FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BR-019-2(082)	2024	18	25

INDEX TO STRUCTURAL DRAWINGS

SHEET NO.	DESCRIPTION
S0.1	INDEX TO STRUCTURAL DRAWINGS
S0.2	STRUCTURAL GENERAL NOTES
S0.3	SYMBOLS AND ABBREVIATIONS
S1.1	LAYOUT PLAN AND ELEVATION
S1.2	BENT NO. 8 ELEVATION
S1.3	PLAN AND SECTION
S1.4	PLAN AND SECTION
S1.5	CONSTRUCTION SEQUENCE

DRAWING NAME: Z:\OD ONGOING\22-036 15-HAKALAU SCOUR BENT 8,PE2-DOT\01 CAD\03-XX-24 FINAL\VSR-S0001 INDEX.DWG PLOT TIME: 03-20-24, 2:30 PM

ORIGINAL PLAN
NOTE BOOK
No.

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

CALVIN T. MIYAHARA
LICENSED PROFESSIONAL ENGINEER
NO. 8133-S
HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.

4-30-24
SIGNATURE EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

INDEX TO STRUCTURAL DRAWINGS

HAWAII BELT ROAD, HAKALAU STREAM BRIDGE REHABILITATION, BENT 8 SCOUR REPAIR FAP Proj. No. BR-019-2(082)

Scale: None Date: Mar. 2024

SHEET No. S0.1 OF 3 SHEETS

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BR-019-2(082)	2024	19	25

STRUCTURAL GENERAL NOTES

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

2. Design Specifications:

   A. American Association of State Highway and Transportation Officials (AASHTO) 2020 "LRFD Bridge Design Specifications" (Ninth Edition) and its subsequent interim specifications with interim supplements and modifications by the HDOT Highways Division.

   B. HDOT Document "Design Criteria for Bridges and Structures" dated August 8, 2014 and HDOT Memorandum "Changes to Design Criteria for Bridges and Structures" dated January 8, 2018.

   C. AASHTO 2017 Guide Design Specifications for Bridge Temporary Works (2nd Edition) and its subsequent interim revisions.

3. Materials:

   A. Underwater concrete

      (1) See "Section 615 - Underwater Concrete" of the Special Provisions.

3. Construction Notes:

   A. Install containment structure to prevent all construction debris and existing waste material from entering the river and banks. The Contractor shall submit working drawings for the containment structure to the Engineer for approval. Any work involving the containment structure shall be paid for under Item 209.1000 - Installation, Maintenance, Monitoring, and Removal of BMP. Work shall not begin until the Engineer approves the proposed system.

   B. Work platform drawings and calculations, stamped by a Professional Structural Engineer, licensed in the State of Hawaii, shall be submitted to the Engineer for review and approval. Calculations shall include a structural assessment of all bridge components that support any portion of the work platform.

   C. Work platform shall be designed for the actual weights of required construction equipment and material plus the intended design Live Load as a minimum, the loading shall include the loads as stated in the specifications listed in Item 2. of this sheet.

   D. 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.

   E. 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.

4. General Construction Notes (Continued):

   F. 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.

   G. All items not in the proposal schedule shall not be paid for separately and shall be considered as incidental to the various contract items.

   H. Except as otherwise noted, all vertical dimensions are measured plumb.

   I. The Contractor may obtain for review available As-Built drawings of the existing structure from the HDOT Highways Division, Design Branch located at Kakuhihewa Building, Room 609, 601 Kamokila Boulevard, Kapolei, HI 96707.

ORIGINAL PLAN
NOTE BOOK
No.

SURVEY PLOTTED BY
DRAWN BY
TRACED BY
DESIGN BY
QUANTITIES BY
CHECKED BY
DATE

CALVIN T. MIYAHARA
LICENSED PROFESSIONAL ENGINEER
NO. 8133-S
HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.

4-30-24
SIGNATURE EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

STRUCTURAL GENERAL NOTES

HAWAII BELT ROAD, HAKALAU STREAM BRIDGE REHABILITATION, BENT 8 SCOUR REPAIR
FAP Proj. No. BR-019-2(082)

Scale: None Date: Mar. 2024

SHEET No. S0.2 OF 3 SHEETS

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BR-019-2(082)	2024	20	25

SYMBOLS AND ABBREVIATIONS

∲	And
@	At
Ø	Diameter
#	Number, Pound
Abut.	Abutment
Abbr.	Abbreviation
Add.	Additional, Added
Alt.	Alternate
AB	Anchor Bolt
AC	Asphaltic Concrete
Approx.	Approximate
Az.	Azimuth
Bk.	Back
Bal.	Balance
℄	Baseline
Bm.	Beam
Brg., Brgs.	Bearing, Bearings
BVC	Beginning of Vertical Curve
BMP	Best Management Practices
Bet.	Between
BF	Both Faces, Back Face
BW	Both Ways
BFE	Bottom of Footing Elevation
Bot., Bott., B	Bottom
Br.	Bridge
Blt.	Bolt
Cant.	Cantilever
C.B.	Catch Basin
CIP	Cast-in-Place
℄	Centerline
CG	Center of Gravity
cgs	Center to Gravity of Strands
cc	Center to Center
Cl.	Class
Clr.	Clearance
Col.	Column
Conc.	Concrete
Conn.	Connection
Const.	Construction
CFCW	Continuous Flashing Compound Waterproofing
CJ	Control Joint
Const. Jt.	Construction Joint
CLSM	Controlled Low Strength Material
Cont.	Continuous
CF	Cubic Feet
CY, Cu. Yd.	Cubic Yard
CSL	Crosshole Sonic Logging
Demo	Demolish, Demolition
Det.	Detail
Diag.	Diagonal
Dia.	Diameter
Dim.	Dimension
Dist.	Distance
DO	Ditto
Dwls.	Dowels
Dn.	Down
Dbl.	Double
DI	Drain Inlet, Ductile Iron
Dwg., Dwgs.	Drawing, Drawings
DS	Drilled Shaft
EA, Ea., ea.	Each
EF	Each Face
EFH	Each Face Horizontal
EFV	Each Face Vertical
EW	Each Way
EP	Edge of Pavement
EPS	Expanded Polystyrene
E	East
Elec.	Electrical
EMH	Electrical Manhole
El., Elev.	Elevation
Emb.	Embankment
Embed.	Embedded, Embedment
EVC	End of Vertical Curve
Eq.	Equal
Est.	Estimated
Exc.	Excavation
Excl.	Excluding
Exist., Ex.	Existing
Exp., (E)	Expansion
EJ	Expansion Joint
Ext.	Exterior
FF	Far Face. Front Face
F'c	Specified Strength of Concrete
F'ci	Strength of Concrete at Time of Initial Prestress
Ft.	Feet, Foot
Fig.	Figure
Fin. Gr.	Finish Grade
(F)	Fixed
FB	Flat Bar
Ftg.	Footing
FA	Force Account
Ga.	Gage, Gauge
Galv.	Galvanized
GDI	Grated Drain Inlet
GFRP	Glass Fiber Reinforced Polymer
Gr.	Grade
Grd.	Ground
GRP	Grouted Rubble Pavement
H	Height
(H)	Hinge
Horiz.	Horizontal
HS	High strength
HSS	Hollow Structural Section
HECO	Hawaiian Electric Company
HTL	High Tide Line
IB, Inbnd.	Inbound
In.	Inch
ID	Inside Diameter
IF	Inside Face
Int.	Interior
Inv.	Invert
Jt.	Joint
K	Kips
KF	Kip Foot
KSF	Kips Per Square Foot
KSI	Kips Per Square Inch
KLF	Kips Per Linear Foot
L	Length
lb., lbs., LBS.	Pound, Pounds
Lfg. Std.	Lighting Standard
LF	Linear Feet/Foot
Lin. Ft.	Linear Feet/Foot
LS	Lump Sum
Longit.	Longitudinal
M	Modified
MH	Manhole
Max.	Maximum
Mech.	Mechanical
Min.	Minimum
Misc.	Miscellaneous
MPH	Miles Per Hour
NF	Near Face
N	North
NIC	Not in Contract
No.	Number
NTS	Not to Scale
O/S	Offset
oc	On Center
Opn'g	Opening
OB, Outbnd.	Outbound
OD	Outside Diameter
OM	Object Marker
P(e)	Effective or Working Prestressing Force
PP	Precast Plank
Perf.	Perforated
PL	Plate
PCC	Portland Cement Concrete
PC	Point of Curvature
PCF	Pounds per Cubic Foot
PSF	Pounds per Square Foot
PSI	Pounds per Square Inch
PLF	Pounds per Linear Foot
PI	Point of Intersection of Tangents
PIVC	Point of Intersection of Vertical Curve
PT	Point of Tangency, Post Tensioned
Pt., Pts.	Point, Points
PRC	Point of Reverse Curvature
PVC	Polyvinyl Chloride
Prestr.	Prestressed
P/S	Prestressed Strands
PB	Pull Box
Q	Flow Rate
Rad., R	Radius
RF	Rear Face
Rebar	Reinforcing Bar
Ref.	Reference
Reinf.	Reinforced, Reinforcing, Reinforcement
Req'd.	Required
Ret.	Retaining
ROW	Right of Way
Rdwy.	Roadway
Sch.	Schedule
Sect.	Section
SDMH	Sewer Drain Manhole
Sht.	Sheet
SRA	Shrinkage Reducing Admixture
Sl.	Slope
S	South
Spc	Spacing
Sprd.	Spread
Spec.	Specification
SF	Square Feet
SY	Square Yard
SS. SSTL	Stainless Steel
Std.	Standard
Sta.	Station
Stagg.	Staggered
Stiff.	Stiffener
Stirr.	Stirrup
Str.	Straight
Struct.	Structure
SE	Super Elevation
Symm.	Symmetrical
Tan.	Tangent
Temp.	Temporary
Thk.	Thick
T	Top
T∲B	Top and Bottom
TOD	Top of Deck
TFE	Top of Footing Elevation
TOW	Top of Wall
Tot.	Total
Transv.	Transverse
TS	Structural Tubing
Typ.	Typical
Undergrd.	Underground
UNO	Unless Noted Otherwise
Var.	Varies
Vert., V	Vertical
VC	Vertical Curve
VSM	Variable Message Sign
W/C	Water/Cement Ratio
w/	With
W	West
WWR	Welded Wire Reinforcing
WW	Wing Wall
WP	Work Point, Working Point
WS	Water Surface
Yr.	Year

CALVIN T. MIYAHARA
LICENSED PROFESSIONAL ENGINEER
No. 8133-S
HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.

4-30-24
SIGNATURE EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

SYMBOLS AND ABBREVIATIONS

HAWAII BELT ROAD, HAKALAU STREAM BRIDGE REHABILITATION, BENT 8 SCOUR REPAIR FAP Proj. No. BR-019-2(082)

Scale: None Date: Mar. 2024

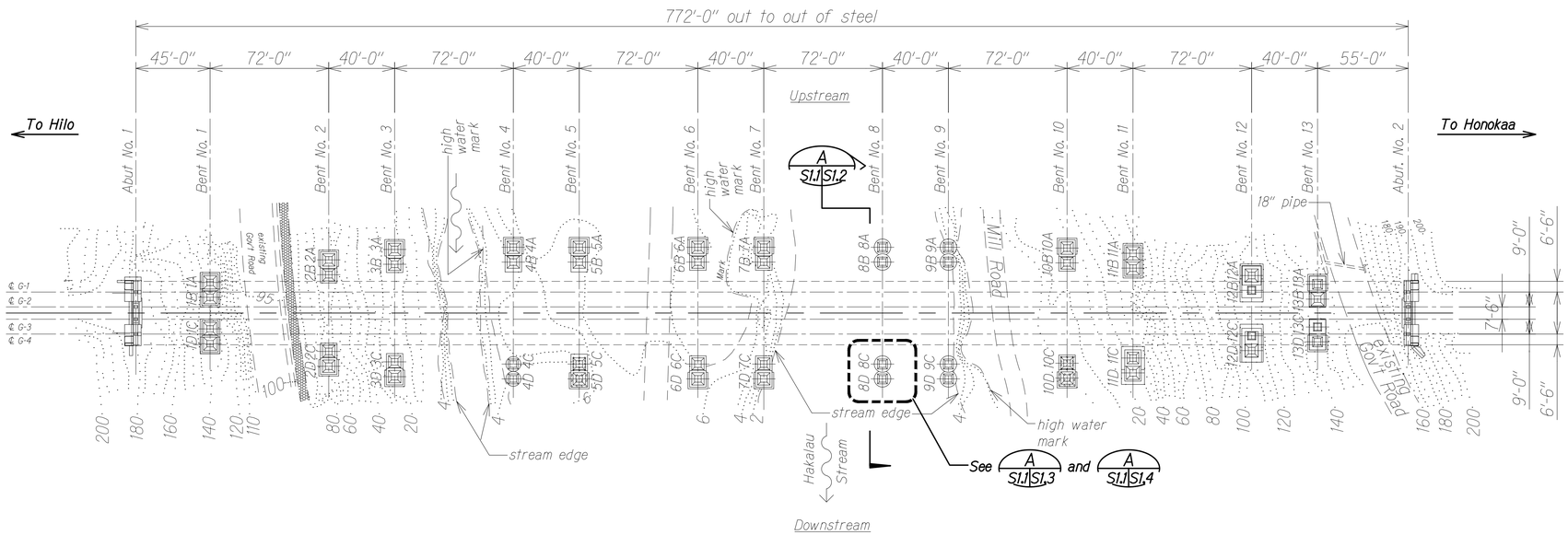
SHEET No. S0.3 OF 3 SHEETS

ORIGINAL PLAN | NOTE BOOK No.

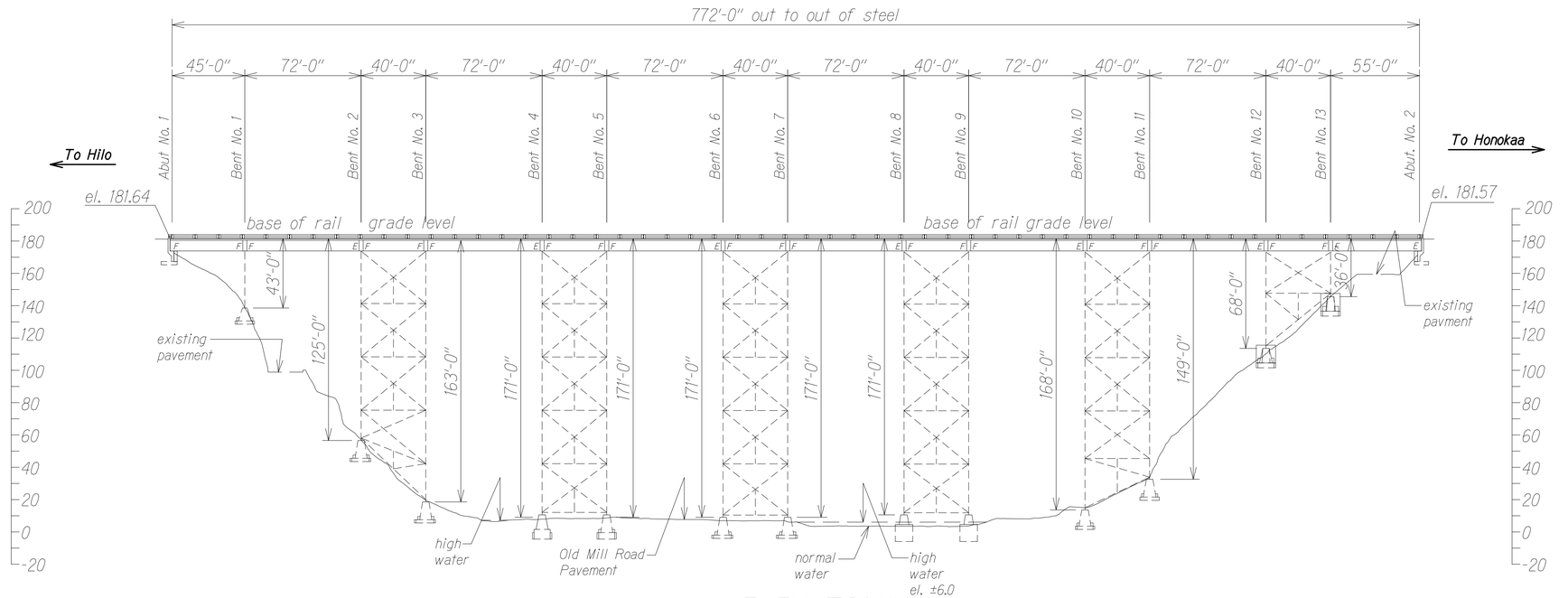
SURVEY PLOTTED BY
DRAWN BY
TRACED BY
DESIGNED BY
QUANTITIES BY
CHECKED BY
DATE

DRAWING NAME: Z:\OD ONGOING\22-036 15-HAKALAU SCOUR BENT 8\PE2-DOT\01 CAD\OS-XX-24 FINAL\HSR-S0003 SYM-ABBR.DWG PLOT TIME: 03-20-24, 2:31 PM

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BR-019-2(082)	2024	21	25



LAYOUT PLAN
Scale: 1" = 40'-0"



ELEVATION
Scale: 1" = 40'-0"

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

DRAWING NAME: Z:\OD ONGOING\22-036 15-HAKALAU SCOUR BENT 8,PE2-DOT\01 CAD\03-XX-24 FINAL\HSR-S0101 PLAN ELEVDWG PLOT TIME: 03-26-24, 2:32 PM

CALVIN T. MIYAMARA
LICENSED PROFESSIONAL ENGINEER
NO. 8133-S
HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.

4-30-24
SIGNATURE EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

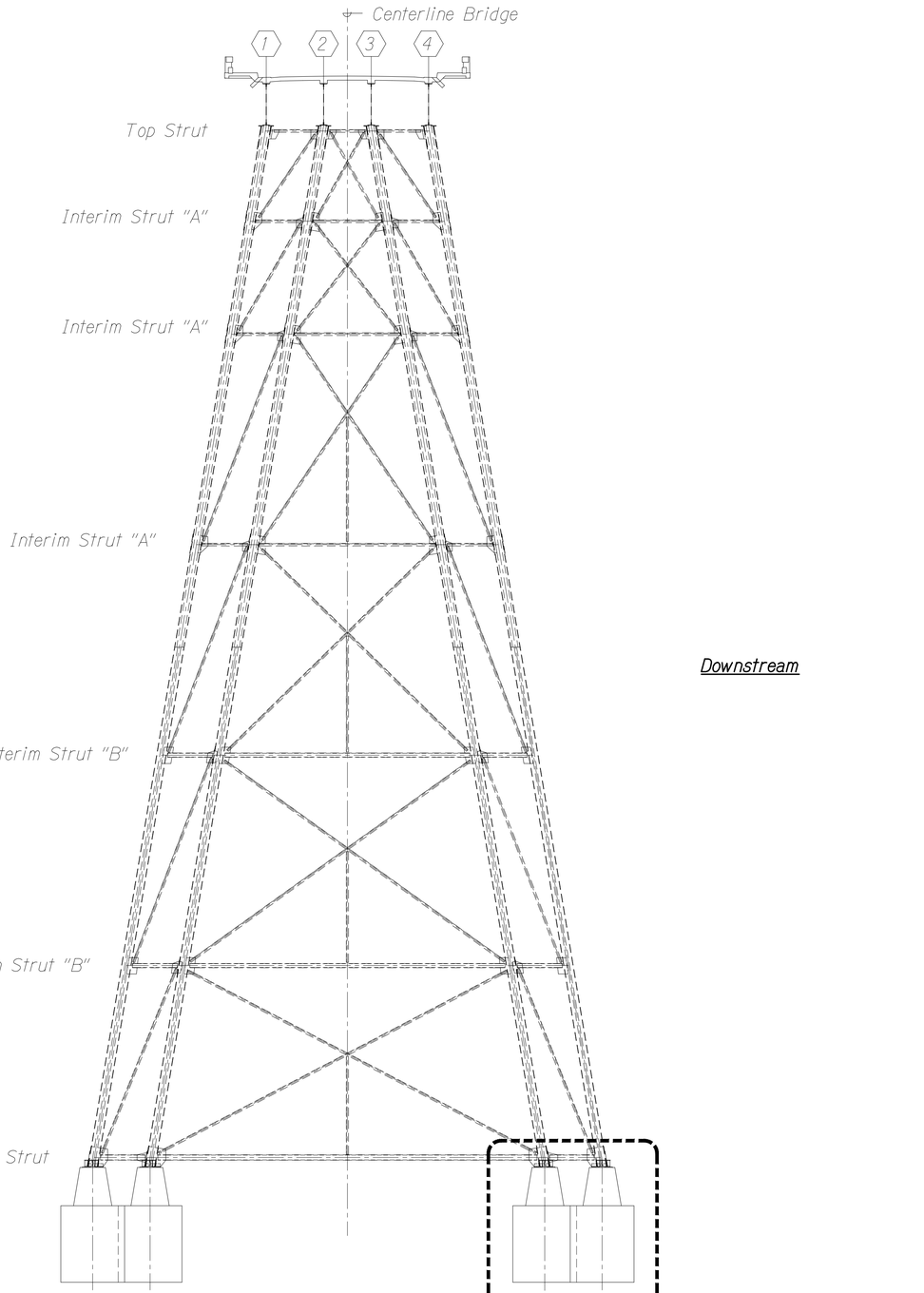
LAYOUT PLAN AND ELEVATION

HAWAII BELT ROAD, HAKALAU STREAM BRIDGE REHABILITATION, BENT 8 SCOUR REPAIR
FAP Proj. No. BR-019-2(082)

Scale: As Noted Date: Mar. 2024

SHEET No. S1.1 OF 5 SHEETS

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BR-019-2(082)	2024	22	25



BENT NO. 8 ELEVATION (A S1.1 | S1.2)
Scale: 3/32" = 1'-0"

See (B S1.2 | S1.3) and (B S1.2 | S1.4)

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

DRAWING NAME: Z:\AOI ONGOING\22-036 15-HAKALAU SCOUR BENT 8,PE2-BOT\01 CAD\03-XX-24 FINAL\SR-S0102 PIER ELEV.DWG PLOT TIME: 03-20-24 2:33 PM

CALVIN T. MIYAHARA
LICENSED PROFESSIONAL ENGINEER
NO. 8133-S
HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.

SIGNATURE 4-30-24 EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

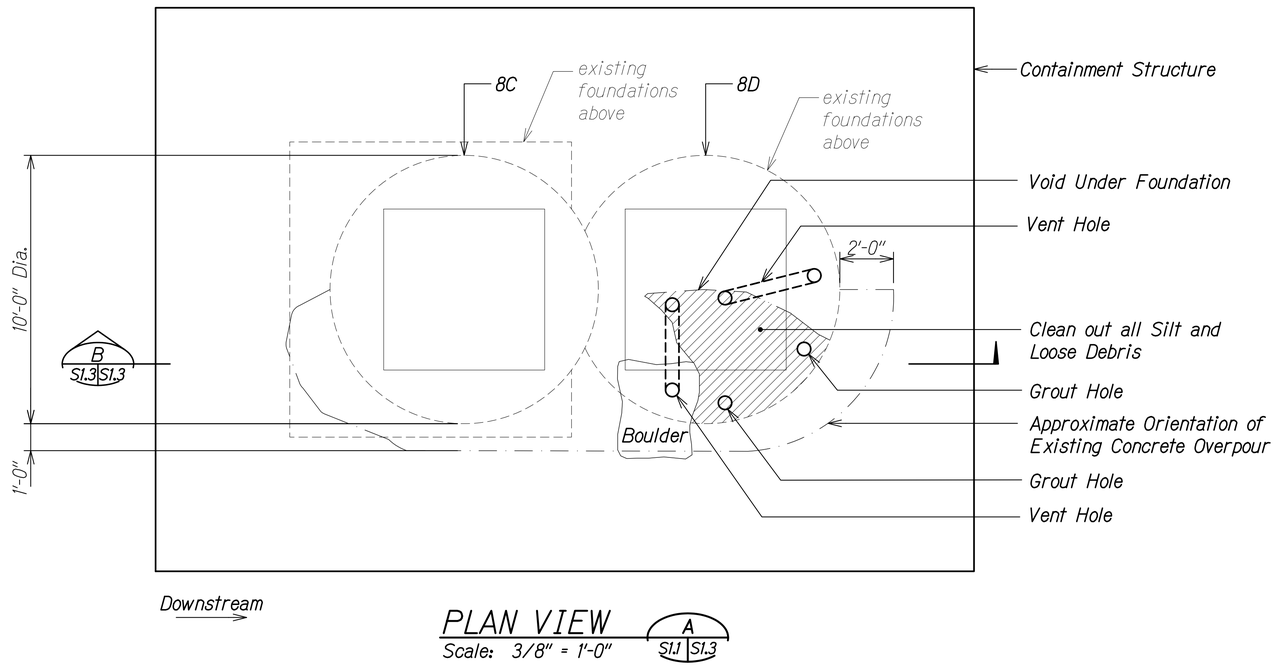
BENT NO. 8 ELEVATION

HAWAII BELT ROAD, HAKALAU STREAM BRIDGE REHABILITATION, BENT 8 SCOUR REPAIR
FAP Proj. No. BR-019-2(082)

Scale: As Noted Date: Mar. 2024

SHEET No. S1.2 OF 5 SHEETS

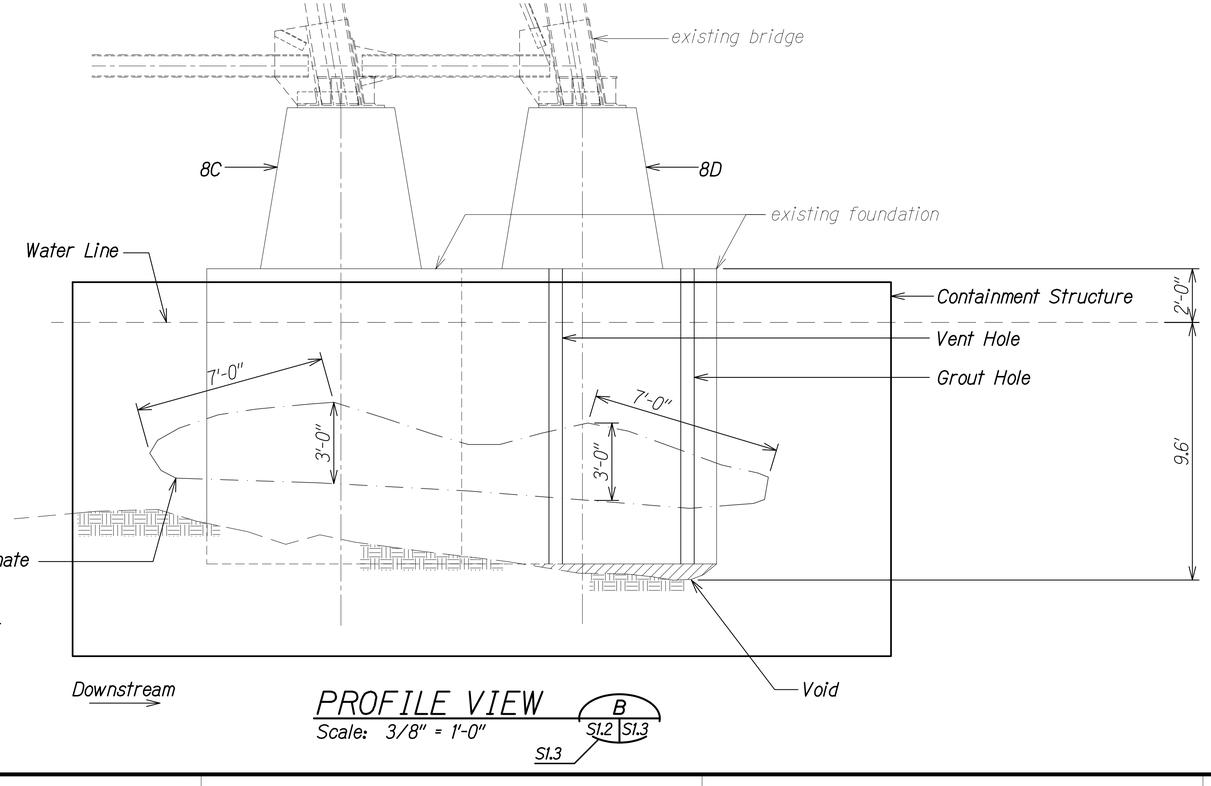
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BR-019-2(082)	2024	23	25



PLAN VIEW

Scale: 3/8" = 1'-0"

A
S1.1 S1.3



PROFILE VIEW

Scale: 3/8" = 1'-0"

B
S1.2 S1.3
S1.3

<u>NOTE:</u>

The cost for coring the holes, the containment structure, and cleaning out silt and loose debris shall be considered incidental to the Various Contract Items.

CALVIN T. MIYAHARA
LICENSED PROFESSIONAL ENGINEER
No. 8133-S
HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.

4-30-24
SIGNATURE EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

PLAN AND SECTION

HAWAII BELT ROAD, HAKALAU STREAM BRIDGE REHABILITATION, BENT 8 SCOUR REPAIR
FAP Proj. No. BR-019-2(082)

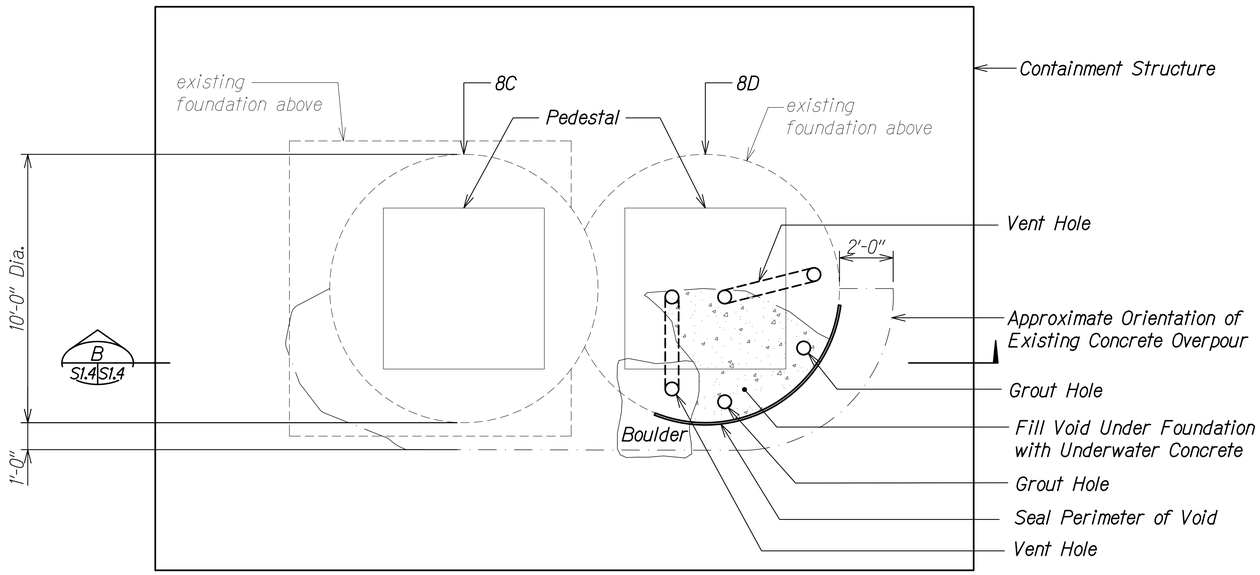
Scale: As Noted Date: Mar. 2024

SHEET No. S1.3 OF 5 SHEETS

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

DRAWING NAME: Z:\OD ONGOING\22-036.15-HAKALAU SCOUR BENT 8\PE2-DOT\01 CAD\OD-XX-24 FINAL\HSR-S0102 PIER ELEV.DWG PLOT TIME: 03-20-24, 2:33 PM

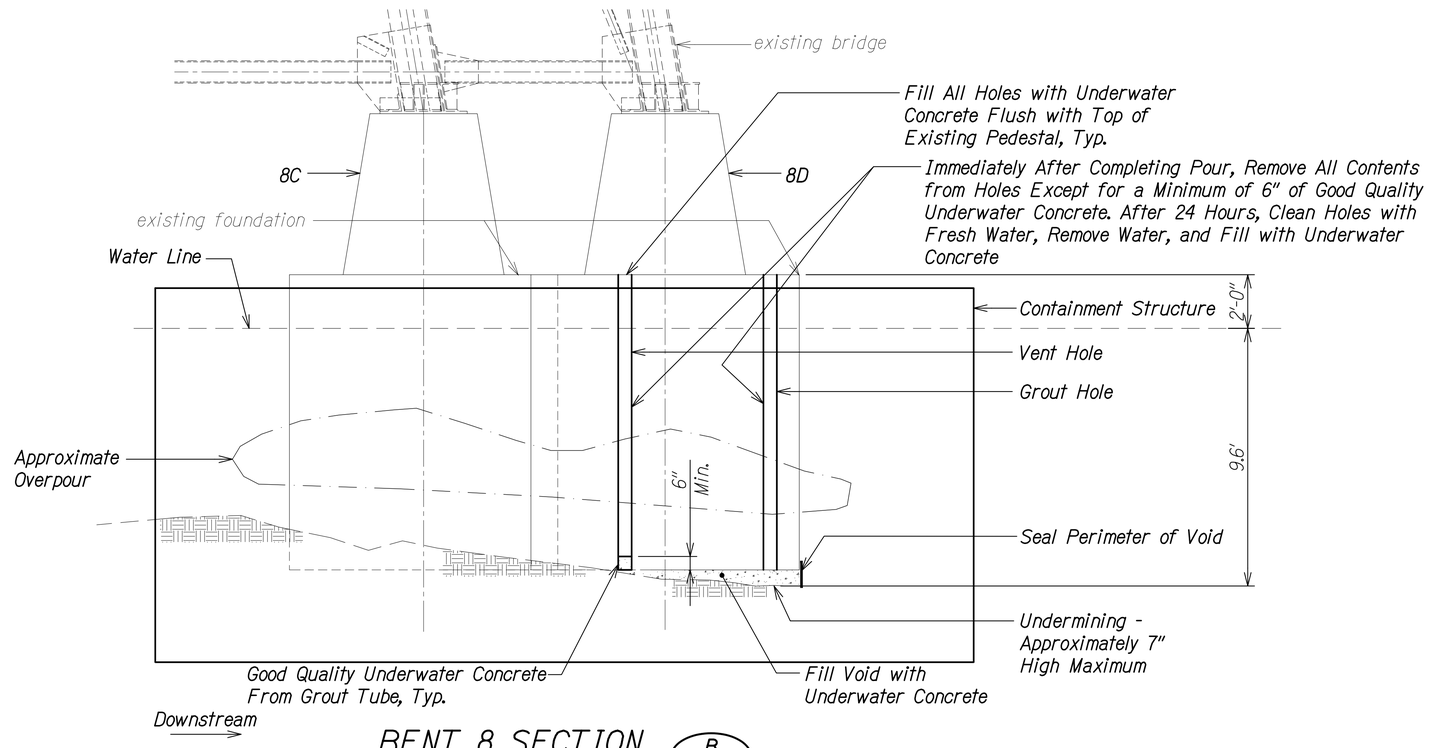
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BR-019-2(082)	2024	24	25



BENT 8 - PLAN VIEW

Scale: 3/8" = 1'-0"

A
S1.1 S1.4



BENT 8 SECTION

Scale: 3/8" = 1'-0"

B
S1.2 S1.4

S1.4

NOTES:

1. The Contractor shall determine the size, amount, and locations of the grout and vent tubes. What is shown on the plans is schematic and should be adjusted to ensure the void under the foundation is completely filled with underwater concrete.
2. Submit work plan and details to the Engineer for approval. No work at the construction site shall begin until approval is given by the Engineer.

CALVIN T. MIYAHARA
LICENSED PROFESSIONAL ENGINEER
NO. 8133-S
HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.

SIGNATURE — 4-30-24 EXPIRATION DATE OF THE LICENSE

STATE OF HAWAI'I
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

PLAN AND SECTION

HAWAII BELT ROAD, HAKALAU STREAM BRIDGE REHABILITATION, BENT 8 SCOUR REPAIR
FAP Proj. No. BR-019-2(082)

Scale: As Noted Date: Mar. 2024

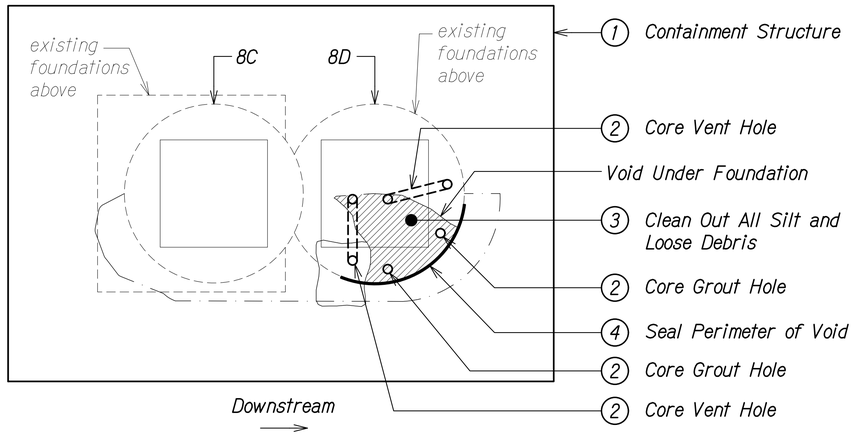
SHEET No. S1.4 OF 5 SHEETS

24

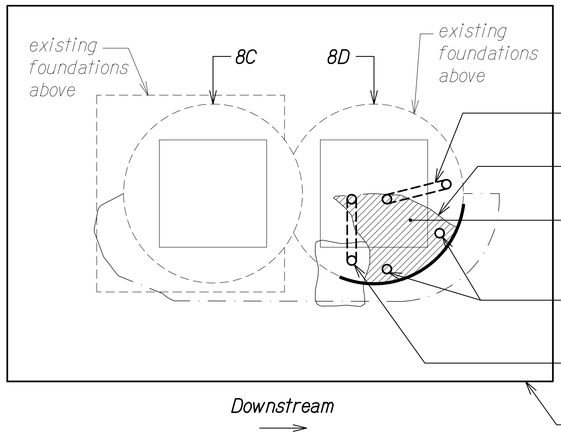
ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
NOTE BOOK	DRAWN BY	
No.	TRACED BY	
	DESIGNED BY	
	QUANTITIES BY	
	CHECKED BY	

DRAWING NAME: Z:\OD ONGINO\22-036.15-HAKALAU SCOUR BENT 8\PE2-DOT\01 CAD\03-YX-24 FINAL\YSR-S0102 PIER ELEV.DWG PLOT TIME: 03-20-24, 2:34 PM

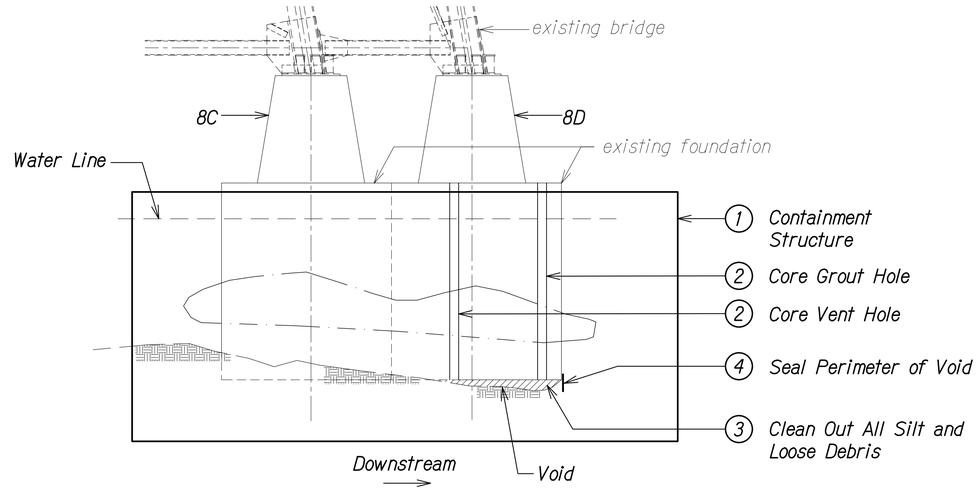
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BR-019-2(082)	2024	25	25



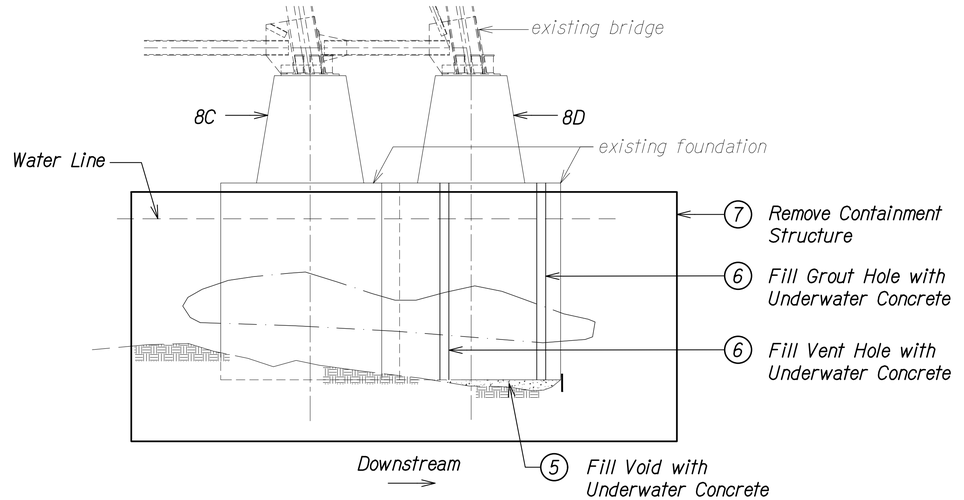
1. Containment Structure
2. Core Vent Hole
Void Under Foundation
3. Clean Out All Silt and Loose Debris
2. Core Grout Hole
4. Seal Perimeter of Void
2. Core Grout Hole
2. Core Vent Hole



6. Fill Vent Hole with Underwater Concrete
Void Under Foundation
5. Fill Void with Underwater Concrete
6. Fill Grout Hole with Underwater Concrete
6. Fill Vent Hole with Underwater Concrete
7. Remove Containment Structure



1. Containment Structure
2. Core Grout Hole
2. Core Vent Hole
4. Seal Perimeter of Void
3. Clean Out All Silt and Loose Debris



7. Remove Containment Structure
6. Fill Grout Hole with Underwater Concrete
6. Fill Vent Hole with Underwater Concrete
5. Fill Void with Underwater Concrete

CONSTRUCTION SEQUENCE

1. Install containment structure to contain silt, loose debris, underwater concrete, and any other construction related waste.
2. Core holes for vent and grout holes.
3. Clean out silt and loose debris from the void under the foundation.
4. Seal perimeter of void immediately after cleaning out the void. Seal shall prevent any underwater concrete from entering the stream.
5. Fill the void with underwater concrete specified in Section 615 of the Special Provisions. Long term bridge closure traffic control plan , shown on sheet TC-6, shall be in effect prior to placing underwater concrete and a minimum of 3 days after completion of placing underwater concrete. Long term bridge closure Traffic Control Plan shall transition to Reduced Speed Traffic Control Plan, shown on Sheet TC-3, after the 3 days and shall be in effect a minimum of 4 additional days.
6. After ensuring the void is filled with concrete, fill the vent and grout tubes with the same material used to fill the void.
7. Remove all construction materials after concrete has set.

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

CALVIN T. MIYAHARA LICENSED PROFESSIONAL ENGINEER NO. 8133-S HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.

4-30-24
SIGNATURE EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

CONSTRUCTION SEQUENCE

HAWAII BELT ROAD, HAKALAU STREAM BRIDGE REHABILITATION, BENT 8 SCOUR REPAIR FAP Proj. No. BR-019-2(082)

Scale: None Date: Mar. 2024

SHEET No. S1.5 OF 5 SHEETS