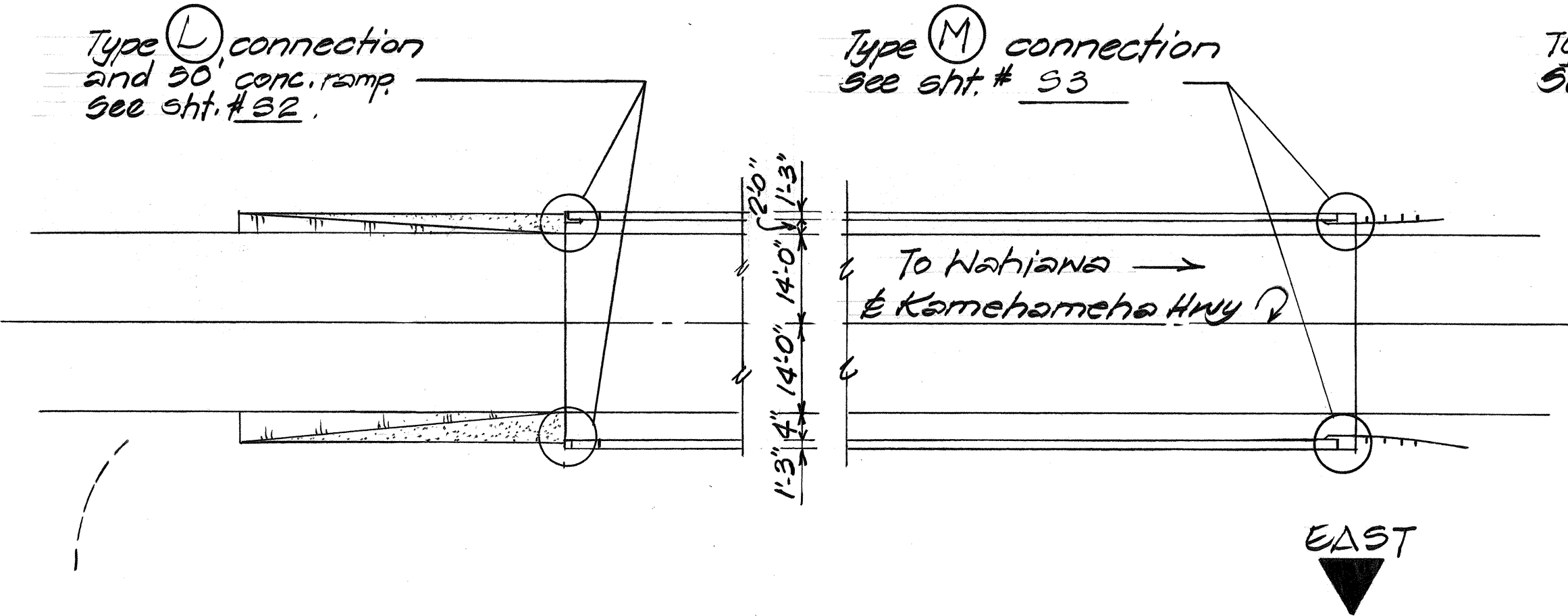


FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HES-099-1(8)	1985	12	43

NOTES

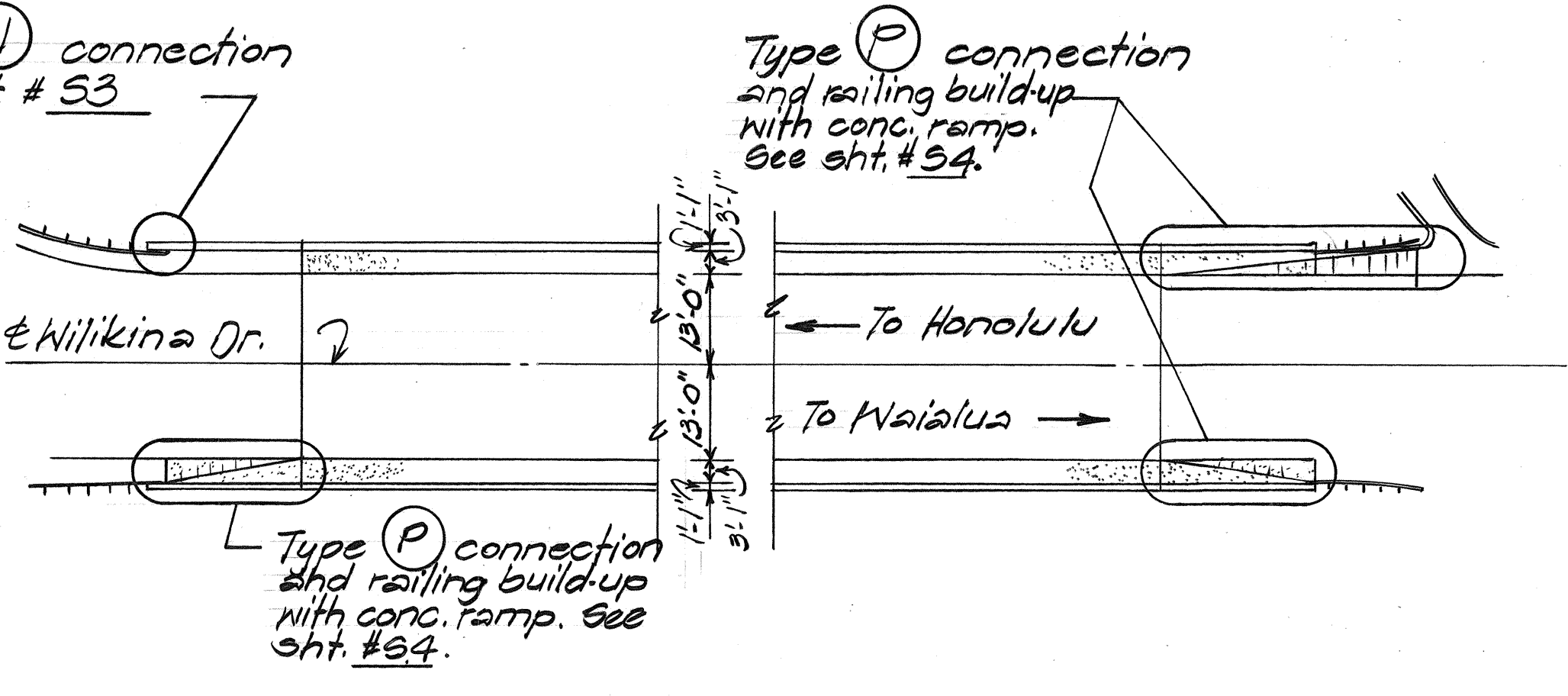
- See Standard Specifications for Road & Bridge Construction, (Hawaii, 1976 & Special Provisions.
- See Standard Detail sht. DT-500 & DT-501 for details of spacer block & "Terminal Connector".
- All anchor bolts shall be high strength bolts conforming to the requirements of ASTM A325.
- "Terminal Connector" shall be fabricated from 10 gage steel conforming to the requirements of AASHTO M180. Steel Template shall be A36 steel.
- All "Terminal Connector" box, tapered & standard spacer, steel template, steel brackets & posts including all anchor bolts, cap/nuts and washers, shall be hot-dip galvanized.
- Construction of ramp shall generally conform to the requirements of Section 608 - Sidewalks, of the Standard Specifications.
- First 25'-0" of guard rail adjoining "Terminal Connector" shall be of galvanized steel and supports spaced at 3'-1 1/2" o.c. See Typical Detail sht. DT-500 for metal guard rail details.
- Large impacting or vibratory type of equipment will not be permitted in the removal operation of the designated items nor for drilling of holes.
- Any damage to the existing structures due to the Contractor's operation shall be repaired at his expense, to the satisfaction of the Engineer.
- The work necessary to connect guard rail to concrete end post shall include all labor, materials, tools, equipment and incidentals necessary to complete the work. This work will be measured and paid for in units of one.
- The Contractor shall verify all dimensions in field before commencing with work.
- The Contractor shall verify the location of all existing utility lines near structures and notify their respective owners before commencing with work.

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
LAYOUT PLANS & GENERAL NOTES FOR
WAIKAKALAU, U. KAUKONAHUA & U. POAMOHU BR.
BRODIE BR. NO. 2 & 9'x6' CULVERT#3
GUARD RAIL AND SHOULDER
IMPROVEMENTS ON ROUTE 99
MILILANI TO NEED JUNCTION
F.A. PROJ. No. HES-099-1(8)
Scale: As Noted Date: Nov. 1984
SHEET No. 51 OF 6 SHEETS



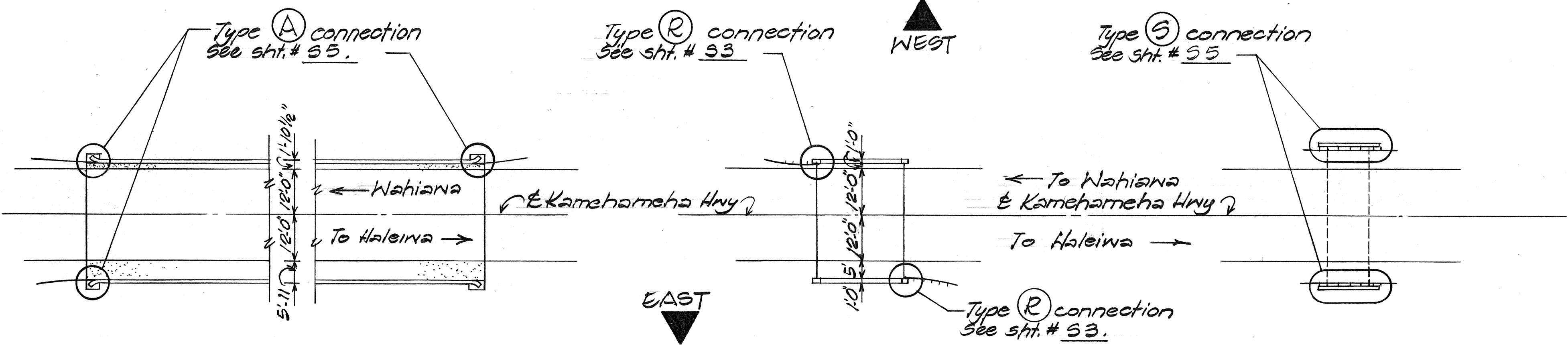
WAIKAKALAU BRIDGE

Scale: 1" = 20'-0"



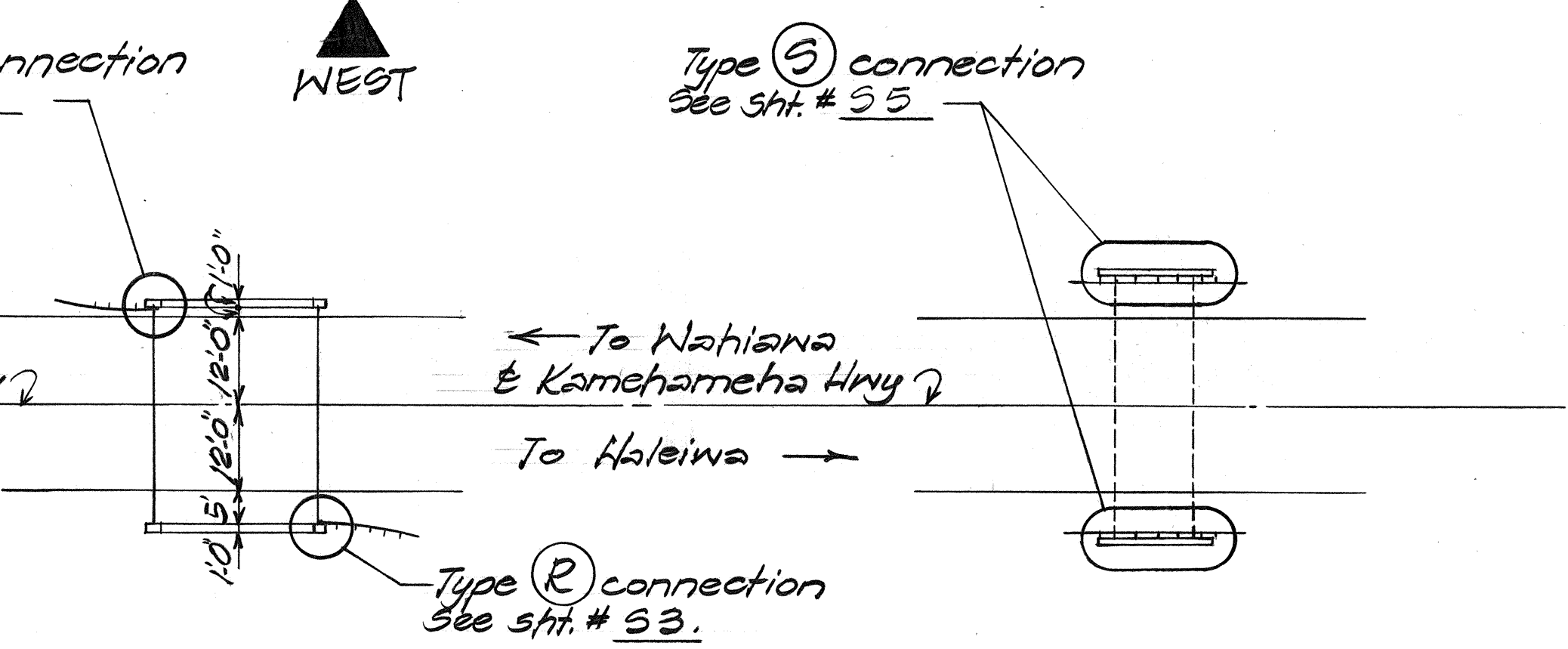
UPPER KAUKONAHUA BRIDGE

Scale: 1" = 20'-0"



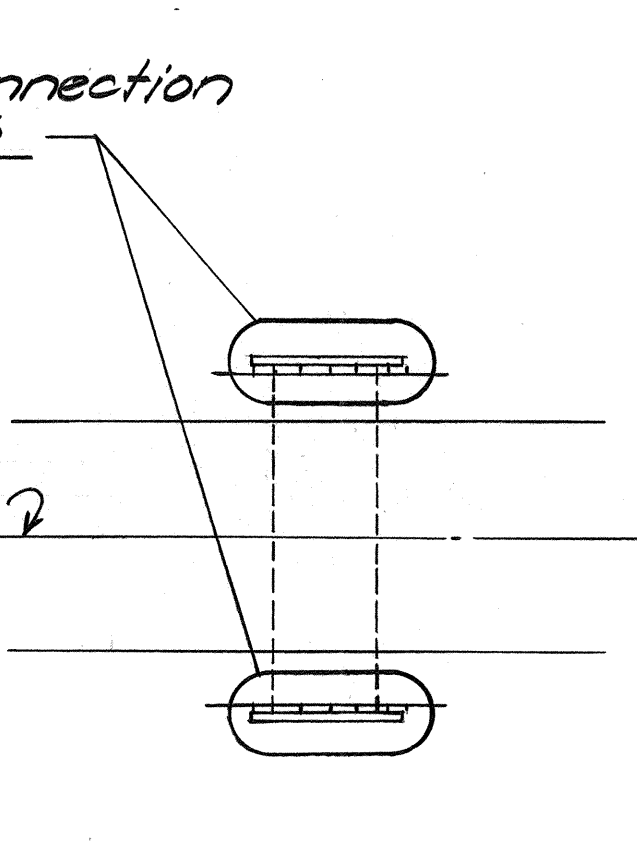
UPPER POAMOHU BRIDGE

Scale: 1" = 20'-0"



BRODIE BRIDGE NO. 2

Scale: 1" = 20'-0"



9'x6' CULVERT

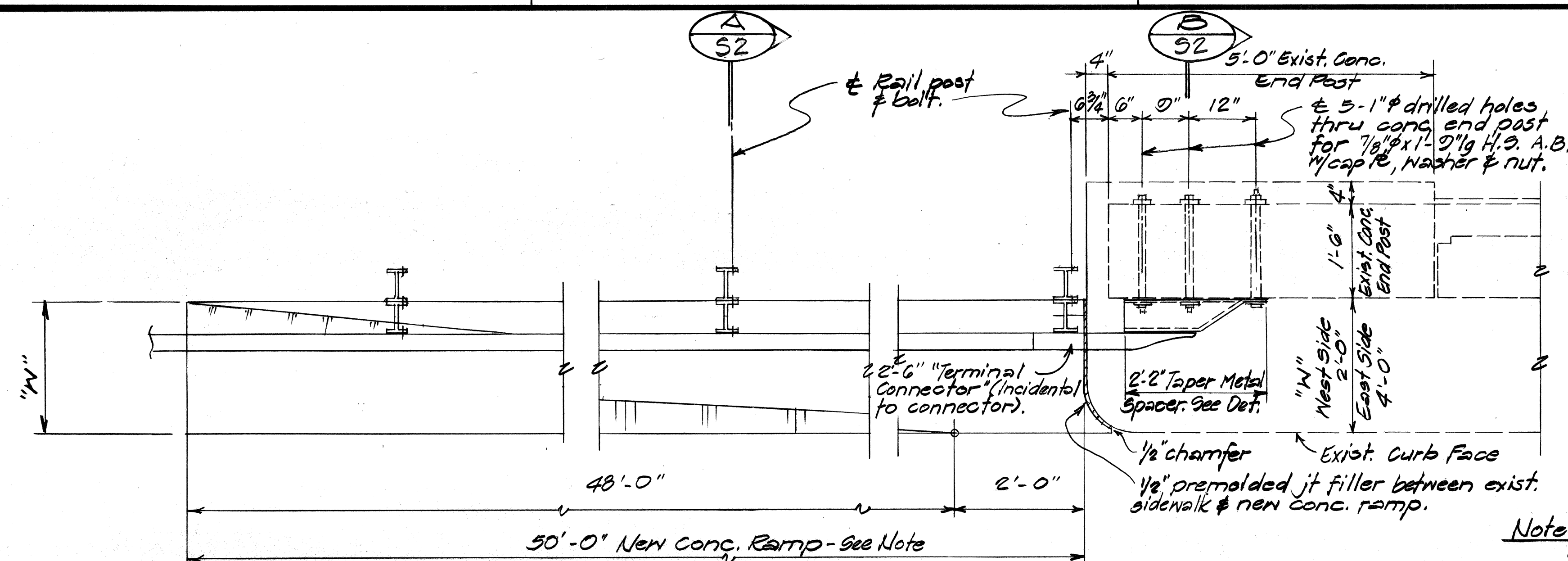
Scale: 1" = 20'-0"

ESTIMATED QUANTITIES

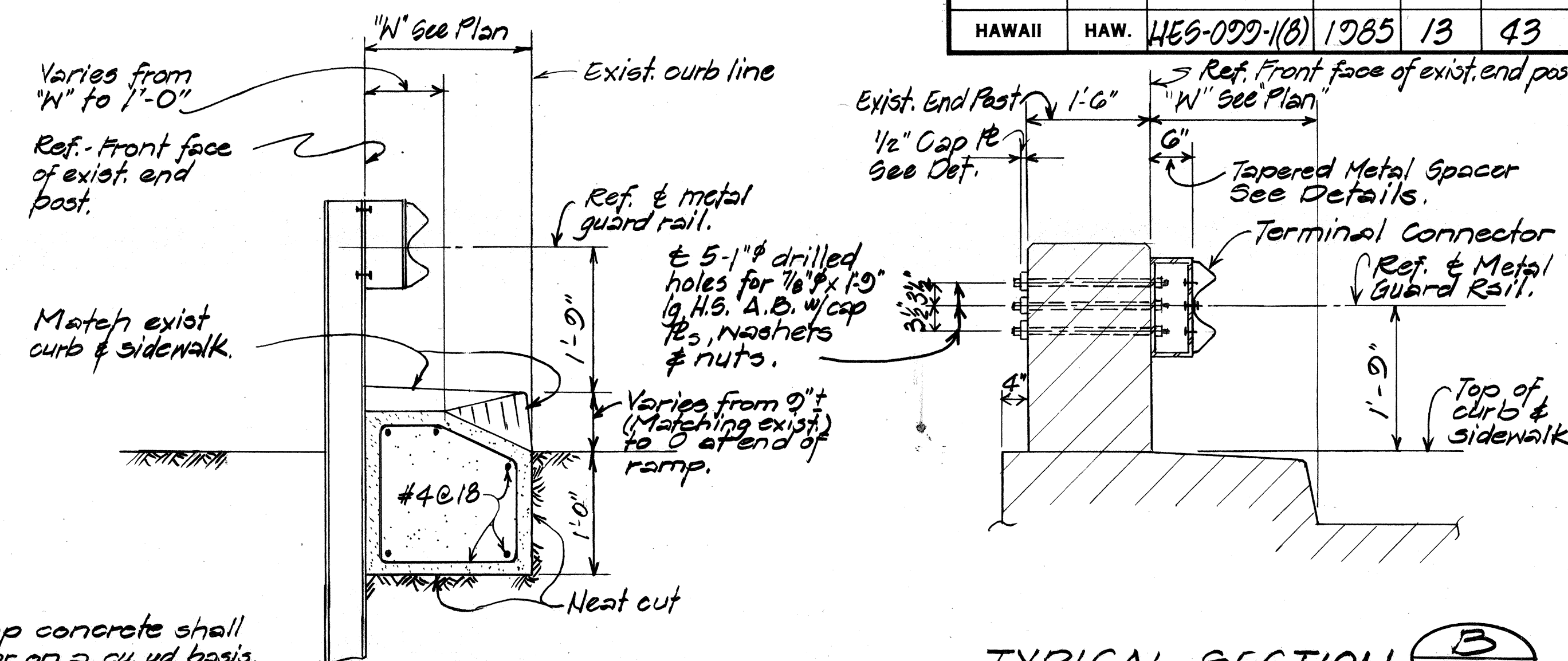
LOCATION	ITEM NO.	ITEM	UNIT	QUANTITY
Waikakalau Bridge	507.8600	Concrete Ramp	Cu. Yd	14
" "	507.9000	Type (L) Connection	Ea.	2
" "	507.9100	Type (M) Connection	Ea.	2
Upper Kaukonahua Bridge	507.8700	Concrete Ramp	Cu. Yd	8
" "	507.8300	Concrete Railing Build-up	Cu. Yd	4
" "	507.9200	Type (N) Connection	Ea.	1
" "	507.9300	Type (P) Connection	Ea.	3
Upper Poamoho Bridge	507.9400	Type (A) Connection	Ea.	3
Brodie Bridge No. 2	507.9500	Type (R) Connection	Ea.	2
9' x 6' Culvert	507.9600	Type (S) Connection	Ea.	2
3' x 3' & 6' x 3' Culverts	507.9700	Type (C) Connection	Ea.	4

SURVEY PLOTTED BY	DATE
DRAWN BY	7/1/84
CHECKED BY	7/1/84
QUANTITIES BY	7/1/84
NOTES BY	7/1/84
ORIGINAL PLAN	NO.

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HE6-099-1(B)	1985	13	43

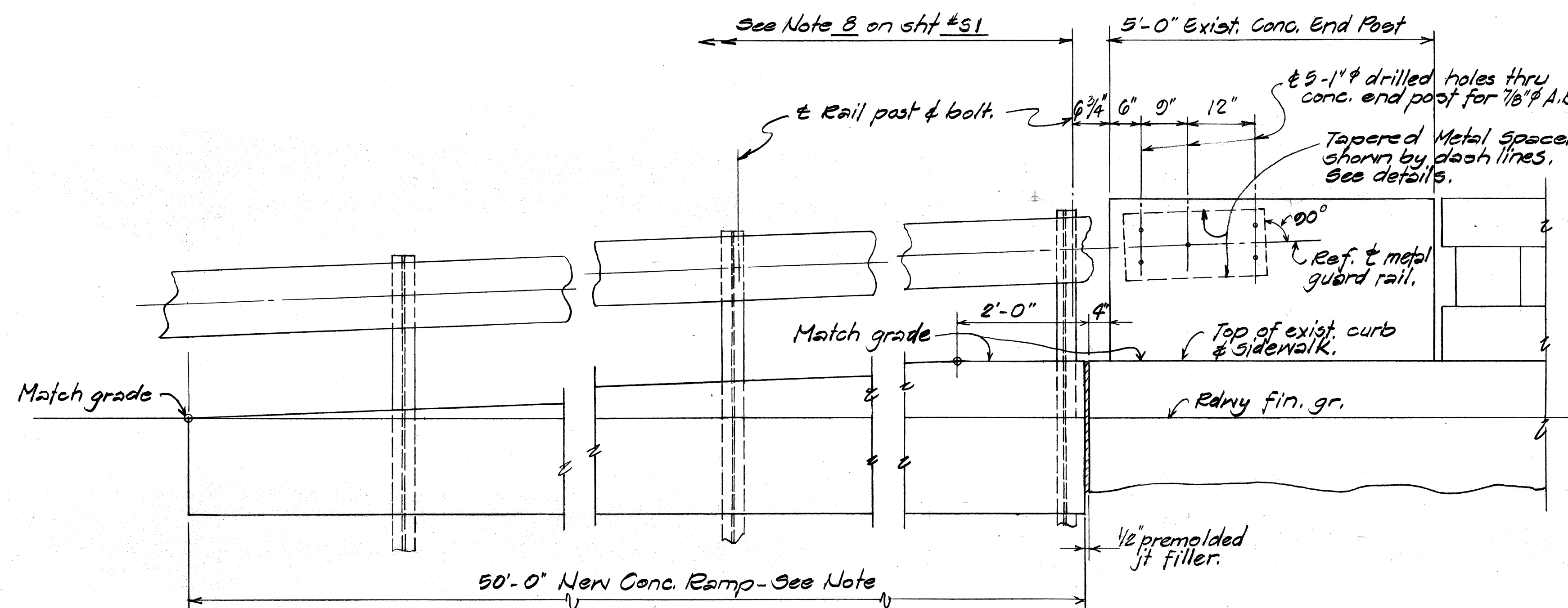


PLAN
Scale: 3/4" = 1'-0"

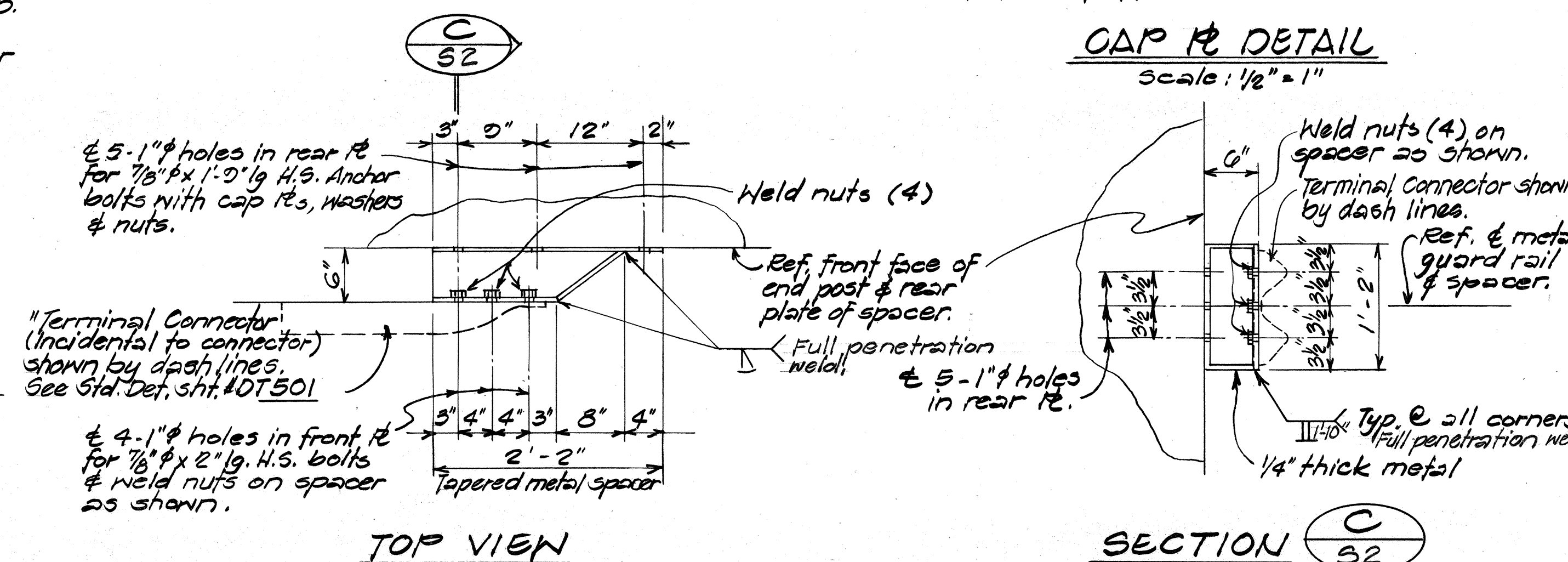


TYPICAL SECTION B-52
Scale: 3/4" = 1'-0"

TYPICAL SECTION B-52
Scale: 3/4" = 1'-0"

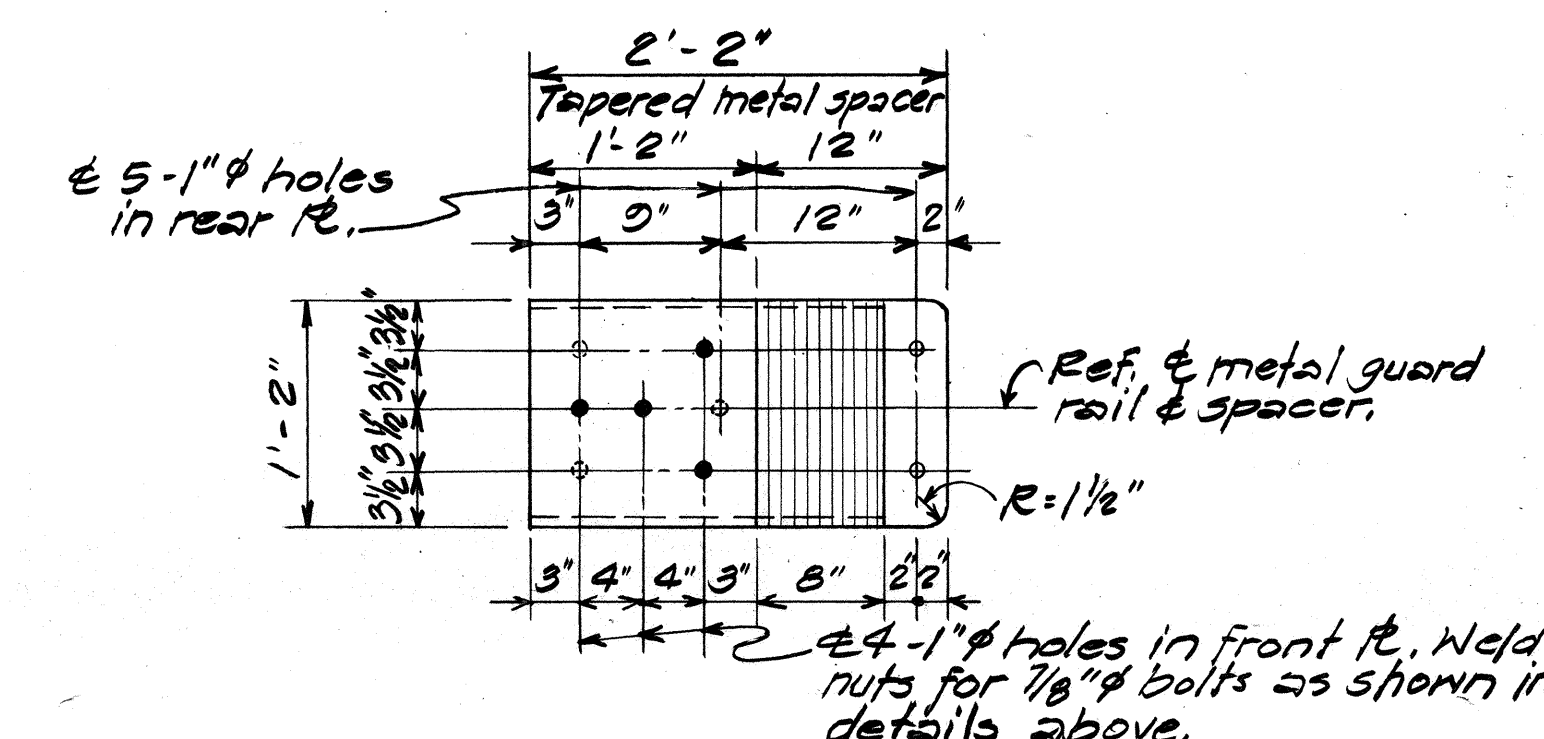


ELEVATION
Scale: 3/4" = 1'-0"

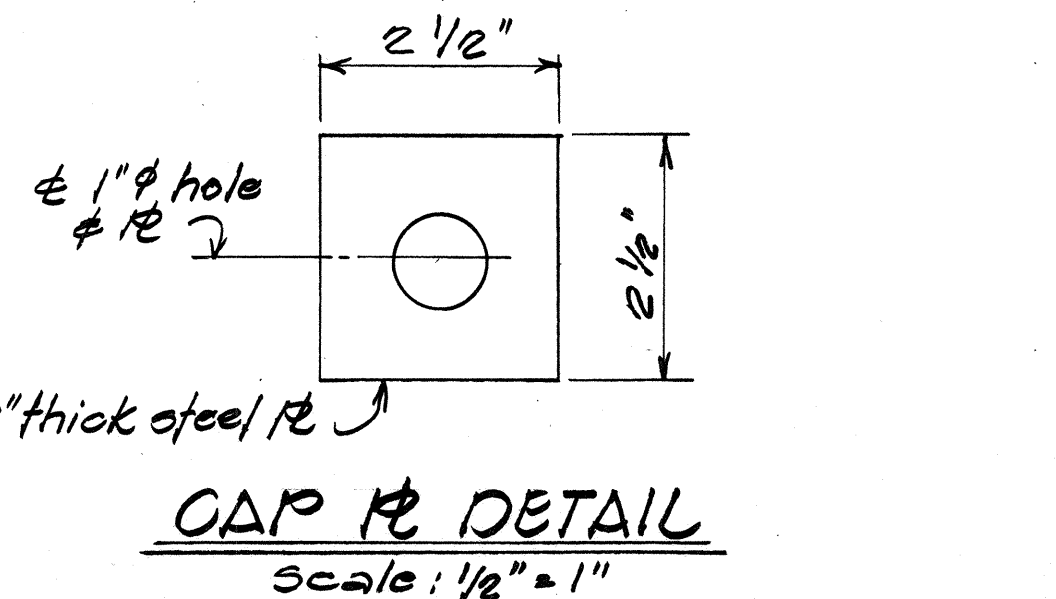


TOP VIEW

SECTION C-52



FRONT VIEW
TAPERED METAL SPACER DETAILS
Scale: 1" = 1'-0"



CAP R DETAIL
Scale: 1/2" = 1'

TYPE (L) CONNECTION AND CONCRETE RAMP DETAILS Scale: As Noted

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

NAIKAKALAU BRIDGE
TYPE (L) CONNECTION & CONC. RAMP DET.
GUARD RAIL AND SHOULDER IMPROVEMENTS ON ROUTE 99
Milliani to Heed Junction
F.A. PROJ. No. HE6-099-1(B)
Scale: As Noted Date: Nov. 1984
SHEET No. 32 OF 6 SHEETS

SURVEY PLOTTED BY	DATE
DRAWN BY	11-84
DESIGNED BY	7-3
QUANTITIES BY	7-3
CHECKED BY	7-3
ORIGINAL PLAN	
NOTE BOOK	
NO.	

14

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

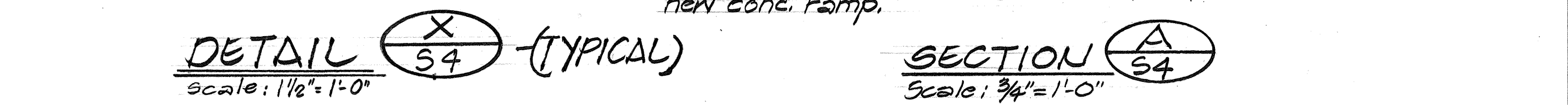
UPPER KAUKONAHUA BRIDGE

TYPE (P) CONNECTION & RAIL BUILD-UP TO CONC. RAMP

GUARD RAIL AND SHOULDER
IMPROVEMENTS ON ROUTE 22
Mililani to Weed Junction
F.A. PROJ. No. HES-099-(18)

Scale: As Noted Date: Nov. 1984

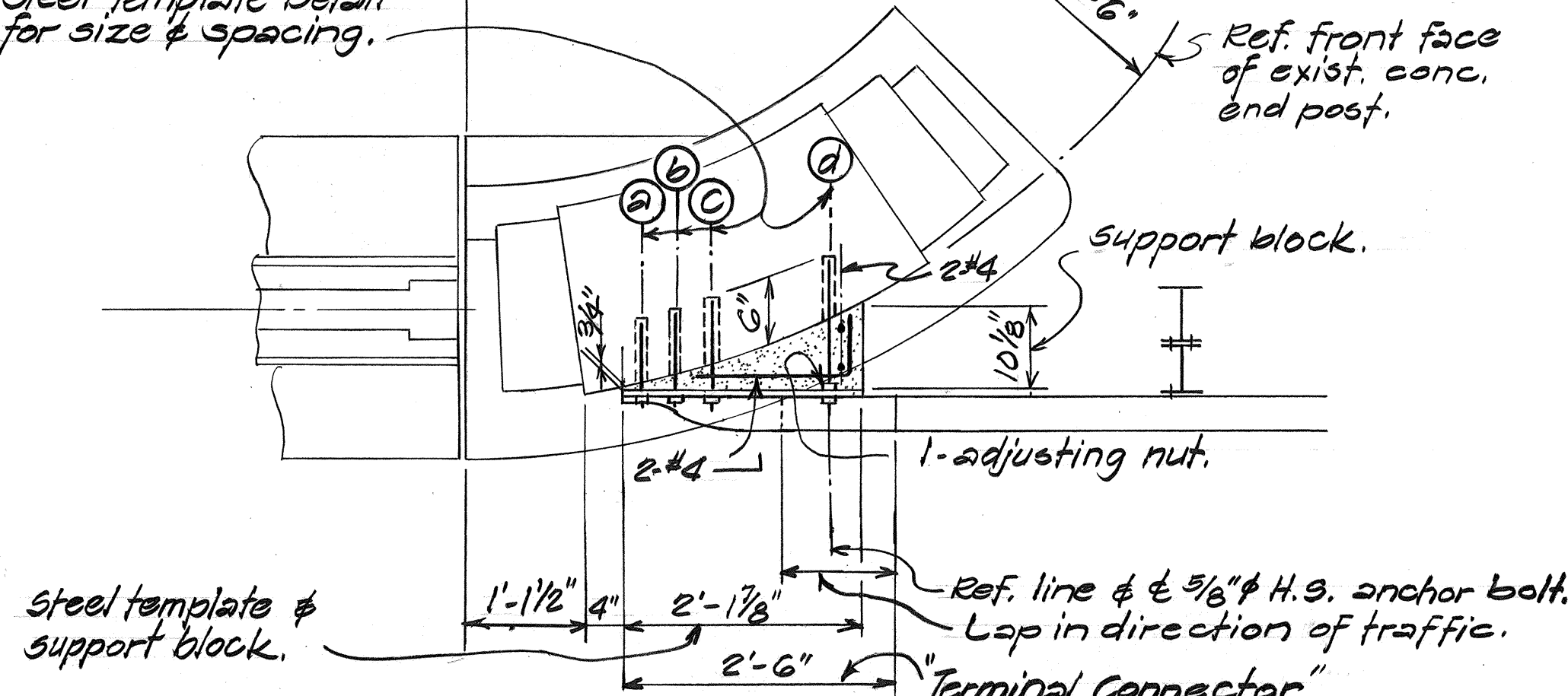
SHEET No. 54 OF 6 SHEETS



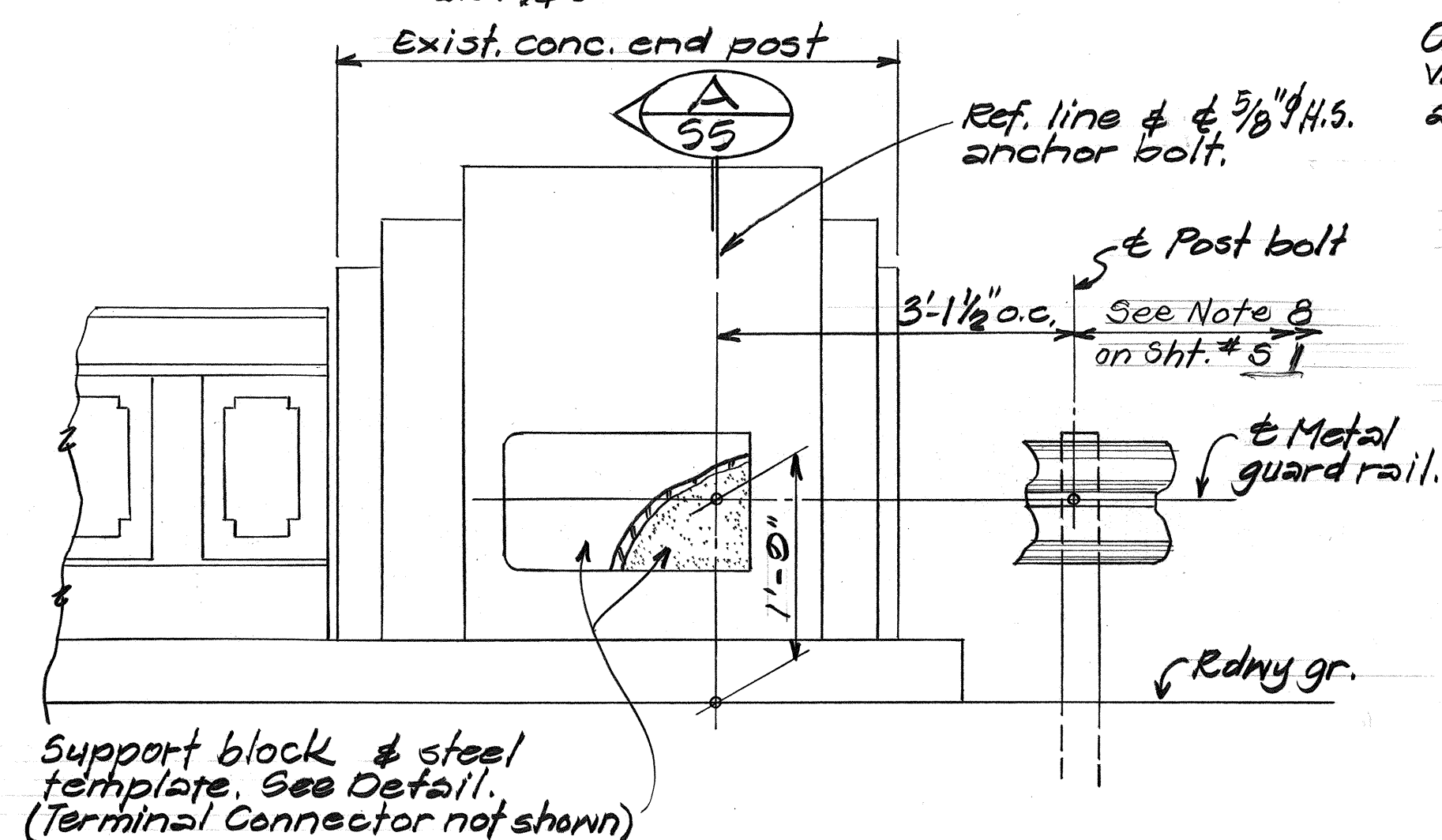
UPPER LAUKONAHUA BRIDGE
TYPE (P) CONNECTION & RAIL BUILD-UP CONC. RAMP
GUARD RAIL AND SHOULDER
IMPROVEMENTS ON ROUTE 99
Mililani to Need Junction
F.A. PROJ. No. HES-099-(18)
Scale: As Noted Date: Nov. 1984
SHEET No. 54 of 6 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HES-000-1(8)	1985	16	43

Drill 5-1/2" x 6" deep holes for H.S. anchor bolts. See Steel Template Detail for size & spacing.



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



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

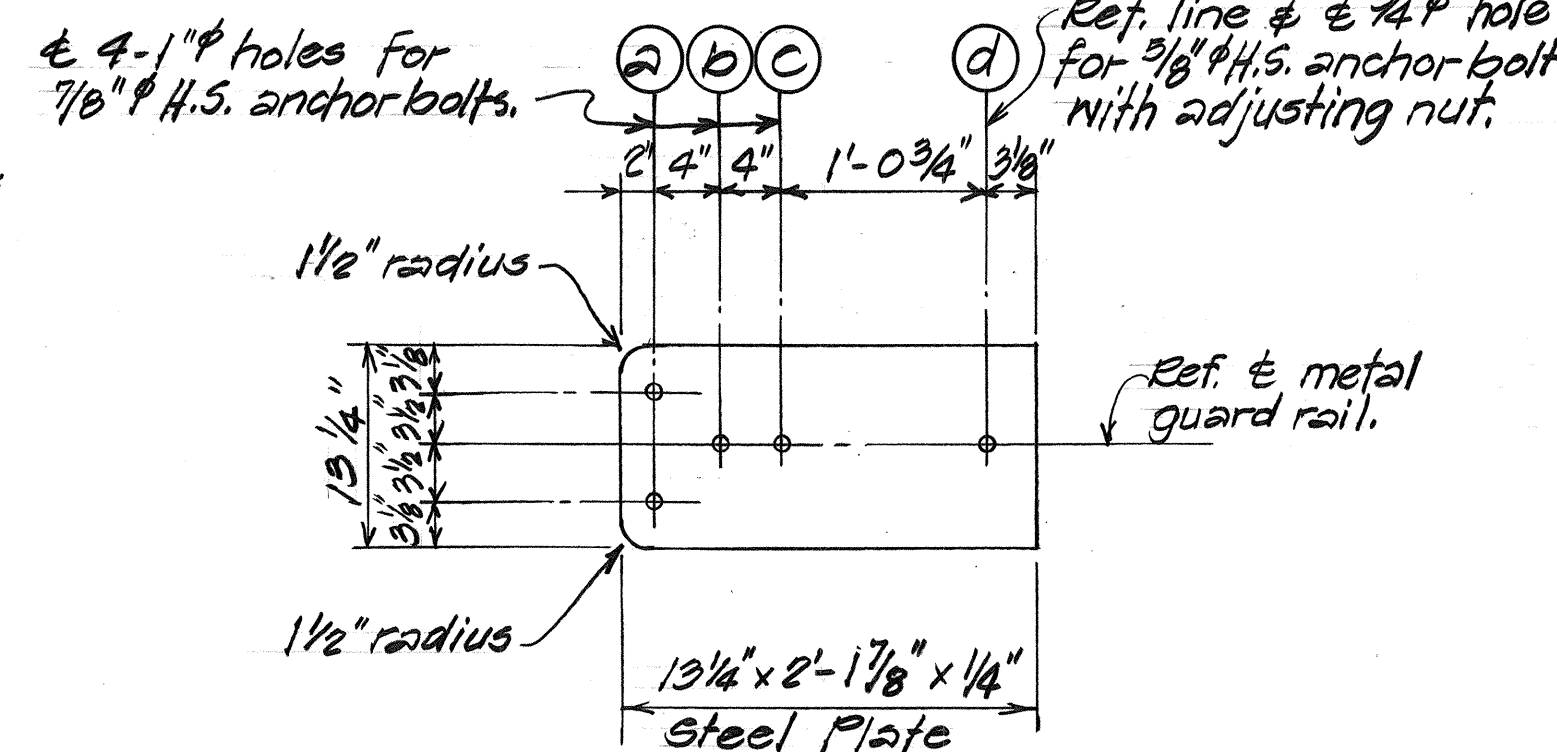
TYPE (A) CONNECTION

Scale: As shown

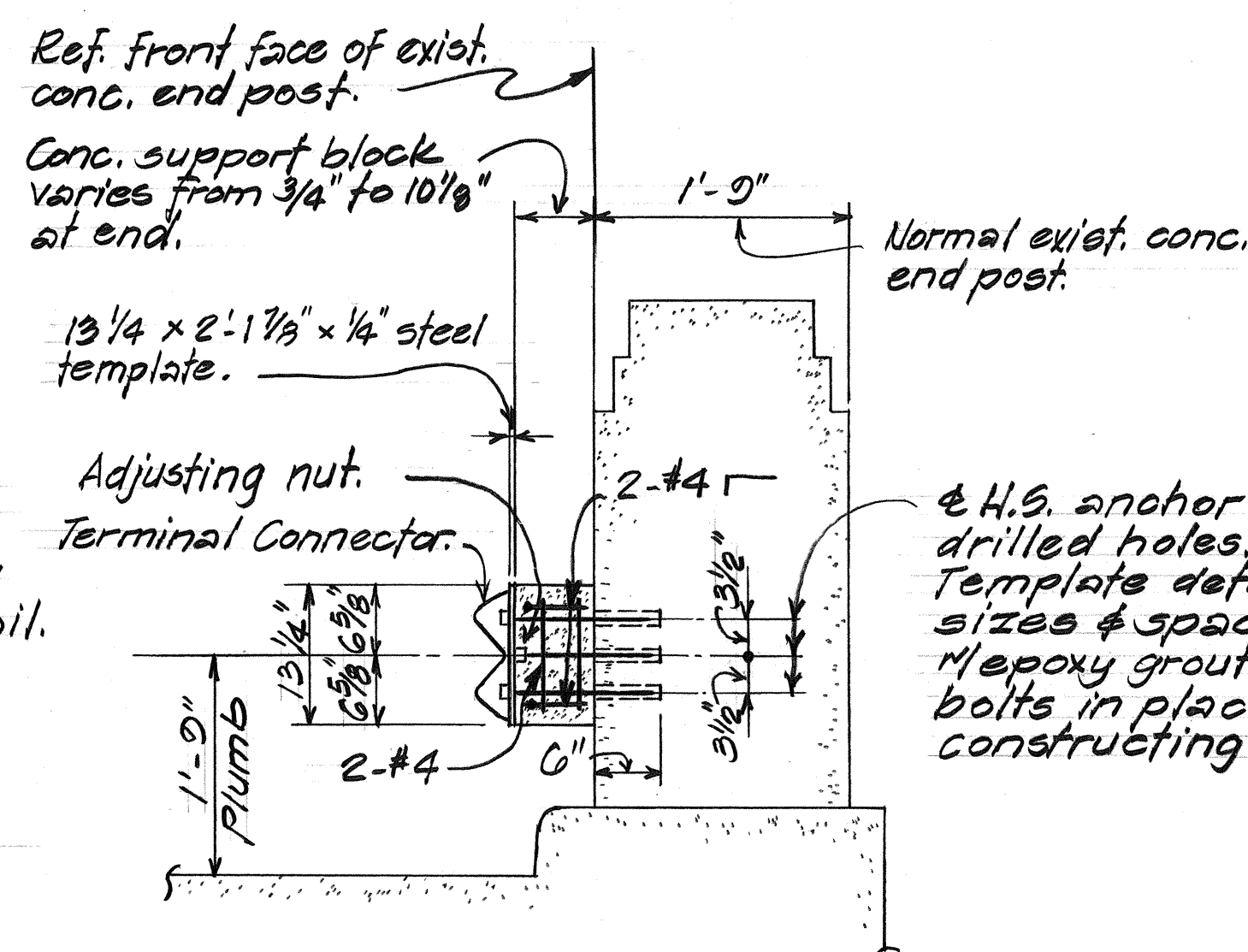
H.S. Anchor Bolt Length (Under head)

(a) 2 bolts @ 8 1/2" (c) 1 bolt @ 10 3/4"

(b) 1 bolt @ 9 1/2" (d) 1 bolt @ 16"

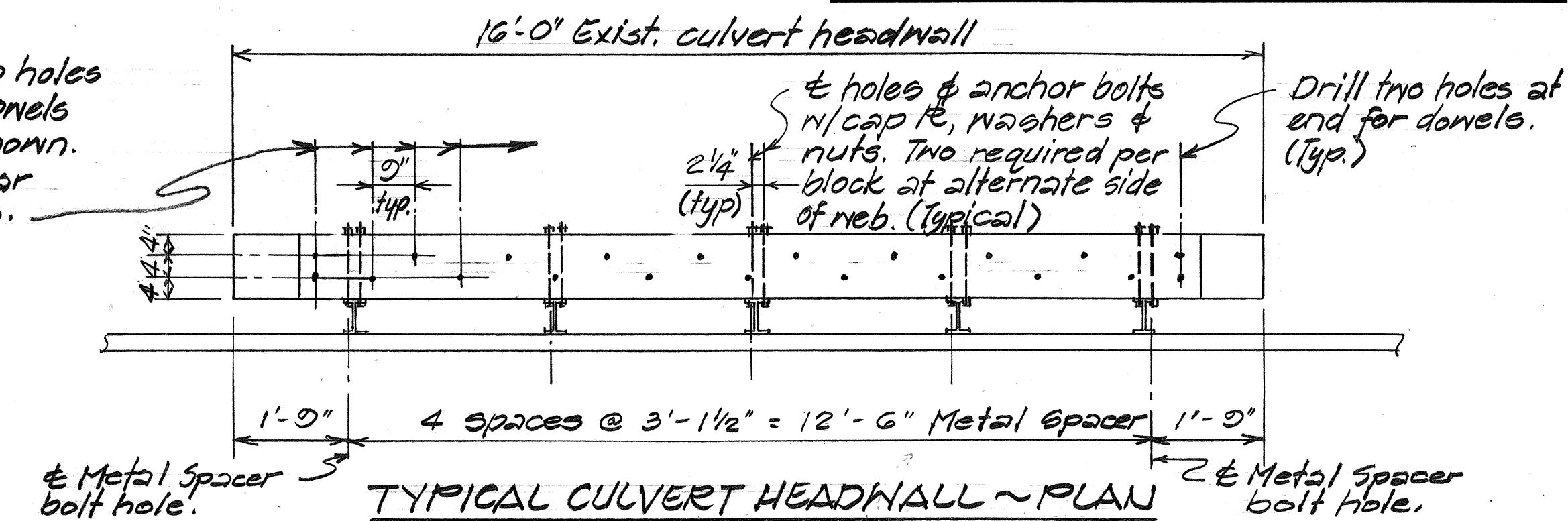


STEEL TEMPLATE DETAIL
Scale: 1" = 1'-0"

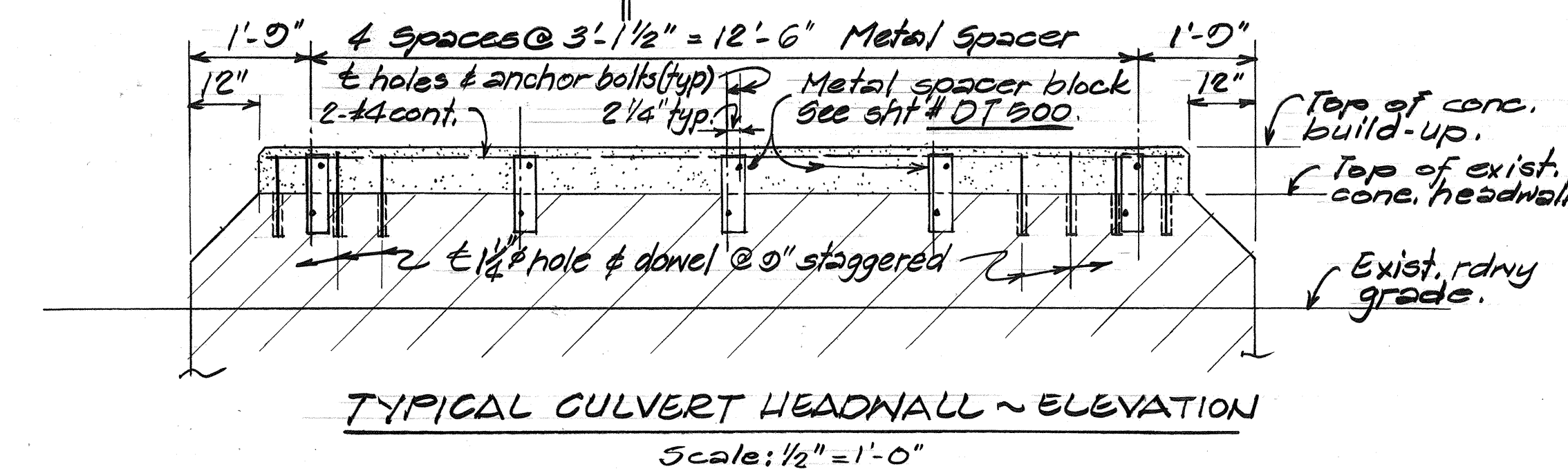


SECTION
Scale: 3/4" = 1'-0"

Drill 1 1/4" x 8" deep holes @ 9" with #6 dowels staggered as shown. Drill holes to clear anchor bolt holes.



TYPICAL CULVERT HEADWALL ~ PLAN
Scale: 1/2" = 1'-0"

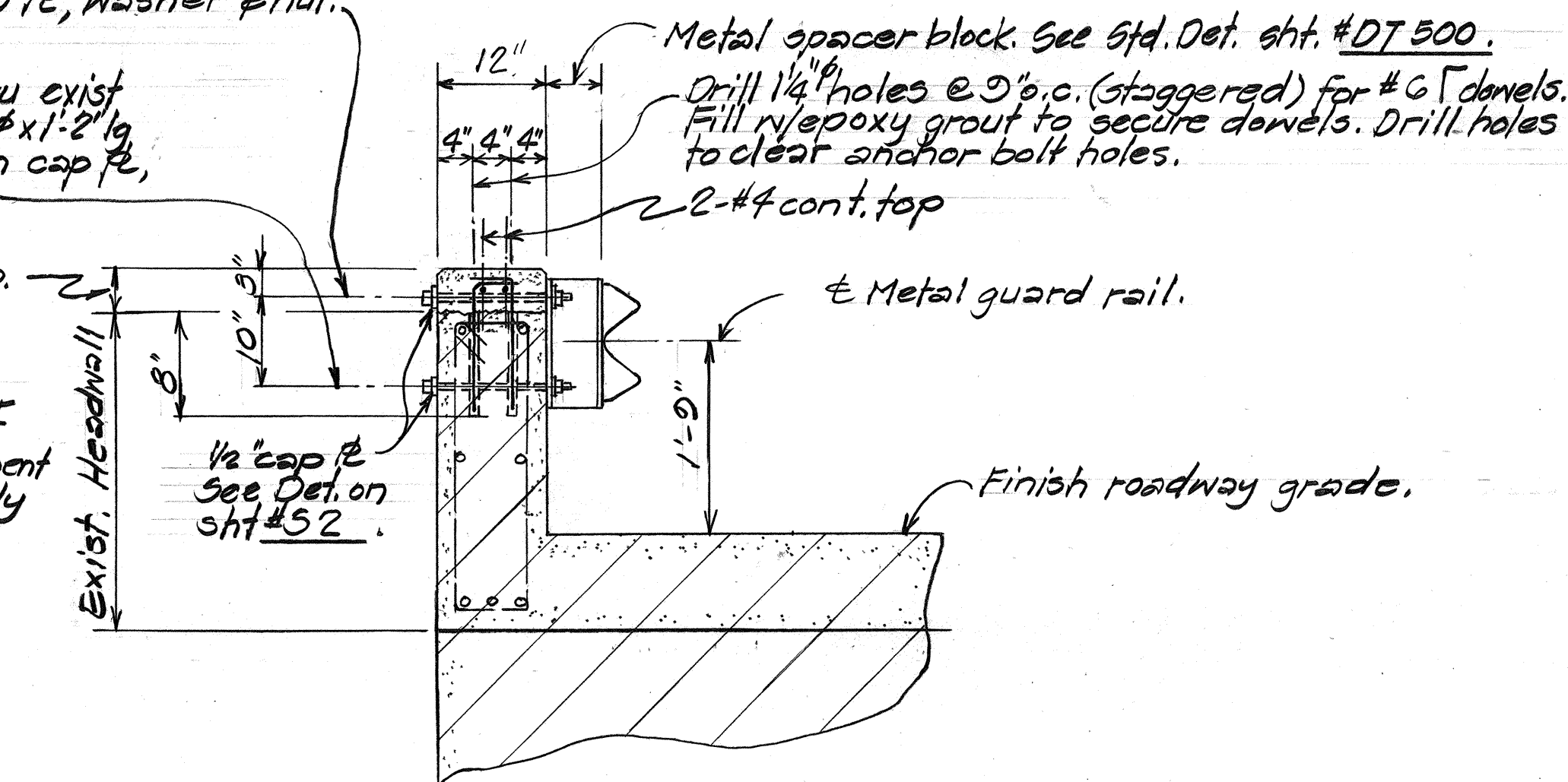


TYPICAL CULVERT HEADWALL ~ ELEVATION
Scale: 1/2" = 1'-0"

3/4" I.D. G.I. pipe sleeve in build-up for 5/8" x 1'-2" anchor bolt with cap te, washer & nut.

Drill 3/4" hole thru exist headwall for 5/8" x 1'-2" anchor bolts with cap te, washer & nut.

8" conc. build-up. Roughen contact surface. Clean & saturate surface with water & cover with a coating of mortar or neat cement grout immediately before new pour.



TYPICAL HEADWALL SECTION
Scale: 3/4" = 1'-0"

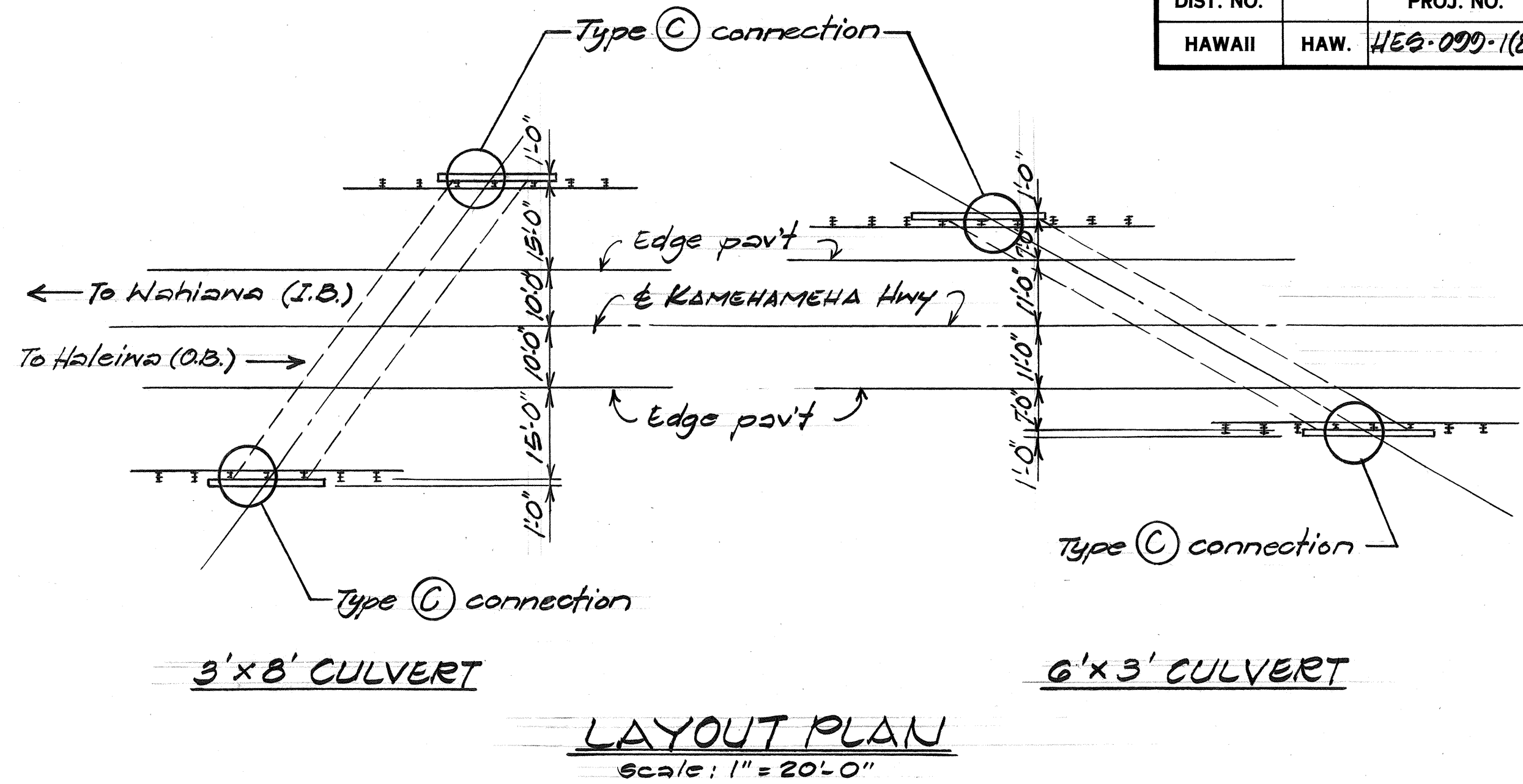
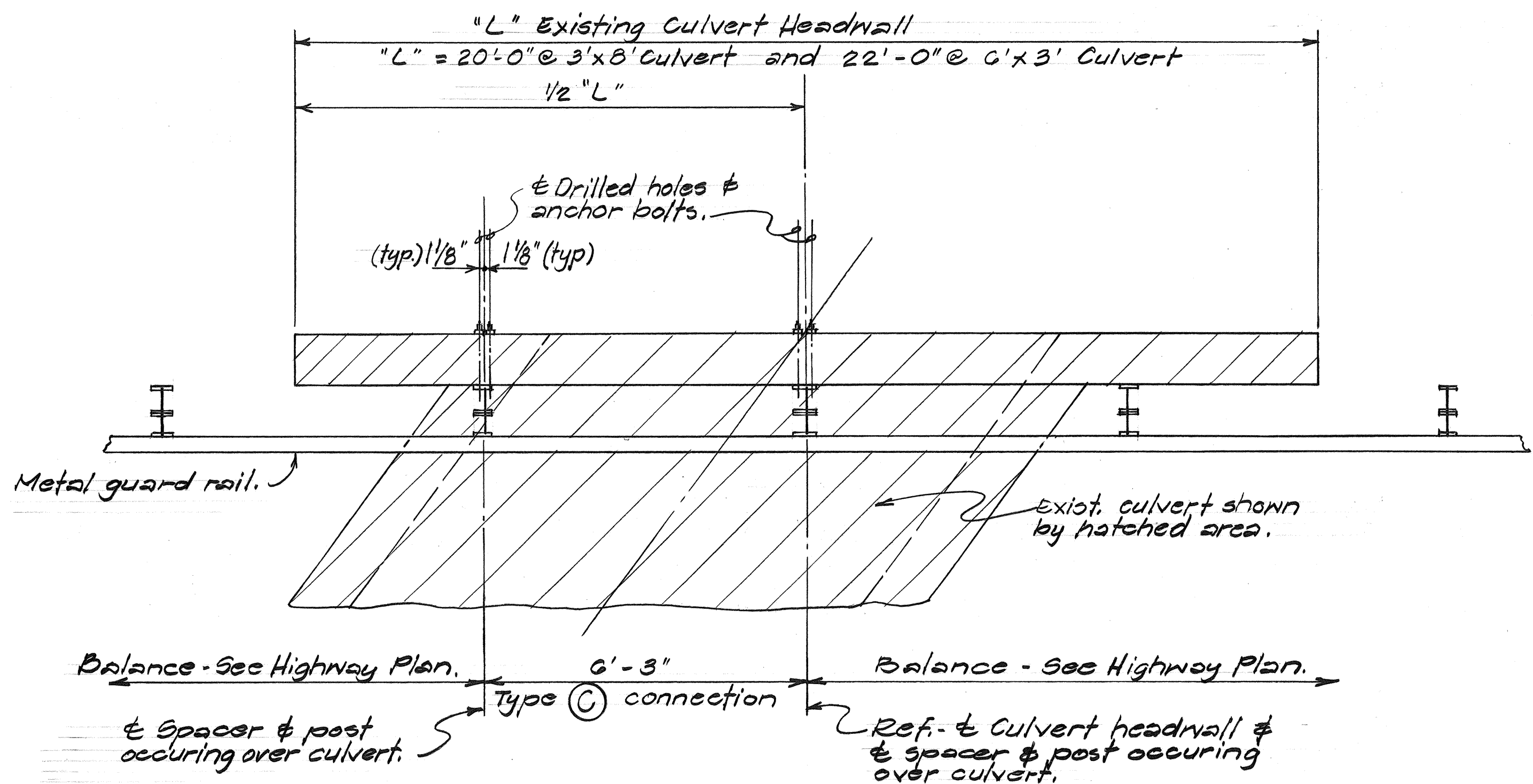
TYPE (S) CONNECTION

Scale: As shown

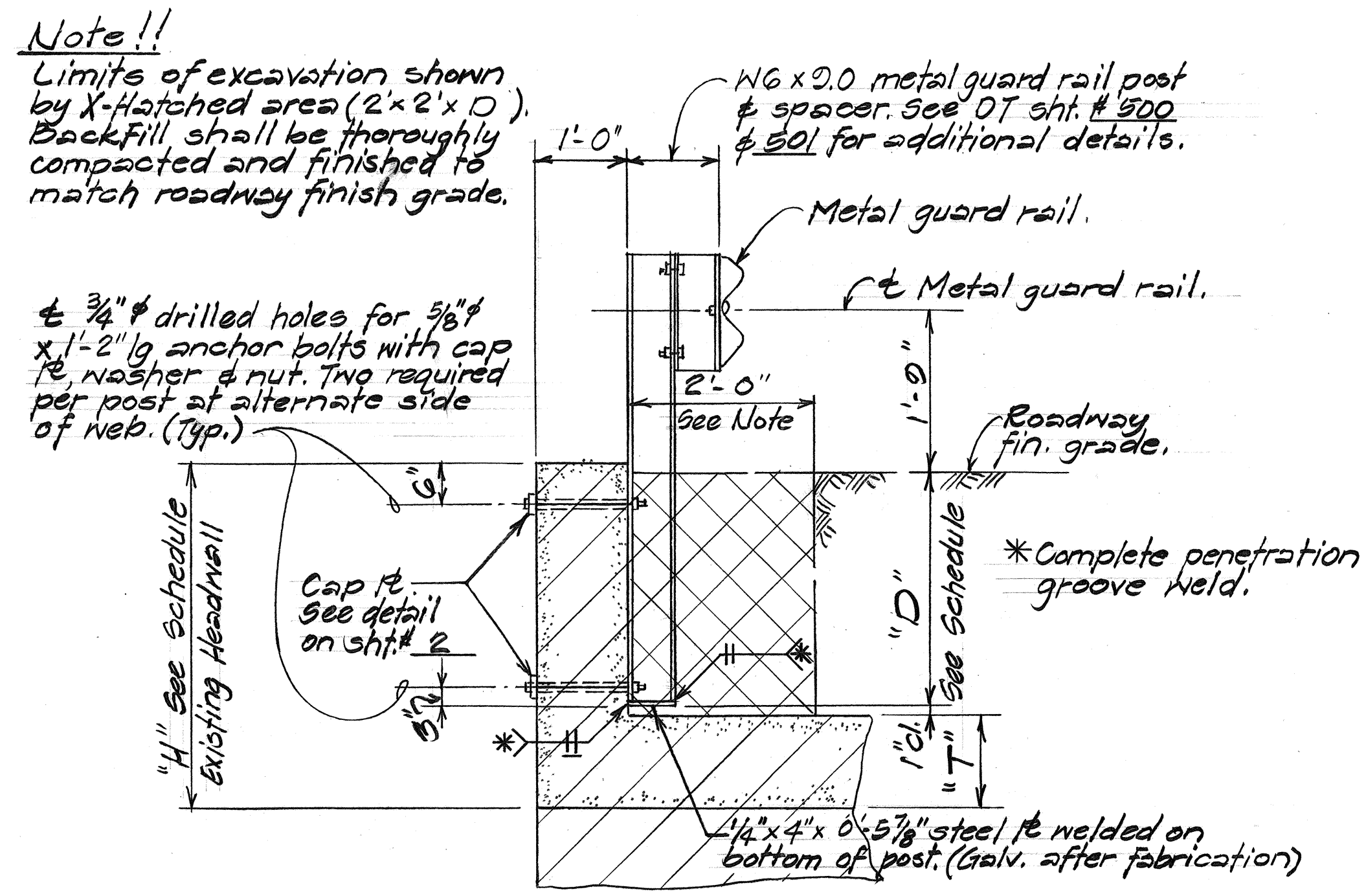
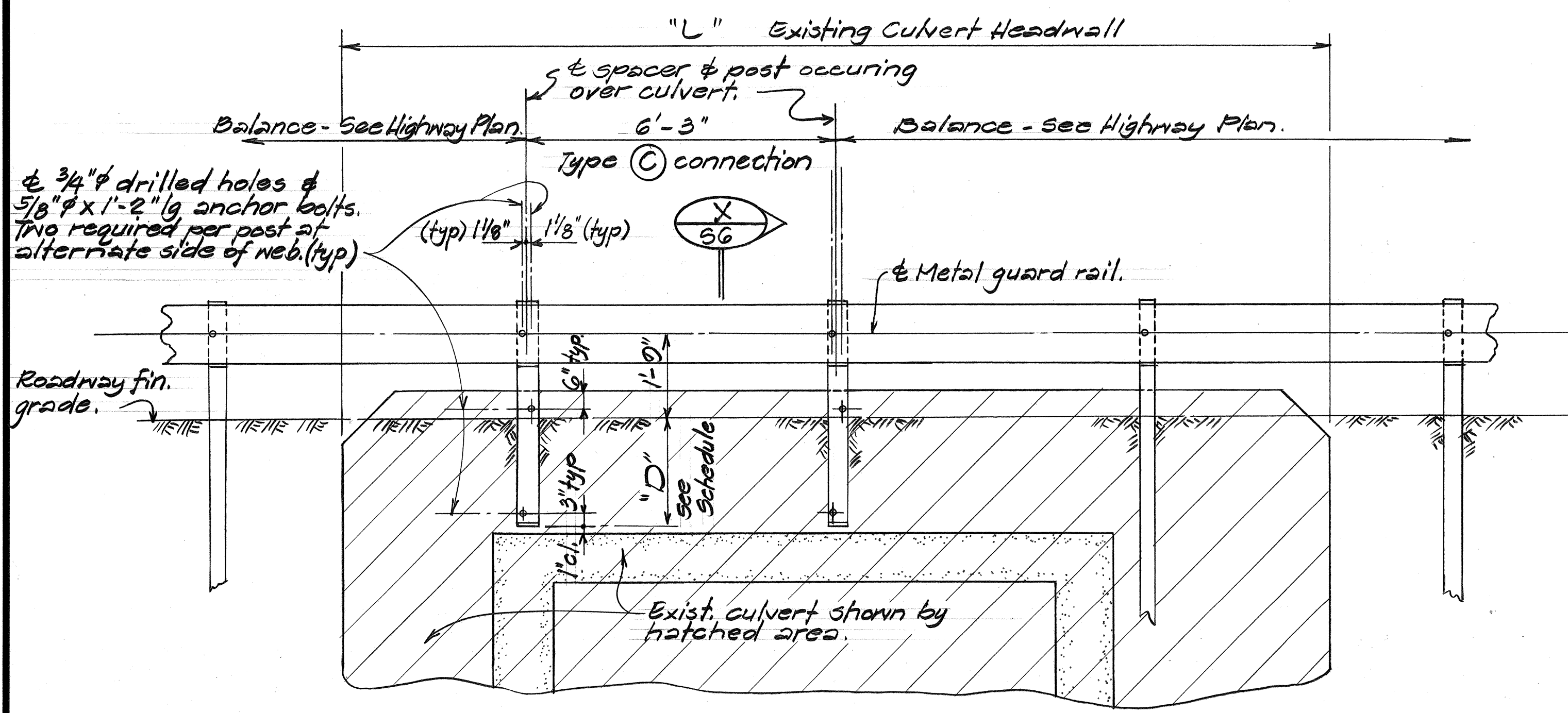
DATE	11-22
SURVEY PLOTTED BY	34
DRAWN BY	73
DESIGNED BY	73
QUANTITIES BY	LA
CHECKED BY	LA
NO.	

STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION
UPPER POA MOHO BR. & CONCRETE CULVERT #3
TYPE (A) & (S) CONNECTIONS & BUILD-UP DET.
GUARD RAIL AND SHOULDER IMPROVEMENTS ON ROUTE 99
Mililani to Need Junction
F.A. PROJ. NO. HES-000-1(8)
Scale: As Noted Date: Nov. 1984
SHEET No. 55 OF 6 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HES-099-1(8)	1985	17	43



CULVERT HEADWALL SCHEDULE			
CULVERT	"H"	"T"	"D"
3'x8' I.B.	3'-7"	1'-0"	2'-6"
" O.B.	3'-10"	1'-0"	2'-3"
6'x3' I.B.	3'-7"	0"	1'-3"
" O.B.	4'-1"	0"	2'-7"



TYPE C CONNECTION DETAILS

Scale: As Noted

STATE OF HAWAII

DEPARTMENT OF TRANSPORTATION

HIGHWAYS DIVISION

3'x8' CULVERT & 6'x3' CULVERT

LAYOUT PLAN, TYPE C CONNECTION DET.

GUARD RAIL AND SHOULDER IMPROVEMENTS ON ROUTE 00

Mililani To Heald Junction

P.A. PROJ. No. HES-099-1(8)

Scale: As Noted

Date: Mar. 1984

SHEET No. 96 OF 6 SHEETS

SURVEY PLOTTED BY	DATE
DRAWN BY	3/85
DESIGNED BY	3/85
QUANTITIES BY	3/85
CHECKED BY	3/85
ORIGINAL PLAN	
NOTE BOOK	
NO.	