

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	PMFH2C-0294		23	84

ABBREVIATIONS

abn	ABANDONED
B	BASELINE
C	CENTERLINE
cb	EXISTING CATCH BASIN
CB	PROPOSED CATCH BASIN
CI	CAST IRON
Cl.	CLASS, CLEAR
CMP	CORRUGATED METAL PIPE
Conc.	CONCRETE
C.I.P.	CAST-IN-PLACE
d	EXISTING DRAIN
D	PROPOSED DRAIN
Det.	DETAIL
e	EXISTING ELECTRICAL DUCT BANK
F & C	FRAME AND COVER
GDI	GRADED DROP INTAKE
GR.	GRADE
Inv.	INVERT
I.D.	INSIDE DIAMETER
LF	LINEAR FEET
Lt.	LEFT
MH	MANHOLE
MP	MEHEULA PARKWAY
o.c.	ON CENTER
Pavt.	PAVEMENT
R	RADIUS
RCP	REINFORCED CONCRETE PIPE
Rt.	RIGHT
R/W	RIGHT-OF-WAY
sl	EXISTING STREET LIGHTING DUCT
t	EXISTING TELEPHONE DUCT BANK
ts	EXISTING TRAFFIC SIGNAL DUCT
TS	RELOCATED TRAFFIC SIGNAL DUCT
Typ.	TYPICAL
Ø	DIAMETER
HDPE	HIGH DENSITY POLYETHYLENE PIPE

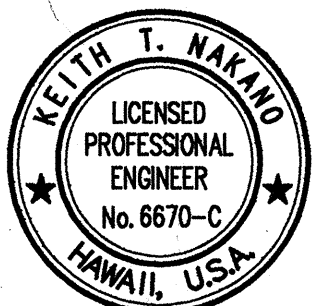
LEGEND

EXISTING	PROPOSED	
		DRAINLINE WITH FLOW DIRECTION
		MANHOLE
		CATCH BASIN
		DROP INTAKE
		UTILITY OR DRAIN CROSSING
*		NO RECORD OF UTILITY LINE ELEVATION AVAILABLE

GENERAL DRAINAGE NOTES

- DRAINAGE PIPES TO BE ABANDONED SHALL BE REMOVED AS NECESSARY TO FACILITATE CONSTRUCTION. PIPES TO BE ABANDONED IN PLACE SHALL BE PLUGGED AT BOTH ENDS.
- WHEN EXCAVATING IN CLOSE PROXIMITY OF WALLS, FENCES, UTILITY POLES, TRAFFIC SIGNAL POLES AND OTHER IMPROVEMENTS, THE CONTRACTOR SHALL PROTECT, SUPPORT, SECURE AND TAKE ALL OTHER NECESSARY PRECAUTIONS TO PREVENT DAMAGING THESE FACILITIES AND IMPROVEMENTS.
- CONTRACTOR SHALL SEQUENCE CONSTRUCTION SUCH THAT EXIST. FACILITIES REMAIN IN SERVICE UNTIL NEW FACILITIES ARE IN SERVICE OR SHALL PROVIDE AND MAINTAIN, AS IS NECESSARY, TEMPORARY WATER DIVERSION FACILITIES.
- THE CONTRACTOR SHALL VERIFY LOCATIONS AND ELEVATIONS OF ALL EXISTING UTILITY LINES AND NOTIFY RESPECTIVE OWNERS BEFORE COMMENCING EXCAVATION WORK FOR DRAINLINES.
- CONTRACTOR SHALL SUBMIT SHOP DRAWINGS OF PRE-CAST DRAINAGE STRUCTURES TO THE ENGINEER FOR APPROVAL. CONTRACTOR SHALL VERIFY LOCATION OF EXIST. UTILITIES PRIOR TO MANUFACTURING PRE-CAST STRUCTURES TO ENSURE CONFLICTS WITH PROPOSED DRAINAGE STRUCTURE DO NOT EXIST.
- THE REFERENCE POINT FOR LOCATING DRAINAGE STRUCTURES BY STATION AND OFFSETS IS AT THE CENTER OF THE MAIN BODY, EXCEPT THAT AT CATCH BASINS THE REFERENCE POINT IS AT THE CENTERLINE OF THE MAIN BODY AT FACE OF CURB OR GUTTER INVERT.
- EXISTING DRAINAGE FACILITIES TO REMAIN AND LOCATED WITHIN PROJECT LIMITS SHALL BE CLEANED OF SILT AND DEBRIS.
- EXCEPT IN AREAS WHERE NEW PAVEMENT STRUCTURE IS BEING CONSTRUCTED, EXISTING PAVEMENT DAMAGED BY TRENCHING OR OTHER ACTIVITIES SHALL BE RESTORED IN ACCORDANCE WITH DETAIL SHOWN ON SHT. C-5.
- STEEL PLATES FOR COVERING TRENCHES SHALL HAVE SKID RESISTANT SURFACE.
- ALL DRAINAGE PIPE SHALL BE ~~SPIRAL RIB ALUMINUM PIPE, SHEET THICKNESS 0.075 INCH, OR REINFORCED CONCRETE PIPE, CLASS III~~ UNLESS OTHERWISE SPECIFIED ON PLANS. ~~HIGH DENSITY POLYETHYLENE (HDPE) PIPE MAY BE USED ONLY WHERE INDICATED ON PLAN. HDPE PIPE SHALL CONFORM TO AASHTO M294-90, TYPE S AND ASTM D1248.~~

1	2/3/92	Deleted use of Spiral Rib Aluminum Pipe. Added High Density Polyethylene Pipe.
DATE		REVISION
CASTLE & COOKE RESIDENTIAL, Inc.		
<u>DRAINAGE</u>		
<u>GENERAL NOTES, LEGEND</u>		
<u>& ABBREVIATIONS</u>		
MILLANI INTERCHANGE		
NORTHBOUND ON- AND OFF-RAMPS		
SCALE:		DATE: March 1992
SHEET No.D-1 OF 8 SHEETS		



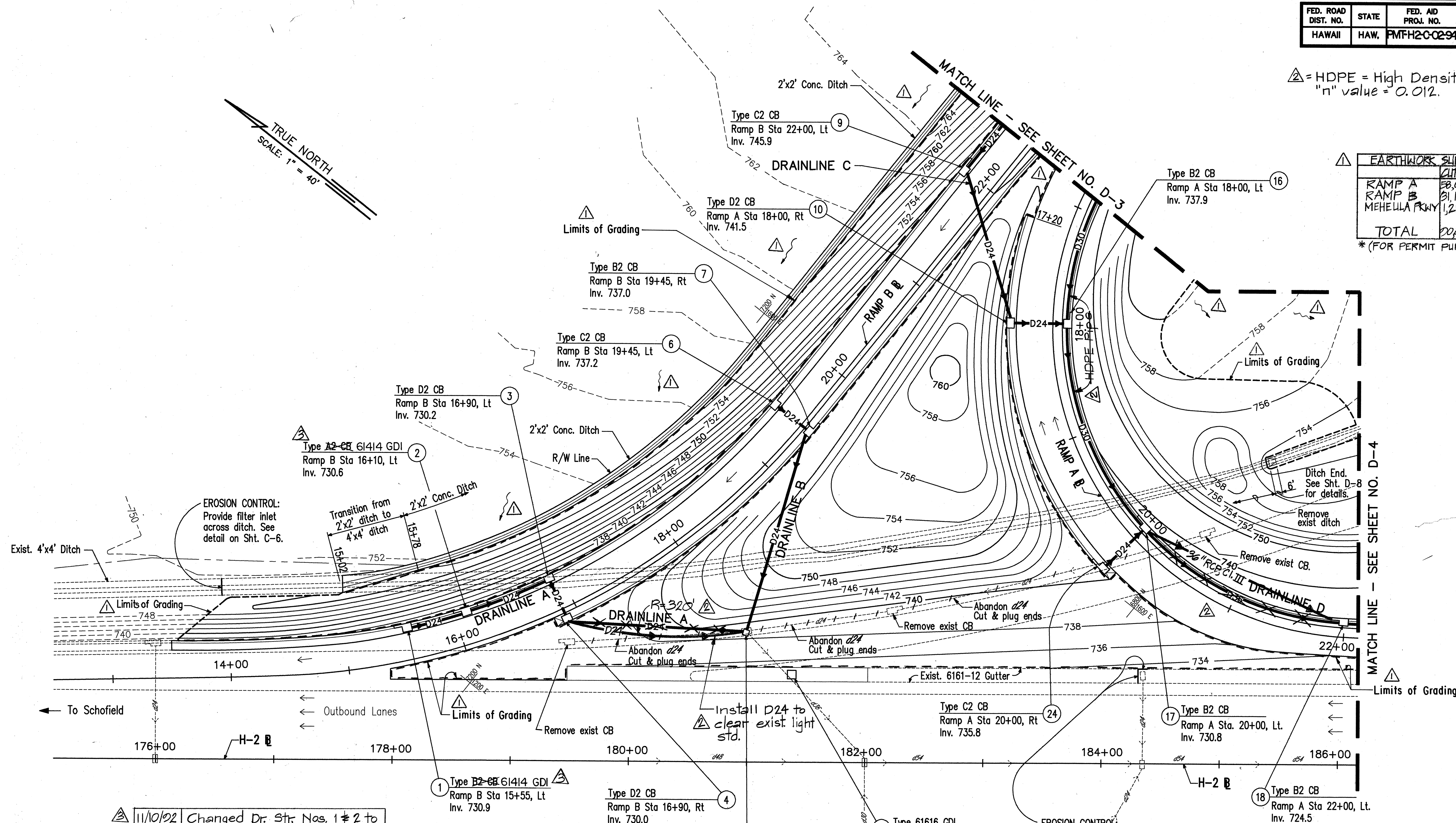
THIS WORK WAS PREPARED BY ME
OR UNDER MY SUPERVISION.
Keith T. Nakano

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	FVHF2C-0294		24	84

△ = HDPE = High Density Polyethylene, "n" value = 0.012.

EARTHWORK SUMMARY *		
	CUT CY.	FILL CY.
RAMP A	58,067	7,147
RAMP B	31,150	1,986
MEHEULA PKWY	1,280	348
TOTAL	90,497	9,481

*(FOR PERMIT PURPOSES ONLY)

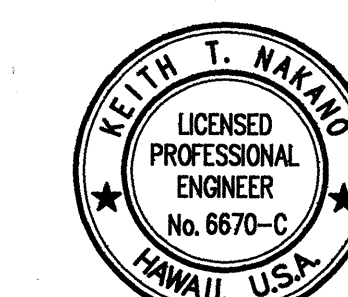


DATE	REVISION
11/10/92	Changed Dr. Str. Nos. 1 & 2 to Type 61414 Grated Drop Inlets.
9/3/92	Revised D.L. 'A' alignment between Dr. Str. Nos. 4 & 5 to clear exist. light standard. Revised D.L. 'D' alignment between Dr. Str. Nos. 17 & 18 to accommodate RCP. Allow use of HDPE pipe where shown on D.L. 'D'.

DATE	REVISION
9/29/92	Added: Drainage Flow lines outside of limits of grading lines, "s" to "Limit of Grading", Limits of grading line along exist. & new part, signature block for C&C, earthwork summary table.

APPROVED:

CHIEF, DIVISION OF ENGINEERING, DPW
(FOR GRADING ONLY)



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CASTLE & COOKE RESIDENTIAL, Inc.

DRAINAGE AND GRADING

MILANI INTERCHANGE
NORTHBOUND ON- AND OFF-RAMPS

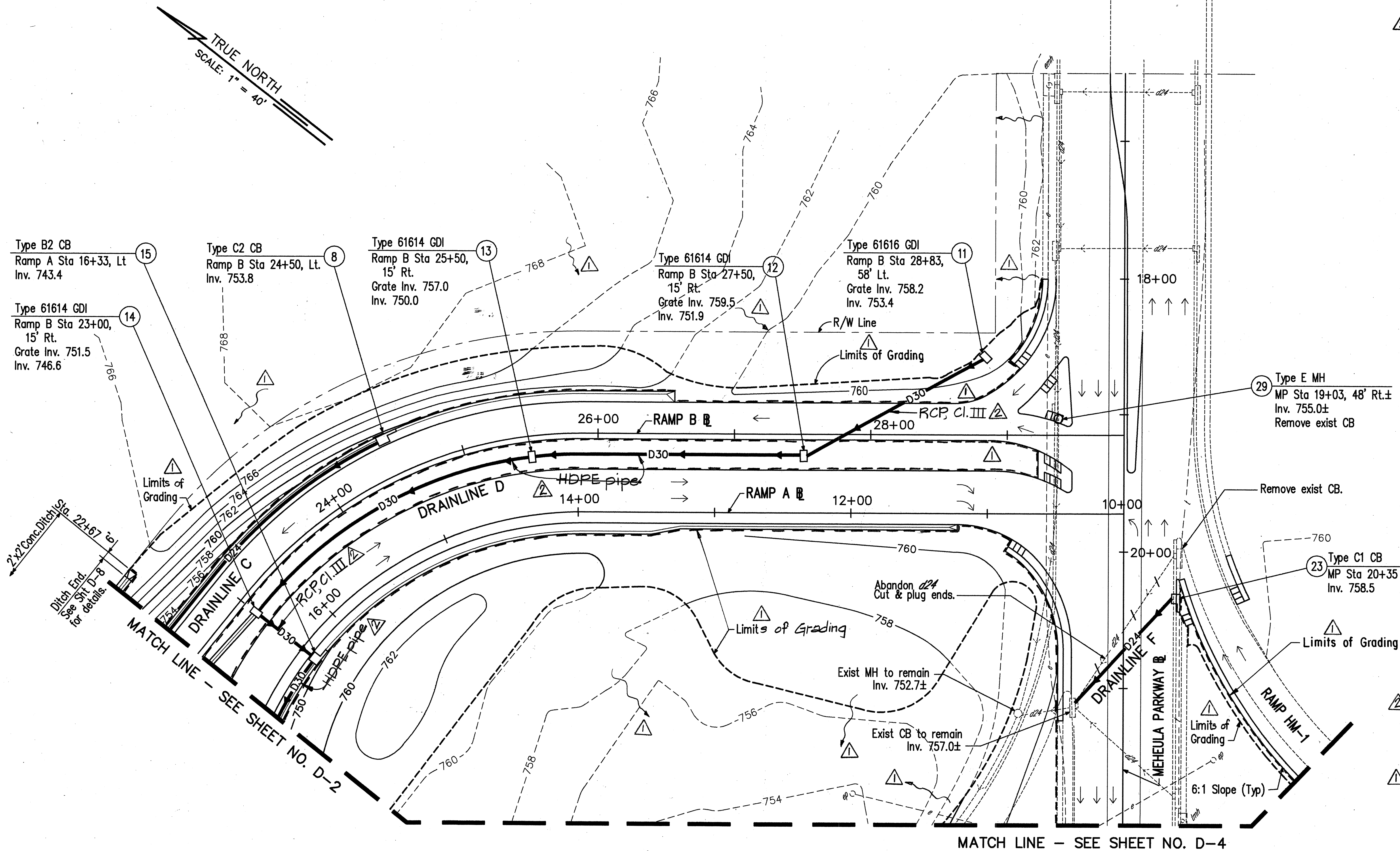
SCALE: 1"=40'

DATE: March 1992

SHEET No. D-2 OF 8 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	PMFH2-C-0294		25	84

△ HDPE = High Density Polyethylene, "n" value = 0.012.



2/3/92	Allow use of HDPE pipe on D.L. 'D' where shown on plan. RCP Cl. III to be used everywhere else.
6/29/92	Added: Drainage flow lines outside of limits of grading lines, "s" to "Limit of Grading". Limits of grading line along exist. & new pav't, signature block for C & C.

DATE REVISION

CASTLE & COOKE RESIDENTIAL, Inc.

DRAINAGE AND GRADING

MILANI INTERCHANGE
NORTHBOUND ON- AND OFF-RAMPS

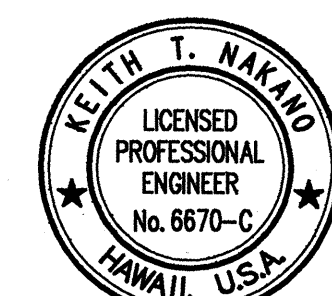
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DATE: March 1992

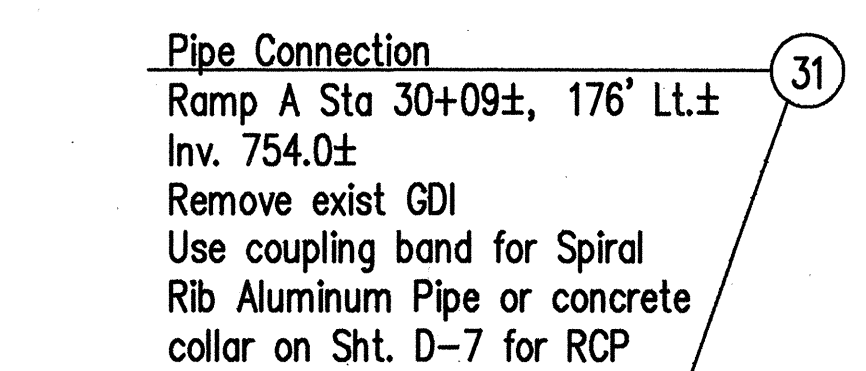
SHEET No. D-3 OF 8 SHEETS

△ APPROVED:

Thomas H. F. Yim 7/10/92
CHIEF, DIVISION OF ENGINEERING, DPW
(FOR GRADING ONLY) DATE



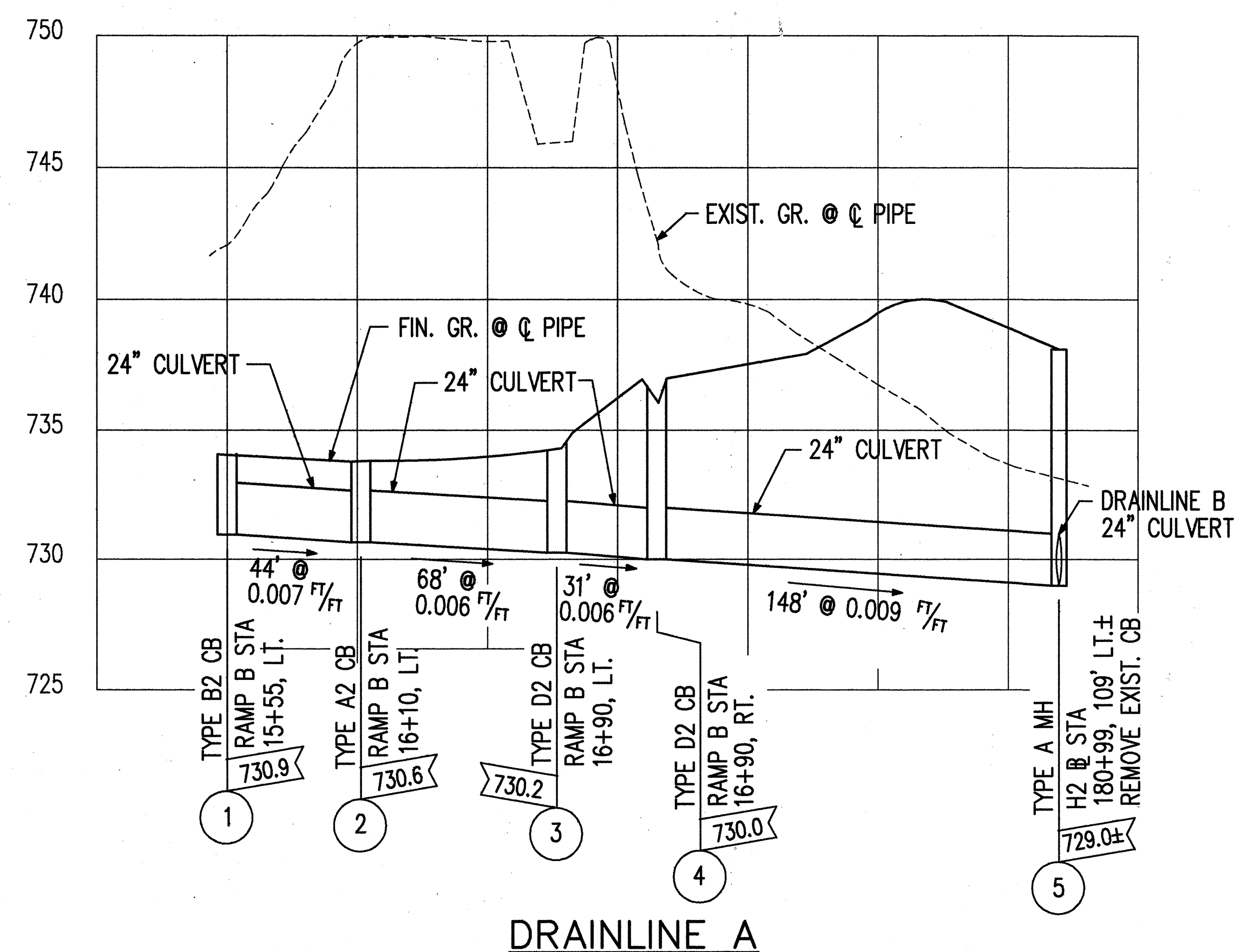
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Keith T. Nakano



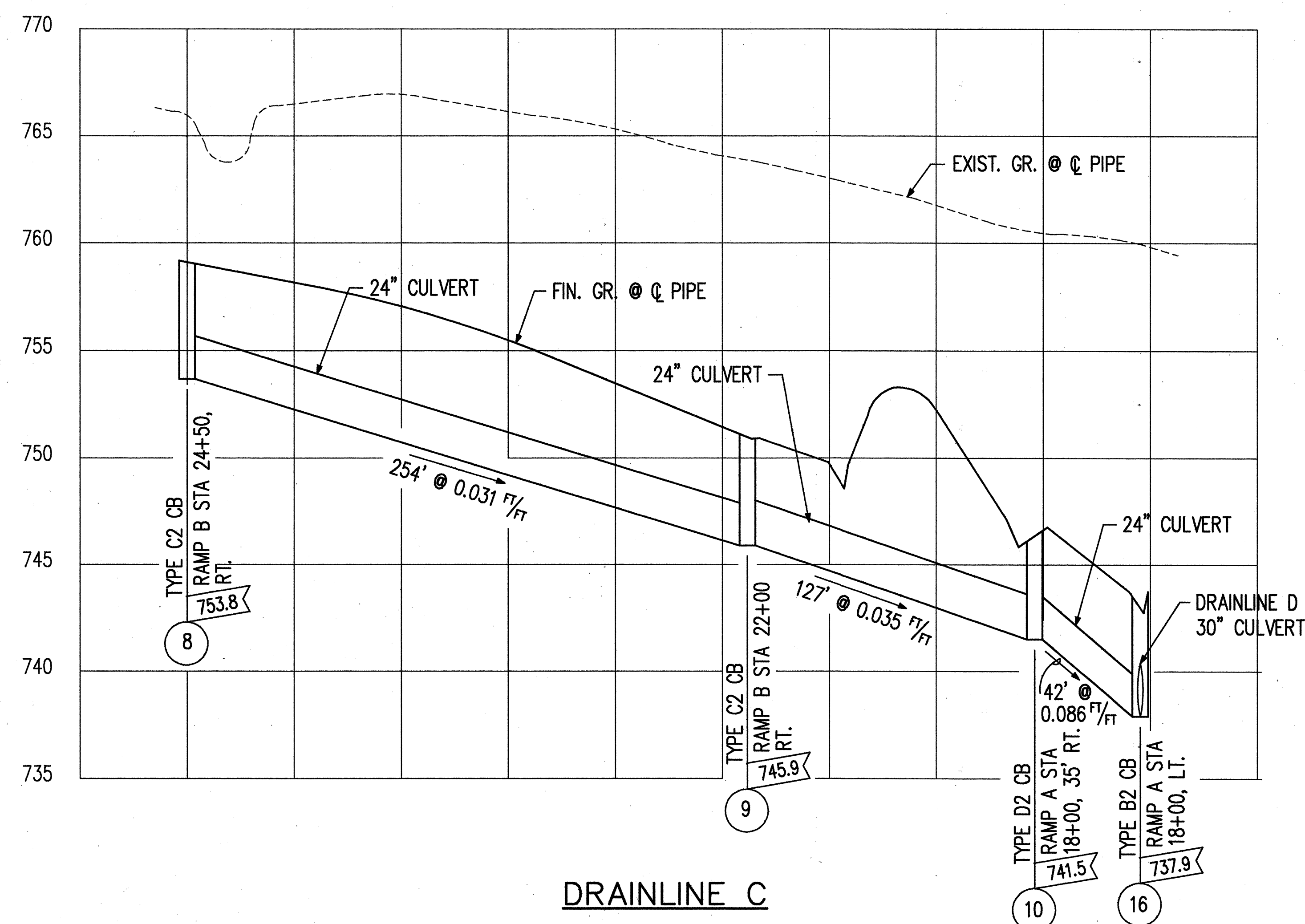
THIS WORK WAS PREPARED BY ME
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	6/29/92 Added: Drainage flow lines outside of limits of grading lines, "s" to "Limit of Grading", Limits of grading line along exist. & new pav't., signature block for C&C.
DATE	REVISION
CASTLE & COOKE RESIDENTIAL, Inc. <u>DRAINAGE AND GRADING</u> <u>MILANI INTERCHANGE</u> <u>NORTHBOUND ON- AND OFF-RAMPS</u> SCALE: 1"=40' DATE: March 1992 SHEET No.0-4 OF 8 SHEETS	

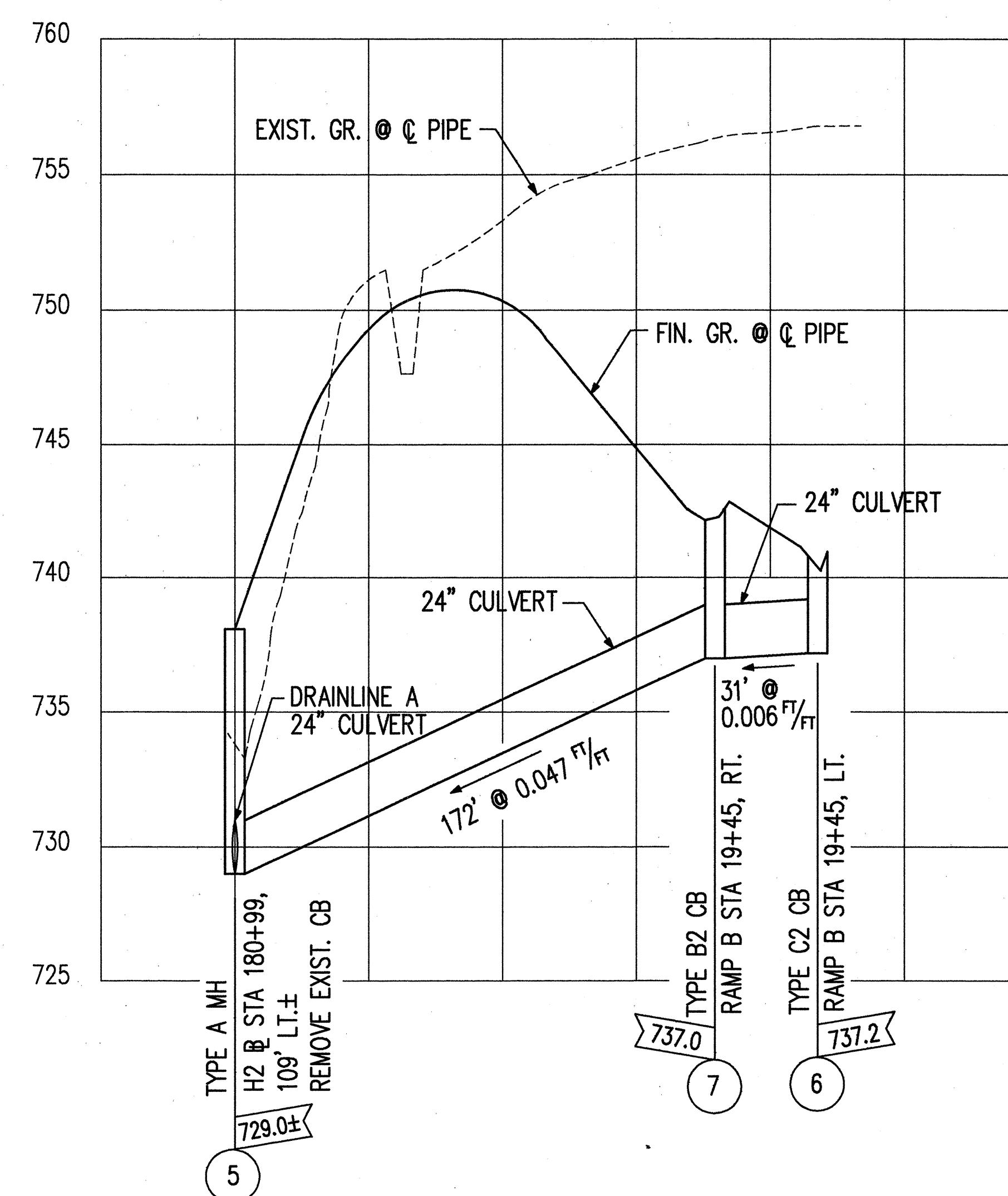
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	PMFH2-C-0294		27	84



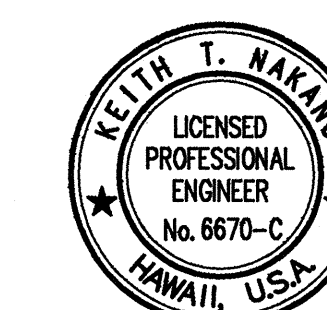
DRAINLINE A



DRAINLINE C



DRAINLINE B



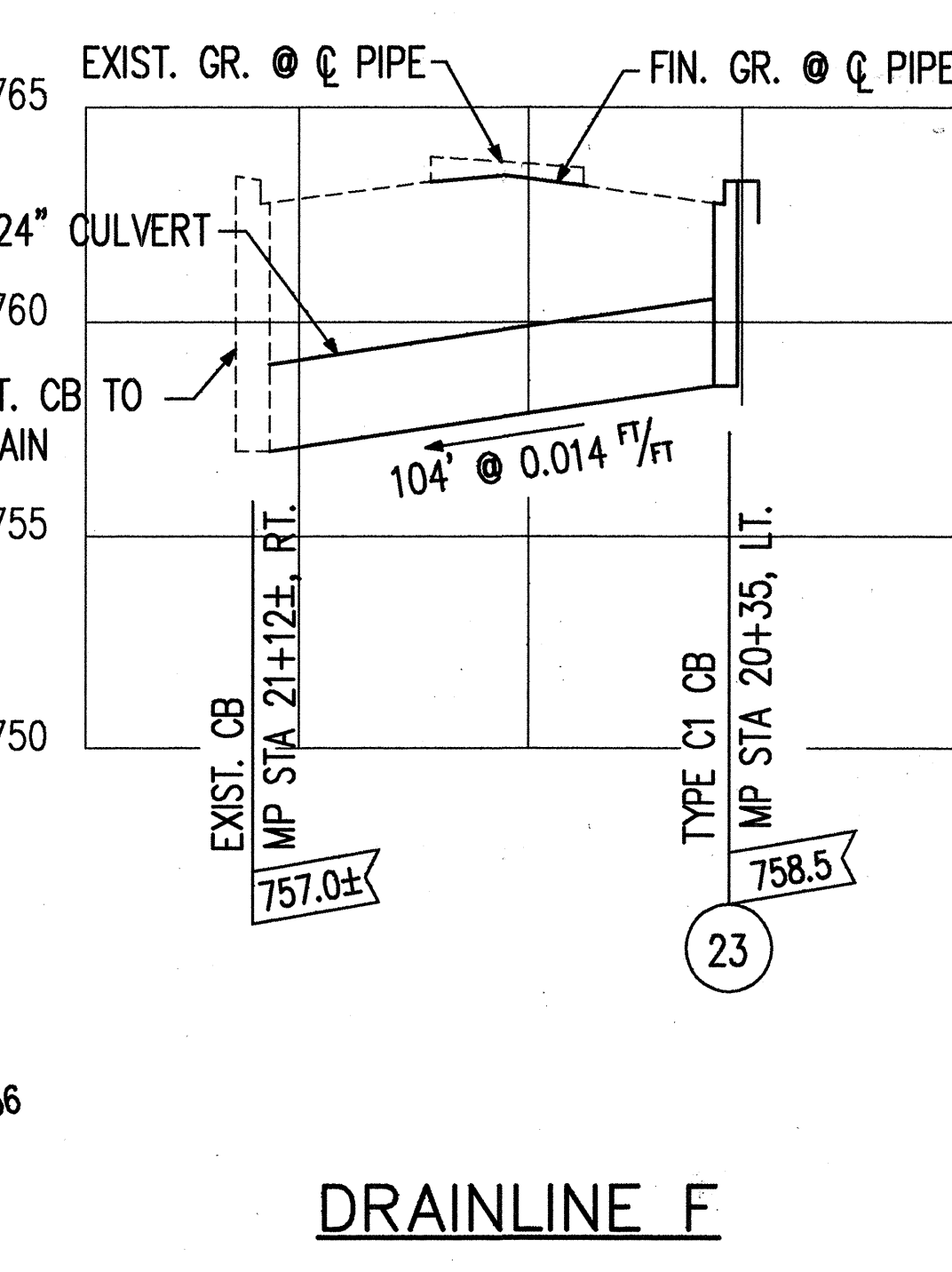
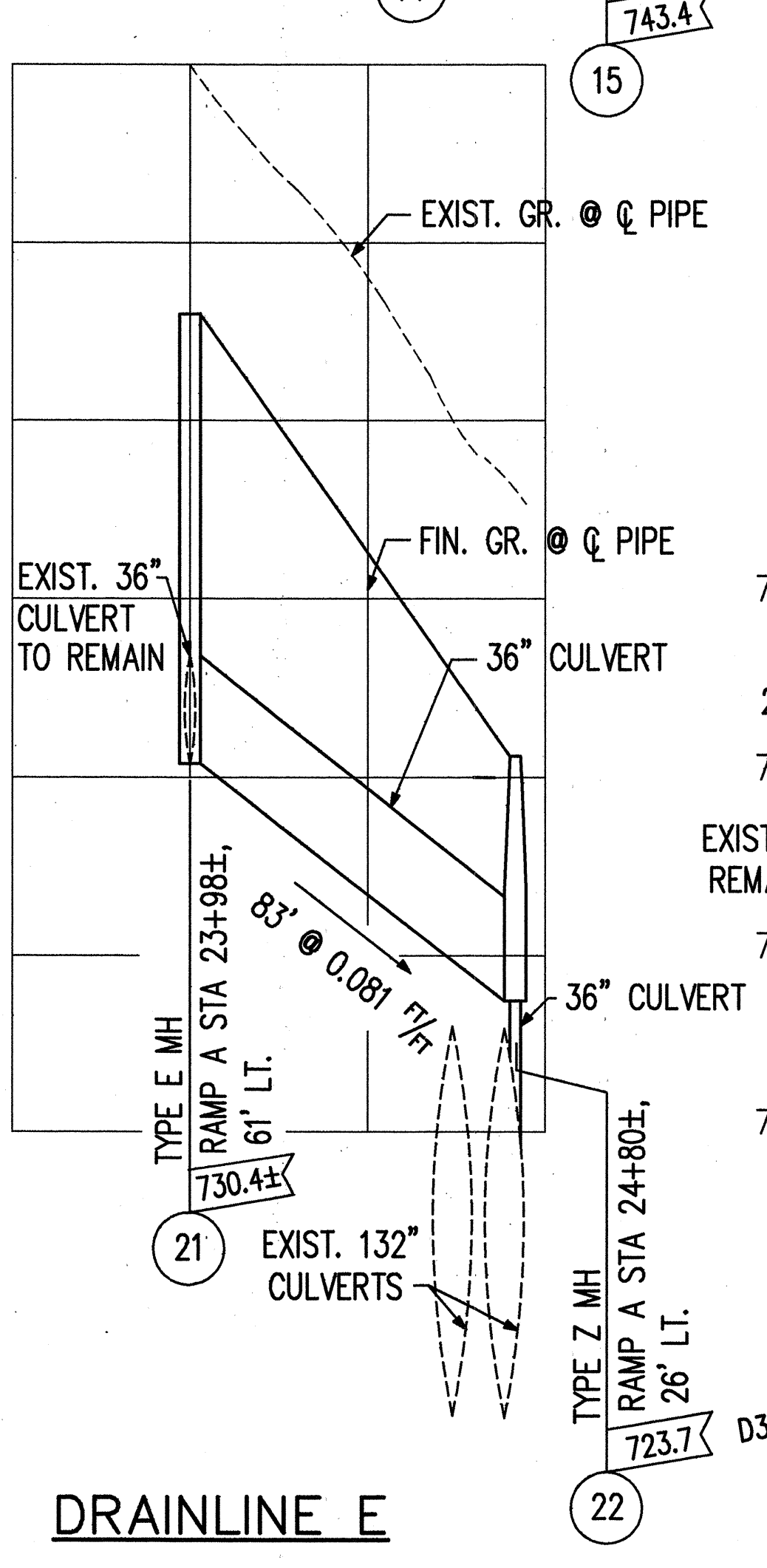
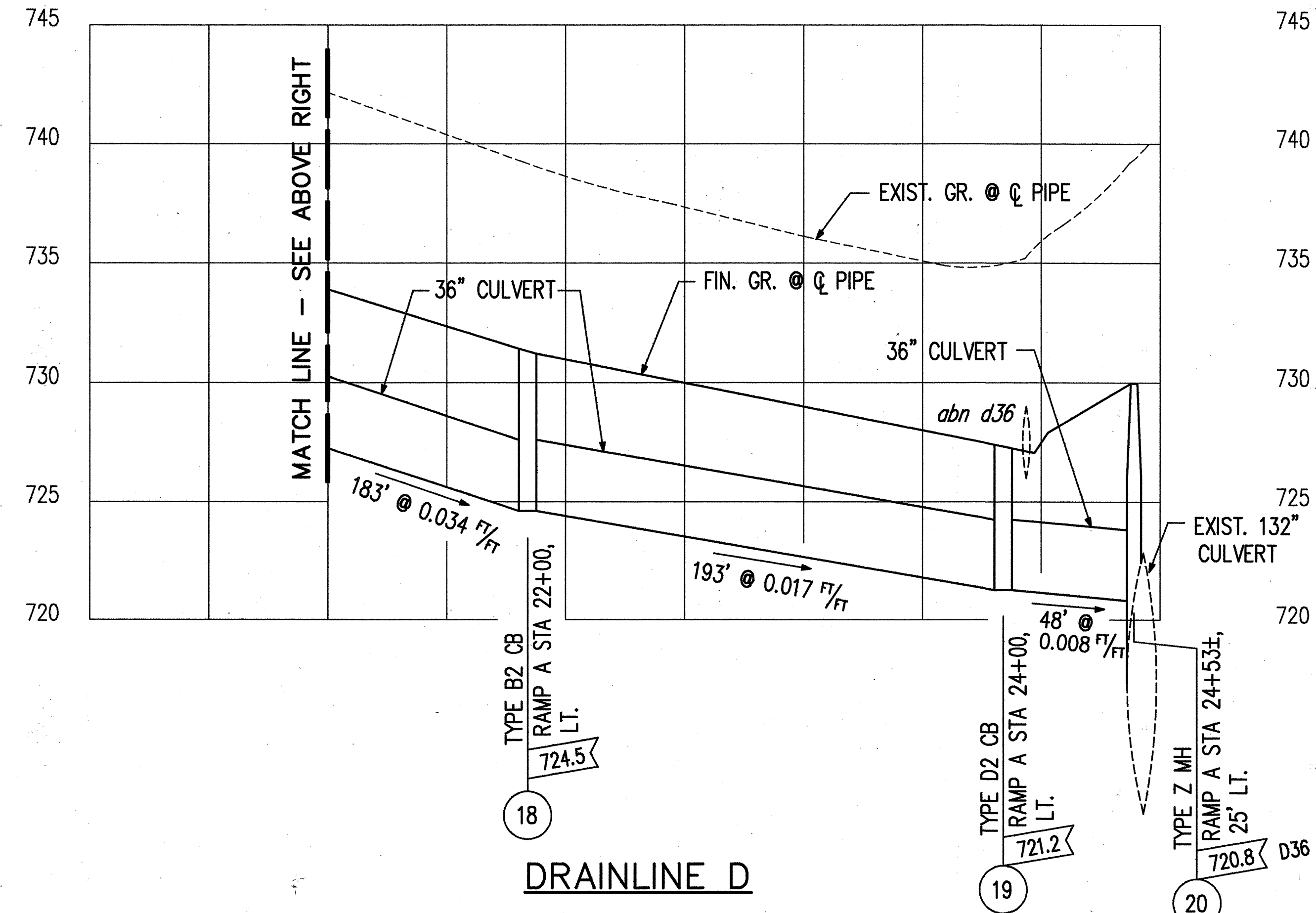
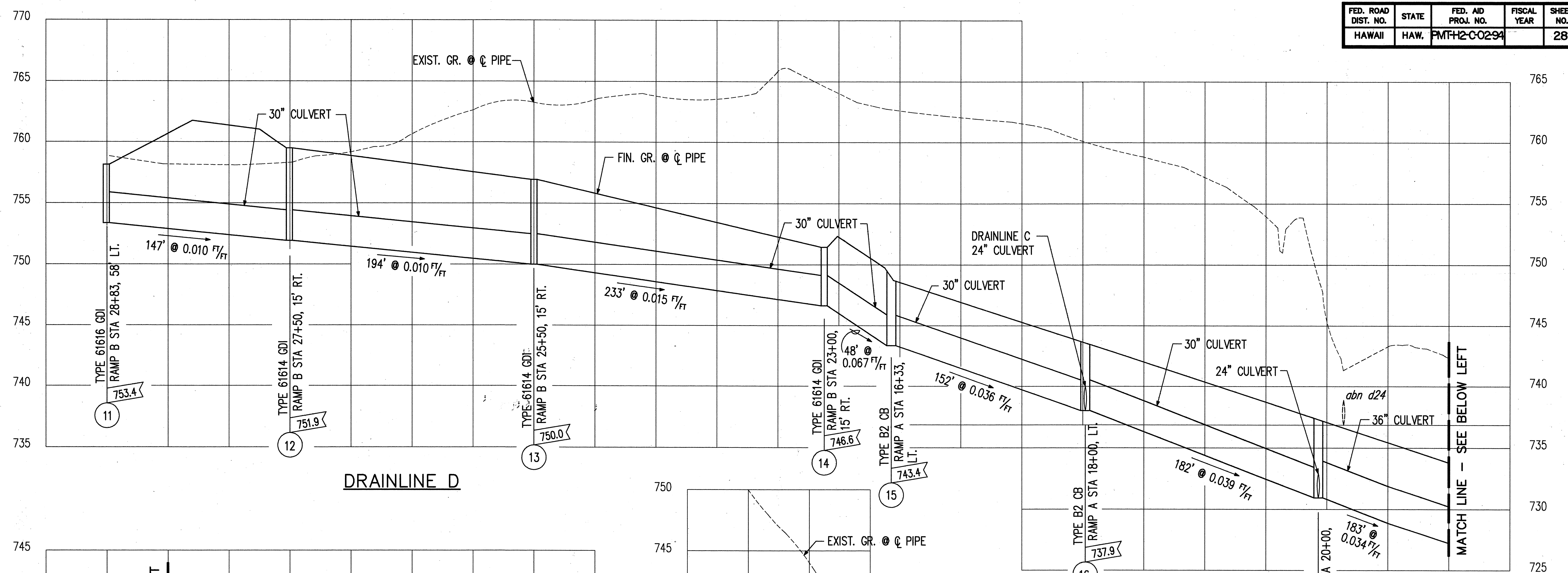
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DRAINAGE PROFILES

MILILANI INTERCHANGE
NORTHBOUND ON- AND OFF-RAMPS
VERT. 1"=4'
SCALE: HORIZ. 1"=40' DATE: March 1992
SHEET No.D-5 OF 8 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	PMTH-2-C-0294		28	84



KEITH T. NAMMO
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No. 6670-C
HAWAII, U.S.A.

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DRAINAGE PROFILES

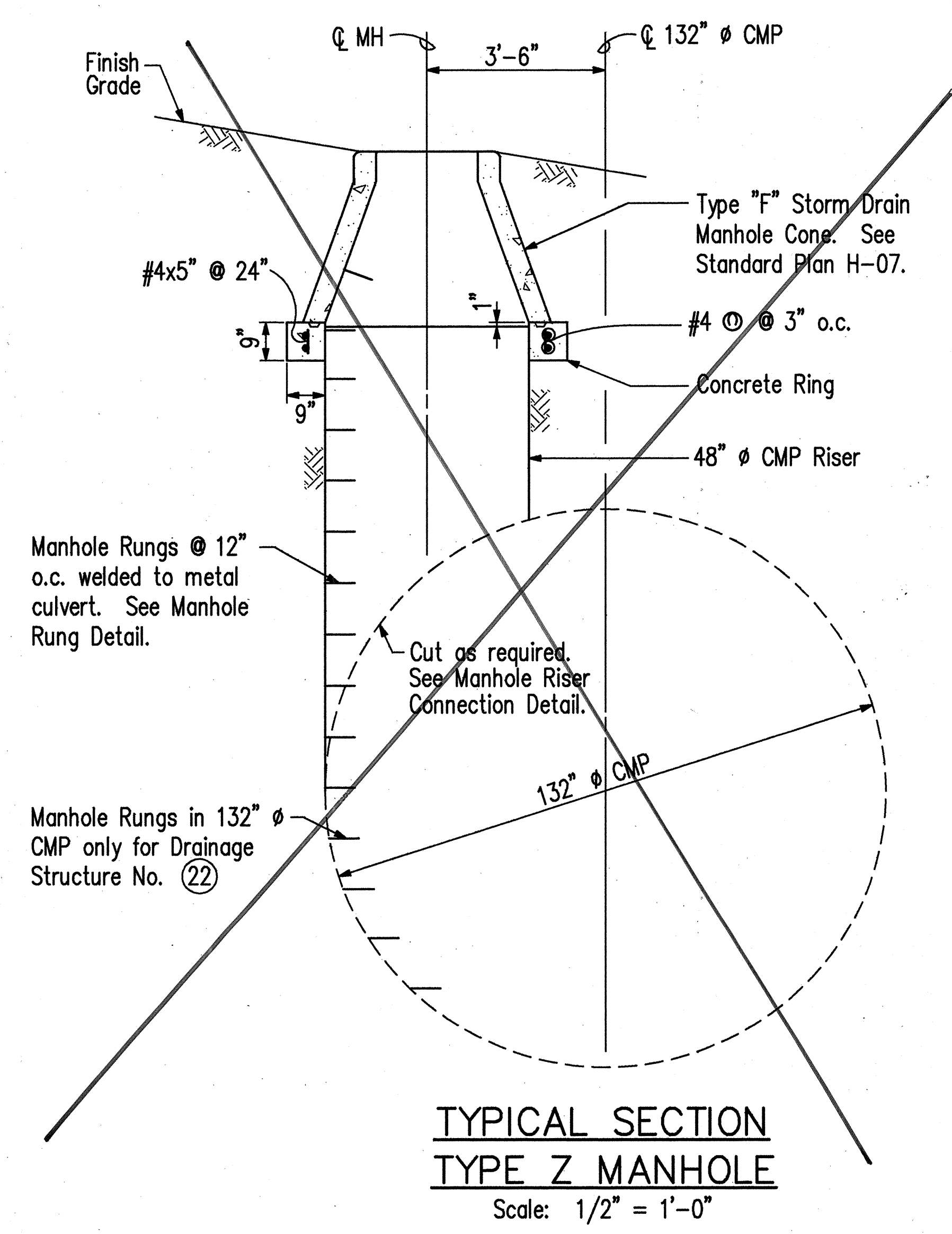
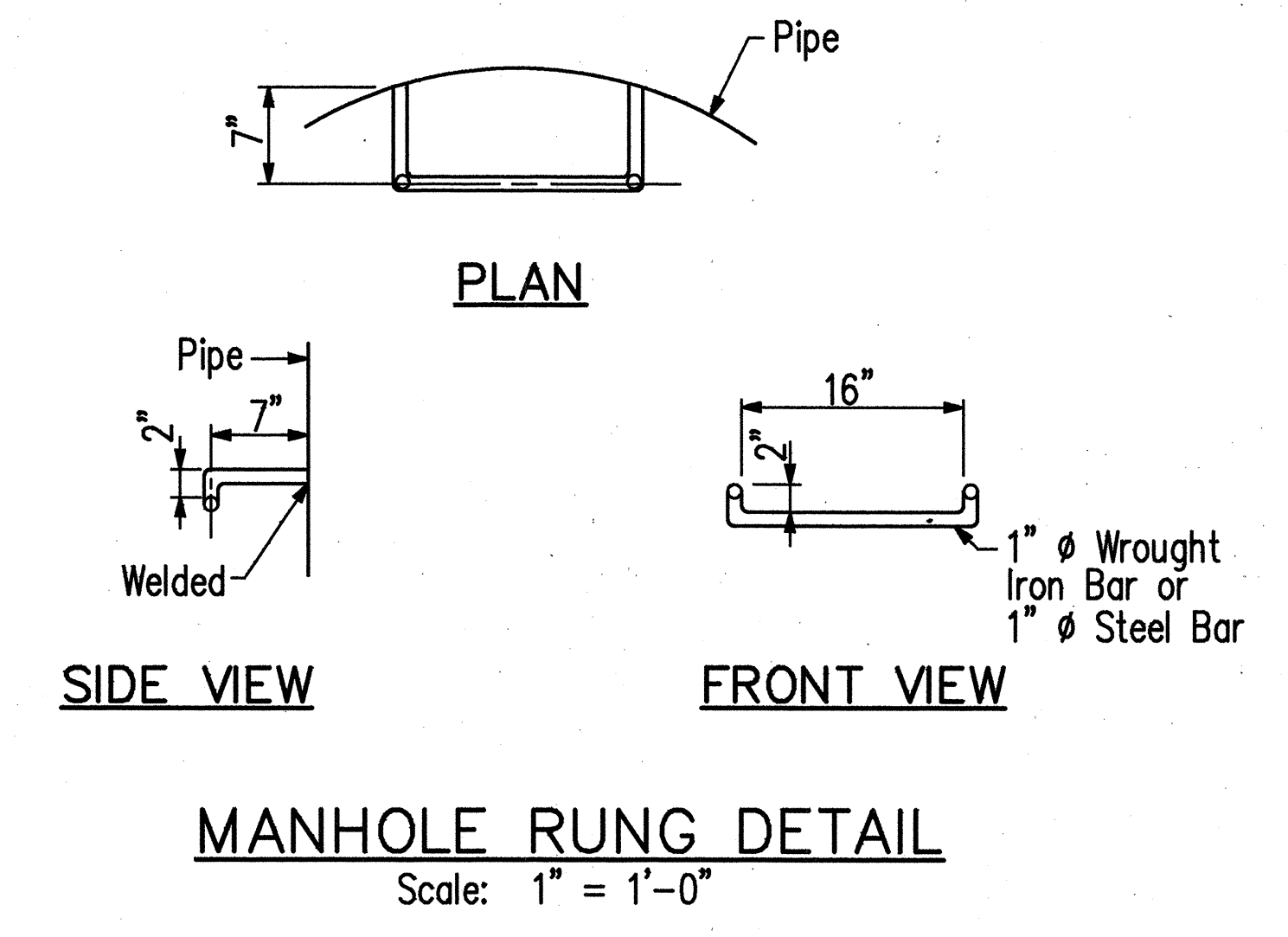
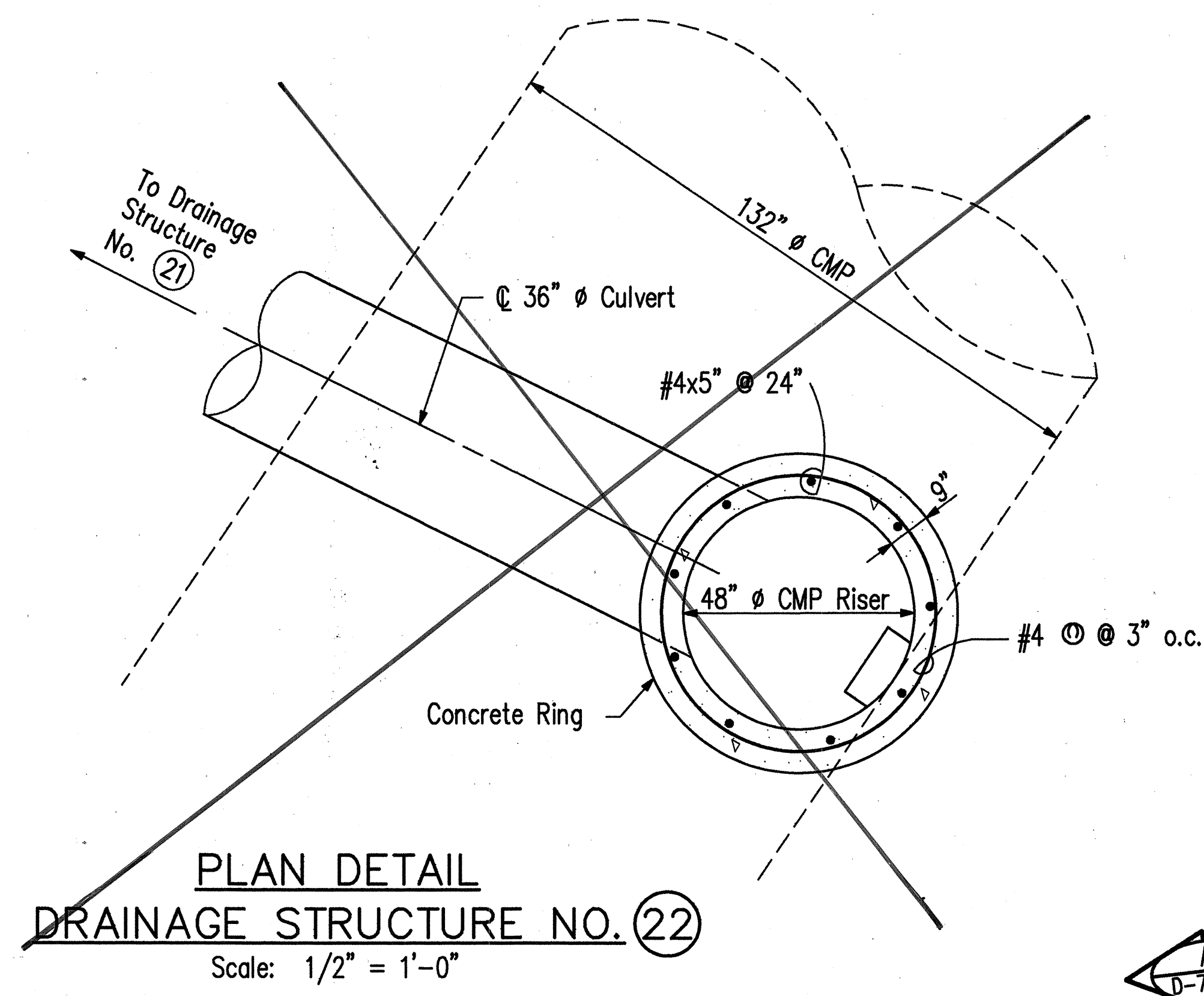
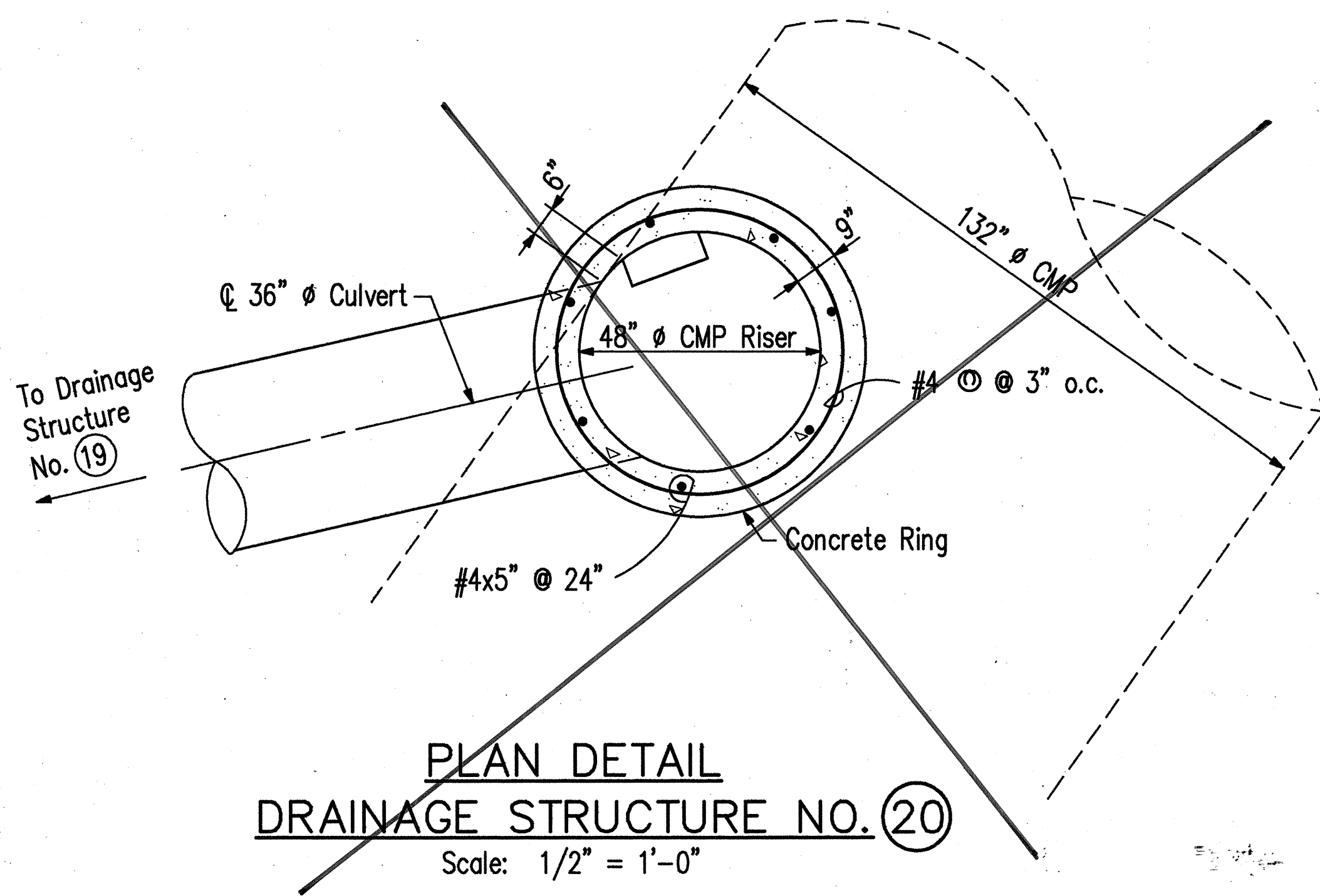
MILLANI INTERCHANGE
NORTHBOUND ON- AND OFF-RAMPS

VERT. 1"=4'
SCALE: HORIZ. 1"=40'

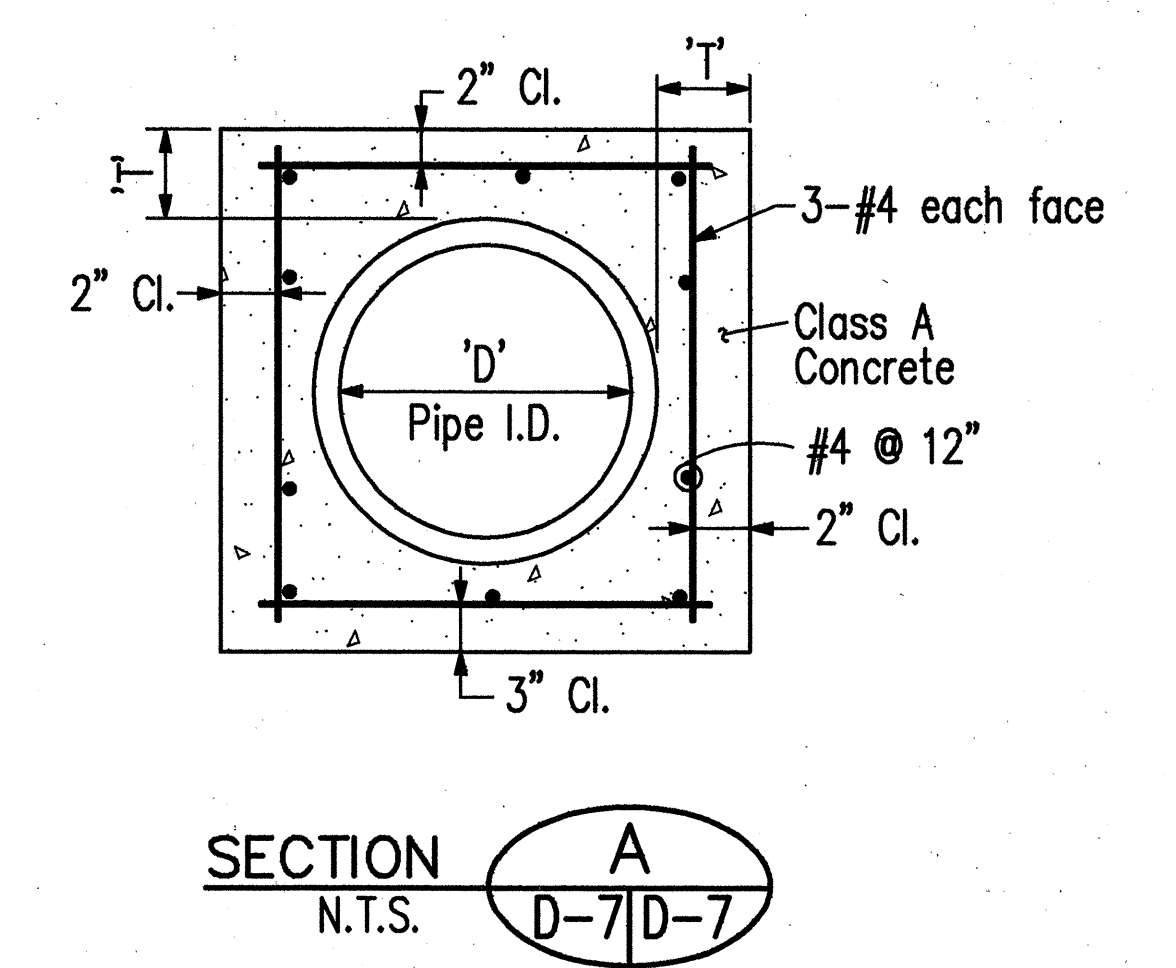
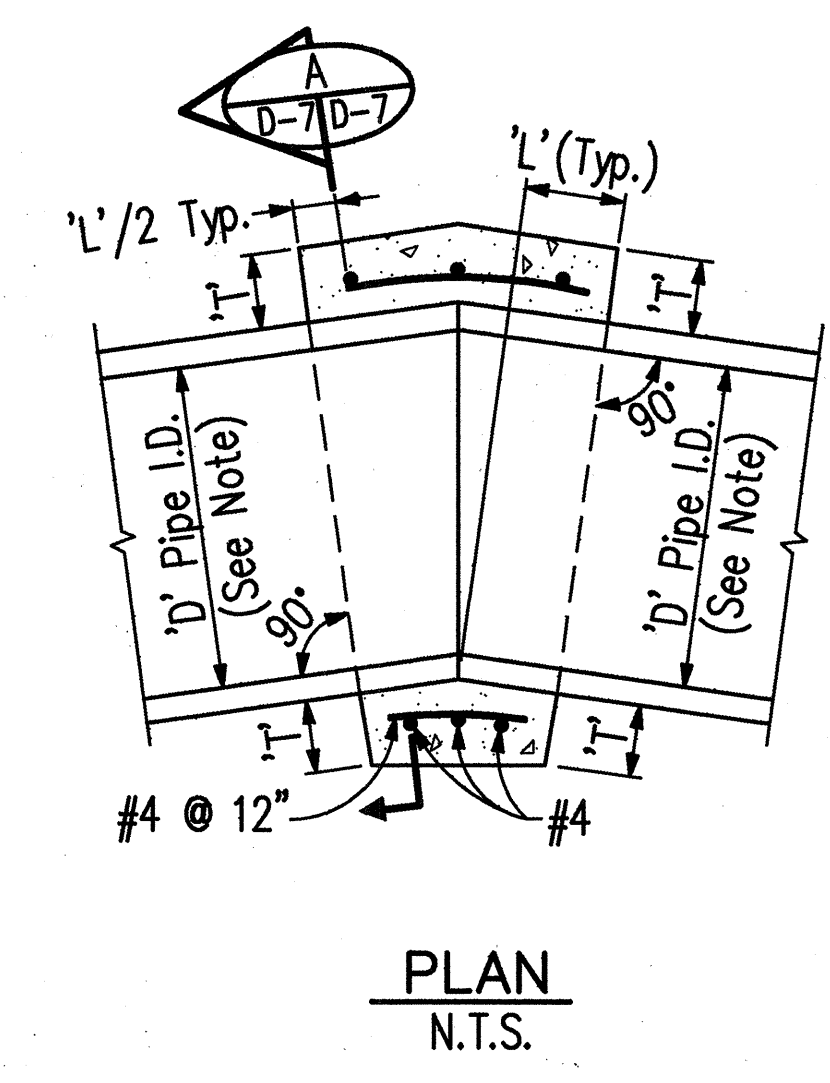
DATE: March 1992

SHEET No. 0-6 OF 8 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	PMFH2-C-02-94		29	84



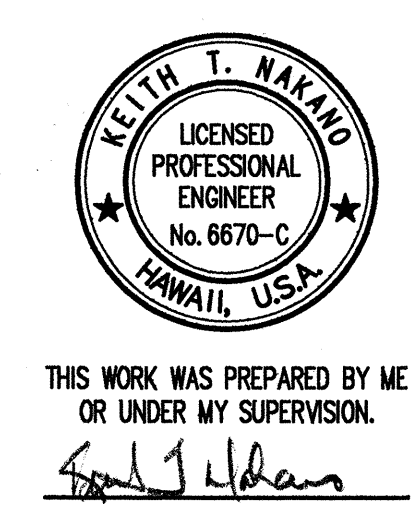
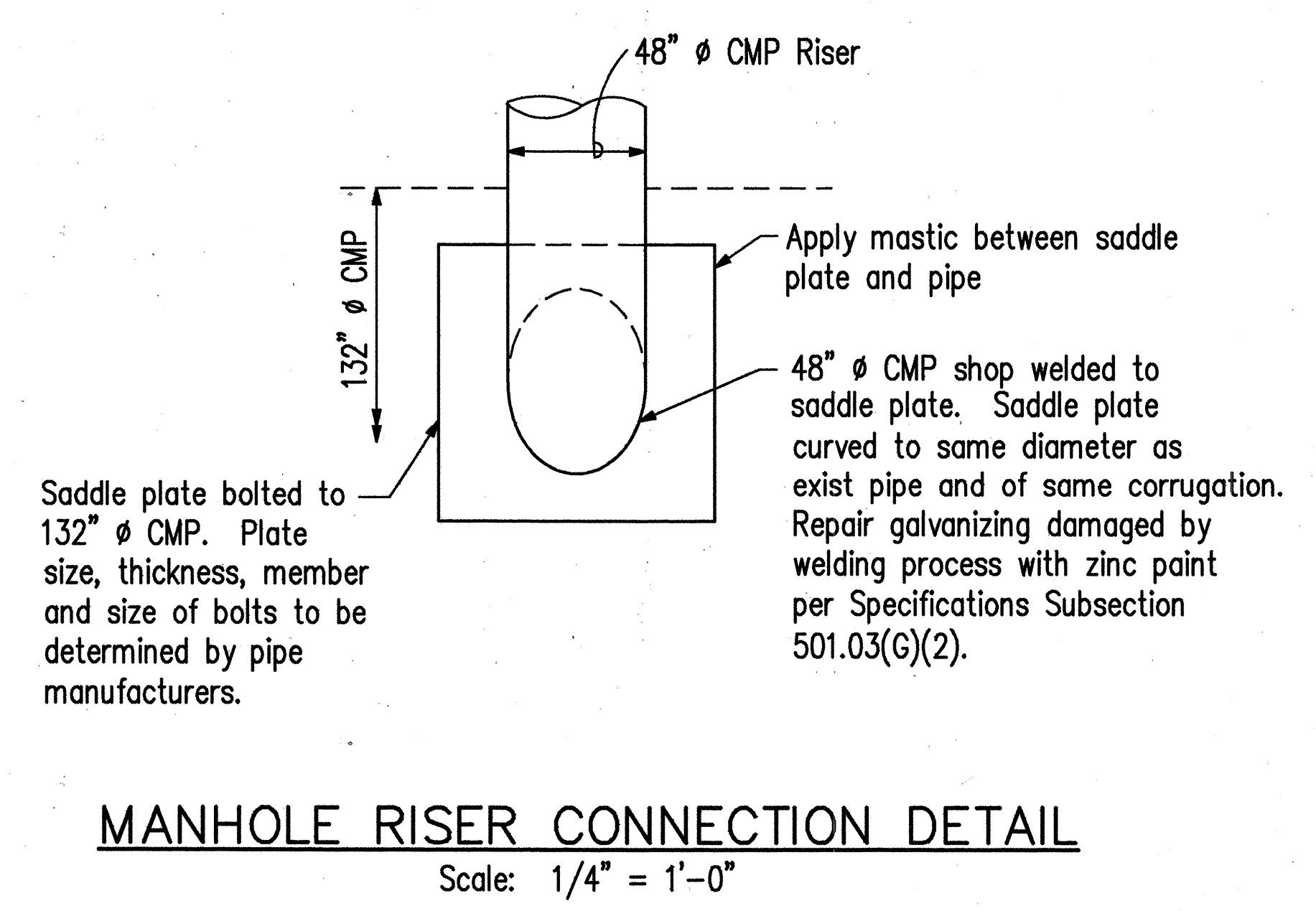
NOTE: SEE SHEET C.O. 29S-2 FOR DRAINAGE STRUCTURES NO. 20 & NO. 22



NOTE: For dimensions 'D', 'L' & 'T' See Table A.

TABLE A			
'D'	'L'	'T'	
24"	1.0'	6"	
30"	1.5'	8"	
36"	1.5'	8"	

CONCRETE COLLAR FOR REINFORCED CONCRETE PIPE CULVERTS



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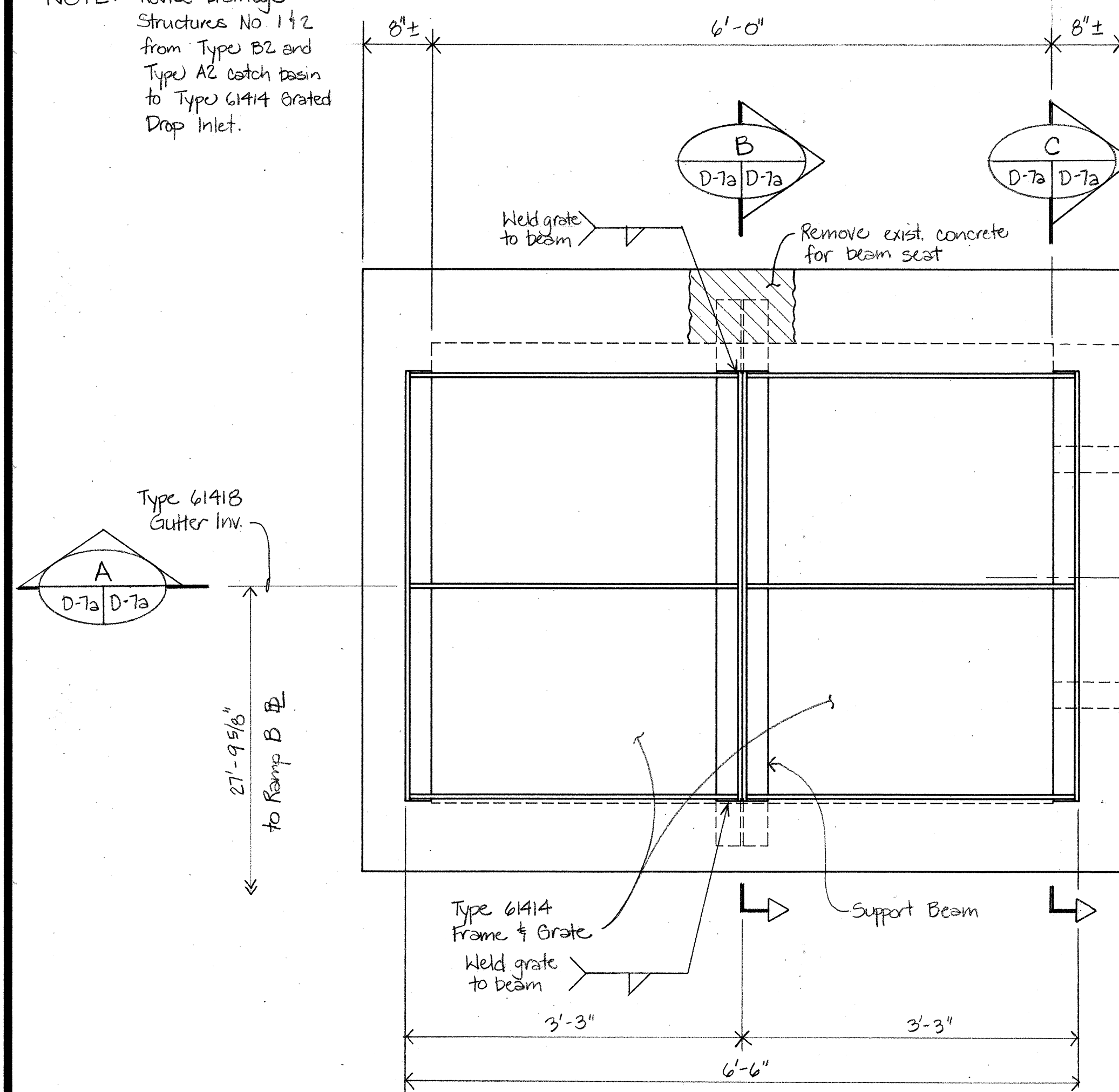
DRAINAGE DETAILS

MILANI INTERCHANGE
NORTHBOUND ON- AND OFF-RAMPS

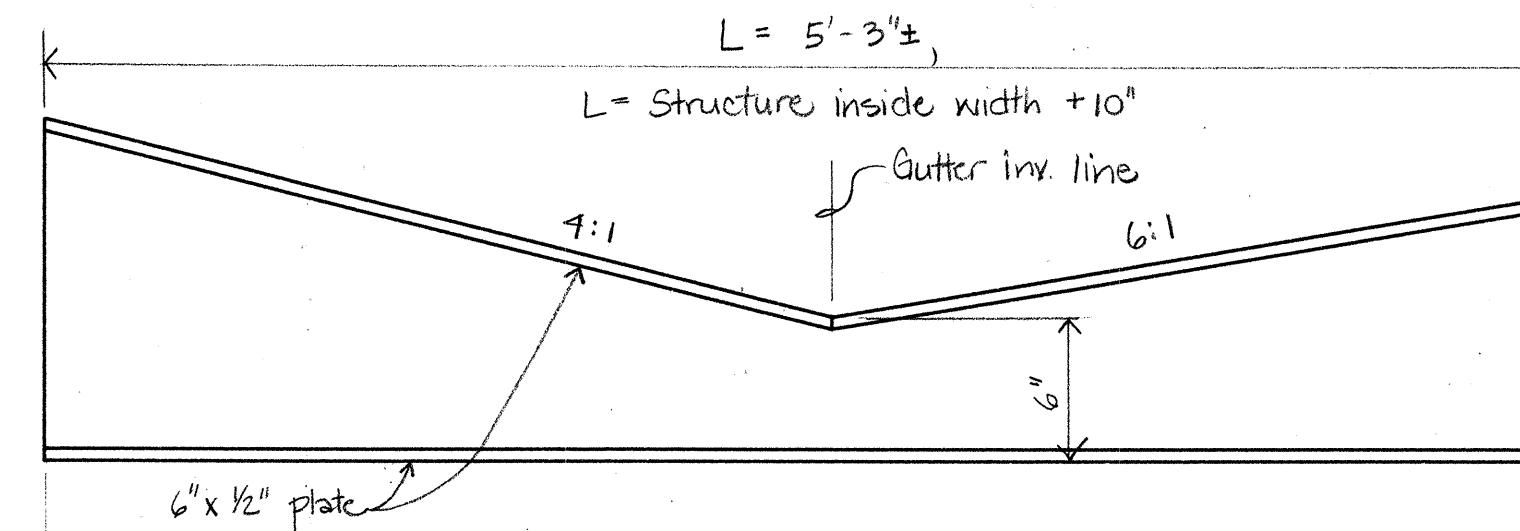
SCALE: AS SHOWN DATE: March 1992

SHEET No. D-7 OF 8 SHEETS

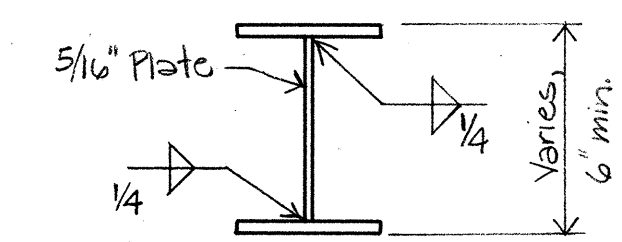
NOTE: Revise Drainage Structures No. 112 from Type B2 and Type A2 catch basin to Type 61414 Grated Drop Inlet.



PLAN

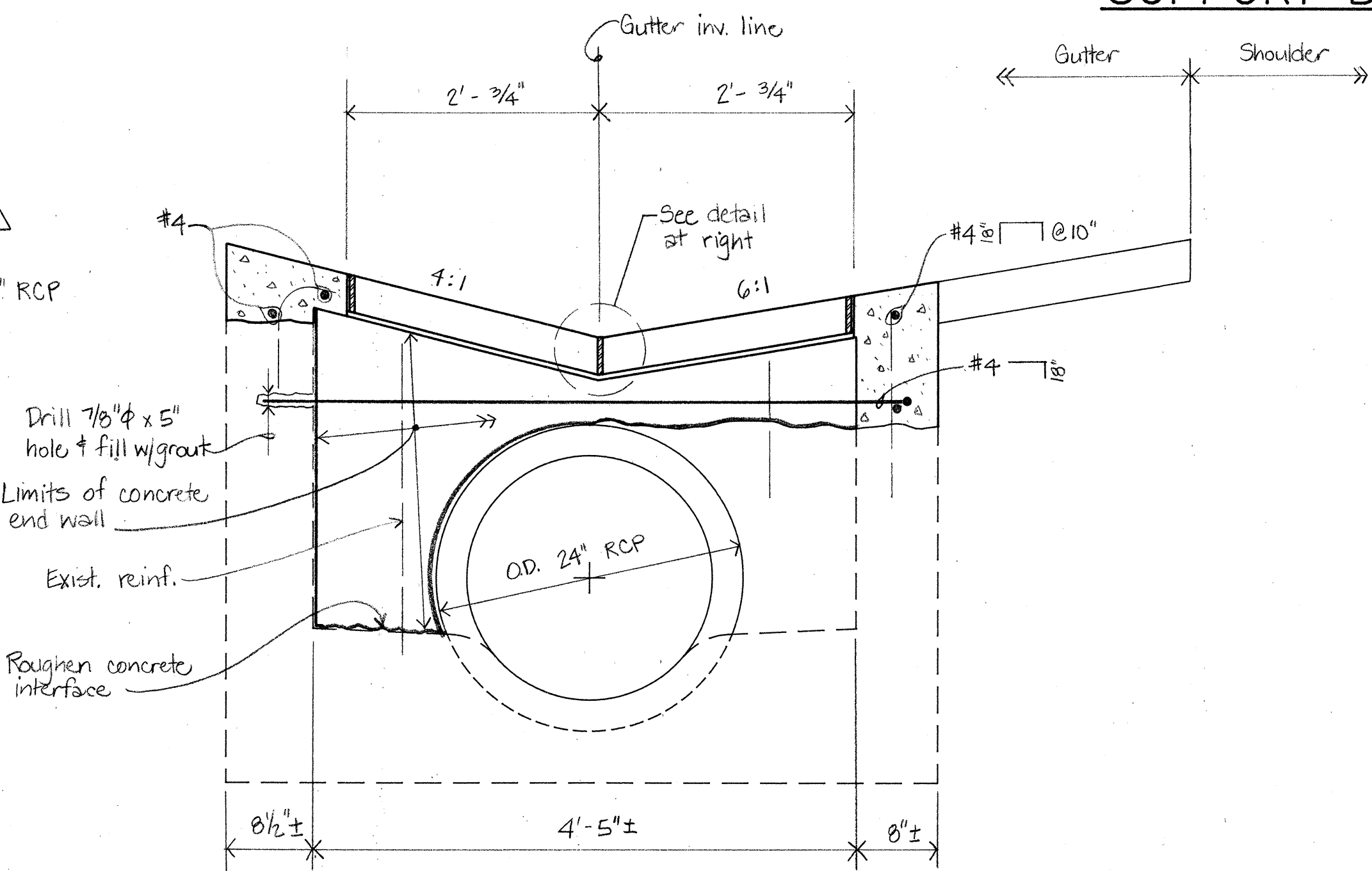


ELEVATION
Scale: 1 1/2" = 1'-0"

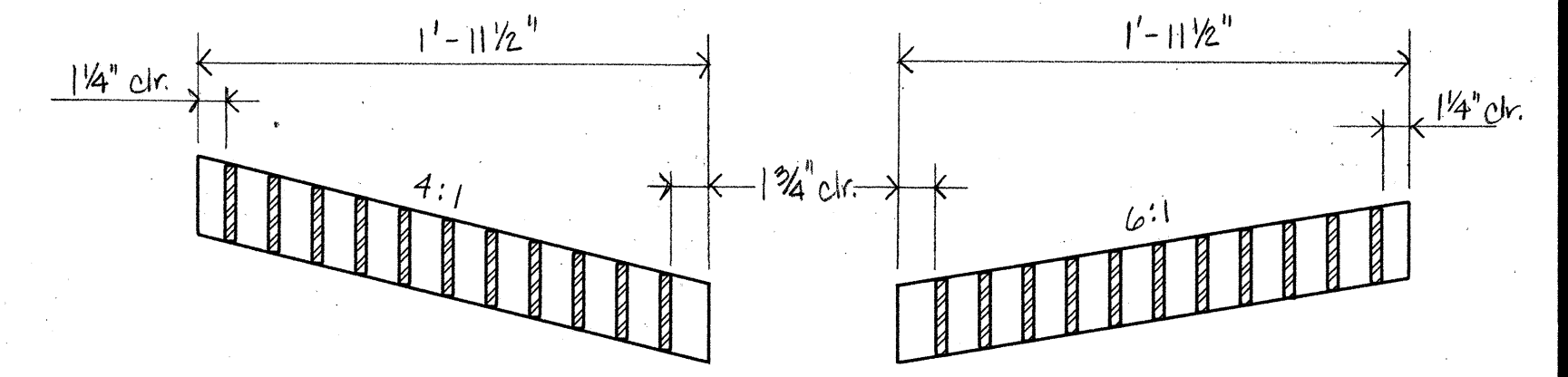
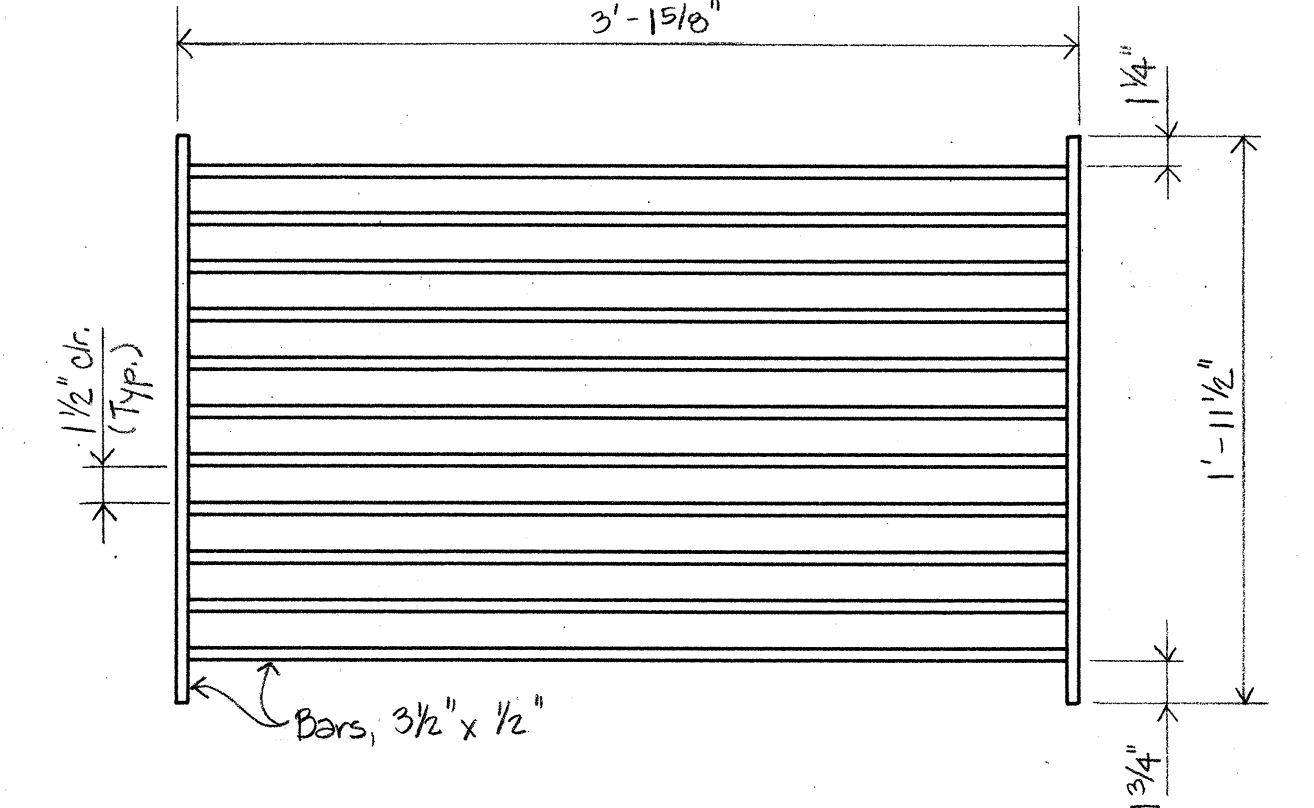
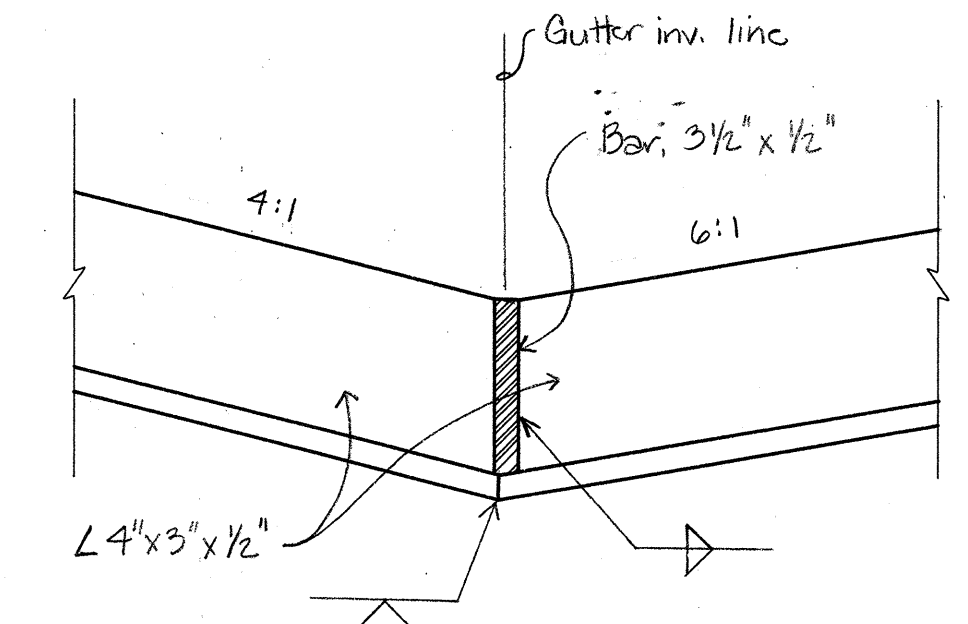


SECTION

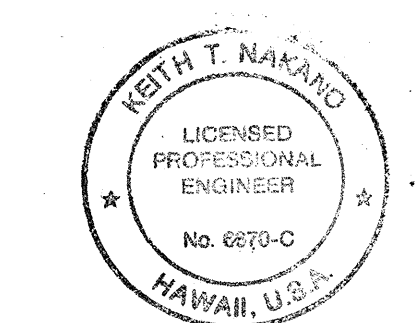
- NOTES:
1. Type 61414 Frame and Grate similar to Type 61614 Frame and Grate (State Standard Plan H-13) except as shown.
 2. All welds are 5/16" unless otherwise noted.
 3. Grates and frames shall be hot-dip galvanized after fabrication.
 4. All structural steel shall be ASTM A36.



SECTION C
D-7a D-7a



TYPE 61414 FRAME AND GRATE
Scale: 1 1/2" = 1'-0"



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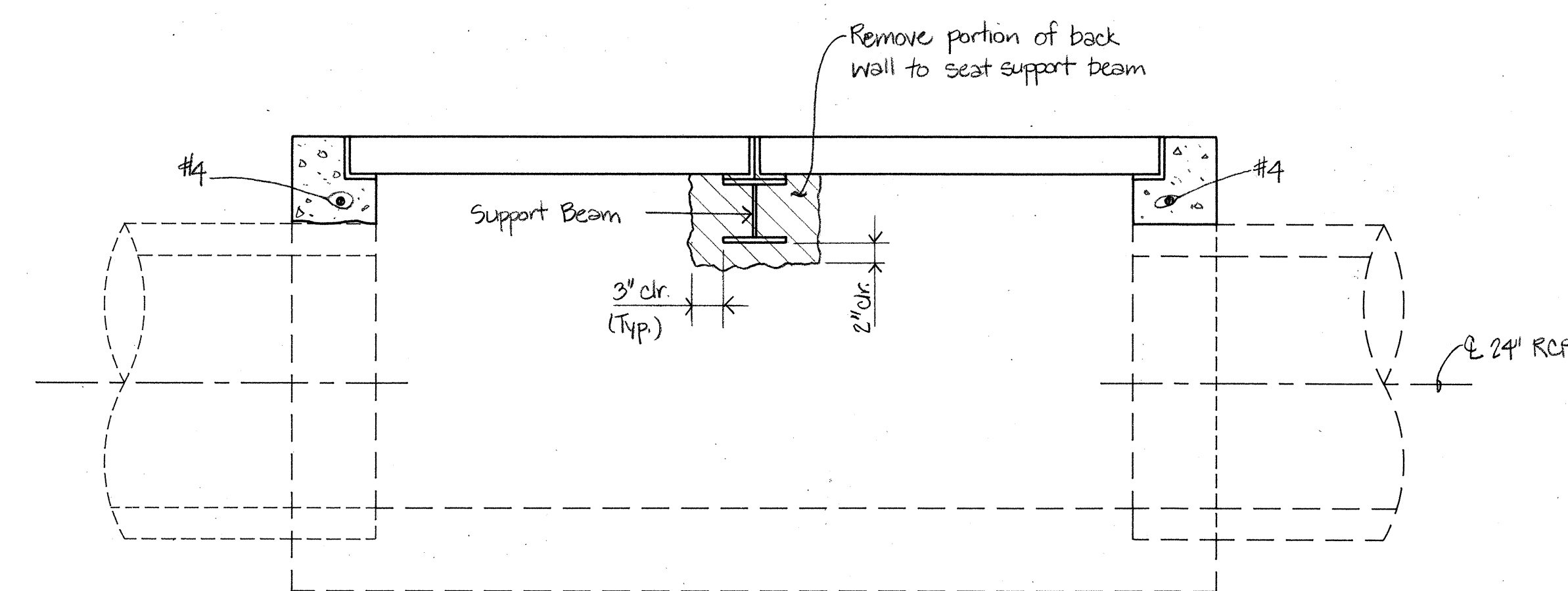
CASTLE & COOKE RESIDENTIAL, Inc.

FIELD CHANGE
TYPE 61414
GRATED DROP INLET

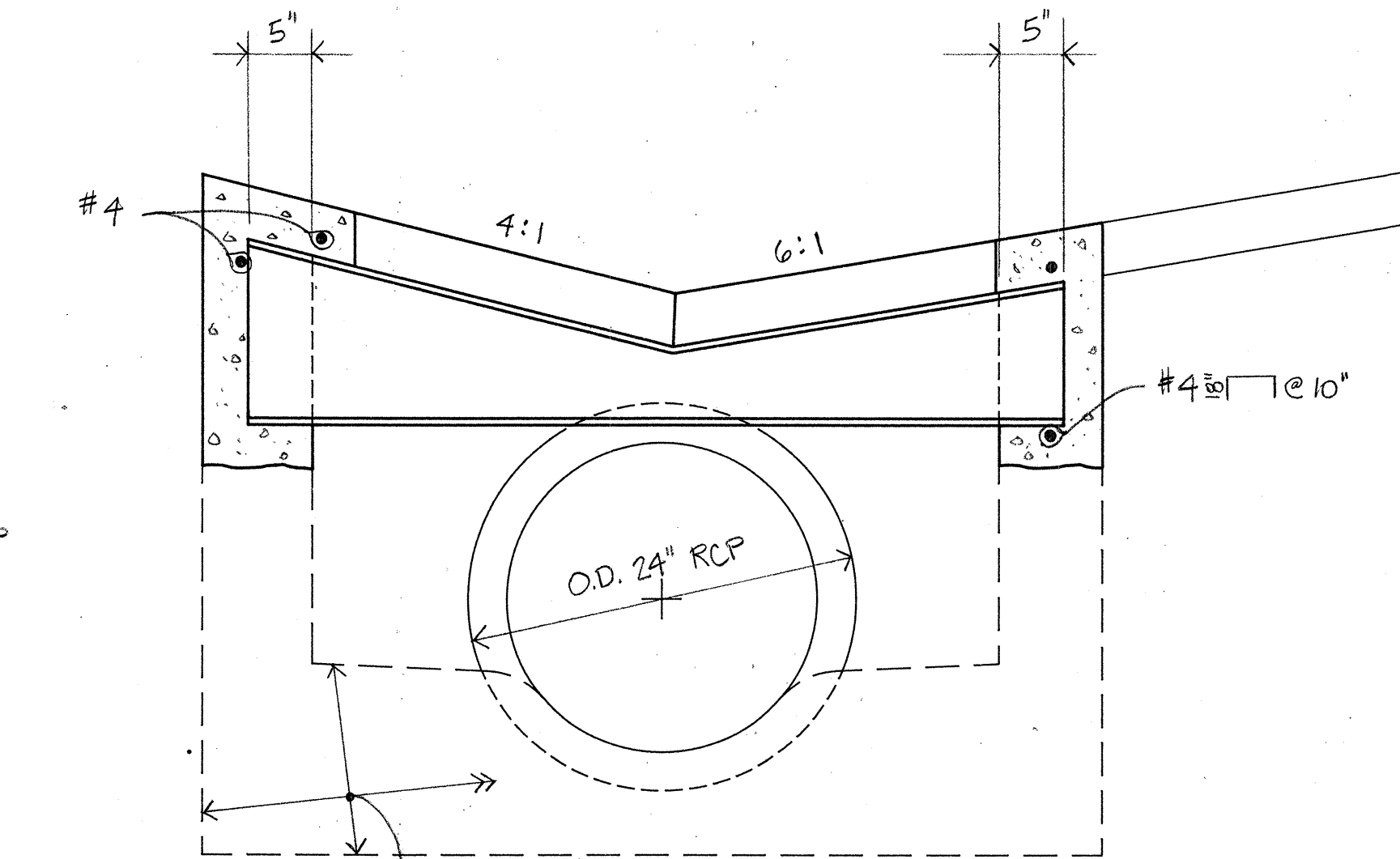
MILLANI INTERCHANGE
NORTHBOUND ON- AND OFF-RAMPS

SCALE: 1" = 1'-0" DATE: Nov 5, 1992

SHEET No. D-7a OF SHEETS



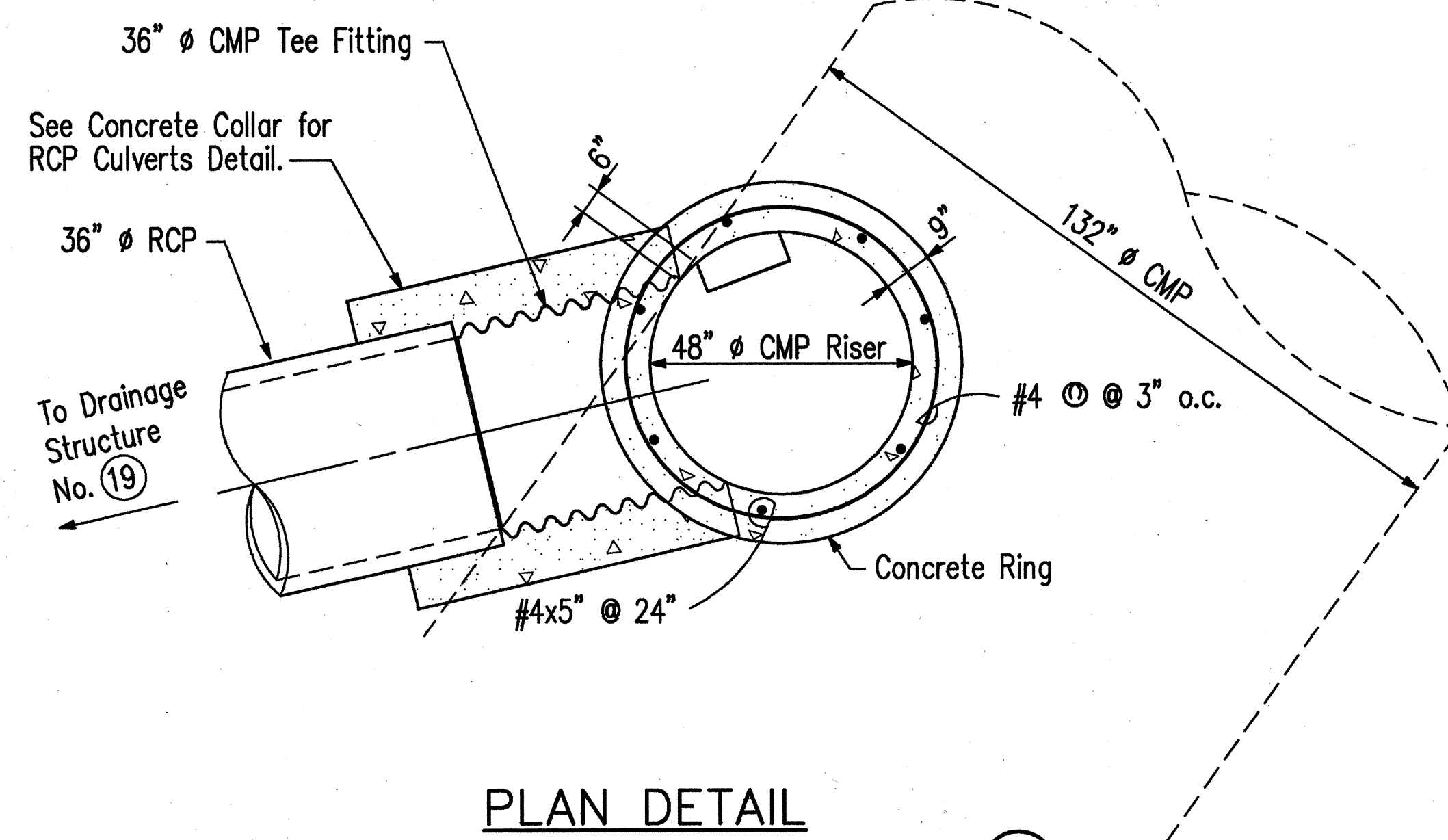
SECTION A
D-7a D-7a



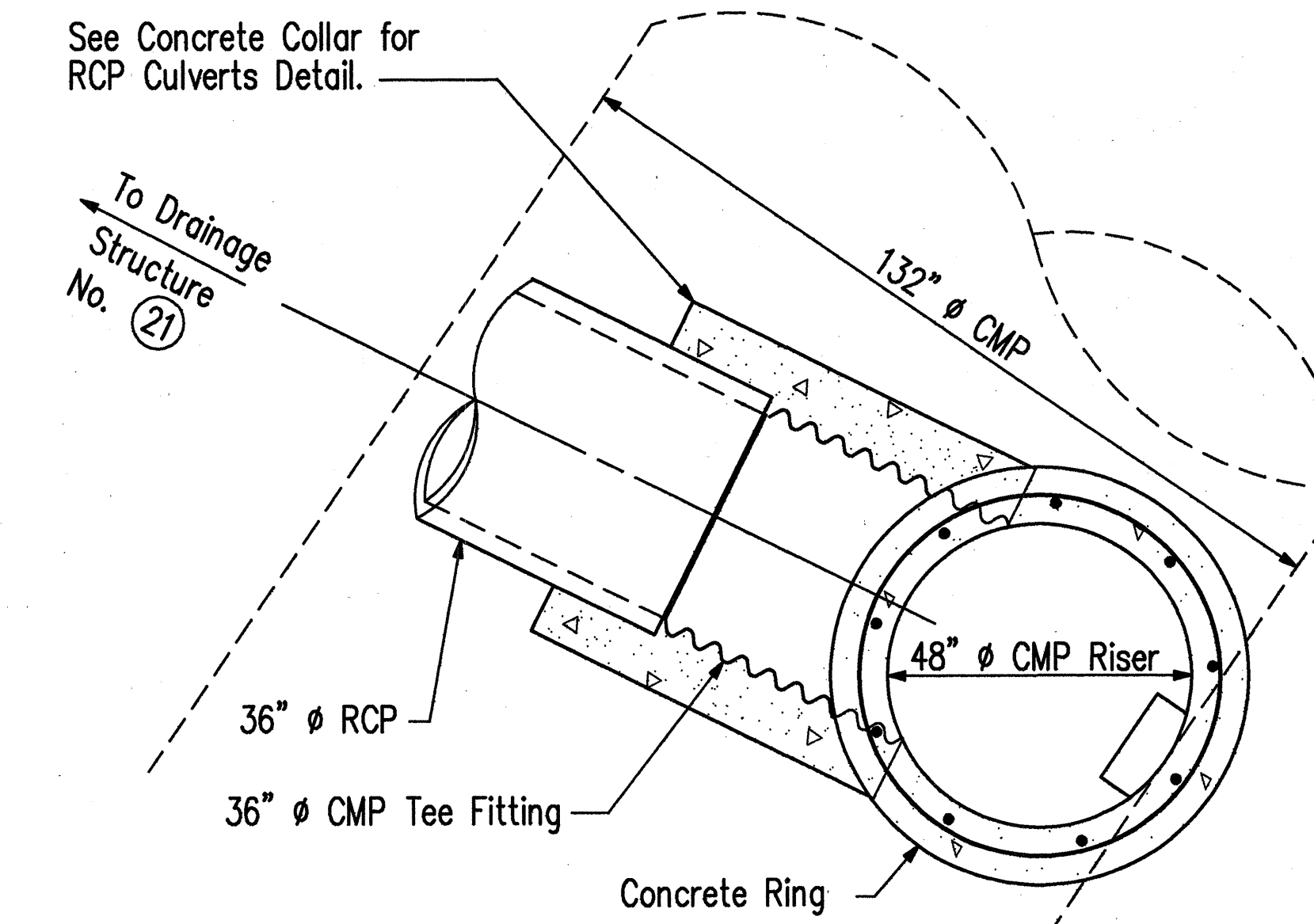
SECTION B
D-7a D-7a

GRATED DROP INLET

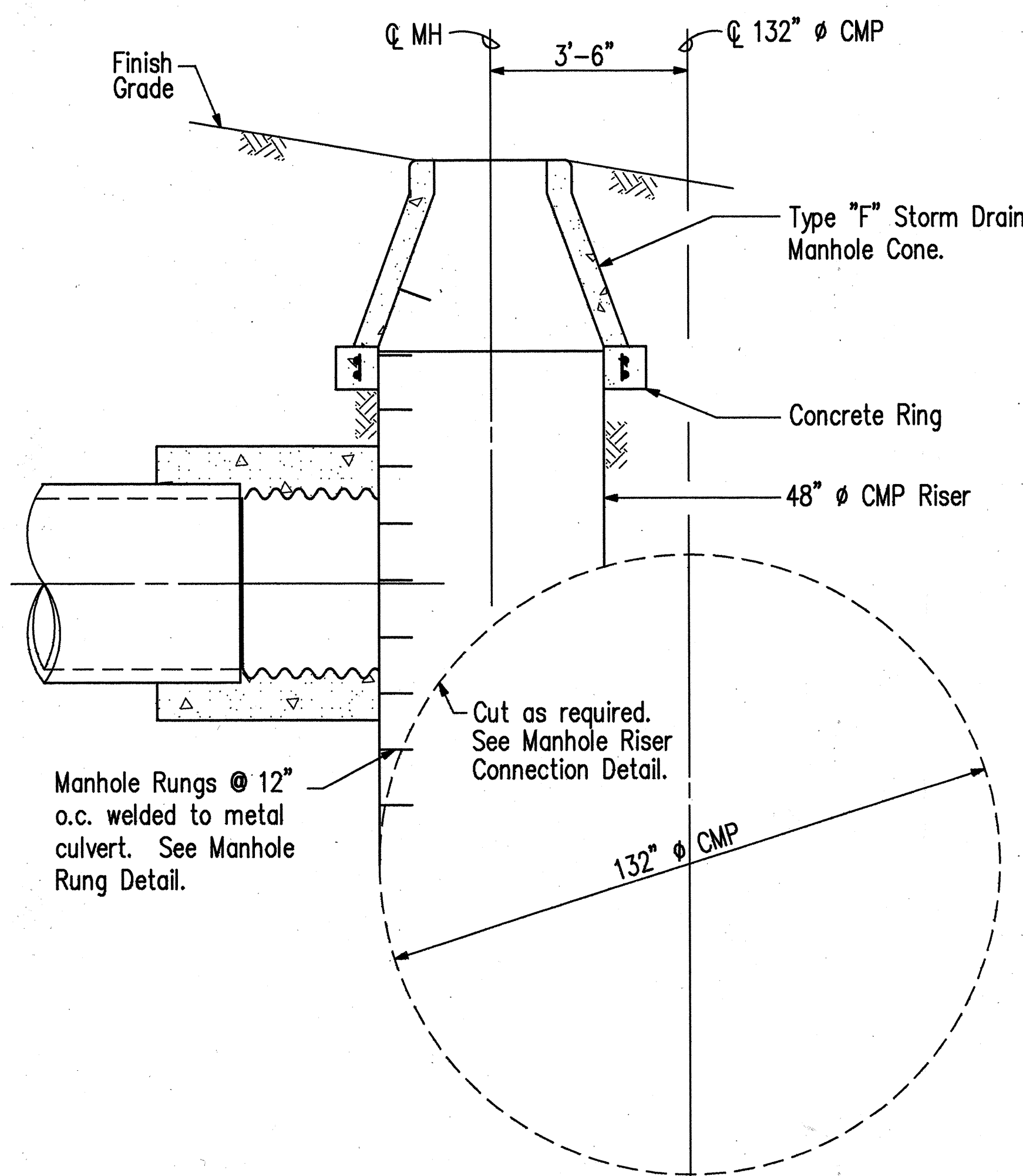
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	PMTH2-C-0294		C.O.29S-2	84



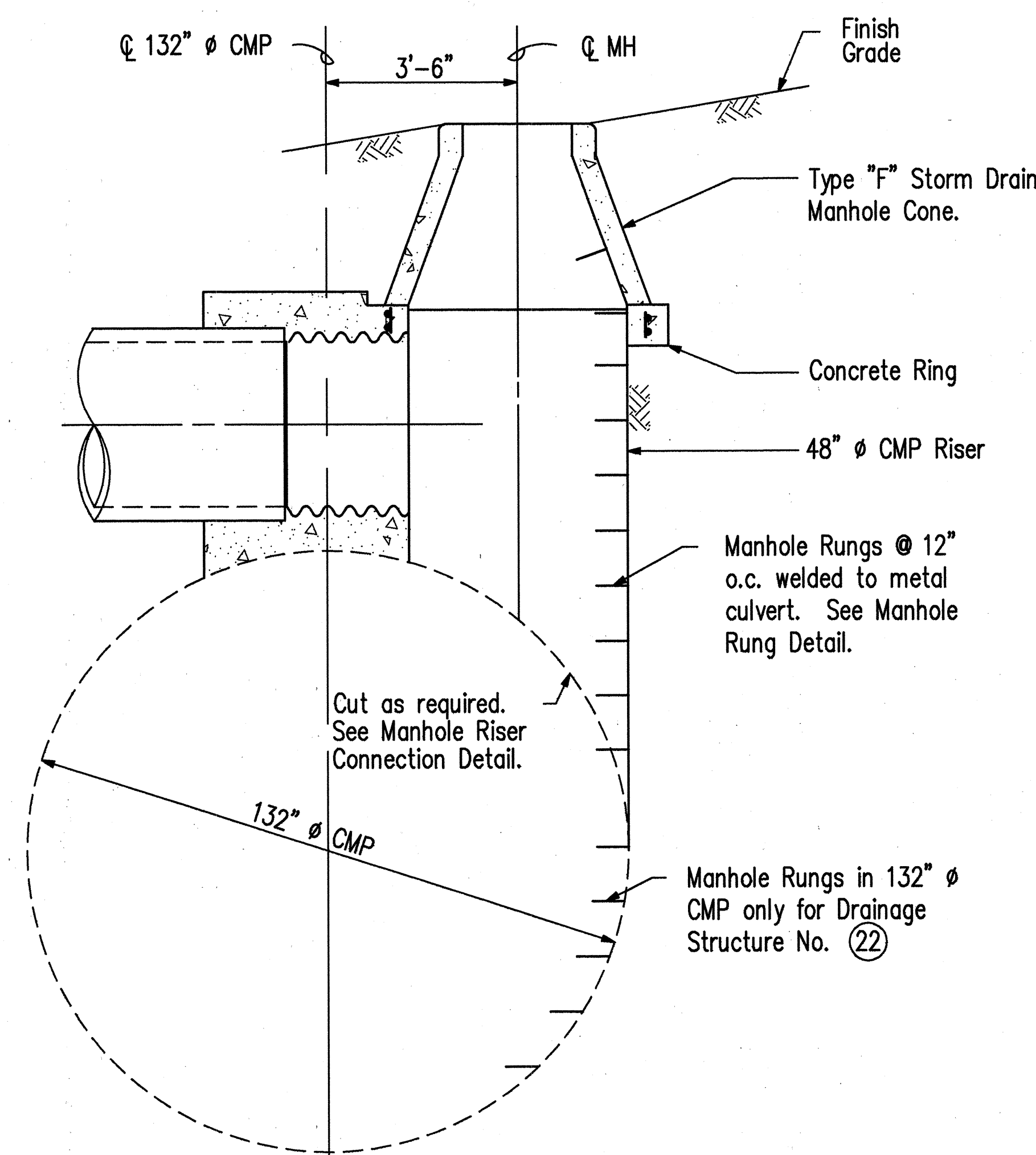
PLAN DETAIL
DRAINAGE STRUCTURE NO. 20
Scale: 1/2" = 1'-0"



PLAN DETAIL
DRAINAGE STRUCTURE NO. 22
Scale: 1/2" = 1'-0"

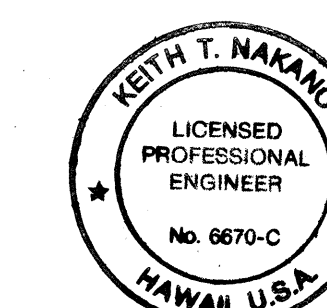


SECTION
DRAINAGE STRUCTURE NO. 20
TYPE Z MANHOLE
Scale: 1/2" = 1'-0"



SECTION
DRAINAGE STRUCTURE NO. 22
TYPE Z MANHOLE
Scale: 1/2" = 1'-0"

NOTE A: CMP Riser and Tee Fitting shall be Corrugated Steel Pipe, Sheet Thickness 0.138 inch.



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Keith Nakano

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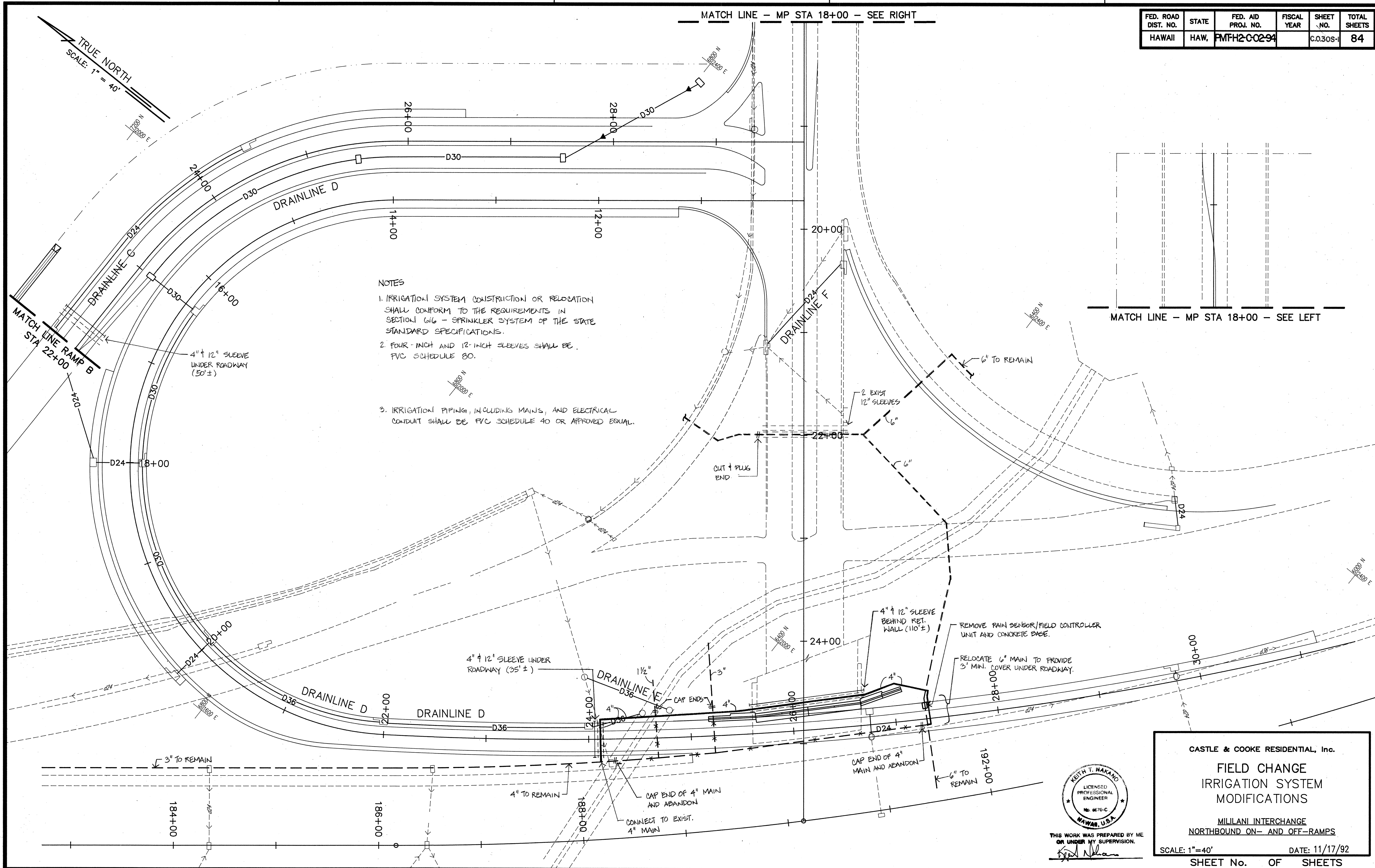
MANHOLE TYPE Z
Field Change Detail

MILILANI INTERCHANGE
NORTHBOUND ON- AND OFF-RAMPS

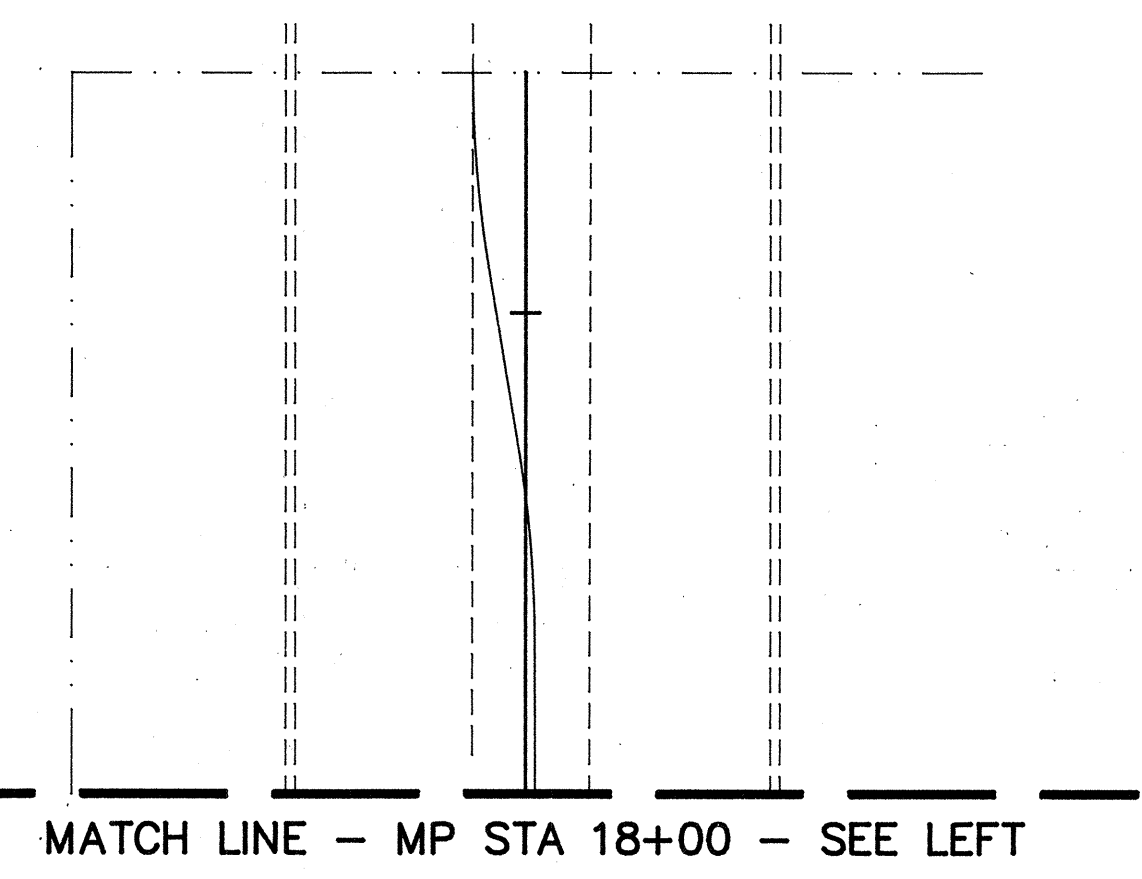
SCALE: AS SHOWN DATE: Sept. 1992
SHEET No. 1 OF 1 SHEETS

C.O.29S-2

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	FMT-H2-C-02-94		C.O.30S-1	84



- NOTES
1. IRRIGATION SYSTEM CONSTRUCTION OR RELOCATION SHALL CONFORM TO THE REQUIREMENTS IN SECTION 616 - SPRINKLER SYSTEM OF THE STATE STANDARD SPECIFICATIONS.
 2. FOUR-INCH AND 12-INCH SLEEVES SHALL BE PVC SCHEDULE 80.
 3. IRRIGATION PIPING, INCLUDING MAINS, AND ELECTRICAL CONDUIT SHALL BE PVC SCHEDULE 40 OR APPROVED EQUAL.



KEITH T. MAKANO
LICENSED PROFESSIONAL ENGINEER
NO. 9670-C
HAWAII, U.S.A.

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[Signature]

CASTLE & COOKE RESIDENTIAL, Inc.

FIELD CHANGE
IRRIGATION SYSTEM
MODIFICATIONS

MILILANI INTERCHANGE
NORTHBOUND ON- AND OFF-RAMPS

SCALE: 1"=40' DATE: 11/17/92

SHEET No. OF SHEETS