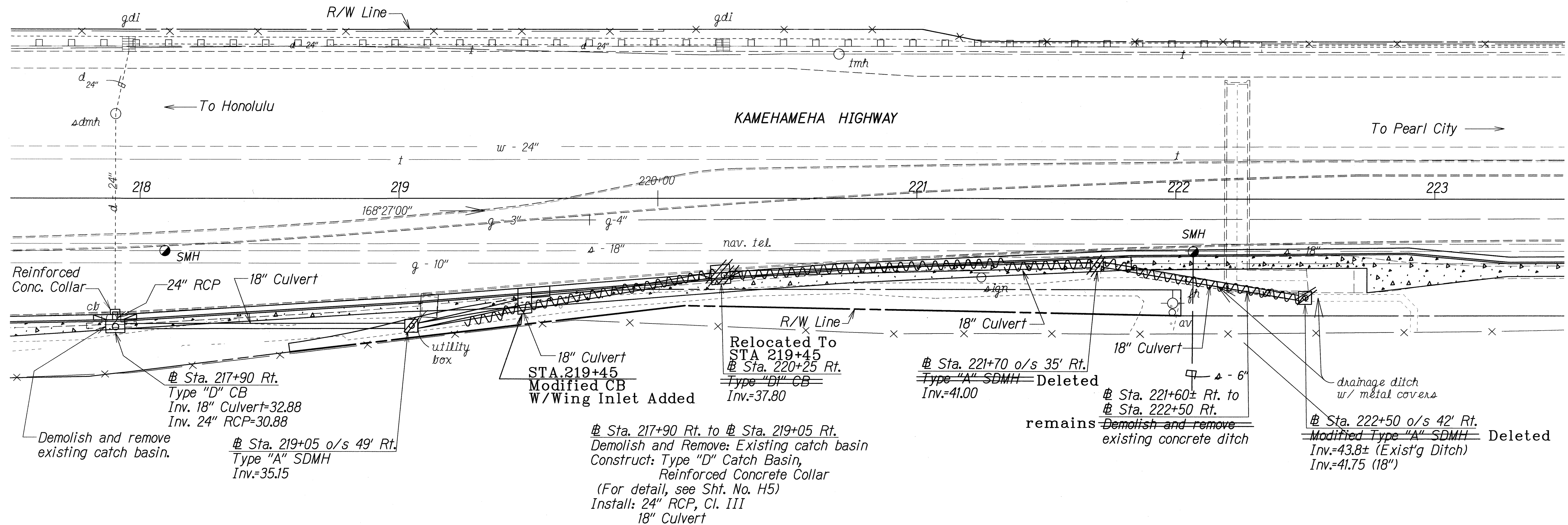


FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	CMAQ-099-1(22)	2005	C.O. 23	60



DRAINAGE NOTES:

- Existing drainage systems will be functional at all times during construction. The Contractor is to furnish materials, equipment, labor, tools and incidentals necessary to accomplish maintenance of flow. The cost shall be incidental to the various Contract Items.
- The Contractor shall verify the locations of all existing culverts and utilities in the field. Any existing culverts and utilities damaged during construction shall be repaired or replaced by the Contractor at no cost to the State.
- The following work shall not be paid for separately but shall be considered incidental to the various contract items:
 - Demolishing, removing and disposing existing catch basins, portions of existing concrete ditch, existing 24" culvert.
 - Connecting 24" culvert to existing concrete headwall at Sta. 246+86 Rt.
 - Cutting 18" and 24" culverts flush with the walls of new drainage structures.
- For details of culvert trench and pavement restoration, see Sheet No. H5.
- Chamfer all exposed concrete drainage structure edges 1".

Estimated Quantities

Structure Excavation	=	83 C.Y.
Bed Course Material	=	21 C.Y.
24" RCP, Cl. III	=	4 L.F.
18" Culvert	=	110 L.F.
Reinforced Concrete Collar	=	
Type "D" Catch Basin	=	1 Ea.
3.00 Ft. to 3.99 Ft.	=	

Sta. 219+05 Rt. to # Sta. 220+25 Rt.
Construct: Type "A" Storm Drain Manhole
(For detail, see Sht. No. H5)
Install: 18" Culvert

Estimated Quantities

Structure Excavation	=	91 C.Y.
Bed Course Material	=	23 C.Y.
18" Culvert	=	116 L.F.
Type "A" Storm Drain Manhole	=	1 Ea.
3.00 Ft. to 3.99 Ft.	=	

Sta. 220+25 Rt. to
Sta. 221+70 o/s 35' Rt.
Construct: Type "D" Catch Basin
Install: 18" Culvert

Estimated Quantities

Structure Excavation	=	107 C.Y.
Bed Course Material	=	27 C.Y.
18" Culvert	=	141 L.F.
Type "D" Catch Basin	=	1 Ea.
3.00 Ft. to 3.99 Ft.	=	

9/15/06	Revised alignment of sidewalk and drainage system.
11/30/06	Added Type "A" SDMH @ Sta. 219+05, amended culvert and inlet inverts
01/02/07	Moved Type "D" CB to Sta. 220+25

DATE	REVISION
------	----------

Sta. 221+70 o/s 35' Rt. to
Sta. 222+50 o/s 42' Rt.
Construct: Type "A" Storm Drain Manhole
Modified Type "A" Storm Drain Manhole
(For details, see Sht. No. H4)
Install: 18" Culvert

Estimated Quantities

Structure Excavation	=	67 C.Y.
Bed Course Material	=	14 C.Y.
18" Culvert	=	77 L.F.
Type "A" Storm Drain Manhole	=	1 Ea.
3.00 Ft. to 3.99 Ft.	=	
Modified Type "A" Storm Drain Manhole	=	1 Ea.
3.00 Ft. to 3.99 Ft.	=	

LEGEND FOR AS-BUILT POSTINGS

	Squiggly line for as-built deletion
	Double line for as-built deletion
Roadway	Text for as-built posting

DRAINAGE PLAN # STA. 217+90 TO # STA. 222+50

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

DRAINAGE PLAN

KAMEHAMEHA HIGHWAY BIKEWAY
Vicinity of Radford Drive to Arizona Memorial
Federal Aid Project No. CMAQ-099-1(22)

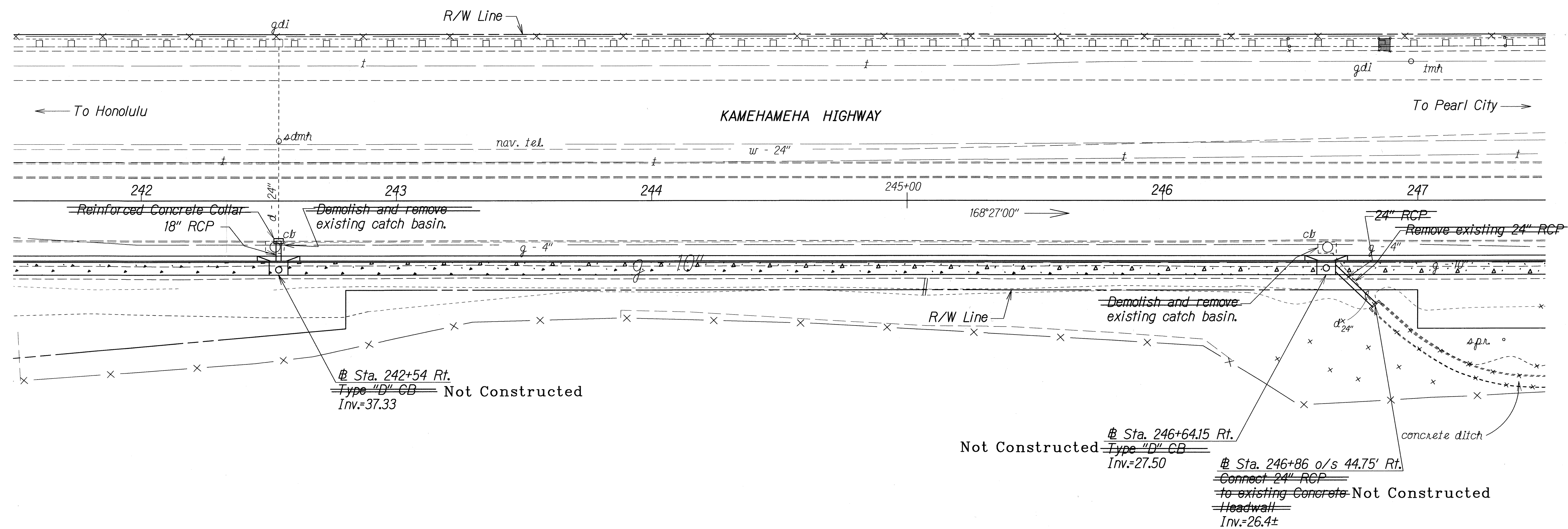
Scale: 1"=20' Date: Oct, 2003

SHEET No. **H1** OF **5** SHEETS

"AS-BUILT"

C.O. 23

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	CMAQ-099-1(22)	2005	C.O. 24	60



Sta. 242+54 Rt.
~~Demolish and Remove Existing catch basin~~
~~Construct Type "D" Catch Basin,~~
~~Reinforced Concrete Collar~~
 (For detail, see Sht. No. H5)
 Install: 24" RCP, Cl. III

Estimated Quantities		
Structure Excavation	= 9	C.Y.
Bed Course Material	= 2	C.Y.
24" RCP, Cl. III	= 8	L.F.
Reinforced Concrete Collar	= 1	Ea.
Type "D" Catch Basin	= 1	Ea.
4.00 Ft. to 4.99 Ft.		

Sta. 246+64.15 Rt. to
 # Sta. 246+86 o/s 44.75' Rt.
~~Demolish and Remove Existing catch basin, 24" culvert~~
~~Construct Type "D" Catch Basin,~~
~~Reinforced Concrete Collar~~
 (For detail, see Sht. No. H5)
 Install: 24" RCP, Cl. III

Estimated Quantities		
Structure Excavation	= 34	C.Y.
Bed Course Material	= 6	C.Y.
24" RCP, Cl. III	= 30	L.F.
Reinforced Concrete Collar	= 1	Ea.
Type "D" Catch Basin	= 1	Ea.
4.00 Ft. to 4.99 Ft.		

Sta. 246+86 o/s 44.75' Rt.
~~Connect 24" RCP~~
~~to existing concrete~~ Not Constructed
~~Headwall~~
 Inv.=26.4±

DRAINAGE PLAN # STA. 241+50 TO # STA. 247+50

LEGEND FOR AS-BUILT POSTINGS	
	Squiggly line for as-built deletion
	Double line for as-built deletion
Roadway	Text for as-built posting

9/15/06	Revised alignment of sidewalk and drainage system.
5/07/06	Changed 24" RCP to 18" RCP @ # Sta. 242+54 Rt.; Deleted conc. collar and 24" RCP @ # Sta. 242+64.15 Rt.

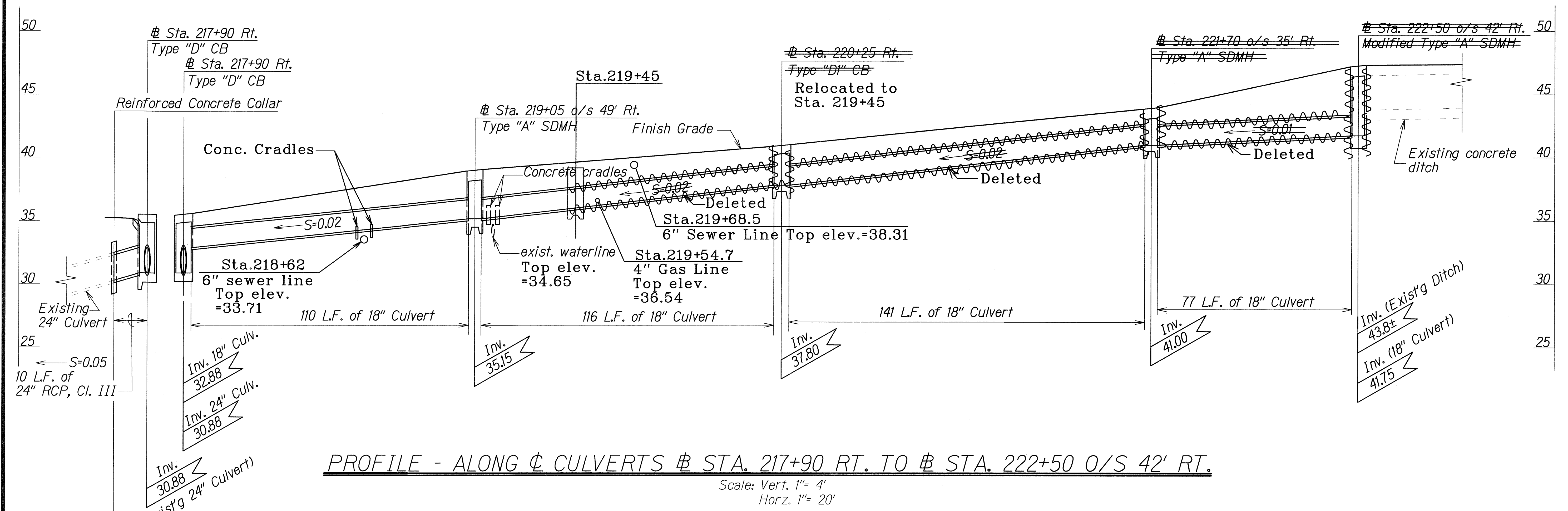
DATE	REVISION
STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION DRAINAGE PLAN KAMEHAMEHA HIGHWAY BIKEWAY Vicinity of Radford Drive to Arizona Memorial Federal Aid Project No. CMAQ-099-1(22) Scale: 1"=20' Date: Oct, 2003 SHEET No. H2 OF 5 SHEETS	

ORIGINAL PLAN	DATE
NOTE BOOK	DESIGNED BY
QUANTITIES BY	CHECKED BY

"AS-BUILT"

C.O. 24

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	CMAQ-990-1(22)	2004	C.O.25	60



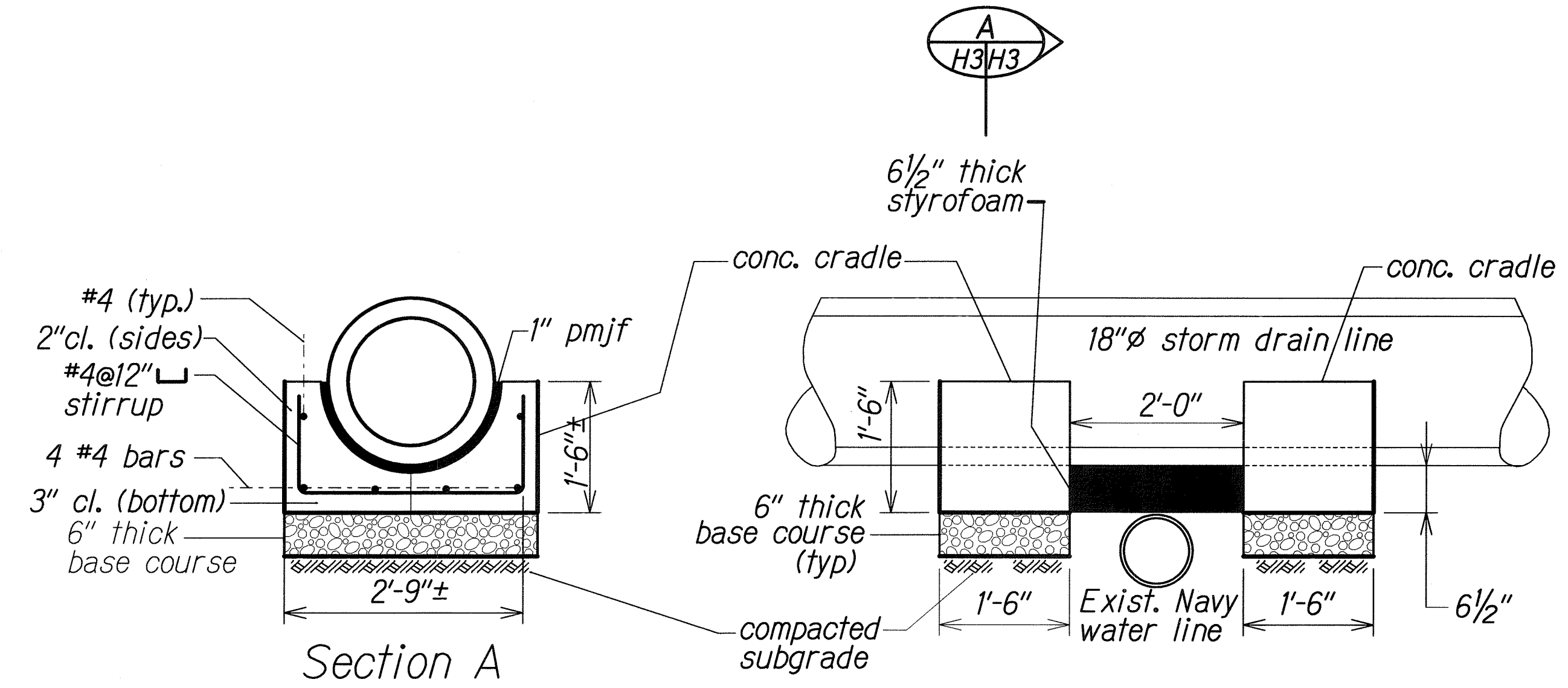
PROFILE - ALONG ϕ CULVERTS @ STA. 217+90 RT. TO @ STA. 222+50 O/S 42' RT.
 Scale: Vert. 1"= 4'
 Horz. 1"= 20'

LEGEND FOR AS-BUILT POSTINGS	
	Squiggly line for as-built deletion
	Double line for as-built deletion
Roadway	Text for as-built posting

11/30/06	Added Type "A" SDMH @ Sta. 219+04; amended culvert and inlet inverts; added detail of concrete cradles
01/02/07	Moved Type "D" CB to Sta. 220+25

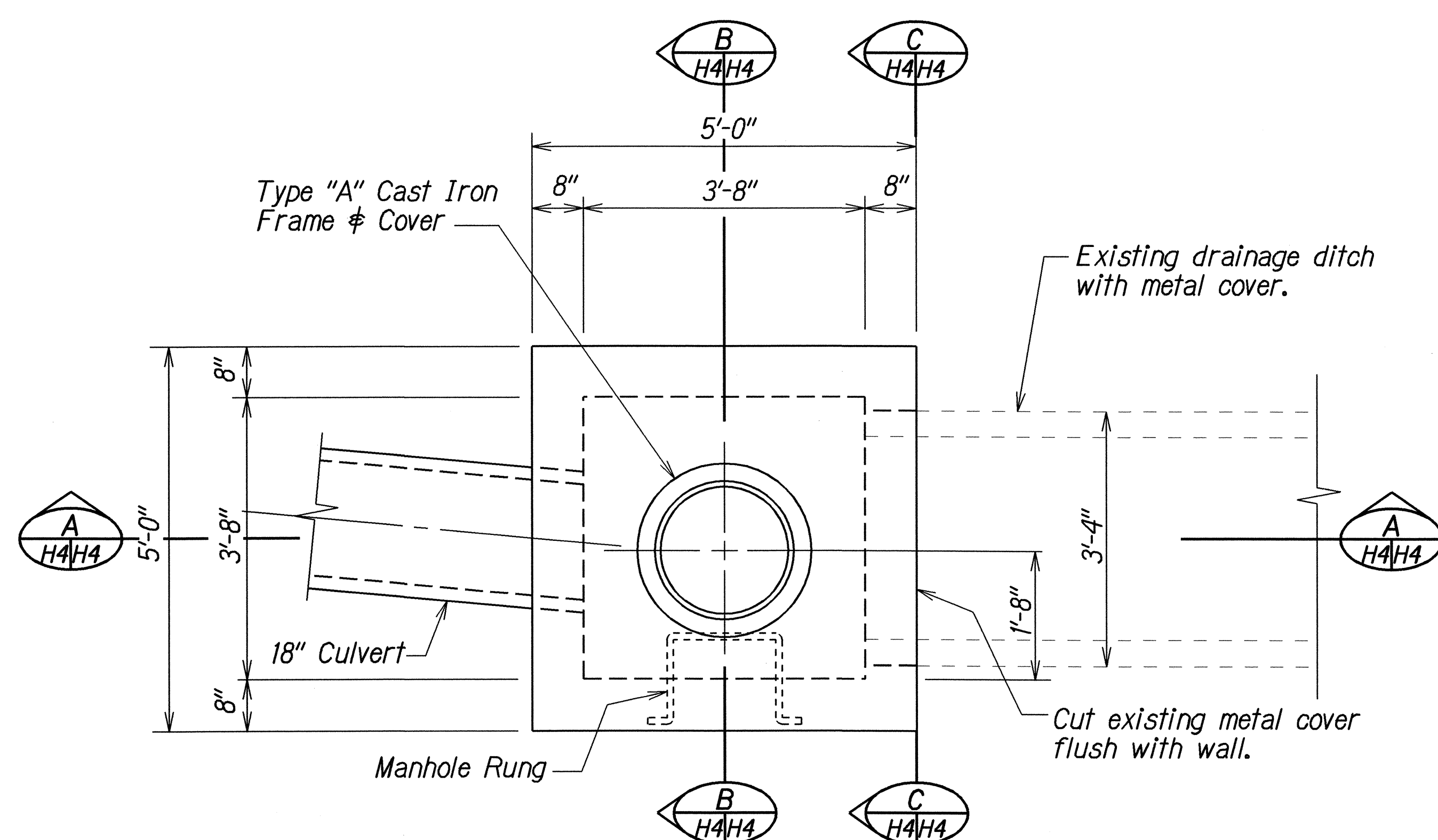
DATE	REVISION
STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION DRAINAGE PROFILE KAMEHAMEHA HIGHWAY BIKEWAY Vicinity of Radford Drive to Arizona Memorial Federal Aid Project No. CMAQ-099-1(22) Scale: As Noted Date: Oct, 2003 SHEET No. H3 OF 5 SHEETS	

DESIGNED BY	DATE
TRACED BY	11/06/02
QUANTITIES BY	
CHECKED BY	

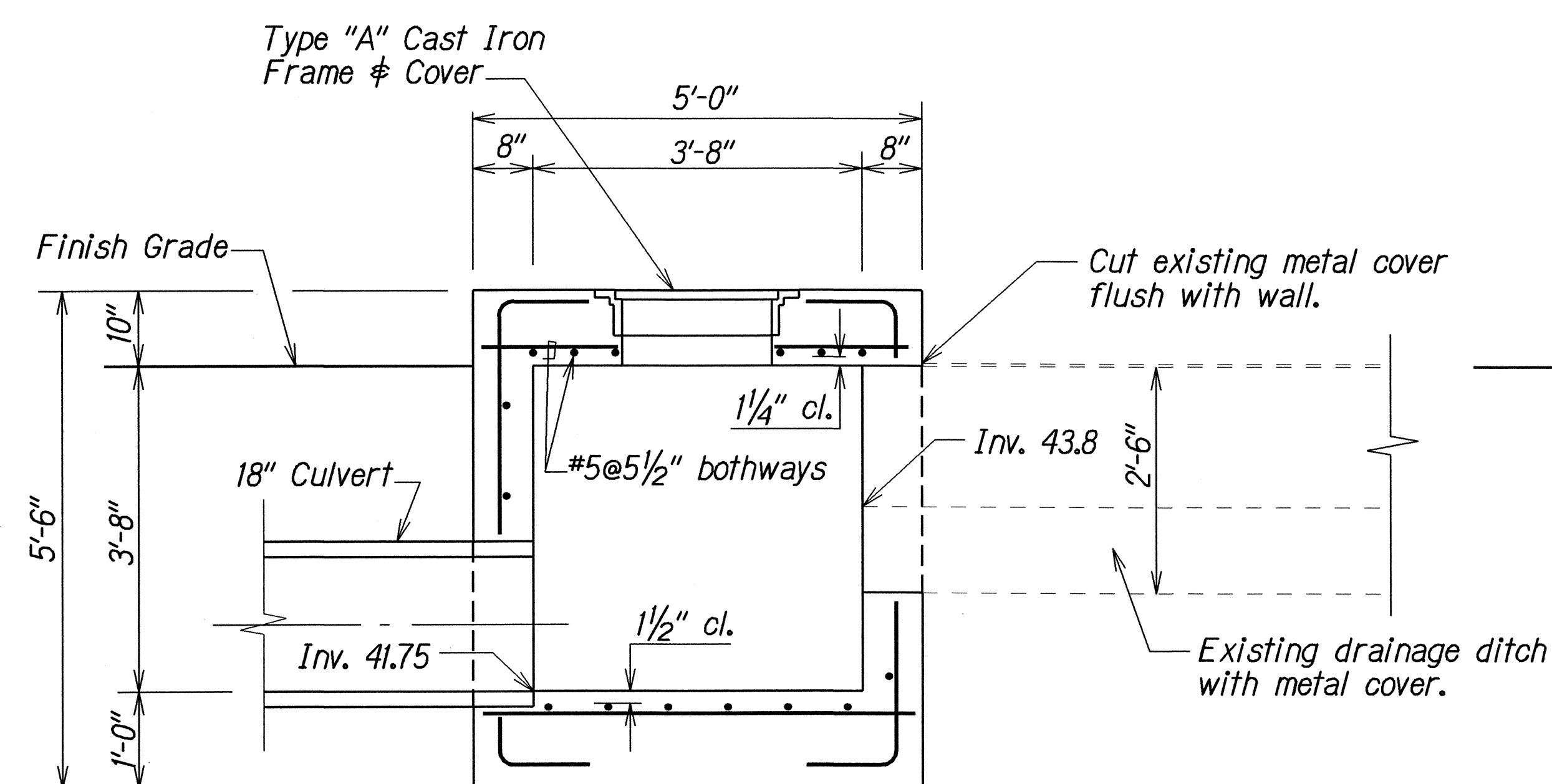


Section A
 Elevation View
 Concrete Cradles for 18"± Drain Line @ Sta 219+13
 Scale: 3/4"= 1'-0"

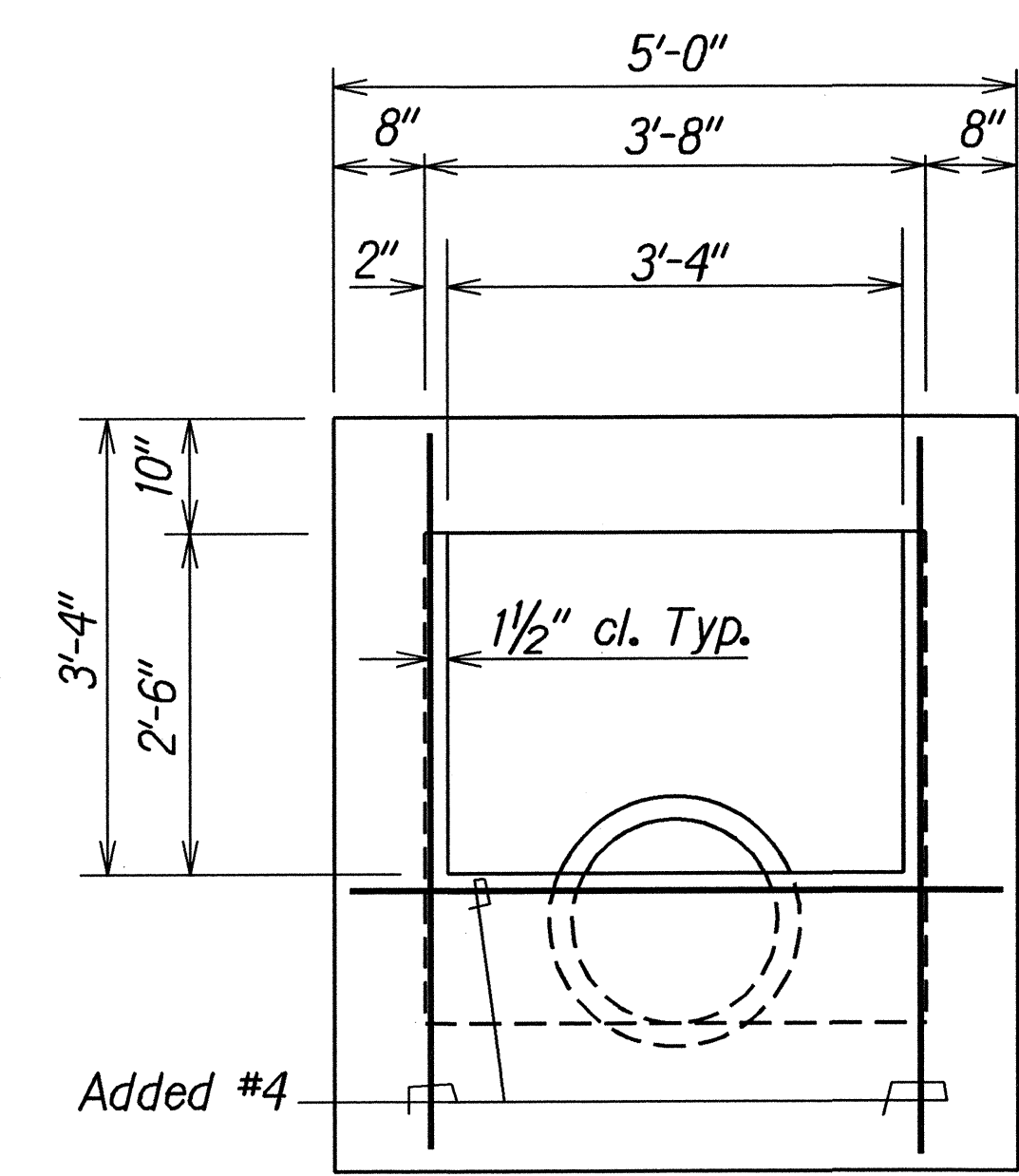
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	CMAQ-099-1(22)	2005	26	60



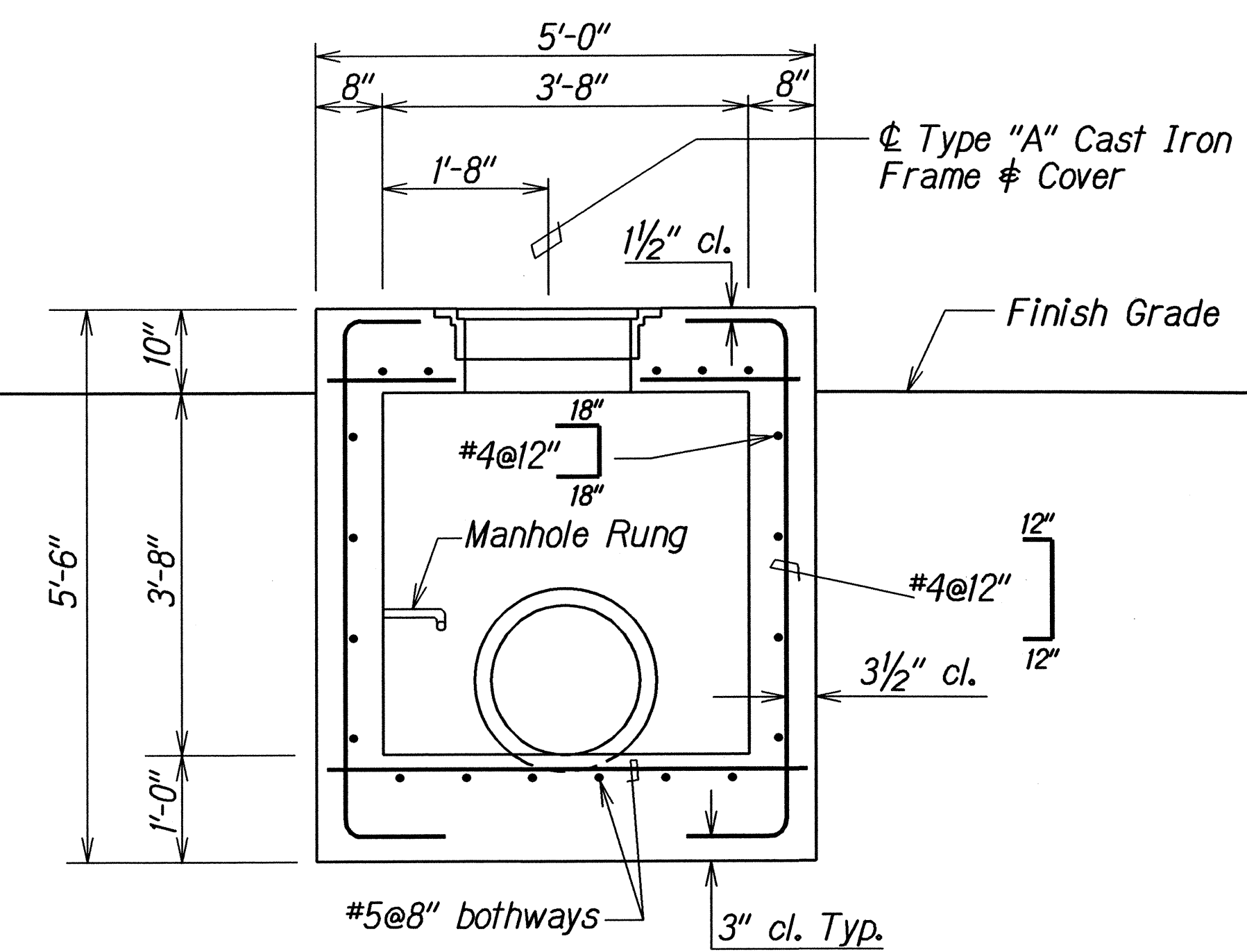
PLAN



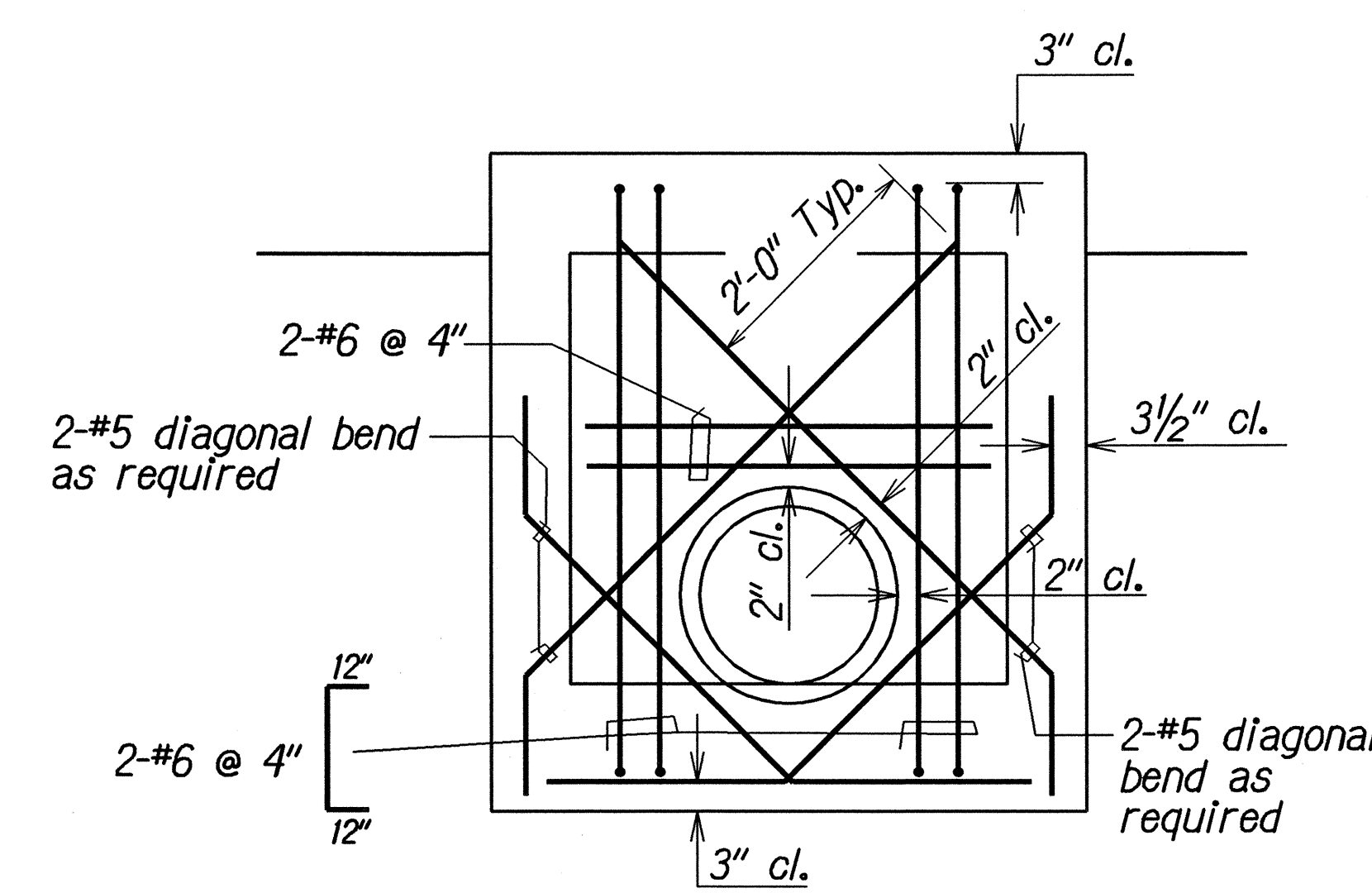
SECTION A
H4/H4



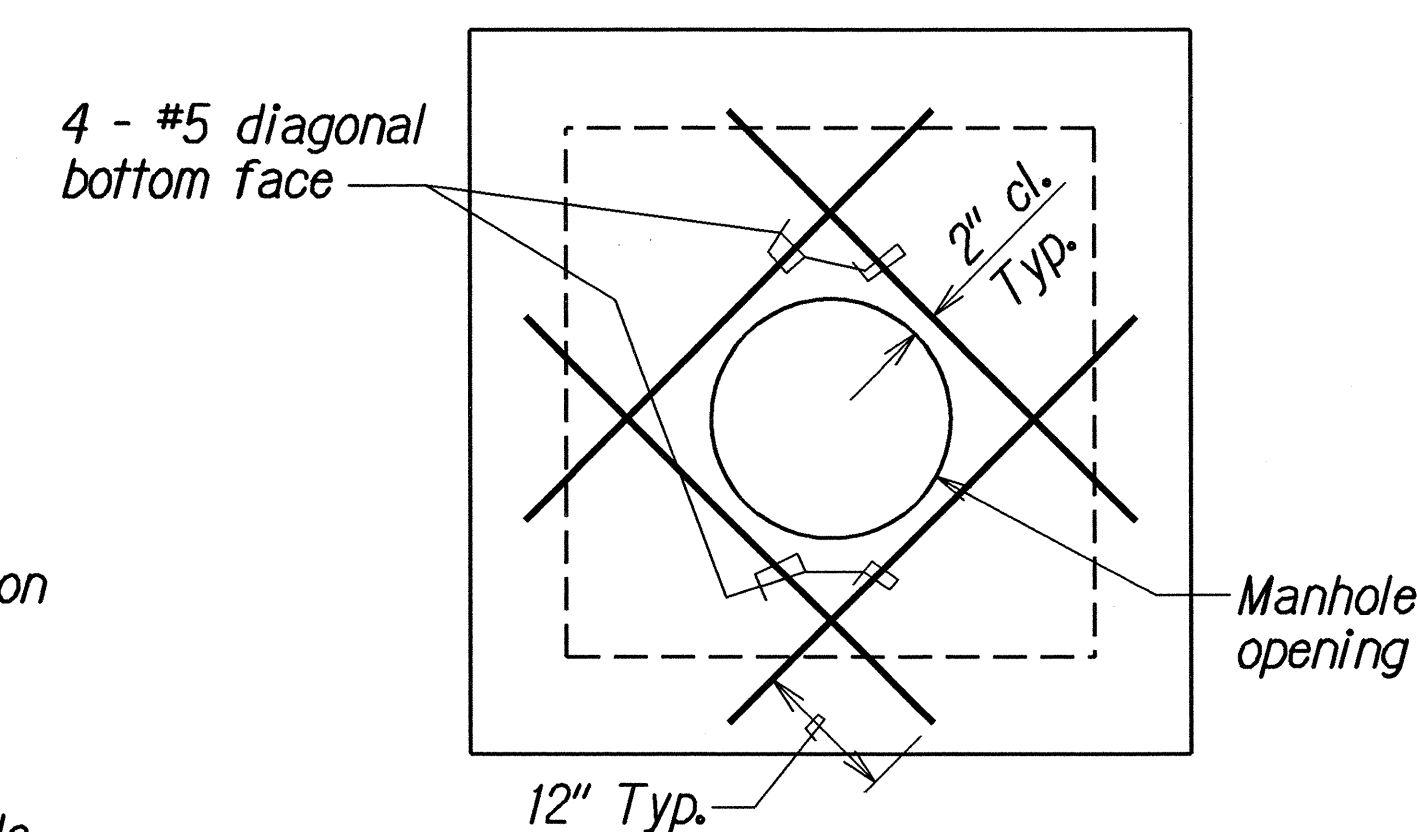
SECTION C
H4/H4



SECTION B
H4/H4



ADDED REINFORCING AROUND CULVERT



ADDED REINFORCING AROUND MANHOLE OPENING

DETAIL OF MODIFIED TYPE "A" STORM DRAIN MANHOLE AT STA. 22+50 O/S 42' RT.

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

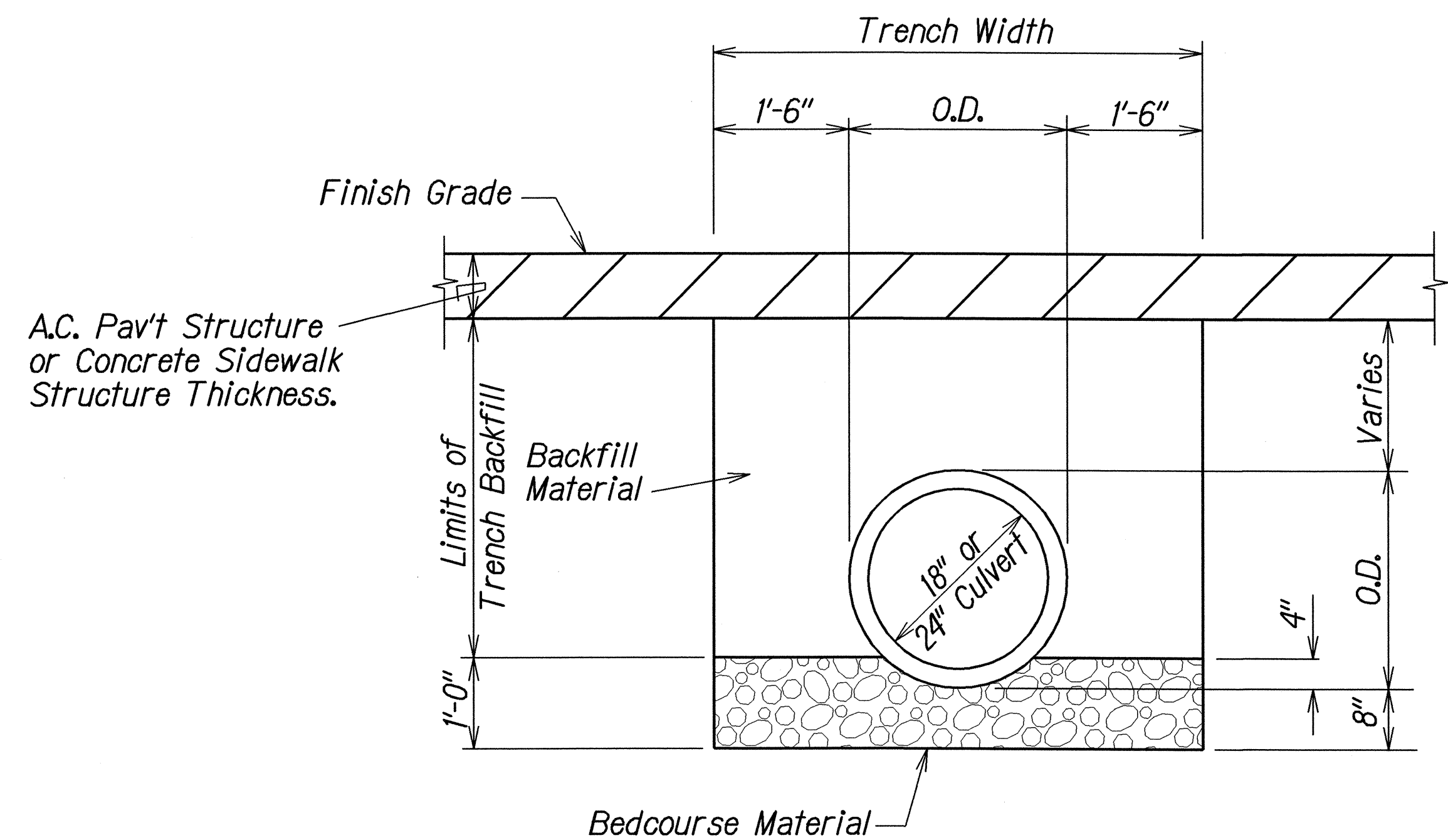
DRAINAGE DETAILS

KAMEHAMEHA HIGHWAY BIKEWAY
Vicinity of Radford Drive to Arizona Memorial
Federal Aid Project No. CMAQ-099-1(22)

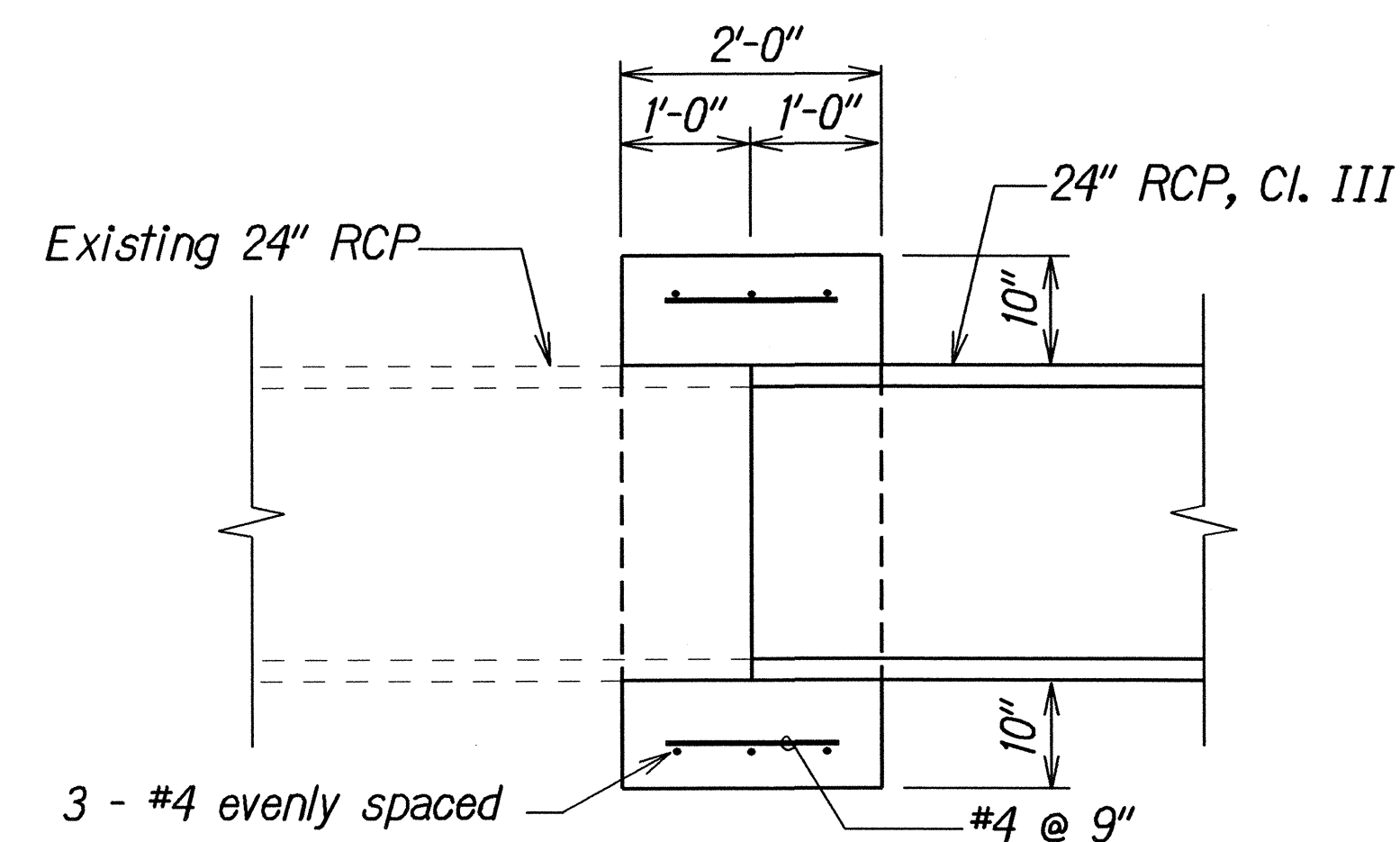
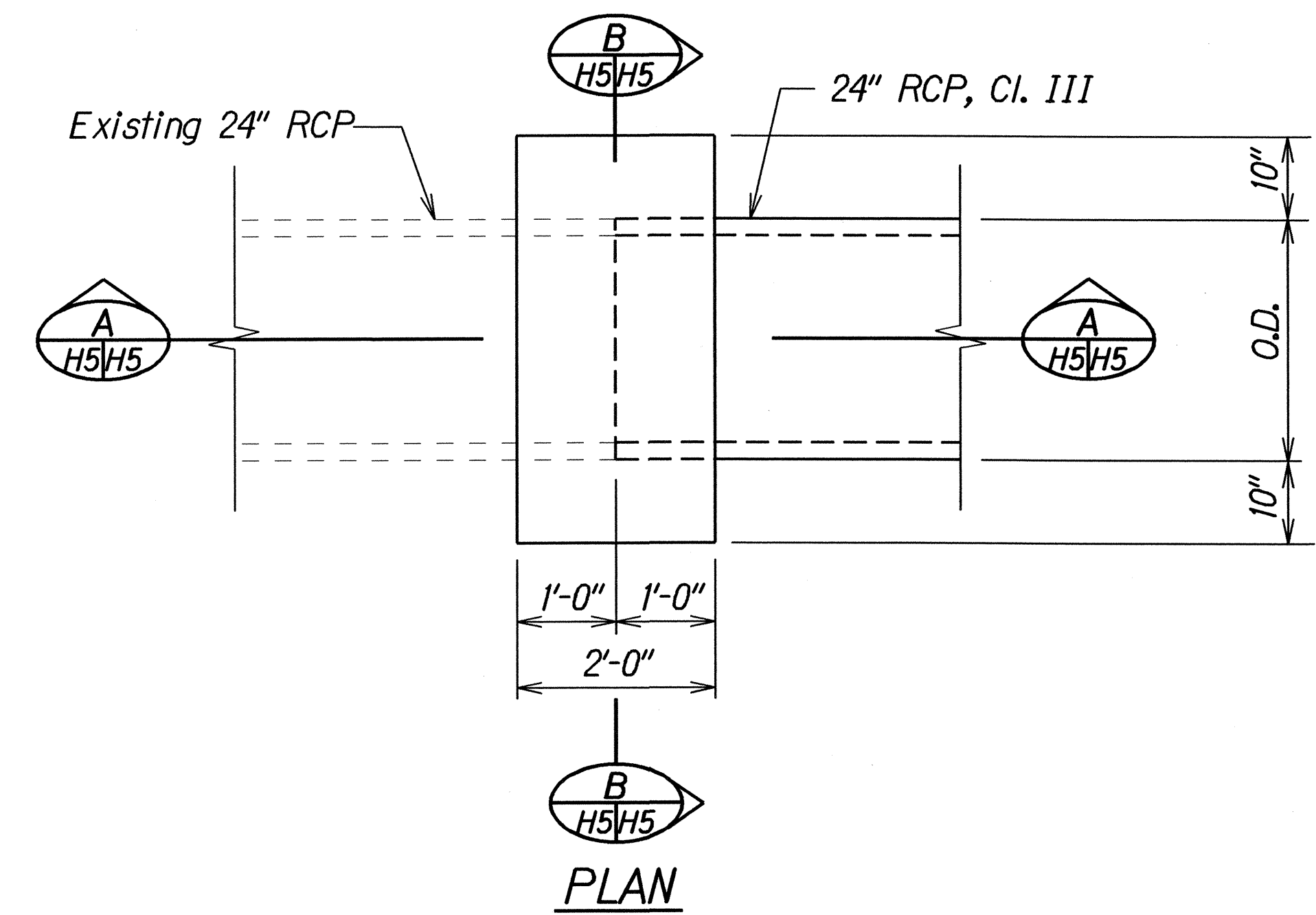
Scale: 3/4" = 1'-0" Date: Oct, 2003

SHEET No. H4 OF 5 SHEETS

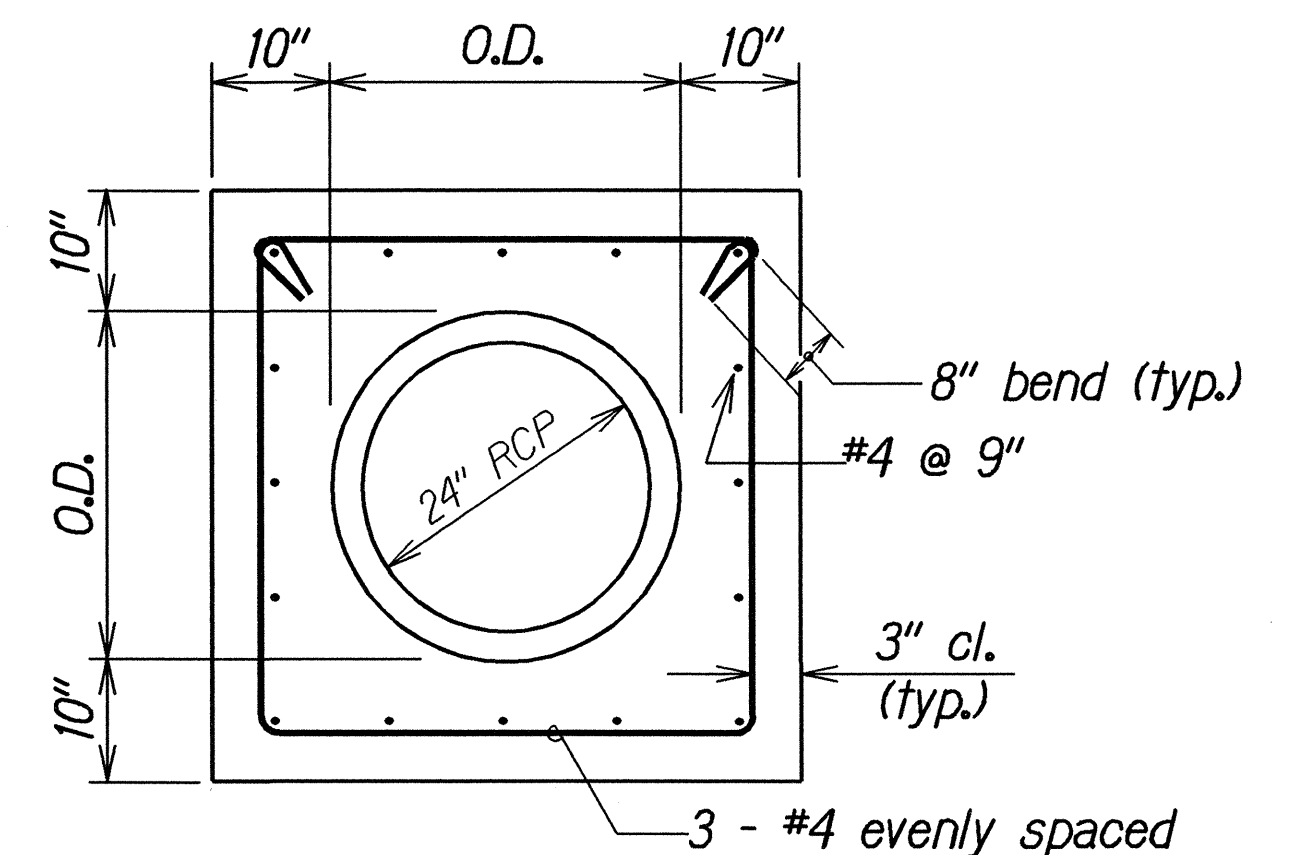
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	CMAQ-099-11(22)	2005	27	60



DETAIL OF CULVERT TRENCH RESTORATION
Scale: $\frac{3}{4}"=1'-0"$



SECTION A-A



SECTION B-B

Note: Reinforcing Steel for Concrete Collar shall conform to the requirements of ASTM 615-Grade 60.

DETAIL OF REINFORCED CONCRETE COLLAR
Scale: $\frac{3}{4}"=1'-0"$

ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
NOTE BOOK	DRAWN BY	4/22/03
DESIGNED BY	CHECKED BY	
QUANTITIES BY		
CHECKED BY		

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

DRAINAGE DETAILS
KAMEHAMEHA HIGHWAY BIKEWAY
Vicinity of Radford Drive to Arizona Memorial
Federal Aid Project No. CMAQ-099-11(22)
Scale: $\frac{3}{4}"=1'-0"$ Date: Oct, 2003