FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-H3-1(75), UNIT VIIC	2022	16	50

INDEX TO STRUCTURAL DRAWINGS

SHEET NO.	DESCRIPTION
S-0	INDEX TO STRUCTURAL DRAWINGS
S-1	STRUCTURAL GENERAL NOTES
S-2	HECO GUY WIRE RELOCATION PHASES
S-3	FURNISHING AND INSTALLING TEMPORARY CONCRETE BLOCKS
S-4	HECO FURNISHED AND INSTALLED STEEL STUB POLE
S-5	DRILLED SHAFT ELEVATION, NOTES, HECO FURNISHED ANCHOR BOLTS
S-6	MISCELLANEOUS DETAILS RELOCATED HALAWA ACCESS ROAD

DRAWING NAME: Z:\JOB ONGOING\19-008 H3 GUY WIRE POLE - WSP\01 CAD\02-15-22 BID\HSR-S00-S01 GNOTES.DWG PLOT TIME: 04-15-22, 10:40 AM

ORIGINAL PLAN
NOTE BOOK
No.

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

RUSS S. MIYAHARA
LICENSED PROFESSIONAL ENGINEER
NO. 9444-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

INDEX TO STRUCTURAL DRAWINGS

INTERSTATE ROUTE H-3
H-3 FINISH, UNIT VIIC
FAIP NO. I-H3-1(75), UNIT VIIC

Scale: None Date: Feb. 2022

SHEET No. S-0 OF 7 SHEETS

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-H3-1(75), UNIT VIIC	2022	17	50

STRUCTURAL GENERAL NOTES

1. GENERAL SPECIFICATIONS:

   A. Hawaii Department of Transportation, Hawaii Standard Specifications for Road and Bridge Construction, 2005, together with Special Provisions prepared for this Contract.

2. DESIGN SPECIFICATIONS:

   A. AASHTO 2017 LRFD Bridge Design Specifications (8th Edition) and its subsequent interim specifications with interim supplements and modifications by the HDOT Highways Division.

   B. HDOT Document dated January 8, 2018 with subject title "Design Criteria for Bridges and Structures".

   C. AASHTO LRFD Specifications for Structural Supports for Highways, Signs, Luminaries, and Traffic Signals (First Edition) 2015 and its subsequent interim specifications with interim supplements and modifications by the HDOT Highways Division.

   D. National Electrical Safety Code (NESC) per Hawaii Administrative Rules (HAR), Chapter 6-73.

3. LOADS:

   A. Wind Load: In accordance with NESC 2017 Edition:

   Extreme Wind Loading for Grade B Structures
   (50-90 Year Mean Recurrence)
   Load in pounds = $.00256\ V^2 k_2\ G_{RF} I C_f A$

V	Hawaii	=	105 mph
k_2	Structure	=	1.2
k_2	Wire	=	1.3
G_{RF}	Structure	=	0.89
G_{RF}	Wire	=	0.83
I	Importance	=	1.0
Cf	Shape Factor	=	1.0
A	Projected Area	=	in ft^2

   B. Seismic Load: In accordance with AASHTO 2017 LRFD Bridge Design Specifications 8th Edition:

A_S	Spectrum Acceleration	=	0.25g
S_{DS}	Short Period Acceleration	=	0.56g
S_{D1}	Long Period Acceleration	=	0.26g

4. MATERIALS:

   A. All concrete strengths shall be as noted below:

Item No.	Structural Parts	Compressive Strength f'c (28 Days)	Max. Water Cementitious (W/C)	Max. Cementitious Content (lbs/cyd)
(1)	Drilled Shafts See Note (D) in this section	4500 psi	0.45	720
(2)	Drilled Shaft Pedestal, See Notes (C) and (D) in this section	4500 psi	0.40	670
(3)	1'-6" Conc. Curb with Mounted Fence (See Sht. S-6) See Note (I) in this Section	4000 psi	0.49	620
(4)	All Other	4000 psi	0.49	620

   B. The use of calcium chloride in any concrete is prohibited.

   C. A shrinkage reducing admixture (SRA), such as Master Life SRA20 by BASF or Eclipse 4500 or approved equal, shall be added to the concrete mix for Item No. (2). The minimum dosage requirement shall be 128 ounces per cubic yard or as recommended by the manufacturer.

   D. A migrating corrosion inhibitor amine carboxylate water-based admixture such as Cortec MCI 2005 NS or approved equal shall be added to the concrete mix for Items No. (1), and (2). The dosage shall be 24 ounces per cubic yard of concrete.

   E. 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 4000 psi in 3 days and 7000 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.

   F. 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.

   G. Unless otherwise noted, all reinforcing steel shall conform to the requirements of ASTM A615 and shall be deformed, Grade 60.

      (1) The covering measured from the surface of the concrete to the face of any reinforcing bars shall be as follows, except as otherwise shown:

         (a) Drilled Shafts = 4"

4. MATERIALS (Cont.):

         (b) Concrete Cast Against and Permanently Exposed to Earth = 3"

         (c) All Others Unless Otherwise Noted = 2"

   H. Glass Fiber Reinforced Polymer (GFRP) rebar shall comply with ASTM D7957 and shall have a minimum modulus of elasticity of 6,500,000 psi. See Special Provisions for additional requirements.

      (1) The clear covering from surface of concrete to the face of any GFRP rebar shall be 1-inch.

      (2) Minimum lap splice length for GFRP reinforcing shall be 42 bar diameters or 2'-6", whichever is greater.

   I. 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 for Item No. (3). The dosage shall be 7.5 lbs. per cubic yard of concrete or the equivalent amount of approved equal to achieve similar properties.

   J. Unless otherwise noted, and/or HECO furnished, all anchor bolts, washers, and nuts shall be ASTM A 307, F436, and A563 respectively; and ASTM A153 hot dip galvanized after fabrication, unless otherwise specified.

   K. Epoxy for anchoring threaded rods or deformed bars shall be HILTI-RE-500-V3 or approved equal. Follow Manufacturer's recommendations for storage and use.

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

DRAWING NAME: Z:\OD ONGOING\19-008 H3 GOY WIRE POLE - WSP\01 CAD\02-15-22 BID\HOW-S00-S01 GNOTES.DWG PLOT TIME: 04-15-22, 10:40 AM

RUSS S. MIYAMARA
LICENSED PROFESSIONAL ENGINEER
NO. 9444-S
HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.

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

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

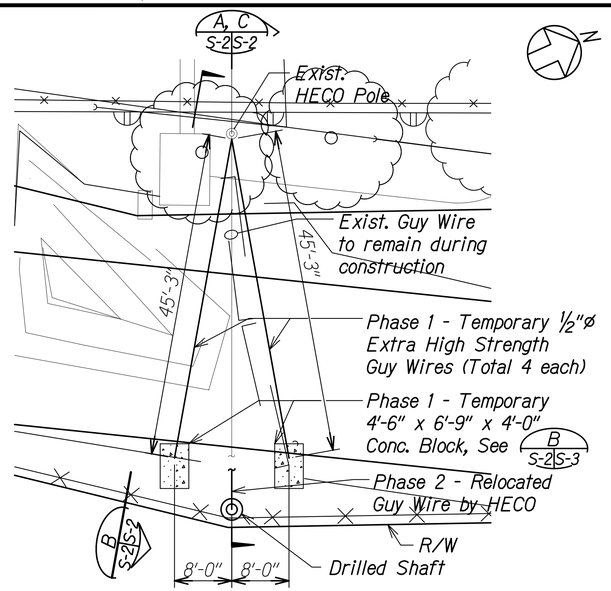
STRUCTURAL GENERAL NOTES

INTERSTATE ROUTE H-3
H-3 FINISH, UNIT VIIC
FAIP NO. I-H3-1(75), UNIT VIIC

Scale: None Date: Feb. 2022

SHEET No. S-1 OF 7 SHEETS

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-H3-1(75), UNIT VIIC	2022	18	50

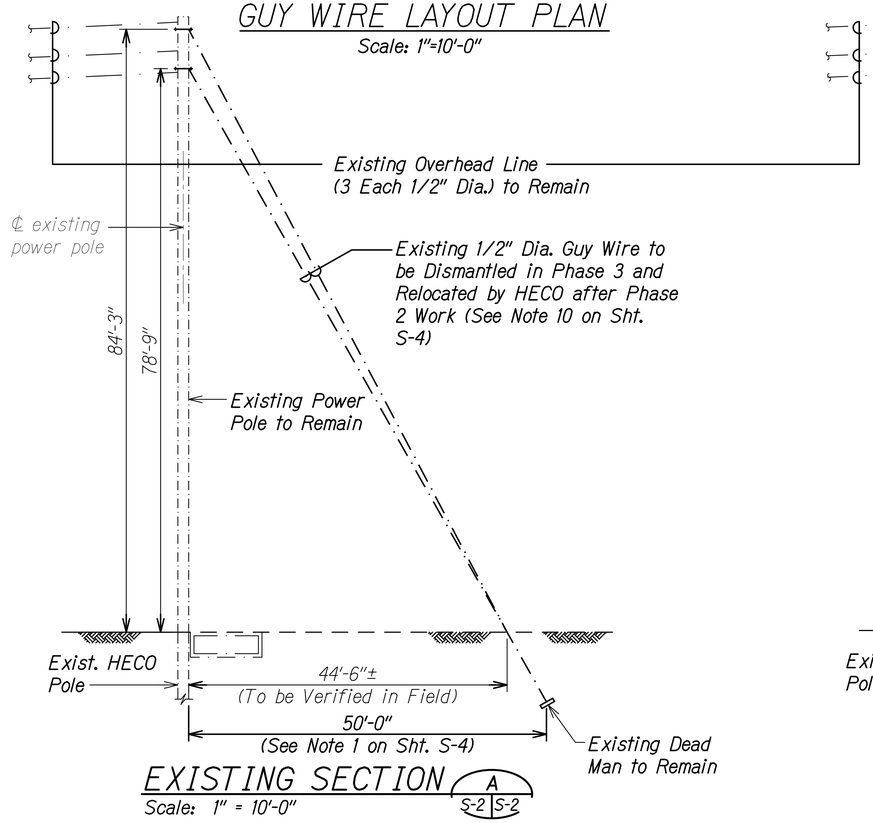


EXISTING, TEMPORARY AND RELOCATED GUY WIRE LAYOUT PLAN

Scale: 1"=10'-0"

HECO GUY WIRE RELOCATION PHASES

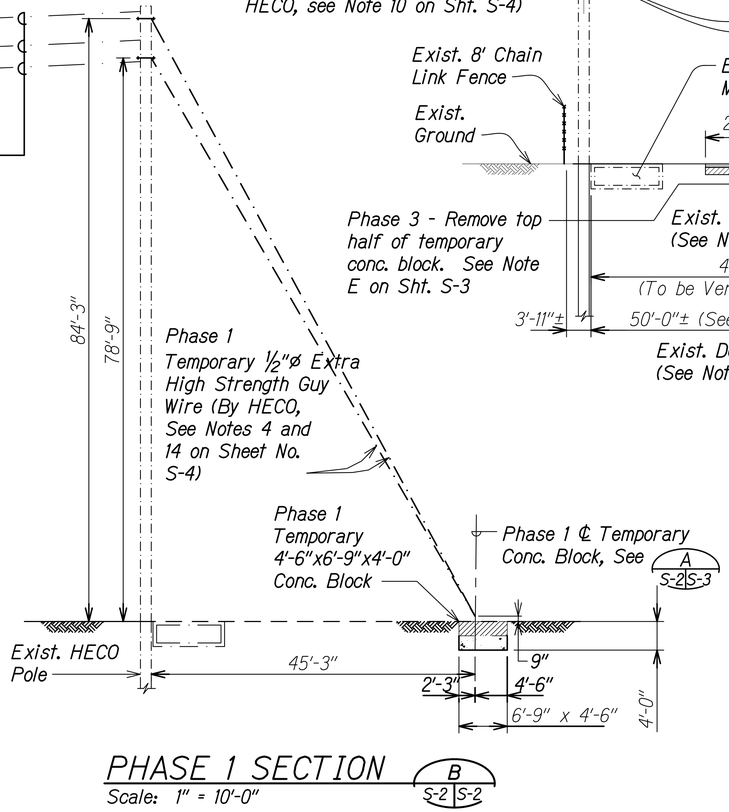
PHASE	DESCRIPTION	REF. NOTES
1	Provide temporary concrete blocks (2 each). Provide temporary 1/2" dia. guy wires	4/S-4, 14/S-4
2	Provide drilled shaft, steel stub pole, relocated guy wire	4/S-4, 10/S-4 Shts. S-4, S-5
3	Dismantle, relocate existing 1/2" dia. and temporary 1/2" dia. guys. Remove top half temporary concrete block	10/S-4, Sht. S-3 Note E on Sht. S-3



EXISTING SECTION A

Scale: 1" = 10'-0"

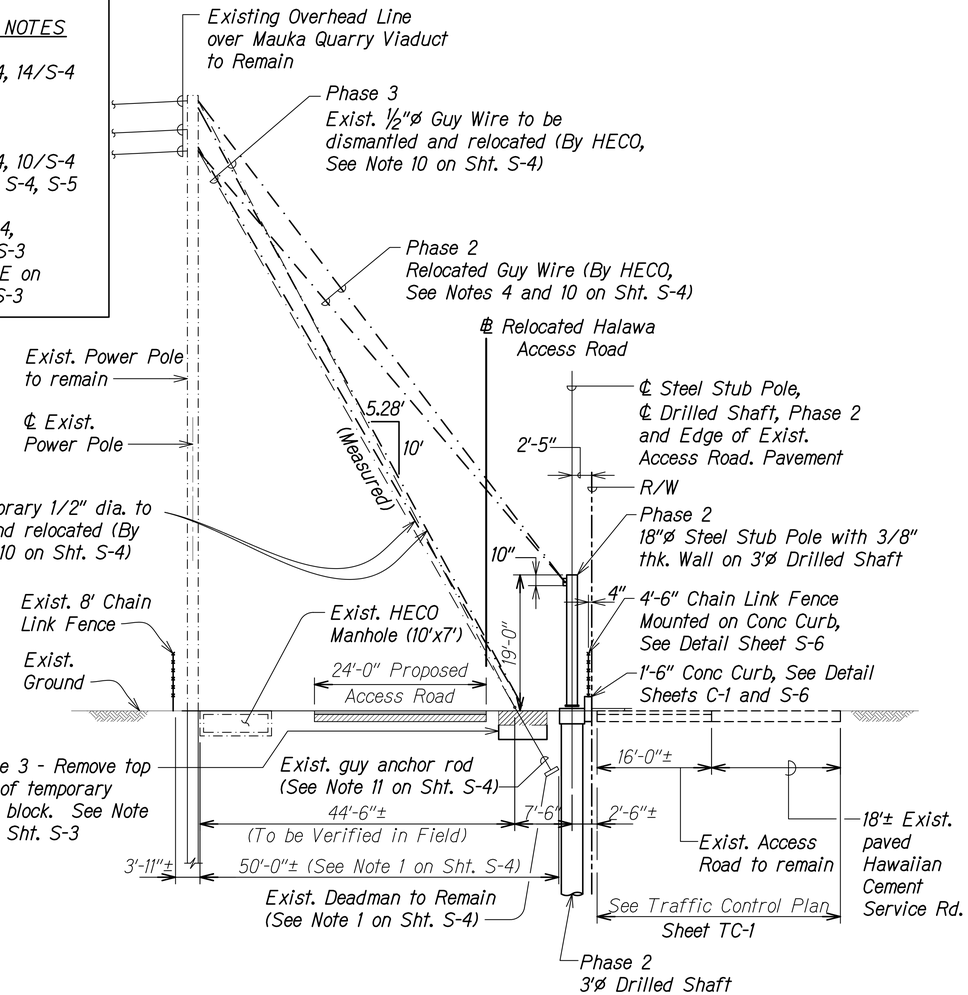
S-2 S-2



PHASE 1 SECTION B

Scale: 1" = 10'-0"

S-2 S-2



PHASE 2 SECTION C

Scale: 1" = 10'-0"

S-2 S-2

RUSS S. MIYAHARA
LICENSED PROFESSIONAL ENGINEER
NO. 9444-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

HECO GUY WIRE RELOCATION PHASES

INTERSTATE ROUTE H-3
H-3 FINISH, UNIT VIIC
FAIP NO. I-H3-1(75), UNIT VIIC

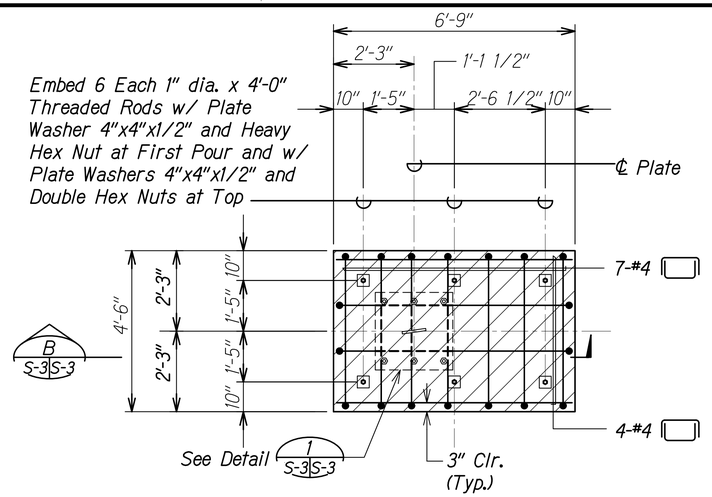
Scale: As Noted Date: Feb. 2022

SHEET No. S-2 OF 7 SHEETS

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

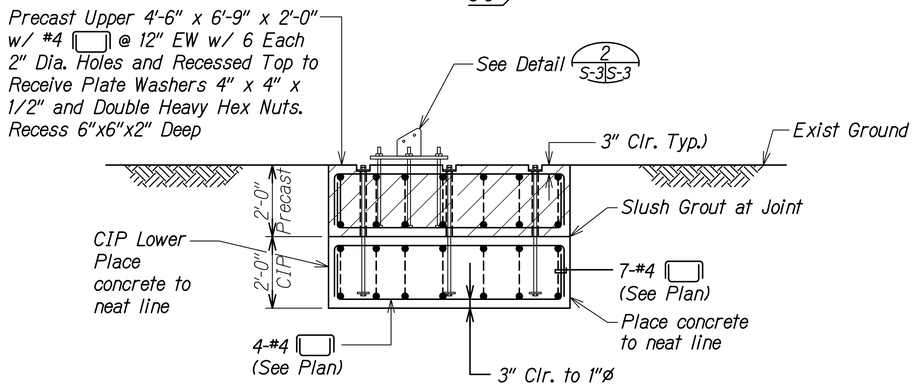
DRAWING NAME: Z:\OD ONGOING\19-008 H3 GUY WIRE POLE - WSP\01 CAD\02-15-22 BSN VIEW-SSD PHASE.DWG PLOT TIME: 04-15-22, 10:42 AM

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-H3-1(75), UNIT VIIC	2022	19	50



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

A S-2 S-3 S-3



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

B S-2 S-3 S-3

TEMPORARY CONCRETE BLOCK
(See Note A on Sht. S-3)

NOTES:

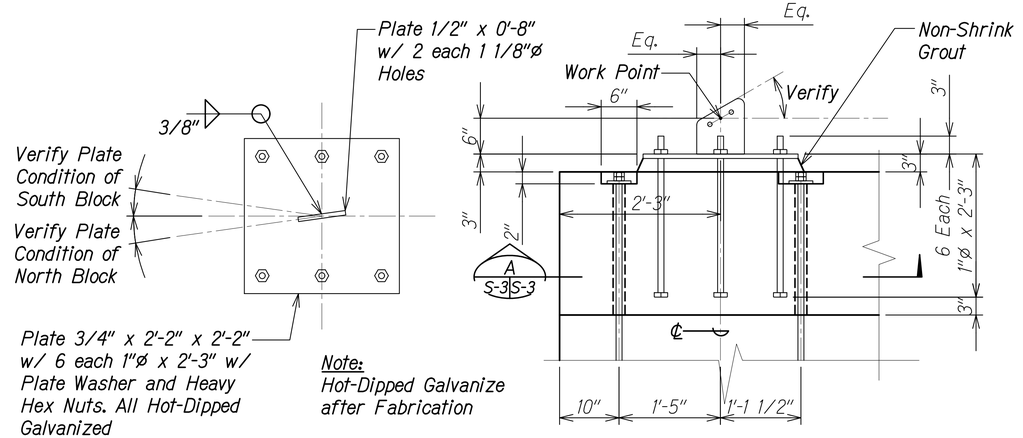
A. Furnishing and installing of temporary concrete blocks and dismantling precast upper temporary concrete block will be considered incidental to drilled shaft and will not be paid for separately.

B. Storage of HECO furnished stub steel pole, guy wires, anchor bolts, anchor plates and rigid templates for anchor bolts will be incidental to drilled shaft and will not be paid for separately.

C. Coordinate with HECO for the HECO guy wire relocation work schedule for installation and removal work.

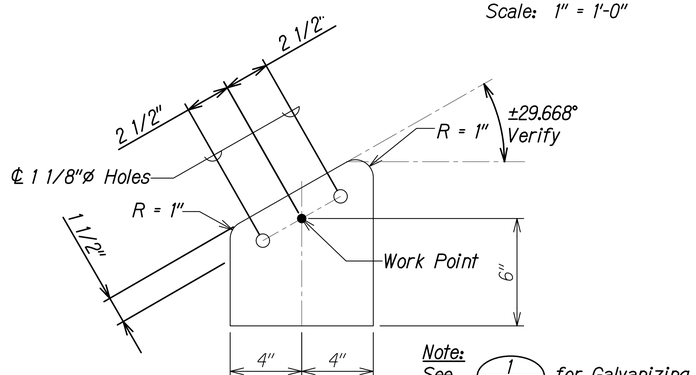
D. After completion of Stub Pole installation and HECO's dismantling of the temporary guy wires (See Note 10 on Sht. S-4), the Contractor shall remove the precast upper temporary concrete block and leave the CIP lower concrete block in place.

E. Cut 6 each vertical 1" dia. threaded rods at top of CIP lower block, backfill with granular fill, compact and finish to match adjacent or as directed by the Engineer. Backfilling shall be incidental to drilled shaft and will not be paid for separately.



BASE PLATE DETAIL
Scale: 1" = 1'-0"

1 S-3 S-3



1/2" PLATE DETAIL
Scale: 3" = 1'-0"

2 S-3 S-3

RUSS S. MIYAHARA LICENSED PROFESSIONAL ENGINEER NO. 9444-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

FURNISHING AND INSTALLING TEMPORARY CONCRETE BLOCKS

INTERSTATE ROUTE H-3
H-3 FINISH, UNIT VIIC
FAIP NO. I-H3-1(75), UNIT VIIC

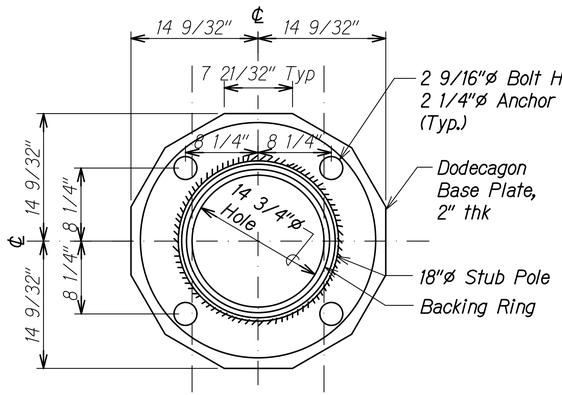
Scale: As Noted Date: Feb. 2022

SHEET No. S-3 OF 7 SHEETS

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

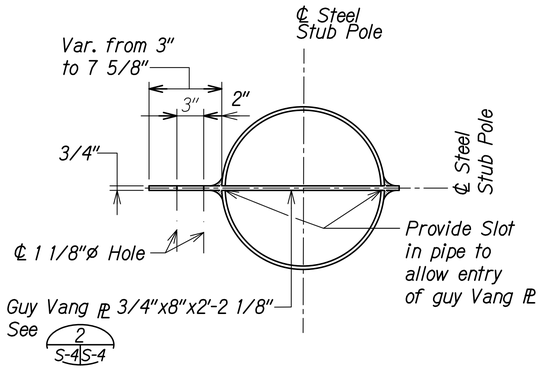
DRAWING NAME: Z:\OD ONGOING\19-008 H3 GUY WIRE POLE - WSP\01 CAD\02-15-22 BID\H3R-S02 PHASE.DWG PLOT TIME: 04-20-22, 11:35 AM

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-H3-1(75), UNIT VIIC	2022	20	50



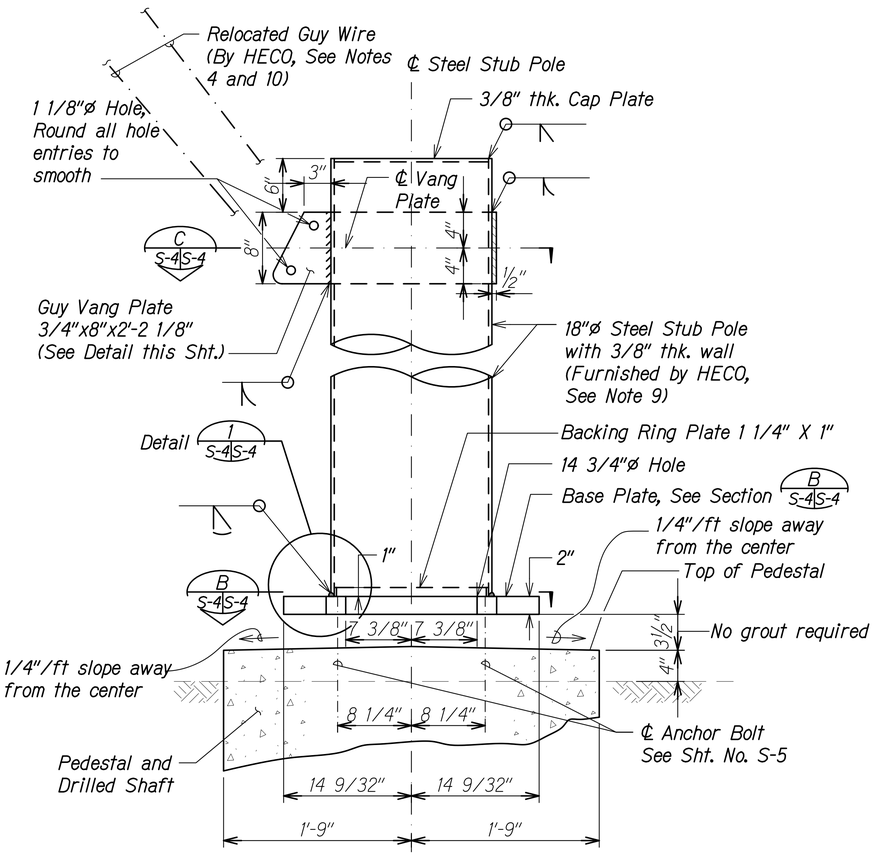
DODECAGON PLATE SECTION (B S-4 | S-4)

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



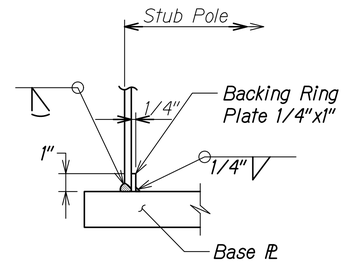
SECTION (C S-4 | S-4)

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



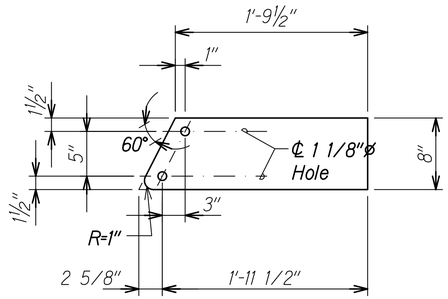
STEEL STUB POLE DETAIL (HECO FURNISHED) (A S-4 | S-4)

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



DETAIL (1 S-4 | S-4)

Scale: 3" = 1'-0"



GUY VANG PLATE DETAIL (2 S-4 | S-4)

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

STUB POLE GENERAL NOTES:

1. The construction of drilled shaft shall not interfere with the existing guy wire anchor deadman. The Contractor shall verify the location of existing deadman by probing and notify the Engineer the result of the probing prior to construction of drilled shaft. Payment for verifying and probing existing guy anchor rod will be incidental to drilled shaft and shall not be paid for seperately. Also see Note 14.
2. The steel stub pole shall be steel pipe conforming to ASTM A572, Grade 65 or ASTM A871, Grade 65 and shall be hot-dipped galvanized after fabrication, and shall be painted in shop to color specified by HECO (Furnished by HECO).
3. The cap plate, base plate, and guy vang plate shall be structural steel conforming to ASTM A36 and shall be hot-dipped galvanized after fabrication (Furnished by HECO).
4. Relocated guy wire shall be galvanized ½"ø strand conforming to ASTM A475 Extra High Strength (EHS) Grade (Furnished by HECO).
5. All anchor bolts shall be steel bolt conforming to ASTM A307, Grade A, or ASTM A615, Grade 75, and shall be hot-dipped galvanized. (HECO Furnished Anchor Bolts are ASTM A615, Grade 75).
6. All anchor bolt nuts shall be steel nuts conforming to ASTM A563, Grade DH and shall be hot-dipped galvanized. (HECO Furnished).
7. All anchor bolt washers shall be steel conforming to ASTM F436, Type 1 and shall be hot-dipped galvanized. (HECO Furnished).
8. Unless otherwise noted, all exposed concrete edges in pedestal shall be chamfered 3/4"x3/4".
9. The material and fabrications of steel stub pole and guy wires in Notes 2, 3, and 4 will be furnished and delivered to site by HECO. HECO shall install the steel stub pole in place in accordance with details shown. The Contractor shall store and protect the HECO furnished steel stub pole, anchor bolts, anchor plates, templates and guy wires from any damages until HECO crews start to dismantle and relocate the guy wires. (See Note B on Sheet S-3).
10. After completion of steel stub pole installation, HECO to dismantle and relocate the existing ½"ø guy wires.
11. After completion of guy wire dismantlement and temporary relocation, the Contractor shall remove the abandoned existing guy anchor rod to 1'-6" below the existing ground.
12. For 4'-6" chain link fence mounted on concrete curb, details See Sheet No. S-6.
13. Prior to construction of drilled shaft, the Contractor shall furnish and install the temporary concrete blocks in the location as shown on Sheet No. S-2, and inform HECO to connect the temporary guy wire after completion of installations of the temporary concrete blocks.
14. Anchor plates shall be structural steel conforming to ASTM A36 and shall be hot-dipped galvanized after fabrications. (HECO Furnished).

RUSS S. MIYAHARA
LICENSED PROFESSIONAL ENGINEER
NO. 9444-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

HECO FURNISHED AND INSTALLED STEEL STUB POLE

INTERSTATE ROUTE H-3
H-3 FINISH, UNIT VIIC
FAIP NO. I-H3-1(75), UNIT VIIC

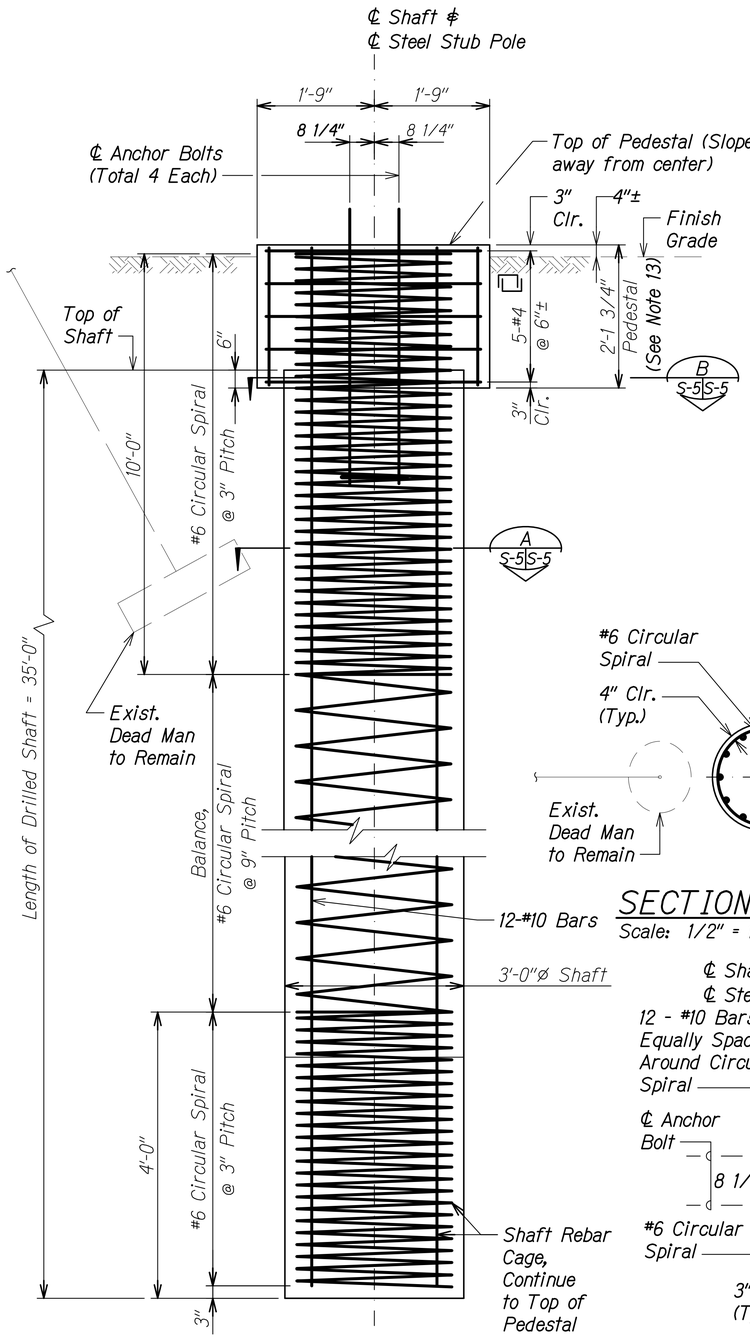
Scale: As Noted Date: Feb. 2022

SHEET No. S-4 OF 7 SHEETS

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

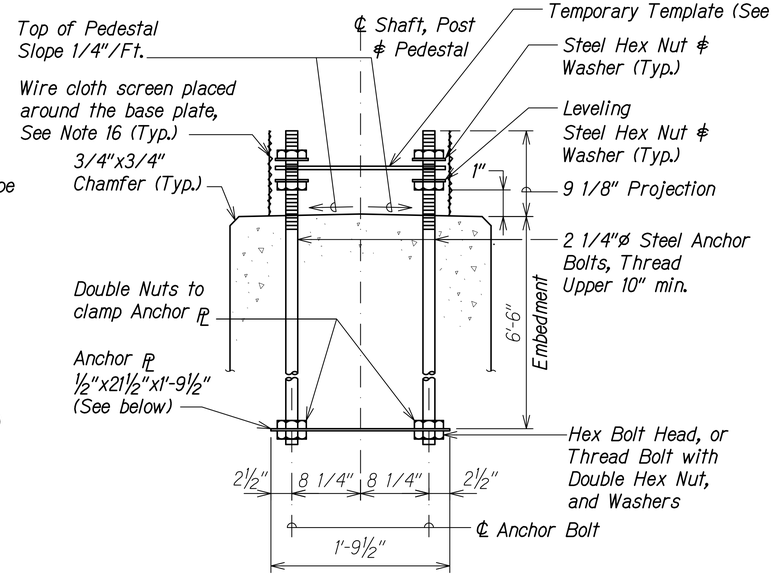
DRAWING NAME: Z:\OD ONGOING\13-008 H3 GUY WIRE POLE MSP\01 CAD\02-15-22 BID\H3W-S04 PHASE.DWG PLOT TIME: 04-15-22, 10:43 AM

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-H3-1(75), UNIT VIIC	2022	21	50



DRILLED SHAFT ELEVATION

Not to Scale

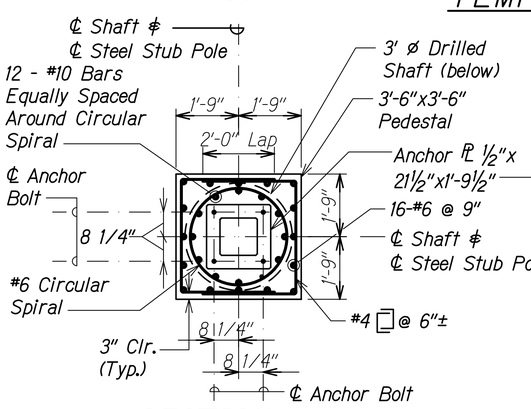


ANCHOR BOLT DETAIL

Not to Scale

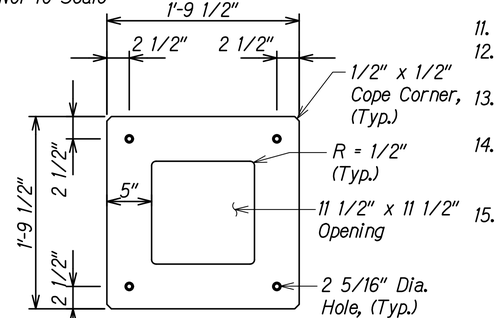
SECTION A

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



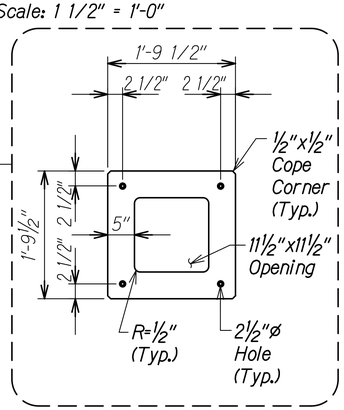
SECTION B

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



TEMPORARY TEMPLATE

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



DRILLED SHAFT NOTES:

1. Provide sizing hoops as a guide for the fabrication of the rebar cage.
2. Provide concrete or other non-corrosive centering devices as a guide for the placement of the rebar cage in the drilled hole.
3. Provide temporary stiffeners to strengthen the rebar cage during lifting. Stiffeners are to be removed prior to pouring of concrete.
4. Splices in the longitudinal steel, if required, should be staggered so as not to occur at the same horizontal plane along the rebar cage. The staggered shall be 1'-0" min.
5. Use No. 6 circular spiral for rebar cage. Circular ties shall not be used in drilled shafts except otherwise as noted.
6. The rebar cage shall be fabricated and stored so as to avoid distortion during transportation to the job site and to avoid contamination with mud or other deleterious material.
7. For slump of concrete, See Section 511 - Drilled Shaft.
8. Placement of drilled shaft concrete shall follow the requirements of Section 511 - Drilled Shaft of the Special Provisions.
9. For installation of anchor bolts, the Contractor shall use HECO furnished rigid templates (Same as the anchor plates shown) to maintain the anchor bolts in proper locations.
10. Concrete for drilled shafts and pedestals shall have a minimum 28 days compressive strength of 4500 psi.
11. All reinforcing steel shall be ASTM A615 Grade 60.
12. Furnish and install a minimum 35 feet long temporary casing to control the drilled hole size.
13. Pedestal will be considered incidental to drilled shaft and will not be paid for separately.
14. Assembly and installation of anchor bolts will be incidental to drilled shaft and will not be paid separately. HECO's steel pole vendor shall furnish the anchor bolts with the poles.
15. There may be obstruction such as boulders or existing steel strands from previous demolitions of precasting beds encountered during drilled shaft drilling. The Contractor shall provide equipment capable of coring the encountered substance. See reference drawings for boring locations, boring logs and demolition sheets.
16. After completion of the Steel Stub pole installation, a wire cloth screen shall be placed vertically between the base plate and the top of the pedestal and wrapped horizontally around the base plate with a 3 inches minimum lap. The wire cloth shall be galvanized steel standard grade plain weave 2x2 mesh 0.063 inch diameter wires. The screen shall be attached to the side of base plate with stainless steel self-tapping 1/4 inch diameter screws with stainless steel washers spaced at 9 inches on centers.

ORIGINAL PLAN | NOTE BOOK No. ____

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

DRAWING NAME: Z:\OD ONGOING\19-608 H3 GOV WIRE POLE - WSP\01 CAD\02-15-22 BDV\H3W-S05 PHASE.DWG PLOT TIME: 04-15-22, 10:43 AM

RUSS S. MIYAHARA
LICENSED PROFESSIONAL ENGINEER
NO. 9444-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

DRILLED SHAFT ELEVATION, NOTES
HECO FURNISHED ANCHOR BOLTS
INTERSTATE ROUTE H-3
H-3 FINISH, UNIT VIIC
FAIP NO. I-H3-1(75), UNIT VIIC

Scale: As Noted Date: Feb. 2022

SHEET No. S-5 OF 7 SHEETS