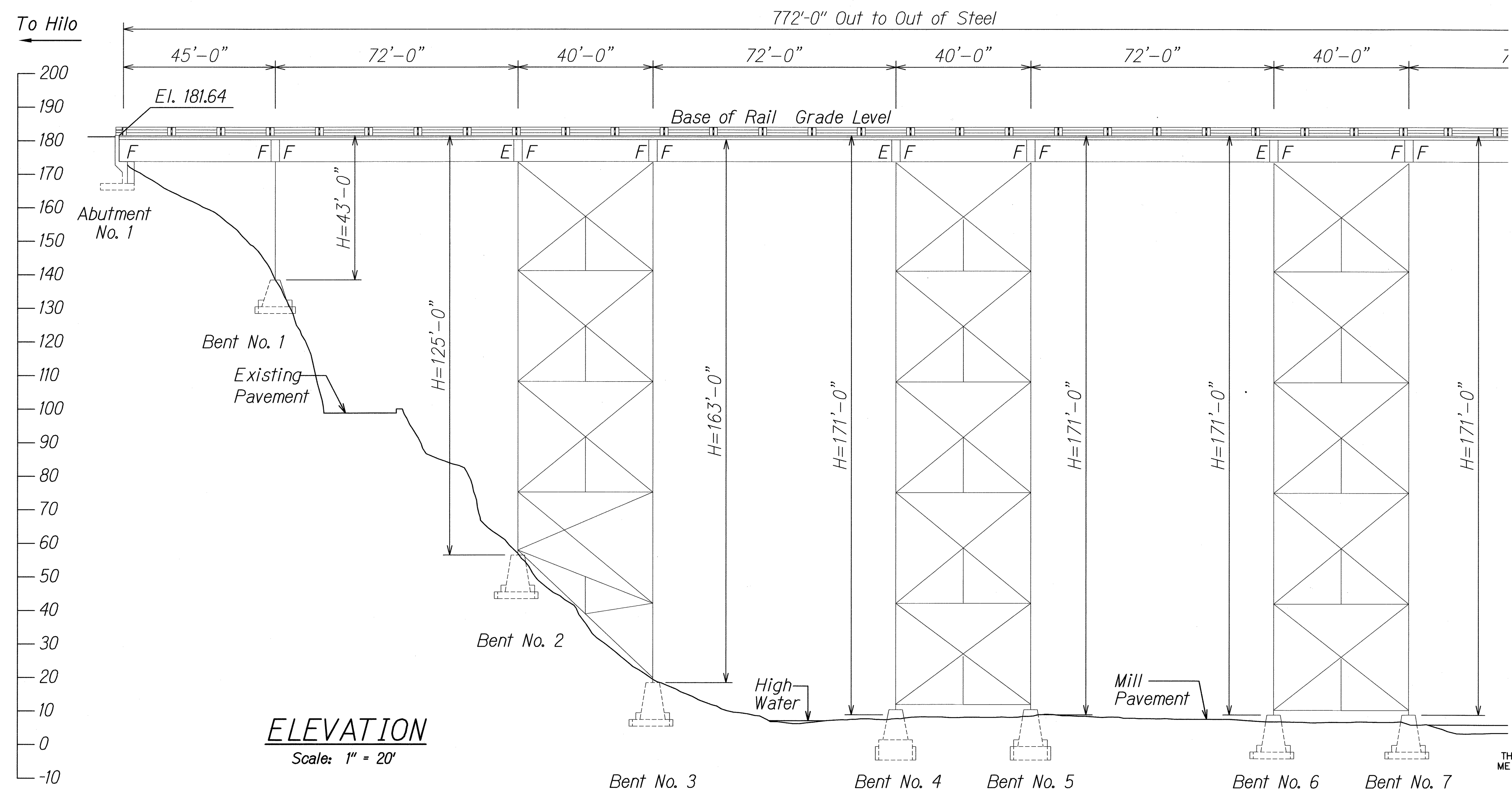
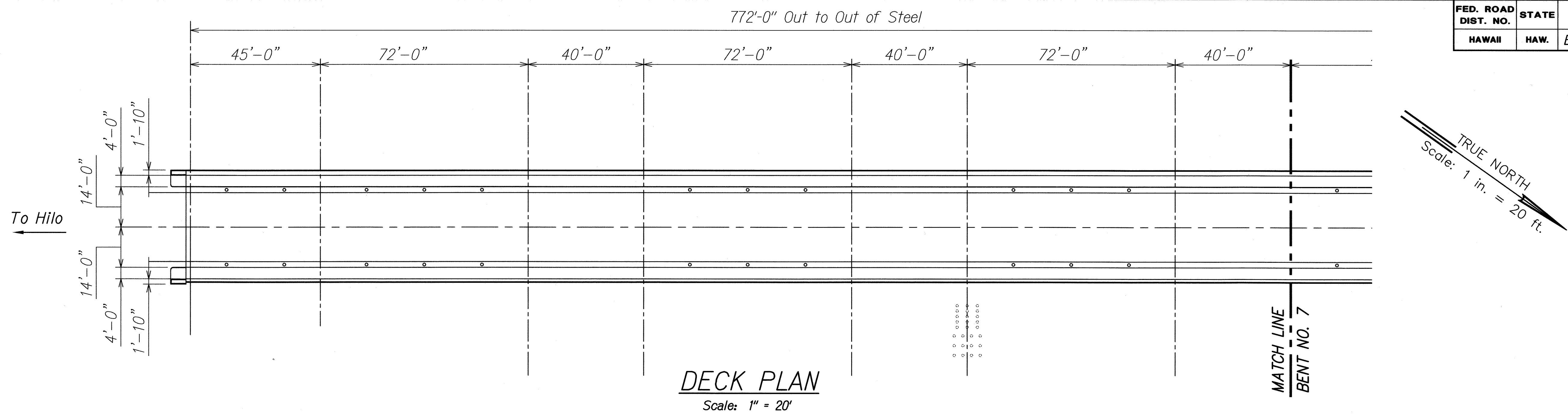


FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BR-019-2(58)	2008	9	26



- LEGEND**
- F Fixed End
 - E Expansion End

ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
NOTE BOOK	DRAWN BY	
	TRACED BY	
	CHECKED BY	
	QUANTITIES BY	
	CHECKED BY	

DAVID K. FUJIMURA
LICENSED PROFESSIONAL ENGINEER
NO. 8104-S
HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.

David K. Fujimura
SIGNATURE
4-30-10
EXPIRATION DATE OF THE LICENSE

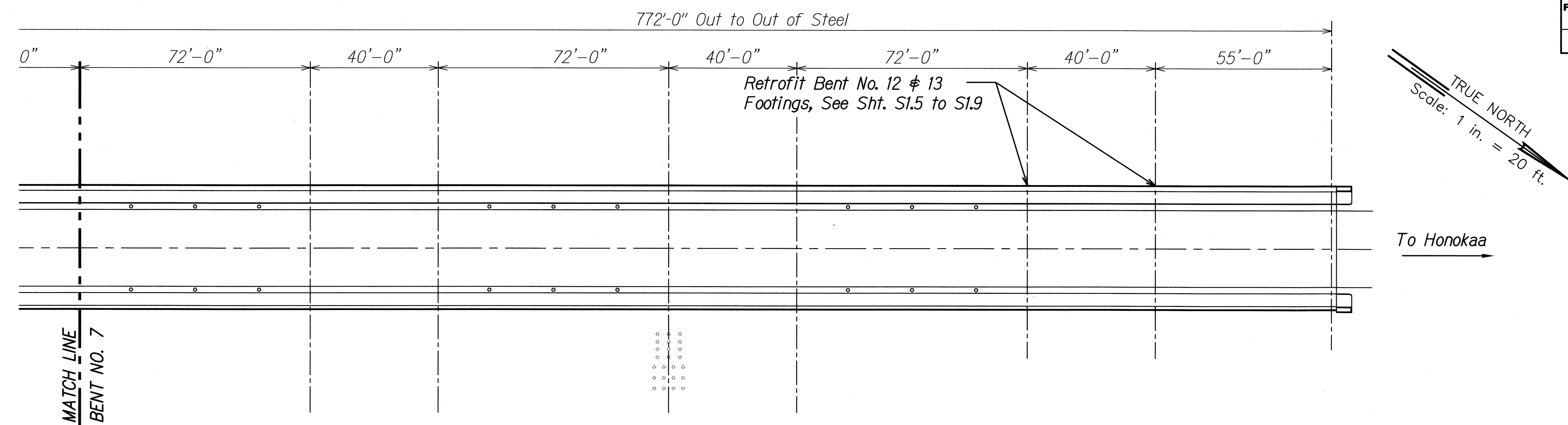
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

DECK PLAN AND ELEVATION

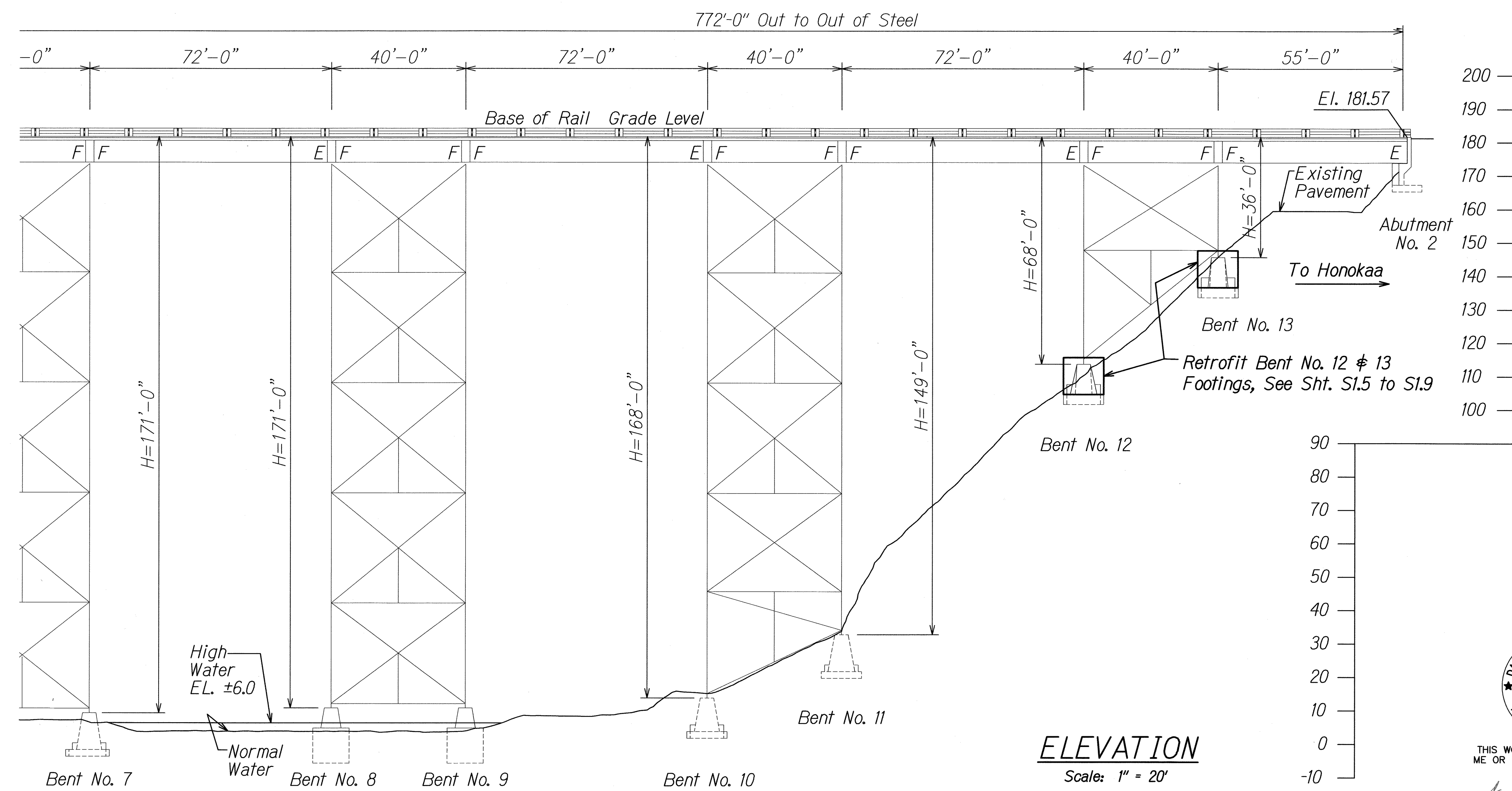
HAWAII BELT ROAD
SEISMIC RETROFIT OF VARIOUS BRIDGES
Vicinity Of Papaikou, Phase 2
Federal-aid Project No. Br-019-2(58)
Scale: AS NOTED Date: Mar. 2007

SHEET No. 511 OF 12 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BR-019-2(58)	2008	10	26



DECK PLAN
Scale: 1" = 20'



LEGEND

F Fixed End

E Expansion End

ELEVATION
Scale: 1" = 20'

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

DAVID K. FUJIMURA
LICENSED PROFESSIONAL ENGINEER
NO. 8104-S
HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.

Signature: *David K. Fujimura*
EXPIRATION DATE OF THE LICENSE: 4-30-10

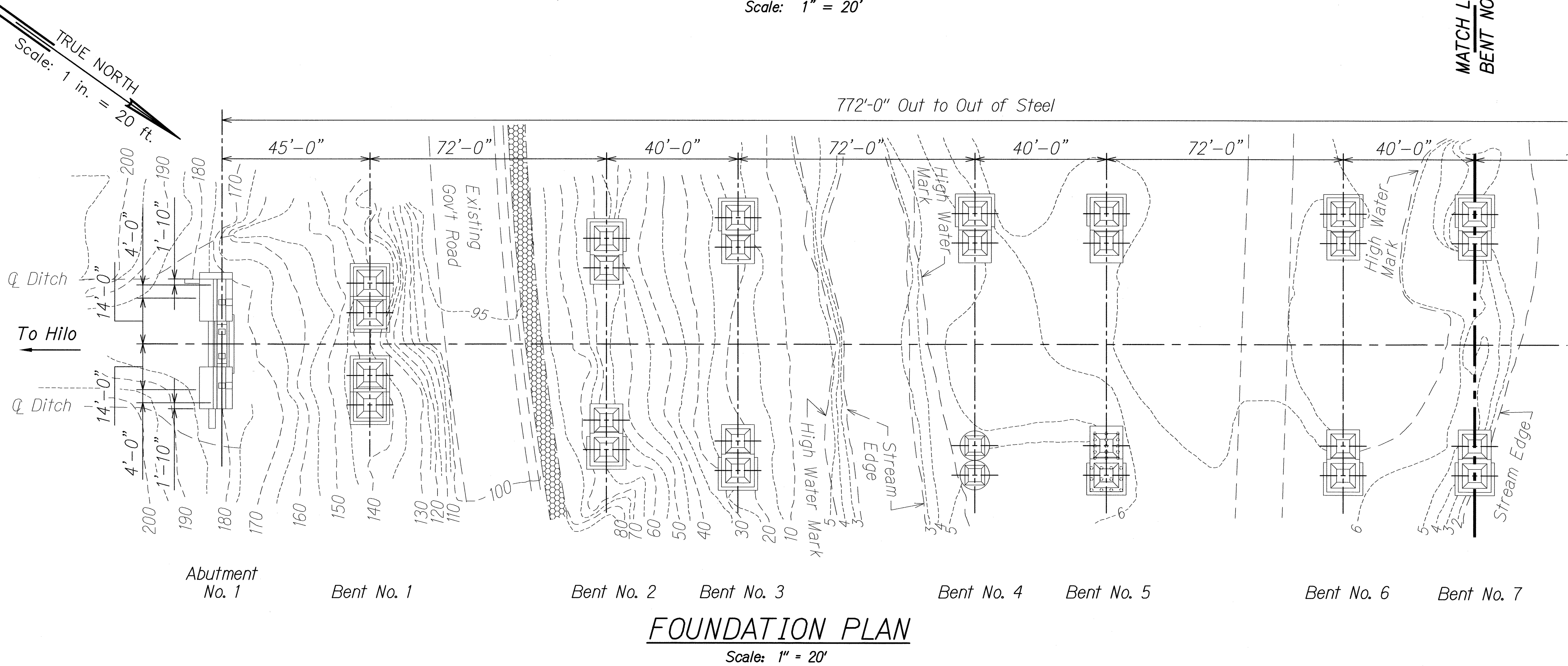
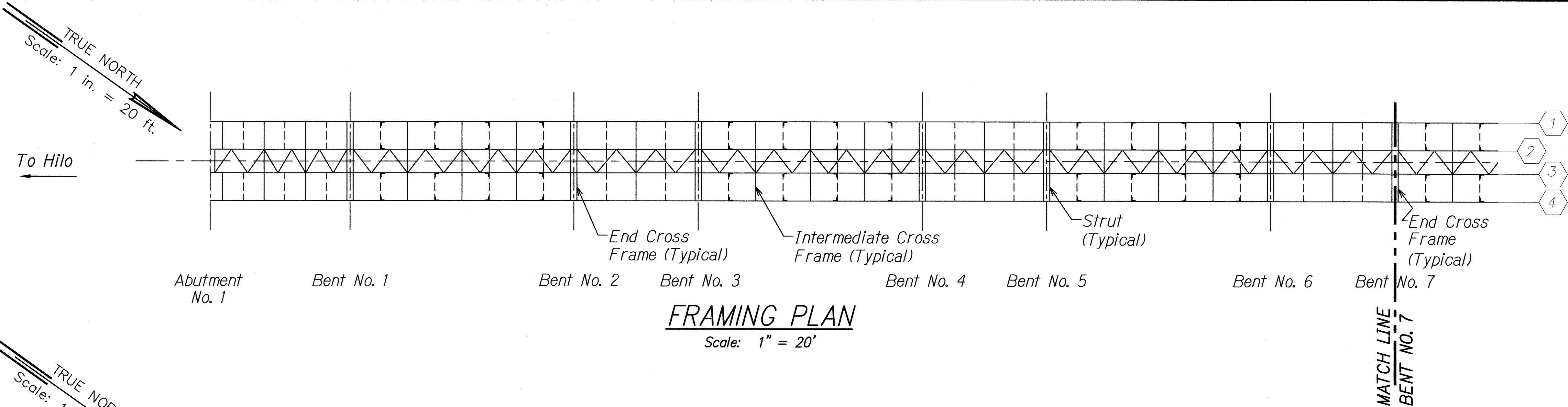
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

DECK PLAN AND ELEVATION

HAWAII BELT ROAD
SEISMIC RETROFIT OF VARIOUS BRIDGES
Vicinity Of Papaikou, Phase 2
Federal-aid Project No. Br-019-2(58)
Scale: AS NOTED Date: Mar. 2007

SHEET No. S1.2 OF 12 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BR-019-2(58)	2008	11	26



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

DAVID K. FUJIWARA
LICENSED PROFESSIONAL ENGINEER
NO. 8104-S
HAWAII, U.S.A.

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David K. Fujiwara
SIGNATURE 4-30-10
EXPIRATION DATE OF THE LICENSE

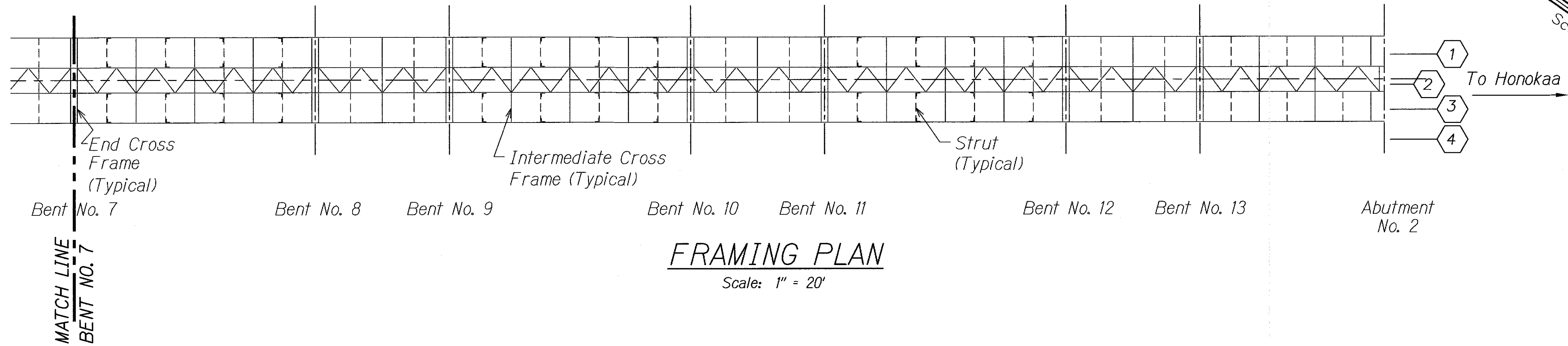
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

FRAMING AND FOUNDATION PLANS

HAWAII BELT ROAD
SEISMIC RETROFIT OF VARIOUS BRIDGES
Vicinity Of Papaikou, Phase 2
Federal-aid Project No. Br-019-2(58)
Scale: AS NOTED Date: Mar. 2007

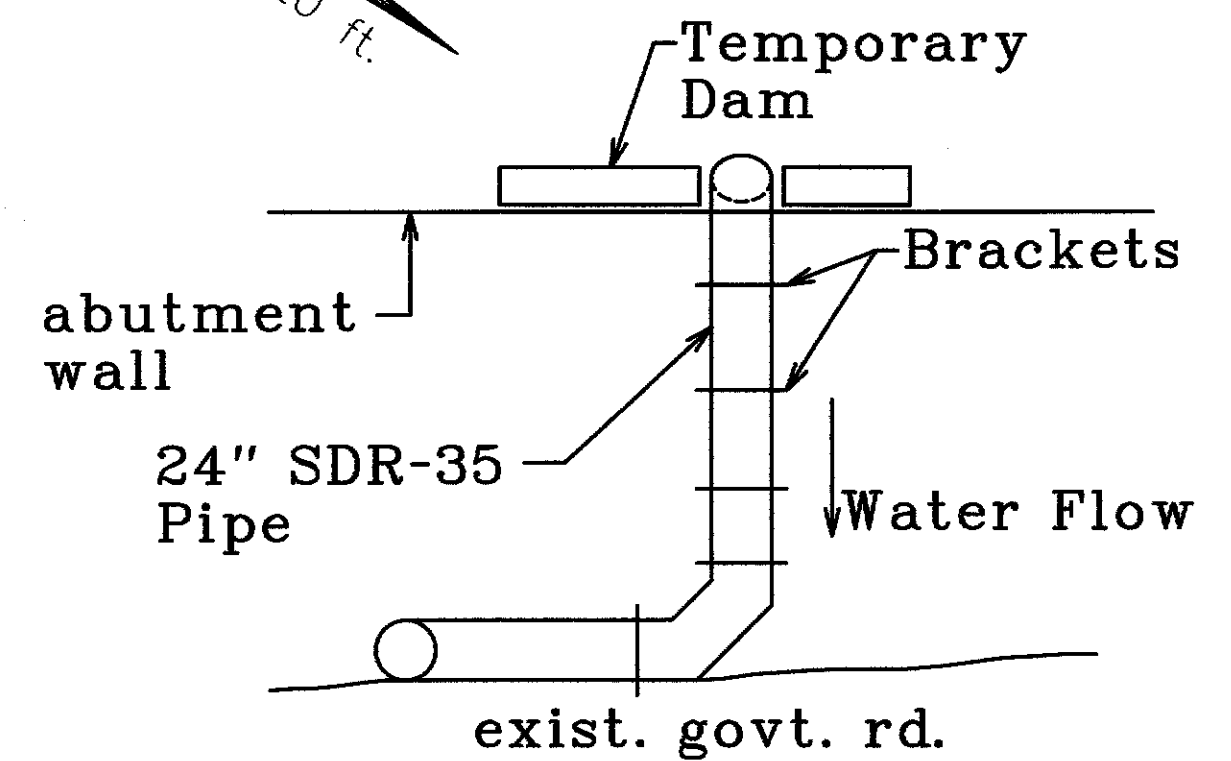
SHEET No. S1.3 OF 12 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BR-019-2(58)	2008	12	26

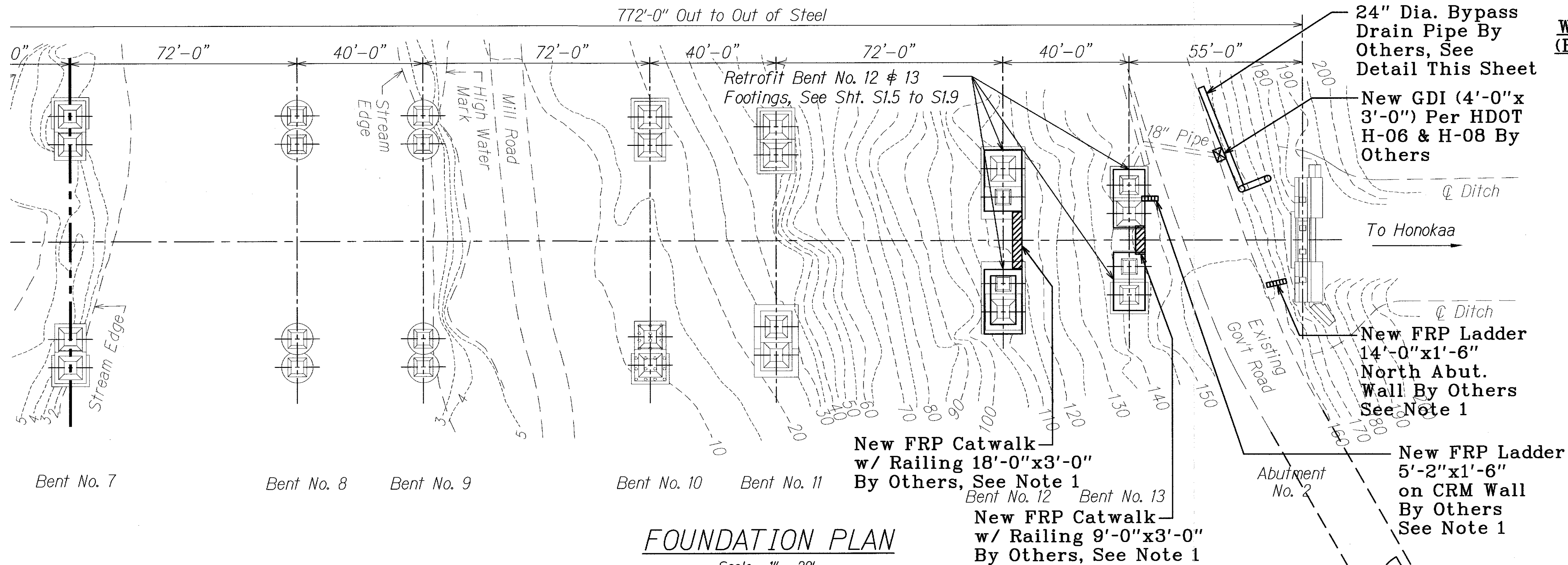


FRAMING PLAN

Scale: 1" = 20'



**WATER DIVERSION SYSTEM
(BYPASS PIPE - By Others)**
Not to Scale



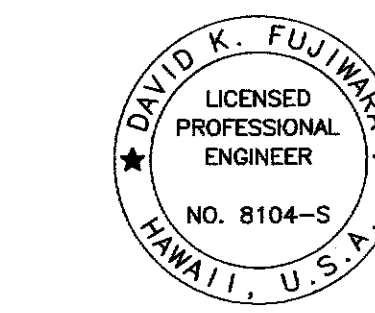
FOUNDATION PLAN

Scale: 1" = 20'

NOTES:

1. Approved shop drawings by Fibergrate Composite Structure, Inc.
Sheet 1 of 4 12/30/09
Sheet 2 of 4 12/30/09
Sheet 3 of 4 1/04/10
Sheet 4 of 4 1/04/10
2. Ladders and Catwalks are fabricated from Fiber Reinforced Plastic (FRP) of length, width, and height dimensions shown on shop drawings.
3. Ladders and Catwalks area secured to existing walls and footings in manner shown on shop drawings.

LEGEND FOR AS-BUILT POSTINGS	
	Squiggly line for as-built deletion
	Double line for as-built deletion
Roadway	Text for as-built posting



THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.

SIGNATURE: *David K. Fujimura*
EXPIRATION DATE OF THE LICENSE: 4-30-10

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

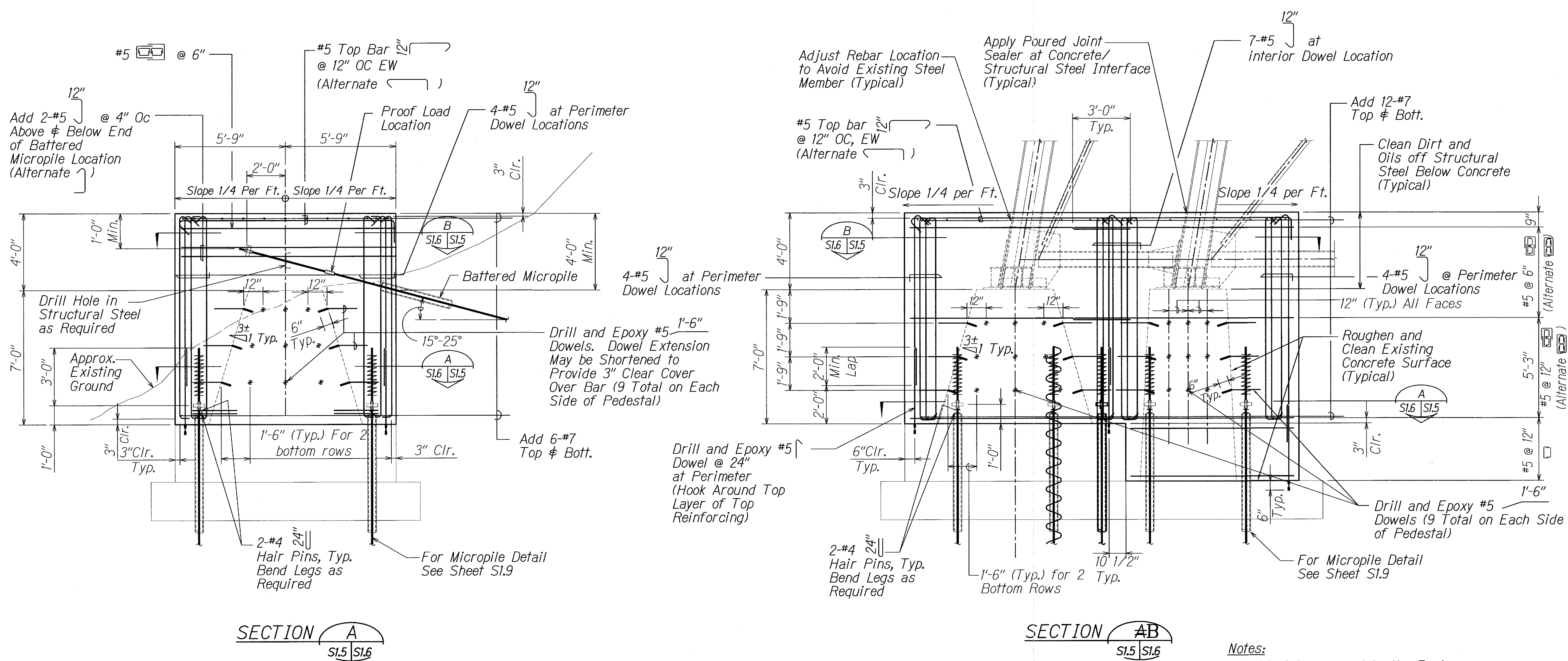
FRAMING AND FOUNDATION PLANS

HAWAII BELT ROAD
SEISMIC RETROFIT OF VARIOUS BRIDGES
Vicinity Of Papaikou, Phase 2
Federal-aid Project No. BR-019-2(58)
Scale: AS NOTED Date: Mar. 2007

SHEET No. 51.4 OF 12 SHEETS

"AS-BUILT"

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BR-019-2(58)	2008	14	26



FOOTING RETROFIT - BENT NO. 12
(SHOWN FOR UPSTREAM FOOTING, DOWNSTREAM FOOTING SIM.)

(AS-BUILT SHOWN FOR UPSTREAM FOOTING, DOWNSTREAM FOOTING SIM.)

LEGEND FOR AS-BUILT POSTINGS	
	Squiggly line for as-built deletion
	Double line for as-built deletion
	Text for as-built posting

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.

David K. Fujimura

NO. 8104-S
HAWAII, U.S.A.

EXPIRATION DATE OF THE LICENSE 4-30-10

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

FOOTING RETROFIT AND REINFORCEMENT

HAWAII BELT ROAD

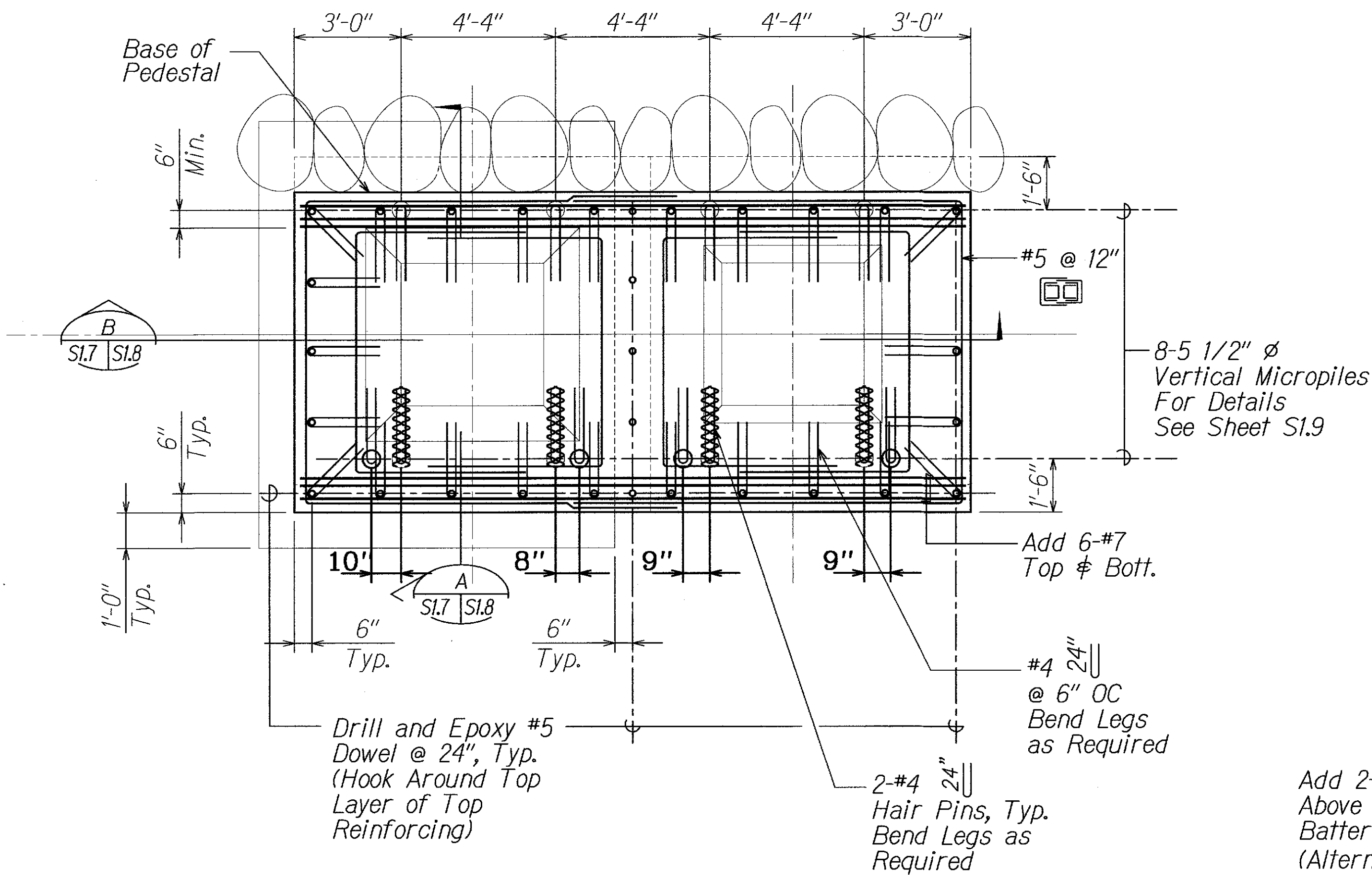
SEISMIC RETROFIT OF VARIOUS BRIDGES
Vicinity Of Papaikou, Phase 2
Federal-aid Project No. BR-019-2(58)

Scale: AS NOTED Date: Mar. 2007

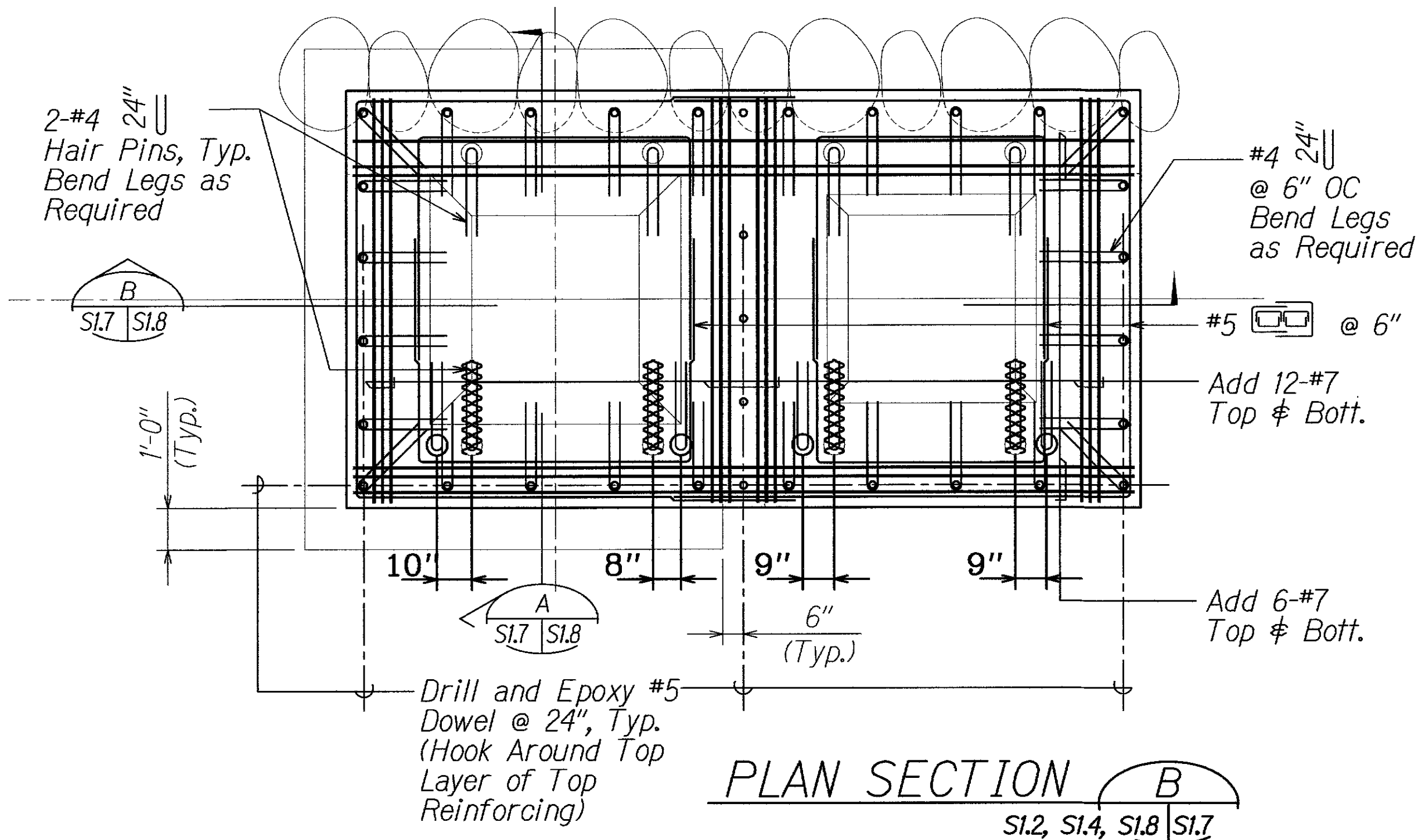
SHEET No. S1.6 OF 12 SHEETS

"AS-BUILT"

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BR-019-2(58)	2008	15	26



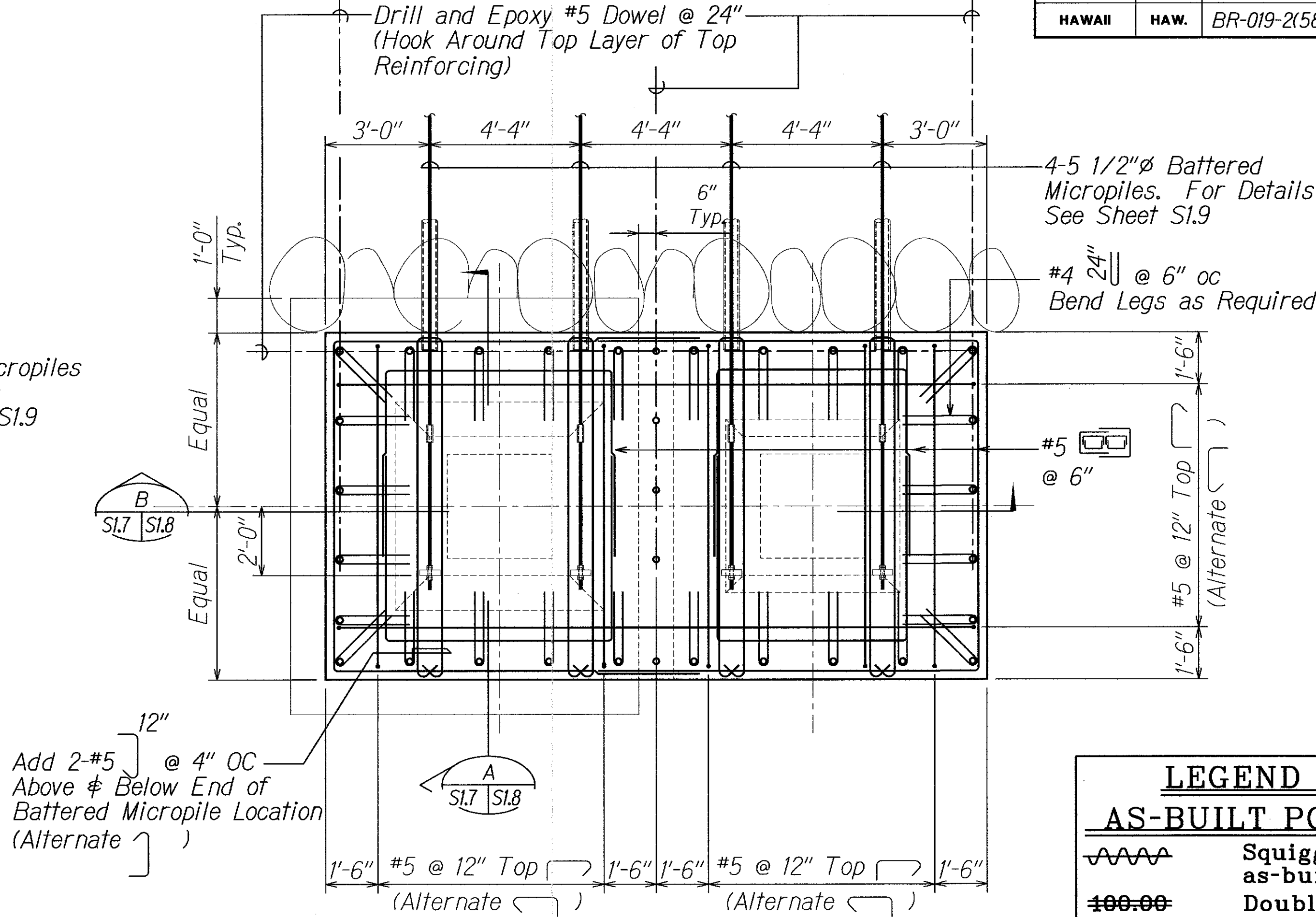
PLAN SECTION A
SI.2, SI.4, SI.8 SI.7



PLAN SECTION B
SI.2, SI.4, SI.8 SI.7

FOOTING RETROFIT - BENT NO. 13
(SHOWN FOR UPSTREAM FOOTING, DOWNSTREAM FOOTING SIM.)

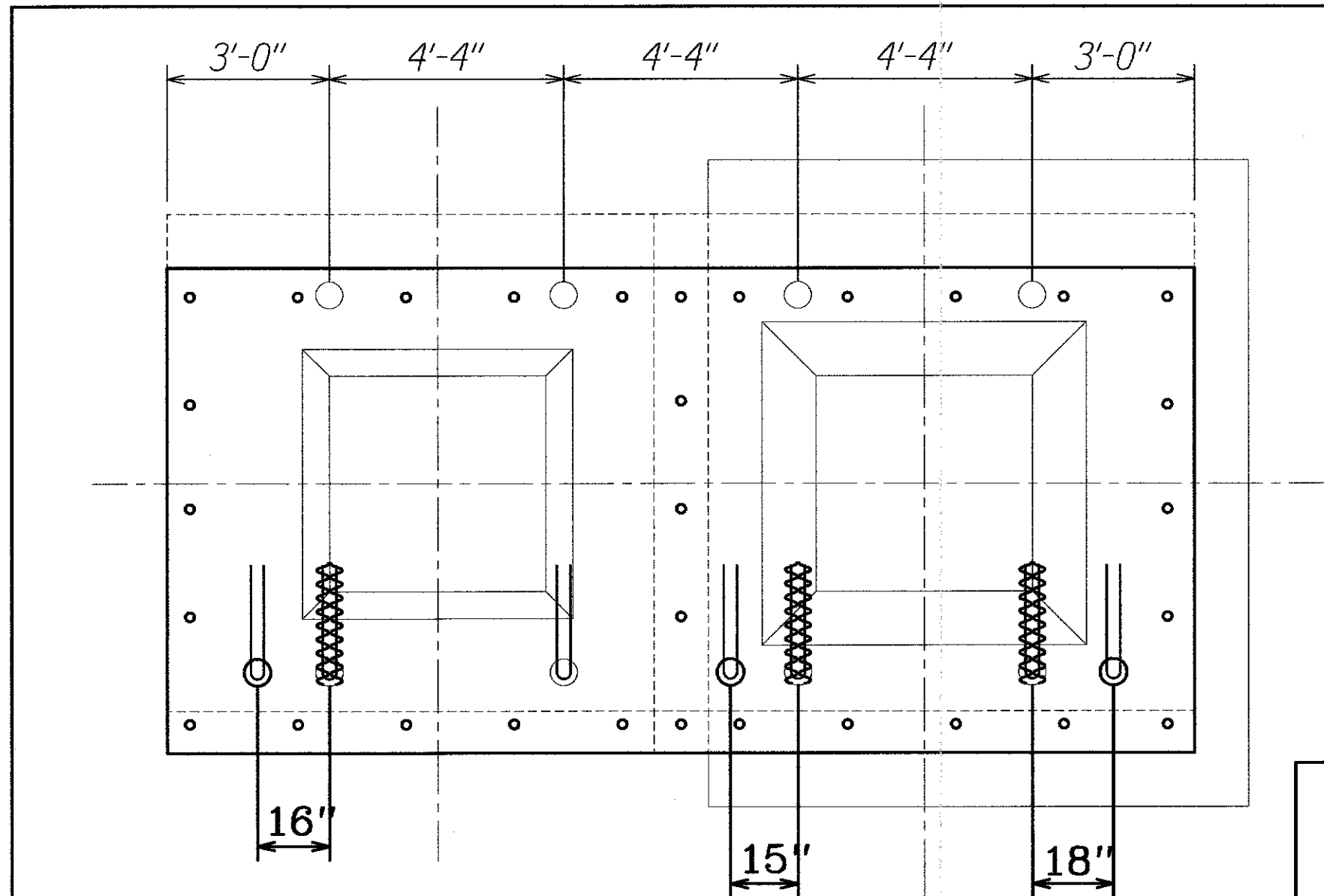
SCALE: 3/8" = 1'-0"



PLAN SECTION C
SI.2, SI.4, SI.8 SI.7

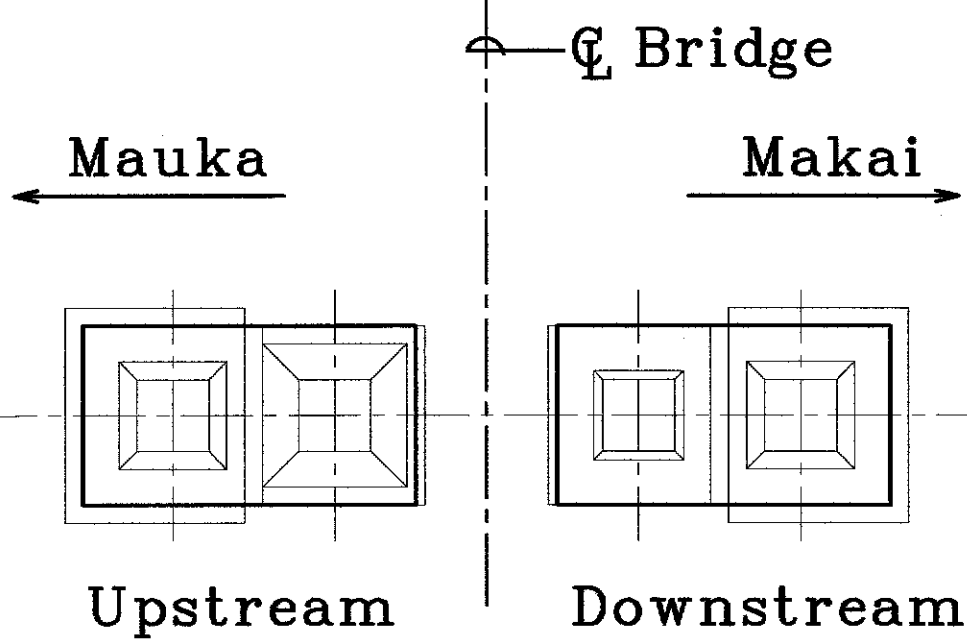
LEGEND FOR AS-BUILT POSTINGS

	Squiggly line for as-built deletion
	Double line for as-built deletion
Roadway	Text for as-built posting

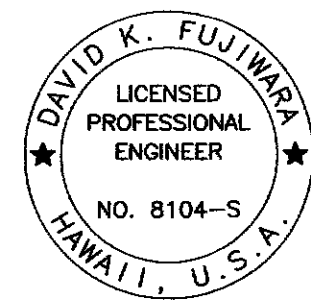


FOOTING RETROFIT - BENT NO. 13
(AS BUILT FOR DOWNSTREAM MICROPILES ONLY)

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



BENT NO. 13 - KEY PLAN
Not to Scale



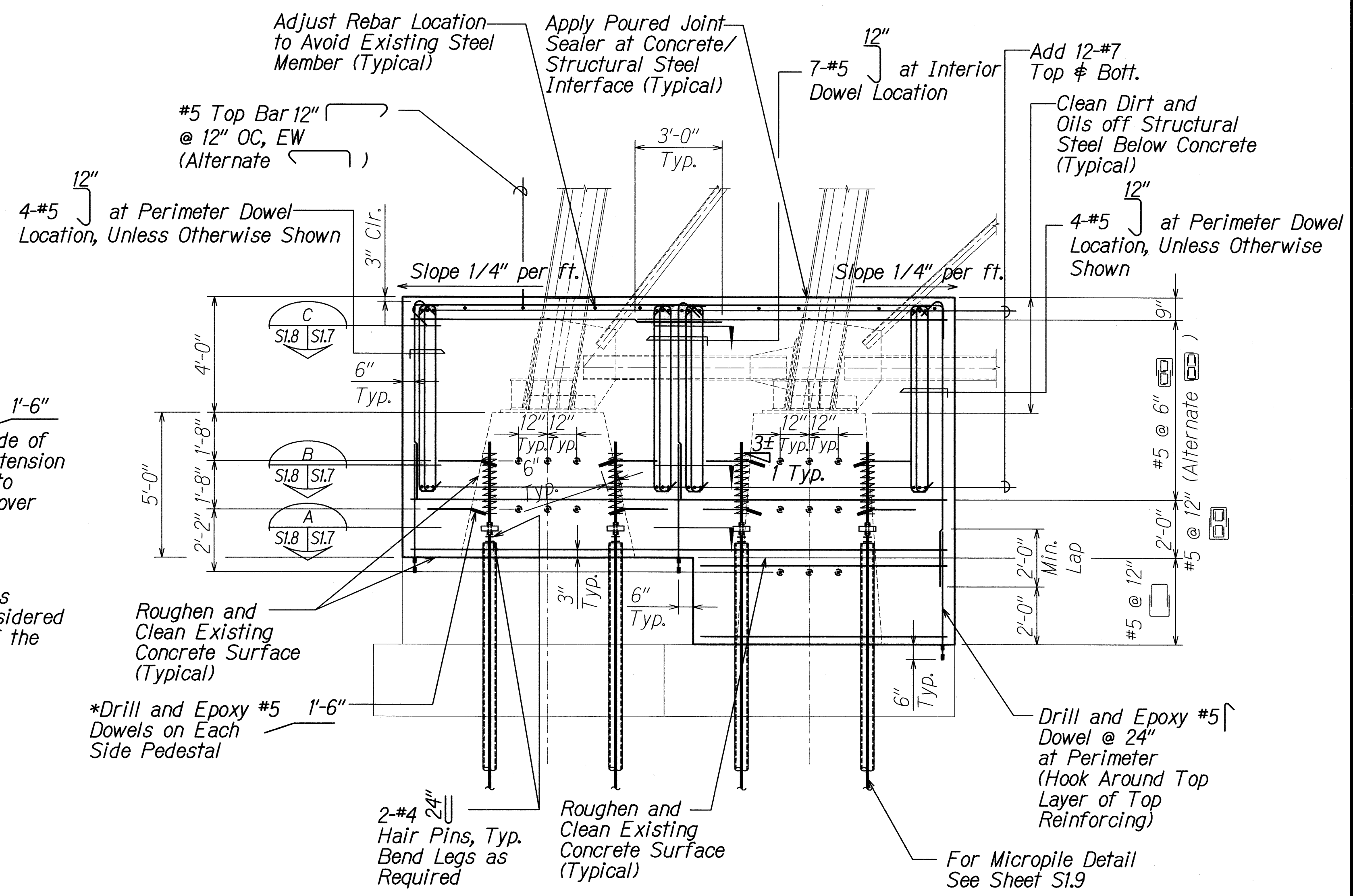
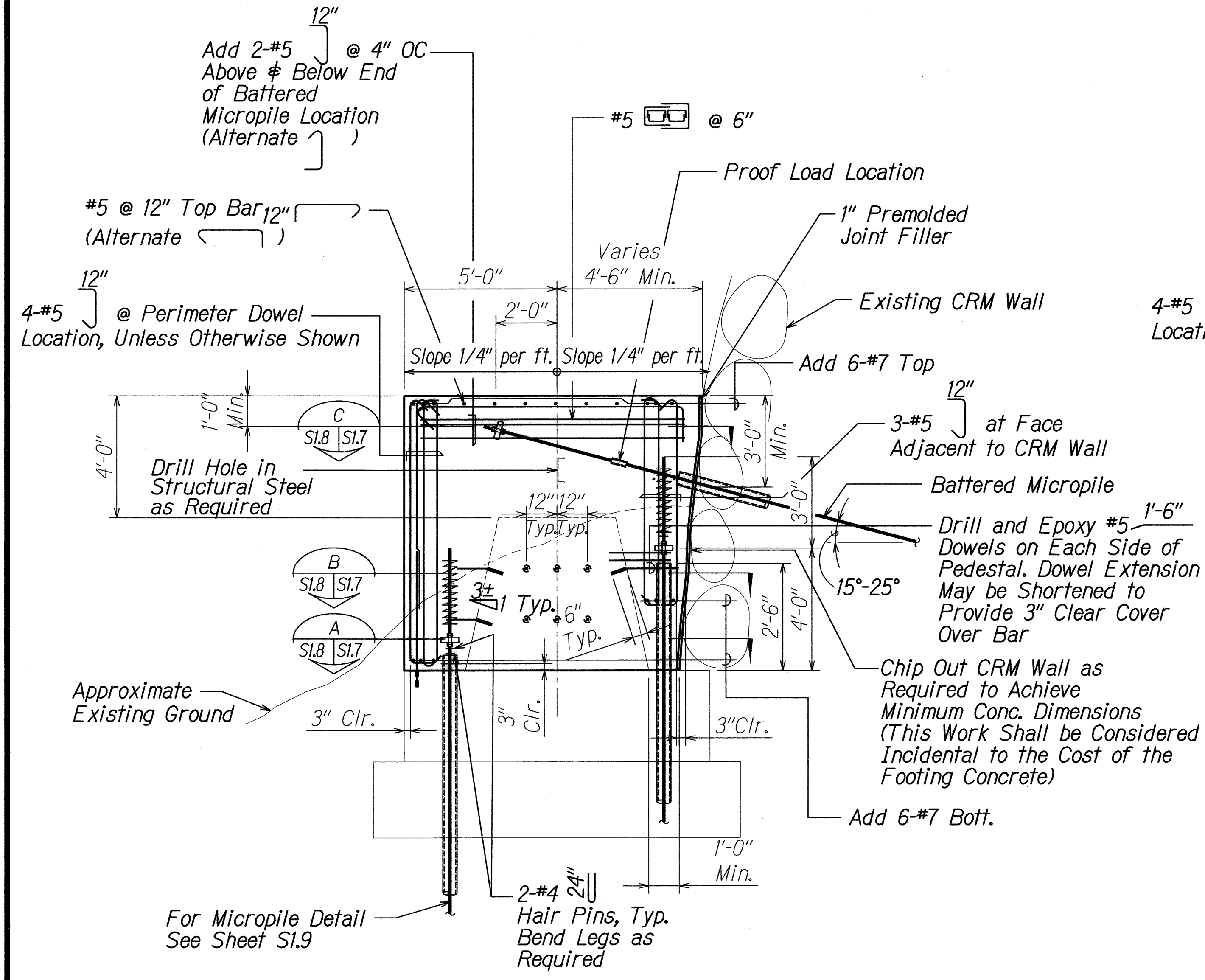
THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.

Signature: David K. Fujimura
EXPIRATION DATE OF THE LICENSE: 4-30-10

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
FOOTING RETROFIT AND REINFORCEMENT
HAWAII BELT ROAD
SEISMIC RETROFIT OF VARIOUS BRIDGES
Vicinity Of Papaikou, Phase 2
Federal-aid Project No. Br-019-2(58)
Scale: AS NOTED Date: Mar. 2007
SHEET No. SI.7 OF 12 SHEETS

"AS-BUILT"

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BR-019-2(58)	2008	16	26



SECTION A
SI.7 SI.8

SECTION B
SI.7 SI.8

FOOTING RETROFIT - BENT NO. 13
(SHOWN FOR UPSTREAM FOOTING, DOWNSTREAM FOOTING SIM.)
SCALE: 3/8" = 1'-0"

- NOTES:
1. Subject to approval by the Engineer dowels may be move if there is a conflict with the micropiles.
 2. Only top of row of dowels (6 Total) shall be installed on north side of pier.
 3. Contractor shall shore CRM wall as required.
 4. See specifications for poured joint sealer details. Poured joint sealer shall be considered incidental to the various contract items.

DAVID K. FUJIMURA
LICENSED PROFESSIONAL ENGINEER
NO. 8104-S
HAWAII, U.S.A.
THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.
Signature: David K. Fujimura
EXPIRATION DATE OF THE LICENSE: 4-30-10

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
**FOOTING RETROFIT
AND REINFORCEMENT**
HAWAII BELT ROAD
SEISMIC RETROFIT OF VARIOUS BRIDGES
Vicinity Of Papaikou, Phase 2
Federal-aid Project No. Br-019-2(58)
Scale: AS NOTED Date: Mar. 2007
SHEET No. SI.8 OF 12 SHEETS

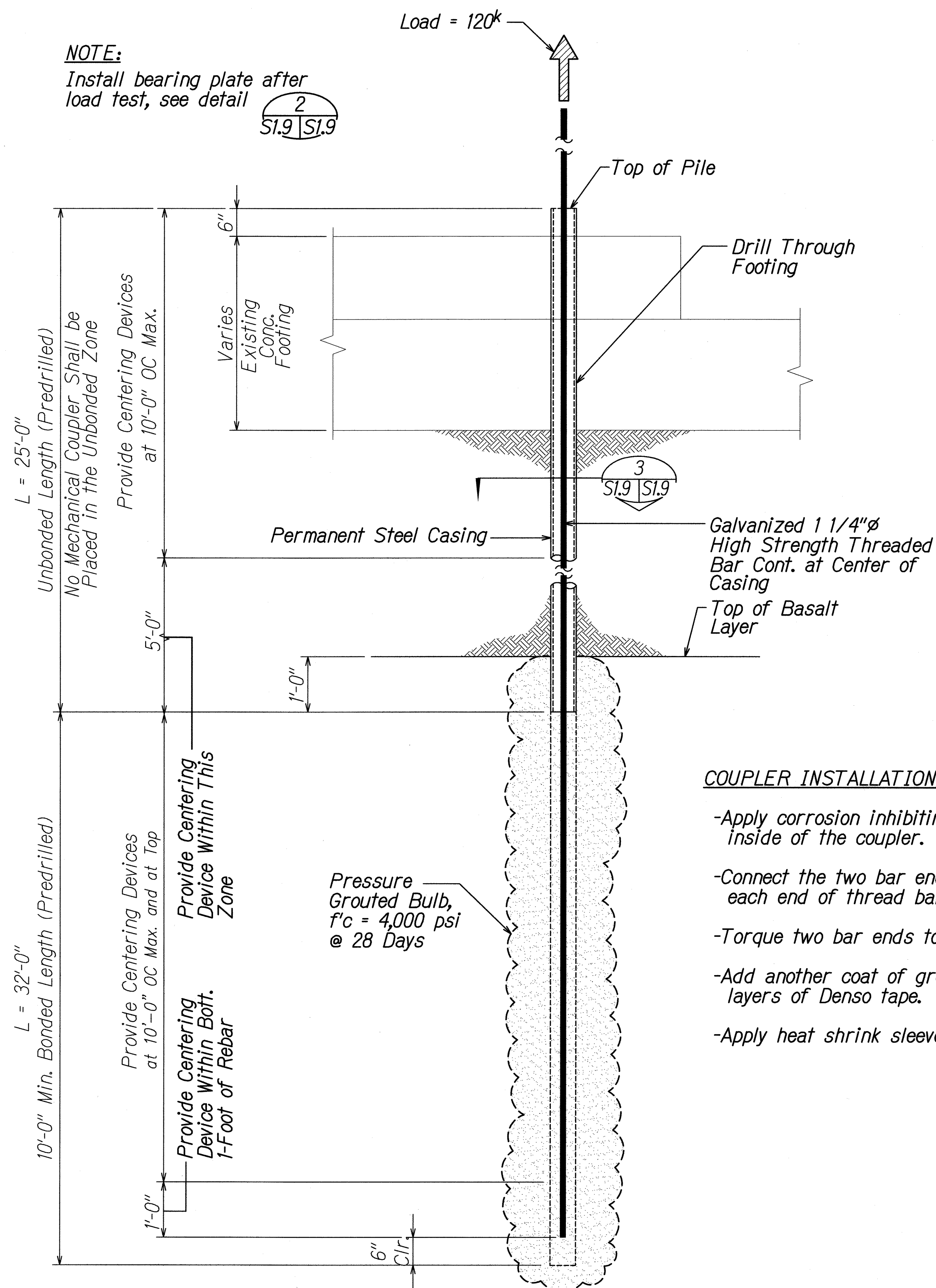
ORIGINAL PLAN	DATE
NO. 1	
NO. 2	
NO. 3	
NO. 4	
NO. 5	
NO. 6	
NO. 7	
NO. 8	
NO. 9	
NO. 10	
NO. 11	
NO. 12	
NO. 13	
NO. 14	
NO. 15	
NO. 16	
NO. 17	
NO. 18	
NO. 19	
NO. 20	
NO. 21	
NO. 22	
NO. 23	
NO. 24	
NO. 25	
NO. 26	

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BR-019-2(58)	2008	17	26

NOTE:

Install bearing plate after load test, see detail

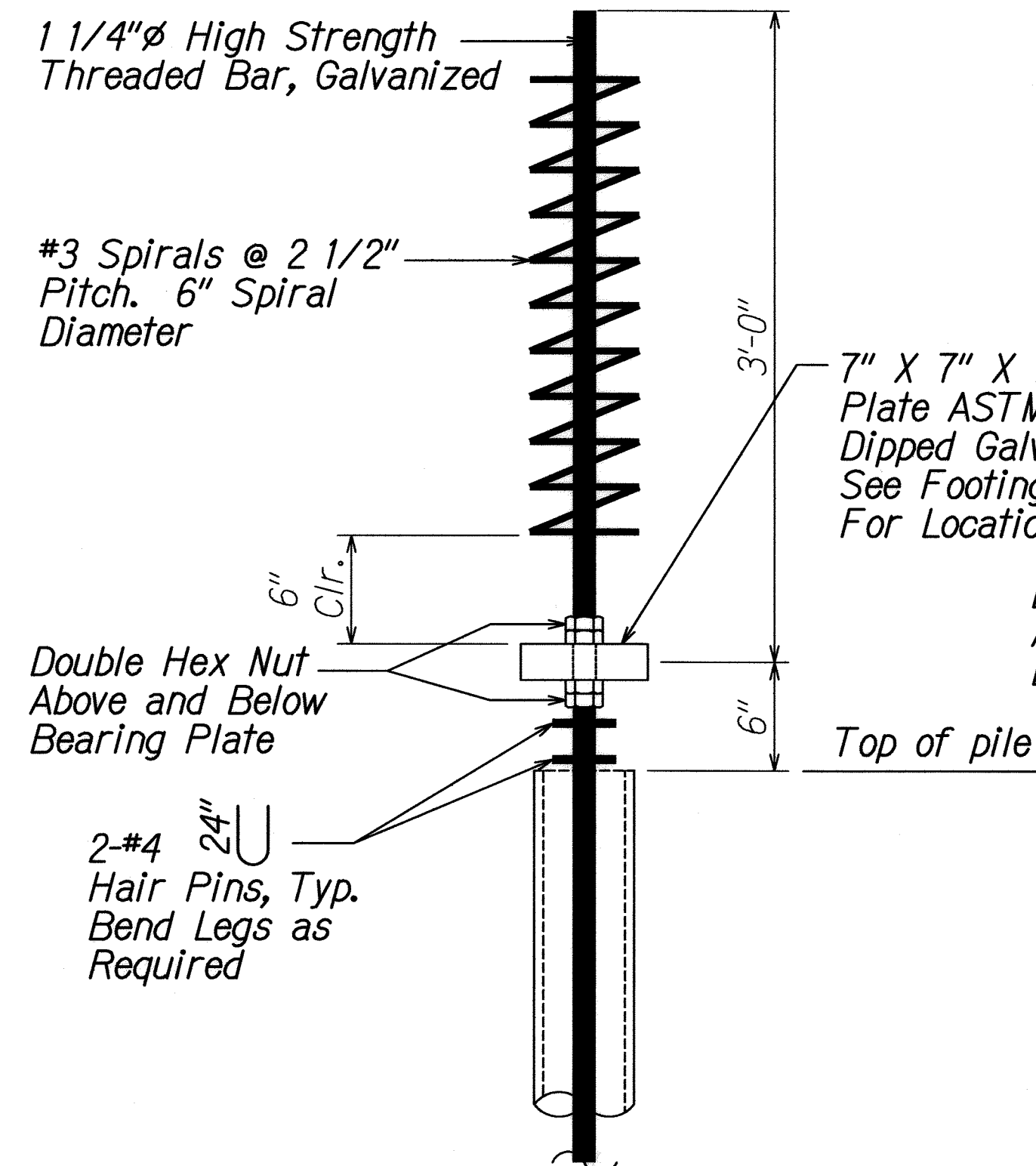
2
S1.9 S1.9



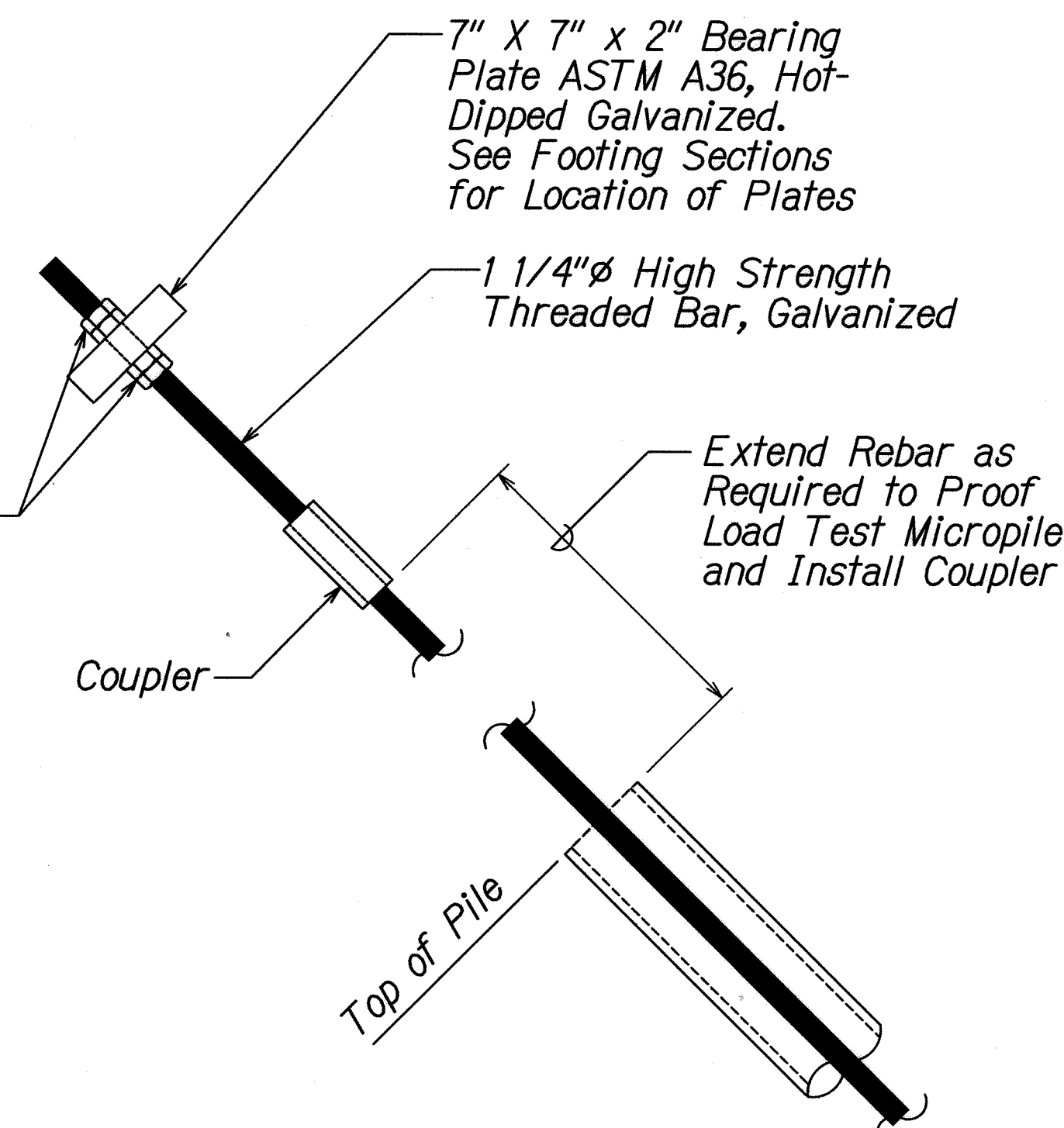
TYPICAL BATTERED AND VERTICAL PRODUCTION PILES

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

1
S1.9 S1.9

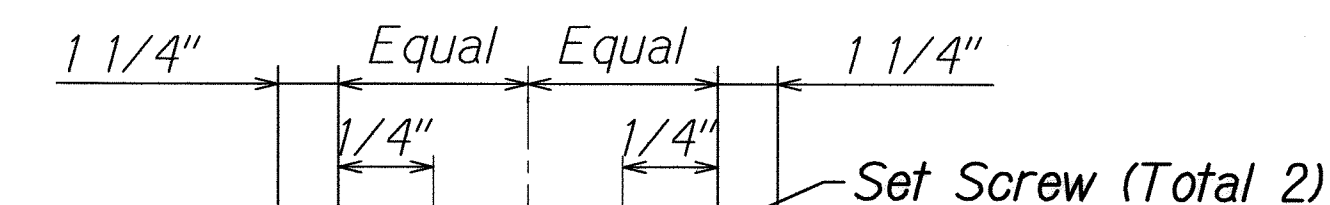


VERTICAL MICROPILE



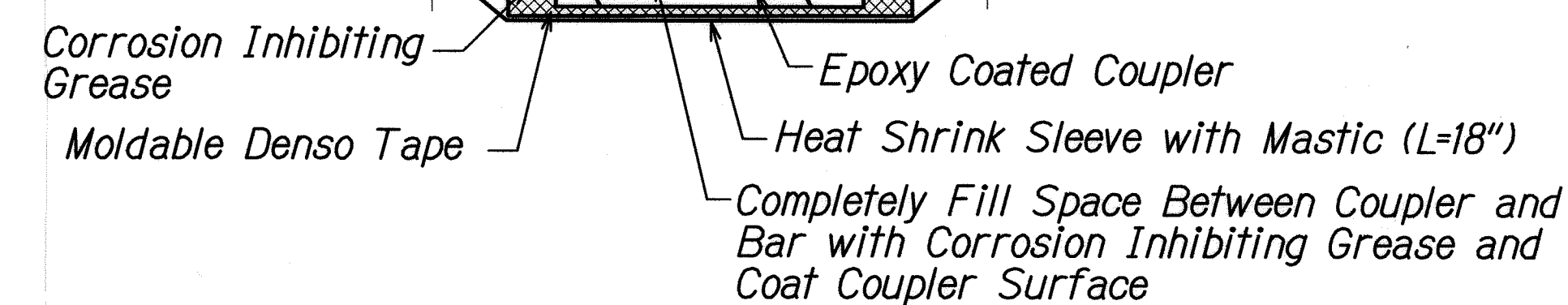
BATTERED MICROPILE

MICROPILE DETAIL 2
SCALE: 1 1/2" = 1'-0"



COUPLER INSTALLATION PROCEDURE (FOR BONDED LENGTH)

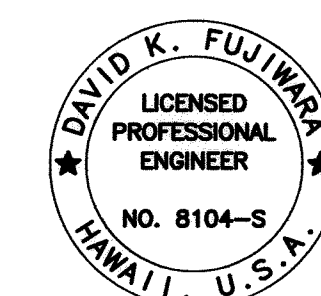
- Apply corrosion inhibiting grease to the bare ends of the bars and the inside of the coupler.
- Connect the two bar ends with the coupler (half the length of the coupler.) each end of thread bar shall be screwed into the coupler as shown below.
- Torque two bar ends together with 200 ft-lb min. then tighten set screws.
- Add another coat of grease to bare bar and coupler and wrap it with two layers of Denso tape.
- Apply heat shrink sleeve centered over coupler.



DOUBLE CORROSION PROTECTED COUPLER FOR BONDED LENGTH

NOT TO SCALE

NOTE: Couplers shall be capable of developing full ultimate tensile strength load of the threadbar.



THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.

Signature: David K. Fujiwara
EXPIRATION DATE OF THE LICENSE: 4-30-10

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

MICROPILE DETAILS

HAWAII BELT ROAD
SEISMIC RETROFIT OF VARIOUS BRIDGES
Vicinity Of Papaikou, Phase 2
Federal-aid Project No. Br-019-2(58)
Scale: AS NOTED Date: Mar. 2007

SHEET No. S1.9 OF 12 SHEETS