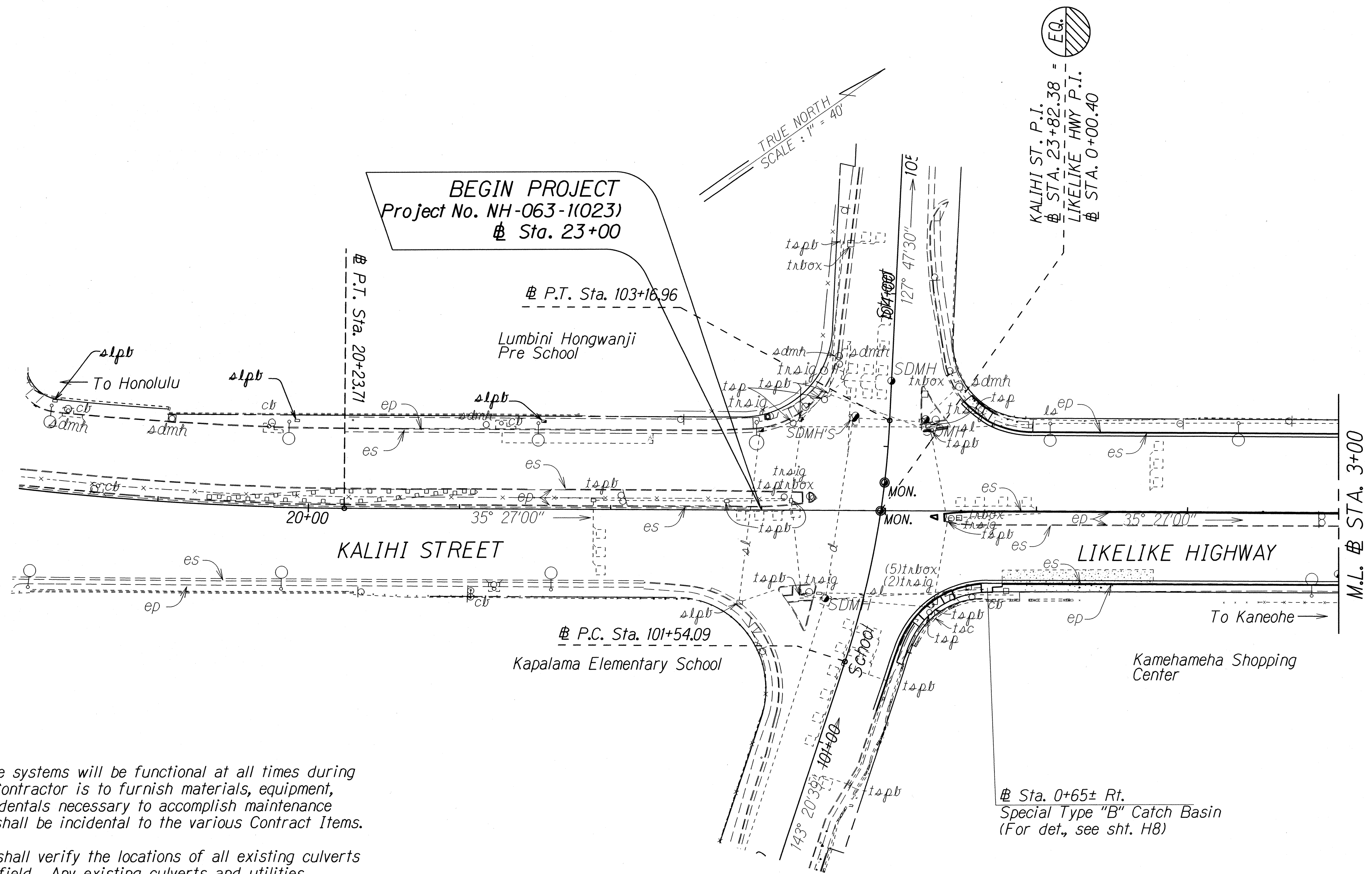


FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-063-1(023)	2015	49	111



Notes:

1. 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.

2. 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 his own expense.

3. For added reinforcing around culverts at new drainage structures, see Standard Plan H-06.

4. Chamfer all exposed concrete edges 1".

5. Demolish, Remove, and Dispose existing drainage structure shall not be paid for separately, but shall be considered incidental to the respective drainage structure pay item.

6. The Contractor shall verify the dimensions of all existing drainage structures and grates prior to fabricating.

7. Unless otherwise noted, concrete strength shall be 4,000 psi compressive strength at 28 days.

8. Unless otherwise noted, reinforcing steel shall conform to AASHTO M31, Grade 60 (ASTM A615 Grade 60).

9. Glass Fiber-Reinforced Polymer Bars shall conform to ACI 440.6-08.

SURVEY PLOTTED BY	DATE
DESIGNED BY	
NOTED BY	
CHECKED BY	
ORIGINAL PLAN	
NOTE BOOK	
NO.	

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

DRAINAGE PLANS

LIKELINE HIGHWAY RESURFACING

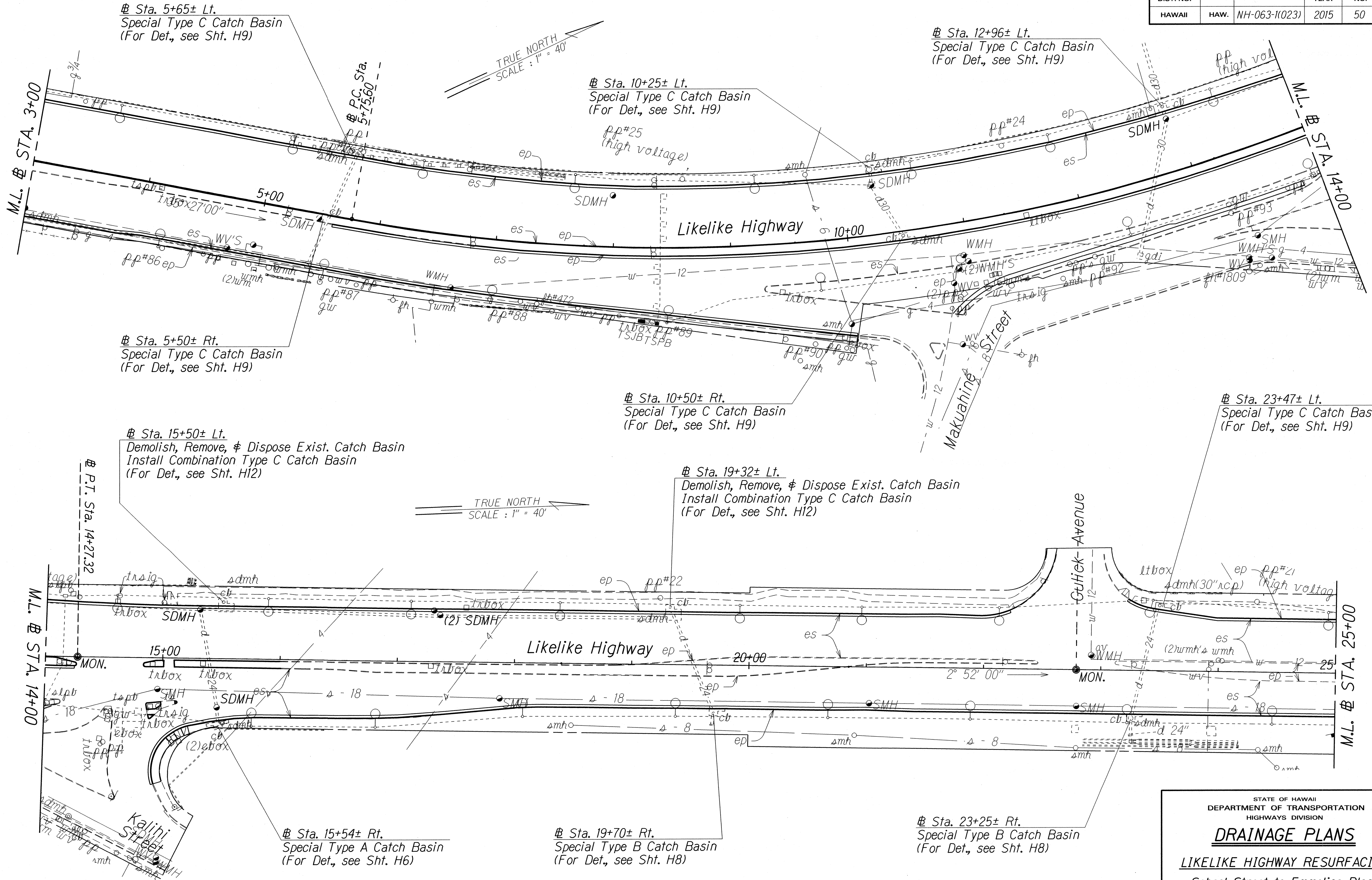
School Street to Emmeline Place

Federal Aid Project No. NH-063-1(023)

Scale: 1" = 40' Date: July, 2015

SHEET No. 49 OF 111 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-063-1(023)	2015	50	111



SURVEY PLOTTED BY	DATE
DESIGNED BY	
TRACED BY	
NOTE BOOK	
QUANTITIES BY	
CHECKED BY	

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

DRAINAGE PLANS

LIKELIKE HIGHWAY RESURFACING

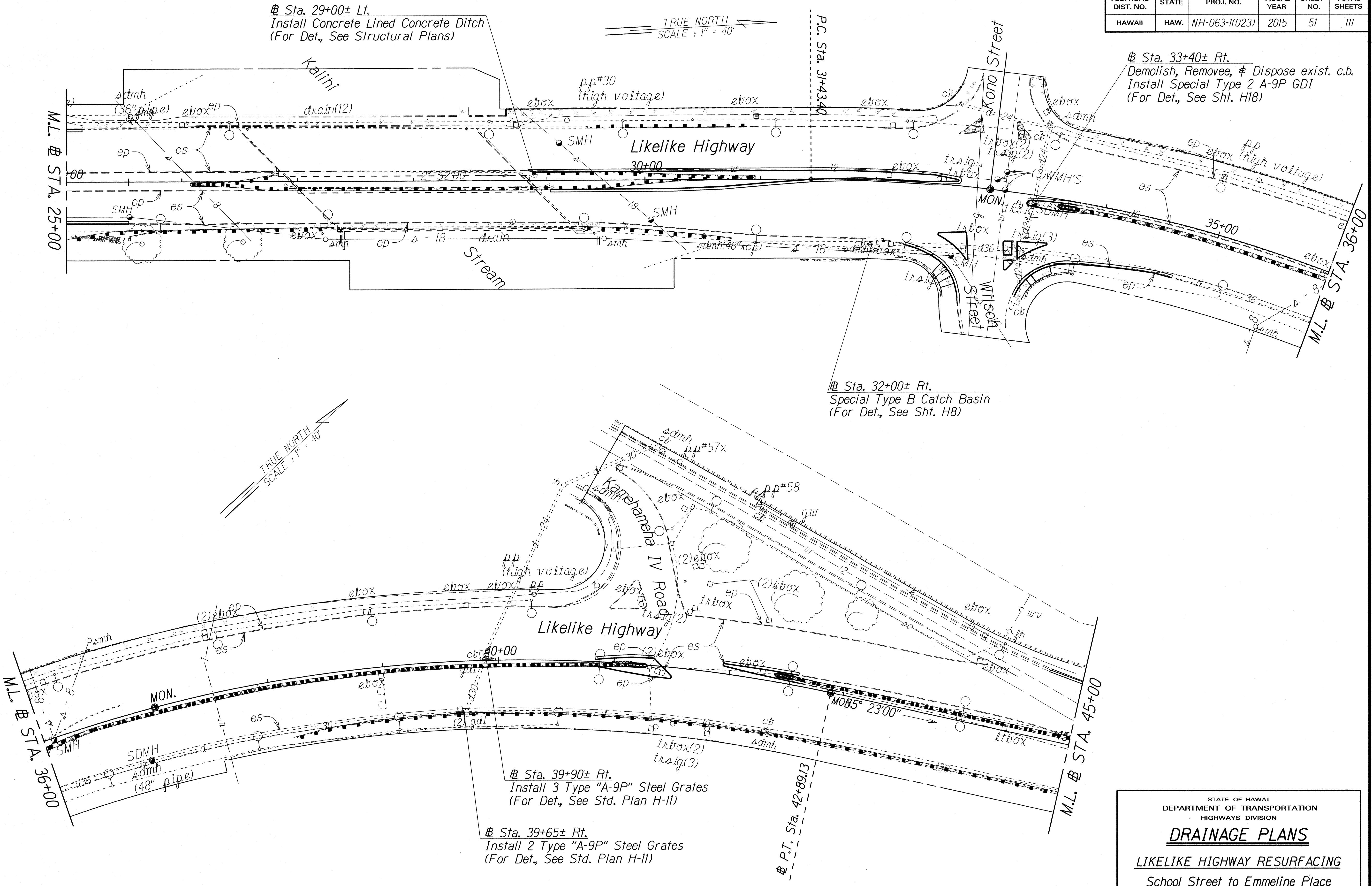
School Street to Emmeline Place

Federal Aid Project No. NH-063-1(023)

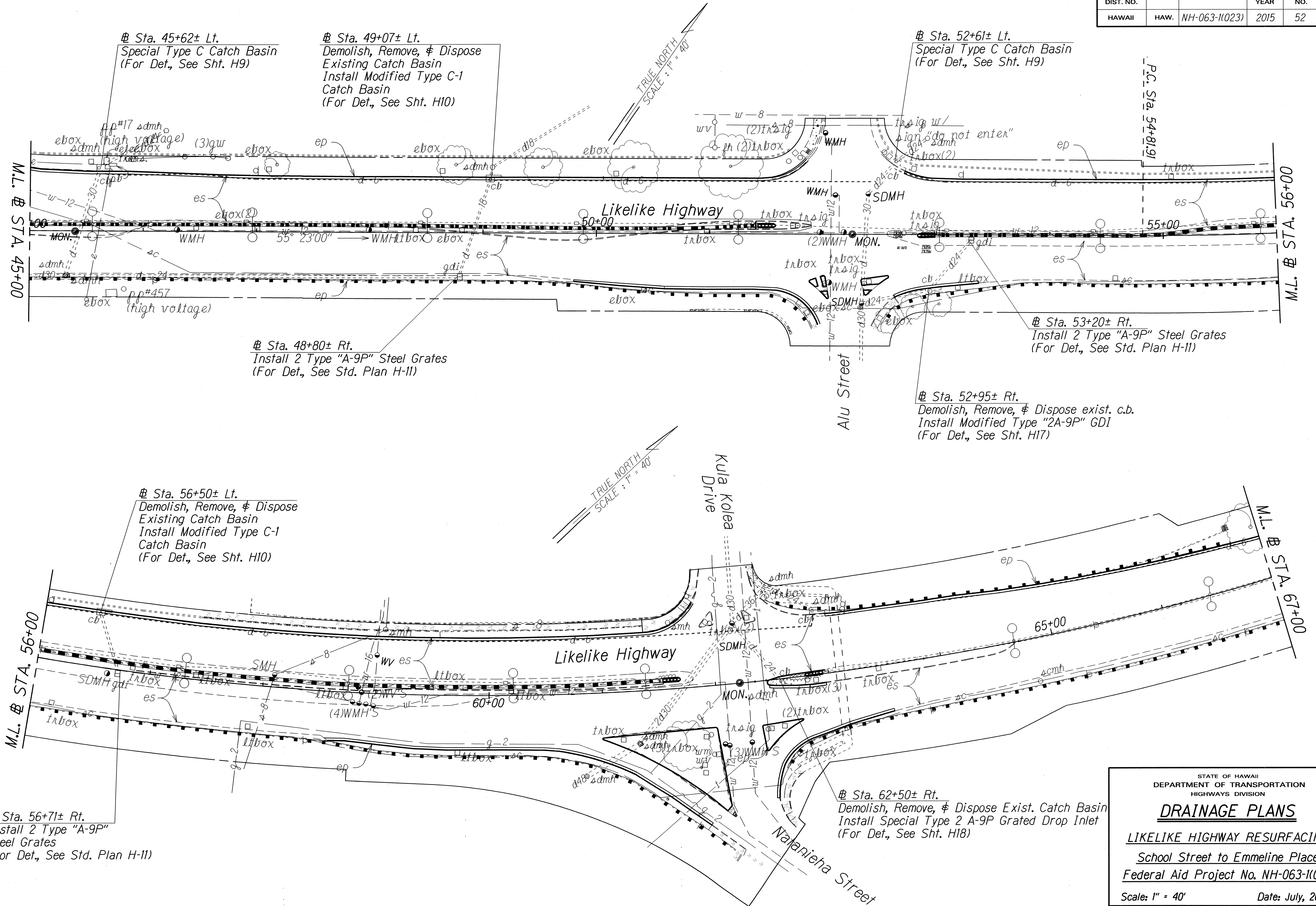
Scale: 1" = 40' Date: July, 2015

SHEET No. H2 OF 18 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-063-1(023)	2015	51	111



FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-063-K(023)	2015	52	111



ORIGINAL PLAN	DATE
DESIGNED BY	
TRACED BY	
NOTE BOOK	
QUANTITIES BY	
CHECKED BY	

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

DRAINAGE PLANS

LIKELIKE HIGHWAY RESURFACING

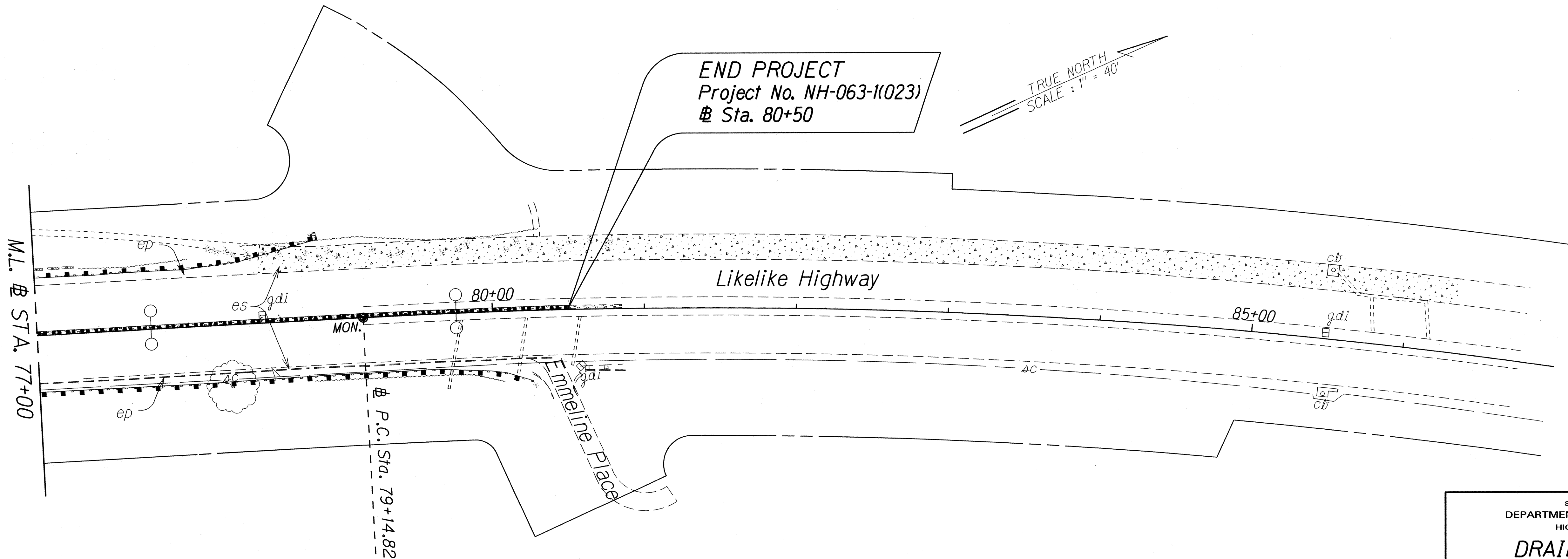
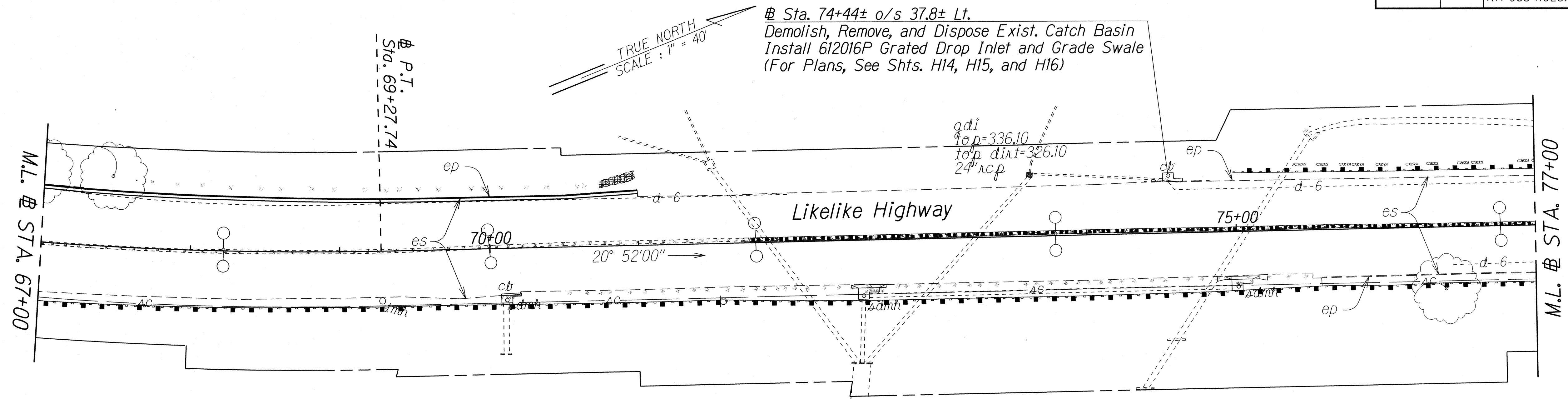
School Street to Emmeline Place

Federal Aid Project No. NH-063-K(023)

Scale: 1" = 40' Date: July, 2015

SHEET No. H4 OF 18 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-063-1(023)	2015	53	111



ORIGINAL PLAN	DATE
DRAWN BY	
DESIGNED BY	
QUANTITIES BY	
CHECKED BY	

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

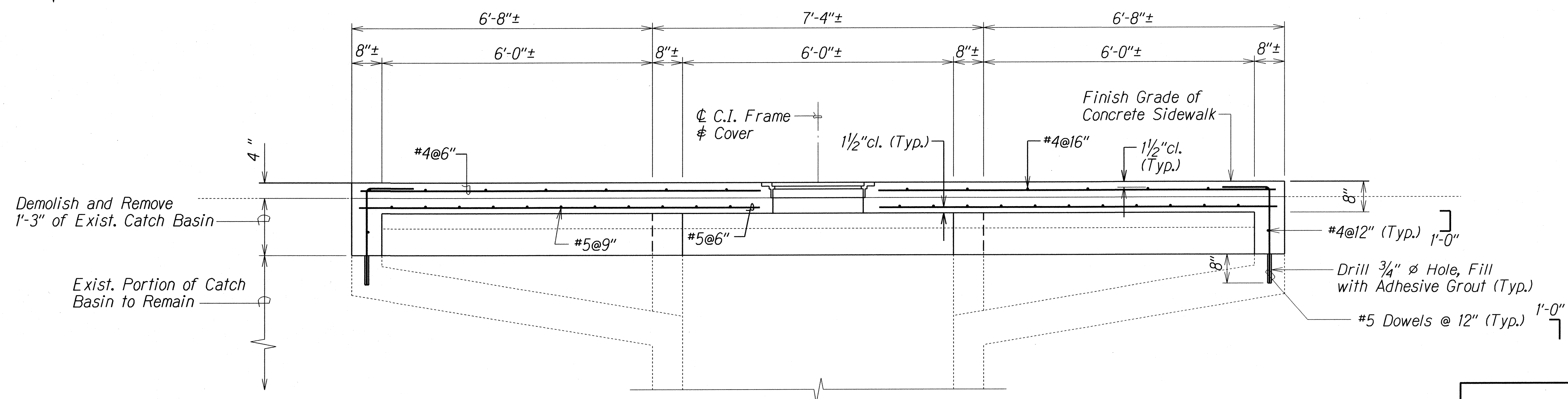
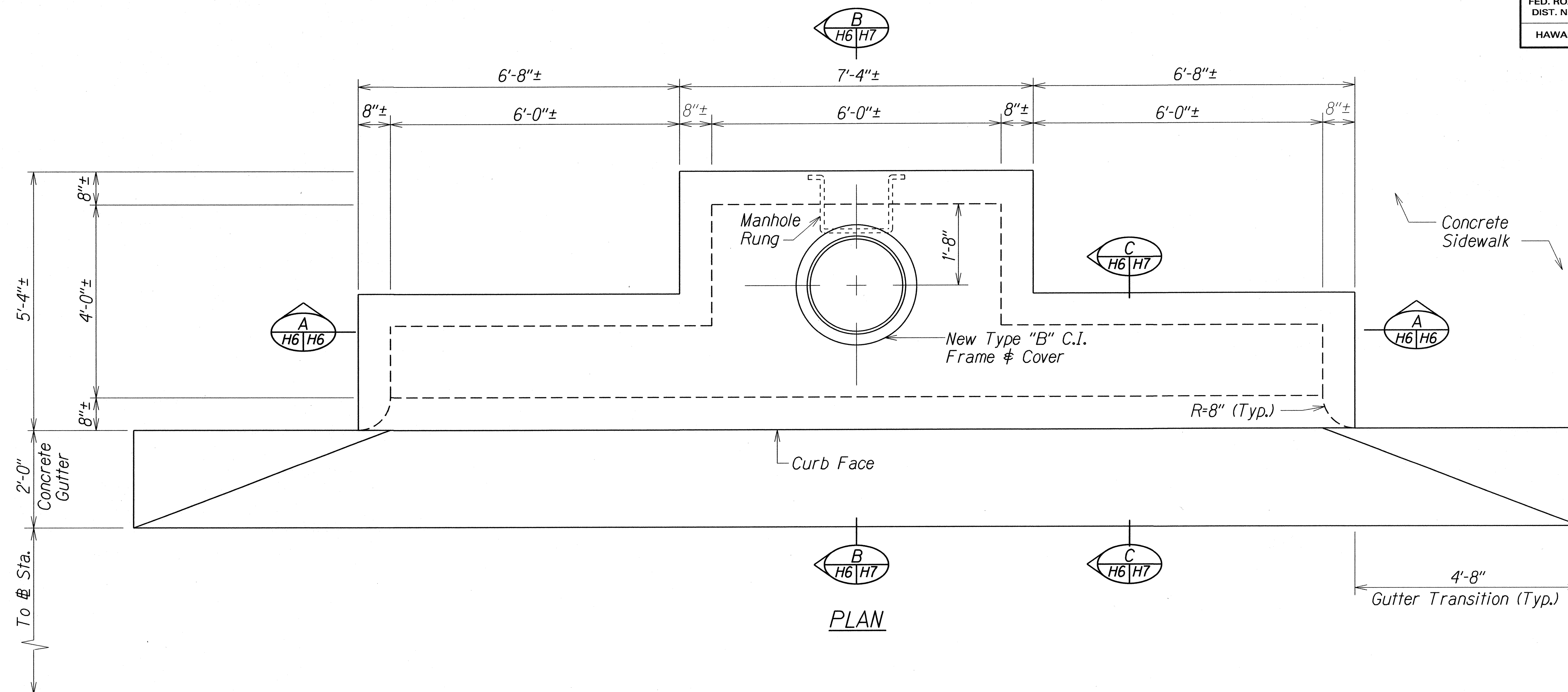
DRAINAGE PLANS

LIKELIKE HIGHWAY RESURFACING
School Street to Emmeline Place
Federal Aid Project No. NH-063-1(023)

Scale: 1" = 40' Date: July, 2015

SHEET No. H5 OF 18 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-063-1(023)	2015	54	111



Notes:

- 1) Match Top of Catch Basin to New Curb Grade.
- 2) Roughen existing concrete surface and apply epoxy bonding agent prior to concrete pour.
- 3) Demolish, Remove, and Dispose exist. Manhole Frame and Cover.
- 4) For added reinforcing around manhole opening, see Std. Plan H-06.
- 5) Contractor shall verify dimensions.

SECTION

DETAILS OF SPECIAL TYPE "A" CATCH BASIN

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

DRAINAGE DETAIL

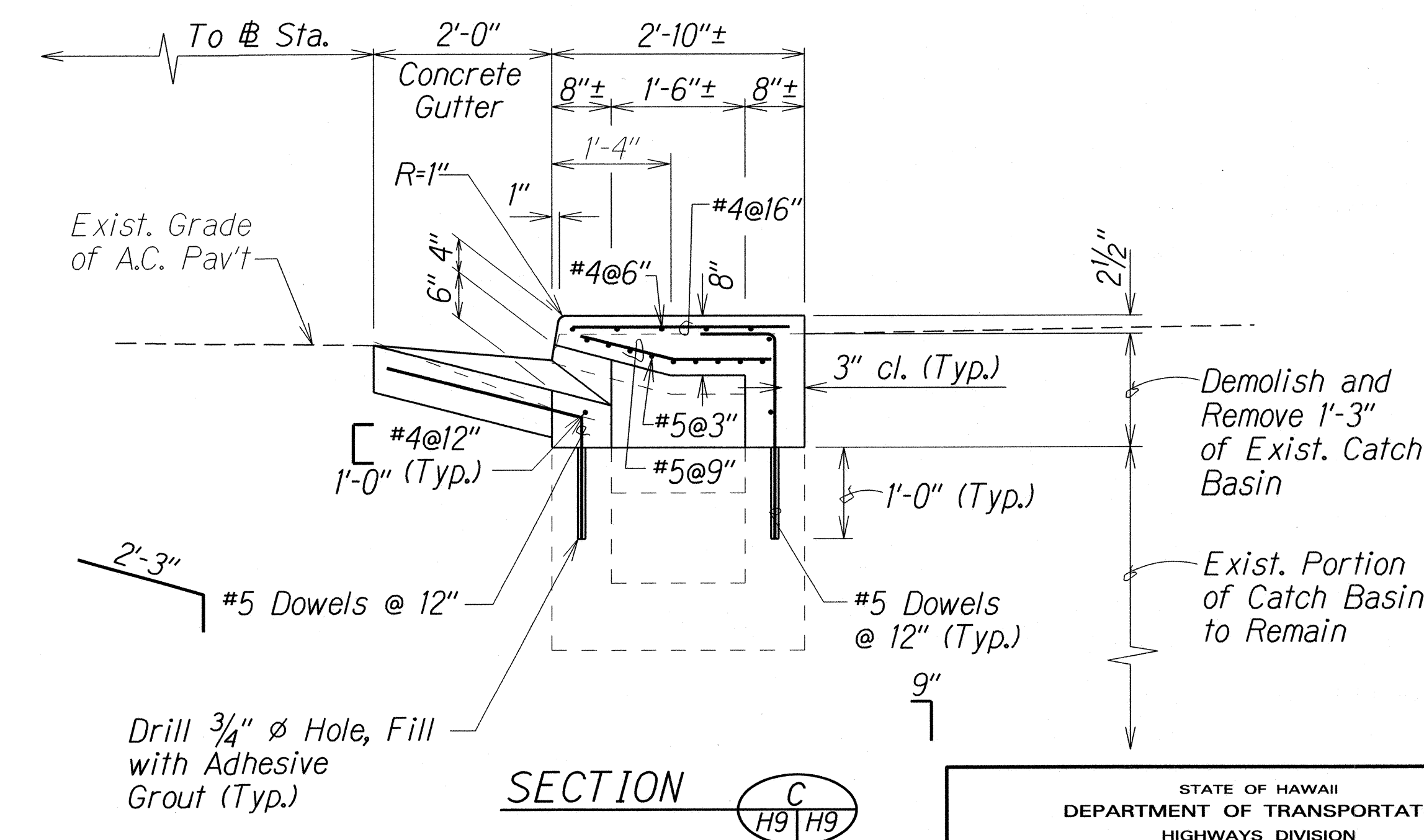
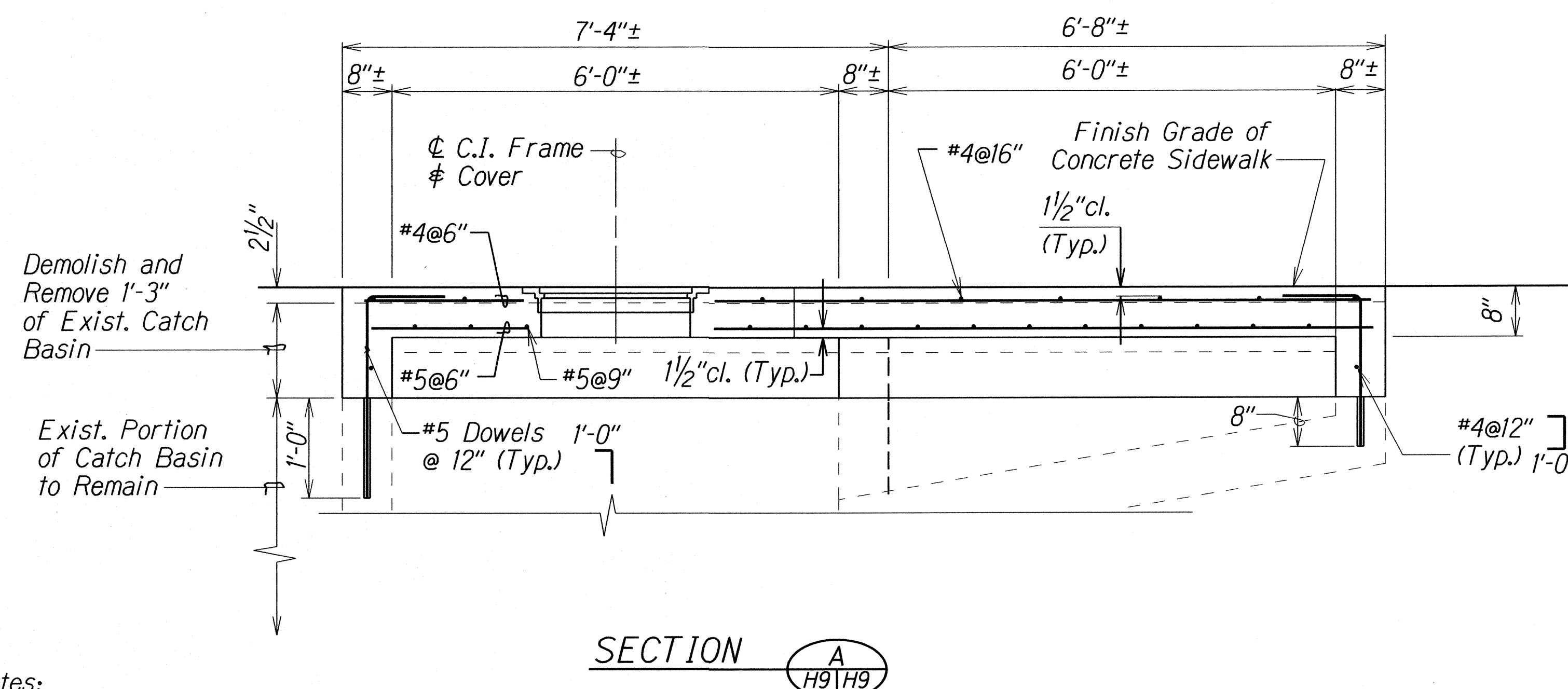
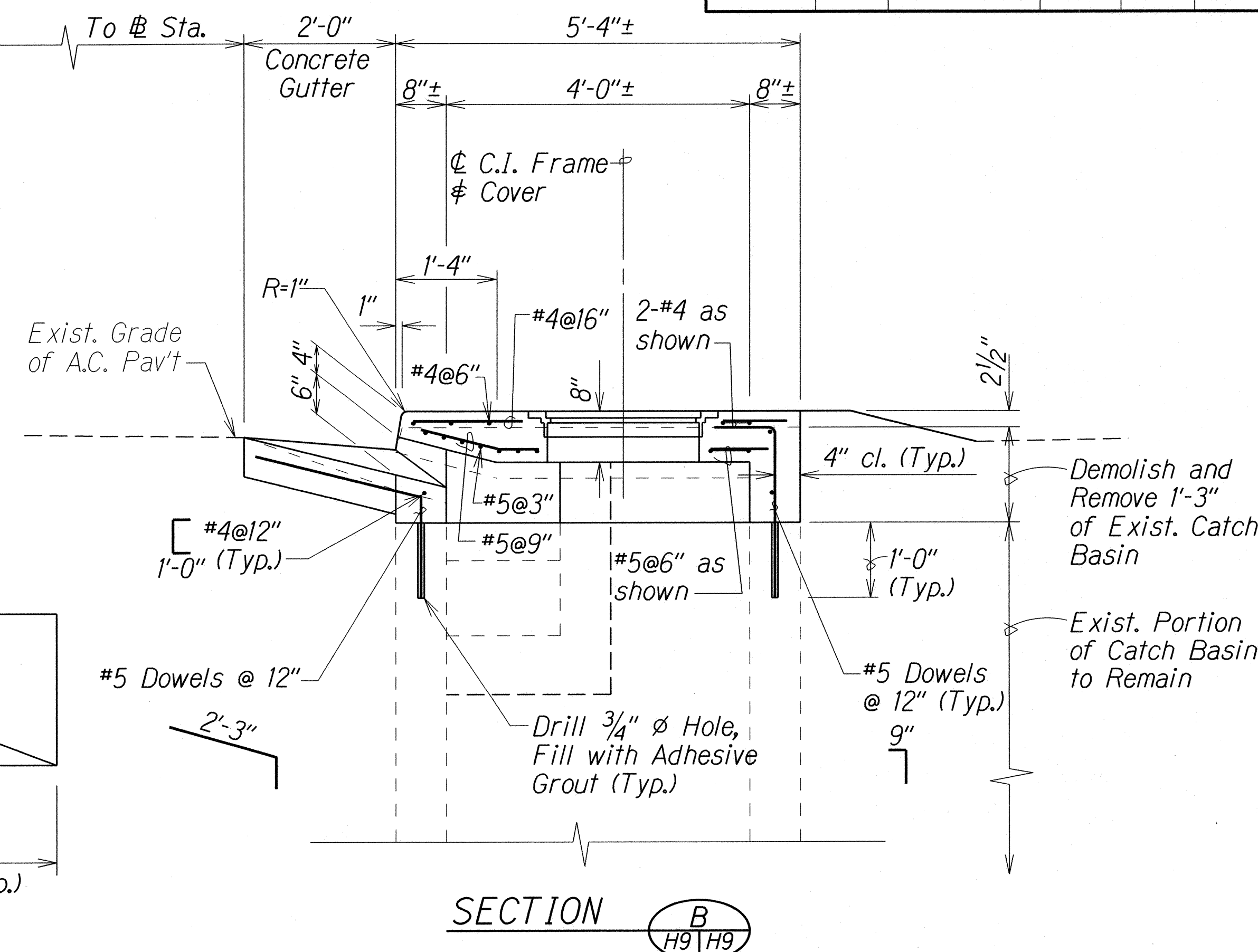
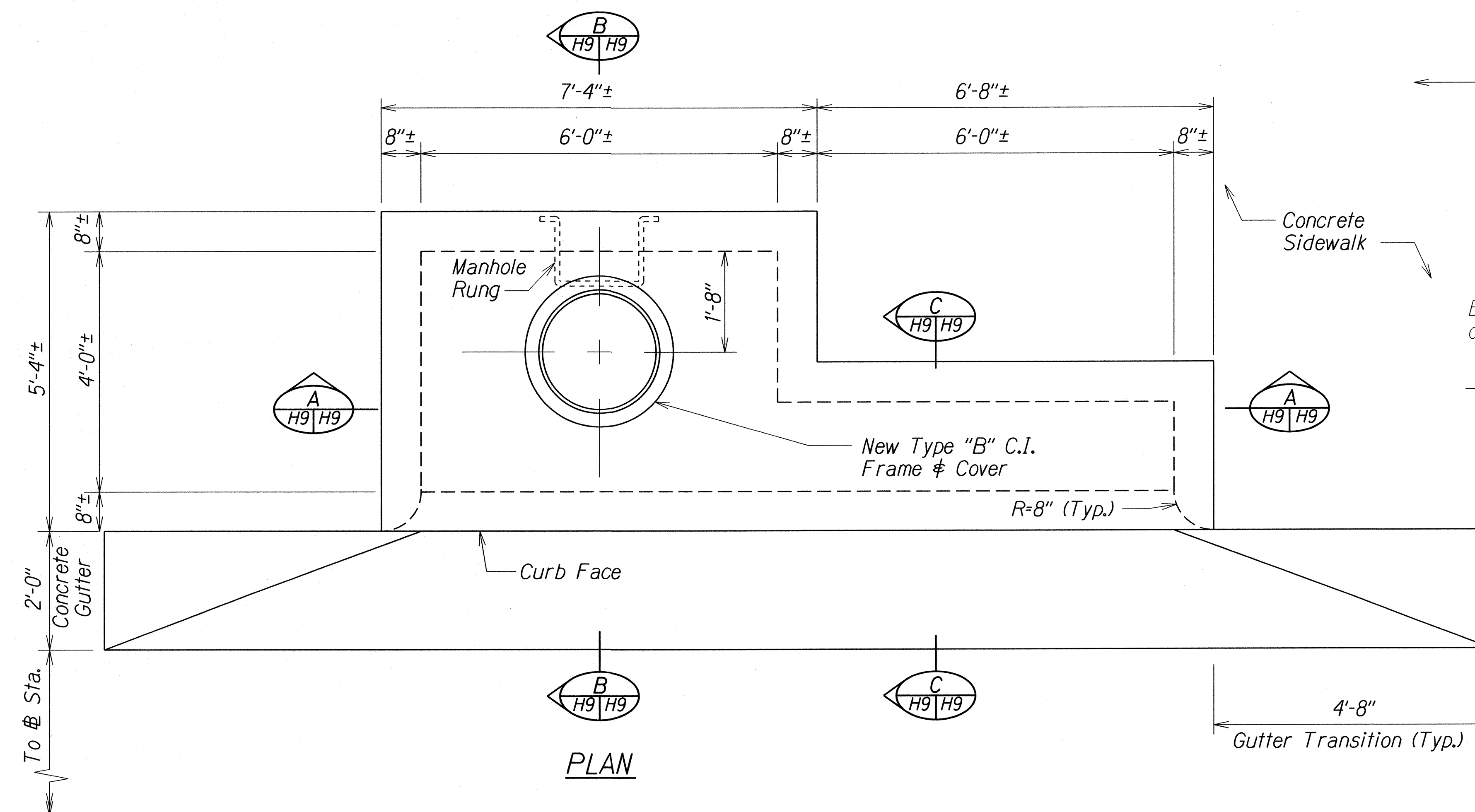
LIKELIKE HIGHWAY RESURFACING
School Street to Emmeline Place
Federal Aid Project No. NH-063-1(023)

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

Date: June, 2015

SHEET No. *H6* OF *18* SHEETS

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-063-1(023)	2015	57	III

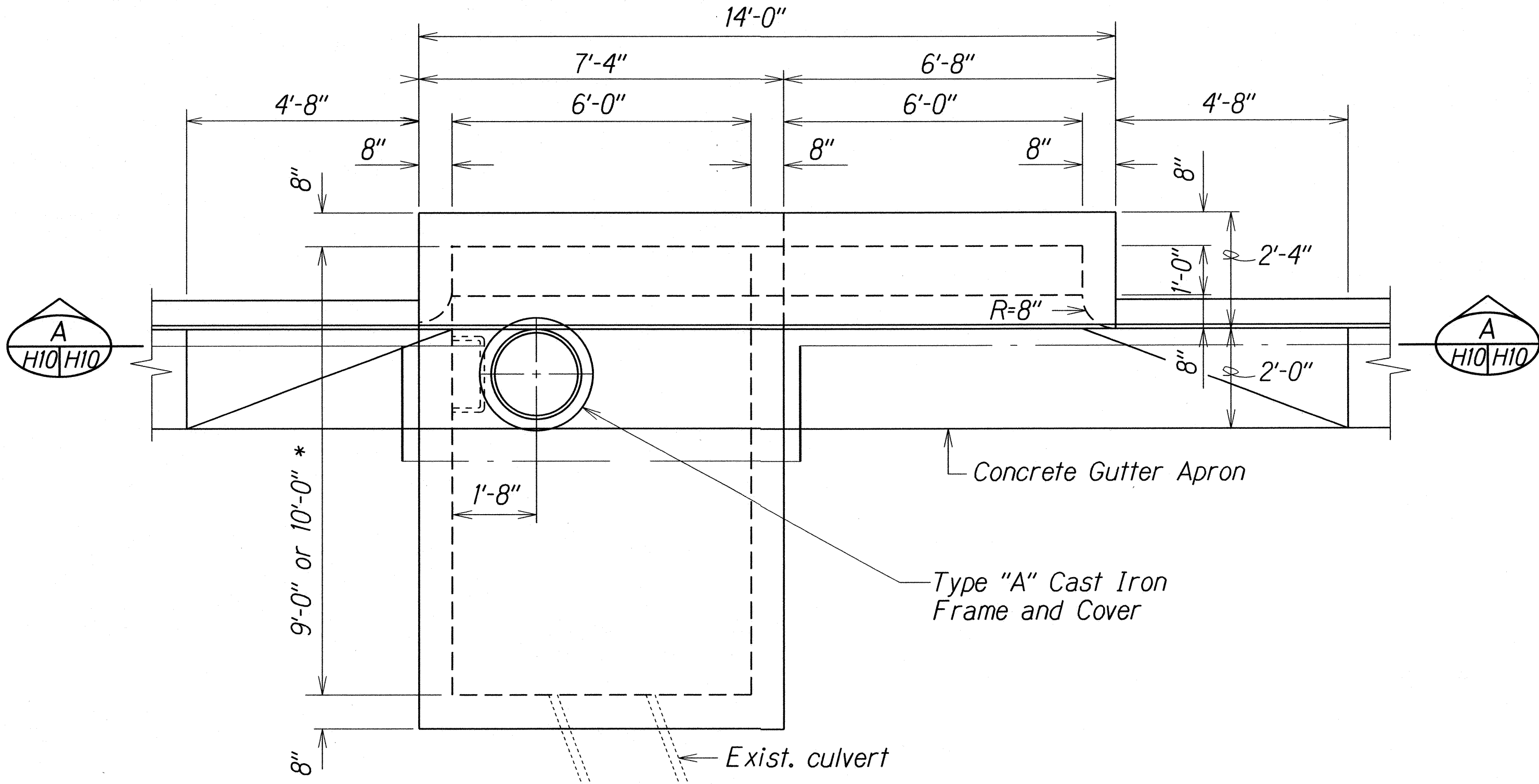


- Notes:
- 1) Match Top of Catch Basin to New Curb Grade.
 - 2) Roughen existing concrete surface and apply epoxy bonding agent prior to concrete pour.
 - 3) Demolish, Remove, and Dispose exist. Manhole Frame and Cover.
 - 4) For added reinforcing around manhole opening, see Std. Plan H-06.
 - 5) Contractor shall verify dimensions.

DETAILS OF SPECIAL TYPE "C" CATCH BASIN

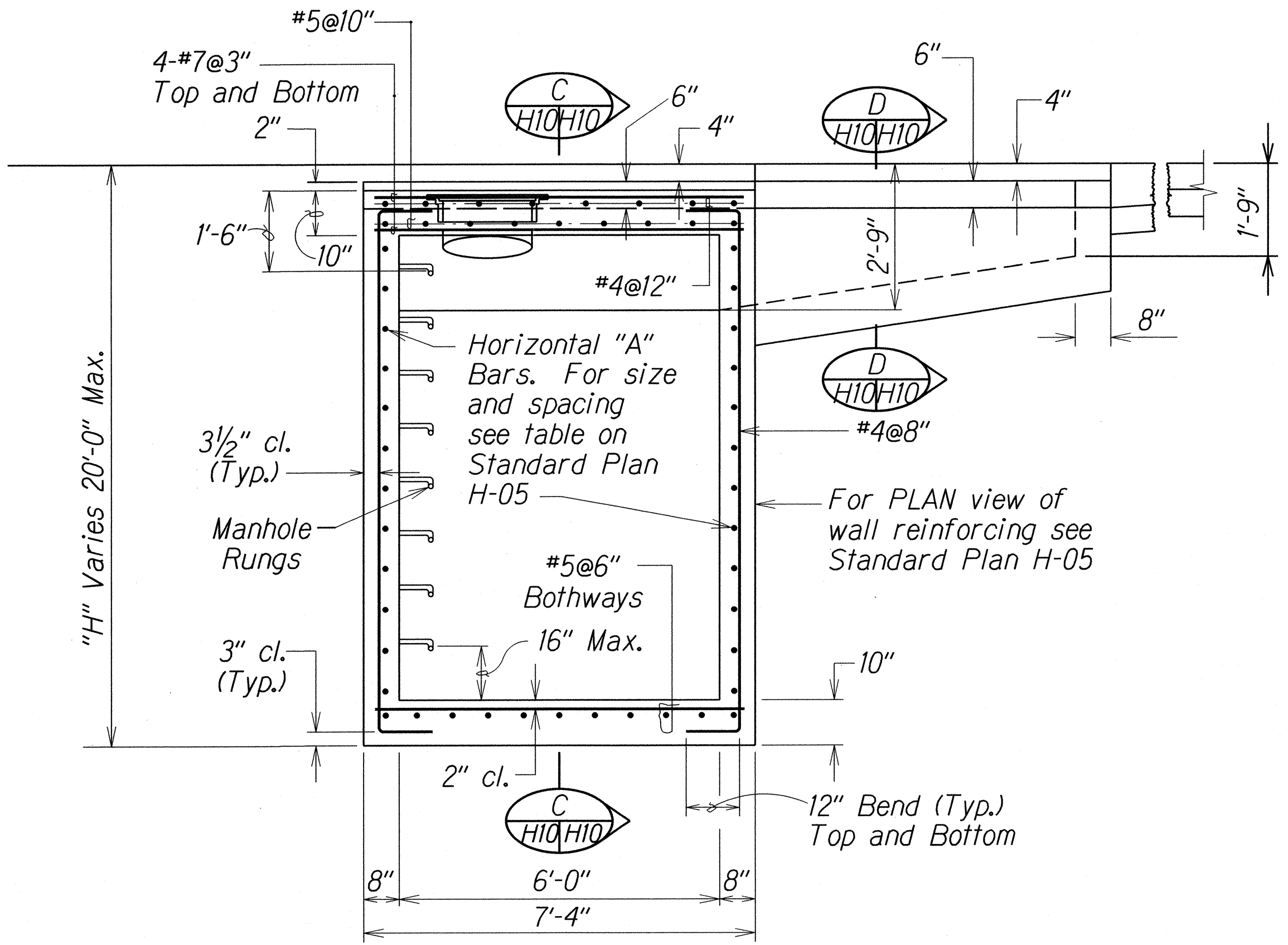
STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION	
DRAINAGE DETAIL	
LIKELIKE HIGHWAY RESURFACING School Street to Emmeline Place Federal Aid Project No. NH-063-1(023)	
Scale: 3/4"=1'-0"	Date: June, 2015
SHEET No. H9 OF 18 SHEETS	

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-063-1(023)	2015	58	111

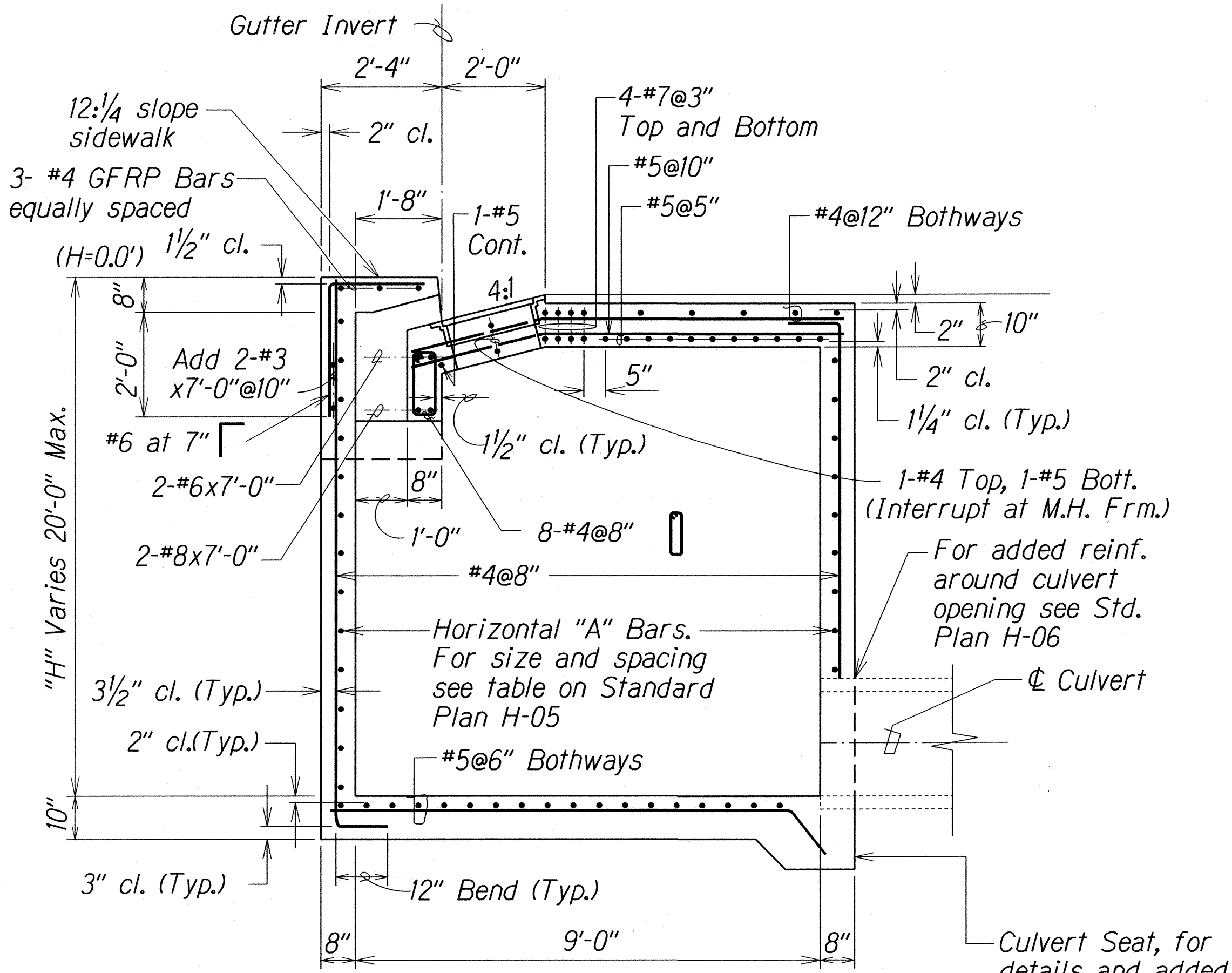


* 9'-0" at Sta. 56+50
10'-0" at Sta. 49+07

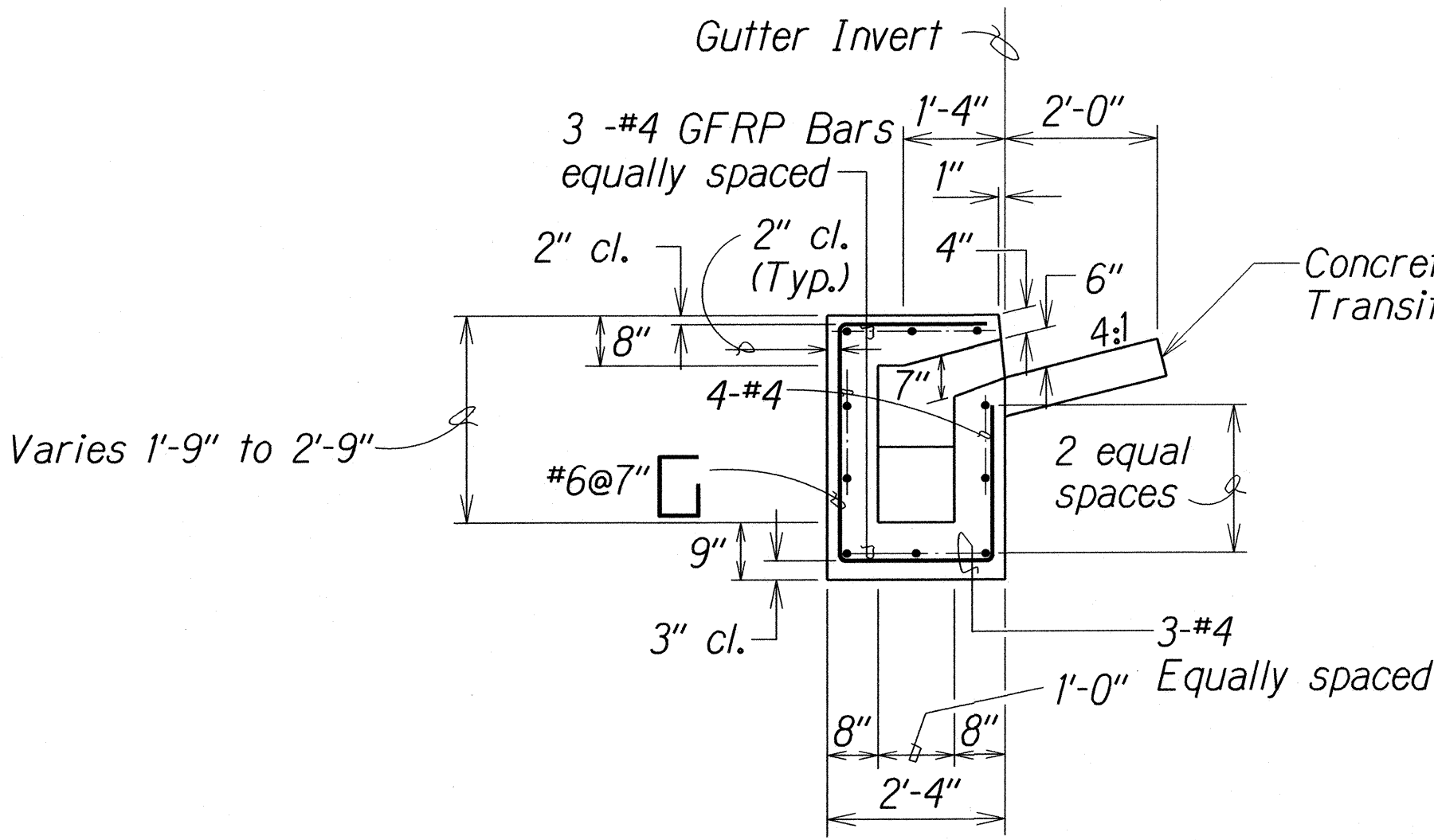
PLAN



SECTION A
H10/H10



SECTION C
H10/H10



SECTION D
H10/H10

- Notes:
- 1) Match Top of Catch Basin to New Curb Grade.
 - 2) Roughen existing concrete surface and apply epoxy bonding agent prior to concrete pour.
 - 3) Demolish, Remove, and Dispose exist. Manhole Frame and Cover.
 - 4) For added reinforcing around manhole opening, see Std. Plan H-06.
 - 5) Contractor shall verify dimensions.

ORIGINAL PLAN	DATE
DESIGNED BY	
TRACED BY	
NOTE BOOK	
QUANTITIES BY	
CHECKED BY	

MODIFIED TYPE C1 CATCH BASIN

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

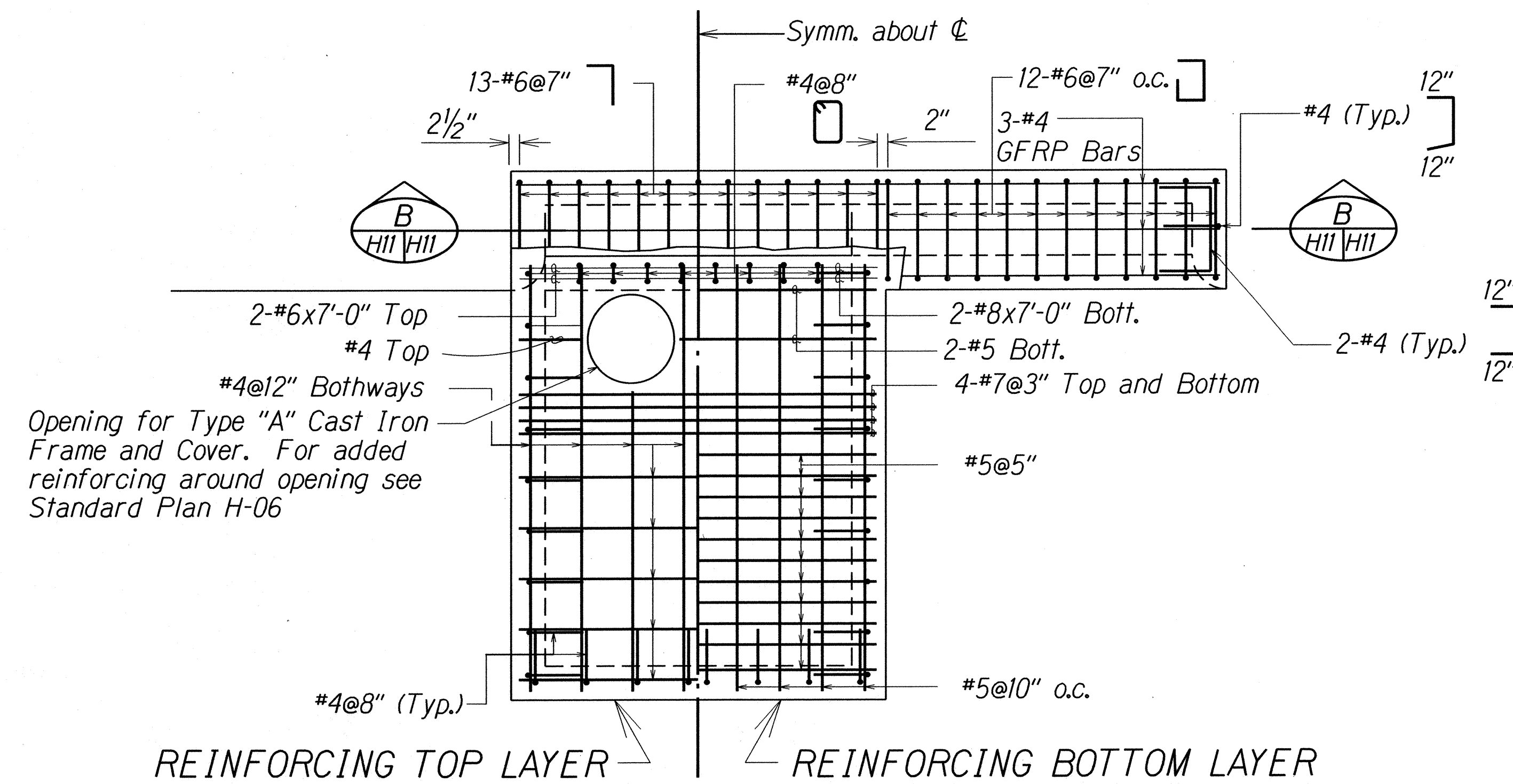
DRAINAGE DETAIL

LIKELIKE HIGHWAY RESURFACING
School Street to Emmeline Place
Federal Aid Project No. NH-063-1(023)

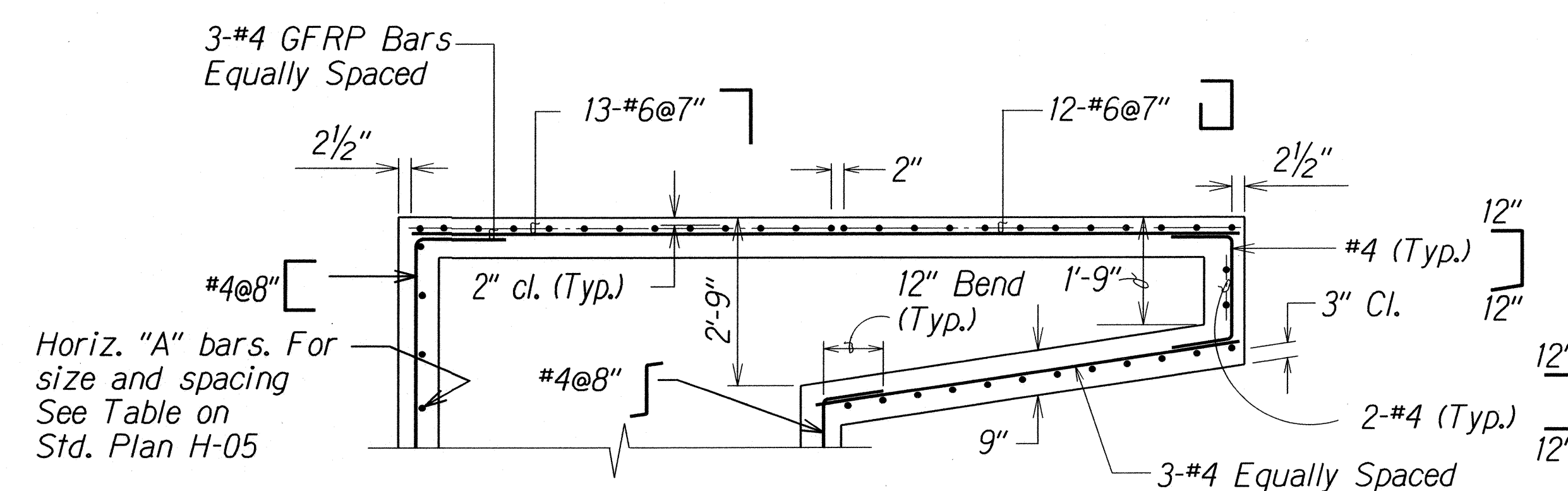
Scale: 1/2"=1'-0" Date: June, 2015

SHEET No. H10 OF 18 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-063-1(023)	2015	59	111



PLAN VIEW OF REINFORCING STEEL



SECTION B

MODIFIED TYPE C1 CATCH BASIN

SURVEY PLOTTED BY	DATE
DESIGNED BY	
TRACED BY	
NOTE BOOK	
QUANTITIES BY	
CHECKED BY	

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

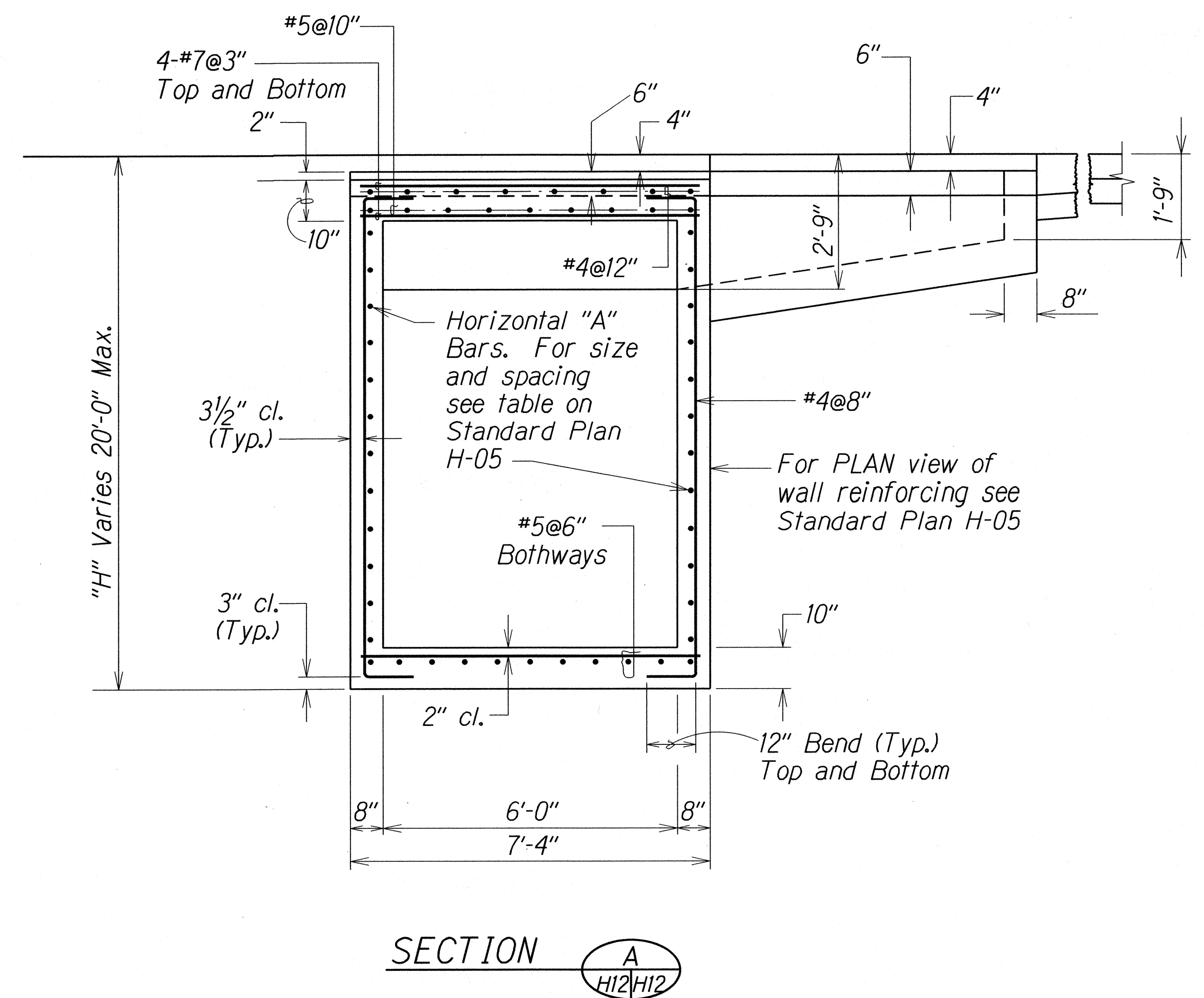
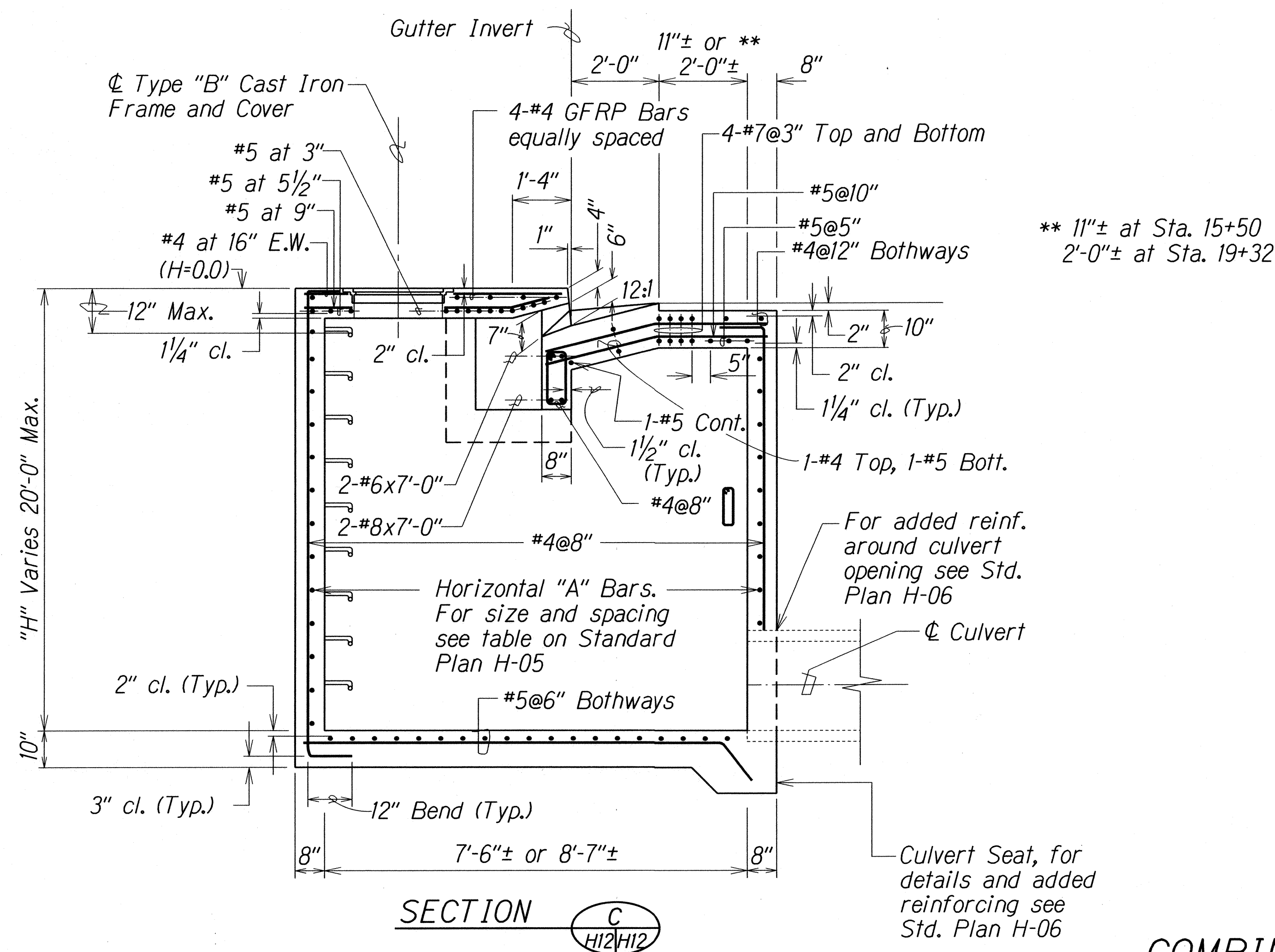
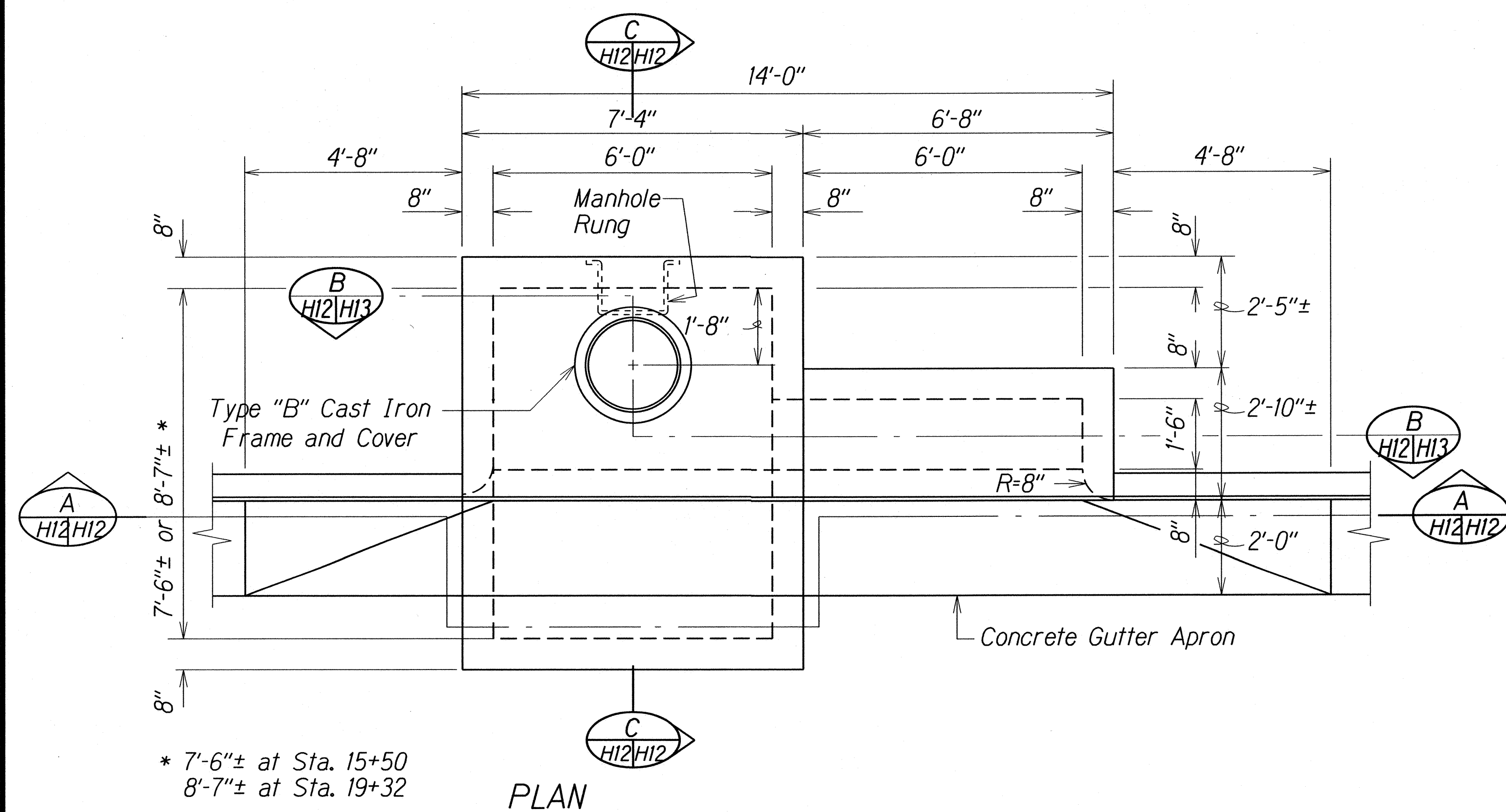
DRAINAGE DETAIL

LIKELIKE HIGHWAY RESURFACING
School Street to Emmeline Place
Federal Aid Project No. NH-063-1(023)

Scale: 1/2"=1'-0" Date: June, 2015

SHEET No. 111 OF 18 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-063-1(023)	2015	60	111



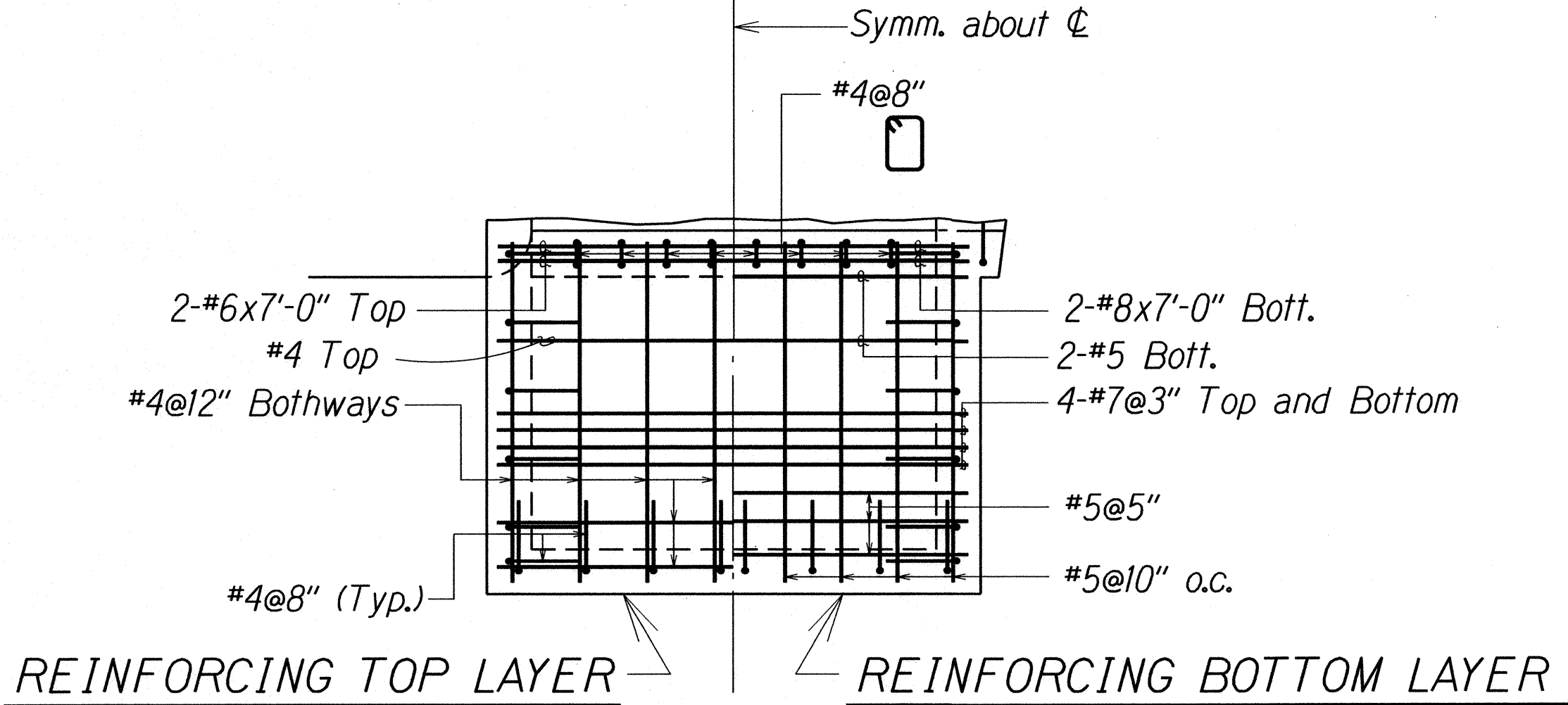
- Notes:
- 1) Match Top of Catch Basin to New Curb Grade.
 - 2) Demolish, Remove, and Dispose exist. Manhole Frame and Cover.
 - 3) For added reinforcing around manhole opening, see Std. Plan H-06.
 - 4) Contractor shall verify dimensions.
 - 5) Existing culverts are shown on the drainage plans.

DATE	____
DESIGNED BY	____
CHECKED BY	____
NOTED BY	____
ORIGINAL PLAN	____
NOTE BOOK	____
N.	____

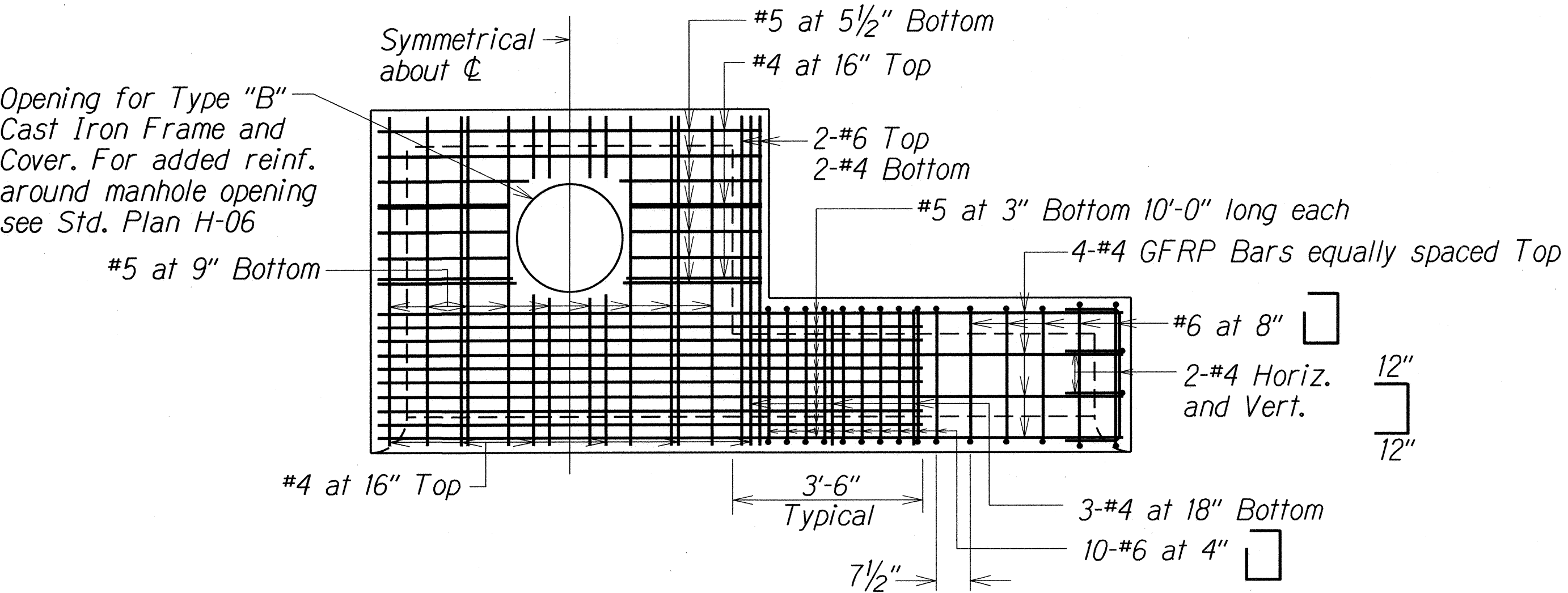
COMBINATION TYPE C CATCH BASIN

STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION	
DRAINAGE DETAIL	
LIKELIKE HIGHWAY RESURFACING School Street to Emmeline Place Federal Aid Project No. NH-063-1(023)	
Scale: 1/2"=1'-0"	Date: June, 2015
SHEET No. H12 OF 18 SHEETS	

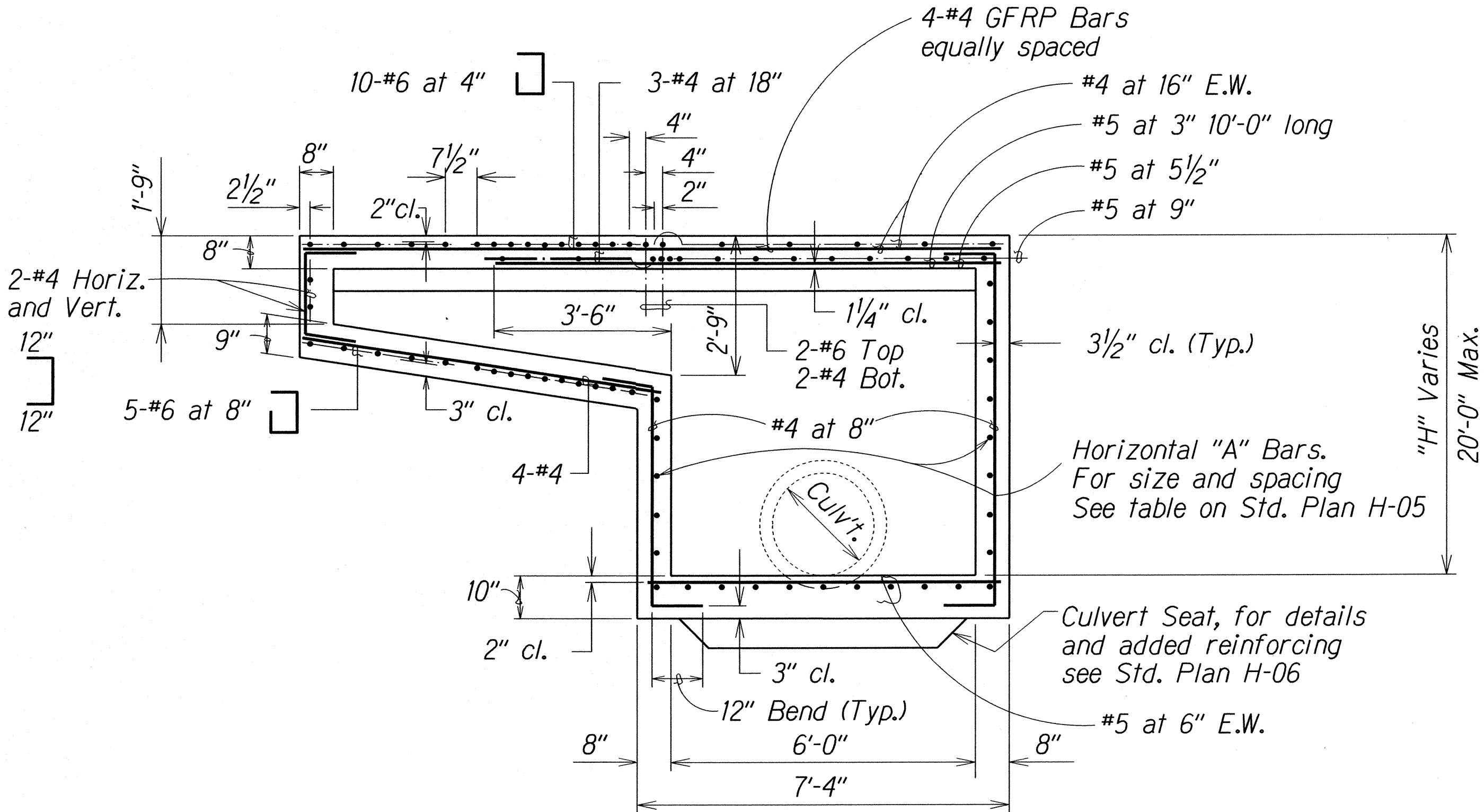
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-063-1(023)	2015	61	111



PLAN VIEW OF REINFORCING STEEL (ROADWAY PORTION)



PLAN VIEW OF REINFORCING STEEL (SIDEWALK PORTION)



SECTION B
HI2/HI3

COMBINATION TYPE C CATCH BASIN

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

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

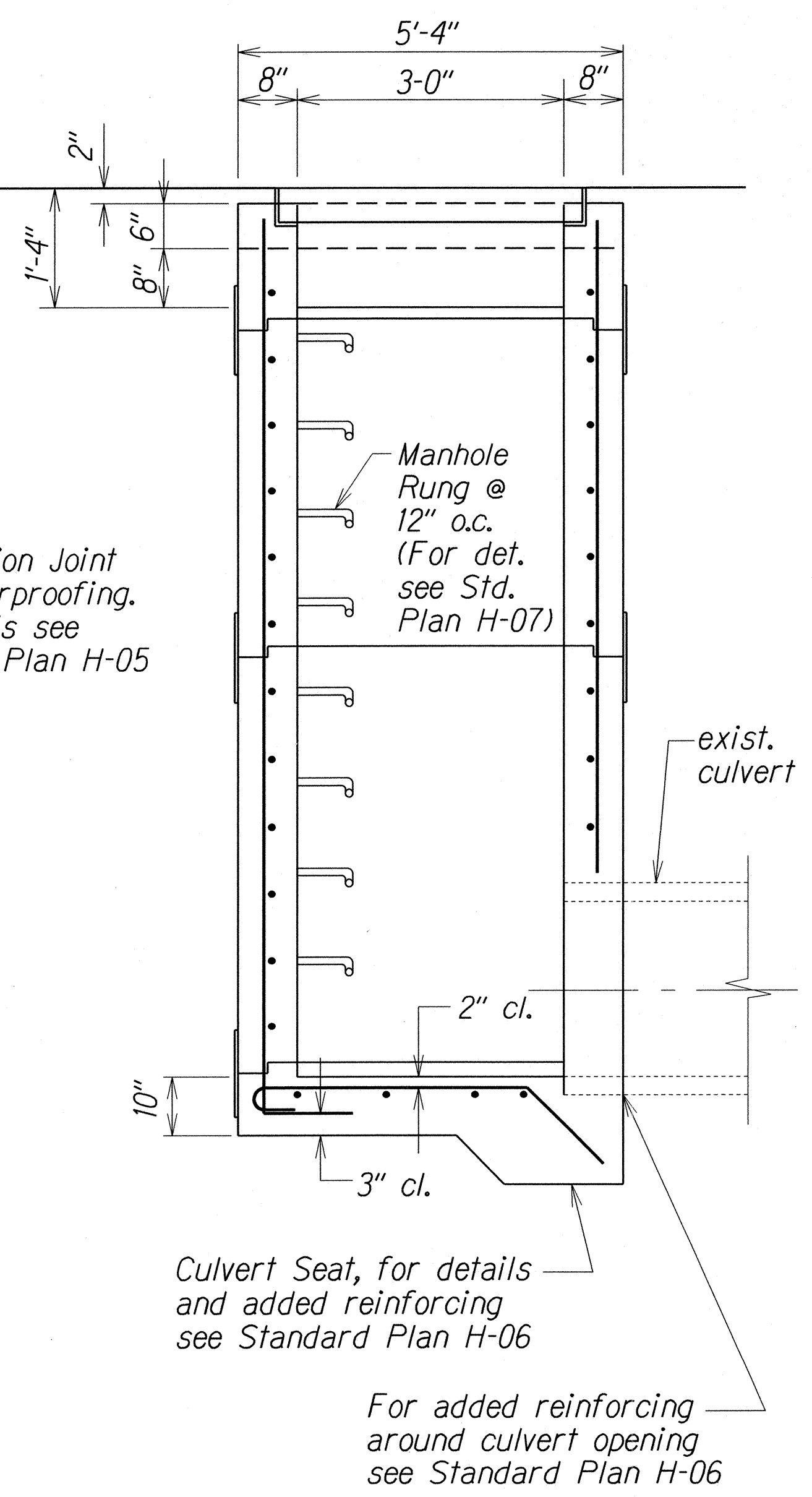
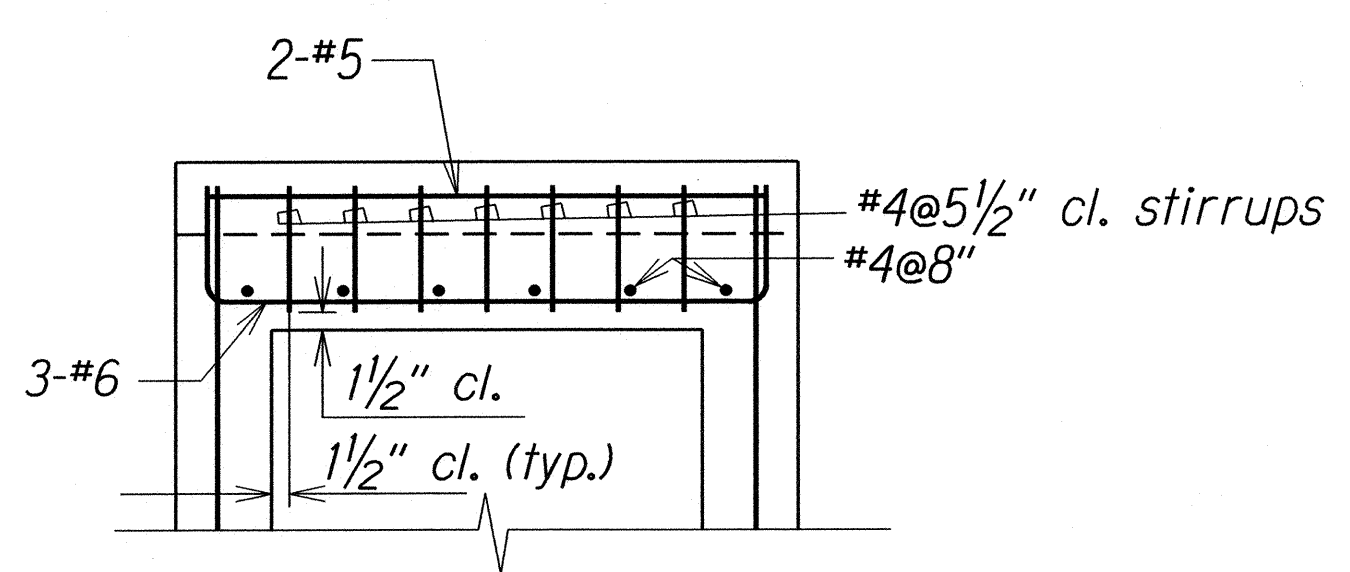
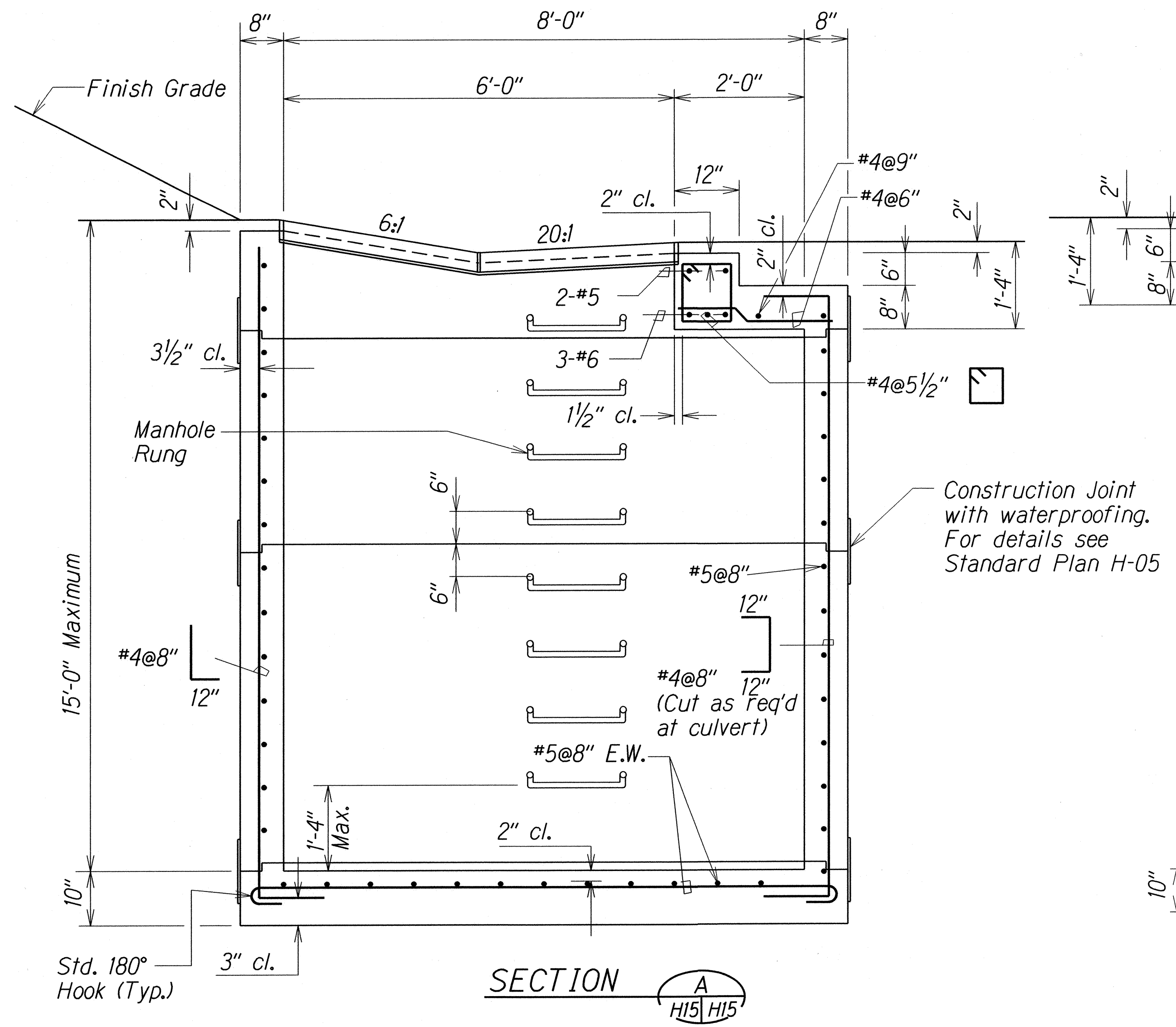
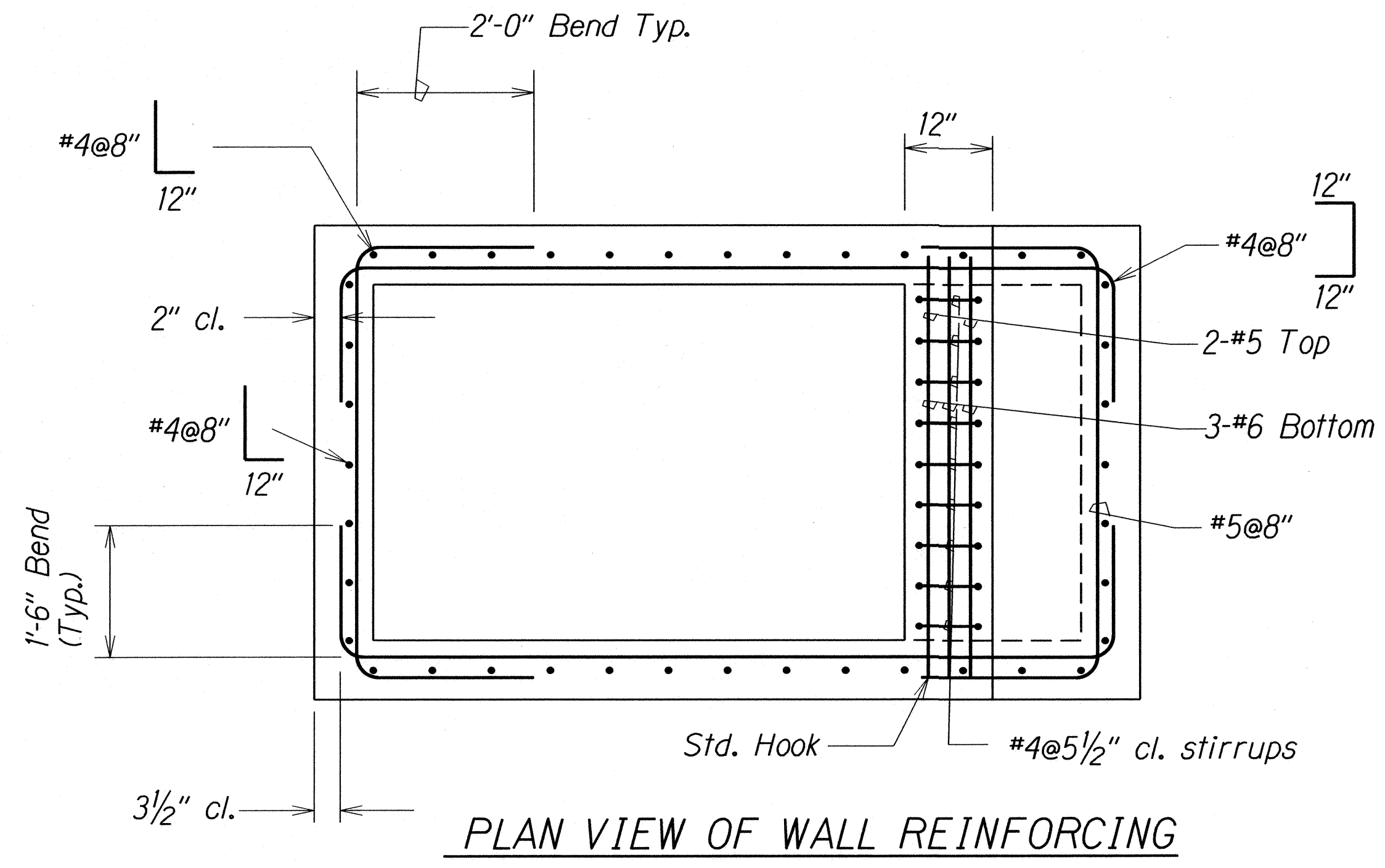
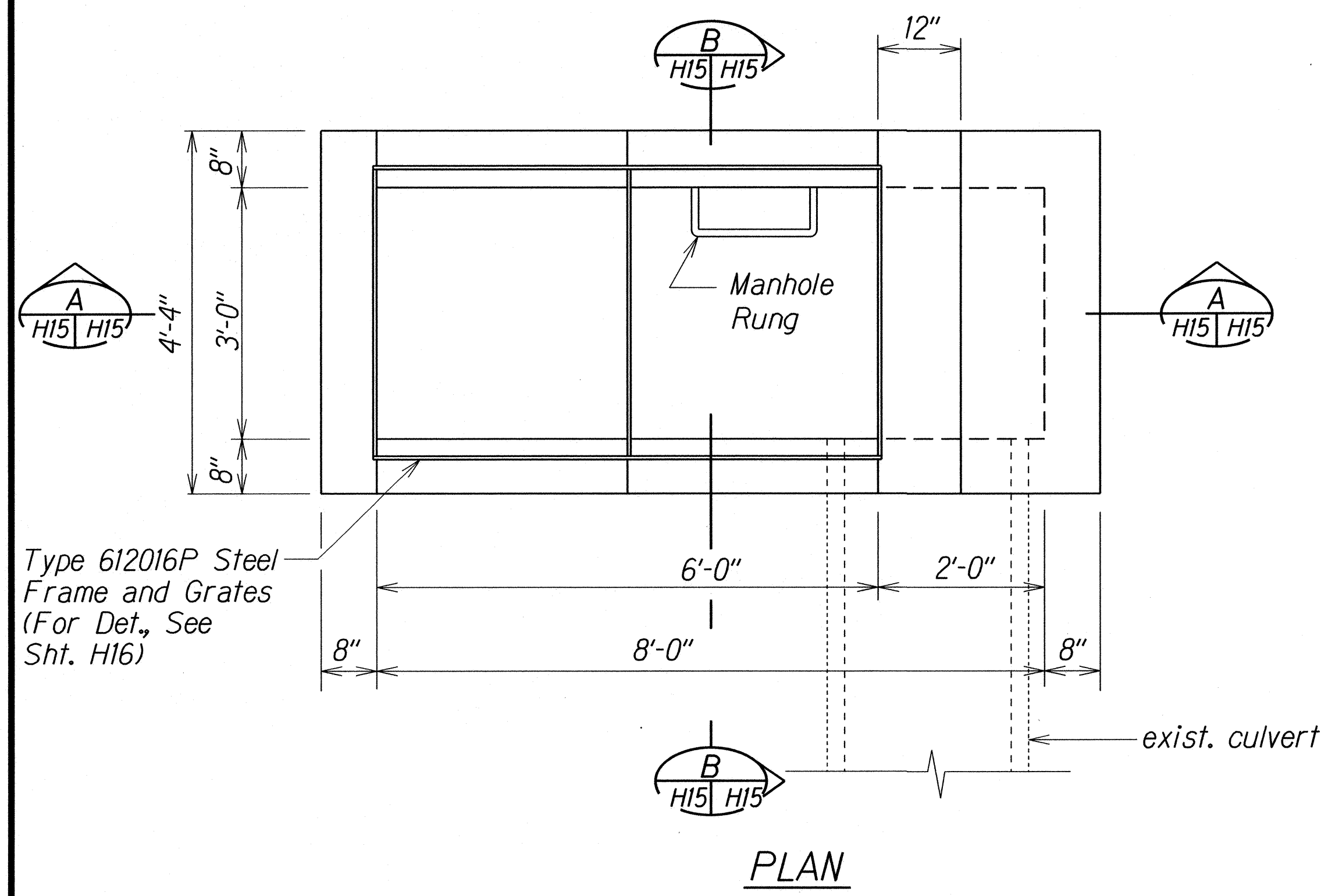
DRAINAGE DETAIL

LIKELIKE HIGHWAY RESURFACING
School Street to Emmeline Place
Federal Aid Project No. NH-063-1(023)

Scale: 1/2"=1'-0" Date: June, 2015

SHEET No. HI3 OF 18 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-063-1(023)	2015	63	111



DATE	____
SURVEY PLOTTED BY	____
DESIGNED BY	____
TRACED BY	____
NOTE BOOK	____
QUANTITIES BY	____
CHECKED BY	____

TYPE 612016P GRATED DROP INLET

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

DATE	REVISION
X	X
X	X

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

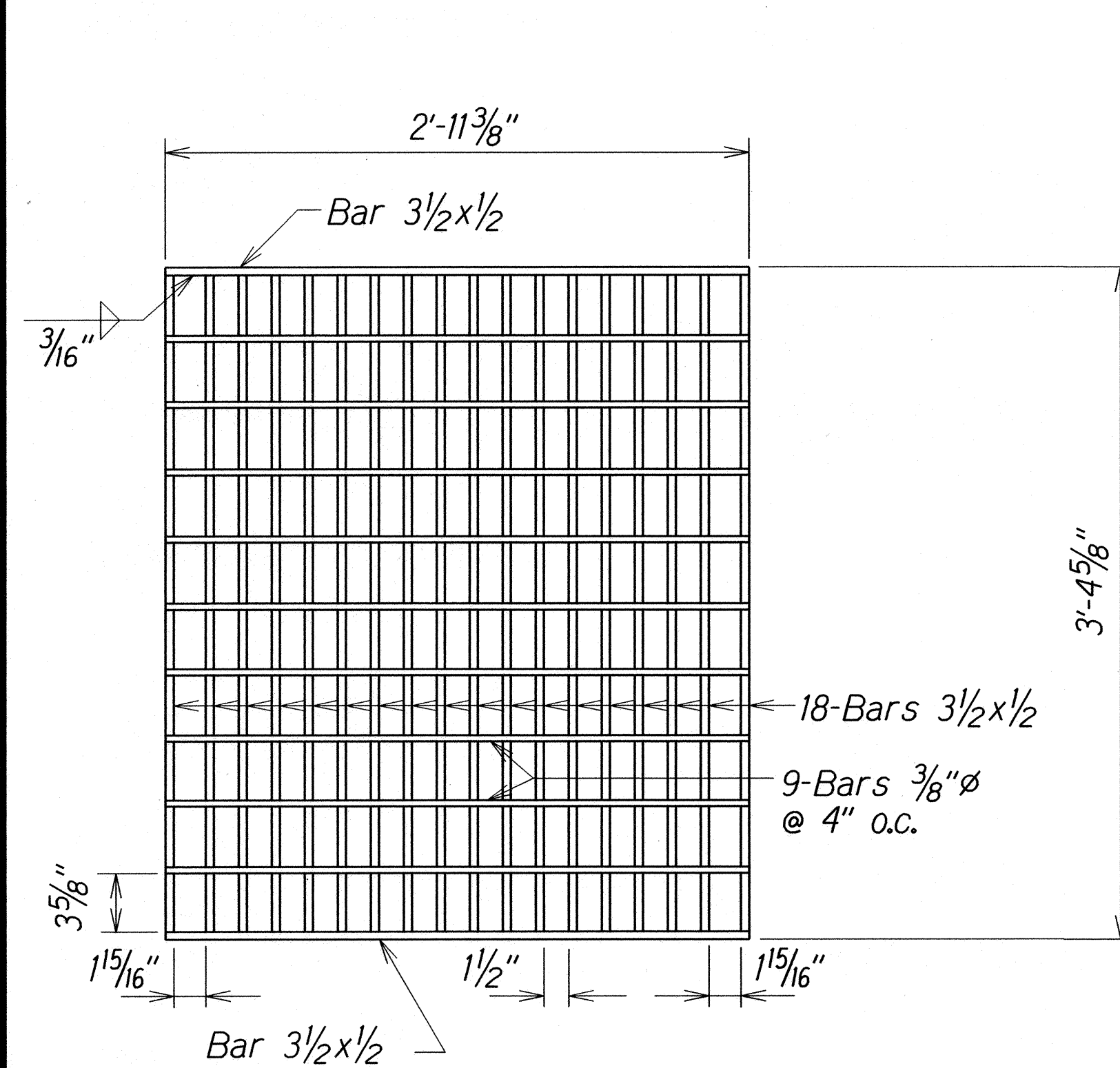
DRAINAGE DETAIL

LIKELIKE HIGHWAY RESURFACING
School Street to Emmeline Place
Federal Aid Project No. NH-063-1(023)

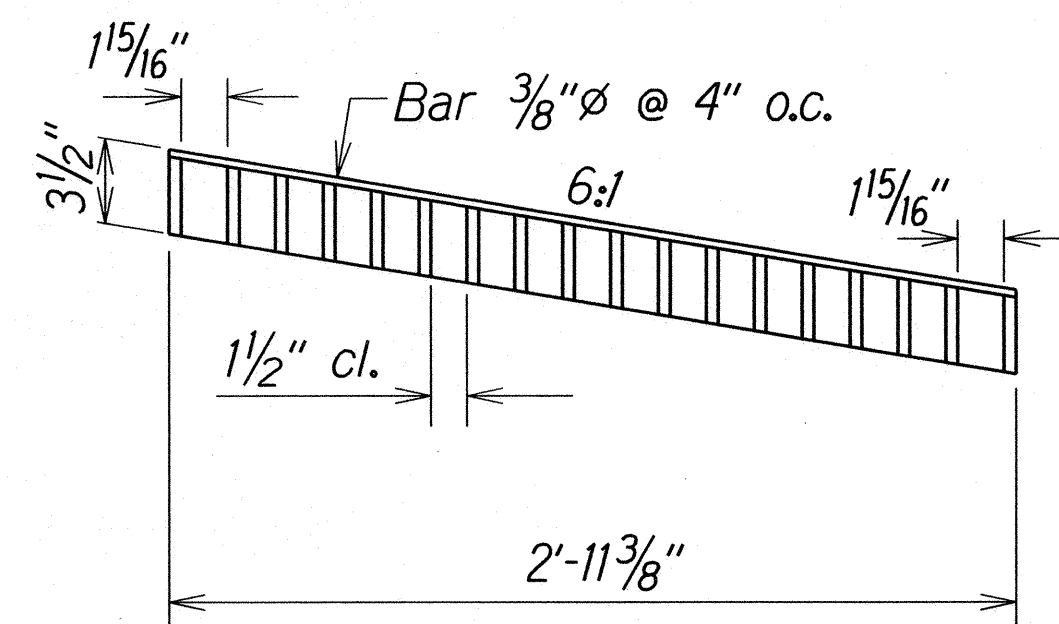
Scale: 3/4"=1'-0" Date: June, 2015

SHEET No. **HI5** OF 18 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-063-1(023)	2015	64	111



PLAN

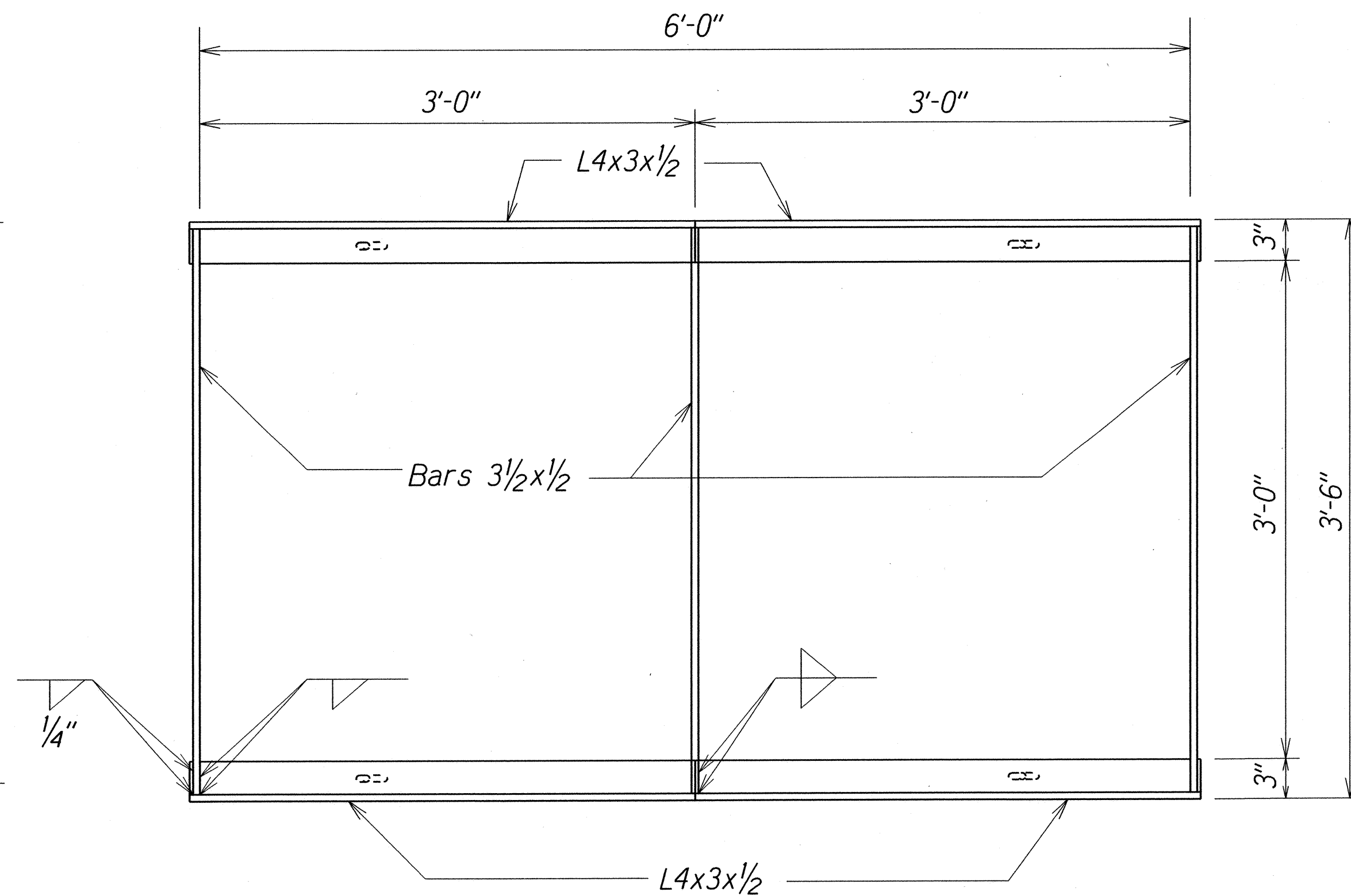


SECTION

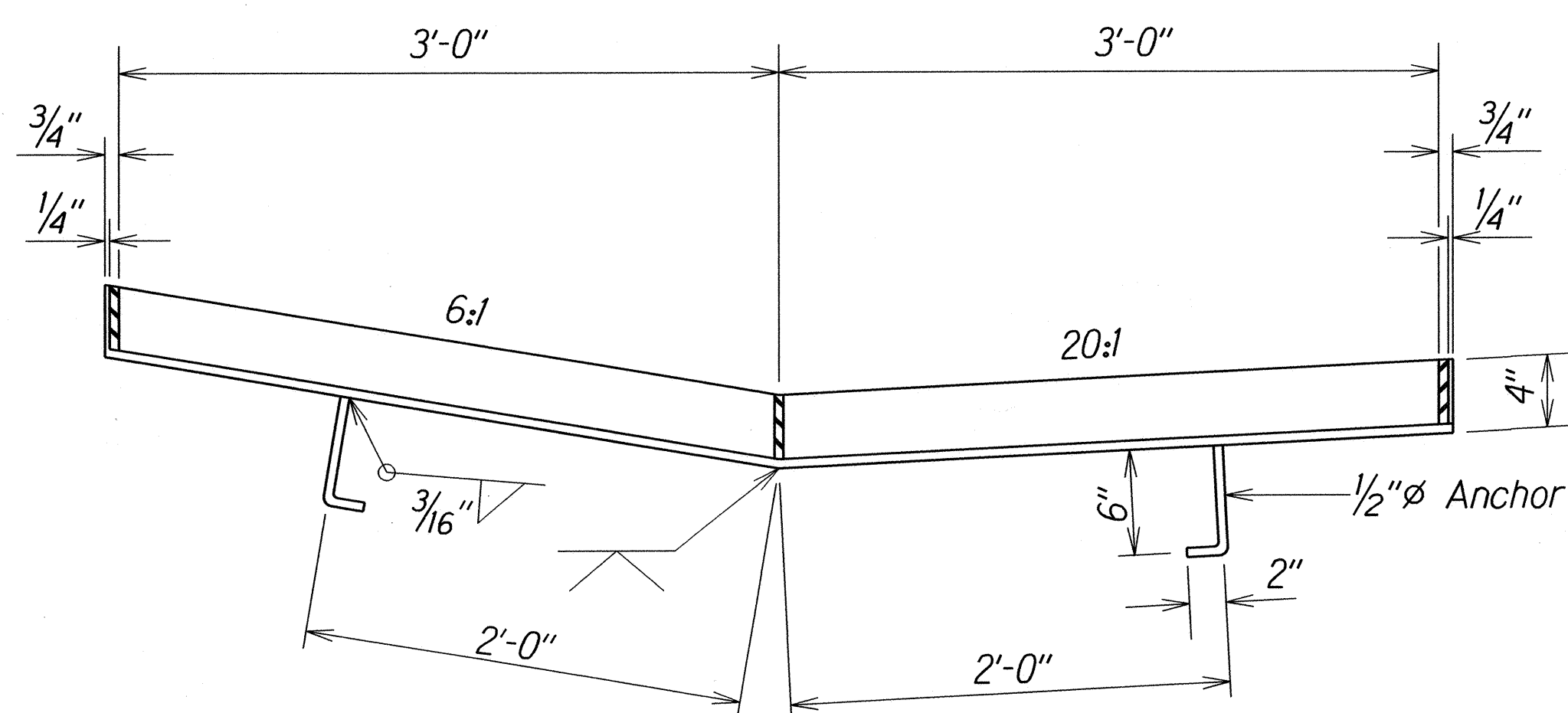
GRATE

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

- Note:
1. All welds 3/8" unless otherwise noted.
 2. Grates and frames shall be zinc coated after fabrication.
 3. Anchors shall be ASTM A 307 and zinc coated.
 4. See Std. Plan B-01 for additional notes.



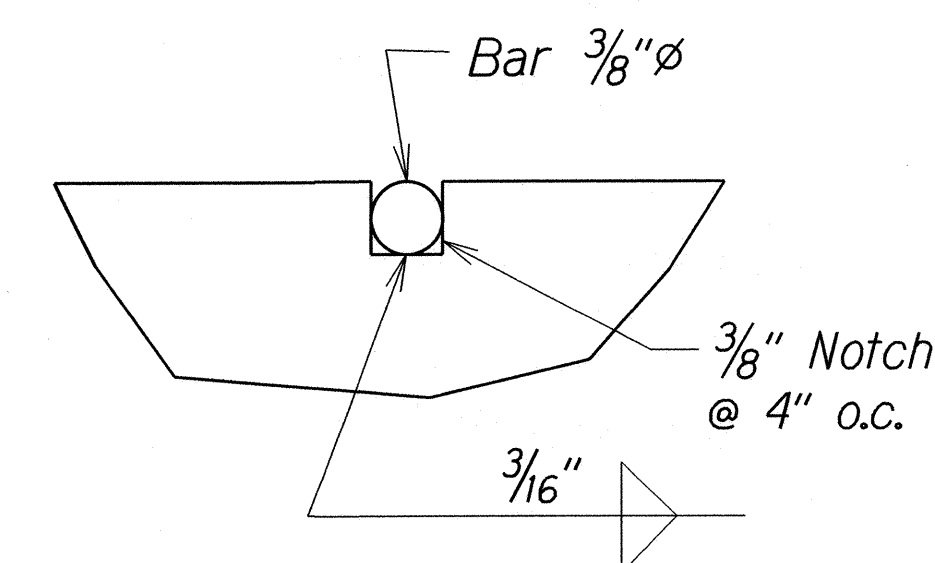
PLAN



SECTION

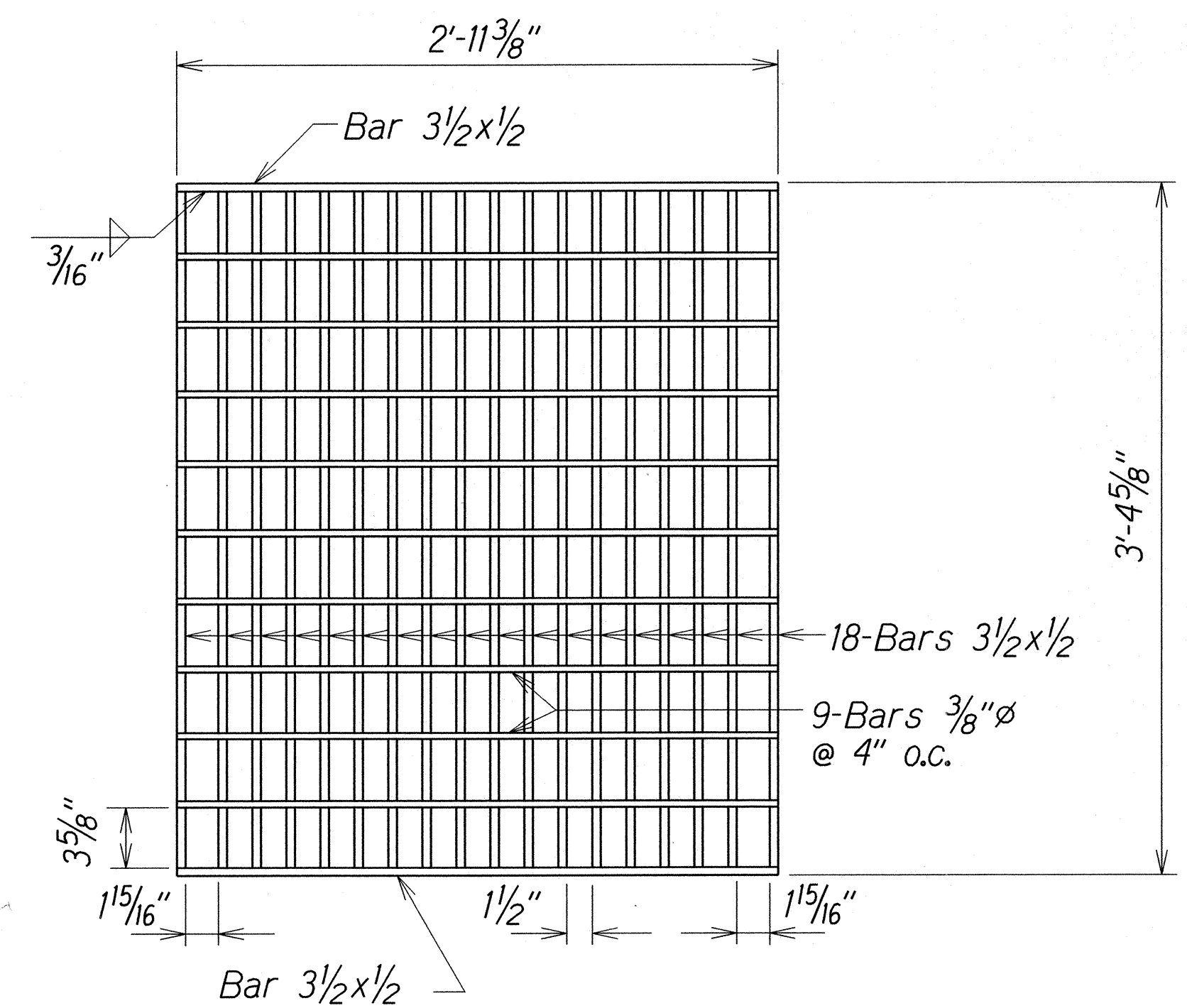
FRAME

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

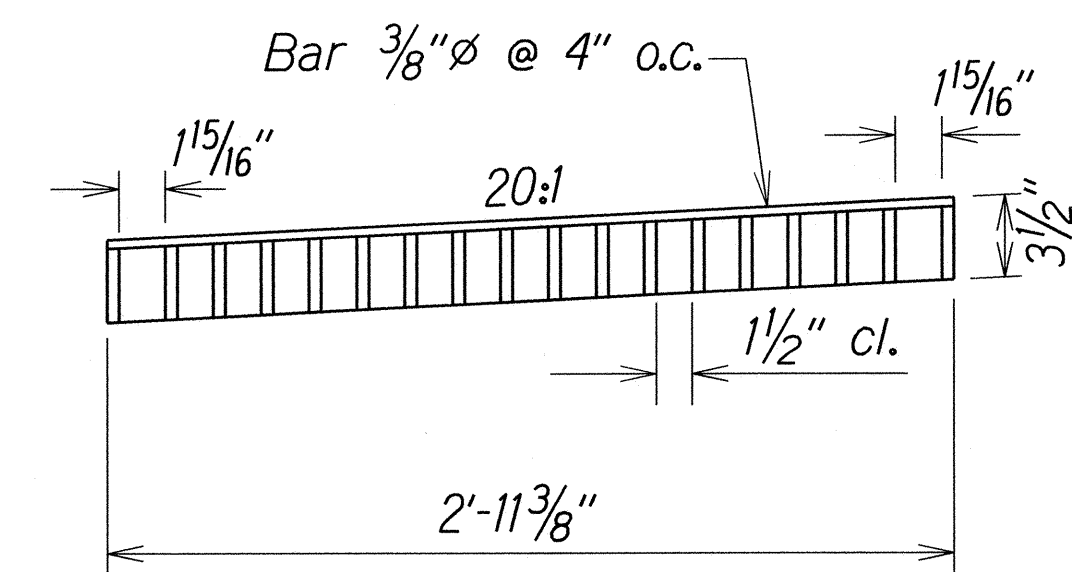


NOTCH DETAIL

Full Size



PLAN



SECTION

GRATE

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

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

DRAINAGE DETAIL

LIKELIKE HIGHWAY RESURFACING
School Street to Emmeline Place
Federal Aid Project No. NH-063-1(023)

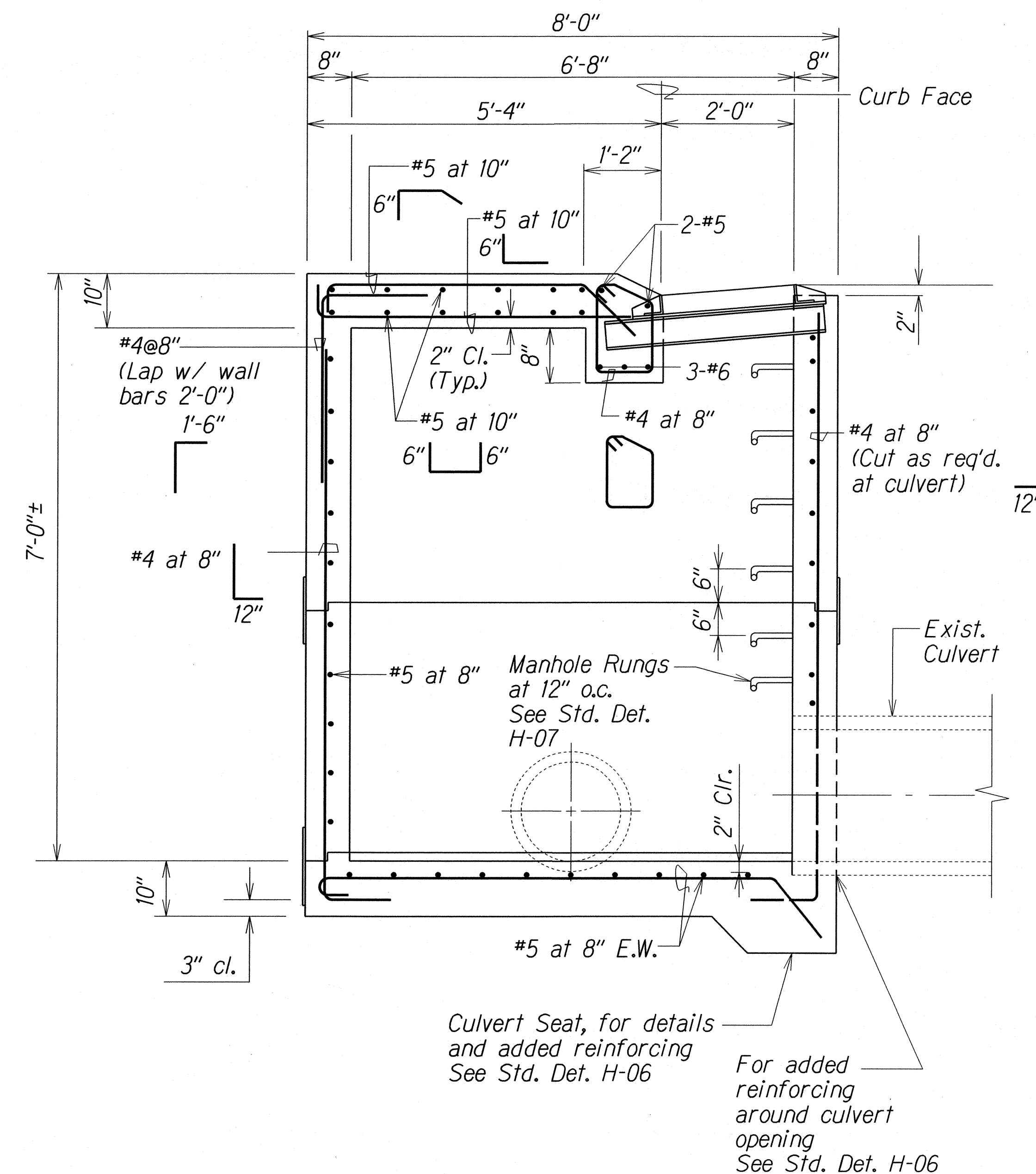
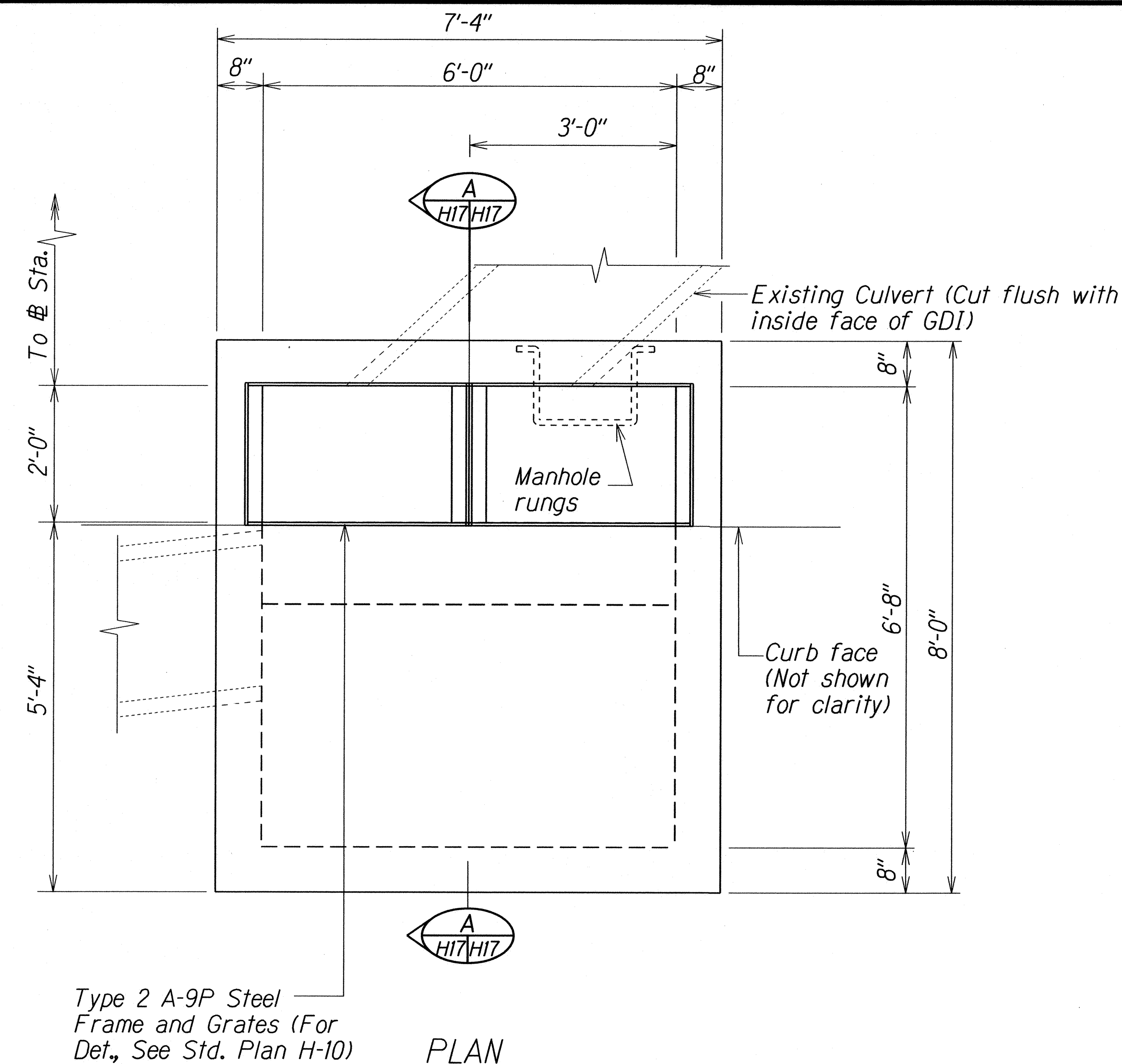
Scale: As Shown

Date: June, 2015

SHEET No. H16 OF 18 SHEETS

DETAILS OF TYPE "612016P" STEEL FRAME AND GRATES

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-063-1(023)	2015	65	111



MODIFIED TYPE 2A-9P GRATED DROP INLET

ORIGINAL PLAN	DATE
DESIGNED BY	
TRACED BY	
NOTED BY	
CHECKED BY	

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

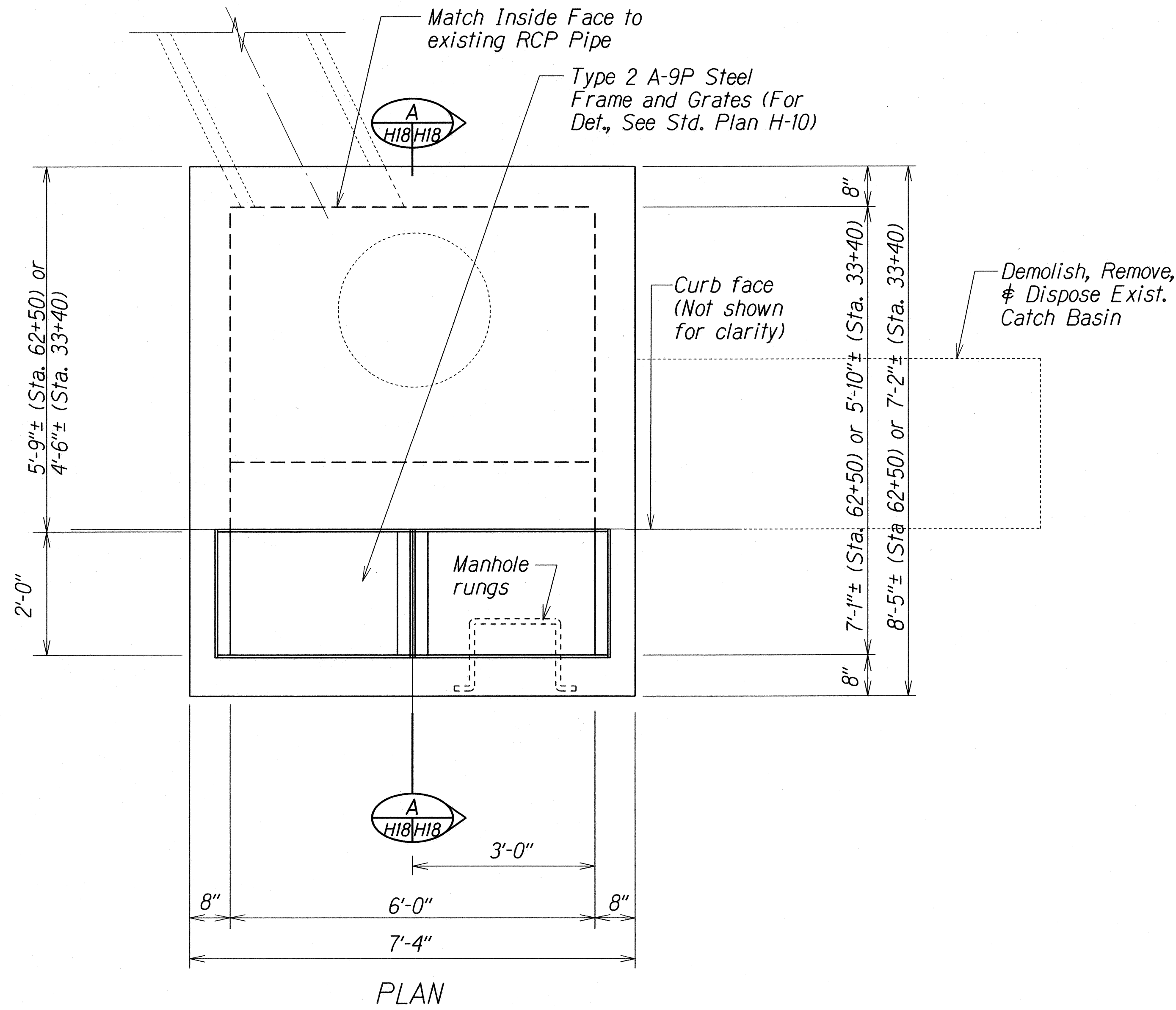
DRAINAGE DETAIL

LIKELIKE HIGHWAY RESURFACING
School Street to Emmeline Place
Federal Aid Project No. NH-063-1(023)

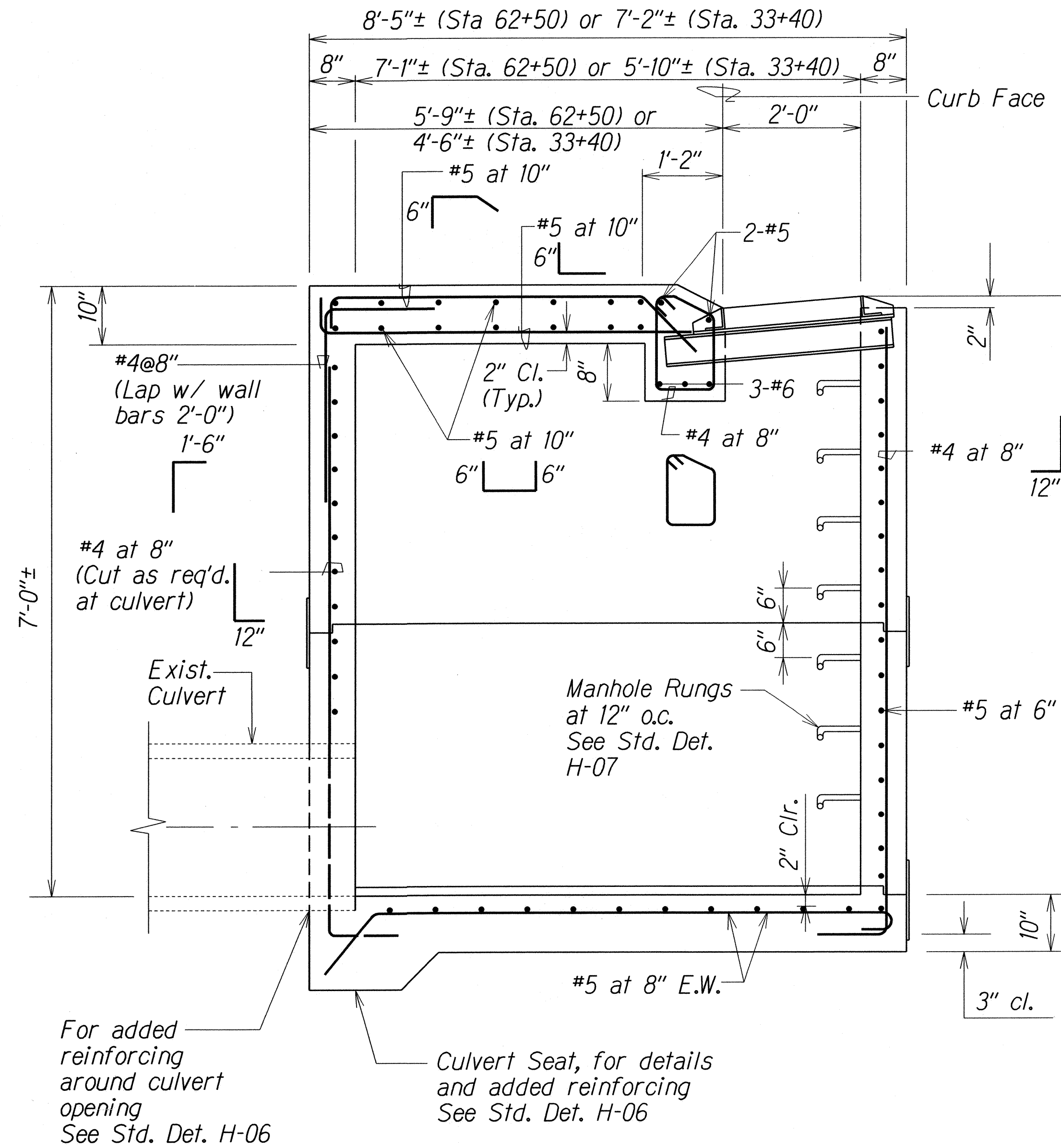
Scale: 3/4"=1'-0" Date: July, 2015

SHEET No. H17 OF 18 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-063-1(023)	2015	66	111



Note:
1) Dimensions are approximate.
Contractor shall verify dimensions.



SECTION A

ORIGINAL PLAN	DATE
DESIGNED BY	
TRACED BY	
NOTE BOOK	
QUANTITIES BY	
CHECKED BY	
N. 10/09	

SPECIAL TYPE 2A-9P GRATED DROP INLET

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

DRAINAGE DETAIL

LIKELIKE HIGHWAY RESURFACING
School Street to Emmeline Place
Federal Aid Project No. NH-063-1(023)

Scale: 3/4"=1'-0" Date: July, 2015

SHEET No. H18 OF 18 SHEETS