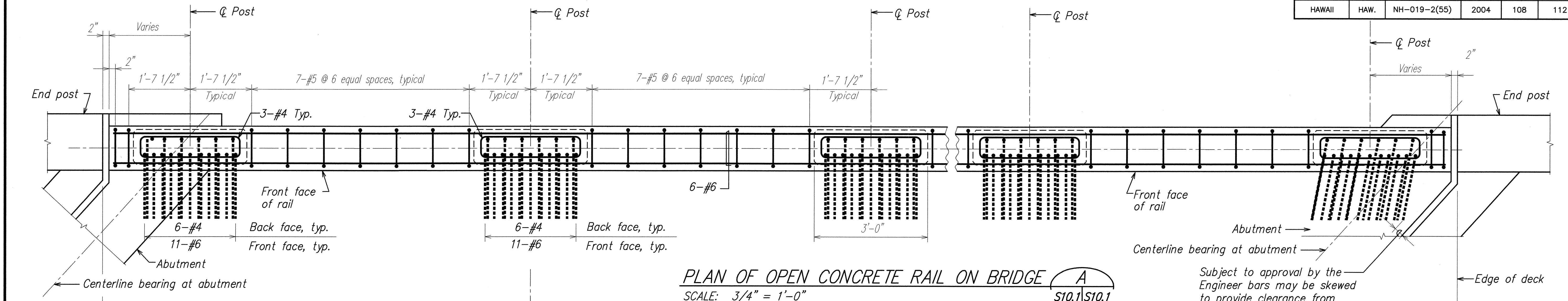
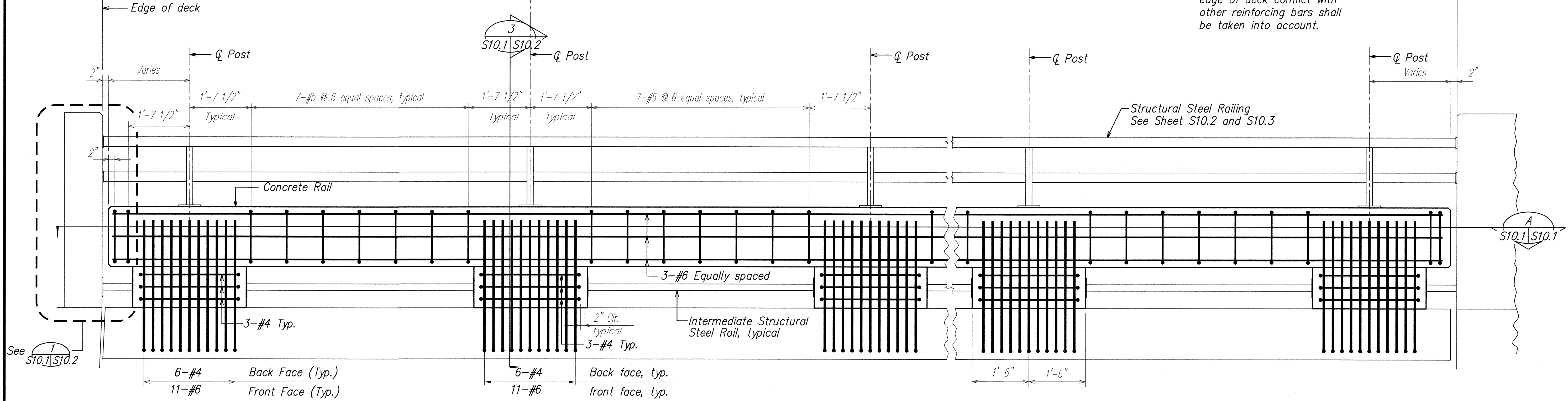


FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-019-2(55)	2004	108	112

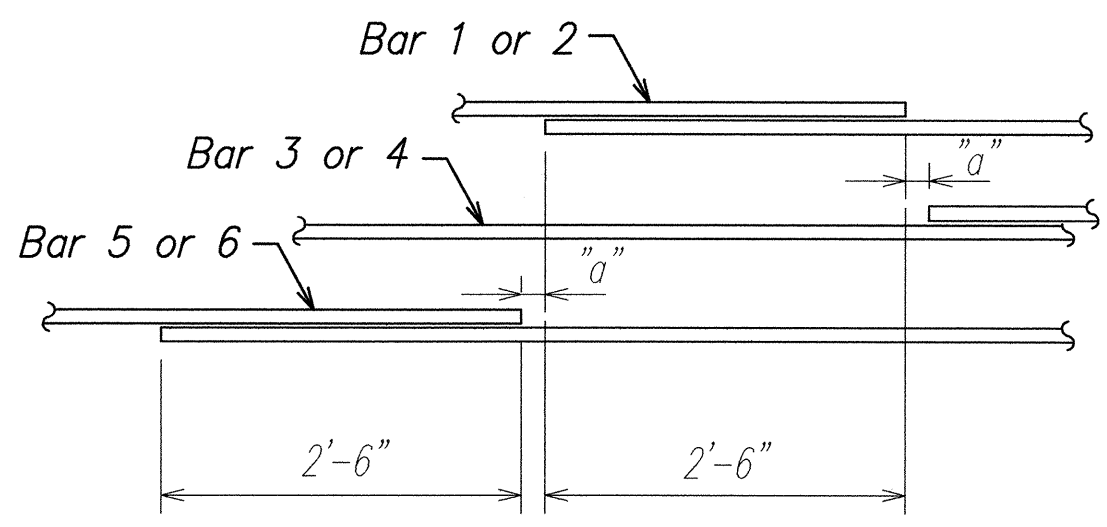


PLAN OF OPEN CONCRETE RAIL ON BRIDGE A  
SCALE: 3/4" = 1'-0"

Subject to approval by the Engineer bars may be skewed to provide clearance from edge of deck conflict with other reinforcing bars shall be taken into account.

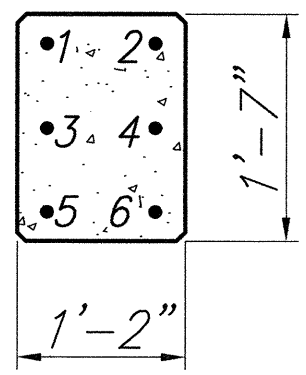


ELEVATION OF OPEN CONCRETE RAIL ON BRIDGE B  
SCALE: 3/4" = 1'-0"

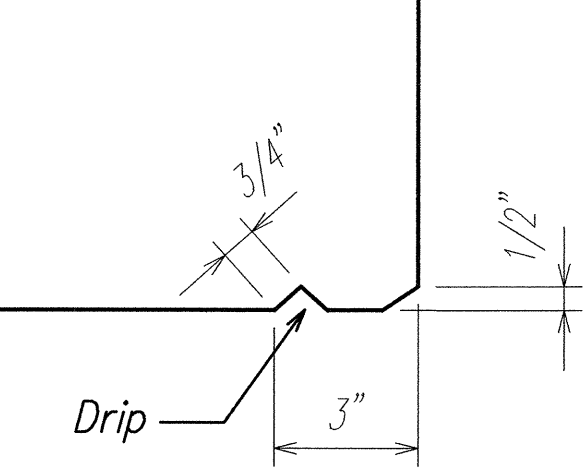


LAP DETAIL 1  
NOT TO SCALE S10.1 S10.1

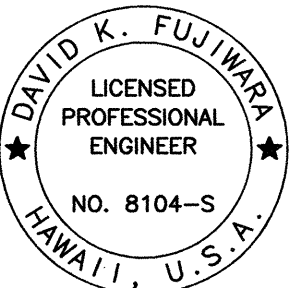
Laps for Bars 1 and 5 shall be staggered.  
Laps for Bars 2 and 6 shall be staggered.  
Bar 3 to be continuous through laps for Bars 1 and 5  
Bar 4 to be continuous through laps for Bars 2 and 6  
"a" ≥ Zero



RAIL SECTION 2  
NOT TO SCALE S10.1 S10.1



DRIP DETAIL 3  
NOT TO SCALE S10.1 S10.1



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Signature: David K. Fujimura  
Expiration Date of the License: 4-30-04

STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

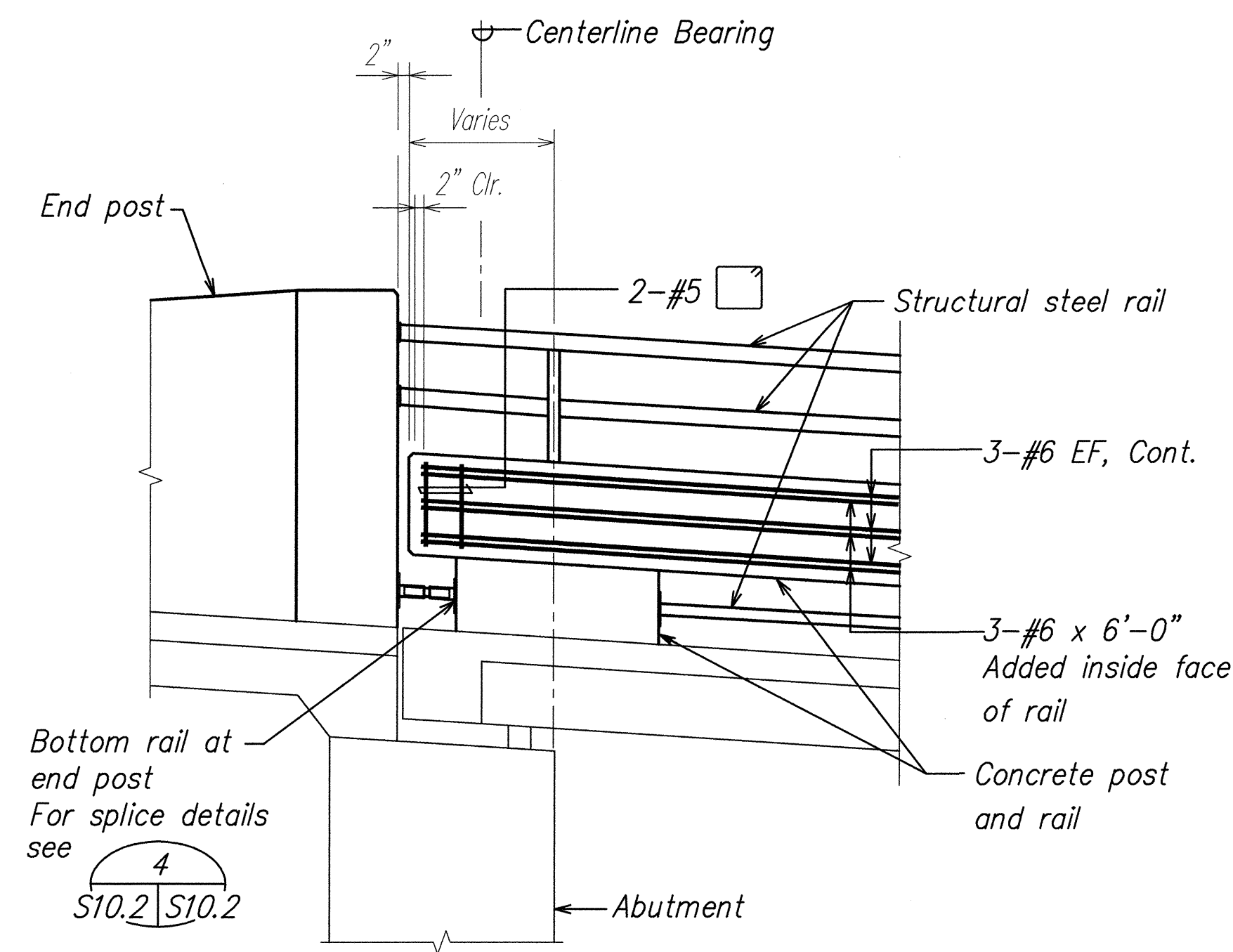
RAILING SECTIONS AND DETAILS

HAWAII BELT ROAD RESURFACING  
East Paaulo Bridge to Kaala Bridge  
Federal Aid-Project No. NH-019-2(55)

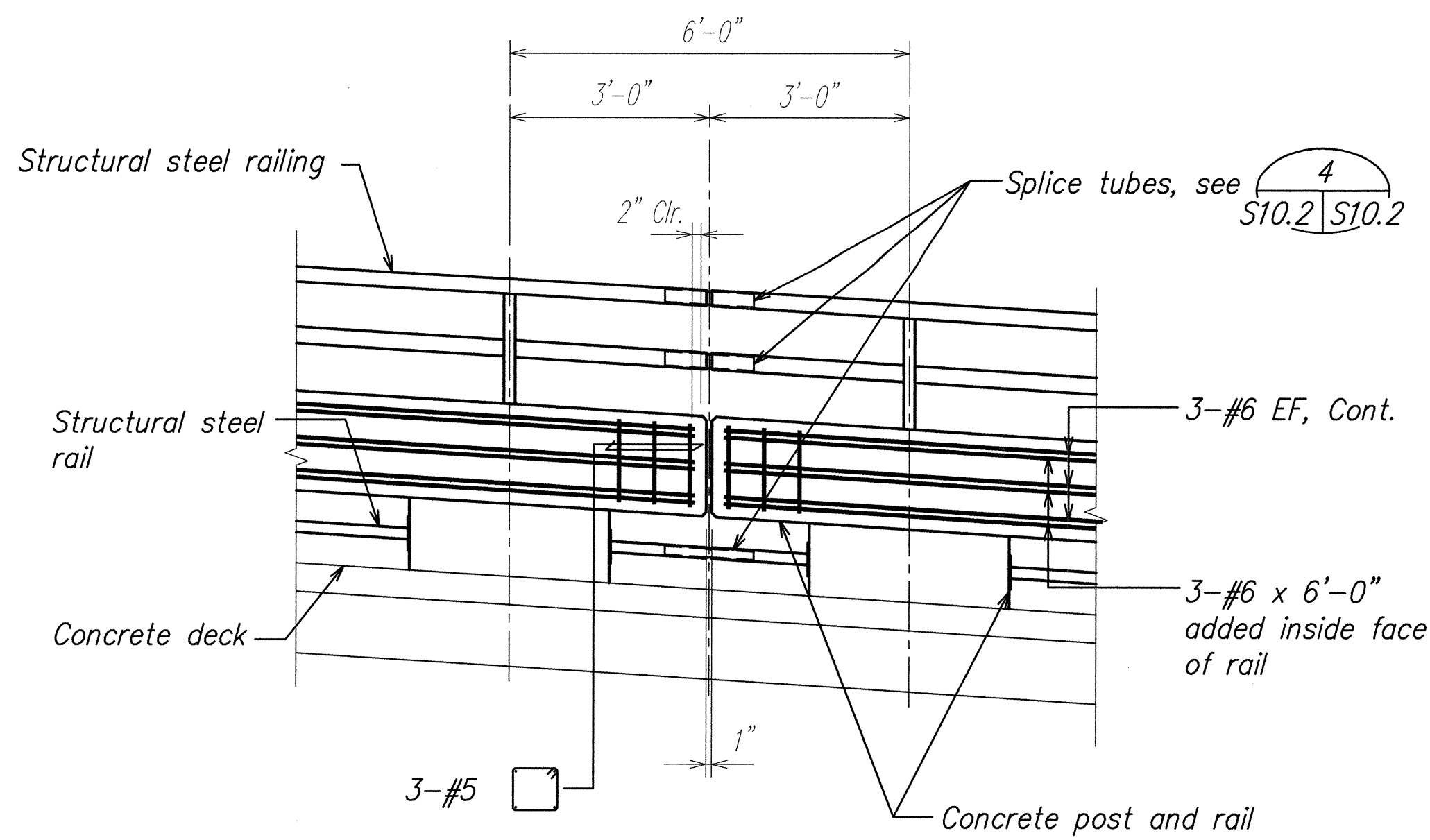
Scale: As Noted Date: April 2004

SHEET No. S10.1 OF 61 SHEETS

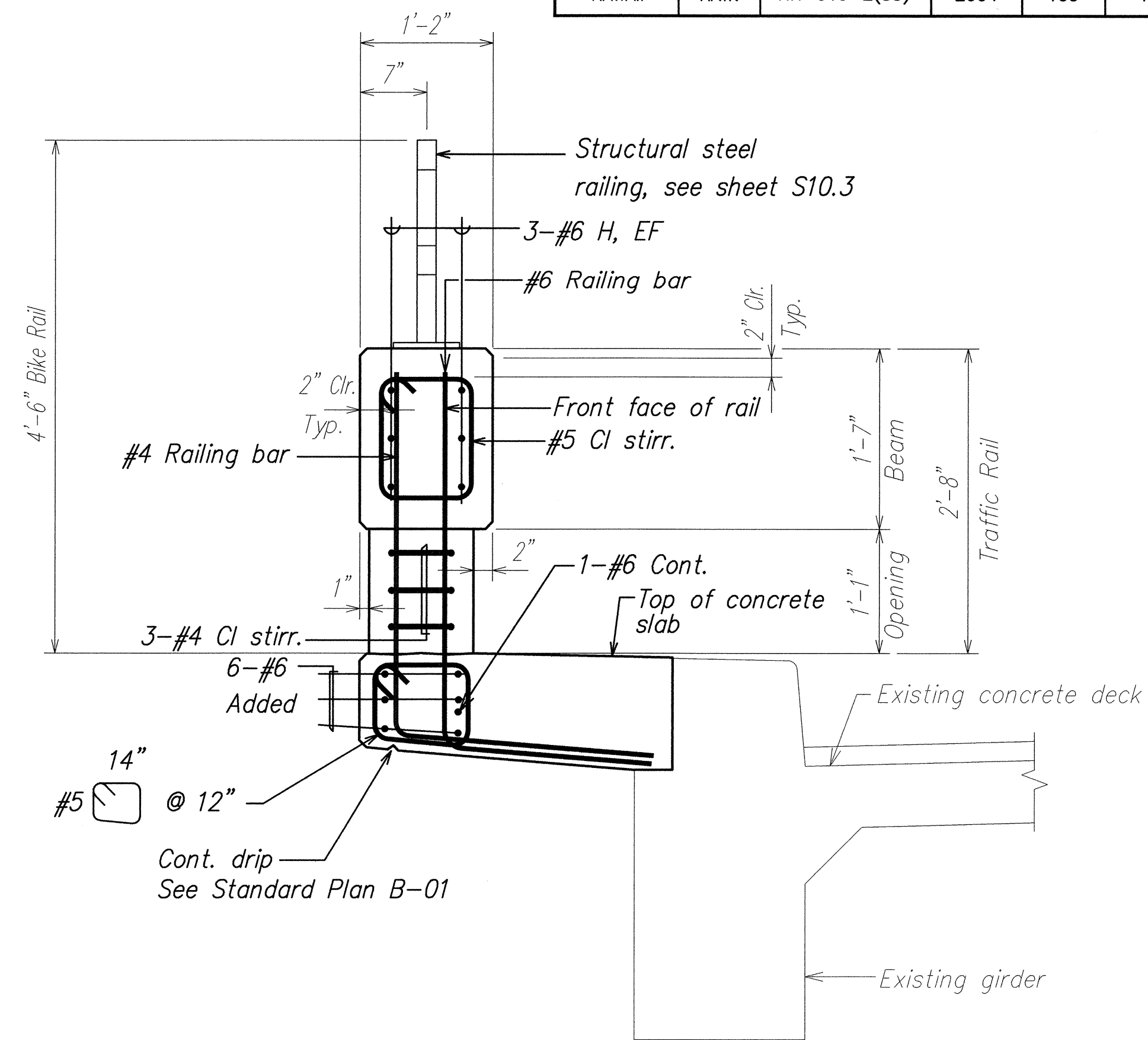
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-019-2(55)	2004	109	112



TYPICAL RAILING DETAIL AT END POST  
SCALE: 1/2" = 1'-0"

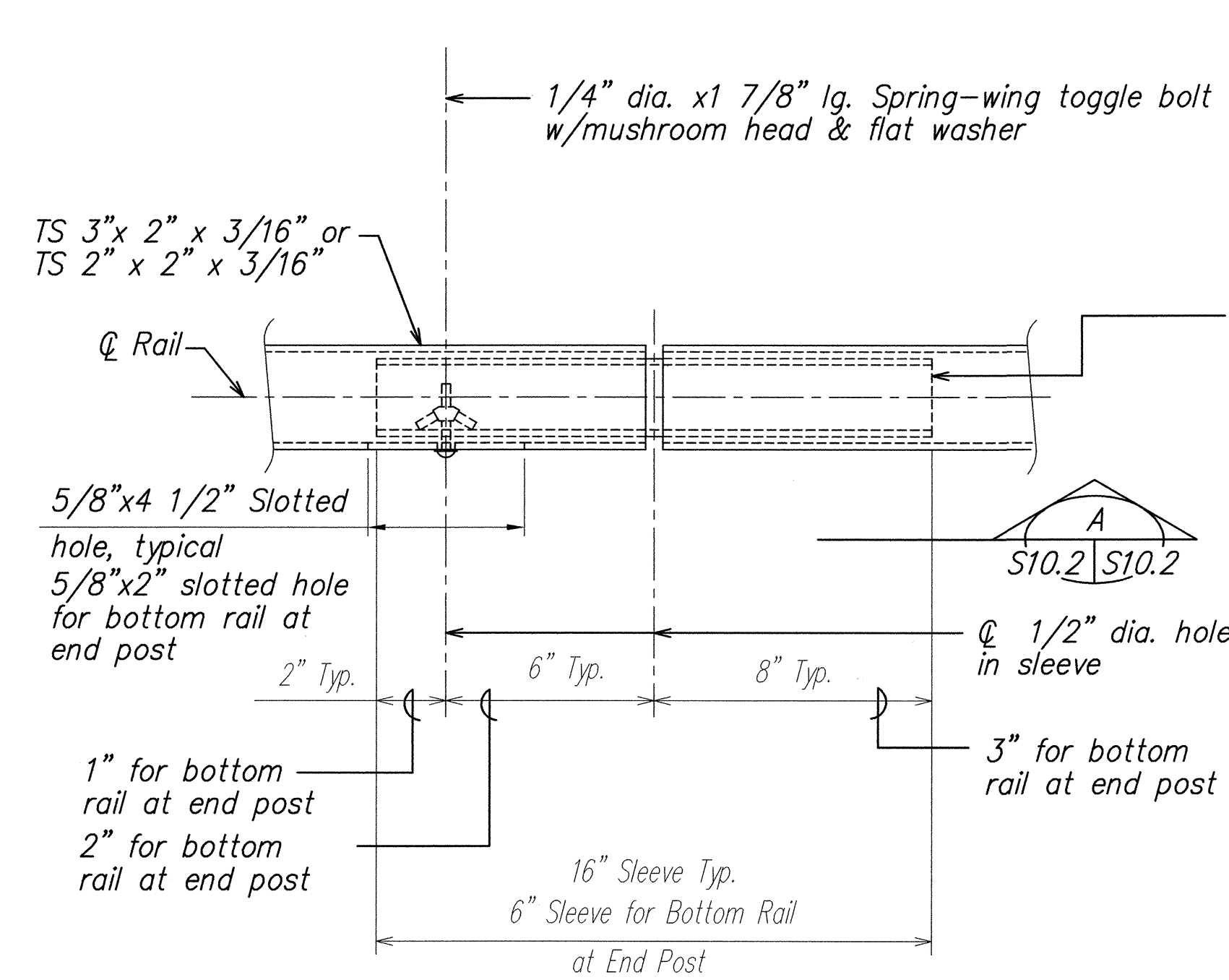


TYPICAL RAILING EXPANSION JOINT  
SCALE: 1/2" = 1'-0"



SECTION  
SCALE: 1" = 1'-0"

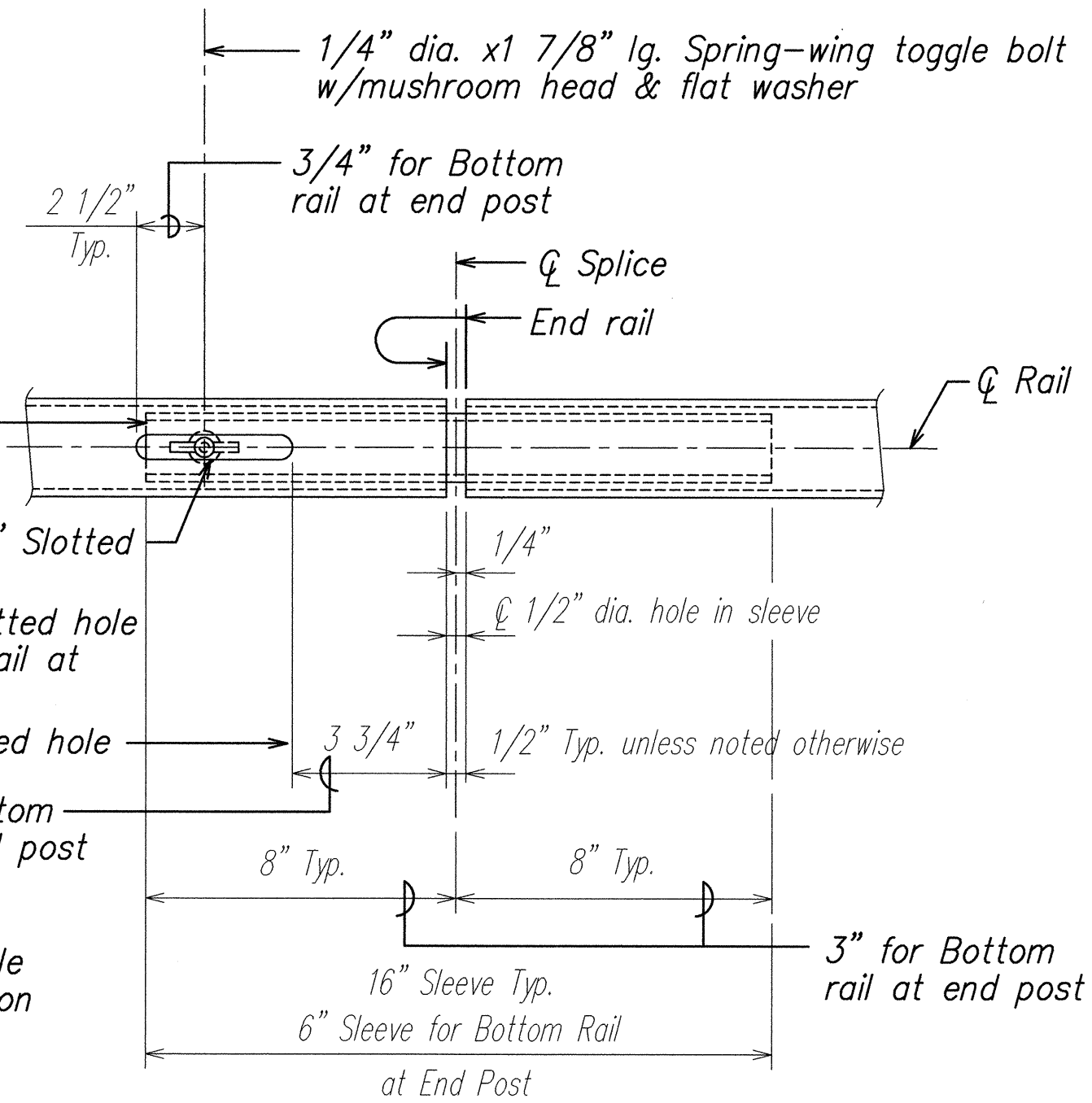
NOTE:  
See sheet S3.3 and sheet S8.3  
for additional details.



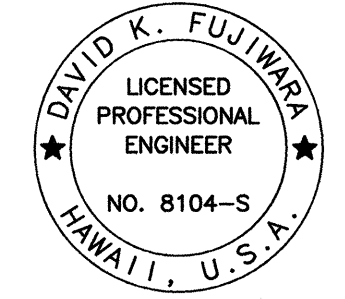
ELEVATION

TYPICAL BICYCLE RAILING EXPANSION JOINT  
NOT TO SCALE

NOTE:  
Slotted hole and toggle  
bolt shall be located on  
underside of tube.



SECTION  
A



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STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

RAILING DETAILS

HAWAII BELT ROAD RESURFACING  
East Paaulo Bridge to Kaala Bridge  
Federal Aid-Project No. NH-019-2(55)

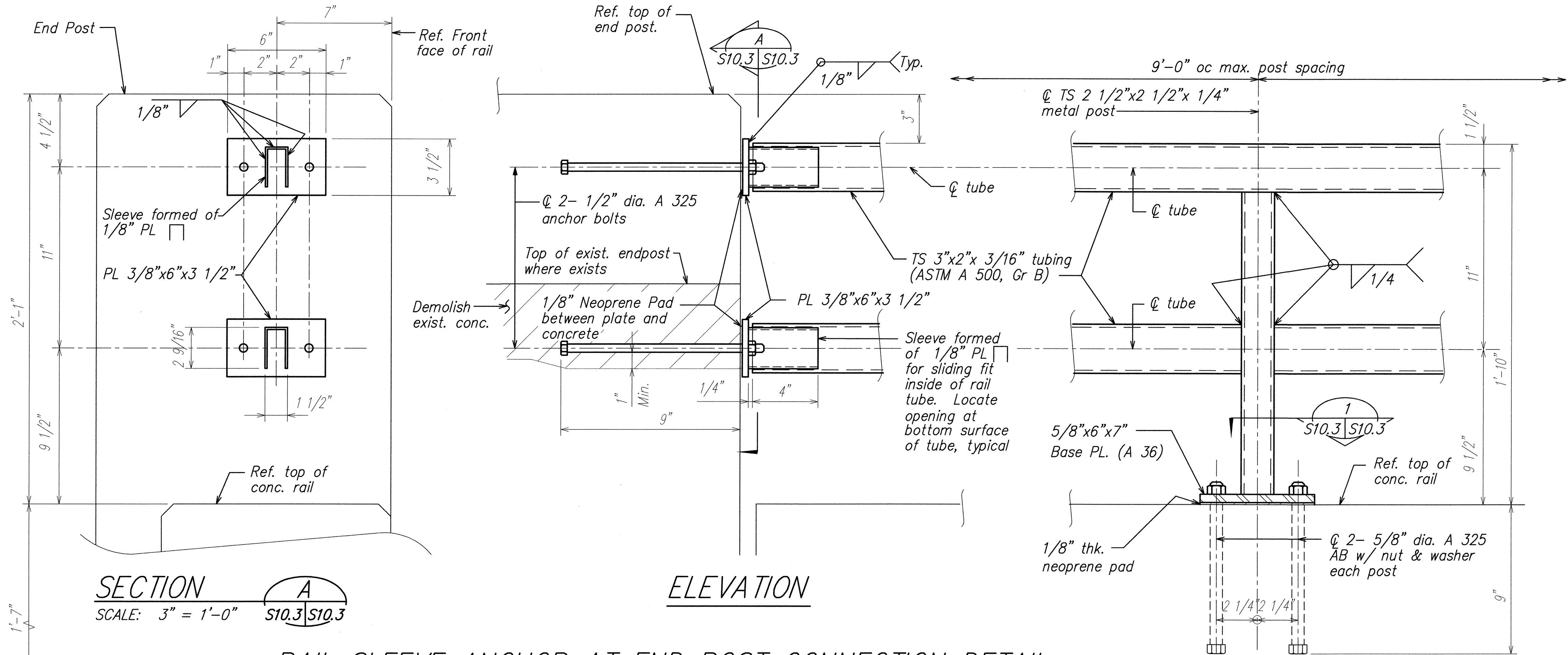
Scale: As Noted Date: April 2004

SHEET No. S10.2 OF 61 SHEETS

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

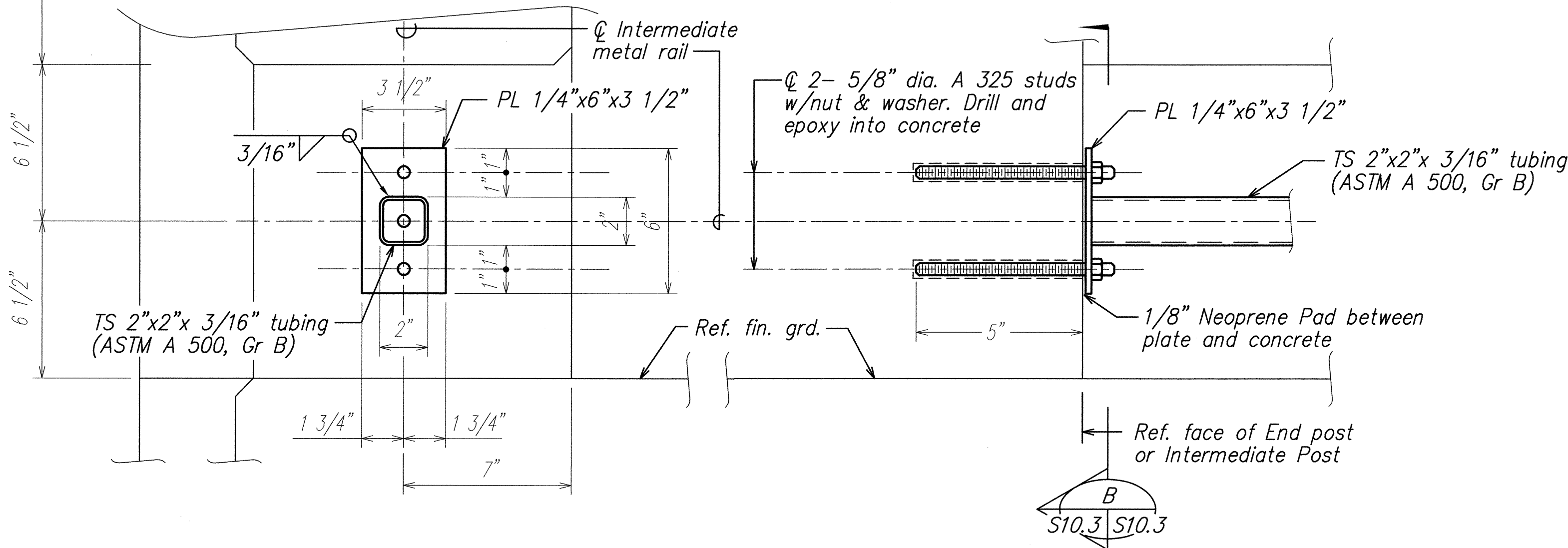


FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-019-2(55)	2004	110	112



RAIL SLEEVE ANCHOR AT END POST CONNECTION DETAIL

SCALE: 3" = 1'-0"



INTERMEDIATE METAL RAIL DETAIL

(INCIDENTAL TO METAL BIKE RAILING)

SCALE: 3" = 1'-0"

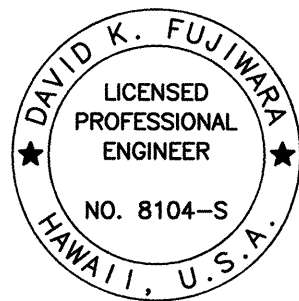
ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
NOTE BOOK	DRAWN BY	
	DESIGNED BY	
	CHECKED BY	
	NO.	

ANCHOR PLATE DETAIL

SCALE: 3" = 1'-0"

NOTE:

All structural steel members, plates and bolts shall be hot dipped galvanized after fabrication.

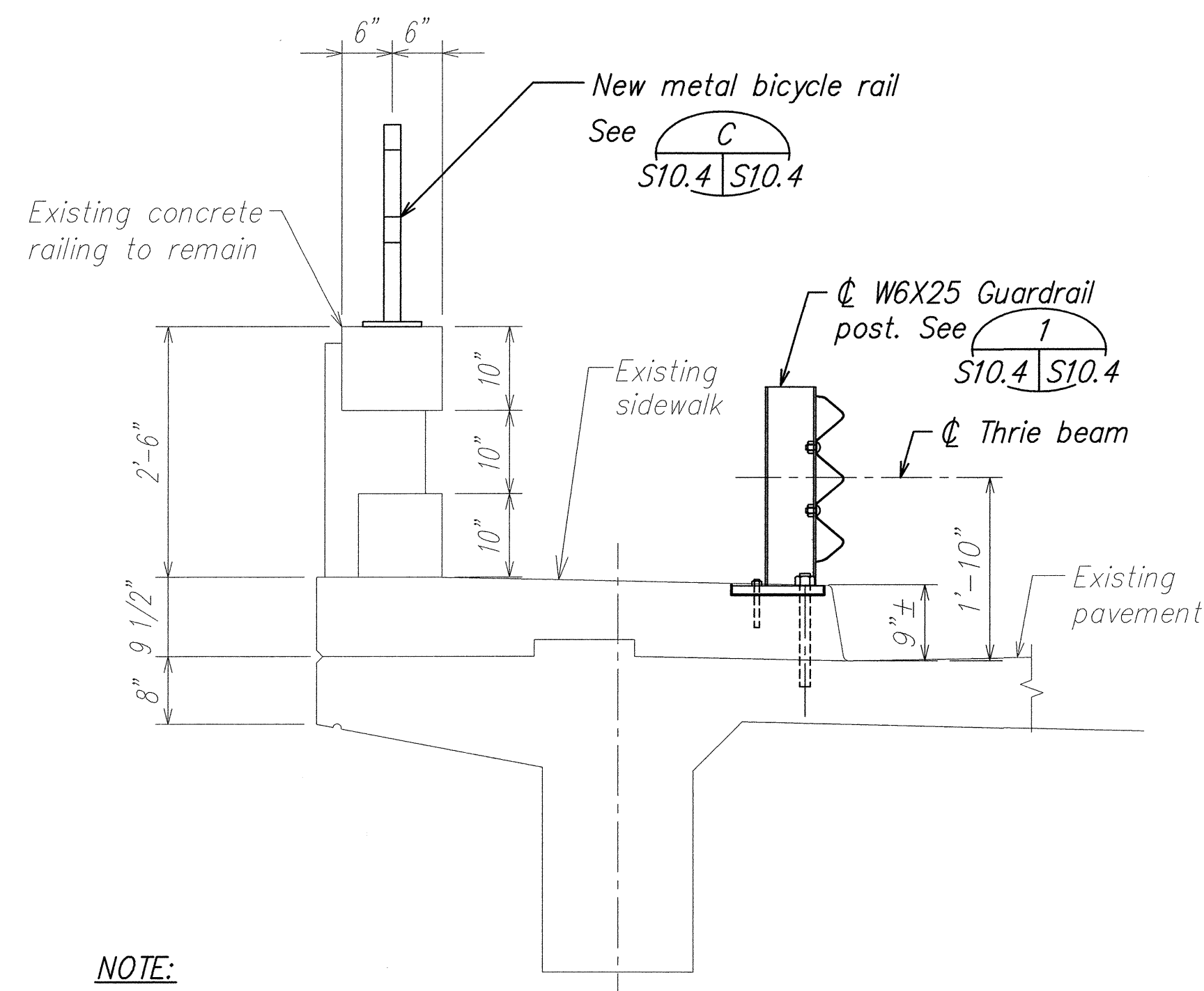


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EXPIRATION DATE OF THE LICENSE: 4-30-04

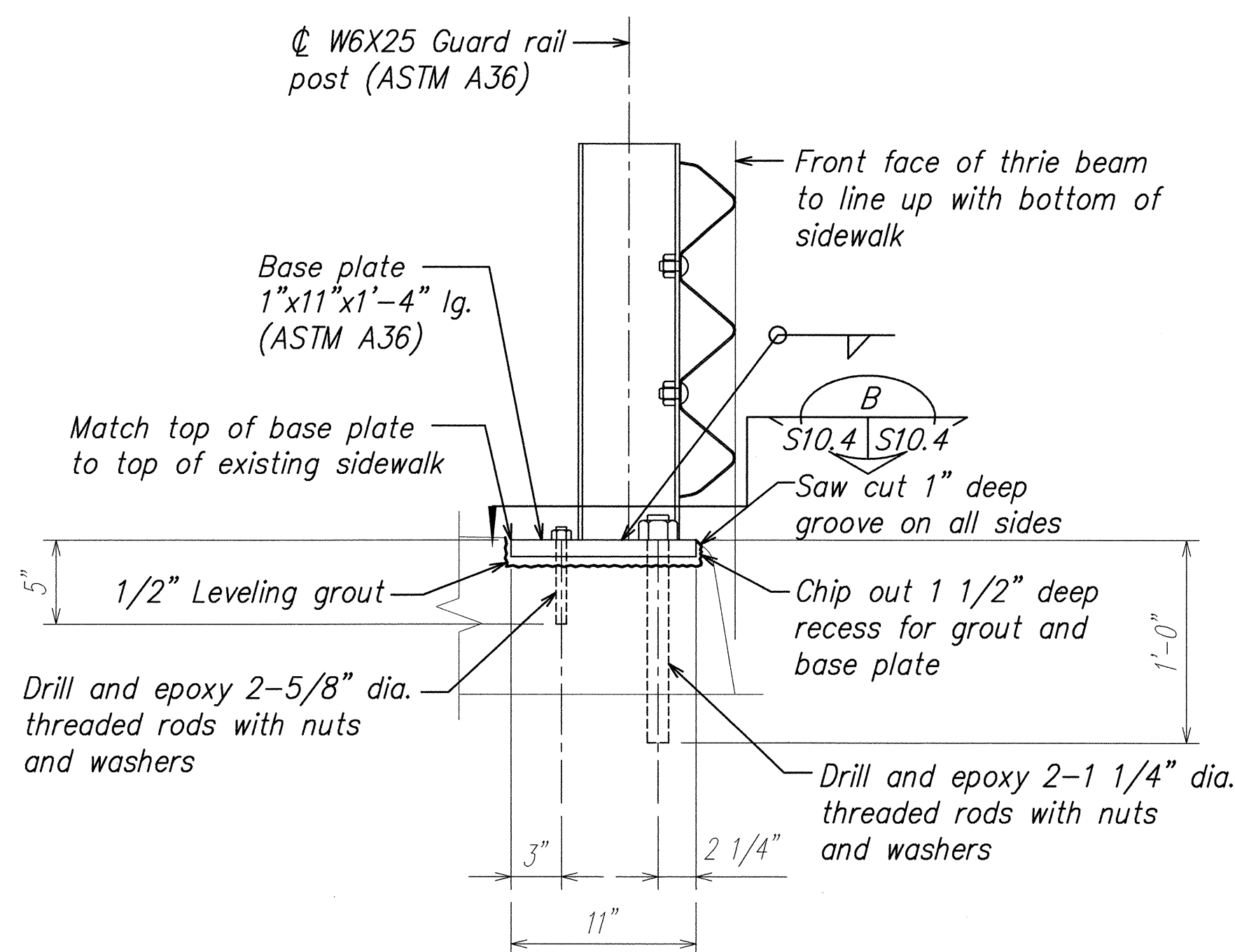
STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION  
METAL BIKEWAY AND INTERMEDIATE RAILING ON CONCRETE RAIL DETAILS  
HAWAII BELT ROAD RESURFACING  
East Paaulo Bridge to Kaala Bridge  
Federal Aid-Project No. NH-019-2(55)  
Scale: As Noted Date: April 2004

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-019-2(55)	2004	111	112

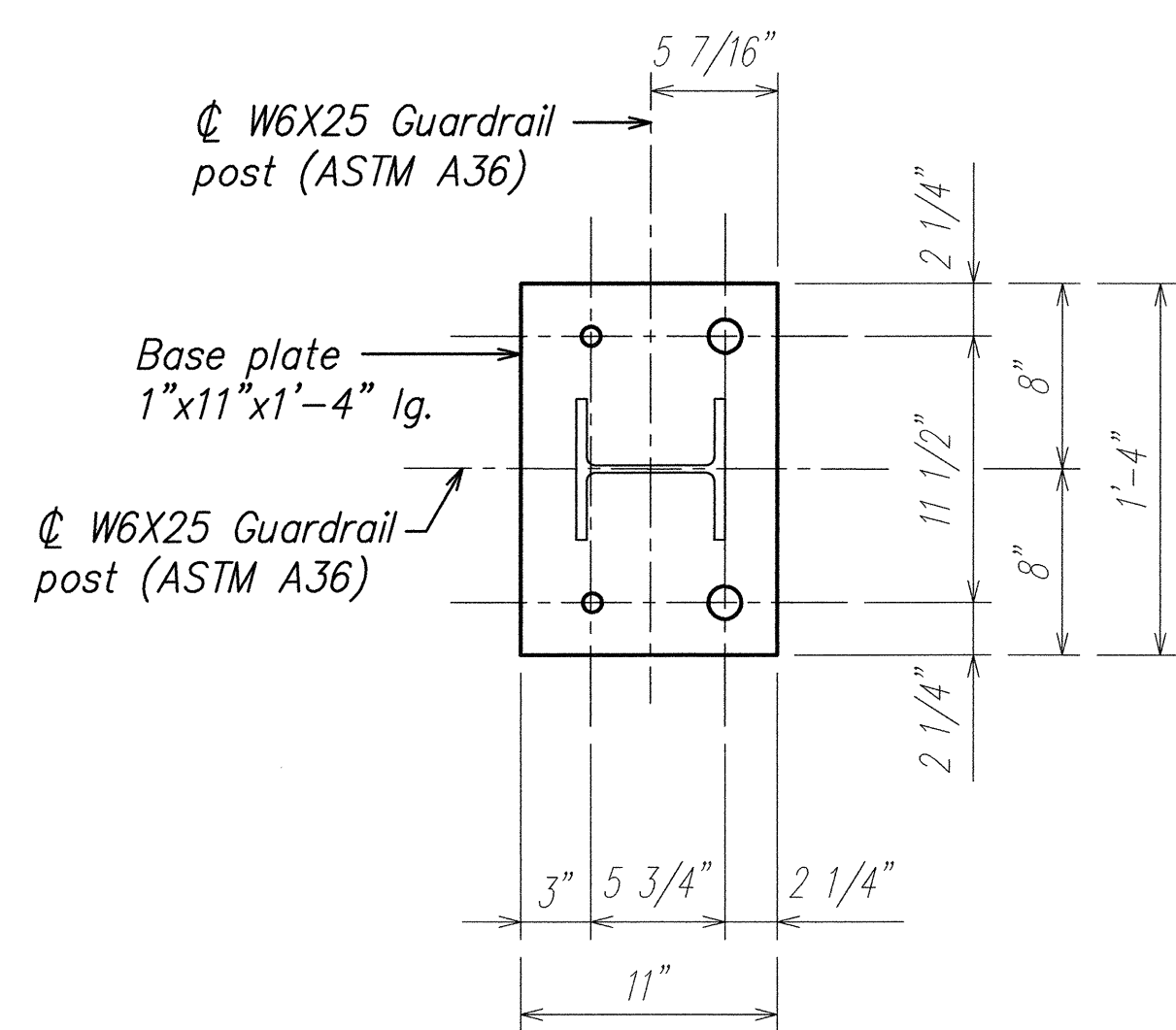


NOTE:  
New metal bicycle rail  
See sheets S10.1 thru S10.3.

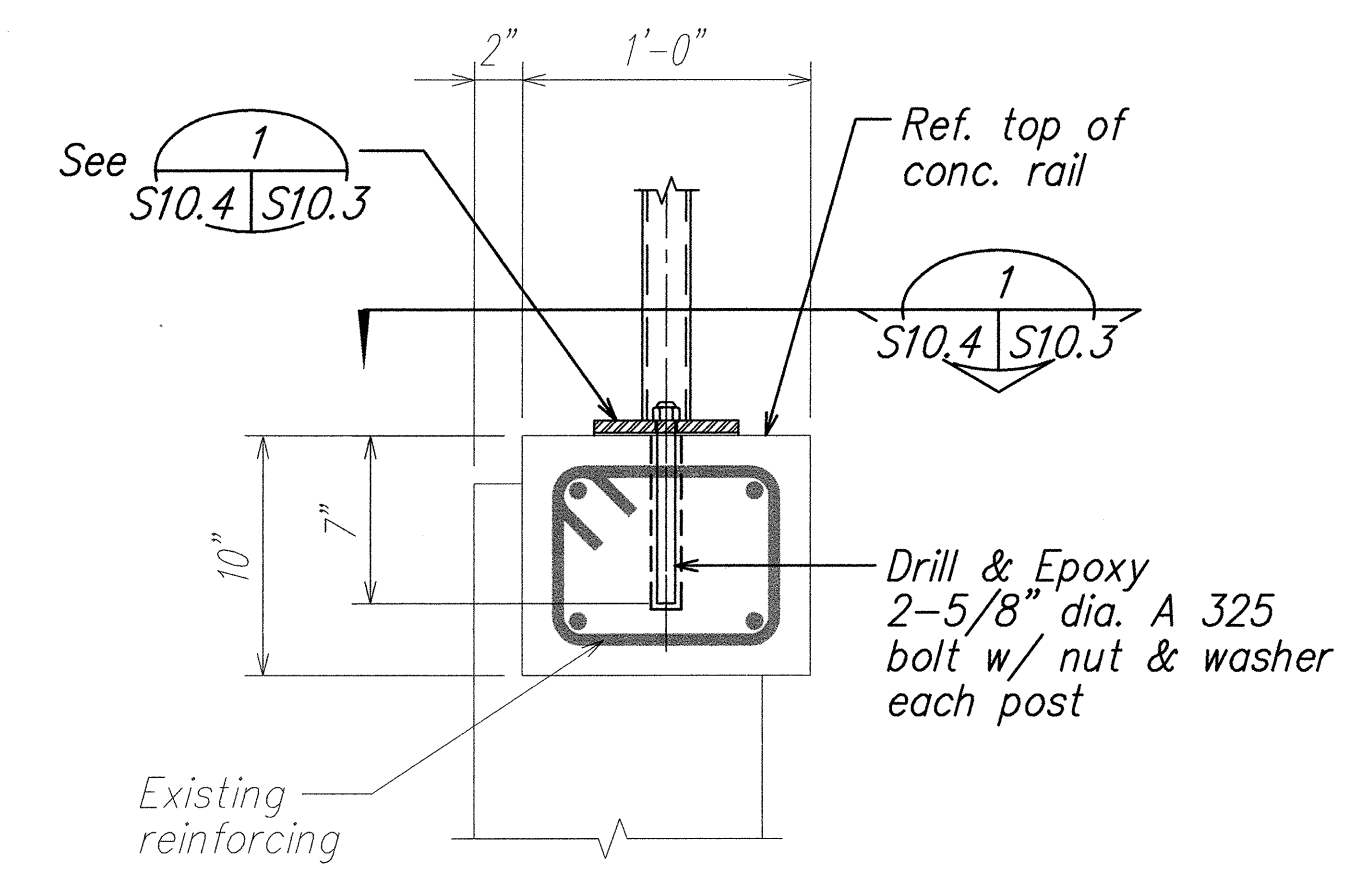
**SIDEWALK RAILING SECTION**  
SCALE: 3/4" = 1'-0"  
A  
S10.4 | S10.4



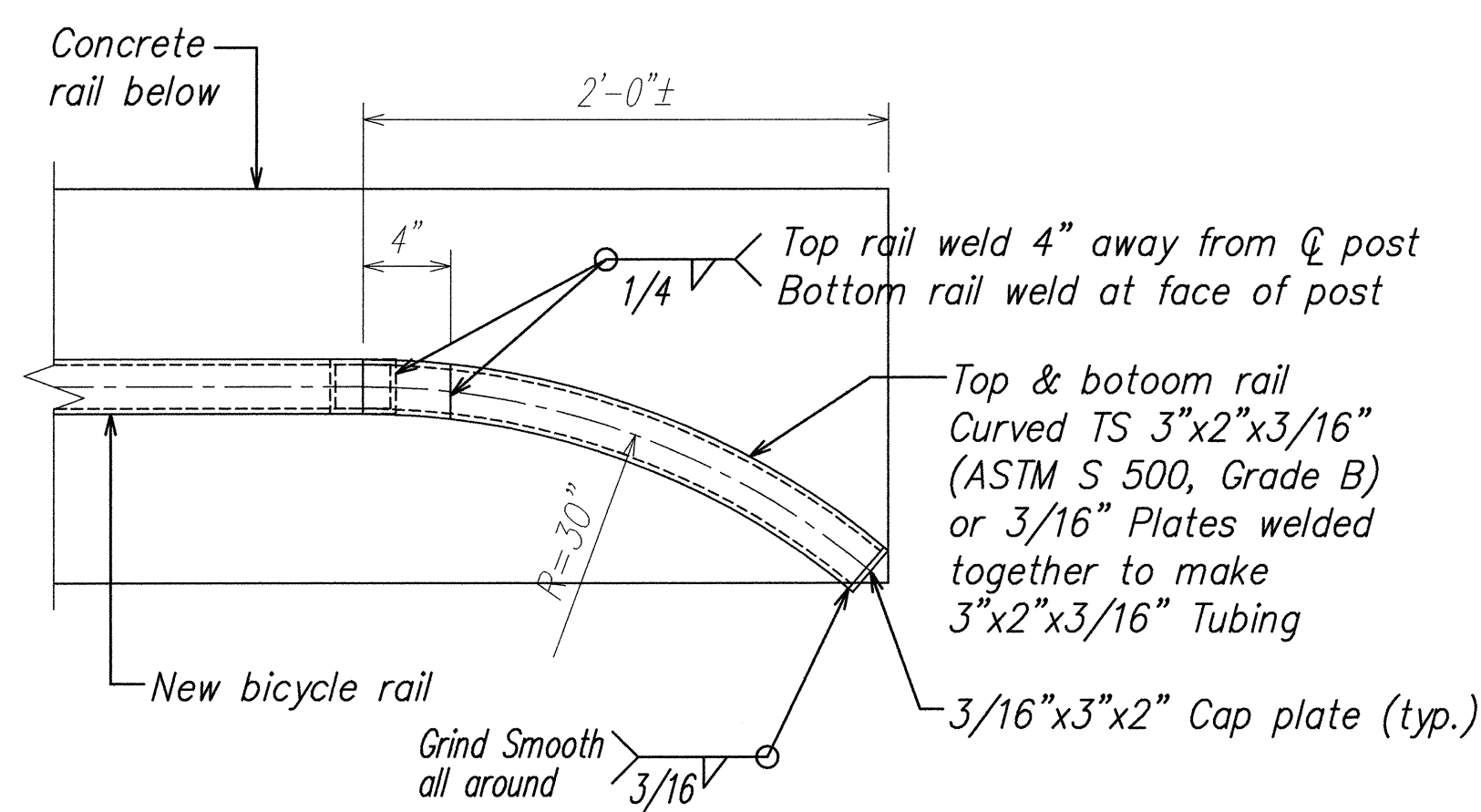
**THRIE BEAM METAL RAILING DETAIL**  
SCALE: 1 1/2" = 1'-0"  
1  
S10.4 | S10.4



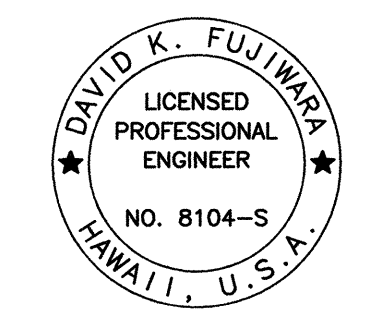
**PLAN - BASE PLATE**  
SCALE: 1 1/2" = 1'-0"  
B  
S10.4 | S10.4



**SECTION**  
SCALE: 1 1/2" = 1'-0"  
C  
S10.4 | S10.4



**PLAN**  
SCALE: 1 1/2" = 1'-0"  
2  
S10.4 | S10.4



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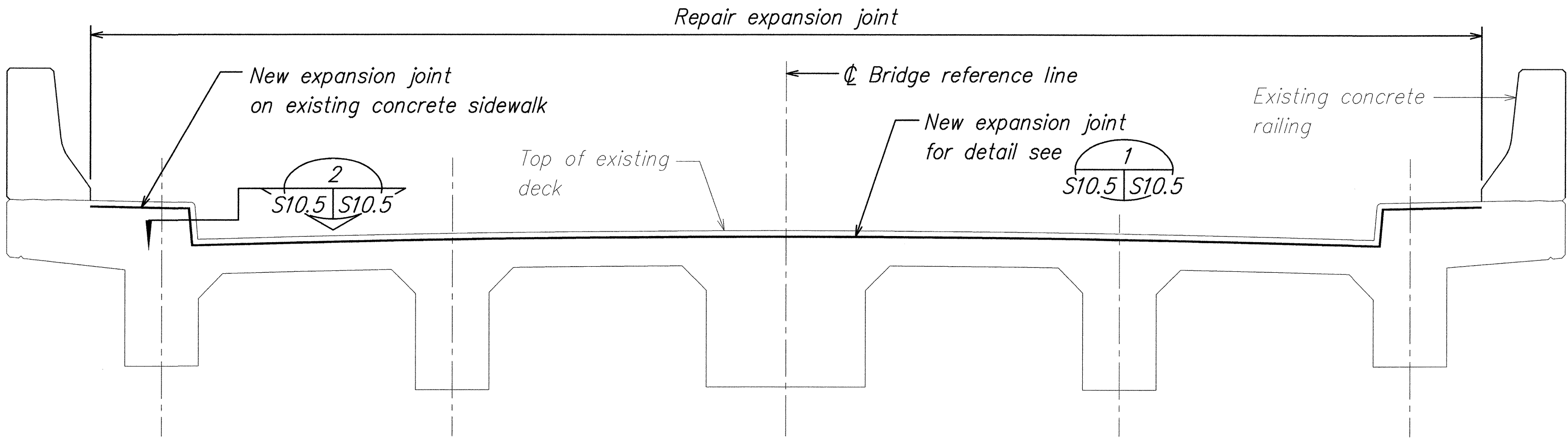
Signature: David K. Fujiwara  
Expiration Date of License: 4-30-04

STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION  
**GUARD RAIL AND PEDESTRIAN RAILING  
SECTIONS AND DETAILS**  
**HAWAII BELT ROAD RESURFACING**  
**East Paaulo Bridge to Kaala Bridge**  
**Federal Aid-Project No. NH-019-2(55)**  
Scale: As Noted Date: April 2004

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-019-2(55)	2004	112	112

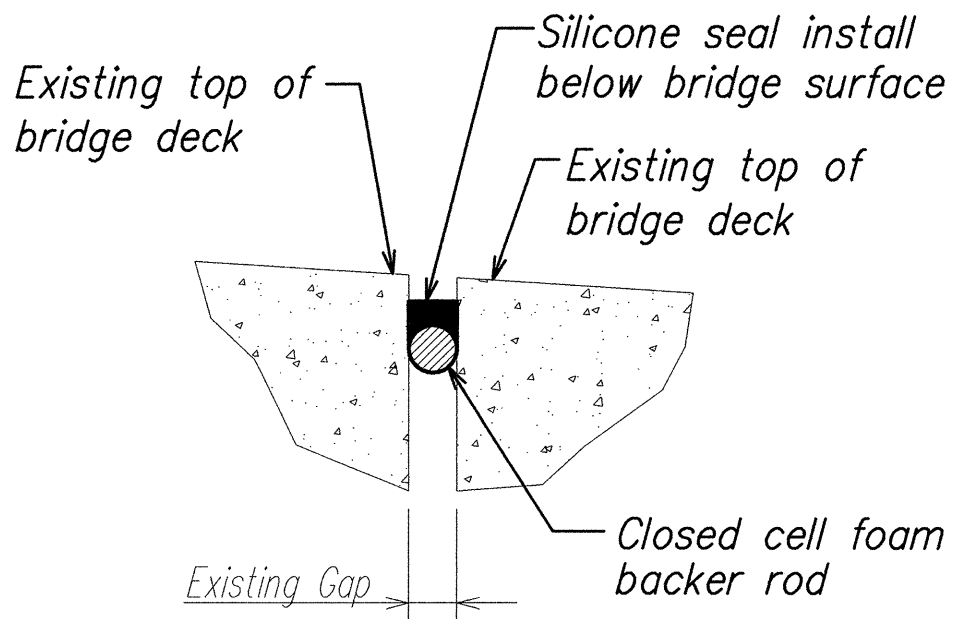
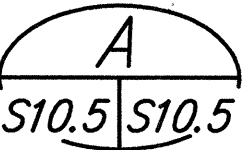
BRIDGE	*JOINT SIZE
Mohuna 2 Exp. Joints	1"
Kukaiau 8 Exp. Joints	1"
Kalapahapuu 1 Exp. Joint	2"
Kainehe 2 Exp. Joints	2"
Kawaili 1 Exp. Joint	1"

NOTE:  
Joint size is approximate and shall  
be verified in the field by the contractor.



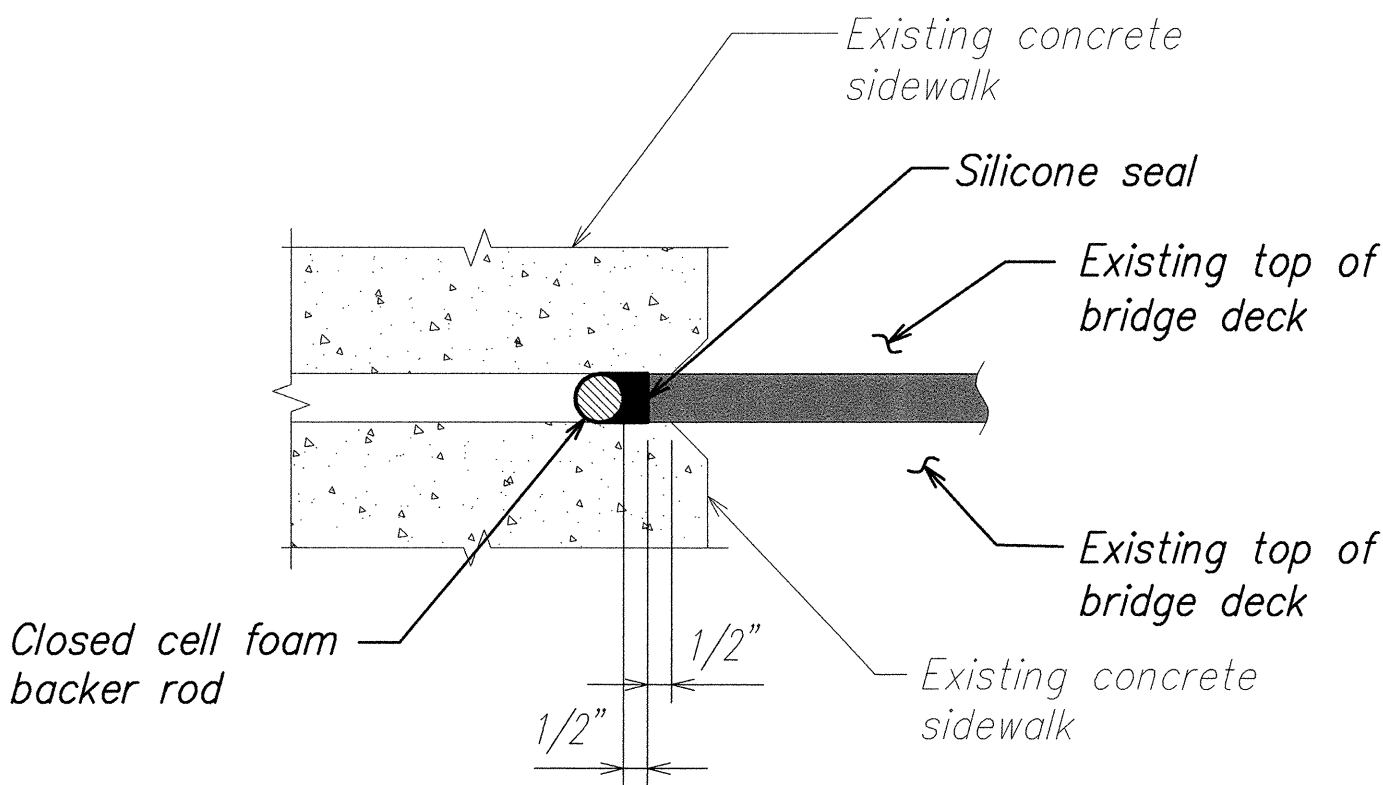
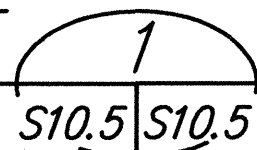
EXPANSION JOINT ELEVATION  
FOR ABUTMENT 1 AND 2

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



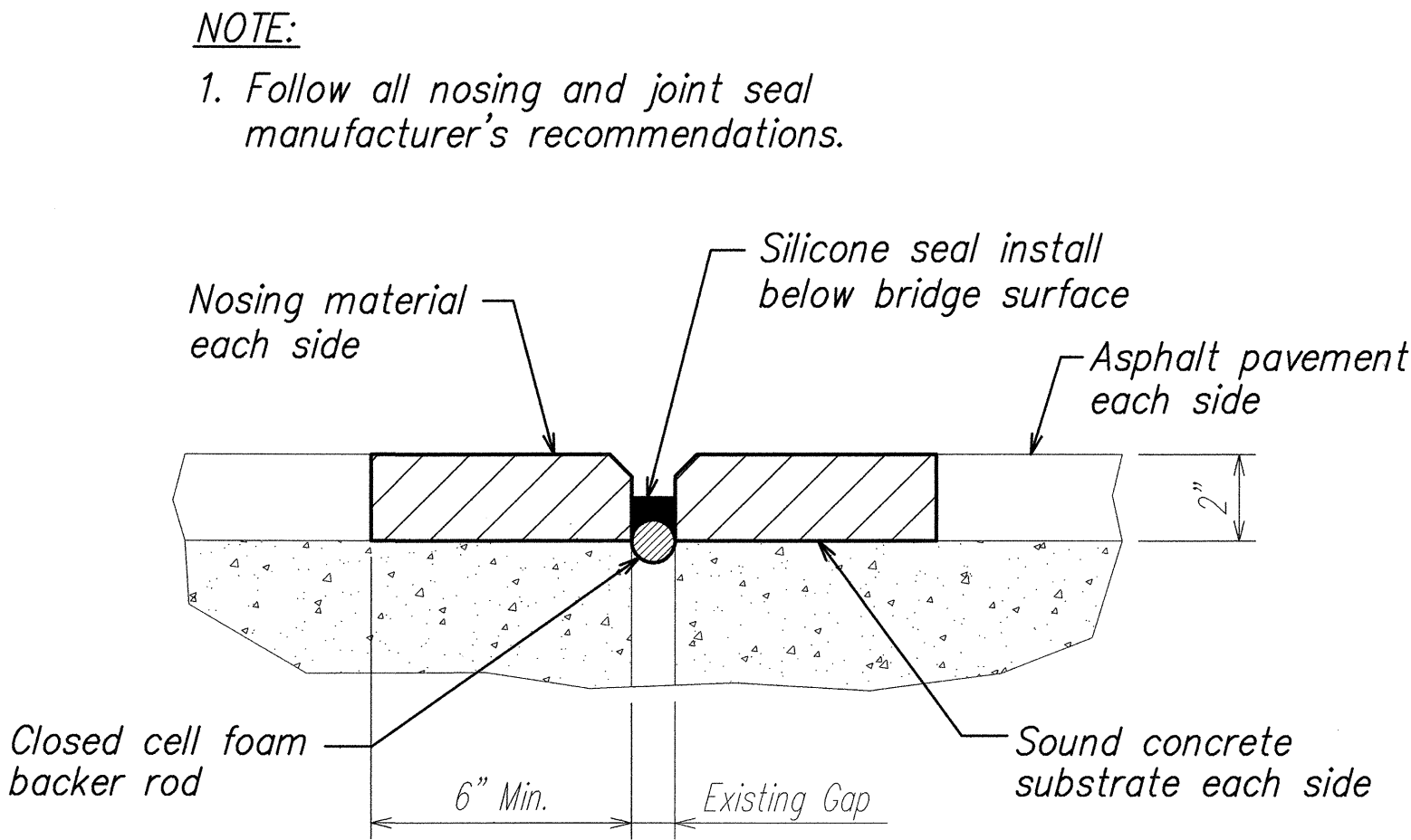
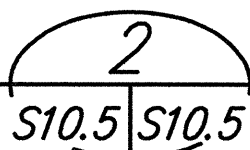
EXPANSION JOINT DETAIL W/ NO  
ASPHALT PAVEMENT ON BRIDGE

SCALE: NOT TO SCALE



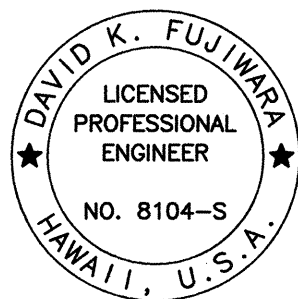
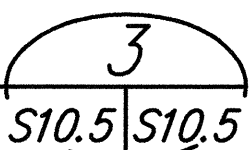
EXPANSION JOINT DETAIL  
AT EXISTING CONCRETE DECK

SCALE: NOT TO SCALE



EXPANSION JOINT DETAIL W/  
ASPHALT PAVEMENT ON BRIDGE

SCALE: NOT TO SCALE



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SIGNATURE: *David K. Fujiwara*  
EXPIRATION DATE OF THE LICENSE: 4-30-04

STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION  
EXPANSION JOINT DETAILS

HAWAII BELT ROAD RESURFACING  
East Paauilo Bridge to Kaala Bridge  
Federal Aid-Project No. NH-019-2(55)

Scale: As Noted Date: April 2004

SHEET No. S10.5 OF 61 SHEETS