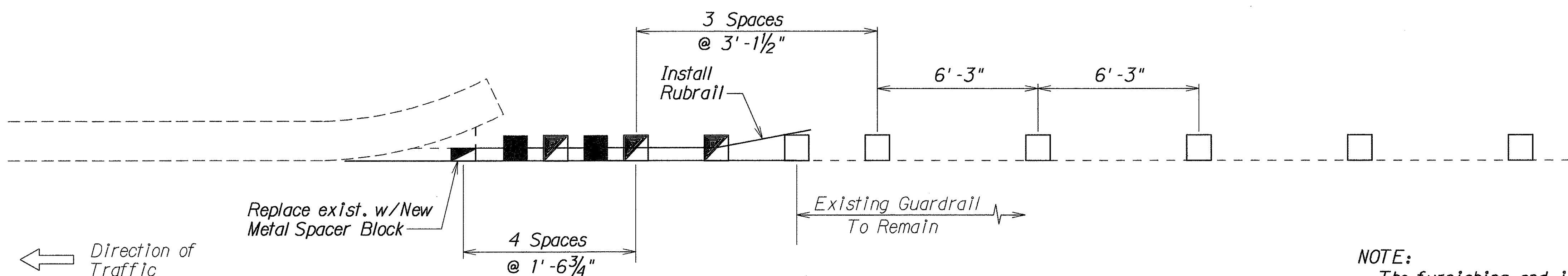
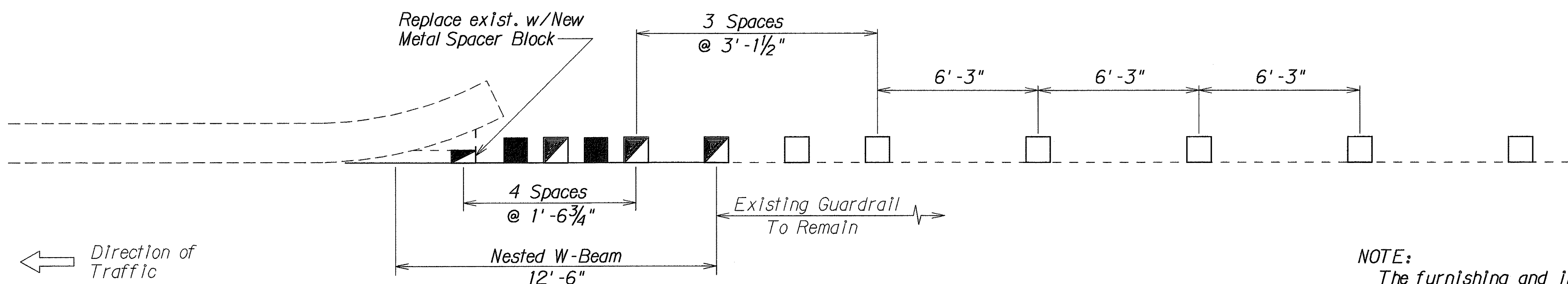


FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-092-1(22)	1994	15	76



GUARDRAIL WITH RUBRAIL DETAIL @
RAMP "NE" # STA. 7+50±Lt.
RAMP "NE" # STA. 8+10±Rt.
RAMP "NW" # STA. 42+40±Rt.
MAKAI FRONTAGE RD. # STA. 26+20±Lt.
MAUKA FRONTAGE RD. # STA. 17+20±Rt.
 Scale: $\frac{3}{8}$ " = 1'-0"

NOTE:
 The furnishing and installing of the additional metal posts, spacer blocks, and rubrail and the removal and disposal of existing guardrail, will not be paid for separately, but shall be considered incidental to Item No. 606.3200 - Guardrail, Type 3-Single with Rubrail on Steel Post.



DOUBLE NESTED GUARDRAIL DETAIL @
RAMP "NK" # STA. 1+10±Lt.
RAMP "NW" # STA. 42+40±Lt.
MAKAI FRONTAGE RD. # STA. 9+80±Rt.
MAKAI FRONTAGE RD. # STA. 26+20±Rt.
RAMP "MN" # STA. 3+00±Lt.
 Scale: $\frac{3}{8}$ " = 1'-0"

NOTE:
 The furnishing and installing of the additional metal posts and spacer blocks, and the removal and disposal of existing guardrail, will not be paid for separately, but shall be considered incidental to Item No. 606.3111 - Guardrail, Type 3-Double Nested with Steel Post.

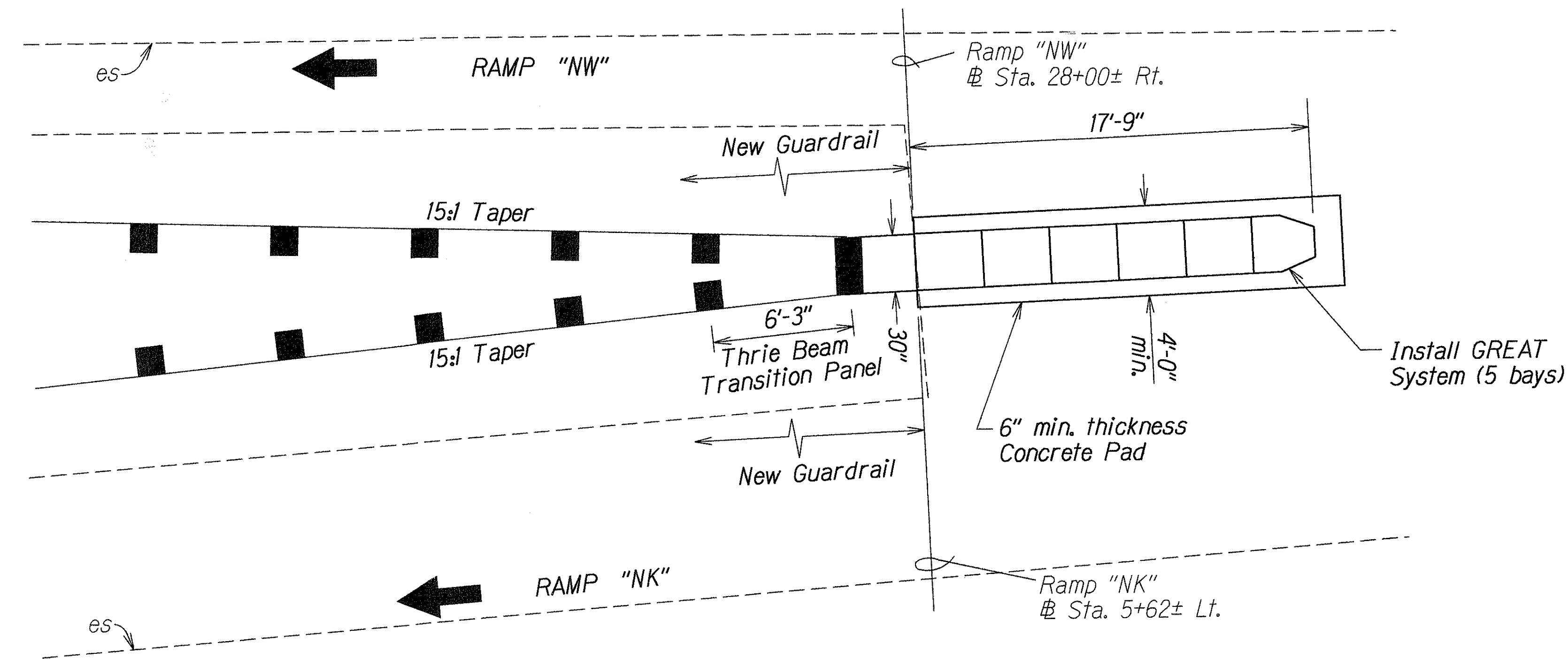
LEGEND

- ☐ Existing metal post and spacer block
- ☒ Existing to be Replaced w/New Metal Post and Spacer Block
- ☒ New Metal Post and Spacer Block to be Installed

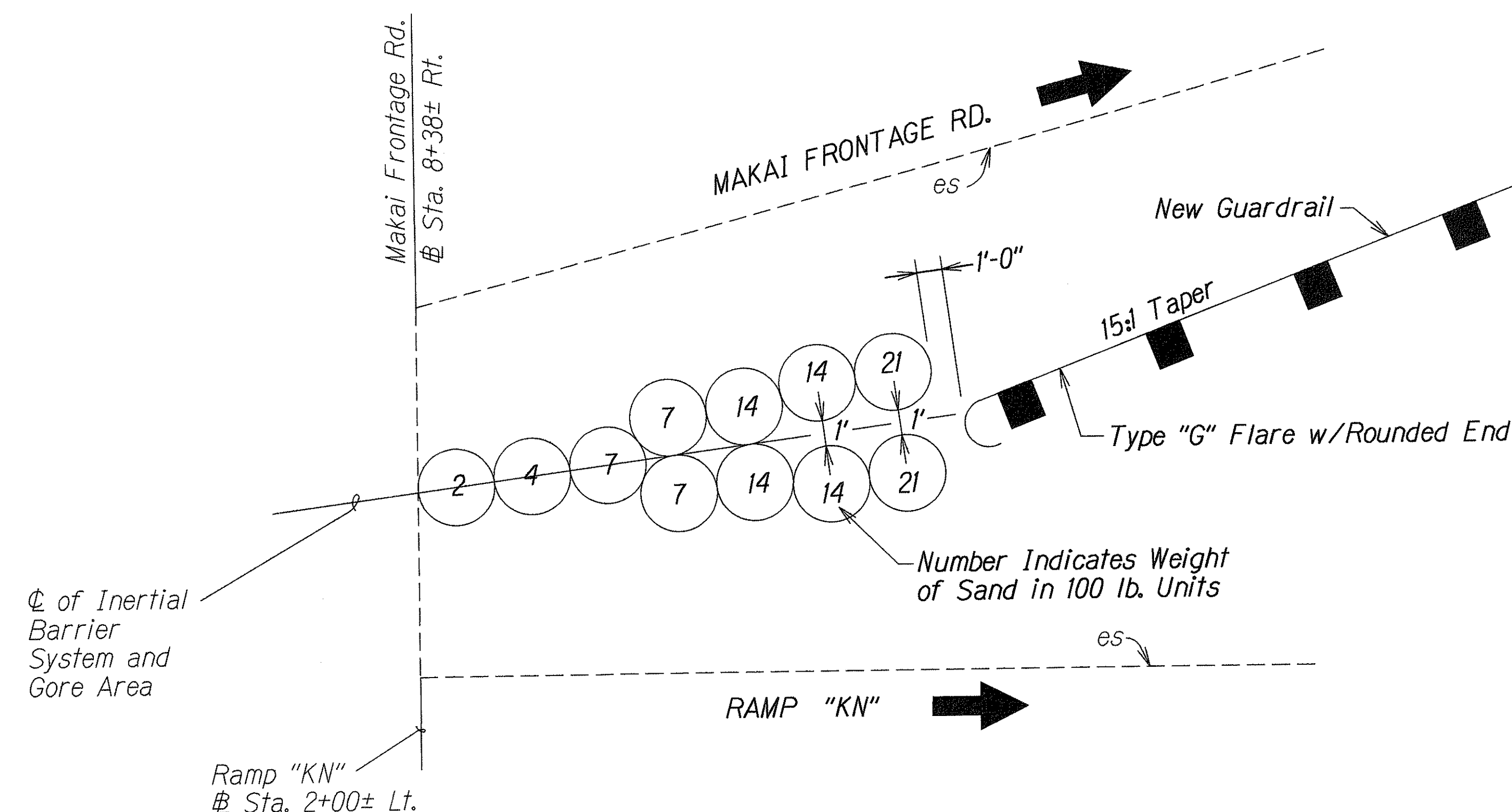
SURVEY PLOTTED BY	DATE
DRAWN BY	4/2/94
DESIGNED BY	
QUANTITIES BY	
CHECKED BY	
ORIGINAL PLAN	
NOTE BOOK	
003.000	
10-20-1994	

STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION	
MISCELLANEOUS DETAILS	
NIMITZ HIGHWAY RESURFACING	
Nimitz Gate to Rodgers Blvd. # Ramps	
FED. AID PROJ. NO. NH-092-1(22)	
Scale: As Shown	Date: May, 1994
SHEET No. 1 OF 3 SHEETS	

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-092-1(22)	1994	16	76



TYPICAL DETAIL - GREAT SYSTEM
RAMP "NW" @ STA. 28+00± Rt. AND RAMP "NK" @ STA. 5+62± Lt.
Scale: 1/4"=1'-0"



Note: All work shall be approved and as directed by the Engineer.

TYPICAL DETAIL - INERTIAL BARRIER INSTALLATION
MAKAI FRONTAGE RD. @ STA. 8+38± Rt. AND RAMP "KN" @ STA. 2+00± Lt.
Scale: 1/4"=1'-0"

ORIGINAL PLAN	DATE: 4/4/94
SURVEY PLOTTED BY	
DRAWN BY	
DESIGNED BY	
CHECKED BY	

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

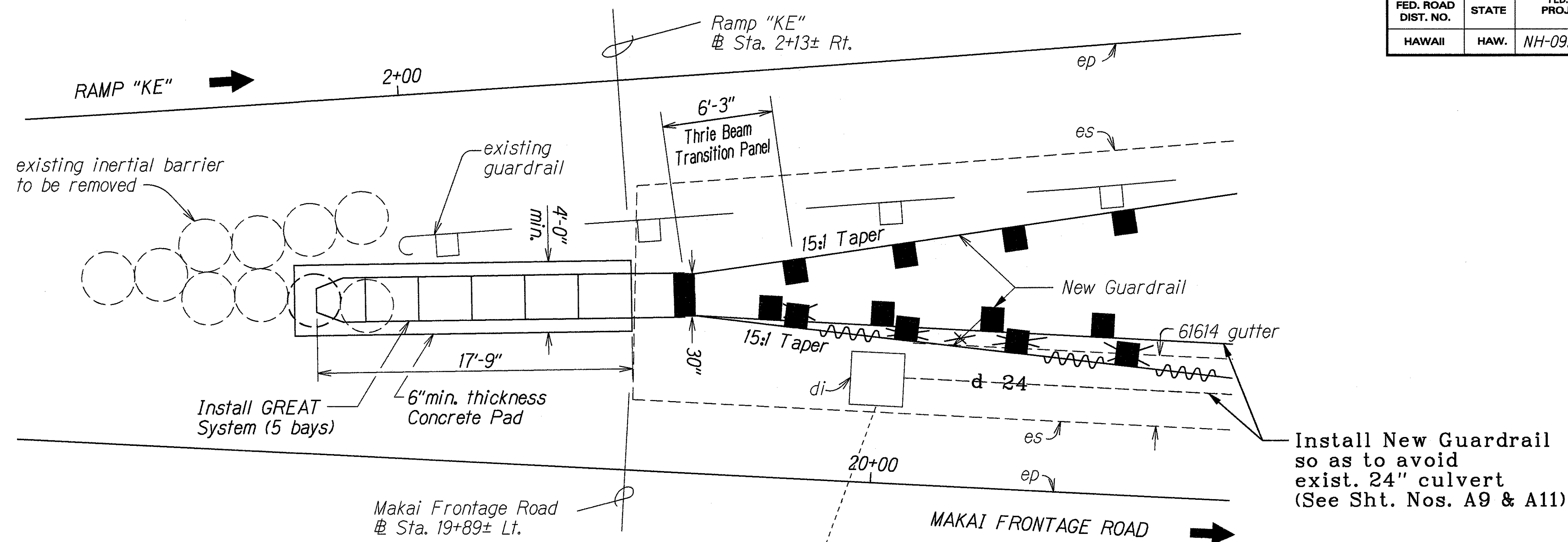
MISCELLANEOUS DETAILS

NIMITZ HIGHWAY RESURFACING
Nimitz Gate to Rodgers Blvd. & Ramps
FED. AID PROJ. NO. NH-092-1(22)

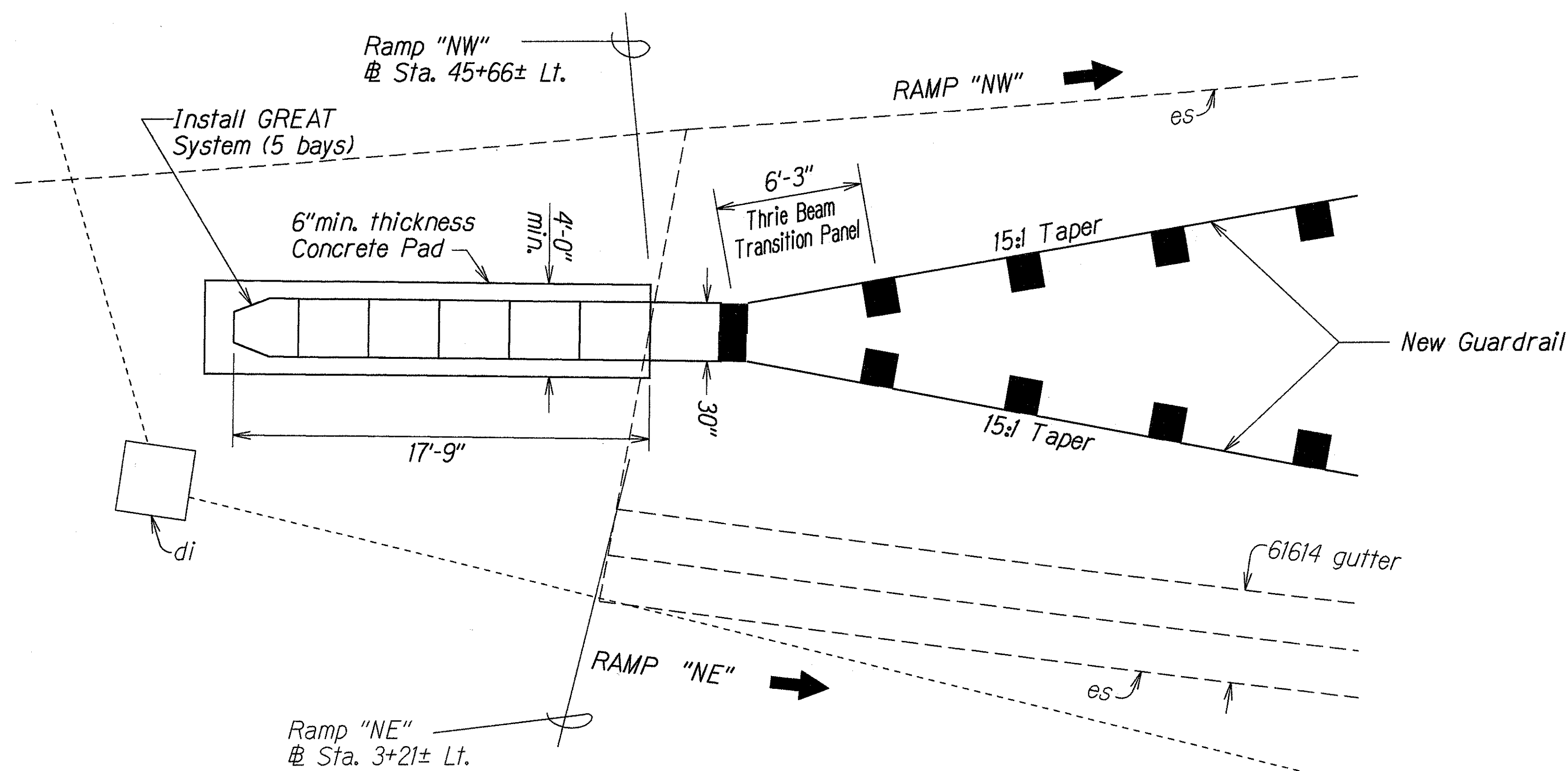
Scale: 1/4"=1'-0" Date: May, 1994

SHEET No. 2 OF 3 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-092-1(22)	1994	17	76



TYPICAL DETAIL - GREAT SYSTEM
RAMP "KE" @ STA. 2+13± RT. AND MAKAI FRONTAGE RD. @ STA. 19+89± LT.
 Scale: 1/4"=1'-0"



TYPICAL DETAIL - GREAT SYSTEM
RAMP "NW" @ STA. 45+66± LT. AND RAMP "NE" @ STA. 3+21± LT.
 Scale: 1/4"=1'-0"

DESIGNED BY	DATE
DRIVEN BY	5/19/94
NOTES	
QUANTITIES BY	
CHECKED BY	

STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION

MISCELLANEOUS DETAILS

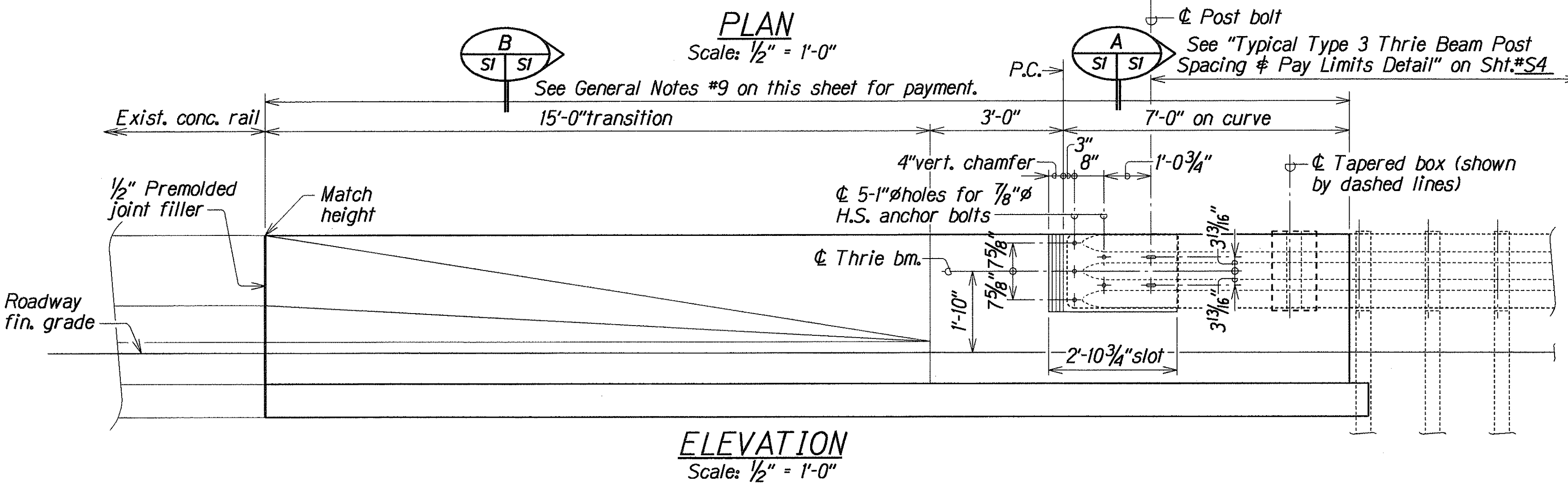
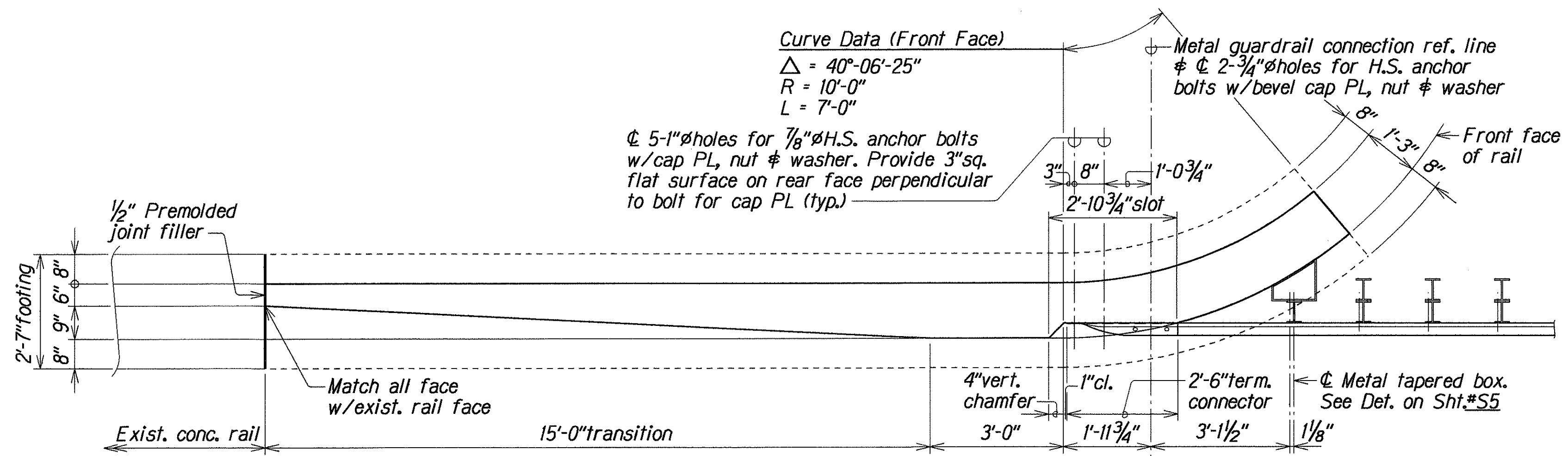
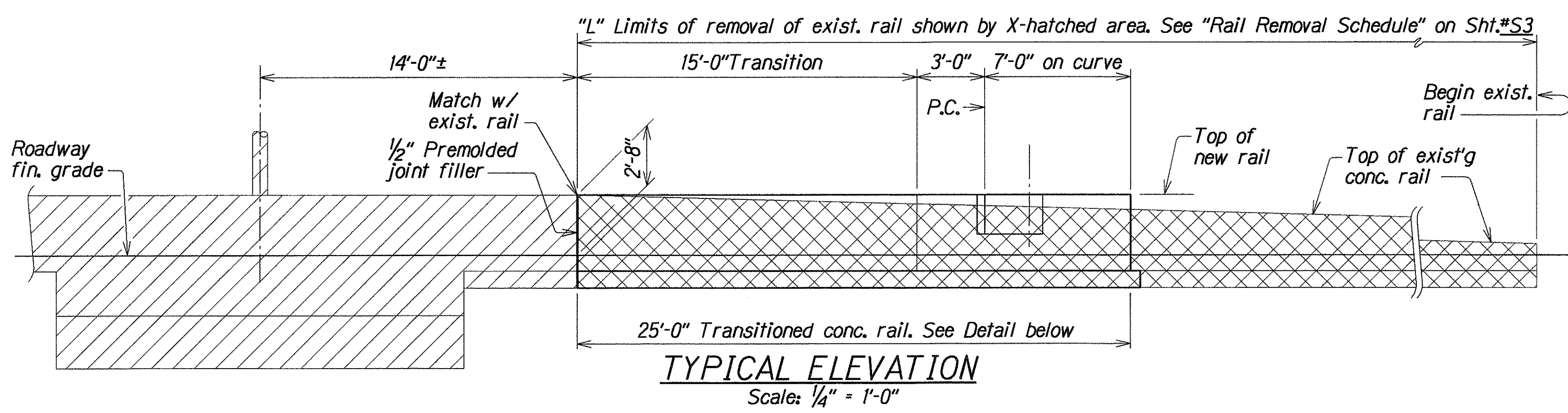
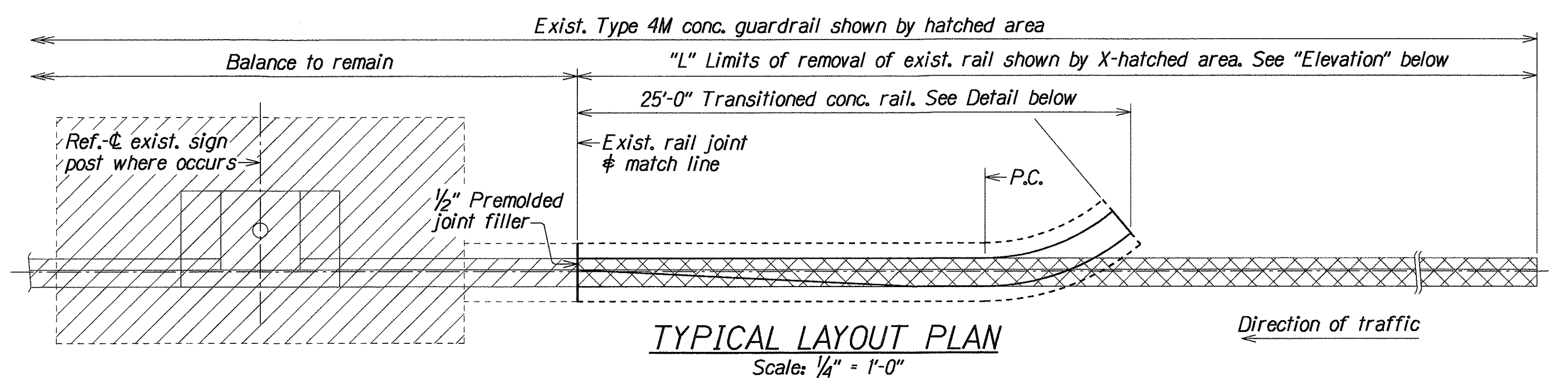
NIMITZ HIGHWAY RESURFACING
Nimitz Gate to Rodgers Blvd. & Ramps
FED. AID PROJ. NO. NH-092-1(22)

Scale: 1"= 40' Date: May, 1994

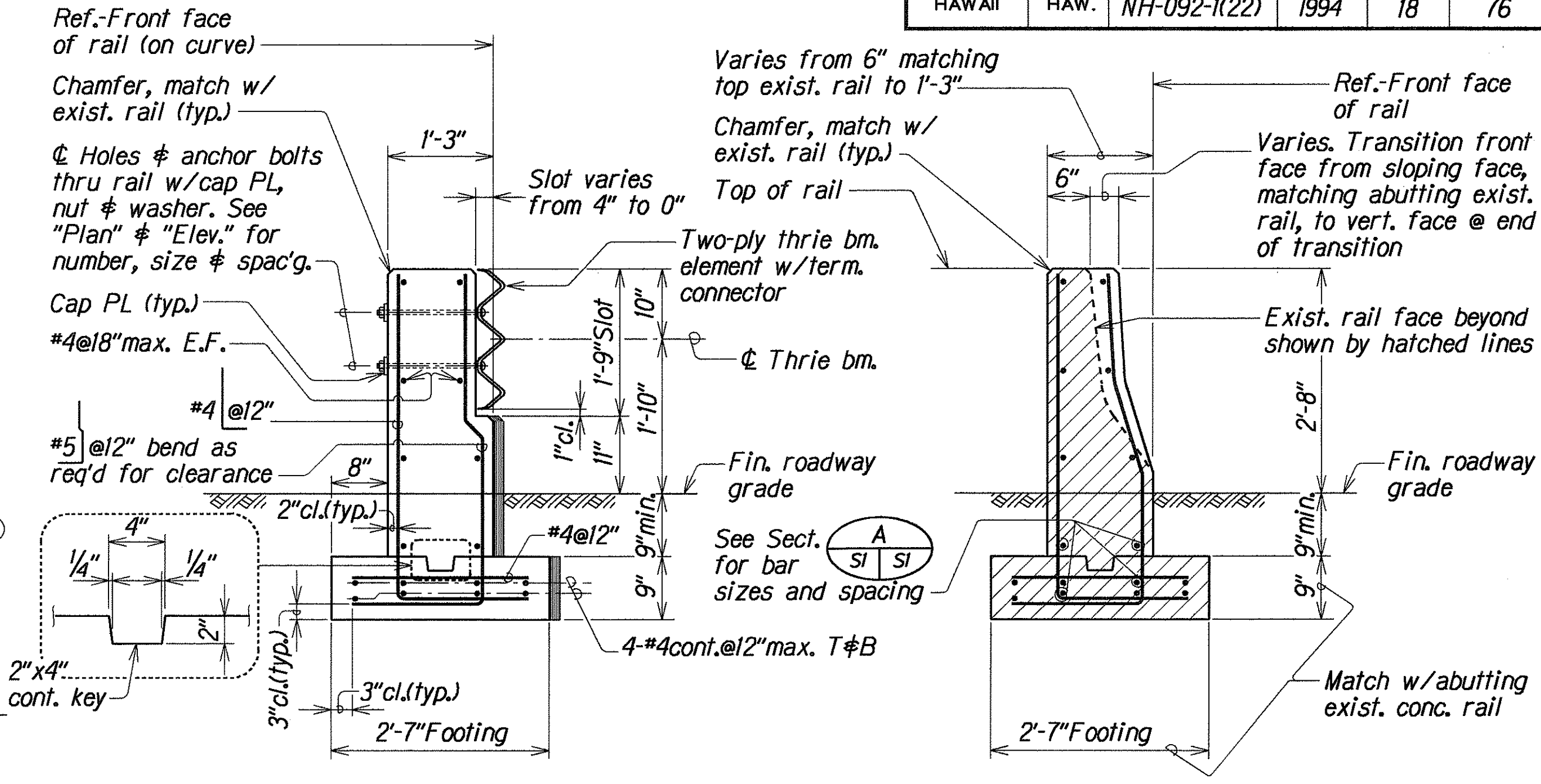
SHEET No. 3 OF 3 SHEETS

"AS-BUILT"

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-092-1(22)	1994	18	76



TYPICAL TRANSITIONED CONCRETE RAIL FOR THRIE BEAM CONNECTION DETAIL



GENERAL NOTES

- See Standard Specification for Road and Bridge Construction (Hawaii 1985) and Special Provisions.
- See G.R.E.A.T. System drawings for additional details and information. All work associated with the G.R.E.A.T. System shall be directed and approved by the Engineer.
- Limits of removal of existing concrete rail or structure shown by X-hatched lines. All existing reinforcement which can be incorporated in the new work shall be cleaned, straightened as needed, and utilized as required in the new work as directed by the Engineer.
- Large impacting or vibratory type of equipment will not be permitted in the removal operation nor in drilling of holes for dowels. Small vibratory tools, approved by the Engineer, will be permitted.
- Existing retaining wall and concrete rail shown by hatched lines.
- The Contractor shall verify all dimensions in field before commencing with work.
- The Contractor shall be responsible for the maintenance of the roadway prism and the protection of the adjacent property, utilities and existing and new structures from damage due to his operation and shall repair any damage at his expense to the satisfaction of the Engineer.
- Removal of existing concrete rail or structure, concrete rail buildup and concrete backup shall be considered incidental to G.R.E.A.T. System. G.R.E.A.T. System will be paid for on a lump sum basis per each location as specified in the proposal.
- Removal of existing concrete rail and construction of transitioned concrete rail for thrie beam connection and other incidentals to complete the work shall be considered incidental to Item No. 606.3500, Guardrail, Type 3 - Thrie Beam with Steel Post.

DATE	MAR 1994
SURVEY PLOTTED BY	KSC
DRAWN BY	TS
DESIGNED BY	TS
CHECKED BY	MS
ORIGINAL PLAN	
NOTE BOOK	
SCHEMATIC LOG	

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TYPICAL TRANSITIONED CONCRETE RAIL FOR TYPE 3 THRIE BEAM CONNECTION DETAIL
NIMITZ HIGHWAY RESURFACING
NIMITZ GATE TO RODGERS BOULEVARD
Nimitz Highway, Island of Oahu
F.A.P. No. NH-092-1(22)
Scale: As Noted
Date: Apr, 1994

Exist. Type A conc. guardrail shown by hatched area

"L" Limits of removal of exist. rail shown by X-hatched area

Balance to remain

11'-0"± @Ramp N-PI

45'-0"± @Ramp R-HI

18'-0" Transition

2'-0" Backup

18'-6" Pad

Ref. C exist. post

Exist. rail joint

Exist. rail joint

Exist. rail joint

1/2" Premolded joint filler

Direction of traffic

Direction of traffic

16'-3" Transition

3'-9" Recess (trailing end, left side only)

PLAN

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

"L" Limits of removal of exist. rail shown by X-hatched area. See "Rail Removal Schedule" on Sht.#S3

2'-8"

1/2" Premolded joint filler

2'-0" Backup

2'-8"

3'-0"

Top of backup & new rail

Top of exist'g conc. rail

Begin exist. rail

Roadway fin. grade

11'-0"± @Ramp N-PI

45'-0"± @Ramp R-HI

Exist. Jt. line

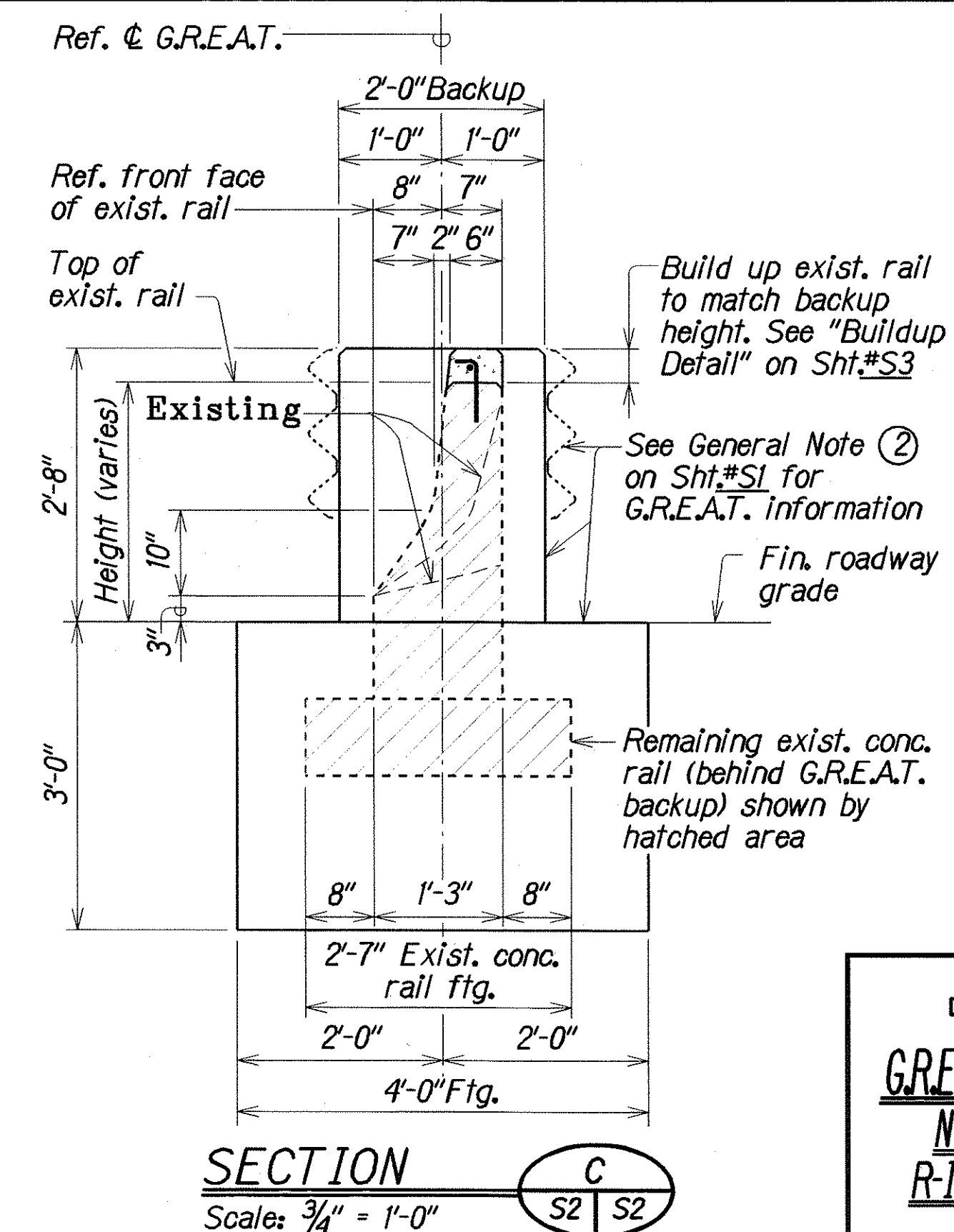
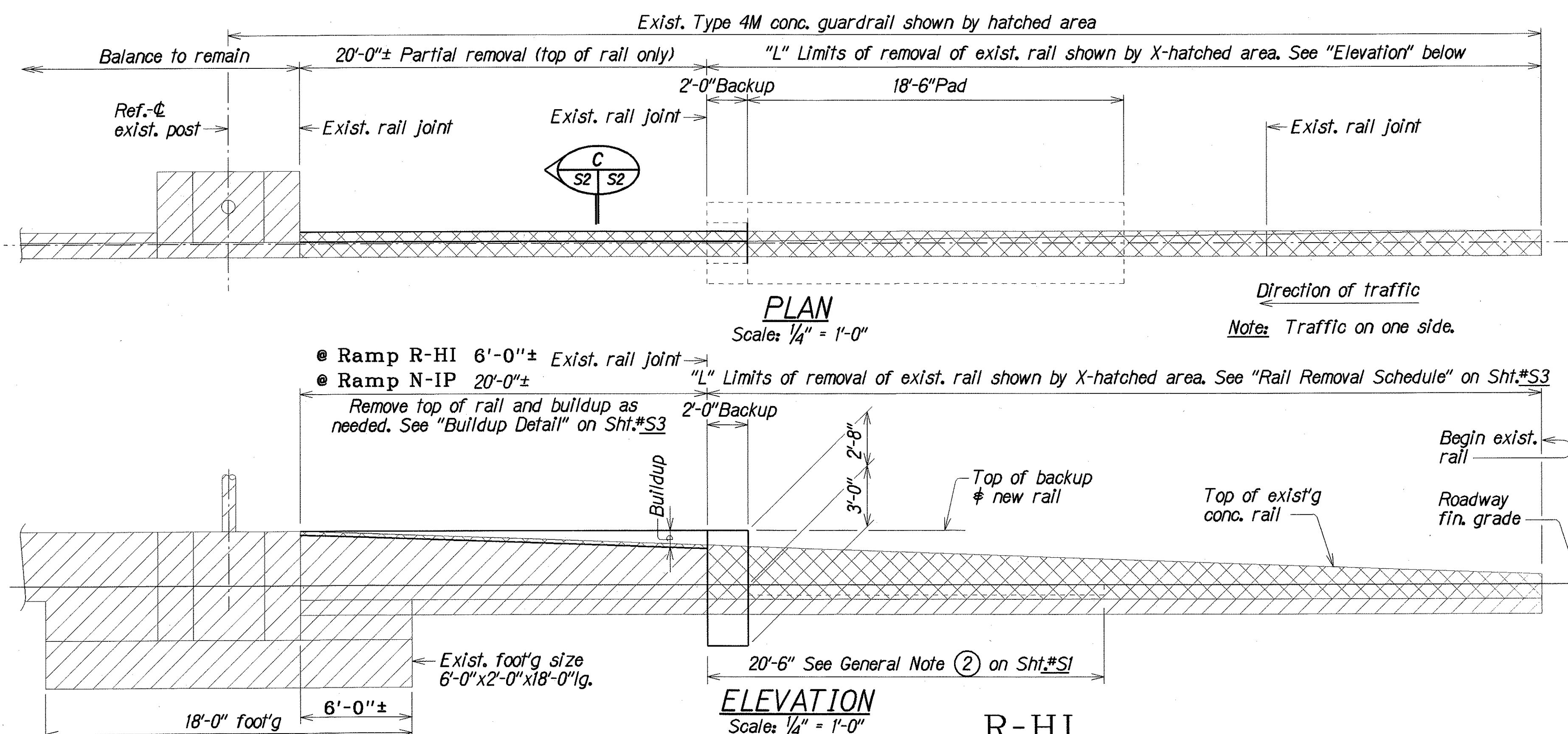
18'-0" new transition conc. rail

20'-6" See General Note (2) on Sht.#S1

ELEVATION

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

Note: Traffic on both sides.



TYPICAL G.R.E.A.T. INSTALLATION DETAIL AT RAMP R-1H, STA. 3+15.10 %SRT. AND RAMP N-IP, STA. 1+75.00 %SRT.

"AS-BUILT"

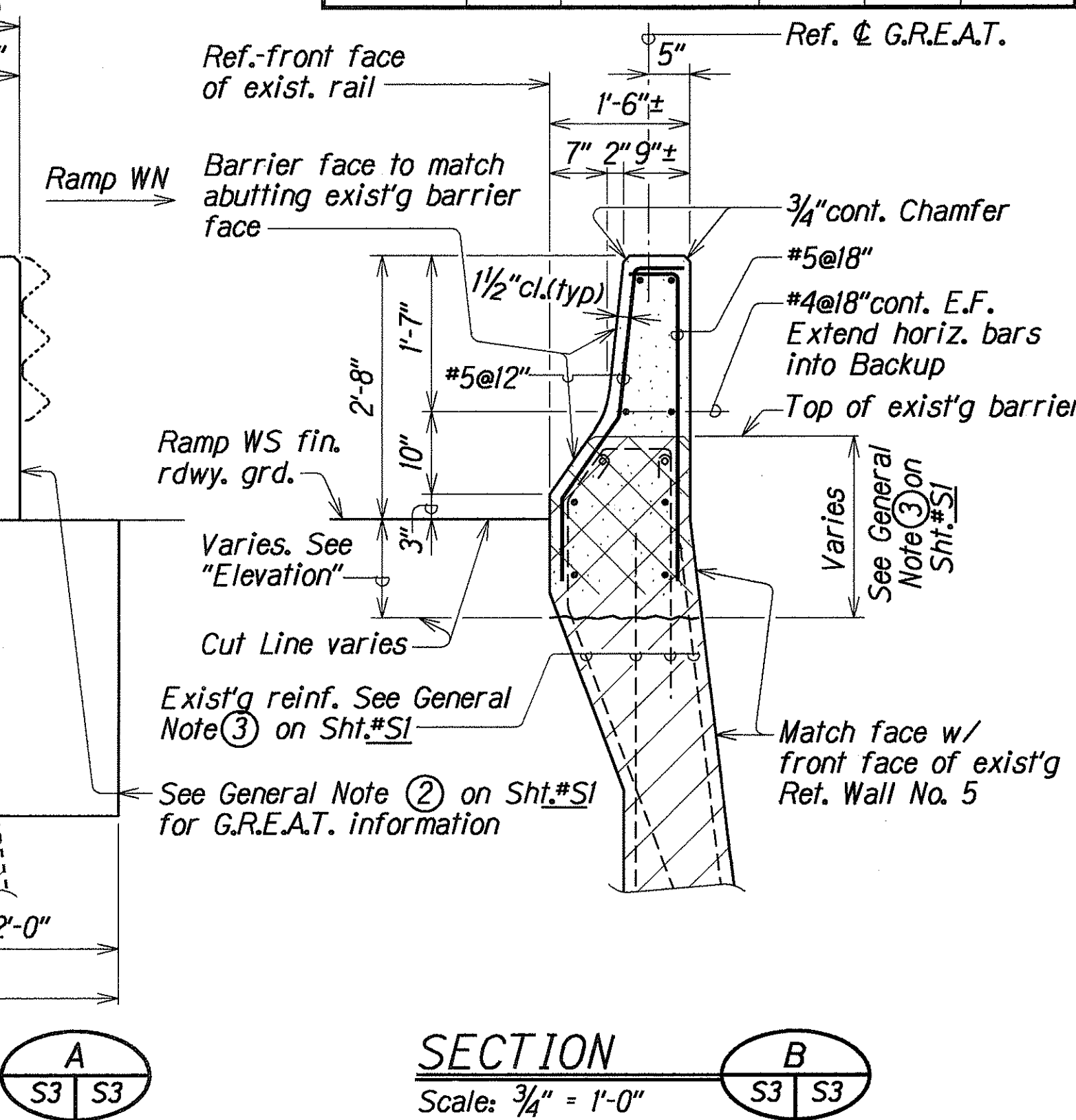
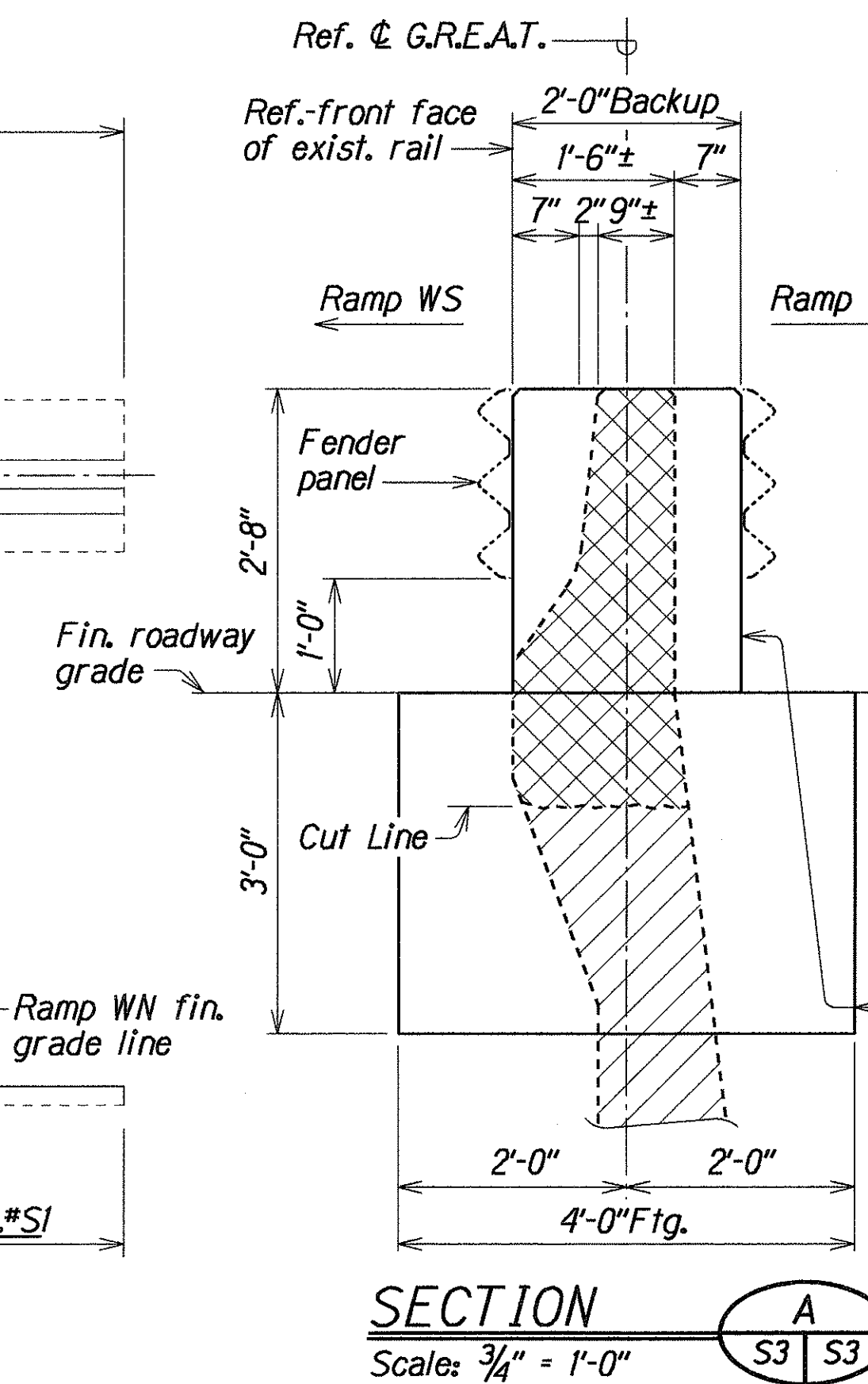
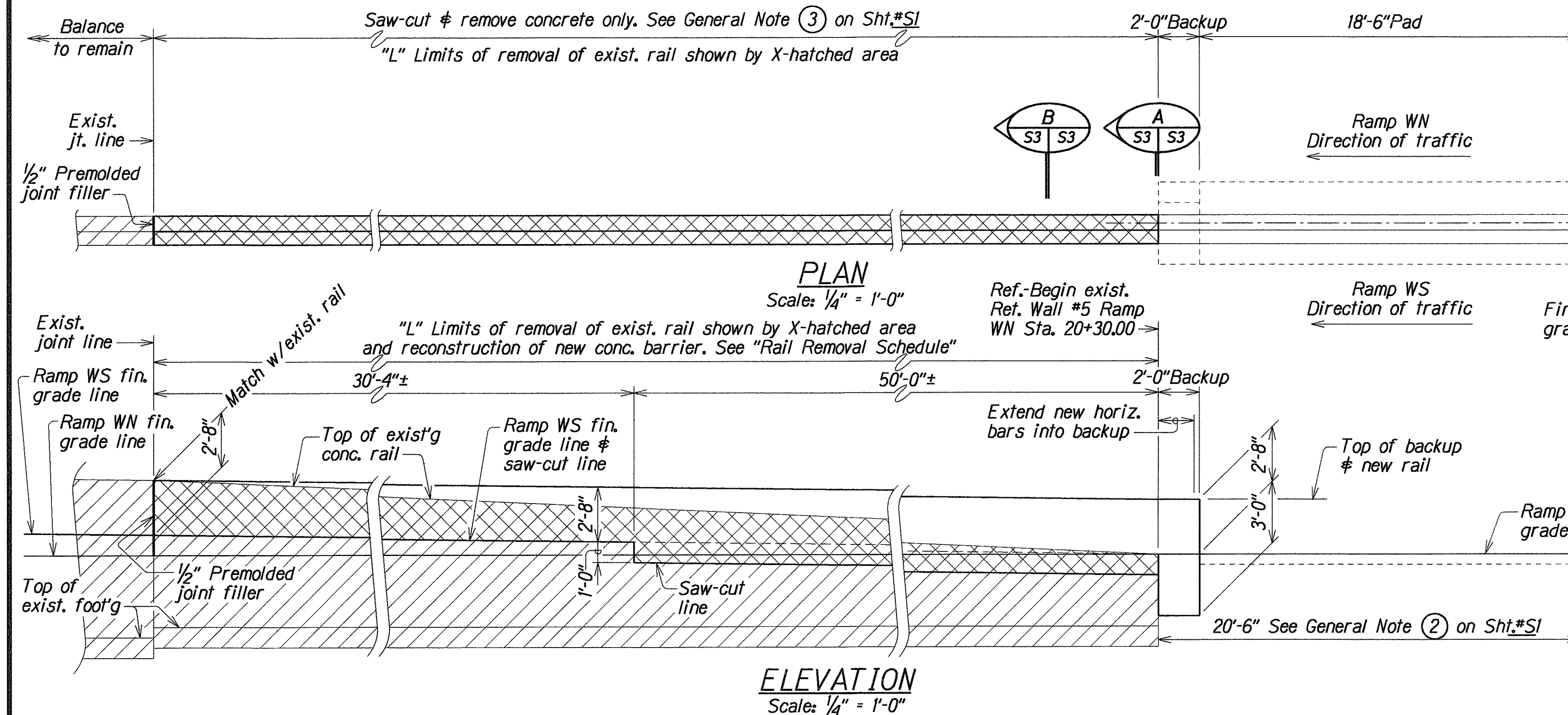
ORIGINAL PLAN	SURVEY PLOTTED BY _____ DATE _____
NOTE BOOK	DRAWN BY <u>KSG</u> • <u>MAR 1994</u>
	DESIGNED BY _____ • <u>MAR 1994</u>
	QUANTITIES BY <u>TS</u> • <u>MAR 1994</u>
	CHECKED BY <u>MST</u> • <u>MAR 1994</u>

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

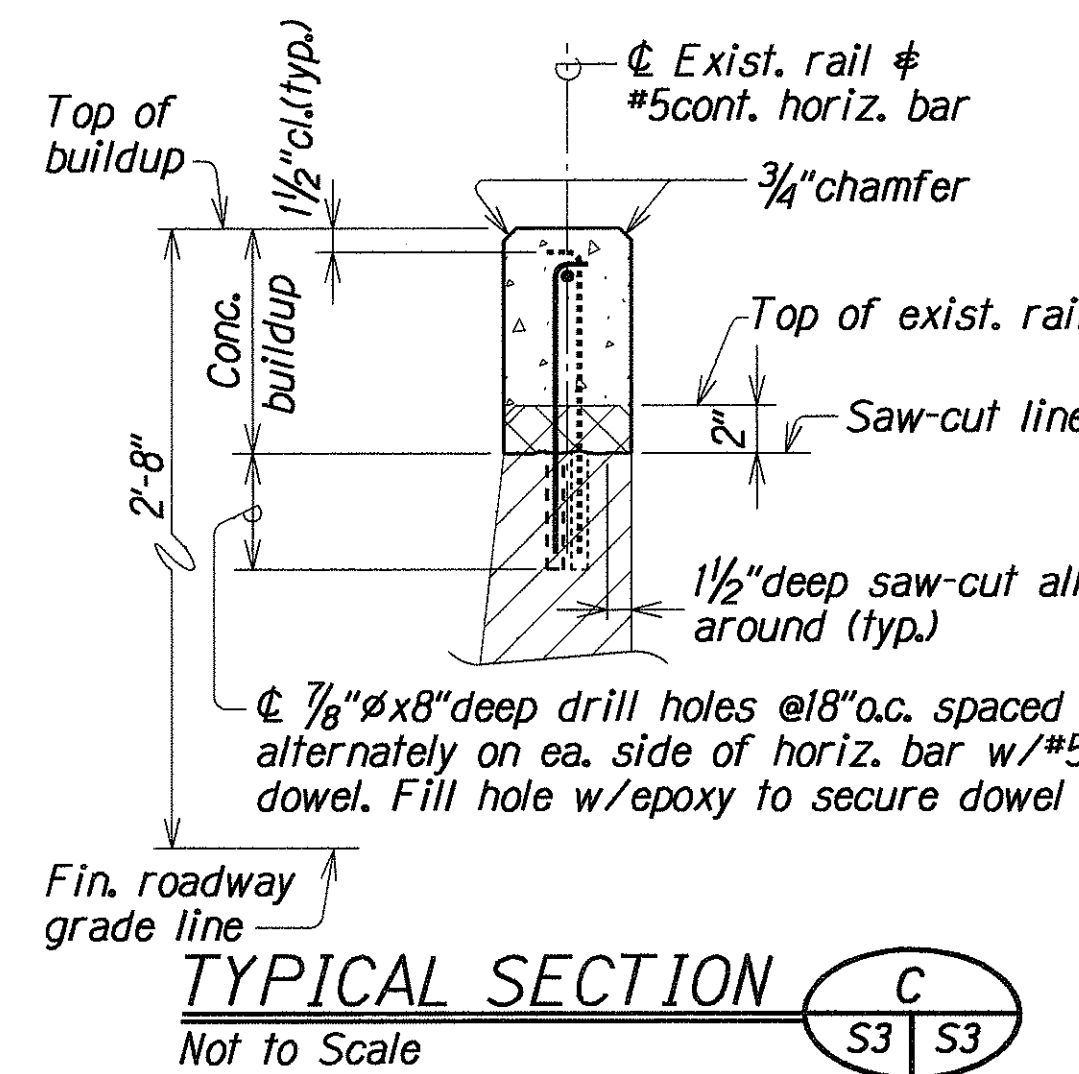
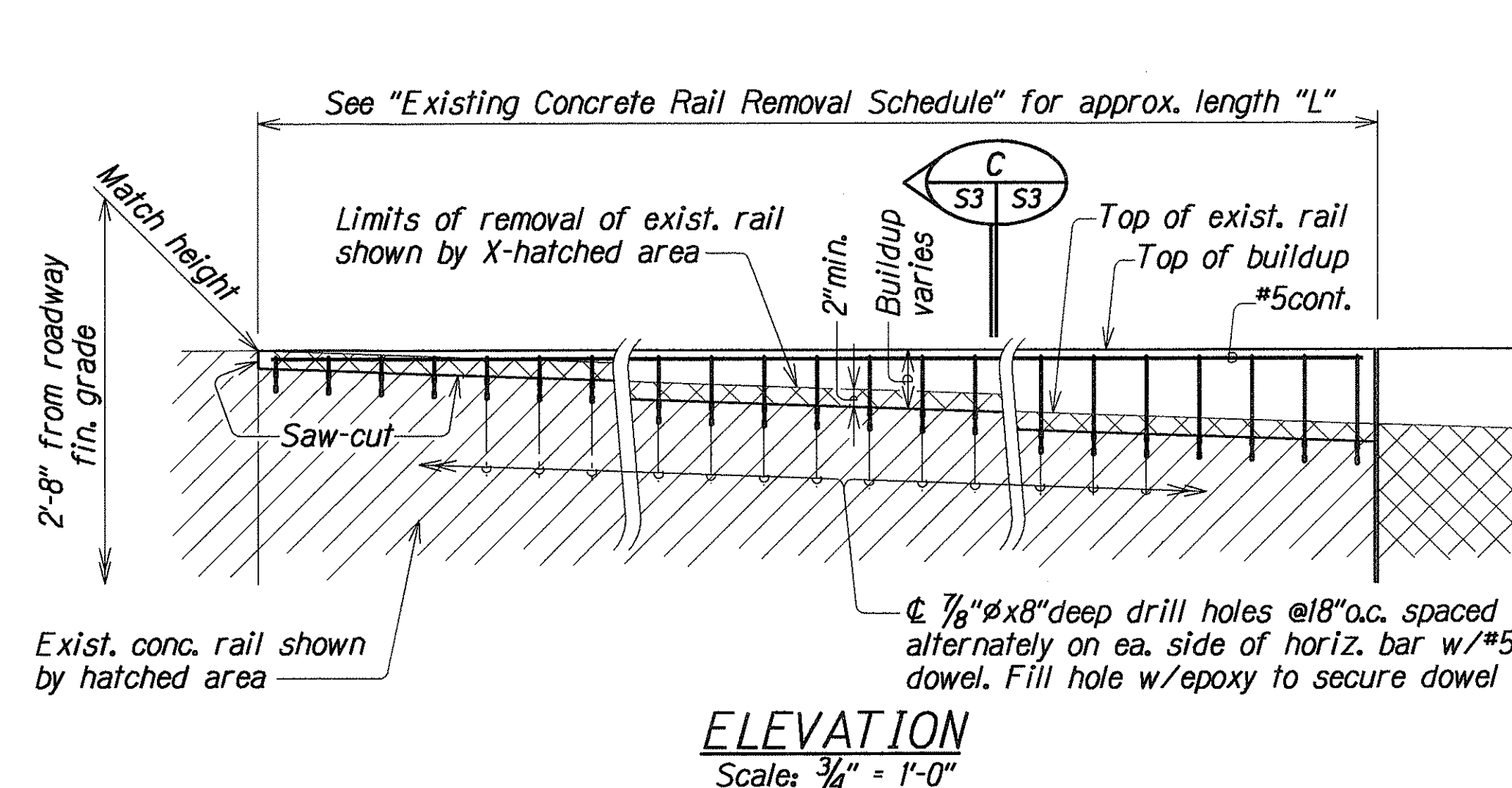
GREAT INSTALLATION DETAIL AT RAMPS
N-PI STA. 1+50.00, R-HI STA. 2+75.00,
R-IH STA. 3+15.10 AND N-IP STA. 1+75.00
NIMITZ HIGHWAY RESURFACING
NIMITZ GATE TO RODGERS BOULEVARD
Nimitz Highway, Island of Oahu

Scale: As Noted F.A.P. No. NH-092-1(22) Date: Apr, 1994

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-092-1(22)	1994	20	76



G.R.E.A.T. INSTALLATION DETAIL AT RAMP WN, STA. 20+30.00 0/5 LT.



EXISTING CONCRETE RAIL BUILDUP DETAIL

ESTIMATED QUANTITIES AND EXISTING CONCRETE RAIL REMOVAL SCHEDULE

ITEM NO.	LOCATION (See Hwy Plan)	"L"	BUILDUP
693.1100	G.R.E.A.T. at Ramp WN Begin Existing Retaining Wall Sta. 20+30 0/5 Lt.	80'-4"±	---
693.1200	G.R.E.A.T. at Ramp N-PI Begin Rail Sta. 1+50.00 0/5 Lt.	60'-0"±	4'-0"±
693.1300	G.R.E.A.T. at Ramp R-HI Begin Rail Sta. 2+75.00 0/5 Lt.	80'-0"±	---
693.1400	G.R.E.A.T. at Ramp R-IH Begin Rail Sta. 3+15.10 0/5 Rt.	62'-0"±	20'-0"±
693.1500	G.R.E.A.T. at Ramp N-IP Begin Rail Sta. 1+75.00 0/5 Rt.	70'-0"±	20'-0"±
606.3500	Guardrail Connection at Ramp R-IH Begin Rail Sta. 9+13.00 0/5 Lt.	83'-0"±	---
	Guardrail Connection at Ramp R-IH Begin Rail Sta. 12+85.00 0/5 Lt.	80'-0"±	---
	Guardrail Connection at Ramp R-IH Begin Rail Sta. 13+50.00 0/5 Rt.	81'-0"±	---
	Guardrail Connection at Ramp R-HI Begin Rail Sta. 15+95.00 0/5 Rt.	80'-0"±	---

ORIGINAL PLAN	DESIGNED BY	DATE
NOTE BOOK	QUANTITIES BY	MAR 1994
	CHECKED BY	MAR 1994

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
G.R.E.A.T. INSTALLATION AT RAMP WN STATION
20+30.00 & CONCRETE RAIL BUILDUP DETAILS
NIMITZ HIGHWAY RESURFACING
NIMITZ GATE TO RODGERS BOULEVARD
Nimitz Highway, Island of Oahu
F.A.P. No. NH-092-1(22)
Scale: As Noted
Date: Apr., 1994

SHEET No. S3 OF 5 SHEETS

SINGLE RAIL ELEMENT
Scale: 1 1/2" = 1'-0"

SECTION THRU RAIL ELEMENT
Scale: 1 1/2" = 1'-0"

TERMINAL CONNECTOR
Scale: 1" = 1'-0"

BACKUP PLATE
Scale: 1" = 1'-0"

RAIL SPLICE
Scale: 1" = 1'-0"

TRANSITION SECTION
Scale: 1" = 1'-0"

SPACER BLOCK DETAILS
Scale: 1" = 1'-0"

POST DETAILS
Scale: 1" = 1'-0"

5/8"Ø BUTTON HEAD BOLT & RECESS NUT
Scale: 6" = 1'-0"

STEEL WASHER FOR 5/8"Ø BOLT
Scale: 6" = 1'-0"

CAP (BEARING) PLATE DETAIL
Scale: 6" = 1'-0"

Scale: $1\frac{1}{2}" = 1'-0"$

Scale: 1" = 1'-0"

Scale: 1" = 1'-0"

Scale: 1" = 1'-0"

Scale: 1" = 1'-0"

TYPICAL SECTION
METAL GUARDRAIL ON METAL POST
WITH METAL SPACER BLOCK
Scale: 1" = 1'-0"

Scale: 1" = 1'-0"

Scale: 1" = 1'-0"

Scale: 6" = 1'-0"

Scale: 6" = 1'-0"

Scale: 6" = 1'-0"

Scale: 1" = 1'-0"

1. "Terminal Connector" shall be fabricated from 10gauge steel conforming to the requirements of AASHTO M 180.
2. All anchor bolts shall be high strength bolts conforming to the requirements of ASTM 325.
3. Anchor bolt length shall be such that a snug fit of the elements and full thread engagement plus $\frac{1}{4}$ " (max) is attained.

4. "Terminal Connector", tapered box and standard spacer; including all anchor bolts, cap PL, nuts and washers; shall be hot-dip galvanized after fabrication.
5. First 25'-0" of guardrail adjoining "Terminal Connector" shall be galvanized steel and supports spaced as shown on the detail drawings. This section of rail shall be placed on tangent to end

- post or parallel to roadway, unless conditions at site renders it impossible to do so. Flare point to be determined in field.
6. Anchor bolts, nuts, cap PL and metal tapered box spacer block shall be incidental to metal guardrail, unless noted otherwise.
7. Cap PL and tapered box spacer block shall be fabricated from ASTM A36.

TYPE 3 THRIE BEAM GUARDRAIL AND APPURTENANCES DETAILS

 6/8/94	Clarify bolt hole size @ metal tapered box spacer block detail. Clarify slot hole dimension @ terminal connector detail.
DATE	REVISION

STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION

TYPE 3 THRIE BEAM GUARDRAIL
AND APPURTENANCES DETAILS

NIMITZ HIGHWAY RESURFACING
NIMITZ GATE TO RODGERS BOULEVARD

Nimitz Highway, Island of Oahu
F.A.P. No. NH-092-1(22)

Scale: As Noted

Date: Apr. 1994

SHEET No. 55 OF 5 SHEETS