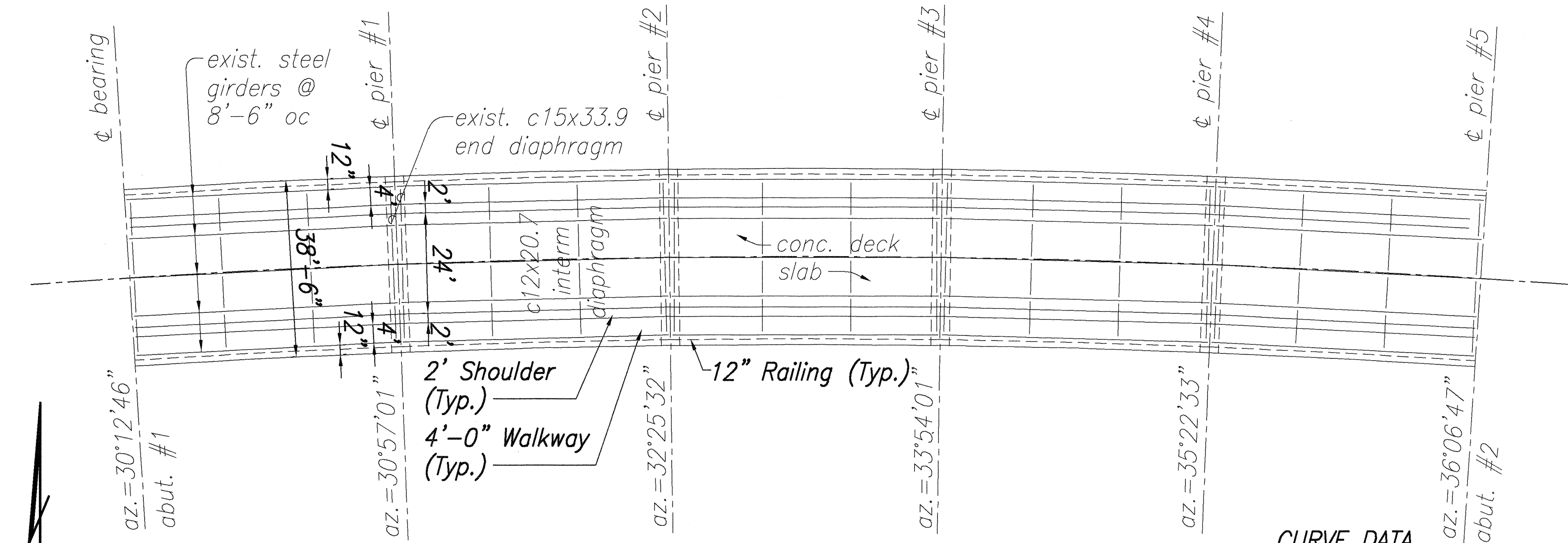
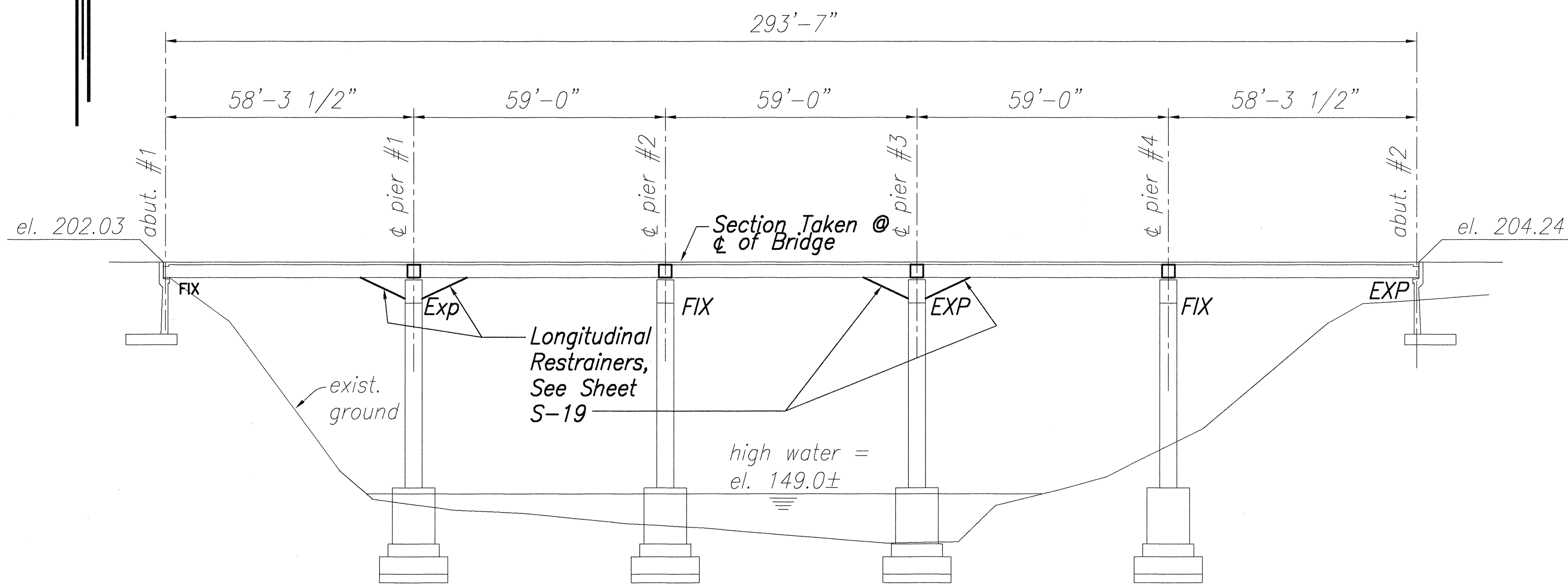


FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BR-019-2(46)	2000	23	26



LAYOUT PLAN
Scale: 1"=20'-0"

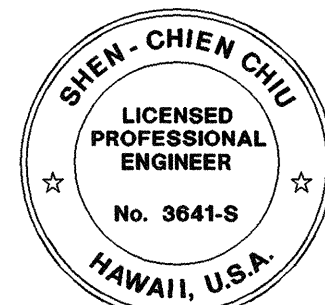
CURVE DATA
 $\Delta = 07^{\circ}20'24''$
 $R = 2291.6931$
 $T = 146.9928$
 $L = 293.5833$



LONGITUDINAL SECTION
Scale: 1"=20'-0"

NOTES: RETROFIT OF SUPERSTRUCTURE TO SUBSTRUCTURE

1. Provide creep blocks at each Abutment and Pier Cap Beam, see Sheet No. S-21 & S-22.
2. Provide longitudinal restrainers at expansion joint adjacent to Piers #1 & #3.
3. Add expansion bolts to strengthen shear transfer of concrete deck and diaphragms at each span, see Section A/S-22.
4. Add diagonal struts to end diaphragms at each span to prevent girder web from buckling, see Section C/S-22.

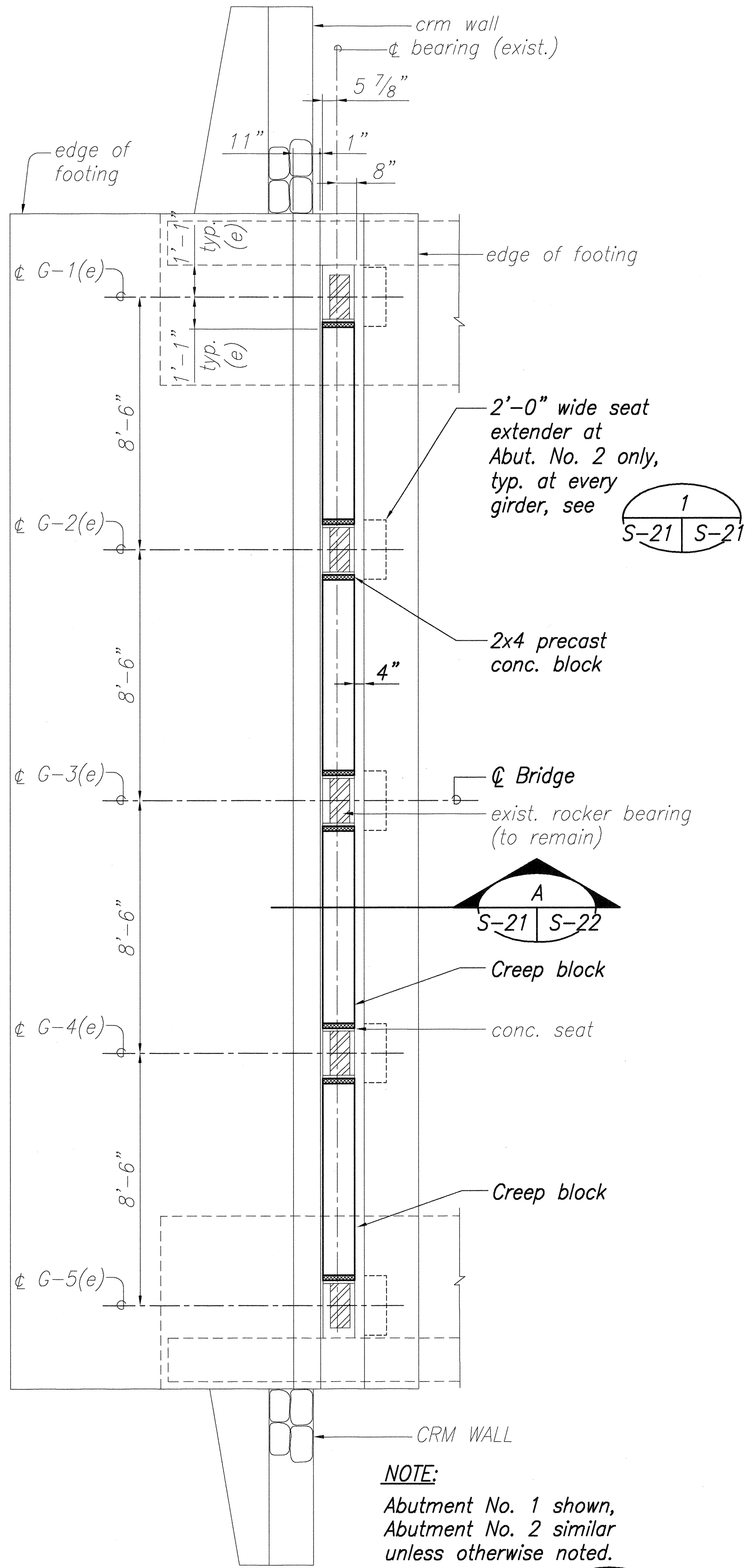


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ME OR UNDER MY SUPERVISION

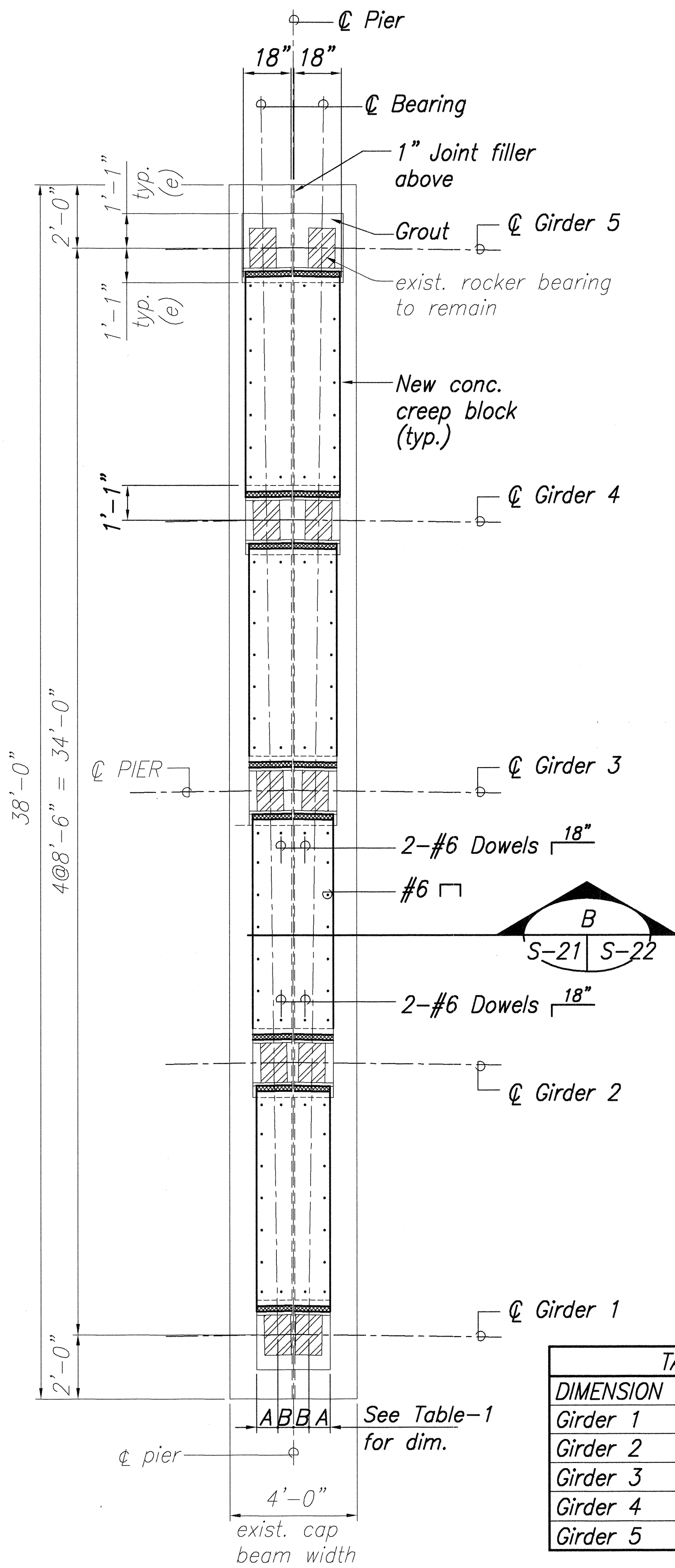
Siem-Chien Chiu

DATE	REVISION
	STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION
	WAIKAMALO BRIDGE SUPERSTRUCT. & SUBSTRUCT. RETROFIT PLAN AND SECTION
	SEISMIC RETROFIT OF VARIOUS BRIDGES EAST OF NINOLE, HAWAII F.A. PROJECT NO. BR-019-2(46)
Scale: As Noted	Date: AUG. 17, 1999
SHEET No. S-20 OF 23 SHEETS	

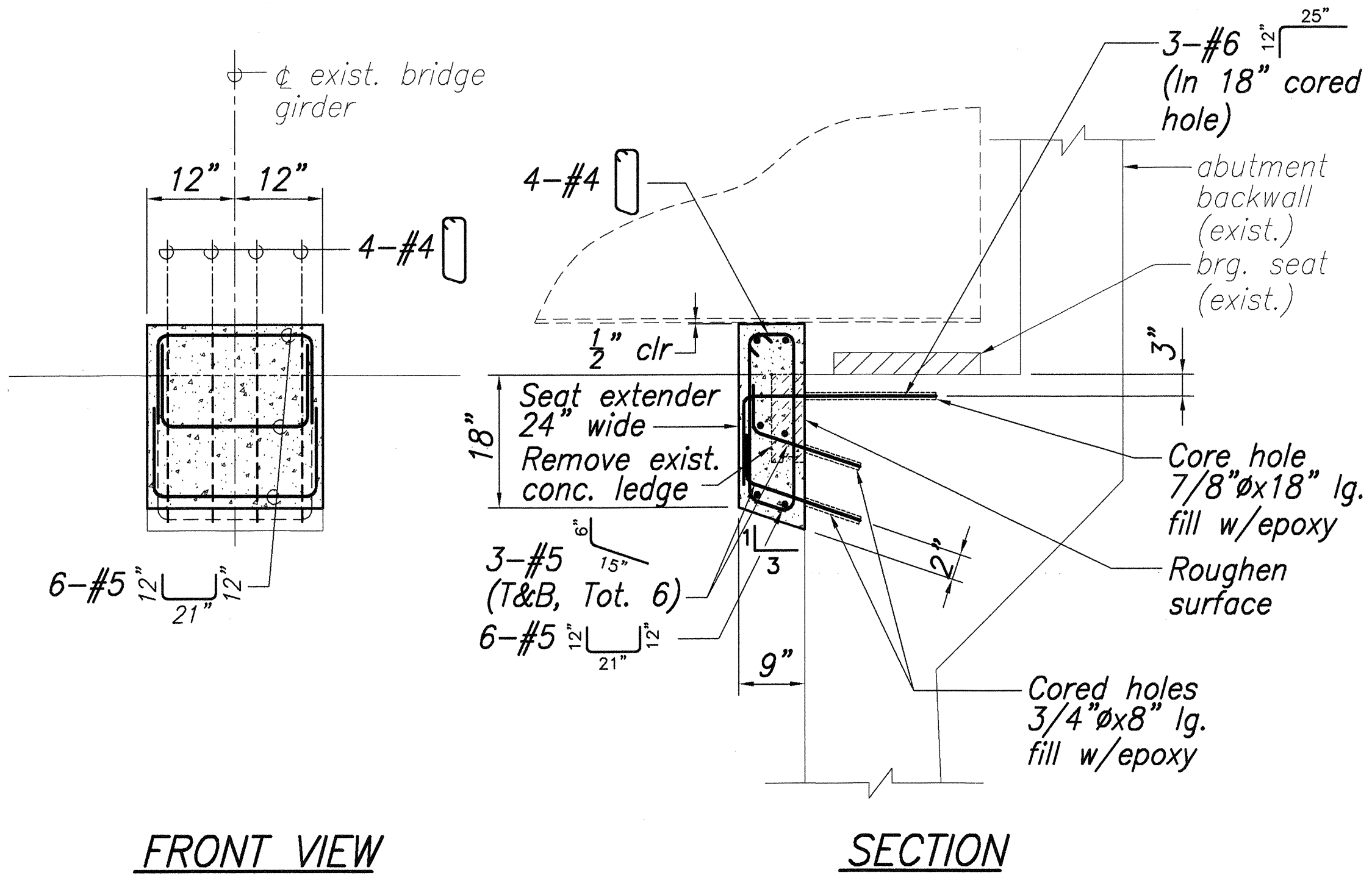
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BR-019-2(46)	2000	24	26



PLAN - ABUTMENT NO. 1 & 2 A
Scale: 3/8"=1'-0" S-21 S-21

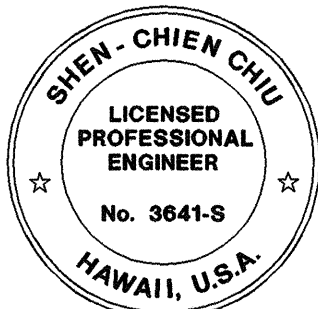


PLAN - CAP BEAM, PIER NO. 1,2,3 & 4 B
Scale: 3/8"=1'-0" S-21 S-21



FRONT VIEW
ADDED SEAT EXTENDER AT ABUT. NO. 2 1
Scale: 3/4"=1'-0" S-21 S-21

TABLE - 1		
DIMENSION	A	B
Girder 1	8"	5 7/8"
Girder 2	8"	7 3/16"
Girder 3	8"	8 1/2"
Girder 4	8"	9 13/16"
Girder 5	8"	11 1/8"

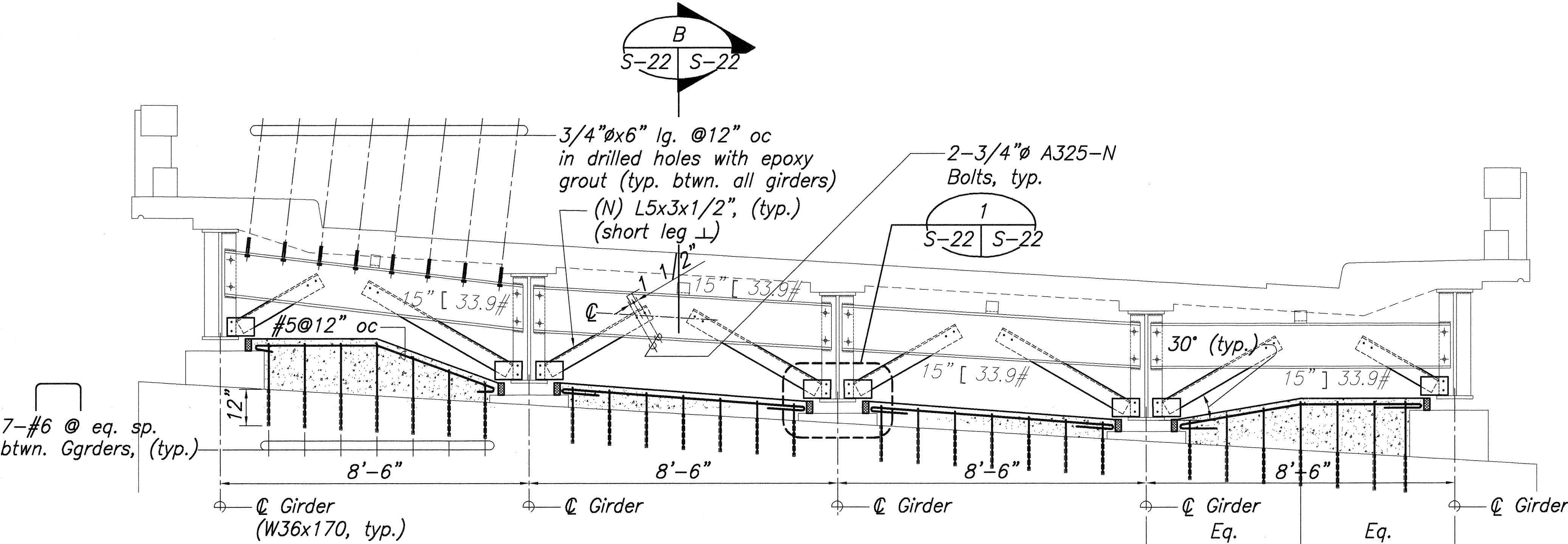


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Shen-Chien Chiu

DATE	REVISION
	STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION
	WAIKAUMALO BRIDGE SUPERSTRUCT. & SUBSTRUCT. RETROFIT ABUTMENT 2 CAP BEAM PLAN
	SEISMIC RETROFIT OF VARIOUS BRIDGES EAST OF NINOLE, HAWAII F.A. PROJECT NO. BR-019-2(46)
Scale: As Noted	Date: AUG. 17, 1999
SHEET No. S-21 OF 23 SHEETS	

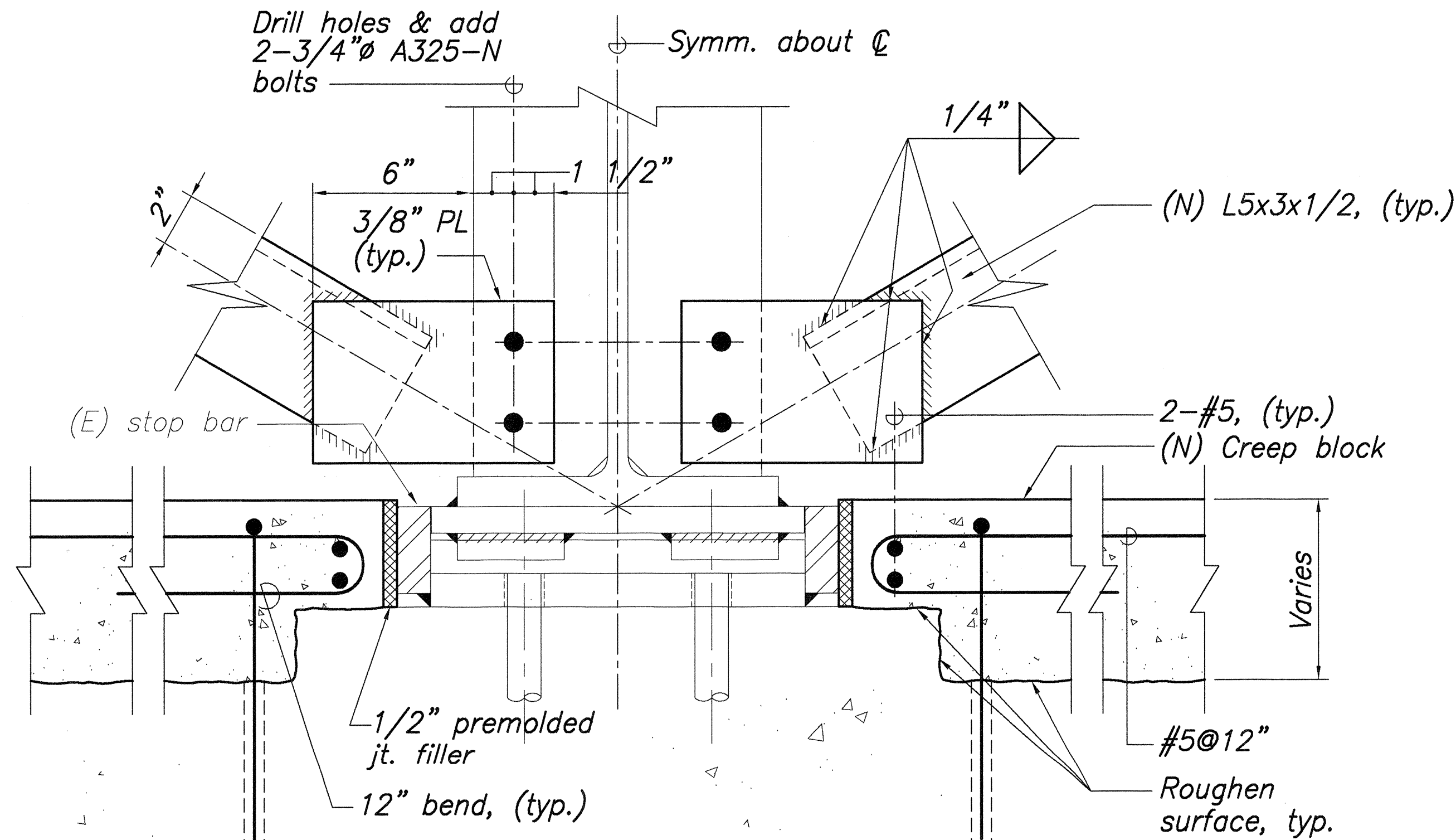
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BR-019-2(46)	2000	25	26



TYPICAL ELEVATION - GIRDER END @ BEARING (FIXED & EXPANSION)

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

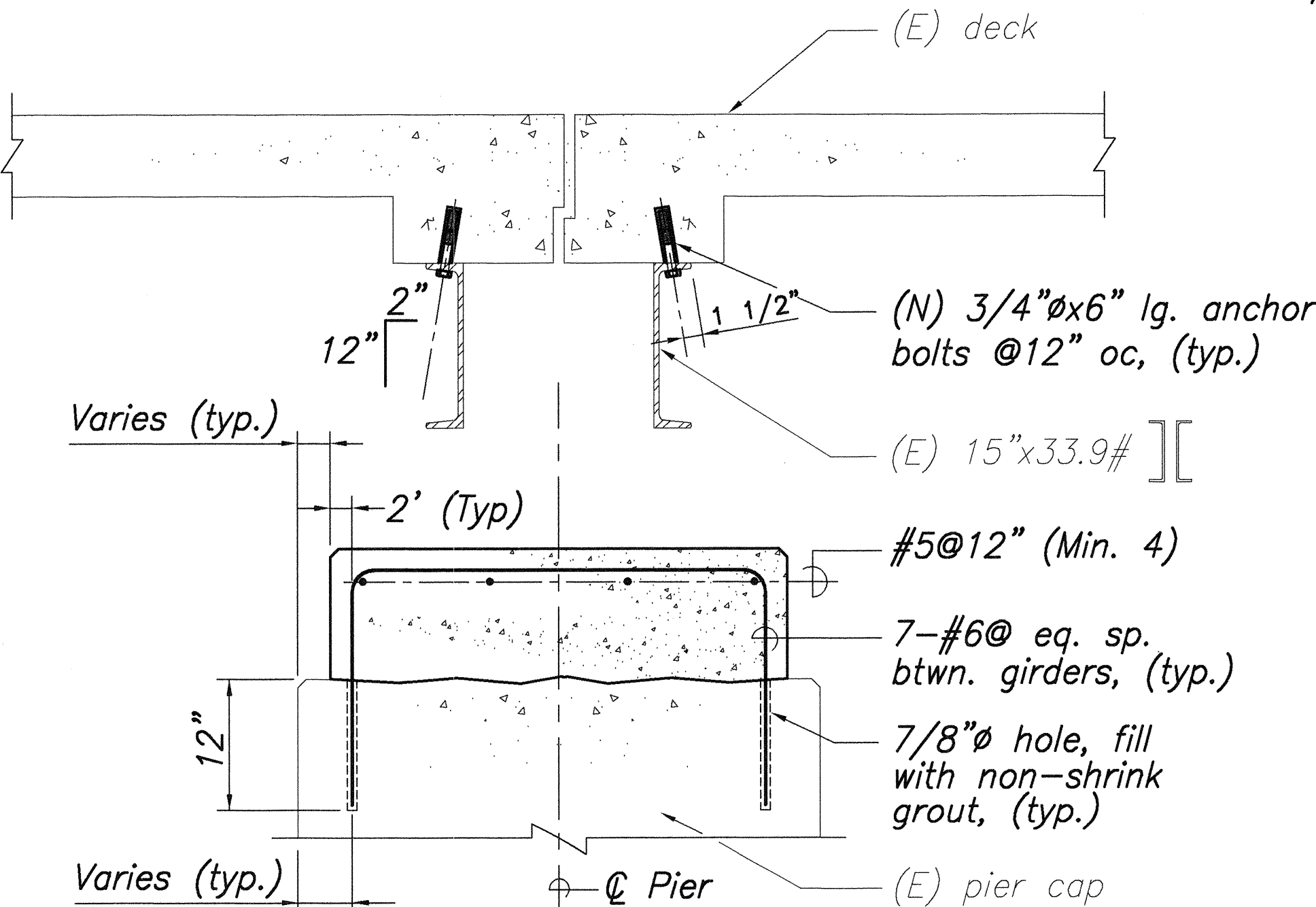
S-22 S-22



DETAIL 1

Scale: 3"=1'-0"

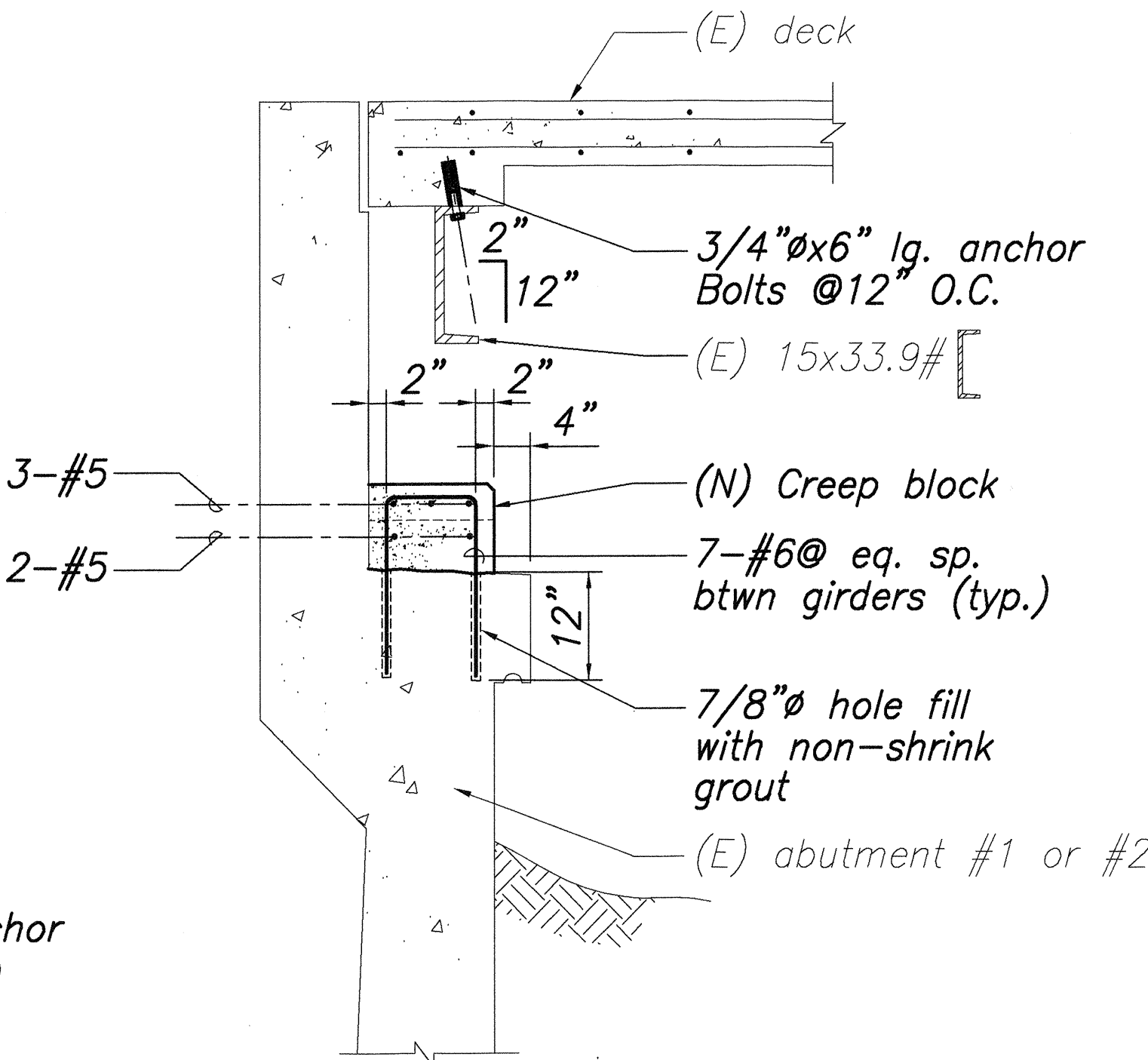
S-22 S-22



SECTION @ PIER

Scale: 1"=1'-0"

S-22 S-22



SECTION @ ABUTMENT A

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

S-22 S-22

S-21



THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION

Shien-Chien Chu

DATE	REVISION
	STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION
	WAIKAUMALO BRIDGE SUPERSTRUCT. & SUBSTRUCT. RETROFIT SECTIONS AND DETAILS
	SEISMIC RETROFIT OF VARIOUS BRIDGES EAST OF NINOLE, HAWAII F.A. PROJECT NO. BR-019-2(46)
Scale: As Noted	Date: AUG. 17, 1999
SHEET No. S-22 OF 23 SHEETS	

Top of cap beam

fixed end

exp. end

exist. steel girder

1'-9"

2" ϕ min. drill holes w/1" ϕ A36 bolts & grout

6"

6"

Connection det.

3

S-23 | S-19

12'-6"

3/4" ϕ Cable Restrainer inside 2 1/2" I.D.x3" O.D. heavy duty petroleum hose filled with grease

5/8" Stiff. PL E.S. full height of girder

Field drilled holes thru flange of girder w/8-7/8" ϕ A325-N Bolts

Bracket det.


2

S-23 | S-19

ϕ pier #1, & #3

B

S-23 | S-23

[illegible]

Sheep-chien Chien

ORIGINAL PLAN	SURVEY PLOTTED BY _____ DATE _____
NOTEBOOK	DRAWN BY _____
	TRACED BY _____
	DESIGNED BY _____
	QUANTITIES BY _____
No. _____	CHECKED BY _____

WS1-4	08/05/99	15:50	FINAL	L:\DWG\6041-01\NEWSTRUCT\WAIKA
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