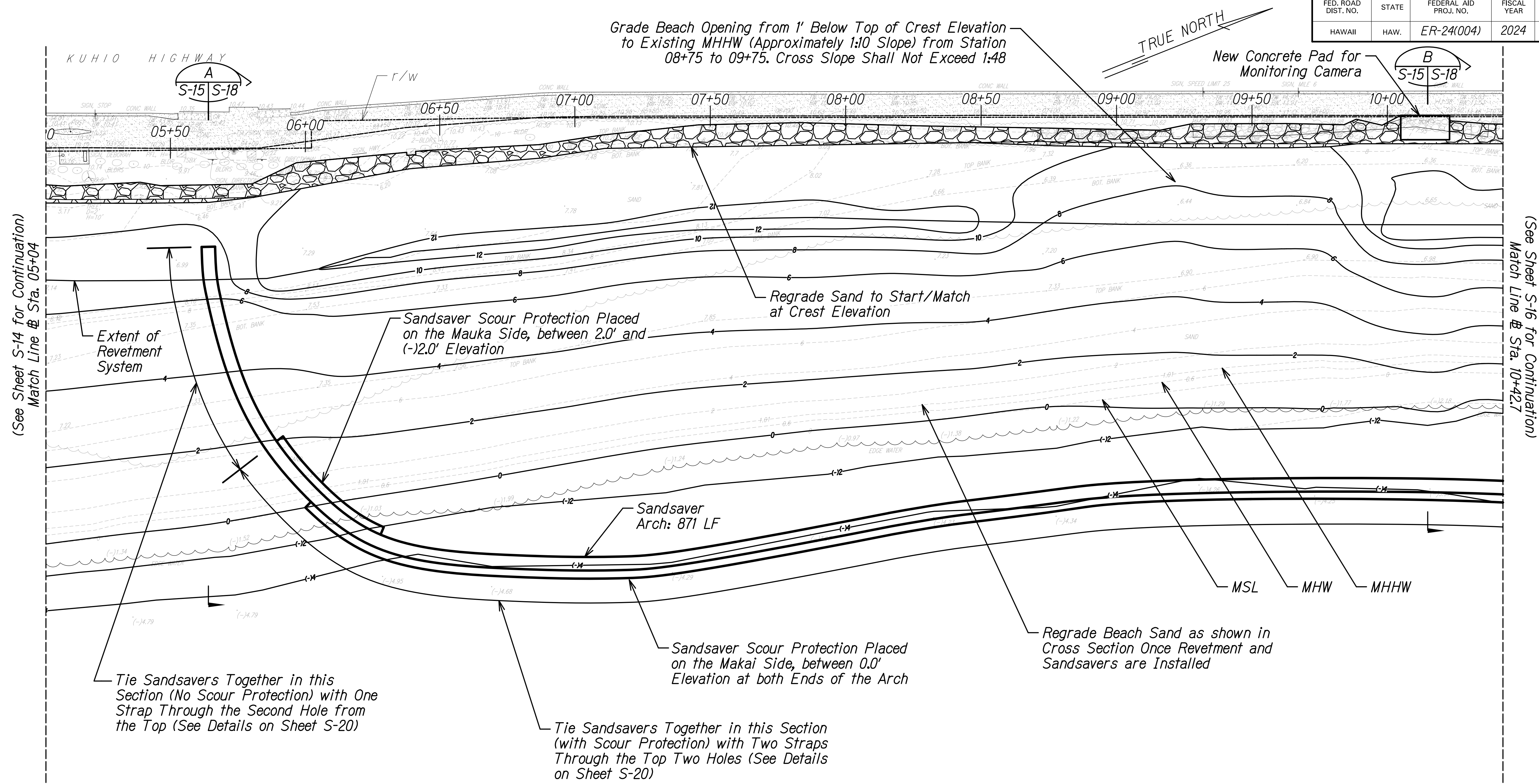


FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	ER-24(004)	2024	33	49



NOTE:

- Grade at Sta. 9+25 to 12+25 Shall be at a Slope of 1:7 After the Dune Hill.
- Grade the Beach to Create a Smooth Transition to the Beach Opening.

GRADING & SANDSAVER PLAN

Scale: 1" = 20'-0"

JAMES I. KINCAID
LICENSED PROFESSIONAL ENGINEER
No. 12562-CE
HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME, OR UNDER MY SUPERVISION.
SIGNATURE: *[Signature]* EXPIRATION DATE OF THE LICENSE: 12/31/2025

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

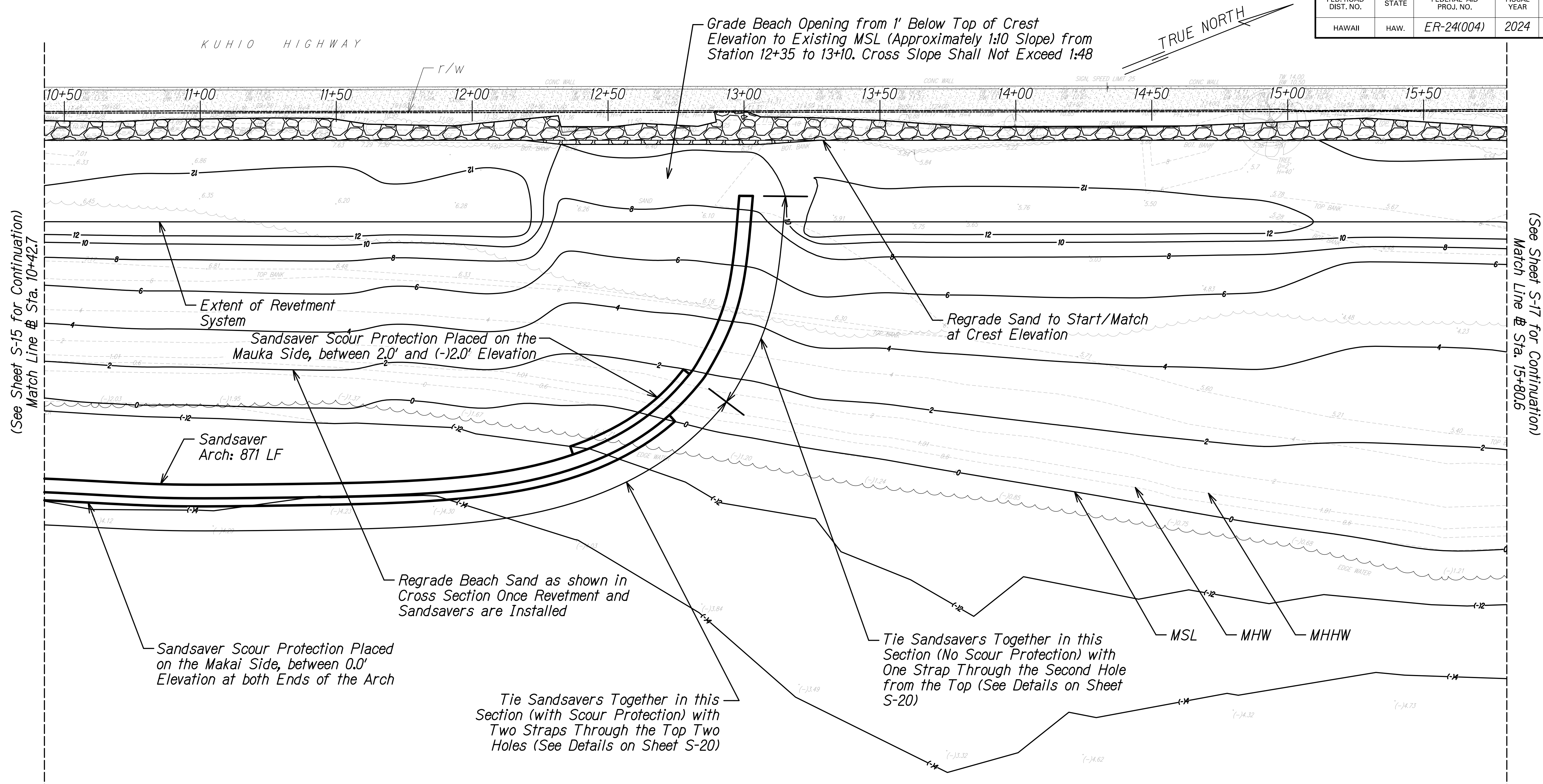
GRADING & SANDSAVER PLAN

KUHIO HIGHWAY
Emergency Shoreline Mitigation
Fed. Aid Project No. ER-24(004)

Scale: As Noted Date: Dec. 2023

SHEET No. S-15 OF 20 SHEETS

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	ER-24(004)	2024	34	49



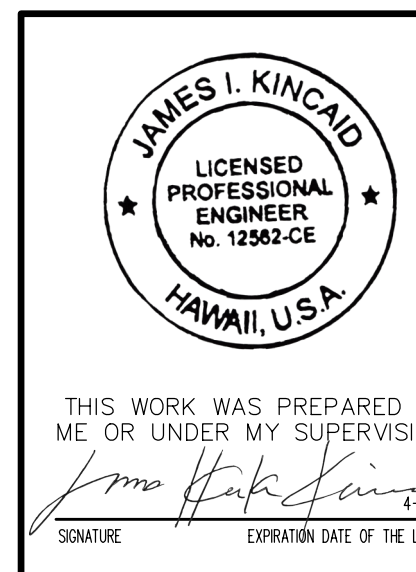
NOTE:

- Grade at Sta. 9+25 to 12+25 Shall be at a Slope of 1:7 After the Dune Hill.
- Grade the Beach to Create a Smooth Transition to the Beach Opening.

GRADING & SANDSAVER PLAN

Scale: 1" = 20'-0"

ORIGINAL PLAN	DATE
DRAWN BY	DATE
DESIGNED BY	DATE
CHECKED BY	DATE
IN CHARGE	DATE



STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

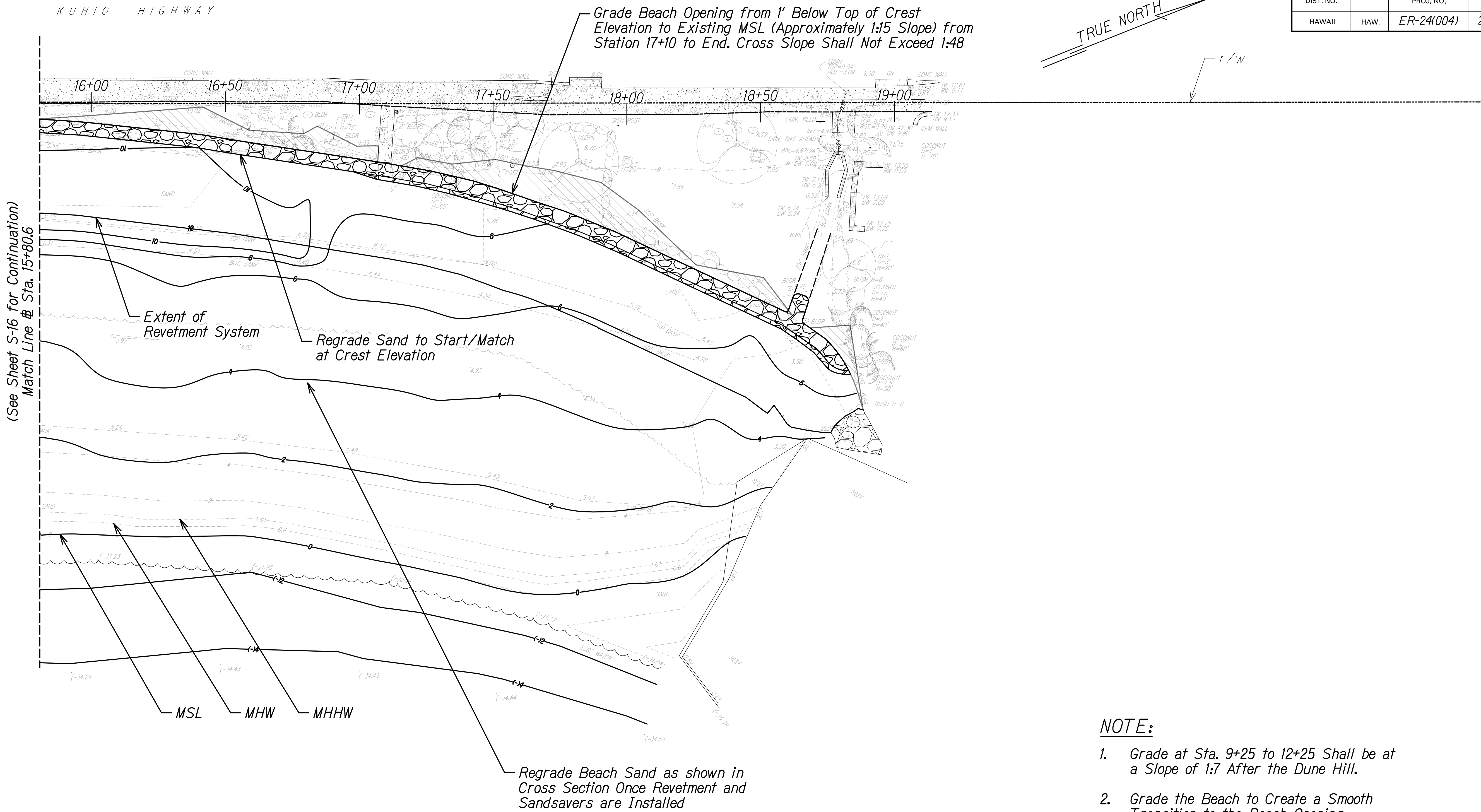
GRADING & SANDSAVER PLAN

KUHIO HIGHWAY
Emergency Shoreline Mitigation
Fed. Aid Project No. ER-24(004)

Scale: As Noted Date: Dec. 2023

SHEET No. S-16 OF 20 SHEETS

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	ER-24(004)	2024	35	49



- NOTE:
- Grade at Sta. 9+25 to 12+25 Shall be at a Slope of 1:7 After the Dune Hill.
 - Grade the Beach to Create a Smooth Transition to the Beach Opening.

ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
NOTE BOOK	DRAWN BY	DATE
	DESIGNED BY	DATE
	CHECKED BY	DATE

GRADING & SANDSAVER PLAN

Scale: 1" = 20'-0"

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

GRADING & SANDSAVER PLAN

KUHIO HIGHWAY
Emergency Shoreline Mitigation
Fed. Aid Project No. ER-24(004)

Scale: As Noted Date: Dec. 2023

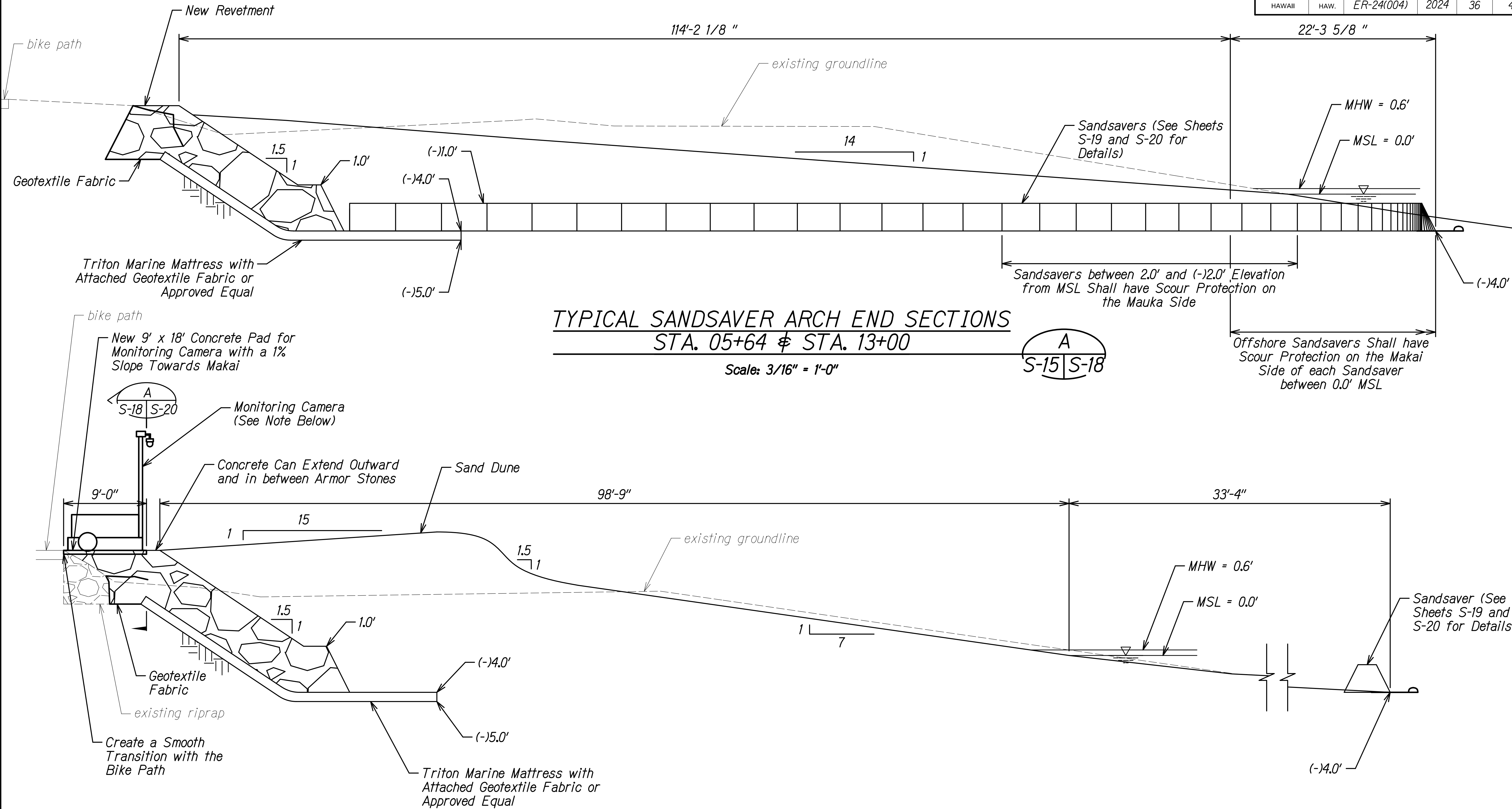
SHEET No. S-17 OF 20 SHEETS

JAMES I. KINCAID
LICENSED PROFESSIONAL ENGINEER
No. 12562-CE
HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME, OR UNDER MY SUPERVISION.

Signature: [Signature]
EXPIRATION DATE OF THE LICENSE: 12/31/2024

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	ER-24(004)	2024	36	49

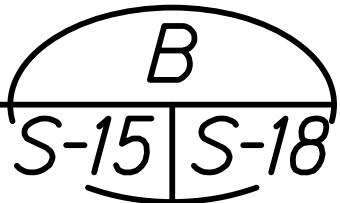


NOTES:

- Due to the Continual Shifting of the Beach, Sandsavers Shall be Field Fit at (-)4.0' Elevation from the MSL at the time of Installation, with Approval of the Engineer.
- HDOT shall Purchase the Monitoring Camera (LVT or Approved Equal) and Contractor shall Install it on the Concrete Pad as shown.

TYPICAL CENTER SECTION OF SANDSAVER ARCH
AND MONITORING CAMERA LOCATION STA. 10+15

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



SURVEY PLOTTED BY	DATE
DRAWN BY	DATE
DESIGNED BY	DATE
CHECKED BY	DATE
IN CHARGE	DATE

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James I. Kincaid

SIGNATURE

EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

SANDSAVER LOCATION DETAILS

KUHIO HIGHWAY
Emergency Shoreline Mitigation
Fed. Aid Project No. ER-24(004)

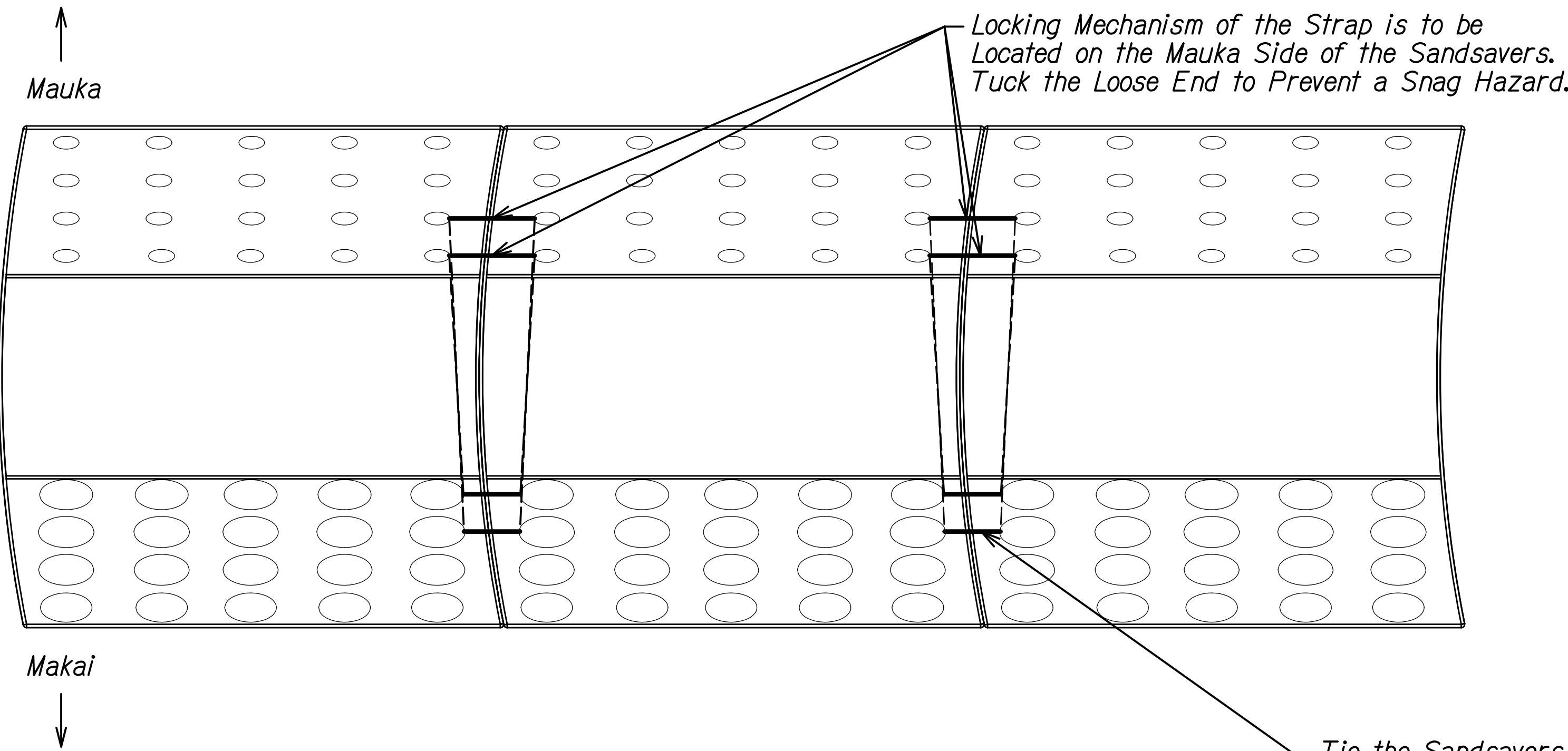
Scale: As Noted Date: Dec. 2023

SHEET No. S-18 OF 20 SHEETS

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	ER-24(004)	2024	38	49

SANDSAVER NOTES:

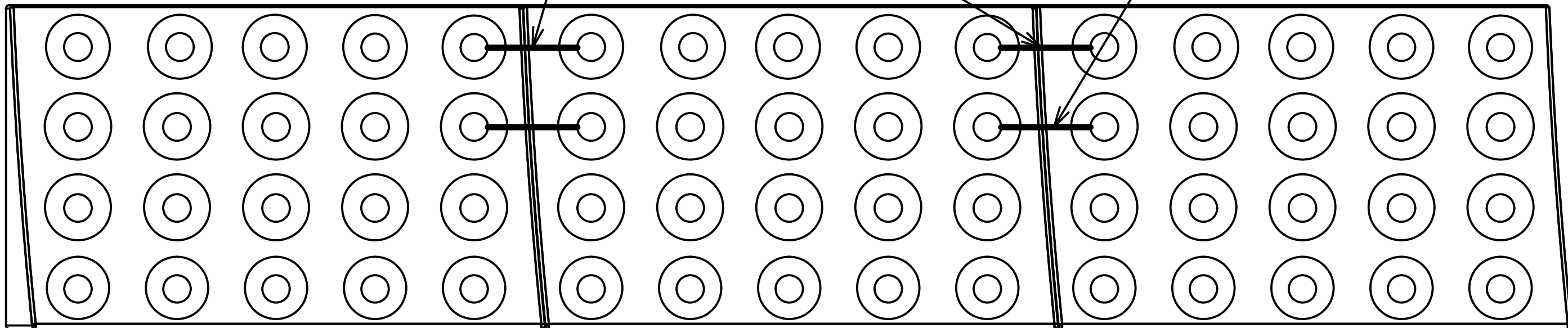
1. Sandsavers shall be Precast Off-Site at the Manufacturer's Facilities (Ensure that the Inserts on the Bottom of the Units are Installed so that the Scour Connection Plate can be Installed as shown on the Plans).
2. The Units will be Shipped to the Project Site Empty. Once on Site, the Units will need to be Filled with Concrete and Transported to the Project Area.
3. Attach the Scour Protection Which Consists of Tensar InterAx FilterGrid with Geotextile (or Approved Equal), UHMW Plates and Hardware, and Surge Rock as shown in Sheet S-19. Locations for Mauka and Makai Sections are shown in Sheets S-15 and S-16. Sandsavers will have Different Threaded Inserts for Different Sections of the Arch. Ensure the Correct Sandsaver with the Correct Inserts are Used for Each Mauka and Makai Scour Protection.
4. Place Sandsavers, with Heavy Equipment, One at a Time Ensuring that the Scour Protection Overlaps the Adjacent Scour Protection FilterGrid. Sandsavers shall not be Placed at a Depth Greater than (-)4 ft MSL. Sandsavers shall be Abutting One Another with no Gaps as shown in Sheets S-14 to S-19. Ensure the Correct Sandsavers with Scour Protection is Placed in the Right Location.
5. Contractor shall Ensure that Each Unit is Flush with the Adjacent Unit Prior to Strapping and Locking the Units Together. Contractor shall Ensure that Each Unit is within a 1.5-in Vertical/Horizontal Tolerance of Each Other.
6. Straps shall be Installed Once the Sandsavers are In-Place and Butted Up Next to Each Other.
7. The Tail of the Strap shall be Tucked or Shortened and Not Stick Out and Create a Snag Hazard and shall be Located on the Mauka Side of the Sandsavers.



SANDSAVER STRAP DETAILS - PLAN VIEW

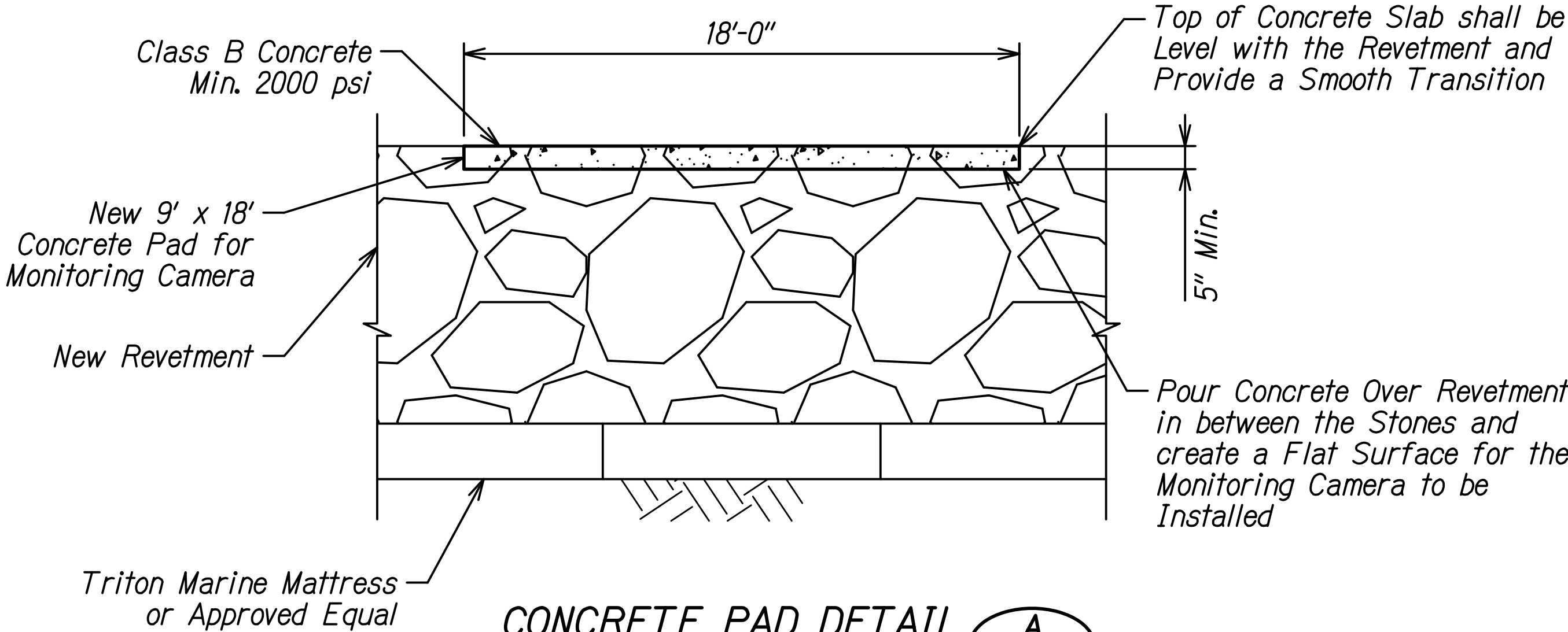
Scale: 1" = 1'-0"

Install a Second Strap Using 317L 1/4 Hard SS 3/4" Wide and 400 Alloy 3/4" Buckles, from BAND-IT (or Approved Equal) at the Top of the Sandsavers only at the Locations Called Out in Sheets S-15 to S-16



SANDSAVER STRAP DETAILS - BACK VIEW

Scale: 1" = 1'-0"



CONCRETE PAD DETAIL

Scale: NTS

A
S-18 | S-20

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

THIS WORK WAS PREPARED BY ME, OR UNDER MY SUPERVISION

Signature: *James I. Kincaid*

EXPIRATION DATE OF THE LICENSE: 12/31/2025

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

**SANDSAVER STRAP &
CONCRETE PAD DETAILS**

KUHIU HIGHWAY

Emergency Shoreline Mitigation

Fed. Aid Project No. ER-24(004)

Scale: As Noted Date: Dec. 2023