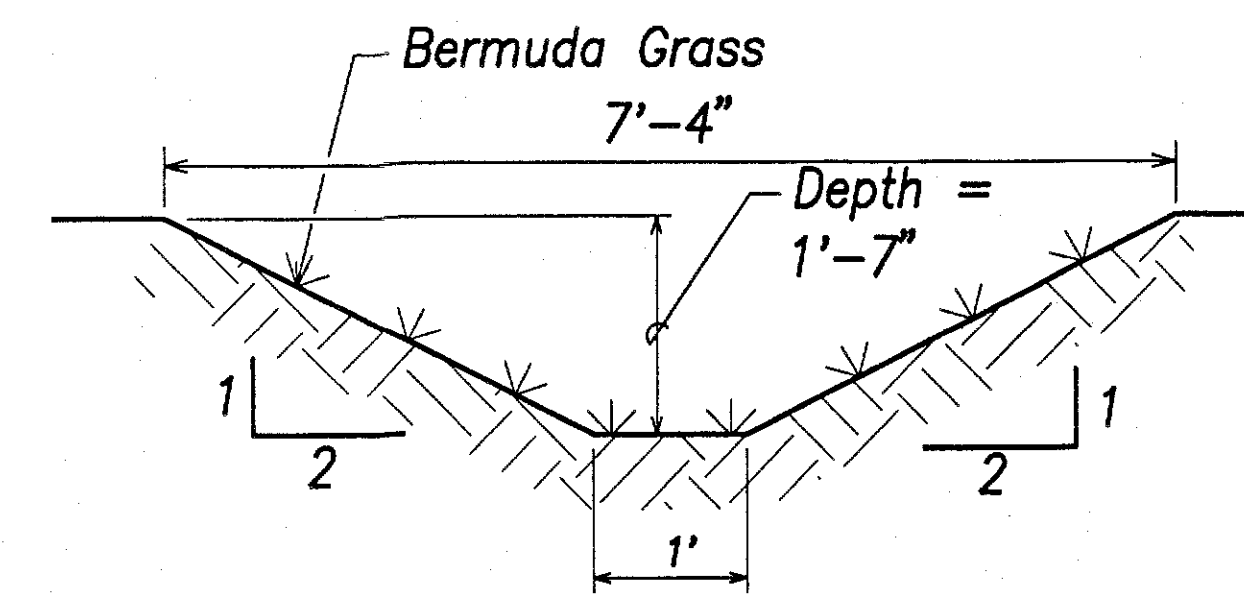
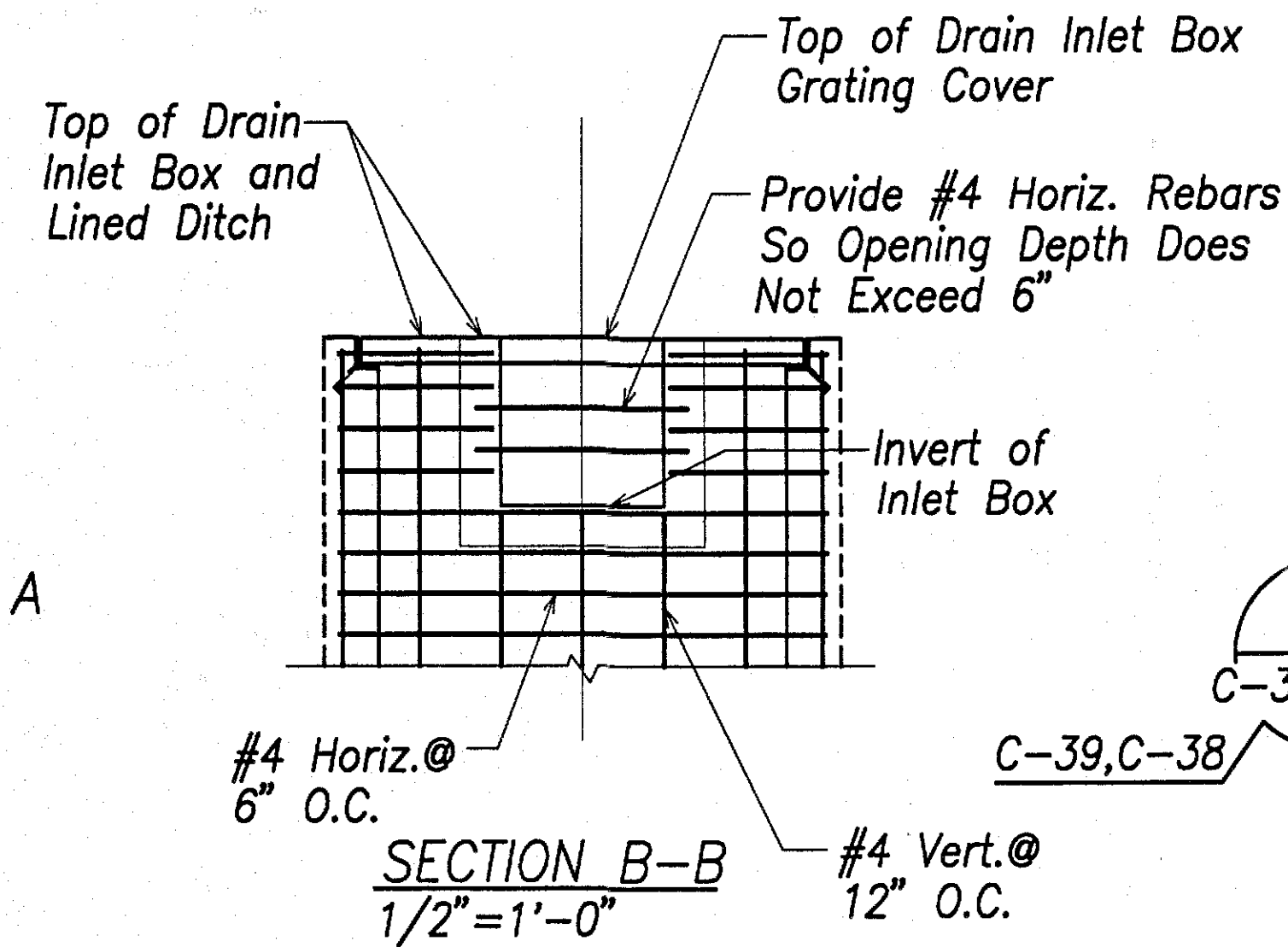
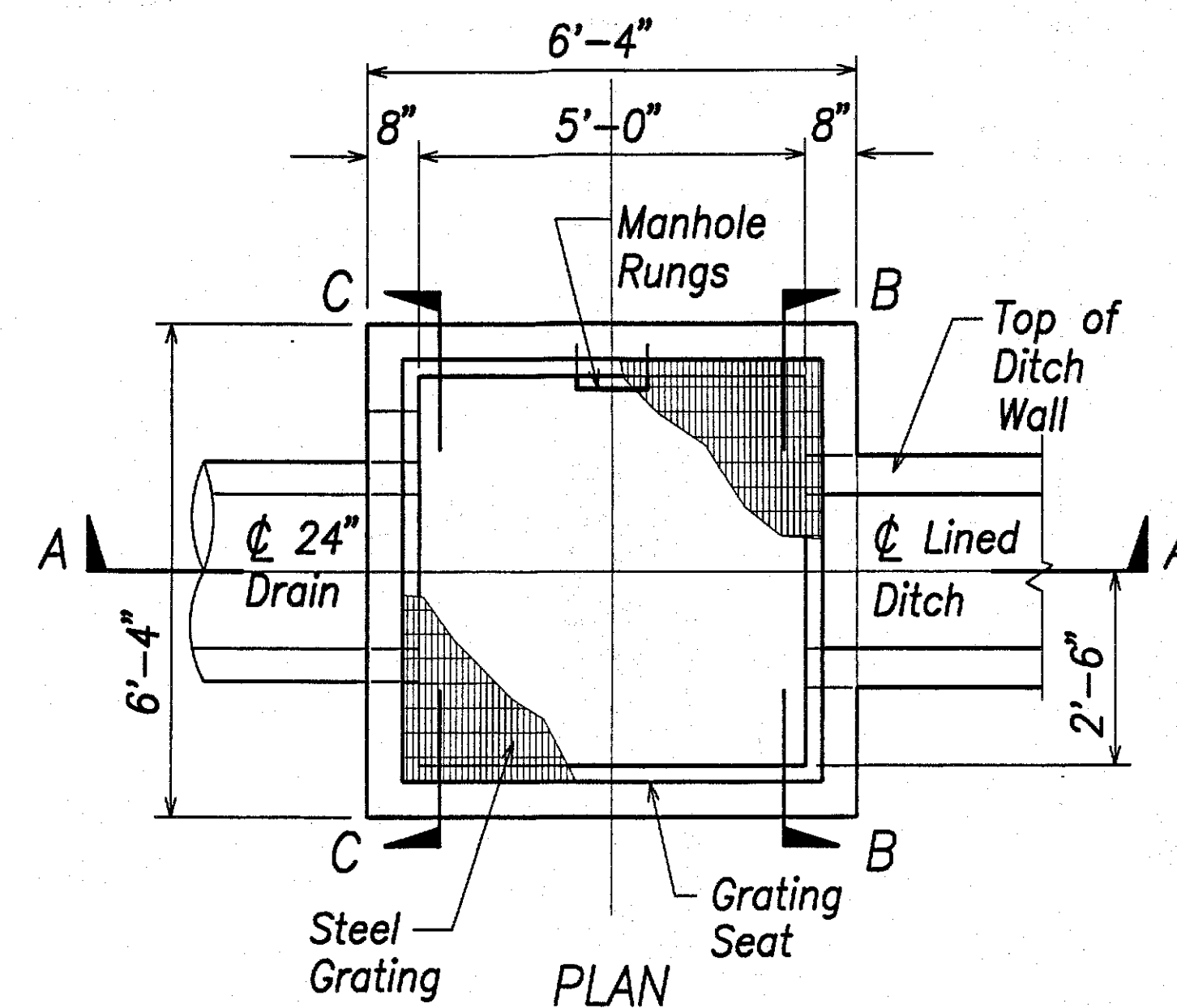
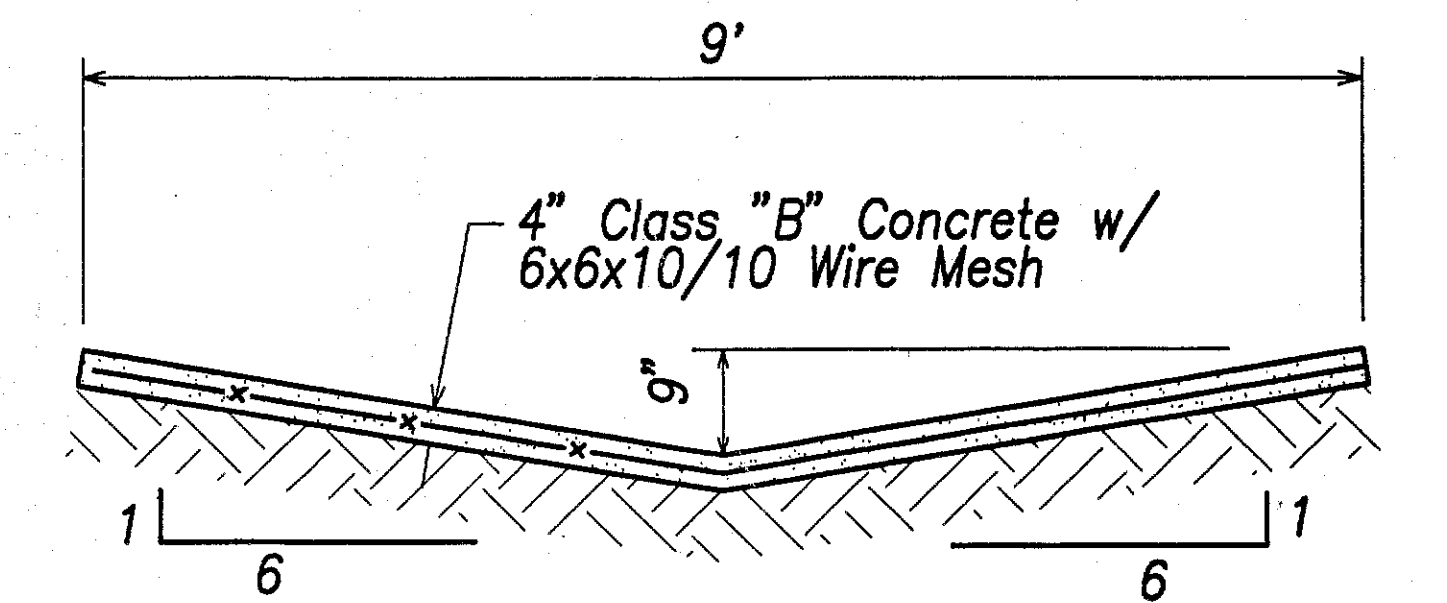


4/15/03

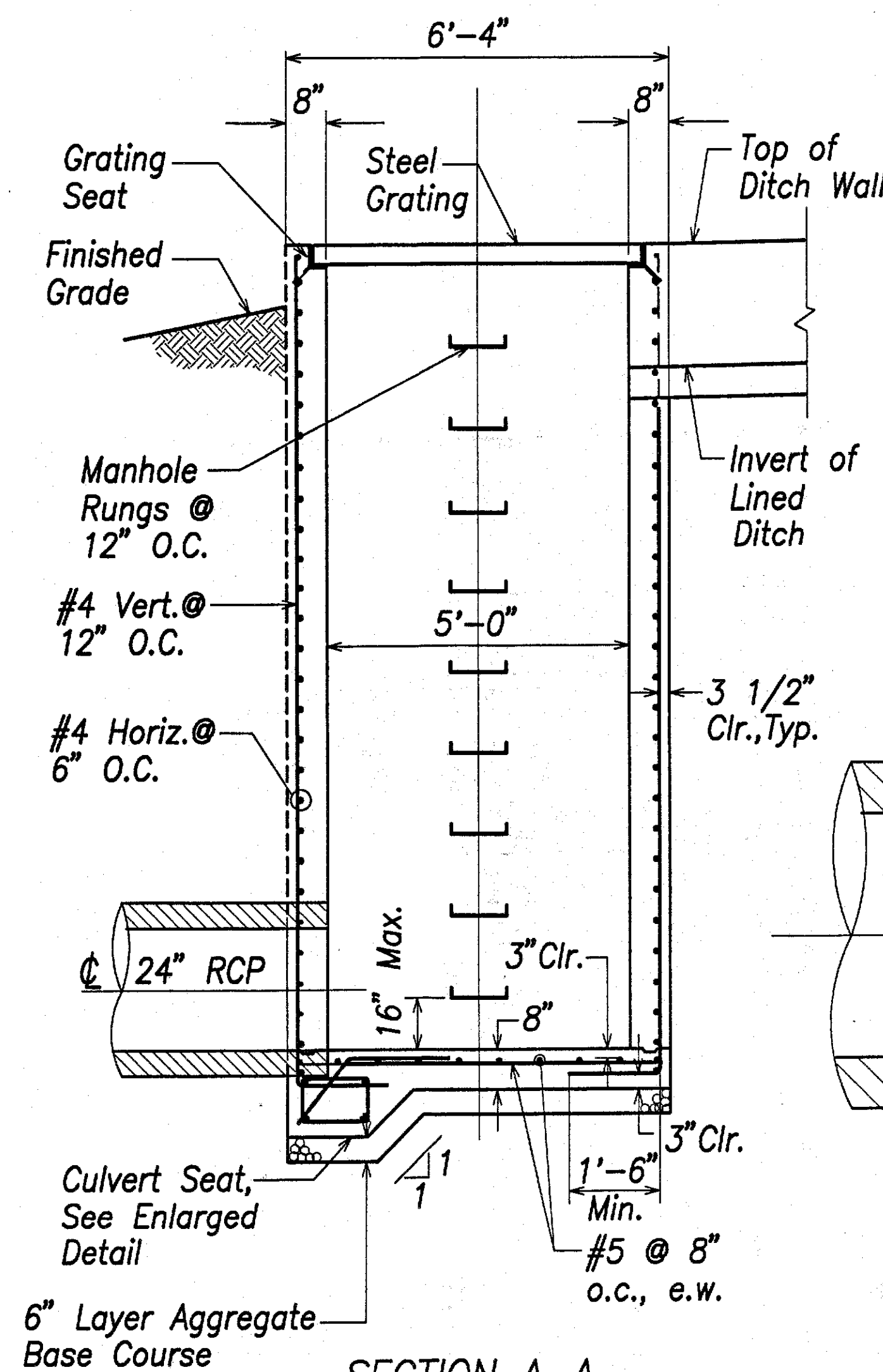
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	31AB-01-02	2002	54	124



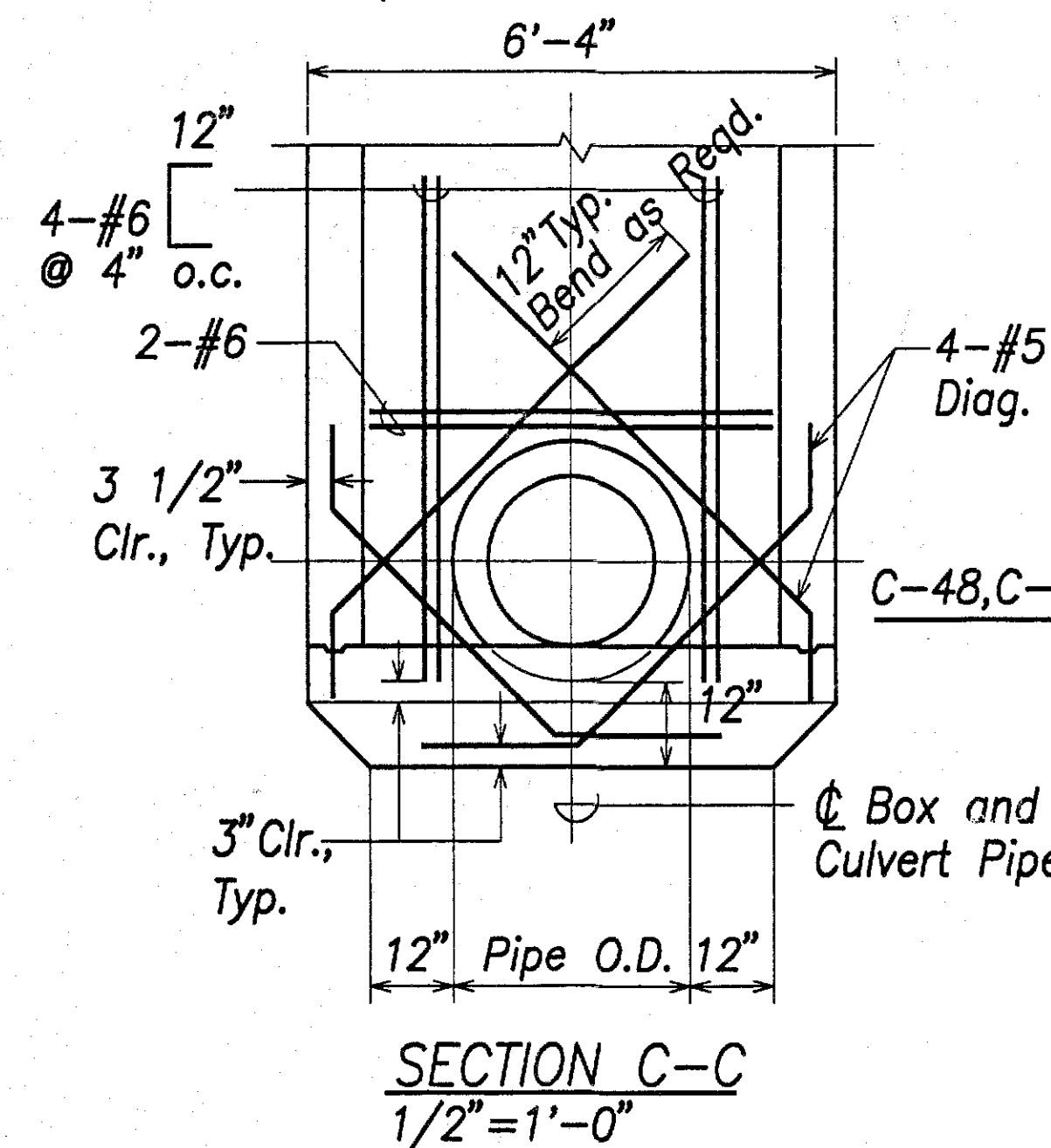
A GRASS TRAPEZOIDAL TYPE "A" SWALE DETAIL
C-36 C-52 NOT TO SCALE



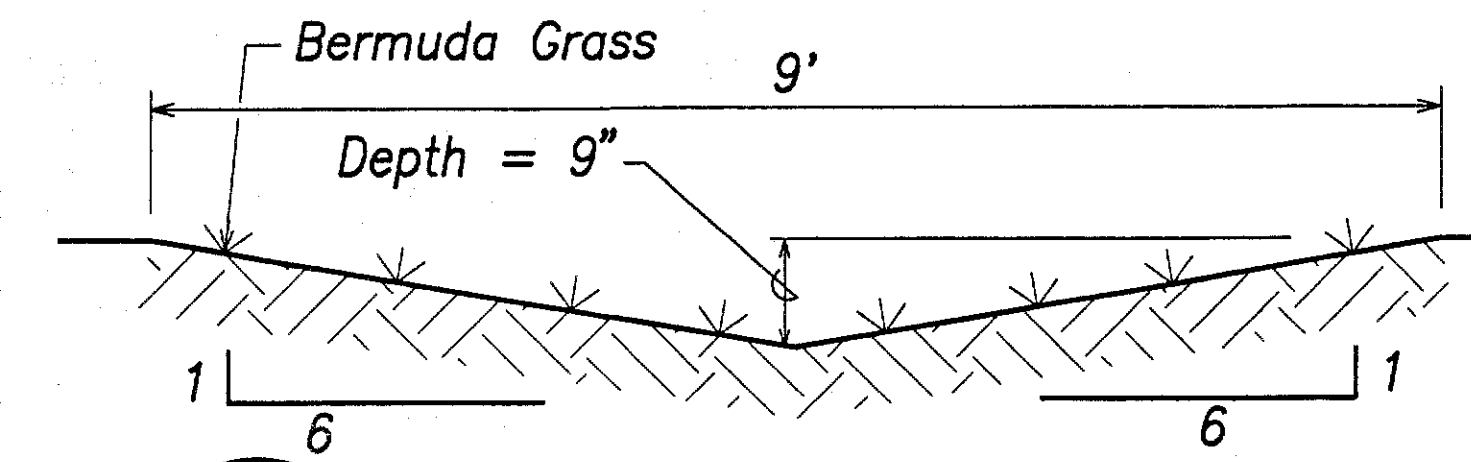
E CONCRETE TRIANGULAR TYPE "E" SWALE DETAIL
C-41 C-52 NOT TO SCALE



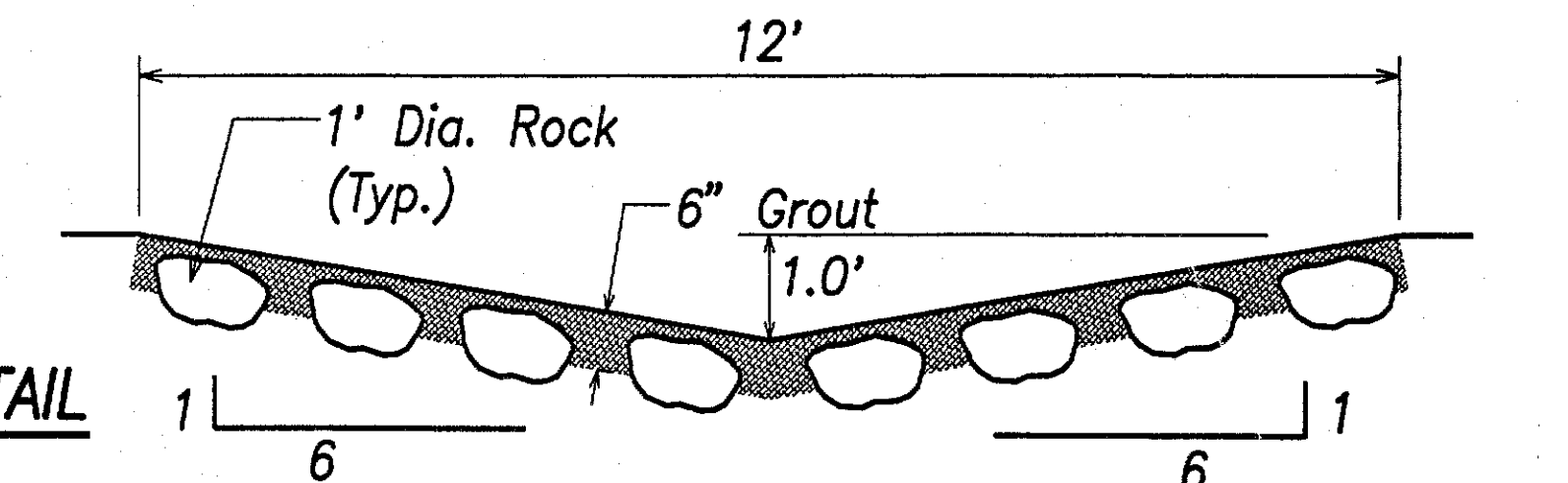
SECTION A-A
1/2" = 1'-0"



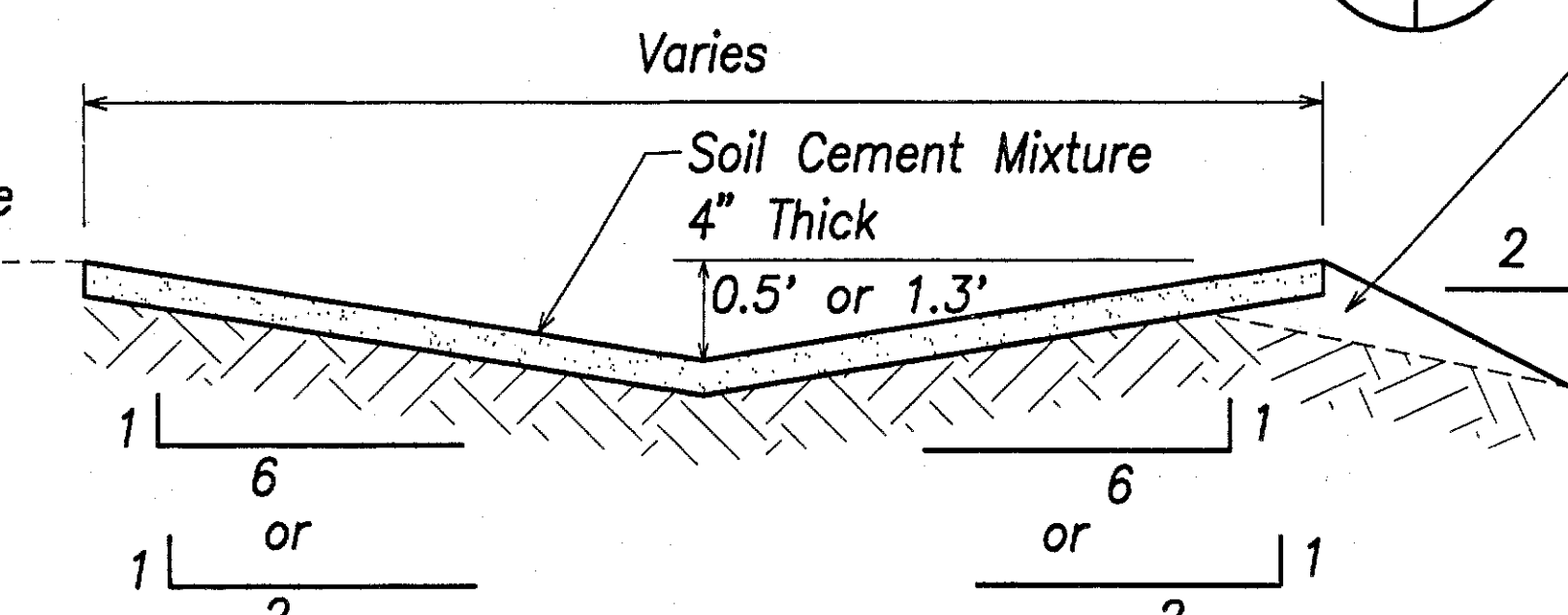
SECTION C-C
1/2" = 1'-0"



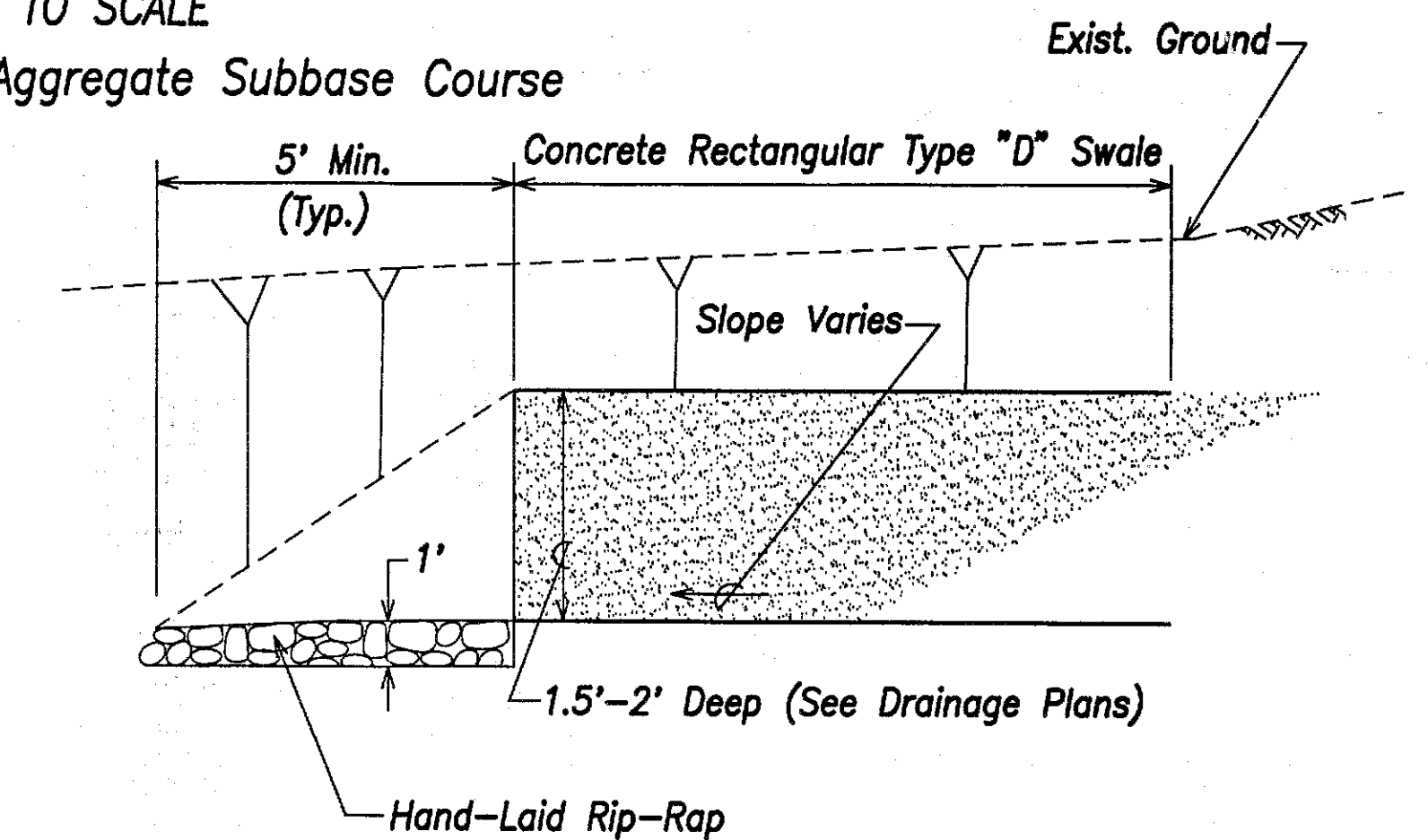
B GRASS TRIANGULAR TYPE "B" SWALE DETAIL
C-40 C-52 NOT TO SCALE



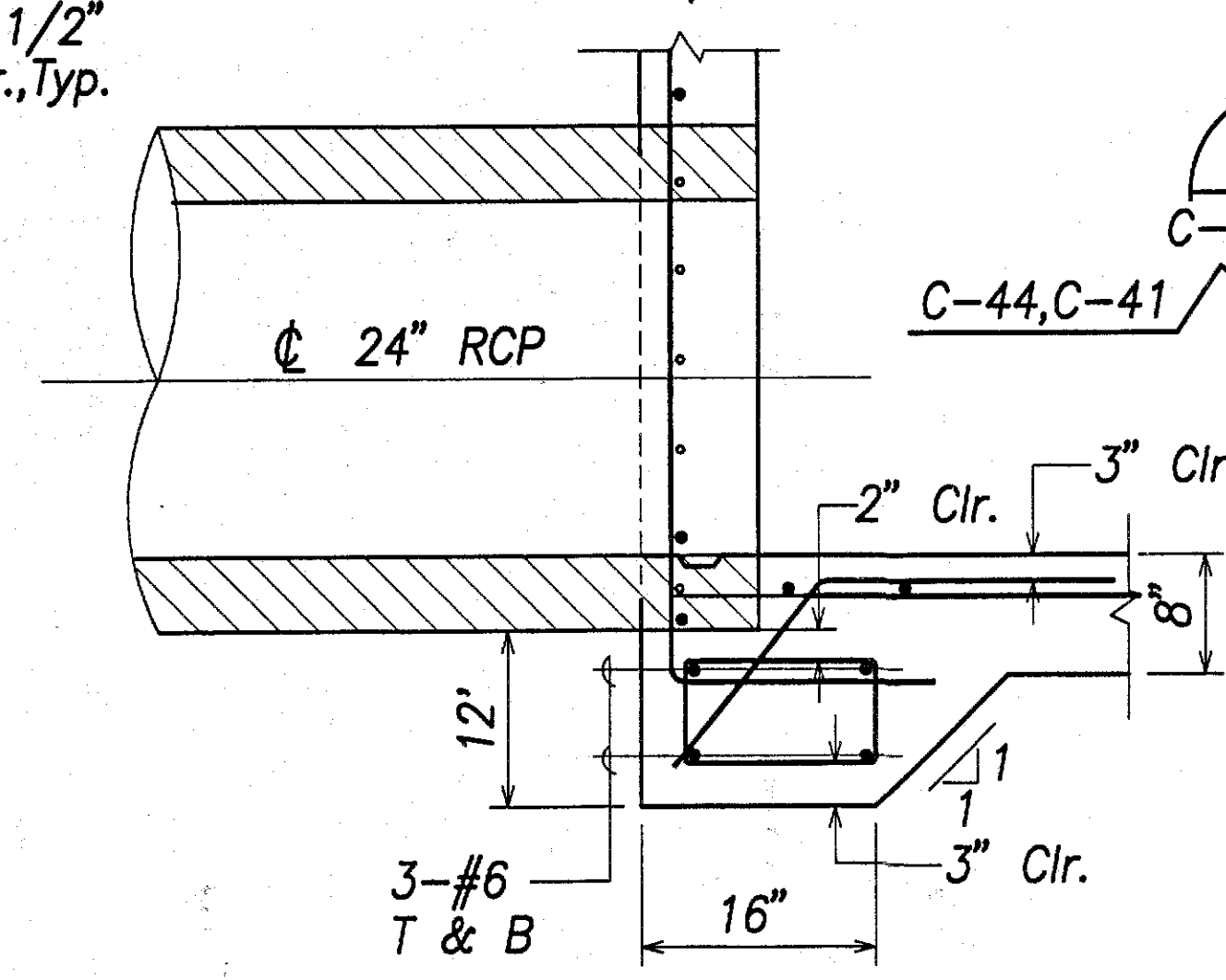
F GROUTED RUBBLE PAVING TRIANGULAR TYPE "F" SWALE
C-46, C-40 C-52 NOT TO SCALE



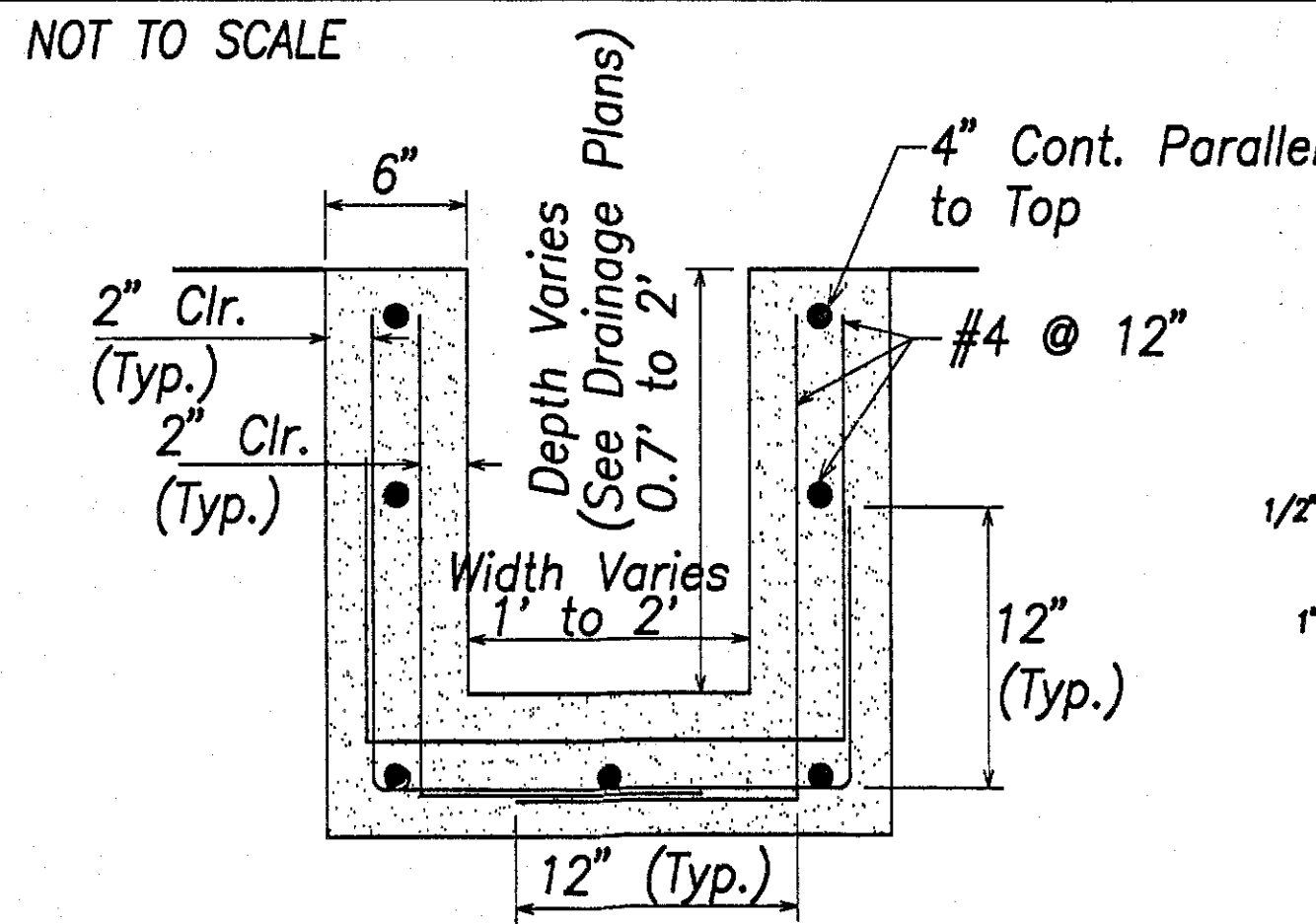
C SOIL CEMENT TRIANGULAR TYPE "C" SWALE DETAIL
C-40 C-52 NOT TO SCALE



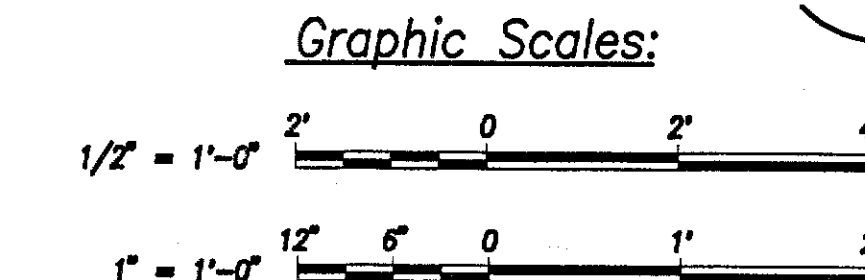
G HAND-LAID RIP-RAP DETAIL
C-36 C-52 NOT TO SCALE



PIPE PENETRATION DETAIL
1" = 1'-0"



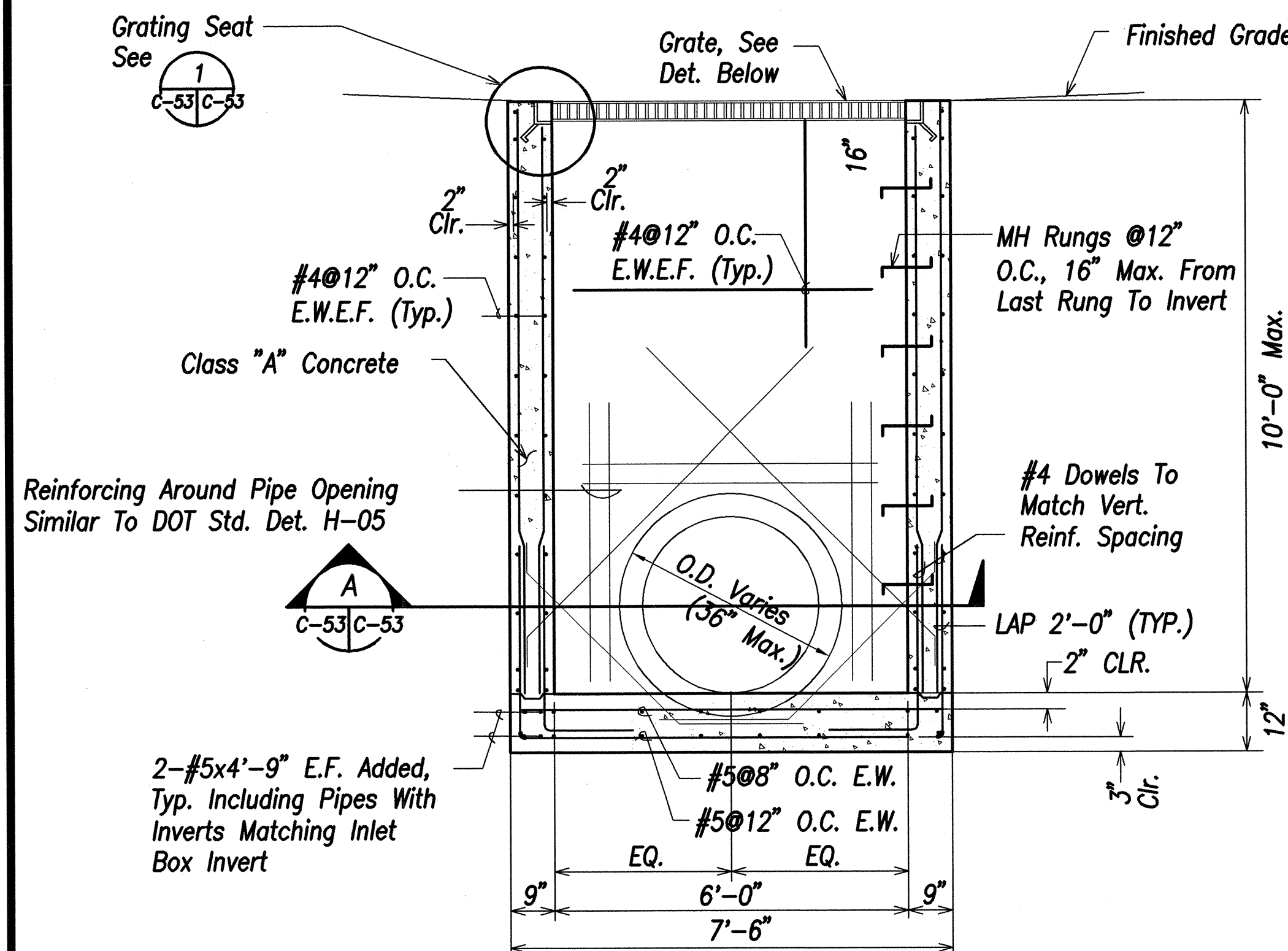
D CONCRETE RECTANGULAR TYPE "D" SWALE DETAIL
C-36 C-52 NOT TO SCALE



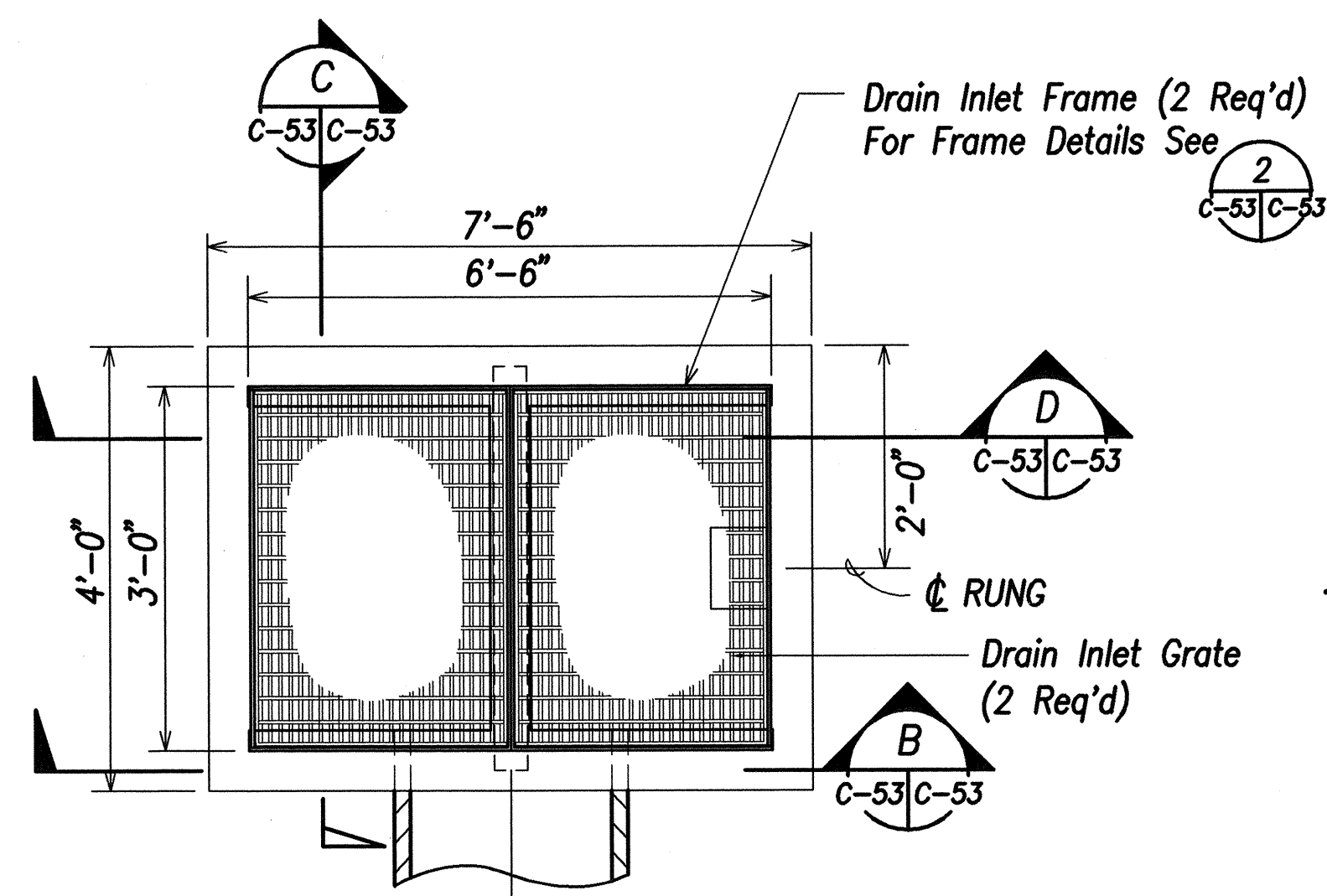
THIS WORK WAS PREPARED BY
ME OR UNDER MY SUPERVISION
SIGNATURE DATE

4/11/03	Revised Conc. Rectangular Swale Detail
4/7/03	Revised Soil Cement Swale Detail
2/14/03	Clarified Soil Cement Swale Detail
DATE	REVISION
STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION	
DRAINAGE DETAILS - 1	
PIILANI HIGHWAY INTERIM WIDENING Project No. 31AB-01-02	
Scale: As Shown	Date: May 1, 2002
SHEET No. C-52 OF 124 SHEETS	

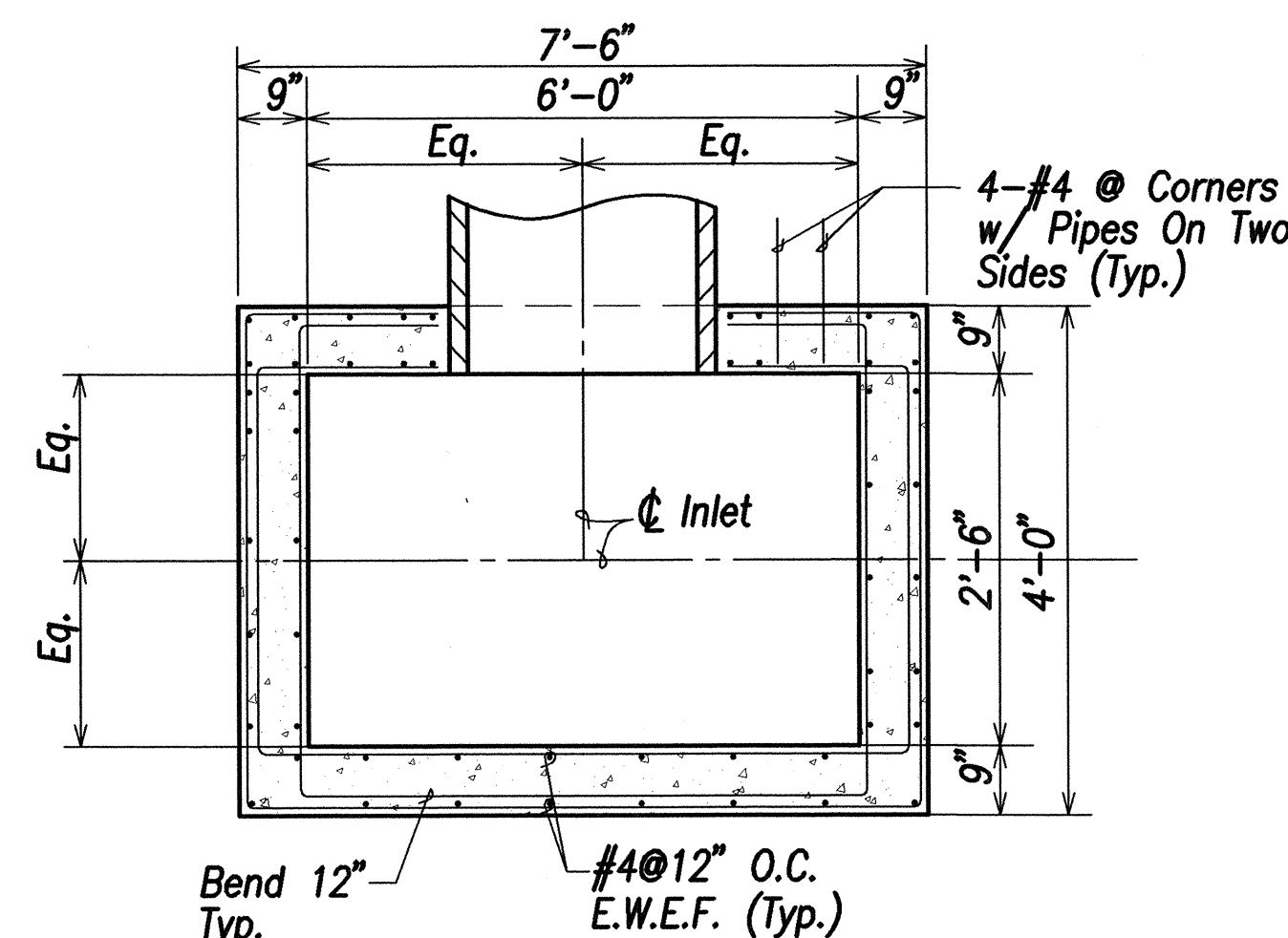
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	31AB-01-02	2002	55	124



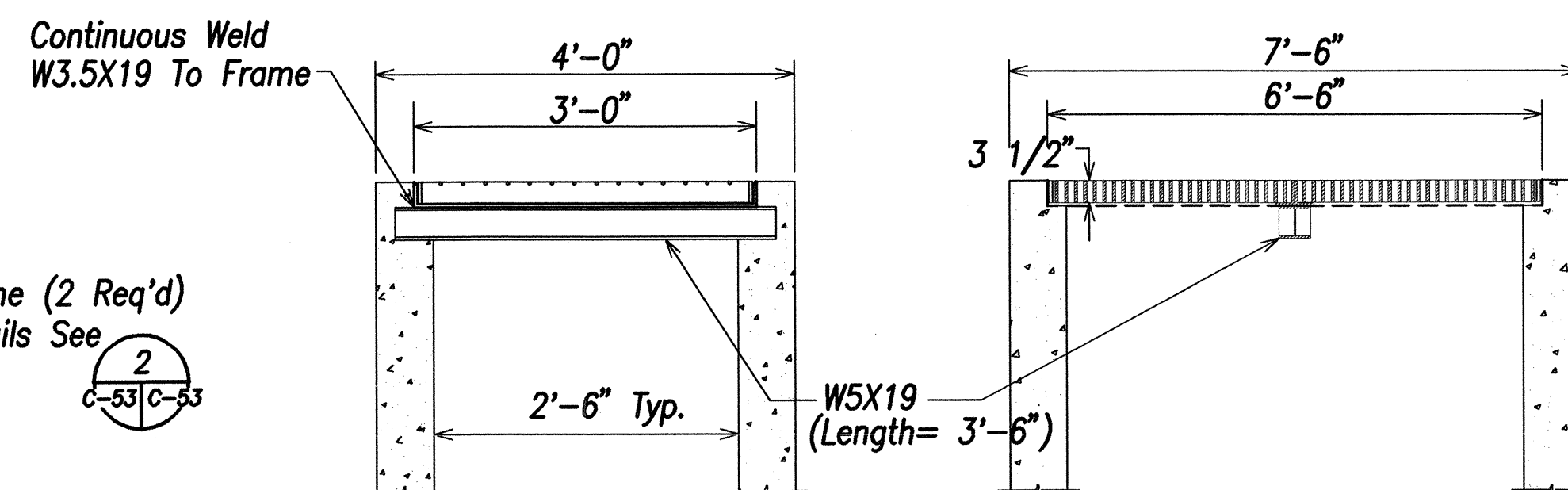
SECTION
C-53/C-53 Not To Scale



PLAN
Not To Scale



SECTION
C-53/C-53 Not To Scale

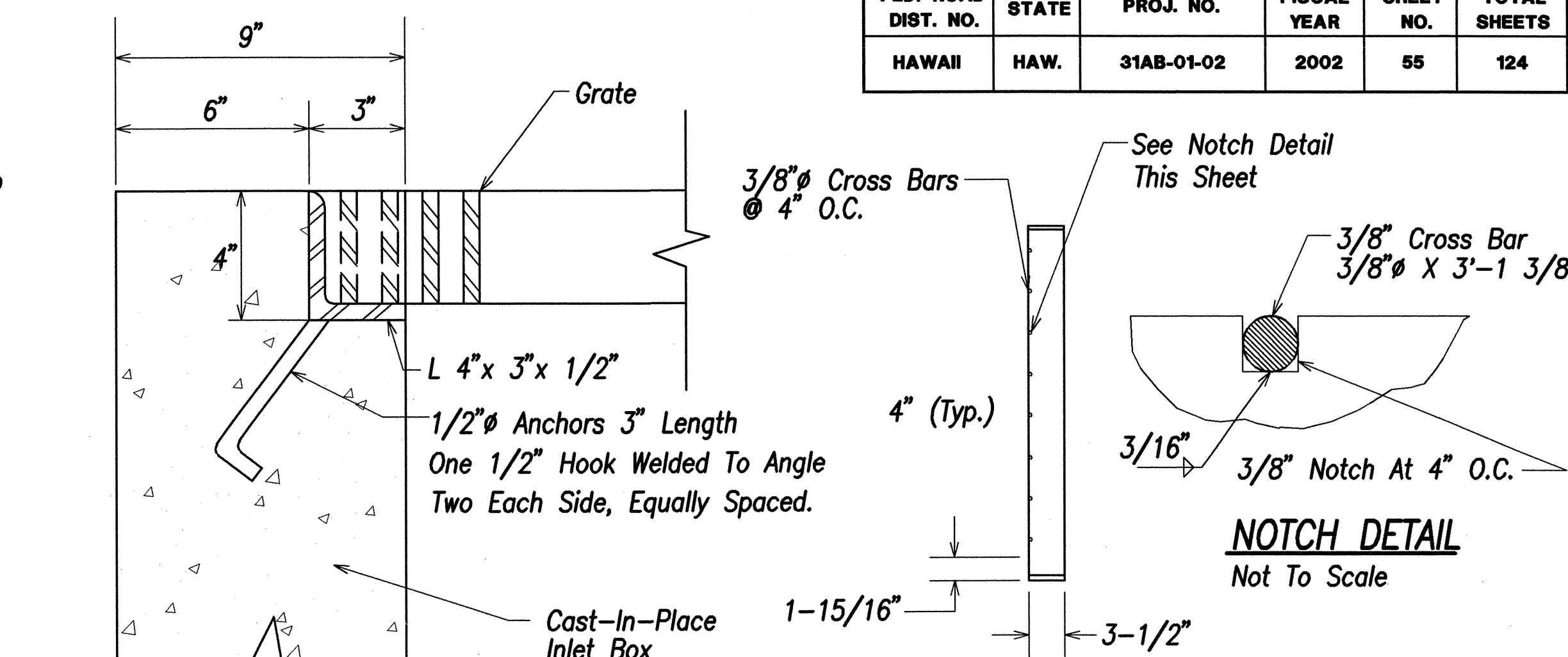


SECTION
C-53/C-53 Not To Scale

SECTION
C-53/C-53 Not To Scale

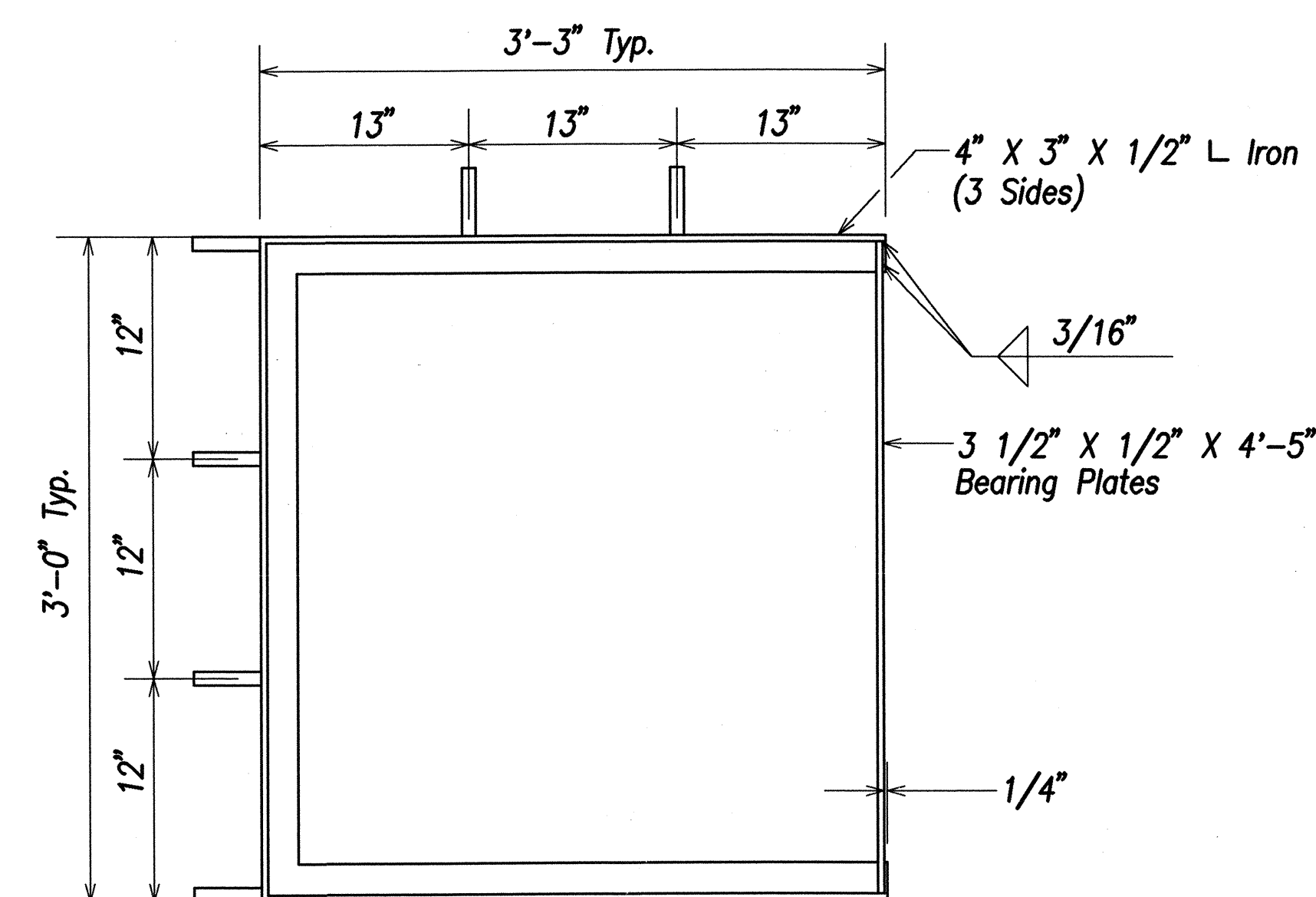
DRAIN INLET DETAILS

Not To Scale

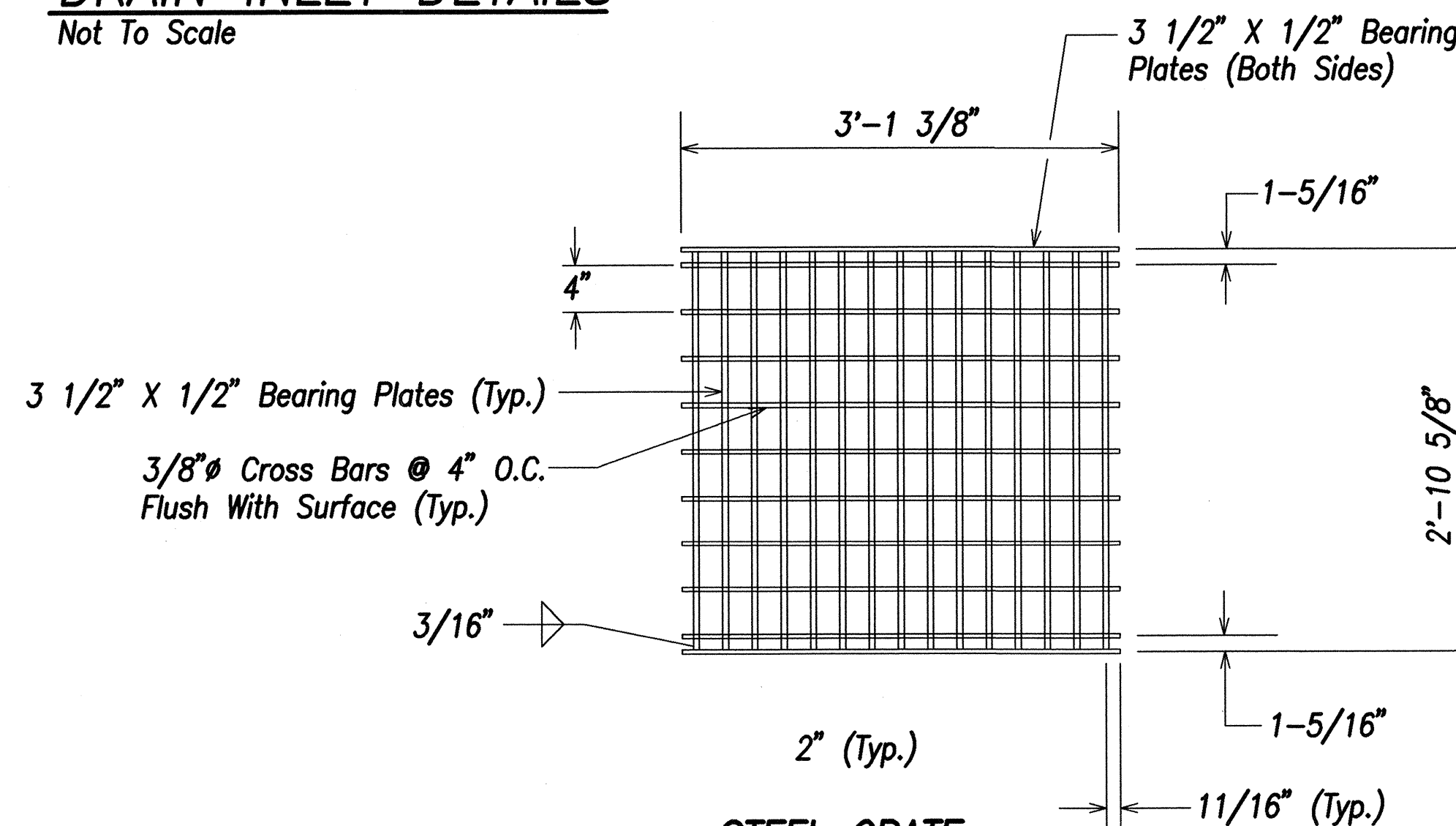


GRATING SEAT
C-53/C-53 Not To Scale

SECTION
Not To Scale



PLAN
FRAME DETAIL
C-53/C-53 Not To Scale



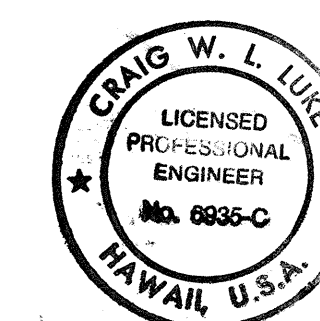
STEEL GRATE
Not To Scale

GRATE DETAILS

Not To Scale

DRAIN INLET GENERAL NOTES:

1. Reinforcing Steel In Walls Shall Be #4 Bars @ 12" O.C. 2" Clear To Inside Of Box Unless Otherwise Shown.
2. Place Additional #4 Bars Across The Length Of The Opening And Bend Back 2'-0" Lap Into The Inlet Wall On Each Side
3. Basin Floor Shall Have Wood Trowel Finish And A Minimum Slope 12:1 From All Directions Towards Outlet Pipe.
4. Round Opening Of Pipe Minimum Radius = 0.15 Pipe Diameter
5. Full Penetration Butt Welds May Be Substituted For The Fillet Welds On All Anchors.
6. Cast-In-Place Or Precast Alternative Option With Contractor.



THIS WORK WAS PREPARED BY
ME OR UNDER MY SUPERVISION
SIGNATURE DATE 5/1/02

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

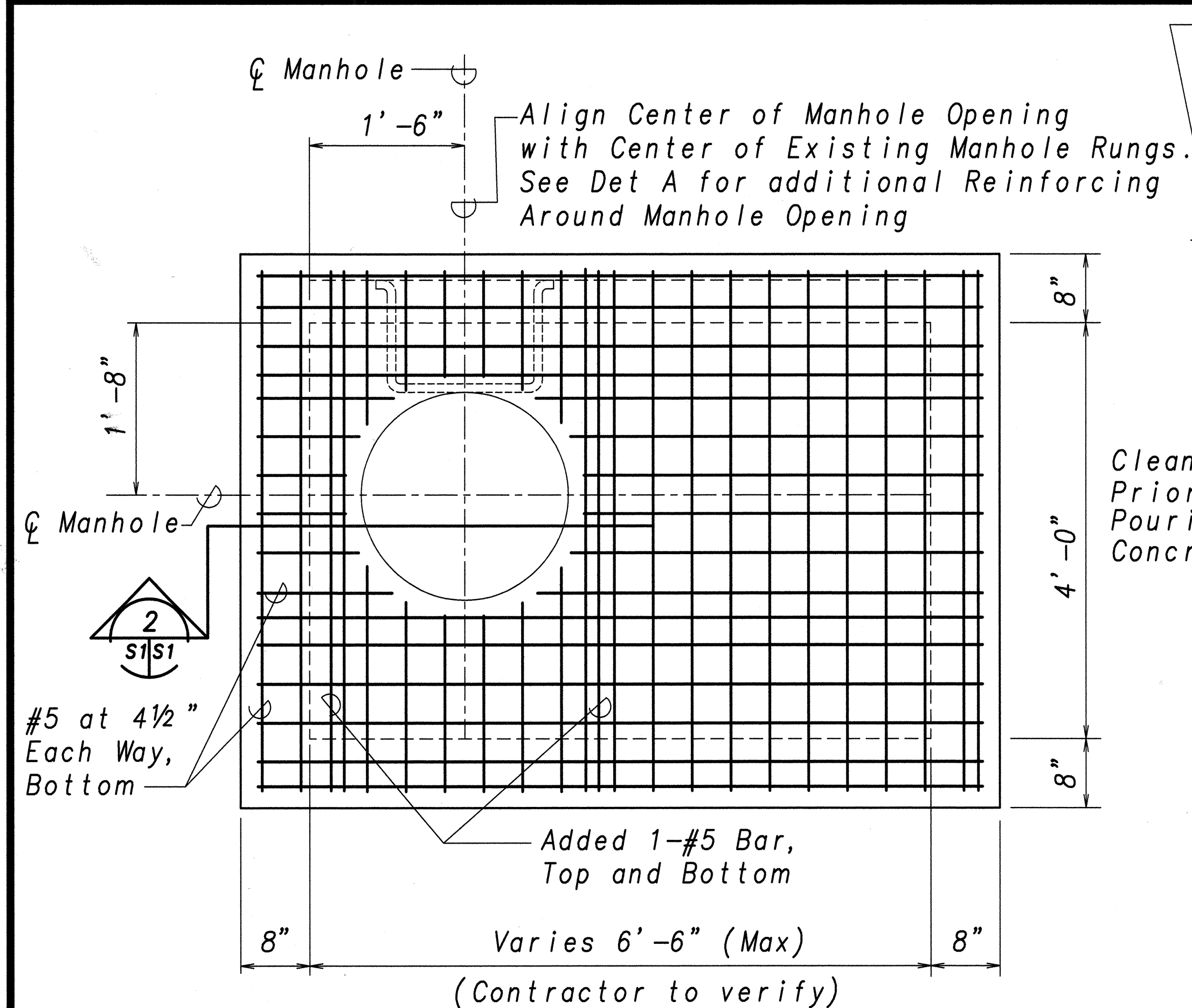
DRAINAGE DETAILS - 2

PIILANI HIGHWAY INTERIM WIDENING
Project No. 31AB-01-02

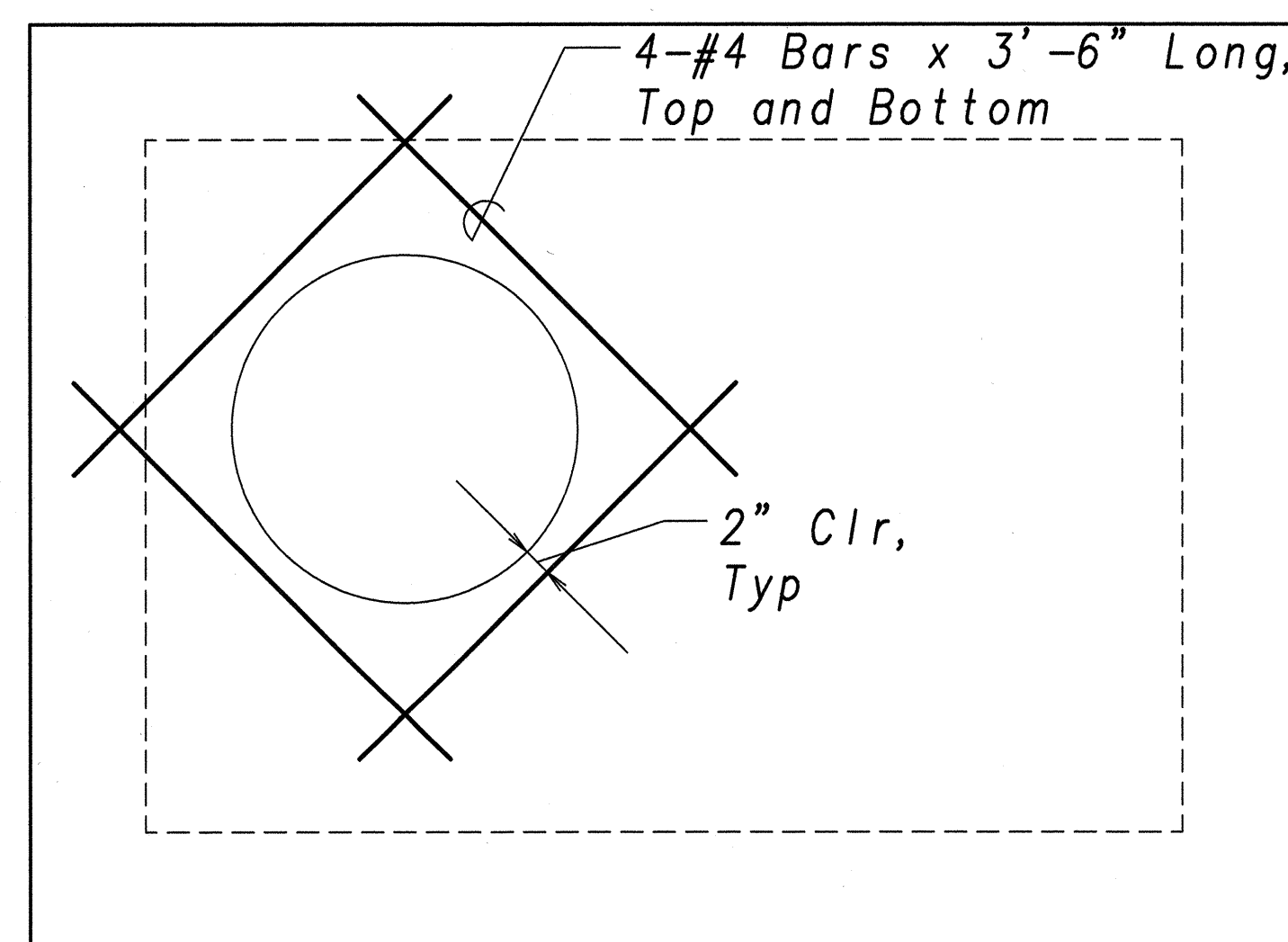
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SHEET No. C-53 OF 124 SHEETS

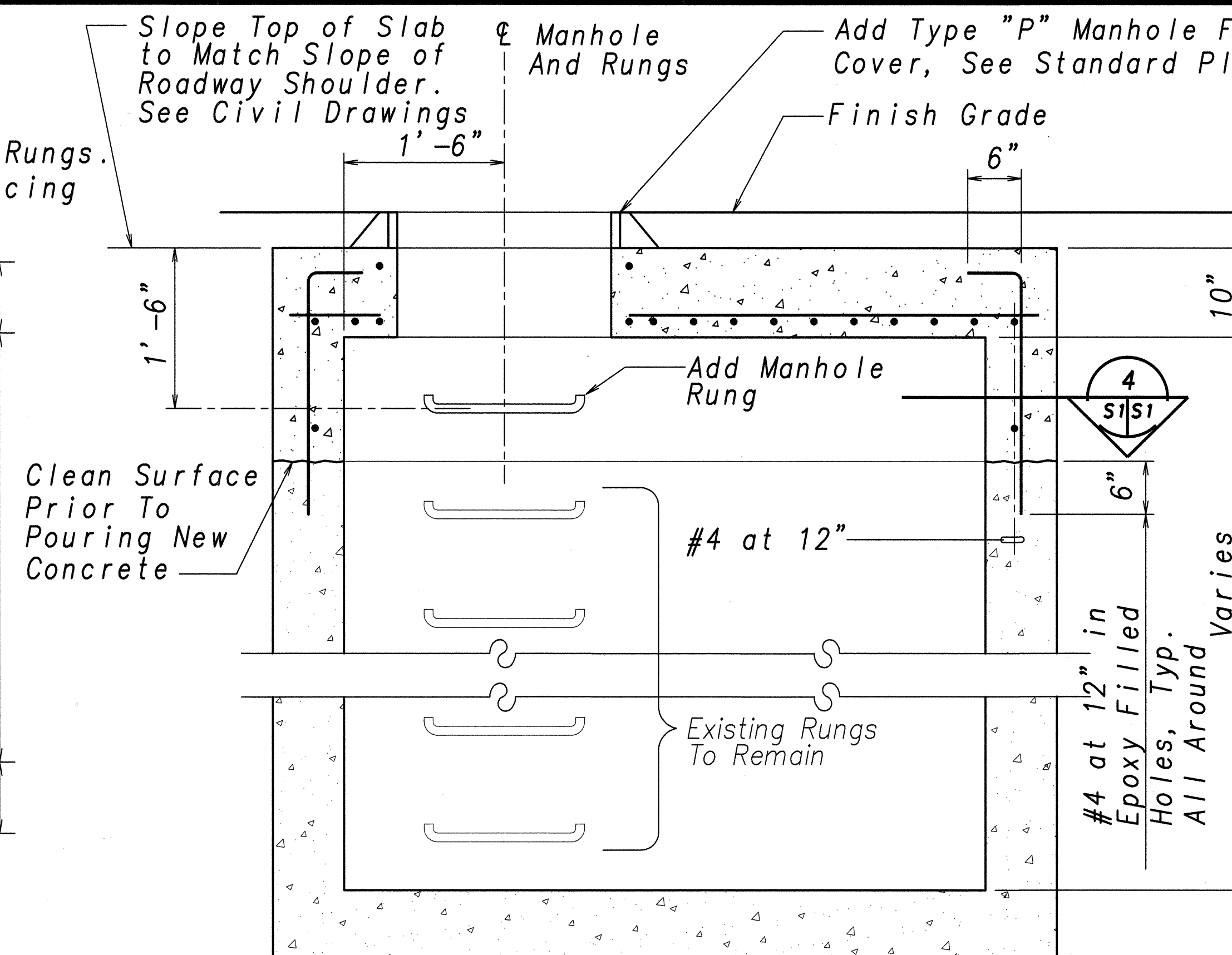
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	31AB-01-02	2002	56	124



PLAN, DRAIN MANHOLE, TYPE I 1
Scale: 1" = 1'-0"

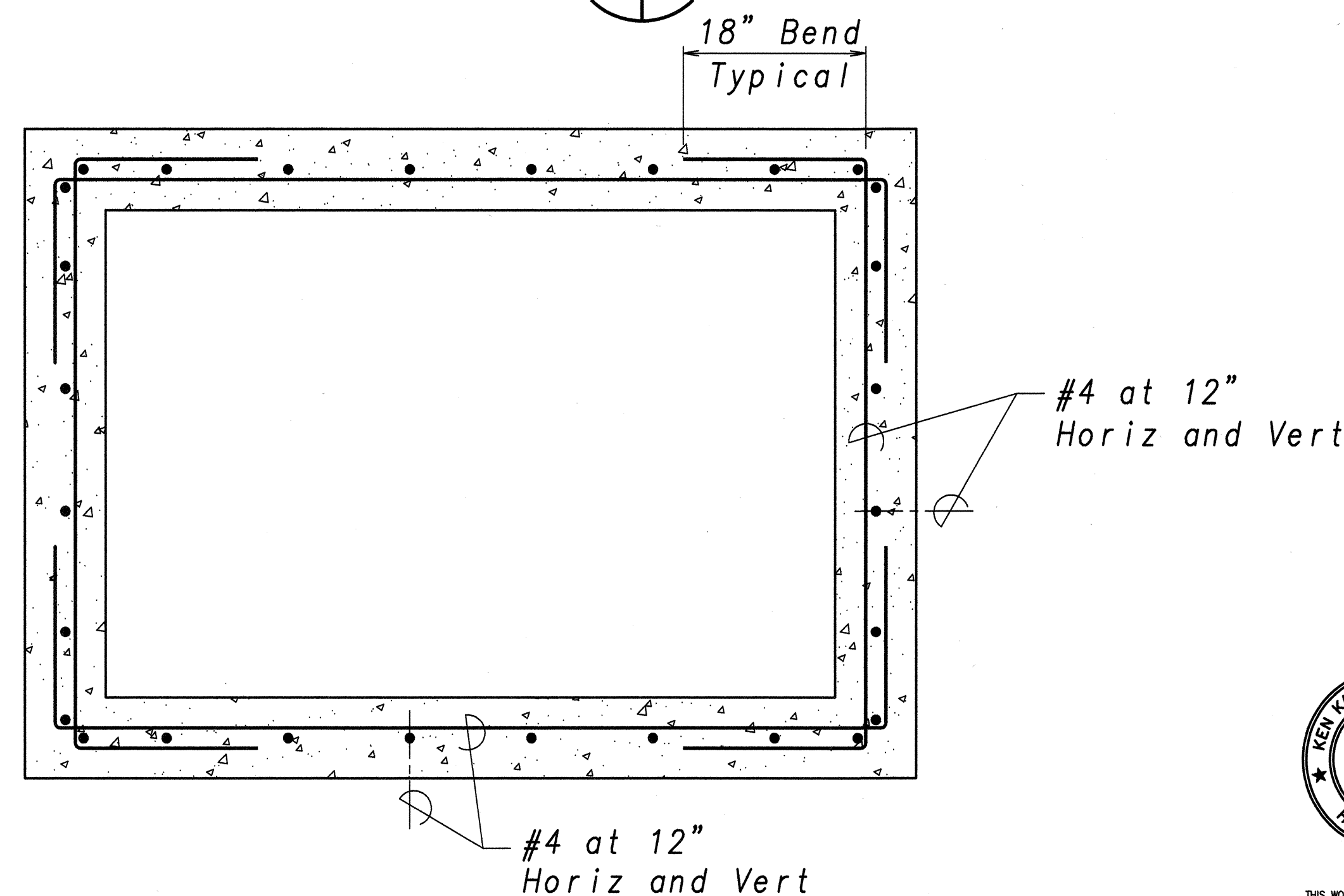


DETAIL A - ADDITIONAL REINFORCING STEEL
Scale: 1" = 1'-0"

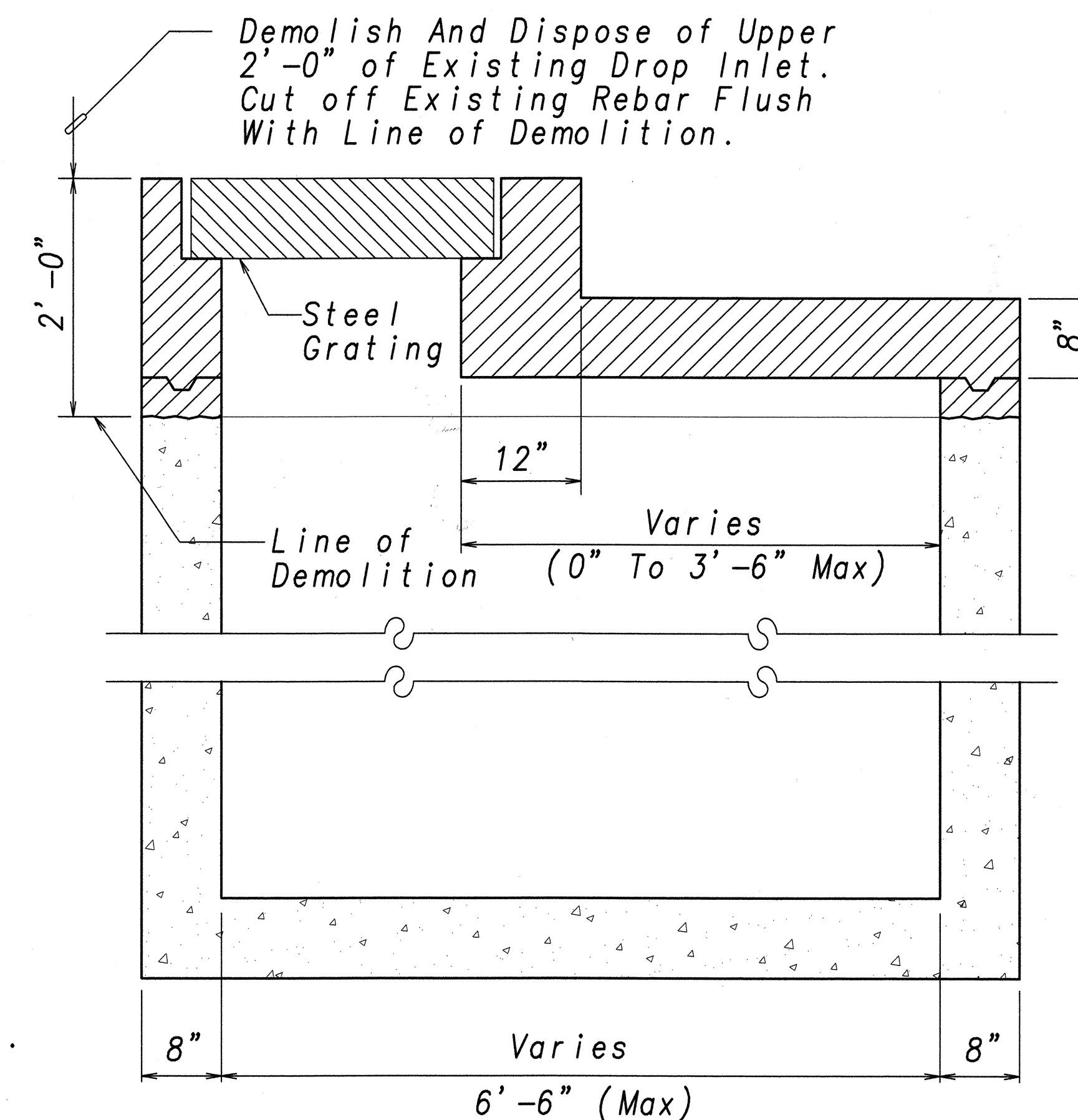


Note: Type "P" Manhole, Cover, Frame, Rung, and Cost to Install Shall be Incidental to Cost to Rehab Manhole.

SECTION 2
Scale: 1" = 1'-0"

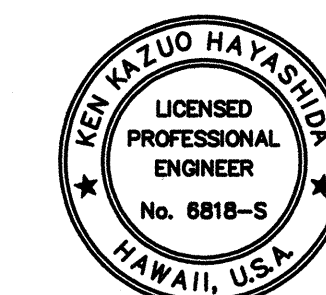


SECTION 4
Scale: 1" = 1'-0"



DEMOLITION DETAIL 3
Scale: 1" = 1'-0"

ORIGINAL PLAN	DATE
SURVEY PLOTTED BY	
DRAWN BY	
DESIGNED BY	
QUANTITIES BY	
CHECKED BY	



THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION
SIGNATURE DATE
EXPIRATION DATE OF THE LICENSE 4/30/2002

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

DRAIN MANHOLE, TYPE I

PILANI HIGHWAY INTERIM WIDENING
Project No. 31AB-01-02

Scale: As Shown Date: March 31, 2002

SHEET No. S1 OF 1 SHEETS