

GENERAL NOTES

- 1- Demolishing, plugging and abandoning of existing facilities shall be considered incidental to Structure Excavation.
- 2- Where Connections are made to existing facilities, mortar shall be used to seal around the culvert at the connection. Payment for making this connection shall be considered incidental to Structure Excavation. Other existing facilities that are damaged by the Contractor shall be repaired at his expense.

± STA. 39+66 ± 40' ± 1/2 Lt.
Make Connection to Existing Reconstructed MH
(For Detail See Sht. No. 51)

ESTIMATED QUANTITIES

Struc. Exc. = 10 C.Y.
Cl. A-I Conc. = 2.4 C.Y.
Reinf. Steel = 47 Lbs.

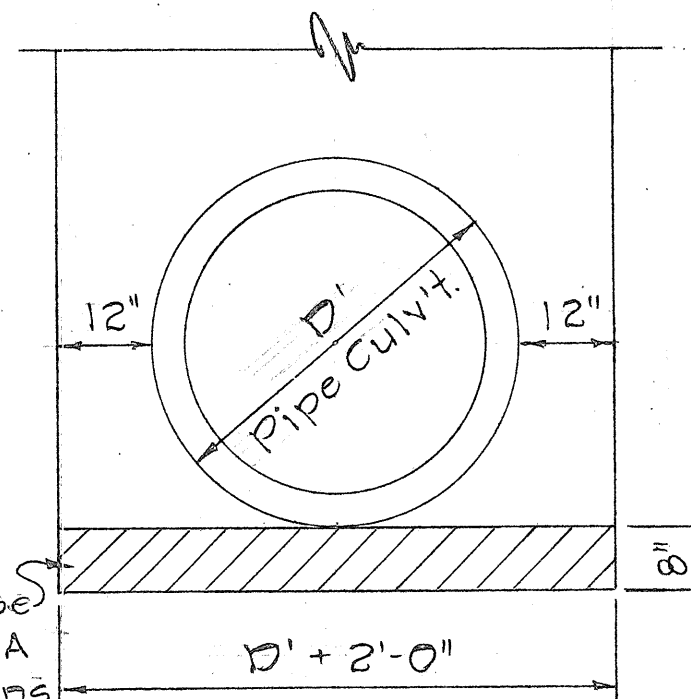
± STA. 41+25 Lt.
Construct Type "D" SDMH
Install 24" RCCP, Cl. III or 24" CGMP, 14 Ga.

ESTIMATED QUANTITIES

Struc. Exc. = 181 C.Y.
Cl. B-I Conc. = 0.7 C.Y.
Reinf. Steel = 37 Lbs.
Brickwall for SDMH = 6 L.F.
Type "A" C.I. Frame and Cover = 1 Ea.
24" Pipe Culvert = 148 L.F.
Untreated Base for Pipe Foundation = 17 C.Y.

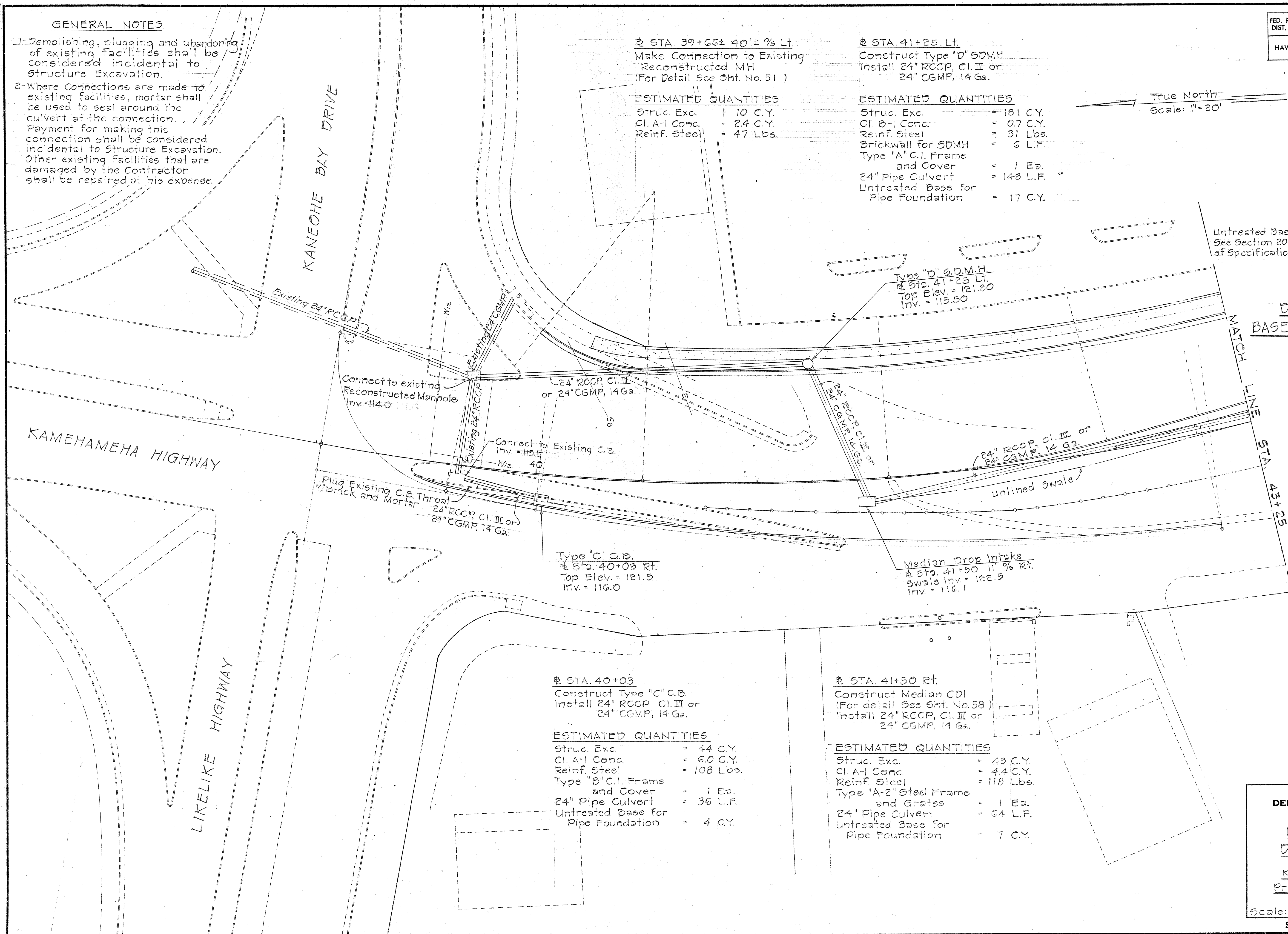
True North
Scale: 1" = 20'

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	F-083-1(2) Unit 2	1967	44	83



DETAIL OF UNTREATED BASE FOR PIPE FOUNDATION

Not to Scale



± STA. 40+03
Construct Type "C" C.B.
Install 24" RCCP, Cl. III or 24" CGMP, 14 Ga.

ESTIMATED QUANTITIES

Struc. Exc. = 44 C.Y.
Cl. A-I Conc. = 6.0 C.Y.
Reinf. Steel = 108 Lbs.
Type "B" C.I. Frame and Cover = 1 Ea.
24" Pipe Culvert = 36 L.F.
Untreated Base for Pipe Foundation = 4 C.Y.

± STA. 41+50 Rt.
Construct Median CDI
(For detail See Sht. No. 58)
Install 24" RCCP, Cl. III or 24" CGMP, 14 Ga.

ESTIMATED QUANTITIES

Struc. Exc. = 43 C.Y.
Cl. A-I Conc. = 4.4 C.Y.
Reinf. Steel = 118 Lbs.
Type "A-2" Steel Frame and Grates = 1 Ea.
24" Pipe Culvert = 64 L.F.
Untreated Base for Pipe Foundation = 7 C.Y.

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

DETAIL PLAN OF DRAINAGE SYSTEM

KAMEHAMEHA HIGHWAY
Proj. No. F-083-1(2), Unit 2

Scale: As Shown Date: May, 1967
SHEET No. 1 OF 15 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	F-083-1(2) Unit 2	1967	45	83

True North
Scale: 1"=20'

± STA. 44+25± Lt.
Construct Type "A" C.B.
Install 24" RCCP, Cl. III or 24" CGMP, 14 Ga.

ESTIMATED QUANTITIES
 Struct. Exc. = 63 C.Y.
 Cl. A-1 Conc. = 83 C.Y.
 Reinf. Steel = 145 Lbs.
 Type "B" C.I. Frame and Cover = 1 Ea.
 24" Pipe Culvert = 54 L.F.
 Untreated Base for Pipe Foundation = 6 C.Y.

± STA. 45+88± Rt.
Construct Type "C" Grated Drop Intake (For details, See This Sht.)
Install 18" RCCP, Cl. III or 18" CGMP, 14 Ga.
Reconstruct existing sidewalk (Payment for reconstruction shall be considered incidental to Structure Excavation)

ESTIMATED QUANTITIES
 Struct. Exc. = 36 C.Y.
 Cl. B-1 Conc. = 1.5 C.Y.
 Type "C" C.I. Frame and Grating = 1 Ea.
 18" Pipe Culvert = 62 L.F.
 Untreated Base for Pipe Foundation = 6 C.Y.

± STA. 46+35±
Construct Type "E" S.D.M.H.
Install 30" RCCP, Cl. III w/Conc. Collar
Make connection to existing 30" RCCP.
(For Detail of Culvert through Wall See Sht. No. 23)

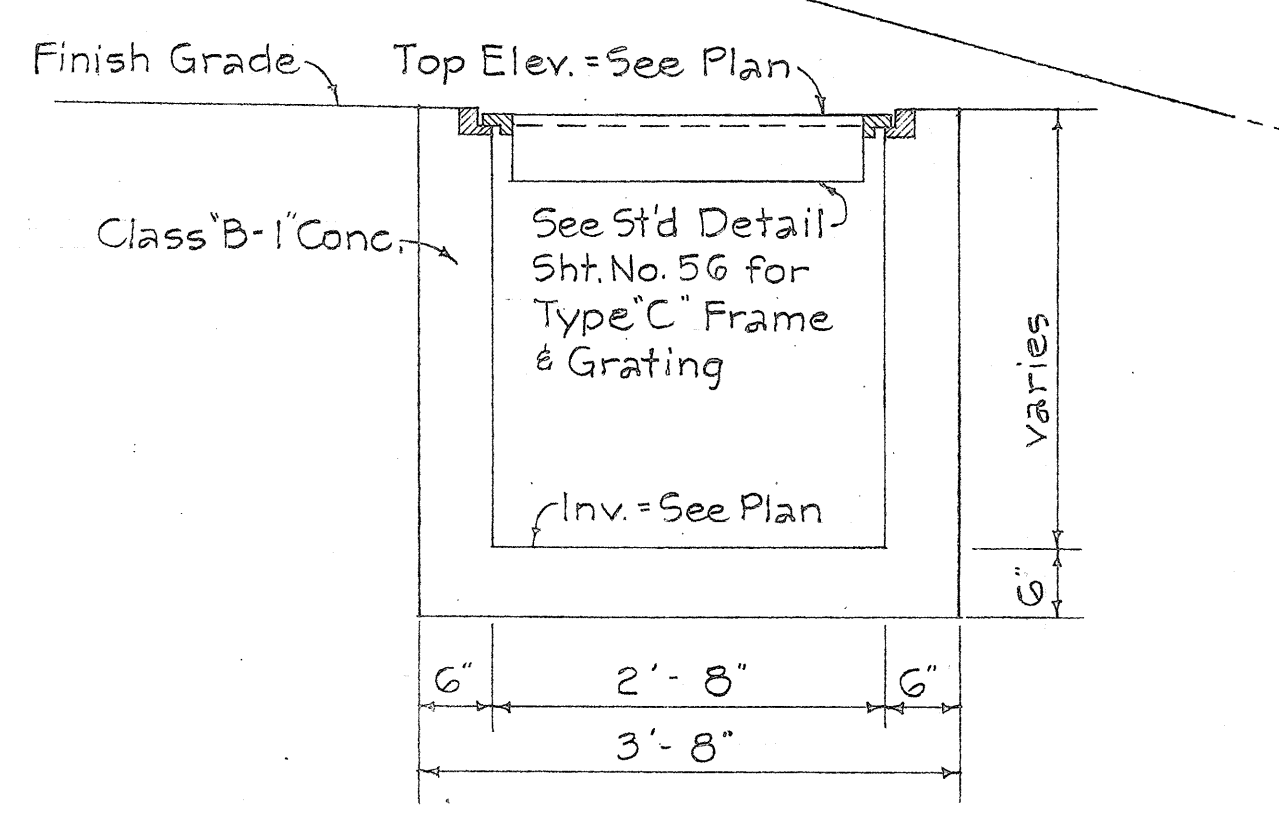
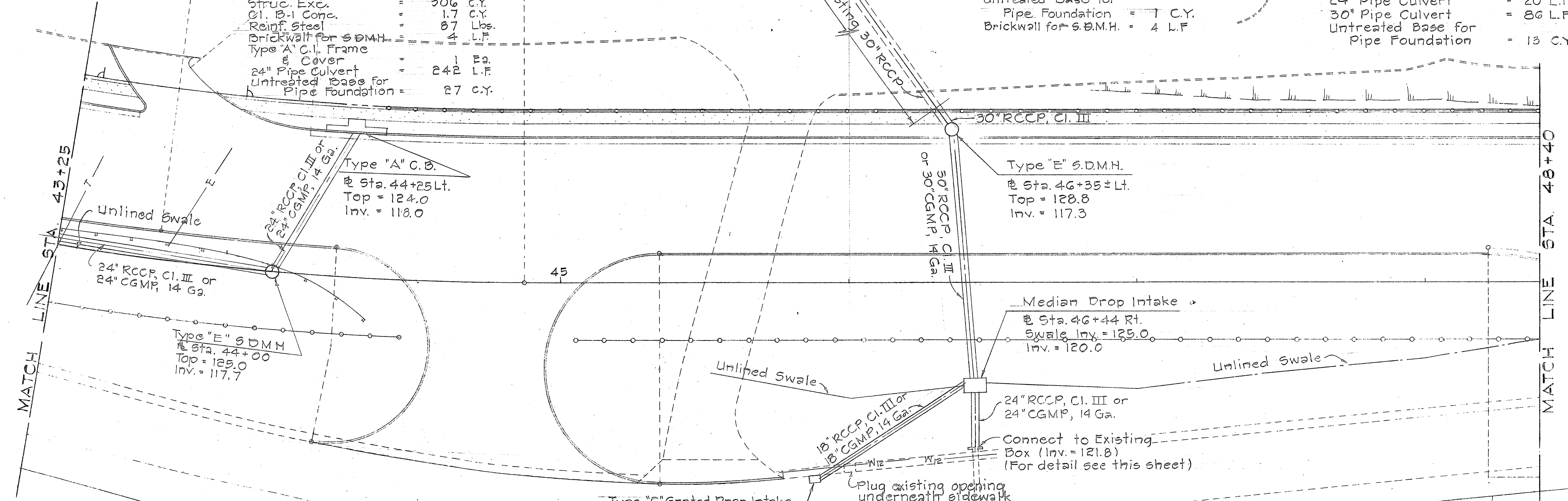
ESTIMATED QUANTITIES
 Struct. Exc. = 25 C.Y.
 Cl. B-1 Conc. = 2.9 C.Y.
 Reinf. Steel = 125 Lbs.
 Type "A" C.I. Frame and Cover = 1 Ea.
 30" Pipe Culvert = 10 L.F.
 Untreated Base for Pipe Foundation = 1 C.Y.
 Brickwall for S.D.M.H. = 4 L.F.

± STA. 46+44
Construct Median CDI
(For detail See Sht. No. 58)
Connect to existing Box Culvert
Install 24" RCCP, Cl. III or 24" CGMP, 14 Ga.
Install 30" RCCP, Cl. III or 30" CGMP, 14 Ga.

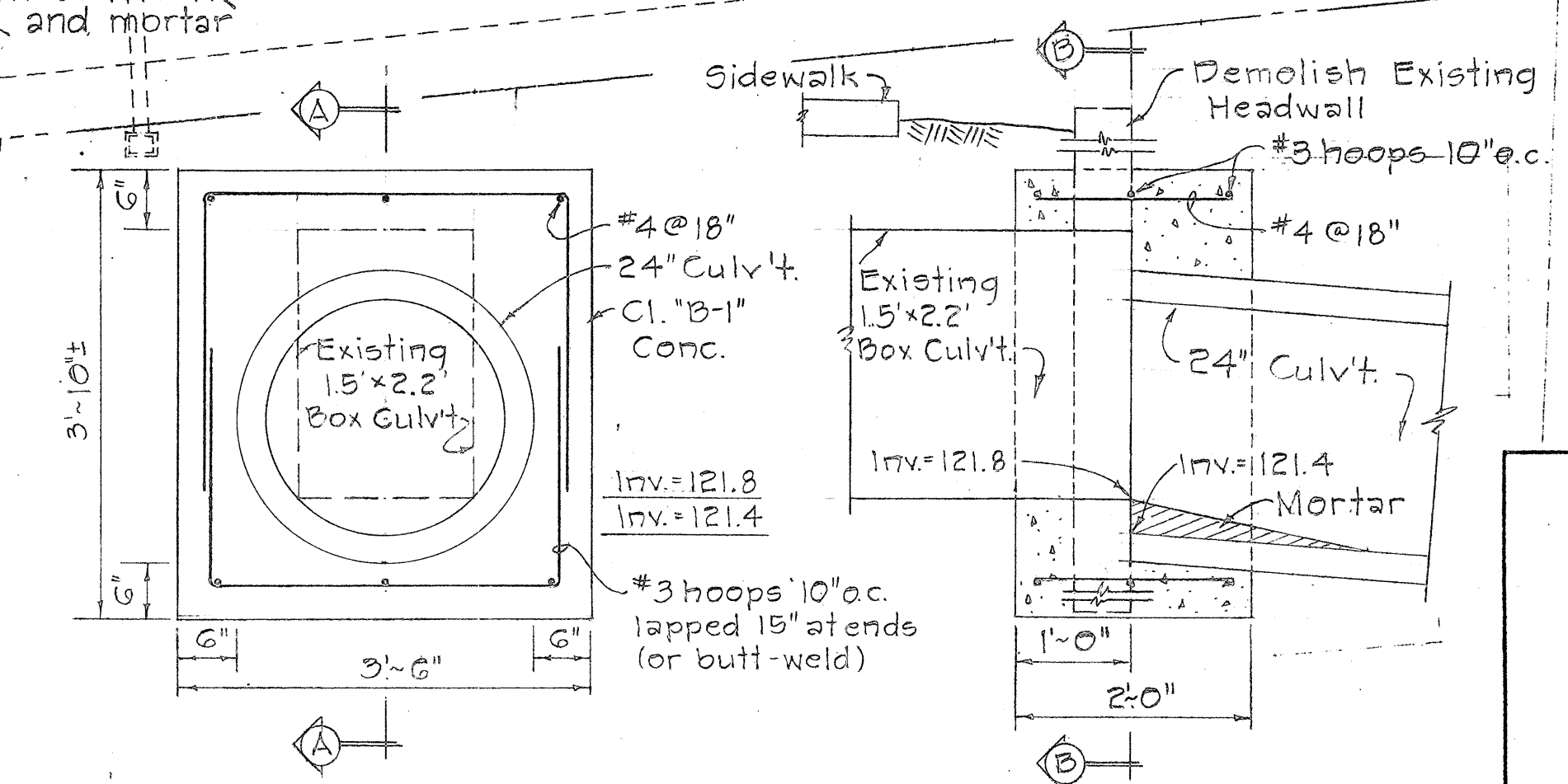
ESTIMATED QUANTITIES
 Struct. Exc. = 108 C.Y.
 Cl. A-1 Conc. = 3.5 C.Y.
 Cl. B-1 Conc. = 0.6 C.Y.
 Reinf. Steel = 157 Lbs.
 Type "A-2" Steel Frame and Grates = 1 Ea.
 24" Pipe Culvert = 20 L.F.
 30" Pipe Culvert = 86 L.F.
 Untreated Base for Pipe Foundation = 13 C.Y.

± STA. 44+00
Construct Type "E" S.D.M.H.
Install 24" RCCP, Cl. III or 24" CGMP, 14 Ga.

ESTIMATED QUANTITIES
 Struct. Exc. = 306 C.Y.
 Cl. B-1 Conc. = 1.7 C.Y.
 Reinf. Steel = 87 Lbs.
 Brickwall for S.D.M.H. = 4 L.F.
 Type "A" C.I. Frame and Cover = 1 Ea.
 24" Pipe Culvert = 242 L.F.
 Untreated Base for Pipe Foundation = 27 C.Y.



DETAIL OF TYPE "C" GRATED CONC. DROP INTAKE
Scale: 3/4" = 1'-0"



SECTION "B-B"
SECTION "A-A"
DETAIL OF CONNECTION TO EXISTING BOX CULVERT
Scale: 3/4" = 1'-0"

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

DETAIL PLAN OF DRAINAGE SYSTEM

KAMEHAMEHA HIGHWAY
Proj. No. F-083-1(2), Unit 2

Scale: As Shown Date: May, 1967

SHEET No. 2 OF 15 SHEETS

DATE	DESIGNED BY	CHECKED BY
PLAN	TRACED BY	QUANTITIES BY
NOTE BOOK		
No.		

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	F-083-1(2) Unit 2	1967	46	83

MATCH LINE STA. 48+40

Sta. 51+12 Lt. to 53+00 Lt.
Construct 1 Underdrain Cleanout
(For details See Sht. No. 51)
Install 6" Longitudinal Underdrain
Pipe (For detail See Sht. No. 51)

ESTIMATED QUANTITIES
Struc. Exc. = 57 C.Y.
Filter Material = 57 C.Y.
Cleanout = 1 Ea.
6" Perforated Underdrain Pipe = 186 L.F.

Sta. 51+12 Lt.
Construct Type "C" C.B.
Install 24" RCCP, Cl. III or
24" CGMP, 14 Ga.
Connect Underdrain Pipe to C.B.

ESTIMATED QUANTITIES
Struc. Exc. = 65 C.Y.
Cl. A-1 Conc. = 64 C.Y.
Reinf. Steel = 108 Lbs.
Type "B" C.I. Frame and Cover = 1 Ea.
24" Pipe Culvert = 58 L.F.
Untreated Base for Pipe Foundation = 6 C.Y.

Sta. 53+75
Construct Type "E" SDMH
Install 36" RCCP, Cl. III or
36" CGMP, 12 Ga.

ESTIMATED QUANTITIES
Struc. Exc. = 580 C.Y.
Cl. B-1 Conc. = 2.5 C.Y.
Reinf. Steel = 125 Lbs.
Brickwall for SDMH = 4 L.F.
Type "A" C.I. Frame and Cover = 1 Ea.
36" Pipe Culvert = 262 L.F.
Untreated Base for Pipe Foundation = 36 C.Y.

Sta. 54+50 Lt. to 55+00 Lt.
Install 6" Transverse Underdrain
Pipes at 50' intervals as shown
(For details See Sht. No. 51)

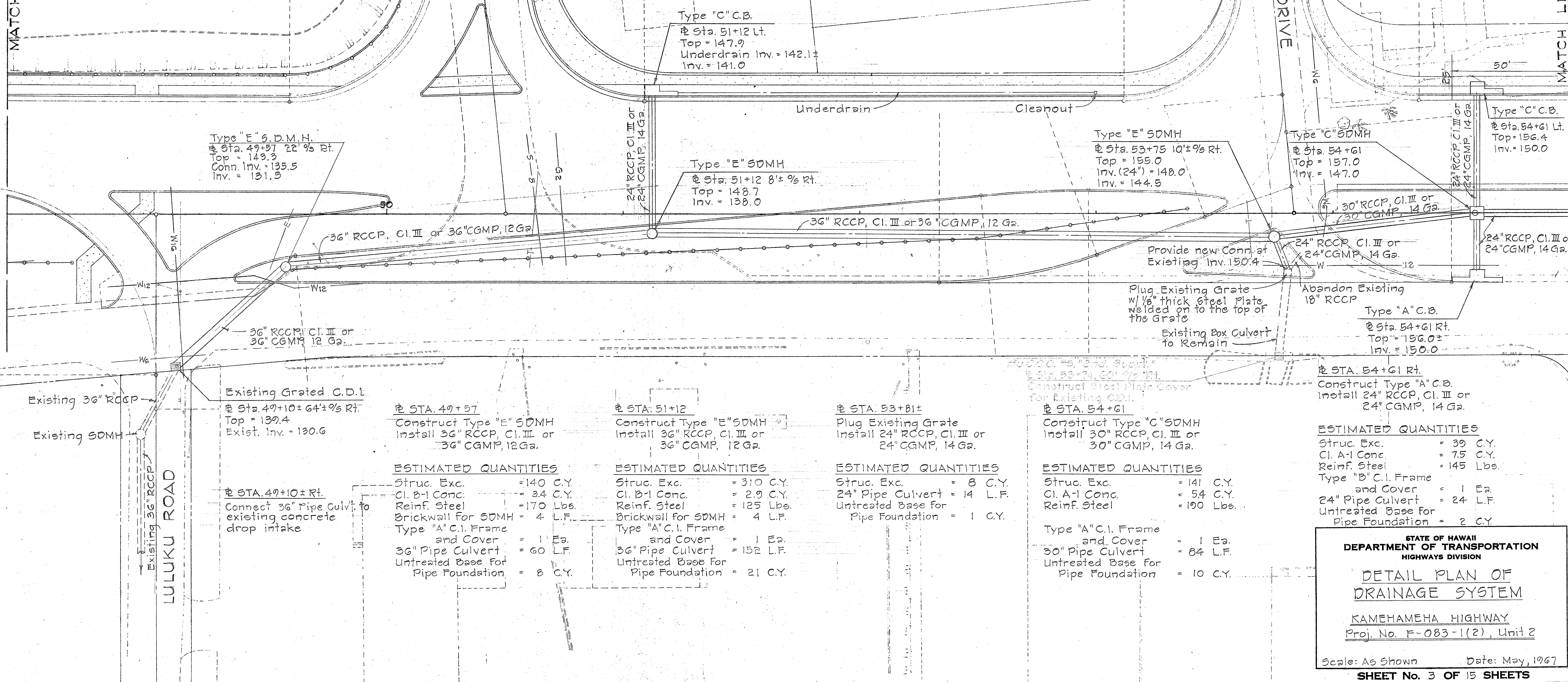
ESTIMATED QUANTITIES
Struc. Exc. = 9 C.Y.
Filter Material = 9 C.Y.
6" Perforated Underdrain Pipe = 46 L.F.

Sta. 54+61 Lt.
Construct Type "C" C.B.
Install 24" RCCP, Cl. III or
24" CGMP, 14 Ga.

ESTIMATED QUANTITIES
Struc. Exc. = 56 C.Y.
Cl. A-1 Conc. = 6.2 C.Y.
Reinf. Steel = 108 Lbs.
Type "B" C.I. Frame and Cover = 1 Ea.
24" Pipe Culvert = 50 L.F.
Untreated Base for Pipe Foundation = 5 C.Y.

MATCH LINE STA. 55+00

True North
Scale: 1" = 20'



DATE	_____
DESIGNED BY	_____
DRAWN BY	_____
CHECKED BY	_____
NOTED BY	_____
ORIGINAL PLAN	_____
NOTE BOOK	_____
No.	_____

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

DETAIL PLAN OF
DRAINAGE SYSTEM

KAMEHAMEHA HIGHWAY
Proj. No. F-083-1(2), Unit 2

Scale: As Shown Date: May, 1967
SHEET No. 3 OF 15 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	F-083-1(2) Unit 2	1967	47	83

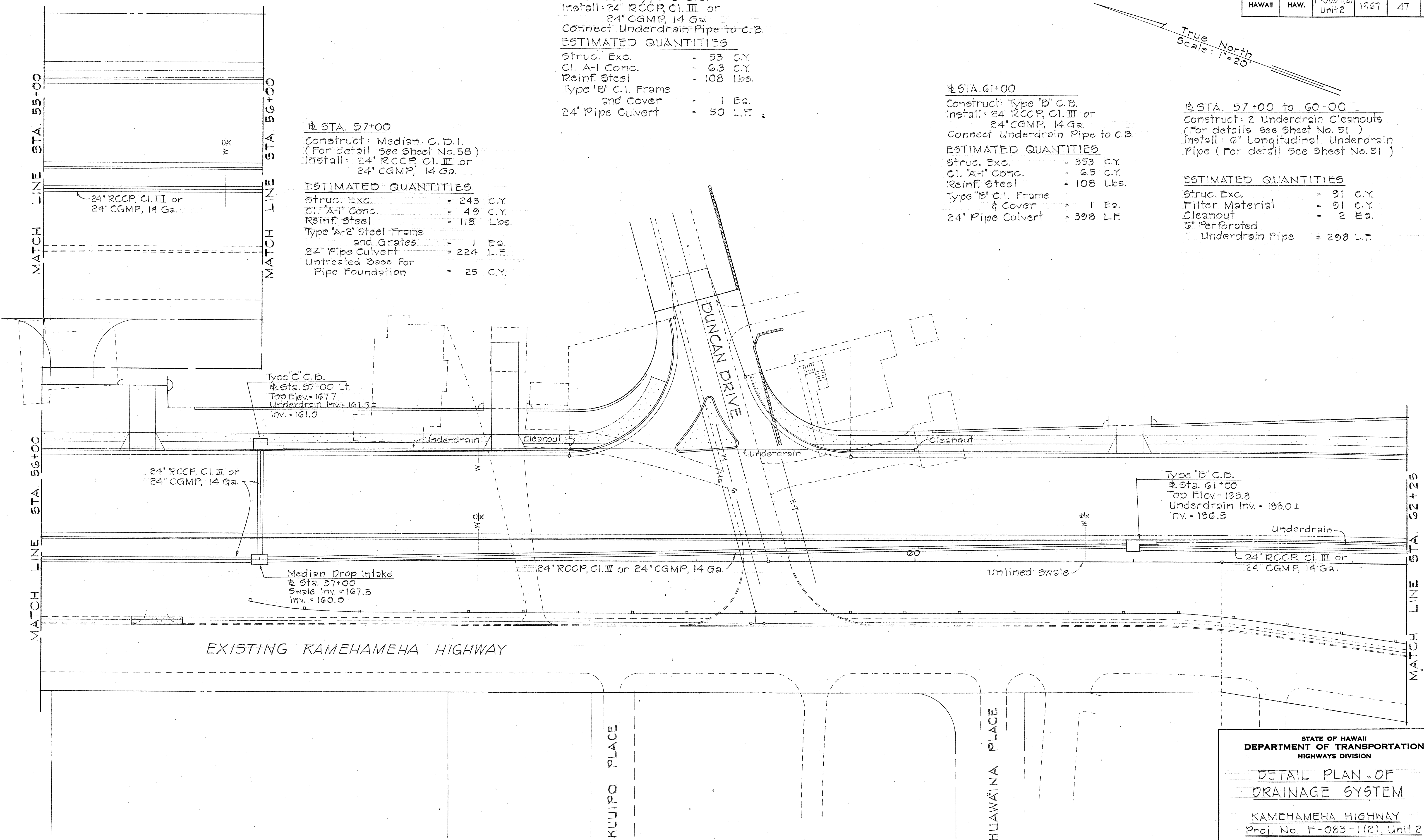
True North
Scale: 1"=20'

Sta. 57+00 Lt.
Construct: Type "C" C.B.
Install: 24" RCCP, C.I. III or
24" CGMP, 14 Ga.
Connect Underdrain Pipe to C.B.
ESTIMATED QUANTITIES
Struc. Exc. = 53 C.Y.
C.I. A-1 Conc. = 6.3 C.Y.
Reinf. Steel = 108 Lbs.
Type "B" C.I. Frame and Cover = 1 Ea.
24" Pipe Culvert = 50 L.F.

Sta. 57+00
Construct: Median C.D.I.
(For detail see Sheet No. 58)
Install: 24" RCCP, C.I. III or
24" CGMP, 14 Ga.
ESTIMATED QUANTITIES
Struc. Exc. = 243 C.Y.
C.I. A-1 Conc. = 4.9 C.Y.
Reinf. Steel = 118 Lbs.
Type "A-2" Steel Frame and Grates = 1 Ea.
24" Pipe Culvert = 224 L.F.
Untreated Base for Pipe Foundation = 25 C.Y.

Sta. 61+00
Construct: Type "B" C.B.
Install: 24" RCCP, C.I. III or
24" CGMP, 14 Ga.
Connect Underdrain Pipe to C.B.
ESTIMATED QUANTITIES
Struc. Exc. = 353 C.Y.
C.I. A-1 Conc. = 6.5 C.Y.
Reinf. Steel = 108 Lbs.
Type "B" C.I. Frame and Cover = 1 Ea.
24" Pipe Culvert = 398 L.F.

Sta. 57+00 to 60+00
Construct: 2 Underdrain Cleanouts
(For details see Sheet No. 51)
Install: 6" Longitudinal Underdrain
Pipe (For detail see Sheet No. 51)
ESTIMATED QUANTITIES
Struc. Exc. = 91 C.Y.
Filter Material = 91 C.Y.
Cleanout = 2 Ea.
6" Perforated Underdrain Pipe = 298 L.F.



STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

DETAIL PLAN OF
DRAINAGE SYSTEM

KAMEHAMEHA HIGHWAY
Proj. No. F-083-1(2), Unit 2

Scale: As Shown Date: May, 1967
SHEET No. 4 OF 15 SHEETS

ORIGINAL PLAN	DATE
DESIGNED BY	
NOTED BY	
CHECKED BY	

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	F-083-1(2) Unit 2	1967	48	83

True North
Scale: 1"=20'

± STA. 61+00 to 64+50

Construct 2 Underdrain Cleanouts
(For details See Sht. No. 51)
Install 6" Longitudinal Underdrain
Pipe (For detail See Sheet No. 51)

ESTIMATED QUANTITIES

Struc. Exc. = 102 C.Y.
Filter Material = 102 C.Y.
Cleanout = 2 Ea.
6" Perforated
Underdrain Pipe = 334 L.F.

± STA. 63+60

Construct Type "B" C.B.
Install 24" RCCP, Cl. III or
24" CGMP, 14 Ga.
Connect Underdrain Pipe to C.B.

ESTIMATED QUANTITIES

Struc. Exc. = 238 C.Y.
Cl. A-1 Conc. = 6.9 C.Y.
Reinf. Steel = 108 Lbs.
Type "B" C.I. Frame
and Cover = 1 Ea.
24" Pipe Culvert = 254 L.F.

± STA. 65+85

Construct Type "B" C.B.
Install 24" RCCP, Cl. III or
24" CGMP, 14 Ga.

ESTIMATED QUANTITIES

Struc. Exc. = 161 C.Y.
Cl. A-1 Conc. = 65 C.Y.
Reinf. Steel = 108 Lbs.
Type "B" C.I. Frame
and Cover = 1 Ea.
24" Pipe Culvert = 220 L.F.

± STA. 66+10 Lt. to 66+55 Lt.

Install 6" Transverse Underdrain
Pipes at 45' interval as shown
(For details See Sht. No. 51)

ESTIMATED QUANTITIES

Struc. Exc. = 7 C.Y.
Filter Material = 7 C.Y.
6" Perforated
Underdrain Pipe = 40 L.F.

± STA. 67+50

Construct Median CD
(For detail See Sht. No. 58)
Install 24" RCCP, Cl. III or
24" CGMP, 14 Ga.

ESTIMATED QUANTITIES

Struc. Exc. = 44 C.Y.
Cl. A-1 Conc. = 5.2 C.Y.
Reinf. Steel = 118 Lbs.
Type "A-2" Steel Frame
and Grates = 1 Ea.
24" Pipe Culvert = 46 L.F.

± STA. 67+00 13' 3/8 Rt. ±

Construct Type "E" SDMH
Install 24" RCCP, Cl. III or
24" CGMP, 14 Ga.

ESTIMATED QUANTITIES

Struc. Exc. = 88 C.Y.
Cl. B-1 Conc. = 28 C.Y.
Reinf. Steel = 125 Lbs.
Brick Wall for SDMH = 4 L.F.
Type "A" C.I. Frame
and Cover = 1 Ea.
24" Pipe Culvert = 114 L.F.

± STA. 67+00 61' 9/8 Rt. ±

Construct Type "C" Grated Drop
Intake (For details, See Sht. No. 45)
Install 18" RCCP, Cl. III or
18" CGMP, 14 Ga.

ESTIMATED QUANTITIES

Struc. Exc. = 24 C.Y.
Cl. B-1 Conc. = 1.5 C.Y.
Type "C" C.I. Frame
and Grating = 1 Ea.
18" Pipe Culvert = 46 L.F.

Type "E" SDMH
± Sta. 67+00 Rt.
Top = 233.9
Inv. = 223.9

Median Drop Intake
± Sta. 67+50
Swale Inv. = 234.0
Inv. = 226.5

Type "C" Grated Drop Intake
± Sta. 67+00 Rt.
Top = 231.0 ±
Inv. = 225.0

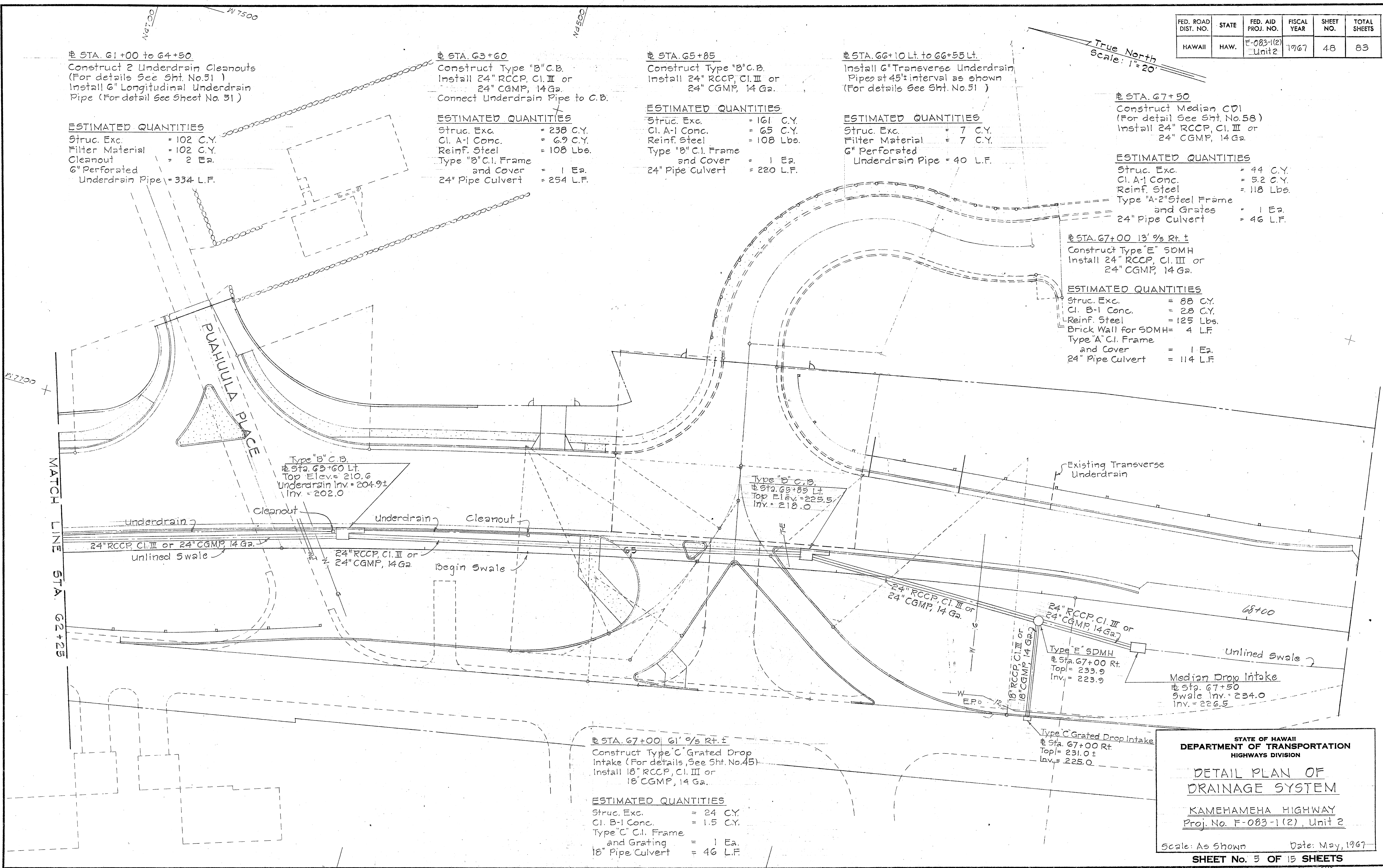
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

DETAIL PLAN OF DRAINAGE SYSTEM

KAMEHAMEHA HIGHWAY
Proj. No. F-083-1(2), Unit 2

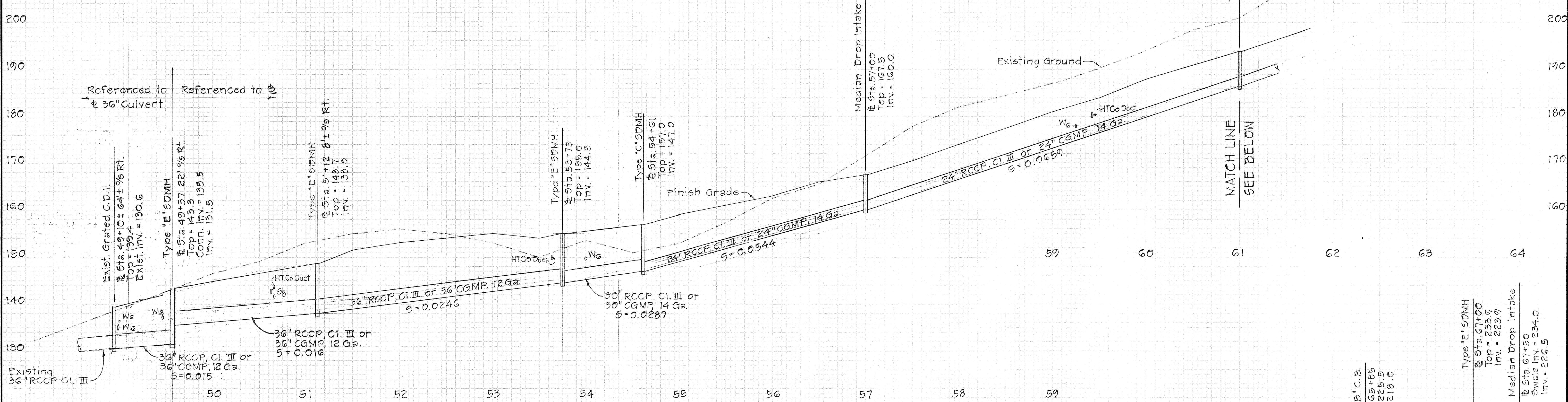
Scale: As Shown Date: May, 1967

SHEET No. 5 OF 15 SHEETS



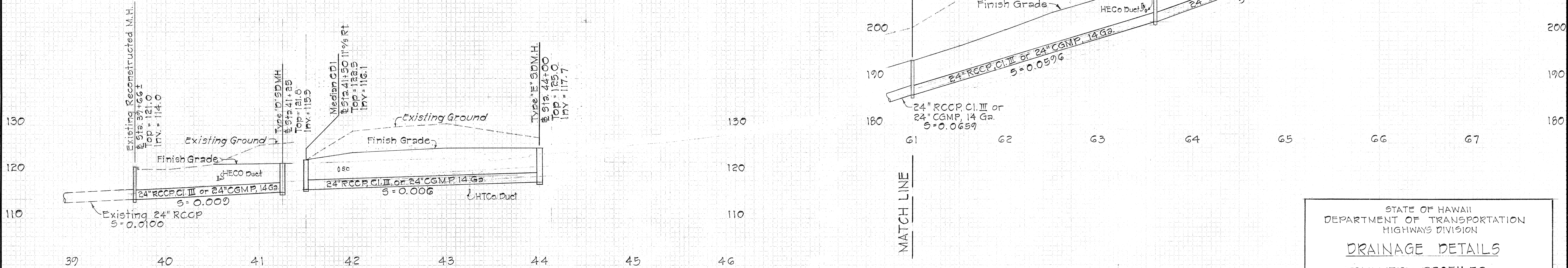
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	F-083-1(2), Unit 2	1967	49	83

NOTE: Stationing referenced to Base Line.
Pipe Culvert lengths shown do not represent actual lengths.



DRAINAGE PROFILE FROM LULUKU ROAD TO KANEOHE ELEM. SCHOOL

Scale: Hor: 1" = 50'
Vert: 1" = 10'



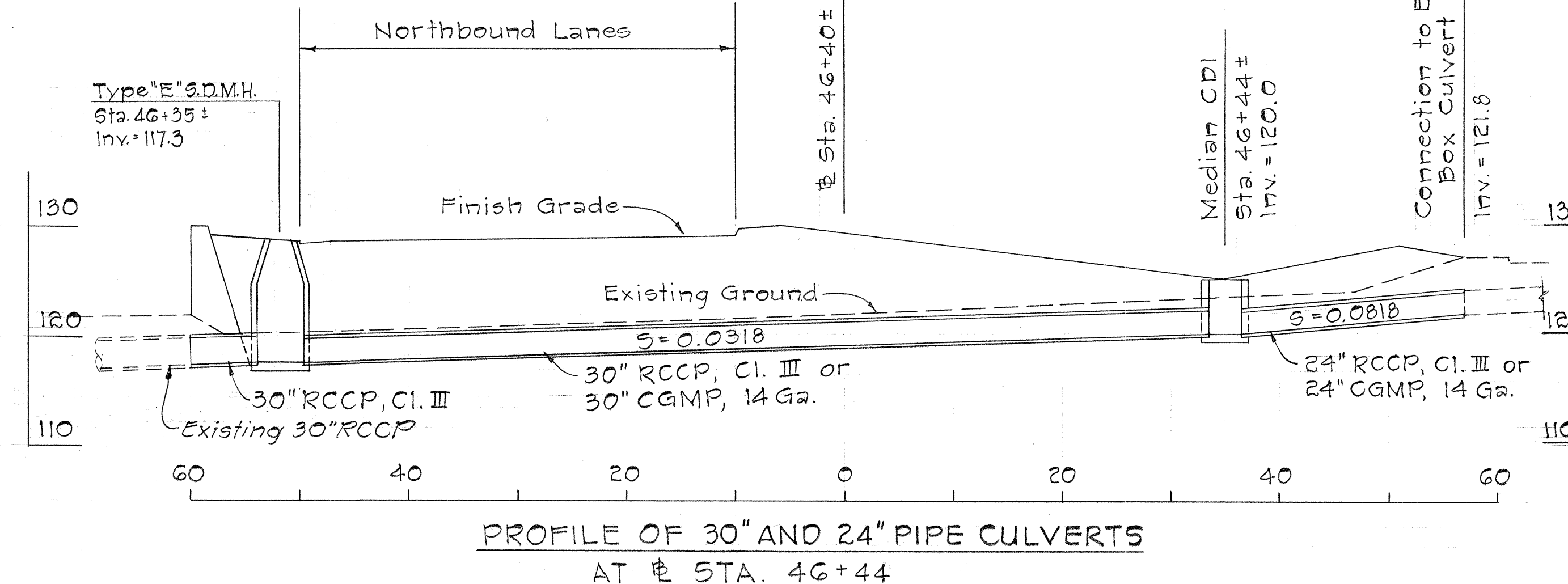
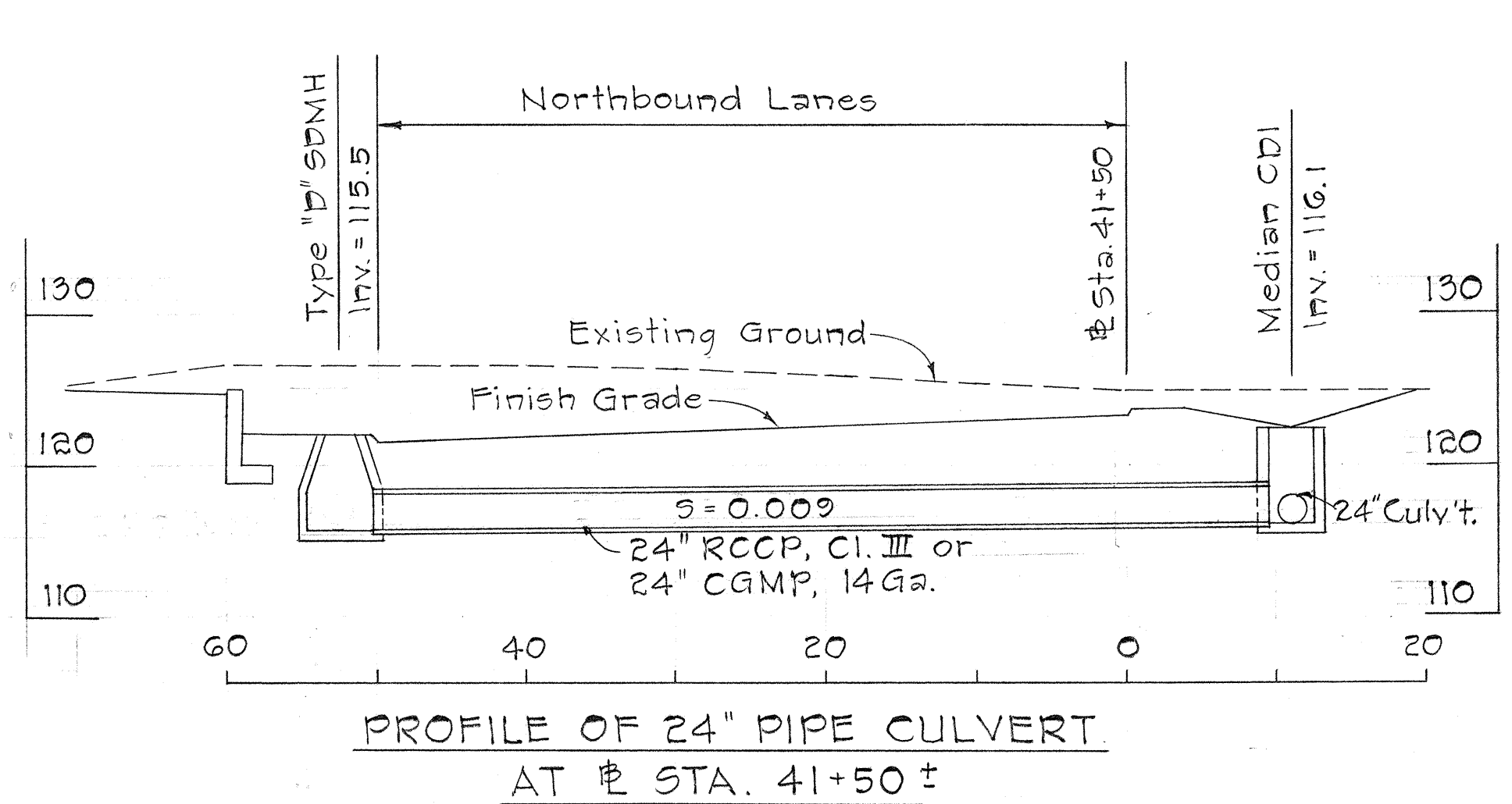
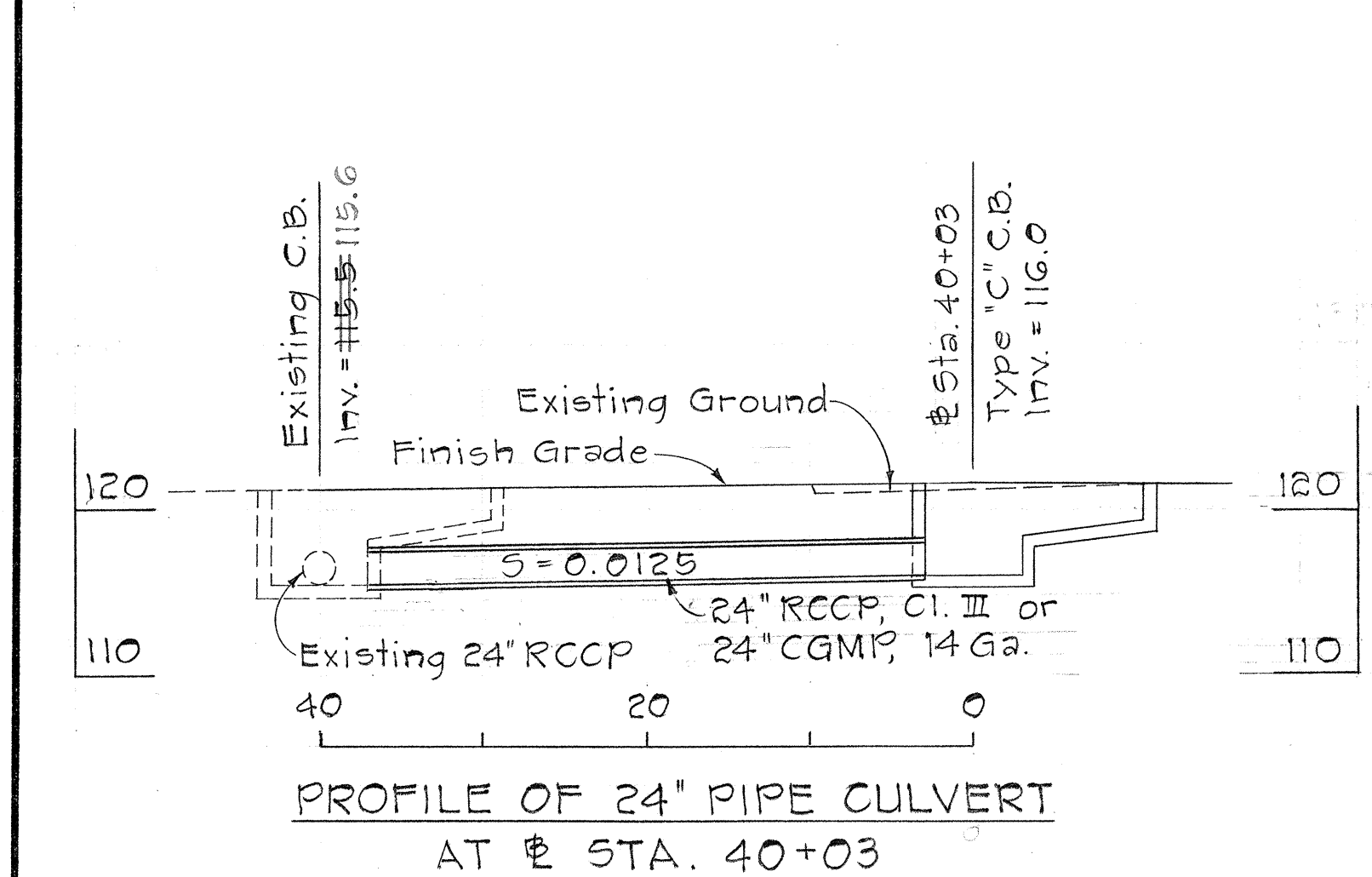
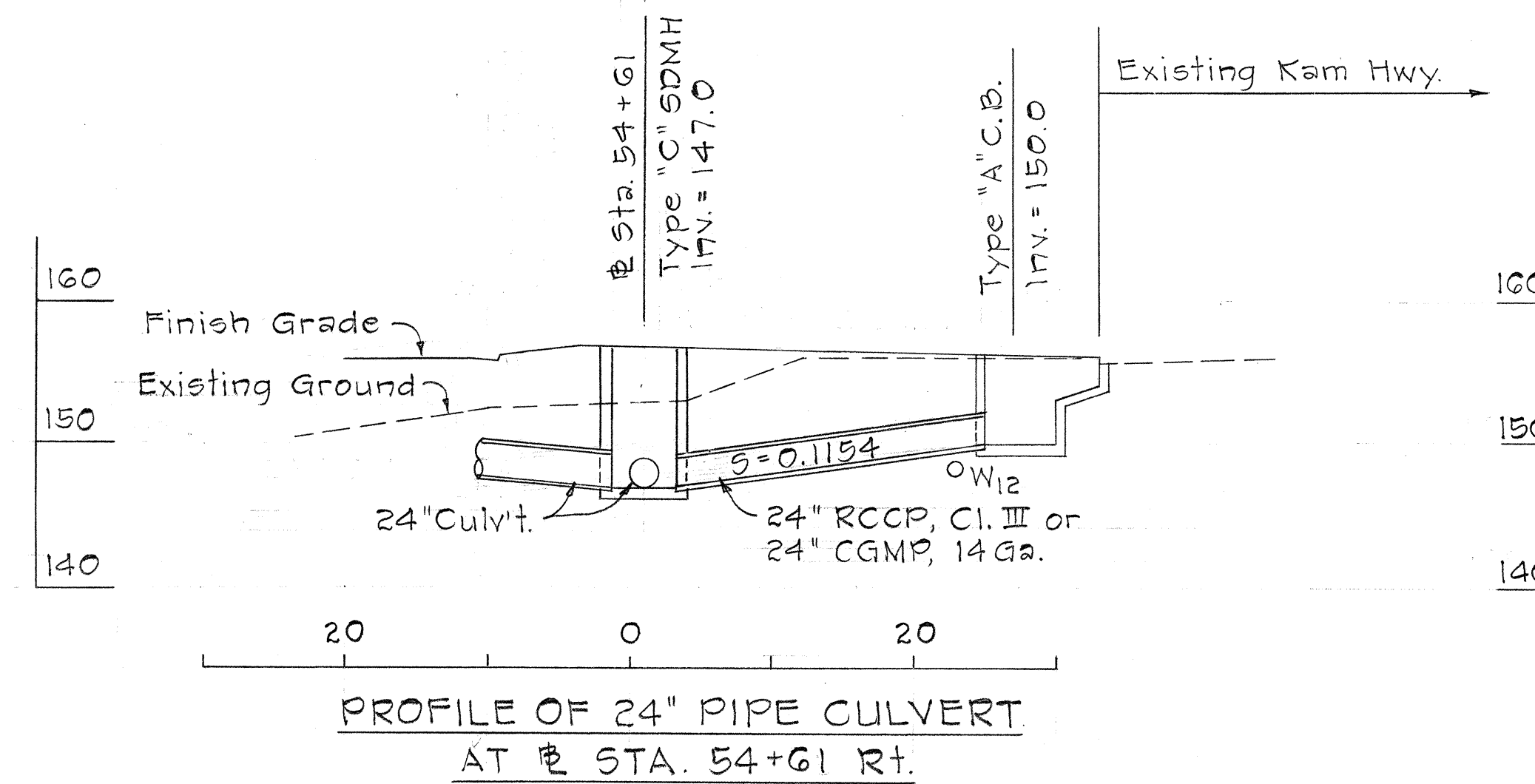
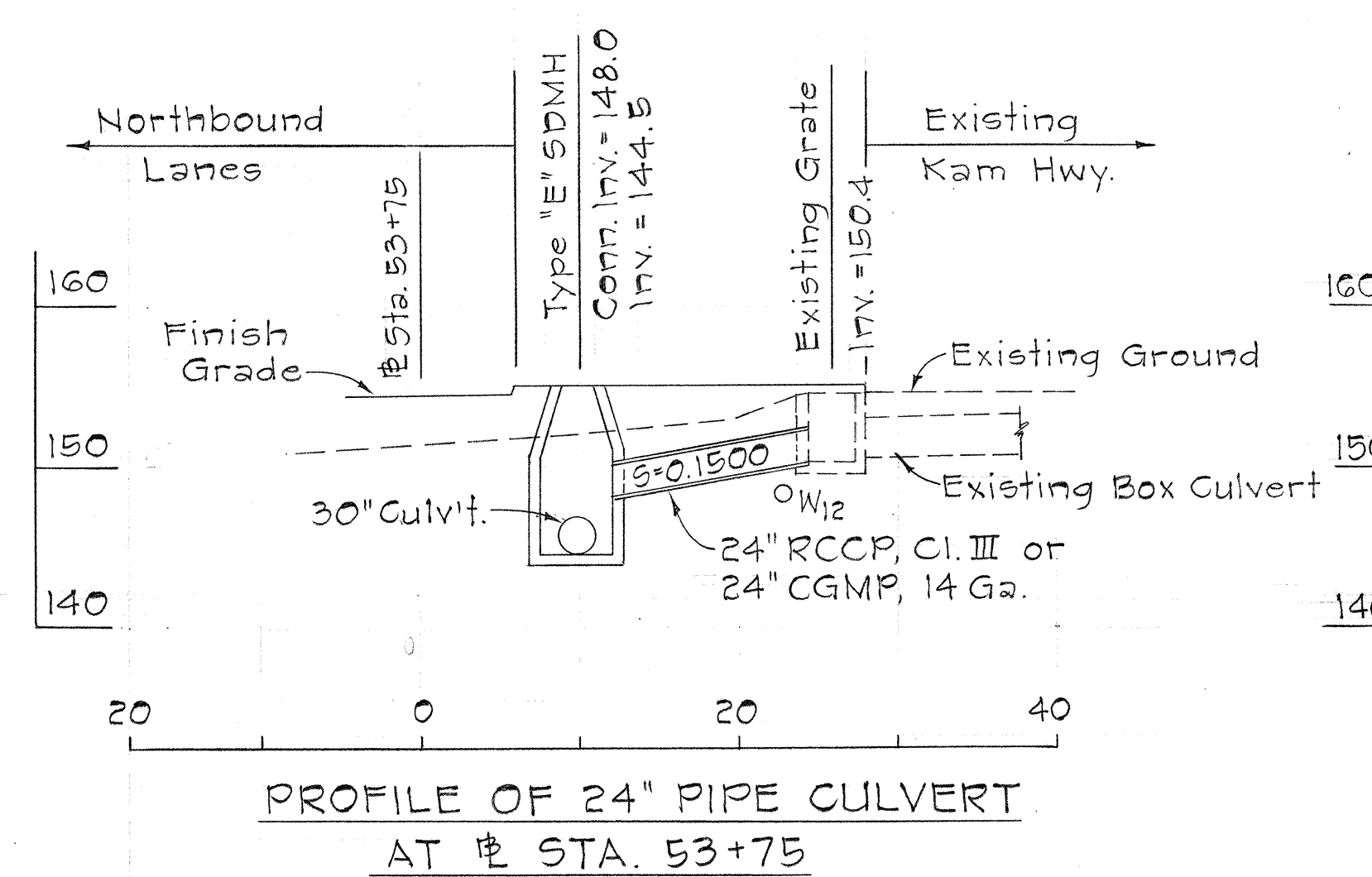
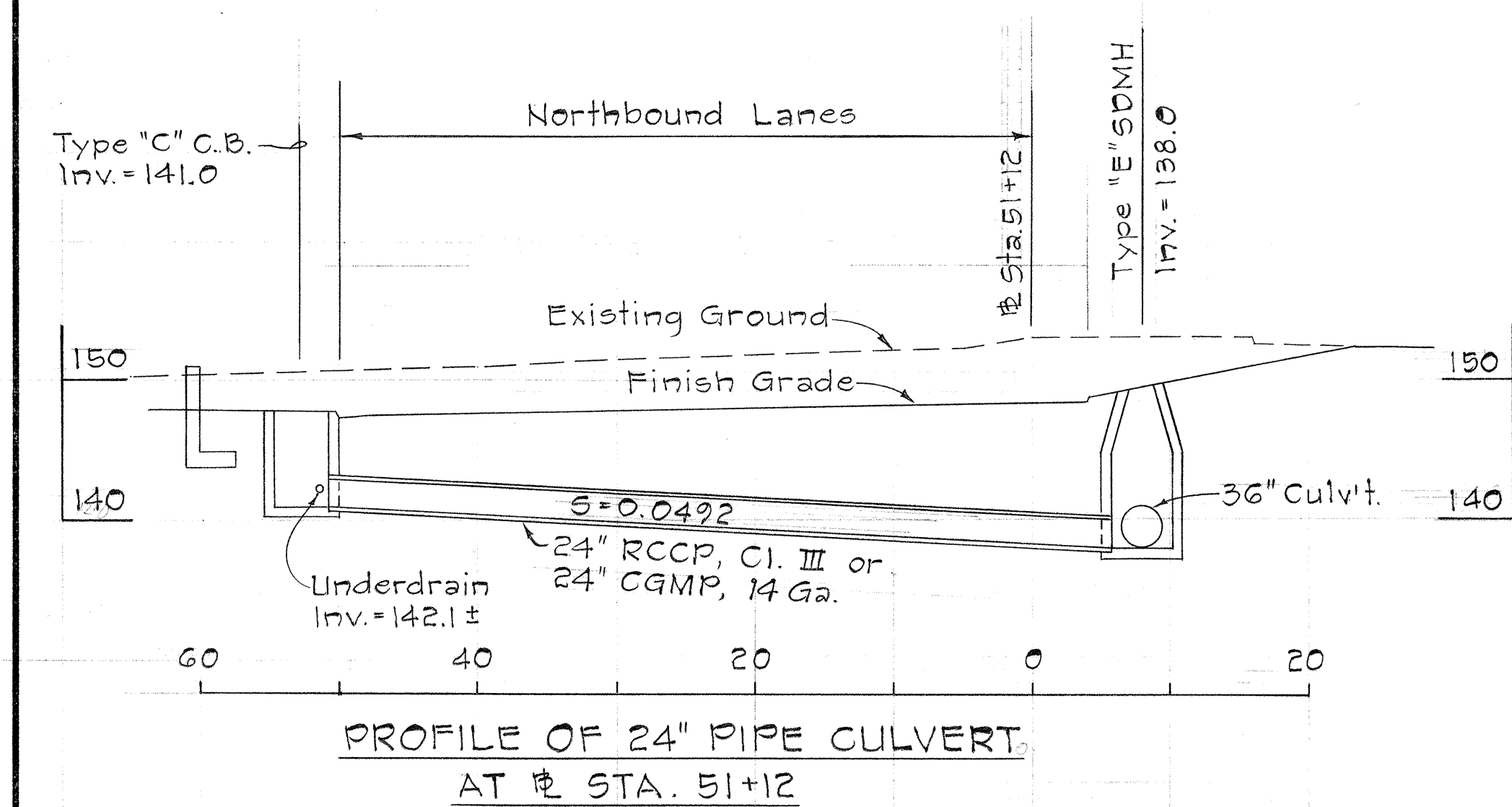
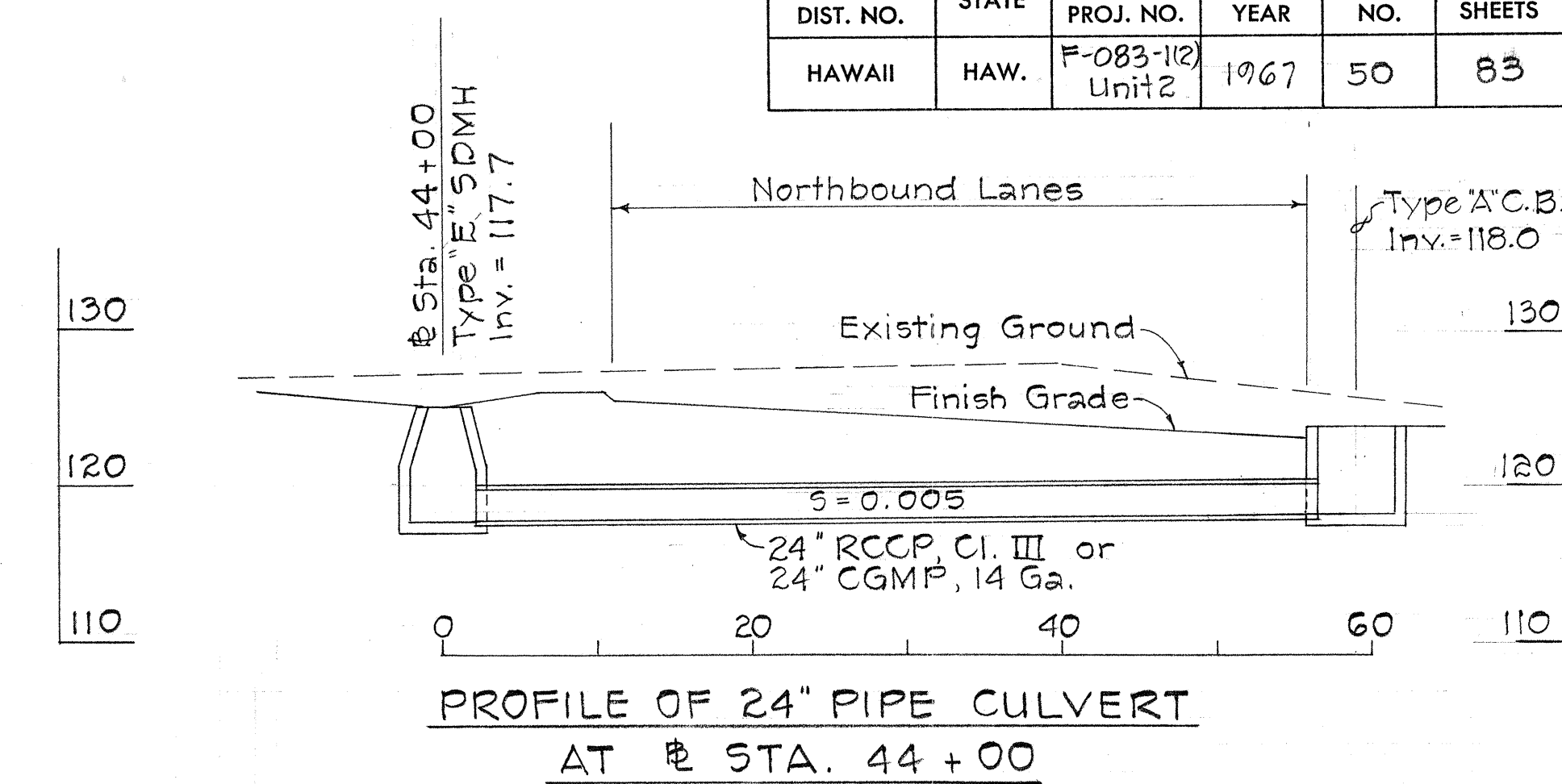
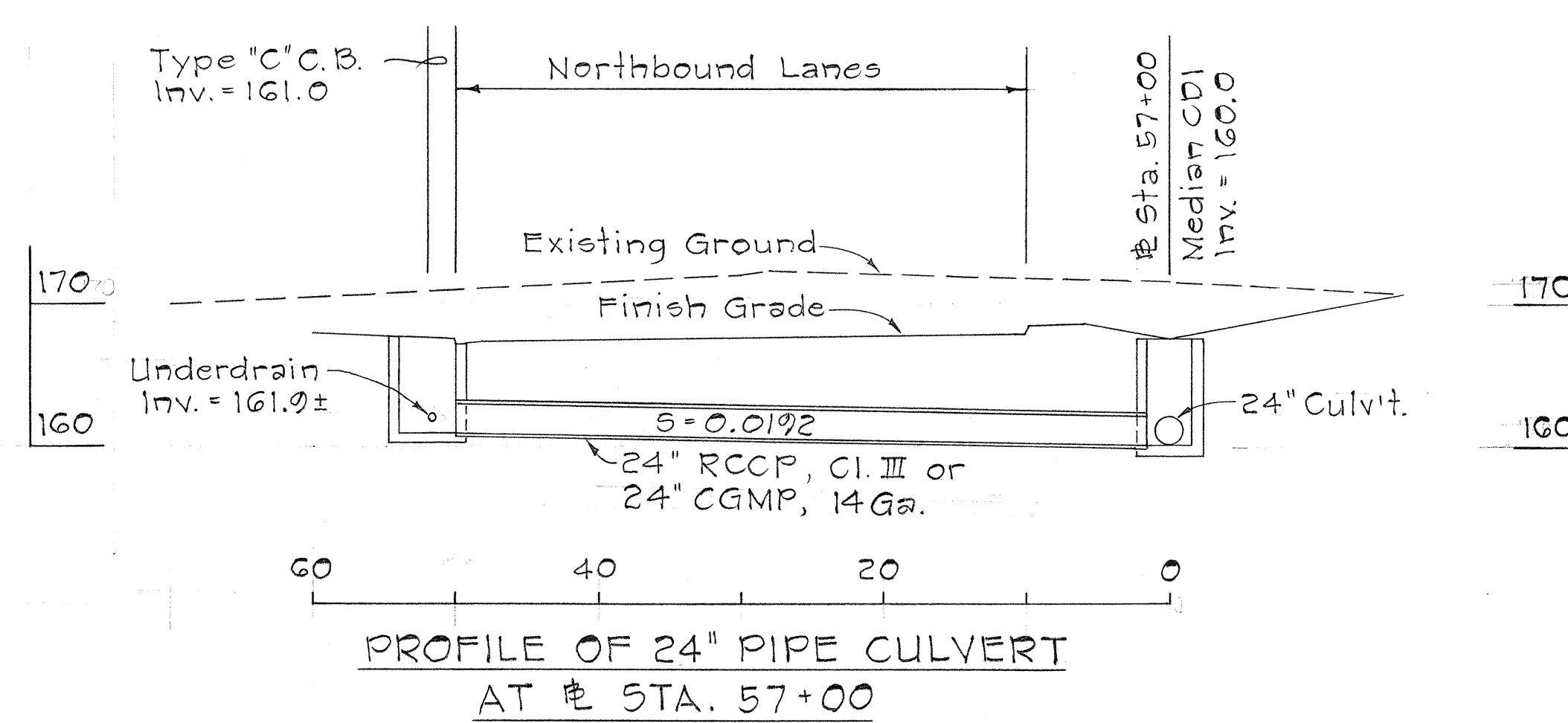
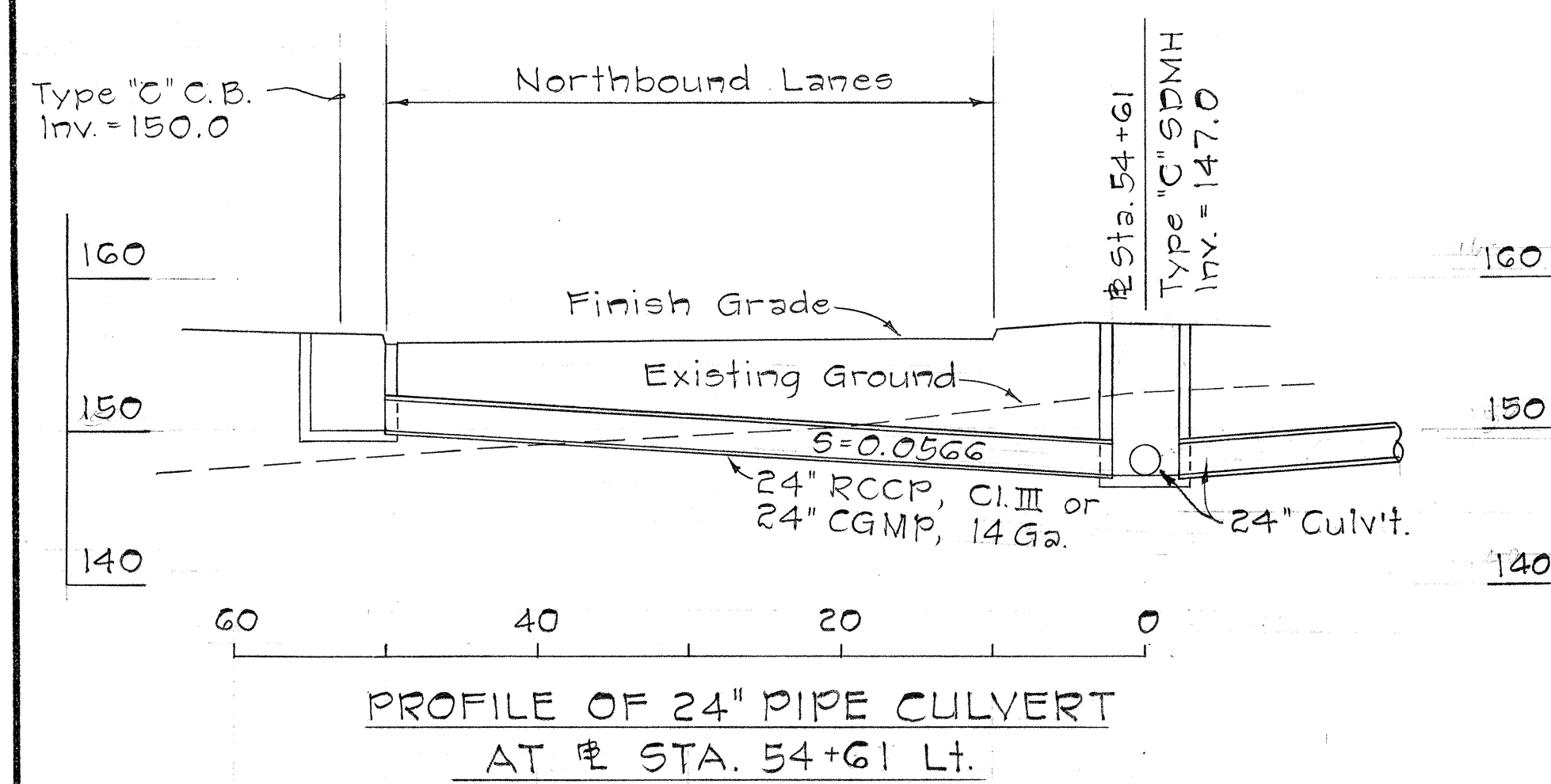
DRAINAGE PROFILE BETWEEN STA. 39+65 Lt. & STA. 41+25 Lt.

Scale: Hor: 1" = 50'
Vert: 1" = 10' STA. 41+50 Rt. & STA. 44+00 Lt.

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
DRAINAGE DETAILS
CULVERT PROFILES
KAMEHAMEHA HIGHWAY
Proj. No. F-083-1(2), Unit 2

Scale: As Shown Date: May, 1967
SHEET No. 6 OF 15 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	F-083-1(2) Unit 2	1967	50	83



STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

DRAINAGE DETAILS

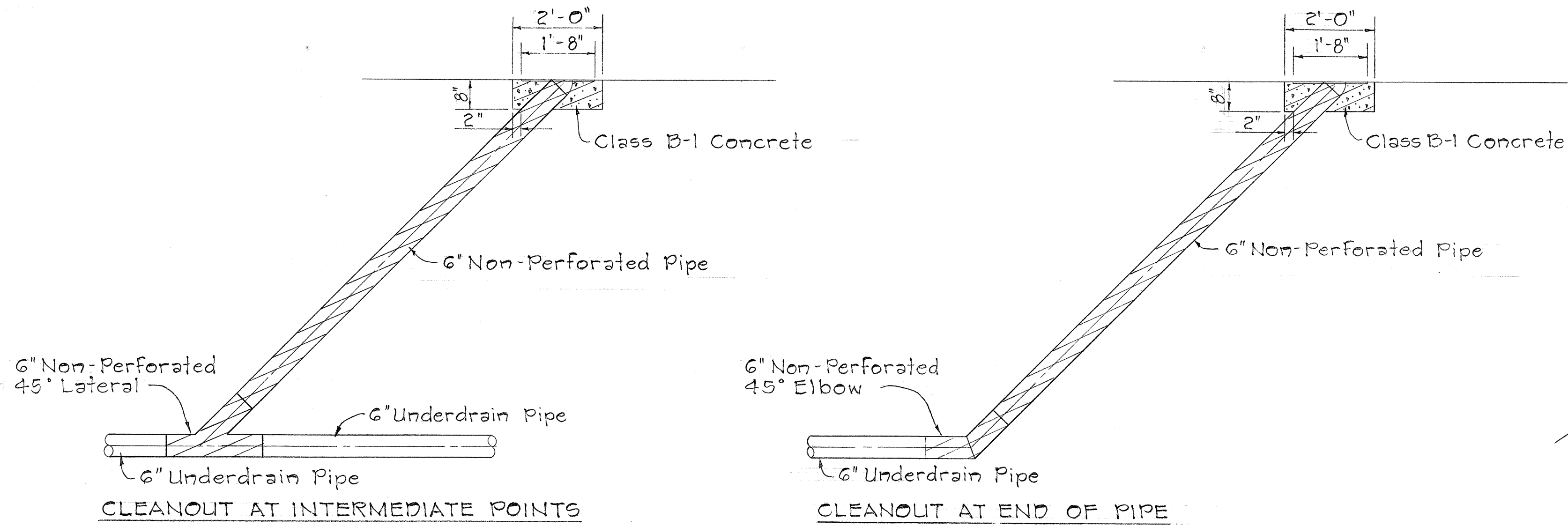
CULVERT PROFILES

KAMEHAMEHA HIGHWAY
Proj. No. F-083-1(2), Unit 2

Scale: 1"=10' Date: May, 1967

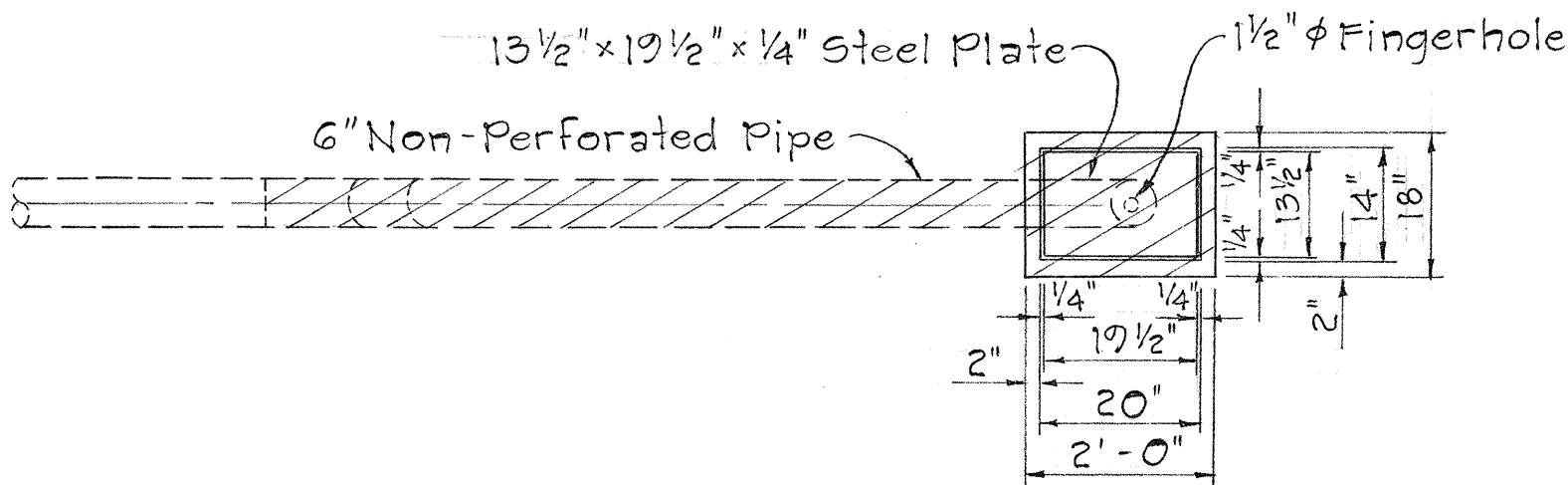
SHEET No. 7 OF 15 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	F-083-1(2) Unit 2	1967	51	83



ELEVATIONS

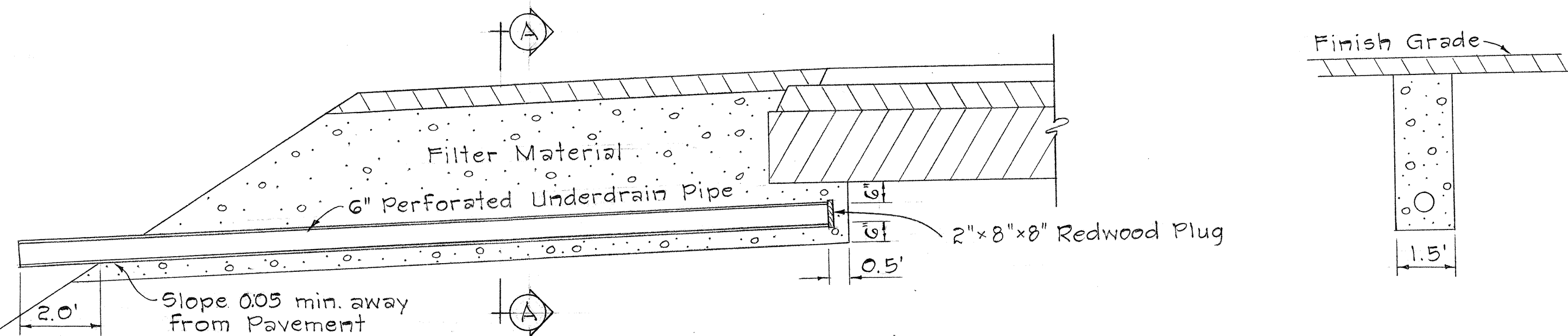
- NOTES:
1. Steel plate shall be thoroughly cleaned and painted with one coat of high grade asphaltum.
 2. Hatched area denotes limit of payment for cleanouts.



PLAN

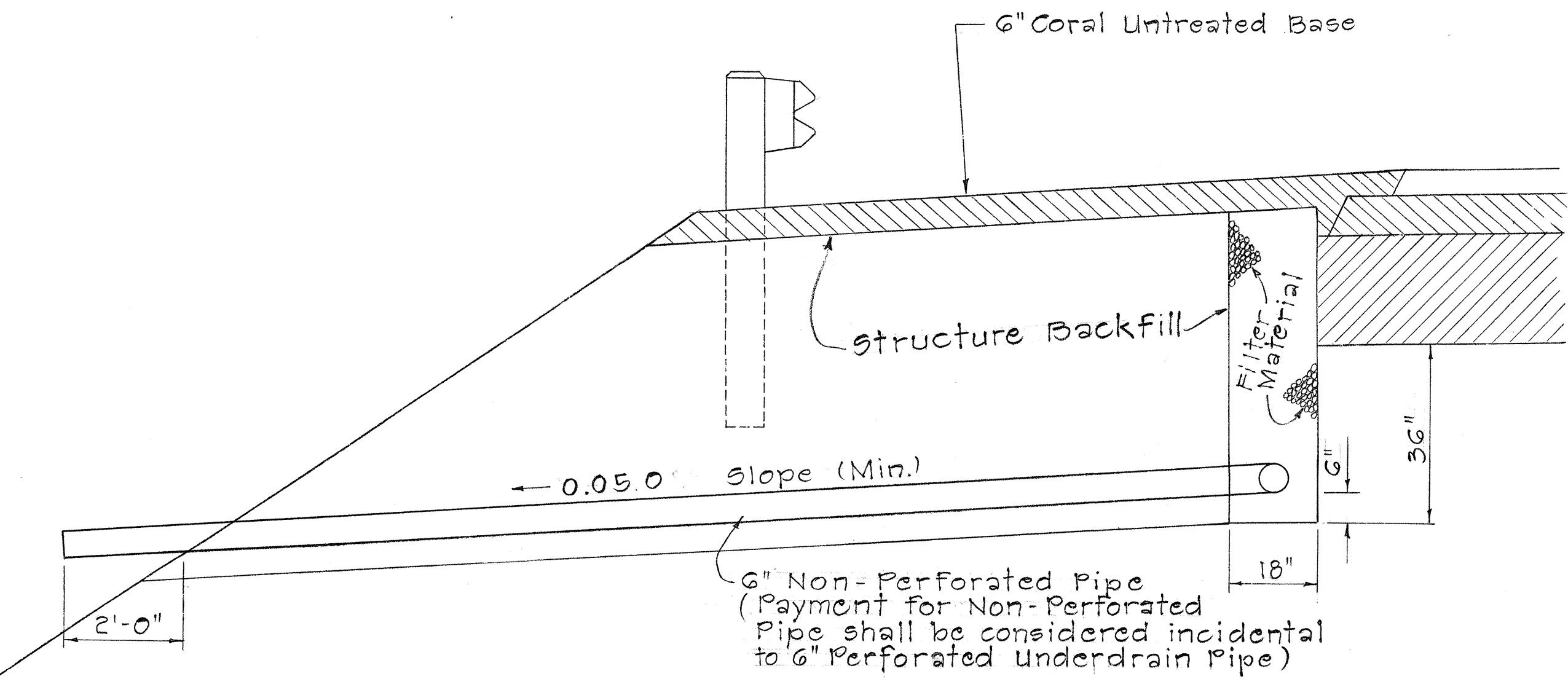
DETAIL OF CLEANOUT AND CONCRETE BLOCKS FOR UNDERDRAINS

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



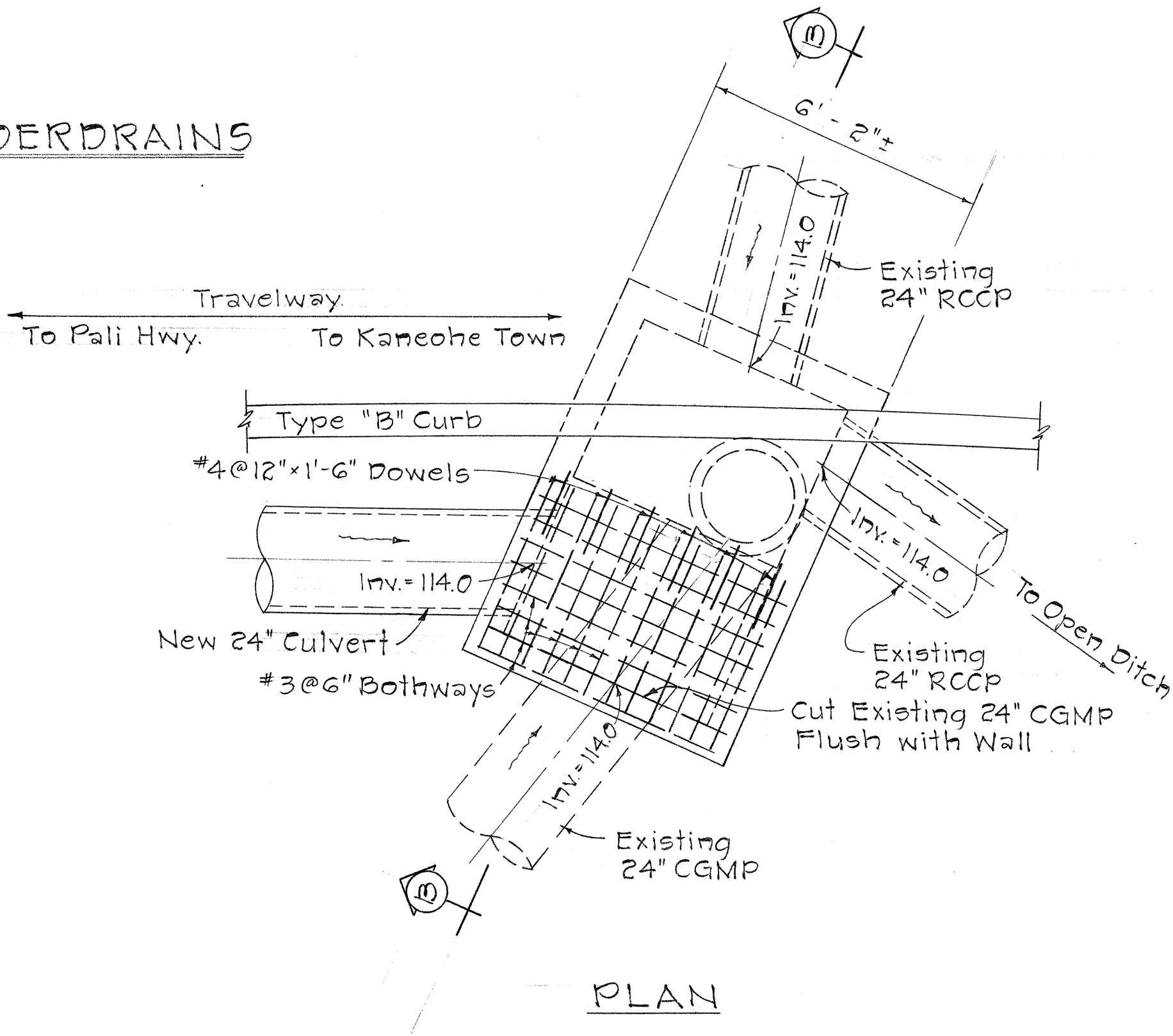
TRANSVERSE UNDERDRAIN

Scale: 3/8" = 1'-0"



TYPICAL LONGITUDINAL UNDERDRAIN OUTLET SECTION

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

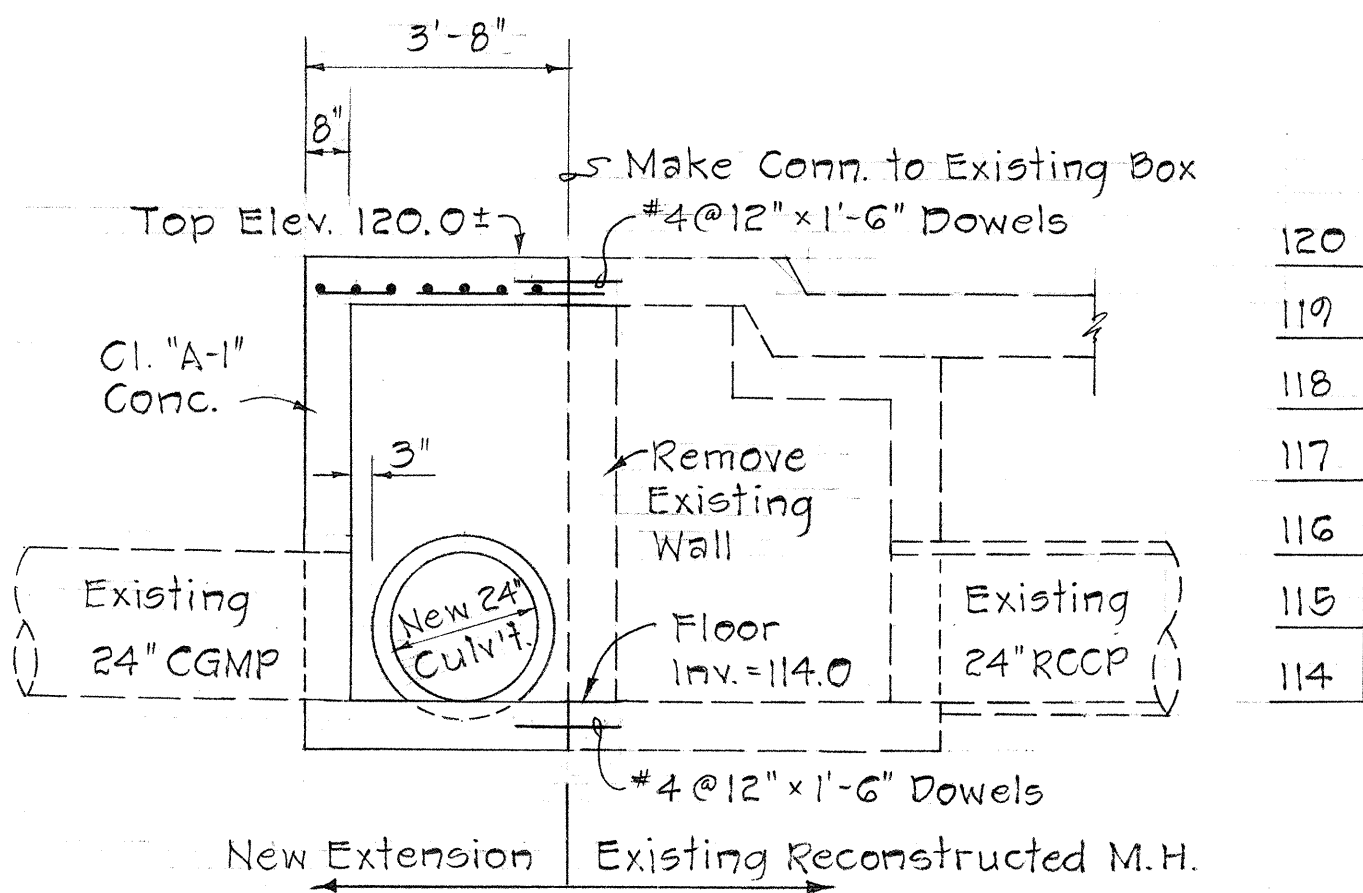


PLAN

EXTENSION OF EXISTING RECONSTRUCTED

M. H. AT STA. 39+66±

Scale: 3/8" = 1'-0"



SECTION "B-B"

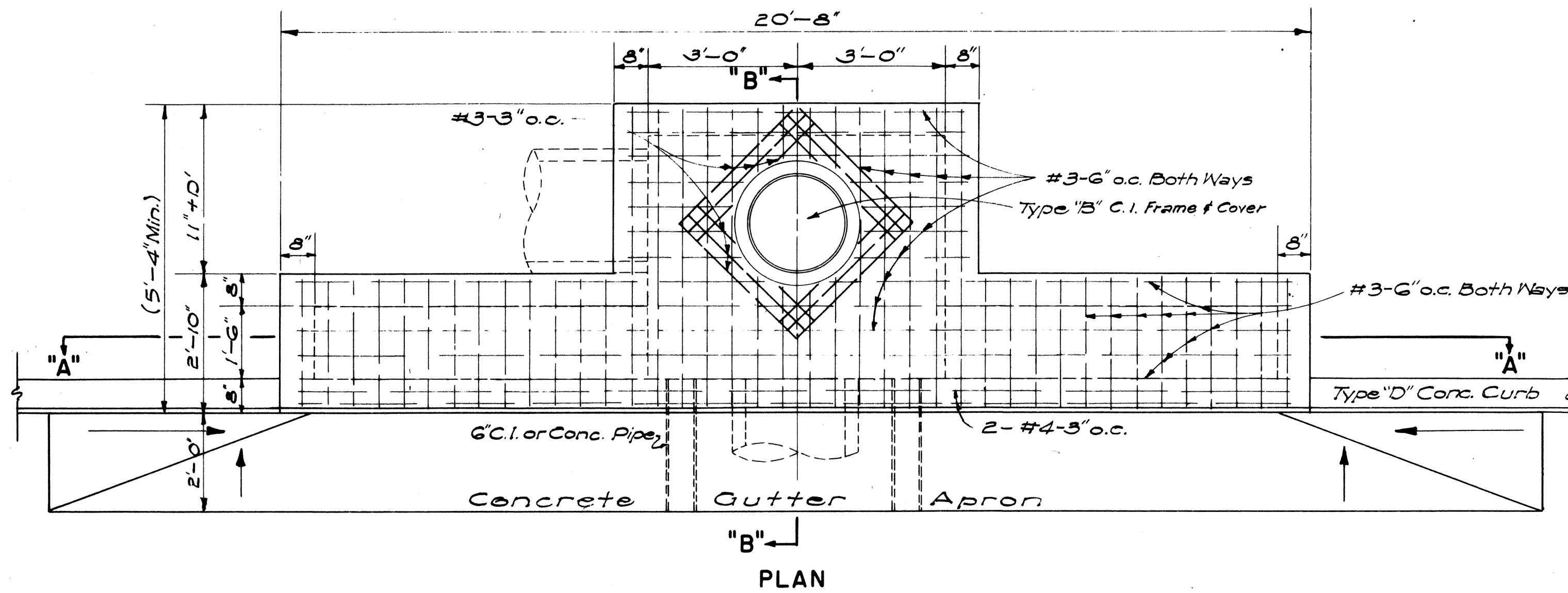
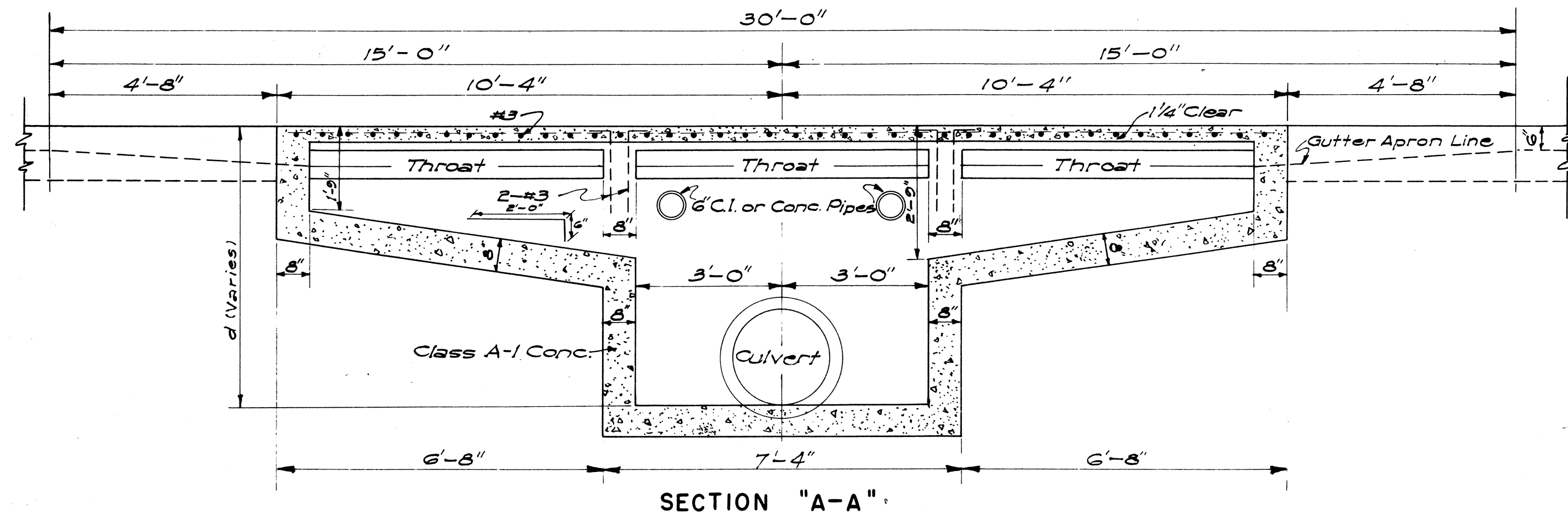
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

DRAINAGE DETAILS

KAMEHAMEHA HIGHWAY
Proj. No. F-083-1(2), Unit 2

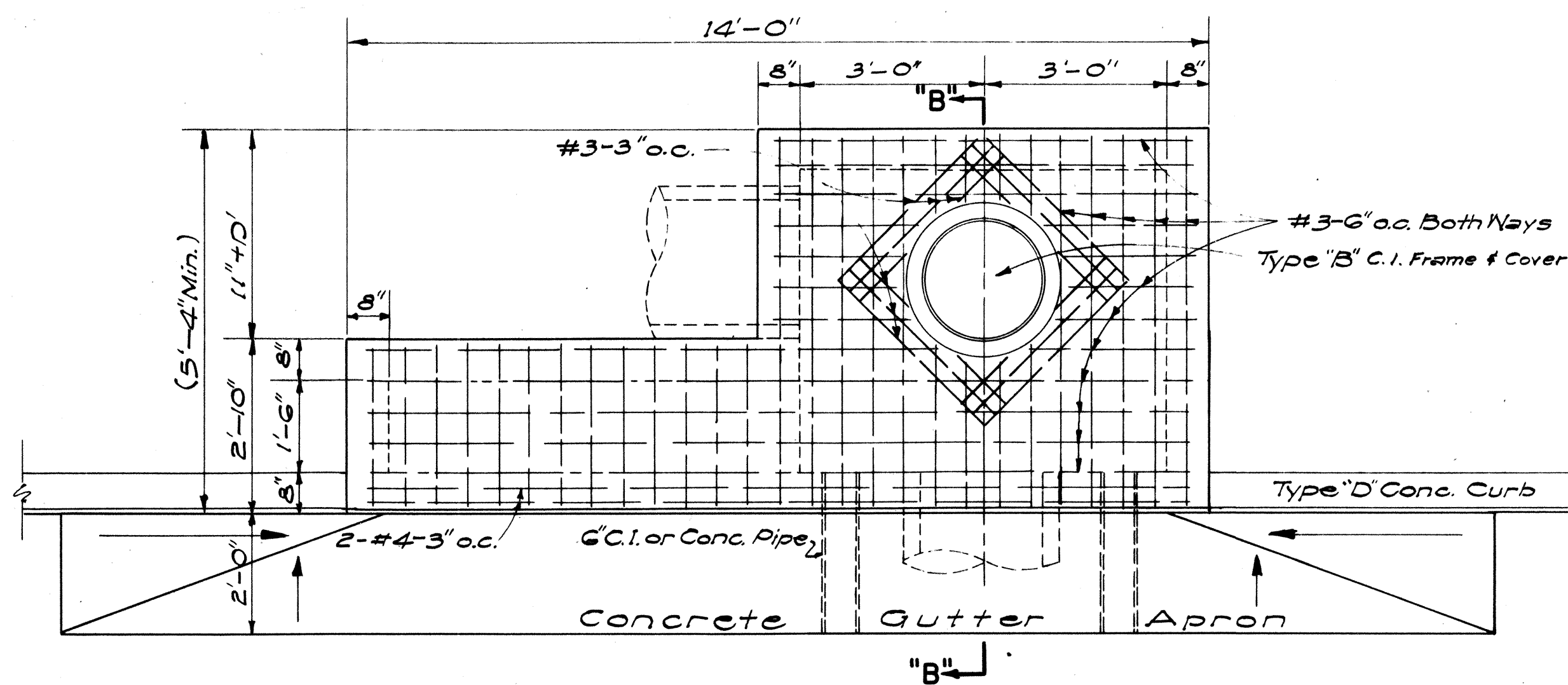
Scale: As Shown Date: May, 1967

SHEET No. 8 OF 15 SHEETS



DETAIL OF TYPE "A" CATCH BASIN

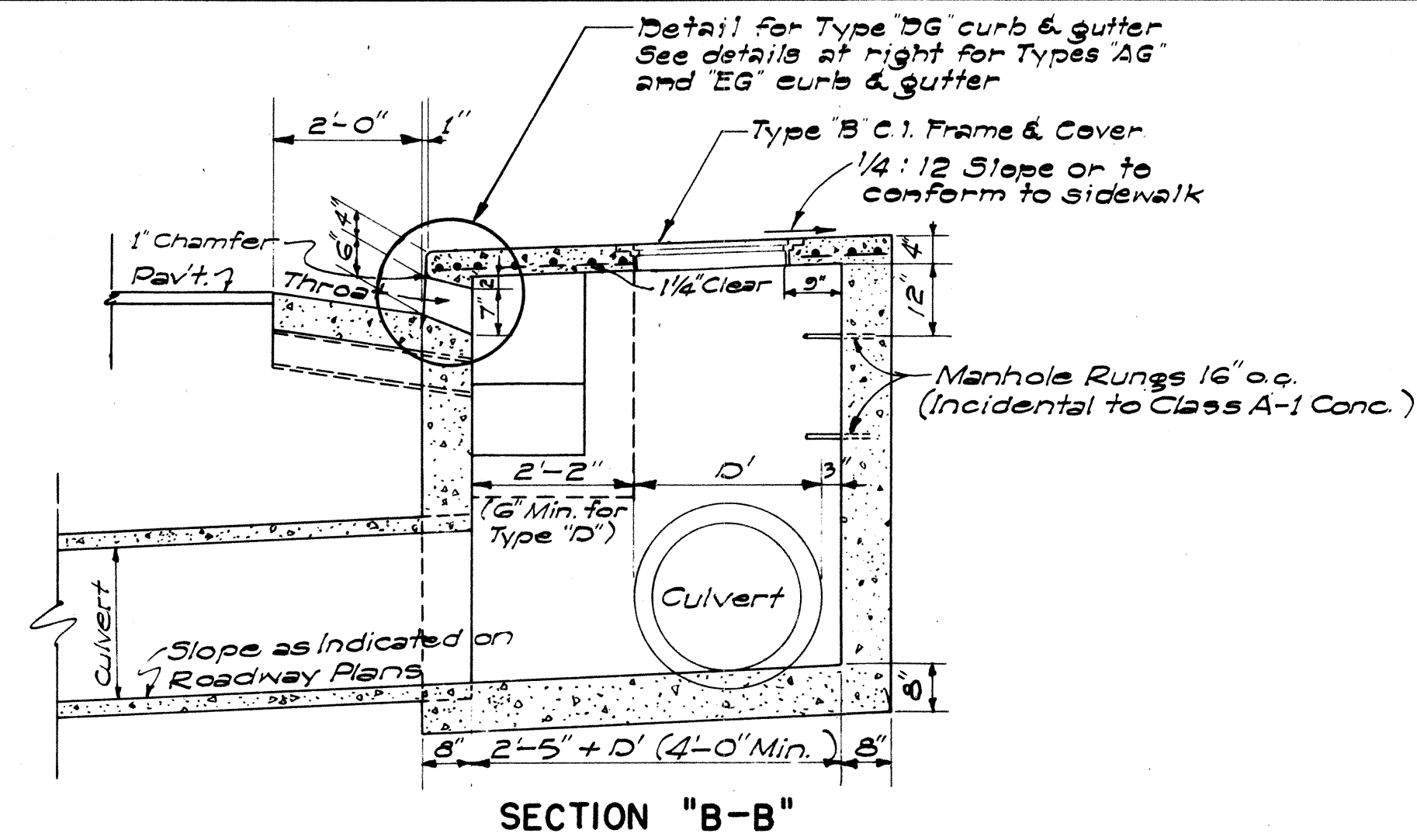
SCALE: 1/2" = 1'-0"



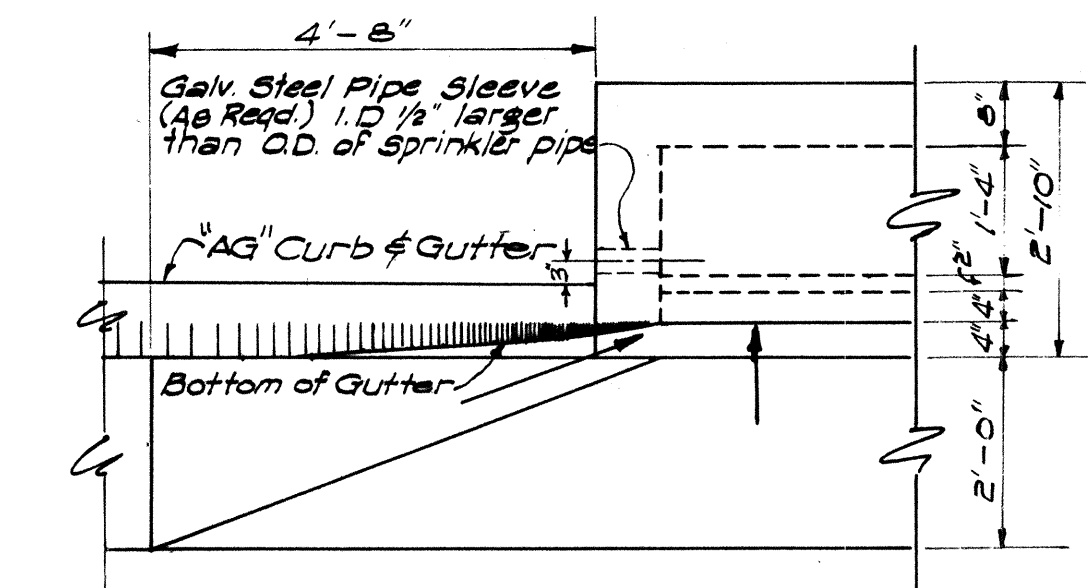
DETAIL OF TYPE "B" CATCH BASIN

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

NOTE: TYPE "C" C.B. SIMILAR BUT OPPOSITE HAND

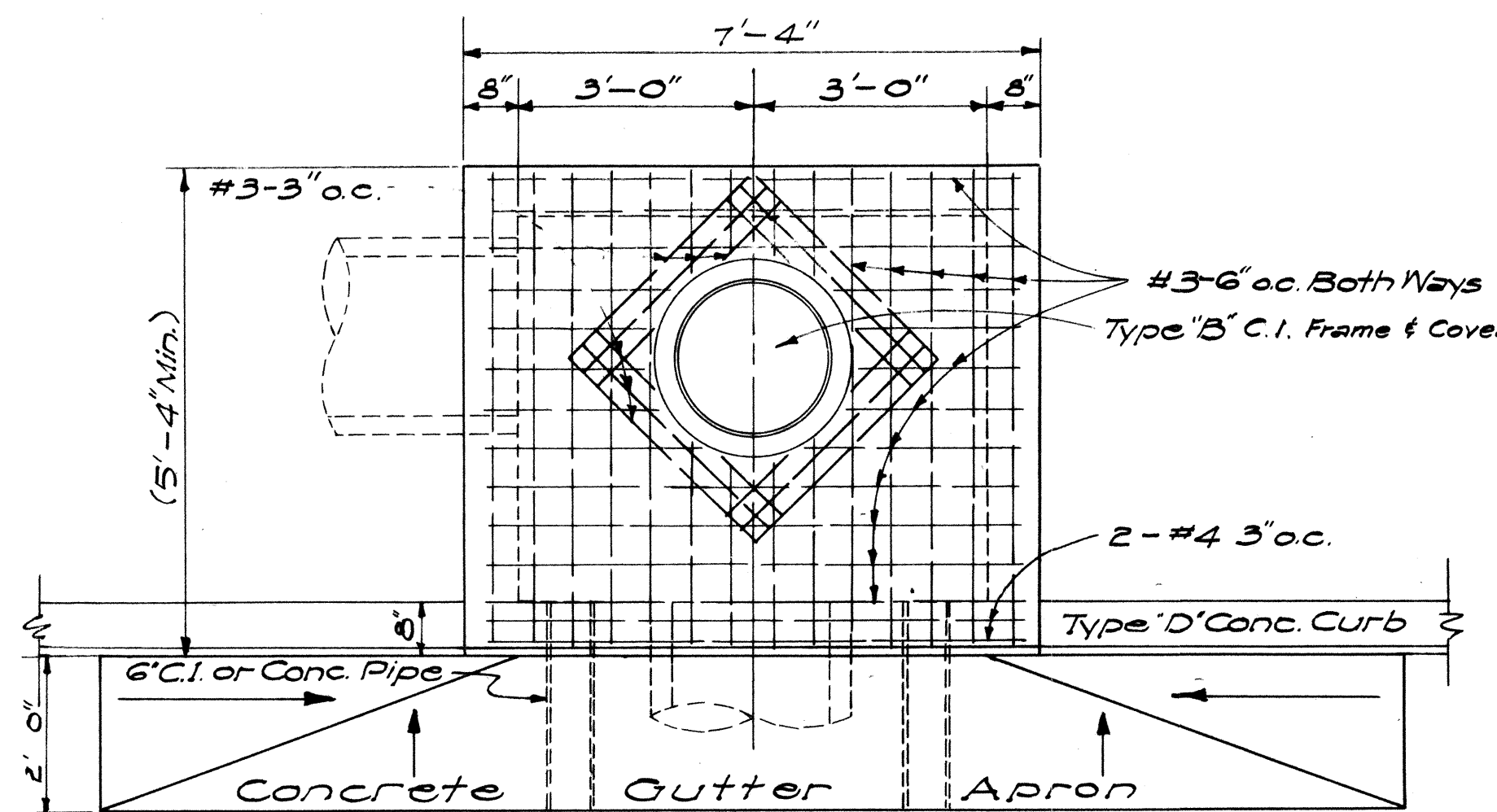


DETAIL OF CATCH BASIN WITH TYPE "EG" CURB & GUTTER



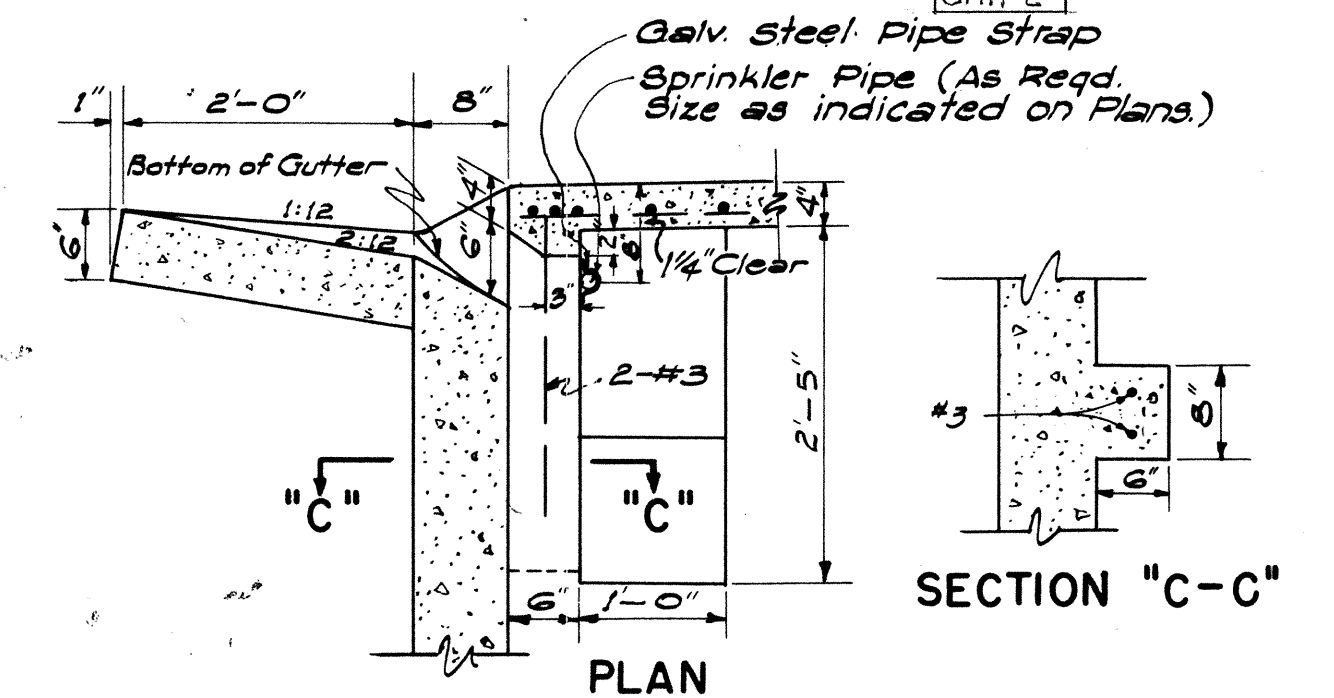
DETAIL OF CATCH BASIN WITH TYPE "AG" CURB & GUTTER

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



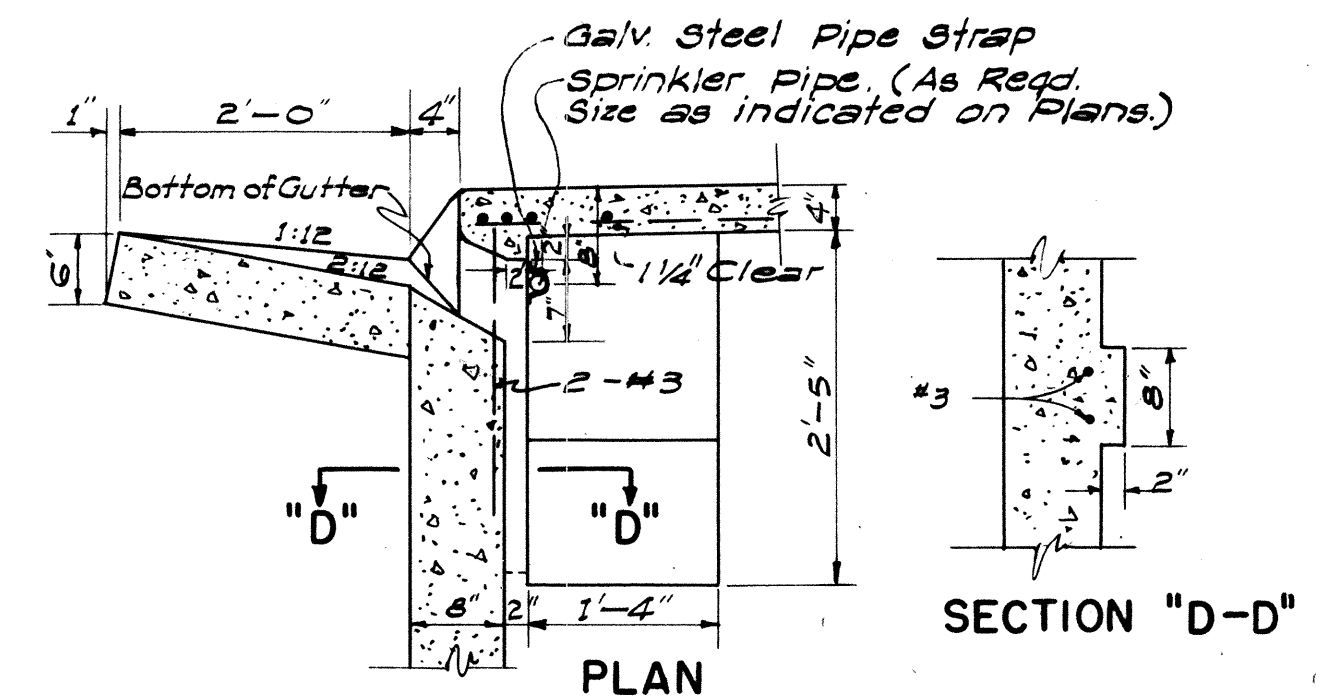
DETAIL OF TYPE "D" CATCH BASIN

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



THROAT DETAIL FOR TYPE "EG" CURB & GUTTER

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



THROAT DETAIL FOR TYPE "AG" CURB & GUTTER

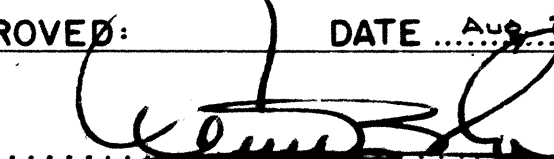
SCALE: 3/4" = 1'-0"

ESTIMATED QUANTITIES

Type	Class A-1 Conc.	Struct. Exc.	Reinf. Steel	Gutter Length
"A"	7.5 c.y.	24.7 c.y.	145 lb.	30'-0"
"B"	6.0 c.y.	21.5 c.y.	108 lb.	23'-4"
"C"	6.0 c.y.	21.5 c.y.	108 lb.	23'-4"
"D"	4.9 c.y.	16.5 c.y.	77 lb.	16'-8"

NOTES:

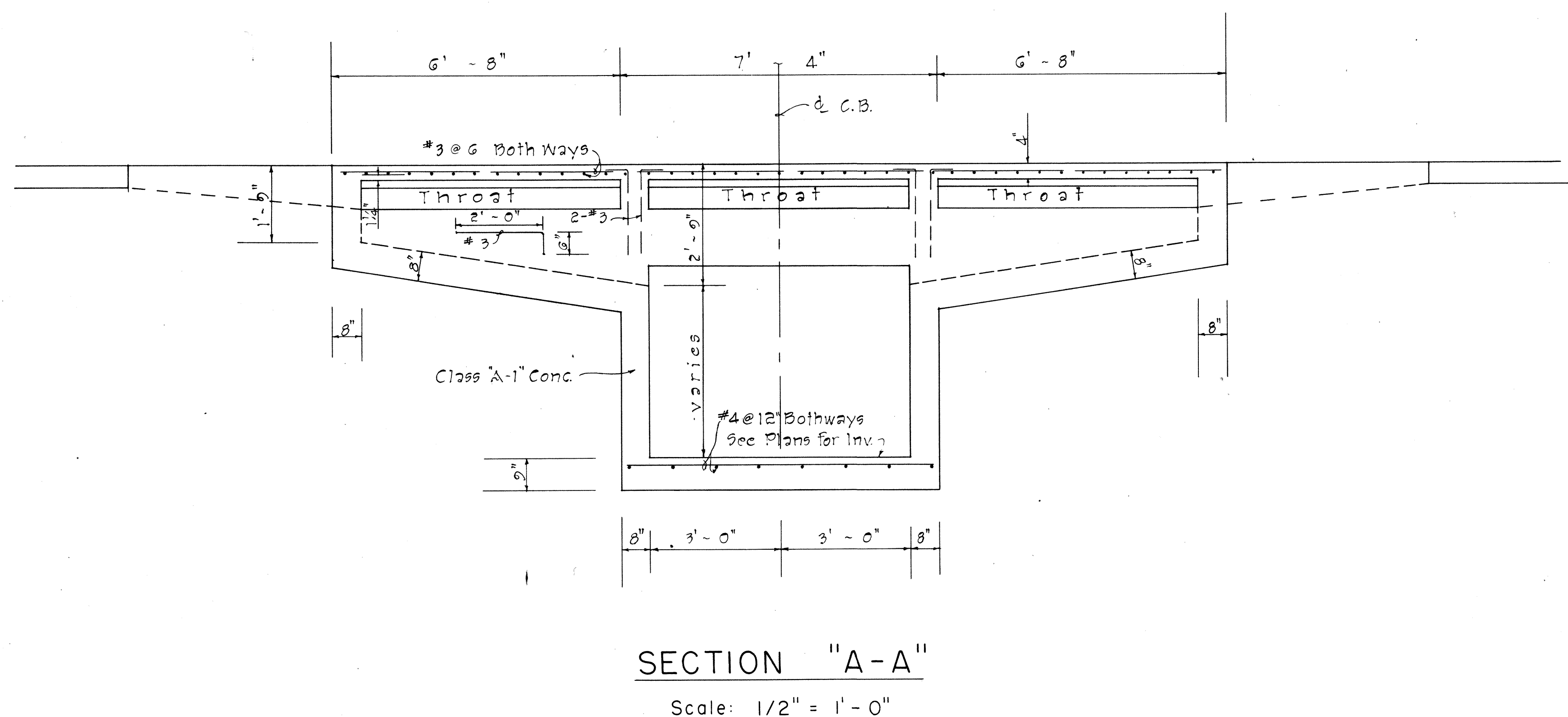
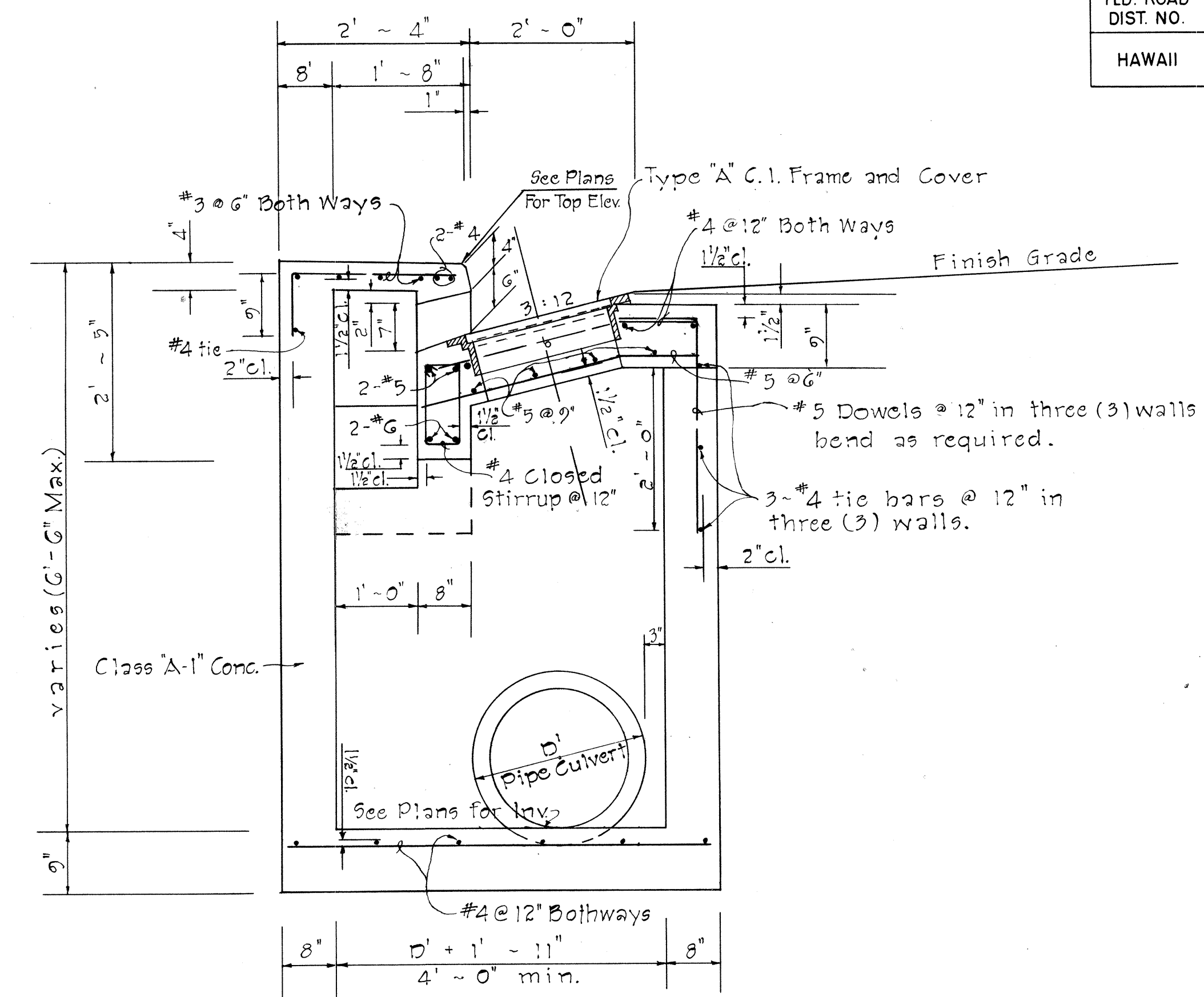
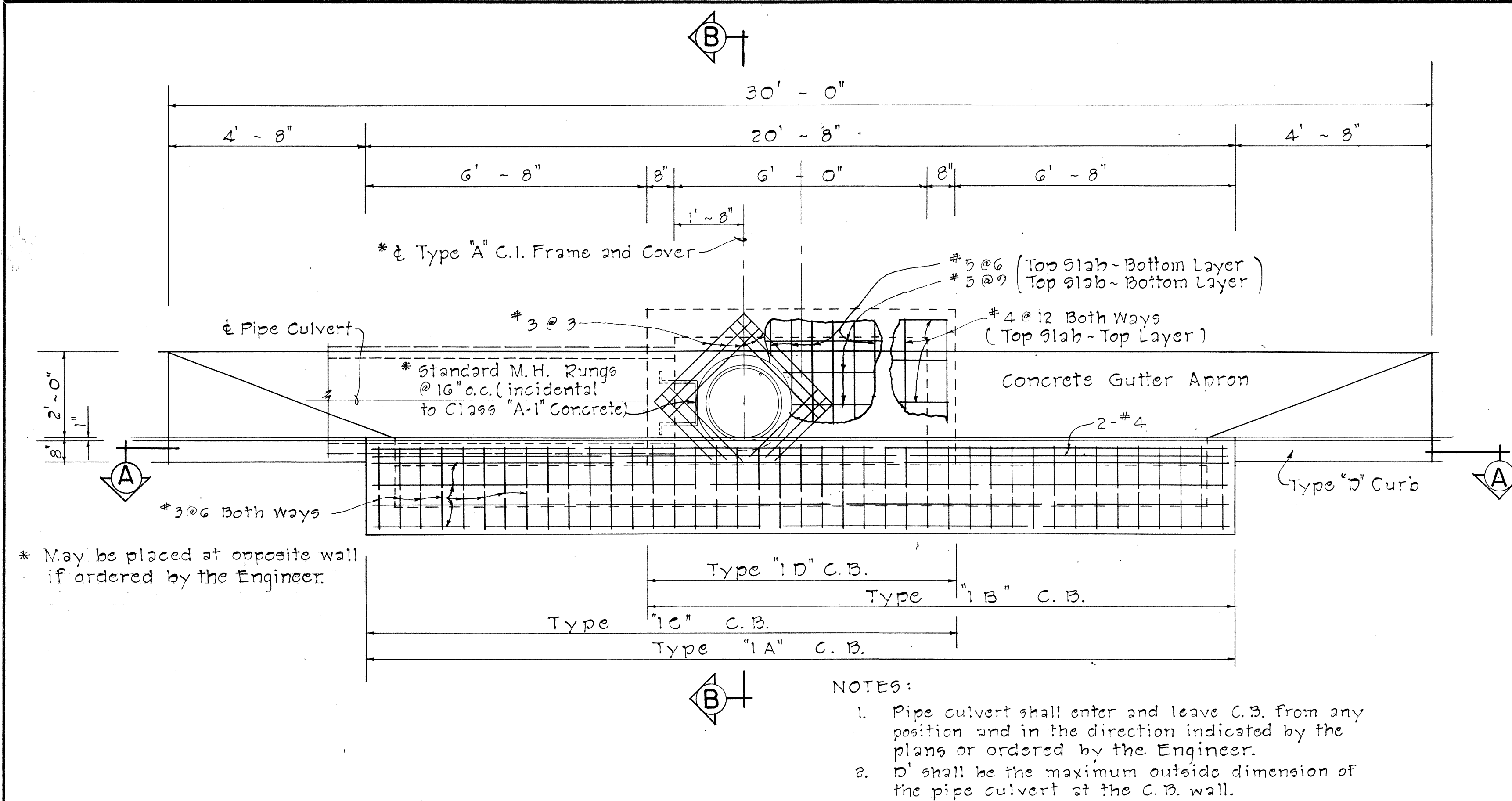
1. Quantities based on $d = 5.75'$ and $P = 30'$.
2. Quantities do not include concrete for gutter apron.
3. The Contractor shall install two 6" Cast Iron or Concrete Pipes as incidental to Class A-1 Concrete for Construction Drainage.
4. Culvert shall leave C.B. from any position and any direction indicated by plans or ordered by the Engineer. Culvert may both enter and leave C.B. so that C.B. will also act as Manhole.
5. The Contractor shall install Galvanized Steel Pipe Sleeves and Straps as incidental to Sprinkler System.

APPROVED:  DATE: AUG 25, 1959
STATE HIGHWAY ENGINEER

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
STANDARD DETAILS
CATCH BASINS

SCALES AS NOTED
SHEET NO. 52 OF 15 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	F-083-(K2) Unit 2	1967	53	83



DETAILS OF TYPE "IA", "IB", "IC" AND "ID" CATCH BASIN

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

DRAINAGE STRUCTURE DETAILS
OF "1A", "1B", "1C" AND "1D" C.B.

KAMEHAMEHA HIGHWAY
Proj. No. F-083-1(2), Unit 2

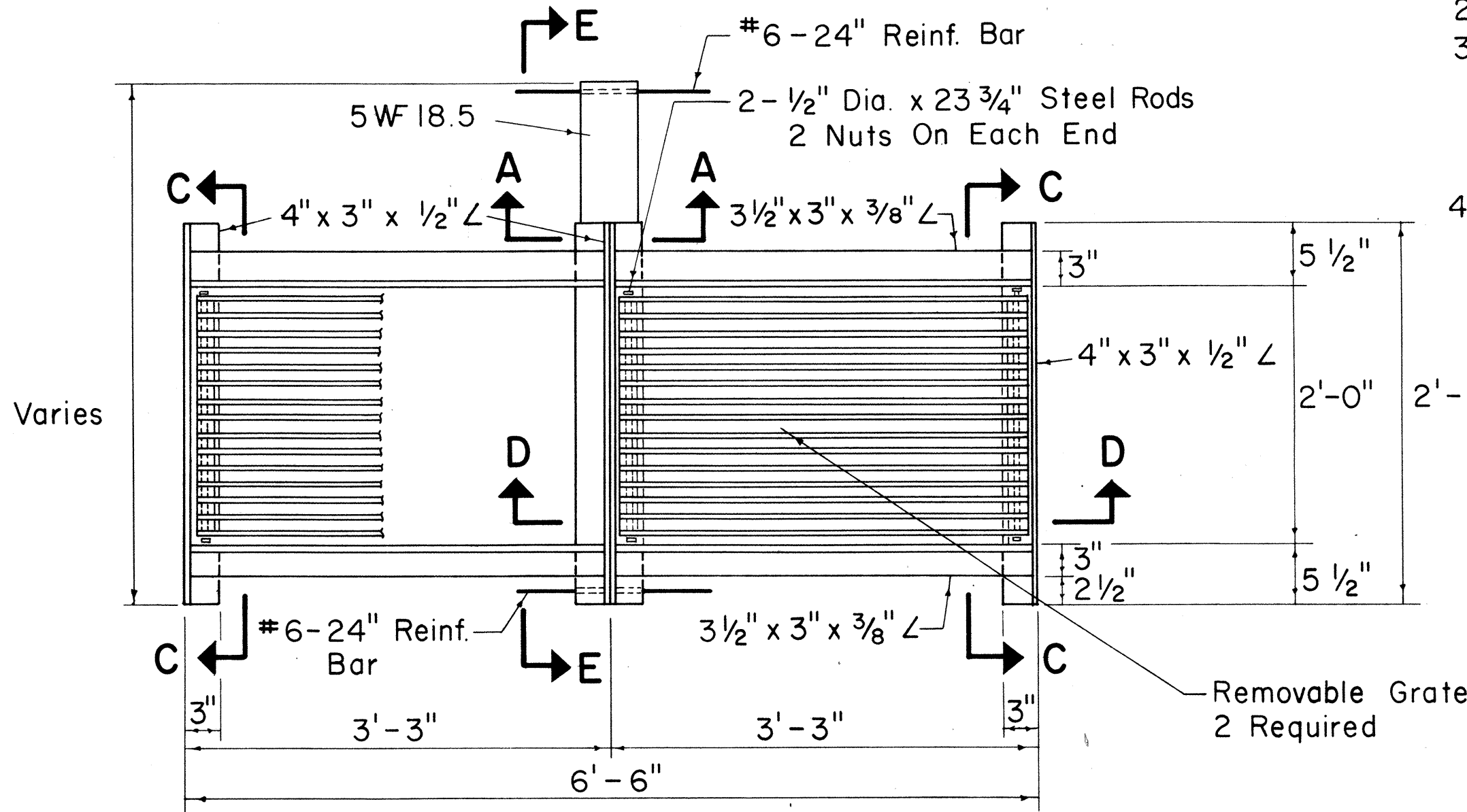
Scale: As Shown _____ Date: May, 1967 _____

SHEET No. 10 OF 15 SHEETS

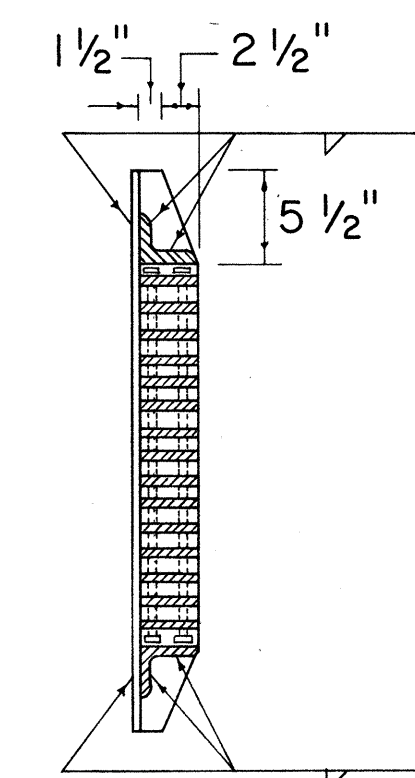
ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
NOTE BOOK	DRAWN BY	66
	TRACED BY	66
	DESIGNED BY	66
	QUANTITIES BY	66
No.	CHECKED BY	66

Revised: Jan. 25, 1967

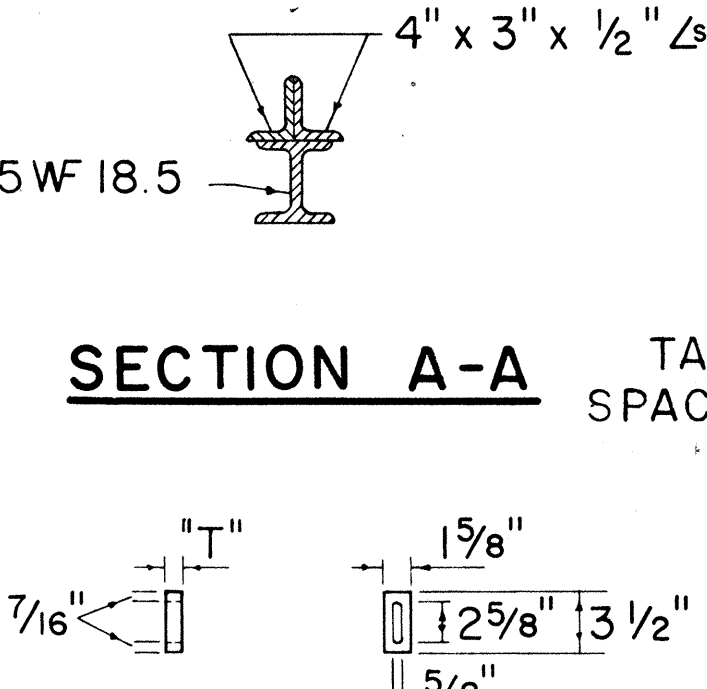
- NOTE:
1. All welds $\frac{3}{8}$ " unless otherwise noted.
 2. All steel shall be structural grade.
 3. Grates and Frame shall be hot dip galvanized after fabrication in accordance with Section 44(H) of the Standard Specifications.
 4. Detail of Types "A-1" and "A-2" Steel Frame and Grates are identical except for the thickness of end spacers and number of grate bars. See Table of End Spacer Thickness.



PLAN



SECTION C-C

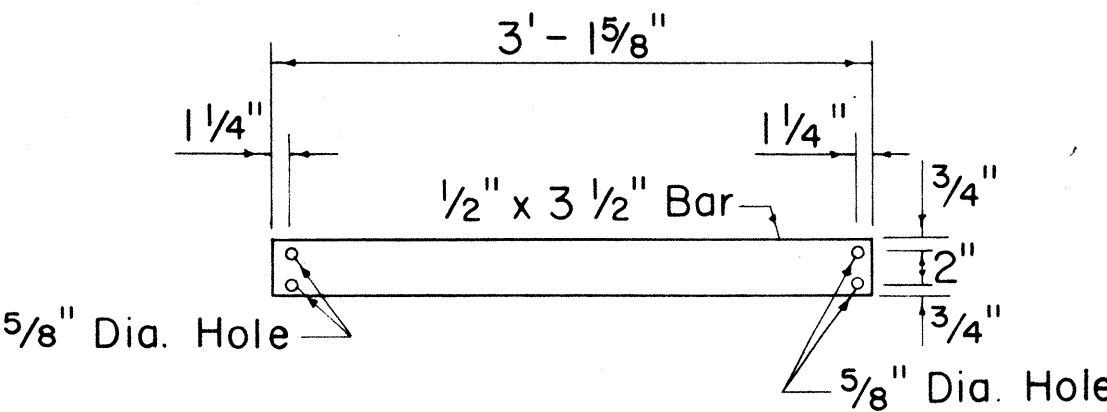


SECTION A-A

TABLE OF END SPACER THICKNESS

TYPE FRAME & GRATES	"T" (in.)
A-1	1
A-2	1 3/8

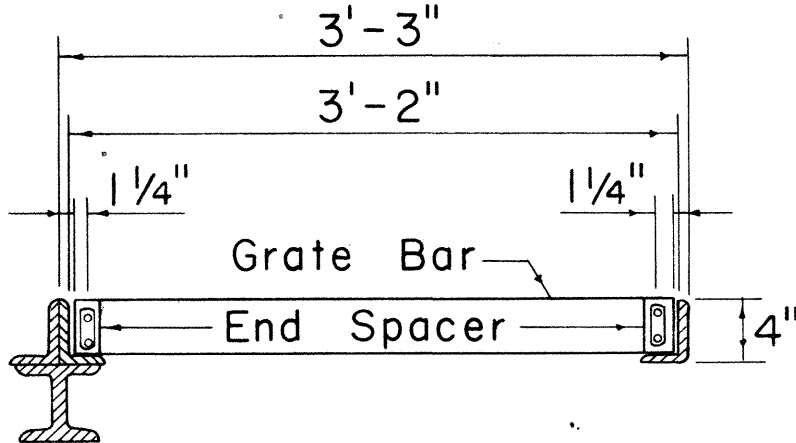
END SPACER



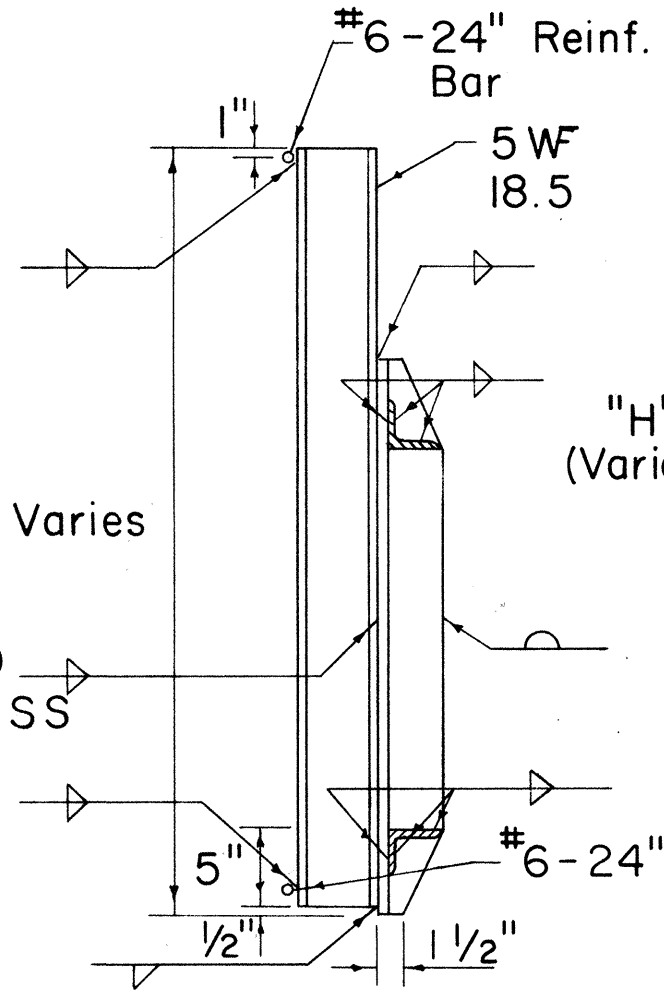
GRATE BARS

DETAIL OF TYPE "A-1" & "A-2" STEEL FRAME AND GRATES

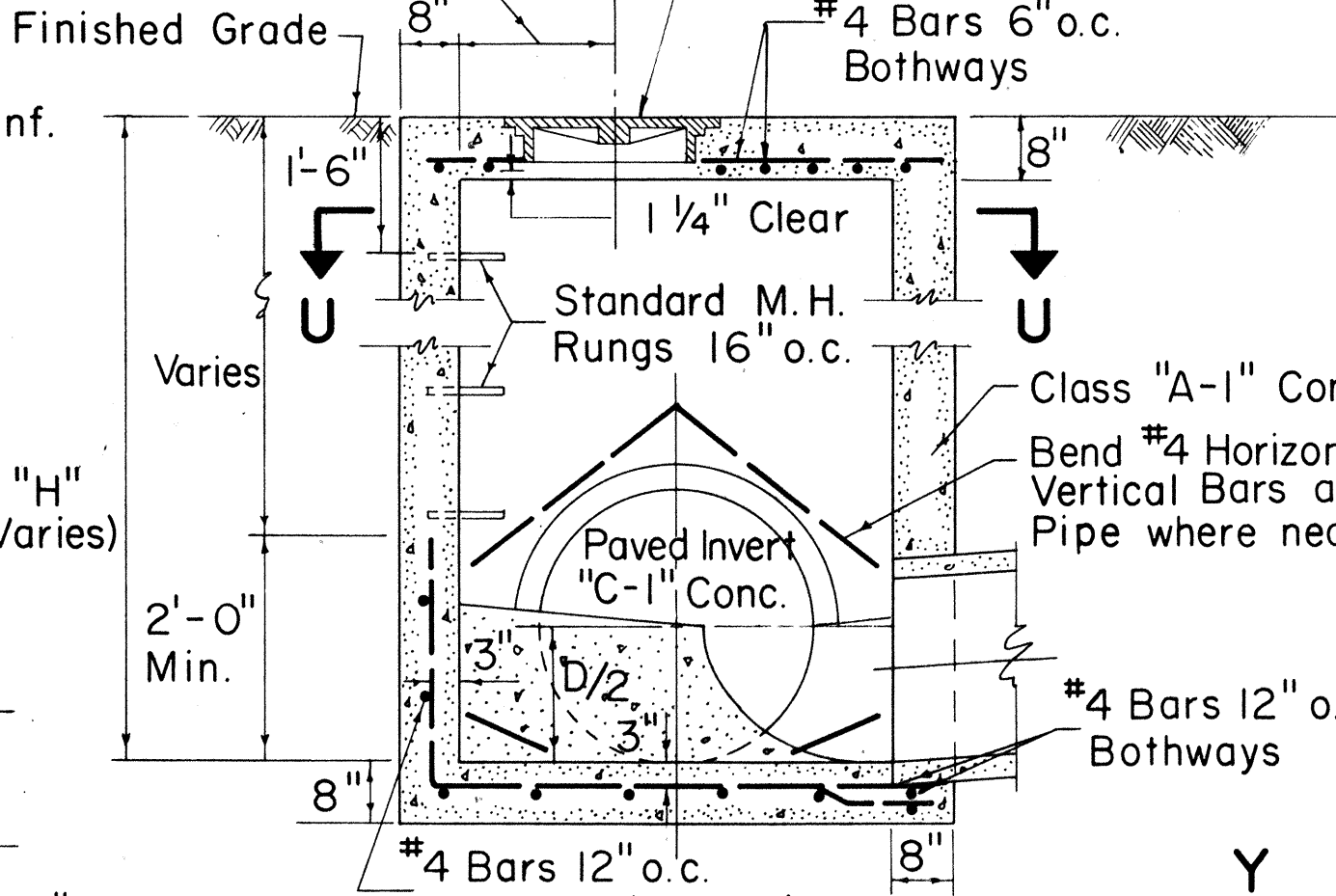
Scale: 1" = 1'-0"



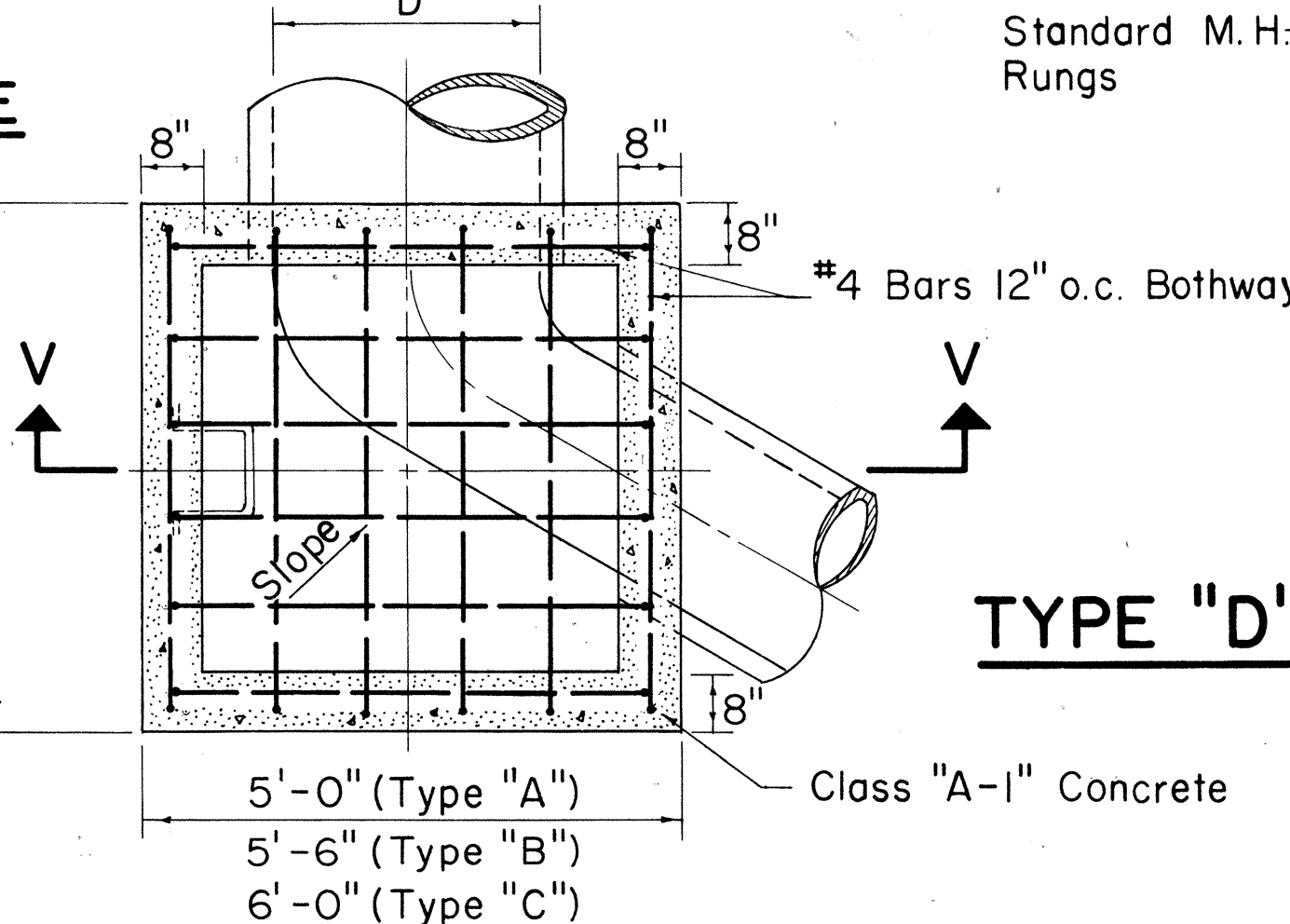
SECTION D-D



SECTION E-E



SECTION V-V

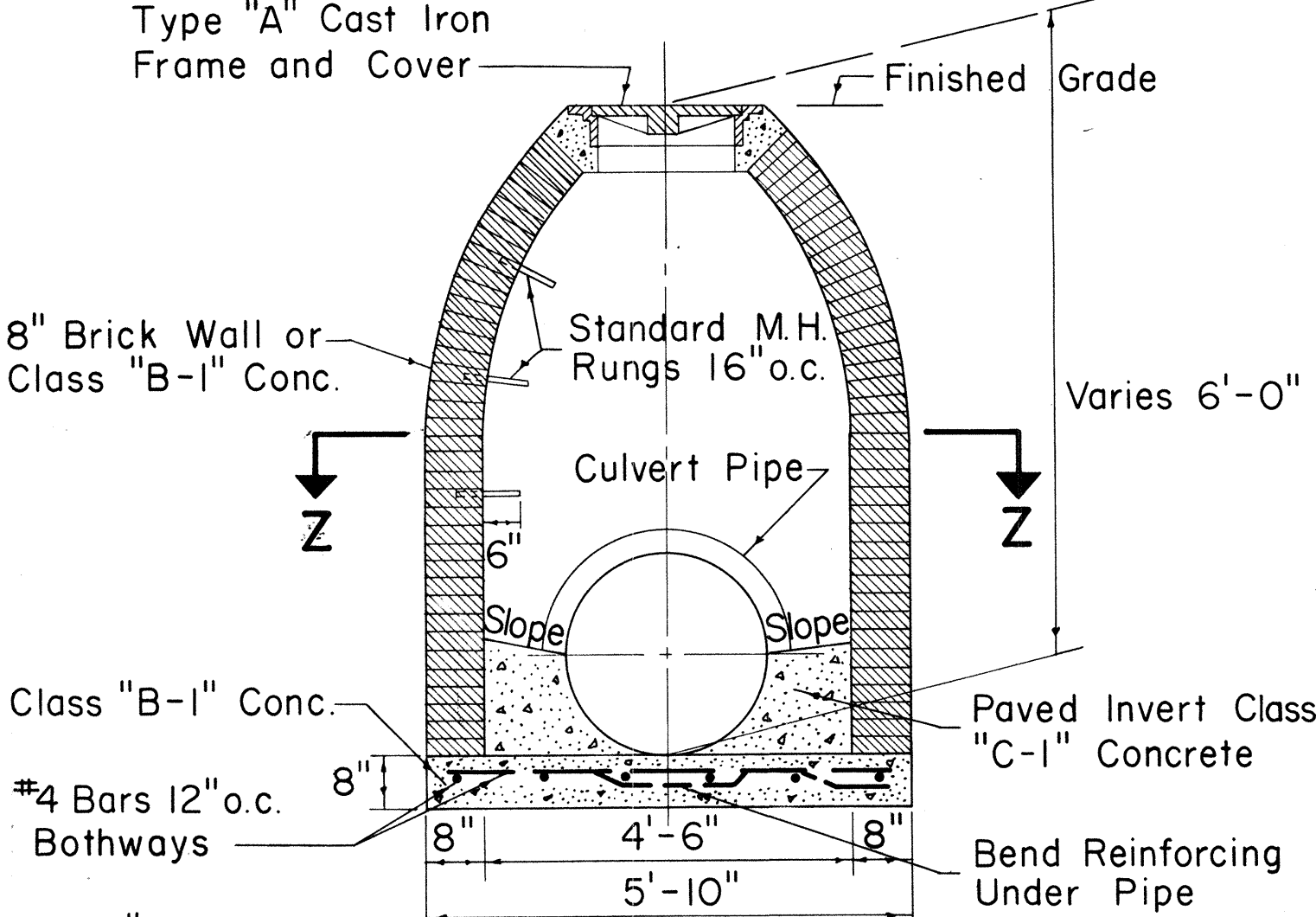


SECTION U-U

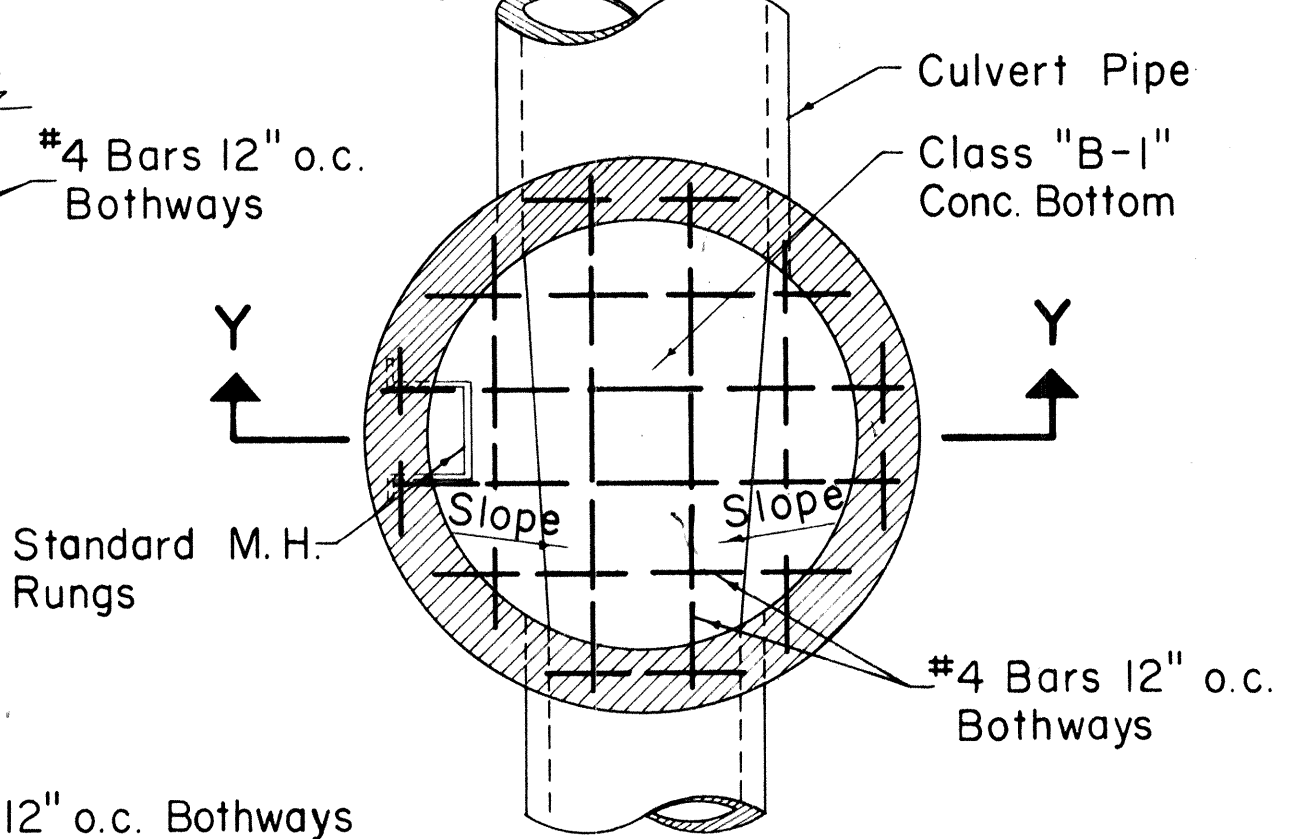
TYPE "A", "B", & "C"

S.D.M.H.

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



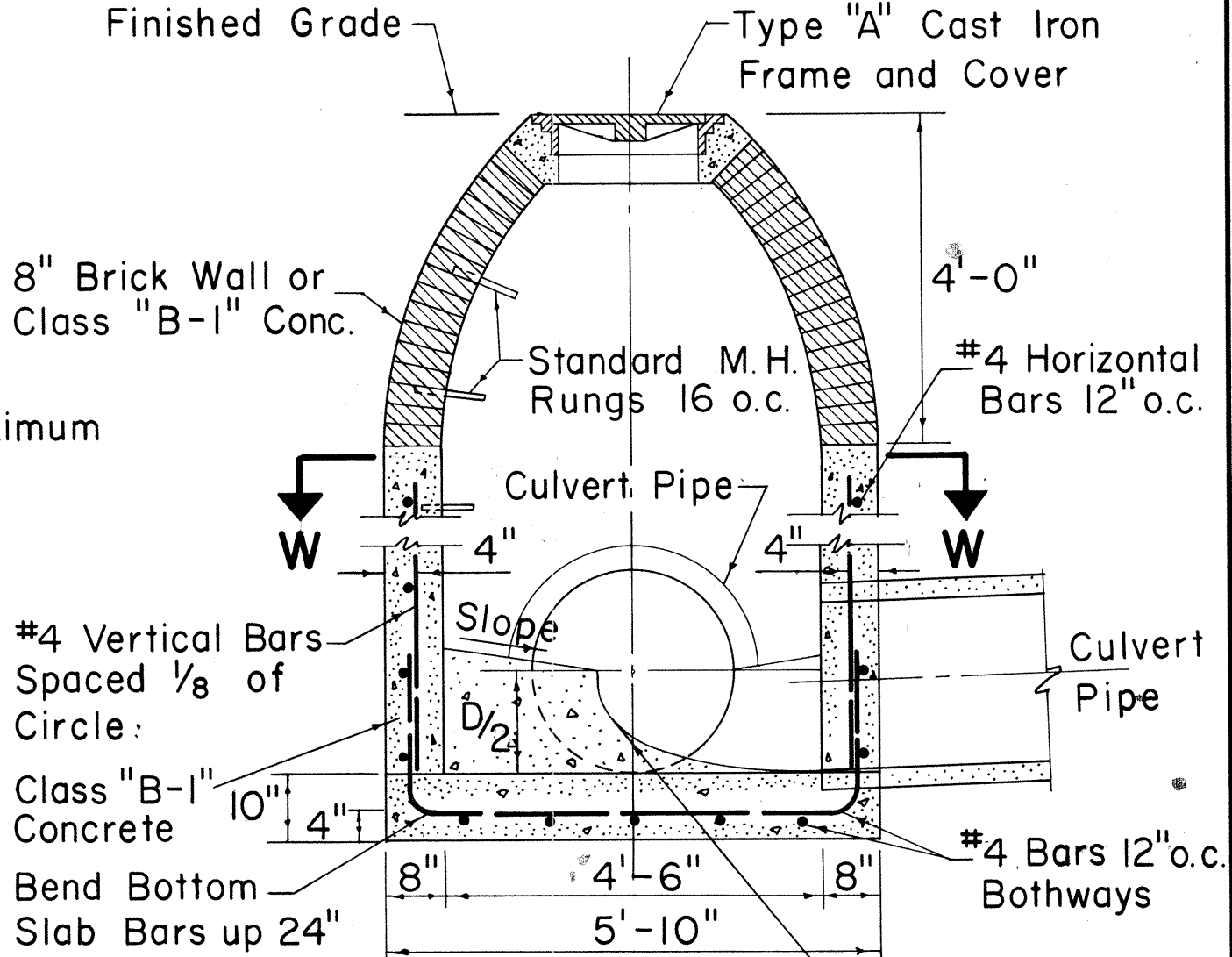
SECTION Y-Y



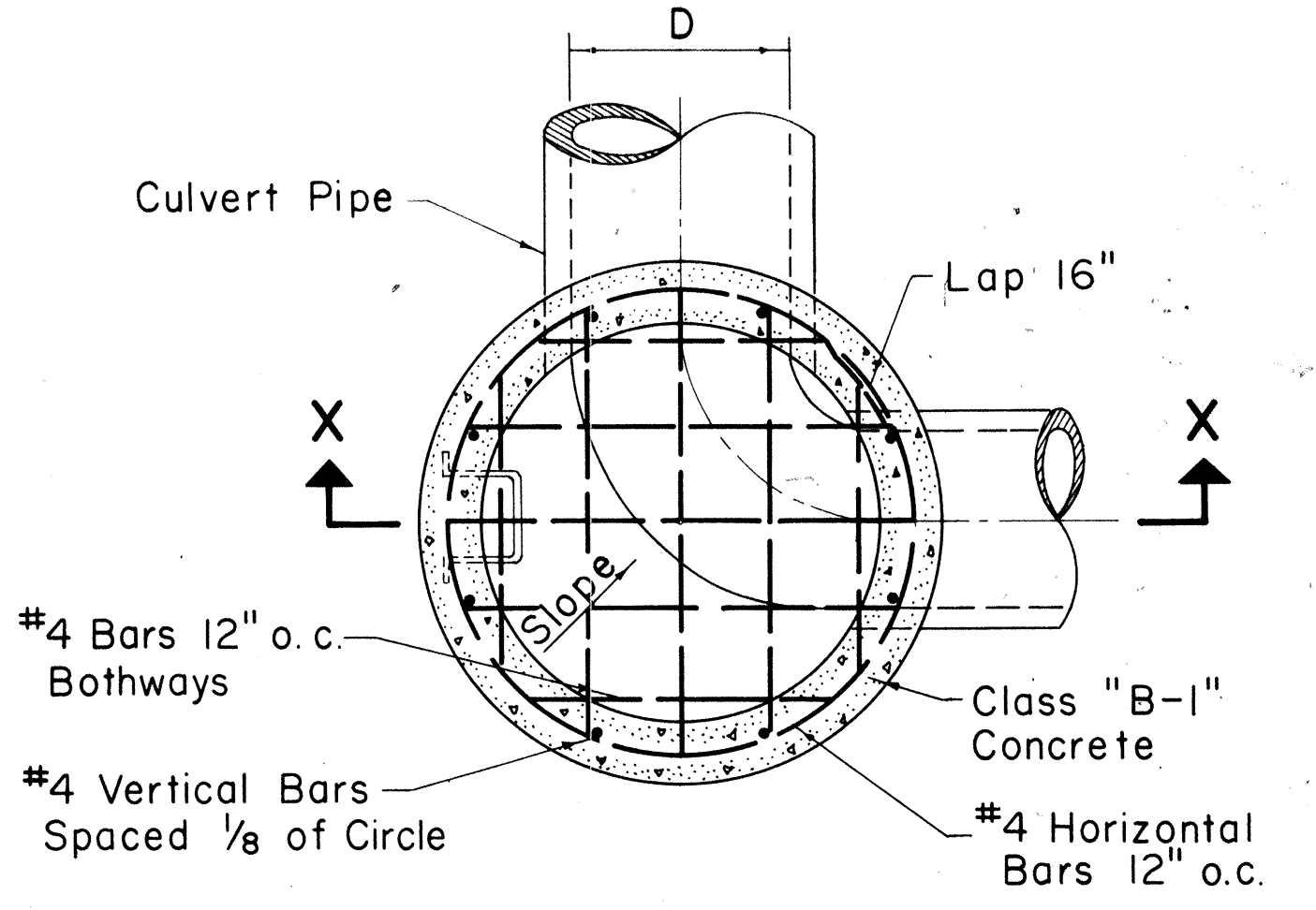
SECTION Z-Z

TYPE "D" STORM DRAIN MANHOLE

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



SECTION X-X



SECTION W-W

TYPE "E" STORM DRAIN MANHOLE

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

APPROVED:

DIRECTOR OF TRANSPORTATION DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

STANDARD DETAILS

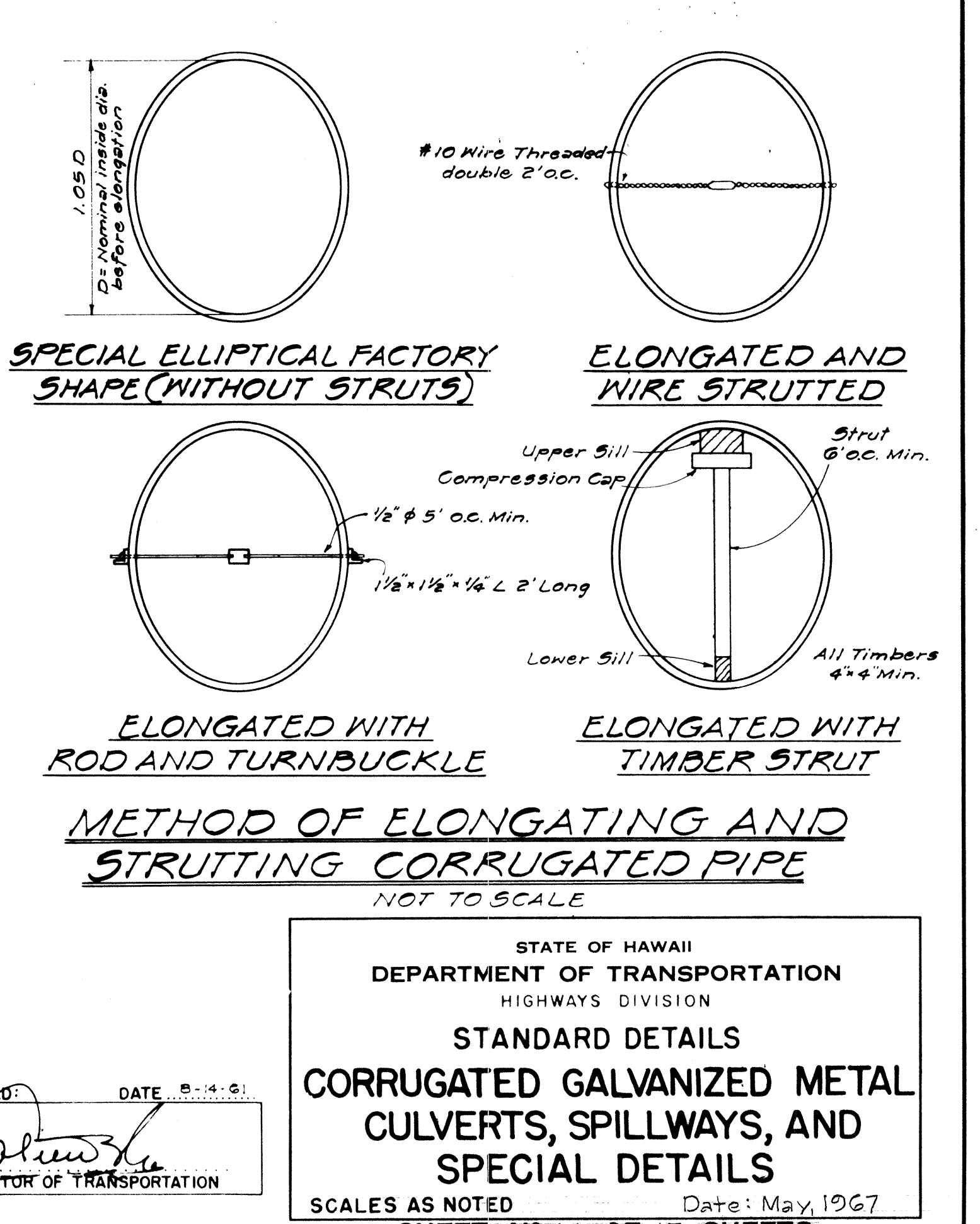
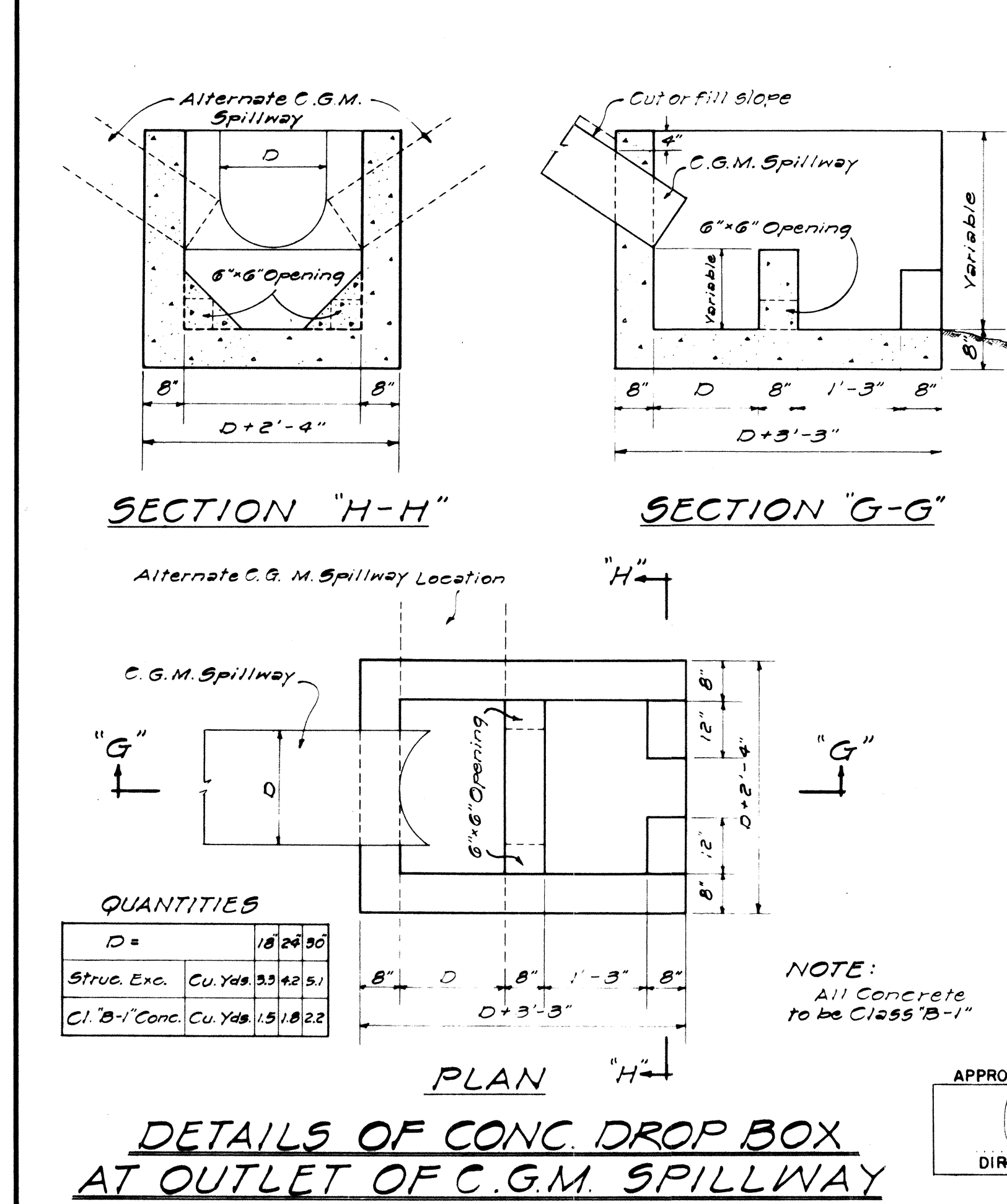
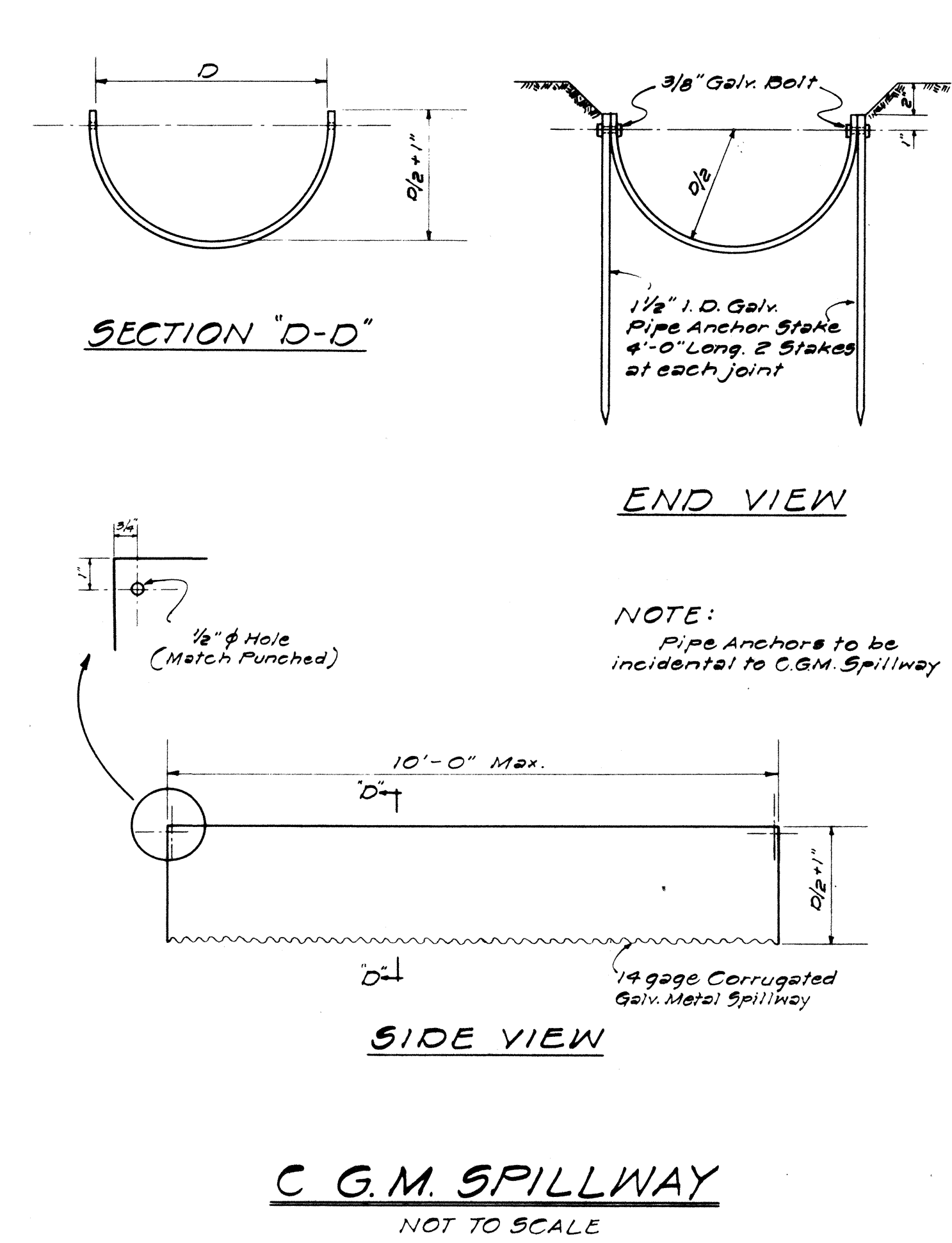
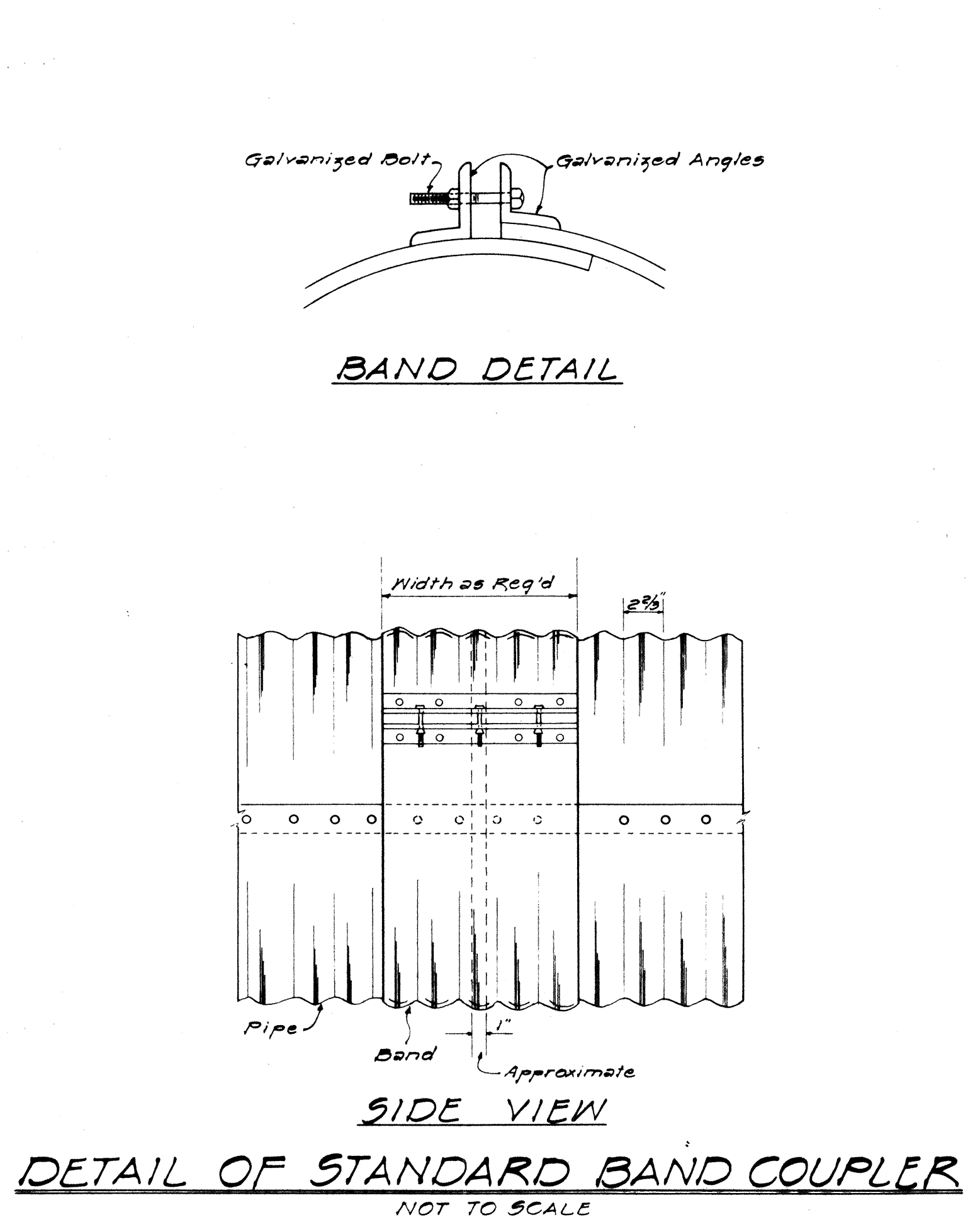
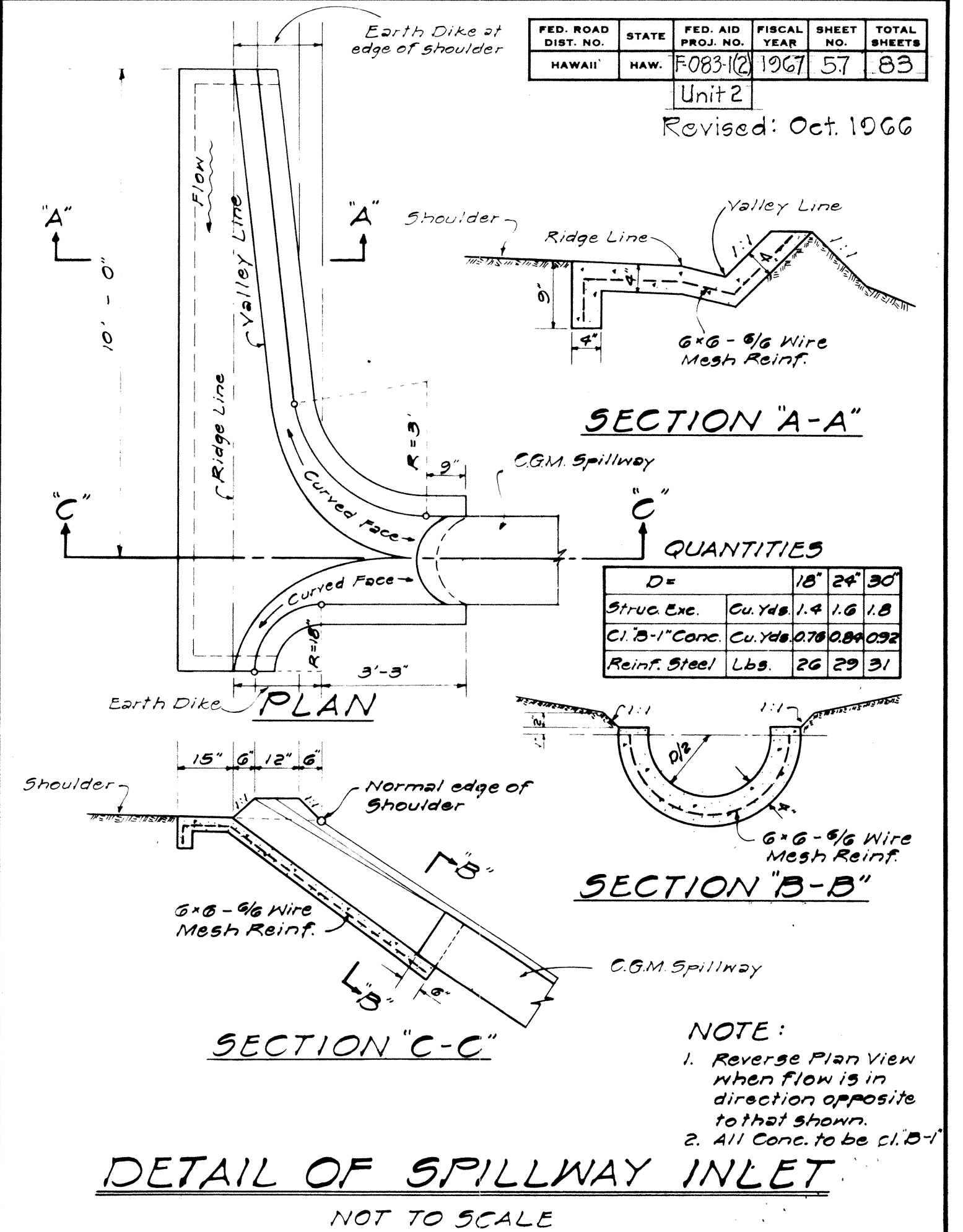
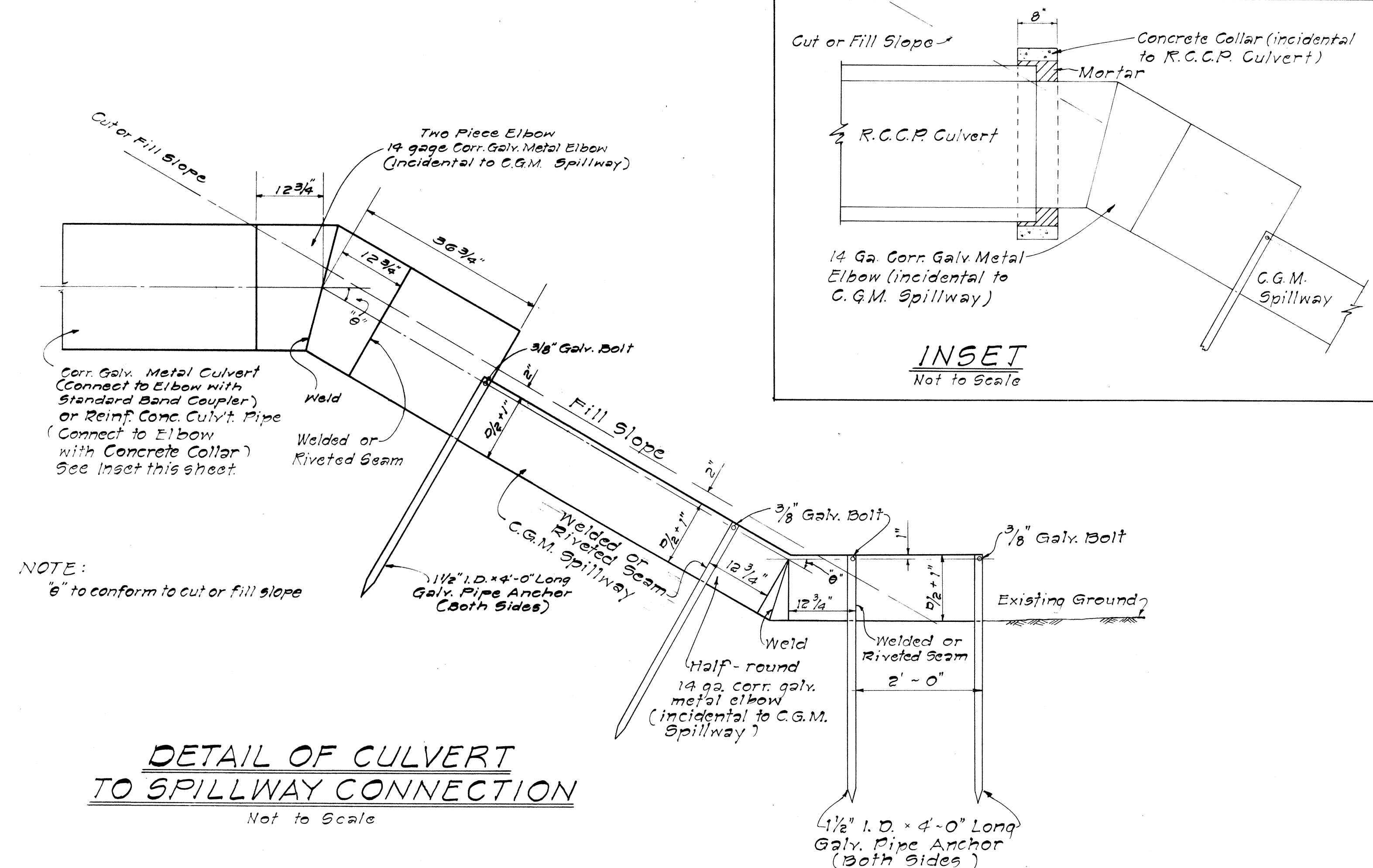
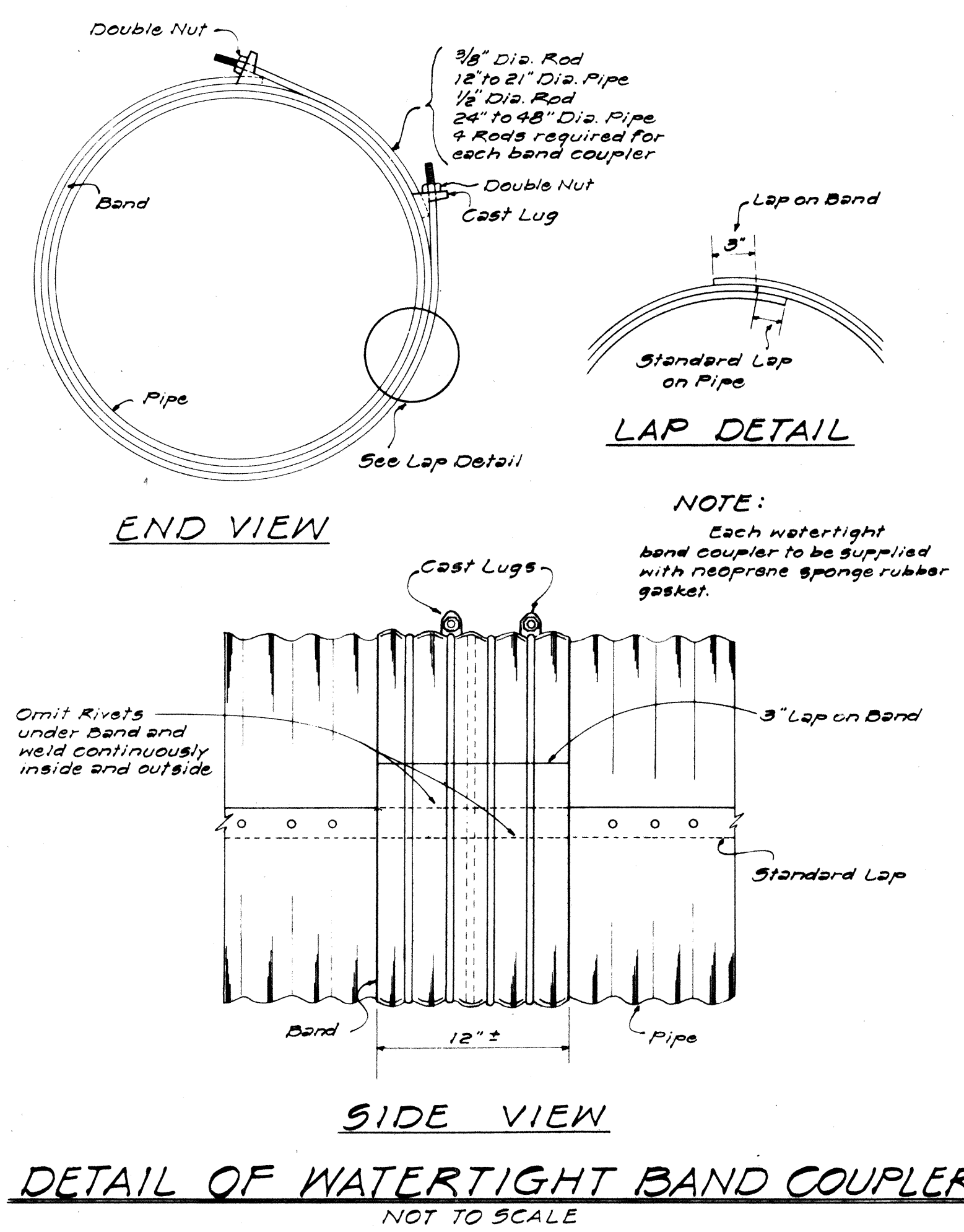
STEEL FRAME AND GRATES
AND STORM DRAIN MANHOLES

Scales: As Noted Date: May, 1967

SHEET NO. 11 OF 15 SHEETS

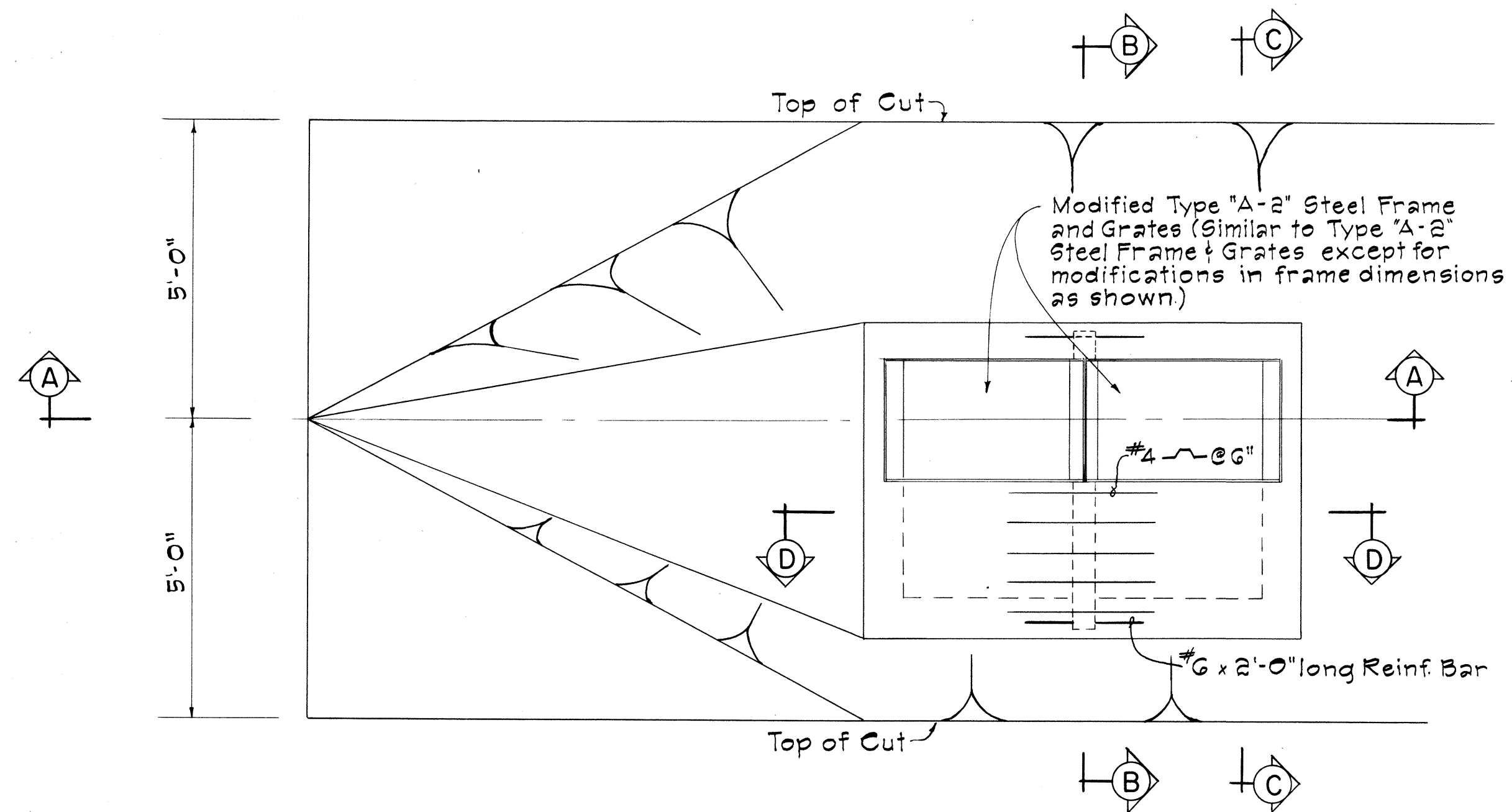
54

D-1-A

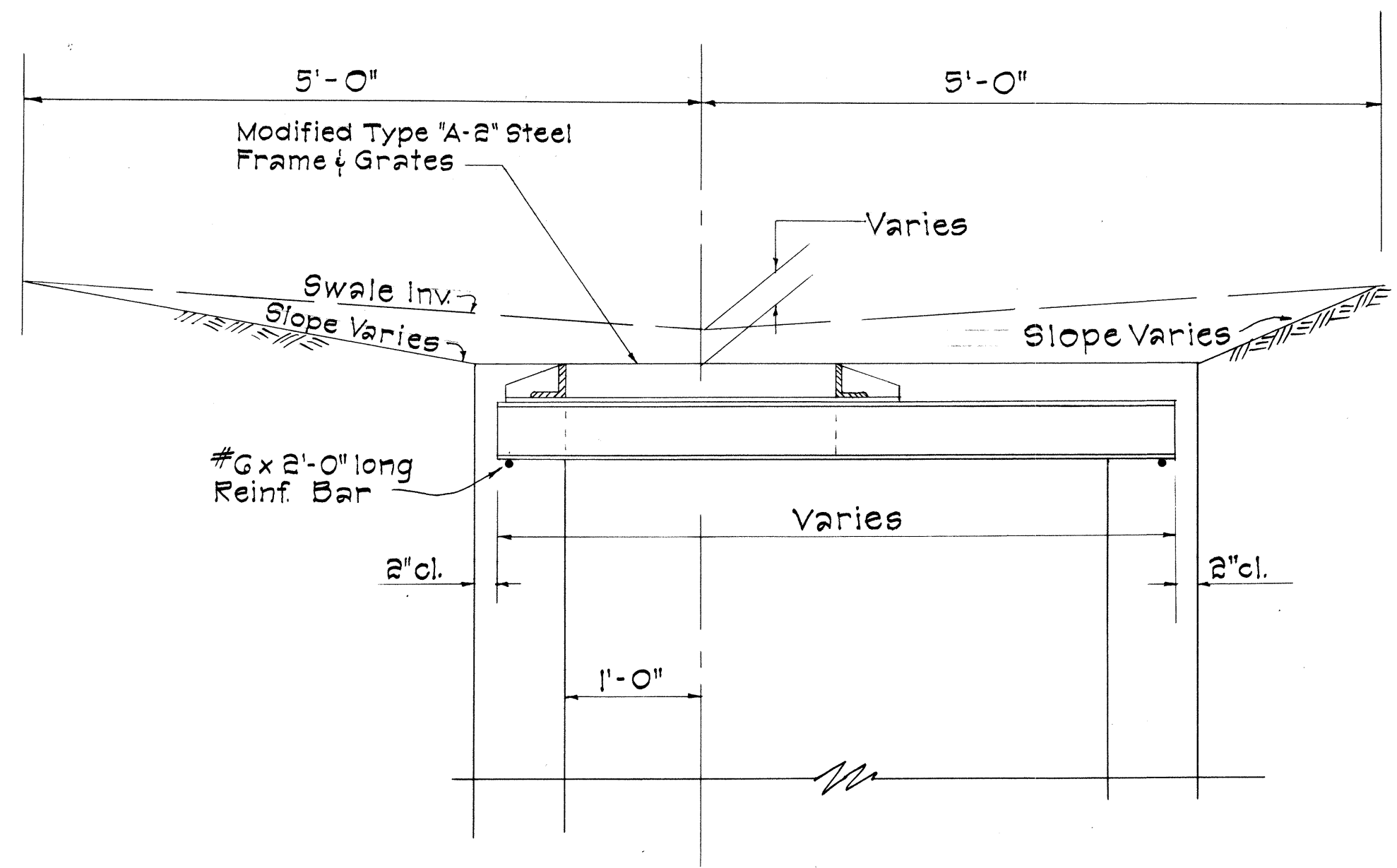


SURVEY PLOTTED BY: R.Y.
DRAWN BY: R.Y.
DESIGNED BY: O.M.
NOTE BOOK: 5-24-61
CHECKED BY: O.M.

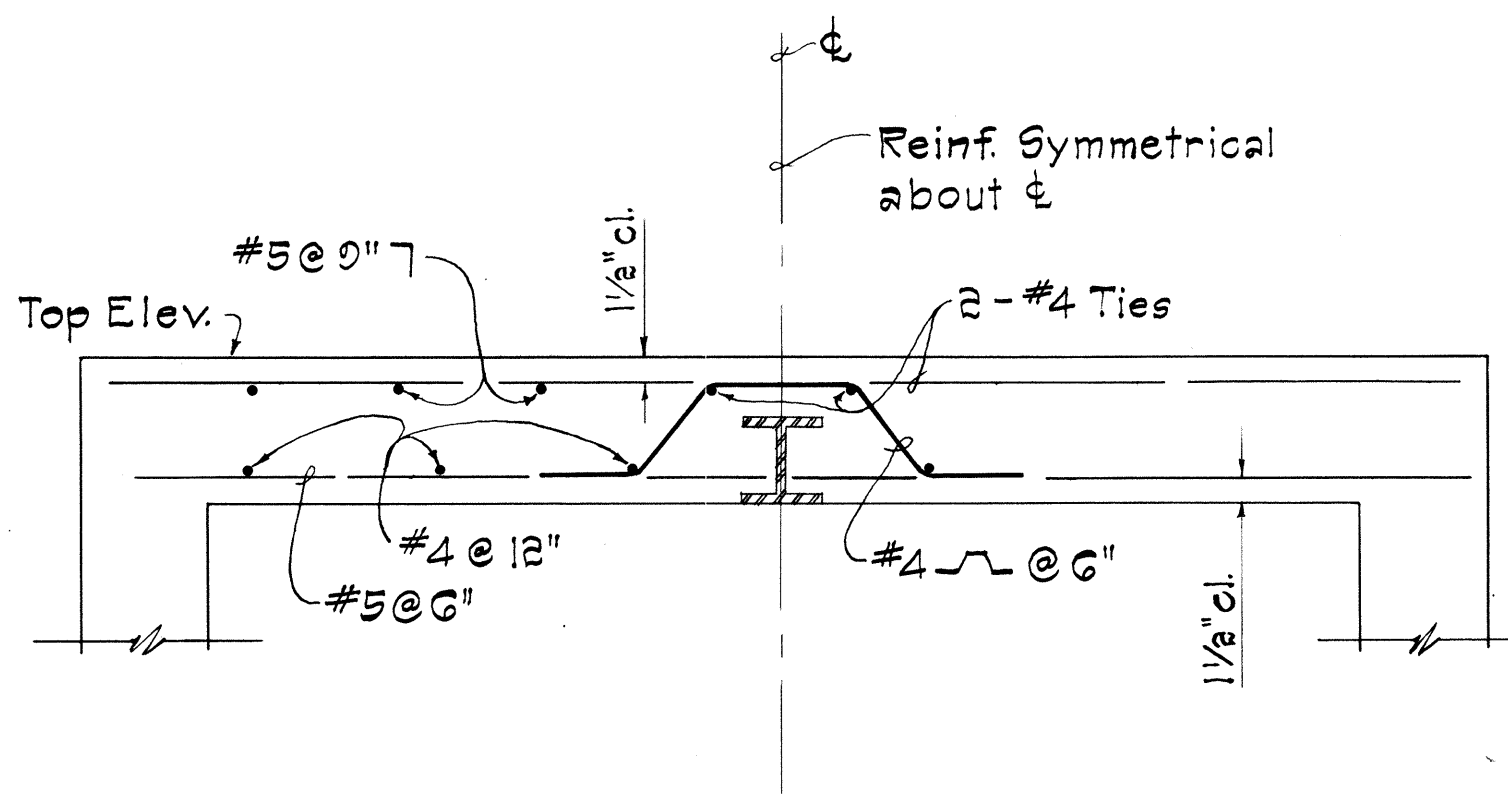
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	F-083-1(2) Unit 2	1967	58	83



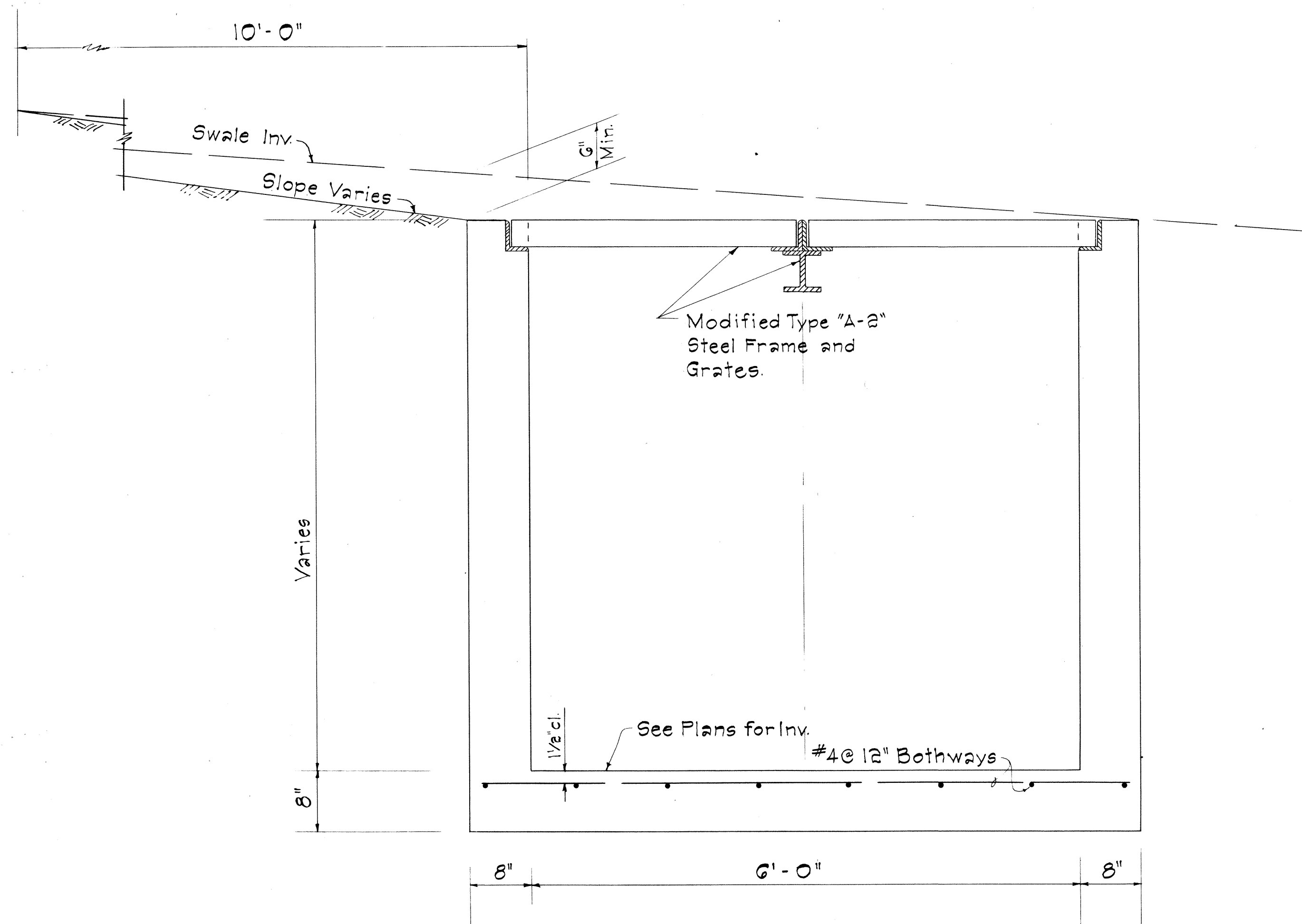
PLAN
Scale: 1/2" = 1'-0"



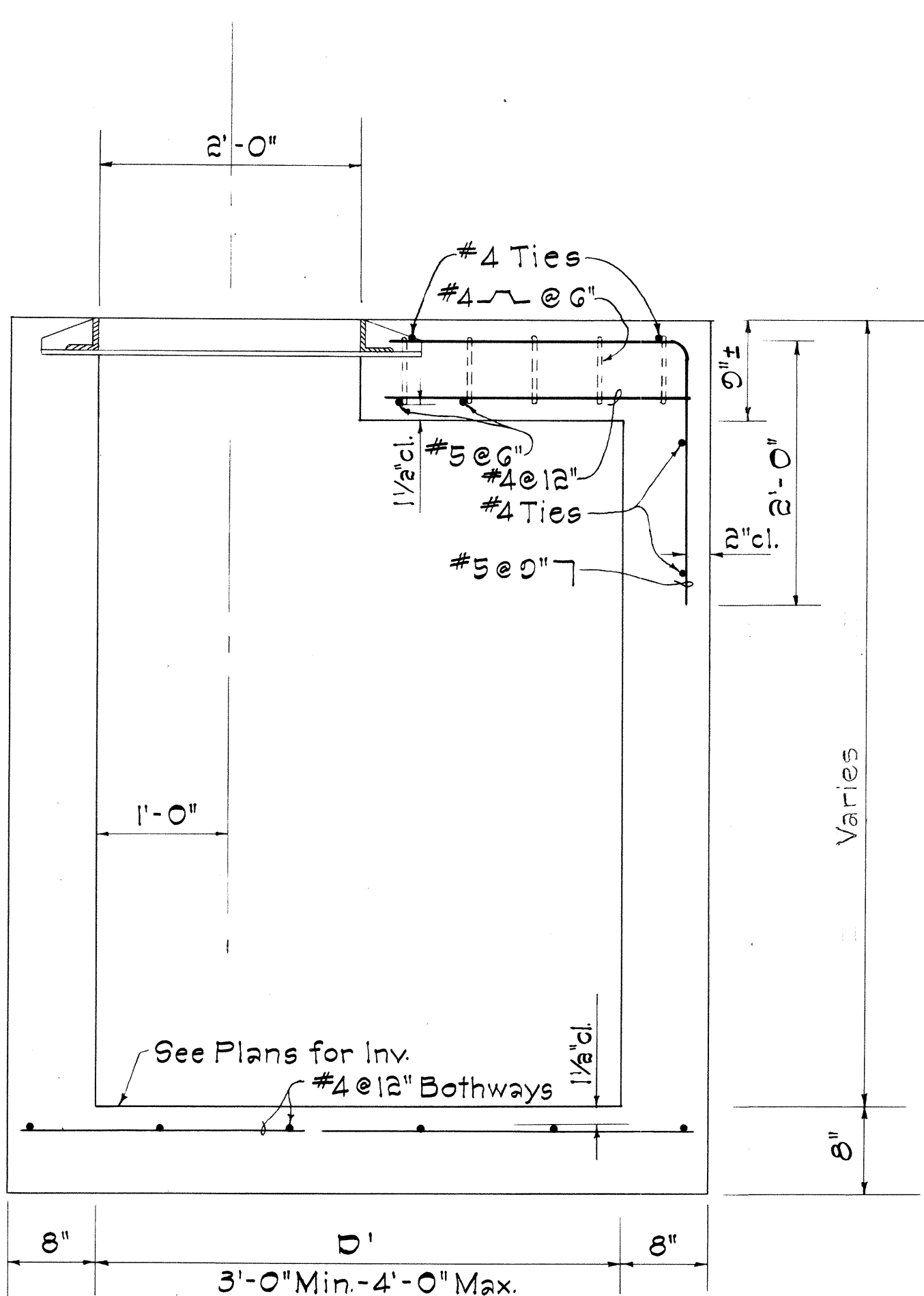
SECTION B-B
Scale: 1" = 1'-0"



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



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



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

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
DRAINAGE DETAILS
MEDIAN DROP INTAKE

KAMEHAMEHA HIGHWAY
Proj. No. F-083-1(2), Unit 2

Scales: As Noted Date: May, 1967

SHEET No. 15 OF 15 SHEETS

58

SURVEY PLOTTED BY
DATE

DESIGNED BY
DATE

QUANTITIES BY
DATE

NOTED BY
DATE

ORIGINAL
PLAN
NOTE BOOK
No.

STRUCTURES			PIPE CULVERTS		ESTIMATED																								QUANTITIES										REMARKS	
NUMBER	TYPE	STATION	ITEM	NO.	14.01	20A.01	46.101	46.201	48.01	52.30	54A.02	58.120	59A.018	59A.162	59A.258	59A.354		97.10	98.01	98.02	98.07	128.01	128.02																	
			FROM	TO	Structure Excavation Other Than at Bridges	Untreated Base for Pipe Foundation	Class A-1 Concrete Other Than in Bridges	Class B-1 Concrete Other Than in Bridges	Reinforcing Steel Other Than in Bridges	Filter Material For Underdrains	Type "A-2" Steel Frame and Grates	30" RCCP, C.I. III	18" CGMP, 14 Ga. or 18" RCCP, C.I. III	24" CGMP, 14 Ga. or 24" RCCP, C.I. III	30" CGMP, 14 Ga. or 30" RCCP, C.I. III	36" CGMP, 12 Ga. or 36" RCCP, C.I. III		Brickwall for SDMH	Type "A" C.I. Frame and Cover	Type "B" C.I. Frame and Cover	Type "C" C.I. Frame and Grating	6-inch Perforated Underdrain Pipe	Cleanout																	
			UNIT	USED	C.Y.	C.Y.	C.Y.	C.Y.	Lbs.	C.Y.	Sq.	L.F.	L.F.	L.F.	L.F.	L.F.		L.F.	Sq.	Sq.	Sq.	L.F.	Sq.																	
	Reconstructed M. H.	39+66±			10		2.4		47																															
	Type "C" C.B.	40+03 Rt.			44	4	6.0		108					36						1																				
	Type "D" SDMH	41+25 Lt.			181	17		0.7	31					148				6	1																					
	Median CDI	41+50 Rt.			43	7	4.4		118		1			64																										
	Type "A" C.B.	44+25 Lt.			63	6	8.3		145					54						1																				
	Type "C" Grated CDI	45+88 Rt.			36	6		1.5					62								1																			
	Type "E" S.D.M.H.	46+35 Lt.			25	1		2.9	125			10						4	1																					
	Median CDI	46+44 Rt.			108	13	3.5	0.6	157		1			20	86																									
	Type "E" SDMH	49+57 Rt.			140	8		3.4	170						60			4	1																					
	Type "C" C.B.	51+12 Lt.			65	6	6.4		108					58						1																				
	Type "E" SDMH	51+12 Rt.			310	21		2.9	125						152			4	1																					
	Longitudinal Underdrain		51+12	53+00	57					57												186	1																	
	Type "E" SDMH	53+75 Rt.			580	36		2.5	125						262			4	1																					
	Connection to Existing	53+81 ±			8	1								14																										
	Transverse Underdrain		54+50	55+00	9					9												46																		
	Type "A" C.B.	54+61 Rt.			39	2	7.5		145					24						1																				
	Type "C" C.B.	54+61 Lt.			56	5	6.2		108					50						1																				
	Type "C" SDMH	54+61			141	10	5.4		190					84					1																					
	Type "C" C.B.	57+00 Lt.			53		6.3		108					50						1																				
	Median CDI	57+00			243	25	4.9		118		1			224																										
	Longitudinal Underdrain		57+00	60+00	91					91												298	2																	
	Type "B" C.B.	61+00 Lt.			353		6.5		108					398						1																				
	Longitudinal Underdrain		61+00	64+50	102					102												334	2																	
	Type "B" C.B.	63+60 Lt.			238		6.9		108					254						1																				

NOT A PART OF CONTRACT DRAWINGS

