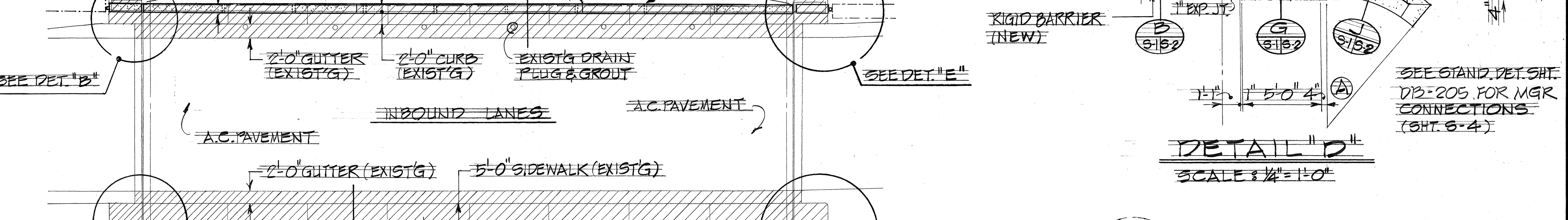
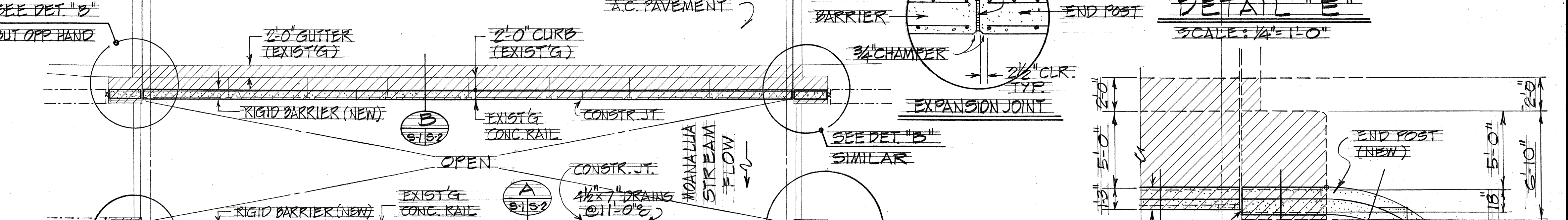
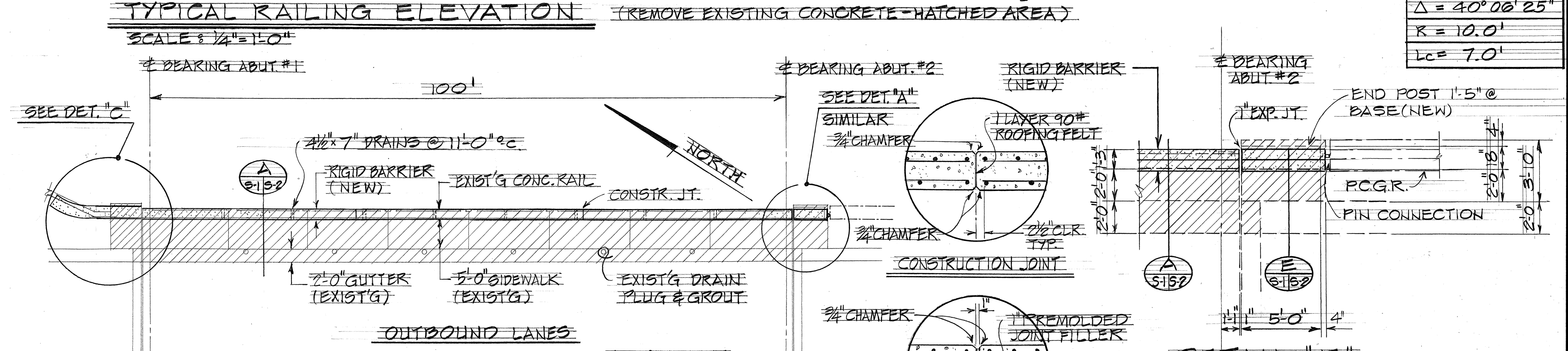
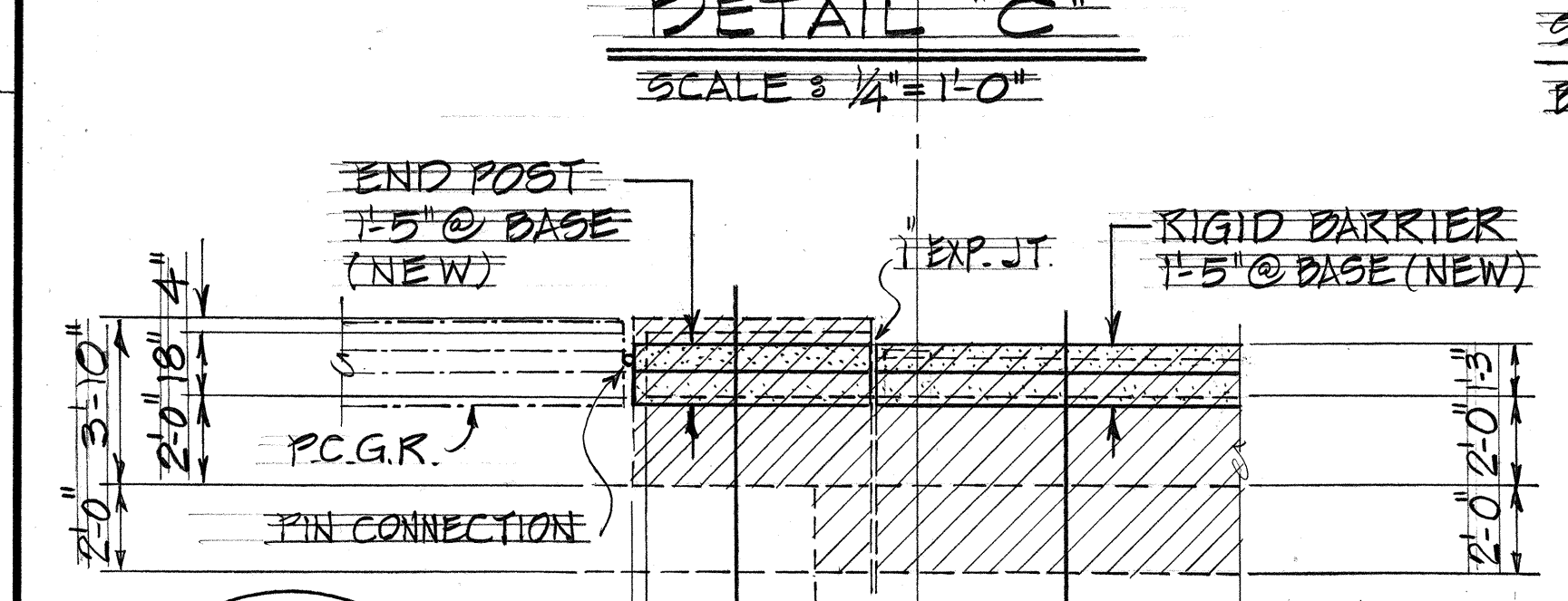
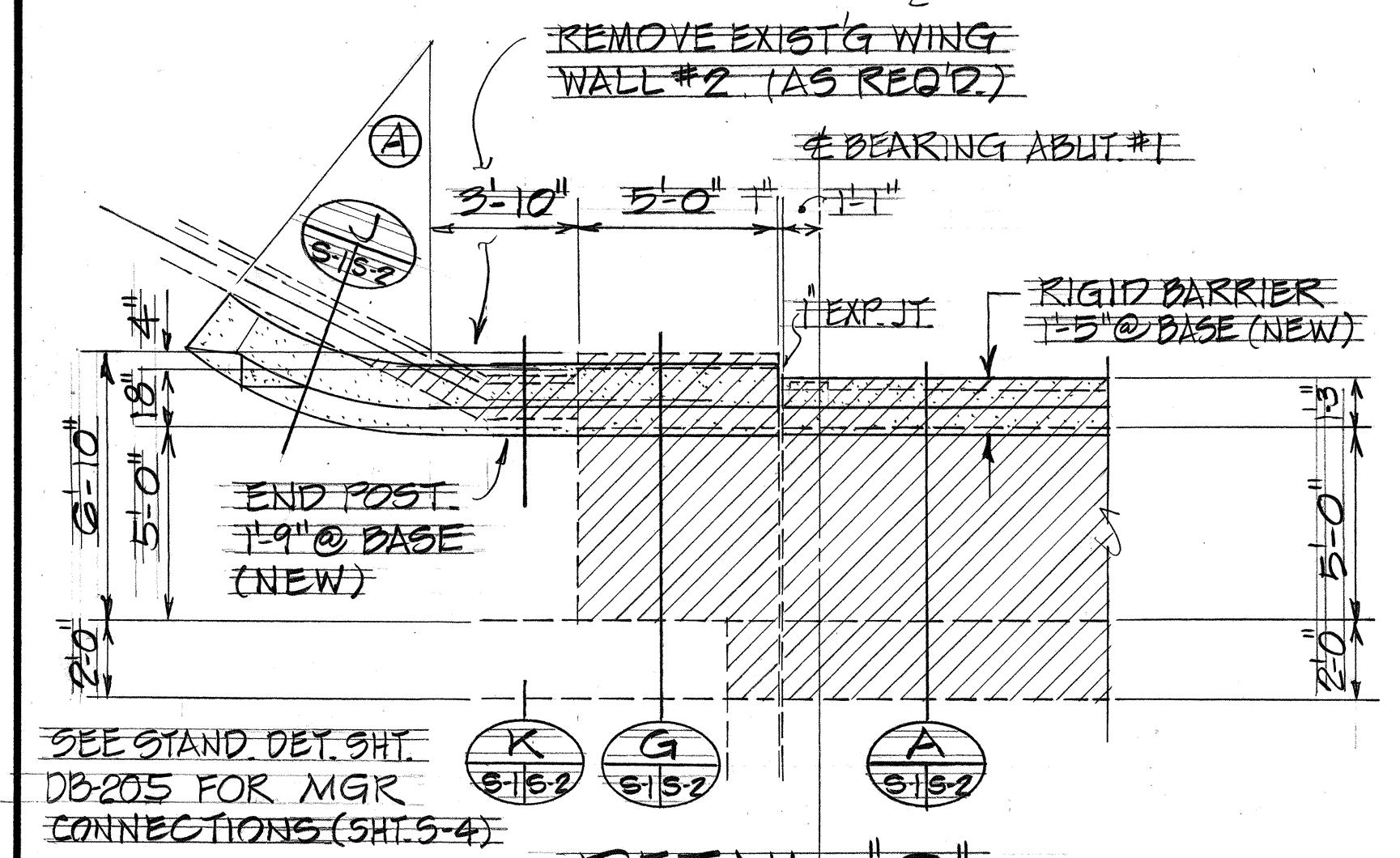
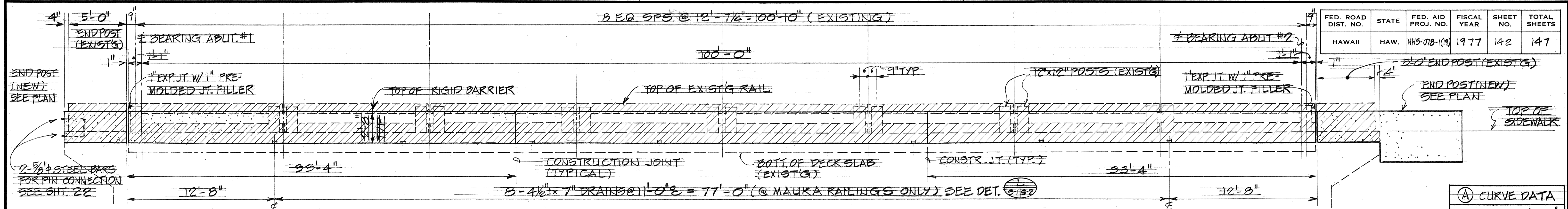


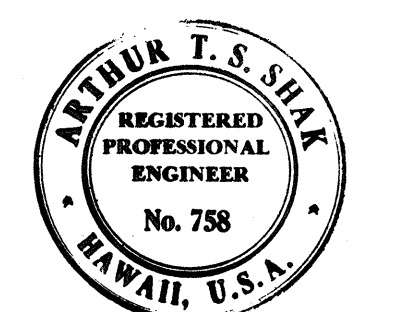
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HH5-078-1(19)	1977	142	147



LEGEND: PCGR = PORTABLE CONCRETE GUARD RAIL, SEE SHT. 22
MGR = METAL GUARD RAIL

NOTE: REMOVE EXISTING CONCRETE - GUTTERS, CURBS, RAILS, SIDEWALKS & END POSTS (HATCHED AREAS)

PLAN - EXISTING MOANALUA BRIDGES
SCALE: 1" = 10'



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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

REPLACEMENT OF RAILS
MOANALUA BRIDGES

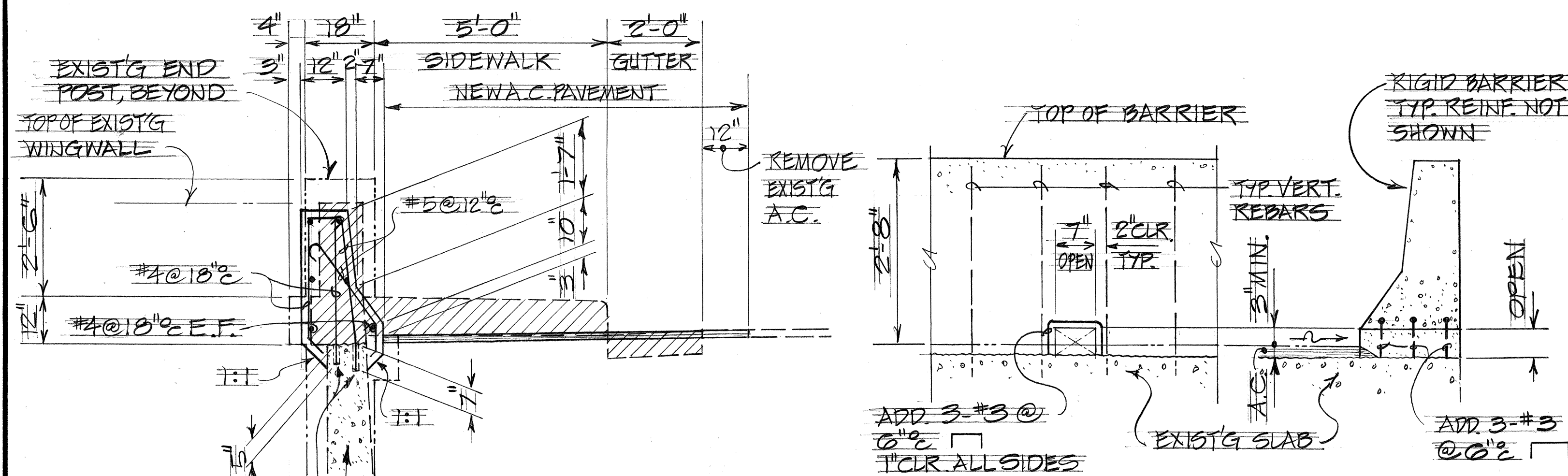
MOANALUA ROAD
PUULOA I.C. TO MIDDLE ST.-UNIT 1A
F.A. Proj. No. HH5-078-1(19)

SCALE: AS SHOWN DATE: DEC. 17, 1976
SHEET NO. 3 OF 5 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HH5-078-1(19)	1977	143	147

ESTIMATED QUANTITIES FOR REMOVAL OF EXISTING CONCRETE			
ITEM No.	ITEM	UNIT	QUANTITIES
202.12	REMOVAL OF EXISTING MOANA-LUA STREAM BRIDGES, PARAPET AND SIDEWALK	L.F.	455

- NOTES:
1. REMOVE HATCHED AREA EXISTING CONCRETE AND REINFORCING BARS.
 2. DRILL HOLE TO 1 3/4" DIA. (1 1/8" CLEAR FROM CONC. VERT. FACE), SET REBAR IN CENTER OF HOLE & FILL W/ EXPANDING GROUT.
 3. JACK COAT SHALL BE APPLIED ON EXPOSED CONC. SURFACE PRIOR TO A.C. PAVING.
 4. THE CONTRACTOR SHALL ERECT PORTABLE CONC. GUARD RAILS WHEN RECONSTRUCTING THE BRIDGE RAILINGS. SEE SHT. 22 FOR DETAILS.
 5. REMOVAL OF EXISTING STRUCTURE, NEW CONCRETE BARRIERS, PAVEMENT, END POST AND ALL OTHER WORK FOR BRIDGE RENOVATION WILL NOT BE PAID FOR SEPARATELY BUT SHALL BE CONSIDERED INCLUDED IN THE CONTRACT PRICE FOR ITEM 202.12.



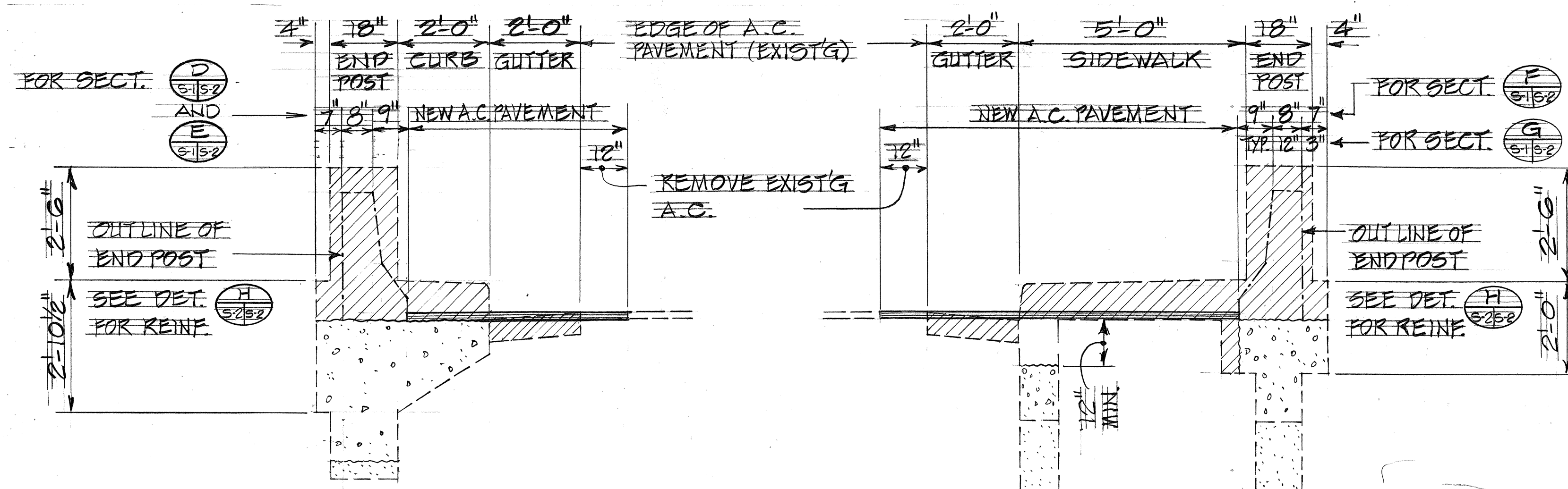
SECTION K
SCALE: $\frac{1}{2}'' = 1'-0''$ S1 S2

ELEVATION SECTION

DRAIN DETAIL

SCALE: $\frac{3}{4}" = 1' - 0"$

(L)
5/15/2



SECTION

SCALE: $\frac{1}{8}" = 1'-0"$

D

E

S-1 S-2

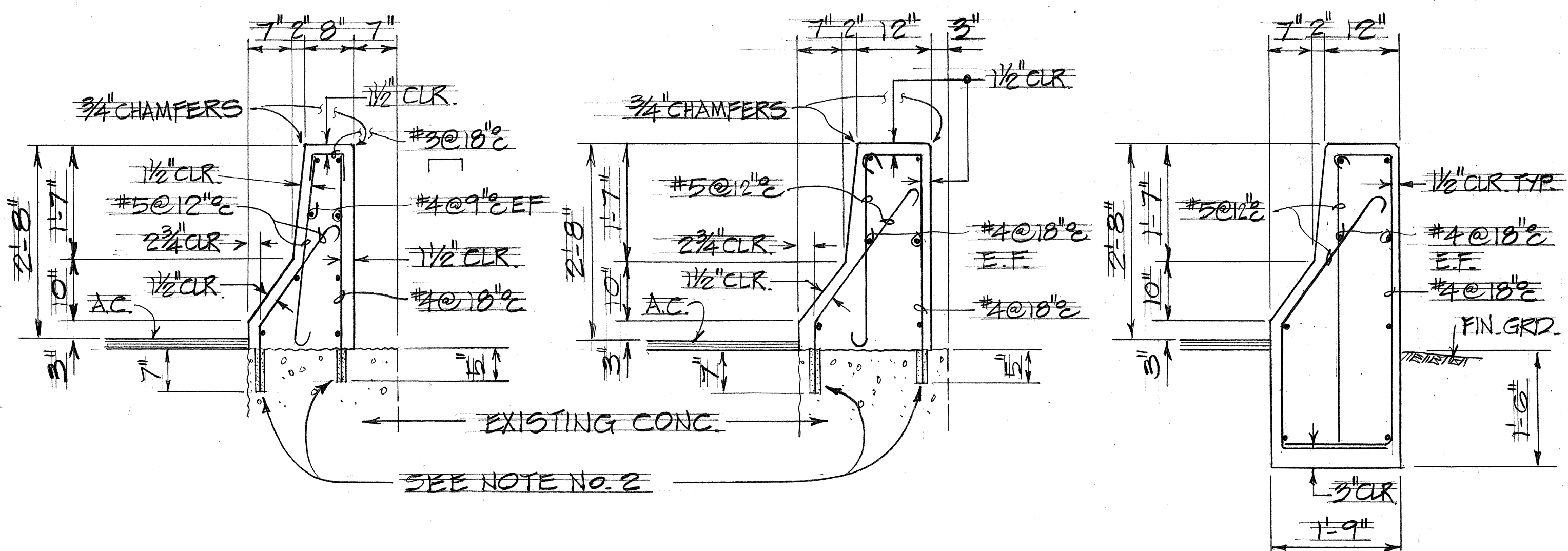
S-1 S-2

SECTION

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

F

G



DETAIL

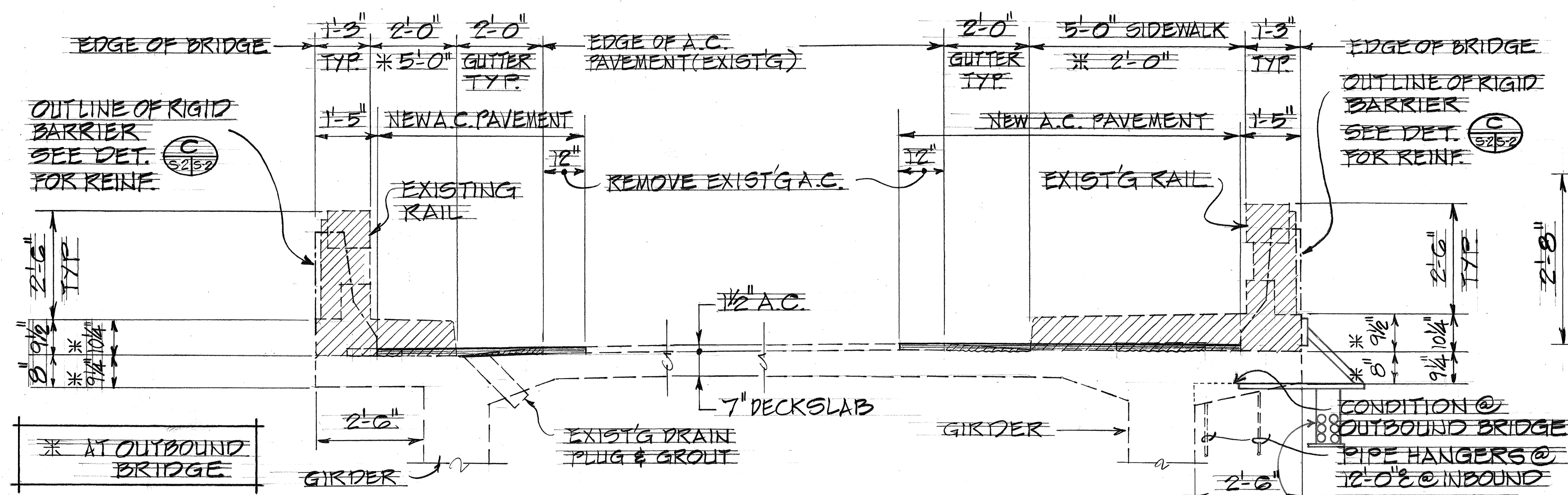
SCALE: $\frac{3}{4}'' = 1' - 0''$

5-26-2

SECTION

SCALE: $3\frac{3}{4}'' = 1'-0''$

J
5-152



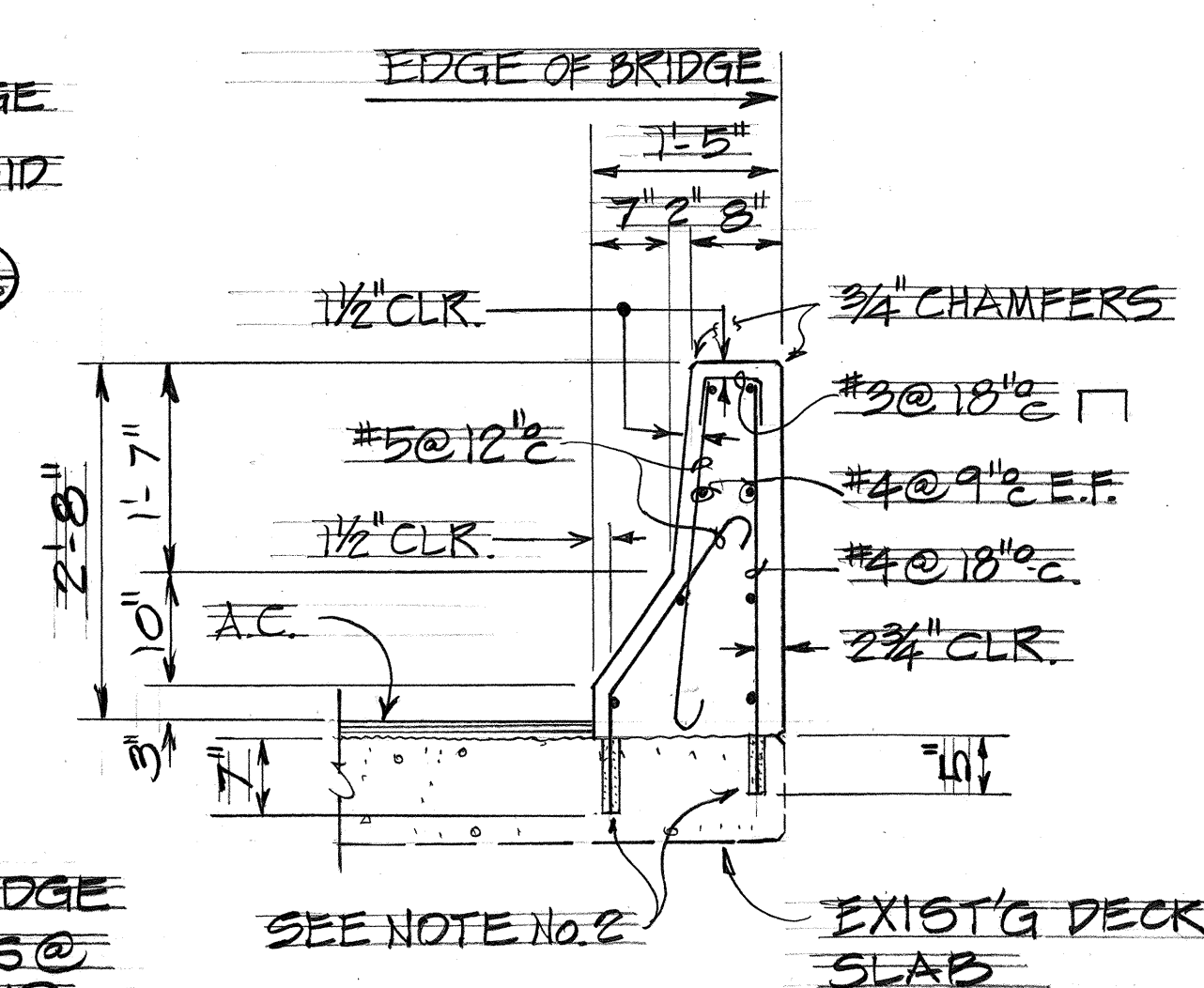
SHOWING INBOUND BRIDGE
SECTION
SCALE: $\frac{1}{2}" = 1'-0"$

BRIDGE ON
Existing removed

SHOWING INBOUND BRIDGE
SECTION

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

B
S-1 S-2

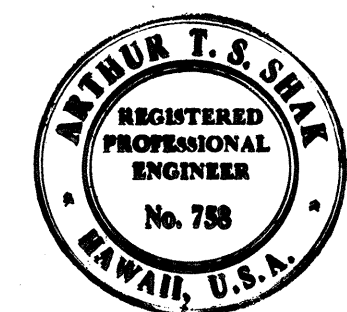
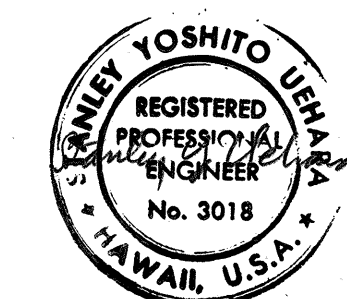


DETAIL

SCALE = 3/4" = 1'-0"

C

5-25-2



Arthur J. Shuk
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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

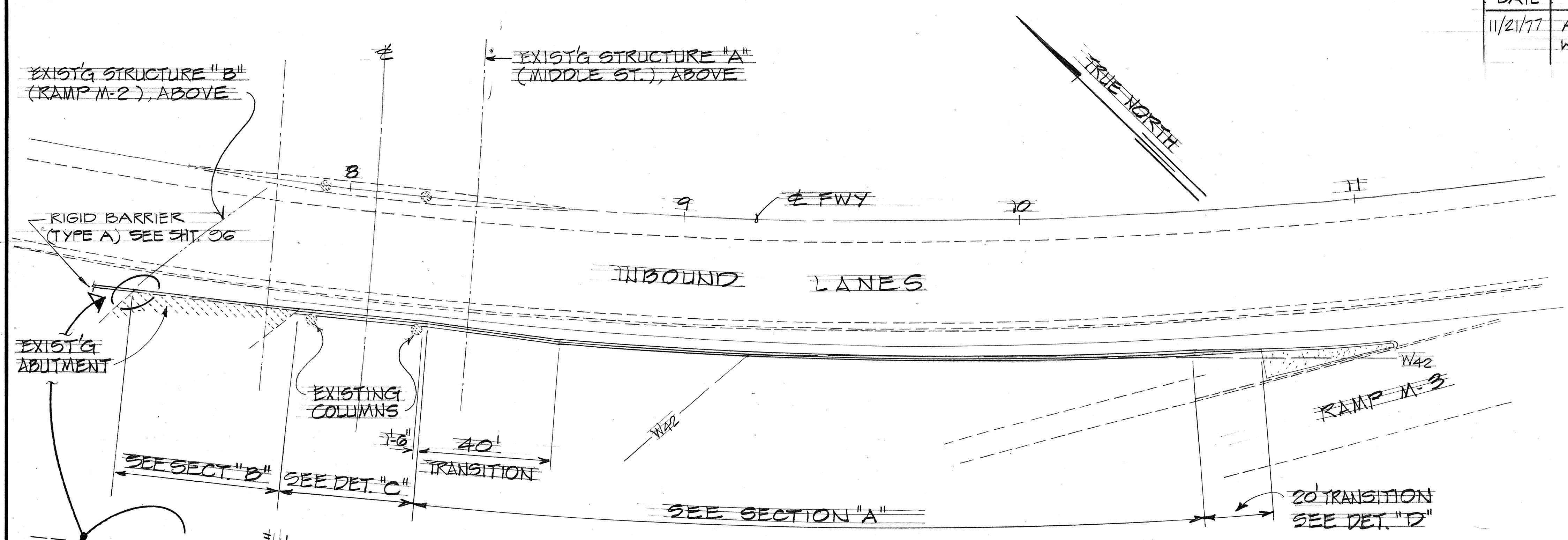
REPLACEMENT OF RAILS
MOANALUA BRIDGES
MOANALUA ROAD
PULUOA I.C. TO MIDDLE ST. UNIT 1A
E.A. Proj. No. HHS-078-1(19)
SCALE : AS SHOWN DATE : DEC. 17, 1976

SHEET NO. 32 OF 5 SHEETS

ORIGINAL PLAN	SURVEY PLOTTED BY _____	DATE _____
	DRAWN BY _____	" "
	TRACED BY _____	" "
NOTE BOOK	DESIGNED BY _____	" "
	QUANTITIES BY _____	" "
	CHECKED BY _____	" "
No. _____		

DATE	REVISION
11/21/77	ADDED R=10" TO RETAINING WALL DETAIL

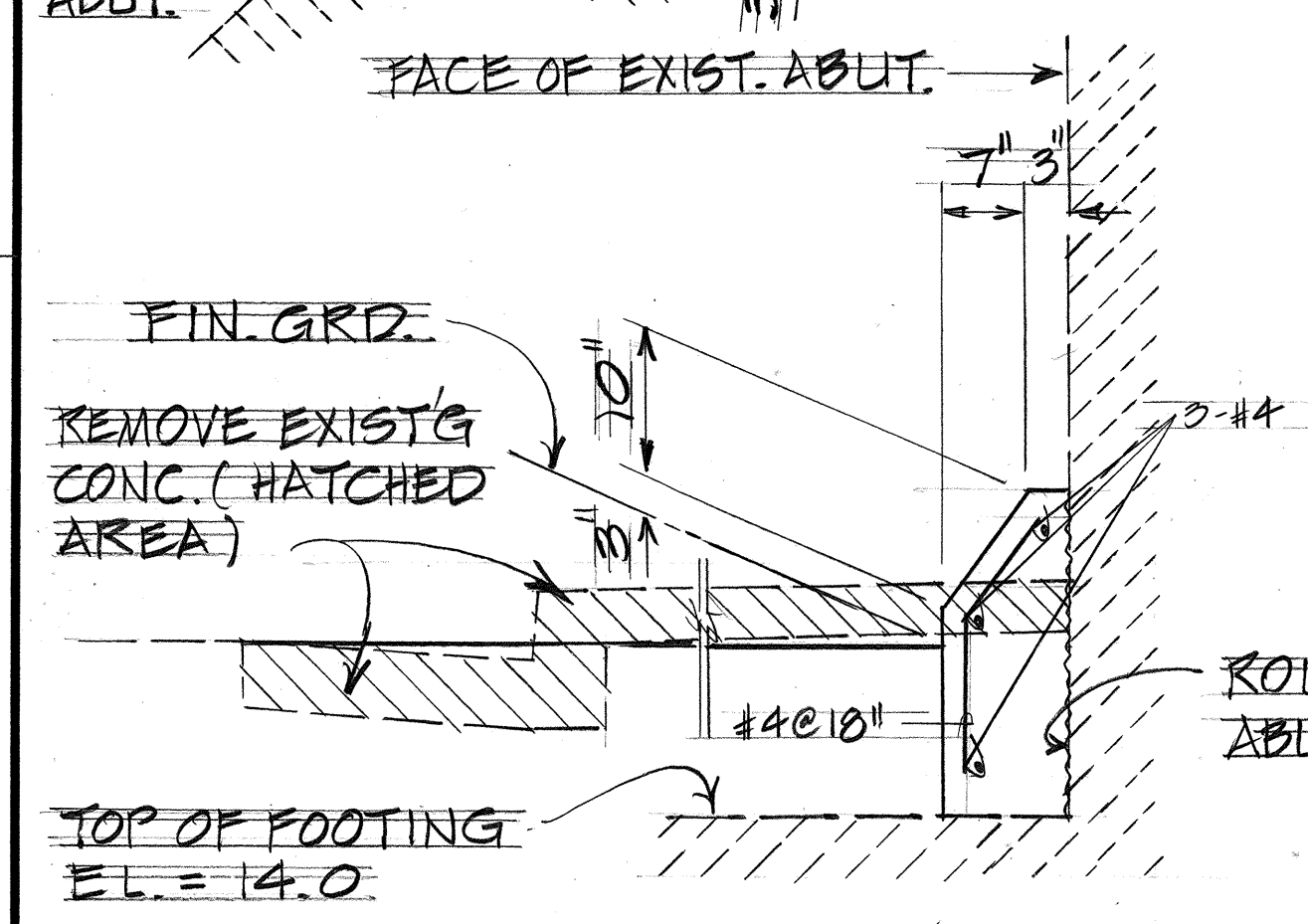
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HHS-078-1(19)	1977	144	147



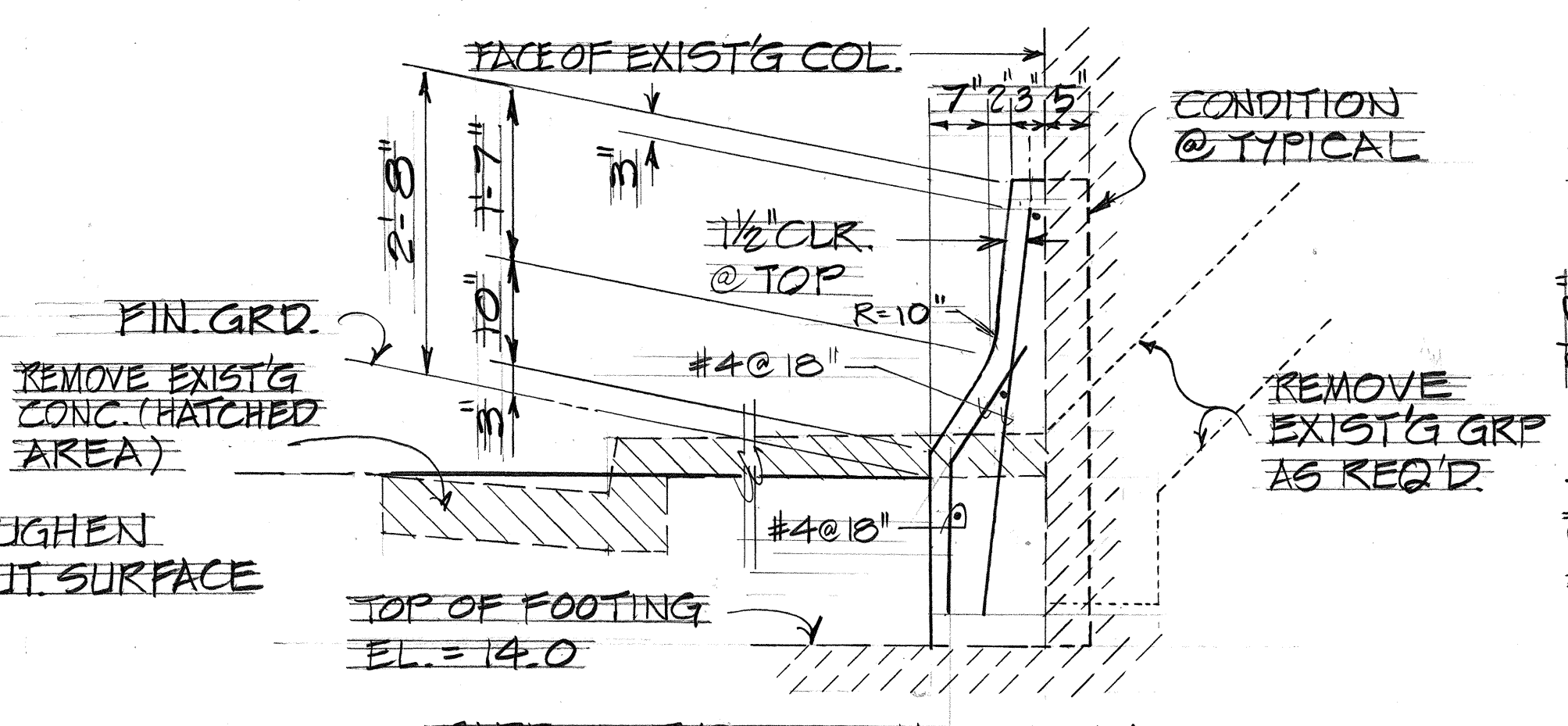
NOTE:
1. SEE DT 521 FOR EXPANSION AND CONTROL JOINTS. (SHT. 5-5)

RETAINING WALL No. 4-A ESTIMATED QUANTITIES			
ITEM NO.	ITEM	UNIT	QUANTITIES
206.40	STRUCTURAL EXCAVATION FOR RETAINING WALL	C.Y.	132
206.45	STRUCTURAL BACKFILL FOR RETAINING WALL	C.Y.	94
503.052	CONCRETE IN RETAINING WALL No. 4-A	C.Y.	72
602.053	REINFORCING STEEL IN RETAINING WALL No. 4-A	Tb.	3,649

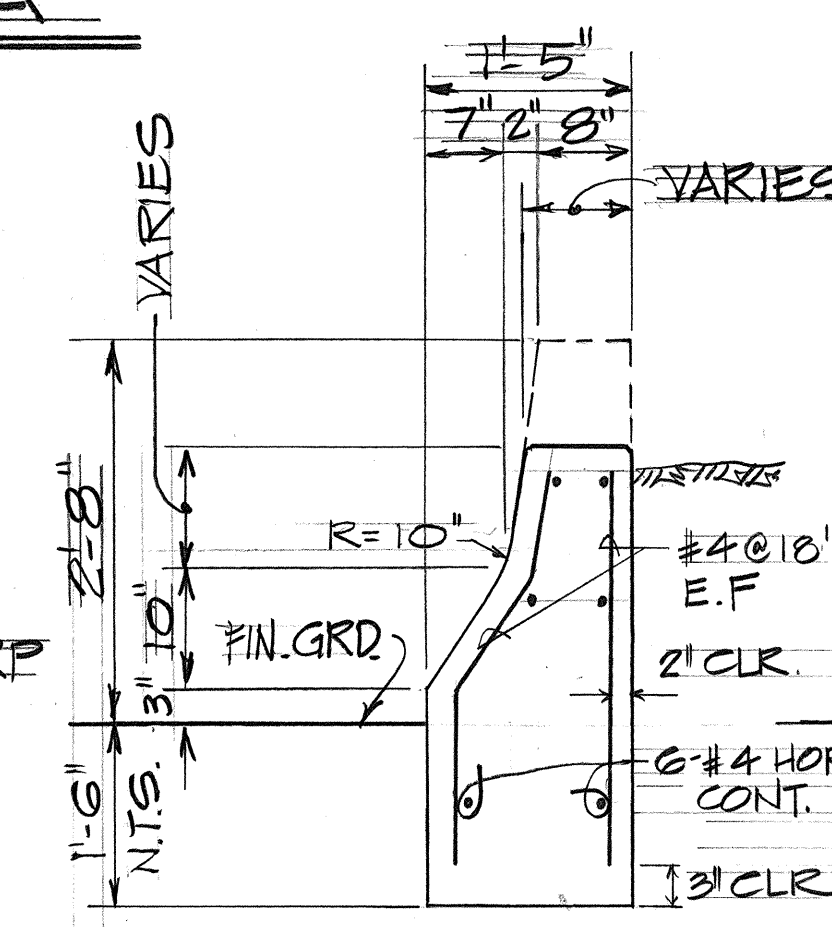
PLAN - RETAINING WALL No. 4-A
SCALE: 1" = 20'



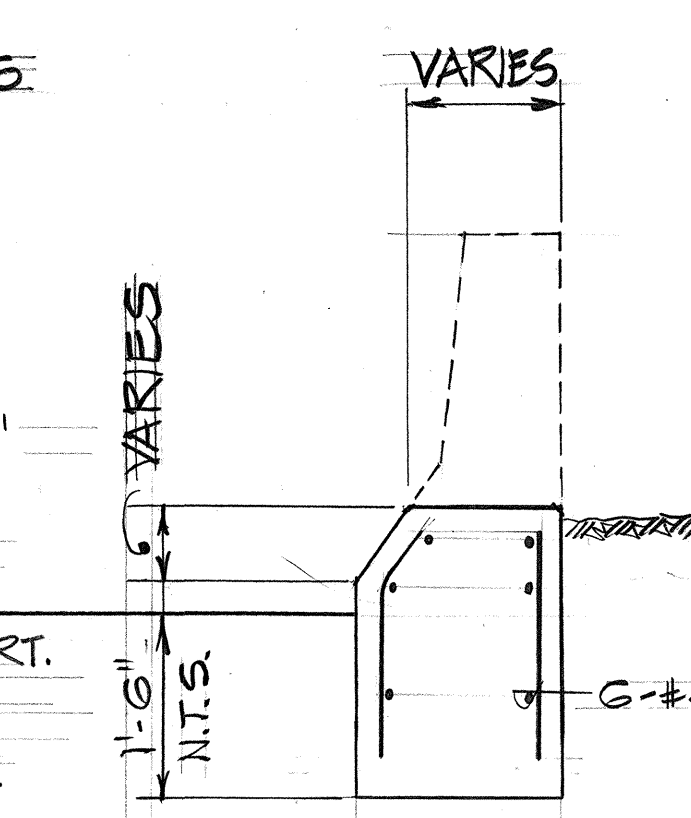
SECTION "B"
SCALE: 3/4" = 1'-0"



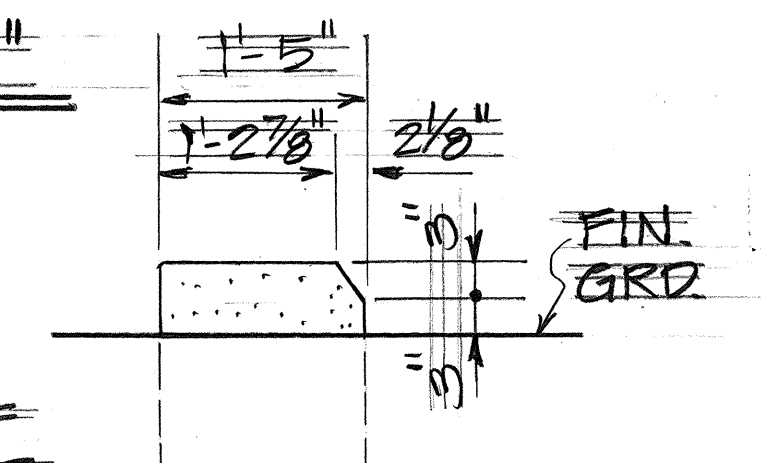
SECTION @ COLUMN
SCALE: 3/4" = 1'-0"



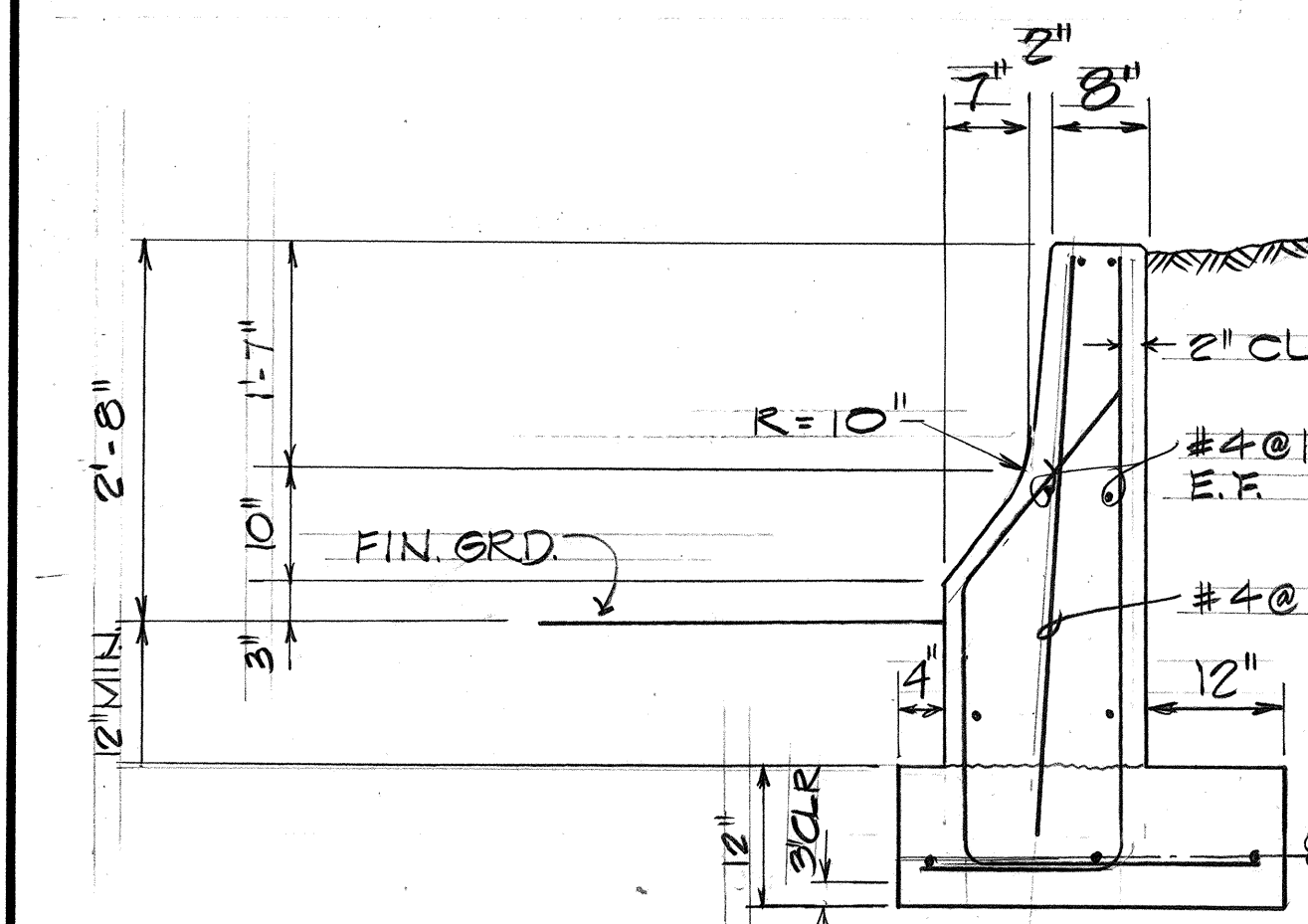
SECTION "E"
SCALE: 3/4" = 1'-0"



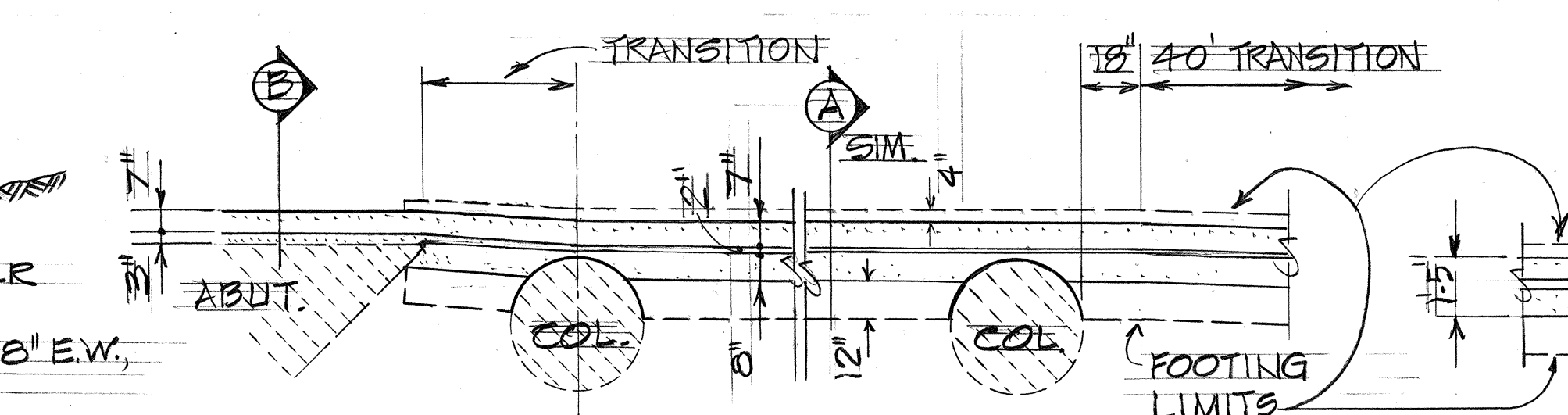
SECTION "F"
SCALE: 3/4" = 1'-0"



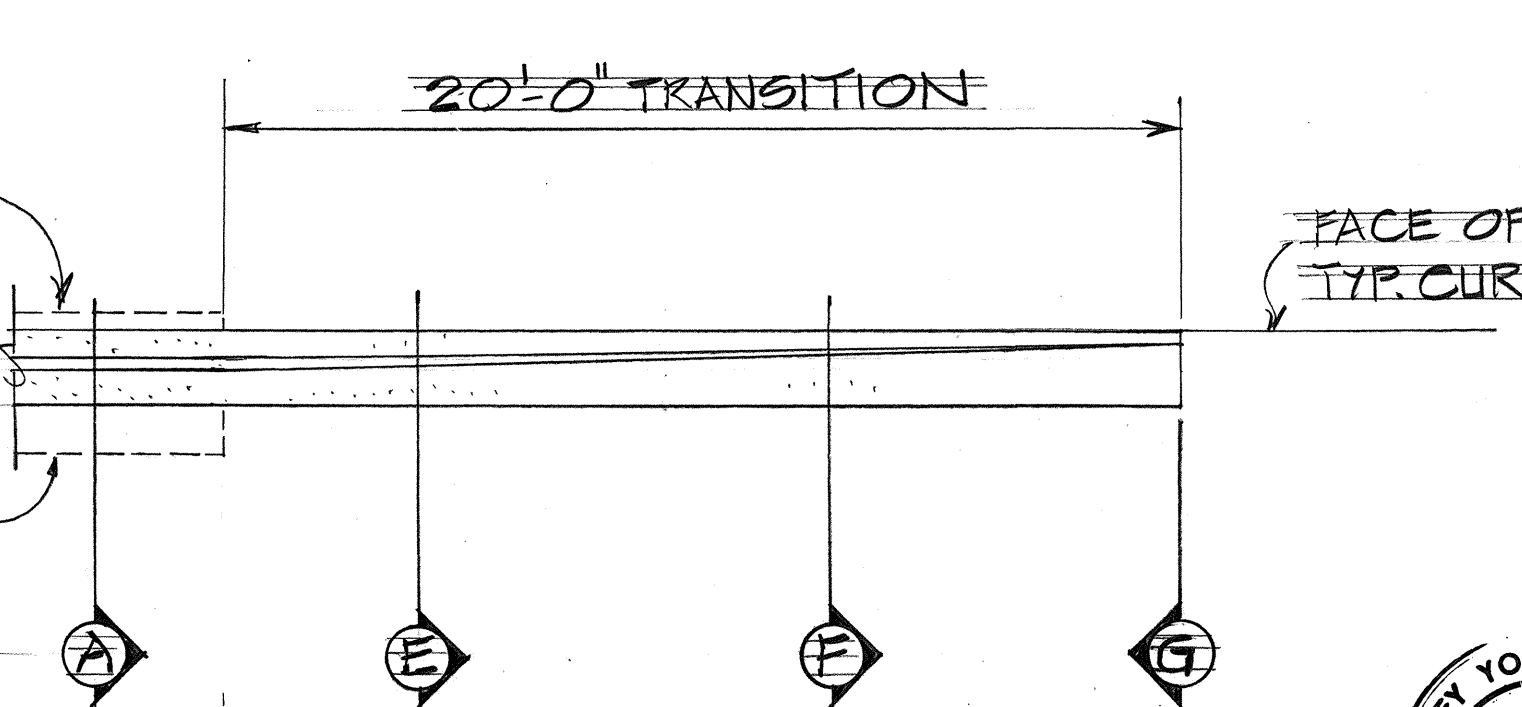
ELEVATION "G"
SCALE: 3/4" = 1'-0"



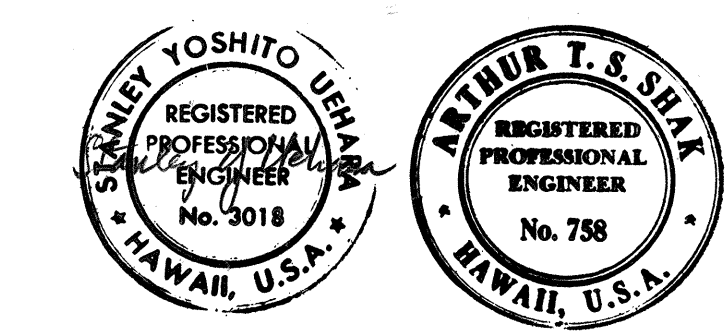
SECTION "A"
SCALE: 3/4" = 1'-0"



PLAN
SCALE: 1/4" = 1'-0"
DETAIL "C"



PLAN
SCALE: 1/4" = 1'-0"
DETAIL "D"



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DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

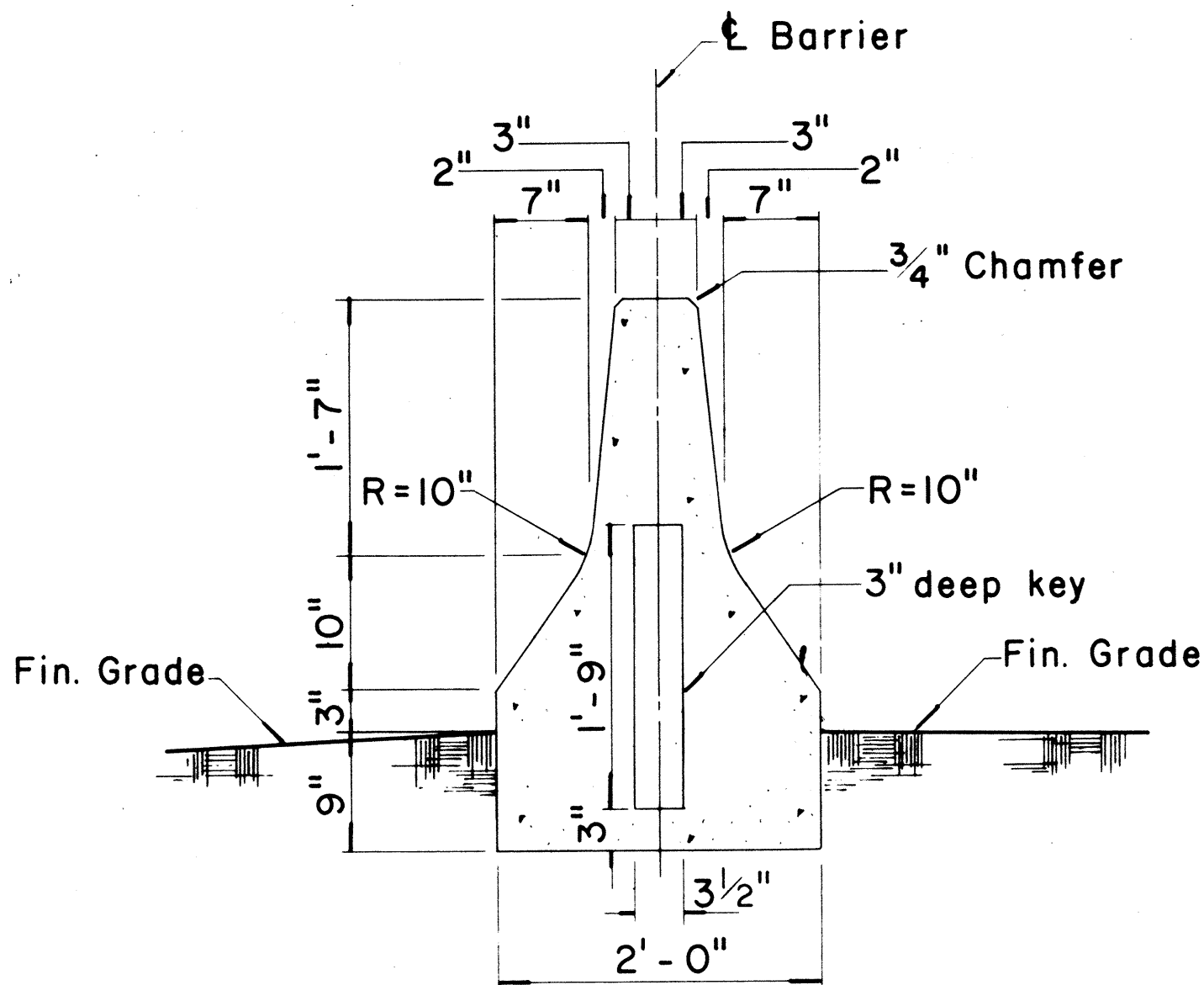
**RETAINING WALL No. 4-A
AND MISCELLANEOUS DETAILS**

MOANALUA ROAD
PUULOA I.C. TO MIDDLE ST.-UNIT 1A
P.A. Proj. No. HHS-078-1(19)

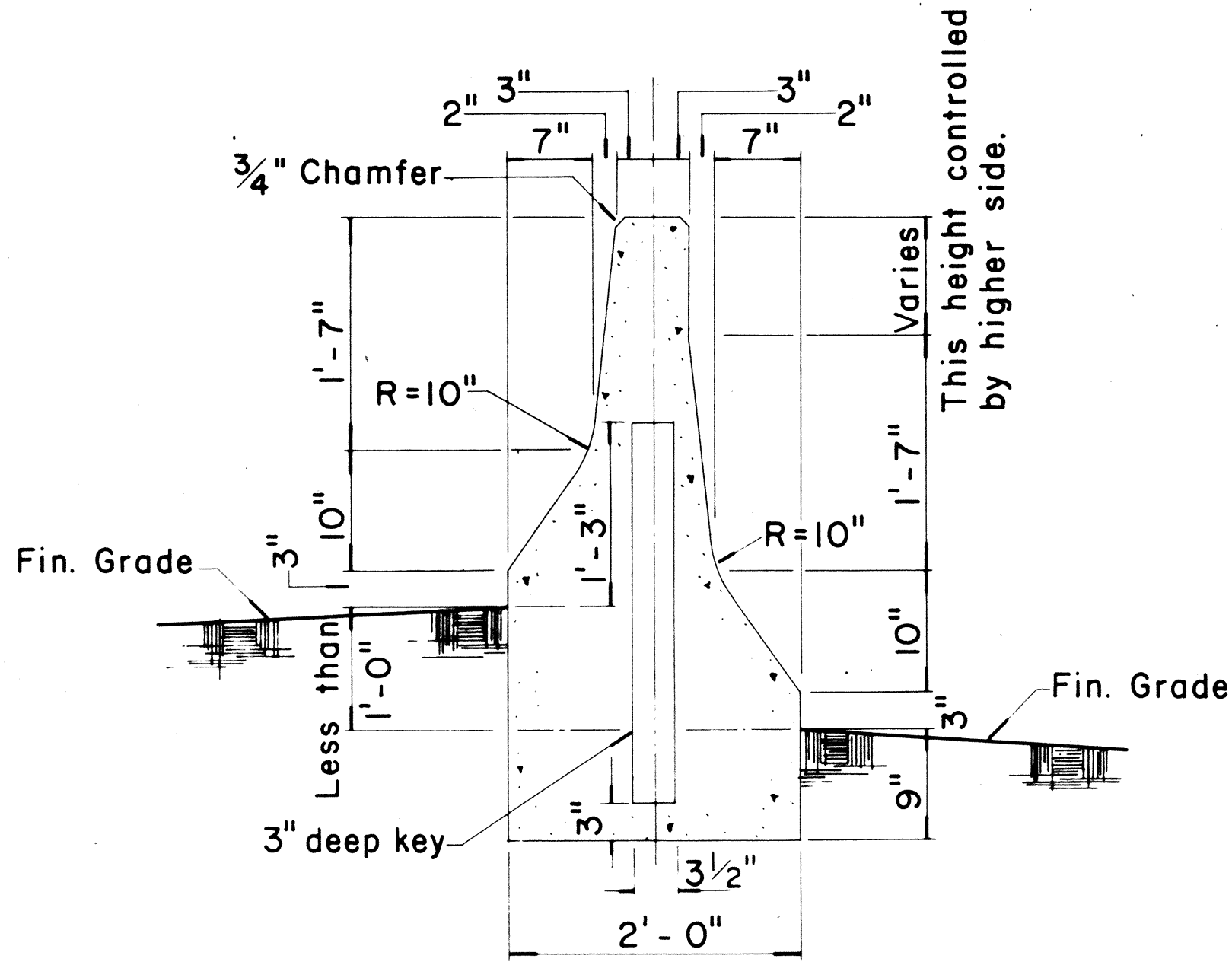
SCALE: AS SHOWN DATE: DEC 17, 1976

SHEET NO. 3 OF 5 SHEETS

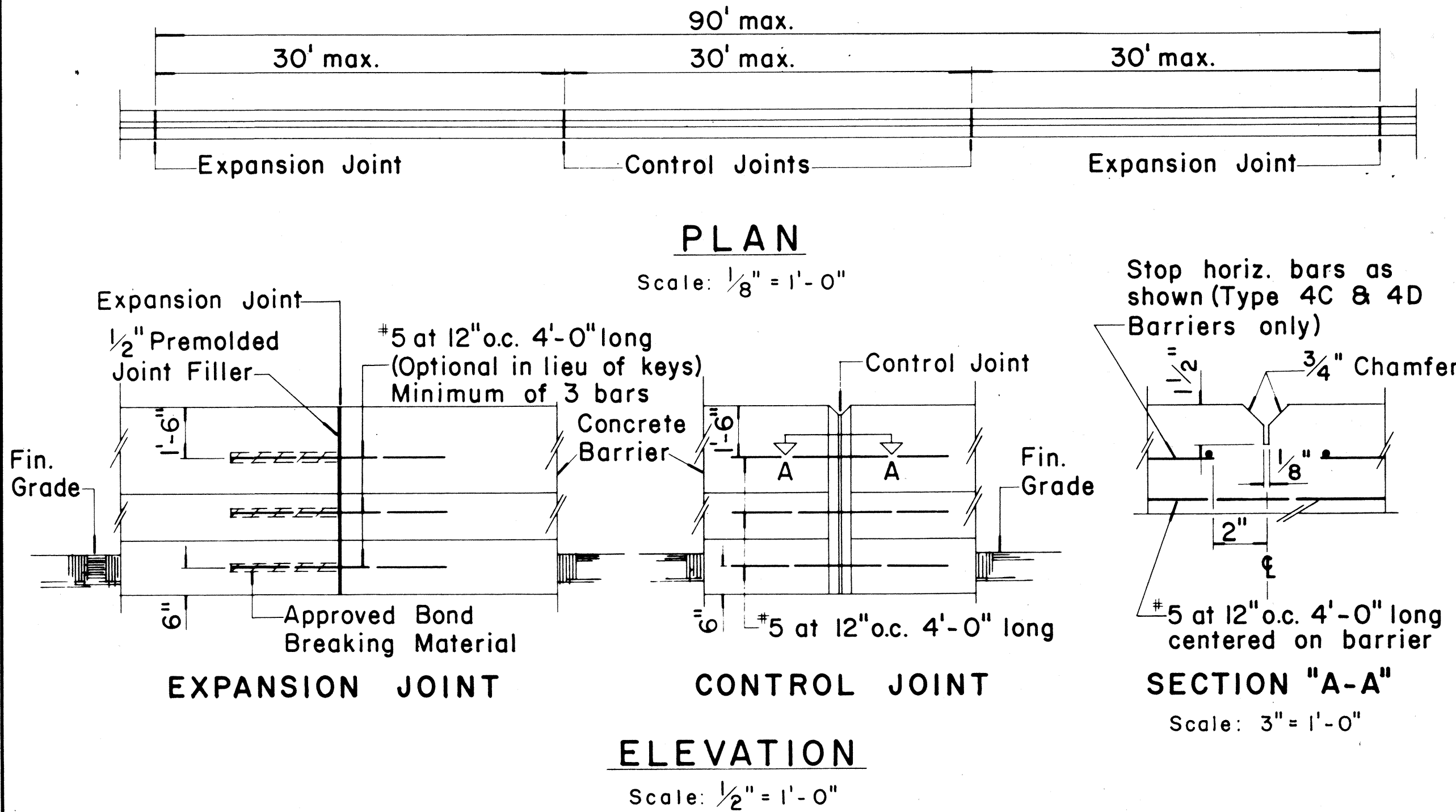
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HH5-078-1(19)	1977	146	147



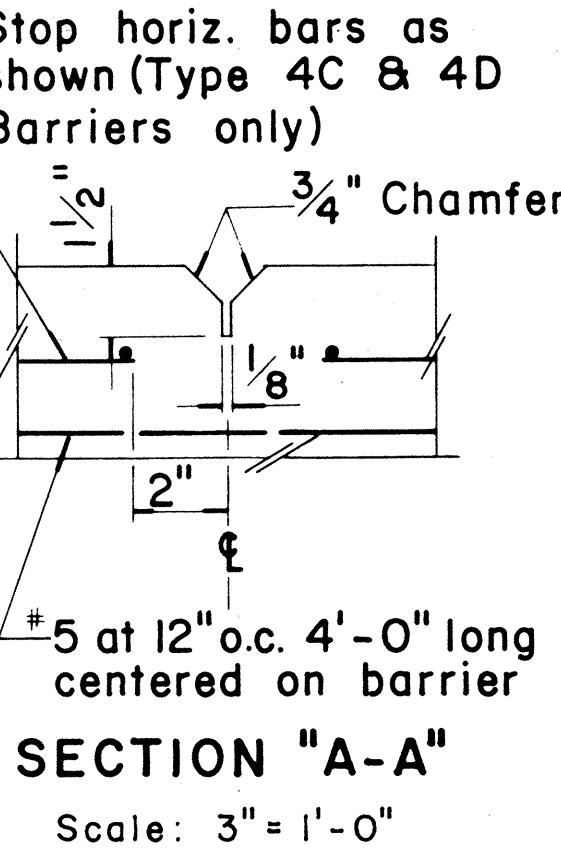
TYPE 4A
Scale: 1" = 1'-0"



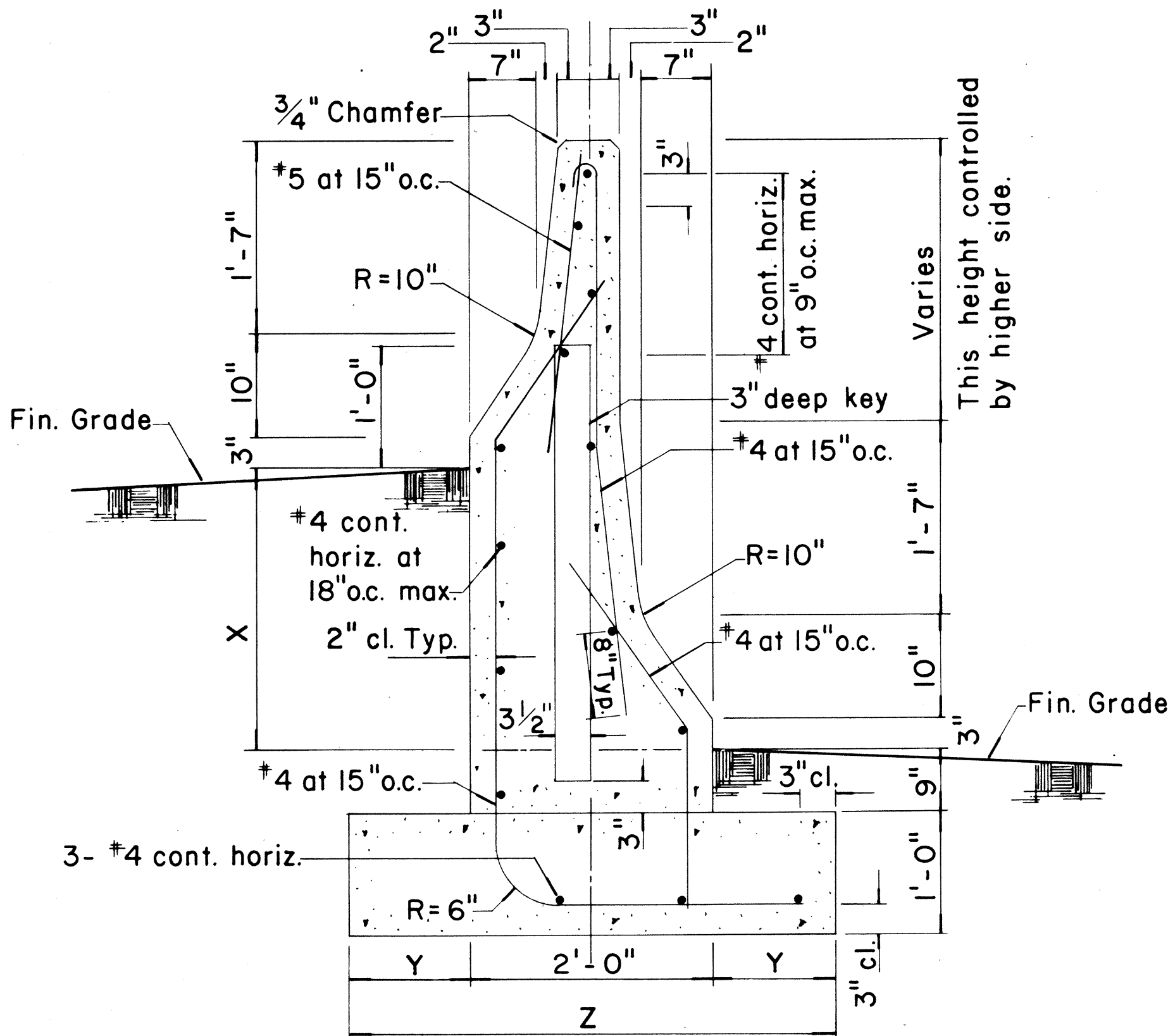
TYPE 4B
Scale: 1" = 1'-0"



PLAN
Scale: 1/8" = 1'-0"



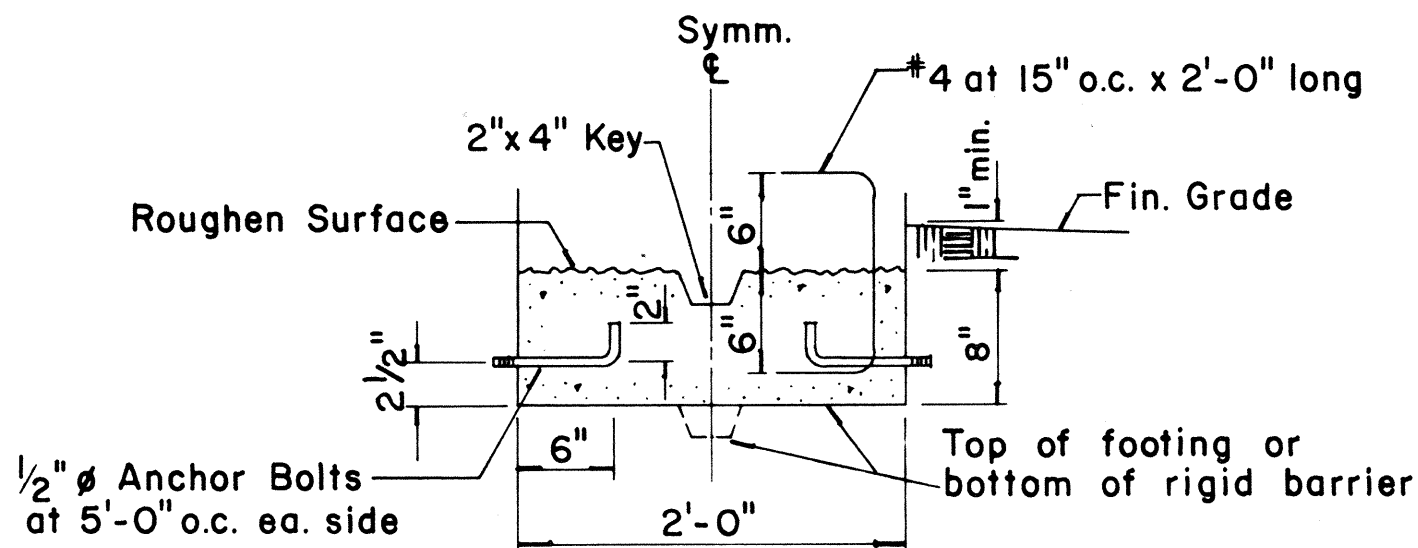
ELEVATION
Scale: 1/2" = 1'-0"



TYPE 4C & TYPE 4D
Scale: 1" = 1'-0"

TYPE	DIFFERENCE IN FIN. GRADE	FOOTING
4C	1'-0" min., 2'-4" max.	1'-0" 4'-0"
4D	Greater than 2'-4", 4'-4" max.	1'-3" 4'-6"

NOTE:
Except where noted all dimensions shall be the same for Type 4C and Type 4D.

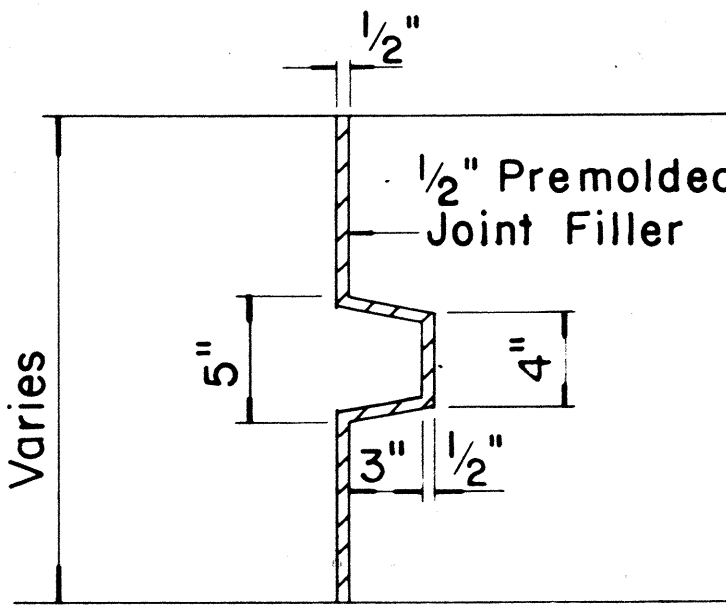


OPTIONAL CONSTRUCTION JOINT DETAILS
Scale: 1" = 1'-0"

NOTE:
The intent of the optional construction joint details for the Type 4 Rigid Barrier Guard Rail is to provide a method of securing the forms and preventing uplift so that the barrier will have a uniform and presentable appearance.
The contractor may submit an alternate method of constructing the barrier for the approval of the Engineer and for use on a trial basis. Any unsatisfactory work shall be removed or corrected as directed by the Engineer and at the Contractor's expense.

GENERAL NOTES

- Precast Rigid Barrier Guard Rail may be installed as an option to cast-in-place Type 4 Rigid Barrier Guard Rail. Contractor shall submit shop drawings to Engineer for approval.
- Expansion Joints shall be constructed at ninety-foot (90 ft.) maximum intervals and at existing expansion joints of structures. (Use 1/2" premolded joint filler, incidental to Type 4 Rigid Barrier Guard Rail). Control Joints shall be placed between expansion joints at 30' maximum. Shear keys shall be required at all construction joints.
- The exterior surface and vertical alignment of the Type 4 Rigid Barrier Guard Rail shall be constructed to give a uniform and presentable appearance. Variation of more than 1/4" in 20' max. and 1/2" in 40' or more will be considered objectionable. The Engineer shall determine the acceptability of the work.
During the course of the work, samples may be tested and measurements made to establish whether or not the specified values or dimensions are being met. If the specified values or dimensions are not being met, the Engineer shall determine the degree of the non-conformance, the effect on the serviceability of the project, whether the work be accepted and remain in place and, if so, the amount to be paid for such work, or whether the work shall be removed and replaced or otherwise corrected at the Contractor's expense.



SECTION THRU KEY AT EXPANSION JOINT
Scale: 1 1/2" = 1'-0"

APPROVAL RECOMMENDED:
Erich Tanaka 2/10/12
TRAFFIC ENGINEER DATE

APPROVED:
Shubert Zalskin 2/10/12
ASSISTANT CHIEF, ENGINEERING DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

STANDARD DETAILS
GUARD RAIL TYPE 4
(RIGID BARRIER)

E.A. Proj. No. HH5-078-1(19)
Scale: As Shown
SHEET No. 5 OF 5 SHEETS DT 521

NO.	REVISION	APPROVED BY	DATE
1	Supersede Sht. DT 521 Approved 12-30-69	HT	2/10/12