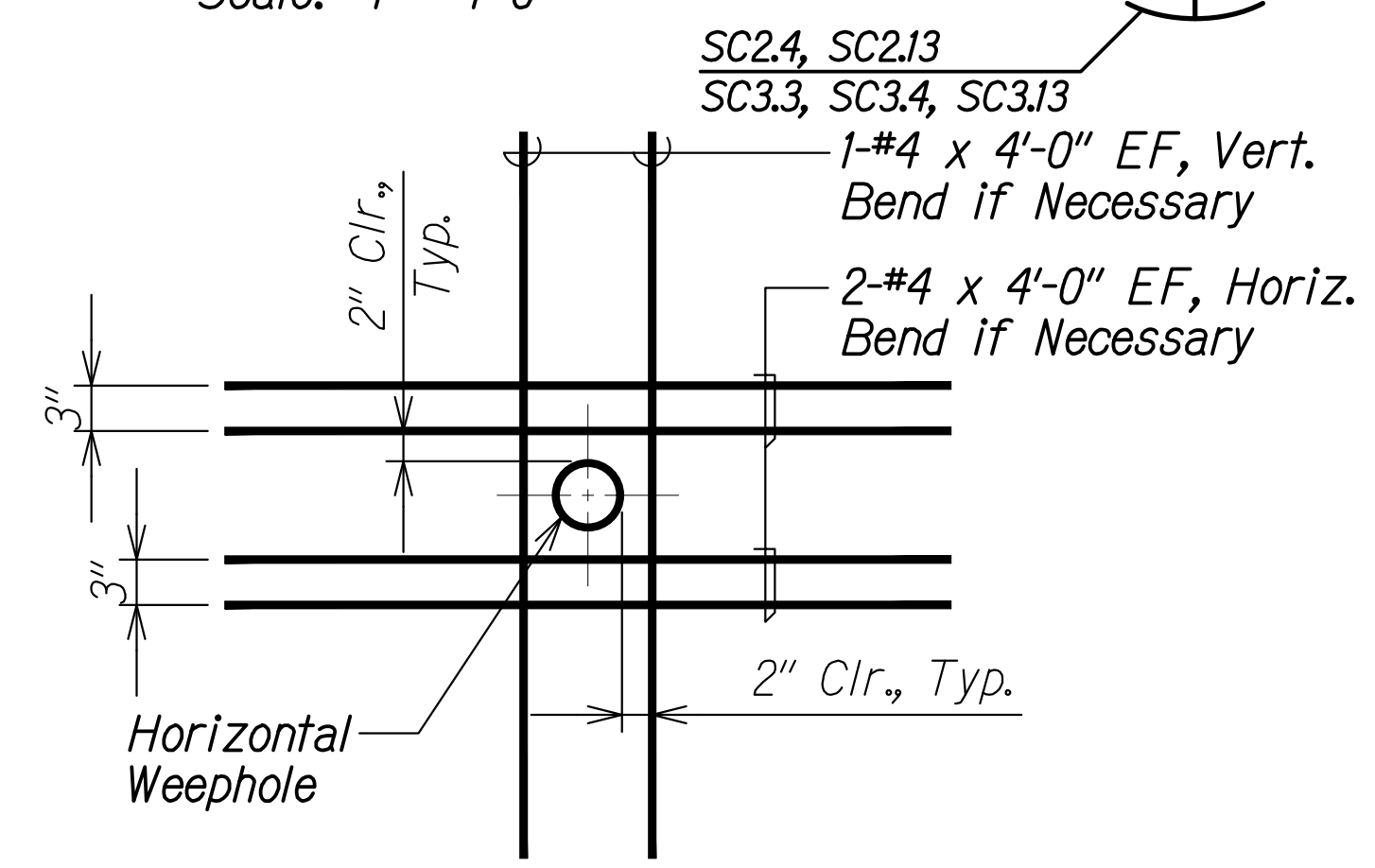


**TYPICAL KEY DETAIL** (1)  
Scale: 1" = 1'-0"  
SC2.3 | SC1.4

**TYPICAL POST DETAIL** (2)  
Scale: 1" = 1'-0"  
SC2.13 | SC1.4

**PLAN SECTION** (A)  
Scale: 1" = 1'-0"  
SC1.4 | SC1.4

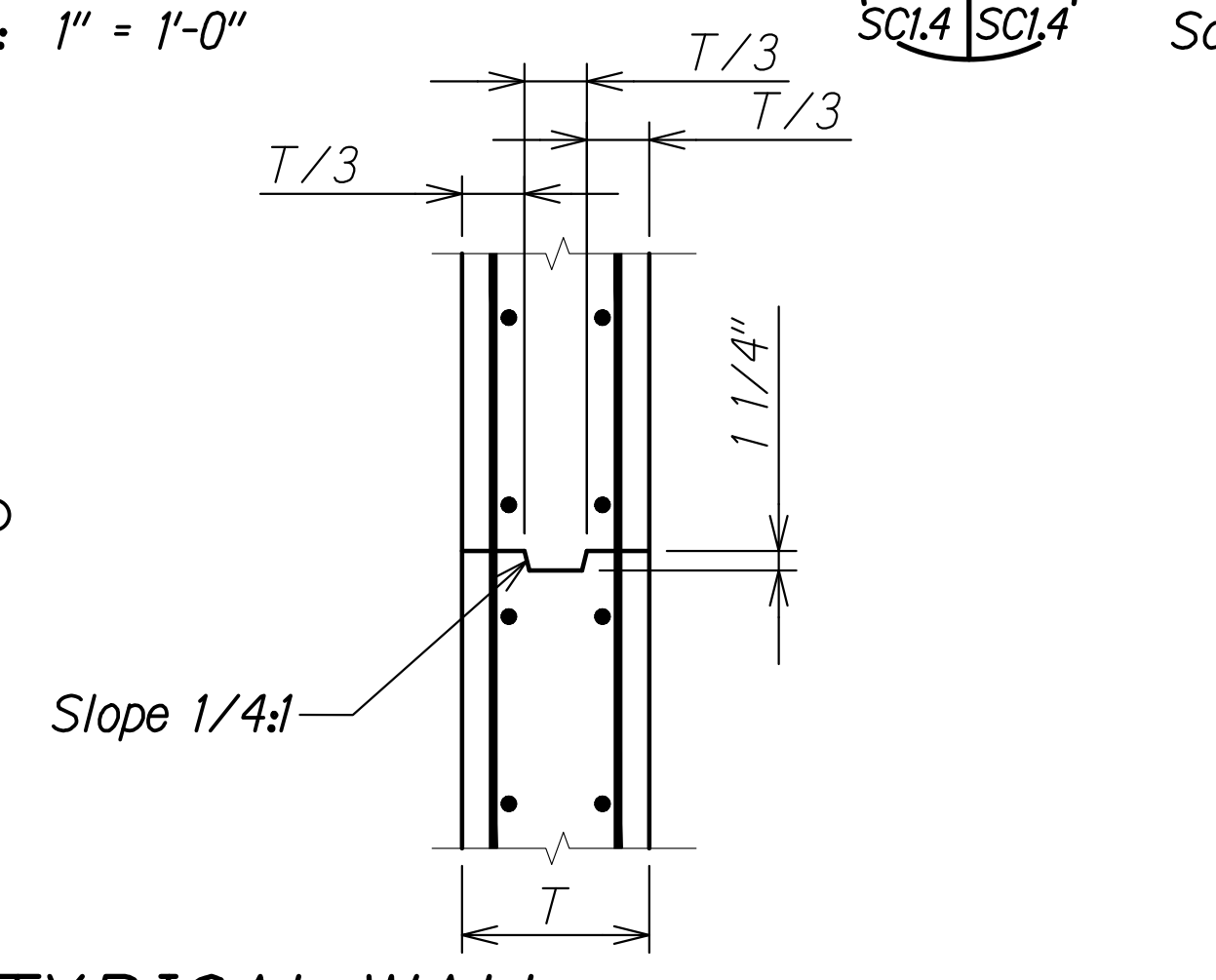
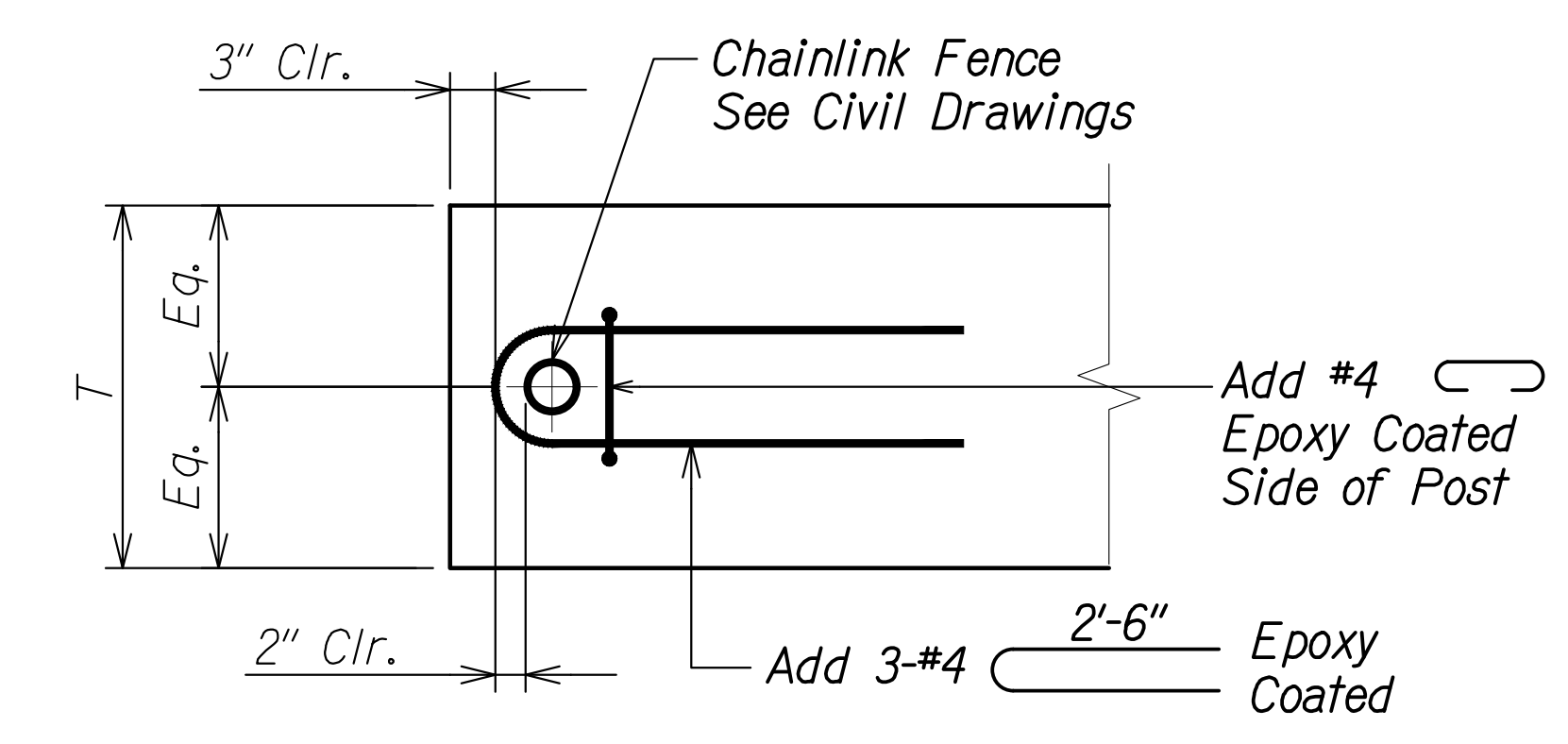
**TYPICAL PLAN AT END OF WALL** (3)  
Scale: 1" = 1'-0"  
SC1.4 | SC1.4



**ADDED REINFORCING AT HORIZONTAL WEEPHOLES** (4)  
Scale: 1" = 1'-0"  
SC1.4 | SC1.4

**ADDED REINFORCING AT VERTICAL WEEPHOLES** (5)  
Scale: 1" = 1'-0"  
SC1.4 | SC1.4

**TYPICAL CHAINLINK POST AT END OF WALL - ELEVATION** (6)  
Scale: 1" = 1'-0"  
SC1.4 | SC1.4



**TYPICAL CHAINLINK POST AT END OF WALL - PLAN SECTION** (7)  
Scale: 1" = 1'-0"  
SC1.4 | SC1.4

**TYPICAL WALL CONST. JOINT DETAIL** (8)  
Scale: 1" = 1'-0"  
SC2.4, SC3.3, SC3.4, SC2.3 | SC1.4

SURVEY PLOTTED BY	DATE
DRAWN BY	
DESIGNED BY	
QUANTITIES BY	
CHECKED BY	
ORIGINAL PLAN No.	

DRAWING NAME: Z:\00\_ONGOING\20-013-FARR-HWY-KAPOLEI-GC-10-ET-WRQ-EMTC\01-GAD\04-06-22-810-SET\FH03-SC0101.DWG PLOT TIME: 04-07-22 5:33 PM

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.  
  
 Signature: *Ruges S. Miyahara*  
 April 30, 2024  
 EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII  
 DEPARTMENT OF TRANSPORTATION  
 HIGHWAYS DIVISION

**Box Culvert Typical Details**

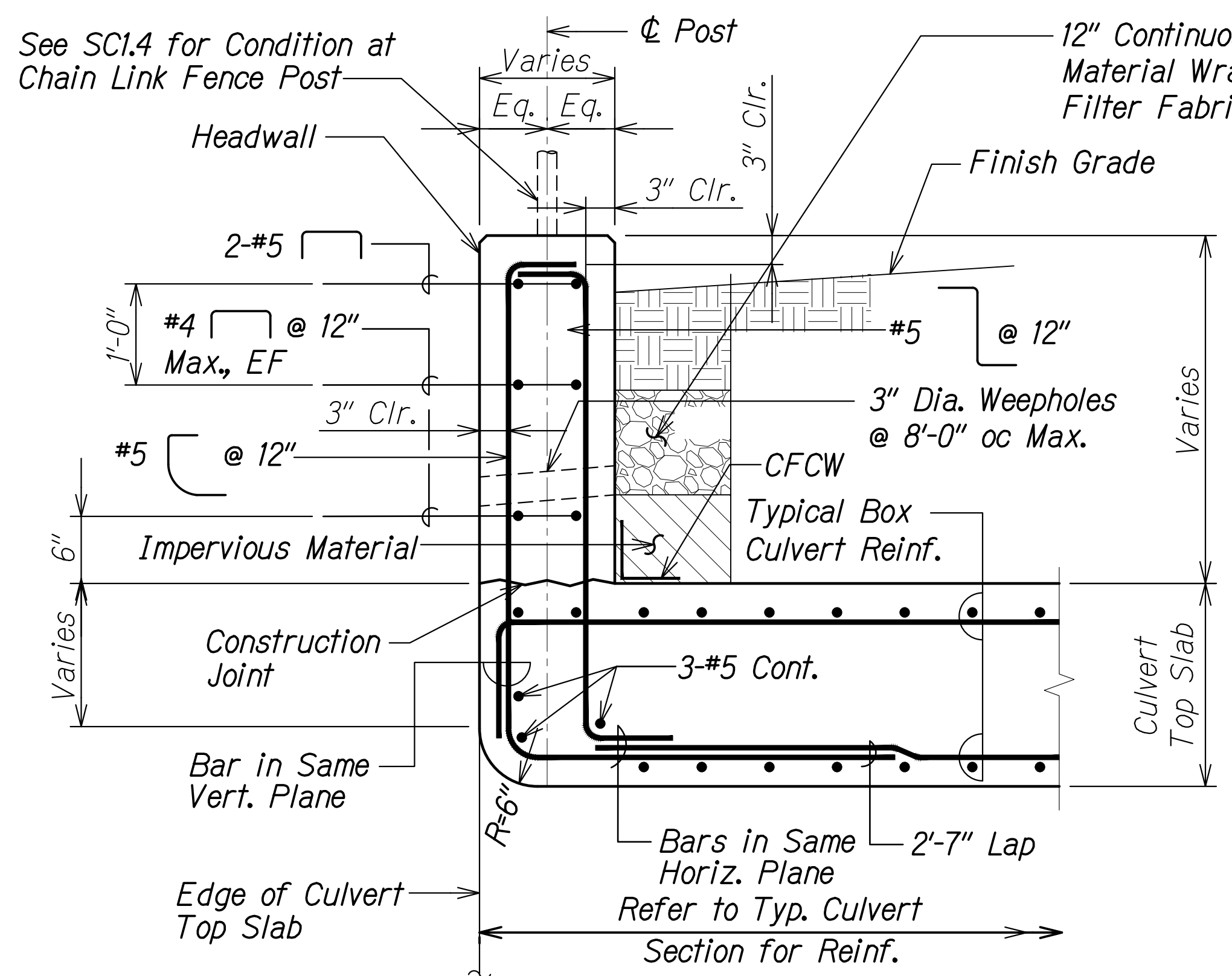
FARRINGTON HIGHWAY WIDENING  
 Kapolei Golf Course Road to Fort Weaver Road  
 Project No. 7101A-01-20

Scale: As Shown Date: Apr. 2022

SHEET No. SC14 OF 8 SHEETS

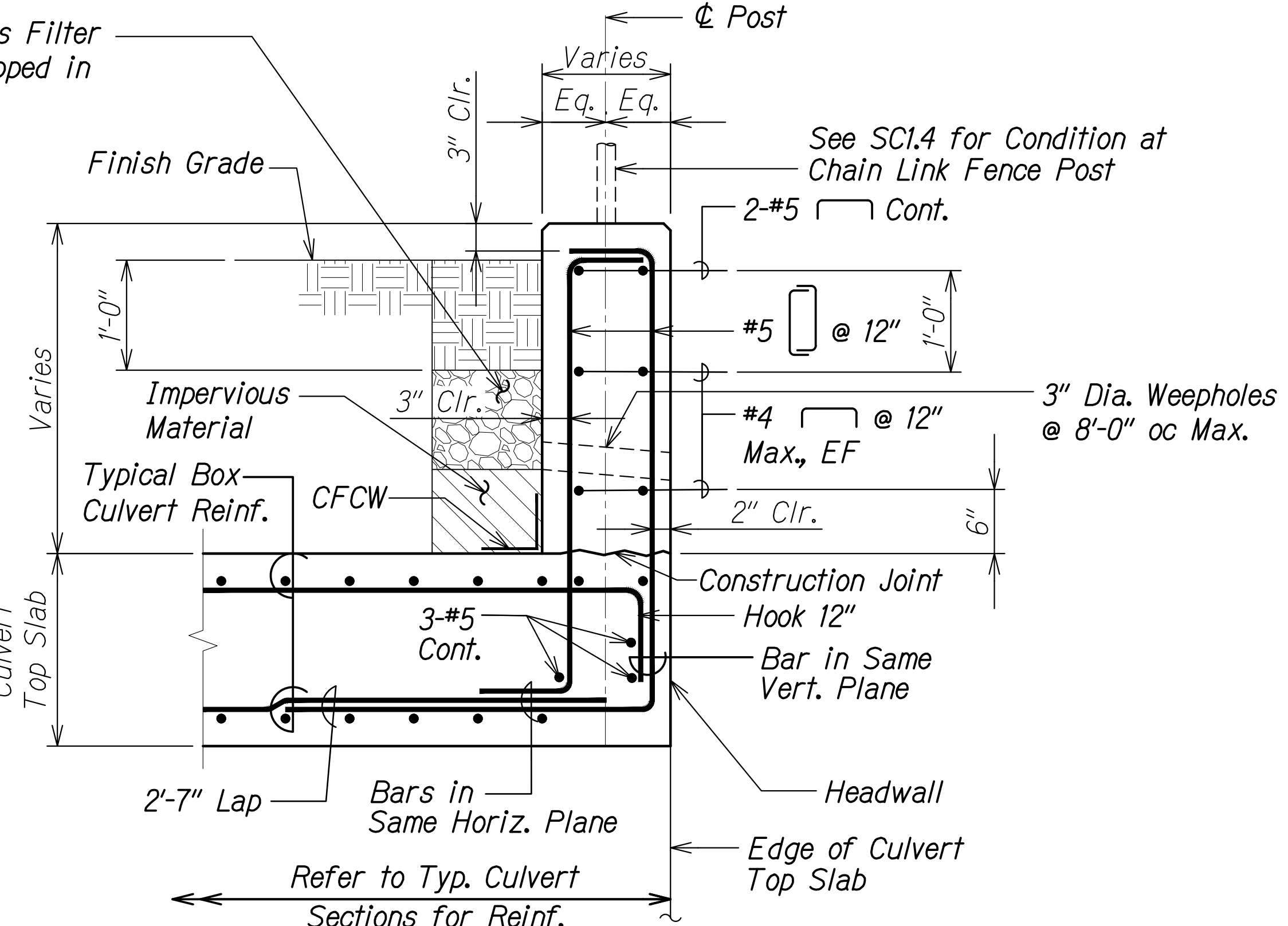


FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	7101A-01-20	2021	472	



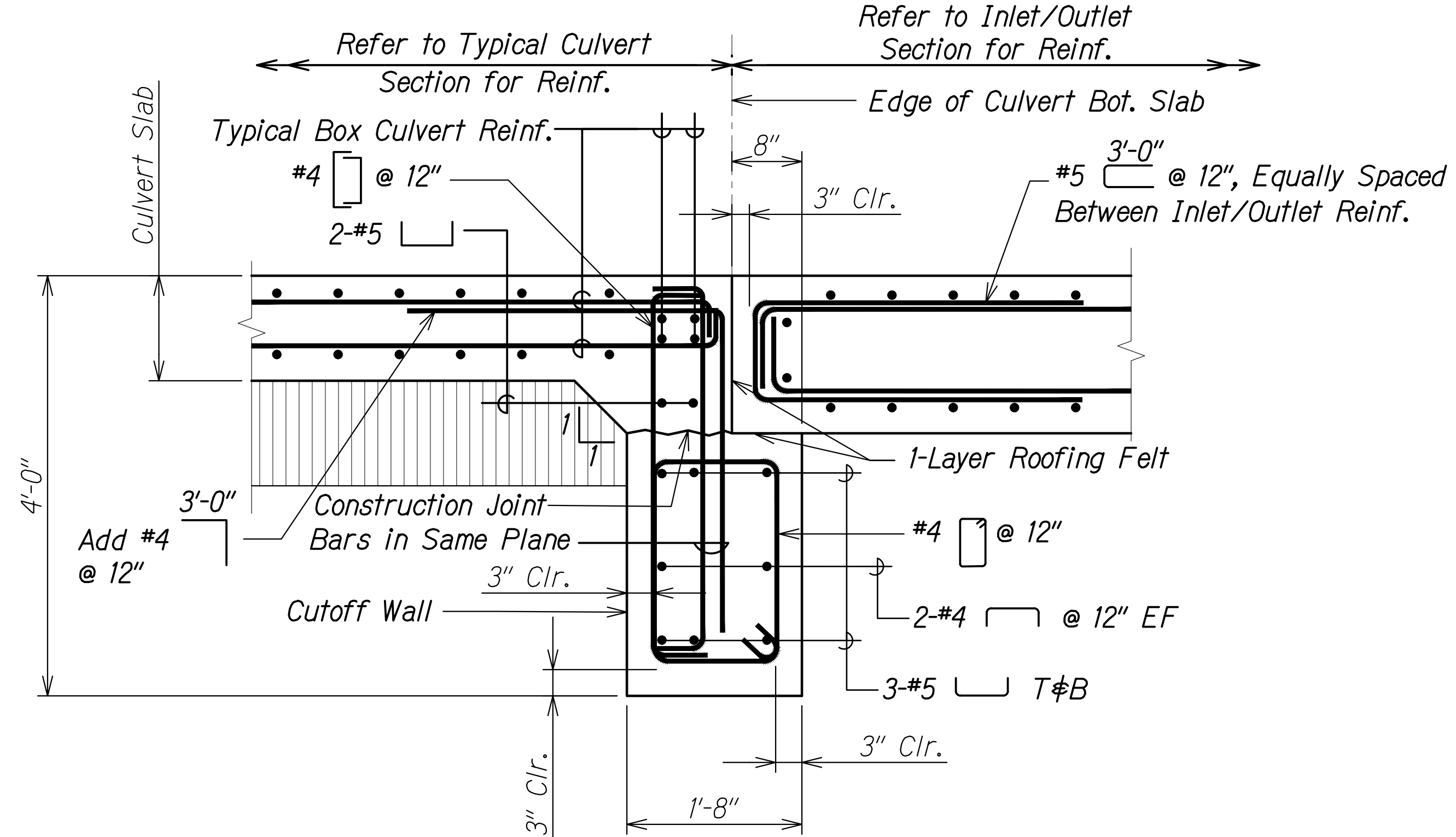
**HEADWALL AT INLET**

**SECTION A**  
Scale: 1" = 1'-0"  
SC2.6 | SC1.5  
SC2.9, SC3.6, SC3.9

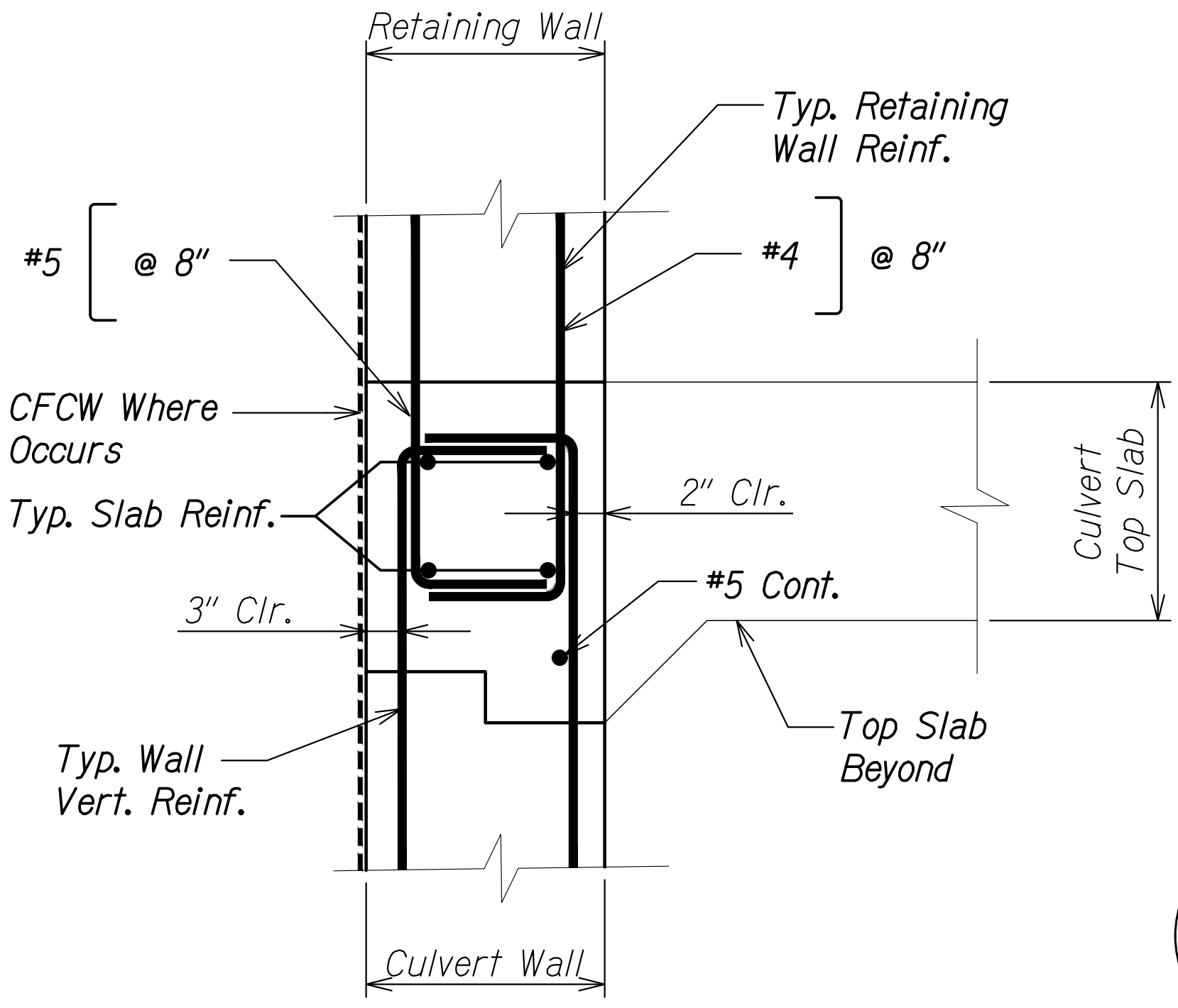


**HEADWALL AT OUTLET**

**SECTION B**  
Scale: 1" = 1'-0"  
SC2.8 | SC1.5  
SC2.9, SC3.8, SC3.9



**SECTION C**  
Scale: 1" = 1'-0"  
SC2.7, SC2.11, SC2.12, SC2.15  
SC3.5, SC3.7, SC3.11, SC3.12, SC3.15



**SLAB TIP SECTION D**  
Scale: 1 1/2" = 1'-0"  
SC2.8, SC3.6, SC3.8

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

DRAWING NAME: Z:\A\00\ONSDRWS\20-013-FARR-HWY-KAPOLEI-GC-10-ET-WR-EMTC\01-CAD\04-06-22-BID-SET\FHW3-SC0101.DWG PLOT TIME: 04-07-22 5:33 PM

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.  
 Signature: *Russ S. Miyahara*  
 April 30, 2024  
 EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII  
 DEPARTMENT OF TRANSPORTATION  
 HIGHWAYS DIVISION

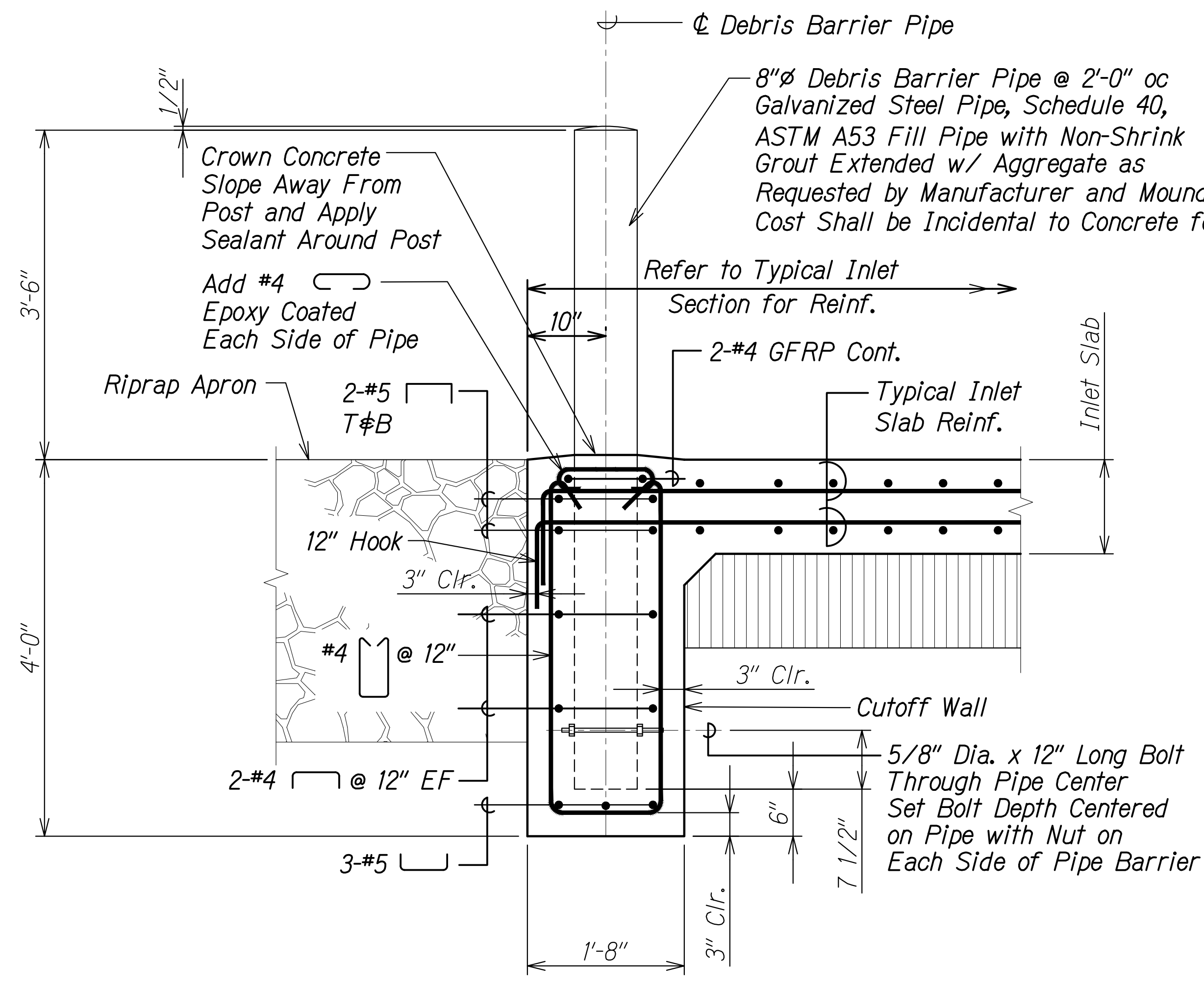
**Box Culvert Typical Sections**

FARRINGTON HIGHWAY WIDENING  
 Kapolei Golf Course Road to Fort Weaver Road  
 Project No. 7101A-01-20

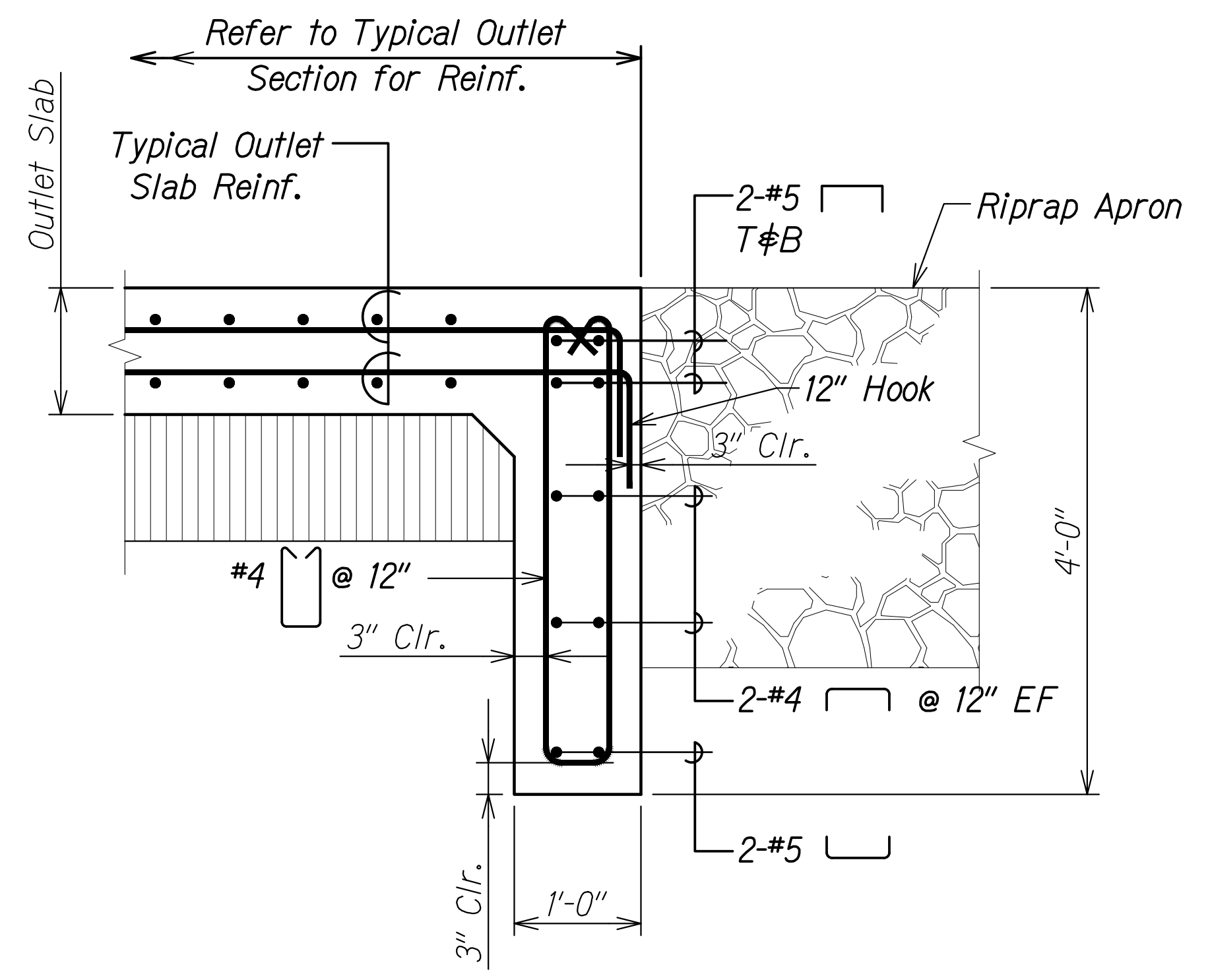
Scale: As Shown Date: Apr. 2022

**SHEET No. SC15 OF 8 SHEETS**

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	7101A-01-20	2021	473	



**SECTION AT INLET CUT-OFF WALL** A  
 Scale: 1" = 1'-0"  
 SC2.11 | SC1.6  
 SC2.15, SC3.11, SC3.15,



**SECTION AT OUTLET CUT-OFF WALL** B  
 Scale: 1" = 1'-0"  
 SC2.15, SC3.12, SC3.15, SC4.7

ORIGINAL PLAN	DATE
SURVEY PLOTTED BY	
DRAWN BY	
DESIGNED BY	
QUANTITIES BY	
CHECKED BY	



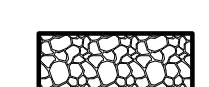

DRAWING NAME: Z:\100 ONGOING\20-013-FARR-HWY-KAPOLEI\GE.ID.IT.WORK\BIM\01.GAD\04-06-22 BID SET\FHW3-SC0101.DWG PLOT TIME: 04-07-22 05:33 PM

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.  
 SIGNATURE: *Rugo S. Miyahara* EXPIRATION DATE: April 30, 2024  
 OF THE LICENSE

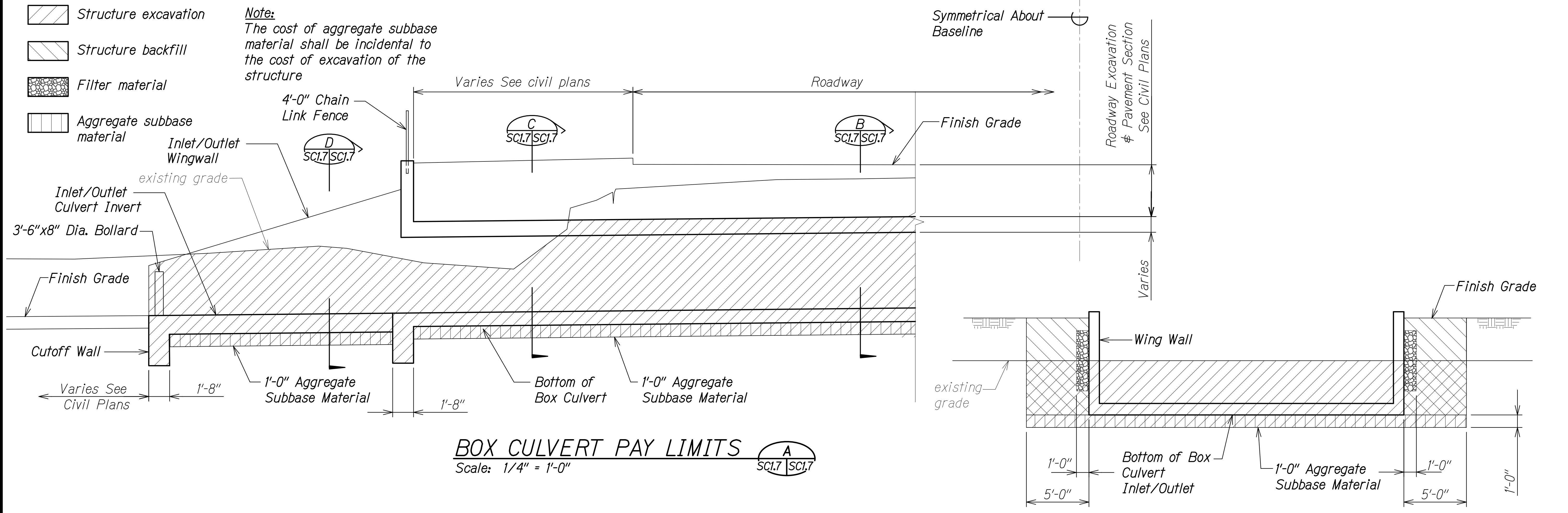
**STATE OF HAWAII**  
**DEPARTMENT OF TRANSPORTATION**  
**HIGHWAYS DIVISION**  
  
**Box Culvert Typical Sections**  
  
**FARRINGTON HIGHWAY WIDENING**  
**Kapolei Golf Course Road to Fort Weaver Road**  
**Project No. 7101A-01-20**  
 Scale: As Shown Date: Apr. 2022  
**SHEET No. SC16 OF 8 SHEETS**

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	7101A-01-20	2021	474	

**LEGEND:**

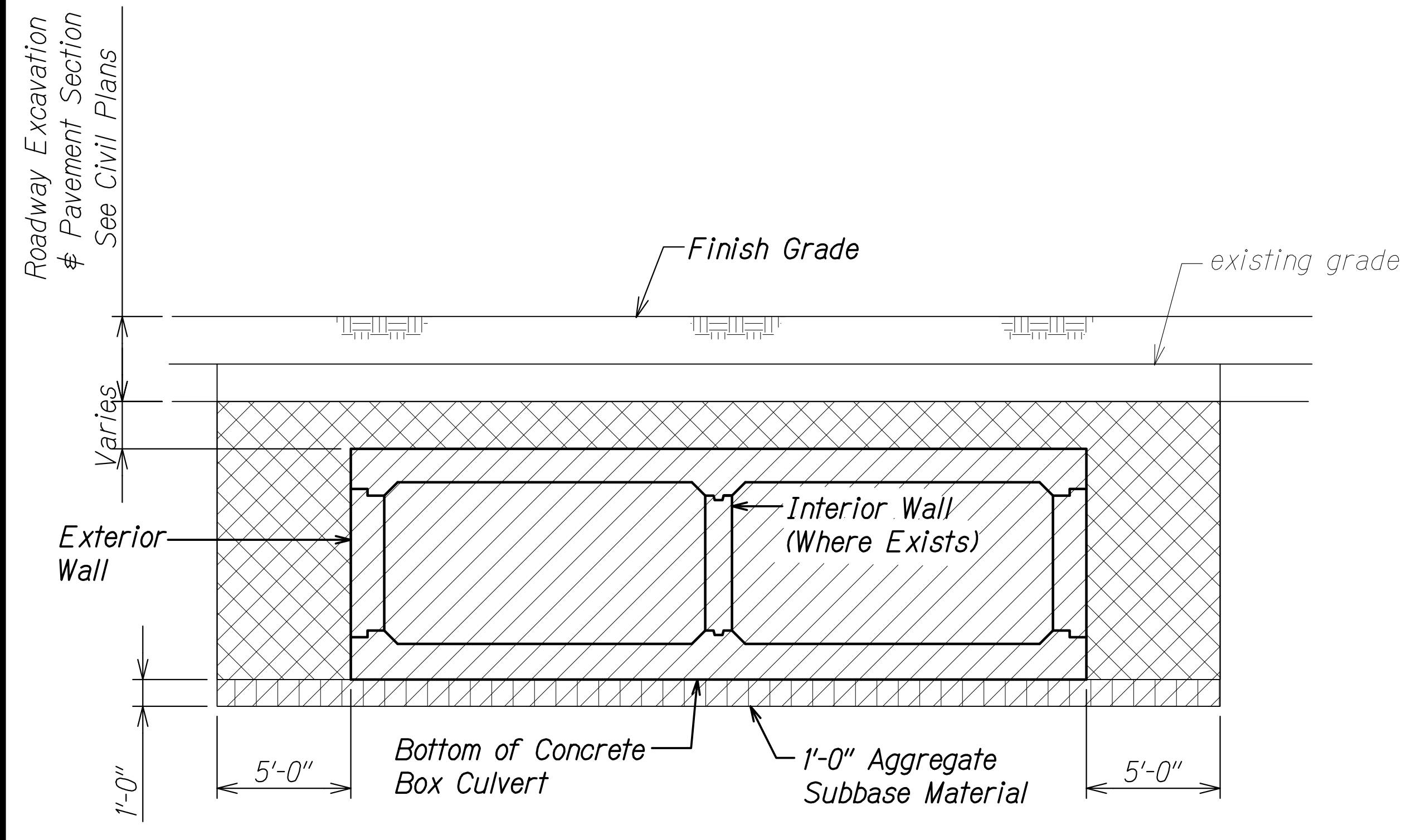
-  Structure excavation
-  Structure backfill
-  Filter material
-  Aggregate subbase material

**Note:**  
The cost of aggregate subbase material shall be incidental to the cost of excavation of the structure

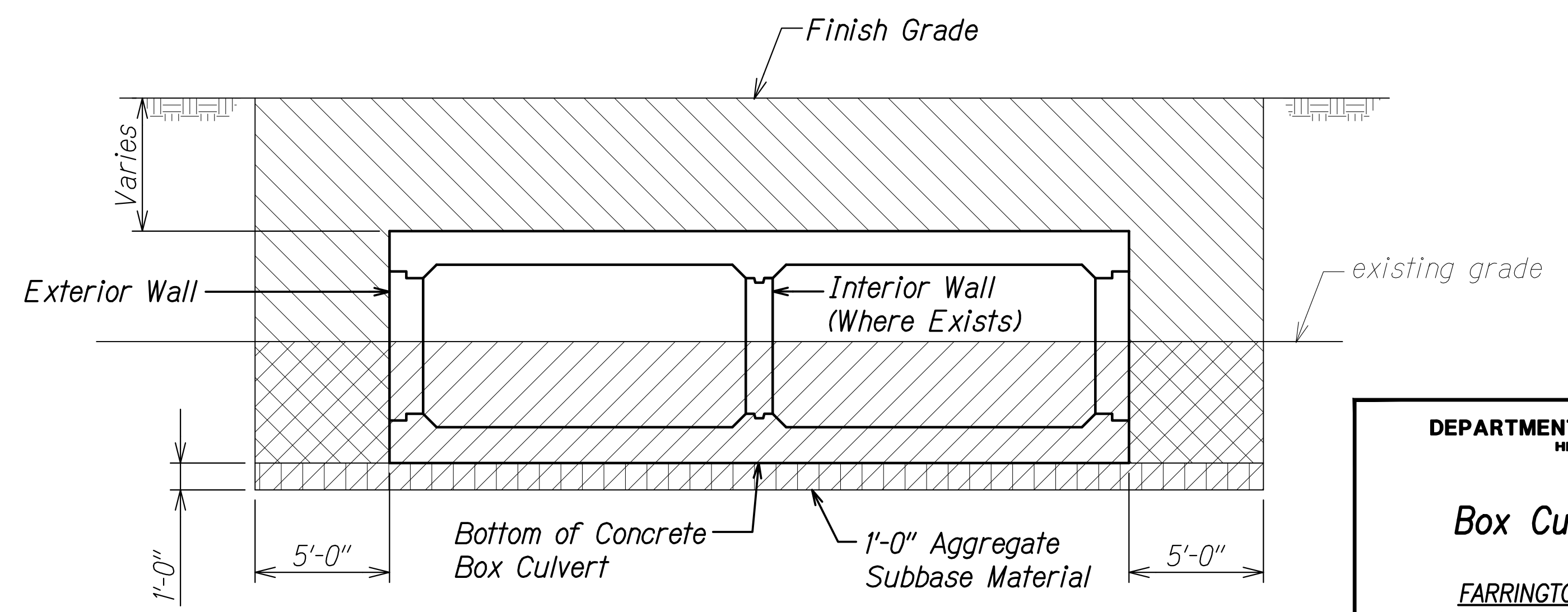


**BOX CULVERT PAY LIMITS**  
Scale: 1/4" = 1'-0" **A**

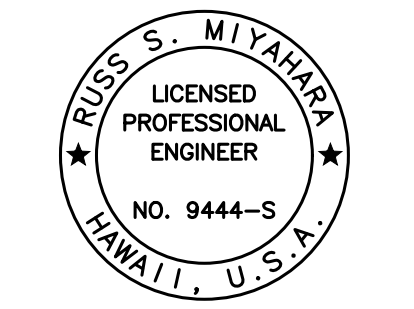
**BOX CULVERT PAY LIMITS**  
Scale: 1/4" = 1'-0" **D**



**BOX CULVERT PAY LIMITS**  
Scale: 1/4" = 1'-0" **B**



**BOX CULVERT PAY LIMITS**  
Scale: 1/4" = 1'-0" **C**



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 Signature: *Russ S. Miyahara*  
 Expiration Date: April 30, 2024

**STATE OF HAWAII**  
**DEPARTMENT OF TRANSPORTATION**  
**HIGHWAYS DIVISION**

**Box Culvert Pay Limits**

FARRINGTON HIGHWAY WIDENING  
 Kapolei Golf Course Road to Fort Weaver Road  
 Project No. 7101A-01-20

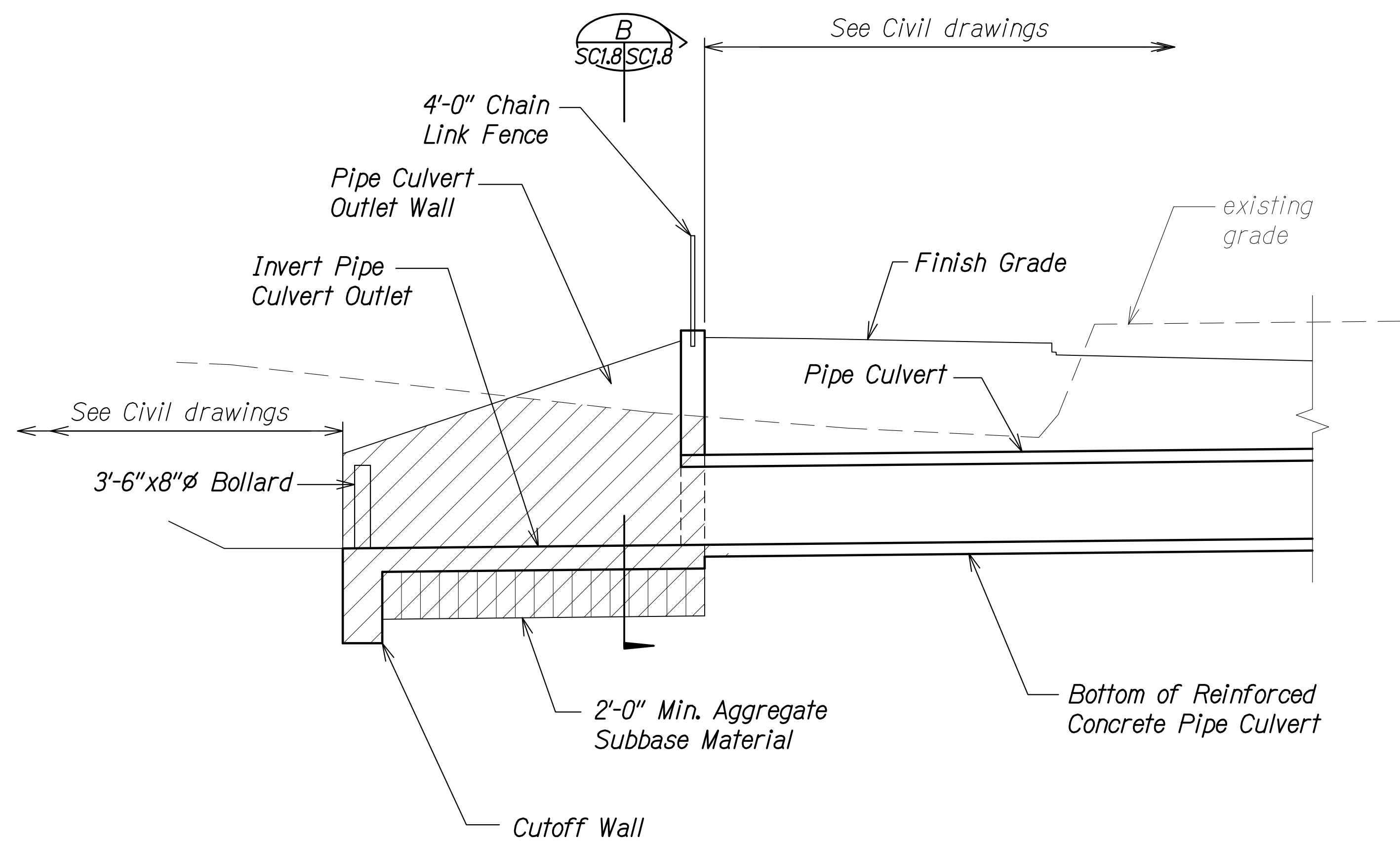
Scale: As Shown      Date: Apr. 2022

**SHEET No. SC17 OF 8 SHEETS**

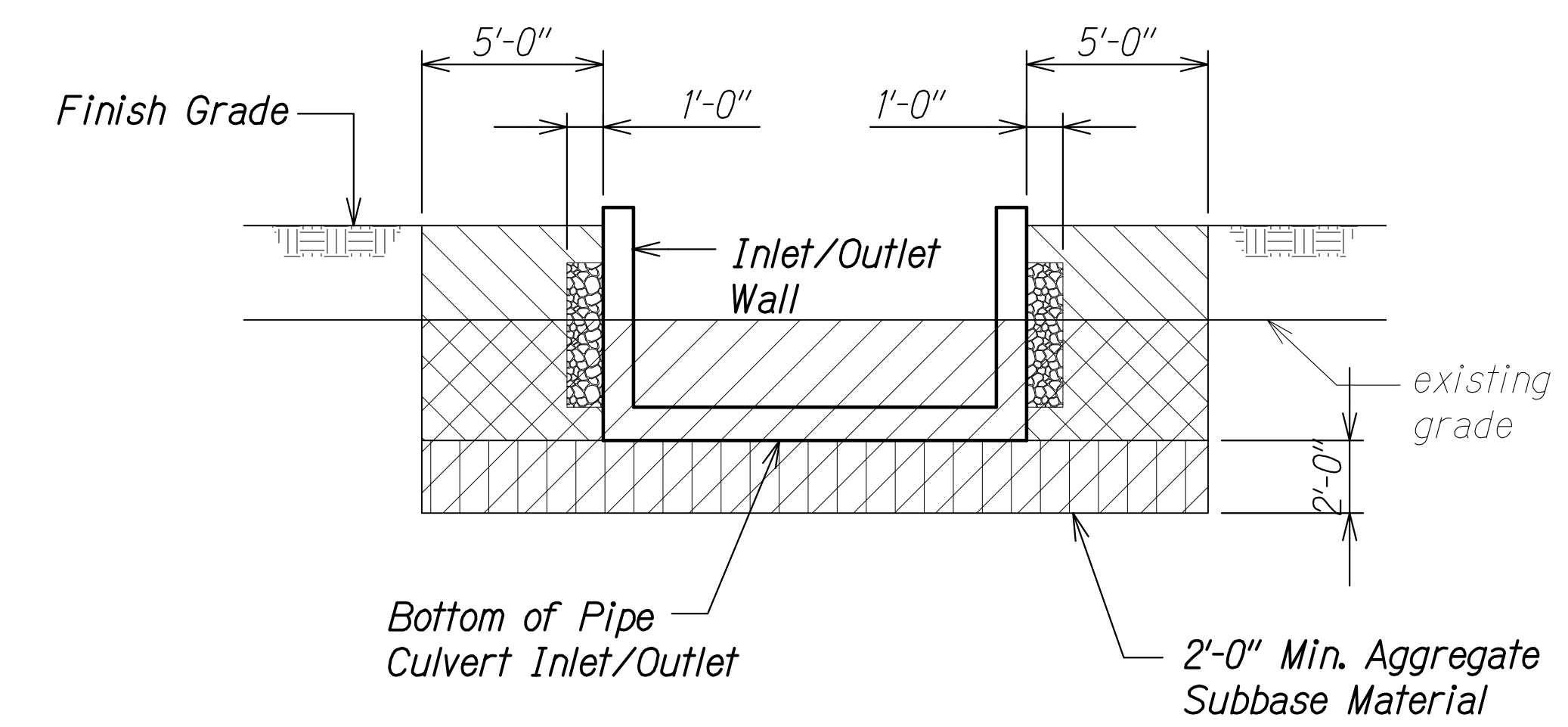
ORIGINAL PLAN	DATE
SURVEY PLOTTED BY	
DRAWN BY	
DESIGNED BY	
QUANTITIES BY	
CHECKED BY	
No.	

DRAWING NAME: Z:\100 ONGOING\20-013-FARR-HW-KAPOLEI.GG.ID.IT.WP-EM(C).DWT PLOT TIME: 04-07-22, 5:34 PM

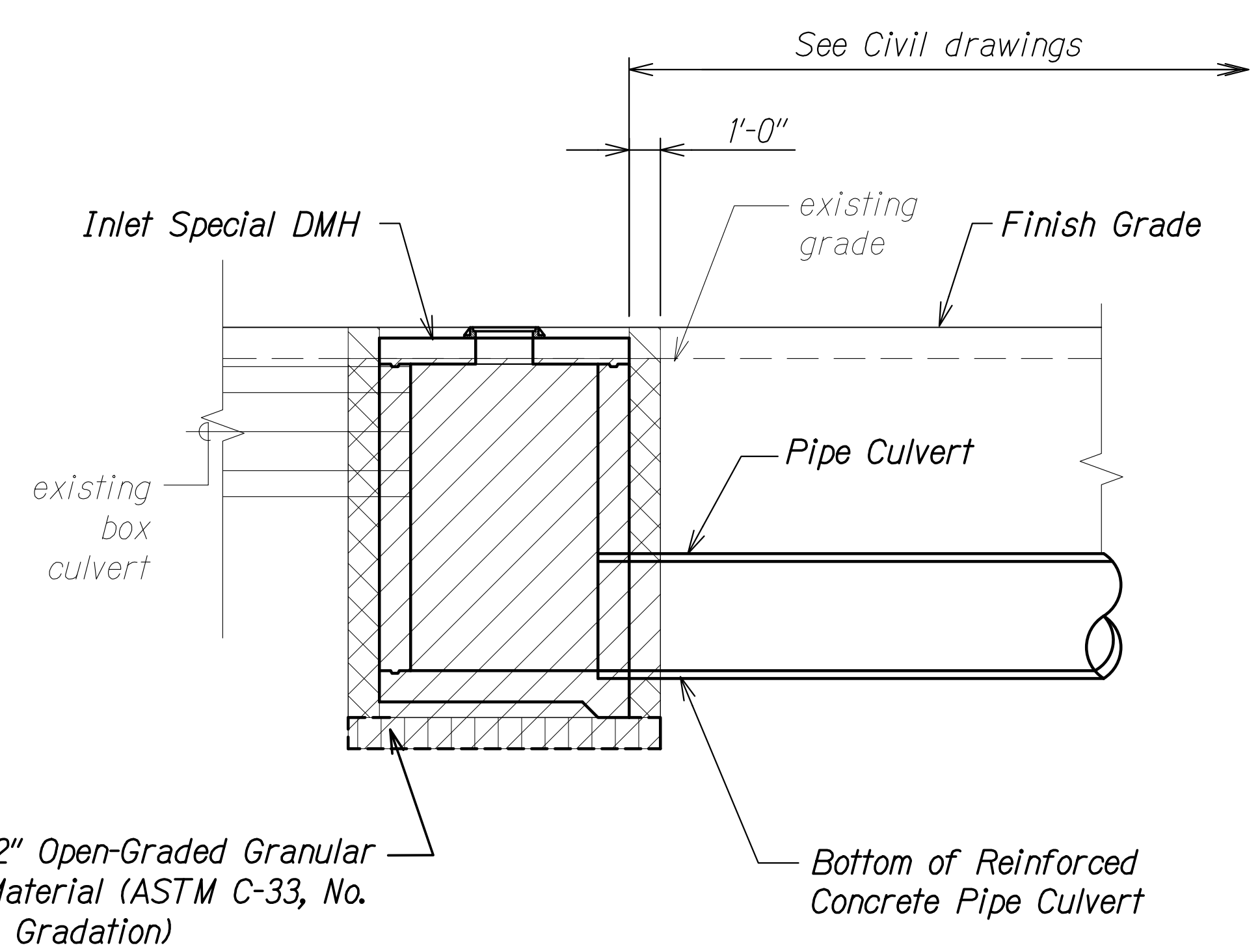
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	7101A-01-20	2021	475	



**PIPE CULVERT OUTLET PAY LIMITS**  
 Scale: 1/4" = 1'-0"  
 A  
 SC1.8 SC1.8



**PIPE CULVERT OUTLET PAY LIMITS**  
 Scale: 1/4" = 1'-0"  
 B  
 SC1.8 SC1.8



**PIPE CULVERT INLET PAY LIMITS**  
 Scale: 1/4" = 1'-0"  
 C  
 SC1.8 SC1.8

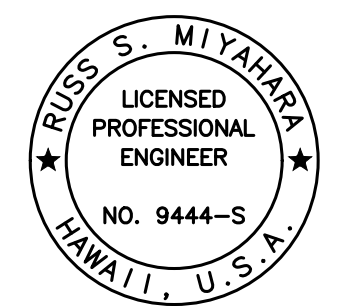
- LEGEND:**
- Structure excavation
  - Structure backfill
  - Filter material
  - Aggregate subbase material

**Note:**  
 The cost of aggregate subbase material shall be incidental to the cost of excavation of the structure

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

DRAWING NAME: Z:\100 ONGOING\20-013-FARR-HWY-KAPOLEI GC ID: ET-WR-EMT\01 CAD\04-06-22 BID SET\FHWS-SC0108.DWG PLOT TIME: 04-07-22 5:34 PM

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.  
 Signature: *Paul S. Miyahara*  
 April 30, 2024  
 EXPIRATION DATE OF THE LICENSE



STATE OF HAWAII  
 DEPARTMENT OF TRANSPORTATION  
 HIGHWAYS DIVISION

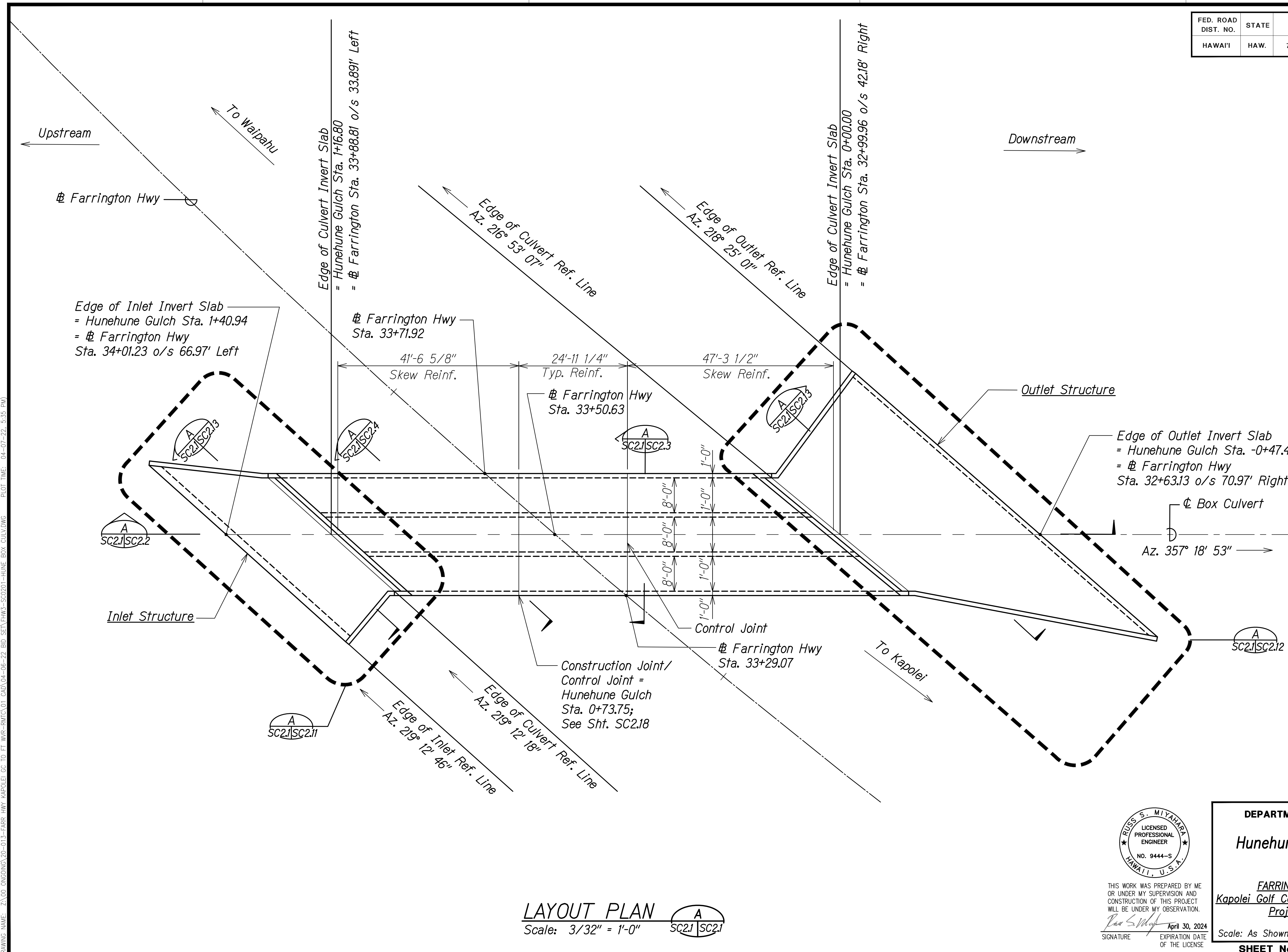
**Pipe Culvert Inlet/Outlet Pay Limits**

FARRINGTON HIGHWAY WIDENING  
 Kapolei Golf Course Road to Fort Weaver Road  
 Project No. 7101A-01-20

Scale: As Shown Date: Apr. 2022

SHEET No. SC1.8 OF 8 SHEETS

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	7101A-01-20	2021	476	



DRAWING NAME: Z:\100\_000000\20-013-FARR-HWY-KAPOLEI-GC-10-ET-WP6-EMTC\01-GAD\04-06-22-BID-SET\FHWS-SC2021-HUNE-GULCH-BOX-CULVERTING PLOT TIME: 04-07-22 5:35 PM

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

**LAYOUT PLAN**  
Scale: 3/32" = 1'-0"



THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.  
Signature: *Rugs S. Miyahara*  
April 30, 2024  
EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

**Hunehune Gulch Box Culvert  
Layout Plan**

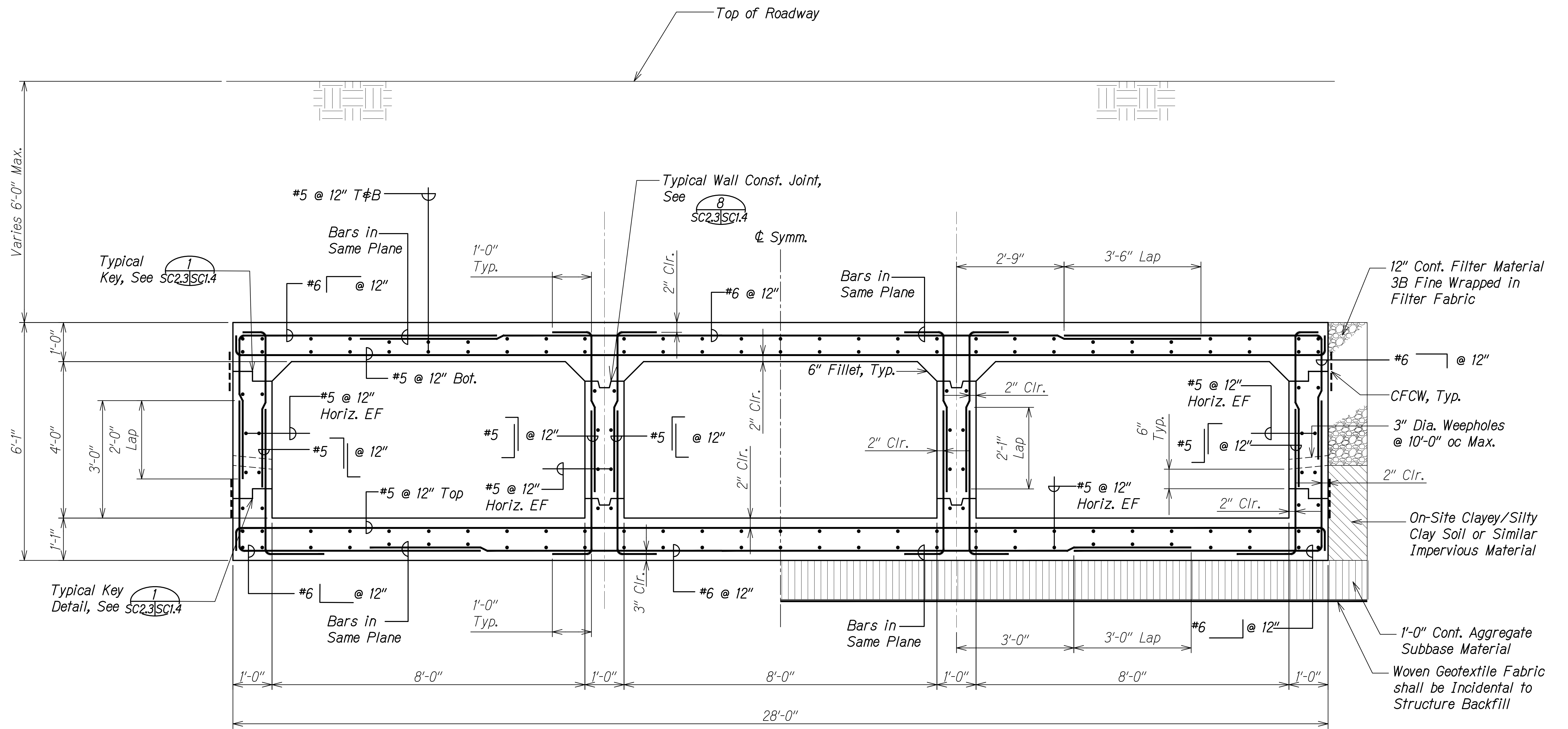
FARRINGTON HIGHWAY WIDENING  
Kapolei Golf Course Road to Fort Weaver Road  
Project No. 7101A-01-20

Scale: As Shown Date: Apr. 2022

SHEET No. SC2.1 OF 23 SHEETS



FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	7101A-01-20	2021	478	



**TYPICAL BOX CULVERT SECTION A**  
 Scale: 3/4" = 1'-0"  
 SC2.1 SC2.3  
 SC2.2

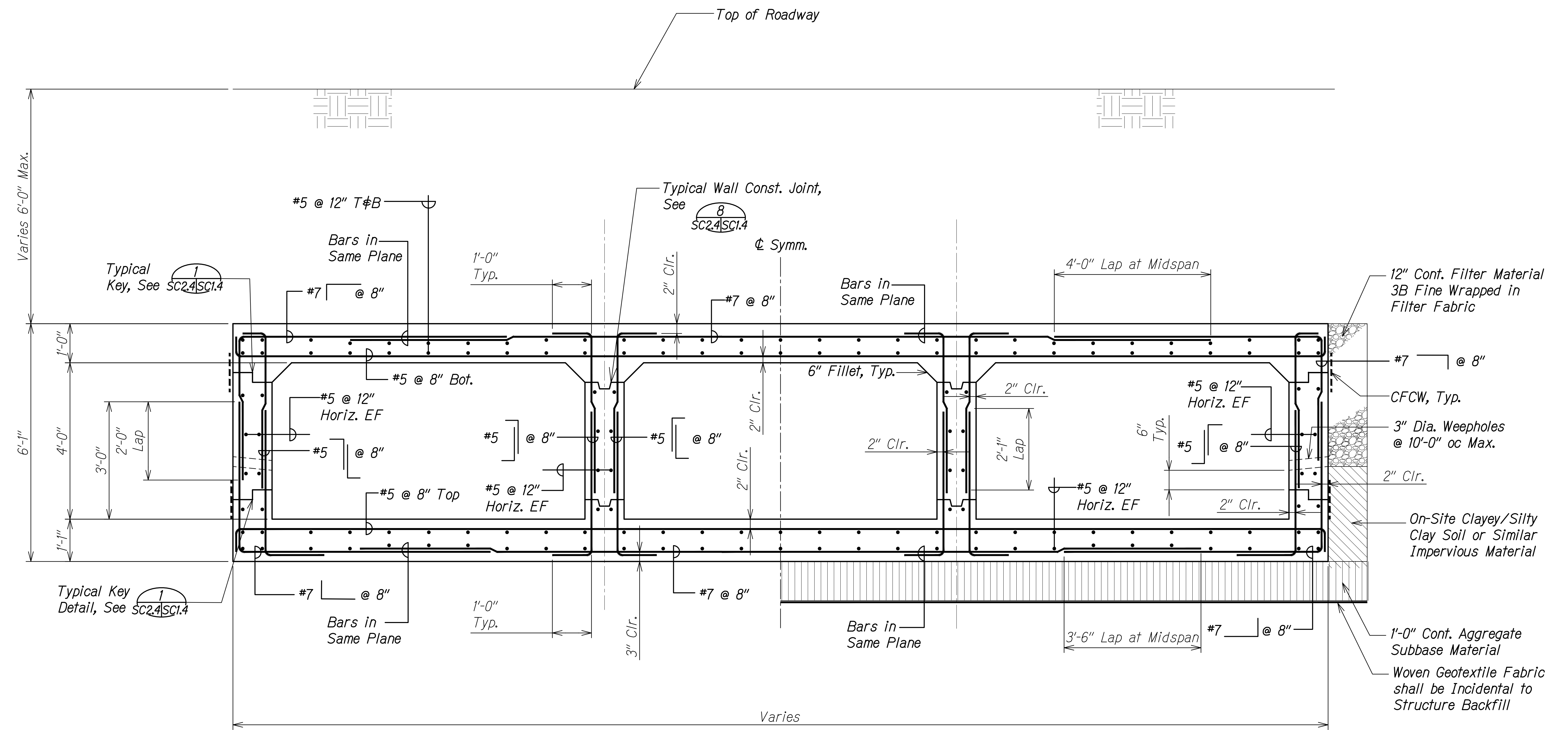
ORIGINAL PLAN	DATE
SURVEY PLOTTED BY	
DRAWN BY	
DESIGNED BY	
QUANTITIES BY	
CHECKED BY	
No.	

DRAWING NAME: Z:\100 UNDOINGS\20-013-FARR-HW-KAPOLEI GC ID: ET-WR-RMT(C)\01 CAD\04-06-22 BID SET\FH03-SC0202-HUNE BOX CULVERTING PLOT TIME: 04-07-22: 5:36 PM

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.  
 RUGS S. MIYAHARA  
 LICENSED PROFESSIONAL ENGINEER  
 NO. 9444-S  
 HAWAII, U.S.A.  
 April 30, 2024  
 EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII  
 DEPARTMENT OF TRANSPORTATION  
 HIGHWAYS DIVISION  
**Hunehune Gulch Box Culvert  
 Typical Box Culvert Section**  
 FARRINGTON HIGHWAY WIDENING  
 Kapolei Golf Course Road to Fort Weaver Road  
 Project No. 7101A-01-20  
 Scale: As Shown Date: Apr. 2022  
 SHEET No. SC2.3 OF 23 SHEETS

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	7101A-01-20	2021	479	



**BOX CULVERT SECTION AT SKEW**  
 Scale: 3/4" = 1'-0"  
 SC2.2, SC2.6 A  
SC2.1 | SC2.4

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

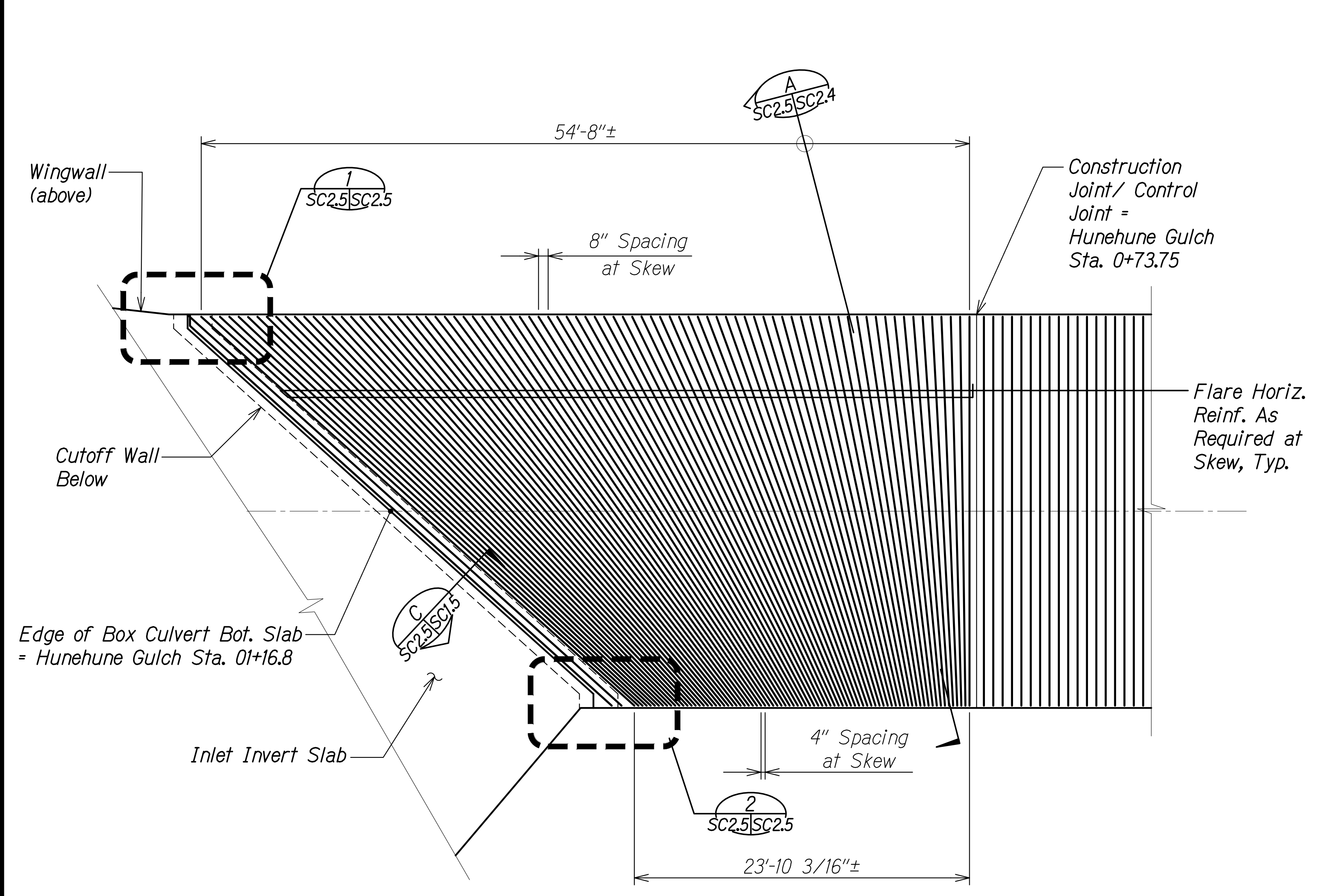
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THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.  
*Russ S. Miyahara*  
 SIGNATURE      April 30, 2024  
 EXPIRATION DATE OF THE LICENSE

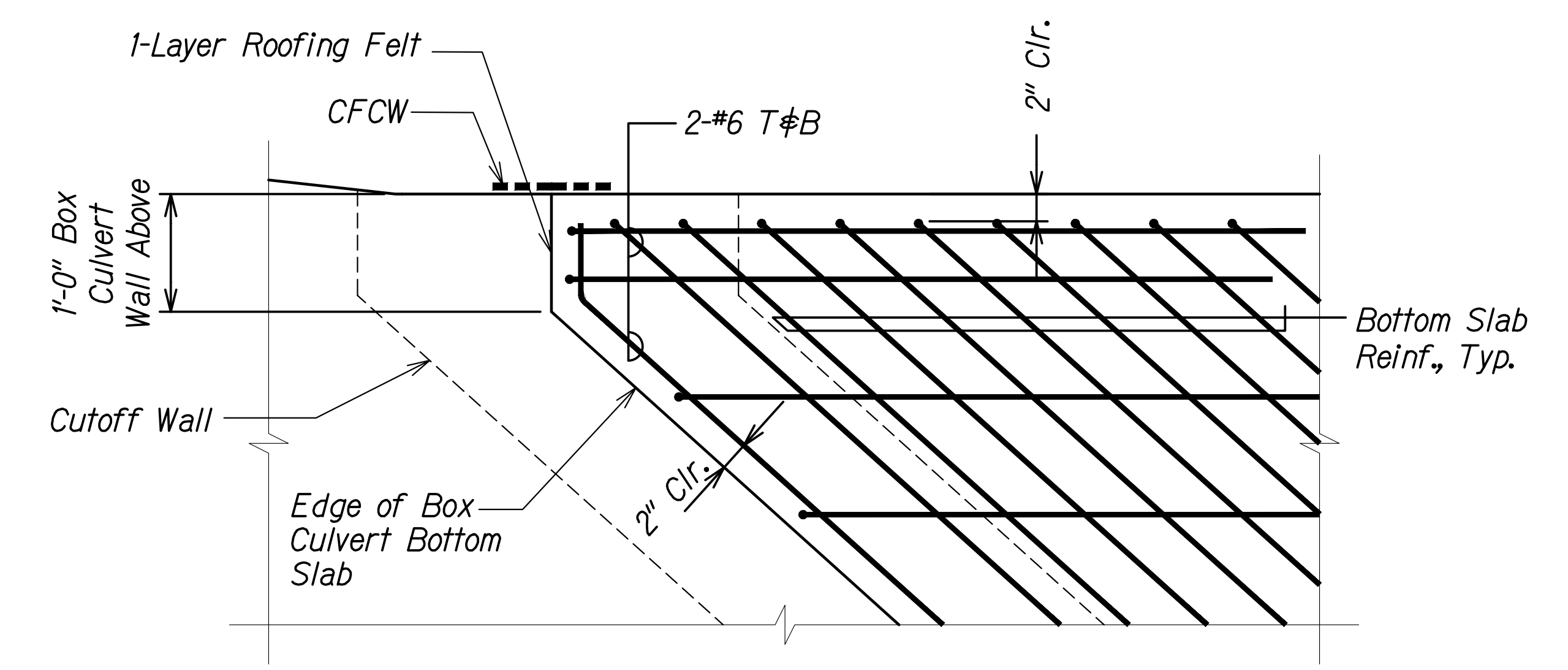
**STATE OF HAWAII**  
**DEPARTMENT OF TRANSPORTATION**  
**HIGHWAYS DIVISION**  
**Hunehune Gulch Box Culvert**  
**Box Culvert Section at Skew**  
**FARRINGTON HIGHWAY WIDENING**  
**Kapolei Golf Course Road to Fort Weaver Road**  
**Project No. 7101A-01-20**  
 Scale: As Shown      Date: Apr. 2022  
**SHEET No. SC24 OF 23 SHEETS**



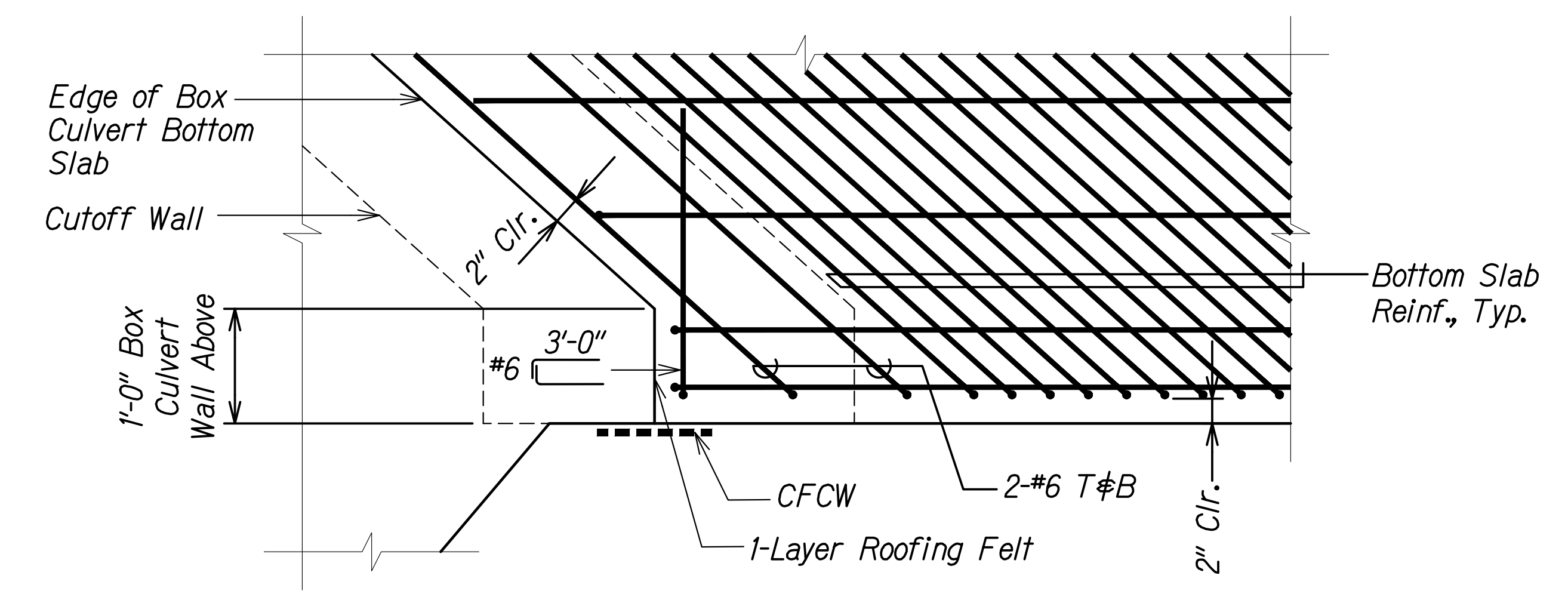
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	7101A-01-20	2021	480	



**BOTTOM SLAB REINFORCING PLAN AT INLET** A  
 Scale: 3/16" = 1'-0" SC2.5 | SC2.5



**INLET - BOX CULVERT BOT. SLAB DETAIL** 1  
 Scale: 1" = 1'-0" SC2.5 | SC2.5



**INLET - BOX CULVERT BOT. SLAB DETAIL** 2  
 Scale: 1" = 1'-0" SC2.5 | SC2.5

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

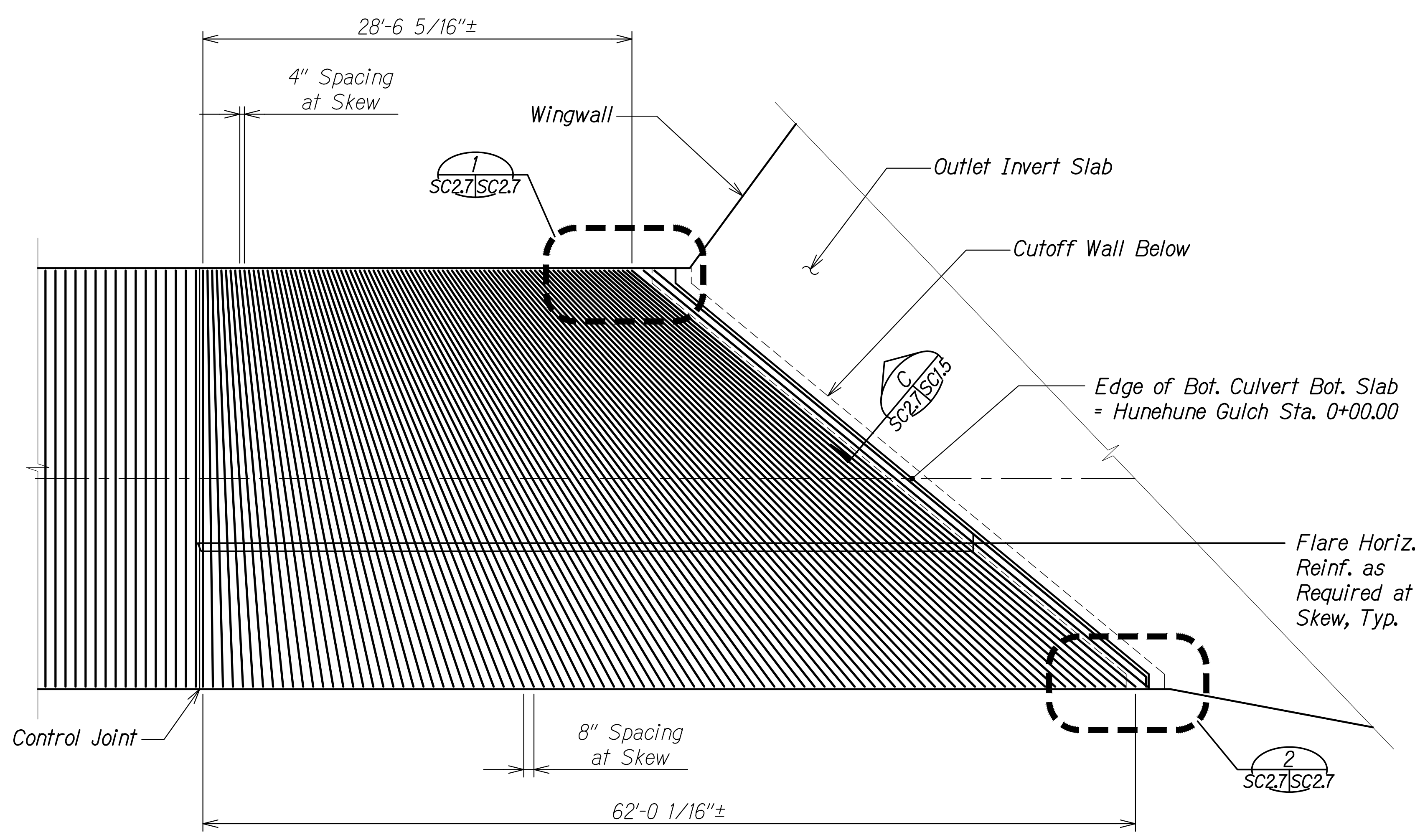
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RUSSELL S. MIYAHARA  
 LICENSED PROFESSIONAL ENGINEER  
 NO. 9444-S  
 HAWAII, U.S.A.  
 THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.  
 Signature: *Russ S. Miyahara*  
 April 30, 2024  
 EXPIRATION DATE OF THE LICENSE

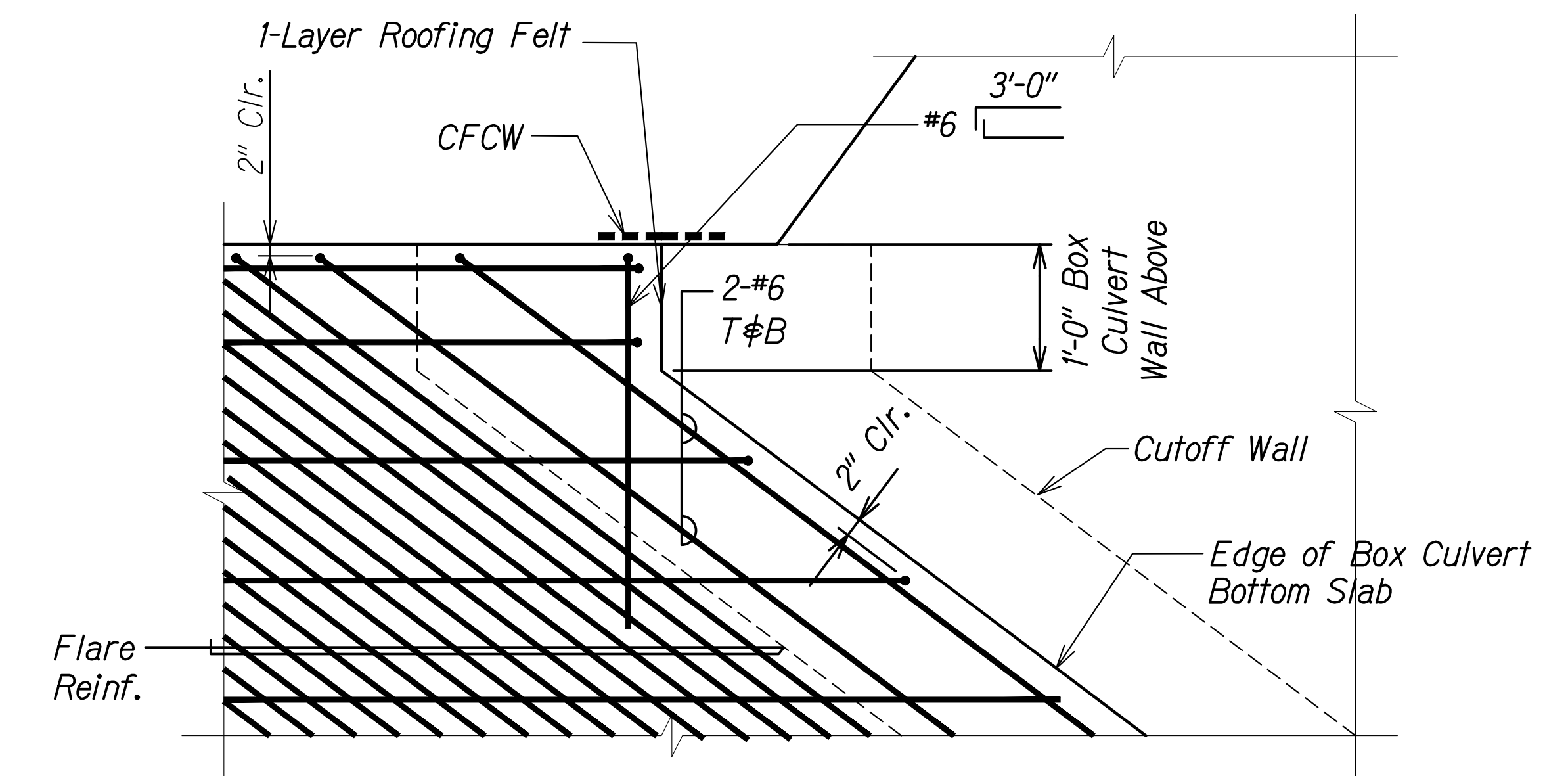
STATE OF HAWAII  
 DEPARTMENT OF TRANSPORTATION  
 HIGHWAYS DIVISION  
**Hunehune Gulch Box Culvert  
 Inlet Bottom Slab Plan and Details**  
 FARRINGTON HIGHWAY WIDENING  
 Kapolei Golf Course Road to Fort Weaver Road  
 Project No. 7101A-01-20  
 Scale: As Shown Date: Apr. 2022  
**SHEET No. SC2.5 OF 23 SHEETS**



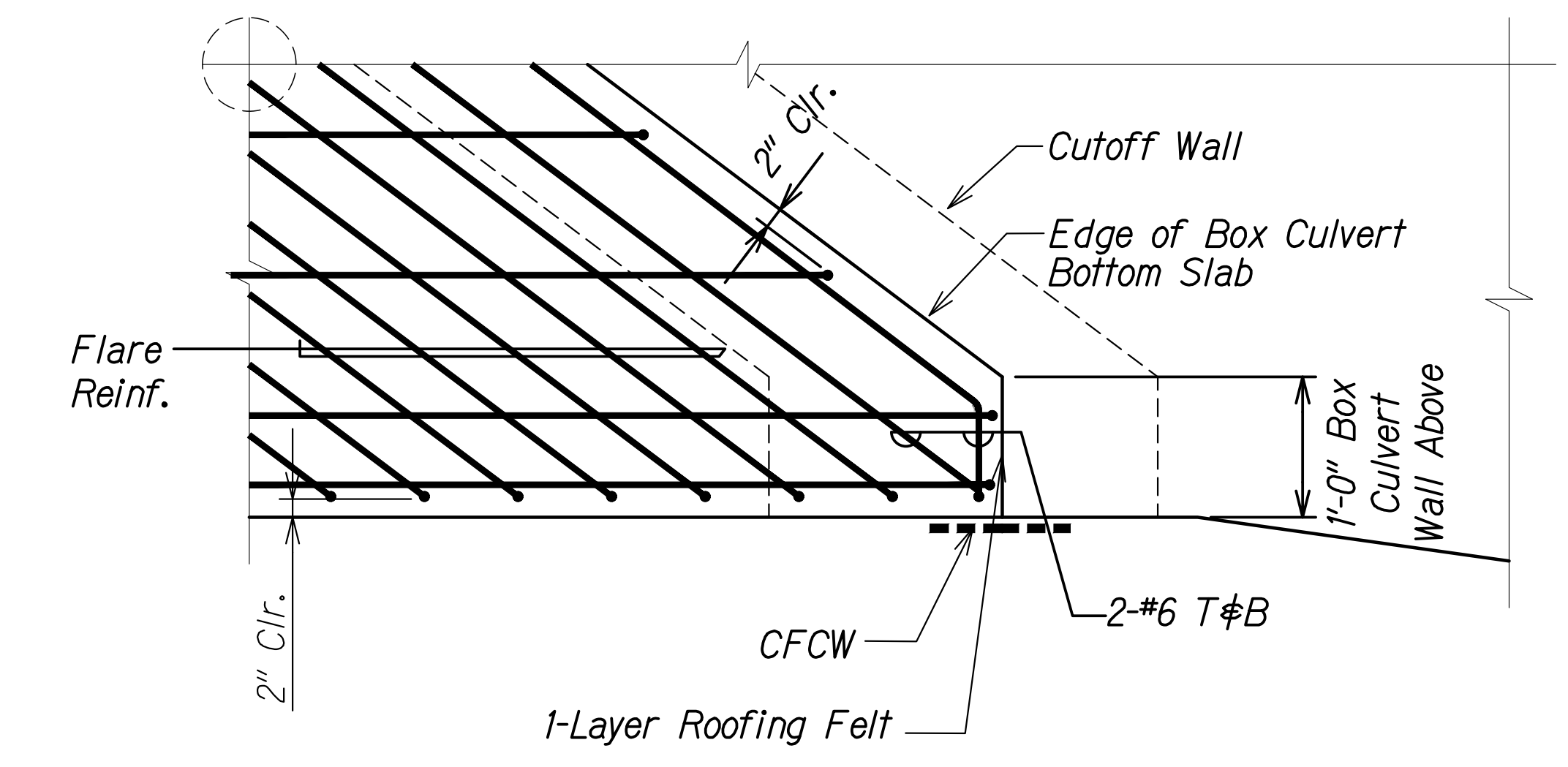
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	7101A-01-20	2021	482	



**BOTTOM SLAB REINFORCING PLAN AT OUTLET** A  
 Scale: 3/16" = 1'-0" SC2.14 | SC2.7



**OUTLET - BOX CULVERT BOT. SLAB DETAIL** 1  
 Scale: 1" = 1'-0" SC2.7 | SC2.7



**OUTLET - BOX CULVERT BOT. SLAB DETAIL** 2  
 Scale: 1" = 1'-0" SC2.7 | SC2.7

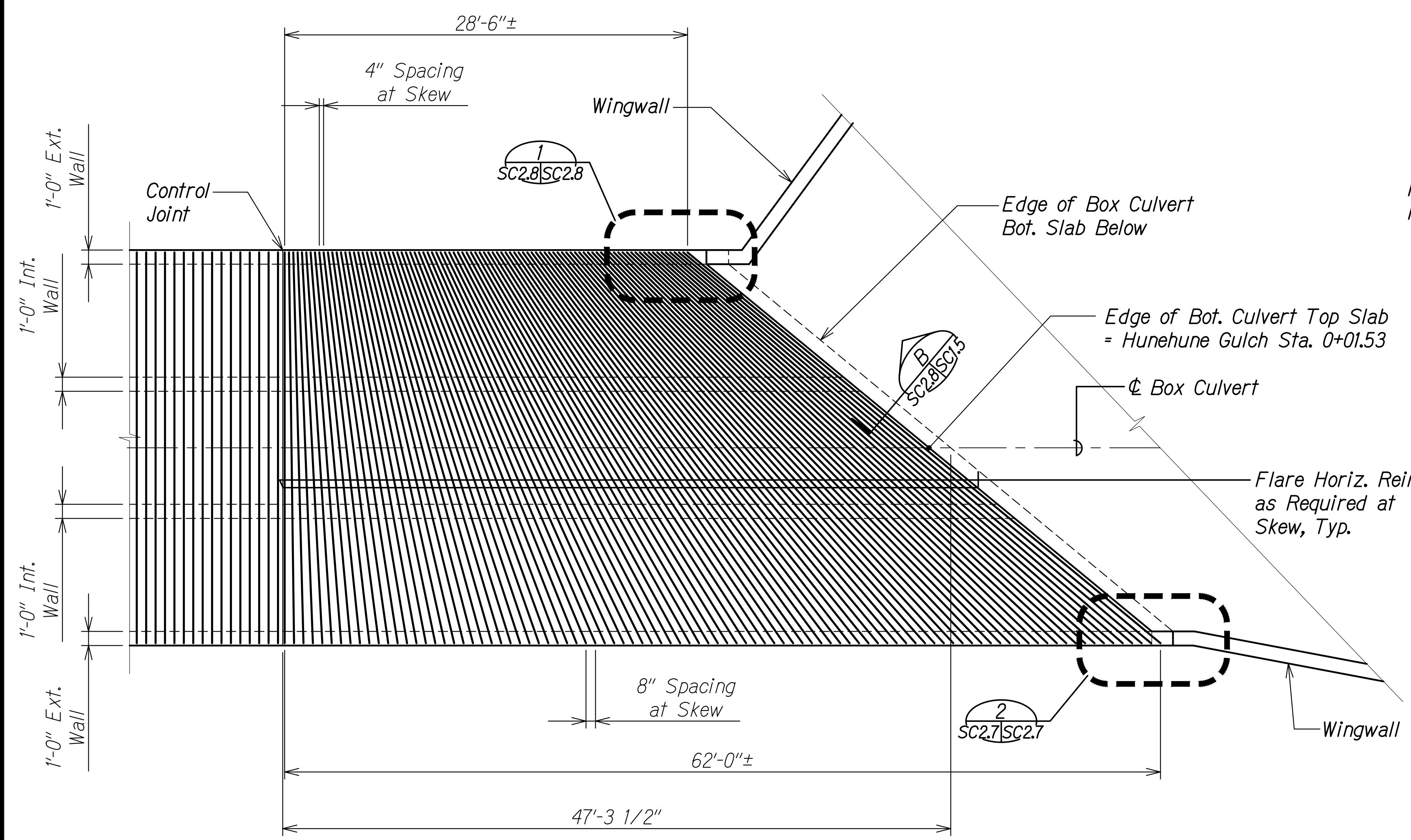
SURVEY PLOTTED BY	DATE
DRAWN BY	
DESIGNED BY	
QUANTITIES BY	
CHECKED BY	
ORIGINAL PLAN	
NOTE BOOK	
No.	

DRAWING NAME: Z:\A00\_050505\20-013-FARR-HW-KAPOLEI GC.ID.IT.WR-EMTC\01-GAD\04-06-22 BID SET\FH03-SC0207-HUNE BOX BOT SLAB OUTLET.DWG PLOT TIME: 04-07-22 5:37 PM

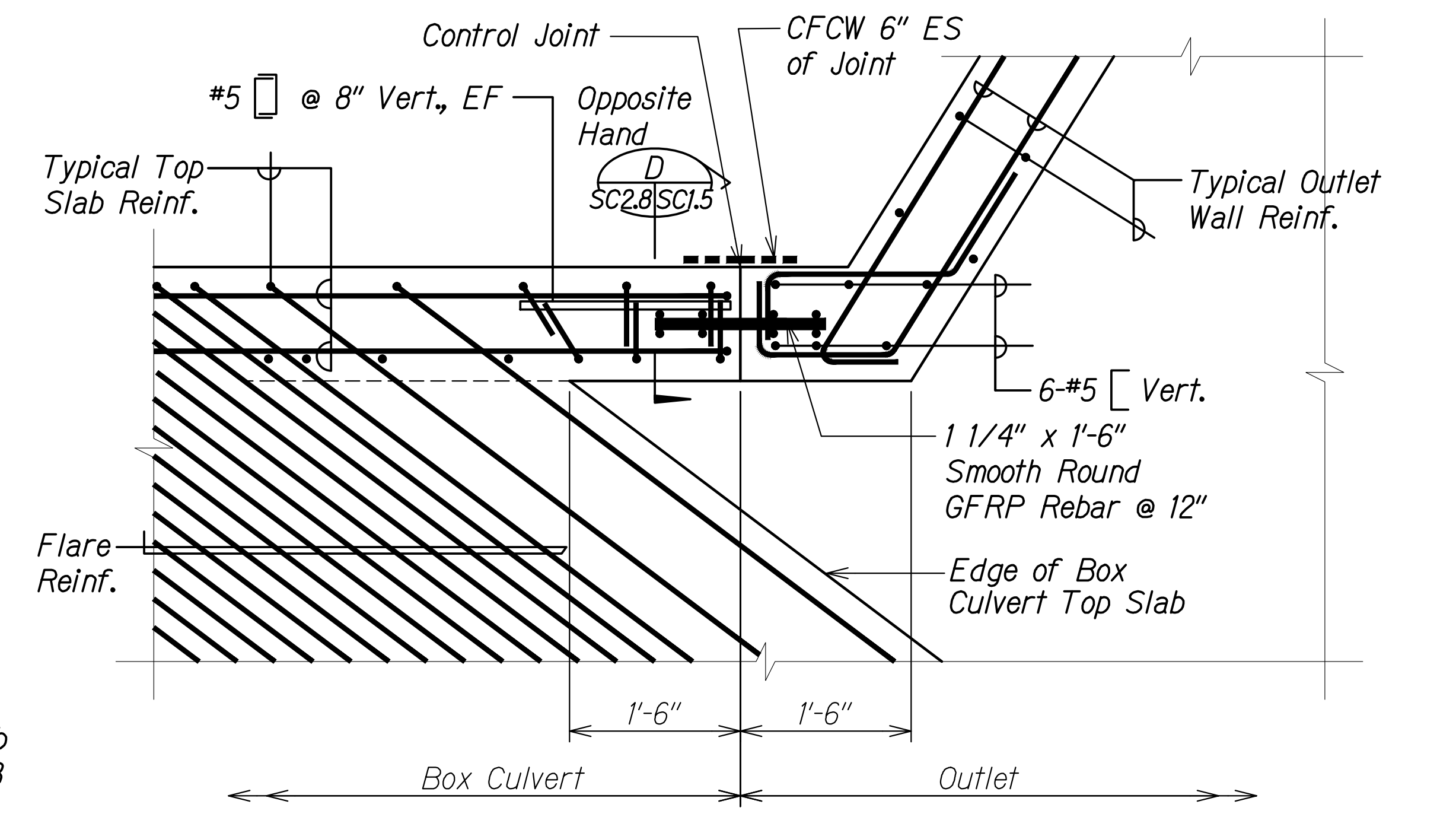
THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.  
*Russ S. Miyahara*  
 SIGNATURE      April 30, 2024  
 EXPIRATION DATE OF THE LICENSE

**STATE OF HAWAII**  
**DEPARTMENT OF TRANSPORTATION**  
**HIGHWAYS DIVISION**  
**Hunehune Gulch Box Culvert**  
**Outlet Bottom Slab Plan and Details**  
**FARRINGTON HIGHWAY WIDENING**  
**Kapolei Golf Course Road to Fort Weaver Road**  
**Project No. 7101A-01-20**  
 Scale: As Shown      Date: Apr. 2022  
**SHEET No. SC2.7 OF 23 SHEETS**

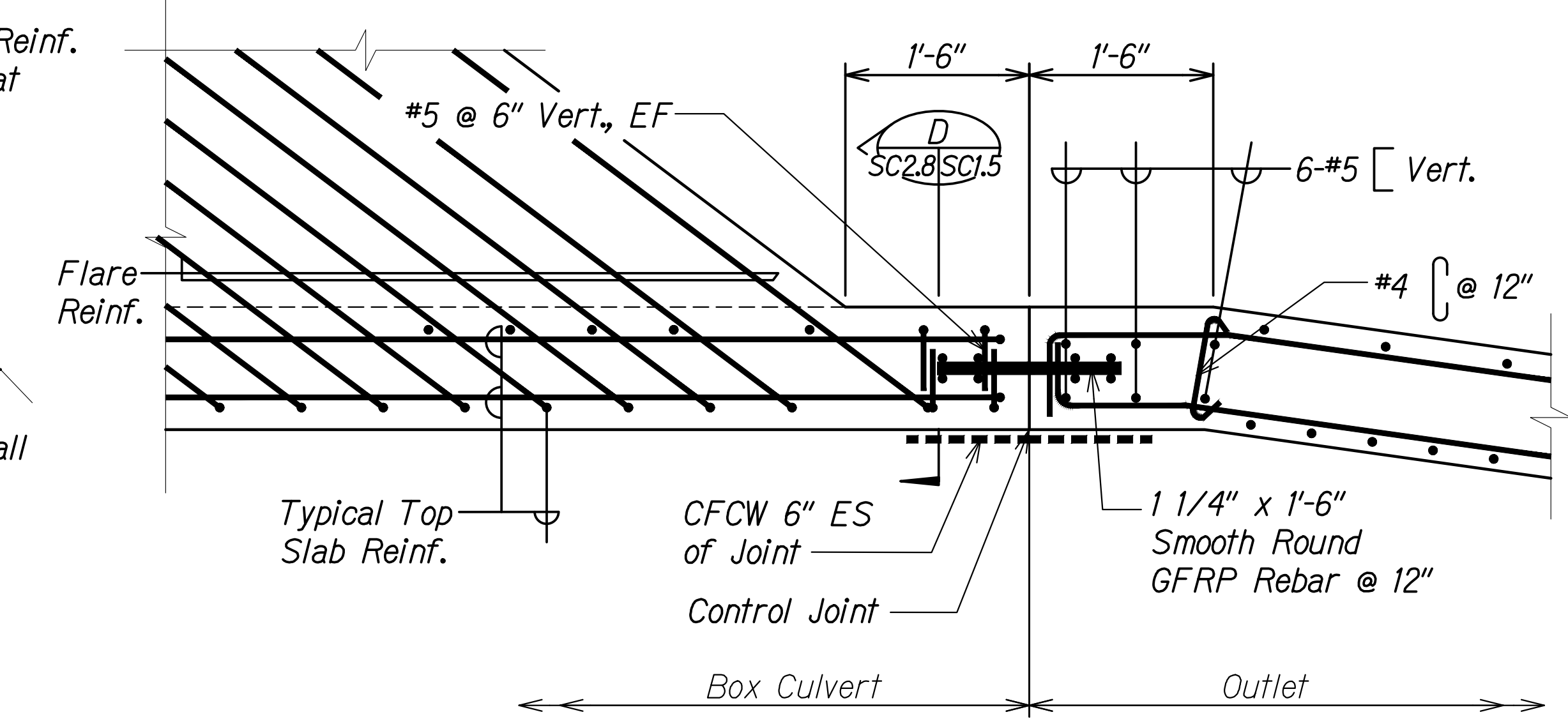
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	7101A-01-20	2021	483	



**TOP SLAB REINFORCING PLAN AT OUTLET** A  
 Scale: 3/16" = 1'-0" SC2.14 SC2.8



**OUTLET - BOX CULVERT TOP SLAB DETAIL** 1  
 Scale: 1" = 1'-0" SC2.8 SC2.8



**OUTLET - BOX CULVERT TOP SLAB DETAIL** 2  
 Scale: 1" = 1'-0" SC2.8 SC2.8

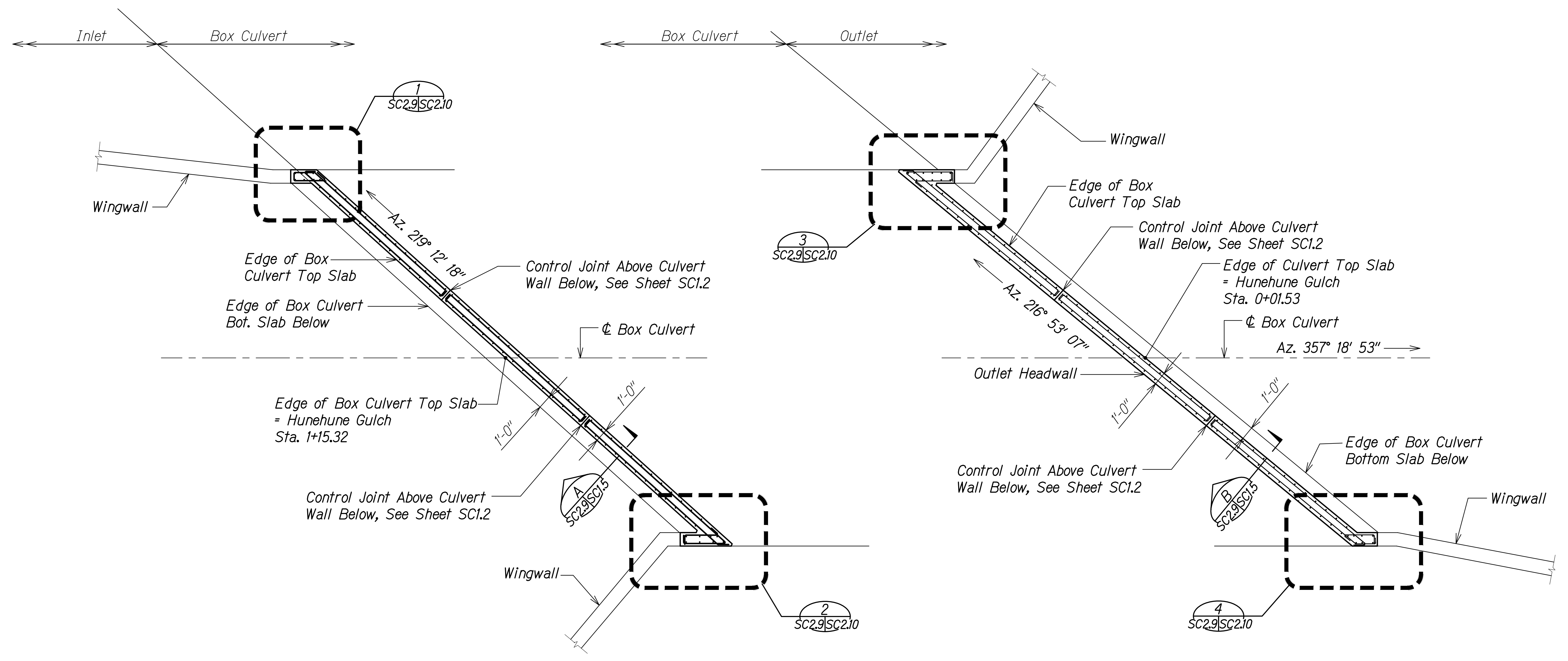
SURVEY PLOTTED BY	DATE
DRAWN BY	
DESIGNED BY	
QUANTITIES BY	
CHECKED BY	
ORIGINAL PLAN	
NOTE BOOK	
No.	

DRAWING NAME: Z:\A00\CONCRETE\20-013-FARR-HW-KAPOLEI GC ID: ET-WR-EMTC\01 CAD\04-06-22 BID SET\FH03-SC0208-HUNE BOX TOP SLAB OUTLET.DWG PLOT TIME: 04-07-22: 5:37 PM

RUSSELL S. MIYAHARA  
 LICENSED PROFESSIONAL ENGINEER  
 NO. 9444-S  
 HAWAII, U.S.A.  
 THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.  
 Signature: *Russ S. Miyahara*  
 April 30, 2024  
 EXPIRATION DATE OF THE LICENSE

**STATE OF HAWAII**  
**DEPARTMENT OF TRANSPORTATION**  
**HIGHWAYS DIVISION**  
**Hunehune Gulch Box Culvert**  
**Outlet Top Slab Plan and Details**  
**FARRINGTON HIGHWAY WIDENING**  
**Kapolei Golf Course Road to Fort Weaver Road**  
**Project No. 7101A-01-20**  
 Scale: As Shown Date: Apr. 2022  
**SHEET No. SC2.8 OF 23 SHEETS**

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	7101A-01-20	2021	484	



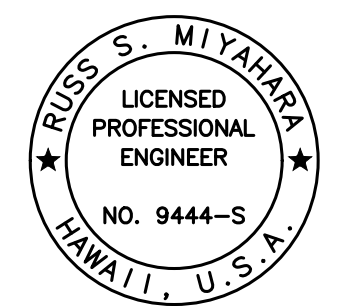
**INLET HEADWALL PLAN**  
 Scale: 1/4" = 1'-0"  
 A SC2.14 | SC2.9

**OUTLET HEADWALL PLAN**  
 Scale: 1/4" = 1'-0"  
 B SC2.14 | SC2.9

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

DRAWING NAME: Z:\100 ONGOING\20-013-FARR-HWY-KAPOLEI GC TO FT WARR-BMT\01 CAD\04-06-22 BID SET\FW03-SC0209-HUNE HEADWALL PLAN.DWG PLOT TIME: 04-07-22 5:38 PM

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.  
*Russ S. Miyahara*  
 SIGNATURE  
 APRIL 30, 2024  
 EXPIRATION DATE OF THE LICENSE



STATE OF HAWAII  
 DEPARTMENT OF TRANSPORTATION  
 HIGHWAYS DIVISION

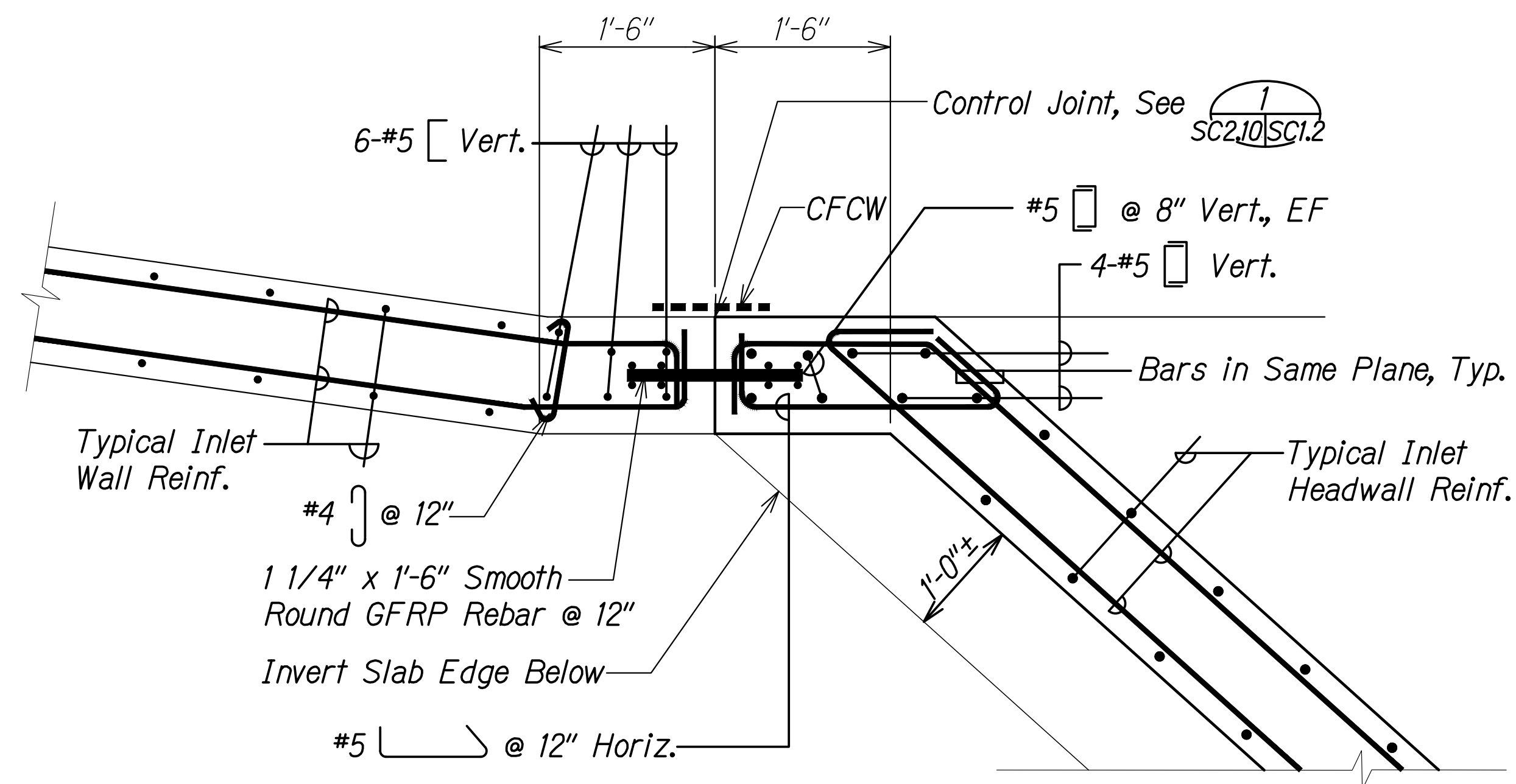
**Hunehune Gulch Box Culvert Headwall Plans**

FARRINGTON HIGHWAY WIDENING  
 Kapolei Golf Course Road to Fort Weaver Road  
 Project No. 7101A-01-20

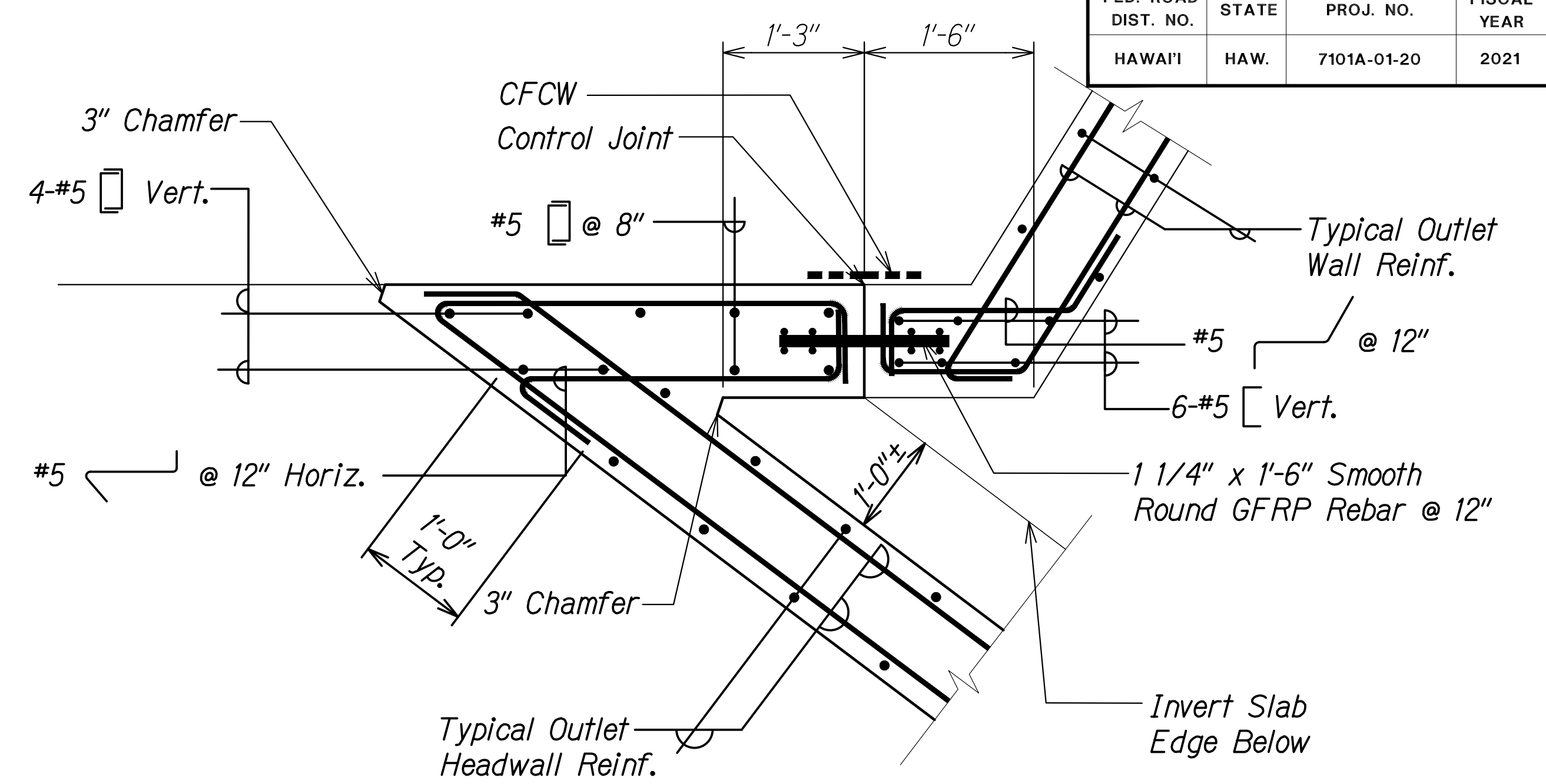
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**SHEET No. SC2.9 OF 23 SHEETS**

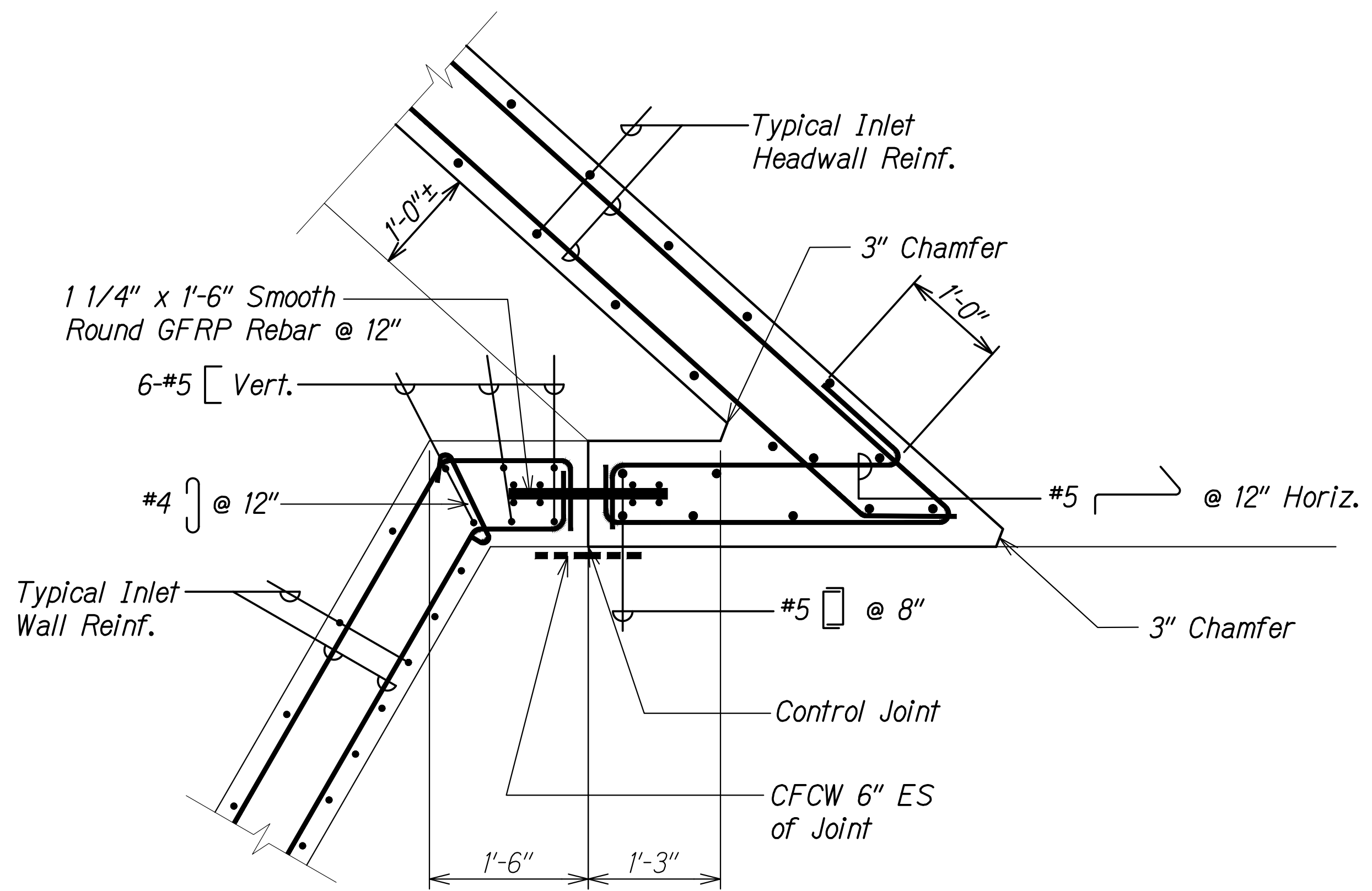
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HAWAII	HAW.	7101A-01-20	2021	485	



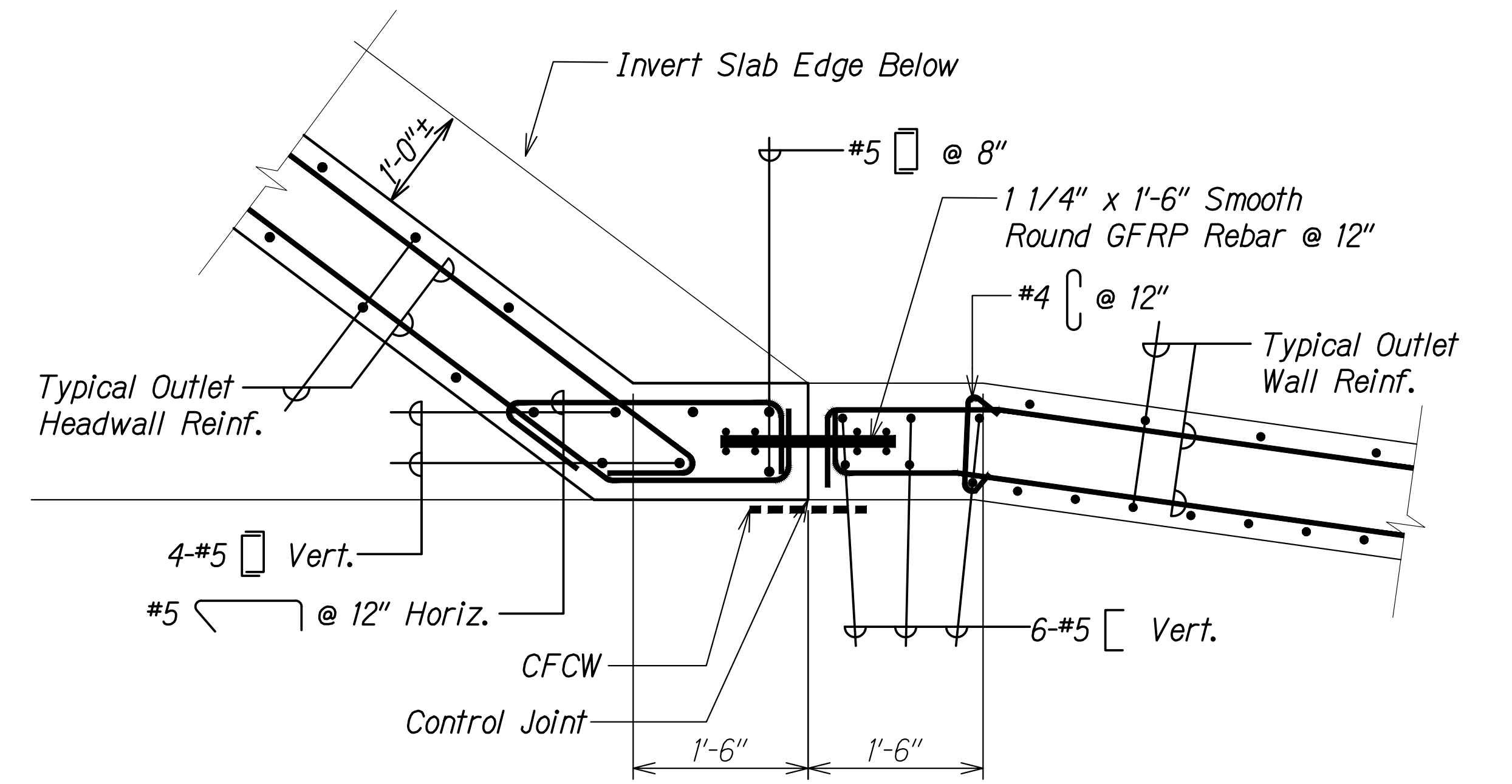
**INLET - BOX CULVERT HEADWALL DETAIL** 1  
 Scale: 1" = 1'-0" SC2.9 | SC2.10



**OUTLET - BOX CULVERT HEADWALL DETAIL** 3  
 Scale: 1" = 1'-0" SC2.9 | SC2.10



**INLET - BOX CULVERT HEADWALL DETAIL** 2  
 Scale: 1" = 1'-0" SC2.9 | SC2.10



**OUTLET - BOX CULVERT HEADWALL DETAIL** 4  
 Scale: 1" = 1'-0" SC2.9 | SC2.10

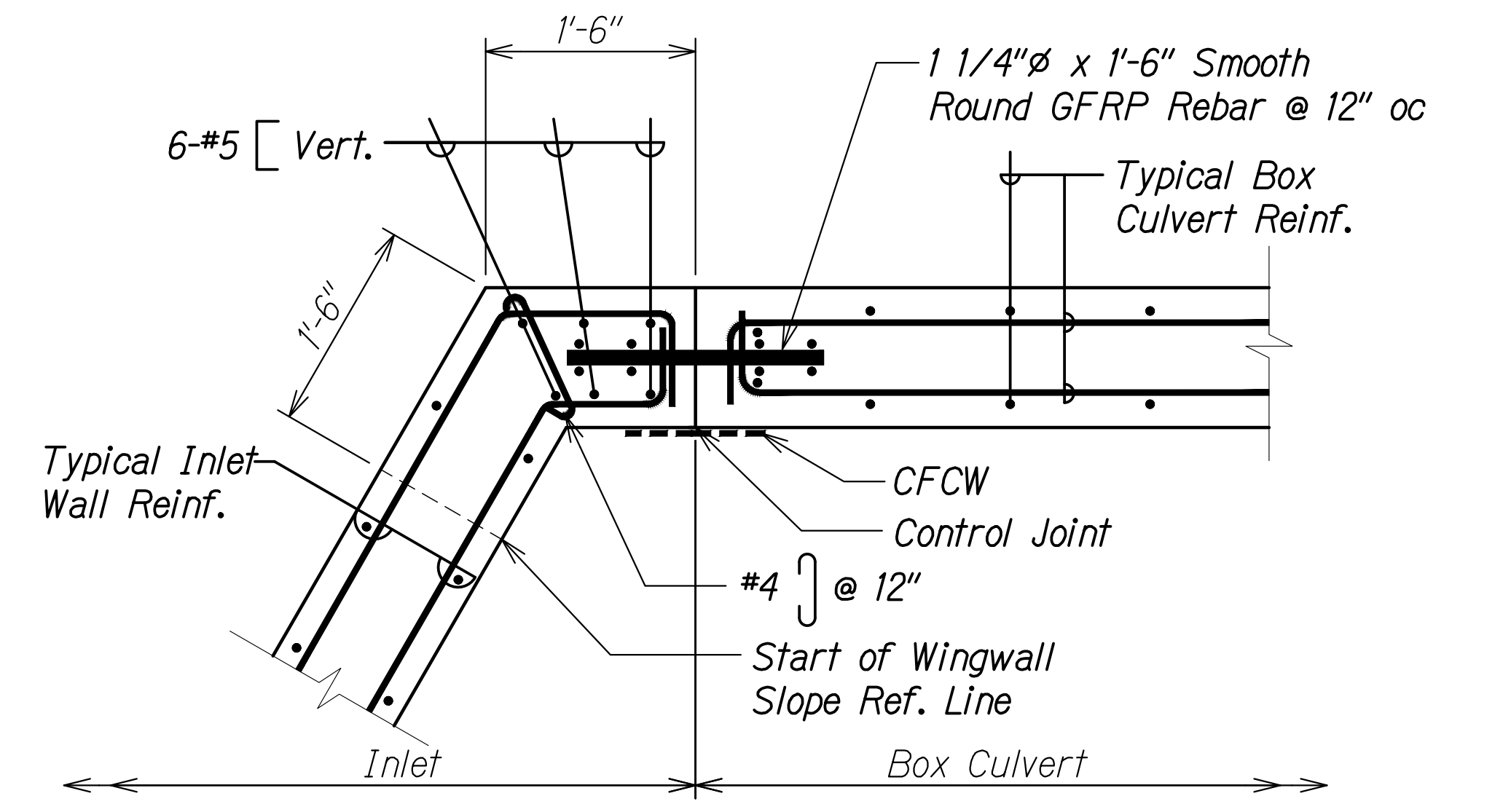
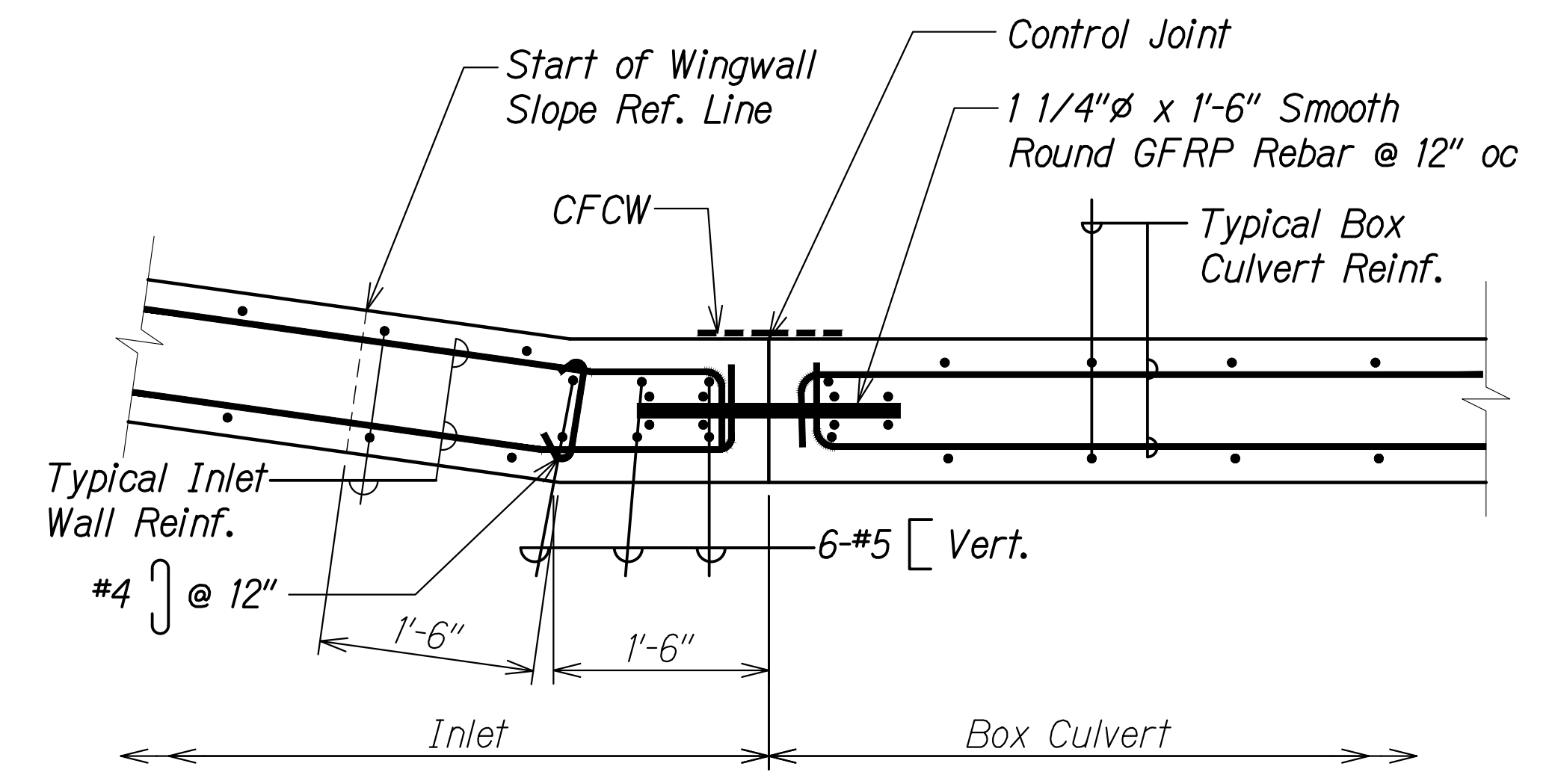
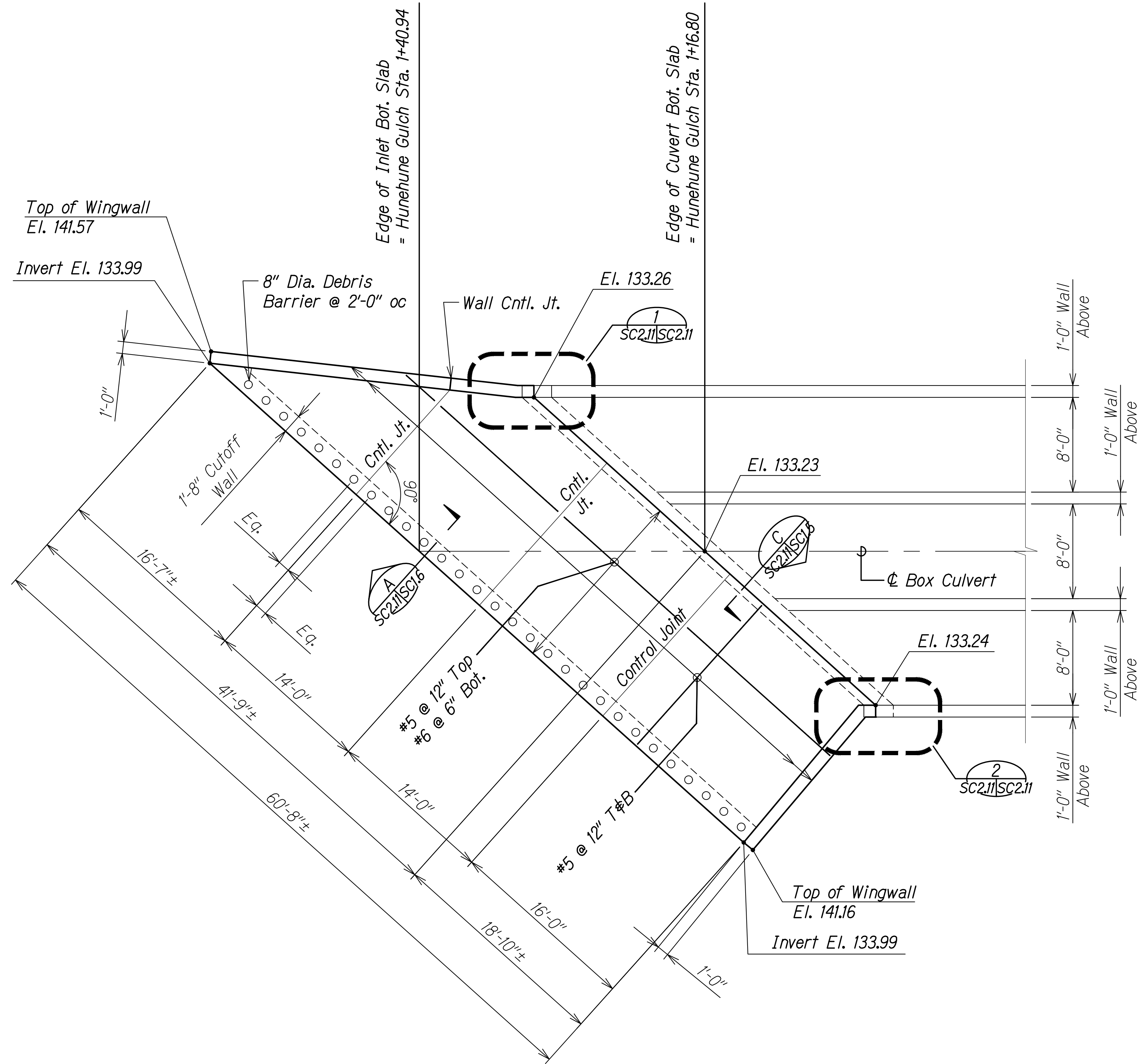
SURVEY PLOTTED BY	DATE
DRAWN BY	
DESIGNED BY	
QUANTITIES BY	
CHECKED BY	
ORIGINAL PLAN	
NOTE BOOK	
No.	

DRAWING NAME: Z:\A\00\UNDOINGS\20-013-FARR-HW-KAPOLEI.GC.ID.IT.WIP-EMT\01.GAO\04-06-22.BID.SET\FH03-SC0209-HW-HEADWALL-PLAN.DWG PLOT TIME: 04-07-22 5:38 PM

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.  
 SIGNATURE: *Russ S. Miyahara* April 30, 2024  
 EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII  
 DEPARTMENT OF TRANSPORTATION  
 HIGHWAYS DIVISION  
**Hunehune Gulch Box Culvert Headwall Details**  
 FARRINGTON HIGHWAY WIDENING  
 Kapolei Golf Course Road to Fort Weaver Road  
 Project No. 7101A-01-20  
 Scale: As Shown Date: Apr. 2022  
**SHEET No. SC2.10 OF 23 SHEETS**

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	7101A-01-20	2021	486	



ORIGINAL PLAN	DATE
DRAWN BY	
DESIGNED BY	
QUANTITIES BY	
CHECKED BY	

DRAWING NAME: Z:\A00\_050505\20-013-FARR-HW-KAPOLEI GC.DWG ET:HWG-EMTC\01 CAD\04-06-22 BID SET\FHWS-SC0211-HUNEHUNE INLET PLAN.DWG PLOT TIME: 04-07-22, 5:35 PM

**RUCS S. MIYAHARA**  
 LICENSED PROFESSIONAL ENGINEER  
 NO. 9444-S  
 HAWAII, U.S.A.  
 THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.  
 Signature: *RUCS S. Miyahara*  
 April 30, 2024  
 EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII  
 DEPARTMENT OF TRANSPORTATION  
 HIGHWAYS DIVISION

**Hunehune Gulch Box Culvert  
 Inlet Plan and Details**

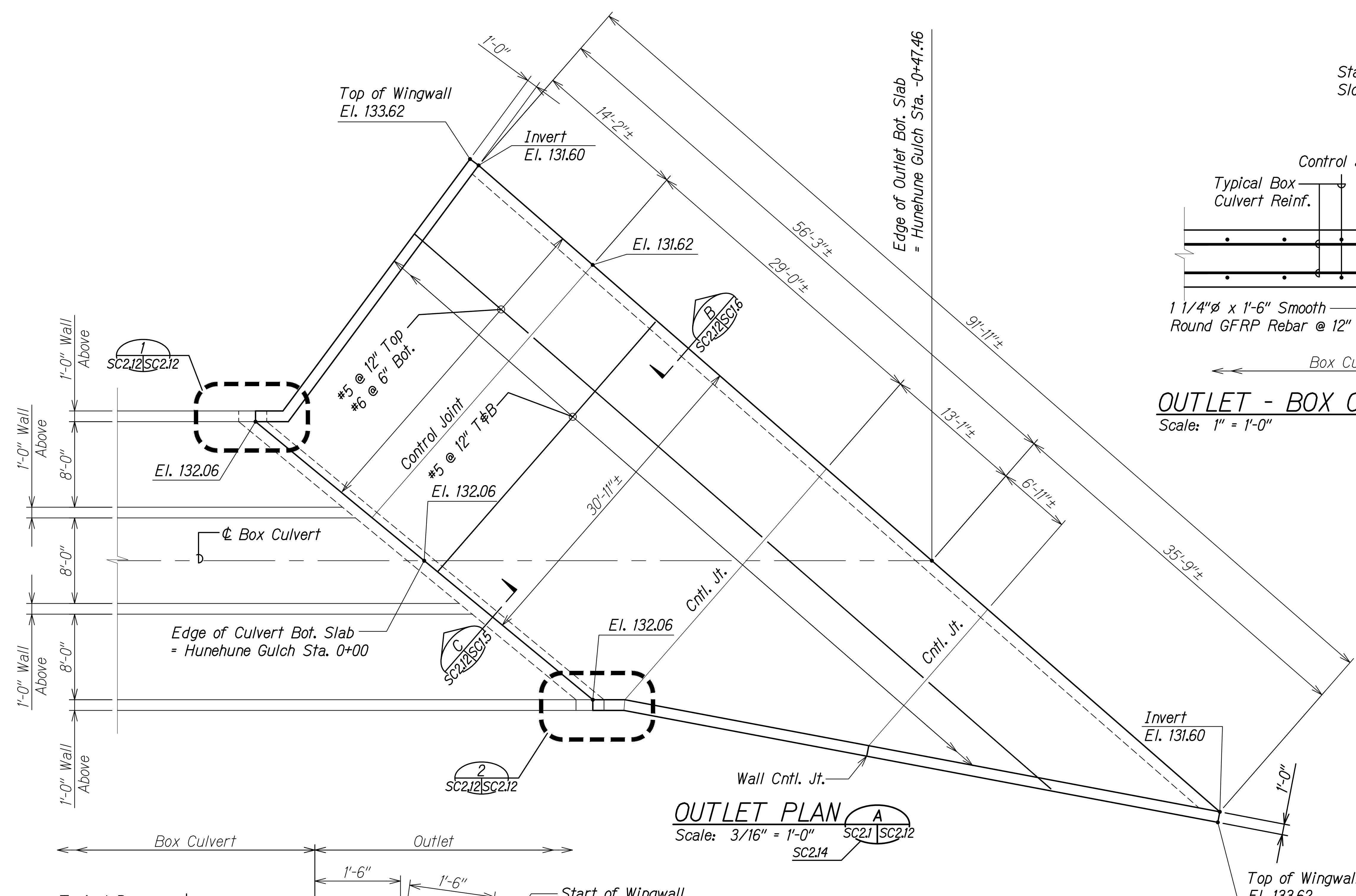
FARRINGTON HIGHWAY WIDENING  
 Kapolei Golf Course Road to Fort Weaver Road  
 Project No. 7101A-01-20

Scale: As Shown Date: Apr. 2022

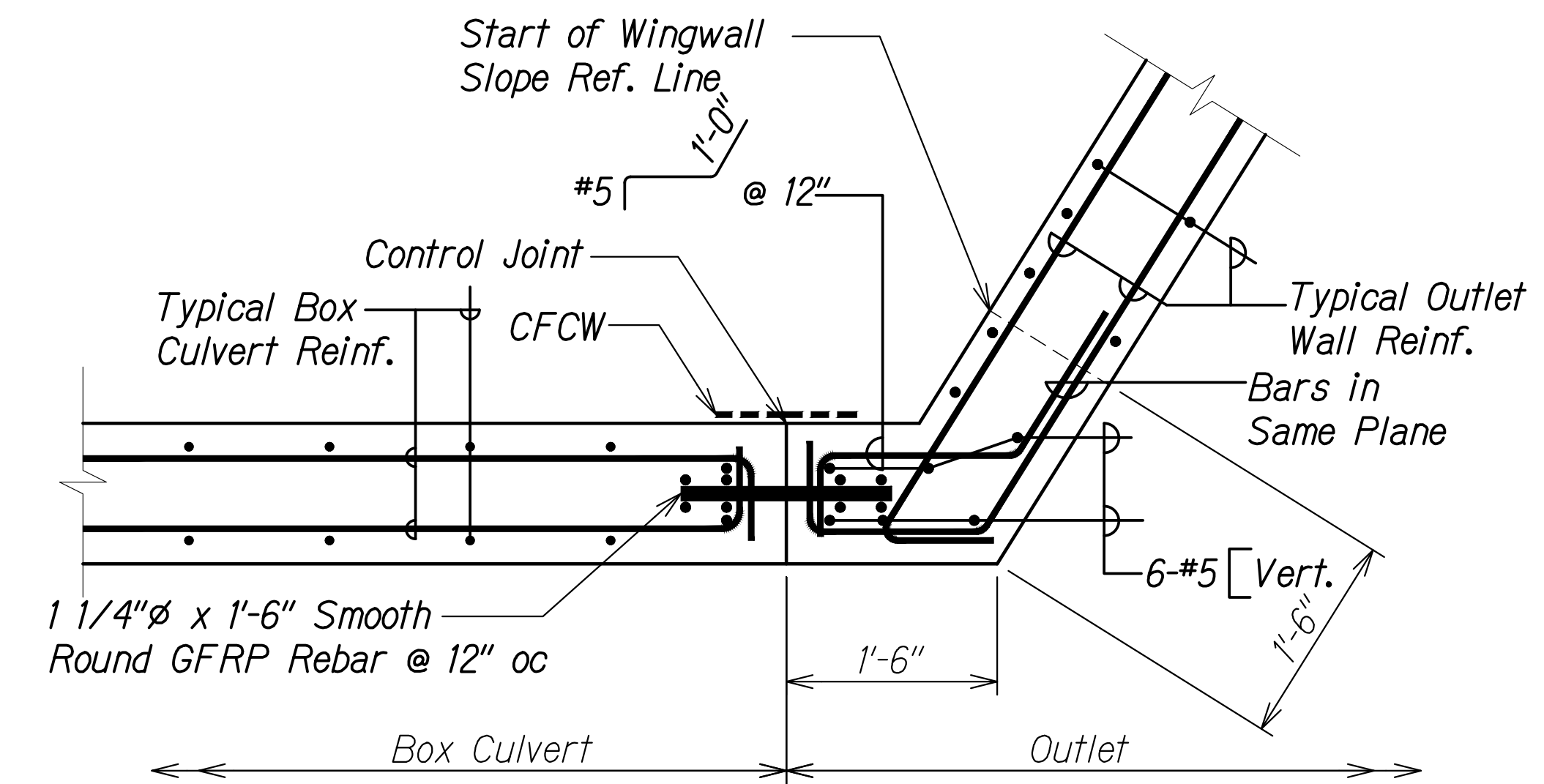
**SHEET No. SC2.11 OF 23 SHEETS**

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	7101A-01-20	2021	487	

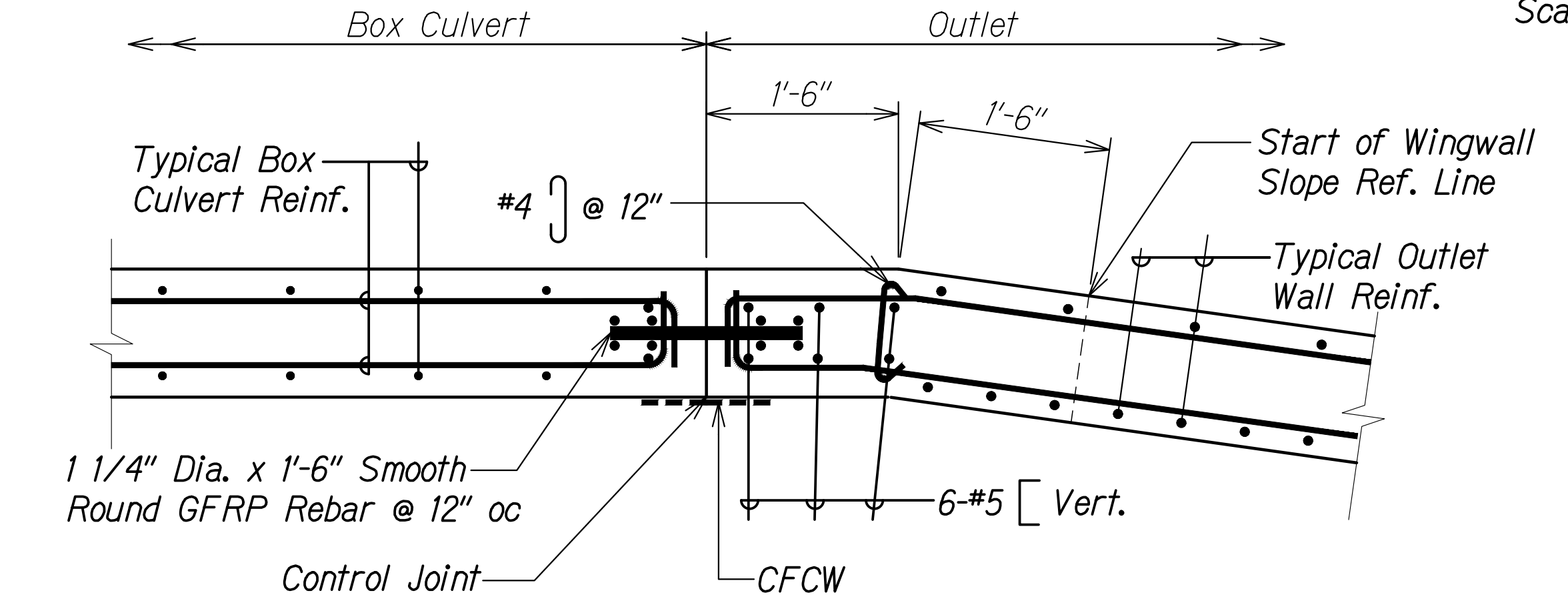
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**OUTLET PLAN A**  
Scale: 3/16" = 1'-0"  
SC2.1 SC2.12  
SC2.14



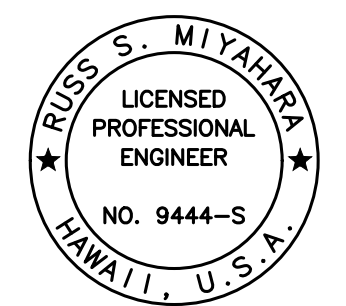
**OUTLET - BOX CULVERT JOINT DETAIL 1**  
Scale: 1" = 1'-0"  
SC2.12 SC2.12



**OUTLET - BOX CULVERT JOINT DETAIL 2**  
Scale: 1" = 1'-0"  
SC2.12 SC2.12

SURVEY PLOTTED BY	DATE
DRAWN BY	
DESIGNED BY	
QUANTITIES BY	
CHECKED BY	
ORIGINAL PLAN No.	

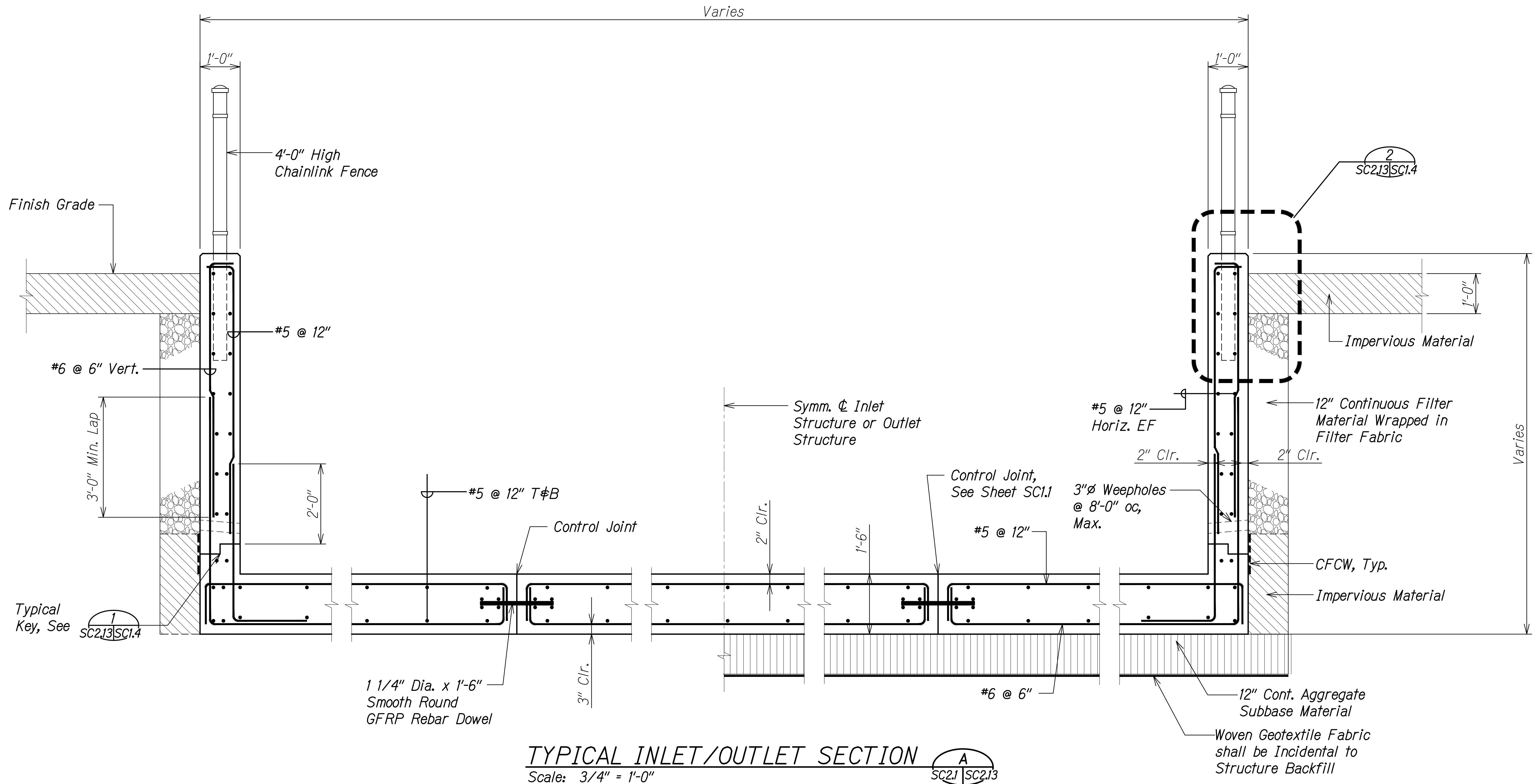
THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.  
 Signature: *Russ S. Miyahara*  
 April 30, 2024  
 EXPIRATION DATE OF THE LICENSE



STATE OF HAWAII  
 DEPARTMENT OF TRANSPORTATION  
 HIGHWAYS DIVISION  
**Hunehune Gulch Box Culvert  
 Outlet Plan and Details**  
 FARRINGTON HIGHWAY WIDENING  
 Kapolei Golf Course Road to Fort Weaver Road  
 Project No. 7101A-01-20  
 Scale: As Shown Date: Apr. 2022  
**SHEET No. SC2.12 OF 23 SHEETS**



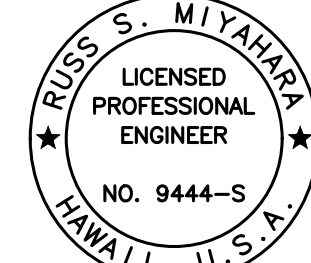
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	7101A-01-20	2021	488	



**TYPICAL INLET/OUTLET SECTION**  
 Scale: 3/4" = 1'-0"  
 A  
 SC2.1 | SC2.13

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

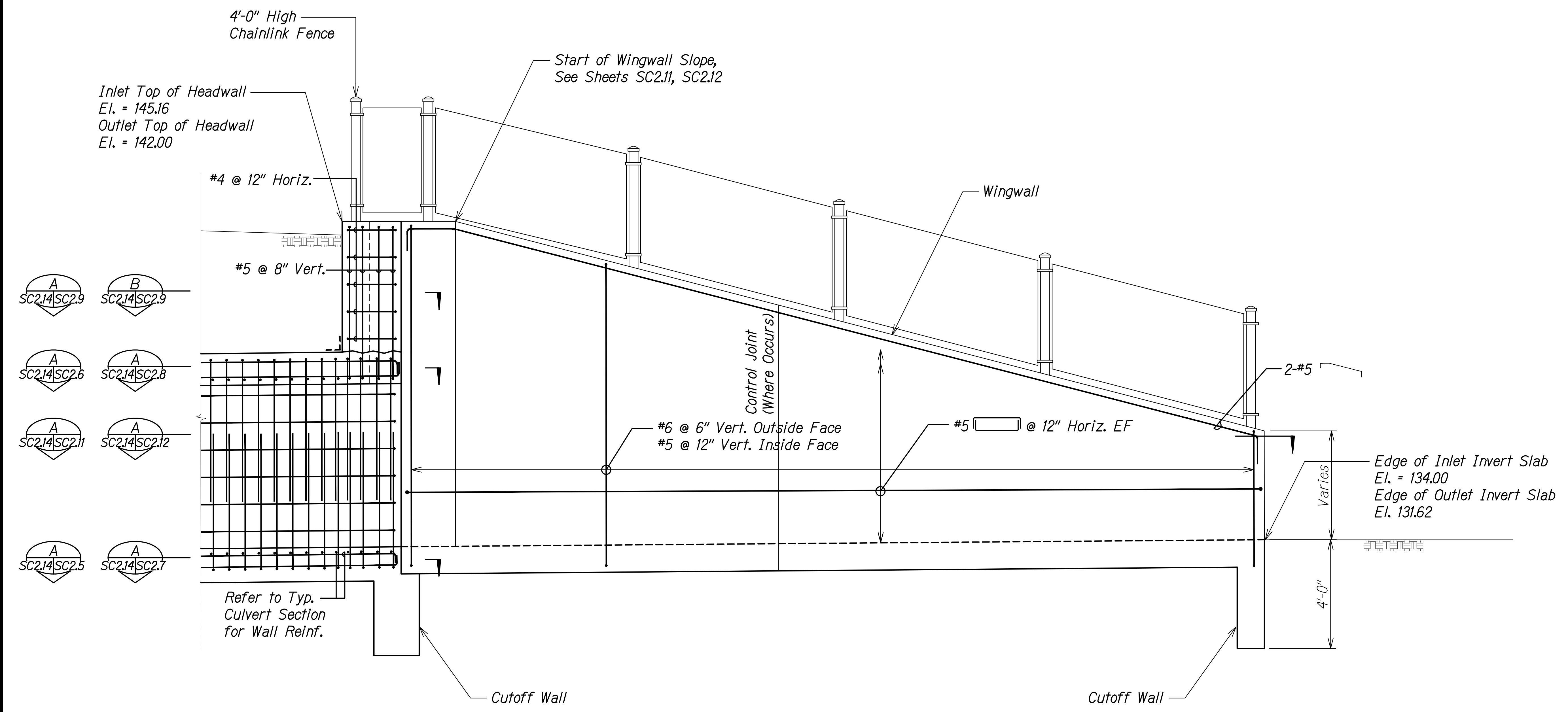
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 THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.  
 Signature: *Russ S. Miyahara*  
 April 30, 2024  
 EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII  
 DEPARTMENT OF TRANSPORTATION  
 HIGHWAYS DIVISION  
**Hunehune Gulch Box Culvert**  
**Typical Inlet/Outlet Section**  
 FARRINGTON HIGHWAY WIDENING  
 Kapolei Golf Course Road to Fort Weaver Road  
 Project No. 7101A-01-20  
 Scale: As Shown Date: Apr. 2022  
**SHEET No. SC2.13 OF 23 SHEETS**

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	7101A-01-20	2021	489	

DRAWING NAME: Z:\100 ONGOING\20-013-FARR-HW-KAPOLEI GC ID: ET-WR-BMT\01 CAD\04-06-22 BID SET\FHW3-SC0214-HWME IN-OUT WALL ELEV-SECTIONG PLOT TIME: 04-07-22: 5:40 PM



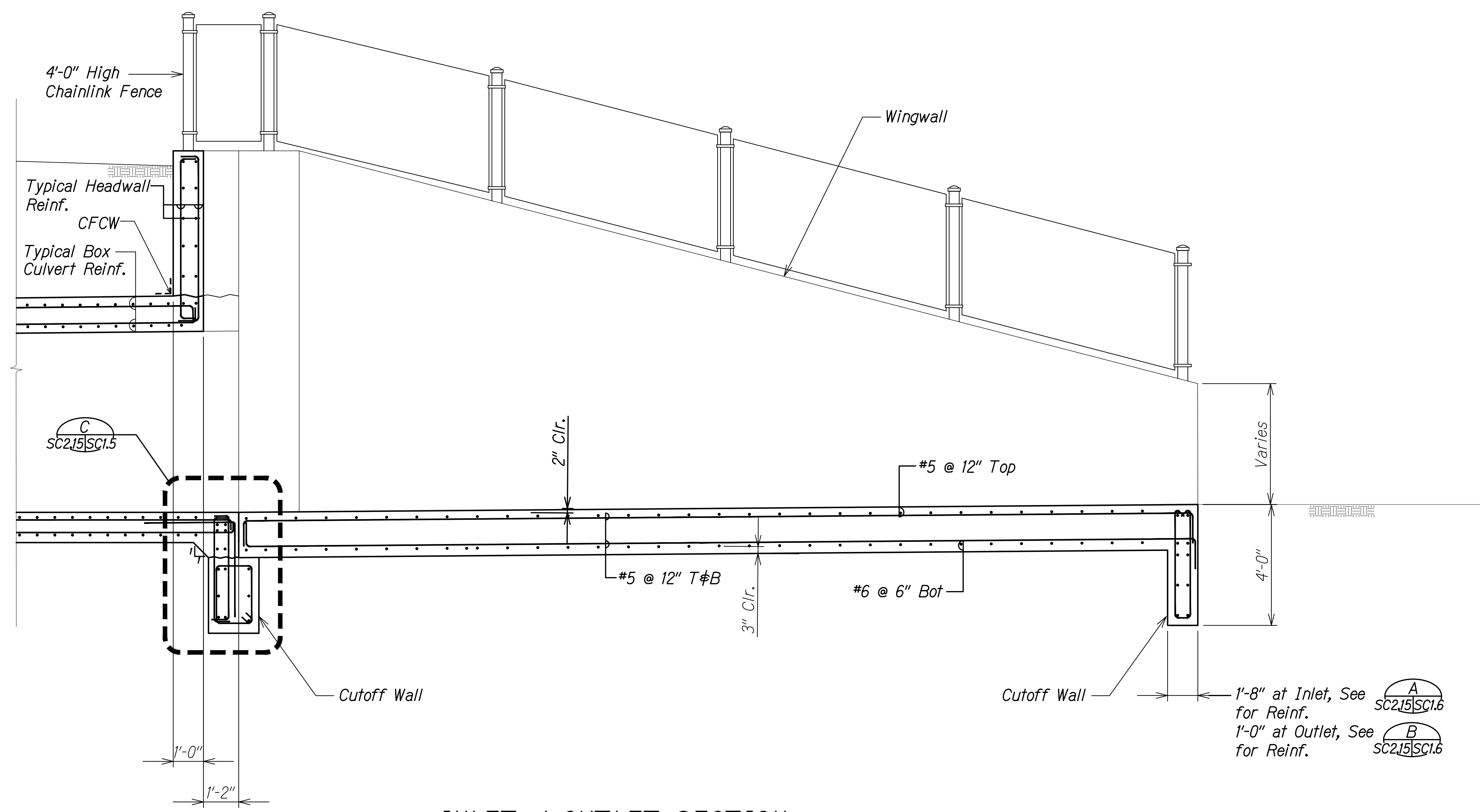
SURVEY PLOTTED BY	DATE
DRAWN BY	
DESIGNED BY	
QUANTITIES BY	
CHECKED BY	
ORIGINAL PLAN	
NOTE BOOK	
No.	

**INLET / OUTLET WALL ELEVATION** A  
Scale: 1/2" = 1'-0" SC2.14 | SC2.14

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.  
*Rugs S. Miyahara*  
 SIGNATURE      April 30, 2024  
 EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII  
 DEPARTMENT OF TRANSPORTATION  
 HIGHWAYS DIVISION  
**Hunehune Gulch Box Culvert  
 Inlet/Outlet Wall Elevation**  
 FARRINGTON HIGHWAY WIDENING  
 Kapolei Golf Course Road to Fort Weaver Road  
 Project No. 7101A-01-20  
 Scale: As Shown      Date: Apr. 2022  
**SHEET No. SC2.14 OF 23 SHEETS**

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	7101A-01-20	2021	490	



**INLET / OUTLET SECTION** A  
 Scale: 1/2" = 1'-0" SC2.15 | SC2.15

ORIGINAL PLAN	DATE
SURVEY PLOTTED BY	
DRAWN BY	
DESIGNED BY	
QUANTITIES BY	
CHECKED BY	

DRAWING NAME: Z:\100 ONGOING\20-013-FARR-HWY-KAPOLEI GC ID: FT-WR-EMTC\01-GAD\04-06-22 BID SET\FHW3-SC0214-HWY IN-OUT WALL ELEV-SECTIONG PLOT TIME: 04-07-22: 5:40 PM

RUSSELL S. MIYAHARA  
 LICENSED PROFESSIONAL ENGINEER  
 NO. 9444-S  
 HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.  
 Signature: *Russ S. Miyahara*  
 April 30, 2024  
 EXPIRATION DATE OF THE LICENSE

**STATE OF HAWAII**  
**DEPARTMENT OF TRANSPORTATION**  
**HIGHWAYS DIVISION**

**Hunehune Gulch Box Culvert**  
**Inlet/Outlet Longitudinal Section**

**FARRINGTON HIGHWAY WIDENING**  
**Kapolei Golf Course Road to Fort Weaver Road**  
**Project No. 7101A-01-20**

Scale: As Shown      Date: Apr. 2022

**SHEET No. SC2.15 OF 23 SHEETS**

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	7101A-01-20	2021	491	

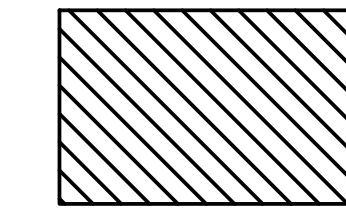
← To Kapolei

To Waipahu →

Upstream

Downstream

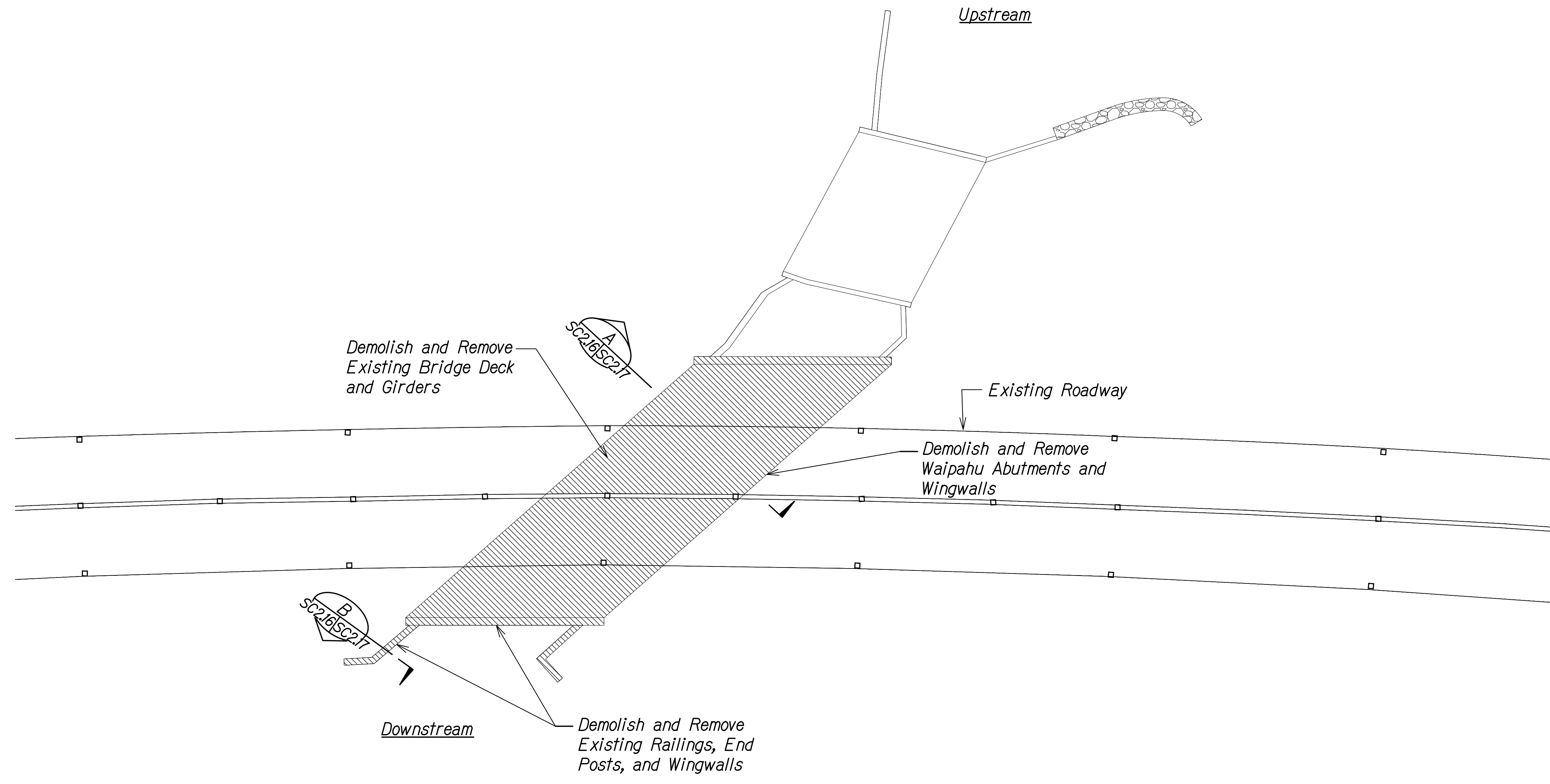
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Demolish and Remove

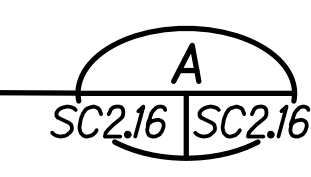
Notes:

- Demolition work shall comply with the Specifications, AASHTO "Guide Design Specifications for Bridge Temporary Works" and AASHTO "Construction Handbook for Bridge Temporary Works", including all subsequent interim revisions. The most stringent requirements shall govern.
- As-Builts for Mauka existing structure are not available. Existing structure and size and location determined by topo and field measurements. Contractor shall inspect structures prior to bid.
- Excavation and demolition of the abutments and wingwalls of the Mauka existing structure may be terminated at elevation 124.00 if bottom of footings are not uncovered.
- Follow best management practices (BMP) required for construction.
- Contractor shall submit demolition plan to Engineer for review and approval. Demolition plan shall include intended BMP measures to prevent debris and dust from entering the surrounding stream.



**BOX CULVERT DEMOLITION PLAN**

Scale: 1" = 10'-0"



ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
NOTE BOOK	DRAWN BY	
No. _____	DESIGNED BY	
	QUANTITIES BY	
	CHECKED BY	

DRAWING NAME: Z:\100 ONGOING\20-013-FARR-HWY-KAPOLEI\GE.IDE.TE.WORK\BMT\01.GRD\04-06-22 BID SET\FH03-SC0216-HUNE GULCH DEMO PLAN.DWG PLOT TIME: 04-07-22: 5:46 PM

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.

*Rugo S. Miyakawa*  
 SIGNATURE      April 30, 2024  
 EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII  
 DEPARTMENT OF TRANSPORTATION  
 HIGHWAYS DIVISION

**Hunehune Gulch Box Culvert  
 Demolition Plan**

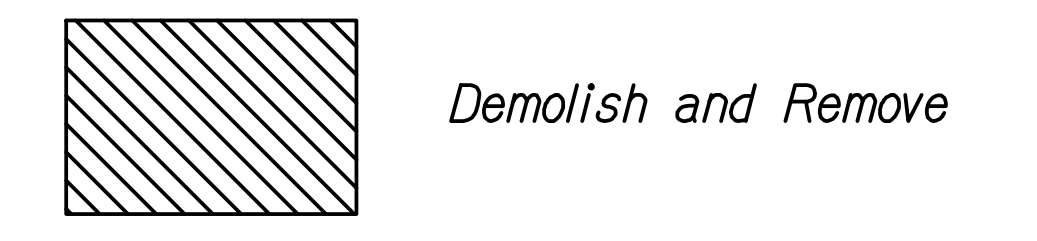
FARRINGTON HIGHWAY WIDENING  
 Kapolei Golf Course Road to Fort Weaver Road  
 Project No. 7101A-01-20

Scale: As Shown      Date: Apr. 2022

**SHEET No. SC2.16 OF 23 SHEETS**

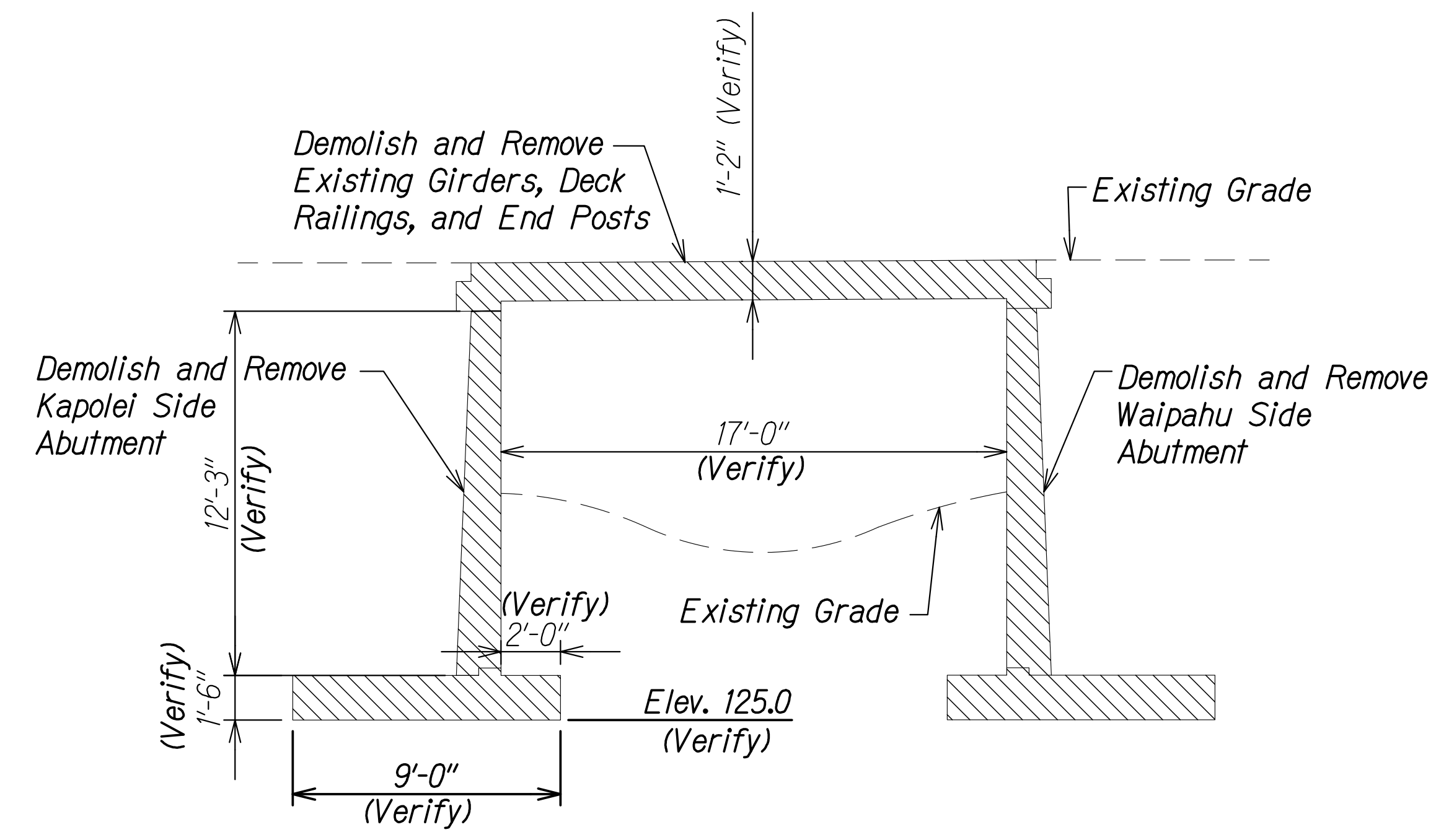
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	7101A-01-20	2021	492	

**Legend:**

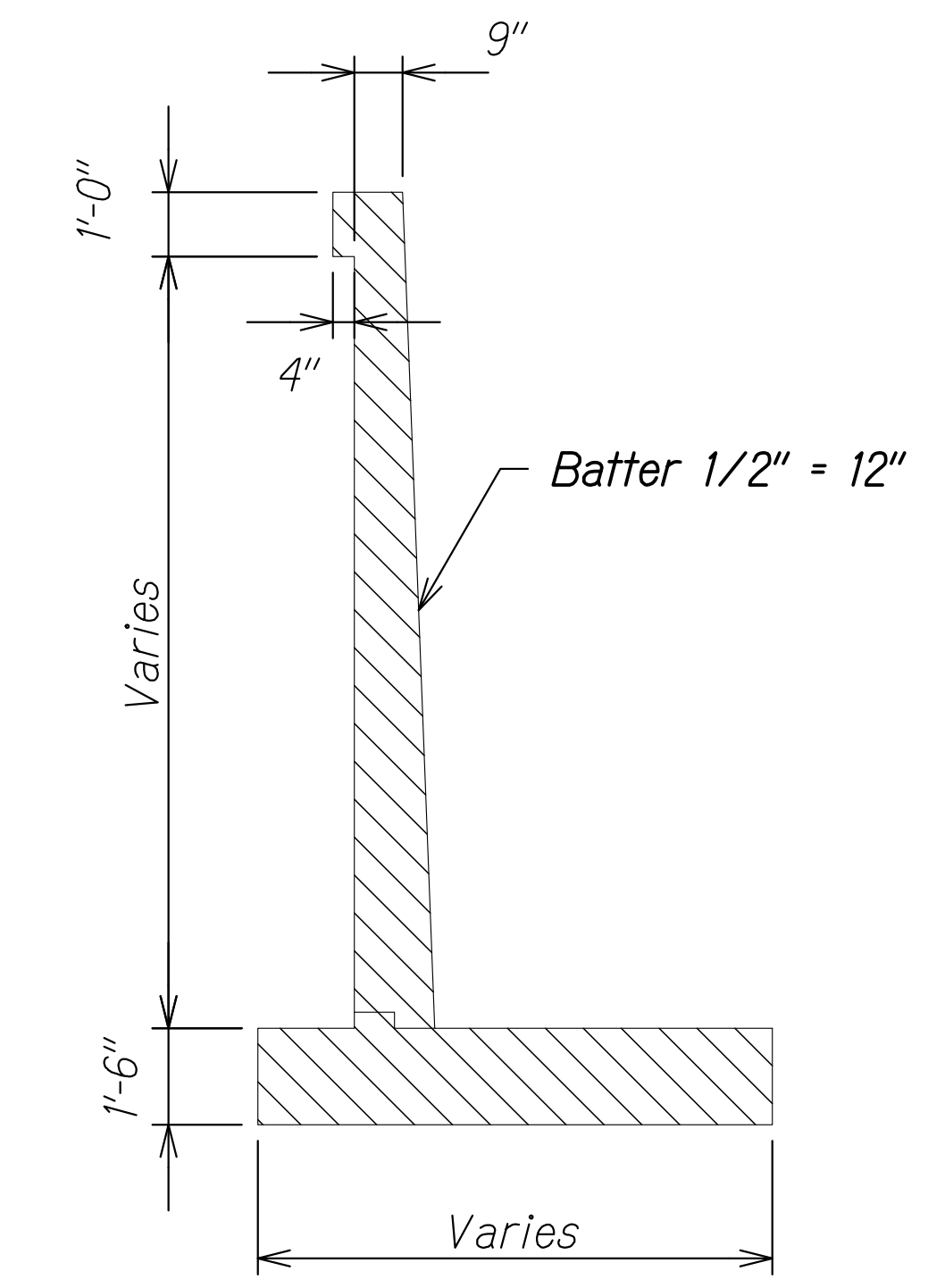


**Notes:**

- Demolition work shall comply with the Specifications, AASHTO "Guide Design Specifications for Bridge Temporary Works" and AASHTO "Construction Handbook for Bridge Temporary Works", including all subsequent interim revisions. The most stringent requirements shall govern.
- As-Built for Mauka existing structure are not available. Existing structure and size and location determined by topo and field measurements. Contractor shall inspect structures prior to bid.
- Excavation and demolition of the abutments and wingwalls of the Mauka existing structure may be terminated at elevation 124.00 if bottom of footings are not uncovered.
- Follow best management practices (BMP) required for construction.
- Contractor shall submit demolition plan to Engineer for review and approval. Demolition plan shall include intended BMP measures to prevent debris and dust from entering the surrounding stream.



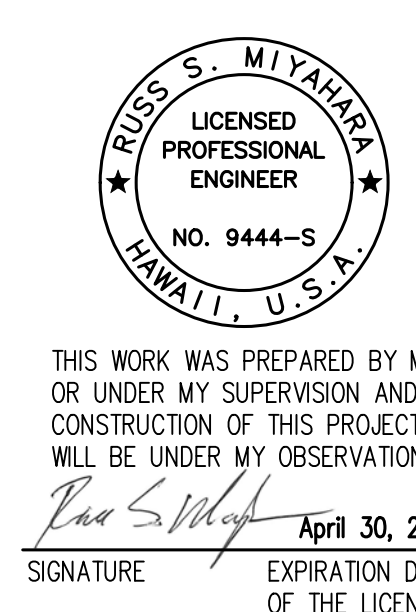
**BOX CULVERT DEMOLITION SECTION**  
 Scale: 1/4" = 1'-0"  
 SC2.16 SC2.17



**WINGWALL DEMOLITION SECTION**  
 Scale: 3/8" = 1'-0"  
 SC2.16 SC2.17

ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
NOTE BOOK	DRAWN BY	
No. _____	DESIGNED BY	
	QUANTITIES BY	
	CHECKED BY	

DRAWING NAME: Z:\100 ONGOING\20-013-FARR-HWY-KAPOLEI.GC.ID.IT.WIP-EMT\01.GRD 04-06-22 BID SET\FHW3-SC0216-HUNE GULCH DEMO PLAN.DWG PLOT TIME: 04-07-22 5:40 PM



STATE OF HAWAII  
 DEPARTMENT OF TRANSPORTATION  
 HIGHWAYS DIVISION

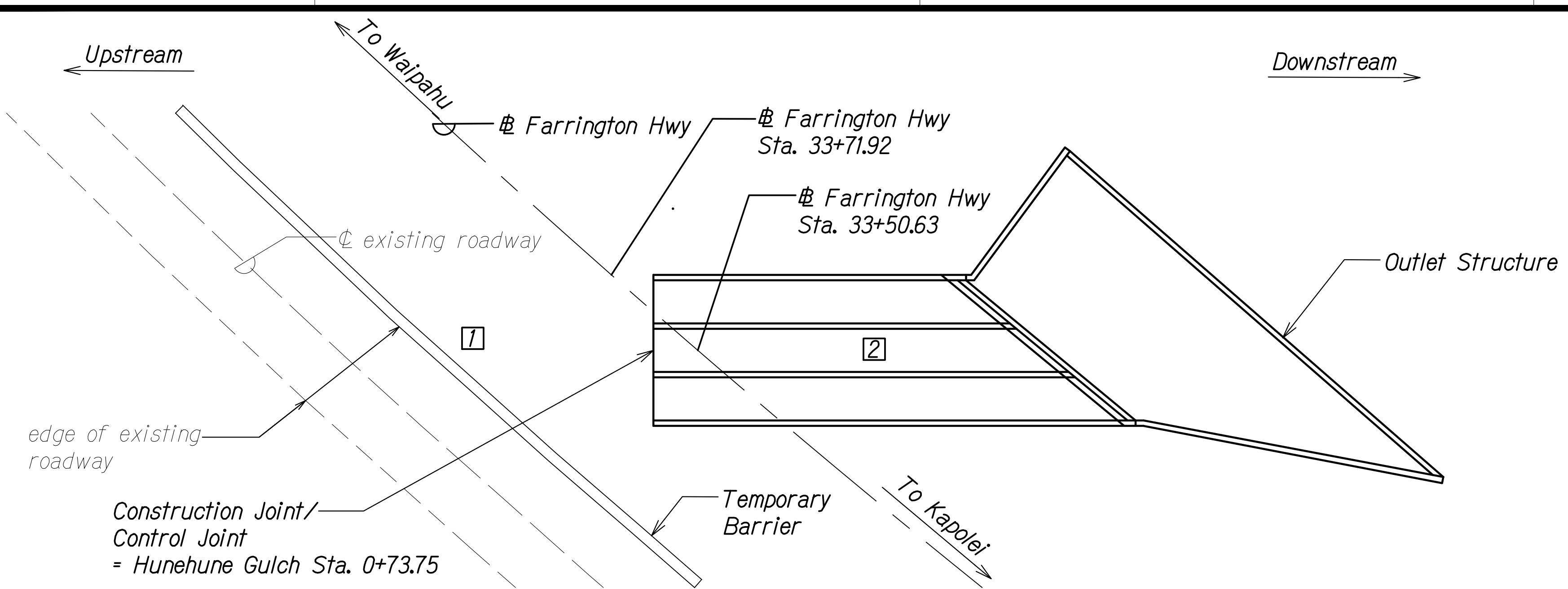
**Hunehune Gulch Box Culvert  
 Demolition Sections**

FARRINGTON HIGHWAY WIDENING  
 Kapolei Golf Course Road to Fort Weaver Road  
 Project No. 7101A-01-20

Scale: As Shown      Date: Apr. 2022

**SHEET No. SC2.17 OF 23 SHEETS**

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	7101A-01-20	2021	493	



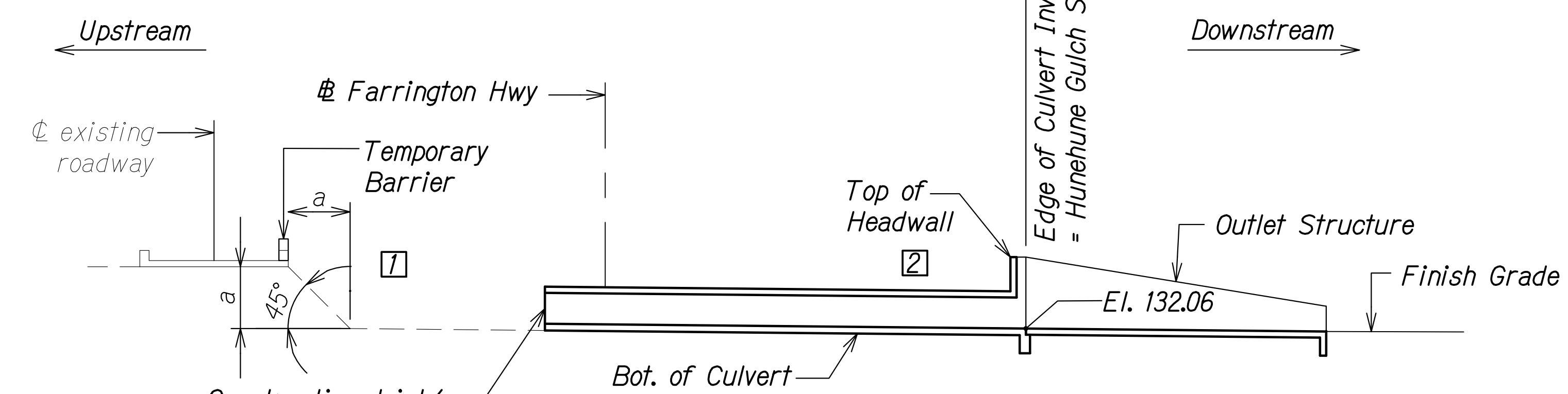
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Scale: Not to Scale

**CONSTRUCTION STAGE 1**

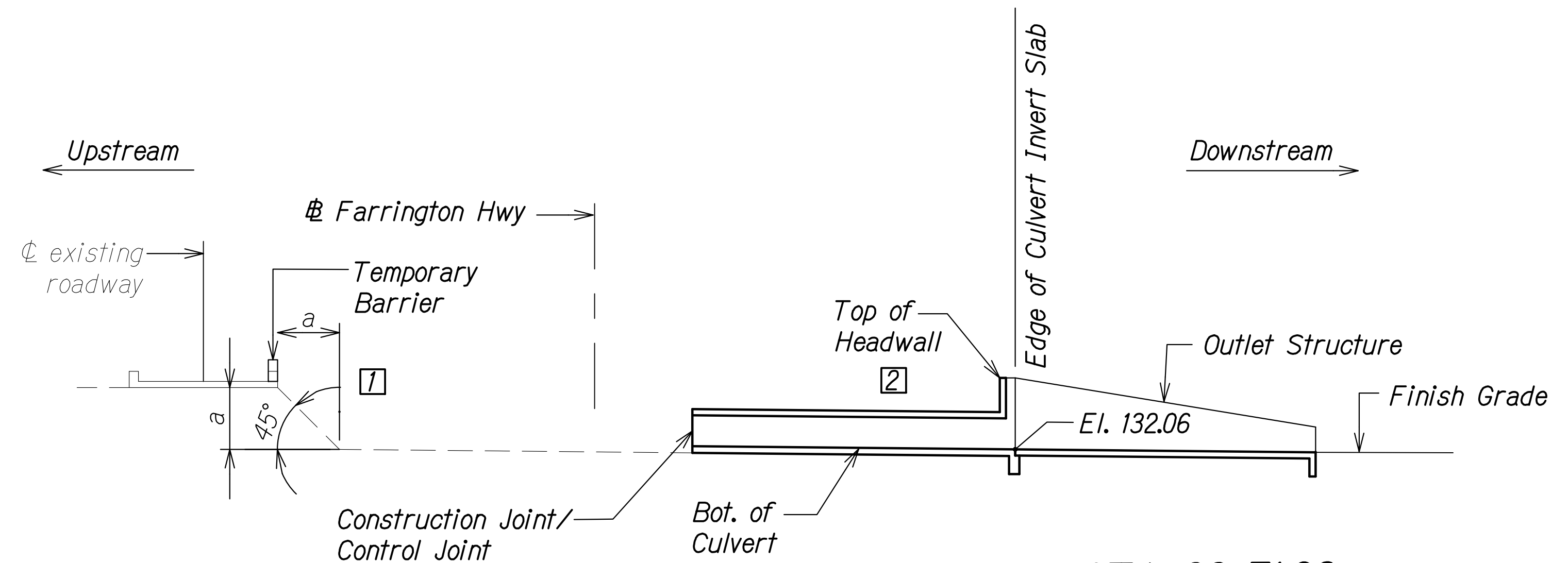
- 1 Excavate and cut grade for construction of downstream end of culvert.  
Install Temporary Barrier along existing roadway. For layout and extent of temporary barrier along existing roadway, see Civil Traffic Control Plan Sheet TC-8.
- 2 Construct downstream end of culvert and outlet structure.

**Notes:**

The Contractor shall submit working drawings for the limits of excavation and demolition to the Engineer for approval. The working drawings shall show all proposed bracing and shoring as needed to protect the existing roadway and detour road. Demolition and excavation shall be coordinated with any temporary shoring, detour road, and construction of the new culvert.



**SECTION AT STA 33+50.63**  
Scale: Not to Scale



**SECTION AT STA 33+71.92**  
Scale: Not to Scale

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

DRAWING NAME: Z:\A\00\CONSTR\20-013-FARR-HWY-KAPOLEI.GC.ID.IT.WP-EMTC\01.GAO\04-13-22 BID R\SD SHIS\HWY-SC0218-HUNE CONSTR SEQ.DWG PLOT TIME: 04-13-22 4:52 PM

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.

*Paul S. Miyahara*  
SIGNATURE      April 30, 2024  
EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

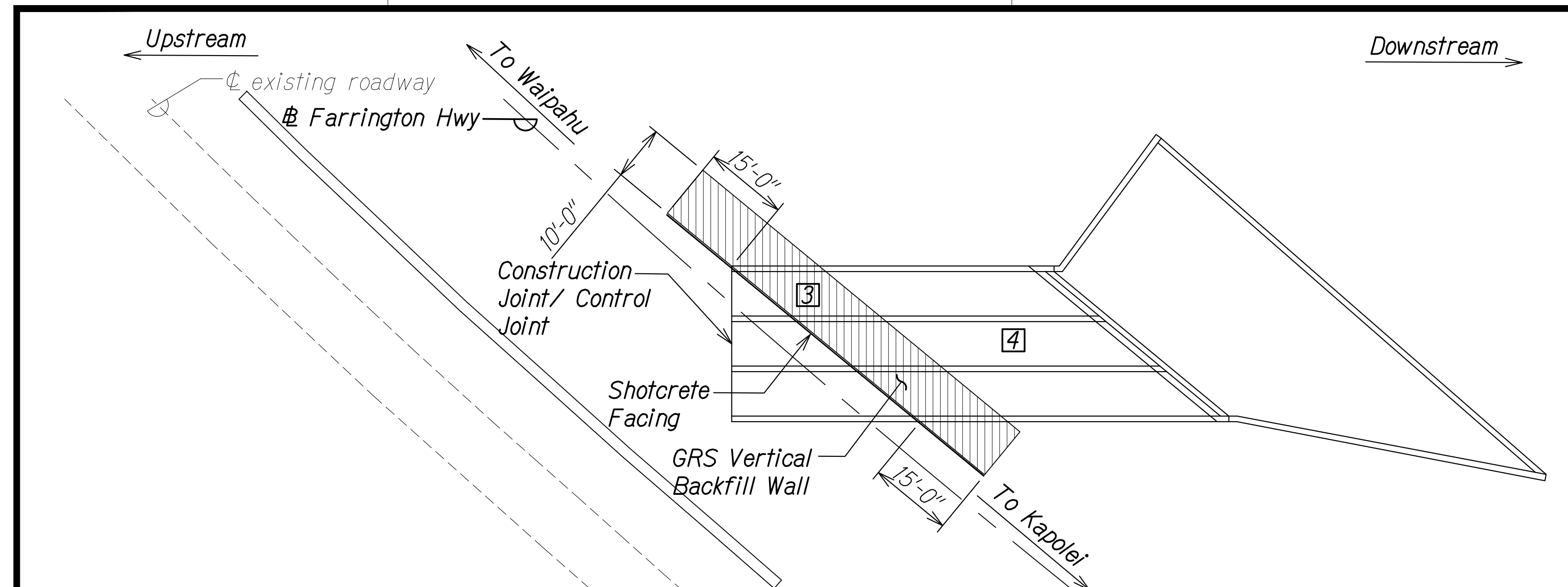
**Hunehune Gulch Box Culvert  
Construction Sequence**

FARRINGTON HIGHWAY WIDENING  
Kapolei Golf Course Road to Fort Weaver Road  
Project No. 7101A-01-20

Scale: As Shown      Date: Apr. 2022

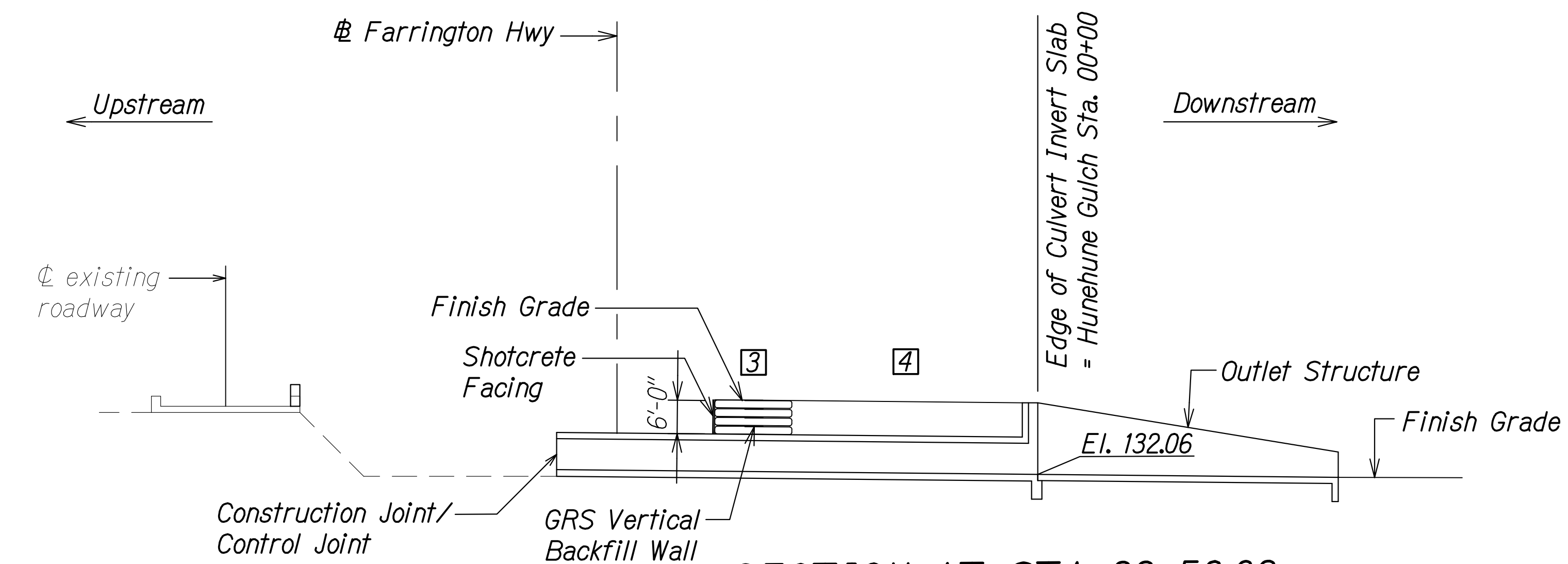
**SHEET No. SC2.18 OF 23 SHEETS**

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	7101A-01-20	2021	494	



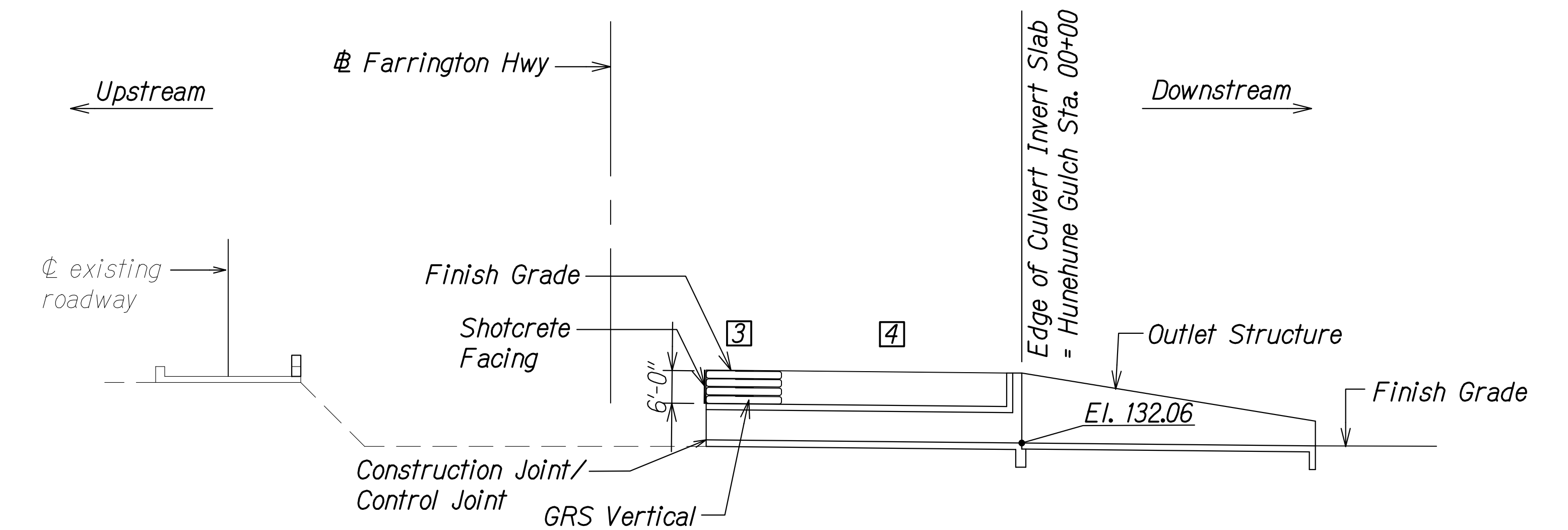
**LAYOUT PLAN**

Scale: Not to Scale



**SECTION AT STA 33+50.63**

Scale: Not to Scale



**SECTION AT STA 33+71.92**

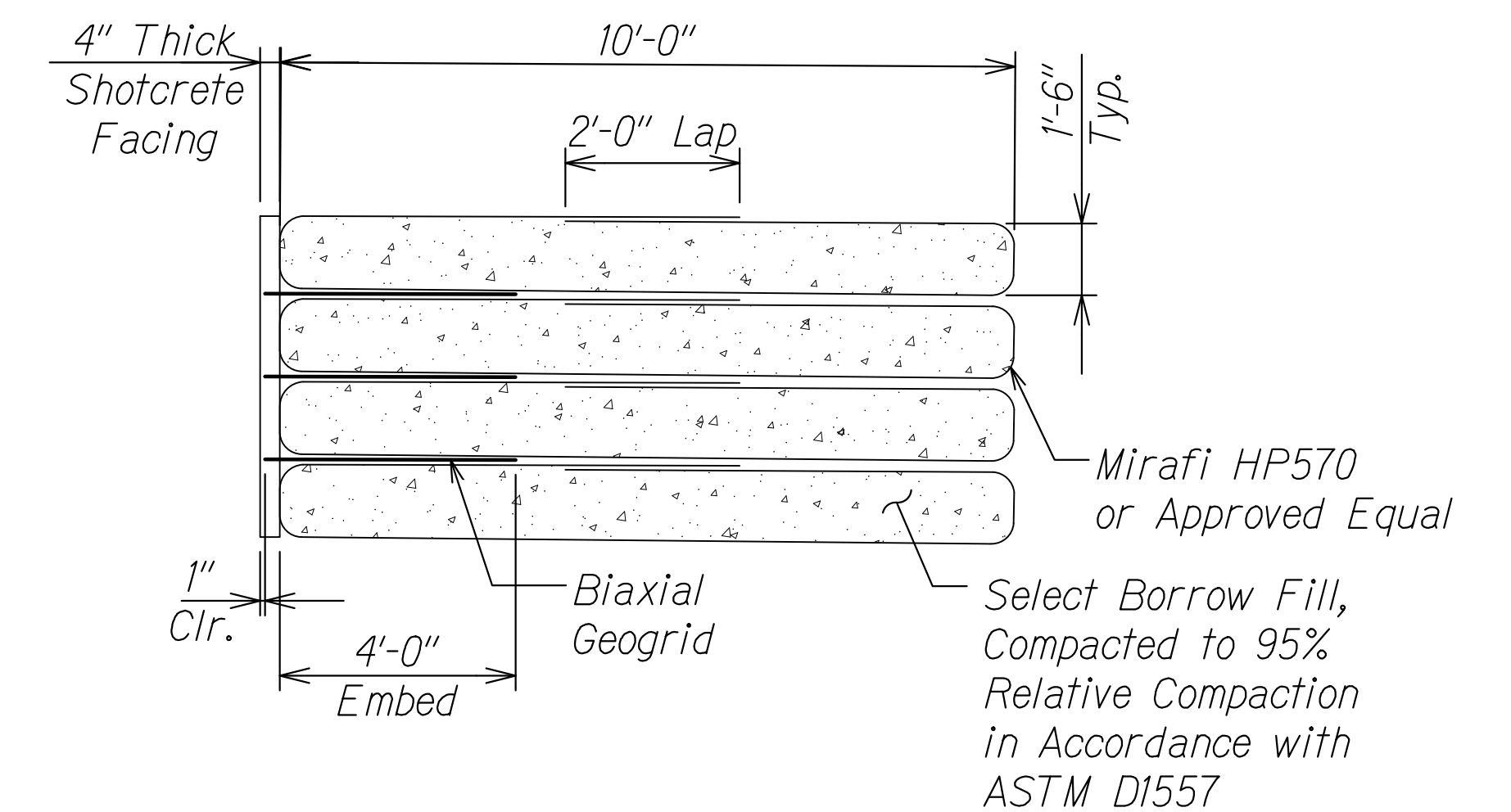
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**CONSTRUCTION STAGE 2**

- 3 Construct GRS vertical backfill wall above and on both sides of culvert with geosynthetic reinforced soil up to finish grade. See GRS Backfill Detail. Apply 4" thick shotcrete facing to GRS Vertical Backfill Wall.
- 4 Backfill constructed portion of culvert up to finish grade beyond backfill wall.

**Notes:**

The Contractor shall submit working drawings for the limits of excavation and demolition to the Engineer for approval. The working drawings shall show all proposed bracing and shoring as needed to protect the existing roadway and detour road. Demolition and excavation shall be coordinated with any temporary shoring, detour road, and construction of the new culvert.



**GRS BACKFILL DETAIL**

Scale: Not to Scale

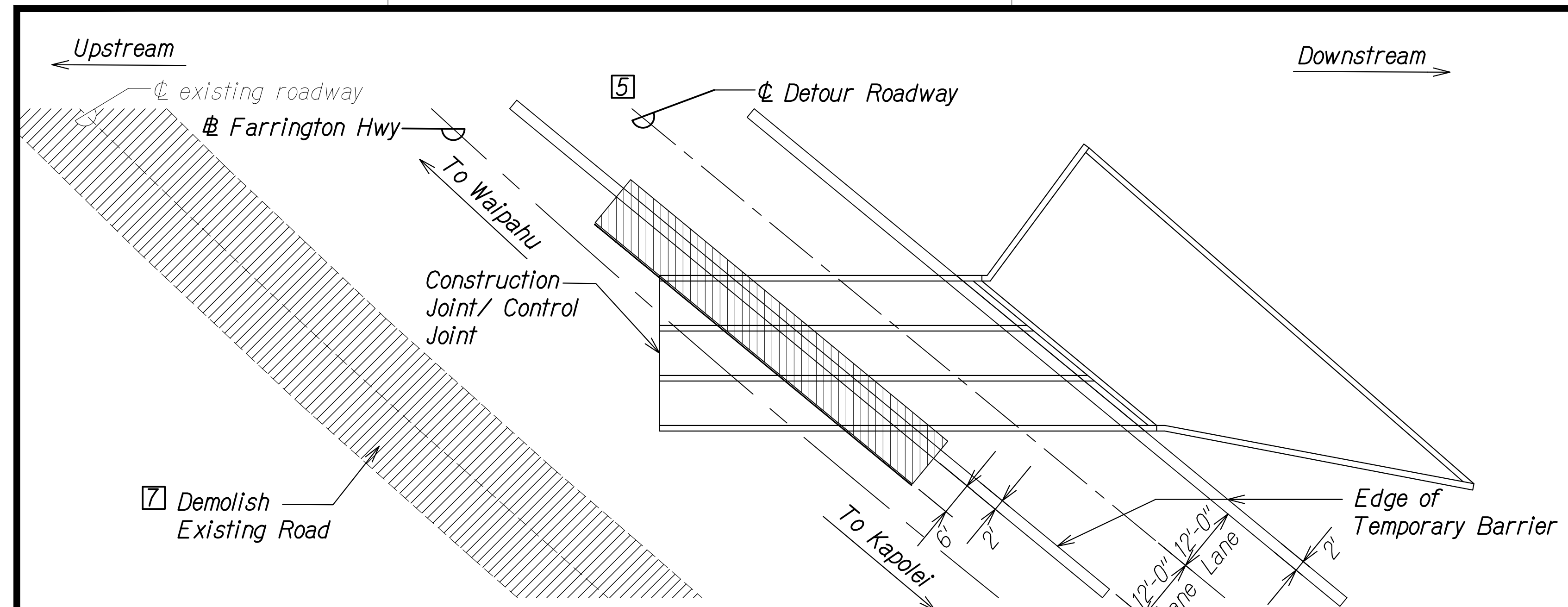
SURVEY PLOTTED BY	DATE
DRAWN BY	
DESIGNED BY	
QUANTITIES BY	
CHECKED BY	
ORIGINAL PLAN	
NOTE BOOK	
No.	

DRAWING NAME: Z:\100 UNDOINGS\20-013-FARR HWY KAPOLEI GC.ID ET WIP-EMTC\01 CAD\04-13-22 BID-RSD-SHRS\FHW-SC0218-HUNE CONSTR-SEC.DWG PLOT TIME: 04-13-22 6:05 PM

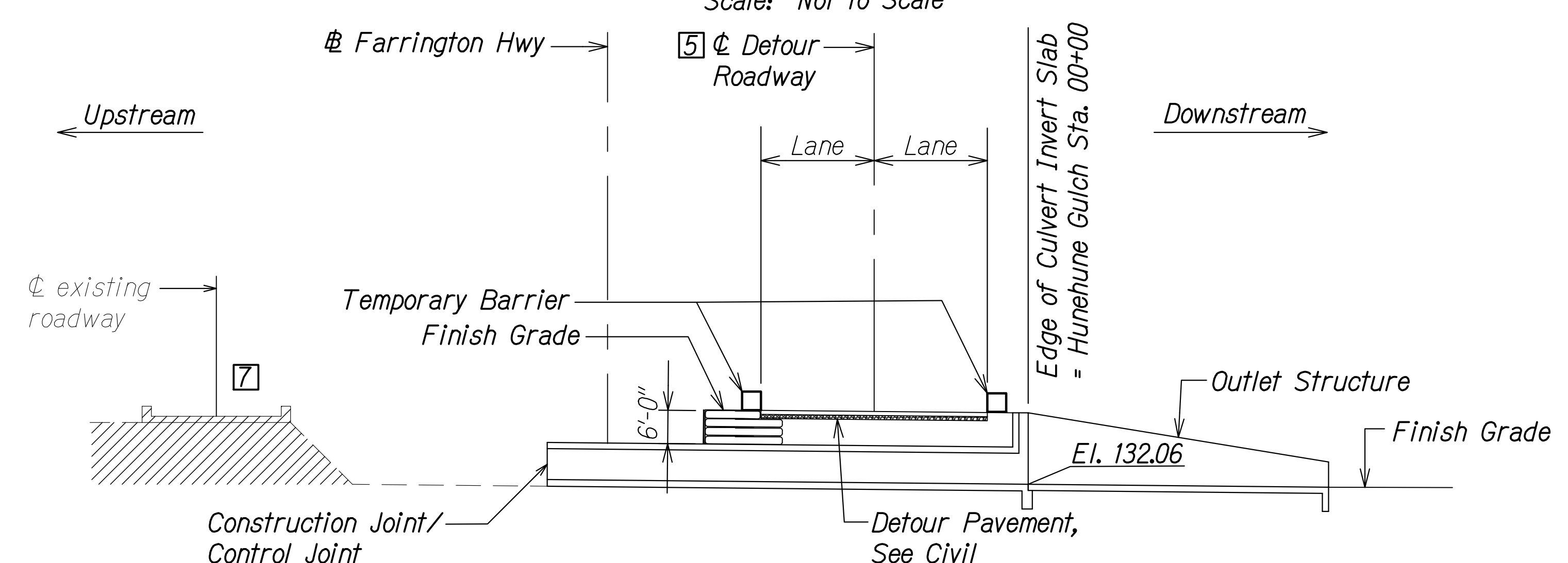
THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.
   
 Signature: *Rugo S. Miyakawa*
  
 April 30, 2024
   
 EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII  
 DEPARTMENT OF TRANSPORTATION  
 HIGHWAYS DIVISION  
**Hunehune Gulch Box Culvert Construction Sequence**  
 FARRINGTON HIGHWAY WIDENING  
 Kapolei Golf Course Road to Fort Weaver Road  
 Project No. 7101A-01-20  
 Scale: As Shown Date: Apr. 2022  
**SHEET No. SC2.19 OF 23 SHEETS**

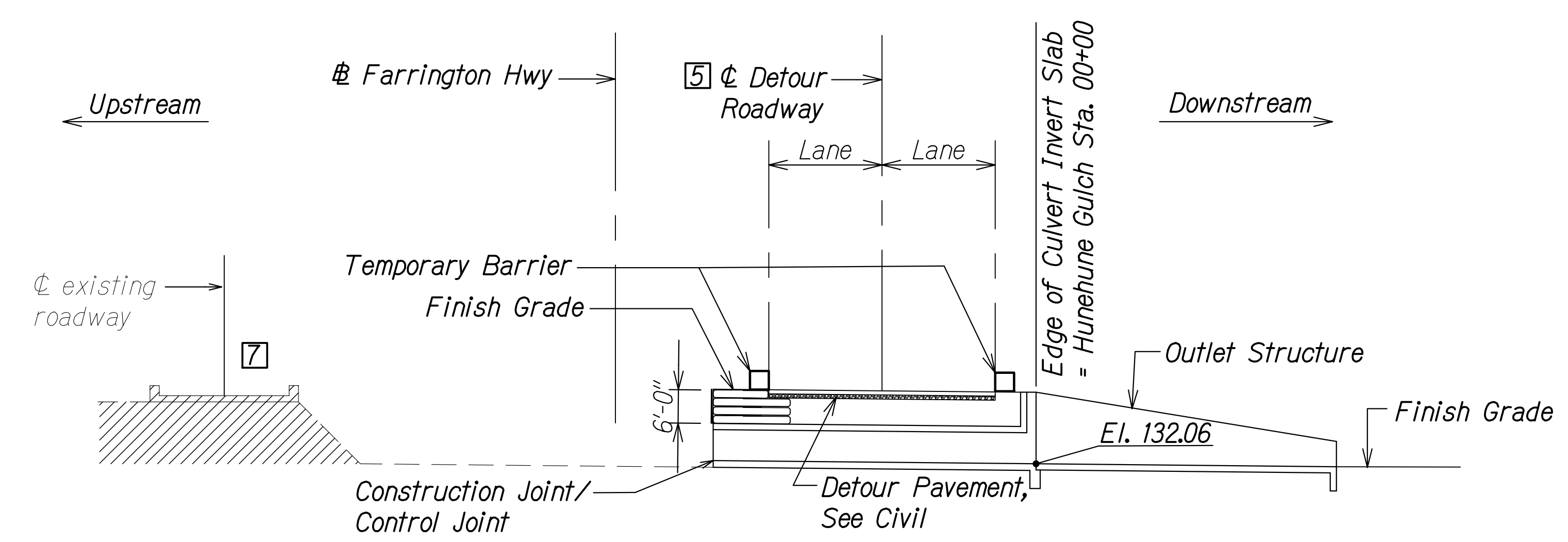
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	7101A-01-20	2021	495	



**LAYOUT PLAN**  
Scale: Not to Scale



**SECTION AT STA 33+50.63**  
Scale: Not to Scale



**SECTION AT STA 33+71.92**  
Scale: Not to Scale

**CONSTRUCTION STAGE 3**

- 5 Construct detour roadway. See Traffic Control Plan Sheet TC-9.  
Install Temporary Barrier along detour roadway. For extent and location of temporary barriers along detour roadway, see Civil Traffic Control Plan Sheet TC-9.
- 6 Open traffic to detour roadway.
- 7 Demolish existing roadway structure.

**Notes:**

The Contractor shall submit working drawings for the limits of excavation and demolition to the Engineer for approval. The working drawings shall show all proposed bracing and shoring as needed to protect the existing roadway and detour road. Demolition and excavation shall be coordinated with any temporary shoring, detour road, and construction of the new culvert.

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

DRAWING NAME: Z:\100 ONGOING\20-013-FARR HWY KAPOLEI GC ID: ET WIP-EMTC\01 CAD\04-13-22 BID RVD SHRS\HWY-SC0218-HUNE CONSTR SED.DWG PLOT TIME: 04-13-22 5:32 PM

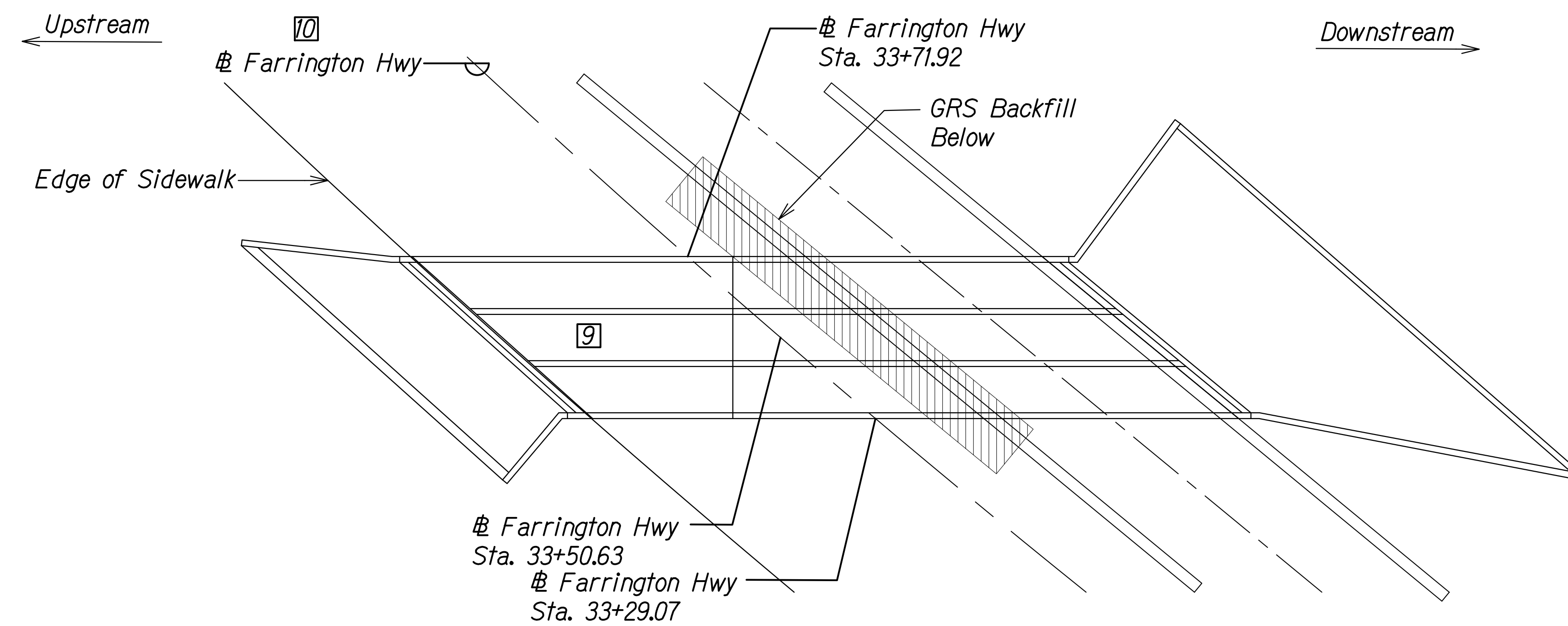
THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.  
  
 RUGO S. MIYAHARA  
 LICENSED PROFESSIONAL ENGINEER  
 NO. 9444-S  
 HAWAII, U.S.A.  
 April 30, 2024  
 EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII  
 DEPARTMENT OF TRANSPORTATION  
 HIGHWAYS DIVISION  
**Hunehune Gulch Box Culvert  
 Construction Sequence**  
 FARRINGTON HIGHWAY WIDENING  
 Kapolei Golf Course Road to Fort Weaver Road  
 Project No. 7101A-01-20  
 Scale: As Shown Date: Apr. 2022  
 SHEET No. SC2.20 OF 23 SHEETS





FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	7101A-01-20	2021	497	

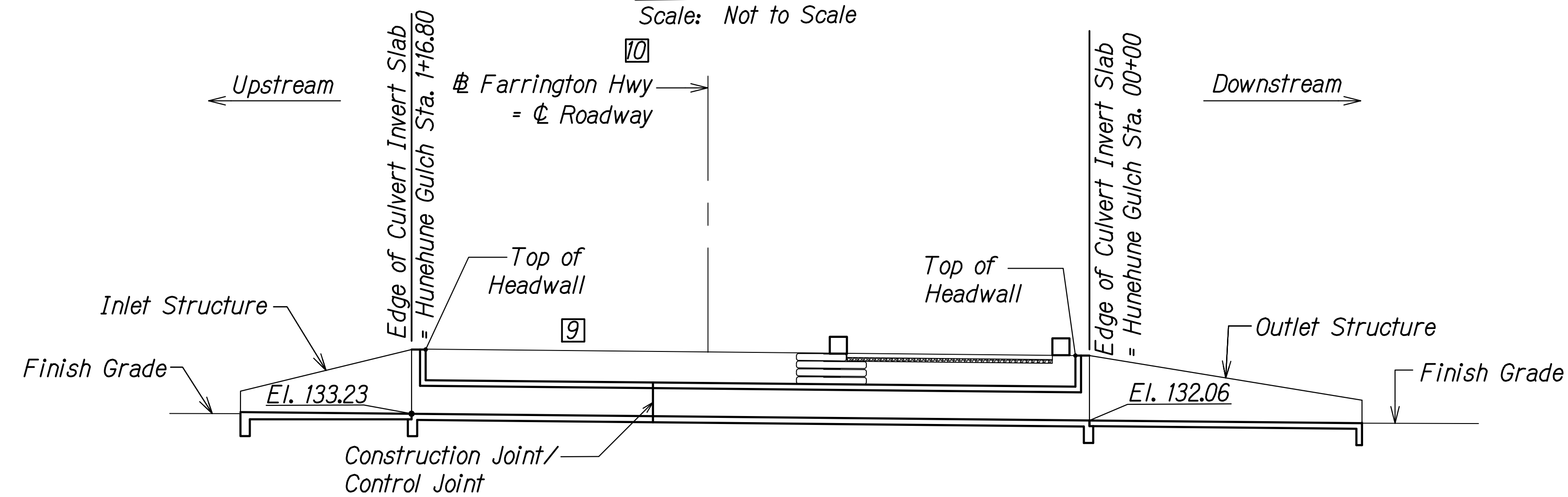


**CONSTRUCTION STAGE 5**

- ⑨ Backfill remainder of culvert up to finish grade.
- ⑩ Construct upstream side of final roadway. See Traffic Control Plan Sheet TC-10.

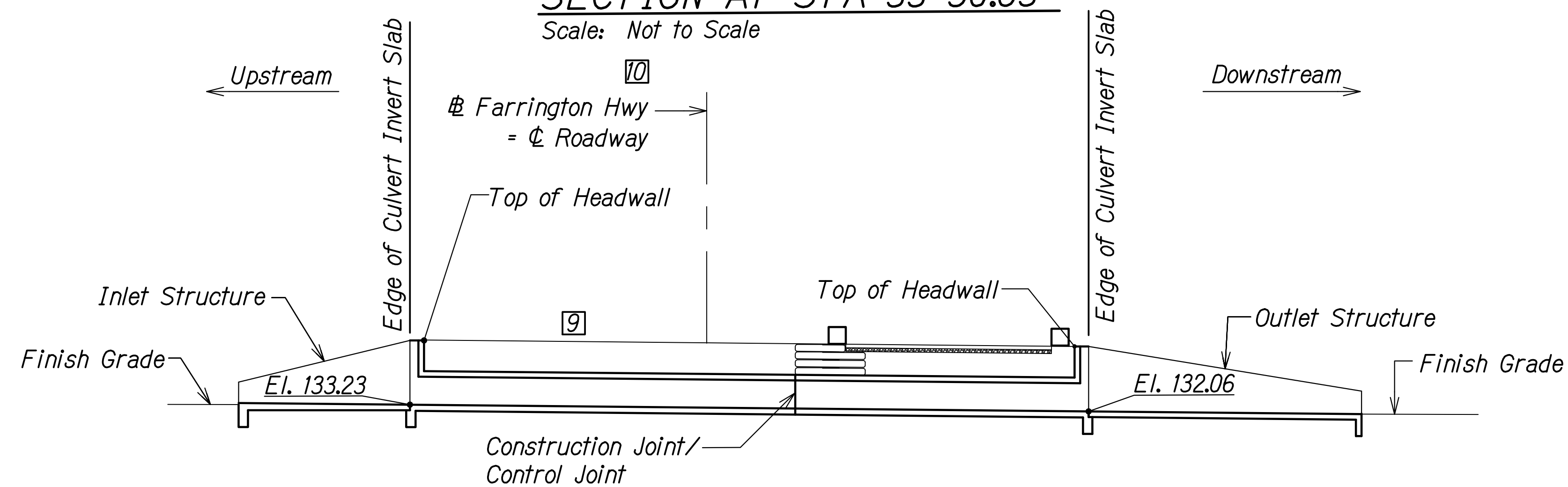
**LAYOUT PLAN**

Scale: Not to Scale



**SECTION AT STA 33+50.63**

Scale: Not to Scale



**SECTION AT STA 33+71.92**

Scale: Not to Scale

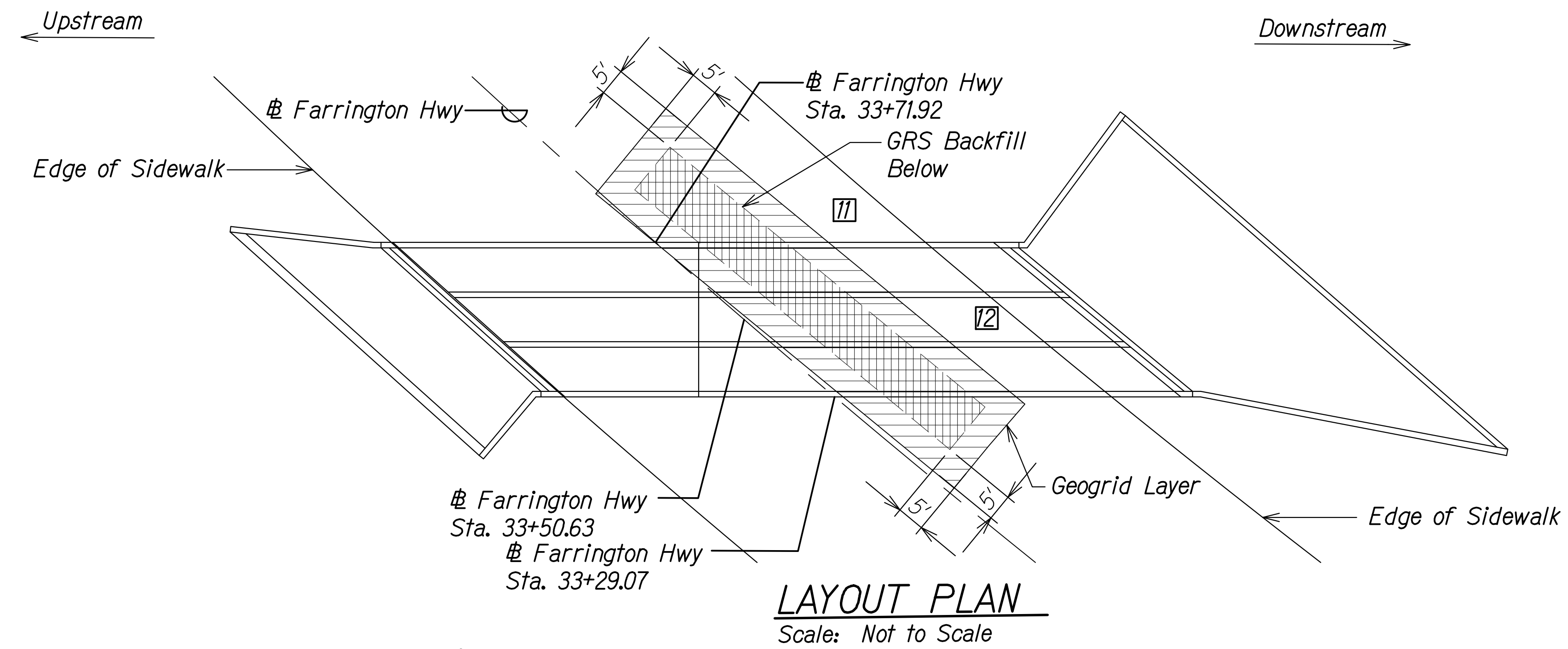
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DRAWN BY	
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QUANTITIES BY	
CHECKED BY	
ORIGINAL PLAN	
NOTE BOOK	
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DRAWING NAME: Z:\100\_000000\20-013-FARR HWY KAPOLEI GC (D) 04-13-22 BID RYSD SHRS\FHWB-SC0228-HUNE CONSTR SED.DWG PLOT TIME: 04-13-22 4:53 PM

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 Signature: *Rugs S. Miyahara*
  
 April 30, 2024
   
 EXPIRATION DATE OF THE LICENSE

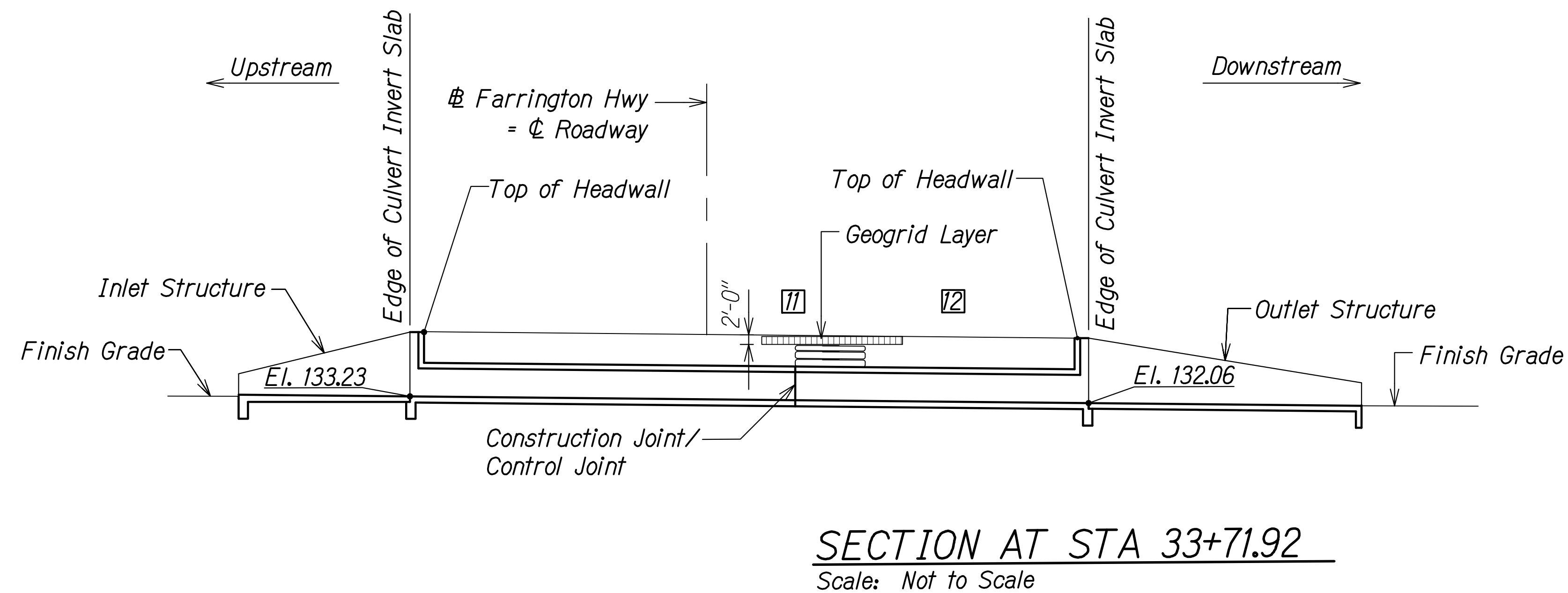
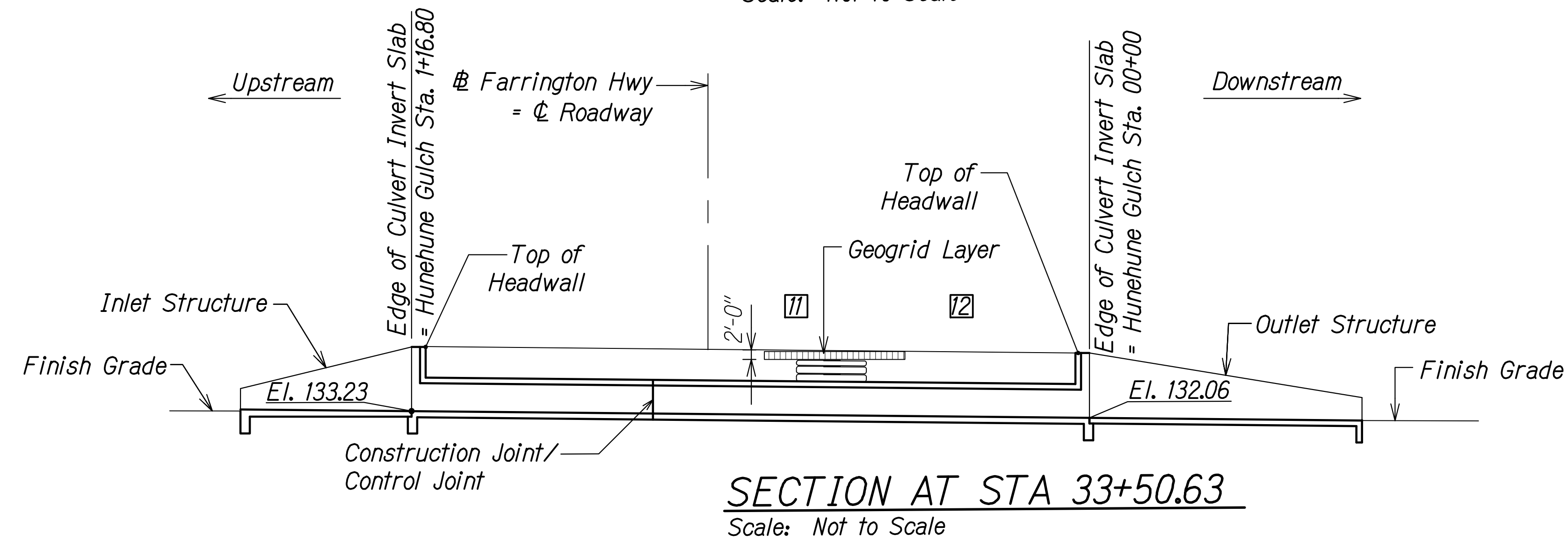
STATE OF HAWAII  
 DEPARTMENT OF TRANSPORTATION  
 HIGHWAYS DIVISION  
**Hunehune Gulch Box Culvert Construction Sequence**  
 FARRINGTON HIGHWAY WIDENING  
 Kapolei Golf Course Road to Fort Weaver Road  
 Project No. 7101A-01-20  
 Scale: As Shown Date: Apr. 2022  
**SHEET No. SC2.22 OF 23 SHEETS**

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	7101A-01-20	2021	498	



**CONSTRUCTION STAGE 6**

- 11 Remove shotcrete facing from GRS vertical backfill wall. Remove top 2' of GRS backfill and install a geogrid layer 5' beyond extents of GRS backfill.
- 12 Construct downstream side of final roadway. See Civil Traffic Control Plan Sheet TC-10.



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

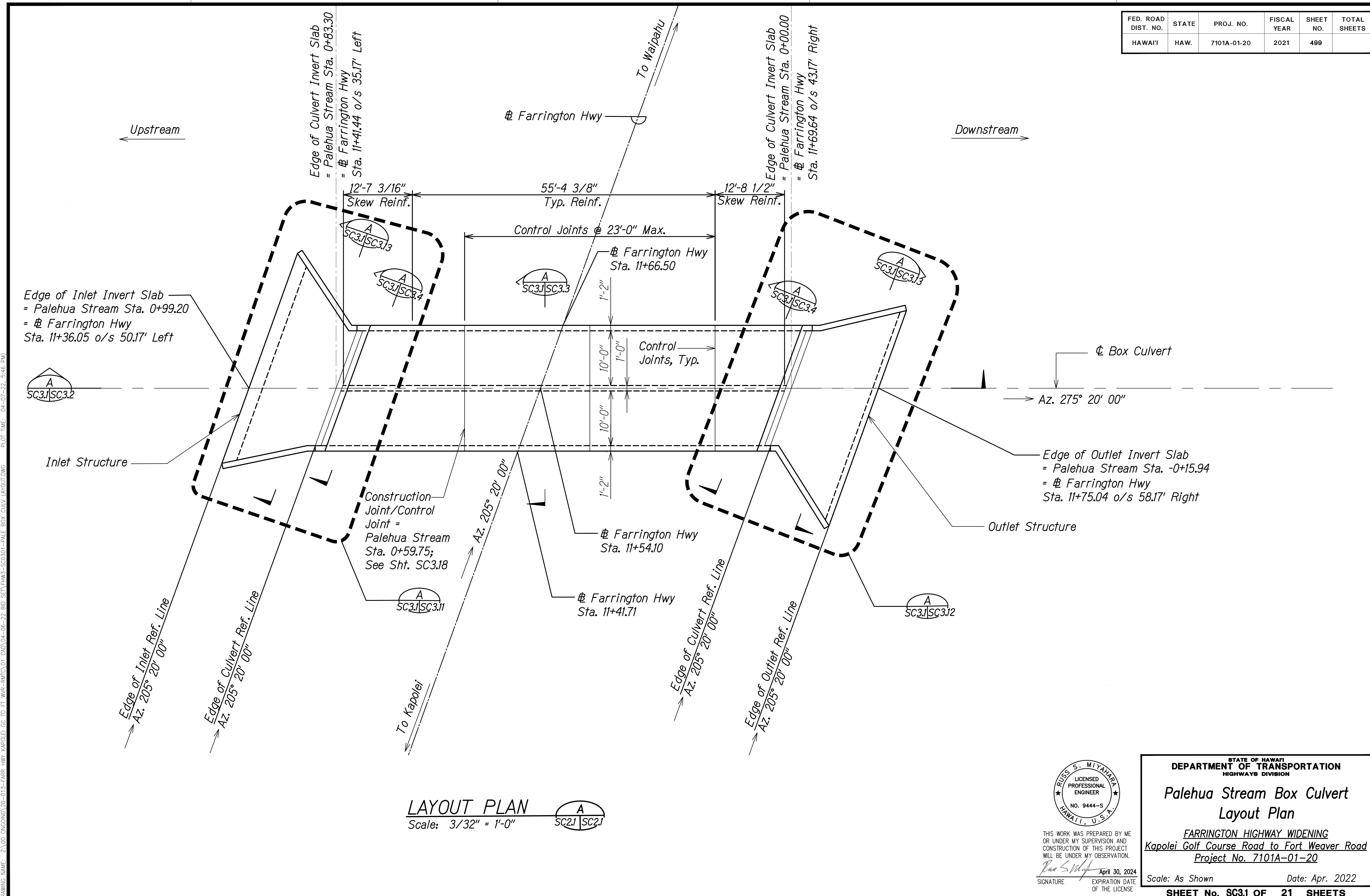
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 Signature: *Rugs S. Miyahara*  
 April 30, 2024  
 EXPIRATION DATE OF THE LICENSE

**STATE OF HAWAII**  
**DEPARTMENT OF TRANSPORTATION**  
**HIGHWAYS DIVISION**  
**Hunehune Gulch Box Culvert**  
**Construction Sequence**  
**FARRINGTON HIGHWAY WIDENING**  
**Kapolei Golf Course Road to Fort Weaver Road**  
**Project No. 7101A-01-20**  
 Scale: As Shown      Date: Apr. 2022  
**SHEET No. SC2.23 OF 23 SHEETS**

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	7101A-01-20	2021	499	

DRAWING NAME: Z:\100 ONGOING\20-013-FARR-HWY-KAPOLEI\04-06-22 BID SET\FHWS-SC0301-PALE-BOX-CULV-LAYOUT.DWG PLOT TIME: 04-07-22, 5:46 PM



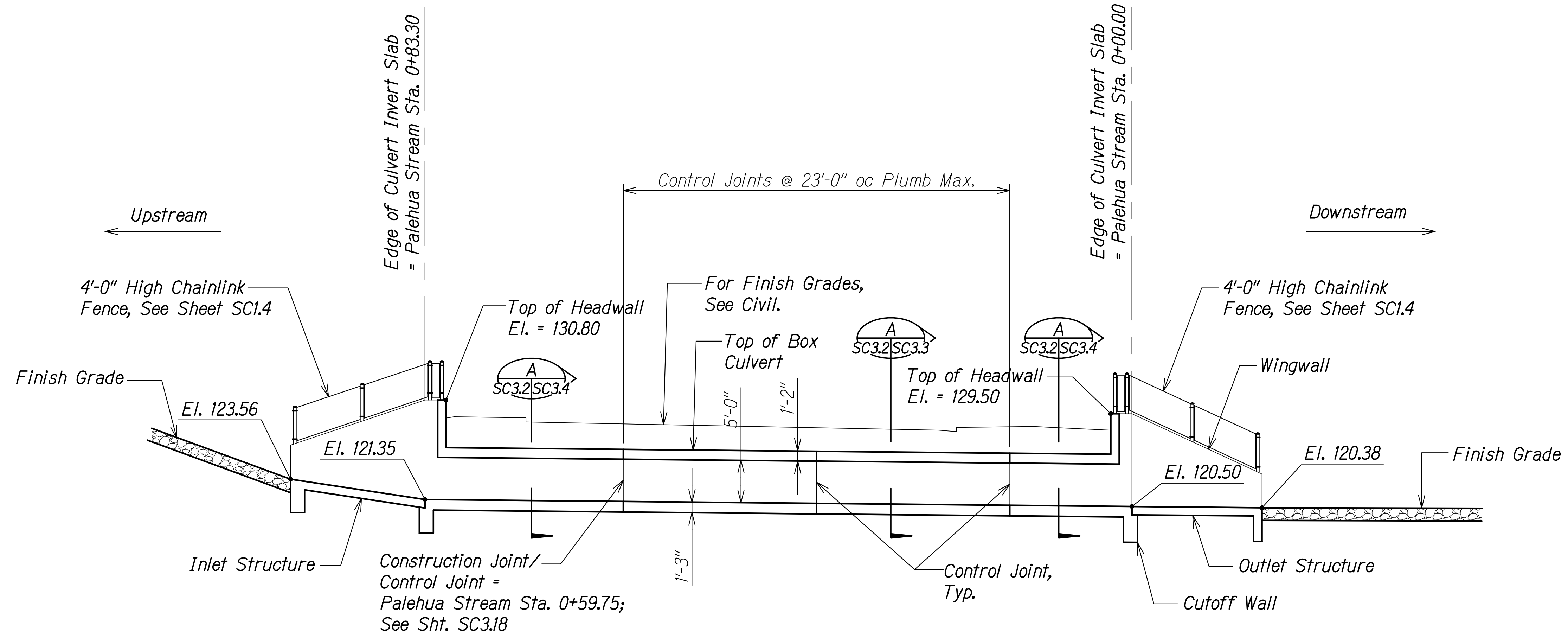
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DRAWN BY	
DESIGNED BY	
QUANTITIES BY	
CHECKED BY	
ORIGINAL PLAN	
NOTE BOOK	
No.	

**LAYOUT PLAN**  
Scale: 3/32" = 1'-0" A  
SC2.1 SC2.1

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*Rugo S. Miyahara*  
 SIGNATURE      April 30, 2024  
 EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII  
 DEPARTMENT OF TRANSPORTATION  
 HIGHWAYS DIVISION  
**Palehua Stream Box Culvert  
 Layout Plan**  
 FARRINGTON HIGHWAY WIDENING  
 Kapolei Golf Course Road to Fort Weaver Road  
 Project No. 7101A-01-20  
 Scale: As Shown      Date: Apr. 2022  
**SHEET No. SC3.1 OF 21 SHEETS**

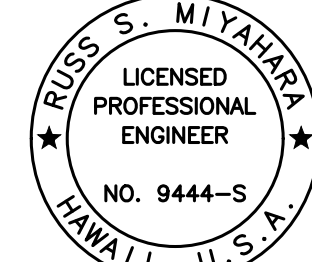
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	7101A-01-20	2021	500	



**LONGITUDINAL SECTION**  
 Scale: 1/8" = 1'-0"  
 A  
 SC3.1 SC3.2

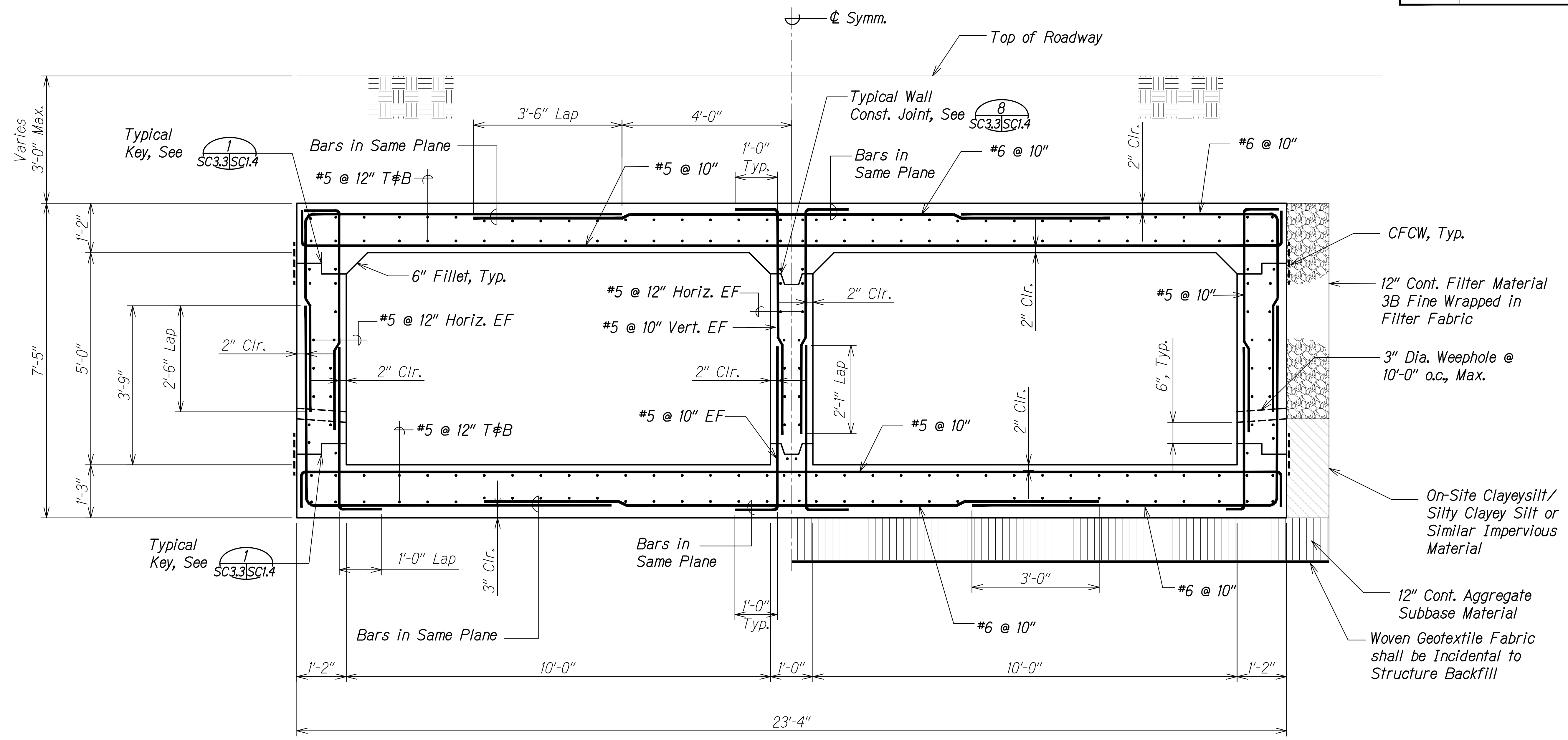
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NOTE BOOK	DRAWN BY	
No. _____	DESIGNED BY	
	QUANTITIES BY	
	CHECKED BY	

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 THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.  
 Signature: *Rugo S. Miyakawa*  
 April 30, 2024  
 EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII  
 DEPARTMENT OF TRANSPORTATION  
 HIGHWAYS DIVISION  
**Palehua Stream Box Culvert  
 Longitudinal Section**  
 FARRINGTON HIGHWAY WIDENING  
 Kapolei Golf Course Road to Fort Weaver Road  
 Project No. 7101A-01-20  
 Scale: As Shown Date: Apr. 2022  
**SHEET No. SC3.2 OF 21 SHEETS**

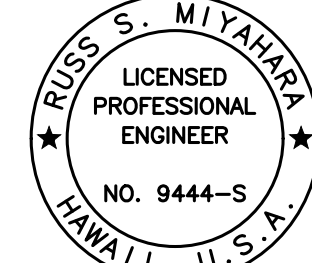
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HAWAII	HAW.	7101A-01-20	2021	501	



**PALEHUA BOX CULVERT SECTION**  
 Scale: 3/4" = 1'-0"  
 SC3.2 A SC3.1 SC3.3

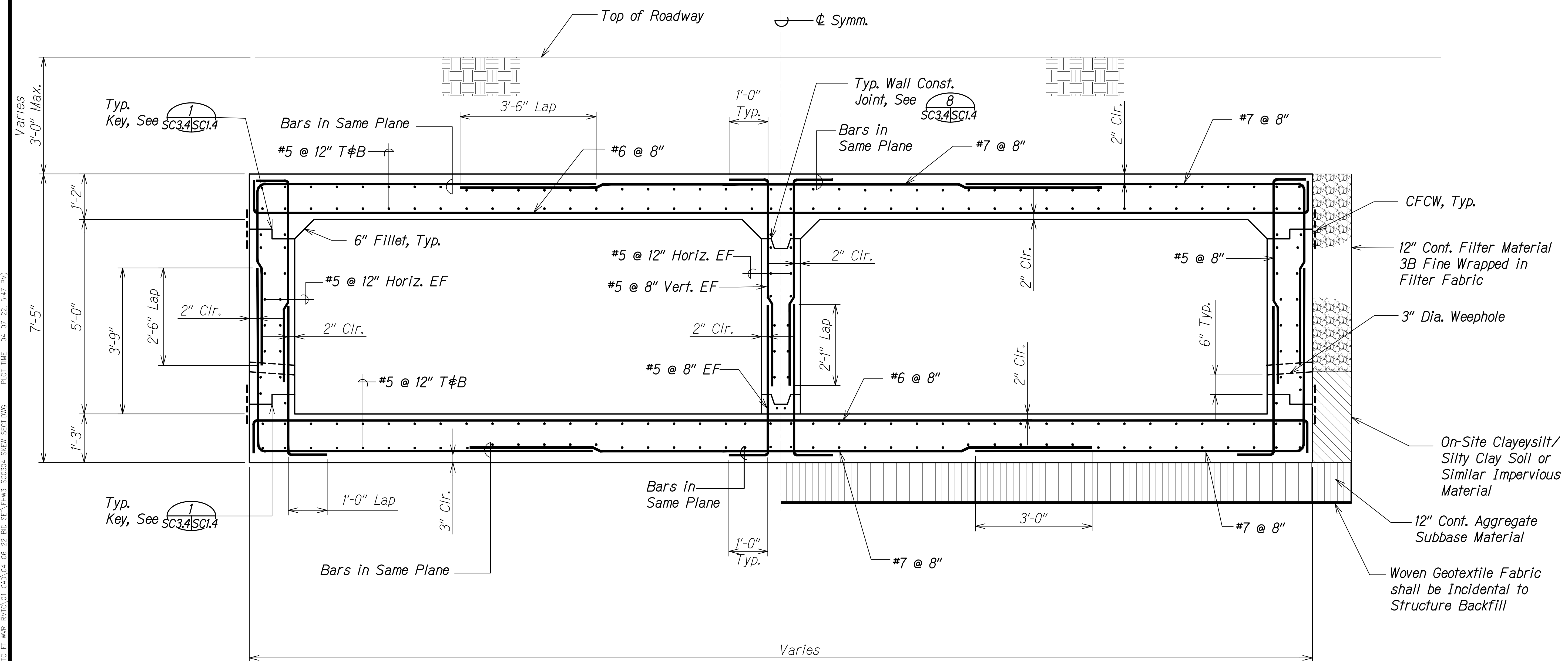
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DRAWN BY	
DESIGNED BY	
QUANTITIES BY	
CHECKED BY	
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NOTE BOOK	
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DRAWING NAME: Z:\00\_ONGOING\20-013-FARR-HW-KAPOLEI GC.ID.IT.WIP-EMTC\01\_GAD\04-06-22 BID SET\FHWS-SC0302-PALE BOX CULV.DWG PLOT TIME: 04-07-22, 5:47 PM

  
 THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.  
 Signature: *Rugo S. Miyahara*  
 April 30, 2024  
 EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII  
 DEPARTMENT OF TRANSPORTATION  
 HIGHWAYS DIVISION  
**Palehua Stream Box Culvert**  
**Typical Box Culvert Section**  
 FARRINGTON HIGHWAY WIDENING  
 Kapolei Golf Course Road to Fort Weaver Road  
 Project No. 7101A-01-20  
 Scale: As Shown Date: Apr. 2022  
**SHEET No. SC3.3 OF 21 SHEETS**

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	7101A-01-20	2021	502	



**BOX CULVERT SECTION AT SKEW**  
 Scale: 3/4" = 1'-0"

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

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**RUGES S. MIYAHARA**  
 LICENSED PROFESSIONAL ENGINEER  
 NO. 9444-S  
 HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.  
 Signature: *Ruges S. Miyahara*  
 April 30, 2024  
 EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII  
 DEPARTMENT OF TRANSPORTATION  
 HIGHWAYS DIVISION

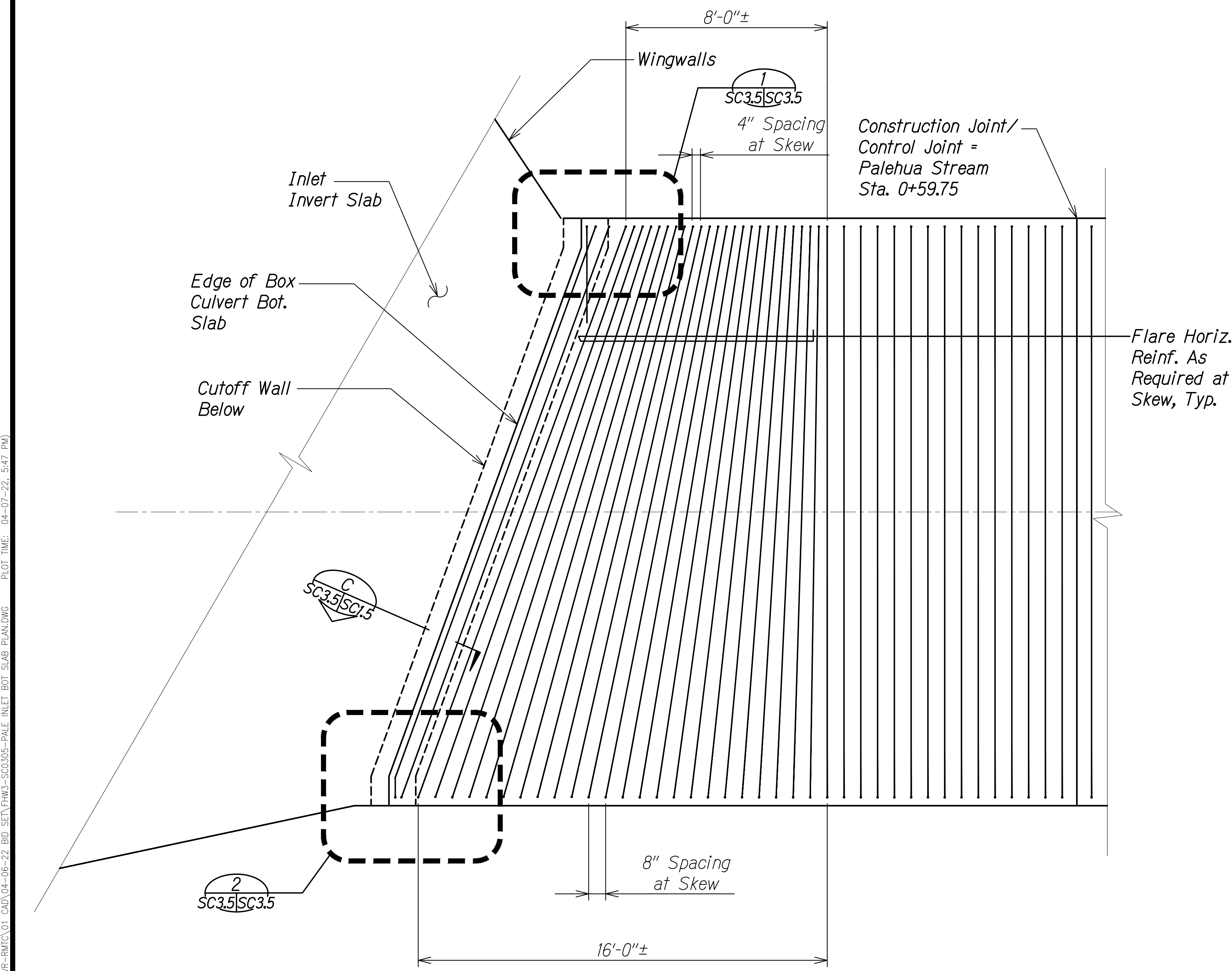
**Palehua Stream Box Culvert  
 Box Culvert Section at Skew**

FARRINGTON HIGHWAY WIDENING  
 Kapolei Golf Course Road to Fort Weaver Road  
 Project No. 7101A-01-20

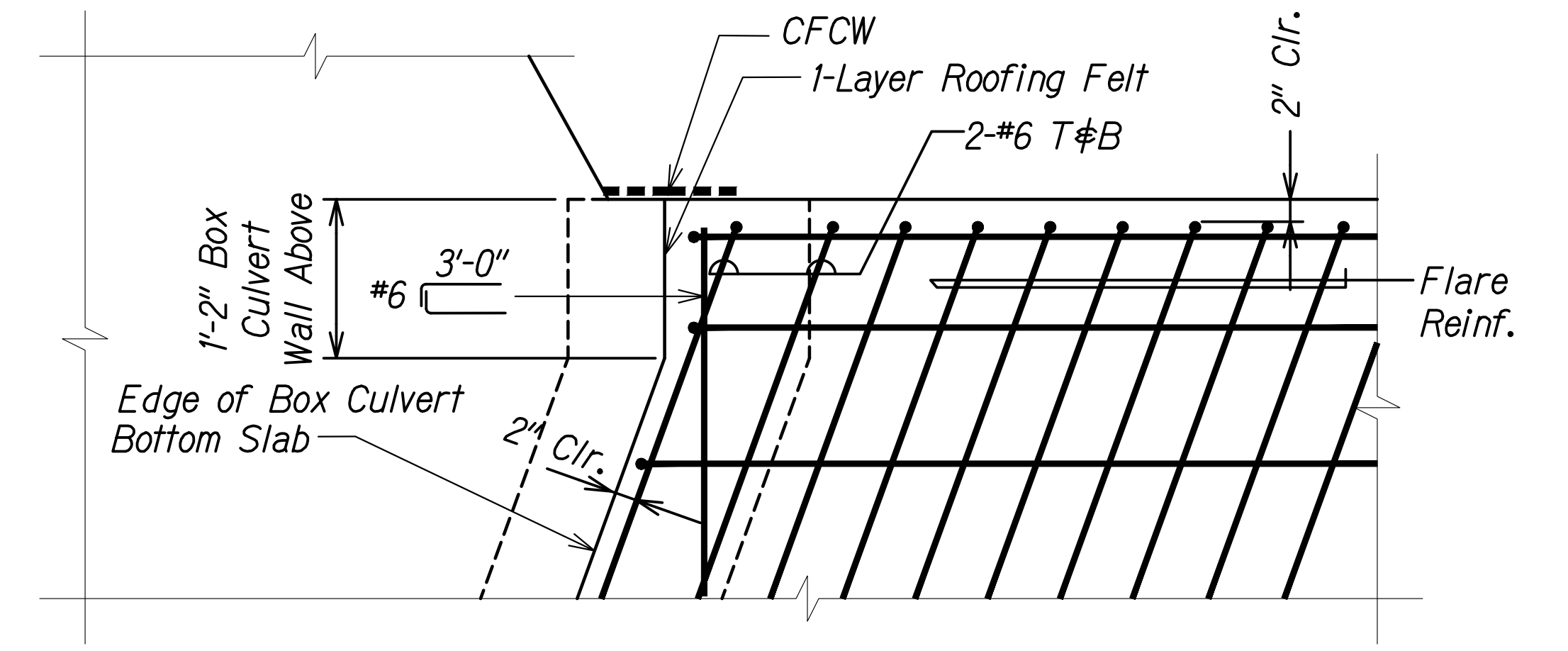
Scale: As Shown Date: Apr. 2022

**SHEET No. SC3.4 OF 21 SHEETS**

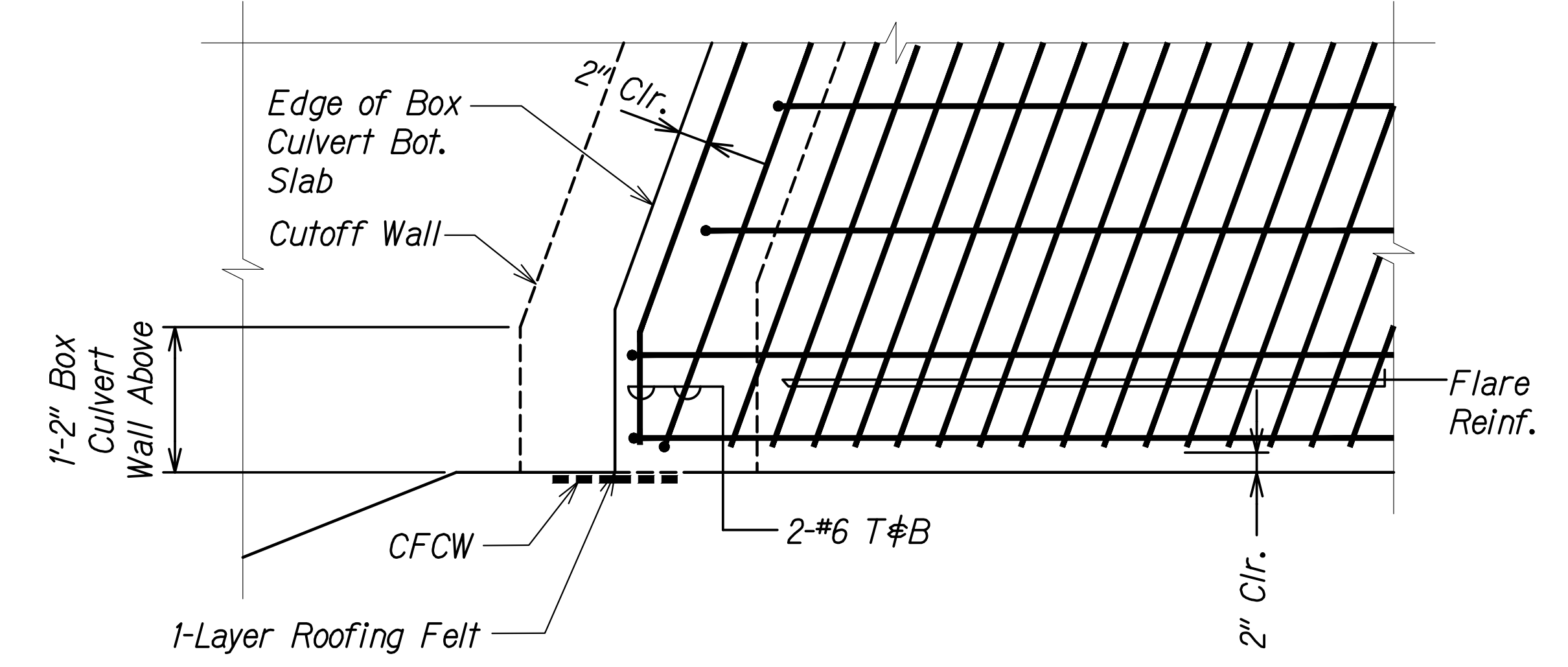
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	7101A-01-20	2021	503	



**BOT. SLAB REINF. PLAN AT INLET**  
 Scale: 3/8" = 1'-0"  
 SC3J4 SC3.5



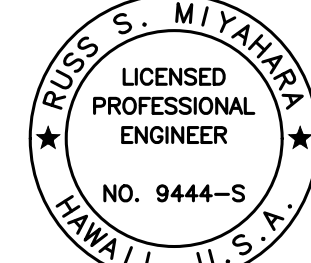
**INLET - BOX CULVERT BOT. SLAB DETAIL**  
 Scale: 1" = 1'-0"  
 SC3.5 SC3.5



**INLET - BOX CULVERT BOT. SLAB DETAIL**  
 Scale: 1" = 1'-0"  
 SC3.5 SC3.5

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

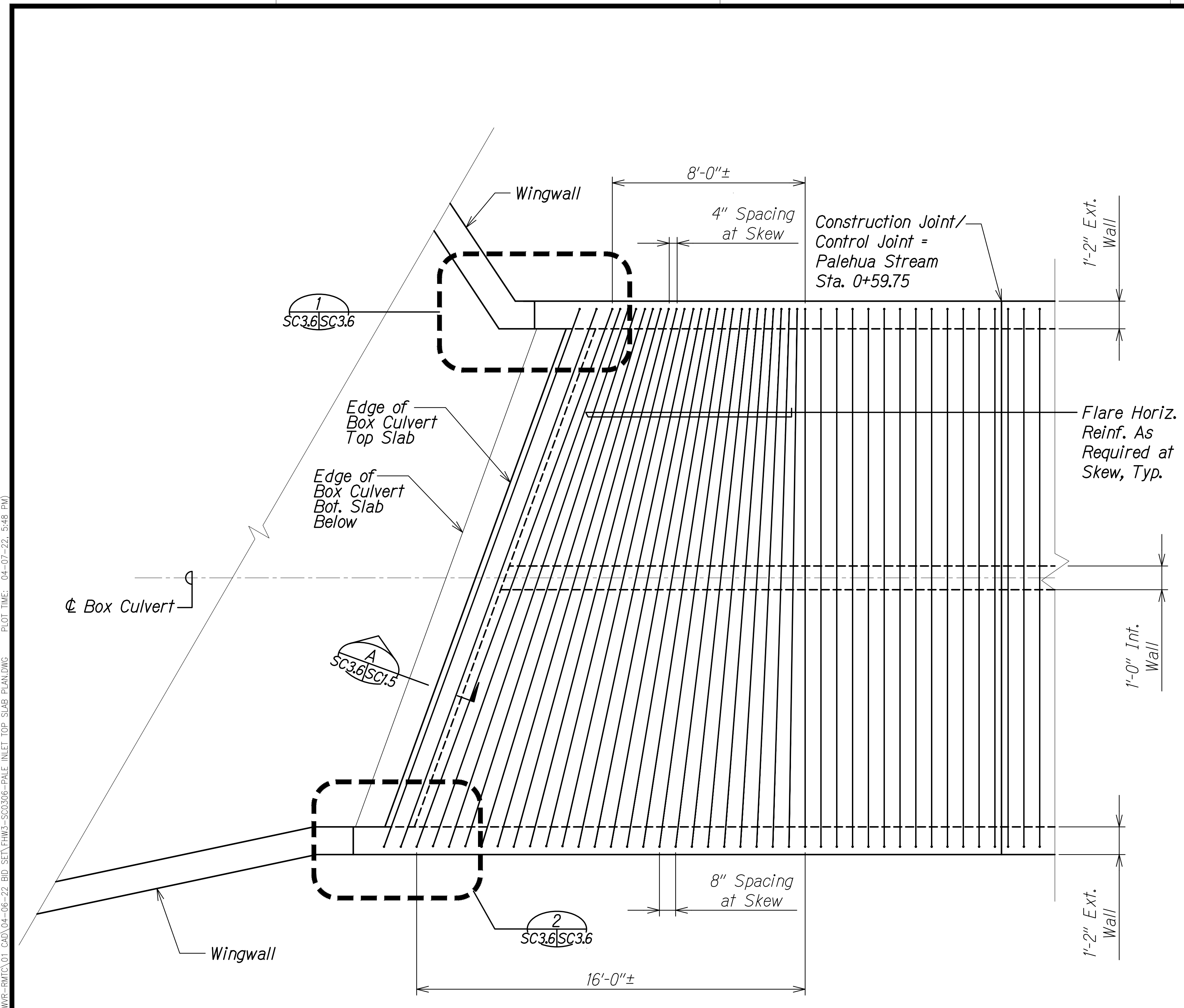
DRAWING NAME: Z:\100 ONGOING\20-013-FARR-HW-KAPOLEI GC.ID ET WRP-EMTC\01 CAD\04-06-22 BID SET\FH03-SC0305-PALE INLET BOT SLAB PLAN.DWG PLOT TIME: 04-07-22 5:47 PM

  
 THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.  
 Signature: *Rugo S. Miyahara*  
 April 30, 2024  
 EXPIRATION DATE OF THE LICENSE

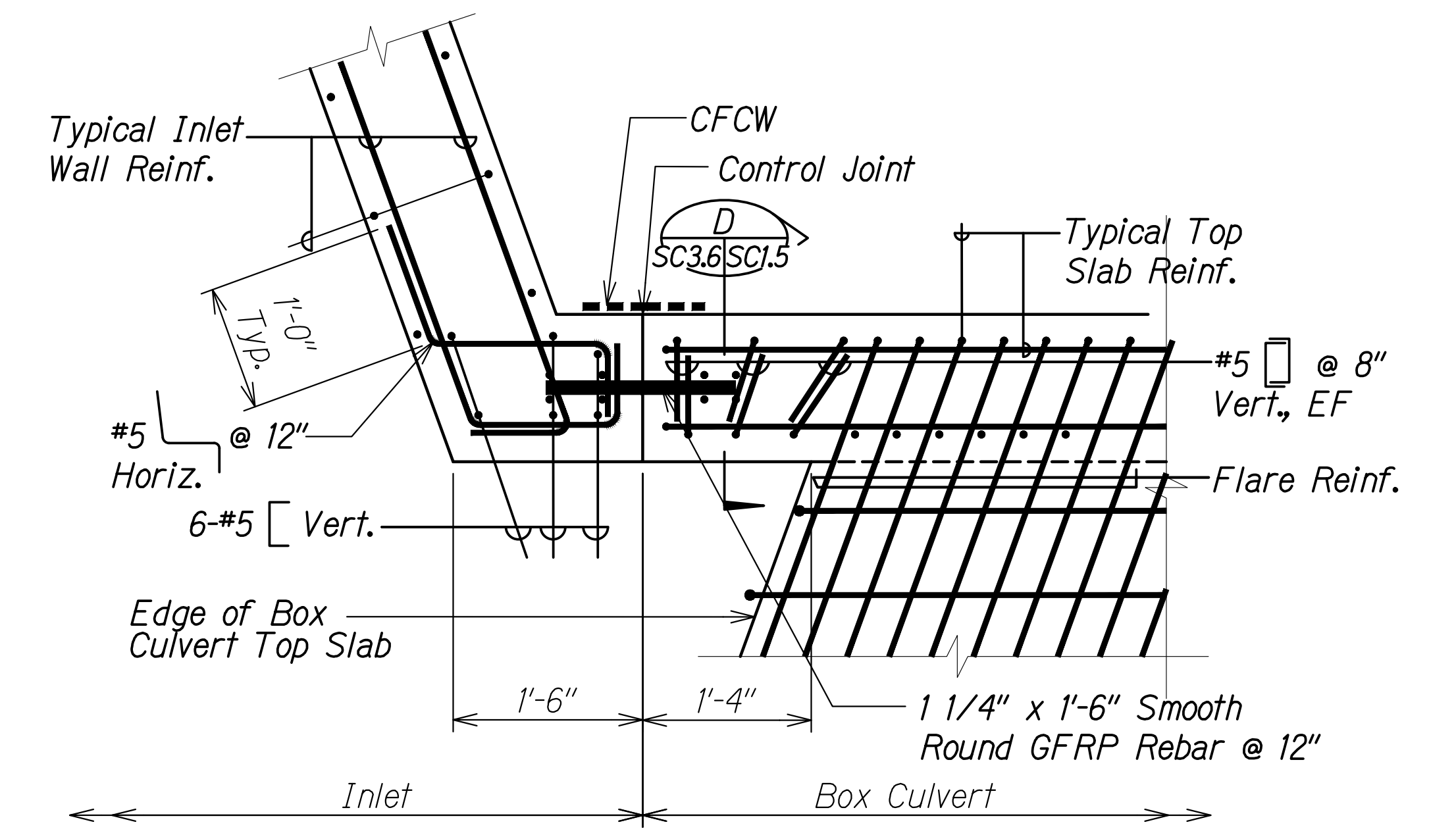
STATE OF HAWAII  
 DEPARTMENT OF TRANSPORTATION  
 HIGHWAYS DIVISION  
**Palehua Stream Box Culvert  
 Inlet Bottom Slab Plan and Details**  
 FARRINGTON HIGHWAY WIDENING  
 Kapolei Golf Course Road to Fort Weaver Road  
 Project No. 7101A-01-20  
 Scale: As Shown Date: Apr. 2022  
**SHEET No. SC3.5 OF 21 SHEETS**



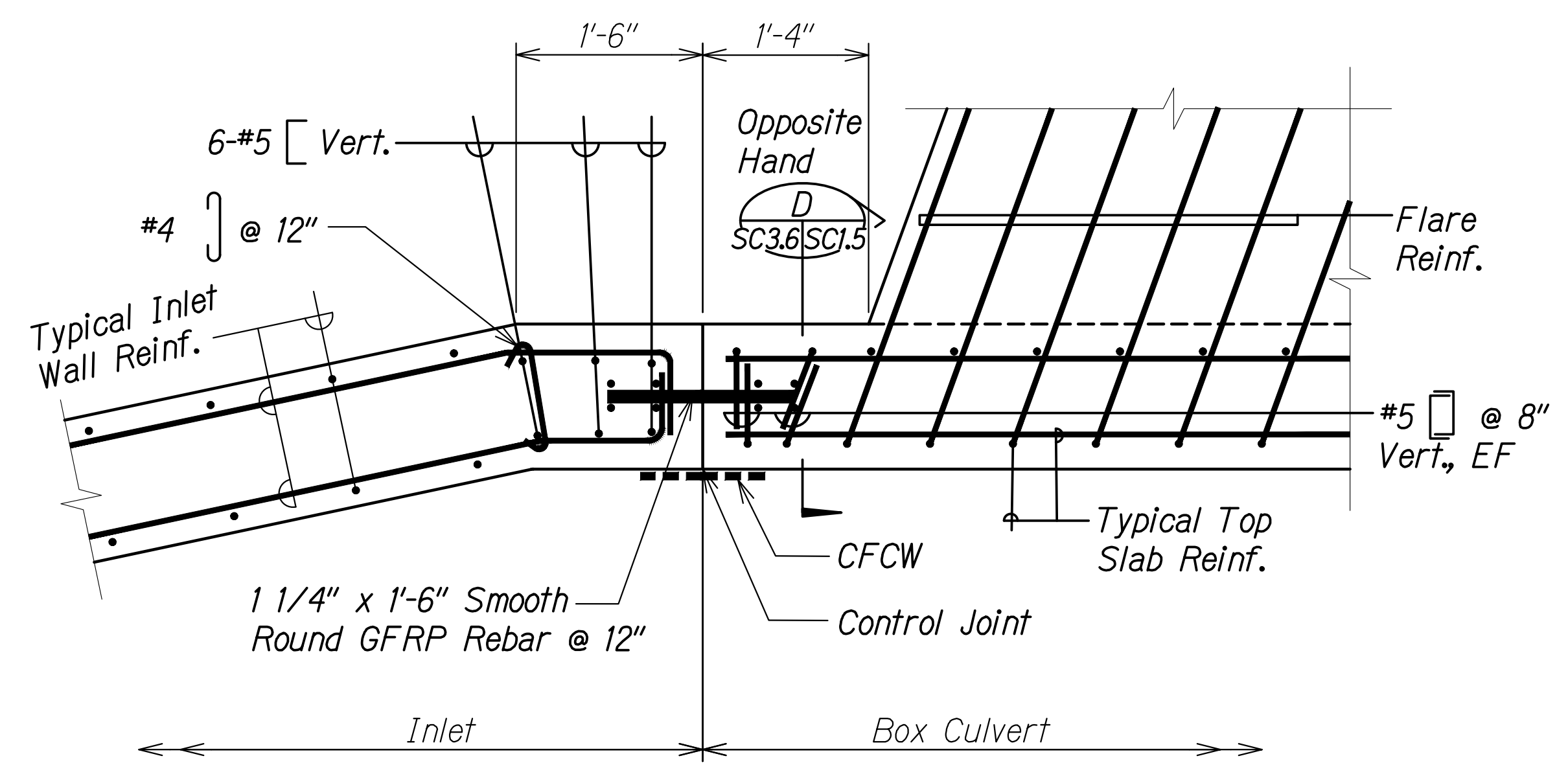
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	7101A-01-20	2021	504	



**TOP SLAB REINF. PLAN AT INLET** A  
 Scale: 3/8" = 1'-0" SC3.14 SC3.6



**INLET - BOX CULVERT TOP SLAB DETAIL** 1  
 Scale: 1" = 1'-0" SC3.6 SC3.6



**INLET - BOX CULVERT TOP SLAB DETAIL** 2  
 Scale: 1" = 1'-0" SC3.6 SC3.6

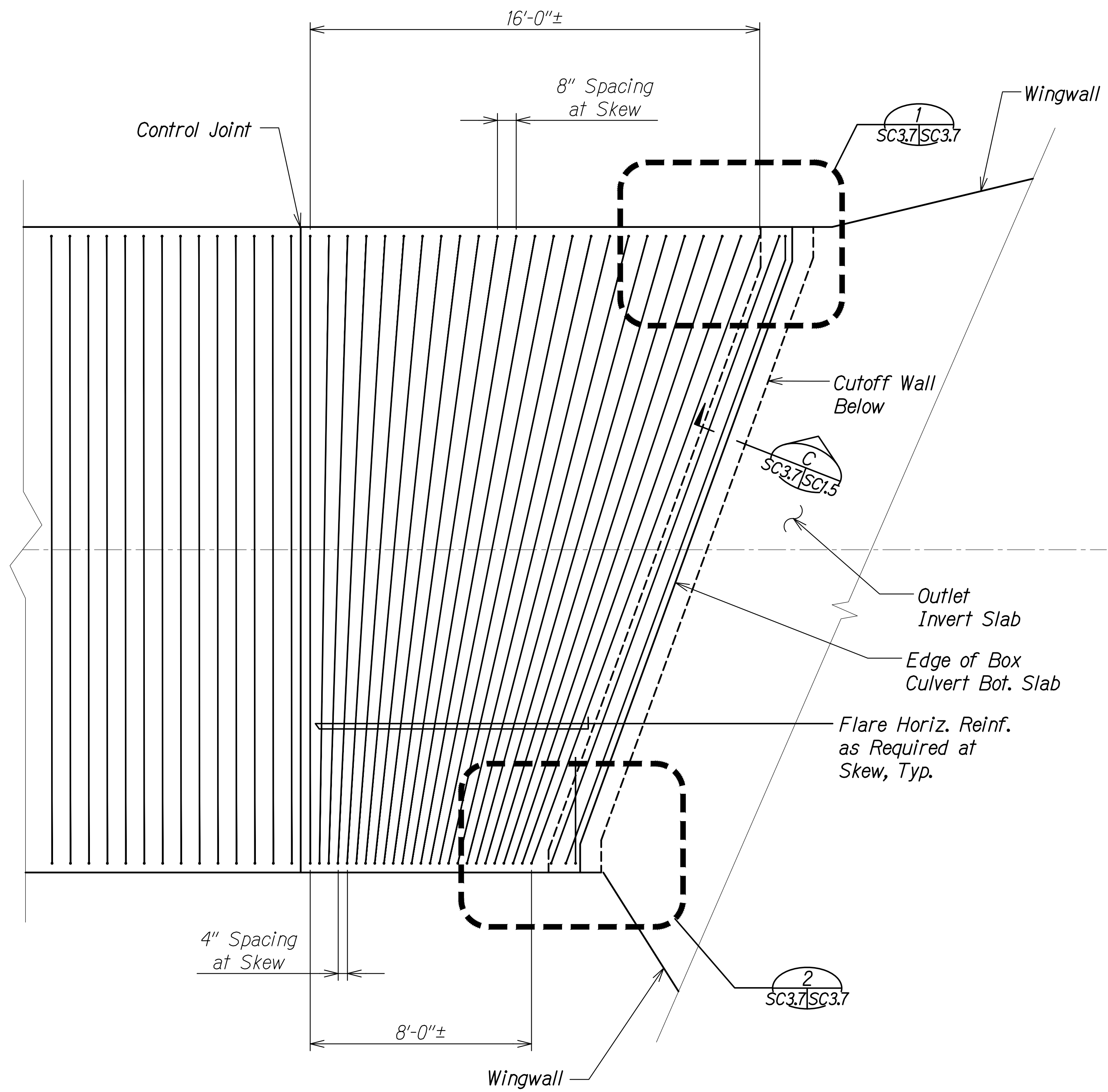
SURVEY PLOTTED BY	DATE
DRAWN BY	
DESIGNED BY	
QUANTITIES BY	
CHECKED BY	
ORIGINAL PLAN No.	

DRAWING NAME: Z:\100 ONGOING\20-013-FARR-HW-KAPOLEI GC.ID ET.WR-EMTC\01 CAD\04-06-22 BID SET\PH03-SC0306-PALE INLET TOP SLAB PLAN.DWG PLOT TIME: 04-07-22 5:48 PM

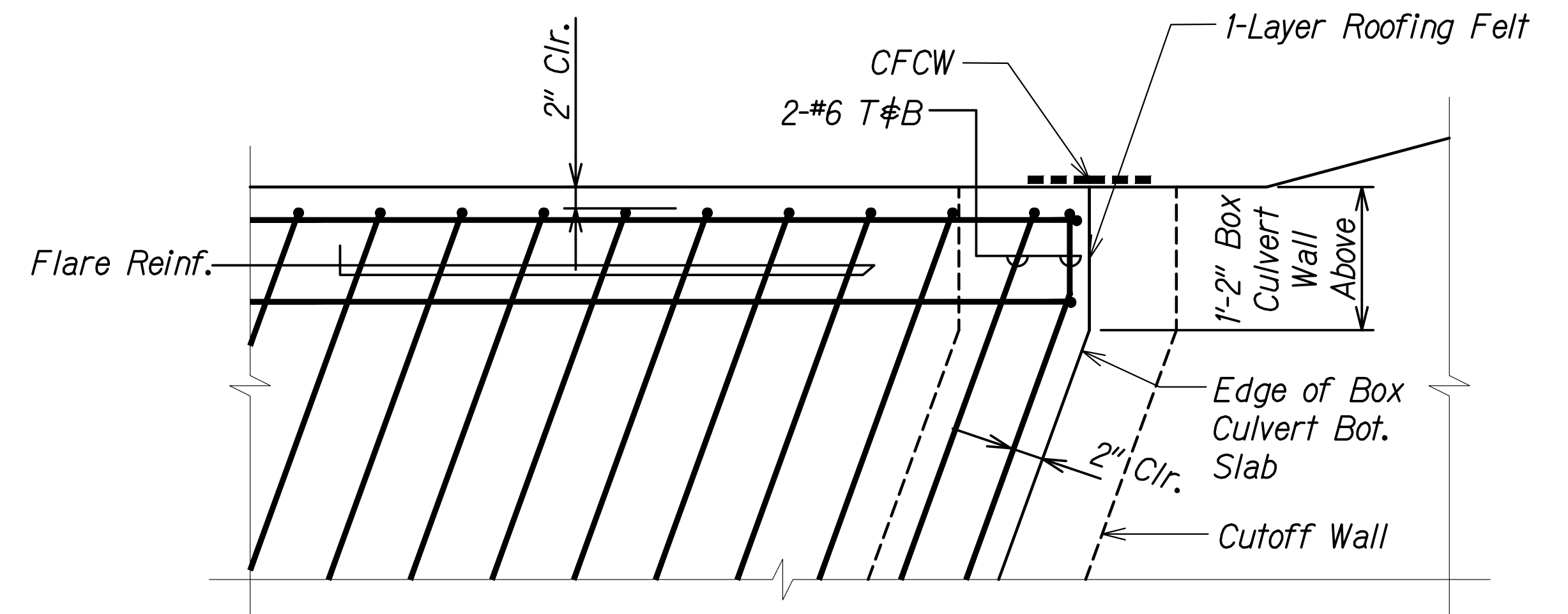
THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.  
 SIGNATURE: *Russ S. Miyahara* April 30, 2024  
 EXPIRATION DATE OF THE LICENSE

**STATE OF HAWAII**  
**DEPARTMENT OF TRANSPORTATION**  
**HIGHWAYS DIVISION**  
**Palehua Stream Box Culvert**  
**Inlet Top Slab Plan and Details**  
**FARRINGTON HIGHWAY WIDENING**  
**Kapolei Golf Course Road to Fort Weaver Road**  
**Project No. 7101A-01-20**  
 Scale: As Shown Date: Apr. 2022  
**SHEET No. SC3.6 OF 21 SHEETS**

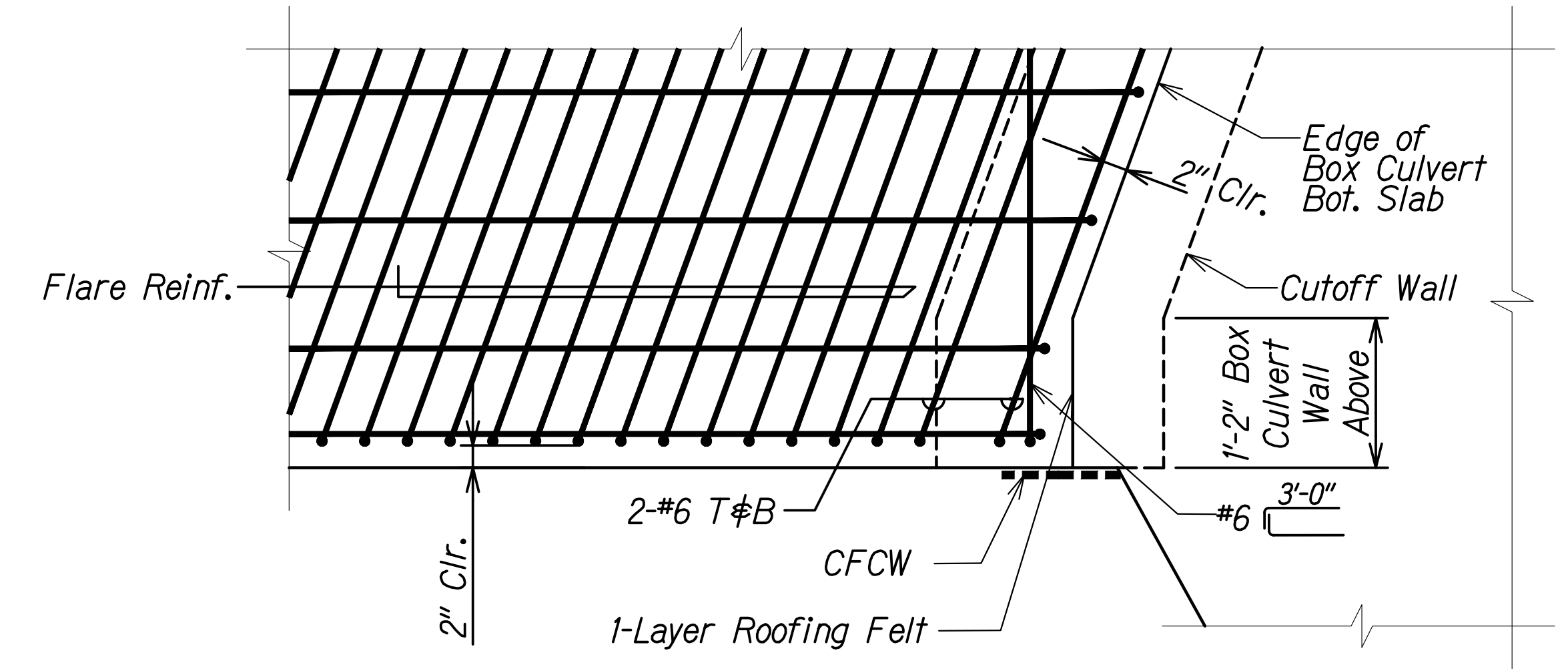
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	7101A-01-20	2021	505	



**BOT. SLAB REINF. PLAN AT OUTLET**  
 Scale: 3/8" = 1'-0"  
 SC3.14 SC3.7



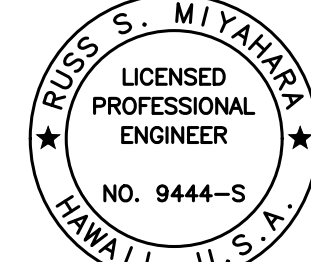
**OUTLET - BOX CULVERT BOT. SLAB DETAIL**  
 Scale: 1" = 1'-0"  
 SC3.7 SC3.7



**OUTLET - BOX CULVERT BOT. SLAB DETAIL**  
 Scale: 1" = 1'-0"  
 SC3.7 SC3.7

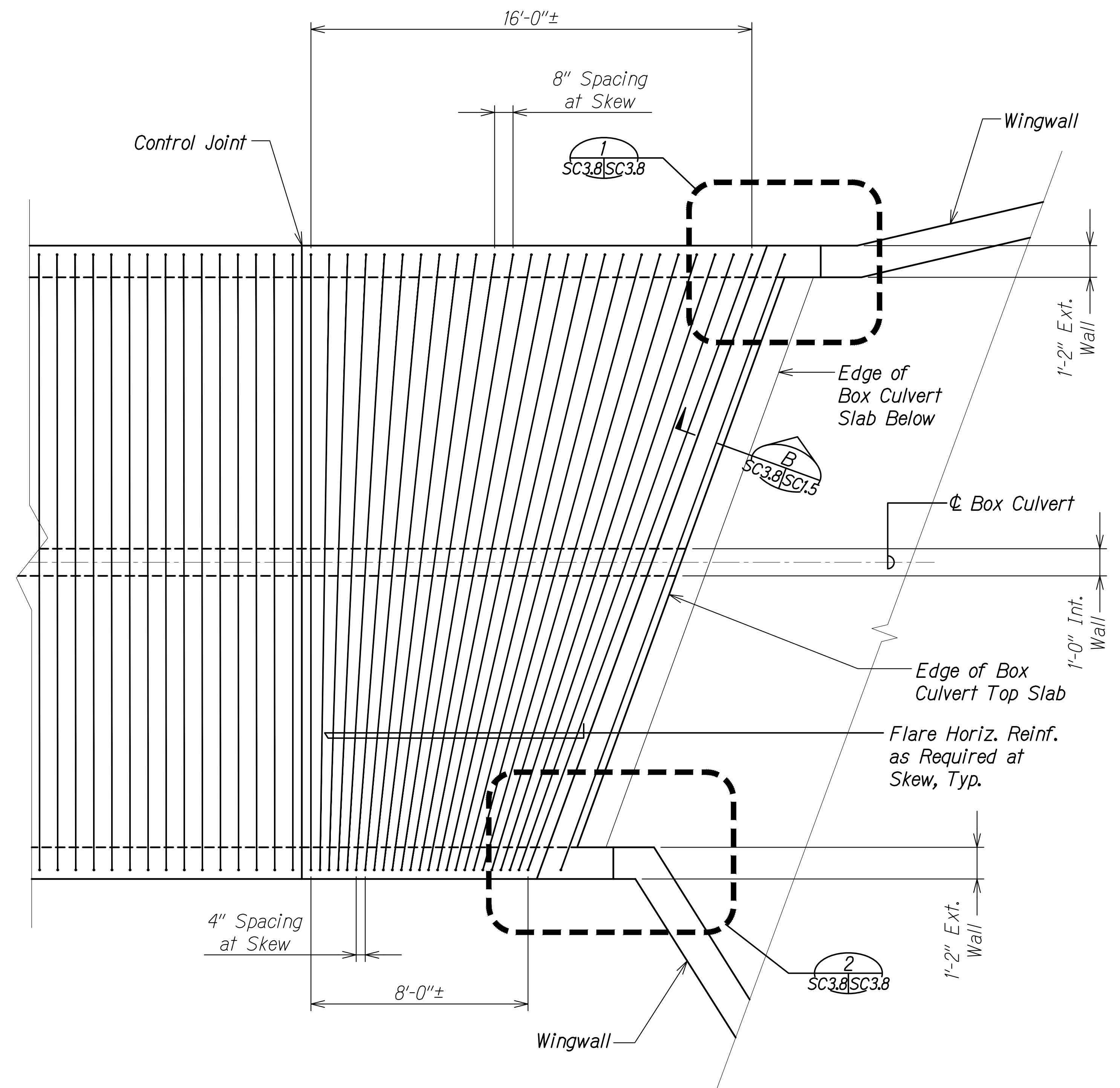
SURVEY PLOTTED BY	DATE
DRAWN BY	
DESIGNED BY	
QUANTITIES BY	
CHECKED BY	
ORIGINAL PLAN	No.
NOTE BOOK	

DRAWING NAME: Z:\100 ONGOING\20-013-FARR-HWY-KAPOLEI GC.ID.IT.WR-EMT\01 CAD\04-06-22 BID SET\FH03-SC0307-PALE-OUTLET BOT SLAB.DWG PLOT TIME: 04-07-22 5:48 PM

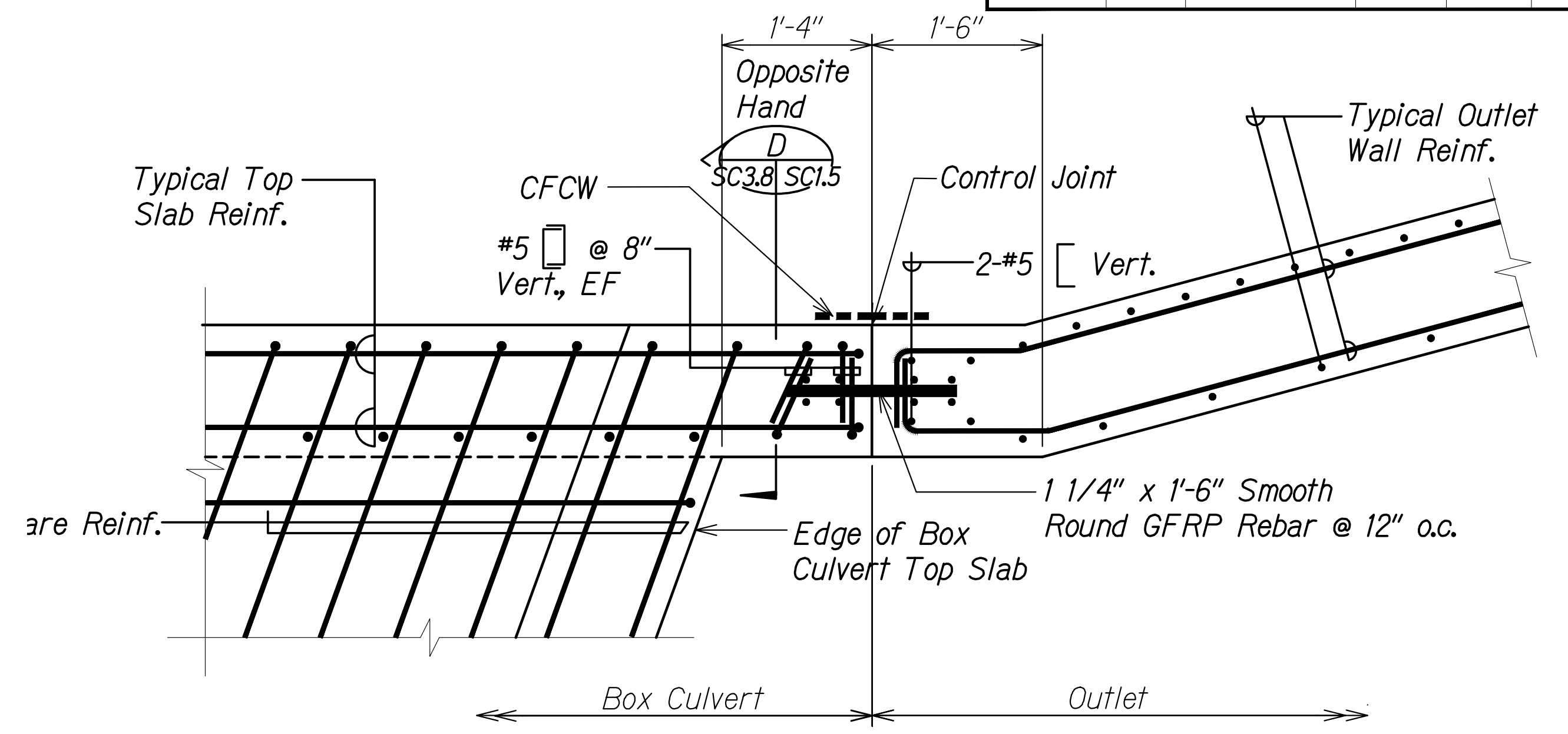
  
 RUSSELL S. MIYAHARA  
 LICENSED PROFESSIONAL ENGINEER  
 NO. 9444-S  
 HAWAII, U.S.A.  
 THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.  
 Signature: *Russ S. Miyahara*  
 April 30, 2024  
 EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII  
 DEPARTMENT OF TRANSPORTATION  
 HIGHWAYS DIVISION  
**Palehua Stream Box Culvert  
 Outlet Bottom Slab Plan and Details**  
 FARRINGTON HIGHWAY WIDENING  
 Kapolei Golf Course Road to Fort Weaver Road  
 Project No. 7101A-01-20  
 Scale: As Shown Date: Apr. 2022  
**SHEET No. SC3.7 OF 21 SHEETS**

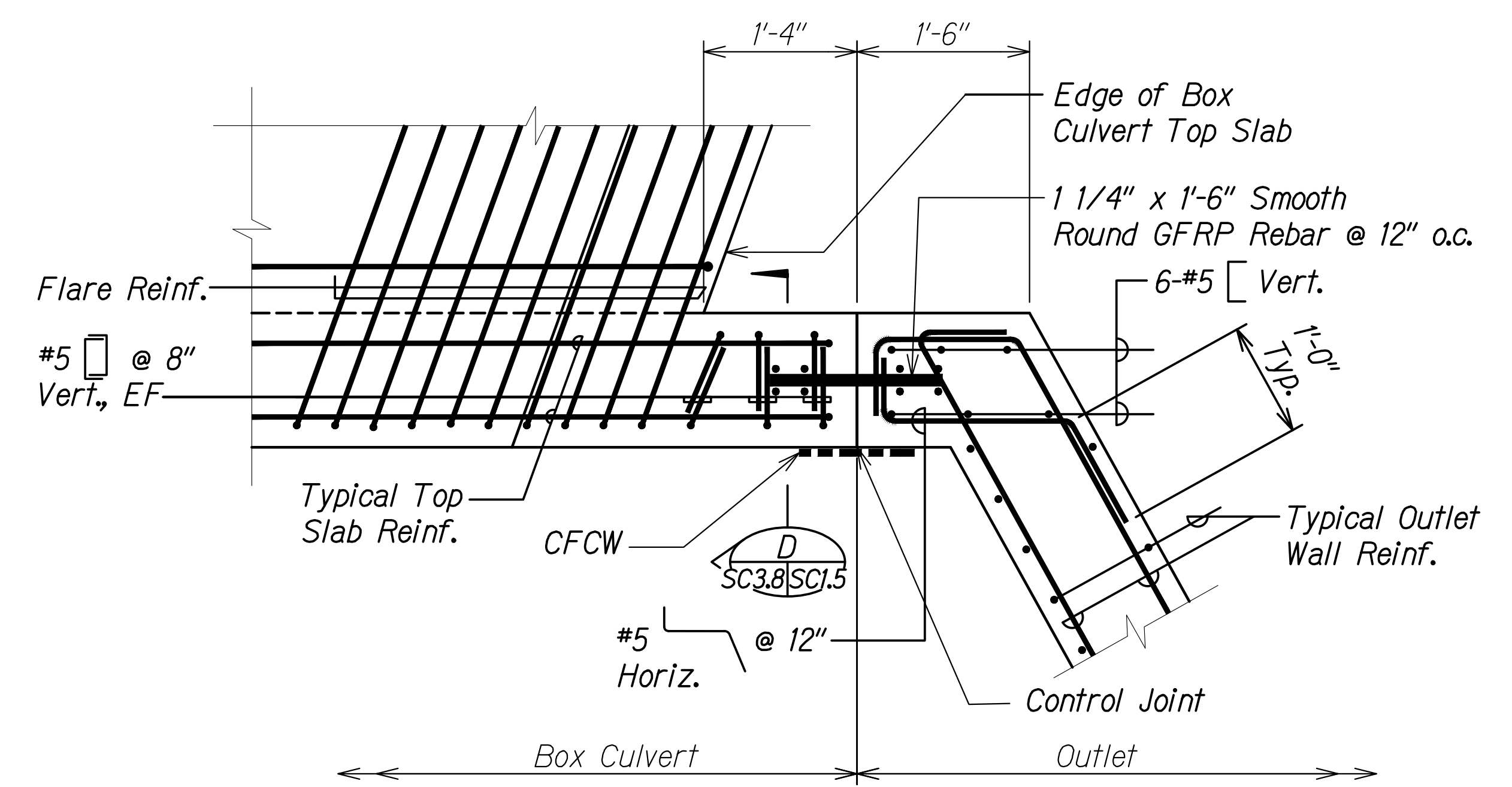
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	7101A-01-20	2021	506	



**TOP SLAB REINF. PLAN AT OUTLET**  
 Scale: 3/8" = 1'-0"  
 SC3.14 SC3.8



**OUTLET - BOX CULVERT TOP SLAB DETAIL 1**  
 Scale: 1" = 1'-0"  
 SC3.8 SC3.8



**OUTLET - BOX CULVERT TOP SLAB DETAIL 2**  
 Scale: 1" = 1'-0"  
 SC3.8 SC3.8

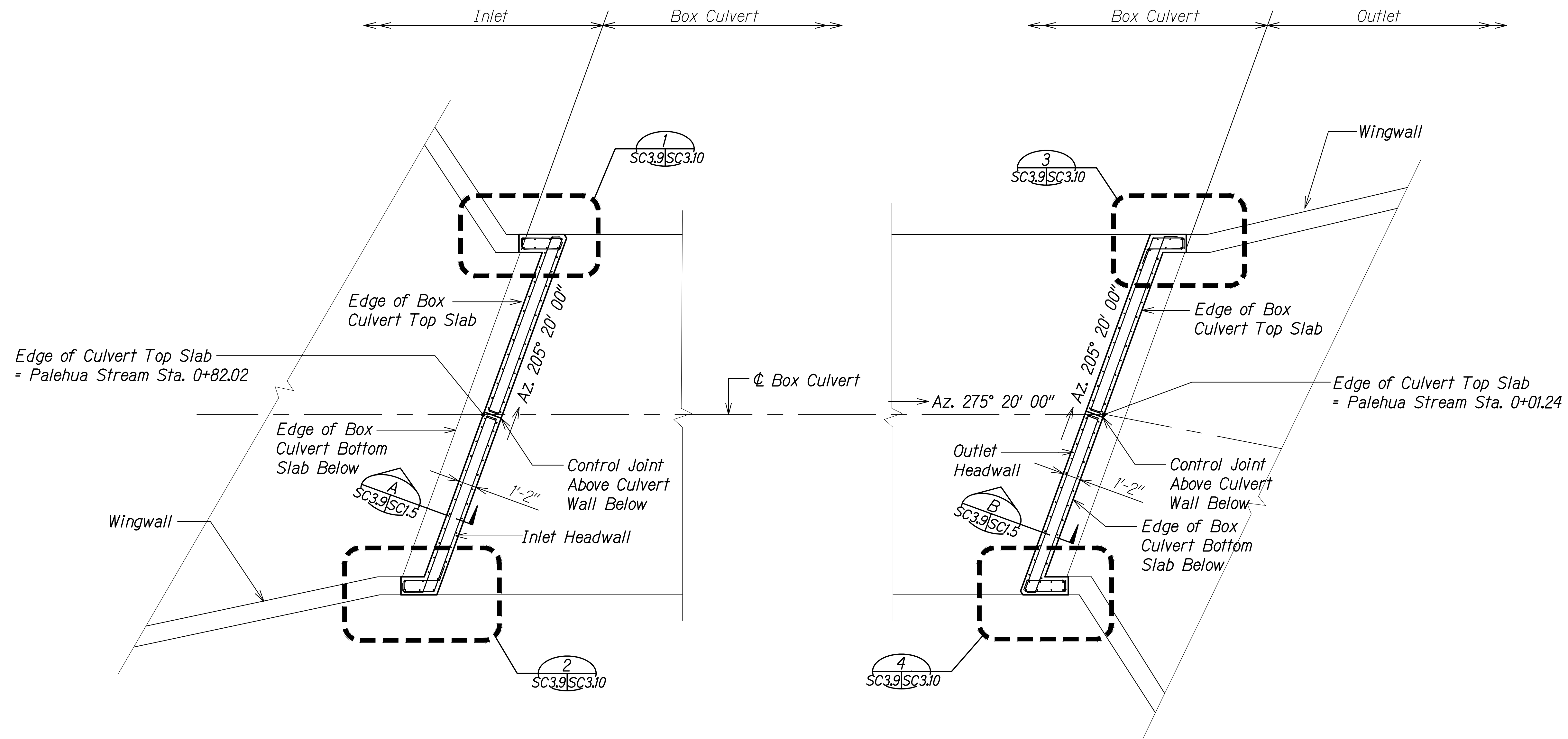
SURVEY PLOTTED BY	DATE
DRAWN BY	
DESIGNED BY	
QUANTITIES BY	
CHECKED BY	
ORIGINAL PLAN	
NOTE BOOK	
No.	

DRAWING NAME: Z:\100 UNDOINGS\20-013-FARR-HW-KAPOLEI GC ID: ET WPR-BMT\01 CAD\04-06-22 BID SET\FH03-SC0308-PALE-OUTLET TOP SLAB.DWG PLOT TIME: 04-07-22 5:48 PM

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 Signature: Russ S. Miyahara  
 April 30, 2024  
 EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII  
 DEPARTMENT OF TRANSPORTATION  
 HIGHWAYS DIVISION  
**Palehua Stream Box Culvert  
 Outlet Top Slab Plan and Details**  
 FARRINGTON HIGHWAY WIDENING  
 Kapolei Golf Course Road to Fort Weaver Road  
 Project No. 7101A-01-20  
 Scale: As Shown Date: Apr. 2022  
**SHEET No. SC3.8 OF 21 SHEETS**

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	7101A-01-20	2021	507	

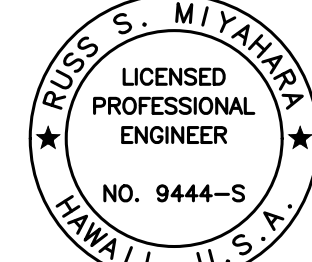


**INLET HEADWALL PLAN** A  
 Scale: 1/4" = 1'-0" SC3.14 SC3.9

**OUTLET HEADWALL PLAN** B  
 Scale: 1/4" = 1'-0" SC3.14 SC3.9

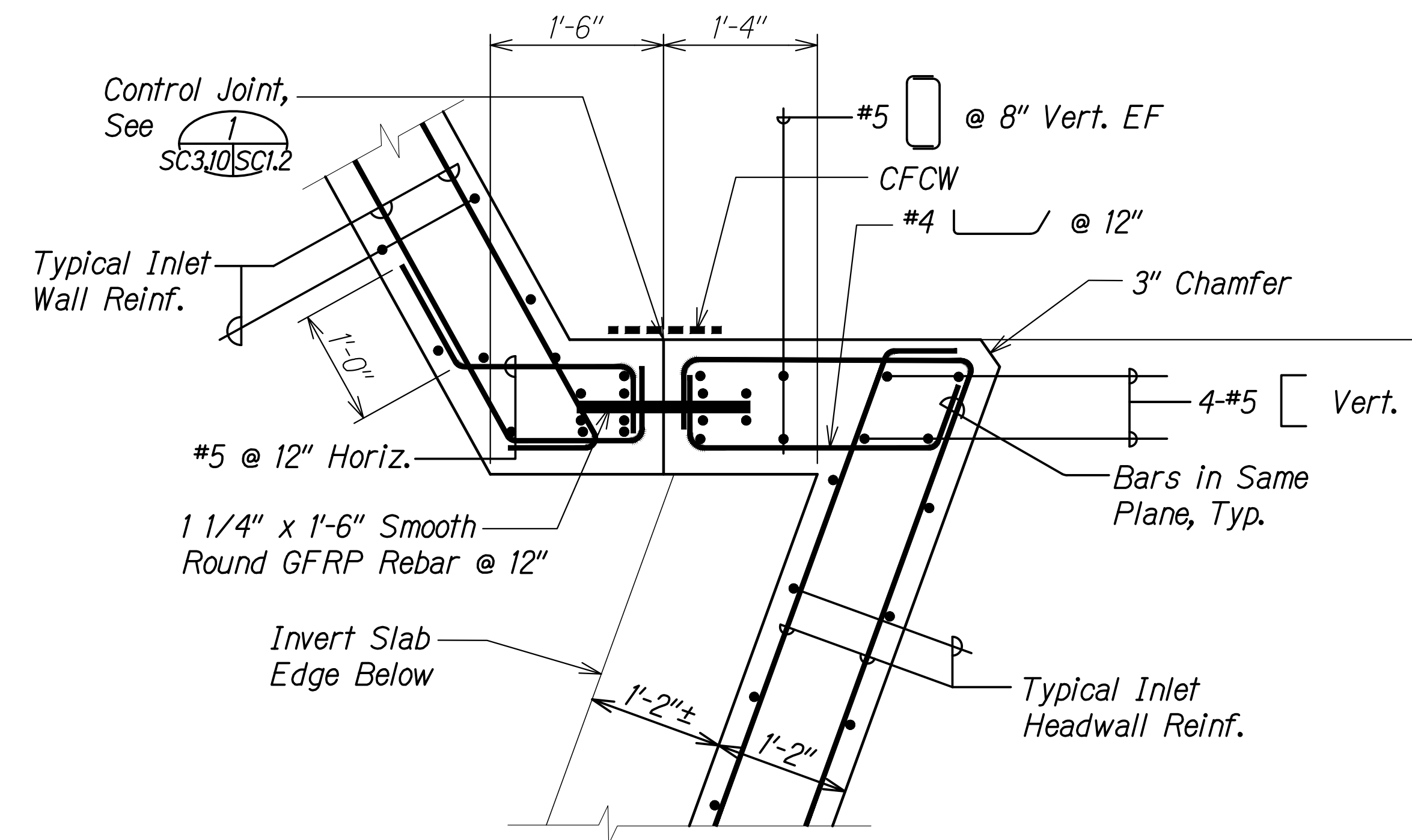
SURVEY PLOTTED BY	DATE
DRAWN BY	
DESIGNED BY	
QUANTITIES BY	
CHECKED BY	
ORIGINAL PLAN	
NOTE BOOK	
No.	

DRAWING NAME: Z:\100 ONGOING\20-013-FARR-HWY-KAPOLEI GC TO FT WYR-EMTC\01 CAD\04-06-22 BID SET\FHW3-SC0309-PALE HEADWALL PLAN.DWG PLOT TIME: 04-07-22, 5:49 PM

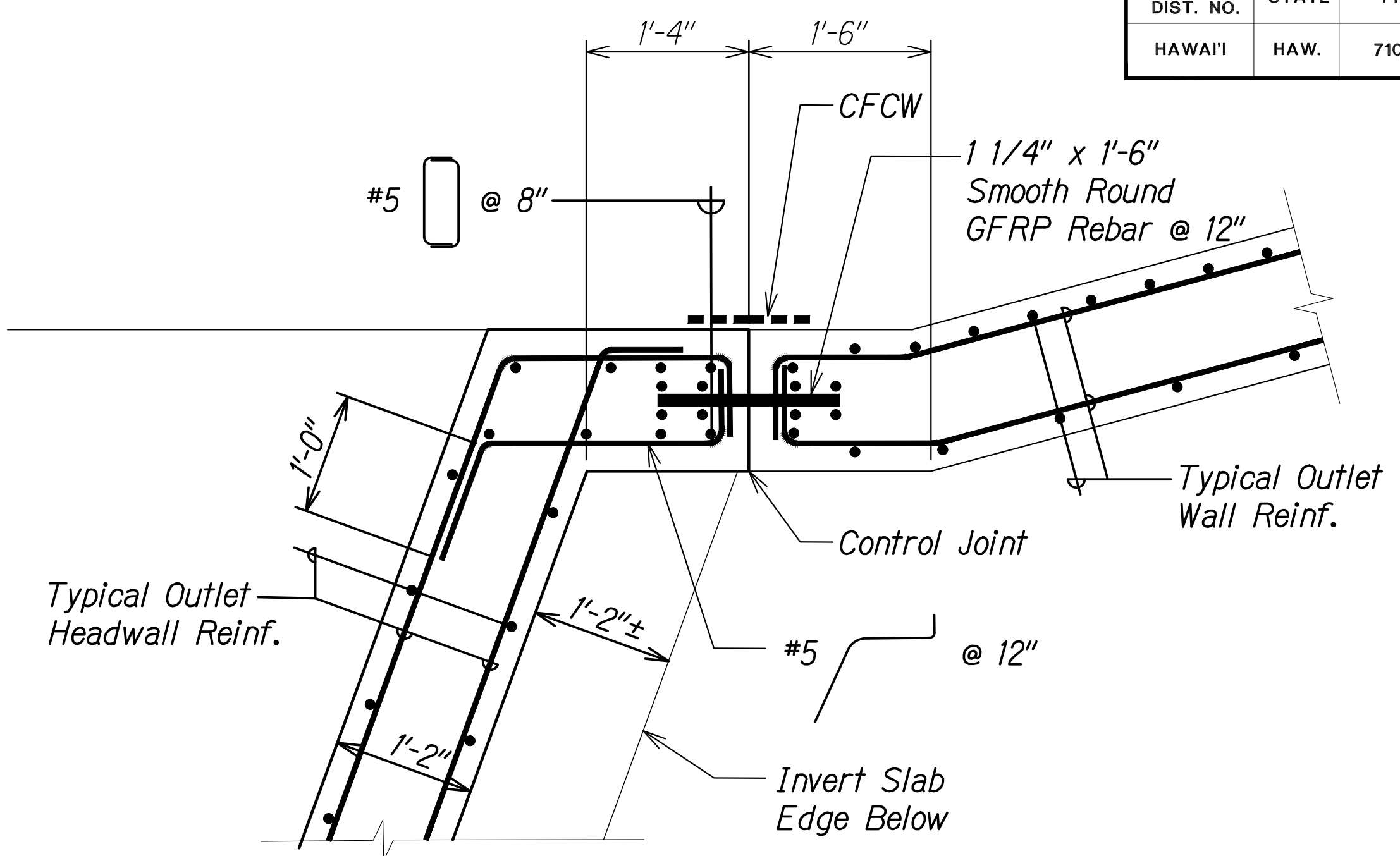
  
 THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.  
*Russ S. Miyahara*  
 SIGNATURE      April 30, 2024  
 EXPIRATION DATE OF THE LICENSE

**STATE OF HAWAII**  
**DEPARTMENT OF TRANSPORTATION**  
**HIGHWAYS DIVISION**  
**Palehua Stream Box Culvert**  
**Headwall Plans**  
**FARRINGTON HIGHWAY WIDENING**  
**Kapolei Golf Course Road to Fort Weaver Road**  
**Project No. 7101A-01-20**  
 Scale: As Shown      Date: Apr. 2022  
**SHEET No. SC3.9 OF 21 SHEETS**

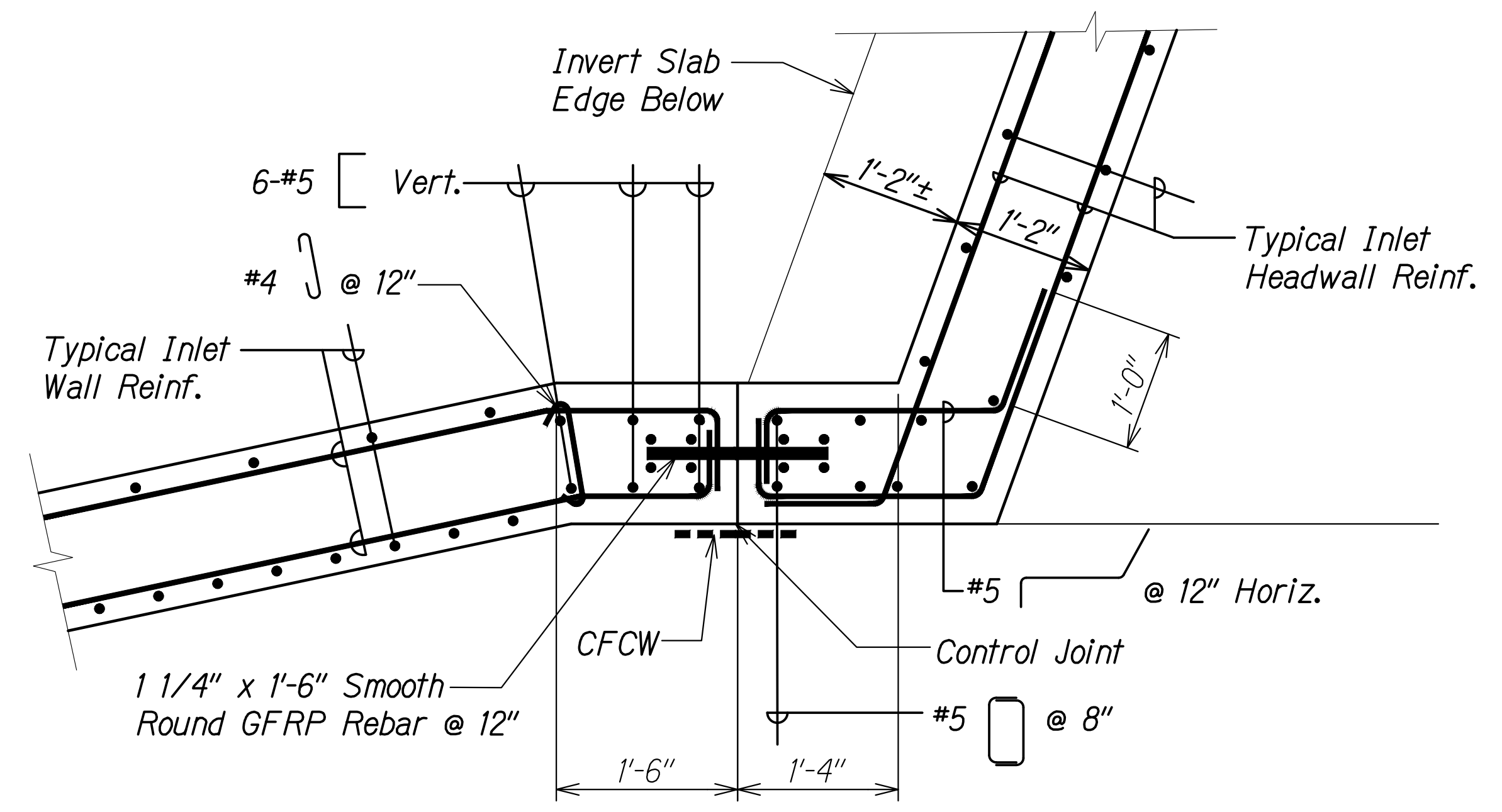
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	7101A-01-20	2021	508	



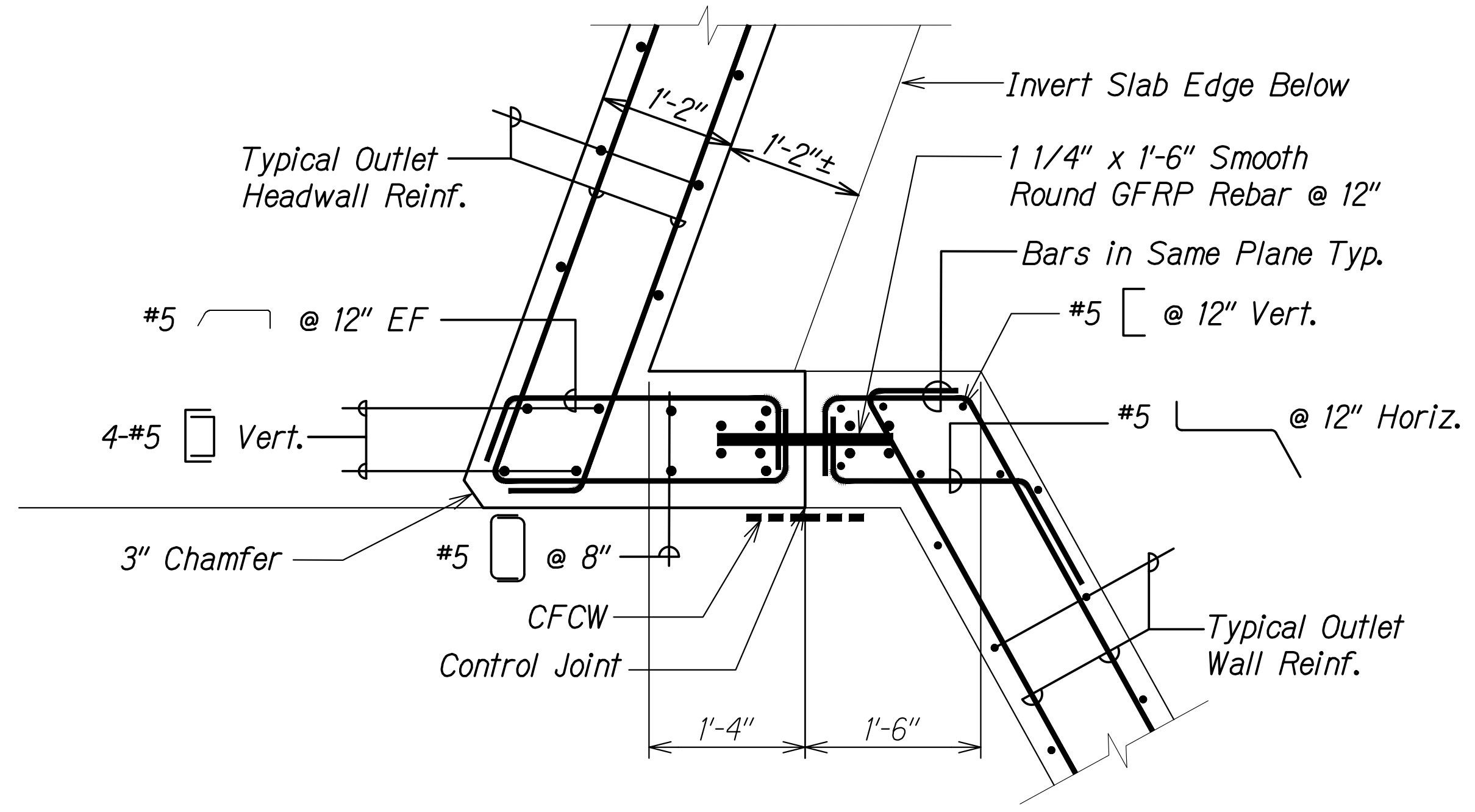
**INLET - BOX CULVERT HEADWALL DETAIL** 1  
 Scale: 1" = 1'-0" SC3.9 SC3.10



**OUTLET - BOX CULVERT HEADWALL DETAIL** 3  
 Scale: 1" = 1'-0" SC3.9 SC3.10



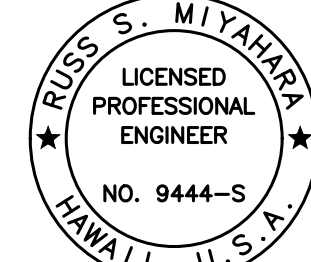
**INLET - BOX CULVERT HEADWALL DETAIL** 2  
 Scale: 1" = 1'-0" SC3.9 SC3.10



**OUTLET - BOX CULVERT HEADWALL DETAIL** 4  
 Scale: 1" = 1'-0" SC3.9 SC3.10

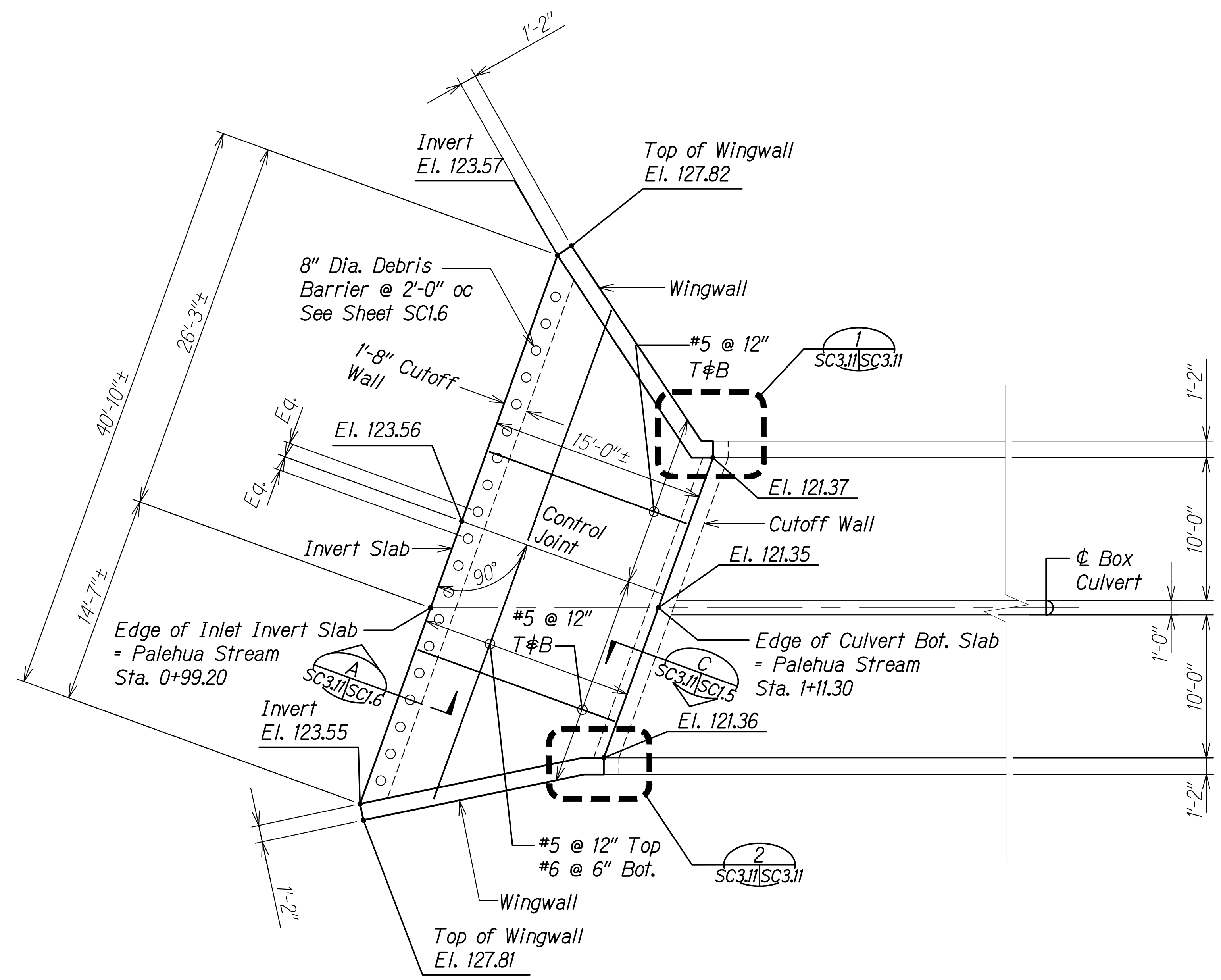
SURVEY PLOTTED BY	DATE
DRAWN BY	
DESIGNED BY	
QUANTITIES BY	
CHECKED BY	
ORIGINAL PLAN	
NOTE BOOK	
No.	

DRAWING NAME: Z:\100 ONGOING\20-013-FARR-HWY-KAPOLEI GC ID: ET WRP-EMT\01 CAD\04-06-22 BID SET\FH03-SC0309-PALE HEADWALL PLAN.DWG PLOT TIME: 04-07-22, 5:49 PM

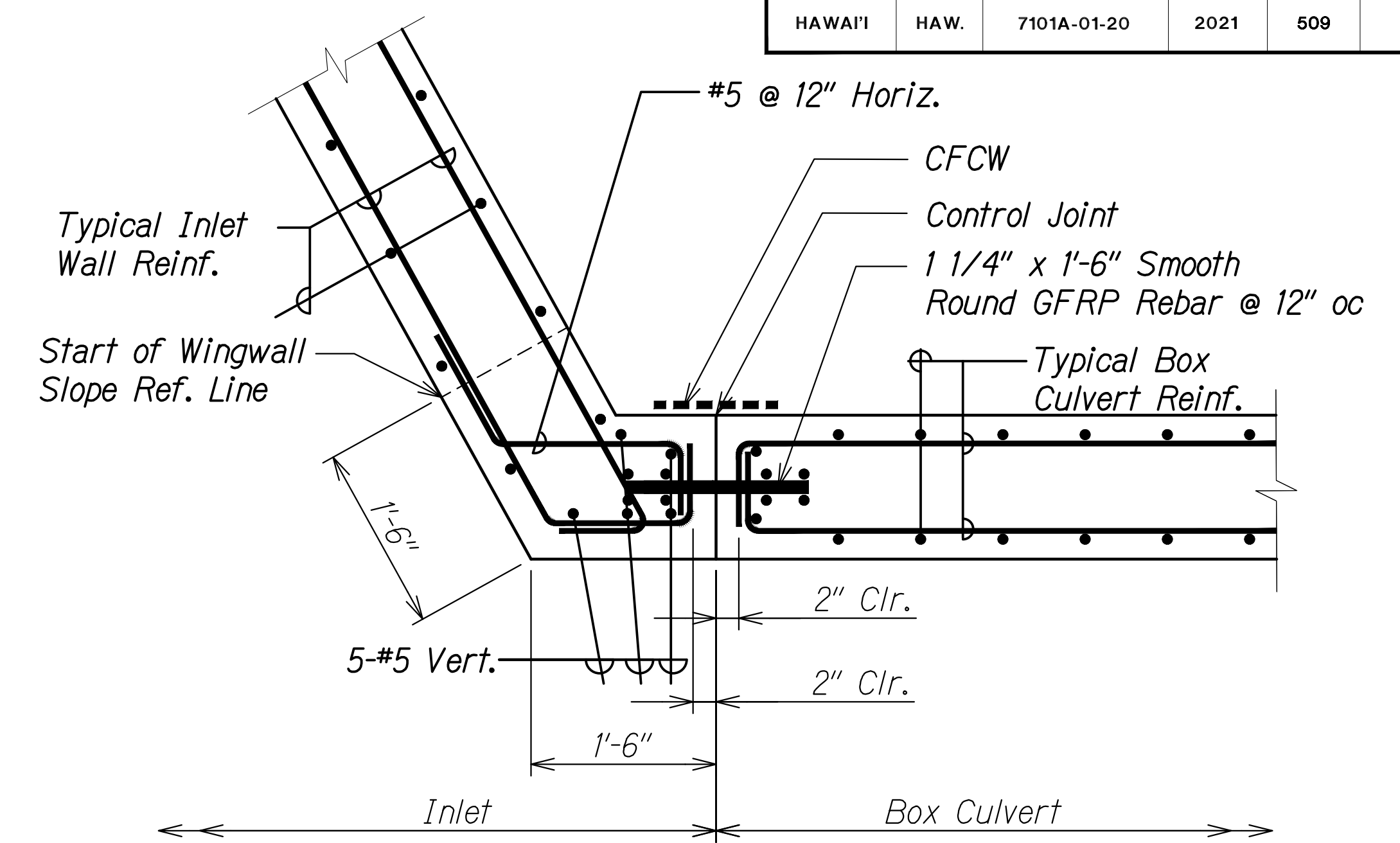
  
 THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.  
 Signature: *Russ S. Miyahara* April 30, 2024  
 EXPIRATION DATE OF THE LICENSE

**STATE OF HAWAII**  
**DEPARTMENT OF TRANSPORTATION**  
**HIGHWAYS DIVISION**  
**Palehua Stream Box Culvert**  
**Headwall Details**  
**FARRINGTON HIGHWAY WIDENING**  
**Kapolei Golf Course Road to Fort Weaver Road**  
**Project No. 7101A-01-20**  
 Scale: As Shown Date: Apr. 2022  
**SHEET No. SC3.10 OF 21 SHEETS**

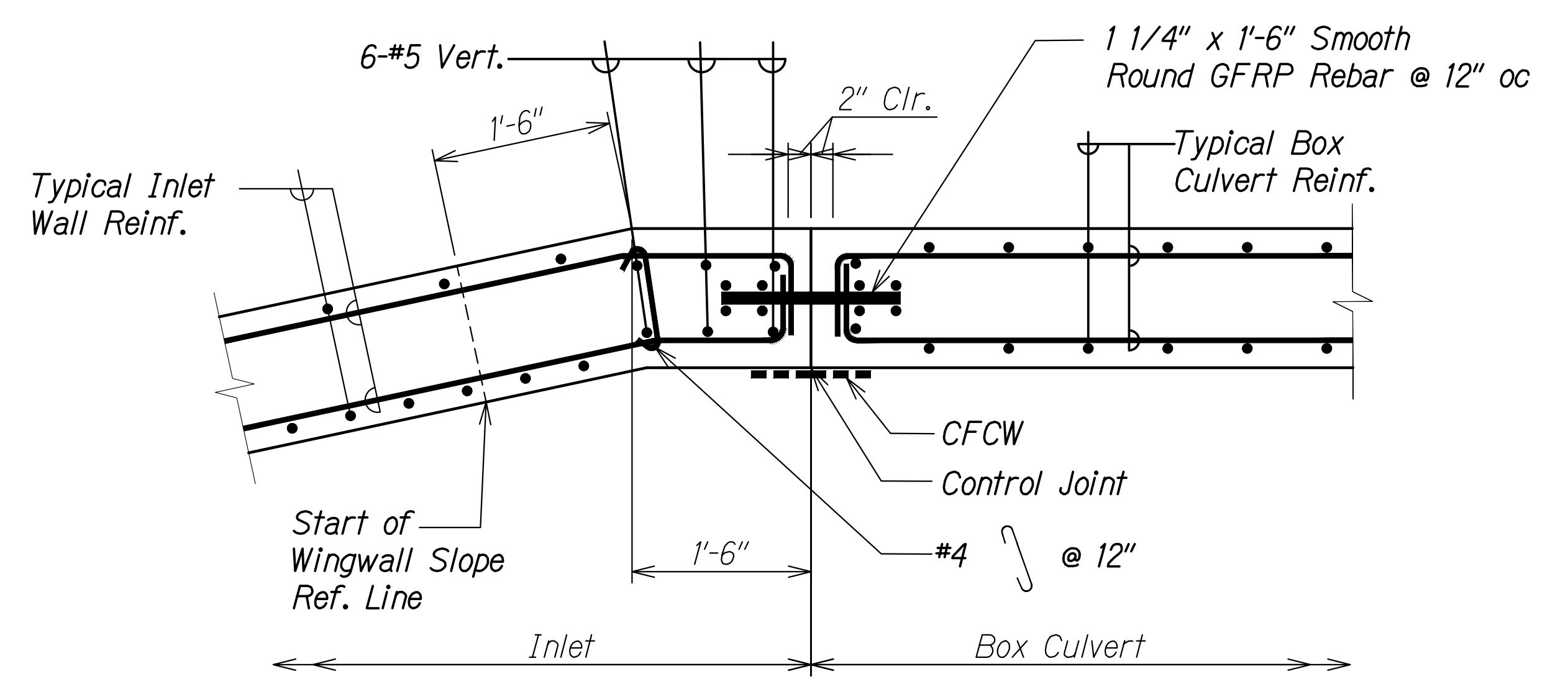
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	7101A-01-20	2021	509	



**INLET PLAN**  
 Scale: 3/16" = 1'-0"  
 SC3.14



**INLET - BOX CULVERT WALL JOINT DETAIL 1**  
 Scale: 1" = 1'-0"  
 SC3.11 SC3.11



**INLET - BOX CULVERT WALL JOINT DETAIL 2**  
 Scale: 1" = 1'-0"  
 SC3.11 SC3.11

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

DRAWING NAME: Z:\100 ONGOING\20-013-FARR-HW-KAPOLEI GC.ID ET WRG-BMT\01 CAD\04-06-22 BID SET\FH03-SC0311-PALE INLET PLAN.DWG PLOT TIME: 04-07-22 5:50 PM

**RUGES S. MIYAHARA**  
 LICENSED PROFESSIONAL ENGINEER  
 NO. 9444-S  
 HAWAII, U.S.A.  
 THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.  
 Signature: *Ruges S. Miyahara*  
 April 30, 2024  
 EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII  
 DEPARTMENT OF TRANSPORTATION  
 HIGHWAYS DIVISION

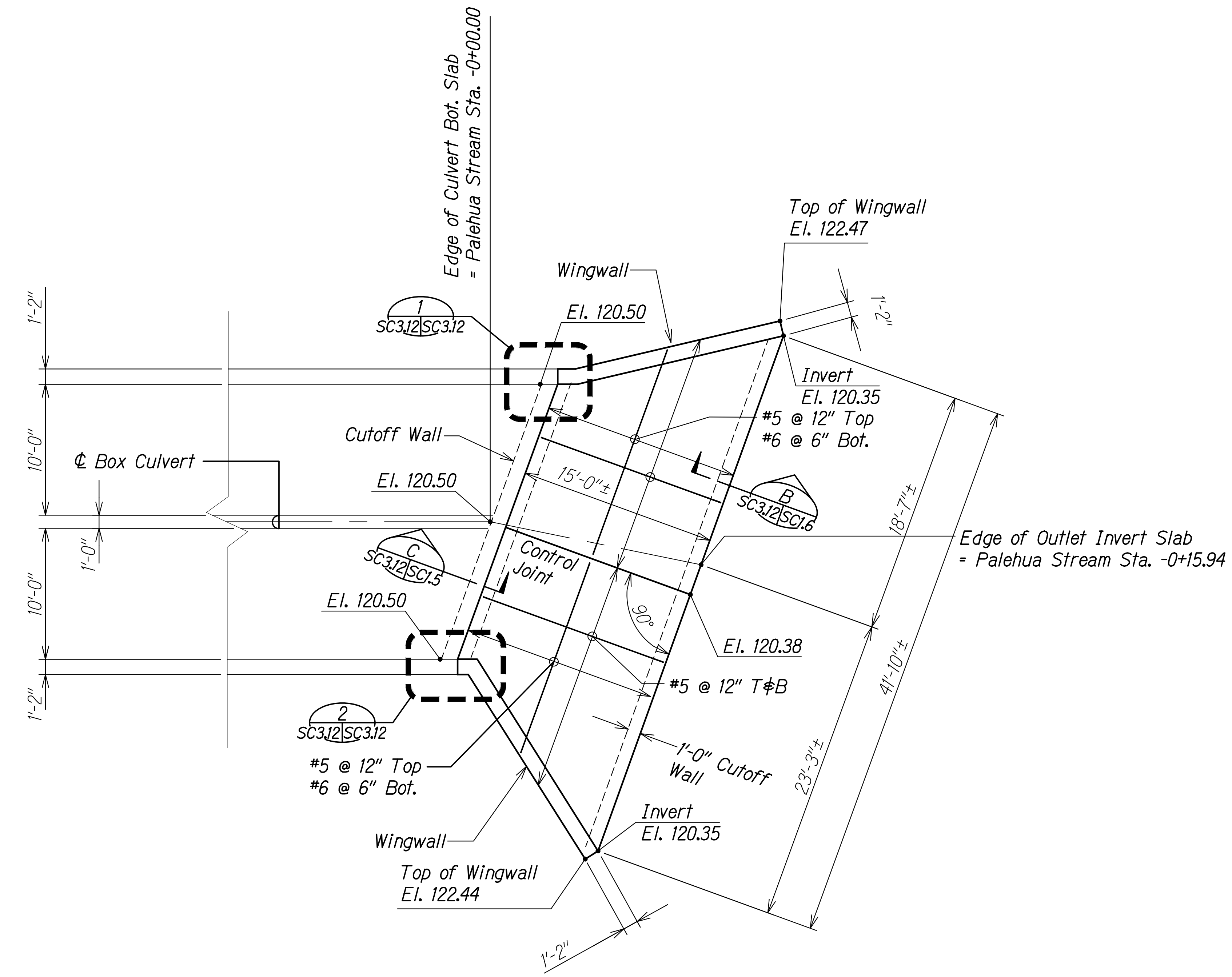
**Palehua Stream Box Culvert  
 Inlet Plan and Details**

FARRINGTON HIGHWAY WIDENING  
 Kapolei Golf Course Road to Fort Weaver Road  
 Project No. 7101A-01-20

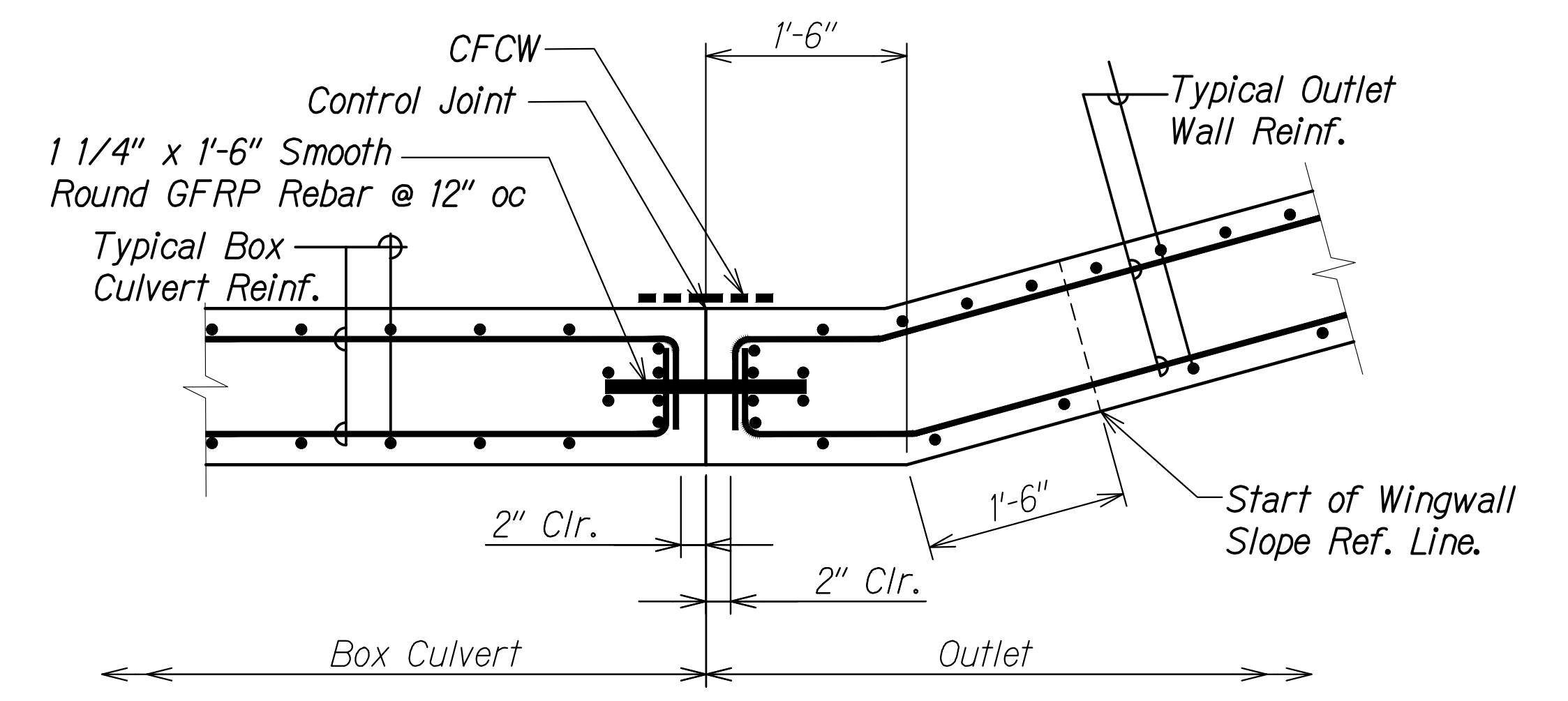
Scale: As Shown Date: Apr. 2022

**SHEET No. SC3.11 OF 21 SHEETS**

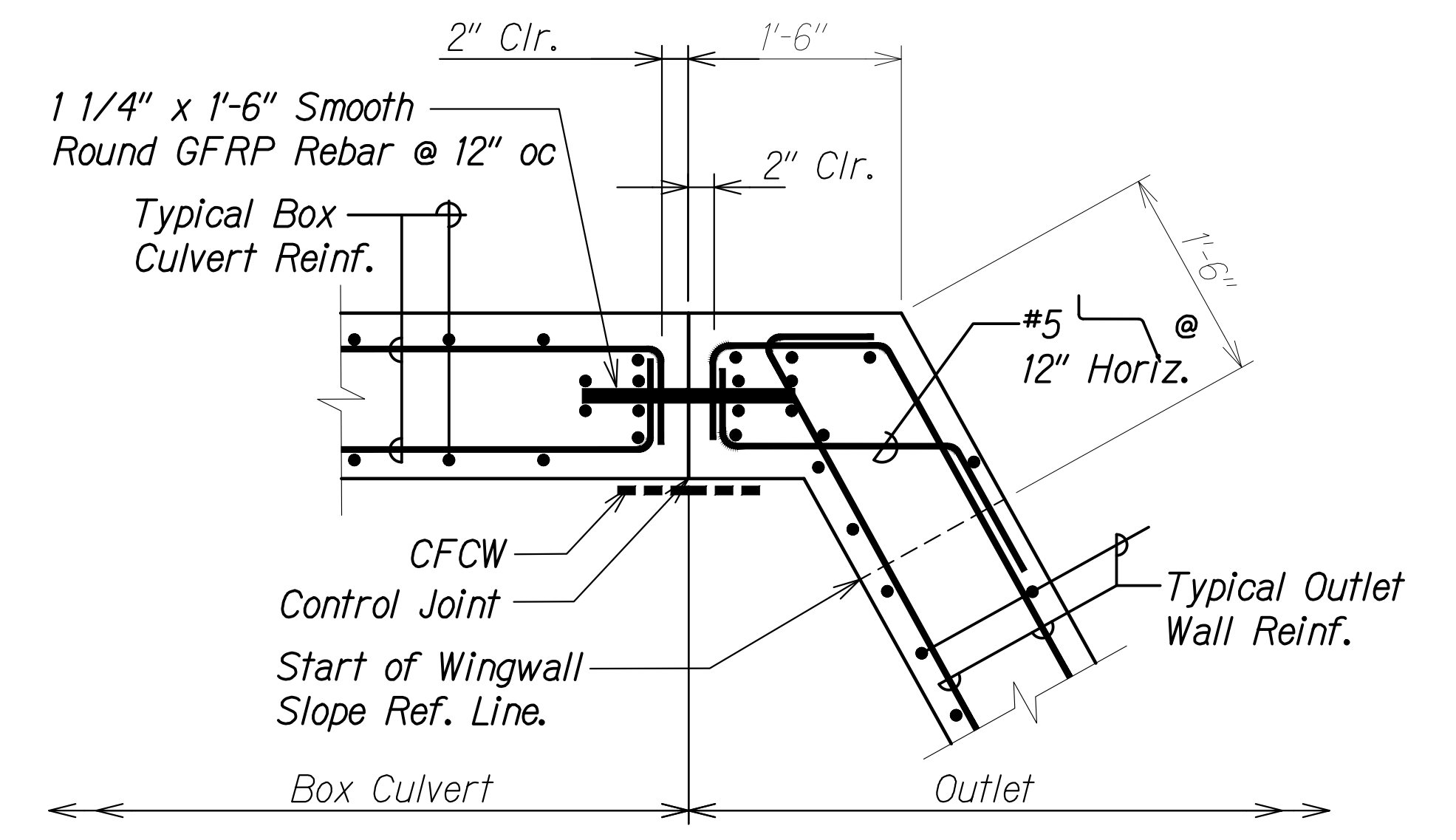
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	7101A-01-20	2021	510	



**OUTLET PLAN**  
 Scale: 3/16" = 1'-0"  
 SC3.14



**OUTLET - BOX CULVERT JOINT DETAIL 1**  
 Scale: 1" = 1'-0"  
 SC3.12 SC3.12

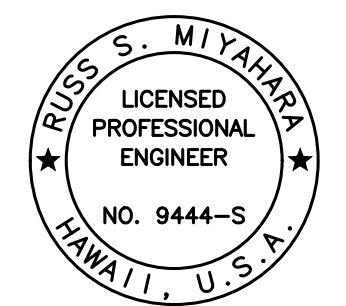


**OUTLET - BOX CULVERT JOINT DETAIL 2**  
 Scale: 1" = 1'-0"  
 SC3.12 SC3.12

SURVEY PLOTTED BY	DATE
DRAWN BY	
DESIGNED BY	
QUANTITIES BY	
CHECKED BY	
ORIGINAL PLAN No.	

DRAWING NAME: Z:\100 ONGOING\20-013-FARR-HWY-KAPOLEI GC ID: ET-WR-BMT\01-CA\04-06-22 BID SET\FH03-SC03.12-PALE-OUTLET PLAN.DWG PLOT TIME: 04-07-22 5:50 PM

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.  
 Signature: *Rao S. Miyahara*  
 April 30, 2024  
 EXPIRATION DATE OF THE LICENSE



STATE OF HAWAII  
 DEPARTMENT OF TRANSPORTATION  
 HIGHWAYS DIVISION

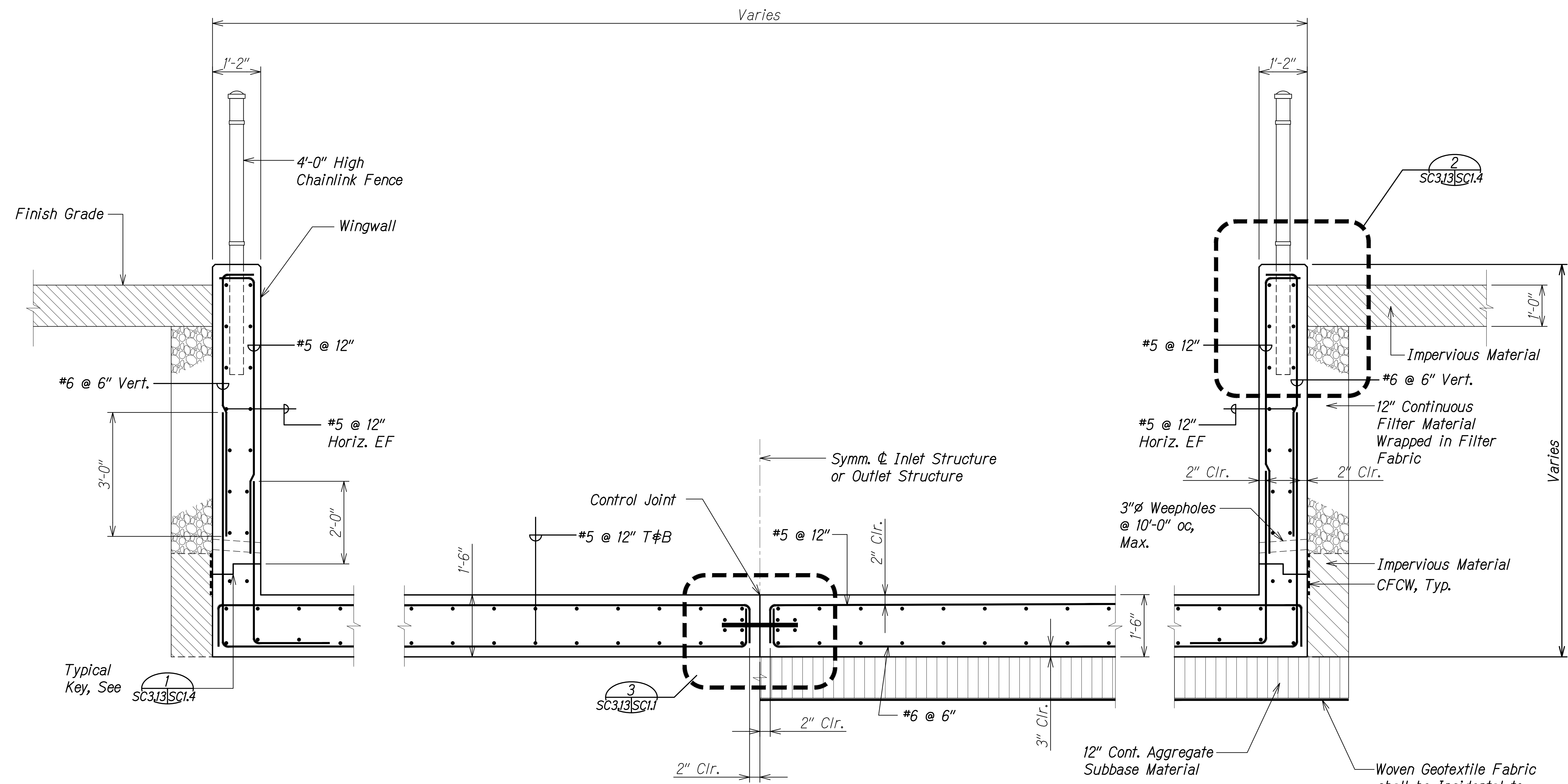
**Palehua Stream Box Culvert  
 Outlet Plan and Details**

FARRINGTON HIGHWAY WIDENING  
 Kapolei Golf Course Road to Fort Weaver Road  
 Project No. 7101A-01-20

Scale: As Shown Date: Apr. 2022

SHEET No. SC3.12 OF 21 SHEETS

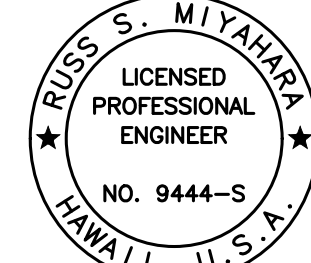
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	7101A-01-20	2021	511	



**SECTION A**  
 Scale: 3/4" = 1'-0" SC3.13/SC3.13

ORIGINAL PLAN	DATE
DRAWN BY	
DESIGNED BY	
QUANTITIES BY	
CHECKED BY	
No.	

DRAWING NAME: Z:\00 ONGOING\20-013-FARR-HWY-KAPOLEI GC ID: ET WPR-EMTC\01 CAD\04-06-22 BID SET\FHW3-SC0313-PALE IN-OUT SECTION.DWG PLOT TIME: 04-07-22 9:51 PM

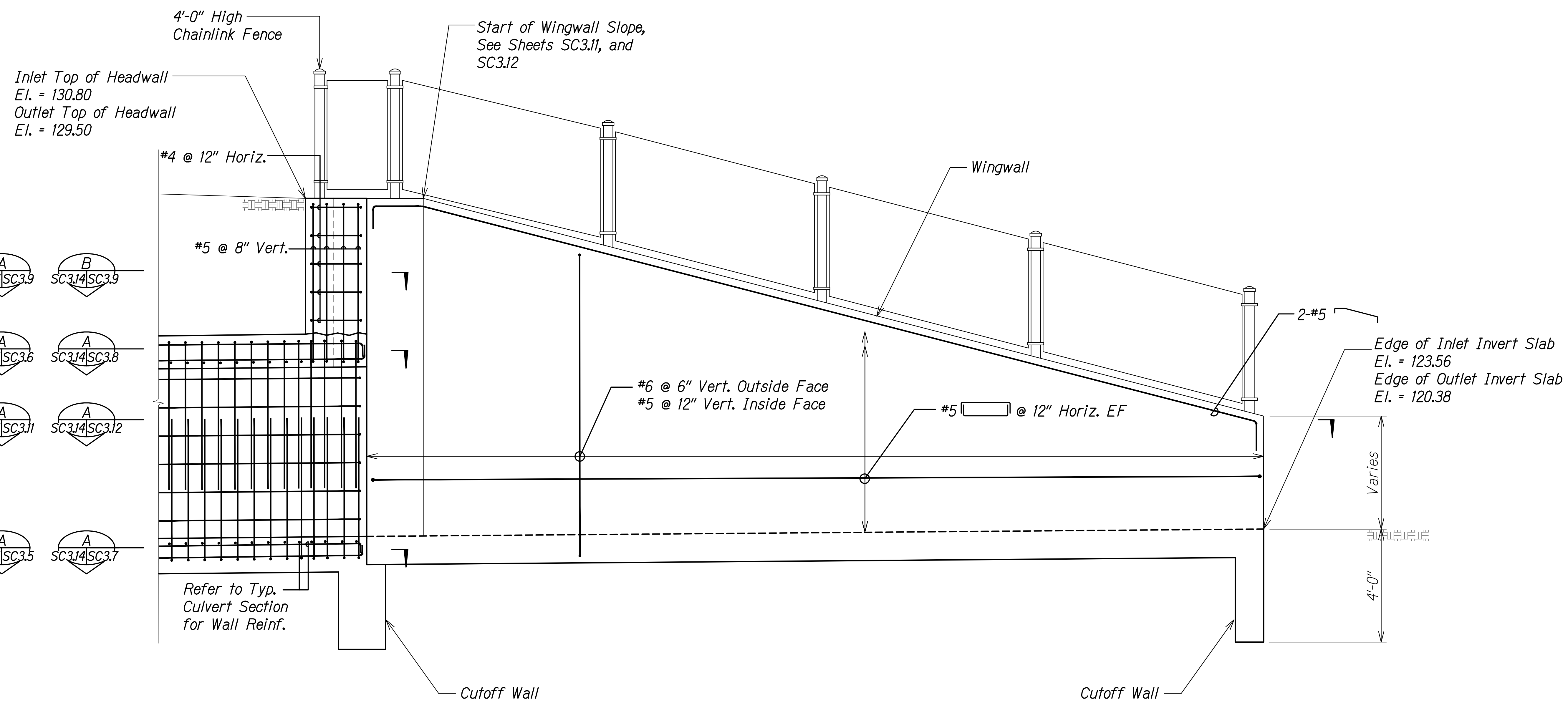
  
 THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.  
 Signature: *Russ S. Miyahara*  
 April 30, 2024  
 EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII  
 DEPARTMENT OF TRANSPORTATION  
 HIGHWAYS DIVISION  
**Palehua Stream Box Culvert**  
**Typical Inlet/Outlet Section**  
 FARRINGTON HIGHWAY WIDENING  
 Kapolei Golf Course Road to Fort Weaver Road  
 Project No. 7101A-01-20  
 Scale: As Shown Date: Apr. 2022  
**SHEET No. SC3.13 OF 21 SHEETS**



FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	7101A-01-20	2021	512	

DRAWING NAME: Z:\100 ONGOING\20-013-FARR-HWY-KAPOLEI\GE.ID.IT.WP2-EMT(C).D1 CAD\04-06-22 BID SET\FH03-SC0314-PALE IN-OUT WALL ELEV-SECTION.DWG PLOT TIME: 04-07-22 9:51 PM



- A SC3.14|SC3.9 B SC3.14|SC3.9
- A SC3.14|SC3.6 A SC3.14|SC3.8
- A SC3.14|SC3.11 A SC3.14|SC3.12
- A SC3.14|SC3.5 A SC3.14|SC3.7

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

**INLET / OUTLET WALL ELEVATION** A  
 Scale: 1/2" = 1'-0" SC3.14 | SC3.14

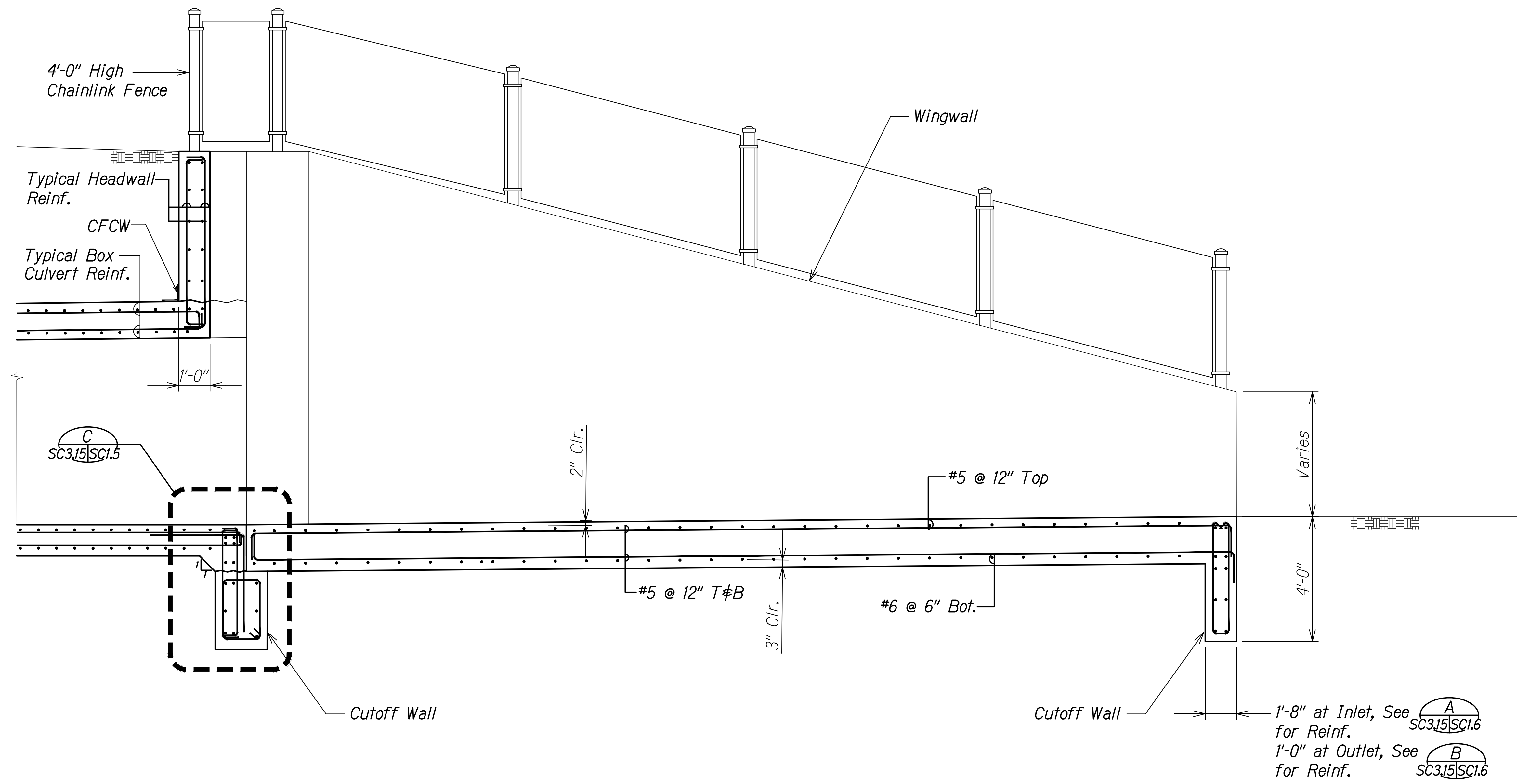
RUSSELL S. MIYAHARA  
 LICENSED PROFESSIONAL ENGINEER  
 NO. 9444-S  
 HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.

*Russ S. Miyahara*  
 SIGNATURE      April 30, 2024  
 EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII  
 DEPARTMENT OF TRANSPORTATION  
 HIGHWAYS DIVISION  
**Palehua Stream Box Culvert  
 Inlet/Outlet Wall Elevation**  
 FARRINGTON HIGHWAY WIDENING  
 Kapolei Golf Course Road to Fort Weaver Road  
 Project No. 7101A-01-20  
 Scale: As Shown      Date: Apr. 2022  
**SHEET No. SC3.14 OF 21 SHEETS**

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	7101A-01-20	2021	513	



**INLET / OUTLET SECTION** A  
 Scale: 1/2" = 1'-0" SC3.15 | SC3.15

SURVEY PLOTTED BY	DATE
DRAWN BY	
DESIGNED BY	
QUANTITIES BY	
CHECKED BY	
ORIGINAL PLAN No.	

DRAWING NAME: Z:\100 ONGOING\20-013-FARR-HWY KAPOLEI GC ID: ET WPR-EMTC\01 CAD\04-06-22 BID SET\FHW3-SC0314-PALE IN-OUT WALL ELEV-SECTION.DWG PLOT TIME: 04-07-22 9:51 PM

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.  
*Rugo S. Miyahara*  
 SIGNATURE      April 30, 2024  
 EXPIRATION DATE OF THE LICENSE

**STATE OF HAWAII**  
**DEPARTMENT OF TRANSPORTATION**  
**HIGHWAYS DIVISION**  
**Palehua Stream Box Culvert**  
**Inlet/Outlet Longitudinal Section**  
**FARRINGTON HIGHWAY WIDENING**  
**Kapolei Golf Course Road to Fort Weaver Road**  
**Project No. 7101A-01-20**  
 Scale: As Shown      Date: Apr. 2022  
**SHEET No. SC3.15 OF 21 SHEETS**

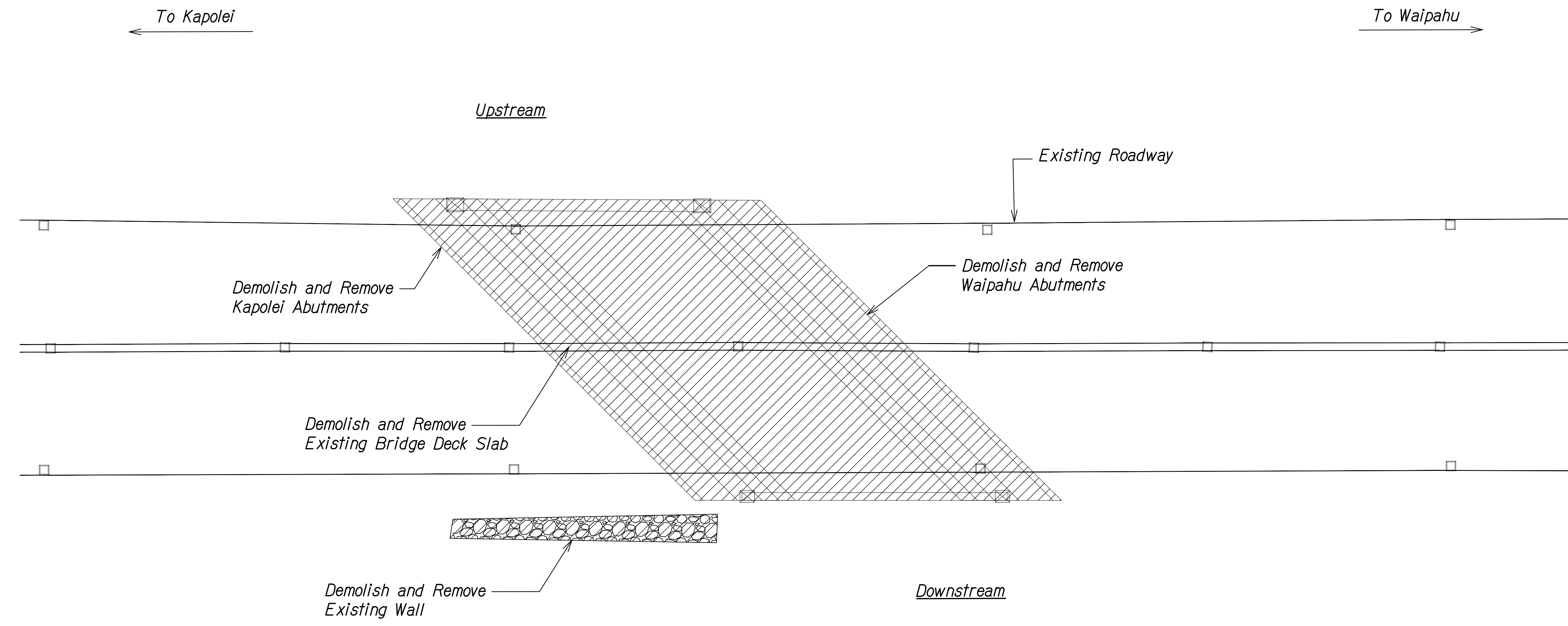
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	7101A-01-20	2021	514	

Legend:

 Demolish and Remove

Notes:

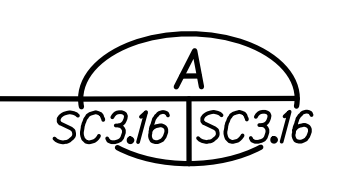
1. Follow best management practices (BMP) required for construction.
2. Contractor shall submit demolition plan to Engineer for review and approval. Demolition plan shall include intended BMP measures to prevent debris and dust from entering the surrounding stream.

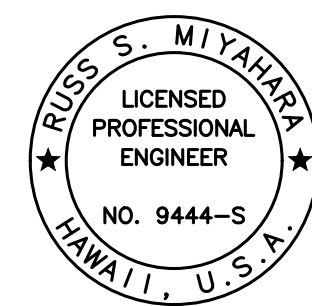


DRAWING NAME: Z:\100 ONGOING\20-013-FARR-HWY-KAPOLEI GC ID: ET-WR-RMTC\01-CAD\04-06-22 BID SET\FHW3-SC0316 PALE DEMO-PLAN.DWG PLOT TIME: 04-07-22: 5:52 PM

ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
NOTE BOOK	DRAWN BY	
No. _____	DESIGNED BY	
	QUANTITIES BY	
	CHECKED BY	

**DEMOLITION PLAN**  
Scale: 3/16" = 1'-0"

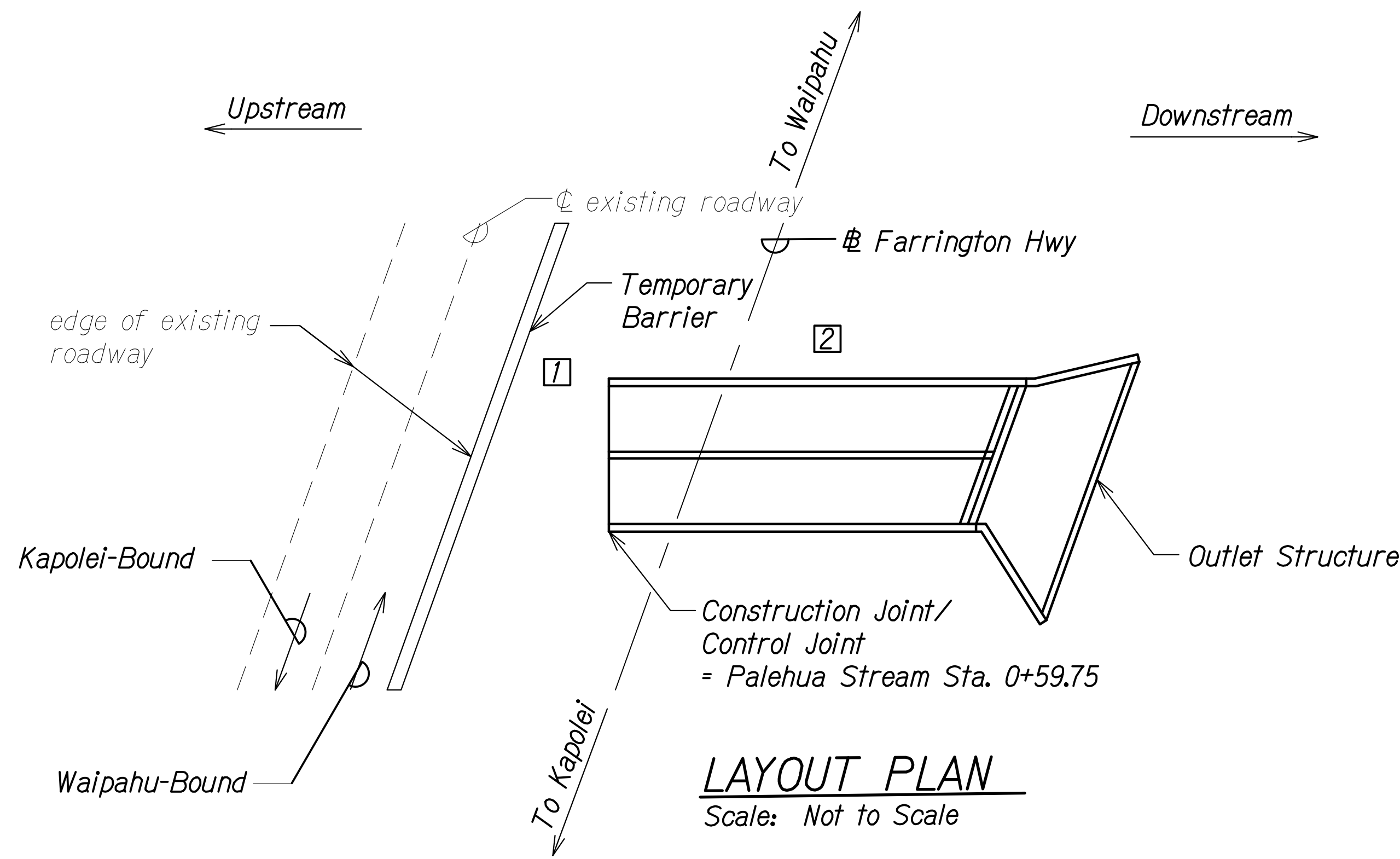


  
 THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.  
 Signature: *Rugo S. Miyakawa*  
 April 30, 2024  
 EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII  
 DEPARTMENT OF TRANSPORTATION  
 HIGHWAYS DIVISION  
**Palehua Stream Box Culvert  
 Demolition Plan**  
 FARRINGTON HIGHWAY WIDENING  
 Kapolei Golf Course Road to Fort Weaver Road  
 Project No. 7101A-01-20  
 Scale: As Shown Date: Apr. 2022  
**SHEET No. SC3.16 OF 21 SHEETS**



FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	7101A-01-20	2021	516	



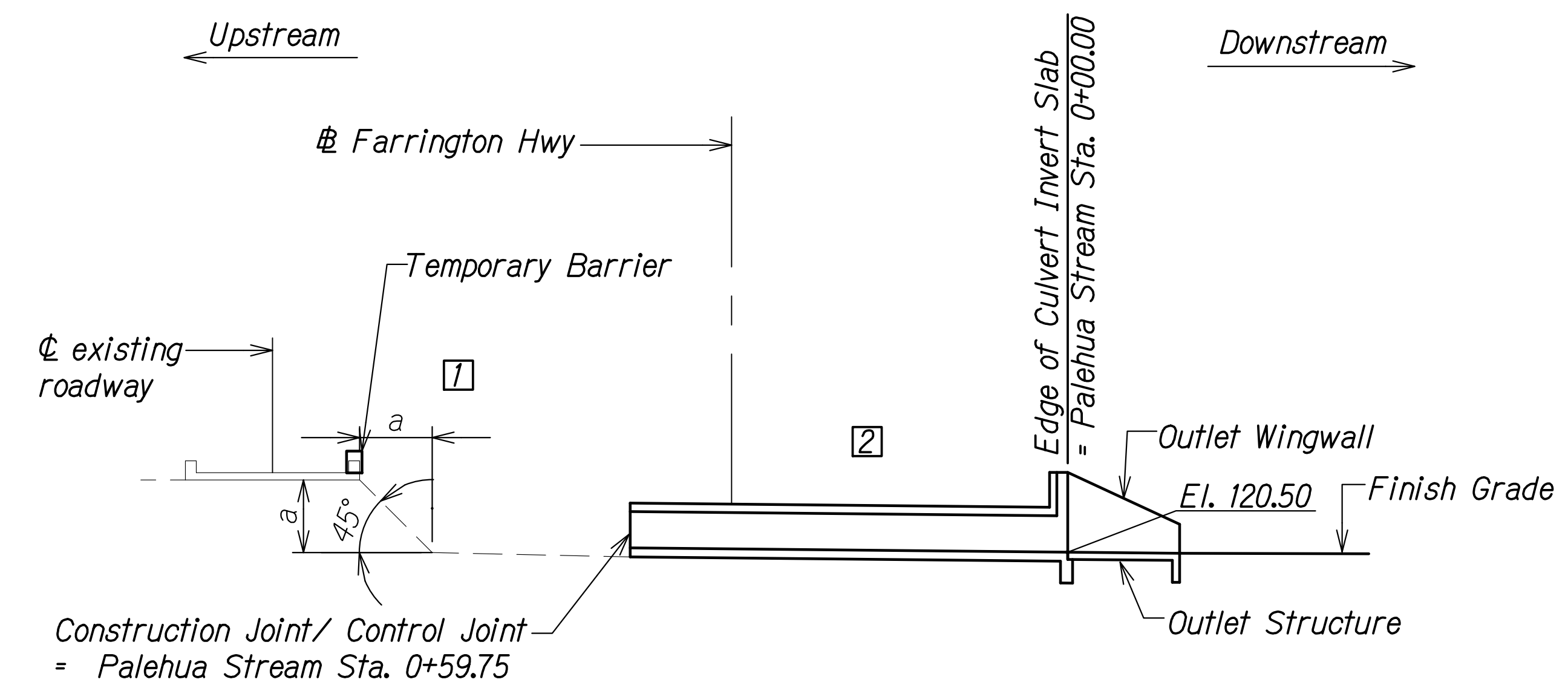
**LAYOUT PLAN**  
Scale: Not to Scale

**CONSTRUCTION STAGE 1**

- 1 Excavate and cut grade for construction of downstream end of culvert. Temporarily shore existing roadway, as required.  
  
For extent and location of temporary barrier along existing roadway, see Civil Traffic Control Plan Sheet TC-6.
- 2 Construct downstream end of culvert and outlet structure.

**Notes:**

The Contractor shall submit working drawings for the limits of excavation and demolition to the Engineer for approval. The working drawings shall show all proposed bracing and shoring as needed to protect the existing roadway and detour road. Demolition and excavation shall be coordinated with any temporary shoring, detour road, and construction of the new culvert.



**SECTION AT BOX CULVERT**  
Scale: Not to Scale

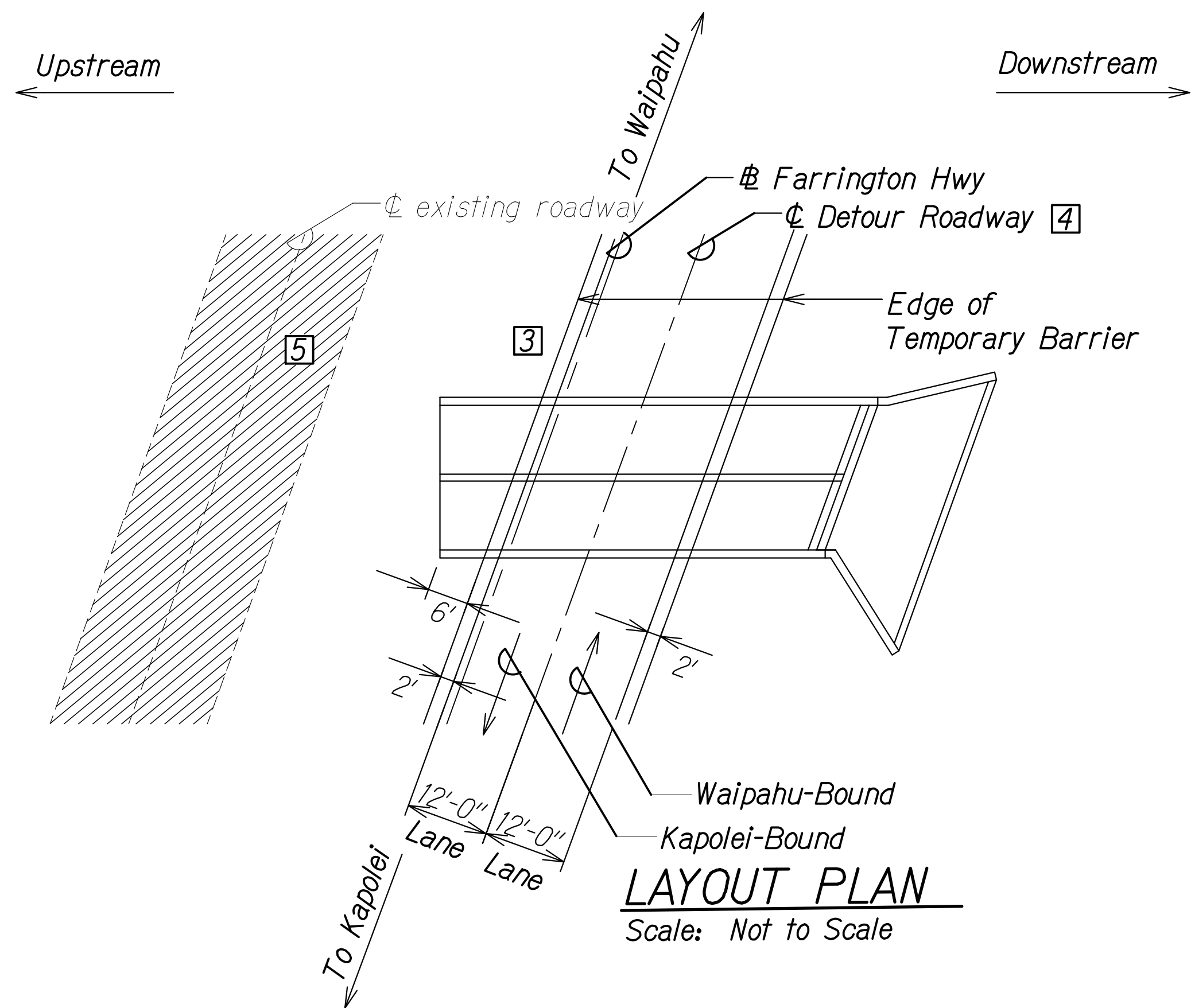
ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
NOTE BOOK	DRAWN BY	
No. _____	DESIGNED BY	
	QUANTITIES BY	
	CHECKED BY	

DRAWING NAME: Z:\100 ONGOINGS\20-013-FARR-HWY-KAPOLEI-GC-10-ET-WP2-RMT\01-GAD\04-13-22-BID-RVSD-SHRS\FHW3-SC0318-PALE-CONSTR-SECDWG PLOT TIME: 04-13-22 4:54 PM

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 Signature: *Rugo S. Miyakawa*  
 April 30, 2024  
 EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII  
 DEPARTMENT OF TRANSPORTATION  
 HIGHWAYS DIVISION  
**Palehua Stream Box Culvert**  
**Construction Sequence**  
 FARRINGTON HIGHWAY WIDENING  
 Kapolei Golf Course Road to Fort Weaver Road  
 Project No. 7101A-01-20  
 Scale: As Shown Date: Apr. 2022  
**SHEET No. SC3.18 OF 21 SHEETS**

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	7101A-01-20	2021	517	



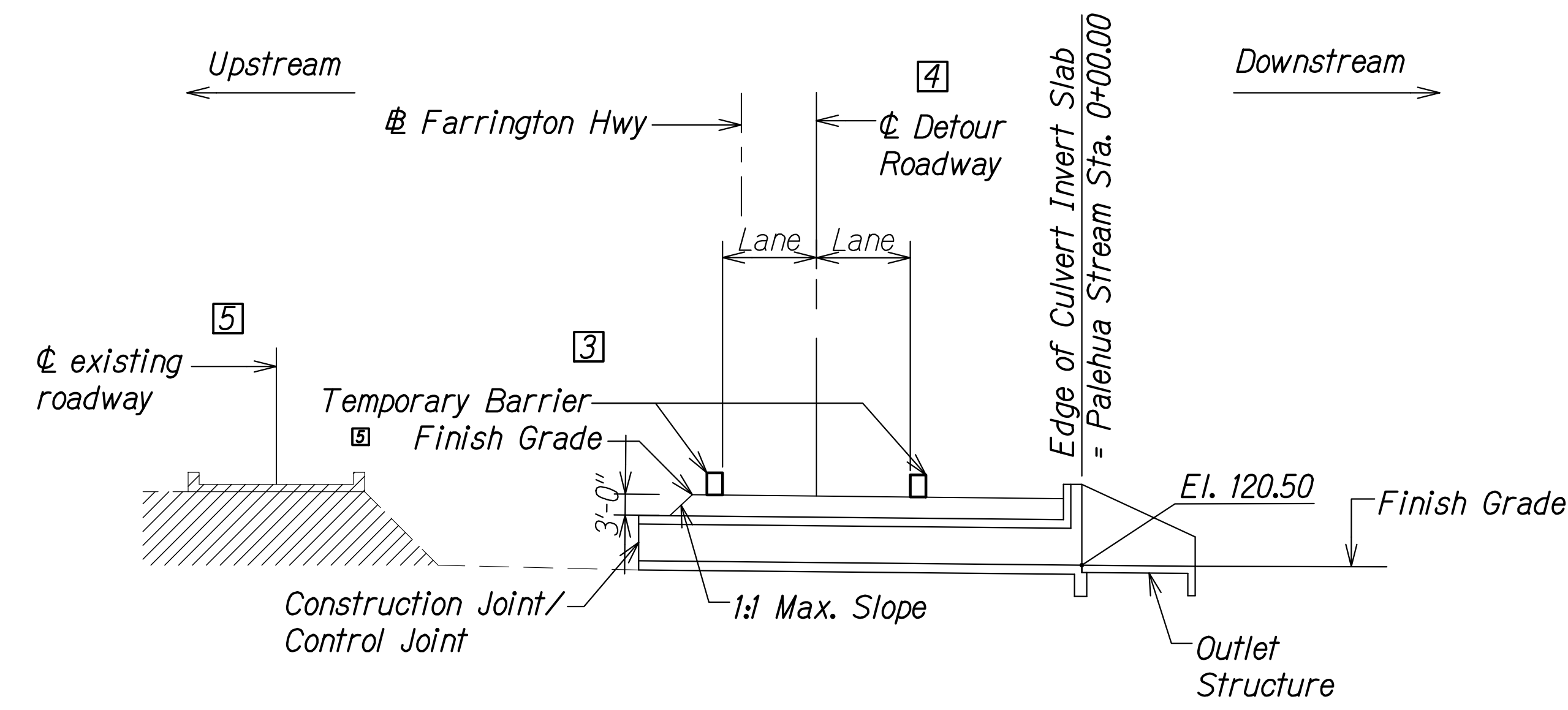
**LAYOUT PLAN**  
Scale: Not to Scale

**CONSTRUCTION STAGE 2**

- 3 Backfill constructed portion of culvert to finish grade up to construction joint.
- 4 Construct roadway detour. See Traffic Control Plan Sheet TC-7. For extent and location of temporary barriers along detour roadway, see Civil Traffic Control Plan Sheet TC-7. Open roadway to detour.
- 5 Demolish existing roadway structure.

**Notes:**

The Contractor shall submit working drawings for the limits of excavation and demolition to the Engineer for approval. The working drawings shall show all proposed bracing and shoring as needed to protect the existing roadway and detour road. Demolition and excavation shall be coordinated with any temporary shoring, detour road, and construction of the new culvert.



**SECTION AT BOX CULVERT**  
Scale: Not to Scale

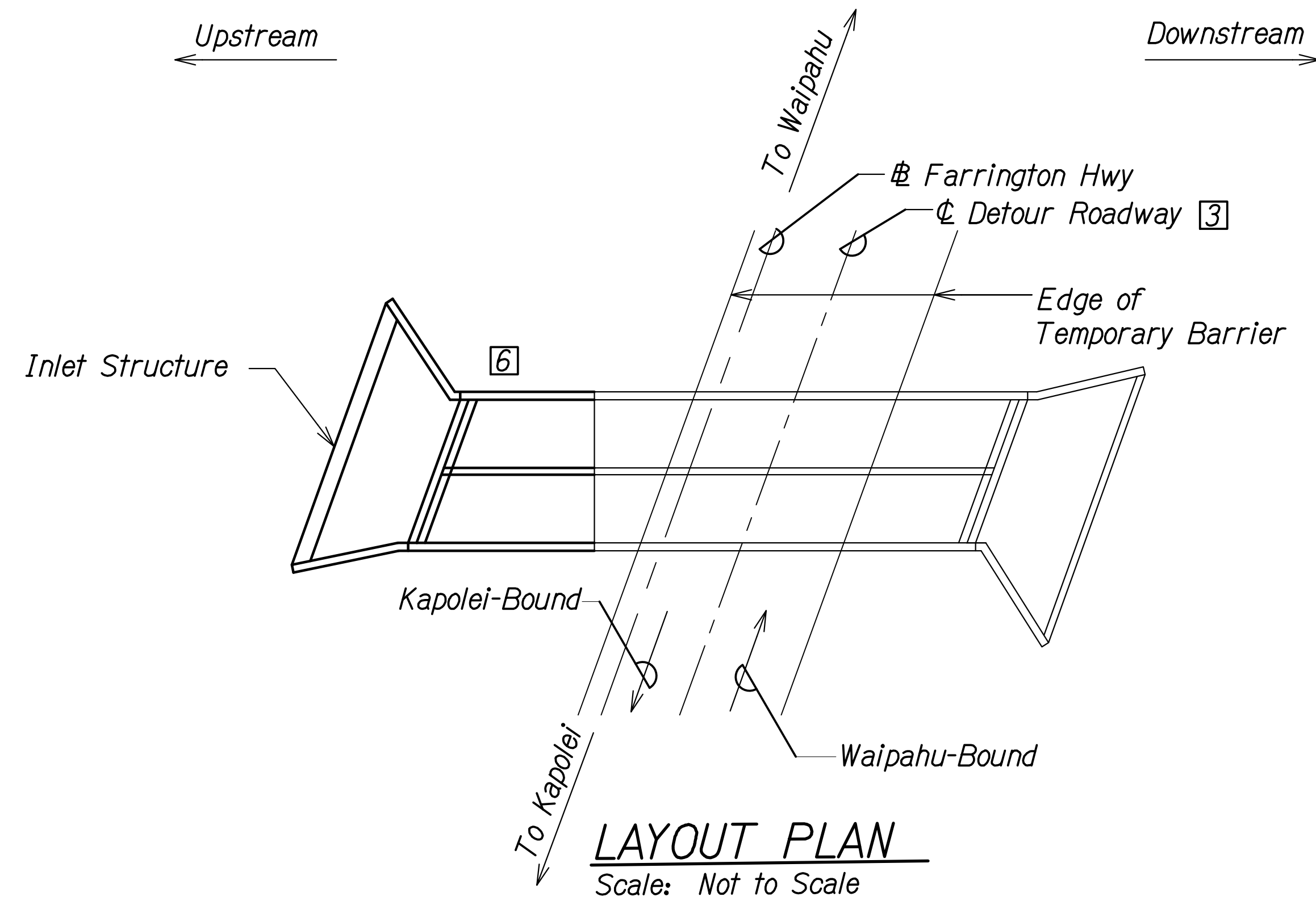
ORIGINAL PLAN	DATE
SURVEY PLOTTED BY	
DRAWN BY	
DESIGNED BY	
QUANTITIES BY	
CHECKED BY	
No.	

DRAWING NAME: Z:\A\00\CONDOING\20-013-FARR-HWY-KAPOLEI\04-13-22-BID-RVSD-SHETS\FHW3-SC0319-PALE-CONSTR-SEC.DWG PLOT TIME: 04-13-22 4:55 PM

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*Rugs S. Miyahara*  
 SIGNATURE      April 30, 2024  
 EXPIRATION DATE OF THE LICENSE

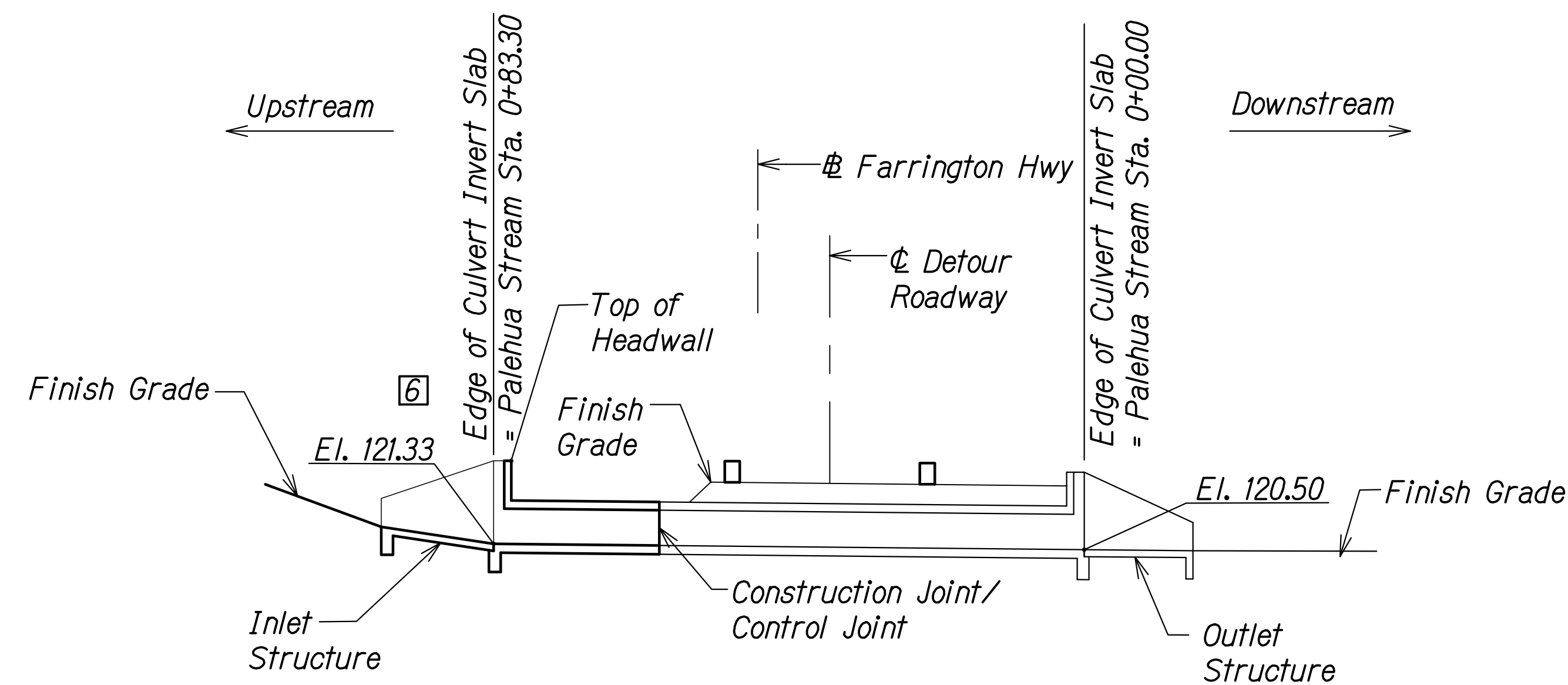
**STATE OF HAWAII**  
**DEPARTMENT OF TRANSPORTATION**  
**HIGHWAYS DIVISION**  
**Palehua Stream Box Culvert**  
**Construction Sequence**  
**FARRINGTON HIGHWAY WIDENING**  
**Kapolei Golf Course Road to Fort Weaver Road**  
**Project No. 7101A-01-20**  
 Scale: As Shown      Date: Apr. 2022  
**SHEET No. SC3.19 OF 21 SHEETS**

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	7101A-01-20	2021	518	



**CONSTRUCTION STAGE 3**

6 Construct upstream end of culvert and inlet structure.



**SECTION AT BOX CULVERT**  
Scale: Not to Scale

ORIGINAL PLAN	DATE
DRAWN BY	
DESIGNED BY	
QUANTITIES BY	
CHECKED BY	

DRAWING NAME: Z:\A\00\ONDONGS\20-013-FARR-HWY-KAPOLEI\04-13-22-BID-RVSD-SHRS\HWY-SC0318-PALE-CONSTR-SECDWG PLOT TIME: 04-13-22 4:56 PM

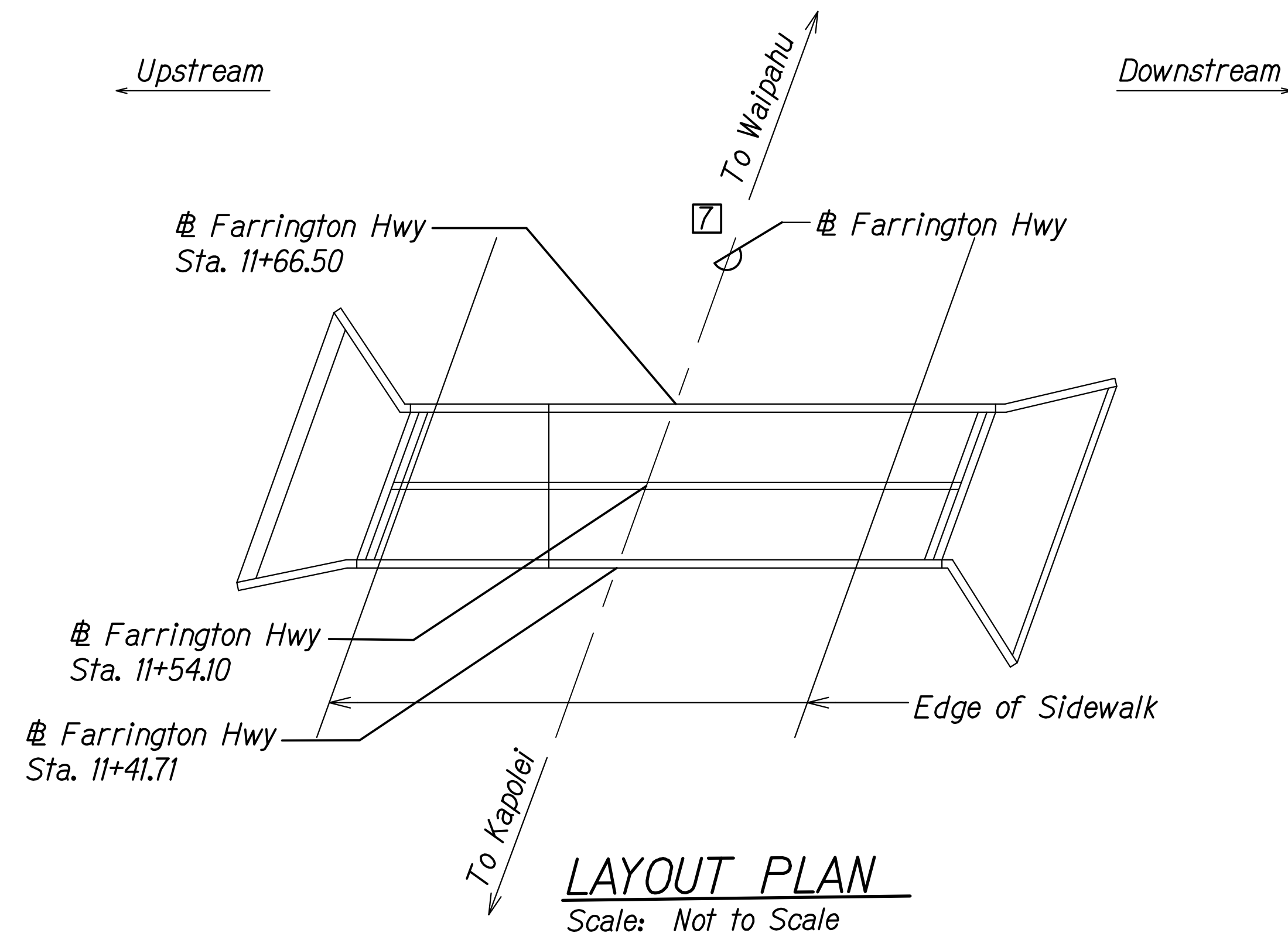
THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.

*Rugo S. Miyahara*
  
 SIGNATURE      April 30, 2024

EXPIRATION DATE OF THE LICENSE

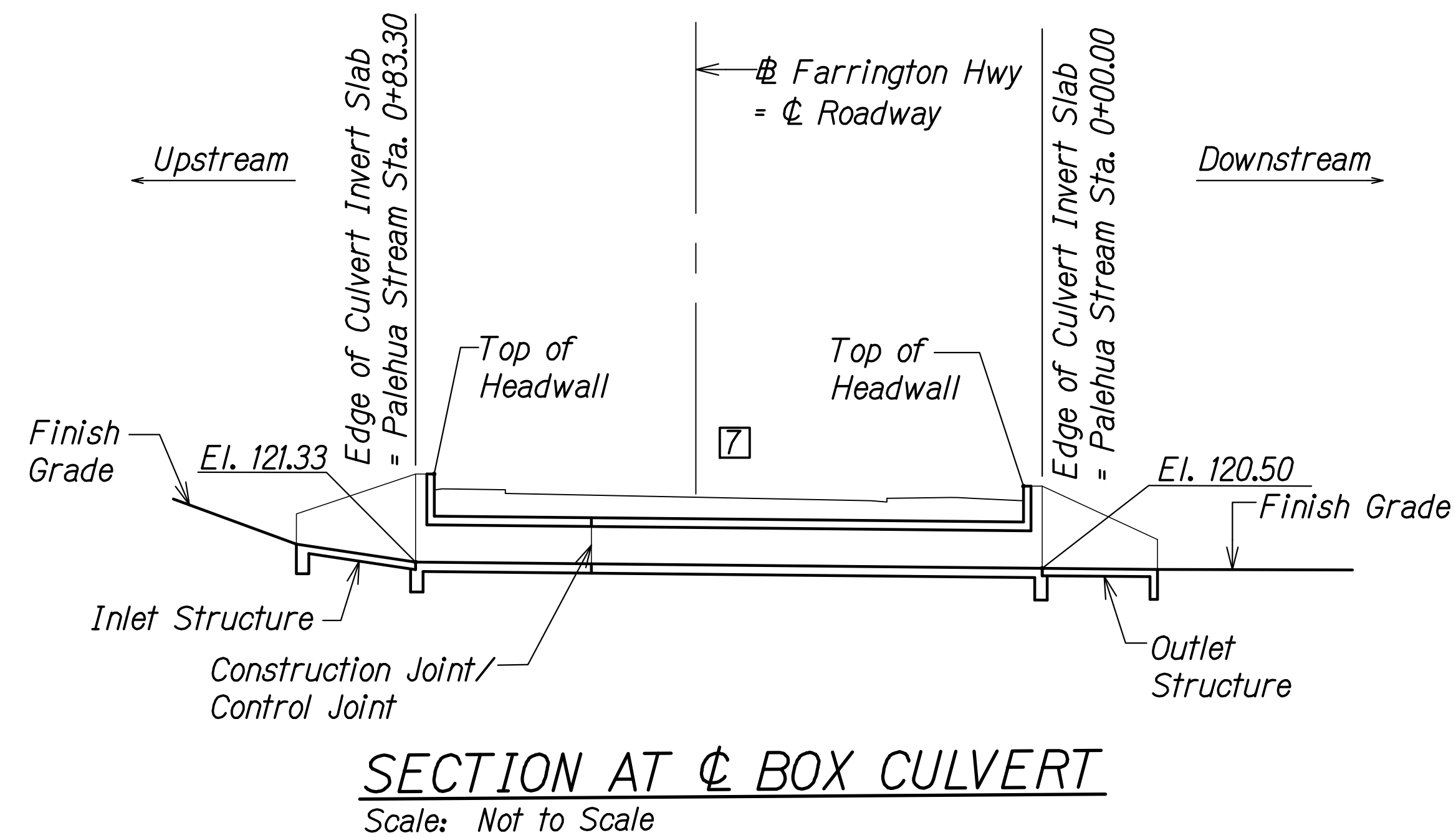
STATE OF HAWAII  
 DEPARTMENT OF TRANSPORTATION  
 HIGHWAYS DIVISION  
**Palehua Stream Box Culvert**  
**Construction Sequence**  
 FARRINGTON HIGHWAY WIDENING  
 Kapolei Golf Course Road to Fort Weaver Road  
 Project No. 7101A-01-20  
 Scale: As Shown      Date: Apr. 2022  
**SHEET No. SC3.20 OF 21 SHEETS**

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	7101A-01-20	2021	519	



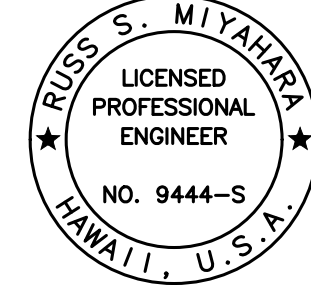
**CONSTRUCTION STAGE 4**

- 7 Backfill remainder of culvert up to finish grade. Construct final roadway. See Traffic Control Plan Sheet TC-7.



ORIGINAL PLAN	DATE
DRAWN BY	
DESIGNED BY	
QUANTITIES BY	
CHECKED BY	
No.	

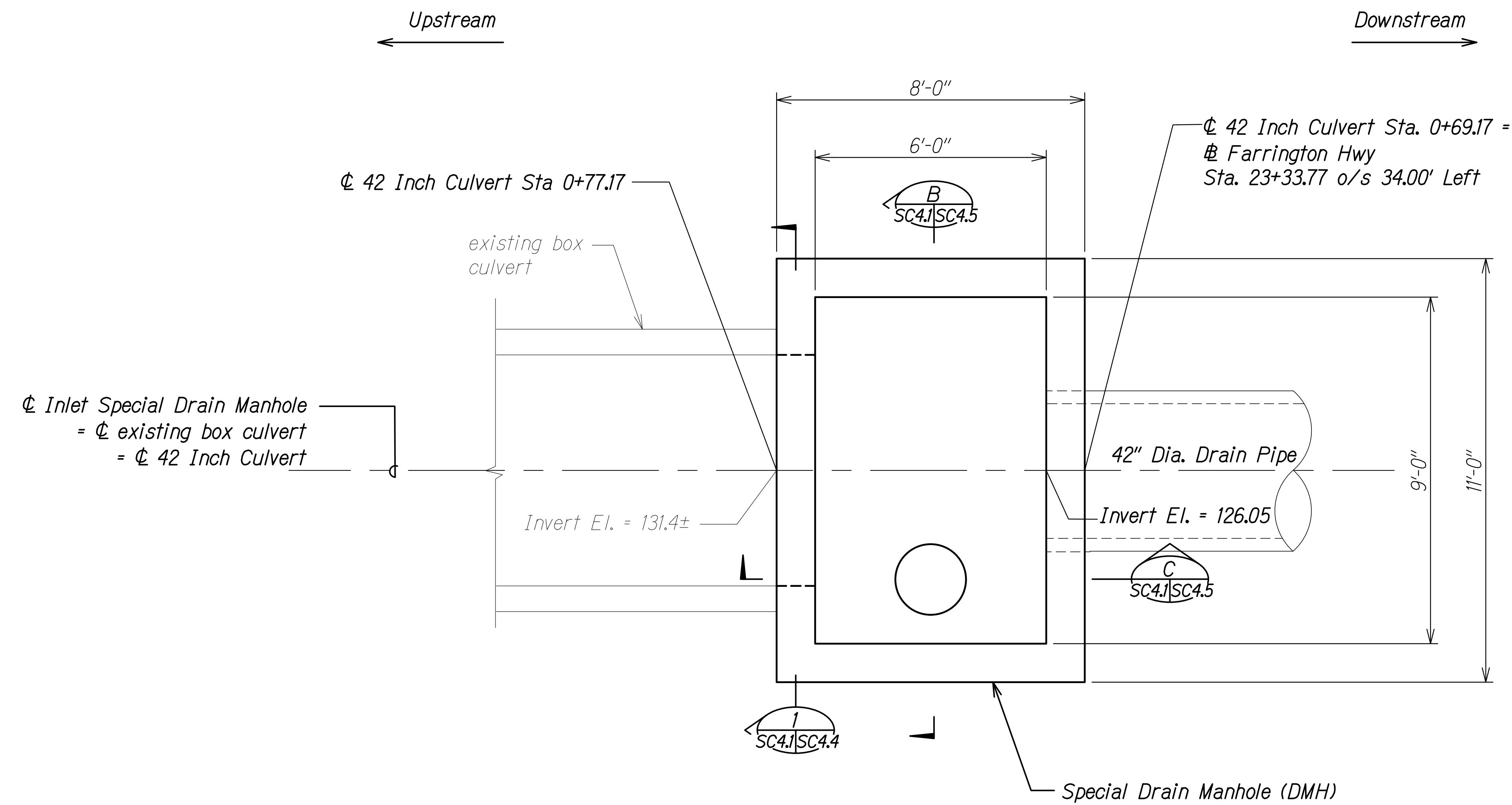
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*Rugo S. Miyahara*  
 SIGNATURE      April 30, 2024  
 EXPIRATION DATE OF THE LICENSE

**STATE OF HAWAII**  
**DEPARTMENT OF TRANSPORTATION**  
**HIGHWAYS DIVISION**  
**Palehua Stream Box Culvert**  
**Construction Sequence**  
**FARRINGTON HIGHWAY WIDENING**  
**Kapolei Golf Course Road to Fort Weaver Road**  
**Project No. 7101A-01-20**  
 Scale: As Shown      Date: Apr. 2022  
**SHEET No. SC321 OF 21 SHEETS**



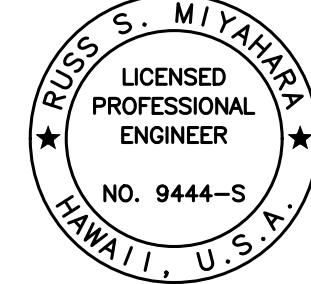
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	7101A-01-20	2021	520	



**INLET PLAN**  
 Scale: 1/2" = 1'-0"  
 A  
 SC4.1 | SC4.1

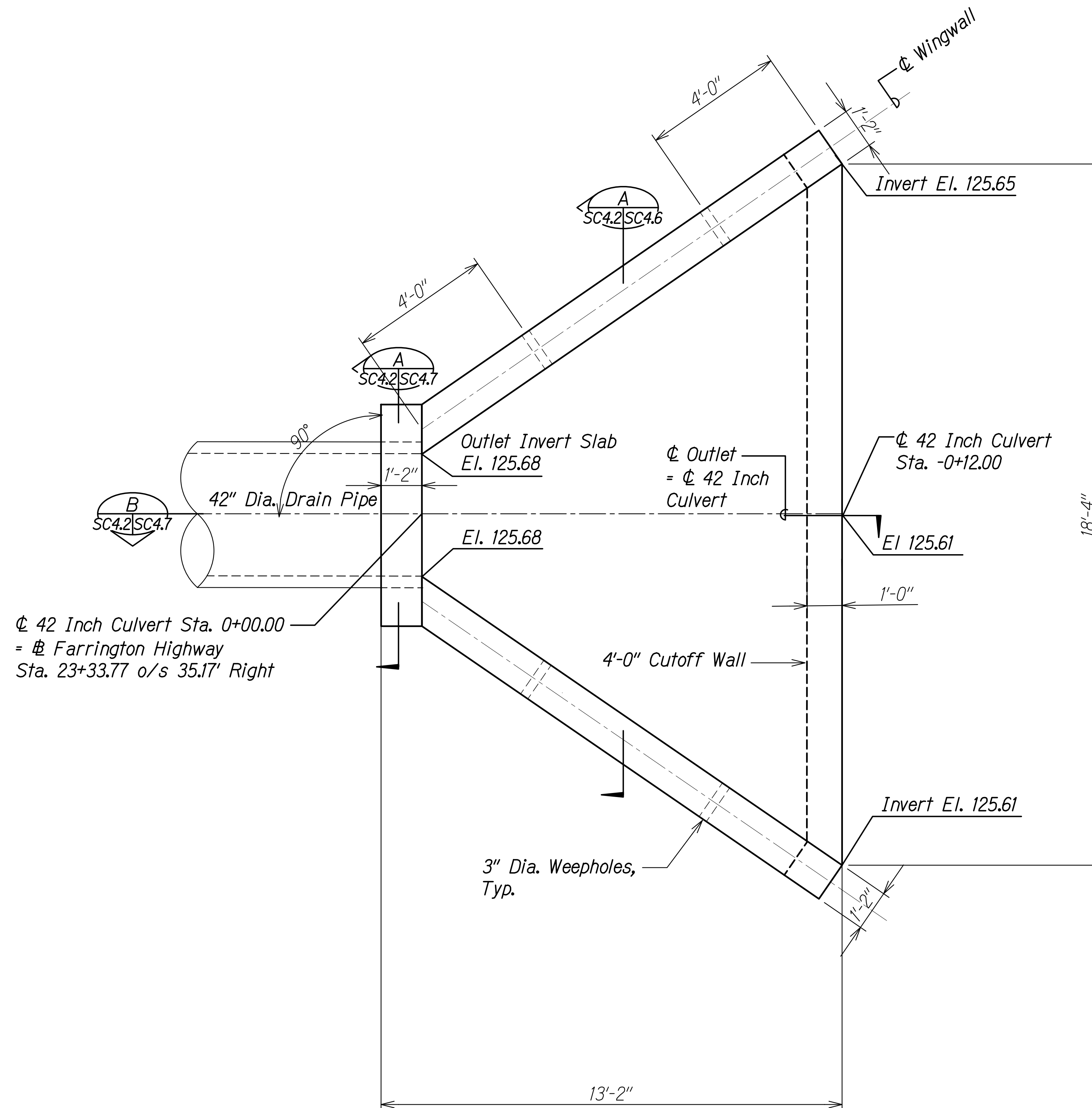
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DRAWN BY	
DESIGNED BY	
QUANTITIES BY	
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ORIGINAL PLAN	
NOTE BOOK	
No.	

DRAWING NAME: Z:\100 ONGOING\20-013-FARR-HWY-KAPOLEI GC ID: IT-WP2-EMTC\01-GAD\04-06-22 BID SET\FHW3-SC0401-42 INLET PLAN.DWG PLOT TIME: 04-07-22 5:55 PM

  
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 Signature: *Rugo S. Miyahara*  
 April 30, 2024  
 EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII  
 DEPARTMENT OF TRANSPORTATION  
 HIGHWAYS DIVISION  
**42-Inch Culvert  
 Inlet Plan**  
 FARRINGTON HIGHWAY WIDENING  
 Kapolei Golf Course Road to Fort Weaver Road  
 Project No. 7101A-01-20  
 Scale: As Shown Date: Apr. 2022  
**SHEET No. SC4.1 OF 8 SHEETS**

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	7101A-01-20	2021	521	



42 Inch Culvert Sta. 0+00.00  
 = Farrington Highway  
 Sta. 23+33.77 o/s 35.17' Right

**OUTLET PLAN** A  
 Scale: 1/2" = 1'-0" SC4.2 | SC4.2

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

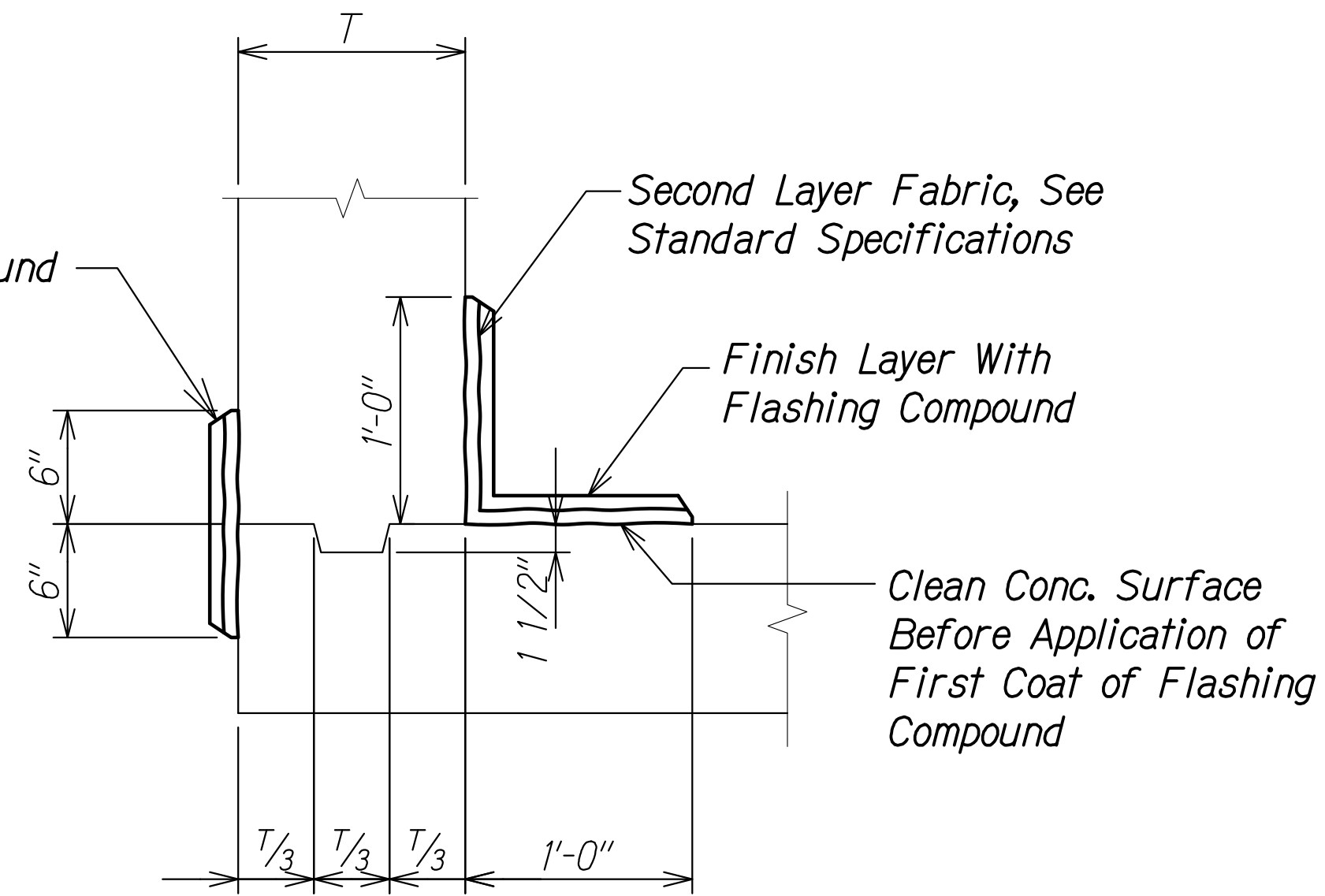
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*Rugo S. Miyakawa*  
 SIGNATURE      April 30, 2024  
 EXPIRATION DATE OF THE LICENSE

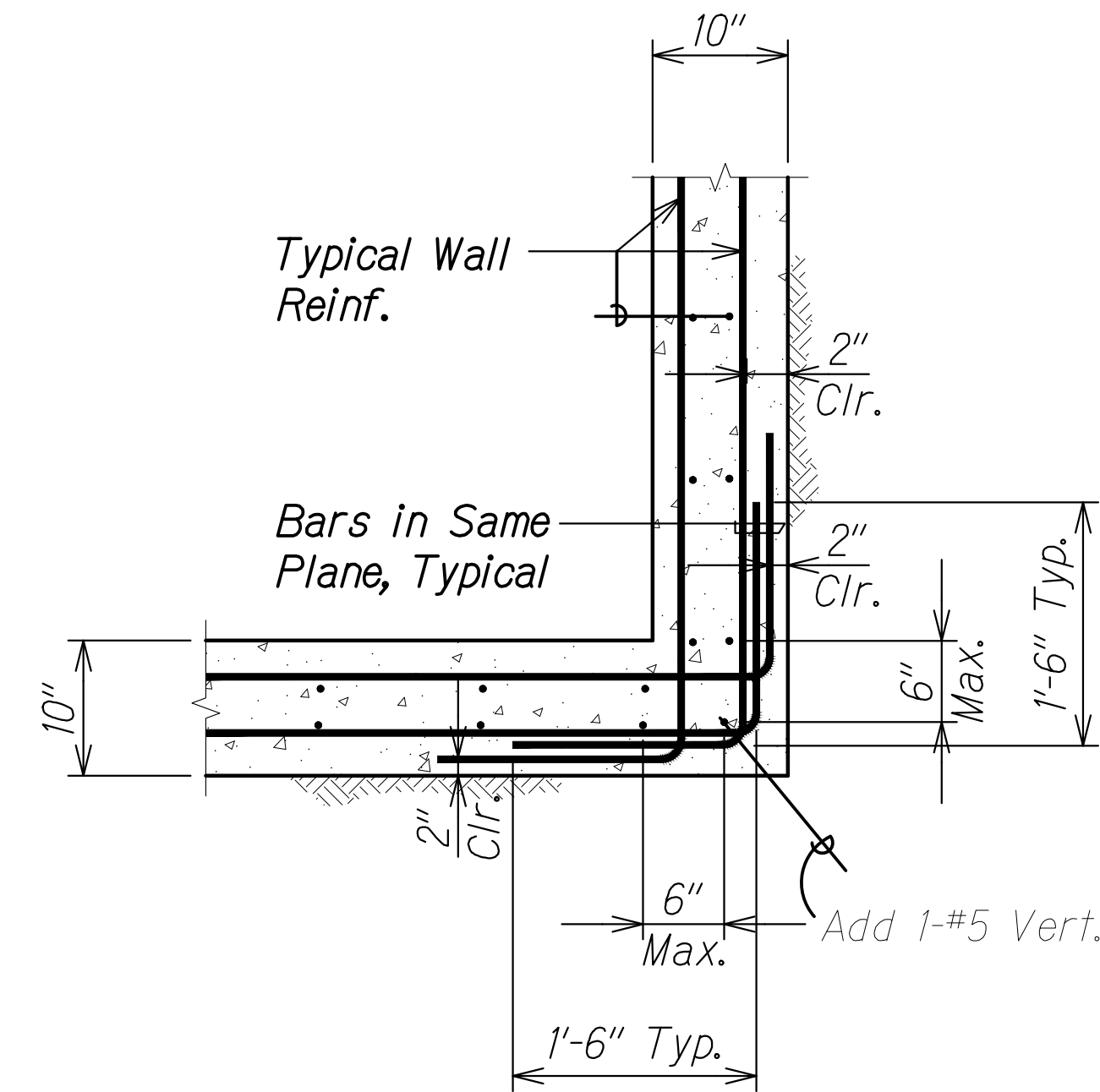
STATE OF HAWAII  
 DEPARTMENT OF TRANSPORTATION  
 HIGHWAYS DIVISION  
**42-Inch Culvert  
 Outlet Plan**  
 FARRINGTON HIGHWAY WIDENING  
 Kapolei Golf Course Road to Fort Weaver Road  
 Project No. 7101A-01-20  
 Scale: As Shown      Date: Apr. 2022  
**SHEET No. SC4.2 OF 8 SHEETS**

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	7101A-01-20	2021	522	

Apply Flashing Compound to Both Sides of Wall Below Grade



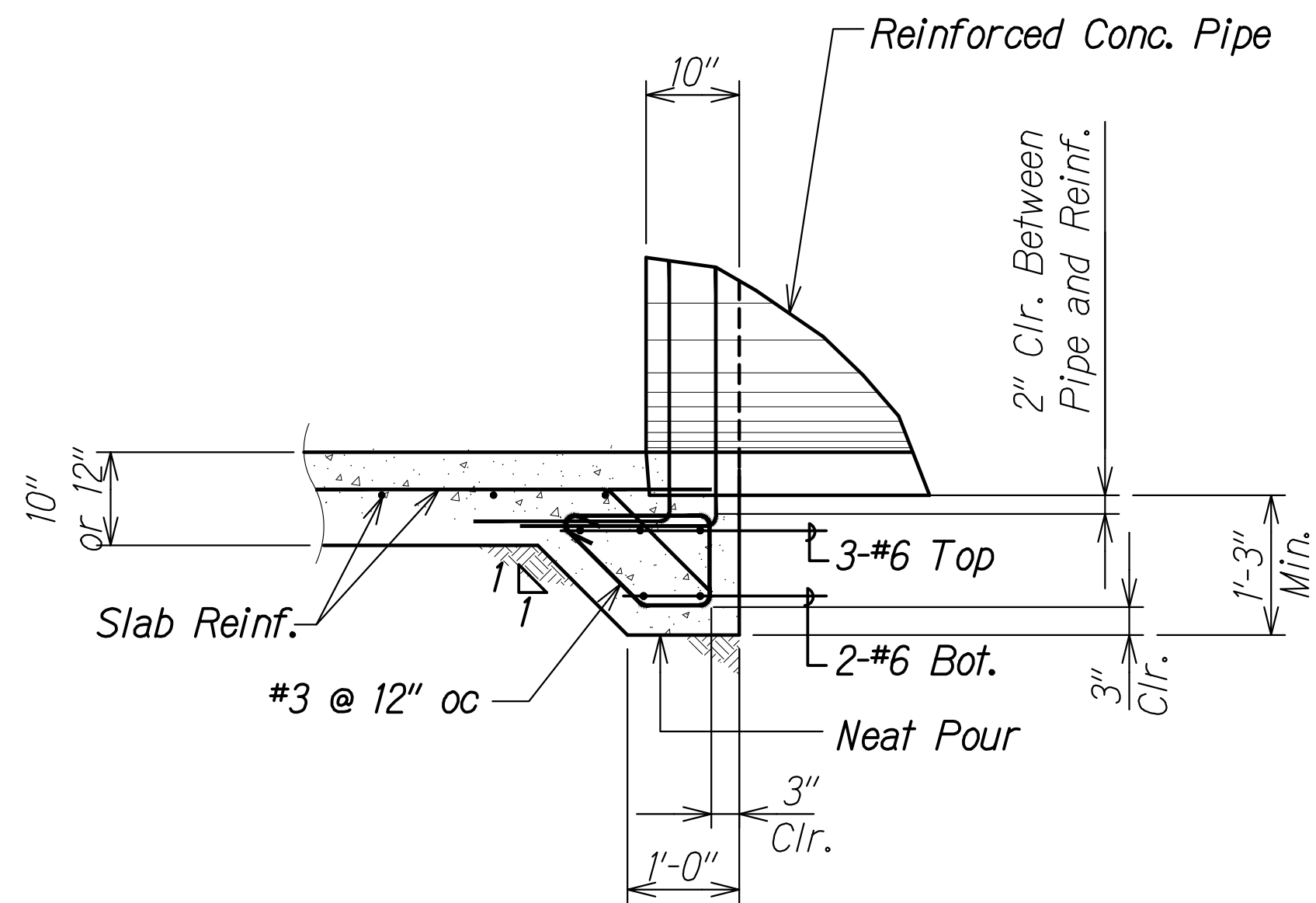
**TYPICAL KEY DETAIL** 1  
Scale: 1 1/2" = 1'-0" SC4.5 SC4.3



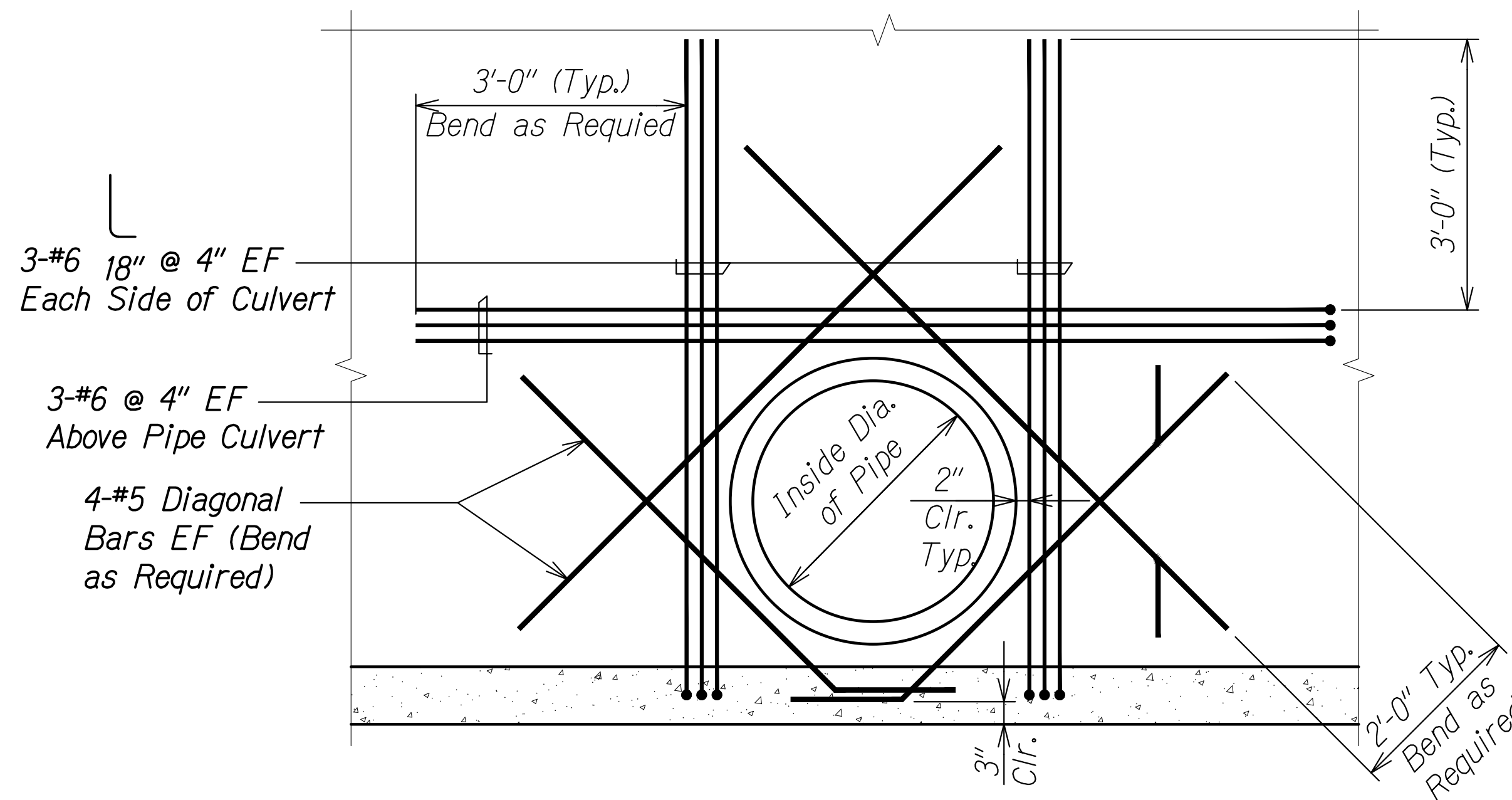
**TYPICAL CORNER REINFORCEMENT LAPPING (DOUBLE CURTAIN)** 3  
Scale: 1" = 1'-0" SC4.3 SC4.3

**Notes:**

- For all pre-cast portions of any drainage structure any gap left between the structure and pipe after the installation of the pipe shall be filled with concrete of equal strength as used for the pre-cast portion of the structure. No brick and mortar repairs or CMU shall be used.
- Manhole rungs shall be spaced @ 12" oc, See H-07 (Standard Plans) for manhole rungs details.
- For manhole frame and cover, see H-07 (Standard Plans).



**TYPICAL SECTION - THICKENED EDGE FOR SPECIAL DRAIN MANHOLE** 2  
Scale: 3/4" = 1'-0" SC4.5 SC4.3



**Note:**

2" clearance between pipe and reinf.

**TYPICAL SECTION - ADDED REINFORCING FOR PIPE OPENINGS** 4  
Scale: 3/4" = 1'-0" SC4.3 SC4.3

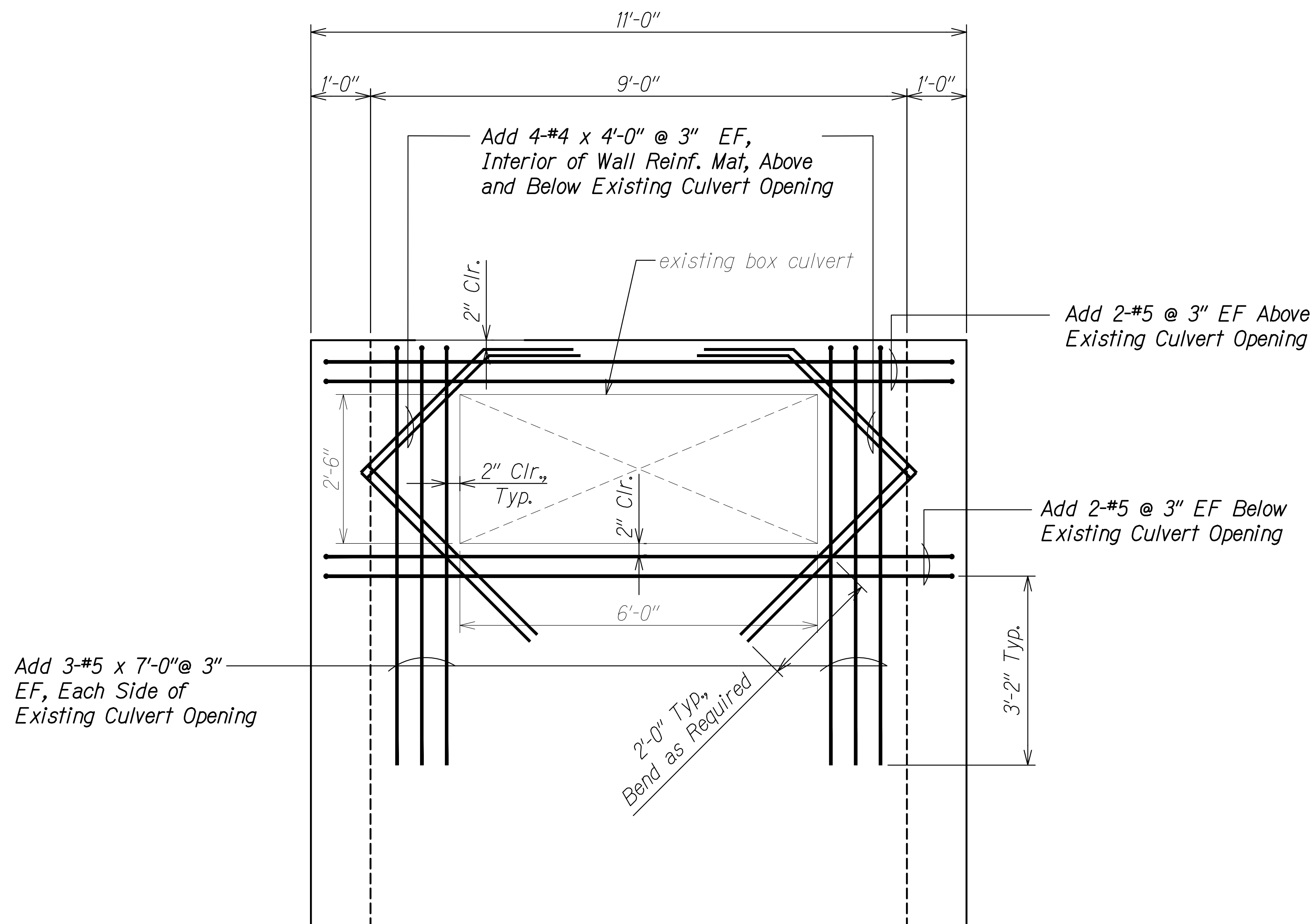
SURVEY PLOTTED BY	DATE
DRAWN BY	
DESIGNED BY	
QUANTITIES BY	
CHECKED BY	
ORIGINAL PLAN	
NOTE BOOK	
No.	

DRAWING NAME: Z:\00\_ONGOING\20-013-FARR-HW-KAPOLEI GC ID: ET-WR-BMT\01 CAD\04-06-22 BID SET\FH03-SC0403-DRAIN BOX DETS.DWG PLOT TIME: 04-07-22 5:55 PM

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 Signature: *Rugs S. Miyahara* April 30, 2024  
 EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII  
 DEPARTMENT OF TRANSPORTATION  
 HIGHWAYS DIVISION  
**42-Inch Culvert**  
**Special DMH - Details**  
 FARRINGTON HIGHWAY WIDENING  
 Kapolei Golf Course Road to Fort Weaver Road  
 Project No. 7101A-01-20  
 Scale: As Shown Date: Apr. 2022  
**SHEET No. SC4.3 OF 8 SHEETS**

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	7101A-01-20	2021	523	



**Note:**  
 1. Existing box culvert longitudinal reinforcement to remain. Extend into special drain manhole and provide 1'-0" bend.  
 2. Typical special drain manhole reinf. not shown for clarity.

Add 3-#5 x 7'-0" @ 3" EF, Each Side of Existing Culvert Opening

**ADDED REINFORCING  
 AT EXISTING BOX CULVERT OPENING**

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

1  
 SC4.1 SC4.4

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

DRAWING NAME: Z:\00 ONGOING\20-013-FARR-HWY-KAPOLEI GC ID: ET-WP2-EMTC\01-CAD\04-06-22 BID SET\FHW3-SC0403-DRAIN BOX DETS.DWG PLOT TIME: 04-07-22 5:56 PM

**RUGO S. MIYAHARA**  
 LICENSED PROFESSIONAL ENGINEER  
 NO. 9444-S  
 HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.  
*Rugo S. Miyahara*  
 SIGNATURE April 30, 2024  
 EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII  
 DEPARTMENT OF TRANSPORTATION  
 HIGHWAYS DIVISION

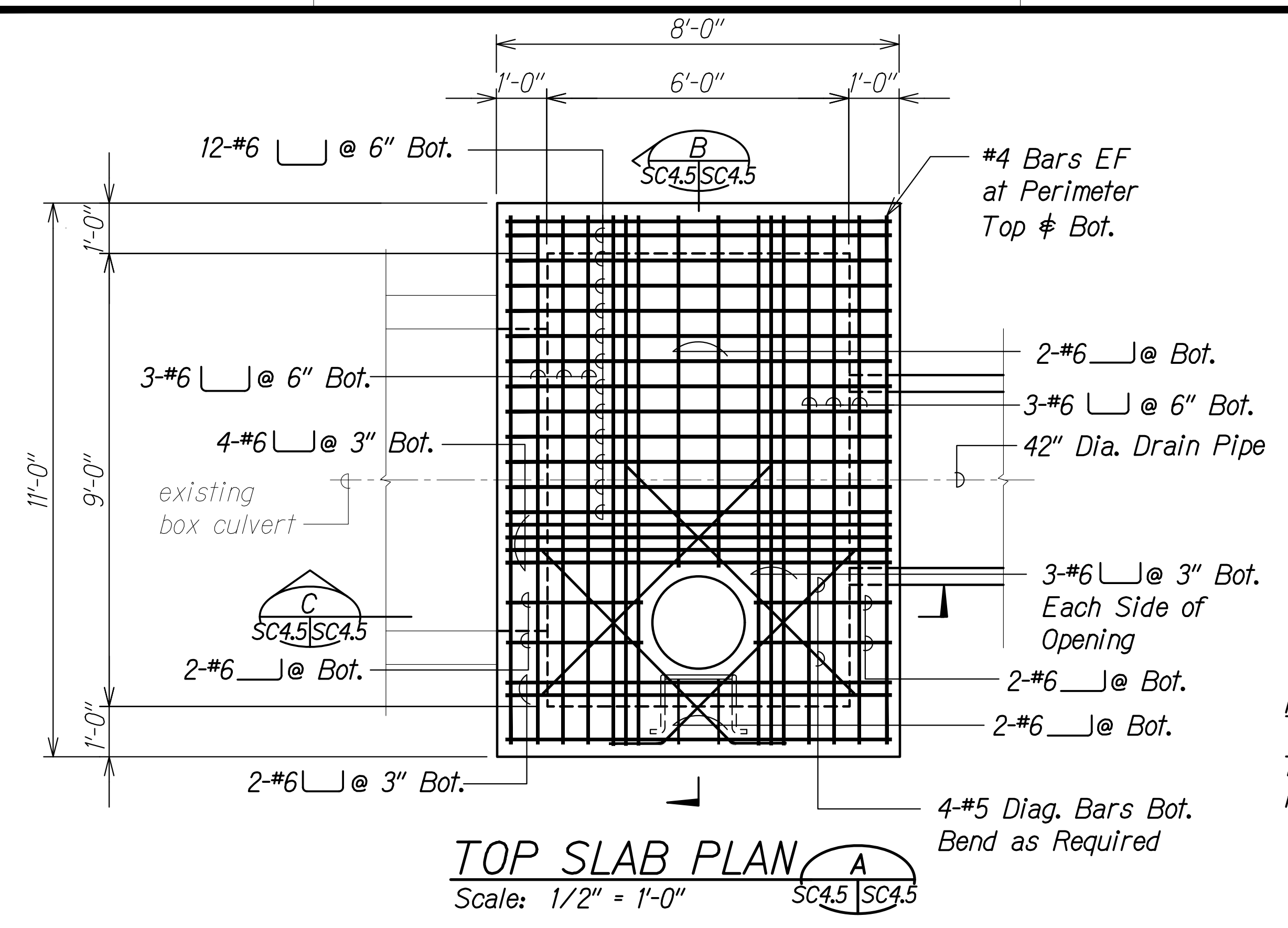
**42-Inch Culvert  
 Special DMH - Details**

FARRINGTON HIGHWAY WIDENING  
 Kapolei Golf Course Road to Fort Weaver Road  
 Project No. 7101A-01-20

Scale: As Shown Date: Apr. 2022

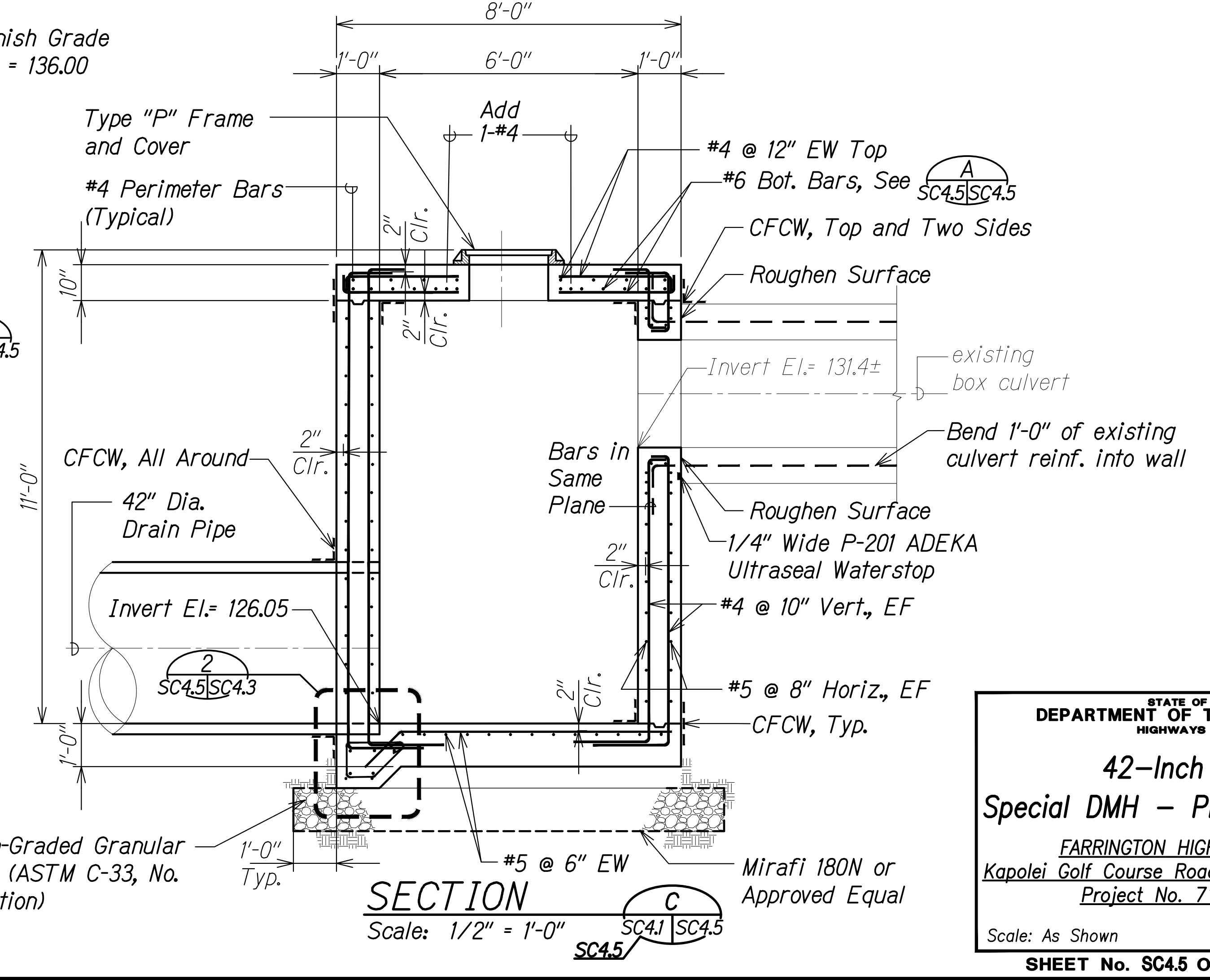
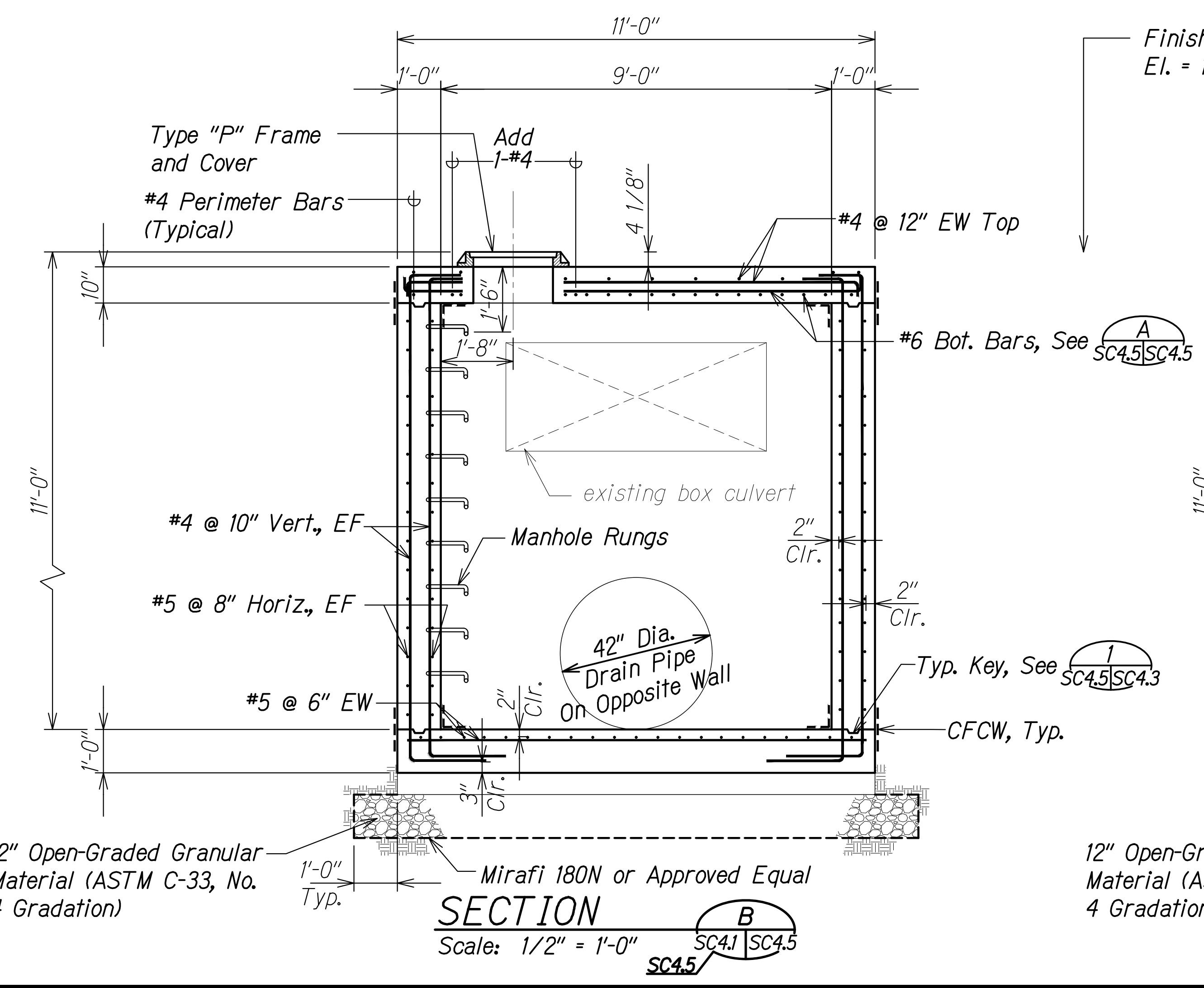
**SHEET No. SC4.4 OF 8 SHEETS**

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	7101A-01-20	2021	524	



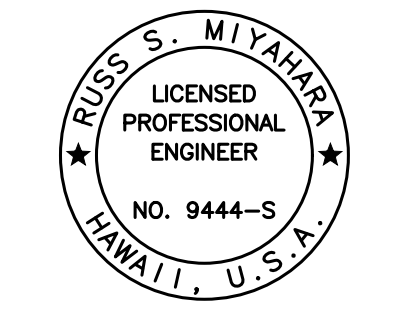
**NOTE:**  
Refer to sheet SC4.3, SC4.4 for typical details, added reinforcement at pipe openings and typical notes for drainage structures.

**NOTE:**  
Top Bars Not Shown for Clarity For Reinforcing See  $\frac{B}{SC4.1SC4.5}$ .



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

DRAWING NAME: Z:\00\_ONGOING\20-013-FARR-HW-KAPOLEI GC ID: ET-WR-EM(C)01 CAD: 04-06-22 BID: SET\FH03-SC0405-DRAIN BOX.DWG PLOT TIME: 04-07-22: 5:56 PM



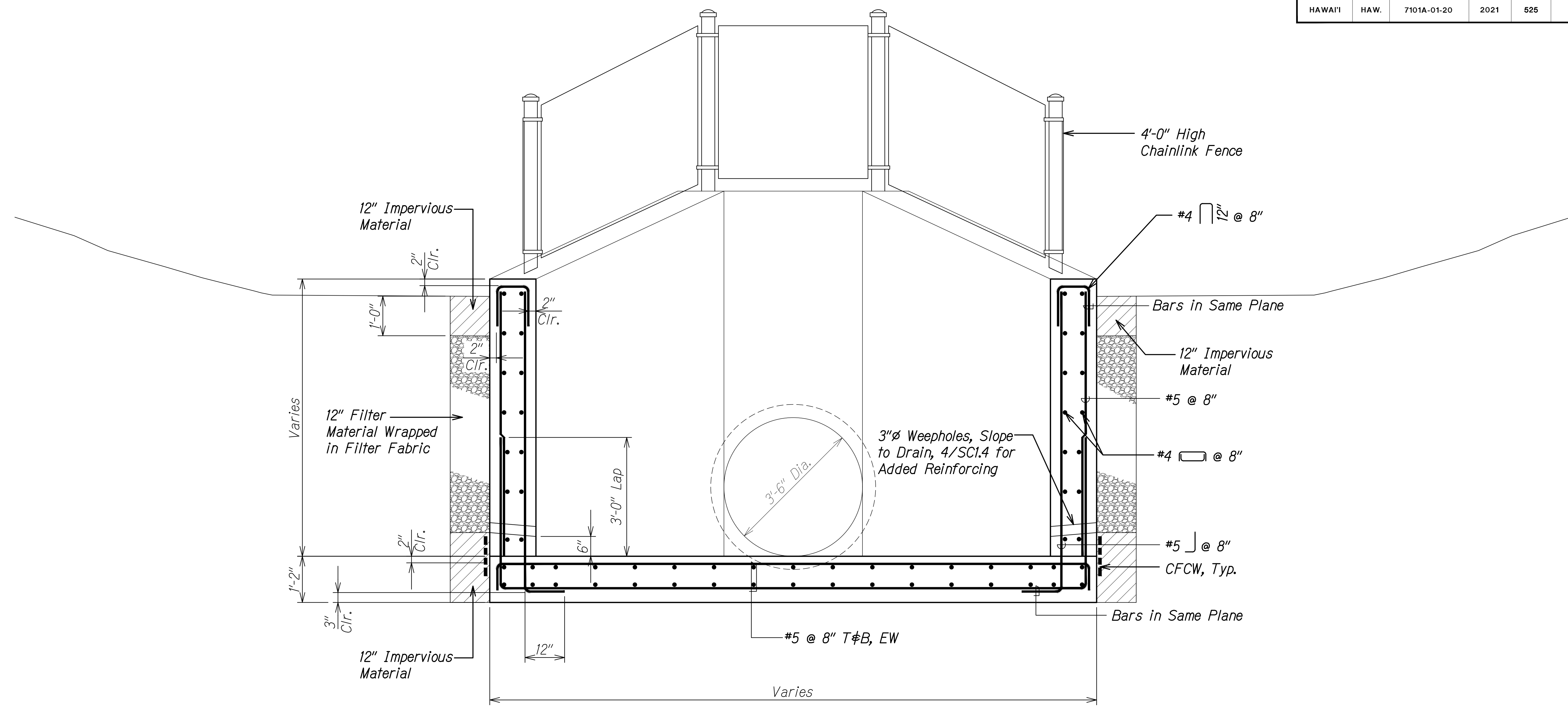
THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.  
 Signature: *Russ S. Miyahara* April 30, 2024  
 EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII  
 DEPARTMENT OF TRANSPORTATION  
 HIGHWAYS DIVISION

**42-Inch Culvert**  
**Special DMH - Plan and Sections**  
 FARRINGTON HIGHWAY WIDENING  
 Kapolei Golf Course Road to Fort Weaver Road  
 Project No. 7101A-01-20

Scale: As Shown Date: Apr. 2022  
**SHEET No. SC4.5 OF 8 SHEETS**

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	7101A-01-20	2021	525	



**OUTLET SECTION** A  
 Scale: 3/4" = 1'-0" SC4.2 SC4.6

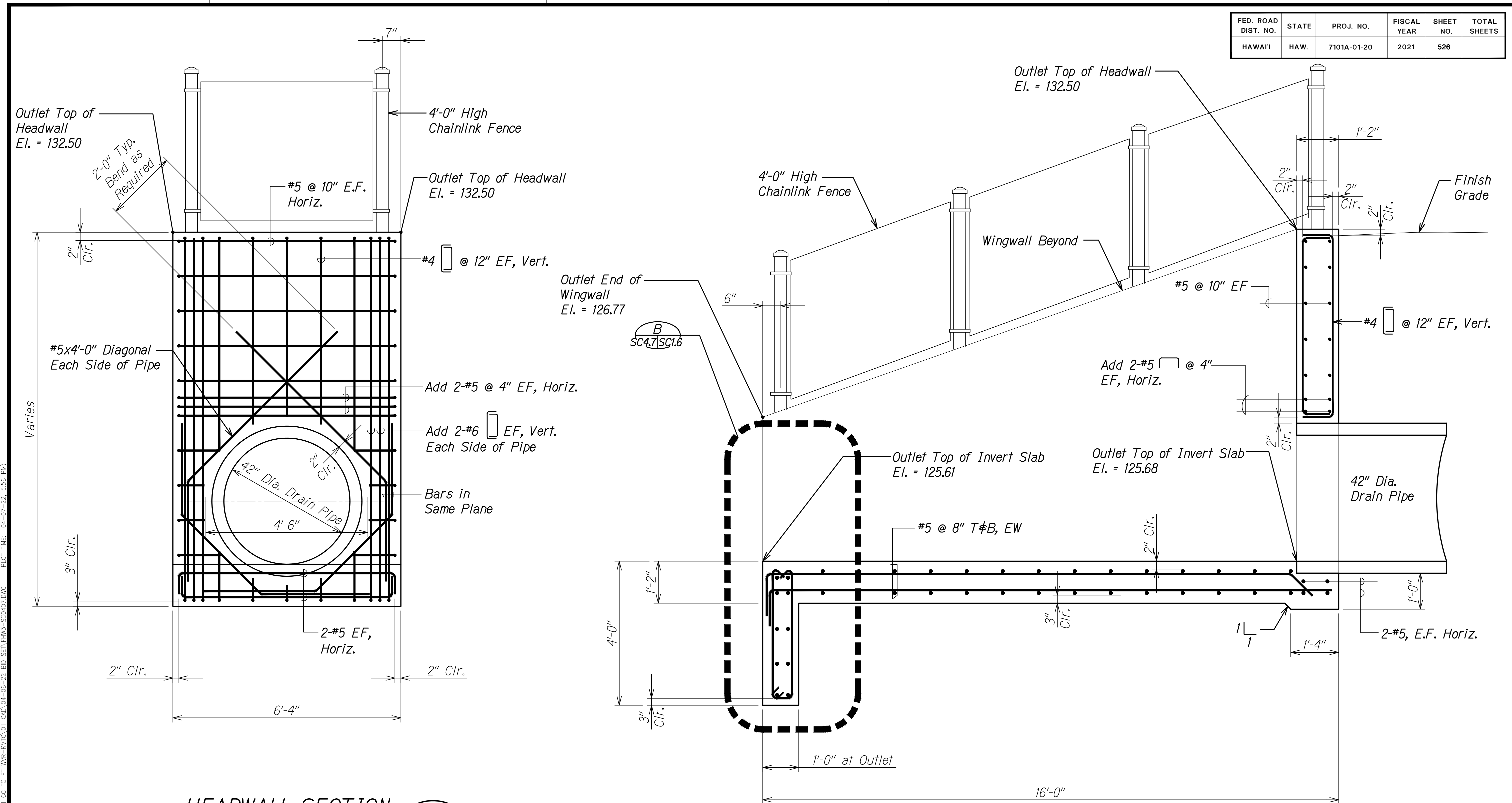
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NOTE BOOK	DRAWN BY	
No.	DESIGNED BY	
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DRAWING NAME: Z:\100 ONGOING\20-013-FARR-HWY-KAPOLEI\GE.ID.IT.WP8-EMTC\01\_GAD\04-06-22\_BID\_SET\FHW3-SC4.6.DWG PLOT TIME: 04-07-22 5:56 PM

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*Rugo S. Miyahara*  
 SIGNATURE      April 30, 2024  
 EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII  
 DEPARTMENT OF TRANSPORTATION  
 HIGHWAYS DIVISION  
**42-Inch Culvert  
 Outlet Section**  
 FARRINGTON HIGHWAY WIDENING  
 Kapolei Golf Course Road to Fort Weaver Road  
 Project No. 7101A-01-20  
 Scale: As Shown      Date: Apr. 2022  
**SHEET No. SC4.6 OF 8 SHEETS**

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	7101A-01-20	2021	526	



**HEADWALL SECTION** A  
 Scale: 3/4" = 1'-0" SC4.2 | SC4.7

**OUTLET SECTION** B  
 Scale: 3/4" = 1'-0" SC4.2 | SC4.7

SURVEY PLOTTED BY	DATE
DRAWN BY	
DESIGNED BY	
QUANTITIES BY	
CHECKED BY	
ORIGINAL PLAN No.	

DRAWING NAME: Z:\100 ONGOING\20-013-FARR-HW-KAPOLEI.GC.ID.EF.WKS-BMT\01.GAO\04-06-22 BID SET\FH03-SC0407.DWG PLOT TIME: 04-07-22, 5:56 PM

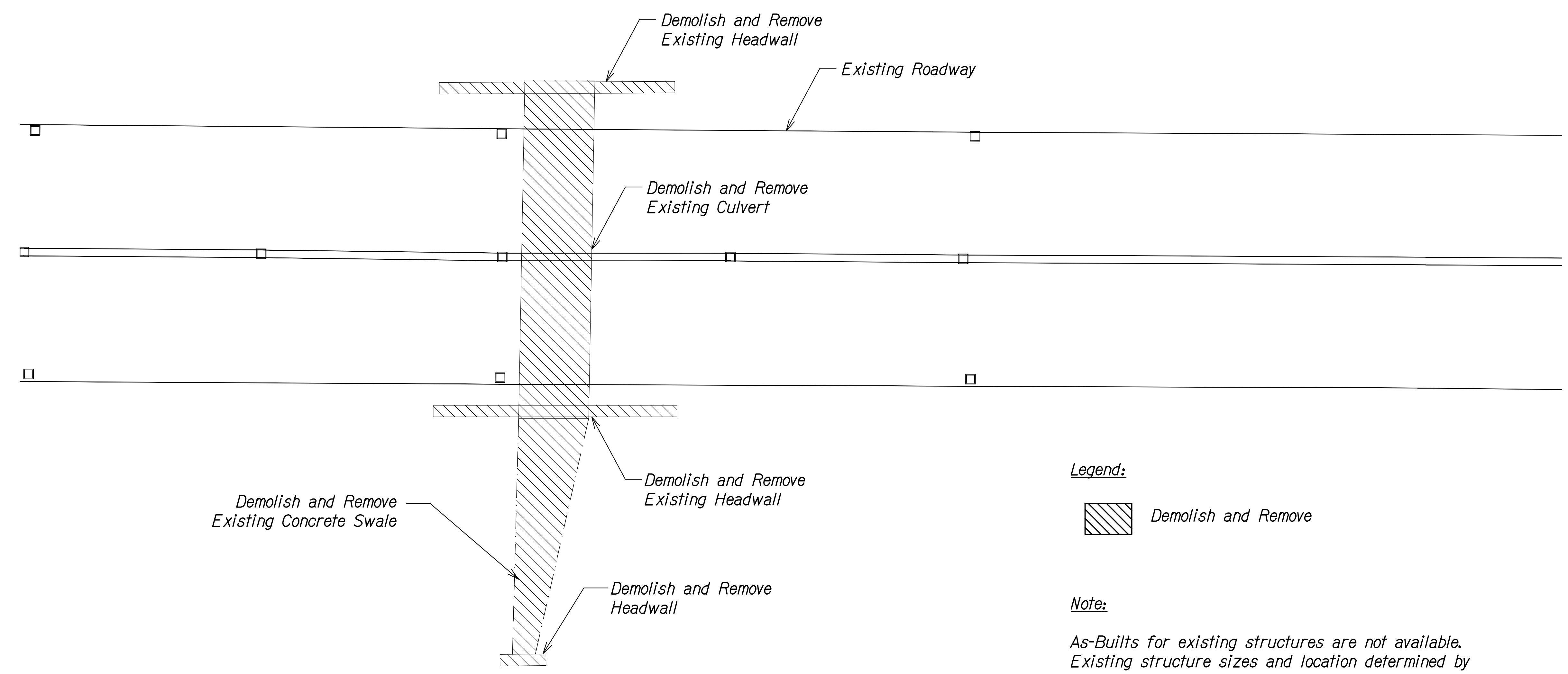
THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.  
*Rugs S. Miyahara*  
 SIGNATURE      April 30, 2024      EXPIRATION DATE OF THE LICENSE

**STATE OF HAWAII**  
**DEPARTMENT OF TRANSPORTATION**  
**HIGHWAYS DIVISION**  
**42-Inch Culvert**  
**Outlet Sections**  
**FARRINGTON HIGHWAY WIDENING**  
**Kapolei Golf Course Road to Fort Weaver Road**  
**Project No. 7101A-01-20**  
 Scale: As Shown      Date: Apr. 2022  
**SHEET No. SC4.7 OF 8 SHEETS**

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	7101A-01-20	2021	527	

← To Kapolei

To Waipahu →



**Legend:**

 Demolish and Remove

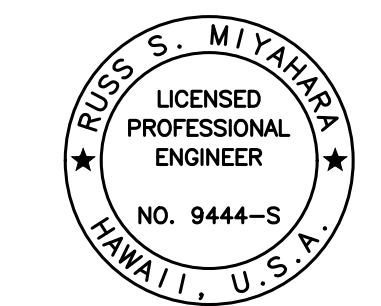
**Note:**

As-Builts for existing structures are not available. Existing structure sizes and location determined by Topo and Field Measurements. Contractors shall inspect structures prior to bid.

**42-INCH CULVERT DEMOLITION PLAN** A  
 Scale: 3/16" = 1'-0" SC4.8 SC4.8

ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
NOTE BOOK	DRAWN BY	
No. _____	DESIGNED BY	
	QUANTITIES BY	
	CHECKED BY	

DRAWING NAME: Z:\00 ONGOING\20-013-FARR-HWY-KAPOLEI GC ID: FT-WWR-EMTC\01-GAD\04-06-22 BID SET\FHWS-SC4.8 DEMO.DWG PLOT TIME: 04-07-22: 5:57 PM



THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.  
 Signature: *Rugo S. Miyakawa* April 30, 2024  
 EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII  
 DEPARTMENT OF TRANSPORTATION  
 HIGHWAYS DIVISION

**42-Inch Culvert  
 Demolition Plan**

FARRINGTON HIGHWAY WIDENING  
 Kapolei Golf Course Road to Fort Weaver Road  
 Project No. 7101A-01-20

Scale: As Shown Date: Apr. 2022

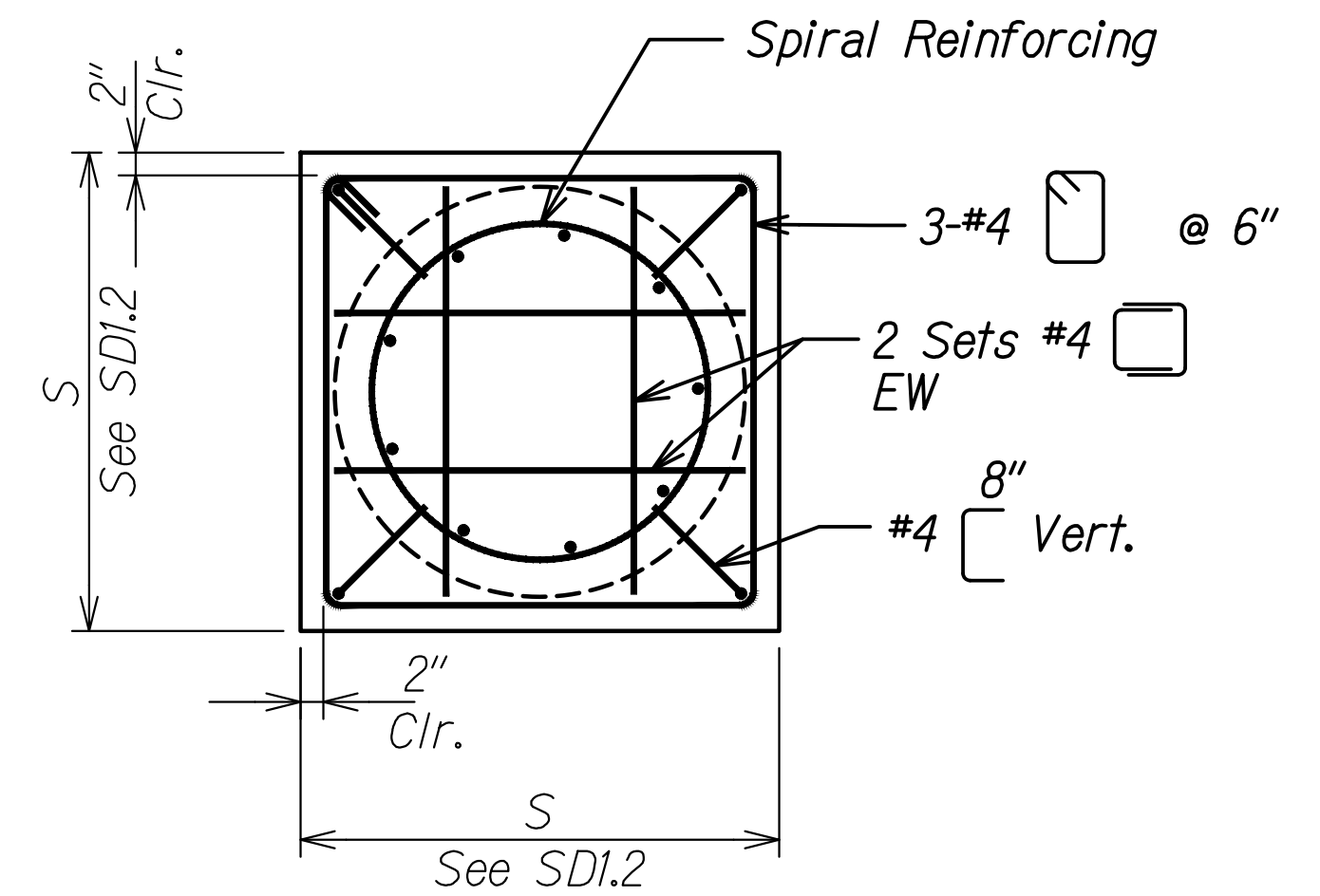
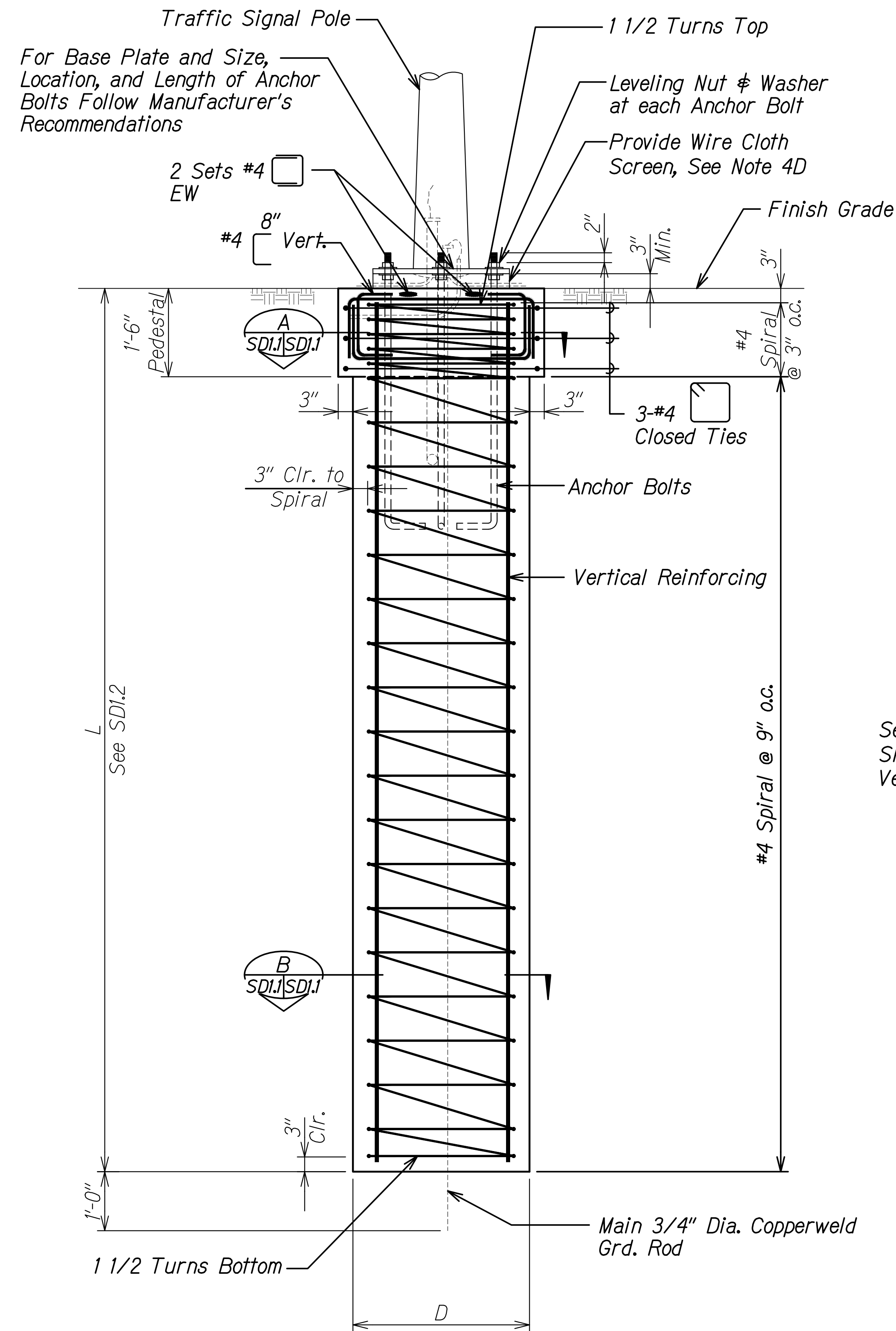
**SHEET No. SC4.8 OF 8 SHEETS**



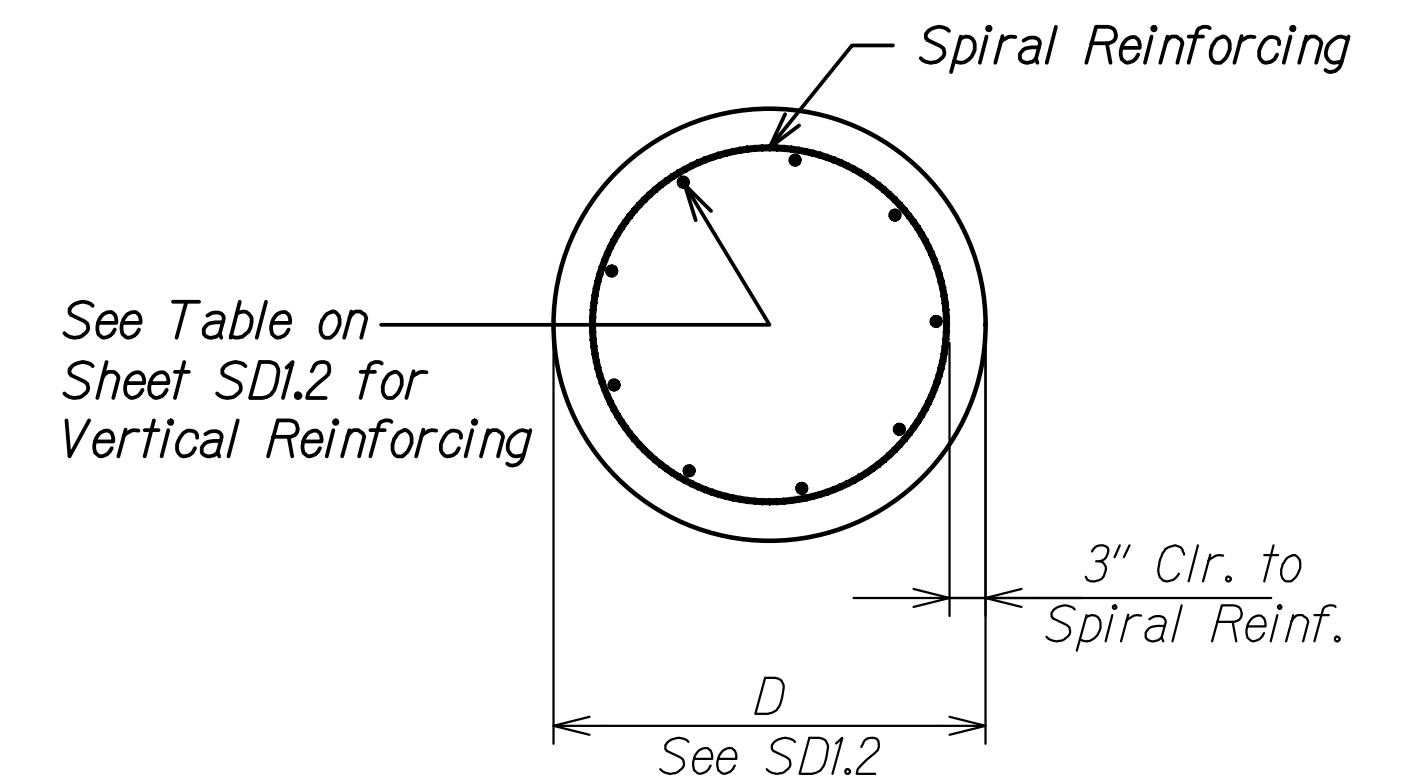
**TRAFFIC SIGNAL FOUNDATION GENERAL NOTES:**

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	7101A-01-20	2021	528	

1. **Design Specifications:**
  - A. American Association of State Highway and Transportation Officials (AASHTO) 2020 LRFD Bridge Design Specifications, 9th Edition, as amended by Hawaii Department of Transportation (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".
  - B. Design shall conform with the AASHTO LRFD Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals, First Edition 2015 with 2020 Interim Revisions.
  - C. See Structural General Notes on Sheet S0.5 to S0.9 for additional information.
2. **Loads:**
  - A. Basic Wind Speed: 145 mph.
  - B. Recurrence Interval of 1700 years.
  - C. Fatigue importance factor,  $I_f$ , shall be based on Fatigue Category I for cantilevered traffic signal structures.
  - D. Vortex shedding induced loads shall be considered for cantilevered mast arms and pole shafts that do not have tapers or have tapers of less than 0.14 in/ft.
  - E. Traffic signal structures shall be designed for a truck induced gust based on a truck speed of 20 mph over the posted speed.
  - F. Galloping and natural wind gusts shall be considered for cantilevered traffic signal structures.
  - G. Natural Wind Gusts shall be considered for all traffic signal structures.
3. **Materials:**
  - A. Concrete for traffic signal foundation shall develop a minimum 28-day compressive strength of 4,500 psi with a maximum w/c ratio of 0.45.
  - B. All concrete shall contain a water-based amine carboxylate migrating corrosion inhibitor or approved equal. Dosage shall be 24 ounces per cubic yard of concrete or recommended by the manufacturer.
  - C. All reinforcing steel shall be ASTM A615 Grade 60 deformed bars unless otherwise noted.
  - D. All connection bolts shall be AASHTO M164 bolts and anchor bolts shall be AASHTO M314-105 bolt.
  - E. Aluminum members and surfaces in contact with structural steel shall be isolated with neoprene material as approved by the Engineer.
4. **General:**
  - A. The recommendations of the traffic pole manufacturer shall be followed. Manufacturer shall select pole, anchor bolts, etc. based on criteria given in the contract documents. The Contractor shall submit catalog cuts and calculations to the Engineer for approval.
  - B. The Contractor shall use templates while installing the anchor bolts. Anchor bolts shall be vertical.
  - C. The Contractor shall adjust the spiral vertical spacing to allow installation of anchor bolts and plates.
  - D. Wire cloth shall be galvanized steel standard grade plain weave 2x2 mesh 0.063 inch diameter wires. Wrap around base plate perimeter with 3" minimum lap. Fasten with 1/4" diameter capscrew ASTM F593 with SS washer spaced at approximately 9" o.c., drilled and tapped into perimeter of base plate.



**SECTION A**  
Scale: 3/4" = 1'-0" SD1.1 | SD1.1



**SECTION B**  
Scale: 3/4" = 1'-0" SD1.1 | SD1.1

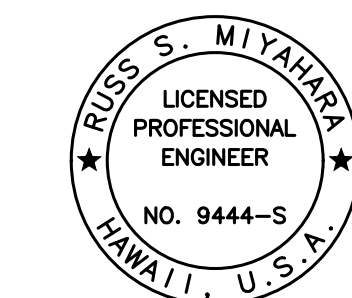
**Note:**

Detail of conduits, anchor bolts, etc. are approximate only. Manufacturer's recommendations shall be followed. Contractor shall submit catalog cuts to the Engineer for approval.

**SECTION**  
Scale: 3/4" = 1'-0"

SURVEY PLOTTED BY	DATE
DRAWN BY	
DESIGNED BY	
QUANTITIES BY	
CHECKED BY	

DRAWING NAME: Z:\100\_000000\20-013-FARR-HW-KAPOLEI-GO-10-11-WIRE-BRACKET-CAD\04-06-22-20-BD-SETV-FH03-S00101-TRAF-SIGNALING.PLOT TIME: 04-07-22, 4:13 PM



THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.  
 Signature: Russ S. Miyahara  
 April 30, 2024  
 EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII  
**DEPARTMENT OF TRANSPORTATION**  
 HIGHWAYS DIVISION

**Traffic Signal Foundation**  
**Notes and Sections**

FARRINGTON HIGHWAY WIDENING  
 Kapolei Golf Course Road to Fort Weaver Road  
 Project No. 7101A-01-20

Scale: As Shown Date: Apr. 2022

**SHEET No. SD1.1 OF 2 SHEETS**

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	7101A-01-20	2021	529	

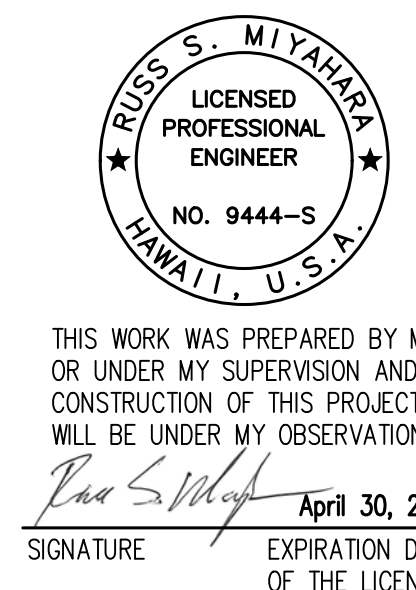
TRAFFIC SIGNAL FOUNDATION SCHEDULE				
Mast Arm Length (ft.)	D	S	L	Vertical Reinforcing
15	3'-0"	3'-6"	8'-0"	6-#10
20	3'-0"	3'-6"	8'-0"	6-#10
25	3'-0"	3'-6"	8'-0"	6-#10
30	3'-0"	3'-6"	9'-0"	9-#10
35	3'-0"	3'-6"	9'-0"	9-#10
40	3'-0"	3'-6"	9'-0"	9-#10
45	3'-0"	3'-6"	9'-0"	9-#10
50	3'-6"	4'-0"	10'-0"	11-#10
Dual Mast Arm	3'-6"	4'-0"	10'-0"	11-#10

**Note:**

Drilled shaft diameters were determined based on assumed pole designs with parameters such as the bolt circles and base plate diameters. The Contractor is responsible for verifying that the drilled shaft designs, as shown on this sheet, are compatible with the manufacturer's provided pole designs. If it is found incompatible, alternate pole designs are recommended. Otherwise, the contractor is responsible for alternate drilled shaft designs, and is required to submit alternate drilled shaft designs to the Engineer for approval. The shafts shall not be installed until the pole and shaft designs have been finalized and verified for their compatibility.

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

DRAWING NAME: Z:\100 ONGOING\20-013-FARR-HWY-KAPOLEI\04-04-06-22 BID SET\FHW3-SD0102 TRAF SIGNAL.DWG PLOT TIME: 04-07-22, 4:13 PM



STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

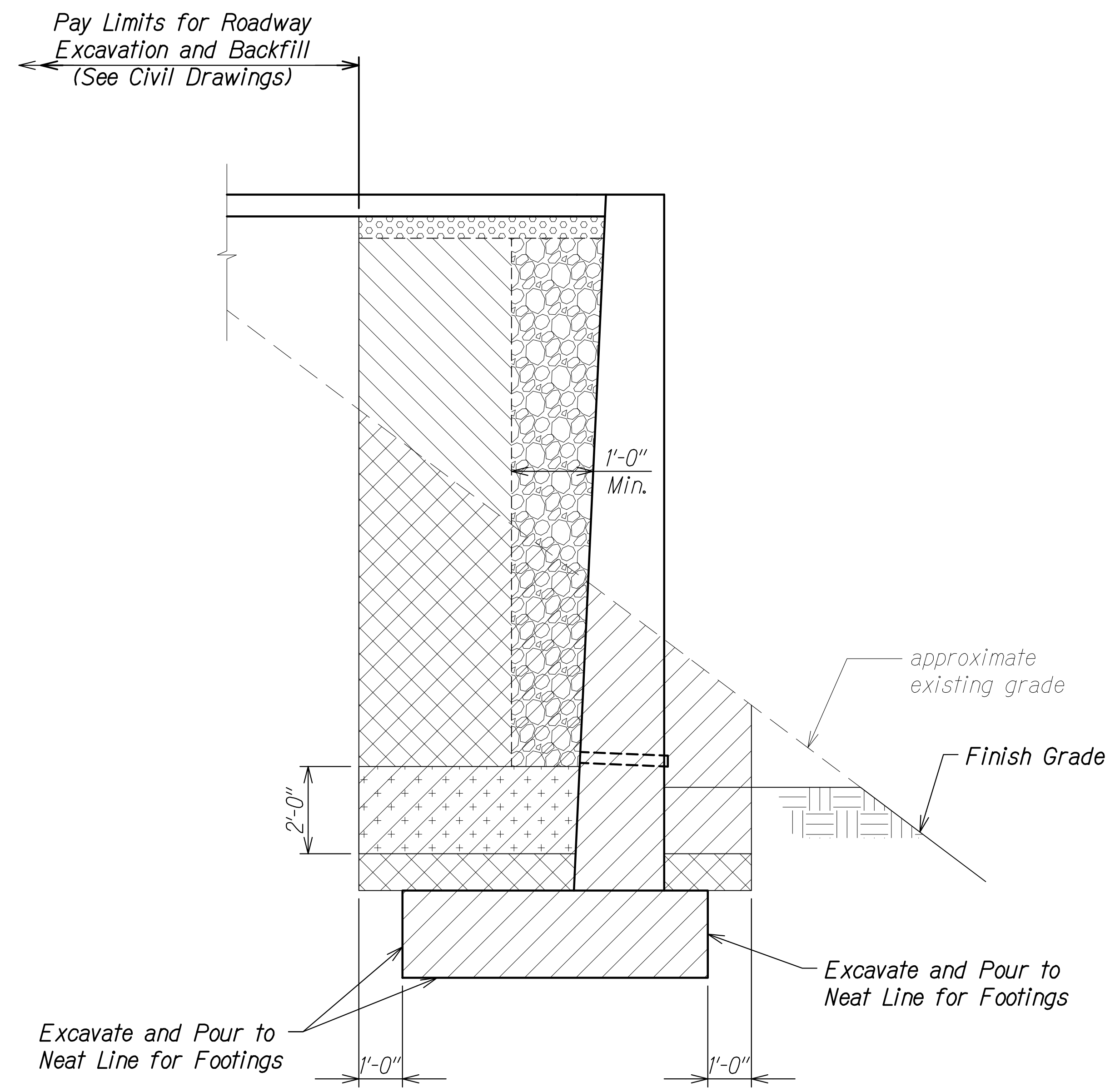
**Traffic Signal Foundation  
Schedule**

FARRINGTON HIGHWAY WIDENING  
Kapolei Golf Course Road to Fort Weaver Road  
Project No. 7101A-01-20

Scale: None Date: Apr. 2022

**SHEET No. SD12 OF 2 SHEETS**

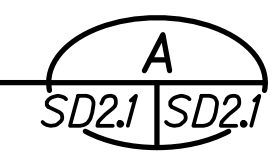
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HAWAII	HAW.	7101A-01-20	2021	530	






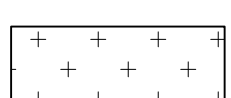
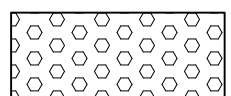
RETAINING WALL AT KAHI MOHALA

**STRUCTURE EXCAVATION AND BACKFILL PAY LIMITS SECTION**

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

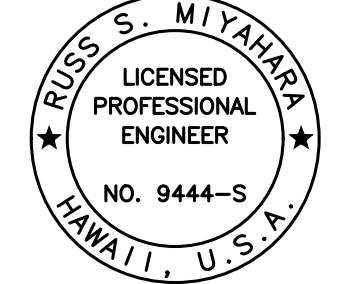


Legend:

-  Structure Excavation
-  Structure Backfill
-  Filter Material Wrapped in Filter Fabric
-  Impervious Material
-  Aggregate Base Course

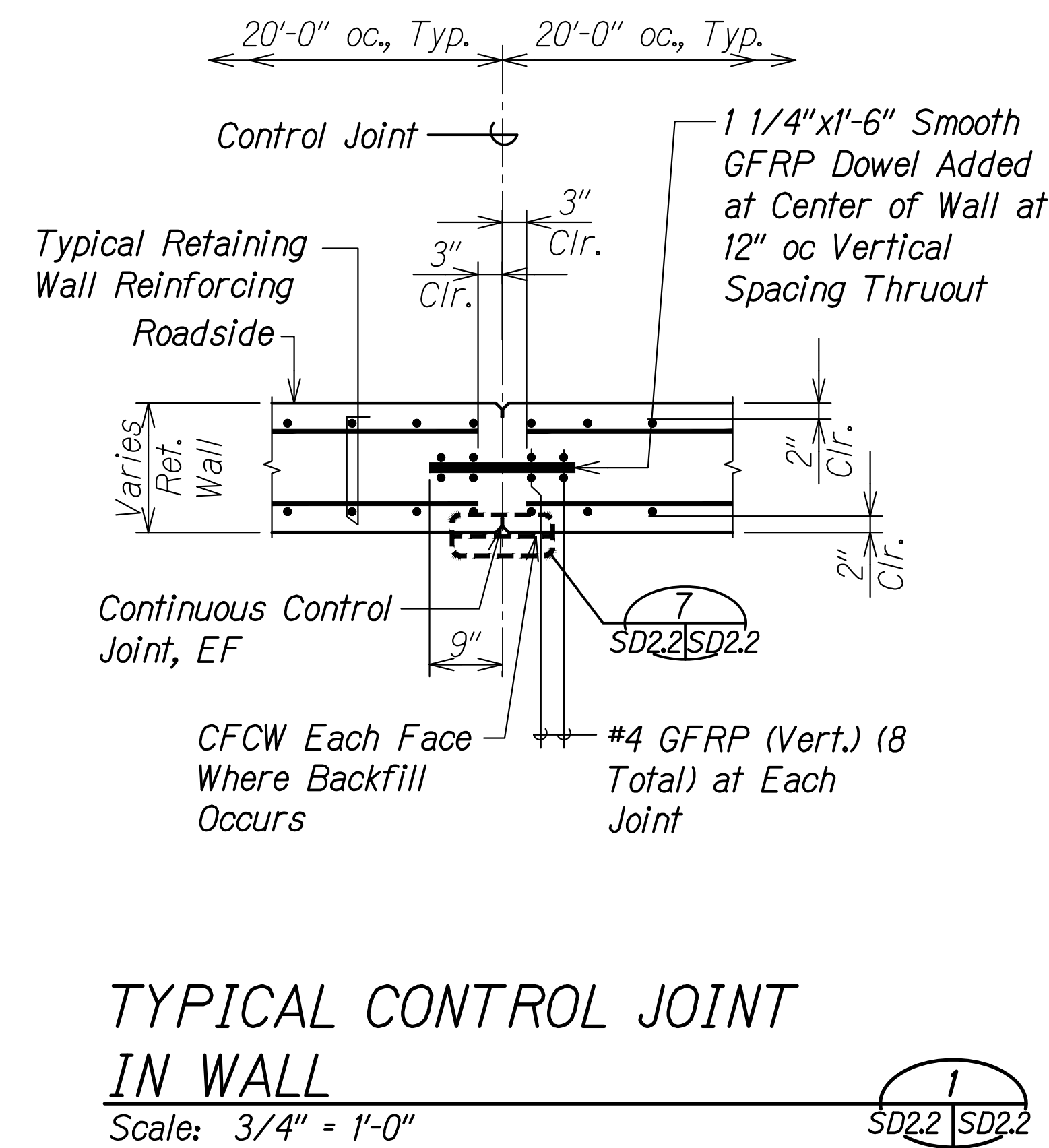
SURVEY PLOTTED BY	DATE
DRAWN BY	
DESIGNED BY	
QUANTITIES BY	
CHECKED BY	
ORIGINAL PLAN	
NOTE BOOK	
No.	

DRAWING NAME: Z:\100 ONGOING\20-013-FARR-HWY-KAPOLEI GC ID: ET-WR-EMTC\01-GAD\04-06-22 BID SET\FHW3-SD2001-EXC&BACKFILL.DWG PLOT TIME: 04-07-22 4:14 PM

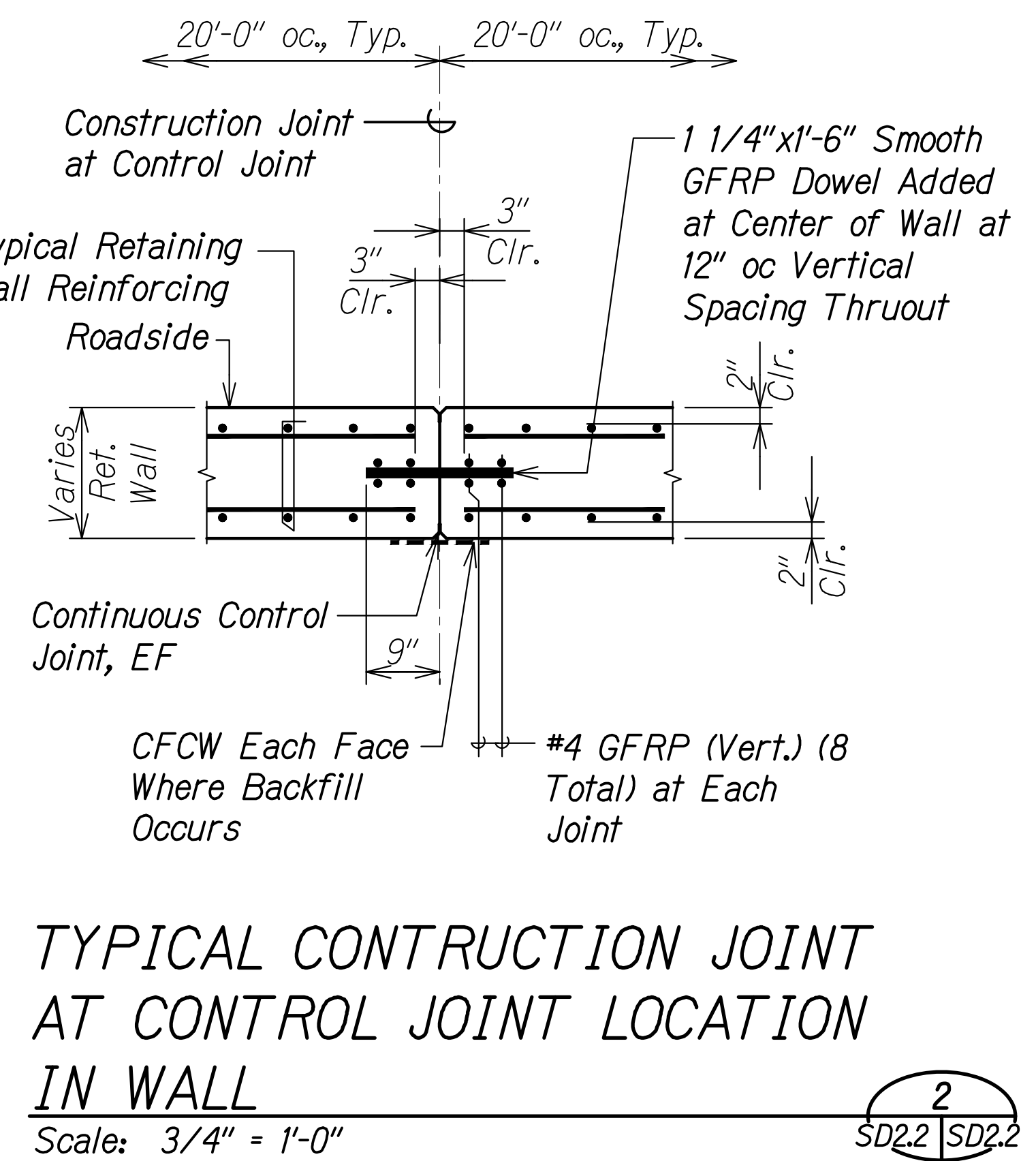
  
 THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.  
*Rugo S. Miyakawa*  
 SIGNATURE      April 30, 2024  
 EXPIRATION DATE OF THE LICENSE

**STATE OF HAWAII**  
**DEPARTMENT OF TRANSPORTATION**  
**HIGHWAYS DIVISION**  
  
**Retaining Wall Pay Limit**  
  
**FARRINGTON HIGHWAY WIDENING**  
**Kapolei Golf Course Road to Fort Weaver Road**  
**Project No. 7101A-01-20**  
  
 Scale: As Shown      Date: Apr. 2022  
**SHEET No. SD21 OF 6 SHEETS**

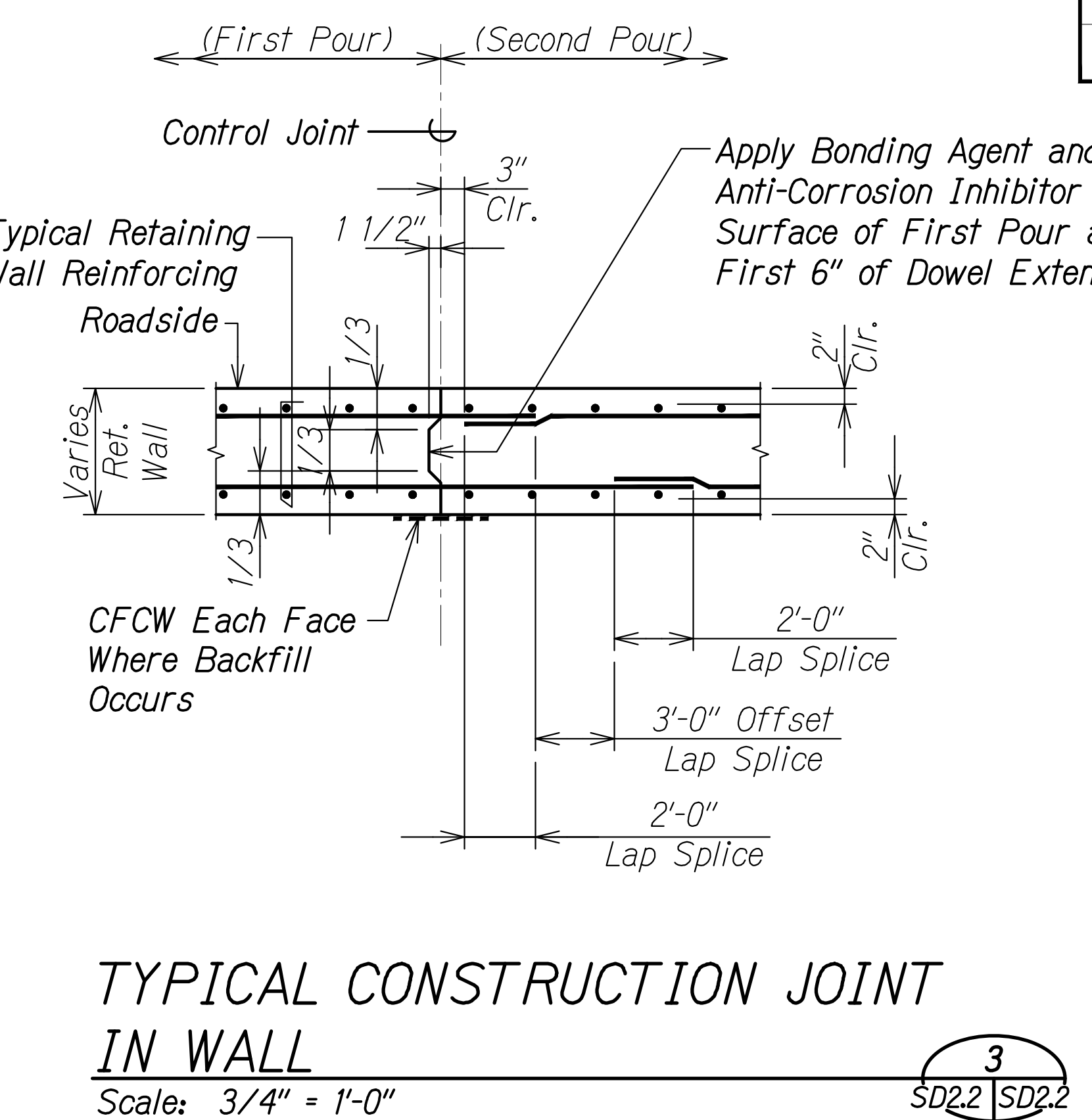
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HAWAII	HAW.	7101A-01-20	2021	531	



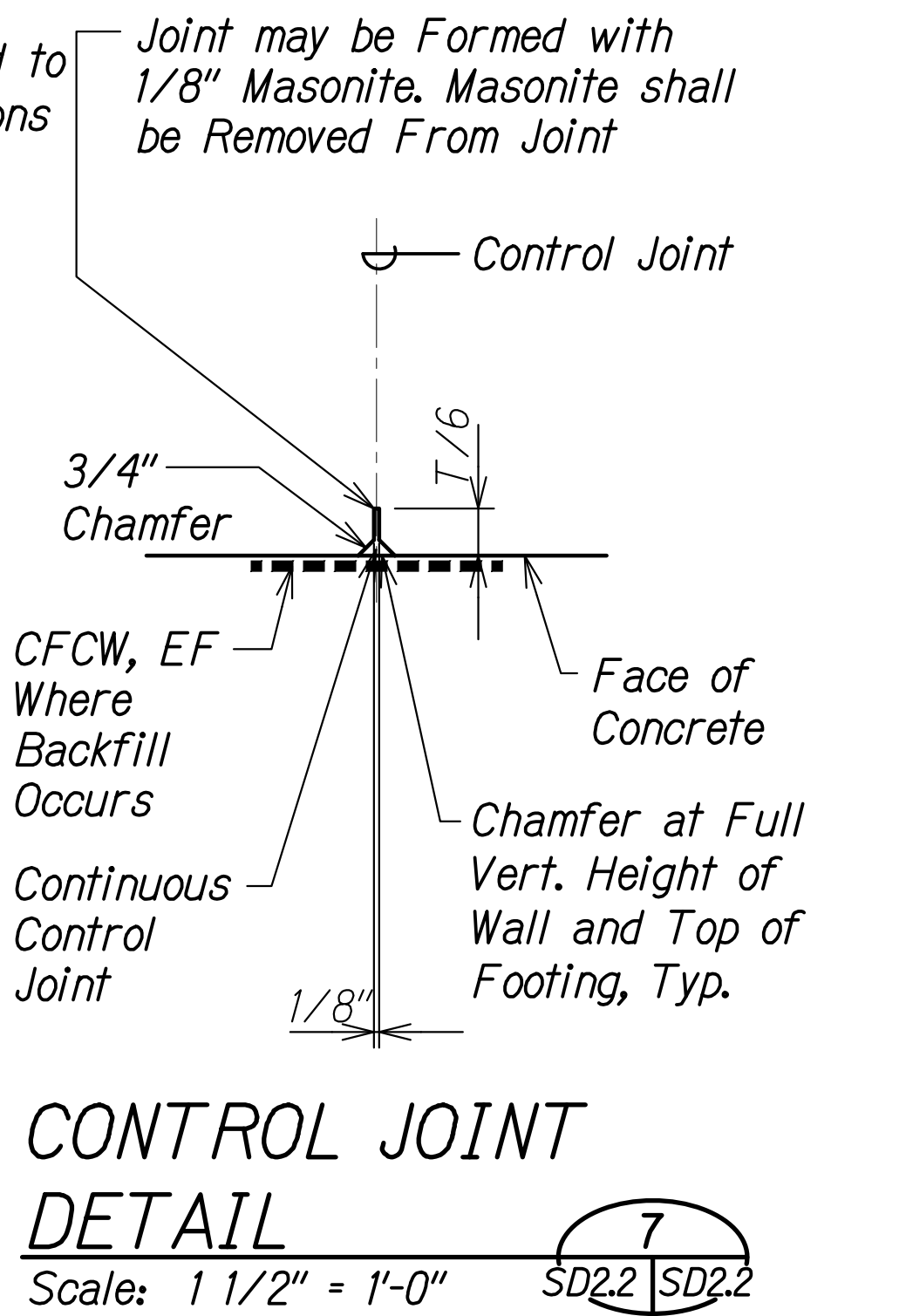
**TYPICAL CONTROL JOINT IN WALL**  
 Scale: 3/4" = 1'-0"  
 SD2.2 | SD2.2



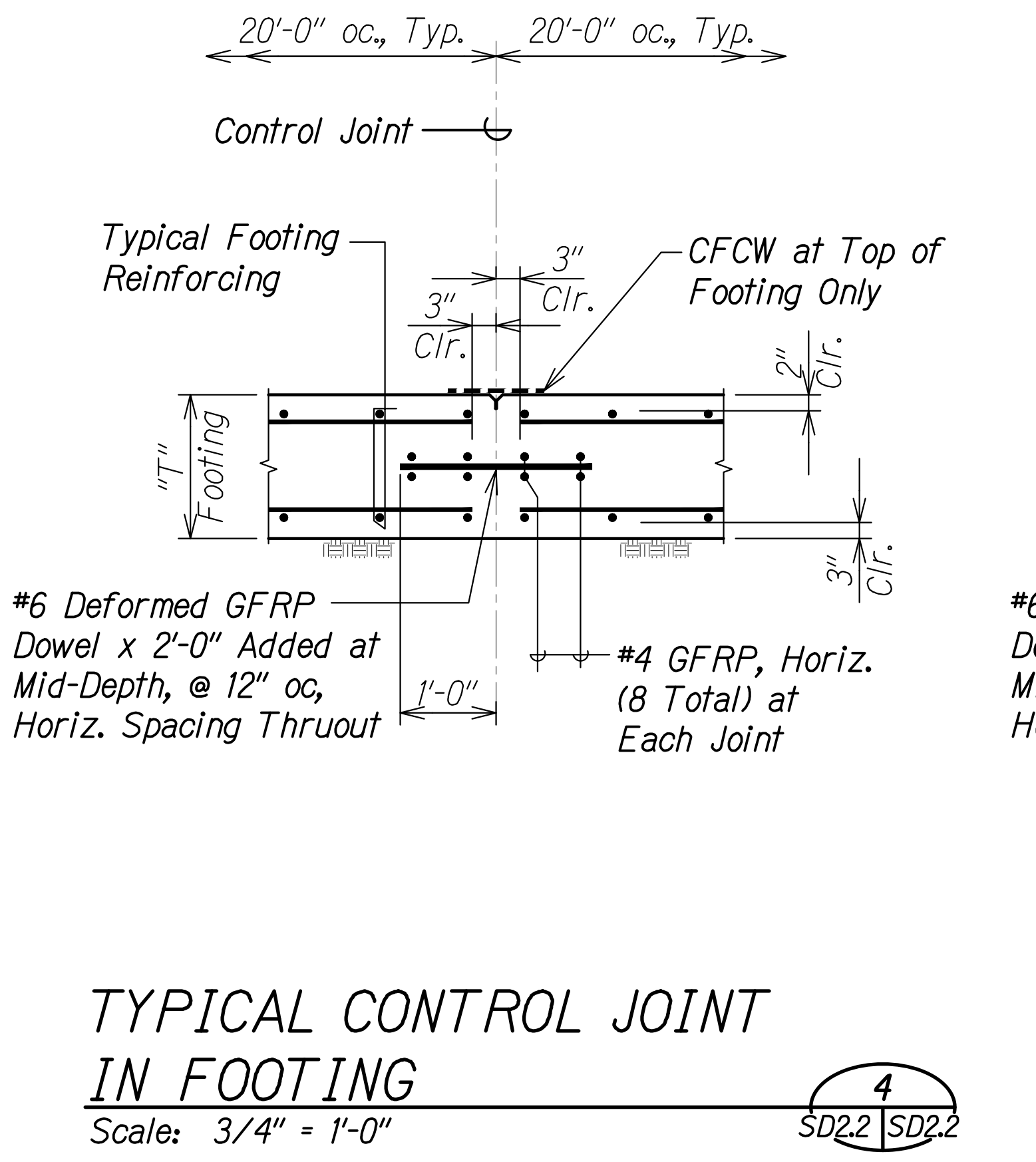
**TYPICAL CONSTRUCTION JOINT AT CONTROL JOINT LOCATION IN WALL**  
 Scale: 3/4" = 1'-0"  
 SD2.2 | SD2.2



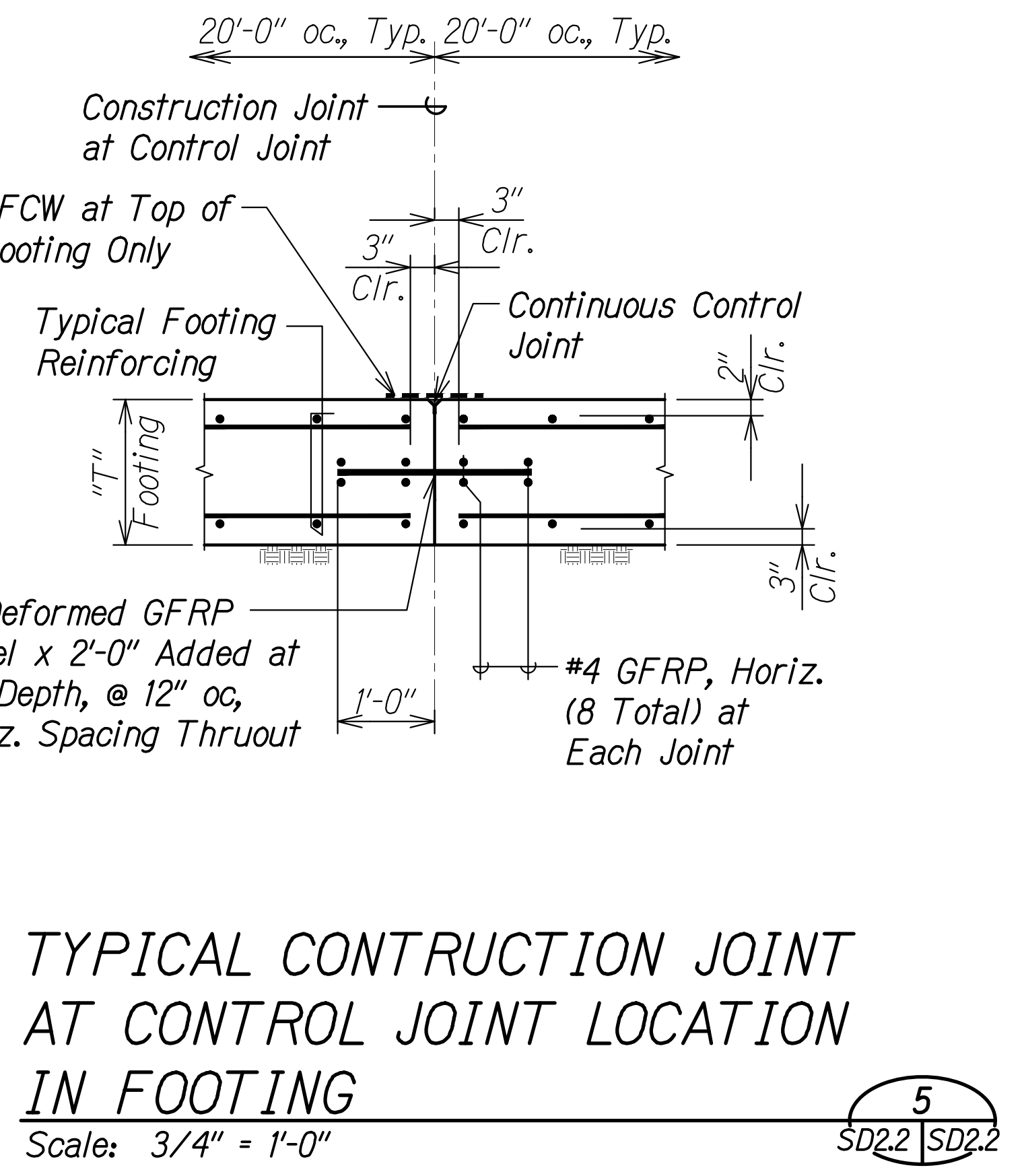
**TYPICAL CONSTRUCTION JOINT IN WALL**  
 Scale: 3/4" = 1'-0"  
 SD2.2 | SD2.2



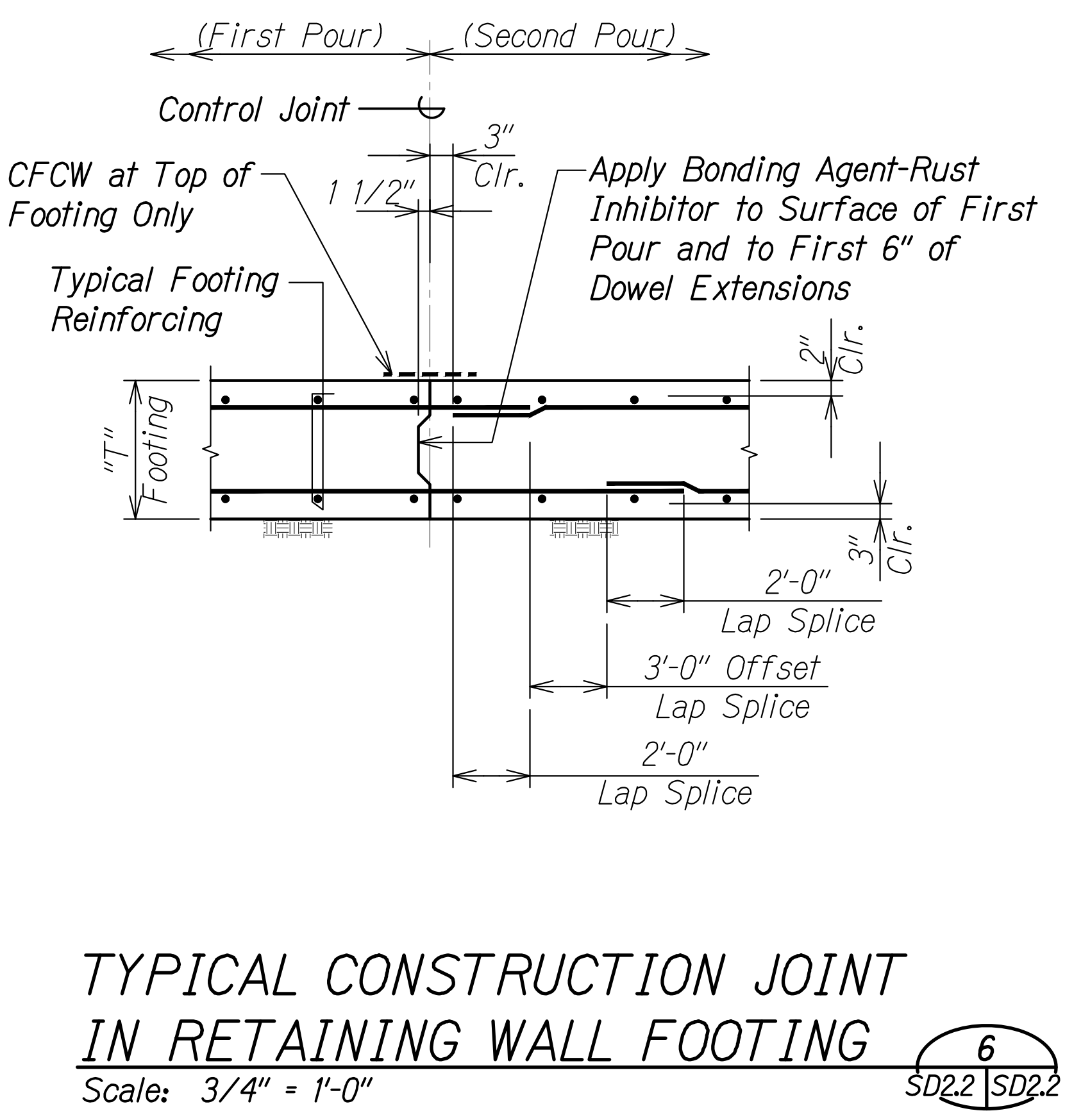
**CONTROL JOINT DETAIL**  
 Scale: 1 1/2" = 1'-0"  
 SD2.2 | SD2.2



**TYPICAL CONTROL JOINT IN FOOTING**  
 Scale: 3/4" = 1'-0"  
 SD2.2 | SD2.2



**TYPICAL CONSTRUCTION JOINT AT CONTROL JOINT LOCATION IN FOOTING**  
 Scale: 3/4" = 1'-0"  
 SD2.2 | SD2.2



**TYPICAL CONSTRUCTION JOINT IN RETAINING WALL FOOTING**  
 Scale: 3/4" = 1'-0"  
 SD2.2 | SD2.2

**Legend:**  
 T Wall or Footing Thickness

**Note:**  
 Joints may be saw cut or tooled with similar depth and width.

**RUSS S. MIYAHARA**  
 LICENSED PROFESSIONAL ENGINEER  
 NO. 9444-S  
 HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.

*Russ S. Miyahara*  
 SIGNATURE  
 April 30, 2024  
 EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII  
 DEPARTMENT OF TRANSPORTATION  
 HIGHWAYS DIVISION

**Typical Retaining Wall Joint Details**

FARRINGTON HIGHWAY WIDENING  
 Kapolei Golf Course Road to Fort Weaver Road  
 Project No. 7101A-01-20

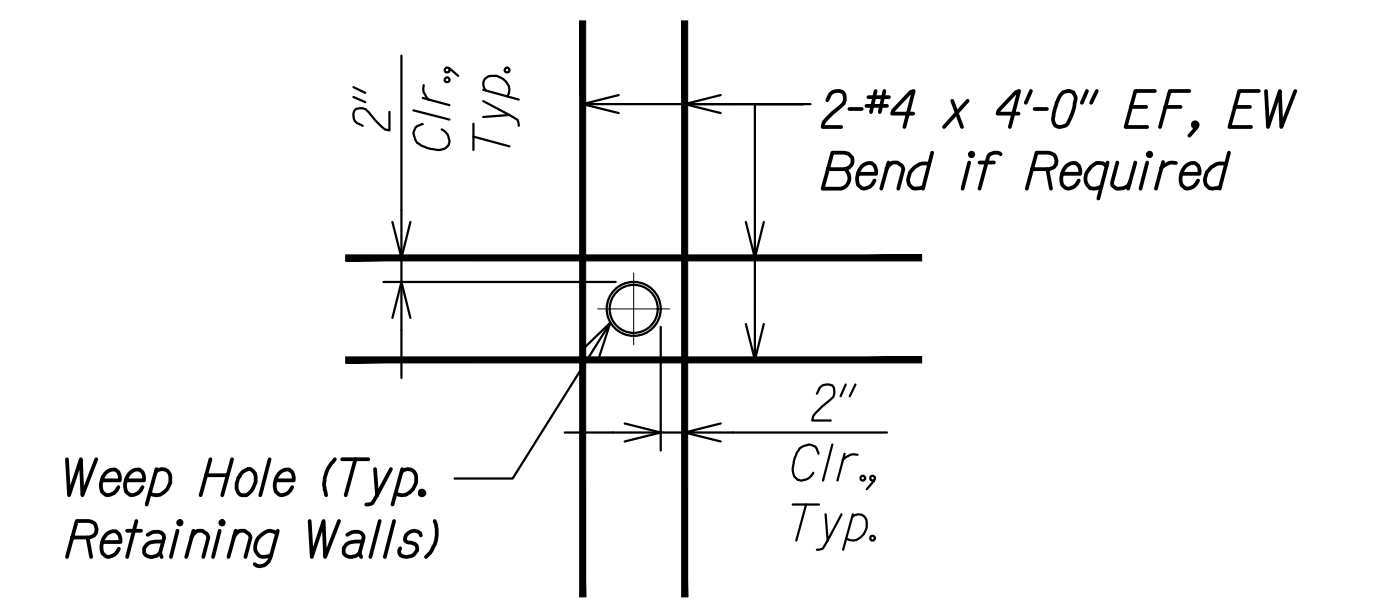
Scale: As Shown Date: Apr. 2022

**SHEET No. SD2.2 OF 6 SHEETS**

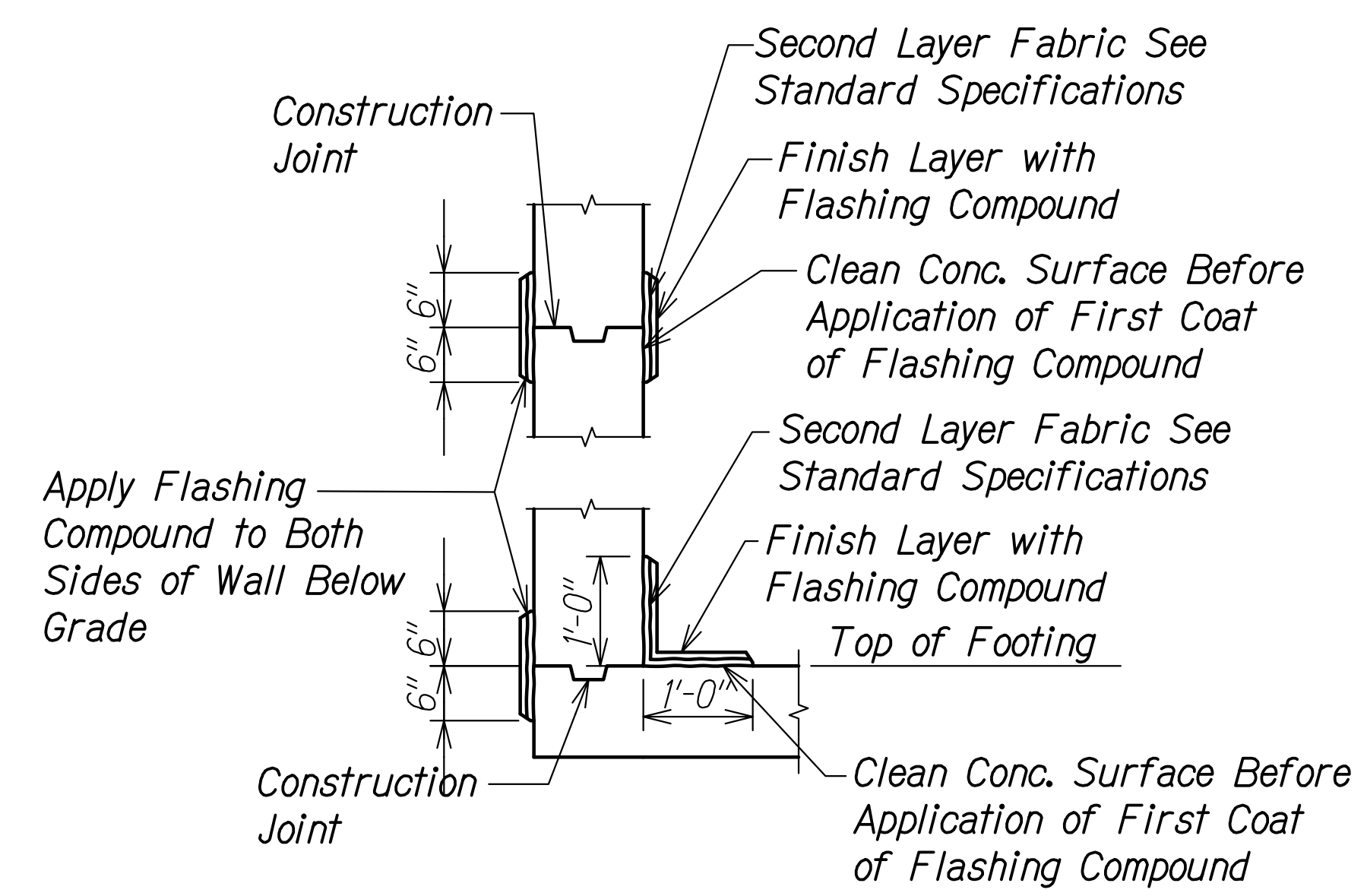
SURVEY PLOTTED BY	DATE
DRAWN BY	
DESIGNED BY	
QUANTITIES BY	
CHECKED BY	
ORIGINAL PLAN No.	

DRAWING NAME: Z:\100\_000000\20-013-FARR-HW-KAPOLEI.GC.ID.IT.WIP-RM(CAD) 04-06-22 8:00 AM SET\FH03-SD2.02 - JF.DWG PLOT TIME: 04-07-22 4:14 PM

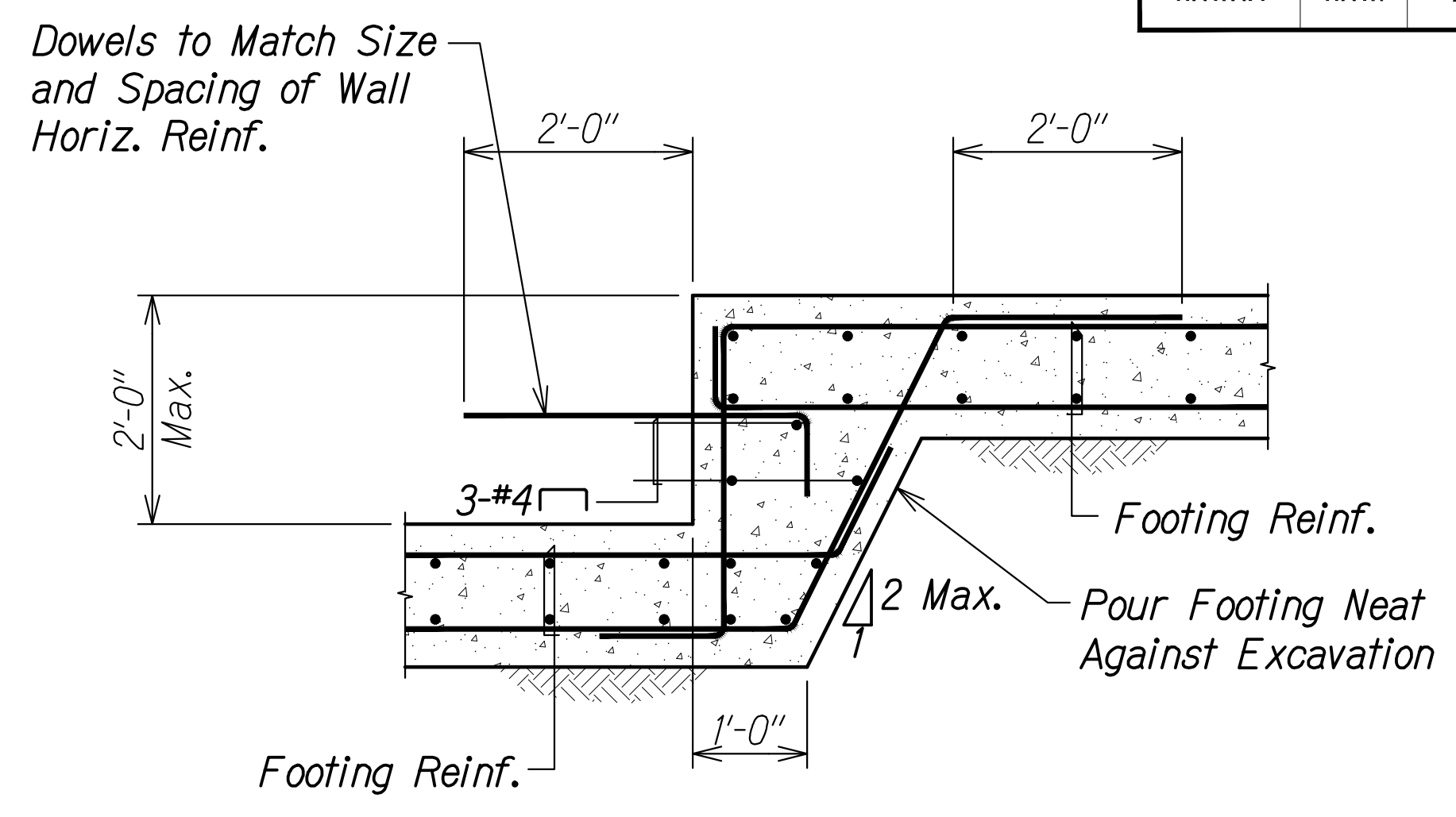
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HAWAII	HAW.	7101A-01-20	2021	532	



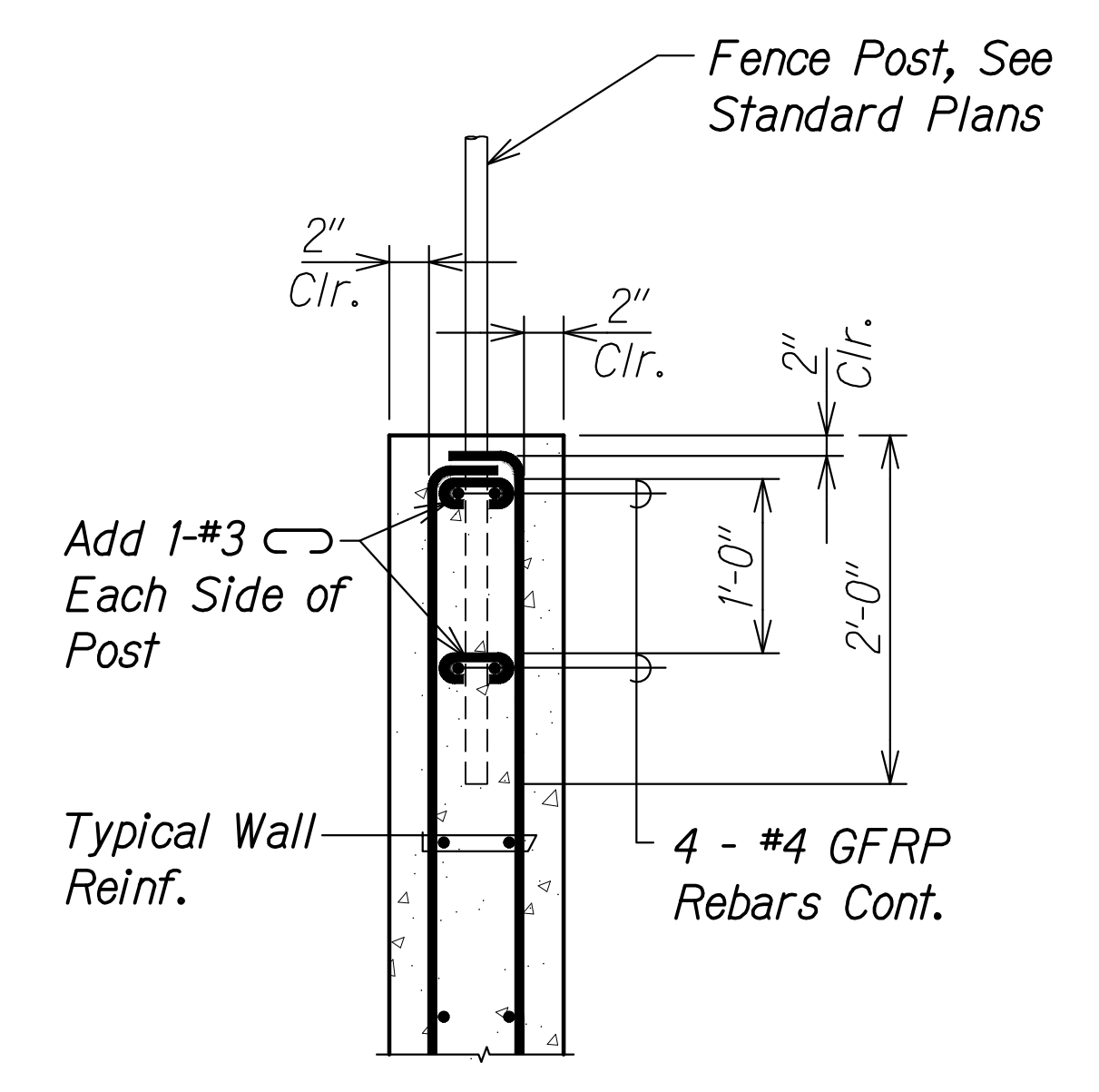
**ADDED REINF. AT WEEP HOLES IN CONCRETE WALL** 1  
 Scale: 3/4" = 1'-0" SD2.3 SD2.3



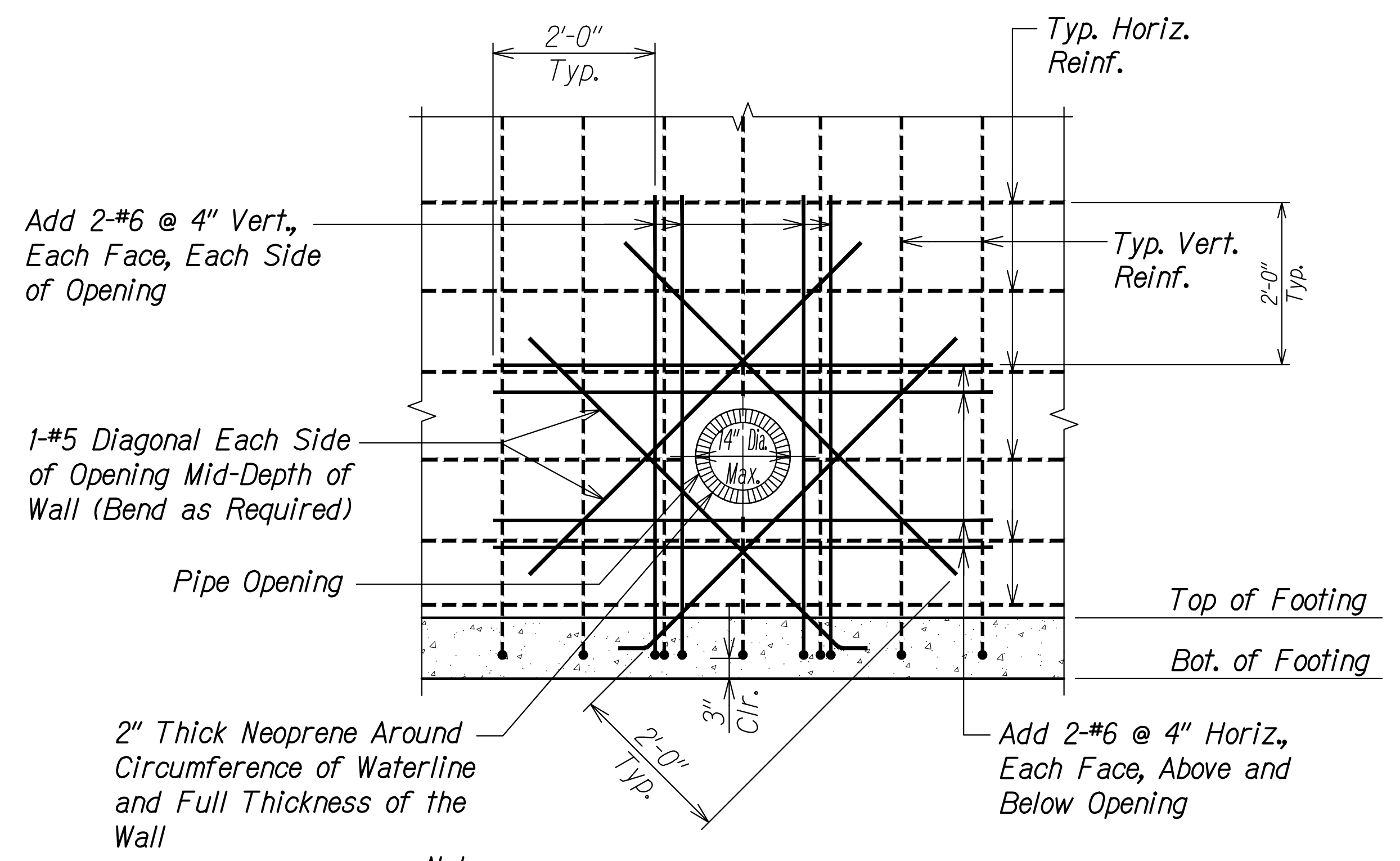
**TYP. CONT. FLASHING COMPOUND WATERPROOFING (CFCW) DETAILS** 2  
 Scale: 3/4" = 1'-0" SD2.3 SD2.3



**TYP. WALL STEP FOOTING** 3  
 Scale: 3/4" = 1'-0" SD2.3 SD2.3



**FENCE POST DETAIL** 4  
 Scale: 1" = 1'-0" SD2.3 SD2.3



- Notes:**
- 2" clearance between pipe and reinf.
  - Neoprene shall be placed between waterline and wall or grout used to fill in annulus of opening.

**TYPICAL SECTION - ADDED REINFORCING FOR PIPE SLEEVE** 5  
 Scale: 3/4" = 1'-0" SD2.3 SD2.3

SURVEY PLOTTED BY	DATE
DRAWN BY	
DESIGNED BY	
QUANTITIES BY	
CHECKED BY	
ORIGINAL PLAN No.	

DRAWING NAME: Z:\G00\ONSDRWS\20-013-FARR-HWY-KAPOLEI-GC-10-ET-WP-EMT(CAD)-04-15-22-BD-RVSD-SHRS\EMW3-SD2.3 TYP-DTLSDWG PLOT TIME: 04-15-22 9:08 AM

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.  
 Signature: *Rugs S. Miyahara*  
 April 30, 2024  
 EXPIRATION DATE OF THE LICENSE

**STATE OF HAWAII**  
**DEPARTMENT OF TRANSPORTATION**  
**HIGHWAYS DIVISION**

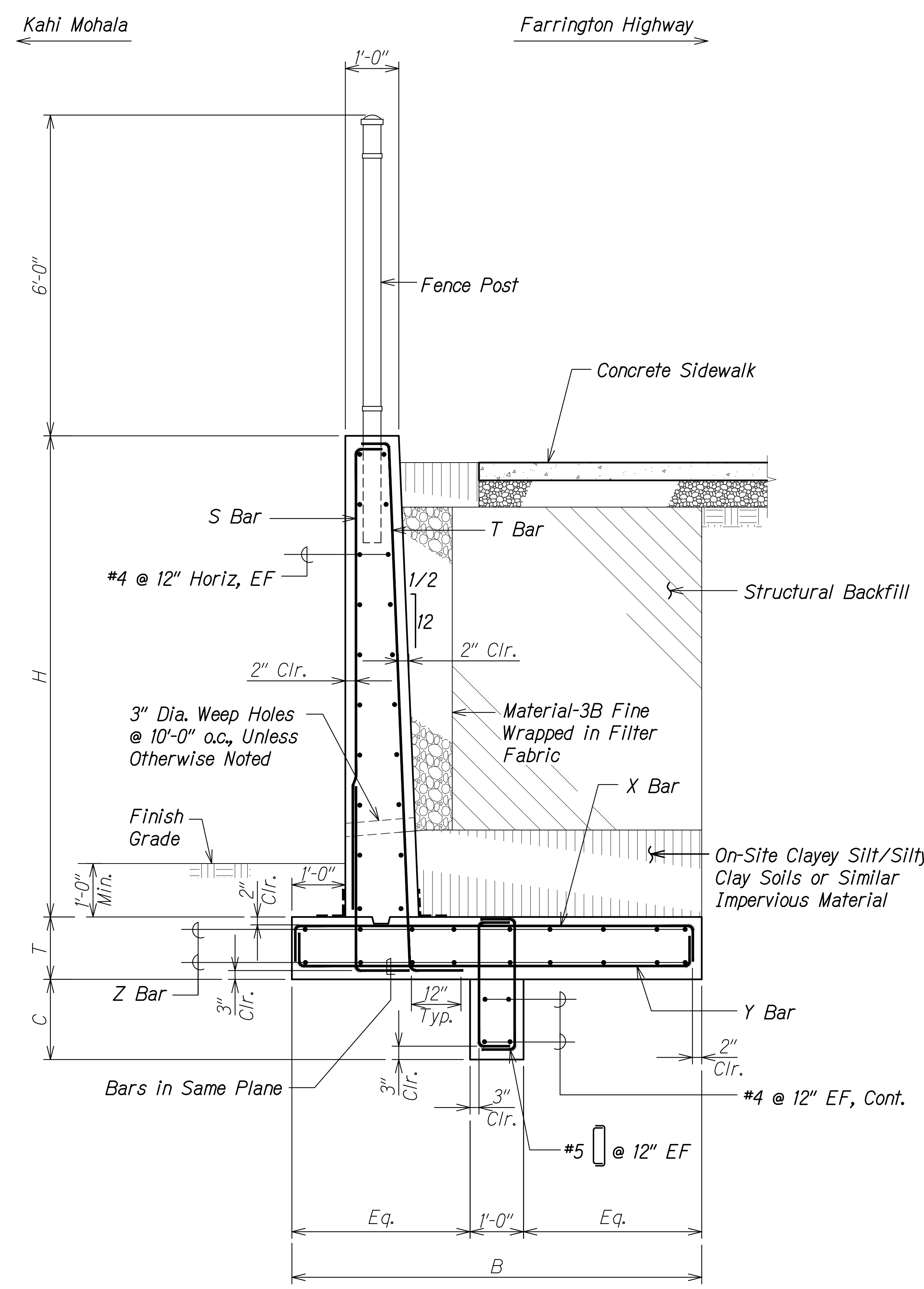
**Typical Retaining Wall Details**

**FARRINGTON HIGHWAY WIDENING**  
**Kapolei Golf Course Road to Fort Weaver Road**  
**Project No. 7101A-01-20**

Scale: As Shown      Date: Apr. 2022

**SHEET No. SD2.3 OF 6 SHEETS**

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	7101A-01-20	2021	533	



H	T	B	C	S BARS	T BARS	X BARS	Y BARS	Z BARS	REMARKS
≤15'-0"	1'-10"	11'-0"	2'-0"	#5 @ 6"	#7 @ 6"	#7 @ 6"	#5 @ 12"	12-#5 TφB	
≤13'-0"	1'-6"	9'-6"	1'-6"	#5 @ 6"	#6 @ 6"	#6 @ 6"	#5 @ 12"	10-#5 TφB	
≤11'-0"	1'-0"	8'-0"	1'-3"	#5 @ 12"	#5 @ 6"	#6 @ 6"	#5 @ 12"	9-#4 TφB	
≤9'-0"	1'-0"	6'-6"	1'-3"	#5 @ 12"	#5 @ 12"	#5 @ 6"	#5 @ 12"	7-#4 TφB	

**TYPICAL CONCRETE RETAINING WALL AT KAHI MOHALA**  
 Scale: 3/4" = 1'-0"

**A**  
 SD2.4 | SD2.4

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

DRAWING NAME: Z:\100 ONGOING\20-013-FARR-HWY-KAPOLEI GC.ID ET WRK-EMTC\01 CAD\04-06-22 BID SET\FHW3-SD2024 KAHI MOHALA WALL.DWG PLOT TIME: 04-07-22, 4:15 PM

**RUGO S. MIYAHARA**  
 LICENSED PROFESSIONAL ENGINEER  
 NO. 9444-S  
 HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.  
 SIGNATURE: *Rugo S. Miyahara* EXPIRATION DATE OF THE LICENSE: April 30, 2024

STATE OF HAWAII  
 DEPARTMENT OF TRANSPORTATION  
 HIGHWAYS DIVISION

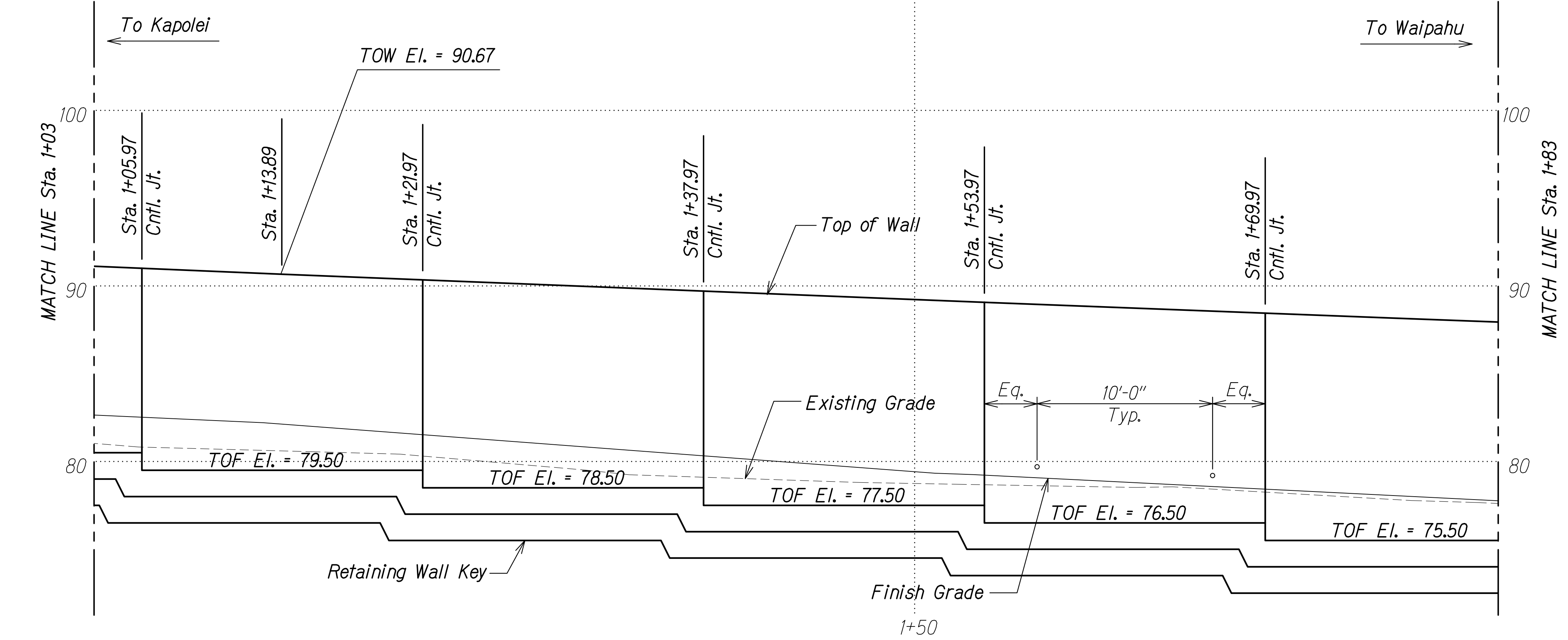
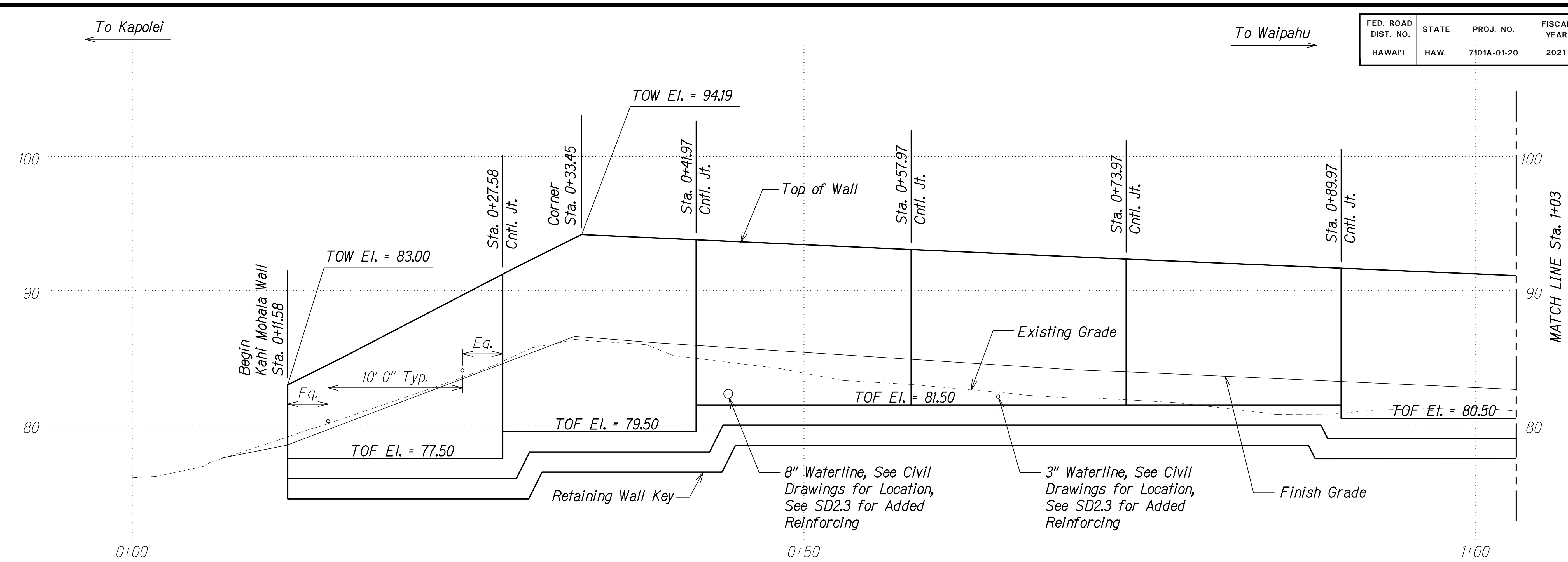
**Typical Retaining Wall Section and Schedule At Kahi Mohala**

FARRINGTON HIGHWAY WIDENING  
 Kapolei Golf Course Road to Fort Weaver Road  
 Project No. 7101A-01-20

Scale: As Shown Date: Apr. 2022

**SHEET No. SD2.4 OF 6 SHEETS**

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	7101A-01-20	2021	534	



**LEGEND:**  
 Cntl. Jt. Control Joint in Wall  
 TOF Top of Footing  
 TOW Top of Wall

**NOTE:**  
 1. For Finish Grade elevation, see Civil drawings.

ORIGINAL PLAN	DATE
DRAWN BY	
DESIGNED BY	
QUANTITIES BY	
CHECKED BY	
No.	

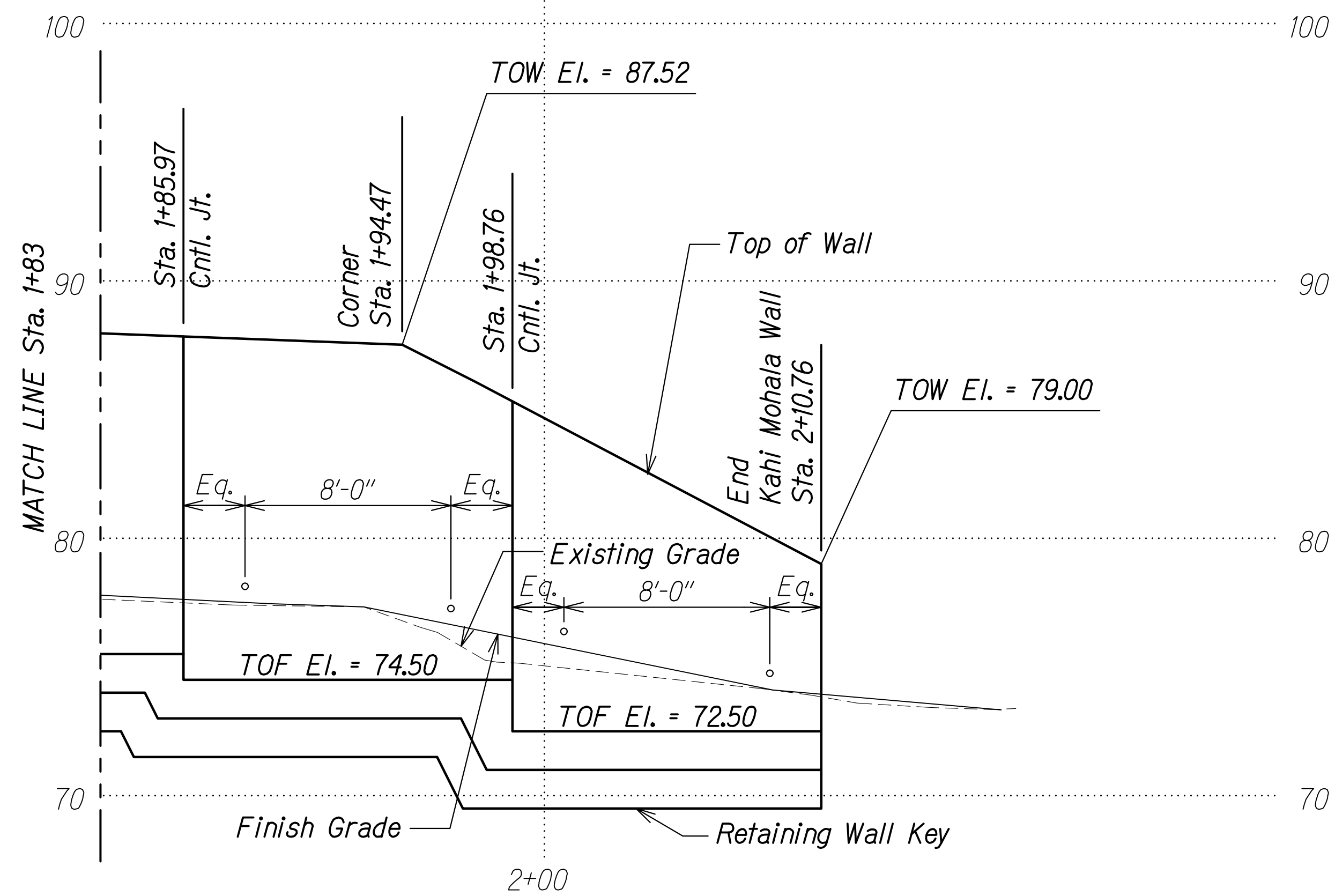
DRAWING NAME: Z:\A00\ONDONG\20-013-FARR HWY KAPOLEI GC 10 FT WIDE MATCH LINE STA. 1+03 TO STA. 1+83\DWG-SD025.FRD; FILED: WALLS.DWG; PLOT TIME: 04-13-22, 9:07 AM

**KAHI MOHALA WALL PROFILE - STA. 0+00 TO STA. 1+83**  
 Scale: 1/4" = 1'-0" A  
SD2.5 | SD2.5

**RUCS S. MIYAHARA**  
 LICENSED PROFESSIONAL ENGINEER  
 NO. 9444-S  
 HAWAII, U.S.A.  
 THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.  
 Signature: *RUCS S. Miyahara*  
 April 30, 2024  
 EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII  
 DEPARTMENT OF TRANSPORTATION  
 HIGHWAYS DIVISION  
**Kahi Mohala Wall Profile**  
 Sta. 0+00 to Sta. 1+83  
 FARRINGTON HIGHWAY WIDENING  
 Kapolei Golf Course Road to Fort Weaver Road  
 Project No. 7101A-01-20  
 Scale: As Shown Date: Apr. 2022  
**SHEET No. SD2.5 OF 6 SHEETS**

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	7101A-01-20	2021	535	



**KAHI MOHALA WALL PROFILE - STA. 1+83 TO STA. 2+10.76** A  
 Scale: 1/4" = 1'-0" SD2.6 SD2.6

**LEGEND:**

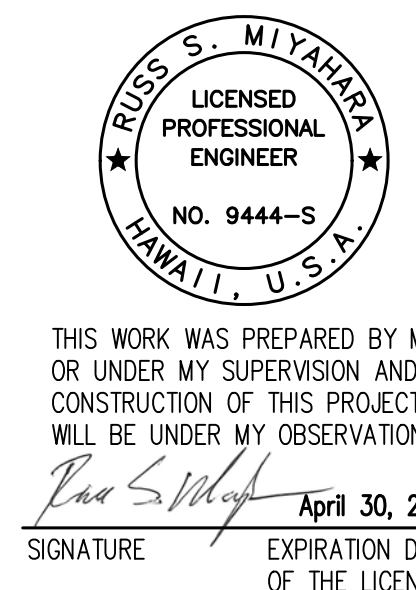
- Cntl. Jt. Control Joint in Wall
- TOF Top of Footing
- TOW Top of Wall

**NOTE:**

1. For Finish Grade elevation, see Civil drawings.

ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
NOTE BOOK	DRAWN BY	
No. _____	DESIGNED BY	
	QUANTITIES BY	
	CHECKED BY	

DRAWING NAME: Z:\100 ONGOING\20-013-FARR-HWY-KAPOLEI\GC\_ID.IT\WIP-EMTC\01\_GAD\04-06-22 BID SET\FHW3-SD2025-RETG-WALLS.DWG PLOT TIME: 04-07-22 4:17 PM



STATE OF HAWAII  
 DEPARTMENT OF TRANSPORTATION  
 HIGHWAYS DIVISION

**Kahi Mohala Wall Profile**  
 Sta. 1+83 to Sta. 3+75

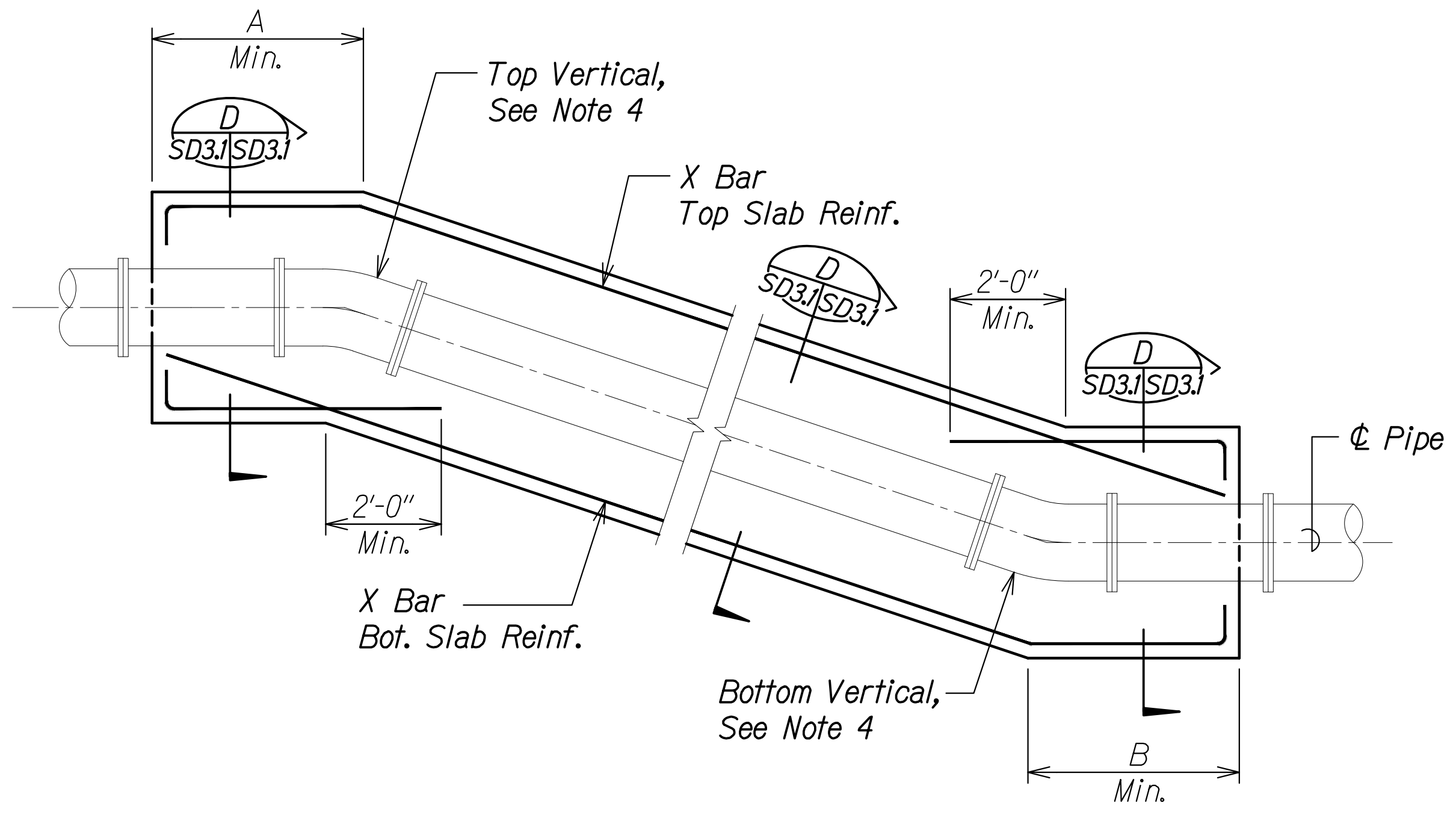
FARRINGTON HIGHWAY WIDENING  
 Kapolei Golf Course Road to Fort Weaver Road  
 Project No. 7101A-01-20

Scale: As Shown Date: Apr. 2022

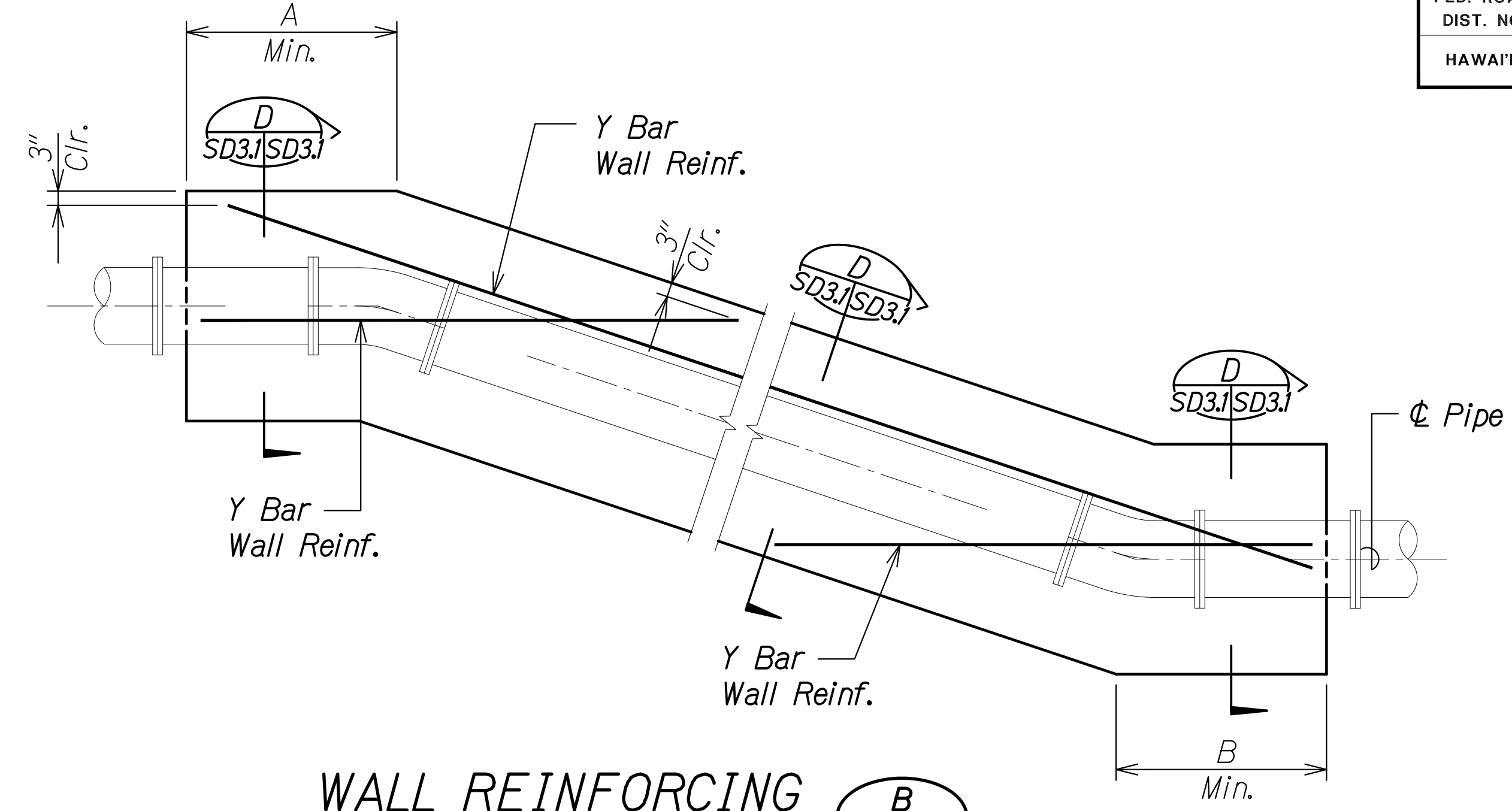
**SHEET No. SD2.6 OF 6 SHEETS**



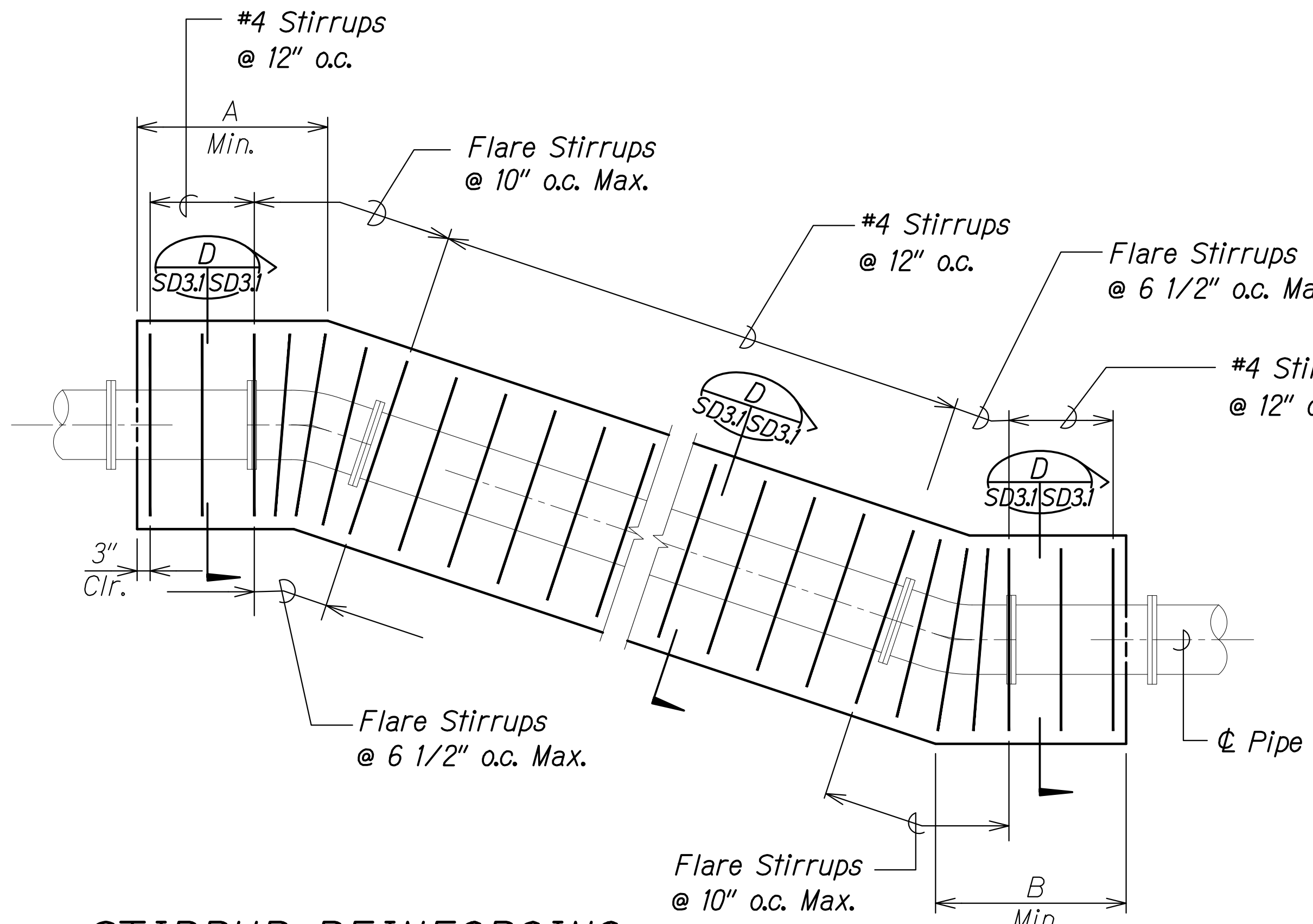
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	7101A-01-20	2021	536	



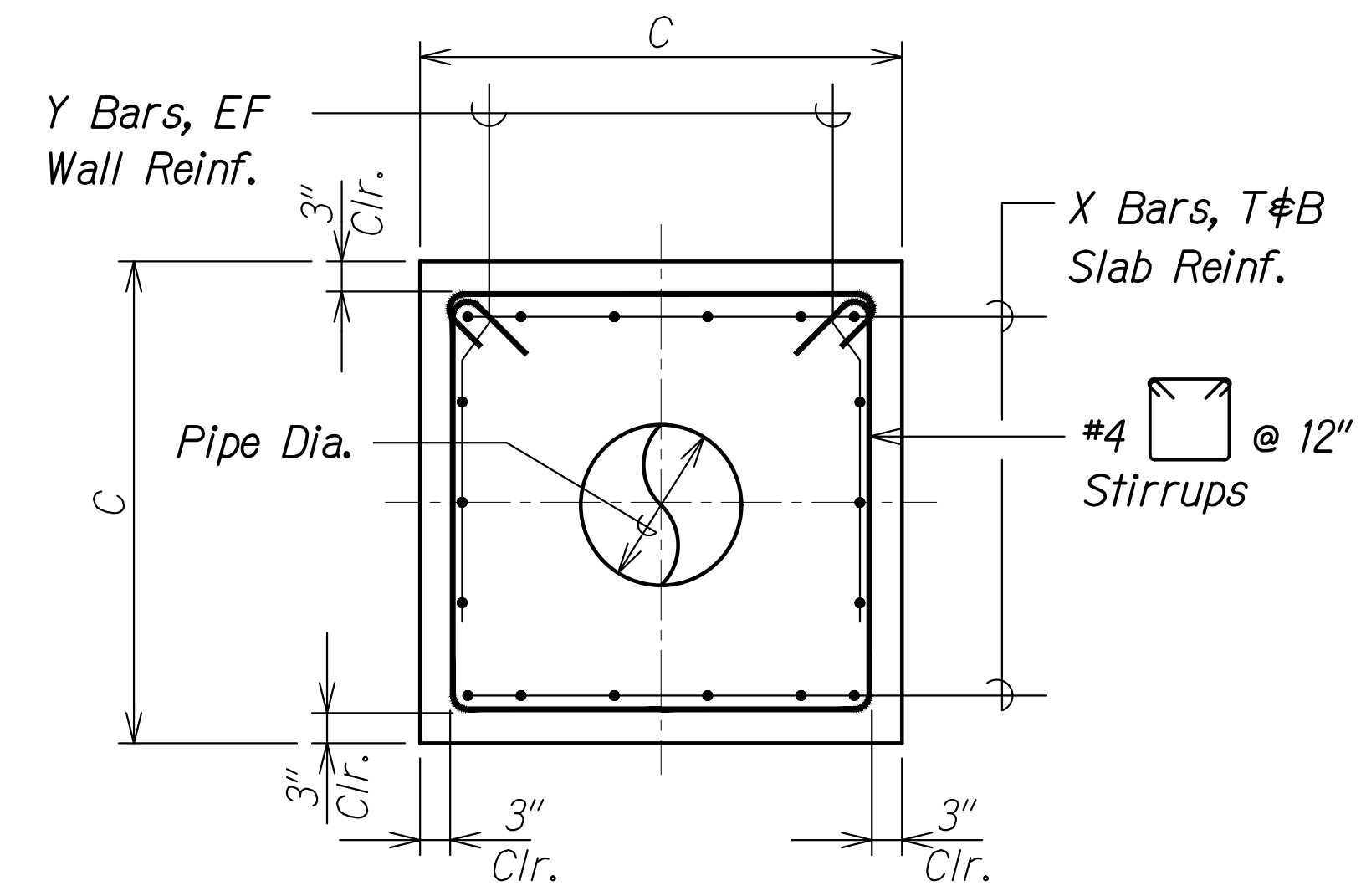
**TOP AND BOTTOM SLAB REINF.** A  
Scale: 1/2" = 1'-0" SD3.1 | SD3.1



**WALL REINFORCING** B  
Scale: 1/2" = 1'-0" SD3.1 | SD3.1



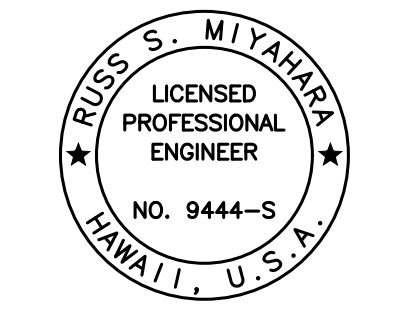
**STIRRUP REINFORCING** C  
Scale: 1/2" = 1'-0" SD3.1 | SD3.1



**TYPICAL VERTICAL PIPE JACKET SECTION** D  
Scale: 3/4" = 1'-0" SD3.1 | SD3.1

- Notes:**
- Concrete shall develop a minimum 28-Day compressive strength of 4,000 psi, unless shown otherwise.
  - Pipe test pressure = 200 psi
  - Any soft soil encountered during excavation shall be removed to firm soil and replaced with compacted fill.
  - Concrete jackets shall attain full design strength prior to any pressure testing on pipes.
  - 1/8 maximum top and bottom vertical bends.

APPROVED: \_\_\_\_\_ DATE \_\_\_\_\_  
 Manager and Chief Engineer, BWS  
 (for work affecting BWS facilities  
 State R/W & BWS easements only)



THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.  
 Signature: *Russ S. Miyahara* April 30, 2024  
 EXPIRATION DATE OF THE LICENSE

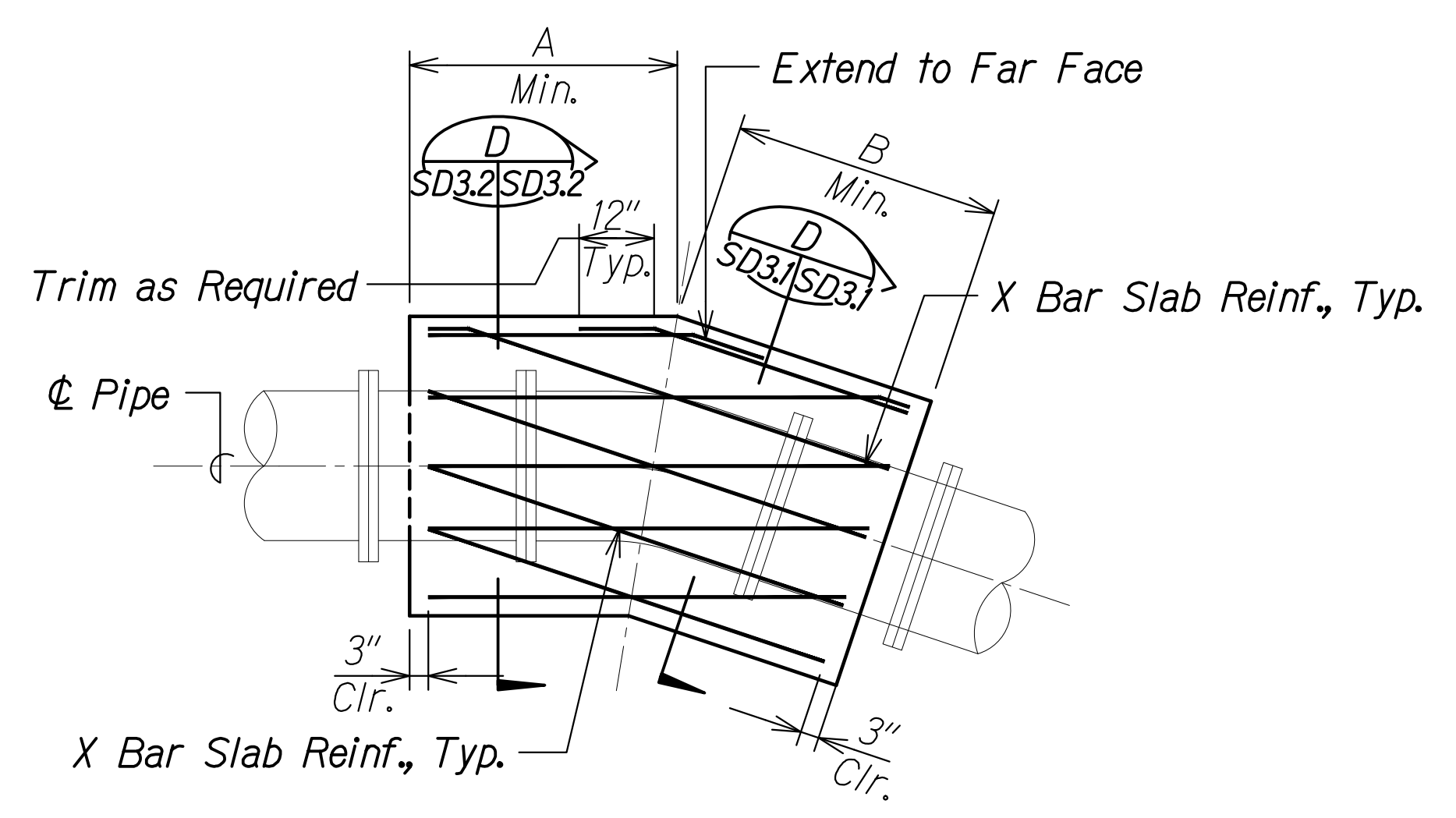
PIPE DIAMETER	DIMENSIONS			REINFORCING		REMARKS
	A	B	C	X BAR	Y BAR	
16"	9'-6"	9'-6"	3'-2"	4 - #6	#6 @ 10"	
20"	12'-6"	12'-6"	3'-6"	6 - #6	#6 @ 8"	
30"	18'-10"	18'-10"	4'-6"	7 - #7	#6 @ 6"	
36"	23'-0"	23'-0"	5'-0"	8 - #7	#6 @ 6"	
42"	27'-0"	27'-0"	5'-6"	9 - #7	#6 @ 6"	

STATE OF HAWAII  
 DEPARTMENT OF TRANSPORTATION  
 HIGHWAYS DIVISION  
**Vertical Bend Pipe Jackets**  
 FARRINGTON HIGHWAY WIDENING  
 Kapolei Golf Course Road to Fort Weaver Road  
 Project No. 7101A-01-20  
 Scale: As Shown Date: Apr. 2022  
**SHEET No. SD3.1 OF 4 SHEETS**

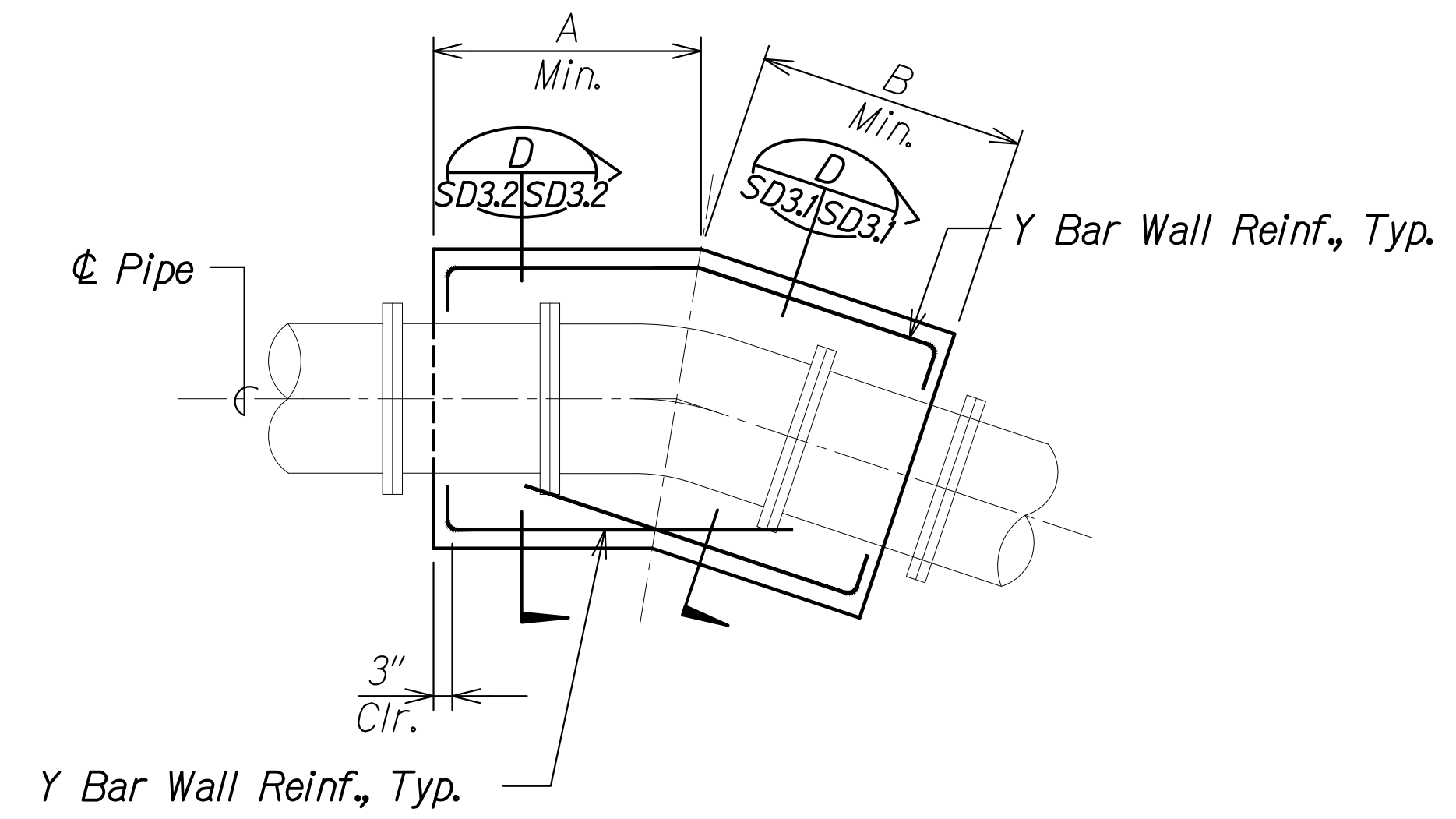
SURVEY PLOTTED BY	DATE
DRAWN BY	
DESIGNED BY	
QUANTITIES BY	
CHECKED BY	
ORIGINAL PLAN	No.
NOTE BOOK	

DRAWING NAME: Z:\00 UNDOINGS\20-013-FARR-HW-KAPOLEI GC ID: ET W/R-EMTC\01 CAD\04-06-22 BID SET\FH03-SD3.01 VERT JACKETS DEL.DWG PLOT TIME: 04-07-22, 4:17 PM

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	7101A-01-20	2021	537	



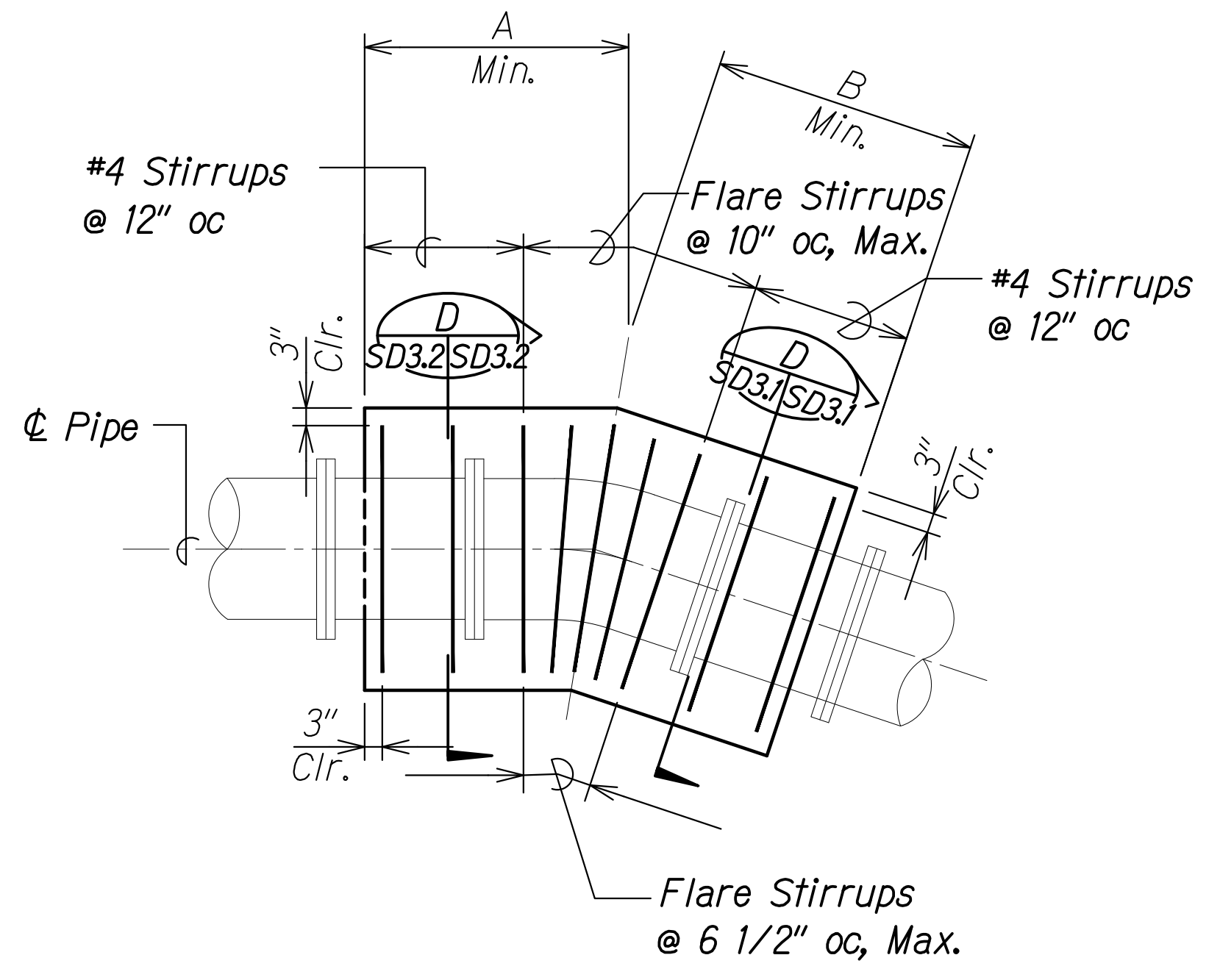
**TOP AND BOTTOM SLAB REINF.** A  
 Scale: 1/2" = 1'-0" SD3.2 | SD3.2



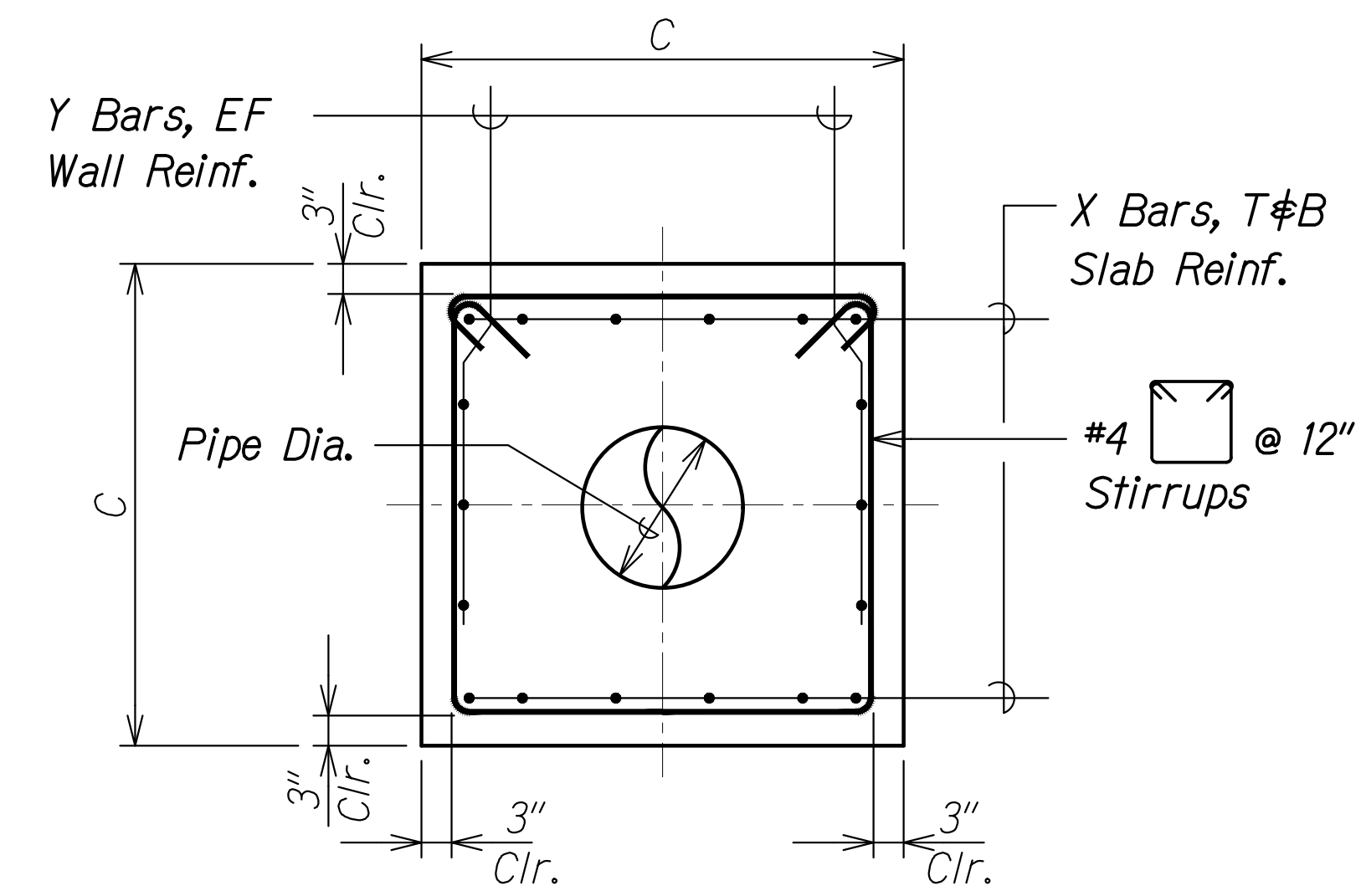
**WALL REINFORCING** B  
 Scale: 1/2" = 1'-0" SD3.2 | SD3.2

**Notes:**

- Concrete shall develop a minimum 28-Day compressive strength of 4,000 psi, unless shown otherwise.
- Pipe test pressure = 200 psi
- Any soft soil encountered during excavation shall be removed to firm soil and replaced with compacted fill.
- Concrete jackets shall attain full design strength prior to any pressure testing on pipes.
- 1/4 maximum horizontal bends.
- Allowable lateral bearing pressure = 3.0 ksf.



**STIRRUP REINFORCING** C  
 Scale: 1/2" = 1'-0" SD3.2 | SD3.2



**TYPICAL HORIZONTAL PIPE JACKET SECTION** D  
 Scale: 3/4" = 1'-0" SD3.2 | SD3.2

APPROVED:  
 Manager and Chief Engineer, BWS \_\_\_\_\_ DATE \_\_\_\_\_  
 (for work affecting BWS facilities  
 State R/W & BWS easements only)



THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.  
 Signature: *Russ S. Miyahara* April 30, 2024  
 EXPIRATION DATE OF THE LICENSE

SCHEDULE						
PIPE DIAMETER	DIMENSIONS			REINFORCING		REMARKS
	A	B	C	X BAR	Y BAR	
16"	3'-0"	3'-0"	3'-2"	#6 @ 12"	#6 @ 12"	
20"	4'-3"	4'-3"	3'-6"	#6 @ 12"	#6 @ 10"	
30"	7'-5"	7'-5"	4'-6"	#6 @ 12"	#6 @ 6"	
36"	9'-8"	9'-8"	5'-0"	#7 @ 12"	#7 @ 6"	
42"	11'-11"	11'-11"	5'-6"	#7 @ 12"	#7 @ 4"	

STATE OF HAWAII  
 DEPARTMENT OF TRANSPORTATION  
 HIGHWAYS DIVISION

**Horizontal Bend Pipe Jackets**

FARRINGTON HIGHWAY WIDENING  
 Kapolei Golf Course Road to Fort Weaver Road  
 Project No. 7101A-01-20

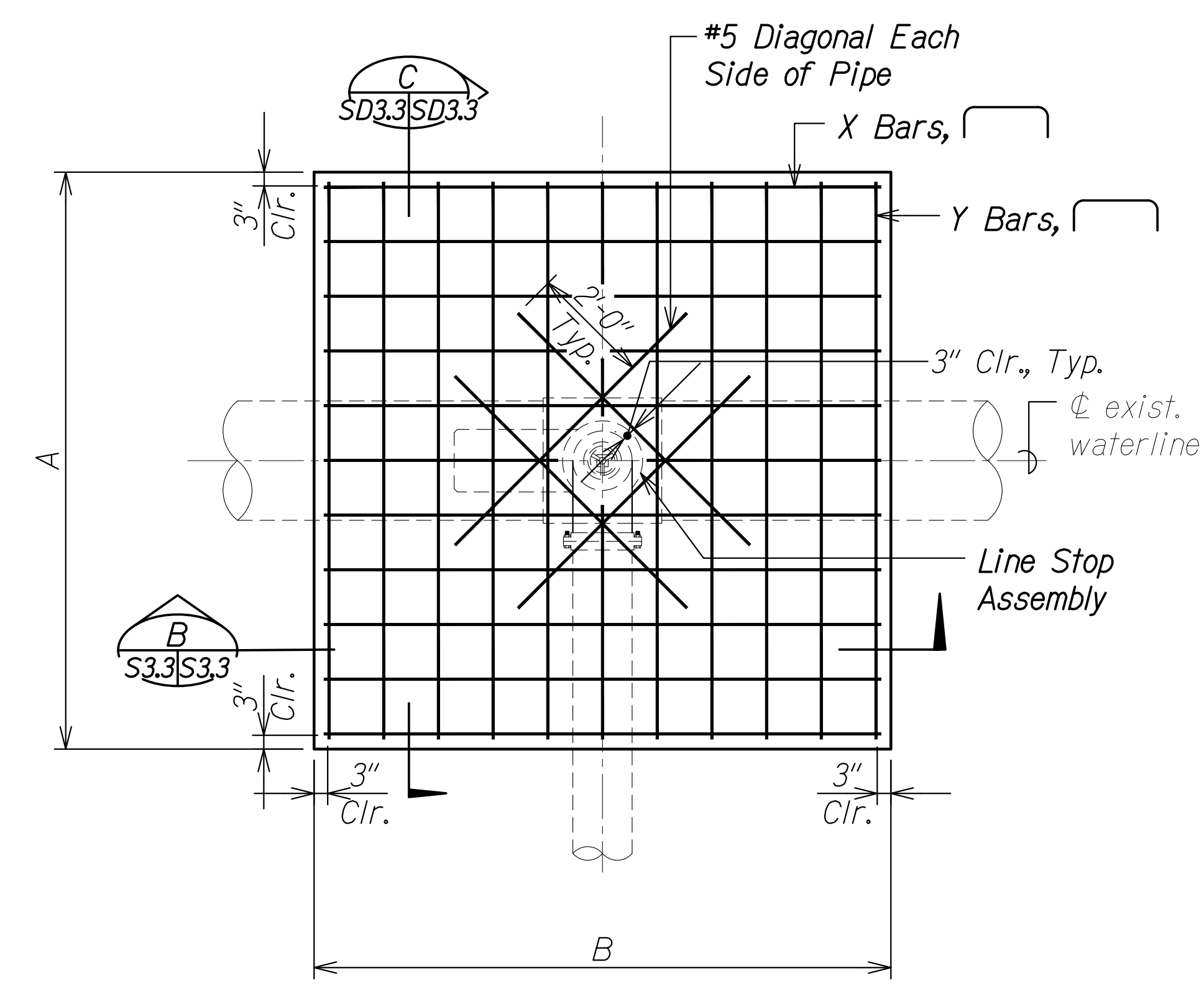
Scale: As Shown Date: Apr. 2022

**SHEET No. SD32 OF 4 SHEETS**

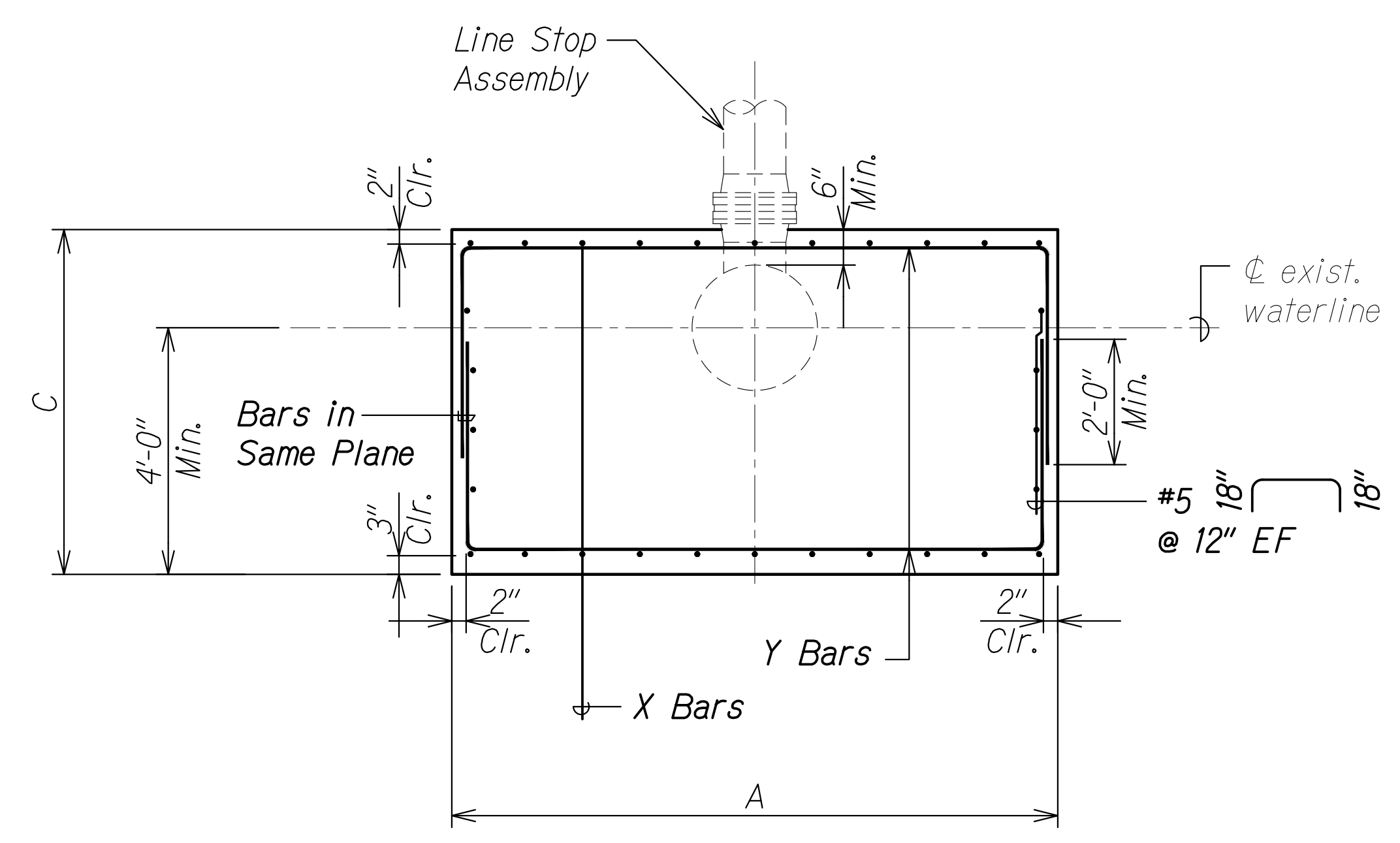
ORIGINAL PLAN	DATE
SURVEY PLOTTED BY	
DRAWN BY	
DESIGNED BY	
QUANTITIES BY	
CHECKED BY	
No.	

DRAWING NAME: 2A100 UNDESIGNED-013-FARR-HW-KAPOLEI GC ID: ET-WR-EMTCV01 CAD: 04-06-22 BID: SET-FH03-SD0302-HORZ-JACKETS-BUILDING PLOT TIME: 04-07-22: 4:17 PM

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	7101A-01-20	2021	538	

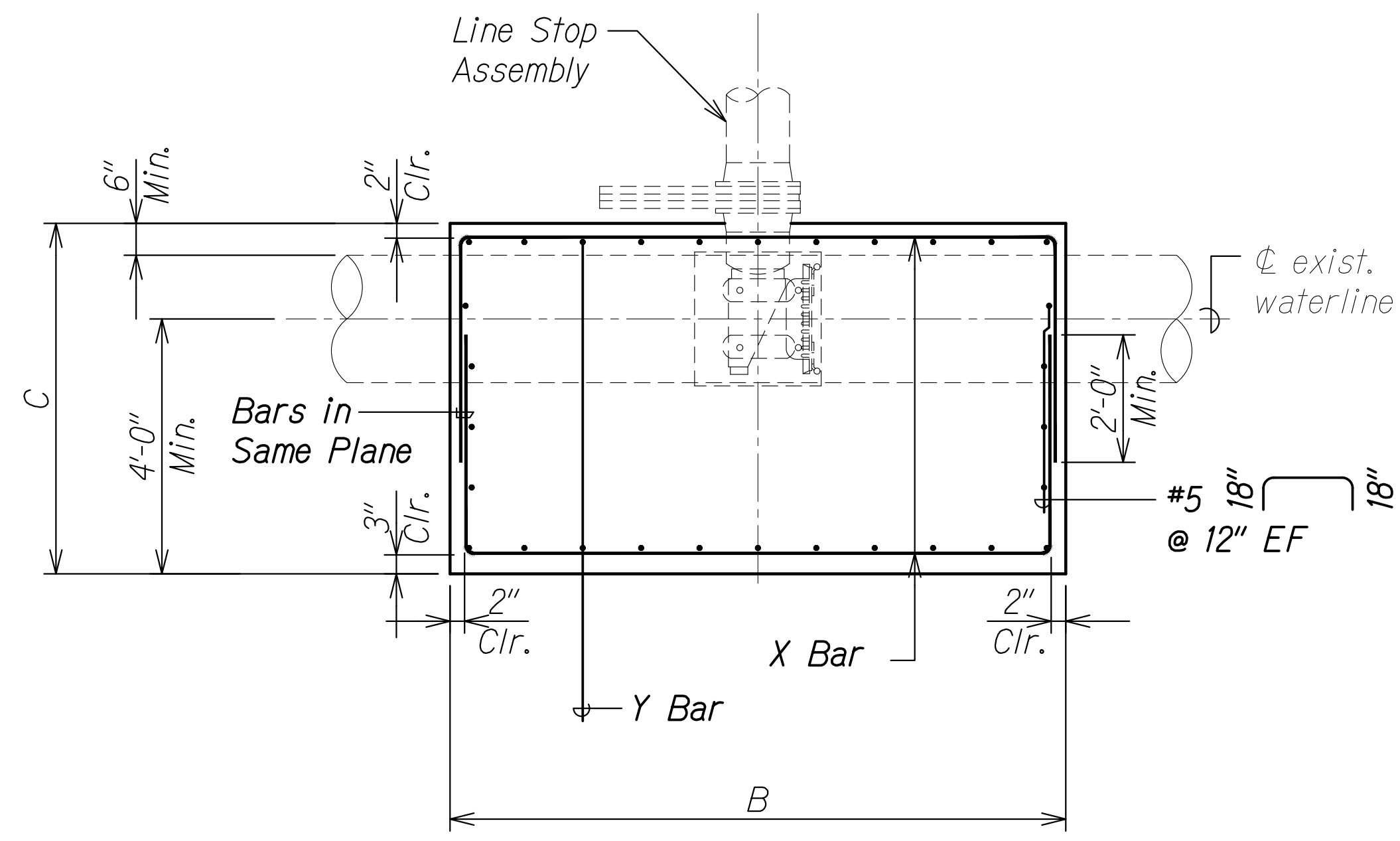


**LINE STOP CONCRETE SUPPORT BLOCK- PLAN**  
 Scale: 1/2" = 1'-0"  
 SD3.3 | SD3.3



**LINE STOP CONCRETE SUPPORT BLOCK- SECTION**  
 Scale: 1/2" = 1'-0"  
 SD3.3 | SD3.3

APPROVED: \_\_\_\_\_ DATE \_\_\_\_\_  
 Manager and Chief Engineer, BWS  
 (for work affecting BWS facilities  
 State R/W & BWS easements only)



**LINE STOP CONCRETE SUPPORT BLOCK- SECTION**  
 Scale: 1/2" = 1'-0"  
 SD3.3 | SD3.3

LINE STOP CONCRETE SUPPORT BLOCK SCHEDULE						
PIPE DIAMETER	DIMENSIONS			REINFORCING		REMARKS
	A	B	C	X BAR	Y BAR	
20"	8'-2"	8'-2"	6'-6"	#5 @ 12" TφB	#5 @ 12" TφB	
24"	9'-8"	9'-8"	6'-8"	#6 @ 12" TφB	#6 @ 12" TφB	
30"	11'-10"	11'-10"	7'-1"	#6 @ 12" TφB	#6 @ 12" TφB	
36"	14'-0"	14'-0"	7'-6"	#7 @ 12" TφB	#7 @ 12" TφB	
42"	16'-0"	16'-0"	7'-10"	#7 @ 12" TφB	#7 @ 12" TφB	

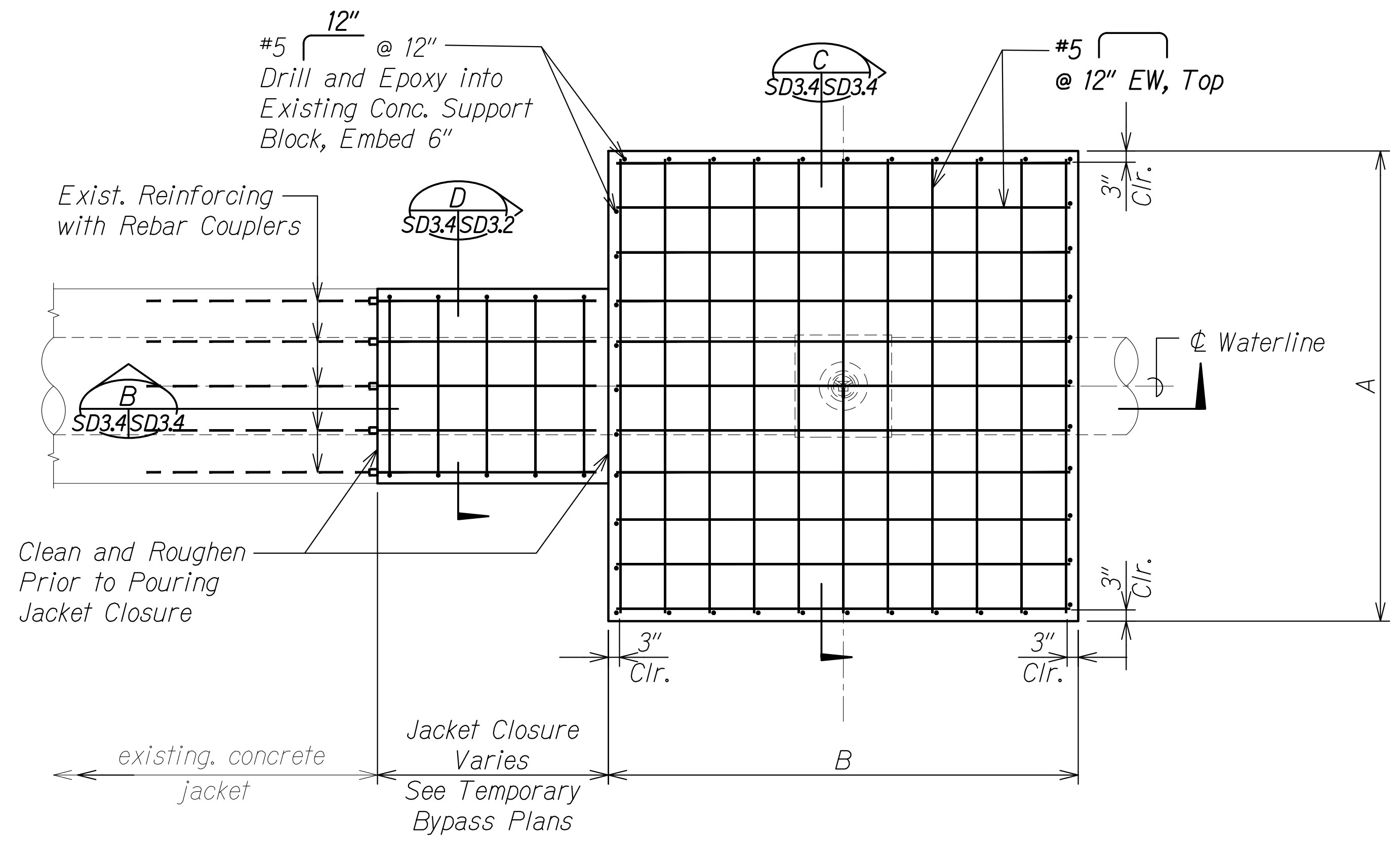
ORIGINAL PLAN	DATE
DRAWN BY	
DESIGNED BY	
QUANTITIES BY	
CHECKED BY	

DRAWING NAME: 2A100 UNDOINGS-20-013-FARR-HWY-KAPOLEI-GC-ID-ET-WR-EMTC-01-GAD-04-06-22-BID-SET-FH03-SD0303-JACKETS-BE.DWG. PLOT TIME: 04-07-22, 4:15 PM

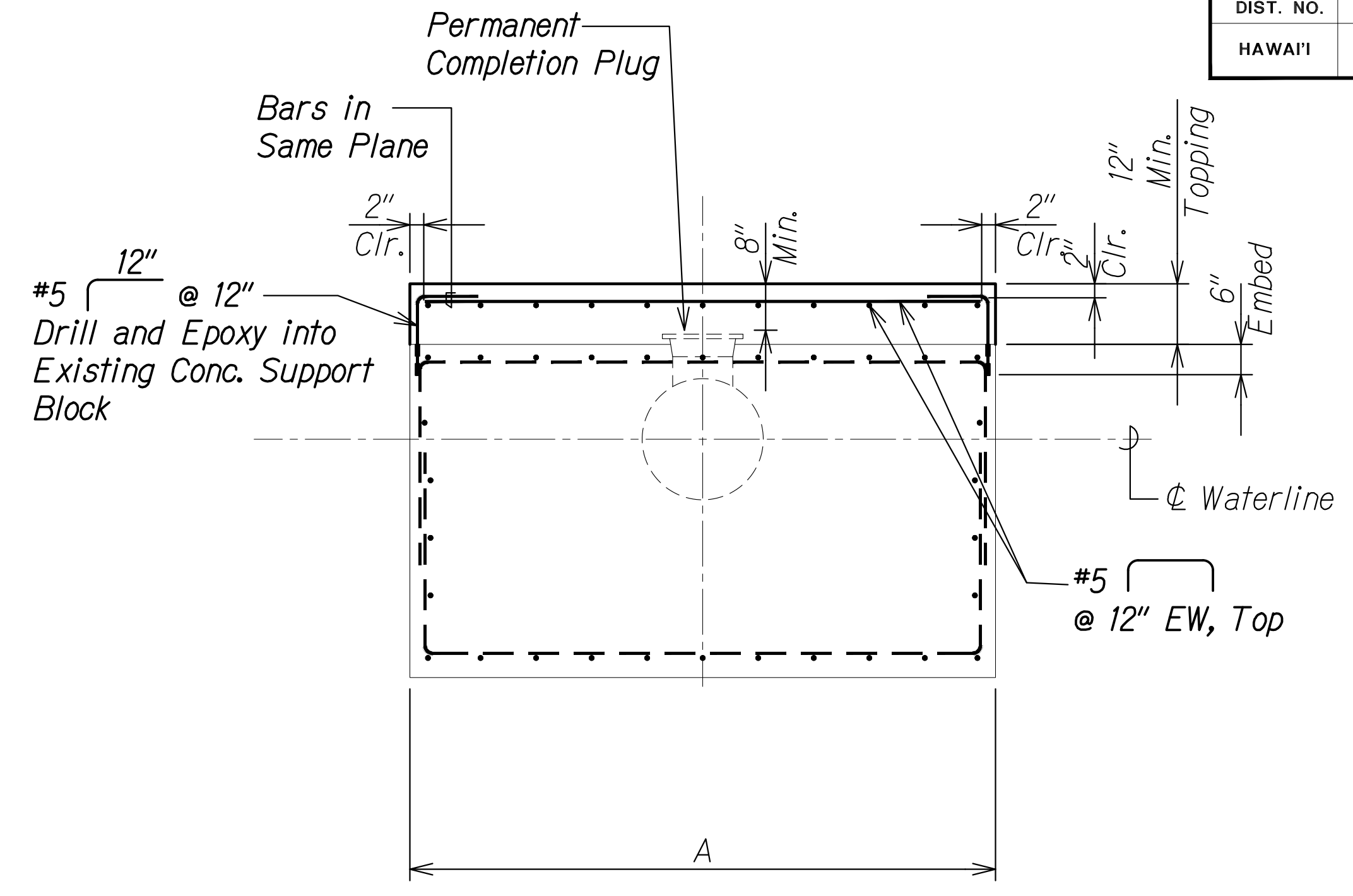
**RUCS S. MIYAHARA**  
 LICENSED PROFESSIONAL ENGINEER  
 NO. 9444-S  
 HAWAII, U.S.A.  
 THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.  
 Signature: *RUCS S. Miyahara*  
 April 30, 2024  
 EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII  
 DEPARTMENT OF TRANSPORTATION  
 HIGHWAYS DIVISION  
**Temporary Line Stop Concrete Support Block Plan and Sections**  
 FARRINGTON HIGHWAY WIDENING  
 Kapolei Golf Course Road to Fort Weaver Road  
 Project No. 7101A-01-20  
 Scale: As Shown Date: Apr. 2022  
 SHEET No. SD3.3 OF 4 SHEETS

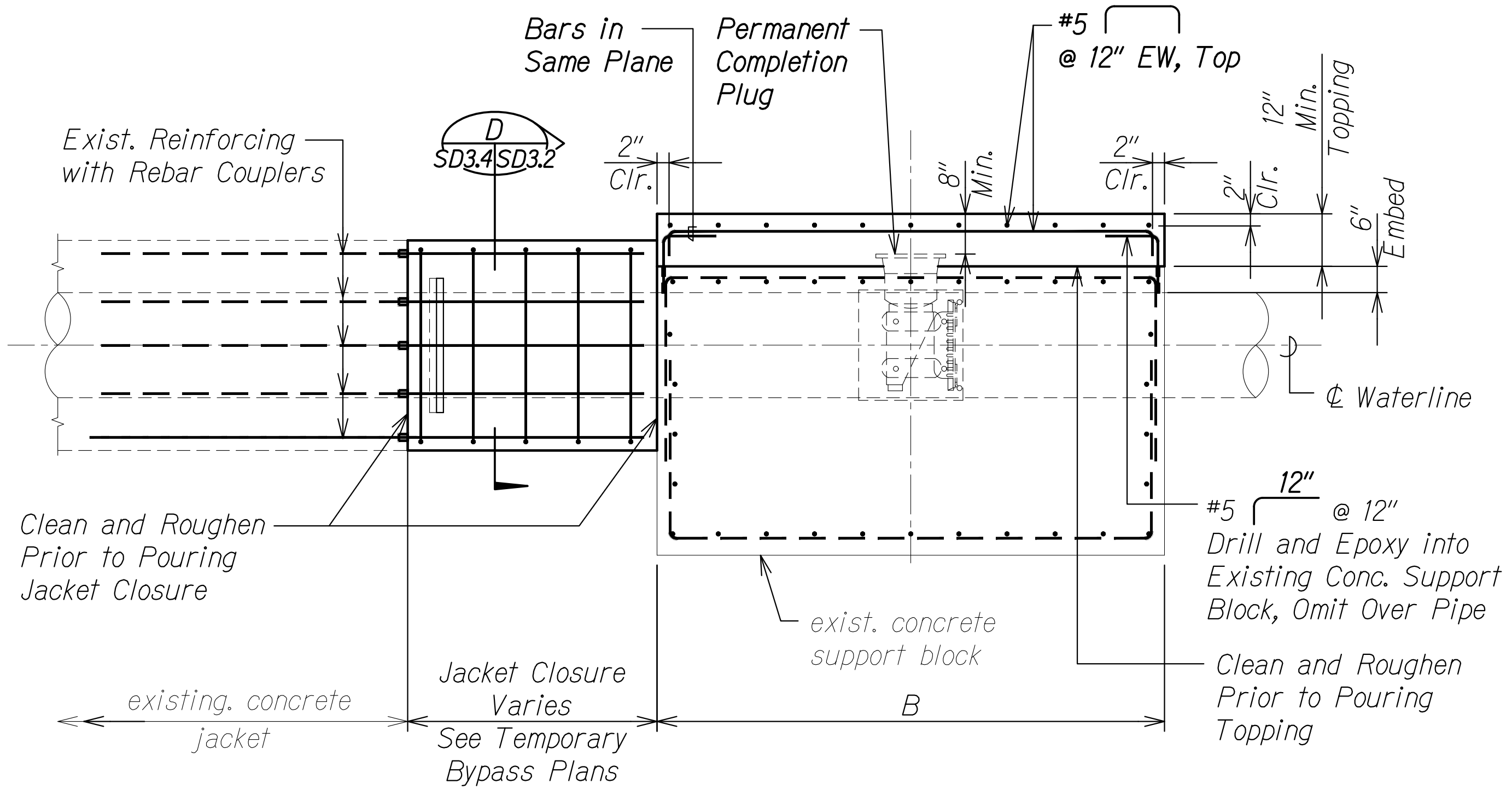
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	7101A-01-20	2021	539	



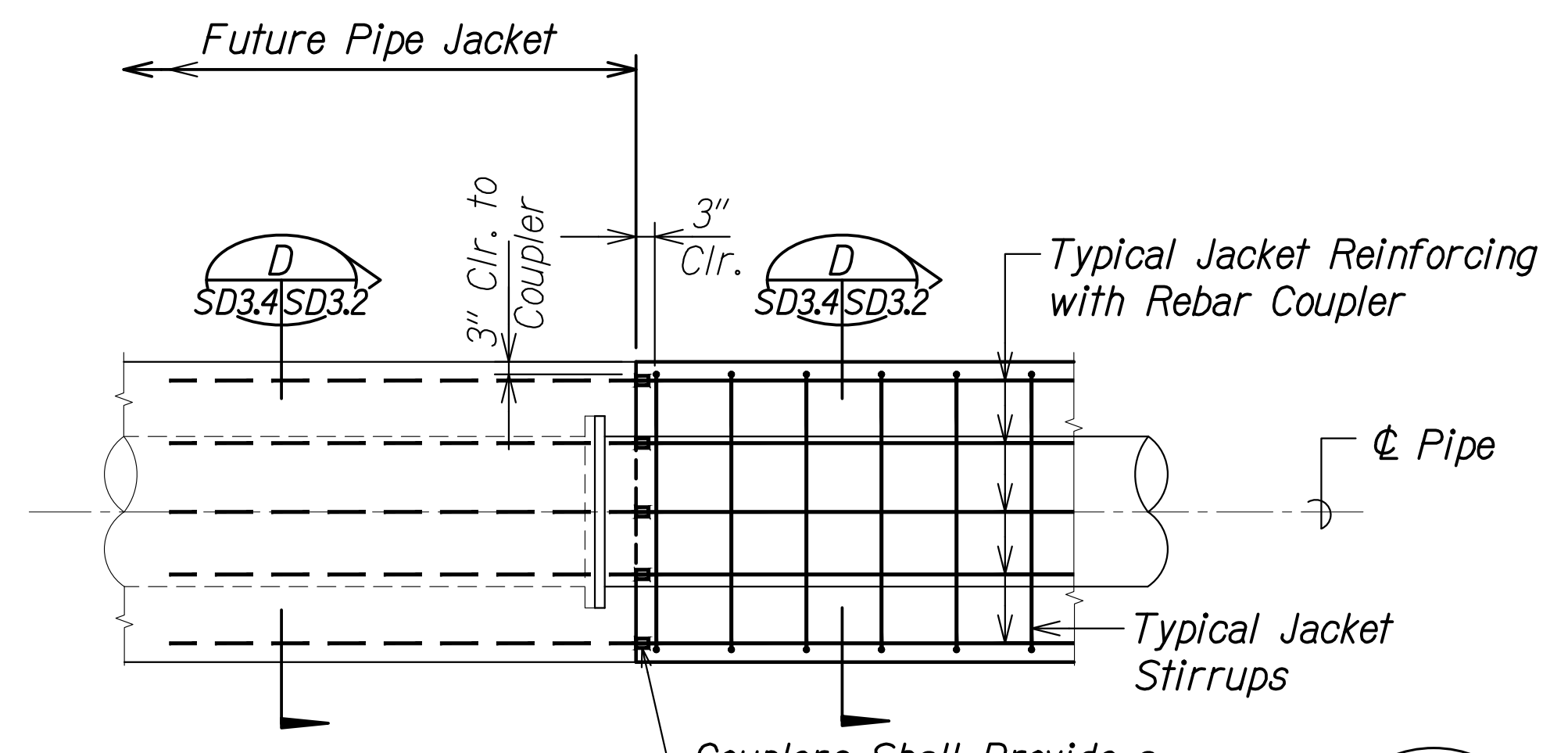
**CONCRETE SUPPORT BLOCK TOPPING - PLAN**  
 Scale: 1/2" = 1'-0"  
 SD3.4 SD3.4



**CONCRETE SUPPORT BLOCK TOPPING - SECTION**  
 Scale: 1/2" = 1'-0"  
 SD3.4 SD3.4

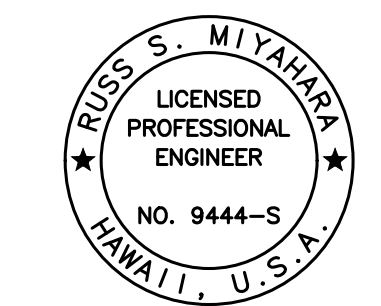


**CONCRETE SUPPORT BLOCK TOPPING - SECTION**  
 Scale: 1/2" = 1'-0"  
 SD3.3 SD3.3



**JACKET SPLICE DETAIL**  
 Scale: 1/2" = 1'-0"  
 SD3.4 SD3.4

APPROVED:  
 Manager and Chief Engineer, BWS \_\_\_\_\_ DATE \_\_\_\_\_  
 (for work affecting BWS facilities  
 State R/W & BWS easements only)



THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.  
 April 30, 2024  
 EXPIRATION DATE OF THE LICENSE

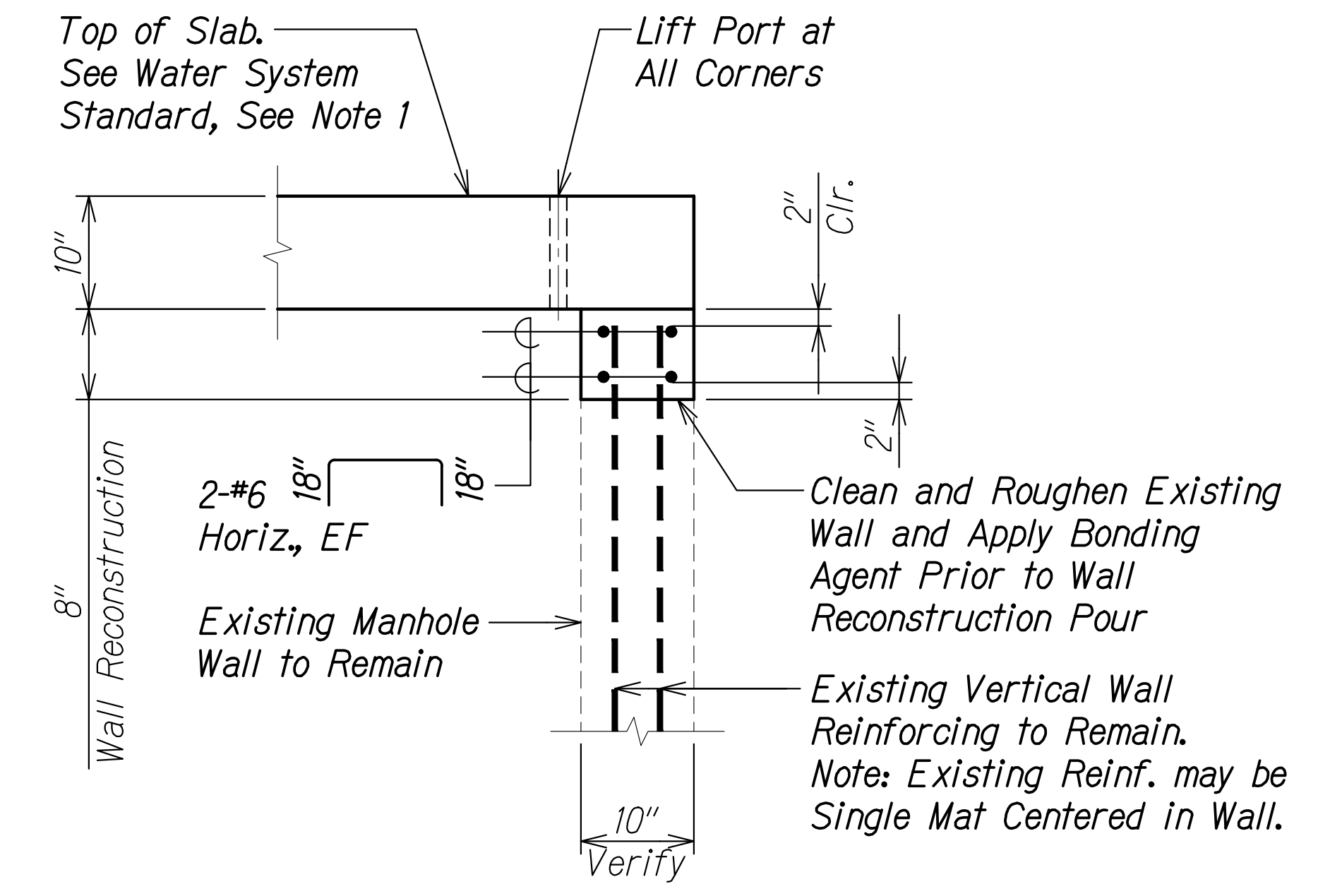
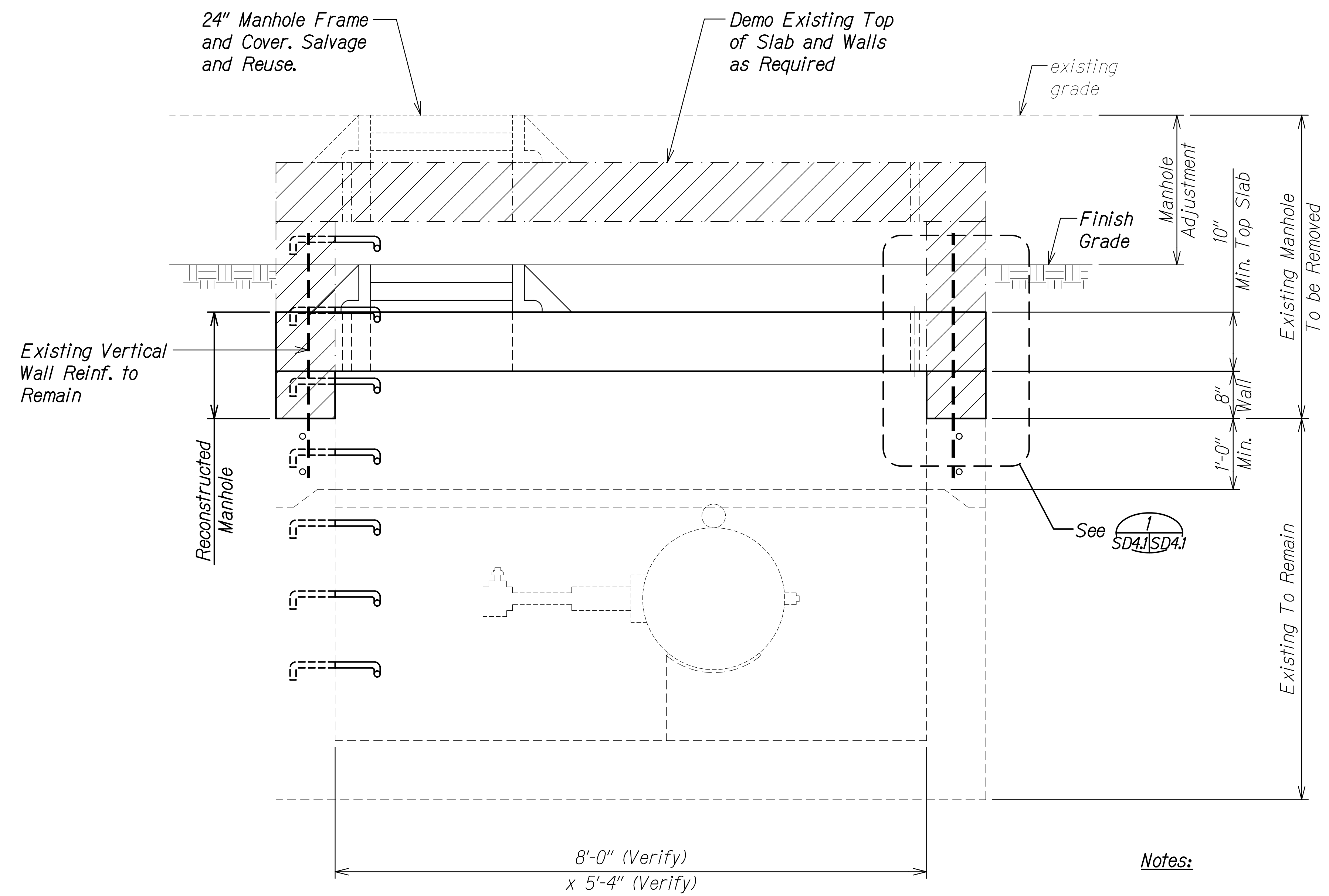
STATE OF HAWAII  
 DEPARTMENT OF TRANSPORTATION  
 HIGHWAYS DIVISION  
**Concrete Support Block Topping Plan and Sections**  
 FARRINGTON HIGHWAY WIDENING  
 Kapolei Golf Course Road to Fort Weaver Road  
 Project No. 7101A-01-20

Scale: As Shown Date: Apr. 2022  
 SHEET No. SD3.4 OF 4 SHEETS

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

DRAWING NAME: 2A100 CONCRETE TOPPING-013-FARR-HWY-KAPOLEI GC ID: ET WWP-RMTCV01 CAD: 04-06-22 BID: SET-FH03-SD3.03 JACKETS DET.DWG. PLOT TIME: 04-07-22, 4:15 PM

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	7101A-01-20	2021	540	



**MANHOLE RECONSTRUCTION DETAIL** 1  
 Scale: 1" = 1'-0" SD4.1 SD4.1

**EXISTING TYPE "A" MANHOLE LOWERING** A  
 Scale: 1" = 1'-0" SD4.1 SD4.1

- Notes:**
- Contractor shall submit shop drawings for Type "A" manhole to BWS for approval.
  - Existing waterlines, valves and appurtenances shall be protected at all times during construction.

APPROVED: \_\_\_\_\_ DATE \_\_\_\_\_  
 Manager and Chief Engineer, BWS  
 (for work affecting BWS facilities  
 State R/W & BWS easements only)

**RUGS S. MIYAHARA**  
 LICENSED PROFESSIONAL ENGINEER  
 NO. 9444-S  
 HAWAII, U.S.A.  
 THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.  
 Signature: *Rugs S. Miyahara* April 30, 2024  
 EXPIRATION DATE OF THE LICENSE

**STATE OF HAWAII**  
**DEPARTMENT OF TRANSPORTATION**  
 HIGHWAYS DIVISION

**Type "A" Manhole**  
**Adjustment Section and Detail**

FARRINGTON HIGHWAY WIDENING  
 Kapolei Golf Course Road to Fort Weaver Road  
 Project No. 7101A-01-20

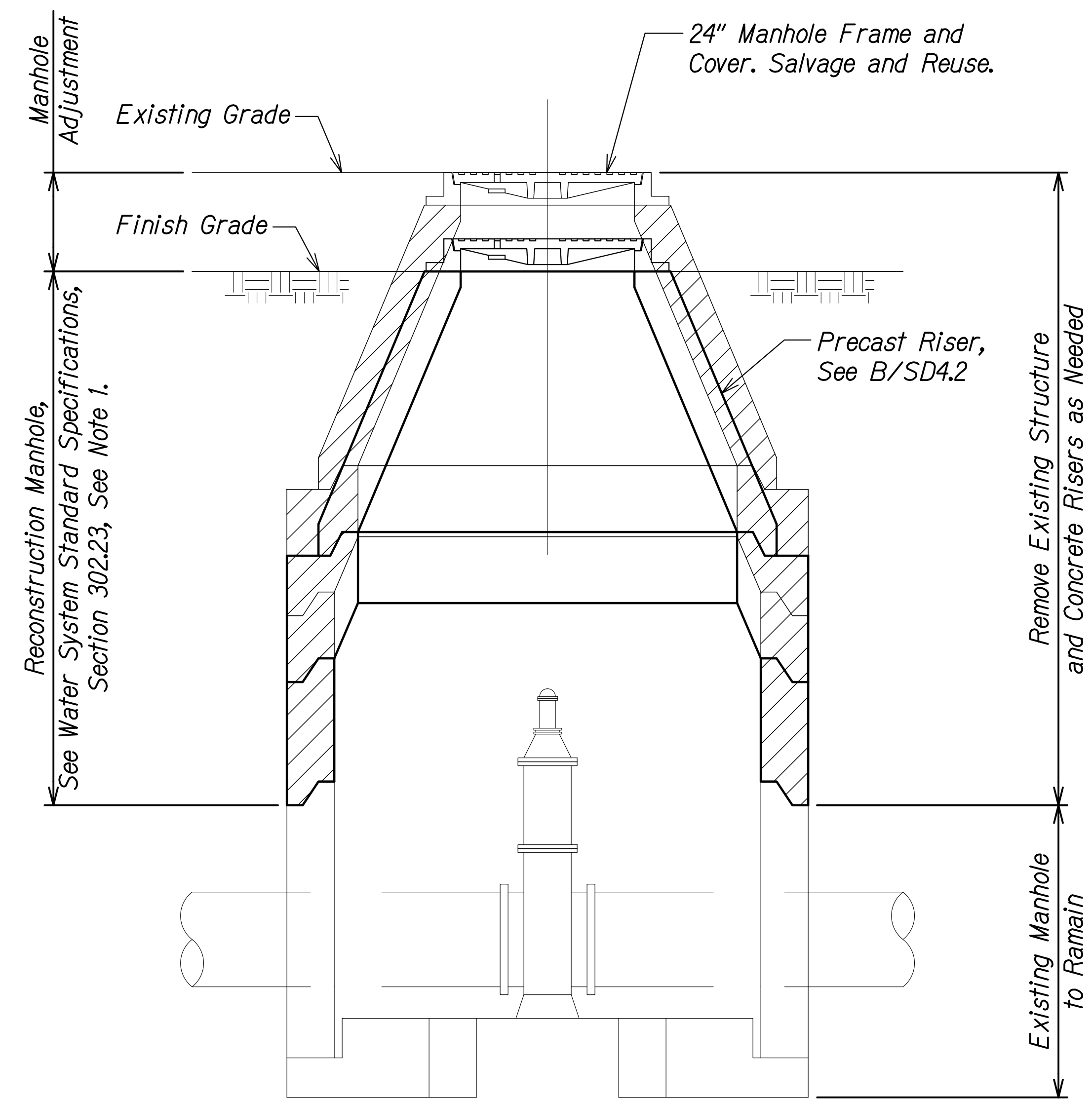
Scale: As Shown Date: Apr. 2022

**SHEET No. SD4.1 OF 2 SHEETS**

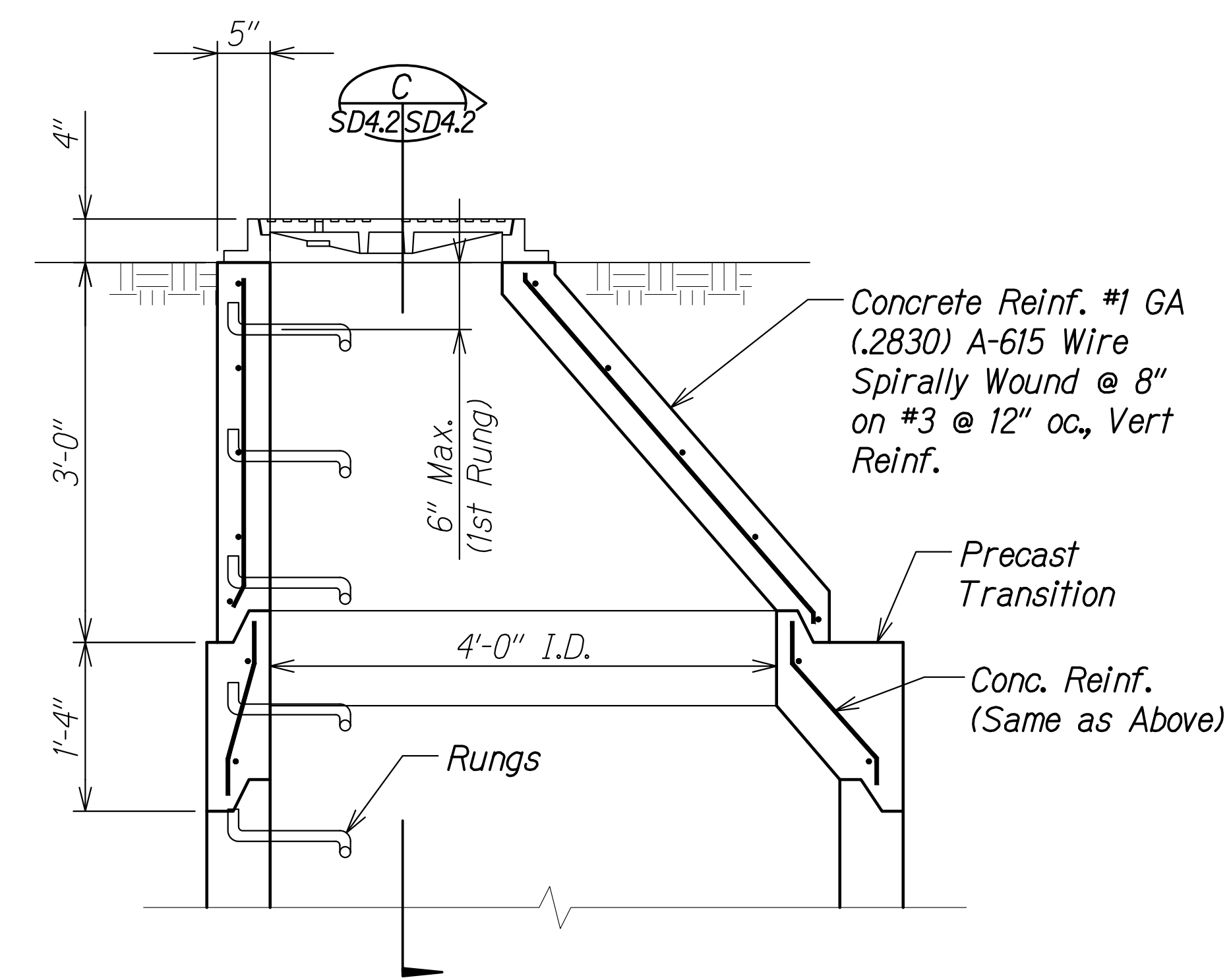
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SURVEY PLOTTED BY	
DRAWN BY	
DESIGNED BY	
QUANTITIES BY	
CHECKED BY	
No.	

DRAWING NAME: Z:\100\_ONGOING\20-013-FARR-HWY-KAPOLEI\GC\_ID\_ET\_WIP-EMTC\01\_GAD\04-06-22\_BID\_SET\FHW3-SD4.1-DWG TYPE A MH ADJ.DWG PLOT TIME: 04-07-22 4:18 PM

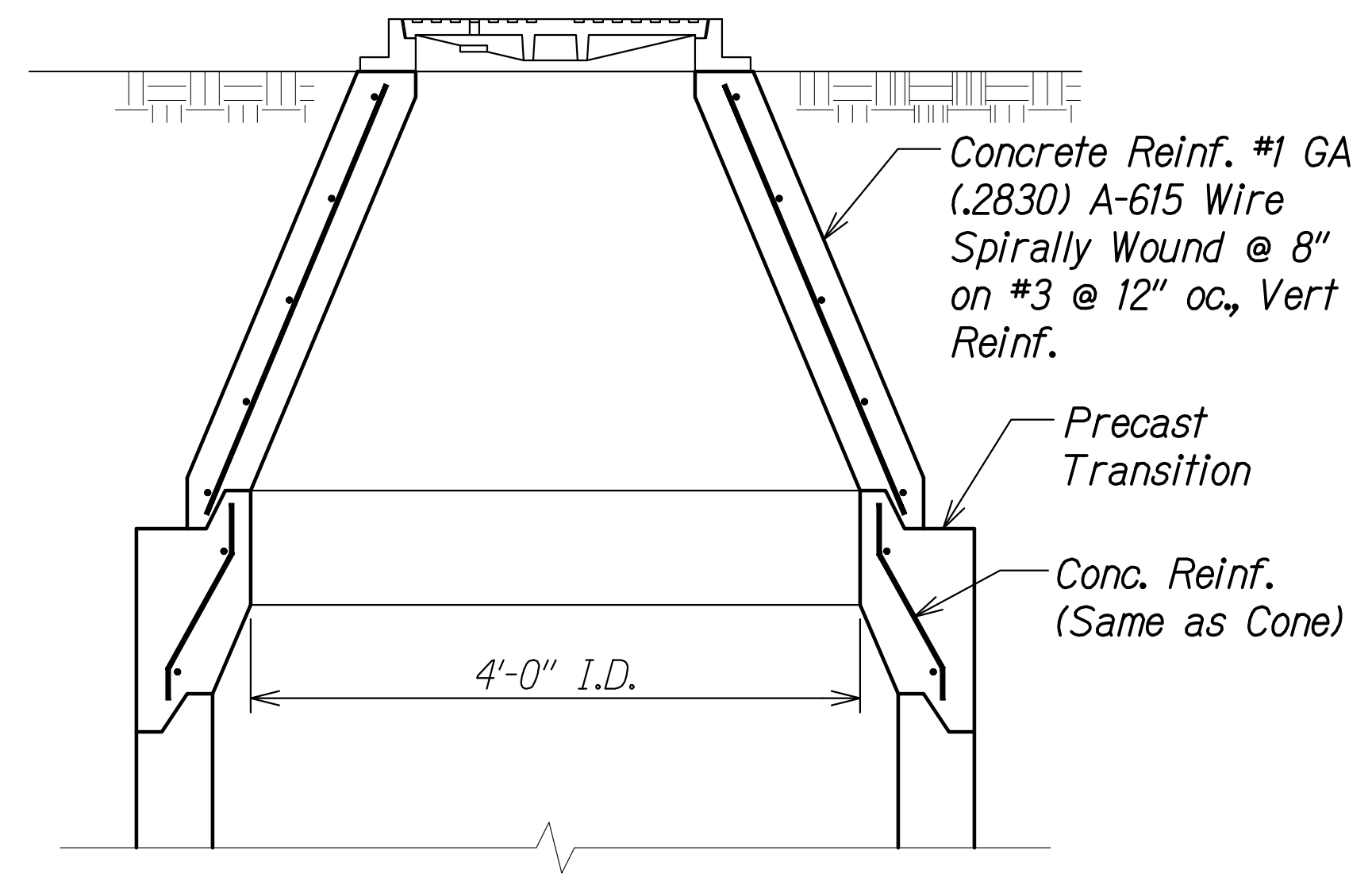
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	7101A-01-20	2021	541	



**EXISTING TYPE "B" PRECAST MANHOLE LOWERING**  
 Scale: 1" = 1'-0"  
 A SD4.2 SD4.2



**TYPE "B" MANHOLE**  
 Scale: 1" = 1'-0"  
 B SD4.2 SD4.2



**SECTION**  
 Scale: 1" = 1'-0"  
 C SD4.2 SD4.2

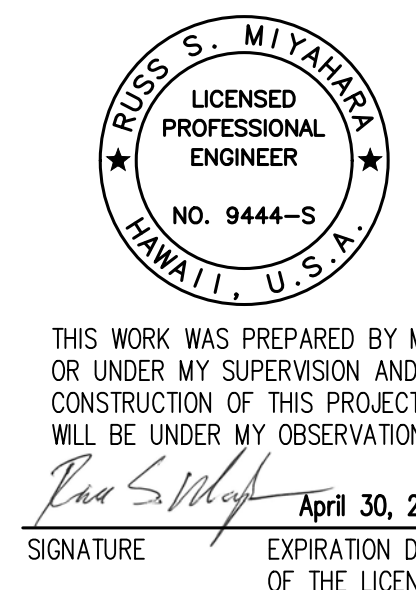
**Notes:**

- Contractor shall submit shop drawings for Type "B" manhole to BWS for approval.
- Existing waterlines, valves and appurtenances shall be protected at all times during construction.

ORIGINAL PLAN	DATE
DRAWN BY	
DESIGNED BY	
QUANTITIES BY	
CHECKED BY	
No.	

DRAWING NAME: Z:\00\_ONGOING\20-013-FARR-HWY-KAPOLEI\GE.ID.IT.WP8-EMTC\01\_GAD\04-06-22\_BID\_SET\FW3-SD4.2-TYPE B\_MH\_ADJUSTING.PLOT TIME: 04-07-22, 4:19 PM

APPROVED:  
 \_\_\_\_\_ DATE \_\_\_\_\_  
 Manager and Chief Engineer, BWS  
 (for work affecting BWS facilities  
 State R/W & BWS easements only)



STATE OF HAWAII  
 DEPARTMENT OF TRANSPORTATION  
 HIGHWAYS DIVISION

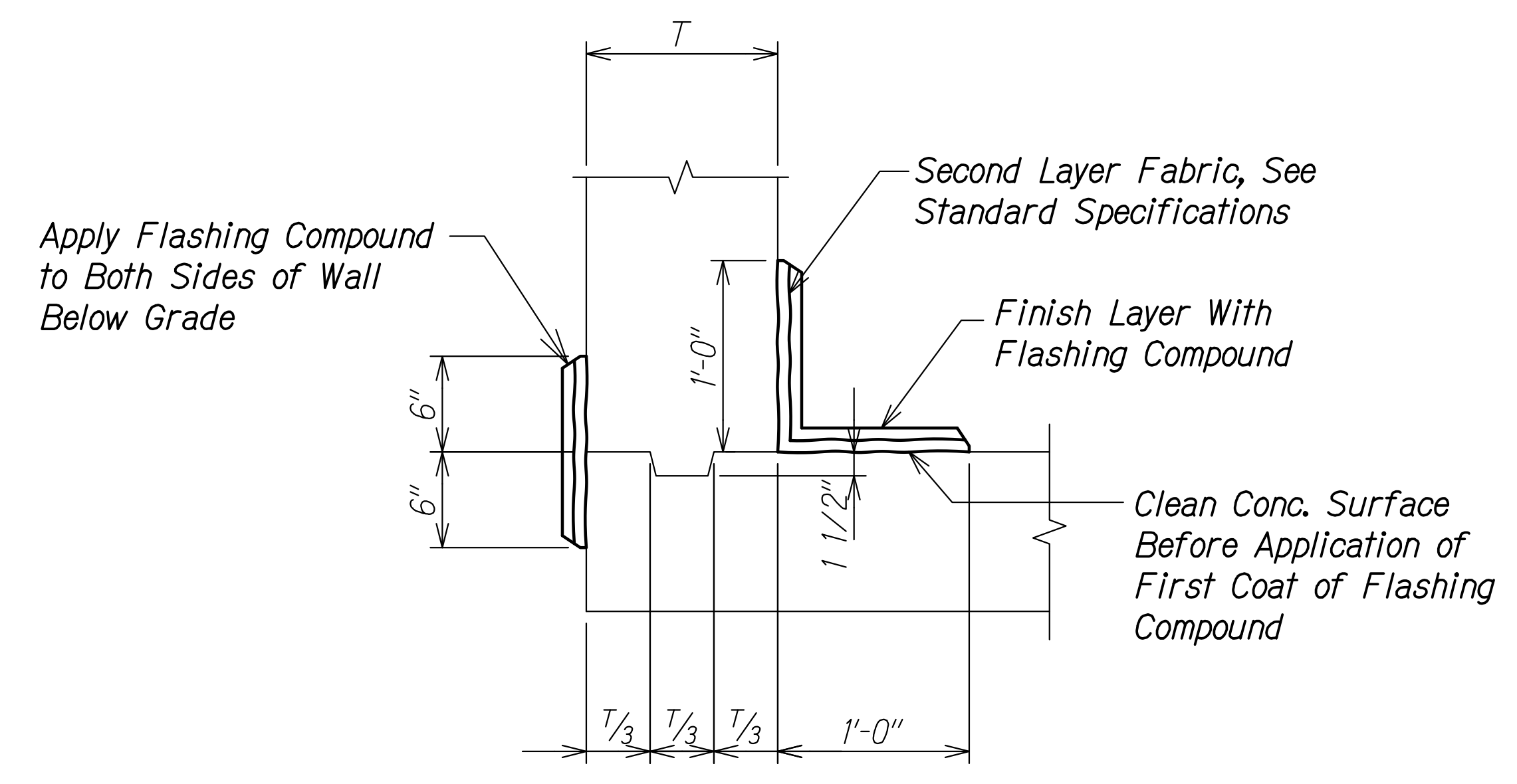
**Type "B" Manhole Adjustment Section**

FARRINGTON HIGHWAY WIDENING  
 Kapolei Golf Course Road to Fort Weaver Road  
 Project No. 7101A-01-20

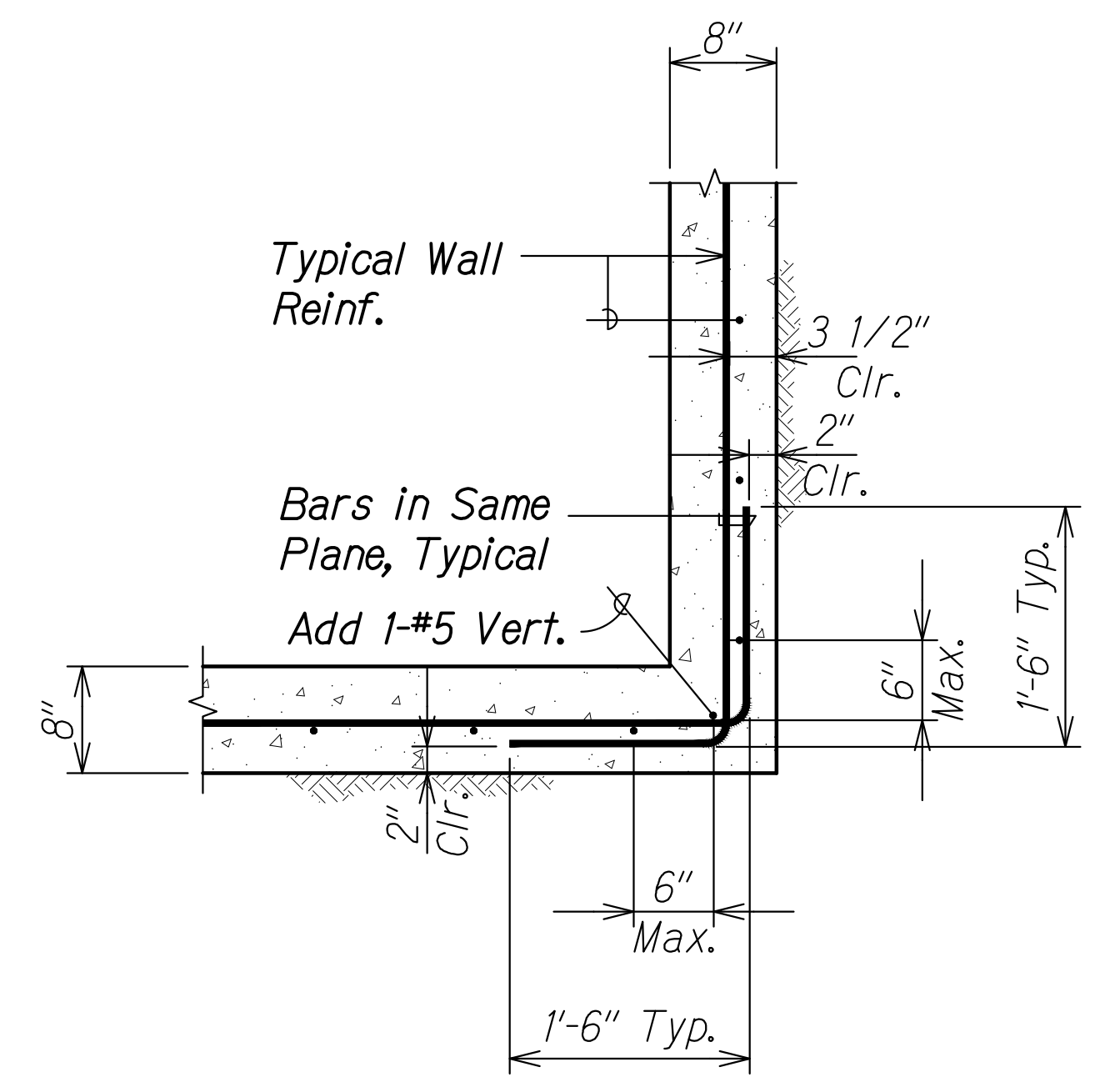
Scale: As Shown Date: Apr. 2022

SHEET No. SD4.2 OF 2 SHEETS

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	7101A-01-20	2021	542	



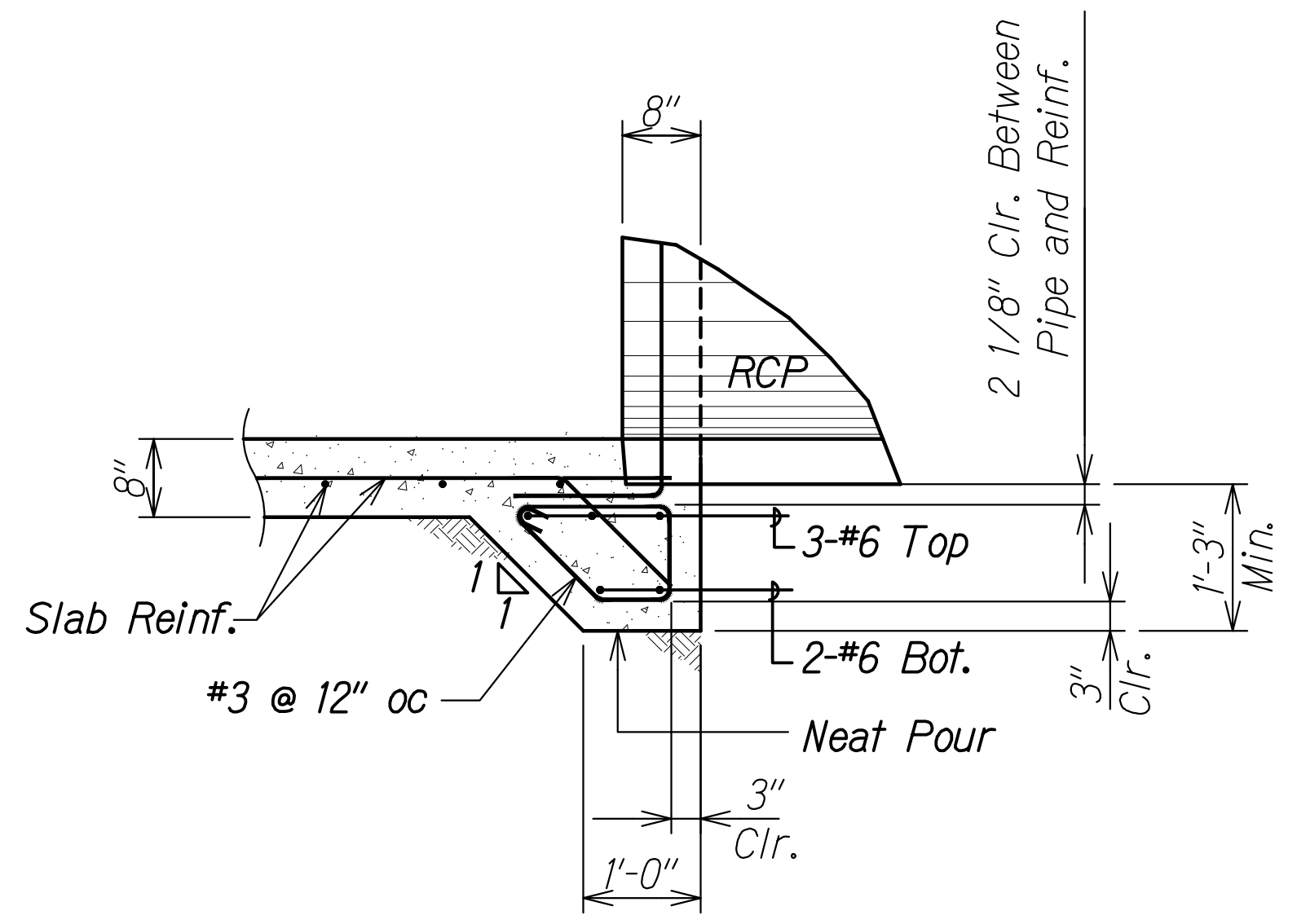
**TYPICAL KEY DETAIL**  
 Scale: 1 1/2" = 1'-0"  
 SD5.1 SD5.1



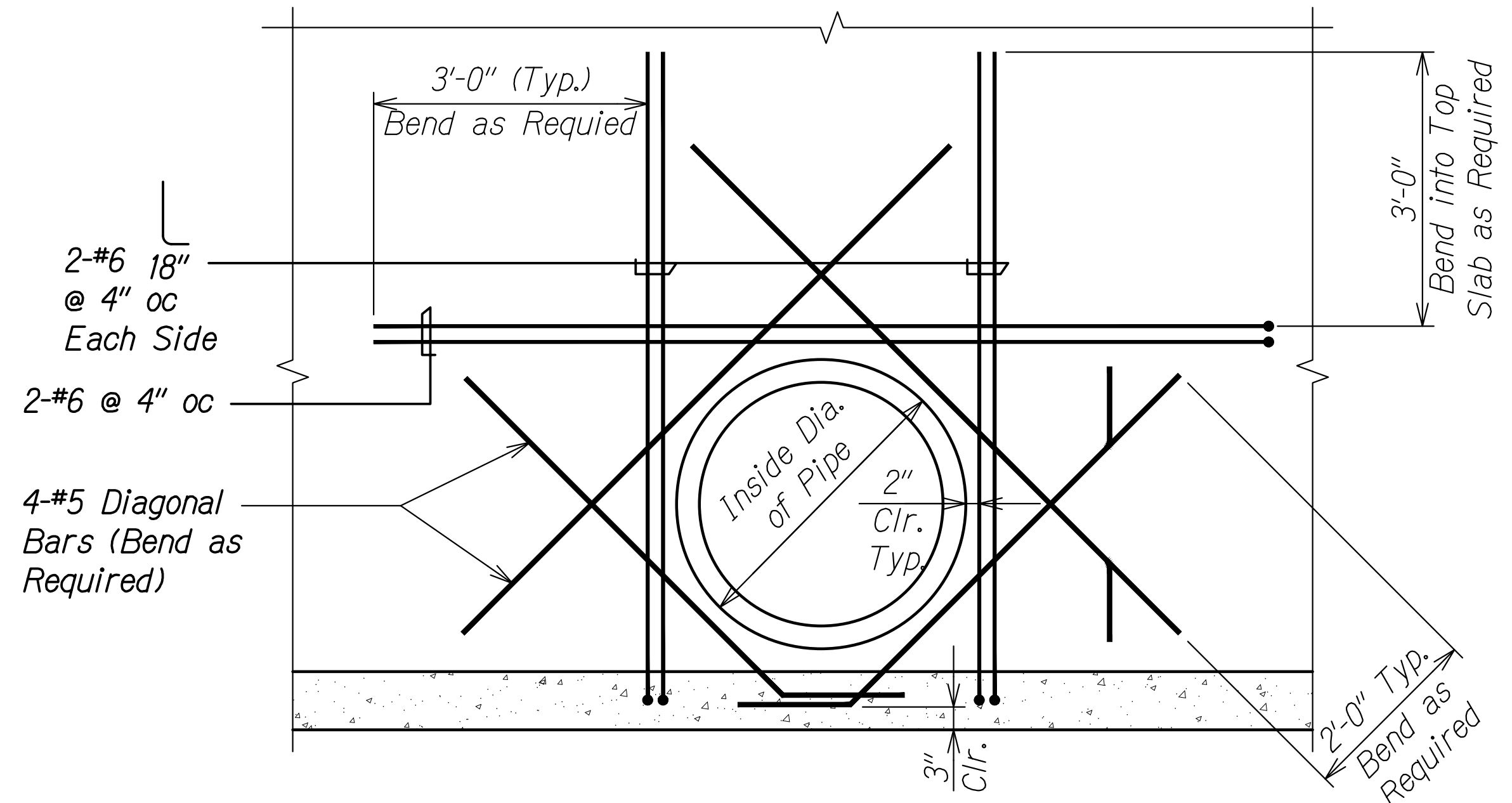
**TYPICAL CORNER REINFORCEMENT LAPPING (SINGLE CURTAIN)**  
 Scale: 1" = 1'-0"  
 SD5.1 SD5.1

**Notes:**

1. For all pre-cast portions of any drainage structure any gap left between the structure and pipe after the installation of the pipe shall be filled with concrete of equal strength as used for the pre-cast portion of the structure. No brick and mortar repairs or CMU shall be used.
2. Manhole rungs shall be spaced @ 12" oc, See H-07 (Standard Plans) for manhole rungs details.



**TYPICAL SECTION - THICKENED EDGE FOR GRATED DROP INLETS**  
 Scale: 3/4" = 1'-0"  
 SD5.2, SD5.3



**Note:**  
 2" clearance between pipe and reinf.

**TYPICAL SECTION - ADDED REINFORCING FOR PIPE OPENINGS**  
 Scale: 3/4" = 1'-0"  
 SD5.1 SD5.1

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

DRAWING NAME: Z:\100\_000000\20-013-FARR-HWY-KAPOLEI GC ID: ET-WR-EMTC\01-CAD\04-06-22-BID-SET\FH03-SD0501-DRN-BOX-0115.DWG PLOT TIME: 04-07-22 4:19 PM

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.

*Russ S. Miyahara*  
 SIGNATURE  
 EXPIRATION DATE OF THE LICENSE: April 30, 2024

STATE OF HAWAII  
 DEPARTMENT OF TRANSPORTATION  
 HIGHWAYS DIVISION

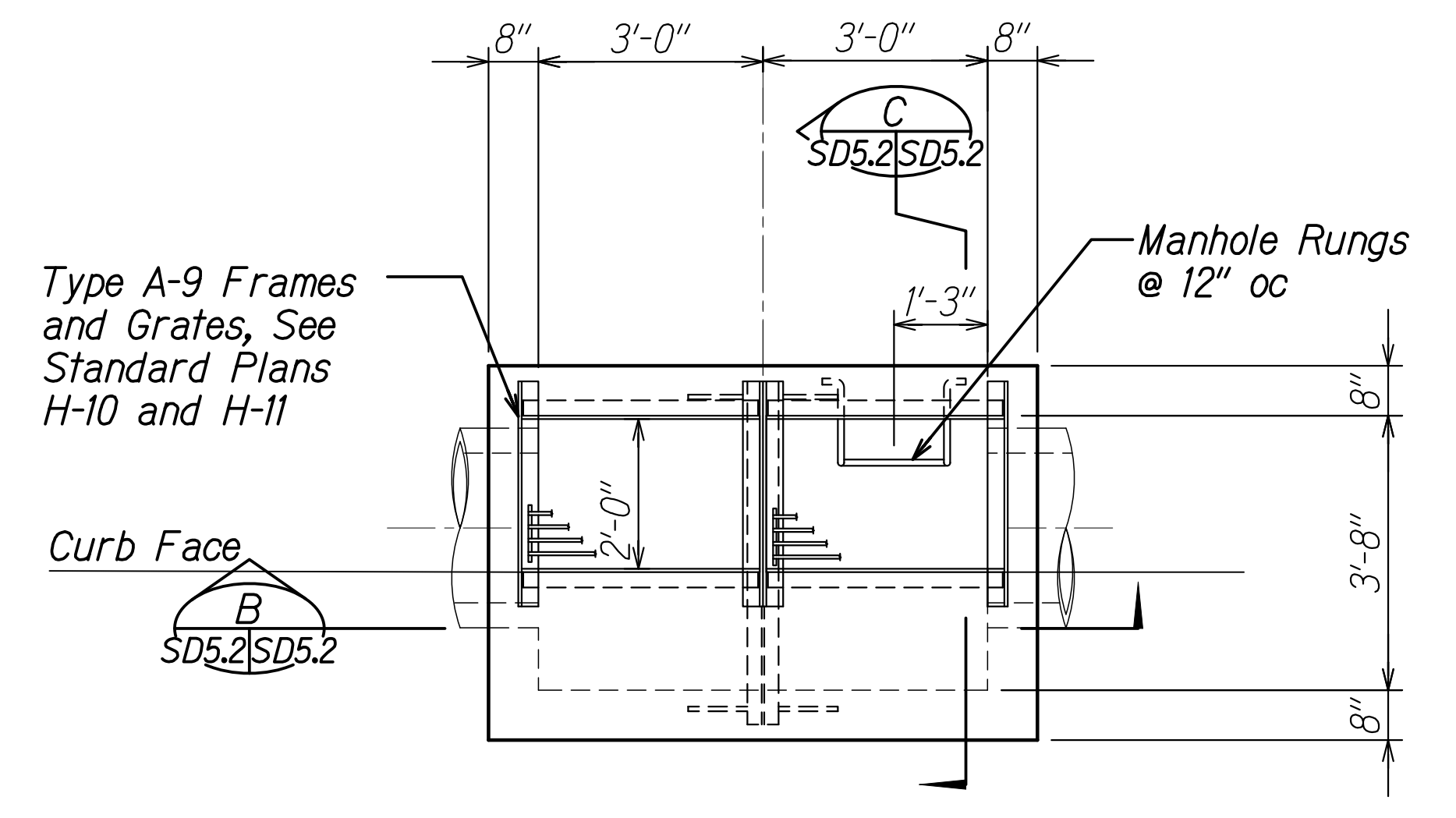
**Typical Grated Drop Inlet Details**

FARRINGTON HIGHWAY WIDENING  
 Kapolei Golf Course Road to Fort Weaver Road  
 Project No. 7101A-01-20

Scale: As Shown Date: Apr. 2022

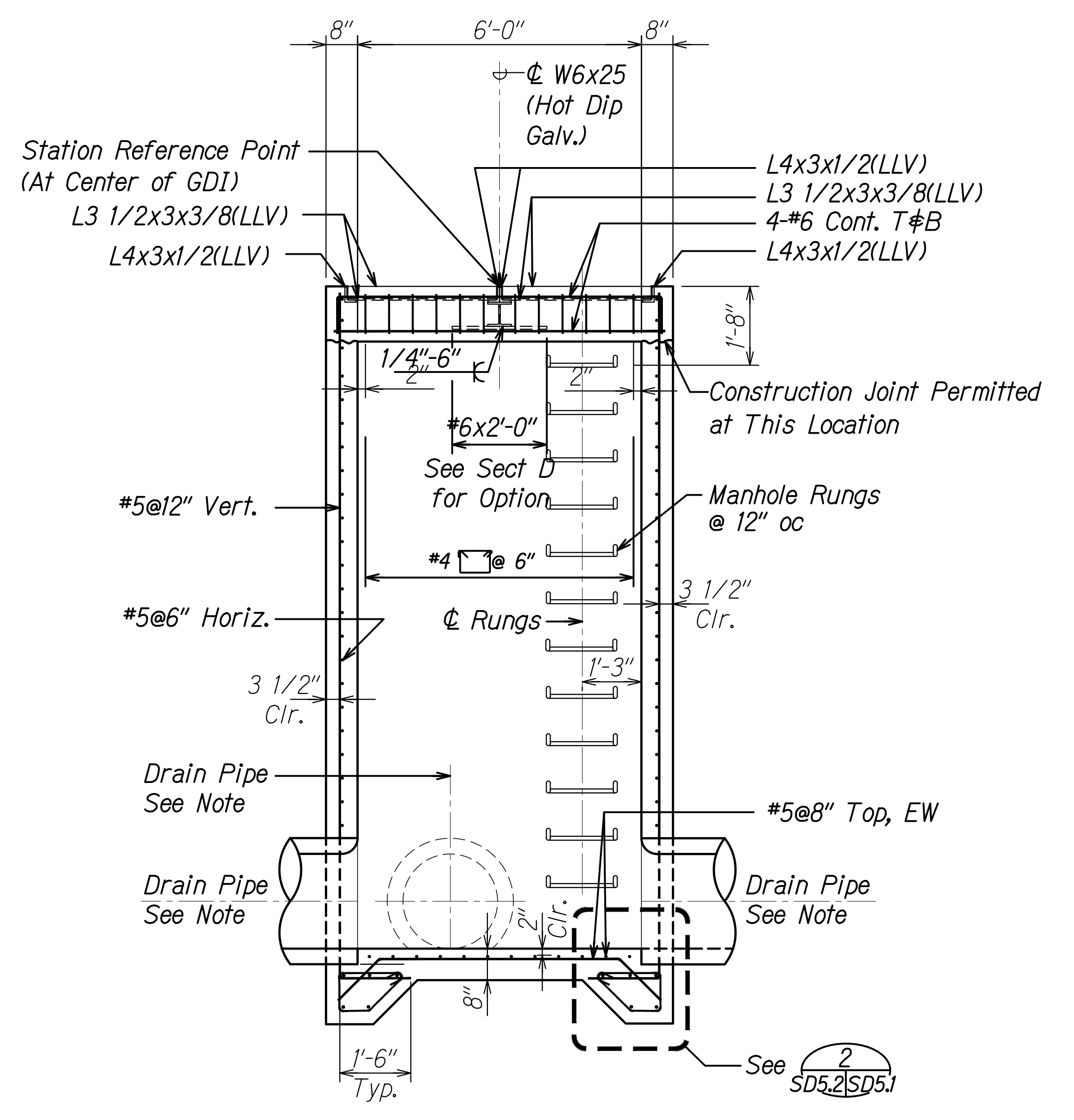
SHEET No. SD5.1 OF 3 SHEETS

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	7101A-01-20	2021	543	

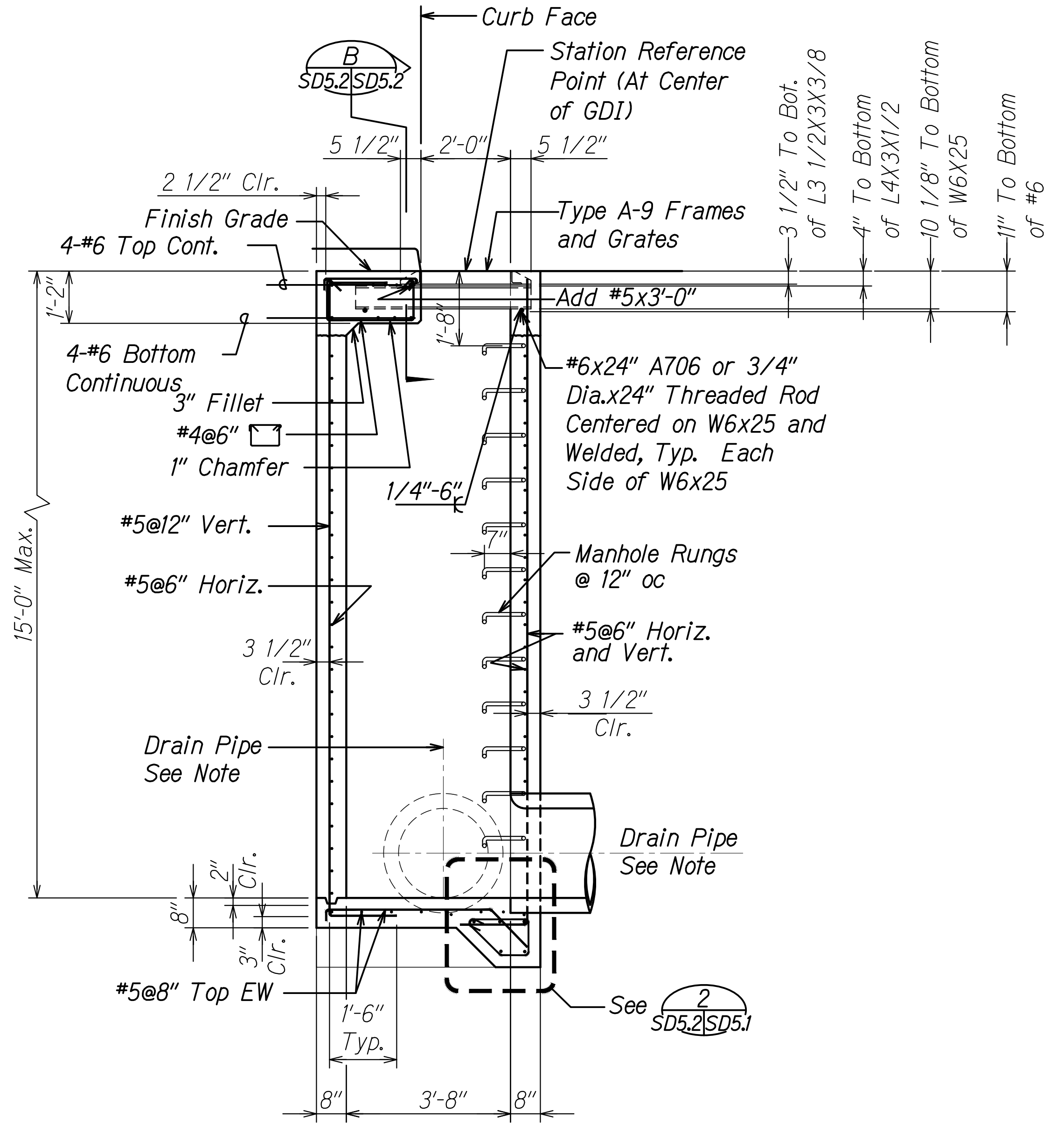


**PLAN - MODIFIED GRATED DROP INLET** A  
 Scale: 1/2" = 1'-0" SD5.2 SD5.2

*Note:*  
 See Civil drawings for pipe size and locations.



**SECTION - MODIFIED GRATED DROP INLET** B  
 Scale: 1/2" = 1'-0" SD5.2 SD5.2



**SECTION - MODIFIED GRATED DROP INLET** C  
 Scale: 1/2" = 1'-0" SD5.2 SD5.2

ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
NOTE BOOK	DRAWN BY	
	DESIGNED BY	
	QUANTITIES BY	
	CHECKED BY	

DRAWING NAME: Z:\G01\CONDO\20-013-FARR-HW-KAPOLEI\G01-04-06-22-BD-SET\FH03-SD50502-001.DWG PLOT TIME: 04-07-22 4:18 PM

STATE OF HAWAII  
 DEPARTMENT OF TRANSPORTATION  
 HIGHWAYS DIVISION

**Modified Grated Drop Inlet**

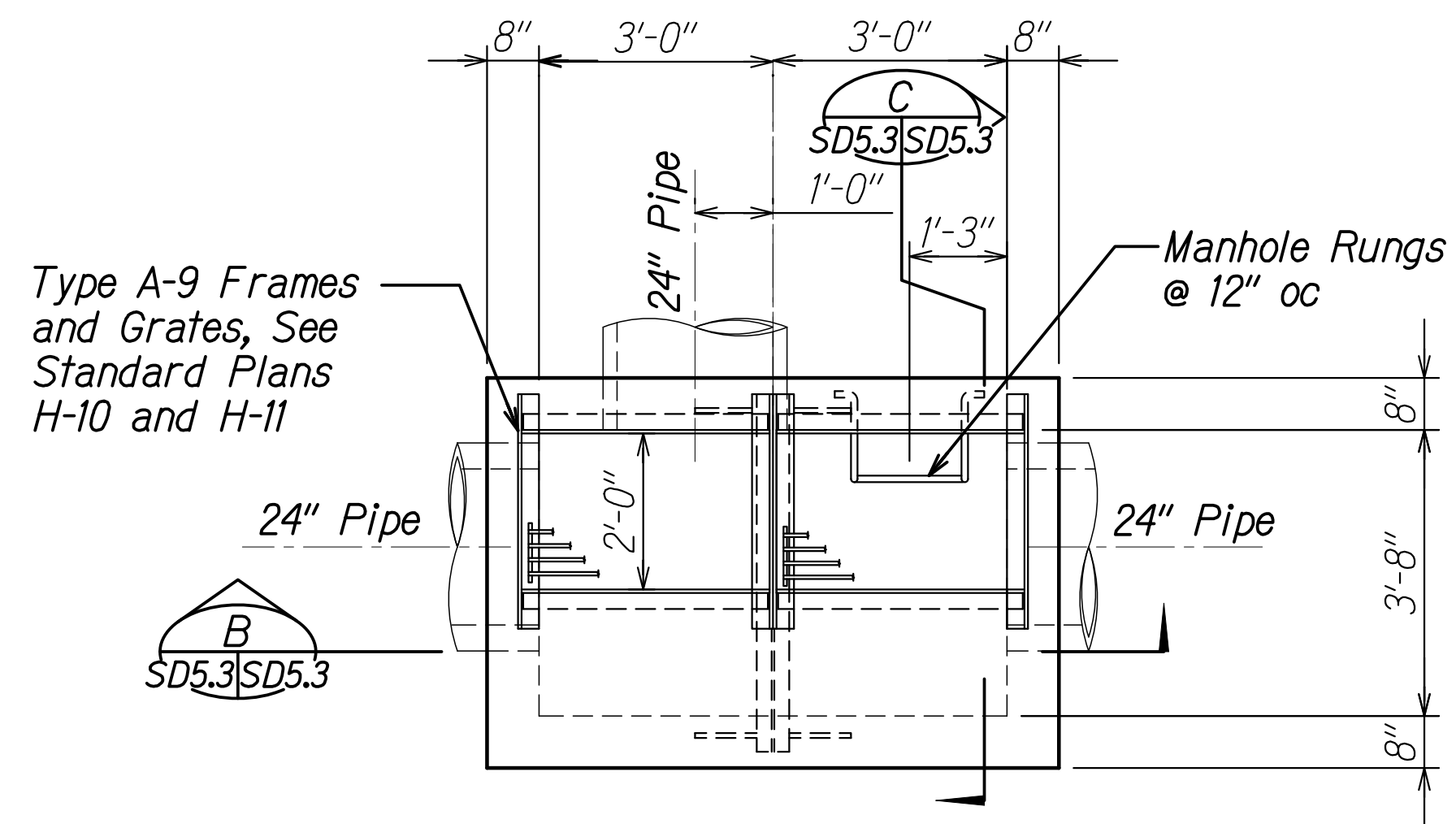
FARRINGTON HIGHWAY WIDENING  
 Kapolei Golf Course Road to Fort Weaver Road  
 Project No. 7101A-01-20

Scale: As Shown Date: Apr. 2022

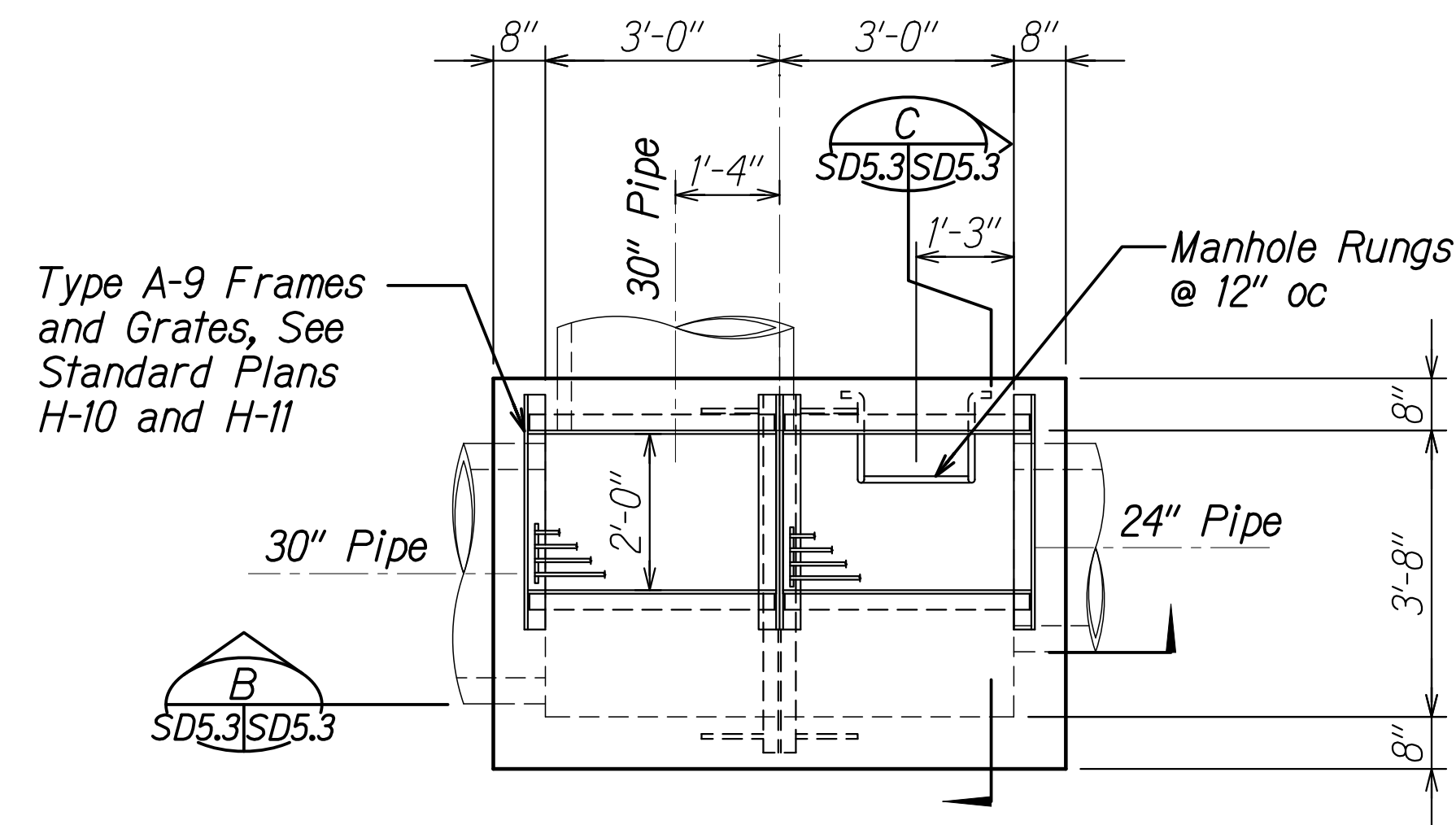
SHEET No. SD5.2 OF SHEETS



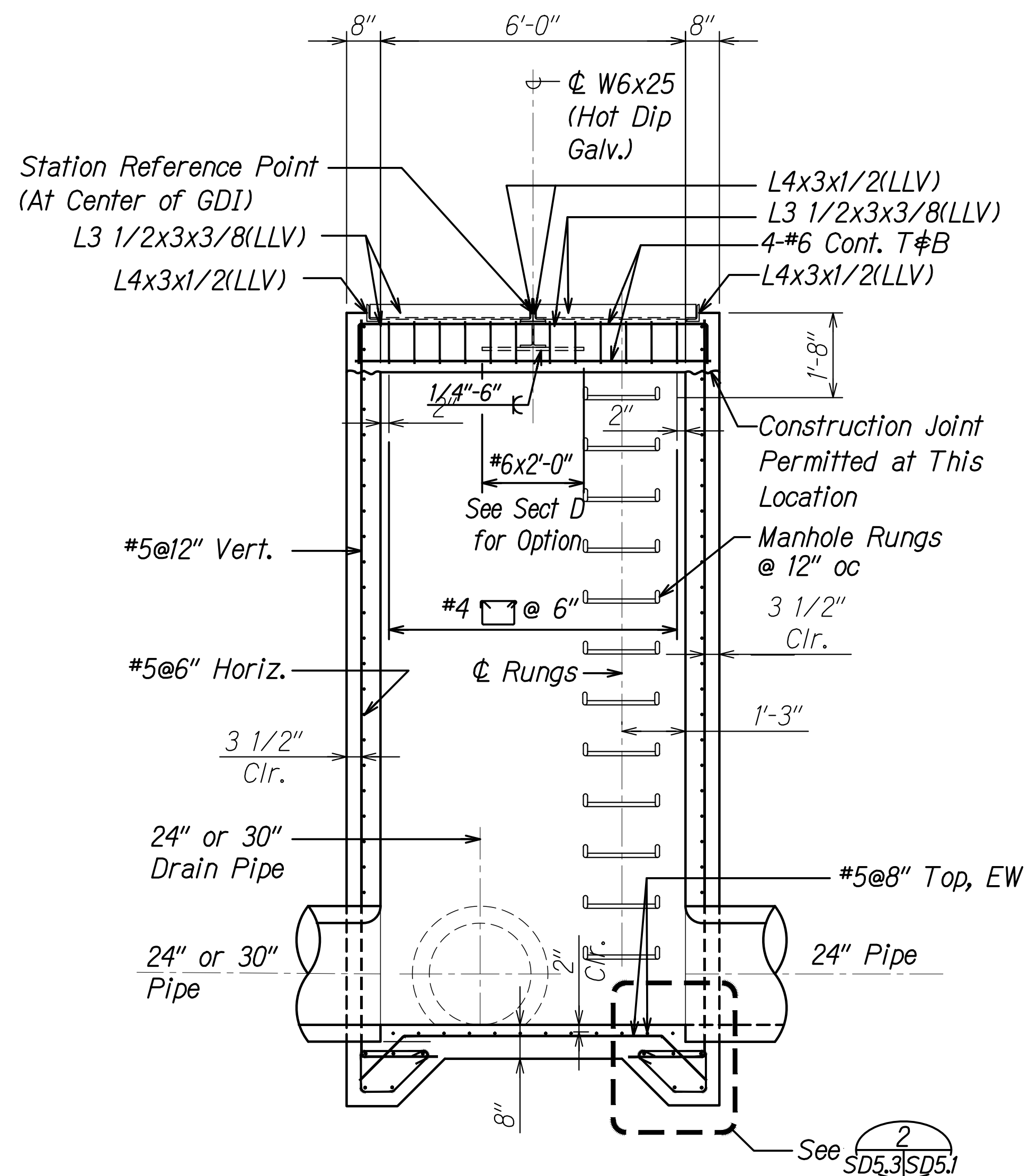
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HAWAII	HAW.	7101A-01-20	2021	544	



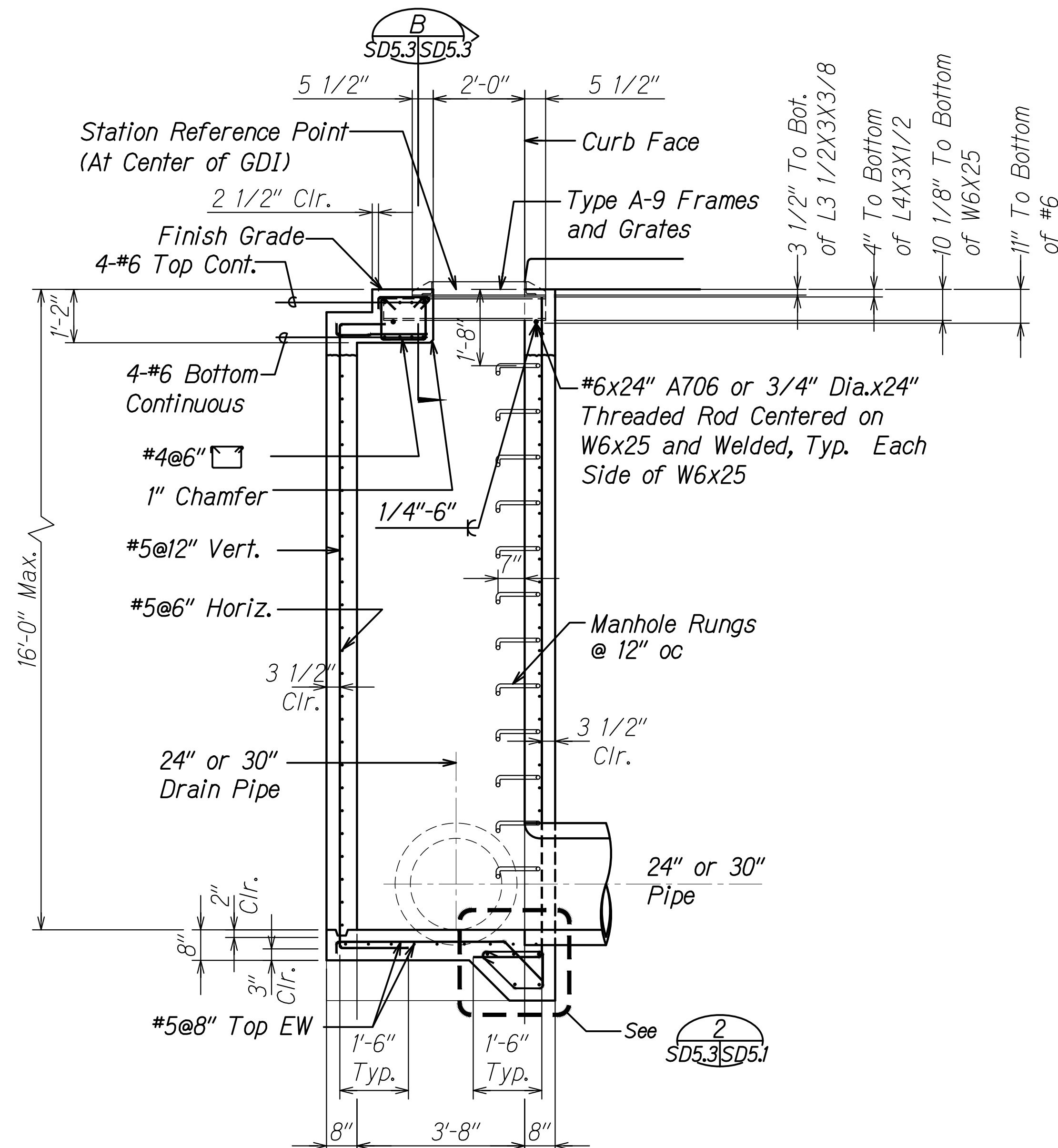
**PLAN - SPECIAL GRATED DROP INLET (GDI B2)**  
Scale: 1/2" = 1'-0"  
SD5.3 SD5.3



**PLAN - SPECIAL GRATED DROP INLET (GDI D2)**  
Scale: 1/2" = 1'-0"  
SD5.3 SD5.3



**SECTION - SPECIAL GRATED DROP INLET**  
Scale: 1/2" = 1'-0"  
SD5.3 SD5.1



**SECTION - SPECIAL GRATED DROP INLET**  
Scale: 1/2" = 1'-0"  
SD5.3 SD5.1

ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
NOTE BOOK	DRAWN BY	
	DESIGNED BY	
	QUANTITIES BY	
	CHECKED BY	

DRAWING NAME: Z:\00 ONGOING\20-013-FARR HWY KAPOLEI GC TO FT WARR-HWY101 CAD\04-06-22 BID SET\FHW3-SD5.3-01.DWG PLOT TIME: 04-07-22 4:18 PM

STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

**Special Grated Drop Inlet  
B2 and D2**

FARRINGTON HIGHWAY WIDENING  
Kapolei Golf Course Road to Fort Weaver Road  
Project No. 7101A-01-20

Scale: As Shown Date: Apr. 2022

**SHEET No. SD5.3 OF SHEETS**