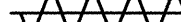
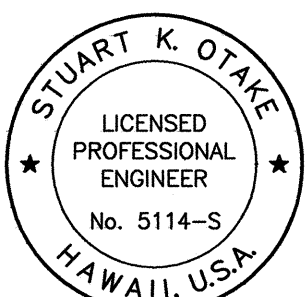


FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	H1A-01-02M	2003	45	88

INDEX TO DRAWINGS	
SHEET	DESCRIPTION
S-1	INDEX TO DRAWINGS, ESTIMATED QUANTITIES
S-2	BRIDGE GENERAL NOTES
S-3	NEW CONCRETE BARRIER AND NEW METAL GUARDRAIL LOCATION PLAN
S-4	END POST AND NEW METAL RAILING LOCATION PLAN
S-5	TYPICAL END POST PLAN AND ELEVATION
S-6	TYPICAL END POST PLAN AND ELEVATION
S-7	TYPICAL END POST PLAN AND ELEVATION
S-8	TYPICAL END POST PLAN AND ELEVATION
S-9	SECTIONS AND PLANS
S-9A	SECTIONS
S-9B	STRONG POST THRIE-BEAM GUARDRAIL
S-10	SECTIONS AND PLANS
S-11	SECTIONS / PLANS
S-12	SECTIONS / PLANS
S-13	SECTIONS
S-14	SECTIONS
S-15	EXPANSION JOINT DETAILS
S-15A	TYPICAL LIGHT POLE
S-16	END POST PLAN AND ELEVATION
S-17	END POST PLAN AND ELEVATION
S-18	SECTIONS AND PLANS
S-19	SECTIONS AND PLANS
S-20	SECTIONS AND PLANS
S-21	SECTIONS AND PLANS
S-22	SECTIONS AND PLANS
S-23	END POST PLAN AND ELEVATION
S-24	END POST PLAN AND ELEVATION
S-25	END POST DETAIL AND SECTIONS
S-26	SECTION
S-27	SIPHON INLET AND DROP INLET GRATINGS PLANS AND SECTIONS
S-28	CATCH BASIN REPAIR PLAN AND SECTIONS

[illegible]

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



THIS WORK WAS PREPARED BY ME
OR UNDER MY SUPERVISION.

 4-30-04
Mitsunaga & Associates, Inc.
Expiration Date of the License

08/15/05	As Built – Revised Index
DATE	REVISION
STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION <u>INDEX TO DRAWINGS</u> <u>ESTIMATED QUANTITIES</u> <u>INTERSTATE ROUTE H-1 REHABILITATION</u> <u>Vicinity Of Makakilo Interchange</u> <u>Project No. H1A-01-02M</u> Scale: None Date: April 2003	

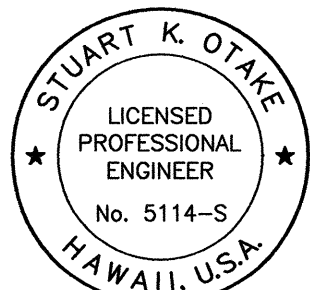
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	H1A-01-02M	2003	46	88

BRIDGE GENERAL NOTES

1. General Specifications: Hawaii Department of Transportation, Standard Specifications for Road and Bridge Construction, 1994, together with Special Provisions prepared for this contract.
2. Design Specifications: AASHTO 1998 LRFD Bridge Design Specifications (Second Edition) and its subsequent interim specifications with interim supplements and modifications by the Highways Division, Department of Transportation, State of Hawaii.
3. Loads:
(A) Railing Load : AASHTO TL-2 Loading on Makakilo Drive
AASHTO TL-4 Loading on H-1 Freeway and Ramp MB
(B) Live Load on Grating: 1000 psf uniform load or 3000 lb concentrated load.
4. Materials:
(A) All concrete strengths shall be as noted below:
- | Item
No. | Structural
Parts | Classes of
Concrete | Specified Compressive
Strength, f'c (28 Days) |
|-------------|---|------------------------|--|
| (1) | End Post, Side Walk,
and Concrete Barriers | - | 4000 PSI |
| (2) | Except as noted
otherwise all others | A | 3000 PSI |
| (3) | Portland Cement Concrete
Pavement | - | See Spec. Prov. Section 411 |
- All concrete with the exception of Class A concrete shall have a maximum W/C Ratio of 0.45. The W/C Ratio for Class A Concrete shall follow the standard specifications.
- (B) All reinforcing steel shall be ASTM A 615 Grade 60 unless otherwise noted. Refer to Civil drawings for epoxy coating required at PCC pavements.
- (C) All structural steel shall be ASTM A 36 hot dip galvanized after fabrication, unless otherwise noted.
- (D) All Bolts and Anchor bolts shall conform to AASHTO M164 hot dip galvanized after fabrication, unless otherwise specified. Washer and Nuts shall conform to the latest AASHTO LRFD BRIDGE DESIGN specifications as applicable to the type of bolts used.
5. Reinforcement:
(A) The minimum cover measured from the surface of the concrete to the face of any reinforcing bars shall be as follows, except as otherwise shown:
(1) Concrete cast against and permanently exposed to earth = 3"
(2) All others unless otherwise noted = 2".
(B) Reinforcing bars shall be detailed in accordance with the latest edition of the AASHTO LRFD Bridge Design Specifications unless otherwise noted.
(C) Minimum clear spacing between parallel bars shall be 1 1/2 times the diameter of bars (for non bundled bars) or 1 1/2" whichever is greater. In no case shall the clear distance between the bars shall be less than 1 1/2 times the maximum size of the coarse aggregate.
(D) All dimensions relating to reinforcing bars are to centers of bars unless otherwise noted.
(E) Reinforcing bars shall be securely tied at all intersections and lap splices except where the spacing of intersections is less than one foot in each direction, in which case alternate intersections shall be tied.
(F) Epoxy coated reinforcing bars shall be chaired and tied using epoxy or plastic coated bar supports, chairs and tie wire or other approved dielectric or dielectric coated materials.

6. Construction Notes:
(A) See Standard Specifications and Special Provisions.
(B) Except as otherwise noted, all vertical dimensions are measured plumb.
(C) The Contractor shall verify all site conditions and not rely upon these plans for dimensions, utilities, etc. Conditions may differ from those shown.
(D) 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.
(E) For concrete finish see Standard Specifications and Special Provisions.
(F) Construction joints may be relocated or additional ones added subject to the approval of the Engineer.
(G) 3/4" x 3/4".
(H) Clean and roughen all existing surfaces where new concrete is poured against it.
7. General:
(A) All items noted incidental will not be paid for separately.
(B) Standard detail drawings refer to all structures in general, except for modifications as may be required for special conditions. For such modifications refer to the corresponding detailed drawings.
(c) Excavation and back fill for concrete barriers and end posts shall be considered incidental to the barriers and end posts. This includes removal and replacing of GRP where necessary.
Unless otherwise noted, all exposed concrete edges shall be chamfered
8. Foundation:
A. Service Limit State
1. Bearing Capacity = 4,000 psf
B. Strength Limit State
1. Bearing Capacity = 7,200 psf
2. Coefficient of friction = 0.5
3. Passive earth pressure = 350 pcf
C. Extreme Event Limit State
1. Bearing Capacity = 12,000 psf
2. Coefficient of friction = 0.65
3. Passive earth pressure = 700 pcf
D. Active Earth Pressure = 30 pcf

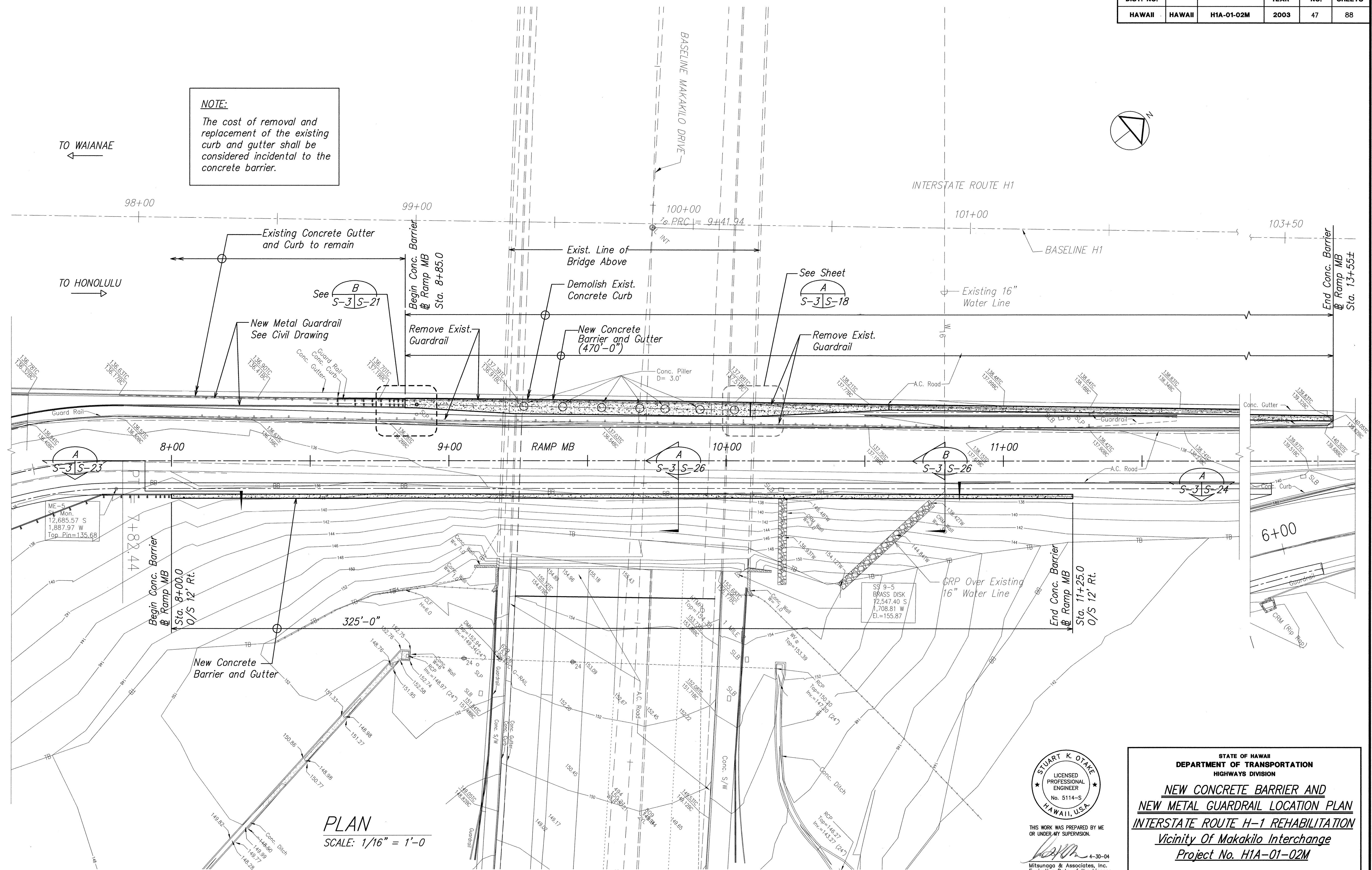
SURVEY PLOTTED BY _____	DATE _____
DRAWN BY _____	DESIGNED BY _____
NOTE BOOK _____	QUANTITIES BY _____
NO. _____	CHECKED BY _____



THIS WORK WAS PREPARED BY ME
OR UNDER MY SUPERVISION.
[Signature]
Mitsunaga & Associates, Inc.
Expiration Date of the License 4-30-04

STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION	
BRIDGE GENERAL NOTES	
INTERSTATE ROUTE H-1 REHABILITATION Vicinity Of Makakilo Interchange Project No. H1A-01-02M	
Scale: None	Date: April 2003
SHEET No. S-2 OF 28 SHEETS	

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	H1A-01-02M	2003	47	88



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

STUART K. OTAKE
LICENSED PROFESSIONAL ENGINEER
No. 5114-S
HAWAII, USA

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.

4-30-04
Mitsunaga & Associates, Inc.
Expiration Date of the License

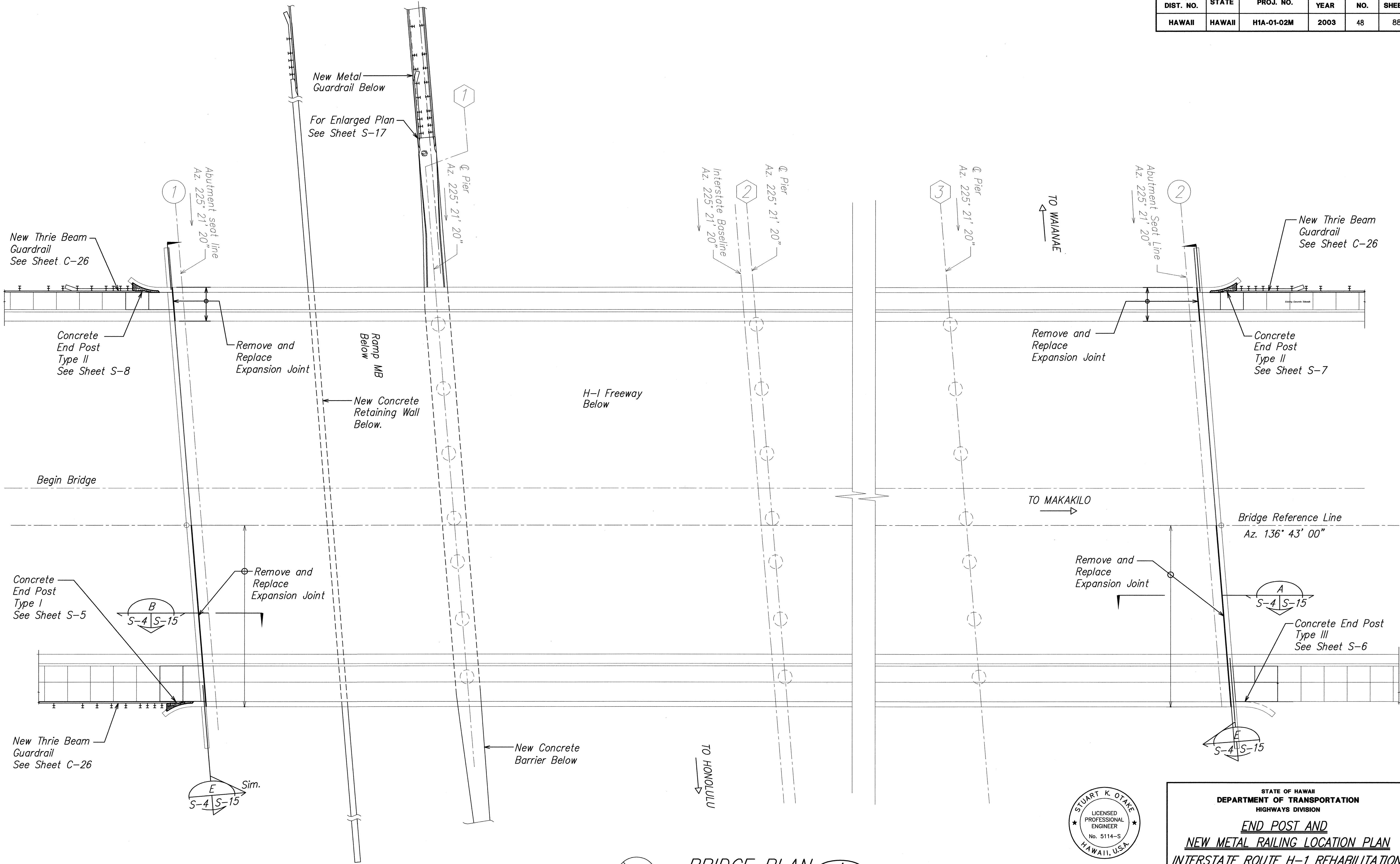
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

**NEW CONCRETE BARRIER AND
NEW METAL GUARDRAIL LOCATION PLAN**
INTERSTATE ROUTE H-1 REHABILITATION
Vicinity Of Makakilo Interchange
Project No. H1A-01-02M

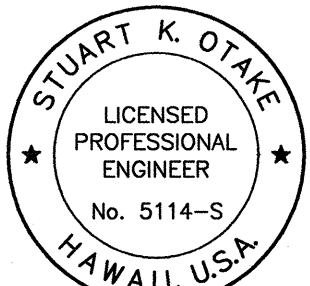
Scale: As Noted Date: April 2003

SHEET No. S-3 OF 28 SHEETS

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	H1A-01-02M	2003	48	88



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



THIS WORK WAS PREPARED BY ME
OR UNDER MY SUPERVISION.
[Signature]
Mitsunaga & Associates, Inc.
Expiration Date of the License 4-30-04

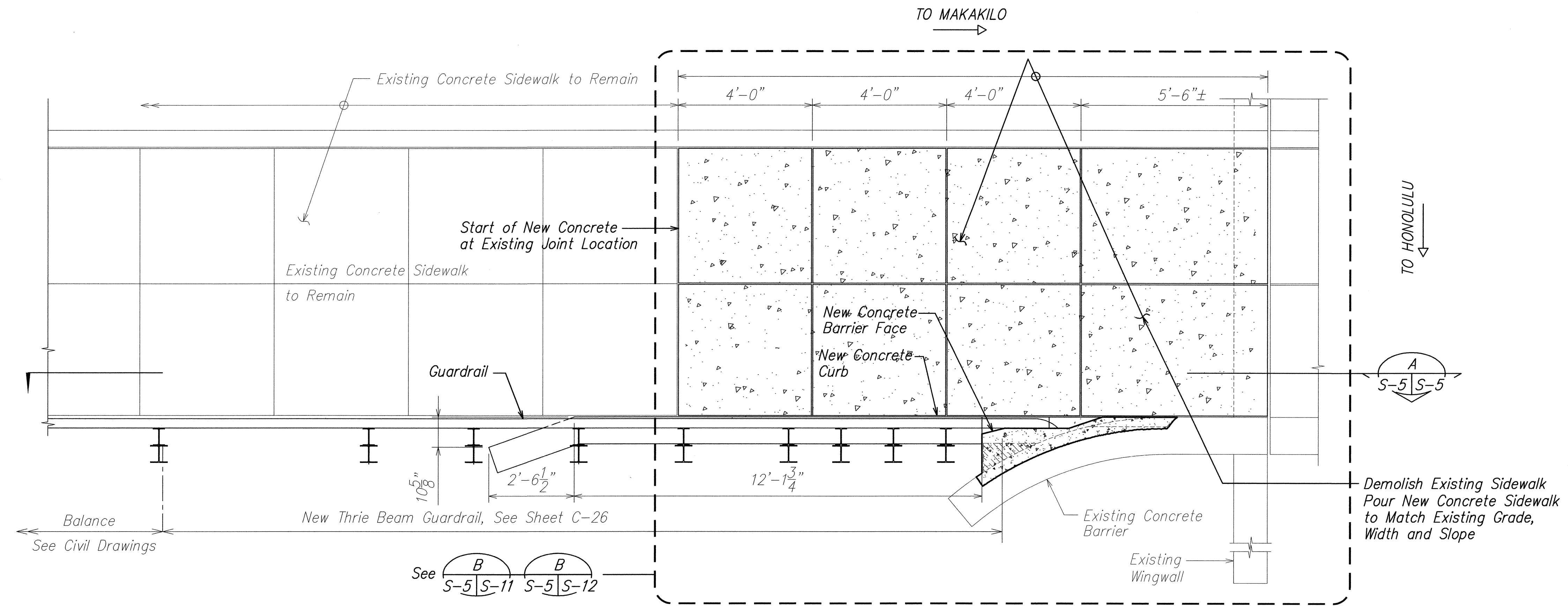
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

END POST AND
NEW METAL RAILING LOCATION PLAN
INTERSTATE ROUTE H-1 REHABILITATION
Vicinity Of Makakilo Interchange
Project No. H1A-01-02M

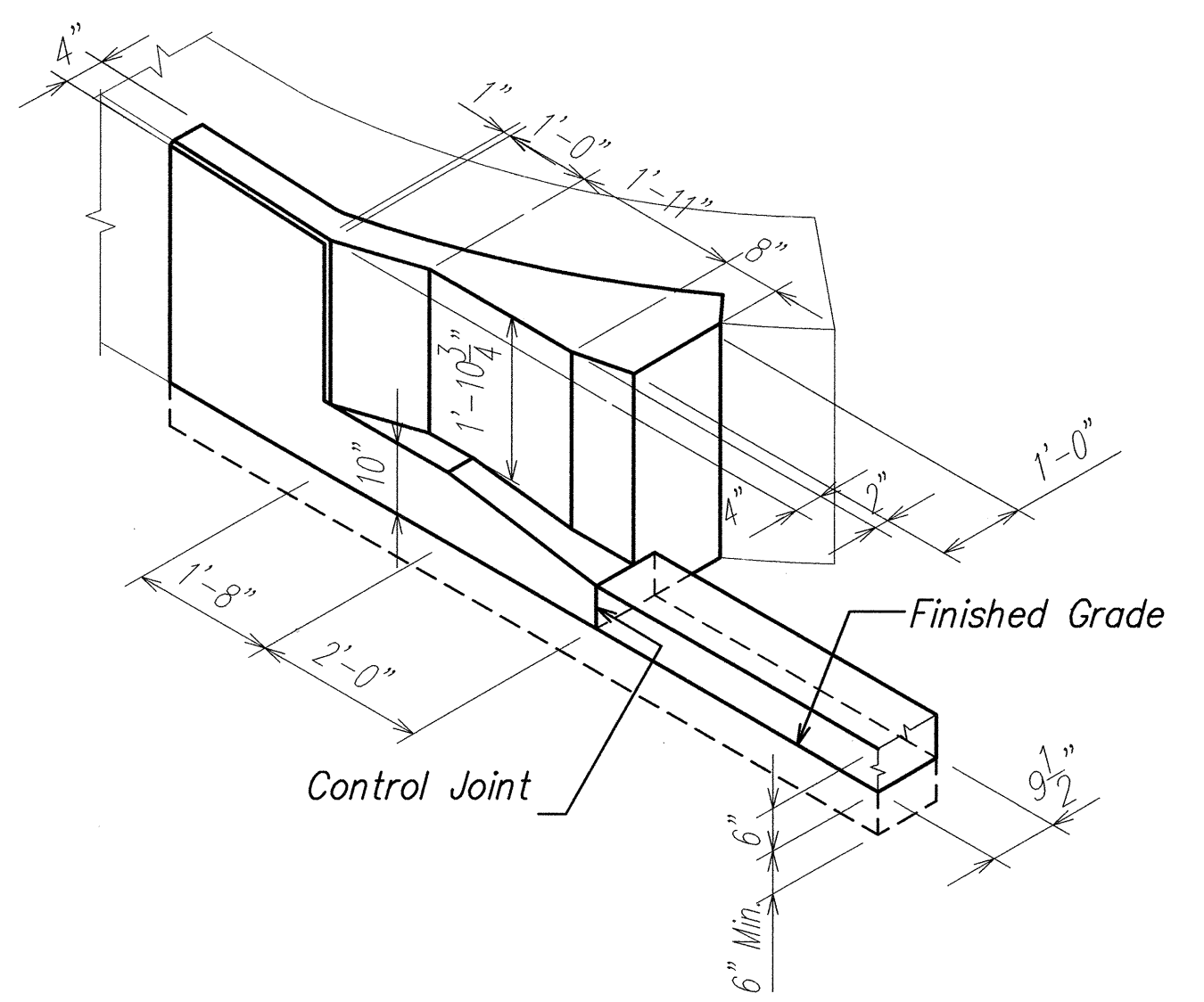
Scale: As Noted Date: April 2003

SHEET No. **S-4** OF **28** SHEETS

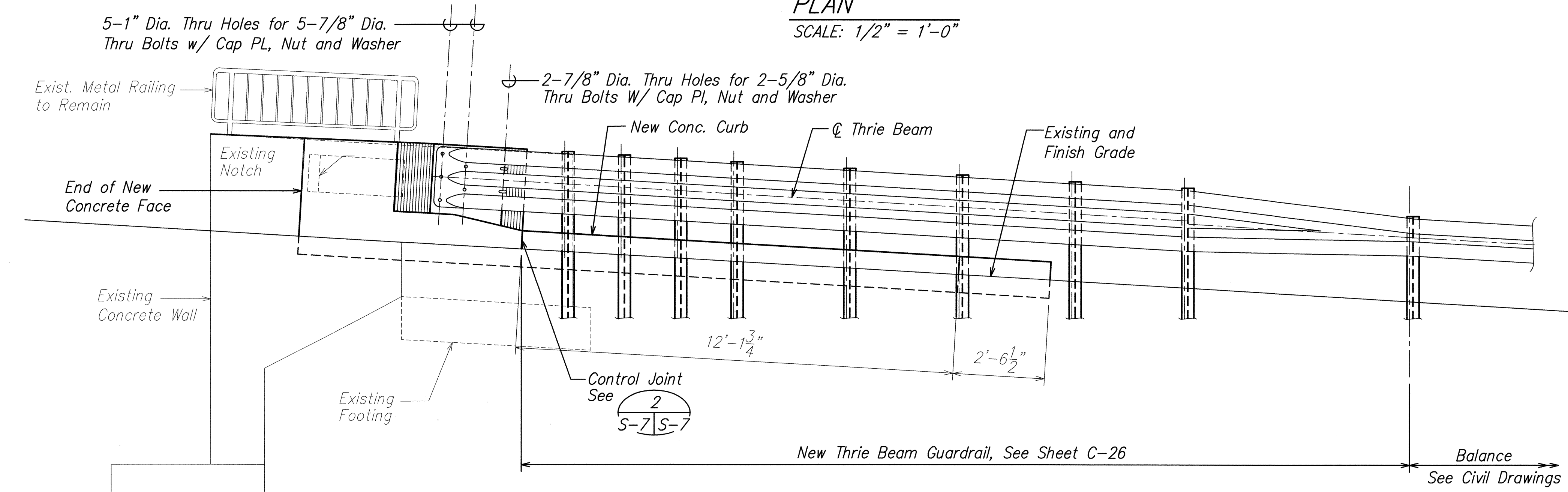
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	H1A-01-02M	2003	49	88



PLAN
SCALE: 1/2" = 1'-0"



END POST DETAIL $\frac{1}{S-5|S-5}$
NOT TO SCALE



ELEVATION $\frac{A}{S-5|S-5}$
SCALE: 1/2" = 1'-0"

CONCRETE END POST TYPE I PLAN AND ELEVATION
(ABUTMENT NO. 1 HONOLULU SIDE)
SCALE: 1/2" = 1'-0"

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

STUART K. OTAKE
LICENSED PROFESSIONAL ENGINEER
No. 5114-S
HAWAII, U.S.A.

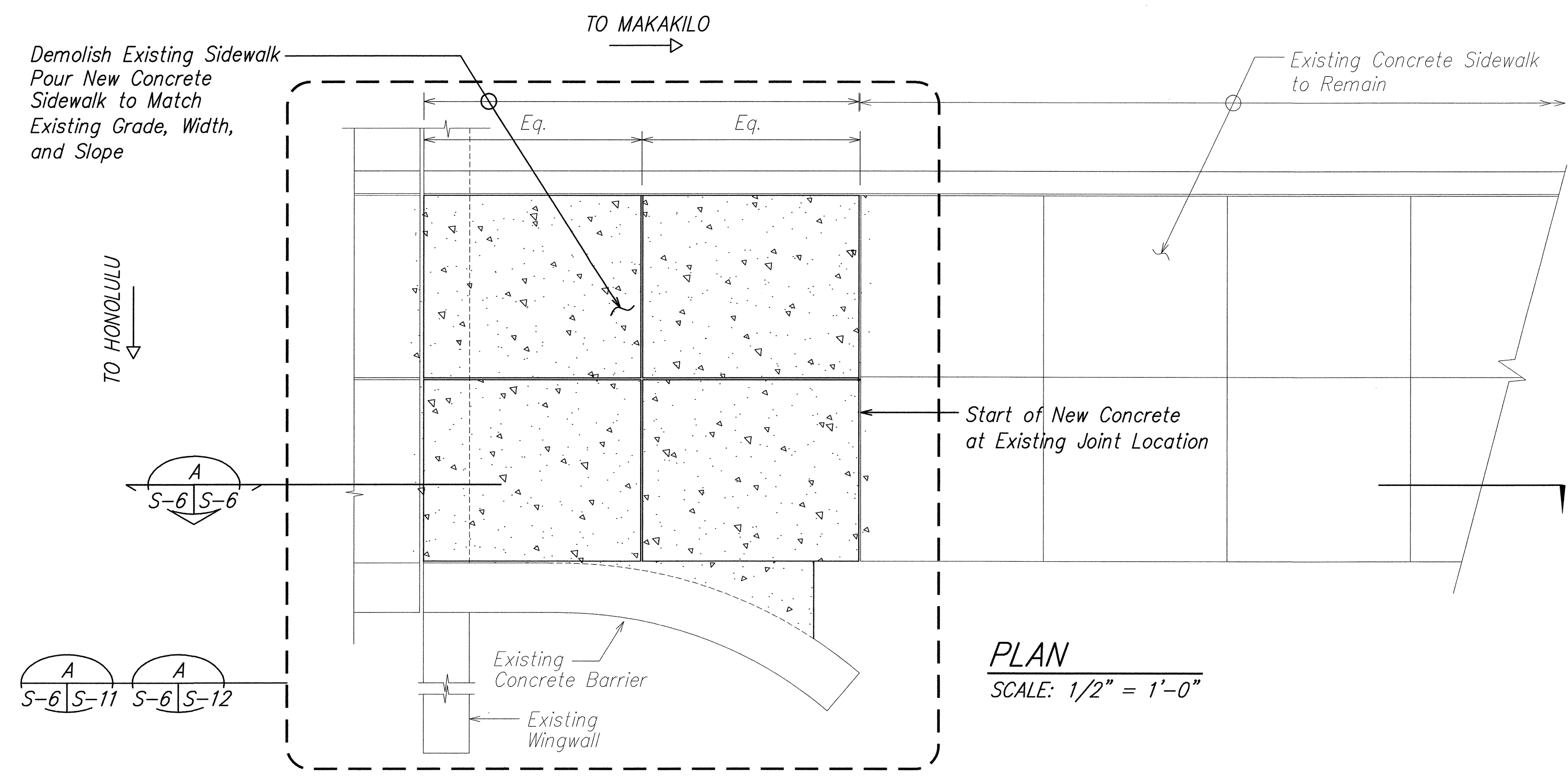
THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.

[Signature] 30-04
Mitsunaga & Associates, Inc.
Expiration Date of the License

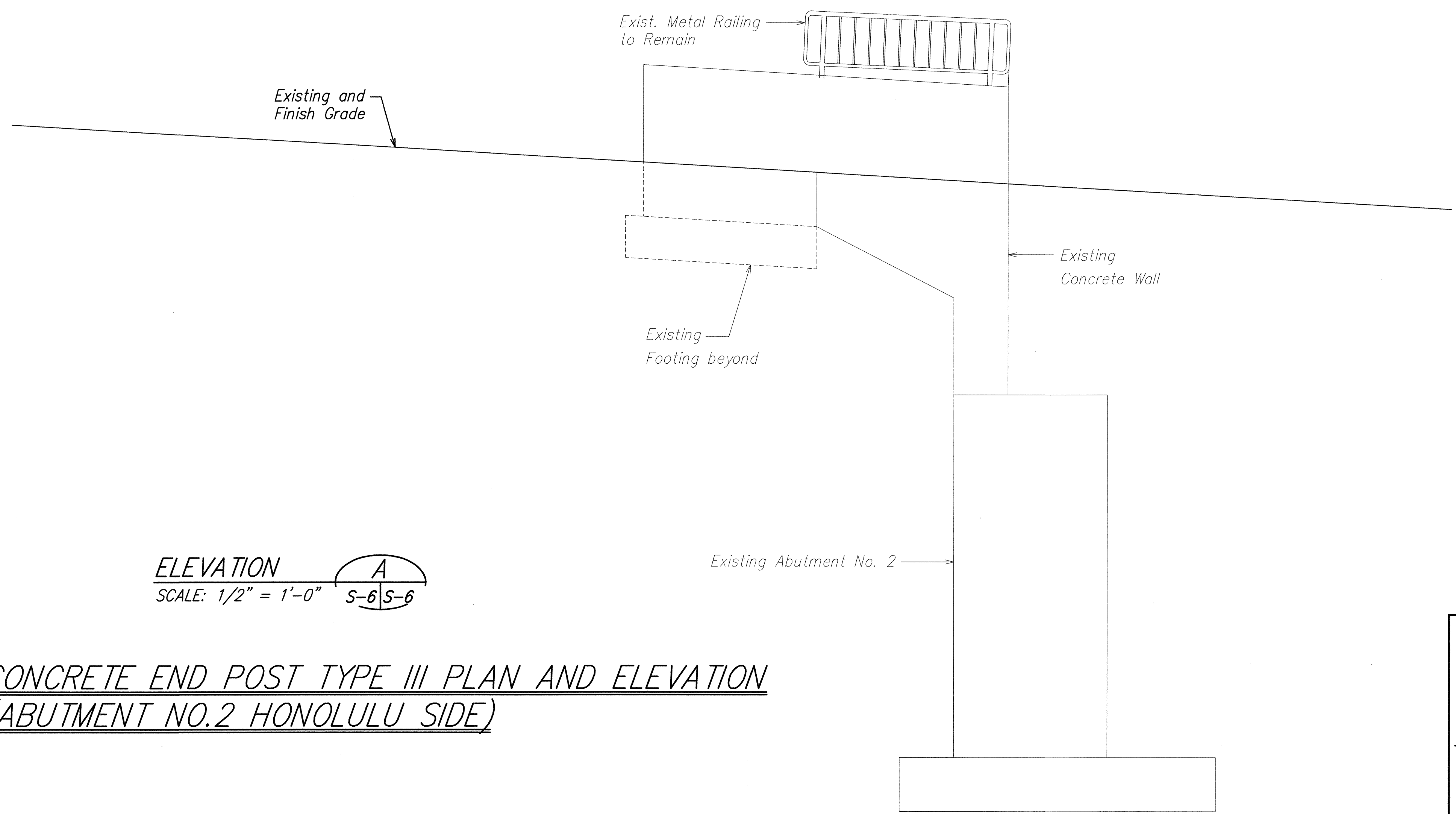
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TYPICAL END POST PLAN
AND ELEVATION
INTERSTATE ROUTE H-1 REHABILITATION
Vicinity Of Makakilo Interchange
Project No. H1A-01-02M
Scale: As Noted Date: April 2003
SHEET No. S-5 OF 28 SHEETS

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	H1A-01-02M	2003	50	88

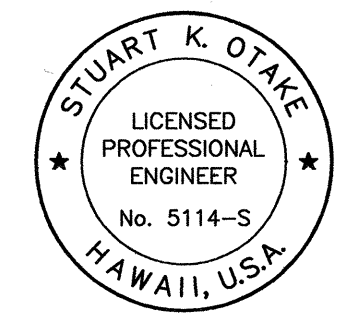


PLAN
SCALE: 1/2" = 1'-0"



ELEVATION
SCALE: 1/2" = 1'-0" A
S-6/S-6

**CONCRETE END POST TYPE III PLAN AND ELEVATION
(ABUTMENT NO.2 HONOLULU SIDE)**



THIS WORK WAS PREPARED BY ME
OR UNDER MY SUPERVISION.
[Signature] 4-30-04
Mitsunaga & Associates, Inc.
Expiration Date of the License

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

**TYPICAL END POST PLAN
AND ELEVATION**

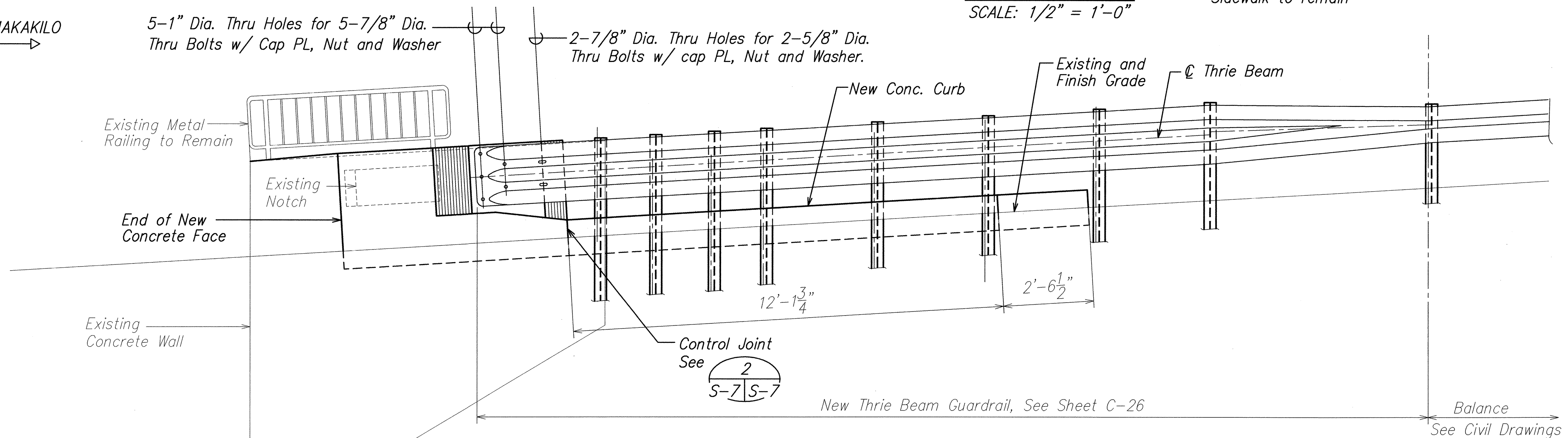
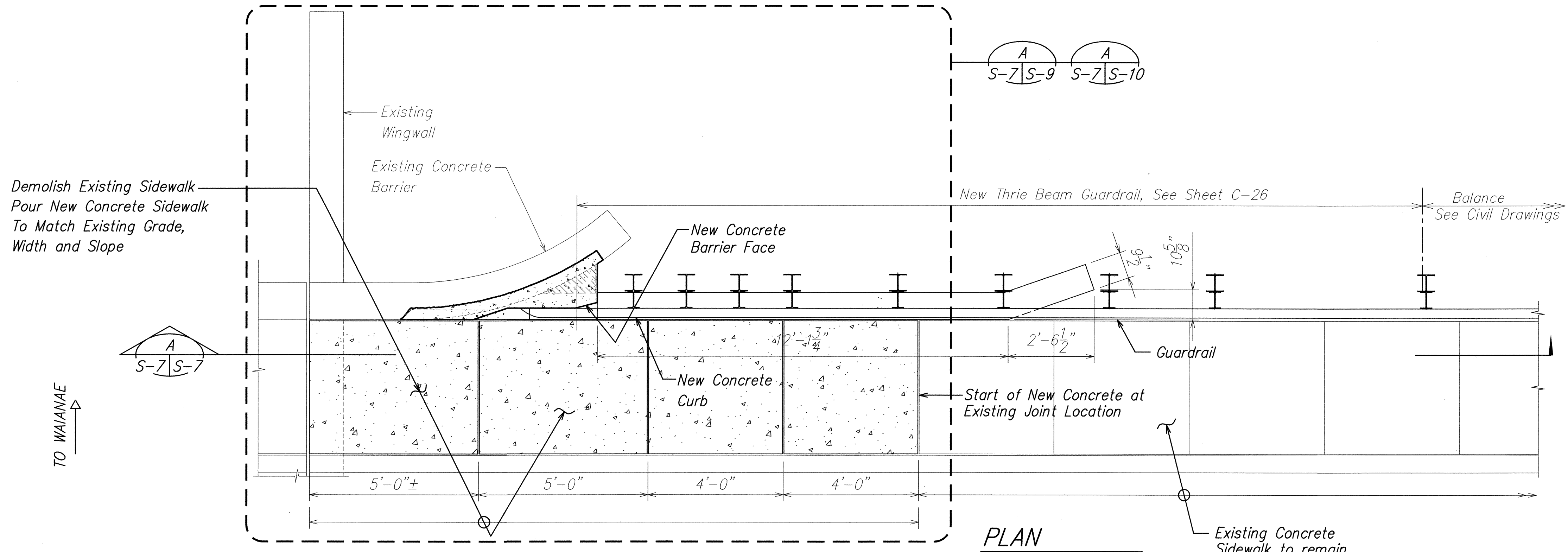
**INTERSTATE ROUTE H-1 REHABILITATION
Vicinity Of Makakilo Interchange
Project No. H1A-01-02M**

Scale: As Noted Date: April 2003

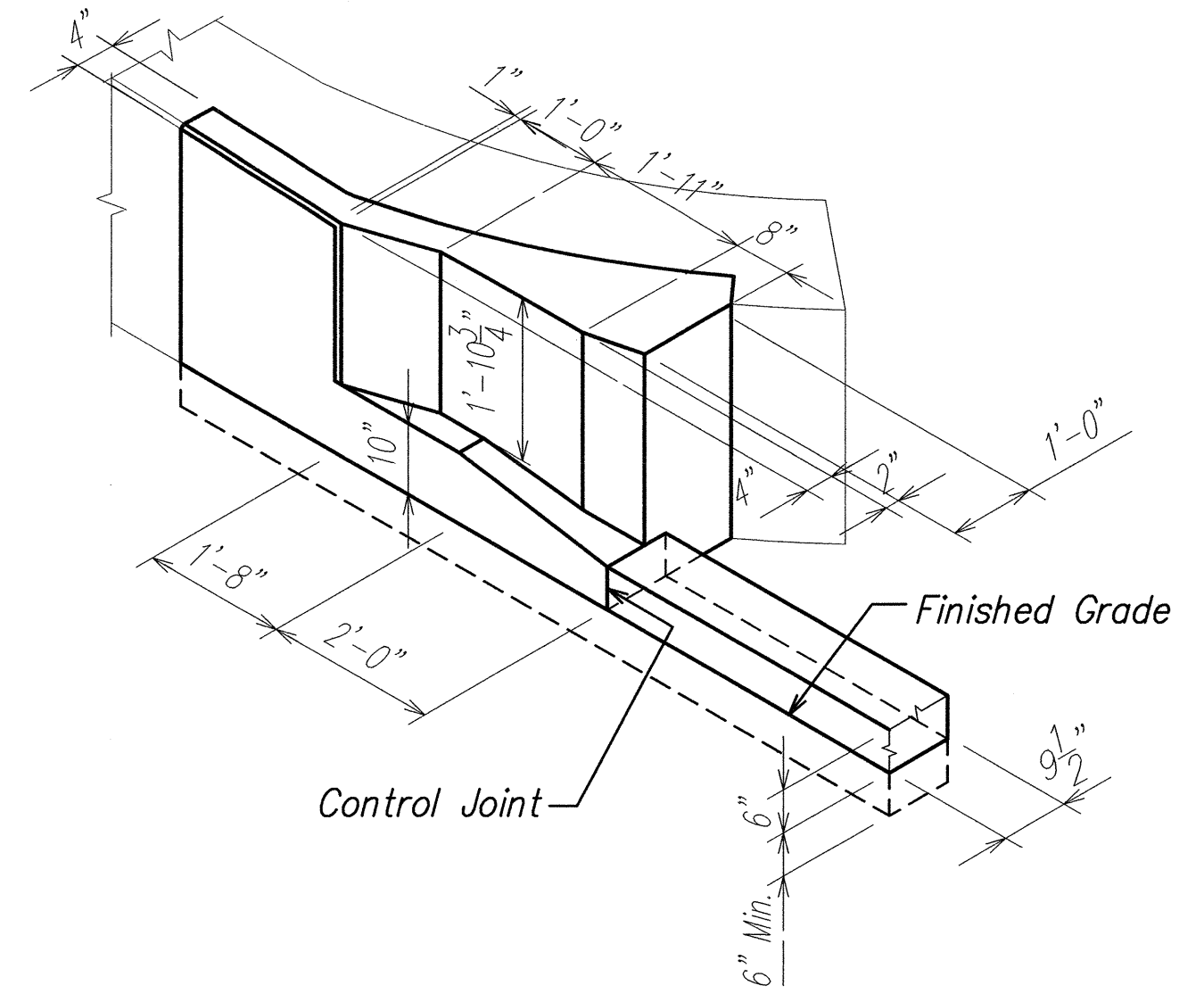
SHEET No. S-6 OF 28 SHEETS

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

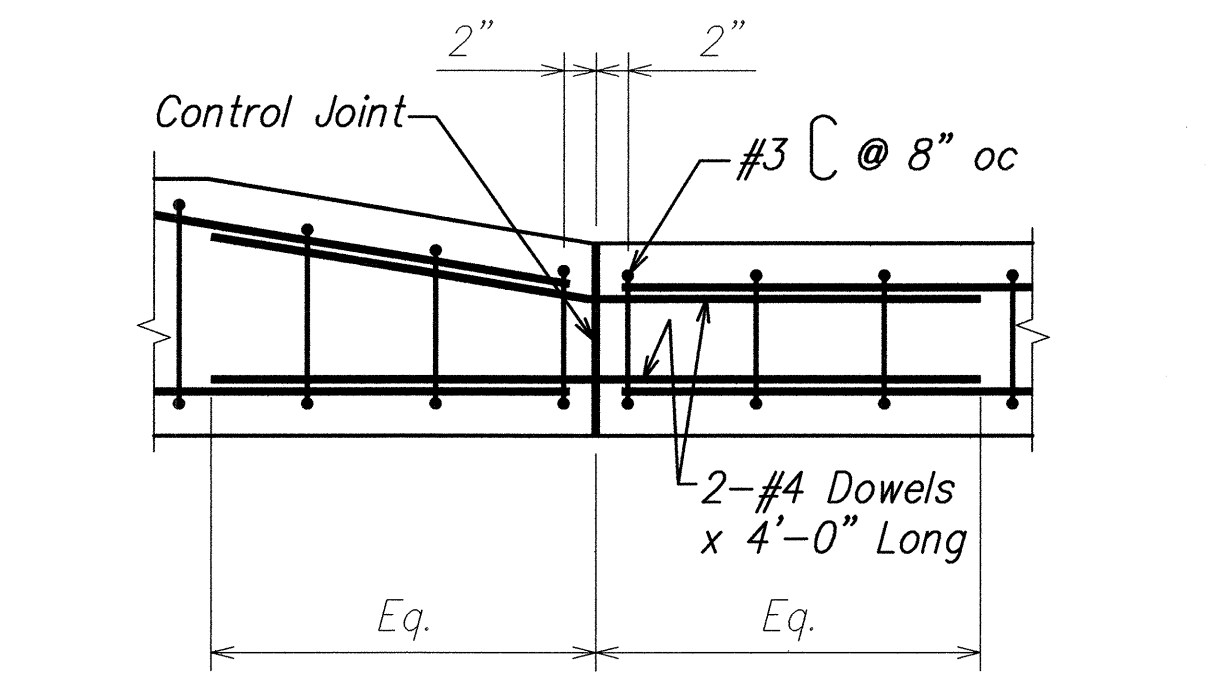
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	H1A-01-02M	2003	51	88



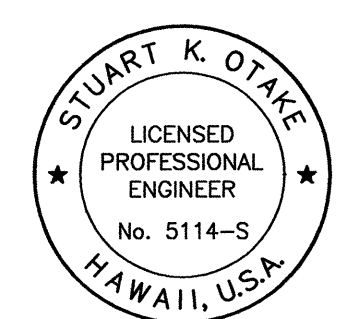
CONCRETE END POST TYPE II PLAN AND ELEVATION
(ABUTMENT NO. 2 WAIANAE SIDE)



END POST DETAIL 1 S-7 S-7
NOT TO SCALE



CONTROL JOINT DETAIL 2 S-7 S-7
SCALE: 1" = 1'-0"



THIS WORK WAS PREPARED BY ME
OR UNDER MY SUPERVISION.

4-30-04

Mitsunaga & Associates, Inc.

Expiration Date of the License

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TYPICAL END POST PLAN
AND ELEVATION

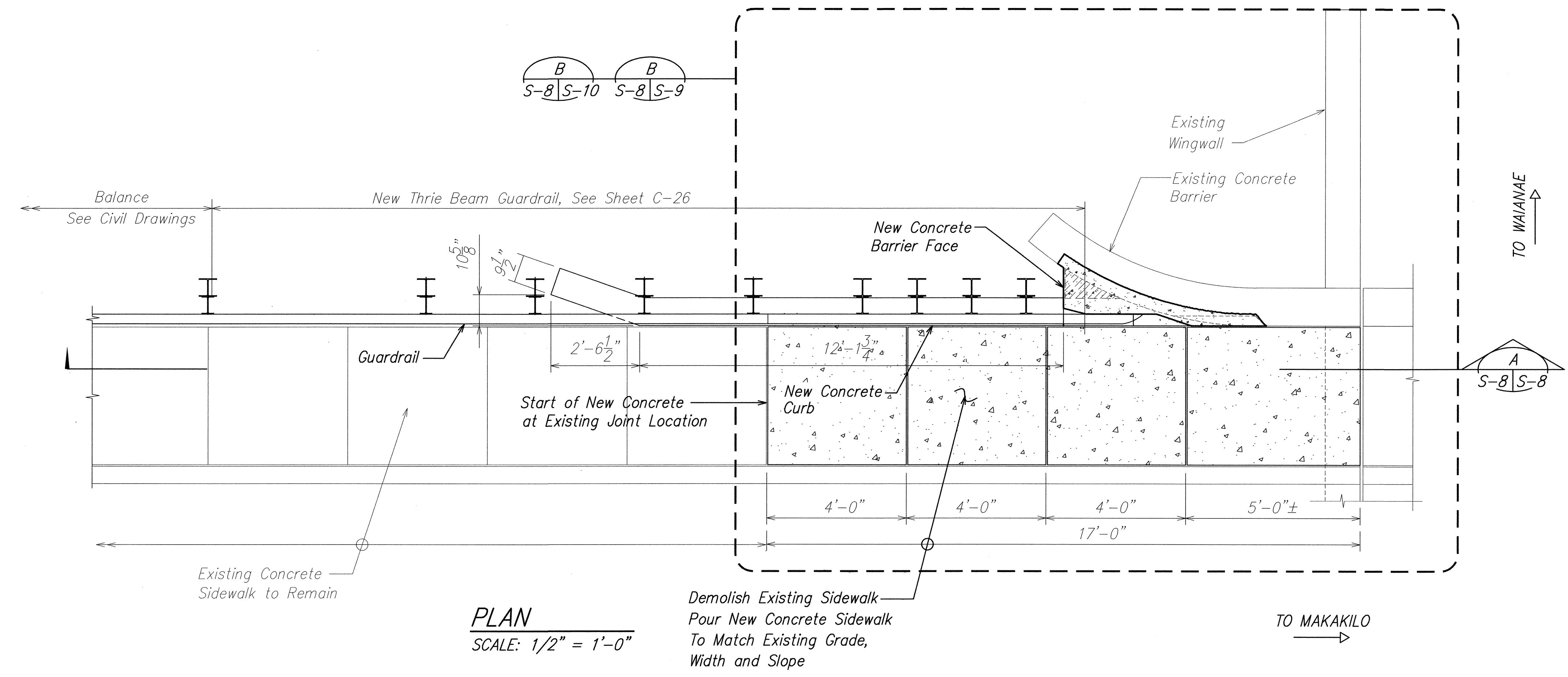
INTERSTATE ROUTE H-1 REHABILITATION
Vicinity Of Makakilo Interchange
Project No. H1A-01-02M

Scale: As Noted Date: April 2003

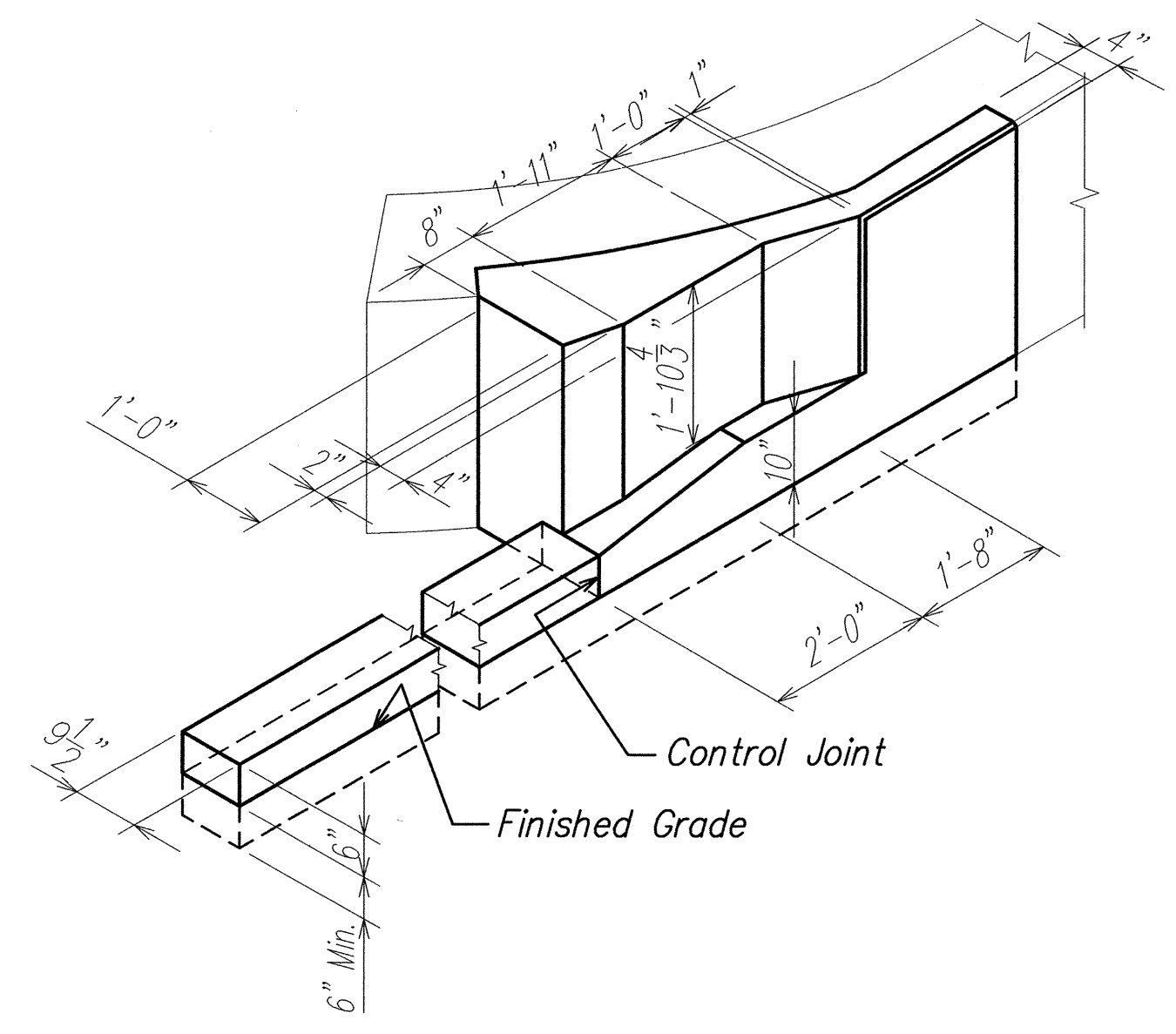
SHEET No. S-7 OF 28 SHEETS

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

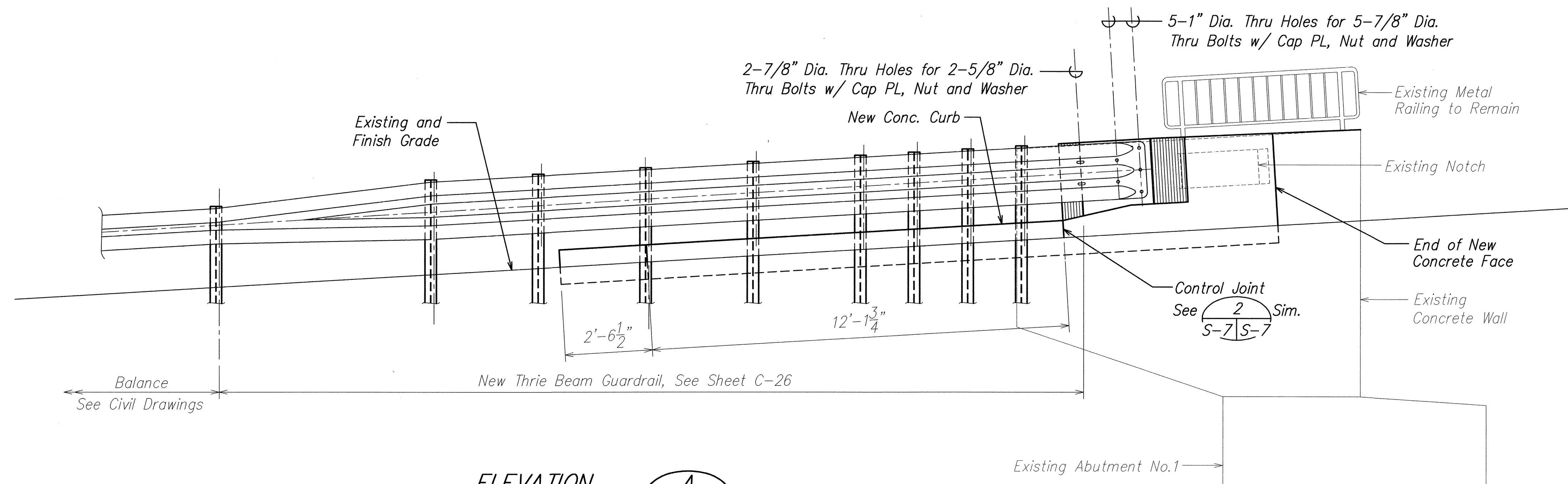
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	H1A-01-02M	2003	52	88



PLAN
SCALE: 1/2" = 1'-0"



END POST DETAIL 1
NOT TO SCALE S-8 S-8



ELEVATION A
SCALE: 1/2" = 1'-0" S-8 S-8

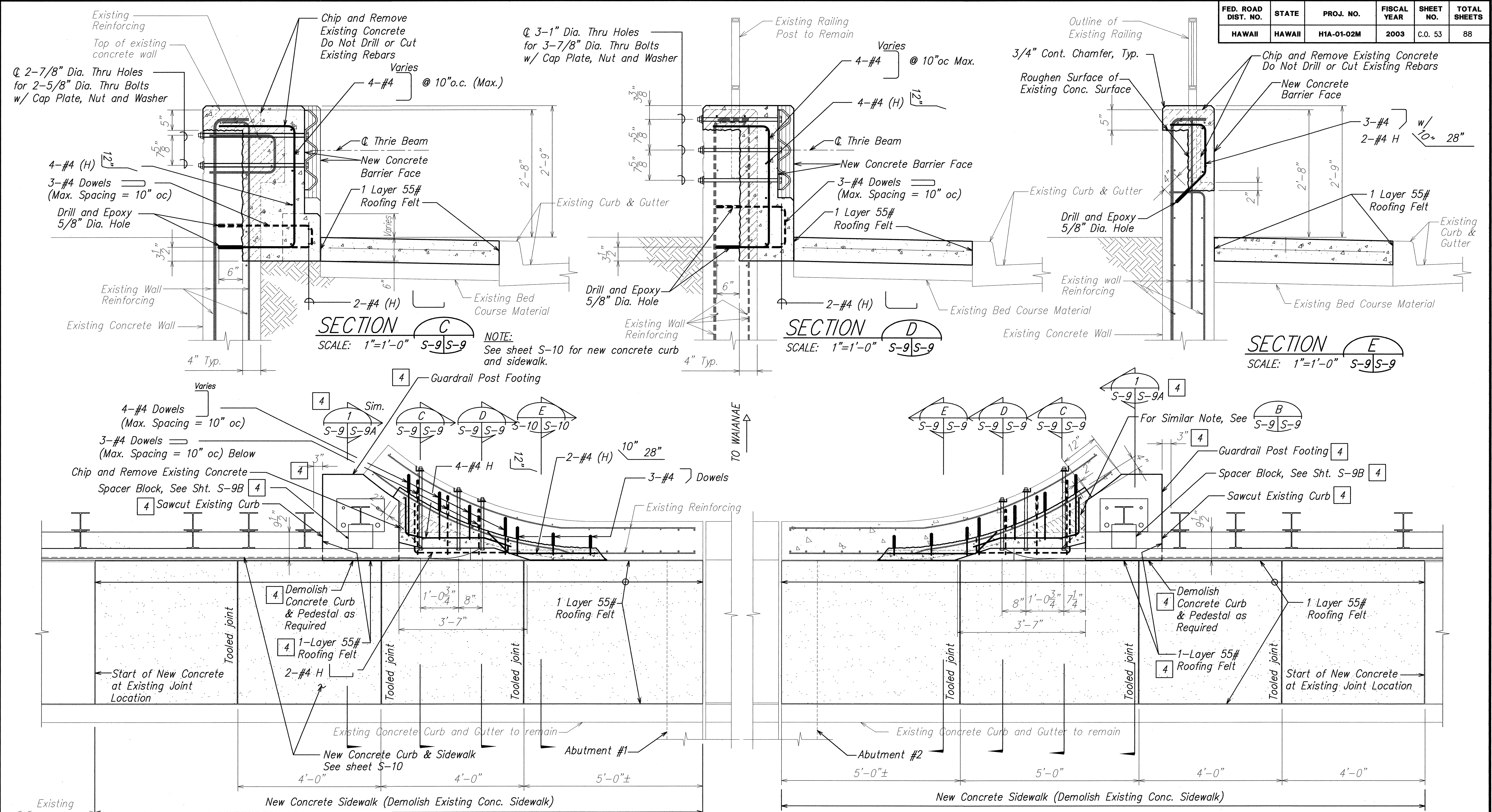
**CONCRETE END POST TYPE II PLAN AND ELEVATION
(ABUTMENT NO. 1 WAIANAE SIDE)**

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

STUART K. OTAKE
LICENSED PROFESSIONAL ENGINEER
No. 5114-S
HAWAII, U.S.A.
THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.
Mitsunaga & Associates, Inc.
Expiration Date of the License

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
TYPICAL END POST PLAN AND ELEVATION
INTERSTATE ROUTE H-1 REHABILITATION
Vicinity Of Makakilo Interchange
Project No. H1A-01-02M
Scale: As Noted Date: April 2003
SHEET No. S-8 OF 28 SHEETS

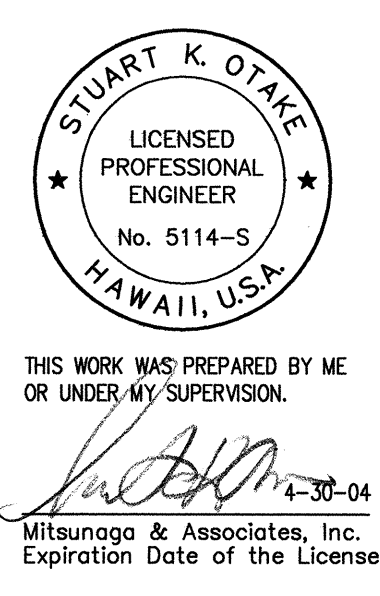
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	H1A-01-02M	2003	C.O. 53	88



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

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

- NOTES:
- All existing reinforcing in end post shall remain in its original location.
 - For tooled joint see Section 608 of the Special Provisions.



SECTION PLAN A
SCALE: 3/4"=1'-0" S-7|S-9

08/15/05	As Built
11/05/04	4 Revised Guard Rail Post.
DATE	REVISION

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

SECTIONS AND PLANS

INTERSTATE ROUTE H-1 REHABILITATION
Vicinity Of Makakilo Interchange
Project No. H1A-01-02M

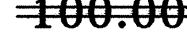
Scale: As Noted Date: April 2003

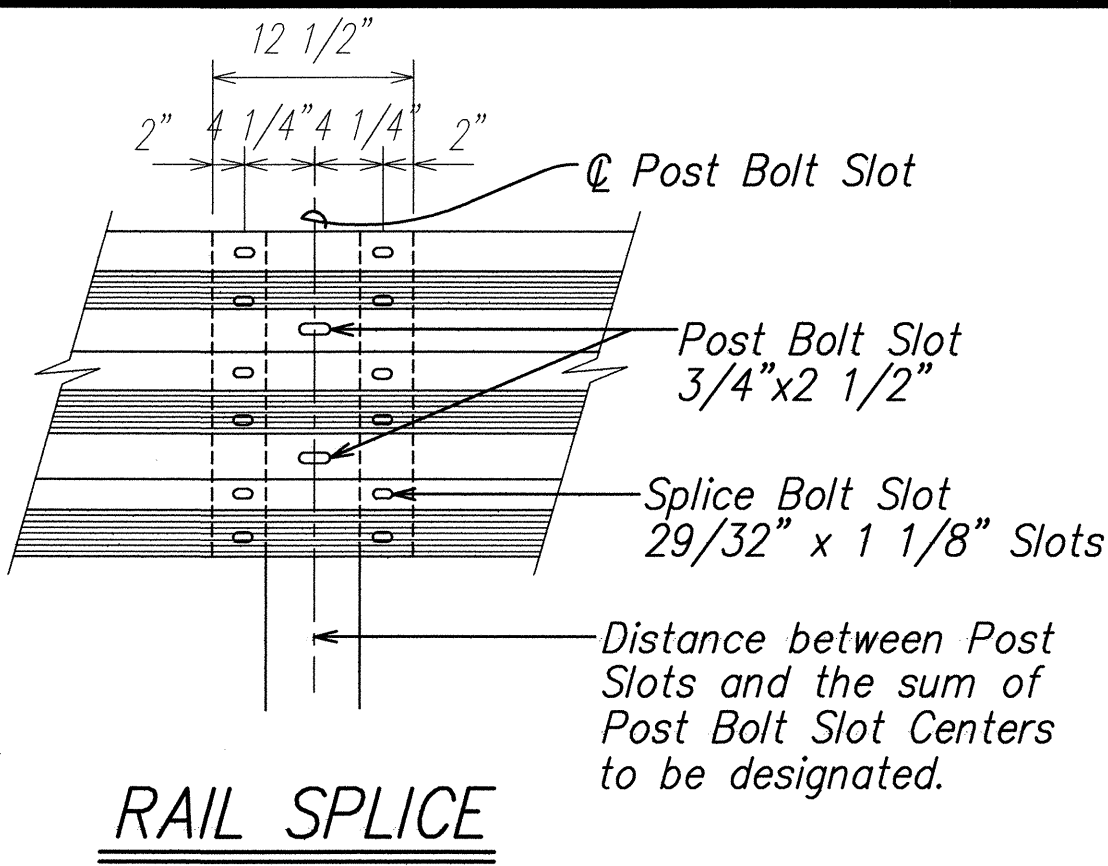
SHEET No. S-9 OF 28 SHEETS

AS-BUILT

C.O. 53

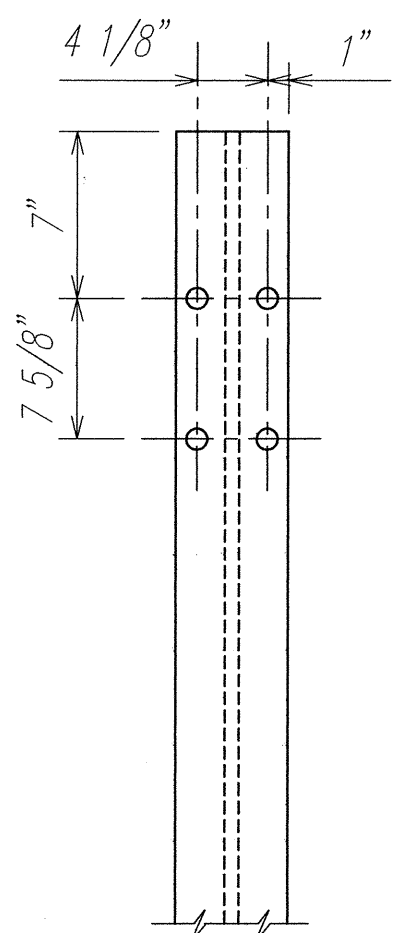
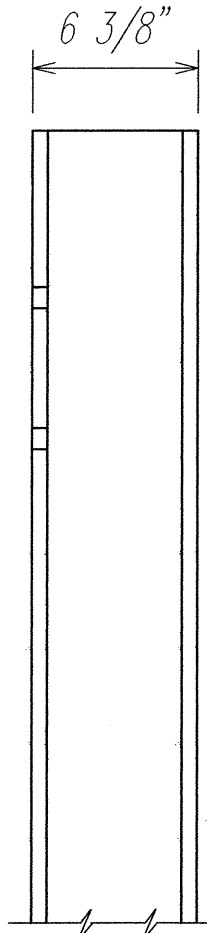
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	H1A-01-02M	2003	C.O. 53 S-2	88

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

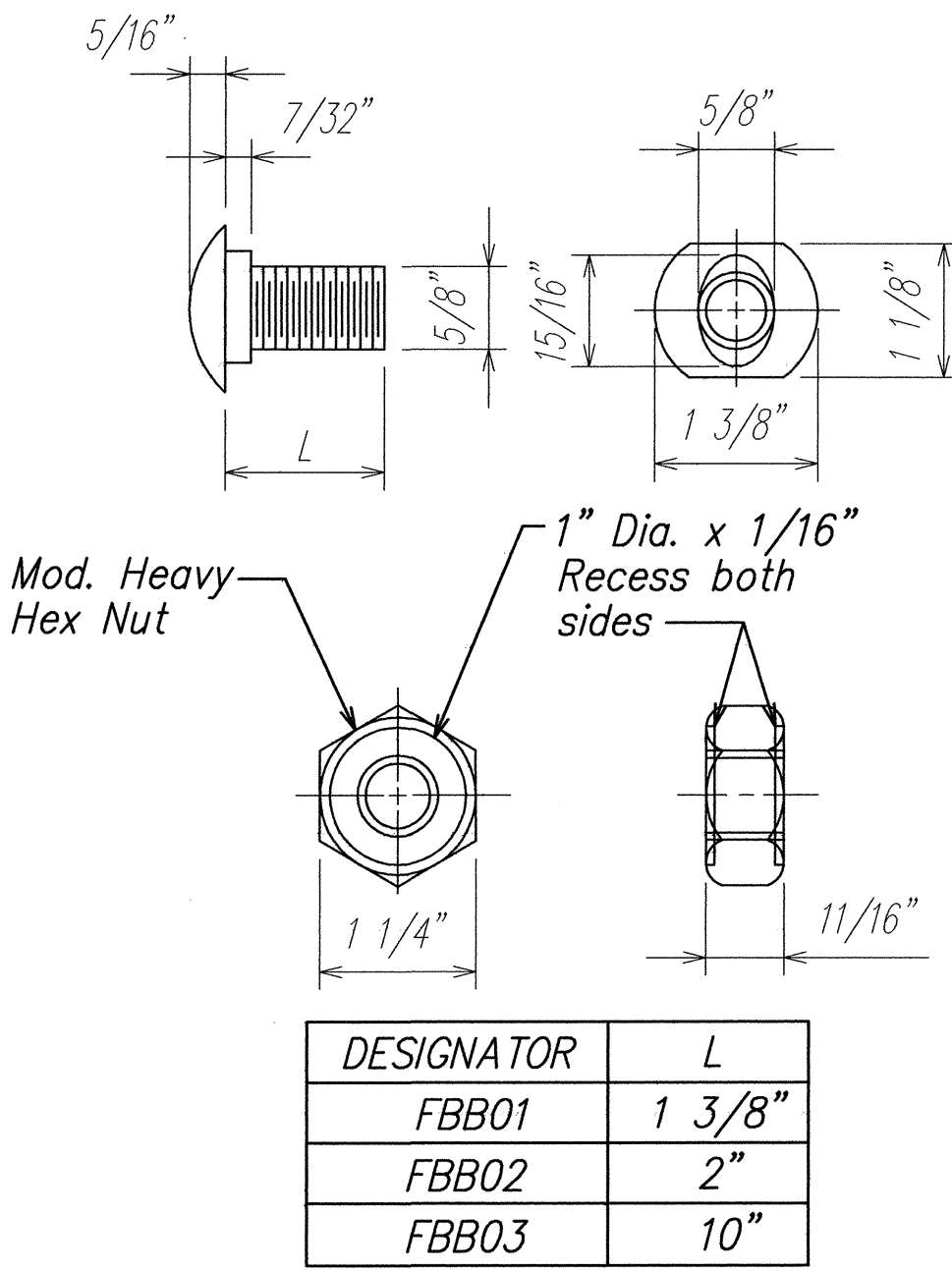


NOTE:
All Holes are 3/4" Dia.

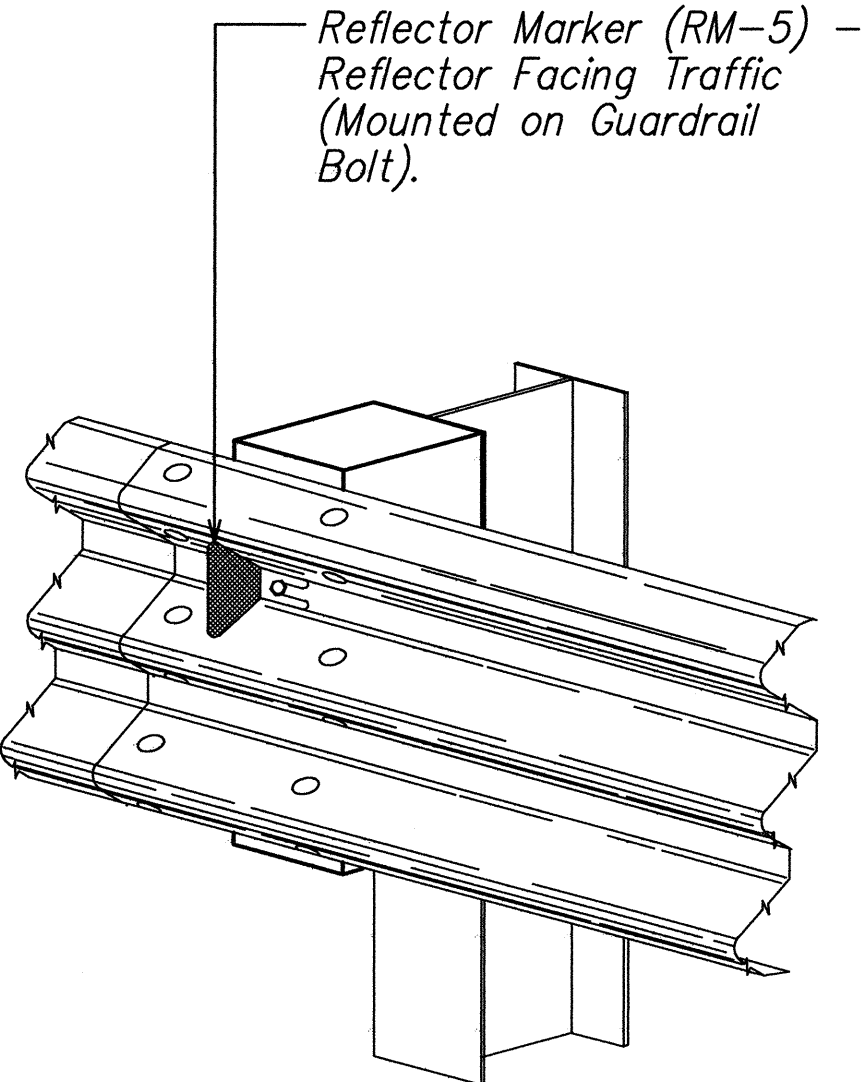
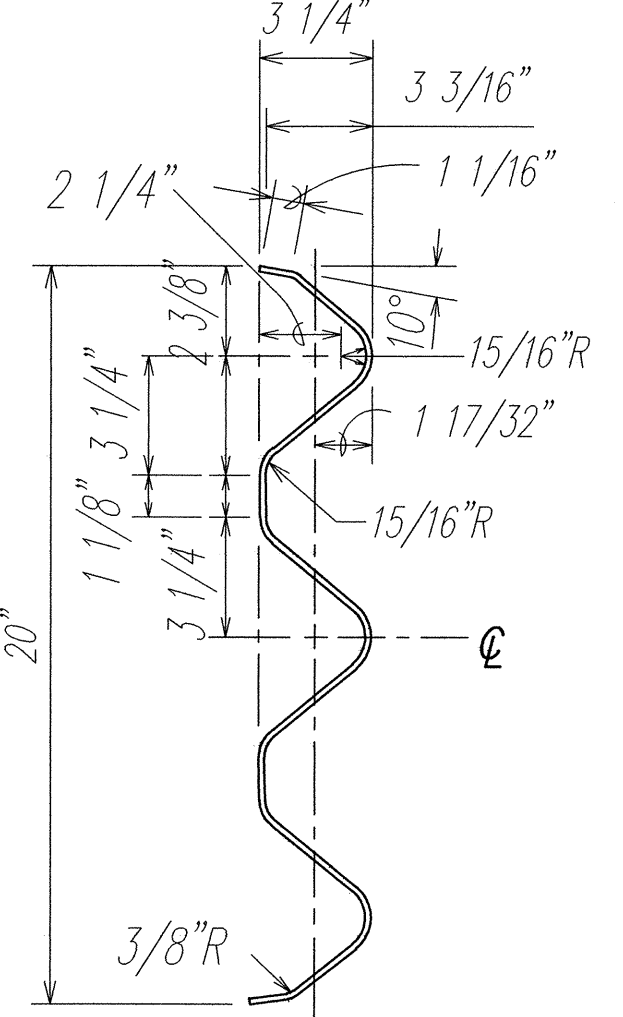
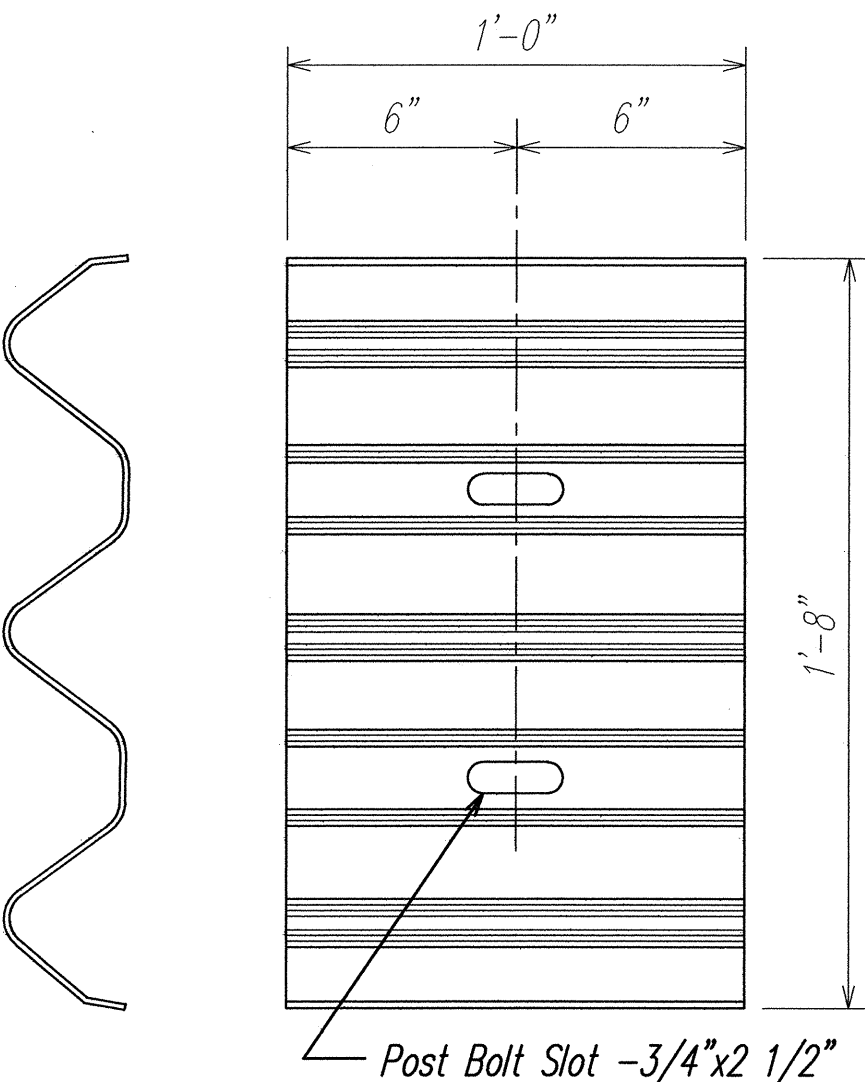
W6x25
Structural
Shape



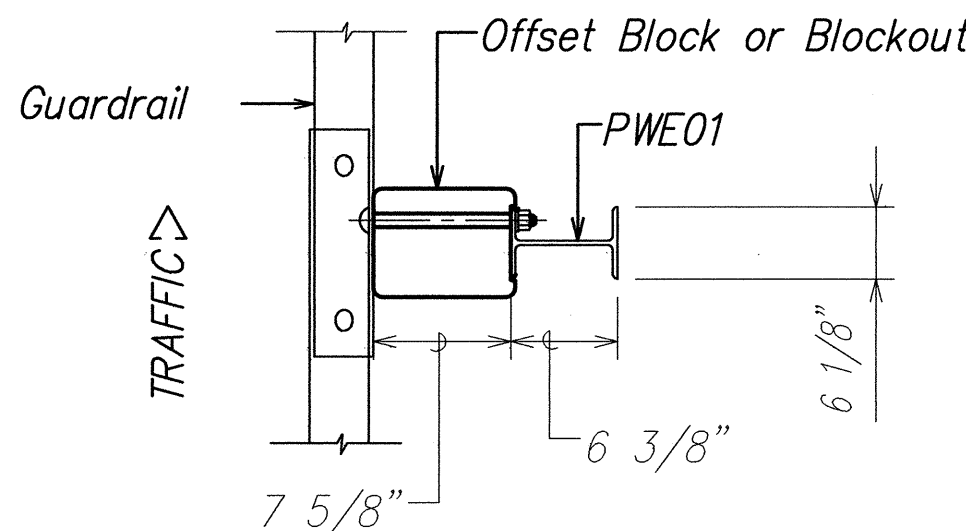
THRIE-BEAM STRONG POST
FOR PLASTIC SPACER BLOCKS



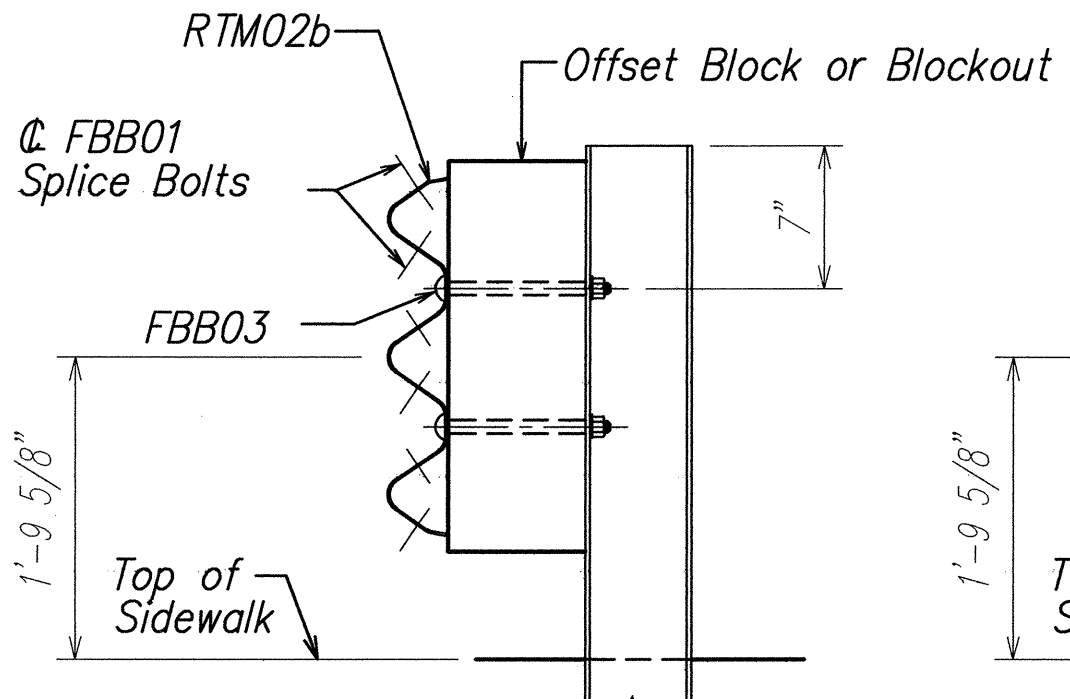
GUARDRAIL BOLTS
AND RECESSED NUT



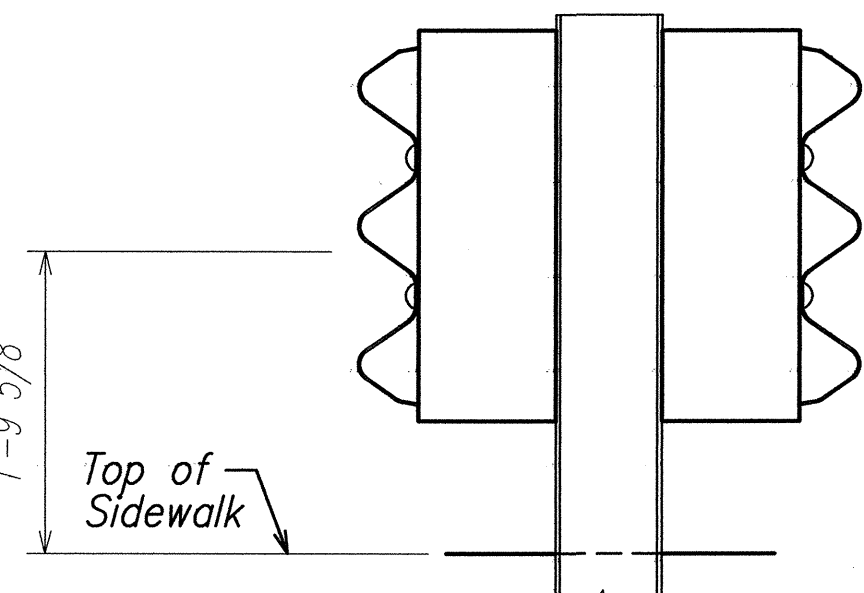
TYPICAL INSTALLATION OF
REFLECTOR MARKER (RM-5)



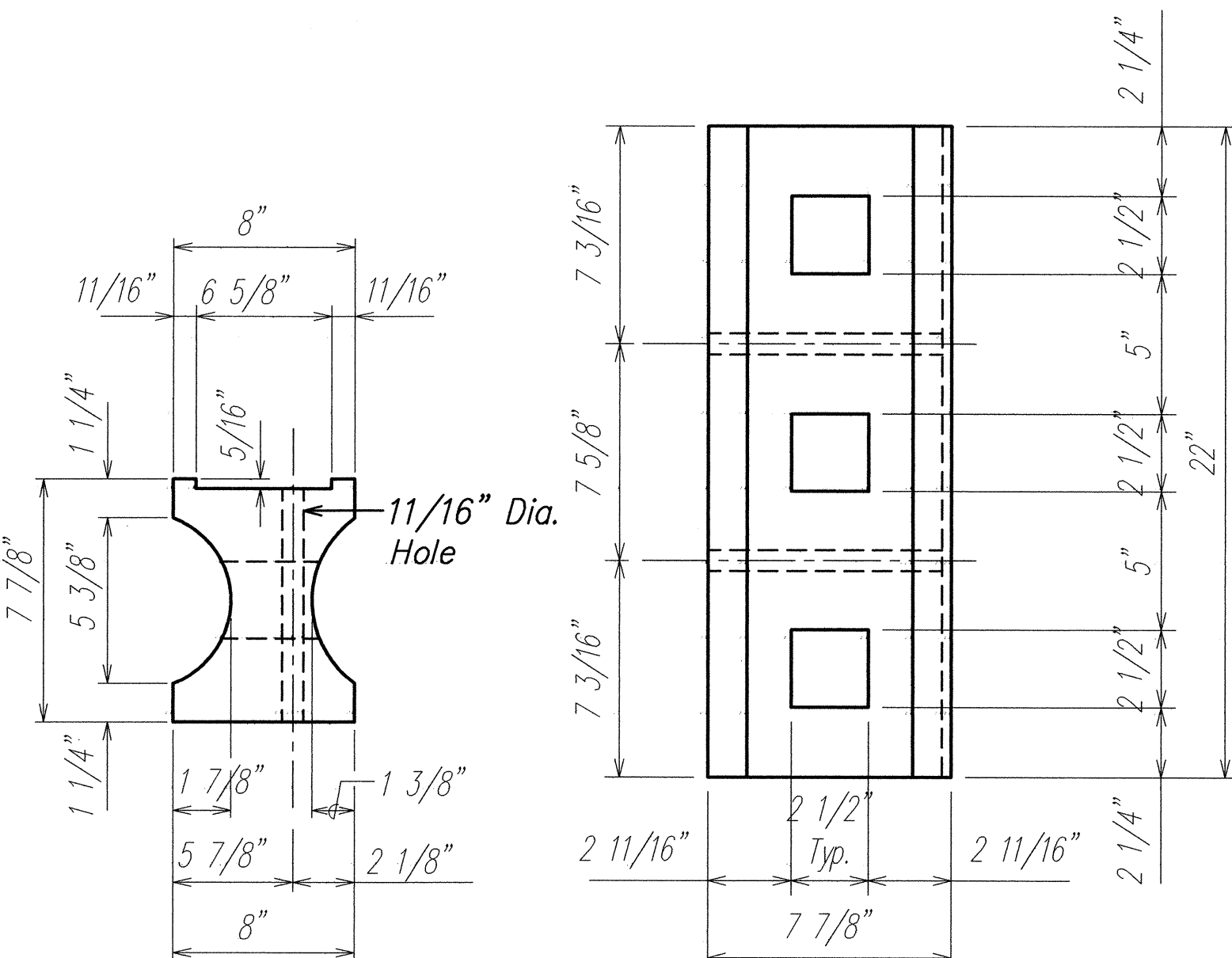
PLAN



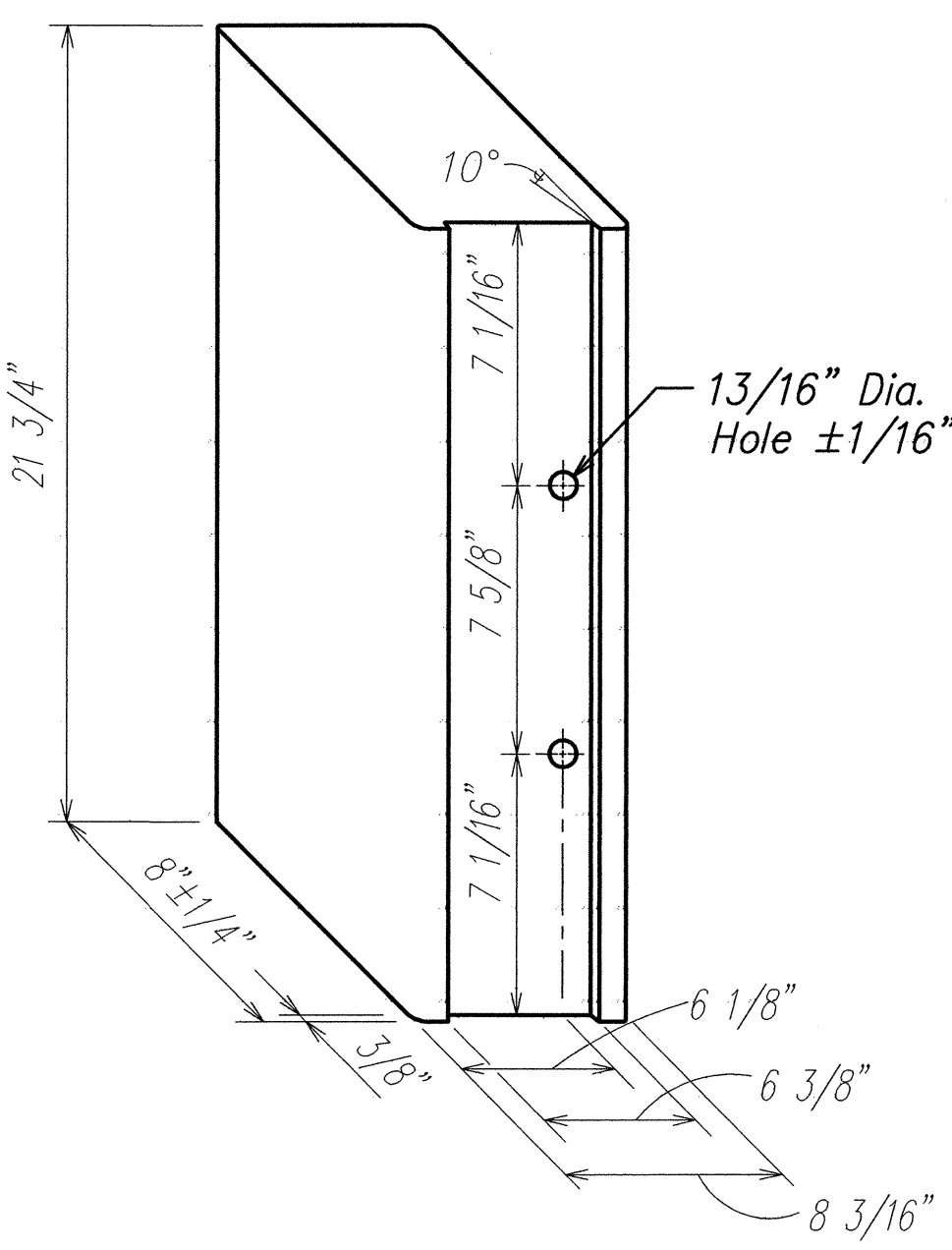
ELEVATION



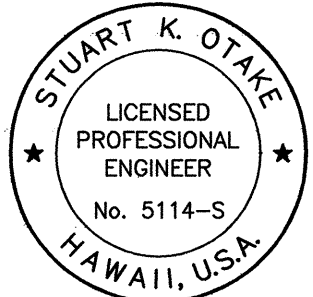
ELEVATION



MODIFIED 6x8x22 PLASTIC
BLOCKOUT (TYPE 1-THRIE)



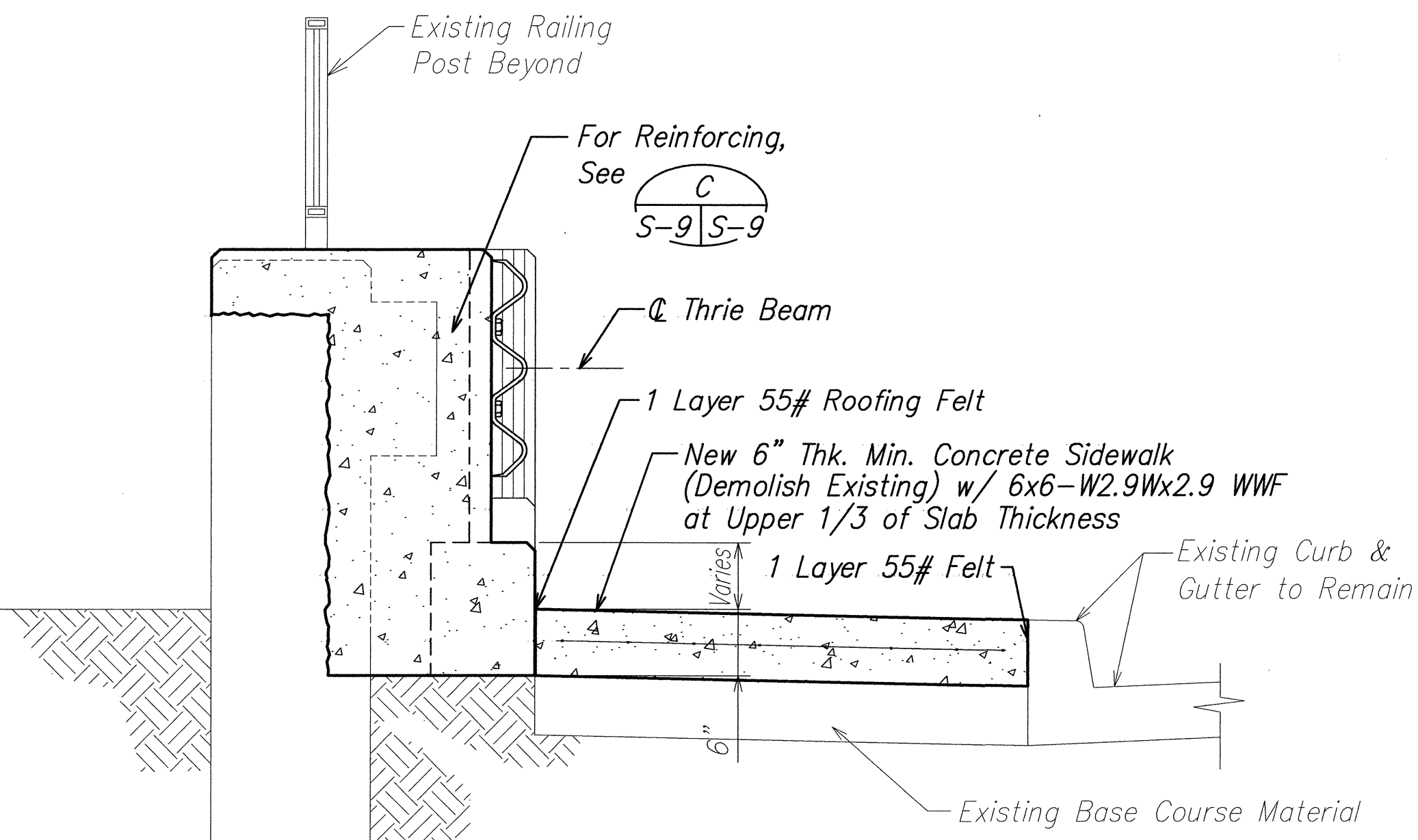
RECYCLED POLYETHYLENE THRIE-BEAM
OFFSET BLOCK (TYPE II-THRIE)



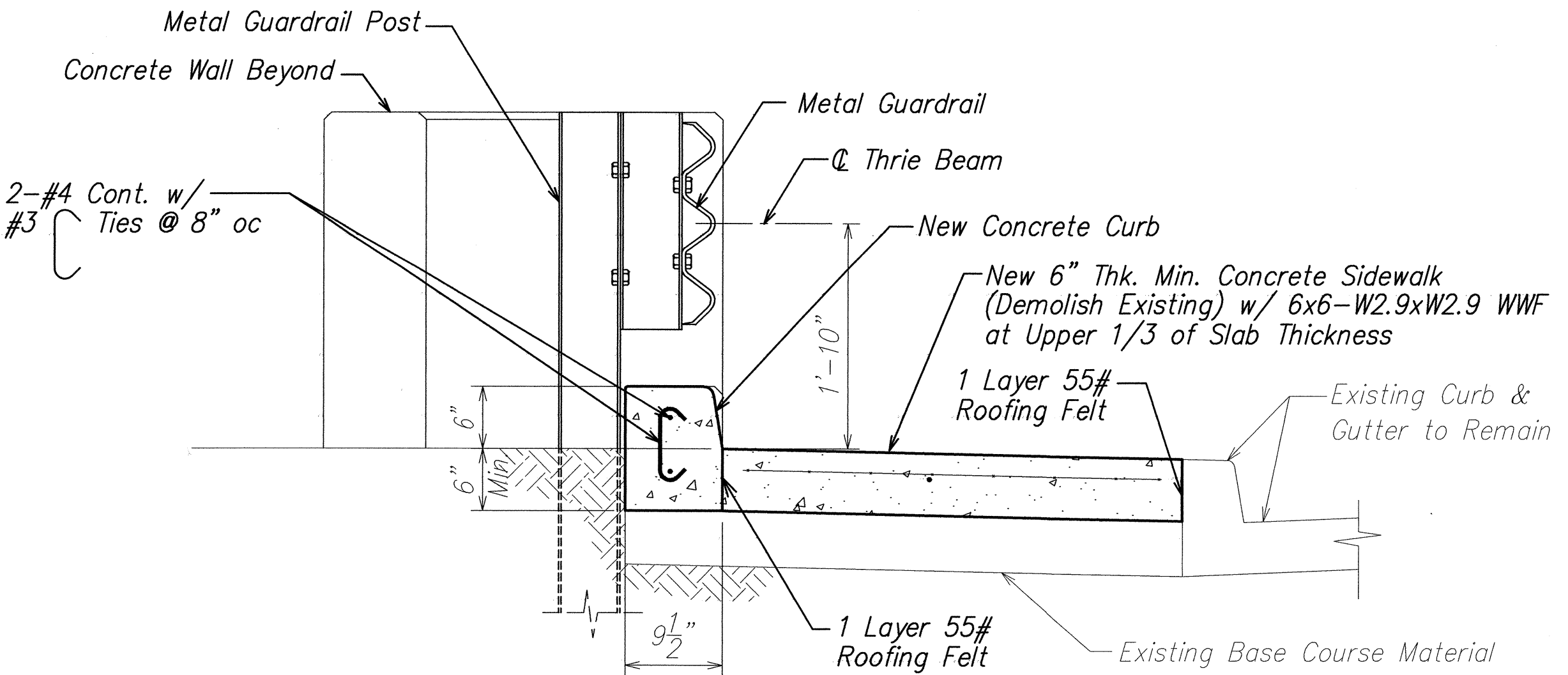
THIS WORK WAS PREPARED BY ME
OR UNDER MY SUPERVISION.
Mitsunaga & Associates, Inc.

08/15/05	As Built - Added sheet
11/05/04	4 New Sheet for Revised Guard Rail Post.
DATE	REVISION
STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION STRONG POST THRIE-BEAM GUARDRAIL INTERSTATE ROUTE H-1 REHABILITATION Vicinity Of Makakilo Interchange Project No. H1A-01-02M	
Scale: As Noted	Date: April 2003
SHEET No. S-9B OF 28 SHEETS	

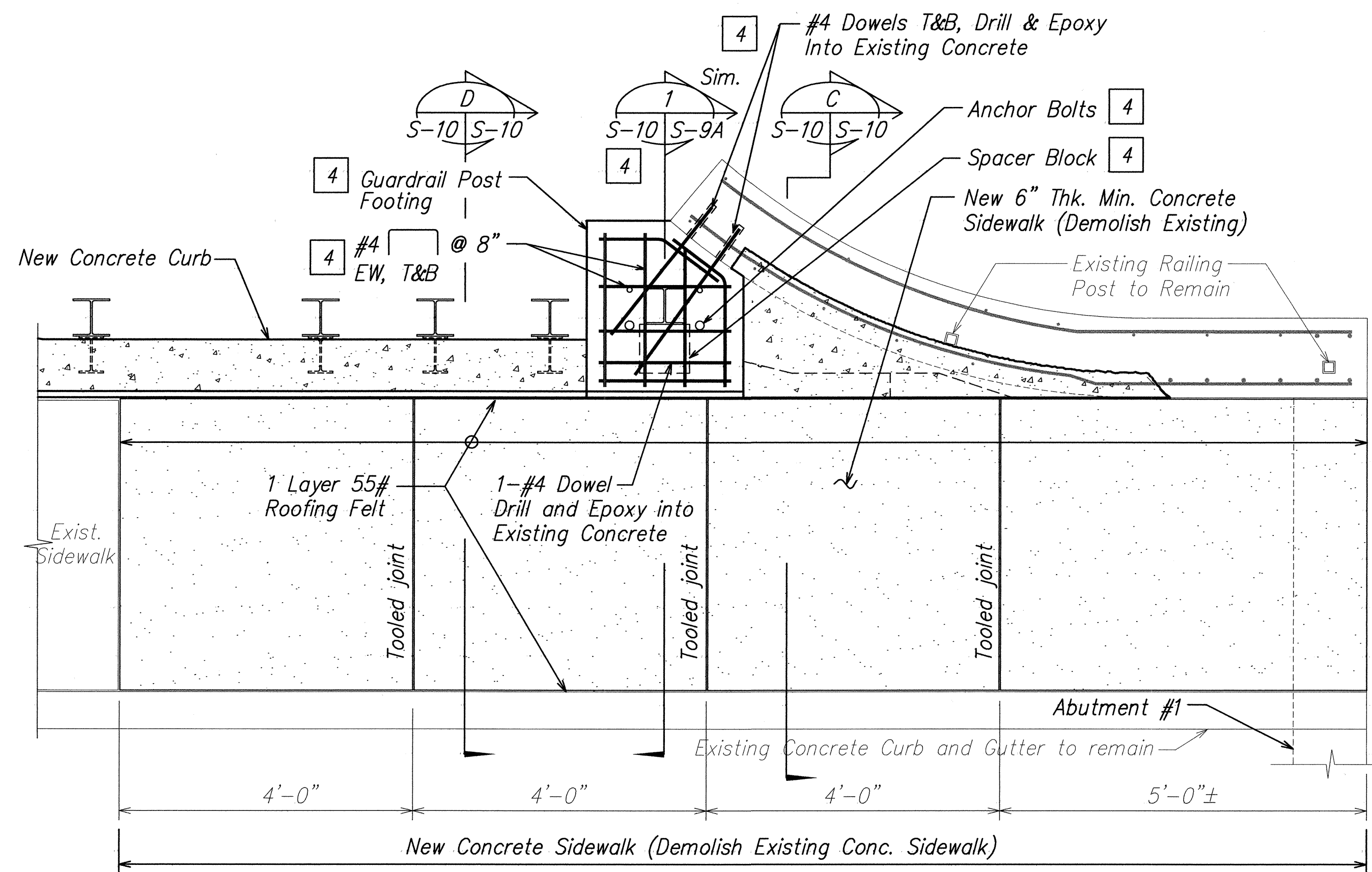
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	H1A-01-02M	2003	C.O. 54	88



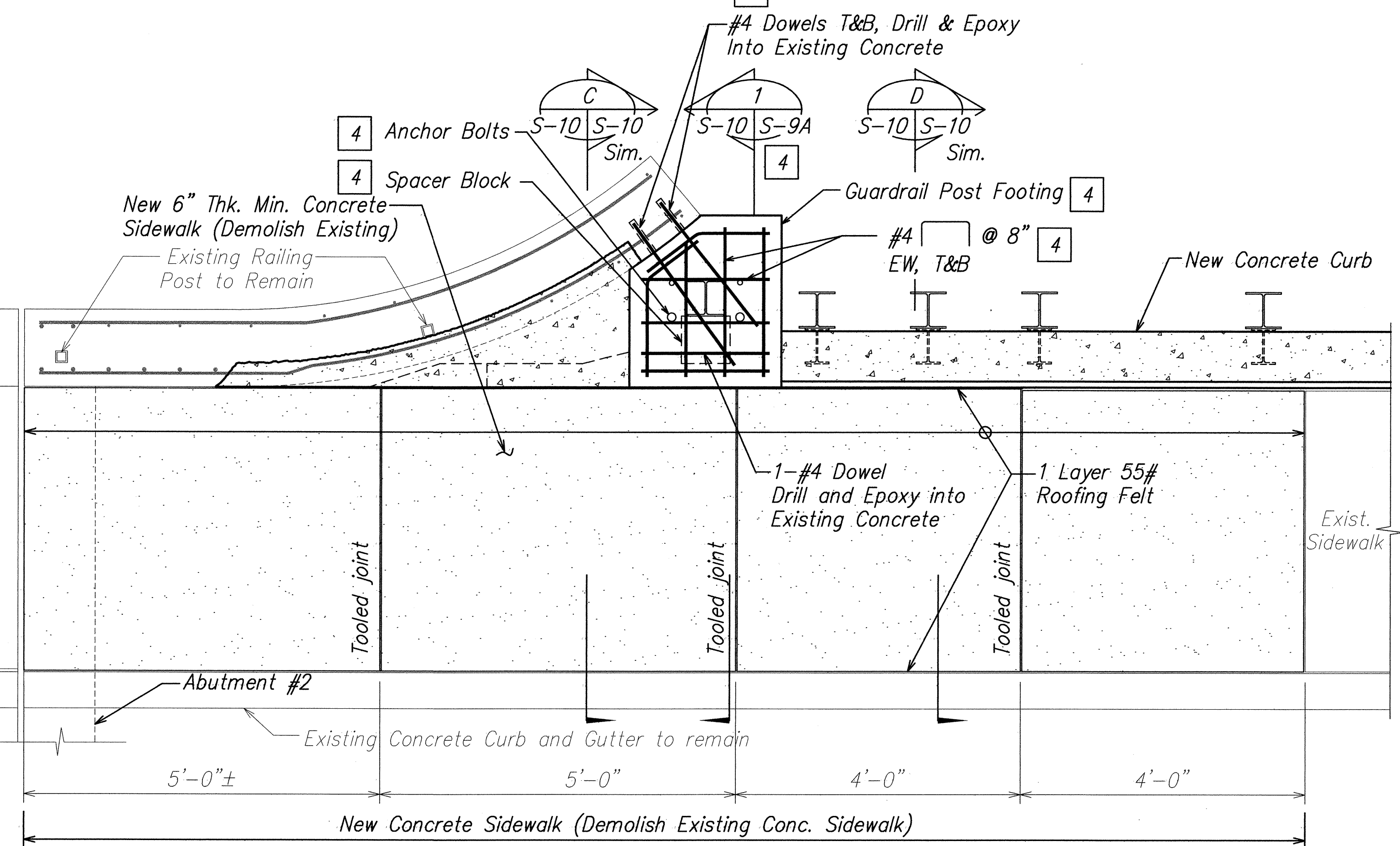
SECTION C
SCALE: 1"=1'-0" S-10 S-10



SECTION D
SCALE: 1"=1'-0" S-10 S-10



SECTION PLAN B
SCALE: 3/4"=1'-0" S-8 S-10



SECTION PLAN A
SCALE: 3/4"=1'-0" S-7 S-10

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

- NOTES:
1. All existing reinforcing in end post shall remain in its original location.
 2. For tooled joint see Section 608 of the Special Provisions.

08/15/05	As Built
11/05/04	4 Revised Guard Rail Post.
DATE	REVISION

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

SECTIONS AND PLANS

INTERSTATE ROUTE H-1 REHABILITATION
Vicinity Of Makakilo Interchange
Project No. H1A-01-02M

Scale: As Noted Date: April 2003

SHEET No. S-10 OF 28 SHEETS

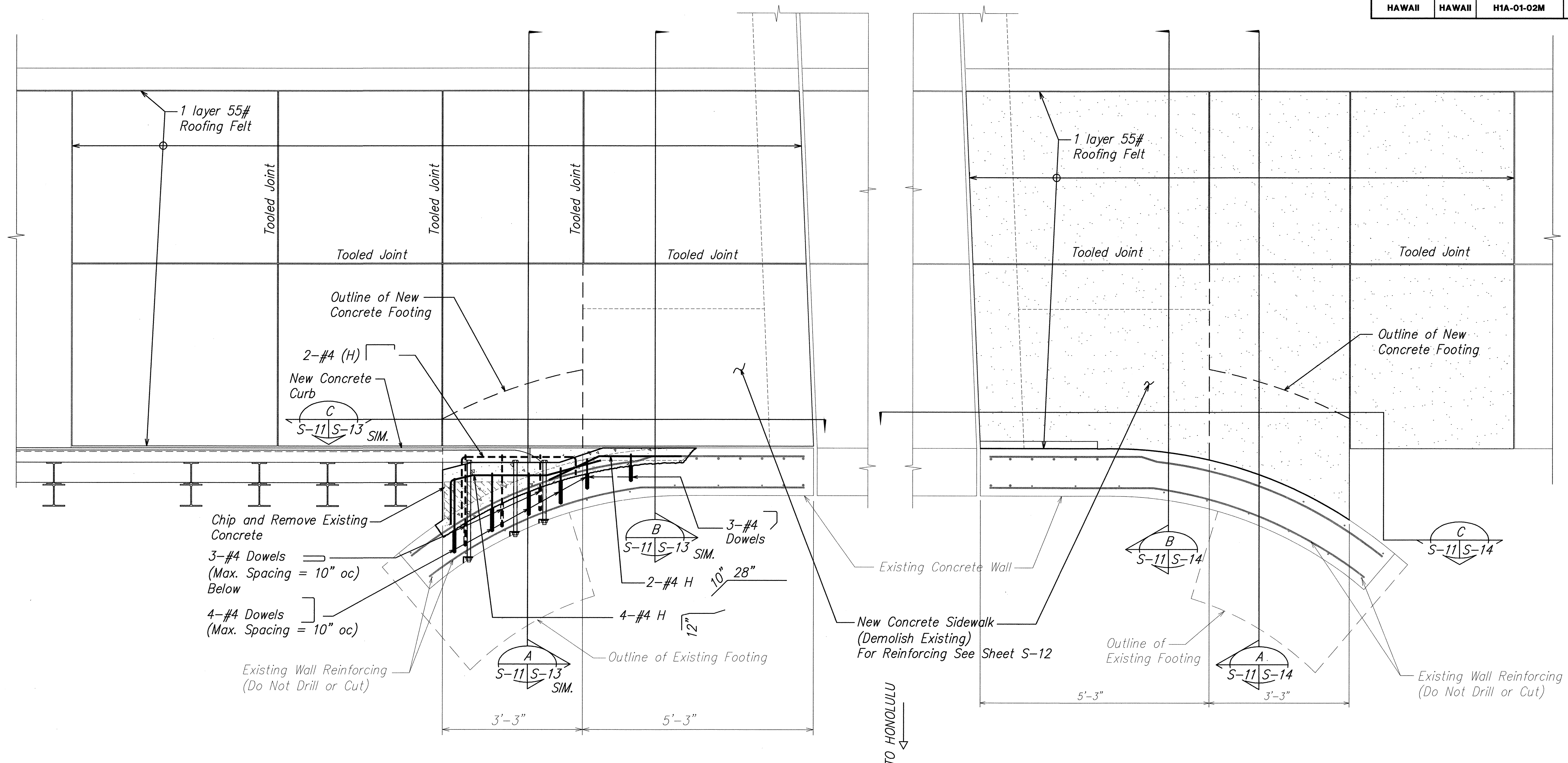
STUART K. OTAKE
LICENSED PROFESSIONAL ENGINEER
No. 5114-S
HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.

4-30-04
Mitsunaga & Associates, Inc.
Expiration Date of the License

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

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	H1A-01-02M	2003	55	88



SECTION PLAN **B**
SCALE: 3/4"=1'-0"
S-5 | S-11

- NOTES:**
1. All existing reinforcing in end post shall remain in its original location.
 2. For tooled joint see Section 608 of the Special Provisions.

SECTION PLAN **A**
SCALE: 3/4"=1'-0"
S-6 | S-11

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

STUART K. OTAKE
LICENSED PROFESSIONAL ENGINEER
No. 5114-S
HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.

[Signature] 4-30-04
Mitsunaga & Associates, Inc.
Expiration Date of the License

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

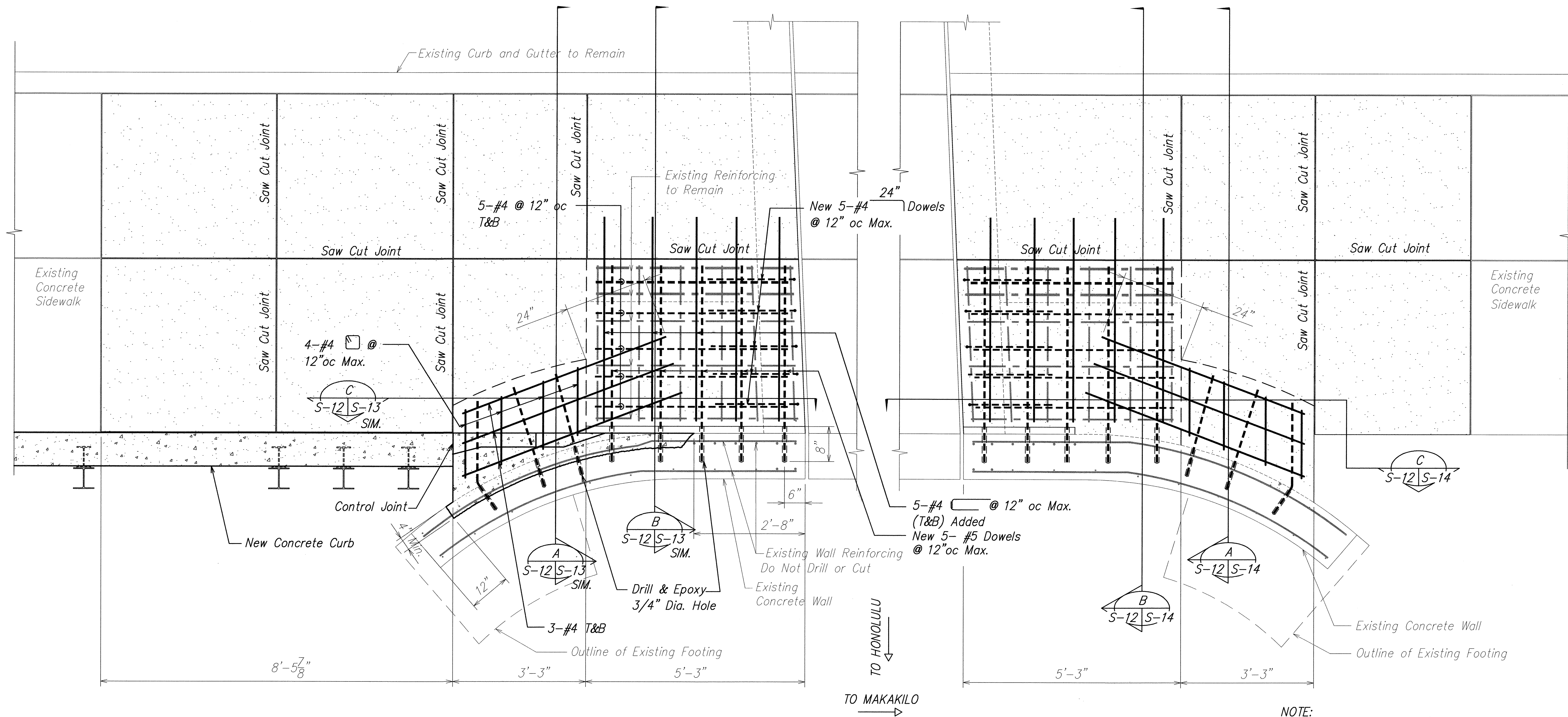
SECTIONS / PLANS

INTERSTATE ROUTE H-1 REHABILITATION
Vicinity Of Makakilo Interchange
Project No. H1A-01-02M

Scale: As Noted Date: April 2003

SHEET No. **S-11** OF **28** SHEETS

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	H1A-01-02M	2003	56	88

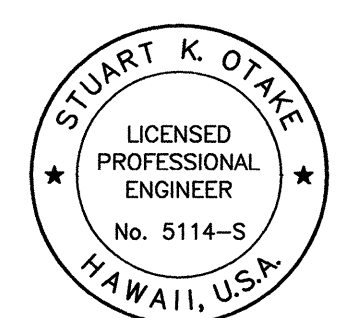


SECTION PLAN B
SCALE: 3/4"=1'-0" S-5 | S-12

NOTE:
All existing reinforcing in end post shall remain in its original location.

SECTION PLAN A
SCALE: 3/4"=1'-0" S-6 | S-12

NOTE:
For Reinforcing See B
S-5 | S-12



THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.
[Signature] 4-30-04
Mitsunaga & Associates, Inc.
Expiration Date of the License

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

SECTIONS / PLANS

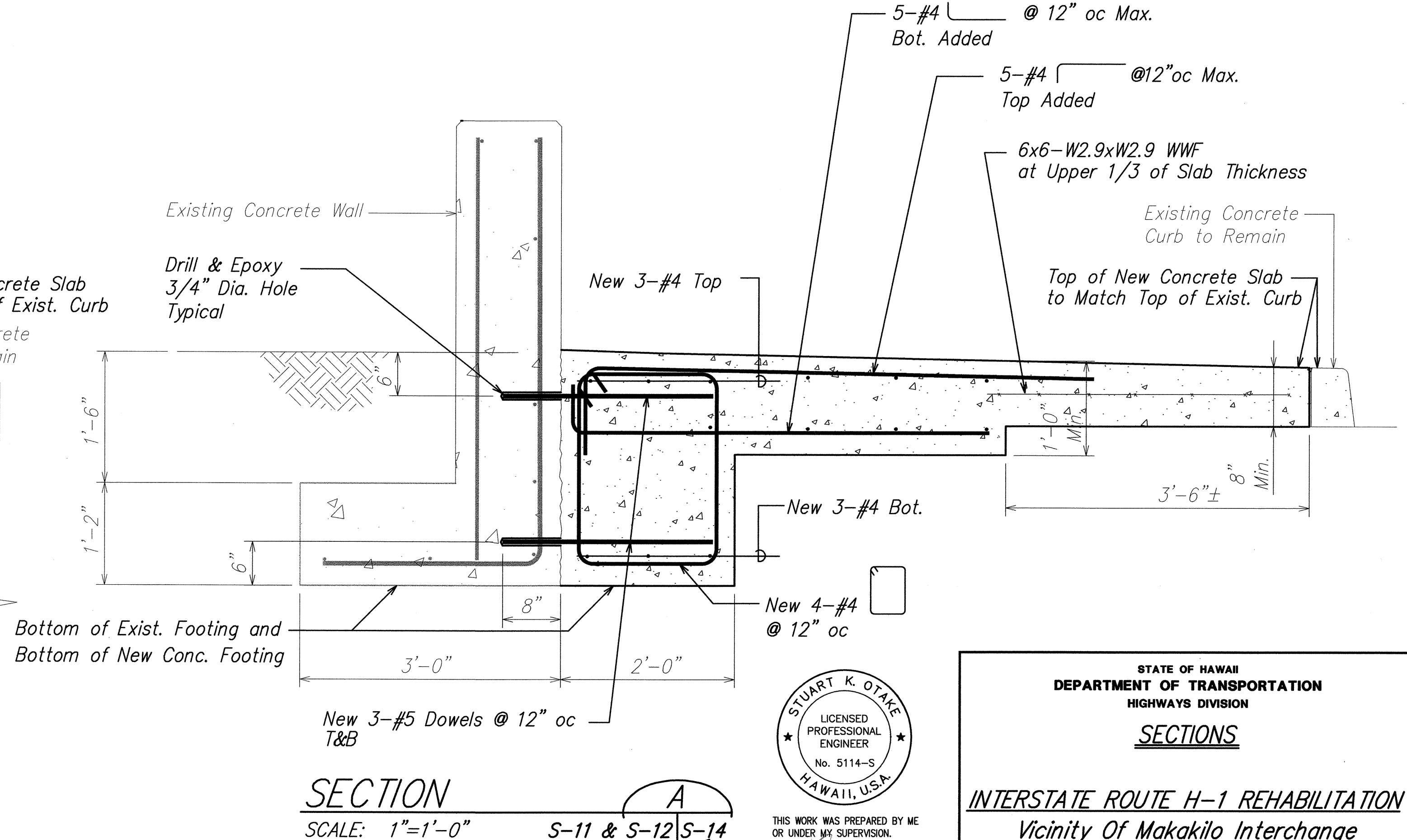
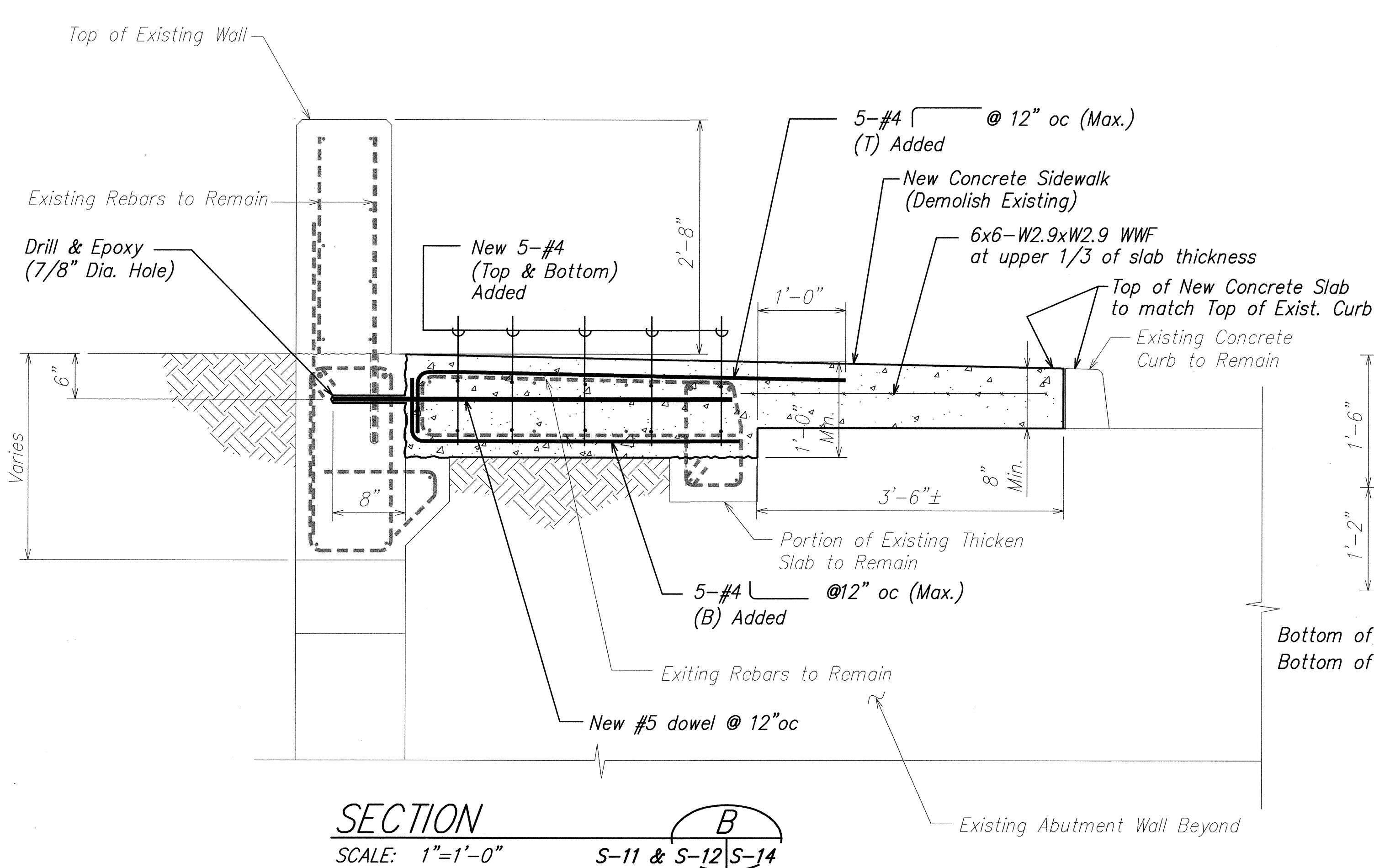
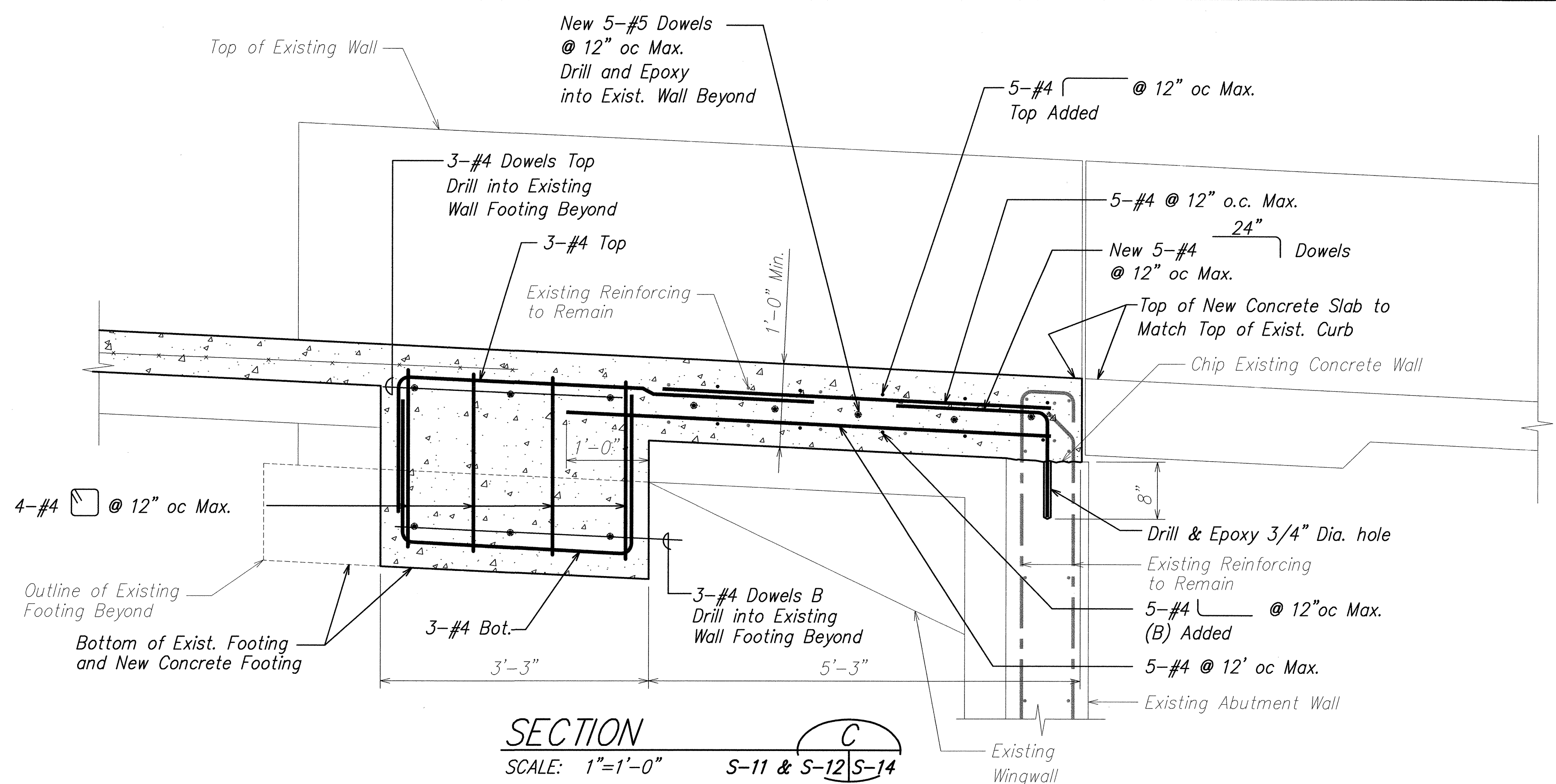
INTERSTATE ROUTE H-1 REHABILITATION
Vicinity Of Makakilo Interchange
Project No. H1A-01-02M

Scale: As Noted Date: April 2003

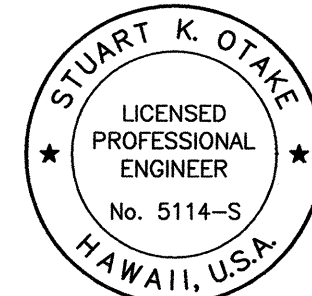
SHEET No. **S-12** OF **28** SHEETS

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

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	H1A-01-02M	2003	58	88



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

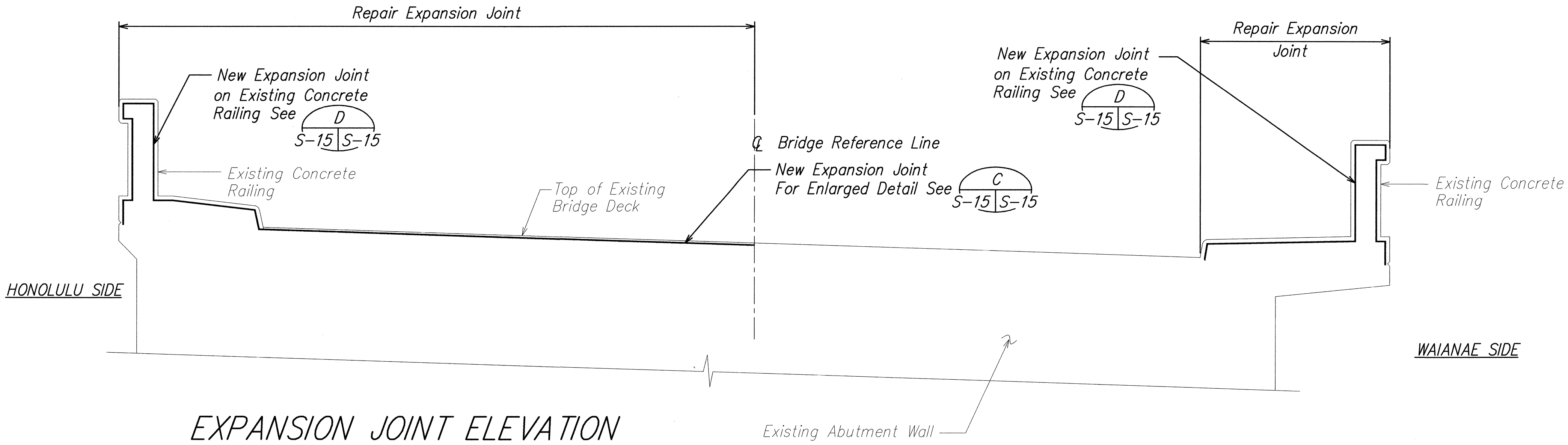


THIS WORK WAS PREPARED BY ME
OR UNDER MY SUPERVISION.
Stuart K. Otake
Mitsunaga & Associates, Inc.
Expiration Date of the License

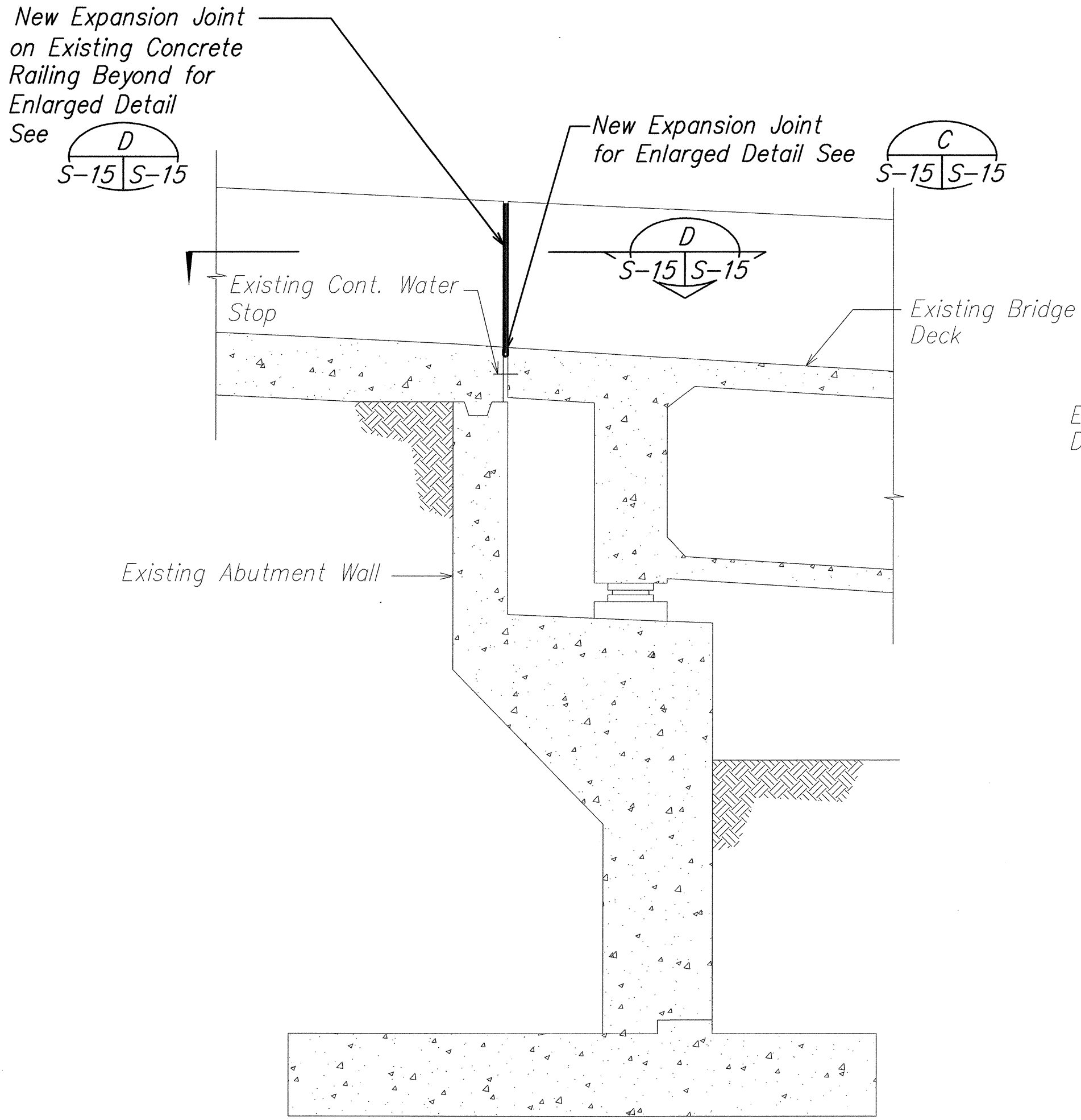
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
SECTIONS
INTERSTATE ROUTE H-1 REHABILITATION
Vicinity Of Makakilo Interchange
Project No. H1A-01-02M
Scale: As Noted
Date: April 2003
SHEET No. S-14 OF 28 SHEETS

58

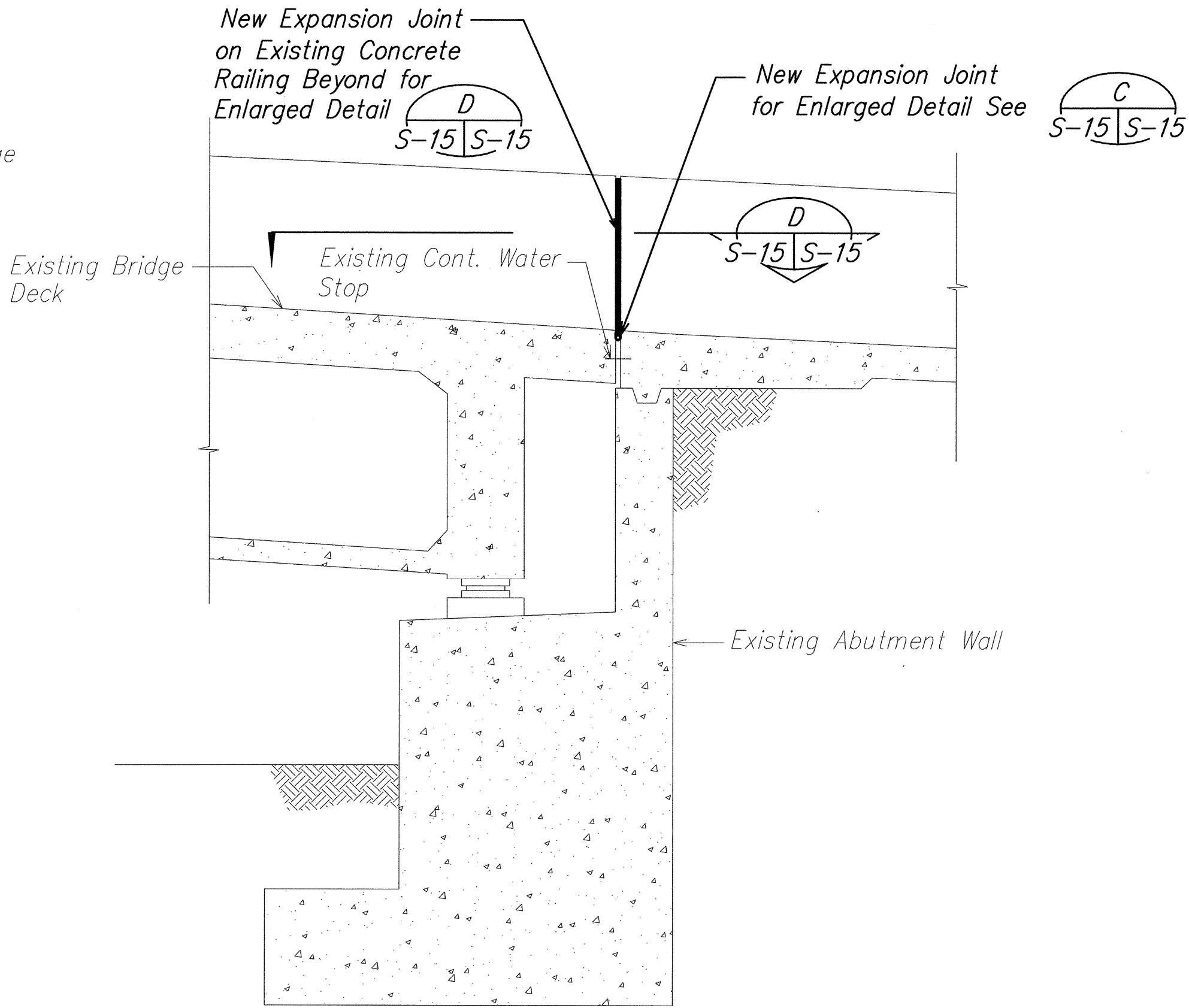
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	H1A-01-02M	2003	59	88



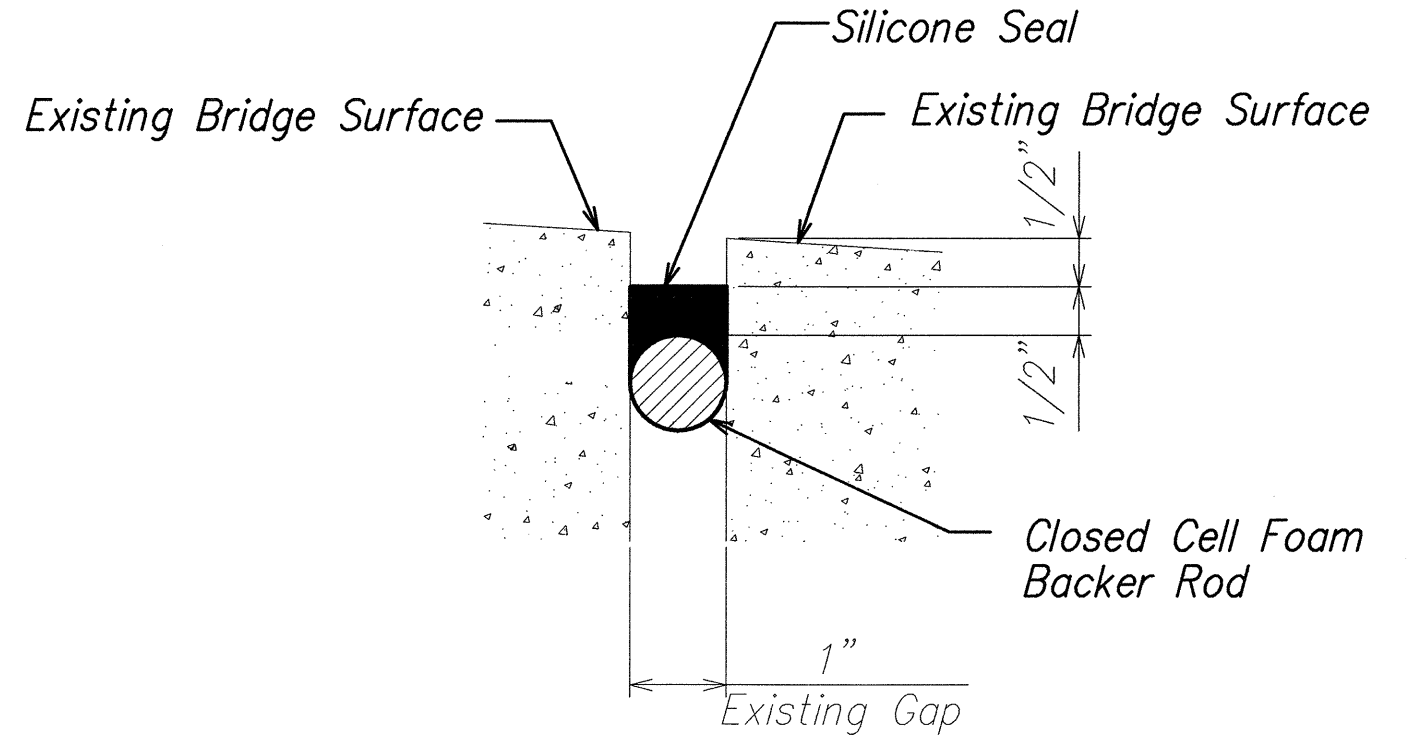
EXPANSION JOINT ELEVATION
FOR ABUTMENT NO. 1 & 2 E
SCALE: 1/2" = 1'-0" S-4|S-15



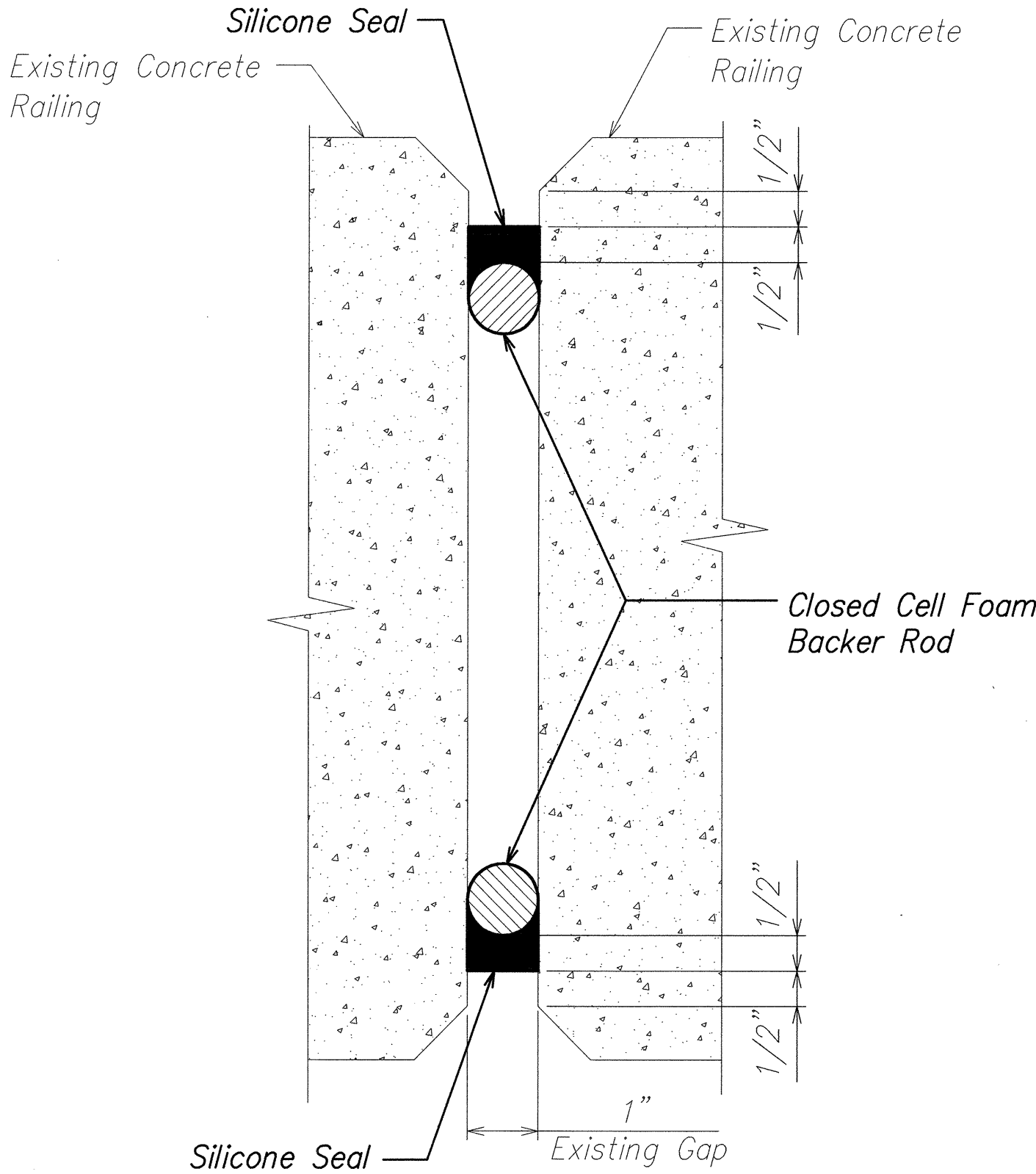
ABUTMENT NO. 2 SECTION A
SCALE: 1/2" = 1'-0" S-4|S-15



ABUTMENT NO. 1 SECTION B
SCALE: 1/2" = 1'-0" S-4|S-15



EXPANSION JOINT DETAIL
AT EXISTING CONCRETE DECK C
SCALE: NOT TO SCALE S-15|S-15



EXPANSION JOINT DETAIL
AT EXISTING CONCRETE DECK D
SCALE: NOT TO SCALE S-15|S-15

SURVEY PLOTTED BY	DATE
DESIGNED BY	
NOTED BY	
CHECKED BY	
ORIGINAL PLAN	
NOTE BOOK	
No.	

STUART K. OTAKE

LICENSED PROFESSIONAL ENGINEER

No. 5114-S

HAWAII, USA

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.

[Signature] 4-30-04

Mitsunaga & Associates, Inc.

Expiration Date of the License

STATE OF HAWAII

DEPARTMENT OF TRANSPORTATION

HIGHWAYS DIVISION

EXPANSION JOINT DETAILS

INTERSTATE ROUTE H-1 REHABILITATION

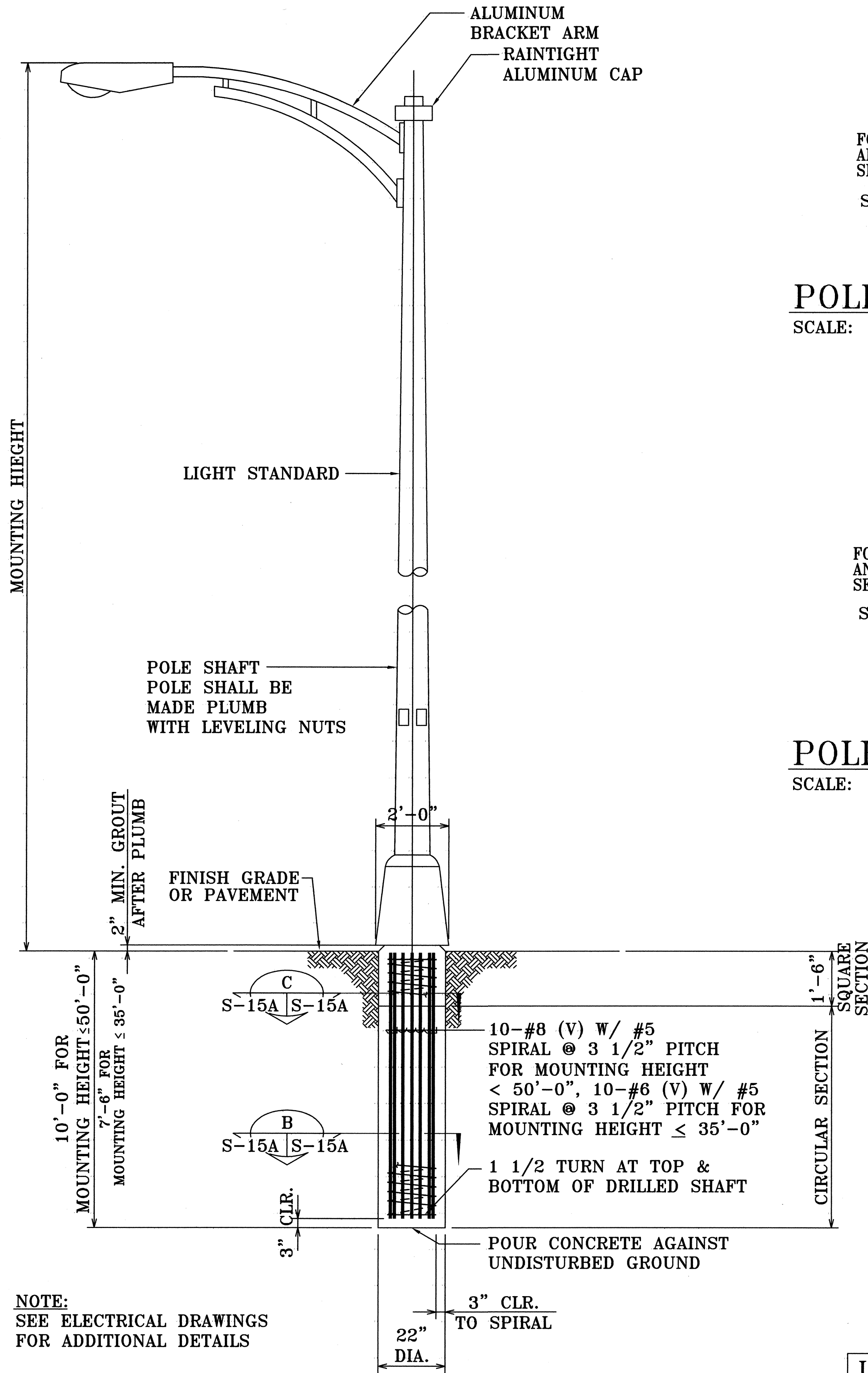
Vicinity Of Makakilo Interchange

Project No. H1A-01-02M

Scale: As Noted Date: April 2003

SHEET No. S-15 OF 28 SHEETS

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	H1A-01-02M	2003	59 S-1	88



POLE FOUNDATION SECTION B
SCALE: 1"=1'-0" S-15A S-15A

POLE FOUNDATION SECTION C
SCALE: 1"=1'-0" S-15A S-15A

POLE FOUNDATION A
SCALE: 1/2"=1'-0" S-15A S-15A

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

08/15/05	As Built - Added Sheet
DATE	REVISION

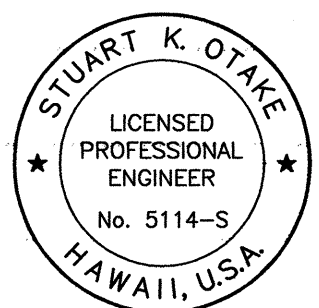
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TYPICAL LIGHT POLE

*INTERSTATE ROUTE H-1 REHABILITATION
Vicinity Of Makakilo Interchange
Project No. H1A-01-02M*

Scale: As Noted Date: April 2003

SHEET No. S-15A OF 28 SHEETS

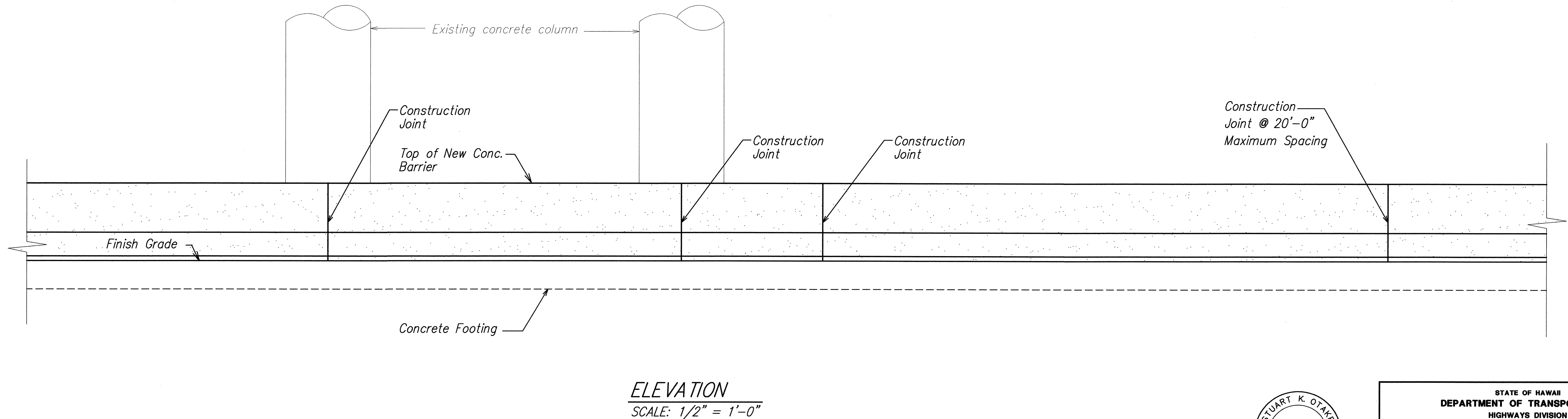
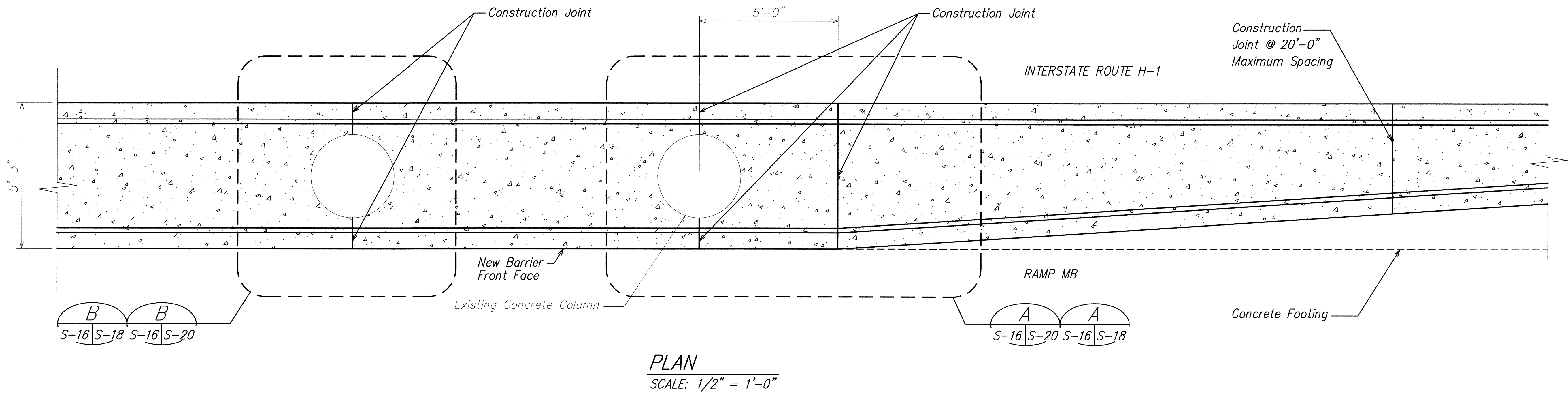


THIS WORK WAS PREPARED BY ME
OR UNDER MY SUPERVISION.

[Signature]
Mitsunaga & Associates, Inc.
Expiration Date of the License

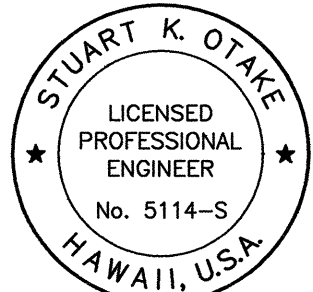
SURVEY PLOTTED BY	DATE
DRAWN BY	
DESIGNED BY	
QUANTITIES BY	
CHECKED BY	
ORIGINAL PLAN	
NOTE BOOK	
No.	

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	H1A-01-02M	2003	60	88



CONCRETE BARRIER PLAN AND ELEVATION

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



THIS WORK WAS PREPARED BY ME
OR UNDER MY SUPERVISION.

Stuart K. Otake

4-30-04

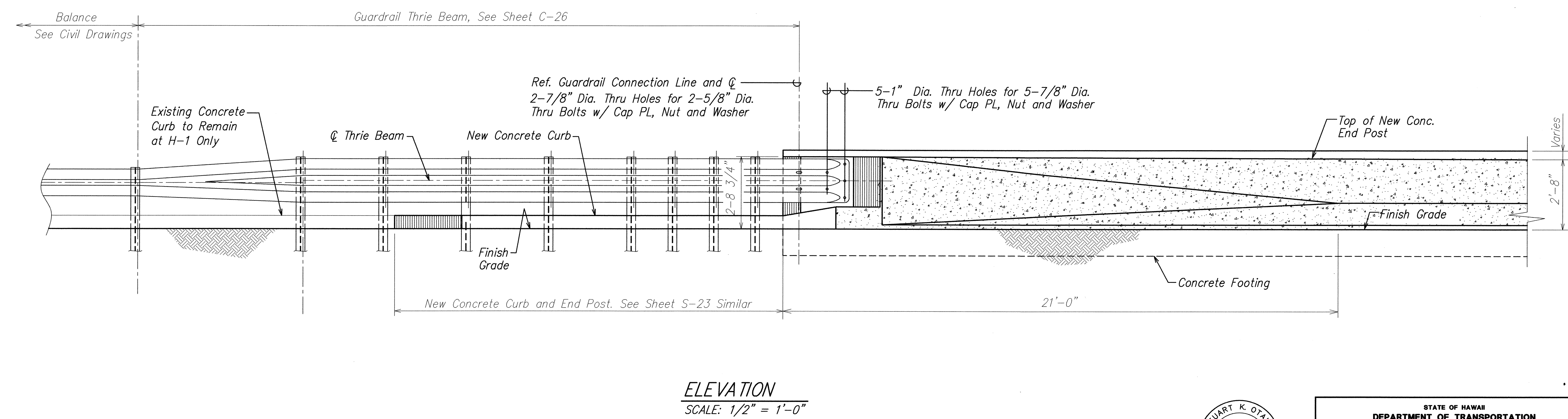
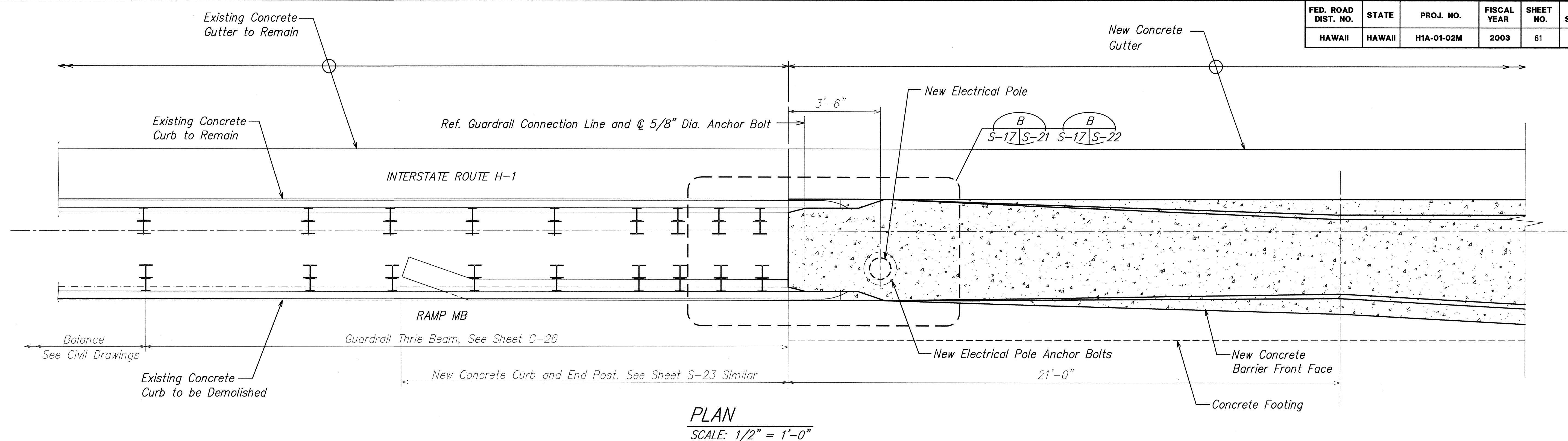
Mitsunaga & Associates, Inc.
Expiration Date of the License

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

END POST PLAN
AND ELEVATION
INTERSTATE ROUTE H-1 REHABILITATION
Vicinity Of Makakilo Interchange
Project No. H1A-01-02M
Scale: As Noted Date: April 2003

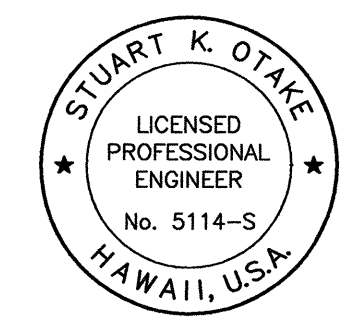
SHEET No. S-16 OF 28 SHEETS

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	H1A-01-02M	2003	61	88



TYPICAL END POST UPGRADE PLAN AND ELEVATION (WAIANAE SIDE)

SURVEY PLOTTED BY	DATE
DESIGNED BY	
NOTED BY	
CHECKED BY	
ORIGINAL PLAN	
NOTE BOOK	
No.	



THIS WORK WAS PREPARED BY ME
OR UNDER MY SUPERVISION.
Stuart K. Otake
4-30-04
Mitsunaga & Associates, Inc.
Expiration Date of the License

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

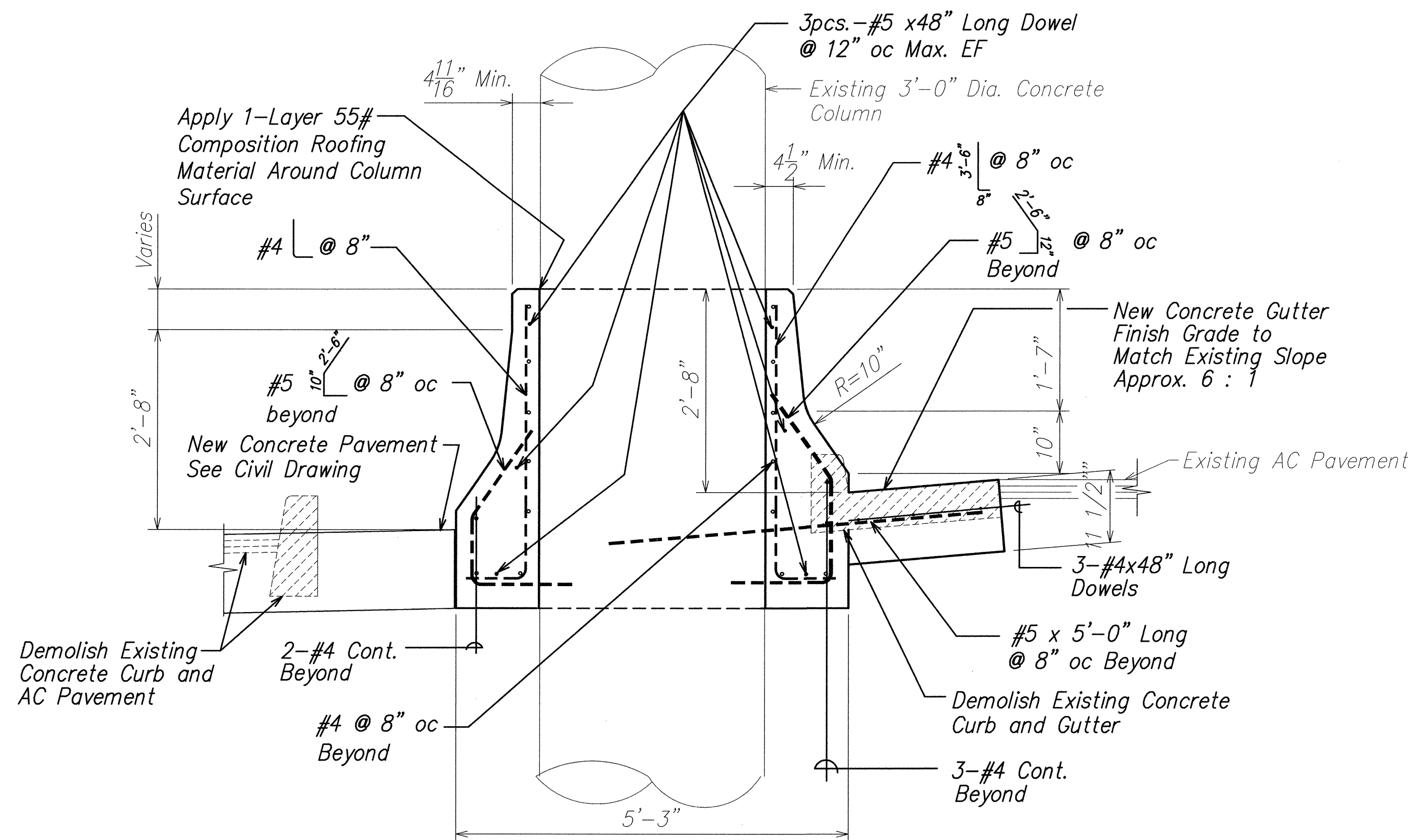
**END POST PLAN
AND ELEVATION**

INTERSTATE ROUTE H-1 REHABILITATION
Vicinity Of Makakilo Interchange
Project No. H1A-01-02M

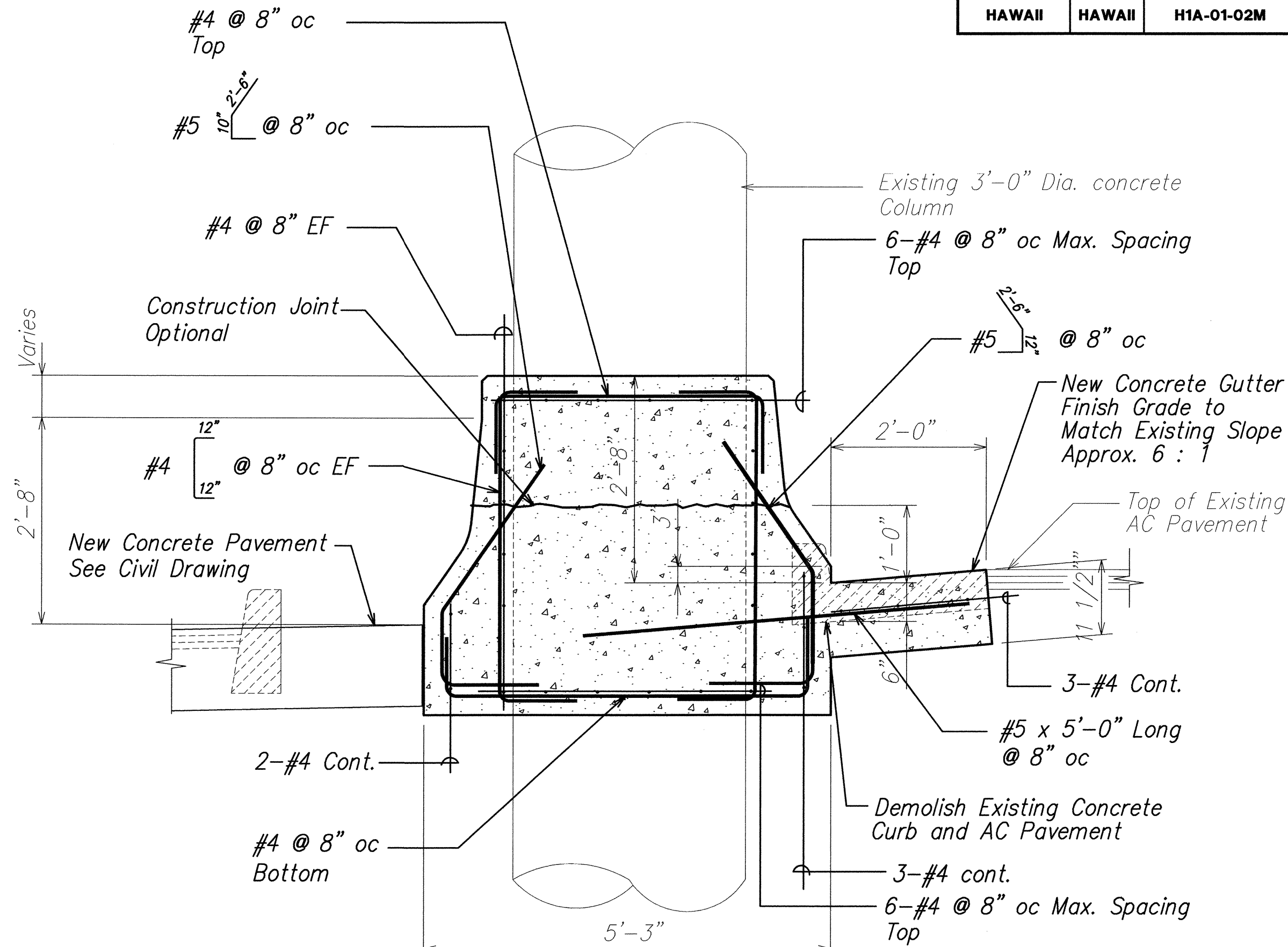
Scale: As Noted Date: April 2003

SHEET No. **S-17** OF **28** SHEETS

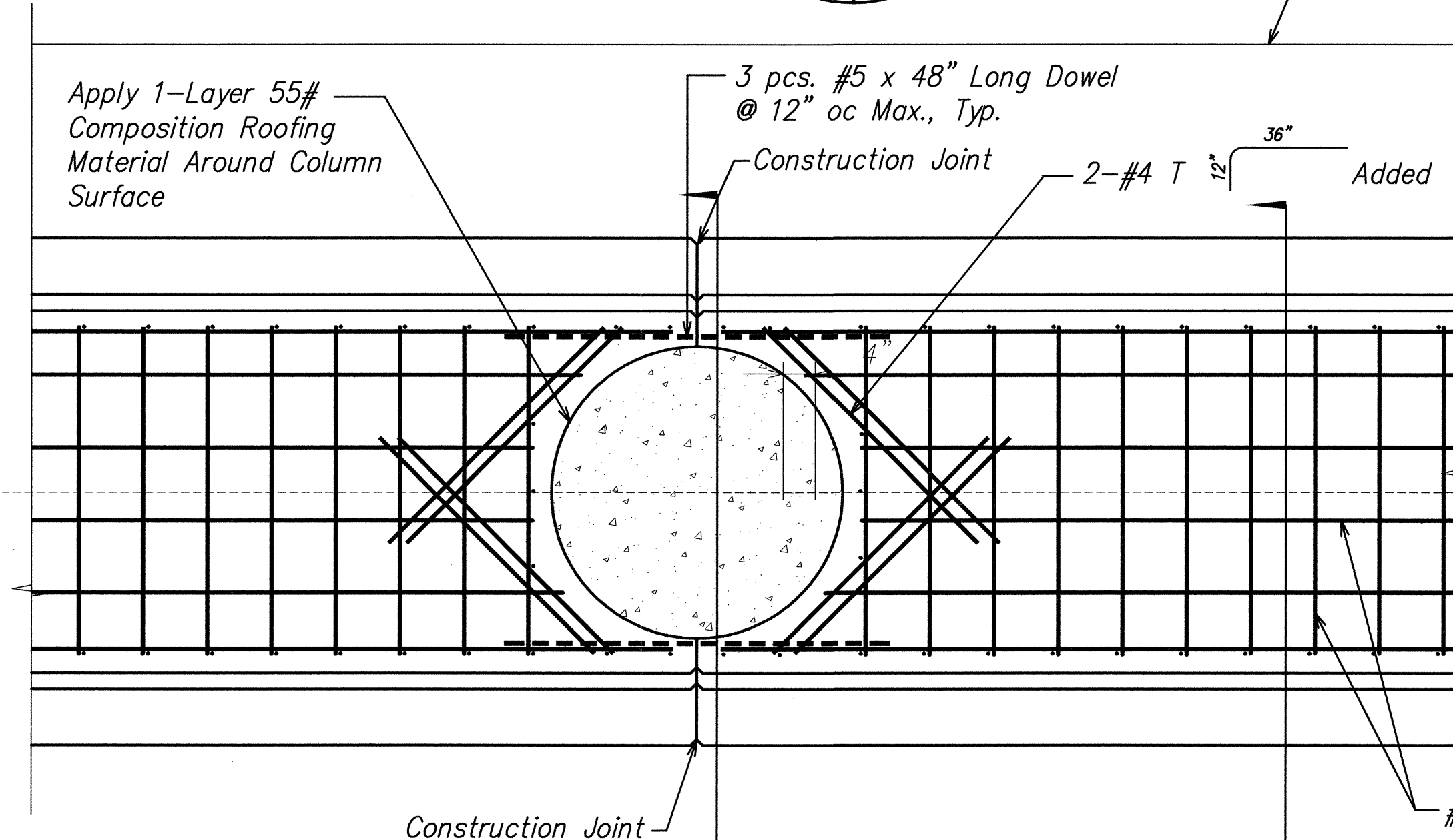
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	H1A-01-02M	2003	62	88



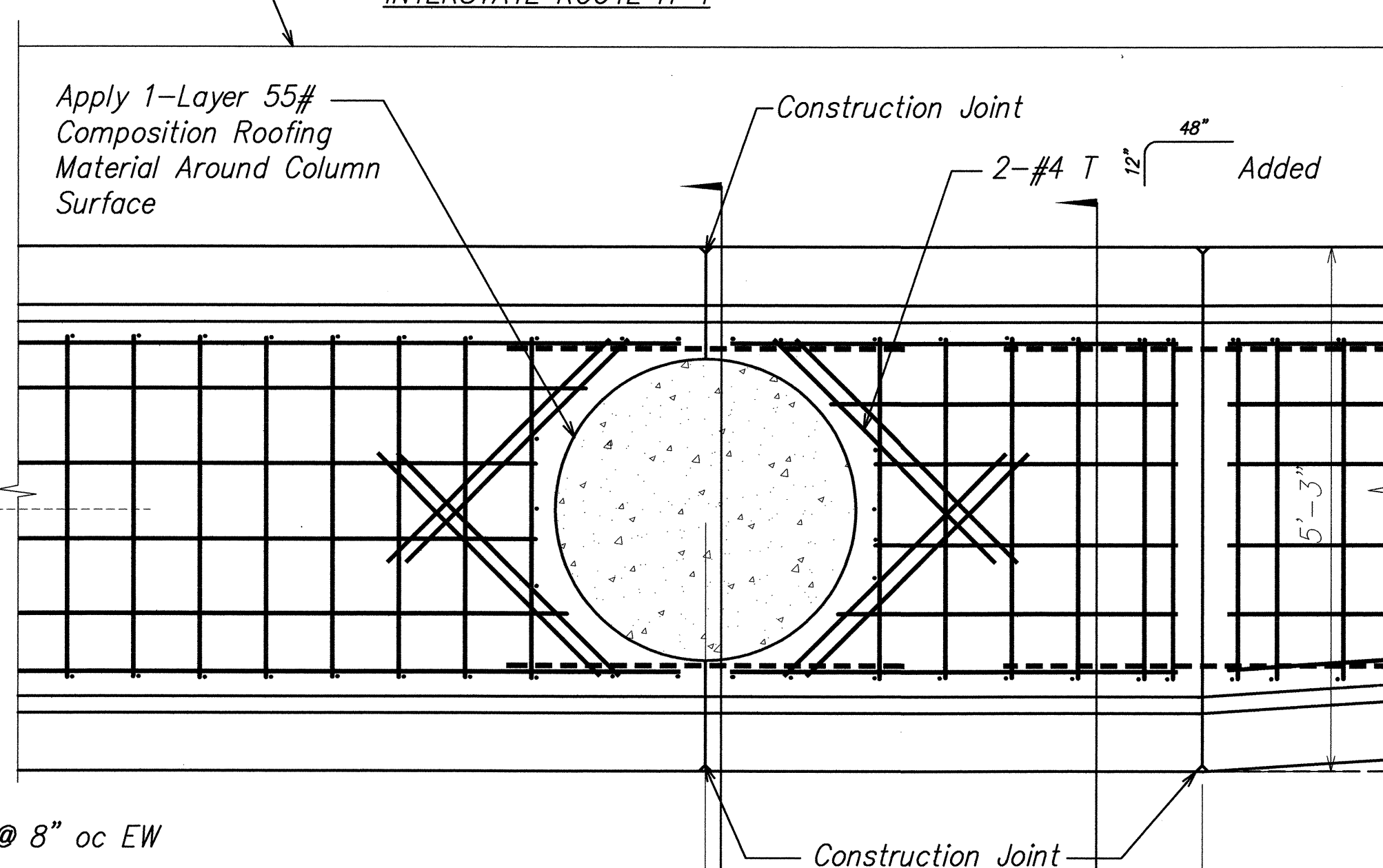
TYPICAL SECTION C
SCALE: 3/4" = 1'-0"
S-18 S-18



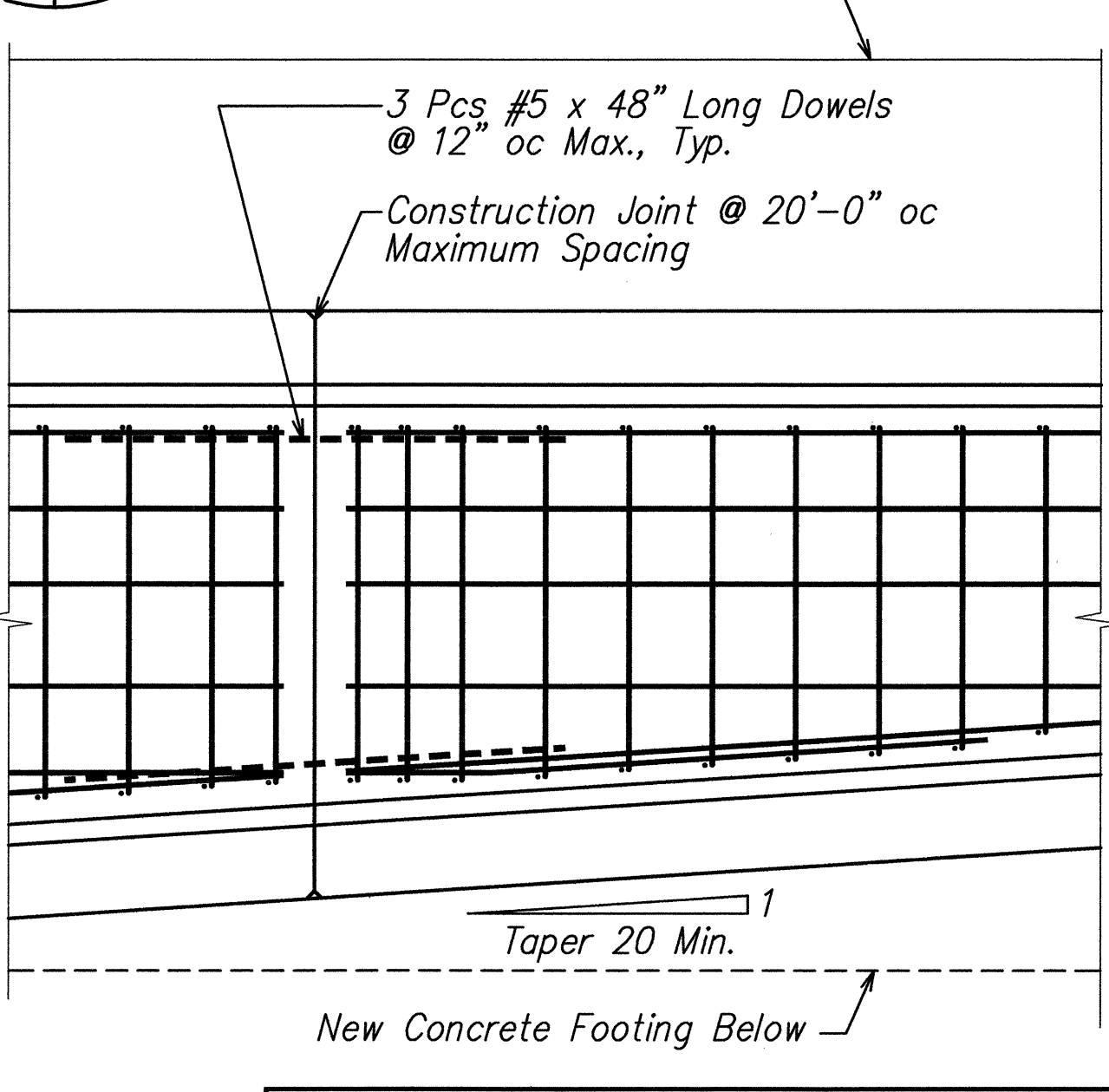
TYPICAL SECTION D
SCALE: 3/4" = 1'-0"
S-18 S-18



TYPICAL SECTION PLAN B
SCALE: 3/4" = 1'-0"
S-16 S-18



TYPICAL SECTION PLAN A
SCALE: 3/4" = 1'-0"
S-16 S-18

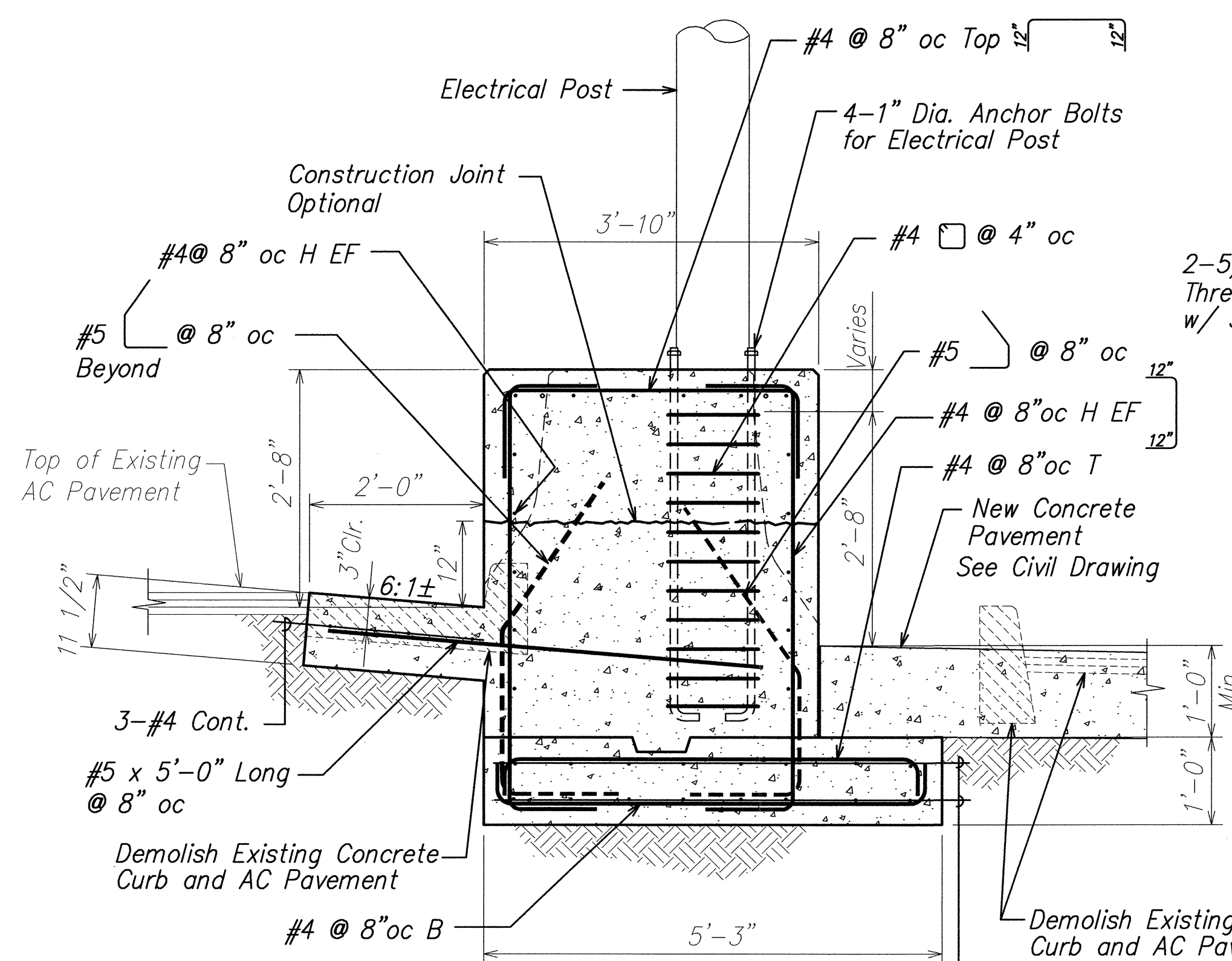


SURVEY PLOTTED BY	DATE
DRAWN BY	
DESIGNED BY	
QUANTITIES BY	
CHECKED BY	
ORIGINAL PLAN	
NOTE BOOK	
NO.	

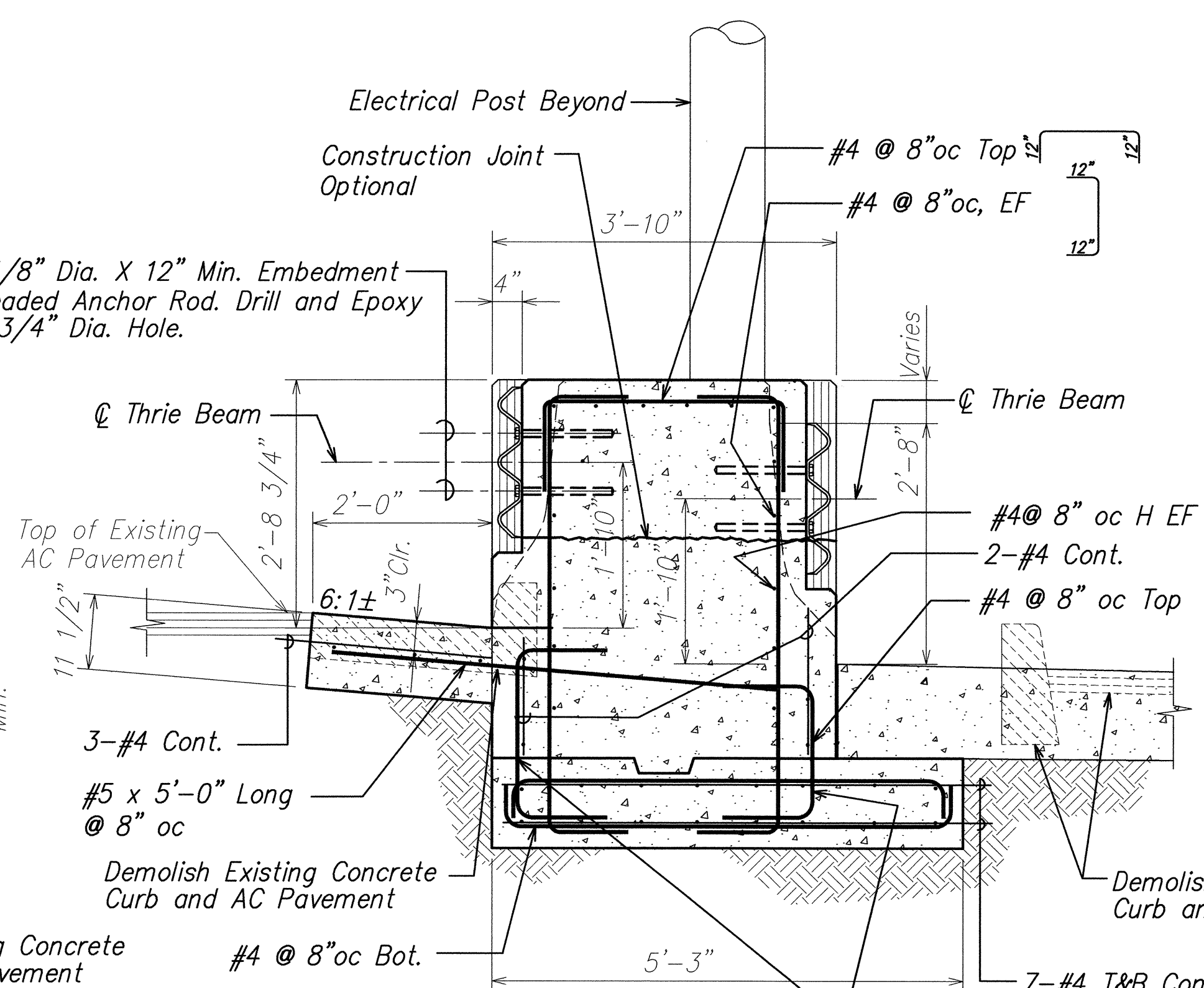
STUART K. OTAKE
LICENSED PROFESSIONAL ENGINEER
No. 5114-S
HAWAII, U.S.A.
THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.
Mitsunaga & Associates, Inc.
Expiration Date of the License

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
SECTIONS AND PLANS
INTERSTATE ROUTE H-1 REHABILITATION
Vicinity Of Makakilo Interchange
Project No. H1A-01-02M
Scale: As Noted Date: April 2003
SHEET No. S-18 OF 28 SHEETS

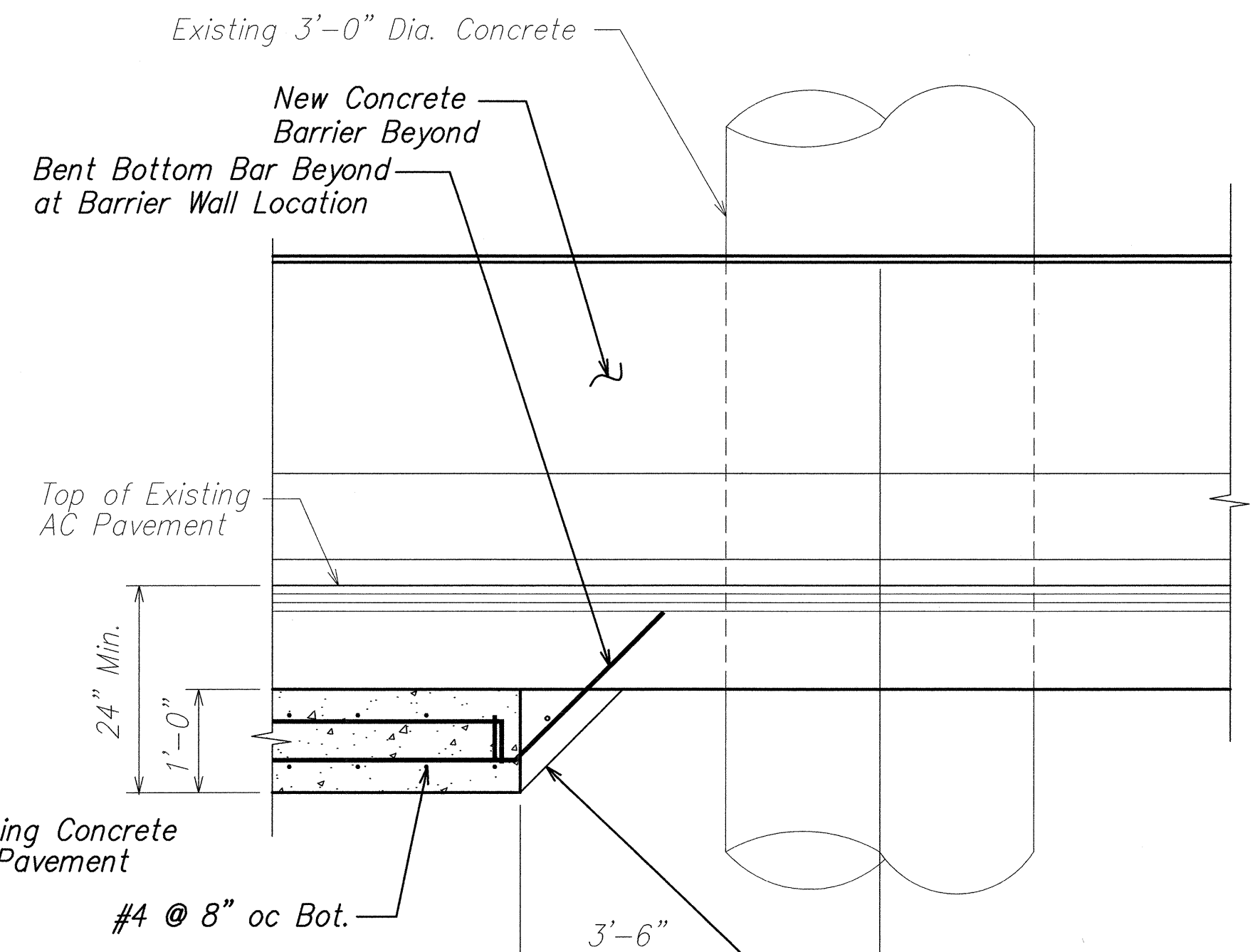
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	H1A-01-02M	2003	65	88



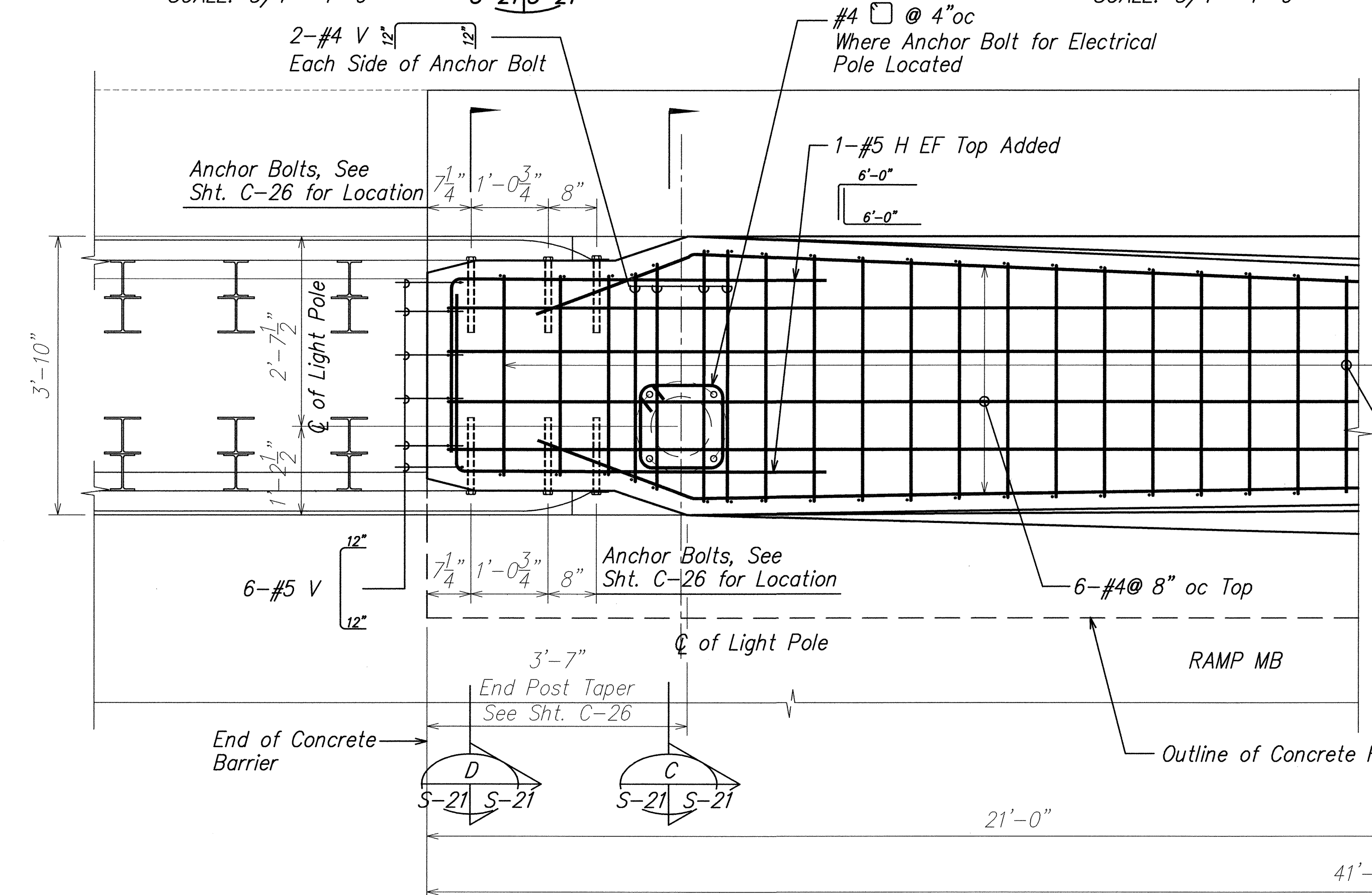
TYPICAL SECTION C
SCALE: 3/4" = 1'-0"
S-21/S-21



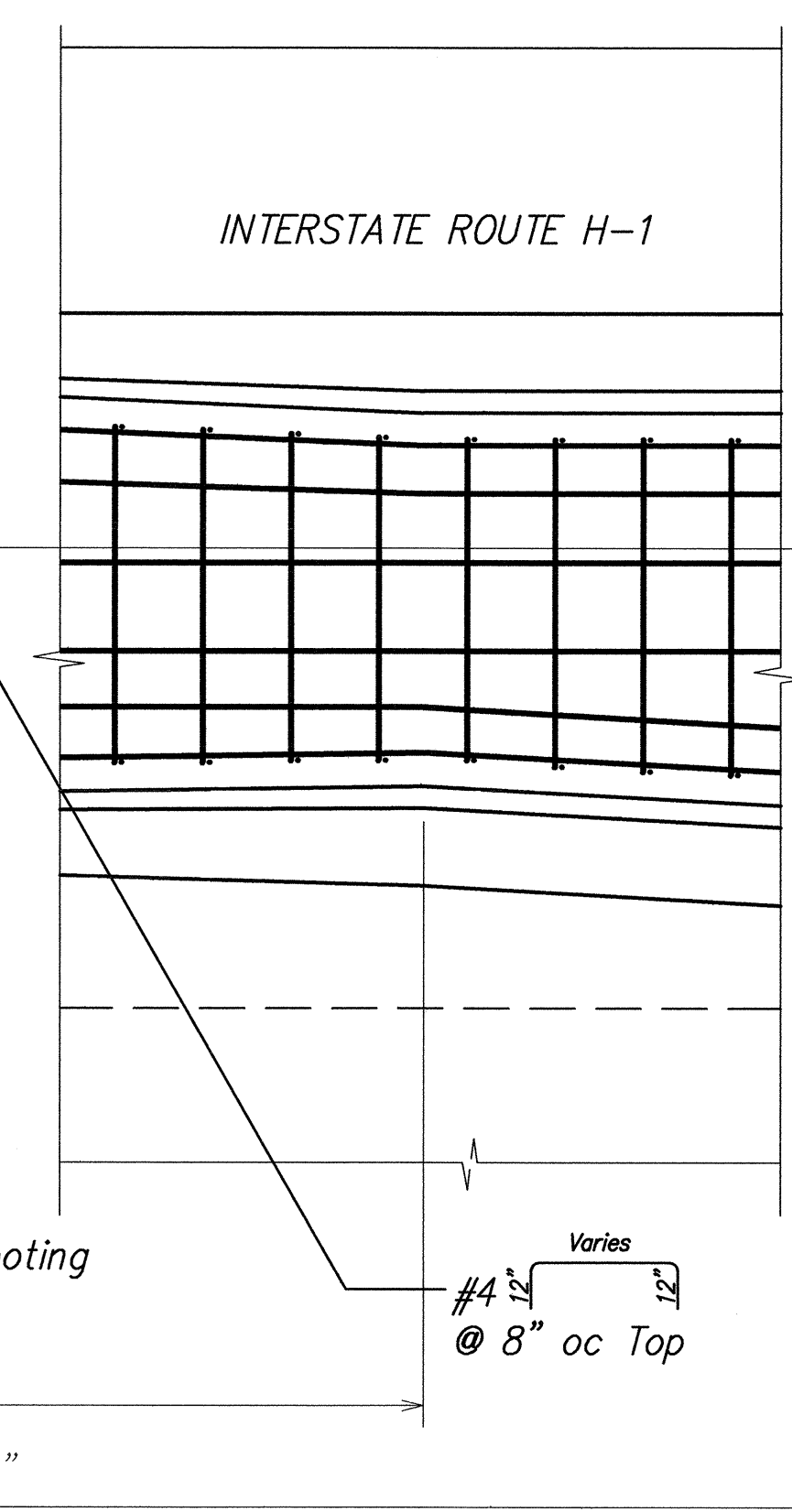
TYPICAL SECTION D
SCALE: 3/4" = 1'-0"
S-21/S-21



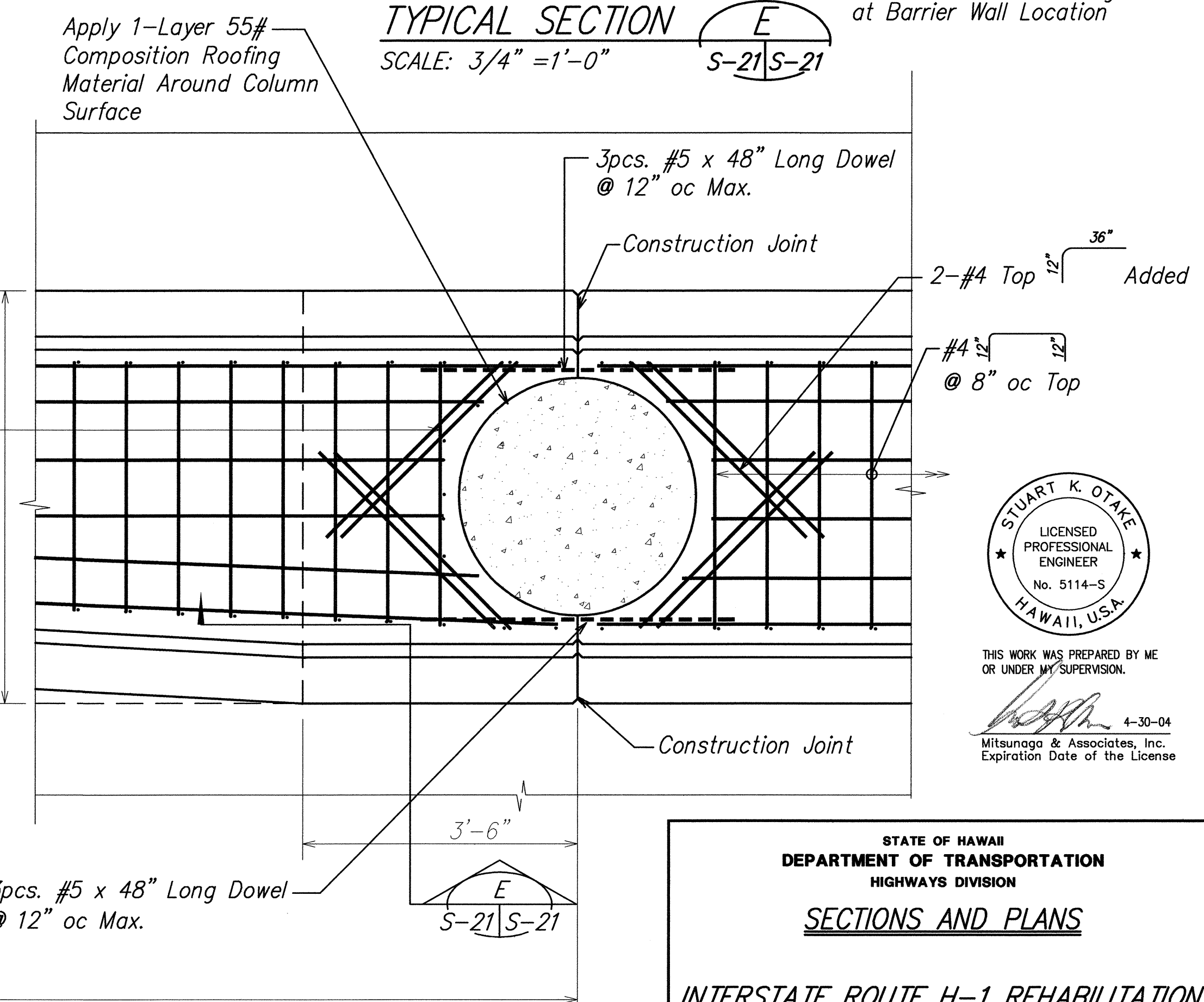
TYPICAL SECTION E
SCALE: 3/4" = 1'-0"
S-21/S-21



TYPICAL SECTION PLAN B
SCALE: 3/4" = 1'-0"
S-17/S-21



TYPICAL SECTION PLAN A
SCALE: 3/4" = 1'-0"
S-21/S-21



THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.
Mitsunaga & Associates, Inc.
Expiration Date of the License: 4-30-04

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

SECTIONS AND PLANS

INTERSTATE ROUTE H-1 REHABILITATION
Vicinity Of Makakilo Interchange
Project No. H1A-01-02M

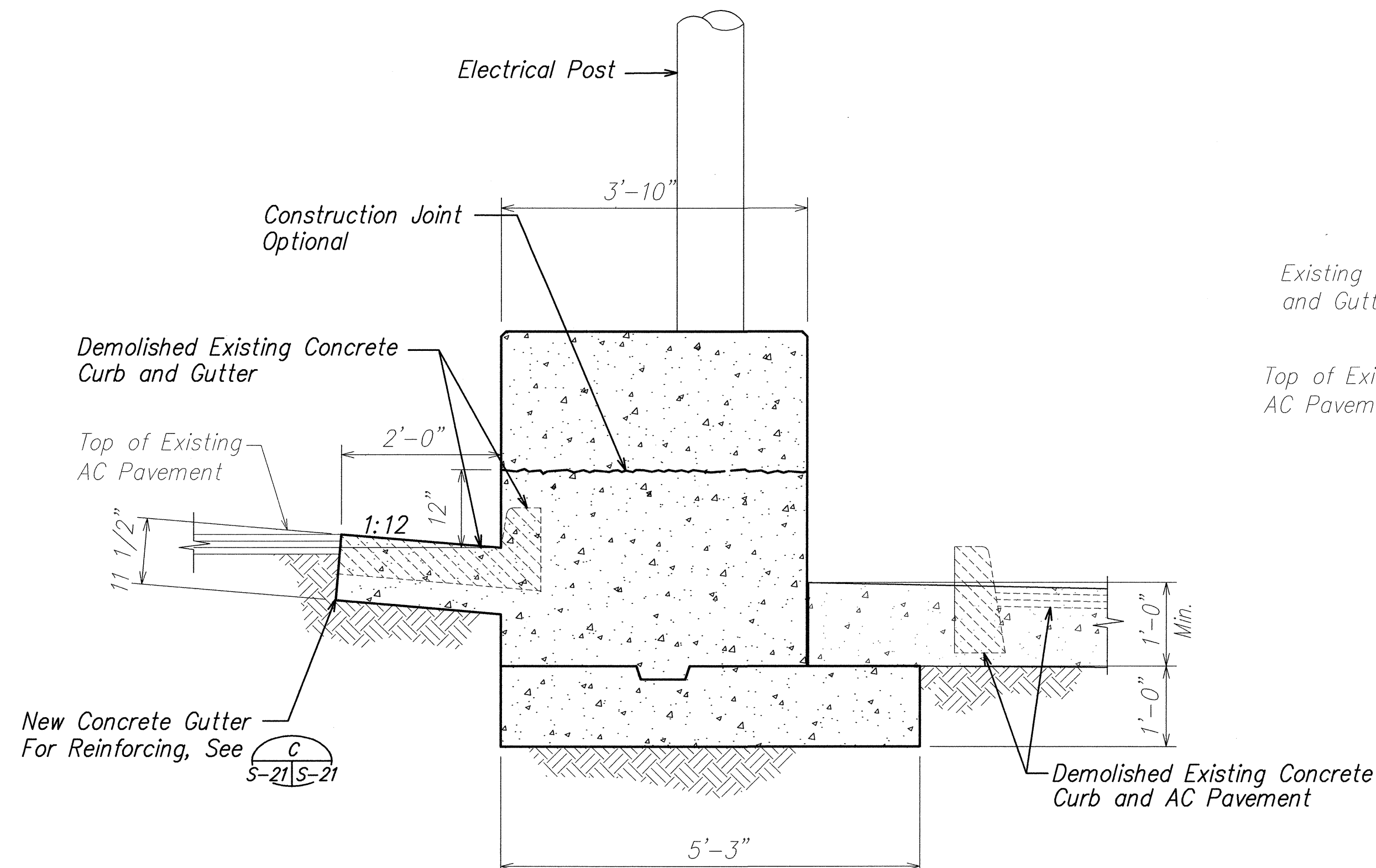
Scale: As Noted Date: April 2003

SHEET No. S-21 OF 28 SHEETS

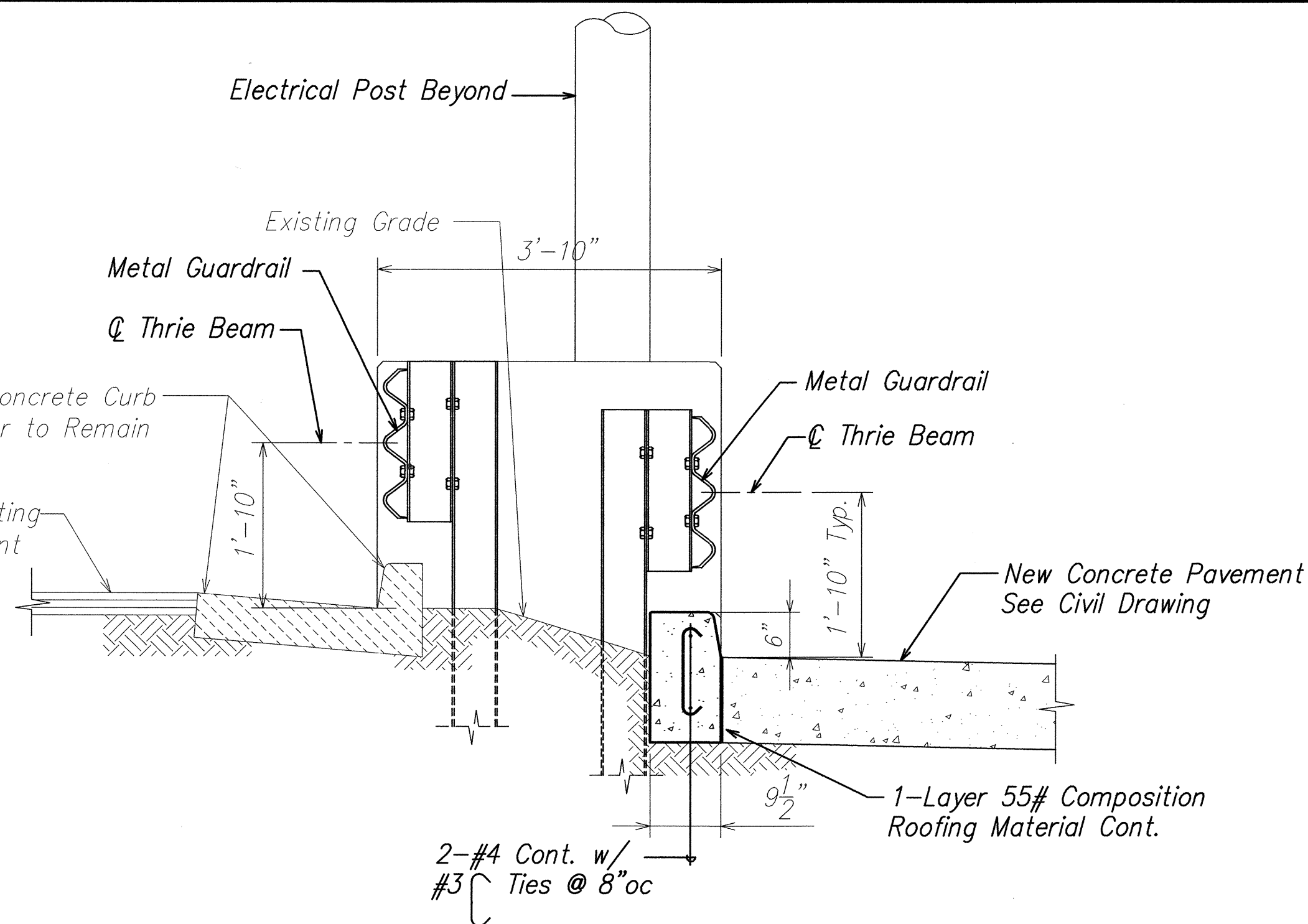
SURVEY PLOTTED BY	DATE
DRAWN BY	
DESIGNED BY	
QUANTITIES BY	
CHECKED BY	

ORIGINAL PLAN	No.
NOTE BOOK	

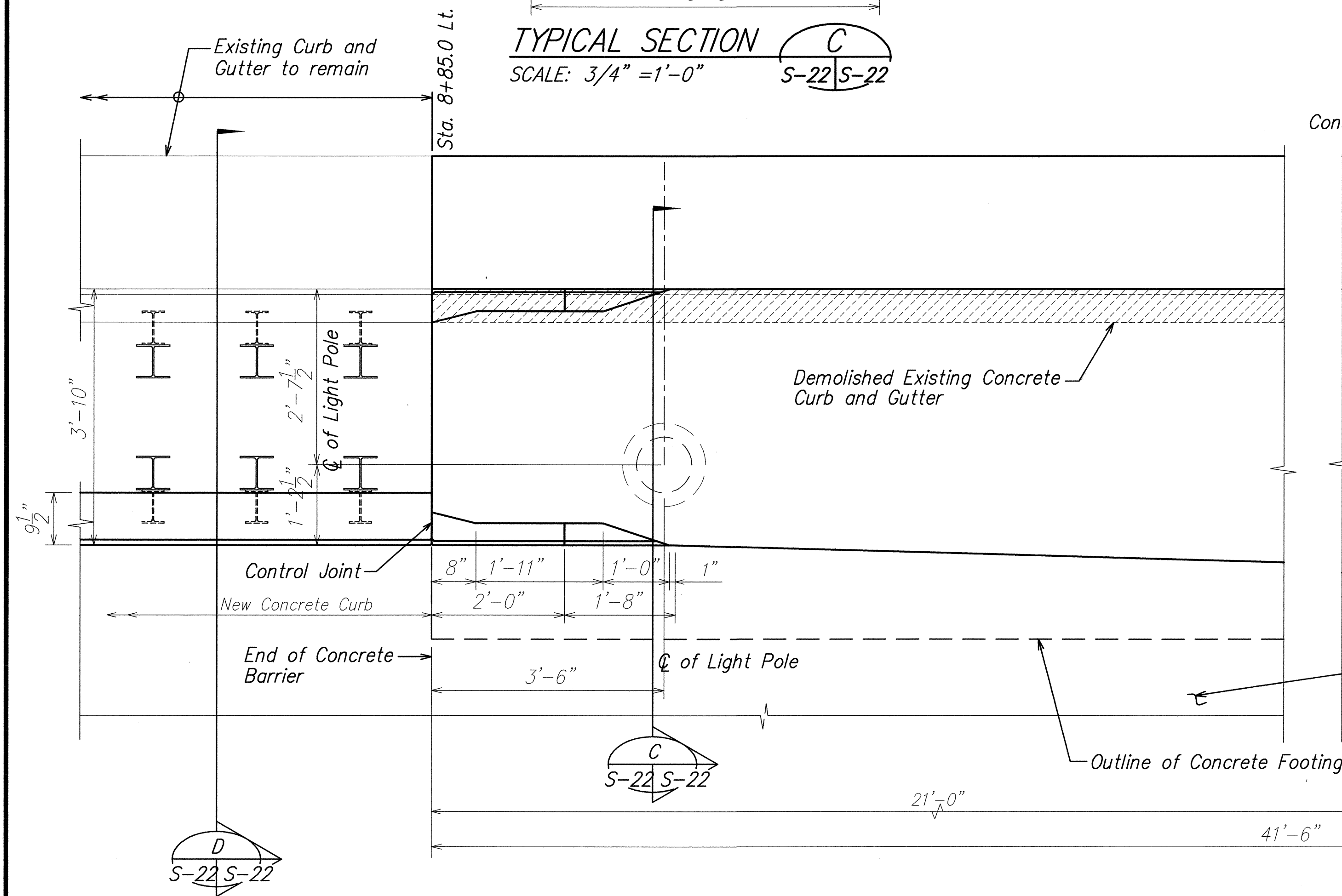
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	H1A-01-02M	2003	66	88



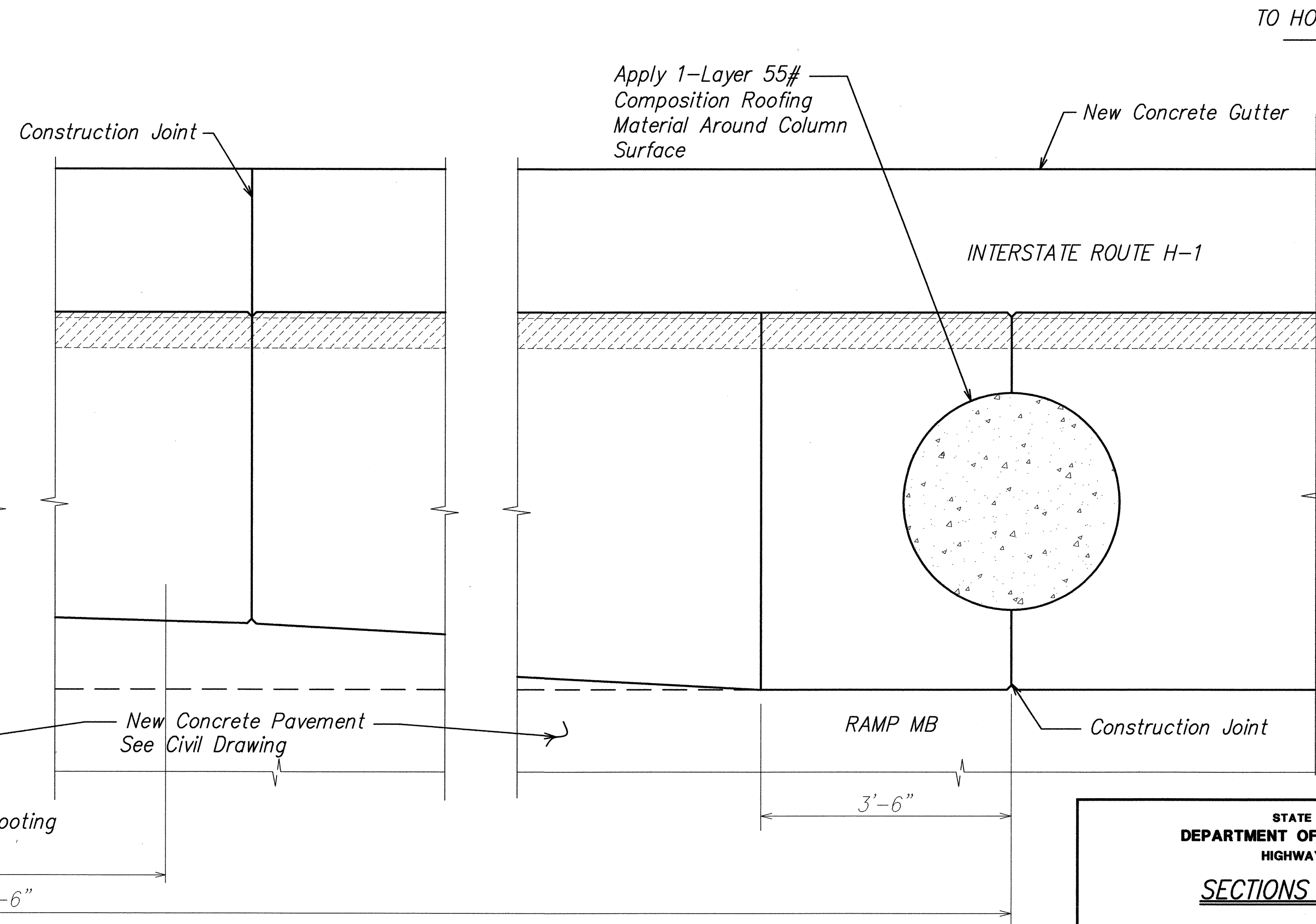
TYPICAL SECTION C
SCALE: 3/4" = 1'-0" S-22 S-22



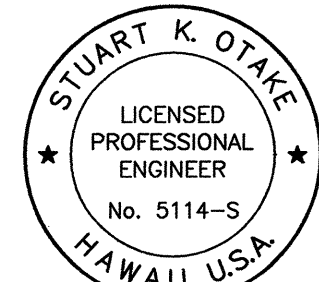
TYPICAL SECTION D
SCALE: 3/4" = 1'-0" S-22 S-22



TYPICAL SECTION PLAN B
SCALE: 3/4" = 1'-0" S-17 S-22



TYPICAL SECTION PLAN A
SCALE: 3/4" = 1'-0" S-22 S-22



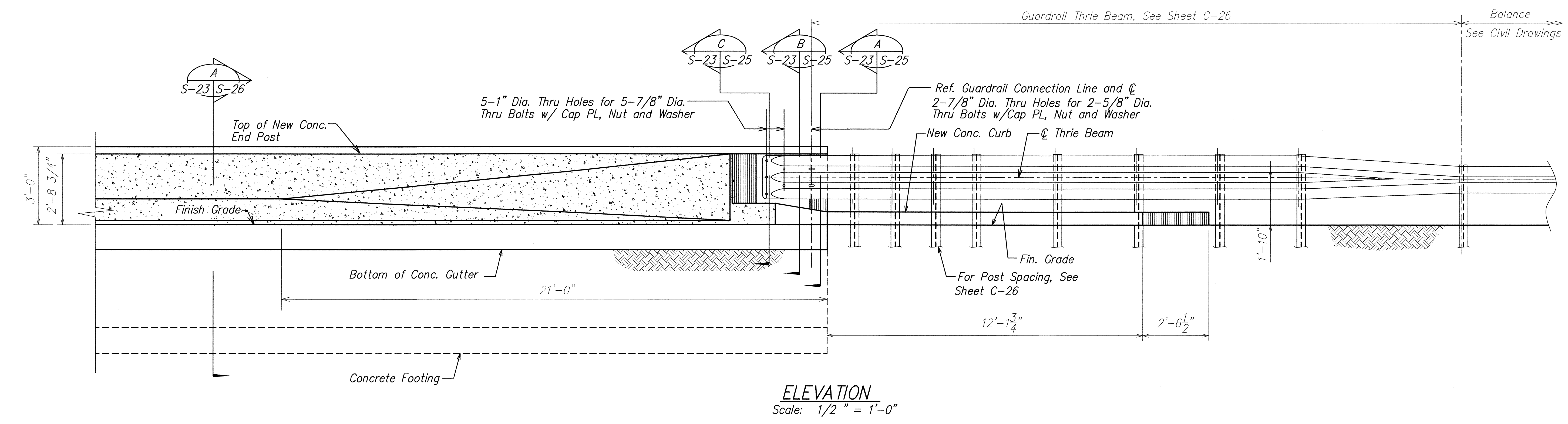
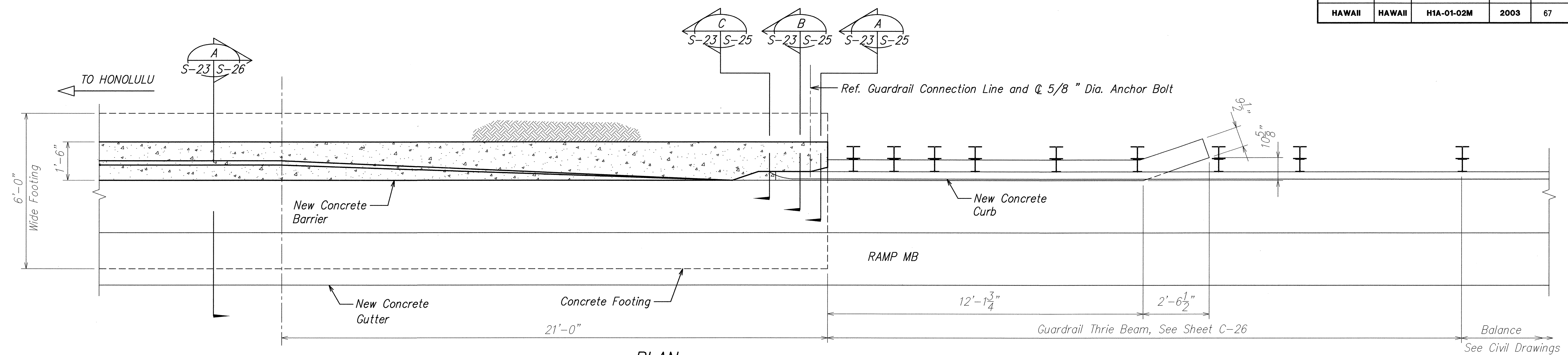
THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.
Mitsunaga & Associates, Inc.
Expiration Date of the License 4-30-04

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
SECTIONS AND PLANS
INTERSTATE ROUTE H-1 REHABILITATION
Vicinity Of Makakilo Interchange
Project No. H1A-01-02M
Scale: As Noted Date: April 2003
SHEET No. S-22 OF 28 SHEETS

66

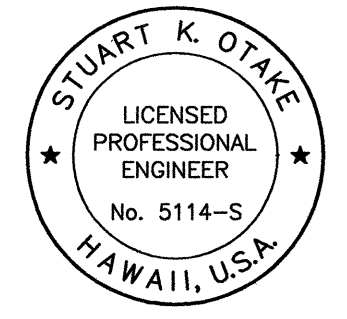
SURVEY PLOTTED BY	DATE
DRAWN BY	
DESIGNED BY	
QUANTITIES BY	
CHECKED BY	
ORIGINAL PLAN	
NOTE BOOK	
No.	

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	H1A-01-02M	2003	67	88



TYPICAL END POST PLAN AND ELEVATION (WAIANAE SIDE)

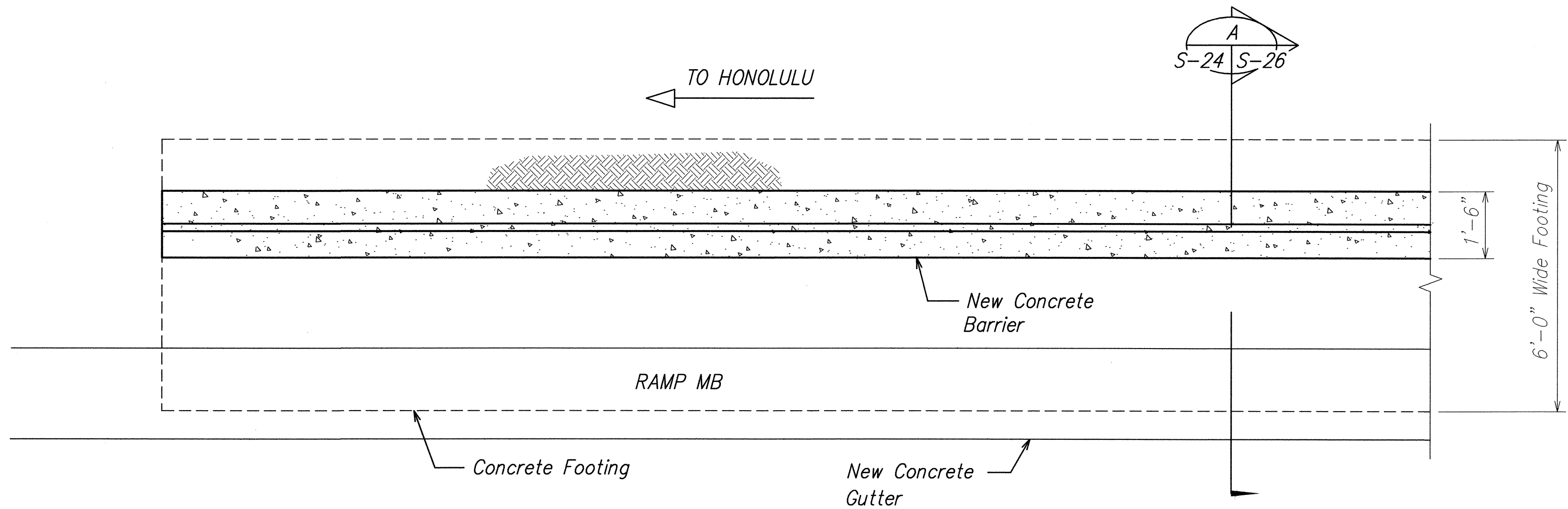
SURVEY PLOTTED BY	DATE
DRAWN BY	
DESIGNED BY	
QUANTITIES BY	
CHECKED BY	
ORIGINAL PLAN	
NOTE BOOK	
No.	



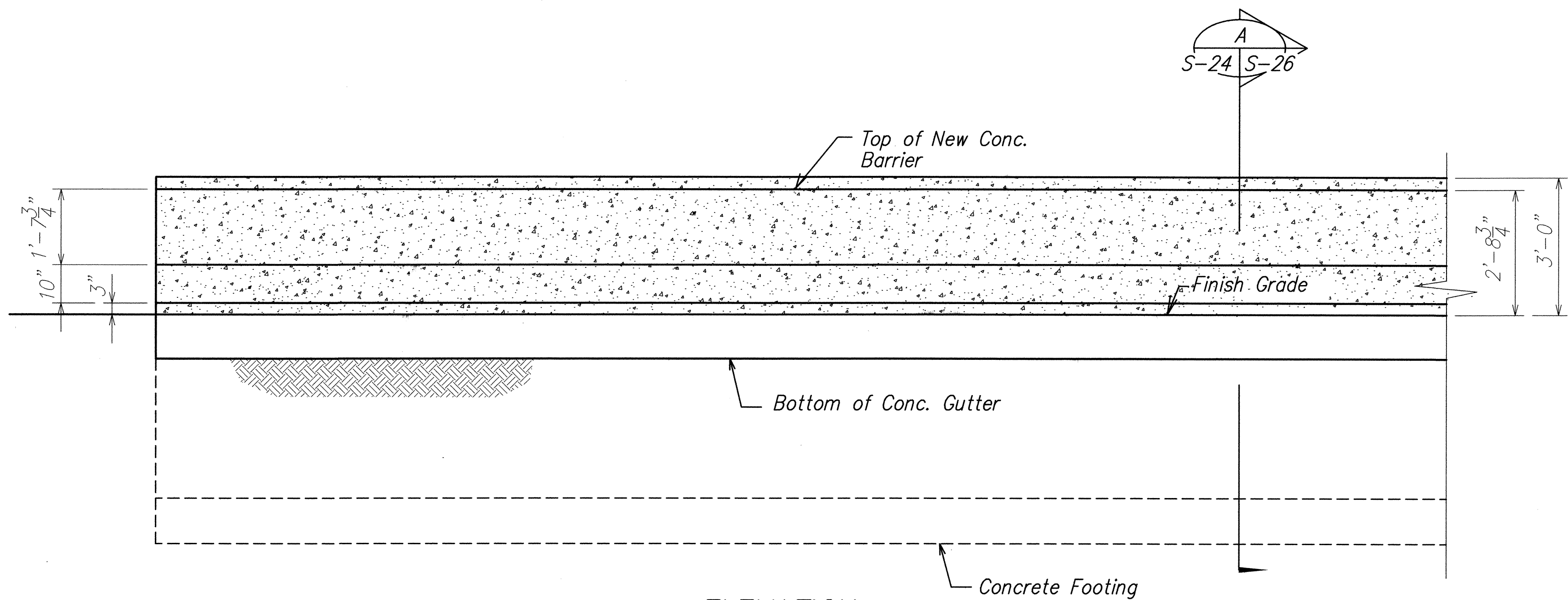
THIS WORK WAS PREPARED BY ME
OR UNDER MY SUPERVISION.
[Signature]
Mitsunaga & Associates, Inc.
Expiration Date of the License

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
**END POST PLAN
AND ELEVATION**
INTERSTATE ROUTE H-1 REHABILITATION
Vicinity Of Makakilo Interchange
Project No. H1A-01-02M
Scale: As Noted Date: April 2003
SHEET No. S-23 OF 28 SHEETS

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	H1A-01-02M	2003	68	88

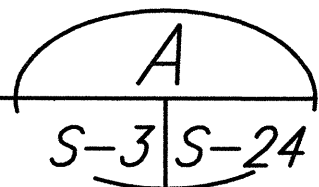


PLAN
Scale: 1/2" = 1'-0"

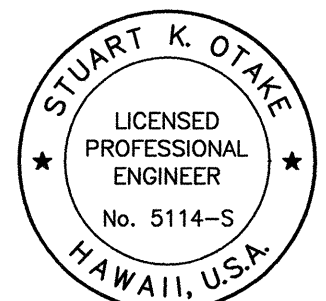


ELEVATION
Scale: 1/2" = 1'-0"

TYPICAL END POST PLAN AND ELEVATION (HONOLULU SIDE)



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



THIS WORK WAS PREPARED BY ME
OR UNDER MY SUPERVISION.
[Signature] 4-30-04
Mitsunaga & Associates, Inc.
Expiration Date of the License

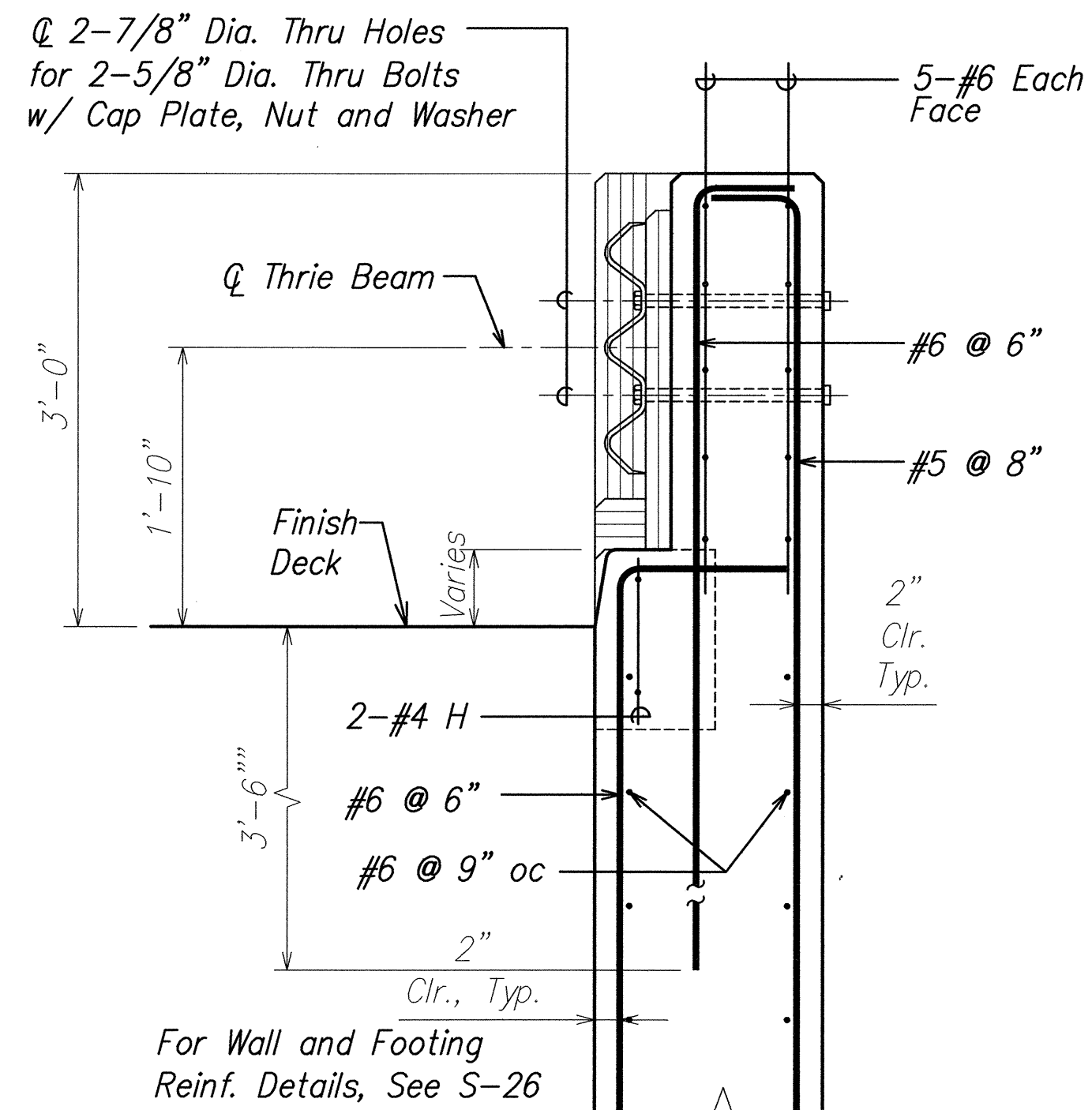
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

END POST PLAN
AND ELEVATION
INTERSTATE ROUTE H-1 REHABILITATION
Vicinity Of Makakilo Interchange
Project No. H1A-01-02M

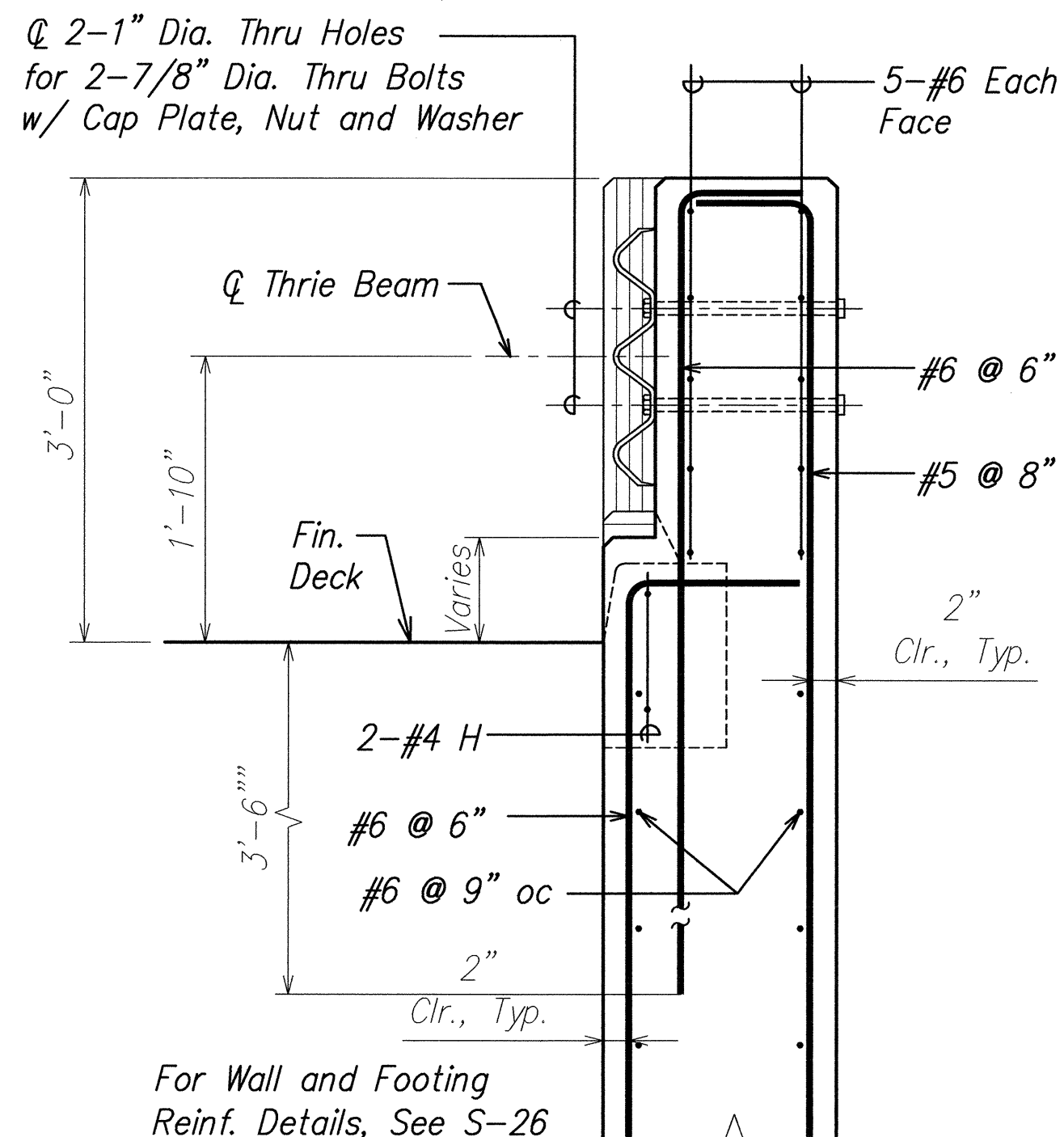
Scale: As Noted
Date: April 2003

SHEET No. S-24 OF 28 SHEETS

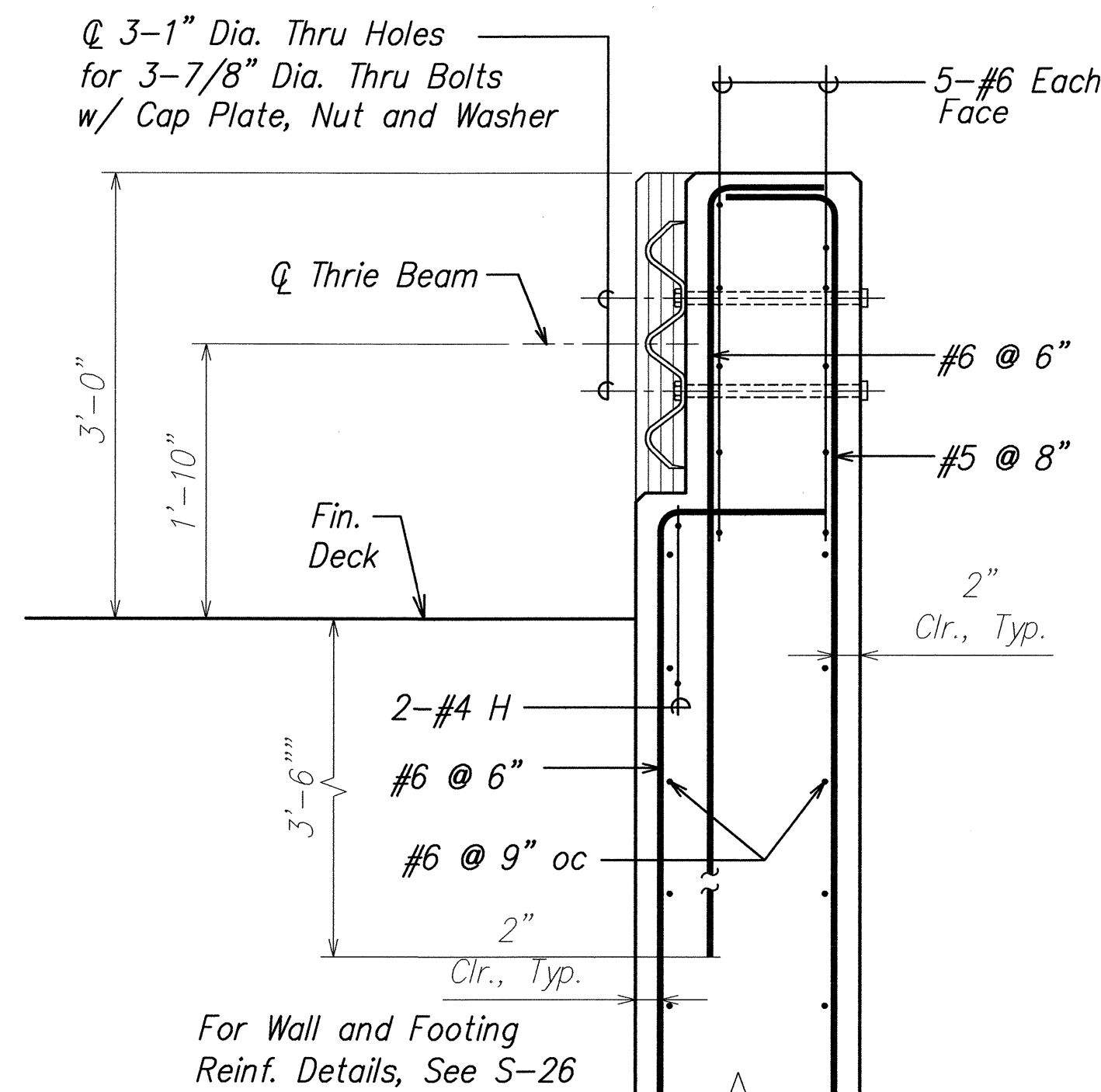
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	H1A-01-02M	2003	69	88



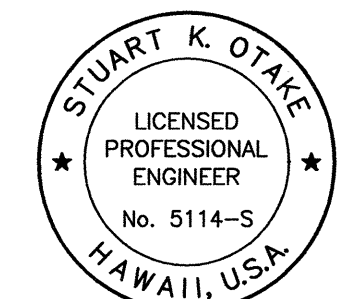
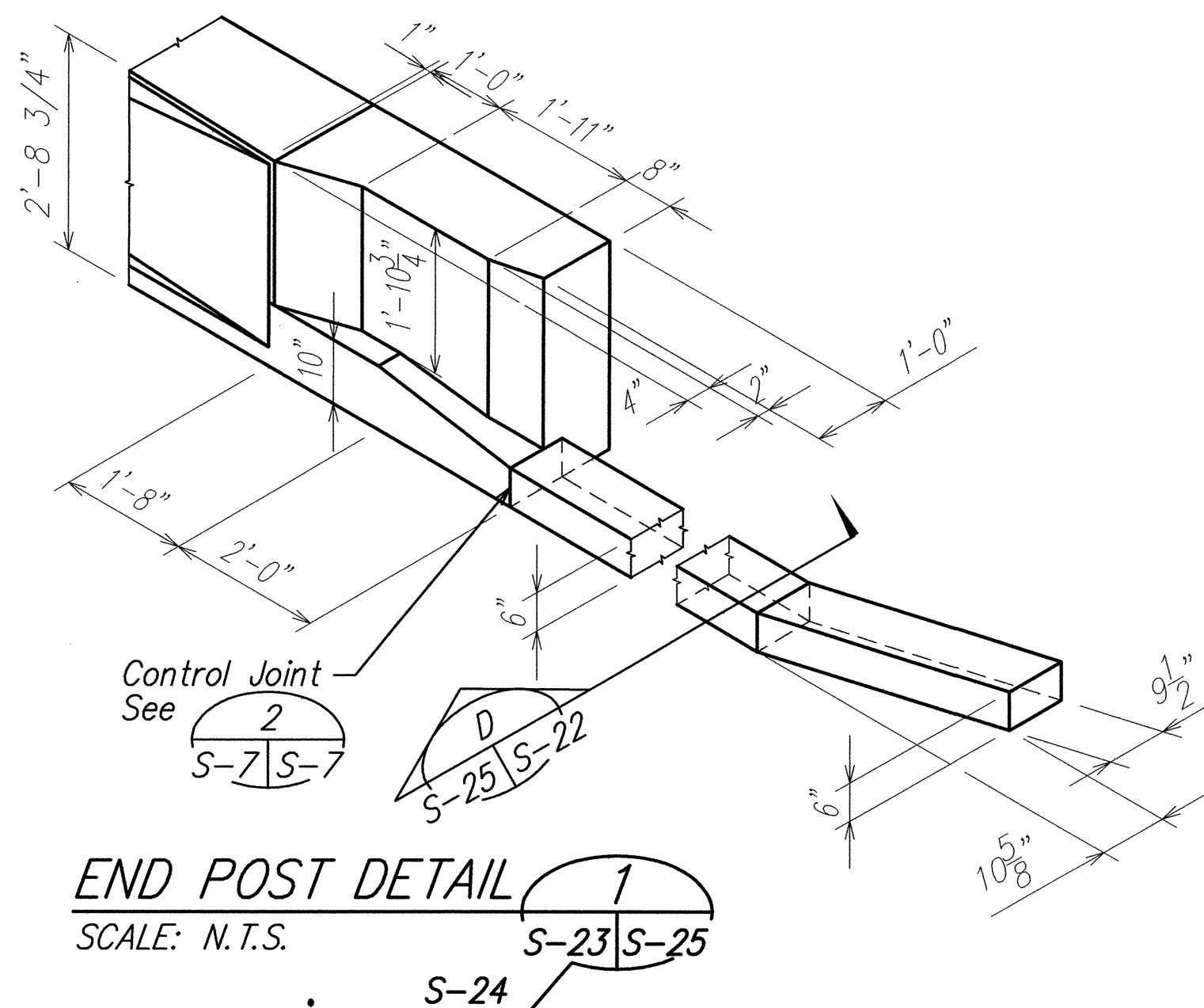
SECTION A
SCALE: 1" = 1'-0" S-23 S-25
S-24



SECTION B
SCALE: 1" = 1'-0" S-23 S-25
S-24



SECTION C
SCALE: 1" = 1'-0" S-23 S-25
S-24



THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.
4-30-04
Mitsunaga & Associates, Inc.
Expiration Date of the License

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

END POST DETAIL AND SECTIONS

INTERSTATE ROUTE H-1 REHABILITATION
Vicinity Of Makakilo Interchange
Project No. H1A-01-02M

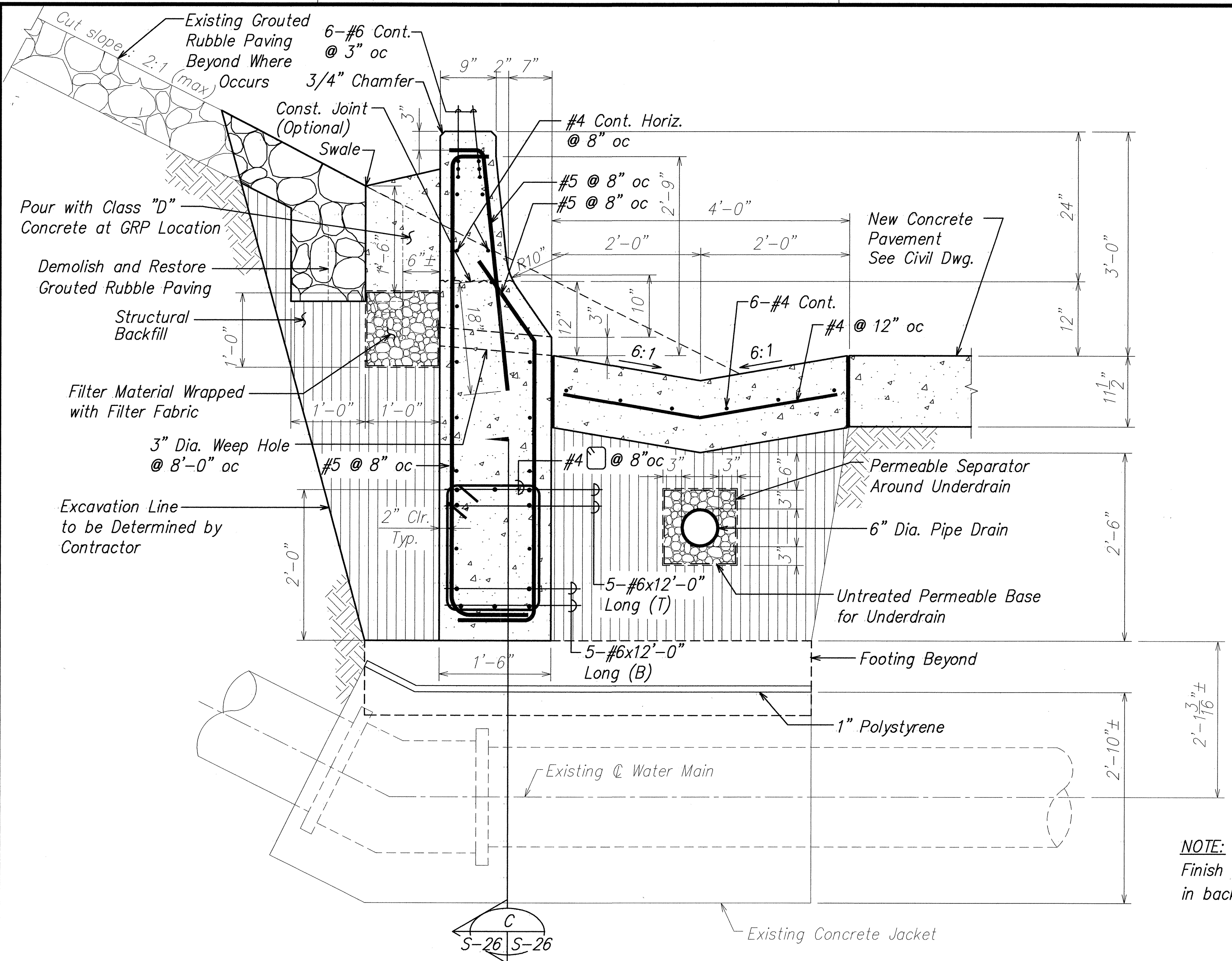
Scale: As Noted Date: April 2003

SHEET No. S-25 OF 28 SHEETS

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

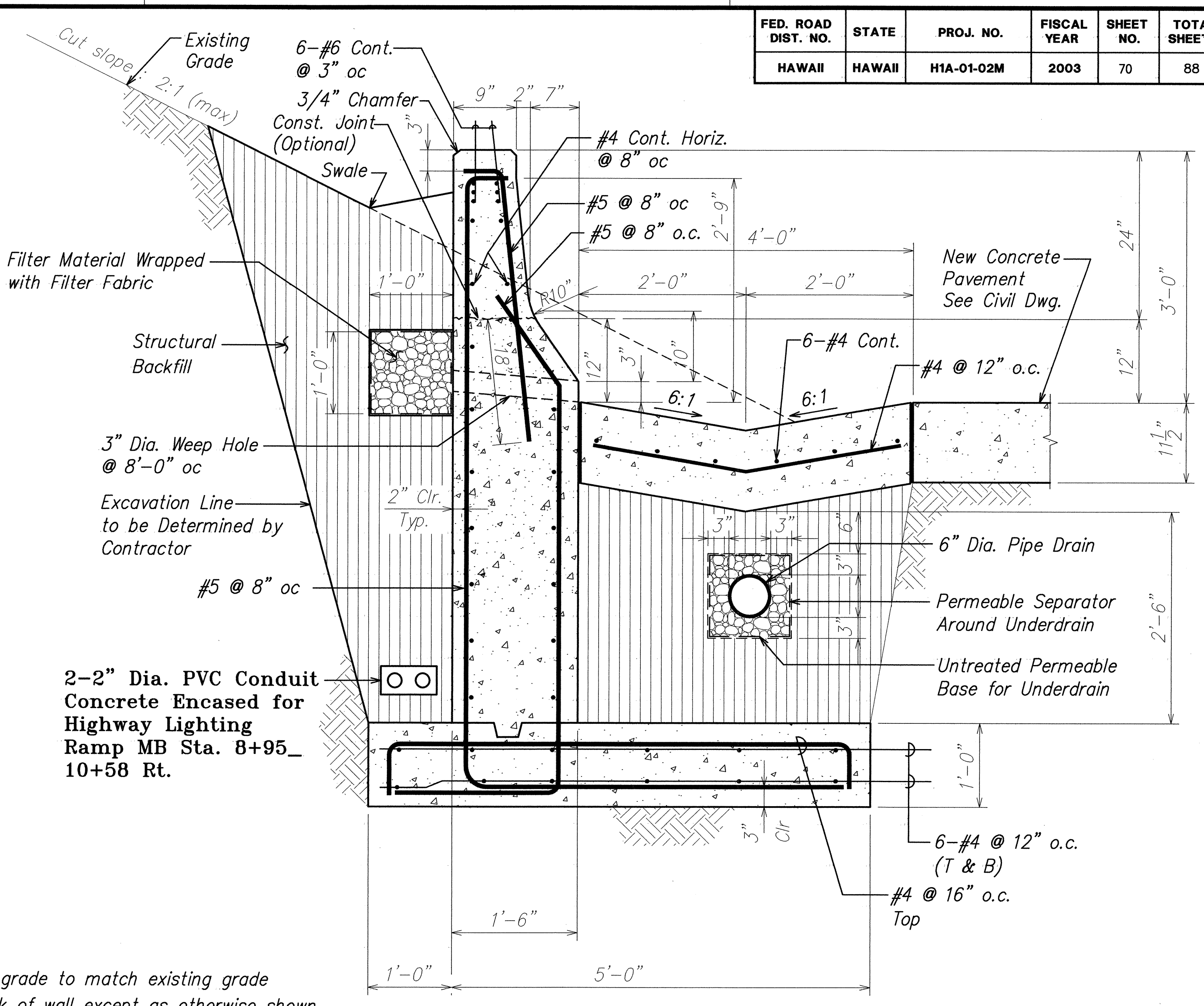
ORIGINAL PLAN
NOTE BOOK
No.

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	H1A-01-02M	2003	70	88

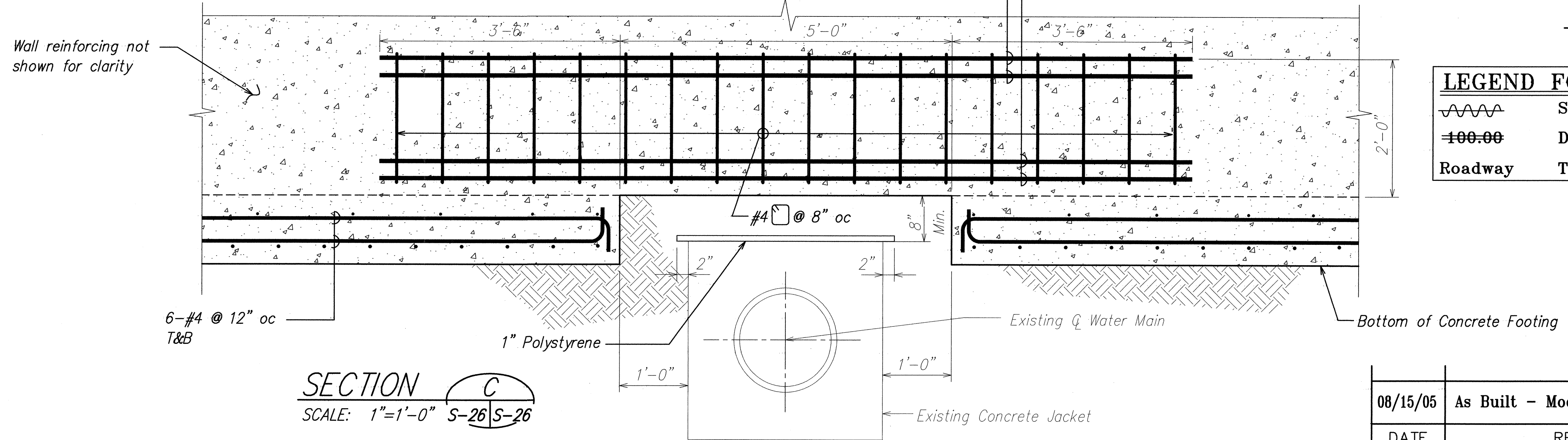


SECTION AT EXIST. WATER MAIN (B)
SCALE: 1"=1'-0"

NOTE:
Finish grade to match existing grade
in back of wall except as otherwise shown.



SECTION (A)
SCALE: 1"=1'-0"



SECTION (C)
SCALE: 1"=1'-0"

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

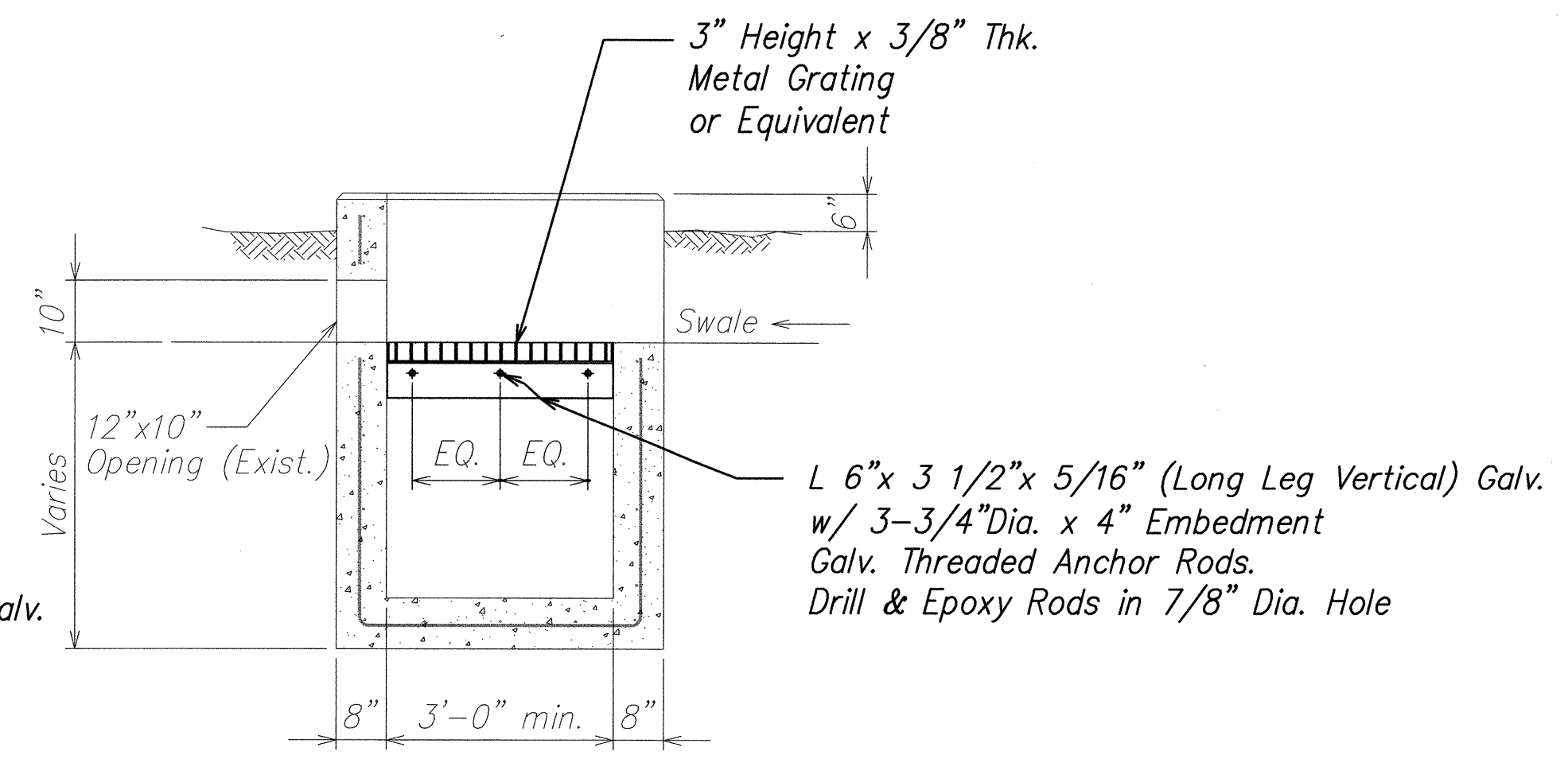
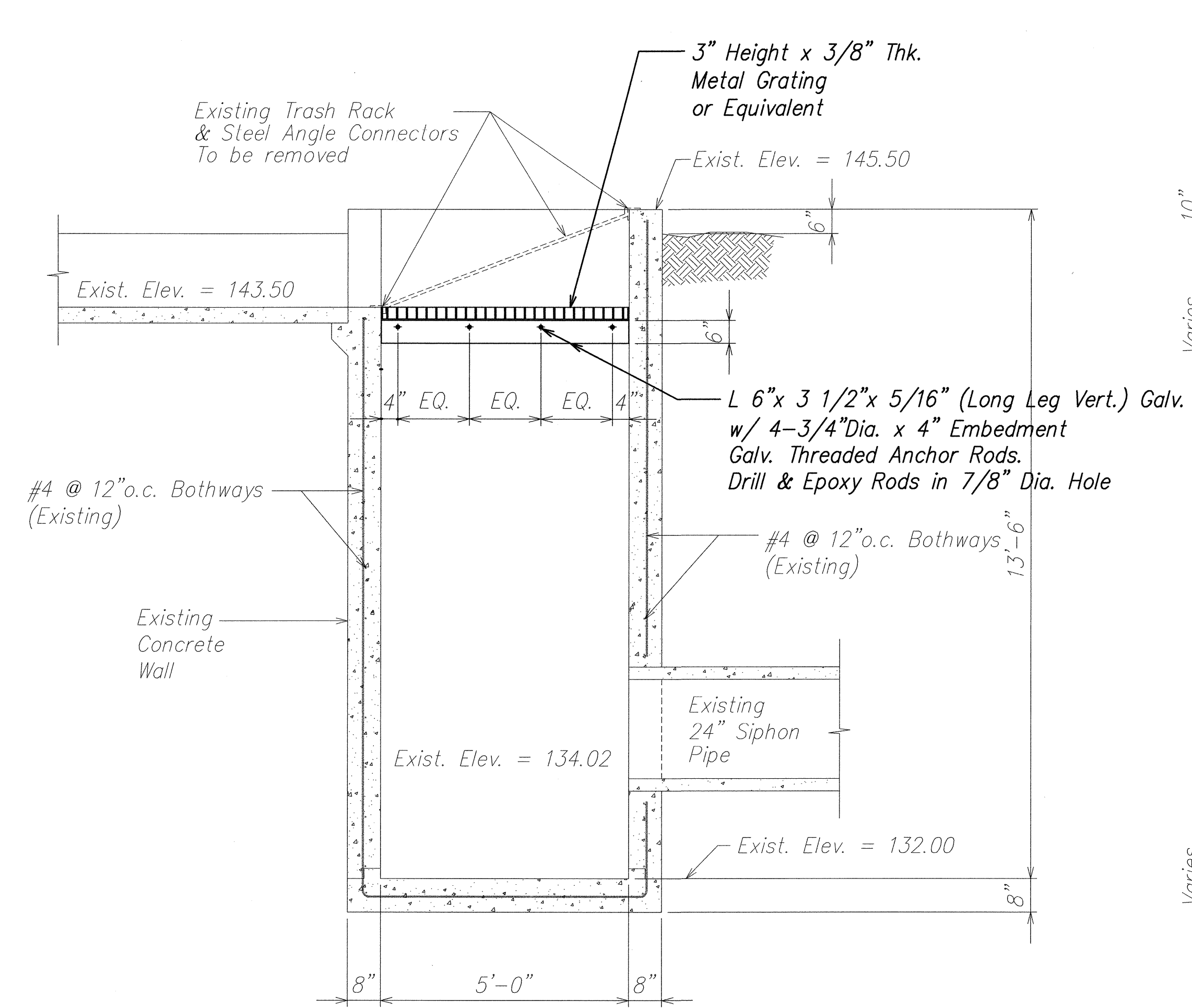
STUART K. OTAKE
LICENSED PROFESSIONAL ENGINEER
No. 5114-S
HAWAII, U.S.A.
THIS WORK WAS PREPARED BY ME
OR UNDER MY SUPERVISION.
Mitsunaga & Associates, Inc.
Expiration Date of the License

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
SECTIONS
INTERSTATE ROUTE H-1 REHABILITATION
Vicinity Of Makakilo Interchange
Project No. H1A-01-02M
Scale: As Noted
Date: April 2003
SHEET No. S-26 OF 28 SHEETS

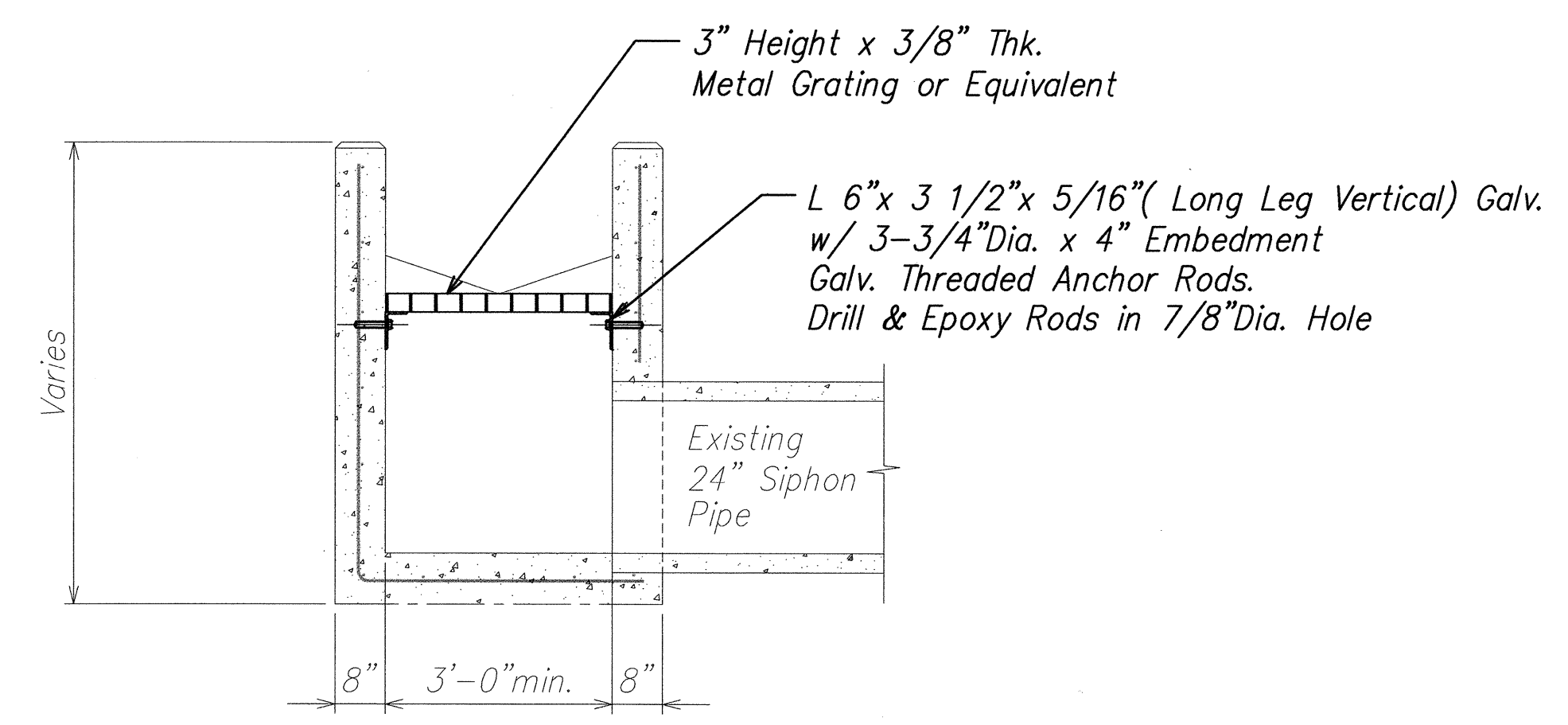
08/15/05
As Built - Modified Detail
DATE
REVISION

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

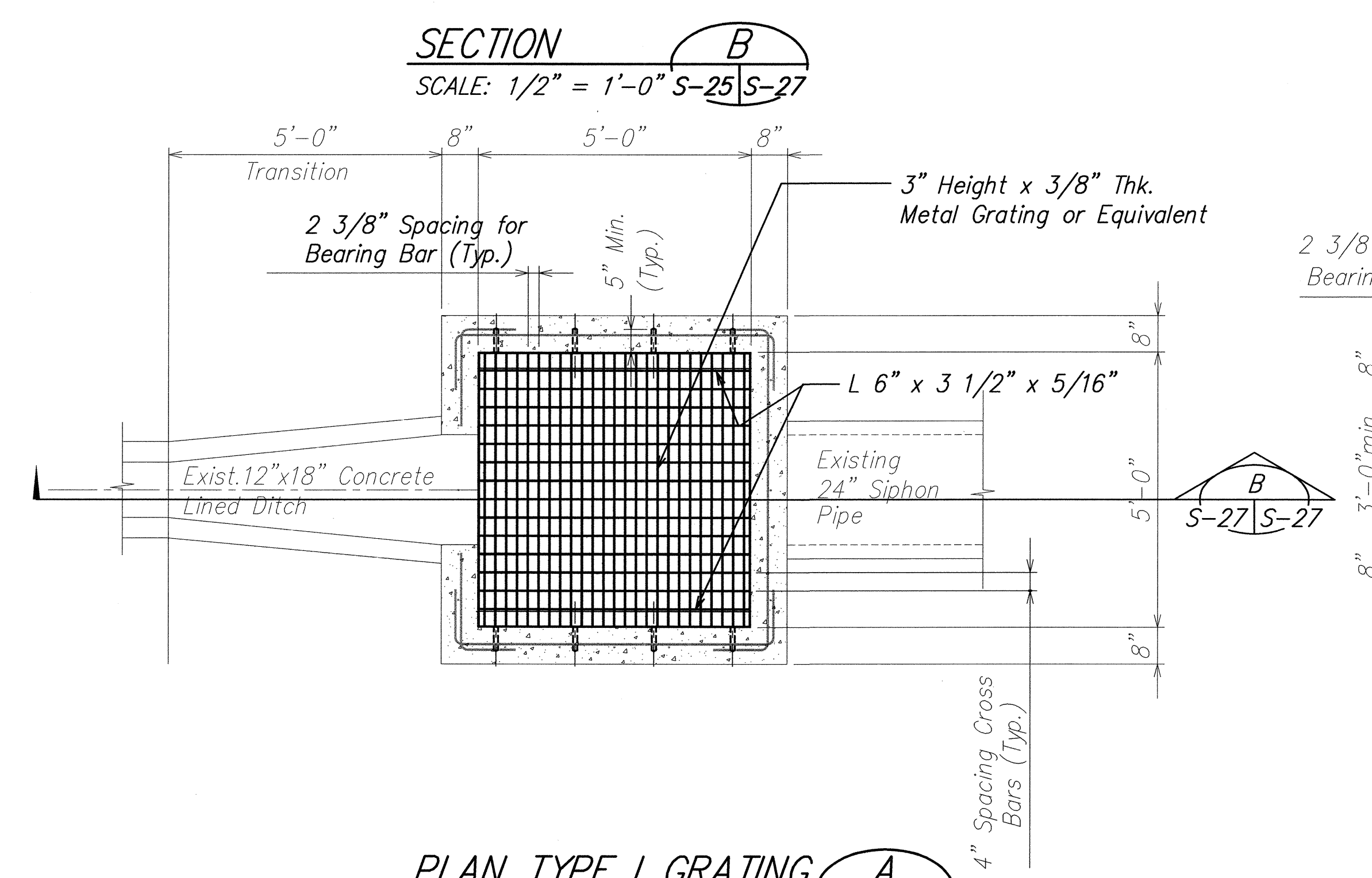
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	H1A-01-02M	2003	71	88



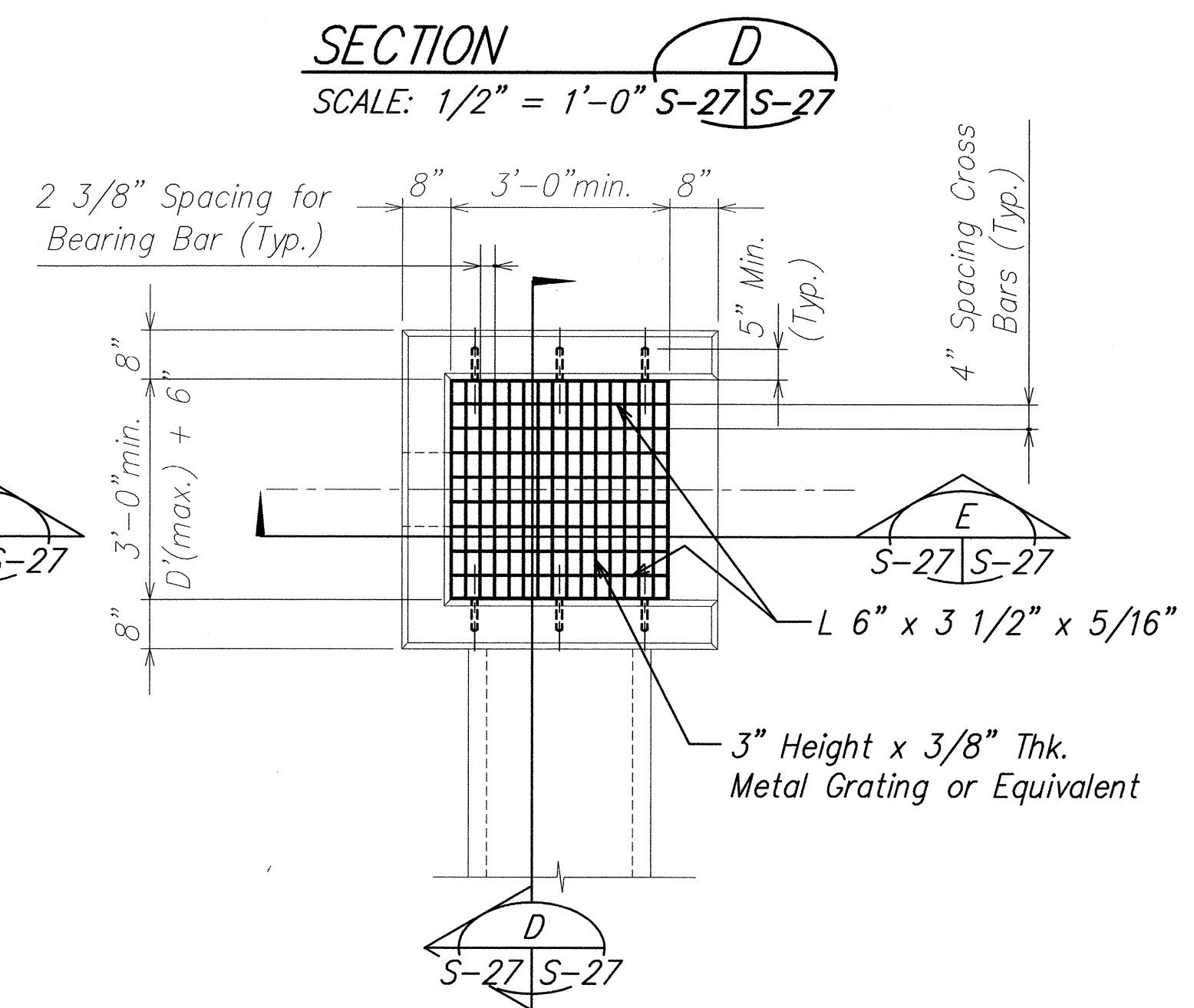
SECTION E
SCALE: 1/2" = 1'-0" S-27 S-27



SECTION D
SCALE: 1/2" = 1'-0" S-27 S-27



PLAN TYPE I GRATING A
SCALE: 1/2" = 1'-0" S-27 S-27



PLAN TYPE II GRATING C
SCALE: 1/2" = 1'-0" S-27 S-27

- NOTES:
1. Verify existing inlet dimensions prior to fabricating angles and grating.
 2. All grating structural steel members, and bolts shall be hot-dip galvanized after fabrication.
 3. Type I Grating occurs at grassed areas. Once each at Ramp MA and Ramp MB.
 4. Type II Grating occurs in one location at Makakilo Drive @ Sta. 5+50 approximately at Ramp MA.

STUART K. OTAKE
LICENSED PROFESSIONAL ENGINEER
No. 5114-S
HAWAII, U.S.A.
THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.
4-30-04
Mitsunaga & Associates, Inc.
Expiration Date of the License

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

SIPHON INLET AND DROP INLET GRATINGS PLANS AND SECTIONS

INTERSTATE ROUTE H-1 REHABILITATION

Vicinity Of Makakilo Interchange

Project No. H1A-01-02M

Scale: As Noted Date: April 2003

SHEET No. S-27 OF 28 SHEETS

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

