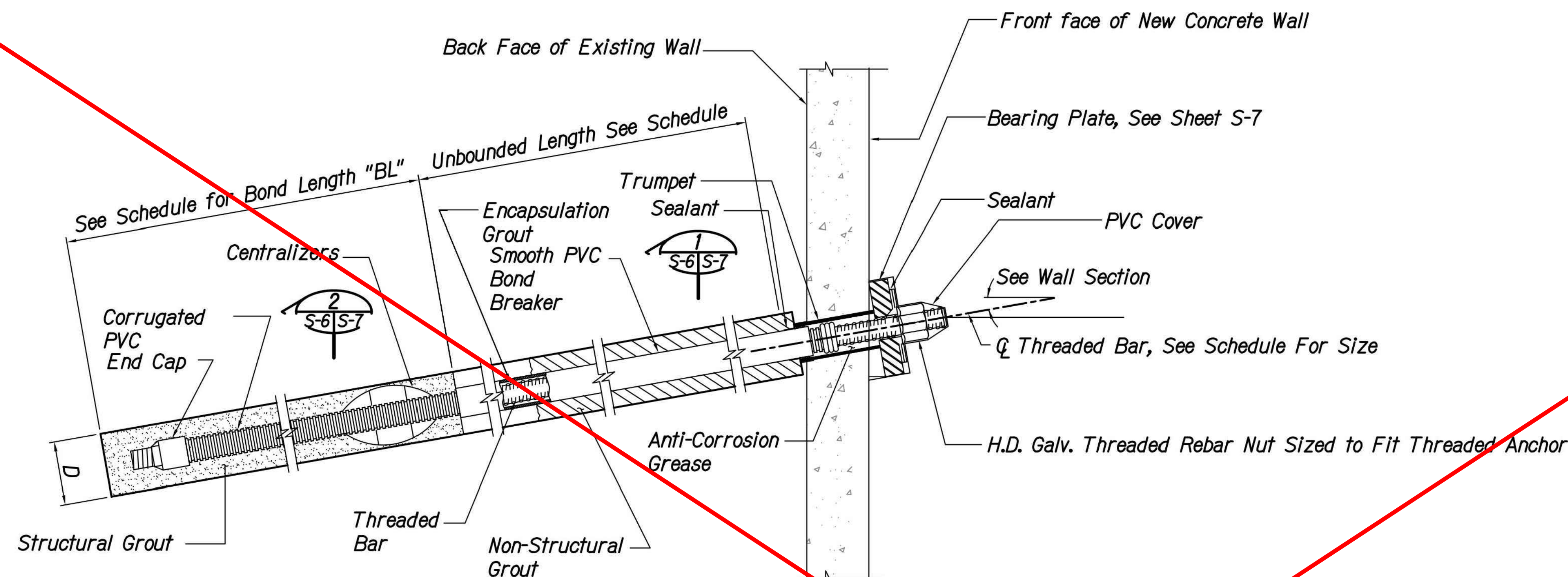


FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
MAUI	HAW.	ER-20(006)	2018	15	16



SOIL ANCHOR NOTES:

1. Soil anchor threaded bar shall be ASTM A722, type II, Grade 150 and Galvanized per ASTM A153. See schedule for bar diameter. Yield strength shall not be reduced by more than 5% after galvanizing. In addition, angle compensating nuts or bevel washer set shall be galvanizing per ASTM A123.
2. See schedule for required soil anchor design load, test load, and lock off load.
3. Grout tubes shall be placed thru the steel bearing plate. size and locations shall ensure full grouting of hole. the contractor shall submit grouting details for approval by the contracting officer.
4. Centralizers shall be placed at 5-feet intervals in the bonded length, with the bottom centralizer located 2 feet from the bottom of the bonded length.
5. Drilling of the soil anchor holes may encounter loose/soft fill extremely weathered basalt rock and hard unweathered basalt rock. special drilling tools for drilling into the cobbles, basalt, boulders rock formation will be required. temporary casing of the drilled holes for the soil anchors may be required when cave-in conditions occur during the drilling of the soil anchor holes, especially in the loose/soft fill and the extremely weathered basalt rock at the site.
6. Structural grout shall attain a minimum compressive strength of 4000 psi prior to stressing. testing for compressive strength shall conform to ASTM C-109 mortar and sand.
7. Smooth and corrugated sheaths/sleeves shall be high-density polyethylene (HDPE) conforming to ASTM D 3350 and having a minimum strength of 7,000 psi and 0.06 in wall thickness.
8. When lifting the soil anchors for installation into the holes, multiple pick points shall be used to avoid bending or damaging the threaded bar and/or encapsulation grout.
9. Soil anchor threaded bar shall be new and free of any surface damages, kinks, and sharp bend.
10. A geotechnical engineer, licensed in the state of Hawaii and hired buy the contractor, shall be present to monitor the installation and testing of soil anchors. contractor shall coordinate the installation and testing schedule with the project contracting officer.
11. Performance tests on the first installed soil anchors and remaining ten percent shall be performed. see specifications for details.
12. All other soil anchors shall be proof tested. see specifications for details.

LEGEND FOR AS-BUILT POSTINGS

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STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

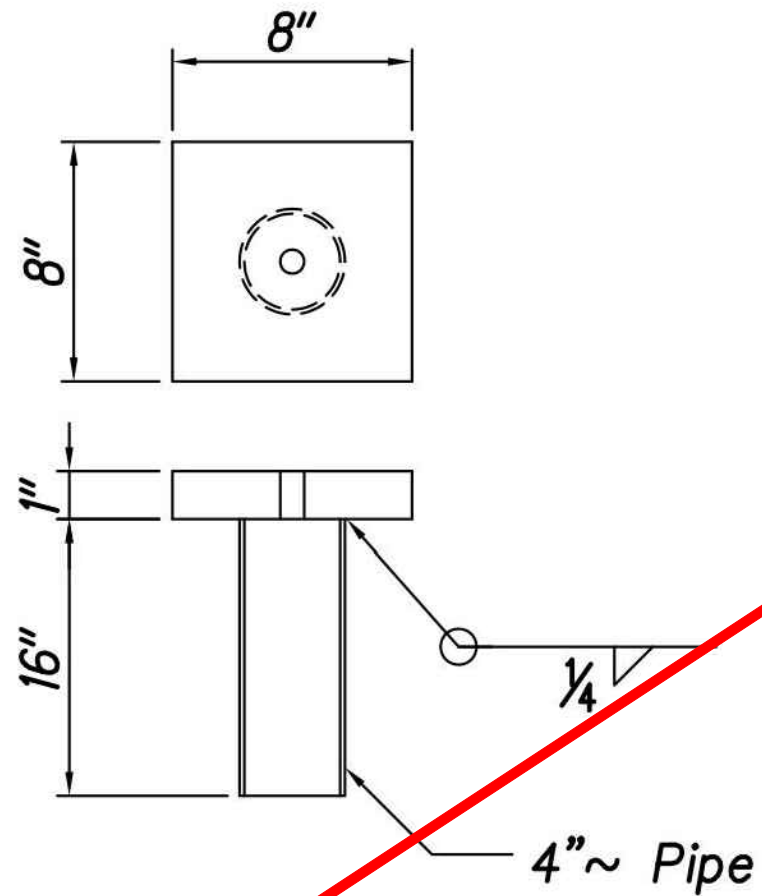
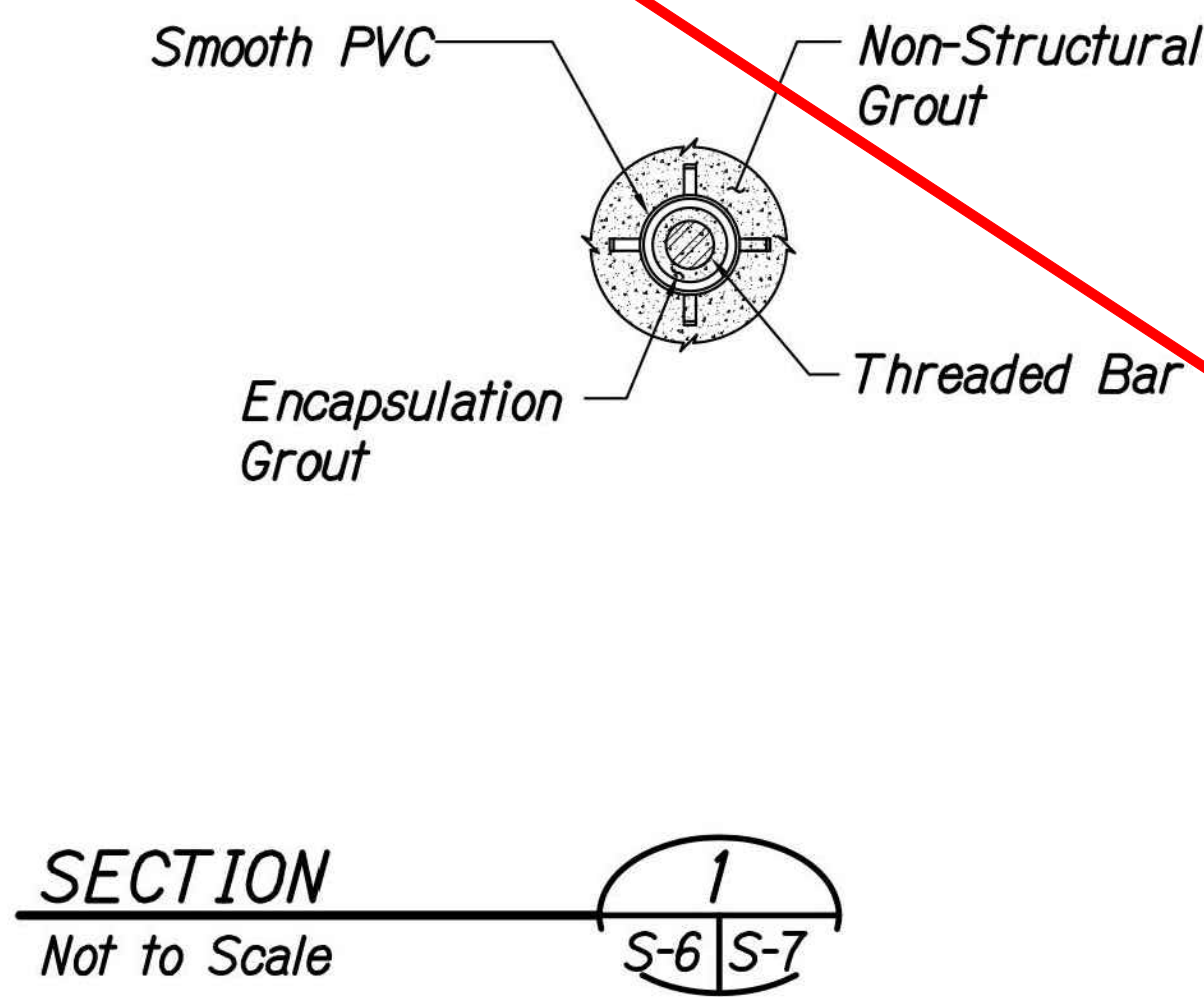
#### Soil Anchor Details

EMERGENCY REPAIRS AT PIINAU BRIDGE  
HANA HIGHWAY, NEAR MILEPOST 17.0  
PROJECT NO. ER-20(006), UNIT 1  
Scale: As Noted Date: September 2018  
SHEET No. S-6 OF 16 SHEETS

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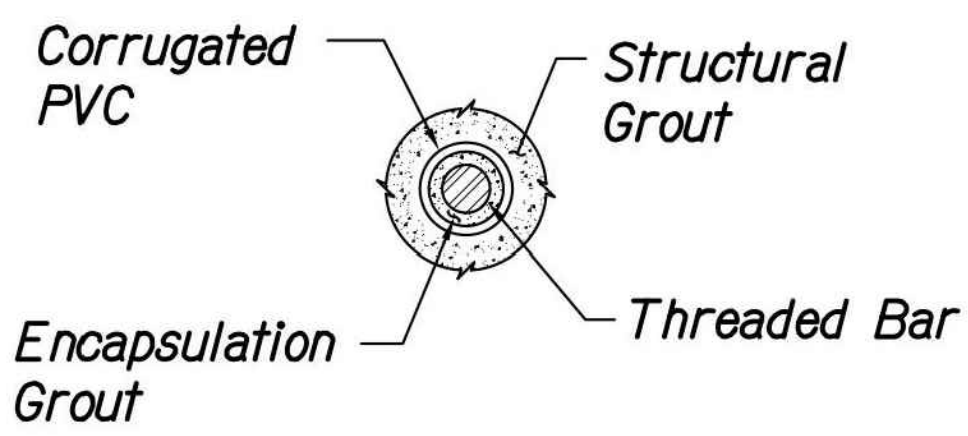


FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
MAUI	HAW.	ER-20(006)	2018	16	16



Soil Anchor Schedule								
Anchor	"A"	"D"	"S"	"UBL"	"BL"	"DL"	"TL"	"LL"
Wall Anchors	1.25"	8"	5'	6'-0"	14'-0"	7	9	4.5

**Legend:**  
A = Anchor threaded bar diameter (in)  
S = Max horizontal anchor spacing (ft)  
UBL = Unbonded length (ft)  
BL = Bonded length (ft)  
DL = Design load (kips)  
TL = Test load (kips)  
LL = Lock off load (kips)  
D = Anchor soil dia. (in)



**BEARING PLATE DETAIL**  
Not to Scale

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Soil Anchors Details

EMERGENCY REPAIRS AT PIINAU BRIDGE  
HANA HIGHWAY, NEAR MILEPOST 17.0  
PROJECT NO. ER-20(006), UNIT 1  
Scale: As Noted      Date: September 2018

SHEET No. S-7 OF 16 SHEETS

ORIGINAL PLAN  
DATE: _____  
DRAWN BY: _____  
DESIGNED BY: _____  
CHECKED BY: _____  
NOTE BOOK  
No. _____

"AS-BUILT"