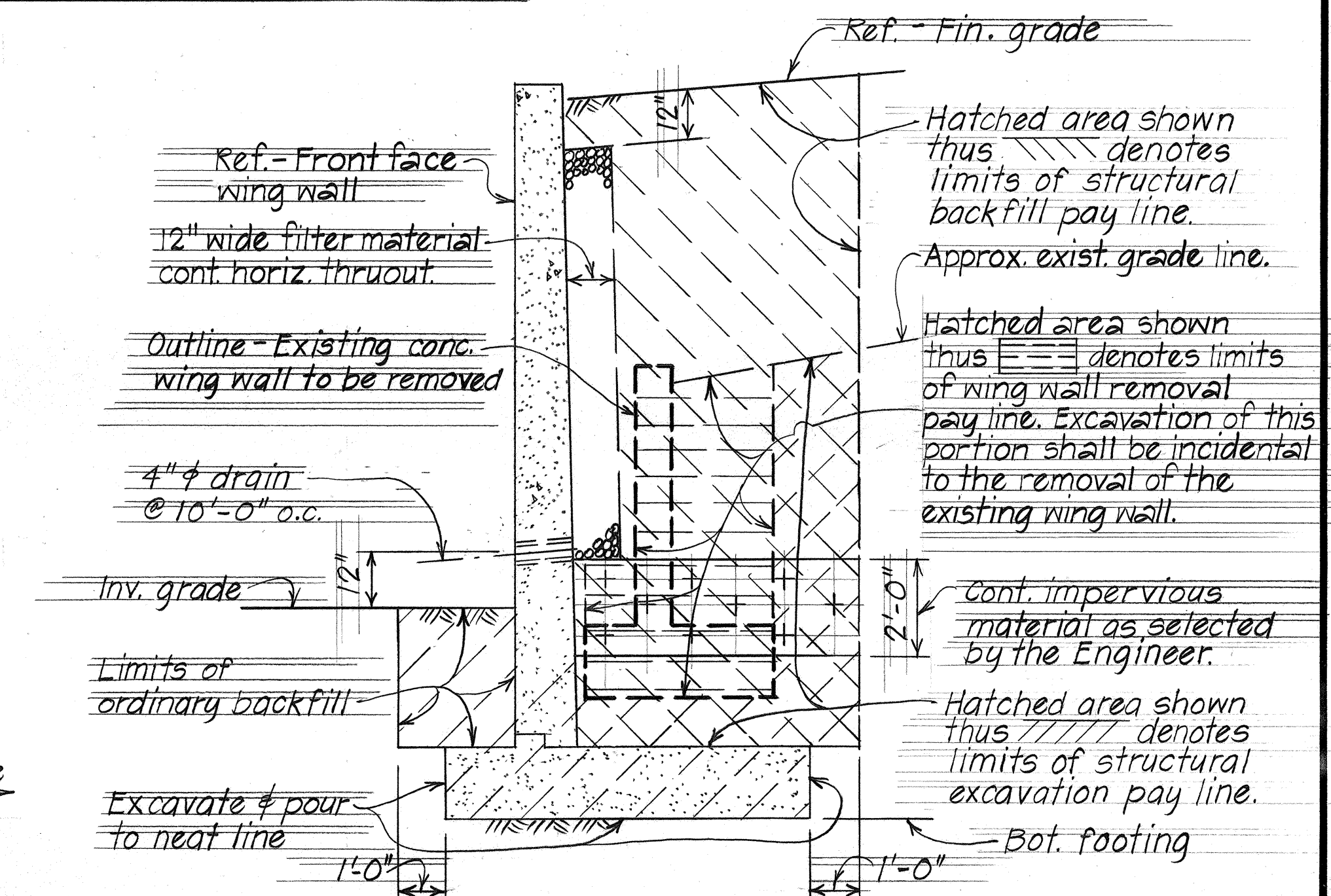
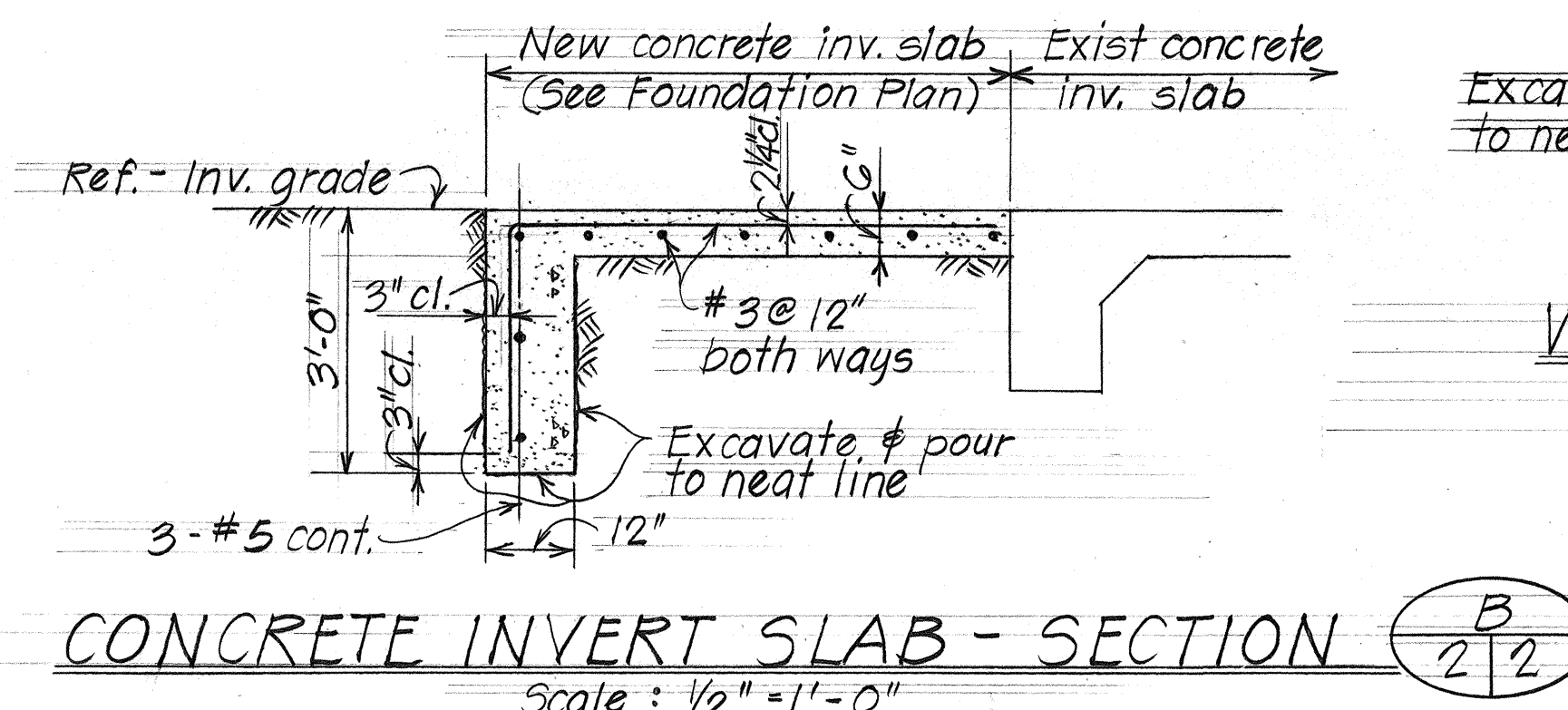
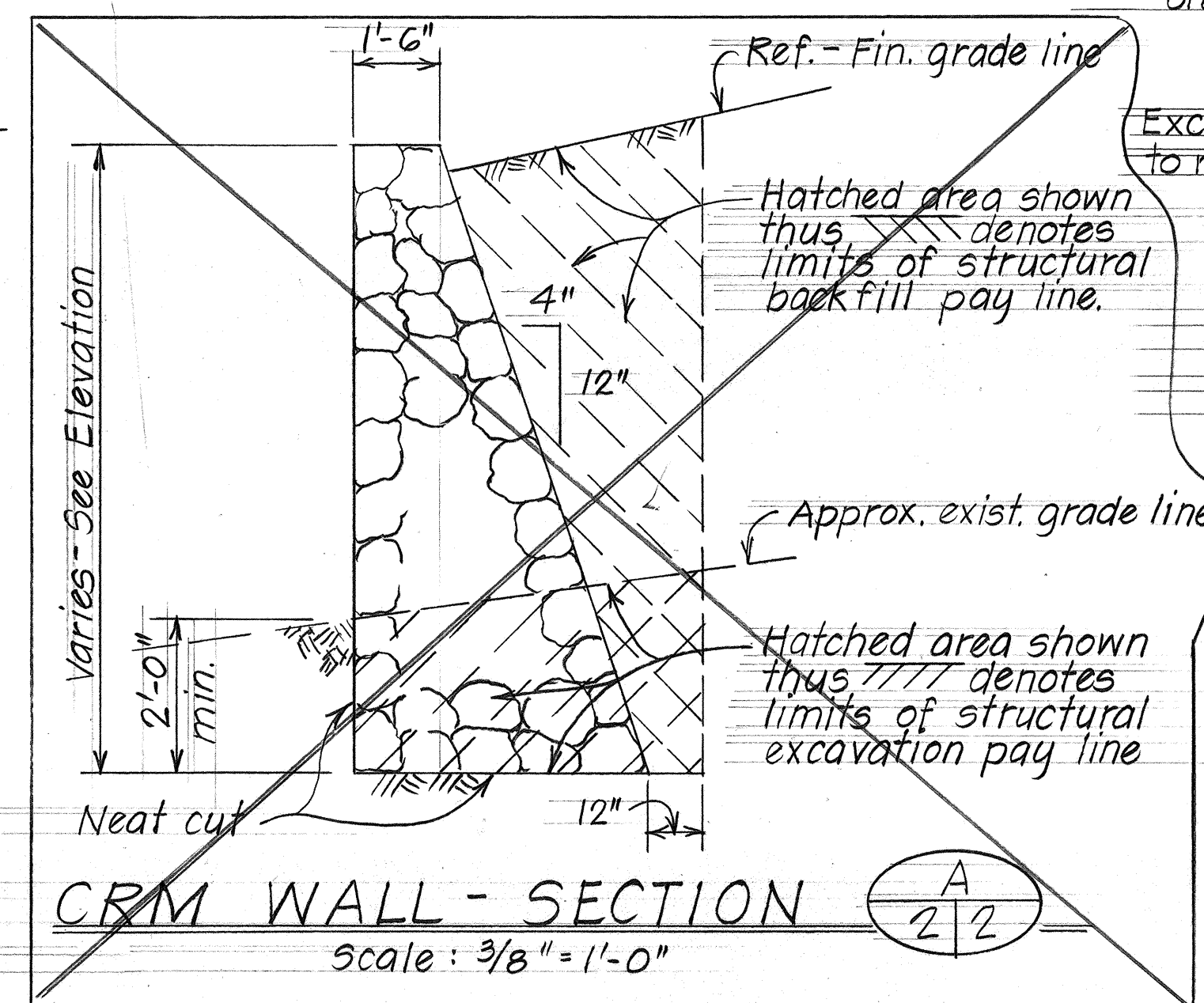


ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
	DRAWN BY <u>G. T. F. K.</u>	"
	TRACED BY	"
NOTE BOOK	DESIGNED BY <u>E. N.</u>	"
	QUANTITIES BY	"
No. _____	CHECKED BY	"



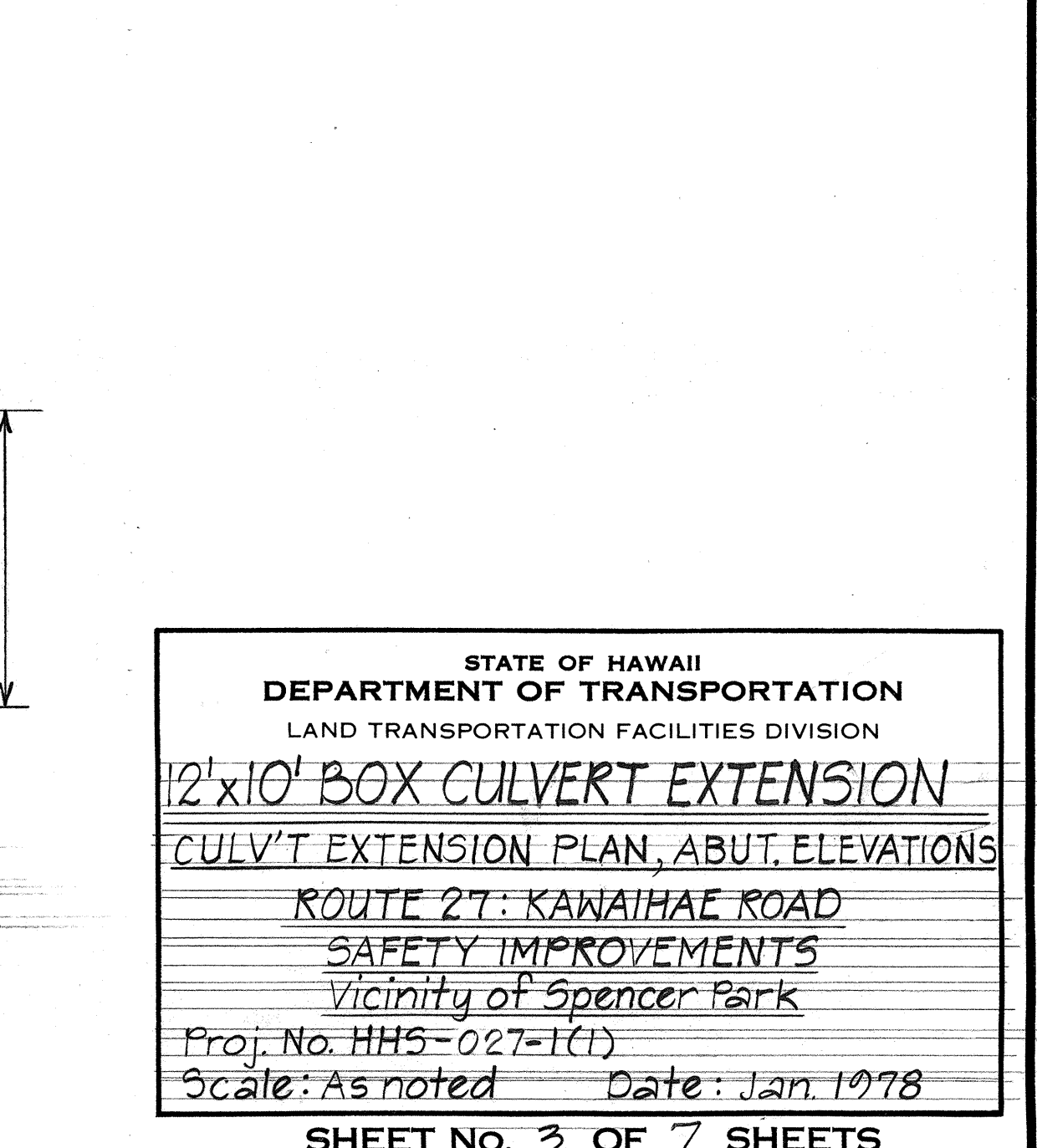
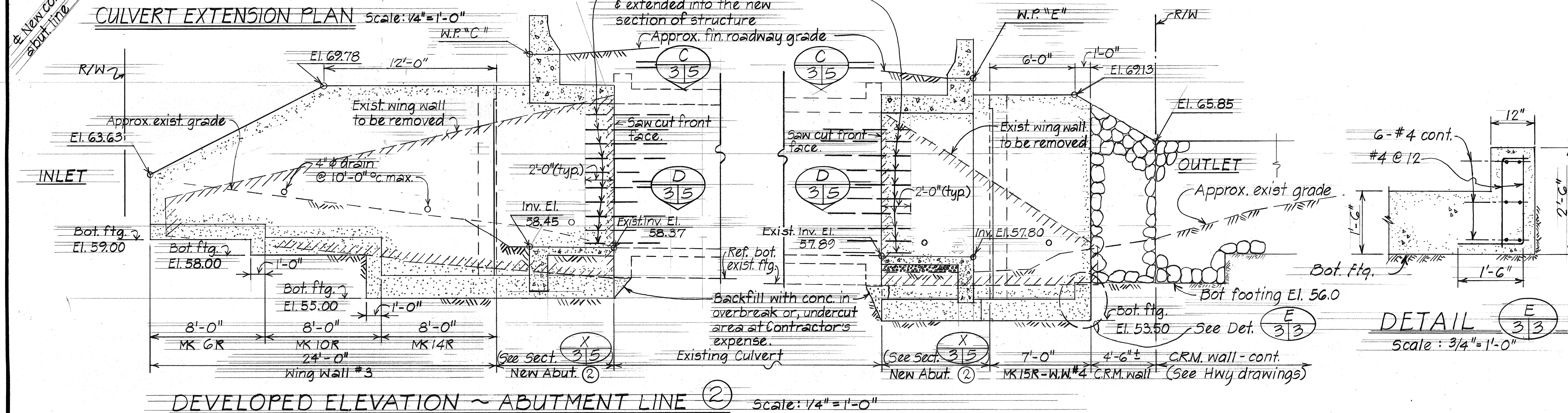
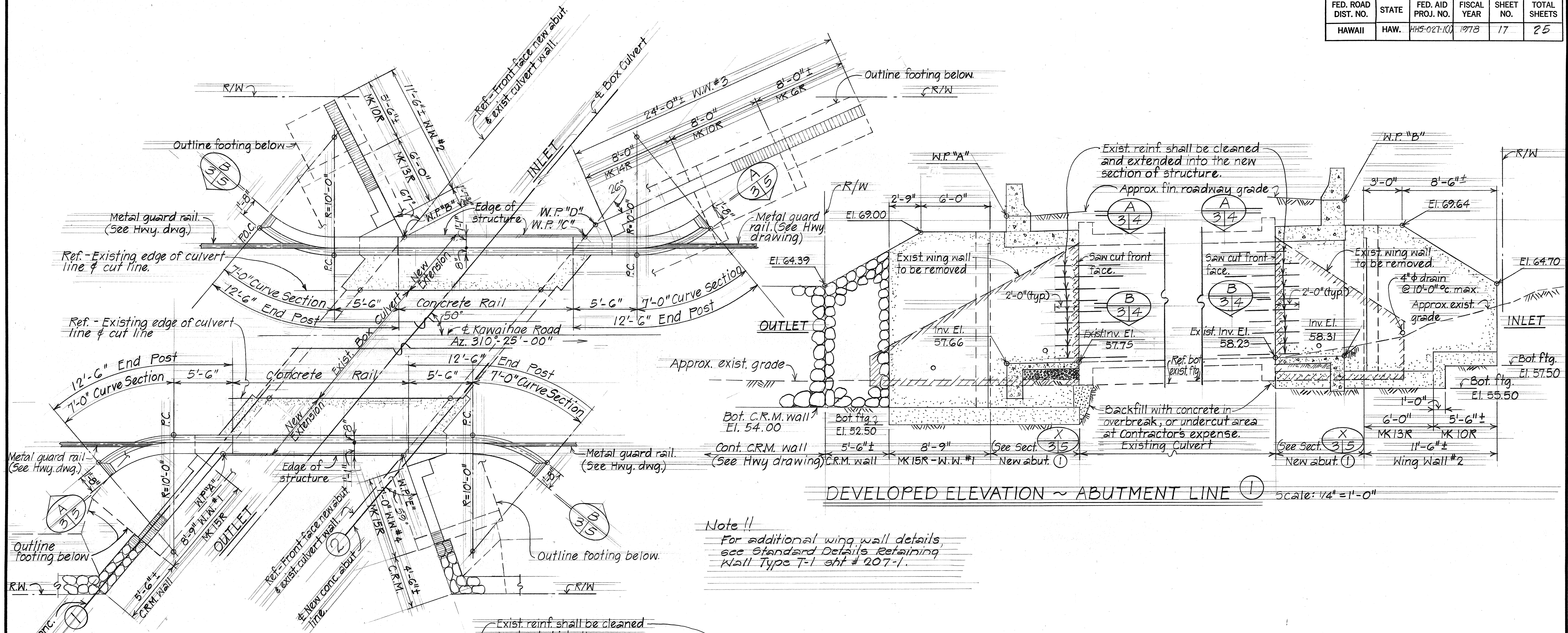
SECTION ALONG $\pm 12' \times 10'$ BOX CULVERT Scale: $\frac{3}{16}'' = 1' - 0''$

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
LAND TRANSPORTATION FACILITIES DIVISION

12'x10' BOX CULVERT EXTENSION
FOUND 'N PLAN, CRM WALL SECT, EXC. DET.
ROUTE 27: KAWAIHAE ROAD
SAFETY IMPROVEMENTS
Vicinity of Spencer Park
Proj. No. HHS-027-1(1)
Scale: As noted Date: Jan. 1978

SHEET No. 2 OF 7 SHEETS

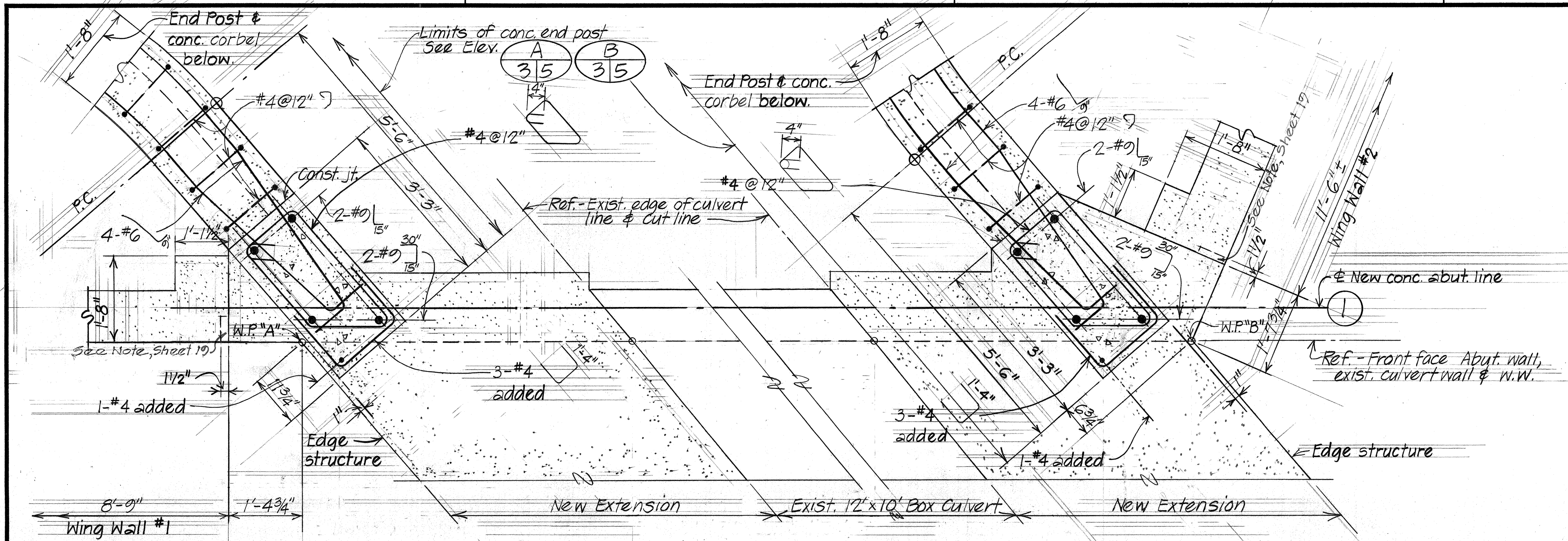
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HHS-027-100	1978	17	25



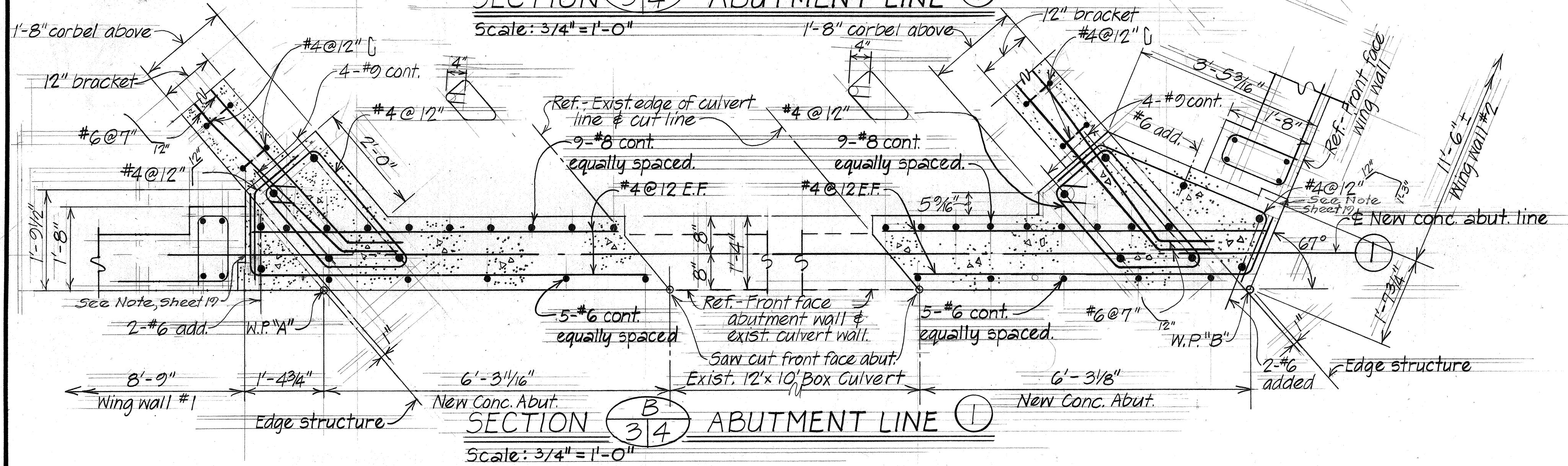
DATE: _____
 SURVEY PLOTTED BY: _____
 DRAWN BY: _____
 DESIGNED BY: _____
 NOTE BOOK: _____
 QUANTITIES BY: _____
 CHECKED BY: _____

STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 LAND TRANSPORTATION FACILITIES DIVISION
12'x10' BOX CULVERT EXTENSION
 CULVERT EXTENSION PLAN, ABUT. ELEVATIONS
 ROUTE 27: KAWAIIHAE ROAD
 SAFETY IMPROVEMENTS
 Vicinity of Spencer Park
 Proj. No. HHS-027-100
 Scale: As noted Date: Jan. 1978
 SHEET No. 3 OF 7 SHEETS

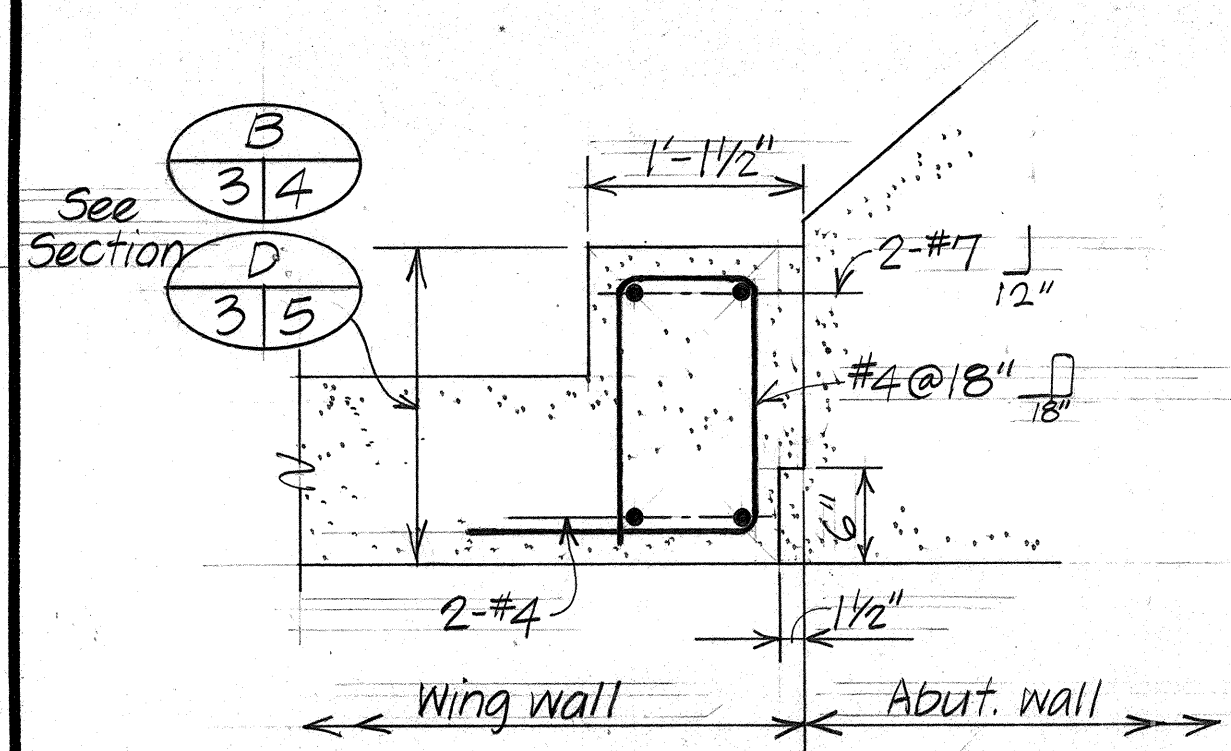
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	H45-027-1(1)	1978	18	25



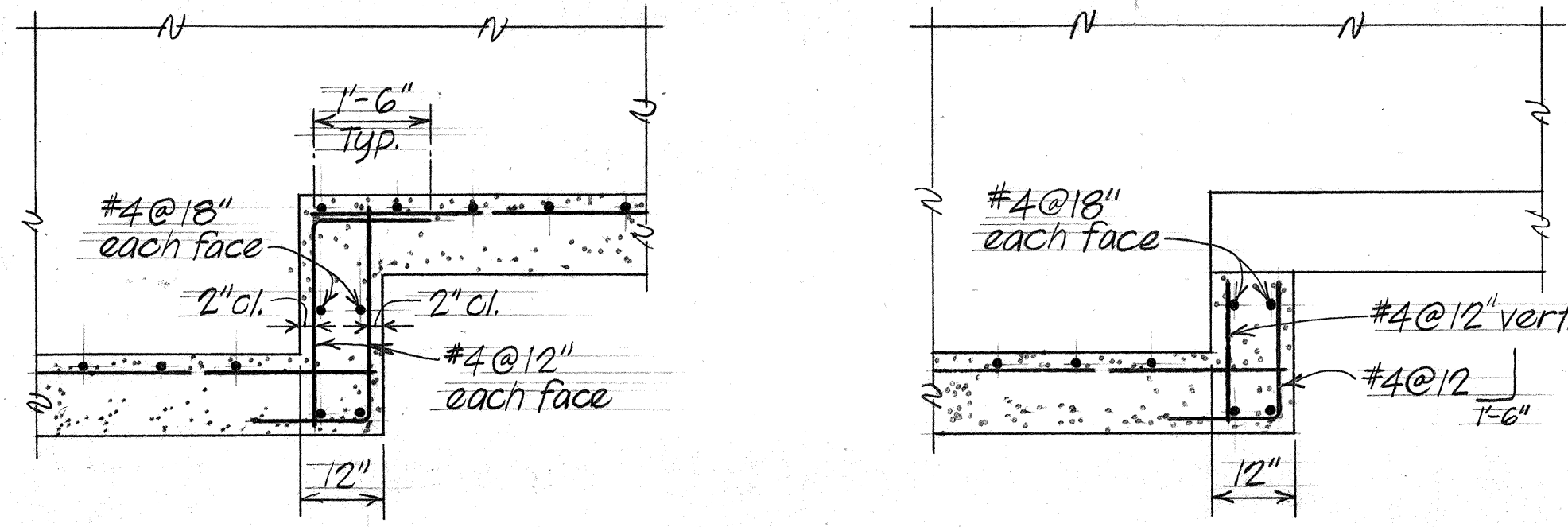
SECTION 3/4 - ABUTMENT LINE ①
Scale: 3/4" = 1'-0"



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



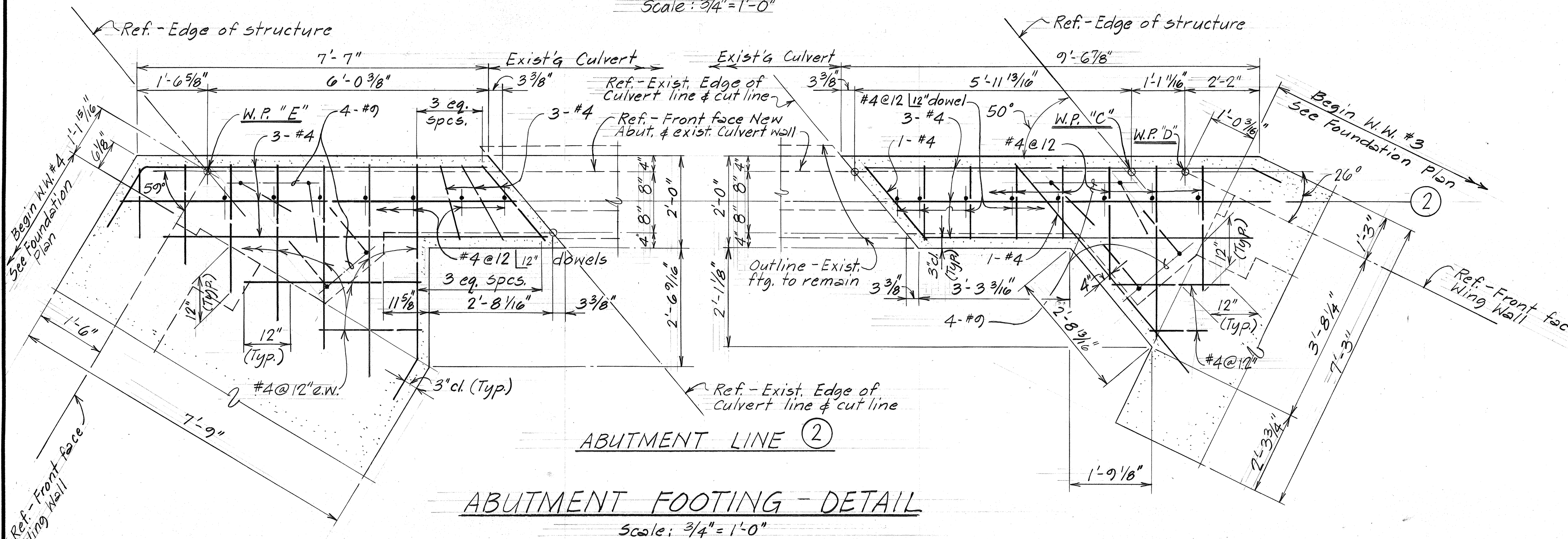
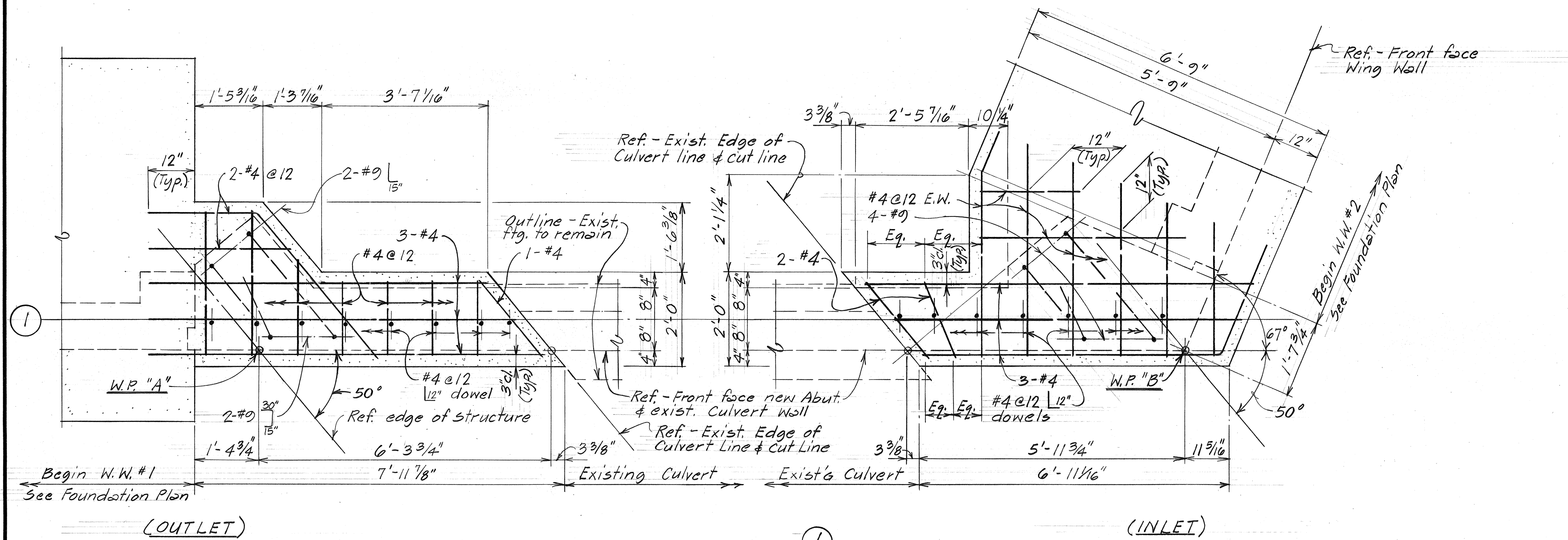
TYPICAL WING WALL COLUMN DETAIL



TYPICAL FOOTING STEP-UP DETAILS
Not to scale

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
LAND TRANSPORTATION FACILITIES DIVISION
12'x10' BOX CULVERT EXTENSION
ABUT ① SECT. W.W. FT'G DET.
ROUTE 27: KAWAIHAE ROAD
SAFETY IMPROVEMENTS
Vicinity of Spencer Park
Proj. No. HHS-027-1(1)
Scale: As noted Date: Jan. 1978
SHEET NO. 4 OF 7 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HHS-027-1(1)	1978	20	25



ABUTMENT FOOTING - DETAIL

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

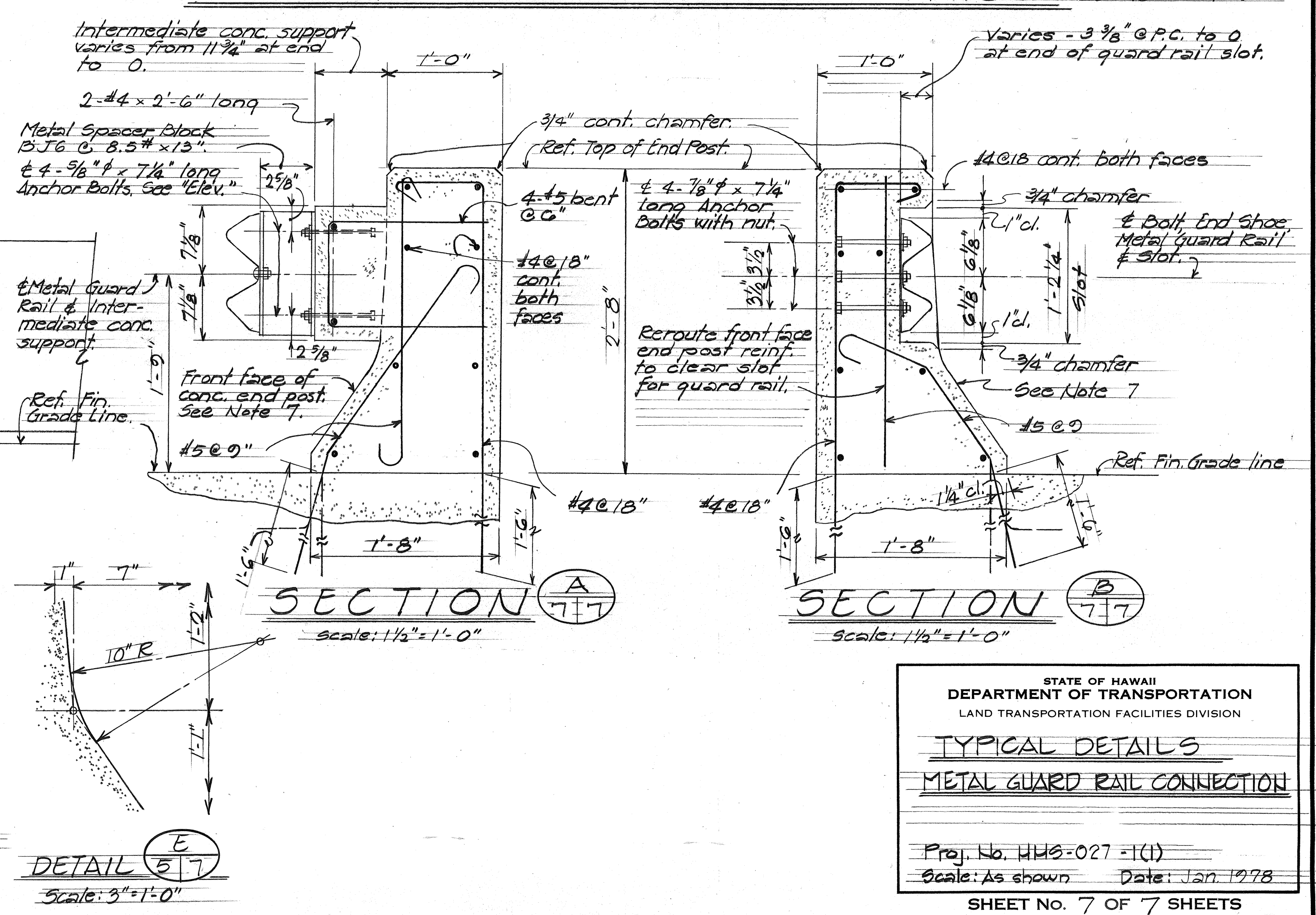
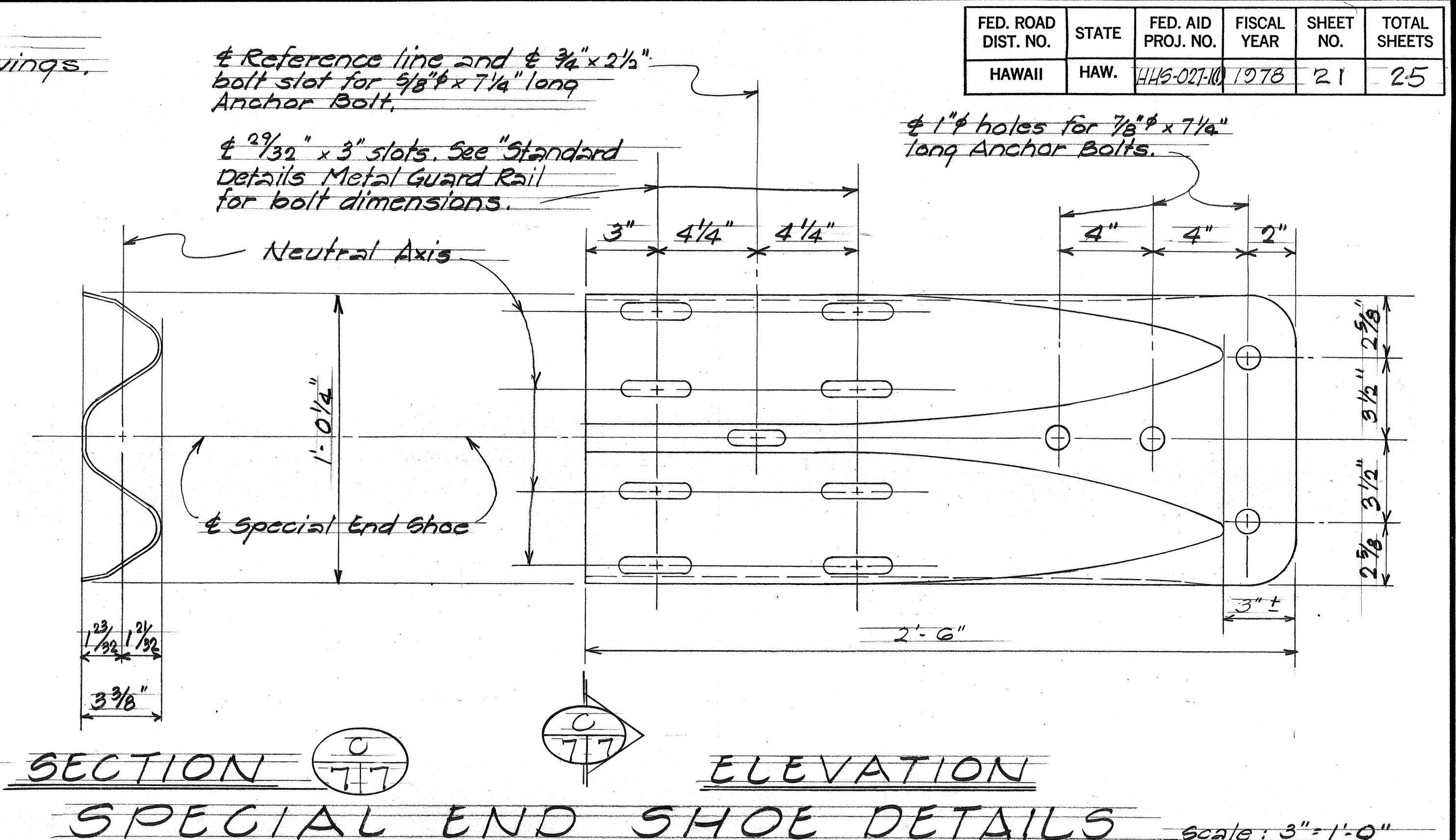
STATE OF HAWAII DEPARTMENT OF TRANSPORTATION LAND TRANSPORTATION FACILITIES DIVISION					
12' x 10' BOX CULVERT EXTENSION ABUTMENT FOOTING DETAIL					
ROUTE 27: KAWAIHAE ROAD SAFETY IMPROVEMENTS Vicinity of Spencer Park					
Proj. No. HHS-027-1(1)					
Scale: As noted Date: Jan. 1978					
SHEET No. 6 OF 7 SHEETS					

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
LAND TRANSPORTATION FACILITIES DIVISION

TYPICAL DETAILS
METAL GUARD RAIL CONNECTION

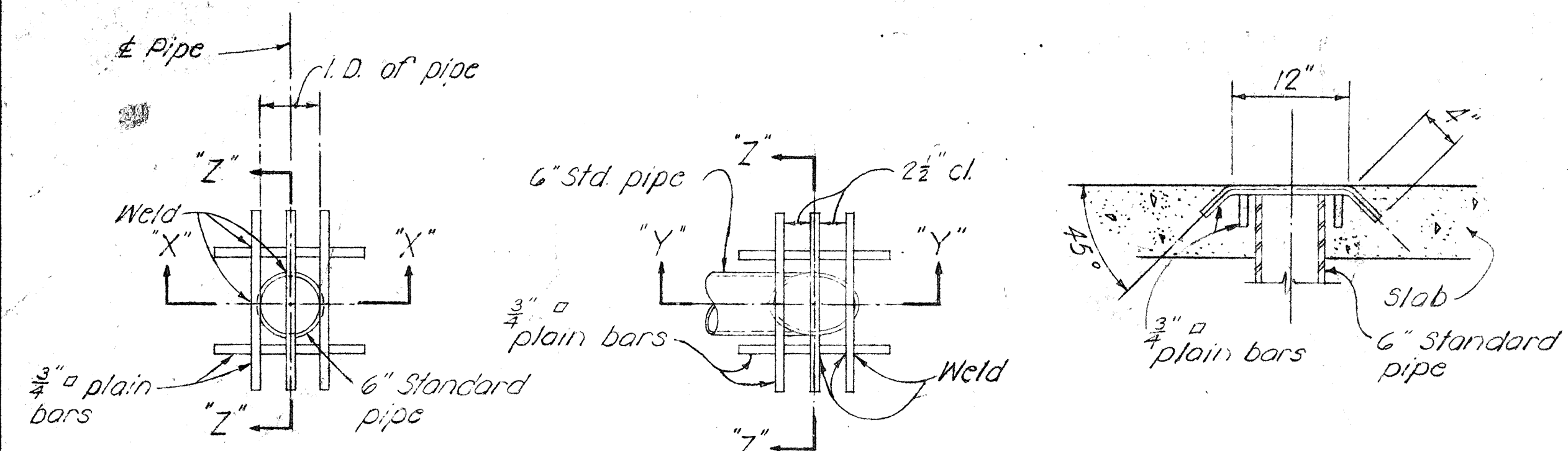
Proj. No. HHS-027-1(1)
Scale: As shown Date: Jan. 1978

SHEET NO. 7 OF 7 SHEETS

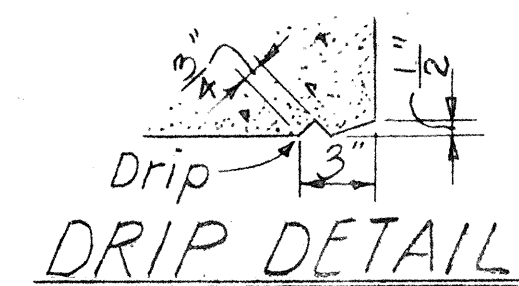


GENERAL NOTES

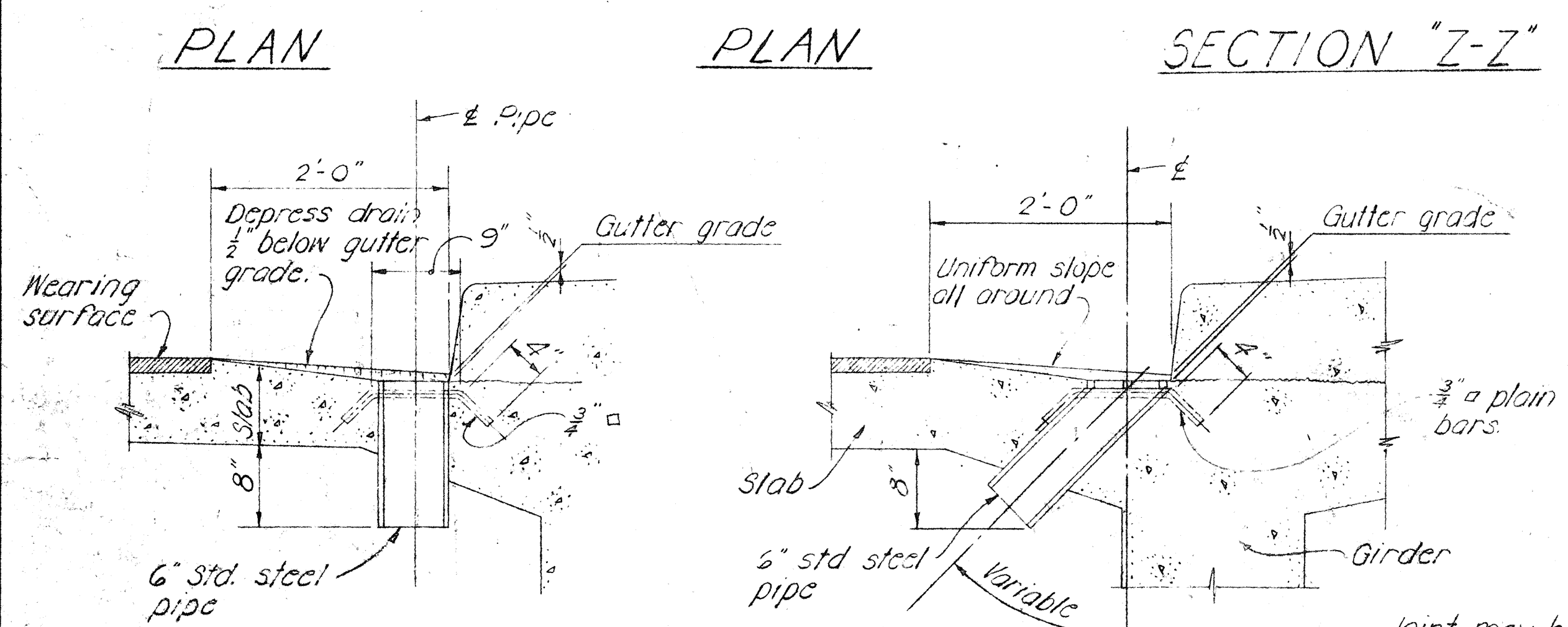
- All concrete shall be Class A unless otherwise noted.
- Reinforcing shall be detailed in accordance with A.C.I. Manual of Standard Practice for Detailing Reinforced Concrete Highway Structures unless otherwise noted.
- Clearance for reinforcing bars shall be as follows, unless otherwise noted:
 - 1 1/2" For stirrups of beams & pier caps.
 - 2" For ties of columns.
 - 2" For formed walls.
 - 3" For footings.
- Minimum spacing between parallel bars shall be 2 1/2 times the diameter of bars, but in no case shall the clear distance between the bars be less than 1 1/2 times the maximum size of the coarse aggregate.
- All dimensions relating to reinforcing are to centers of bars unless otherwise noted.
- Reinforcing bars shall be securely tied at all intersections & lap splices & shall be held in place during pouring to maintain their proper locations as shown on plans.
- Vertical column bars shall be arranged in such a manner as to miss pier cap bars above as directed by the Engineer.
- Except as otherwise noted on drawings, all exterior corners & re-entrant angles in concrete work shall be chamfered 3/4" x 3/4".
- Concrete seats receiving steel plates lead plates or neoprene pads shall be poured monolithically with supporting structures & top of concrete seats shall be finished with a steel trowel to a smooth level surface at the elevation shown on the plans.
- Elastomeric Pads: Bottom of bridge bearing pads shall be secured against displacement with adhesives approved by the Engineer. Pads shall be incidental to concrete and will not be paid for separately.
- Forms for all exposed surfaces of separation structures and surfaces of retaining walls visible from a traveled way or from a populated area shall be plywood except that metal forms may be permitted provided a surface finish satisfactory to the Engineer can be obtained and the use of such forms is approved in writing by the Engineer. Forms for round columns shall be made of materials that will give a smooth finish and true dimensions as given in the plans. Forms for prestressed concrete members shall be either metal or plywood.
- Gothic letters and figures approximating dimensions shown will be acceptable if approved by the Engineer.
- The contractor shall verify the location of all existing utility lines and notify the respective owners before commencing work at excavation or driving of piles.
- 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.



TYPICAL CONCRETE GROOVE DETAIL



DRIP DETAIL



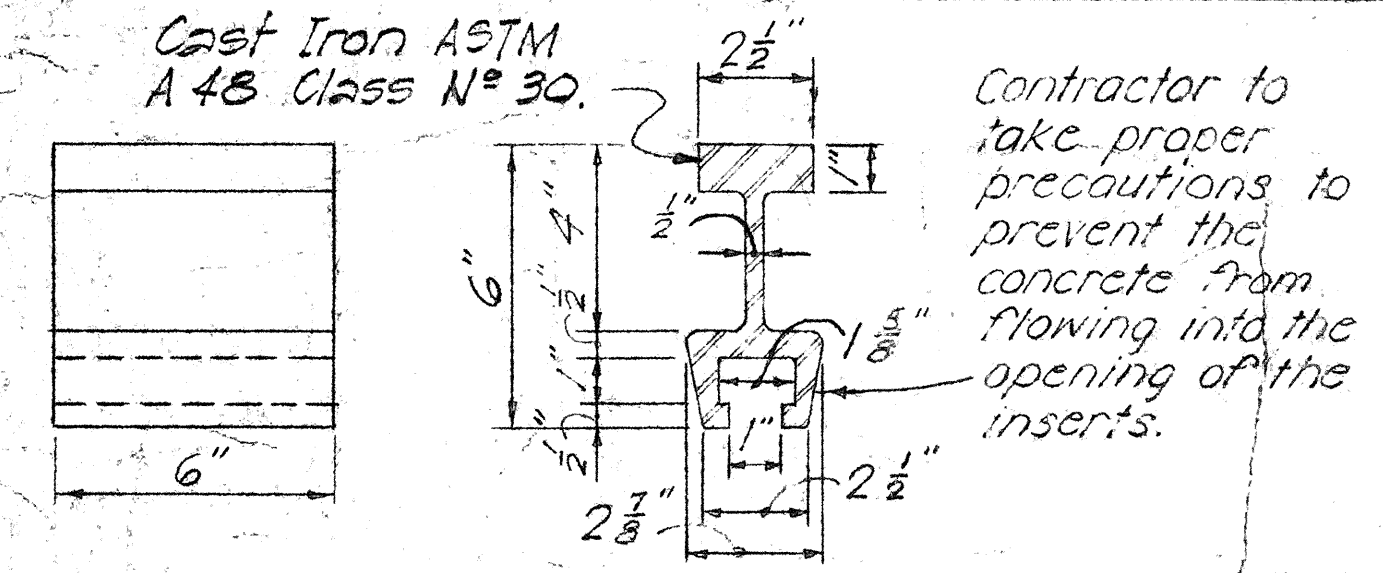
SECTION "X-X"

SECTION "Y-Y"

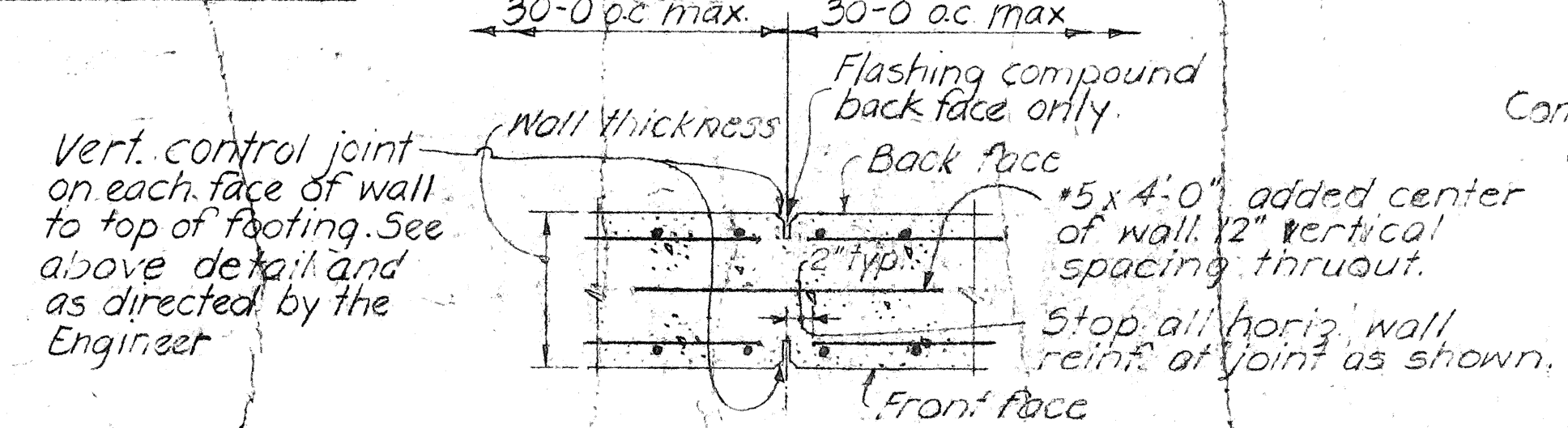
NOTE: Metal drains shall be considered incidental to Class A Concrete in both concrete and steel bridges and will not be paid for separately. Assembly of grillage and pipe shall be hot-dip galvanized after all welding is completed.

Joint may be formed with a masonite & cut back to the root of the chamfer on the exposed face.

TYPICAL DRAINAGE DETAILS

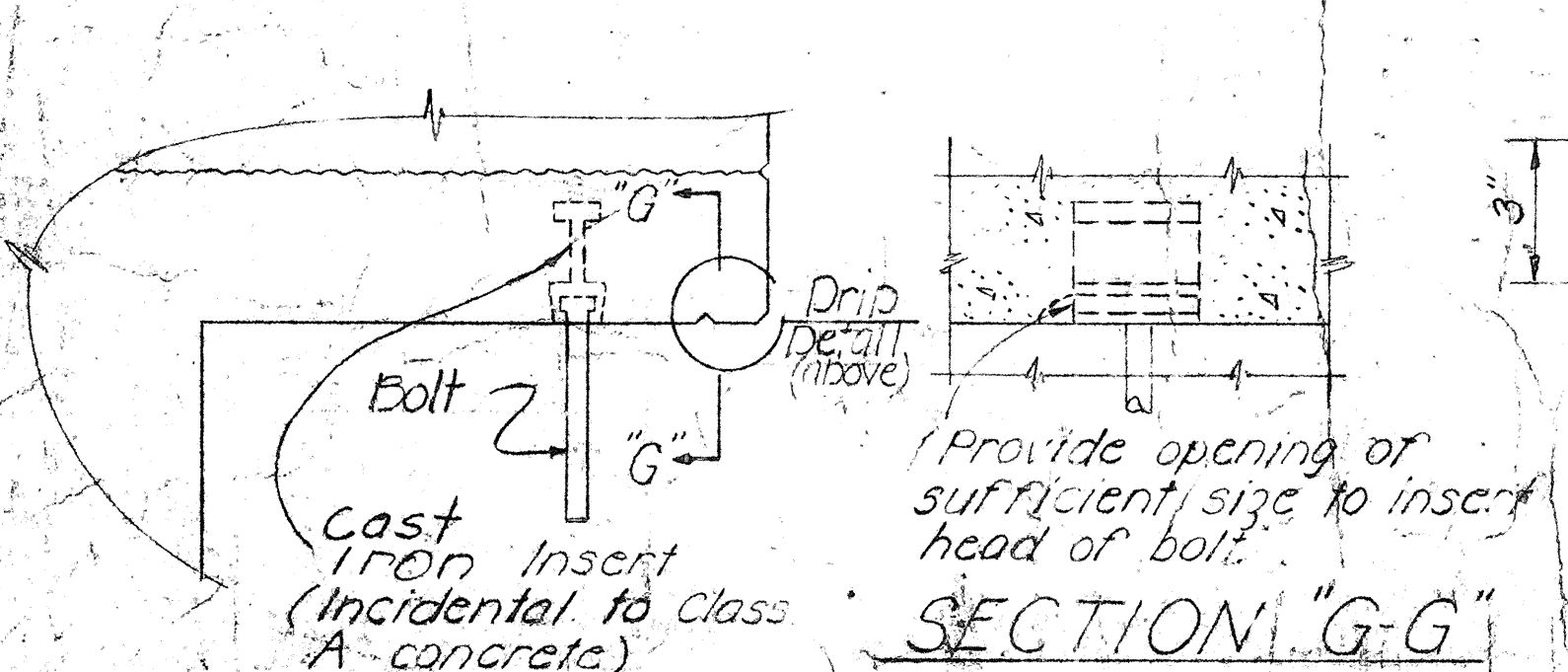


INSERT DETAIL

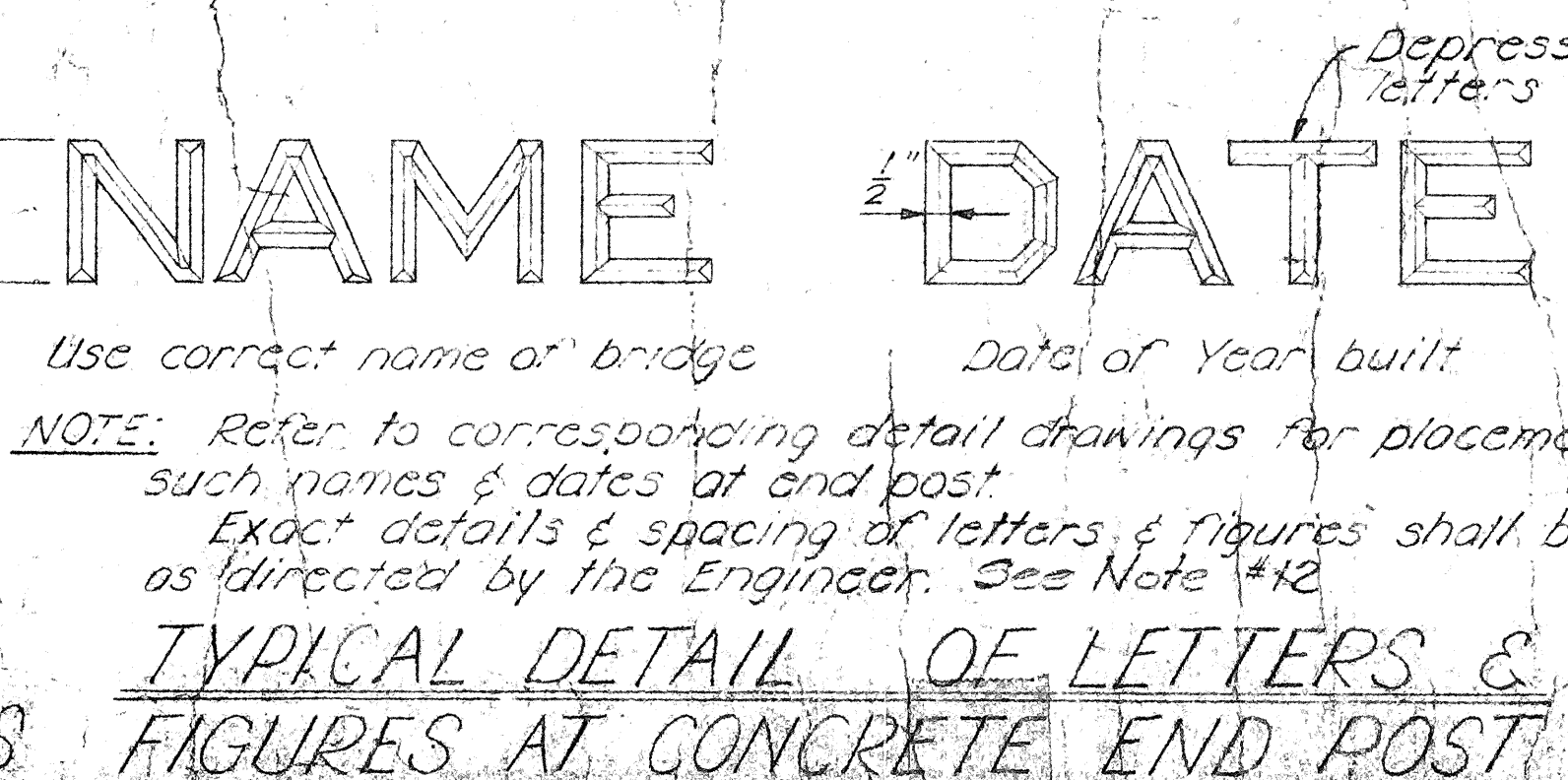


CONTROL JOINT DETAILS

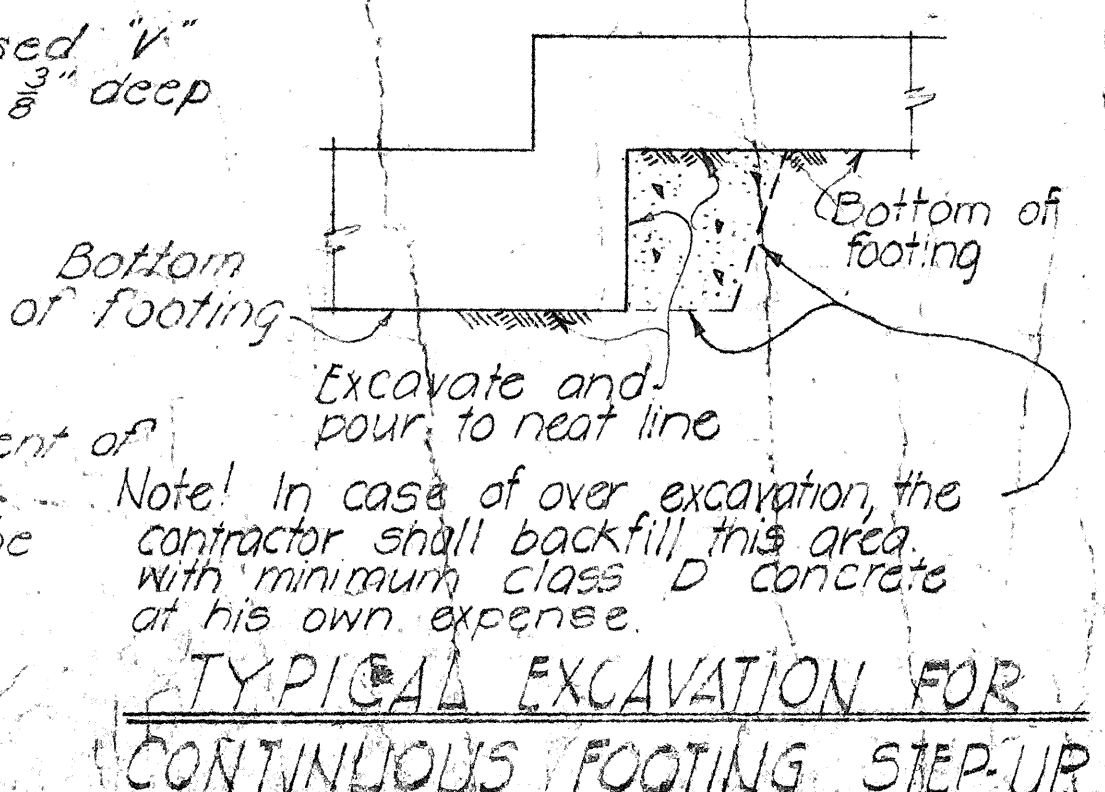
TYP FLASHING COMPOUND WATERPROOFING DETAIL



DETAIL OF PIPE HANGERS & INSERTS



TYPICAL DETAIL OF LETTERS & FIGURES AT CONCRETE END POST



TYPICAL EXCAVATION FOR CONTINUOUS FOOTING STEP-UP

APPROVAL RECOMMENDED:
 Paul T. Yamashita
 BRIDGE DESIGN ENGINEER
 DATE 1-23-78

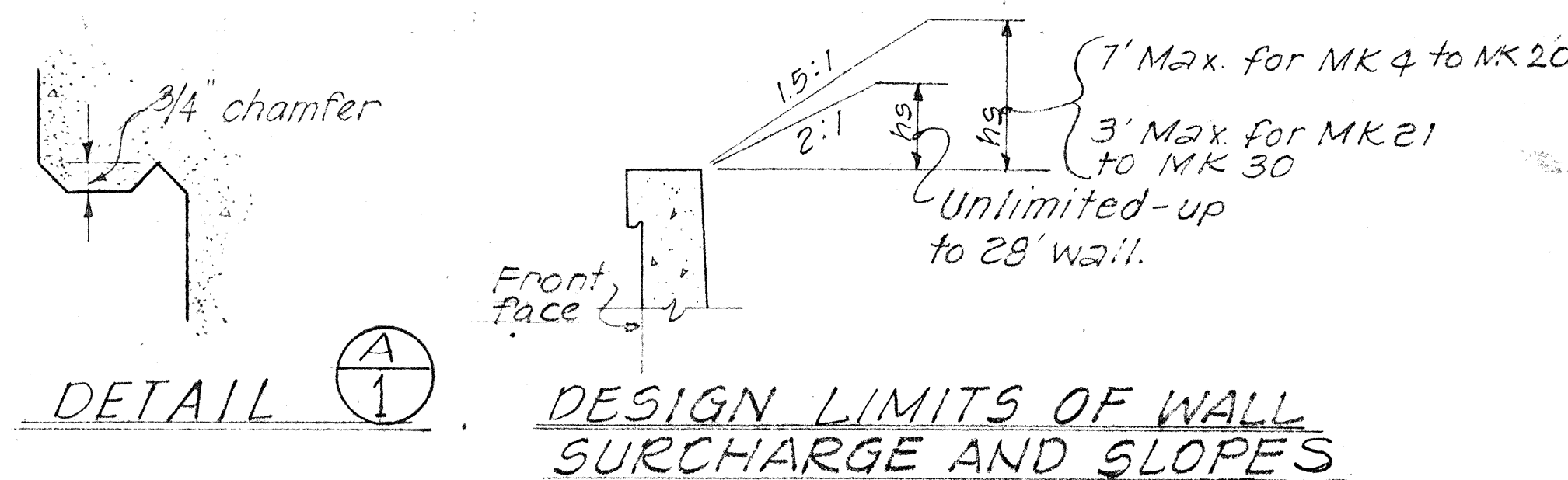
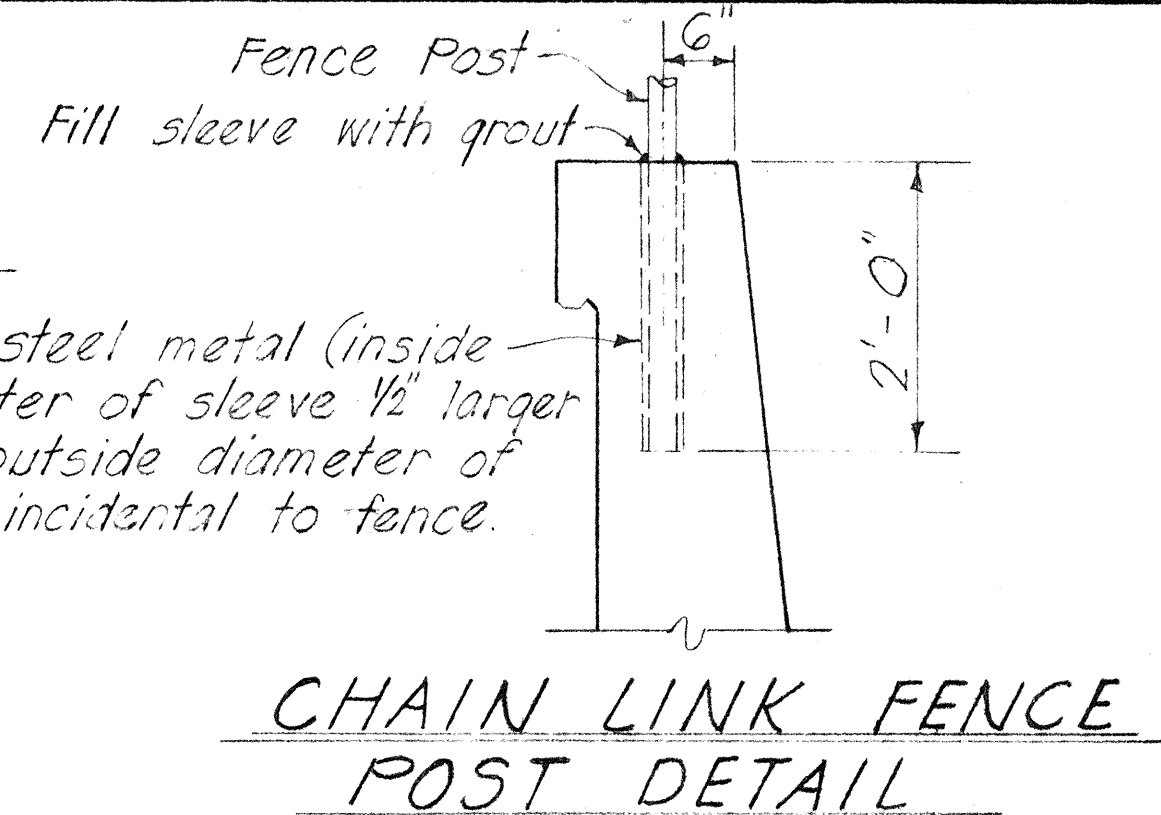
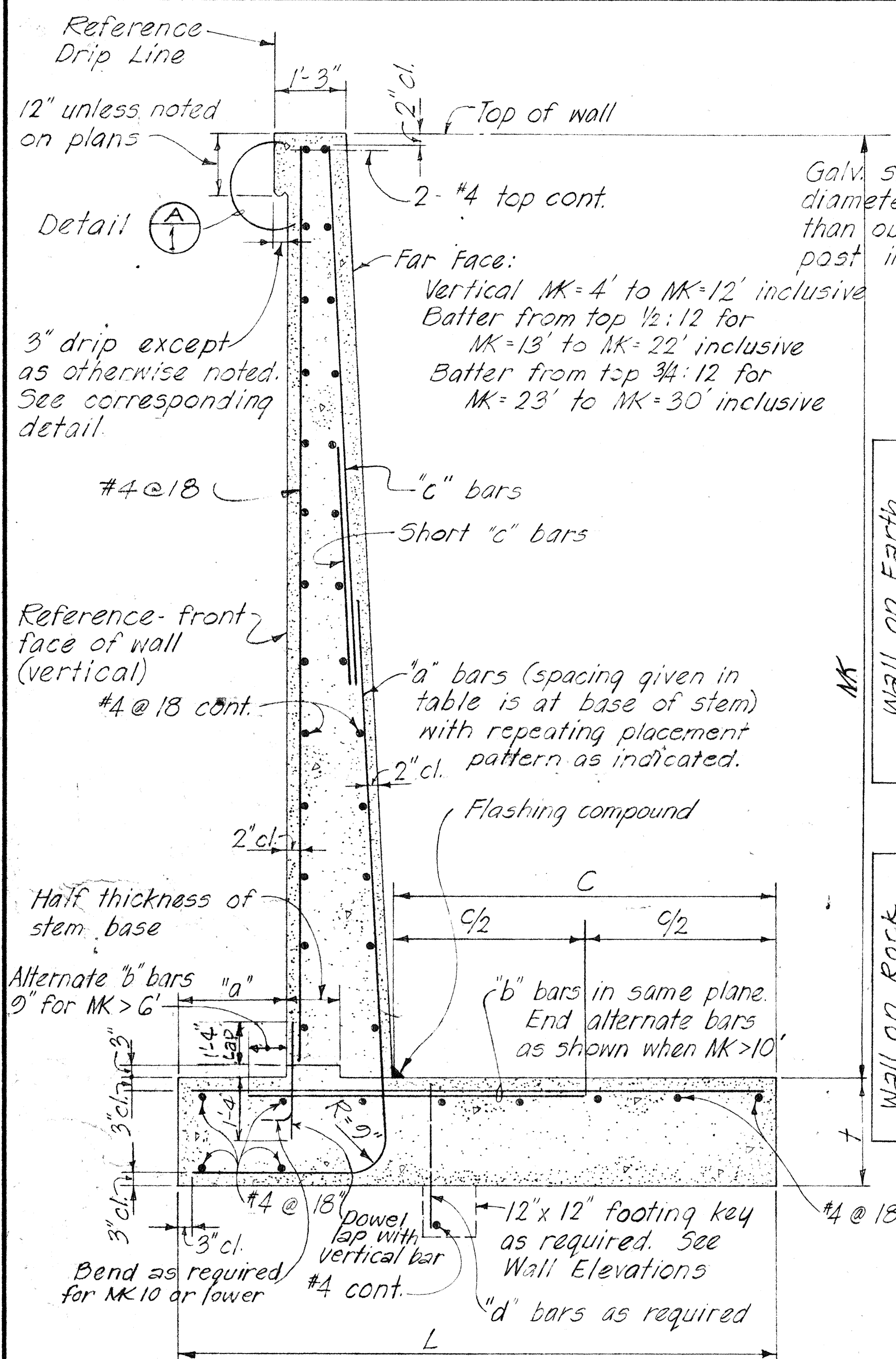
APPROVED
 Paul T. Yamashita
 ASSISTANT CHIEF, ENGINEERING
 DATE 1-28-78

NO.	REVISION	APPROVED BY	DATE

STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 LAND TRANSPORTATION FACILITIES DIVISION
STANDARD DETAILS
 NOTES AND MISCELLANEOUS
 DETAILS

Date: October 1969
 SHEET No. 1 OF 2 SHEETS DB-100

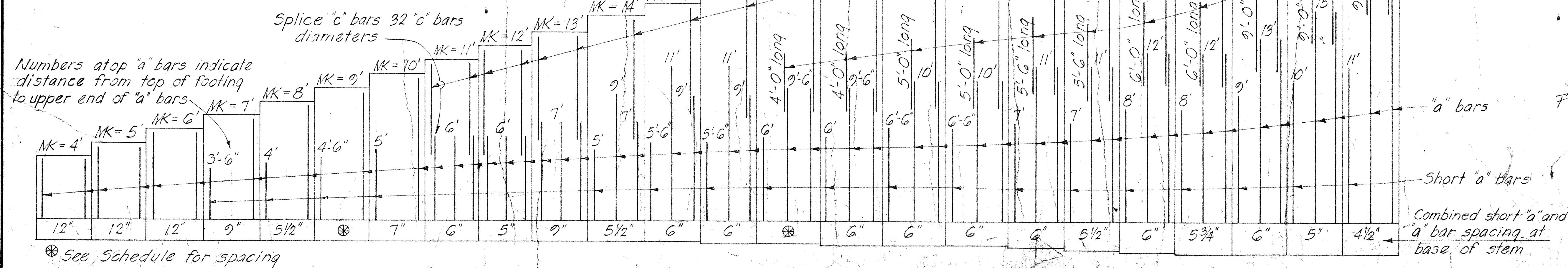
DATE
 SURVEY PLOTTED BY
 PLAN
 DESIGNED BY
 QUANTITIES BY
 CHECKED BY
 ORIGINAL
 NOTE BOOK
 IN



SCHEDULE OF DIMENSIONS AND REINFORCING STEEL																									
Wall on Earth	Maximum "MK"	4E	5E	6E	7E	8E	9E	10E	11E	12E	13E	14E	15E	16E	17E	18E	19E	20E	21E	22E	23E	24E	26E	28E	30E
	a	6"	6"	6"	12"	12"	12"	12"	12"	12"	15"	18"	21"	24"	24"	24"	27"	30"	33"	36"	39"	54"	60"	72"	
	t	14"	14"	14"	14"	14"	14"	14"	18"	18"	18"	18"	18"	21"	21"	24"	24"	24"	27"	30"	31"	33"	36"	39"	42"
	L	2.5'	3.0'	3.5'	4.0'	4.5'	5.0'	5.5'	6.0'	6.5'	7.0'	7.75'	8.25'	9.0'	9.75'	10.5'	11.5'	12.5'	13.5'	14.5'	15.25'	16.0'	18.0'	20.0'	21.0'
	"a" bars	#3@12"	#3@12"	#4@12"	#4@9"	#4@5½"	#5@7"	#6@7"	#6@6"	#6@5"	#7@9"	#6@5½"	#7@6"	#8@6"	#8@5¾"	#7@6"	#7@6"	#10@6"	#10@6"	#10@5½"	#10@6"	#10@5¾"	#11@6"	#11@5"	#11@4½"
	"b" bars	#3@12"	#3@12"	#3@12"	#3@9"	#4@11"	#4@7"	#5@7"	#5@6"	#5@5"	#7@9"	#6@5½"	#7@6"	#8@6"	#7@5¾"	#8@6"	#7@6"	#10@6"	#10@6"	#10@5½"	#10@6"	#10@5¾"	#11@6"	#11@5"	#11@4½"
"c" bars									#4	#4	#4	#4	#4	#5	#5	#5	#6	#6	#6	#7	#7	#7	#7	#7	
"d" bars	#3@12"	#3@12"	#3@12"	#3@12"	#4@18"	#4@15"	#4@15"	#4@12"	#4@11"	#4@9"	#5@12"	#5@12"	#5@10"	#5@9"	#5@9"	#5@8"	#6@10"	#6@9"	#7@12"	#7@11"	#7@10"	#7@10"	#7@10"	#7@10"	

Maximum "MK"	4R	5R	6R	7R	8R	9R	10R	11R	12R	13R	14R	15R	16R	17R	18R	19R	20R	21R	22R	23R	24R	26R	28R	30R
a	6"	6"	6"	12"	12"	12"	12"	12"	12"	12"	15"	18"	21"	21"	21"	21"	24"	24"	27"	30"	33"	39"	39"	51"
t	14"	14"	14"	14"	14"	14"	14"	18"	18"	18"	18"	18"	18"	18"	18"	21"	21"	21"	21"	24"	24"	27"	30"	36"
L	2.5'	3.0'	3.5'	4.0'	4.5'	5.0'	5.5'	6.0'	6.5'	6.75'	7.25'	7.75'	8.25'	8.75'	9.25'	9.75'	10.25'	10.5'	11.0'	11.5'	12.0'	13.0'	14.0'	15.0'
"a" bars	#3@12"	#3@12"	#4@12"	#4@9"	#4@5 1/2"	#5@6"	#6@7"	#6@6"	#6@5"	#7@9"	#6@5 1/2"	#7@6"	#8@6"	#8@6"	#7@6"	#7@6"	#10@6"	#10@6"	#10@5 1/2"	#10@6"	#10@5 3/4"	#11@6"	#11@5"	#11@4 1/2"
"b" bars	#3@12"	#3@12"	#3@12"	#3@9"	#4@11"	#4@6"	#5@7"	#5@6"	#5@5"	#7@9"	#6@5 1/2"	#7@6"	#8@6"	#7@6"	#7@6"	#7@6"	#10@6"	#10@6"	#10@5 1/2"	#10@6"	#10@5 3/4"	#11@6"	#11@5"	#11@4 1/2"
"c" bars								#4	#4	#4	#4	#4	#5	#5	#5	#6	#6	#6	#7	#7	#7	#7	#7	#7
"d" bars	#3@12"	#3@12"	#3@12"	#3@12"	#4@18"	#4@15"	#4@15"	#4@12"	#4@11"	#4@9"	#5@12"	#5@12"	#5@10"	#5@9"	#5@9"	#5@8"	#6@10"	#6@9"	#7@12"	#7@11"	#7@10"	#7@10"	#7@10"	#7@10"

WALL SECTION



NO	REVISION	APPROVED BY	DATE

APPROVAL RECOMMENDED
Paul T. Yamashita
 BRIDGE DESIGN ENGINEER 1-23-78
 DATE

APPROVED
Paul T. Yamashita
 ASSISTANT CHIEF, ENGINEERING 1-24-78
 DATE

STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 LAND TRANSPORTATION FACILITIES DIVISION

STANDARD DETAILS
RETAINING WALL TYPE T-1

SCALE: As Noted DATE: JAN. 1978
 SHEET No. 2 OF 2 SHEETS DB-207-1